

| Category | Sub-categories | Selection |
|------------------|----------------|---|
| Global selection | - | $p_{T1} > 25 \text{ GeV}, p_{T2} > 20 \text{ GeV}, p_{T3} > 15 \text{ GeV}, p_{T4} > 10 \text{ GeV},$ $Q_{4\ell} = 0, \min(m_{\ell\ell}) > 12 \text{ GeV},$ no b-tagged jet with $p_T > 20 \text{ GeV}, m_{\ell\ell} - m_Z < 15 \text{ GeV},$ |
| Signal region | XSF | Same flavor X pair, $m_{4\ell} > 140 \text{ GeV},$ $10 < m_{\ell\ell}^X < 65 \text{ GeV}, p_T^{\text{miss}} > 35 \text{ GeV}$ |
| | XDF | Different flavor X pair, $10 < m_{\ell\ell}^X < 65 \text{ GeV},$ $p_T^{\text{miss}} > 20 \text{ GeV}$ |
| Control region | ZZ | $75 < m_{\ell\ell}^X < 105 \text{ GeV}, p_T^{\text{miss}} < 35 \text{ GeV}$ |