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Getting Started Guide

Wireless Connectivity Test Set

N4010A

Agilent Technologies

Manufacturing Part Number: N4010-90055
Printed in UK
February 2006

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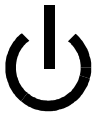
Legal Information

Certification

Agilent Technologies certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

Safety Symbols

The following symbols on the Test Set and in the documentation indicate precautions which must be taken to maintain safe operation of the Test Set.

	This is the 'Caution - Refer to Instruction Documentation' Symbol. The product is marked with this symbol when it is necessary for the user to refer to the instructions in the supplied documentation.
	Alternating current (AC)
	This symbol indicates the position of the operating switch for 'Stand-by' mode. Note, the Test Set is NOT isolated from the mains when the switch is in this position. To isolate the Test Set, the mains coupler (mains input cord) should be removed from the power supply.

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Safety Notices

This guide uses warnings and cautions to denote hazards

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 until the indicated conditions are fully understood and met.

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

General Safety Information

The following general safety precautions must be observed during all phases of operation, service, and repair of this Test Set. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the Test Set. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

WARNING **This is a Safety Class I Test Set (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 Test Set is likely to make the Test Set dangerous. Intentional interruption is prohibited.**

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DO NOT operate the product in an explosive atmosphere or in the presence of flammable gasses or fumes.

DO NOT perform procedures involving cover or shield removal unless you are qualified to do so: Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers and shields are for use by service-trained personnel only.

DO NOT service or adjust alone: Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, service personnel must not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to a Agilent Sales and Service Office for service and repair to ensure the safety features are maintained.

DO NOT substitute parts or modify equipment: Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the product. Return the product to an Agilent Sales and Service Office for service and repair to ensure the safety features are maintained.

CAUTION Before switching on this Test Set, make sure that the correct fuse is installed and ensure the power supply voltage is in the specified range.

CAUTION Mains supply voltage fluctuations should not exceed +/- 10% of the nominal selected line voltage.

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WARNING **Appliance coupler (mains input power cord) is the power disconnect device. Do not position the Test Set such that access to the coupler is impaired.**

Acknowledgements

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1 Getting Started

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Welcome

Welcome to the Agilent Technologies N4010A Wireless Connectivity Test Set's *Getting Started Guide*.

Use this guide with the N4010A, equipped with any option, to help you:

- Inspect the Test Set.
- Adjust the carrying handle.
- Switch the Test Set on and confirm it passes the power-on self test.
- Determine the minimum requirements for your PC.
- Install the Measurement Software, Applications, and Help from the N4010A CD-ROM.
- Make connections to the rear panel.
- Run a SCPI confidence check using the Connection Expert application.
- Run a *Bluetooth* confidence check using front panel operation.
- Run a *Bluetooth* confidence check using the remote interface option.
- Run a WLAN confidence check using the Test Harness example application.
- Attach the rack mounting kits (supplied with option N4010A-AX4).

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Interfacing with the N4010A

Some of the measurments require that a Dynamic Link Library (DLL) is installed in a PC and the PC connected to the N4010A Test Set.

Full Front Panel operation of the N4010A Test Set is limited to system functions and to *Bluetooth* 1.1 and 1.2 RF Testing (option 101). Rear Panel operation via SCPI is similarly limited.

802.11 WLAN and *Bluetooth* 2.0 (EDR) testing requires the use of a DLL accessed from the .NET or COM environment.

Refer to Table 1-1 and Figure 1-1 on page 4 for more details.

Table 1-1 Test Set Control Differences Between *Bluetooth* and WLAN

Function	*Bluetooth* Test	Bluetooth EDR Test	WLAN Test
Front Panel Operation	Full control using front Panel Keys and displayed menu system	Limited to system settings	Limited to system settings
Remote Interface Operation	SCPI programming commands	Only via PC resident programming interface Agilent N4010 EDR Driver	Only using a PC resident programming interface Agilent N4010 WLAN Test
Test Sequence Control	Configured within Test Set	Configured with your own test executive program	Only Spectral Mask measurement tests to specified limits. All other limits configured within your own test executive program.

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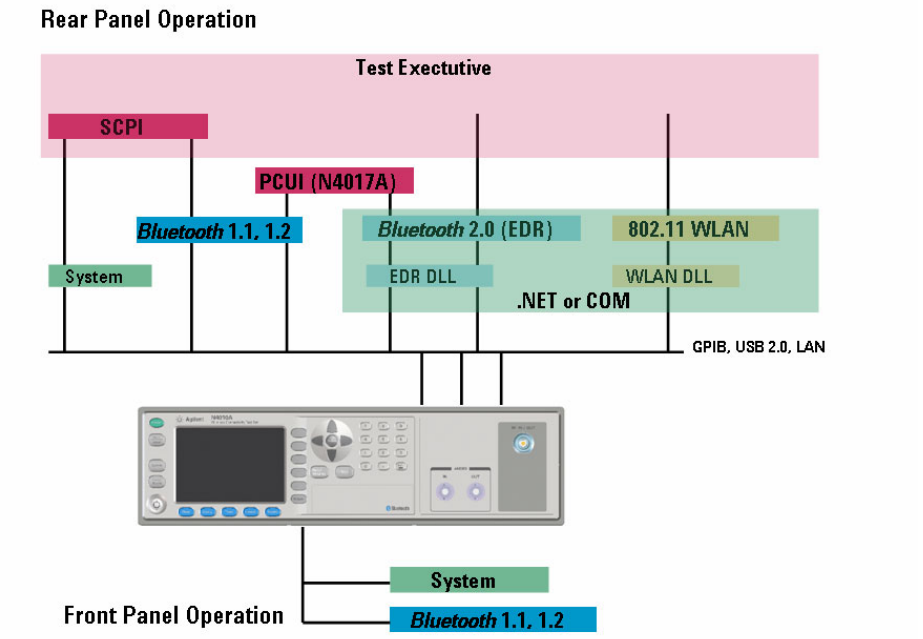
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Table 1-1 Test Set Control Differences Between *Bluetooth* and WLAN

Function	*Bluetooth* Test	Bluetooth EDR Test	WLAN Test
Test to Limits	Configured within Test Set	Configured with your own test executive program	Configured within your own test executive program
Control of Test Device	via LMP commands from Test Set and EUT HCI control from test executive		DUT control from test executive only using device specific drivers
Remote interfacing	GPIB, LAN and USB	USB 2.0 or LAN preferred. GPIB possible.	USB 2.0[a] or LAN preferred. GPIB possible.

a. This is not recommended when using Signal Studio as a waveform generator

Figure 1-1 N4010A Interfaces and DLLs



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Initial Inspection

Please inspect the shipping container for damage. If the shipping container or packaging material is damaged, please keep it until the contents have been checked mechanically and electrically. If there is mechanical damage, notify the nearest Agilent Technologies office. Keep the damaged shipping materials (if any) for inspection by the carrier and an Agilent representative. If required, you can find a list of “Agilent Sales and Service Offices” on page 50.

Before continuing, please ensure you have read and understood the preceding safety information.

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Adjusting the Carrying Handle

Adjust the carrying handle to carry the Test Set or view the display.

The carrying handle can be locked into three different positions.



Pull the handle outwards, rotate it to the required position and release it into one of the three locks.



If you want to remove the handle, refer to “Rack Mounting the Test Set” on page 39.

