

atlas_1407_0583 CutFlow

ATLAS

atlas_1407_0583

ATLAS-SUSY-13-05

1-lepton + (b-)jets + etmiss

Energy: 8 TeV

Luminosity: 20.1 fb⁻¹

Montecarlo: Herwig++, MadGraph5+Pythia 6 (depending on cutflow)

Signal region	tN_diag electron ($E_T^{miss} \geq 150$ GeV, $m_T \geq 140$ GeV)	
Process	$\tilde{t} \rightarrow t\tilde{\chi}_1^0$	
Point	$m(\tilde{t}) = 350$ GeV, $m(\tilde{\chi}_1^0) = 150$ GeV	
Source	ATLAS	CheckMATE
Generated events	200000.0	200000.0
Initial Events	200000 ± 0	200000 ± 0
Trigger*	113762 ± 220	-
Event DQ*	112381 ± 220	-
Lepton (exactly 1 baseline)	28785 ± 160	27200 ± 150
Lepton (exactly 1 signal)	20063 ± 130	20900 ± 140
At least 3 jets ≥ 25 GeV	18080 ± 130	18100 ± 130
At least 4 jets ≥ 25 GeV	13648 ± 110	12600 ± 110
jet ₁ p _T ≥ 60 GeV	12765 ± 110	11800 ± 110
jet ₂ p _T ≥ 60 GeV	9503 ± 95	8820 ± 92
jet ₃ p _T ≥ 40 GeV	8613 ± 91	7980 ± 88
#b-tagged jets (70% eff.) ≥ 1	7127 ± 83	6570 ± 80
dφ(jet ₁ , E _T ^{miss} ≥ 0.8)	6552 ± 80	6040 ± 77
dφ(jet ₂ , E _T ^{miss} ≥ 0.8)	5131 ± 71	4710 ± 68
E _T ^{miss} ≥ 150 GeV	1323 ± 36	1210 ± 35
E _T ^{miss} /√H _T ≥ 5 GeV	1323 ± 36	1210 ± 35
m _T ≥ 140 GeV	449 ± 21	437 ± 21
m _{had-top} = 130 – 205 GeV	271 ± 16	301 ± 17
veto on loose τs	246 ± 16	276 ± 17

Table 1: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	tN_diag muon ($E_T^{miss} \geq 150$ GeV, $m_T \geq 140$ GeV)	
Process	$\tilde{t} \rightarrow t\tilde{\chi}_1^0$	
Point	$m(\tilde{t}) = 350$ GeV, $m(\tilde{\chi}_1^0) = 150$ GeV	
Source	ATLAS	CheckMATE
Generated events	200000.0	200000.0
Initial Events	200000 ± 0	200000 ± 0
Trigger*	112553 ± 220	-
Event DQ*	111199 ± 220	-
Lepton (exactly 1 baseline)	25087 ± 150	25700 ± 150
Lepton (exactly 1 signal)	20245 ± 130	23400 ± 140
At least 3 jets ≥ 25 GeV	18321 ± 130	20400 ± 140
At least 4 jets ≥ 25 GeV	13977 ± 110	14400 ± 120
jet ₁ $p_T \geq 60$ GeV	13190 ± 110	13500 ± 110
jet ₂ $p_T \geq 60$ GeV	9905 ± 97	10200 ± 98
jet ₃ $p_T \geq 40$ GeV	8896 ± 92	9200 ± 94
#b-tagged jets (70% eff.) ≥ 1	7255 ± 84	7590 ± 85
$d\phi(\text{jet}_1, E_T^{miss} \geq 0.8)$	6717 ± 81	6930 ± 82
$d\phi(\text{jet}_2, E_T^{miss} \geq 0.8)$	5256 ± 72	5380 ± 72
$E_T^{miss} \geq 150$ GeV	1390 ± 37	1360 ± 37
$E_T^{miss}/\sqrt{H_T} \geq 5$ GeV	1389 ± 37	1360 ± 37
$m_T \geq 140$ GeV	507 ± 22	508 ± 23
$m_{had-top} = 130 - 205$ GeV	322 ± 18	321 ± 18
veto on loose τ s	299 ± 17	295 ± 17

