Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Propagation and dynamics of microwaves in the ECRH frequency range for the FRC FRANCESCO CECCHERINI, LAURA GALEOTTI, Tri Alpha Energy, MARCO BRAMBILLA, Max Planck Institute für Plasmaphysik, Germany, DANIEL C. BARNES, XIAOKANG YANG, Tri Alpha Energy, TAE TEAM — A previously developed FLR code for ICRH studies has been recently upgraded to include the frequency range of interest for ECRH applications. This full wave code is able to use very fine meshes (grid spacing down to 10^{-3} cm on a single cpu) so that even wavelengths very short with respect to the wall radius can be resolved well. The first wave propagation scheme we have addressed - and in part used for benchmark purposes also - is given by a source placed at a few cm from the first wall with a current oscillating in the longitudinal direction and an ordinary wave propagating in the radial direction. Such a wave propagates through the plasma until the required conditions for O-X-B mode conversion are encountered. The mode-converted electrostatic wave generated at the upper hybrid frequency behaves according to the expected dispersion relation and it is studied in terms of the launched frequency. Initial results indicate that in an elongated FRC configuration under study, the possibility to satisfy all conditions required to have electron absorption in the region beyond the SOL through the O-X-B conversion process strongly depends on the plasma radial profile. Details on this scheme and different examples will be presented.

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Date submitted: 11 Jul 2014 Electronic form version 1.4