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Turning the Test Set On

CAUTION The Test Set has an autoranging power supply. Ensure the supply voltage is within the range 100 V_{ac} to 240 V_{ac} and 50 Hz to 60 Hz.

1. Connect the Power Cord.



2. Check that the background LED is red.



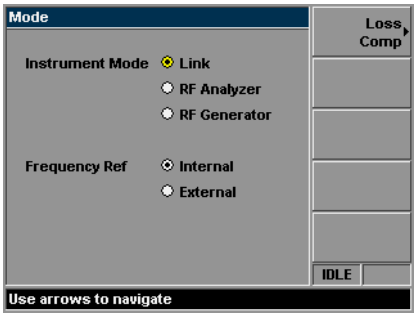
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3. Turn the test set on and confirm the background LED is green.



4. The test set automatically steps through a self test routine. After this routine you should see the following display...



5. The Test Set is now ready for use.

NOTE If the test set has been stored in extremely cold conditions, beyond its normal operating range, the display may require a few minutes to warm up and operate normally.

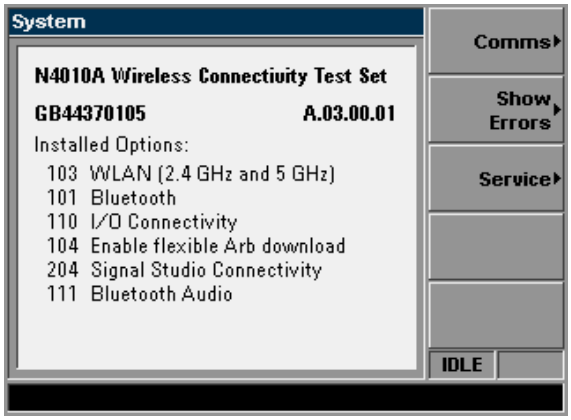
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System Information

To verify your configuration, press the **System** key, an example is shown in Figure 1-2.

Figure 1-2 Typical System Configuration Screen

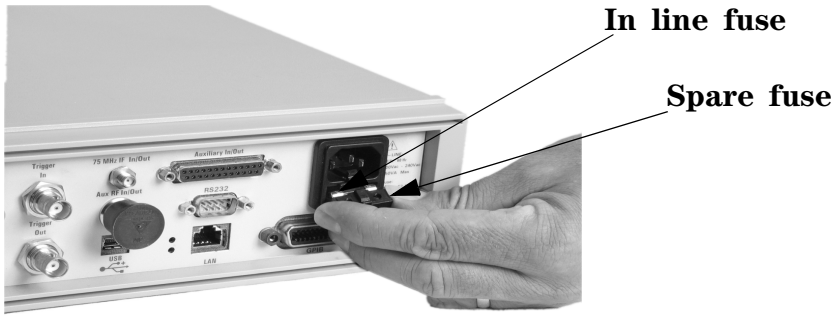


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What Can Go Wrong?

See this	Do this
Red LED not lit	Check that power is supplied to the test set. Check the Test Set fuse. (see below)
Fails self test(s)	If there are any self-test failures the test set is defective. Contact your nearest Agilent Service Center (Refer to Agilent Sales and Service Offices on page 50).



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Minimum PC Requirements

Some N4010A TestSet methods of operation require a higher preformance PC than others. Viewing Help and controlling the Test Set using the SCPI command set requires only moderate performance, while using the WLAN or *Bluetooth* EDR DLLs requires more.

Refer to the specific requirements of the application if you are using additional measurement software such as the Agilent 89607 VSA.

- Windows® 2000 (SP4 or greater) or XP® Pro SP2 or XP® Home SP2.
- 700MHz Pentium® minimum to view Help files and remote interface operation using the SCPI commands set, 1.6 GHz or better recommended for DLL operation.
- 256 Mbytes RAM.
- USB 2.0, GPIB or TCP/IP LAN connection to Test Set.
- 1024 x 768 pixel display.
- CD-ROM Drive or Internet connection for application download.
- Internet connection for license redemption. (if required)

In addition, to be able to run the N4010A CD-ROM and connect using the remote interfaces, your PC must also have the following software components installed:

- Microsoft .NET Framework 1.1 Service Pack 1 - This is required for the operation of the N4010A CD-ROM and some of the content. If the .NET Framework is not detected on your PC, it can be installed by following the on-screen instructions after starting the N4010A CD-ROM.

  You can explore the CD-ROM to view the Help files (.chm format) without the .NET Framework installed on your PC.

- Agilent I/O libraries version 14.1 or equivalent - I/O libraries are required for the remote operation of the N4010A and for the operation of the N4010A Bluetooth EDR DLL, the N4017A GMA, and the N4010A WLAN Test Suite. If I/O libraries are not detected on your PC, Agilent IO libraries can be installed by following the on-screen instructions after starting the N4010A CD-ROM.

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Installing the Measurement Software, Applications, and Help

The supplied *N4010A Measurement Software, Applications, and Operating Information CD-ROM* contains all the applications, software components, and help files needed for the Test Set to perform *Bluetooth* and 802.11 a/b/g WLAN device tests.

Open the DVD box and refer to the *Installation Guide* contained inside.

Use the *Installation Guide* and, after starting the CD-ROM, the on-screen instructions to view, copy, and install the Applications and Help Systems you require.

NOTE

If your PC does not have autostart enabled, use Windows Explorer to locate and double click the 

(autorun.exe) file on the CD-ROM.

If the .NET Framework 1.1 SP1 is not detected on your PC, a message is displayed asking you to confirm its installation from the N4010A CD-ROM. Confirm to continue. If the .NET Framework is not installed the Installer halts and you cannot proceed.

Typically, a PC re-start is required following the N4010A WLAN Test Suite installation. If you are installing both WLAN and *Bluetooth* components, we recommend that you install the N4010A WLAN Test Suite first, and install the *Bluetooth* components following the PC re-start.

When you have completed the configuration of your PC and are ready to proceed, continue in this *Getting Started Guide* at Chapter 2, “Making Your First Measurements,” on page 13.

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2 Making Your First Measurements

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Selecting the Application Mode

The purpose of this guide is to allow you to confirm the Test Set functions.

NOTE For further detail read the help provided on the N4010A CD-ROM.

- To perform a confidence check for *Bluetooth* local control only, refer to “Running a Confidence Check on the Front Panel (Bluetooth)” on page 15.
- To perform a confidence check for SCPI commands, refer to “Running a SCPI Confidence Check” on page 27.
- To perform a confidence check for WLAN, refer to “Running a WLAN Confidence Check” on page 29.
- To perform a confidence check for *Bluetooth* remote use with the N4017A Graphical Measurement Application, refer to “Running the Graphical Measurement Application (GMA) N4017A.” on page 33.

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Running a Confidence Check on the Front Panel (*Bluetooth*)

To operate *Bluetooth* testing from the Front Panel, your N4010A must be configured with:

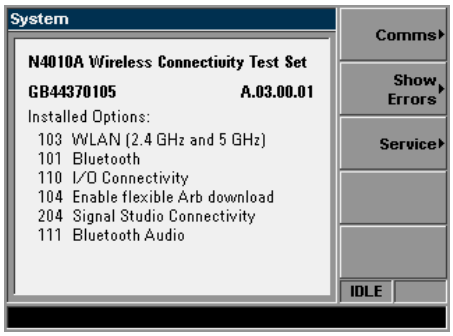
- Option 101.

Refer to the N4010A web page at www.agilent.com/find/N4010A for firmware updates.

