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Reflectometer Measurements of Core Fluctuation Behavior in NCS and Other Regimes,¹ T.L. RHODES, E.J. DOYLE, C.L. RETTIG, K.W. KIM, W.A. PEEBLES, University of California, Los Angeles, R.J. FONCK, University of Wisconsin, C.M. GREENFIELD, General Atomics — Measurements in the core of high performance DIII-D discharges (Negative and Weak Negative Central Shear) have been made with a variety of reflectometer systems. The core of NCS/WNS discharges have been shown to have low levels of broadband fluctuations and decreased transport levels. However, coherent mode activity can be large in these discharges. Results from reflectometry indicate that some of this coherent activity extends to the edge while some is limited to the core ($r/a < 0.75$). Analysis is underway of discharges showing “mode splitting” which may be connected to the non-monotonic safety factor profiles occurring in NCS/WNS discharges. Correlation lengths in the core and edge of NCS/WNS discharges will be presented. These measurements are from an upgraded heterodyne reflectometer system (tunable over the range 50–75 GHz/either O- or X-mode polarizations) providing coverage from the edge to core. These measurements will be compared to those obtained from BES and FIR scattering as well as to current models.

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