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Reflectometry grade on Alcator C-Mod¹ ARTURO DOMINGUEZ, N.P. BASSE, J. IRBY, Y. LIN, E.S. MARMAR, MIT PSFC, G.J. KRAMER, PPPL, PSFC MIT TEAM, PPPL COLLABORATION — We present results from the baseband upgrade conducted on the reflectometry diagnostic system in the Alcator C-Mod tokamak and outline plans for additional upgrades to be implemented in the near future. Until now, the reflectometry apparatus has used the amplitude modulation (AM) technique to study the density profile and density fluctuations in C-Mod. Despite being appropriate for profile measurements, the AM technique has a reduced turbulence sensitivity as compared to the baseband technique. An initial upgrade 2 preformed by Y. Lin *et al* on the 88GHz channel (corresponding to $n_e = 9.58 \ 10^{19} m^{-3}$) is explained and its characteristic measurements are shown as compared with the AM results. Two higher frequency channels (132GHz and 140GHz) using the baseband technique have been installed in collaboration with PPPL and initial results will also be presented. Based on the improved performance of the apparatus due to its initial upgrade, a full baseband upgrade is proposed for all remaining channels (50GHz, 60GHz, 75GHz and 110GHz) in the reflectometry system.

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