

Agilent L4600A Radio Test Set 2 MHz to 2.5 GHz

Technical Overview



Designed with portability, ruggedness, and ease-of-use in mind.

This radio test set simplifies radio testing and bridges the gap between repair facilities and harsh operational field environments – use the same radio test set for testing, troubleshooting, and repair!



Agilent Technologies

All-In-One Radio Test Set

The Agilent L4600A Radio Test Set does it all!

Tough Enough for the Military (Option 340)

The L4600A is the U.S. Army AN/PRM-35 program's Operational Tester. A single-box measurement solution makes sense only if it can stand up to harsh field use and unexpected weather. We designed the Agilent L4600A radio test set to be portable, rugged, and weather resistant.

A magnesium alloy case with extensive internal RF shielding protects the components and reduces interference that could impact measurement accuracy, and makes the radio test set easy to handle and carry.

Gasket sealed ports, a water-resistant rubber membrane, and a dust-proof case design (no fan, no vents) adds to the ongoing confidence of your measurements.

The soft carry case and rubber bumpers protect the radio test set from damage during transportation and use.

We know that you'll want to add new capabilities as radios add complexity, so we made sure that all functionality upgrades will be implemented through firmware or hardware inside the case. The Agilent L4600A radio test set grows in functionality without growing in size. The field-rugged design is never compromised by awkward external modules.

Tests Military SINCGARS Radios with Guided Measurements (Option 340)

A single softkey selection, from the L4600A's main menu, activates an easy step-by-step "Guided Measurement" mode. In this mode, connection diagrams along with directions help guide you through a set of tests that once completed, give you the knowledge and confidence that you are deploying a thoroughly tested and working SINCGARS radio that will transmit and receive your call when it really counts.

Requires Less Training (Option 340)

The "Guided Measurement" mode requires less training, so all testing can be completed and interpreted by new people and people with little training; this reduces the need for in-depth measurement knowledge.

Helps Eliminate Radios that are Misdiagnosed with "No Fault Found"

Make measurements properly and accurately so that good radios are not taken out of service.

Designed to be Versatile

The L4600A builds upon the proven performance of Agilent's industry leading wireless base station test set. It was designed to meet the needs of a multitude of radio tests and provide fast, reliable measurements of a radio's transmitter and receiver parameters as well as finding faults in antennas, cables, power amplifiers, and interconnects.

Isolates Antenna and Cable Problems

Many radio faults lie in the cabling and/or antenna and not with the radio. Measure antenna's VSWR or return loss and find distance to fault in cables.

Built-In Bench Top Functionality

In addition to its extensive operational capability, the L4600A fulfills the needs of the more advanced user with built-in "bench top" functionality.

Using the menu driven interface, the L4600A can be transformed into a signal generator (for receiver test), a tuned receiver (for transmitter test), a network analyzer (for antenna/cable test), or a spectrum analyzer (for troubleshooting).

Software-Defined Architecture Lowers Your Cost of Ownership

The L4600A exploits a software-defined architecture that protects your investment with upgradable firmware and guards against obsolescence or the need to buy additional test sets. When a change of protocol is required, there is no need to change the radio test set. This saves money by making the radio test set more flexible and reduces the number of radio test sets that have to be maintained.

Future Upgrades to Additional Radio Formats

Upgradable firmware, with license-key enabled upgrades, allows for future updates and enhancements to the capability of the test set. This enables you to easily add non-hardware options or update functional improvements in the field, without the need to return the radio test set to the factory. Upgradable firmware being developed will enable the L4600A in the future to test JTRS radios up to 2.5 GHz as well as other radio formats.

Easy Access in a Rugged, Lightweight, Protective Case

Color Display

High resolution, 10.4" transfective sealed color display stays viewable in darkness, shade, direct sunlight, and at wide viewing angles.

Rubber Bumpers

Protect the unit in rugged field environments.

Gasket Sealed Ports

Protect components from moisture and harsh weather.

Magnesium Alloy Case

Provides enhanced heat distribution in a strong, lightweight, protective shell that keeps the test set free of moisture and dirt
 – completely sealed with no vents or fans.



Help Button Displays measurement information.

Large Backlit-Keys

Protected by a water-resistant rubber membrane, enables easy navigation under all lighting and weather conditions – even with gloves on.

Battery LED Indicators

Changes color to indicate battery status.

LAN Port

Enables data to be easily captured and transmitted to your network
 – allows remote control of the test set.

Compact Flash and PCMCIA Cards

Enables storage of test data in .xls file format, screen captures as PNG graphics files, and a mechanism for firmware upgrades.



Battery Access Panel

Quickly change batteries through an easy access panel
 – no tools required.

With two batteries installed, you can "hot-swap" batteries which allows for continuous uninterrupted use
 – no need to power down the test set.

Designed with Portability, Ruggedness, and Ease-of-Use in Mind

Substantially simplifies testing military radios in the harsh operational field environment as well as providing comprehensive diagnostic capabilities in repair facilities.



