

Setting Control Functions

Setting Control Functions

Remote Control

- Setting the GPIB
- Remote Control Using HTTP

Display

- Turning off the Date/Time Display
- Turning off the LCD Screen Backlight
- Calibration of the Touch Screen

Others

- Initial Source Port Control function
- External Test Set Mode
- Checking the product information
- Activating Software Option
- Locking the Front Keys, Keyboard, and/or Mouse (Touch Screen)
- Setting the Beeper (Built-in Speaker)
- Setting the preset function
- Overload Detection and Power Trip Feature
- Exit/Restart E5071C Measurement Application

Setting the GPIB

- Setting talker/listener GPIB address of E5071C
- Setting system controller (USB/GPIB interface)

Other topics about Setting Control Functions

This section describes how to set the interface necessary to use the GPIB (General Purpose Interface Bus) of the E5071C.

Setting talker/listener GPIB address of E5071C

When controlling the E5071C using GPIB commands from the external controller connected to the GPIB connector, you need to set the talker/listener GPIB address of the E5071C.

Follow these steps to make this setting:

1. Press **System** key.
2. Press **Misc Setup > GPIB Setup> Talker/Listener Address**.
3. Enter the address using the ENTRY block keys on the front panel.

Setting system controller (USB/GPIB interface)

When controlling an external device from the E5071C, connect the USB port of the E5071C and the GPIB port of the external device through the USB/GPIB interface.

NOTE

Do not connect two or more USB/GPIB interfaces.

NOTE

In case the volume label of C drive is CN701, CN702, or CN801, the driver for 82357B USB/GPIB is not installed.

Before following the steps mentioned below, it is required to install the driver for 82357B.

Follow these steps to set the USB/GPIB interface:

1. Connect the USB port of the E5071C to the USB/GPIB interface.

2. Select **No, not this time**, then click **Next**.

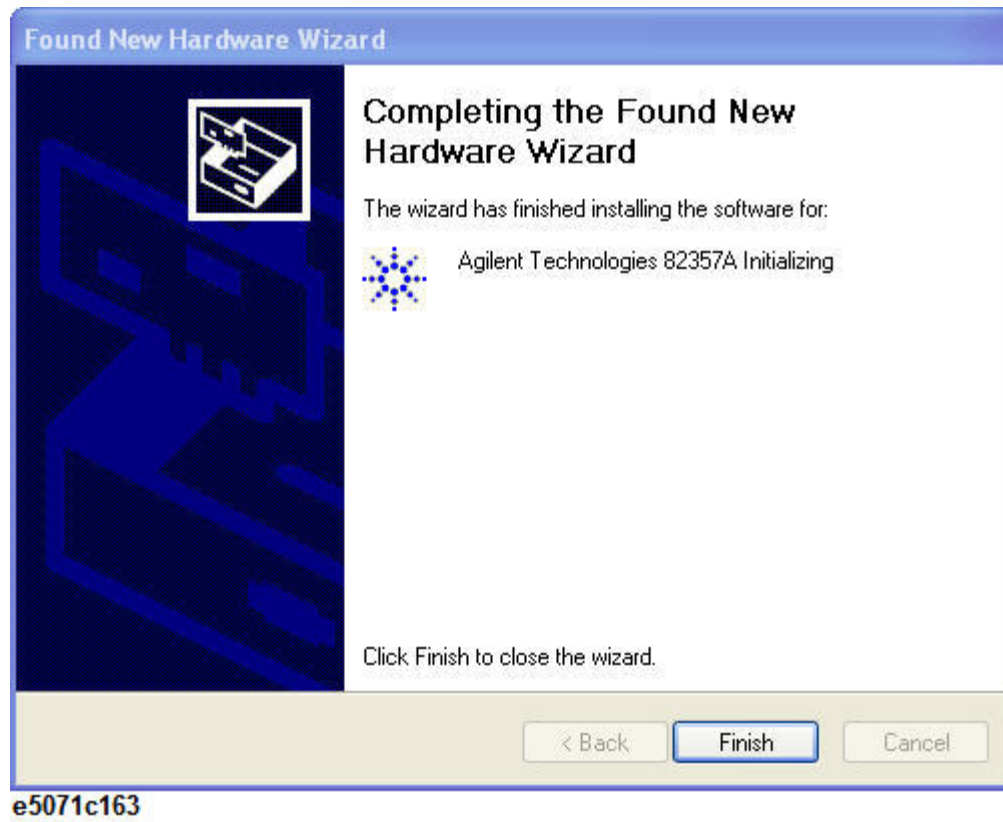


3. Select **Install the software automatically (Recommended)**, then click **Next**.



e5071c161

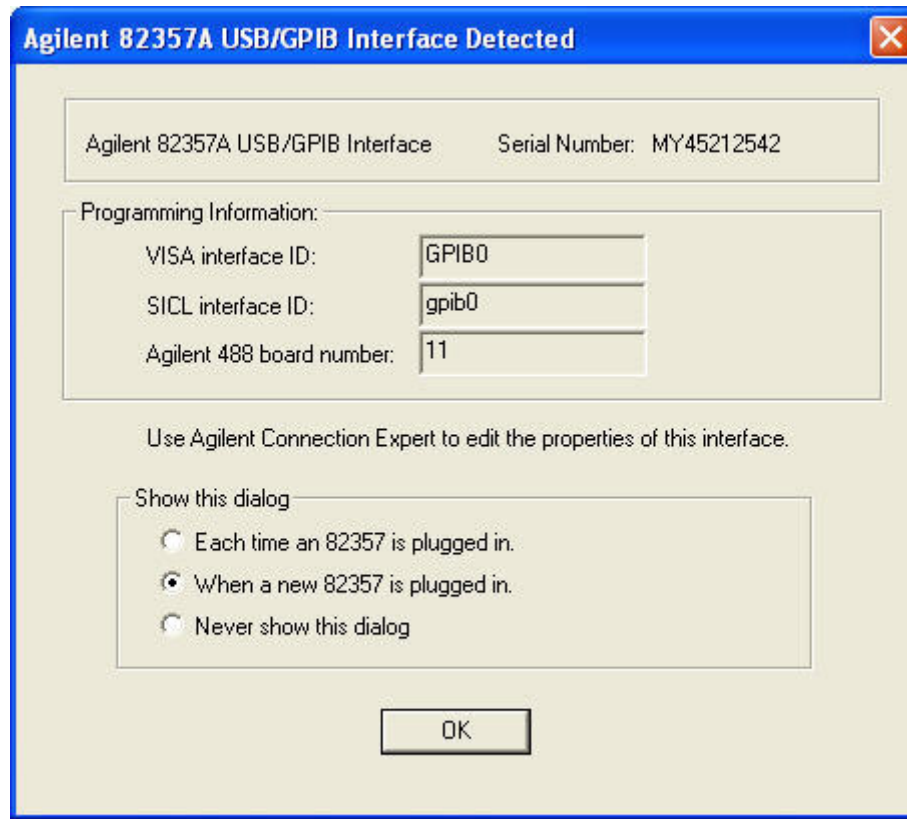
4. Click **Finish**.



