

Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Operational performance and plans for the ECH system on DIII-D¹ J. LOHR, M. CENGHER, Y.A. GORELOV, D. PONCE, A. TORREZAN, General Atomics, L. IVES, M. READ, Calabazas Creek Research, A. LEVINESS, U. of Alabama — The ECH system on the DIII-D tokamak currently comprises 6 gyrotrons operating at 110 GHz and injecting 3.5 MW for administratively limited pulse lengths up to 5 sec. A 7th gyrotron generating ~ 1.5 MW at 117.5 GHz is planned for installation late in 2016. Production of this tube was delayed due to issues related to reflected electrons resulting in internal arcs during initial testing. Performance reliability of the individual gyrotrons in the DIII-D complex has exceeded 90% for a wide variety of operational modes, including fast modulation and rapid poloidal sweeping of the rf beams using high speed dc motors and magnetic position encoders. Measures have been taken to reduce the risk of damage to launcher hardware and diagnostics from inadvertent operation of the tokamak at densities such that the right hand cutoff frequency is present in the plasma. The system has occasionally been used in non-fusion applications. The most recent of these has been testing a CVD diamond waveguide blocking window at the Brewster angle.

¹Work supported by the US DOE under DE-FC02-04ER54698 and DE-AC02-09CH11466.

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Date submitted: 14 Jul 2016

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