



# EXA



## EXA X-Series Signal Analyzer N9010A

10 Hz to 3.6, 7.0, 13.6, 26.5, 32, or 44 GHz

Data Sheet

This data sheet is a summary of the specifications and conditions for EXA and Express EXA signal analyzers. For the complete specifications guide, visit: [www.agilent.com/find/exa\\_specifications](http://www.agilent.com/find/exa_specifications)



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## Balance the Challenges

Whether you're focused on time-to-market, time-to-volume, or cost of test, your choice of economyclass signal analyzer should help you save both time and money. That's the idea that drives the Agilent EXA signal analyzer—and it's the fastest way to maximize throughput on the production line. From measurement speed to code compatibility, it makes every millisecond count and helps reduce your overall cost of test.

# Definitions and Conditions

Specifications describe the performance of parameters covered by the product warranty and apply to the full temperature of 0 to 55 °C<sup>1</sup>, unless otherwise noted.

95th percentile values indicate the breadth of the population (approx. 2  $\sigma$ ) of performance tolerances expected to be met in 95 percent of the cases with a 95 percent confidence, for any ambient temperature in the range of 20 to 30 °C. In addition to the statistical observations of a sample of instruments, these values include the effects of the uncertainties of external calibration references. These values are not warranted. These values are updated occasionally if a significant change in the statistically observed behavior of production instruments is observed.

Typical describes additional product performance information that is not covered by the product warranty. It is performance beyond specifications that 80 percent of the units exhibit with a 95 percent confidence level over the temperature range 20 to 30 °C. Typical performance does not include measurement uncertainty.

Nominal values indicate expected performance, or describe product performance that is useful in the application of the product, but are not covered by the product warranty.

The analyzer will meet its specifications when:

- It is within its calibration cycle
- Under auto couple control, except when Auto Sweep Time Rules = Accy
- Signal frequencies < 10 MHz, with DC coupling applied
- The analyzer has been stored at an ambient temperature within the allowed operating range for at least two hours before being turned on; if it had previously been stored at a temperature range inside the allowed storage range, but outside the allowed operating range
- The analyzer has been turned on at least 30 minutes with Auto Align set to normal, or, if Auto Align is set to off or partial, alignments must have been run recently enough to prevent an Alert message; if the Alert condition is changed from Time and Temperature to one of the disabled duration choices, the analyzer may fail to meet specifications without informing the user

For the complete specifications guide, visit:

[www.agilent.com/find/exa\\_specifications](http://www.agilent.com/find/exa_specifications)

1. For earlier instruments (Serial number prefix < MY/SG/US5052), the full temperature ranges from 5 to 50 °C.

## Get More Information

This EXA signal analyzer data sheet is a summary of the specifications and conditions for N9010A EXA and N9010AEP Express EXA signal analyzers, which are available in the EXA Signal Analyzer Specification Guide (N9010-90025).

For ordering information, refer to the EXA Signal Analyzer Configuration Guide (5989-6531EN).

# Frequency and Time Specifications

| Frequency range | DC coupled        | AC coupled         |
|-----------------|-------------------|--------------------|
| Option 503      | 10 Hz to 3.6 GHz  | 10 MHz to 3.6 GHz  |
| Option 507      | 10 Hz to 7 GHz    | 10 MHz to 7 GHz    |
| Option 513      | 10 Hz to 13.6 GHz | 10 MHz to 13.6 GHz |
| Option 526      | 10 Hz to 26.5 GHz | 10 MHz to 26.5 GHz |
| Option 532      | 10 Hz to 32 GHz   | NA                 |
| Option 544      | 10 Hz to 44 GHz   | NA                 |

| Band | LO multiple (N) |                  |
|------|-----------------|------------------|
| 0    | 1               | 10 Hz to 3.6 GHz |
| 1    | 1               | 3.5 to 7.0 GHz   |
| 1    | 1               | 3.5 to 8.4 GHz   |
| 2    | 2               | 8.4 to 13.6 GHz  |
| 3    | 2               | 13.5 to 17.1 GHz |
| 4    | 4               | 17 to 26.5 GHz   |
| 5    | 4               | 26.4 to 34.5 GHz |
| 6    | 8               | 34.4 to 44 GHz   |

| Frequency reference  |  |                               |
|--|--|-------------------------------|
| Accuracy   | $\pm$ [(time since last adjustment x aging rate) + temperature stability + calibration accuracy] |                               |
| Aging rate   | Option PFR   | Standard                      |
|  | $\pm 1 \times 10^{-7}$ / year  | $\pm 1 \times 10^{-6}$ / year |
| Temperature stability<br>20 to 30 °C<br>Full temperature range | Option PFR   | Standard                      |
|  | $\pm 1.5 \times 10^{-8}$   | $\pm 2 \times 10^{-6}$        |
| Achievable initial calibration accuracy                        | Option PFR   | Standard                      |
|  | $\pm 4 \times 10^{-8}$   | $\pm 1.4 \times 10^{-6}$      |
| Example frequency reference accuracy<br>(with Option PFR)      | $= \pm (1 \times 10^{-7} + 5 \times 10^{-8} + 4 \times 10^{-8})$                                 |                               |
|  | 1 year after last adjustment<br>$= \pm 1.9 \times 10^{-7}$                                       |                               |
| Residual FM<br>Option PFR<br>Standard                          | $\leq (0.25 \text{ Hz} \times N)$ p-p in 20 ms nominal   |                               |
|  | $\leq (10 \text{ Hz} \times N)$ p-p in 20 ms nominal<br>See band table above for N (LO Multiple) |                               |

| Frequency readout accuracy (start, stop, center, marker) |   |
|--|---|
|  | $\pm (\text{marker frequency} \times \text{frequency reference accuracy} + 0.25 \% \times \text{span} + 5 \% \times \text{RBW} + 2 \text{ Hz} + 0.5 \times \text{horizontal resolution}^1)$ |

| Marker frequency counter |   |
|--------------------------|---|
| Accuracy                 | $\pm (\text{marker frequency} \times \text{frequency reference accuracy} + 0.100 \text{ Hz})$ |
| Delta counter accuracy   | $\pm (\text{delta frequency} \times \text{frequency reference accuracy} + 0.141 \text{ Hz})$  |
| Counter resolution       | 0.001 Hz  |

| Frequency span (FFT and swept mode) |  |
|-------------------------------------|--|
| Range                               | 0 Hz (zero span), 10 Hz to maximum frequency of instrument                 |
| Resolution                          | 2 Hz   |
| Accuracy                            | Swept<br>$\pm (0.25 \% \times \text{span} + \text{horizontal resolution})$ |
|                                     | FFT<br>$\pm (0.10 \% \times \text{span} + \text{horizontal resolution})$   |