Perform Tests Anywhere, Anytime, Regardless of the Weather

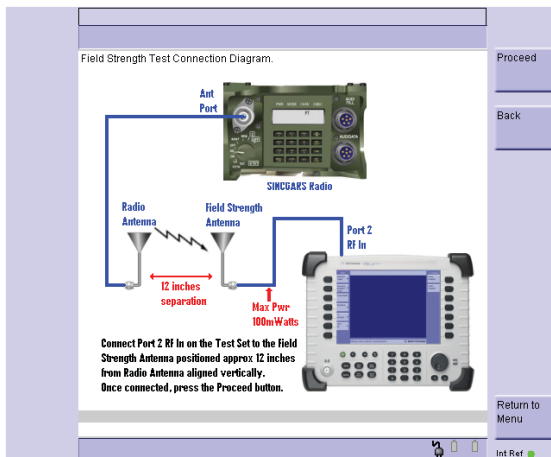
Easier to Interpret Test Results (Option 340)

Using the set of "Guided Measurements" requires less training, so all testing can be completed and interpreted by operators with minimal training.

With a set of "Guided Measurements", tests can be made to confirm the radio's receiver sensitivity, verify the proper operation of the squelch circuit, or just measure the power and frequency accuracy of the radio to verify that it is transmitting properly.

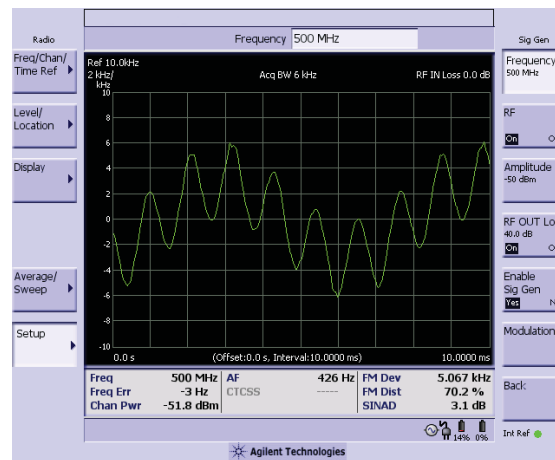
Clearly Defined Test Setups (Option 340)

Make measurements quickly by following step-by-step test setup instructions.



Perform FM Transmitter Test

The Radio Analyzer mode operates as an FM transmitter and demodulator, can use multiple filters, and measures the parameters related to a radio's transmitter. This allows you to analyze the signal that the radio is sending. Included in this mode, are frequency error (by showing offset from the set frequency), channel power, FM deviation, FM distortion, audio frequency, and SINAD.



Perform FM Receiver Test

The L4600A operates as a signal generator enabling testing of the radio's receiver.

Use the internal arbitrary waveform generator to simulate up to two FM signals: one tone at the radio's squelch frequency and one tone to simulate audio. For example, set up a receiver test for SINGARS radios with a 150 Hz squelch tone (CTCSS) and an FM modulation source of 900 Hz (audio frequency test tone).

Isolate Cable and Antenna Problems

Because many radio faults lie in the cabling and/or antenna and not with the radio, you can avoid returning good radios for repair, thus avoiding radio system down time — and that saves money!

Reduce or Eliminate Mis-diagnosed Radios with "No Fault Found"

Perform Functions Typically Only Available in a High-Cost Network Analyzer

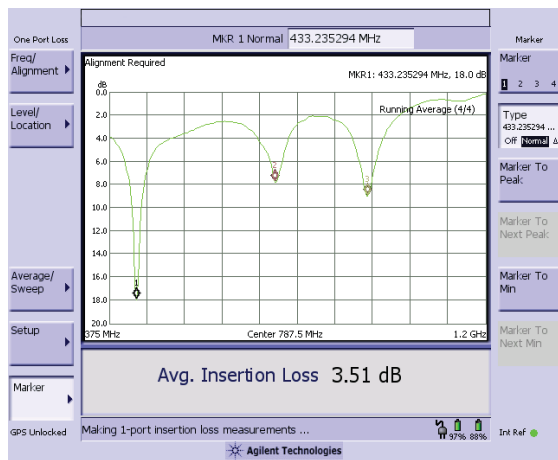
The L4600A performs specific RF measurements that simplify transmission line (cable) and antenna analysis: Return Loss, VSWR/SWR, Insertion Loss, and Distance-to-Fault (DTF). A softkey on the main menu activates Antenna/Cable mode and allows you to perform:

- One Port Insertion Loss
- Distance to Fault
- Two Port Insertion Loss
- Return Loss

Find Defective Cables Using One Port Insertion Loss

When you only have access to one end of a cable, you can perform a One-Port Insertion Loss measurement. There is no need to connect both ends of the cable or the device to the L4600A radio test set; the measurement is accurate for results up to 10 dB.

This can be especially useful when measuring the loss of a cable connected to an antenna or routed through a vehicle and only one end is easily accessible.