Table 2: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	tN_med electron ($E_T^{miss} \geq 200$ GeV, $m_T \geq 140$ GeV)	
Process	$\tilde{t} \rightarrow t\tilde{\chi}_1^0$	
Point	$m(\tilde{t}) = 500$ GeV, $m(\tilde{\chi}_1^0) = 200$ GeV	
Source	ATLAS	CheckMATE
Generated events	100000.0	200000.0
Initial Events	100000 \pm 0	100000 \pm 0
Trigger*	85511 \pm 110	-
Event DQ*	84595 \pm 110	-
Lepton (exactly 1 baseline)	16910 \pm 120	15300 \pm 81
Lepton (exactly 1 signal)	11595 \pm 100	11600 \pm 72
At least 3 jets ≥ 25 GeV	10715 \pm 98	10500 \pm 68
At least 4 jets ≥ 25 GeV	8532 \pm 88	7820 \pm 60
jet ₁ $p_T \geq 80$ GeV	7682 \pm 84	7060 \pm 57
jet ₂ $p_T \geq 60$ GeV	6755 \pm 79	6210 \pm 54
jet ₃ $p_T \geq 40$ GeV	6255 \pm 77	6040 \pm 53
#b-tagged jets (70% eff.) ≥ 1	5071 \pm 69	4750 \pm 48
$d\phi(\text{jet}_2, E_T^{miss}) \geq 0.8$	4390 \pm 65	4080 \pm 44
$E_T^{miss} \geq 200$ GeV	2035 \pm 45	1780 \pm 30
$H_{T,sig}^{miss} \geq 12.5$	1082 \pm 33	1020 \pm 22
$m_T \geq 140$ GeV	884 \pm 30	845 \pm 20
$m_{had-top} = 130 - 195$ GeV	583 \pm 24	575 \pm 17
$am_{T2} \geq 170$ GeV	385 \pm 20	420 \pm 14

Table 3: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	tN_med muon ($E_T^{miss} \geq 200$ GeV, $m_T \geq 140$ GeV)	
Process	$\tilde{t} \rightarrow t\tilde{\chi}_1^0$	
Point	$m(\tilde{t}) = 500$ GeV, $m(\tilde{\chi}_1^0) = 200$ GeV	
Source	ATLAS	CheckMATE
Generated events	100000.0	200000.0
Initial Events	100000 \pm 0	100000 \pm 0
Trigger*	85808 \pm 110	-
Event DQ*	85954 \pm 110	-
Lepton (exactly 1 baseline)	13830 \pm 110	14300 \pm 78
Lepton (exactly 1 signal)	11295 \pm 100	12300 \pm 73
At least 3 jets ≥ 25 GeV	10497 \pm 97	11100 \pm 70
At least 4 jets ≥ 25 GeV	8421 \pm 88	8400 \pm 62
jet ₁ $p_T \geq 80$ GeV	7631 \pm 84	7570 \pm 59
jet ₂ $p_T \geq 60$ GeV	6769 \pm 79	6710 \pm 56
jet ₃ $p_T \geq 40$ GeV	6249 \pm 77	6530 \pm 55
#b-tagged jets (70% eff.) ≥ 1	5060 \pm 69	5170 \pm 50
$d\phi(\text{jet}_2, E_T^{miss}) \geq 0.8$	4401 \pm 65	4460 \pm 46
$E_T^{miss} \geq 200$ GeV	2084 \pm 45	1940 \pm 31
$H_{T,sig}^{miss} \geq 12.5$	1150 \pm 34	1100 \pm 23
$m_T \geq 140$ GeV	918 \pm 30	892 \pm 21
$m_{had-top} = 130 - 195$ GeV	603 \pm 24	610 \pm 17
$aM_{T2} \geq 170$ GeV	406 \pm 20	466 \pm 15

