Abstracts

An FD-FD formulation for the analysis of the optical axis misalignment effect on propagation characteristics of anisotropic dielectric waveguides

C.L. da S.S. Sobrinho and A.J. Giarola. "An FD-FD formulation for the analysis of the optical axis misalignment effect on propagation characteristics of anisotropic dielectric waveguides." 1997 Transactions on Microwave Theory and Techniques 45.10 (Oct. 1997, Part I [T-MTT]): 1789-1792.

A finite-difference frequency-domain (FD-FD) formulation is developed to study the dispersion characteristics of anisotropic dielectric waveguides with their optical axes not aligned with the coordinate-system axes. In this analysis, the optical axes are initially assumed to be aligned with the coordinate-system axes such that the electric-permittivity and magnetic-permeability tensors are diagonal. The optical axes of the anisotropic dielectric are then rotated an angle /spl theta/ (or /spl phi/) with respect to the coordinate-system axes. While the FD-FD formulation developed is general, it is applied here only to waveguides containing uniaxial anisotropic dielectrics. The results show that accurate optical-axis orientation is important in the design of dielectric waveguides.

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