Abstracts

Systematic Computation of the Modal Spectrum of Boxed Microstrip, Finline, and Coplanar Waveguides via an Efficient SDA

G. Cano, F. Mesa, F. Medina and M. Horno. "Systematic Computation of the Modal Spectrum of Boxed Microstrip, Finline, and Coplanar Waveguides via an Efficient SDA." 1995 Transactions on Microwave Theory and Techniques 43.4 (Apr. 1995, Part I [T-MTT]): 866-872.

This work reports an efficient and systematic procedure to obtain the complete modal spectrum of multilayer boxed planar lines. The complex propagation constants are obtained by computing the zeros of a properly built analytic complex function. This function is the product of two factors. One of them is the determinant function provided by the spectral domain-Galerkln analysis (SDA). The other factor is a function which cancels out the poles of the former factor without introducing additional poles nor zeros. The elimination of the poles overcomes numerical difficulties usually found in the zero searching process. In addition, powerful zero--searching integral techniques can be applied without problems. The numerical aspects involved in the computation of the spectral series are considered to speed up the computations. The features of an arbitrary number of propagating, evanescent, backward or complex modes of three important boxed structures (microstrip, finline, and coplanar waveguide) can be systematically studied with our method.

❑ Return to main document.