Abstracts

Discontinuity Capacitance of a Coaxial Line Terminated in a Circular Waveguide

E.W. Risley, Jr.. "Discontinuity Capacitance of a Coaxial Line Terminated in a Circular Waveguide." 1969 Transactions on Microwave Theory and Techniques 17.2 (Feb. 1969 [T-MTT]): 86-92.

This calculation evaluates the discontinuity capacitance of a coaxial line terminated in a circular waveguide using the Rayleigh-Ritz variational technique. A 50-ohm 3/4-inch coaxial line termination with solid center conductor was fabricated with center and outer conductor dimensions of 0.32568± 0.00002 and 0.74995± 0.00002 inches, respectively. The measured value of capacitance of this termination at 1000 Hz was 2.164 x 10/sup -13/ farads as compared with the calculated value of 2.177093 x 10/sup -13/ farads. Calculated values of capacitance for other line sizes were also compared with measured values and in each case the calculated value agreed with the measured value to within the experimental error of the measured value.

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