

Abstract Submitted  
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**An Investigation of Cosmic Muon Interactions with HF PMTs and Upgrade Candidates** JOHN NEUHAUS, University of Iowa — The Compact Muon Solenoid (CMS) is one of the multi purpose experiments of the “soon to begin” Large Hadron Collider project. The Hadronic Forward calorimeters of CMS use Hamamatsu R7525-HA Photomultiplier tubes (PMT) for signal readout. Our previous studies revealed abnormally high amplitude signals due to punch through charged particles, mostly muons, producing Cerenkov photons at the PMT window. It is proposed to replace the HF PMTs with new generation PMTs with higher quantum efficiency. Here we report from the tests performed at the University of Iowa CMS laboratories with cosmic muons. The magnitude of the signal generated by the muons traversing the windows of the HF PMTs and the candidate PMTs were compared. We also present our Geant4 simulations efforts confirming these measurements.

John Neuhaus  
University of Iowa

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