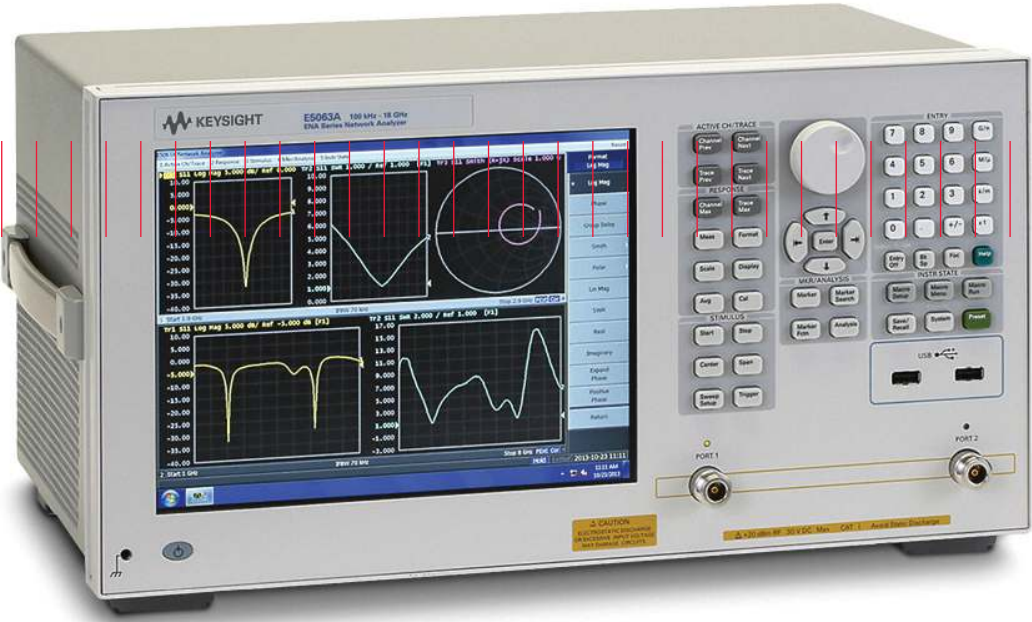


# Keysight E5063A

## ENA Series Network Analyzer

100 kHz to 4.5/8.5/18 GHz



# The Best Balance Between Price and Performance

The Keysight Technologies' E5063A is a low cost network analyzer for simple passive component testing up to 18 GHz. The E5063A provides the best balance between price and performance to satisfy your business and technical requirements. It leverages the consistent measurement framework of the industry standard ENA Series to boost efficiency and productivity, and is future proof and ready to evolve as the technologies change.

## DUT examples

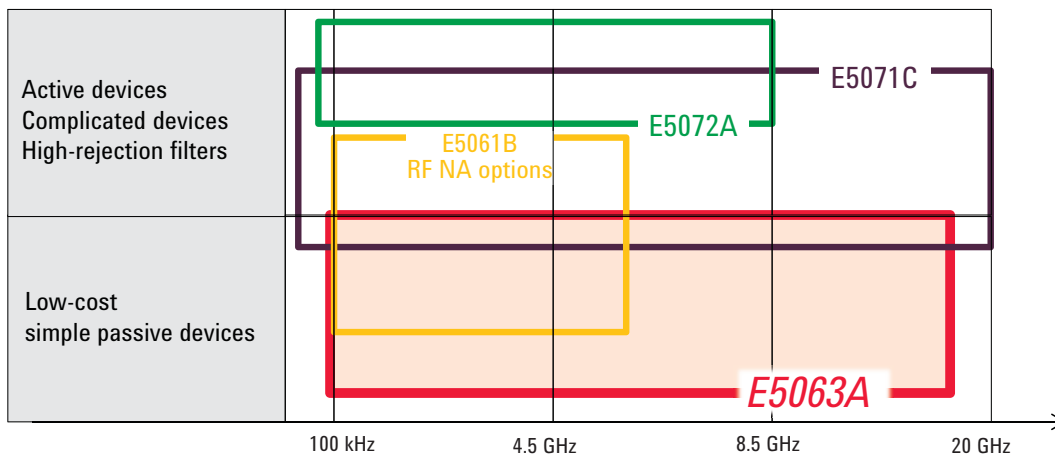
- Antennas for smartphones, cellular base stations, WLAN, and other wireless communication devices
- Other simple RF passive components such as RF cables/connectors, couplers, isolators, and filters
- PCBs

