Abstracts

Improvement of efficiency and linearity of a harmonic-control amplifier by envelope controlled bias voltage

D. Smely, B. Ingruber, M. Wachutka and G. Magerl. "Improvement of efficiency and linearity of a harmonic-control amplifier by envelope controlled bias voltage." 1998 MTT-S International Microwave Symposium Digest 98.3 (1998 Vol. III [MWSYM]): 1667-1670.

The concept of a half sinusoidally driven class A harmonic control amplifier (hHCA) for a center frequency of 1.6125 GHz is expanded by a dynamic bias control, that uses the DC drain current of the driver stage for an envelope detection of the input signal. At two-tone stimulus the control of drain voltage and drain current of the power stage according to the envelope of the input signal improves either intermodulation distortion distance (IMDD) by 10 dB or raises overall power-added efficiency (PAE) for two-tone signals to 60%, a value similar to single-tone excitation.

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