NOTE The N4010A *Bluetooth* Help file is provided on the CD.

To verify your configuration, press the **System** key, an example is shown in Figure 2-1.

Figure 2-1 Typical System Configuration Screen



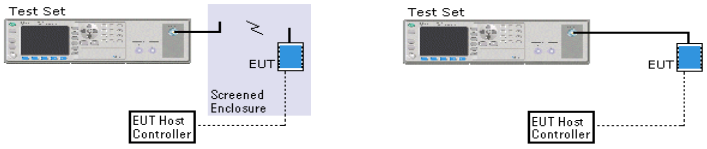
To run a confidence check you also require a *Bluetooth* device, for example, a *Bluetooth* enabled mobile phone.

1. Make the Equipment Under Test (EUT) discoverable. Refer to manufacturer's handbook for instructions.
2. Fix an antenna to the RF IN/OUT or connect EUT directly to the connector. Shown in Figure 2-2.

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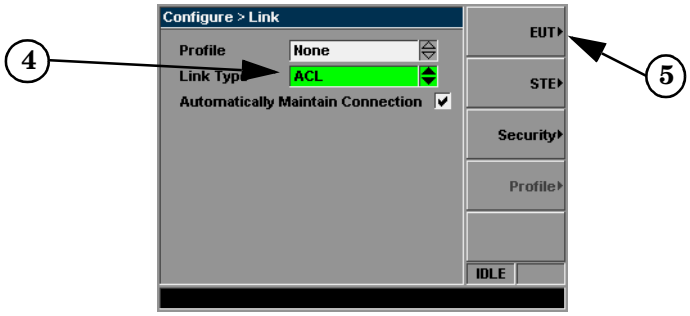
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Figure 2-2 Test Set RFIO Connections



3. Press the **Config** key.

Figure 2-3 Typical Configure Link Screen when ACL is Selected



4. Use the **Arrow** and **Select** keys to highlight and select an ACL Link as shown in Figure 2-3.
5. Press the **EUT** softkey.
6. Press the **Inquiry Procedure** softkey.
7. In a few seconds the **Inquiry Results** are displayed. An example is shown in Figure 2-4. If no device is detected, check the EUT connection, and press the **Restart Inquiry** softkey.

NOTE

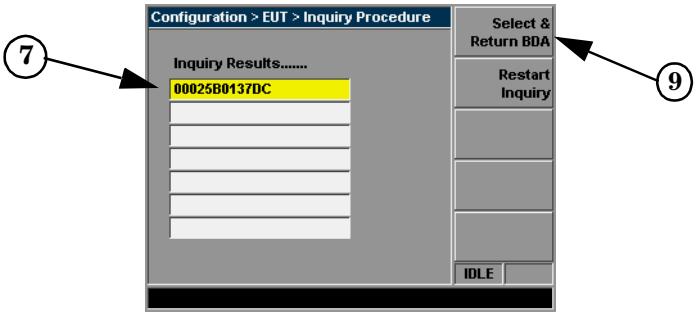
To apply Loss Compensation, for example for cable loss:

Press **Mode**, **Loss Comp**. Use the **Select** key to check the **Apply Loss Compensation** box. Use the arrow keys and numeric pad to enter values in the **Fixed Loss** field. Press the **dB** softkey.

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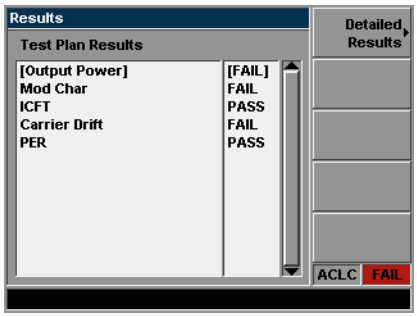
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Figure 2-4 Typical Inquiry Results Screen



8. Ensure your device is highlighted in yellow, use the arrow keys if necessary, as shown in Figure 2-4.
9. Press the **Select & Return BDA** softkey.
10. Press the **Results** key.
11. Press the **Run/Resume** key.
12. The **Test Plan Results** are populated with Pass or Fail ("P" or "F"). An example is shown in Figure 2-5.

Figure 2-5 Typical Results Screen



NOTE It is not important whether the tests pass or fail. It is only important that some results are populated.

Congratulations!! **The Front Panel *Bluetooth* Confidence Check is complete.**

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Connecting USB, GPIB or LAN

The Test Set can be remotely controlled by USB, GPIB (IEEE488) or LAN programming interfaces. Only one interface can be used at a time.

- To Connect by USB refer to “Connecting by USB” on page 19.
- To Connect by GPIB refer to “Connecting by GPIB” on page 20.
- To Connect by LAN refer to “Connecting by LAN” on page 22.

For more detailed information on configurating the remote interface connectivity, refer to the *Agilent Technologies USB, LAN or GPIB Interfaces Connectivity Guide*. You can access the *Connectivity Guide* via the *Agilent IO Libraries Control* icon. Alternatively, you can access the *Connectivity Guide* via the internet at www.agilent.com/find/connectivity.

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Connecting by USB



The USB interface requires no front panel configuration. USB operation and configuration is supported by the version of *VISA and SICL I/O libraries* on your computer.

1. Switch on and connect the Wireless Connectivity Test Set to your computer using the supplied Type A to B Mini 5 pin USB cable.
2. The *Found New Hardware Wizard* appears.

   In the prompt select **No, not this time**, Click **Next**.

   Click **Next** to install the software automatically.

   By installing the *Agilent I/O Libraries* software, you also installed low-level drivers. This means you do not need to insert the drivers CD when the wizard requests it.
3. Follow the on-screen instructions to complete USB installation.
4. On *Assign USB device alias* screen, click **Cancel**.
5. Run the *Connection Expert* program. It can be opened by double clicking the  icon in the task bar notification area or from the windows task bar, **Start>All Programs>Agilent IO Libraries Suite>Agilent Connection Expert.**
6. You have successfully completed Step 2 of the 3 Step Process. To complete the confidence check for:

   - *Bluetooth* GMA, refer to Step 3 “Using the GMA” on page 35.
   - WLAN, refer to Step 3 “Rename the Test Set in Connection Wizard.” on page 31.
   - SCPI, refer to Step 3 “Sending SCPI commands” on page 28.

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Connecting by GPIB



Changing the GPIB Address

The GPIB address is an integer between 0 and 30. The Test Set is shipped with a default address set to 15. The GPIB address is stored in non-volatile memory.

To change the GPIB address manually.

Press **System**, **Comms**.

Use the Numeric keys on front panel to enter the required GPIB address in the field. Press the **Enter** softkey.

