Agilent ESA-E Series Spectrum Analyzers

The flexibility to solve today's tough problems... and get ready for tomorrow.

NEW

Noise Figure Measurement Personality

Agilent Technologies

The Agilent ESA-E Series

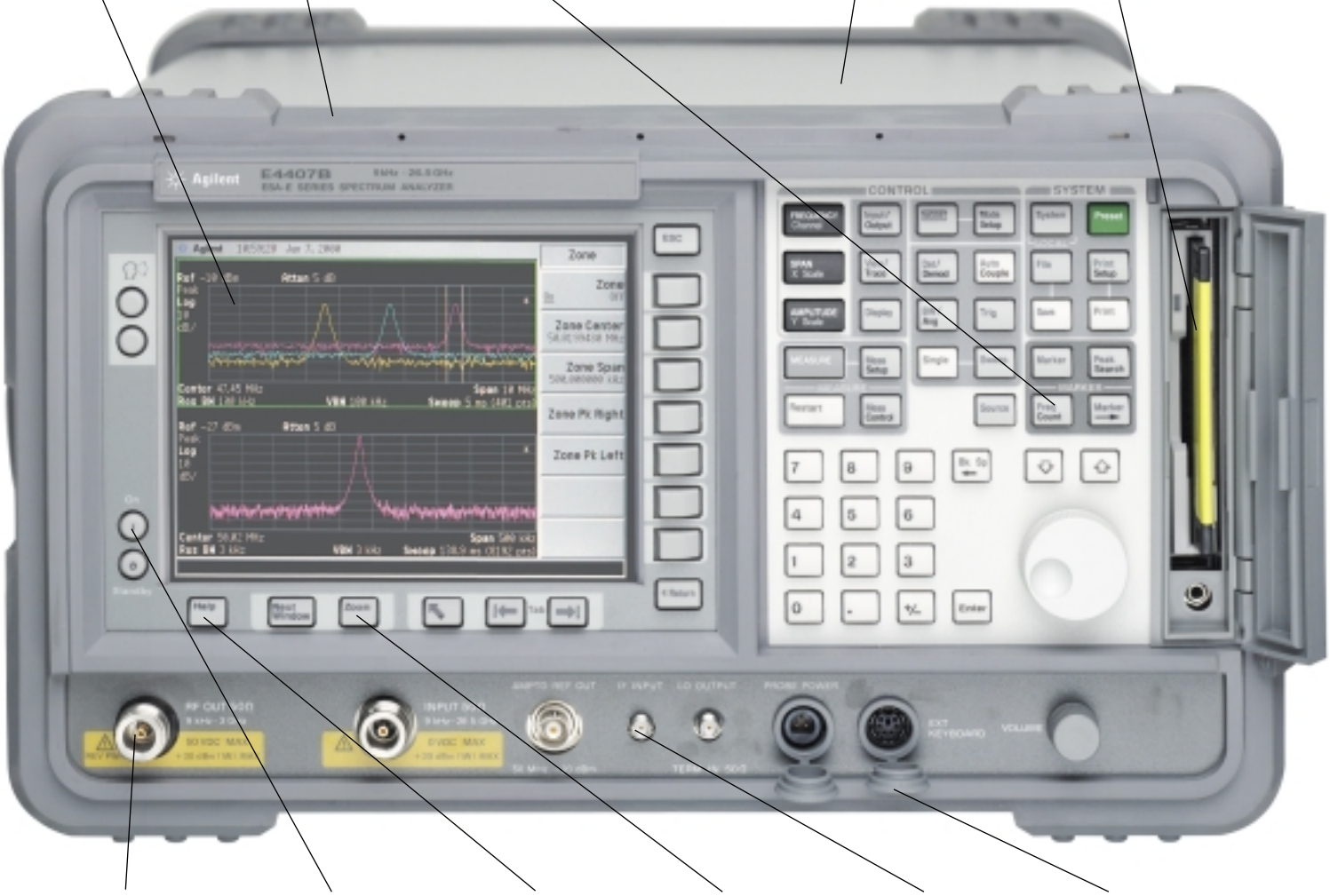
Large high-resolution, high-contrast color display makes viewing multiple traces easy.

Rugged case with rubber encased front and rear frames resists transportation stresses.

Built-in counter precisely identifies signals using the 1 Hz marker-based counter.

Flexible hardware/software environment allows focused applications like GSM and modulation analysis.

Built-in floppy disk drive provides PC compatibility and data archiving.



Built-in tracking generator provides an RF source for scalar network analysis (optional).

Full measurement accuracy after just a 5 minute warm-up.

Built-in help function eliminates the need to carry manuals into the field.

Zoom windows provides split screen display with both wide and narrow spans.

External mixing extends frequency range to 325 GHz (optional).

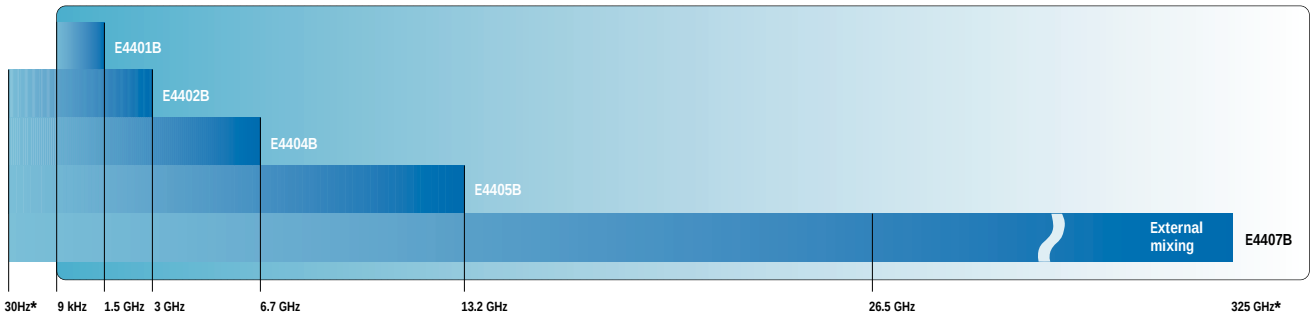
Weather resistant front panel allows operation in rain and high humidity.

Speed, accuracy, and dynamic range with a flexible platform for the future.

Designed for Performance Measurements,...

- fast test times
- superior resolution
- wide dynamic range
- measurement confidence

Frequency range summary*



A platform built for speed

Agilent uses the latest digital, RF and microwave designs to deliver the performance typically found in more expensive spectrum analyzers. The ESA-E Series portable spectrum analyzers have a remarkable one-millisecond RF sweep time and virtual real-time measurement updates to the display or through GPIB. Along with narrow digital resolution bandwidth filters (1 Hz to 300 Hz), and fast, time-domain sweeps you'll spend less time testing and have your product to market faster.

