Agilent X-Series Signal Analyzer

This manual provides documentation for the following X-Series Analyzers running the Microsoft Windows 7 operating system:

PXA Signal Analyzer N9030A
MXA Signal Analyzer N9020A
EXA Signal Analyzer N9010A

Getting Started and Troubleshooting Guide

Agilent Technologies

Notices

Manual Part Number

N9020-90216

Supercedes: N9020-90020

Print Date

May 2013

Printed in USA

Agilent Technologies Inc.
1400 Fountaingrove Parkway
Santa Rosa, CA 95403

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as "Commercial computer software" as defined in DFAR 252.227-7014 (June 1995), or as a "commercial item" as defined in FAR 2.101(a) or as "Restricted computer software" as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies' standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

Safety Notices

CAUTION

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.

In This Guide...

This guide contains the following information:

1   Quick-Start

This chapter explains how to initialize the signal analyzer 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   Instrument Operating System

This chapter describes the Microsoft Windows 7 configuration and the settings used with the Agilent instrument software.

4   Using Windows Tools

The information in this chapter provides some guidelines for using the Microsoft Windows 7 feature capabilities with the signal analyzer.

5   Troubleshooting

This chapter details some basic steps that may solve any problems you are experiencing with either the signal analyzer or Microsoft Windows 7.

Warranty

This Agilent technologies instrument product is warranted against defects in material and workmanship for a period of three years 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, and Agilent Technologies shall pay shipping charges to return the product to Buyer. For products returned to Agilent Technologies from another country, Buyer shall pay all shipping charges, duties, and taxes.

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.

Where to Find the Latest Information

Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, browse to one of the following URLs, according to the name of your product:

http://www.agilent.com/find/pxa
http://www.agilent.com/find/mxa
http://www.agilent.com/find/exa

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

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

Information on preventing analyzer damage can be found at:

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

Is your product software up-to-date?

Periodically, Agilent releases software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Agilent Technical Support website at
http://www.agilent.com/find/techsupport.

Table of Contents

4 Using Windows Tools

5 Troubleshooting

Table of Contents

1   Quick Start

This section explains how to initialize the Signal Analyzer and view a signal.

The following topics can be found in this section:

Agilent Technologies

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 analyzer to another location or to Agilent Technologies for service.

Table 1-1   **Verifying the contents**

Item	Deliverable	Description
Getting Started Guide		Provides first-time power on instructions, licensing information, operating system information, and general hardware information.
Documentation disk		PDF files for all manuals (except service), programming example files, and some technical Application Notes.
Agilent IO Libraries disk		Software for establishing and configuring PC to instrument interfaces.
Optical mouse		An optical USB mouse to simplify screen navigation.
Keyboard		A USB keyboard to simplify data input. (N9030A only)
Power cable		Connection for instrument 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 an analyzer to Agilent Technologies, use the original (or comparable) shipping materials. See "Returning an Analyzer for Service" on page 104.

Instrument Location and Rack Mounting Requirements

Locating the analyzer

Make sure that the fan inlet and exhaust vent areas on the sides of the analyzer 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. This results in excessive audible noise.

Cooling and rack mounting

Do not rack mount the analyzer 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 analyzer draws air in from the left side and exhausts air from the right side.

CAUTION	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.

Turning on the Analyzer the First Time

Initial power-on of the analyzer can be accomplished using either of the following methods:
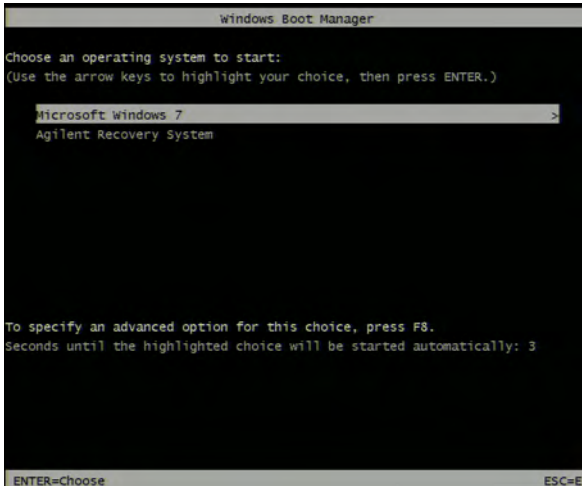
- "Initializing the analyzer using a USB mouse" on page 12
- "Initializing the analyzer using front-panel navigation" on page 16

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

Initializing the analyzer using a USB mouse

Steps	Actions	Notes
1. Connect the mouse	• Connect the mouse to one of the analyzer's USB ports.	
2. Power on the analyzer	a. Position the analyzer 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 analyzer's front panel) to turn the analyzer on.	See "Instrument Location and Rack Mounting Requirements and "Power requirements" on page 20 for more details. The analyzer can require more than 5 minutes to power-on. The Agilent Technologies screen appears followed by a screen that allows you to select the operating system.

Steps	Actions	Notes
3. Launch Microsoft Setup	• Highlight Microsoft Windows 7 and press **Enter** to start the pre-installed operating system.	

The analyzer performs the following steps:

• Windows 7 Startup window

• Black screen

• Windows Please wait message window

• 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	• Click **OK**	When the instrument restarts, the following message window appears:

Steps	Actions	Notes

This window appears and covers the LaunchXSA window.

NOTE 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.

5. Disable the Anti-Virus message	• Select the check box and click **Continue**.	Messages similar to the following continue to appear:

Several required processes continue.

The XSA application initializes

6. Verify the installation	a. On the instrument, press **System**, **Show**, **System**.	If you require further assistance, contact the Agilent support team. Online assistance: http://www.agilent.com/find/assist
	b. Verify that the purchased application(s) appear in the list.	
7. View a signal	a. Press **Input/Output**, **RF Calibrator**, **50 MHz**.	This routes the internal 50 MHz signal to the analyzer input.
	b. Press **FREQ Channel**, **Center Freq**, **50**, **MHz**.	
	c. Press **SPAN X Scale**, **50**, **MHz**.	

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

Initializing the analyzer using front-panel navigation

The following keys are used in the initialization process:

Arrow keys   **Enter key**   **Tab keys**   **Select key**

Steps	Actions	Notes
1. Power on the analyzer	a. Position the analyzer so you have easy access to the power cord and plug it in.	See "Instrument Location and Rack Mounting Requirements and "Power requirements" on page 20 for more details.
	b. Press the power switch (located in the lower left corner of the analyzer's front panel) to turn the analyzer on.	The analyzer can require more than 5 minutes to power-on.
	c. The Agilent Technologies screen appears followed by a screen that allows you to select the operating system.	

Steps	Actions	Notes
2. Launch Microsoft Setup	Highlight Microsoft Windows 7 and press **Enter** to start the pre-installed operating system.	

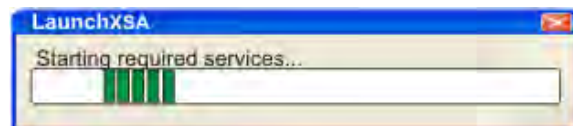The analyzer performs the following steps:

- Windows 7 Startup window

- Black screen

- Windows Please wait message window

- Blue Agilent window

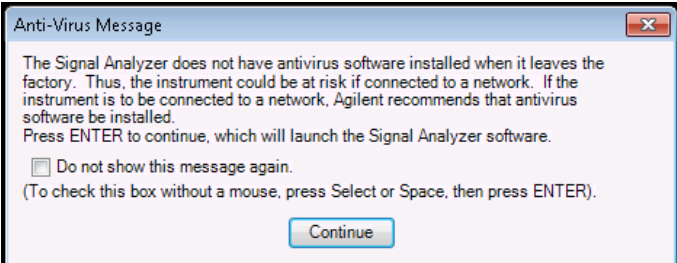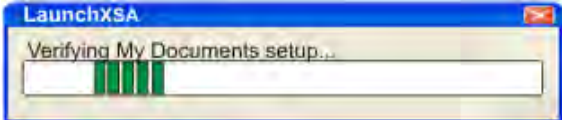- The following Welcome window appears giving you information about the End-User License Agreement.
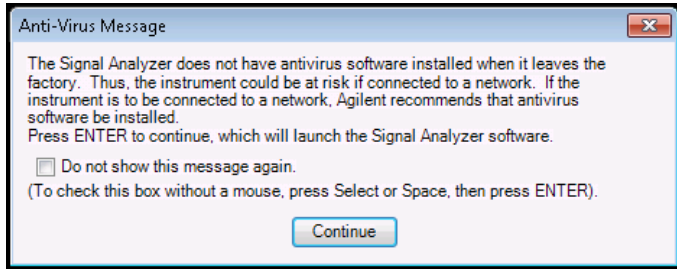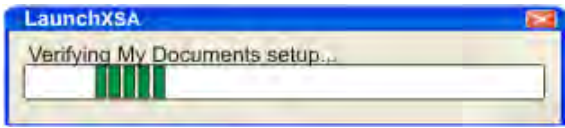
At this time, it is safe to turn off the instrument before initializing the software.

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.

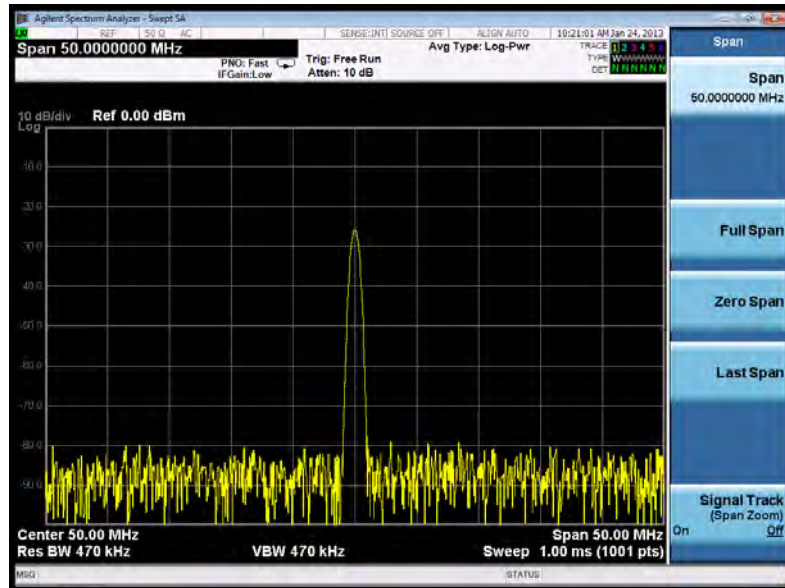| 3. Reboot and logon	• Press **Enter**	When the instrument restarts, the following message window appears:

Steps	Actions	Notes
		This window appears and covers the LaunchXSA window.

NOTE   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.

4. Disable the Anti-Virus message	• Press **Select** to select the check box and **Enter** to continue.	Messages similar to the following continue to appear: Several required processes continue. The XSA application initializes
5. Verify the installation	a. Press **System**, **Show**, **System**. b. Verify that the purchased application(s) appear in the list.	If you require further assistance, contact the Agilent support team. Online assistance: http://www.agilent.com/find/assist
6. View a signal	a. Press **Input/Output**, **RF Calibrator**, **50 MHz**. b. Press **FREQ Channel**, **Center Freq**, **50**, **MHz**. c. Press **SPAN X Scale**, **50**, **MHz**.	This routes the internal 50 MHz signal to the analyzer input.

Steps	Actions	Notes

The 50 MHz reference signal appears on the display.
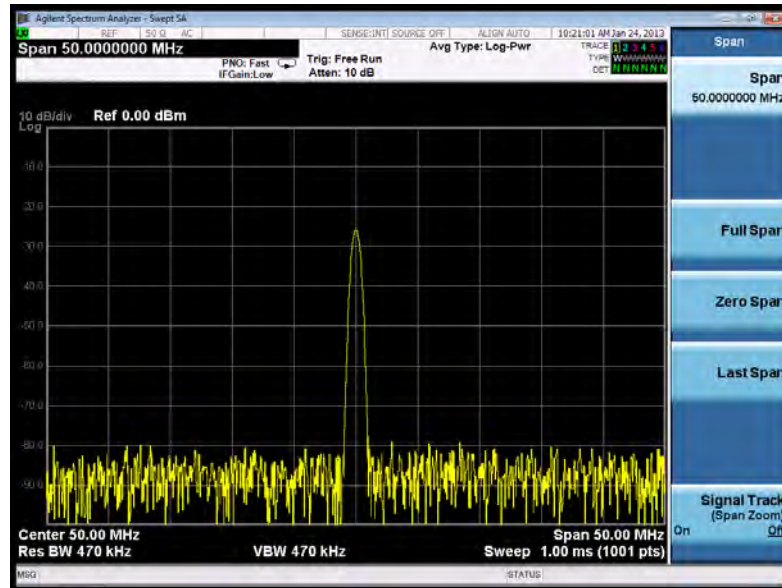
Anti-Virus Software and Firewalls

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

The analyzer is shipped with the Windows 7 firewall enabled. Do not modify the default network settings as this may cause problems with the operating system of the analyzer.

Shortening the Instrument Power-On Time

The instrument desktop includes a shortcut to the ConfigureApplications.exe application that lets you control your instrument 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 instrument 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 signal analyzer is a connection to a power source. Line voltage does **not** need to be selected.

This analyzer 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 analyzer properly can result in personal injury. Before turning on the analyzer, 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. 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 analyzer is equipped with a three-wire power cord, in accordance with international safety standards. This cable grounds the analyzer cabinet when connected to an appropriate power line outlet. The cable appropriate to the original shipping location is included with the analyzer. 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.

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.

Protecting Against Overpowering

The input circuitry of the analyzer can be damaged by applying signals that exceed the maximum safe input level of +30 dBm average total power or +/- 0.2 Vdc (when DC coupled) or +/- 70 Vdc (when AC coupled). Refer to the analyzer's specification guide for more details regarding the Maximum Safe Input Level. Repairing damage to the input circuitry can be expensive.

