

Status of 84 GHz, 500 kW Gyrotron of KSTAR ECH System

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The 84 GHz, 500 kW electron cyclotron heating (ECH) system is under installation for the KSTAR start-up assistant. A collector potential depression (CPD) gyrotron and its power supply system were installed and the overall test of 1.5 MVA (60 kV, 25 A) power supply system using dummy resistors has been carried out to confirm the reliability and the protection of the gyrotron. With dummy resistors, the CPS (Collector Power Supply) is operated at 60 kV, 25A, and 2 s, and it is confirmed that the fast interlock unit turns off the high-voltage switch and turns on the crowbar switch within 10 microseconds under any fault condition. The 84 GHz gyrotron has been successfully commissioned with the RF output of 500 kW with duration of 20 μ s pulse for the initial operational test. In this paper, the initial test results of the 84 GHz gyrotron and power supply will be presented. Also, the current status of the 84 GHz gyrotron will be presented.

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