1. Horizontal resolution is span/(sweep points – 1).

| Sweep time and triggering                     |  |  |
|---|--|--|
| Range   | Span = 0 Hz  | 1 $\mu$ s to 6000 s                          |
|   | Span $\geq$ 10 Hz  | 1 ms to 4000 s                               |
| Accuracy                                      | Span $\geq$ 10 Hz, swept   | $\pm$ 0.01% nominal                          |
|   | Span $\geq$ 10 Hz, FFT   | $\pm$ 40% nominal                            |
|   | Span = 0 Hz  | $\pm$ 0.01% nominal                          |
| Trigger                                       | Free run, line, video, external 1, external 2, RF burst, periodic timer    |  |
| Trigger Delay                                 | Span = 0 Hz or FFT   | -150 to +500 ms                              |
|   | Span $\geq$ 10 Hz, swept   | 0 to 500 ms                                  |
|   | Resolution   | 0.1 $\mu$ s                                  |
| Time gating                                   |  |  |
| Gate methods                                  | Gated LO; gated video; gated FFT   |  |
| Gate length range (except method = FFT)       | 100.0 ns to 5.0 s  |  |
| Gate delay range                              | 0 to 100.0 s   |  |
| Gate delay jitter                             | 33.3 ns p-p nominal  |  |
| Sweep (trace) point range                     |  |  |
| All spans                                     | 1 to 40001   |  |
| Resolution bandwidth (RBW)                    |  |  |
| Range (-3.01 dB bandwidth)                    | 1 Hz to 3 MHz (10 % steps), 4, 5, 6, 8 MHz                                 |  |
| Bandwidth accuracy (power)                    | 1 Hz to 750 kHz  | $\pm$ 1.0 % ( $\pm$ 0.044 dB)                |
|   | 820 kHz to 1.2 MHz (< 3.6 GHz CF)  | $\pm$ 2.0 % ( $\pm$ 0.088 dB)                |
|   | 1.3 to 2 MHz (< 3.6 GHz CF)  | $\pm$ 0.07 dB nominal                        |
|   | 2.2 to 3 MHz (< 3.6 GHz CF)  | $\pm$ 0.15 dB nominal                        |
|   | 4 to 8 MHz (< 3.6 GHz CF)  | $\pm$ 0.25 dB nominal                        |
| Bandwidth accuracy (-3.01 dB)<br>RBW range    | 1 Hz to 1.3 MHz  | $\pm$ 2 % nominal                            |
| Selectivity (-60 dB/-3 dB)                    | 4.1:1 nominal  |  |
| EMI bandwidth (CISPR compliant)               | 200 Hz, 9 kHz, 120 kHz, 1 MHz  | (Option EMC or N6141A <sup>1</sup> required) |
| EMI bandwidth (MIL STD 461E compliant)        | 10 Hz, 100 Hz, 1 kHz, 10 kHz,<br>100 kHz, 1 MHz                            | (Option EMC or N6141A <sup>1</sup> required) |
| Analysis bandwidth <sup>1</sup>               |  |  |
| Maximum bandwidth                             | Option B40   | 40 MHz                                       |
|   | Option B25 (standard)  | 25 MHz                                       |
|   | Standard   | 10 MHz                                       |
| Video bandwidth (VBW)                         |  |  |
| Range   | 1 Hz to 3 MHz (10 % steps), 4, 5, 6, 8 MHz, and wide open (labeled 50 MHz) |  |
| Accuracy                                      | $\pm$ 6 % nominal  |  |
| Measurement speed <sup>3</sup>                |  |  |
|   | Standard nominal   | Option PC4 nominal                           |
| Local measurement and display update rate     | 11 ms (90/s)   | 4 ms (250/s)                                 |
| Remote measurement and LAN transfer rate      | 6 ms (167/s)   | 5 ms (200/s)                                 |
| Marker peak search                            | 5 ms   | 1.5 ms                                       |
| Center frequency tune and transfer (RF)       | 22 ms  | 20 ms  |
| Center frequency tune and transfer ( $\mu$ W) | 49 ms  | 47 ms  |
| Measurement/mode switching                    | 75 ms  | 39 ms  |

1. Analysis bandwidth is the instantaneous bandwidth available around a center frequency over which the input signal can be digitized for further analysis or processing in the time, frequency, or modulation domain.

2. Sweep points = 101.

# Amplitude Accuracy and Range Specifications

| Amplitude range                                     |  |
|---|--|
| <b>Measurement range</b>                            | <b>Displayed average noise level (DANL) to +23 dBm</b>   |
| Input attenuator range<br>(10 Hz to 26.5 GHz)       |  |
| Standard  | 0 to 60 dB in 10 dB steps  |
| Option FSA  | 0 to 60 dB in 2 dB steps   |
| Electronic attenuator (Option EA3)                  |  |
| Frequency range                                     | 10 Hz to 3.6 GHz   |
| Attenuation range                                   |  |
| Electronic attenuator range                         | 0 to 24 dB, 1 dB steps   |
| Full attenuation range<br>(mechanical + electronic) | 0 to 84 dB, 1 dB steps   |
| Maximum safe input level                            |  |
| Average total power<br>(with and without preamp)    | +30 dBm (1 W)  |
| Peak pulse power                                    | < 10 $\mu$ s pulse width, < 1 % duty cycle +50 dBm (100 W) and input attenuation $\geq$ 30 dB    |
| DC volts  |  |
| DC coupled  | $\pm$ 0.2 Vdc  |
| AC coupled  | $\pm$ 100 Vdc  |
| Display range                                       |  |
| Log scale   | 0.1 to 1 dB/division in 0.1 dB steps<br>1 to 20 dB/division in 1 dB steps (10 display divisions) |
| Linear scale  | 10 divisions   |
| Scale units   | dBm, dBmV, dB $\mu$ V, dBmA, dB $\mu$ A, V, W, A   |

| Frequency response   | Specification                  | 95th percentile ( $\approx 2\sigma$ ) |                       |
|--|--------------------------------|---------------------------------------|-----------------------|
| <b>(10 dB input attenuation, 20 to 30 °C, preselector centering applied, <math>\sigma</math> = nominal standard deviation)</b> |                                |                                       |                       |
| RF/MW<br>(Option 503, 507, 513, 526)   | 9 kHz to 10 MHz                | $\pm 0.8$ dB                          | $\pm 0.4$ dB          |
|  | 10 MHz <sup>1</sup> to 3.6 GHz | $\pm 0.6$ dB                          | $\pm 0.21$ dB         |
|  | 3.5 to 7.0 GHz                 | $\pm 2.0$ dB                          | $\pm 0.69$ dB         |
|  | 6.9 to 13.6 GHz                | $\pm 2.5$ dB                          |                       |
|  | 13.5 to 22.0 GHz               | $\pm 3.0$ dB                          |                       |
|  | 22.0 to 26.5 GHz               | $\pm 3.2$ dB                          |                       |
| Millimeter-wave (Option 532, 544)  | 9 kHz to 10 MHz                | $\pm 0.6$ dB                          | $\pm 0.28$ dB         |
|  | 10 to 50 MHz                   | $\pm 0.45$ dB                         | $\pm 0.21$ dB         |
|  | 50 MHz to 3.6 GHz              | $\pm 0.45$ dB                         | $\pm 0.20$ dB         |
|  | 3.5 to 5.2 GHz                 | $\pm 1.7$ dB                          | $\pm 0.91$ dB         |
|  | 5.2 to 8.4 GHz                 | $\pm 1.5$ dB                          | $\pm 0.61$ dB         |
|  | 8.3 to 13.6 GHz                | $\pm 2.0$ dB                          | $\pm 0.61$ dB         |
|  | 13.5 to 17.1 GHz               | $\pm 2.0$ dB                          | $\pm 0.67$ dB         |
|  | 17.0 to 22.0 GHz               | $\pm 2.0$ dB                          | $\pm 0.78$ dB         |
|  | 22.0 to 26.5 GHz               | $\pm 2.5$ dB                          | $\pm 0.72$ dB         |
|  | 26.4 to 34.5 GHz               | $\pm 2.5$ dB                          | $\pm 1.11$ dB         |
|  | 34.4 to 44 GHz                 | $\pm 3.2$ dB                          | $\pm 1.42$ dB         |
| <b>Preamp on (P03, P07)</b>  |                                |                                       |                       |
| RF/MW<br>(Option 503, 507, 513, 526)   | 100 kHz to 3.6 GHz             |                                       | $\pm 0.28$ dB nominal |
|  | 3.6 to 7.0 GHz                 |                                       | $\pm 0.67$ dB nominal |
| <b>Preamp on (P03, P07, P32, P44)</b>  |                                |                                       |                       |
| Millimeter-wave (Option 532, 544)  | 100 kHz to 3.6 GHz             |                                       | $\pm 0.28$ dB nominal |
|  | 3.5 to 8.4 GHz                 |                                       | $\pm 0.67$ dB nominal |
|  | 8.4 to 26.5 GHz                |                                       | $\pm 0.50$ dB nominal |
|  | 26.4 to 44 GHz                 |                                       | $\pm 0.80$ dB nominal |

