

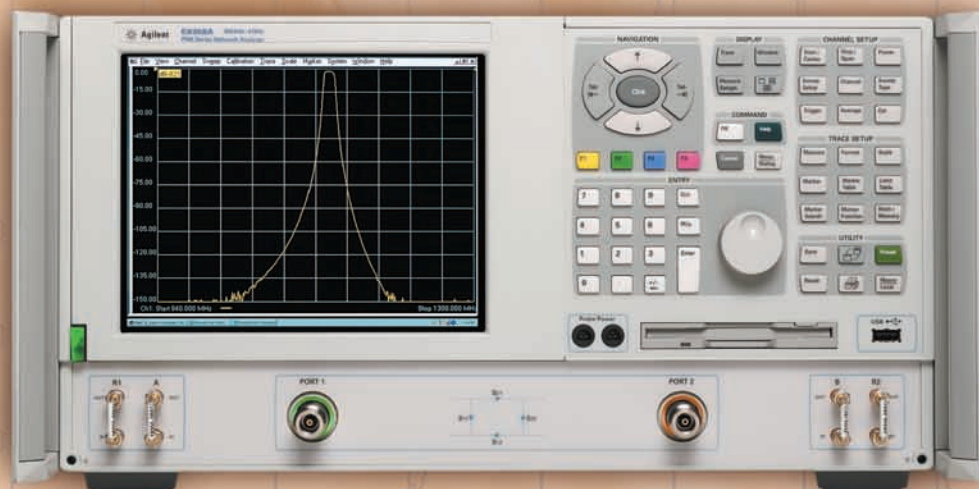
Agilent
RF Network Analyzers
PNA Series
E8356A, E8357A, E8358A

6 GHz
3 GHz
9 GHz

**exceptional
performance**

advanced automation

imagine the possibilities...



Agilent Technologies
Innovating the HP Way

Ch1: Start 840.000 MHz

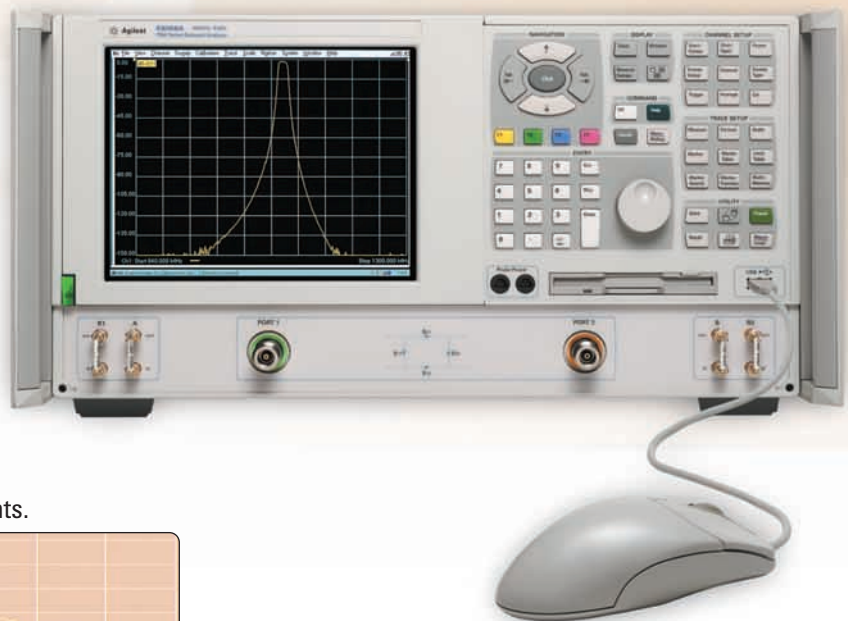
Stop 1300.000 MHz

...the Performance you Demand

Exceptional measurement capabilities for both today and tomorrow

- 35 μ s/point measurement speed
- 143 dB dynamic range with direct receiver access
- 128 dB dynamic range at test ports
- 0.005 dB trace noise (10 kHz IF bandwidth)
- 3, 6 and 9 GHz models
- 4 mixer-based receivers enable TRL/LRM calibration

You design and test leading edge RF devices that can push the limit of your test equipment. Test your high-performance components with a network analyzer that meets your measurement needs now and well into the future.



