

Cut Name	Official Count (Eff)	MA5 Count (Eff)
MET Cleaning	190.6 (xxx)	190.6 (xxx)
No Lepton	190.3 (99%)	190.6 (100%)
NJets>2	188.1 (98%)	188.49 (98%)
$H_T > 500$	187.6 (99%)	188.07 (99%)
$\cancel{H}_T > 200$	158.7 (84%)	159.72 (84%)
Min $\Delta(\phi)$	130.8 (82%)	131.11 (82%)

Table 1: The cut flow for the baseline selection in CMS SUS-13-012 for the working point T1qqqq. The second column is the official account as reported by <https://twiki.cern.ch/twiki/pub/CMSPublic/PhysicsResultsSUS13012/T1qqqq.pdf>, and our own results are given in column 3. The official counts are normalized to luminosity=19.5/fb and  $\sigma=10.17$  pb, and our counts are normalized to match the official count after the first cut, MET Cleaning.

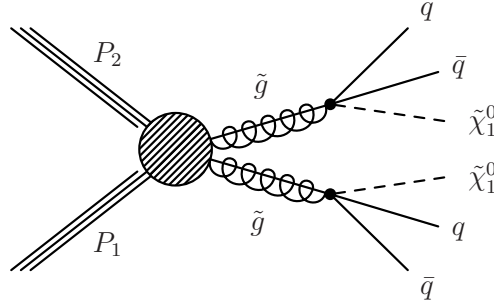


Figure 1: Diagram of the dominant SUSY production mechanism for the T1qqqq working point.

Signal Region Name	Official	MA5
NJets3-5, $H_T$ 500-800, $\cancel{H}_T$ 200-300	1.4	1.21
NJets3-5, $H_T$ 500-800, $\cancel{H}_T$ 300-450	2.4	2.08
NJets3-5, $H_T$ 500-800, $\cancel{H}_T$ 450-600	1.7	1.36
NJets3-5, $H_T$ 500-800, $\cancel{H}_T > 600$	0.6	0.60
NJets3-5, $H_T$ 800-1000, $\cancel{H}_T$ 200-300	2.1	1.81
NJets3-5, $H_T$ 800-1000, $\cancel{H}_T$ 300-450	2.9	3.75
NJets3-5, $H_T$ 800-1000, $\cancel{H}_T$ 450-600	4.2	3.74
NJets3-5, $H_T$ 800-1000, $\cancel{H}_T > 600$	4.1	4.04
NJets3-5, $H_T$ 1000-1250, $\cancel{H}_T$ 200-300	4.2	3.70
NJets3-5, $H_T$ 1000-1250, $\cancel{H}_T$ 300-450	8.1	6.93
NJets3-5, $H_T$ 1000-1250, $\cancel{H}_T$ 450-600	7.6	7.18
NJets3-5, $H_T$ 1000-1250, $\cancel{H}_T > 600$	10.6	10.63
NJets3-5, $H_T$ 1250-1500, $\cancel{H}_T$ 200-300	3.9	3.64
NJets3-5, $H_T$ 1250-1500, $\cancel{H}_T$ 300-450	7.3	6.74
NJets3-5, $H_T$ 1250-1500, $\cancel{H}_T > 450$	15.6	16.52
NJets3-5, $H_T > 1500$ , $\cancel{H}_T$ 200-300	4.5	4.41
NJets3-5, $H_T > 1500$ , $\cancel{H}_T > 300$	17.9	18.80
NJets6-7, $H_T$ 500-800, $\cancel{H}_T$ 200-300	0.1	0.08
NJets6-7, $H_T$ 500-800, $\cancel{H}_T$ 300-450	0.1	0.05
NJets6-7, $H_T$ 500-800, $\cancel{H}_T > 450$	0.1	0.04
NJets6-7, $H_T$ 800-1000, $\cancel{H}_T$ 200-300	0.3	0.24
NJets6-7, $H_T$ 800-1000, $\cancel{H}_T$ 300-450	0.6	0.51
NJets6-7, $H_T$ 800-1000, $\cancel{H}_T > 450$	0.8	0.71
NJets6-7, $H_T$ 1000-1250, $\cancel{H}_T$ 200-300	0.9	0.91
NJets6-7, $H_T$ 1000-1250, $\cancel{H}_T$ 300-450	1.8	1.74
NJets6-7, $H_T$ 1000-1250, $\cancel{H}_T > 450$	2.8	2.94
NJets6-7, $H_T$ 1250-1500, $\cancel{H}_T$ 200-300	1.2	1.16
NJets6-7, $H_T$ 1250-1500, $\cancel{H}_T$ 300-450	2.4	2.46
NJets6-7, $H_T$ 1250-1500, $\cancel{H}_T > 450$	4.1	5.16
NJets6-7, $H_T > 1500$ , $\cancel{H}_T$ 200-300	2.3	2.56
NJets6-7, $H_T > 1500$ , $\cancel{H}_T > 300$	9.8	11.50
NJets>7, $H_T$ 500-800, $\cancel{H}_T > 200$	0.0	0.0
NJets>7, $H_T$ 800-1000, $\cancel{H}_T > 200$	0.0	0.01
NJets>7, $H_T$ 1000-1250, $\cancel{H}_T > 200$	0.2	0.28
NJets>7, $H_T$ 1250-1500, $\cancel{H}_T > 200$	0.5	0.75
NJets>7, $H_T > 1500$ , $\cancel{H}_T > 200$	2.2	2.69

Table 2: The signal region (SR) counts in CMS SUS-13-012 for the working point T1qqqq after all selection has been applied. Column 2 is the official account obtained through generous correspondence with Christian Sanders, and our own results displayed in column 3. These counts were determined by applying the SR selection to the end of the cut flow featured in table 1.

