Abstracts

The Inverse Problem for Biaxial Materials

N.J. Damaskos, R.B. Mack, A.L. Maffett, W. Parmon and P.L.E. Uslenghi. "The Inverse Problem for Biaxial Materials." 1984 Transactions on Microwave Theory and Techniques 32.4 (Apr. 1984 [T-MTT]): 400-405.

Theory and measurements for the determination of the constitutive parameters of an anisotropic material are described, when a slab of the material is inserted in a rectangular waveguide. If both epsilon and μ tensors have zero off-diagonal elements (biaxial material), then the six diagonal elements can be determined by measuring amplitude and phase of reflection and transmission coefficients. If the material is nondispersive, two sets of measurements at two different frequencies are sufficient, under TE/sub 10/ excitation. In the more general case of a lossy and dispersive material, two sets of measurements at the same frequency under TE/sub10/ and TE/sub20/ excitations are needed. An experimental setup for the latter case is described.

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