Abstracts

A Note on Noise Temperature

P.D. Strum. "A Note on Noise Temperature." 1956 Transactions on Microwave Theory and Techniques 4.3 (Jul. 1956 [T-MTT]): 145-151.

The effective noise temperature of the output impedance of a lossy passive network at an arbitrary noise temperature connected to one or more resistive loads at arbitrary noise temperature lies between the highest and the lowest of these noise temperatures, as determined by the losses between the output terminals and the loads. The determination of the effective noise temperature of a gas-discharge noise generator over a wide frequency range is simplified by the substitution of a loss measurement for the more difficult noise temperature measurement. For minimum-noise radar applications care must be used in considering the excess noise of crystal mixers and gas-discharge duplexers. The influeuce of galactic radiation on a receiving system is such that there is an optimum frequency in the region of 200 to 600 mc for minimum "operating noise figure." Typical examples of radio-astronomy measurements are amenable to analysis of the type given. Finally, several corrections to measured noise figure are analyzed.

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