Abstracts

The Measurement of Near-Carrier Noise in Microwave Amplifiers

K.H. Sann. "The Measurement of Near-Carrier Noise in Microwave Amplifiers." 1968 Transactions on Microwave Theory and Techniques 16.9 (Sep. 1968 [T-MTT] (Special Issue on Noise)): 761-766.

This paper discusses the measurement of additive noise in microwave power amplifiers, under CW and pulsed condition. The introduction of a pulsed carrier cancellation principle permits, for the first time, an investigation of the additive noise of pulsed amplifiers down to the thermal noise level. The measurement apparatus consists of three channels fed from a common source. One channel contains the amplifier under test. The other channel is pulsed by a "noise-free" modulator with the same pulse parameters as those of the test channel. The two signals are algebraically cancelled in a hybrid circuit and the difference signal, containing only the noise sideband of the amplifier, is coherently detected with the signal in the third channel. Measurements made on klystron amplifiers indicate that the level of the power spectral density of the FM noise approaches the thermal noise level, and that it has nearly the same value for CW and for pulsed operation.

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