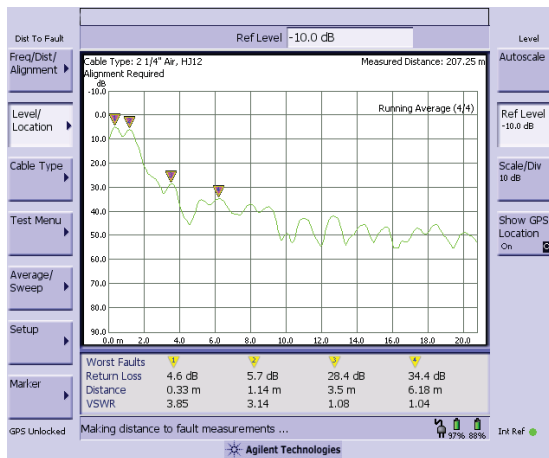


Measure Two-Port Insertion Loss of a Cable or other Device

When you have access to both ends of a cable, you can perform a Two-Port Insertion Loss measurement and measure the loss of a cable, attenuator, or other device by sweeping it over its specified frequency range.

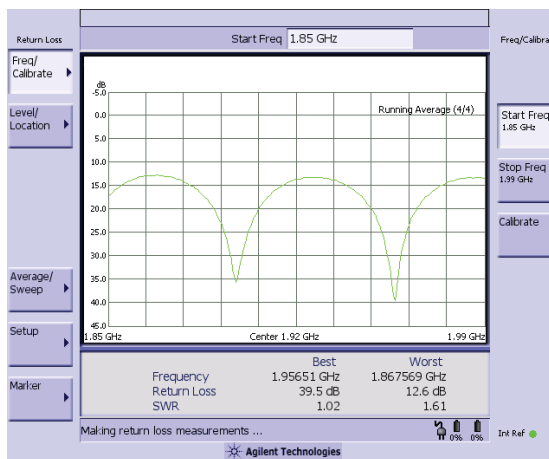
Use Up to Four Markers to Designate Distances to Faults in an Antenna System

The Distance to Fault measurement uses markers to display the four worst faults of an antenna system. The results shown on the easy to understand display highlight problem locations or distance-to-fault.



Determine Return Loss (VSWR vs. Frequency)

VSWR or Return Loss vs. Frequency is useful for detecting problems in an antenna feedline system or the cable of an antenna.



Convenient Features

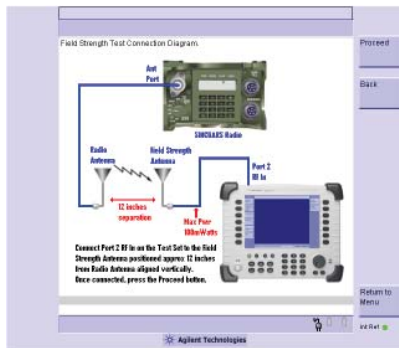
Simplify your tasks.

Drive-by-Test, Over-the-Air Measurements Resolve Radio Installation Failures

- Modulation Measurements
- Spectrum Analyzer
- Radio Analyzer

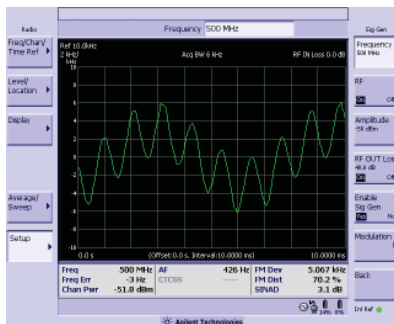
The L4600A was designed as an operational and intermediate level radio tester, that enables you to quickly verify if a radio is transmitting the correct frequency and power.

You can efficiently and easily determine if the radio is functional. No need to connect to the radio under test. Simply connect the supplied antenna, key up a radio, and measure radio parameters over-the-air.



The L4600A contains an arbitrary waveform generator which enables testing of the receiver portion of the radio. With this arbitrary waveform generator, two FM signals can be used as modulation sources: modulate the carrier with both a test tone and a squelch tone. For example, set up a receiver test for a SINCGARS radio with an FM modulation source of 150 Hz squelch tone (CTCSS) and 900 Hz (audio frequency test tone).

If the SINCGARS radio is working, a display similar to the following shows a supplied FM Dual Tone (150 Hz along with 900 Hz) imposed on the 75 MHz CW and then demodulated on the Radio Analyzer screen.



Save/Recall States

You don't have to remember the settings you were using when you see an issue during testing. With the press of a button, simply save the instrument state. Later, return to the same radio test set state - this can greatly enhance productivity by allowing the radio test set to return to a particular setup and repeat a measurement.

Save/Recall on Compact Flash / PCMCIA Cards

Store test data, configure and define test parameters (as pass or fail), and save these files internally for future use or save them to Compact Flash or PCMCIA cards.



Upgrade with a Compact Flash / PCMCIA Card

Adding features with upgraded firmware is easy - install a Compact Flash or PCMCIA card with new firmware, cycle power, and follow the simple on screen prompts to install the new instrument firmware.

Remote Monitoring / Remote Controllable Using a LAN Connection

Remote monitoring allows someone from a remote location to monitor and control the L4600A radio test set over a LAN connection.

