Abstracts

An efficient full-wave method for analysis of dielectric resonators possessing separable geometries immersed in inhomogeneous environments

In this paper, dielectric resonators possessing separable-coordinate geometries immersed in planarly-inhomogeneous media are analyzed using a volume electric-field integral-equation (IE)/Galerkin's technique. A three-dimensional complete entire-domain basis function set is utilized in numerically solving the IE. It is shown that a few terms of one physically significant subset of basis functions are usually sufficient for the accurate determination of complex resonant frequencies of cylindrical and rectangular resonators immersed in homogeneous and planarly inhomogeneous environments. The results using a few basis functions show good agreement with the previous literature, and new results are presented for some rectangular resonator geometries.

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