Abstracts

One Aspect of Minimum Noise Figure Microwave Mixer Design

S.M. Bergmann. "One Aspect of Minimum Noise Figure Microwave Mixer Design." 1958 Transactions on Microwave Theory and Techniques 6.3 (Jul. 1958 [T-MTT]): 324-326.

A theory is derived which enables a direct measurement of the optimum RF impedance for minimum noise figure. This is achieved by an extension of Pound's method for loss measurements. Also, an analysis is made of the relation between minimum noise figure and maximum gain of the mixer represented as a two-port network. The procedure consists of first matching the RF signal input terminals with short-circuited IF terminals. Next open-circuited IF terminal conditions are obtained by a circuit used by Pound. Then a reference plane is determined coinciding by preference with the plane of a maximum in the standing wave pattern of VSWR = r. A discontinuity is finally introduced that would have a VSWR of p = /spl radic/r and have its maximum or minimum at the plane of reference.

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