NI PXI-5621 SPECIFICATIONS

High-Speed Digitizer

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

The NI PXI-5621 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/s to 64 MS/s

Onboard memory

- Not using DDC ..... 32 MS
- Using DDC (complex data) ..... 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 ..... ±3.0 V

Input impedance ..... 50 Ω nominal

Coupling ..... DC

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DC offset.....±1 mV (calibrated)

Analog bandwidth (–3 dB range) .....0 Hz to 36 MHz

Amplitude accuracy.....±0.5 dB

VSWR

0–25 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 MHz/n, where $1 < n < 2^{16}$

Accuracy.....<±25 ppm

Phase noise

Offset	Density
100 Hz	<–100 dBc/Hz
1 kHz	<–120 dBc/Hz
10 kHz	<–130 dBc/Hz
100 kHz	<–130 dBc/Hz

Residual FM .....<2 Hz_{pk-pk} in 10 ms

Amplitude

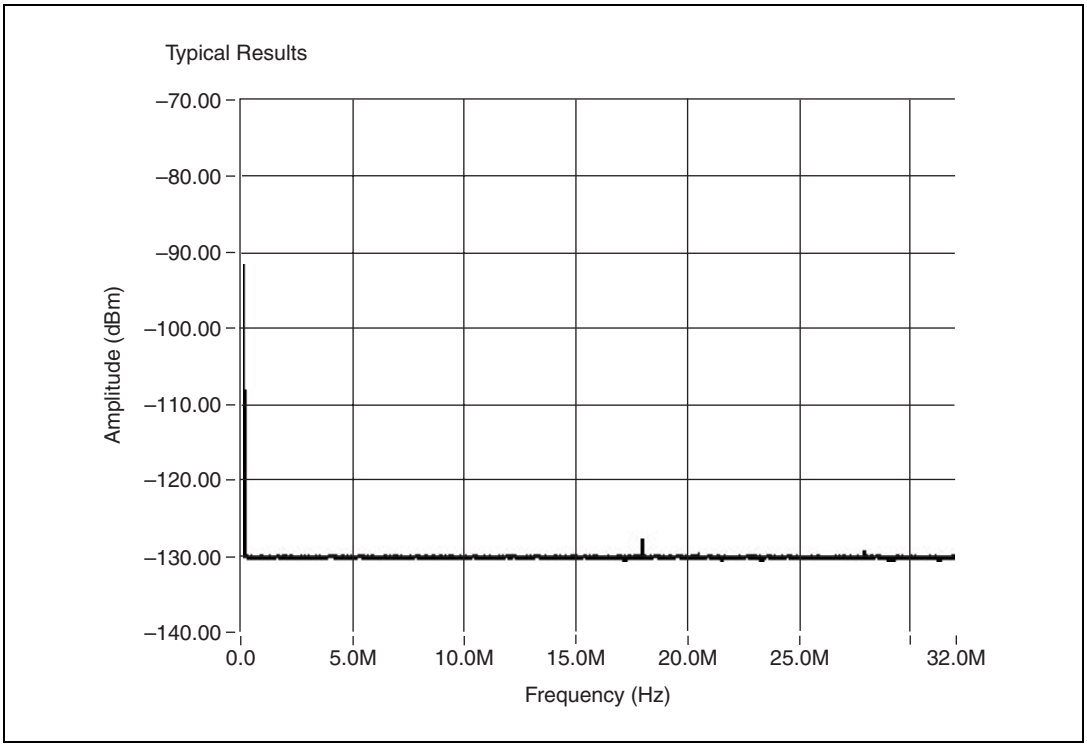

Figure 1. Noise Density (Dither Disabled, Input Terminated)

