APEX WAVES USRP-2930 Software Defined Radio Device User Manual

Contents

APEX WAVES USRP-2930 Software Defined Radio Device

Product Information

- **Product Name:** USRP-2930
- **Model:** USRP-2930/2932
- **Specifications:**
  - **Bandwidth:** 20 MHz
  - **Connectivity:** 1 Gigabit Ethernet
  - GPS-Disciplined OCXO
  - Software Defined Radio Device

Product Usage Instructions

Before installing, configuring, operating, or maintaining the USRP-2930, it is important to read the user manual and any additional resources provided. Familiarize yourself with the installation, configuration, and wiring instructions, as well as the requirements of all applicable codes, laws, and standards.

Safety Precautions:
Follow the safety compliance standards and take precautions to avoid any potential risks or damage:

- **Notice Icon:** Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.
- **Caution Icon:** Consult the model documentation for cautionary statements to avoid injury.
- **ESD Sensitive Icon:** Take precautions to avoid damaging the model with electrostatic discharge.

Safety Compliance Standards:
Ensure compliance with safety certifications and standards:

- For UL and other safety certifications, refer to the product label or the Product Certifications and Declarations section.

Electromagnetic and Radio Equipment Compatibility Guidelines:

Follow the guidelines to ensure electromagnetic and radio performance:

- **Notice:** Operate this product only with shielded cables and accessories. The DC power input cables may be unshielded.
- **Notice:** The length of all I/O cables, except those connected to the Ethernet and GPS antenna ports, must be no longer than 3 m to ensure specified performance.
- **Notice:** This product is not approved or licensed for transmission over the air using an antenna. Operating this product with an antenna may violate local laws. It is approved for signal reception using a GPS antenna in the appropriate port. Ensure compliance with local laws before using an antenna other than a GPS receive antenna.
- **Notice:** To prevent disruption to the performance of this product, employ industry-standard ESD prevention measures during installation, maintenance, and operation to avoid Electrostatic Discharge (ESD) damage.

Electromagnetic Compatibility Standards:
Follow the electromagnetic compatibility standards:

- **Note:** Group 1 equipment (per CISPR 11) refers to industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for material treatment or inspection/analysis purposes.
- **Note:** In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in non-residential locations.
- **Note:** For EMC declarations, certifications, and additional information, refer to the Product Certifications and Declarations section.

Radio Equipment Compatibility Standards:
Use the radio equipment in accordance with the following parameters:

- **Antenna:** 5 V GPS receiver antenna, part number 783480-01
- **Software Compatibility:** LabVIEW, LabVIEW NXG, LabVIEW Communications System Design Suite
- **Frequency Band:** 1,575.42 MHz

Read this document and the documents listed in the additional resources section about the installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Regulatory Icons

-  Notice Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.
-  Caution Take precautions to avoid injury. Consult the model documentation for cautionary statements when you see this icon printed on the model.
-  ESD Sensitive Take precautions to avoid damaging the model with electrostatic discharge.

Safety

- **Caution** Observe all instructions and cautions in the user documentation. Using the model in a manner not specified can damage the model and compromise the built-in safety protection. Return damaged models to NI for repair.
- **Caution** The protection provided by the model can be impaired if it is used in a manner not described in the user documentation.

Safety Compliance Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

Note For UL and other safety certifications, refer to the product label or the Product Certifications and Declarations section.

Electromagnetic and Radio Equipment Compatibility Guidelines

This product was designed to support an efficient use of the radio spectrum to avoid harmful interference. This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference when the product is operated in its intended operational electromagnetic environment. This product is intended for use in commercial and light-industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by NI could void your authority to operate it under your local regulatory rules.

Electromagnetic and Radio Performance Notices

Refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified electromagnetic and radio performance.

- **Notice** Operate this product only with shielded cables and accessories. The DC power input cables may be unshielded.
- **Notice** To ensure the specified electromagnetic and radio performance, the length of all I/O cables except those connected to the Ethernet and GPS antenna ports must be no longer than 3 m.
- **Notice** This product is not approved or licensed for transmission over the air using an antenna. As a result, operating this product with an antenna may violate local laws. This product is approved for signal reception using a GPS antenna in the appropriate port. Ensure that you are in compliance with all local laws before operating this product with an antenna other than a GPS receive antenna.
- **Notice** The performance of this product can be disrupted if subjected to Electrostatic Discharge (ESD) during operation. To prevent damage, industry-standard ESD prevention measures must be employed during installation, maintenance, and operation.

Electromagnetic Compatibility Standards

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-003: Class A emissions

Note

- **Note** Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.
- **Note** In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia and New Zealand (per CISPR 11) Class A equipment is intended for use only in non-residential locations.
- **Note** For EMC declarations, certifications, and additional information, refer to the Product Certifications and Declarations section.

