



Agilent X-Series E6607B Wireless Communications Test Set

Getting Started Guide



Agilent Technologies

Notices

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A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Warranty

This Agilent Technologies product is warranted against defects in material and workmanship for a period of one year from the date of shipment. During the warranty period, Agilent Technologies will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Agilent Technologies. Buyer shall prepay shipping charges to Agilent Technologies. Agilent Technologies shall pay shipping charges to return the product to Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to Agilent Technologies from another country.

Where to Find the Latest Information

Documentation is updated periodically. For the latest information about this test set, including firmware upgrades, application information, and product information, see the following URLs:

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

To receive the latest updates by email, subscribe to Agilent Email Updates:

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

Information on preventing test set damage can be found at:

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

Compliance

This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. The documentation contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

Canadian EMC Requirements

ICES/NMB-001 ISM GRP.1 CLASS A

This ISM device complies with Canadian ICES-001.

Cet appareil ISM est conforme à la norme NMB-001 Canada.

Acoustic Noise Requirements

Acoustic Noise Emission	Geraeuschemission
LpA <70 dB Operator Position Normal Position Per ISO 7779	LpA < 70 dB Am Arbeitsplatz Normaler Betrieb Nach DIN 45635 t.19

Acoustic Noise -- Further Information	Supplemental Information (Values given are per ISO 7779 standard in the “Operator Sitting” position)
Ambient Temperature <40° C	Nominally under 55 dBA Sound Pressure. 55 dBA is generally considered suitable for use in quiet office environments.
Ambient Temperature ≥40° C	Nominally under 65 dBA Sound Pressure. 65 dBA is generally considered suitable for noisy office environments. (The fan speed, and thus the noise level, increases with increasing ambient temperature.)

In This Guide...

This guide contains the following information:

1 Quick-Start

This chapter explains how to initialize the test set and generate and view a signal.

2 Front and Rear Panel Features

Refer to this chapter for information on front- and rear-panel key functionality, and display annotations.

3 Test Set Operating System

This chapter describes the Microsoft Windows OS configuration and the settings used with the Agilent test set software.

4 Using Microsoft Windows

The information in this chapter provides some guidelines for using the Microsoft Windows feature capabilities with the test set.

5 Troubleshooting

This chapter details some basic steps that may solve any problems you are experiencing with either the test set or Microsoft Windows OS.

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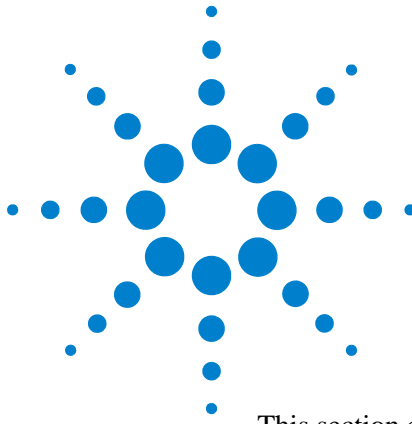
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1 Quick-Start

This section explains how to initialize the test set and generate and view a signal.

The following topics can be found in this section:

[“Initial Inspection”](#) on page 12

[“Test Set Location and Rack Mounting Requirements”](#) on page 13

[“Turning on the test set the first time”](#) on page 14

[“Anti-Virus Software and Firewalls”](#) on page 23

[“Shortening the Test Set Power-On Time”](#) on page 23





[“Instrument Information”](#) on page 24



Initial Inspection

Inspect the shipping container and the cushioning material for signs of stress. Retain the shipping materials for future use, as you may wish to ship the test set to another location or to Agilent Technologies for service.

Verifying the contents

Item	Deliverable	Description
Getting Started Guide		Provides first-time power on instructions, licensing information, operating system information, and general hardware information.
Agilent IO Libraries disk		Software for establishing and configuring PC to test set interfaces.
Optical mouse		An optical USB mouse to simplify screen navigation.
E6607B Safety and Regulations Guide		For use with E6607B Wireless Communications Test Set.
Power cable		Connection for test set power.

Shipping problems?

If the shipping materials are damaged or the contents of the container are incomplete:

- Contact the nearest Agilent Technologies office.
- Keep the shipping materials for the carrier's inspection.
- If you must return a test set to Agilent Technologies, use the original (or comparable) shipping materials. See ["Returning a test set for Service"](#) on page 113.

Test Set Location and Rack Mounting Requirements

Locating the test set

Make sure that the fan inlet and exhaust vent areas on the sides of the test set are not obstructed. The minimal required clearance is 2 inches. Airflow restrictions cause additional airflow noise and cause the fans to speed up so they can draw in enough air for the required cooling resulting in excessive audible noise.

Cooling and rack mounting

Do not rack mount the test set side-by-side with any other instrument with side-by-side ventilation. Make sure the exhaust air from the first instrument is directed away from the inlet of the second unit. If the pre-heated air from the first instrument is directed into the second instrument, it can cause excessive operating temperatures in the second unit and can cause instrument failures. The test set draws air in from the left side and exhausts air from the right side.

Turning on the test set the first time


Initial power-on of the test set can be accomplished using either of the following methods:

- “[Initializing the test set using a USB mouse](#)” on page 14
- “[Initializing the test set using front-panel navigation](#)” on page 19

NOTE

During the initial power-on process, the test set turns off and restarts several times. This *only* happens during the initial installation process.

Initializing the test set using a USB mouse

Steps	Actions	Notes
1 Connect the mouse	<ul style="list-style-type: none"> • Connect the mouse to one of the USB ports on the test set. 	
2 Power on the test set	<ul style="list-style-type: none"> a Position the test set so you have easy access to the power cord and plug it in. b Press the power switch (located in the lower left corner of the test set front panel) to turn the test set on. 	<ul style="list-style-type: none"> • See “Test Set Location and Rack Mounting Requirements” and “Power requirements” on page 24 for more details. • The test set can require more than 5 minutes to power-on. This is affected by Windows start-up requirements. • The Agilent Technologies screen appears followed by a screen that allows you to select the operating system. <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> • At this time, it is safe to turn off the test set before starting the Setup Wizard.

Steps	Actions	Notes
3 Launch Microsoft Setup Wizard	<ul style="list-style-type: none"> Highlight Microsoft Windows and press Enter to start the pre-installed operating system. 	<pre> Please select the operating system to start: Agilent Recovery System Microsoft Windows XP Professional (NORMAL STARTUP) * * WELCOME TO THE AGILENT X-series Wireless Comms test set * At this time, it is SAFE to turn off the instrument before starting * the Setup Wizard. You MUST NOT turn off the instrument or remove * power before the Setup Wizard completes and the system restarts. * Doing so may result in system corruption and the application may * not operate. Refer to the documentation for more information. * Select Microsoft Windows XP Professional to proceed with the Setup * Use the up and down arrow keys to move the highlight to your choice. Press ENTER to choose. For troubleshooting and advanced startup options for Windows, press F8. </pre>

- a The analyzer performs the following steps:
 - Windows Startup window
 - Black screen
 - Windows blue please wait message window, “Please wait while windows prepares to setup”
 - Blue Agilent window
 - The following Welcome window appears giving you information about the End-User License Agreement.

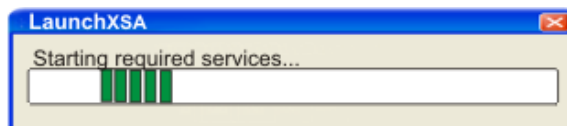


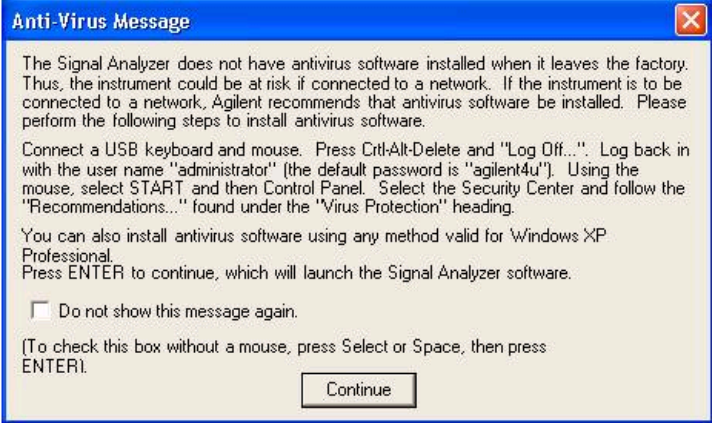
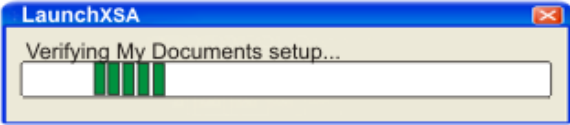
- At this time, it is safe to turn off the instrument before initializing the software.

CAUTION

After launching the setup, do not turn off the instrument or remove power before the Setup Wizard completes and the system restarts. Turning off the instrument may corrupt the system and the application may not operate.

- | | | |
|--------------------|-------------------|---|
| 4 Reboot and logon | a Click OK | <ul style="list-style-type: none"> When the instrument restarts, the following message window appears: |
|--------------------|-------------------|---|



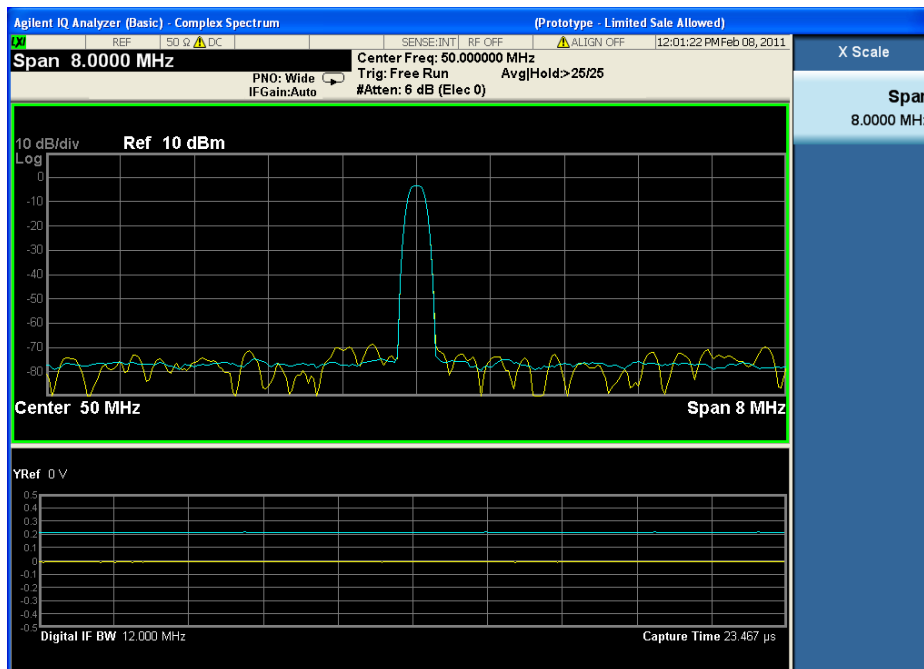
Steps	Actions	Notes
	<ul style="list-style-type: none"> This window appears and covers the LaunchXSA window. 	
<p>NOTE</p>	<p>If you do not check the “Do not show this message again” check box, this message will be displayed each time the analyzer is turned on. No application will start while this message is displayed. Before continuing, make sure that you carefully read the Anti-Virus message and determine what action is appropriate.</p>	
<p>5 Disable the Anti-Virus message</p>	<p>a Select the check box and click Continue.</p>	<ul style="list-style-type: none"> Messages similar to the following continue to appear:
		 <ul style="list-style-type: none"> The system reboots. Several required processes continue. The system reboots. The XSA application initializes
<p>6 Verify the installation</p>	<p>a On the test set, press System, Show, System.</p> <p>b Verify that the purchased application(s) appear in the list.</p>	<ul style="list-style-type: none"> If you require further assistance, contact the Agilent support team. Online assistance: http://www.agilent.com/find/assist
<p>7 View a signal</p>	<p>a Press Input/Output, RF Calibrator, 50 MHz.</p> <p>b Press AMPTD Y Scale, Ref Value, 10, dBm.</p> <p>c Press FREQ, Center Freq, 50, MHz.</p> <p>d Press SPAN X Scale, Span, 8, MHz.</p>	<ul style="list-style-type: none"> To view a signal without attaching any RF cables to the test set, route the internal 50 MHz calibration signal to the test set input. Set the reference level to 10 dBm. Set the analyzer center frequency to 50 MHz. Set the analyzer span to 8 MHz.

Steps

Actions

Notes

The 50 MHz reference signal appears on the display.

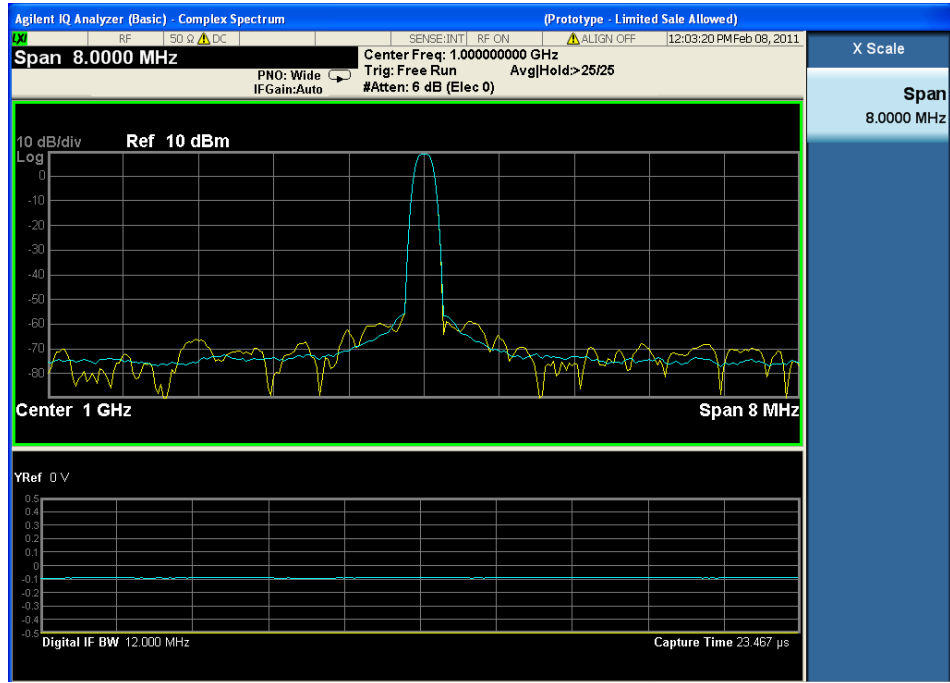


- 8 Generate and view signal
- a Connect the ends of a short RF cable to the RF Input and RF Output connectors on the front panel.
 - b Press **Input/Output**, **RF Input**, **RF Input Port**, **RF In**.
 - c Press **Input/Output**, **More**, **RF Output Port**, **RF Output**.
 - d Press **Source**, **RF Output**, **On**.
 - e Press **Source**, **Amplitude**, **RF Power**, **0**, **dBm**.
 - f Press **Freq**, **Center Freq**, **1**, **GHz**.
 - g Press **AMPTD Y Scale**, **Ref Value**, **10**, **dBm**.
 - h Press **FREQ**, **Center Freq**, **1**, **GHz**.
 - i Press **SPAN X Scale**, **Span**, **8**, **MHz**.
- The purpose is to use a loopback cable to verify that the test set's source can generate a signal and the test set's analyzer can measure it.
 - Because there are four RF ports on the front panel, it is necessary to specify which ports are used for the input and output.
 - You need to choose frequency and power-level settings for the source; you also need to specify that the source output is on.
 - You need to specify the center frequency, span, and reference power level for the analyzer.

1 Quick-Start

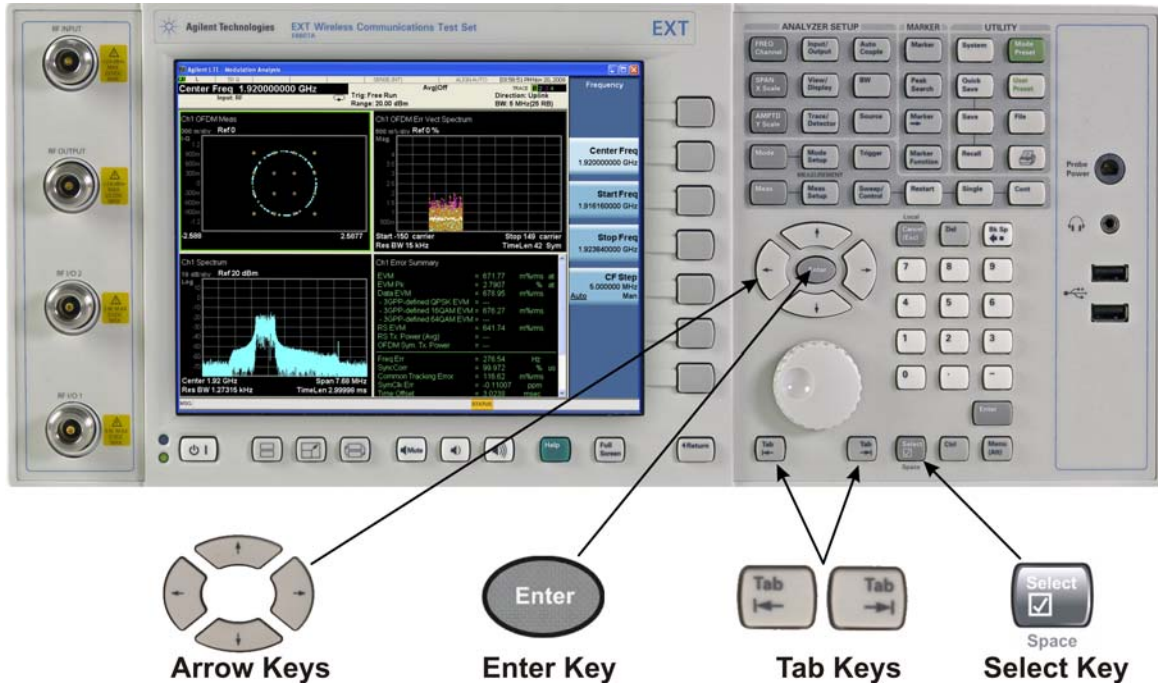
Steps	Actions	Notes
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The 1 GHz signal appears on the display.



Initializing the test set using front-panel navigation

The following keys are used in the initialization process:

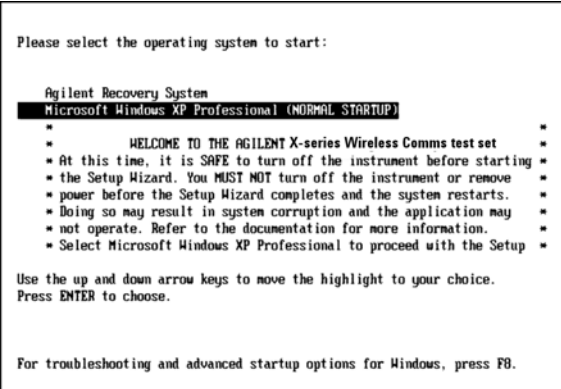


Steps	Actions	Notes
1	<p>Power on the test set</p> <ol style="list-style-type: none"> Position the test set so you have easy access to the power cord and plug it in. Press the power switch (located in the lower left corner of the test set front panel) to turn the test set on. 	<ul style="list-style-type: none"> See “Test Set Location and Rack Mounting Requirements” and “Power requirements” on page 24 for more details. The test set can require more than 5 minutes to power-on. This is affected by Windows start-up requirements. The Agilent Technologies screen appears followed by a screen that allows you to select the operating system. <div data-bbox="850 1478 1146 1701" data-label="Image"> </div> <ul style="list-style-type: none"> At this time, it is safe to turn off the test set before starting the Setup Wizard.

CAUTION

After launching the Setup Wizard, do not turn off the test set or remove power before the Setup Wizard completes and the system restarts. Turning off the test set may corrupt the system and the application may not operate.

1 Quick-Start

Steps	Actions	Notes
2 Launch the Microsoft Setup Wizard	a Highlight Microsoft Windows and press Enter to start the pre-installed operating system.	

- a The analyzer performs the following steps:
 - Windows Startup window
 - Black screen
 - Windows blue please wait message window, “Please wait while windows prepares to setup”
 - Blue Agilent window
 - The following Welcome window appears giving you information about the End-User License Agreement.

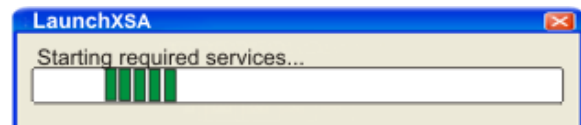



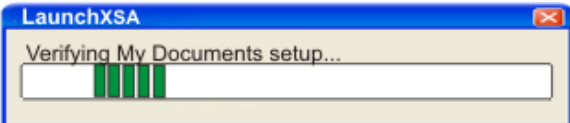
- At this time, it is safe to turn off the instrument before initializing the software.

