| Channel             | Vector boson<br>decay products<br>selection   | Vector boson reconstruction and selection   | Jet selection   |
|---------------------|---|---|---|
| MET<br>small-radius |   | $ec{p}_{\mathrm{T}}^{Z} = ec{p}_{\mathrm{T}}^{\mathrm{miss}} \ p_{\mathrm{T}}^{Z} > 150\mathrm{GeV}$  | $\geq$ 4 small-radius jets with $p_{\rm T} > 35{\rm GeV}$   |
| MET<br>large-radius |   | $ec{p}_{\mathrm{T}}^{Z} = ec{p}_{\mathrm{T}}^{\mathrm{miss}} \ p_{\mathrm{T}}^{Z} > 250\mathrm{GeV}$  | $\geq$ 2 large-radius jets with $p_{\rm T} > 200{\rm GeV}$  |
| 1L                  | $p_{\mathrm{T}}^{\mathrm{e}} > 32(28)  \mathrm{GeV}$ $2018/2017  (2016)$ $\mathrm{OR}$ $p_{\mathrm{T}}^{\mu} > 25  \mathrm{GeV}$ $\Delta \phi(\vec{p}_{\mathrm{T}}^{\ell}, \vec{p}_{\mathrm{T}}^{\mathrm{miss}}) < 2.0$ | $ec{p}_{\mathrm{T}}^{\mathrm{W}} = ec{p}_{\mathrm{T}}^{\ell} + ec{p}_{\mathrm{T}}^{\mathrm{miss}}  onumber \ p_{\mathrm{T}}^{\mathrm{W}} > 125\mathrm{GeV}$ | $\geq$ 3 small-radius jets with $p_{\rm T} > 25{\rm GeV}$ and $\geq$ 4 small-radius jets with $p_{\rm T} > 15{\rm GeV}$ OR $\geq$ 2 large-radius jets with $p_{\rm T} > 200{\rm GeV}$ |
| 2L                  | $p_{ m T}^{\mu_1} > 20{ m GeV}$ $p_{ m T}^{\mu_2} > 20{ m GeV}$ $p_{ m T}^{ m e_1} > 25{ m GeV}$ $p_{ m T}^{ m e_2} > 20{ m GeV}$   | $ec{p}^{Z} = ec{p}^{\ell_1} + ec{p}^{\ell_2}$ $p_{\mathrm{T}}^{Z} > 50\mathrm{GeV}$   | $\geq$ 4 small-radius jets with $p_{\mathrm{T}} >$ 20 GeV   |
| FH                  | $p_{\mathrm{T}}^{\mathrm{J}_{i}} > 20\mathrm{GeV}$  | $\vec{p}^{\mathrm{V}} = \vec{p}^{\mathrm{J}_1} + \vec{p}^{\mathrm{J}_2}$ $65 < m_{\mathrm{V}} < 105\mathrm{GeV}$  | $\geq$ 4 small-radius jets with $p_{\rm T} > 40$ GeV and $\geq$ 6 small-radius jets with $p_{\rm T} > 20$ GeV   |