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

Agilent Technologies
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
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.

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 multiport test set
- VGA: external display

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

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

Variety of test set choices to meet your exact needs
- Transmission/reflection or S-parameter
- 50 Ω or 75 Ω port impedance

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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).

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

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 multiport 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.

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

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!

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

Display it all with powerful display capabilities

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

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

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

CATV Component measurements

ENA-L is designed for 75 \( \Omega \) measurements
A fully specified 75 \( \Omega \) test port impedance option is available for reliable CATV component measurements. With the 75 \( \Omega \) ECal, you can perform fully calibrated measurements with minimal calibration effort.

A complete multiport test solution
The ENA-L, with the 87075C 75 \( \Omega \) 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.
The ENA Series offers the solutions you require

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 multiport 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

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 to reduce your code and state files conversion effort.

To our 8712 and 8714 Series customers...

Agilent 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

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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
3. Typical data, 201 points, 2-port calibration, 90 dB dynamic range.
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

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

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

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