Abstracts

Identification of Propagation Regimes on Integrated Microstrip Transmission Lines

J.S. Bagby, C.-H. Lee, D.P. Nyquist and Y. Yuan. "Identification of Propagation Regimes on Integrated Microstrip Transmission Lines." 1993 Transactions on Microwave Theory and Techniques 41.10 (Nov. 1993 [T-MTT]): 1887-1894.

There has been a resurgence of interest in the propagation characteristics of open integrated microstrip transmission lines. This is due in part to the discovery of diverse propagation regimes for higher-order modes on open lines. In contrast to the dominant EH/sub 0/ mode, three distinct propagation regimes exist for higher-order modes on microstrip transmission lines. In this paper, a rigorous spectral-domain integral equation formulation is used to analyze propagation in all three regimes. This formulation provides a clear physical picture of the different propagation regimes based on the mathematical location of poles and branch points in the complex spectral-variable plane. As an illustration, the formulation is applied to the case of an isolated uniform microstrip transmission line. The integral equation is discretized via the method of moments, and entire-domain basis functions incorporating suitable edge behavior are utilized to provide convergence with relatively few terms. The results obtained are compared to the results of other workers, and good agreement is observed.

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