

atlas_1403_5222 CutFlow

ATLAS
 atlas_1403_5222
 ATLAS-SUSY-2013-08
 Z + b-jets + etmiss
 Energy: 8 TeV
 Luminosity: 20.3 fb⁻¹
 Montecarlo: Herwig++

Signal region	SR2A, SR2B, SR2C, 2-electron channel	
Process	$pp \rightarrow \tilde{t}_1 \tilde{t}_1^*; \tilde{t}_1 \rightarrow b \tilde{\chi}_1^+; \tilde{\chi}_1^0 \rightarrow Z \tilde{G}$	
Point	$m(\tilde{t}_1) = 400 \text{ GeV}, \quad m(\tilde{\chi}_1^0) = 300 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	10000.0	20000.0
No cuts	7269 ± 0	7130 ± 0
Trigger	553 ± 19	996 ± 17
All cleaning	549 ± 19	-
2 leptons	227 ± 13	224 ± 8.8
1 b-jet	181 ± 11	161 ± 7.5
SR2A	28.6 ± 4.6	31.7 ± 3.4
SR2B	13.3 ± 3.1	15 ± 2.3
SR2C	13.0 ± 3.1	16.4 ± 2.4

Table 1: Cutflow validation for atlas_1403_5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb⁻¹. Final error is Monte-Carlo events only.

Signal region	SR2A, SR2B, SR2C, 2-muon channel	
Process	$pp \rightarrow \tilde{t}_1 \tilde{t}_1^*; \tilde{t}_1 \rightarrow b \tilde{\chi}_1^+; \tilde{\chi}_1^0 \rightarrow Z \tilde{G}$	
Point	$m(\tilde{t}_1) = 400 \text{ GeV}, \quad m(\tilde{\chi}_1^0) = 300 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	10000.0	20000.0
No cuts	7269 ± 0	7130 ± 0
Trigger	681 ± 21	996 ± 17
All cleaning	669 ± 21	-
2 leptons	170 ± 11	246 ± 9.2
1 b-jet	136 ± 9.8	181 ± 7.9
SR2A	14.5 ± 3.2	29.6 ± 3.2
SR2B	7.92 ± 2.4	15.7 ± 2.4
SR2C	16.5 ± 3.5	13.5 ± 2.2

Table 2: Cutflow validation for atlas_1403_5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb⁻¹. Final error is Monte-Carlo events only.

atlas_1403_5222 CutFlow

Signal region	SR2A, SR2B, SR2C, 2-electron channel	
Process	$pp \rightarrow \tilde{t}_1 \tilde{t}_1^*; \tilde{t}_1 \rightarrow b \tilde{\chi}_1^+; \tilde{\chi}_1^0 \rightarrow Z \tilde{G}$	
Point	$m(\tilde{t}_1) = 500 \text{ GeV}, \quad m(\tilde{\chi}_1^0) = 400 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	10000.0	20000.0
No cuts	1741 ± 0	1720 ± 0
Trigger	134 ± 4.6	249 ± 4.3
All cleaning	132 ± 4.6	-
2 leptons	51.9 ± 3	57.1 ± 2.2
1 b-jet	41.1 ± 2.6	40.8 ± 1.8
SR2A	10.4 ± 1.3	12.3 ± 1
SR2B	7.8 ± 1.2	8.33 ± 0.84
SR2C	6.61 ± 1.1	6.18 ± 0.73

Table 3: Cutflow validation for atlas_1403_5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb^{-1} . Final error is Monte-Carlo events only.

Signal region	SR2A, SR2B, SR2C, 2-muon channel	
Process	$pp \rightarrow \tilde{t}_1 \tilde{t}_1^*; \tilde{t}_1 \rightarrow b \tilde{\chi}_1^+; \tilde{\chi}_1^0 \rightarrow Z \tilde{G}$	
Point	$m(\tilde{t}_1) = 500 \text{ GeV}, \quad m(\tilde{\chi}_1^0) = 400 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	10000.0	20000.0
No cuts	1741 ± 0	1720 ± 0
Trigger	175 ± 5.2	249 ± 4.3
All cleaning	172 ± 5.2	-
2 leptons	36.4 ± 2.5	59.5 ± 2.2
1 b-jet	28.1 ± 2.2	43 ± 1.9
SR2A	4.54 ± 0.89	10.3 ± 0.94
SR2B	3.57 ± 0.79	7.3 ± 0.79
SR2C	5.34 ± 0.96	6.35 ± 0.74

Table 4: Cutflow validation for atlas_1403_5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb^{-1} . Final error is Monte-Carlo events only.

