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Edge MSE measurements on the DIII-D tokamak[1] B.S. VICTOR, C.T. HOLCOMB, S.L. ALLEN, W.H. MEYER, M.A. MAKOWSKI, LLNL — The edge motional Stark effect (MSE) diagnostic on DIII-D has recently been upgraded to provide better constraints on the current density in the outer half radius, including high-spatial resolution measurements in the H-mode pedestal. The channels have been upgraded with new bandpass filters with FWHM of 0.3 nm and >90% transmission at the central wavelength, and improved detector positioning. A spectrometer has been used to measure the σ and π lines for each of the edge channels to optimize the new filter selection. These upgrades are expected to improve our ability to assess current drive and stability in various DIII-D plasmas. Comparisons will be shown between the Sauter and NEO bootstrap current models and these new measurements in fully non-inductive plasmas. We will present calculations of the ideal MHD β_N-limit in various scenarios that use the improved measurements. Finally, changes in the edge pitch angle during ELMs are examined.

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