${\bf MoG~model~with~d=100,~q=10,~and~n=m=10^5}$						
	$\mu$ -deformation			$\Sigma_{ii}$ -deformation		
Statistic	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)
$t_{ m SW}$	$0.02814^{+0.0099}_{-0.012}$	$0.03797^{+0.009}_{-0.01}$	950	$0.00918^{+0.0025}_{-0.0035}$	$0.01247^{+0.0022}_{-0.0026}$	1022
$t_{\overline{ ext{KS}}}$	$\begin{array}{c} \textbf{0.00231}_{-0.012}^{+0.0027} \\ \textbf{0.00222}_{-0.00084}^{+0.0067} \\ 0.02341_{-0.0087}^{+0.0067} \end{array}$	$0.00307^{+0.00073}_{-0.00077}$	1541	$0.00051^{+0.0002}$	$0.00073^{+0.0002}_{-0.0002}$ $0.01068^{+0.0013}_{-0.0016}$	1689
$t_{ m SKS}$	$0.02341^{+0.0067}_{-0.0087}$		1475	$0.00812_{-0.0024}^{+0.0016}$	$0.01068^{+0.0013}_{-0.0016}$	1557
$t_{ m FGD}$		$0.03148^{+0.0061}_{-0.0069}$ $0.05066^{+0.011}_{-0.012}$	20712	$\begin{array}{c} 0.00812^{+0.0016}_{-0.0024} \\ 0.01263^{+0.0031}_{-0.0038} \\ 0.00722^{+0.0022}_{-0.0024} \\ \end{array}$	$0.01631_{-0.0029}^{+0.0024} \\ 0.00915_{-0.002}^{+0.0019}$	18446
$t_{ m MMD}$		$0.04577^{+0.0003}_{-0.0076}$	10677	$0.00722^{+0.0022}_{-0.0024}$	$0.00915^{+0.0019}_{-0.002}$	11691
$t_{ m LLR}$	$\begin{array}{c} 0.03601_{-0.01}^{+0.01} \\ 2e - 05_{-1e-05}^{+2e-05} \end{array}$	$4e - 05^{+1}_{-2}e^{-05}_{-05}$	24750	$0.0^{+1e-05}_{-0}$	$1e - 05^{+0}_{-1e-05}$	34527
$\Sigma_{i \neq j}$ -deformation				$pow_+$ -deformation		
Statistic	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}$	t (s)	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\text{CL}}^{\text{pow}_+}$	t (s)
$t_{ m SW}$	$0.00192^{+0.00045}_{-0.00066}$	$\begin{array}{c} 0.00257^{+0.00035}_{-0.00046} \\ \textbf{0.00025}^{+6e-05}_{-8e-05} \\ 0.0018^{+0.00034}_{-0.0004} \\ 0.00189^{+0.00029}_{-0.00036} \\ 0.00366^{+0.00058}_{-0.00064} \\ 0.0^{+0}_{-0.00064} \end{array}$	1078	$0.00368^{+0.001}_{-0.0014}$	$0.00498^{+0.00086}_{-0.001}$	1026
$t_{\overline{ ext{KS}}}$	$\begin{array}{c} -0.00000\\ 0.00017^{+7e-05}_{-8e-05}\\ 0.00132^{+0.00039}_{-0.00049}\\ 0.00144^{+0.00037}_{-0.00044}\\ \end{array}$	$0.00025^{+6\mathrm{e}-05}_{-8\mathrm{e}-05}$	1783	$\begin{array}{c} -0.0014 \\ 0.00018^{+8e-05}_{-7e-05} \\ 0.00331^{+0.0006}_{-0.00092} \end{array}$	$\begin{array}{c} \textbf{0.00027} + \textbf{7e-05} \\ \textbf{0.00027} + \textbf{7e-05} \\ \textbf{-8e-05} \\ 0.0043 + 0.00047 \\ 0.00652 + 0.00098 \\ 0.00652 + 0.00012 \\ 0.00012 \\ \end{array}$	1743
