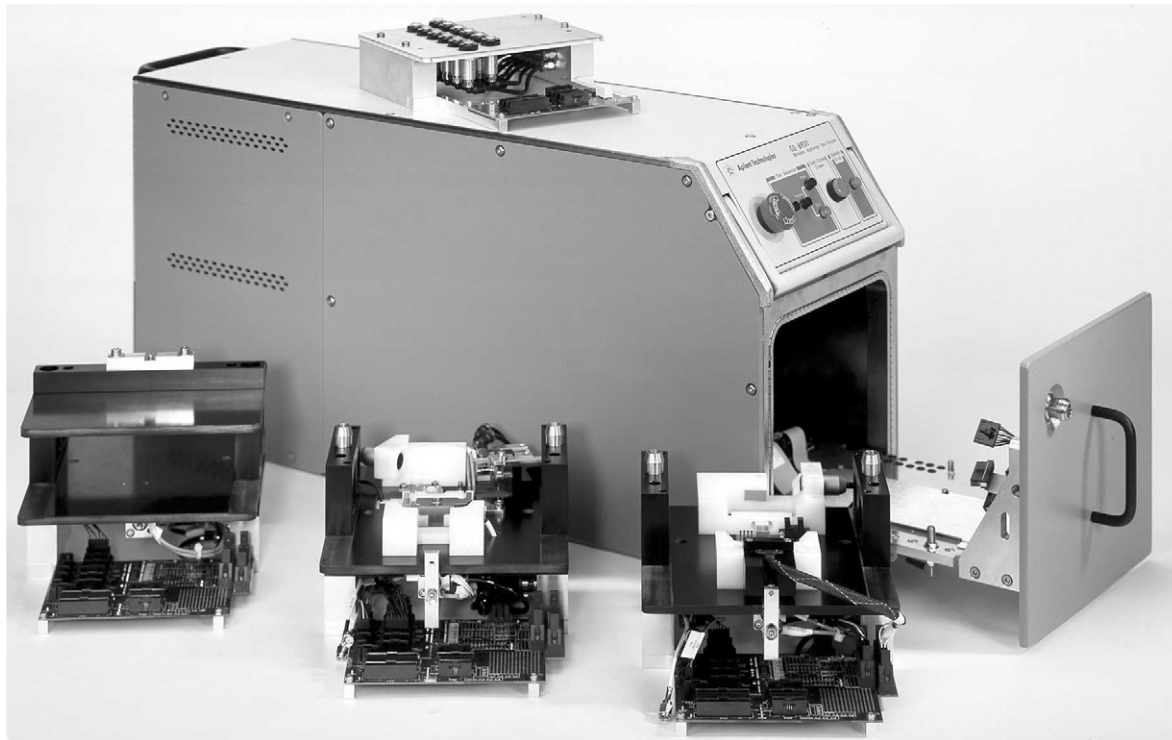


Agilent E8421A Wireless Test Fixture Product Overview

Improve time-to-volume while
increasing production flexibility!



The E8421A wireless test fixture provides an ideal platform for RF test of wireless appliances, both in manufacturing and in R&D. The feature-rich E8421A wireless test fixture is an innovative flexible design with integrated system functionality. It provides well-defined tailoring of a custom device under test (DUT) nest¹ that supports automated, as well as manual loading, at board and final test. Agilent's global service and support help you quickly implement your test system solutions and effectively keep them running at a lower cost.

1. A nest is a custom component of the overall fixture design that interfaces the unique characteristics of the device under test with the standard base unit hardware. The nest contains the connections and physical components that interface to the device and the base unit, and include mechanical pneumatics, speaker and microphone for audio testing, galvanic or over-the-air RF interfaces, button pushing, etc. These interface components, located on the custom nest, are connected to standard base unit hardware for control and automation.



Agilent Technologies

Fixture functionality that meets your unique needs

The fixture solution consists of three main components to offer you the most flexibility in addressing your unique fixturing needs:

- the standard universal base unit
- a variety of base unit options
- nest customization choices, including customer- or Agilent-designed nests

Standard universal base unit

The E8421A has a standard base unit configuration, which offers you the most flexibility for various line configurations, technologies, and device form factors. The fixture's base unit is quickly changed to test different DUTs by simply swapping the custom nest. The base unit contains simple nest interface, including electrical, mechanical, and pneumatic connections. All customization for a particular device occurs in the nest and through fixture software commands, which enable control of the customized nest. Each unique nest interfaces with the base unit through the standard electrical and mechanical connections. Nest kits and tailoring documentation are available to enable the nest customization process. You, or a third party, can purchase the kits from Agilent and customize them utilizing the tailoring process document. Agilent also provides full tailoring services to complete the fixture solution. The fixture incorporates many of the resources normally included in the test system, simplifying the overall test system interconnect and complexity.

The resources provided internally in the E8421A fixture are:

- integrated fixture power and control: serial fixture I/O, driver, external SW, and power supply
- integrated RS232 serial DUT communications two- or four-wire interface with programmable leveling shifting and signal inversion
- integrated switching and signal distribution: 16 channel DMM multiplexing, 10 GP relays, and two programmable voltage references
- integrated programmable digital I/O: 12 bi-directional channels with programmable reference and external triggering
- integrated audio signal conditioning: optional speaker, three micro phones, external audio jack, and vibration sensor
- integrated pneumatics for custom actuation: six user-assigned valves, position and proximity sensors, pilot valve, pressure regulator with pressure sensor

Additional base unit options

The E8421A can be enhanced with optional features that provide the test functionality required for your individual fixturing and test needs.

