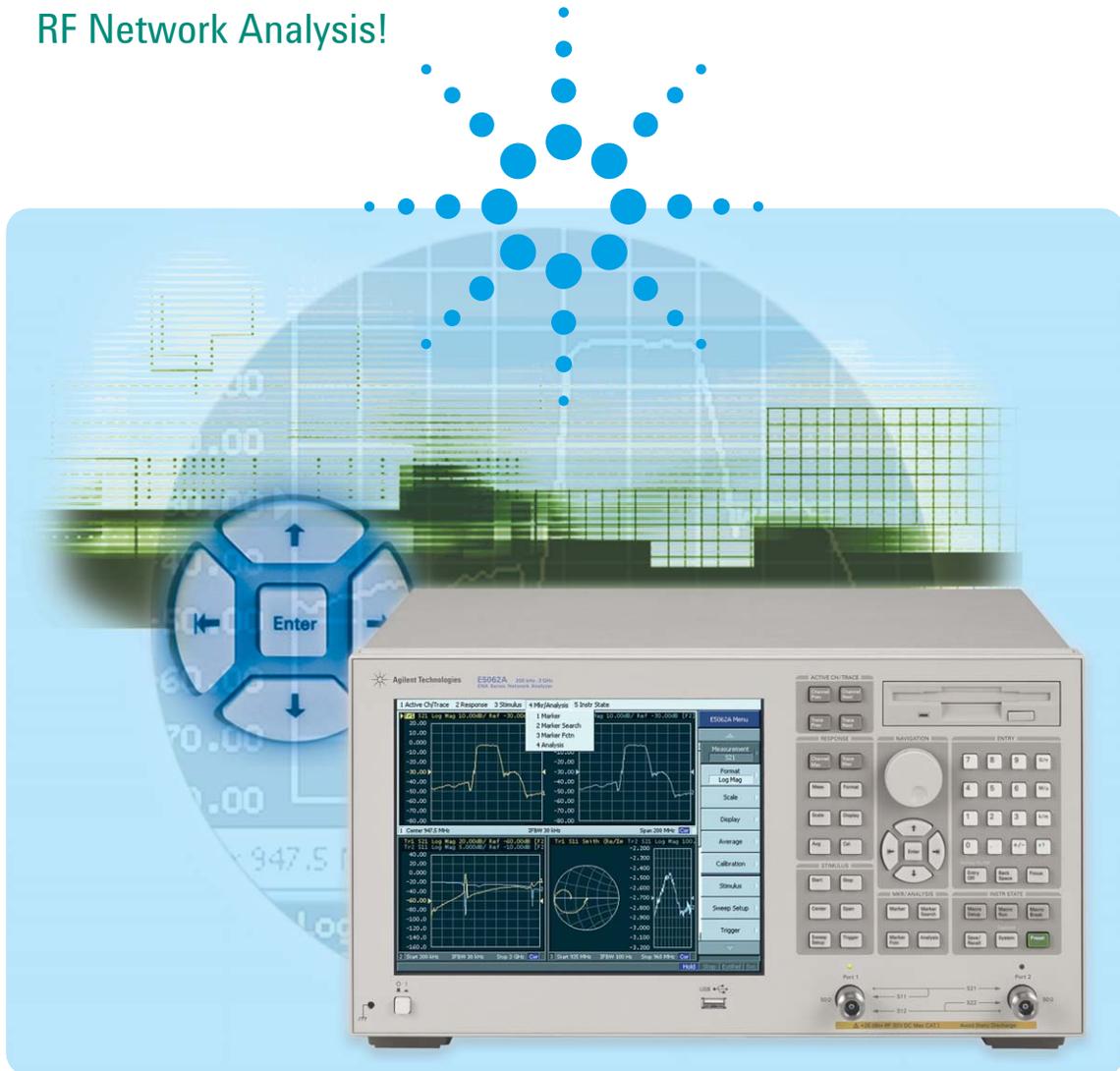


# Agilent ENA-L RF Network Analyzers

E5061A, 300 kHz to 1.5 GHz

E5062A, 300 kHz to 3 GHz

Agilent's  
New Standard  
For Low-Cost Basic  
RF Network Analysis!



