

Keywords: CDMA, IS-98 CDMA, IS-136 TDMA, PDC, narrowband CDMA, power amplifier

May 08, 2002

REFERENCE DESIGN 446 INCLUDES: ✓Tested circuit ✓Schematic ✓Board available ✓Test data

REP015: Dual-Path CDMA PA Tuned for High Linearity

Abstract: This reference design (RD) shows how a cellular-band, CDMA linear power amplifier (PA) can be tuned for high linearity and narrowband CDMA. This RD features the MAX2264 RF power amplifier which is designed for IS-98-based CDMA, PDC, and IS-136 TDMA. Schematics and test setup are shown.

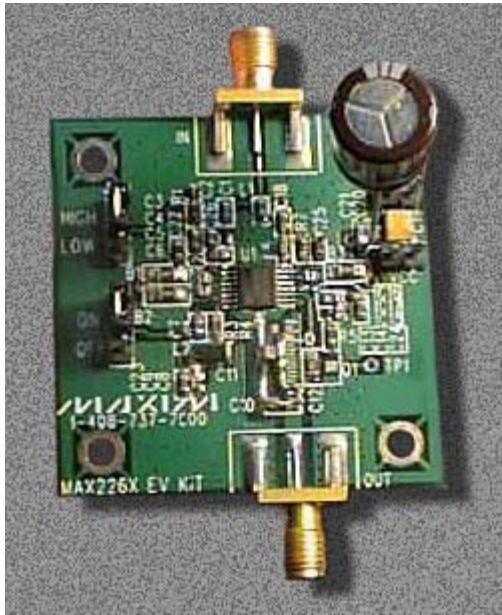
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Objective: To develop a cellular CDMA PA application circuit with very high linearity and moderately good power-added efficiency (PAE).

The MAX2264 high-power amplifier path was characterized and tuned to meet the following performance at narrowband CDMA: at a Pout of +28dBm, obtained 26.8dB gain, 28% efficiency, ACPR1 = -48.5dBc, and ACPR2 = -59.0dBc. This performance is fairly deep into linear mode, as the lowered PAE of 28% reflects. Typically, the part would be tuned for better than 33% efficiency and at least -44dBc ACPR1. The EV board was used for these tests.

The MAX2264 linear RF power amplifier is designed for U.S. cellular-band IS-98-based CDMA, PDC, and IS-136-based TDMA modulation formats. For best low-power PAE, the MAX2264 offers a switched dual-path amplifier arrangement with an on-chip switch. Statistically, CDMA handsets operate most of the time in a low-powered path (around +16dBm output), which is where PAE needs to be optimized. The MAX2264 offers typically 12% PAE at low power.

[Block diagram of the transmit-path application](#)

[Schematic of the MAX2264 evaluation kit \(PDF, 24kB\)](#)

[Measurement test setup](#)

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