Specification summary*

	E4401B	E4402B	E4404B / E4405B / E4407B
Speed			
Sweep time (< 3 GHz)	1 ms to 4000 s	1 ms to 4000 s	1 ms to 4000 s
Zero span sweep time	50 ns to 4000 s	25 ns to 4000 s	25 ns to 4000 s
Local measurement rate	50/sec	45/sec	40/sec
Remote measurement & transfer rate	45/sec	45/sec	40/sec
RF center frequency tuning time	75 ms	75 ms	75 ms
Warm-up time for full accuracy	5 min	5 min	5 min
Resolution			
Resolution bandwidth range	1 Hz to 5 MHz	1 Hz to 5 MHz	1 Hz to 5 MHz
Residual FM	2 Hz p-p in 20 ms	2 Hz p-p in 20 ms	2 Hz p-p in 20 ms
Phase noise (10 KHz/1 MHz offsets)	–93 dBc/Hz	–90/–133 dBc/Hz	–90/–133 dBc/Hz + 20 Log N
Variable sweep (trace) point range	101 to 8192	101 to 8192	101 to 8192
Dynamic range			
Amplitude measurement range	–165 dBm to +30 dBm	–166 dBm to +30 dBm	–165 dBm to +30 dBm
Calibrated display range	85 to 120 dB	85 to 120 dB	85 to 120 dB
Maximum 2nd order dynamic range	92 dB (+35 dBm SHI)	97.5 dB (+45 dBm SHI)	97.5 dB (+45 dBm SHI)
Maximum 3rd order dynamic range	109 dB (+13.5 dBm TOI)	108 dB (+12.5 dBm TOI)	108 dB (+12.5 dBm TOI)
1-dB gain compression	0 dBm	0 dBm	0 dBm
Accuracy			
Frequency accuracy (stable temp.)	±101 Hz	±101 Hz	±101 Hz
Span accuracy (8192 sweep points)	±0.5%	±0.5%	±0.5%
Overall absolute amplitude accuracy	±1.0 dB	±1.0 dB	±1.0 dB, 2 dB at > 3 GHz, 2.5 dB at > 6.7 GHz

*Includes optional performance, see ESA-E Series data sheet for complete details, literature number 5968-3386E.

...With The Flexibility to Tailor That Performance to Your Needs.

Choose the performance you need, when you need it

The Agilent ESA-E's flexible platform means you can get exactly what you need today while still protecting your investment into the future. The six-slot option card cage lets you choose only the performance you need now (without paying for unnecessary capability) and upgrade in the future.

This scalable performance in combination with Agilent measurement personalities, downloaded into the internal memory, transform the ESA-E analyzer into an application-focused solution built around your unique needs.

Designed for upgradeability

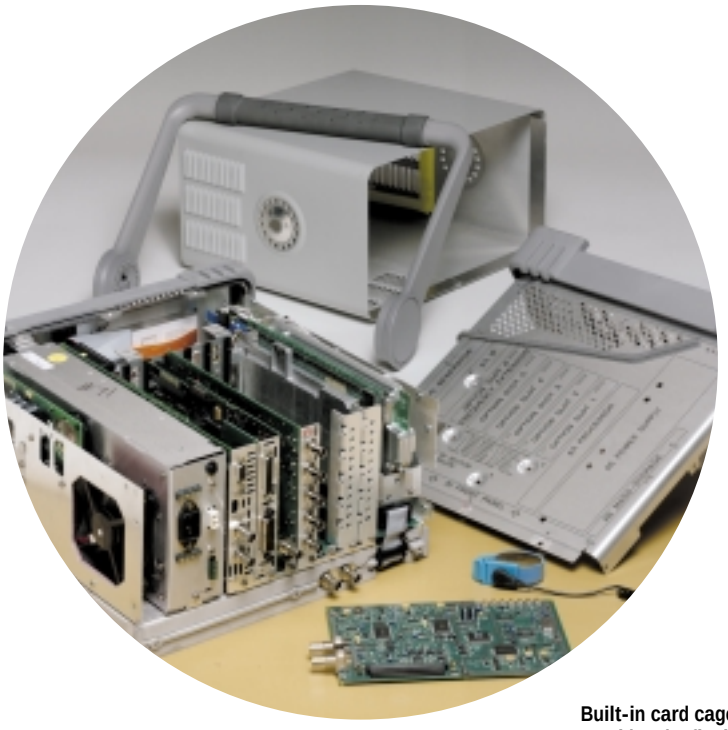
After the purchase of your analyzer, most optional performance can be installed and calibrated at an Agilent Service Center or in many cases, installed in your facility. Firmware upgrades, including many performance enhancements, can be downloaded free from the Agilent Web site.

Over 35 options to choose from...and more coming soon

Including:

- digital resolution bandwidth filters of 1, 3, 10, 30, 100, 200 EMI, and 300 Hz
- time-gated spectrum analysis
- FM demodulation/deviation measurements plus tune and listen
- TV trigger with color picture on screen
- 1.5/3.0 GHz built-in tracking generator
- 30 Hz low frequency extension
- fast time-domain sweeps to 25 ns
- additional user memory to 8.0 MB
- external mixing capability to 325 GHz
- RF and digital demodulation/communication hardware
- 75 Ω input
- snap on battery pack or 12 Vdc operation
- decreased phase noise at wide offsets for greater ACPR dynamic range
- software to perform remote spectrum analyzer control over the internet
- remote programming code compatibility with the Agilent 8590 Series and the HP 8566/68 Series spectrum analyzers

For a complete list of options and accessories with ordering and compatibility information please see the *Agilent ESA/EMC Spectrum Analyzer Configuration Guide* (literature #5968-3412E)



Built-in card cage provides the flexibility to add application-specific performance.

Then, Add Measurement Personalities to Create Application-Focused Solutions.

Measurement personalities

For a growing number of applications Agilent offers unique software programs (provided on 3.5-in. disks) designed specifically for the ESA-E series. Downloaded into analyzer memory, each measurement personality provides measurement setups, routines, and results specific to your application, including a user interface with related terminology.

- easy to use one-button measurements
- complex algorithms executed with a button press
- improved accuracy and repeatability
- operator independent results
- decreased training time
- improved productivity

Combine the ESA-E Series optional hardware configurations with downloadable measurement personalities to create application-specific solutions.

