352-MHz, 1-MW CW Radio-Frequency Test Load

A water-cooled radio-frequency (rf) test load is utilized as a full-power test load for 352-MHz, 1-MW CW klystrons. It has a nominal operating frequency of 352 MHz and a usable bandwidth of approximately 1 MHz. The load consists of a WR2300 magic-T hybrid, which splits the incoming rf power into two ports, each of which is terminated with a WR2300-to-dual 6-1/8-in. EIA coaxial transition to split the input power equally to four 300-kW water-cooled shorted coaxial lines. The coaxial lines are cooled by flowing deionized water, which fills the dielectric space of the coaxial lines and absorbs the rf power. The load has self-contained water flow and temperature monitoring for each rf load, and a dedicated interlock system to detect over-temperature or conditions of low or absent coolant flow.

1-MW rf load

Examples of use:-

- Full-power acceptance testing of new and rebuilt 352-MHz klystrons
- Re-tuning of 352-MHz, 1-MW klystron to Advanced Photon Source operating frequency, followed by full-power test