Agilent N2717A Service Software

Performance Verification and Adjustment Software for the Agilent ESA Spectrum Analyzers

Product Overview

Reduce your cost of ownership by minimizing time to calibrate and adjust

Agilent Technologies

Innovating the HP Way

Fast, accurate calibration

When every second on your manufacturing line counts, minimizing down time is critical. It is vital to perform scheduled instrument calibrations quickly and accurately, so that equipment can be returned to the line as soon as possible.

The Agilent Technologies N2717A performance verification and adjustment software allows fast and accurate testing of Agilent ESA spectrum analyzers. This family consists of the following instruments:

E4411B	9 kHz-1.5 GHz	L Series
E4403B	9 kHz-3.0 GHz	L Series
E4408B	9 kHz-26.5 GHz	L Series
E4401B	9 kHz-1.5 GHz	E Series
E4402B	9 kHz-3.0 GHz	E Series
E4404B	9 kHz-6.7 GHz	E Series
E4405B	9 kHz-13.2 GHz	E Series
E4407B	9 kHz-26.5 GHz	E Series

The software runs on a PC in a Windows® 95/98 or NT® 4.0 environment and uses a standard calibration platform to help minimize calibration run time and operator involvement.

What is performance verification?

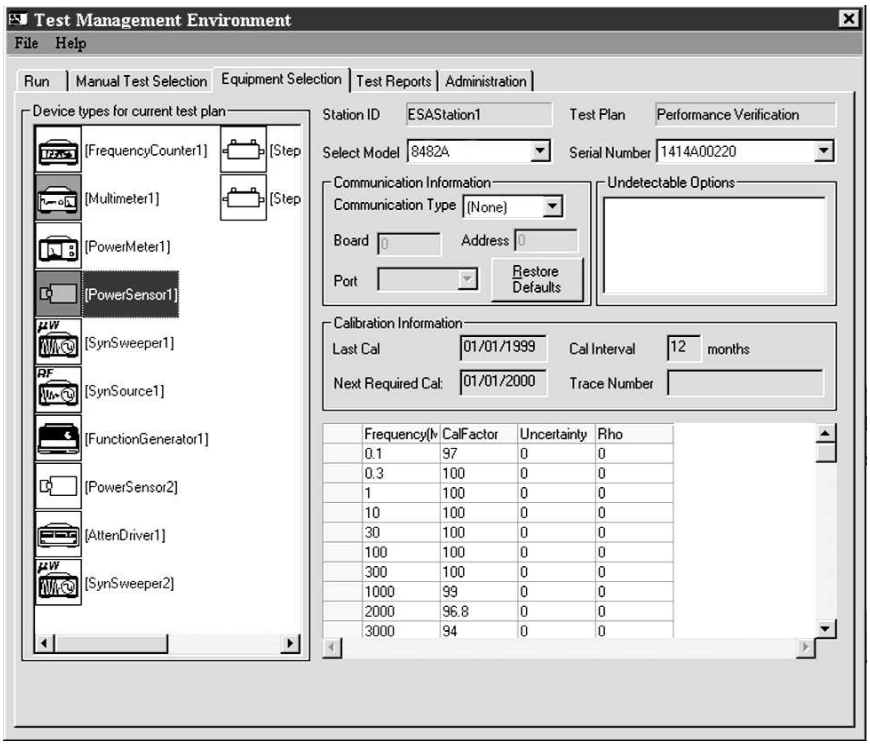
Performance verification tests are designed to provide the highest level of confidence that the instrument conforms to its published, factory-set specifications. If an instrument is unable to pass one or more of the performance tests, adjustments or further repairs may be required.

