

Description	Value	Templates affected	Type
Luminosity	2016: 1.2% 2017: 2.3% 2018: 2.5%	MC	lnN
DY+jets production cross section	2%	DY	lnN
$t\bar{t}$ production cross section	6%	$t\bar{t}$	lnN
W+jets production cross section	4%	W+jets	lnN
Diboson production cross section	5%	VV	lnN
Single top quark production cross section	5%	single top	lnN
$t\bar{t}V$ +jets production cross section	15%	$t\bar{t}V$ +jets	lnN
Higgs boson production cross section	0.5–8%	H (except $b\bar{b}H$)	lnN
$H \rightarrow \tau\tau$ branching fraction	2.1%	$H \rightarrow \tau\tau$	lnN
$H \rightarrow WW$ branching fraction	1.5%	$H \rightarrow WW$	lnN
α_S variation	3.2%	$b\bar{b}H$	lnN
μ/e identification	2%	MC	lnN
$e\mu$ trigger	1.5%	MC	lnN
Single μ/e trigger	p_T and η dep.	MC	shape
τ_h trigger	p_T -dep.	MC	shape
b tagging	1–9%	MC	shape
$\mu(e) \rightarrow \tau_h$ fake rate	η_{τ_h} dep.	MC with $\ell \rightarrow \tau_h$	shape
τ_h identification	p_T and DM dep. (2–3%)	MC	shape
τ_h energy scale	DM dep. (1%)	MC	shape
Jet energy scale	event-dep.	MC	shape
Jet energy resolution	event-dep.	MC	shape
p_T^{miss} unclustered energy scale	event-dep.	MC	shape
Top quark p_T reweighting	event-dep. (<10%)	$t\bar{t}$, single top	shape
Z boson p_T reweighting	event-dep. (<5%)	DY	shape
QCD multijet unc.	event-dep.	nonprompt ℓ ($e\mu$ channel)	lnN
F_F uncertainties	event-dep.	$j \rightarrow \tau_h$ fakes	shape
Prefiring	event-dep.	MC	lnN
Bin-by-bin stat. unc.	$\sqrt{N_{\text{events}}}$	All	shape