

APPLICATION NOTE 459

REP020: Dual-Band Dual-Mode FE IC with Common 210MHz IF

Abstract: This reference design (RD) is for a dual-band, dual-mode CDMA front-end that uses a CDMA LNA/mixer, the MAX2323. The RD retunes the FM analog and the cellular/PCS digital mixers to 210MHz IF. This CDMA low-noise amplifier is also useful for TDMA, GSM, EDGE, and WCDMA applications. Schematics and bill of materials are shown.

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Objective: To apply and measure this dual-band triple-mode CDMA front-end IC in a receiver with all 210MHz IFs.

The [MAX2323](#) was developed with a single, digital, IF output port. Having a common 210MHz IF, both digital mixers' gain is still adequate for good receiver sensitivity, and their IP2 performance and other related parameters offer sufficient margin for meeting 1/2 IF and additional interferers in a CDMA handset. In this application, the MAX2323 was tested for and successfully applied to a CDMA dual-band dual-mode handset front-end design. The circuit modification requirement for this project was to retune the FM analog and the cellular/PCS digital mixers to 210MHz IF.

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 \(PDF, 58kB\)](#)

[Bill of materials, part 1](#)

[Bill of materials, part 2](#)

Related Parts

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

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