Abstracts

IMD elimination and ACPR improvement for an 800 MHz HBT MMIC power amplifier

F. Ali, M.R. Moazzam and C. Aitchison. "IMD elimination and ACPR improvement for an 800 MHz HBT MMIC power amplifier." 1998 Radio Frequency Integrated Circuits (RFIC) Symposium 98. (1998 [RFIC]): 69-71.

This paper describes a novel technique for reducing the third order intermodulation (IMD) product and ACPR levels in HBT power amplifiers. This technique is based on the dynamic control of the injection/feedback of the second harmonic frequency signal to the amplifier. For a cellular frequency HBT MMIC power amplifier, a reduction of 44 dB in the 3rd order IMD level is measured at 28 dBm output power. By controlling the phase and amplitude of the injected/fedback second harmonic, a total rejection of IMD products over a wide dynamic range of input power is achieved without any change in the fundamental signal levels. The ACPR for CDMA system (IS-98 standard) over a 30 kHz bandwidth with /spl plusmn/900 KHz offset shows a 6 dB improvement. No degradation in the CDMA signal quality factor (/spl rho/) and PAE (40%) are observed. To the best of our knowledge this is the first application of this technique to HBT power amplifiers.

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