1. For instruments with Option AYX (fast time-domain sweep)
2. For instruments with Option 1D6 (time-gated spectrum analysis)
3. For instruments with Option 1DN or 1DQ (tracking generator)

The N2717A includes two CD-ROMs. One contains the performance verification tests and the other contains the adjustments. The following are the performance verification tests:

- Absolute amplitude accuracy
- Attenuator accuracy
- Displayed average noise level
- Fast time-domain amplitude accuracy[1]
- Frequency count accuracy
- Frequency response
- Frequency readout accuracy
- Frequency span accuracy
- Gain compression
- Gate delay and gate-length accuracy[2]
- Gate mode additional amplitude error[2]
- Other input-related spurious responses
- Noise sidebands
- Resolution bandwidth accuracy
- Resolution bandwidth switching uncertainty
- Reference level accuracy
- Residual responses
- Residual FM
- Scale fidelity
- Sweep time accuracy
- Overall absolute amplitude accuracy
- System related sidebands
- Tracking generator absolute amplitude and vernier accuracy[3]
- Tracking generator flatness[3]
- Tracking generator harmonic spurious outputs[3]
- Tracking generator LO feedthrough[3]
- Tracking generator non-harmonic spurious outputs[3]
- Spurious responses (TOI and SHD)
- 10 MHz reference accuracy

This is the same suite of tests carried out in Agilent Technologies Service Centers.



What are adjustment tests?
Adjustments allow resetting of instrument parameters to ensure that published specifications are met.

The Agilent N2717A includes the following adjustments for the ESA spectrum analyzers:

- Processor initialization
- RF initialization
- Flatness initialization
- LO power
- IF amplitude
- Amplitude reference
- 10 MHz frequency reference
- Frequency response (flatness)
- YIG-tuned filter
- Tracking generator ALC[1]
- Tracking generator frequency slope[1]

Software update subscription
Agilent regularly updates software to incorporate improvements that enhance productivity. The Agilent N2717A+UCF software update service ensures that you receive the latest software and documentation as it becomes available, maximizing the return on your investment.

Features and benefits

Fast automated testing
The Agilent N2717A saves time by automating tests and minimizing operator intervention. Test automation permits faster turn-around, helps minimize down time during calibration and reduces the possibility of operator error.

Easily customized test sequences
Test sequences can be easily modified to run the tests in a certain sequence or run a reduced set of critical tests. This can be useful when troubleshooting problems. The user can follow the predetermined test plan (in which all available tests run in the order that minimizes equipment connections), or create a custom test plan by choosing the tests and the order of their execution. Customizing the test sequences is made easy through the familiar Windows user interface. Customized test sequences may be run once but cannot be saved. For complete performance verification, Agilent recommends that you run all tests.

Support for different test systems
The software can be easily reconfigured to support different test systems. It allows you to save and recall system setups. For example, selecting from the recommended test equipment list, you can configure a mobile test station and a fixed station to give you maximum flexibility with your pool of test standards.

ANSI Z540-compliant test reports
Reports generated by the N2717A provide data that is format compliant with the ANSI Z540 standard, using a data entry form that includes: *operator, company, order number, product number and serial number, temperature, humidity and line voltage.*

Test equipment substitution
The test equipment supported by the N2717A is listed in Table 1. The software includes all instrument drivers and measurement uncertainty calculations relevant to these test standards. This saves you the cost of writing drivers for alternative equipment and re-calculating the measurement uncertainties.

If you would like to use test standards other than those listed in Table 1, please contact your local Agilent Call Center to see how we can meet your needs.

Y2K-compliant
The N2717A software is fully year 2000 compliant. All date-related processing is performed using a four-digit format to denote the year.

Graphical user interface
The software has a familiar Windows user interface, which allows the operator to use pull-down menus and access on-line help. When connections or setups need to be changed during testing, the software displays an image of the equipment and connections required.

Test standard tracking
All test standards used during testing can be registered in the software. For example, serial number and calibration factors can be stored for each standard used.

Administration security
This feature allows control over the test standards. Equipment in the test rack can only be changed after entering a user name and password. This minimizes the risk of a standard being replaced with one that has not been calibrated.

Copy data to various Windows applications
On completion of testing, the test results are stored in a report for electronic review or printing. Data can be easily copied and pasted into other Windows applications for publishing in reports.

On-line help
The software includes comprehensive on-line help that gives descriptions of the tests, test equipment required and connection diagrams.

1. For instruments with Option 1DN or 1DQ (1.5 GHz tracking generator)

What is included in the Agilent N2717A?

