Table 1: Validation courtesy of Junjie Cao, Liangliang Shang, Jin Min Yang and Yang Zhang of their implementation of atlas_1405_7875, the ATLAS search for the 2 $\sim$ 6 jets + E_T^{miss} signal in CheckMATE. Numbers in the columns EXP and OUR are the cut efficiencies in the signal region obtained by the ATLAS collaboration and us respectively, and those in the column DIFF represent their relative difference.

$\tilde{q}\ \tilde{q}$ direct, $m_{\tilde{q}} = 475$GeV, $m_{\tilde{\chi}_1^0} = 425$GeV $N_{raw}^{EXP} = 20000, N_{raw}^{OUR} = 50000$			
SR:2jm	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	9.20±0.20	10.93±0.14	-18.80%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	7.60±0.19	8.97±0.13	-18.03%
$E_T^{miss}/\sqrt{H_T} > 15$	2.90±0.12	2.33±0.07	19.66%
$m_{eff}(incl.) > 1200GeV$	0.50±0.05	0.497±0.03	0.60%
$\tilde{q}\ \tilde{q}$ direct, $m_{\tilde{q}} = 1000$GeV, $m_{\tilde{\chi}_1^0} = 100$GeV $N_{raw}^{EXP} = 5000, N_{raw}^{OUR} = 50000$			
SR:2jt	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	89.60±0.43	90.76±0.13	-1.30%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	81.00±0.55	82.10±0.17	-1.36%
$E_T^{miss}/\sqrt{H_T} > 15$	56.00±0.70	54.20±0.22	3.21%
$m_{eff}(incl.) > 1600GeV$	31.00±0.65	31.90±0.21	-2.90%
$\tilde{g}\ \tilde{g}$ one step, $m_{\tilde{g}} = 1200GeV$, $m_{\tilde{\chi}_1^\pm} = 1150GeV$, $m_{\tilde{\chi}_1^0} = 60GeV$ $N_{raw}^{EXP} = 60000, N_{raw}^{OUR} = 50000$			
SR:2jW	EXP	OUR	DIFF
$E_T^{miss} > 160GeV,\ P_T(j_{1,2}) > 130(60)GeV$	52.70±0.20	56.35±0.22	-6.93%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	46.30±0.20	49.01±0.22	-5.85%
N(W) unresolved ≥ 2	9.20±0.12	8.70±0.13	5.43%
$E_T^{miss}/m_{eff}(N_j) > 0.25$	7.00±0.10	6.69±0.11	4.43%
$m_{eff}(incl.) > 1800GeV$	5.30±0.09	4.86±0.10	8.30%
$\tilde{g}\ \tilde{q}$ direct, $m_{\tilde{g}} = 1612$GeV, $m_{\tilde{q}} = 0.96 * m_{\tilde{g}}$, $m_{\tilde{\chi}_1^0} = 337$GeV $N_{raw}^{EXP} = 5000, N_{raw}^{OUR} = 50000$			
SR:3j	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	94.00±0.34	95.18±0.10	-1.26%
$P_T(j_3) > 60GeV$	74.80±0.61	77.62±0.19	-3.78%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	65.00±0.67	67.42±0.21	-3.72%
$E_T^{miss}/m_{eff}(N_j) > 0.3$	48.30±0.71	48.24±0.22	0.13%
$m_{eff}(incl.) > 2200GeV$	29.90±0.65	29.87±0.20	0.11%

Table 2: Validation courtesy of Junjie Cao, Liangliang Shang, Jin Min Yang and Yang Zhang of their implementation of atlas_1405_7875 (2).

$\tilde{q}\ \tilde{q}$ direct, $m_{\tilde{q}} = 400$GeV, $m_{\tilde{\chi}_1^0} = 250$GeV $N_{raw}^{EXP} = 20000, N_{raw}^{OUR} = 50000$			
SR:4jl-	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	28.00±0.32	28.00±0.20	0.00%
$P_T(j_3) > 60GeV$	12.30±0.23	13.00±0.15	-5.69%
$P_T(j_4) > 60GeV$	4.00±0.14	4.08±0.09	-2.00%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	3.40±0.13	3.52±0.08	-3.59%
$\Delta\phi(jet_{i>3}, E_T^{miss})_{min} > 0.2$	3.10±0.12	3.30±0.08	-6.32%
$E_T^{miss}/\sqrt{H_T} > 10$	1.80±0.09	1.69±0.06	6.33%
$m_{eff}(incl.) > 700GeV$	1.50±0.09	1.47±0.05	2.00%
$\tilde{g}\ \tilde{g}$ direct, $m_{\tilde{g}} = 800$GeV, $m_{\tilde{\chi}_1^0} = 650$GeV $N_{raw}^{EXP} = 15000, N_{raw}^{OUR} = 50000$			
SR:4jl*	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	19.90±0.33	18.72±0.17	5.92%
$P_T(j_3) > 60GeV$	13.30±0.28	13.80±0.15	-3.74%
$P_T(j_4) > 60GeV$	6.60±0.20	7.28±0.12	-10.37%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	5.50±0.19	5.96±0.11	-8.34%
$\Delta\phi(jet_{i>3}, E_T^{miss})_{min} > 0.2$	4.80±0.17	5.20±0.10	-8.23%
$E_T^{miss}/\sqrt{H_T} > 10$	3.10±0.14	2.88±0.07	7.16%
$m_{eff}(incl.) > 1000GeV$	1.20±0.09	1.32±0.05	-9.79%
$\tilde{g}\ \tilde{g}$ direct, $m_{\tilde{g}} = 1425$GeV, $m_{\tilde{\chi}_1^0} = 75$GeV $N_{raw}^{EXP} = 5000, N_{raw}^{OUR} = 50000$			
SR:4jt	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	91.10±0.40	92.33±0.12	-1.35%
$P_T(j_3) > 60GeV$	90.60±0.41	91.99±0.12	-1.53%
$P_T(j_4) > 60GeV$	83.10±0.53	86.27±0.15	-3.81%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	67.40±0.66	71.04±0.20	-5.39%
$\Delta\phi(jet_{i>3}, E_T^{miss})_{min} > 0.2$	57.70±0.70	61.27±0.22	-6.19%
$E_T^{miss}/m_{eff}(N_j) > 0.25$	33.50±0.67	34.14±0.21	-1.92%
$m_{eff}(incl.) > 2200GeV$	17.50±0.54	19.75±0.18	-12.87%

