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## A BURN-IN APPARATUS FOR THE ATLAS TILE CALORIMETER PHASE-II UPGRADE TRANSFORMER COUPLED BUCK CONVERTERS

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### Abstract

The upgrade of the ATLAS hadronic Tile-calorimeter (TileCal) Low Voltage Power Supply (LVPS) is a part of the preparation for the High-luminosity LHC project. This talk serves to provide a detailed overview of the development of a Burn-in test station for an upgraded LVPS component known as a Brick. These Bricks are radiation hard transformer-coupled buck converters that function to step-down bulk 200 V Direct Current (DC) power to the 10 V DC required by the on-detector electronics. To ensure the high reliability of the Bricks, once installed within the TileCal, a burn-in test station has been designed and built. The burn-in station functions to implement a burn-in procedure on eight Bricks simultaneously. This procedure subjects the Bricks to suboptimal operating conditions that function to accelerate their ageing as well as to stimulate failure mechanisms. This results in elements of the Brick that would fail prematurely within TileCal failing within the burn-in station or to experience performance degradation that can be detected by follow-up testing effectively screening out the non-performative sub-population. The burn-in station is of a fully custom design in both its hardware and software. The development of the test station will be explored in detail, the preliminary burn-in procedure to be employed will be provided, the preliminary and final commissioning of the test station will be presented culminating in an outlook of the project

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