

Abstract Submitted
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Plans for ECE diagnostic components for ITER¹ M.E. AUSTIN, Univ. of Texas, H.K.B. PANDYA, ITER-India, R.F. ELLIS, Univ. of Maryland, R. FEDER, PPPL, A.E. HUBBARD, MIT, W.L. ROWAN, P.E. PHILLIPS, Univ. of Texas, S. DANANI, S. KUMAR, ITER-India IPR — Designs have been developed for the front end optics, port plug components, transmission line system and instrumentation for the ITER ECE diagnostics. Recent work has focused on the transmission line. The ITER ECE diagnostic will require a broadband low-loss transmission system to propagate radiation from the port plug to the diagnostic hall. A prime candidate for this is a corrugated waveguide line; however there are concerns of losses at high frequencies due to mode conversion and Bragg scattering. To better understand these loss mechanisms a study of the DIII-D corrugated waveguide system has been undertaken. By measuring with the DIII-D Michelson interferometer the losses and comparing them to theoretical calculations it will be possible extrapolate to the expected performance of an ITER system. Also, a comparison with other options for transmission systems, such as dielectric waveguide, will be shown.

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