Abstracts

A nonlinear ARMA model for simulating power amplifiers

G. Chrisikos, C.J. Clark, A.A. Moulthrop, M.S. Muha and C.P. Silva. "A nonlinear ARMA model for simulating power amplifiers." 1998 MTT-S International Microwave Symposium Digest 98.2 (1998 Vol. II [MWSYM]): 733-736.

This paper presents an improved model for wideband simulation of nonlinear power amplifiers. The commonly used memoryless envelope model is limited to use on narrowband signals. The new model includes an auto-regressive moving average (ARMA) filter to improve performance predictions for wideband signals. Optimization of the model is performed using measurements of time-domain pulse envelopes. The new model is constructed for a 20 GHz helix traveling-wave tube amplifier (TWTA) and compared to the memoryless envelope model for predicting distortion with wideband signals.

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