CAUTION

After launching the setup, do not turn off the instrument or remove power before the Setup Wizard completes and the system restarts. Turning off the instrument may corrupt the system and the application may not operate.

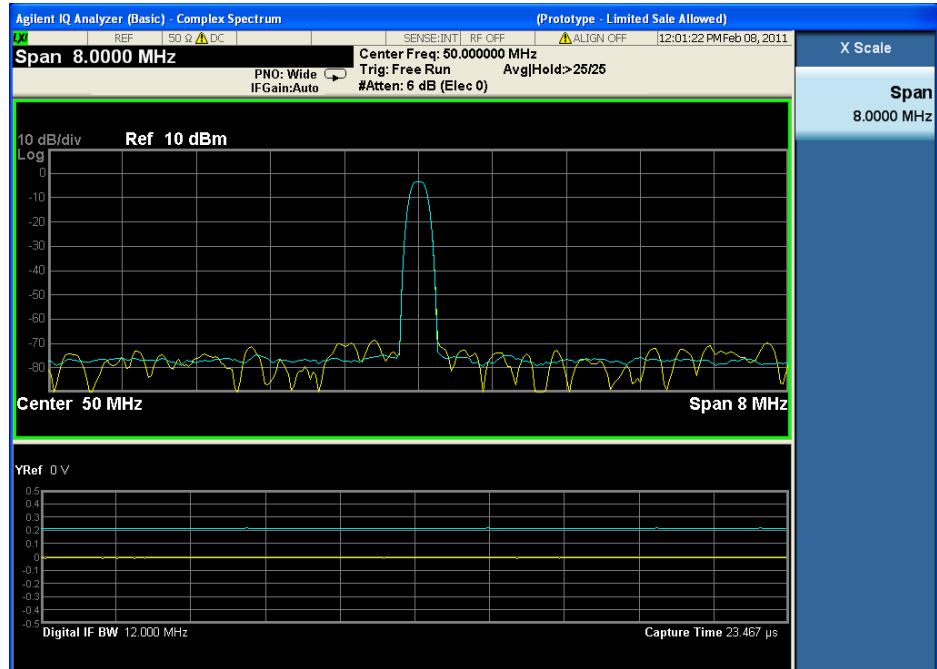
- | | | |
|--------------------|-------------------|---|
| 3 Reboot and logon | a Click OK | <ul style="list-style-type: none">• When the instrument restarts, the following message window appears: |
|--------------------|-------------------|---|



Steps	Actions	Notes
	<ul style="list-style-type: none"> This window appears and covers the LaunchXSA window. 	
<p>NOTE</p>	<p>If you do not check the “Do not show this message again” check box, this message will be displayed each time the analyzer is turned on. No application will start while this message is displayed. Before continuing, make sure that you carefully read the Anti-Virus message and determine what action is appropriate.</p>	<ul style="list-style-type: none"> Messages similar to the following continue to appear:
<p>4 Disable the Anti-Virus message</p>	<p>a Press Select to select the check box and Enter to continue.</p>	
<p>5 Verify the installation</p>	<p>a Press System, Show, System. b Verify that the purchased application(s) appear in the list.</p>	<ul style="list-style-type: none"> The system reboots. Several required processes continue. The system reboots. The XSA application initializes <p>If you require further assistance, contact the Agilent support team. Online assistance: http://www.agilent.com/find/assist</p>
<p>6 View a signal</p>	<p>a Press Input/Output, RF Calibrator, 50 MHz. b Press AMPTD Y Scale, Ref Value, 10, dBm. c Press FREQ, Center Freq, 50, MHz. d Press SPAN X Scale, Span, 8, MHz.</p>	<ul style="list-style-type: none"> To view a signal without attaching any RF cables to the test set, route the internal 50 MHz calibration signal to the test set input. Set the reference level to 10 dBm. Set the analyzer center frequency to 50 MHz. Set the analyzer span to 8 MHz.

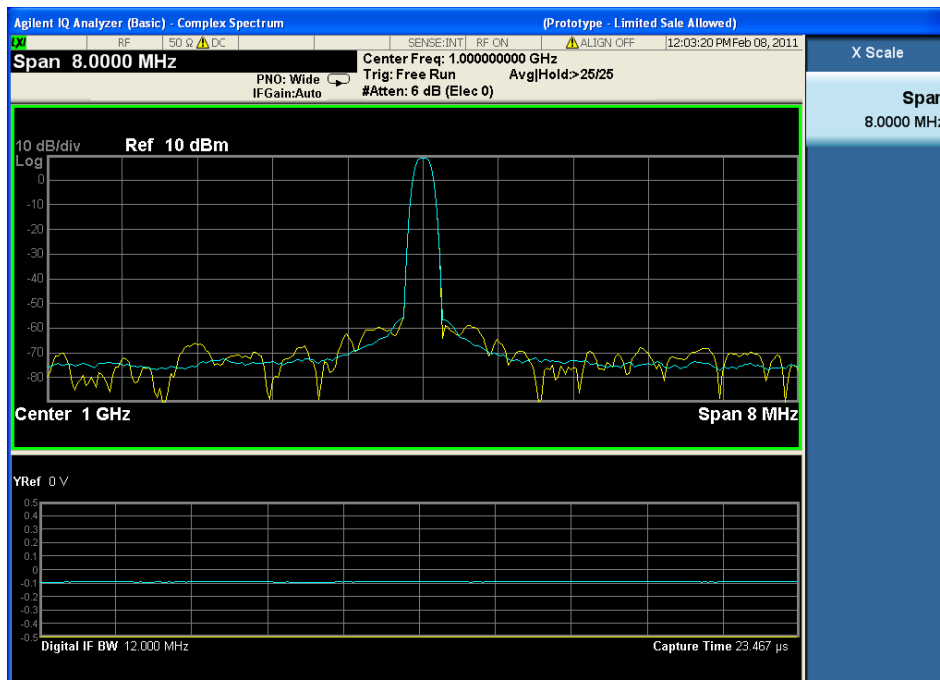
Steps	Actions	Notes
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The 50 MHz reference signal appears on the display.



- | | | |
|-----------------------------------|---|---|
| <p>7 Generate and view signal</p> | <p>a Connect the ends of a short RF cable to the RF Input and RF Output connectors on the front panel.</p> <p>b Press Input/Output, RF Input, RF Input Port, RF In.</p> <p>c Press Input/Output, More, RF Output Port, RF Output.</p> <p>d Press Source, RF Output, On.</p> <p>e Press Source, Amplitude, RF Power, 0, dBm.</p> <p>f Press Freq, Center Freq, 1, GHz.</p> <p>g Press AMPTD Y Scale, Ref Value, 10, dBm.</p> <p>h Press FREQ, Center Freq, 1, GHz.</p> <p>i Press SPAN X Scale, Span, 8, MHz.</p> | <ul style="list-style-type: none"> • The purpose is to use a loopback cable to verify that the test set's source can generate a signal and the test set's analyzer can measure it. • Because there are four RF ports on the front panel, it is necessary to specify which ports are used for the input and output. • You need to choose frequency and power-level settings for the source; you also need to specify that the source output is on. • You need to specify the center frequency, span, and reference power level for the analyzer. |
|-----------------------------------|---|---|

Steps	Actions	Notes
		The 1 GHz signal appears on the display.



Anti-Virus Software and Firewalls

No anti-virus software is shipped with the test set. It is recommended that you install anti-virus software if your test set is connected to the LAN. Check with your IT department to see what they recommend.

The test set is shipped with the Windows firewall enabled. Do not modify the default network settings as this may cause problems with the operating system of the test set.

Shortening the Test Set Power-On Time

The test set desktop includes a shortcut to the ConfigureApplications.exe application that lets you control your test set power-on configuration. You can set the configuration to pre-load only the applications that you typically run. This can significantly shorten the time it takes for your test set to power-on. You can also access this functionality by pressing: **System, Power On, Configure Applications**.

If (after power-on) you want to access an application that you did not pre-load, it will take a little longer to bring it up once you press the application softkey. This longer time-frame is only for the first access after power-on. After the initial access, mode (application) switching will operate as quickly as if the application was pre-loaded.

Instrument Information

Power requirements

The only physical installation of your Agilent test set is a connection to a power source. Line voltage does not need to be selected.

This test set does *not* contain customer serviceable fuses.

WARNING

This is a Safety Class 1 Product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous. Intentional interruption is prohibited. (IEC 348 clauses 17.3.3c & 17.3.4)

Failure to ground the test set properly can result in personal injury. Before turning on the test set, you must connect its protective earth terminals to the protective conductor of the main power cable. Insert the main power cable plug into a socket outlet that has a protective earth contact only. DO NOT defeat the earth-grounding protection by using an extension cable, power cable, or autotransformer without a protective ground conductor.

CAUTION

This product is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010 Second Edition and IEC 664 respectively. This instrument has autoranging line voltage input. Before switching on the instrument, be sure the supply voltage is within the specified range.

The Mains wiring and connectors shall be compatible with the connector used in the premise electrical system. Failure, to ensure adequate earth grounding by not using the correct components may cause product damage, and serious injury.

AC power cord

The test set is equipped with a three-wire power cord, in accordance with international safety standards. This cable grounds the test set cabinet when connected to an appropriate power line outlet. The cable appropriate to the original shipping location is included with the test set. See:

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

CAUTION

Always use the three-prong AC power cord supplied with this product. Failure to ensure adequate earth grounding by not using this cord can cause product damage.

This instrument has auto-ranging line voltage input; be sure the supply voltage is within the specified range and voltage fluctuations do not to exceed 10 percent of the nominal supply voltage:

100/120 VAC 50/60 Hz,
220/240 VAC 50/60 Hz,
270 W Max.

WARNING

If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only. Install the instrument so that the detachable power cord is readily identifiable and easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby switch and is not a LINE switch. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

Environmental Conditions (Operating)

This product is designed for use in the following conditions:

- For indoor use only
- Altitude up to 4600 meters
- Maximum relative humidity 80% for temperatures up to 31 degrees C, decreasing linearly to 50% relative humidity at 40 degrees C.

CAUTION

This product is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010 Second Edition and IEC 664 respectively.

Ventilation

CAUTION

VENTILATION REQUIREMENTS: When installing the product in a cabinet, the convection into and out of the product must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the product by 4°C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, then forced convection must be used.

Instrument Maintenance

Cleaning the instrument

WARNING

To prevent electrical shock, disconnect the test set from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.

Cleaning the connectors

WARNING

Cleaning connectors with alcohol shall only be done with the instrument power cord removed, and in a well-ventilated area. Allow all residual alcohol moisture to evaporate, and the fumers to dissapate prior to energizing the instrument.

Battery Information

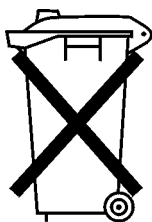
The test set uses a lithium battery located on the CPU board. This is not an operator replaceable part. See “[Returning a test set for Service](#)” on page 113. Replaceable parts must be approved or supplied by Agilent Technologies.

You can order the service documentation for the instrument through your Agilent Sales and Service office.

WARNING

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended. Discard used batteries according to the manufacturer’s instructions.

Do not throw batteries away but collect as small chemical waste.



**DO NOT THROW BATTERIES AWAY BUT
COLLECT AS SMALL CHEMICAL WASTE.**

Protecting against electrostatic discharge

Electrostatic discharge (ESD) can damage or destroy electronic components (the possibility of unseen damage caused by ESD is present whenever components are transported, stored, or used).

Test equipment and ESD

To help reduce ESD damage that can occur while using test equipment:

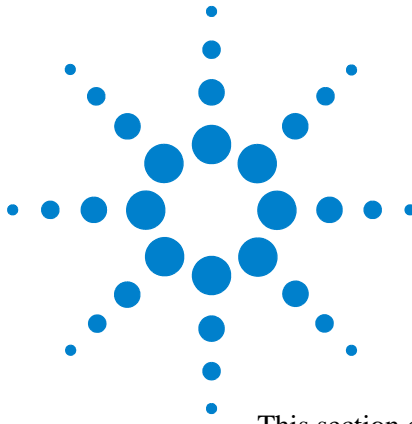
WARNING

Do not use these first three techniques when working on circuitry with a voltage potential greater than 500 volts.

- Before connecting any coaxial cable to a test set connector for the first time each day, momentarily short the center and outer conductors of the cable together.
- Personnel should be grounded with a 1 M Ω resistor-isolated wrist-strap before touching the center pin of any connector and before removing any assembly from the test set.
- Be sure that all instruments are properly earth-grounded to prevent build-up of static charge.
- Perform work on all components or assemblies at a static-safe workstation.
- Keep static-generating materials at least one meter away from all components.
- Store or transport components in static-shielding containers.
- Always handle printed circuit board assemblies by the edges. This reduces the possibility of ESD damage to components and prevent contamination of exposed plating.

Additional information about ESD

For more information about ESD and how to prevent ESD damage, contact the Electrostatic Discharge Association (<http://www.esda.org>). The ESD standards developed by this agency are sanctioned by the American National Standards Institute (ANSI).



2 Front and Rear Panel Features

This section describes the following features:

[“Front-Panel Features \(E6607A/B\)”](#) on page 30

[“Display Annotations”](#) on page 35

[“Rear-Panel Features”](#) on page 37

[“Front and Rear Panel Symbols”](#) on page 39



Front-Panel Features (E6607A/B)



Item		Description
#	Name	
1	Menu Keys	Key labels appear to the left of the menu keys to identify the current function of each key. The displayed functions are dependent on the currently selected Mode and Measurement, and are directly related to the most recent key press.
2	Measurement Keys	These keys select the Mode, and the Measurement within the mode. They also control the initiation and rate of recurrence of measurements.
3	Setup Keys	These keys set the parameters used for setting up the test set in the current Mode.
4	Marker Keys	Markers are often available for a measurement, to measure a very specific point/segment of data within the range of the current measurement data.
5	Utility Keys	These keys control system-wide functionality such as <ul style="list-style-type: none"> test set configuration information and I/O setup, printer setup and printing, file management, save and recall, test set presets.
6	Probe Power	Supplies power for external high frequency probes and accessories.
7	Headphones Output	Headphones can be used to hear any available audio output.
8	Back Space Key	Press this key to delete the previous character when entering alphanumeric information. It also works as the Back key in Help and Explorer windows.
9	USB Connectors	Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, DVD drive or hard drive.
10	Delete Key	Press this key to delete files, or to perform other deletion tasks.

Item		Description
#	Name	
11	Local/Cancel/(Esc) Key	<p>If you are in remote operation the Local key</p> <ul style="list-style-type: none"> • returns test set control from remote back to local (the front panel). • turns the display on (if it was turned off for remote operation). • can be used to clear errors. (Press the key once to return to local control, and a second time to clear error message line.) <p>If you have not already pressed the units or Enter key, Cancel exits the currently selected function without changing its value.</p> <p>Esc works the same as it does on a pc keyboard. It</p> <ul style="list-style-type: none"> • exits Windows dialogs • clears errors • aborts printing • cancels operations. <p>This key also exits the help system if it has been accessed.</p>
12	Numeric Keypad	Enters a specific numeric value for the current function. Entries appear on the upper left of the display, in the measurement information area.
13	Enter and Arrow Keys	<p>The Enter key terminates data entry when either no unit of measure is needed, or you want to use the default unit.</p> <p>The arrow keys</p> <ul style="list-style-type: none"> • Increment and decrement the value of the current measurement selection. • Navigate help topics. • Navigate, or make selections, within Windows dialogs. • Navigate within forms used for setting up measurements. • Navigate within tables. <p>NOTE The arrow keys cannot be used to move a mouse pointer around on the display.</p>
14	Menu/ (Alt) Key	Alt works the same as a pc keyboard. Use it to change control focus in Windows pull-down menus.
15	Ctrl Key	Ctrl works the same as a pc keyboard. Use it to navigate in Windows applications, or to select multiple items in lists.
16	Select / Space Key	Select is also the Space key and it has typical pc functionality. For example, in Windows dialogs, it selects files, checks and unchecks check boxes, and picks radio button choices. It opens a highlighted Help topic.
17	Tab Keys	Use these keys to move between fields in Windows dialogs.
18	Knob	Increments and decrements the value of the current active function.
19	Return Key	Exits the current menu and returns to the previous menu. Has typical pc functionality.
20	Full Screen Key	Pressing this key turns off the softkeys to maximize the graticule display area.

2 Front and Rear Panel Features

Item		Description
#	Name	
21	Help Key	Initiates a context-sensitive help display for the current Mode. Once Help is accessed, pressing a front panel key brings up the help topic for that key function. Use the Local/Cancel/(Esc) key to exit help.
22	Speaker Control Keys	Enables you to increase or decrease the speaker volume, or mute it.
23	Window Control Keys	These keys select between single or multiple window displays. They zoom the current window to fill the data display, or change the currently selected window. They can be used to switch between the Help window navigation pane and the topic pane.
24	Power Standby/ On	<p>Turns the test set on. A green light indicates power on. A yellow light indicates standby mode.</p> <p>NOTE</p> <p>The front-panel switch is a standby switch, <i>not</i> a LINE switch (disconnecting device). The test set continues to draw power even when the line switch is in standby.</p> <p>The main power cord can be used as the system disconnecting device. It disconnects the mains circuits from the mains supply</p> <p>If the test set is being controlled remotely from another computer, pressing this switch does not deactivate the test set. See “When the Test Set is Controlled Remotely” on page 34.</p>
25	RF I/O 1 Connector	RF Input/Output port #1 (communicates with both the source and the analyzer).
26	RF I/O 2 Connector	RF Input/Output port #2 (communicates with both the source and the analyzer).
27	RF Output	The test set RF output port (communicates only with the source).
28	RF Input	The test set RF input port (communicates only with the analyzer).

Virtual Front Panel

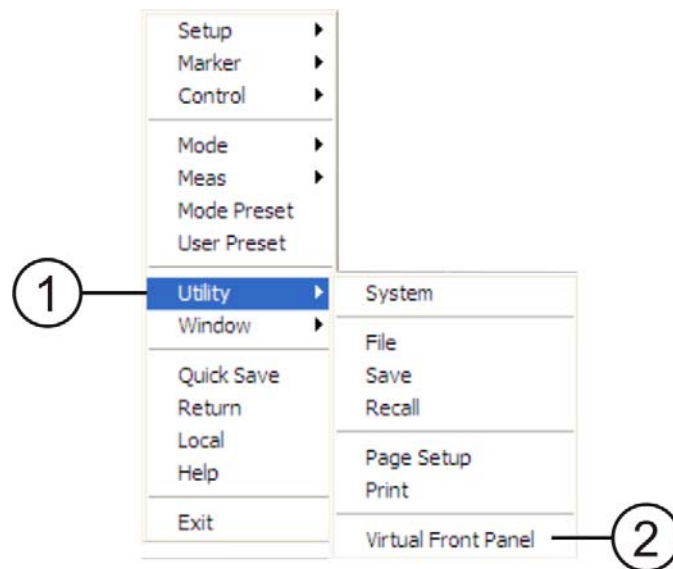
If you have a PC mouse, monitor, and keyboard plugged in (or through a Remote Desktop), you can navigate the front panel functions using the virtual front panel (VFP) shown below. Access the VFP as follows:

1. Right-click the mouse.
2. Left-click Utility (1) in the menu, as shown below.
3. Left-click Virtual Front Panel (2) in the menu, as shown below.

NOTE

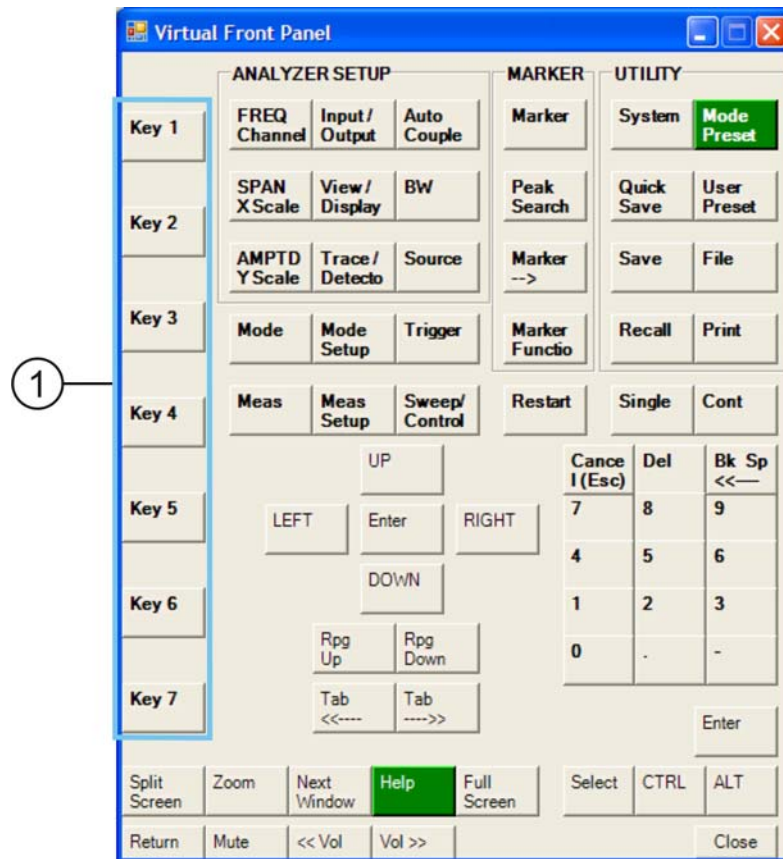
The PC mouse and monitor are required when using the VFP. For ease in using the VFP, the PC keyboard is recommended.

