Abstract Submitted
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RF Beam Characterization Measurements on the DIII-D ECH System[1] Y. GORELOV, M. CENGHER, J. LOHR, D. PONCE, A. TORREZAN, GA — Optimum coupling of electron microwave radiation in a tokamak plasma requires polarization control of a high quality Gaussian rf beam. In the DIII_D installation, the polarization of the rf beam from each gyrotron is controlled by pairs of grooved mirrors located in transmission line miter bends, The polarizer mirror rotation angles are determined by using a computer model that takes into account the specifics of the transmission line geometry, tokamak magnetic field and equilibrium, the launcher mirror angles and the plasma density. The final polarization of each beam is checked with a polarization measurement at the last miter bend position using an rf power monitor with a rotatable rectangular horn or an orthomode transducer in a newly developed diagnostic miter bend. The Gaussian beam quality is determined by propagating the rf beam into free space and performing a phase retrieval analysis or by measurements using a mode sensitive directional coupler integrated into the diagnostic miter.

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Y. Gorelov
General Atomics

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