Abstracts

Full-wave analysis of nonplanar transmission lines on layered medium by means of MPIE and complex image theory

In this paper, a multiconductor transmission line consisting of arbitrary cross-sectional perfect conductors printed on a layered isotropic or uniaxial anisotropic dielectric medium is analyzed by solving the mixed-potential integral equation for the free-surface currents. Closed-form expressions of the two-dimensional space-domain Green's functions for the electrodynamic potentials are used. These expressions are obtained by applying the complex image technique to the spectral functions remaining after removing the asymptotic and pole contributions from the original Green's functions. A single set of complex images is obtained for any guess value of the unknown propagation constant and for any pair of source/field points. In addition, the reaction integrals involved in the application of the method of moments are worked out in a quasi-analytical way. The final result is an accurate and highly efficient computation code for analyzing multiconductor structures printed on a layered medium.

❏ Return to main document.