Abstracts

Cavity Perturbation Techniques for Measurement of the Microwave Conductivity and Dielectric Constant of a Bulk Semiconductor Material

I.I. Eldumiati and G.I. Haddad. "Cavity Perturbation Techniques for Measurement of the Microwave Conductivity and Dielectric Constant of a Bulk Semiconductor Material." 1972 Transactions on Microwave Theory and Techniques 20.2 (Feb. 1972 [T-MTT]): 126-132.

Cavity perturbation techniques offer a very sensitive highly versatile means for studying the complex microwave conductivity of a bulk material. A knowledge of the cavity coupling factor in the absence of perturbation, together with the change in the reflected power and the cavity resonance frequency shift, are adequate for the determination of the material properties. This eliminates the need to determine the Q-factor change with perturbation which may lead to appreciable error, especially in the presence of mismatch loss. The measurement accuracy can also be improved by a proper choice of the cavity coupling factor prior to the perturbation.

❑ Return to main document.