

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%)	188.72 (99%)
$H_T > 500$	187.6 (99%)	188.37 (99%)
$\cancel{H}_T > 200$	158.7 (84%)	159.76 (84%)
Min $\Delta(\phi)$	130.8 (82%)	130.96 (81%)

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, a cut which we do not actually perform.

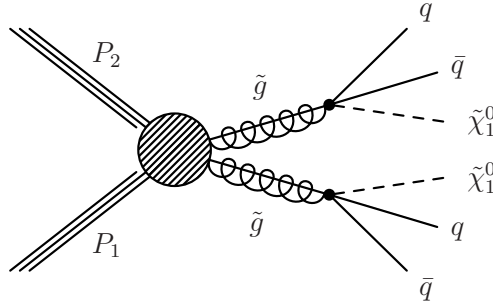


Figure 1: Diagram of the dominant SUSY production mechanism for the T1qqqq working point.

Signal Region Name	Official	MA5
NJets3-5, H_T 500-800, \cancel{H}_T 200-300	1.4	1.11
NJets3-5, H_T 500-800, \cancel{H}_T 300-450	2.4	1.88
NJets3-5, H_T 500-800, \cancel{H}_T 450-600	1.7	1.40
NJets3-5, H_T 500-800, $\cancel{H}_T > 600$	0.6	0.46
NJets3-5, H_T 800-1000, \cancel{H}_T 200-300	2.1	1.80
NJets3-5, H_T 800-1000, \cancel{H}_T 300-450	2.9	3.57
NJets3-5, H_T 800-1000, \cancel{H}_T 450-600	4.2	3.66
NJets3-5, H_T 800-1000, $\cancel{H}_T > 600$	4.1	3.90
NJets3-5, H_T 1000-1250, \cancel{H}_T 200-300	4.2	3.61
NJets3-5, H_T 1000-1250, \cancel{H}_T 300-450	8.1	7.04
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	10.40
NJets3-5, H_T 1250-1500, \cancel{H}_T 200-300	3.9	3.73
NJets3-5, H_T 1250-1500, \cancel{H}_T 300-450	7.3	6.76
NJets3-5, H_T 1250-1500, $\cancel{H}_T > 450$	15.6	16.26
NJets3-5, $H_T > 1500$, \cancel{H}_T 200-300	4.5	4.56
NJets3-5, $H_T > 1500$, $\cancel{H}_T > 300$	17.9	19.14
NJets6-7, H_T 500-800, \cancel{H}_T 200-300	0.1	0.04
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	0.05
NJets6-7, H_T 800-1000, \cancel{H}_T 200-300	0.3	0.26
NJets6-7, H_T 800-1000, \cancel{H}_T 300-450	0.6	0.54
NJets6-7, H_T 800-1000, $\cancel{H}_T > 450$	0.8	0.69
NJets6-7, H_T 1000-1250, \cancel{H}_T 200-300	0.9	0.83
NJets6-7, H_T 1000-1250, \cancel{H}_T 300-450	1.8	1.70
NJets6-7, H_T 1000-1250, $\cancel{H}_T > 450$	2.8	2.83
NJets6-7, H_T 1250-1500, \cancel{H}_T 200-300	1.2	1.35
NJets6-7, H_T 1250-1500, \cancel{H}_T 300-450	2.4	2.37
NJets6-7, H_T 1250-1500, $\cancel{H}_T > 450$	4.1	5.22
NJets6-7, $H_T > 1500$, \cancel{H}_T 200-300	2.3	2.74
NJets6-7, $H_T > 1500$, $\cancel{H}_T > 300$	9.8	11.67
NJets>7, H_T 500-800, $\cancel{H}_T > 200$	0.0	0.00
NJets>7, H_T 800-1000, $\cancel{H}_T > 200$	0.0	0.02
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	0.85
NJets>7, $H_T > 1500$, $\cancel{H}_T > 200$	2.2	2.81

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.

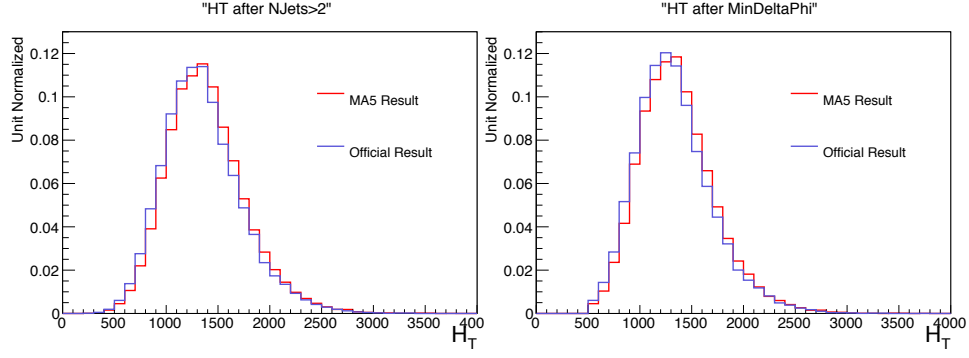


Figure 2: Comparison of the distributions of H_T between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T1qqqq working point.

