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# PXle-5423

# Specifications

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2026-07-31



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# PXIe-5423 Specifications

## Definitions

*Warranted* specifications describe the performance of a model under stated operating conditions and are covered by the model warranty. Warranted specifications account for measurement uncertainties, temperature drift, and aging. Warranted specifications are ensured by design or verified during production and calibration.

*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.
- *Measured* specifications describe the measured performance of a representative model.

Specifications are *Nominal* unless otherwise noted.

## Conditions

All specifications are valid under the following conditions unless otherwise noted:

- Signals terminated with 50  $\Omega$  to ground
- Load impedance set to 50  $\Omega$
- Amplitude set to 2.4 V<sub>pk-pk</sub>
- Analog Path property or NIFGEN\_ATTR\_ANALOG\_PATH attribute set to **Main** (default)
- Reference Clock set to **Onboard Reference Clock**

Warranted and typical specifications are valid under the following conditions unless otherwise noted:

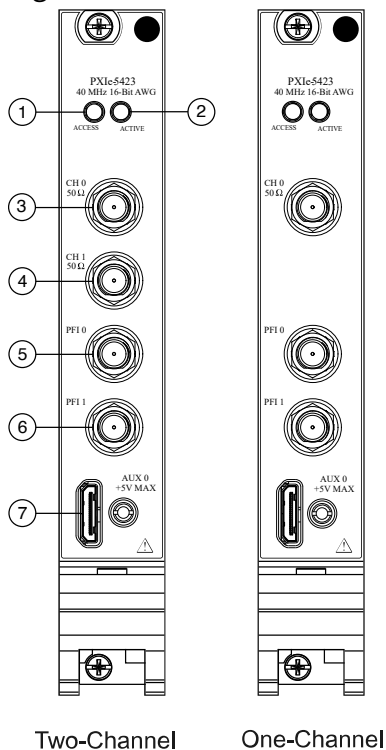
- Ambient temperature range of 0 °C to 55 °C
- 15-minute warm-up time before operation

- Self-calibration performed after instrument is stable
- External calibration cycle maintained and valid
- PXI Express chassis fan speed set to HIGH, foam fan filters removed if present, and empty slots contain PXI chassis slot blockers and filler panels

## PXIe-5423 Pinout

Use the pinout to connect to terminals on the PXIe-5423.

Figure 1. PXIe-5423 Connector Pinout



1. Access LED
2. Active LED
3. SMA Connector: CH 0
4. SMA Connector: CH 1
5. SMA Connector: PFI 0
6. SMA Connector: PFI 1
7. MHDMR Connector: AUX 0

Table 1. SMA Connector Signal Descriptions

| Signal | Access           | Description                                                                                                                                                                                                                                                                       |
|--------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CH 0   | Output           | Generates waveforms from an analog output terminal.                                                                                                                                                                                                                               |
| CH 1   | Output           |                                                                                                                                                                                                                                                                                   |
| PFI 0  | Input/<br>Output | Imports digital trigger signals and exports digital event signals. <ul style="list-style-type: none"> <li>Imported digital trigger signals can start or step through waveform generation.</li> <li>Exported event signals indicate the state of the generation engine.</li> </ul> |
| PFI 1  | Input/<br>Output |                                                                                                                                                                                                                                                                                   |

## AUX Connector



**Note** The AUX 0 connector accepts a standard, third-party HDMI™ type C cable, but the AUX 0 port is not an HDMI interface and the specified performance of the AUX 0 connector is not guaranteed if a third-party HDMI cable is used. Use NI cable assembly SHH19-MH19-AUX for all AUX 0 connections. Do not connect the AUX 0 port on the PXle-5423 to the HDMI port of another device. NI is not liable for any damage resulting from such signal connections.

Figure 2. AUX 0 Connector Pinout

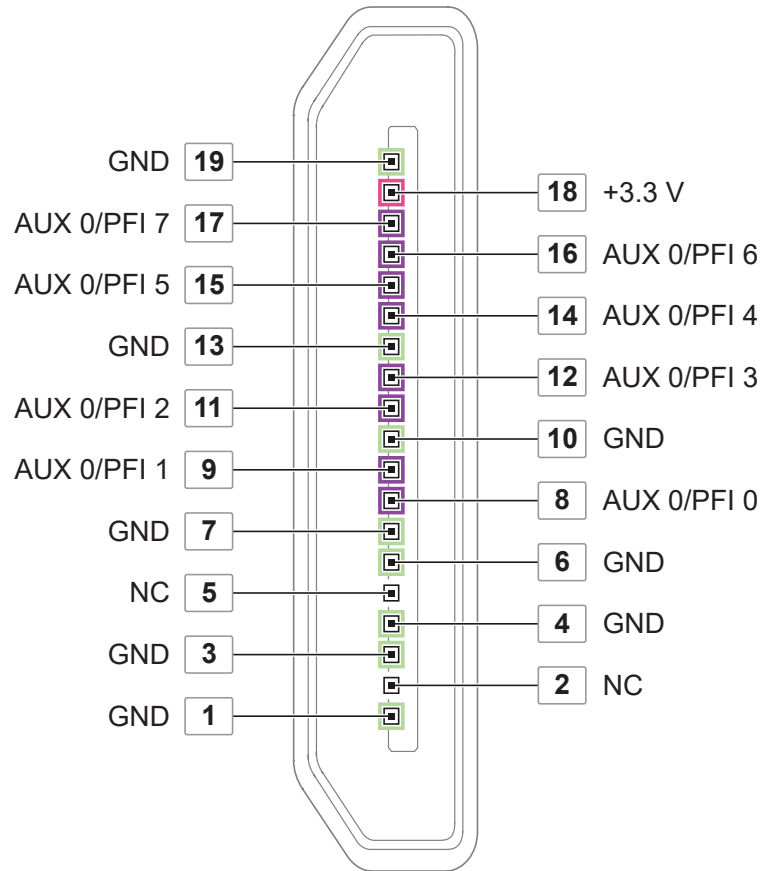


Table 2. AUX 0 Connector Signal Descriptions

| Pin | Signal      | Description                  |
|-----|-------------|------------------------------|
| 1   | GND         | Ground reference for signals |
| 2   | NC          | No connection                |
| 3   | GND         | Ground reference for signals |
| 4   | GND         | Ground reference for signals |
| 5   | NC          | No connection                |
| 6   | GND         | Ground reference for signals |
| 7   | GND         | Ground reference for signals |
| 8   | AUX 0/PFI 0 | Bidirectional PFI line       |
| 9   | AUX 0/PFI 1 | Bidirectional PFI line       |
| 10  | GND         | Ground reference for signals |
| 11  | AUX 0/PFI 2 | Bidirectional PFI line       |

