Abstracts

Dispersion Characteristics of Open and Shielded Microstrip Lines Under a Combined Principal Axes Rotation of Electrically and Magnetically Anisotropic Substrates

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This paper examines the dispersion properties of microstrip transmission lines whose substrate permittivity and permeability tensors are rotated simultaneously. The analysis takes into account both shielded and open structures, including both single and coupled microstrip line geometries. The spectral. domain method is utilized to formulate the dyadic impedance Green's function, and Galerkin's method is applied to find the propagation constants. Numerical studies are performed when the angular difference between the principal axes of [epsilon] and [μ] tensors is fixed, but both are rotated from 0 to 90 degrees. The dispersion characteristics for all structures are computed over a wide frequency band that ranges from 0.1 to 100 GHz. The study indicates that propagation properties of MICs with dielectrically and magnetically anisotropic substrates (such as composites) can be changed considerably by the misalignment of material and structure coordinates systems.

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