
USRP-2944

Specifications

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Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- **Typical** specifications describe the performance met by a majority of models.
- **Nominal** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are **Characteristics** unless otherwise noted.

Conditions

Specifications are valid at 25 °C unless otherwise noted.

Transmitter

Number of channels	2
Frequency range	10 MHz to 6 GHz
Frequency step	<1 kHz
Maximum output power (P_{out})	

10 MHz to 4 GHz	50 mW to 100 mW (17 dBm to 20 dBm)
4 GHz to 6 GHz	5 mW to 50 mW (7 dBm to 17 dBm)
Gain range ¹	0 dB to 31.5 dB
Gain step	0.5 dB
Frequency accuracy ²	2.5 ppm
Maximum instantaneous real-time bandwidth ³	160 MHz
Maximum I/Q sample rate	200 MS/s
Digital-to-analog converter (DAC) resolution	16 bit

Receiver

Number of channels	2
Frequency range	10 MHz to 6 GHz

1. The output power resulting from the gain setting varies over the frequency band and among devices.
2. **Frequency accuracy** is based on temperature-compensated crystal oscillator (TCXO) vendor specifications and is not measured. Alternatively, you can incorporate an external reference source to provide a more precise frequency Reference Clock and to achieve better frequency accuracy.
3. The NI 2944 transmitter path has 160 MHz of bandwidth throughout the full frequency range of the device.

Frequency step	<1 kHz
Gain range ⁴	0 dB to 37.5 dB
Gain step	0.5 dB
Maximum input power (P_{in})	-15 dBm
Noise figure	5 dB to 7 dB
Frequency accuracy ⁵	2.5 ppm
Maximum instantaneous real-time bandwidth ⁶	160 MHz
Maximum I/Q sample rate	200 MS/s
Analog-to-digital converter (ADC) resolution	14 bit

Power Requirements

Input voltage	9 V to 16 V, DC
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4. The received signal amplitude resulting from the gain setting varies over the frequency band and among devices.
5. **Frequency accuracy** is based on temperature-compensated crystal oscillator (TCXO) vendor specifications and is not measured. Alternatively, you can incorporate an external reference source to provide a more precise frequency Reference Clock and to achieve better frequency accuracy.
6. The NI 2944 receiver path has 84 MHz of bandwidth for center frequencies from 10 MHz to 500 MHz.

Input current	7.5 A, maximum
Typical power consumption	38 W to 44 W, varies by application



Caution You must use an LPS or Class 2 power supply with the device. The power supply must also meet any safety and compliance requirements for the country of use.



Attention Vous devez utiliser avec l'appareil une alimentation LPS ou de classe 2. L'alimentation doit également satisfaire aux exigences de sécurité et de conformité en vigueur dans le pays d'utilisation.

Onboard DRAM

Memory size	1,024 MB
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Physical Characteristics

Physical dimensions	
(L × W × H)	26.67 cm × 4.06 cm × 21.84 cm (10.5 in. × 1.6 in. × 8.6 in.)
Weight	1.588 kg (3.50 lb)

Environment

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
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Pollution Degree	2
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Indoor use only.

Operating Environment

Operating temperature	23 °C ± 5 °C
Relative humidity range	10% to 90%, noncondensing (tested in accordance with IEC 60068-2-56)

Compliance and Certifications

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 safety certifications, refer to the product label or the [Product Certifications and Declarations](#) section.

Electromagnetic Compatibility

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
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity

- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



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 heavy-industrial locations.



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 For EMC declarations, certifications, and additional information, refer to the [Product Certifications and Declarations](#) section.

CE Compliance

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

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.


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 ***Engineering a Healthy Planet*** 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.

EU and UK Customers

-  **Waste Electrical and Electronic Equipment (WEEE)**—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.

电子信息产品污染控制管理办法（中国RoHS）

-  **中国RoHS**—NI符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于NI中国RoHS合规性信息，请登录 ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)