# Getting Started Guide

## Agilent Technologies
## N9020A MXA Signal Analyzer


**Manufacturing Part Number: N9020-90001**
**Printed in USA**
**October 2006**

# Notice

The information contained in this document is subject to change without notice.

Agilent Technologies makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Agilent Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

The following safety symbols are used throughout this manual. Familiarize yourself with the symbols and their meaning before operating this analyzer.

**WARNING**

***Warning* denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.**

**CAUTION**

*Caution* denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in damage to or destruction of the product. Do not proceed beyond a caution note until the indicated conditions are fully understood and met.

**NOTE**

*Note* calls out special information for the user's attention. It provides operational information or additional instructions of which the user should be aware.

# Additional Information

For the latest information about this analyzer, including firmware upgrades, application information, and product information, see the following URL:

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

# Contents

# Contents

# 1 Installation and Setup



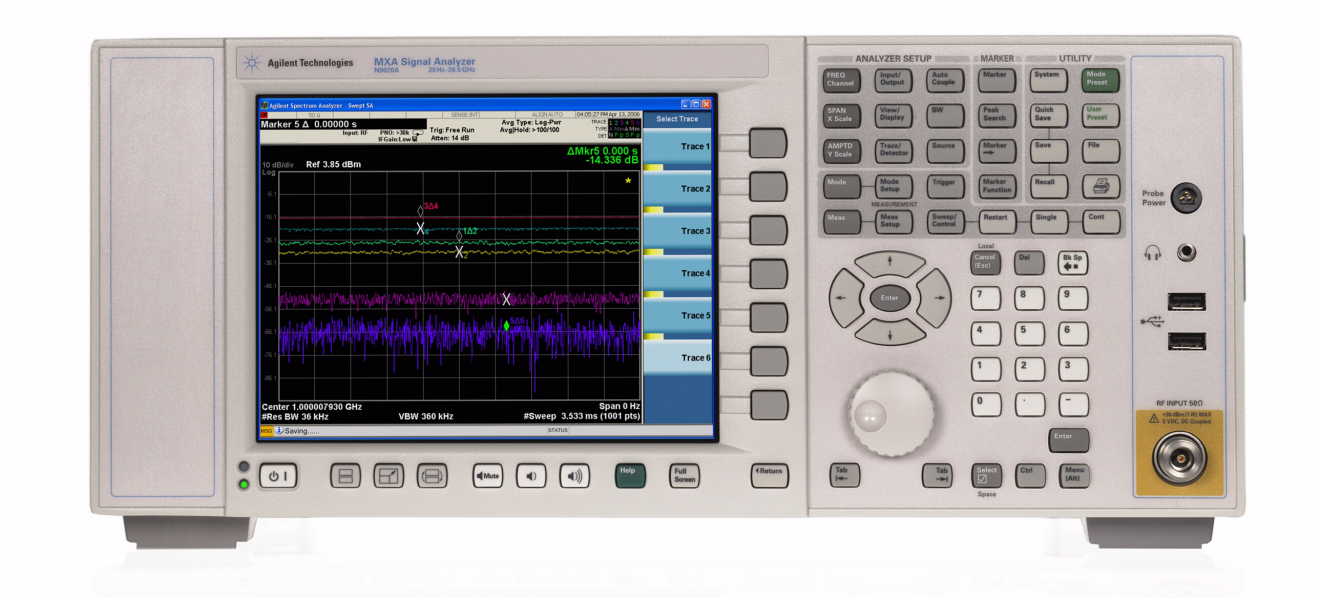
### Technical Documentation:

| **The N9020A MXA Signal Analysis measurement platform:** | |
|---|---|
| Getting Started | Turn on process, Windows XP use/configuration, Front and rear panel |
| Specifications | Specifications for all available Measurement Applications and optional hardware (for example, Spectrum Analyzer and W-CDMA) |
| Functional Testing | Quick checks to verify overall instrument operation. |
| Instrument Messages | Descriptions of displayed messages of Information, Warnings and Errors |
| **Measurement Application specific documentation:** (for example, Spectrum Analyzer Measurement Application or W-CDMA Measurement Application) | |
| Measurement Guide and Programming Examples | Examples of measurements made using the front panel keys or over a remote interface. The programming examples use a few different programming languages, and copies of the executable files are available. |
| User's/Programmer's Reference | Descriptions of front panel key functionality and the corresponding SCPI commands. May also include some concept information. |

The product documentation can be found a number of ways. It is:

1. On the documentation CD that shipped with your product
2. On the product website http://www.agilent.com/find/mxa_manuals
3. Accessed through the product Help system by selecting Other Documentation
4. Inside the N9020A MXA Signal Analyzer help directory
   C:\Program Files\Agilent\SignalAnalysis\Infrastructure\Help

**Figure 1-1. Agilent Technologies N9020A Signal Analyzer Measurement Platform**




The MXA Signal Analyzer hardware can be used with a variety of Measurement Applications which must be purchased separately. It uses Microsoft Windows XP and is an open system.

---

**NOTE** 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 "Instrument Configuration" on page 31.

The N9020A is an Open Windows environment, so you can install non-approved 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.

---

# 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. Verify that the contents of the shipping container are complete.

| Item | Description |
|---|---|
| Getting Started Guide | Provides first-time power on instructions, licensing information, operating system information, and general hardware information. |
| Power Cable (See "AC Power Cords" on page 16) | Connection for instrument power. |
| 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. |
| **NOTE**: If you purchased the Spectrum Analysis Measurement System software, or any measurement application software, the related manuals and accessories are also included. | |

### Shipping Problems?

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

- Contact the nearest Agilent Technologies office to arrange for repair or replacement ("Returning an Analyzer for Service" on page 91). You will not need to wait for a claim settlement.
- 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 91).

# Turning on the Analyzer the First Time

Initial power-on requires:

- "Powering On the Instrument"
- "Accepting the End-User License Agreement (EULA) Screen"
- "Setting System Date and Time"
- "Anti-virus Software and Firewalls"
- "Shortening the Instrument Power-on Time"

**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 Agilent instruments at http://www.agilent.com/find/notifyme

If you do not have a USB mouse available you may want to refer to "Navigating Windows Without a Mouse" on page 11.

## Powering On the Instrument

1. Position the instrument so that you have easy access to the power cord and plug it in.

**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.**

2. Press the power switch (located in the lower left-hand corner of the analyzer's front panel) to turn the analyzer on. See "Front Panel Features" on page 22.

   The instrument can require >5 minutes to power-on. This time is affected by the Windows XP boot-up time and by the number of measurement applications that you are pre-loading. See also "Shortening the Instrument Power-on Time" on page 10.

**NOTE** Allow the spectrum analyzer to warm-up for 30 minutes before making a calibrated measurement. To meet its specifications, the analyzer must meet the operating temperature requirements.

## Accepting the End-User License Agreement (EULA) Screen

The License Agreement screen asks you to accept the terms of the End-User License Agreement for Windows XP. You must accept this agreement to continue the Windows XP installation and configuration. If you do not accept this agreement, the instrument shuts down and the next time you turn it on the Windows XP Setup Wizard starts from the beginning again.

For more information about the End-User License Agreement for Windows XP, see the Questions

and answers about the End-User License Agreement topic in the Microsoft Windows XP Help and Support Center.

If you have connected a USB mouse, position the cursor appropriately and use the left mouse button to navigate the License Agreement screen.

If you do not have a mouse available to navigate the screen, then use the instrument front panel keys as follows:

1. Press the **Tab** key to select the License Agreement text box.
2. Use the up and down arrow keys, or rotate the knob to read the agreement.
3. Press the **Tab** key again. This accesses `I don't accept this agreement`. You need to press the up arrow to select `I accept this agreement`.
4. Press **Select**, or **Tab** then **Enter** to finish this screen and move to the Date and Time Settings screen.

## Setting System Date and Time

The Date and Time Settings screen is used to set the appropriate date, time and time zone If you have connected a USB mouse, position the cursor and use the left mouse button to navigate the Date and Time Settings screen. Alternatively, the procedure for navigating this screen using a USB keyboard or the front panel is as follows:

1. Press the Tab (tab right or tab left) key to move between items in the Date and Time Settings screen. (The settings include the Date, Time, and Time Zone boxes, the Automatically adjust clock for daylight saving changes check box, and the **Next** button).
2. Use the left and right arrow keys to move between different parts of the item (for example, month, day, year, and hour, minute, seconds).
3. Use the up and down arrow keys to scroll through the different values available for the selected item (for example, month, day).
4. Use the **Space** key to select or clear the "`Automatically adjust clock for daylight saving changes`" check box when it is the active item.
5. When you have completed the date and time settings, press **Enter**, or **Tab** then **Enter** to finish this screen and continue the Windows XP Setup Wizard.

## Anti-virus Software and Firewalls

No anti-virus software is shipped with the instrument. It is recommended that you install anti-virus software if your instrument will be connected to the LAN. Check with your IT department for their recommendations. See the section "3rd Party Software Verified by Agilent" on page 34 for information about software that has been tested by Agilent.

The instrument is shipped with the Windows XP firewall enabled. Do not modify the default network settings as this may cause the instrument to not operate properly.

## Shortening the Instrument Power-on Time

The instrument desktop includes a shortcut to the MXA ConfigureApplications.exe application that lets you control your instrument power-on configuration. You can set the configuration to pre-load only the application(s) that you typically run. This can significantly shorten the time it takes for your instrument to power-on.

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

# Navigating Windows Without a Mouse

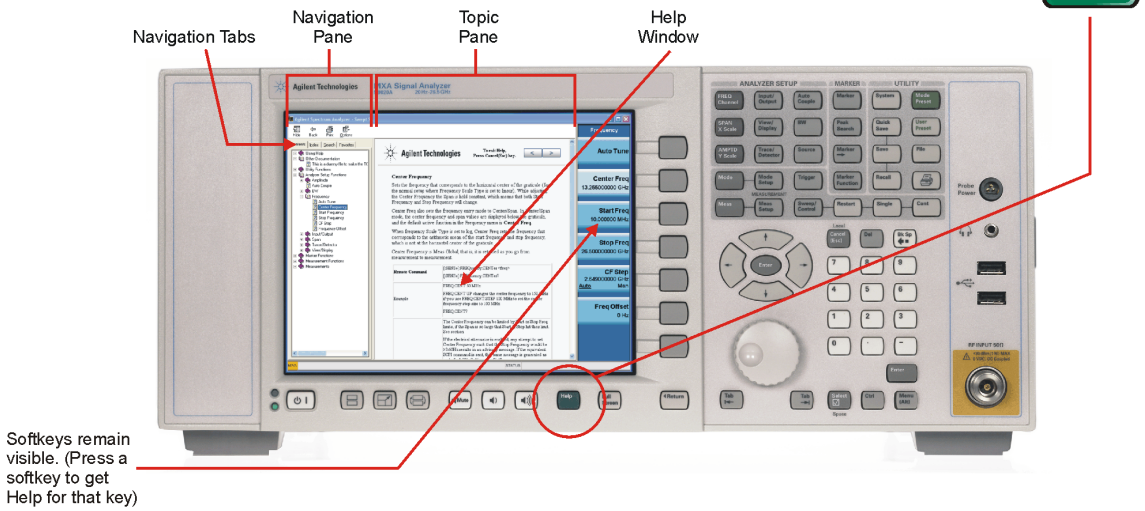
See also the section "Windows Shortcuts and Miscellaneous Tasks" in the Getting Started Guide chapter on Using Microsoft Windows XP.

| 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 will activate 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<br>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<br>In dialog box: selects an option button |
| Up Arrow | In pull-down menu: Moves to next selection up in the menu<br>In dialog box: selects an option button |
| Down Arrow | In pull-down menu: Moves to next selection down in the menu<br>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<br>In Internet Explorer: works like the BACK arrow key |
| Ctrl + Left arrow | Moves to the left one word at a time |
| Ctrl + Right arrow | Moves to the right one word at a time |
| Ctrl + Tab | In dialog box: moves to the next/previous Tab location |
| Alt + Space | Opens the window control menu for the currently active window, allowing you to minimize, maximize, move and restore (size) the window |
| Ctrl + Esc | Opens the Windows Start Menu |
| Ctrl + Alt + Delete | Opens the Windows Task Manager |

# Agilent MXA Signal Analyzer

## Using the Instrument Help System without a Mouse

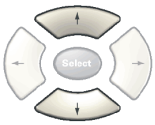
*To Open the Help Window for any Menu:*
Choose the desired menu, then press the green **Help** key on the Front Panel

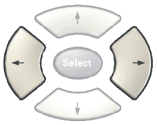

*To Toggle Focus between the Navigation and Topic Panes:*
Press the **Next Window** key

### In the NAVIGATION PANE

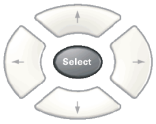
*To Scroll Up or Down the Topic List:*
Press the **Up** or **Down Arrow** key



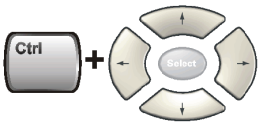

*To Expand or Collapse the tree for a Selected Topic:*
Press the **Right** or **Left Arrow** key




*To Display the Selected Help Topic:*
Press the **Enter** key



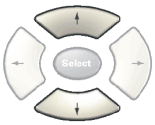

*To Scroll Horizontally or Vertically:*
Press **Ctrl + Left/Right Arrow** or **Up/Down Arrow** keys



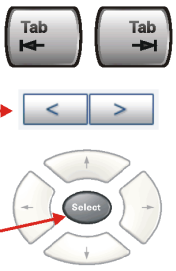

*To switch Tabs:*
Press **Ctrl + Tab** keys


### In the TOPIC PANE

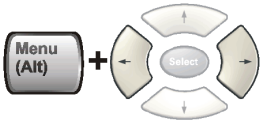
*To Scroll Up or Down:*
Press the **Up** or **Down Arrow** key




*To go to the Next or Previous page:*
Use the **Tab** keys to select the **Right** or **Left Pointer** button (in the Topic Pane). Then, press **Enter**




*To go Back or Forward:*
Press the **Alt + Left** or **Right Arrow** key

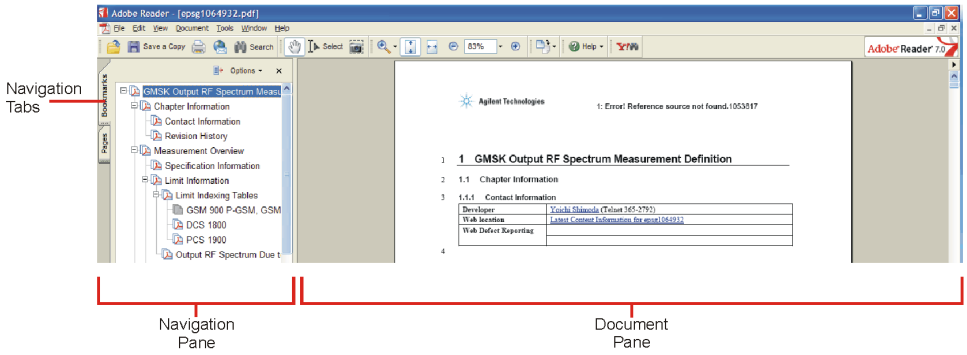



*To Close the Help Window:*
Press the **Cancel (Esc)** key

# Agilent MXA Signal Analyzer

## Navigating Acrobat (PDF) Files without a Mouse

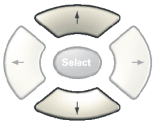
When you open an Acrobat (PDF) document, it is displayed in the Adobe Reader Window, which appears as shown below.



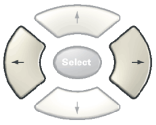

**NOTE** Some features of the Adobe Reader interface are not available when a mouse and keyboard are not attached to the instrument. This guide includes only features that may be used *without* a mouse or keyboard.

### In the NAVIGATION PANE

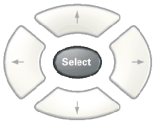
*To Go to Next or Previous Bookmark:*
Press the **Down** or **Up Arrow** key




*To Expand or Collapse a Selected Bookmark:*
Press the **Right** or **Left Arrow** key

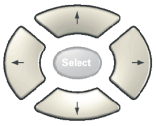



*To Display Content of the Selected Bookmark:*
Press the **Enter** key



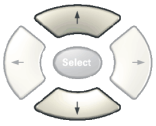

*To switch Tabs:*
Press Ctrl + Tab keys


*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

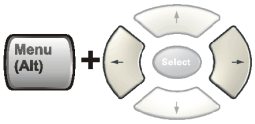



### In the DOCUMENT PANE

*To Scroll Up or Down:*
Press the **Up** or **Down Arrow** key




*To Zoom In or Out:*
Press **Alt** + **Left** or **Right Arrow** key




*To Zoom To*
*a) Fit Page in Window:* Press **Ctrl + 0** keys
*b) Page Actual Size:* Press **Ctrl + 1** keys
*c) Fit Page in Width:* Press **Ctrl + 2** keys
*d) Fit Visible Object:* Press **Ctrl + 3** keys


*To Go to a Specific Page:*
Press the **Next Window** key to open the **Go To Page** dialog, then enter the page number via 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**

# Power Requirements

The only physical installation of your Agilent spectrum 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.

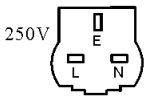
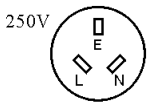
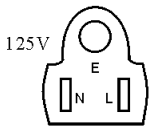
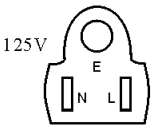
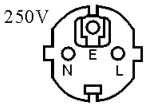
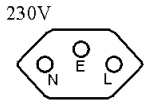
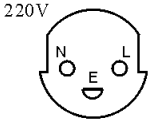
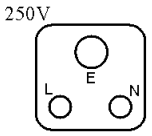
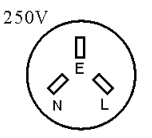
Various AC power cables are available that are unique to specific geographic areas. You can order additional AC power cables for use in different areas. AC Power Cords, on page 16 lists the available AC power cables, illustrates the plug configurations, and identifies the geographic area in which each cable is appropriate.