If the analyzer will be used to measure signals which might be near the maximum safe input level, use external attenuators and/or limiters to help protect the analyzer input. The External Gain, amplitude Corrections, and/or Ref Lvl Offset features may be used to compensate for the gains and losses of external devices. External Gain and Corrections are under the Input/Output menu and Ref Lvl Offset is under the AMPTD Y-Scale menu.

Instrument Maintenance

Cleaning the instrument

WARNING   **To prevent electrical shock, disconnect the signal analyzer 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 Connectors

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 fumes to dissipate prior to energizing the instrument.

WARNING   **Keep isopropyl alcohol away from heat, sparks, and flame. Store in a tightly closed container. It is extremely flammable. In case of fire, use alcohol foam, dry chemical, or carbon dioxide; water may be ineffective.**

Use isopropyl alcohol with adequate ventilation and avoid contact with eyes, skin, and clothing. It causes skin irritation, may cause eye damage, and is harmful if swallowed or inhaled. It may be harmful if absorbed through the skin. Wash thoroughly after handling.

In case of spill, soak up with sand or earth. Flush spill area with water.

Dispose of isopropyl alcohol in accordance with all applicable federal, state, and local environmental regulations.

Battery Information

The analyzer uses a lithium battery located on the CPU board. This is not an operator replaceable part. See "Returning an Analyzer for Service" on page 104. 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 an analyzer 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 MΩ resistor-isolated wrist-strap before touching the center pin of any connector and before removing any assembly from the analyzer.

- 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:

25

Agilent Technologies

Front-Panel Features

PXA, MXA and EXA

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	Analyzer Setup Keys	These keys set the parameters used for making measurements in the current Mode and Measurement.
3	Measurement Keys	These keys select the Mode and the Measurement within the mode. They also control the initiation and rate of recurrence of measurements.
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: • instrument configuration information and I/O setup, • printer setup and printing, • file management, save and recall, • instrument presets.
6	Ext Mixer	Provides LO output signal to and receives IF input signals from an external mixer. See the Specifications Guide for details on signal levels.
7	Probe Power	Supplies power for external high frequency probes and accessories.
8	Headphones Output	Headphones can be used to hear any available audio output.
9	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.
10	Delete Key	Press this key to delete files or to perform other deletion tasks.

Item		Description
#	**Name**	
11	USB Connectors	Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, DVD drive, or hard drive.
12	Local/Cancel/(Esc) Key	If you are in remote operation, Local: • returns instrument 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.) If you have not already pressed the units or Enter key, Cancel exits the currently selected function without changing its value. Esc works the same as it does on a PC keyboard. It: • exits Windows dialogs • clears errors • aborts printing • cancels operations.
13	RF Input	Connector for inputting an external signal. Make sure that the total power of all signals at the analyzer input does *not* exceed +30 dBm (1 watt).
14	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.
15	Enter and Arrow Keys	The Enter key terminates data entry when either no unit of measure is needed, or you want to use the default unit. The arrow keys: • 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. **NOTE** The arrow keys cannot be used to move a mouse pointer around on the display.
16	Menu/ (Alt) Key	Alt works the same as a PC keyboard. Use it to change control focus in Windows pull-down menus.
17	Ctrl Key	Ctrl works the same as a PC keyboard. Use it to navigate in Windows applications or to select multiple items in lists.
18	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.
19	Tab Keys	Use these keys to move between fields in Windows dialogs.
20	Knob	Increments and decrements the value of the current active function.
21	Return Key	Exits the current menu and returns to the previous menu. Has typical PC functionality.

Item		Description
#	**Name**	
22	Full Screen Key	Pressing this key turns off the softkeys to maximize the graticule display area. Press the key again to restore the normal display.
23	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.
24	Speaker Control Keys	Enables you to increase or decrease the speaker volume, or mute it.
25	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.
26	Power Standby/ On	Turns the analyzer on. A green light indicates power on. A yellow light indicates standby mode. **NOTE** The front-panel switch is a standby switch, *not* a LINE switch (disconnecting device). The analyzer continues to draw power even when the line switch is in standby. The main power cord can be used as the system disconnecting device. It disconnects the mains circuits from the mains supply.
27	$\overline{Q}$ Input	Input port for the $\overline{Q}$ channel when in differential mode.[*]
28	Q Input	Input port for the Q channel for either single or differential mode.[*]
29	$\overline{I}$ Input	Input port for the $\overline{I}$ channel when in differential mode.[*]
30	I Input	Input port for the I channel for either single or differential mode.[*]
31	Cal Out	Output port for calibrating the I, $\overline{I}$, Q and $\overline{Q}$ inputs and probes used with these inputs.[*]

[*] Status of the LED indicates whether the current state of the port is active (green) or is not in use (dark).

Overview of key types

The keys labeled **FREQ Channel**, **System**, and **Marker Functions** are all examples of front-panel keys.

Most of the dark or light gray keys access menus of functions that are displayed along the right side of the display. These displayed key labels are next to a column of keys called menu keys.

Menu keys list functions based on which front-panel key was pressed last. These functions are also dependant on the current selection of measurement application (**Mode**) and measurement (**Meas**).

If the numeric value of a menu key function can be changed, it is called an active function. The function label of the active function is highlighted after that key has been selected. For example, press **AMPTD Y Scale**. This calls up the menu of related amplitude functions. The function labeled **Ref Level** (the default selected key in the Amplitude menu) is highlighted. **Ref Level** also appears in the upper left of the display in the measurement information area. The displayed value indicates that the function is selected and its value can now be changed using any of the data entry controls.
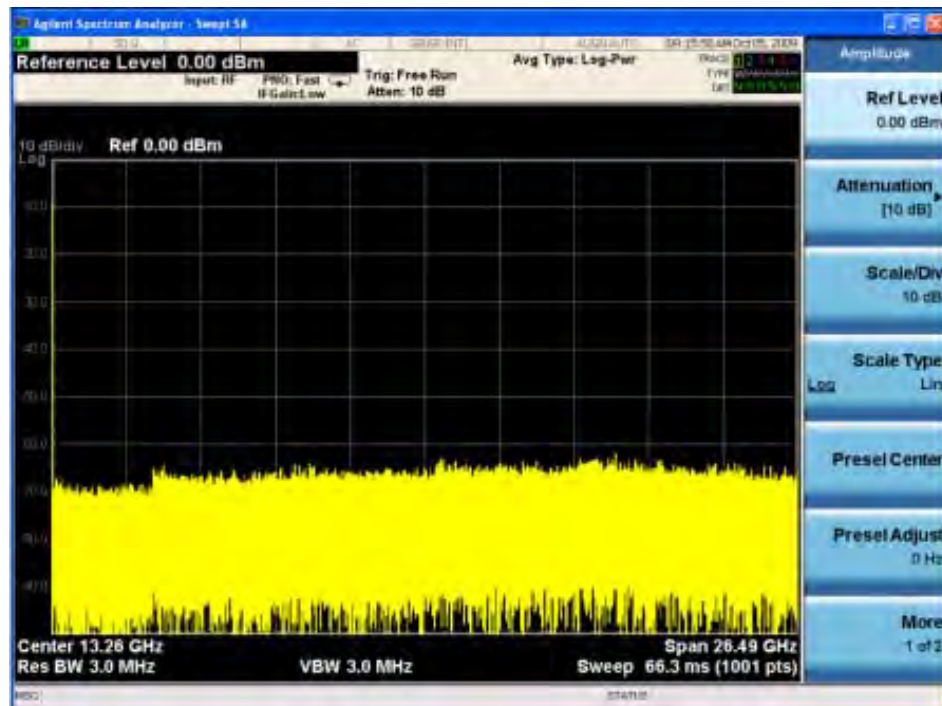
Some menu keys have multiple choices on their label, such as **On/Off**, **Auto/Man**, or **Log/Lin** (as shown above). The different choices are selected by pressing the key multiple times. For example, the Auto/Man type of key. To select the function, press the menu key and notice that Auto is underlined and the key becomes highlighted. To change the function to manual, press the key again so that Man is underlined. If there are more than two settings on the key, keep pressing it until the desired selection is underlined.

When a menu first appears, one key label is highlighted to show which key is the default selection. If you press **Marker Function**, the **Marker Function Off** key is the menu default key, and is highlighted.
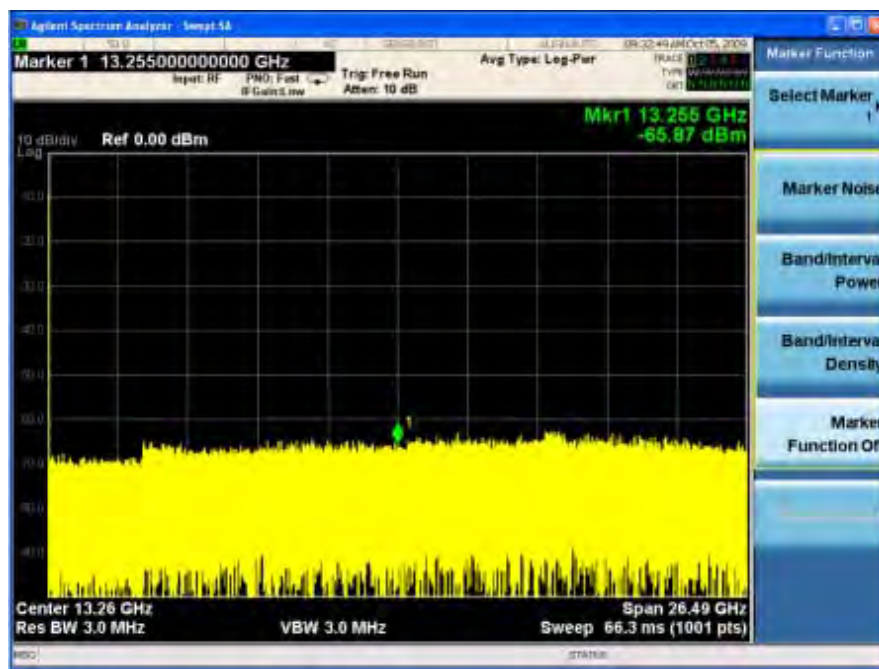
Some of the menu keys are grouped together by a yellow bar running behind the keys near the left side or by a yellow border around the group of keys. When you press a key within the yellow region, such as **Marker Noise**, the highlight moves to that key to show it has been selected. The keys that are linked are related functions, and only one of them can be selected at any one time. For example, a marker can only have one marker function active on it. So if you select a different function it turns off the previous selection. If the current menu is two pages long, the yellow bar or border could include keys on the second page of keys.

In some key menus, a key label is highlighted to show which key has been selected from multiple available choices. And the menu is immediately exited when you press one of the other keys. For example, when you press the **Select Trace** key (in the **Trace/Detector** menu), it brings up its own menu of keys. The **Trace 1** key is highlighted. When you press the **Trace 2** key, the highlight moves to that key and the screen returns to the **Trace/Detector** menu.
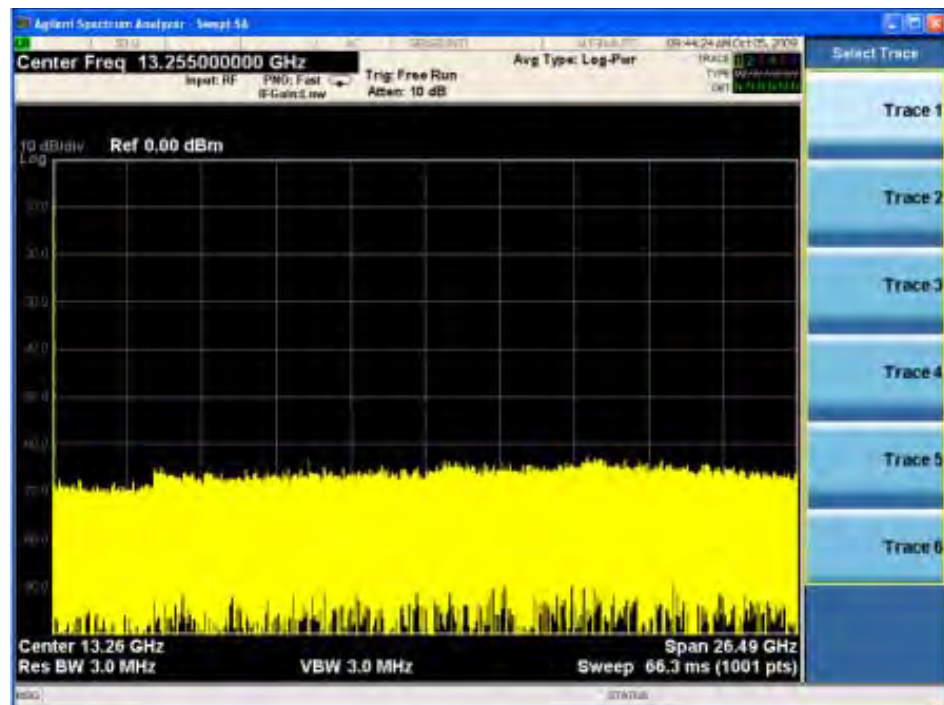
If a displayed key label shows a small solid-black arrow tip pointing to the right, it indicates that additional key menus are available. If the arrow tip is not filled in solid then pressing the key the first time selects that function. Now the arrow is solid and pressing it again brings up an additional menu of settings.
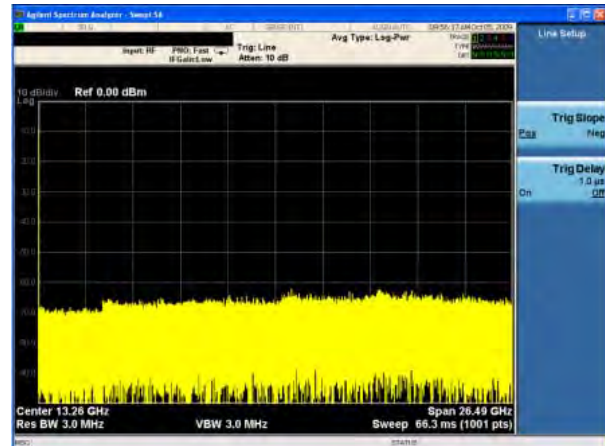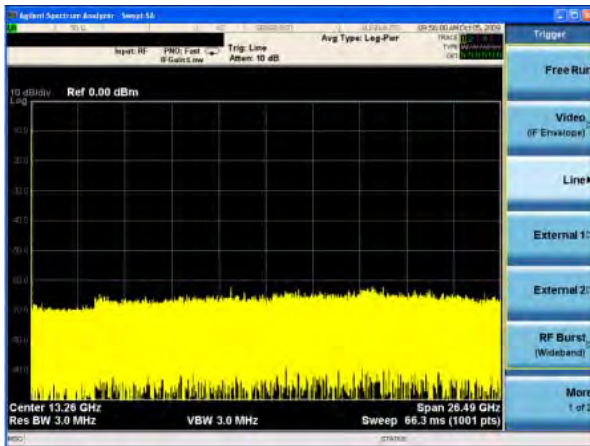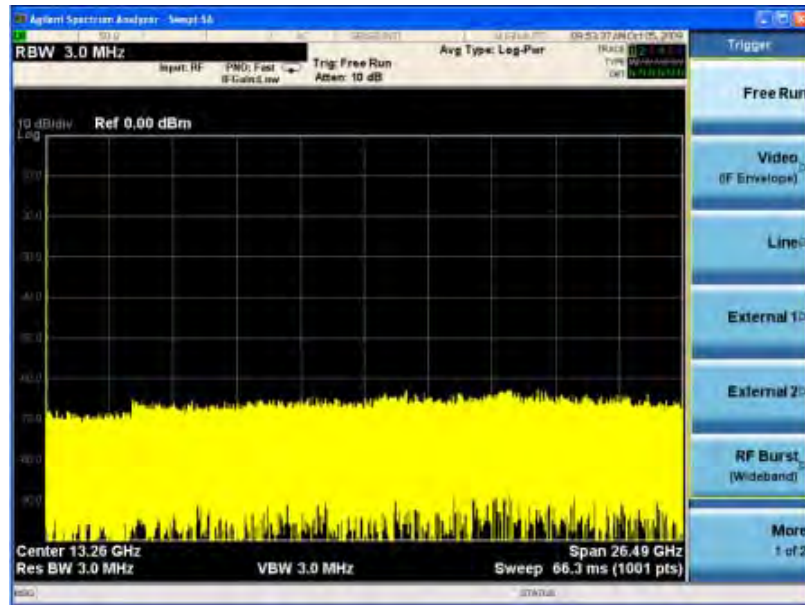
Display Annotations