Take control of the radio test set remotely - this allows confirmation of what the operational tester actually sees. This technique can greatly enhance abilities to confirm whether a radio actually has a real problem or not - it can help reduce or eliminate misdiagnosed radios that end up as "No Fault Found".

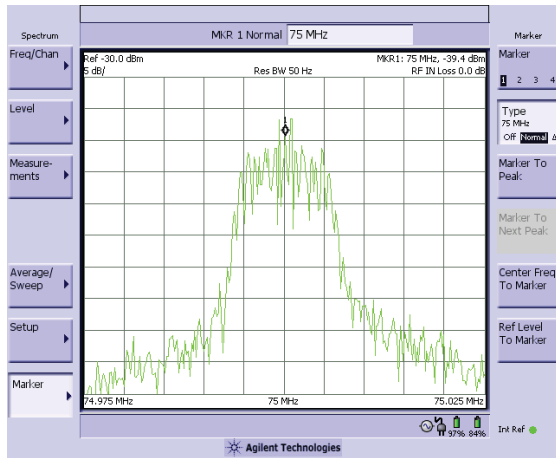
Built-In Bench Top Functionality

No need to carry armfuls of tools.

Multiple Tools
are Built-In

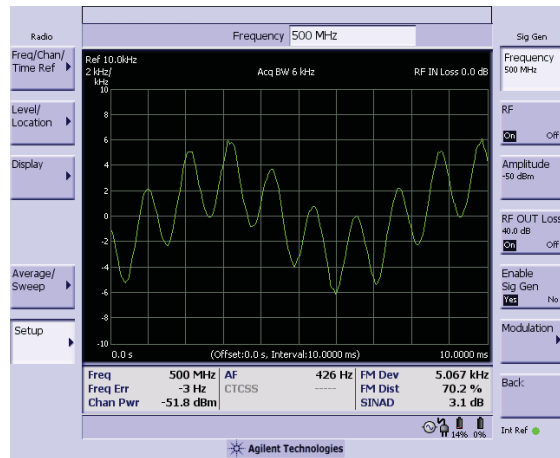
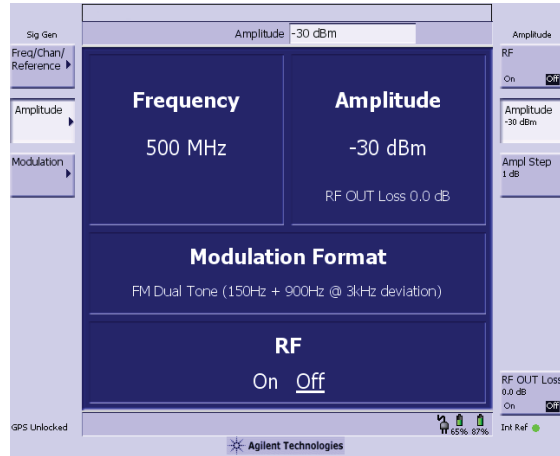
Troubleshoot with a Real Spectrum Analyzer

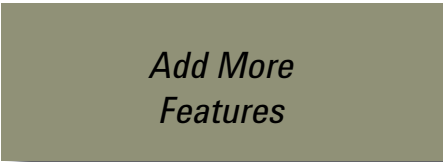
Utilize a spectrum analyzer with a noise floor < -150 dBm for frequencies > 375 MHz. The selectable frequency span width ranges from 1 kHz to 2.5 GHz (usable to 2.7 GHz) with an effective resolution bandwidth as narrow as 10 Hz. Built-in spectrum emissions masks, occupied BW, Spectrogram, and Marker functions equip you with the functionality needed to troubleshoot complicated radio problems.



Create FM Modulated Signals with the Built-In Arbitrary Waveform Generator

The signal generator can be used simultaneously with other measurement functions so that the L4600A radio test set can act as both the source and the measurement device when making measurements.



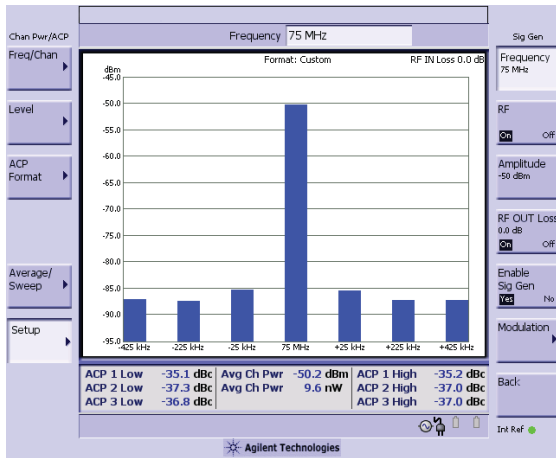


Check that the Receiver is Working on Your P25 Radio (Option 225)

Produce a C4FM I/Q modulation and transmit the signal to verify that your P25 radio is receiving the signal.

Check for Interfering Radios by Measuring Signal Leakage and Adjacent Channel Power (Option 270)

Determine the amount of signal leakage into adjacent channels and verify that other radios are not interfering with your radio.