**Modern Technology and Powerful Productivity  
Features to Improve your Efficiency**

# Solid performance in an easy to use low-cost RF network analyzer



Providing the latest in modern technology and flexibility, the Agilent ENA-L network analyzers provide basic vector network analysis in a wide range of industries and applications such as wireless communication, cable TV, automotive, education, and more. Designed to reduce tune and test times, these analyzers provide increased throughput to improve your measurement productivity.

The ENA-L offers all of the critical performance and features needed in R&D, manufacturing, and service to test RF components such as: filters, amplifiers, antennas, cables, CATV taps, and distribution amplifiers.

The affordably priced ENA-L, equipped with the core functions of the industry-standard ENA, includes many easy-to-use features and is optimized for efficient measurements and high reliability.

**A variety of sweep functions for effective analysis.** Power sweep and three types of frequency (linear/log/segment).

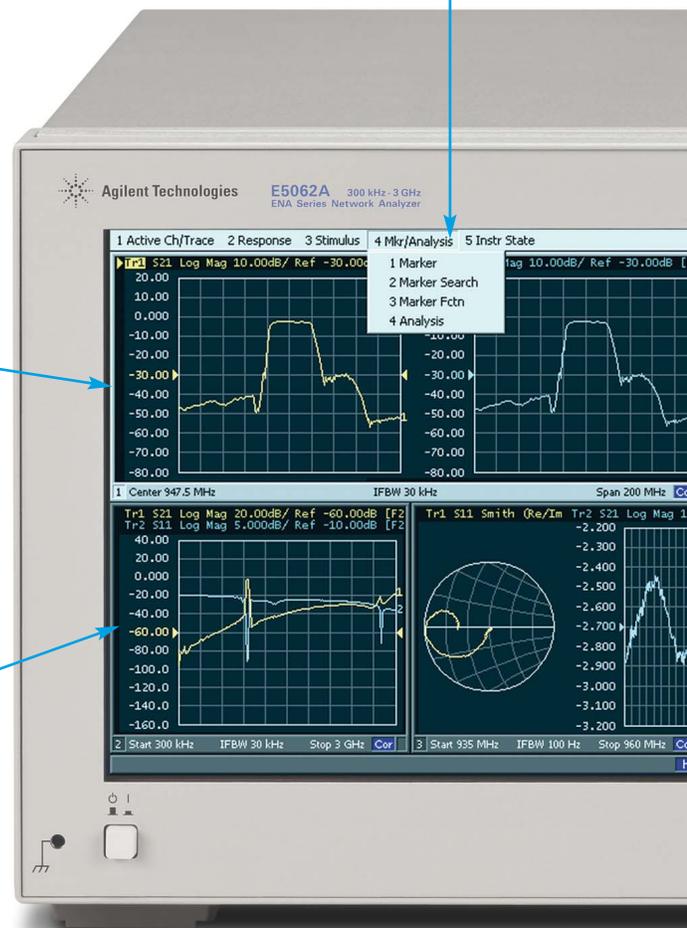
**Multi-channel measurements display** (4 measurement channels/4 traces per channel) speeds your component evaluation allowing you to view all four S-parameters of a two-port device simultaneously.

**Large (10.4-inch) color LCD** clearly displays your measurements with the parameters you need.

**Powerful analysis functions improve productivity**

- Limit-line testing facilitates consistent test results
- Fault location/SRL analysis (optional) simplifies cable measurements

**Windows® style interface** with optional touch screen enables intuitive operation.



# Simplifying tasks with advanced features

An easy to use user interface makes tasks simple.

Shorter instrument depth (360 mm) allows for more bench top space.