$t_{ m SKS}$	$0.00132^{+0.00039}_{-0.00049}$	$0.0018^{+0.00034}_{-0.0004}$	1732	$0.00331^{+0.0006}_{-0.00092}$	$0.0043^{+0.00047}_{-0.00058}$	1594
$t_{ m FGD}$	$0.00144^{+0.00037}_{-0.00044}$	$0.00189^{+0.00029}_{-0.00036}$	20512	$0.00505^{+0.0012}_{-0.0016}$	$0.00652^{+0.00098}_{-0.0012}$	19149
$t_{ m MMD}$	$0.00289^{+0.00067}_{-0.00084}$	$0.00366^{+0.00058}_{-0.00064}$	12093	$0.00263^{+0.00077}_{-0.00088}$	$0.0033^{+0.0007}_{-0.00071}$	12093
$t_{ m LLR}$	$0.0^{+0}_{-0}$	$0.0^{+0}_{-0}$	33812	$0.0^{+0}_{-0}$	$0.0^{+0}_{-0}$	30414
$pow\deformation$				$\mathcal{N} ext{-} ext{deformation}$		
Statistic	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}^{\mathrm{pow}_{-}}$	t (s)	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}^{\mathcal{N}}$	t (s)
$t_{ m SW}$	$0.00374^{+5}_{-0.0014}$	$0.00505^{+5}_{-0.0011}$	935	$0.17253^{+0.022}_{-0.036}$	$0.20139^{+0.016}_{-0.021}$	838
$t_{\overline{ ext{KS}}}$		0.00000000000000000000000000000000000	1753	$\begin{array}{c} \textbf{0.00606} \begin{array}{c} +0.0029 \\ -0.0031 \\ 0.14876 \begin{array}{c} +0.02 \\ -0.031 \\ \end{array} \\ \end{array}$	$0.00921_{-0.003}^{+0.0027}$	1589
$t_{ m SKS}$	$\begin{array}{c} \textbf{0.00018}_{-7\text{e}-05}^{+3\text{e}-35} \\ 0.00331_{-0.00098}^{+0.00064} \end{array}$	$0.0043^{+0.00051}_{-0.00063}$	1605	$0.14876^{+0.02}_{-0.031}$	$0.17443^{+0.016}_{-0.021}$	1363
$t_{ m FGD}$	$0.00504^{+0.0012}_{-0.0016}$	$0.00655^{+0.001}_{-0.0012}$	19105	$0.15458^{+0.018}_{-0.027}$	$0.17576^{+0.014}_{-0.016}$	15222
$t_{ m MMD}$	$0.00257^{+0.00071}_{-0.0008}$	$0.00329^{+0.00064}_{-0.00066}$	12099	$0.67808^{+0.07}_{-0.11}$	$0.7615_{-0.069}^{+0.053}$	8142
$t_{ m LLR}$	$0.0^{+0}_{-0}$	$0.0_{-0}^{+0}$	39144	-	-	-
$\mathcal{U} ext{-} ext{deformation}$				Timing		
Statistic	$\epsilon_{95\% ext{CL}}$	$\epsilon_{99\%\mathrm{CL}}^{\mathcal{U}}$	t (s)	$t^{\text{null}}$ (s)		
$t_{ m SW}$	$\begin{array}{c} 0.2996^{+0.036}_{-0.063} \\ \textbf{0.00925}^{+0.0047}_{-0.005} \\ 0.25702^{+0.037}_{-0.054} \\ 0.26668^{+0.031}_{-0.044} \end{array}$	$0.34972^{+0.028}_{-0.038}$ $0.01423^{+0.0043}_{-0.0048}$ $0.30137^{+0.028}_{-0.036}$	665	476		
$t_{\overline{ ext{KS}}}$	$0.00925^{+0.0047}_{-0.005}$	$0.01423^{+0.0043}_{-0.0048}$	1590	1594		
$t_{ m SKS}$	$0.25702^{+0.037}_{-0.054}$	$0.30137^{+0.028}_{-0.036}$	1316	1753		
$t_{ m FGD}$	$0.26668^{+0.031}_{-0.044}$	$0.3051_{-0.02}^{+0.022}$	12103	39629		
$t_{ m MMD}$	$1.17598_{-0.19}^{+0.12}$	$1.32064_{-0.12}^{+0.093}$	9105	18930		
$t_{ m LLR}$	_	-	-	_		