

Abstract Submitted  
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**Creating Testing Procedures and Determining Location of 70 GHz Gyrotron in HSX Upgrade** GRACE STANKE, ALEX THORNTON, BENEDIKT GEIGER, DAVID ANDERSON, HSX Stellarator — A 70 GHz gyrotron is currently being installed at the Helically Symmetric eXperiment (HSX) in Madison. This new electron cyclotron resonance heating (ECRH) source, donated by IPP-Greifswald, will provide up to 300 kW of power and allows plasma operation with densities up to  $3 \times 10^{18} \text{ m}^{-3}$ . This will permit access to a completely new operational range for HSX. However, before installation, the gyrotron must be tested, including tests of the gyrotrons 2.7T field superconducting magnet and the necessary liquid helium cooled cryostat. Moreover, efforts are needed to evaluate the overall safety hazards, cost effectiveness, and overall lab improvements and changes needed to operate the gyrotron. Multiple possibilities were evaluated to decide on the final location of the new gyrotron and routing of the transmission line.

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