



ATLAS NOTE

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Observation of $H \rightarrow b\bar{b}$ with the ATLAS detector

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Abstract

This supporting note describes a search for the SM Higgs boson produced in association with a vector boson, and decaying to a pair of b -quarks using pp collision data collected in 2015, 2016 and 2017 LHC Run-2 at $\sqrt{s} = 13$ TeV, corresponding to an integrated luminosity of 79.8 fb^{-1} . It includes description of object and event selections and signal and background modeling. Systematic uncertainty, statistical treatment used to extract signal strength and results are discussed. The observed signal strength and significance are shown in main analysis using multi-variate analysis. SM diboson (VZ) measurement and signal strength extraction of VH using m_{bb} shape are also performed as cross check of main analysis. The combination with the Run-1 $VH(\rightarrow b\bar{b})$ result as well as with VBF and $t\bar{t}H$ ($H \rightarrow b\bar{b}$) channels is also described.