| Pin | Signal      | Description                          |
|-----|-------------|--------------------------------------|
| 12  | AUX 0/PFI 3 | Bidirectional PFI line               |
| 13  | GND         | Ground reference for signals         |
| 14  | AUX 0/PFI 4 | Bidirectional PFI line               |
| 15  | AUX 0/PFI 5 | Bidirectional PFI line               |
| 16  | AUX 0/PFI 6 | Bidirectional PFI line               |
| 17  | AUX 0/PFI 7 | Bidirectional PFI line               |
| 18  | +3.3 V      | +3.3 V power output (200 mA maximum) |
| 19  | GND         | Ground reference for signals         |

Use the SCB-19 connector block to connect digital signals to the AUX 0 connector.

Figure 3. SCB-19 Pinout

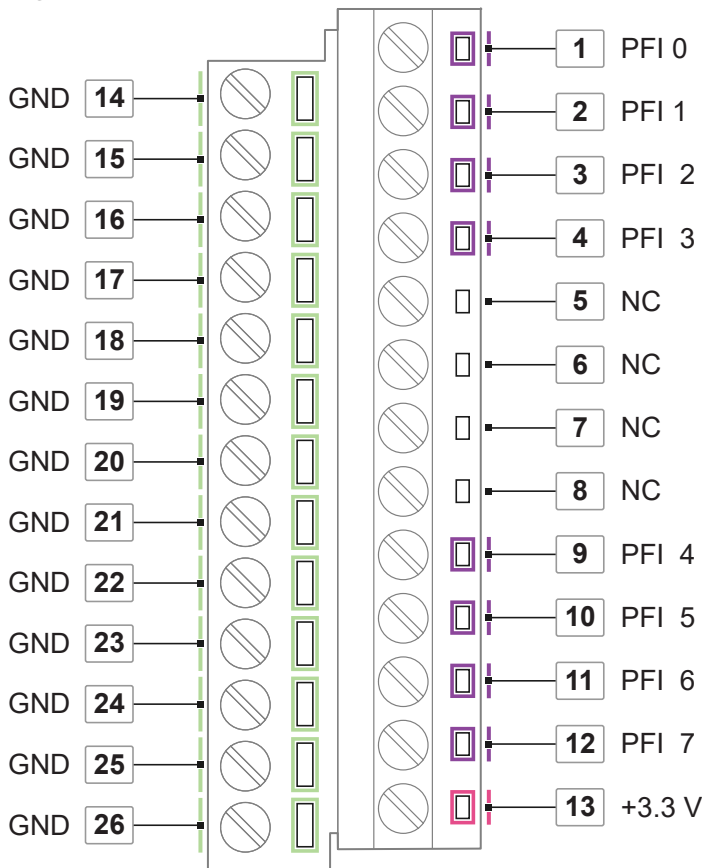


Table 3. SCB-19 Signal Descriptions

| Signal Name | Description                   |
|-------------|-------------------------------|
| PFI <0..7>  | Bidirectional PFI line        |
| NC          | No connection                 |
| +3.3 V      | +3.3 V power (200 mA maximum) |
| GND         | Ground reference for signals  |

## Analog Output

|                                 |                         |
|---------------------------------|-------------------------|
| Number of channels <sup>1</sup> | 1 or 2                  |
| Output type                     | Referenced single-ended |
| Connector type                  | SMA                     |
| DAC resolution                  | 16 bits                 |

| Amplitude range <sup>2</sup> , in 0.16 dB steps |                                                     |
|-------------------------------------------------|-----------------------------------------------------|
| 50 $\Omega$ load                                | 0.00775 V <sub>pk-pk</sub> to 12 V <sub>pk-pk</sub> |
| Open load                                       | 0.0155 V <sub>pk-pk</sub> to 24 V <sub>pk-pk</sub>  |

|              |                                                                         |
|--------------|-------------------------------------------------------------------------|
| Offset range | $\pm 50\%$ of <i>Amplitude Range</i> (V <sub>pk-pk</sub> ) <sup>3</sup> |
|--------------|-------------------------------------------------------------------------|

1. Channels support independent waveform generation.
2. Amplitude values assume the full scale of the DAC is utilized. NI-FGEN uses waveforms less than the full scale of the DAC to create amplitudes smaller than the minimum value.

|                   |                         |
|-------------------|-------------------------|
| Offset resolution | 16-bit full-scale range |
|-------------------|-------------------------|

| DC accuracy <sup>4</sup>                                       |                                                                                                                                |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Within $\pm 5^{\circ}\text{C}$ of self-calibration temperature | $\pm 0.35\%$ of <i>Amplitude Range</i> $\pm 0.35\%$ of <i>Offset Requested</i> $\pm 500\ \mu\text{V}$ , warranted <sup>5</sup> |
| $0^{\circ}\text{C}$ to $55^{\circ}\text{C}$                    | $\pm 0.55\%$ of <i>Amplitude Range</i> $\pm 0.55\%$ of <i>Offset Requested</i> $\pm 500\ \mu\text{V}$ , typical                |

|                                                                                                     |                                                              |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| AC amplitude accuracy <sup>6</sup> (within $\pm 5^{\circ}\text{C}$ of self-calibration temperature) | $\pm 1.0\% \pm 1\ \text{mV}_{\text{pk-pk}}$ , warranted      |
| Output impedance                                                                                    | $50\ \Omega$                                                 |
| Load impedance                                                                                      | Output waveform is compensated for user-specified impedances |
| Output coupling (ground referenced)                                                                 | DC                                                           |