5. The **Found New Hardware Wizard** appears again. Repeat the step 2 to 4 again.



6. Select **When a new 82357 is plugged in**, then click **OK**.



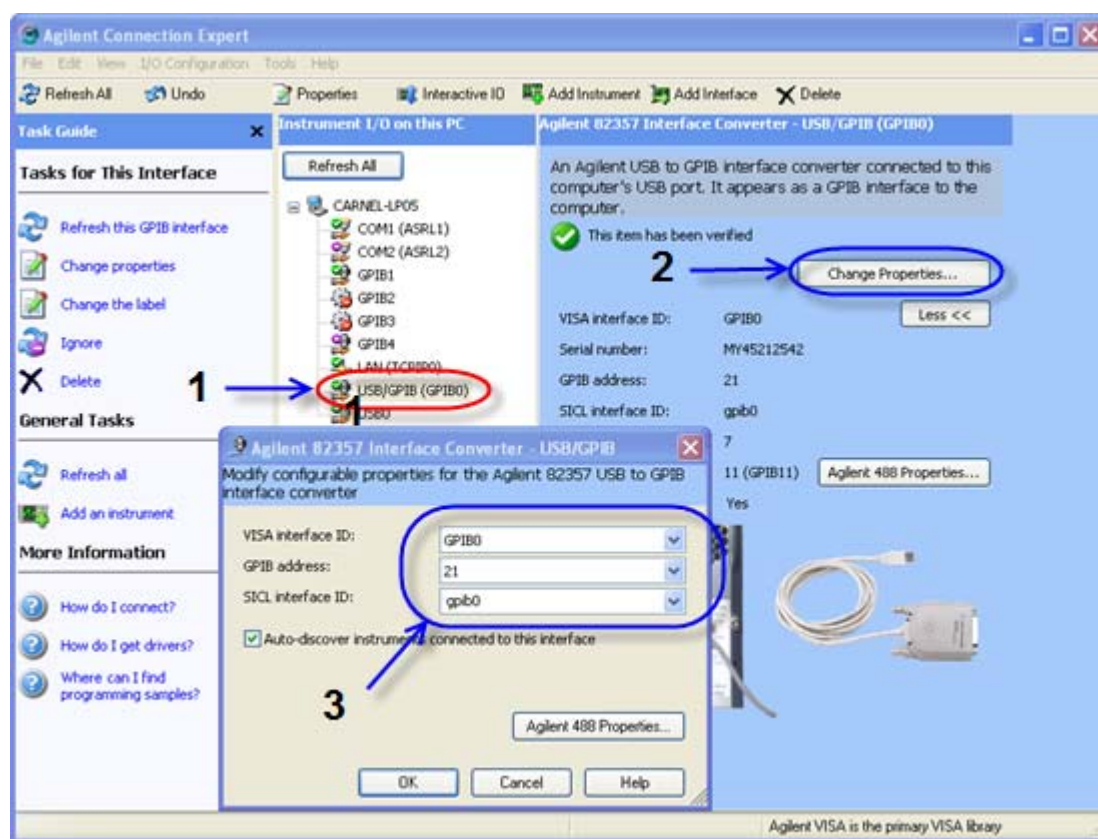
e5071c0169

7. Select "When a new <USB device> is plugged in." or "Never show this dialog" instead of "Each time a USB devices is plugged in".

Changing the setting of the USB/GPIB interface

If you need to check/change the setting of the USB/GPIB interface after connecting the USB/GPIB interface, follow these steps:

1. Press **System** key, then click **Misc Setup > GPIB Setup > System Controller Configuration**.
2. The Agilent Connection Expert appears. (You can also execute Agilent Connection Expert from Task bar or Start menu in Windows.)



e5071c172

3. Select USB/GPIB (GPIBx)
4. Click Change Propetries...
5. Change the setting of USB/GPIB interface.
 6. It is required to connect the USB/GPIB Interface to "GPIB0" as VISA Interface ID, in order to control:
 - Power Meter for the Power Calibration
 - External Signal Source for the Frequency Offset

Remote Control Using HTTP

- Enabling Web Server
- Browser Web Control

Other topics about Setting Control Functions

You can access the web page installed in the E5071C by using the hypertext transfer protocol (http) and the E5071C's IP address from the external PC's web browser. This function is called an web-enabled analyzer. Through the built-in web page, you can control the E5071C remotely and display the measurement screen on external PCs.

The following browsers are recommended:

- Internet Explorer 8.0 and later

Enabling Web Server

Network Configuration

To use web server, you have to configure the E5071C's network correctly. For detailed information on configuration and notes, see Configuring the Network.