Table 4: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	tN_high electron ($E_T^{miss} \geq 320$ GeV, $m_T \geq 200$ GeV)	
Process	$\tilde{t} \rightarrow t\tilde{\chi}_1^0$	
Point	$m(\tilde{t}) = 700$ GeV, $m(\tilde{\chi}_1^0) = 1$ GeV	
Source	ATLAS	CheckMATE
Generated events	20000.0	100000.0
Initial Events	20000 \pm 0	20000 \pm 0
Trigger*	19062 \pm 30	-
Event DQ*	18873 \pm 33	-
Lepton (exactly 1 baseline)	3437 \pm 53	3150 \pm 23
Lepton (exactly 1 signal)	2463 \pm 46	2470 \pm 21
At least 3 jets ≥ 25 GeV	2305 \pm 45	2240 \pm 20
At least 4 jets ≥ 25 GeV	1929 \pm 42	1730 \pm 18
jet ₁ $p_T \geq 100$ GeV	1811 \pm 41	1620 \pm 17
jet ₂ $p_T \geq 80$ GeV	1565 \pm 38	1390 \pm 16
jet ₃ $p_T \geq 40$ GeV	1497 \pm 37	1320 \pm 16
#b-tagged jets (70% eff.) ≥ 1	1185 \pm 33	1100 \pm 14
dR(lepton,bjet ₁) ≤ 3	1070 \pm 32	981 \pm 14
$E_T^{miss} \geq 320$ GeV	556 \pm 23	491 \pm 9.8
$H_{T,sig}^{miss} \geq 12.5$	534 \pm 23	443 \pm 9.3
$m_T \geq 200$ GeV	465 \pm 21	391 \pm 8.8
$m_{had-top} = 130 - 250$ GeV	355 \pm 19	315 \pm 7.9
$am_{T2} \geq 170$ GeV	312 \pm 18	295 \pm 7.6
$m_{T2}^{\tau} \geq 120$ GeV	304 \pm 17	282 \pm 7.5

Table 5: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	tN_high muon ($E_T^{miss} \geq 320$ GeV, $m_T \geq 200$ GeV)	
Process	$\tilde{t} \rightarrow t\tilde{\chi}_1^0$	
Point	$m(\tilde{t}) = 700$ GeV, $m(\tilde{\chi}_1^0) = 1$ GeV	
Source	ATLAS	CheckMATE
Generated events	20000.0	100000.0
Initial Events	20000 ± 0	20000 ± 0
Trigger*	19133 ± 29	-
Event DQ*	18949 ± 32	-
Lepton (exactly 1 baseline)	2536 ± 47	2810 ± 22
Lepton (exactly 1 signal)	2176 ± 44	2410 ± 21
At least 3 jets ≥ 25 GeV	2061 ± 43	2210 ± 20
At least 4 jets ≥ 25 GeV	1757 ± 40	1740 ± 18
jet ₁ $p_T \geq 100$ GeV	1660 ± 39	1630 ± 17
jet ₂ $p_T \geq 80$ GeV	1414 ± 36	1420 ± 16
jet ₃ $p_T \geq 40$ GeV	1356 ± 36	1350 ± 16
#b-tagged jets (70% eff.) ≥ 1	1100 ± 32	1140 ± 15
dR(lepton,bjet ₁) ≤ 3	1000 ± 31	1020 ± 14
$E_T^{miss} \geq 320$ GeV	519 ± 22	497 ± 9.8
$H_{T,sig}^{miss} \geq 12.5$	501 ± 22	450 ± 9.4
$m_T \geq 200$ GeV	427 ± 20	392 ± 8.8
$m_{had-top} = 130 - 250$ GeV	305 ± 17	307 ± 7.8
$am_{T2} \geq 170$ GeV	272 ± 16	285 ± 7.5
$m_{T2}^{\tau} \geq 120$ GeV	261 ± 16	274 ± 7.3