E5063A highlights	
Frequency	100 kHz to 4.5 GHz (Option 245) 100 kHz to 8.5 GHz (Option 285) 100 kHz to 18 GHz (Option 2H5)
Test port	2-port 50 Ω S-parameter test set
Dynamic range	117 dB (spec), 122 dB (typical)
Trace noise	0.005 dBrms (spec), 0.002 dBrms (typ.)
Stability	0.01 dB/°C
Source power	-20 to 0 dBm
Sweep type	Linear & Log frequency, Segment
NOP/channel	10,001 points/12 channels
Key software capability	Fixture simulator, Time domain analysis/ Test Wizard option <sup>1</sup>
Interface	LAN, USB (front 2, rear 4), USBTMC, GPIB, Handler I/O



1. Consists of conventional time domain analysis capabilities and GUI for PCB test.

## E5063A in ENA Series lineup



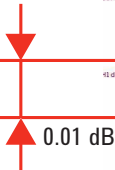
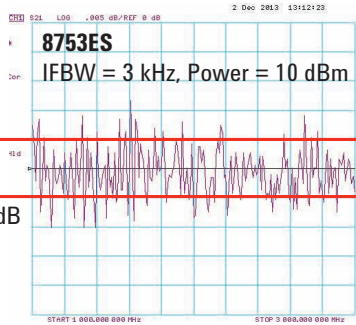
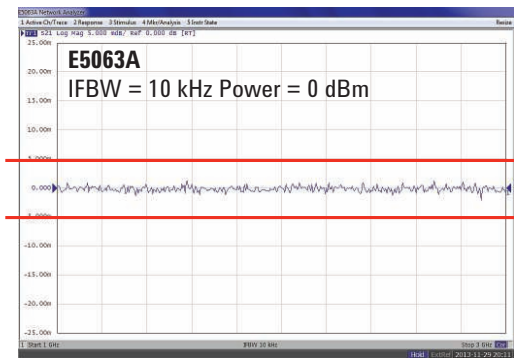
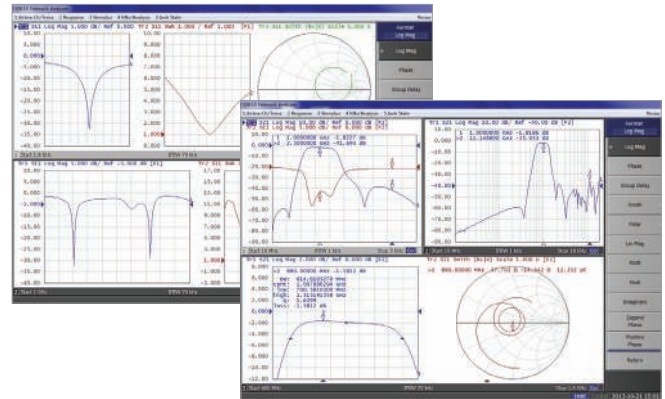
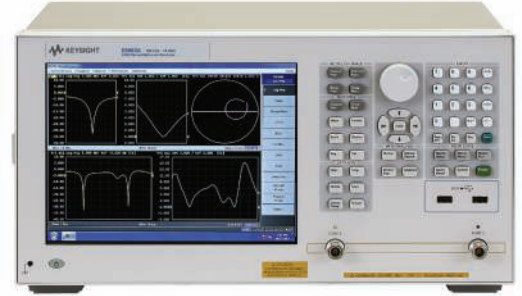
# Drive Down The Cost of Test for RF Passive Components

## Solid performance at an affordable price

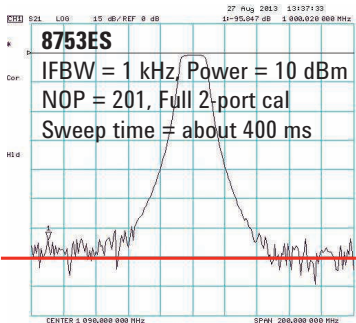
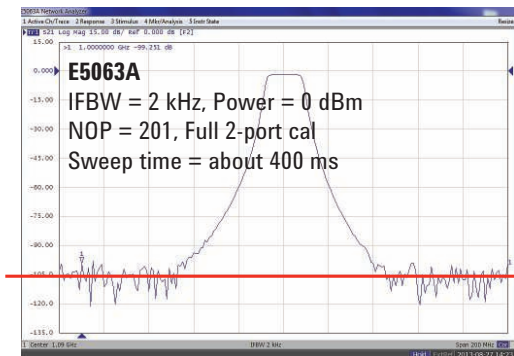
The E5063A provides solid measurement performance for testing simple RF passive components at lower prices. This enables you to reduce your test equipment cost without sacrificing test quality.

