Abstracts

Frequency-Domain Analysis of Strongly Nonlinear Circuits Using a Consistent Large-Signal Model

T. Narhi. "Frequency-Domain Analysis of Strongly Nonlinear Circuits Using a Consistent Large-Signal Model." 1996 Transactions on Microwave Theory and Techniques 44.2 (Feb. 1996 [T-MTT]): 182-192.

This paper describes an analysis method that extends the applicability of the frequency-domain methods to strongly nonlinear circuits. Nonlinearities are described with Chebyshev expansions which are evaluated with a numerically stable three-term recurrence formula. The method is coupled with a novel, measurement-based consistent modeling approach which allows improved accuracy in describing the frequency-dependence of the measured small-signal parameters. The analysis method and the modeling approach are verified by comparing measurements and calculations on a MESFET mixer, driven with two and three tones.

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