Table 6: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCa_med electron ($E_T^{miss} \geq 300$ GeV, $m_T \geq 100$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 175$ GeV, $m(\tilde{\chi}_1^\pm) = 145$ GeV, $m(\tilde{\chi}_1^0) = 125$ GeV	
Source	ATLAS	CheckMATE
Generated events	10405773.0	9391822.0
Initial Events	10405773 \pm 0	10400000 \pm 0
Trigger*	98261 \pm 310	-
Event DQ*	95314 \pm 310	-
$E_T^{miss} \geq 300$ GeV	45285 \pm 210	45800 \pm 220
Lepton (exactly 1 baseline)	3788 \pm 62	4310 \pm 69
Lepton (exactly 1 signal)	3612 \pm 60	4310 \pm 69
Lepton $p_T \leq 50$ GeV	3438 \pm 59	4070 \pm 67
At least 3 jets ≥ 25 GeV	2813 \pm 53	3140 \pm 59
jet ₁ $p_T \geq 180$ GeV	27695 \pm 170	3080 \pm 58
#b-tagged jets (70% eff.) ≥ 1	1931 \pm 44	2040 \pm 48
jet ₁ is not b-tagged	1835 \pm 43	1880 \pm 46
$m_T \geq 100$ GeV	235 \pm 15	209 \pm 15
$E_T^{miss}/m_{eff} \geq 0.3$	191 \pm 14	184 \pm 14
Lepton $p_T \leq 25$ GeV	127 \pm 11	121 \pm 12

Table 7: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCa_med muon ($E_T^{miss} \geq 300$ GeV, $m_T \geq 100$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 175$ GeV, $m(\tilde{\chi}_1^\pm) = 145$ GeV, $m(\tilde{\chi}_1^0) = 125$ GeV	
Source	ATLAS	CheckMATE
Generated events	10405773.0	9391822.0
Initial Events	10405773 \pm 0	10400000 \pm 0
Trigger*	98261 \pm 310	-
Event DQ*	95314 \pm 310	-
$E_T^{miss} \geq 300$ GeV	45285 \pm 210	45800 \pm 220
Lepton (exactly 1 baseline)	4563 \pm 68	6600 \pm 85
Lepton (exactly 1 signal)	4424 \pm 66	6600 \pm 85
Lepton $p_T \leq 50$ GeV	4272 \pm 65	6380 \pm 84
At least 3 jets ≥ 25 GeV	3550 \pm 60	4900 \pm 74
jet ₁ $p_T \geq 180$ GeV	3445 \pm 59	4820 \pm 73
#b-tagged jets (70% eff.) ≥ 1	2473 \pm 50	3180 \pm 59
jet ₁ is not b-tagged	2332 \pm 48	2910 \pm 57
$m_T \geq 100$ GeV	227 \pm 15	287 \pm 18
$E_T^{miss}/m_{eff} \geq 0.3$	189 \pm 14	244 \pm 16
Lepton $p_T \leq 25$ GeV	128 \pm 11	172 \pm 14

Table 8: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCa_low electron ($E_T^{miss} \geq 370$ GeV, $m_T \geq 90$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 175$ GeV, $m(\tilde{\chi}_1^\pm) = 165$ GeV, $m(\tilde{\chi}_1^0) = 145$ GeV	
Source	ATLAS	CheckMATE
Generated events	7324720.0	9500273.0
Initial Events	7324720 ± 0	7320000 ± 0
Trigger*	98160 ± 310	-
Event DQ*	95792 ± 310	-
$E_T^{miss} \geq 370$ GeV	19924 ± 140	19400 ± 120
Lepton (exactly 1 baseline)	1640 ± 40	1850 ± 38
Lepton (exactly 1 signal)	1558 ± 39	1850 ± 38
Lepton $p_T \leq 50$ GeV	1484 ± 39	1720 ± 36
At least 2 jets ≥ 25 GeV	1466 ± 38	1500 ± 34
jet ₁ $p_T \geq 180$ GeV	1305 ± 36	1490 ± 34
#b-tagged jets (70% eff.) ≥ 1	470 ± 22	577 ± 21
jet ₁ is not b-tagged	415 ± 20	503 ± 20
$m_T \geq 90$ GeV	92 ± 9.6	109 ± 9.2
$E_T^{miss}/m_{eff} \geq 0.35$	82 ± 9.1	93.3 ± 8.5
Lepton $p_T \leq 25$ GeV	52 ± 7.2	63.2 ± 7