**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.**

**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.

## AC Power Cords

| Plug Type [a] | Cable Part Number | Plug [b] Description | Length cm (in.) | Cable Color | For Use in Country |
|---|---|---|---|---|---|
|  | 8120-1351<br>8120-1703 | Straight<br>BS 1363A<br>90° | 229 (90)<br>229 (90) | Mint Gray<br>Mint Gray | Option 900<br>United Kingdom, Hong Kong, Cyprus, Nigeria, Singapore, Zimbabwe |
|  | 8120-1369<br>8120-0696 | Straight<br>AS 3112<br>90° | 210 (79)<br>200 (78) | Gray<br>Gray | Option 901<br>Argentina, Australia, New Zealand, Mainland China |
|  | 8120-1378<br>8120-1521 | Straight<br>NEMA 5-15P<br>90° | 203 (80)<br>203 (80) | Jade Gray<br>Jade Gray | Option 903<br>United States, Canada, Brazil, Colombia, Mexico,Philippines, Saudi Arabia, Taiwan |
|  | 8120-4753<br>8120-4754 | Straight<br>NEMA 5-15P<br>90° | 229 (90)<br>229 (90) | Gray<br>Gray | Option 918<br>Japan |
|  | 8120-1689<br>8120-1692 | Straight<br>CEE 7/VII<br>90° | 200 (78)<br>200 (78) | Mint Gray<br>Mint Gray | Option 902<br>Continental Europe, Central African Republic, United Arab Republic |
|  | 8120-2104<br>8120-2296 | Straight<br>SEV Type 12<br>90° | 200 (78)<br>200 (78) | Gray<br>Gray | Option 906<br>Switzerland |
|  | 8120-2956<br>8120-2957 | Straight<br>SR 107-2-D<br>90° | 200 (78)<br>200 (78) | Gray<br>Gray | Option 912<br>Denmark |
|  | 8120-4211<br>8120-4600 | Straight<br>IEC 83-B1<br>90° | 200 (78)<br>200 (78) | Mint Gray<br>Mint Gray | Option 917<br>South Africa, India |
|  | 8120-5182<br>8120-5181 | Straight<br>SI 32<br>90° | 200 (78)<br>200 (78) | Jade Gray<br>Jade Gray | Option 919<br>Israel |

a. E =earth ground, L = line, and N = neutral.
b. Plug identifier numbers describe the plug only. The part number is for the complete cable assembly.

formt119

# Instrument Location and Rack Mounting Requirements

## Locating the Instrument

Make sure that both the fan inlet area and the exhaust vent area are not obstructed. The minimal clearance required is 2 inches for these vents on the sides of the instrument. Lack of adequate clearance can result in excessive audible noise. This is because airflow restrictions cause additional airflow noise and cause the fans to speed up so they can draw in enough air for the required cooling.

## Cooling and Rack Mounting

Do not rack mount the MXA Signal Analyzer side by side with another MXA Signal Analyzer, or an instrument with side to side ventilation. Make sure that 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 results in excessive operating temperatures in the second unit and can cause instrument failures.

# Instrument Maintenance

## Cleaning the Instrument

**WARNING** **To prevent electrical shock, disconnect the Agilent Technologies model N9020A 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.**

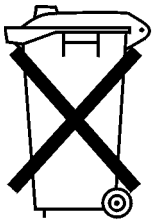
## Battery Information

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 91. 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.

sk780a

# 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:

- 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.

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

- 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).

# Trademark Acknowledgements

Microsoft ® is a U.S. registered trademark of Microsoft Corporation.

Windows ® and MS Windows ® are U.S. registered trademarks of Microsoft Corporation.

Adobe Reader ® is a U.S. registered trademark of Adobe System Incorporated.

Java™ is a U.S. trademark of Sun Microsystems, Inc.

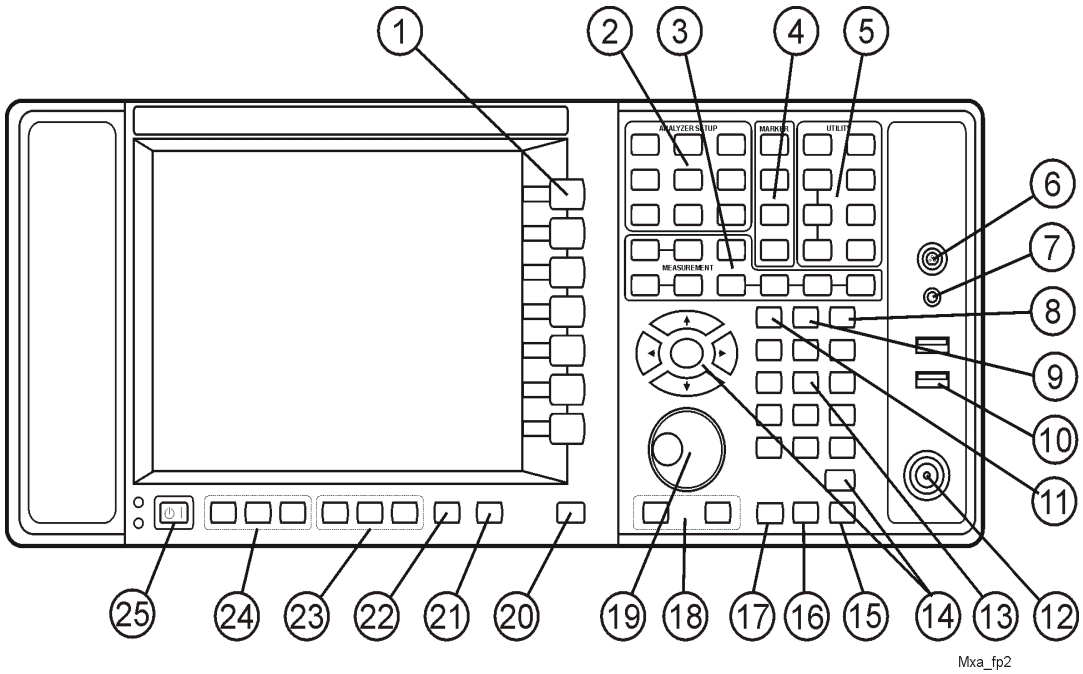
MATLAB ® is a U.S. registered trademark of Math Works, Inc.

Norton Ghost™ is a U.S. trademark of Symantec Corporation.

# 2 Front and Rear Panel Features

# Front Panel Features

## Front-Panel Connectors and Keys




| 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 innitiation and frequency of measurement. |
| 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 functionaliy like:<br>• instrument configuration information and I/O setup,<br>• printer setup and printing,<br>• file management, save and recall,<br>• instrument instrument presets. |
| 6 | Probe Power | Supplies power for external high frequency probes and accessories. |

| Item | | Description |
|---|---|---|
| # | Name | |
| 7 | Headphones Output | Headphones can be used to hear any available audio output. |
| 8 | Back Space Key | Press this key to delete the previous character when entering alphanumeric information. It also works as the Back key in Help and Explorer windows. |
| 9 | Delete Key | Press this key to delete files, or to perform other deletion tasks. |
| 10 | USB Connectors | Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, DVD drive, or hard drive. |
| 11 | Local/Cancel/ (Esc) Key | If you are in remote operation, Local:<br>• returns instrument control from remote back to local (the front panel).<br>• turns the display on (if it was turned off for remote opperation).<br>• can be used to clear errors. (Press the key once to return to local control, and a second time to clear error message line.)<br>If you have not already pressed the units or Enter key, Cancel exits the currently selected function without changing its value.<br>Esc works the same as it does on a pc keyboard. It:<br>• exits Windows dialogs<br>• resets input overloads<br>• clears errors<br>• aborts printing<br>• cancels operations. |
| 12 | RF Input | Connector for inputing an external signal. Make sure that the total power of all signals at the analyzer input does *not* exceed +30 dBm (1 watt). |
| 13 | Numeric Keypad | Enters a specific numeric value for the current function. |
| 14 | 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.<br>The arrow keys:<br>• Increment and decrement the value of the current measurement selection.<br>• Navigatie help topics.<br>• Navigate, or make selections, within Windows dialogs.<br>• Navigate within forms used for setting up measurements.<br>• Navigate within tables.<br>**NOTE** The arrow keys cannot be used to move a mouse pointer around on the display. |
| 15 | Menu/ (Alt) Key | Alt works the same as a pc keyboard. Use it to change control focus in Windows pull-down menus. |
| 16 | Ctrl Key | Ctrl works the same as a pc keyboard. Use it to navigate in Windows applications, or to select multiple items in lists. |

| Item | | Description |
|---|---|---|
| # | Name | |
| 17 | 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. |
| 18 | Tab Keys | Use these keys to move between fields in Windows dialogs. |
| 19 | Knob | Increments and decrements the value of the current active function. |
| 20 | Return Key | Exits the current menu and returns to the previous menu. Has typical pc functionality. |
| 21 | Full Screen Key | Pressing this key turns off the softkeys to maximize the graticule display area. |
| 22 | 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. |
| 23 | Speaker Control Keys | Enables you to increase or decrease the speaker volume, or mute it. |
| 24 | 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. |
| 25 | Power Standby On/Off | Turns the analyzer on. A green light indicates power on. A yellow light indicates standby mode.<br>**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.<br>The main power cord can be used as the system disconnecting device. It disconnects the mains circuits from the mains supply. |

## Overview of Key Types

The keys labeled **FREQ Channel**, **System**, and **Marker Function** 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 a menu key function's numeric value can be changed, it is called an active function. The function label of the active function is highlighted after that key has been selected. 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 like On/Off or Auto/Man. The different choices are selected by pressing the key multiple times. Take an Auto/Man type of key as an example. 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.

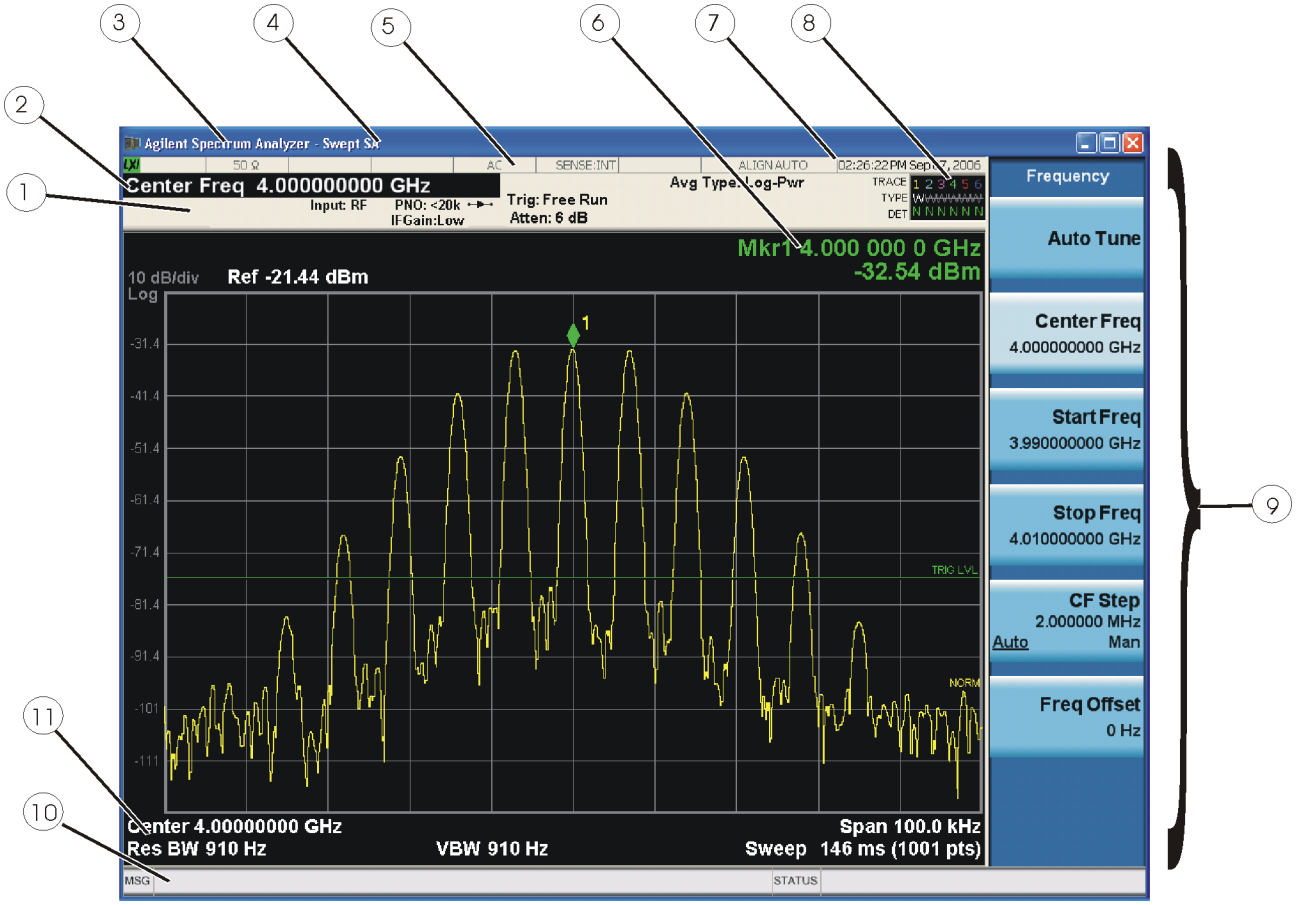
When a menu first appears, one key label will be highlighted to show which key is the default selection. Some of the menu keys are grouped together by a yellow bar running behind the keys near the left side. When you press a key within the yellow bar region the highlight will move to that key to show it has been selected. The keys that are linked by the yellow bar are related functions, and only one of them can be selected at any one time. If the current menu is two pages long, the yellow bar could include keys on the second page of keys.

In some key menus, a key label will be 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.

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 will bring up an additional menu of settings.

# Display Annotations

The following graphic is an example of an N9060A Spectrum Analyzer display. Your instrument display may look different.

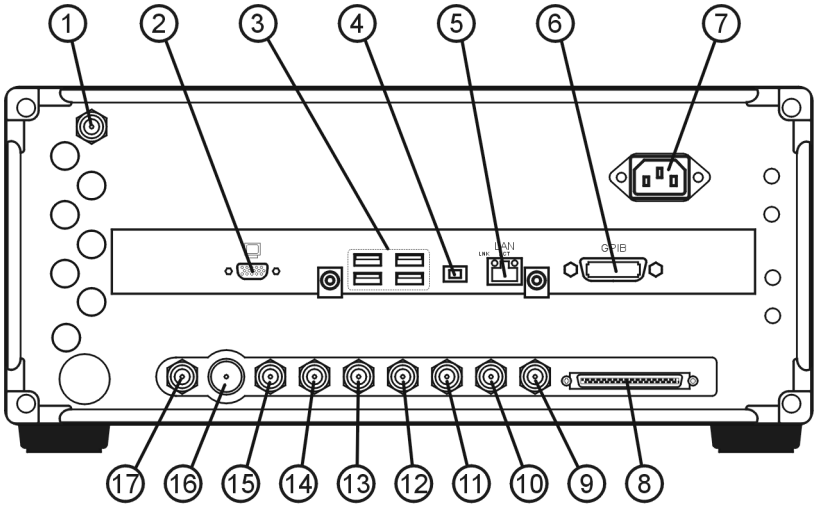



Displayannot

| Item | Description | Function Keys |
|---|---|---|
| 1 | Measurement bar - Shows general measurement settings and information.<br>Indicates single/continuous measurement.<br>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. |

| Item | Description | Function Keys |
|---|---|---|
| 3 | Banner - shows the name of the selected measurement application and the measurement that is currently running. | **Mode**, **Meas** |
| 4 | Measurement title (banner) - shows title information for the current Measurement, or a title that you created for the measurement. | **Meas**<br>**View/Display**, **Display**, **Title** |
| 5 | Settings panel - displays system information that is not specific to any one application.<br>• Input/Output status - green LXI indicates the LAN is connected. RLTS indicate Remote, Listen, Talk, SRQ<br>• Input impedance and coupling<br>• Selection of external frequency reference<br>• Setting of automatic internal alignment routine | **Local** and **System, I/O Config**<br>**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/Detector panel (measurement bar)<br>**Type:** **Detector:**<br>W - clear/write N - normal detection (rise and fall)<br>A - trace average S - sample detection<br>M - max hold P - positive peak detection<br>m - min hold p - negative peak detection<br>A - average detection<br>White = update on f - math function<br>Gray = update off<br>Srikethrough "~~W~~"<br>means display off | **Trace/Detector**<br>  <br>Trace: Identifies traces by color<br>Type: Shows trace mode setting, trace display on/off, and trace update on/off<br>Det: Shows detector selection or math function applied to the trace |
| 9 | Key labels that change based on the most recent key press. | Softkeys |
| 10 | Displays information, warning and error messages. Message area - single events, Status area - conditions | |
| 11 | Measurement settings for the data currently being displayed in the graticule area. In the example above: center frequency, resolution bandwidth, video bandwidth, frequency span, sweep time and number of sweep points. | Keys in the Analyzer Setup part of the front panel. |

# Rear-Panel Features




Mxa_rp2

| Item | | Description |
|---|---|---|
| # | Name | |
| 1 | EXT REF IN | Input for a 1 to 50 MHz external frequency reference signal. |
| 2 | MONITOR | Allows connection of an external VGA monitor. |
| 3 | USB Connectors | Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, printer, DVD drive, or hard drive. |
| 4 | 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. |
| 5 | LAN | A TCP/IP Interface that is used for remote analyzer operation. |
| 6 | GPIB | A General Purpose Interface Bus (GPIB, IEEE 488.1) connection that can be used for remote analyzer operation. |
| 7 | Line power input | The AC power connection. See the product specifications for more details. |
| 8 | Digital Bus | Reserved for future use. |
| 9 | Analog Out | Reserved for future use. |
| 10 | TRIGGER 2 OUT | A trigger output used to synchronize other test equipment with the analyzer. Configurable from the Input/Output keys. |
| 11 | TRIGGER 1 OUT | A trigger output used to synchronize other test equipment with the analyzer. Configurable from the Input/Output keys. |
| 12 | Sync | Reserved for future use. |

| Item | | Description |
|---|---|---|
| # | Name | |
| 13 | TRIGGER 2 IN | Allows external triggering of measurements. |
| 14 | TRIGGER 1 IN | Allows external triggering of measurements. |
| 15 | Noise Source Drive +28 V (Pulsed) | Reserved for future use. |
| 16 | SNS Series Noise Source | Reserved for future use. |
| 17 | 10 MHz OUT | An output of the analyzer's internal 10 MHz frequency reference signal. It is used to lock the frequency reference of other test equipment to the analyzer. |

# 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).

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

# 3 Instrument Configuration

This chapter describes the Microsoft Windows XP 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 Hard 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 Windows XP 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 the front panel description.