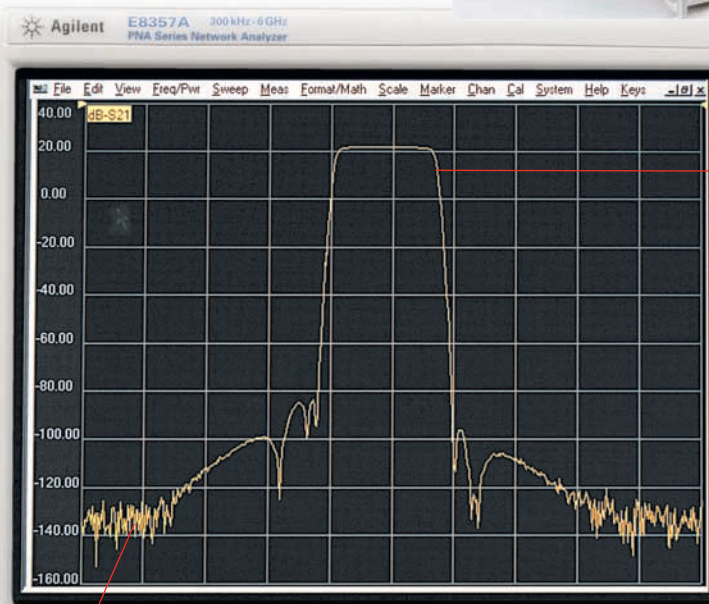
Choose a frequency range that meets your measurement requirements.





Use TRL calibration for accurate in-fixture or on-wafer measurements.

Increase throughput with 35 μ s/point measurement speed.



Accurately measure passband ripple of low insertion loss filters, such as DRF or LC filters, with low trace noise.

Measure base station filters or LNA/receive filter combinations with up to 143 dB dynamic range.

...the Throughput you Strive for



Reduce test time with a network analyzer optimized to increase throughput.



Built for Speed

Decreasing test time is critical for your success in the marketplace. The PNA Series analyzers are designed with maximum throughput in mind. Use a variety of powerful tools to optimize your measurement processes.

Decrease calibration time with easy-to-use electronic calibration (ECal)

