

$\mathbf{n} = \mathbf{m} = 10^4$						
Statistic	$\mu$ -deformation			$\Sigma_{ii}$ -deformation		
	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)
$t_{LLR}$	$0.00244^{+0.0015}_{-0.0015}$	$0.00345^{+0.0015}_{-0.0015}$	8118	$0.0005^{+0.00035}_{-0.00035}$	$0.0007^{+0.00035}_{-0.00035}$	9217
$d_{MMD^2_u}$	$0.02696^{+0.015}_{-0.013}$	$0.0351^{+0.014}_{-0.011}$	8528	$0.01695^{+0.0078}_{-0.0074}$	$0.02212^{+0.0073}_{-0.0062}$	8703
$\overline{D}$	$0.03575^{+0.012}_{-0.015}$	$0.04605^{+0.011}_{-0.012}$	832	$0.01795^{+0.0061}_{-0.0076}$	$0.02313^{+0.0057}_{-0.0062}$	881
$\widetilde{W}$	$0.03802^{+0.011}_{-0.013}$	$0.0489^{+0.0099}_{-0.011}$	856	$0.01458^{+0.0043}_{-0.0051}$	$0.01856^{+0.0039}_{-0.004}$	822
$\widetilde{D}$	$0.03957^{+0.011}_{-0.014}$	$0.05019^{+0.01}_{-0.011}$	1037	$0.01894^{+0.0059}_{-0.0072}$	$0.02379^{+0.0053}_{-0.0061}$	1140
$d_{FGD_\infty}$	$0.04169^{+0.014}_{-0.016}$	$0.05238^{+0.012}_{-0.013}$	11535	$0.01306^{+0.0042}_{-0.005}$	$0.01641^{+0.0039}_{-0.0039}$	10028
Statistic	$\Sigma_{i \neq j}$ -deformation			pow <sub>+</sub> -deformation		
	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)
$t_{LLR}$	$2e - 05^{+1e-05}_{-1e-05}$	$3e - 05^{+1e-05}_{-2e-05}$	12852	$0.00014^{+0.0001}_{-0.0001}$	$0.0002^{+0.0001}_{-0.0001}$	9982
$d_{FGD_\infty}$	$0.00153^{+0.00046}_{-0.00062}$	$0.00193^{+0.00039}_{-0.00048}$	8937	$0.00319^{+0.001}_{-0.0012}$	$0.00401^{+0.0009}_{-0.00095}$	8635
$d_{MMD^2_u}$	$0.00949^{+0.0046}_{-0.0044}$	$0.01252^{+0.0043}_{-0.0037}$	9010	$0.00213^{+0.0012}_{-0.001}$	$0.00278^{+0.0011}_{-0.00089}$	9608
$\widetilde{W}$	$0.01616^{+0.0048}_{-0.0061}$	$0.02132^{+0.0041}_{-0.0049}$	822	$0.00319^{+0.00091}_{-0.0011}$	$0.00408^{+0.0008}_{-0.00089}$	874
$\widetilde{D}$	$0.01871^{+0.0064}_{-0.0075}$	$0.02465^{+0.0058}_{-0.0067}$	1189	$0.00365^{+0.00095}_{-0.0012}$	$0.00455^{+0.00087}_{-0.00099}$	1269
$\overline{D}$	$1.01019^{+0.003}_{-0.0019}$	$1.01415^{+1e-05}_{-0.002}$	727	$0.00377^{+0.0011}_{-0.0015}$	$0.0048^{+0.001}_{-0.0011}$	937
Statistic	pow <sub>-</sub> -deformation			$\mathcal{N}$ -deformation		
	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)
$t_{LLR}$	$0.00018^{+0.0001}_{-0.0001}$	$0.00023^{+0.00011}_{-0.0001}$	9089	NaN	NaN	NaN
$d_{MMD^2_u}$	$0.00207^{+0.0012}_{-0.0011}$	$0.00273^{+0.0012}_{-0.00095}$	9932	$0.79853^{+0.11}_{-0.16}$	$0.91959^{+0.078}_{-0.098}$	$6.2e+03$
$d_{FGD_\infty}$	$0.00325^{+0.0014}_{-0.0016}$	$0.00409^{+0.0012}_{-0.0012}$	12397	$0.15873^{+0.02}_{-0.036}$	$0.17714^{+0.017}_{-0.022}$	$7.8e+03$
$\widetilde{W}$	$0.00326^{+5}_{-0.0014}$	$0.00416^{+5}_{-0.0011}$	808	$0.33188^{+0.045}_{-0.065}$	$0.37703^{+0.037}_{-0.044}$	$7e+02$
$\widetilde{D}$	$0.0036^{+0.0011}_{-0.0014}$	$0.00449^{+0.001}_{-0.0012}$	1261	$0.36186^{+0.052}_{-0.076}$	$0.40547^{+0.046}_{-0.057}$	$1e+03$
$\overline{D}$	$0.00375^{+0.0013}_{-0.0017}$	$0.00477^{+0.0012}_{-0.0013}$	943	$0.36811^{+0.063}_{-0.087}$	$0.42005^{+0.049}_{-0.06}$	$7.6e+02$
Statistic	$\mathcal{U}$ -deformation			Timing		
	$\epsilon_{95\%CL}$	$\epsilon_{99\%CL}$	$t$ (s)	$t^{\text{null}}$ (s)		
$d_{FGD_\infty}$	$0.27255^{+0.039}_{-0.059}$	$0.30784^{+0.029}_{-0.038}$	$7.3e+03$	16484		
$\overline{D}$	$0.64154^{+0.1}_{-0.15}$	$0.73314^{+0.076}_{-0.11}$	$7.4e+02$	789		
$d_{MMD^2_u}$	$1.39355^{+0.19}_{-0.28}$	$1.59398^{+0.15}_{-0.18}$	$7.1e+03$	14531		
$\widetilde{D}$	$0.62476^{+0.091}_{-0.13}$	$0.7049^{+0.075}_{-0.097}$	$9.3e+02$	1044		
$\widetilde{W}$	$0.57515^{+0.082}_{-0.11}$	$0.6534^{+0.065}_{-0.077}$	$6.6e+02$	337		
$t_{LLR}$	NaN	NaN	NaN	-		