

NI PXI-5620 SPECIFICATIONS

AC-Coupled High-Speed Frequency-Domain Digitizer

The NI PXI-5620 is a 64 MS/s, 14-bit frequency domain digitizer. Except for its AC coupling, the PXI-5620 is functionally identical to the PXI-5621. Refer to the *NI PXI-562x User Manual* for instructions on installing and using your NI PXI-5620.

The NI PXI-5620 specifications are warranted at 0–50 °C ambient unless otherwise specified, and include a 10 minute warm-up time from ambient conditions.

General Specifications

Number of channels	1
Resolution	14 bits
Sample rate range	1 kS to 64 MS/s
Onboard memory	
Not using DDC	16 or 32 MS
Using DDC (complex data)	8 or 16 MS

Input

Signal level	
Nominal	0 dBm (± 0.316 V _p)
Full-scale	+10 dBm (± 1.000 V _p)
Max with dither enabled	+8 dBm (± 0.794 V _p)
Non-operating	
Max input level	+20 dBm (± 3.16 V _p)
Max DC input voltage	± 2 V
Input impedance	50 Ω nominal
Coupling	AC

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Analog bandwidth (-3 dB range) 10 kHz to 36 MHz

Amplitude accuracy ± 0.5 dB

VSWR

0.1–25 MHz $< 1.5:1$

25–32 MHz $< 3:1$

Dither (can be disabled)

Frequency range 150 Hz to 4 MHz

Frequency

Internal sample clock

Frequency $64 \text{ MHz}/n$, where $1 < n < 2^{16}$

Accuracy $< \pm 25$ ppm

Noise sidebands

Offset	Density
100 Hz	$< -100 \text{ dBc/Hz}$
1 kHz	$< -120 \text{ dBc/Hz}$
10 kHz	$< -130 \text{ dBc/Hz}$
100 kHz	$< -130 \text{ dBc/Hz}$

