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Comment on "The Exact Noise Figure of Amplifiers with Parallel Feedback and Lossy Matching Circuit"

JAKOB ENGBERG

I found the short paper of K. B. Niclas "The Exact Noise Figure of Amplifiers with Parallel Feedback and Lossy Matching Circuits"[1] very interesting, but, except for the approximated formulas, it contained only little new information, since my paper "Simultaneous Input Power Match and Noise Optimization using Feedback" [2] included most of the formulas. In that paper, I have developed a general form of noise parameters of a three-port with combinations of parallel and series feedback (or imbedding) elements. These formulas include both the formula of Niclas and of Iversen [1, [9]]. The formulas have been used in the lossless case to develop an amplifier with simultaneous noise and power input match.

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Reply[2] by Karl B. Niclas[3]

While I was aware of the existence of Mr. Engberg's paper, "Simultaneous Input Power Match and Noise Optimization using Feedback" [2], I was not able to secure a copy and consequently was unaware of its contents until his comments arrived. However, after careful study of his publication, I have to disagree with his conclusion that the information in my short paper contains only little new information outside of the approximation formulas. It must have escaped Mr. Engberg that his formulas for the equivalent noise parameters of the parallel feedback amplifier (3) in [2] deviate from mine (4) in [1] and only for the special case of $Y_B = 0$ ($Y_{FB} = 0$) was I able to find agreement for the parameters R'_n and Y'_γ (R^I_n and Y^I_{cor}). Since no derivations are presented in Mr. Engberg's paper, I am not in a position to explain the discrepancies. It should be noted, however, that results calculated with formulas given in my paper are in perfect agreement with those computed with the aid of Compact which is based on Hillbrand's and Russer's correlation matrix [3], [4].

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