| Decay tag and production tag | | Expected signal composition | $\sigma_{m_H}/m_H$ | *Luminosity* ($fb^{-1}$) No. of categories | |
|---|---|---|---|---|---|
| | | | | 7 TeV | 8 TeV |
| $H \to \gamma\gamma$ [18], Section 2.1 | | | | *5.1* | *19.7* |
| $\gamma\gamma$ | Untagged | 76–93% ggH | 0.8–2.1% | 4 | 5 |
| | 2-jet VBF | 50–80% VBF | 1.0–1.3% | 2 | 3 |
| | Leptonic VH | ≈95% VH (WH/ZH ≈ 5) | 1.3% | 2 | 2 |
| | $E_T^{miss}$ VH | 70–80% VH (WH/ZH ≈ 1) | 1.3% | 1 | 1 |
| | 2-jet VH | ≈65% VH (WH/ZH ≈ 5) | 1.0–1.3% | 1 | 1 |
| | Leptonic ttH | ≈95% ttH | 1.1% | 1† | 1 |
| | Multijet ttH | >90% ttH | 1.1% | | 1 |
| $H \to ZZ \to 4\ell$ [16], Section 2.2 | | | | *5.1* | *19.7* |
| $4\mu$, 2e2$\mu$/2$\mu$2e, 4e | Untagged | ≈90% ggH | 1.3, 1.8, 2.2%‡ | 3 | 3 |
| | 2-jet | 42% (VBF + VH) | | 3 | 3 |
| $H \to WW \to \ell\nu\ell\nu$ [22], Section 2.3 | | | | *4.9* | *19.4* |
| ee + $\mu\mu$, e$\mu$ | 0-jet | 96–98% ggH | 16%‡ | 2 | 2 |
| | 1-jet | 82–84% ggH | 17%‡ | 2 | 2 |
| | 2-jet VBF | 78–86% VBF | | 2 | 2 |
| | 2-jet VH | 31–40% VH | | 2 | 2 |
| 3$\ell$3$\nu$ (WH) | SF-SS, SF-OS | ≈100% WH, up to 20% $\tau\tau$ | | 2 | 2 |
| $\ell\ell + \ell'\nu$jj (ZH) | eee, ee$\mu$, $\mu\mu\mu$, $\mu$e$\mu$ | ≈100% ZH | | 4 | 4 |
| $H \to \tau\tau$ [23], Section 2.4 | | | | *4.9* | *19.7* |
| e$\tau_h$, $\mu\tau_h$ | 0-jet | ≈98% ggH | 11–14% | 4 | 4 |
| | 1-jet | 70–80% ggH | 12–16% | 5 | 5 |
| | 2-jet VBF | 75–83% VBF | 13–16% | 2 | 4 |
| $\tau_h\tau_h$ | 1-jet | 67–70% ggH | 10–12% | — | 2 |
| | 2-jet VBF | 80% VBF | 11% | — | 1 |
| e$\mu$ | 0-jet | ≈98% ggH, 23–30% WW | 16–20% | 2 | 2 |
| | 1-jet | 75–80% ggH, 31–38% WW | 18–19% | 2 | 2 |
| | 2-jet VBF | 79–94% VBF, 37–45% WW | 14–19% | 1 | 2 |
| ee, $\mu\mu$ | 0-jet | 88–98% ggH | | 4 | 4 |
| | 1-jet | 74–78% ggH, ≈17% WW * | | 4 | 4 |
| | 2-jet CJV | ≈50% VBF, ≈45% ggH, 17–24% WW * | | 2 | 2 |
| $\ell\ell + LL'$ (ZH) | $LL' = \tau_h\tau_h, \ell\tau_h$, e$\mu$ | ≈15% (70%) WW for $LL' = \ell\tau_h$ (e$\mu$) | | 8 | 8 |
| $\ell + \tau_h\tau_h$ (WH) | | ≈96% VH, ZH/WH ≈ 0.1 | | 2 | 2 |
| $\ell + \ell'\tau_h$ (WH) | | ZH/WH ≈ 5%, 9–11% WW | | 2 | 4 |
| VH production with $H \to bb$ [21], Section 2.5 | | | | *5.1* | *18.9* |
| W($\ell\nu$)H(bb) | $p_T$(V) bins | ≈100% VH, 96–98% WH | ≈10% | 4 | 6 |
| W($\tau_h\nu$)H(bb) | — | 93% WH | | — | 1 |
| Z($\ell\ell$)H(bb) | $p_T$(V) bins | ≈100% ZH | | 4 | 4 |
| Z($\nu\nu$)H(bb) | $p_T$(V) bins | ≈100% VH, 62–76% ZH | | 2 | 3 |
| ttH production with $H \to$ hadrons or $H \to$ leptons [29], Section 2.6 | | | | *5.0* | *≤19.6* |
| $H \to bb$ | $t\bar{t}$ lepton+jets | ≈90% bb but ≈24% WW in ≥6j + 2b | | 7 | 7 |
| | $t\bar{t}$ dilepton | 45–85% bb, 8–35% WW, 4–14% $\tau\tau$ | | 2 | 3 |
| $H \to \tau_h\tau_h$ | $t\bar{t}$ lepton+jets | 68–80% $\tau\tau$, 13–22% WW, 5–13% bb | | — | 6 |
| 2$\ell$ SS | ≥ 2 jets, ≥ 1 b jet | WW/$\tau\tau$ ≈ 3 | | — | 6 |
| 3$\ell$ | | WW/$\tau\tau$ ≈ 3 | | — | 2 |
| 4$\ell$ | | WW : $\tau\tau$ : ZZ ≈ 3 : 2 : 1 | | — | 1 |
| $H \to$ invisible [28], Section 2.7 | | | | *4.9* | *≤19.7* |
| H(inv) | 2-jet VBF | ≈94% VBF, ≈6% ggH | | — | 1 |
| ZH → Z(ee, $\mu\mu$)H(inv) | 0-jet | ≈100% ZH | | 2 | 2 |
| | 1-jet | | | 2 | 2 |
| $H \to \mu\mu$ [30], Section 2.8 | | | | *5.0* | *19.7* |
| $\mu\mu$ | Untagged | 88–99% ggH | 1.3–2.4% | 12 | 12 |
| | 2-jet VBF | ≈80% VBF | 1.9% | 1 | 1 |
| | 2-jet boosted | ≈50% ggH, ≈50% VBF | 1.8% | 1 | 1 |
| | 2-jet other | ≈68% ggH, ≈17% VH, ≈15% VBF | 1.9% | 1 | 1 |

† Events fulfilling the requirements of either selection are combined into one category.

‡ Values for analyses dedicated to the measurement of the mass that do not use the same categories and/or observables.

* Composition in the regions for which the ratio of signal and background $s/(s+b) > 0.05$.