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Reliability testing and upgrade of a Low Voltage Power Supply design for the Front-End Electronics of the ATLAS Tile Calorimeter

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We present the design of an upgraded switching power supply for the front-end electronics of the ATLAS hadron TileCal (Tile Calorimeter) at the LHC. The new design features significant improvements in noise, improved fault detection, and improved reliability, while retaining the compact size, water-cooling, output control, and monitoring features. We discuss the steps taken to test the quality of the new Tile Low Voltage Power Supplies, using a new type of testing station which is developed at the University of Witwatersrand, and will build upon the previous generation of testing stations used in the initial production of the TileCal system. This particular testing station will power the next generation of upgraded hardware in the TileCal system of ATLAS at CERN.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

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