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CMS Hadronic EndCap Calorimeter Upgrade Studies P-Terphenyl Deposited Quartz Plate Calorimeter Prototype UGUR AKGUN, University of Iowa, CMS COLLABORATION — Due to an expected increase in radiation damage under super-LHC conditions, we propose to substitute the scintillator tiles in the original design of the CMS hadronic endcap (HE) calorimeter with quartz plates. Quartz is proved to be radiation hard by various tests, but the light produced by quartz comes from Cerenkov process, and it is 100 times less than scintillation photons. To enhance the light production we treated the quartz plates with p-Terphenyl, and constructed a 20 layers calorimeter prototype. Here, we report the test beam results for hadronic and electromagnetic capabilities of the calorimeter prototype as well as radiation damage results for p-Terphenyl.

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