Table 9: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCa_low muon ($E_T^{miss} \geq 370$ GeV, $m_T \geq 90$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 175$ GeV, $m(\tilde{\chi}_1^\pm) = 165$ GeV, $m(\tilde{\chi}_1^0) = 145$ GeV	
Source	ATLAS	CheckMATE
Generated events	7324720.0	9500273.0
Initial Events	7324720 ± 0	7320000 ± 0
Trigger*	98160 ± 310	-
Event DQ*	95792 ± 310	-
$E_T^{miss} \geq 370$ GeV	19924 ± 140	19400 ± 120
Lepton (exactly 1 baseline)	1951 ± 44	2680 ± 45
Lepton (exactly 1 signal)	1887 ± 43	2680 ± 45
Lepton $p_T \leq 50$ GeV	1828 ± 43	2590 ± 45
At least 2 jets ≥ 25 GeV	1809 ± 43	2280 ± 42
jet ₁ $p_T \geq 180$ GeV	1666 ± 41	2270 ± 42
#b-tagged jets (70% eff.) ≥ 1	584 ± 24	887 ± 26
jet ₁ is not b-tagged	523 ± 23	779 ± 25
$m_T \geq 90$ GeV	130 ± 11	143 ± 10
$E_T^{miss}/m_{eff} \geq 0.35$	115 ± 11	125 ± 9.8
Lepton $p_T \leq 25$ GeV	90 ± 9.5	94.1 ± 8.5

Table 10: Cutflow validation for atlas_1407.0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCb.med1 electron ($E_T^{miss} \geq 150$ GeV, $am_{T2} \geq 170$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 300$ GeV,	$m(\tilde{\chi}_1^\pm) = 120$ GeV, $m(\tilde{\chi}_1^0) = 100$ GeV
Source	ATLAS	CheckMATE
Generated events	118408.0	653202.0
Initial Events	118408 ± 0	118000 ± 0
Trigger*	79924 ± 160	-
Event DQ*	78173 ± 160	-
$E_T^{miss} > 150$ GeV	40022 ± 160	33600 ± 66
Lepton (exactly 1 baseline)	3505 ± 58	3530 ± 25
Lepton (exactly 1 signal)	3343 ± 57	3530 ± 25
Lepton $p_T \leq 25$ GeV	2408 ± 49	2410 ± 21
jet ₁ $p_T \geq 60$ GeV	2404 ± 49	2400 ± 21
jet ₂ $p_T \geq 60$ GeV	1901 ± 43	1930 ± 19
Leading two jets b-tagged jets (60% eff.)	434 ± 21	444 ± 9
$\Delta\Phi(j, E_T^{miss}) > 0.4$	426 ± 21	431 ± 8.8
$H_{T,2} < 50$ GeV	253 ± 16	234 ± 6.5
$m_{bb} > 150$ GeV	169 ± 13	155 ± 5.3
$am_{T2} > 170$ GeV	142 ± 12	128 ± 4.8

Table 11: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCb_med1 muon ($E_T^{miss} \geq 150$ GeV, $am_{T2} \geq 170$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 300$ GeV,	$m(\tilde{\chi}_1^\pm) = 120$ GeV, $m(\tilde{\chi}_1^0) = 100$ GeV
Source	ATLAS	CheckMATE
Generated events	118408.0	653202.0
Initial Events	118408 ± 0	118000 ± 0
Trigger*	79924 ± 160	-
Event DQ*	78173 ± 160	-
$E_T^{miss} > 150$ GeV	40022 ± 160	33600 ± 66
Lepton (exactly 1 baseline)	4774 ± 68	4920 ± 29
Lepton (exactly 1 signal)	4718 ± 67	4920 ± 29
Lepton $p_T \leq 25$ GeV	3669 ± 60	3710 ± 26
jet ₁ $p_T \geq 60$ GeV	3657 ± 60	3690 ± 25
jet ₂ $p_T \geq 60$ GeV	2918 ± 53	2930 ± 23
Leading two jets b-tagged jets (60% eff.)	655 ± 26	665 ± 11
$\Delta\Phi(j, E_T^{miss}) > 0.4$	642 ± 25	642 ± 11
$H_{T,2} < 50$ GeV	357 ± 19	350 ± 7.9
$m_{bb} > 150$ GeV	235 ± 15	231 ± 6.5
$am_{T2} > 170$ GeV	198 ± 14	195 ± 5.9