3. For example, a  $5.5\ \text{V}_{\text{pk-pk}}$  range equals  $\pm 2.75\ \text{V}$  maximum offset. Offset range has a limitation of  $\pm 12\ \text{V}$  absolute signal swing into high-impedance loads ( $\text{Amplitude} + |\text{Offset}| \leq 12\ \text{V}$  into high-impedance load or  $6\ \text{V}$  into  $50\ \Omega$  load).
4. Terminated with high-impedance load (load impedance set to  $1\ \text{M}\Omega$ ). The analog path is calibrated for amplitude, gain, and offset errors.
5. Where *Amplitude Range* is the requested amplitude in  $\text{V}_{\text{pk-pk}}$ . For example, a DC signal with an amplitude range of  $16\ \text{V}_{\text{pk-pk}}$  and offset of  $1.5$  will calculate DC accuracy using the following equation:  $\pm[(0.35\% * 16\ \text{V}) + (0.35\% * 1.5\ \text{V}) + 500\ \mu\text{V}] = \pm 61.75\ \text{mV}$ . The DC standard function always uses the  $24\ \text{V}_{\text{pk-pk}}$  amplitude range.
6. With  $50\ \text{kHz}$  sine wave and terminated with high-impedance load.

|                                      |                                              |
|--------------------------------------|----------------------------------------------|
| Output enable <sup>7</sup>           | Software-selectable                          |
| Maximum output overload <sup>8</sup> | $\pm 12 V_{pk-pk}$ from a 50 $\Omega$ source |
| Waveform summing                     | Supported <sup>9</sup>                       |

## Standard Function

### Sine Waveform

|                     |                 |
|---------------------|-----------------|
| Frequency range     | 0 MHz to 40 MHz |
| Frequency step size | 2.84 $\mu$ Hz   |

Table 4. Passband Flatness<sup>10</sup>

| Sine Frequency       | Passband Flatness (dB), Warranted    |                   |
|----------------------|--------------------------------------|-------------------|
|                      | 0.06 $V_{pk-pk}$ to 2.75 $V_{pk-pk}$ | >2.75 $V_{pk-pk}$ |
| 1 MHz                | $\pm 0.4$                            | $\pm 0.4$         |
| 10 MHz               | $\pm 0.4$                            | $\pm 0.4$         |
| 20 MHz               | $\pm 0.4$                            | $\pm 0.6$         |
| 40 MHz <sup>11</sup> | $\pm 0.45$                           | $\pm 0.8$         |

7. When the output path is disabled, the channel output is terminated to ground with a 50  $\Omega$ , 1 W resistor.

8. No damage occurs if the analog output channels are shorted to ground indefinitely.

9. The output terminals of multiple PXIe-5423 waveform generators can be connected together.

10. Normalized to 50 kHz.

11. With sine frequencies of 40 MHz and ambient temperatures above 45 °C, add  $\pm 0.015$  dB/°C to the passband flatness specification.

Figure 4. Passband Flatness

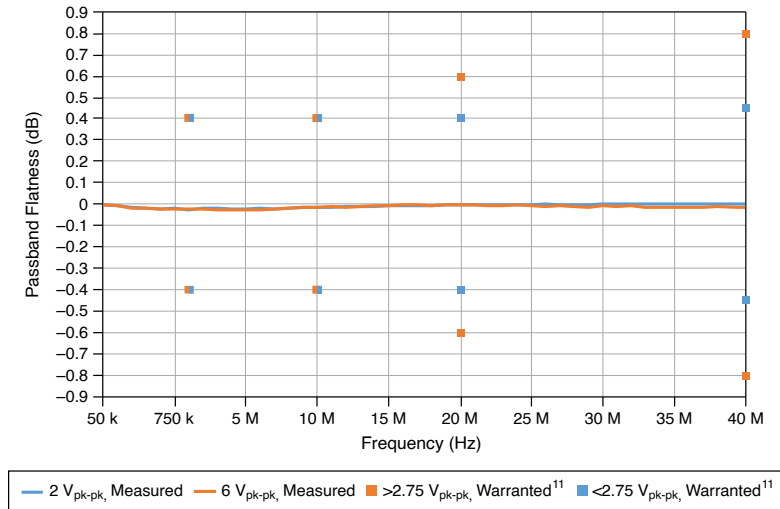


Table 5. Spurious-Free Dynamic Range (SFDR) with Harmonics

| Sine Frequency | SFDR with Harmonics (dBc), Measured            |                                                 |                          |
|----------------|------------------------------------------------|-------------------------------------------------|--------------------------|
|                | 0.1 V <sub>pk-pk</sub> to 1 V <sub>pk-pk</sub> | 1 V <sub>pk-pk</sub> to 2.75 V <sub>pk-pk</sub> | >2.75 V <sub>pk-pk</sub> |
| 1 MHz          | 62                                             | 76                                              | 77                       |
| 3 MHz          | 62                                             | 74                                              | 63                       |
| 5 MHz          | 61                                             | 74                                              | 58                       |
| 10 MHz         | 61                                             | 69                                              | 52                       |
| 20 MHz         | 61                                             | 63                                              | 44                       |
| 30 MHz         | 59                                             | 60                                              | 40                       |
| 40 MHz         | 55                                             | 58                                              | 35                       |



**Note** Measured at an amplitude of -1 dBFS with 0 V DC offset, measured from DC to 400 MHz, and limited to a -90 dBm spur at low amplitudes.

