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# USRP-2942

# Specifications

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# Map

## USRP-2942 Specifications

These specifications apply to the USRP-294240 MHz Software Defined Radio Device and the USRP-2942120 MHz Software Defined Radio Device. When not otherwise specified, the specifications for the USRP-2942 in this document refer to both the USRP-294240 MHz and the USRP-2942120 MHz.

### 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.

### 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)
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## Transmitter

Number of channels	2
Frequency range	400 MHz to 4.4 GHz
Frequency step	<1 kHz
Maximum output power ( $P_{out}$ )	50 mW to 100 mW (17 dBm to 20 dBm)
Gain range <sup>[1]</sup>	0 dB to 31.5 dB
Gain step	0.5 dB
Frequency accuracy <sup>[2]</sup>	2.5 ppm
<b>Maximum instantaneous real-time bandwidth</b>	
USRP-2942 40 MHz	40 MHz
USRP-2942 120 MHz	120 MHz
Maximum I/Q sample rate	200 MS/s
<b>Digital-to-analog converter (DAC)</b>	

Resolution	16 bit
Spurious-free dynamic range (sFDR)	80 dB

## Receiver

Number of channels	2
Frequency range	400 MHz to 4.4 GHz
Frequency step	<1 kHz
Gain range <sup>[3]</sup>	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 <sup>[4]</sup>	2.5 ppm
<b>Maximum instantaneous real-time bandwidth</b>	
USRP-2942 40 MHz	40 MHz

USRP-2942 120 MHz		120 MHz
Maximum I/Q sample rate		200 MS/s
<b>Analog-to-digital converter (ADC)</b>		
Resolution		14 bit
sFDR		88 dB

## Power Requirements

Input voltage	9 V to 16 V, DC
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)
Pollution Degree	2

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)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)
- 2014/53/EU; Radio Equipment Directive (RED)
- 2014/34/EU; Potentially Explosive Atmospheres (ATEX)

## 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](https://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](https://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](https://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](https://ni.com/environment/rohs_china)。 (For information about China RoHS compliance, go to [ni.com/environment/rohs\\_china](https://ni.com/environment/rohs_china).)