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Upgraded High Spatial Resolution ECE System for DIII-D,* Z. Yang, M.E. Austin, *University of Texas-Austin*; D.D. Truong, *University of 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.

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