Abstracts

High-power time-domain measurement system with active harmonic load-pull for high-efficiency base-station amplifier design

J. Benedikt, R. Gaddi, P.J. Tasker and M. Goss. "High-power time-domain measurement system with active harmonic load-pull for high-efficiency base-station amplifier design." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2617-2624.

A measurement system combining vector corrected waveform measurements with active harmonic load-pull extends, for the first time, real-time experimental waveform engineering up to the 30-W power level. The vector correction procedure is presented in this paper. A novel harmonic load-pull approach based on the real-time measurement capability of the system is demonstrated on a 4-W LDMOS device. A 20% increase in maximum output power to 4.7 W without degrading gain and efficiency is realized. Waveform analysis at various drive and load conditions directly identifies nonlinear capacitance effects being a key design issue for the design of highly efficient power amplifier.

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