:



On the VFP the keys labeled "Key 1" through "Key 7" function as the menu keys. Using the mouse to click on a combination of the VFP keys and the menu keys on the display screen, you can operate the instrument as if it had conventional front-panel keys.

2 Front and Rear Panel Features



When the Test Set is Controlled Remotely

The test set can be controlled remotely, from another computer. When the test set is being controlled remotely, a message similar to the following is displayed on the monitor:

Computer Locked

This computer is in use and has been locked. Only A-E6607C-NEN538\user or an administrator can unlock this computer. Press Ctrl-Alt-Del to unlock this computer.

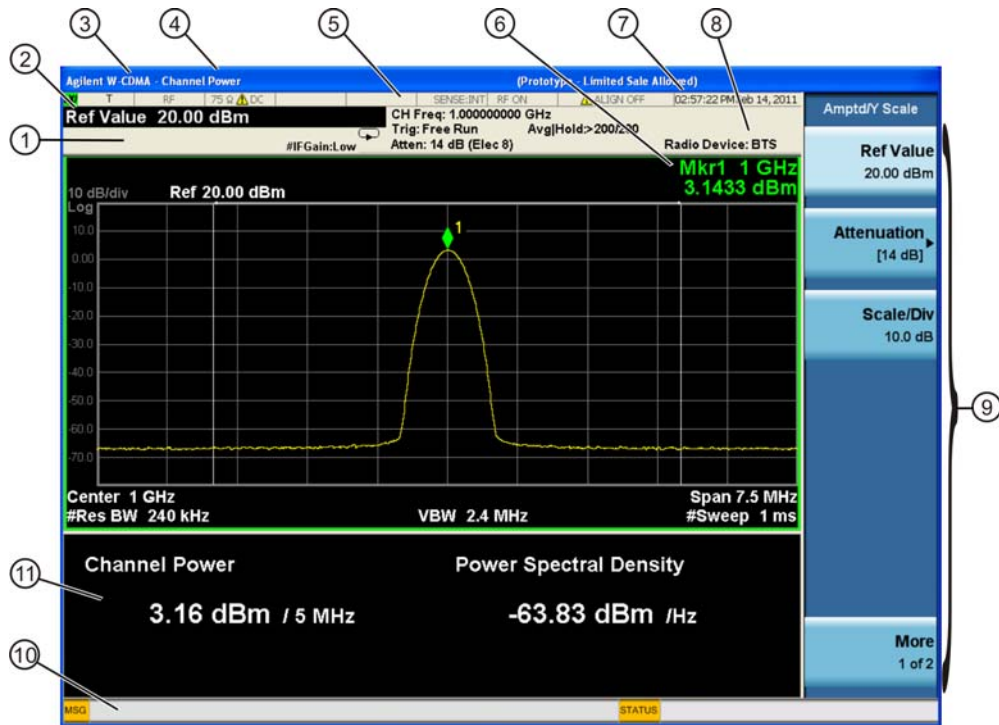
Under these circumstances, pressing the front-panel Power switch does not immediately turn instrument power off. Instead, the following message appears:


Other people are logged on to this computer. Shutting down windows might cause them to lose data. Do you want to continue shutting down?

Pressing and holding down the Power button will force a power shutdown.

Display Annotations

This section describes the display annotation as it is on the Sequence Analyzer measurement application display. Other measurement application modes have some annotation differences.

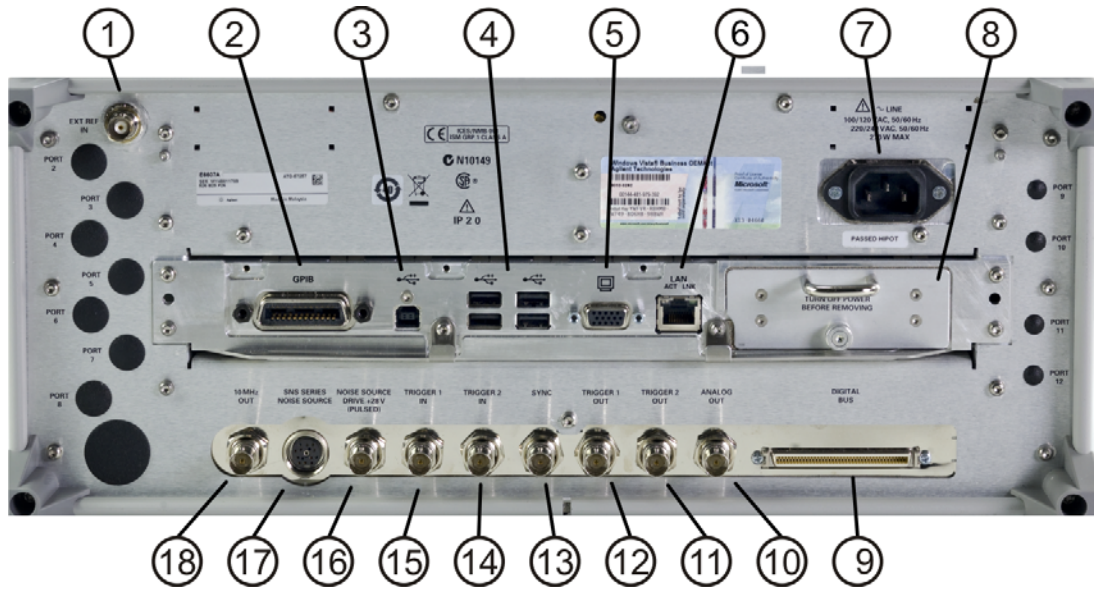


Item	Description	Function Keys
1	Measurement bar - Shows general measurement settings and information.  Indicates single/continuous measurement. Some measurements include limits that the data is tested against. A Pass/Fail indication may be shown in the lower left of the measurement bar.	All the keys in the test set Setup part of the front panel.
2	Active Function (measurement bar) - when the current active function has a settable numeric value, it is shown here.	Currently selected front panel key.
3	Banner - shows the name of the selected application that is currently running.	Mode

2 Front and Rear Panel Features

Item	Description	Function Keys
4	Measurement title - shows title information for the current measurement, or a title that you created for the measurement.	Meas View/Display, Display, Title
5	Settings panel - displays system information that is not specific to any one application. <ul style="list-style-type: none"> • Input/Output status - RLTS indicate Remote, Listen, Talk, SRQ • Input impedance and coupling • Selection of external frequency reference • Setting of automatic internal alignment routine 	Local and System, I/O Config Input/Output, Amplitude, System and others
6	Active marker frequency, amplitude or function value	Marker
7	Settings panel - time and date display.	System, Control Panel
8	Trace and detector information	Trace/Detector, Clear Write (W) Trace Average (A) Max Hold (M) Min Hold (m) Trace/Detector, More, Detector, Average (A) Normal (N) Peak (P) Sample (S) Negative Peak (p)
9	Key labels that change based on the most recent key press.	Softkeys
10	Displays information, warning and error messages. Message area - single events, Status area - conditions	
11	Measurement settings for the data currently being displayed in the graticule area. In the example above: center frequency, resolution bandwidth, video bandwidth, frequency span, sweep time and number of sweep points.	Keys in the test set Setup part of the front panel.

Rear-Panel Features















Item		Description
#	Name	
1	EXT REF IN	Input for an external frequency reference signal: 1 to 50 MHz
2	GPIB	A General Purpose Interface Bus (GPIB, IEEE 488.1) connection that can be used for remote test set operation.
3	USB Connector	USB 2.0 port, Type B. USB TMC (test and measurement class) connects to an external pc controller to control the test set and for data transfers over a 480 Mbps link.
4	USB Connectors	Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, printer, DVD drive, or hard drive.
5	MONITOR	Allows connection of an external VGA monitor.
6	LAN	A TCP/IP Interface that is used for remote test set operation.
7	Line power input	The AC power connection. See the product specifications for more details.
8	Removable Hard Drive	Standard on E6607A.
9	DIGITAL BUS	Reserved for future use.
10	ANALOG OUT	Reserved for future use.
11	TRIGGER 2 OUT	A trigger output used to synchronize other test equipment with the test set. Configurable from the Input/Output keys.

2 Front and Rear Panel Features

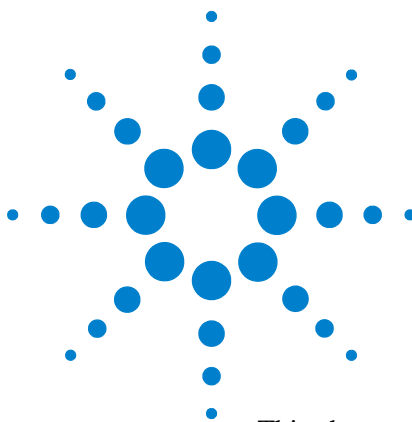
Item		Description
#	Name	
12	TRIGGER 1 OUT	A trigger output used to synchronize other test equipment with the test set. Configurable from the Input/Output keys.
13	SYNC	Reserved for future use.
14	TRIGGER 2 IN	Allows external triggering of measurements.
15	TRIGGER 1 IN	Allows external triggering of measurements.
16	NOISE SOURCE DRIVE +28 V (PULSED)	Not functional in the EXT Test Set.
17	SNS SERIES NOISE SOURCE	Not functional in the EXT Test Set.
18	10 MHz OUT	An output of the test set internal 10 MHz frequency reference signal. It is used to lock the frequency reference of other test equipment to the test set.

Front and Rear Panel Symbols

	This symbol is used to indicate power ON (green LED).
	This symbol is used to indicate power STANDBY mode (yellow LED).
	This symbol indicates the input power required is AC.
	The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to instructions in the documentation.
	The CE mark is a registered trademark of the European Community.
	The C-Tick mark is a registered trademark of the Australian Spectrum Management Agency.
	This is a marking of a product in compliance with the Canadian Interference-Causing Equipment Standard (ICES-001). This is also a symbol of an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).
	The CSA mark is a registered trademark of the Canadian Standards Association International.
	South Korean Class A EMC Declaration A 급 기기 (업무용 방송통신기자재) 이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으로 합니다 .
	This symbol indicates separate collection for electrical and electronic equipment mandated under EU law as of August 13, 2005. All electric and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive 2002/96/EC).
	Indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.
	This symbol on all primary and secondary packaging indicates compliance to China standard GB 18455-2001.

To return unwanted products, contact your local Agilent office, or see <http://www.agilent.com/environment/product/> for more information.

2 Front and Rear Panel Features



3 Test Set Operating System

This chapter describes the Microsoft Windows configuration and the settings used with the Agilent test set software. It includes information about changing some of the system settings. And it describes the Windows operating system configuration and the software installations that are present on the hard disk drive when the test set leaves the factory.

The front panel of the test set has been designed with the keys needed to navigate windows for: accessing menus, traversing in dialogs, selecting items, and depressing displayed buttons. It is possible to use the front panel for changing Windows configuration items, but it is much easier to perform these tasks with a USB mouse and external keyboard. For specifics on navigating using the front panel, see [“Navigating Windows Without a Mouse”](#) on page 74.

[“Agilent Software Installed”](#) on page 42

[“Customer Installation of Software”](#) on page 43

[“User Accounts”](#) on page 44

[“Agilent X-Series Licensing Options”](#) on page 46

[“Licensing New Measurement Application Software - After Initial Purchase”](#) on page 48

[“Windows Configuration”](#) on page 53

[“Configuring Printers”](#) on page 56

[“Configuring LAN”](#) on page 57

[“Windows Security”](#) on page 58

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[“USB Connections”](#) on page 63

[“Hard Drive Partitioning and Use”](#) on page 64

[“Hard Drive Recovery Process”](#) on page 67



Agilent Software Installed

Agilent U9065A & U9060A software

The Agilent U9065A Sequence Analyzer Application and the Agilent U9060A IQ Analyzer application are installed by default in the test set, with fixed perpetual licenses (no purchase order required).

Additional measurement applications are available. Each application requires a license to execute the software. All of these applications are installed by the factory at the time of manufacture, even if the licenses have not been purchased. You may purchase additional licenses at a later date.

Customer Installation of Software

3rd party software verified by Agilent

Agilent has verified that the following programs are compatible with the test set applications:

- Symantec AntiVirus™ Corporate Edition version 10
- MathWorks MATLAB

Installation of other 3rd party software

The X-Series platform is an open Windows environment, so you can install non-approved software on the test set. However, installation of non-approved software may affect test set performance. Agilent does not warrant the performance of the test set with non-approved software installed.

NOTE

Before installing any additional programs on the test set, you should exit the test set application.

Also, you must not remove any applications or programs that are installed on the test set when it is shipped from the factory.

If you install programs other than those that Agilent has tested, it could cause problems with the test set's applications. If this happens, you should try uninstalling the program that has caused the problem, or try changing the program's configuration. If this does not correct the problem, you may have to use the Agilent Recovery system to reinstall the test set's system software.

User Accounts

Administrator login

The Administrator account ships from the factory with the password “agilent4u”. Using the Administrator account you can perform the following operations:

- Install software
- Configure network and printer access
- Access all files on the test set
- Add or change user accounts and passwords
- Change Windows settings
- Run any application

User login

The default user account that ships from the factory is “Instrument” with the password “measure4u”. This user is a member of the Power Users group. Using the Instrument account you can perform the following operations:

- Install software
- Configure network and printer access
- Access files on the test set that are accessible to the Power Users group
- Run applications that are accessible to the Power Users group

AgilentOnly user account

The test set contains a user account called “AgilentOnly” that can be used by Agilent’s customer support in the event that the Administrator password was changed and has since been lost or forgotten. You must not remove or modify the AgilentOnly account.

Agilent service user accounts

User accounts are defined for Agilent’s use if it is necessary to service the test set.

Customer creation of accounts

You can create additional user accounts and decide on the level of security granted to any new user accounts created. For example, the level of security can be assigned as administrator, power user, user, backup operators. User names are not case sensitive but passwords are case sensitive.

NOTE

For the test set software to operate, the user account executing the software must be assigned Administrator or Power User privileges. Otherwise, the test set software will not operate correctly.

It is Agilent's expectation that each user's My Documents folder is mapped to the D: drive. This is to avoid overwriting the user's data in the event the Agilent Recovery must be performed. Also, this facilitates convenient backup by copying the contents of the D: drive to external media. All users accounts created by the factory already have My Documents mapped to the D: drive. Please map all new users My Documents folders to the D: drive.

Agilent X-Series Licensing Options

The Agilent X-Series test sets use three licensing types: Fixed Perpetual, Transportable Perpetual, and Trial. These licensing types are available on all existing measurement applications except the Sequence Analyzer Measurement Application (U9065A), which requires a fixed perpetual license. Fixed Perpetual licenses are also required to enable hardware options.

Fixed Perpetual

Fixed Perpetual licenses are the traditional license type (Fixed) with the same duration (Perpetual) that have been available for all features since the X-Series introductions. Fixed Perpetual licenses are identified by the “F” in the second character and “P” in the third character of the option designator:

Example: U9080A-1FP

A license key is instrument model and serial number dependent. You can only install the license key on the specific instrument for which it was created.

Transportable Perpetual

Transportable Perpetual licenses are an optional license type offering deployment duration which is not fixed to a specific instrument model and serial number. Transportable Perpetual licenses are identified in the product structure by a “T” in the second character and “P” in the third character of the option designator:

Example: U9080A-1TP

Transportable Perpetual licenses require a connection to the Agilent server only for managing the check-in/out of the license. The Agilent licensing server also provides for storage of unused licenses which have been transported off instruments but are awaiting assignment to new instruments. The server will limit the number of transports per 30 day period per application license to 10.

Unlike Fixed Perpetual licenses which are pre-installed at the factory with new instrument purchases, Transportable Perpetual licenses require redemption and installation of the license before the first use. This allows the user to determine on which instrument to initially install the application license.

Agilent recommends that instruments be at the same instrument software release to ensure the latest code is available on each instrument so that the user experience is identical between instruments. This is particularly important when transporting the license for a newly-released application which may only be available in the latest latest software release.

Time-Based Licenses

Time-based licenses are fixed licenses (that is, not transportable from one instrument to another) that are limited in duration. Time-based licenses are identified by the “F” in the second character and a numeral (indicating duration in months) in the third character of the option designator:

Example: U9080A-1F3

A license key is instrument model and serial number dependent. You can only install the license key on the specific instrument for which it was created.

Trial licenses

Trial licenses are available so that you may try applications before you buy the full applications. These licenses are time limited for a 14 day period, and are restricted to one trial for an individual application per instrument. The restriction is enforced through the license redemption process of the Agilent Software Licensing (ASL) system.

Trial licenses are only available for measurement applications and not available for enabling hardware capability.

Trial licenses are not installed in the factory and no entitlement certificates are created for distribution with new instrument shipments. Trial licenses are not available for order, but are available from the Agilent Web site after completing a brief registration:

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

Trial Licenses are identified by the license designator “-TRL”.

Example: N9071A-TRL

If a product has multiple tiers (levels of functionality), the –TRL license enables all tiers for the duration of the license. If you have a base tier and want a trial license for a higher tier, you can install the –TRL license. When the duration expires the entitlement is reverted back to the base tier.

Licensing New Measurement Application Software - After Initial Purchase

Additional measurement application software can be ordered after your initial purchase of the E6607B test set. Software upgrades are provided in a kit that includes an option based Entitlement Certificate, a license agreement, and a USB storage device. The licenses are downloaded from the license Web site onto the storage device so they can be loaded into the instrument.

If you do not want to wait for your upgrade kit to arrive, licenses can be installed using any available USB storage device. If you choose to do this, we recommend that the latest version of the instrument software be installed. This ensures that the measurement application being licensed and activated is installed and is the most current version.

The latest revision of the software may be downloaded from:

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

A license key is usually for one instrument model and serial number combination. The license key will only install itself on that instrument.

NOTE

No calibration is required after a test set application installation.

Installation procedure over USB

Step	Action	Notes
1 Redeem the Option Upgrade Entitlement Certificate	<ul style="list-style-type: none"> Follow the instructions on the Certificate 	After redeeming your Option Upgrade Entitlement Certificate you will receive an e-mail with an attached License File.
2 Save the license file	<ul style="list-style-type: none"> Save the .lic file to the root directory of a USB storage device 	
3 Load the license file	<ul style="list-style-type: none"> Connect the USB storage device to one of the test set USB ports. 	Windows will detect the new hardware and may display the configuration menu. The test set automatically loads the license file. (This may take a few minutes) Upon completion, the Agilent License Manager displays a “Successful License Installation” message.

NOTE

Alternatively the license file can be manually installed over USB or LAN by placing the license file in the following folder on the test set.

C:\Program Files\Agilent\licensing

Step	Action	Notes
4 Verify installation	<ul style="list-style-type: none"><li data-bbox="493 327 927 359">a Cycle the power on the signal test set.<li data-bbox="493 363 837 394">b Press System, Show, System.<li data-bbox="493 399 967 457">c Verify that the new application appears in the list.	<p data-bbox="992 327 1430 390">The application will not be available for use until after the power has been cycled</p> <p data-bbox="992 415 1377 478">This displays the list of installed applications.</p> <p data-bbox="992 483 1414 546">If you require further assistance, please contact the Agilent support team.</p> <p data-bbox="992 550 1300 613">Online assistance: http://www.agilent.com/find/assist</p> <p data-bbox="992 617 1425 741">If you do not have access to the Internet, contact your local Agilent Technologies Sales and Service Office, or if in the United States, call 1-800-829-4444.</p>

Transporting a License Between X-Series Test Sets

Transportable licenses can be identified by the letters "TP" in their option designator. For example, U9063A-2TP indicates the license is transportable and perpetual. To transport this license from one X-Series test set to another, Agilent recommends that both test sets be at the same instrument software release. This ensures that the user experience is identical between instruments.

As a minimum, the instrument software release in the test set that will receive the transportable license (the "target instrument") must at least be able to support the desired application.

