Abstracts

Computation of resonant frequencies of cylindrical ferrite resonators using GIBCs

Myung Jin Kong and B. Beker. "Computation of resonant frequencies of cylindrical ferrite resonators using GIBCs." 1998 Transactions on Microwave Theory and Techniques 46.10 (Oct. 1998, Part I [T-MTT]): 1503-1507.

A computational approach for resonant frequencies of cylindrical substrate-mounted resonators is presented in this paper. The resonator is made of ferrite material, which is magnetically anisotropic and characterized by a Hermitian tensor. It is mounted on top of a grounded dielectric substrate, and the entire assembly is covered with a tuning plate, leaving the sidewalls open. The generalized impedance boundary conditions (GIBCs) are derived for the ferrite material and are used to formulate the approximate solution to the boundary-value problem. The resulting transcendental equations are solved numerically, and variations of the resonant frequency with respect to bias field, magnetization, and dimensions of the structure are reported.

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