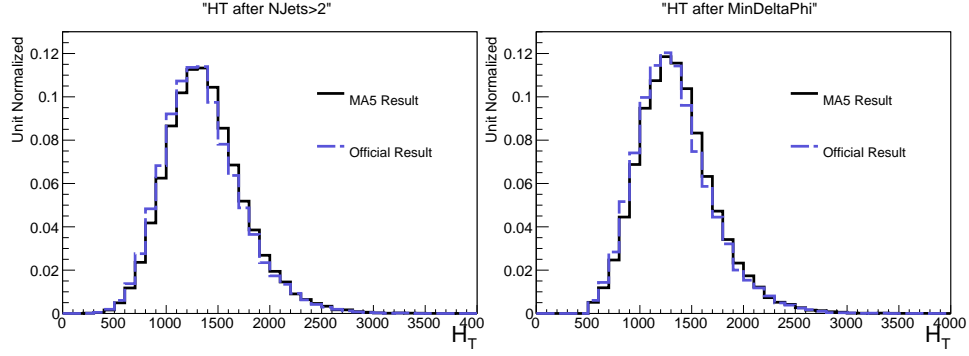


Figure 2: Comparison of the distributions of  $H_T$  between the official and our own samples after the “n-1” cut,  $\text{Min } \Delta(\phi)$  (left), and after all baseline cuts (right), for the T1qqqq working point.

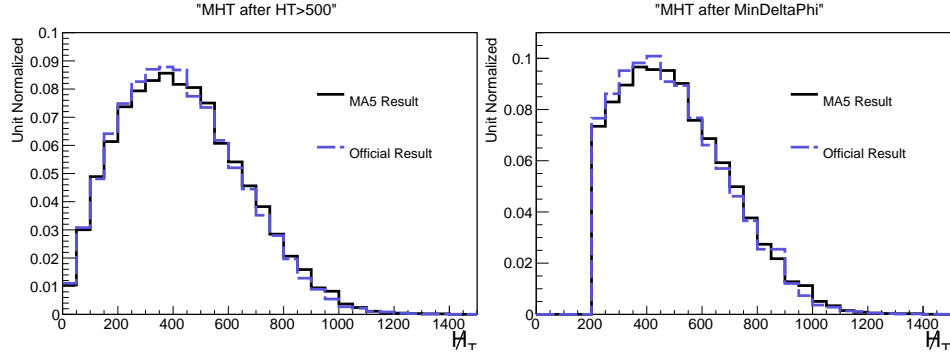


Figure 3: Comparison of the distributions of  $H_T$  between the official and our own samples after the “n-1” cut,  $\text{Min } \Delta(\phi)$  (left), and after all baseline cuts (right), for the T1qqqq working point.

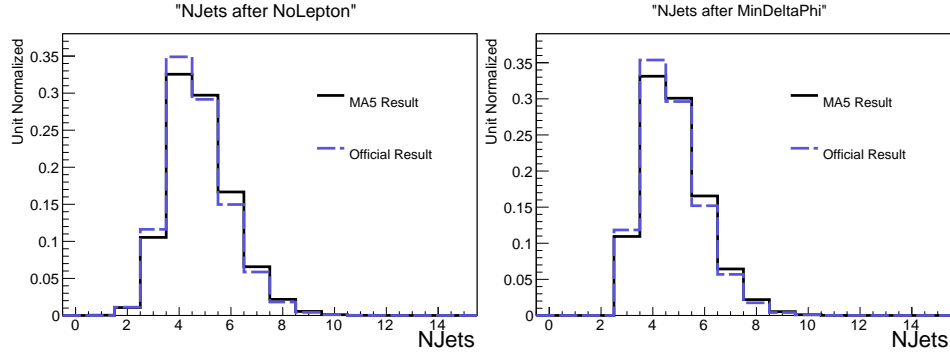


Figure 4: Comparison of the distributions of NJets between the official and our own samples after the “n-1” cut,  $\text{Min } \Delta(\phi)$  (left), and after all baseline cuts (right), for the T1qqqq working point.

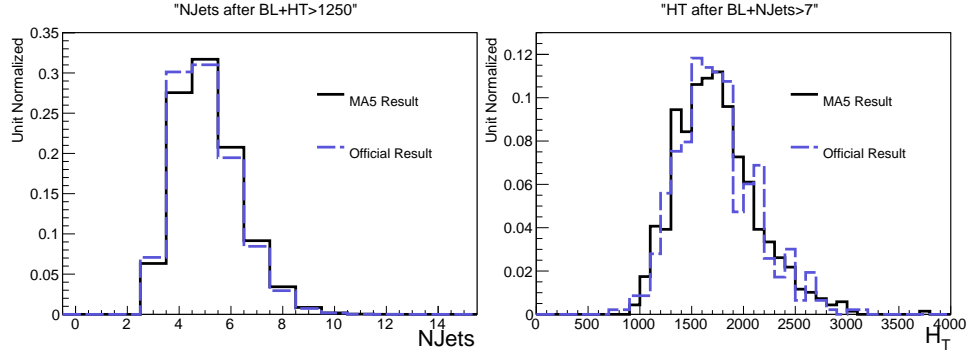


Figure 5: Additional checks: comparison between ours and the official distributions of NJets after  $\text{BL}+H_T > 1250$  cuts (left), and  $H_T$  after  $\text{BL}+\text{NJets} > 7$  cuts (right), for the T1qqqq working point.