# 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 will activate that menu item or button. |
| Alt | Moves focus/control to the pull down menus bar in the active Window |
| Right Arrow | In pulldown menu: opens the next menu to the right, or opens a submenu<br>In a dialog box: selects an option button |
| Left Arrow | In pulldown menu: opens the next menu to the left, or opens a submenu<br>In dialog box: selects an option button |
| Up Arrow | In pulldown menu: Moves to next selection up in the menu<br>In dialog box: selects an option button |
| Down Arrow | In pulldown menu: Moves to next selection down in the menu<br>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<br>In Internet Explorer: works like the BACK arrow key |
| Ctrl + Left arrow | Moves to the left one word at a time |
| Ctrl + Right arrow | Moves to the right one word at a time |
| Ctrl + Tab | In dialog box: moves to the next/previous Tab location |
| Alt + Space | Opens the window control menu for the currently active window, allowing you to minimize, maximize, move and restore (size) the window |
| Ctrl + Esc | Opens the Windows Start Menu |
| Ctrl + Alt + Delete | Opens the Windows Task Manager |

See also the section Windows Shortcuts and Miscellaneous Tasks in the Getting Started Guide chaper on Using Microsoft Windows XP.

# Agilent Software Installed

## Agilent Signal Analyzer Software

The N9060A Agilent Spectrum Analyzer Measurement Application software is installed in the N9020A MXA Signal Analyzer measurement platform. 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 89600

Agilent 89600 Flexible Demodulation is installed. Agilent 89600 measurements requires a license to use the product beyond an initial 14 day trial period.

# Customer Installation of Software

## 3rd Party Software Verified by Agilent

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

- Symantec AntiVirus™ Corporate Edition version 9.0.0.338
- MathWorks MATLAB

## Installation of Other 3rd Party Software

The N9020A is an Open Windows environment, so you can install non-approved software on the instrument. However, installation of non-approved software may affect instrument performance. Agilent does not warrant the performance of the N9020A 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 are installed on the instrument when it is shipped from the factory.

If you install programs other than those which 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

## Administrator Login

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

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

## User Login

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

- Install software
- Configure network and printer access
- Access files on the instrument that are accessible to 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 Agilent’s customer support in the event that the Administrator password was changed and has since been lost/forgotten. You must not remove or modify the AgilentOnly account.

## Agilent Service user accounts

User accounts are defined for Agilent’s use if it is necessary to service the 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, user, backup operators. User names are not case sensitive but passwords are case sensitive.

**NOTE** For the Signal Analyzer software to operate the user account executing the software

must be assigned Administrator or Power User privileges. Otherwise, the Signal Analyzer software will not operate correctly.

---

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

# 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 application using the Agilent Recovery process.

## Settings That Can Be Changed

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

**NOTE** Before changing any Windows System settings, exit the instrument application.

| You May Use This Feature | To Do This . . . |
|---|---|
|  | Configure Microsoft Automatic Updates. |
|  | Install and configure an Anti Virus program. |
|  | Setup new Instrument user accounts.<br>**CAUTION** Do not delete or modify the "Agilent-Only" user account |

| You May Use This Feature | To Do This . . . |
|---|---|
|  | Add the Instrument to a network. |
|  | Install and configure a printer. |
|  | Set the time and date. |
|  | Modify System Properties, Advanced Tab settings of Performance, Adjust for Best Performance. Leave all other settings unchanged. |

## Settings That Must Not Be Changed

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

| Do NOT Use This Feature | To Do This . . . |
|---|---|
|  | Do not change Power Options. (Power Scheme, Power Button, Hibernate) |
|  | Do not modify System Properties, Hardware Tab settings (Device Manager, Drivers).<br>Do not modify System Properties, Advanced Tab settings (Performance, User Profiles, Startup and Recovery, Environment Variables, Error Reporting) |

| Do NOT Use This Feature | To Do This . . . |
|---|---|
|  | Do not remove installed Fonts. |
|  | Do not change the following Display Settings:<br>• Screen Saver settings<br>• The screen resolution, 1024 x 768<br>• DPI setting from Normal size (96 DPI) |
|  | Do not delete or modify the "AgilentOnly" user account. |

In addition, **DO NOT**:

- Add, delete, or modify hard-disk drive partitions.
- Delete or modify Agilent registry entries.
- Change the contents of any directories containing the name "Agilent"
- Stop these services:
  - — The MSSQL$CDF service or uninstall the "Microsoft SQL Server Desktop Engine"
  - — The IIS server or tamper with any virtual directories (or their contents) that came configured with the 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.

# 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 don't have a mouse it can be done using front panel keys, and you might want to reference the section on "Navigating Windows Without a Mouse" on page 32.

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 pre-configured from the factory. It must be a unique name such that it will not conflict with other equipment on your LAN. The pre-configured Computer Name is A-N9020A-xxxxx, where xxxxx is the last 5 digits of the instrument's serial number.

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

## IP Address & Gateway

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

# Windows Security

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

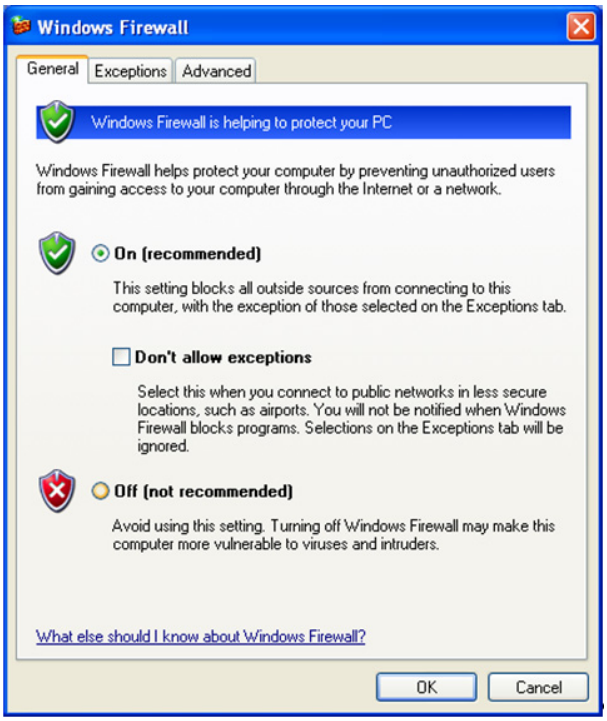
1. Use an internet firewall.
2. Get the latest critical Windows updates.
3. Use up-to-date antivirus software.

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


**NOTE** The window may look slightly different on your instrument.

## Windows Firewall

The instrument is shipped with the Windows Firewall enabled.



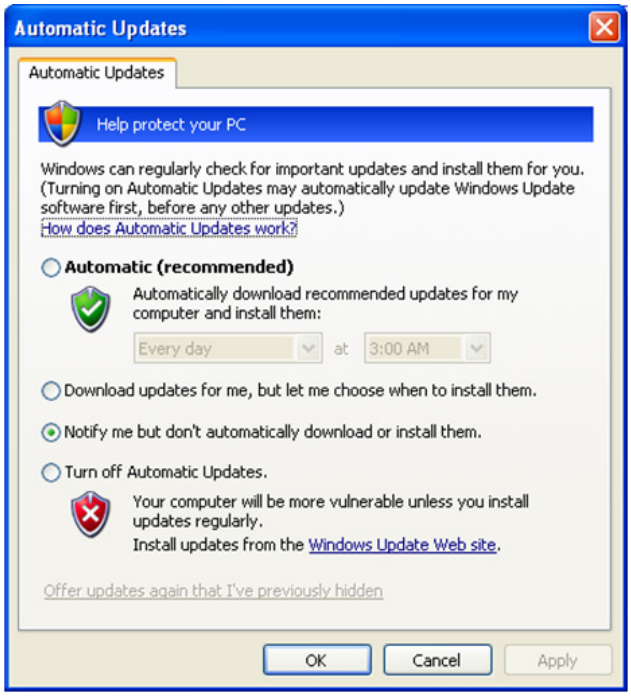

**NOTE** The window may look slightly different on your instrument.

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

The default instrument setting is to automatically check for critical Windows Updates, notify you, download the updates and install them, if the instrument has internet access.

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

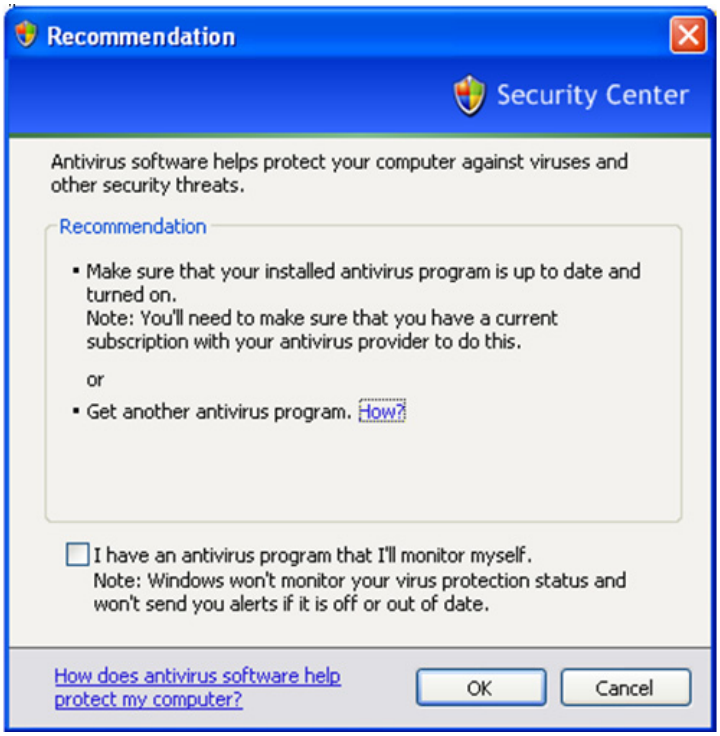



**NOTE** Be aware that downloading and installing Windows Updates can be network and CPU usage intensive (impacting the instrument performance) and some Windows Updates will automatically reboot the instrument. It is recommended that Windows Updates be performed when the instrument is not in normal use.

## Virus Protection

There is no antivirus software included with your instrument. Antivirus application software has been tested to be compatible with the instrument. See the section on 3rd Party Software Verified by Agilent in the Instrument Configuration chapter for Anti-Virus software that has been tested by Agilent.

**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. But as long as you don't use the instrument for a lot of internet browsing, this should not be a problem. However, 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 XP has a Backup utility that you can use to archive files and folders in case of a hard disk drive failure. See the Microsoft Windows XP 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 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 XP contains capability to restore the system to a previous point in time. System Restore is enabled with default settings as provided by Microsoft. However, System Restore is not 100% successful. Therefore it is not the recommended method to backup the instrument. System Restore has not been tested to verify successful restoring.

## Disk Defragmenting

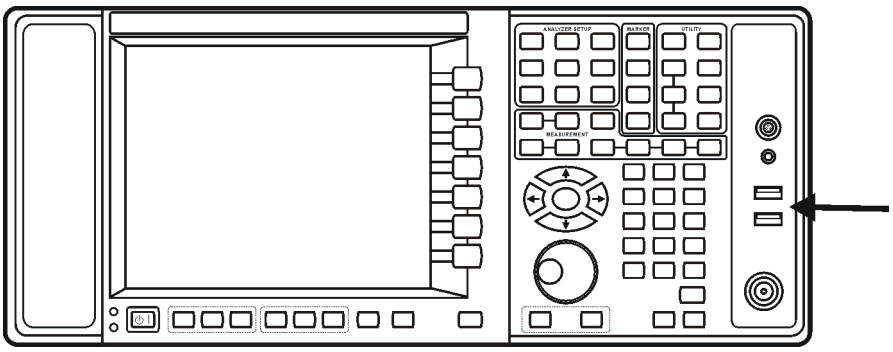
Over time the instrument’s hard disk will become fragmented. Windows XP has a Disk Defragmenter utility that you can use to defragment the hard disk. See the Microsoft Windows XP Help and Support Center for more information on this utility.

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

# USB Connections

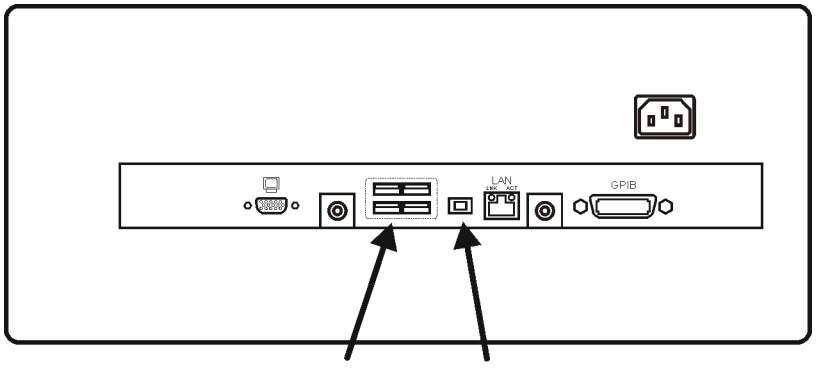
All of the USB ports are compatible with the USB 2.0 and 1.1 specification. The two USB ports on the front panel (see graphic below) and four of the USB ports on the rear panel are USB Series "A" ports. These are ports to which you can connect USB mass storage devices and printers. The instrument USB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

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



Mxa_fp1

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 N9060A User's Guide. The instrument USB Device driver included in the instrument software supports the test and measurement industry standard USBTMC-USB488 device class.




Mxa_rp1

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 bus.

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 hard drive recovery process.

# Hard Drive Partitioning and Use

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

- The **C: partition** contains the Windows XP 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 will have to 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 hard drive.
- The **E: partition** is reserved for Agilent's use. The primary use of the E: drive is for housing the Calibration and Alignment data. Do not change or overwrite the files on this drive. This could cause your 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 to an external device.

# Hard 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. The Agilent Recovery System is stored in a separate hidden hard disk drive partition.

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

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

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

**NOTE** It is recommended that you use a regular back up strategy. Your IT department may already have a back up strategy in place which is suitable for the instrument and its data. See the System Maintenance section. Using the Agilent Recovery System in conjunction with a regular back up strategy should allow you to fully recover the instrument software and data.

It is recommended that routine backups of the instrument information be performed to keep current archives of the instrument information. This will allow a full recovery of the instrument information after the instrument recovery system operations are performed. See the "Backing Up the Instrument Information" section for more details.

Using the Instrument Recovery System:

1. Make sure the instrument is turned off.
2. Turn on the instrument.

3. After the "Agilent Technologies" screen is displayed


Then the following screen contents will be displayed for 3 seconds.

Please select the operating system to start:

Microsoft Windows XP Professional

Agilent Recovery System

Use the up and down arrow keys to move the highlight to your choice.

Press Enter to choose.

4. Press the down arrow key to move the highlight to "Agilent Recovery System", press the **Enter** key.
5. When the Agilent Recovery System has booted, follow the on-screen instructions to perform the desired recovery operations.
6. After exiting the Agilent Recovery System, the instrument will reboot. If the original factory instrument system has been restored, the instrument will re-execute the “Turning on the Analyzer the First Time” on page 8 process.

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

## Configuring Recovery Prompt Timing

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

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

---

**NOTE** You must be logged in as an admisistrator in order to change these settings. See “User Accounts” on page 35 for more information.

---

# 4 Using Microsoft Windows XP

**NOTE** The capabilities described in this section are Microsoft Windows XP features. The discussion provided here gives some guidelines for using the capabilities with the instrument. You will have to refer to the Windows XP help documentation for more information. Your version of Windows, may not match these instructions exactly.

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

# Remote Desktop: Using the N9020A 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** The Remote Desktop functionality is a Microsoft Windows XP capability. The following discussion provides some guidelines for using this capability with the instrument. You will have to refer to the Windows XP 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.