The N2717A includes the software and documentation you need to verify your instrument's performance, make adjustments, troubleshoot problems and understand how the product functions:

- A CD-ROM containing the performance verification software with a single PC installation license
- A CD-ROM containing the adjustment software with a single PC installation license.
- A CD-ROM containing the operating, calibration and programming guides for ESA spectrum analyzers.
- ESA Spectrum Analyzers Service Guide (printed copy), with information on:
  - Parts
  - Troubleshooting problems
  - Adjustments
- ESA Spectrum Analyzers Calibration Guide (printed copy), which provides detailed specifications and calibration information.

PC requirements

- Pentium® 90 MHz processor or higher, 32 MB RAM or more, 200 MB available on hard drive
- Windows 95, 98, or Windows NT 4.0 (SP3)
- Agilent or National Instruments GPIB card with the VISA I/O library installed (available at www.natinst.com/gpib/gpib_dl.htm)
- Minimum 800 x 600 color monitor resolution
- Microsoft® Internet Explorer v 4.0 or higher/Netscape® Communicator v 4.0 or higher

Table 1: Test equipment required to run the full suite of performance verification tests and adjustments

Description	Recommended Model	Alternative Model	Qty
Digital multimeter	3458A		1
Universal counter	53132		1
Frequency standard (or equivalent 10 MHz "house standard")	5071A		1
Power meter, dual channel	E4419B		1
Power sensor	8482A		1
Power sensor, microwave	8485A		1
Power sensor	8481A		1
Power sensor, low power	8481D	8484A	1
Power sensor, 75 ohm (when testing analyzers with 75-ohm input, Opt. 1DP)	8483A		1
Synthesized signal generator	8663A		1
Microwave spectrum analyzer (when testing analyzers with tracking generator, Opt. 1DN or 1DQ)	8563E	8564E 8565E	1
Synthesized sweeper	83630B	83620/22/23/24A[1] 83640A/B/L 83650B	2
Synthesizer/function generator	33120A	3325B	1
Oscilloscope (when testing analyzers with time-gated spectrum analysis, Opt. 1D6)	54501A		1
Attenuator/switch driver	11713A		1
Attenuator, 1 dB step	8494G		1
Attenuator, 10 dB step	8496G		1
6 dB fixed attenuator	8491A Opt. 006		1
20 dB fixed attenuator (when testing analyzers with preamplifier, Opt. 1DS)	8491A Opt. 020		1
Directional bridge	86205A		1
Directional coupler (when testing analyzers with >3.0 GHz frequency coverage)	87300B		1

1. 20 GHz models cannot be used with E4407B and E4408B

Table 1: Continued

Description	Recommended Model	Alternative Model	Qty
Power splitter (when testing analyzers with <=3.0 GHz frequency coverage)	11667A		1
Power splitter (when testing analyzers with >3.0 GHz frequency coverage)	11667B		1
Minimum loss adapter (when testing analyzers with 75-ohm input, Opt. 1DP)	11852B		1
Termination, 50 ohm, BNC	11593A		1
Termination, 50 ohm, Type-N	908A Opt. 012	909A	2
Termination, 75 ohm, Type-N (when testing analyzers with 75-ohm input impedance, Opt. 1DP)	909E		2
Termination, 50 ohm, APC 3.5(f) (when testing analyzers with >13.2 GHz frequency coverage)	909D Opt. 011		1
Filter, 50 MHz, low pass	0955-0306		1
Filter, 300 MHz, low pass	0955-0455		1
Filter, 1.8 GHz, low pass (when testing analyzers with >3.0 GHz frequency coverage)	0955-0491		2
Filter, 1 GHz, low pass (when testing analyzers with >3.0 GHz frequency coverage)	0955-0487		1
Filter, 4.4 GHz, low pass (when testing analyzers with >3.0 GHz frequency coverage)	9135-0005		2
ESA GPIB/Parallel Card (if Option A4J is not installed in the spectrum analyzer)	E4401-60013		1
Miscellaneous adapters and cables			

Ordering information

N2717A Performance verification and adjustment software for ESA spectrum analyzers

N2717A+UCF Software update service

Learn more about the Agilent ESA spectrum analyzers and the N2717A performance verification and adjustment software at our Web site:
www.agilent.com/find/esa/

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."

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 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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