Abstracts

Experimental Properties of Three-Cavity Tunnel Diode RF Oscillators

I.E. Campisi and W.O. Hamilton. "Experimental Properties of Three-Cavity Tunnel Diode RF Oscillators." 1983 Transactions on Microwave Theory and Techniques 31.11 (Nov. 1983 [T-MTT]): 905-910.

The properties of an oscillator-frequency stabilization scheme involving a system of three resonators used in conjunction with a tunnel diode as an active element are discussed. A theoretical description of the behavior of the oscillator is given, together with a procedure which allows one to verify the validity of the theoretical model. It is found that as the oscillator is tuned over the operating frequency range, two sets of hysteretic frequency jumps are observed, the measured position of which should completely characterize the stabilization system's parameters. Results of the frequency stability measurements on a prototype of the three-cavity oscillator are also presented which experimentally agree with the predicted stabilization properties of the system.

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