E8421A optional features summary

- Option 010 – RF absorber kit, improves RF isolation and RF coupling
- Option 020 – additional RF paths and RF switch, provides one additional path and one additional switched path to nest
- Option 100 – diagnostic loopback nest, for fault isolation between the fixture and nest
- Option 140 – sliding rack mount kit, for mounting two fixtures in a rack
- Option 160 – generic test system cables, for connecting to DMM, DUT power and RF test equipment
- Option ABA – US-English manual set (manual also available on the Agilent Web site for free)
- Option 300 – spares kit
- E8420-06700 – spare RF gasket, for front door of one unit

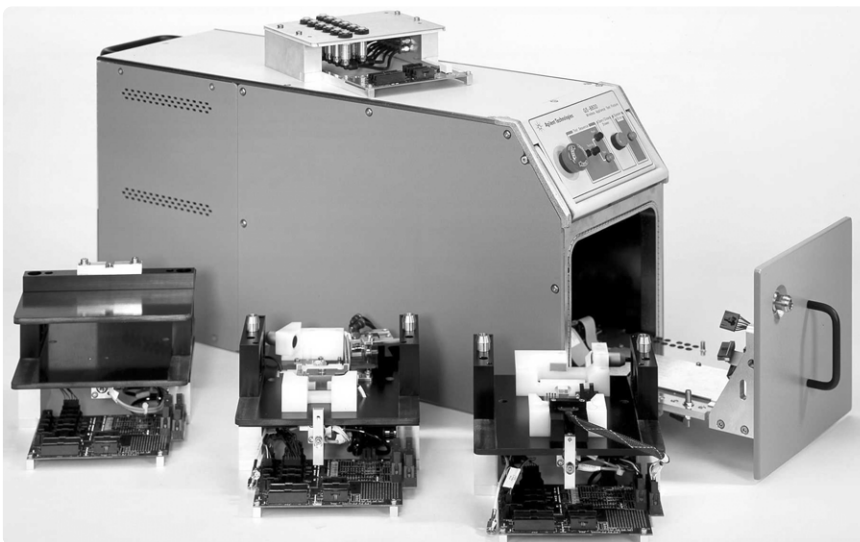


Figure 1. Agilent E8421A wireless test fixture with nests

Customize with nest design options

Due to the fact that wireless devices often have unique form factors, it is inevitable that some level of customization is necessary for a particular nest.

The E8421A provides nest kit options that are easily leveraged into custom nest solutions through the following methods:

- customizing nests through your own process
- tailoring nest using your own third party
- using Agilent for your custom nest development

Nest kit options

The following options can be utilized in any of the previously mentioned customization processes.

- Option 200 – final nest kit, includes assembled base nest parts and tailoring process document to help design new nests
- Option 210 – quick nest kit, allows the user to make a basic nest and manual electrical connections to the fixture resources
- Option 220 – board test kit, includes assembled base nest parts and a tailoring process document to help design new top and bottom side probe board nests

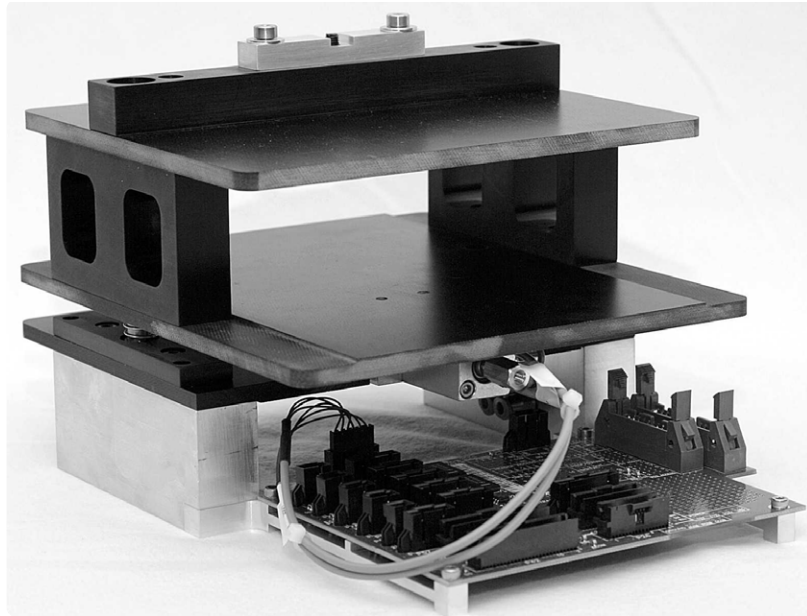


Figure 2. Final nest kit hardware

- Option 230 – acoustic test kit for fixture (includes speaker, microphone, cabling and hardware for installation in upper nest)
- Option 240 – non-parametric over the air coupler (OTA), useful for functional antenna test and lower-performance testing of the RF interface. Includes the coupler and documentation for installation, characterization, and use. Should be used with the final or quick nest kits.

Agilent provides a complete nest tailoring document with each kit to help you or your choice of a third party efficiently develop your custom nest design and interface it into the E8421A base unit. The reference section at the end of this document provides nest tailoring information.

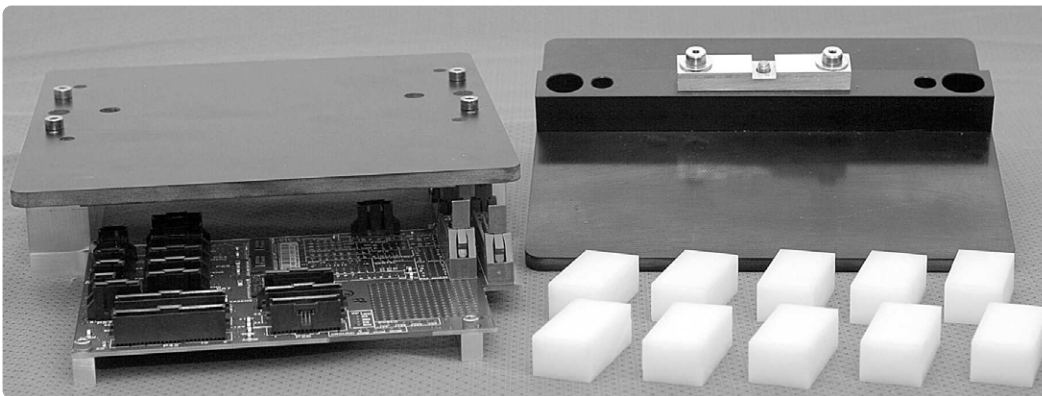


Figure 3. Quick nest kit hardware

Product features

Superior RF environment for testing wireless devices

RF isolation is critical when testing the functionality and quality of mobile devices, mobile printed circuit boards (PCBs), and other RF devices prior to deployment. RF interference in a production process can impact the yield of a RF test process. Since many devices are tested at various power levels, often at the same frequencies, and in close proximity to each other, RF interference has a high probability of compromising device calibrations, as well as functional test verification of devices that are marginal in certain performance specifications. Local cell-sites may also interfere with device production.

