Abstracts

Dielectric Constant and Loss Tangent of Microwave Ferrites at Elevated Temperatures

I. Bady and T. Collins. "Dielectric Constant and Loss Tangent of Microwave Ferrites at Elevated Temperatures." 1963 Transactions on Microwave Theory and Techniques 11.4 (Jul. 1963 [T-MTT]): 222-226.

Experimental data are given on the effect of elevated temperature on the dielectric properties of ferrites intended for microwave applications. Measurements were made at X band. The real part of the dielectric constant generally increases slowly with temperature, the maximum temperature coefficient observed being 300 parts per million per degree C. The dielectric loss tangent also generally increases with temperature. Measurements were made in a rectangular waveguide cavity, using a modified perturbation technique. It is shown that the simple perturbation technique may cause an appreciable error in the measurement of the real part of the dielectric constant. The effect of the finite resistivity of the cavity walls and the effect of the cavity irises on the measurement of the dielectric loss tangent, are also considered.

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