PXIe-2543 Specifications

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Contents

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> **Caution** The protection provided by the PXIe-2543 can be impaired if it is used in a manner not described in this document.

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 ***Warranted*** unless otherwise noted.

Conditions

Specifications are valid at 23 °C unless otherwise noted.

All voltages are specified in DC, AC_{pk}, or a combination unless otherwise specified.

Topology

Topology	Dual 4 × 1 multiplexers

Input

Minimum input frequency	10 MHz
Characteristic impedance (Z_0)	50 Ω, nominal
Coupling	AC
Maximum safe DC input voltage	±8 V

Maximum Safe Continuous RF Power[1]

Chassis power ON	+30 dBm
Chassis power OFF	+20 dBm

RF Performance

Insertion loss	
≤2.4 GHz	<4.1dB <3.4 dB, typical
≤6 GHz	<5.8 dB <5.1 dB, typical

≤6.6 GHz	<7.0 dB <6.1 dB, typical
Insertion loss thermal coefficient	α = 2050 ppm/°C

Use the following equation to calculate the insertion loss at a given temperature:

$$IL_T = IL_{T0}\left(1 + \alpha\left(T - T_0\right)\right)$$ $IL_T = IL_{T0}\left(1 + \alpha\left(T - T_0\right)\right)$

where

- IL is insertion loss in dB
- T is the temperature at which the property is being measured in °C
- T_0 is the reference temperature in °C
- α represents the insertion loss temperature coefficient in ppm/°C

Voltage standing wave ratio (VSWR)	
≤2.4 GHz	<1.7 <1.5, typical
≤6 GHz	<1.8 <1.5, typical
≤6.6 GHz	<2.4 <1.6, typical
CH-COM isolation	

≤2.4 GHz	>70 dB >84 dB, typical
≤6 GHz	>61 dB >74 dB, typical
≤6.6 GHz	>59 dB <72 dB, typical
CH-CH isolation	
≤2.4 GHz	>69 dB >90 dB, typical
≤6 GHz	>58 dB >74 dB, typical
≤6.6 GHz	>53 dB <71 dB, typical
Bank-to-bank crosstalk	<-90 dB, typical
Channel-to-channel skew	<10 ps, typical
Propagation delay	1,720 psi, typical

Input 1 dB Compression	>27.6 dBm, minimum >32.0 dBm, typical

Figure 1. Insertion Loss, Typical

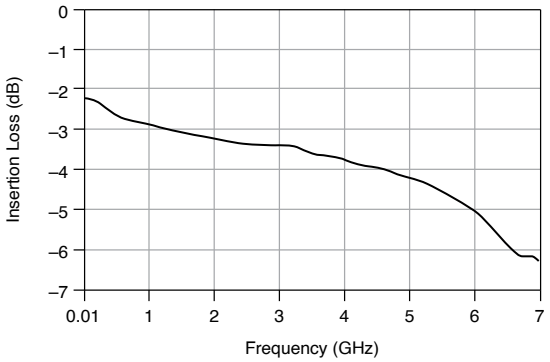


Figure 2. VSWR, Typical

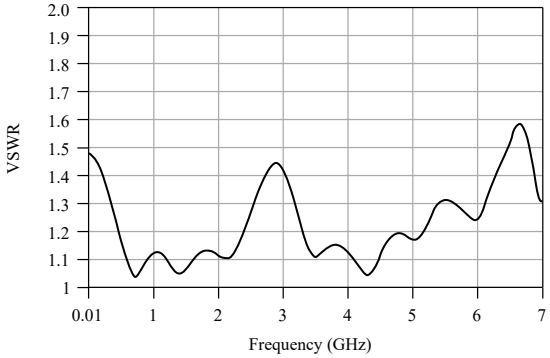
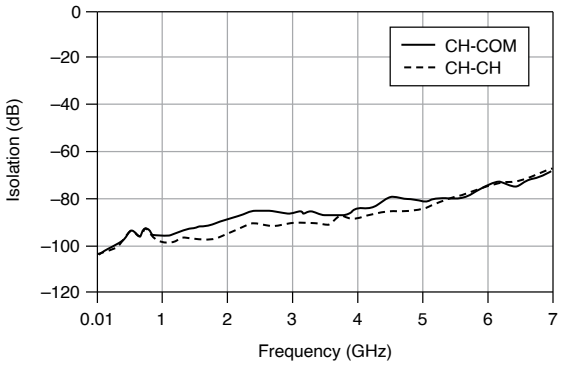


Figure 3. Isolation, Typical



Linearity

Second-order harmonic distortion (Input IP2 (IIP2))[2]

IP2 (input)	>+89 dBm, typical
Third-order intermodulation distortion (Input IP3 (IIP3))[3]	
IP3 (input)	>+54 dBm, typical

Dynamic

Maximum switch operate time[4][5]	76 µs

Trigger

Input trigger	
Sources	PXI trigger lines <0...7>
Minimum pulse width[6]	150 ns
Output trigger	
Destinations	PXI trigger lines <0...7>
Pulse width	Software-selectable: (1 µs to 62 µs)

Physical

Switch type	FET

Front panel connectors	
I/O	10 SMA jacks, female
Triggers	2 SMB jacks, female
Power requirement	
PXI	0.6 W at 5 V 0.6 W at 3.3 V
PXI Express	0.4 W at 12 V 1 W at 3.3 V
Dimensions (L × W × H)	3U, one slot, PXI/cPCI module, PXI Express compatible 21.6 cm × 2.0 cm × 13.0 cm (8.5 in. × 0.8 in. × 5.1 in.)
Weight	774 g (27.3 oz)

Environment

Operating temperature	0 °C to 55 °C
Storage temperature	-20 °C to 70 °C
Relative humidity	5% to 85%, noncondensing

Pollution Degree	2
Maximum altitude	2,000 m

Indoor use only.

Shock and Vibration

Operational Shock	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC 60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.)
Random Vibration	
Operating	5 Hz to 500 Hz, 0.3 g_{rms}
Nonoperating	5 Hz to 500 Hz, 2.4 g_{rms} (Tested in accordance with IEC 60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

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.

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`.)