This section describes the display annotation as it is on the Spectrum 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 Analyzer 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**
4	Measurement title - shows title information for the current measurement, or a title that you created for the measurement.	**Meas** **View/Display**, **Display**, **Title**

Item	Description	Function Keys
5	Settings panel - displays system information that is not specific to any one application. • Input/Output status - green LXI indicates the LAN is connected. RLTS indicate Remote, Listen, Talk, SRQ • Input impedance and coupling • Amplitude Correction Status • Frequency reference selection • 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.	**System**, **Show**, **Errors**
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 Analyzer Setup part of the front panel.

Rear-Panel Features

Current PXA, MXA and EXA

Older MXA and EXA
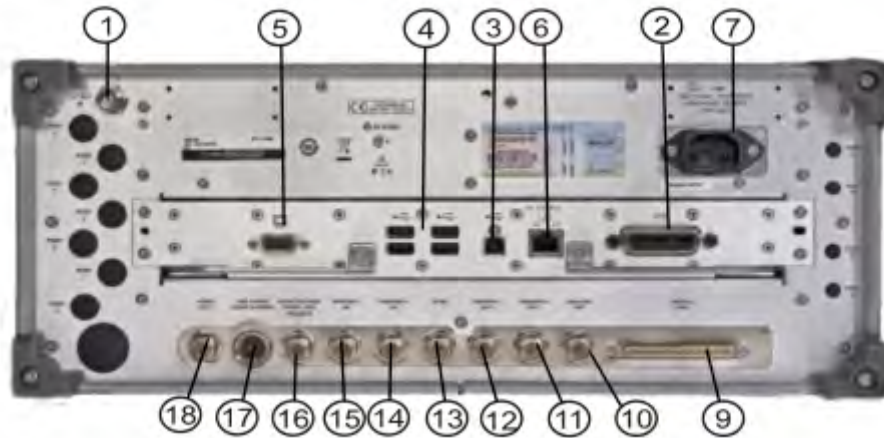
Item		Description
#	Name	

1	EXT REF IN	Input for an external frequency reference signal:
		
		    For MXA – 1 to 50 MHz
		    For EXA – 10 MHz.

2	GPIB	A General Purpose Interface Bus (GPIB, IEEE 488.1) connection that can be used for remote analyzer operation.

Item		Description
#	**Name**	
3	USB Connector	USB 2.0 port, Type B. USB TMC (test and measurement class) connects to an external pc controller to control the instrument 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. **NOTE** The external VGA monitor must be attached prior to power on to enable the external VGA port.
6	LAN	A TCP/IP Interface that is used for remote analyzer operation.
7	Line power input	The AC power connection. See the product specifications for more details.
8	Removable Disk Drive	Standard on current analyzers. Optional on older MXAs and EXAs.
9	Digital Bus	Reserved for future use.
10	Analog Out	For Option EMC: Demod Audio
11	TRIGGER 2 OUT	A trigger output used to synchronize other test equipment with the analyzer. Configurable from the Input/Output keys.
12	TRIGGER 1 OUT	A trigger output used to synchronize other test equipment with the analyzer. 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)	For use with Agilent 346A, 346B, and 346C Noise Sources.
17	SNS Series Noise Source	For use with Agilent N4000A, N4001A, N4002A Smart Noise Sources (SNS).
18	10 MHz OUT	An output of the analyzer internal 10 MHz frequency reference signal. It is used to lock the frequency reference of other test equipment to the analyzer.
19	Preselector Tune Out	Reserved for future use.
20	Aux IF Out	Option CR3 Second IF Out (MXA and EXA) Option CRP Arbitrary IF Out (MXA and EXA)

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.

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.

South Korean Class A EMC Declaration
A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주 의하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으 로 합니다 .

This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home.

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

3 Instrument Operating System

This chapter describes the Microsoft Windows Embedded Standard 7, referred to as Windows 7 or WES7, configuration and the settings used with the Agilent instrument 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 Disk Drive when the instrument leaves the factory.

The front panel of the analyzer 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 operating system 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 68.

The following topics can be found in this chapter:

Agilent Technologies

Microsoft Windows

Your instrument has Microsoft Windows installed at the factory. Agilent has already configured many of the settings in Microsoft Windows for optimal behavior in your instrument. This chapter contains details about many of these settings.

Windows Help and Support Center

Throughout this chapter you will find references to the Windows Help and Support Center. To access the Windows Help and Support Center follow the instructions below, either on your PC or on the instrument itself.

NOTE   You must have an Internet connection to access the Windows Help and Support Center.

Move the mouse cursor to the taskbar at the bottom of the display

If the Taskbar is in auto-hide mode (as it is by default on your instrument), wait until it pops up.

Click the Start icon ⊞ and type "help and support" into the Search window.
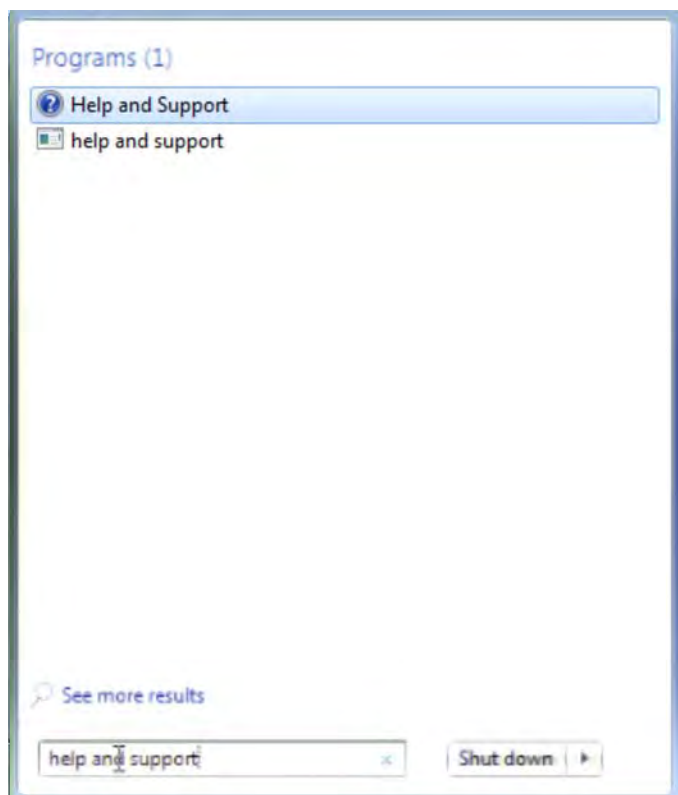
Click 🔵 Help and Support .

Agilent Software Installed

Agilent signal analyzer software

The N9060B Agilent Spectrum Analyzer Measurement Application software is installed in the signal analyzer. 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.

Agilent 89601B

Agilent 89601B Vector Signal Analyzer (VSA) is installed. Agilent 89601B measurements require a license to use the product beyond an initial 30 day trial period.

Agilent N9051A

Agilent N9051A Pulse Measurement Software is installed. Agilent N9051A measurements require a license to use the product.

Customer installation of software

3rd Party Software verified by Agilent

Agilent has verified that the following programs are compatible with the instrument's applications:

- MathWorks MATLAB

Installation of other 3rd Party Software

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

NOTE   Before installing any additional programs on the instrument, you should exit the Signal Analyzer application.

Also, you must not remove any applications or programs that were installed on the instrument when it was shipped from the factory.

If you install programs other than those that Agilent has tested, it could cause problems with the instrument'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 instrument's system software

User Accounts

The instrument ships with a number of different accounts already set up. In addition you can create your own accounts if you desire. The privileges associated with each account determine what you can and cannot do from that account.

Administrator account

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 instrument
- Add or change user accounts and passwords
- Change Firewall settings
- Change Windows settings (e.g., using Device Manager)
- Change the time and date
- Run any application

Instrument accounts

The default user account that ships from the factory is "Instrument" with the password "measure4u". This user is a member of the standard Users group.[1] Using the Instrument account, you may perform the following operations:

- Configure network and printer access (although not local printer access)
- Access files on the instrument that are accessible to the Users group
- Run applications that are accessible to the Users group

Power Users accounts

You can assign Power User privileges to the Instrument account or to other accounts that you might create. To change privileges you must log on as the Administrator. Power Users can perform the following operations:

- Install software (with some limitations, for example, you cannot install drivers)
- Configure network and local printer access
- Access files on the instrument that are accessible to the Power Users group
- Change the time and date

---

1. In analyzers running the Windows XP operating system, the Instrument user account was a member of the Power Users group.

- Run applications that are accessible to the Power Users group

AgilentOnly user account

The instrument contains a user account called "AgilentOnly" that can be used by Customer Support in the event that the customer has changed the Administrator password and has forgotten the password. You must not remove or modify the AgilentOnly account.

Agilent Service user accounts

There are user accounts defined in the instrument for servicing the instrument.

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, standard user, backup operators. User names are not case sensitive but passwords are case sensitive.

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 user accounts created by the factory already have My Documents mapped to the D: drive. It is recommended to map all new users' My Documents folders to the D: drive.

Agilent X-Series Analyzer Licensing Options

The Agilent X-Series Analyzers use three licensing types: Fixed Perpetual, Transportable Perpetual (*MXA and EXA only*), and Trial. These licensing types are available on all existing measurement applications except the Spectrum Analyzer Measurement Application (N9060A/B), which requires a fixed perpetual license, and the Remote Language Compatibility Application (N9061A), which does not support transportable licenses. 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 introduction of the X-Series analyzers. Fixed Perpetual licenses are identified by the "F" in the second character and "P" in the third character of the option designator:

Example: N9068A-2FP or W9068A-2FP

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: N9068A-2TP

Additionally transports are allowed between instrument types as well. So a measurement application license can be transported from a MXA to an EXA or conversely, or between instruments of the same type, MXA or EXA.

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 software release.

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 30 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 (N9010A or N9020A options).

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 signal analyzer. Software upgrades are provided in a kit that includes an option based Entitlement Certificate and a license agreement. The licenses are downloaded from the license Web site onto a USB storage device so they can be loaded into the instrument.

For all software upgrades, 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/mxa_software

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

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 measurement application installation.

Installation procedure over USB

Step	Action	Notes
1 Redeem the Option Upgrade Entitlement Certificate	• 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	• Save the .lic file to the root directory of a USB storage device	
3 Load the license file	• Connect the USB storage device to one of the signal analyzer USB ports.	Windows will detect the new hardware and may display the configuration menu. The signal analyzer will automatically load the license file. (This may take a few minutes) Upon completion, the Agilent License Manager will display a "Successful License Installation" message.

Step	Action	Notes
NOTE	Alternatively the license file can be manually installed over USB or LAN by placing the license file in the following folder on the signal analyzer. C:\Program Files\Agilent\licensing	
4 Verify installation	**a** Cycle the power on the signal analyzer. **b** Press System, Show, System. **c** Verify that the new application appears in the list.	The application will not be available for use until after the power has been cycled. This displays the list of installed applications. If you require further assistance, please contact the Agilent support team. Online assistance: http://www.agilent.com/find/assist 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.

