Abstracts

The Input Impedance of a Coaxial Line Fed Probe in a Cylindrical Waveguide

W.W.S. Lee and E.K.N. Yung. "The Input Impedance of a Coaxial Line Fed Probe in a Cylindrical Waveguide." 1994 Transactions on Microwave Theory and Techniques 42.8 (Aug. 1994 [T-MTT]): 1468-1473.

Dyadic Green's functions for determining the electric and magnetic fields in a cylindrical waveguide due to a radially directed infinitesimally short electric dipole are derived. The waveguide is shorted at one end and terminated at a perfectly matched load at the other. Both TE and TM modes are considered. Based on these dyadic Green's functions, the input impedance of a coaxial line fed probe in front of the plunger is derived. The formula is expressed in a closed form. Excellent agreement between theoretical results and experimental data for exciting the TE/sub 11/ mode in the X band for various probe positions is observed.

❑ Return to main document.