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The MESA high power 1.3 GHz CW solid state power amplifier systems

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The Mainz Energy recovering Superconducting Accelerator MESA is a multi-turn energy recovery linac with beam energies in the 100 MeV regime currently under construction at Institut für Kernphysik (KPH) of Johannes Gutenberg-Universität Mainz. The main accelerator consists of two superconducting Rossendorf type modules, while the injector MAMBO (MilliAMpere BOoster) relies on normal conducting technology. The high power RF system is relying completely on solid state technology. After some in-depth testing of a 15 kW prototype amplifier in 2017-2019 a modified version of the amplifier modules was developed.

In 2020 series production has begun at JEMA France and first amplifiers, a 74 kW, a 56 kW and two 15 kW have been delivered to KPH lately. In this paper we will present the results of the performance measurements of the amplifiers.

Footnotes

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Europe

Primary author: HEINE, Robert (Johannes Gutenberg University Mainz)

Co-authors: LOREY, Christoph (Institut für Kernphysik); FICHTNER, Frank (Johannes Gutenberg University Mainz)

Presenter: LOREY, Christoph (Institut für Kernphysik)

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