Abstracts

New Type of Spectral-Domain Analysis of a Microstrip Line

K. Uchida, T. Noda and T. Matsunaga. "New Type of Spectral-Domain Analysis of a Microstrip Line." 1989 Transactions on Microwave Theory and Techniques 37.6 (Jun. 1989, Part I [T-MTT]): 947-952.

The problem of an open microstrip line is analyzed by the spectral-domain method combined with the sampling theorem. In the spectral domain, the boundary conditions of zero tangential electric fields are expressed in terms of the convolution integral forms with a sampling function, and these relations are discretized by the method of moments with the spherical Bessel function as a weighting function. A well-chosen incorporation of the Weber-Schafheitlin integration formula yields good accuracy and saves a significant amount of time in numerical calculations. Numerical examples are shown for the effective dielectric constants and for the current distributions, both longitudinal and transverse, in comparison with the results obtained by various other methods.

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