General purpose measurement personalities

Cable fault location

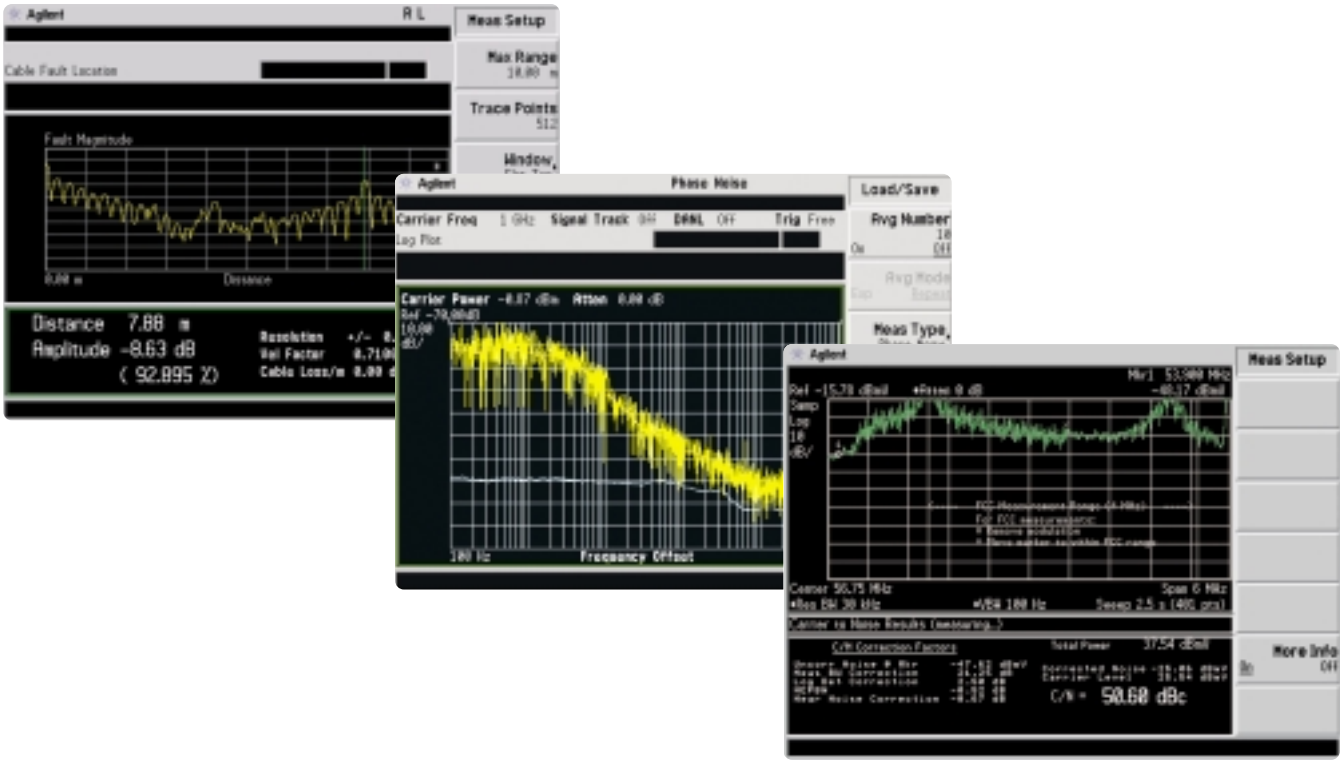
Options 225 (measurement personality), 1DN (tracking generator) and B7K (measurement kit) combine to identify distance to cable discontinuities for fault location and troubleshooting of cable installation and maintenance.

Phase noise

Option 226 (measurement personality) provides a log plot of phase noise in dBc/Hz versus offset frequency. Examine phase noise at a single offset frequency, or make phase jitter measurements utilizing an intuitive user interface.

Cable TV service and installation

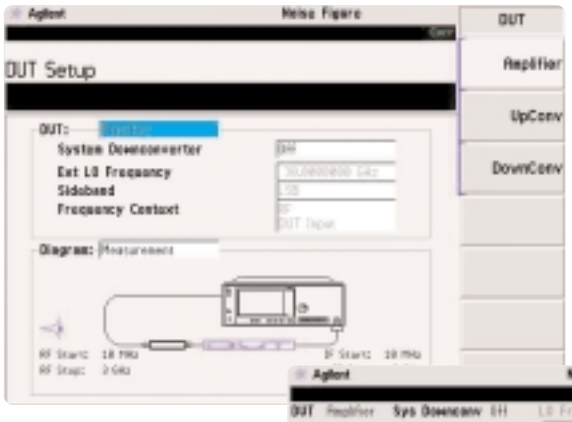
Option 227 (measurement personality) provides cable TV operators fast, accurate and rugged spectrum analysis for field installation, ingress evaluation and troubleshooting.



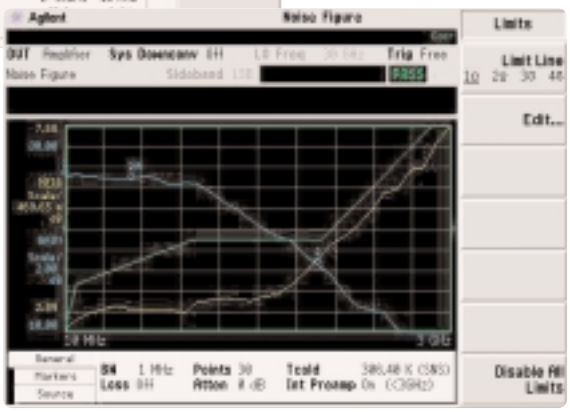
General purpose measurement personalities continued

Noise figure measurement personality (Option 219)

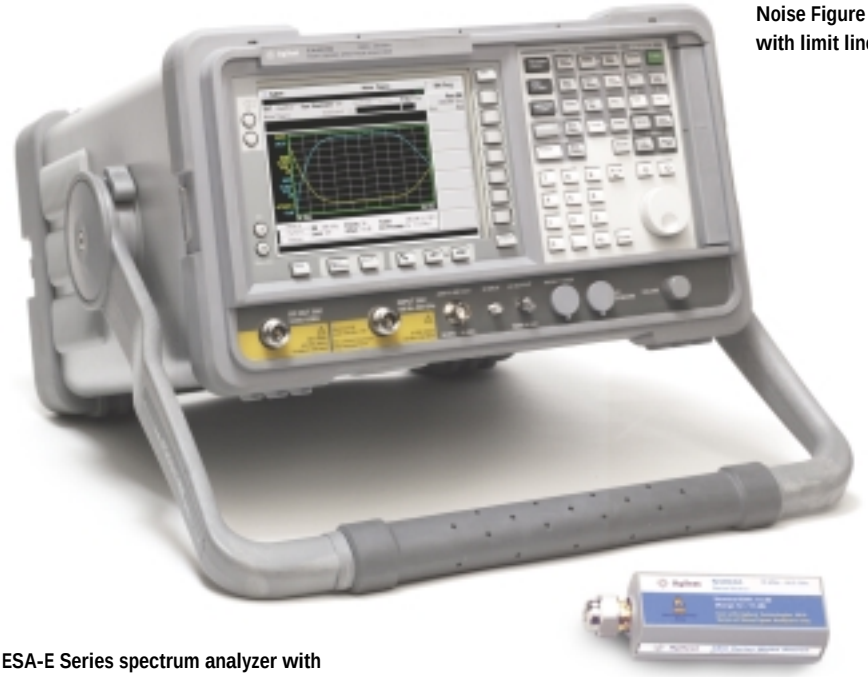
Option 219 (measurement personality), provides fast one-button noise figure and gain measurements via a user-friendly interface. Smart noise source support (SNS), DUT setup menus, limit lines with pass fail functionality, and context sensitive help are just some of the features that simplify noise figure measurements. Electronic storage and automatic download of excess noise ratio data from SNS to the ESA speeds up overall setup time and minimizes potential user error. The ESA also has an integrated uncertainty calculator that ensures valid measurements. With the optional internal preamplifier (Option 1DS) the instrument noise figure uncertainty is as low as ± 0.24 below 3 GHz, which will allow you to confidently characterize low noise figure devices.



