Abstracts

Electromagnetic Coupling of Microstrip Lines and Coplanar Waveguides to Multilayer Lossy Media

M.F. Iskander and T.S. Lind. "Electromagnetic Coupling of Microstrip Lines and Coplanar Waveguides to Multilayer Lossy Media." 1989 MTT-S International Microwave Symposium Digest 89.1 (1989 Vol. I [MWSYM]): 175-178.

In medical-diagnostic and geophysical applications of electromagnetic (EM) techniques, it is of critical importance to use radiating systems that couple the EM energy efficiently and with minimum external leakage. Experimentally, a family of printed circuit elements including coplanar waveguides has proven to be an ideal surface-wave type coupling system for such applications. To date, no work has been done to describe the coupling characteristics of these structures. In this paper, the spectral domain method is used to provide a detailed analysis of the coupling characteristics of coplanar waveguides to multi-layered lossy dielectric media. The role of a superstrata layer of lossless dielectric in setting up and controlling the surface-wave type coupling to the lossy media is examined. Results for the dispersion characteristics and the various components of the coupled electric field in the lossy medium are presented.

❑ Return to main document.