1. DC coupling required to meet specifications below 50 MHz. With AC coupling, specifications apply at frequencies of 50 MHz and higher. Statistical observations at 10 MHz with AC coupling show that most instruments meet the DC-coupled specifications, however, a small percentage of instruments are expected to have errors exceeding 0.5 dB at 10 MHz at the temperature extreme. The effect at 20 to 50 MHz is negligible but not warranted.

| Input attenuation switching uncertainty   |                                   | Specifications                                 | Additional information |
|---|-----------------------------------|--|------------------------|
| Attenuation > 2 dB, preamp off  | 50 MHz (reference frequency)      | ± 0.20 dB                                      | ± 0.08 dB typical      |
| Relative to 10 dB (reference setting)   | 9 kHz to 3.6 GHz                  |  | ± 0.3 dB nominal       |
|   | 3.5 to 7.0 GHz                    |  | ± 0.5 dB nominal       |
|   | 6.9 to 13.6 GHz                   |  | ± 0.7 dB nominal       |
|   | 13.5 to 26.5 GHz                  |  | ± 0.7 dB nominal       |
|   | > 26.5 GHz                        |  | ± 1.0 dB nominal       |
| Total absolute amplitude accuracy   |                                   |  |                        |
| <b>(10 dB attenuation, 20 to 30 °C, 1 Hz ≤ RBW ≤ 1 MHz, input signal –10 to –50 dBm, all settings auto-coupled except Auto Swp Time = Accy, any reference level, any scale, σ = nominal standard deviation)</b> |                                   |  |                        |
|   | At 50 MHz                         | ± 0.40 dB                                      |                        |
|   | At all frequencies                | ± (0.40 dB + frequency response)               |                        |
|   | 9 kHz to 3.6 GHz                  | ± 0.27 dB (95th percentile ≈ 2σ)               |                        |
| Preamp on   | 100 kHz to 3.6 GHz                | ± (0.39 dB + frequency response)               |                        |
| Input voltage standing wave ratio (VSWR) (≥ 10 dB input attenuation)  |                                   |  |                        |
|   | <b>Options 503, 507, 513, 526</b> | <b>Options 532, 544</b>                        |                        |
| 10 MHz to 3.6 GHz   | < 1.2:1 nominal                   | 1.2:1 nominal                                  |                        |
| 3.6 to 26.5 GHz   | < 1.8:1 nominal                   | 1.5:1 nominal                                  |                        |
| 26.5 to 44 GHz  | N/A                               | < 1.8:1 nominal                                |                        |
| Resolution bandwidth switching uncertainty (referenced to 30 kHz RBW)   |                                   |  |                        |
| 1 Hz to 3 MHz RBW   | ± 0.10 dB                         |  |                        |
| 4, 5, 6, 8 MHz RBW  | ± 1.0 dB                          |  |                        |
| Reference level   |                                   |  |                        |
| Range   |                                   |  |                        |
| Log scale   | –170 to +23 dBm in 0.01 dB steps  |  |                        |
| Linear scale  | Same as Log (707 pV to 3.16 V)    |  |                        |
| Accuracy  | 0 dB                              |  |                        |
| Display scale switching uncertainty   |                                   |  |                        |
| Switching between linear and log  | 0 dB                              |  |                        |
| Log scale/div switching   | 0 dB                              |  |                        |
| Display scale fidelity  |                                   |  |                        |
| Between –10 dBm and –80 dBm input mixer level   | ± 0.15 dB total                   |  |                        |
| Trace detectors   |                                   |  |                        |
| <b>Normal, peak, sample, negative peak, log power average, RMS average, and voltage average</b>   |                                   |  |                        |
| Preamplifier (Option P03, P07, P32, P44)  |                                   |  |                        |
| Frequency range   | Option P03                        | 100 kHz to 3.6 GHz                             |                        |
|   | Option P07                        | 100 kHz to 7 GHz                               |                        |
|   | Option P32                        | 100 kHz to 32 GHz                              |                        |
|   | Option P44                        | 100 kHz to 44 GHz                              |                        |
| Gain  | 100 kHz to 3.6 GHz                | +20 dB nominal                                 |                        |
|   | 3.6 to 7.0 GHz                    | +35 dB nominal                                 |                        |
|   | > 7 GHz                           | +40 dB nominal                                 |                        |
| Noise figure  | 100 kHz to 3.6 GHz                | 8 to 12 dB nominal (proportional to frequency) |                        |
|   | 3.6 to 8.4 GHz                    | 9 dB nominal                                   |                        |
|   | 8.4 to 13.6 GHz                   | 10 dB nominal                                  |                        |
|   | > 13.6 GHz                        | DANL + 176.24 dB nominal                       |                        |



# Dynamic Range Specifications

| 1 dB gain compression (two-tone)   |                                 |                                    |                |
|--|---------------------------------|------------------------------------|----------------|
|  |                                 | <b>Total power at mixer input</b>  |                |
| RF/MW<br>(Option 503, 507, 513, 526)   | 20 MHz to 26.5 GHz              | +9 dBm nominal                     |                |
|  |                                 | <b>Total power at preamp input</b> |                |
| Preamp on RF/MW<br>(Option 503, 507, 513, 526)   | 10 MHz to 3.6 GHz               | -10 dBm nominal                    |                |
|  | 3.6 to 7.0 GHz                  | -26 dBm nominal                    |                |
|  |                                 | <b>Total power at mixer input</b>  |                |
| Millimeter-wave<br>(Option 532, 544)   | 20 MHz to 26.5 GHz              | +6 dBm nominal                     |                |
|  | 26.5 to 44 GHz                  | 0 dBm nominal                      |                |
|  |                                 | <b>Total power at preamp input</b> |                |
| Preamp on millimeter-wave<br>(Option 532, 544)   | 10 MHz to 3.6 GHz               | -14 dBm nominal                    |                |
|  | 3.6 to 26.5 GHz                 |                                    |                |
|  | Tone spacing: 100 kHz to 20 MHz | -28 dBm nominal                    |                |
|  | Tone spacing: > 70 MHz          | -20 dBm nominal                    |                |
|  | > 26.5 GHz                      | -30 dBm nominal                    |                |
| Displayed average noise level (DANL)   |                                 |                                    |                |
| <b>(Input terminated, sample or average detector, averaging type = Log, 0 dB input attenuation, IF Gain = High, 20 to 30 °C)</b> |                                 |                                    |                |
|  |                                 | <b>Specification</b>               | <b>Typical</b> |
| RF/MW<br>(Option 503, 507, 513, 526)   | 1 to 10 MHz                     | -147 dBm                           | -149 dBm       |
|  | 10 MHz to 2.1 GHz               | -148 dBm                           | -150 dBm       |
|  | 2.1 to 3.6 GHz                  | -147 dBm                           | -149 dBm       |
|  | 3.6 to 7.0 GHz                  | -147 dBm                           | -149 dBm       |
|  | 7.0 to 13.6 GHz                 | -143 dBm                           | -147 dBm       |
|  | 13.6 to 17.1 GHz                | -137 dBm                           | -142 dBm       |
|  | 17.1 to 22 GHz                  | -137 dBm                           | -142 dBm       |
|  | 22 to 26.5 GHz                  | -134 dBm                           | -140 dBm       |
| Preamp on, RF/MW<br>(Option 503, 507, 513, 526)  | 10 MHz to 2.1 GHz               | -161 dBm                           | -163 dBm       |
|  | 2.1 to 3.6 GHz                  | -160 dBm                           | -162 dBm       |
|  | 3.6 to 7.0 GHz                  | -160 dBm                           | -162 dBm       |
| Millimeter-wave<br>(Option 532, 544)   | 9 kHz to 1 MHz                  | -                                  | -130 dBm       |
|  | 1 MHz to 1.2 GHz                | -152 dBm                           | -155 dBm       |
|  | 1.2 to 2.1 GHz                  | -151 dBm                           | -154 dBm       |
|  | 2.1 to 3.6 GHz                  | -149 dBm                           | -152 dBm       |
|  | 3.5 to 4.2 GHz                  | -144 dBm                           | -147 dBm       |
|  | 4.2 to 8.4 GHz                  | -145 dBm                           | -150 dBm       |
|  | 8.3 to 13.6 GHz                 | -147 dBm                           | -150 dBm       |
|  | 13.5 to 20 GHz                  | -145 dBm                           | -148 dBm       |
|  | 20 to 26.5 GHz                  | -142 dBm                           | -145 dBm       |
|  | 26.4 to 34 GHz                  | -140 dBm                           | -144 dBm       |
|  | 34.4 to 44 GHz                  | -135 dBm                           | -140 dBm       |

1. *N* is the LO multiplication factor.

