Abstracts

High efficiency CDMA RF power amplifier using dynamic envelope tracking technique

J. Staudinger, B. Gilsdorf, D. Newman, G. Norris, G. Sadowniczak, R. Sherman and T. Quach. "High efficiency CDMA RF power amplifier using dynamic envelope tracking technique." 2000 MTT-S International Microwave Symposium Digest 00.2 (2000 Vol. II [MWSYM]): 873-876.

This work describes a 2-W peak-envelope linear power amplifier based upon the envelope tracking (ET) technique with application to CDMA cellular radio handsets. Both drain voltages of a two stage monolithic GaAs IC are varied with respect to the long term rms value of the modulated signal using a high efficiency Class-S modulator. The modulator is implemented as a single chip silicon IC to supply currents in excess of 1 A. The RF amplifier IC utilizes two AlGaAs/InGaAs heterostructure insulated-gate FET structures which allows single voltage supply operation with state-of-the-art linearity and efficiency performance. When driven by a CDMA O-QPSK signal, the ET amplifier exhibits desired spectral linearity while achieving a remarkable 5/spl times/ improvement in overall efficiency, compared to fixed supply bias, when measured in a reverse link urban based mobile transmitter power profile.

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