Table 6. Spurious-Free Dynamic Range (SFDR) without Harmonics

| Sine Frequency | SFDR without Harmonics (dBc), Measured         |                                                 |                          |
|----------------|------------------------------------------------|-------------------------------------------------|--------------------------|
|                | 0.1 V <sub>pk-pk</sub> to 1 V <sub>pk-pk</sub> | 1 V <sub>pk-pk</sub> to 2.75 V <sub>pk-pk</sub> | >2.75 V <sub>pk-pk</sub> |
| 1 MHz          | 62                                             | 84                                              | 92                       |

| Sine Frequency | SFDR without Harmonics (dBc), Measured         |                                                 |                          |
|----------------|------------------------------------------------|-------------------------------------------------|--------------------------|
|                | 0.1 V <sub>pk-pk</sub> to 1 V <sub>pk-pk</sub> | 1 V <sub>pk-pk</sub> to 2.75 V <sub>pk-pk</sub> | >2.75 V <sub>pk-pk</sub> |
| 3 MHz          | 62                                             | 84                                              | 92                       |
| 5 MHz          | 62                                             | 84                                              | 92                       |
| 10 MHz         | 61                                             | 83                                              | 90                       |
| 20 MHz         | 61                                             | 83                                              | 90                       |
| 30 MHz         | 61                                             | 83                                              | 83                       |
| 40 MHz         | 61                                             | 83                                              | 83                       |



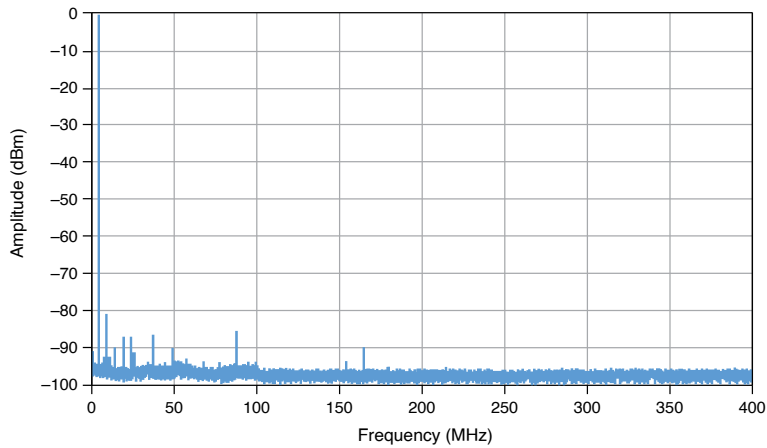
**Note** Measured at an amplitude of -1 dBFS with 0 V DC offset, measured from DC to 400 MHz, and limited to a -90 dBm spur at low amplitudes.

Table 7. Total Harmonic Distortion (THD)

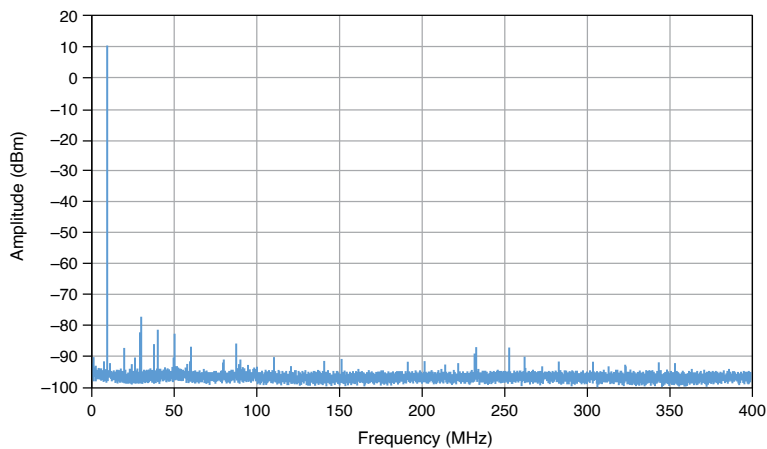
| Sine Frequency | THD (dBc), Measured                               |                                                  |
|----------------|---------------------------------------------------|--------------------------------------------------|
|                | 0.1 V <sub>pk-pk</sub> to 2.75 V <sub>pk-pk</sub> | 2.75 V <sub>pk-pk</sub> to 12 V <sub>pk-pk</sub> |
| 1 MHz          | 79                                                | 76                                               |
| 3 MHz          | 73                                                | 62                                               |
| 5 MHz          | 72                                                | 56                                               |
| 10 MHz         | 68                                                | 49                                               |
| 20 MHz         | 61                                                | 43                                               |
| 30 MHz         | 58                                                | 39                                               |
| 40 MHz         | 55                                                | 35                                               |



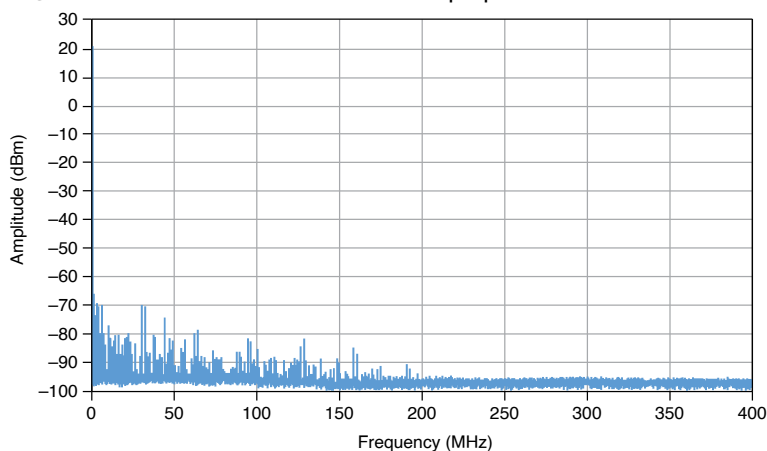
**Note** Measured at an amplitude of -1 dBFS and measured from DC to the sixth harmonic.

