

Abstract Submitted
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Electrical Characteristics and Performance of the Alcator C-Mod Quasi-Coherent Mode Antenna System¹ T. GOLFINOPOULOS, B. LABOMBARD, R.R. PARKER, W. BURKE, R. LECCACORVI, R. VIEIRA, J. ZAKS, E.M. DAVIS, R. GRANETZ, M. GREENWALD, E. MARMAR, M. PORKOLAB, S.M. WOLFE, P.P. WOSKOV, S.J. WUKITCH, MIT PSFC, X. XU, LLNL, AND THE ALCATOR C-MOD TEAM — We have designed a new antenna for the purpose of coupling to the Quasi-Coherent Mode (QCM) and other edge fluctuations in Alcator C-Mod [see poster by B. LaBombard et al.]. A guiding principle of the design was to create a magnetic field perturbation matched in frequency (~ 100 kHz) and wave vector ($k_{\perp} \approx 1.5 \text{ cm}^{-1}$) to the spontaneously-occurring QCM, and with amplitude several times larger at the mode flux surface. The basic electrical and electromagnetic properties of the antenna built to meet this goal are discussed. In addition, an engineering review of the power system is provided, with a description of a discretely-variable L-style impedance matching network which provides very fine resolution in the range from 50 to 300 kHz, reflecting < 10 % power in initial bench tests. Preliminary results of the first experimental campaign are compared with supporting calculations from BOUT++ simulations.

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