The X-Series signal test sets support several ways of transporting licenses. The procedure below will focus on the most common procedure, where neither of the test sets has access to an internet connection. For this procedure to work, a PC with an internet connection is required

You will need the following:

- USB flash drive
- USB keyboard
- USB mouse

We will refer to the test set from which the transportable license will be removed as the "source instrument". We will refer to the test set which will receive the transportable license as the "target instrument".

Procedure for Transporting a License, Neither Test Set Connected to the Internet

Step	Action	Notes
1 Connect the USB devices to the source instrument	<ul style="list-style-type: none"> • Connect the USB flash drive, USB keyboard, and USB mouse to the USB ports on the source instrument. 	It will be necessary to use one or more of the rear panel ports to connect the USB devices.
2 Verify software version in each test set	<ul style="list-style-type: none"> • On each test set, press System, Show, System and make note of the Instrument S/W Revision on each. 	Ideally, the revisions will be the same. But at least, both versions should be able to support the application whose license is being transported.
3 Obtain the Host ID from the Target Instrument	<ul style="list-style-type: none"> • On the target instrument, press System, Show, System, and make note of the Host ID. 	This information will be needed to issue the license for the target instrument. The Host ID is the model number, followed by a comma, followed by the serial number.

Step	Action	Notes
4 Start the License Manager on the Source Instrument	<ul style="list-style-type: none"> • On the source instrument, press System, More, Licensing... It may take a minute for the Agilent License Manager screen to be fully populated with all the installed licenses. 	
5 Transport the Transportable License from Source Instrument	<ul style="list-style-type: none"> a On the source instrument, locate the desired license to be transported and highlight it. Its option designator should include the letters "TP". b .Right-click on the mouse and select Delete. c Click Yes in the License Deletion Confirmation dialog box. d After a few seconds, a Transport License dialog box will appear. Click OK and save the *.url files on the USB flash drive, with a name such as "PhaseNoise_License.url" 	<p>Be sure you are selecting a transportable license and not a fixed perpetual license.</p> <p>Although you are "deleting" the transportable license, the ultimate action will be to transport it.</p> <p>The information in this dialog box will be used to issue a new license for the target instrument.</p>
6 Get New License from ASL Transportation Web page	<ul style="list-style-type: none"> a Insert USB flash drive into PC that is connected to the internet b On the PC, locate the *.url file on the USB flash drive that was saved in the previous step and click on it. c After a few seconds, the ASL Transportation Web page will appear. One field, the New Host ID will be empty. d Enter the Host ID of the target instrument (step 3 above) into the field marked New Host ID. e Click Submit. 	<p>The PC must have an internet connection and an available USB port.</p> <p>Most of the fields have been populated from the information in the *.url file.</p> <p>Be very careful when entering the New Host ID. A mistake made in entering the New Host ID will result in an invalid license being issued. Be sure there is a comma between the model number and serial number. There should be no spaces in the Host ID.</p>
7 Save License File to USB Flash Drive	<ul style="list-style-type: none"> a The ASL Transportation Web page will indicate that a license file is available and display two links to the license file. Right-click on the license file and select Save Target As... b Save the license file to the root level of the USB flash drive, keeping the ".lic" file extension. c Close the Save dialog and exit the ASL Transportation Web page. 	<p>Either link can be used to either display or save the license file.</p> <p>The license file must be saved to the root level of the USB flash drive for it to be recognized by the target instrument.</p>

3 Test Set Operating System

Step	Action	Notes
8 Install License File in Target Instrument	<p data-bbox="493 327 967 485">a With the target instrument running, insert the USB flash drive into one of the front panel USB ports. After a few minutes, you should see a message saying "Successful License Installation"</p> <p data-bbox="493 583 967 615">b Cycle power on the target instrument.</p> <p data-bbox="493 714 967 816">c Once the test set has re-booted, the application should be ready to use on the target instrument.</p>	<p data-bbox="992 327 1448 562">The Agilent License Services running on the target instrument looks for *.lic files whenever it detects a USB device has been inserted. If the contents of the *.lic file are appropriate for the instrument, the license will be installed automatically.</p> <p data-bbox="992 590 1448 690">Newly-installed licenses are only recognized by the instrument software on power-up.</p>

Windows Configuration

The Windows settings have been optimized for the best measurement performance. Any modifications to these settings may degrade test set performance and measurement speed. In general, most Windows System settings (typically set through the Windows Control Panel) should not be modified. Those that can be safely modified are listed below.

CAUTION





To recover from problems caused by changing Windows systems settings, you may have to reinstall the Windows system and test set application using the Agilent Recovery process.




Settings that can be changed

You may change the following Windows settings or administrative tasks (available from the Windows Control Panel) to select your personal preferences.

NOTE





Before changing any Windows System settings, exit the test set application.

You may use this feature	To do this...
 Automatic Updates	Configure Microsoft Automatic Updates.
 Security Center	Install and configure an Anti Virus program.
 User Accounts	Setup new test set user accounts. <p>CAUTION Do not delete or modify the “Agilent-Only” user account.</p>
 Network Connections	Add the test set to a network.

You may use this feature	To do this...
 Printers and Faxes	Install and configure a printer.
 Date and Time	Set the time and date.
 System	Modify System Properties, Advanced Tab settings of Performance, <i>Adjust for Best Performance</i> . Leave all other settings unchanged.

Settings that must not be changed

Avoid changing any settings in this section. Changes to the following settings may degrade test set performance, screen displays, and measurement speed.

Do NOT use this feature	To do this...
 Power Options	Do not change Power Options. (Power Scheme, Power Button, Hibernate)
 System	Do not modify System Properties, Hardware Tab settings (Device Manager, Drivers). Do not modify System Properties, Advanced Tab settings (Performance (except <i>Adjust for Best Performance</i>), User Profiles, Startup and Recovery, Environment Variables, Error Reporting)
 Fonts	Do not remove installed Fonts.
 Display	Do not change the following Display Settings: <ul style="list-style-type: none"> • Screen Saver settings • The screen resolution, 1024 x 768 • DPI setting from Normal size (96 DPI)

Do NOT use this feature **To do this...**

User Accounts

Do not delete or modify the “AgilentOnly” user account.

In addition, **DO NOT**:

- Add, delete, or modify hard-disk drive partitions.
- Delete or modify Agilent registry entries.
- Change the contents of any directories containing the name “Agilent”
- Stop these services:
 - The MSSQL\$CDF service or uninstall the “Microsoft SQL Server Desktop Engine”
 - The IIS server or tamper with any virtual directories (or their contents) that came configured with the test set.
- Uninstall these libraries, interfaces, or programs:
 - The Agilent I/O Libraries
 - The .NET Framework or any Hotfixes or Service Packs for the .NET Framework
 - The “Microsoft Visual J# .NET Redistributable Package 1.1”
 - Programs that begin with “Agilent”
 - The Adobe Acrobat Reader
- Modify
 - The Agilent I/O Library “GPIB27”, “GPIB28” interfaces shown as configured Instrument I/O in the Agilent Connection Expert or I/O Config.

Configuring Printers

Printers are configured using the Microsoft Windows Control Panel. It is easily accessed from the Windows Start menu or from under the front panel **System** key. This setup process is most easily done using a USB mouse and an external keyboard. If you do not have a mouse it can be done using front-panel keys. See [“Navigating Windows Without a Mouse”](#) on page 74.

When setting up a new printer, you may need to load the printer driver (unless you are using a network printer that your IT department has set up to include the driver). The manufacturer of the printer supplies the driver software and process. That may require that you attach an external USB disk drive. An alternative is to connect the test set to the LAN and download the driver from the printer manufacturer’s internet site.

Configuring LAN

Hostname

The Computer Name, or hostname, is pre-configured from the factory. It must be a unique name so that it does not conflict with other equipment on your LAN. The pre-configured Computer Name is A-E6607B-xxxxx, where xxxxx represents the last 5 digits of the test set serial number.

To change the Computer Name consult the Microsoft Windows Help and Support Center.

IP Address & Gateway

The test set is pre-configured to obtain an IP Address using DHCP. The IP Address and Gateway can be changed. Consult the Microsoft Windows Help and Support Center to configure the LAN.

Windows Security

Microsoft recommends the following to ensure the test set Windows operating system is protected:

- Use an internet firewall.
- Get the latest critical Windows updates.
- Use up-to-date antivirus software.

To check the status or make changes in the security settings for your test set, open the Windows Security Center, click **Start, Control Panel**, and then click **Security Center**.

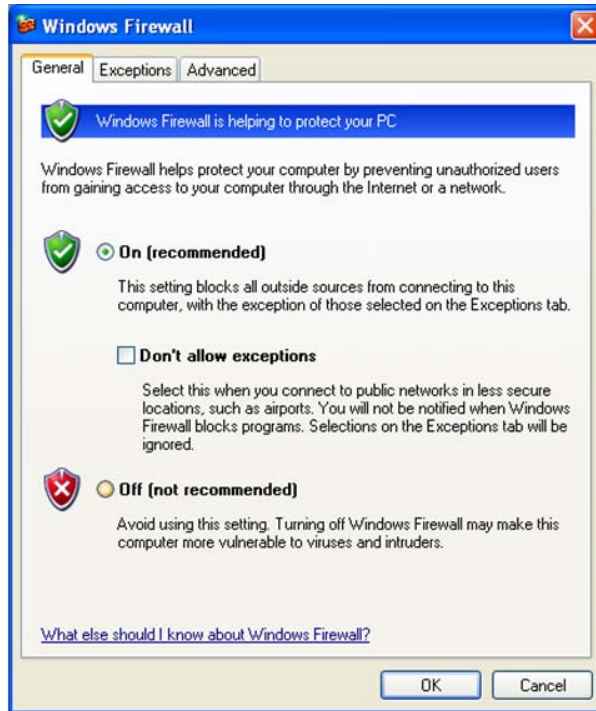


NOTE

The window may look slightly different on your test set.

Windows Firewall

The test set is shipped with the Windows Firewall enabled.



NOTE

The window may look slightly different on your test set.

Windows Firewall **Exceptions** for programs and ports have been added to allow proper operation of the test set over a network. Modifying these settings may cause the test set to not operate properly.

Automatic updates

The default test set setting is to automatically check for critical Windows Updates and notify you, if the test set has internet access.

You can change the configuration of the Microsoft Automatic Updates. You can choose not to have automatic updates. Then you can manually update Windows by accessing Internet Explorer and from the Tools menu select Windows Update.



NOTE

Be aware that downloading and installing Windows Updates can be network and CPU usage intensive (impacting the test set performance), and some Windows Updates automatically reboot the test set. It is recommended that Windows Updates be performed when the test set is not in normal use.

Virus protection

There is no antivirus software included with your test set. Antivirus application software has been tested to be compatible with the test set. See the section on “3rd party software verified by Agilent” on page 43 for anti-virus software that has been tested by Agilent.

NOTE

Having antivirus software installed may have a slight impact on the test set performance.



Spyware protection

There is no anti-spyware software installed on the test set. This should not be a problem if you do not use the test set for a lot of internet browsing. Having spyware in the test set could have an impact on the test set performance.

System Maintenance

Backup

It is recommended that you have a regular backup strategy. Your IT department may already have a backup strategy in place which is suitable for the test set and its data. Using the Agilent Recovery system in conjunction with a regular backup strategy should allow full recovery of the test set data.

The Windows operating system has a Backup utility that you can use to archive files and folders in case of a hard disk drive failure. See the Microsoft Windows Help and Support Center for more information on this utility. You can also use third party backup utilities. However, you must ensure that this third party software is compatible with the test set's system software. See "[Customer Installation of Software](#)" on page 43 for more information.

When performing backups, we recommend that you backup the data to an external storage device connected to the network or one of the test set's USB connectors. Also, you should perform backups at times when the test set is not being used for normal operations as it may impact the test set's overall performance.

System restore

Windows contains the capability to restore the system to a previous point in time. System Restore is enabled with default settings as provided by Microsoft. However, System Restore is not 100% successful. Therefore, it is not the recommended method to backup the test set. System Restore has not been tested to verify successful restoring.

Disk defragmenting

Over time the hard disk on the test set becomes fragmented. Windows has a Disk Defragmenter utility that you can use to defragment the hard disk. See the Microsoft Windows Help and Support Center for more information on this utility.

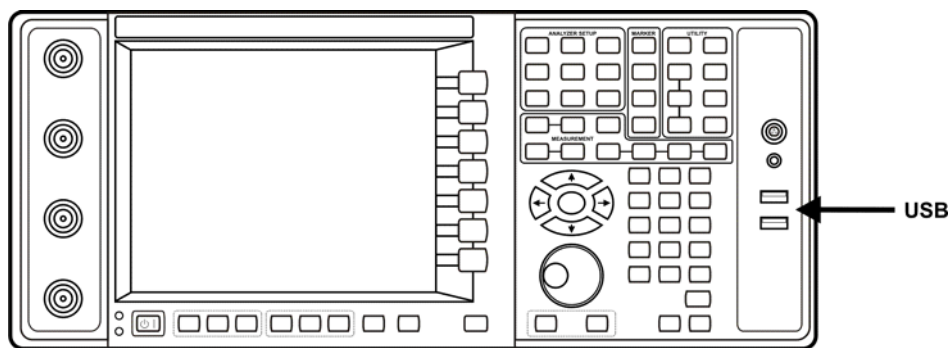
NOTE

Running Disk Defragmenter should be performed when the measurement application is not running. Measurement throughput is significantly impacted while disk defragmentation is in process.

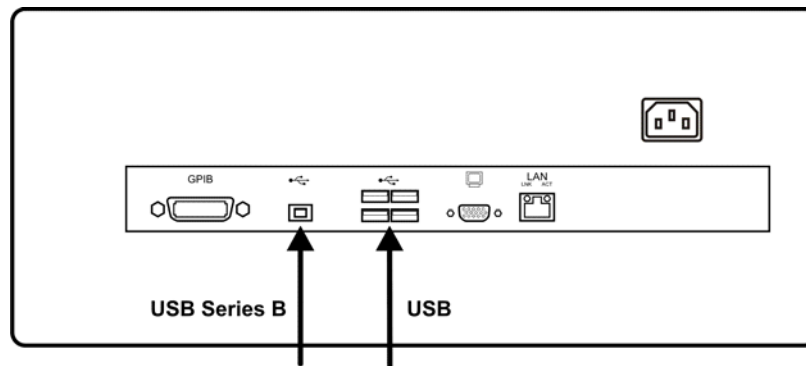
USB Connections

All of the USB ports are compatible with the USB 2.0 and 1.1 specification. The two USB ports on the front panel (see graphic below) and four of the USB ports on the rear panel are USB Series “A” ports. These are ports to which you can connect USB mass storage devices and printers. The test set USB Host support includes the standard Microsoft Windows USB class drivers for human interface, mass storage, printing, scanning, and imaging devices. A complete up-to-date list of the Windows USB class driver support is available on the Microsoft website.

http://www.microsoft.com/whdc/system/bus/usb/USBFAQ_intro.mspx



The square USB port (see graphic below) on the rear panel is a USB Series “B” port and is used for controlling the test set over USB. The test set USB device driver included in the test set software supports the test and measurement industry standard USBTMC-USB488 device class.



In addition, the Agilent IO Libraries CD that was included with your test set contains USB Host drivers that allow control of other test sets connected to the USB bus.

Agilent Technologies does not support or warrant correct test set operation if additional USB drivers from third parties are installed in the test set. It is possible that additional drivers could break the normal USB operation. If USB operation is broken, recovery would require reinstalling the test set application using the hard drive recovery process.

Hard Drive Partitioning and Use

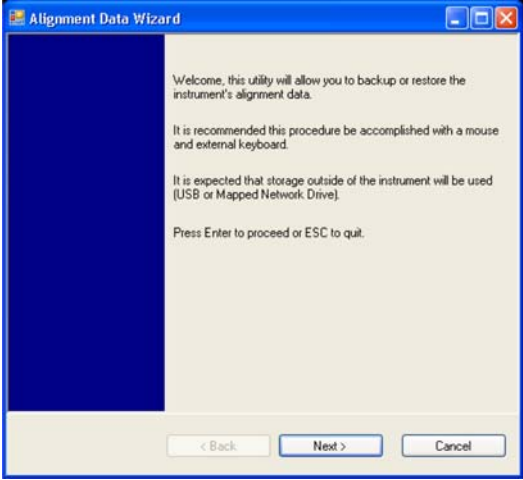
The drive is partitioned into 3 sections: C:, D: and E:

- The **C: partition** contains the Windows operating system and software installed by Agilent. This is an Open System which means you can install additional software, and these should be installed on the C: drive. However, only a limited set of software applications are tested for use with the Agilent measurement software. The installation and/or use of other software is not warranted, and could interfere with the operation of the measurement software. If test set repair is ever needed, the Agilent version of the C: drive is the only part of the test set software that is restored by the Agilent Recovery process. You must reload any other software that you have added in the test set.
- The **D: partition** is reserved for data storage. The User Accounts that are configured by Agilent have their My Documents folder mapped to the D: drive. This is for the convenience of backing-up the measurement data. You should always back-up the data on the D: drive to an external device. This allows you to restore the data if you ever need to replace the hard drive.
- The **E: partition** is reserved for Agilent's use. The primary use of the E: drive is for housing the Calibration and Alignment data. Do not change or overwrite the files on this drive. This could cause your test set to not meet specifications, or even to stop functioning correctly. Do not use this drive for data storage. It is also recommended that you back up the contents of this drive by using the factory calibration data backup utility.

Backing-up the factory calibration data

To back-up the factory calibration data you will need a USB mouse and storage device and follow the step in “Process 1” or “Process 2” below.

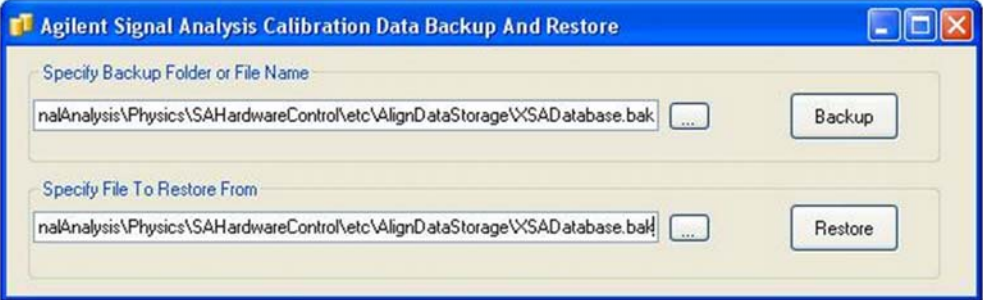
Process 1

Step	Notes
1	Insert the mouse in one of the instrument USB ports
2	Insert the USB memory device in one of the instrument USB ports.
3	Press System, Alignments, Backup or Restore Align Data...
	<p>The Alignment Data Wizard will appear:</p> 
4	Follow the on screen instructions to backup the calibration data to the USB drive and save the file.

Process 2

Step	Notes
1	Insert the mouse in one of the test set USB ports
2	Insert the USB memory device in one of the test set USB ports.

3 Test Set Operating System

Step	Notes
3 Navigate to the following directory using Windows Explorer C:\Program Files\Agilent\SignalAnalysis\Physics	
4 Double-Click BackupAndRestore.exe	The following dialog box appears.
	
5 Set the Backup File to the USB drive and save the file.	

Hard Drive Recovery Process

The Agilent Recovery System can be used to repair errors on the test set's C: drive partition, or to restore the original factory configuration of the system software. The Agilent Recovery System is stored in a separate hidden hard disk drive partition.

Repairing errors on the hard disk drive may result in loss of data or files. If you need more information about the Windows “chkdsk” error repair process, see the chkdsk documentation in the Microsoft Windows Help and Support Center.

Restoring the original factory system software does not restore any of the following items:

- Windows system configurations that were made after the test set was shipped from the factory. For example, Windows and Service Pack updates, user accounts, and windows configuration settings. After an Agilent Recovery, these configurations need to be redone.
- Additional software that was installed after the test set was shipped from the factory. After an Agilent Recovery, that software needs to be re-installed.
- Any data or programs saved on the D: or E: drives.
- Any upgrades that were made to the Agilent measurement application software.


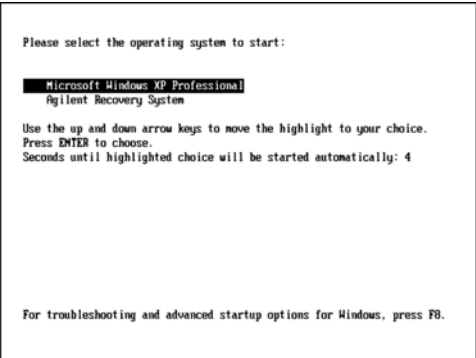
Restoring the original factory system software will not synchronize the code in the Field Programmable Gate Arrays (FPGAs) on the various hardware assemblies. As a result, you may see an error dialog box appear during the final boot-up at the end of the recovery process. This typically occurs when there are significant differences between the software version installed prior to performing the recovery and the version restored by the recovery. In these situations, upgrade the software to the latest version.

