Abstracts

Scattering Effects in the Dielectric Slab Waveguide Caused by Electrically Dissipative or Active Regions (Short Papers)

T.G. Livernois, D.P. Nyquist and M.J. Cloud. "Scattering Effects in the Dielectric Slab Waveguide Caused by Electrically Dissipative or Active Regions (Short Papers)." 1991 Transactions on Microwave Theory and Techniques 39.3 (Mar. 1991 [T-MTT]): 579-583.

A polarization electric field integral equation (EFIE) is used to model conducting discontinuities in the dielectric slab waveguide. A complex refractive index accounts rigorously for effects of conduction current in the discontinuity region. Both dissipative and active cases are treated; power balance, based on Poynting's theorem, is used to determine the fractional radiated power in each case. The method of moments is invoked to solve the integral equation. The accuracy of the analysis method is confirmed through comparison of results for the air gap case with those of other recently published methods. Numerical results illustrate application to a typical GaAs ternary system.

❑ Return to main document.