Table 12: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

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Signal region	bCb_high electron ($E_T^{miss} \geq 250$ GeV, $am_{T2} \geq 200$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 550$ GeV,	$m(\tilde{\chi}_1^\pm) = 120$ GeV, $m(\tilde{\chi}_1^0) = 100$ GeV
Source	ATLAS	CheckMATE
Generated events	15676.0	100000.0
Initial Events	15676 ± 0	15700 ± 0
Trigger*	14116 ± 37	-
Event DQ*	13719 ± 41	-
$E_T^{miss} > 250$ GeV	7280 ± 62	6200 ± 24
Lepton (exactly 1 baseline)	795 ± 27	783 ± 11
Lepton (exactly 1 signal)	746 ± 27	783 ± 11
Lepton $p_T \leq 25$ GeV	403 ± 20	341 ± 7.2
jet ₁ $p_T \geq 60$ GeV	403 ± 20	341 ± 7.2
jet ₂ $p_T \geq 60$ GeV	378 ± 19	323 ± 7
Leading two jets b-tagged jets (60% eff.)	84 ± 9.1	71.3 ± 3.3
$\Delta\Phi(j, E_T^{miss}) > 0.4$	80 ± 8.9	70.4 ± 3.3
$m_{bb} > 150$ GeV	73 ± 8.5	61.9 ± 3.1
$am_{T2} > 200$ GeV	71 ± 8.4	59.9 ± 3.1

Table 13: Cutflow validation for atlas_1407.0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCb_high electron ($E_T^{miss} \geq 250$ GeV, $am_{T2} \geq 200$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 550$ GeV,	$m(\tilde{\chi}_1^\pm) = 120$ GeV, $m(\tilde{\chi}_1^0) = 100$ GeV
Source	ATLAS	CheckMATE
Generated events	15676.0	100000.0
Initial Events	15676 ± 0	15700 ± 0
Trigger*	14116 ± 37	-
Event DQ*	13719 ± 41	-
$E_T^{miss} > 250$ GeV	7280 ± 62	6200 ± 24
Lepton (exactly 1 baseline)	1000 ± 31	934 ± 12
Lepton (exactly 1 signal)	971 ± 30	934 ± 12
Lepton $p_T \leq 25$ GeV	562 ± 23	504 ± 8.7
jet ₁ $p_T \geq 60$ GeV	562 ± 23	504 ± 8.7
jet ₂ $p_T \geq 60$ GeV	526 ± 23	476 ± 8.5
Leading two jets b-tagged jets (60% eff.)	121 ± 11	104 ± 4
$\Delta\Phi(j, E_T^{miss}) > 0.4$	117 ± 11	101 ± 4
$m_{bb} > 150$ GeV	104 ± 10	87.2 ± 3.7
$am_{T2} > 200$ GeV	101 ± 10	82.6 ± 3.6