Find Intermittent, Interfering Signals with an Interference Analyzer (Option 270)

Use the spectrogram display and signal strength meter to find intermittent, interfering signals.

Create Custom/Secure Waveforms (Option 290) Using MATLAB®¹

Add Option 290, Complex IQ Modulation Source Capability, to your L4600A and you can produce your own customized waveforms.

Simply create your custom waveforms on your PC, using MATLAB, transfer them with Compact Flash or a PCMCIA card, and generate custom RF modulated waveforms.

Note that if a custom waveform is generated, other than FM, demodulation is not supported or available, but all other features of the L4600A can still be used.

Since the custom waveforms are stored in volatile memory, there is no need to worry about cleansing memory after playing a custom or secure waveform. Simply remove your Compact Flash or PCMCIA cards containing the custom waveforms, turn off power to the L4600A, and your custom waveforms are gone.

Internal GPS Receiver (Option 535)

Provides position location and a highly accurate timebase for the L4600A radio test set.

1. MATLAB is a U.S. registered trademark of The Math Works, Inc.

Specifications

Specifications describe the L4600A radio test set's warranted performance and are valid over the entire operating/environmental range unless otherwise noted.

The distinction among **specifications**, *typical performance*, and nominal values are described as follows:

- **Bold type** indicates a warranted, hard specification. Specifications describe the performance of parameters covered by the product warranty (temperature = -10 to +50 °C, unless otherwise noted).
- *Italics type* indicates a typical value. Typical describes additional product performance information that is not covered by the product warranty. It is performance beyond specification that 80% of the units exhibit with a 95% confidence level over the temperature range 20 to 30 °C. Typical performance does not include measurement uncertainty.
- Normal type indicates a nominal value. Nominal values indicate expected performance, or describe product performance that is useful in the application of the product, but is not covered by the product warranty.

Conditions Required for Meeting Specifications

- The L4600A radio test set is within its calibration cycle.
- The L4600A radio test set is under auto-couple control.
- Any L4600A radio test set that has been stored at a temperature range inside the allowed storage range, but outside the allowed operating range must be stored at an ambient temperature within the allowed operating range for at least two hours before being turned on.

General Specifications

Unless otherwise noted, the following specifications apply to all measurements/tools using Port 2 (RF In).

Frequency accuracy:

Using internal time base > 15 minute warm-up :	≤ ± 1 ppm
Internal frequency aging:	± 1 ppm aging/year
Using GPS lock (Option 535) for > 15 minutes:	≤ ± 0.03 ppm

Input frequency range (L4600A Option 520):	2 MHz to 30 MHz
Input frequency range (L4600A STD):	30 MHz to 1000 MHz
Input frequency range (L4600A Option 525):	1000 MHz to 2500 MHz (Usable to 2700 MHz)

Maximum input power level (L4600A STD): +20 dBm (0.1 W)

Maximum input power level (L4600A Option 803): +50 dBm (100 W)
Option 803 40 dB Attenuator

Frequency range:	DC to 3000 MHz
Attenuation accuracy:	± 0.5 dB
Maximum power:	+50 dBm (100 W)

Maximum input power level (L4600A Option 804): +47 dBm (50 W)
Option 804 40 dB Attenuator

Frequency range:	DC to 3000 MHz
Attenuation accuracy:	± 0.5 dB
Maximum power:	+47 dBm (50 W)

Maximum input damage level:

Applies to Port 1 (RF Out/SWR) and Port 2 (RF In):

(L4600A STD):	+30 dBm (1 W)
(L4600A Option 803):	>+50 dBm (100 W)
(L4600A Option 804):	>+47 dBm (50 W)

Frequency and time reference:

Can use internal timebase or the following external signals:

Even second; pulse	Required power level
1.000 MHz	≥ 0 dBm
2.048 MHz	≥ 0 dBm
4.950 MHz	≥ 0 dBm
10.000 MHz	≥ 0 dBm
13.000 MHz	≥ 0 dBm
15.000 MHz	≥ 0 dBm
19.6608 MHz	≥ 0 dBm
GPS Receiver (Option 535)	Uses external GPS antenna, SMA (m)

Display:

Scale:	1 to 20 dB/div. settable in 1 dB increments
Number of points:	256
Number of divisions:	10

Specifications continued

Spectrum Analyzer (Port 2)

Input frequency range (L4600A Option 520): 2 MHz to 30 MHz
Input frequency range (L4600A STD): 30 MHz to 1000 MHz
Input frequency range (L4600A Option 525): 1000 MHz to 2500 MHz
(Usable to 2700 MHz)

Reference level range: -150 to +100 dBm

Dynamic range: +50 dBm to -150 dBm
(with Option 803 external 40 dB attenuator,
30 Hz RBW)
+47 dBm to -150 dBm
(with Option 804 external 40 dB attenuator,
30 Hz RBW)

Input attenuation: 0 to 30 dB automatically selected,
10 dB manually controllable

Amplitude measurement accuracy (L4600A STD):
30 to 1000 MHz,
0 to -30 dBm signal,
at +20 to +30 °C ambient
± 1 dB, ± 0.6 dB (Typical)