DUT setup menu



Noise Figure and Gain measurement with limit line testing

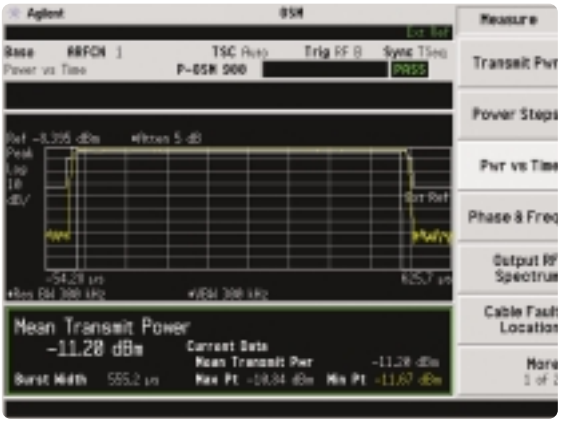


ESA-E Series spectrum analyzer with N4002A noise source

Communication focused measurement personalities

GSM / GPRS

Options BAH (measurement personality) and B74 (digital demodulation hardware) combine to provide all the GSM 450/900, DCS1800, PCS1900 tests required to verify the performance of GSM/GPRS mobile and BTS transmitters.

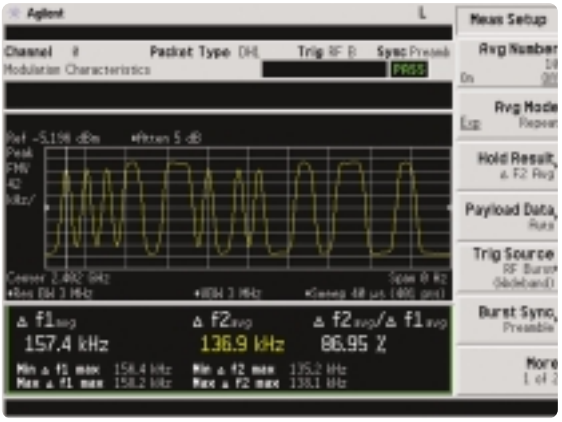


cdmaOne

Options BAC (measurement personality) and B74 (RF and digital demodulation hardware) combine to make the cdmaOne standard tests, such as ACPR, that are required to verify the performance of cdmaOne transmitters.

Bluetooth™

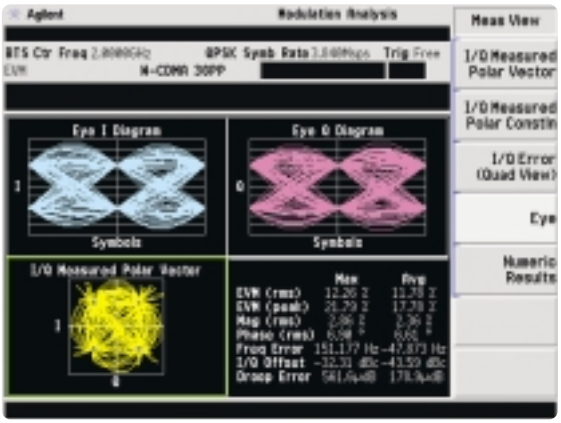
Option 304 (measurement personality and digital demodulation hardware) provides one-button standards-based *Bluetooth* transmitter measurements.



Communication focused measurement personalities

Modulation analysis

Option 229 (measurement personality) and B74 (RF and digital demodulation hardware) combine to allow measurements of EVM and related metrics for all major 2G/3G formats. Constellation and eye diagrams are provided to help verify modulation quality. For full flexible demodulation and analysis, the free link to the 89601A VSA software is included.



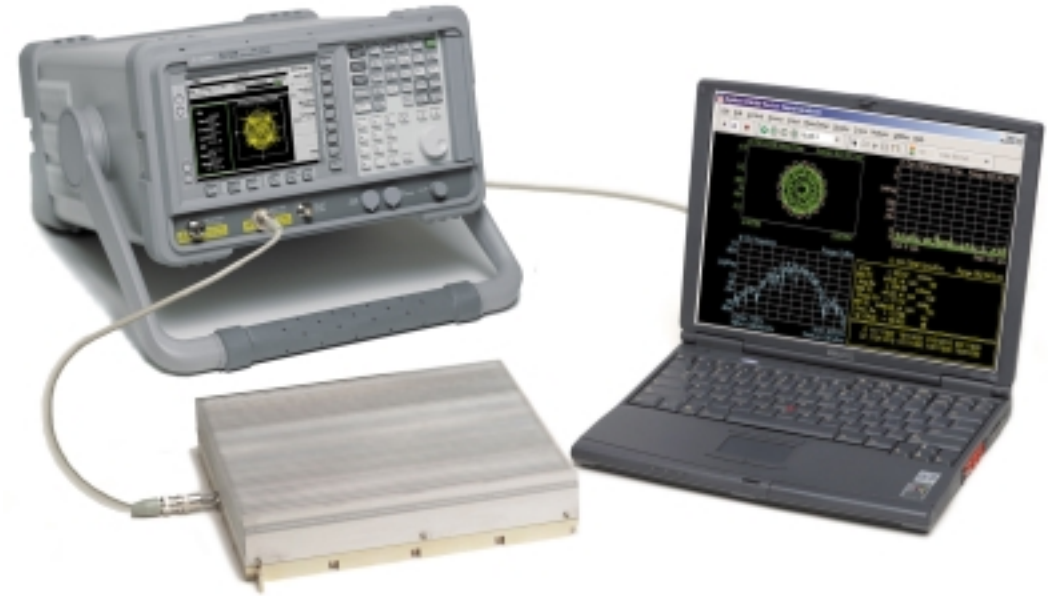
ESA to 89601A vector signal analysis software link utility

Option 231 (link utility)

This link adds the flexible digital demodulation and analysis capabilities of the 89601A software to the frequency coverage and general-purpose spectrum analysis capabilities of the ESA spectrum analyzers.