Figure 5. 5 MHz Spectrum at 0.6 V<sub>pk-pk</sub>, Measured

**Note** Noise floor is limited by the noise floor of the measurement device.

Figure 6. 10 MHz Spectrum at 2 V<sub>pk-pk</sub>, Measured

**Note** Noise floor is limited by the noise floor of the measurement device.

Figure 7. 1 MHz Spectrum at 6.5 V<sub>pk-pk</sub>, Measured

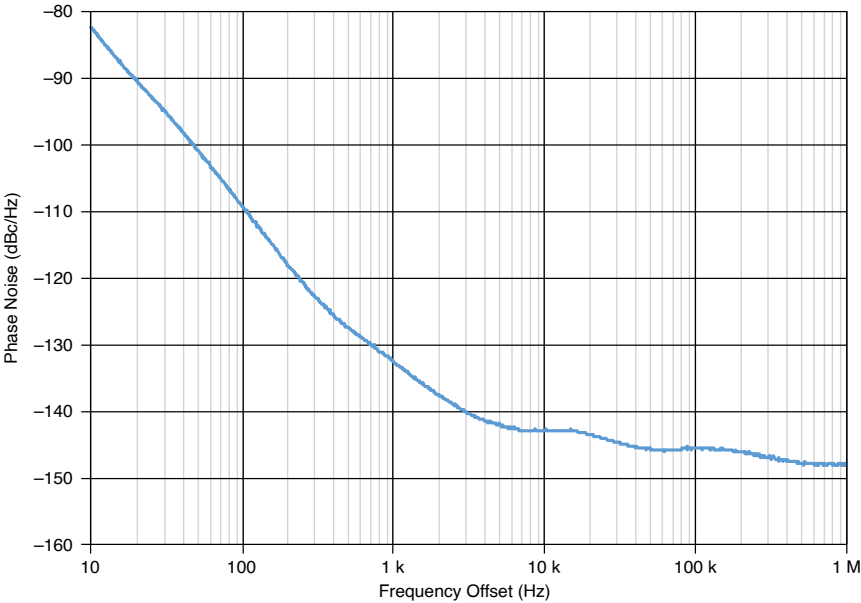


**Note** Noise floor is limited by the noise floor of the measurement device.

Table 8. Average Noise Density<sup>12</sup>

| Amplitude               | Average Noise Density, Typical |                        |
|-------------------------|--------------------------------|------------------------|
|                         | dBm/Hz                         | $\frac{nV}{\sqrt{Hz}}$ |
| 0.06 V <sub>pk-pk</sub> | -154                           | 3.9                    |
| 0.1 V <sub>pk-pk</sub>  | -154                           | 3.9                    |
| 0.4 V <sub>pk-pk</sub>  | -150                           | 5.8                    |
| 1 V <sub>pk-pk</sub>    | -145                           | 13                     |
| 2 V <sub>pk-pk</sub>    | -141                           | 20                     |
| 4 V <sub>pk-pk</sub>    | -132                           | 53                     |
| 12 V <sub>pk-pk</sub>   | -125                           | 107                    |

Figure 8. Phase Noise<sup>13</sup>, Measured



|                            |        |
|----------------------------|--------|
| Jitter (RMS) <sup>14</sup> | 214 fs |
|----------------------------|--------|

12. At small amplitudes, average noise density is limited by a -154 dBm/Hz noise floor.
13. With 40 MHz carrier and locked to the internal timebase with spurs removed.
14. With 40 MHz carrier, integrated from 100 Hz to 100 kHz, and locked to the internal timebase.

## Square Waveform

|                                   |                 |
|-----------------------------------|-----------------|
| Frequency range                   | 0 MHz to 25 MHz |
| Frequency step size               | 2.84 $\mu$ Hz   |
| Minimum on/off time <sup>15</sup> | 17.6 ns         |
| Duty cycle resolution             | <0.001%         |
| Rise/fall time <sup>16</sup>      | 9 ns, measured  |
| Aberration                        | 1.0%, measured  |
| Jitter (RMS) <sup>17</sup>        | 2 ps, measured  |

15. Used for calculating duty cycle limit:

*Minimum Duty Cycle* =  $(100\% * \text{Minimum On Time}) \div T_{\text{period}}$

and *Maximum Duty Cycle* =  $100\% - \text{Minimum Duty Cycle}$ . For more information about the relationship between minimum on/off time and duty cycle specifications, refer to [ni.com](https://www.ni.com).

16. Rise time measured from 10% to 90%.

17. Integrated from 10 Hz to 10 MHz using a 22 MHz square wave.

Figure 9. Square Waveform Step Response at 2.75 V<sub>pk-pk</sub>, Measured

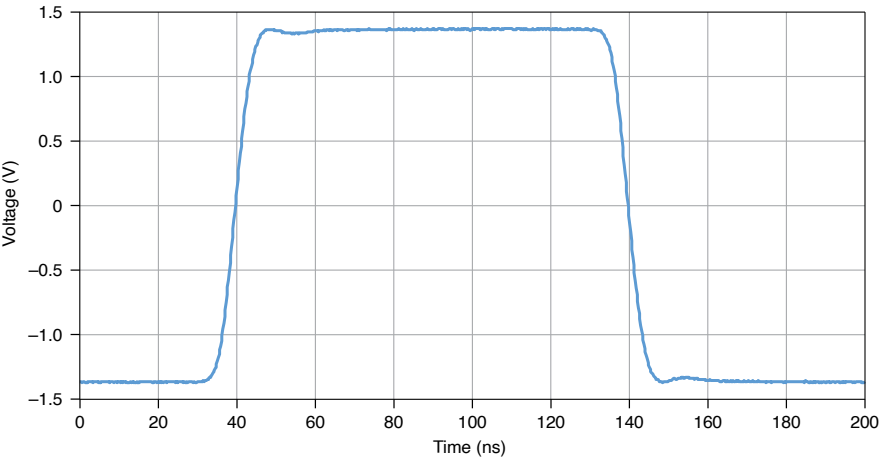
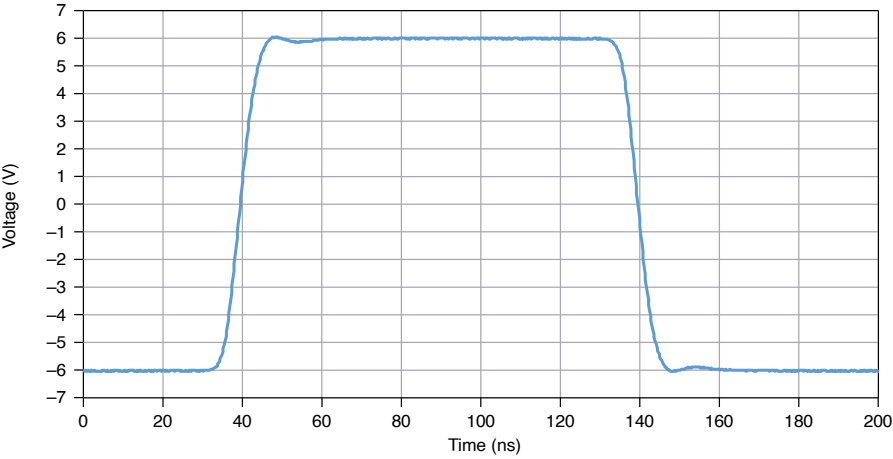


