

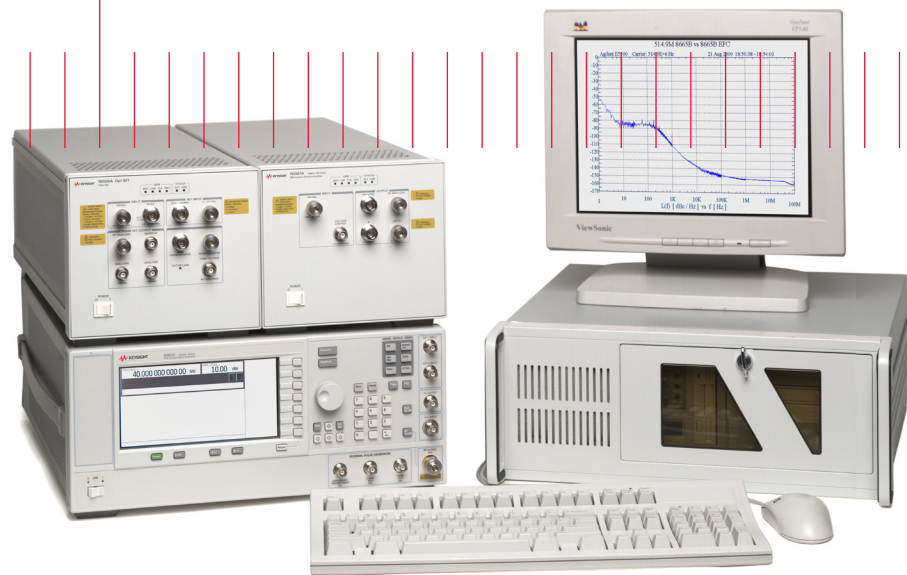
# Keysight Technologies

E5500 Series

Phase Noise Measurement Solutions

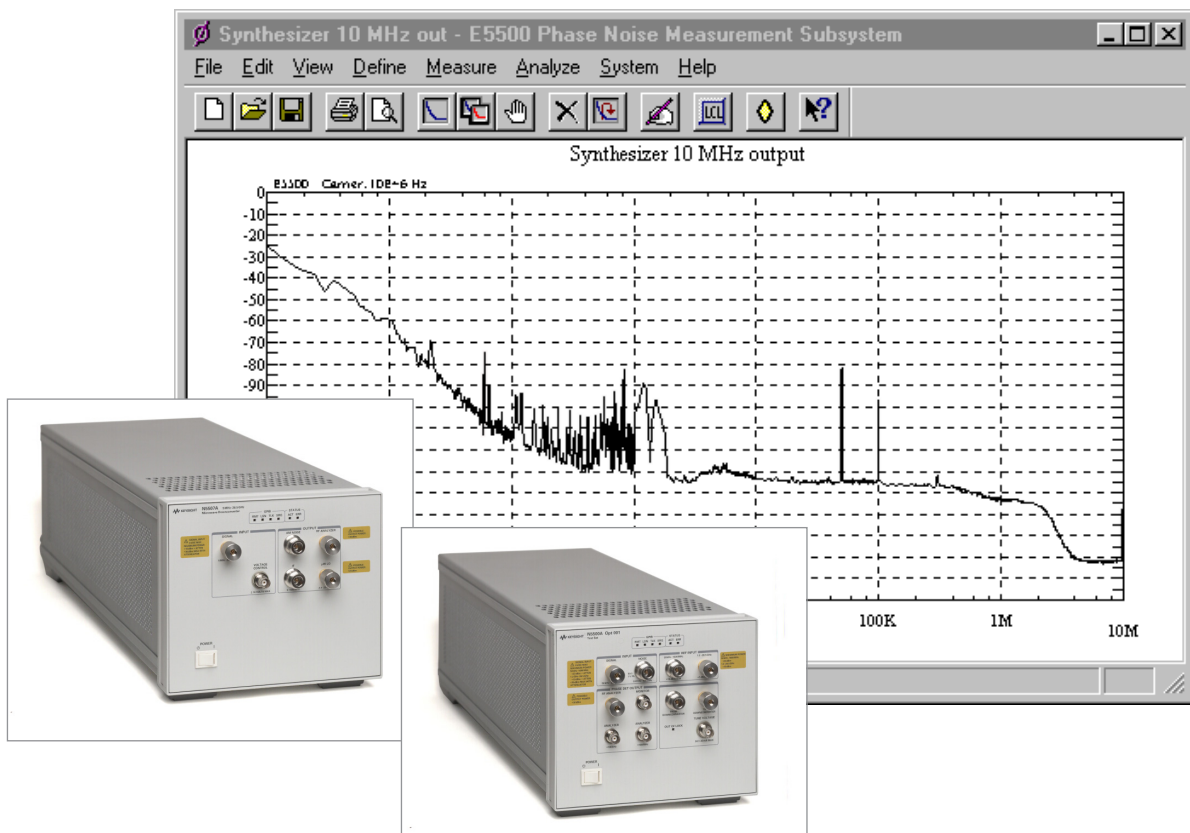
50 kHz up to 110 GHz

## Configuration Guide



## Introduction

The Keysight Technologies, Inc. E5500 Series is a family of modular phase noise measurement solutions. For flexibility in creating a solution that meets your needs, numerous system components can be selected in the configurations. These solutions of hardware, software and system integration will meet a wide variety of needs. The modular architecture of the E5500 lets you add other standalone instruments to use with the system.



## Configuring a Specific Phase Noise Measurement Solution

Using your Keysight sales representative and applications/support engineer, we configure specific solutions to meet your bench or ATE application. The following hardware and software components are selected depending on your measurements.

### Keysight E5505A bench or ATE phase noise test system

#### Select a baseband test set

Keysight N5500A phase noise test set is a required component. The N5500A-001 provides the most flexibility and measurement capability.

##### Select one configuration:

N5500A-701 <sup>1</sup>	Standard configuration, 50 kHz to 1.6 GHz, 0 to 23 dBm
N5500A-001	High power, 0 to 30 dBm, high frequency input, 1.2 to 26.5 GHz, and AM noise
N5500A-201	High frequency input, 1.2 to 26.5 GHz, 0 to 23 dBm

##### N5500A option

N5500A-HK6	Provides commercial test data on unit
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#### Select a low noise microwave downconverter

