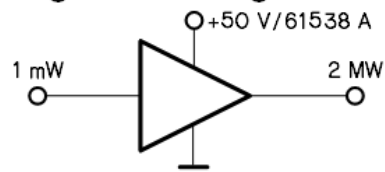


Twelfth Continuous Wave and High Average Power RF Workshop



12.-14.9.2022

CERN

Geneva, Switzerland

<http://cern.ch/CWRF22>

Contribution ID: 17

Type: Oral presentation 20' + 5'

Design and Fabrication of the 20kW RF SSPA for the RAON SSR2

Monday, September 12, 2022 4:10 PM (25 minutes)

The heavy-ion accelerator of the Rare Isotope Science Project (RISP) in Korea has been developed. There are three types of SRF cavity, which are 81.25MHz quarter-wave resonator (QWR), 162.5MHz half-wave resonator (HWR), 325MHz single-spoke resonator (SSR). There are 22 QWRs and 102 HWRs in the superconducting linac#3 (SCL3), and 69 SSR1s and 144 SSR2s in the superconducting linac#2 (SCL2). The required RF power is 4kW for each QWR, 4kW for each HWR, 8kW for each SSR1, and 20kW for each SSR2. The high power RF SSPAs for the SRF cavities have been developed and fabricated with domestic companies. The SSPA systems for the SCL3 were installed and have been operated for RF system integration. The SSPAs for the SSR1 were fabricated and installed in the SCL2 gallery. 325MHz 20kW SSPAs have been designed and fabricated to test the prototype of the SSR2 SRF module including six SSR2 cavities. They were designed to enable full-reflection operation at all times. It consists of four 6kW power-units, four 6kW circulator units, 4-way combiner, a control unit, a power distribution unit, and cooling water inlet/outlet manifolds in each 19" rack. The power-unit has six 1.2kW pallets and circulators, and three power packs. This paper describes the design and fabrication of the 20kW SSPA systems for the RAON SSR2.

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Session Classification: Solid state amplifiers #3

Track Classification: Solid state amplifiers