Table 14: Cutflow validation for atlas_1407.0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCb_med2 electron ($E_T^{miss} \geq 170$ GeV, $am_{T2} \geq 250$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 500$ GeV, $m(\tilde{\chi}_1^\pm) = 300$ GeV, $m(\tilde{\chi}_1^0) = 150$ GeV	
Source	ATLAS	CheckMATE
Generated events	238296.0	634674.0
Initial Events	238296 ± 0	238000 ± 0
Trigger*	114048 ± 240	-
Event DQ*	112728 ± 240	-
Lepton (exactly 1 baseline)	30912 ± 160	27700 ± 96
Lepton (exactly 1 signal)	18542 ± 130	18700 ± 81
At least 3 jets ≥ 25 GeV	16711 ± 120	16700 ± 76
At least 4 jets ≥ 25 GeV	11947 ± 110	12200 ± 66
jet ₁ $p_T \geq 80$ GeV	11719 ± 110	11700 ± 65
jet ₂ $p_T \geq 60$ GeV	10988 ± 100	10900 ± 62
jet ₃ $p_T \geq 40$ GeV	10043 ± 98	10300 ± 61
#b-tagged jets (80% eff.) ≥ 2	6301 ± 78	7430 ± 52
bjet ₁ $p_T \geq 140$ GeV	4318 ± 65	4230 ± 40
bjet ₂ $p_T \geq 75$ GeV	3447 ± 58	2920 ± 33
$\Delta\Phi(\text{jet}_1, E_T^{miss}) \geq 0.8$	3312 ± 57	2750 ± 32
$\Delta\Phi(\text{jet}_2, E_T^{miss}) \geq 0.8$	2692 ± 52	2130 ± 28
$E_T^{miss} \geq 170$ GeV	927 ± 30	674 ± 16
$E_T^{miss}/\sqrt{H_T} \geq 6\sqrt{\text{GeV}}$	914 ± 30	661 ± 16
$m_T \geq 60$ GeV	404 ± 20	323 ± 11
$am_{T2} > 250$ GeV	183 ± 14	157 ± 7.7
veto on isolated tracks	145 ± 12	140 ± 7.2
veto on tight τ 's	140 ± 12	139 ± 7.2
topness ≥ 7.5	140 ± 12	-

Table 15: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.

Signal region	bCb_med2 muon ($E_T^{miss} \geq 170$ GeV, $am_{T2} \geq 250$ GeV)	
Process	$\tilde{t} \rightarrow b\tilde{\chi}_1^\pm$	
Point	$m(\tilde{t}) = 500$ GeV, $m(\tilde{\chi}_1^\pm) = 300$ GeV, $m(\tilde{\chi}_1^0) = 150$ GeV	
Source	ATLAS	CheckMATE
Generated events	238296.0	634674.0
Initial Events	238296 ± 0	238000 ± 0
Trigger*	114184 ± 240	-
Event DQ*	112860 ± 240	-
Lepton (exactly 1 baseline)	29078 ± 160	27100 ± 95
Lepton (exactly 1 signal)	19337 ± 130	22200 ± 87
At least 3 jets ≥ 25 GeV	17294 ± 130	19800 ± 82
At least 4 jets ≥ 25 GeV	12414 ± 110	14300 ± 71
jet ₁ $p_T \geq 80$ GeV	12130 ± 110	13800 ± 70
jet ₂ $p_T \geq 60$ GeV	11401 ± 100	12800 ± 68
jet ₃ $p_T \geq 40$ GeV	10359 ± 100	12300 ± 66
#b-tagged jets (80% eff.) ≥ 2	6411 ± 79	8820 ± 56
bjet ₁ $p_T \geq 140$ GeV	4495 ± 66	5050 ± 43
bjet ₂ $p_T \geq 75$ GeV	3563 ± 59	3500 ± 36
$\Delta\Phi(\text{jet}_1, E_T^{miss}) \geq 0.8$	3409 ± 58	3280 ± 35
$\Delta\Phi(\text{jet}_2, E_T^{miss}) \geq 0.8$	2738 ± 52	2560 ± 31
$E_T^{miss} \geq 170$ GeV	926 ± 30	809 ± 17
$E_T^{miss}/\sqrt{H_T} \geq 6\sqrt{\text{GeV}}$	915 ± 30	794 ± 17
$m_T \geq 60$ GeV	376 ± 19	373 ± 12
$am_{T2} > 250$ GeV	193 ± 14	192 ± 8.5
veto on isolated tracks	153 ± 12	173 ± 8.1
veto on tight τ 's	151 ± 12	172 ± 8
topness ≥ 7.5	151 ± 12	-

Table 16: Cutflow validation for atlas_1407_0583. Shown are number of Monte-Carlo generated events passing each cut for the experimental collaboration. The CheckMATE result is normalised to the same value. Final error is Monte-Carlo events only.