Abstracts

Time-domain envelope measurement technique with application to wideband power amplifier modeling

C.J. Clark, G. Chrisikos, M.S. Muha, A.A. Moulthrop and C.P. Silva. "Time-domain envelope measurement technique with application to wideband power amplifier modeling." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part II [T-MTT] (1998 Symposium Issue)): 2531-2540.

This paper presents a new time-domain measurement technique for repetitive microwave signals that is applied to modeling wideband power amplifiers. The measurement technique concept consists of recording the microwave signal after conversion to baseband using a calibrated downconverter, which improves measurement accuracy compared to measurements at the carrier frequency. The modeling section describes how such time-domain measurements can be used to model wideband signal effects in nonlinear power amplifiers. The commonly used memory-less envelope model is limited to use on narrowband signals. A new model is developed which includes a filter before the memory-less nonlinearity to capture the memory effects associated with wideband signals. It is demonstrated that the accuracy of wideband signal simulations can be improved by optimizing the model parameters based on time-domain measurements of wideband signals.

❑ Return to main document.