Figure 10. Square Waveform Step Response at 12 V<sub>pk-pk</sub>, Measured



Ramp and Triangle Waveforms

|                 |                |
|-----------------|----------------|
| Frequency range | 0 MHz to 5 MHz |
|-----------------|----------------|

User-Defined Function

|                     |                 |
|---------------------|-----------------|
| Frequency range     | 0 MHz to 40 MHz |
| Frequency step size | 2.84 $\mu$ Hz   |
| Waveform points     | 8,192           |

|                         |                |
|-------------------------|----------------|
| Step response rise time | 7 ns, measured |
|-------------------------|----------------|

## Arbitrary Waveform

|               |                                 |
|---------------|---------------------------------|
| Waveform size | 2 samples to 64,000,000 samples |
|---------------|---------------------------------|

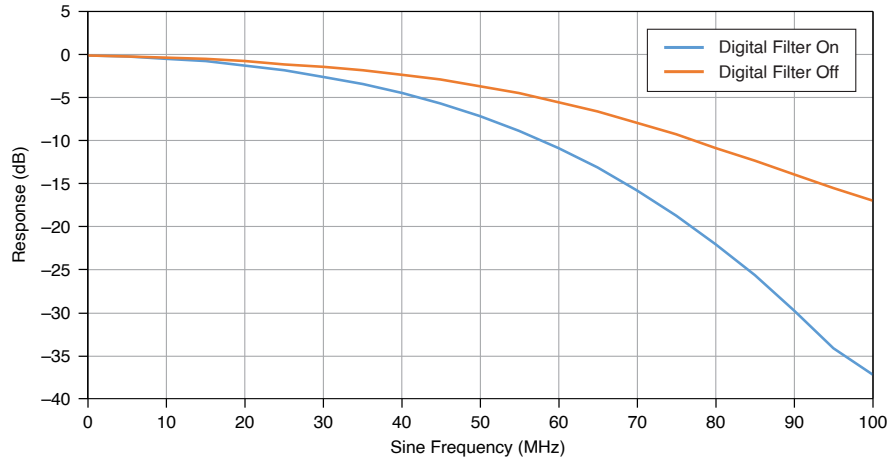
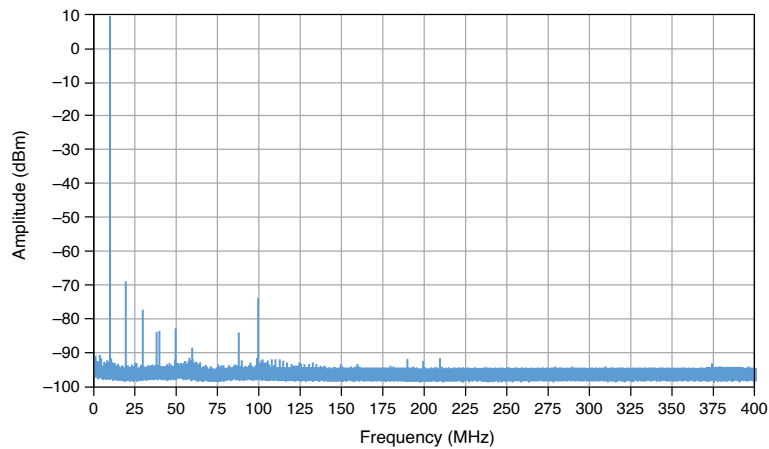
| User sample rate        |                           |
|-------------------------|---------------------------|
| Digital filter enabled  | 5.6 $\mu$ S/s to 200 MS/s |
| Digital filter disabled | 3.125 MS/s to 200 MS/s    |

| Waveform filters        |                                      |
|-------------------------|--------------------------------------|
| Digital filter enabled  | $Bandwidth = 0.2 * User Sample Rate$ |
| Digital filter disabled | No reconstruction image rejection    |

|                      |          |
|----------------------|----------|
| Minimum quantum size | 1 sample |
|----------------------|----------|

| Rise time <sup>18</sup> |                   |
|-------------------------|-------------------|
| Digital filter enabled  | 15.3 ns, measured |
| Digital filter disabled | 8.4 ns, measured  |

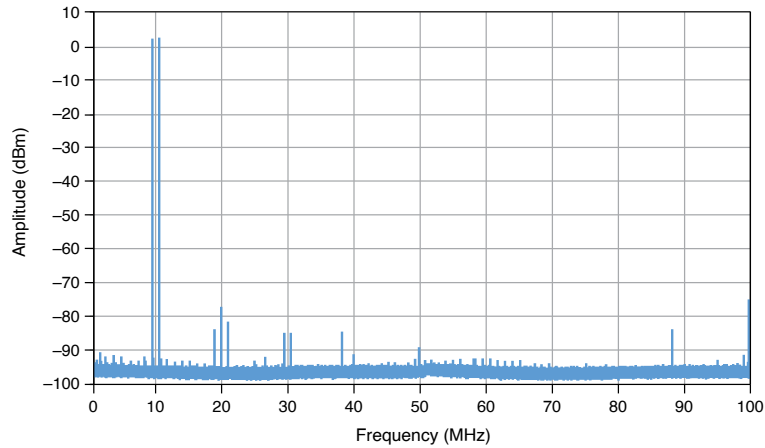
|                      |                    |
|----------------------|--------------------|
| Total onboard memory | 128 MB per channel |
|----------------------|--------------------|