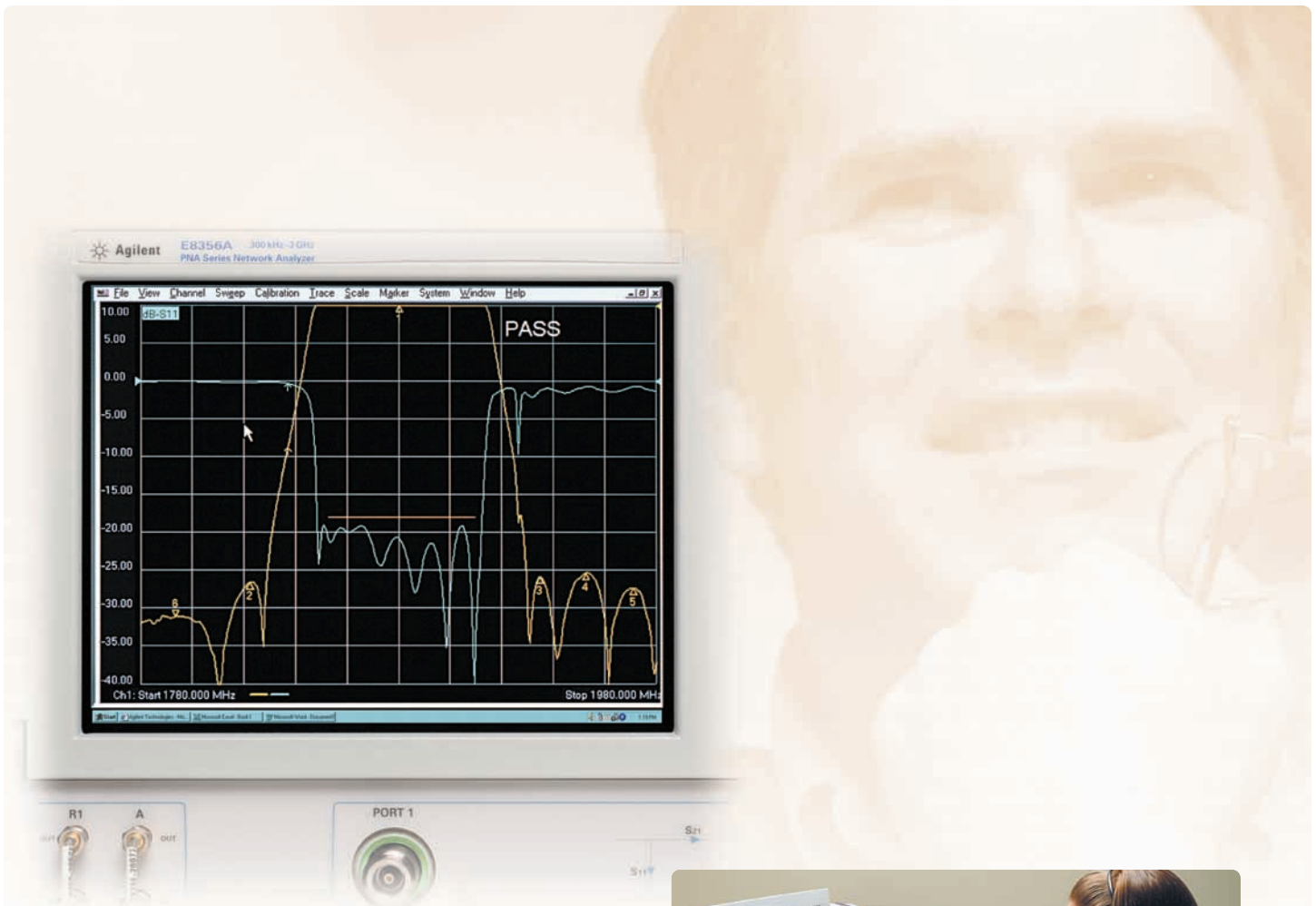
Perform fast, accurate, automatic calibrations with Agilent's ECal products. Control ECal directly from the analyzer without an external PC.

Dramatically increase throughput with segment sweep mode

Optimize each sweep by collecting data at frequency segments you define. Specify each segment with the optimum number of points, IF bandwidth and power level for increased speed and dynamic range.

Reduce test time with pass/fail testing

Let the network analyzer determine if measurement results are within limits that you define. Specify limits easily using the limit table.



Gain a competitive advantage with powerful automation tools

Automated test is yet another method you can use to eliminate valuable seconds from your test process. Use the flexible automation environment to lower your cost of test.