Connecting to your Computer

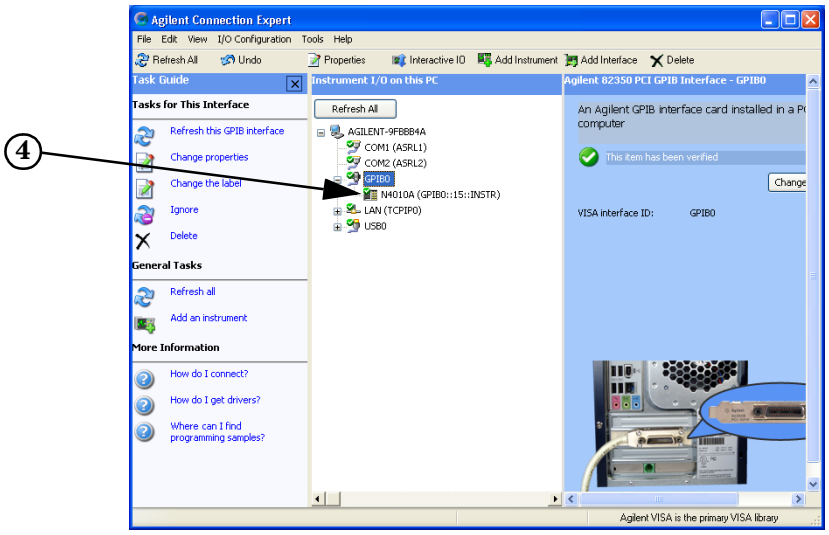
1. Follow your GPIB interface card vendor's instructions for installing and configuring GPIB hardware on your computer.
2. Connect a GPIB cable between your computer and the Test Set.
3. Run the *Connection Expert* program. It can be opened by double clicking the IO icon in the task bar notification area or from the windows task bar, **Start>All Programs>Agilent IO Libraries Suite>Agilent Connection Expert.**

   In the *Connection Expert* program, click on **Refresh All**.

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Figure 2-6 Typical Connection Expert Screen showing GPIB Connection



4. The Test Set is displayed under the GPIB list in the centre of the screen.
5. You have successfully completed Step 2 of the 3 Step process. To complete the confidence check for
   - *Bluetooth* GMA, refer to Step 3 “Using the GMA” on page 35.
   - WLAN, refer to Step 3 “Running the Test Harness Program.” on page 31.
   - SCPI, refer to Step 3 “Sending SCPI commands” on page 28.

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Connecting by LAN



The Test Set has two LAN operating modes.

- Dynamic Host Configuration Protocol (DHCP)
- Static IP (Manual Mode)

Configuring the Test Set

The IP Address, Subnet Mask, and Default Gateway, can be changed manually or remotely.

The IP address, Subnet Mask, and Default Gateway values are stored in non-volatile memory and are not part of the save-recall function.

DHCP LAN Connection.

In DHCP mode the IP Address, Subnet Mask, and Default Gateway values are obtained automatically from the server. Using DHCP does not require a detailed knowledge of your network configuration. Refer to “DHCP Mode” on page 23 for further information.

Static IP LAN Connection.

In static mode you must set up the IP Address, Subnet Mask, and Default Gateway to be compatible with your network infrastructure. To use Static IP you need to obtain these values from your network administrator. Refer to “Static IP” on page 26 for further information.

NOTE USB is recommended for a direct connection between your computer and the Test Set. Refer to “Connecting by USB” on page 19.

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DHCP Mode

In DHCP mode the IP Address, Subnet Mask and Default Gateway values are obtained automatically from the server. When you use DHCP you cannot configure the IP Address, Subnet Mask or Default Gateway values from the front panel.

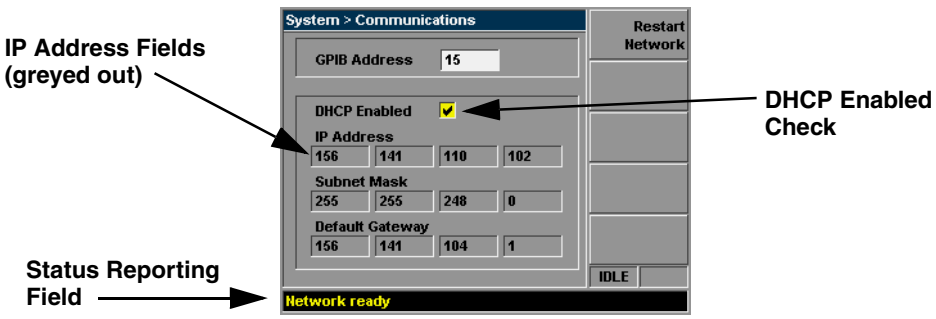
1. Using standard LAN cables, connect both the computer and the Test Set to LAN outlets.
2. Turn on the power to the Test Set.
3. Press **System**, **Comms** to display the Communications page. Ensure that **DHCP Enabled**, is checked. If unchecked it can be enabled, using the arrow keys and the **Select** key. Shown in Figure 2-7.
4. Press the **Restart Network** softkey.

   The status reporting field of the Test Set displays **Network Initializing** changing to **Network Ready**.

   The IP Address, Subnet Mask and Default Gateway are populated and greyed out. See Figure 2-7.

NOTE If the DHCP server cannot be found on your network, the Test Set returns to static mode. The **Status Reporting Field** displays **DHCP rollover to static IP**. If this happens, refer to “Static IP” on page 26.

Figure 2-7 Typical Communications Display with DHCP Enabled



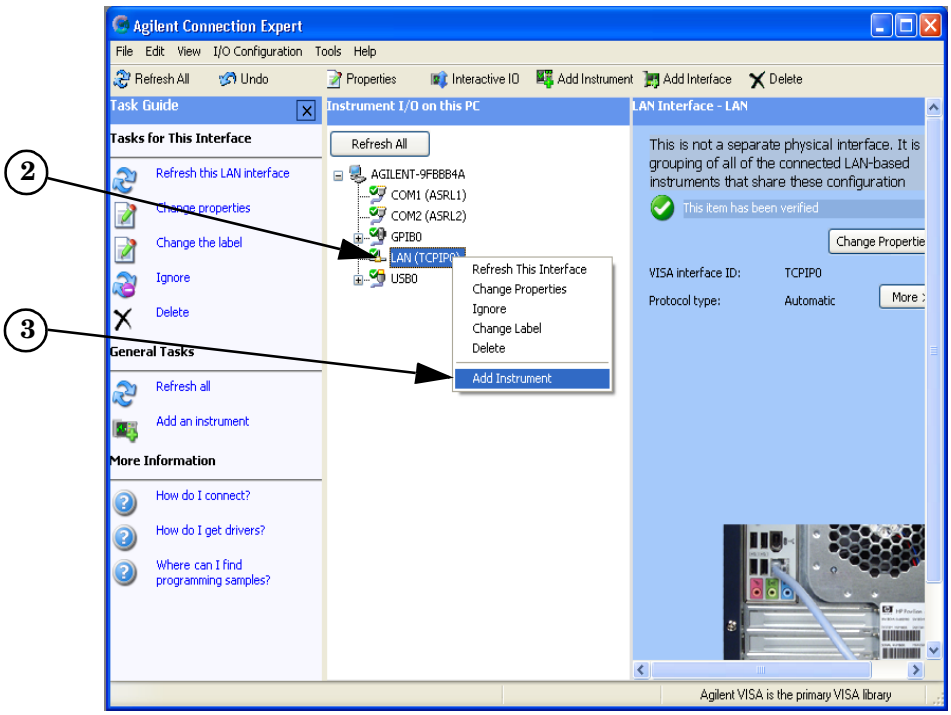
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Configuring the Connection Expert

1. Run the *Connection Expert* program. It can be opened by double clicking the  icon in windows notification area or from the windows task bar, **Start>All Programs>Agilent IO Libraries Suite>Agilent Connection Expert.**
2. Right click on the **LAN Interface** section. Shown in Figure 2-8.
3. Choose **Add Instrument**. Shown in Figure 2-8.

