Abstracts

A Matrix Formulation for Noise Transduction as a General Case of Noise Measure

R.B. Hallgren. "A Matrix Formulation for Noise Transduction as a General Case of Noise Measure." 1992 Microwave and Guided Wave Letters 2.1 (Jan. 1992 [MGWL]): 14-16.

Conventional noise characteristics of an active device are given by the minimum noise figure, F/sub min/, the optimum source reflection coefficient, Gamma/sub sopt/, and a noise resistance R/sub n/. The noise measure extends the noise figure to include to available gain of network, for the case of a conjugate output match, and gives values that minimize the noise power available from the network consistent with maximum available gain. Noise transduction follows as a general case of noise measure by using the transducer gain with any output load. A new noise equation is derived that is solved for the minimum transduced noise, N/sub l/, the optimum source impedance, and the optimum load impedance. These equations minimize the noise power delivered to the load impedance consistent with a maximum in the transducer gain.

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