

Abstract Submitted
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Performance of Components of the DIII-D ECCD Top Launch System¹ W. VALKIS, UCSD, P. SIMMERLING, U. Conn, A. TRUJILLO, UNI, Lima, Peru, M. CENGHER, J. LOHR, J. DOANE, M. BROOKMAN, D. SU, GA, H. TORREBLANCA, EFPL — A new extension of the ECH/ECCD system on DIII-D consists of the addition of a section of transmission line and a launcher in the top launch (TL) configuration. Experiments at DIII-D have showed that increased current drive efficiency was achieved with this vertical launch geometry [1]. Power at 110 GHz or 117.5 GHz produced by single-frequency gyrotrons has been injected into the plasma using the TL system. A waveguide switch installed in the transmission line allows the rf power to be directed either to a steerable low field side launcher or to the fixed top launcher. As part of the TL installation, a new DC break was designed and tested to provide electrical isolation for the TL branch of the transmission line. The measured rf leakage at the DC break gap in the waveguide line was compared with theoretical predictions. An absorbing cylinder was fitted around the DC break to reduce the rf leakage from the insulating gap. A description of the installation, top launch transmission line performance, and COMSOL simulation results is presented. [1] Chen, X., *et al.*, 61st Annual Meeting of the APS Division of Plasma Physics, Volume 64, Number 11 (2019)

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Wyatt Valkis
University of California, San Diego

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