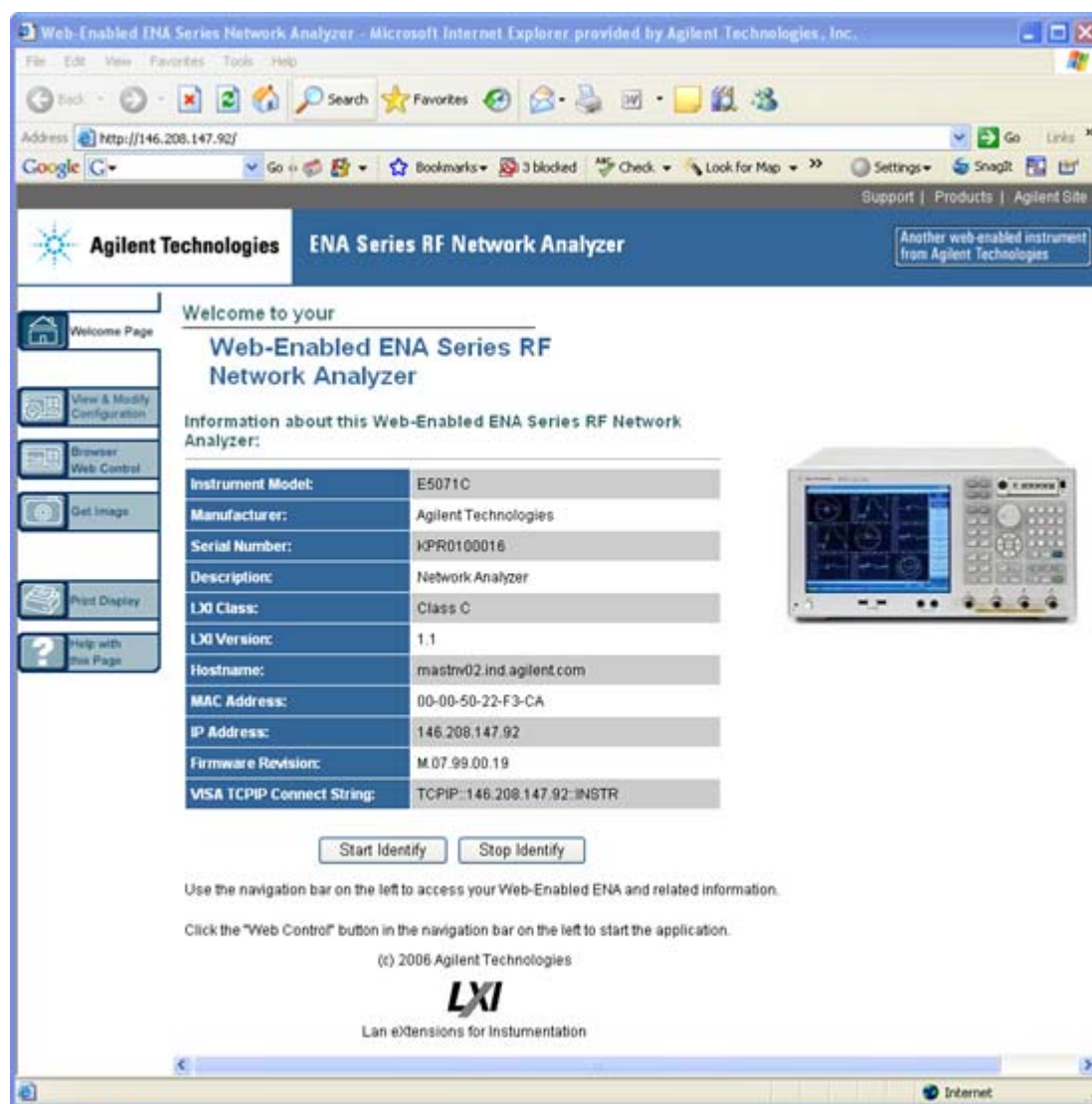
Enabling Web Server

Enable the web server for the E5071C so that it may allow access from an external PC. Follow these steps:

1. Press **System** Key.
2. Click **Misc Setup** > **Network Setup**.
3. Click **Web Server** to turn it **ON**.

Access from an external PC

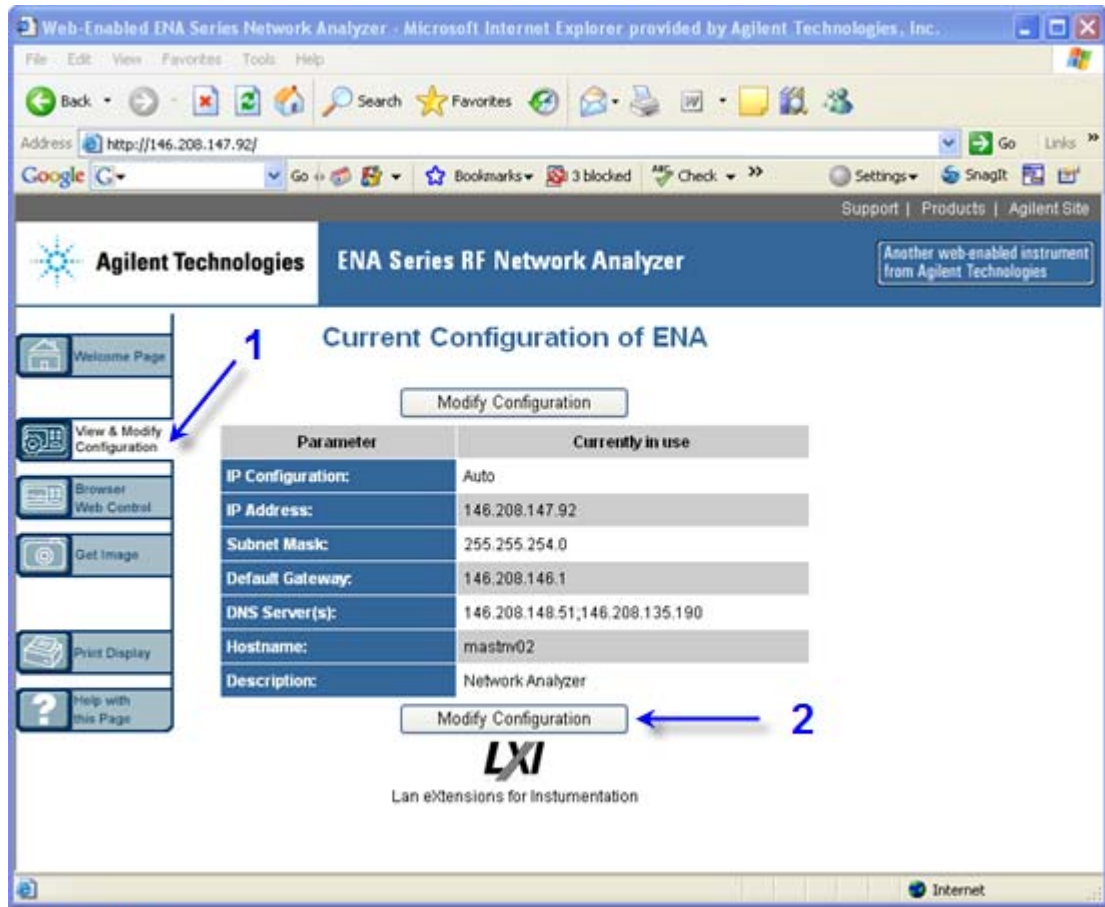
1. Execute web browser on your PC.
2. Check IP address of the E5071C.
3. Enter IP address of the E5071C in the address bar and press Enter.
The following screen appears:



