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Integration Tests with 2S Module Prototypes for the Phase-2 Upgrade of the CMS Outer Tracker

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The CMS experiment will be upgraded until 2028 to deal with the increased luminosity of the HL-LHC. During this Phase-2 Upgrade, the CMS Outer Tracker will be equipped with modules each assembled with two silicon sensors. These are placed on mechanical structures in form of ladders in the central barrel of the Outer Tracker or disks in the endcap region.

During the prototyping phase the modules are initially investigated individually to evaluate their performance. Next steps are integration tests performed with the purpose to test the module functionality on the final detector structures. Investigations focus on the cooling performance as well as on electrical performance of a group of modules on the supporting structures.

This contribution summarizes integration tests with the Outer Tracker module prototypes. The main focus will be on a cooled ladder integration test performed at CERN and a full ladder integration test at Institut Pluridisciplinaire Hubert Curien (Strasbourg).

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