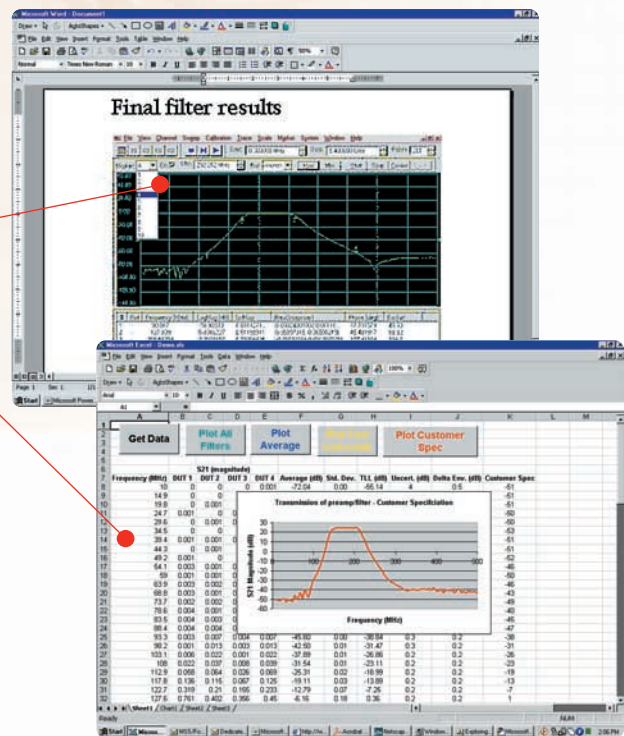
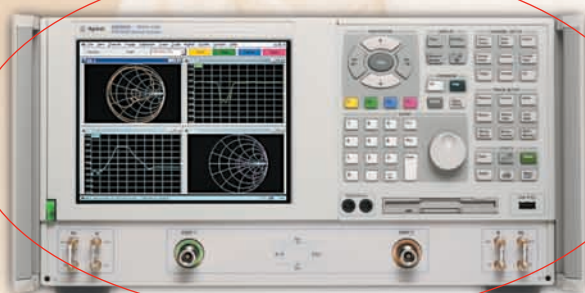
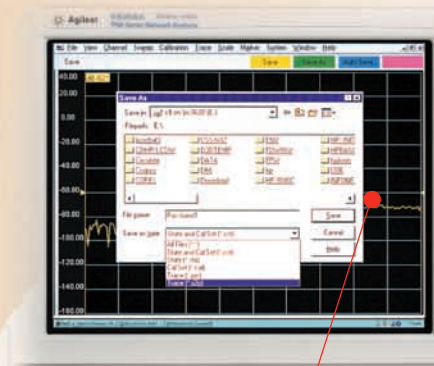
- Control the analyzer using SCPI commands, or gain the speed and connectivity advantage of COM/DCOM.
- Execute code directly from the analyzer, or from an external PC through LAN or GPIB.
- Develop code in the programming language you want. Languages like Visual Basic, Visual C++, Agilent-VEE, or LabView™.



The COM/DCOM advantage

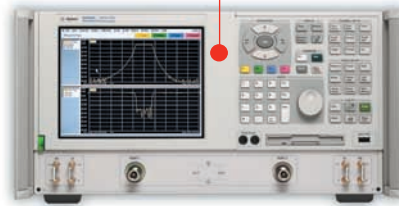
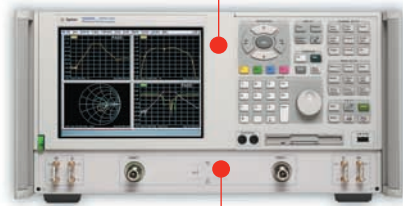
- Quick data transfer rate (3 ms COM, 57 ms SCPI over GPIB)
- Swift command execution
- Fewer lines of code
- Re-use rather than re-write objects

Save data easily to floppy disk, internal hard drive, or your external CD-RW drive, PC or server using the familiar Windows® interface.



Import trace data and screen images directly into your Microsoft® Excel or Word applications for post-processing on the analyzer or on an external PC.

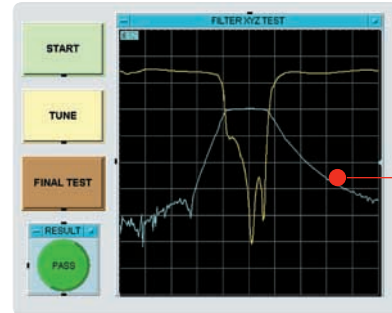
Send results to printers over LAN, parallel, serial or USB interfaces.



Control additional test equipment directly from the analyzer. Use a variety of I/O interfaces including GPIB, USB, LAN and parallel connections.

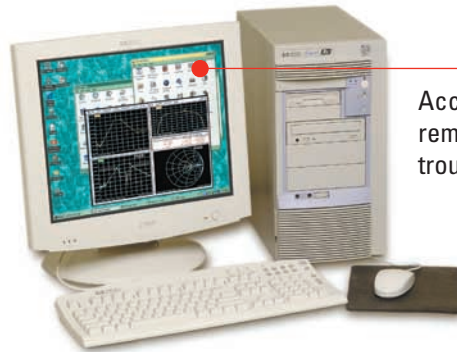


Integrate the analyzer into your automated test using SCPI or COM/DCOM.



Achieve a new level of integration

Standard features and an integrated Windows® 2000 operating system give you maximum connectivity choices.



Access the analyzer remotely for additional troubleshooting capability.