The E8421A wireless test fixture has been designed to optimize critical features to improve the RF test environment. These features include:

- RF isolation from external interference – The E8421A wireless test fixture utilizes nickel-plated metal surfaces and high performance gaskets on all external seams, as well as filtered connectors on all signal interconnections to provide greater than 60 dB of RF isolation at 800-2200 MHz.
- OTA coupler – Agilent Technologies' functional test OTA coupler (patent pending) provides the ability to test the antenna and can eliminate the need for a galvanic RF connection to the DUT with some antennas. Custom couplers can also be designed to perform parametric RF testing through the DUT's antenna.
- RF absorber kit – A RF absorber added to the interior walls of the RF enclosure of the E8421A minimizes internal reflections making wideband OTA measurements possible. This absorber also increases the RF isolation of the fixture.
- Low spurious noise – The E8421A wireless test fixture uses an isolation technique to eliminate spurious noise, like digital processor and communication signals, from occurring in the RF enclosure during critical measurement times (patent pending). Small amounts of spurious noise can affect test results and impact product yield, especially during OTA measurements.
- Nest kit materials and design – The nest kits available with the E8421A wireless test fixture consist of materials specifically designed to provide the required mechanical and electrical properties required for testing RF appliances, including sensitive OTA measurements. Electrically reflective surfaces have been minimized and moved away from the DUT.

Simple fixture set up offers flexibility in different stages of production

The E8421A wireless test fixture can be used in different process stages of your production lines. With a board nest installed, the E8421A wireless test fixture can perform single-sided or dual-sided probing board test. When a final nest is installed, the E8421A enables highly accurate and repeatable final test functions. You can also add the acoustic option to enable acoustic testing of the device.

The switch between each nest is less than ten minutes. By using this flexible design, you can adjust your production line dynamically to fit various manufacturing needs and make your production process more flexible and reusable.

Fixtures are easily reconfigured for different devices

Having the need to change your production line for different phones is not uncommon. It may take significant time to change the existing fixtures and calibrate the overall system equipment. The Agilent E8421A fixture is easily reconfigured when used with new products. Nest macros, which define the hardware for the fixture's firmware and DUT test software, are automatically downloaded when a new nest is installed. Now you don't have to design a completely new test fixture for every new phone! You only need to change the nest and start to test another model. It saves time and reduces the investment to test multiple device form factors.

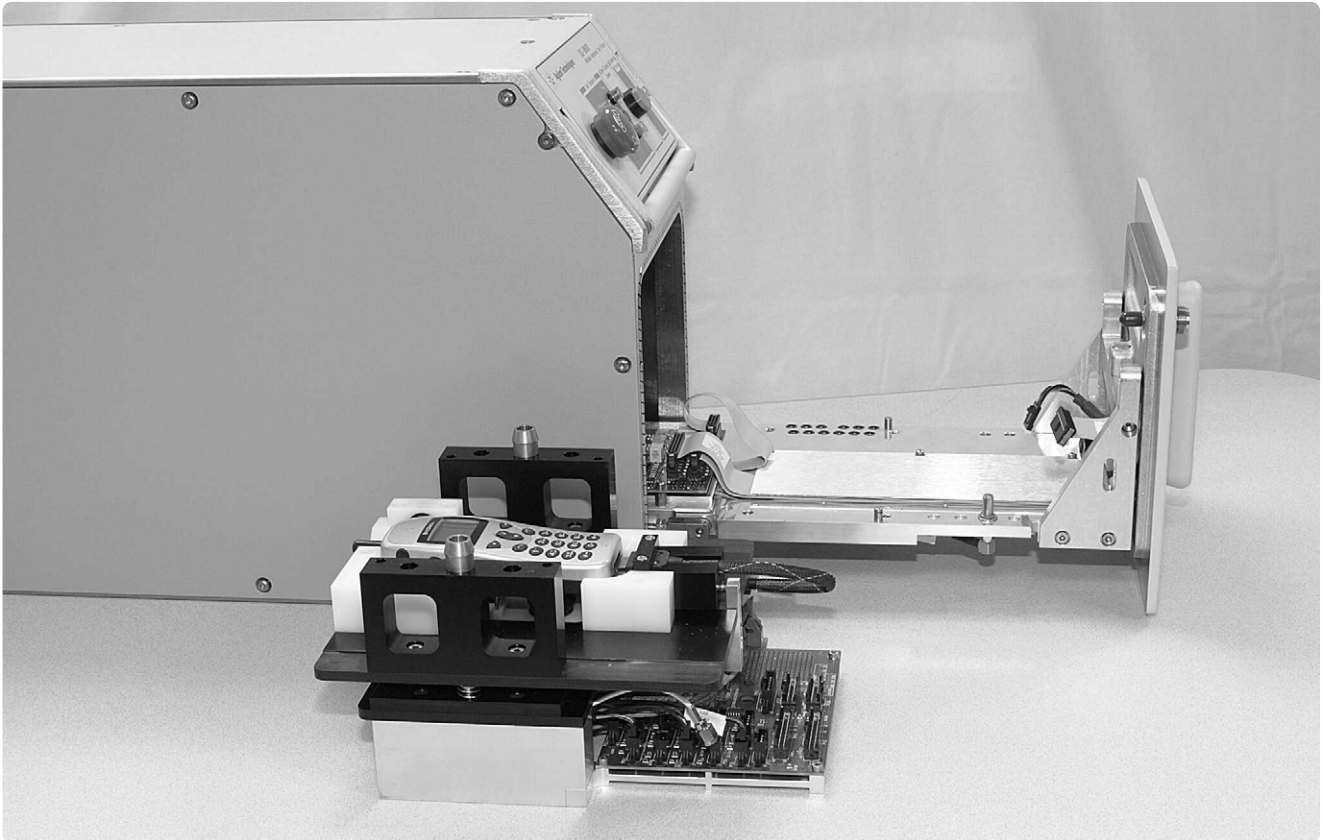


Figure 4. Simple nest swapping

Nest kit options offer fast custom development

Using the Agilent E8421A, you can have a custom fixture for testing virtually any assembled phone, RF device, or device printed circuit board (PCB). For fast prototype phone testing, you start with the quick nest kit option. The quick nest kit with manual connections to the DUT is robust enough for use in R&D or very low volume production lines.