Figure 2-8 The Connection Expert Screen



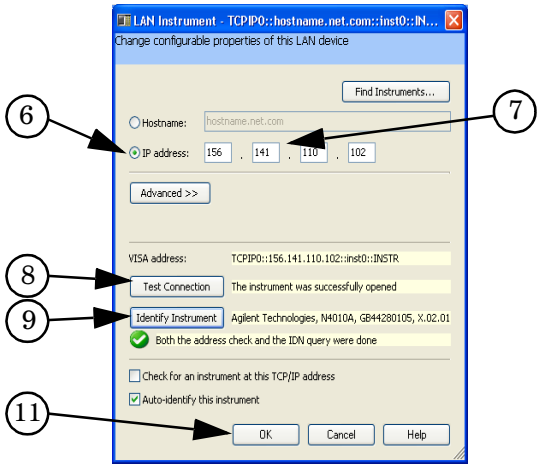
4. In the pop up screen ensure **LAN (TCIP0)** is selected.
5. Click **OK**.

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6. In the pop up screen, shown in Figure 2-9, select the IP Address link.
7. Enter the IP address which is displayed on the Test Set.
8. Click on **Test Connection.**
9. Click on **Identify Instrument**.

Figure 2-9 LAN Instruments Selection Screen



10. Confirm the returned serial number matches the Test Set.
11. Click on **OK**.

To complete the confidence check for

- *Bluetooth* GMA, refer to Step 3 “Using the GMA” on page 35.
- WLAN, refer to Step 3 “Running the Test Harness Program.” on page 31.
- SCPI, refer to Step 3 “Sending SCPI commands” on page 28.

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Static IP

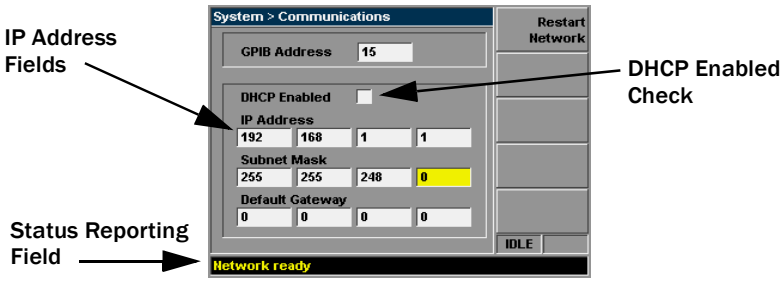
In static mode you must set up the IP Address, Subnet Mask, and Default Gateway that is compatible with your network infrastructure. If it is not correctly setup, the Test Set is not be visible on your network.

If you configure an invalid IP Address or an IP address that is used by another device or host, an error message is generated. This error can be read by pressing **System**, **Show Errors**.

1. Using standard LAN cables, connect both the computer and the Test Set to LAN outlets.
2. Turn on the Test Set.

Press **System**, **Comms** to display the Communications page.

Figure 2- 10 Typical Communications Screen, Entering LAN Data



3. Use the arrow keys and **Select** to disable the **DHCP Enabled** setting.
4. Obtain appropriate IP Address, Subnet Mask and Default Gateway values from your LAN administrator. Values can range between 0.0.0.0 and 255.255.255.255.
5. Use the arrow keys and numeric keypad to set the IP Address, Subnet Mask and Default Gateway. After each field's entry, press the **Enter & Tab** softkey.
6. Press the **Restart Network** softkey.

   The **Status Reporting Field** changes to display **Network Ready**.
7. Configure the *Connection Expert*, refer to "Configuring the Connection Expert" on page 24.

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Running a SCPI Confidence Check

If you have previously installed the *Agilent I/O Libraries Suite* software using the procedure described in the *N4010A CD-ROM Installation Guide*, you can proceed directly to **Step 2**.

Step 1. Install the *Agilent I/O Libraries Suite* software by following the instructions on the N4010A CD-ROM or:

1. Insert the *Agilent Automation-Ready* into your CD drive and install using the on-screen instructions.

   If the CD does not auto-start, from your windows task bar select **Start > Run**. In the field enter `<CDdrive>:\autorun\auto.exe` where `<CD drive>` is the letter of your CD drive.

2. Close the *Agilent IO libraries Suite 14.1* installation window.

3. Close the *Agilent Connection Expert* program.

4. You have completed Step 1 of the 3 Step process.

Step 2. Connecting the Test Set

Refer to “Connecting USB, GPIB or LAN” on page 18.

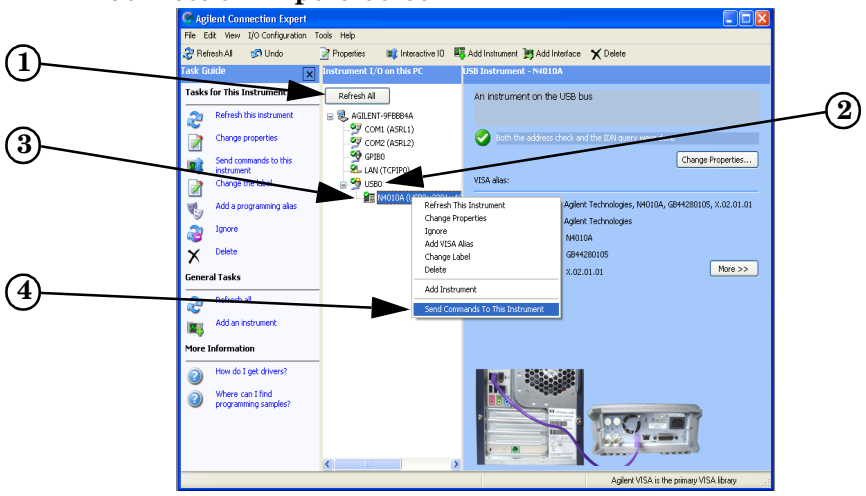
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Step 3. Sending SCPI commands

1. In the *Agilent Connection Expert* program, click on **Refresh All**.
2. Select the Test Set from the **Instrument I/O on this PC** panel as shown in Figure 2-11. If you do not see your Test Set then expand the appropriate connection type by clicking on the + symbol.

Figure 2-11 Connection Expert Screen



3. Right Click on the Test Set listing.
4. Select **Send Commands to this Instrument**.
5. Click on **Send & Read**.
6. The program displays the manufacturer, model number and serial information. Check this information matches the Test Set.

Congratulations the SCPI confidence check is complete.

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Running a WLAN Confidence Check

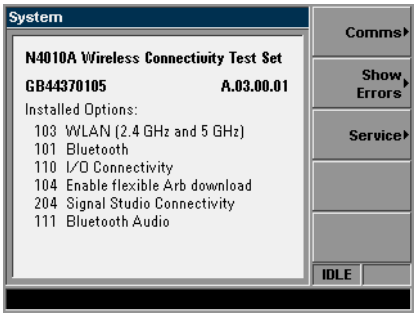
To operate a WLAN Confidence Check, your N4010A Test Set must be configured with:

- Firmware revision A.02.00.11 or later
- Option 102 or Option 103
- Option 104 Arbitrary Waveform File Download
- Option 204 Signal Studio

Refer to the N4010A web page at www.agilent.com/find/N4010A for firmware updates.

To verify your configuration, press the **System** key, an example is shown in Figure 2-12.

Figure 2-12 Typical System Configuration Screen



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If you have previously installed the *N4010A Wireless LAN Test Suite,* the *Agilent I/O Libraries Suite* software and the *Microsoft .NET Framework* service pack 1, using the procedure described in the *N4010A CD-ROM Installation Guide*, you can proceed directly to **Step 2**.

