$tHq(2ISS+\pi)$ SR CR Bkg JES effective NP stat. 6 JES effective NP stat. 5 JES effective NP stat. 4 JES effective NP stat. 3 JES effective NP stat. 2 JES effective NP stat. 1 JES effective NP modelling 4 JES effective NP modelling 3 JES effective NP modelling 2 JES effective NP modelling 1 JES effective NP mixed 3 JES effective NP mixed 2 JES effective NP mixed 1 JES effective NP detector 2 JES effective NP detector 1 JES relative non-closure AFII ntercalibration non-closure (pos η) ntercalibration non-closure (neg η) tercalibration non-closure (high-E) rcalibration NonClosure 2018data JES η intercalibration total stat JES η intercalibration modelling JES flavour composition JES flavour response JES pileup ρ topology JES pileup pT term JES pileup offset NPV JES pileup offset µ JES Punchthrough (AFII) JES Punchthrough JES single particle (high-pT) JES BJES Response JER EffectiveNP 12restTerm JER EffectiveNP 11 JER EffectiveNP 10 JER EffectiveNP 9 JER EffectiveNP 8 JER EffectiveNP 7 JER EffectiveNP 6 JER EffectiveNP 5 JER EffectiveNP 4 JER EffectiveNP 3 JER EffectiveNP 2 JER EffectiveNP 1 JER DataVsMC AFII JER DataVsMC MC16 tHq tWZ t\overline{t}\overli Diboson minor bkgs minor bkgs Not present Kept Shape dropped Norm. dropped Dropped Norm >99% (dropped) Bad shape (dropped)

Bad shape & norm. (dropped)