**Electronic calibration (ECal) module** (Optional) with only one set of connections, helps to speed and simplify your calibration process.

**Variety of test set choices to meet your exact needs**

- Transmission/reflection or S-parameter
- 50 Ω or 75 Ω port impedance

## ENA-L Highlights

<b>Frequency</b>	<b>E5061A</b>	300 kHz to 1.5 GHz
	<b>E5062A</b>	300 kHz to 3 GHz
<b>Test set</b>	T/R or S-parameter	
<b>Port impedance</b>	50 or 75 Ω	
<b>Port output power</b>	-5 to 10 dBm	
	-45 to 10 dBm with extended power range	
<b>Dynamic range</b>	>120 dB	
<b>Trace noise</b>	0.005 dB rms	
<b>Sweep types</b>	Linear, log, segment, power	
<b>Display</b>	10.4-inch color LCD	
	Optional touch screen	
<b>ECal support</b>	Yes	
<b>Measurement channels</b>	4	
<b>Limit lines</b>	Yes	
<b>Save recall</b>	Yes	
<b>VBA® programming</b>	Yes	

**Save/Recall (to floppy or hard drive)** minimizes setup time. Quickly switch between test setups by recalling an instrument state.

**Built-in VBA programming** simplifies complicated measurements and decreases operator error. Easily automate common measurement procedures and create a graphic user interface tailored to your measurement needs.

**Flexible connectivity** (through rear-panel connectors)

- Handler I/O: high-speed hand-shake with parts handler or other instrument with user defined I/O signals
- GPIB: robust instrument control
- LAN: high speed instrument control and data transfer
- USB: easy connection to printer
- Parallel: printer and multipoint test set
- VGA: external display

# Enabling accurate and efficient RF component evaluation



## Fundamental performance with versatile general-purpose test capabilities

The ENA-L, with its > 120 dB dynamic range and 0.005 dB rms trace noise, provides the accuracy and speed required for many network measurement applications. The wide 30 kHz IF bandwidth (IFBW) and powerful digital processing provide unprecedented measurement speed. The S-parameter test set options offer full two-port calibration for optimum accuracy (Option 250 or 275).



Fast frequency sweep increases throughput and lowers your cost per component.<sup>1</sup>

## See the entire ENA network analyzer family

For applications with more demanding measurement needs and higher frequencies up to 8.5 GHz, engineers world-wide rely on the high-performance of the Agilent E5071C ENA RF network analyzers. With the same user-friendly interface as the ENA-L analyzers, ENA models offer expanded capabilities such as:

- *Balanced and multipoint measurements*
- *Mixer and harmonic measurement*
- *Integrated bias tees*

For more information regarding the entire ENA Series of network analyzers, visit the ENA web site: [www.agilent.com/find/ena](http://www.agilent.com/find/ena).

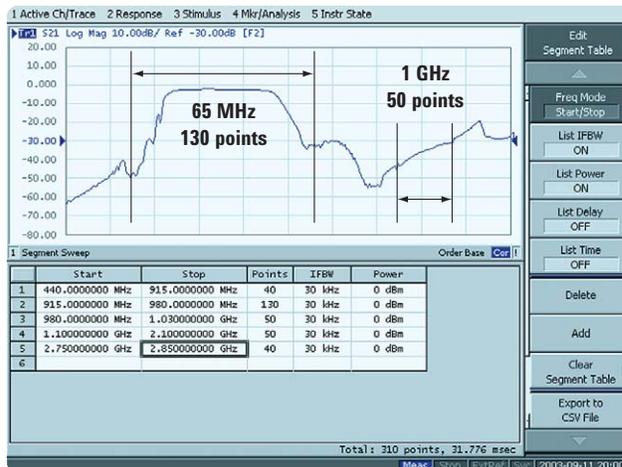


Wide dynamic range allows precise evaluation of high rejection filters.

