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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight E5504A

Agilent Keysight E5504A Phase Noise Measurement Solution 50 kHz to 26.5 GHz The Agilent E5504A is an E5500 A-series phase-noise solution covering 50 kHz to 26.5 GHz. OEM E5500 A-series tables list 0.01 Hz to 4 MHz standard offset (extendable to 8, 10, and 100 MHz), typical system noise minus 180 dBc/Hz above 10 kHz, and a 1.5 GHz to 26.5 GHz downconverter path. E5505A is the later equivalent system number. R&D characterization of microwave oscillators and two-port residual noise to 26.5 GHz with optional millimeter extension to 110 GHz. Operating Temperature N5500A: 0 C to plus 55 C Optional Millimeter Extension: 110 GHz with 11970-series harmonic mixers Measurement Software: E5500 phase-noise software on Windows PC with GPIB Carrier 50 kHz-26.5 GHz and A-series 0.01 Hz-4 MHz offset from Agilent E5500 A/B-series data sheet (E5504A row). Detector, noise-floor, and accuracy rows from Keysight E5500 5989-0851 N5500A specification summary. Confirm installed downconverter and offset-extension options on the configuration label.



MODEL

**Agilent / Keysight
E5504A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

E5504A

LISTING

<https://aumictechlabs.com/products/e5504a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight E5504A is a phase noise measurement system engineered for automated test environments and R&D applications. It delivers rapid characterization of VCOs, DROs, crystal oscillators, and synthesizers across an exceptionally wide frequency span. The system combines

a phase noise test set with high-speed digitization, low-noise downconverters, and automation software to measure absolute and residual phase noise, AM noise, and spurious content on both CW and pulsed carriers. Integration into existing ATE platforms, standalone operation, or pairing with complementary Agilent test sets - including the 8920 and 84000 series - makes the E5504A adaptable to diverse production and design workflows.

Technical Specifications

Frequency Coverage Carrier frequency range: 50 kHz to 26.5 GHz (expandable to 110 GHz with additional components) Offset frequency range: 0.01 Hz to 4 MHz (standard); optional extension to 100 MHz and beyond External noise input: 0.01 Hz to 1.0 MHz

Measurement Performance Phase noise (absolute and residual), AM noise, low-level spurious signals System noise floor (typical, 10 kHz offsets): -180 dBc/Hz System spurious response (typical): -120 dBc Measurement accuracy: ± 2 dB (<1.0 MHz offsets); ± 4 dB (<100 MHz offsets)

Phase Detector Input Levels R input: 0 to +23 dBm L input: +15 to +23 dBm

Downconverter Input Ranges 1 GHz to 6 GHz 1 GHz to 18 GHz 1.5 GHz to 26.5 GHz

Key Features Direct AM noise measurement capability with internal AM detector and DC blocking filter for carriers to 26.5 GHz Pulsed and CW signal measurement Optional AM measurement at IF frequency using 70427A downconverter (2.4 to 6.0 GHz) Millimeter-band expansion via Agilent 11970 series harmonic mixers and 26.5 GHz microwave downconverter

Typical Applications Production testing of oscillators and synthesizers in ATE environments Phase noise and spectral purity characterization in R&D Spurious and AM noise evaluation of RF signal sources

Compatibility & Integration The E5504A operates on Windows NT 4.0 with PC-based control. Core components include the 70420A phase noise test set, VXI digitizer mainframe, and frequency-selective downconverters. System integration may require an Agilent/HP 82341C GPIB interface card.

E5504A Characteristics / Specifications

PARAMETER	VALUE
Instrument Type	Phase noise measurement system
Series Family	Agilent E5500 A-series
Carrier Frequency Range	50 kHz to 26.5 GHz
Offset Frequency RangeASeries	0.01 Hz to 4 MHz standard
Downconverter Input Range	1.5 GHz to 26.5 GHz
Replacement System	E5505A
Legacy 26.5 Ghz Downconverter	70427A / 71707A replaced by N5507ABSeries Sibling: E5504B uses 0.01 Hz to 100 MHz offset
Offset Frequency Range Standard	0.01 Hz to 2 MHz (PC digitizer; without swept analyzer)
Offset Frequency Range With Analyzer	0.01 Hz to 100 MHz with optional signal/spectrum analyzer
System Noise Response	minus 180 dBc/Hz typically (greater than 10 kHz offsets)
System Spurious Response	less than minus 120 dBc typically
Phase DetectorRInput	0 to plus 23 dBm (carrier less than 1.6 GHz)
Phase DetectorLInput	plus 15 to plus 23 dBm (carrier less than 1.6 GHz)
Measurement Accuracy Close	plus or minus 2 dB (offsets less than 1.0 MHz)
Measurement Accuracy Far	plus or minus 4 dB (offsets less than 100 MHz)
External Noise Input Port	0.01 Hz to 100 MHz
Baseband Test Set	N5500A included in all E5500 systems (replaces 70420A)
Low Frequency Carrier Range N5500A	50 kHz to 1.6 GHz
High Frequency Inputs N5500A	1.2 GHz to 26.5 GHz (Options 001/201)
Am Noise Carrier Range	50 kHz to 26.5 GHz (N5500A-001)
Tuning Voltage Output	plus or minus 10 V open circuit, 20 mA max, 50 ohm typical
N5500A Noise Floor Rf Detector 10 Khz	minus 170 dBc/Hz (50 kHz to 1.6 GHz detector, offsets greater than 10 kHz)
N5500A Noise Floor Mw Detector 32 Khz	minus 160 dBc/Hz (1.2 to 26.5 GHz detector, offsets greater than 32 kHz)
Operating Temperature N5500A	0 C to plus 55 C

