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Status of the power coupler for the half wave resonator in IRIS

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A heavy-ion accelerator facility was constructed for the Rare Isotope Science Project (RISP) at the Institute for Rare Isotope Science (IRIS) in Daejeon, Korea. The cryomodule with quarter-wave resonators (QWRs) and half-wave resonators (HWRs) was installed in the SCL (Superconducting Linac) 3 tunnel, and the beam commissioning (Beam energy = 16.4 MeV/u, 40Ar8+) has been completed. The geometry of the power coupler for the HWRs is a coaxial capacitive type based on a conventional 1-5/8 inch electronic industries alliance (EIA) 50 Ω coaxial transmission line with a single ceramic window. The multi-physics analysis, which includes electromagnetic, thermal, and mechanical analysis, was performed by ANSYS to evaluate the thermal expansion of the power couplers. In this paper, we present the analysis results and revised design of the power coupler for HWRs.

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Footnotes

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