Abstracts

Multitone frequency-domain simulation of nonlinear circuits in large- and small-signal regimes

N.B. De Carvalho and J.C. Pedro. "Multitone frequency-domain simulation of nonlinear circuits in large- and small-signal regimes." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part I [T-MTT]): 2016-2024.

Computer simulation of general microwave nonlinear circuits excited by a large number of input tones is addressed, The algorithm, based on the spectral-balance method, uses novel index-vector and convolution-matrix generation techniques. That, in conjunction with a new nonlinear-device modeling approach (which directly takes into account the higher order derivatives of the I/V and Q/V characteristics), allowed the prediction of such complex behavior as spectral regrowth and noise-power ratio (NPR) tests of a class-B power amplifier or multitone intermodulation phenomena in a saturated multioctave amplifier.

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