Abstracts

Intermodulation distortion simulation using physical GaAs FET model

W. Contrata, Y. Ando, Y. Hori and M. Kuzuhara. "Intermodulation distortion simulation using physical GaAs FET model." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 819-822 vol.2.

Intermodulation distortion is simulated using a physical GaAs FET model for the first time, to our knowledge. A GaAs FET power amplifier, including input and output circuits, is examined. For the FET, a fully 2-dimensional Monte Carlo simulator is used. The simulated P/sub IN/-P/sub OUT/ performance is in fair agreement with measured data. Gain and phase compression (AM-PM) characteristics are simulated, and correlated to features in the RF I-V characteristics. Finally, third order intermodulation distortion is estimated from the AM-PM characteristics and compared to measurement, with qualitative agreement. This technique advances the art of computer aided design of nonlinear devices because it allows the prediction of distortion characteristics before undertaking an expensive and time-consuming device fabrication.

❑ Return to main document.