Abstracts

A New Technique for the Analysis of the Dispersion Characteristics of Microstrip Lines

Dispersion characteristics of shielded microstrip lines are investigated using a new technique. The method utilizes the well-known singular integral equation approach for deriving an alternate form of eigenvalue equation with superior convergence properties. It is shown that accurate numerical results may be obtained from this eigenvalue equation using only a 2x2 matrix equation. In comparison, the conventional formulation of the problem requires the use of matrices that are much larger in size. Aside from the numerical efficiency, the simplicity of the method makes it possible to conveniently extract higher order modal solutions for the propagation constants that affect the high-frequency application of microstrip lines. Even though the derivation of the determinantal equation requires some intricate mathematical manipulations, the user may bypass these completely and use the final eigenvalue equation which is programmable on the computer.

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