Transporting a License Between X-Series Analyzers

Transportable licenses can be identified by the letters "TP" in their option designator. For example, N9068A-2TP indicates the license is transportable and perpetual. To transport this license from one X-Series analyzer to another, Agilent recommends that both analyzers 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 analyzer that will receive the transportable license (the "target instrument") must at least be able to support the desired application.

The X-Series signal analyzers support several ways of transporting licenses. The procedure below will focus on the most common procedure, where neither of the analyzers 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 analyzer from which the transportable license will be removed as the "source instrument". We will refer to the analyzer which will receive the transportable license as the "target instrument".

Procedure for Transporting a License, Neither Analyzer Connected to the Internet

Step	Action	Notes
1 Connect the USB devices to the source instrument	• 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 analyzer	• On each analyzer, 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	• 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.
4 Start the License Manager on the Source Instrument	• 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	**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 **Transport...**. **c** Click **Transport** in the Transport Licenses dialog box. **d** Click **Explore** to view the contents of the Transport Confirmation subdirectory. **e** Click on the appropriate *.url file and drag it to the USB flash drive.	Be sure you are selecting a transportable license and not a fixed perpetual license. The Transport Conformation filename and filename location will be displayed in the Transport Confirmation dialog box.

Step	Action	Notes
6 Get New License from ASL Transportation Web page	**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**.	The PC must have an internet connection and an available USB port. Most of the fields have been populated from the information in the *.url file. 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.
7 Save License File to USB Flash Drive	**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.	Either link can be used to either display or save the license file. The license file must be saved to the root level of the USB flash drive for it to be recognized by the target instrument.
8 Install License File in Target Instrument	**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" **b** Cycle power on the target instrument. **c** Once the analyzer has re-booted, the application should be ready to use on the target instrument.	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. Newly-installed licenses are only recognized by the instrument software on power-up.

Firewall configuration for transporting licenses via LAN

If you are attempting to transport licenses between two instruments that are connected to the LAN and the Internet through a firewall, your system administrator may need to allow a limited range of port numbers to pass through the firewall.

Regardless of the type of firewall you are using, always allow the following tools from Agilent:

AgilentLicenseService

AgilentLicenseManager

AgilentLicenseNotifier

The following ports are required to use Agilent Licensing Service, Agilent License Notifier, and Agilent License Manager for transporting licenses via the LAN.

Port Numbers	Used By
80	World Wide Web (WWW), HTTP
4545	Agilent License Service (ALS). To send messages to ALN.
4565	Agilent License Notifier (ALN). To send messages to ALS.
8000	Agilent License Manager (ALM).To send messages to ALS.
8001	Agilent License Service (ALS). To send message to ALM.
8020	Agilent License Manager (ALM). For Agilent Alert Message.
8050 and up	Agilent License Provider, to connect to Agilent License Service
8070 and up	Agilent License Service, for callbacks to Agilent License Provider

Windows Configuration

The Windows settings have been optimized for the best measurement performance. Any modifications to these settings may degrade instrument 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 instrument applications 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 suit your own personal preferences. It is recommended that you document any changes to the instrument's configuration in case an Agilent Recovery is performed and the configuration is reset.

NOTE   Some of these actions can only be performed with Administrator privileges

You May Use This Feature:	To Do This...
Windows Update	Configure Microsoft Windows Automatic Updates. Microsoft recommends that you always get the latest critical Windows updates to ensure that the instrument's Windows operating system is protected. If the instrument has internet access, the instrument default is set to automatically check for critical Windows Updates and notify you. You can change the configuration of the Microsoft Automatic Updates. You can choose not to have automatic updates. However, if you do this then you should manually update Windows periodically, by accessing Internet Explorer and selecting Windows Update from the Tools menu.
Action Center	Install and configure an Anti Virus program
User Accounts	Setup new user accounts. **CAUTION** Do not delete or modify the "AgilentOnly" user account. Doing so may prevent Agilent from servicing the instrument.
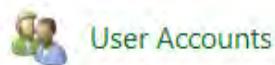
You May Use This Feature:	To Do This...
Network and Sharing Center	Add the Instrument to a network
Devices and Printers	Install and configure a printer
Date and Time	Set the time and date
System	If you click on "Advanced System Settings" a dialog will open called "System Properties." On this dialog there is an "Advanced" tab, which opens up a dialog with a number of settings options. One of these is "Performance", and if you click on the "Settings" button under "Performance", you will see another dialog with a number of settings options. The default is "Let Windows choose what's best for my computer." You can also select "Adjust for best performance." You should leave the remaining selections unchanged.

Settings that must not be changed

Avoid changing the settings described below (available from the Windows Control Panel). Changes to these settings may degrade instrument performance, screen displays, and measurement speed.

Do NOT Use This Feature:	To Do This...
Power Options	Do not change Power Options.
System	If you click on "Advanced System Settings" a dialog will open called "System Properties." On this dialog there is a tab called "Hardware." You should not modify any settings under the "Hardware" tab. On this dialog there is also a tab called "Advanced." You should not modify any settings under the "Advanced" tab except as described above under "Settings that can be changed".
Fonts	Do not remove installed Fonts

Do NOT Use This Feature:	To Do This...
Display	Do not change the following Display Settings: • Screen Saver settings (under "Personalization) • Screen resolution, 1024 x 768 (under "Adjust Resolution") • DPI setting (under "Set custom text size")
Region and Language	Do not change any settings under "Region and Language" or the instrument keyboard and display may not operate properly
User Accounts	Do not delete or modify the "AgilentOnly" user account.

In addition, Do Not:

• Add, delete, or modify disk drive partitions.

• Delete or modify Agilent registry entries.

• Change the contents of any directories containing the name "Agilent".

• Stop the IIS server

• Tamper with any virtual directories (or their contents) that came configured with the instrument.

• 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

Autoplay/Autorun

Since the introduction of Windows XP, the term Autoplay (sometimes also called Autorun) has come to be associated with the feature which assists users in selecting appropriate actions when new media and devices are detected. The Autoplay/Autorun feature is turned off in the instrument, by default, for heightened security, unless the Administrator account is running.

If you wish to re-enable Autoplay/Autorun, you may use the Auto Play function in the Control Panel. However, be aware that if you do this you may be more subject to virus attack from portable media such as USB flash drives.

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 68.

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 instrument to the LAN and download the driver from the printer manufacturer's internet site.

Configuring LAN

Hostname

The Computer Name, or hostname, is preconfigured from the factory. It must be a unique name such that it does not conflict with other equipment on your LAN. The preconfigured Computer Name is A-N90yyA-xxxxx, where xxxxx is the last 5 digits of the instrument's serial number, and yy is 20 for MXA or 10 for EXA.

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

IP Address & Gateway

The instrument is preconfigured to obtain an IP Address via DHCP. You can change the IP Address and Gateway as you desire. The Windows Help and Support Center describes how to configure the LAN.

Connecting to a Network Shared Folder

The instrument contains standard Windows networking. The time required to authenticate is dependent on your LAN infrastructure. You may have improved performance by mapping a network drive to the shared folder that you need to access.

To map a network drive, click the Start icon [icon]. and right-click **Computer**.
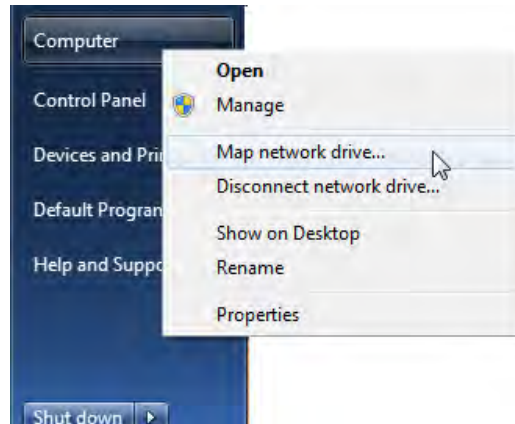
When the Map Network Drive window appears, browse to the correct folder, select both check boxes and click **Finish**.
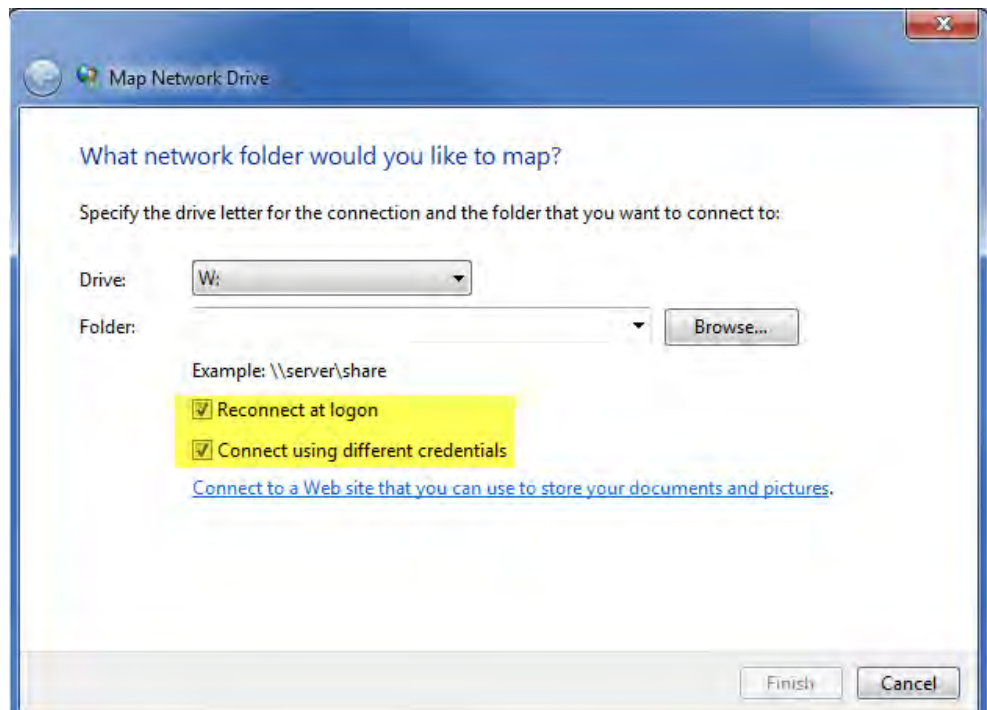
NOTE   In Windows 7 there is no visual indication that authentication is in progress.

Windows Security

Microsoft recommends the following to ensure the instrument's Windows operating system is protected:

- Use an internet firewall.

- Get the latest critical Windows updates.

- Use up-to-date antivirus software.

Windows Firewall

 Windows Firewall

The instrument is shipped with the Windows Firewall enabled. You can verify the status of Windows Firewall by going to the Control Panel and clicking on System and Security, Windows Firewall.

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

Automatic Updates

Microsoft recommends that you always get the latest critical Windows updates to ensure that the instrument's Windows operating system is protected. If the instrument has internet access, the instrument default is set to automatically check for critical Windows Updates and notify you.

You can change the configuration of the Microsoft Automatic Updates. You can choose not to have automatic updates. However, if you do this then you should manually update Windows periodically, by accessing Internet Explorer and selecting Windows Update from the Tools menu.

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

Virus Protection

There is no antivirus software included with your instrument. To find information regarding recommended antivirus software, visit the MXA or EXA website:

http://www.agilent.com/find/mxa
http://www.agilent.com/find/exa

and click FAQs under Technical Support.

NOTE   Having antivirus software installed may have a slight impact on the instrument performance.

Spyware Protection

There is no anti-spyware software installed on the instrument. This should not be a problem if you do not use the instrument for a lot of internet browsing. Having spyware in the instrument could have an impact on the instrument 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 instrument and its data. Using the Agilent Recovery system in conjunction with a regular backup strategy should allow full recovery of the instrument data.

Windows has a Backup utility that you can use to archive files and folders in case of a disk drive failure. See the 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 instrument's system software. See "Customer installation of software" on page 41 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 instrument's USB connectors. Also, you should perform backups at times when the instrument is not being used for normal operations, as it may impact the instrument'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 always 100% successful. Therefore, it is not recommended that you rely on System Restore to protect your instrument. System Restore has not been tested to verify successful restoring.

Disk Defragmenting

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


Running Disk Defragmenter should be performed when the Signal Analyzer application is not running. Measurement throughput will be significantly impacted while disk defragmentation is in process. To stop the Signal Analyzer application, press **File**, **Exit**. To restart the application, double-click the application icon on the desktop.

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 instrument USB Host support includes the standard Microsoft Windows USB 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.

The square USB port (see graphic below) on the rear panel is a USB Series "B" port and is used for controlling the instrument over USB. Information to help you program your instrument is documented in the X-Series Programmer's Guide. The instrument USB device driver included in the instrument software supports the test and measurement industry standard USBTMC-USB488 device class.
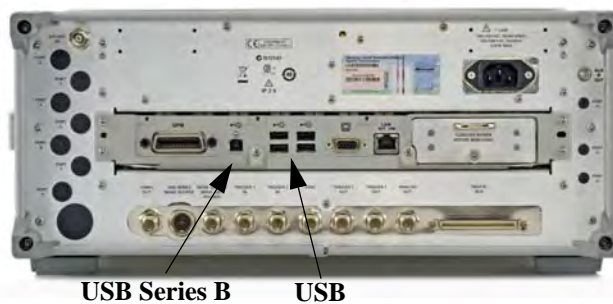
In addition, the Agilent IO Libraries CD that was included with your instrument contains USB Host drivers that allow control of other instruments connected to the USB ports.