## A variety of sweep functions for effective analysis

Power sweep and three types of frequency functions provide effective analysis to suit your application needs such as:

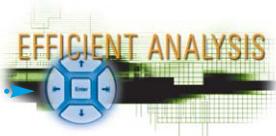
- **Power sweep** to analyze active devices such as amplifiers
- **Linear sweep** to evaluate narrow-band devices such as filters
- **Log sweep** to evaluate broadband devices such as cables
- **Segment sweep** allows you to tailor the sweep condition with up to 201 sweep segments



Segment sweep allows you to measure, at various intervals, ONLY the necessary frequencies.

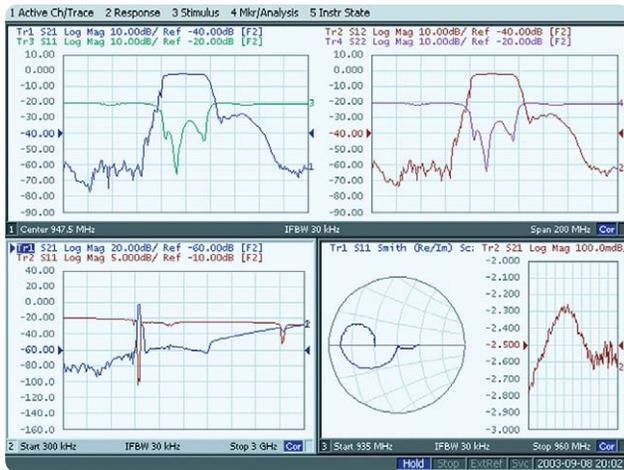
1. Agilent E5061A verses Agilent 8712ES sweep speed comparison with typical data (201 points, 2-port cal., 90 dB dynamic range).

# Powerful features you need to reduce test time



## Multi-channel measurement display capability speeds your component evaluation

Display up to four traces per measurement channel and evaluate all four S-parameters of a two-port device at the same time. Each of the ENA-L's four measurement channels can have independent measurement settings such as frequency range, enabling you to compare traces with different measurement conditions. In total, the ENA-L allows you to display and analyze 16 traces simultaneously!



Display it all with powerful display capabilities

## Optional Electronic Calibration (ECal) drastically simplifies calibration

Unlike the traditional mechanical calibration technique, Agilent's ECal modules only require one set of connections to perform full two-port calibration (controlled through the front panel USB port). The ENA-L controls the ECal module to perform the entire calibration to provide:

- Faster calibration and reduced complexity
- Reduced chance of operator error
- Reduced wear on connectors

Controlled through the front panel USB port, and requiring only one set of connections, ECal simplifies the process for non-technical operators.

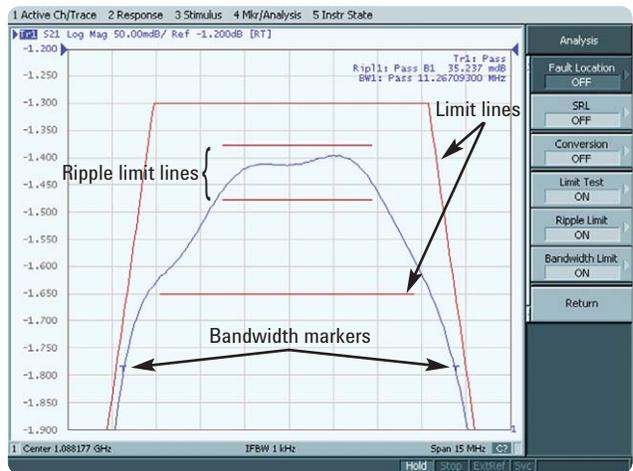


## Limit-line testing facilitates consistent test results

Eliminate the guesswork and facilitate pass/fail judgement with limit-line testing to increase the reliability and productivity of your test processes. Limit-line conditions can be easily defined by editing the spreadsheet on the analyzer's display.



Easily define limit-line test conditions with Windows-style interface.