PARAMETER	VALUE
Warm Up Time N5500A	20 minutes
Measurement Software	E5500 phase-noise software on Windows PC with GPIB
Operating temperature	N5500A: 0 C to plus 55 C

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	N5500A: 0 C to plus 55 C
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Operating Temperature N5500A	0 C to plus 55 C
Warm Up Time N5500A	20 minutes
Measurement Software	E5500 phase-noise software on Windows PC with GPIB Notes Carrier 50 kHz-26.5 GHz and A-series 0.01 Hz-4 MHz offset from Agilent E5500 A/B-series data sheet (E5504A row). Detector, noise-floor, and accuracy rows from Keysight E5500 5989-0851 N5500A specification summary. Confirm installed downconverter and offset-extension options on the configuration label.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Downconverter Input Range	1.5 GHz to 26.5 GHz
Replacement System	E5505A
Legacy 26.5 Ghz Downconverter	70427A / 71707A replaced by N5507A
B Series Sibling	E5504B uses 0.01 Hz to 100 MHz offset
Offset Frequency Range Standard	0.01 Hz to 2 MHz (PC digitizer; without swept analyzer)
Offset Frequency Range With Analyzer	0.01 Hz to 100 MHz with optional signal/spectrum analyzer
System Noise Response	minus 180 dBc/Hz typically (greater than 10 kHz offsets)
System Spurious Response	less than minus 120 dBc typically
Phase Detector R Input	0 to plus 23 dBm (carrier less than 1.6 GHz)
Phase Detector L Input	plus 15 to plus 23 dBm (carrier less than 1.6 GHz)
Measurement Accuracy Close	plus or minus 2 dB (offsets less than 1.0 MHz)
Measurement Accuracy Far	plus or minus 4 dB (offsets less than 100 MHz)
External Noise Input Port	0.01 Hz to 100 MHz
Baseband Test Set	N5500A included in all E5500 systems (replaces 70420A)
Low Frequency Carrier Range N5500A	50 kHz to 1.6 GHz
High Frequency Inputs N5500A	1.2 GHz to 26.5 GHz (Options 001/201)
Am Noise Carrier Range	50 kHz to 26.5 GHz (N5500A-001)
Tuning Voltage Output	plus or minus 10 V open circuit, 20 mA max, 50 ohm typical
N5500A Noise Floor Rf Detector 10 Khz	minus 170 dBc/Hz (50 kHz to 1.6 GHz detector, offsets greater than 10 kHz)
N5500A Noise Floor Mw Detector 32 Khz	minus 160 dBc/Hz (1.2 to 26.5 GHz detector, offsets greater than 32 kHz)
Operating Temperature N5500A	0 C to plus 55 C
Warm Up Time N5500A	20 minutes
Specifications	

PARAMETER	VALUE
Instrument Type	Phase noise measurement system
Series Family	Agilent E5500 A-series
Carrier Frequency Range	50 kHz to 26.5 GHz
Offset Frequency RangeASeries	0.01 Hz to 4 MHz standard

Optional Offset Extension: 8, 10, and 100 MHz

Specifications

PARAMETER	VALUE
Downconverter Input Range	1.5 GHz to 26.5 GHz
Replacement System	E5505A
Legacy 26.5 Ghz Downconverter	70427A / 71707A replaced by N5507ABSeries Sibling: E5504B uses 0.01 Hz to 100 MHz offset
Offset Frequency Range Standard	0.01 Hz to 2 MHz (PC digitizer; without swept analyzer)
Offset Frequency Range With Analyzer	0.01 Hz to 100 MHz with optional signal/spectrum analyzer
System Noise Response	minus 180 dBc/Hz typically (greater than 10 kHz offsets)
System Spurious Response	less than minus 120 dBc typically
Phase DetectorRInput	0 to plus 23 dBm (carrier less than 1.6 GHz)
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External Noise Input Port	0.01 Hz to 100 MHz
Baseband Test Set	N5500A included in all E5500 systems (replaces 70420A)
Low Frequency Carrier Range N5500A	50 kHz to 1.6 GHz
High Frequency Inputs N5500A	1.2 GHz to 26.5 GHz (Options 001/201)
Am Noise Carrier Range	50 kHz to 26.5 GHz (N5500A-001)
Tuning Voltage Output	plus or minus 10 V open circuit, 20 mA max, 50 ohm typical
N5500A Noise Floor Rf Detector 10 Khz	minus 170 dBc/Hz (50 kHz to 1.6 GHz detector, offsets greater than 10 kHz)
N5500A Noise Floor Mw Detector 32 Khz	minus 160 dBc/Hz (1.2 to 26.5 GHz detector, offsets greater than 32 kHz)
Operating Temperature N5500A	0 C to plus 55 C
Warm Up Time N5500A	20 minutes

Optional Millimeter Extension: 110 GHz with 11970-series harmonic mixers

Measurement Software: E5500 phase-noise software on Windows PC with GPIB

Notes

Carrier 50 kHz-26.5 GHz and A-series 0.01 Hz-4 MHz offset from Agilent E5500 A/B-series data sheet (E5504A row). Detector, noise-floor, and accuracy rows from Keysight E5500 5989-0851 N5500A specification summary. Confirm installed downconverter and offset-extension options on the configuration label.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.