Abstracts

Method for measuring properties of high relative dielectric constant materials in a cutoff waveguide cavity

Y.N. Noskov. "Method for measuring properties of high relative dielectric constant materials in a cutoff waveguide cavity." 2000 Transactions on Microwave Theory and Techniques 48.3 (Mar. 2000 [T-MTT]): 329-333.

In this paper, a method for measuring properties of ceramic materials with relative dielectric constant value of 20-150 is proposed. It permits us to eliminate the operating TM/sub 01/spl delta//-mode degeneration due to its frequency coincidence with other modes, including ones of higher order. Both that fact and the possibility of precise calculation of an unloaded quality factor for a cavity permit one to execute the accurate measurements of loss tangent values as low as (1/spl divide/0, 5)/spl times/10/sup -4/, the error of dielectric constant measurement being equal to or less than 1%. The feasibility of precise measurement of the loaded Q-factor of a cavity by the readings of micrometric probe makes the use of frequency meters unnecessary.

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