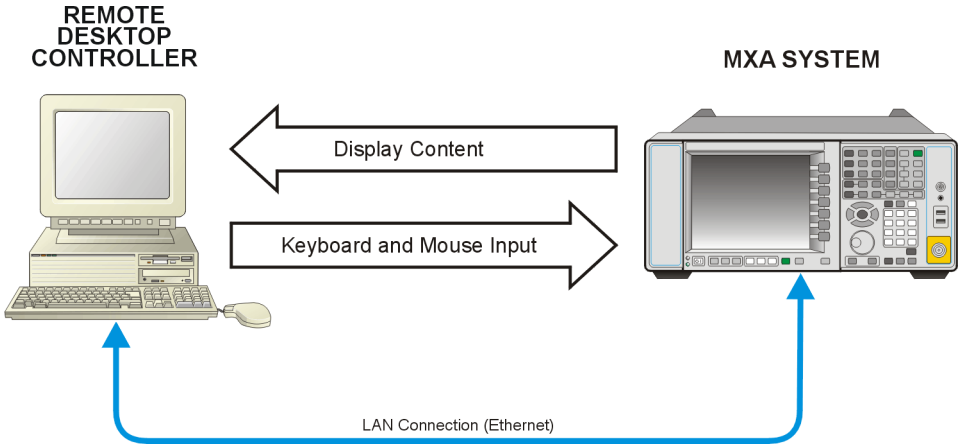
## Overview of Remote Desktop Operation

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 32-bit version of Microsoft Windows as a Remote Desktop Host.

**Figure 4-1. Basic Setup for Remote Desktop Operation**



## Setting Up Remote Desktop Operation

### Setting Up the Instrument

Before the Instrument may be controlled via a Remote Desktop Connection, it must be set up to allow connection from a remote computer.

---

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

---

To perform setup, do the following:

1. Open the Windows Control Panel, by *either*:
   - from the Instrument Application, pressing **System**, **Control Panel**..., *or*,
   - from the Windows Desktop, clicking **Start**, **Control Panel.**
2. If the Control Panel appears with "Category View", click **Performance and Maintenance**, then click **System**. If the Control Panel appears with "Classic View", *double*-click **System**.
3. Select the Remote Tab of the System dialog.
4. A Warning Message appears, informing you that it may be necessary to configure your internet connection sharing or personal firewall to permit Remote Desktop connections. The details of such configuration are beyond the scope of this document.
5. In the "Remote Desktop" section of the dialog, check the "Allow users to connect remotely to this computer" checkbox.
6. Click the "Select Remote Users..." button, then follow the onscreen instructions to add users. All users who have Administrative level access are listed as already having permission.

### Setting Up the Remote Computer

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

**Remote Computer running Windows XP** Windows XP includes the Remote Desktop Connectivity Client software, so no additional setup is required.

**Remote Computer running another Version of Windows** You can use any *32-bit* version of Windows (Windows 95, 98, ME, NT4, or 2000) to install and run the Client software for Remote Desktop Connectivity. However, you need to have available a Windows *XP* 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.

---

To install the Client software, do the following:

1. When the Welcome Screen appears, select `Perform additional tasks`.
2. From the "What do you want want to do?" screen, select `Set up Remote Desktop Connection`.
3. The "Remote Desktop Connection InstallShield Wizard" appears. Click `Next` to begin the installation, and follow the onscreen instructions provided by the Wizard.
4. Once the Remote Desktop Client Software is installed, you can access it via the Windows Start menu, under `All Programs` > `Accessories` > `Communications` > `Remote Desktop Connection`.

## Running a Remote Desktop Session

### Initializing a Remote Desktop Session

---

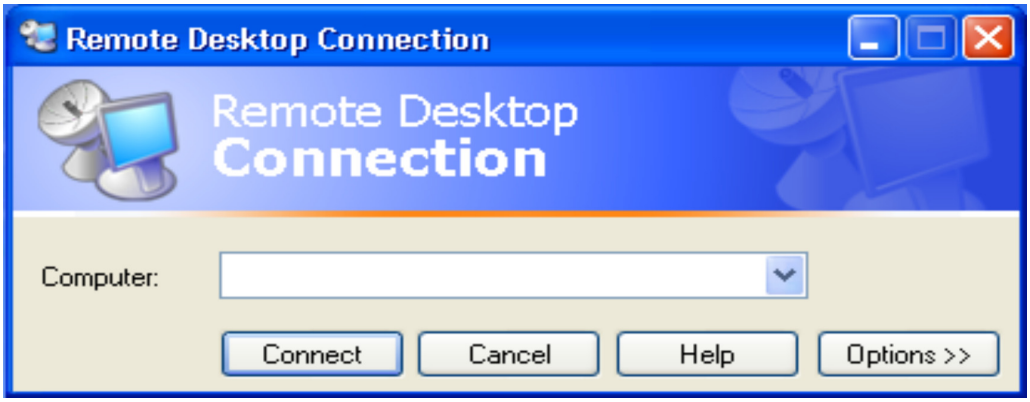
**NOTE** In order to initialize a Remote Desktop Session, you need to know the "Computer Name" of the Instrument. This information can be shown on the Instrument display by following the procedure in the Section "How To Locate the Computer Name of the Instrument" on page 65.

---

After setting up both the Instrument and the Remote Computer for Remote Desktop Connnectivity, as described in the Section "Setting Up Remote Desktop Operation" on page 55, you are ready to start a Remote Desktop session.

To start a Remote Desktop session from the remote computer:

1. Click `Start` > `All Programs` > `Accessories` > `Communications` > `Remote Desktop Connection`.
2. A Remote Desktop Connection dialog appears.




   In the box titled Computer, enter the Computer Name of the Instrument. (For instructions on how to obtain this, see the Section "How To Locate the Computer Name of the Instrument" on page 65.)

3. Click `Connect`.
4. Log in to the Instrument. In the login dialog that appears, enter the login account name and password. The default account name is "Instrument" and the default password is "measure4u,"

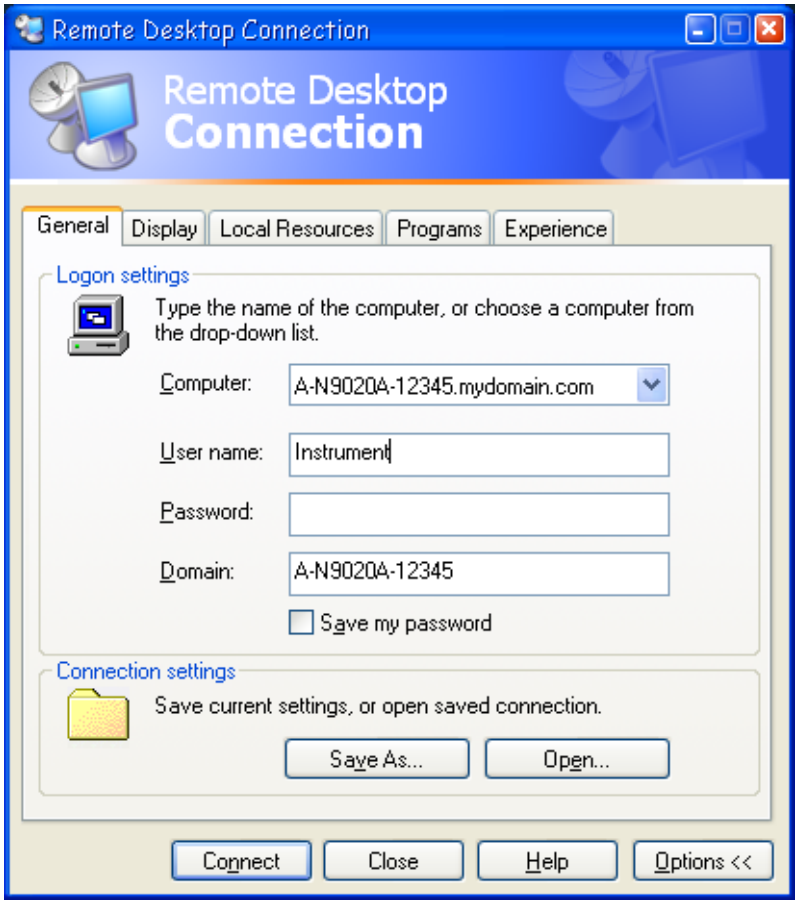
but note that these parameters may be changed by Instrument users.

**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.

5. 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 mimic the functions of the Front Panel keys, as detailed in the Sections, "Popup Menus for Remote Desktop Operation" on page 59, "The Virtual Front Panel" on page 60, and "Keycode Commands for Remote Desktop Operation" on page 61.

### Setting Remote Desktop Options

Clicking the `Options` button in the Remote Desktop Connection dialog displays the Options dialog:

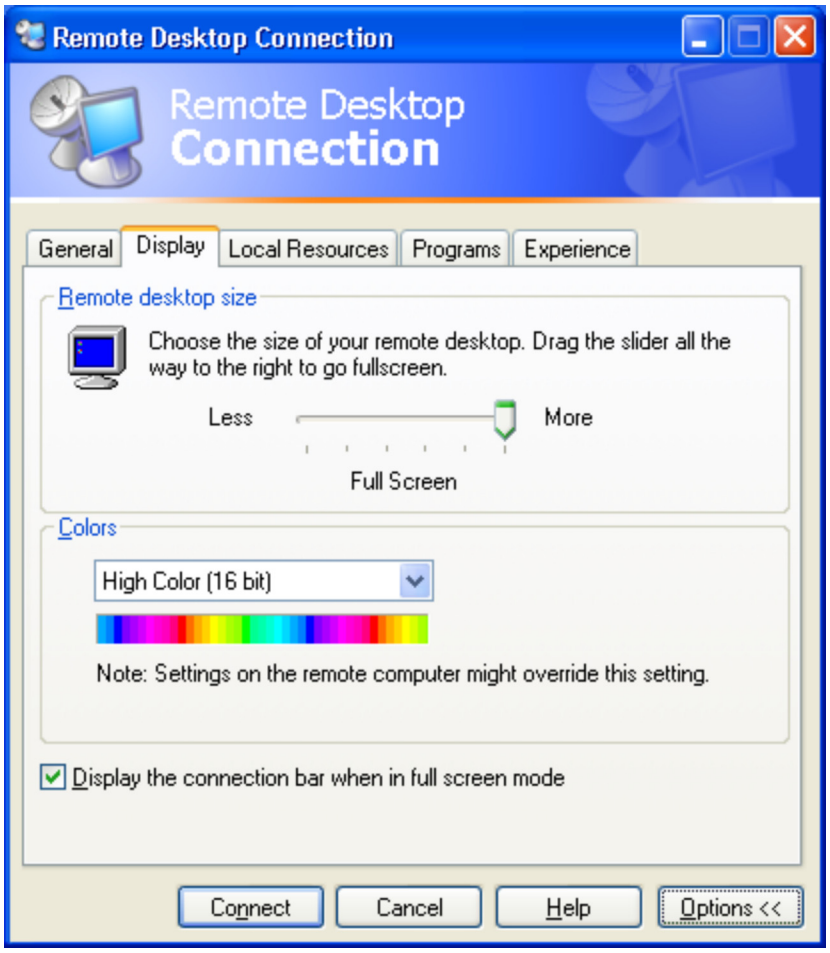



The Options dialog has several tabs. Generally, the default settings are correct. However, there are some restrictions on particular settings under certain tabs, as listed below.

- Under the `General` tab, ensure that the Computer Name, User name and Domain name are

correctly set. You may choose to enter the password and save it for future sessions, by checking the **Save my password** box.

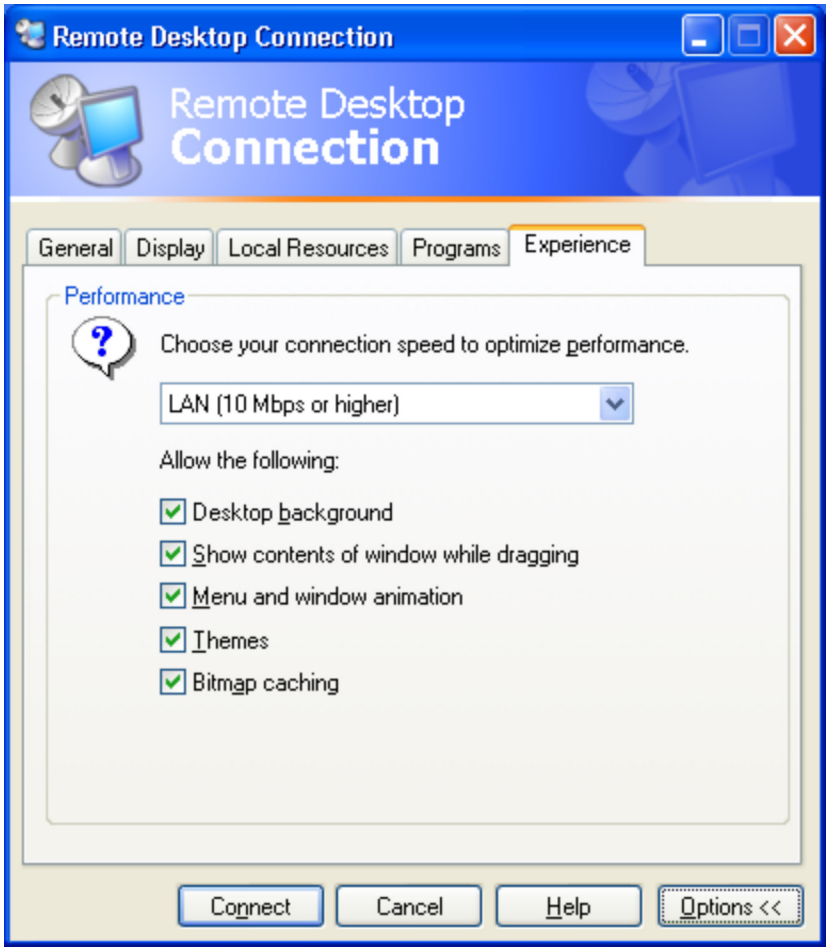
- The information displayed under the `Display` tab is as shown below:




— Under `Remote desktop size`, you may select the size of the window in which the Instrument display will appear. 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`, you may select any setting that uses 15 bits or more. Selecting a color setting that uses less than 15 bits results in dithering and incorrect color rendition of the remote desktop window.

- The information displayed under the `Experience` tab is as shown below:




To optimize the peformance of the Remote Desktop session, choose the appropriate connection format from the drop-down listbox.

### Ending a Remote Desktop Session

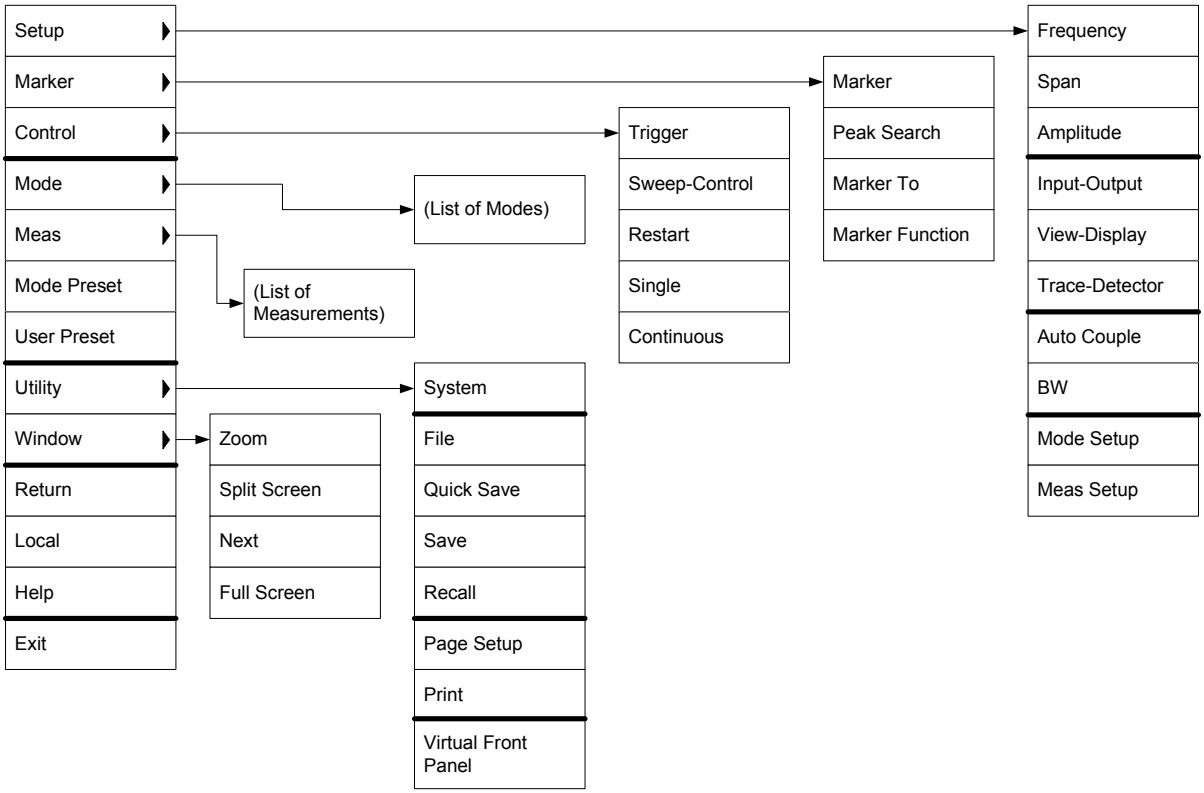
There are two ways to disconnect the remote computer from the Instrument, ending the Remote Desktop session.

