

ECH SYSTEM ON THE DIII-D TOKAMAK

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A significant upgrade to the 110 GHz DIII-D ECH system was completed last year. Two additional Communication and Power Industries (CPI) diode gyrotrons were installed and tested to half the designed pulse length of 10 s. For the 2008 experimental campaign, the DIII-D system comprised five long pulse CPI gyrotrons. One additional high voltage power supply is being tested to support operation of up to 6 gyrotrons simultaneously at full parameters. The five gyrotrons in operation have chemical-vapor-deposition (CVD) diamond windows that are monitored by infrared camera during full parameter testing and operation during plasma experiments. A sixth CPI gyrotron has been repaired after collector failure and is being conditioned for high power at DIII-D. New equipment for gyrotron collector heat load monitoring was tested and used to measure the collector power deposition profile. A new fast fault processing system based on FPGA technology is being commissioned.