Abstracts

A New Method for Determination of Single-Sideband Noise Figure (Dec. 1994, Part II [T-MTT])

C.E. Collins, R.D. Pollard, R.E. Miles and R.G. Dildine. "A New Method for Determination of Single-Sideband Noise Figure (Dec. 1994, Part II [T-MTT])." 1994 Transactions on Microwave Theory and Techniques 42.12 (Dec. 1994, Part II [T-MTT] (1994 Symposium Issue)): 2435-2439.

A new method for determining mathematically the single-sideband noise figure of a device from double-sideband measurements is presented. The need for tunable filters as in other single-sideband measurement systems has been eliminated, and hence this method greatly reduces the complexity and cost of performing accurate noise figure measurements. Compared to conventional methods, more noise power measurements are required during both the calibration and measurement stages. These are combined in such a way as to cancel out the unwanted sidebands and are subsequently corrected for mismatch errors. Results obtained at various frequencies for both active and passive test devices with frequency-dependent noise figures are presented and compared to the expected values and the equivalent double-sideband measurements.

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