

Source		Correlation	Uncertainty [%]	
			yield	$\sigma(\bar{t}\bar{t}\gamma)$
Experimental	Integrated luminosity	partial	2.3–2.5	1.8
	Pileup	100%	0.5–2.0	<0.5
	Trigger efficiency	—	<0.5	<0.5
	Electron reconstruction and identification	100%	0.2–1.7	<0.5
	Muon reconstruction and identification	partial	0.5–0.7	0.7
	Photon reconstruction and identification	100%	0.4–1.4	1.1
	$p_T(e)$ and $p_T(\gamma)$ reconstruction	100%	0.1–1.2	<0.5
	JES	partial	1.0–4.1	1.9
	JER	—	0.4–1.6	0.6
	b tagging	100% (2017/2018)	0.8–1.6	1.1
Theoretical	L1 prefiring	100% (2016/2017)	0.3–0.9	<0.5
	Tune	100%	0.1–1.9	<0.5
	Color reconnection	100%	0.4–3.6	<0.5
	ISR/FSR	100%	1.0–5.6	1.9
	PDF	100%	<0.5	<0.5
	ME scales $\mu_R, \mu_F$	100%	0.4–4.7	<0.5
	Multijet normalization	100%	1.3–6.5	0.9
Background	Nonprompt photon background	100%	1.2–2.7	1.8
	Misidentified e	—	2.5–8.0	1.8
	$Z\gamma$ normalization	100%	0.6–2.5	0.5
	$W\gamma$ normalization	100%	1.0–3.5	2.3
	DY normalization	100%	0.1–1.1	1.0
	t/ $\bar{t}$ normalization	100%	1.0–1.9	0.8
	t $W\gamma$ modeling	100%	1.6–4.4	1.6
	“Other” bkg. normalization	100%	0.3–1.0	<0.5
	Total systematic uncertainty			6.0
	Statistical uncertainty			0.9
Total			6.0	