Abstracts

Nonlinear amplifier modeling taking into account HF memory frequency

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A model to describe the nonlinear behavior of a power amplifier is proposed, which extends the power series expansion to take into account frequency dispersion of a single tone and a two-tone input signal. Behavorial model is commonly estimated according to CW measurements but, even if this model is accurate for one-tone signal, no predictions can be done for intermodulation products of a N-tones signal. This paper focuses on a nonlinear behavorial model which is divided in a dynamic gain and a balance filter. The dynamic gain consists in a nonlinear digital filter and a complex polynomial behavorial representation, the latter being extracted from a referenced frequency AM-AM and AM-PM characterization. The balance filter consists in a nonlinear generator, whose aim is to compensate phase and gain intermodulation products which are simulated by the dynamic gain. Our main contribution is to propose a new method to assess the model of the amplifier which can be extended to UNITS signals.

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