Ripple limit lines and bandwidth markers for cellular base station filter tuning.

# Tailor measurements to your specific applications

CUSTOMIZE AND SIMPLIFY



## CATV Component measurements

### ENA-L is designed for 75 Ω measurements

A fully specified 75 Ω test port impedance option is available for reliable CATV component measurements. With the 75 Ω ECal, you can perform fully calibrated measurements with minimal calibration effort.



### A complete multiport test solution

The ENA-L, with the 87075C 75 Ω multiport test set, provides an ideal solution for multiport CATV component measurement. The test system offers fast measurement speed, high accuracy, and productivity features to maximize your production throughput.

- Specified performance to 1.3 GHz
- 6 or 12 test ports
- Test set calibration technique eliminates redundant connection of calibration standards, and ECal further reduces the number of connections.
- Self calibration (an internally automated calibration technique) reduces the effects of test system drift.

## Cable measurements

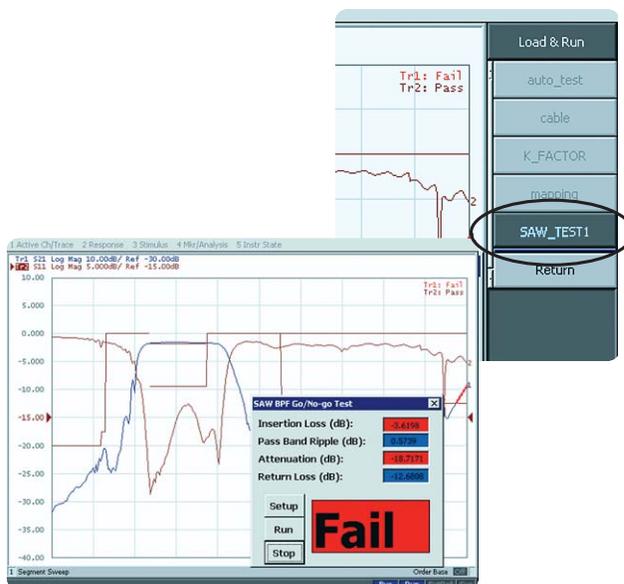
### Simplify cable measurements with fault location/SRL analysis (Option 100)

The reduced size of the ENA-L enables you to test cables that are still on a spool in a warehouse or already installed on a cellular tower quickly and accurately. This solution allows you thorough cable testing including loss, impedance, structural return loss (SRL), and fault location measurements, and has many advantages over traditional time-domain reflectometry (TDR) techniques.

## Customize ENA-L with VBA

### VBA simplifies complicated measurements

ENA-L's built-in VBA programming function allows you to automate measurement procedures and easily create a graphic user interface, tailored for your measurement needs. A test program can be developed with the built-in editor or on an external PC with Visual Basic® (VB).



The VBA launcher function allows you to execute a program with a single softkey.

# The ENA Series offers the solutions you require

ENA SERIES SOLUTIONS



## ENA-L

- E5061A 300 kHz to 1.5 GHz network analyzer
- E5062A 300 kHz to 3 GHz network analyzer

## ENA

- E5071C 9/100 kHz to 4.5/8.5 GHz network analyzer



### Common to entire ENA Series

#### Ease-of-use

- 10.4 inch color LCD
- Touch screen (Option 016)
- Windows-styled operation with mouse as well as conventional front panel key operation

#### Productivity features

- ECal support
- Multi channels and traces
- Save/Recall
- Limit-line test
- Built-in VBA
- GPIB/Handler IO/LAN/USB



### Unique to ENA-L

#### Affordability

- Lowest cost RF solution
- T/R test set

#### CATV solution

- Built-in 75 Ω
- 87075C 75 Ω multipoint test set

#### Cable solution

- Fault location and SRL

#### Small footprint

- 360 mm depth



### Unique to ENA

#### Advanced measurement capabilities

- Balanced measurements
- Mixer and harmonic measurements
- Integrated bias tees
- DC measurement