- Trace noise (0.002 dBrms<sup>1</sup>) and stability (0.01 dB/°C<sup>2</sup>)
  - The best-in-class performance comparable to higher-end ENA models
  - Enables accurate measurements of low-loss devices
- Dynamic range (maximum 122 dB<sup>3</sup>)
  - Satisfies test requirements of simple RF passive components.

You can choose the best suited frequency option from 4.5, 8.5, and 18 GHz depending on your test needs and budgets. In addition, the frequency upgradability allows you to start your investment with the lower-priced 4.5 GHz option and later upgrade it to 8.5 or 18 GHz options when necessary. Optimize your investment for your current and future needs with the E5063A.



Trace noise (S21 measurement of thru, at 1 to 3 GHz)



Dynamic range (S21 measurement of 1 GHz band-pass filter)

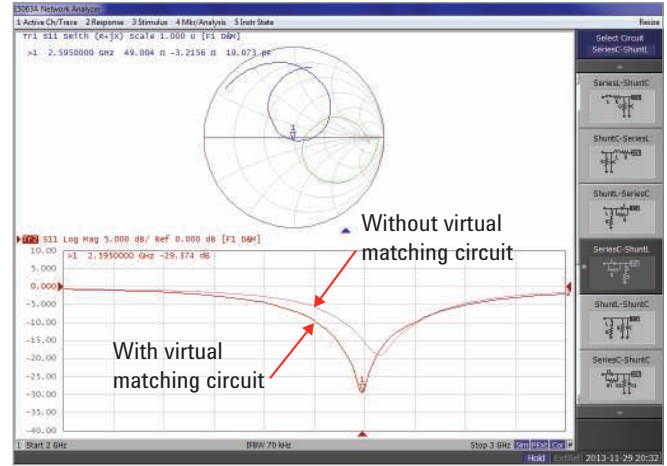
1. Typical, transmission measurement, at 8 M to 4.35 GHz, IFBW=70 kHz
2. Typical, at 300 k to 6 GHz
3. Typical, at 100 M to 4.35 GHz, IFBW=10 Hz

# Ready for Production Testing

## Proven calibration and analysis capabilities

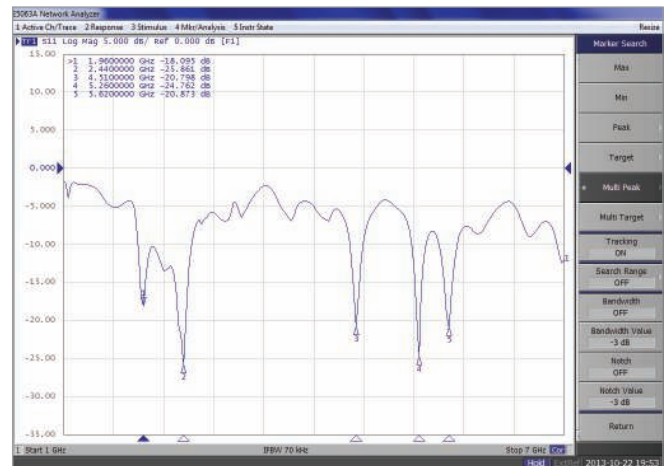
The E5063A fully supports major calibration and data analysis capabilities that are compatible with the E5071C and required for testing RF passive components. With these proven capabilities, the E5063A provides measurements consistent with the industry standard E5071C.

- Calibration capabilities
  - SOLT cal (with known thru, or unknown thru)
  - Adapter removal/insertion
  - ECal (Electronic Calibration)
  - TRL cal
- Fixture simulator
  - Virtual matching circuit embedding
  - De-embedding
  - Port-Z conversion
  - 1-port mixed-mode S-parameters
- Limit test functions
  - Conventional limit line
  - Point limit (for antennas)
  - Ripple & Bandwidth limit (for filters)
- Marker search functions
  - Single search for max, min, peak, or target value
  - Multiple marker search for peaks or target values

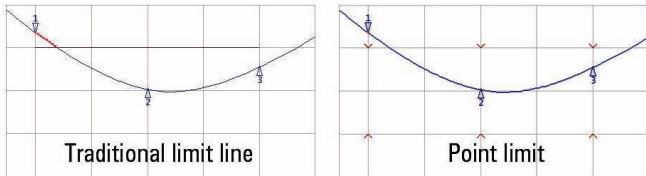


Embedding matching circuit in antenna measurement

In addition, Chinese language support via softkey and the embedded help manual further improves usability for Chinese users.



