Abstracts

Factors Limiting the Signal-to-Noise Ratio of Negative-Conductance Amplifiers and Oscillators in FM/FDM Communications Systems (Short Papers)

A.A. Sweet. "Factors Limiting the Signal-to-Noise Ratio of Negative-Conductance Amplifiers and Oscillators in FM/FDM Communications Systems (Short Papers)." 1974 Transactions on Microwave Theory and Techniques 22.2 (Feb. 1974 [T-MTT]): 146-149.

A derivation is presented for the signal-to-noise ratio of negative-conductance amplifiers and oscillators in FM/frequency division multiplexing (FDM) communications applications. Results indicate the limiting value of signal-to-noise ratio depends on the semiconductor properties and channel loading only. This means circuit adjustments, such as Q, cannot increase the signal-to-noise ratio without bounds. Typical specifications are given. Limiting values of signal-to-noise ratio for Gunn and Si IMPATT devices are given in typical applications. Results indicate that Gunn devices have a clear advantage over Si IMPATT'S in a signal-to-noise sense.

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