

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Upgraded High Spatial Resolution ECE System for DIII D¹ Z. YANG, M.E. AUSTIN, U Texas-Austin, D.D. TRUONG, U. Wisconsin-Madison — An upgrade to the DIII D high resolution electron cyclotron emission (HRECE) diagnostic is being implemented by replacing the eight fixed frequency filters with tunable Yttrium-Iron-Garnet (YIG) filters. The YIG filters are adjustable between 3.75 and 18 GHz and have a varying bandwidth that increases with increasing center frequency, from 110-290 GHz. The exceptionally wide tuning range permits high spatial resolution measurements over a broad range of DIII-D radii without adjusting B_T . Also, the ability to vary the center frequencies independently offers the means to optimize radial coverage to view plasma structures of different sizes. Correlation ECE techniques have been evaluated to take advantage of the new channels' ability to have overlapping filter spans. Additionally, a B-field ramp technique has been developed to do relative calibration between the HRECE channels.

¹Work supported by the US Department of Energy under DE-FG02-97ER54415, DE-FG03-96ER54373, DE-FC02-04ER54698 and NSF GRFP under DGE-1256259.

C. Petty
GA

Date submitted: 11 Jul 2014

Electronic form version 1.4