Abstracts

Quasi-Analytical Static Solution of the Boxed Microstrip Line Embedded in a Layered Medium

F. Medina and M. Horno. "Quasi-Analytical Static Solution of the Boxed Microstrip Line Embedded in a Layered Medium." 1992 Transactions on Microwave Theory and Techniques 40.9 (Sep. 1992 [T-MTT]): 1748-1756.

In this paper, a quasi-analytical method is presented to carry out the quasi-TEM study of a microstrip line embedded in a general layered substrate with rectangular enclosure. Electric walls, magnetic walls and periodic boundary conditions are considered. The analysis is based on the spectral domain formulation and the use of a proper expansion of the free charge distribution (Chebyshev polynomials with edge condition). Two different approaches are proposed to speed up the evaluation of the spectral series in such a way that only a few spectral terms must be retained in the numerical computations of the mentioned series. The propagation parameters and the charge distribution are obtained with extreme accuracy in fractions of one second on a personal computer.

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