Abstracts

Transverse Modal Analysis of Printed Circuit Transmission Lines

Dispersion characteristics of finned rectangular waveguides, finlines, shielded slotlines, shielded microstrip and striplines, and shielded two-coupled slotlines and striplines are formulated by the transverse modal analysis method. A rectangular cavity is formed by placing two electric walls transverse to a uniform transmission-line system. Considering that the wave propagation is in the direction transverse to the transmission line and to the dielectric discontinuities, the rectangular cavity can be viewed as multiple rectangular waveguide sections joined by the discontinuities. The rectangular waveguide modal analysis technique is readily applicable to obtain the dispersion characteristics by matching the boundary conditions at the discontinuities interface. Numerical solutions are obtained using Galerkin's method, and the results are compared with several numerical techniques for various transmission-line systems.

❏ Return to main document.