Average noise density
(dither off) ..... <–129 dBm/Hz

Signal-to-noise ratio

9 dBm signal, full bandwidth..... >62 dB

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

4–15 MHz, dither enabled ..... <–77 dBm

0–32 MHz, dither disabled..... <–71 dBm

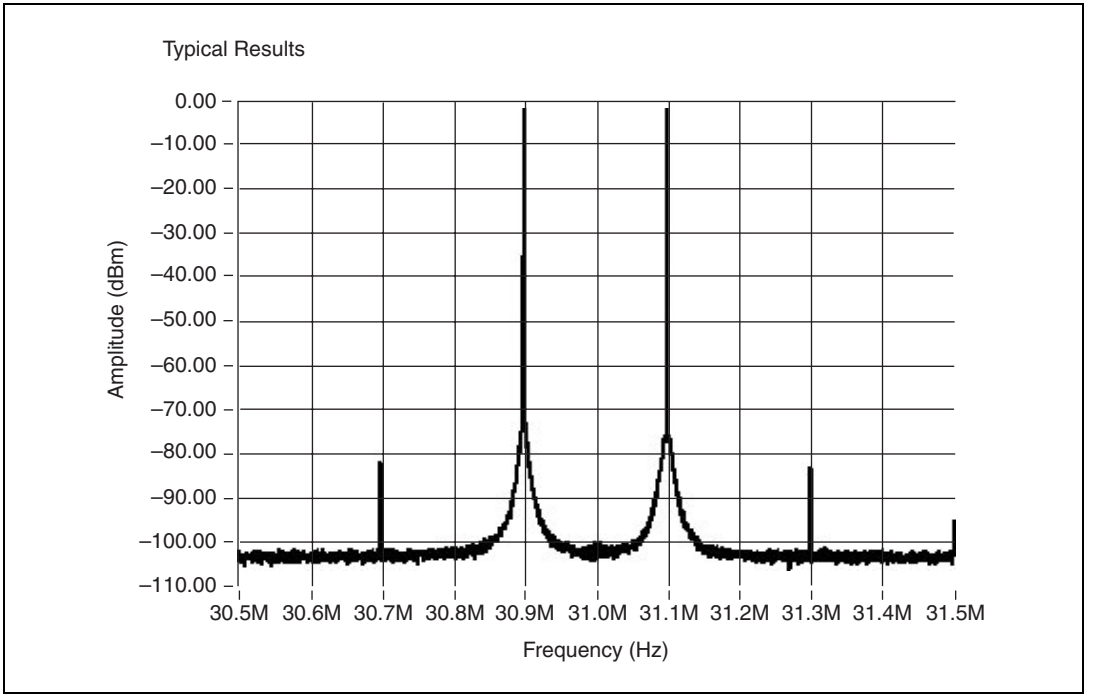

Figure 2. Intermodulation Distortion

Intermodulation distortion
(2-tone, 0 dBm signals, 200 kHz separation)

4–15 MHz, dither enabled .....<–86 dBm

0–32 MHz, dither disabled .....<–78 dBm

Residual responses (input terminated)....<–75 dBm

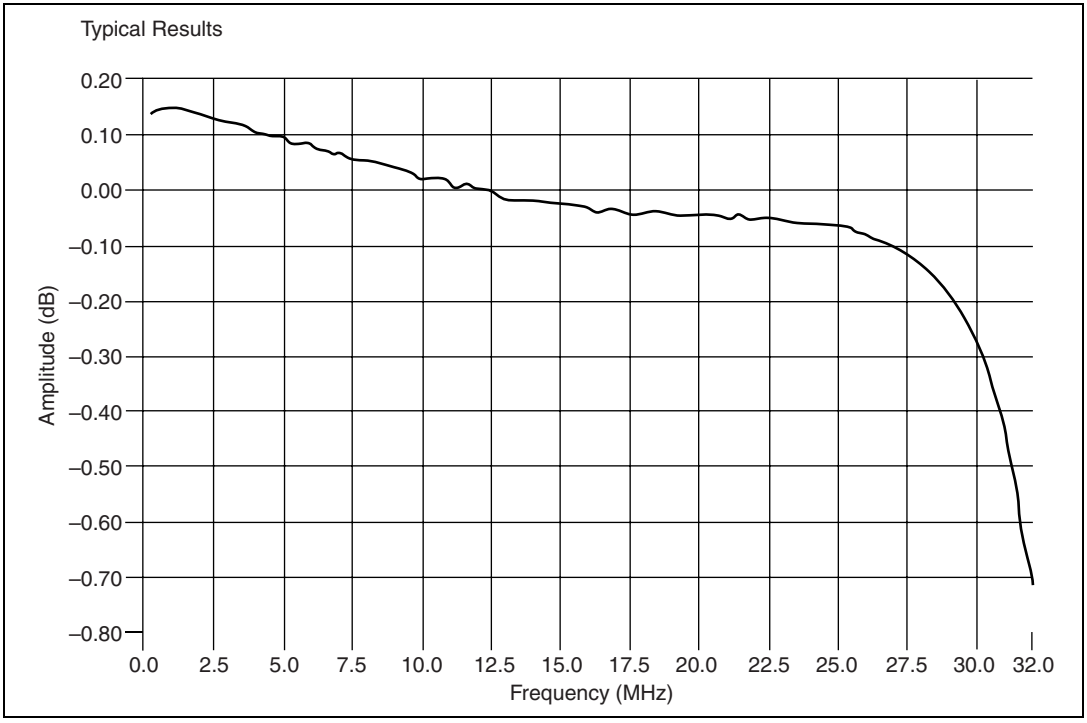

Figure 3. Frequency Response (0.1–32 MHz)

