Abstracts

Analysis of slot-coupled transitions from microstrip-to-microstrip and microstrip-to-waveguides

A.A. Omar and N.I. Dib. "Analysis of slot-coupled transitions from microstrip-to-microstrip and microstrip-to-waveguides." 1997 Transactions on Microwave Theory and Techniques 45.7 (Jul. 1997 [T-MTT]): 1127-1132.

This paper provides an accurate, versatile, and computationally efficient method for the analysis of slot-coupled transitions from microstrip-to-microstrip, and microstrip-to-rectangular and parallel-plate waveguides. The accuracy of this method is ensured by satisfying all the boundary conditions through a mixed electric-magnetic current integral equation formulation, combined with the moment method. Computational efficiency is achieved by limiting the discretization to only the strips and apertures and by using the accurate and rapidly convergent complex images. To verify the accuracy of this method, the transitions are analyzed using the finite-difference time-domain (FDTD) method. Experimental results are also obtained for some structures. Close agreement is found between the complex image results, the FDTD results, and experiment over a wide frequency range.

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