atlas_1403_5222 CutFlow

Signal region	SR2A, SR2B, SR2C, 2-electron channel	
Process	$pp \rightarrow \tilde{t}_1 \tilde{t}_1^*; \tilde{t}_1 \rightarrow t \tilde{\chi}_{1,2}^0; \tilde{\chi}_1^0 \rightarrow Z \tilde{G}$	
Point	$m(\tilde{t}_1) = 600 \text{ GeV}, \quad m(\tilde{\chi}_1^0) = 300 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	10000.0	20000.0
No cuts	513 ± 0	495 ± 0
Trigger	82.5 ± 1.9	184 ± 1.7
All cleaning	81.4 ± 1.9	-
2 leptons	13.4 ± 0.82	10.7 ± 0.51
1 b-jet	10.5 ± 0.73	7.8 ± 0.44
SR2A	0.83 ± 0.21	0.471 ± 0.11
SR2B	0.4 ± 0.14	0.322 ± 0.089
SR2C	2.23 ± 0.34	2.3 ± 0.24

Table 5: Cutflow validation for atlas_1403_5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb^{-1} . Final error is Monte-Carlo events only.

Signal region	SR2A, SR2B, SR2C, 2-muon channel	
Process	$pp \rightarrow \tilde{t}_1 \tilde{t}_1^*; \tilde{t}_1 \rightarrow t \tilde{\chi}_{1,2}^0; \tilde{\chi}_1^0 \rightarrow Z \tilde{G}$	
Point	$m(\tilde{t}_1) = 600 \text{ GeV}, \quad m(\tilde{\chi}_1^0) = 300 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	10000.0	20000.0
No cuts	513 ± 0	495 ± 0
Trigger	99.3 ± 2	184 ± 1.7
All cleaning	99.7 ± 2	-
2 leptons	11.2 ± 0.75	11.4 ± 0.53
1 b-jet	8.96 ± 0.67	8.64 ± 0.46
SR2A	0.54 ± 0.17	0.594 ± 0.12
SR2B	0.47 ± 0.16	0.371 ± 0.096
SR2C	1.4 ± 0.27	1.98 ± 0.22

Table 6: Cutflow validation for atlas_1403_5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb^{-1} . Final error is Monte-Carlo events only.

Signal region	SR3A, SR3B	
Process	$pp \rightarrow \tilde{t}_2 \tilde{t}_2^*; \tilde{t}_1 \rightarrow Z \tilde{t}_1; \tilde{t}_1 \rightarrow t \tilde{\chi}_1^0$	
Point	$m(\tilde{t}_2) = 550 \text{ GeV}, m(\tilde{t}_1) = 200 \text{ GeV}, m(\tilde{\chi}_1^0) = 20 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	5000.0	10000.0
3 leptons	27.0 ± 0	24.5 ± 0
m_{ll} cut	25.2 ± 0.095	20.6 ± 0.09
1 b-jet	19.3 ± 0.17	14.5 ± 0.12
SR3A jet selection	11.0 ± 0.19	10.1 ± 0.12
SR3A MET selection	7.5 ± 0.17	7.97 ± 0.11
SR3B $p_T(ll)$ and $p_T(l_1)$	17.9 ± 0.18	13.9 ± 0.12
SR3B jet selection	7.5 ± 0.17	7.24 ± 0.11
SR2B MET selection	5.0 ± 0.15	5.88 ± 0.1

Table 7: Cutflow validation for atlas_1403.5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb^{-1} . Final error is Monte-Carlo events only.

Signal region	SR3A, SR3B	
Process	$pp \rightarrow \tilde{t}_2 \tilde{t}_2^*; \tilde{t}_1 \rightarrow Z \tilde{t}_1; \tilde{t}_1 \rightarrow t \tilde{\chi}_1^0$	
Point	$m(\tilde{t}_2) = 550 \text{ GeV}, m(\tilde{t}_1) = 400 \text{ GeV}, m(\tilde{\chi}_1^0) = 220 \text{ GeV}$	
Source	ATLAS	CheckMATE
Generated events	5000.0	20000.0
3 leptons	25.4 ± 0	21.1 ± 0
m_{ll} cut	22.3 ± 0.12	17.7 ± 0.055
1 b-jet	16.5 ± 0.17	11.9 ± 0.074
SR3A jet selection	8.2 ± 0.17	6.25 ± 0.068
SR3A MET selection	6.6 ± 0.16	4.75 ± 0.062
SR3B $p_T(ll)$ and $p_T(l_1)$	11.7 ± 0.18	7.74 ± 0.072
SR3B jet selection	3.5 ± 0.12	2.35 ± 0.047
SR2B MET selection	2.8 ± 0.11	1.63 ± 0.04

Table 8: Cutflow validation for atlas_1403.5222. Shown are number of events passing each cut normalised to a luminosity of 20.3 fb^{-1} . Final error is Monte-Carlo events only.