## Displayed average noise level (DANL) (continued)

|  |                  |          |          |
|--|------------------|----------|----------|
| Preamp on, millimeter-wave (Option 532, 544) | 100 kHz to 1 MHz | -145 dBm | -148 dBm |
|  | 1 MHz to 1.2 GHz | -164 dBm | -165 dBm |
|  | 1.2 to 2.1 GHz   | -163 dBm | -164 dBm |
|  | 2.1 to 3.6 GHz   | -162 dBm | -163 dBm |
|  | 3.5 to 7 GHz     | -160 dBm | -162 dBm |
|  | 7 to 20 GHz      | -160 dBm | -162 dBm |
|  | 20 to 26.5 GHz   | -158 dBm | -160 dBm |
|  | 26.5 to 32 GHz   | -156 dBm | -159 dBm |
|  | 32 to 34 GHz     | -156 dBm | -159 dBm |
|  | 33.9 to 40 GHz   | -153 dBm | -155 dBm |
| 40 to 44 GHz                                 | -149 dBm         | -153 dBm |          |

## Spurious responses

|  |                                       |                  |
|--|---------------------------------------|------------------|
| Residual responses (input terminated and 0 dB attenuation) | 200 kHz to 8.4 GHz (swept)            | -100 dBm         |
|  | Zero span or FFT or other frequencies | -100 dBm nominal |

|  | Tuned frequency (f) | Mixer level | Response                   |
|--|---------------------|-------------|----------------------------|
| Image responses (Excitation freq. = f + 645 MHz) | 10 MHz to 3.6 GHz   | -10 dBm     | -80 dBc (-107 dBc typical) |
|  | 3.6 to 13.6 GHz     | -10 dBm     | -75 dBc (-87 dBc typical)  |
|  | 13.6 to 17.1 GHz    | -10 dBm     | -71 dBc (-85 dBc typical)  |
|  | 17.1 to 22 GHz      | -10 dBm     | -68 dBc (-82 dBc typical)  |
|  | 22 to 26.5 GHz      | -10 dBm     | -66 dBc (-78 dBc typical)  |
|  | 26.5 to 34.5 GHz    | -30 dBm     | -70 dBc (-94 dBc typical)  |
|  | 34.5 to 44 GHz      | -30 dBm     | -60 dBc (-79 dBc typical)  |

|   |                   |   |
|---|-------------------|---|
| LO related spurious (f > 600 MHz from carrier, 10 MHz to 3.6 GHz) | 10 MHz to 3.6 GHz | -90 dBc + 20 log N <sup>1</sup> typical |
|---|-------------------|---|

| Other spurious response                   | Mixer level | Response  |
|---|-------------|---|
| Carrier frequency ≤ 26.5 GHz              |             |   |
| First RF order (f ≥ 10 MHz from carrier)  | -10 dBm     | -80 dBc + 20log(N <sup>1</sup> ) Including IF feedthrough, LO harmonic mixing responses |
| Higher RF order (f ≥ 10 MHz from carrier) | -40 dBm     | -80 dBc + 20log(N <sup>1</sup> ) Including higher order mixer responses                 |
| Carrier frequency > 26.5 GHz              |             |   |
| First RF order (f ≥ 10 MHz from carrier)  | -30 dBm     | -90 dBc nominal   |
| Higher RF order (f ≥ 10 MHz from carrier) | -30 dBm     | -90 dBc nominal   |

1. N is the LO multiplication factor.

| Second harmonic distortion (SHI)  |   |                   |                   |
|---|---|-------------------|-------------------|
|   | Source frequency                                      | SHI (nominal)     |                   |
| RF/MW<br>(Option 503, 507, 513, 526)  | 10 MHz to 1.8 GHz                                     | +45 dBm           |                   |
|   | 1.75 to 7.0 GHz                                       | +65 dBm           |                   |
|   | 7.0 to 11.0 GHz                                       | +55 dBm           |                   |
|   | 11.0 to 13.25 GHz                                     | +50 dBm           |                   |
| Millimeter-wave<br>(Option 532, 544)  | 10 MHz to 1.8 GHz                                     | +45 dBm           |                   |
|   | 1.8 to 6.5 GHz  | +65 dBm           |                   |
|   | 6.5 to 10 GHz   | +60 dBm           |                   |
|   | 10 to 13.25 GHz                                       | +55 dBm           |                   |
|   | 13.25 to 22 GHz                                       | +50 dBm           |                   |
| Third-order intermodulation distortion (TOI)  |   |                   |                   |
| (Two –30 dBm tones at input mixer with tone separation > 5 times IF prefilter bandwidth, 20 to 30 °C, see Specifications Guide for IF prefilter bandwidths) |   |                   |                   |
|   |   | TOI               | TOI (typical)     |
| RF/MW<br>(Option 503, 507, 513, 526)  | 100 to 400 MHz  | +10 dBm           | +14 dBm           |
|   | 400 MHz to 1.7 GHz                                    | +11 dBm           | +15 dBm           |
|   | 1.7 to 3.6 GHz  | +13 dBm           | +17 dBm           |
|   | 3.6 to 5.1 GHz  | +11 dBm           | +17 dBm           |
|   | 5.1 to 7.0 GHz  | +13 dBm           | +17 dBm           |
|   | 7.0 to 13.6 GHz                                       | +11 dBm           | +15 dBm           |
|   | 13.6 to 26.5 GHz                                      | +9 dBm            | +14 dBm           |
| Preamp on, RF/MW<br>(Option 503, 507, 513, 526)   | 30 MHz to 3.6 GHz (two –45 dBm tones at preamp)       | 0 dBm nominal     |                   |
|   | 3.6 to 7 GHz (two –50 dBm tones at preamp)            | –18 dBm nominal   |                   |
| Millimeter-wave<br>(Option 532, 544)  | 10 to 100 MHz   | +12 dBm           | +17 dBm           |
|   | 100 MHz to 3.95 GHz                                   | +15 dBm           | +19 dBm           |
|   | 3.95 to 8.4 GHz                                       | +15 dBm           | +18 dBm           |
|   | 8.3 to 13.6 GHz                                       | +15 dBm           | +18 dBm           |
|   | 13.5 to 17.1 GHz                                      | +11 dBm           | +17 dBm           |
|   | 17.0 to 26.5 GHz                                      | +10 dBm           | +17 dBm (nominal) |
|   | 26.5 to 44 GHz  | –                 | +13 dBm (nominal) |
| Preamp on, millimeter-wave<br>(Option 532, 544)   | 30 MHz to 3.6 GHz (two –45 dBm tones at preamp level) | 0 dBm (nominal)   |                   |
|   | 3.6 to 26.5 GHz (two –50 dBm tones at preamp level)   | –18 dBm (nominal) |                   |

1.  $N$  is the LO multiplication factor.