#### Advanced calibrations

- TRL/LRM, Unknown-thru SOLT
- Adapter removal
- Auto port extension
- ECal characterization

#### Advanced data analysis

- Embedding/de-embedding
- Equation editor
- Time domain gating

## To our 8712 and 8714 Series customers... The ENA-L network analyzer provides even greater value!

### The standard just got better

Agilent 8712 and 8714 Series network analyzers have long been recognized as the standard low cost tools for a wide range of applications, providing reliable basic network measurements at an affordable price. ENA-L provides you with even greater value for your money offering the latest in modern technology and ease-of-use.

### Protecting your software investment

Agilent protects your 8712 and 8714 software investment by providing migration tools<sup>2</sup> to reduce your code and state files conversion effort.

1. Applied to 8714ES with 50 Ω port impedance.
2. For more information about the migration tools, visit the ENA series web site: [www.agilent.com/find/ena](http://www.agilent.com/find/ena)
3. Typical data, 201 points, 2-port calibration, 90 dB dynamic range.



	Agilent ENA-L	Agilent 8712/8714
<b>Frequency</b>	300 kHz to 3 GHz	300 kHz to 3 GHz
<b>Test set</b>	T/R or S-parameter	T/R or S-parameter
<b>Port impedance</b>	50 or 75 Ω	50 or 75 Ω
<b>Dynamic range</b>	> 120 dB	101 dB <sup>1</sup>
<b>Sweep speed<sup>3</sup></b>	35 ms	240 ms
<b>Sweep types</b>	Linear, log, segment, power	Linear, power
<b>Display</b>	10.4-inch color LCD Optional touch screen	9-inch black & white monitor
<b>Measurement channels</b>	4	2
<b>ECal support</b>	Yes	No
<b>VBA Programming</b>	Yes	No(IBASIC)
<b>Broadband detection</b>	No	Yes
<b>Absolute power measurement</b>	No	Yes
<b>Limit lines</b>	Yes	Yes
<b>Save recall</b>	Yes	Yes

- Features enhanced in ENA-L
- Features not supported in ENA-L

## Ordering information

E5061A	300 kHz to 1.5 GHz network analyzer
E5062A	300 kHz to 3 GHz network analyzer
Option E5061A/62A - 150	TR test set 50 ohm system impedance
Option E5061A/62A - 175	TR test set 75 ohm system impedance
Option E5061A/62A - 250	S-parameter test set 50 ohm system impedance with extended power range
Option E5061A/62A - 275	S-parameter test set 75 ohm system impedance with extended power range
Option E5061A/62A - 1E1	Extended power range (-45 to 10 dBm)
Option E5061A/62A - 100	Add fault location and SRL analysis
Option E5061A/62A - 016	Touch screen color LCD

## Electronic calibration (ECal) modules

85092C	Type-N 50 ohm RF ECal module
85093C	3.5 mm RF ECal module
85096C	Type-N 75 ohm RF ECal module
85099C	Type-F RF ECal module

## Agilent Trade Up helps you migrate to ENA-L from your current network analyzer

Agilent Trade Up is a robust, easy-to-use program that helps test-and-measurement companies upgrade to the most advanced solutions that will reduce their costs, increase their efficiency and help them get to market quickly.

The program covers hundreds of the test-and-measurement products manufactured by Agilent Technologies and other companies over the past decades. So the chances are you can find a match between equipment you no longer need and new technologies that will improve your efficiency.

To get more information and learn about our promotional offers, visit our web site at: [www.agilent.com/find/trade-up](http://www.agilent.com/find/trade-up)

*NOTE: Agilent Trade Up is not available in all countries.*

## Additional information

For additional ENA-L product information and literature visit our Web site: [www.agilent.com/find/ena](http://www.agilent.com/find/ena)

For additional electronic calibration (ECal) product information and literature: [www.agilent.com/find/ecal](http://www.agilent.com/find/ecal)



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