

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Lower Hybrid Experiments on MST¹ M.C. KAUFMAN, J.A. GOETZ, M.A. THOMAS, D.R. BURKE, D.J. CLAYTON, University of Wisconsin-Madison — Current drive using rf waves has been proposed as a means to reduce the tearing fluctuations responsible for anomalous energy transport in the RFP. A traveling wave antenna that operates at 800 MHz and $n_{\parallel} \approx 7.5$ is being used to launch lower hybrid waves into MST to assess the feasibility of this approach. The antenna routinely operates at 80 kW in a variety of plasma conditions including high confinement plasmas. Parameter studies show that edge density is a major factor in antenna/plasma coupling. The power damping length of the antenna, important for controlling the wave spectrum, will be compared to theory under different plasma parameters. Localized gas puffing near the antenna is shown to decrease the power damping length in plasmas that normally do not couple well to the antenna. Hard x-rays (HXR) in excess of 20 keV have been observed during lower hybrid injection and correlate well with rf input power. An HXR target probe will be constructed to perform a radial survey of x-ray producing fast electrons. The next generation antenna with a power handling capability of 300 kW will be installed and tested.

¹Work supported by US DOE.

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Date submitted: 21 Jul 2005

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