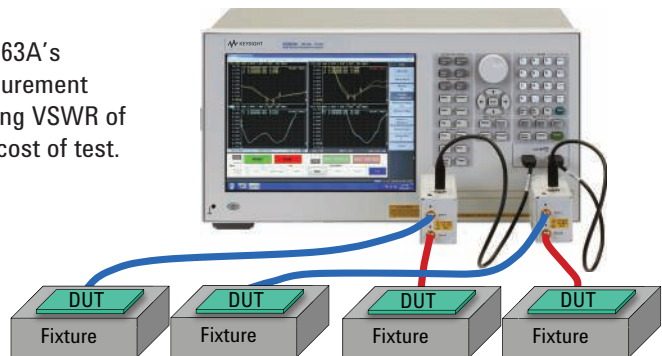
Searching multiple peaks with markers



Limit test functions

## Multi-DUT testing

The U1810B USB coaxial SPDT switch can be controlled with the E5063A's SCPI command. By programming the U1810B and the E5063A's measurement sequence, you can build an economy multi-DUT test solution for testing VSWR of four antennas with a single instrument. This will further reduce your cost of test.



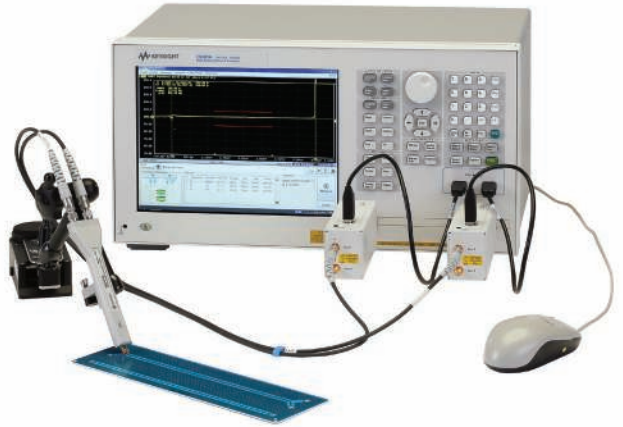
Multi-DUT test solution with U1810B USB switch (application program running on analyzer)

# E5063A ENA Series PCB Analyzer

## The best solution for PCB manufacturing test

As the operating speed of electronic circuits increase, signal integrity of printed circuit boards (PCBs) drastically affects performance and there is an increasing requirement for controlled impedance PCBs. In addition, with the proliferation of wireless devices, such as smartphones and tablets, there is a trend to integrate antennas onto PCBs. Therefore, in addition to the traditional time domain impedance measurement, there is a growing need to measure the frequency domain response of PCB integrated antennas.

The E5063A PCB Analyzer consists of an E5063A ENA Series Network Analyzer with Option 011 (Time domain analysis/Test Wizard). The E5063A provides frequency domain measurement capability and Option 011 adds time domain analysis capability, as well as a dedicated graphical user interface for PCB manufacturing test. The number of available ports can be expanded up to four with the addition of U1810B USB coaxial switches, to allow for simultaneous connection to both single-ended and differential probes.



Compared to traditional solutions based on sampling oscilloscopes, the E5063A PCB Analyzer provides three breakthroughs for PCB manufacturing test:

- More Accuracy and R&R (Repeatability & Reproducibility)
- More Languages Supported
- More ESD Robustness

## More accuracy and R&R

Delivers new standards in speed and accuracy

- Low noise floor for accurate and repeatable measurements
- State of the art error correction techniques enables you to measure your device, not your measurement system
- Fast measurement speed for improved throughput

## More languages supported

An analyzer that speaks the user's language

- Since there are many cases where tasks are solved more efficiently in one's native language, a multi-lingual interface is provided with the graphical user interface.
- Currently available languages include English, Simplified and Traditional Chinese, Japanese, and Korean

