

| Analysis categories      | SM 125 GeV Higgs boson expected signal |                 |                           |      |        |        |          |       |                       |       |  |
|--------------------------|--|-----------------|---------------------------|------|--------|--------|----------|-------|-----------------------|-------|--|
|                          | Total Yield                            | Target Fraction | Production Mode Fractions |      |        |        |          |       | $\sigma_{\text{eff}}$ | S/S+B |  |
|                          |  |                 | ggH                       | qqH  | WH lep | ZH lep | ggZH lep | Top   |                       |       |  |
| ZH lep Tag0              | 2.2                                    | 99.9%           | -                         | -    | -      | 82.9%  | 17.0%    | 0.1%  | 1.55                  | 0.63  |  |
| ZH lep Tag1              | 1.2                                    | 97.6%           | -                         | -    | -      | 79.0%  | 18.5%    | 2.4%  | 1.60                  | 0.35  |  |
| WH lep low $p_T^V$ Tag0  | 1.3                                    | 83.3%           | 0.1%                      | -    | 95.1%  | 3.6%   | -        | 1.2%  | 1.66                  | 0.61  |  |
| WH lep low $p_T^V$ Tag1  | 2.9                                    | 79.4%           | 0.7%                      | -    | 91.6%  | 5.7%   | -        | 2.0%  | 2.02                  | 0.20  |  |
| WH lep low $p_T^V$ Tag2  | 3.7                                    | 68.5%           | 2.9%                      | 0.3% | 81.4%  | 9.8%   | 0.1%     | 5.5%  | 1.86                  | 0.11  |  |
| WH lep high $p_T^V$ Tag0 | 5.8                                    | 90.1%           | 0.4%                      | -    | 94.4%  | 2.9%   | 0.4%     | 1.8%  | 1.73                  | 0.70  |  |
| WH lep high $p_T^V$ Tag1 | 4.2                                    | 68.7%           | 1.7%                      | 0.5% | 81.1%  | 8.5%   | 2.0%     | 6.1%  | 1.99                  | 0.27  |  |
| WH lep high $p_T^V$ Tag2 | 3.5                                    | 45.0%           | 4.8%                      | 2.1% | 62.0%  | 11.2%  | 3.6%     | 16.3% | 1.87                  | 0.11  |  |
| VH MET Tag0              | 4.1                                    | 98.4%           | 0.4%                      | 0.6% | 27.1%  | 54.3%  | 17.0%    | 0.5%  | 1.95                  | 0.49  |  |
| VH MET Tag1              | 7.9                                    | 80.8%           | 11.3%                     | 5.7% | 31.3%  | 37.5%  | 12.1%    | 2.3%  | 1.86                  | 0.20  |  |