

## APPLICATION NOTE 447

# REP016: Dual-band front end for Japanese cellular CDMA at 110MHz IF

*Abstract: This reference design (RD) is for a dual-band, dual-mode CDMA front-end for Japanese cellular CDMA at 110MHz IF. The RD uses a low-noise amplifier (LNA) with mixer, the MAX2325, that is also useful for TDMA, GSM, and EDGE applications. Schematics and bill of materials 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 band-shift the RF matching from the U.S. to the Japanese cellular band, and to measure the performance of this CDMA dual-mode front-end IC.*

The [MAX2325](#) application circuit was changed from its standard BOM for the U.S. cellular-band LNA and mixer RF matching, to meet the Japanese cellular band with 110MHz IF. In addition, measurements were made to ensure compatibility with the end-customer's requirements. The MAX2325's performance was found to be fully compliant to the data sheet specifications at U.S. cellular frequencies.

A [MAX2323](#) evaluation kit was used to evaluate the performance of the MAX2325, as it provides a superset of MAX2325 features.

The MAX2325 low-noise amplifier (LNA) plus mixer is designed for single-band CDMA cellular-phone handsets, but it can also be used in 800-900MHz-band TDMA, GSM, or EDGE applications. It differs from its predecessor (the MAX2324) by adding a third "mid-gain" state for the LNA that improves switchover hysteresis margin. The MAX2325 also comes in a smaller package (28-QFN) and offers increased third-order input intercept.

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

[Bill of materials, part 1](#)

[Bill of materials, part 2](#)

[Schematic of the MAX2323 evaluation kit with the MAX2325 IC installed \(PDF, 58kB\)](#)

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**Related Parts**

[MAX2325 Triple/Dual-Mode CDMA LNA/Mixers](#)

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