## More ESD robustness

Protection circuits implemented inside the instrument

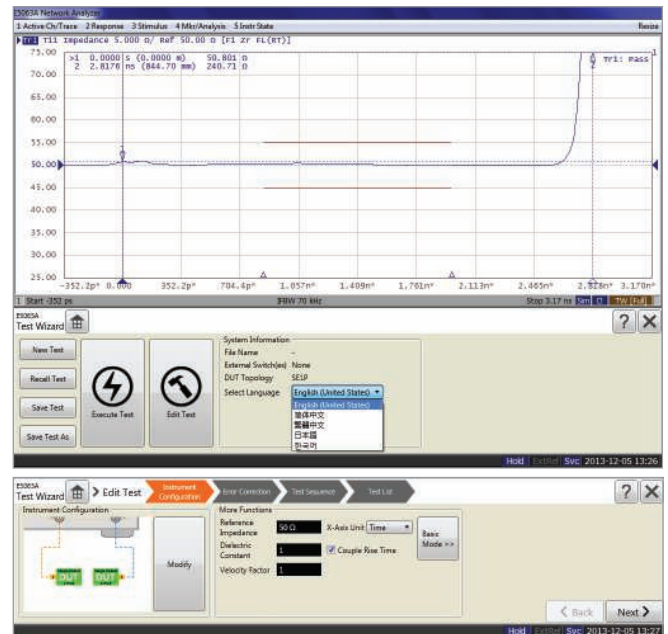
- Proprietary electrostatic discharge (ESD) protection chip significantly increases ESD robustness, while at the same time maintaining excellent RF performance
- Highly robust architecture can minimize instrument failure from ESD and free you from worrying about instrument repair fees and downtime

## Edit test mode

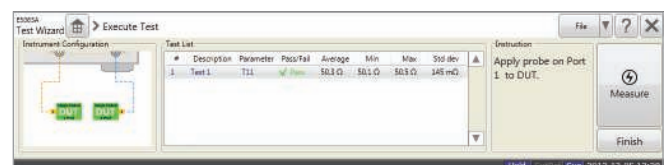
Setup and Error Correction Wizards allows for intuitive and error free setup, error correction, and measurements.

## Execute test mode

Simple and intuitive user interface for non-technical operators.