Without a microwave downconverter, the N5500A test set will require a low noise microwave signal source for phase noise measurements of microwave signals.

##### Must choose one configuration:

E5505A-100	Downconverter not included
N5502A	Low noise 18 GHz microwave downconverter
N5507A	Low noise 26.5 GHz microwave downconverter

##### N5507A option:

N5507A-HK6	Commercial test data provided
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#### Select a baseband swept analyzer

Without a swept analyzer the E5500 offset range is 0.01 Hz to 2 MHz. With the optional signal/spectrum analyzers, the offset is extended to 100 MHz.

##### Must choose one configuration:

E5505A-110	Spectrum analyzer not included
N9030A	PXA high-performance signal analyzer (3 Hz to 3.6/8.4/13.6/26.5/43/44/50 GHz)
N9020A	MXA mid-performance signal analyzer (10 Hz to 3.6/8.4/13.6/26.5 GHz)
N9010A	EXA economy signal analyzer (10 Hz to 3.6/7.0/13.6/26.5/32/44 GHz)
N9000A	CXA low-cost signal analyzer (9 kHz to 3/7.5 GHz)
E4411B	ESA-L (9 kHz to 1.5 GHz) spectrum analyzer
E4402B	ESA-E (100 Hz to 3 GHz) spectrum analyzer
E444xA	PSA Series (3 Hz to 6.7/13.2/26.5/42.98/44/50 GHz) spectrum analyzer

Each spectrum analyzer has required options for use in E5500 systems. The required options will be chosen automatically. Additional options may be selected in the E5500 configuration. Many Keysight signal/spectrum analyzer models can be used with the E5500 systems, but are not included in the system configuration. For example, the N9030A PXA signal analyzer (3 Hz up to 50 GHz) is an ideal high performance choice.

