Testing of gyrotrons and waveguide components for MAST and ITER*

T.S. Bigelow, J.B. Caughman, A.M. Barker, G.R. Hanson, S.P Killough, C.R. Schaich, P.M. Pesavento, D.A. Rasmussen, J.A. White, *Oak Ridge National Laboratory, Oak Ridge, TN, USA*

Recent work on the testing of 28 GHz gyrotrons for a MAST EBW heating program and setting up a 140/170 GHz test stand for ITER ECH waveguide component testing will be presented. A 28 GHz 300 kW long-pulse gyrotron was successfully conditioned and operated at MAST and has been used for higher power, longer pulse testing of and EBW launching and heating experiment[1]. A second gyrotron will also be conditioned and made available for additional power.

A second test stand is being setup with a 5 MW 80 kV, 50 A power supply for higher power cw gyrotron testing of waveguide components under development for ITER. A 140 GHz 300 kw cw gyrotron and later a 170 GHz 500 kw cw gyrotron will be utilized in this test stand. A number of components have been developed[2] and will be tested to high power 3600-second conditions for qualification for the ITER ECH transmission line system. A resonant ring technique will be used to test at power levels several times higher than the source power. Details on power supply controls, ECH component testing at low and high power and a prototype transmission line support structure will be discussed.

[1] Shevchenko, V., this conference
[2] R. Olstad, et al., this conference

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