e5071c173

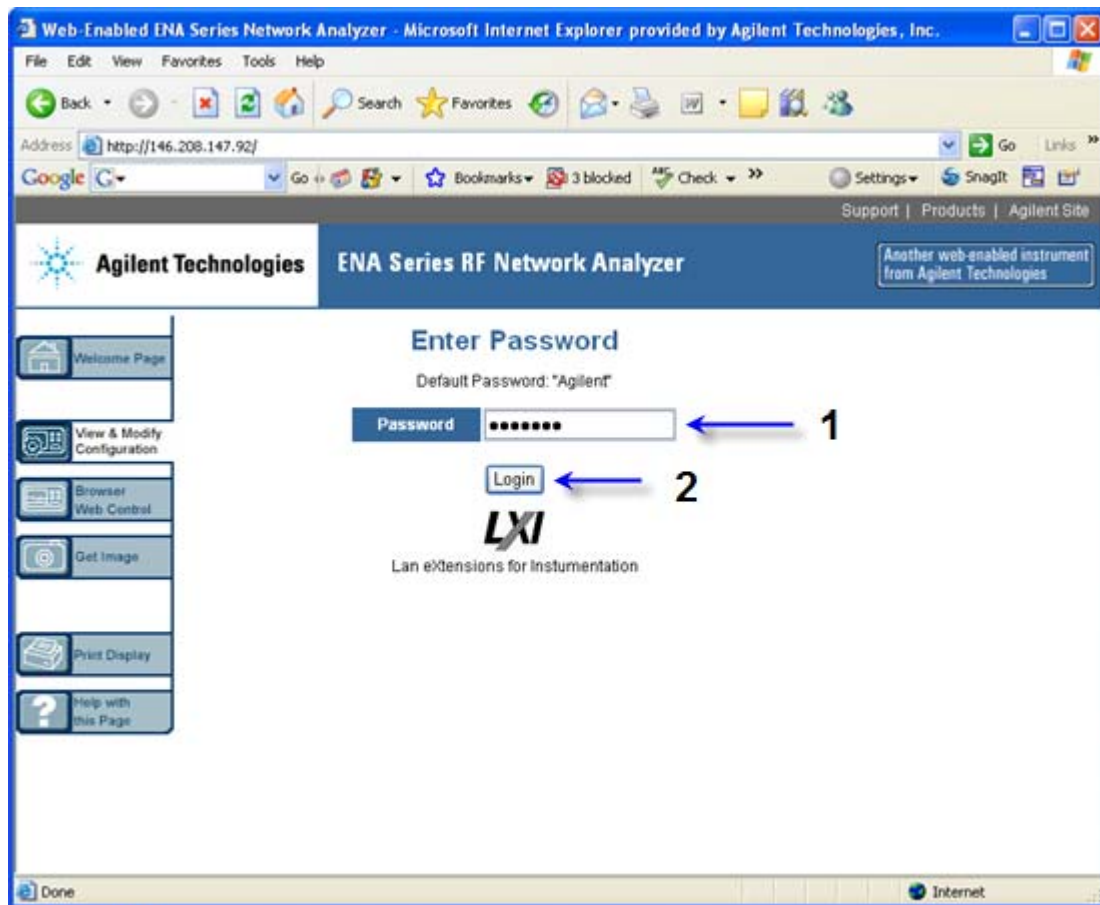
To change LAN (TCP/IP) configuration of you ENA.