NOTE

It is recommended that you use a regular back up strategy. Your IT department may already have a back up strategy in place which is suitable for the test set and its data. See “[System Maintenance](#)” on page 62. Using the Agilent Recovery System in conjunction with a regular back up strategy should allow you to fully recover the test set software and data.

It is recommended that routine backups of the test set information be performed to keep current archives of the test set information. This allows a full recovery of the test set information after the test set recovery system operations are performed. See “[Backup](#)” on page 62 for more details.

Using the test set recovery system

Step	Notes
1 Make sure the test set is turned off.	
2 Turn on the test set. <ul style="list-style-type: none">Press the down arrow key to move the highlight to Agilent Recovery System, then press Enter.	<p>After the Agilent Technologies screen is displayed,</p>  <p>this screen is displayed for five seconds.</p> 
3 When the Agilent Recovery System has booted, follow the on-screen instructions to recover the image of the C: drive. <ul style="list-style-type: none">Press 2, then press Enter to select the recovery.Press 1, then press Enter to continue.Press 1, then Enter to confirm.	<p>It may take up to 25 minutes for this process to complete</p> <p>After exiting the Agilent Recovery System, the test set reboots. If the original factory test set system has been restored, the test set re-executes the following process: “Turning on the test set the first time” on page 14</p>

NOTE

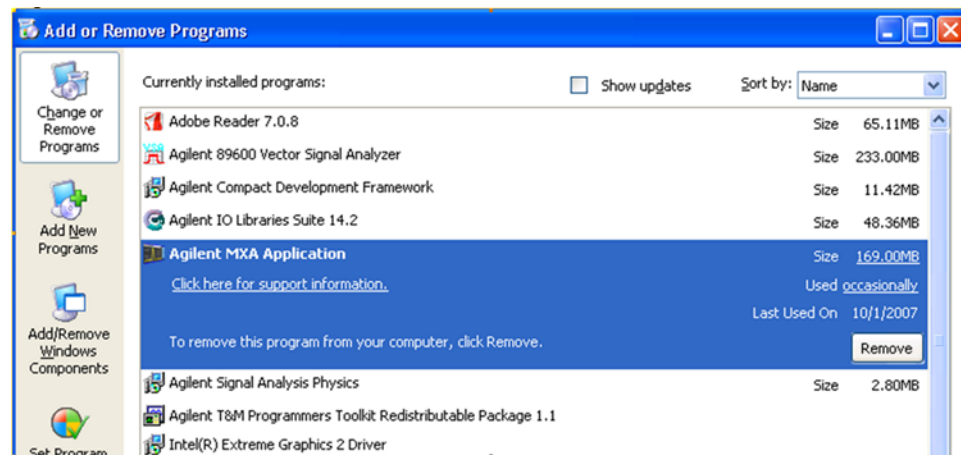
Additional recovery steps may be required to fully recover the system to a more current working state. This could involve restoring your own backups of the test set configuration, including re-installing applications, data, and performing system customizations.

Updating the software

The following steps load a copy of the instrument software that forces the program code resident in the instrument's various programmable gate arrays to be in sync with the restored system software.

Removing the Software

Step	Notes
1	Connect a USB keyboard and mouse to the instrument
2	Log out of the default user (instrument): <ul style="list-style-type: none"> • Select Start, Log Off, Log Off
3	At the log in prompt enter: <ul style="list-style-type: none"> • User Name: administrator • Password: agilent4u
4	Uninstall the test set application: <ul style="list-style-type: none"> • Select Start, Control Panel, Add or Remove Programs • Find the Agilent X-Series Signal Analyzer Application and select Remove.



- When prompted to completely remove the selected application and all of its features, select **Yes**. Select **OK** to any pop-up windows that appear.
 - When the software uninstall is complete, select **Finish**.
- 5 Wait for the test set to restart.

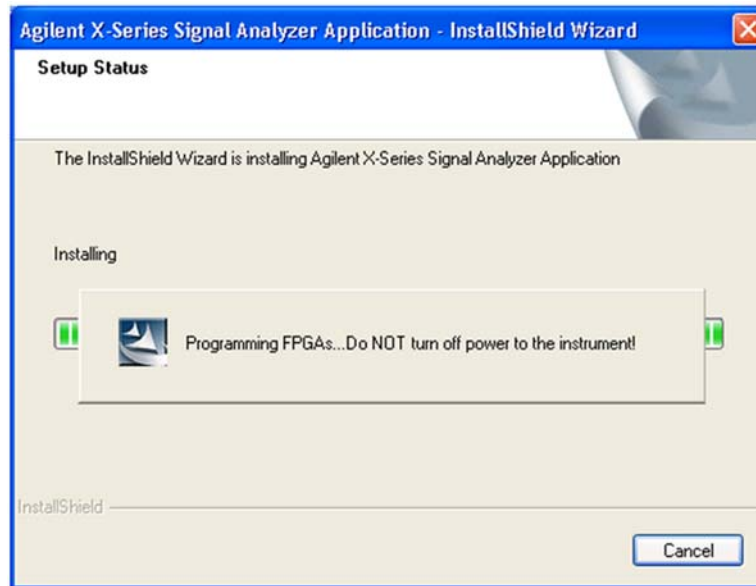
Installing the Software

Step	Notes
1 Log out of the default user (instrument): <ul style="list-style-type: none">Select Start, Log Off, Log Off	
2 At the log in prompt enter: <ul style="list-style-type: none">User Name: administratorPassword: agilent4u	
3 Navigate to C Drive: <ul style="list-style-type: none">Click Start, My Computer, C: Drive and open the Temp folder.	
4 Locate the software installer program: "XSA_Installer_A.XX.XX.exe".	
5 Double-click on the installer.exe.	It may take a minute or two for the installer to start.
6 A window appears showing the extraction process.	Following the extraction screen, there may be a short period where there is no activity on the screen. The desk top may be displayed for a short period.
7 Follow the on-screen prompts to continue the installation.	

WARNING When you see the message **Programming FPGAs...** Do NOT turn off power to the instrument, be sure to do as it says and DO NOT turn off the instrument power at this time for ANY reason. If this process is interrupted the instrument most likely will need to be sent back to an Agilent Service Center for servicing before it will be usable again.

Installing the Software

Step	Notes
------	-------



NOTE

The installation process can take up to 45 minutes. Do not turn the instrument power off or serious damage may occur. If any pop up windows appear, click **OK** or **Ignore** to proceed.

- 8 When the installation has finished, select **Yes, I want to restart my computer now, Finish.**
- 9 After the instrument restarts, the newly installed version of the X-Series instrument software will run.

It is possible a newer version of the instrument software is available on the web at <http://www.agilent.com/find/ext>.

NOTE

Additional recovery steps may be required to fully recover the system to a more current working state. This could involve restoring your own backups of the instrument configuration, including re-installing applications, data, and performing system customizations.

Configuring recovery prompt timing

You can configure the time at which the test set power-up process waits for the selection of the recovery process by performing the following steps:

3 Test Set Operating System

Step	Notes
1 Right-click My Computer , and click Properties .	This accesses the System Properties tabbed page.
2 Click the Advanced tab.	
3 In the Startup and Recovery section, click Settings .	
4 Under the System Startup section: <ul style="list-style-type: none">• you can either clear the Time to display a list of operating systems check box, or,• select the Time to display recovery option when needed check box and change the seconds to delay for it	

NOTE

You must be logged in as an administrator to change these settings. See [“User Accounts”](#) on page 44 for more information.



4 Using Microsoft Windows Operating System

NOTE

The capabilities described in this section are Microsoft Windows features. The following information provides some guidelines for using the capabilities with the test set. You need to refer to the Windows help documentation for more information. Your version of Windows may not match these instructions exactly.

You need an external keyboard and mouse to fully use these features.


-
- “Navigating Windows Without a Mouse” on page 74
 - “Remote Desktop: Using the X-Series test set remotely” on page 78
 - “Embedded Web Server: Using the X-Series Test Set Remotely” on page 92
 - “Capturing/Printing Displays and Windows” on page 103
 - “Windows Shortcuts and Miscellaneous Tasks” on page 104



Navigating Windows Without a Mouse

Key Presses	Actions
Esc	Exits/closes a Windows dialog box (does not exit an Application window)
Enter	Does the current "default action". If a menu item or a button is currently highlighted, then the Enter key activates that menu item or button.
Alt	Moves focus/control to the pull down menus bar in the active Window
Right Arrow	In pull-down menu: opens the next menu to the right, or opens a submenu In a dialog box: selects an option button
Left Arrow	In pull-down menu: opens the next menu to the left, or opens a submenu In dialog box: selects an option button
Up Arrow	In pull-down menu: Moves to next selection up in the menu In dialog box: selects an option button
Down Arrow	In pull-down menu: Moves to next selection down in the menu In dialog box: selects an option button
Tab	In dialog box: moves to the next/previous field
Del	Deletes the currently selected item
Alt + Tab	Switches between the next/previous Application
Alt + Enter	Shows the Properties of the currently selected item
Alt + Esc	Cycles through items in the order that they had been opened
Backspace	In My Computer or Windows Explorer: move up one level In Internet Explorer: works like the BACK arrow key
Ctrl + Left arrow	Moves to the left one word at a time
Ctrl + Right arrow	Moves to the right one word at a time
Ctrl + Tab	In dialog box: moves to the next/previous Tab location
Alt + Space	Opens the window control menu for the currently active window, allowing you to minimize, maximize, move and restore (size) the window
Ctrl + Esc	Opens the Windows Start Menu
Ctrl + Alt + Delete	Opens the Windows Task Manager

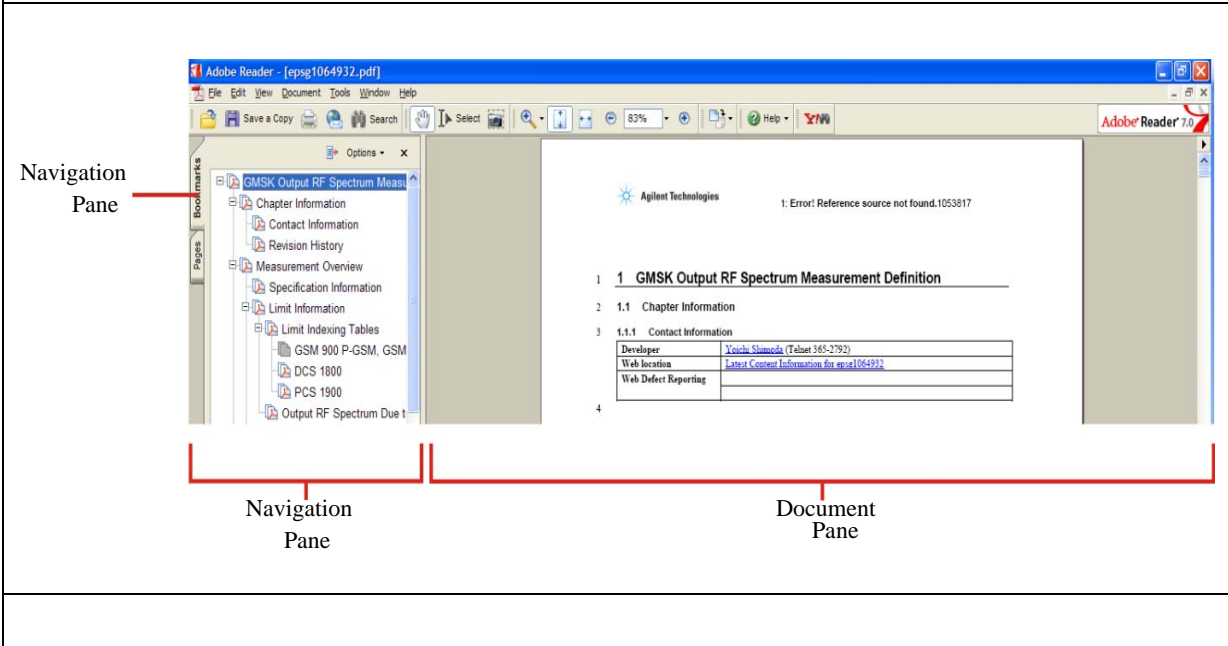
Using the interactive Help system without a mouse




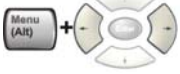



<p>To open the Help window for any menu</p>	<p>Choose the desired menu, then press the front panel green Help key.</p>
<p>To toggle focus between the Navigation and topic panes:</p>	<p>Press the Next Window key </p>
<p>In the navigation pane</p>	<p>In the topic pane</p>
<p>To scroll up or down the topic list: Press the Up or Down Arrow key.</p>	<p>To scroll up or down: Press the Up or Down Arrow key.</p>
<p>To expand or collapse the tree for the selected topic: Press the Right or Left Arrow key.</p>	<p>To go to the next or previous page: Use the Tab keys to select the Right or Left pointer button (in the Topic Pane) Press Enter.</p>
<p>To display the selected topic: Press the Enter key.</p>	<p>To go back or forward: Press the Alt+Left or Right Arrow key.</p>
<p>To scroll horizontally or vertically: Press Ctrl+Left, Right, Up, or Down Arrow keys.</p>	<p>To close the Help window: Press the Cancel (Esc) key.</p>
<p>To switch tabs: Press Ctrl+Tab keys.</p>	<p>To close the Help window: Press the Cancel (Esc) key.</p>

4 Using Microsoft Windows Operating System

Navigating Acrobat (PDF) without a mouse

When you open an Acrobat (PDF) document, it is displayed in the Adobe Reader Window, which appears as shown below.



In the navigation pane	In the document pane
 <p>To go to next or previous Bookmark: Press the Up or Down Arrow key.</p>	<p>To scroll up or down: Press the Up or Down Arrow key.</p> 
 <p>To expand or collapse the selected Bookmark: Press the Right or Left Arrow key.</p>	<p>To zoom in or out: Press the Alt+Left or Right Arrow key.</p> 
 <p>To display the content of the selected Bookmark: Press the Enter key.</p>	<p>To Zoom to:</p> <p>a) Fit page in window: Press Ctrl + 0 keys</p> <p>b) Page actual size Press Ctrl + 1 keys</p> <p>c) Fit page to width Press Ctrl + 2 keys</p> <p>c) Fit visible object Press Ctrl + 3 keys</p> 
 <p>To switch tabs: Press Ctrl+Tab keys.</p>	

In the navigation pane	In the document pane
<p>To select Thumbnails, and Display pages (from Pages Tab): Press the Left/Right/Up/Down keys to navigate, then press Enter to display a selected Page.</p>	<p>To go to a specific page: Press the Next Window key to open the Go to Page dialog, then enter the page number using the Numeric keypad, and press Enter.</p>
<p>To print all or part of a document: Press the Print key to open the Adobe Reader Print Dialog, then use the Tab keys to set options, and select OK to print.</p>	
<p>To Exit Adobe Reader: Press Alt + Select keys to open the File menu. Use the Down Arrow key to select Exit, then press Enter.</p>	



Remote Desktop: Using the X-Series test set remotely

Windows Remote Desktop is recommended for remote control of the test set. It offers fully-interactive control, that is almost identical to direct face-to-face control of the test set. You can also remotely control the test set using the Embedded Web Server interface. The Embedded Web Server functionality provides a communications method that does not require login to the test set. However, due to its slower response time, it is only recommended for setup and data exchanges that do not involve test set control.

NOTE

The Remote Desktop functionality is a Microsoft Windows capability. The following discussion provides some guidelines for using this capability with the test set. You need to refer to the Windows help documentation for more information. As Windows evolves, these instructions may no longer be exact.

You need an external keyboard and mouse to fully use this functionality.

Overview of Remote Desktop operation

Using the Remote Desktop functionality of the test set allows you to control and interact with the test set from a remote computer, as though you were sitting in front of the test set.

When you have configured the test set for remote connectivity, and configured a separate computer to act as a Remote Desktop Host, you can send commands to the test set from the remote computer, and you can see the test set display on the screen of the remote computer.

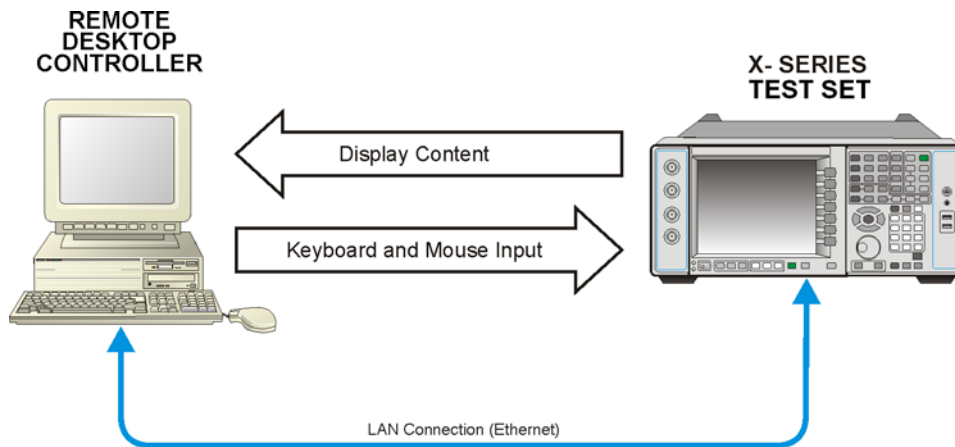
This section provides full details of how to set up the test set for remote connectivity, and also how to set up a computer running any 32-bit version of Microsoft Windows as a Remote Desktop Host.

Setting up Remote Desktop operation

Setting up the test set

Before the test set can be controlled through a Remote Desktop Connection, it must be set up to allow connection from a remote computer.

Basic setup for remote desktop operation



Setting up a remote desktop connection

Step	Notes
1	To perform this operation successfully, you must have Administrator level access to the test set.
2	On the test set, open the Windows Control Panel . <ul style="list-style-type: none"> From the test set application, press System, Control Panel, <i>or</i>, From the Windows Desktop, click Start, Control Panel.
3	Select System . <ul style="list-style-type: none"> From the Control Panel Category View, click Performance and Maintenance, then click System. <i>or</i>, From the Control Panel Classic View, double-click System.
4	Click the Remote tab. <p>A Warning Message appears, informing you that it may be necessary to configure your internet connection sharing or personal firewall to permit Remote Desktop connections. The details of such configuration are beyond the scope of this document.</p>
5	Click the Allow users to connect remotely to this computer checkbox.
6	To add users, click Select Remote Users, Add . <ul style="list-style-type: none"> Follow the on screen instructions.

Setting up the remote computer

The procedure depends on whether the Remote Computer to be set up is running Windows XP, Windows 7, or another version of Microsoft Windows.

Remote computer running Windows XP or Windows 7 Windows XP and Windows 7 include the Remote Desktop Connectivity Client software, so no additional setup is required.

Remote computer running another version of Windows You can use any 32-bit version of Windows (Windows 95, 98, ME, NT4, or 2000) to install and run the Client software for Remote Desktop Connectivity. However, you need to have available a Windows XP or Windows 7 installation CD-ROM, because that contains the Client software.

NOTE

The following instructions relate to software provided by Microsoft Corporation. Agilent offers no warranty regarding the operation of such software. The procedure described here may be changed by Microsoft at some future time.

Installing the Client software

Step	Notes
1 When the Welcome Screen appears, click Perform additional tasks	
2 From the What do you want to do? screen, click Set up Remote Desktop Connection.	The Remote Desktop Connection InstallShield Wizard appears.
3 Click Next.	Follow the on screen instructions provided by the Wizard.
4 To access the installed software, click Start > All Programs > Accessories > Communications > Remote Desktop Connection.	

How to locate the computer name of the test set

To connect a remote computer to the test set, you need to know its Computer Name. The Computer Name can be displayed as follows:

Locating the name from the Agilent application

Step	Notes
<ul style="list-style-type: none"> On the test set front panel, press System, Show, System. 	A page listing various parameters appears. The test set's computer name is shown in the list next to the title Computer Name.

Locating the name from the Windows desktop (with a mouse):

Step	Notes
1 Click Start, Control Panel .	If the Control Panel window appears in Category View, click Performance and Maintenance , then System , to display the System Properties dialog. If the Control Panel appears in Classic View, double-click System to display the System Properties dialog.
2 Click the Computer Name tab of the System Properties dialog.	
3 To close the System Properties dialog, click Cancel .	

