

Abstract Submitted
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RF Power System and Data Acquisition System for a Helicon Current Drive Antenna on the DIII-D Tokamak¹ H. TORREBLANCA, J. ANDERSON, GA — A new system to demonstrate efficient off-axis non-inductive current drive from the absorption of a toroidally directed spectrum of very high harmonic fast waves at 476 MHz is being built for installation on the DIII-D tokamak.² A high power (1 MW) system is planned but the initial phase of testing will use a low-power antenna powered by a 100 W RF system that has been designed, assembled, and tested. A data acquisition system is also being developed that will acquire data from an array of twelve RF probes in the antenna and digitize them at rates greater than 100 kS/s. Measurements of phase and amplitude of each RF probe signal relative to a fixed reference will be captured to diagnose the performance of the antenna and its interaction with the plasma discharges. Current results on the design and testing of the RF and data acquisition systems will be presented.

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²J. Tooker, et al., Development of a Helicon Current Drive System for Installation in the DIII-D Tokamak, to be published in the proceedings of the 26th IEEE Symposium on Fusion Engineering (Austin, TX, 2015).

H. Torreblanca
General Atomics

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