1. Click **View & Modify Configuration** (1 in the Figure below). The following screen appears:



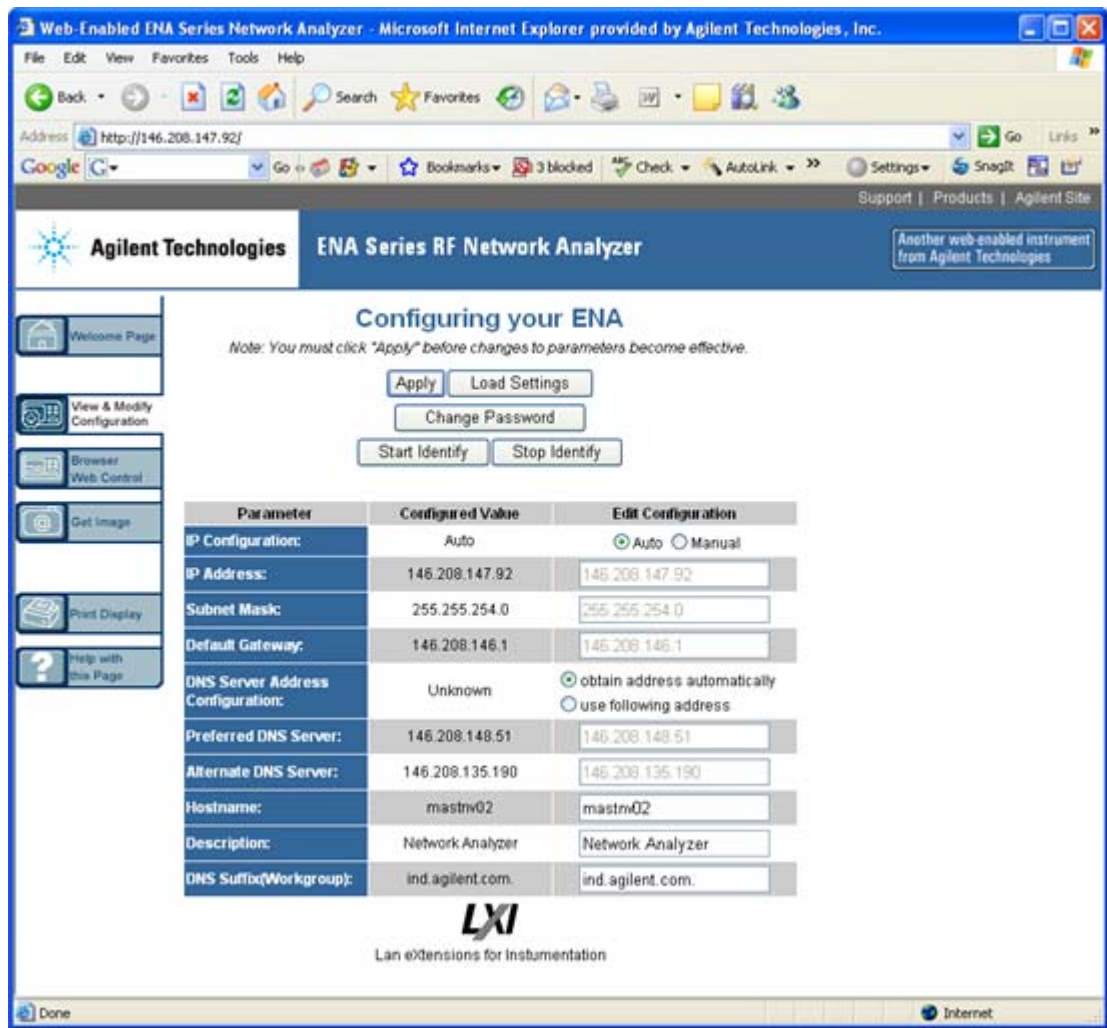
e5071c283

2. Click **Modify Configuration** (2 in the Figure above). Modifying this setup affects the Windows Internet Protocol (TCP/IP) property. The following screen appears:



e5071c284

3. Enter the password (Default: "Agilent") in the Password field (**1** in the figure above) and click **Login** (**2** in the figure above). The following screen appears:



e5071c285

Browser Web Control

Browser Web Control function allows you to control your ENA from web browser. This function is executed by the VNC server.

NOTE

The external PC must have the Java Runtime Environment installed otherwise the Browser Web Control function might not work properly. To install Java Runtime Environment, see <http://www.java.com/>.

The following is a description of how to start the VNC server configuration. Visit the web site at <http://www.realvnc.com> for information on the password setting procedure and VNC server.

1. Press **System** Key.
2. Click **Misc Setup** > **Network Setup**.

3. Click **VNC Server Configuration** to start the VNC Server Properties.
4. To restrict external access, set a password for the VNC server configuration. The default password at factory shipment is blank.

NOTE

Redistribution of VNC is licensed under the General Public License version 2 copyright. Source code of VNC and a copy of the GPLv2 may be found in the directory of E:\MiscBin\vnc.

Turning on/off the Date/Time Display

The date/time display in the instrument status bar can be switched on/off using the following procedure.

1. Press **System** > **Misc Setup** > **Clock Setup**.
2. Click **Show Clock** to toggle the date/time display on/off.

Other topics about Setting Control Functions

Turning off the LCD Screen Backlight

You can switch off the backlight (illumination) of the LCD screen of the E5071C. This extends the life of the backlight when using it continuously over a long period.

Turning off the LCD Screen Backlight

1. Press **System** key.
2. Press **Backlight** to switch the backlight on/off.
3. Switching off the backlight causes indications on the LCD screen to be almost invisible.
4. The backlight that has been switched off can be turned on again by pressing any key from the front panel.

Other topics about Setting Control Functions

Calibration of the Touch Screen

When you have executed system recovery on the E5071C, you have to calibrate the touch screen. Follow the procedure described below to calibrate the touch screen.

1. Press **System** Key.
2. Click **Service Menu > Test Menu > Adjust Touch Screen**.
3. The touch screen calibration screen appears.
4. Touch the x mark on the upper left with your finger. The mark x appears also on the lower left, upper right, and lower right. Touch the x marks in that order with your finger.
5. Touching the four locations described above with your finger automatically concludes the touch screen calibration.
 6. With no operation on the touch screen calibration screen for a preset time, it automatically closes and the previous measurement screen reappears.

Other topics about Setting Control Functions

Initial Source Port Control function

It protects the output amplifier inside the instrument against any potential damage due to transient voltage that may be externally applied. After the firmware is installed, this feature is activated at power-on. When activated, this feature attenuates the output signal and turns off the test port LED each time a sweep finishes. At the same time, it switches the stimulus signal output test port in the trigger hold state to a pre-selected test. A test port 1 is selected at power-on.

The Init Src Ctrl feature lets you select the stimulus signal output test port in the trigger hold state. By setting the stimulus signal output test port to a test port which hardly experience transient voltage, this feature can reduce the possibility that the output amplifiers of the instrument may be damaged by transient voltage. Transient voltage occurs when the active DUT is connected or an external DC power supply is turned on. A test port not used or a test port to which the DUT input terminal is connected can be regarded as a test port which hardly experience transient voltage. The following table shows the degree of tolerance to transient voltage of each test with this feature. Connect the DUT so that transient voltage is not applied to test ports with low tolerance.