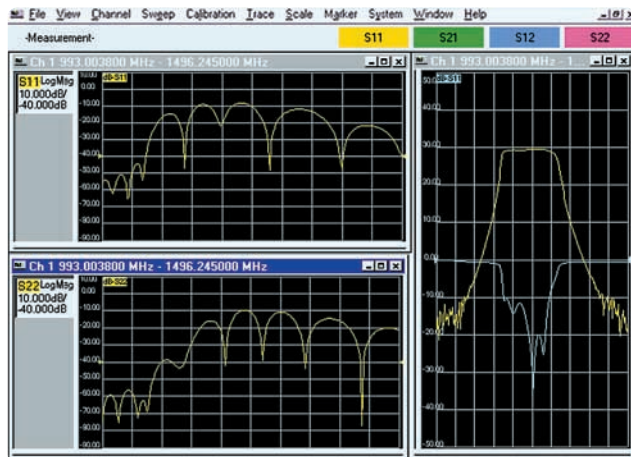


Access Agilent's web site for firmware and documentation upgrades or for measurement or application information.

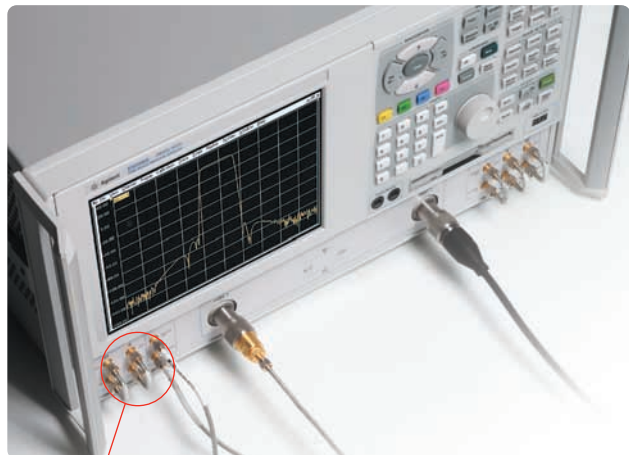


Send test data to a quality-management server.

...the Flexibility you Desire



Arrange windows for custom viewing or select standard viewing configurations.



Configurable test set: access signal paths for flexible configurations.

Measurement versatility

- Configure up to 4 independent stimulus settings.
- Display up to 16 active traces in 4 windows continuously.

The PNA Series combines powerful features with the benefit of Windows® to provide maximum measurement flexibility.

Time domain analysis option

- Locate and resolve discontinuities in your device, fixture or cable. Once located, use gating to remove unwanted responses.
- Tune cavity-resonator bandpass filters quickly with a simple, deterministic method.

Standard jumpers for direct receiver access

Bypass the couplers and apply signals directly into the receivers for improved signal-to-noise ratio. Achieve up to 143 dB dynamic range with response calibration using segment sweep mode.

Configurable test set option

- Add your own external components in the measurement path to test high power devices. Internally controlled step attenuators in the receiver path maintain linear measurements.
- Configure signal path for up to 143 dB dynamic range at the test port with full 12-term error correction. Simply reverse the coupler for increased dynamic range in one direction and use segment sweep mode.

...the Ease of Use you Seek

Answers when and where you need them with embedded help

Accelerate learning with context-sensitive help and robust tutorials. Use on-line help to quickly reference programming and user documentation. French, German, Japanese, and Spanish language versions will be available in early 2001.

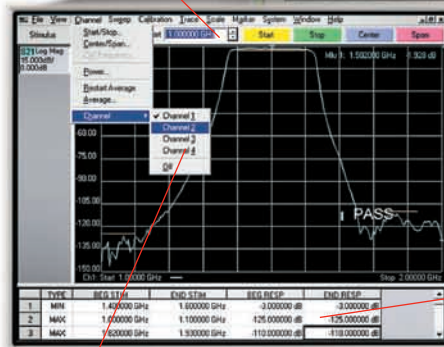


Set up fundamental measurements quickly using front panel keys.