# Nominal dynamic range for Options 503, 507, 513 and 526

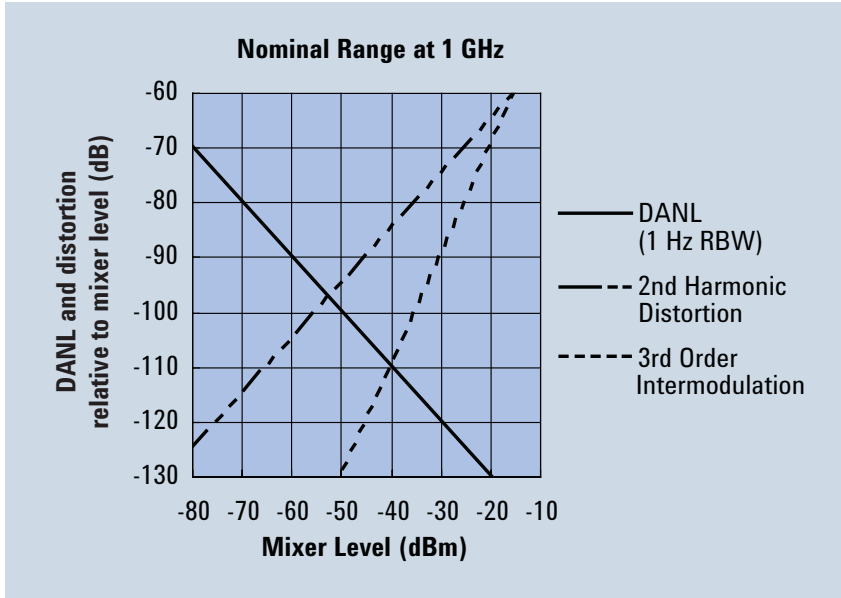


Figure 1. Nominal dynamic range – Band 0, for second and third order distortion, 9 kHz to 3.6 GHz

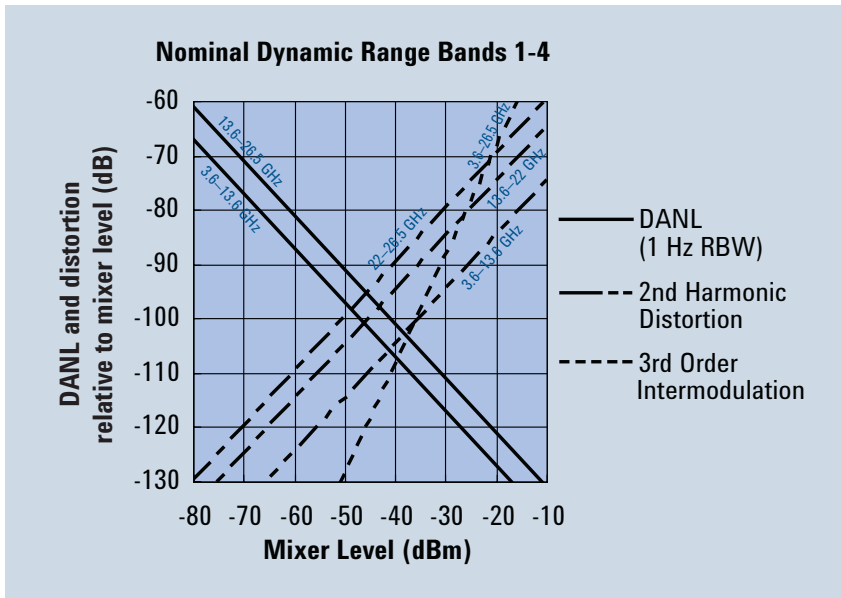


Figure 2. Nominal dynamic range – Bands 1 to 4, for second and third order distortion, 3.6 GHz to 26.5 GHz

| Phase noise <sup>1</sup>   | Offset  | Specification | Typical             |
|--|---------|---------------|---------------------|
| RF/MW<br>(Option 503, 507, 513, 526)<br>Noise sidebands<br>(20 to 30 °C, CF = 1 GHz) | 100 Hz  | -84 dBc/Hz    | -88 dBc/Hz          |
|  | 1 kHz   | -             | -98 dBc/Hz nominal  |
|  | 10 kHz  | -99 dBc/Hz    | -102 dBc/Hz         |
|  | 100 kHz | -112 dBc/Hz   | -114 dBc/Hz         |
|  | 1 MHz   | -132 dBc/Hz   | -135 dBc/Hz         |
|  | 10 MHz  | -             | -143 dBc/Hz nominal |

1. For nominal phase noise values with the RF/MW EXA (Option 503, 507, 513, or 526), refer to Figure 3.

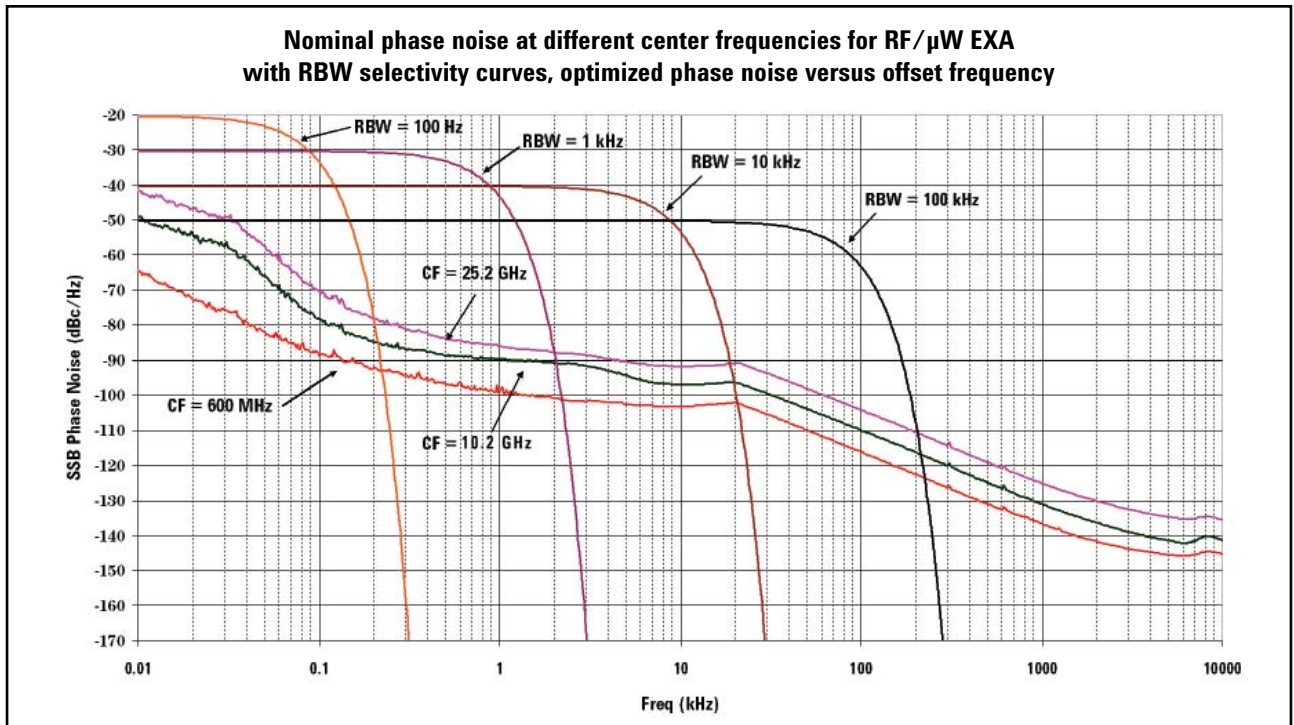


Figure 3. Nominal phase noise at different center frequencies for RF/MW EXA (Option 503, 507, 513, or 526)

| Phase noise <sup>1</sup>   | Offset  | Specification | Typical             |
|--|---------|---------------|---------------------|
| Millimeter-wave<br>(Option 532, 544)<br>Noise sidebands<br>(20 to 30 °C, CF = 1 GHz) | 100 Hz  | -84 dBc/Hz    | -88 dBc/Hz          |
|  | 1 kHz   | -             | -101 dBc/Hz nominal |
|  | 10 kHz  | -103 dBc/Hz   | -106 dBc/Hz         |
|  | 100 kHz | -115 dBc/Hz   | -116 dBc/Hz         |
|  | 1 MHz   | -135 dBc/Hz   | -137 dBc/Hz         |
|  | 10 MHz  | -             | -149 dBc/Hz nominal |

