Abstracts

A Broad-Band, Automated, Stripline Technique for the Simultaneous Measurement of Complex Permittivity and Permeability

W. Barry. "A Broad-Band, Automated, Stripline Technique for the Simultaneous Measurement of Complex Permittivity and Permeability." 1986 Transactions on Microwave Theory and Techniques 34.1 (Jan. 1986 [T-MTT]): 80-84.

A broad-band automated technique for making frequency-swept measurements of complex permittivity and permeability simultaneously is described. Epsilon/sub r/ and μ/sub r/ are computed from S-parameter measurements made on a strip transmission-line device loaded with the material under test. The derivation of epsilon/sub r/ and μ/sub r/ as functions of S/sub 11/ and S/sub 21/ is included, as well as a practical design for a stripline sample holder. Measured epsilon/sub r/ and μ/sub r/ data for several dielectrics and ceramic ferrites is also presented. The technique has been found to have an overall accuracy of better than ±5 percent.

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