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

Disk Drive Partitioning and Use

The drive is partitioned into 3 sections: C:, D: and E:
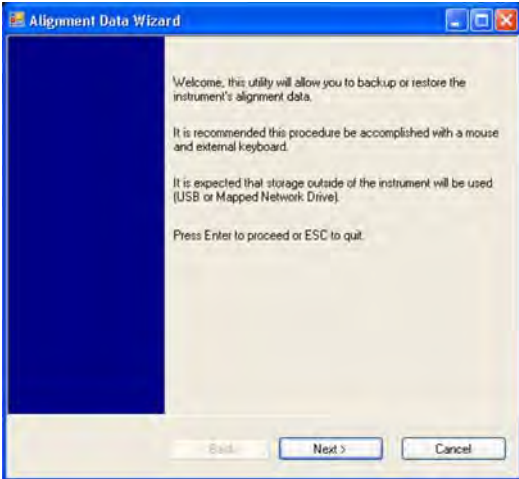
The **C: partition** contains the Windows 7 operating system and software installed by Agilent. This is an Open System which means you can install additional software, and these should be installed on the C: drive. However, only a limited set of software applications are tested for use with the Agilent measurement software. The installation and/or use of other software is not warranted and could interfere with the operation of the measurement software. If instrument repair is ever needed, the Agilent version of the C: drive is the only part of the instrument software that is restored by the Agilent Recovery process. You must reload any other software that you have added in the instrument.

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 disk 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 instrument 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 below.

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...**	The Alignment Data Wizard will appear:
4 Follow the on screen instructions to backup the calibration data to the USB drive and save the file.	

Disk Drive Recovery Process

The Agilent Recovery System can be used to repair errors on the instrument's C: drive partition or to restore the original factory configuration of the system software on the disk drive. The Agilent Recovery System is stored in a separate hidden disk drive partition.
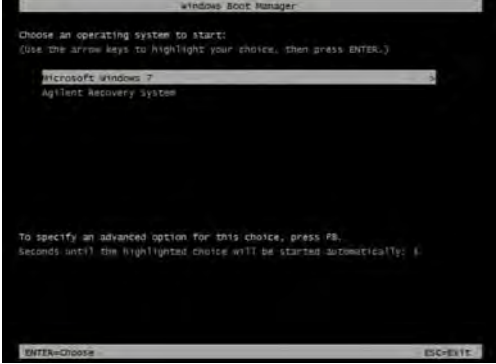
Repairing errors on the disk drive may result in loss of data or files. If you require more information, see the "chkdsk" documentation in the Windows Help and Support Center.

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

- Additional software that has been installed after the instrument was shipped from the factory. (Thus, following an Agilent Recovery any software installed after the instrument was shipped from the factory will need to be re-installed.)

- System configurations (for example user accounts, windows configurations) that have been made after the instrument was shipped from the factory. (Thus, following an Agilent Recovery configuration changes will have to be performed.)

- The Agilent Recovery overwrites the contents of the C: partition. It does not affect the D: or E: partitions.

It is recommended that the customer use a regular back up strategy. The customer's IT department may already have a backup strategy in place which is suitable for the instrument and its data. Using the Agilent Recovery System in conjunction with a regular back up strategy should allow the customer to fully recover the instrument's software and data.

Recovery Process

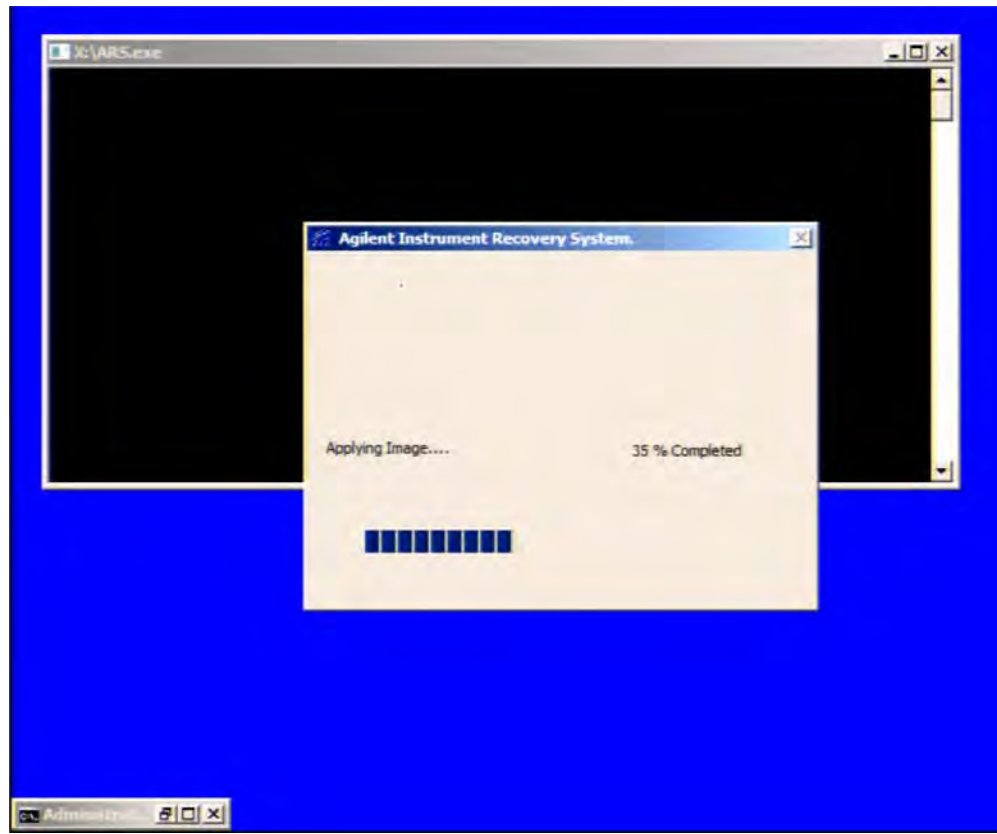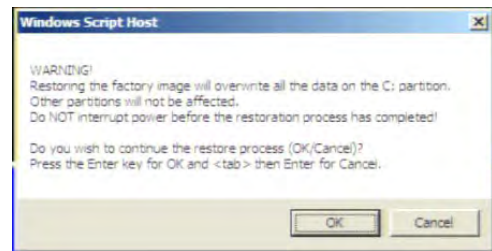| Step	Notes
1 Make sure the instrument is turned off.	
2 Turn on the instrument. • Press the down arrow key to move the highlight to **Agilent Recovery System**, then press **Enter**.	After the Agilent Technologies screen is displayed, This screen is displayed for five seconds.

Recovery Process

Step	Notes
3 When the Agilent Recovery System has booted, follow the on-screen instructions to recover the image of the C: drive. • Press **2**, then press **Enter** to select the recovery.	
4 A warning message appears. • Press **Enter** to start the recovery, which may take up to 25 minutes to complete.	
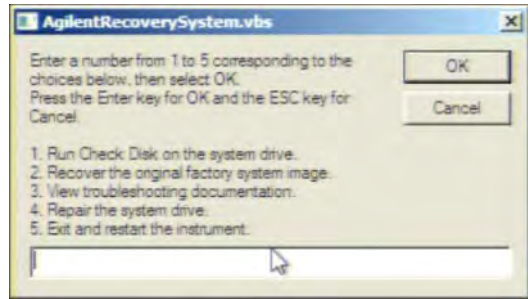
Recovery Process

Step	Notes
5 Press **Enter** to exit and reboot the instrument once the recovery has completed.	

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 information or re-installing applications, data and performing system customizations.

Configuring Recovery prompt

You can configure the time at which the boot waits for the selection of the recovery process by performing the following steps:

Step	Notes
1. Go to **My Computer**, **Properties**	
2. Select the **Advanced** tab	
3. In the **Startup and Recovery** section, select **Settings**	
4. Under the **System Startup** section, you can either uncheck **Time to display a list of operating systems** or **change the seconds to delay for it**	

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.

Installing the Software

Step	Notes
1 Log out of the default user (instrument): • Select **Start**, **Log Off**, **Log Off**	
2 At the log in prompt enter: • User Name: **administrator** • Password: **agilent4u**	
3 Navigate to C Drive: • Click **Start**, **My Computer**, **C: Drive** and open the **Temp** folder.	

Installing the Software

Step		Notes
4	Locate the software installer program: "XSA_Installer_A.XX.XX.exe" or "MXA_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.**

Updating Digital IF (0014.01) FPGA from version 03.05.05.02 to 03.05.05.03

Do not turn off power or interrupt this process!
不要关闭电源或中断此过程!
電源を切ったり、更新プロセスを中断したりしないで下さい。
전원을 끄거나 진행되는 작업을 중단 시키지 마세요!
Ne pas interrompre ni couper l'alimentation électrique!
Nicht ausschalten oder abbrechen!
Не выключать и не прерывать процесс!

FPGA code updates may require a significant period of time. Interrupting the FPGA update process may result in corrupt FPGA code which would require returning this instrument to Agilent for service.

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/xseries_software.

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.

4   Using Windows Tools

Agilent Technologies

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

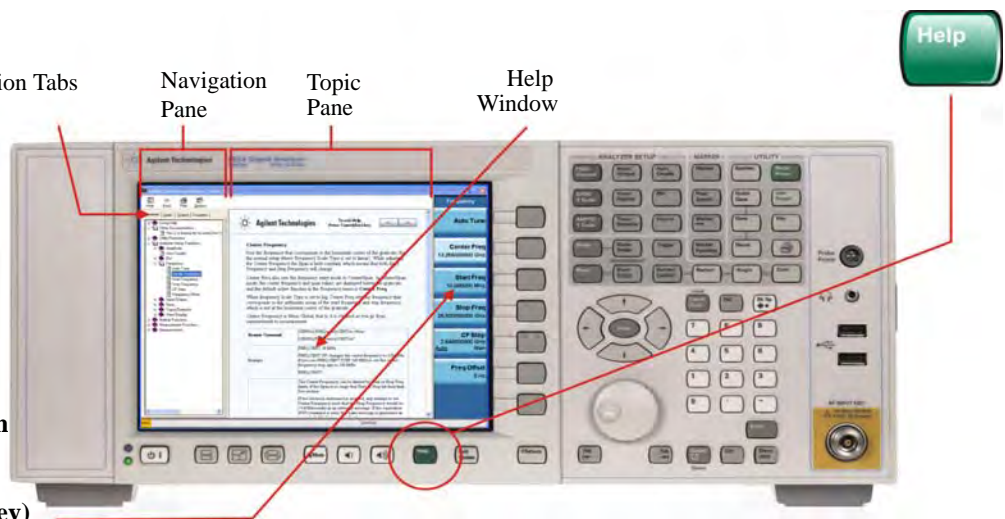| Key Presses	Actions
Ctrl + Alt + Delete	Opens a window that enables you to select the Windows Task Manager

Using the interactive Help system without a mouse

To open the Help window for any menu	**Choose the desired menu, then press the front panel green Help key.**

Navigation Tabs   Navigation Pane   Topic Pane   Help Window

Softkeys remain visible (press a softkey to get Help for that key)
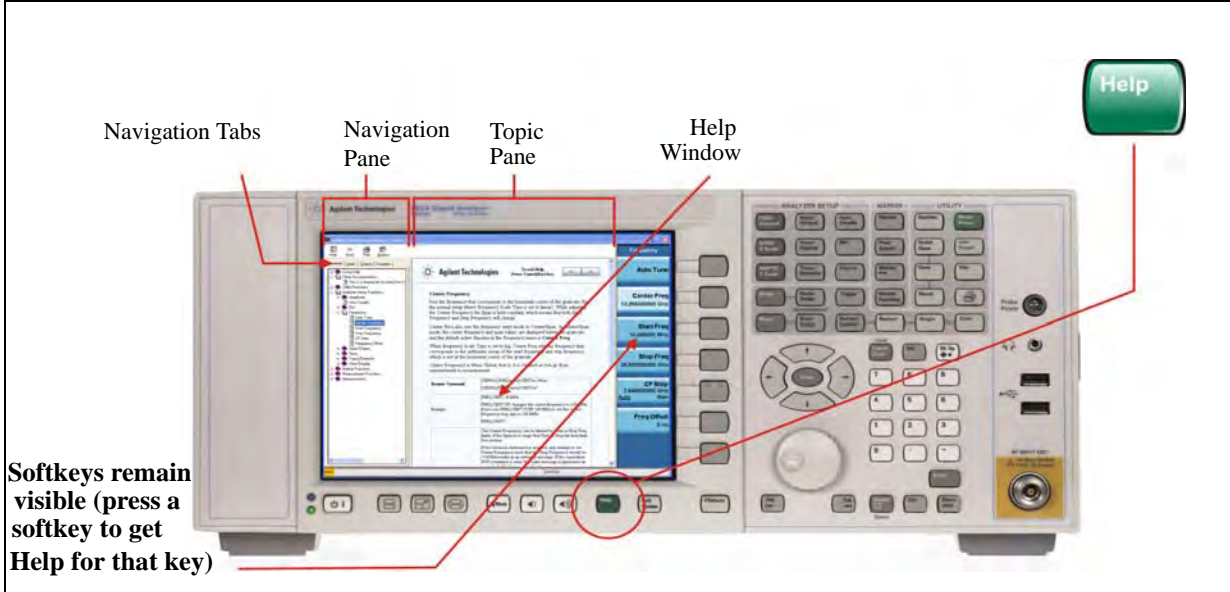
To toggle focus between the Navigation and topic panes:	Press the **Next Window** key
In the navigation pane	**In the topic pane**
To scroll up or down the topic list: Press the **Up** or **Down Arrow** key.	To scroll up or down: Press the **Up** or **Down Arrow** key.
To expand or collapse the tree for the selected topic: Press the **Right** or **Left Arrow** key.	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**.
To display the selected topic: Press the **Enter** key.	
To scroll horizontally or vertically: Press **Ctrl+Left**, **Right**, **Up**, or **Down Arrow** keys.	To go back or forward: Press the **Alt+Left** or **Right Arrow** key.

Using the interactive Help system without a mouse

To open the Help window for any menu	Choose the desired menu, then press the front panel green Help key.

Navigation Tabs   Navigation Pane   Topic Pane   Help Window

Softkeys remain visible (press a softkey to get Help for that key)

	To switch tabs: Press **Ctrl+Tab** keys.	

	To close the Help window: Press the **Cancel (Esc)** key.

