

Thermal and electrical performance of the ATLAS strips module testing setup

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The inner tracking detector of the ATLAS experiment at CERN is currently preparing for an upgrade to operate in the high Luminosity LHC, scheduled to start in 2027. A complete replacement of the existing Inner Detector of ATLAS is required to cope with the expected radiation damage. The all-silicon Inner Tracker (ITk) design under construction composes a mixture of Pixel and Strips layers. At the core of the strips detector barrel are the staves, which host 28 silicon modules. A thorough characterization of the modules before the assembly on each stave is critical; therefore, each module undergoes electrical and thermal quality control (QC) testing between module production and stave assembly. All the modules must be thermal cycled ten times between -35C and +40C. This talk will show the thermal and electrical performance of the US testing setup, focusing on the difficulties encountered to meet the QC requirements. It will also give an overview of the results obtained by analyzing the first batch of produced modules.

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No

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