Abstracts

Spectral Domain Analysis of Frequency Dependent Propagation Characteristics of Planar Structures on Uniaxial Medium

H. Lee and V.K. Tripathi. "Spectral Domain Analysis of Frequency Dependent Propagation Characteristics of Planar Structures on Uniaxial Medium." 1982 Transactions on Microwave Theory and Techniques 30.8 (Aug. 1982 [T-MTT]): 1188-1193.

The propagation characteristics of single and multilayered uniaxial dielectric waveguides and planar structures on uniaxial medium can be determined by utilizing Hertzian potentials along the optical axis. The electric and magnetic Hertzian potentials, having components along the optical axis only, lead to TM and TE modes, respectively, with respect to that axis. The dyadic Green's function in Fourier transform domain (immittance matrix) required to solve for the propagation characteristics of planar structures on uniaxial medium are derived for all three orientations of the optical axis. The immittance matrix for all three cases is in the same form as that for the isotropic medium and hence the known Galerkin's method can be used to solve for the propagation characteristics of the structure.

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