For mass-production phone testing, you need to have a customized nest designed for your specific device form factor. You can do the custom nest design and build it yourself, go through a third party of your choice, or use Agilent's Wireless Custom Services. Various factors will influence your decision regarding the design and build of the custom nest. Please refer to the section titled, "Decision to build or buy your custom nest" for more information to help with this decision.

The E8421A incorporates easily into test systems

The Agilent E8421A wireless test fixture is highly versatile and adaptable. The fixture is basically another instrument. AC power is provided through an IEC connector, and pneumatics through a 6-mm air line connection. Standard N-type RF connectors provide RF connection from the fixture to the RF test equipment. BNC connectors provide connections for audio and DMM. One 9-Pin D-sub provides a connection for the two DUT power supplies. A Windows® COM-based software driver provides command control of the fixture through a standard null modem cable. DUT serial communication is through a standard null modem cable. Expansion for additional custom DUT communication is available through the built-in customizable SCOM path.

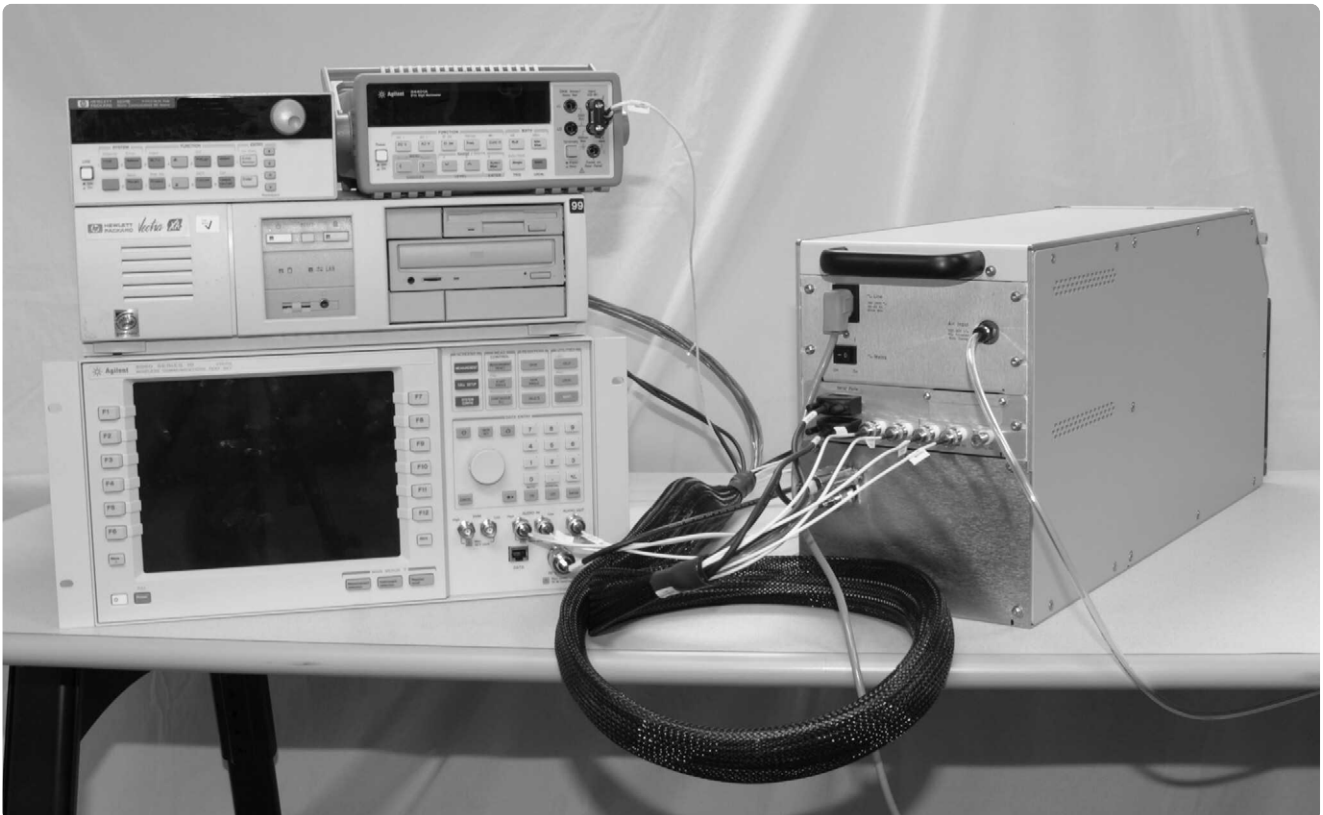


Figure 5. Simple rear panel connections to system

Support and maintenance is simple

The modularized design is very important to a flexible production line. It has two main advantages:

- simple implementation and operation
- simple to repair and maintain

With Agilent wireless test fixture, you can easily modify testing phases and device form factors, as well as maintain the device interface to the test system with your technicians. Maintenance and repair efficiency will reduce your downtime, allowing you to maximize the value of your production process. Nests are quickly interchanged without having to remove the entire fixture base unit. By using the diagnostic loop back nest option, failure isolation is quickly performed, allowing you to identify and replace the defective nest or fixture. PCBs, pneumatic components, and cables inside the fixture are very accessible for replacement if defective or damaged.

High reliability and low maintenance

The Agilent E8421A wireless test fixture's rugged design and reliable mechanisms minimize your test and production downtime. It is based on Agilent's custom fixture designs, which have been developed over the past five years with rigorous life testing.

