

	shape	V+jets	$t\bar{t}, t+X$	VV, Vh	Signal
Bkg. normalization	—	2–15%	—	—	—
Top quark bkg. scale factors	—	—	2–17%	—	—
Jet energy scale	✓	—	—	3%	1%
Jet energy resolution	✓	—	—	<1%	<1%
Jet mass scale	—	—	—	6%	1%
Jet mass resolution	—	—	—	6%	11%
Electron identification, isolation	—	—	1–3%	1–4%	
Muon identification, isolation	—	—	1–3%	1–5%	
Lepton scale and resolution	✓	—	—	—	1–5%
Hadronic $\tau$ veto	—	—	—	3% ( $0\ell$ )	
$p_T^{\text{miss}}$ scale and resolution	—	—	—	1%	1%
Electron, muon, $p_T^{\text{miss}}$ trigger	—	—	—	3–4%	
b tagging	—	—	3% ( $0\ell, 1\ell$ )	4% (1b)	2–5% (1b)
			2–5% ‡	5% (2b)	3–7% (2b)
Higgs boson jet	—	—	—	—	6%
Top quark $p_T$	—	—	6–14% ‡	—	—
Pileup	—	—	<1%	<1%	<1%
Factorization and renormalization scales	—	—	21% ‡	19%	3–28% †
PDF normalization	—	—	5% ‡	5%	8–36% †
PDF acceptance	—	—	2% ‡	<2%	<1%
Luminosity	—	—	—	2.5%	2.5%