

Propagation characteristics of cylindrical microstrip lines in a
multi-layered medium

Hsu, Chung-I G. ; Lee, Ching-Her; Kiang, Jean-Fu

Abstract

In this research, rigorous full-wave analysis is applied to formulate an electric field integral equation for a cylindrical microstrip line in an arbitrary multilayered medium. This equation is subsequently solved numerically using the method of moments. A spectral dyadic Green's function needed in the electric field integral equation formulation is derived. Entire domain basis functions that incorporate the edge conditions are employed to approximate the longitudinal and the transverse surface currents on the strip in the numerical computations. Computed frequency-dependent results for sample transmission-line configurations are reported and, wherever possible, are compared with data available in the literature.

Key words : Cylindrical microstrip line; Electric field integral equation;
Dyadic green's function