Radio Equipment Compatibility Standards

This product meets the requirements of the following Radio Equipment standards:

- ETSI EN 301 489-1: Common Technical Requirements for Radio Equipment
- ETSI EN 301 489-19: Specific conditions for GNSS receivers operating in the RNSS band (ROGNSS) providing positioning, navigation, and timing data
- ETSI EN 303 413: Satellite Earth Stations and Systems (SES); Global Navigation Satellite System (GNSS) receivers

This radio equipment is for use in accordance with the following parameters:

- Antenna 5 V GPS receiver antenna, part number 783480-01
- Software LabVIEW, LabVIEW NXG, LabVIEW Communications System Design Suite
- Frequency band(s) 1,575.42 MHz

Notice

Every country has different laws governing the transmission and reception of radio signals. Users are solely responsible for using their USRP system in compliance with all applicable laws and regulations. Before you attempt to transmit and/or receive on any frequency, National Instruments recommends that you determine what licenses may be required and what restrictions may apply. National Instruments does not accept any responsibility for the user's use of our products. The user is solely responsible for complying with local laws and regulations.

Environmental Guidelines

Environmental Characteristics

Temperature and Humidity

- Operating Temperature 0 °C to 45 °C
- Operating Humidity 10% to 90% relative humidity, non-condensing
- Pollution Degree 2
- Maximum altitude 2,000 m (800 mbar) (at 25 °C ambient temperature)

Shock and Vibration

- Operating shock 30 g peak, half-sine, 11 ms pulse
- Random Vibration
  - Operating 5 Hz to 500 Hz, 0.3 grms
  - Nonoperating 5 Hz to 500 Hz, 2.4 grms

Environmental Management
NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the Commitment to the Environment web page at **ni.com/environment**. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)
EU Customers At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit **ni.com/environment/weee**.

Specification

Power Requirements

Total power, typical operation

- Typical 12 W to 15 W
- Maximum 18 W
- Power requirement Accepts a 6 V, 3 A external DC power source

Caution
You must use either the power supply provided in the shipping kit, or another listed ITE power supply marked LPS, with the device.

Physical Characteristics

Physical dimensions

- (L × W × H) 15.875 cm × 4.826 cm × 21.209 cm (6.25 in. × 1.9 in. × 8.35 in.)
- Weight 1.193 kg (2.63 lb)

Maintenance

If you need to clean your device, wipe it with a dry towel.

Compliance

CE Compliance

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/53/EU; Radio Equipment Directive (RED)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)

Product Certifications and Declarations

Hereby, National Instruments declares that the device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. To obtain product certifications and the DoC for NI products, visit **ni.com/product-certifications**, search by model number, and click the appropriate link.

Additional Resources

Visit **ni.com/manuals** for more information about your model, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

Worldwide Support and Services

The NI website is your complete resource for technical support. At **ni.com/support**, you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

- Visit **ni.com/services** for information about the services NI offers.
- Visit **ni.com/register** to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. NI also has offices located around the world. For support in the United States, create your service request at **ni.com/support** or dial 1 866 ASK MYNI (275 6964). For support outside the United States, visit the Worldwide Offices section of **ni.com/niglobal** to access the branch office websites, which provide up-to-date contact information.

COMPREHENSIVE SERVICES

We offer competitive repair and calibration services, as well as easily accessible documentation and free downloadable resources.

SELL YOUR SURPLUS
We buy new, used, decommissioned, and surplus parts from every NI series We work out the best solution to suit your individual needs

- Sell For Cash
- Get Credit
- Receive a Trade-In Deal

OBSOLETE NI HARDWARE IN STOCK & READY TO SHIP
We stock New, New Surplus, Refurbished, and Reconditioned NI Hardware.

Bridging the gap between the manufacturer and your legacy test system.

- 1-800-915-6216
- www.apexwaves.com.
- sales@apexwaves.com.

Request a Quote **CLICK HERE** USB-6210.

Documents / Resources

	APEX WAVES USRP-2930 Software Defined Radio Device [pdf] User Manual USRP-2930, USRP-2932, USRP-2930 Software Defined Radio Device, USRP-2930, Software Defined Radio Device, Defined Radio Device, Radio Device, Device

References

- Engineer Ambitiously - NI
- Engineer Ambitiously - NI
- Engineering a Healthy Planet - NI
- Managing Critical Substances - NI
- Managing Critical Substances - NI
- Product Take-Back Program and Recycling - NI
- Product Documentation - NI
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- National Instruments Patents - NI
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