

Abstract Submitted
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New developments in RF power and polarization measurements on the ECH System on DIII-D¹ M. CENGER, J. LOHR, Y. GORELOV, C.P. MOELLER, D. PONCE, A. TORREZAN, GA — The rf power injected at the tokamak by the electron cyclotron heating (ECH) system is measured and calibrated on a shot to shot basis for the six 110 GHz, 1 MW class gyrotrons. A new technique for ECH power measurement at the tokamak using a 4-port rf monitor was tested. Polarization scans for each system show H-plane and E-plane rf waveforms can be combined to provide a reliable calibrated power signal at the closest access point near the tokamak. Previous attempts to calibrate the power at this end were limited by the pickup of only one polarization angle at the last miter bend. Calorimetric measurements in the relevant gyrotron cooling circuits in conjunction with the 4-port RF monitors with orthomode transducers can be used to calibrate the rf power. Other alternative approaches showing proportionality with the input power like the inline power monitor and in-vessel measurements are discussed. Future plans include mode content measurements at the tokamak end of the transmission line using the 4-port RF monitors and mode sensitive directional couplers.

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