1. For nominal phase noise values with the millimeter-wave EXA (Option 532 or 544), refer to Figure 4.

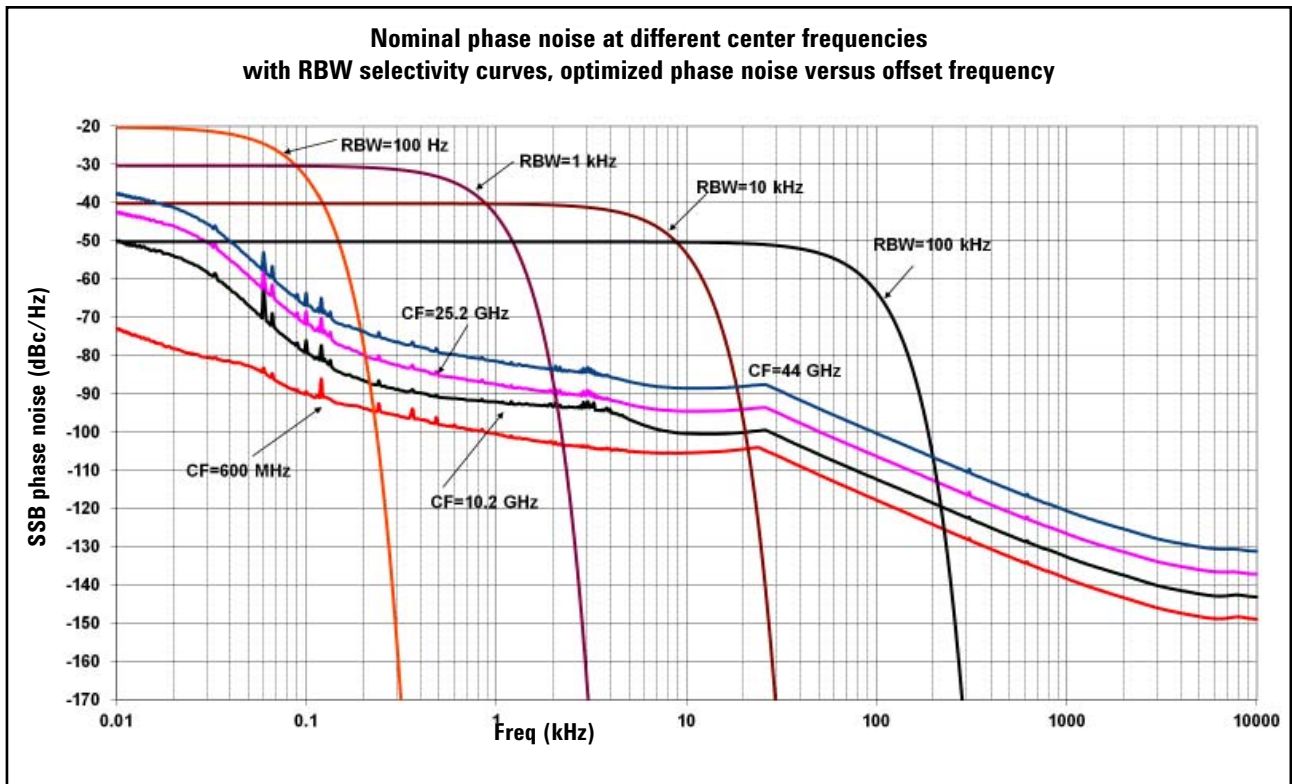


Figure 4. Nominal phase noise at different center frequencies for millimeter-wave EXA (Option 532 or 544)

| Option MPB, microwave preselector bypass <sup>1</sup> |                 |
|---|-----------------|
| Frequency range                                       |                 |
| N9010A-507  | 3.6 to 7 GHz    |
| N9010A-513  | 3.6 to 13.6 GHz |
| N9010A-526  | 3.6 to 26.5 GHz |
| N9010A-532  | 3.6 to 32 GHz   |
| N9010A-544  | 3.6 to 44 GHz   |

1. When Option MPB is installed and enabled, some aspects of the analyzer performance changes. Please refer to the EXA specification guide for more details.

# PowerSuite Measurement Specifications

| Channel power  |   |                    |
|--|---|--------------------|
| Amplitude accuracy, W-CDMA or IS95 (20 to 30 °C, attenuation = 10 dB)      | ± 0.94 dB (±0.30 dB 95th percentile)  |                    |
| Occupied bandwidth   |   |                    |
| Frequency accuracy   | ± [span/1000] nominal   |                    |
| Adjacent channel power   |   |                    |
|  | Adjacent  | Alternate          |
| Accuracy, W-CDMA (ACLR) (at specific mixer levels and ACLR ranges)         |   |                    |
| MS   | ± 0.22 dB   | ± 0.34 dB          |
| BTS  | ± 1.07 dB   | ± 1.00 dB          |
| Dynamic range (typical)  |   |                    |
| Without noise correction   | -68 dB  | -74 dB             |
| With noise correction  | -73 dB  | -76 dB             |
| Offset channel pairs measured  | 1 to 6  |                    |
| ACP measurement and transfer time (fast method)                            | 14 ms nominal ( $\sigma = 0.2$ dB)  |                    |
| Multiple number of carriers measured                                       | Up to 12  |                    |
| Power statistics CCDF  |   |                    |
| Histogram resolution   | 0.01 dB   |                    |
| Harmonic distortion  |   |                    |
| Maximum harmonic number  | 10th  |                    |
| Result   | Fundamental power (dBm), relative harmonics power (dBc), total harmonic distortion in %                 |                    |
| Intermod (TOI)   | Measure the third-order products and intercepts from two tones  |                    |
| Burst power  |   |                    |
| Methods  | Power above threshold, power within burst width   |                    |
| Results  | Single burst output power, average output power, maximum power, minimum power within burst, burst width |                    |
| Spurious emission  |   |                    |
| W-CDMA (1 to 3.6 GHz) table-driven spurious signals; search across regions |   |                    |
| Dynamic range  | 93.1 dB   | 98.4 dB typical    |
| Absolute sensitivity   | -79.4 dBm   | -85.4 dBm typical  |
| Spectrum emission mask (SEM)   |   |                    |
| cdma2000® (750 kHz offset)   |   |                    |
| Relative dynamic range (30 kHz RBW)  | 74.0 dB   | 81.0 dB typical    |
| Absolute sensitivity   | -94.7 dBm   | -100.7 dBm typical |
| Relative accuracy  | ± 0.11 dB   |                    |
| 3GPP W-CDMA (2.515 MHz offset)   |   |                    |
| Relative dynamic range (30 kHz RBW)  | 76.5 dB   | 83.9 dB typical    |
| Absolute sensitivity   | -94.7 dBm   | -100.7 dBm typical |
| Relative accuracy  | ± 0.12 dB   |                    |

# General Specifications

## Temperature range

|           |              |
|-----------|--------------|
| Operating | 0 to 55 °C   |
| Storage   | -40 to 70 °C |

## EMC

Complies with European EMC Directive 2004/108/EC

- IEC/EN 61326-1 or IEC/EN 61326-2-1
- CISPR Pub 11 Group 1, class A
- AS/NZS CISPR 11:2002
- ICES/NMB-001

This ISM device complies with Canadian ICES-001

Cet appareil ISM est conforme à la norme NMB-001 du Canada

## Safety

Complies with European Low Voltage Directive 73/23/EEC, amended by 93/68/EEC

- IEC/EN 61010-1 2nd Edition
- Canada: CSA C22.2 No. 61010-1
- USA: UL 61010-1 2nd Edition

## Audio noise

|                         |                     |
|-------------------------|---------------------|
| Acoustic noise emission | Geraeuschemission   |
| LpA < 70 dB             | LpA < 70 dB         |
| Operator position       | Am Arbeitsplatz     |
| Normal position         | Normaler Betrieb    |
| Per ISO 7779            | Nach DIN 45635 t.19 |

## Environmental stress

Samples of this product have been type tested in accordance with the Agilent Environmental Test Manual and verified to be robust against the environmental stresses of storage, transportation, and end-use; those stresses include, but are not limited to, temperature, humidity, shock, vibration, altitude, and power line conditions; test methods are aligned with IEC 60068-2 and levels are similar to MILPRF-28800F Class 3.

