Abstracts

Errors in Dielectric Measurements Due to a Sample Insertion Hole in a Cavity

A.J. Estin and H.E. Bussey. "Errors in Dielectric Measurements Due to a Sample Insertion Hole in a Cavity." 1960 Transactions on Microwave Theory and Techniques 8.6 (Nov. 1960 [T-MTT]): 650-653.

The measurement of complex permittivities of isotropic media at microwave frequencies is performed with high precision by means of cylindrical cavity resonators. However, a hole in the cavity wall, for inserting the sample causes a frequency pulling of the resonator, which in turn introduces an error in the measured dielectric constant. These effects are measured, and with perturbation theory as a guide, correction factors are developed.

❑ Return to main document.