

Measurement of Short Time Changes of Cavity Q and Resonant Frequency (Addendum)

K.R. Richter. "Measurement of Short Time Changes of Cavity Q and Resonant Frequency (Addendum)." 1970 Transactions on Microwave Theory and Techniques 18.4 (Apr. 1970 [T-MTT]): 229-229.

Formulas for the Q-factor and the resonant- frequency shift of a perturbed reflection-type cavity have been derived recently and presented in the above-mentioned paper. For the assumption that the external Q-factor, $Q_{\text{sub ext}}$, is the same for the unperturbed and the perturbed cavity, a quadratic equation (14) for the unloaded Q-factor has been formulated. It has been pointed out that two values of $Q_{\text{sub 1}}$ are obtained which are, respectively, smaller and greater than $Q_{\text{sub 0}}$, the unloaded Q-factor of the unperturbed cavity. However, by inspection of (14) it may be seen that one of the roots of the quadratic equation is always equal to this $Q_{\text{sub 0}}$.

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