

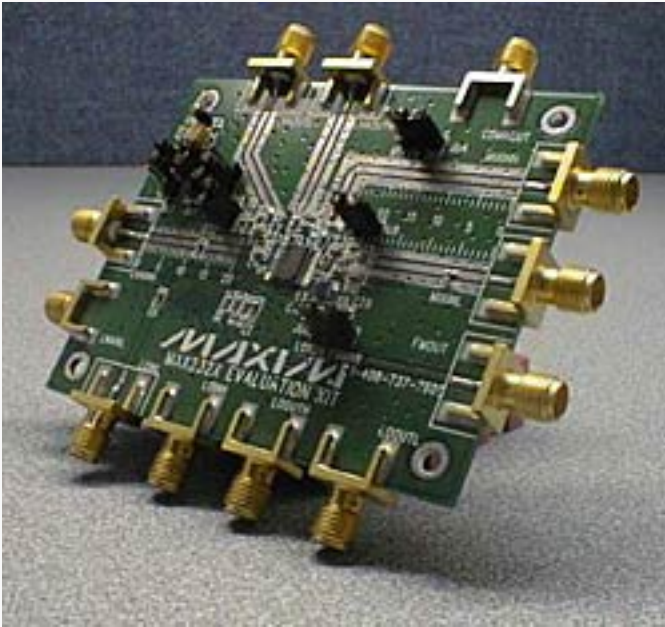
APPLICATION NOTE 442

REP002: Dual-Band IS136 TDMA RF Front-End Application

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.

Additional Information:

- [Wireless Product Line Page](#)
- [Quick View Data Sheet for the MAX2320/MAX2321/MAX2322/MAX2324/MAX2326/MAX2327](#)
- [Applications Technical Support](#)



Objective: To develop and proof the performance of this CDMA dual-band triple-mode front-end IC in a TDMA application, verifying its performance using no additional or special components.

The MAX2321 was developed initially for the burgeoning IS-95 CDMA market, and soon it was discovered to provide excellent performance in TDMA IS-136 as well. This application was done to demonstrate IS-136 performance. It was concluded that the target specifications were exceeded in all areas. Several measurement pages from the report are provided.

This project showed the improvements between a newer revision and its predecessor revision in the cellular and PCS mixers' NF, gain, and IIP3.

The MAX2321 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 offers two LNA gain states to meet the required CDMA dynamic range, with a switchover hysteresis margin. There are three mixers: one for the analog cellular path and two for the digital modulation paths at cellular and PCS bands. The digital path mixers have a common IF output, as they can provide sufficient spurious and image rejection with a single IF. This capability eliminates one IF filter. The MAX2321 has separate cellular-band and PCS-band buffered VCO inputs and outputs, eliminating the need for extra transmit upconverter VCO buffers. The cell-band VCO input

provides an optional X2 multiplier to permit dual-band operation from a single VCO.

[Application Circuit of MAX2321](#) (PDF, 52K)

[Schematic of MAX2321 Evaluation Kit](#) (PDF, 41K)

[PCS Mixer IIP3 and Gain Measurement](#)

[PCS Mixer Noise Figure](#)

[Cellular Mixer IIP3 and Gain Measurement](#)

[PCS LNA Noise Figure](#)

Application note 442: www.maxim-ic.com/an442

More Information

For technical support: www.maxim-ic.com/support

For samples: www.maxim-ic.com/samples

Other questions and comments: www.maxim-ic.com/contact

Automatic Updates

Would you like to be automatically notified when new application notes are published in your areas of interest?

[Sign up for EE-Mail™](#).

Related Parts

MAX2321: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

AN442, AN 442, APP442, Appnote442, Appnote 442

Copyright © by Maxim Integrated Products

Additional legal notices: www.maxim-ic.com/legal