* For 4jl, our simulation results are large for each cutflow compared to those of the ATLAS simulation. So we use a factor 0.85 to scale our simulation results.

Table 3: Validation courtesy of Junjie Cao, Liangliang Shang, Jin Min Yang and Yang Zhang of their implementation of atlas_1405_7875 (3).

$\tilde{q}\ \tilde{q}$ one step, $m_{\tilde{q}} = 665$GeV, $m_{\tilde{\chi}_1^+} = 465$GeV, $m_{\tilde{\chi}_1^0} = 265$GeV $N_{raw}^{EXP} = 60000, N_{raw}^{OUR} = 50000$			
SR:5j	EXP	OUR	DIFF
$E_T^{miss} > 160GeV, P_T(j_{1,2}) > 130(60)GeV$	33.50±0.19	28.54±0.20	14.81%
$P_T(j_3) > 60GeV$	32.30±0.19	27.29±0.20	15.51%
$P_T(j_4) > 60GeV$	26.10±0.18	22.13±0.19	15.22%
$P_T(j_5) > 60GeV$	15.00±0.15	13.20±0.15	11.99%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	12.50±0.14	11.04±0.14	11.70%
$\Delta\phi(jet_{i>3}, E_T^{miss})_{min} > 0.2$	10.90±0.13	9.72±0.13	10.83%
$E_T^{miss}/m_{eff}(N_j) > 0.2$	9.00±0.12	7.76±0.12	13.80%
$m_{eff}(incl.) > 1200GeV$	2.20±0.06	2.35±0.07	-6.89%
$\tilde{q}\ \tilde{q}$ one step, $m_{\tilde{q}} = 465GeV$, $m_{\tilde{\chi}_1^\pm} = 385GeV$, $m_{\tilde{\chi}_1^0} = 305GeV$ $N_{raw}^{EXP} = 60000, N_{raw}^{OUR} = 50000$			
SR:6jl	EXP	OUR	DIFF
$E_T^{miss} > 160GeV,\ P_T(j_1, j_2) > 130(60)GeV$	4.10±0.08	6.59±0.11	-60.83%
$P_T(j_3) > 60GeV$	3.70±0.08	5.14±0.10	-38.83%
$P_T(j_4) > 60GeV$	2.60±0.06	3.12±0.08	-19.91%
$P_T(j_5) > 60GeV$	1.30±0.05	1.43±0.05	-9.62%
$P_T(j_6) > 60GeV$	0.40±0.03	0.50±0.03	-25.37%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	0.30±0.02	0.36±0.03	-18.63%
$\Delta\phi(j_{i>3}, E_T^{miss})_{min} > 0.2$	0.20±0.02	0.25±0.02	-25.00%
$E_T^{miss}/m_{eff}(N_j) > 0.2$	0.20±0.02	0.20±0.02	0.00%
$m_{eff}(incl.) > 900GeV$	0.20±0.02	0.17±0.02	14.70%
$\tilde{g}\ \tilde{g}$ one step, $m_{\tilde{g}} = 1265GeV$, $m_{\tilde{\chi}_1^\pm} = 945GeV$, $m_{\tilde{\chi}_1^0} = 625GeV$ $N_{raw}^{EXP} = 20000, N_{raw}^{OUR} = 50000$			
SR:6jt	EXP	OUR	DIFF
$E_T^{miss} > 160GeV,\ P_T(j_1, j_2) > 130(60)GeV$	53.30±0.35	54.16±0.22	-1.61%
$P_T(j_3) > 60GeV$	53.00±0.35	53.83±0.22	-1.57%
$P_T(j_4) > 60GeV$	50.50±0.35	51.50±0.22	-1.98%
$P_T(j_5) > 60GeV$	41.40±0.35	43.49±0.22	-5.05%
$P_T(j_6) > 60GeV$	26.70±0.31	29.78±0.20	-11.54%
$\Delta\phi(j_{1,2(,3)}, E_T^{miss})_{min} > 0.4$	22.40±0.29	25.38±0.19	-13.30%
$\Delta\phi(j_{i>3}, E_T^{miss})_{min} > 0.2$	18.20±0.27	20.54±0.18	-12.86%
$E_T^{miss}/m_{eff}(N_j) > 0.25$	10.90±0.22	11.64±0.14	-6.79%
$m_{eff}(incl.) > 1500GeV$	4.20±0.14	4.81±0.10	-14.52%