Residual FM $< 2 \text{ Hz}_{\text{pk-pk}}$ in 10 ms

Amplitude

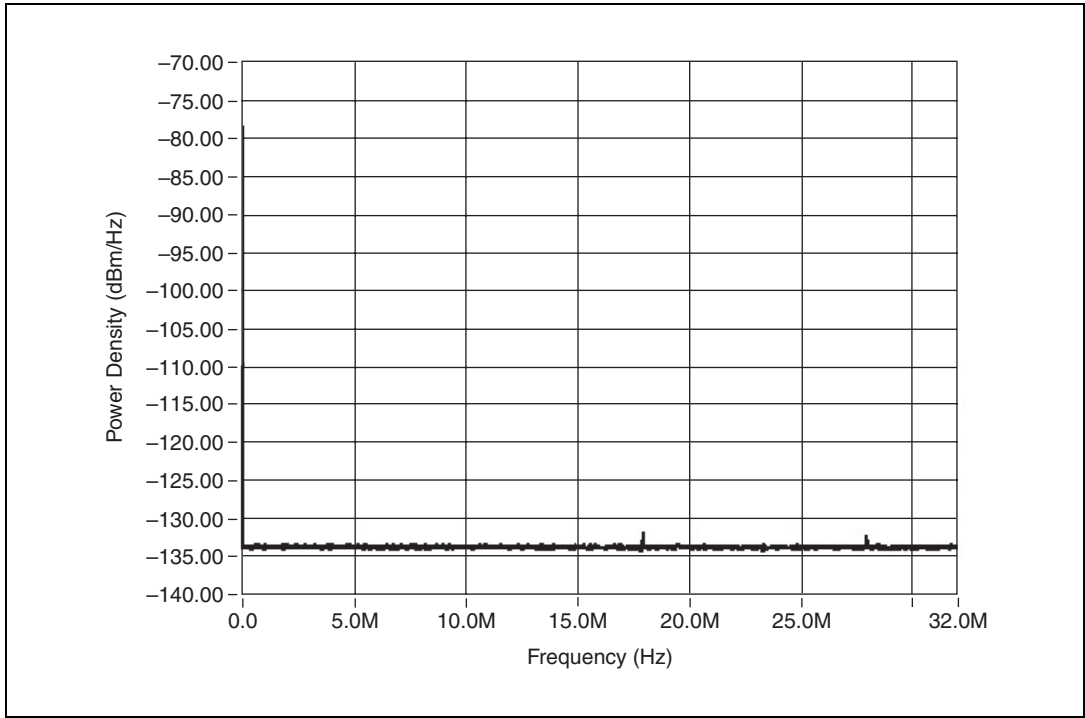


Figure 1. Noise Density (Dither Disabled, Input Terminated)

Average noise density < -133 dBm/Hz

Signal-to-noise ratio (9 dBm signal, full bandwidth),
excluding dither below 4 MHz > 67 dB

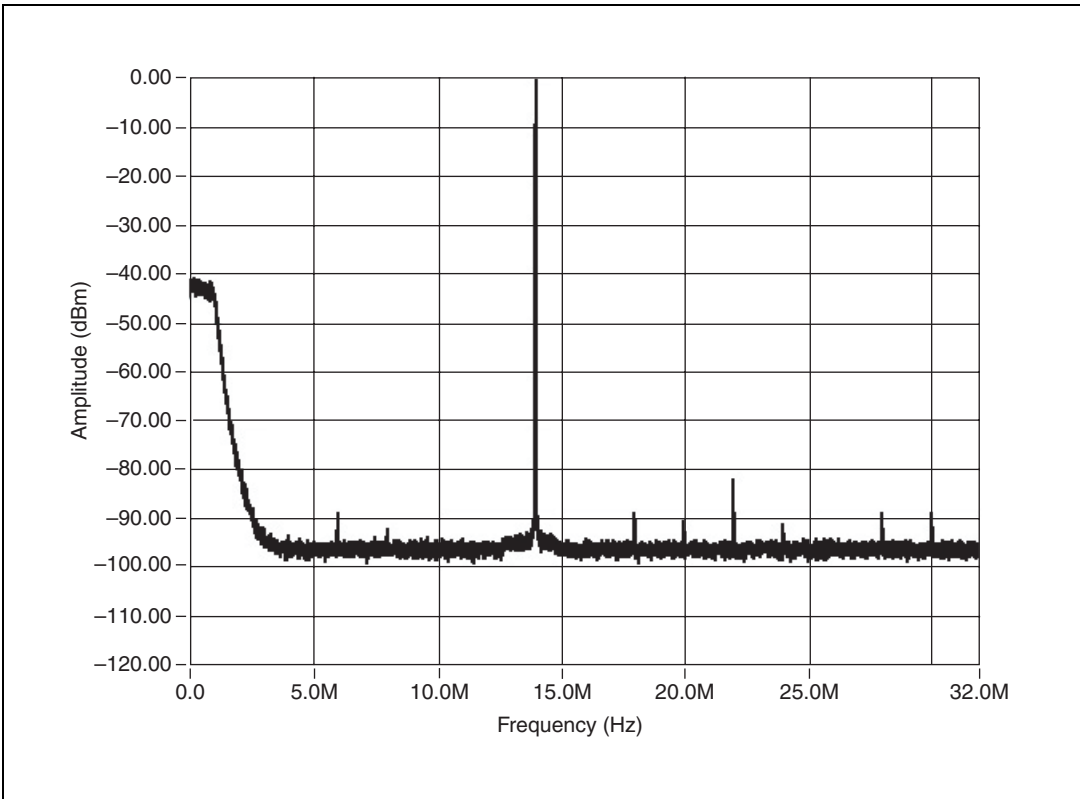


Figure 2. Harmonic Distortion (14 MHz at 0 dBm)

Harmonic distortion
 (single tone, 0 dBm signal; includes aliased harmonic distortion)

