Abstracts

Temperature dependence of composite microwave cavities

D. Kajfez, S. Chebolu, A.A. Kishk and M.R. Abdul-Gaffoor. "Temperature dependence of composite microwave cavities." 2001 Transactions on Microwave Theory and Techniques 49.1 (Jan. 2001 [T-MTT] (Mini-Special Issue on 2000 Radio-Frequency Integrated Circuits (RFIC) Conference and Automatic Radio Frequency Techniques Group (ARFTG) Meeting)): 80-85.

Composite microwave resonant cavities contain several regions of different dielectric materials. The variation of the resonant frequency with temperature is described in terms of a linear model. One part of the frequency variation is caused by the physical expansion of material parts, and the other by the change in the relative dielectric constant. The frequency sensitivity coefficients for both types of variation are obtained with the use of a computer code for numerical analysis of the electromagnetic field inside bodies of revolution.

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