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MSE constrained magnetic reconstructions of Lower Hybrid Current Drive on Alcator C-Mod R.T. MUMGAARD, MIT PSFC, S.D. SCOTT, PPPL, S. SHIRAIWA, G.M. WALLACE, R.R. PARKER, MIT PSFC, C-MOD TEAM — Improved MSE measurements of the magnetic field line pitch angle have been used to constrain equilibrium reconstructions in plasmas with substantial Lower Hybrid (LH) current drive on Alcator C-Mod. The reconstructed driven current profiles were measured over a variety of parameters including LH phasing and LH power. The plasma density was varied from low density where the LH current drive is observed to follow the classical current-drive efficiency scaling proportional to $n_e R I_p/P_{LH}$ to $n_e \sim 10^{20}$ m^{-3}, beyond which the current drive efficiency is observed to decrease precipitously. Sources of systematic error in the MSE measurement and their influence on the reconstructions are discussed. Results using established MSE intra-shot calibration techniques are compared with calibrations using a new MSE inter-shot calibration system. Future work will include comparing reconstructions of the Lower Hybrid current drive profile with simulations. Supported by USDoE awards DE-FC02-99ER54512 and DE-AC02-09CH11466.

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