

Abstract Submitted  
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**Improvements and new features for the diagnostics and control system of the ECH system on DIII-D**<sup>1</sup> A.C. TORREZAN, D. PONCE, Y.A. GORELOV, M. CENGHER, J. LOHR, General Atomics, R.A. ELLIS, PPPL — In this work we discuss improvements and new features for the diagnostics and controls of the electron cyclotron heating (ECH) system on the DIII-D tokamak. As for diagnostics, a new mapping system to measure the power density on a gyrotron collector, which should not exceed 500 W/cm<sup>2</sup>, has been designed and assembled. The new mapping system was designed to enable the test of new depressed collector gyrotrons that requires more RTD channels and for easier servicing and expansion compared with a previous system. First results from this diagnostic will be presented. As for controls, obsolete timing generators and auxiliary circuitry are being replaced by a more flexible approach using a FPGA. Besides being a simple replacement, the FPGA design will also add new features to the ECH control system such as an attempt to restart RF generation after RF loss or the recovery of selected interlocks. Upgrades made to the ECH launchers and issues found in the last experimental campaign as well as planned improvements will also be described.

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M. Cengher  
General Atomics

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