The E8421A includes setup and maintenance software. This Windows-based application provides an easy-to-use interface for all the key functions and commands. Using this software allows you to easily change signal paths, actuate pneumatic valves, open and close the drawer, check for errors, etc. This capability is invaluable during setup and troubleshooting.

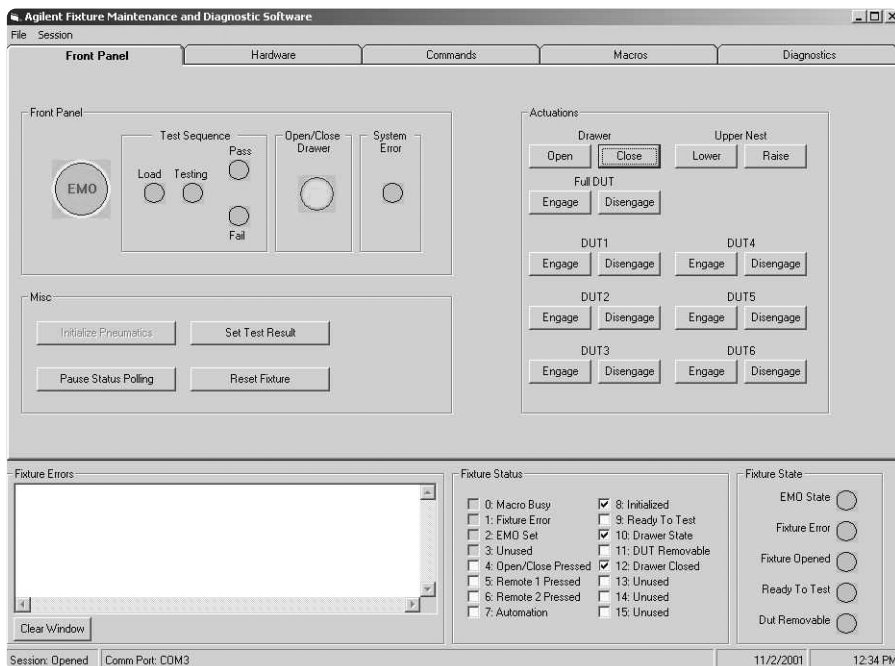


Figure 6. Setup and maintenance software

By using the optional diagnostic loop-back nest, the E8421A is capable of looping the electrical signals back for self-test and diagnostics. This nest provides the technician with an automated method for testing the electronics and pneumatics in the base fixture. The fixture and nests also have EEPROMS, which are used to store the cycle count for each actuation, as well as store acoustic and RF path calibration information. This provides simplicity for technicians to set up maintenance schedules in order to manage the optimum performance of the consumable component of the fixture. For optimum performance, the RF isolation gasket of the front door should be replaced every 100,000 cycles.

Fast and flexible automatic/manual test

Production line implementations often vary between lines, even within the same manufacturer. A particular device's production process may implement an automated or robotic loading process while another device's production process may implement a manual loading process. The E8421A provides flexibility between both manual and automated loading. Standardization of the fixture base unit is still capable across line processes regardless of whether the devices are manually or mechanically loaded into the fixture.

Automated testing mode

E8421A wireless test fixture is designed to work under fully-automated mode. An automation control interface is easily provided through a standard serial interface and controlled through a set of driver commands that can be incorporated into any test plan or test manager software. Alignment pins are provided for accurate fixture and nest positioning on the robotic table. Agilent provides an E6560A wireless test manager software package that incorporates standard E8421A control features, providing fast test plan development and control of the E8421A. When both the E8421A wireless test fixture and the E6560A wireless test manager are used in conjunction with one another, test plan development costs and time to volume can be greatly decreased.

Manual testing mode

When operated in the manual mode, the E8421A provides a simple operator interface located in the front panel. This panel provides the operator with loading control and fixture status, eliminating the need to use the keyboard, mouse, and monitor. The front panel displays Load, Testing, Pass, Fail, and Error lights. By using this user-friendly panel, operators are given a quick indication of the pass/fail status of the DUT. Operator control through a PC is not needed. The drawer is opened automatically using low force pneumatics after the test is complete. The drawer closes under a low safe force after the operator places the DUT and presses the close button. Other variations of this manual mode operation are available.

The E6560A wireless test manager can be used in conjunction with the E8421A wireless test system for automated testing while manually loading the DUTs into the fixture. Execution of the test plan can be controlled using the front panel controls of the fixture. This is dependent on the structure of the automated test software. The E6560A wireless test manager is capable of detecting the manual open and closed state of the fixture and controlling the test execution based on the fixture's state.

Expand your capabilities for today and tomorrow

Various features have been built into the fixture to provide upgradeability for future needs. These built in features include:

- SCOM customization area, including mechanical space for custom-printed circuit assemblies (PCAs) and paths to the nest
- fixture communication/control and power available for upper and lower nest custom PCAs
- control and mechanical space for eight more pneumatic actuations
- EEPROM addressing space available for storage of customer data

Whether you're just getting started, expanding production capacity, or testing new device models, Agilent offers flexible, manual or fully automated fixture solutions. Looking for a basic "go/no-go" over the air test or an RF-coupler to test directly from the antenna? Need to test different interfaces such as USB or Bluetooth™? Prepared to test 3G products and high quality phones? Agilent provides an array of test equipment that will readily satisfy your unique test needs. Of course, as your RF test needs or production volume change, upgrading is easy with the E8421A wireless test fixture.

