Abstracts

Broad-band microwave characterization of bilayered materials using a coaxial discontinuity with applications for thin conductive films for microelectronics and material in air-tight cell

N. Belhadj-Tahar, O. Meyer and A. Fourrier-Lamer. "Broad-band microwave characterization of bilayered materials using a coaxial discontinuity with applications for thin conductive films for microelectronics and material in air-tight cell." 1997 Transactions on Microwave Theory and Techniques 45.2 (Feb. 1997 [T-MTT]): 260-267.

A new measurement method of complex permittivity of bilayered materials has been developed using a coaxial discontinuity. The electromagnetic analysis is performed according to the "mode-matching" method. The reflection coefficient of the principal transverse electromagnetic (TEM) mode is calculated by matching the fields at the interfaces of the layered material and using the orthogonality properties of modes in cylindrical waveguides. The complex permittivity of several known liquid or solid materials in bilayered structure are measured using this method. The experimental results over a wide frequency band (1 kHz-18 GHz) are consistent with those in previous papers and with dc measurements.

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