Abstracts

Magnetic Tuning of Cylindrical H/sub 01delta/-Mode Dielectric Resonators

J. Krupka. "Magnetic Tuning of Cylindrical H/sub 01delta/-Mode Dielectric Resonators." 1989 Transactions on Microwave Theory and Techniques 37.4 (Apr. 1989 [T-MTT]): 743-747.

The theory of magnetic tuning of cylindrical H/sub 01delta/ dielectric resonators is developed. It is based on rigorous solutions to the dielectric resonator systems containing microwave ferrites. It is shown that the most effective magnetic tuning of H/sub 01delta/ dielectric resonators can be accomplished by inserting a thin ferrite rod through an axial hole in the resonator. This kind of tuning utilizes the dependence of the parallel permeability tensor component μ/sub z/, on the magnetic field applied. Experimerits have been performed which show that a 4 percent tuning range can be attained with a Q factor of the resonant system of the order of 2000 at X-band. Using an appropriate dc magnetic field circuit a 120 MHz tuning bandwidth has been obtained with a consumption of tuning power of about 75 mW.

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