Abstracts

Mixed Potential Integral Equation Technique for Hybrid Microstrip-Slotline Multilayered Circuits Using a Mixed Rectangular-Triangular Mesh

J. Sercu, N. Fache, F. Libbrecht and P. Lagasse. "Mixed Potential Integral Equation Technique for Hybrid Microstrip-Slotline Multilayered Circuits Using a Mixed Rectangular-Triangular Mesh." 1995 Transactions on Microwave Theory and Techniques 43.5 (May 1995 [T-MTT]): 1162-1172.

In this paper, a mixed potential integral equation (MPIE) formulation for hybrid microstrip-slotline multilayered circuits is presented. This integral equation is solved with the method of moments (MoM) in combination with Galerkin's method. The vector-valued rooftop functions defined over a mixed rectangular-triangular mesh are used to model the electric and magnetic currents on the microstrip and slotline structures. An efficient calculation technique for the quadruple interaction integrals between two cells in the system matrix equation is presented. Two examples of hybrid microstrip-slotline circuits are discussed. The first example compares the simulation results for a microstrip-slotline transition with measured data. The second example illustrates the use of the simulation technique in the design process of a broadband slot-coupled microstrip line transition.

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