Test Port to select (Stimulus signal output test port)	Low tolerance test ports Connected to the instrument's output amplifier. (Recommended connection: test port not used or DUT input terminal)	High tolerance test ports connected to 50 ohm termination inside the instrument. (Recommended connection: DUT output terminal)
When test port 1 is selected	Test port 1, test port 3	Test port 2, test port 4
When test port 2 is selected	Test port 2, test port 3	Test port 1, test port 4
When test port 3 is selected	Test port 3, test port 1	Test port 2, test port 4
When test port 4 is selected	Test port 4, test port 1	Test port 2, test port 3

We recommended you to use this feature in single measurement (when performing manual measurement) or :INIT:CONT OFF (when using a program) since the stimulus signal output destination is switched to the selected test port only in the trigger hold state

Usage:

When performing manual measurement

Trigger: **Trigger** > **Single** is recommended.

Turning on the Init Src Ctrl feature: **System** > **Service Menu** > **Init Src Ctrl [ON]**

Specifying the Init Src port: **System** > **Service Menu** > **Init Src Port [1|2|3|4]**

When using a SCPI program. Sample program to set Port 1 to Initial Source Port.

:INIT:CONT OFF

:SYSTem:ISPControl[:STATe] ON

:SYSTem:ISPControl:PORT 1

To disable the Initial Source Port Control feature:

When using the front panel menu : **System** > **Service** > **Init Src Ctrl [OFF]**

When using the SCPI command : **SYSTem:ISPControl[:STATe] OFF**

When using the VBA command: **SCPI.SYSTem.ISPControl.STATe = False**

Other topics about Setting Control Functions

External Test Set Mode

- Overview
- Example of using the external test set mode function
- Setting the external test set mode
- Calibration and Measurement Parameters

Other topics about Setting Control Functions

Overview

To evaluate high-power amplifiers, stimulus signals having greater amplitude than the maximum output power of the E5071C may be required. In such cases, perform the transmission/reflection measurement by configuring an external test set by connecting external couplers/bridges instead of using the S-parameter test set built in the E5071C.

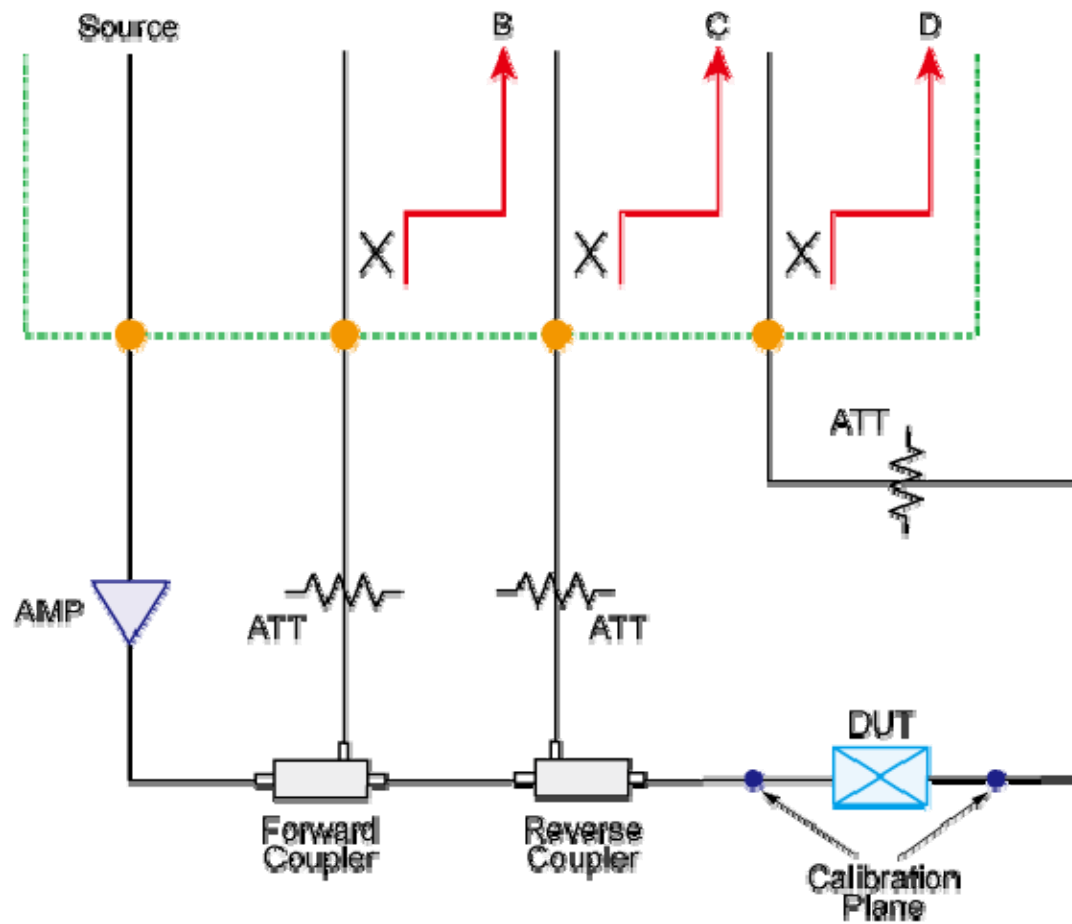
When you want to use the E5071C for such purposes, use the external test set mode function.

Example of using the external test set mode function

To apply amplified output signal of the E5071C to the DUT, an amplifier is connected to the port used for the source to the E5071C. A reverse coupler is inserted to make the reflection measurement. A forward coupler is inserted to use the output of the amplifier as the reference signal. This configuration corrects a source mismatch error caused by the amplifier.

To measure S21 and S11 using this configuration, Mode 1 is selected as the external test set mode.