1. N5500A-701 is presented in customer quotes as N5500A-ATO.

A desk-top personal computer (PC) installed with a removable hard drive, a digitizer a GPIB interface, and phase noise measurement software will be automatically selected when a new E5505A system is ordered. Likewise for the PC monitor.

### Desk-top PC

E5505A-RHK	PC with a removable hard drive
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### PC monitor

E5505A-551	Flat panel display, 17 inch
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## Choose a low noise reference signal generator

Depending on the application, these reference source options are recommended. The N550xA downconverters have internal fixed frequency ultra low noise reference sources.

N5508A	Low noise microwave source, 2.4 to 26.5 GHz
E8257D/E8267D	PSG analog/vector signal generator
E8663D	Analog RF PSG signal generator
N5181B/N5182B	MXG X-Series RF analog/vector signal generator
N5171B/N5172B	EXG X-Series RF analog/vector signal generator

Each signal generator above has required options for use in E5500 systems. The required PSG options will be chosen automatically. Additional options may be selected in the E5500 configuration. Many signal generator models can be used as reference sources in the E5500 systems, but some of these instruments are not included in the E5500 system configuration. The Keysight PSG Series, MXG, and EXG signal generators will operate as reference sources under E5500 software control. If improved phase noise options are available, they should be selected. The E5500 software now supports the E8257D/E8267D Option UNY (enhanced ultra-low phase noise performance).

## Choose additional system components:

Many other instruments, including discontinued models, can be used with the E5500 system. Some instruments are offered as optional equipment in the configuration. The counter or oscilloscope is recommended to monitor signals during measurement set up of the system. These instruments can be controlled by the E5500 software to speed up measurements.

53220A	350 MHz universal frequency counter/timer, 12 digits/s
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## Instrument software control

As of December 1, 2012, the base E5505A system automatically includes all of instrument control software (License to use for asset control modules, or LTU ACM) as standard.

## Choose an additional removable hard drive

A customer can purchase an additional removable hard drive with their new E5505A system for back-up or for instrument sanitization.

E5505A-AH7	Additional removable hard drive with Windows 7 operating system
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## Choose measurement accessories:

These measurement accessories are very useful for specific phase noise measurement set ups.

Choose any of the following optional non-programmable products:	
70429AK20	AM detector
70429AK21	AM detector filter assembly
70429AK22	Dual RF amplifier assembly
70429AK23	DC blocking filter assembly
70429AK26	Millimeter measurement accessory kit (26.6 GHz to 40 GHz)
70429AK33	Millimeter measurement accessory kit (33 GHz to 50 GHz)
70429AK40	Millimeter measurement accessory kit (40 GHz to 60 GHz)
70429AK92	Balun with BNC connectors
70429AK94	13 GHz differential limiting amplifier
70429AK95	Low noise divider circuit

## Choose rack materials

Order the following option if the instruments need to be mounted in a rack

E5505A-601	Instrument racking materials, does not include rack <sup>1</sup>
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## Choose warranty and support:

The standard system warranty is three year return-to-Keysight for each of the components.

Choose any of the following optional support products:	
PS-S10	Remote scheduled productivity assistance. Select 1 to 999 hours.
PS-S20-01	1 day of start-up assistance. Recommended 1 day.
PS-S20	Daily productivity assistance, select 1 to 999 days
PS-T10-E55XX	Phase noise measurements with E550x system, 2 days, maximum of 8 students on site

1. The racking materials in this kit vary with the system component configuration. The parts of the kit are pulled in production to match the component instruments ordered within the system configuration.

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## Related Literature

*Keysight E5500 Series Phase Noise Measurement Solutions  
Technical Overview and Data Sheet, Literature number 5989-0851EN*

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: [www.keysight.com/find/contactus](http://www.keysight.com/find/contactus)

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