



Contribution ID : 679

Type : **Oral talk**

The Burn-in testing of advanced custom low-voltage power supply components within ATLAS TileCAL testing facilities

Wednesday, 7 October 2020 13:00 (15)

The upgrade of the ATLAS hadronic tile-calorimeter (TileCAL) Low-Voltage Power Supply (LVPS) falls under the high-luminosity LHC upgrade. This upgrade is composed of multiple projects that when combined will form the latest iteration of the LVPS. One such project is focused on an LVPS component known as a brick, which is a transformer coupled to a buck converter. These bricks function is to step-down bulk 200VDC current to the 10VDC current required by the front-end electronics of a TileCAL module. Due to the LVPS bricks being located on-detector they are of a highly refined custom design. Within the development and production phase of these bricks the use of a custom built test-bed known as the Burn-in station is required. The Burn-in test station functions to detect the premature failure of electronic components on an LVPS brick via a process known as accelerated ageing. By doing so the test station is able to ensure improved reliability of an LVPS brick once installed within ATLAS and therefore occupies a key role within the TileCAL LVPS brick testing facilities.

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Session Classification : Facilities and Advanced Detector Technologies

Track Classification : Facilities and advanced detector technologies