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Performance of Coaxial RF Transmission Line Components at 476 MHz¹ MIKAYLA WASHINGTON, University of Colorado, Colorado Springs, R.I. PINSKER, H. TORREBLANCA, M.W. BROOKMAN, General Atomics — A system for helicon current drive at 476 MHz is under construction at DIII-D, with initial operation planned for early 2020. Most of the transmission line components being used to convey the rf power from the klystron to the comb-line antenna on DIII-D were originally part of a 60-120 MHz ICRF system. To evaluate the applicability of these components at the significantly higher frequency, electromagnetic simulations are performed with the RF package in the COMSOL Multiphysics software suite and compared with low-power measurements using a vector network analyzer. One large and expensive component of particular interest is the dual channel 2×2 MW dummy load obtained from Spinner, which was designed for use at frequencies in the 30-120 MHz range. Substantial cost savings may be achieved if the Spinner dummy load can be used at 476 MHz. Details of the simulations and measurements are presented.

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