4–25 MHz, dither enabled < -80 dBm

0.1–32 MHz, dither disabled < -75 dBm

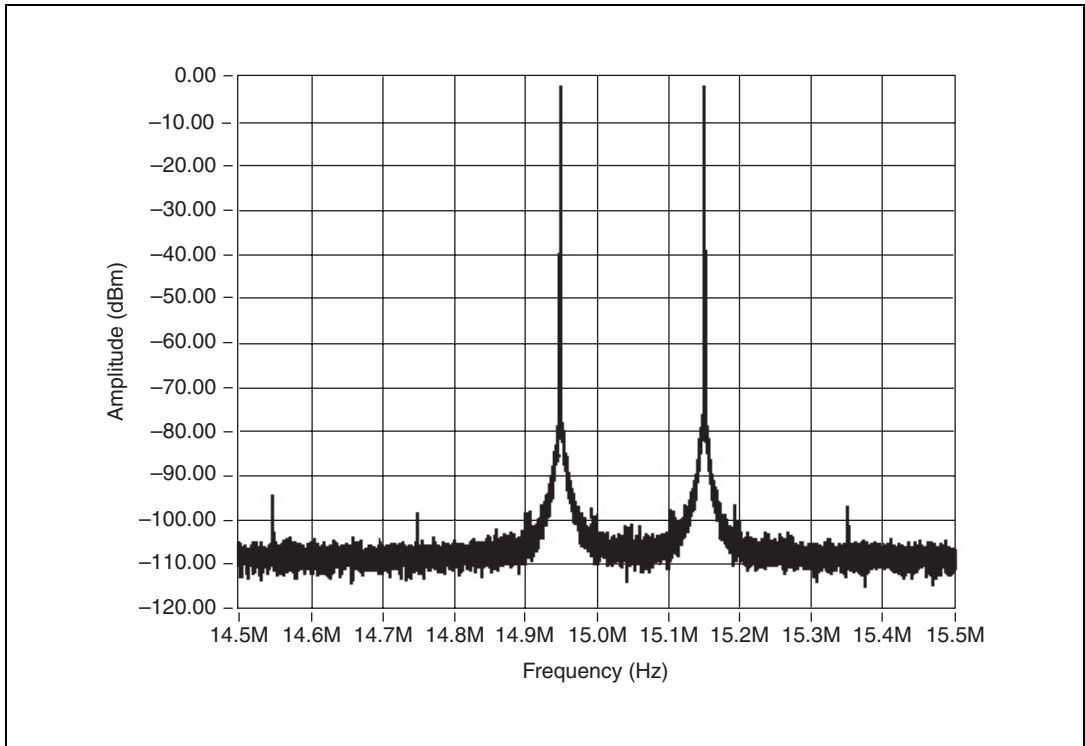


Figure 3. Intermodulation Distortion (15.15 MHz at -3 dBm)

Intermodulation distortion
 (2-tone, -3 dBm signals)

4–25 MHz, dither enabled < -85 dBm

0.1–32 MHz, dither disabled..... < -80 dBm

Residual responses (input terminated) ... < -85 dBm (< -95 dBfs)

