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Summary of RF power measurements on the ECH System on DIII-D,* M. Cengher, J. Lohr, J.L. Doane, Y.A. Gorelov, C.P. Moeller, J.C. DeBoo, A.W. Leonard, D. Ponce, *GA* — For the six 110 GHz, 1 MW class gyrotrons of the ECH system on DIII-D at GA, the power injected at the tokamak by the electron cyclotron heating (ECH) system is measured for every pulse using calorimetry. The relationship between generated rf power and component cooling was determined originally by the manufacturer with 1% total power accountability. Transmission line efficiencies have been measured directly at DIII-D for high power. The injected power calculations resulting from combining the generated power measurements corrected for transmission loss have been verified using synchronous detection of ECE signals of plasma heating using modulated rf injection. Direct measurements of the injected power at the tokamak for pulses up to 5 s in length are being developed. The result from the following techniques will be described: measurements of the response of the DIII-D diagnostic bolometers to rf injection, heating of a leaky waveguide gap monitor, detailed rf power accounting in dummy loads and waveguides, and rf pickoff in a 4 port miter.

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