

Label	Channels	$Q_\ell$	OSSF $n$	$M_{\text{OSSF}}$	$N_b$	$S_T$	$p_{T3}$	$M_\ell$	Dilepton mass
$W\phi(ee/\mu\mu)$ SR1Low	3L( $ee\mu/e\mu\mu$ )	1	1	OffZ	0	—	—	$<76, >106$	$M_{ee}/M_{\mu\mu}$
$W\phi(ee/\mu\mu)$ SR2Low	3L( $eee/\mu\mu\mu$ )	1	1	OffZ	0	—	—	$<76, >106$	$M_{ee}^{\min}/M_{\mu\mu}^{\min}$
$W\phi(ee/\mu\mu)$ SR1High	3L( $ee\mu/e\mu\mu$ )	1	1	OffZ	0	$>200$	$>15$	$>150$	$M_{ee}/M_{\mu\mu}$
$W\phi(ee/\mu\mu)$ SR2High	3L( $eee/\mu\mu\mu$ )	1	1	OffZ	0	$>200$	$>15$	$>150$	$M_{ee}^{\max}/M_{\mu\mu}^{\max}$
$Z\phi(ee/\mu\mu)$ SRLow	4L+3L1T+2L2T	0	$\geq 1$	Not double-OnZ	0	—	—	—	$M_{ee}^{\min}/M_{\mu\mu}^{\min}$
$Z\phi(ee/\mu\mu)$ SRHigh	4L+3L1T+2L2T	0	$\geq 1$	Not double-OnZ	0	$>200$	—	$>150$	$M_{ee}^{\max}/M_{\mu\mu}^{\max}$
$t\bar{t}\phi(ee/\mu\mu)$ SR1Low	3L( $ee\mu/e\mu\mu$ )	1	1	OffZ	$\geq 1$	$>350$	—	$>100$	$M_{ee}/M_{\mu\mu}$
$t\bar{t}\phi(ee/\mu\mu)$ SR2Low	3L( $eee/\mu\mu\mu$ )	1	1	OffZ	$\geq 1$	$>350$	—	$>100$	$M_{ee}^{\min}/M_{\mu\mu}^{\min}$
$t\bar{t}\phi(ee/\mu\mu)$ SR1High	3L( $ee\mu/e\mu\mu$ )	1	1	OffZ	$\geq 1$	$>400$	$>15$	$>100$	$M_{ee}/M_{\mu\mu}$
$t\bar{t}\phi(ee/\mu\mu)$ SR2High	3L( $eee/\mu\mu\mu$ )	1	1	OffZ	$\geq 1$	$>400$	$>15$	$>100$	$M_{ee}^{\max}/M_{\mu\mu}^{\max}$
$t\bar{t}\phi(ee/\mu\mu)$ SR3Low	4L+3L1T+2L2T	0	$\geq 1$	OffZ	—	$>350$	—	—	$M_{ee}^{\min}/M_{\mu\mu}^{\min}$
$t\bar{t}\phi(ee/\mu\mu)$ SR3High	4L+3L1T+2L2T	0	$\geq 1$	OffZ	—	$>400$	—	—	$M_{ee}^{\max}/M_{\mu\mu}^{\max}$