Configuration using the external test set mode function (Mode 1)

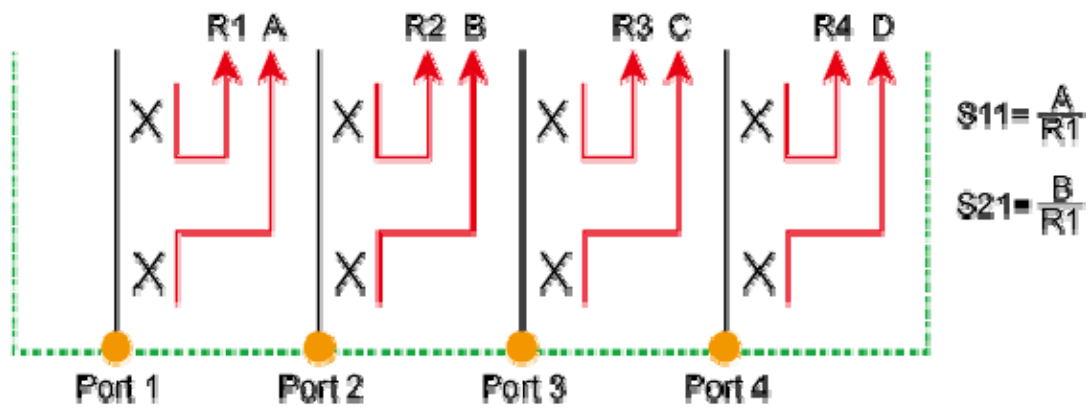


e5071e474

Setting the external test set mode

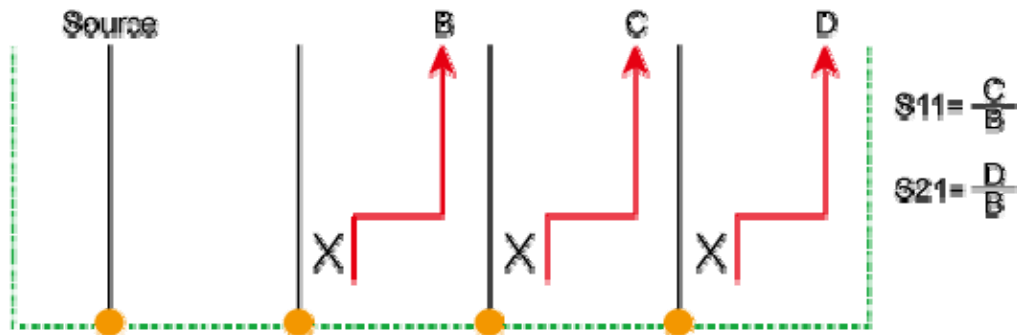
You can select the status of the external test set mode from 3 types: OFF, Mode 1, or Mode 2.

- When OFF is selected, the instrument operates as a network analyzer with a built-in 4-port S-parameter test set.



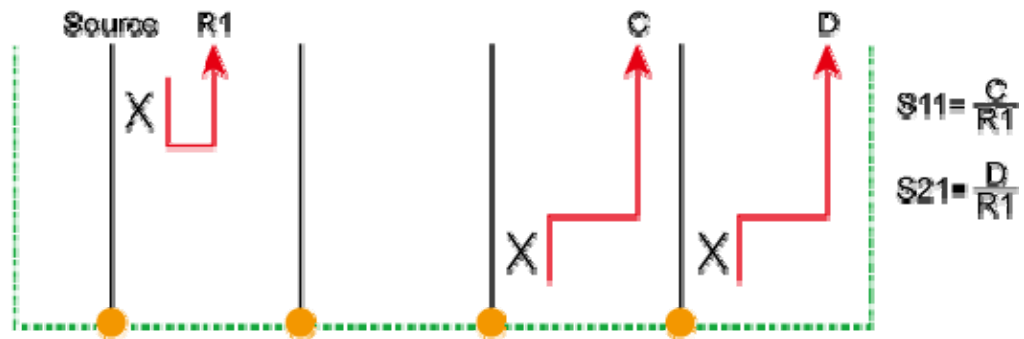
e5071c475

- When Mode 1 or Mode 2 is selected, the instrument operates as a network analyzer with a built-in 2-port T/R test set.
 - Mode 1



e5071c476

2. Mode 2



e5071c477

Setting procedure

Follow these steps to set the external test set mode.

1. Press **System** > **Service Menu** > **External Test Set**.
2. Select your desired mode.
3. When the setting of the external test set mode is changed, the calibration coefficients acquired using the calibration kit or ECal are cleared, and the error correction function is turned off.

Calibration and Measurement Parameters

When the external test set mode (Mode 1 or Mode 2) is used with the E5071C, only limited types of calibrations and measurement parameters are available.

Calibration when using the external test set

When the external test set mode (Mode 1 or Mode 2) is used with the E5071C, the following calibrations are available. When other calibration methods are used, correct calibration is not performed.

- Open response calibration
- Short response calibration
- Thru response calibration
- Enhanced response calibration
- 1-port calibration
 - When ECal is used with Mode 1 or Mode 2 selected, the connection of test port 4 cannot be detected automatically. When you perform calibration using the 4-port ECal, set the connection of port 4 as follows depending on the connection of test port 1/2/3.

Port of E5071C	Port 1/2/3	Port 4
Port of ECal	A	B
	B	C
	C	D
	D	A

Measurement parameters

When the external test set mode (Mode 1 or Mode 2) is used with the E5071C, only the S11/S21 measurement and absolute value measurement are available.

When Mode 1 or Mode 2 is selected, the fixture simulator's function is not available.

Checking Product Information

- Checking Serial Number and Options
- [Checking Firmware Revision and System Information](#)
- Checking HDD Revision

Other topics about Setting Control Functions

Checking Serial number and Options

The serial number and options of the E5071C can be checked using the following procedure.

1. Press **System** > **Firmware Revision**.
2. The Firmware Revision dialog which shows the serial number and options is displayed.

