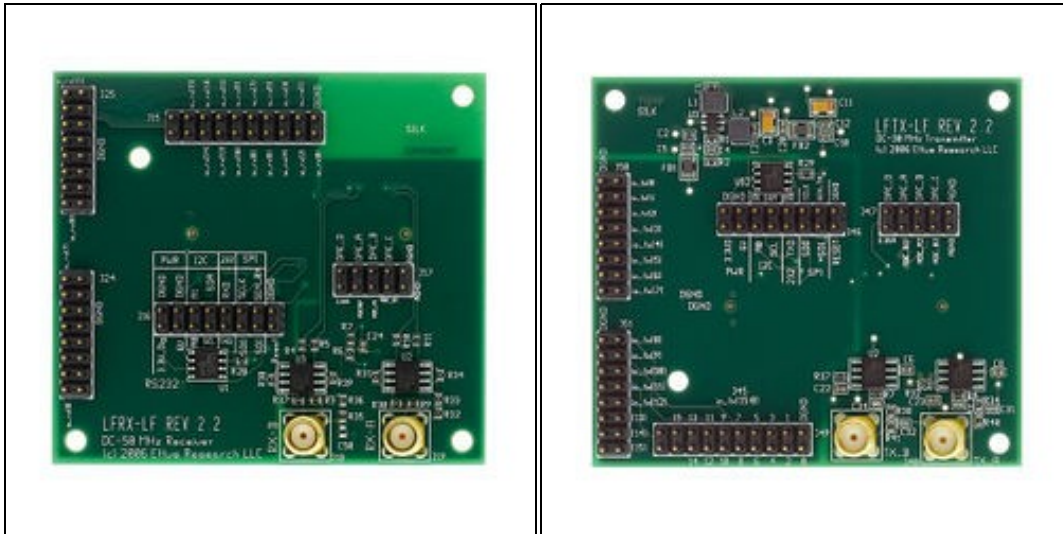


# LFRX Getting Started Guides

## Contents

- 1 Kit Contents
- 2 USRP Compatibility
  - ♦ 2.1 LFRX
  - ♦ 2.2 LFTX
- 3 Hardware Setup
- 4 Proper Care and Handling
- 5 Technical Support and Community Knowledge Base
- 6 Legal Considerations
- 7 Sales and Ordering Support
- 8 Terms and Conditions of Sale

- LFTX or LFRX Daughterboard
- Screws



- N or X Series
- N or X Series

For complete step by step instructions to installing a daughterboard, please see the [USRP N Series Quick Start \(Daughterboard Installation\)](#) or [USRP X Series Quick Start \(Daughterboard Installation\)](#) guides.

All Ettus Research products are individually tested before shipment. The LFTX/LFRX is guaranteed to be functional at the time it is received by the customer. Improper use or handling of the LFTX/LFRX can easily cause the device to become non-functional. Listed below are some examples of actions which can prevent damage to the unit:

- Never allow metal objects to touch the circuit board while powered.
- Always properly terminate the transmit port with an antenna or 50 $\Omega$  load.
- Always handle the board with proper anti-static methods.
- Never allow the board to directly or indirectly come into contact with any voltage spikes.
- Never allow any water, or condensing moisture, to come into contact with the boards.
- Always use caution with FPGA, firmware, or software modifications.



Never apply more than +10 dBm of power into any RF input.



Always use at least 30dB attenuation if operating in loopback configuration

Technical support for USRP hardware is available through email only. If the product arrived in a non-functional state or you require technical assistance, please contact [support@ettus.com](mailto:support@ettus.com). Please allow 24 to 48 hours for response by email, depending on holidays and weekends, although we are often able to reply more quickly than that.

We also recommend that you subscribe to the community mailing lists. The mailing lists have a responsive and knowledgeable community of hundreds of developers and technical users who are located around the world. When you join the community, you will be connected to this group of people who can help you learn about SDR and respond to your technical and specific questions. Often your question can be answered quickly on the mailing lists. Each mailing list also provides an archive of all past conversations and discussions going back many years. Your question or problem may have already been addressed before, and a relevant or helpful solution may already exist in the archive.

Discussions involving the USRP hardware and the UHD software itself are best addressed through the [u?srp--users](http://usrp-users.ettus.com) mailing list at <http://usrp-users.ettus.com>.

Discussions involving the use of [GNU Radio](#) with USRP hardware and UHD software are best addressed through the [d?iscuss--gnuradio](https://lists.gnu.org/mailman/listinfo/discuss-gnuradio) mailing list at <https://lists.gnu.org/mailman/listinfo/discuss-gnuradio>.

Discussions involving the use of OpenBTS® with USRP hardware and UHD software are best addressed through the **openbts--discuss** mailing list at <https://lists.sourceforge.net/lists/listinfo/openbts-discuss>.

The support page on our website is located at <https://www.ettus.com/support>. The Knowledge Base is located at <https://kb.ettus.com>.

Every country has laws governing the transmission and reception of radio signals. Users are solely responsible for insuring they use their USRP system in compliance with all applicable laws and regulations. Before attempting to transmit and/or receive on any frequency, we recommend that you determine what licenses may be required and what restrictions may apply.

If you have any non-technical questions related to your order, then please contact us by email at [orders@ettus.com](mailto:orders@ettus.com), or by phone at +1-408-610-6399 (Monday-Friday, 8 AM - 5 PM, Pacific Time). Please be sure to include your order number and the serial number of your USRP.

Terms and conditions of sale can be accessed online at the following link: <http://www.ettus.com/legal/terms-and-conditions-of-sale>