1. If the remote desktop window is full-screen, click the `X` at the right of the connection bar that appears at the top center of the window. If the remote desktop window is not full-screen, click the red `X` box at the right of the window's title bar. In both cases, a dialog appears, asking you to confirm that you wish to disconnect. Click `OK` to disconnect.
2. Move the cursor to the bottom left of the remote desktop window, to cause the taskbar to appear. Click `Start`, then click the red `Disconnect` button at the lower right of the Start menu (this corresponds to the `Shut Down` button in a non-remote Windows session). A dialog appears, asking you to confirm that you wish to disconnect. Click `Disconnect` to disconnect.

### Popup Menus for Remote Desktop Operation

Right-clicking the mouse over the application display window pops up the following menu

hierarchy, which may be used as alternatives to the Front Panel keys.




The function of each selection in the popup menu is generally identical to that of the corresponding Front Panel key. There are certain additional items, as listed below:

- `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 60.

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

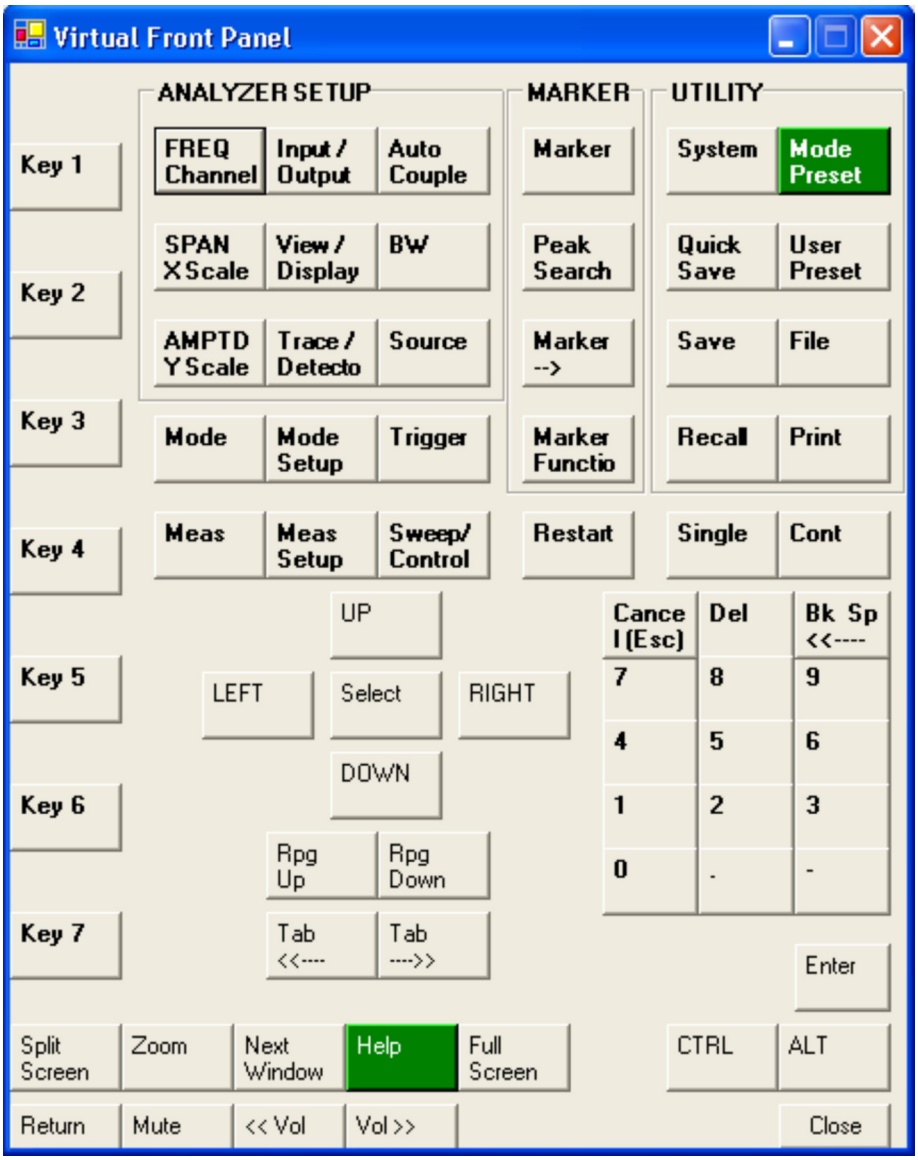
### The Virtual Front Panel

The Virtual Front Panel is a software equivalent of the Front Panel key set, which provides a further 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.

To display the Virtual Front Panel, right-click the mouse over the application display window, then

select `Utility` > `Virtual Front Panel` from the popup menu. The Virtual Front Panel appears, as shown below:




Clicking a button in the Virtual Front Panel mimics the operation of the corresponding Instrument Front Panel key. The buttons at the left of the panel, named `Key 1` through `Key 7`, mimic the operation of the respective softkeys. The `Rpg Up` and `Rpg Down` keys mimic the operation of the Thumbwheel.

### 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 mimic the operation of the Instrument Front Panel keys.

# Agilent MXA Remote Desktop Keycodes

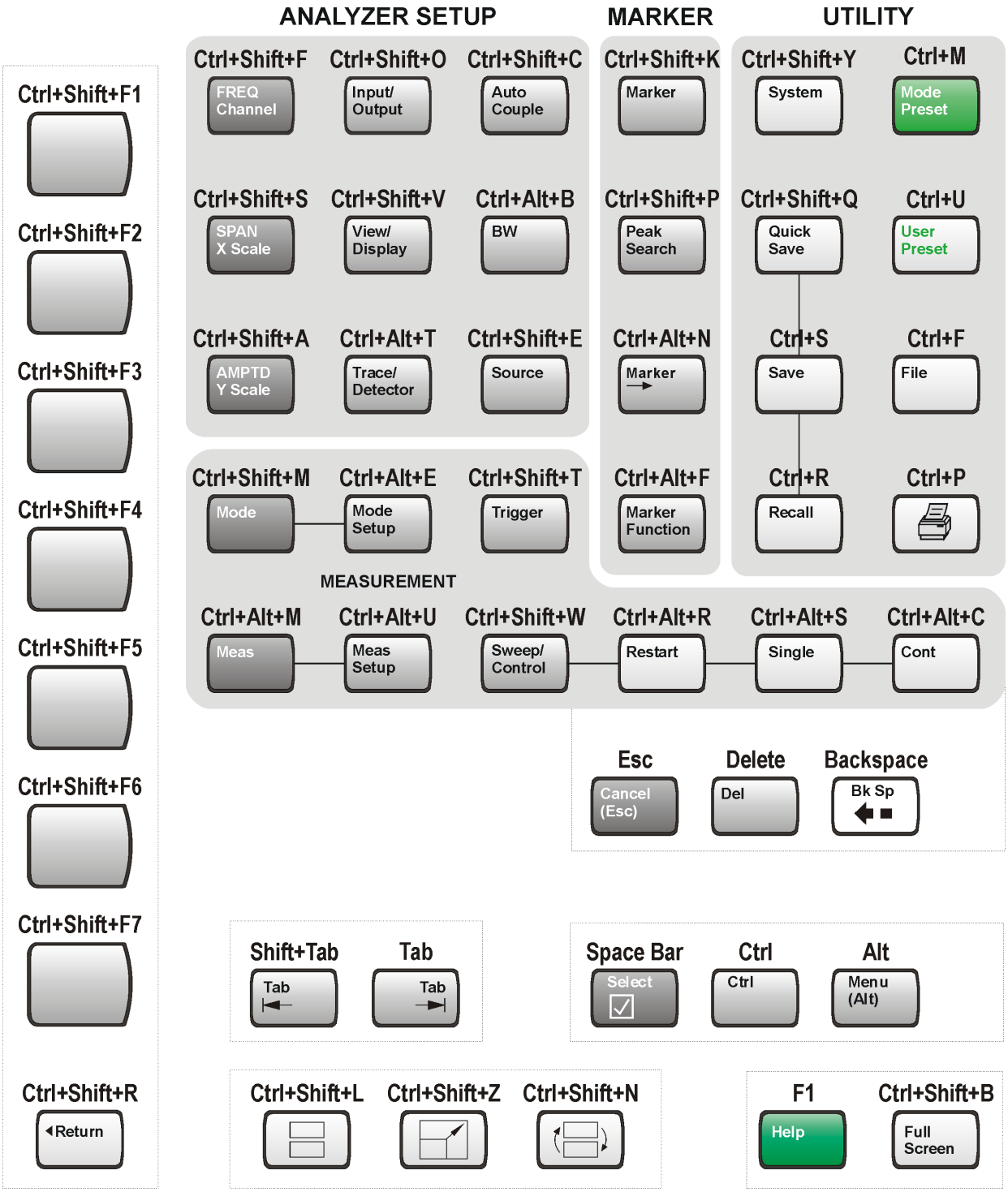


**Table 4-1. Keycode Commands**

| To mimic the following Front Panel key: | Press these keys on the Remote Computer keyboard: |
|---|---|
| AMPTD Y Scale | **Ctrl+Shift+A** |
| Auto Couple | **Ctrl+Shift+C** |
| Bk Sp | Backspace |
| BW | **Ctrl+Alt+B** |
| Cancel (Esc) | **Esc** |
| Cont | **Ctrl+Alt+C** |
| Ctrl | **Ctrl** |
| Decrease Audio Volume | the Volume Control slider |
| Del | **Delete** |
| Down Arrow | Down Arrow |
| Enter | **Enter (Return)** |
| File | **Ctrl+F** |
| FREQ Channel | **Ctrl+Shift+F** |
| Full Screen | **Ctrl+Shift+B** |
| Help | **F1** |
| Increase Audio Volume | the Volume Control slider |
| Input/Output | **Ctrl+Shift+O** |
| Left Arrow | Left Arrow |
| Marker | **Ctrl+Shift+K** |
| Marker -> | **Ctrl+Alt+N** |
| Marker Function | **Ctrl+Alt+F** |
| Meas | **Ctrl+Alt+M** |
| Meas Setup | **Ctrl+Alt+U** |
| Menu (Alt) | **Alt** |
| Mode | **Ctrl+Shift+M** |
| Mode Preset | **Ctrl+M** |
| Mode Setup | **Ctrl+Alt+E** |

### Table 4-1. Keycode Commands

| To mimic the following Front Panel key: | Press these keys on the Remote Computer keyboard: |
|---|---|
| Mute | the **Mute** checkbox under the Volume Control |
| Next Window | **Ctrl+Shift+N** |
| Peak Search | **Ctrl+Shift+P** |
| Print | **Ctrl+P** |
| Quick Save | **Ctrl+Shift+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+Shift+E** |
| SPAN X Scale | **Ctrl+Shift+S** |
| Split Screen | **Ctrl+Shift+L** |
| Sweep/Control | **Ctrl+Shift+W** |
| System | **Ctrl+Shift+Y** |
| Tab | **Tab** |
| Trace/Detector | **Ctrl+Alt+T** |
| Trigger | **Ctrl+Shift+T** |
| Up Arrow | Up Arrow |

**Table 4-1. Keycode Commands**

| To mimic the following Front Panel key: | Press these keys on the Remote Computer keyboard: |
|---|---|
| User Preset | **Ctrl+U** |
| View/Display | **Ctrl+Shift+V** |
| Zoom | **Ctrl+Shift+Z** |
| 1 | **1**[a] |
| 2 | **2**[a] |
| 3 | **3**[a] |
| 4 | **4**[a] |
| 5 | **5**[a] |
| 6 | **6**[a] |
| 7 | **7**[a] |
| 8 | **8**[a] |
| 9 | **9**[a] |
| – | Use the **–** key to enter a negative value, as appropriate[a] |
| . (Decimal Point) | **.** (Period)[a] |
| 0 (Zero) | **0** (Zero)[a] |

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

**NOTE** The effect of pressing **Ctrl+Alt+Delete** on the keyboard of the remote computer *always* applies to the remote computer, and not to the 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.

## 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:

*From the Agilent Application:*

1. On the Instrument Front Panel, press **System**, **Show**, **System**.

2. A page listing various parameters appears. The Instrument's Computer Name is shown in the list alongside the title "Computer Name".

*From the Windows Desktop (with a mouse attached to the Instrument):*

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

*From the Windows Desktop (without a mouse attached to the Instrument):*

1. Press **Ctrl+Esc** to display the Windows `Start` menu, then use the **Up Arrow** or **Down Arrow** keys to select the `Control Panel` item. Press **Enter** to open the Control Panel dialog.
2. If the Control Panel window appears in Category View, press **Tab** to select `Performance and Maintenance`, then press **Tab** to select `System`. The System Properties dialog is displayed. If the Control Panel appears in Classic View, press **Tab** to select `System`, then press **Enter**, to display the System Properties dialog.
3. Press **Ctrl+Tab** until the `Computer Name` tab is selected. The Computer Name is displayed under "Full computer name."
4. To close the System Properties dialog, press **Tab** to select the `Cancel` button, then press **Enter**.
5. To close the Control Panel dialog, press **Alt+Select** to open the drop-down `File` menu, then press the **Down Arrow** until the `Close` menu item is selected. Press **Enter** to close the Control Panel dialog.

# Embedded Web Server: Using the N9020A 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 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.

## Accessing the Instrument via the Internet: Overview

It is possible to access and control the Instrument via the Internet and World Wide Web, or a local internet, using the built-in Embedded Server functionality. This chapter 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 N9020A Remotely" on page 54, for details).

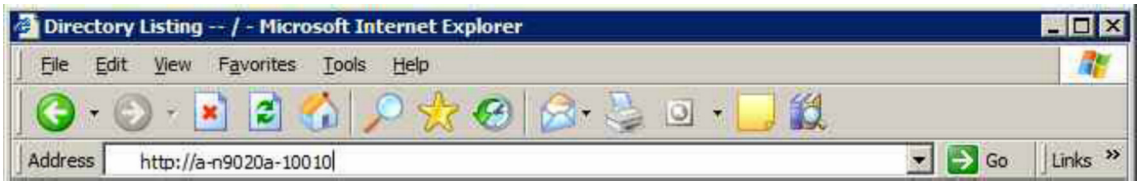
The Instrument Embedded Server capabilities are fully compliant with the LXI (LAN eXtensions for Instrumentation) standard.

## How To Access the Instrument from the Internet

**NOTE** In order 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 via the Instrument Display, see "How To Locate the Computer Name of the Instrument".

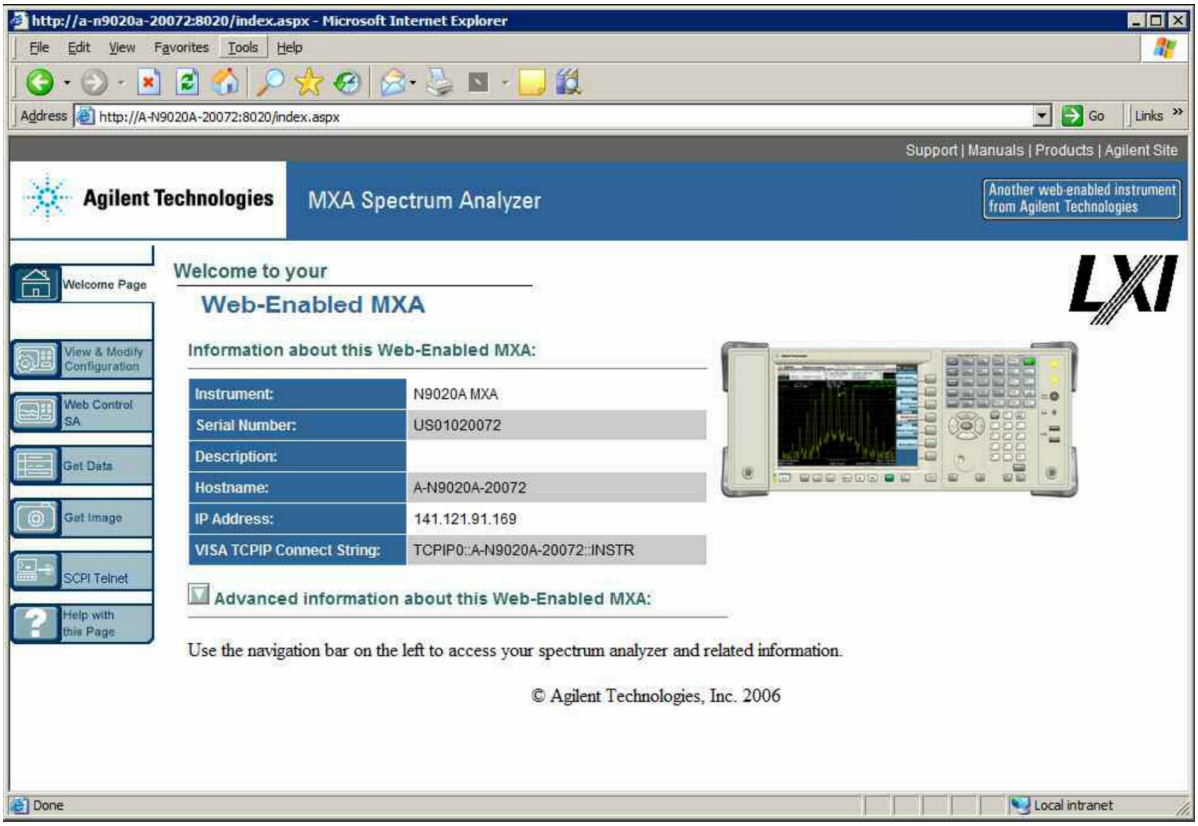
To access the Instrument from the Internet, do the following:
(This is only fully supported when using Internet Explorer.)

1. From a web browser (e.g., Internet Explorer), enter a URL corresponding to the Instrument hostname *or* IP Address. An example is given below using Internet Explorer. In this example the host name is "a-n9020a-10010".

