Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

ITER ECH Transmission System Test Stand and Prototype Development T.S. BIGELOW, J.B. CAUGHMAN, D.A. RASMUSSEN, T.E. WHITTLE, Oak Ridge National Laboratory, M.A. SHAPIRO, J.R. SIRIGIRI, R.J. TEMKIN, Massachusetts Institute of Technology — Progress in acquisition and testing of prototype components and developing a high power test stand will be described. The US ITER Project Office is responsible for providing the ECH transmission lines that are based on evacuated 63.5 mm diameter corrugated waveguide. Each line is designed to handle 170 GHz power at 1 MW and possibly up to 2 MW in the HE_{11} mode. A total of 24 lines are planned. The ITER Organization has completed a conceptual design of the system. A number of prototype components have been procured primarily from industrial suppliers and testing of vacuum performance and mechanical alignment have been performed. A 140° miter bend was developed and tested at low power as an alternative to two adjacent 90 degree miter bends. A waveguide pumpout prototype and a compact waveguide switch have been built. Testing at high power is planned on a test stand being setup at ORNL. Work on installing a power supply and interim 400 kW 140 GHz gyrotron has progressed and procurement of a 170 GHz 0.5-1 MW gyrotron has begun. Low power testing is underway of a grating coupler to be used in a resonant ring for very high power testing of components at the 2 MW level or higher.

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Date submitted: 19 Jul 2009 Electronic form version 1.4