Abstracts

Application of the GSD Technique to the Analysis of Slot-Coupled Waveguides

A.S. Omar, A. Jostingmeier, C. Rieckmann and S. Lutgert. "Application of the GSD Technique to the Analysis of Slot-Coupled Waveguides." 1994 Transactions on Microwave Theory and Techniques 42.11 (Nov. 1994 [T-MTT]): 2139-2148.

The generalized spectral domain (GSD) technique is applied to the analysis of waveguide coupling by axially uniform slots. For a slotted-circular waveguide, cut off wavenumbers of TE and TM modes as well as the corresponding field distributions in the composite waveguide are determined and compared to that obtained by other methods. Plots of the field lines corresponding to the dominant as well as a number of higher order modes are presented. It is shown that considering the H/sub 00/ modes in the comprising waveguides is necessary. Furthermore it is demonstrated how the efficiency of the method regarding accuracy and CPU time requirements can considerably be enhanced if infinite sums over eigenmodes which have to be evaluated are replaced by closed-form expressions.

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