

Control region	Quantity	Requirement
Fit variable: Dilepton p_T		
$W^-W^+ / t\bar{t}$	$N_\ell (N_{\ell,\text{tight}})$	=2 (2)
	Dilepton flavour/charge	$e^\pm\mu^\mp$
	Number of b jets	=0
	$\text{pNN}(m_H, m_A)$	>0.9
$t\bar{t}$	$N_\ell (N_{\ell,\text{tight}})$	=2 (2)
	Dilepton flavour/charge	$e^\pm\mu^\mp$
	Number of b jets	≥ 1
	$\text{pNN}(m_H, m_A)$	>0.9
MisID different-flavour	$N_\ell (N_{\ell,\text{tight}})$	=2 (2)
	Dilepton flavour/charge	$e^\pm\mu^\pm$
	Number of b jets	=0
	$\text{pNN}(m_H, m_A)$	>0.9
Fit variable: $\text{pNN}(m_H, m_A)$		
ZZ	$N_\ell (N_{\ell,\text{tight}})$	=4 (≥ 2)
	Both dilepton flavour/charge	$e^+e^- / \mu^+\mu^-$
	Second dilepton mass	$ m_{\ell\ell} - m_Z < 10 \text{ GeV}$
	$\text{pNN}(m_H, m_A)$	>0.8
WZ opposite-charge	$N_\ell (N_{\ell,\text{tight}})$	=3 (3)
	Dilepton flavour/charge	$e^\pm e^\mp / \mu^\pm \mu^\mp$
	$\text{pNN}(m_H, m_A)$	>0.9
WZ same-charge	$N_\ell (N_{\ell,\text{tight}})$	=3 (3)
	Dilepton flavour/charge	$e^\pm e^\pm / \mu^\pm \mu^\pm$
	$\text{pNN}(m_H, m_A)$	>0.9
MisID same-flavour	$N_\ell (N_{\ell,\text{tight}})$	=2 (2)
	Dilepton flavour/charge	$e^\pm e^\pm / \mu^\pm \mu^\pm$
	Number of b jets	=0
	$\text{pNN}(m_H, m_A)$	>0.9