Locating the name from the Windows desktop (without a mouse):

Step	Notes
1 Press Ctrl+Esc to display the Windows Start menu.	
2 Use the Up Arrow or Down Arrow keys to select the Control Panel item.	
3 Press Enter to open the Control Panel dialog.	
4 In Category View, press Tab to select Performance and Maintenance , then press the Tab again to select System , or, in Classic View, press the Tab and the Arrow keys to select System , then press Enter .	The System Properties dialog is displayed.
5 Press Ctrl+Tab until the Computer Name tab is selected.	The Computer Name is displayed under Full computer name .
6 Press Tab to select the Cancel button, then press Enter .	

Locating the name from the Windows desktop (without a mouse):

Step	Notes
7 To close the Control Panel dialog:	
<ul style="list-style-type: none"> • Press Alt+Select to open the drop-down File menu • Press the Down Arrow until the Close menu item is selected • Press Enter to close the Control Panel dialog. 	

Running a Remote Desktop session


Initializing a Remote Desktop session

NOTE

To initialize a Remote Desktop Session, you need to know the Computer Name of the test set. This information can be shown on the test set display by following the procedure in the section “[How to locate the computer name of the test set](#)” on page 80.

After setting up both the test set and the remote computer for Remote Desktop Connectivity, as described in “[Setting up Remote Desktop operation](#)” on page 78, you are ready to start a Remote Desktop session.

Starting a session

Step	Notes
1 Click Start > All Programs > Accessories > Communications > Remote Desktop Connection .	A Remote Desktop Connection dialog appears:
	
2 Enter the computer name of the test set.	
3 Click Connect .	A login dialog box appears.
4 Enter the login account name and password.	The default account name is <i>Instrument</i> and the default password is <i>measure4u</i> , but these parameters may be changed by instrument users.

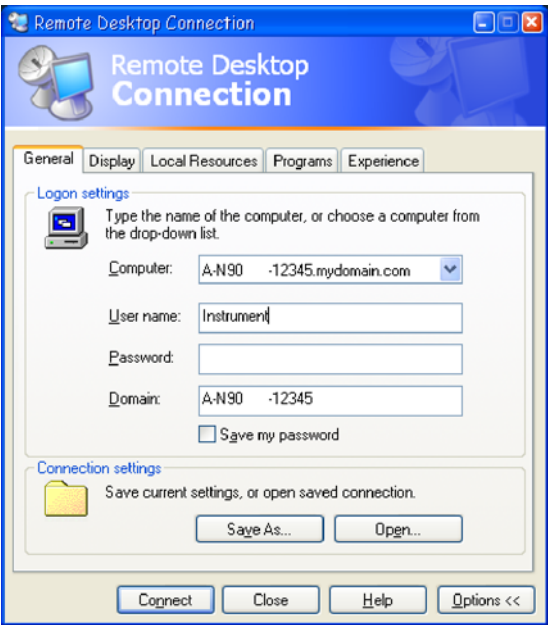
NOTE

Only the current User or an Administrator can remotely log into the test set. To see who the current user of the test set is, press **Ctrl+Esc** on the test set until you can view the current user name on the Start menu. If no one is currently logged into the test set, any valid instrument user can remotely log in.

The test set display appears on the screen of the remote computer. Because the test set front-panel keys are not available when using the test set remotely, three alternative methods are available to perform the functions of the front-panel keys, as detailed in the following sections:

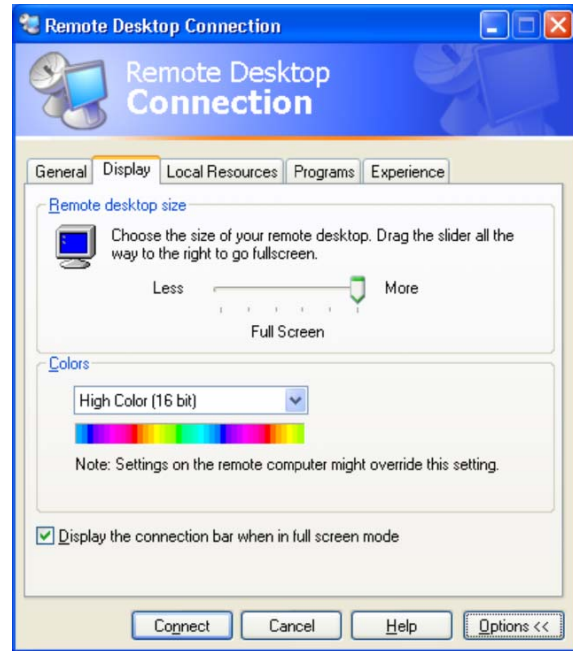
- “Accessing menus for Remote Desktop operation” on page 86
- “Keycode commands for Remote Desktop operation” on page 87
- “The Virtual Front Panel” on page 91

Setting Remote Desktop options

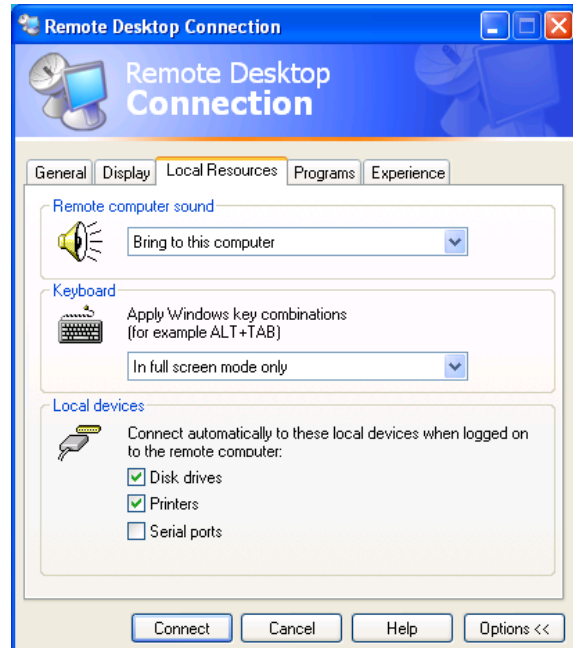
Step	Notes
1 On the Remote Desktop Connection menu, click Options .	 <p>The Options dialog has several tabs. Generally, the default settings are correct.</p>
2 Under the General tab, ensure that the Computer name, User name and Domain name are set correctly.	You may choose to enter the password and save it for future sessions, by checking the Save my password box.

Step	Notes
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- 3 Click the **Display** tab.
- Under **Remote desktop size**, you may select the size of the window in which the test set display appears. Do *not* select any size smaller than 1024 x 768 pixels. Selecting a remote desktop size smaller than 1024 x 768 results in the test set display not being fully visible. In such circumstances, scroll bars do not appear, so portions of the display are not accessible.
 - Under **Colors**, you may select any setting that uses 15 bits or more. Selecting a color setting that uses less than 15 bits results in dithering and incorrect color rendition of the remote desktop window.



- 4 Click the **Local Resources** tab.
- Selecting the **Disk Drives** checkbox enables you to transfer data between the remote desktop and the local PC. To transfer data, click **Start** on the task bar of the remote computer, then click **My Computer**. Explorer opens on the remote computer and displays the drives of both the remote computer and the local computer.. You can now copy and paste between the two disk drives.

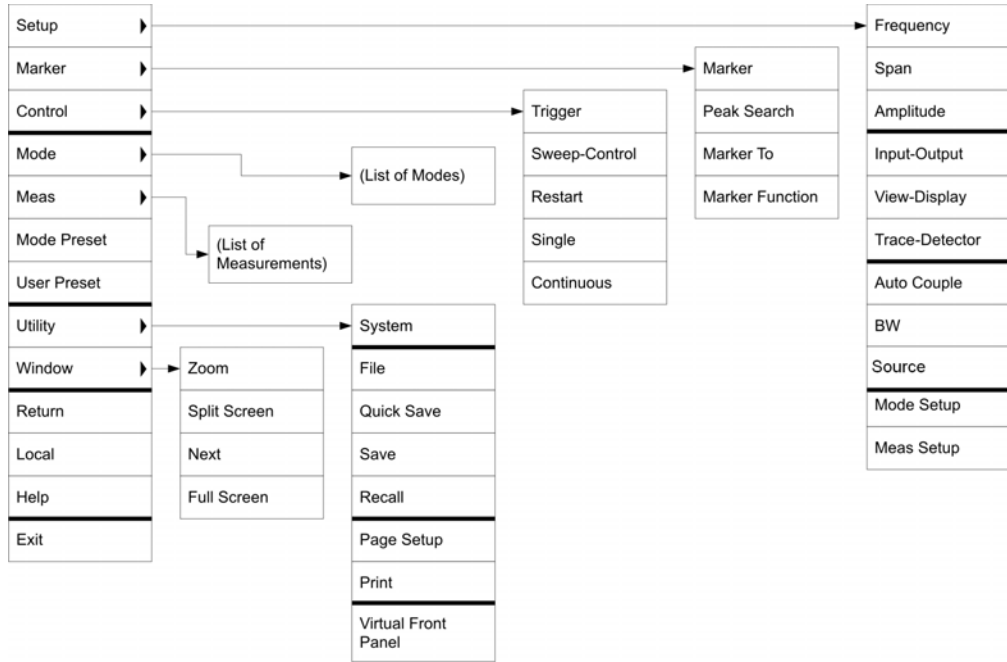


Step	Notes
5 Click the Experience tab.	To Optimize the performance of the Remote Desktop session, choose the appropriate connection format from the drop-down list.



Accessing menus for Remote Desktop operation

Using the mouse, right-click the application display window to access the following remote desktop menus, which may be used as an alternative to the front-panel keys:.



The function of each selection in the menu is generally identical to that of the corresponding front-panel key. The following lists additional functionality:

Exit – Selecting this item closes the Application software.

Utility > Page Setup – Selecting this item opens a printer setup dialog.

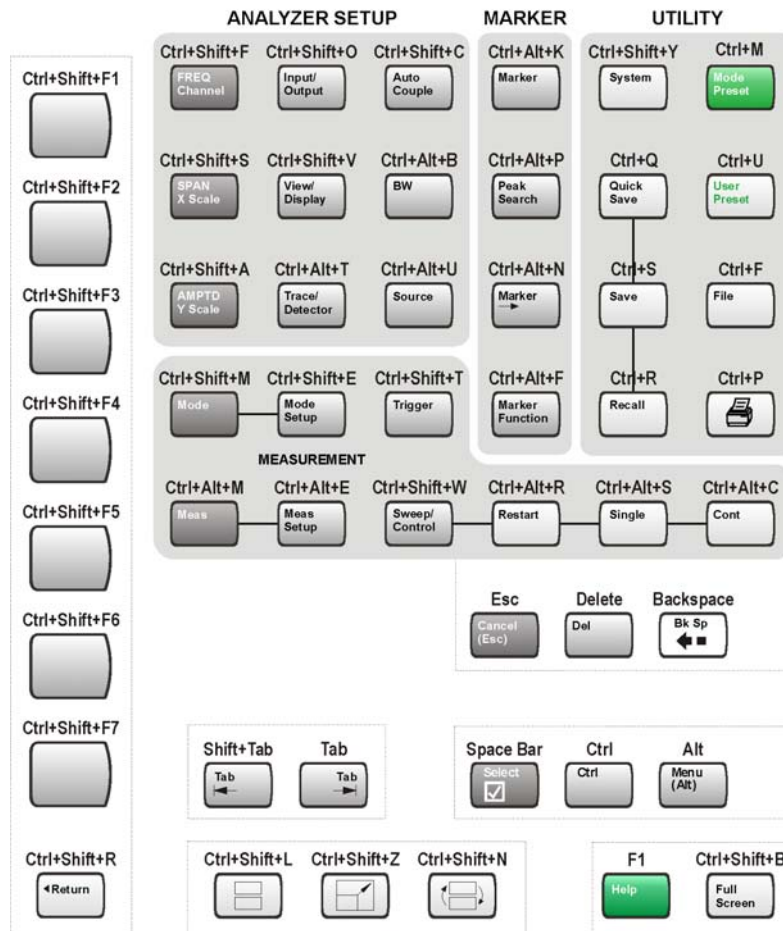
Utility > Virtual Front Panel – Selecting this item opens the Virtual Front Panel window, as described in the Section [“The Virtual Front Panel”](#) on page 91.

NOTE The menus are also available when using the test set directly, provided that a mouse or other pointing device is attached to it.

Keycode commands for Remote Desktop operation

When using the test set in remote desktop mode, the following combinations of remote keyboard keys can be used to perform the operation of the test set front-panel keys.

Agilent X-Series Wireless Test Set Remote Desktop Keycodes



Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
AMPTD Y Scale	Ctrl+Shift+A
Auto Couple	Ctrl+Shift+C
Bk Sp	Backspace
BW	Ctrl+Alt+B
Cancel (Esc)	Esc

Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
Cont	Ctrl+Alt+C
Ctrl	Ctrl
Decrease Audio Volume	the Volume Control slider
Del	Delete
Down Arrow	Down Arrow
Enter	Enter (Return)
File	Ctrl+F
FREQ Channel	Ctrl+Shift+F
Full Screen	Ctrl+Shift+B
Help	F1
Increase Audio Volume	the Volume Control slider
Input/Output	Ctrl+Shift+O
Left Arrow	Left Arrow
Marker	Ctrl+Alt+K
Marker ->	Ctrl+Alt+N
Marker Function	Ctrl+Alt+F
Meas	Ctrl+Alt+M
Meas Setup	Ctrl+Alt+E
Menu (Alt)	Alt
Mode	Ctrl+Shift+M
Mode Preset	Ctrl+M
Mode Setup	Ctrl+Shift+E
Mute	the Mute checkbox under the Volume Control
Next Window	Ctrl+Shift+N
Peak Search	Ctrl+Alt+P
Print	Ctrl+P
Quick Save	Ctrl+Q
Recall	Ctrl+R
Restart	Ctrl+Alt+R
Return	Ctrl+Shift+R

Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
Right Arrow	Right Arrow
Save	Ctrl+S
Select	Space Bar
Single	Ctrl+Alt+S
Softkey 1	Ctrl+Shift+F1
Softkey 2	Ctrl+Shift+F2
Softkey 3	Ctrl+Shift+F3
Softkey 4	Ctrl+Shift+F4
Softkey 5	Ctrl+Shift+F5
Softkey 6	Ctrl+Shift+F6
Softkey 7	Ctrl+Shift+F7
Source	Ctrl+Alt+U
SPAN X Scale	Ctrl+Shift+S
Split Screen	Ctrl+Shift+L
Sweep/Control	Ctrl+Shift+W
System	Ctrl+Shift+Y
Tab	Tab
Trace/Detector	Ctrl+Alt+T
Trigger	Ctrl+Shift+T
Up Arrow	Up Arrow
User Preset	Ctrl+U
View/Display	Ctrl+Shift+V
Zoom	Ctrl+Shift+Z
1	1^a
2	2^a
3	3^a
4	4^a
5	5^a
6	6^a

Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
7	7 ^a
8	8 ^a
9	9 ^a
–	Use the – key to enter a negative value, as appropriate ^a
. (Decimal Point)	. (Period) ^a
0 (Zero)	0 (Zero) ^a

- a. For remote keyboards that feature a numeric keypad, use either the appropriate numeric keypad key or the main keypad key.

NOTE

The effect of pressing **Ctrl+Alt+Delete** on the keyboard of the remote computer *always* applies to the remote computer, and not to the test set. Generally, the effect of pressing this key combination is to display the Windows Task Manager. Therefore, pressing this key combination on the remote computer does *not* allow you to reboot the test set.

Ending a Remote Desktop session

There are two ways to disconnect the remote computer from the test set to end the session:

Step	Notes
1 Click the X , then click OK .	For full-screen, the X appears at the top center of the window. For non full-screen, the X appears in a red box at the right of the window’s title bar.
or	
2 When the remote desktop is full screen, move the cursor to the bottom left of the window:	
<ul style="list-style-type: none"> • Click Start, Disconnect. • Click Disconnect. 	You are asked to confirm that you want to disconnect.

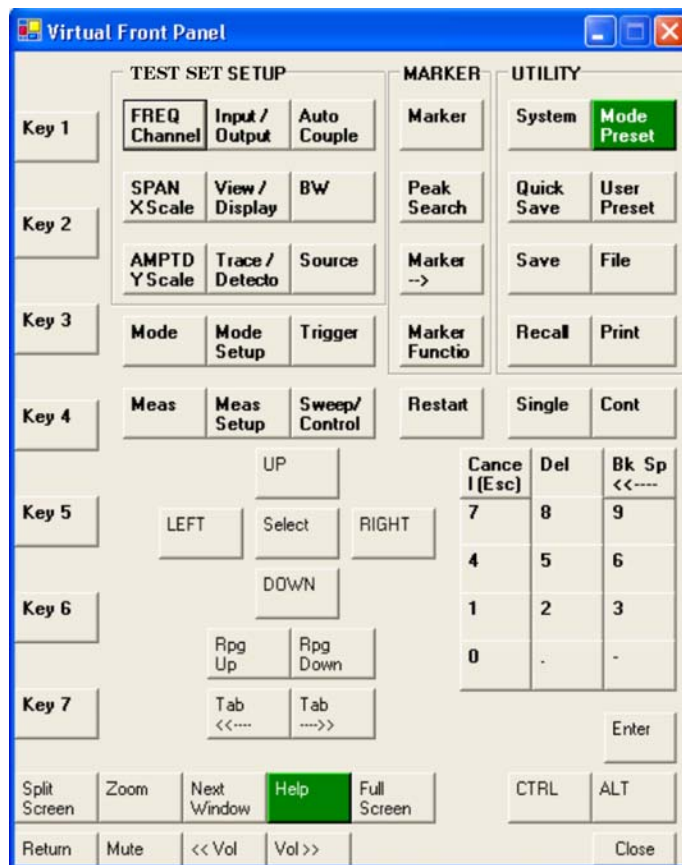
The Virtual Front Panel

The Virtual Front Panel is a software equivalent of the front-panel key set, which provides another alternate method for test set control. It may be displayed in a separate window on the test set (or remote desktop) display.

NOTE

The Virtual Front Panel is also available when using the test set directly, provided that a mouse or other pointing device is attached to it.

Using the mouse, right-click the application display window, then select **Utility > Virtual Front Panel**. The Virtual Front Panel appears, as shown below:



When you click a button in the Virtual Front Panel, it performs the operation of the corresponding test set front-panel key. The buttons at the left of the panel, named Key 1 through Key 7, perform the operation of the respective softkeys. The Rpg Up and Rpg Down keys perform the operation of the knob.

Embedded Web Server: Using the X-Series Test Set Remotely

The test set can be controlled using either the Embedded Web Server or Windows Remote Desktop. The Embedded Web Server is a good solution when you do not want to log into the user account on the test set. This allows you to view the display or control the test set, without logging the current user off. Windows Remote Desktop must be used when the remote computer keyboard is needed as an input device (such as for editing filenames, or setting the title.) Also, Windows Remote Desktop generally has a faster response time.

Accessing the test set through the Internet

It is possible to access and control the test set through the Internet and World Wide Web, or a local internet, using the built-in Embedded Server functionality. This section provides details of how to use this functionality.

The test set may also be accessed and controlled using the Windows Remote Desktop functionality (see the section “[Remote Desktop: Using the X-Series test set remotely](#)” on page 78, for details).

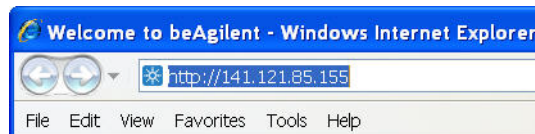
The test set Embedded Server capabilities are fully compliant with the LXI (LAN eXtensions for Instrumentation) standard.

NOTE

To gain access to the test set from the LAN, you need to know its hostname (or IP Address). For details of how to locate this information using the test set display, see “[How to locate the computer name of the test set](#)” on page 80.

