Abstracts

Analysis of shielded lossy multilayered-substrate microstrip discontinuities

E.S. Tony and S.K. Chaudhuri. "Analysis of shielded lossy multilayered-substrate microstrip discontinuities." 2001 Transactions on Microwave Theory and Techniques 49.4 (Apr. 2001, Part I [T-MTT]): 701-711.

The spatial Green's function for a rectangular cavity partially filled with multiple layers of lossy dielectrics has been derived. The Green's function is used to compute the fields around a discontinuity in a transmission line. To analyze a discontinuity, the unknown surface current maintained on the microstrip discontinuity is expanded in terms of known suitable basis functions. The electric-field components in the plane of the discontinuity region are then written in terms of this current. Imposing the boundary condition that the component of the electric-field tangential to the metallization is zero yields the electric-field integral equation (EFIE). The method of moments is applied to the EFIE to obtain a system of linear equations. The resultant semianalytical expressions were used to conduct accurate modeling of a variety of structures. The validity and accuracy of this method are established through comparison with other published results. Convergence considerations are outlined and verified.

❑ Return to main document.