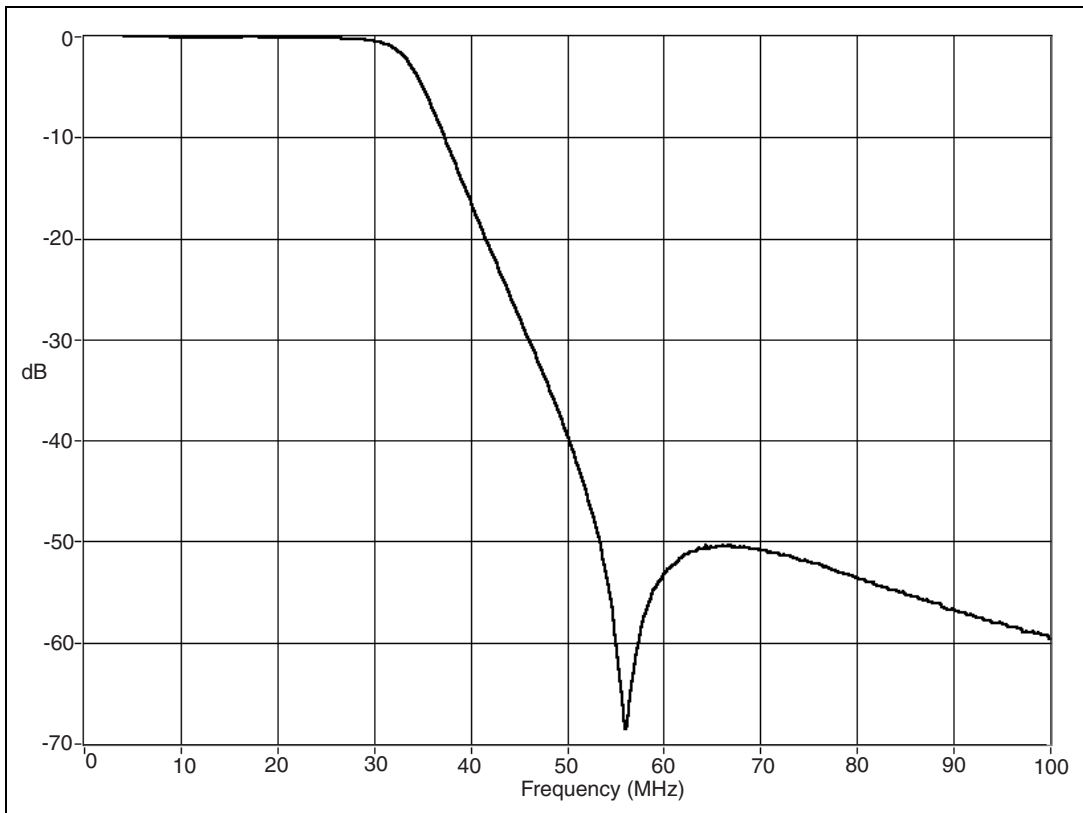


Figure 4. Frequency Response from 5–100 MHz

Frequency response (4–25 MHz)