Figure 11. Magnitude Response<sup>19</sup>, MeasuredFigure 12. 10 MHz Single-Tone Spectrum<sup>20</sup>, Measured

18. At maximum user sample rate.

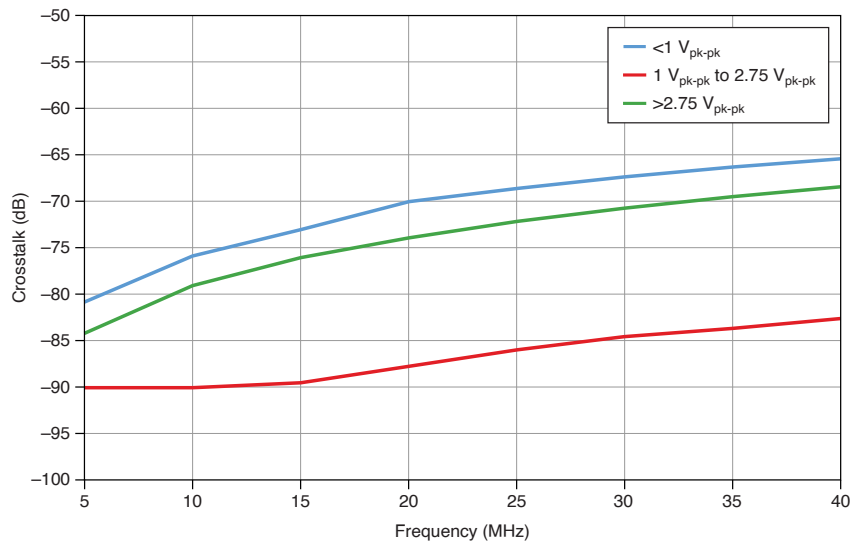
19. Relative to 50 kHz and at 2  $V_{pk-pk}$  and maximum user sample rate.

20. With the digital filter enabled and at -1 dBFS, 2  $V_{pk-pk}$ , and 200 MS/s. Noise floor is limited by the noise floor of the measurement device.

Figure 13. 9.5 MHz and 10.5 MHz Dual-Tone Spectrum<sup>21</sup>, Measured

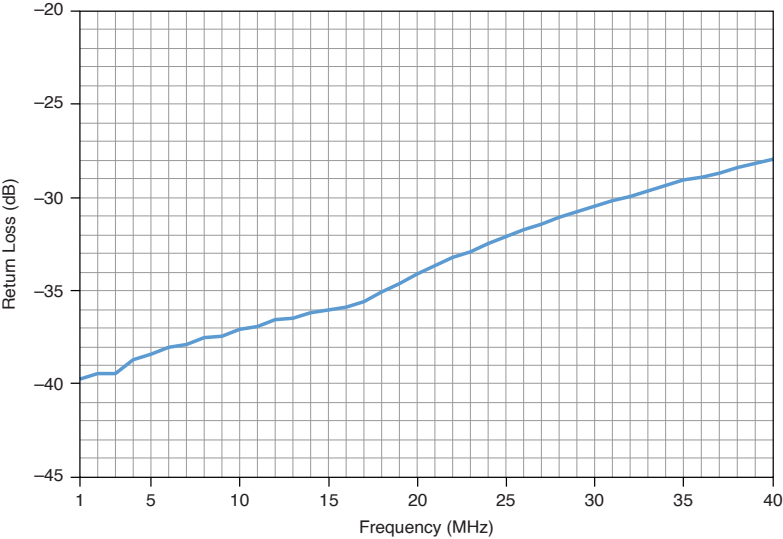
## All Output Modes

Figure 14. Channel-To-Channel Crosstalk, Measured



21. With the digital filter enabled and at -7 dBFS,  $2 V_{pk-pk}$ , and 200 MS/s. Noise floor is limited by the noise floor of the measurement device.

Figure 15. Return Loss, Measured



Clock

|                           |                                               |
|---------------------------|-----------------------------------------------|
| Reference Clock source    | Internal<br>PXIe_CLK100 (backplane connector) |
| Reference Clock frequency | 100 MHz (<±25 ppm)                            |
| Sample Clock rate         | 800 MHz                                       |

|                                          |                                                     |
|------------------------------------------|-----------------------------------------------------|
| Internal timebase accuracy <sup>22</sup> |                                                     |
| Initial calibrated accuracy              | 1.5 ppm, warranted                                  |
| Time drift <sup>23</sup>                 | 1 ppm per year, warranted                           |
| Accuracy                                 | Initial Calibrated Accuracy ± Time Drift, warranted |

22. If locked to an external Reference Clock source, timebase accuracy is equal to the external Reference

# Synchronization

| Channel-to-channel skew, between the channels of a multichannel PXIe-5423 <sup>24</sup> |         |
|-----------------------------------------------------------------------------------------|---------|
| <2.75 Vpk-pk                                                                            | ±110 ps |
| >2.75 Vpk-pk                                                                            | ±275 ps |



**Note** The channels of a multichannel PXIe-5423 are automatically synchronized when they are in the same NI-FGEN session.

## Synchronization with the NI-TClk API

NI-TClk is an API that enables system synchronization of supported PXI modules in one or more PXI chassis, which you can use with the PXIe-5423 and NI-FGEN.

NI-TClk synchronization support for the PXIe-5423 was first available in NI-FGEN18.1.

NI-TClk uses a shared Reference Clock and triggers to align the Sample Clocks of PXI modules and synchronize the distribution and reception of triggers. These signals are routed through the PXI chassis backplane without external cable connections between PXI modules in the same chassis.

The following definitions apply:

- **Skew**—Misalignment between module timing across slots of a chassis and is caused by clock and analog path delay differences.
- **Jitter**—Variation in module alignment that can be expected with each call to NI-TClk Synchronize.
- **Manual adjustment**—Process of minimizing synchronization jitter and skew by adjusting Trigger Clock (TClk) signals using the instrument driver.