Step 1. Install the *N4010A Wireless LAN Test Suite*.

1. Insert the N4010A Measurement Software, Applications and Operating INformation CD-ROM into your PC drive.

   If the CD does not auto-start, from your task bar select **Start > Run**. In the field enter `<CDdrive>:\setup` where `<CDdrive>` is the letter of your CD drive.

2. Follow the on-screen instructions. The installation requires a reboot of the PC in this process.

Step 2. Refer to “Connecting USB, GPIB or LAN” on page 18.

NOTE For the WLAN test program, LAN or USB are the recommended connection solutions. GPIB can be used, however, due to its lower data rate transfer is not suitable for some features of WLAN testing.

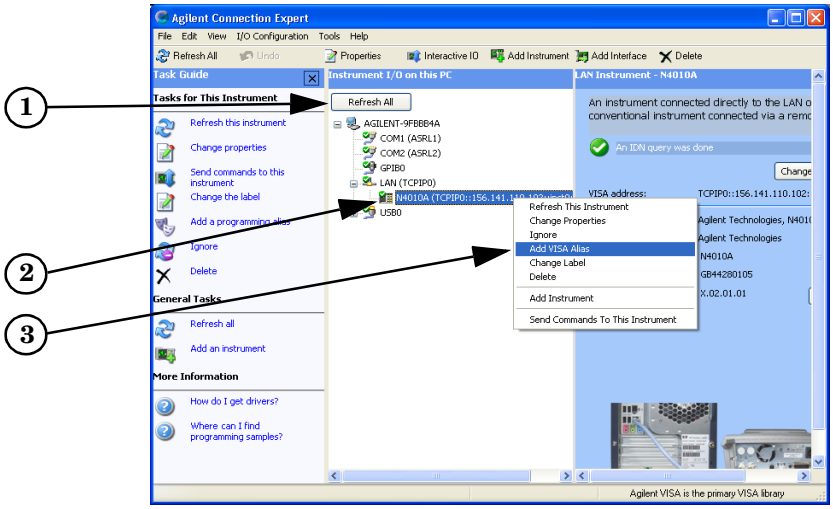
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Step 3. Rename the Test Set in *Connection Wizard*.

1. In the *Agilent Connection Expert*, Click on **Refresh All** as shown in Figure 2-13.
2. From the **Instrument I/O on this PC** panel, select your Test Set listing with a right click. If you do not see your Test Set expand the appropriate connection type by clicking on the + symbol.

Figure 2- 13 Typical Connection Expert Screen



3. Click on **Add Visa Alias**.
4. Enter your new **Visa Alias Name**, remember this as it is used in step 4. For example “MyNewInstrument”, do not use spaces.
5. Click on **OK**.

Step 4. Running the *Test Harness* Program.

1. Run the *Test Harness* program, from the windows task bar, **Start>All Programs>Agilent N4010 WLAN Test suite>Sample Program - Test Harness**.
2. In the field marked **Instrument**, enter the **Visa Alias Name** of the Test Set (created in Step 3.4).
3. Click on **Create**.

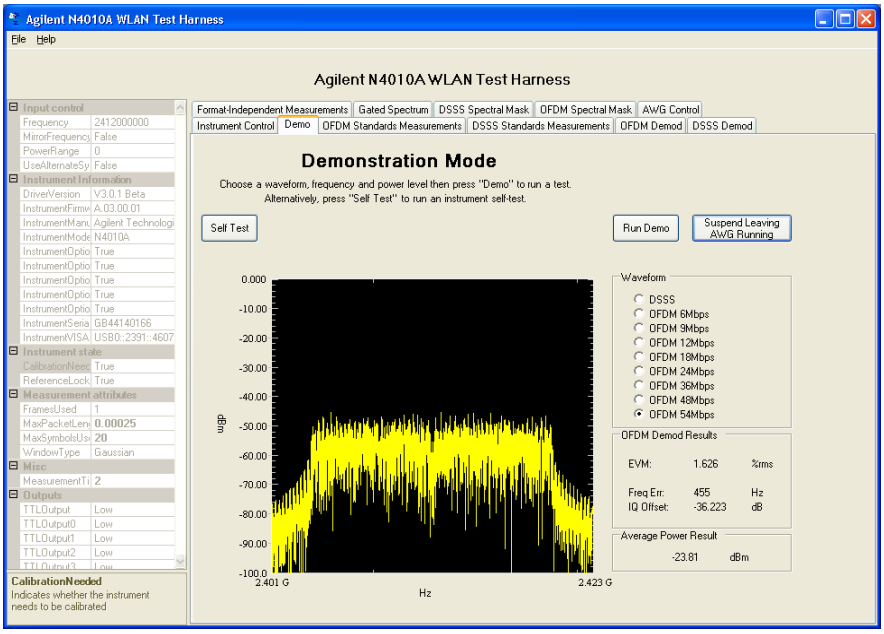
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In a few seconds the Test Set's display changes to yellow.

4. Click on the **Demo** tab.
5. Click on **Run Demo**.
6. The display shows a loopback waveform similar to Figure 2-14.

Figure 2-14 Test Harness Demo Screen



Congratulations!! **The WLAN Confidence Check is complete.**

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Running the Graphical Measurement Application (GMA) N4017A.

The *N4017A Bluetooth Graphical Measurement Application*, is a PC based software application that works in a complementary manner with the N4010A Wireless Connectivity Test Set. The *GMA* makes it possible to fully configure the Test Set remotely.

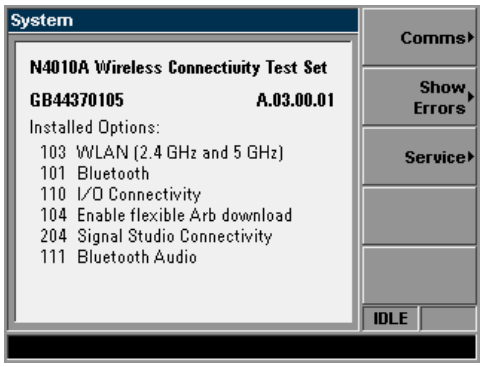
To operate with the *Bluetooth GMA,* your N4010A Test Set must be configured with:

- Firmware revision A.02.00.11 or later
- Option 101
- Option 110

Refer to the N4010A web page at www.agilent.com/find/N4010A for firmware updates.

To verify your configuration, press the **System** key, an example is shown in Figure 2-15.

Figure 2- 15 Typical System Configuration Screen



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If you have previously installed the *Agilent N4017A Bluetooth GMA,* the *Agilent I/O Libraries Suite* software and the *Microsoft .NET Framework* service pack 1, using the procedure described in the *N4010A CD-ROM Installation Guide*, you can proceed directly to **Step 2**.

Step 1. Installing the *Bluetooth GMA*

1. Insert the *Measurement Applications and Help Installer* into your CD drive.

   If the CD does not auto-start, from your task bar select **Start > Run**. In the field enter `<CDdrive>:\setup` where `<CDdrive>` is the letter of your CD drive.

2. Follow the on-screen instructions.

3. The Installation completes.

Step 2. Obtain your GMA license.

1. Use the information on your Software Entitlement Certificate to obtain and install the GMA license.

2. Close all programs.

You have completed Step 1 of the 3 Step process.

