Abstracts

A Full-Wave Analysis of Microstrip Lines by Variational Conformal Mapping Technique

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A novel full-wave analysis of microstrip lines is presented. Wheeler's mapping, which is useful in the quasi-TEM analysis of microstrip lines, is combined with the full-wave variational formulation to facilitate a finite element solution. This desirable mapping not only transforms the problem domain into a finite region, but also overcomes the field singularity on the strip edge. Compared with other known techniques, the present method makes fewer assumptions, and is more rigorous as long as the strip thickness is negligible. Numerical results for the frequency dependence of effective dielectric constant, the characteristic impedance, and both Iongitudinal and transverse current distributions on the strip are also included.

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