Abstracts

Resonant Modes in Shielded Cylindrical Ferrite and Single-Crystal Dielectric Resonators

J. Krupka. "Resonant Modes in Shielded Cylindrical Ferrite and Single-Crystal Dielectric Resonators." 1989 Transactions on Microwave Theory and Techniques 37.4 (Apr. 1989 [T-MTT]): 691-697.

The Galerkin-Rayleigh-Ritz method is applied for computing the first few lowest resonant frequencies of cylindrical anisotropic resonators in a cylindrical cavity. The resonators are allowed to have gyromagnetic and uniaxial dielectric anisotropy with respect to the z axis of the cylinder. Results of computations of the resonant frequencies are compared with exact solutions for many simple resonant structures and with results of experiments for more complicated structures. A new method of measuring permeability tensor components is presented. The method utilizes two parallel-plate cylindrical resonators operating in the HE/sup ±//sub 111/ and H/sub 011/ modes. A method of measuring permittivity tensor components of single crystals is proposed using one parallel-plate cylindrical resonator operating in two different modes.

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