Navigating Acrobat (PDF) without a mouse

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

Navigation Pane

Navigation Pane

Document Pane

</td></tr>
</table>

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

In the navigation pane	In the document pane
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.	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.**
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.	
To Exit Adobe Reader: Press **Alt + Select** keys to open the File menu. Use the **Down Arrow** key to select **Exit**, then press **Enter**.	

Remote Desktop: Using the X-Series Signal Analyzers Remotely

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

NOTE   Remote Desktop and the Embedded Web Server cannot be run at the same time.

NOTE   The Remote Desktop functionality is a Microsoft Windows 7 capability. The following discussion provides some guidelines for using this capability with the instrument. You need to refer to the Windows 7 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 instrument allows you to control and interact with the instrument from a remote computer as though you were sitting in front of the instrument.

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

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

Setting up Remote Desktop operation

Setting up the instrument

Before the instrument 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
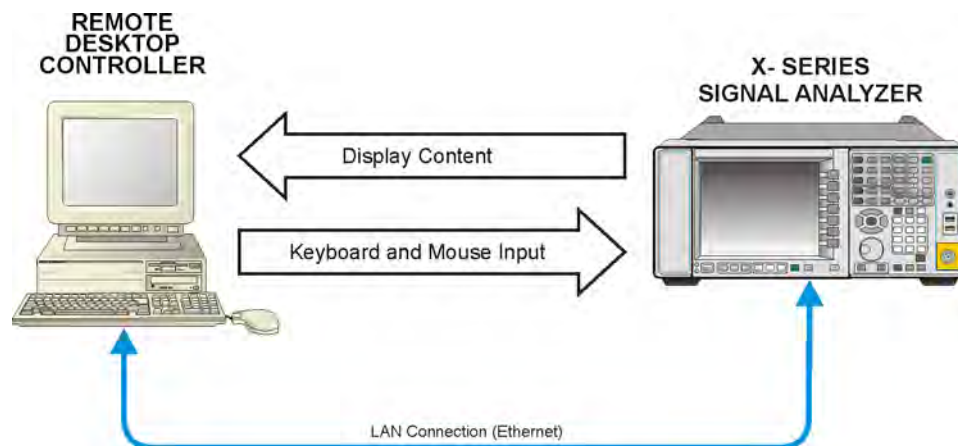
NOTE   To perform this operation successfully, you must have Administrator level access to the instrument.

Setting up a remote desktop connection

Step	Action
1. On the instrument, open the Windows Control Panel	• From the instrument application, press **System**, **Control Panel**,
2. Select System functions	• From the Adjust your computers settings menu, click **System**.
3. Access Remote setting	• In the Control Panel Home window, select **Remote settings**
4. Select the Remote option	• On the Remote tab, in the Remote Desktop section, click the appropriate checkbox.
5. To add users	• Click **Select Users**, **Add**.
6. 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 7, or another version of Microsoft Windows.

Remote computer running Windows 7

Windows 7 includes the Remote Desktop Connectivity Client software, so no additional setup is required.

Remote computer running another version of Windows

You can use any version of Windows to install and run the Client software for Remote Desktop Connectivity. However, you need to have available a Windows 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 instrument

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

Locating the name from the Agilent application

Step	Notes
On the instrument front panel, press **System**, **Show**, **System**.	A page listing various parameters appears.The instrument's computer name is shown in the list next to the title Computer Name.

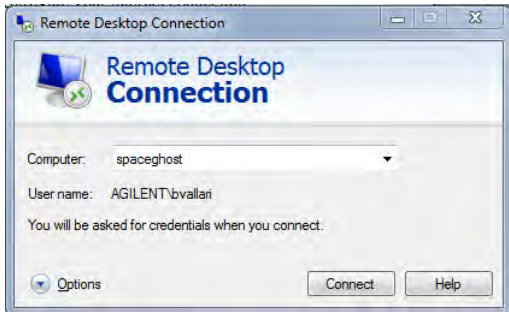**Locating the name from the Windows desktop (with a mouse):**

Step	Notes
1. Click **Start**, **Control Panel**.	
2. Double-click **System**	The Computer name is listed in the Computer name, domain, and workgroup settings section.

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 instrument. This information can be shown on the instrument display by following the procedure in the section "How to locate the computer name of the instrument" on page 75.

After setting up both the instrument and the remote computer for Remote Desktop Connectivity, as described in "Setting up Remote Desktop operation" on page 73, 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: ![Remote Desktop Connection dialog] Remote Desktop Connection Computer: spaceghost User name: AGILENT\bvallari You will be asked for credentials when you connect. Options Connect Help
2. Enter the computer name of the instrument.	
3. Click **Connect**.	A login dialog box appears.

Starting a session

Step	Notes
4. Enter the login account name and password.	The default account name is **Instrument** and the default password is **measure4u**, but these parameters may be changed by instrument users.

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

The instrument display appears on the screen of the remote computer. Because the instrument front-panel keys are not available when using the instrument 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 81

- "Keycode commands for Remote Desktop operation" on page 82

- "The Virtual Front Panel" on page 86

Setting Remote Desktop options

Step	Notes
1. On the Remote Desktop Connection menu, click **Options**.	The Options dialog has several tabs. Generally, the default settings are correct.
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.
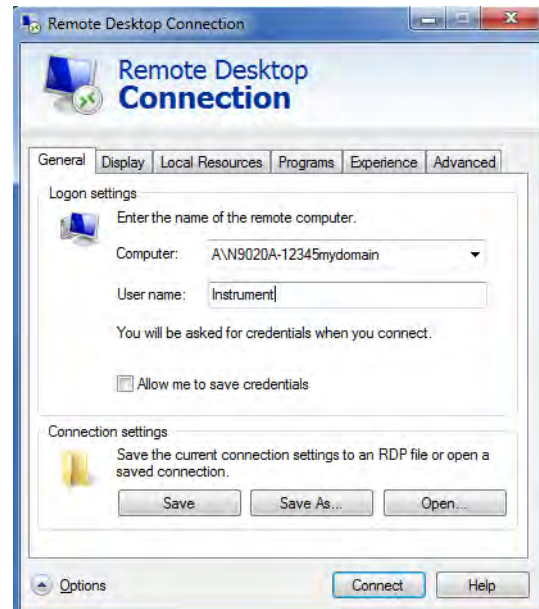
Setting Remote Desktop options

Step	Notes
3. Click the **Display** tab. • Under **Remote desktop size**, you may select the size of the window in which the instrument 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 instrument display not being fully visible. In such circumstances, scroll bars do not appear, so portions of the display are not accessible. • Under **Colors**, set this to 16 bits If you operate Remote Desktop with greater color depth (e.g., 32-bit) your windows may have a different appearance than they do on the instrument display because transparency becomes enabled.	
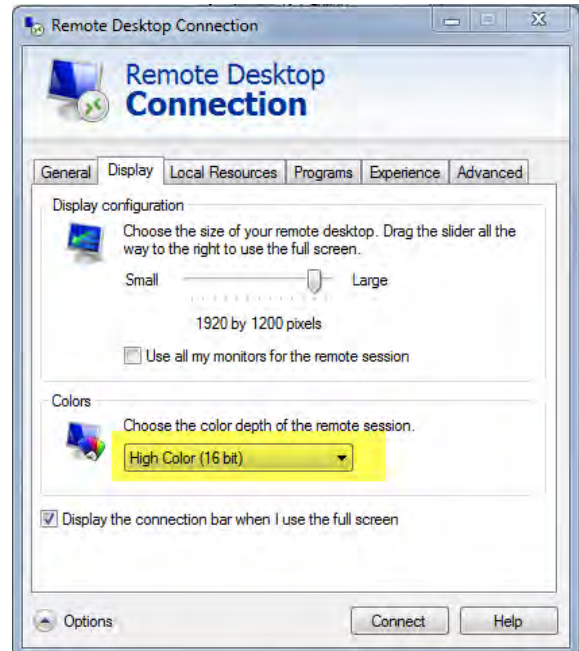
Setting Remote Desktop options

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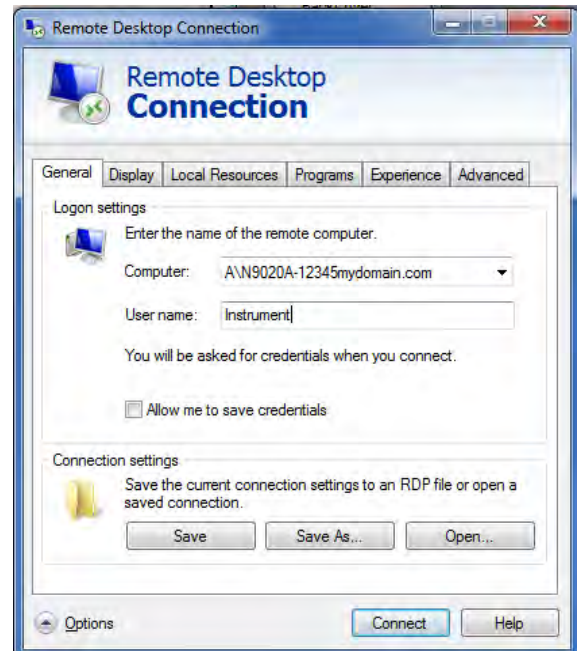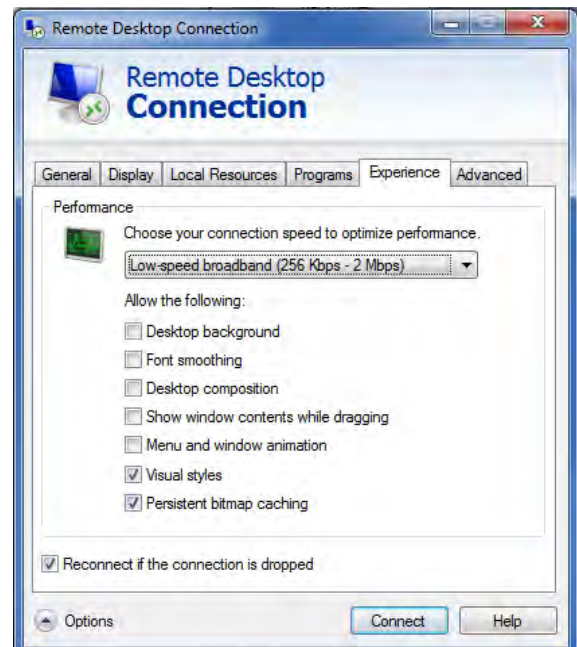
Accessing menus for Remote Desktop operation

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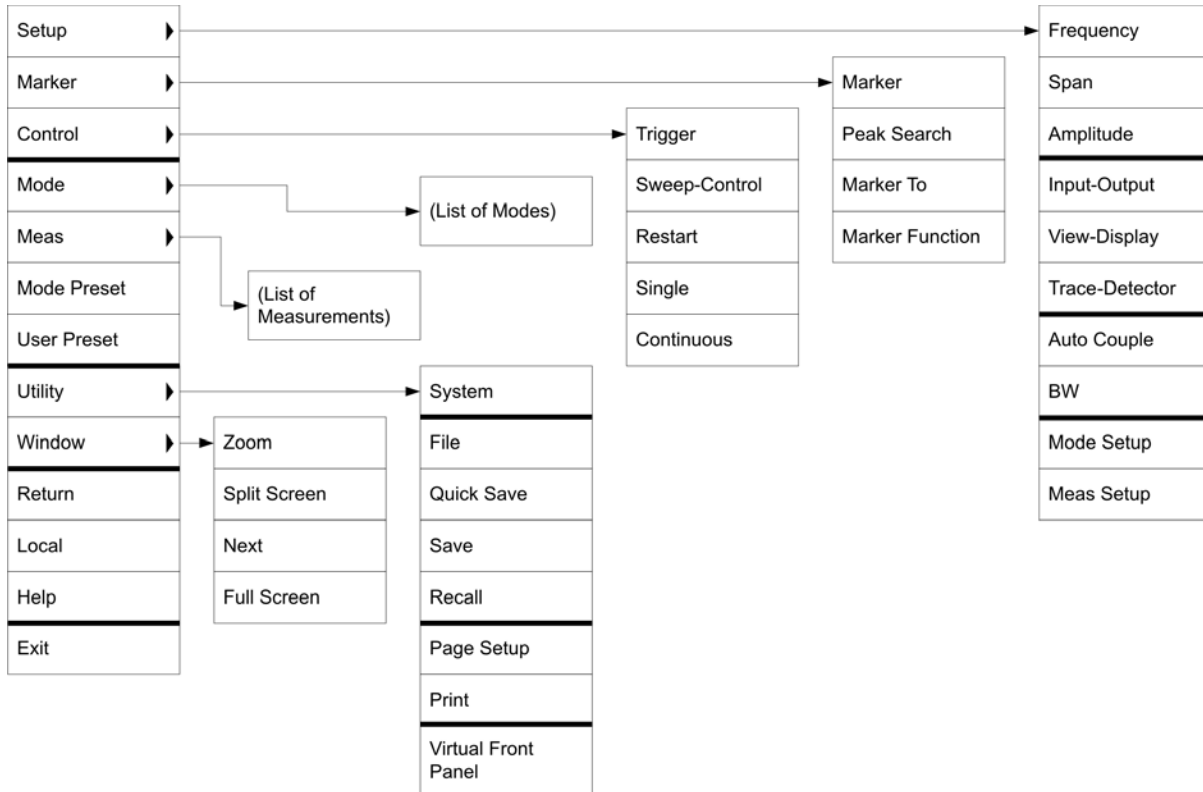
The function of each selection in the menu is generally identical to that of the corresponding front-panel key. The following lists additional functionality:

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 86.