Resolution bandwidth: 10 Hz to 1 MHz

Span: 1 kHz to 2.6995 GHz

Trace update:
Span: 2.6995 GHz (auto couple) = 5.1 s
60 MHz (auto couple) = 400 ms
1 MHz (100 Hz RBW) = 1.2 s

Simultaneous dynamic range: > 90 dB
(CW signals at 300 kHz separation,
span 500 kHz, 30 Hz RBW)

SSB phase noise: ≤ -85 dBc (30 kHz offset)

Spurious responses:
Range control set to auto, high sensitivity mode
internally generated. 50 ohm load on input: < -115 dBm
Crossing spurs : < -50 dBc

Displayed average noise level:
-150 dBm (30 Hz RBW, 375 MHz to 1000 MHz)
-110 dBm (30 Hz RBW, 30 MHz to 375 MHz)

Port 2 VSWR: < 2:1

Signal Generator (Port 1) (CW and Complex IQ Modulation Modes)

Input frequency range (L4600A Option 520): 2 MHz to 30 MHz
Input frequency range (L4600A STD): 30 MHz to 1000 MHz
Input frequency range (L4600A Option 525): 1000 MHz to 2500 MHz

Output level range (CW): -23 to -90 dBm

Output level range (Complex IQ Modulation): -28 to -90 dBm

Level Accuracy (CW):
± 3 dB (30 to 1000 MHz, -50 to -60 dBm)
± 2.1 dB (Typical), (30 to 1000 MHz, -50 to -60 dBm)

Level Accuracy (Complex IQ Modulation):
± 3 dB (30 to 1000 MHz, -50 to -60 dBm)
± 1.6 dB (Typical), (30 to 1000 MHz, -50 to -60 dBm)

Phase Noise (CW and Complex IQ Modulation):
-90 dBc/Hz, at 30 kHz offset

Specifications continued

Antenna/Cable Tester¹

Frequency range (L4600A Option 520): 2 MHz to 30 MHz
 Frequency range (L4600A STD): 30 MHz to 1000 MHz
 Frequency range (L4600A Option 525): 1000 MHz to 2500 MHz

Frequency resolution: < 500 Hz

Immunity to interfering signals: +20 dBm
 (with interference rejection turned on)

Measurement speed:
 Full span: < 17 ms/point
 60 MHz span: < 7 ms/point

One-Port Return Loss (Port 1)

Return loss, Port 1 (L4600A STD): 30 MHz to 1000 MHz
 With ≥ 4 averages:
 Range: > 20 dB, > 40 dB (Typical)
 Resolution: 0.1 dB
 Display range: -5 to +150 dB
 VSWR range: 1 to 500

Two-Port Insertion Loss (Port 1 to Port 2)

Measurement uses 10 dB attenuators
 (from Option 851 Type-N Calibration Kit, Coax Accessories)

Usable range: > 100 dB (in wide range mode)
 Accuracy: ± 1 dB (over 0 to 60 dB,
 ≥ 16 averages, in high accuracy mode)
 Readout resolution: ± 0.1 dB

Distance to Fault (Port 1)

Range (m): 1 m to 300 m
 Resolution: $(1.5 \times 10^8) (V_f) / (f_2 - f_1)$ meters
 where V_f is relative propagating velocity
 of the cable (Typically 1% of
 measurement distance)
 VSWR range: 1 to 500

Example table illustrating the effects of data points and span vs. measured distance and resolution (V_f of 93.1%):

Data Points	Span	Measured Distance	Resolution
256	140 MHz	127.68 m	50 cm (19.6 in)
512	140 MHz	255.36 m	50 cm (19.6 in)
512	280 MHz	127.68 m	25 cm (9.8 in)
1024	560 MHz	127.68 m	12.5 cm (4.9 in)

1. For each of the following measurements, a short self-calibration procedure must be run prior to making the measurement.

Option 220 RF Channel Scanner (Includes Adjacent Channel Power Measurement)

Frequency range (L4600A Option 520): 2 MHz to 30 MHz
 Frequency range (L4600A STD): 30 MHz to 1000 MHz
 Frequency range (L4600A Option 525): 1000 MHz to 2500 MHz
 (Usable to 2700 MHz)

Power measurement range: +20 dBm to -125 dBm,
 (10 kHz RBW, 375 MHz to 1000 MHz)
 +20 dBm to -85 dBm,
 (10 kHz RBW, 30 MHz to 375 MHz)
 (up to +47 dBm with optional
 external attenuator)

Frequency readout accuracy: Timebase accuracy +3 Hz
 + 1 / (measurement time X duty cycle)

RF channel power accuracy: ± 1 dB (100 MHz to 1000 MHz)

Adjacent channel power accuracy: ± 0.75 dBc

General

Physical Dimensions

Width: 14.5 in (368 mm)
Height: 11.6 in (295 mm)
Depth: 5.3 in (135 mm)
Weight (without batteries): 20.6 lbs (9.3 kg), fully hardware optioned
Weight (with two batteries): 22.8 lbs (10.3 kg), fully hardware optioned

