Abstracts

Axisymmetric Modes of Cylindrical Resonators with Cascaded Inhomogeneous Dielectrics (Short Papers)

J.-F. Kiang. "Axisymmetric Modes of Cylindrical Resonators with Cascaded Inhomogeneous Dielectrics (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.9 (Sep. 1996 [T-MTT]): 1606-1610.

A generic numerical scheme is developed to calculate the resonant frequency of axisymmetric modes in an inhomogeneous cylindrical dielectric resonator. The resonator consists of sections of cylindrically stratified dielectrics within a cylindrical waveguide. In each section, the TM/sub 0m/ and TE/sub 0m/ waveguide modes are solved by expanding the H/sub Phi/ and E/sub Phi/ components in terms of the eigenmodes in an empty waveguide. The fields in each section are then expanded in terms of these TM/sub 0m/ and TE/sub 0m/ modes. The transverse resonance technique is then applied to obtain the resonant frequencies. Comparison with literatures validates the effectiveness of this approach. Results with continuous dielectric profiles are also obtained.

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