Abstracts

A Nonresonant Perturbation Theory

C.W. Steele. "A Nonresonant Perturbation Theory." 1966 Transactions on Microwave Theory and Techniques 14.2 (Feb. 1966 [T-MTT]): 70-74.

This paper presents a theory for a nonresonant perturbation technique for the measurement of electric and magnetic field strengths within a device. Most presently employed perturbation field strength measurements require the use of a resonance technique. In the technique discussed here, reflection coefficient measurements are made at the same frequency with, and without, a perturbing object placed at the point at which the field strength is to be measured. By these data, and by the equations derived and presented in this paper, the desired field strength can be calculated. The technique can be used for cavities that are too lossy to support resonance, and is suitable for cavities for which the resonant field configuration differs from the field configuration to be measured. In addition, this technique has the advantage that it permits the measurement of the phase, as well as the amplitude of the field.

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