Abstracts

Analysis and Evaluation of a Method of Measuring the Complex Permittivity and Permeability of Microwave Insulators

W.E. Courtney. "Analysis and Evaluation of a Method of Measuring the Complex Permittivity and Permeability of Microwave Insulators." 1970 Transactions on Microwave Theory and Techniques 18.8 (Aug. 1970 [T-MTT]): 476-485.

Theory and experimental results are presented to show the possibility of using a resonant post technique for characterizing dielectric and magnetic materials at microwave frequencies. Results of the temperature dependence of the relative dielectric constant of nonmagnetic materials with epsilon/sub r/, varying from 4 to 60 are presented and also loss tangent measurements at room temperature. The complex permittivity and permeability of a number of garnet materials has also been measured with 4pi gamma M/sub s/ /omega varying from 0.25 to 0.8. The measured real part of the permeability is in good agreement with the theoretical predictions of Schlomann and the imaginary part of the permeability agrees with measurements by Green et al. on similar materials.

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