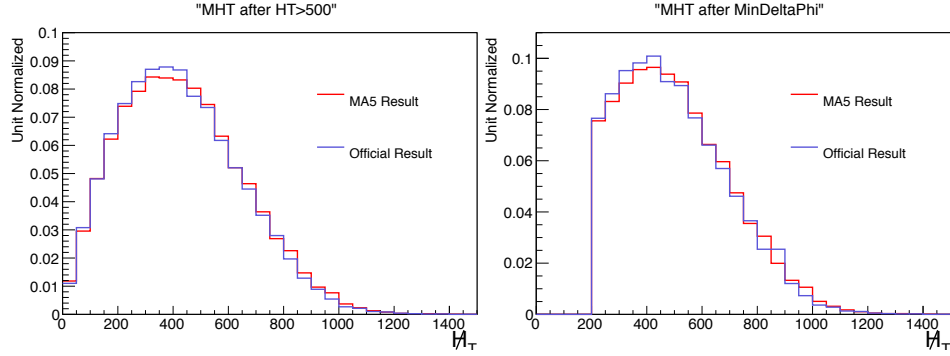


Figure 3: Comparison of the distributions of H_T between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T1qqqq working point.

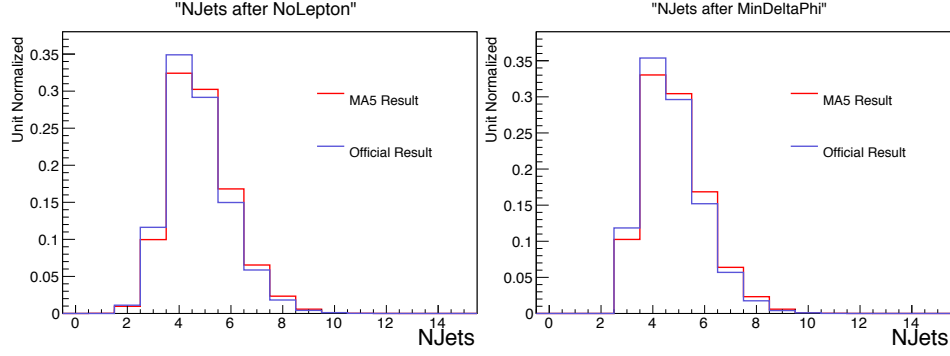


Figure 4: Comparison of the distributions of NJets between the official and our own samples after the “n-1” cut, $\text{Min } \Delta(\phi)$ (left), and after all baseline cuts (right), for the T1qqqq working point.

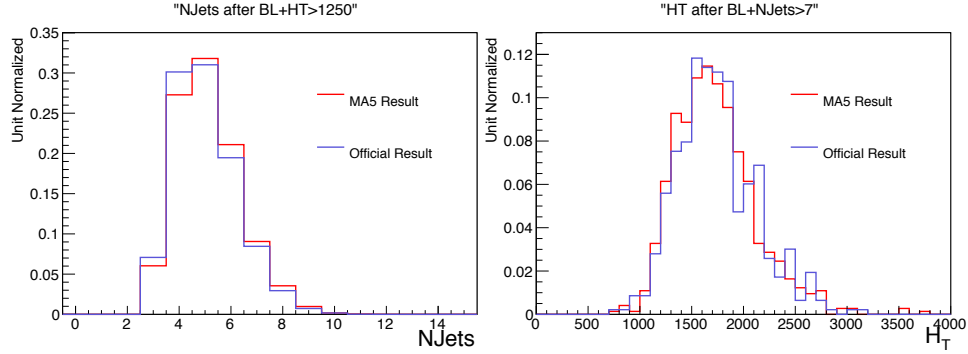


Figure 5: Additional checks: comparison between ours and the official distributions of NJets after $\text{BL}+H_T > 1250$ cuts (left), and H_T after $\text{BL}+\text{NJets} > 7$ cuts (right), for the T1qqqq working point.

Cut Name	Official Count (Eff)	MA5 Count (Eff)
MET Cleaning	190.5 (xxx)	190.5 (xxx)
No Lepton	95.9 (50%)	104.84 (55%)
NJets>2	95.8 (99%)	104.68 (99%)
$H_T > 500$	95.1 (99%)	103.97 (99%)
$\cancel{H}_T > 200$	75.4 (79%)	84.24 (81%)
Min $\Delta(\phi)$	62.3 (82%)	69.33 (82%)

Table 1: The cut flow for the baseline selection in CMS SUS-13-012 for the working point T1tttt. The second column is the official account as reported by <https://twiki.cern.ch/twiki/pub/CMSPublic/PhysicsResultsSUS13012/T1tttt.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, a cut which we do not actually perform.

