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Test results of feedback control of LLRF system for RAON QWR

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TEM-like superconducting quarter wave resonator (QWR) is adopted for the lowest optimum beta (0.047) section of the RAON. For the proper acceleration of heavy ions in QWR, 3 kW, 81.25 MHz RF power is supplied through coaxial couplers. For acceleration of heavy ion beam in the superconducting linear accelerator, the Low-Level RF (LLRF) should have feedback control of accelerating field and resonance frequency in the cavity and protection of High Power RF (HPRF) system. The integrated test of the LLRF prototype for QWR with the QWR, mockup copper cavity is underway. Field stabilities are required within $\pm 1\%$ in amplitude and $\pm 1^\circ$ in phase, the RF amplitude and phase are controlled within $\pm 0.2\%$ and $\pm 0.05^\circ$, respectively. In this paper, the integration test details and results of the LLRF prototype with the QWR are described.

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