Accessing the test set

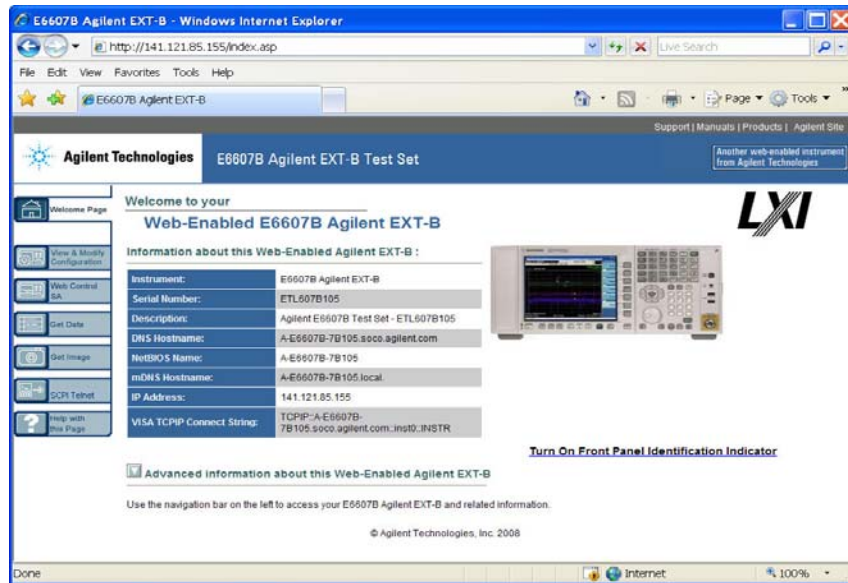
Step	Notes
1 Enter a URL corresponding to the test set hostname or IP Address.	<p>NOTE This functionality is only fully supported when using Internet Explorer.</p> <p>In this example, the test set IP address is 141.121.85.155.</p>



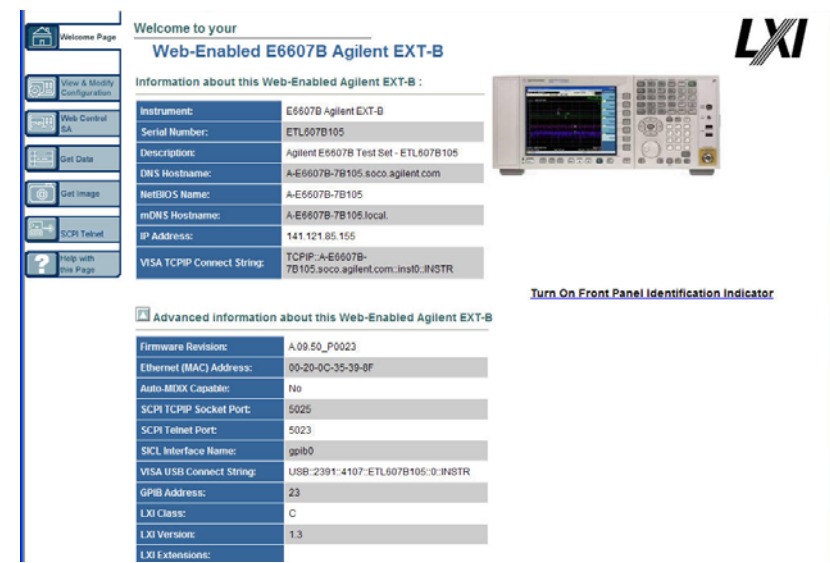
When the connection is made, the welcome page appears.

Accessing the test set

Step	Notes
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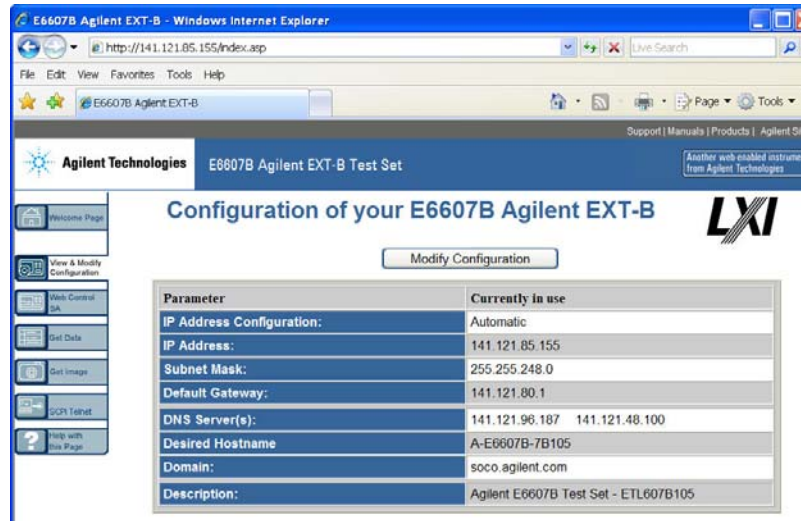
- | | | |
|---|---|---|
| 2 | Click Advanced information about this Web-Enabled E6607B | This control (near the bottom of the screen) displays further settings and configuration information. |
|---|---|---|



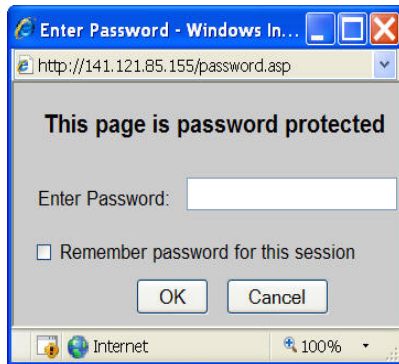
At the left side of the page are a set of tabs that provide access to configuration information for the test set, plus the ability to control it through the web interface.

Selecting the View and Modify Configuration tab

Step	Notes
1 Click Verify and Modify Configuration .	This displays a web page, which shows the currently-assigned IP address and other TCP/IP parameters of the test set.



2 Click on Modify Configuration .	A password entry dialog appears.
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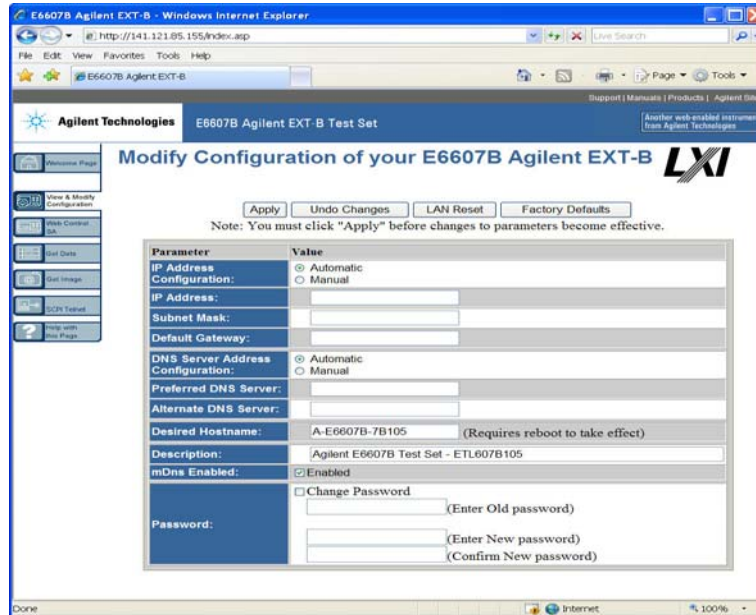
By default, this password is set at the factory as “agilent”. However, you may subsequently change the password. (Press **System, I/O Config, Reset Web Password** on the test set front panel to change the password.)

When the correct password has been entered, the Modify Configuration web page appears.

Selecting the View and Modify Configuration tab

Step

Notes

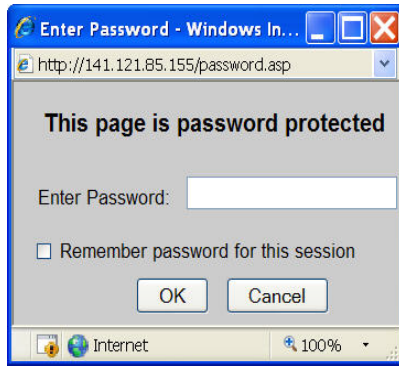


- 3 Enter new settings as required, then click **Apply** to cause the new settings to take effect. Before clicking **Apply**, you may use the **Undo Changes** button to revert all settings to their previous values.
- 4 Use **Start Identify** and **Stop Identify** to enable and disable the LXI status indicator in the test set. **NOTE** Tool tips are available for each of the configuration buttons on this page.

Accessing the Web Control tab

Selecting this tab lets you view, control and interact with the test set through the web server.

Step	Notes
1 Click Control	A password entry dialog appears.

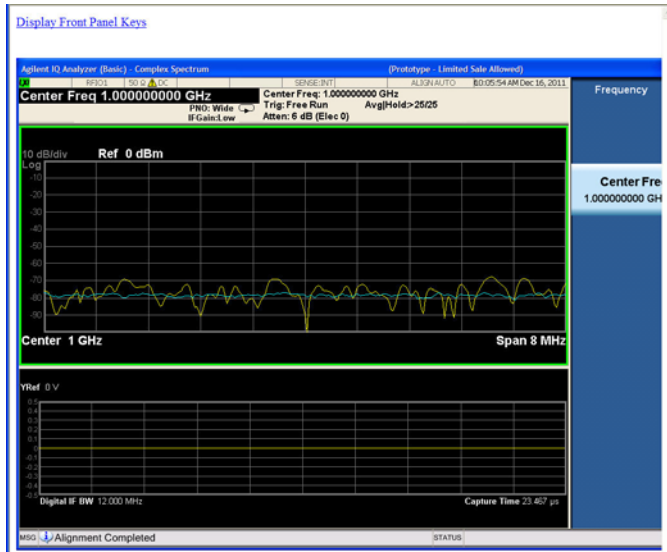


By default, this password is set at the factory as “agilent”. However, you may subsequently change the password. (Press **System, I/O Config, Reset Web Password** on the test set front panel to change the password.)

When the correct password is entered, the test set control web page appears.

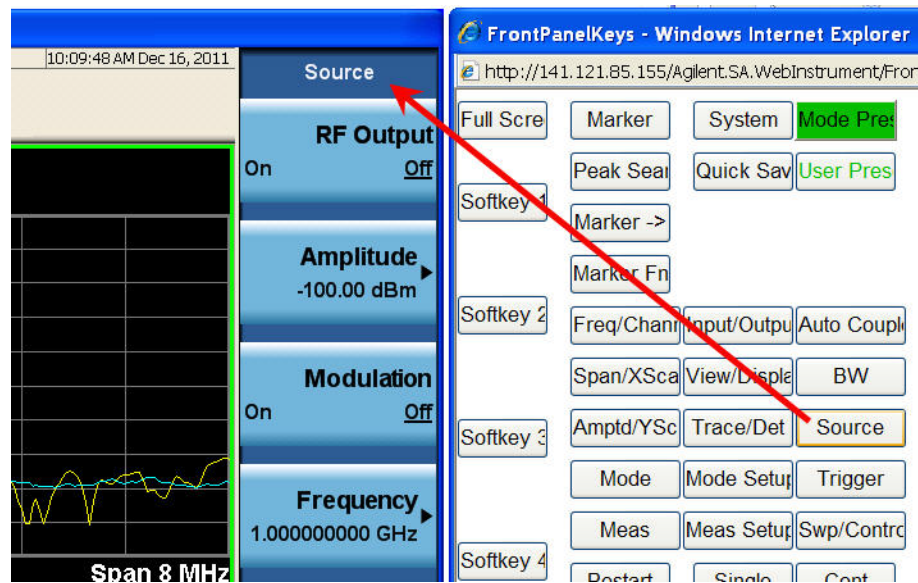
NOTE

To view the test set display, the test set application must be running.



2 Click Display Front Panel Keys	This brings up a virtual keyboard that can be used to control the test set.
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Step	Notes
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Selecting the Get Data tab

Selecting the Get Data tab allows you to capture results from the currently active measurement on the test set. Depending on the current measurement type, captured results consist of either Trace Data or Measurement Results.

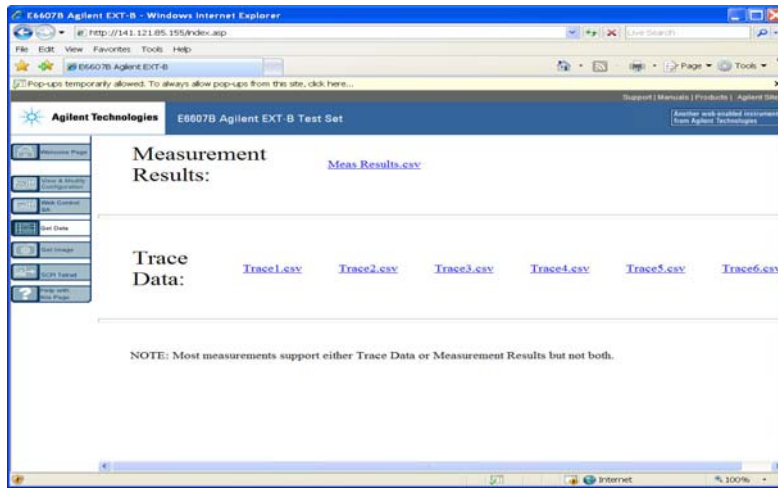
NOTE

To capture data using the web server, the test set application must be running.

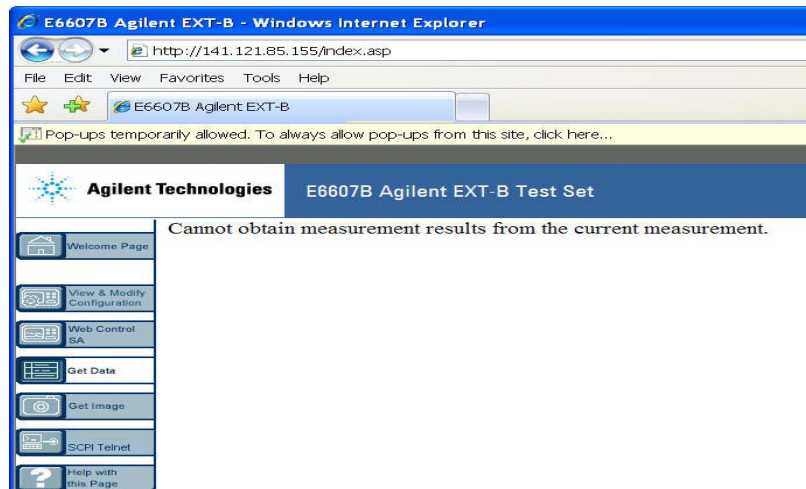
The captured data is formatted as a Comma Separated Value (CSV) file, which may be saved on the client computer's hard disk, or opened with a spreadsheet application such as Microsoft Excel, or imported into a database application such as Microsoft Access.

4 Using Microsoft Windows Operating System

A typical Get Data web page display is shown below:



If the measurement currently running does not support the selected result type, the web page indicates this:



Selecting the Get Image tab

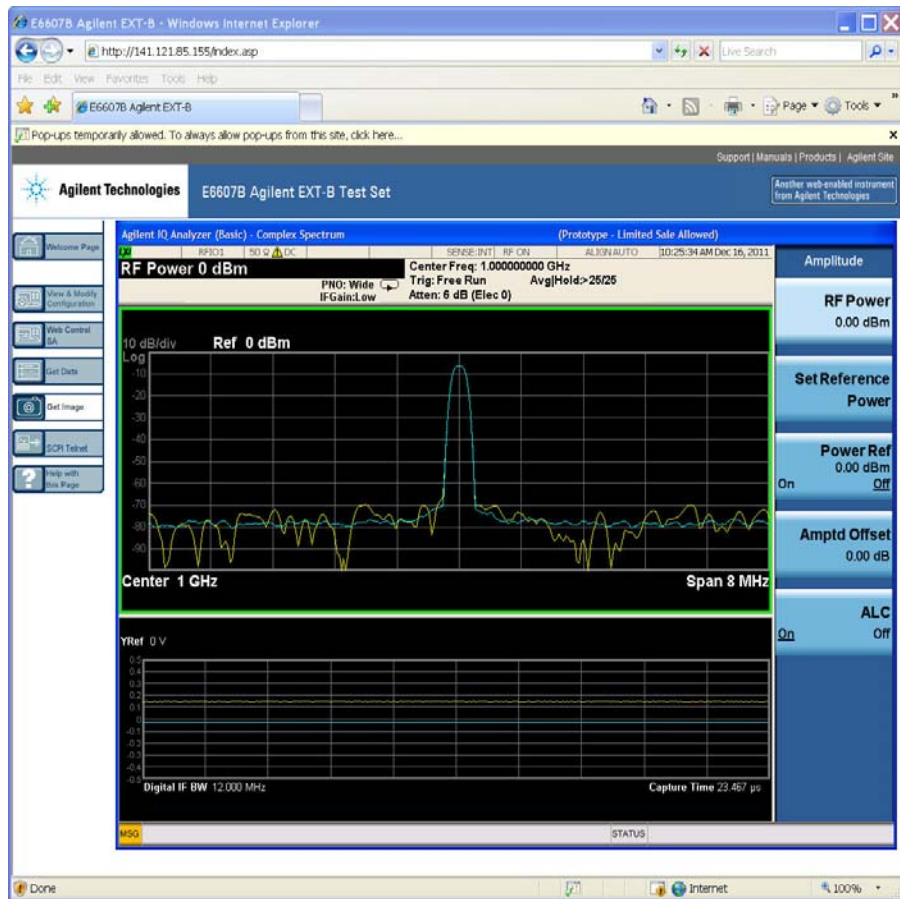
Selecting the Get Image tab captures a screen from the test set display.

NOTE

To capture a screen image using the web server, the test set application must be running.

The image is captured as a Portable Network Graphics (PNG) file, to the default file name `Screen.png`. The image file can be saved to the client computer hard disk, or copied to the Windows clipboard.

A typical screen capture image appears as follows:



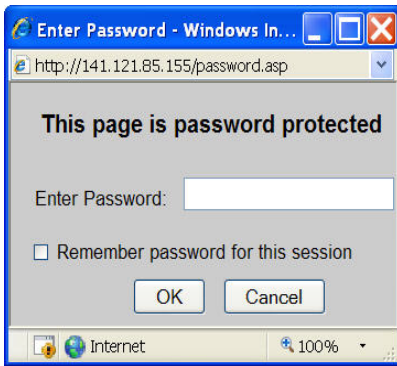
Selecting the SCPI Telnet tab

Selecting the SCPI Telnet tab opens a Telnet session between the test set and the client computer. The test set TCP/IP port used for SCPI access is 5023.

NOTE

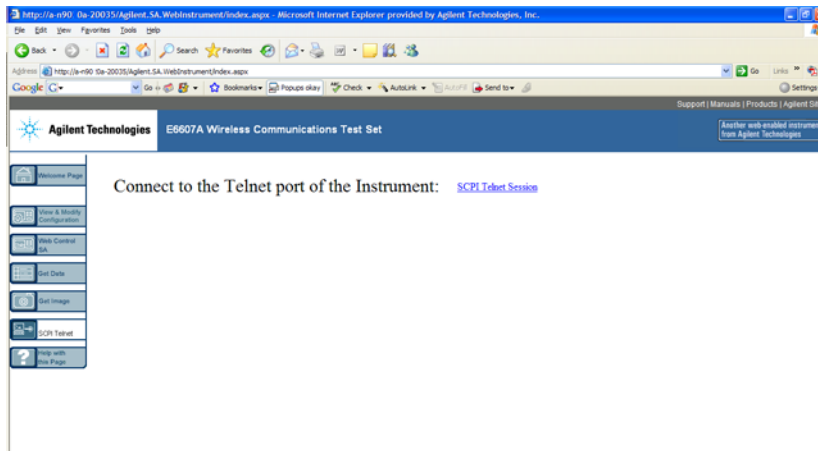
To run a SCPI Telnet session, the test set application must be running.

Step	Notes
1 Click SCPI Telnet	A password entry dialog appears.

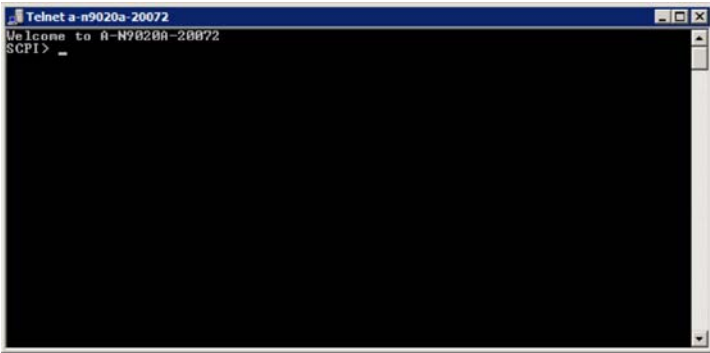


By default, this password is set at the factory as “agilent”. However, you may subsequently change the password. (Press **System, I/O Config, Reset Web Password** on the test set front panel to change the password.)

When the correct password is entered, the connection window appears.