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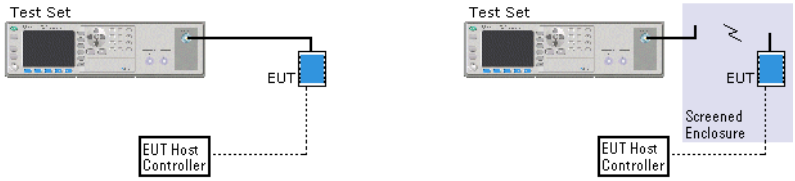
Step 3. Connecting the Test Set

Refer to “Connecting USB, GPIB or LAN” on page 18.

Step 4. Using the *GMA*

1. Check the EUT is powered and is discoverable (see manufacturer’s handbook for information).
2. Connect the EUT directly or via an antenna as shown in Figure 2-16.

Figure 2- 16 Test Set RFIO Connections



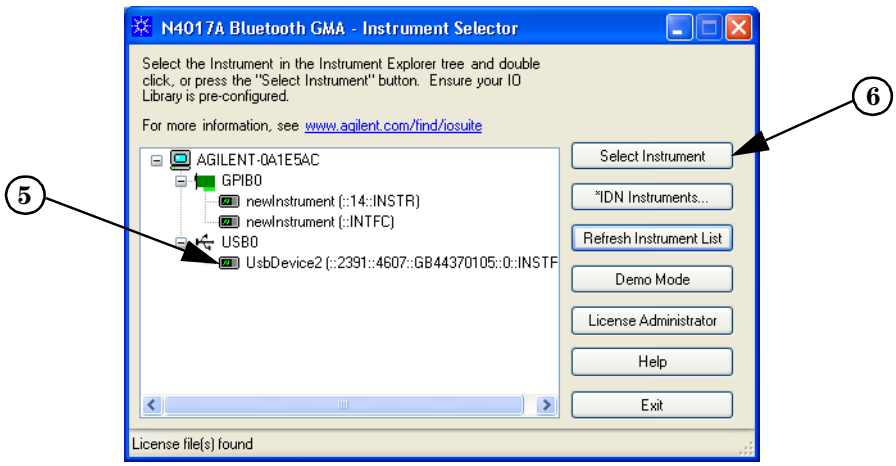
3. Minimize the *Connection Expert* program.
4. Run the GMA program from the windows task bar using, **Start>All Programs>Agilent N4017A Bluetooth GMA>N4017A Bluetooth GMA** or double click the desktop icon if created during the installation.

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5. Use the **Instrument Selector** to locate your Test Set from the appropriate connection you have made. If you do not see your Test Set then expand the appropriate connection type by clicking on the + symbol.

Figure 2- 17 Typical GMA Instrument Selector Screen

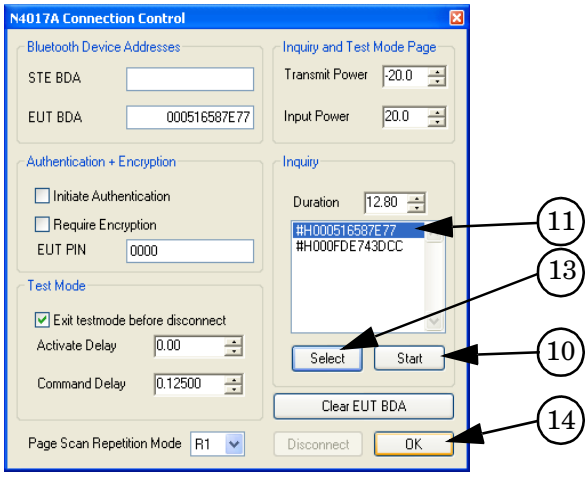


6. Double Click your Test Set listing or Click on Select Instrument.
7. The *GMA* finishes loading and your Test Set's display turns yellow.
8. In the *GMA* program, click on the **Test Mode Link** tab.
9. Click on **Connection Control**.

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Figure 2-18 Typical Connection Control Screen



10. In the **Inquiry** section, click on **Start**.
11. The EUT's numbers appear in a few seconds.
12. Click on the EUT's numbers to highlight it.
13. Click on **Select**.
14. Click on **OK**.

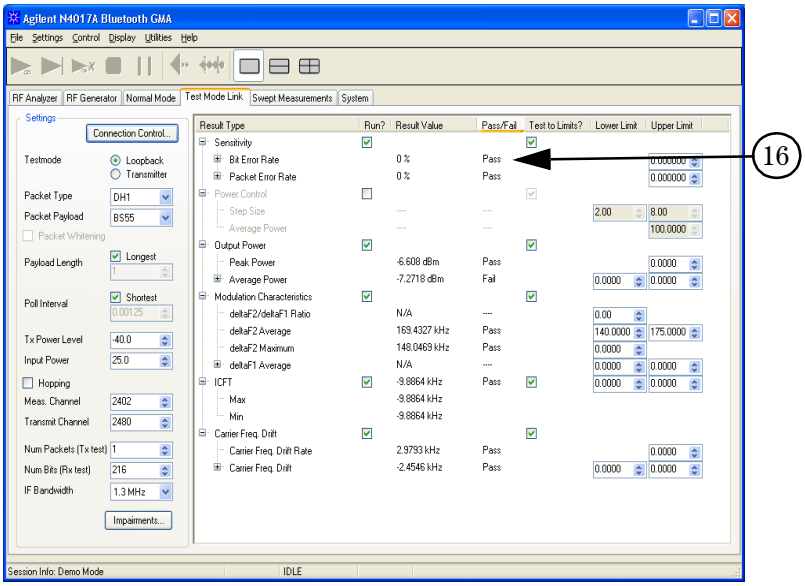
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15. In the **Control** menu, click **Run Single**.

16. The test parameters are populated with PASS or FAIL information, an example is shown in Figure 2-19.

Figure 2- 19 Typical Results Screen in the GMA



NOTE It is not important whether the tests pass or fail. It is only important that some results are populated.

***Congratulations!!* The Remote *Bluetooth* Confidence Check is Complete.**

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Rack Mounting the Test Set

Disconnect Device Requirements

In rack mounting operation a disconnect device, for example, an IEC320 appliance coupler, must be used. Consideration must be given to the following when installing the Test Set in a rack:

- An adequately rated switch (250V, 10A) or circuit breaker (250V, 5A) shall be included in the rack.
- It should in close proximity to the Test Set and within easy reach of the operator.
- It shall be marked as a disconnect device.

Ventilation Requirements

When installing the Test Set in a cabinet, the convection into and out of the Test Set must not be restricted. If the total power dissipated in the cabinet is greater than 800 Watts, then forced convection must be used.

Rack Mounting
Using the Option N4010A- AX4 rack mount kit

1. Remove the carrying handle.



2. Remove the front and rear rubber bumpers.

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3. Fit the Rack Mount Flanges.
(Parts available separately: 5063-9241).



Ready for installation.



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3 Regulatory Information

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General Specifications

Environmental

Operating Temperature	0°C to +55°C
Storage Temperature:	-20°C to +70°C
Humidity:	Up to 95% Relative Humidity to +40°C
Altitude:	3000m (9,840 ft.)
EMC:	Meets EN55011: 1991 (Group 1, Class A), and EN50082-1:1992.

Physical Specifications

Weight (Net):	6.82 Kg (Bluetooth option)
Dimensions:	105H x 370W x 390D mm nominal

Power Requirements

	**Line Power:**	**Input Voltage Range:** 100 to 240 Vac, automatic selection
		Input Frequency Range: 50 to 60 Hz
		Power Requirement: 150 VA (max)

Cooling Requirements

To provide adequate cooling, and air gap of approximately 75mm (3ins) should be maintained around the vented sections of the Test Set.