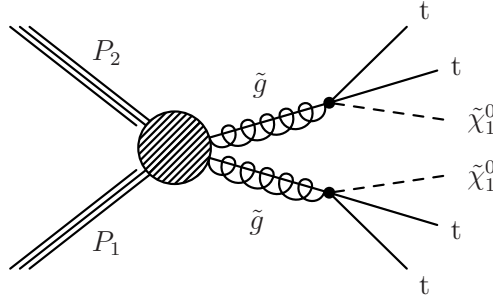


Figure 1: Diagram of the dominant SUSY production mechanism for the T1tttt working point.

Signal Region Name	Official	MA5
NJets3-5, H_T 500-800, \cancel{H}_T 200-300	0.8	0.87
NJets3-5, H_T 500-800, \cancel{H}_T 300-450	1.4	1.32
NJets3-5, H_T 500-800, \cancel{H}_T 450-600	0.8	0.87
NJets3-5, H_T 500-800, $\cancel{H}_T > 600$	0.2	0.24
NJets3-5, H_T 800-1000, \cancel{H}_T 200-300	0.5	0.48
NJets3-5, H_T 800-1000, \cancel{H}_T 300-450	0.7	1.15
NJets3-5, H_T 800-1000, \cancel{H}_T 450-600	1.0	1.09
NJets3-5, H_T 800-1000, $\cancel{H}_T > 600$	0.8	0.81
NJets3-5, H_T 1000-1250, \cancel{H}_T 200-300	0.5	0.62
NJets3-5, H_T 1000-1250, \cancel{H}_T 300-450	1.0	0.81
NJets3-5, H_T 1000-1250, \cancel{H}_T 450-600	0.8	0.87
NJets3-5, H_T 1000-1250, $\cancel{H}_T > 600$	0.9	1.01
NJets3-5, H_T 1250-1500, \cancel{H}_T 200-300	0.4	0.30
NJets3-5, H_T 1250-1500, \cancel{H}_T 300-450	0.5	0.58
NJets3-5, H_T 1250-1500, $\cancel{H}_T > 450$	0.8	0.90
NJets3-5, $H_T > 1500$, \cancel{H}_T 200-300	0.3	0.43
NJets3-5, $H_T > 1500$, $\cancel{H}_T > 300$	0.9	1.05
NJets6-7, H_T 500-800, \cancel{H}_T 200-300	0.9	0.76
NJets6-7, H_T 500-800, \cancel{H}_T 300-450	1.2	1.03
NJets6-7, H_T 500-800, $\cancel{H}_T > 450$	0.6	0.54
NJets6-7, H_T 800-1000, \cancel{H}_T 200-300	1.5	1.34
NJets6-7, H_T 800-1000, \cancel{H}_T 300-450	2.5	2.34
NJets6-7, H_T 800-1000, $\cancel{H}_T > 450$	2.5	2.60
NJets6-7, H_T 1000-1250, \cancel{H}_T 200-300	1.8	1.76
NJets6-7, H_T 1000-1250, \cancel{H}_T 300-450	3.4	3.50
NJets6-7, H_T 1000-1250, $\cancel{H}_T > 450$	4.5	5.39
NJets6-7, H_T 1250-1500, \cancel{H}_T 200-300	1.4	1.51
NJets6-7, H_T 1250-1500, \cancel{H}_T 300-450	2.2	2.49
NJets6-7, H_T 1250-1500, $\cancel{H}_T > 450$	2.8	3.22
NJets6-7, $H_T > 1500$, \cancel{H}_T 200-300	1.1	1.16
NJets6-7, $H_T > 1500$, $\cancel{H}_T > 300$	3.4	4.18
NJets>7, H_T 500-800, $\cancel{H}_T > 200$	0.2	0.15
NJets>7, H_T 800-1000, $\cancel{H}_T > 200$	1.9	1.69
NJets>7, H_T 1000-1250, $\cancel{H}_T > 200$	5.7	6.77
NJets>7, H_T 1250-1500, $\cancel{H}_T > 200$	5.9	7.51
NJets>7, $H_T > 1500$, $\cancel{H}_T > 200$	6.0	7.83

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.

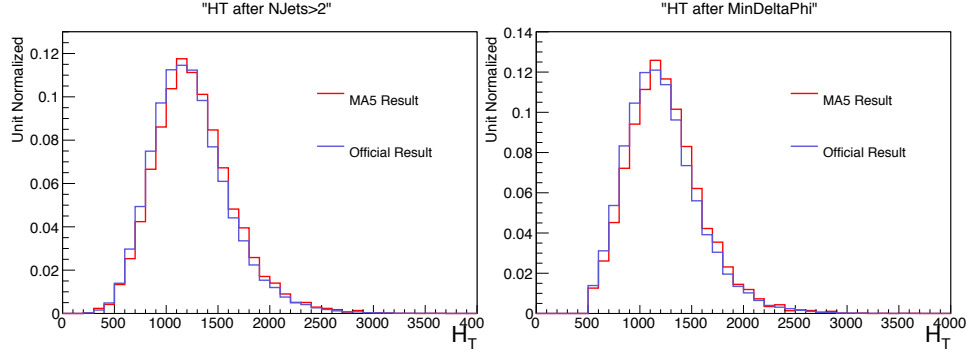


Figure 2: Comparison of the distributions of H_T between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T1tttt working point.