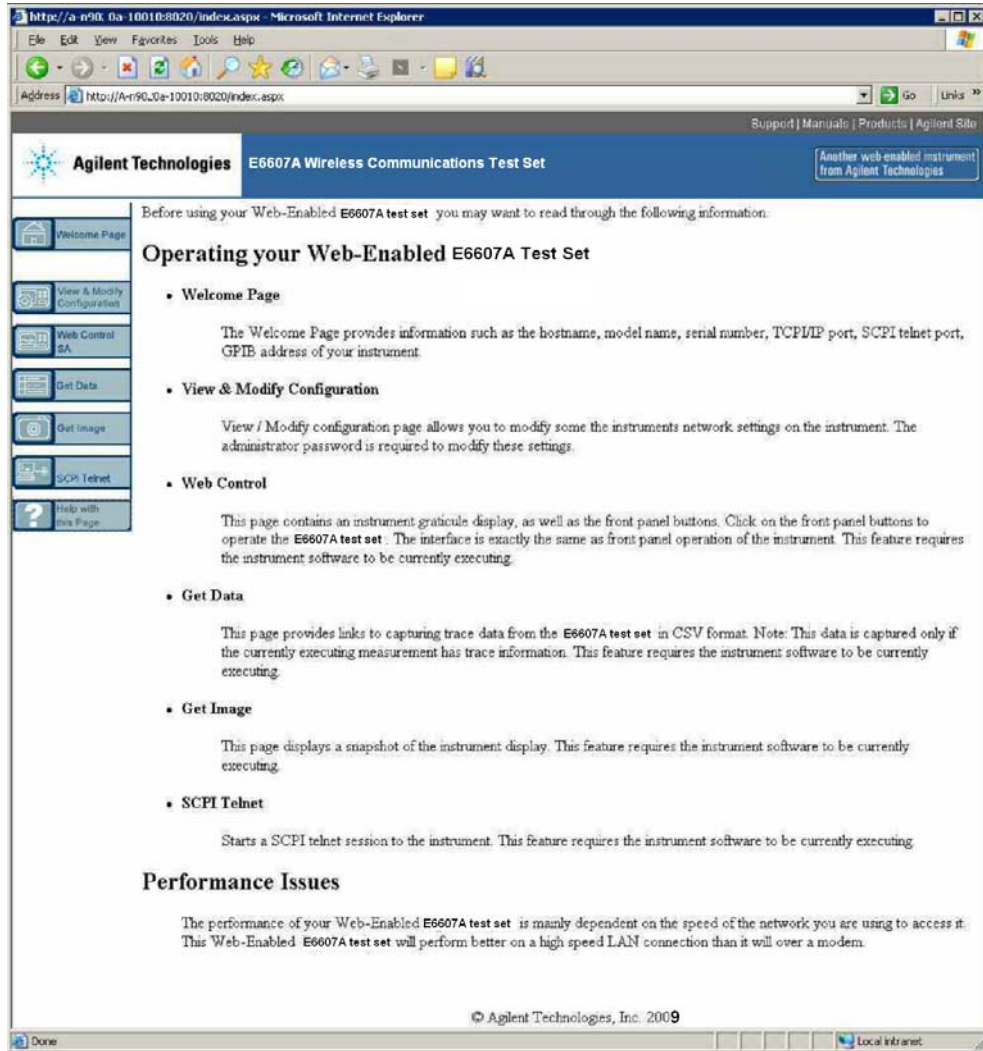


2 Click SCPI Telnet Session	The telnet command line interface appears.
------------------------------------	--

Step	Notes
	SCPI commands and queries may be entered using the command line interface.
3 To exit the telnet session, press Ctrl+] on the client computer keyboard.	

Selecting the Help Tab

Selecting the Help tab displays basic help information about each of the other tabs, plus performance tips, as shown:



Capturing/Printing Displays and Windows

You need an external keyboard and mouse to use this feature.

Save the desktop:

Step	Notes
1 Press Print Screen on the external keyboard	This captures the desktop and saves it on the Windows clipboard.
2 Open a graphics software program like Microsoft Paint	
3 Paste the clipboard contents into the program	The keyboard shortcut Ctrl + v will paste the contents of the clipboard.
4 Save the image in a file	

Save the current active window:

Step	Notes
1 Click on the window you want to capture	This activates the window.
2 Press Alt + Print Screen on the external keyboard	This captures the window and saves it on the Windows clipboard.
3 Open a graphics software program like Microsoft Paint	
4 Paste the clipboard contents into the program.	The keyboard shortcut Ctrl + v will paste the contents of the clipboard.
5 Save the image in a file.	

Windows Shortcuts and Miscellaneous Tasks

This section provides a list of windows shortcuts (key combinations) that are useful when you operate the test set without an attached mouse and keyboard. (See also “[Navigating Windows Without a Mouse](#)” on page 74.) Although these shortcuts are available in any Windows system, they are not commonly used when a mouse and keyboard are attached.

Windows shortcuts (key combinations)

You can use the following combinations of front panel keys to perform basic windows tasks when using the test set without an attached mouse and keyboard.

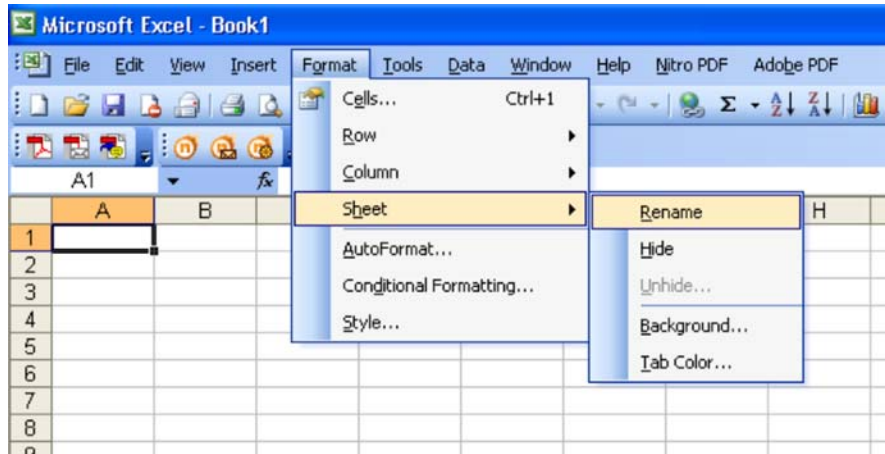
Windows shortcut key combinations

To do the following:	Press:
Display the Windows Start Menu	Ctrl+Esc
Cycle through all open applications	Alt+Tab
Select the first menu of a menu bar	Alt
Move through menu headings	Left Arrow, Right Arrow
Open (drop down) a menu	Down Arrow
Move through items in an expanded menu	Up Arrow, Down Arrow
Close the current menu selection	Esc
Cancel the current menu bar selection	Alt
Open an application’s control menu (usually the left-most menu on the menu bar, starting with File)	Alt+Select
In a dialog: move between tabs	Ctrl+Tab
In a dialog: move forward through dialog box items	Tab
In a dialog: move backward through dialog box items	Shift+Tab
In a dialog: open a list box	Alt+Down Arrow
In a dialog list box or check box: select or deselect items	Select
In a dialog list box or check box: select or deselect one item at a time	Shift+Up Arrow, Shift+Down Arrow
In My Computer, expand a selected folder	Enter
In My Computer, open a folder one level up from the current folder	Bk Sp

Navigating an Application Menu without a Mouse or Keyboard

This example uses Microsoft Excel, but you can use a similar sequence of operations to select and execute any menu item of any application.

To select and execute the item **Sheet > Rename** option from the **Format** menu in the menu bar shown below,



perform the following operations:

Step	Notes
1 Press Alt to select the File menu in the menu bar.	The focus must be in the appropriate window.
2 Use the Right Arrow and Left Arrow keys to move horizontally to the Format menu.	
3 Press the Down Arrow to expand the Format menu.	
4 Use the Down Arrow and Up Arrow keys to move vertically to the Sheet menu item.	
5 Press the Right Arrow key to expand the Sheet sub-menu.	The Rename sub-menu item appears already selected. If another item in the same sub-menu is required, use the Down Arrow and Up Arrow keys to move vertically to that item.
6 Press Enter to execute the selected action.	

Windows taskbar auto-hide feature

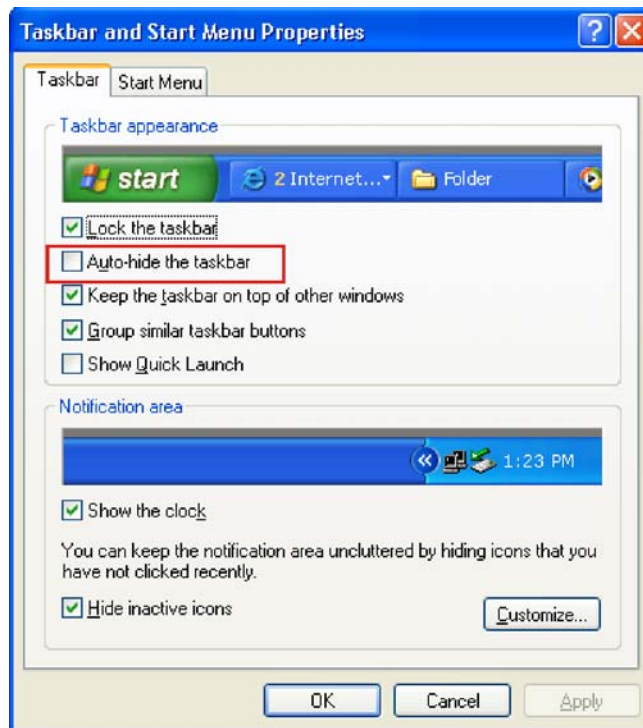
The Windows taskbar should always be in the auto-hide mode when using the test set application. If the taskbar is not set to auto-hide, the lower part of the test set display is obscured by the taskbar.

If a mouse is attached to the test set, and you move the mouse cursor to the bottom of the display (either deliberately or accidentally), the taskbar automatically appears. Provided that the taskbar is in auto-hide mode, you can make it disappear again by moving the mouse cursor away from the bottom of the screen.

If at any time the Windows taskbar is inadvertently set to the non-auto-hide mode, you can restore the auto-hide behavior by doing the following:

Restoring taskbar auto-hide mode

Step	Notes
1 Click Start > Control Panel	If not using a mouse, press Ctrl+Esc .
2 In Classic View, click Taskbar and Start Menu , or, in Category View, click Appearance and Themes, Taskbar and Start Menu	If you are not using a mouse, use the shortcut key combinations specified in the Section " Windows shortcuts (key combinations) " on page 104 to make these selections.
3 Click the Taskbar tab	The Taskbar and Start Menu Properties dialog appears.



- 4 Select the **Auto-hide the taskbar** check box. If you are not using a mouse, press **Tab** repeatedly until the auto-hide option is selected, then press **Select** to toggle the check box state.

Restoring taskbar auto-hide mode

Step	Notes
5 Click OK .	This applies the change and closes the dialog box.

Windows startup folder

All Windows systems include a special folder, called the Startup folder. If a program, or a shortcut to a program, is placed in the Startup folder (either by Windows itself, or by a third-party application, or by any user), that program automatically runs every time Windows is restarted.

When your test set is first configured by Agilent, shortcuts to the appropriate application software and supporting programs are placed in the Startup folder. The exact contents of the Startup folder depends on the options you purchased with your test set.

Important

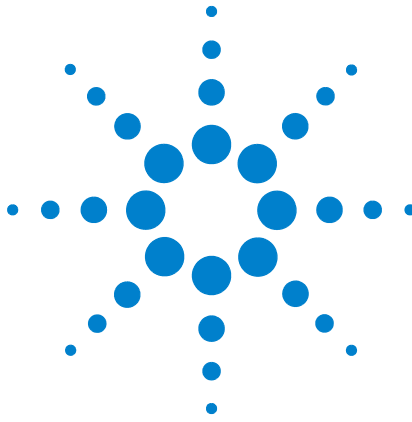
You should *never* delete items that appear in the Startup folder, or move any item from the Startup folder to another folder. Deleting or moving any item in the Startup folder may cause applications not to start automatically when Windows is restarted, or may cause certain options to be unavailable when using the test set.

If you wish to view the contents of the Startup folder, do one of the following:

- Either click **Start, All Programs**, then select **Startup**,
or,
- Click **Start, My Computer**, then navigate to the folder:
C:\Documents and Settings\All Users\Start Menu\Programs\Startup.

Additional startup items may also appear in the corresponding startup folder for the user that is currently logged on. For example, the startup folder for the **administrator** user is **C:\Documents and Settings\administrator\Start Menu\Programs\Startup**.

4 Using Microsoft Windows Operating System



5 Troubleshooting

“Check the Basics” on page 110

“Problems with Microsoft Windows Operating System” on page 112

“Returning a test set for Service” on page 113

WARNING

No operator serviceable parts inside. Refer servicing to qualified personnel.
To prevent electrical shock do not remove covers.



Check the Basics

- o Is there power at the receptacle?
- o Is the test set turned on? Check to see if the green LED beside the power switch is on. Also, listen for internal fan noise to determine if the test set cooling fans are running.
- o If other equipment, cables, and connectors are being used with your test set, make sure they are connected properly and operating correctly.
- o If the analyzer cannot completely load or run the operating system, or the instrument application is not successfully launched, the problem could be a corrupt hard drive. If the analyzer gets far enough along in the boot process to run the "Agilent Recovery System", perform the "[Hard Drive Recovery Process](#)" on page 67.
- o Is the Measurement Application running? If not, there is a software launch shortcut/icon on the desktop.
- o Does the test set application have the focus? (That is, is the blue window banner highlighted?) If not, move focus to the application with Alt-Tab.
- o Review the measurement procedures being performed when the problem first appeared. Are all of the settings correct?
- o If the test set is not functioning as expected, return the test set to a known state by pressing **Mode Preset**.

NOTE

Some test set settings are not affected by a Preset. If you wish to reset the test set settings, press **System, Power On, Restore Power On Defaults**.

-
- o Is the measurement being performed, and the results that are expected, within the specifications and capabilities of the test set? Refer to the specifications guide for your test set. Technical manual pdf files are available in the test set (C:\Program Files\Agilent\SignalAnalysis\Infrastructure\Help\files), on the documentations cd provided with the test set, and on the Agilent website: <http://www.agilent.com/find/E6607B>
 - o If the test set is not communicating via the LAN connection, check for the presence of blinking yellow LEDs on the rear panel LAN connector. If the ACT LED is not blinking, check the LAN cable and LAN integrity.
 - o To meet specifications, the test set must be aligned. Either the Auto Align (On) feature must be selected (press **System, Alignments, Auto Align, Normal**), or the test set must be manually aligned.
 - o Perform an Alignment. Press **System, Alignments, Align Now, All**.

- o If the previously performed alignments did not resolve the problem, press **System, Alignments, Restore Align Defaults**. Then press **System, Alignments, Align Now, All**.
- o Is the test set displaying an error message? If so, refer to the Instrument Messages Guide.
- o Check if the external frequency reference is selected but not available. Verify that it is selected by pressing **Input/Output, Freq Ref In**. If **External** is selected, changing the setting to **Sense** allows the test set to sense the presence of an external reference and use it only if it is available. The frequency of the reference should be set correctly.
- o If you are using a Windows program, other than the test set application, you may notice it running slow. Place the test set application in single sweep/measurement.

Tip

You can get automatic electronic notification of new firmware releases and other product updates/information by subscribing to the *Agilent Technologies Test & Measurement E-Mail Notification Service* for your test set at <http://agilent.com/find/notifyme>

Problems with Microsoft Windows Operating System

The Microsoft Windows operating system settings have been optimized for the best performance. Modification of these settings may degrade test set performance and measurement speed. Those that can be safely modified are described in [“Settings that can be changed”](#) on page 53

The X-Series Wireless Communications Test Set operates in an open Windows environment, so you can install software on the test set. However, installation of non-approved software may affect test set performance. Agilent does not warrant the performance with non-approved software installed.

Returning a test set for Service

Calling Agilent Technologies

Agilent Technologies has offices around the world to provide you with complete support for your test set. To obtain servicing information or to order replacement parts, contact the nearest Agilent Technologies office listed below. In any correspondence or telephone conversations, refer to your test set by its product number, full serial number, and software revision.

Press **System, Show, System**, and the product number, serial number, and software revision information is displayed on your test set screen. A serial number label is also attached to the rear panel of the test set.

Locations for Agilent Technologies

Americas

Canada
+1 877 894-4414

Brazil
+55 11 3351-7012

Mexico
+001 0800 254-2440 ext 2610

United States
+1 800 829-4444
Press # then 3

Africa & Middle East

Israel
+972 3 9288 600

South Africa
+2712 678 9200

Turkey
+90-312-466 8212

Asia & Pacific

Australia
1 800-225-574

China
800-810-0189 / 400-810-0189

Hong Kong
800-938-693

India
1-800-11-2626

Japan
0120-412-766

Korea
080-769-0800

Malaysia
1 800-888-848

New Zealand
64 4 570 248

Philippines
+632 850-4347/49

Singapore
1 800-375-8100

Taiwan
0800-047-866

Thailand
1 800-291-222

Vietnam
120-65-201

Europe

Denmark
45 45 80 1215

Finland
010 855 2100

France
0825-01-07-00

Germany
+49 (0) 7031 464 6333

Italy
+39 02 9260 8484

Netherlands
+31 0 20 547 2111

5 Troubleshooting

Russia
+7 (495) 797 3930

Spain
91 631 3300

Sweden
0200-88 22 55

United Kingdom
+44 0 118 927 6201

Online assistance: <http://www.agilent.com/find/assist>

Contact us: <http://www.agilent.com/find/contactus>

Read the Warranty

The warranty for your test set is in the front of your Specifications Guide. Please read it and become familiar with its terms.

If your test set is covered by a separate maintenance agreement, please be familiar with its terms.

Service Options

Agilent Technologies offers several optional maintenance plans to service your test set after the warranty has expired. Call your Agilent Technologies office for full details.


If you want to service the test set yourself after the warranty expires, you can purchase the service documentation that provides all necessary test and maintenance information.

You can order the service documentation, *Option OBW* (assembly level troubleshooting information) through your Agilent Technologies office.

Service Tag

When you are returning an test set to Agilent Technologies for service, fill out and attach one of the blue service tags provided at the end of this chapter. Please be as specific as possible about the problem. If you have recorded any error messages that appeared on

the display, have completed a functional test, or have any other specific data on the performance of your test set, please include a copy of this information. An example of the tag is shown below.

 <p>Agilent Technologies</p> <p>Should one of your instruments need repair, the service organization is ready to serve you. However, you can help us serve you more effectively. When sending an instrument to Agilent for repair, please fill out this card and attach it to the product. Increased repair efficiency and reduced turn-around time should result.</p> <p>_____</p> <p>COMPANY</p> <p>_____</p> <p>ADDRESS</p> <p>_____</p> <p>TECHNICAL CONTACT PERSON</p> <p>PHONE Number _____ EXT. _____</p> <p>MODEL Number _____ SERIAL Number _____</p> <p>MODEL Number _____ SERIAL Number _____</p> <p>P.O. Number _____ DATE _____</p> <p>Accessories returned with unit:</p> <p><input type="checkbox"/> NONE <input type="checkbox"/> CABLE(S)</p> <p><input type="checkbox"/> POWER CABLE <input type="checkbox"/> ADAPTER(S)</p> <p>OTHER: _____</p>	<p>Service needed::</p> <p><input type="checkbox"/> CALIBRATION ONLY</p> <p><input type="checkbox"/> REPAIR <input type="checkbox"/> REPAIR & CAL</p> <p>OTHER: _____</p> <p>_____</p> <p>Observed Symptoms/Problems</p> <p>FAILURE MODE IS:</p> <p><input type="checkbox"/> CONSTANT <input type="checkbox"/> INTERMITTENT</p> <p>SENSITIVE TO:</p> <p><input type="checkbox"/> COLD <input type="checkbox"/> HEAT <input type="checkbox"/> VIBRATION</p> <p>FAILURE SYMPTOMS/SPECIAL CONTROL SETTINGS: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>If unit is part of system, list model number(s) of Other interconnected instruments. _____</p> <p>_____</p> <p>_____</p>
--	---

Packaging the Test Set

Use original packaging or comparable. It is best to pack the unit in the original factory packaging materials if they are available.

CAUTION

Test set damage can result from using packaging materials other than those specified. Never use styrene pellets in any shape as packaging materials. They do not adequately cushion the test set or prevent it from shifting in the carton. They cause test set damage by generating static electricity and by lodging in the test set louvers, blocking airflow.

You can repackage the test set with commercially available materials, as follows:

Step	Notes
1 Attach a completed service tag to the test set	
2 Wrap the test set in antistatic plastic to reduce the possibility of damage caused by electrostatic discharge	
3 Use a strong shipping container.	The carton must be both large enough and strong enough to accommodate the test set. A double-walled, corrugated cardboard carton with 159 kg (350 lb) bursting strength is adequate. Allow at least 3 to 4 inches on all sides of the test set for packing material.
4 Surround the equipment with three to four inches of packing material and prevent the equipment from moving in the carton.	If packing foam is not available, the best alternative is plastic bubble-pak. This material looks like a plastic sheet filled with 1-1/4 inch air bubbles. Use the pink-colored bubble which reduces static electricity. Wrapping the equipment several times in this material should both protect the equipment and prevent it from moving in the carton.
5 Seal the shipping container securely with strong nylon adhesive tape.	
6 Mark the shipping container “FRAGILE, HANDLE WITH CARE” to assure careful handling.	
7 Retain copies of all shipping papers.	

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