Relative (to response at 15 MHz).....< ± 0.25 dB

Absolute.....< ± 0.6 dB

Absolute, using calibration table< ± 0.5 dB

Absolute (0.1–32 MHz)..... ± 2.5 dB

Relative

(0.1–32 MHz, to 15 MHz)..... ± 1.5 dB

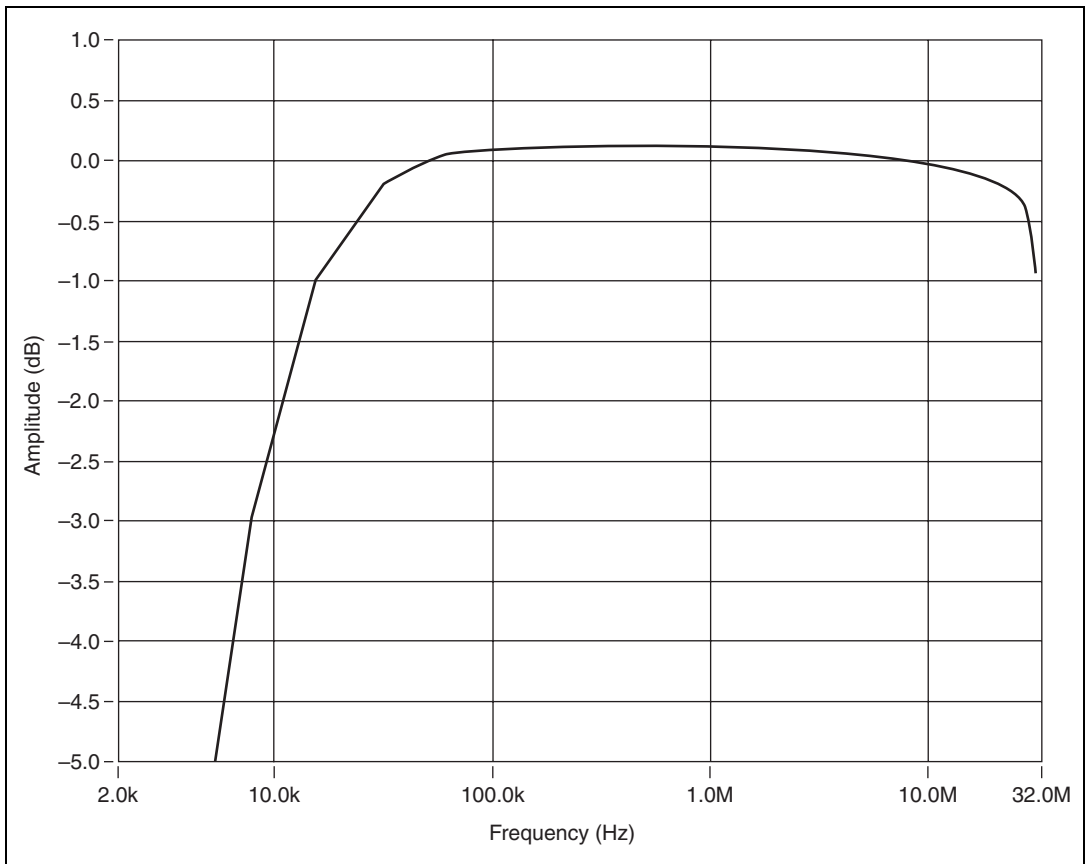


Figure 5. Amplitude versus Frequency

Phase

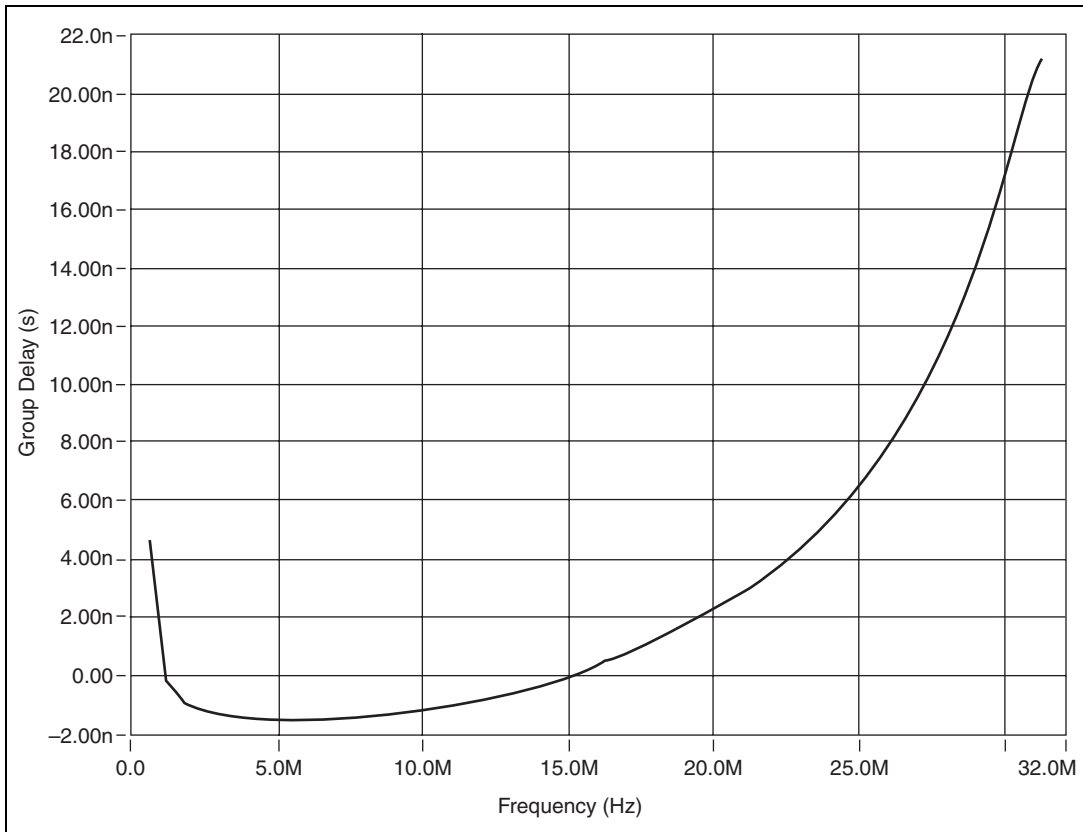


Figure 6. Group Delay versus Frequency

Group delay variation
 (5–25 MHz)9 ns_{pk-pk}

Group delay variation
 (0.5–30 MHz)26 ns_{pk-pk}

DDC

Decimation rate.....32–4,096

DDC tuning resolution.....0.014901 Hz

Triggering

ModesImmediate, software, digital

Sources.....PFI 1, PXI<0..7>, PXI STAR

Export.....	PFI 1, PXI<0..7>
Slope.....	Rising, falling
Pretrigger depth.....	Up to 16 or 32 MS
Posttrigger depth	Up to 16 or 32 MS
Minimum pulse width	100 ns

PFI 1 Input/Output

PFI 1 connector	SMB male
Trigger level.....	TTL
Max input voltage	5.5 V

External Frequency Reference Input

Connector (REF CLK IN).....	SMA female
Impedance	50 Ω nominal
Input amplitude	-5 to +15 dBm
Max non-operating input level.....	+16 dBm
Max DC input voltage.....	± 10 VDC
Frequency.....	10 MHz
Required frequency accuracy.....	± 40 ppm

Calibration

Calibration interval	1 year
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Environmental Specifications

Indoor use only	
Warm-up time	10 minutes
Operating environment	
Ambient temperature	0–50 °C
Humidity	10–90%, noncondensing

Storage environment	
Storage temperature.....	-20 to 70 °C
Humidity.....	5–95%, noncondensing
Maximum altitude.....	2,000 meters
Pollution degree	2

Power Requirements

