

Abstract Submitted  
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**Structure of the Broadband Edge Turbulence in L-mode and pre-H-mode Plasmas in Alcator C-Mod**<sup>1</sup> I. CZIEGLER, J.L. TERRY, B. LABOMBARD, PSFC-MIT — The edge and near SOL turbulence at the outboard midplane region of ohmic L-mode plasmas have been investigated using gas-puff-imaging and probe measurements. Poloidal wave number information was obtained by a vertical array of views (approximately aligned with a flux-surface) with a 1 MHz sampling rate. We characterized the structure of the broadband turbulence over a range of minor radii that extends both in- and outside the separatrix for various plasma densities, magnetic configurations (LSN, DN, USN) and toroidal fields with a fixed safety factor. The observed dispersion relations show a strong radial structure: the turbulence propagates in the ion- diamagnetic direction at and outside the separatrix, and moves in the electron-diamagnetic direction just inside the separatrix. The dispersions are largely linear with velocities consistent with probe measurements (1.5–2 km/s in the ion, 3.5–4 km/s in the electron direction), yet seem to be inconsistent with a simple sheared flow model. The turbulence structure shows an observable variation in and just prior to L- H transition periods.

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