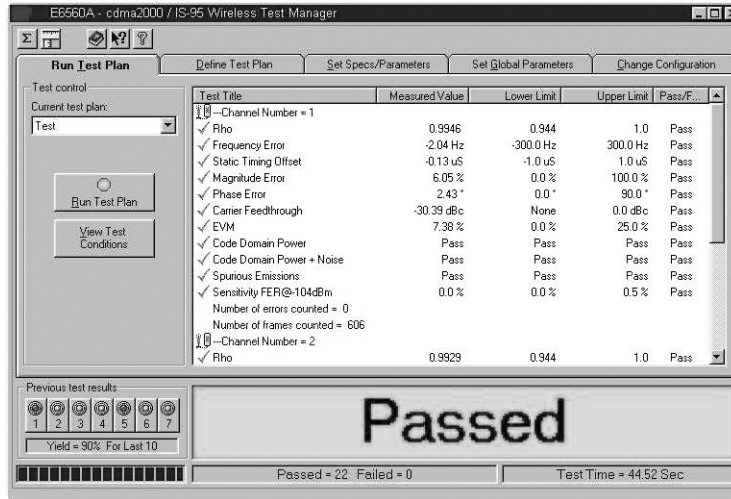


Figure 7. E6560A wireless test manager

Figure 8. E8421A wireless test fixture front panel



Tailoring a custom nest for your application

Each wireless DUT is unique. This means a unique tailored nest must be developed for each DUT. This section will help you decide on the best method to obtain a nest for your unique DUT and test processes. The E8421A is designed to allow you to develop tailored nests yourself or through a third party of your choice. You can also obtain tailored nests from Agilent. Figure 9 outlines a process for making this decision. The sections following the flowchart provide more information on each step in the process.

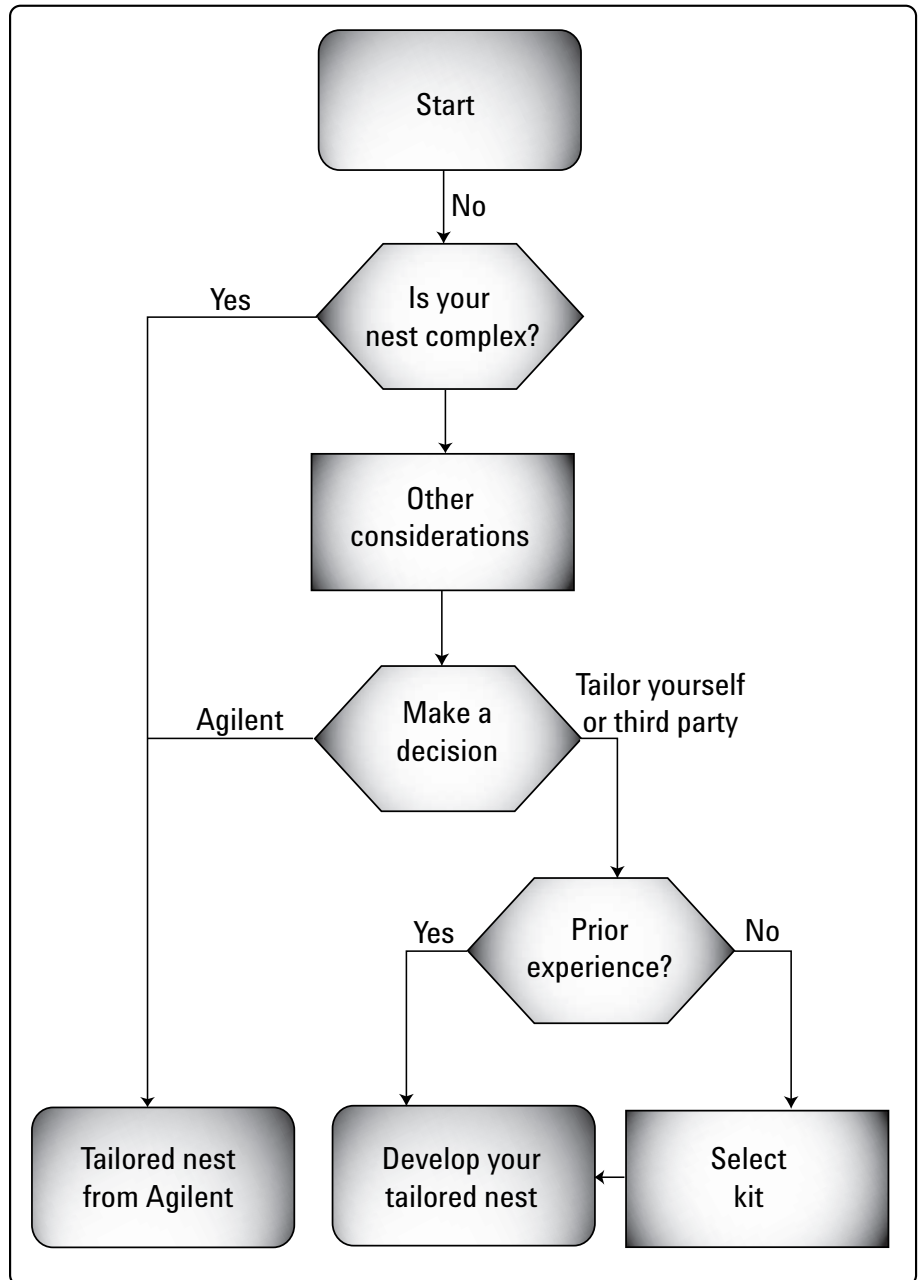


Figure 9. How to obtain your tailored nest

Is your nest complex?

The vast majority of DUTs may be tested with relatively simple nests, but if you answer "yes" to any of the following questions, then your nest application is "complex". It is highly recommended you contact your Agilent representative to obtain your tailored nest.

- Does the DUT require additional signals that are not supported in the E8421A standard base unit or options? This might include signals or communication protocols that require special connectors or conditioning either side of the RF barrier.

YES NO

- Is an over-the-air RF coupler required for high-performance parametric testing of the RF interface? Note that the standard functional over-the-air coupler (Option 240) is suitable for functional antenna test and lower-performance testing of the RF interface.

YES NO

- Can the DUT be latched into place and all connections made with fewer than seven actuations? Note that the nest becomes progressively more complex with each actuation. If more than seven is required, then you must contact Agilent for tailoring. Consider it is often possible to make more than one connection with a single actuator, particularly to the top and bottom of the DUT.

YES NO

- Is it necessary to perform a fully-automated button test in the RF test station? This typically requires one actuator per button, adding to the total in the previous question. It is often more cost-effective to perform button test either manually or in a separate test station.