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

Keycode commands for Remote Desktop operation

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

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**

Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
Cancel (Esc)	**Esc**
Cont	**Ctrl**+**Alt**+**C**
Ctrl	**Ctrl**
Decrease Audio Volume	the Volume Control slider
Del	**Delete**
Down Arrow	Down Arrow
Enter	**Enter (Return)**
File	**Ctrl**+Shift+L
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**

Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
Quick Save	**Ctrl**+**Q**
Recall	**Ctrl**+**R**
Restart	**Ctrl**+**Alt**+**R**
Return	**Ctrl**+**Shift**+**R**
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**+**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**[*]

Keycode commands

To initiate the following front-panel key:	Press these keys on the remote computer keyboard:
2	**2**[*]
3	**3**[*]
4	**4**[*]
5	**5**[*]
6	**6**[*]
7	**7**[*]
8	**8**[*]
9	**9**[*]
–	Use the – key to enter a negative value, as appropriate[*]
. (Decimal Point)	**.** (Period)[*]
0 (Zero)	**0** (Zero)[*]

[*]. 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 Instrument. 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 Instrument.

Ending a Remote Desktop session

There are two ways to disconnect the remote computer from the instrument, ending 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.

Step	Notes
or	
2. When the remote desktop is full screen, move the cursor to the bottom left of the window:	You are asked to confirm that you want to disconnect.
• Click **Start**, **Disconnect**.	
• Click **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 instrument control. It may be displayed in a separate window on the instrument (or remote desktop) display.

NOTE   The Virtual Front Panel is also available when using the instrument 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 instrument 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.
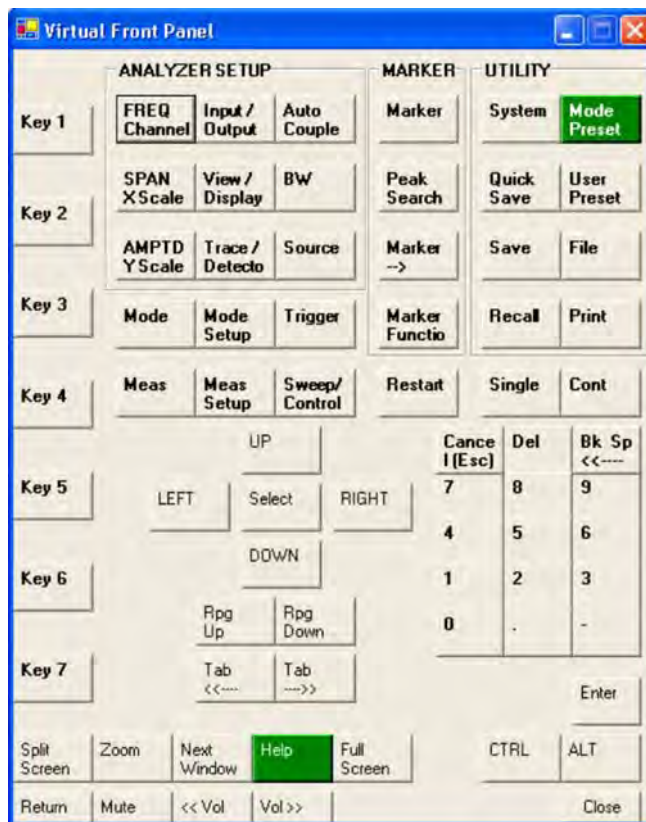
Embedded Web Server: Using the X-Series Signal Analyzers Remotely

The instrument 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 instrument's user account. This allows you to view the display or control the instrument, 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.

NOTE   The Embedded Web Server functionality is only for a single user.

Accessing the instrument through the Internet

It is possible to access and control the instrument 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 instrument may also be accessed and controlled using the Windows Remote Desktop functionality (see the section "Remote Desktop: Using the X-Series Signal Analyzers Remotely" on page 73, for details).

NOTE   Remote Desktop and the Embedded Web Server cannot be run at the same time.

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

| NOTE | To gain access to the instrument from the LAN, you need to know its hostname (or IP Address). For details of how to locate this information using the instrument Display, see "How to locate the computer name of the instrument" on page 75. |

Accessing the instrument

Step	Notes	
1. Enter a URL corresponding to the instrument hostname or IP Address.	NOTE	This functionality is only fully supported when using Internet Explorer. In this example, the host name is "a-n9020a-00104".
		When the connection is made, the welcome page appears.
2. Click **Advanced information about this Web-Enabled Agilent MXA**	This displays further settings and configuration information.	
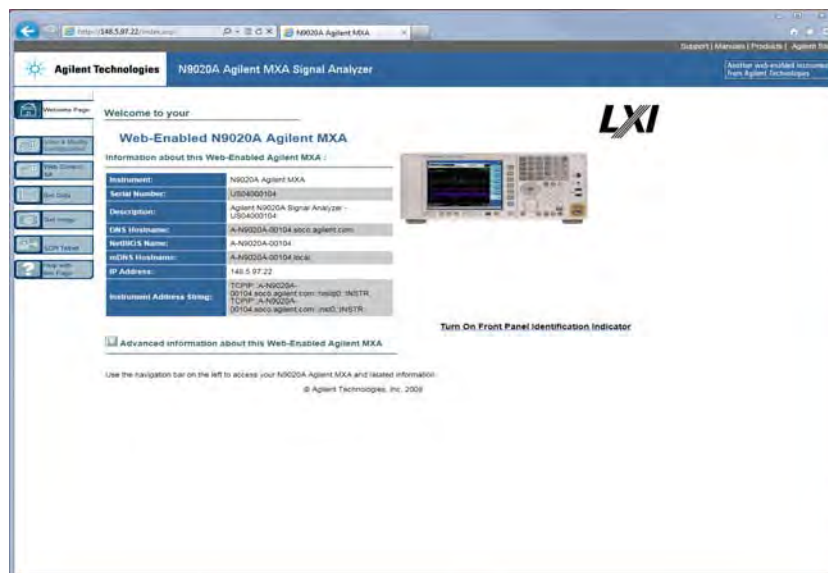
Accessing the instrument
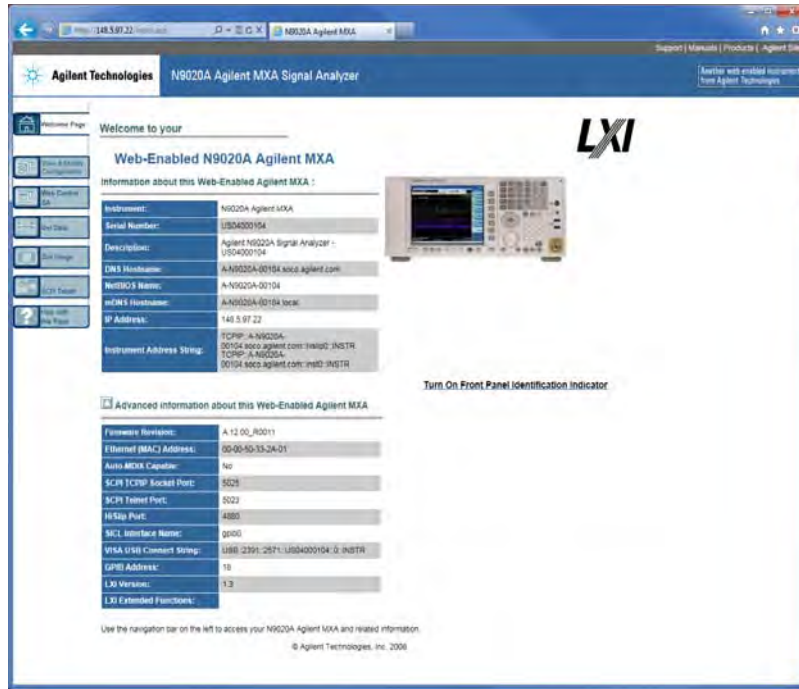
Step	Notes
	At the left side of the page are a set of tabs that provide access to configuration information for the instrument, plus the ability to control it through the web interface.

Selecting the View & Modify Configuration tab
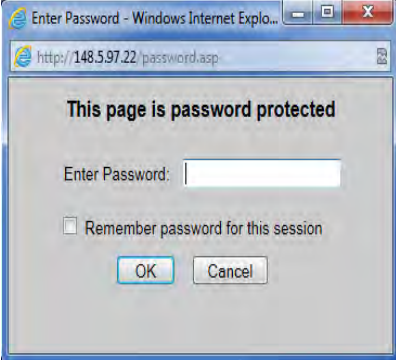
Step	Notes
1. Click **View & Modify Configuration**	This displays a web page, which shows the instrument's currently-assigned IP address and other TCP/IP parameters.

Selecting the View & Modify Configuration tab

Step	Notes
2. Click **Modify Configuration**	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 instrument front panel to change the password.)

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

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.

Accessing the Web Control SA tab

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

Step	Notes
1. Click **Web Control SA**	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 instrument front panel to change the password.) When the correct password is entered, the instrument control web page appears. **NOTE** To view the instrument display, the instrument application must be running.
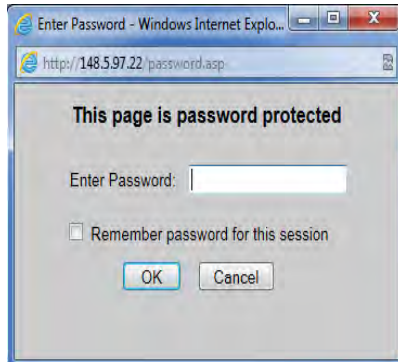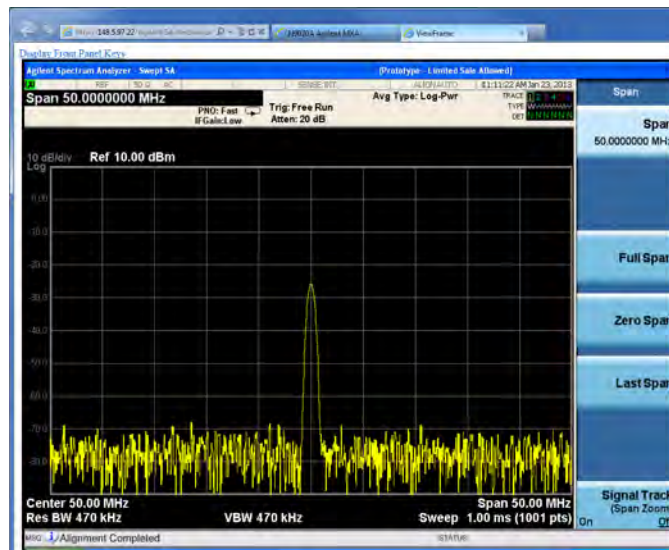
2. Click **Display Front Panel Keys**	This brings up a virtual keyboard that can be used to control the instrument.

Step	Notes
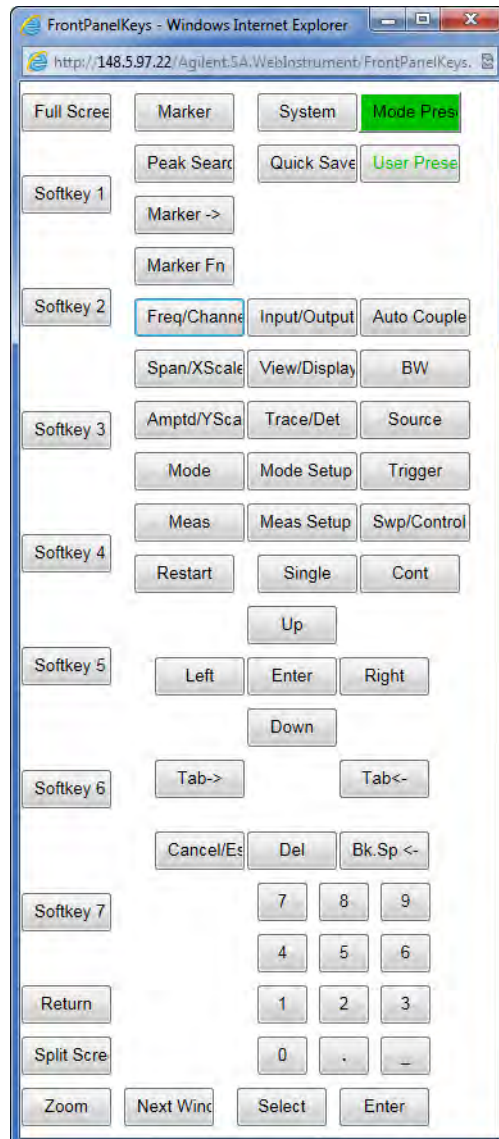
Selecting the Get Data tab

Selecting the Get Data tab allows you to capture results from the instrument's currently active measurement. 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 instrument 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 disk drive, or opened with a spreadsheet application such as Microsoft Excel, or imported into a database application such as Microsoft Access.