## Power requirements

|                       |                            |
|-----------------------|----------------------------|
| Voltage and frequency | 100 to 120 V, 50/60/400 Hz |
|                       | 220 to 240 V, 50/60 Hz     |
| Power consumption     |                            |
| On                    | 350 W maximum              |
| Standby               | 20 W                       |

## Display

|            |                                     |
|------------|-------------------------------------|
| Resolution | 1024 x 768, XGA                     |
| Size       | 213 mm (8.4 in.) diagonal (nominal) |

## Data storage

|          |   |
|----------|---|
| Internal | ≥ 80 GB nominal (removable solid-state drive) |
| External | Supports USB 2.0 compatible memory devices    |

## Weight (without options)

|          |                        |
|----------|------------------------|
| Net      | 16 kg (35 lbs) nominal |
| Shipping | 28 kg (62 lbs) nominal |

## Dimensions

|        |                  |
|--------|------------------|
| Height | 177 mm (7.0 in)  |
| Width  | 426 mm (16.8 in) |
| Length | 368 mm (14.5 in) |

## Warranty

The EXA signal analyzer is supplied with a one-year warranty

## Calibration cycle

The recommended calibration cycle is two years; calibration services are available through Agilent service centers



# Inputs and Outputs

| Front panel  |  |
|--|--|
| RF input connector   |  |
| Standard (Option 503, 507, 513, or 526)  | Type-N female, 50 $\Omega$ nominal                                     |
| Standard (Option 532 or 544)   | 2.4 mm male, 50 $\Omega$ nominal                                       |
| Probe power  |  |
| Voltage/current  | +15 Vdc, $\pm 7\%$ at 150 mA max nominal                               |
|  | -12.6 Vdc, $\pm 10\%$ at 150 mA max nominal                            |
| USB 2.0 ports  |  |
| Master (2 ports)   |  |
| Standard   | Compatible with USB 2.0  |
| Connector  | USB Type-A female  |
| Output current   | 0.5 A nominal  |
| External mixing, Option EXM (available only with EXA millimeter wave, Option 532 or 544) |  |
| Connection port  |  |
| Connector  | SMA, female  |
| Impedance  | 50 $\Omega$ nominal  |
| Functions  | Triplexed for mixer bias, IF input and LO output                       |
| Mixer bias range   | $\pm 10$ mA in 10 $\mu$ A step   |
| IF input center frequency  |  |
| Narrowband IF path   | 322.5 MHz  |
| 40 MHz IF path   | 250 MHz  |
| LO output frequency range  | 3.75 to 14.0 GHz   |
| Rear panel   |  |
| 10 MHz out   |  |
| Connector  | BNC female, 50 $\Omega$ nominal  |
| Output amplitude   | $\geq 0$ dBm nominal   |
| Frequency  | 10 MHz $\pm$ (10 MHz x frequency reference accuracy)                   |
| Ext Ref In   |  |
| Connector  | BNC female, 50 $\Omega$ nominal  |
| Input amplitude range  | -5 to 10 dBm nominal   |
| Input frequency  | 10 MHz nominal   |
| Frequency lock range   | $\pm 5 \times 10^{-6}$ of specified external reference input frequency |
| Trigger 1 and 2 inputs   |  |
| Connector  | BNC female   |
| Impedance  | > 10 k $\Omega$ nominal  |
| Trigger level range  | -5 to 5 V  |
| Trigger 1 and 2 outputs  |  |
| Connector  | BNC female   |
| Impedance  | 50 $\Omega$ nominal  |
| Level  | 5 V TTL nominal  |
| Monitor output   |  |
| Connector  | VGA compatible, 15-pin mini D-SUB                                      |
| Format   | XGA (60 Hz vertical sync rates, non-interlaced) analog RGB             |
| Resolution   | 1024 x 768   |

| Rear panel   |  |
|--|--|
| Noise source drive +28 V (pulsed)<br>Connector   | BNC female   |
| SNS Series noise source connector  | For use with Agilent SNS Series noise sources  |
| Analog out<br>Connector  | BNC female (used by Option YAS)  |
| USB 2.0 ports<br>Master (4 ports)<br>Standard<br>Connector<br>Output current   | Compatible with USB 2.0<br>USB Type-A female<br>0.5 A nominal  |
| Slave (1 port)<br>Standard<br>Connector<br>Output current  | Compatible with USB 2.0<br>USB Type-B female<br>0.5 A nominal  |
| GPIB interface<br>Connector<br>GPIB codes<br>GPIB mode   | IEEE-488 bus connector<br>SH1, AH1, T6, SR1, RL1, PP0, DC1, C1, C2, C3, C28, DT1, L4, C0<br>Controller or device |
| LAN TCP/IP interface<br>Standard<br>Connector  | 1000Base-T<br>RJ45 Ethertwist  |
| IF output<br>Connector<br>Impedance  | SMA female, shared by Option CR3 and CRP<br>50 $\Omega$ nominal  |
| Wideband IF output, Option CR3   |  |
| Center frequency<br>SA mode or I/Q analyzer with IF BW $\leq$ 25 MHz<br>with Option B40                                  | 322.5 MHz<br>250 MHz   |
| Conversion gain  | -1 to +4 dB (nominal) plus RF frequency response   |
| Bandwidth<br>Low band<br>High band, with preselector<br>High band, with preselector bypassed                             | Up to 140 MHz (nominal)<br>Depends on center frequency<br>Up to 410 MHz (nominal)                                |
| Programmable IF output, Option CRP   |  |
| Center frequency<br>Range<br>Resolution  | 10 to 75 MHz (user selectable)<br>0.5 MHz  |
| Conversion gain  | -1 to +4 dB (nominal) plus RF frequency response   |
| Bandwidth<br>Output at 70 MHz center<br>Low band or high band with preselector bypassed <sup>1</sup><br>Preselected band | 100 MHz (nominal)<br>Depends on RF center frequency  |
| Lower output frequencies   | Subject to folding   |
| Residual output signals  | $\leq$ -88 dBm (nominal)   |

1. Option MPB installed and enabled.

# I/Q Analyzer

| Frequency  |                           |                  |              |                 |
|--|---------------------------|------------------|--------------|-----------------|
| Frequency span   |                           |                  |              |                 |
| Standard   | 10 Hz to 10 MHz           |                  |              |                 |
| Option B25 (standard)  | 10 Hz to 25 MHz           |                  |              |                 |
| Option B40   | 10 Hz to 40 MHz           |                  |              |                 |
| Resolution bandwidth (spectrum measurement)  |                           |                  |              |                 |
| Range  |                           |                  |              |                 |
| Overall  | 100 mHz to 3 MHz          |                  |              |                 |
| Span = 1 MHz   | 50 Hz to 1 MHz            |                  |              |                 |
| Span = 10 kHz  | 1 Hz to 10 kHz            |                  |              |                 |
| Span = 100 Hz  | 100 mHz to 100 Hz         |                  |              |                 |
| Window shapes  |                           |                  |              |                 |
| Flat top, Uniform, Hanning, Gaussian, Blackman, Blackman-Harris, Kaiser Bessel (K-B 70 dB, K-B 90 dB and K-B 110 dB) |                           |                  |              |                 |
| Analysis bandwidth   |                           |                  |              |                 |
| Standard   | 10 Hz to 10 MHz           |                  |              |                 |
| Option B25 (standard)  | 10 Hz to 25 MHz           |                  |              |                 |
| Option B40   | 10 Hz to 40 MHz           |                  |              |                 |
| IF frequency response (standard 10 MHz IF path)  |                           |                  |              |                 |
| IF frequency response (demodulation and FFT response relative to the center frequency, 20 to 30 °C)                  |                           |                  |              |                 |
| Center frequency (GHz)   | Span (MHz)                | Preselector      | Max. error   | RMS             |
| < 3.6  | ≤ 10                      | n/a              | ± 0.40 dB    | 0.04 dB nominal |
| ≥ 3.6  | ≤ 10                      | on               |              | 0.25 dB nominal |
| ≥ 3.6  | ≤ 10                      | off <sup>2</sup> | ± 0.45 dB    | 0.04 dB nominal |
| > 26.5 (Option 532 or 544)   | ≤ 10                      | on               |              | 0.35 dB nominal |
| IF phase linearity (deviation from mean phase linearity, nominal)  |                           |                  |              |                 |
| Center frequency (GHz)   | Span (MHz)                | Preselector      | Peak-to-peak | RMS             |
| < 3.6  | ≤ 10                      | n/a              | 0.4°         | 0.1°            |
| ≥ 3.6  | ≤ 10                      | off              | 0.4°         | 0.1°            |
| ≥ 3.6 (Option ≤ 526)   | ≤ 10                      | on               | 1.0°         | 0.2°            |
| Data acquisition (10 MHz IF path)  |                           |                  |              |                 |
| Time record length IQ analyzer   | 4,000,000 IQ sample pairs |                  |              |                 |
| Sample rate at ADC   |                           |                  |              |                 |
| Option DP2, B40 or MPB   | 100 MSa/s                 |                  |              |                 |
| None of the above  | 90 MSa/s                  |                  |              |                 |
| ADC resolution   |                           |                  |              |                 |
| Option DP2, B40 or MPB   | 16 bits                   |                  |              |                 |
| None of the above  | 14 bits                   |                  |              |                 |