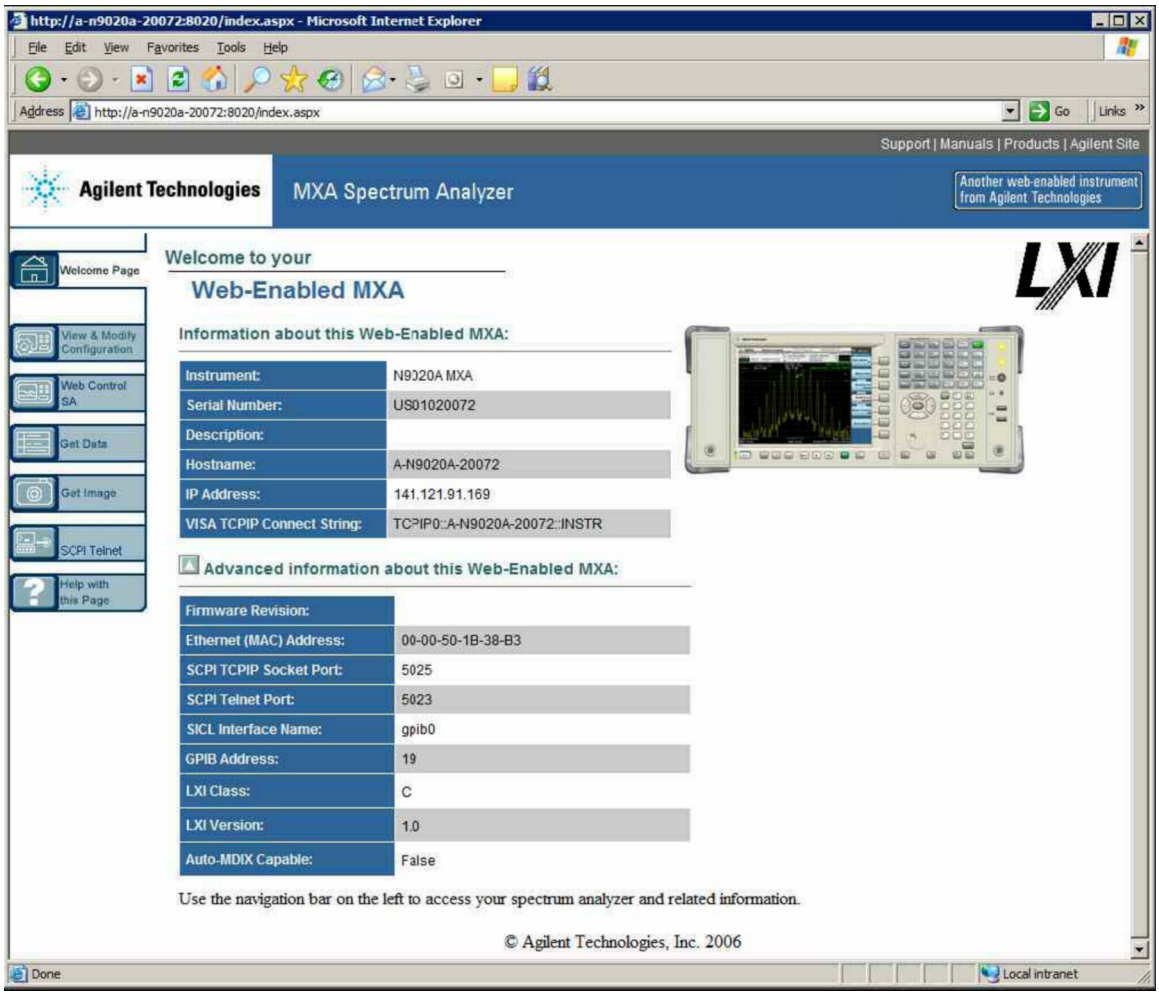



2. Upon successful connection to the Instrument web server, the welcome page is displayed, which

provides basic information about the Instrument's internet settings.



3. Clicking on the **Advanced Information** drop-down on the welcome page displays further settings and configuration information.

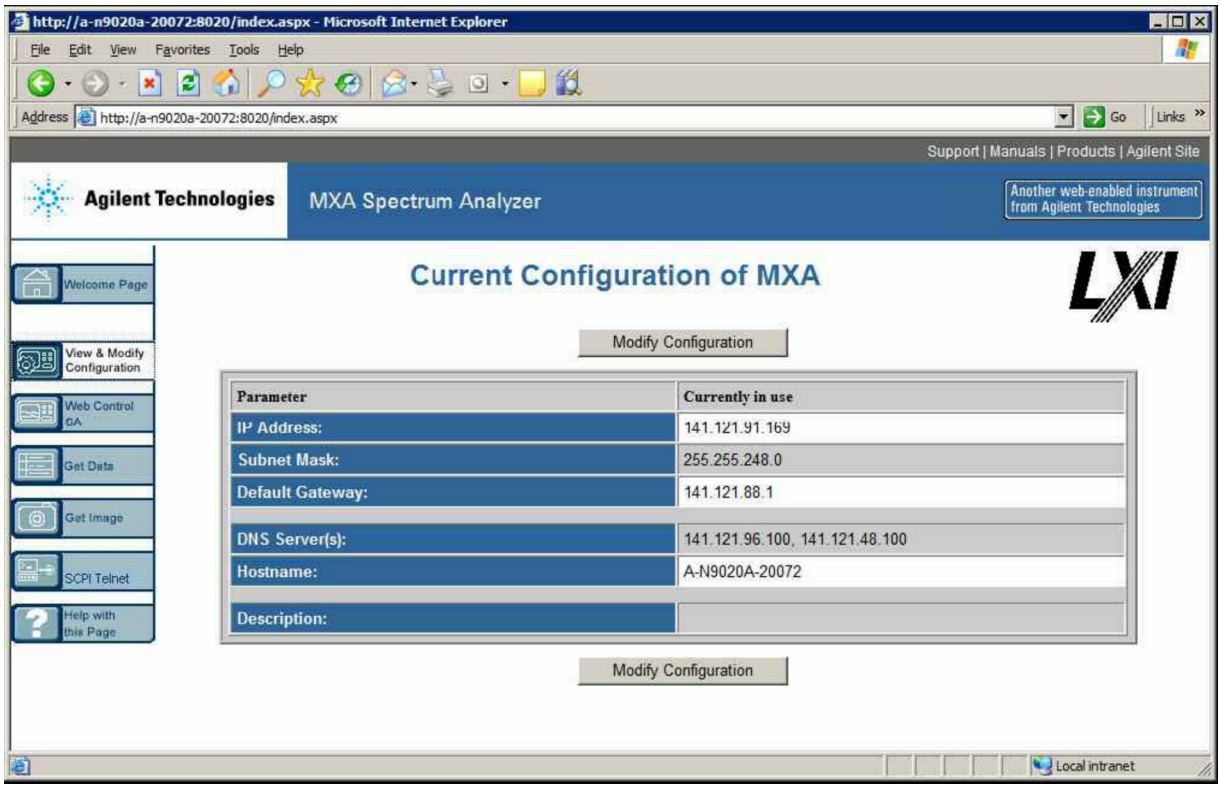



4. At the left hand side of the welcome page are a set of tabs that provide access to configuration information for the Instrument, plus the ability to control it via the web interface. For more information about the functionality available under each tab, see the following sections:

- "View & Modify Configuration Tab" on page 70
- "Web Control SA Tab" on page 72
- "Get Data Tab" on page 75
- "Get Image Tab" on page 76
- "SCPI Telnet Tab" on page 77
- "Help Tab" on page 79

### View & Modify Configuration Tab

Clicking on this tab displays the following web page, which shows the Instrument's currently-assigned IP address, plus other TCP/IP parameters:



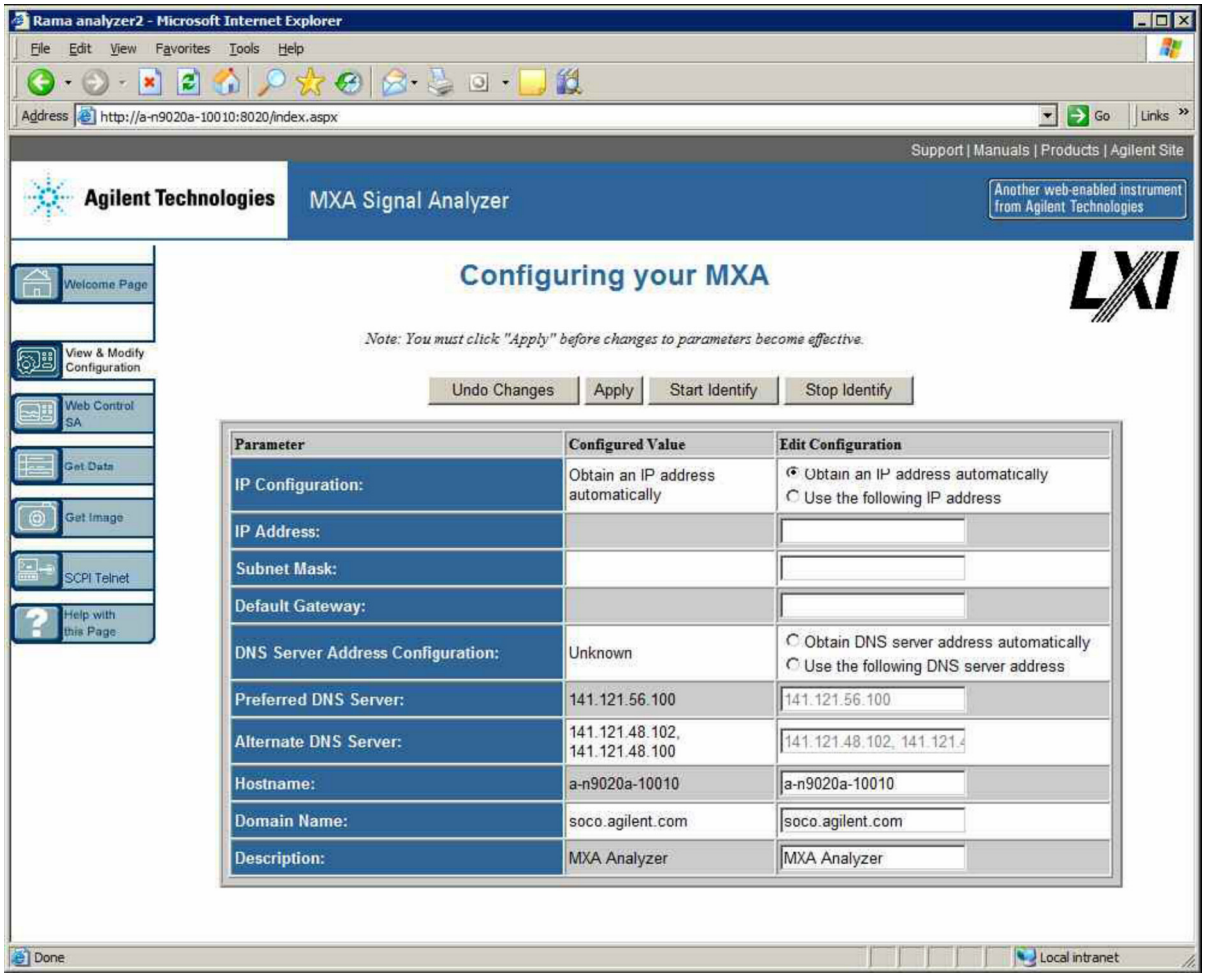

To modify the current configuration, do the following:

1. Click on either of the **Modify Configuration** buttons on the Current Configuration web page.

2. A password entry dialog appears, as shown:


3. By default, this password is set at the factory as “agilent”. Note, however, that the user may subsequently change the password. (Press **System**, **Config I/O**, **Reset Web Password** on the instrument front panel to change the password.)

4. When the correct password has been entered, the Modify Configuration web page appears, as shown:




5. Enter new settings as required, then click **Apply** to cause the new settings to take effect. The button **Undo Changes** may be used to revert all settings to their previous values, provided this button is clicked before clicking **Apply**. The Start Identify and Stop Identify buttons are used respectively to enable and disable the LXI status indicator in the Instrument.

**NOTE** Tool tips are available for each of the configuration buttons on this page.

### Web Control SA Tab

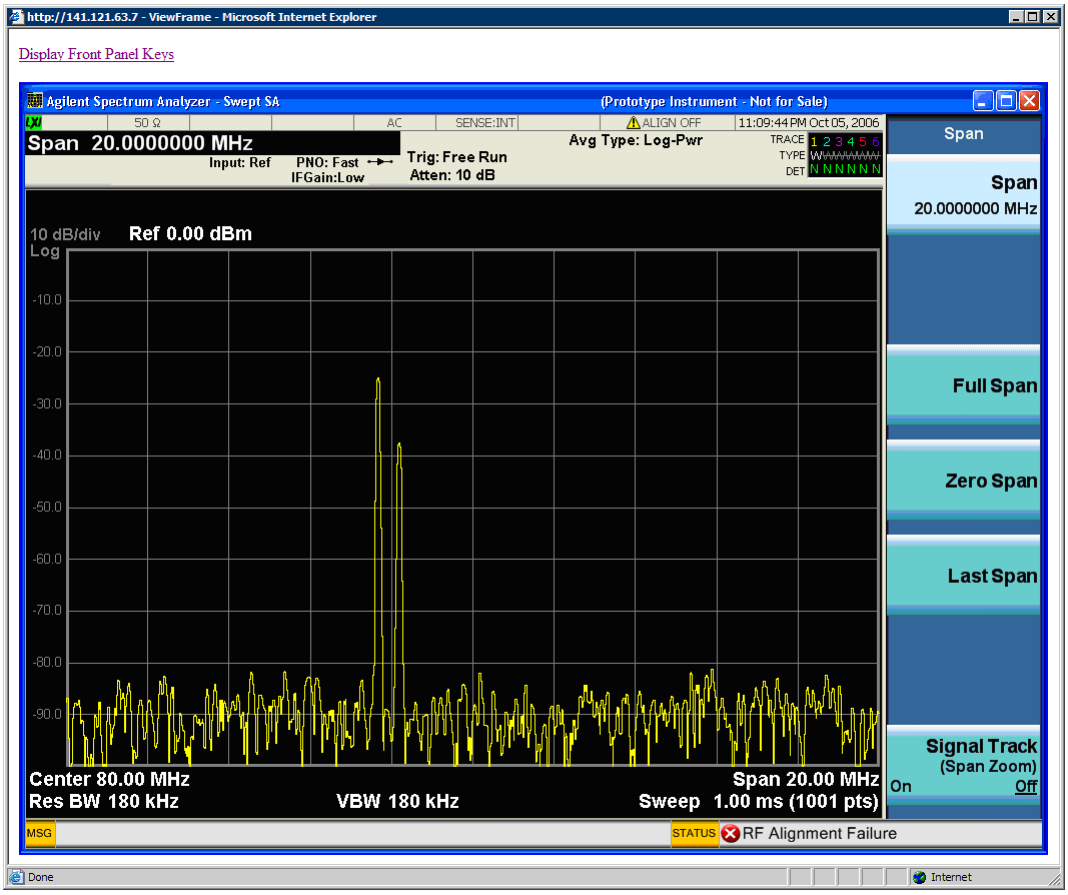
Selecting this tab lets you view, control and interact with the the Instrument via the web server.

1. Click on the `Web Control SA` tab.

2. A password entry dialog appears, as shown:

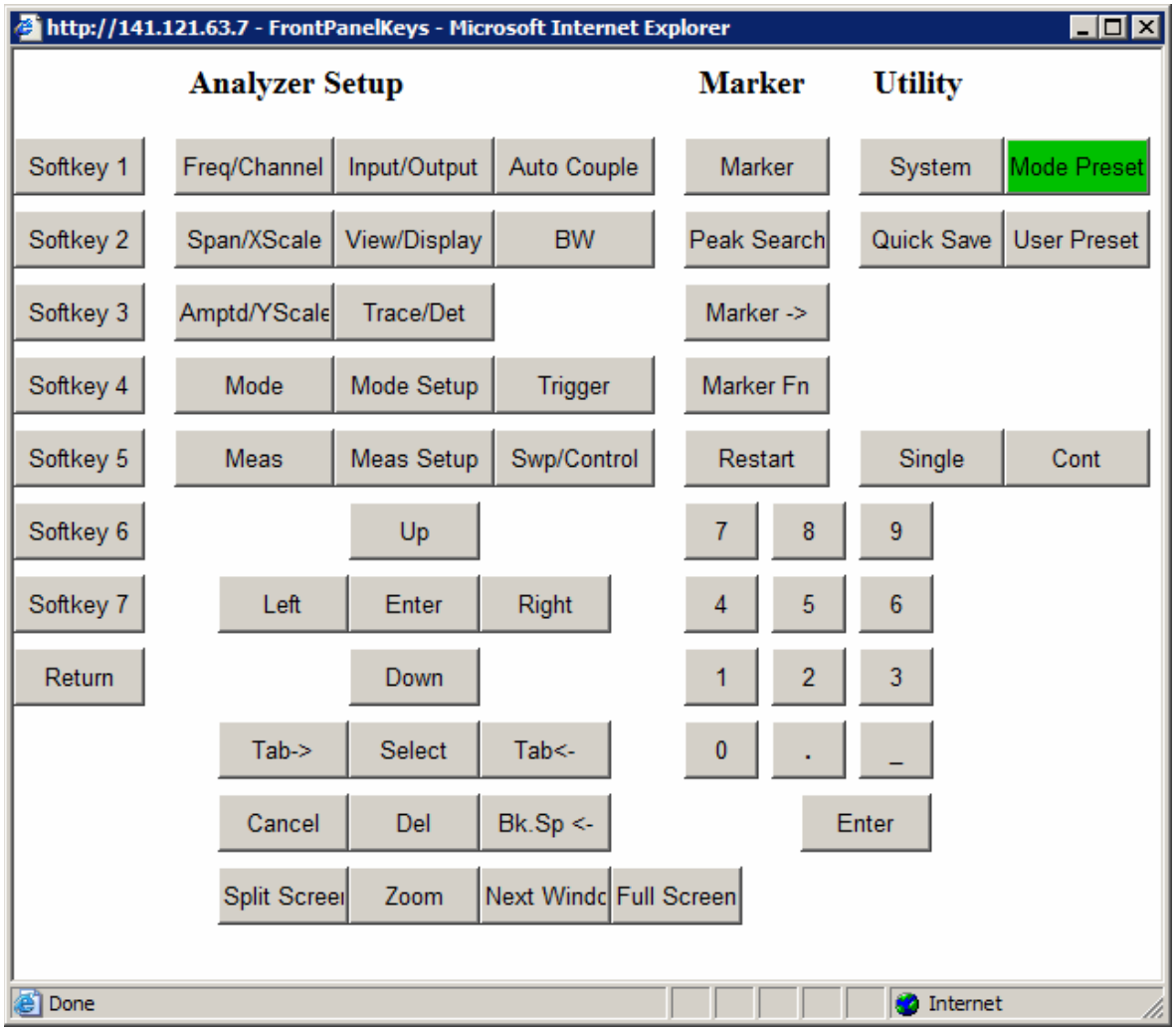

3. By default, this password is set at the factory as “agilent”. Note, however, that the user may subsequently change the password. (Press **System**, **Config I/O**, **Reset Web Password** on the instrument front panel, to change the password.)

