

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

ITER-like Discharge Development in Alcator C-Mod C.E.
KESSEL, PPPL, S. WOLFE, I. HUTCHINSON, A.E. HUBBARD, J.W. HUGHES,
Y. LIN, S. WUKITCH, PSFC, C-MOD TEAM — Demonstrating discharges on
Alcator C-Mod with ITER characteristics is important to study plasma behavior
during various phases and validate modeling used to project to ITER. Concentra-
tion has been on the rampup and rampdown phases. The flattop phase must meet,
as close as possible, a number of parameters simultaneously; q_{95} , elongation, n/n_{Gr} ,
 β_N , and H98. Experiments were performed to meet these parameters, lowering
the toroidal field to 2.7 T and using 2nd harmonic hydrogen minority heating. The
lower field allowed more reliable access to these parameters. These discharges meet
the ITER parameters closely, with the n/n_{Gr} value reaching 0.72 approaching the
ITER value of 0.85, and were sustained for 0.5 to 1 s. EDA H-modes were ob-
tained, showing the quasi-coherent mode at about 100 kHz, with some intermittent
ELMy behavior. In addition, MHD modes are observed in the 10-25 kHz range with
toroidal mode numbers $n=2,3$, which appear to be correlated with increasing β_N .
Work supported by DE-AC02-09CH11466 and DE-FC02-99ER54512.

Charles Kessel
PPPL

Date submitted: 19 Jul 2011

Electronic form version 1.4