1. Option MPB is installed and enabled.

| Option B25 (standard) 25 MHz analysis bandwidth  |   |                       |                                    |                  |
|--|---|-----------------------|------------------------------------|------------------|
| IF frequency response (demodulation and FFT response relative to the center frequency, 20 to 30 °C)          |   |                       |                                    |                  |
| Center frequency (GHz)   | Span (MHz)  | Preselector           | Max. error                         | RMS              |
| ≤ 3.6  | 10 to ≤ 25  | n/a                   | ± 0.45 dB                          | 0.051 dB nominal |
| > 3.6  | 10 to ≤ 25  | on                    |                                    | 0.45 dB nominal  |
| > 3.6  | 10 to ≤ 25  | off <sup>1</sup>      | ± 0.45 dB                          | 0.071 dB nominal |
| IF phase linearity (deviation from mean phase linearity, nominal)  |   |                       |                                    |                  |
| Center frequency (GHz)   | Span (MHz)  | Preselector           | Peak-to-peak                       | RMS              |
| 0.02 ≤ f < 3.6   | ≤ 25  | n/a                   | 0.6°                               | 0.14°            |
| ≥ 3.6  | ≤ 25  | off <sup>1</sup>      | 1.9°                               | 0.4 °            |
| ≥ 3.6 (Option ≤ 526)   | ≤ 25  | on                    | 4.5°                               | 1.2°             |
| Data acquisition (25 MHz IF path)  |   |                       |                                    |                  |
| <b>Time record length (IQ pairs) IQ Analyzer</b>   | <b>4,000,000 IQ sample pairs</b>                        |                       |                                    |                  |
| <b>89600 software or N9064A</b>  | <b>32-bit packing</b>                                   | <b>64-bit packing</b> | <b>Memory</b>                      |                  |
| Option DP2, B40 or MPB   | 536 MSa   | 268 MSa               | 2 GB                               |                  |
| None of the above  | 4,000,000 IQ sample pairs (independent of data packing) |                       |                                    |                  |
| Sample rate at ADC   |   |                       |                                    |                  |
| Option DP2, B40 or MPB   | 100 MSa/s   |                       |                                    |                  |
| None of the above  | 90 MSa/s  |                       |                                    |                  |
| ADC resolution   |   |                       |                                    |                  |
| Option DP2, B40 or MPB   | 16 bits   |                       |                                    |                  |
| None of the above  | 14 bits   |                       |                                    |                  |
| Option B40 40 MHz analysis bandwidth   |   |                       |                                    |                  |
| IF frequency response (demodulation and FFT response relative to the center frequency, 20 to 30 °C), nominal |   |                       |                                    |                  |
| Center frequency (GHz)   | Span (MHz)  | Preselector           | Max. error                         | RMS              |
| 0.03 ≤ f < 3.6   | ≤ 40  | n/a                   | ± 0.3 dB                           | 0.08 dB          |
| 3.6 ≤ f ≤ 26.5   | ≤ 40  | off <sup>1</sup>      | ± 0.25 dB                          | 0.08 dB          |
| > 26.5   | ≤ 40  | off <sup>1</sup>      | ± 0.25 dB                          | 0.12 dB          |
| IF phase linearity (deviation from mean phase linearity, nominal)  |   |                       |                                    |                  |
| Center frequency (GHz)   | Span (MHz)  | Preselector           | Peak-to-peak                       | RMS              |
| 0.02 ≤ f < 3.6   | 40  | n/a                   | 0.2°                               | 0.05°            |
| ≥ 3.6  | 40  | off <sup>1</sup>      | 5°                                 | 1.4°             |
| Data acquisition (40 MHz IF path)  |   |                       |                                    |                  |
| <b>Time record length (IQ pairs) IQ analyzer</b>   | <b>4,000,000 samples (I/Q pairs)</b>                    |                       |                                    |                  |
| <b>89600 VSA software or N9064A VXA</b>  | <b>32-bit packing</b>                                   | <b>64-bit packing</b> | <b>2 GB total memory (nominal)</b> |                  |
| Length (IQ sample pairs)   | 536 MSa   | 268 MSa               |                                    |                  |
| Length (time units)  | Samples/(span x 1.28) (nominal)                         |                       |                                    |                  |
| Sample rate  |   |                       |                                    |                  |
| At ADC   | 200 MSa/s   |                       |                                    |                  |
| IQ pairs   | Span x 1.28 (nominal)                                   |                       |                                    |                  |
| ADC resolution   | 12 bits   |                       |                                    |                  |

1. Option MPB is installed and enabled.

## Related Literature

*Brochure* 5989-6527EN

*Configuration Guide* 5989-6531EN

For more information or literature resources please visit the web:  
[www.agilent.com/find/exa](http://www.agilent.com/find/exa)

## Web

Product page:  
[www.agilent.com/find/N9010A](http://www.agilent.com/find/N9010A)

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[www.agilent.com/find/X-Series\\_Apps](http://www.agilent.com/find/X-Series_Apps)

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|---------------|----------------|
| Canada        | (877) 894 4414 |
| Brazil        | (11) 4197 3600 |
| Mexico        | 01800 5064 800 |
| United States | (800) 829 4444 |

### Asia Pacific

|                    |                |
|--------------------|----------------|
| Australia          | 1 800 629 485  |
| China              | 800 810 0189   |
| Hong Kong          | 800 938 693    |
| India              | 1 800 112 929  |
| Japan              | 0120 (421) 345 |
| Korea              | 080 769 0800   |
| Malaysia           | 1 800 888 848  |
| Singapore          | 1 800 375 8100 |
| Taiwan             | 0800 047 866   |
| Other AP Countries | (65) 375 8100  |

### Europe & Middle East

|                |                      |
|----------------|----------------------|
| Belgium        | 32 (0) 2 404 93 40   |
| Denmark        | 45 45 80 12 15       |
| Finland        | 358 (0) 10 855 2100  |
| France         | 0825 010 700*        |
|                | *0.125 €/minute      |
| Germany        | 49 (0) 7031 464 6333 |
| Ireland        | 1890 924 204         |
| Israel         | 972-3-9288-504/544   |
| Italy          | 39 02 92 60 8484     |
| Netherlands    | 31 (0) 20 547 2111   |
| Spain          | 34 (91) 631 3300     |
| Sweden         | 0200-88 22 55        |
| United Kingdom | 44 (0) 118 927 6201  |

For other unlisted countries:

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