Abstracts

Dielectric constant measurements of finite-size sheet at microwave frequencies by pseudo-Brewster's angle method

R. Afzalzadeh. "Dielectric constant measurements of finite-size sheet at microwave frequencies by pseudo-Brewster's angle method." 1998 Transactions on Microwave Theory and Techniques 46.9 (Sep. 1998 [T-MTT]): 1307-1309.

Dielectric constant (/spl epsiv//sub r/) measurements for finite-size dielectric sheets (DS's) at centimeter wavelengths are presented using the method-of-measuring pseudo-Brewster's angle. This method is applied to measure /spl epsiv//sub r/ of sheets of Plexiglas and window glass. In the experiment, two horn antennas are used to transmit and receive p-polarized waves. A dielectric sheet is located between the two antennas and rotated 180/spl deg/, which produces two peaks in the transmittance curves. For a more accurate measurement of Brewster's angle, an optical spectrometer with 1-min accuracy is also used. By this method, /spl epsiv//sub r/ of Plexiglas and window glass are obtained to be 2.55/spl plusmn/0.13 and 5.35/spl plusmn/0.1, respectively. This method measures |/spl epsiv//sub r/|, but the measurement is easy and nondestructive for DS's. Finally, an accurate method of error calculation is used to calculate the error in the measured values of /spl epsiv//sub r/.

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