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Cleaning

Use a soft, clean, damp cloth to clean the front-panel and side covers.

Usage

This Test Set is designed for indoor use only.

WARNING **Appliance coupler (mains input power cord) is the power disconnect device. Do not position the Test Set such that access to the coupler is impaired.**

WARNING **For continued protection against fire hazard, replace the line fuse only with the same type and line rating (250V, F3.15A, 20mm fast blow fuse with high breaking capacity, Agilent Part Number 2110-0957).**
The use of other fuses or materials is prohibited. Always disconnect the Test Set from the mains supply before attempting to replace the fuse.

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

WARNING **If this Test Set is not used as specified, the protection provided by the equipment could be impaired. This Test Set must be used in a normal condition only (in which all means for protection are intact).**

CAUTION This Test Set is designed for use in Installation Category II and Pollution Degree 2 per IEC61010 and 60664 respectively.

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Compliance and Markings

Electromagnetic Compatibility (EMC)

This product conforms with the protection requirements of European Council Directive 89/336/EEC for Electromagnetic Compatibility (EMC).

The conformity assessment requirements have been met using the technical Construction file route to compliance, using EMC test specifications EN 55011:1991 (Group 1, Class A) and EN 50082-1:1992.

In order to preserve the EMC performance of the product, any cable which becomes worn or damaged must be replaced with the same type and specification.

Refer to the “Declaration of Conformity” on page 48.

10 Base-T LAN Connection Radiated Emissions:

To ensure compliance with EN 55011 (1991) a screened category 5, STP patch lead (RJ45 cable) should be used to connect the LAN port.

Safety

This Test Set has been designed and tested in accordance with publication EN61010-1(2001) / IEC 1010-1(2001) / CSA C22.2 No. 61010-1-04 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, and has been supplied in a safe condition. The instruction documentation contains information and warnings which must be followed by the user to ensure safe operation and to maintain the Test Set in a safe condition.

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Markings

The following markings can be found on the rear panel.

CE	The CE mark shows that the product complies with all the relevant European legal Directives.
ICES/NMB-001	This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme à la norme NMB-001 du Canada.
CSA®	The CSA mark is a registered trademark of the Canadian Standards Association and indicates compliance to the standards laid out by them.
ISM GROUP 1 CLASS A	This is the symbol of an Industrial Scientific and Medical Group 1 Class A product.
	The C-Tick mark is a registered trademark of the Australian Communications Authority. This signifies compliance with the Australian EMC Framework Regulations under the terms of the Radio communications Act of 1992.
	External Protective Earth Terminal. While this is a Class I product, provided with a protective earthing conductor in a power cord, an external protective earthing terminal has also been provided. This terminal is for use where the earthing cannot be assured. At least an 18AWG earthing conductor should be used in such an instance, to ground the Test Set to an assured earth terminal.

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This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical / electronic product in domestic household waste.

Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.

Do not dispose in domestic household waste.

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



This is a USB symbol, and indicates a Universal Serial Bus port or ports.

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Regulatory Information

Sound Emission

Herstellerbescheinigung

Diese Information steht im Zusammenhang mit den Anforderungen der Maschinenlarminformationsverordnung vom 18 Januar 1991.

- Sound Pressure LpA < 70dB.
- Am Arbeitsplatz.
- Normaler Betrieb.

Nach DIN 45635 T. 19 (Typprufung).

Manufacturers Declaration

This statement is provided to comply with the requirements of the German Sound DIN 45635 T. 19 (Typprufung).

- Sound Pressure LpA 70 < dB.
- At operator position.
- Normal operation.
- According to ISO 7779 (Type Test).

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Declaration of Conformity

Agilent Technologies	DECLARATION OF CONFORMITY According to ISO/IEC Guide 22 and CEN/CENELEC EN 45014	CE

Manufacturer's Name: Agilent Technologies UK Limited
Manufacturer's Address: WBU Order Fulfillment
Supplier's Address: Station Road
South Queensferry
West Lothian, EH30 9TG
Scotland, United Kingdom

Declares under sole responsibility that the product as originally delivered

Product Name: Wireless Connectivity Test Set
Model Number: N4010A
Product Options: This declaration covers all options of the above product as detailed in TCF A-5951-9852-02.

complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:

- The Low Voltage Directive 73/23/EEC, amended by 93/68/EEC
- The EMC Directive 89/336/EEC, amended by 93/68/EEC

As detailed in: Electromagnetic Compatibility (EMC)
Technical Construction File (TCF) No. TCF A-5951-9852-02.

Assessed by: DTI Appointed Competent Body
EMC Test Centre,
GEC-Marconi Avionics Ltd.,
Maxwell Building,
Donibristle Industrial Park,
Hillend,
Dunfermline
KY11 9LB
Scotland, United Kingdom

Technical Report Number: 6893/2201/CBR, dated 23 September 1997

EMC Test Specifications: EN 55011:1991 (Group 1, Class A) and EN 50082-1:1992.

and conforms with the following product standards:

Safety IEC 61010-1:2001 / EN 61010-1:2001
Canada: CAN/CSA-C22.2 No 1010.1-92
EMC Canada: ICES-001:1998
Australia/New Zealand: AS/NZS 2064.1

Supplementary Information:

This DoC applies to above-listed products placed on the EU market after:

28 January 2004
Date

Robert Tait

Quality & Regulations Manager

For further information, please contact your local Agilent Technologies sales office, agent or distributor, or Agilent Technologies Deutschland GmbH, Herrenberger Straße 130, D 71034 Böblingen, Germany.

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Responsibilities of the Customer

The customer shall provide:

- Access to the products during the specified periods of coverage to perform maintenance
- Adequate working space around the products for servicing by Agilent personnel.
- Access to and use of all information and facilities determined necessary by Agilent to service and/or maintain the products. (Insofar as these items may contain proprietary or classified information, the customer shall assume full responsibility for safeguarding and protection from wrongful use.)
- Routine operator maintenance and cleaning as specified in the Agilent Operating and Service Manuals.
- Consumables such as replacement fuses, etc.

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Agilent Sales and Service Offices

In any correspondence or telephone conversations, refer to the Test Set by its model number and full serial number. With this information, the Agilent representative can quickly determine whether your unit is still within its warranty period.

UNITED STATES	Agilent Technologies (tel) 1 800 829 4444
CANADA	Agilent Technologies Canada Inc. Test & Measurement (tel) 1 877 894 4414
EUROPE	Agilent Technologies Test & Measurement European Marketing Organization (tel) (31 20) 547 2000
JAPAN	Agilent Technologies Japan Ltd. (tel) (81) 426 56 7832 (fax) (81) 426 56 7840
LATIN AMERICA	Agilent Technologies Latin America Region Headquarters, USA (tel) (305) 267 4245 (fax) (305) 267 4286
AUSTRALIA and NEW ZEALAND	Agilent Technologies Australia Pty Ltd. (tel) 1-800 629 4852 (Australia) (fax) (61 3) 9272 0749 (Australia) (tel) 0-800 738 378 (New Zealand) (fax) (64 4) 802 6881 (New Zealand)
ASIA PACIFIC	Agilent Technologies, Hong Kong (tel) (852) 3197 7777 (fax) (852) 2506 9284

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