4. When the correct password has been entered, the instrument control web page is displayed.




**NOTE** In order to view the instrument display using the web server, the instrument application must be running.

The web page shows the instrument application screen. Click the `Display Front Panel Keys` link to bring up a virtual keyboard that can be used to control the instrument. You can use the on-screen buttons to perform operations as though you were sitting in front of the instrument itself, and using the physical front panel.



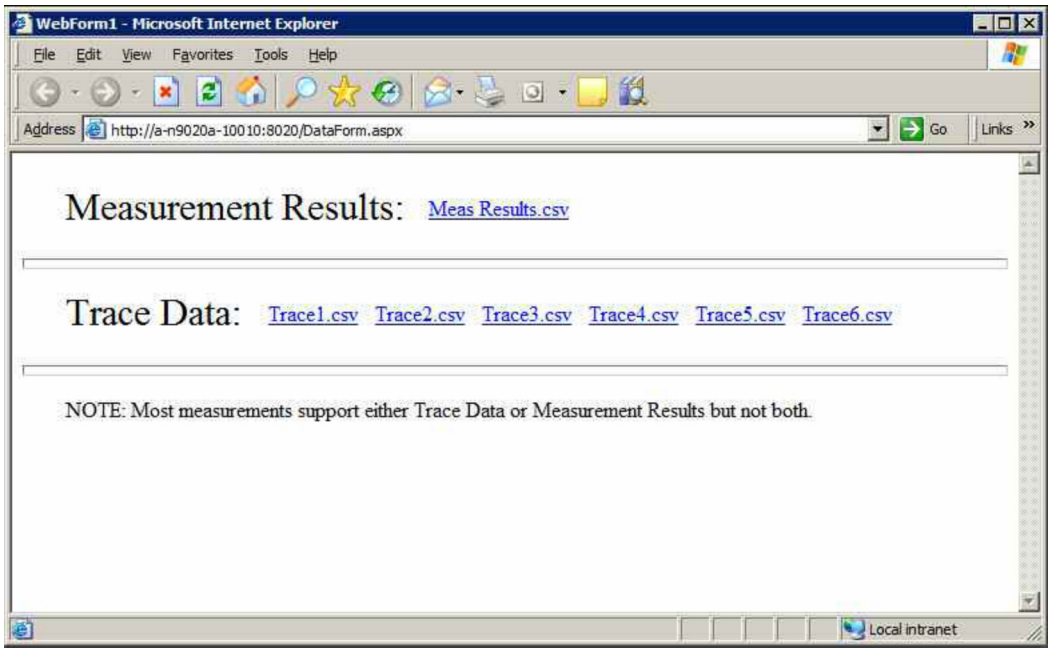

### Get Data Tab

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.

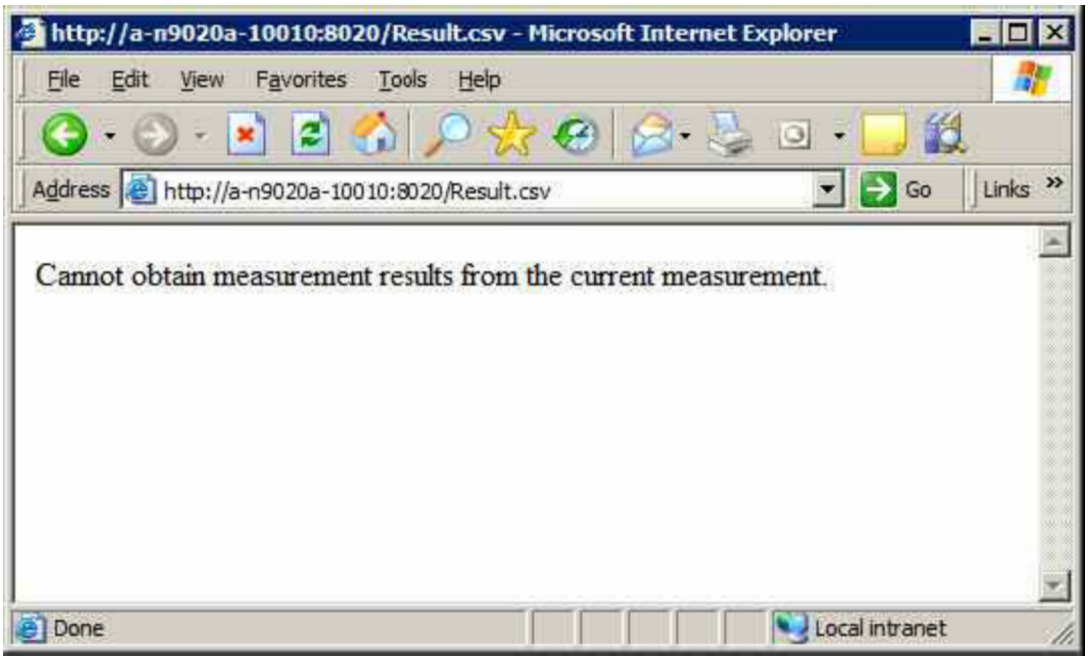
**NOTE** In order to capture data via the web server, the Instrument Application must be running.

The captured data is formatted as a Comma Separated Value (CSV) file, which may be saved on the client computer's hard disk, 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:



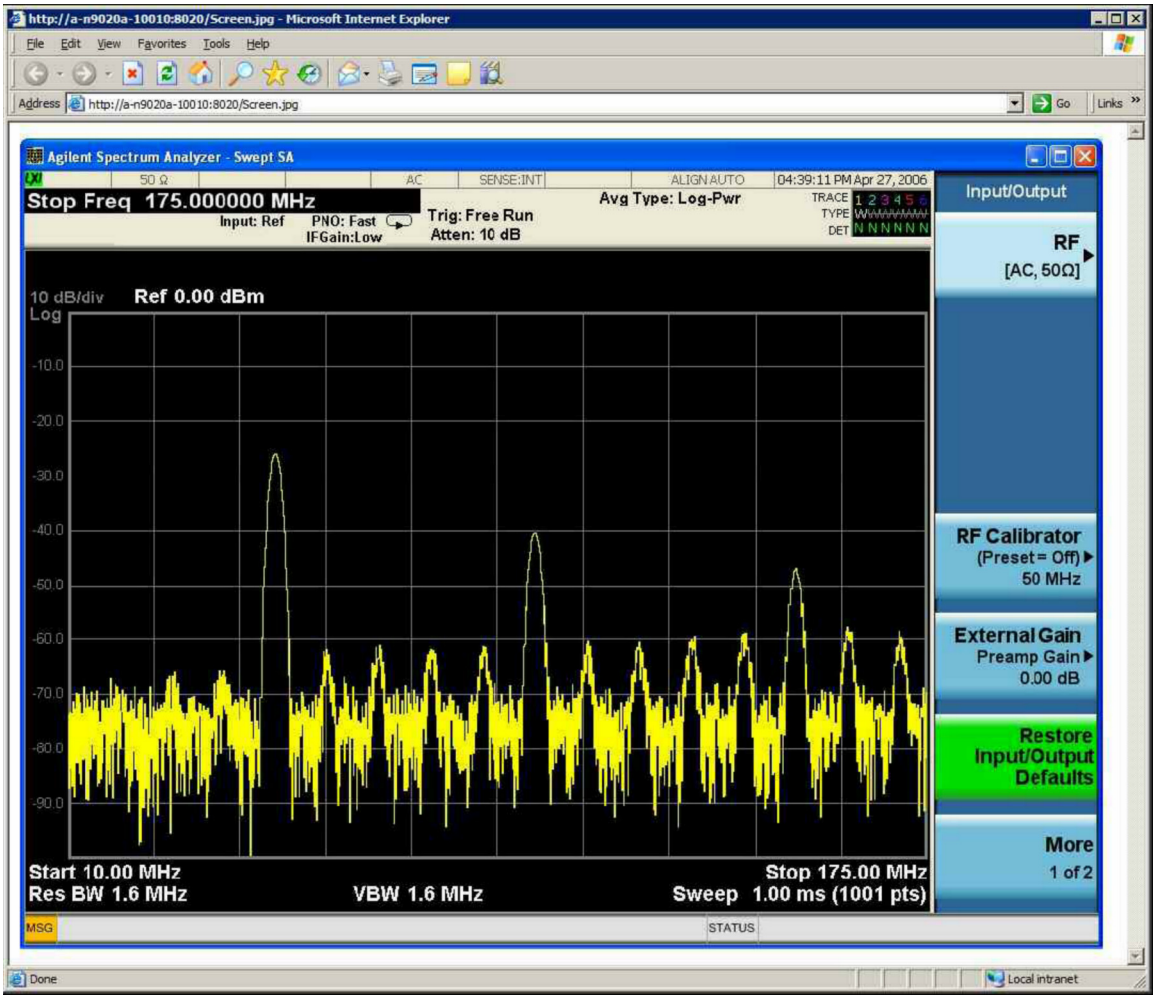

### Get Image Tab

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

**NOTE** In order to capture a screen image via 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 hard disk, or copied to the Windows clipboard.

A typical screen capture image appears as follows:




### SCPI Telnet Tab

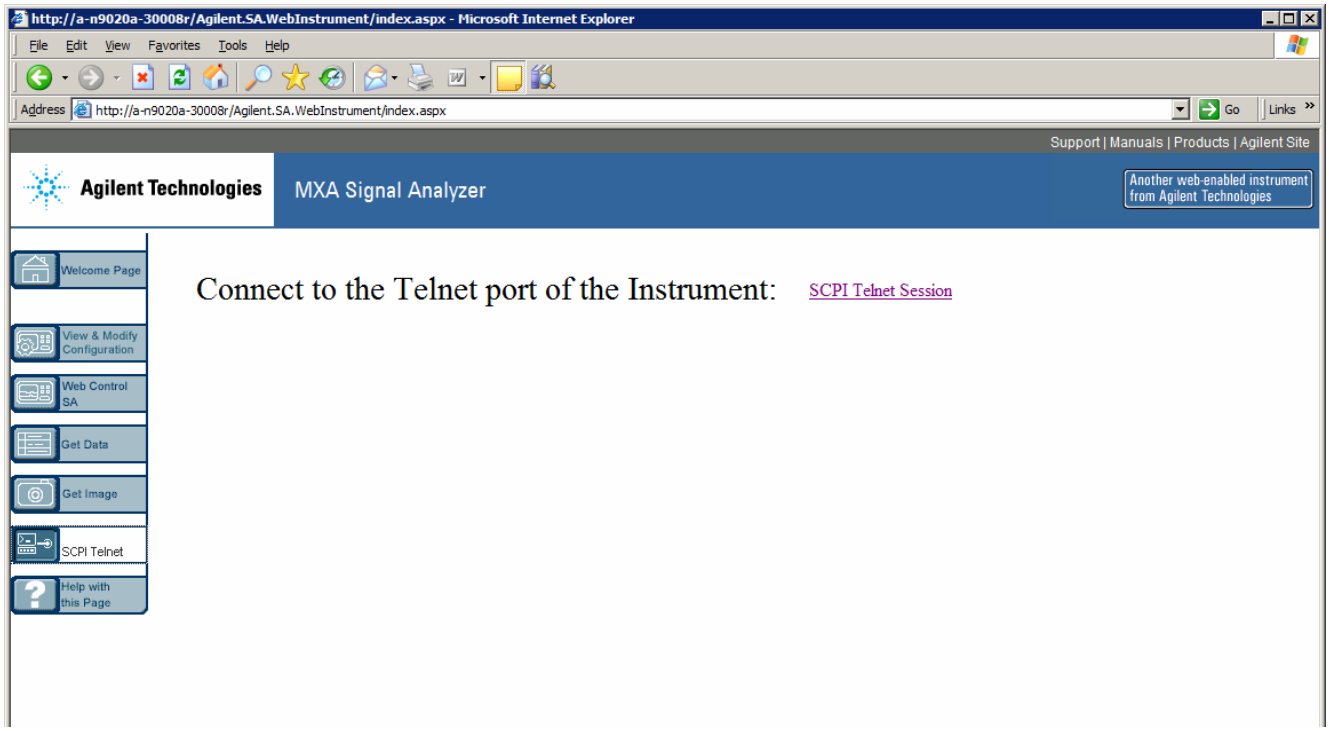
Selecting the SCPI Telnet tab opens a Telnet session between the Instrument and the client computer. The Instrument TCP/IP port used for SCPI access is 5023.

**NOTE** In order to run a SCPI Telnet session, the Instrument Application must be running.

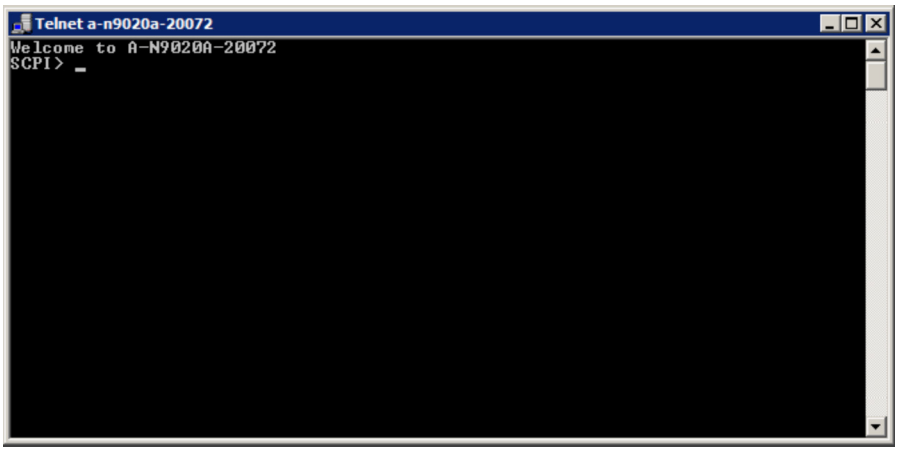
1. A password entry dialog appears, as shown:


2. By default, this password is set at the factory as “agilent”. Note, however, that the user may subsequently change the password. (Press **System**, **Config I/O**, **Reset Web Password** on the instrument front panel, to change the password.)

