Abstracts

Analytical and Experimental Investigations on Several Resonant Modes in Open Dielectric Resonators

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The complex resonant frequency of open dielectic pillbox resonators is analyzed by an analytical method proposed by the present authors, which expands the field into a truncated series of solutions of the Hehnholtz equation in the spherical coordinates and treats the boundary condition in the least-squares sense. This method is applied to calculate the characteristics of several resonant modes which will be of practical use. The accuracy of the method is confirmed by investigating the convergence of solutions. Also, numerical results are compared with experimental results of several resonant modes, which are obtained for the dielectric samples with epsilon/sub r/= 38.0 and 19.5 in the X-band.

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