Abstracts

Analysis of Dielectric Resonator Cavities Using the Finite Integration Technique

Resonant modes in shielded dielectric resonators are studied by a numerical technique which yields the resonant frequencies, modal field distribution, and Q factors of various resonant modes, including the hybrid modes. The technique employs field discretization by virtue of dual electric and magnetic grids and allows for a direct numerical solution of the integral form of Maxwell's equations for specified boundary conditions. The details of the matrix formulation are explained on an example of the cavity subdivided into a grid consisting of 3 x 3 electric cells. A modal field plot exhibiting a spiraling behavior has been observed.