Abstracts

R.F. Spectrum of Thermal Noise and Stability of a Microwave Cavity Oscillator

B. Villeneuve, P. Tremblay, A. Michaud and M. Tetu. "R.F. Spectrum of Thermal Noise and Stability of a Microwave Cavity Oscillator." 1984 MTT-S International Microwave Symposium Digest 84.1 (1984 [MWSYM]): 306-313.

The spectral distribution of the thermal noise within a microwave cavity equipped with an external feedback loop has been calculated and measured. An equivalent electrical model is established from which the noise spectral density can be calculated at any port in the system. The effect of the gain and phase of the loop on the spectral distribution is measured with a spectrum analyzer through an heterodyne technique. Comparison with theoretical calculations shows good agreement. Preliminary meaurements of the short term frequency stability of the system when operated as a microwave cavity-oacillator show a predominant flicker frequency noise. The F. M. noise close to carrier is measured and related to time domain measurements.

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