

| Uncertainty of channel                        | SR1LBin0             | SR1LBin1             | SR1LBin2             | SR1LBin3            | SR1LBin4            |
|---|----------------------|----------------------|----------------------|---------------------|---------------------|
| Total background expectation                  | 170.92               | 171.53               | 54.54                | 20.12               | 16.38               |
| Total statistical ( $\sqrt{N_{\text{exp}}}$ ) | $\pm 13.07$          | $\pm 13.10$          | $\pm 7.39$           | $\pm 4.49$          | $\pm 4.05$          |
| Total background systematic                   | $\pm 29.59$ [17.32%] | $\pm 29.65$ [17.28%] | $\pm 10.16$ [18.63%] | $\pm 3.65$ [18.14%] | $\pm 4.38$ [26.71%] |
| alpha_ISR-Top1L                               | $\pm 20.63$ [12.1%]  | $\pm 17.86$ [10.4%]  | $\pm 5.18$ [9.5%]    | $\pm 1.61$ [8.0%]   | $\pm 1.14$ [7.0%]   |
| alpha_PartonShower-Top1L                      | $\pm 17.16$ [10.0%]  | $\pm 18.62$ [10.9%]  | $\pm 6.49$ [11.9%]   | $\pm 1.90$ [9.4%]   | $\pm 1.21$ [7.4%]   |
| alpha_MatrixElement-Top1L                     | $\pm 9.07$ [5.3%]    | $\pm 10.90$ [6.4%]   | $\pm 2.87$ [5.3%]    | $\pm 0.75$ [3.7%]   | $\pm 1.30$ [7.9%]   |
| gamma_stat_SR1LBin0.cuts.bin_0                | $\pm 4.23$ [2.5%]    | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| alpha_PartonShower-SingleTop                  | $\pm 3.96$ [2.3%]    | $\pm 0.42$ [0.24%]   | $\pm 1.99$ [3.6%]    | $\pm 0.80$ [4.0%]   | $\pm 0.38$ [2.3%]   |
| alpha_muR_muF-Wjets                           | $\pm 3.40$ [2.0%]    | $\pm 5.09$ [3.0%]    | $\pm 2.11$ [3.9%]    | $\pm 0.47$ [2.3%]   | $\pm 1.06$ [6.5%]   |
| alpha_muR_muF-ttV                             | $\pm 3.14$ [1.8%]    | $\pm 4.77$ [2.8%]    | $\pm 2.14$ [3.9%]    | $\pm 0.87$ [4.3%]   | $\pm 0.66$ [4.0%]   |
| alpha_FSR-SingleTop                           | $\pm 2.79$ [1.6%]    | $\pm 0.68$ [0.39%]   | $\pm 0.11$ [0.20%]   | $\pm 0.22$ [1.1%]   | $\pm 1.23$ [7.5%]   |
| alpha_ISR-SingleTop                           | $\pm 1.87$ [1.1%]    | $\pm 2.99$ [1.7%]    | $\pm 1.13$ [2.1%]    | $\pm 0.60$ [3.0%]   | $\pm 1.09$ [6.7%]   |
| alpha_MatrixElement-SingleTop                 | $\pm 1.59$ [0.93%]   | $\pm 2.48$ [1.4%]    | $\pm 0.13$ [0.23%]   | $\pm 0.25$ [1.3%]   | $\pm 2.59$ [15.8%]  |
| alpha_muR_muF-Diboson                         | $\pm 1.36$ [0.79%]   | $\pm 1.68$ [0.98%]   | $\pm 0.80$ [1.5%]    | $\pm 0.37$ [1.9%]   | $\pm 0.47$ [2.8%]   |
| alpha_Interference-SingleTop                  | $\pm 1.08$ [0.63%]   | $\pm 2.75$ [1.6%]    | $\pm 2.18$ [4.0%]    | $\pm 1.46$ [7.3%]   | $\pm 1.26$ [7.7%]   |
| alpha_ckkw-Wjets                              | $\pm 0.87$ [0.51%]   | $\pm 0.93$ [0.54%]   | $\pm 0.44$ [0.81%]   | $\pm 0.11$ [0.53%]  | $\pm 0.09$ [0.53%]  |
| alpha_qsf-Wjets                               | $\pm 0.69$ [0.40%]   | $\pm 0.75$ [0.44%]   | $\pm 0.27$ [0.49%]   | $\pm 0.05$ [0.27%]  | $\pm 0.05$ [0.28%]  |
| Lumi  | $\pm 0.68$ [0.40%]   | $\pm 0.84$ [0.49%]   | $\pm 0.34$ [0.62%]   | $\pm 0.15$ [0.74%]  | $\pm 0.13$ [0.80%]  |
| alpha_FSR-Top1L                               | $\pm 0.47$ [0.27%]   | $\pm 0.01$ [0.00%]   | $\pm 0.67$ [1.2%]    | $\pm 0.95$ [4.7%]   | $\pm 0.34$ [2.1%]   |
| alpha_muR_muF-Zjets                           | $\pm 0.24$ [0.14%]   | $\pm 0.12$ [0.07%]   | $\pm 0.02$ [0.03%]   | $\pm 0.01$ [0.04%]  | $\pm 0.01$ [0.05%]  |
| alpha_ckkw-Zjets                              | $\pm 0.03$ [0.01%]   | $\pm 0.01$ [0.00%]   | $\pm 0.01$ [0.02%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.01%]  |
| alpha_qsf-Zjets                               | $\pm 0.02$ [0.01%]   | $\pm 0.00$ [0.00%]   | $\pm 0.01$ [0.02%]   | $\pm 0.00$ [0.01%]  | $\pm 0.00$ [0.01%]  |
| mu_tt_1L                                      | $\pm 0.01$ [0.01%]   | $\pm 0.01$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| mu_W  | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| gamma_stat_SR1LBin3.cuts.bin_0                | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 1.12$ [5.6%]   | $\pm 0.00$ [0.00%]  |
| gamma_stat_tW1L_CRWm.cuts.bin_0               | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| gamma_stat_SR1LBin2.cuts.bin_0                | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 2.37$ [4.3%]    | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| gamma_stat_tW1L_CRWp.cuts.bin_0               | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| gamma_stat_SR1LBin4.cuts.bin_0                | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 1.28$ [7.8%]   |
| gamma_stat_SR1LBin1.cuts.bin_0                | $\pm 0.00$ [0.00%]   | $\pm 4.21$ [2.5%]    | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |
| gamma_stat_tW1L_CRtt.cuts.bin_0               | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]   | $\pm 0.00$ [0.00%]  | $\pm 0.00$ [0.00%]  |

Table 1: Breakdown of the dominant systematic uncertainties on background estimates in the various signal regions. Note that the individual uncertainties can be correlated, and do not necessarily add up quadratically to the total background uncertainty. The percentages show the size of the uncertainty relative to the total expected background.