Abstracts

Optical Methods for the Measurement of Complex Dielectric and Magnetic Constants at Centimeter and Millimeter Wavelengths

T.E. Talpey. "Optical Methods for the Measurement of Complex Dielectric and Magnetic Constants at Centimeter and Millimeter Wavelengths." 1954 Transactions on Microwave Theory and Techniques 2.3 (Sep. 1954 [T-MTT]): 1-12.

A method is described which permits the determination of the complex dielectric constant, epsilon* = epsilon/sub o/k/sub e/(l-j tan delta/sub e/), and the complex permeability, μ* = μ/sub o/k/sub m/ (l-j tan delta/sub m/), using free space transmission and reflection from a plane sheet of the sample dielectric. The procedure represents an extension of that used at optical frequencies. Differences arise however, due to the fact that the assumptions of k/sub m/ = 1 and tan delta/sub m/ = 0, which are made in the optical theory, are not always valid at millimeter wavelengths.

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