

# TESTS OF COMPACT DUMMY LOADS DESIGNED FOR 1 MW-CW\*

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Waveguides have been designed with special corrugations to convert the incident power to a surface wave and then increase the attenuation gradually to absorb the power uniformly. Advantages include small size, minimal reflected power, and fast time response. We describe measurements of the power deposition profile and the total absorption in 31.75 mm waveguide loads designed for 110 and 170 GHz. Loads have been fabricated in dispersion-strengthened copper with internal nickel plating to increase the absorption and external corrugations to improve the water cooling. When 1 MW was incident in several 5 s pulses, over 800 kW was absorbed at 110 GHz in a load 1.8 m long.

We also describe small TiO<sub>2</sub>-coated aluminum tank loads designed to absorb up to 250 kW-CW residual power exiting these waveguide loads. The tank loads have also been used to absorb 1 MW with pulse widths around 0.1 s. We describe special features used to maintain uniformity of the power deposition in the tank walls and to minimize reflections into the input waveguide. A novel low-power technique for measuring total reflected power indicated that 1% or less of the power is reflected from these tank loads.

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\*Work supported by General Atomics IR&D funds.