

High order modes spectra measurements in 1.3 GHz cavities for LCLS-II

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Fermilab recently completed production and testing of 1.3 GHz cryomodules for the LCLS-II project. Each cryomodule consists of eight TESLA-shaped superconducting elliptical cavities equipped with two High Order Mode (HOM) coupler ports. Measurement of the HOM spectrum is part of the incoming quality control of cavities at room temperature and the final qualification cold test of cryomodules at the Cryomodule Test Facility (CMTF). In this paper we describe the procedure for measuring the HOM spectrum along with further data processing. Finally, we present accumulated statistics of individual HOM frequencies and quality factors related to various cavity vendors and discuss the possible contribution of HOMs to heat loads and beam dynamics.

Footnotes

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