Abstracts

Measurement of the Complex Permittivity of Low-Loss Planar Microwave Substrates Using Aperture-Coupled Microstrip Resonators

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This paper describes a technique for the determination of the complex permittivity of low-loss dielectric substrates at microwave frequencies. The technique utilizes an aperture-coupled microstrip resonator fed using a microstrip line in a two layer configuration. The ends of the resonator are shorted in order to avoid radiation. The technique can also be used for the measurement of the complex permittivity of other electronic materials such as thin and thick film materials at microwave frequencies. Nonresonant modes and conductor losses are taken into account in the analysis to improve the accuracy of the results. Analysis procedure as well as experimental results are presented.

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