| | | |
|---|---|---|
| **Physics object acceptances** | | |
| Jet | $p_{\mathrm{T}} > 40\,\mathrm{GeV}$, $\lvert\eta\rvert < 2.4$ | |
| Photon | $p_{\mathrm{T}} > 25\,\mathrm{GeV}$, $\lvert\eta\rvert < 2.5$, isolated in cone $\Delta R < 0.3$ | |
| Electron | $p_{\mathrm{T}} > 10\,\mathrm{GeV}$, $\lvert\eta\rvert < 2.5$, $I^{\mathrm{rel}} < 0.1$ in cone $0.05 < \Delta R(p_{\mathrm{T}}) < 0.2$ | |
| Muon | $p_{\mathrm{T}} > 10\,\mathrm{GeV}$, $\lvert\eta\rvert < 2.5$, $I^{\mathrm{rel}} < 0.2$ in cone $0.05 < \Delta R(p_{\mathrm{T}}) < 0.2$ | |
| Single isolated track (SIT) | $p_{\mathrm{T}} > 10\,\mathrm{GeV}$, $\lvert\eta\rvert < 2.5$, $I^{\mathrm{track}} < 0.1$ in cone $\Delta R < 0.3$ | |
| **Baseline event selection** | | |
| All-jet final state | Veto events containing photons, electrons, muons, and SITs within acceptance | |
| $p_{\mathrm{T}}^{\mathrm{miss}}$ quality | Veto events based on filters related to beam and instrumental effects | |
| Jet quality | Veto events containing jets that fail identification criteria or $0.1 < f_{\mathrm{h}^{\pm}}^{\mathrm{j}_1} < 0.95$ | |
| Jet energy and sums | $p_{\mathrm{T}}^{\mathrm{j}_1} > 100\,\mathrm{GeV}$, $H_{\mathrm{T}} > 200\,\mathrm{GeV}$, $H_{\mathrm{T}}^{\mathrm{miss}} > 200\,\mathrm{GeV}$ | |
| Jets outside acceptance | $H_{\mathrm{T}}^{\mathrm{miss}}/p_{\mathrm{T}}^{\mathrm{miss}} < 1.25$, veto events containing jets with $p_{\mathrm{T}} > 40\,\mathrm{GeV}$ and $\lvert\eta\rvert > 2.4$ | |
| **Signal region** | Baseline selection + | |
| $\alpha_{\mathrm{T}}$ threshold ($H_{\mathrm{T}}$ range) | 0.65 (200–250 GeV), 0.60 (250–300), 0.55 (300–350), 0.53 (350–400), 0.52 (400–900) | |
| $\Delta\phi^*_{\mathrm{min}}$ threshold | $\Delta\phi^*_{\mathrm{min}} > 0.5$ ($n_{\mathrm{jet}} \geq 2$), $\Delta\phi^{*25}_{\mathrm{min}} > 0.5$ ($n_{\mathrm{jet}} = 1$) | |
| **Nominal categorization schema** | | |
| $n_{\mathrm{jet}}$ | 1 | (monojet) |
| | $\geq 2a$ | ($a$ denotes asymmetric, $40 < p_{\mathrm{T}}^{\mathrm{j}_2} < 100\,\mathrm{GeV}$) |
| | 2, 3, 4, 5, $\geq 6$ | (symmetric, $p_{\mathrm{T}}^{\mathrm{j}_2} > 100\,\mathrm{GeV}$) |
| $n_{\mathrm{b}}$ | 0, 1, 2, 3, $\geq 4$ | (can be dropped/merged *vs.* $n_{\mathrm{jet}}$) |
| $H_{\mathrm{T}}$ boundaries | 200, 400, 600, 900, 1200 GeV | (can be dropped/merged *vs.* $n_{\mathrm{jet}}$, $n_{\mathrm{b}}$) |
| $H_{\mathrm{T}}^{\mathrm{miss}}$ boundaries | 200, 400, 600, 900 GeV | (can be dropped/merged *vs.* $n_{\mathrm{jet}}$, $n_{\mathrm{b}}$, $H_{\mathrm{T}}$) |
| **Simplified categorization schema** | | |
| Topology ($n_{\mathrm{jet}}$, $n_{\mathrm{b}}$) | Monojet-like | $(1 \cap \geq 2a, 0)$, $(1 \cap \geq 2a, \geq 1)$ |
| | Low $n_{\mathrm{jet}}$ | $(2 \cap 3, 0 \cap 1)$, $(2 \cap 3, \geq 2)$ |
| | Medium $n_{\mathrm{jet}}$ | $(4 \cap 5, 0 \cap 1)$, $(4 \cap 5, \geq 2)$ |
| | High $n_{\mathrm{jet}}$ | $(\geq 6, 0 \cap 1)$, $(\geq 6, \geq 2)$ |
| $H_{\mathrm{T}}$ boundaries | $H_{\mathrm{T}} > 200\,\mathrm{GeV}$ ($n_{\mathrm{jet}} \leq 3$), $H_{\mathrm{T}} > 400\,\mathrm{GeV}$ ($n_{\mathrm{jet}} \geq 4$) | |
| $H_{\mathrm{T}}^{\mathrm{miss}}$ boundaries | 200, 400, 600, 900 GeV | |
| **Control regions** | Baseline selection + | |
| $\mu$+jets (inverted $\mu$ veto) | $p_{\mathrm{T}}^{\mu_1} > 30\,\mathrm{GeV}$, $\lvert\eta^{\mu_1}\rvert < 2.1$, $\Delta R(\mu, \mathrm{j}_i) > 0.5$, $30 < m_{\mathrm{T}}(\vec{p}_{\mathrm{T}}^{\,\mu}, \vec{p}_{\mathrm{T}}^{\,\mathrm{miss}}) < 125\,\mathrm{GeV}$ | |
| $\mu\mu$+jets (inverted $\mu$ veto) | $p_{\mathrm{T}}^{\mu_{1,2}} > 30\,\mathrm{GeV}$, $\lvert\eta^{\mu_{1,2}}\rvert < 2.1$, $\Delta R(\mu_{1,2}, \mathrm{j}_i) > 0.5$, $\lvert m_{\mu\mu} - m_{\mathrm{Z}}\rvert < 25\,\mathrm{GeV}$ | |
| Multijet-enriched | Sidebands to signal region: $H_{\mathrm{T}}^{\mathrm{miss}}/p_{\mathrm{T}}^{\mathrm{miss}} > 1.25$ and/or $\Delta\phi^*_{\mathrm{min}} < 0.5$ | |