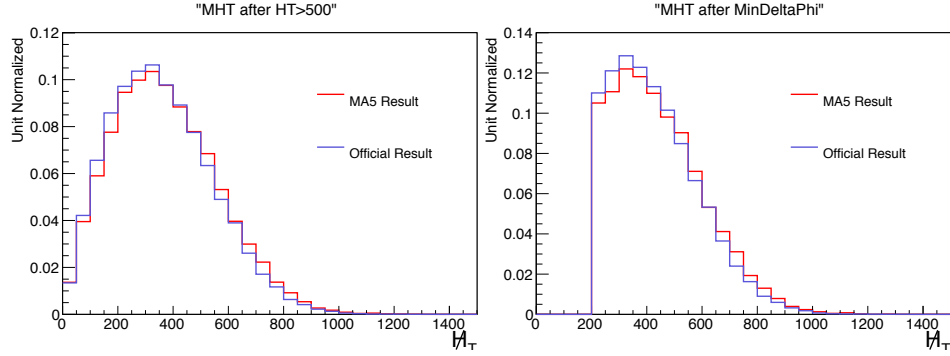


Figure 3: Comparison of the distributions of H_T between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T1tttt working point.

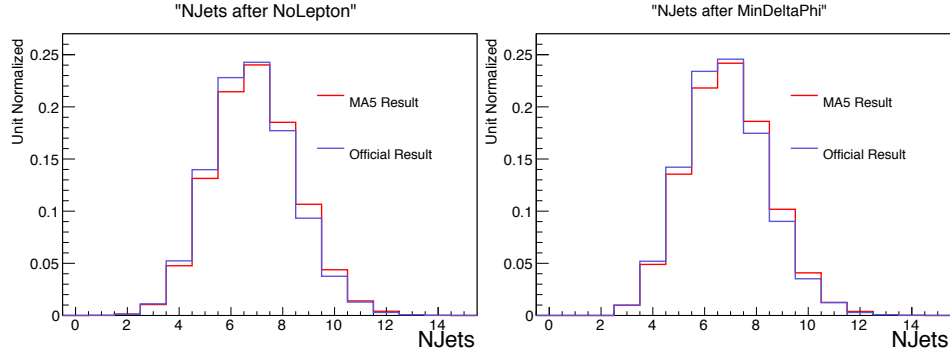


Figure 4: Comparison of the distributions of NJets between the official and our own samples after the “n-1” cut, $\text{Min } \Delta(\phi)$ (left), and after all baseline cuts (right), for the T1tttt working point.

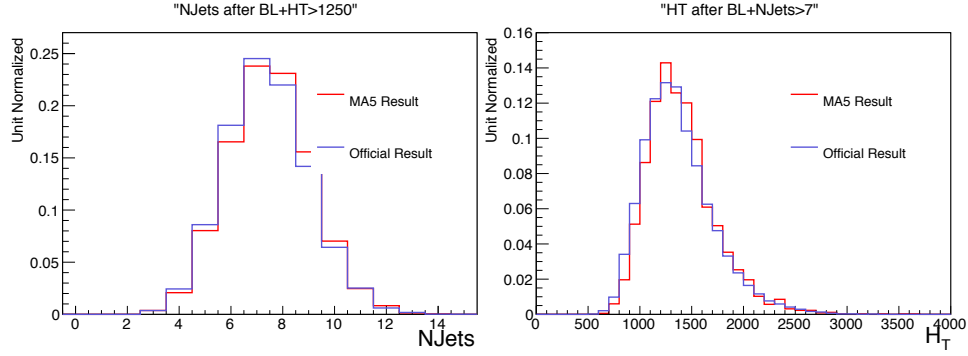


Figure 5: Additional checks: comparison between ours and the official distributions of NJets after $\text{BL}+H_T>1250$ cuts (left), and H_T after $\text{BL}+\text{NJets}>7$ cuts (right), for the T1tttt working point.