YES NO

- Is it necessary to perform high-performance acoustic test in the RF test station? These are tests beyond the standard specifications of the E8421A.

YES NO

- Is it necessary to perform other human interface tests (display, camera-in-phone, etc.) in the RF test station?

YES NO

Other considerations

If your application is not complex, then you may obtain your nest from Agilent, develop it yourself, or obtain it from a third party. Consider the following points:

- What is your schedule?
- What are your budget constraints?
- Is throughput one of your highest priorities or is your line highly automated? With either configuration, Agilent has the insight to provide the most optimized solution.
- Do you prefer a complete solution? If so, Agilent can provide a full system, including instrumentation, fixturing, interconnects and software.
- What level of support do you require? Agilent worldwide support is available for the entire solution if you obtain your tailored nest from Agilent. If you develop your own nest or obtain it from a third party, Agilent will only support the standard base and options.
- Do you have a preference for developing the nest yourself or using a particular third party?
- Do you, or the third party, have the necessary resources and expertise for developing the nest?

Design skills

- Electrical interface of the DUT to the E8421A as described by the nest tailoring document. Includes definition of all signal paths and cable design. May include modification of the standard nest PCA or the development of new PCAs.
- Mechanical design of custom-fabricated components to hold the DUT and interface to each of the DUT connections. Experience with pneumatic actuators and sensors, in high-reliability, high-volume manufacturing test.
- RF transmission experience, suitable to evaluate connections and paths. May include implementing over-the-air testing of the DUT.

Manufacturing capability

- Precision machining of metal and plastic parts to tight tolerances
- Cable manufacturing
- Final assembly and test

Software

- Modification of a standard nest macro using a simple text editor. The nest macro defines which valves and sensors are used for each actuation, as well as sequencing and timing. Although your internal test department typically performs most software development, the nest macro may be outsourced to a third party.

Make a decision

Choose whether you want to develop your own nest, obtain it from Agilent, or a third party.

Prior experience?

If you are not obtaining your nest from Agilent, do you or your third party have prior experience developing a similar nest for the E8421A?

- If no, then you must use an Agilent nest kit for the first unit. This kit provides a step-by-step guide to the tailoring process. It includes many of the necessary parts, recommended manufacturer part numbers for others, and CAD data for machined parts.
- If yes, you may still desire to use the convenience of the Agilent nest kits. This option, however, still allows you to source the parts yourself.

Note: Agilent has applied for a number of patents protecting the innovative concepts in the E8421A nest interface and kits. Your purchase of an Agilent nest kit gives you permission to replicate these concepts for use with the E8421A. Use of these concepts with any other fixture base is not allowed.

Select the Agilent kit

Consider your DUT type, volume, and schedule when choosing the appropriate nest kit:

- Final nest kit (Option 200) is useful for medium-to-high volume test of final assemblies. These DUTs typically require actuations from multiple directions, and often include audio and over-the-air RF testing.
- Quick nest kit (Option 210) is especially useful for low-volume applications when it is acceptable to make all the DUT connections manually. Because it is simple, it can be tailored in a few hours rather than days. Typical applications are R&D and early production.
- Board nest kit (Option 220) is useful for medium-to-high volume test of board-level devices. Although actuators may be included that connect to the side of the DUT, most connections should be from the top or bottom with probe-style contacts.

Develop tailored nest

Either develop your own tailored nest or obtain it from a third party of your choice. Carefully follow the procedure outlined in the Agilent tailoring kits documentation.

Tailored nest from Agilent

Contact your Agilent representative to obtain your tailored nest or solution.

Specifications overview

E8421A fixture key specifications

(full specifications are contained in the manual)

Size (H x W x D)	~305 mm x 203 mm x 660 mm (~12" x 8" x 26")
Weight	66 lb, unpackaged w/o customization 77 lb, typical with customization
Working space (H x W x D)	135 mm x 170 mm x 300 mm (5.5" x 7" x 12")
Connections	
• Rear module panels	<ul style="list-style-type: none">• RS232 fixture control, 9-pin D-sub male, DTE• Serial DUT comm, 9-pin D-sub male, DTE• Modular DUT comm (optional)• DMM hi/lo, BNC• Audio in, BNC, analog ground referenced• Audio out hi, BNC, differential or analog ground referenced• Audio out low, BNC, differential• Trigger out, BNC• Fixture power, IEC320• Air supply, 6-mm Ext cap hose fitting
• Rear RF enclosure panel	<ul style="list-style-type: none">• RF in/out, type N-F• DUT power, 9-pin female filtered D-sub• Two additional RF in/out, type N-F (optional)
• Front door of drawer	<ul style="list-style-type: none">• RF calibration, type N-F to SMA
RF performance	
• RF isolation	800 - 1000 MHz: > 65 dB Note: add minimum 5 dB with RF absorber option. 1700 - 2200 MHz: > 60 dB 2400 - 2700 MHz: > 55 dB 5150 - 5800 MHz: > 40 dB
• RF signal path, Galvanic, non-switched	Loss < 1 GHz: < 1.4 dB Loss < 2 GHz: < 1.9 dB VSWR < 1 GHz: < 1.15 VSWR < 2 GHz: < 1.25
DUT communication capabilities	
• Serial	Serial path with +0.10 V to +5.00 V programmable, selectable inversion. Full compliance EIA/TIA-232-E interface DB9M five-wire interface: TxD, RxD, RTS, CTS, GND Two-wire or four-wire (hardware handshake) mode available Maximum baud rate: 230.4 Kb nominal

