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Update on ESS icBLM system testing

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The European Spallation Source (ESS) in Lund, Sweden, is a pulsed neutron source based on a proton linac. The ESS linac is designed to deliver a 2 GeV beam with a peak current of 62.5 mA at 14 Hz to a rotating tungsten target for neutron production.

One of the most critical elements for protection of the accelerator is a beam loss monitoring (BLM) system. The system is designed to protect the accelerator from beam-induced damage and an unnecessary activation of the components.

The main ESS BLM system is based on ionisation chamber (icBLM) detectors. In the whole ESS linac, the total of 266 chambers were installed, connected, and powered. This contribution results from acceptance, installation and measurement campaigns made by several teams for the readiness of commissioning the BLM system with the beam, namely by the ESS beam diagnostics and integration groups, Warsaw University of Technology. Several tests were performed, in particular leakage current tests at CERN and ESS, installation and other resolved issues; self-integration, data acquisition, high voltage, Xray tests of the whole chain of icBLM system, and calibration test at HiRadMat facility at CERN.

Footnotes

Funding Agency

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Yes

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