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Manufacturing and testing of the 800 MHz RFQ at KAHVELab

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An 800 MHz, Radio Frequency Quadrupole (RFQ) was designed to accelerate the proton beam to 2 MeV energy at a distance shorter than one meter in KAHVE-Lab, Turkey. A half-length test module was previously produced to investigate the local manufacturability of this RFQ cavity. The manufactured test module was subjected to mechanical, vacuum and electromagnetic tests to adjust the pressure, EM field and frequency parameters to the desired operational settings. Results from these tests were used to improve the final manufacturing process for the two modules of the RFQ which ended successfully in Q4 2022. The finished RFQ, after being fully assembled for the first time, will initially be subjected to vacuum tests followed by low-level RF and power tests. The KAHVE-Lab proton beamline is planned to be fully integrated and commissioned by the end of 2023. This study introduces a general framework about the current status of the 800 MHz RFQ, and discusses the ongoing commissioning studies.

Funding Agency

Footnotes

- Kilicgedik A., et al., "Rf Measurements and Tuning of the Test Module of 800 MHz Radio-Frequency Quadrupole", LINAC'22.

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Yes

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