DUT test electronics and power

- **Integrated switching**
 - 5 form A, switch and carry current: ≤ 0.5 A
 - 5 form C, switch and carry current: ≤ 0.5 A
 - 8:1 two-wire DMM multiplexer, input voltage range: ± 5.5 V any input with respect to ground
 - 8:1 one-wire DMM multiplexer, provides common connection close to phone
- **Integrated digital I/O**
 - 12 programmable digital I/O lines, bi-directional
 - Programmable logic voltage range: 0 V to +5.0 V or DUT referenced
 - Maximum IOL ≤ 100 mA
- **Integrated audio signal conditioning**
 - Amplifiers, switching and bias for:** Auxiliary audio out, differential or single ended, filter 10 to 25,000 Hz (3 dB), 6 dBV nominal differential input to differential output. Electronics have less than 0.1% THD.
 - Auxiliary audio out,** differential or single ended, filter 100 to 30,000 Hz (3 dB), 6 dBV nominal differential input to differential output. Electronics have less than 0.1% THD.
 - Mouthpiece speaker,** 300 to 5000 Hz. 60 to 110 dBspl at 2.5 cm using acoustic test kit. Electronics have less than 0.2% THD. Upper nest only.
 - Earpiece microphone,** 100 to 25,000 Hz (3 dB). Selectable range 60 to 110 dBspl and 94-125 dBspl at 1 cm using acoustic test kit. Electronics have less than 0.2% THD. Upper nest only. High performance microphone available – refer to manual or call factory.
 - Buzzer microphone,** 100 to 20000 Hz (3 dB). 60 to 110 dBspl at 1 cm, 94 dBspl gives 1.20 Vac nominal using recommended microphone. Electronics have less than 0.2% THD.
 - Level microphone,** 100 to 15000 Hz. 90 to 125 dBspl at 1 cm, 114 dBspl gives 0.91 V.
- **Integrated GSM SIM card connector**
 - Built-in SIM card holder, connections to nest PCA
- **Ambient temperature sensor**
 - Inside fixture, temperature accuracy: $\pm 2^\circ\text{C}$

DUT test electronics and power, continued

- **DUT power** Dedicated two 4-line paths suitable for Agilent 66319 dual supply or equivalent.
22 AWG shielded twisted pair
DC Voltage: ≤ 42 V
DC Current: ≤ 3 A, 5 A peak
- **Trigger path** Four paths multiplexed from nest to rear panel
TTL data rates ≤ 13.5 MHz
- **Programmable voltage references**
Output voltage range: -5.0 V to $+12.0$ V
Output current: ± 250 mA
Programmable enable
- **Vibrator sensor connection**
Bandpass filter characteristics: 3 dB corner frequencies of 45 Hz and 5.5 kHz nominal
Voltage gain: 69.5 dBV nominal
single-ended input to differential output using the E8420-61621 vibration sensor cable
1/3 G at 50 Hz, at the surface of the sensor gives 12.8 Vac output typical

Automation capabilities

- **Pneumatic configuration**
Eight-valve manifold, fully loaded
#1 for dual-pressure open/close
#2 for upper mechanical and associated actuators
#3-8 standard to lower nest, can be custom plumbed
Integrated pressure regulator, sensor and pilot valve
Drawer plumbing for six valves
- **DUT actuations and sensors**
Six pneumatic actuators available for DUT clamp, connect or button actuations, etc.
Sensor connections for each actuation, both directions

Fixture control and power

- **Software driver** Environment driver to be used in must support Windows COM-based automation server
100 commands/second typical
- **Software system requirements**
Microsoft Windows 98® or higher.
Microsoft Windows NT 4.0® or higher
At least 300 MHz processor
64 MB RAM, 5 MB hard drive
RS232 serial port
- **Fixture power** Universal AC input power supply, IEC 320 connector, country specific power cord
Rear panel on/off switch
Input voltage: 100 to 240 Vac, 50 to 60 Hz
Input power: 80 VA

Acoustic capabilities

- **Isolation and resonance**
Contact factory for more information.
- **Acoustic test kit for fixture**
Microphone acoustic input range:
Earpiece: Low gain: 90 to 125 dBspl at 1 cm, 114 dBspl provides 0.91 Vac (RMS) typical
High gain: 60 to 97 dBspl at 1 cm, 94 dBspl provides 6.5 Vac (RMS) typical
Amplitude response: ± 3 dB from 100 to 5kHz, ± 1 dB from 200 to 5 kHz typical
Speaker: ± 5 dB 500-5000 Hz. 0.35 Vac input voltage gives 94 dBspl output at 2.5 cm (typical). Acoustic output range (1 kHz at $< 0.5\%$ THD) ≤ 110 dBspl at 2.5 cm
- **Repeatability and accuracy**
Microphone calibration absolute accuracy: ± 1 dBspl typical
Repeatability: ± 0.2 dBspl typical
- **EEPROM storage locations**
Ten for each acoustic path calibration
One for audio calibration date
One for audio calibration temperature
Ten locations for RF calibration data
One for RF calibration date
One for RF calibration temperature

Environmental and regulatory

- **Temperature and humidity**
Operating temperature $+10^{\circ}\text{C}$ to $+40^{\circ}\text{C}$
Storage temperature -40°C to $+70^{\circ}\text{C}$
Operating humidity 95% RH at $+10^{\circ}\text{C}$ to $+30^{\circ}\text{C}$, non-condensing
75% RH at $+30^{\circ}\text{C}$ to $+40^{\circ}\text{C}$, non-condensing
Storage humidity 90% RH at 65°C , non-condensing

Other options and accessories

- **RF absorber kit** Improves RF isolation by approximately 5 dB up to 5 GHz and improves reflections
Type required for OTA couplers, or increased RF isolation
- **Non-parametric OTA coupler**
Provides between 8 and 25 dB coupling, depending on the DUT antenna and nest environment

Related literature

*Agilent E8421A Wireless Test Fixture
Final Test Nest Tailoring Manual*
(Contact your local field representative for further information.)

*Agilent E8421A Fixture Integration
with a Test System Product Note,*
literature number 5988-3663EN

For more information

For more information on the E8421A,
please visit our Web site at:

www.agilent.com/find/e8421a

For more information on Agilent
support solutions visit:

http://www.agilent.com/find/tm_services

For information on Agilent
education and training visit:

<http://www.agilent.com/find/education>

To receive regularly scheduled e-mail
updates about new products and new
information, register at:

www.agilent.com/find/emailupdates

Agilent Technologies' Test and Measurement Support, Services, and Assistance

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Our Promise

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