Abstracts

A Method of Moments Analysis and a Finite-Difference Time-Domain Analysis of a Probe-Sleeve Fed Rectangular Waveguide Cavity

J.M. Jarem. "A Method of Moments Analysis and a Finite-Difference Time-Domain Analysis of a Probe-Sleeve Fed Rectangular Waveguide Cavity." 1991 Transactions on Microwave Theory and Techniques 39.3 (Mar. 1991 [T-MTT]): 444-451.

A multifilament method of moments (MOM) analysis and a finite-difference time-domain (FD-TD) analysis have been used to numerically calculate the input impedance of a probe-sleeve fed rectangular waveguide which has been short-circuited on one side. The input impedance of the system has been determined by using the above methods for several probe-sleeve configurations and reasonable agreement between the two methods for the cases studied has been found. A MOM Green's function formulation which is based on scattering super-position has also been derived which allows the input impedance of a probe-sleeve feed to be calculated when the waveguide is terminated in a given load. The MOM results and FD-TD numerical results are compared for this loaded waveguide input impedance case and reasonable agreement between the methods has been found. A comparison of theory and experiment is given when the waveguide is terminated in a ground plane aperture.

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