

Abstract Submitted
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QIE 11 Testing for the CMS Detector SHAUN HOGAN, The University of Alabama, COMPACT MUON SOLENOID COLLABORATION — During a proton-proton collision in the Compact Muon Solenoid (CMS) at the Large Hadron Collider (LHC), final-state particles pass through different layers of the detector, and data about their characteristics is collected via a complex, multi-level processing system. One such layer in the detector is the hadronic calorimeter (HCAL), which is responsible for detecting hadrons. When hadrons are collected in the HCAL, they pass through scintillation material and emit light, which is then converted to pulses of current by silicon photomultipliers. Once these pulses are produced, they go to Charge Integration and Encoder chips (QIE chips), and are processed into a useable signal. As part of planned upgrades to the CMS detector, a new version of the QIE chips – version 11 – is set to be installed. In preparation for these upgrades, we looked at sets of twelve QIE 11 chips arranged onto cards, and performed quality-assurance tests on them to ensure that they are functional and safe to be implemented in the CMS detector.

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