

Abstract Submitted
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Long-Pulse Integrator Testing with DIII-D Magnetic Diagnostics

ILIA SLOBODOV, KENNETH MILLER, TIMOTHY ZIEMBA, JAMES PRAGER, JOHN CARSCADDEN, ERIC HANSON, Eagle Harbor Technologies, Inc. — Eagle Harbor Technologies (EHT), Inc. has developed a high-gain integrator for magnetic diagnostics that meets ITER specifications including integration time and integration error limits. EHT has conducted testing of this long-pulse integrator at DIII-D with existing DIII-D magnetic probes. The EHT long-pulse integrator was operated for several hours up to a full day. During a single period of EHT integrator operation, DIII-D was pulsed multiple times. The multiple pulses from the DIII-D magnetic diagnostics can be clearly resolved in the integrator signal output. The results are compared to DIII-D measurements. EHT also operated the long pulse integrator in High Dynamic Range Mode (HDRM), which effectively allows for a dramatic increase in measurement bit depth for higher resolution signal acquisition with the same diagnostic and digitizers presently available on DIII-D. Additionally, EHT has tested a new microprocessor and FPGA-based digitizer, which can be included on the integrator PCB, for a single board magnetic diagnostic solution.

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