Cut Name	Official Count (Eff)	MA5 Count (Eff)
MET Cleaning	1215.2 (xxx)	1215.2 (xxx)
No Lepton	1212.8 (99%)	1215.2 (100%)
NJets>2	675.9 (55%)	697.69 (57%)
$H_T > 500$	619.5 (91%)	645.00 (92%)
$\cancel{H}_T > 200$	524.0 (84%)	544.17 (84%)
Min $\Delta(\phi)$	460.7 (87%)	480.66 (88%)

Table 1: The cut flow for the baseline selection in CMS SUS-13-012 for the working point T2qq. The second column is the official account as reported by <https://twiki.cern.ch/twiki/pub/CMSPublic/PhysicsResultsSUS13012/T2qq.pdf>, and our own results are given in column 3. The official counts are normalized to luminosity=19.5/fb and $\sigma=63.4$ pb, and our counts are normalized to match the official count after the first cut, MET Cleaning, a cut which we do not actually perform.

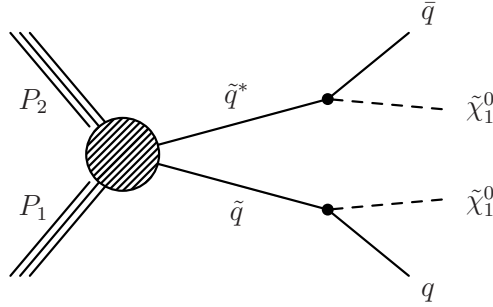


Figure 1: Diagram of the dominant SUSY production mechanism for the T2qq working point.

Signal Region Name	Official	MA5
NJets3-5, H_T 500-800, \cancel{H}_T 200-300	35.3	36.15
NJets3-5, H_T 500-800, \cancel{H}_T 300-450	70.4	73.34
NJets3-5, H_T 500-800, \cancel{H}_T 450-600	71.5	73.99
NJets3-5, H_T 500-800, $\cancel{H}_T > 600$	23.6	27.93
NJets3-5, H_T 800-1000, \cancel{H}_T 200-300	18.1	16.56
NJets3-5, H_T 800-1000, \cancel{H}_T 300-450	21.9	33.22
NJets3-5, H_T 800-1000, \cancel{H}_T 450-600	38.1	37.59
NJets3-5, H_T 800-1000, $\cancel{H}_T > 600$	35.2	39.06
NJets3-5, H_T 1000-1250, \cancel{H}_T 200-300	10.9	12.01
NJets3-5, H_T 1000-1250, \cancel{H}_T 300-450	21.7	20.99
NJets3-5, H_T 1000-1250, \cancel{H}_T 450-600	20.7	23.35
NJets3-5, H_T 1000-1250, $\cancel{H}_T > 600$	21.8	22.02
NJets3-5, H_T 1250-1500, \cancel{H}_T 200-300	4.3	5.19
NJets3-5, H_T 1250-1500, \cancel{H}_T 300-450	8.1	8.63
NJets3-5, H_T 1250-1500, $\cancel{H}_T > 450$	16.1	17.31
NJets3-5, $H_T > 1500$, \cancel{H}_T 200-300	3.7	3.68
NJets3-5, $H_T > 1500$, $\cancel{H}_T > 300$	13.	13.18
NJets6-7, H_T 500-800, \cancel{H}_T 200-300	0.8	0.44
NJets6-7, H_T 500-800, \cancel{H}_T 300-450	1.0	0.51
NJets6-7, H_T 500-800, $\cancel{H}_T > 450$	0.4	0.64
NJets6-7, H_T 800-1000, \cancel{H}_T 200-300	0.5	0.85
NJets6-7, H_T 800-1000, \cancel{H}_T 300-450	1.1	1.29
NJets6-7, H_T 800-1000, $\cancel{H}_T > 450$	1.5	1.53
NJets6-7, H_T 1000-1250, \cancel{H}_T 200-300	1.0	0.58
NJets6-7, H_T 1000-1250, \cancel{H}_T 300-450	1.2	1.57
NJets6-7, H_T 1000-1250, $\cancel{H}_T > 450$	2.5	2.73
NJets6-7, H_T 1250-1500, \cancel{H}_T 200-300	0.6	0.61
NJets6-7, H_T 1250-1500, \cancel{H}_T 300-450	1.2	0.88
NJets6-7, H_T 1250-1500, $\cancel{H}_T > 450$	1.4	1.94
NJets6-7, $H_T > 1500$, \cancel{H}_T 200-300	0.6	0.40
NJets6-7, $H_T > 1500$, $\cancel{H}_T > 300$	2.3	1.70
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	0.03
NJets >7 , H_T 1000-1250, $\cancel{H}_T > 200$	0.2	0.23
NJets >7 , H_T 1250-1500, $\cancel{H}_T > 200$	0.3	0.13
NJets >7 , $H_T > 1500$, $\cancel{H}_T > 200$	0.3	0.23

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.

