Abstracts

Validation of a Nonlinear Transistor Model by Power Spectrum Characteristics of HEMT's and MESFET's

I. Angelov, H. Zirath and N. Rorsman. "Validation of a Nonlinear Transistor Model by Power Spectrum Characteristics of HEMT's and MESFET's." 1995 Transactions on Microwave Theory and Techniques 43.5 (May 1995 [T-MTT]): 1046-1052.

The bias dependence of the power output spectrum and the generation of intermodulation products from different HEMT's and MESFET's at large signal excitation is studied and compared with simulated values. An extended HEMT/FET model suitable for small and and negative V/sub ds/ (with a drain voltage dependence of the peak transconductance in the unsaturated drain current region, and at negative drain voltage), is also proposed. Good agreement between simulated and measured power spectrum up to at least the fourth harmonic is demonstrated for HEMT and MESFET devices from different manufacturers. Measured and simulated intermodulation products are also in good agreement, which confirm the validity of the model.

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