Abstracts

Characterization of Microstrip Discontinuities Using Conformal Mapping and the Finite-Difference Time-Domain Method (Short Papers)

S. Kapoor and J.B. Schneider. "Characterization of Microstrip Discontinuities Using Conformal Mapping and the Finite-Difference Time-Domain Method (Short Papers)." 1995 Transactions on Microwave Theory and Techniques 43.11 (Nov. 1995 [T-MTT]): 2636-2639.

Microstrip discontinuities are analyzed using Wheeler's waveguide model and the finite-difference time-domain (FDTD) method. Wheeler's model employs a conformal transformation to convert a microstrip into an enclosed waveguide structure. This permits the mapping of a discontinuous microstrip into a discontinuous, but enclosed, waveguide. The enclosed waveguide eliminates the difficulties usually associated with analysis of an open domain geometry. The FDTD technique is then used to calculate the scattering coefficients of the discontinuous waveguide. The features of this approach are: 1) it yields a smaller computational domain than that required to analyze the untransformed geometry; 2) it yields results over a band of frequencies; and 3) it is simple to implement. Results obtained using this scheme show good agreement with previously published results.

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