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Transverse characterization of 1 MeV/n RFQ output beam at Komac

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A 1 MeV/n Radio-Frequency Quadrupole (RFQ) has been developed and commissioned at Korea Multipurpose Accelerator Complex (KOMAC). The RFQ is designed to accelerate ions with mass to charge ratio up to 2.5. The designed peak current is 10 mA with 10 % duty factor. Currently we are utilizing the RFQ as a test bench for the reliable operation of the 100 MeV proton linac operational at KOMAC since 2013. The test bench has two beamlines installed with beam transport optics, diagnostics and irradiation chambers. We performed a quad scan experiment using a wire scanner installed in the beamline to obtain beam emittance and Twiss parameters at the entrance of the scanning quadrupole magnet. From these value, we calculated the beam emittance and Twiss parameters at the exit of the RFQ. In this paper, we report the current status of the RFQ test bench, the quad scan result and the characterization results of the 1 MeV/n RFQ output beam at KOMAC.

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Footnotes

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