

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Rotated 4-strap ICRF antenna: design and initial results¹ S.J. WUKITCH, W. BECK, J. DOODY, M. GARRET, P. KOERT, Y. LIN, R. VIEIRA, J. TERRY, MIT Plasma Science and Fusion Center, THE ALCATOR C-MOD TEAM — Previously, we have utilized low Z thin films to mitigate impurities related to ion cyclotron range of frequency (ICRF) antenna operation. A new rotated antenna is has been designed and installed to minimize impurity production by imposing symmetry along the total magnetic field line. The antenna is aligned to a 10° field pitch where the typical discharge range is $7\text{-}13^\circ$ in C-Mod. Compared to our standard antennas (0° pitch), the power density (MW/m^2) for the rotated antenna is $\sim 50\%$ higher for a given injected power for the rotated antenna due a decrease in available surface area. Due to geometric limitations, two locations have the RF electric field aligned with the total magnetic field and have potential to limit the antenna voltage handling. Initial results from experiments characterizing the power and voltage limits of the antenna will be presented. Using the standard antennas as reference, we will also present results from comparison of antenna impurity characteristics and their impact on the scrape off layer transport.

¹Supported by US DOE award DE-FC02-99ER54512.

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Date submitted: 13 Jul 2011

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