Abstracts

Measurement of Bandwidth of Microwave Resonator by Phase Shift of Signal Modulation

D.S. Lerner and H.A. Wheeler. "Measurement of Bandwidth of Microwave Resonator by Phase Shift of Signal Modulation." 1960 Transactions on Microwave Theory and Techniques 8.3 (May 1960 [T-MTT]): 343-345.

Bandwidth is measured by transmission of a signal with sine-wave modulation through a microwave resonator under test. The modulation frequency is adjusted so that the envelope is delayed 45° with respect to the input, indicating that the two sideband frequencies are separated by the half-power bandwidth. The resonance ratio (Q) is then equal to the ratio of carrier frequency over twice the modulation frequency. This depends on observations of these frequencies and the modulation phase shift, but not on the amplitude. It is insensitive to detuning or incidental frequency variation of the resonator or the signal. In a resonant cavity tested, an observed bandwidth of 30 kc at 700 mc indicated that Q=23,300.

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