+3.3 VDC (±5%)	< 600 mA, 400 mA typical
+5 VDC (±5%)	< 1.5 A, 1 A typical
+12 VDC (±5%)	< 450 mA, 330 mA typical
-12 VDC (±5%).....	< 35 mA, 24 mA typical

Maximum Working Voltage

Channel-to-earth2 V, Installation Category I

Safety

Meets the requirements of the following standards for safety for electrical equipment for measurement, control, and laboratory use:

EN 61010-1:1993/A2:1995, IEC 61010-1:1990/A2:1995,
 UL 3101-1:1993, UL 3111-1:1994, UL 3121:1998,
 CAN/CSA C22.2 no. 1010.1:1992/A2:1997 d.

Electromagnetic Compatibility

CE, C-Tick, and FCC Part 15 (Class A) compliant

Electrical emissionsEN 55011 Class A at 10 m FCC
 Part 15A above 1 GHz

Electrical immunityEvaluated to EN
 61326:1997/A1:1998, Table 1



Note For full EMC compliance, you must operate this device with shielded cabling. In addition, all covers and filler panels must be installed. See the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, click **Declaration of Conformity** at ni.com/hardref.nsf. This Web site lists the DoCs by product family. Select the appropriate product family, followed by your product, and a link to the DoC (in Adobe Acrobat format) appears. Click the Acrobat icon to download or read the DoC.

Dimensions

PXI-5620 (1 PXI slot)..... 10 by 16 by 2.0 cm
(3.9 by 6.3 by 0.8 in.)

Certifications and Compliances

CE Mark Compliance

Conductive Immunity

When tested as specified in EN 61000-4-6 at $3 V_{\text{rms}}$, the spurious response is within specifications except at the test frequency. A spurious signal of up to -45 dBm may appear at the test frequency.