

APPLICATION NOTE 444

REP007: Cellular Front-End IC Drives IFR3100 IF Demodulator

Abstract: This reference design (RD) shows how a dual-band, dual-mode CDMA front-end IC can drive an IFR3100 IF demodulator. The RD features the MAX2323 CDMA low-noise amplifier which is also useful for TDMA, GSM, EDGE, and WCDMA applications. Schematics, the bill of materials (BOM), and performance results are shown.

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Rapid Engineering Prototypes are real circuits that Maxim application engineers have built and measured in our labs. They can provide a starting point for new RF designs. They are not available as evaluation kits.



Objective: To develop a suitable IF match between this dual-band triple-mode front-end IC and the IFR3100 IF demodulator IC, and to measure the front-end performance.

The [MAX2323](#) offers very attractive I_{cc} versus noise figure and linearity, so this front-end IC is found in applications replacing poorer-performing ICs from other non-Maxim chipsets. This application was developed to match the IF port to the MSM-based IFR3100 IF demodulator. Note that the MAX2323 PCS LNA was measured at a 1.9dB noise figure, which could likely be improved further given the time.

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 switchover hysteresis margin. It also comes in a smaller package (28-QFN) and offers increased third-order input intercept.

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

[Schematic of the MAX2323 evaluation kit \(PDF, 55kB\)](#)

[Bill of materials, part 1](#)

[Bill of materials, part 2](#)

[Performance results of the MAX2323](#)

Related Parts

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

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