Configure measurements easily with intuitive user interface

Navigate the analyzer efficiently using familiar front panel keys or with a mouse. Use a mouse or hard keys independently, or in combination to best suit your needs. Both methods are optimized in the Windows® environment for fast, intuitive operation.

Input parameters quickly using active entry toolbars.



Easily enter limit line and segment sweep values.

View choices easily with drop down menus.

...the Support you Expect

Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Agilent's overall support policy rests on two concepts: "Our Promise" and "Your Advantage."



Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

...the Specs you Can Rely on

Key Specifications

Model	E8356A	E8357A	E8358A
Frequency Range	300 kHz to 3 GHz	300 kHz to 6 GHz	300 kHz to 9 GHz
Max Port Output Power			
300 kHz to 6 GHz	+10 dBm	+10 dBm	+10 dBm
6 GHz to 9 GHz	—	—	+5 dBm
Dynamic range (at test port)¹			
300 kHz to 1 MHz	123 dB	123 dB	123 dB
1 MHz to 3 GHz	128 dB	128 dB	128 dB
3 GHz to 6 GHz	—	118 dB	118 dB
6 GHz to 9 GHz	—	—	113 dB
Dynamic range (direct receiver access)^{1, 2}			
300 kHz to 1 MHz	138 dB	138 dB	138 dB
1 MHz to 3 GHz	143 dB	143 dB	143 dB
3 GHz to 6 GHz	—	133 dB	133 dB
6 GHz to 9 GHz	—	—	128 dB
Trace noise			
300 kHz to 9 GHz (1 kHz IF bandwidth)	0.002 dB rms	0.002 dB rms	0.002 dB rms
300 kHz to 9 GHz (10 kHz IF bandwidth)	0.005 dB rms	0.005 dB rms	0.005 dB rms

¹ Not limited by crosstalk

² Characteristic performance; requires segment sweep mode

Measurement Speed (35 kHz IF bandwidth)

Frequency	Points	Calibration	Cycle time (ms) ³	µs/point	Updates/second
1800-2000 MHz	101	Response	7	69	143
1800-2000 MHz	201	Response	11	55	91
1800-2000 MHz	201	Full two-port	22	109	45
1800-2000 MHz	1601	Response	56	35	18
300 kHz to 9 GHz	201	Response	50	249	20

³ Includes retrace and band switching times

Data transfer speed, 32-bit binary (ms)

	201 points	1601 points
COM ⁴	2	3
SCPI ⁴	3	9
DCOM ⁵	3	14
SCPI over GPIB ⁵	9	57
SCPI over LAN ⁵	12	28

⁴ Program executed in the network analyzer

⁵ Program executed on an external PC

Imagine What you can Achieve Using Agilent's New Approach to Network Analysis...

Expand your measurement capabilities with Agilent-qualified Channel Partners.

Our Channel Partners offer accessories and measurement solutions that extend your network analysis capabilities.

For information about test fixtures and part handlers, contact:

Inter-Continental Microwave

1515 Wyatt Drive
Santa Clara, CA 95054 USA
Telephone: (408) 727-1596
Fax: (408) 727-0105
Web site: www.icmicrowave.com
E-mail: icmfixture@aol.com

For information about probing equipment and accessories, contact:

Cascade Microtech, Inc

2430 NW 206th Avenue
Beaverton, OR 97006 USA
Telephone: (503) 601-1000
Fax: (503) 601-1002
Web site: www.cascademicrotech.com
E-mail: sales@cmicro.com

For information about balanced and multiport measurements, contact:

ATN Microwave, Inc.

85 Rangeway Road
N. Billerica, MA 01862-2105 USA
Telephone: (978) 667-4200
Fax: (978) 667-8548
Web site: www.atnmicrowave.com

Key Web Resources

Visit our component manufacturer industry area at:

www.agilent.com/find/component_test

Visit the PNA Series home page at:

www.agilent.com/find/pna

Additional Literature

PNA Series, Technical Specifications,
publication #5980-1236E

PNA Series, Configuration Guide,
publication #5980-1235E

For more assistance with your test and measurement needs go to:

www.agilent.com/find/assist

Or contact the test and measurement experts at Agilent Technologies.

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