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

Phase

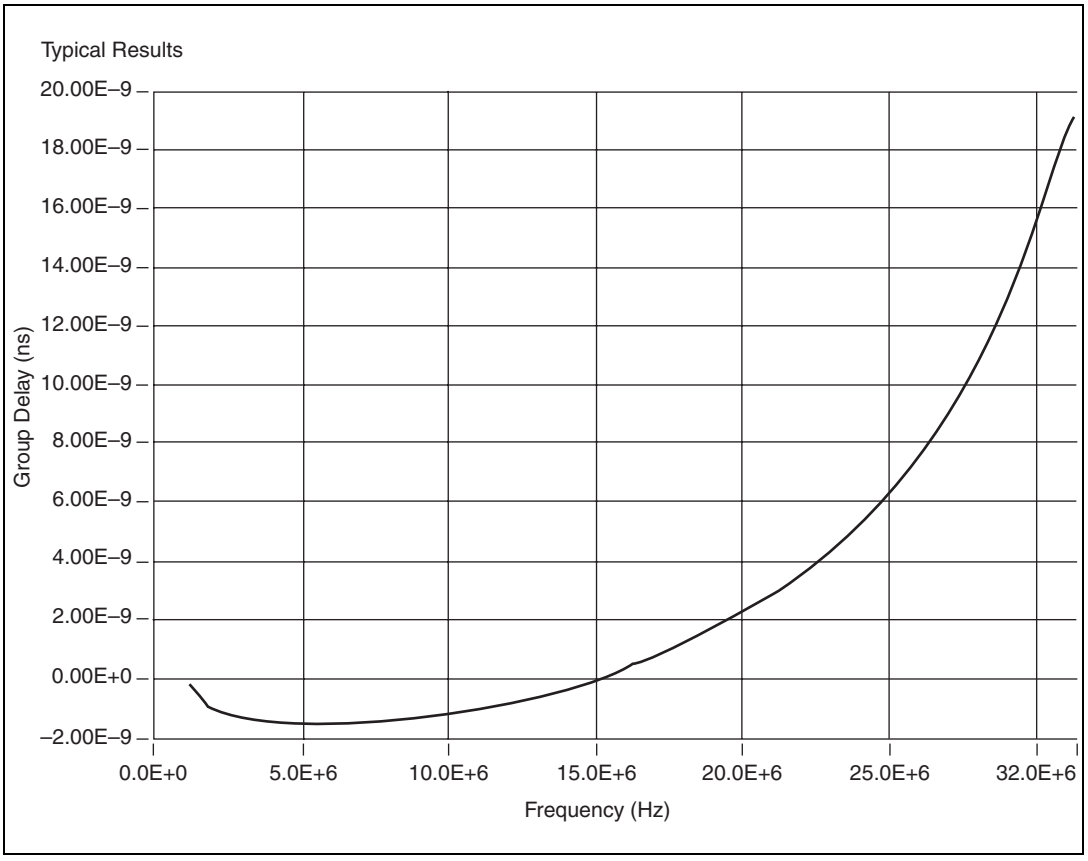

Figure 4. Group Delay versus Frequency

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

Modes	Immediate, software, digital
Sources	PFI 1, PXI<0..7>, PXI STAR
Export	PFI 1, PXI<0..7>
Slope	Rising, falling
Pretrigger depth	Up to 32 MS
Posttrigger depth	Up to 32 MS
Minimum pulse width	100 ns

External Trigger (PFI 1)

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	+20 dBm
Max DC input voltage	±3.5 VDC
Frequency range	10 MHz ±40 ppm
Crosstalk from reference input	<–85 dB

Calibration

Calibration interval	1 year

Environmental Specifications

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

Indoor use only

Power Requirements

+3.3 VDC (±5%) .....<650 mA

+5 VDC (±5%) .....<1.5 A

+12 VDC (±5%) .....<650 mA

–12 VDC (±5%).....<75 mA

Maximum Working Voltage

Channel-to-earth .....2.23 V operating,
3.0 V nonoperating;
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 emissions..... EN 55011 Class A at 10 m FCC Part 15A above 1 GHz

Electrical immunity..... Evaluated 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-5621 (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_{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.