Flexible 3G demodulation on the ESA

- make complex measurements on 3G signals (composite EVM, code domain power, peak code domain error and more)
- more displays (trellis, spectrogram, EVM spectrum display and more)
- a user-adjustable adaptive equalizer allowing you to verify IF filter and other linear distortion effects
- recording of time waveforms, which allows you to re-analyze signals and store them for future comparisons
- flexible marker capabilities including time gating, integrated band power, and offset (delta) markers
- a link to the Agilent ESG Series signal generators for download and playback of signals in the signal capture memory
- complete save and recall of your signals, trace data, and measurement screens
- easy cut and paste to other PC applications



Power Suite – Absolute confidence in making power measurements

Making measurements on next generation digitally modulated signals require the measuring instruments of today, to meet even more stringent requirements. To simplify the measurements, the ESA Series offers a comprehensive suite of flexible, one-button RF and microwave power measurements with format-based setups. These automated processes with convenient pass/fail functionality help make power measurements a delight for an engineer working on any modern communication standard.

Graduate to the next level of flexibility when optimizing for speed or repeatability. The ESA features, standard in the instrument, an **rms detector** useful for the fastest measurements on complex modulated signals while still maintaining excellent repeatability.

Power Suite is available standard in every ESA Series spectrum analyzer.

Power Suite measurements

- channel power
- occupied bandwidth
- adjacent channel power (with multiple offsets)
- multicarrier power/12-carrier ACP
- power statistics (CCDF)
- harmonic distortion
- burst power
- intermodulation distortion (third order intercept (TOI))
- spurious emissions
- spectrum emission mask

Standards-based formats

- cdmaOne (IS-95A/C)
- cdmaOne (J-STD-008)
- NADC
- GSM/EDGE
- W-CDMA 3GPP
- cdma2000 SR1
- cdma2000 SR3-MC
- cdma2000 SR3-DS
- PDC
- *Bluetooth*
- TETRA
- 802.11a
- 802.11b
- 802.11g
- HiperLAN/2
- DVB-T

Six-offsets in ACPR allow convenient measurements on components subject to multi-carrier signals, (e.g. MCPAs). Results summary window and a full screen display mode help you better visualize your standard compliant, rms measurement results.

Quickly determine the in-channel power and out-of-channel power spurious emissions as required for W-CDMA and wireless LAN formats. Flexibility in the spectrum emission mask (SEM) measurement allows you to select up to five offsets with individual settings for RBWs and limits.

TOI – Easily quantify distortion performance. With the automated third order intercept measurement, you can conveniently quantify the intermodulation immunity of your device.

Features and Benefits

Performance

1-ms RF sweep time	Combined with > 40 measurements per second, provides virtual real-time updates. Responsive display makes circuit adjustment easier, while increasing the probability of intercepting intermittent signals.
High-speed data transfer (GPIB)	> 40 measurement and transfers per second reduce measurement time in ATE environments (optional).
Variable sweep (trace) points	Ranging from 101 to 8192, optimizes measurements for frequency resolution and accuracy versus speed.
Narrow digital RBW filters	Adds 1, 3, 10, 30, 100, 200, and 300 Hz resolution bandwidth filters for viewing closely spaced signals (optional).
Fully synthesized design	Provides continuously phase-locked precision throughout the entire sweep. Assures frequency accuracy, stability, and measurement repeatability, eliminating drift.
Fast time-domain sweeps	Sweeps as fast as 2.5 ns per division in zero span (optional).
Amplitude correction	Calibrates out frequency-related amplitude effects with built-in amplitude correction.
Automatic background alignment	Continuously calibrates the analyzer. Eliminates the need for daily calibration. Guarantees accuracy over changing temperatures.
Built-in pre-amplifier	High-gain, low-noise, fully calibrated pre-amplifier increases sensitivity (optional).
85 to 120 dB calibrated display range	Allows simultaneous display of large and small signals.
Optional built-in tracking generator	Combines spectrum and scalar test capability in a single instrument. Synthesized design eliminate tracking drift (Agilent E4401B). One-button normalize function quickly calibrates the test setup.
5 dB step attenuator	Optimizes distortion-free dynamic range.
Built-in frequency counter	With 1 Hz resolution, minimizes the need for an external frequency counter.

Portability

Fast warm-up	Provides full measurement accuracy after just 5 minutes.
Snap-on battery	Eliminates the restrictions of power cords.
Rubber-encased front and rear frames	Provides impact protection in the field.
Rain-resistant front panel	Combined with louvered air vents, allows operation in diverse weather conditions.
12 Vdc power cable	Allows direct operation from automotive and truck batteries.

Features and Benefits

Ease-of-use

One-button measurements	Save setup and measurement time with one-button RF power measurements for all major 2G/3G, WLAN, and digital video formats. Featured are multi-offset adjacent channel power, true multi-carrier power measurements, complementary cumulative distribution function, burst power, occupied bandwidth, channel power, harmonic distortion, spurious emissions, spectrum emissions mask, TOI measurements and a 10 peak table.
Segmented sweep	Saves measurement and setup time by viewing in one sweep only the frequency spans of interest. Paste together up to 32 discontinuous frequency or zero spans in one sweep. Eliminate multiple setups and sweeping through unwanted frequencies.
Log sweep	Display swept measurements on a logarithmic scale of the frequency domain.
Amplitude correction	Add up to four sets of amplitude correction curves versus frequency.
Large, color VGA display with output	16.8 cm, high-resolution color display makes detailed observations easy. Includes 15-pin color VGA rear output connector for external color monitor.
Zoom windows	Split screen display shows wide spans while zooming in on signals of interest.
Parallel port	Supports output to the most popular Hewlett-Packard printers.
Floppy disk drive	Move measurement results files to your PC quick and easy.
AM/FM demodulation	Combines with the built-in speaker for tune and listen applications (Optional FM demodulator provides deviation measurements).
8.0 MB data storage	Provides internal storage of measurement data and setups for future analysis or comparison.
Marker functions	Provides digital resolution of measurement details through peak search, continuous peak search, delta markers, marker table, and carrier-to-noise ratio. Signal track keeps unstable signals centered on the screen while bandpower calculates total power between user-defined limits.
Softkey/hardkey interface	Provides a simple user interface while retaining access to sophisticated features.
Built-in help button	Eliminates carrying manuals into the field to determine softkey/hardkey functions and remote SCPI commands.
Limit lines	Built-in-limit lines and pass/fail messages simplify testing.
Built-in clock/calendar	Provides time stamps on both stored and printed data.
Automatic overload protection	Protects RF input from overly large signals (available on the 1.5 GHz E4401B).
Automatic printer setup	Identifies connected Hewlett-Packard printer models automatically.
IntuiLink software	PC software provides easy transfer of measurement results into Microsoft® Excel and Microsoft Word applications. Included standard with Options 1AX and A4H.
BenchLink web remote control software	Enables remote control of analyzer over the internet and intranet. Control basic analyzer functions, view trace, waterfall, spectrogram, analog plus, and persistence displays.

Research and Development

Productivity with speed, accuracy and dynamic range

Up to 220 times faster than analog

Now you don't have to buy a high-priced spectrum analyzer to get advanced technology. The ESA-E Series with its optional digital 1 Hz resolution bandwidth gives you sweep times up to 220 times faster than analog!

