Abstracts

Calculation and Measurement of the Noise Figure of a Maser Amplifier

J.C. Helmer and M.W. Muller. "Calculation and Measurement of the Noise Figure of a Maser Amplifier." 1958 Transactions on Microwave Theory and Techniques 6.2 (Apr. 1958 [T-MTT]): 210-214.

The noise performance of regenerative amplifiers is reviewed and equations are obtained which serve to interpret a measurement of noise from an ammonia molecular beam maser amplifier. The measurement is accomplished by means of a double heterodyne system in which a detuned maser oscillator serves as second local oscillator. The measured noise figure is 3.5 ± 0.5 db, as predicted by theory for the slightly undercoupled circuit used. Although no beam noise is observed, the experimental uncertainty places an upper limit of 40° K on the spontaneous emission noise temperature of the ammonia beam.

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