Abstracts

Analysis of HEMT Harmonic Generation Using a Vector Nonlinear Measurement System

J.G. Leckey, J.A.C. Stewart and A.D. Patterson. "Analysis of HEMT Harmonic Generation Using a Vector Nonlinear Measurement System." 1996 MTT-S International Microwave Symposium Digest 96.3 (1996 Vol. III [MWSYM]): 1739-1742.

A study of HEMT harmonic generation was carried out using a Vector Nonlinear Measurement System to measure drain and gate waveforms. The cause of second and third harmonic nulls with increasing input power, and their direct relation to the output IV characteristics is shown. The effect of DC drain current variation with increasing input drive level is also explained. The results indicate the potential for exploiting harmonic nulling behaviour in circuit applications. Analysis of second harmonic dependency on quiescent operating point shows a doubling mode with intrinsic suppression of unwanted third harmonic.

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