Abstracts

Generation of multicarrier complex lowpass models of RF ICs

P. Dobrovolny, P. Wambacq, G. Vandersteen, S. Donnay, M. Engels and I. Bolsens. "Generation of multicarrier complex lowpass models of RF ICs." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 419-422 vol.1.

The design of transceivers for wireless digital telecommunications is subject to severe requirements on cost and power consumption. This is a challenge for the design of RF front-end blocks that degrade the bit-error-rate of a telecommunication link. This paper describes a technique to generate accurate high-level models for the RF front-end blocks. The models take into account the nonlinear behavior as a function of frequency. The accuracy of the models is higher than classical complex equivalent models since out-of-band distortion is taken into account. The technique, that is verified with a low-noise amplifier design for 5 GHz WLAN, yields an important gain in simulation efficiency of RF ICs, compared to circuit-level simulations.

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