

First results from SiPM+QIE11 readout in CMS for the pp collisions

Friday, 6 October 2017 09:40 (20 minutes)

We report on the first LHC collision data taken with a 20 degree wedge of the CMS Hadron Calorimeter Endcap instrumented with SiPMs and the QIE ASIC version 11 front-end chip.

Operational experience is reported on temperature and gain stability of the SiPMs. The performance of the front-end ASIC and digital readout are also presented. The light loss from the darkening of the CMS HCAL endcap scintillator is shown to be mitigated by the increased PDE of the SiPM and higher overall S/N of the front-end upgrade. We compare the performance of the Phase I front-end upgrade electronics with the previous HPD-based front-end system performance with LHC collision data collected in 2017.

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Session Classification: test beam results & analysis