Operating Temperature

Specified temperature range: -10 to +50 °C (+14 to +122 °F)

Storage Temperature

-51 to +71 °C (-60 to +160 °F)

MIL-PRF-28800F, Class 2

Humidity
Shock, Functional
Vibration
Water Resistance (Drip-Proof)
Fungus Resistance
Salt Atmosphere
Dust Exposure
Acoustic Noise
Solar Radiation
Electromagnetic Compatibility
Altitude 30,000 ft (operating)
50,000 ft (non-operating)
(exceeds MIL-PRF-28800F, Class 2)

Power

Power supply
External DC input +9 V to +25 VDC (55 Watts)
Internal: Battery 10.8 V, 7.2 A hours, lithium ion
(One battery is shipped standard, but unit will accept two batteries)
Battery life: Approximately 1.7 hour per battery (time varies depending upon instrument mode)
Discharge Temperature Limits: -10 °C to 60 °C, ≤ 80% RH
Charge Temperature Limits: 0 °C to 45 °C, ≤ 80% RH
Storage Temperature Limits: -20 °C to 60 °C, ≤ 80% RH

Calibration

Cycle: One Year

Warranty

Duration: One Year

Display

10.4" Transflective VGA and color LCD

Interface Ports

- 1, LAN port: 10 Base-T
- 1, PCMCIA Flash Memory Card Slot
- 1, Compact Flash Memory Card Slot (Type 1 & 2)
- 1, Stereo headphone jack
- 1, General purpose input/output: TTL level (reserved for future use)
- 1, RS-232 (DB-9) (reserved for future use)
- 2, USB 1.1 (reserved for future use)

Inputs

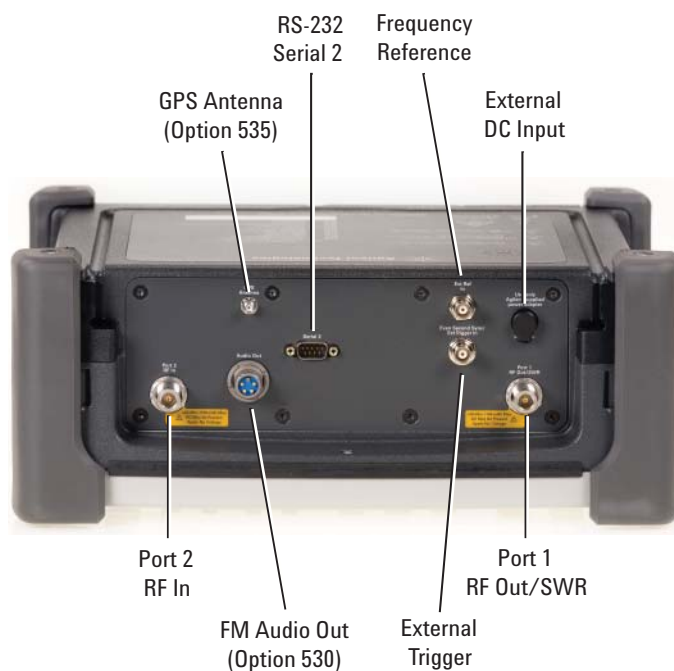
- Port 2 RF In: 50 ohm, Type-N (f)
- External DC Input: +9 V to +25 VDC, 55 Watts
- Frequency Reference (Ext Ref In):
Input power: -10 to + 10 dBm
Connector: 50 ohm BNC (f)
- External Trigger (Even Second Sync/Ext Trigger In):
Connector: High Impedance BNC (f)
Level: TTL Compatible

Outputs

Port 1 RF Out/SWR:
Connector: 50 ohm, Type-N (f)

Optional Connectors

- Option 530 FM Audio Demodulation Out (Voice Out)
Connector: 5-pin (MIL-C-55116)
Output: FM audio
- Option 535 GPS Antenna
Connector: SMA (f)
Output: 5 V at 50 mA



Ordering Information

Ordering - L4600A Radio Test Set

Standard Accessories

- 1, Battery 10.8 V, 7.2 A hours, lithium ion
- 1, External Power Supply, AC/DC Adapter 24 VDC, 100 W
- 1, Telescopic Antenna, 300 MHz, BNC (m), 50 ohm
- 1, 128 MB PCMCIA Flash Memory Card
- 1, CD-ROM, Containing .pdf Manuals and Application Notes
- 1, Cable, 600 millimeter (2 ft), Type-N (m) to Type-N (m)
- 1, Cable, Coax RG214, 3,048 millimeter (10 ft), Type-N (m) to Type-N (m)
- 1, Shoulder strap

Ordering - Options

Frequency Extension Options

- L4600A-520 Frequency Extension, 2 MHz to 30 MHz
L4600A-525 Frequency Extension, 1000 MHz to 2500 MHz

Test Set Firmware Enhancement Options (License Key Enabled and Software)

- L4600A-340 PRM-35 Sequencer SW (Requires L4600A-220 Channel Scanner)

Technical Options (License Key Enabled)

- L4600A-220 Channel Scanner
L4600A-225 P25 Rx Capability
L4600A-270 Interference Analyzer
L4600A-290 Complex IQ Modulation Source Capability (Adds the capability to load arbitrary waveforms into the L4600A radio test set through a PCMCIA Flash memory card.)