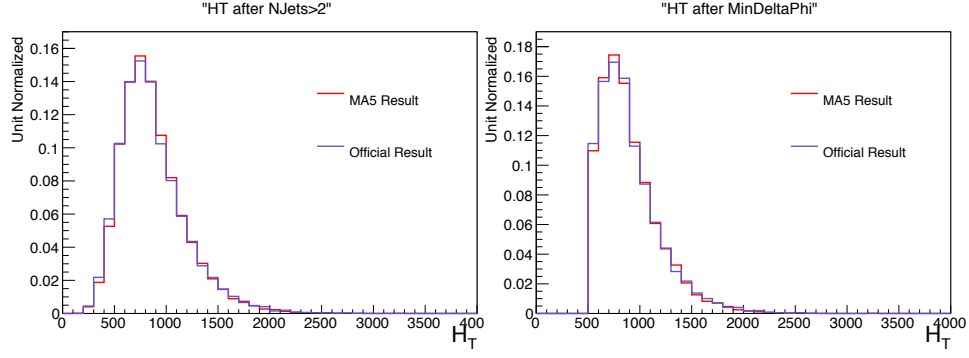


Figure 2: Comparison of the distributions of H_T between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T2qq working point.

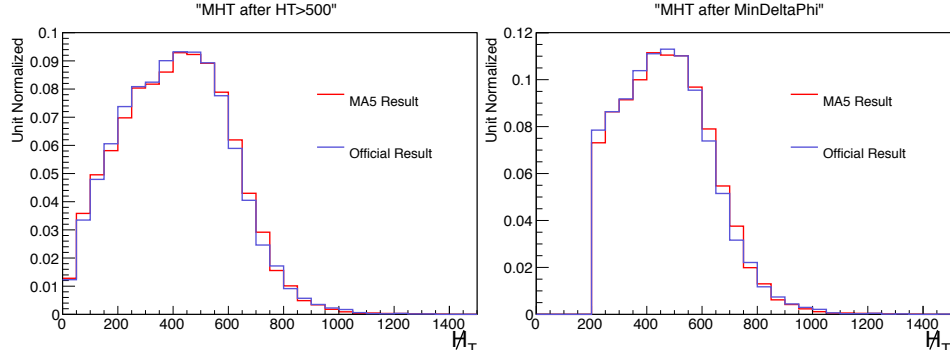


Figure 3: Comparison of the distributions of H_T between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T2qq working point.

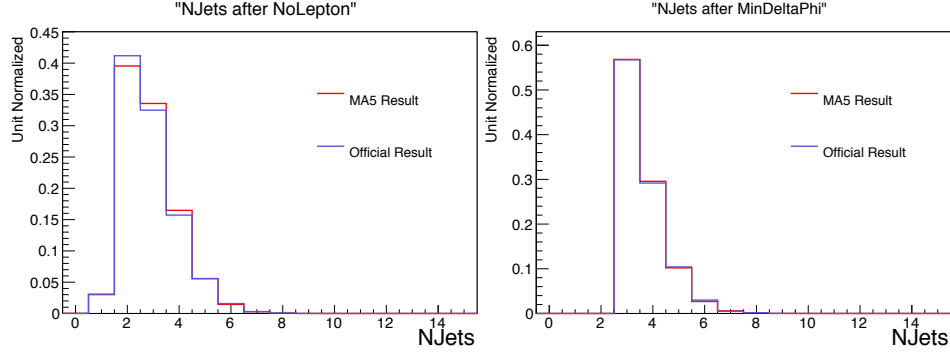


Figure 4: Comparison of the distributions of NJets between the official and our own samples after the “n-1” cut, $\text{Min } \Delta(\phi)$ (left), and after all baseline cuts (right), for the T2qq working point.

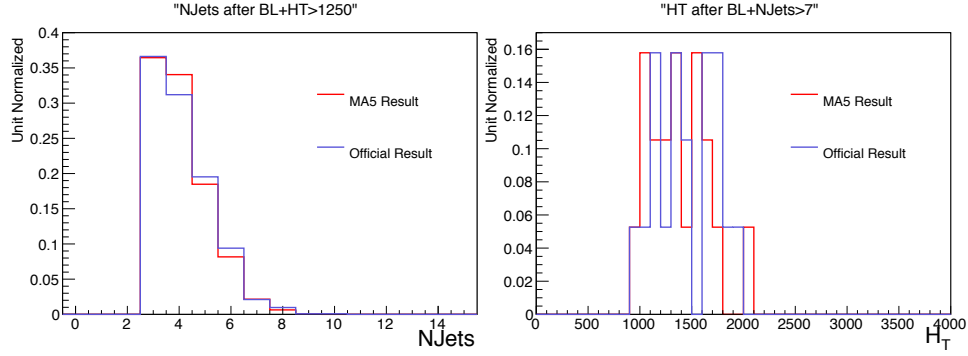


Figure 5: Additional checks: comparison between ours and the official distributions of NJets after $\text{BL}+H_T>1250$ cuts (left), and H_T after $\text{BL}+\text{NJets}>7$ cuts (right), for the T2qq working point.

