| Selection step | $2\ell\mathrm{ss}+0\tau_\mathrm{h}$ | $2\ell\mathrm{ss}+1\tau_\mathrm{h}$ | $3\ell+0\tau_\mathrm{h}$ |
|---|---|---|---|
| Targeted $t\bar{t}H$ decay | $t \to b\ell\nu$, $t \to bqq'$ with $H \to WW \to \ell\nu qq'$ | $t \to b\ell\nu$, $t \to bqq'$ with $H \to \tau\tau \to \ell\nu\nu\tau_\mathrm{h}\nu$ | $t \to b\ell\nu$, $t \to bqq'$ with $H \to WW \to \ell\nu qq'$ |
| Targeted $tH$ decays | $t \to b\ell\nu$, $H \to WW \to \ell\nu qq'$ | $t \to b\ell\nu$, $H \to \tau\tau \to \ell\tau_\mathrm{h} + \nu'\mathrm{s}$ | $t \to b\ell\nu$, $H \to \tau\tau \to \ell\tau_\mathrm{h} + \nu'\mathrm{s}$ |
| Trigger | Single- and double-lepton triggers | | |
| Lepton $\eta$ | $\lvert\eta\rvert < 2.5$ (e) or $2.4$ ($\mu$) | | |
| $\tau_\mathrm{h}$ $p_\mathrm{T}$ | — | $p_\mathrm{T} > 20\,\mathrm{GeV}$ | — |
| $\tau_\mathrm{h}$ $\eta$ | — | $\lvert\eta\rvert < 2.3$ | — |
| $\tau_\mathrm{h}$ identification | — | very-loose | — |
| Charge requirements | 2 ss leptons | 2 ss leptons | $\sum\limits_{\ell,\tau_\mathrm{h}} q = 0$ |
| | and charge quality requirements | and charge quality requirements $\sum\limits_{\ell,\tau_\mathrm{h}} q = \pm 1$ | |
| Multiplicity of central jets | $\geq 3$ jets | $\geq 3$ jets | $\geq 3$ jets |
| b-tagging requirements | $\geq 1$ tight b-tagged jet or $\geq 2$ loose b-tagged jets | | |
| Missing transverse momentum | $L_\mathrm{D} > 30\,\mathrm{GeV}^{\dagger}$ | | |
| Dilepton invariant mass | $\lvert m_{\ell\ell} - m_\mathrm{Z}\rvert > 10\,\mathrm{GeV}^{\ddagger}$ and $m_{\ell\ell} > 12\,\mathrm{GeV}$ | | |