

Keywords: cellular CDMA, cellular AMPS, digital mixer, IF image rejection, IP performance, RF, RF filter, low-noise amplifier, LNA, TDMA, GSM, EDGE, WCDMA

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REFERENCE DESIGN 443 INCLUDES:  Tested circuit  Schematic  BOM  Board available

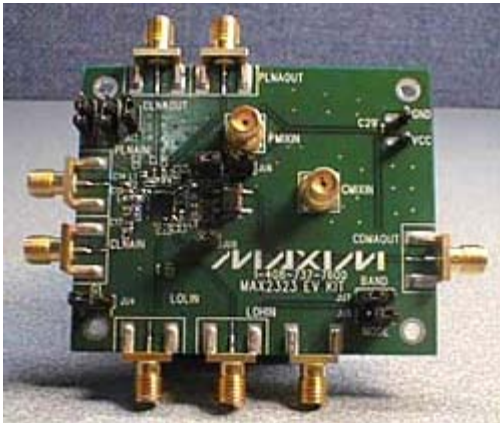
## REP008: Dual-Band Front-End IC Tuned for CDMA, PCS, and AMPS at a Common 85MHz Low IF

*Abstract: This reference design (RD) is for a dual-band, triple-mode front-end IC using only 85MHz IF centers for processing PCS, cellular CDMA, and cellular AMPS. The RD uses the MAX2323, a low-noise amplifier (LNA) with mixer, that is useful for TDMA, GSM, EDGE, and WCDMA applications.*

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*Objective: To develop and measure this dual-band triple-mode front-end IC using only 85MHz IF centers for processing PCS, cellular CDMA, and cellular AMPS.*

The [MAX2323](#) offers a single-path output for cellular and PCS digital mixers. In this application, the object was to assess performance with a common low IF at 85.38MHz. The high IP2 performance of the PCS mixer combined with the rejection from the RF filter's band edge provided reasonable although not excellent 1/2 IF image rejection. This was an experimental prototype done to assess the limitations of the [MAX2320](#), and the results were surprisingly good, even with a low IF at the PCS band.

The MAX2323 low-noise amplifier (LNA) plus mixer is designed for dual-band CDMA cellular-phone handsets, but it can also be used in dual-band TDMA, GSM, EDGE, or WCDMA applications. It differs from its predecessor (the MAX2320) by adding a third "mid-gain" state for the cellular-band LNA that improves sensitivity switchover and hysteresis margin. It also comes in a smaller package (28-QFN) and offers increased third-order input intercept.

[Schematic of the MAX2323 evaluation kit \(PDF, 61kB\)](#)

[Bill of materials, part 1](#)

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### Related Parts

[MAX2323](#) Triple/Dual-Mode CDMA  
LNA/Mixers

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