Cut Name	Official Count (Eff)	MA5 Count (Eff)
MET Cleaning	189.9 (xxx)	189.9 (xxx)
No Lepton	136.2 (71%)	144.33 (76%)
NJets>2	135.9 (99%)	143.95 (99%)
$H_T > 500$	135.5 (99%)	143.56 (99%)
$\cancel{H}_T > 200$	108.8 (80%)	117.19 (81%)
Min $\Delta(\phi)$	89.6 (82%)	96.72 (82%)

Table 1: The cut flow for the baseline selection in CMS SUS-13-012 for the working point T5VV. The second column is the official account as reported by <https://twiki.cern.ch/twiki/pub/CMSPublic/PhysicsResultsSUS13012/T5VV.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, a cut which we do not actually perform.

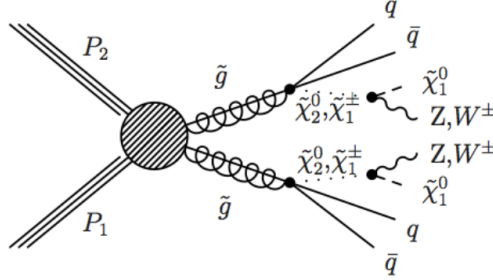


Figure 1: Diagram of the dominant SUSY production mechanism for the T5VV working point.

Signal Region Name	Official	MA5
NJets3-5, H_T 500-800, \cancel{H}_T 200-300	1.0	1.04
NJets3-5, H_T 500-800, \cancel{H}_T 300-450	1.8	1.66
NJets3-5, H_T 500-800, \cancel{H}_T 450-600	1.1	0.98
NJets3-5, H_T 500-800, $\cancel{H}_T > 600$	0.3	0.26
NJets3-5, H_T 800-1000, \cancel{H}_T 200-300	1.5	1.20
NJets3-5, H_T 800-1000, \cancel{H}_T 300-450	1.7	2.37
NJets3-5, H_T 800-1000, \cancel{H}_T 450-600	2.1	2.29
NJets3-5, H_T 800-1000, $\cancel{H}_T > 600$	1.2	1.40
NJets3-5, H_T 1000-1250, \cancel{H}_T 200-300	1.9	1.77
NJets3-5, H_T 1000-1250, \cancel{H}_T 300-450	3.1	3.21
NJets3-5, H_T 1000-1250, \cancel{H}_T 450-600	2.8	2.81
NJets3-5, H_T 1000-1250, $\cancel{H}_T > 600$	2.1	2.33
NJets3-5, H_T 1250-1500, \cancel{H}_T 200-300	1.3	1.26
NJets3-5, H_T 1250-1500, \cancel{H}_T 300-450	2.3	2.22
NJets3-5, H_T 1250-1500, $\cancel{H}_T > 450$	3.2	3.56
NJets3-5, $H_T > 1500$, \cancel{H}_T 200-300	1.1	1.15
NJets3-5, $H_T > 1500$, $\cancel{H}_T > 300$	3.7	3.75
NJets6-7, H_T 500-800, \cancel{H}_T 200-300	0.4	0.30
NJets6-7, H_T 500-800, \cancel{H}_T 300-450	0.4	0.29
NJets6-7, H_T 500-800, $\cancel{H}_T > 450$	0.2	0.16
NJets6-7, H_T 800-1000, \cancel{H}_T 200-300	1.2	1.08
NJets6-7, H_T 800-1000, \cancel{H}_T 300-450	1.9	1.67
NJets6-7, H_T 800-1000, $\cancel{H}_T > 450$	1.7	1.50
NJets6-7, H_T 1000-1250, \cancel{H}_T 200-300	3.1	2.66
NJets6-7, H_T 1000-1250, \cancel{H}_T 300-450	4.6	4.91
NJets6-7, H_T 1000-1250, $\cancel{H}_T > 450$	5.9	6.28
NJets6-7, H_T 1250-1500, \cancel{H}_T 200-300	2.7	3.02
NJets6-7, H_T 1250-1500, \cancel{H}_T 300-450	4.4	4.91
NJets6-7, H_T 1250-1500, $\cancel{H}_T > 450$	5.8	6.49
NJets6-7, $H_T > 1500$, \cancel{H}_T 200-300	2.7	2.99
NJets6-7, $H_T > 1500$, $\cancel{H}_T > 300$	9.2	11.23
NJets>7, H_T 500-800, $\cancel{H}_T > 200$	0.0	0.01
NJets>7, H_T 800-1000, $\cancel{H}_T > 200$	0.4	0.40
NJets>7, H_T 1000-1250, $\cancel{H}_T > 200$	2.3	2.61
NJets>7, H_T 1250-1500, $\cancel{H}_T > 200$	3.8	4.81
NJets>7, $H_T > 1500$, $\cancel{H}_T > 200$	6.0	7.96

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.