3. When the correct password has been entered, the connection window appears, as shown:



4. Click on the `SCPI Telnet Session` link, and the telnet command line interface appears:

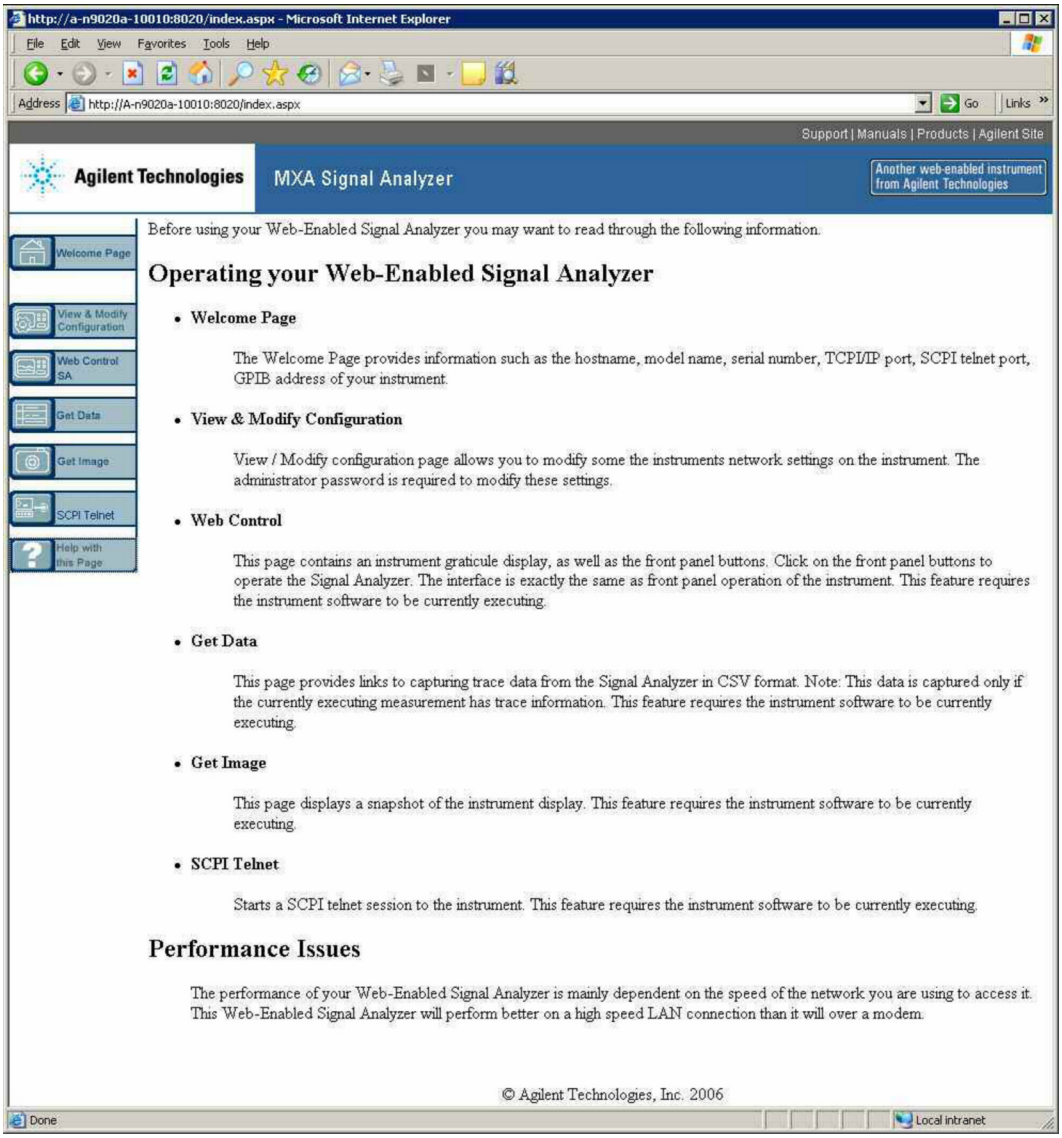



SCPI commands and queries may be entered via the command line interface. To exit the Telnet session, press **Ctrl+]** on the client computer keyboard.

### 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

**NOTE** This capture/print functionality is a Microsoft Windows XP capability. The following discussion provides some guidelines for using this capability with the instrument. You will have to refer to the Windows XP help documentation for more information.

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

**Save the Desktop:**

1. Capture the entire desktop by pressing the external keyboard **Print Screen** key. This saves the desktop on the Windows clipboard.
2. Open a graphics software program like Microsoft Paint.
3. Paste the clipboard contents into the program. (**Ctrl** + **v**)
4. Save the the image in a file.

**Save the Current Active Window:**

1. Click on the window you want to capture (activate it).
2. Capture the window by pressing the keys on the external keyboard **Alt** + **Print Screen** key. This saves the active window on the Windows clipboard.
3. Open a graphics software program like Microsoft Paint.
4. Paste the clipboard contents into the program. (**Ctrl** + **v**)
5. Save the 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".) Although these shortcuts are available in *any* Windows XP system, they are not commonly used when a mouse and keyboard are attached.

This section also includes details of certain windows tasks that may be required from time to time when using or configuring the Instrument.

## 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.

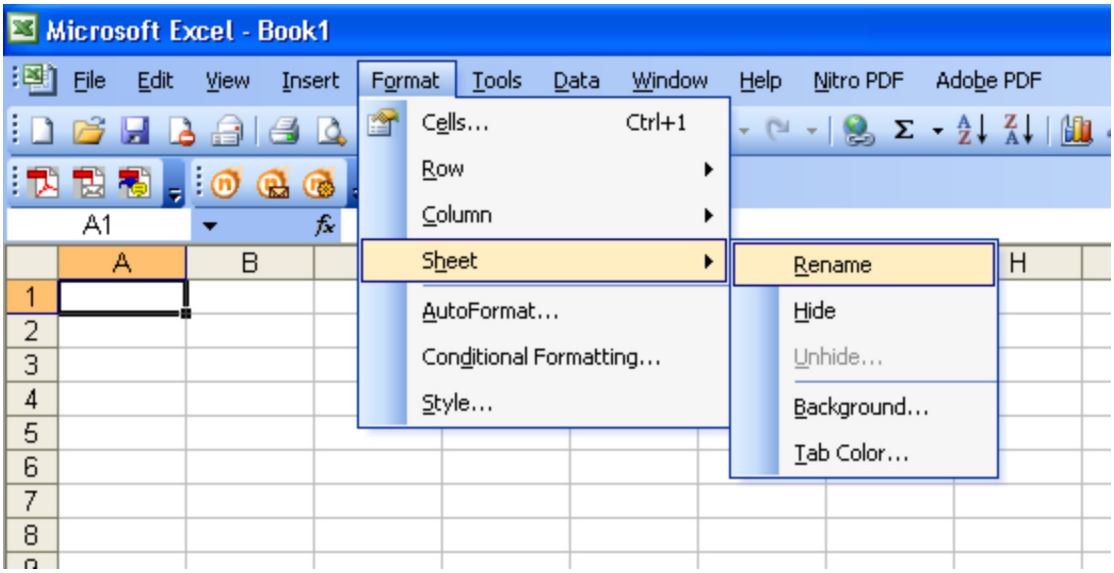
**Table 4-2. Windows Shortcut Key Combinations**

| **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** |

### Example: 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:

1. With the focus in the appropriate window, press **Alt** to select the `File` menu in the menu bar.
2. Use the **Right Arrow** and **Left Arrow** keys to move horizontally to the `Format` menu.
3. Press **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 **Right Arrow** to expand the `Sheet` sub-menu.
6. 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.)
7. Press **Enter** to execute the selected action.

## Windows Taskbar: Auto-hide

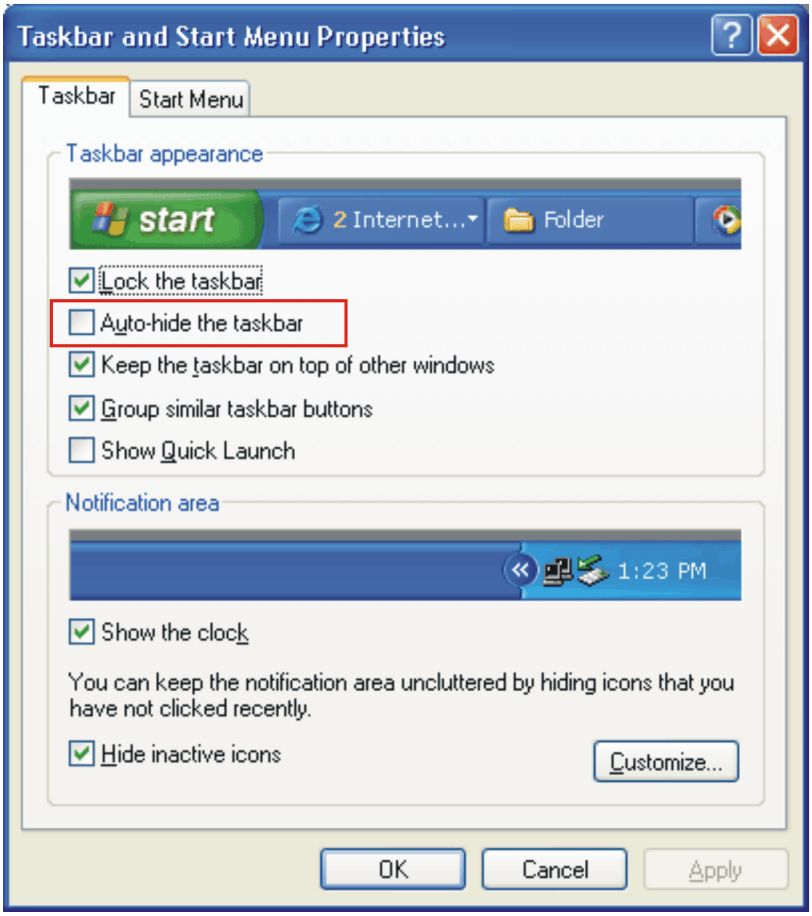
The Windows taskbar should *always* be in the auto-hide mode when using the instrument application. If the taskbar is *not* set to auto-hide, the lower part of the instrument display is obscured by the taskbar.

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:

1. Click `Start` > `Control Panel`. If not using a mouse, press **Ctrl+Esc**.
2. If the Control Panel window appears in Classic View, click `Taskbar and Start Menu`. If the Control Panel window appears in Category View, click `Appearance and Themes` > `Taskbar and Start Menu`. If not using a mouse, use the shortcut key combinations specified in the Section "Windows Shortcuts (Key Combinations)" on page 82 to make these selections.
3. The `Taskbar and Start Menu Properties` dialog appears. Select the `Taskbar` tab.
4. Check the `Auto-hide the taskbar` check box. If 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 or select `OK` to apply the change and close the dialog.

## The Windows Startup Folder

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

When your instrument is first configured by Agilent, shortcuts to the appropriate application software and supporting programs are placed in the Startup folder. The exact contents of the

Startup folder depends on the options you purchased with your instrument.

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

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

- *Either* click `Start`, `All Programs`, then select `Startup`, *or*,
- Click `Start`, `My Computer`, then navigate to the folder `C:\Documents and Settings\All Users\Start Menu\Programs\Startup`. (Note that additional startup items may *also* appear in the corresponding startup folder for the user that is currently logged on. For example, the startup folder for the `administrator` user is `C:\Documents and Settings\administrator\Start Menu\Programs\Startup`.)

# 5 Troubleshooting



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

# Check the Basics

- ❏ Is there power at the receptacle?
- ❏ 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.
- ❏ If other equipment, cables, and connectors are being used with your signal analyzer, make sure they are connected properly and operating correctly.
- ❏ Is the Measurement Application running? If not, there is a software launch shortcut/icon on the desktop.
- ❏ 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.
- ❏ Review the measurement procedures being performed when the problem first appeared. Are all of the settings correct?
- ❏ 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**.

- ❏ 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. Technical manual pdf files are available in the instrument (C:\Program Files\Agilent\SignalAnalysis\Infrastructure\Help\files), on the documentations cd provided with the instrument, and on the Agilent website (http://www.agilent.com/find/mxa_manuals).
- ❏ 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 receive LED is not blinking, check the LAN cable and LAN integrity.
- ❏ 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.
- ❏ Perform an Alignment. Press **System**, **Alignments**, **Align Now**, **All**.
- ❏ If the previously performed alignments did not resolve the problem, press **System**, **Alignments**, **Restore Align Defaults**. Then press **System**, **Alignments**, **Align Now**, **All**.
- ❏ Is the analyzer displaying an error message? If so, refer to the Instrument Messages Guide.
- ❏ 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.
- ❏ 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 the MXA at http://agilent.com/find/notifyme

# Problems with Microsoft Windows XP

The Microsoft Windows XP 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 Chapter 3 , “Instrument Configuration.”

The N9020A 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 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

**United States**
(tel) 1 800 829 4444
(fax) 1 800 829 4433

**Canada**
(tel) 1 877 894 4414
(fax) (905) 282-6495

**Europe**
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390

**Latin America**
(tel) (305) 269 7500
(fax) (305) 269 7599

**Japan**
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

**Australia**
(tel) 1 800 629 485
(fax) (61 3) 9210 5947

**New Zealand**
(tel) 0 800 738 378
(fax) 64 4 495 8950

**Asia Pacific**
(tel) (852) 3197 7777
(fax) (852) 2506 9284

## 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.

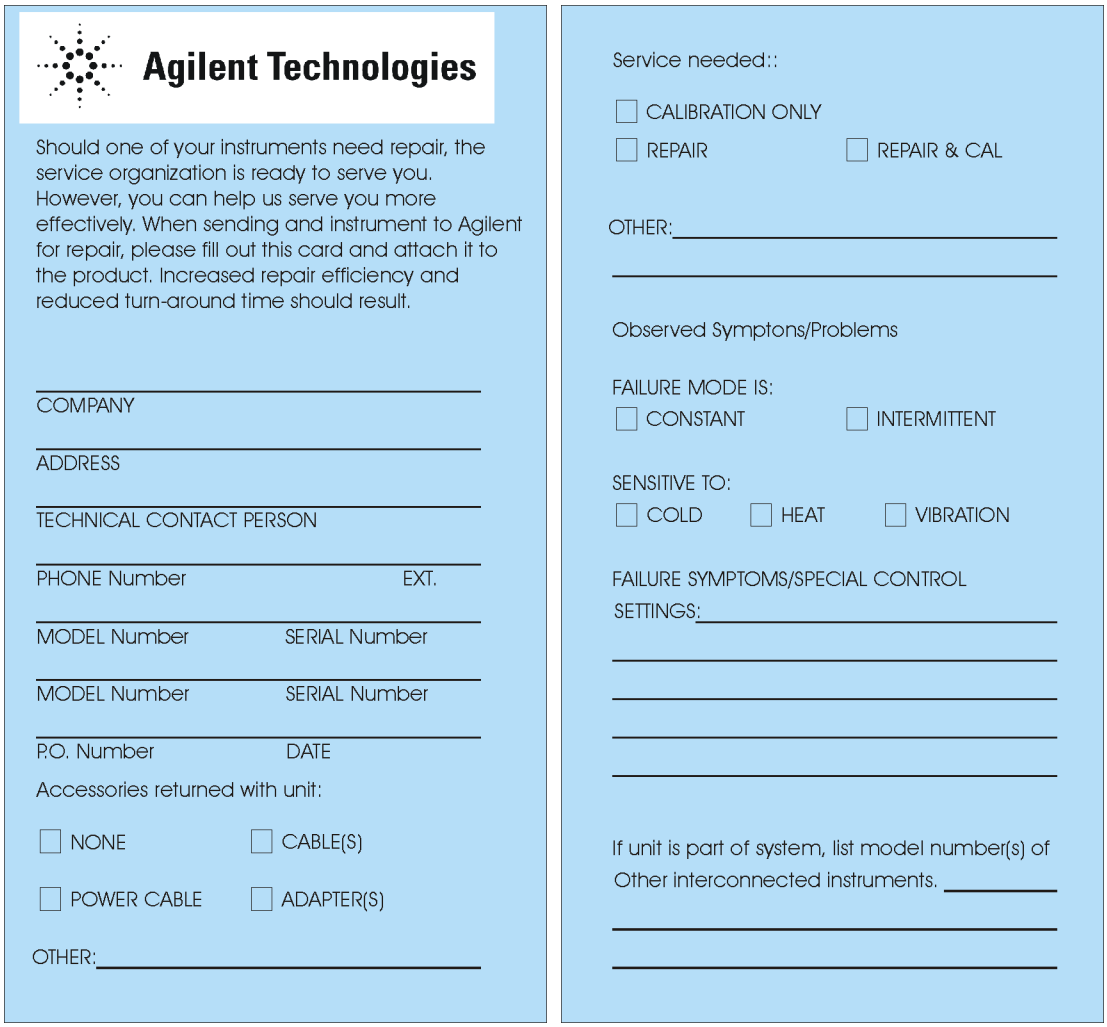
If you want to service the analyzer yourself after the warranty expires, you can purchase the service documentation that provides all necessary test and maintenance information.

You can order the service documentation, *Option 0BW* (assembly level troubleshooting information) through your Agilent Technologies office.

## Service Tag

When you are returning an analyzer to Agilent Technologies for service, fill out and attach one of the blue service tags provided at the end of this chapter. Please be as specific as possible about the

problem. If you have recorded any error messages that appeared on the display, have completed a functional test, or have any other specific data on the performance of your analyzer, please include a copy of this information. An example of the tag is shown below.



Agilent Technologies

Should one of your instruments need repair, the service organization is ready to serve you. However, you can help us serve you more effectively. When sending and instrument to Agilent for repair, please fill out this card and attach it to the product. Increased repair efficiency and reduced turn-around time should result.

COMPANY

ADDRESS

TECHNICAL CONTACT PERSON

PHONE Number EXT.

MODEL Number SERIAL Number

MODEL Number SERIAL Number

P.O. Number DATE

Accessories returned with unit:

☐ NONE ☐ CABLE(S)

☐ POWER CABLE ☐ ADAPTER(S)

OTHER:

Service needed::

☐ CALIBRATION ONLY

☐ REPAIR ☐ REPAIR & CAL

OTHER:

Observed Symptons/Problems

FAILURE MODE IS:

☐ CONSTANT ☐ INTERMITTENT

SENSITIVE TO:

☐ COLD ☐ HEAT ☐ VIBRATION

FAILURE SYMPTOMS/SPECIAL CONTROL SETTINGS:

If unit is part of system, list model number(s) of Other interconnected instruments.

## 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:

1. Attach a completed service tag to the analyzer.
2. Wrap the analyzer in antistatic plastic to reduce the possibility of damage caused by electrostatic discharge.
3. Use a strong shipping container. The carton must be both large enough and strong enough to accommodate the 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.
4. Surround the equipment with three to four inches of packing material and prevent the equipment from moving in the carton. If packing foam is not available, the best alternative is plastic bubble-pak. This material looks like a plastic sheet filled with 1-1/4 inch air bubbles. Use the pink-colored bubble which reduces static electricity. Wrapping the equipment several times in this material should both protect the equipment and prevent it from moving in the carton.
5. Seal the shipping container securely with strong nylon adhesive tape.
6. Mark the shipping container "**FRAGILE, HANDLE WITH CARE**" to assure careful handling.
7. Retain copies of all shipping papers.

# Index

# Index

# Index