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Quality Control and Validation of LVPS Box Assembly for the ATLAS TileCal Phase-II Upgrade

The Phase-II upgrade of the ATLAS Tile Calorimeter (TileCal) requires a reliable Low Voltage Power Supply (LVPS) system to support stable detector operation during the High-Luminosity LHC era. The LVPS box houses multiple LVPS boards and associated control components that provide regulated low-voltage power to the TileCal front-end electronics. Following assembly at CERN, each LVPS box undergoes a structured quality control and validation process, including post-assembly functionality testing, stability testing, and final verification. Test results, component information, and repairs are recorded in the TileCal database (TileDB), ensuring full traceability throughout the validation process. Boxes that fail at any stage of testing are inspected, repaired, and retested. This contribution presents the quality control procedures used to identify assembly issues and faulty components, ensuring that the LVPS boxes meet the requirements for approval and integration into the upgraded TileCal detector.

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