Abstracts

Field Solution, Polarization, and Eigenmodes of Shielded Microstrip Transmission Line

E.E. Hassan. "Field Solution, Polarization, and Eigenmodes of Shielded Microstrip Transmission Line." 1986 Transactions on Microwave Theory and Techniques 34.8 (Aug. 1986 [T-MTT]): 845-852.

Application of the reciprocity theorem leads to a variational expression for the propagation constant of the fields inside shielded microstrip-like transmission lines. The resulting equation involves both the propagation constant and the tangential fields at the air-dielectric interface. Using the Rayleigh-Ritz optimization technique, both the propagation constant and the fields are completely determined. The calculated results of the propagation constant compare well with other available data. Moreover, the field solution obtained is presented in the form of a polarization ratio relating the axial to the transverse electric field. Results cover both low and high frequencies, and the technique proves valid at both frequency ranges. The method may be extended to other configurations of planar striplines by proper adjustment of the integration limits.

❑ Return to main document.