Optional digital narrow resolution bandwidth filters (1, 3, 10, 30, 100, 200 and 300 Hz) provide the resolving power to measure closely spaced signals, plus give a narrow shape factor (≤ 5:1) for superior resolution. The filters deliver a lower noise floor and increased measurement sensitivity for a larger measurement range.

Verify your designs with confidence

Reduce project time with spectrum-analysis capabilities that optimize your designs. The ESA-E Series offers ±1 dB amplitude accuracy, 0.5% span accuracy, ±101 Hz frequency accuracy, and a continuously phase-locked synthesizer for stability and repeatability. Calibrate out the frequency-related amplitude effects with built-in amplitude correction. The automatic background alignment offers continuous calibration to assure measurement confidence.

Fewer measurement constraints

When a passband contains two or more signals such as CDMA or TDMA modulation, you don't want dynamic range to limit your measurements. The ESA-E Series has sensitivity down to –166 dBm, plus a third-order intercept point of +12.5 dBm (typically +16 dBm) and a second harmonic intercept point of +45 dBm to give you wide distortion free measurement range.

Engineering productivity

Research and Development

Measure

One-button results with measurement personalities

Measure your designs easier with Agilent noise figure, modulation analysis, *Bluetooth*, GSM/GPRS, cdmaOne, and phase noise measurement personalities. Execute complex algorithms with the press of a button by utilizing downloaded measurement personalities in combination with optional hardware.

Expert yet easy EMI measurements

The Agilent E7400A series of EMC analyzers takes advantage of the ESA-E Series platform to provide precompliance measurements for design analysis. For more information see the *Agilent EMC Analyzers and EMI Software brochure*, literature number 5968-2516.

Capture

Capture measurement results easily and quickly with IntuiLink

IntuiLink PC software provides easy transfer of ESA measurement trace data and images directly into MS Excel and MS Word documents for analysis, archiving, presentations, or printing. Transfer data and images over GPIB, RS232, or LAN. Save and restore analyzer states. Utilize automatic measurement transfers by date and time. IntuiLink is included standard with GPIB and RS232 options.

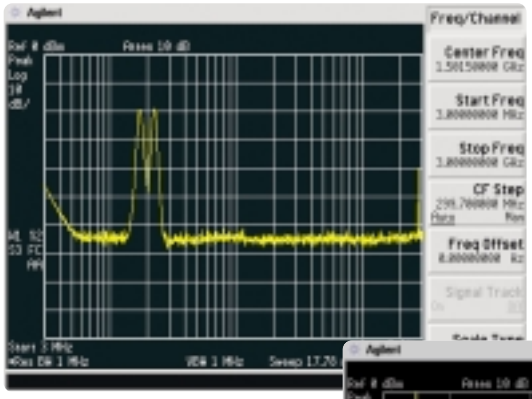
Analyze

Analyze measurement results

Analyze breadboard results easier with ESA instrument links supported by the Agilent EEsof Advanced Design System.

Log sweep

Display swept measurements in a logarithmic scale of the frequency domain on an ESA-E Series spectrum analyzer. This feature is particularly useful for those involved with EMC and device test applications. This functionality means you can now
easily make correlation to compliance data which is usually in the industry standard log frequency format.



When using it for applications like the testing of switching power supplies, a log sweep will expand the lower end of the band giving you a closer look at the individual signals in that frequency range while still maintaining a wide analyzer frequency span.

View only the signals of interest with segmented sweep - paste together up to 32 discontinuous spans in to one sweep.

Manufacturing

Every millisecond counts

Real-time response

Whether you are tuning oscillators manually or performing high-volume, automatic tests on wireless products, the ESA-E Series of spectrum analyzers gives a real-time response with up to 45 measurements per second. Eliminate your measurement speed bottlenecks to help meet your production goals with a one-millisecond sweep time and as low as 25 ns in zero span.

Use ***variable sweep points*** to optimize speed versus frequency resolution. Maximize speed by measuring only the frequencies of interest with ***segmented sweep***.

Use ***phase noise optimization*** to gain valuable milliseconds when you can afford to give up some phase noise performance.

Unparalleled speed for manual or remote operation

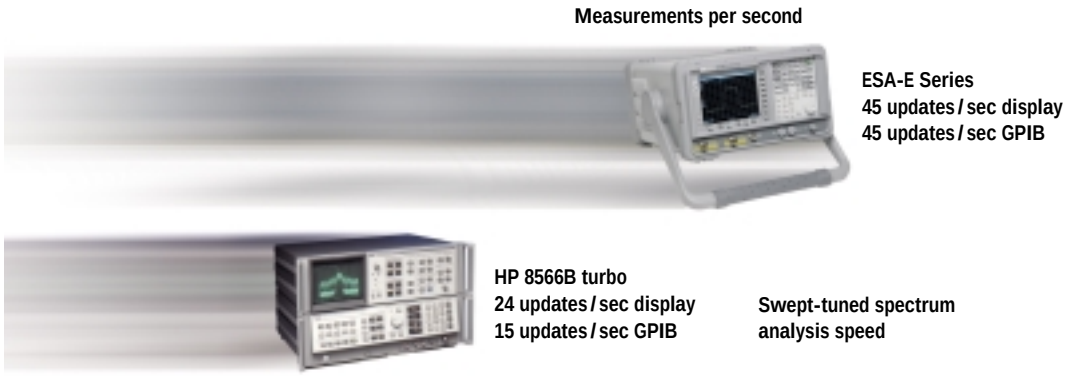
The ESA-E Series spectrum analyzers offer the following features to help you quickly build and test your products:

- one-millisecond RF sweep time
- 25 ns zero span sweep time (optional)
- up to 45 measurements per second update to the display
- large 16.8 cm color VGA TFT active matrix display with wide viewing angle
- color VGA display output connector
- enhanced circuit tuning with continuous peak search
- instant printing (PCL3/5 printers)
- limit lines with large, colorful pass/fail messages

Surpassing the GPIB speed record

The ESA-E Series surpasses the speed of the record-holding HP 8566B high-performance spectrum analyzer for moving data from the analyzer to a computer. Vastly improved sweep time and measurement update rate eliminate the GPIB data-rate bottleneck to help you more easily meet your productivity goals.

- 45 measurements per second transferred to a computer
- 75 ms RF center frequency tuning time
- standard commands for programmable instruments (SCPI) compliant
- the Agilent 8590 Series/ESA programming conversion guide
- VXI*plug&play* drivers for ease of program development
- Interchangeable Virtual Instruments COM (IVI-COM) drivers for Microsoft Visual Studio .NET application development environments



Setting the standard for speed.

Manufacturing

Reduce test margins

The excellent measurement accuracy reduces measurement uncertainty to allow for narrower test margins and improved yields. With an overall amplitude accuracy of ±1 dB, and a frequency accuracy of ±101 Hz plus the continuously phase-locked synthesizer, you get the performance you need to have confidence in your tests.