Edit test mode

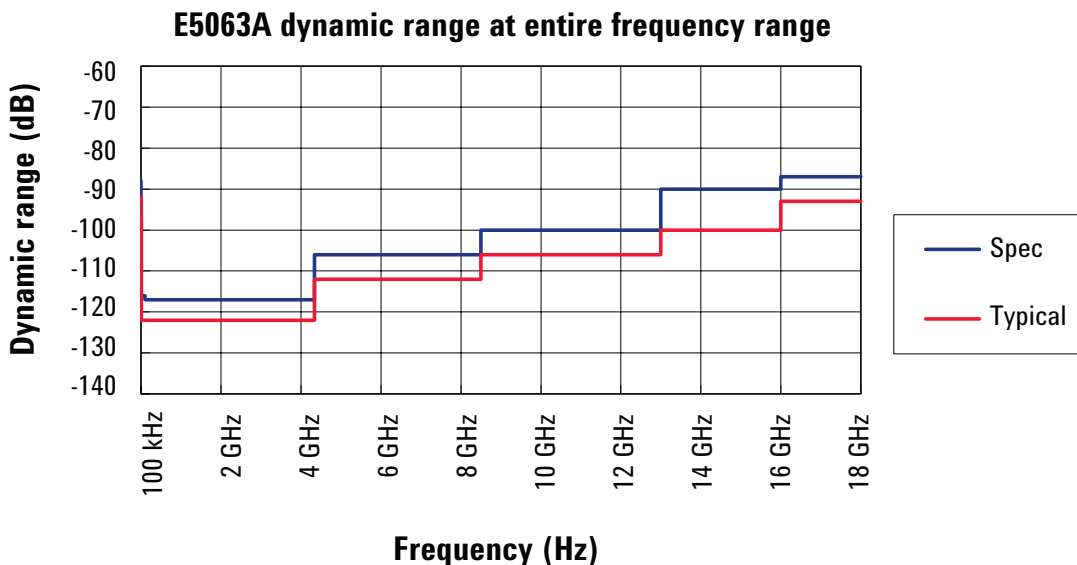


Execute test mode

## E5063A key specs & features (comparison with E5061B & E5071C)

	E5063A	E5061B (RF NA Options)	E5071C
Frequency	100 kHz to 4.5/ 8.5/18 GHz	100 kHz to 1.5/3 GHz	9/100 kHz to 4.5/6.5/ 8.5 GHz, 300 kHz to 14/20 GHz
Test port	2-port S-parameter, 50 Ω	2-port T/R & S-parameter, 50 or 75 Ω	2 & 4-port S-parameter, 50 Ω
Dynamic range	117 dB (spec), 122 dB (typical) (at 100 MHz to 4.35 GHz)	120 dB (spec), 130 dB (SPD) at 1 MHz to 3 GHz	123 dB (spec), 130 dB (SPD) (at 10 MHz to 6 GHz)
Trace noise	0.005 dBrms (spec) 0.002 dBrms (typical) (at 8 M to 4.35 GHz, IFBW = 70 kHz, transmission measurement)	0.005 dBrms (spec)  (at 1 M to 3 GHz, IFBW = 3 kHz)	0.003 dBrms (spec) 0.001 dBrms (SPD) (at 10 M to 4.38 GHz, IFBW = 70 kHz, transmission measurement)
Stability	0.01 dB/°C (at 300 kHz to 6 GHz)	0.01 dB/°C (at 3 MHz to 3 GHz)	0.005 dB/°C (at 9 kHz to 3 GHz)
Source power	-20 to 0 dBm (at 300 kHz to 8.5 GHz)	-45 to +10 dBm (at 300 kHz to 3 GHz)	-55 to +10 dBm (at 9 kHz to 5 GHz)
Sweep type	Liner & Log frequency, Segment	Liner & Log frequency, Segment, Power sweep	Liner & Log frequency, Segment, Power sweep
NOP	10,001	1,601	Max. 20,001
Channel	12	4	Max. 160
Measurement parameters	S-parameters (single-ended, mixed-mode), TDR and single-ended TDT parameters <sup>1</sup>	S-parameters (single-ended), Absolute power	S-parameters (single-ended mixed-mode), Absolute power, TDR and TDT parameters <sup>1</sup>
Calibration capabilities	SOLT, Adapter removal/insertion, ECal, TRL, Unknown thru, Waveguide	SOLT, Adapter removal/insertion, ECal, ECal user characterization	SOLT, Adapter removal/insertion, ECal, ECal user characterization, TRL, Unknown thru, Waveguide, Power cal, Receiver cal, Mixer cal,
Other major capabilities	Time domain/Test Wizard <sup>1</sup> , Limit test (Limit line, Ripple limit, Bandwidth limit, Point limit), Fixture simulator, Equation editor U1810B USB switch support	Time domain/SRL analysis <sup>1</sup> , High-stability timebase <sup>1</sup> , Limit test (Limit line, Ripple limit, Bandwidth limit), Equation editor, VBA	Time domain <sup>1</sup> , TDR <sup>1</sup> , FOM <sup>1</sup> , High-stability timebase <sup>1</sup> , Bias-tees <sup>1</sup> , Limit test (Limit line, Ripple limit, Bandwidth limit, Point limit), Fixture simulator, Equation editor, VBA, E5092A mutiport test set support

1. Optional capabilities



## E5063A Ordering Information

Model/Option No.	Description
<b>E5063A</b>	<b>ENA Series network analyzer</b>
<b>Test set options<sup>1</sup></b>	
Option E5063A-245	2-port test set, 100 kHz to 4.5 GHz
Option E5063A-285	2-port test, set, 100 kHz to 8.5 GHz
Option E5063A-2H5	2-port test set, 100 kHz to 18 GHz
<b>Storage option</b>	
Option E5063A-019 <sup>2</sup>	Standard solid state drive
<b>Software option</b>	
Option E5063A-011	Time domain analysis/Test Wizard
<b>Other options</b>	
Option E5063A-810	Add keyboard
Option E5063A-820	Add mouse
Option E5063A-1CM	Rack mount kit
Option E5063A-1CN	Front handle kit
Option E5063A-1CP	Rack mount and front handle kit
Option E5063A-1A7	ISO 17025 compliant calibration
Option E5063A-A6J	ANSI Z540 compliant calibration

Model/Option No.	Description
<b>E5063AU</b>	<b>E5063A upgrade kit</b>
<b>Frequency upgrade options</b>	
Option E5063AU-245	Upgrade from 4.5 GHz to 8.5 GHz
Option E5063AU-2H5	Upgrade from 4.5 GHz to 18 GHz
Option E5063AU-2H6	Upgrade from 8.5 GHz to 18 GHz
<b>Software upgrade option</b>	
Option E5063AU-011	Time domain analysis/Test Wizard – Fixed, perpetual license

1. Must choose one of test set options

2. Option 019 is the only storage option. Must choose this option when ordering the E5063A.

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