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First tests of the Apple II Undulator the the LOREA insertion device and front end

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Abstract

ALBA synchrotron is currently installing the new beamline LOREA (Low-Energy Ultra-High-Resolution Angular Photoemission for Complex Materials at ALBA). It operates in the range of 10 - 1500 eV with polarized light. To produce the light for the beamline (BL), an Apple II undulator with a period of 125 mm has been chosen. It can operate as an undulator at low energies and as a wiggler at high energies, providing a wide energy range. The device was built by company KYMA, delivered on February 2017 and installed in August 2017. We present the magnetic measurements made during SAT as well as the simulations of the influence of the Insertion Device (ID) in the electron beam dynamics and the first measurements with beam.

On the other hand, the high demanding characteristics of the BL lead to a device providing high power and wide beam in some working modes. This situation has been a challenge for the Front End (FE) thermal load. It has been built by the companies RMP and TVP, and the FE modules have been installed in the tunnel along autumn 2017. We present the technical solutions adopted, especially in terms of mechanical design and used materials.

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