Abstracts

Thermal Noise from a Passive Linear Multiport

D.F. Wait. "Thermal Noise from a Passive Linear Multiport." 1968 Transactions on Microwave Theory and Techniques 16.9 (Sep. 1968 [T-MTT] (Special Issue on Noise)): 687-691.

The thermal noise from passive multiports is discussed from fundamentals so that it can be understood, measured, or calculated by a microwave engineer. The multiports are assumed to have a uniform temperature, but with no restriction on reciprocity or mismatch. The noise temperature, T/sub N/, contributed by such a multiport is T/sub N/=A T where T is its physical temperature and A is its absorption coefficient. An approximate method of measuring A, and a method of measuring an A as small as 0.008 within 5 percent, are pointed out. Also, exact and approximate expressions for A in terms of scattering matrix elements and termination reflection coefficients are derived. Finally, the crosscorrelation of the noise from different ports is briefly considered.

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