Abstracts

Determination of Equivalent Circuit Parameters Describing Noise from a Gunn Oscillator

S. Hashiguchi and T. Okoshi. "Determination of Equivalent Circuit Parameters Describing Noise from a Gunn Oscillator." 1971 Transactions on Microwave Theory and Techniques 19.8 (Aug. 1971 [T-MTT]): 686-691.

The AM and FM fluctuations in an oscillator output are originated from impedance fluctuation in low frequencies (baseband noise) and voltage or current fluctuation in the vicinity of the carrier frequency (RF noise). In this paper, from newly defined "complex correlation coefficient between AM and FM noises," contributions of baseband and RF noises to the AM and FM noises are determined. Examples of data for X-band Gunn oscillators show that both the AM and FM noises are mainly caused by the baseband noise in the vicinity of the carrier frequency (within 1-kHz band), whereas they are mainly due to the RF noise at frequencies further than 10 kHz from the carrier frequency.

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