

Abstract Submitted
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Electron Density Measurements on LTX Using Microwave and Millimeter-Wave Diagnostics¹ S. KUBOTA, X.V. NGUYEN, W.A. PEEBLES, UCLA, D.P. BOYLE, R. KAITA, T. KOZUB, R. MAJESKI, E. MERINO, J.C. SCHMITT, PPPL — The dynamic evolution of the electron density profile is tracked using microwave and millimeter-wave diagnostics on LTX. The 296 GHz ($\lambda=1$ mm) interferometer provides a radial line density measurement at the midplane, while an FMCW (frequency-modulated continuous-wave) reflectometer (13.5–33 GHz, or O-mode $0.2\text{--}1.3\times 10^{13}$ cm⁻³) provides density profile measurements for the low-field side. Data taken during FY2015 will be compared with measurements from Thomson scattering and estimates of the plasma position from LRDFIT. Measurements of density fluctuations due to low-frequency (<100 kHz) MHD instabilities will also be shown. Future plans include the installation of a correlation reflectometer (Ka-band, 27-40 GHz) with dual tuneable sources and a frequency bandwidth of up to 5 MHz. This system will utilize the same antennas as the profile reflectometer to provide radial and/or toroidal/poloidal correlations. Further diagnostic details will be presented at the meeting.

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