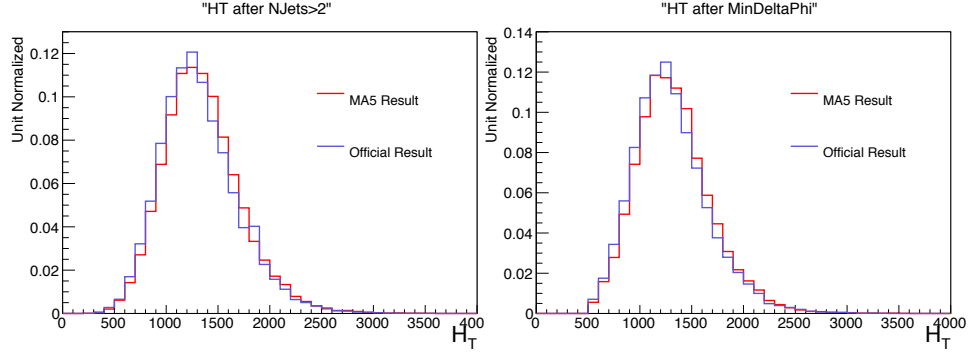


Figure 2: Comparison of the distributions of H_T between the official and our samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T5VV working point.

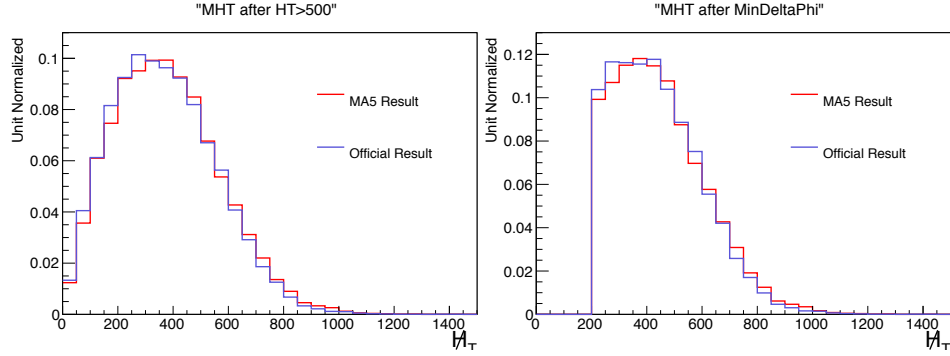


Figure 3: Comparison of the distributions of H_T between the official and our samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T5VV working point.

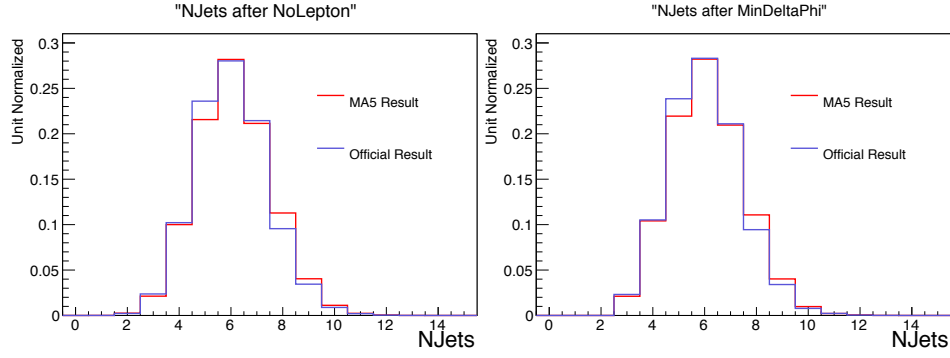


Figure 4: Comparison of the distributions of NJets between the official and our own samples after the “n-1” cut, Min $\Delta(\phi)$ (left), and after all baseline cuts (right), for the T5VV working point.

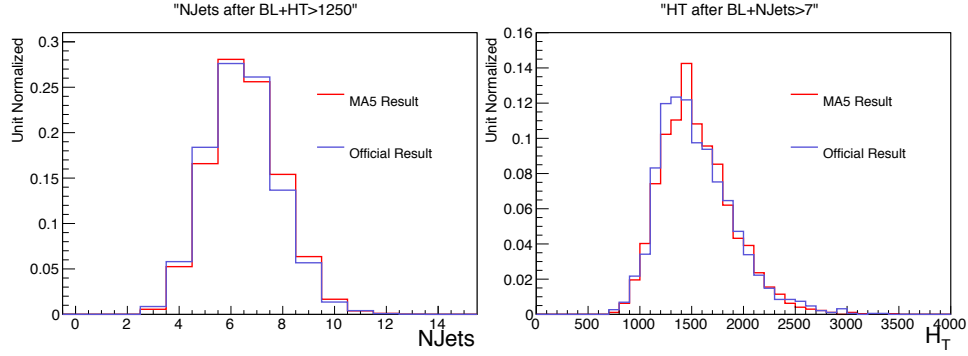


Figure 5: Additional checks: comparison between ours and the official distributions of NJets after BL+ $H_T > 1250$ cuts (left), and H_T after BL+NJets>7 cuts (right), for the T5VV working point.