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Measurements of LGAD sensors with 120 GeV proton beam for CMS MTD Endcap Timing Layer HAKSEONG LEE, Kyungpook National University — The simultaneous interaction per bunch crossing (pileup) that gives rise to the rate of false triggers is one of the major challenges during the high luminosity LHC (HL-LHC) running. The development of mitigation techniques based on 4D reconstruction using timing information is expected to significantly reduce the effect of pileup by helping to find the correct primary vertex. The minimum ionizing particle (MIP) Timing Detector (MTD), which is planned to be installed for the CMS Phase-II Upgrade, is designed to provide timing information for the MIP with a 30-40 ps resolution. In order to guarantee this level of timing performance, low gain avalanche detectors (LGAD) silicon sensors are going to be used for endcap timing layer (ETL). We present the measurement of LGAD sensors for timing resolution and radiation hardness with a 120 GeV proton beam at the Fermilab Test Beam Facility.

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