Clock accuracy.

23. Where time drift starts at the latest external calibration date.

24. With a 20 MHz sine wave and both channels configured with the same amplitude.

| Module-to-module skew, between PXIe-5423 modules using NI-TClk <sup>25</sup> |                 |
|------------------------------------------------------------------------------|-----------------|
| NI-TClk synchronization without manual adjustment                            |                 |
| Skew, peak-to-peak                                                           | 300 ps, typical |
| Jitter, peak-to-peak                                                         | 125 ps, typical |
| NI-TClk synchronization with manual adjustment                               |                 |
| Skew, average                                                                | <10 ps          |
| Jitter, peak-to-peak                                                         | 5 ps            |

|                                          |                                                                                                                                                         |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sample Clock delay/adjustment resolution | $3.8\text{E}(-6) \times \text{Sample Clock Period}$<br><br>For example, at 100 MS/s,<br>$3.8\text{E}(-6) \times (1/100 \text{ MS/s}) = 38 \text{ fs}$ . |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|

## PFI I/O

|                     |    |
|---------------------|----|
| Number of terminals | 10 |
|---------------------|----|

| Connector type  |     |
|-----------------|-----|
| PFI 0 and PFI 1 | SMA |

25. Specifications are valid for any number of PXIe-5423 modules installed in one chassis, with each PXIe-5423 module using a single NI-FGEN session and having all analog parameters set to identical values, and Sample Clock set to 100 MS/s. For other configurations, including multi-chassis systems, contact NI Technical Support at [ni.com/support](http://ni.com/support).

|                  |       |
|------------------|-------|
| AUX 0/PFI <0..7> | MHDMR |
|------------------|-------|

|                          |                   |
|--------------------------|-------------------|
| Logic level              | 3.3 V             |
| Maximum input voltage    | +5 V              |
| V <sub>IH</sub>          | 2 V               |
| V <sub>IL</sub>          | 0.8 V             |
| Frequency range          | 0 MHz to 25 MHz   |
| PFI-to-channel crosstalk | -80 dBc, measured |

## Trigger

|                      |                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Sources/destinations | PFI <0..1> (SMA front panel connectors)<br>AUX 0/PFI <0..7> (MHDMR front panel connector)<br>PXI_Trig <0..7> (backplane connector) |
| Supported triggers   | Start Trigger<br>Script Trigger                                                                                                    |
| Trigger type         | Rising edge                                                                                                                        |

|                             |                                          |
|-----------------------------|------------------------------------------|
| Trigger modes <sup>26</sup> | Single<br>Continuous<br>Stepped<br>Burst |
| Input impedance (DC)        | >100 k $\Omega$                          |

## Marker

|              |                                                                                                                                    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------|
| Destinations | PFI <0..1> (SMA front panel connectors)<br>AUX 0/PFI <0..7> (MHDMM front panel connector)<br>PXI_Trig <0..7> (backplane connector) |
| Pulse width  | 200 ns                                                                                                                             |

| Marker to output skew           |             |
|---------------------------------|-------------|
| PFI <0..1> and AUX 0/PFI <0..7> | $\pm 2$ ns  |
| PXI_Trig <0..7>                 | $\pm 20$ ns |

|                                               |   |
|-----------------------------------------------|---|
| Maximum number of marker outputs per waveform | 4 |
|-----------------------------------------------|---|

26. In frequency list, arbitrary waveform, and arbitrary sequence output modes.

## Calibration

|                            |                                                                                                                                                                                     |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Self-calibration           | An onboard reference is used to calibrate the DC gain and offset. The self-calibration is initiated by the user through the software and takes approximately 2 minutes to complete. |
| External calibration       | External calibration calibrates the TCXO, voltage reference, and DC gain and offset. Appropriate constants are stored in nonvolatile memory.                                        |
| Calibration interval       | Specifications valid within 2 years of external calibration                                                                                                                         |
| Warm-up time <sup>27</sup> | 15 minutes                                                                                                                                                                          |

## Power

| Current     |       |
|-------------|-------|
| +3.3 V rail | 2.3 A |
| +12 V rail  | 1.8 A |
| Total power | 29 W  |

27. Warm up begins after the chassis is powered and the PXIe-5423 is recognized by the host and configured using NI-FGEN. Self-calibration is recommended following the warm-up time.

## Environment

|                  |                                                   |
|------------------|---------------------------------------------------|
| Maximum altitude | 2,000 m (800 mbar) (at 25 °C ambient temperature) |
| Pollution Degree | 2                                                 |

Indoor use only.

## Operating Environment

|                                      |                           |
|--------------------------------------|---------------------------|
| Ambient temperature range, operating | 0 °C to 55 °C             |
| Relative humidity range, operating   | 10% to 90%, noncondensing |

## Storage Environment

|                                  |                          |
|----------------------------------|--------------------------|
| Ambient temperature, storage     | -40 °C to 71 °C          |
| Relative humidity range, storage | 5% to 95%, noncondensing |

## Shock and Vibration

|                  |                                                                                                                                         |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Operating shock  | 30 g peak, half-sine, 11 ms pulse                                                                                                       |
| Random vibration | <ul style="list-style-type: none"> <li>Operating: 5 Hz to 500 Hz, 0.3 g RMS</li> <li>Nonoperating: 5 Hz to 500 Hz, 2.4 g RMS</li> </ul> |

## Physical

|            |                                                                                            |
|------------|--------------------------------------------------------------------------------------------|
| Dimensions | 21.6 cm × 2.0 cm × 13.0 cm (8.5 in. × 0.8 in. × 5.1 in.) 3 U, one slot, PXI Express module |
| Weight     |                                                                                            |

|                      |                       |
|----------------------|-----------------------|
| One channel          | 369 g (13.0 oz)       |
| Two channels         | 376 g (13.3 oz)       |
| <b>Bus interface</b> |                       |
| Form factor          | Gen 1 x4 module       |
| Slot compatibility   | PXI Express or hybrid |

## 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 *Product Certifications and Declarations*.

## 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).)