Hardware Options (Return to Agilent)

- L4600A-530 5-pin Connector with FM Audio Demodulation Out (Voice Out)
L4600A-535 GPS Receiver for Precision Frequency Reference, Time & Location
- Includes GPS antenna, SMA (m)

Accessory Options

- L4600A-801 Soft Carry Bag
L4600A-803 40 dB, 100 W High-Power Attenuator, Type-N (m) to Type-N (f)
L4600A-804 40 dB, 50 W High-Power Attenuator, Type-N (m) to Type-N (f)
L4600A-805 **Paper Manual, L4600A User's and Measurement Guide**
L4600A-819 Additional Battery 10.8 V, 7.2 A-HR lithium ion
L4600A-820 Battery, External Power Supply, Battery Charger, DC Car Adapter
L4600A-821 NATO DC Adapter Kit
L4600A-840 Transit Case with Handle and Wheels
L4600A-841 Hard-Sided Case, No Wheels

- L4600A-851 Type-N Calibration Kit, Coax Accessories
- 1, Open, 50 ohm, Type-N (m)
 - 1, Short, 50 ohm, DC to 6 GHz, Type-N (m)
 - 1, Load, 50 ohm, Type-N (m)
 - 2, 10 dB Attenuator, Fixed 6 GHz, Type-N (m) to Type-N (f)
 - 2, Adapter, 50 ohm, Type-N (f) to Type-N (f)

- L4600A-852 BNC Cable/Adapter Kit
- 1, Cable, RG58C/U, 1.2 meter (4 ft), BNC (m) to BNC (m)
 - 2, Adapter, BNC (f) to Type-N (m)
 - 2, Adapter, BNC (f) to Type-N (f)
 - 2, Adapter, BNC (f) to BNC (f), 50 ohm

- L4600A-854 TNC Cable/Adapter Kit
- 1, Cable, Coax, 2 meter (6.56 ft), TNC (m) to TNC (m)
 - 1, Adapter, TNC (m) to Type-N (f)
 - 1, Adapter, TNC (m) to BNC (f)
 - 2, Adapter, TNC (f) to Type-N (m)
 - 1, Adapter, TNC (f) to TNC (f)

Service Options

- L4600A-R1280A Return to Agilent for Warranty and Service
L4600A-R1282A Return to Agilent for Calibration

Ordering - USA Army's Primary Operational Tester for SINCGARS Radios (AN/PRM-35)

To order an L4600A Radio Test Set with the Army Unique Configuration, AN/PRM-35, place an order with the following options:

L4600A Radio Test Set (with Standard Accessories)¹

- L4600A-220 Channel Scanner
L4600A-340 PRM-35 Sequencer SW (Requires L4600A-220 Channel Scanner)
L4600A-530 5-pin Connector with FM Audio Demodulation Out (Voice Out)
L4600A-801 Soft Carry Bag
L4600A-804 40 dB, 50 W High-Power Attenuator, Type-N (m) to Type-N (f)
L4600A-819 Additional Battery 10.8 V, 7.2 A hours, lithium ion
L4600A-819 Additional Battery 10.8 V, 7.2 A hours, lithium ion
L4600A-851 Type-N Calibration Kit, Coax Accessories
- 1, Open, 50 ohm, Type-N (m)
 - 1, Short, 50 ohm, DC to 6 GHz, Type-N (m)
 - 1, Load, 50 ohm, Type-N (m)
 - 2, 10 dB Attenuator, Fixed 6 GHz, Type-N (m) to Type-N (f)
 - 2, Adapter, 50 ohm, Type-N (f) to Type-N (f)
- L4600A-852 BNC Cable/Adapter Kit
- 1, Cable, RG58C/U, 1.2 meter (4 ft), BNC (m) to BNC (m)
 - 2, Adapter, BNC (f) to Type-N (m)
 - 2, Adapter, BNC (f) to Type-N (f)
 - 2, Adapter, BNC (f) to BNC (f), 50 ohm
- L4600A-854 TNC Cable/Adapter Kit
- 1, Cable, Coax, 2 meter (6.56 ft), TNC (m) to TNC (m)
 - 1, Adapter, TNC (m) to Type-N (f)
 - 1, Adapter, TNC (m) to BNC (f)
 - 2, Adapter, TNC (f) to Type-N (m)
 - 1, Adapter, TNC (f) to TNC (f)

Additional Agilent Literature

For more information about Agilent's solutions for the Radio Test industry, visit our Web site at: http://www.agilent.com/find/radio_test

1. Refer to the list of **Standard Accessories** on this page.



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Agilent Open simplifies the process of connecting and programming test systems to help engineers design, validate and manufacture electronic products. Agilent offers open connectivity for a broad range of system-ready instruments, open industry software, PC-standard I/O and global support, which are combined to more easily integrate test system development.

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