Individual calibration certificate included standard with every analyzer.

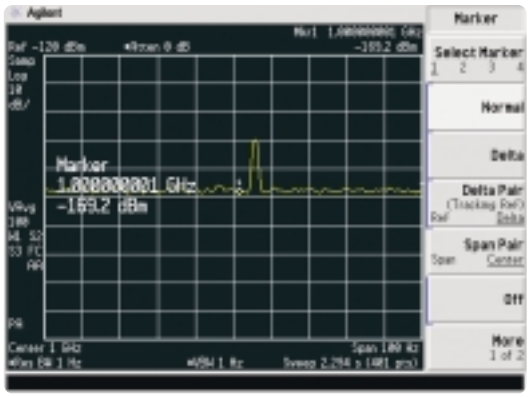
Built-in pre-amplifier maximizes sensitivity

When your application calls for measurements of very low-level signals, the optional built-in pre-amplifier (to 3 GHz) in the ESA-E Series increases sensitivity. This high-gain, low-noise pre-amplifier lets you use wider bandwidths for even faster sweep times when searching for low-level signals.

Leverage your software investment

In the past decade, many manufacturers have installed Agilent 8590 Series spectrum analyzers in automated production lines. If you are considering upgrading your automated stations to take advantage of the ESA-E Series capabilities, Agilent can help preserve your software investment and minimize your change-over costs. An optional 8590 Series programming code compatibility mode is available, which enables ESA-E Series analyzers to work with more than 120 commonly used 8590 Series programming commands.

The ESA-E Series also offers programming code compatibility with the successful HP 8566/68B legacy spectrum analyzers. As these older instruments reach the end of their formal support lives, this option allows you to upgrade your automated test equipment (ATE) systems with modern and supportable spectrum analyzers. In many cases, you will find that the ESA-E Series offers superior performance to the HP 8566/68B.



The ESA-E Series has digital narrow resolution bandwidth filters and internal preamplifiers so you can identify low-level spurs.

For circuit adjustments with real-time results, the ESA-E Series spectrum analyzers offers a one-millisecond sweep time and up to 45 measurement updates per second.

Field Service

Calibrated field measurements in just 5 minutes!

The ESA-E Series takes only 5 minutes to warm-up so technicians spend little time waiting for instrument stabilization. The automatic, internal background alignment feature gives consistently accurate results over varying temperatures. Measurement results are easily saved, printed or integrated into external tools for analysis and documentation using the standard 3.5-inch floppy disk drive. The easy-to-use file manager with a time and date stamp helps to organize storage of measurement data. The optional rechargeable battery provides up to 1.9 hours of cordless operation.

The tough ESA-E is field-rugged, yet offers uncompromising performance

Snap-on battery provides freedom from AC power mains

Rugged portability with accuracy

Field Service

Easy, worry-free measurements

The ESA-E Series offers outstanding lab-grade performance, and protection from the elements along with convenience and ease-of-use features tailored to field service.

- Rubber-encased frames and the lack of vibration-prone internal adjustments improve reliability during transportation.
- The snap-on rechargeable battery provides up to 1.9 hours of cordless operation (optional).
- With 12 Vdc operation from automotive electrical systems, you always have power.
- Rain-resistant front panel, shielded vents, and side-mounted fan protect the instrument in adverse environments.
- Vibration and shock resistance with solid state internal memory.
- Continuous automatic background alignment provides accuracy over varying temperature conditions.
- Hard transit case, soft operating/carrying case or backpack provides choice of convenient transportation aids.
- Flexible tilt handle optimizes line of sight whether the analyzer is viewed from the bench or ground.
- Color display provides optimum readability regardless of lighting and viewing angle.
- Find cable problems with the fault location measurement personality.
- Troubleshoot cellular base stations with GSM and cdmaOne measurement personalities.
- Make one-button RF power measurements for all the major 2G/3G and digital video broadcast formats.
- Demodulate complex 2G and 3G wireless formats with 89601A VSA software.

Backpack with ESA to remote locations

Get accurate measurements in every kind of field condition

Agilent ESA-E Series – A Whole Product Solution

The performance of the ESA-E Series spectrum analyzer is only a small part of what you get from Agilent Technologies. Agilent strives to provide complete solutions that go beyond our customers' expectations. Only Agilent offers the depth and breadth of enhancements, software, services, connectivity, accessibility and support to help our customers reach their measurements objectives. Please contact Agilent for more information.

The Agilent ESA-E Series is manufactured in an ISO 9001 registered facility to Agilent's exacting standards.

Product peripherals and accessories

- battery packs and 12 Vdc cables
- rack mounts
- operating/carrying, backpack and transit cases
- external mixers to 110 GHz
- pre-amplifiers to 26.5 GHz
- high-impedance active probes
- RF/MW limiters, adapters & cables

PC connectivity & software

- floppy disk drive
- GPIB or RS232 interfaces
- VXI*plug&play* drivers
- IVI-COM drivers
- IntuiLink spectrum analyzer software
- EEsof Advanced Design System driver (instrument link)
- programming examples on CD-ROM
- SCPI (Standard Commands for Programmable Instruments)
- custom software service
- BenchLink web remote control software
- HP 8566/68 programming code compatibility
- 8590 Series programming code compatibility
- 8590 Series/ESA programming conversion guide

Post-sales support

- standard 3-year global warranty
- worldwide call center and calibration service center support network
- one-year calibration intervals
- FREE firmware upgrades and service notes available from Agilent's Web site
- PC-based calibration software
- computer-based service training on CD-ROM
- flexible support options to meet your needs

Pre-sales services

- rentals, leasing, and financing
- application engineering and consulting services
- application notes
- custom product modifications
- custom downloadable programs
- product literature available from Agilent's Web site
- demonstration units available for evaluation
- trade-up programs
- support at least 5 years beyond production life of product

Training and access to information

- printer support matrix on Agilent's Web site
- factory service training
- web-based support of frequently asked questions
- operation, programming and calibration manuals on CD-ROM and on Agilent's Web site
- user and applications training
- technical seminars
- cellular/PCS base station troubleshooting course
- calibration certificate standard
- localized operation manuals

