

Category	Selection
Global selection	$p_{T1} > 25 \text{ GeV}, p_{T2} > 13^1 \text{ GeV},$ $p_T^{\text{miss}} > 20 \text{ GeV}, p_T^{\ell\ell} > 30 \text{ GeV}, m_{\ell\ell} > 12 \text{ GeV}$ $e\mu$ pair with opposite charge
Signal region	At least 2 jets with $p_T > 30 \text{ GeV},  \eta_{j1} ,  \eta_{j2}  < 2.5$ $\Delta\eta_{jj} < 3.5, 60 \text{ GeV} < m_T^H < 125 \text{ GeV}, \Delta R_{\ell\ell} < 2$ no b-tagged jet with $p_T > 20 \text{ GeV}, 65 \text{ GeV} < m_{jj} < 105 \text{ GeV}$
Top control region	As SR, no $m_T^H$ requirement, $m_{\ell\ell} > 50 \text{ GeV}$ at least 1 b-tagged jet with $p_T > 30 \text{ GeV}$
$\tau^+\tau^-$ CR	As signal region but with $m_T^H < 60 \text{ GeV}$ $30 \text{ GeV} < m_{\ell\ell} < 80 \text{ GeV}$