Abstracts

Integration equation analysis on resonant frequencies and quality factors of rectangular dielectric resonators

In this paper, the resonance problem of rectangular dielectric resonators (DRs) is analyzed by using the spectral dyadic Green's function and volume integral-equation formulation. The rectangular dielectric body is replaced by a set of entire-domain polarized volume current basis, and Galerkin's moment method is used to solve the resonant frequency and quality factor of the rectangular DR. The effects of electrical and geometrical parameters on the resonance of the TE/sub 111/ mode of isolated DRs are also presented. Additionally, the case of a rectangular DR with a ground plane is also discussed. Results are found to be in good agreement with the published experimental data.

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