Agilent ESA-E Series

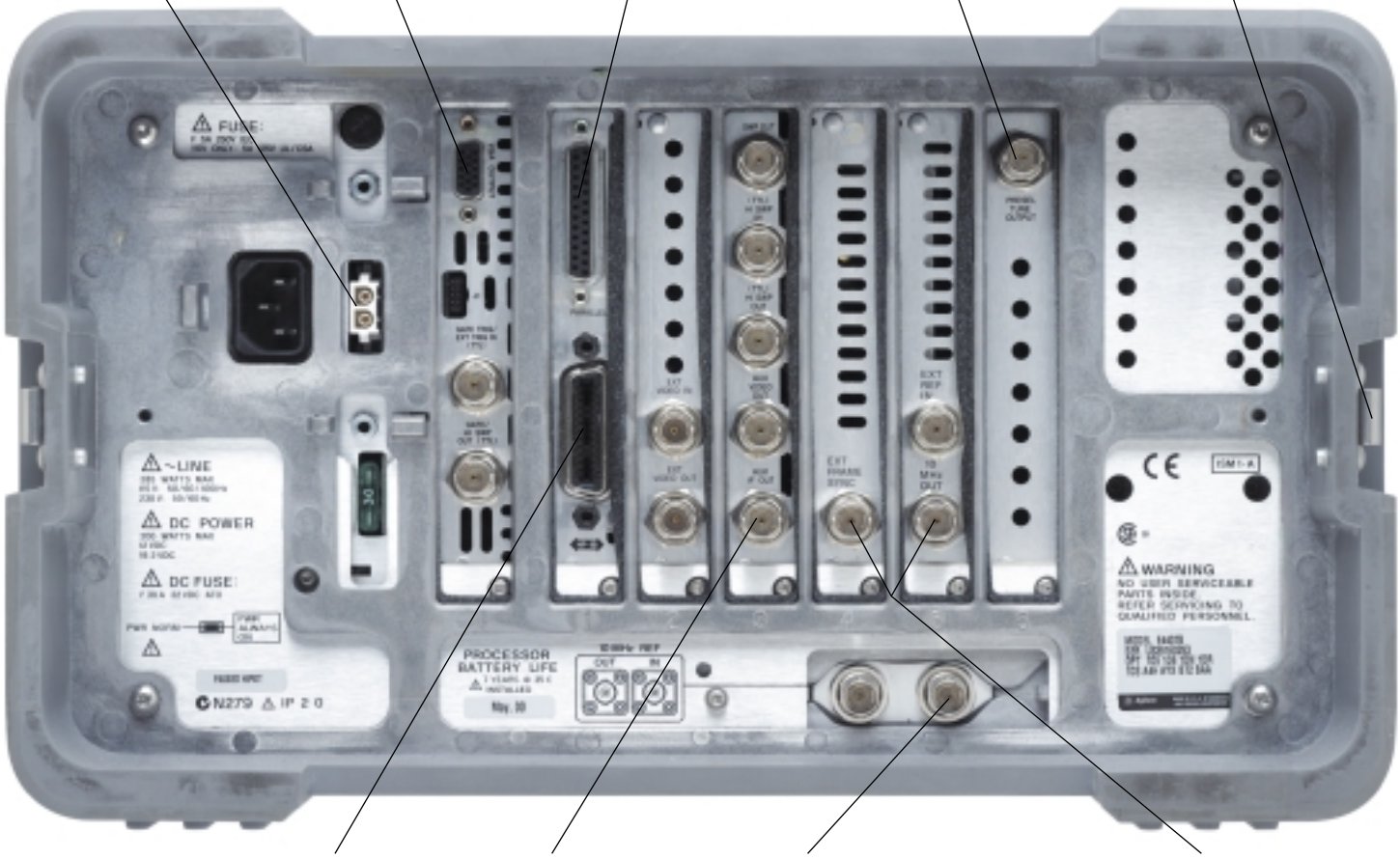
12 Vdc operation from automotive batteries.

Add an external VGA color monitor.

Parallel port supports most HP printers (optional).

Supports Agilent preselected external mixers (optional).

Snap-on battery pack for portability (optional).



High speed GPIB interface (standard). RS-232 (optional) can replace GPIB.

Input signal down converted to 21.4 MHz (optional).

Use an external frequency reference for even more accuracy.

Digital demodulation hardware for current and future communications systems (optional).

Related literature

Agilent IntuiLink Software – Data Sheet	5980-3115EN
BenchLink Web Remote Control Software Option 230 – Product Overview	5988-2610EN
Bluetooth Measurement Solution for the ESA-E Series Spectrum Analyzer – Product Overview	5980-2786E
Cable Fault Location Personality for the ESA-E Series Spectrum Analyzers Option 225 – Product Overview	5980-1915E
Cable TV Personality for the ESA E-Series Spectrum Analyzers, Option 227 – Product Overview	5980-2297E
cdmaOne Measurement Solutions for the Agilent ESA-E Series Spectrum Analyzers – Product Overview	5968-6869E
E1779A Snap-on Battery Pack – Product Overview	5966-1851E
E4401B, E4402B, E4404B, E4405B and E4407B ESA-E Series Spectrum Analyzers – Data Sheet	5968- 3386E
EMC Analyzers and EMI Software – Brochure	5968-2516E
ESA Phase Noise – Product Overview	5988-4348EN
ESA Series Spectrum Analyzer Self Guided Demo – Product Note	5968-3658E
ESA Series Spectrum Analyzers Noise Figure Measurements Personality – Technical Overview with Self-Guided Demonstration	5989-0215EN
ESA Series Noise Figure Measurement Personality – Photo Card	5989-0344EN
ESA/EMC Spectrum Analyzer – Configuration Guide	5968-3412E
ESA-E Series Self-Guided Demonstration for the Modulation Analysis Measurement Personality – Product Note	5988-2521EN
ESA-E Series Spectrum Analyzer Bluetooth Measurement Option Self-Guided Demo – Product Note	5980-2577EN
GSM/GPRS Measurement Solutions for the Agilent ESA-E Series Spectrum Analyzers – Product Overview	5968-6871E
Measuring signals above 26.5 GHz – Photo Card	5968-6873E
Modulation Analysis Measurement Personality for the ESA-E Series Spectrum Analyzers – Product Overview	5988-2116EN
N2717A Performance Verification and Adjustment Software for the Agilent ESA Series Spectrum Analyzer – Product Overview	5968-5478E
Phase Noise Measurement Personality ESA-E Series Spectrum Analyzers Option 226 – Photo Card	5980-1191E
Select the Right Spectrum Analyzer for Your Needs – Selection Guide	5968-3413E
TV Transmission Quality Measurements – Photo Card	5968-6874E

Ordering information ESA-E series

Agilent E4401B Spectrum Analyzer 9 kHz to 1.5 GHz
Agilent E4402B Spectrum Analyzer 9 kHz to 3.0 GHz
Agilent E4404B Spectrum Analyzer 9 kHz to 6.7 GHz
Agilent E4405B Spectrum Analyzer 9 kHz to 13.2 GHz
Agilent E4407B Spectrum Analyzer 9 kHz to 26.5 GHz

For the latest information on the Agilent ESA-E series see our Web page at:

www.agilent.com/find/esa

For more information about IntuiLink software visit our Web site at:

www.agilent.com/find/IntuiLink

Agilent Email Updates

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Get the latest information on the products and applications you select.

Agilent Technologies' Test and Measurement 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. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

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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.

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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 onsite 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.

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Printed in USA, November 25, 2003
5968-3278E

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