A typical Get Data web page display is shown below:
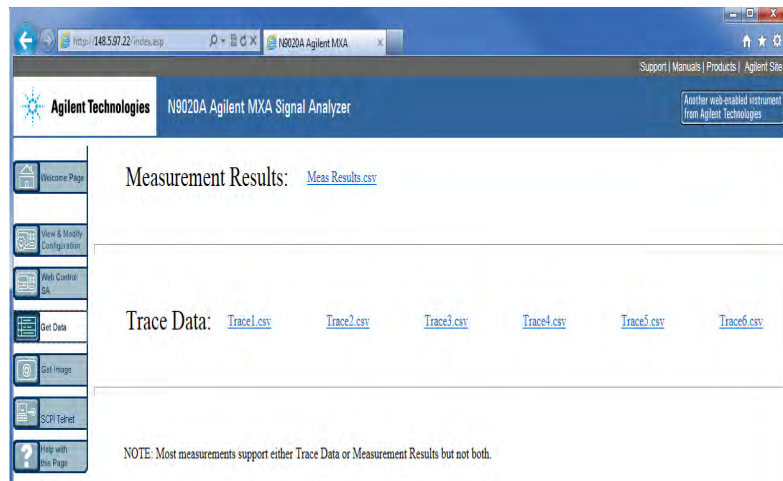
If the measurement currently running does not support the selected result type, the web page indicates this:
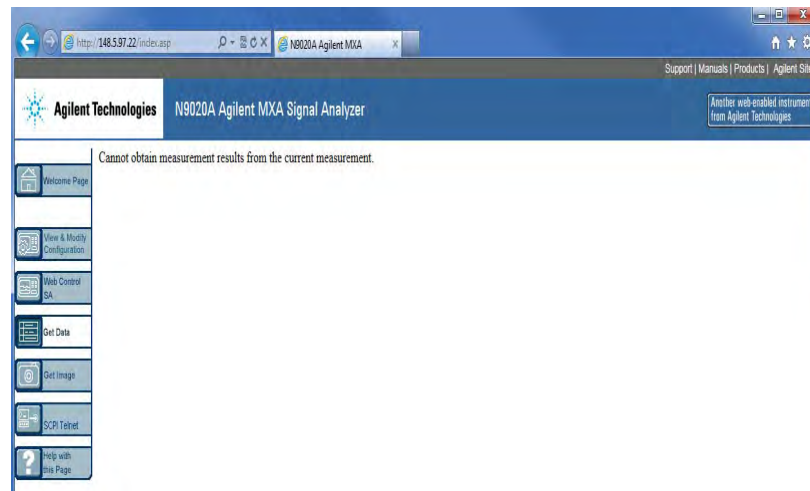
Selecting the Get Image tab

Selecting the Get Image tab captures a screen image from the Instrument display.

NOTE   To capture a screen image using the web server, the Instrument 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 disk drive, or copied to the Windows clipboard.

A typical screen capture image appears as follows:
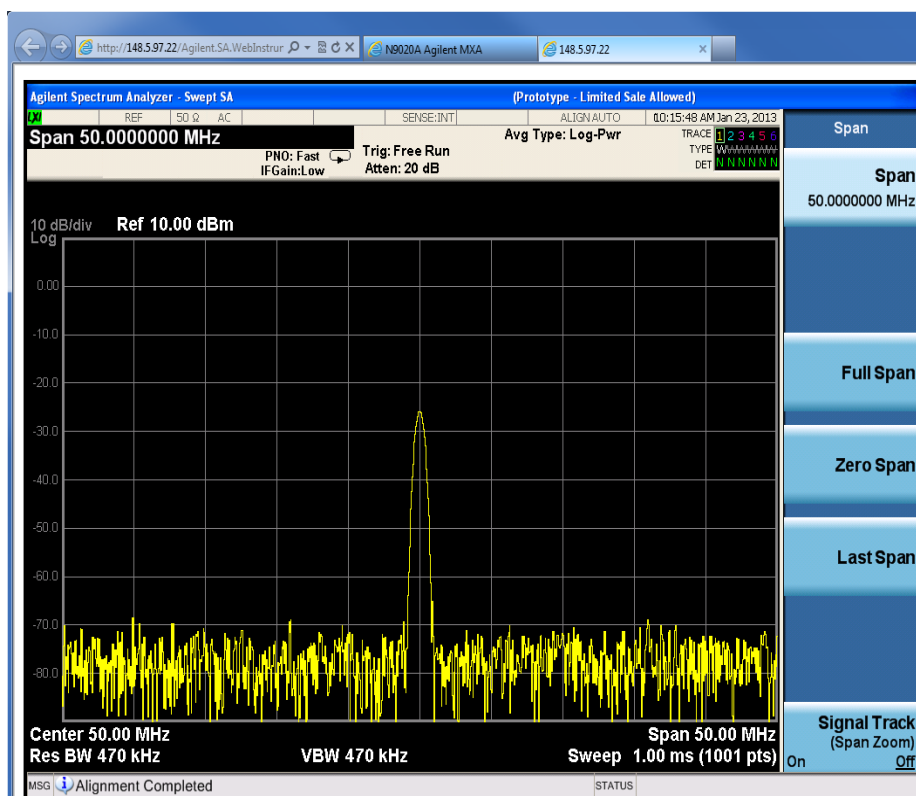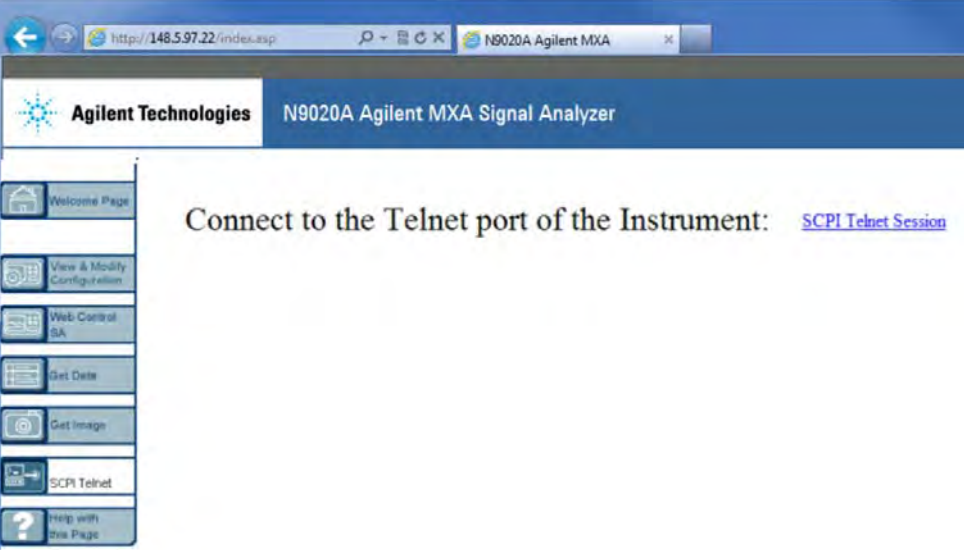
Selecting the SCPI Telnet tab

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

NOTE	To run a SCPI Telnet session, the instrument 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 instrument 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.
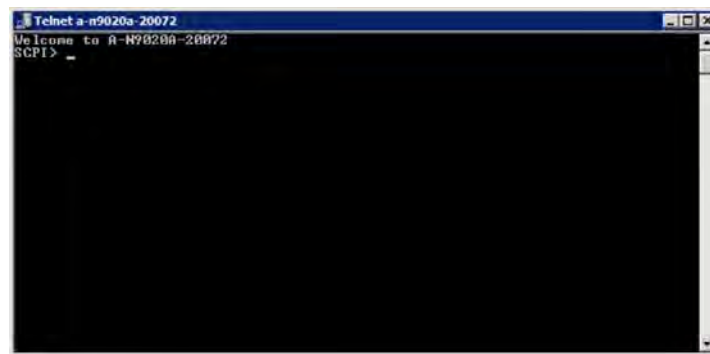
Step	Notes
	SCPI commands and queries may be entered using the command line interface.

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 instrument without an attached mouse and keyboard. (See also "Navigating Windows Without a Mouse" on page 68.) Although these shortcuts are available in any Windows 7 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 instrument 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,
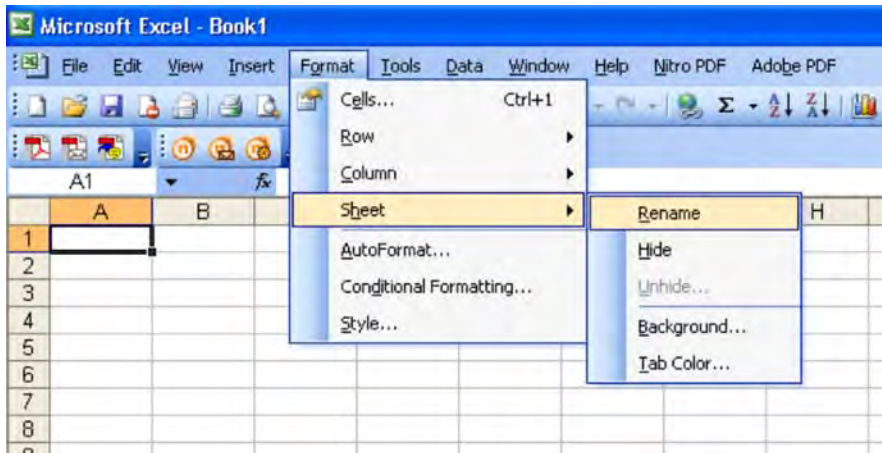
perform the following operations:

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 instrument application. If the taskbar is not set to auto-hide, the lower part of the instrument display is obscured by the taskbar.

If a mouse is attached to the instrument, 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. Click **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 98 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.
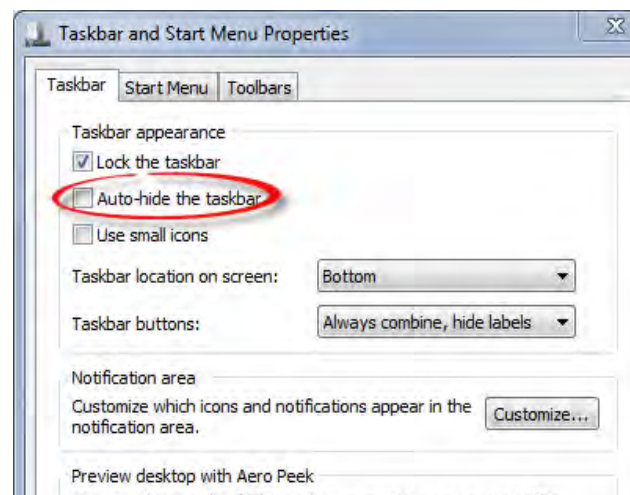
5. Click **OK**.	This applies the change and closes the dialog box.

5 Troubleshooting

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

Agilent Technologies

Check the Basics

o   Is there power at the receptacle?

o   Is the analyzer 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 analyzer cooling fans are running.

o   If other equipment, cables, and connectors are being used with your signal analyzer, make sure they are connected properly and operating correctly.

   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 disk drive. If the analyzer gets far enough along in the boot process to run the "Agilent Recovery System", perform the *"Disk Drive Recovery Process"* as described on page 60.

o   Is the Measurement Application running? If not, there is a software launch shortcut/icon on the desktop.

o   Does the instrument 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 analyzer is not functioning as expected, return the analyzer to a known state by pressing **Mode Preset**.

NOTE   Some analyzer settings are not affected by a Preset. If you wish to reset the analyzer 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 analyzer?

Refer to the specifications guide for your analyzer.

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

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

Technical manual pdf files are available on the documentation DVD provided with the instrument, and on the Agilent website:

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

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

o   If the analyzer 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 analyzer must be aligned. Either the Auto Align (On) feature must be selected (press **System**, **Alignments**, **Auto Align**, **Normal**), or the analyzer 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   If the analyzer exhibits large amplitude errors (> 10 dB) especially at frequencies above 10 GHz, the RF preselector might not be properly centered. Press **Peak Search**, **AMPTD Y-Scale**, **Presel Center**. If the signal amplitude error is corrected, the preselector characterization should be performed. Press **System**, **Alignments**, **More 1 of 2**, **Advanced**, **Characterize Preselector**. The characterization will take several minutes and the analyzer must not be interrupted during this time. If the analyzer is interrupted during the characterization process, the characterization data will be destroyed and it will be necessary to perform the entire process again.

o   Is the analyzer 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 analyzer 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 instrument application, you may notice it running slow. Place the instrument 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 signal analyzer at http://agilent.com/find/notifyme

---

Problems with Microsoft Windows 7

The Microsoft Windows 7 operating system settings have been optimized for the best performance. Modification of these settings may degrade instrument performance and measurement speed. Those that can be safely modified are described in "Settings that can be changed" on page 51

The X-Series if Signal Analyzers operate in an open Windows environment, so you can install software on the instrument. However, installation of non-approved software may affect instrument performance. Agilent does not warrant the performance with non-approved software installed.

Returning an Analyzer for Service

Calling Agilent Technologies

Agilent Technologies has offices around the world to provide you with complete support for your analyzer. 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 analyzer by its product number, full serial number, and software revision.

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

Locations for Agilent Technologies

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

Americas

Canada	Latin America	United States
1 877 894 4414	(305) 269 7500	1 800 829 4444

Asia Pacific

Australia	China	Hong Kong
1 800 629 485	800 810 0189	800 938 693

India	Japan	Korea
1 800 112 929	0 120 (421) 345	080 769 0800

Malaysia	Singapore	Taiwan
1 800 888 848	1 800 375 8100	0800 047 866

Thailand
1 800226 008

Europe & Middle East

Austria	Belgium	Denmark
43 (0) 1 360 277 1571	32 (0) 2 404 93 40	45 70 13 15 15

Finland	France	Germany
358 (0) 10 855 2100	0825 010 700*	49 (0) 7031 464 6333
	*0.125 Euros/minute	

Ireland	Israel	Italy
1890 924 204	972-3-9288-504/544	39 02 92 60 8484

Netherlands	Spain	Sweden
31 (0) 20 547 2111	34 (91) 631 3300	0200-88 22 55

Switzerland	United Kingdom
0800 80 53 53	44 (0) 118 9276201

Other European Countries: http://www.agilent.com/find/contactus

Read the Warranty

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

If your analyzer 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 analyzer after the warranty has expired. Call your Agilent Technologies office for full details.

If you want to service the analyzer 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 0BW* (assembly level troubleshooting information) through your Agilent Technologies office.

Packaging the Instrument

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

CAUTION   Analyzer 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 equipment or prevent it from shifting in the carton. They cause equipment damage by generating static electricity and by lodging in the analyzer louvers, blocking airflow.

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

Step	Notes
1 Wrap the analyzer in antistatic plastic to reduce the possibility of damage caused by electrostatic discharge	
2 Use a strong shipping container.	The carton must be both large enough and strong enough to accommodate the analyzer. 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 analyzer for packing material.
3 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.
4 Seal the shipping container securely with strong nylon adhesive tape.	
5 Mark the shipping container "**FRAGILE, HANDLE WITH CARE**" to assure careful handling.	
6 Retain copies of all shipping papers.	