

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

ITER ECH and LFS Reflectometer waveguide testing TIM BIGELOW, GREG HANSON, DIANNE BULL, JOHN CAUGHMAN, DAVID RASMUSSEN, JOHN WILGEN, Oak Ridge National Laboratory — The ITER project requires overmoded millimeter waveguide for electron cyclotron heating (ECH) and also the low-field side (LFS) reflectometer diagnostic. The ITER systems will use circular corrugated waveguide due its low loss and good polarization purity and launch beam qualities. The ECH application is narrow band and the reflectometer system requires broadband capability. A number of prototype components such as miter bends, straight sections, and vacuum pumpouts have been procured from industrial suppliers. The ECH system requires water cooling and good vacuum for reliable operation. Both systems will have similar straightness requirements to minimize unintentional mode conversion. The reflectometer system vacuum windows will be supplied by the US and must operate over a wide bandwidth with minimum reflection. Low power tests of mode purity, loss, and reflections are being performed on all components and high power tests are planned for the ECH components. Mode purity tests are performed by antenna pattern analysis with a high mode purity feed using both tapers or a horn/lens combination.

Tim Bigelow
Oak Ridge National Laboratory

Date submitted: 18 Jul 2010

Electronic form version 1.4