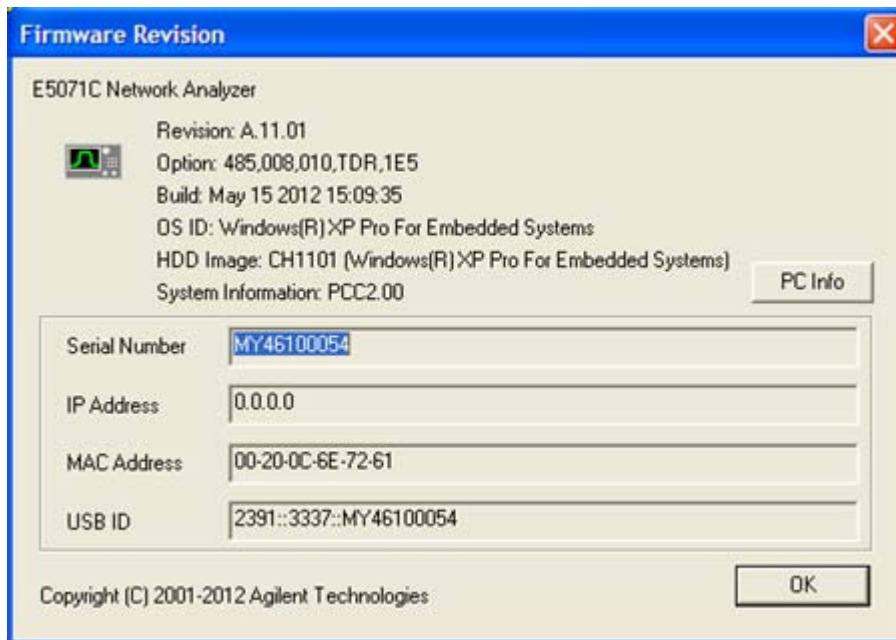
The information of MWA option is not displayed here as the MWA software is a VBA macro.

To activating software option, see Activating Software Option.

Checking Firmware Revision and System Information

The revision number and system information of the firmware installed in the E5071C can be checked using the following procedure.

1. Press **System** > **Firmware Revision**.
2. The Firmware Revision dialog is displayed, as shown below.



e5071c609

3. Click on the **PC Info** button to view System Properties.



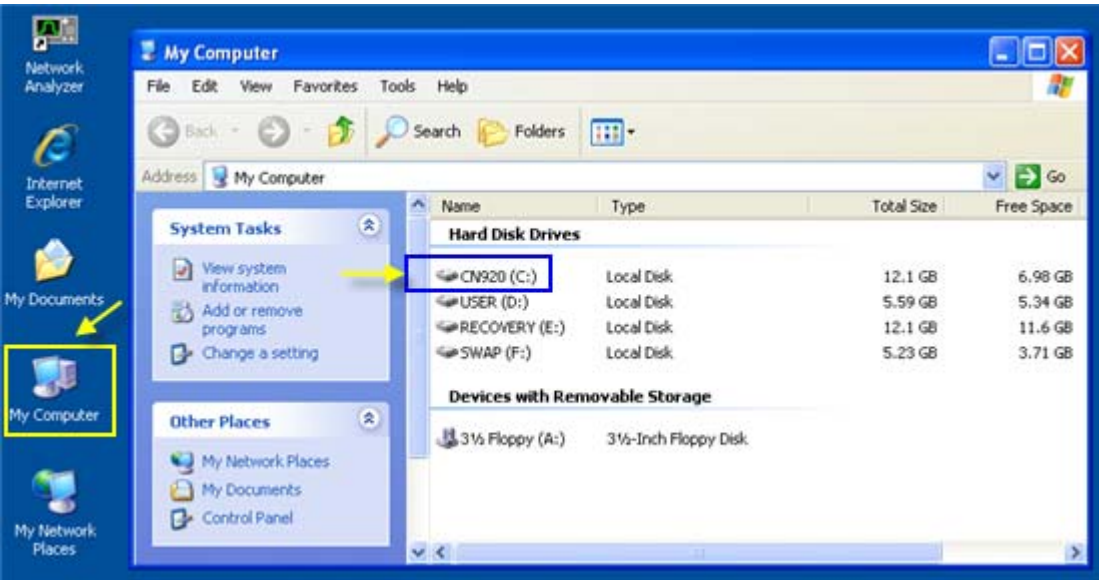
e5071c610

Checking HDD Revision

1. Press **System** > **Firmware Revision**.
2. The Firmware Revision dialog which shows the HDD revision is displayed.

In firmware older than revision A.09.7x, the HDD revision is not displayed at the Firmware Revision dialog box.

The HDD revision of the E5071C can be checked using **Windows Start Menu** > **My Computer** > **C:** drive label. For example, the HDD version of the E5071C in the figure below is CN920. For more information, refer to HDD Revision History.



Activating Software Option

- Activating Option
- Backing Up License Key File

Other topics about Setting Control Functions

Activating Option

The software options can be purchased separately to enhance the E5071C measurement functionality. When you purchase the software option upgrade kit, Agilent provides the software entitlement certificate.

Procedure

1. Get the license number at <http://www.agilent.com/find/softwarelicense>.
- Option MWA
refer to Installation of the MWA Software.
 - Other Options
 1. Press **System** > **Service Menu** > **Enable Options** and then select option which you want to activate.
 2. Type the relevant 12 character long license key sent by Agilent in the Key Code entry dialog box, then click **Enter**.
 3. Check the installed option according to Checking_Serial Number and Option.

Note for Option TDR

- Requires the upgrade at Agilent service center.
- Requires the option TDR application on the E5071C.

Backing Up License Key File

The license keys are kept in a text file (.lic) located at **RECOVERY(E):\LICENSE\gen.lic**. When you change the removal hard disk, copy the file as back up. Even if you lost the file, you can activate the option again if you have the license number. You can re-create the license number at <http://www.agilent.com/find/softwarelicense> with your software entitlement certificate.

Locking the Front Keys, Keyboard, and/or Mouse (Touch Screen)

You can lock (disable) the front keys, keyboard, and/or mouse (touch screen). This feature prevents erroneous operation caused by inadvertently touching any of these devices.

Locking the Front Keys, Keyboard, and/or Mouse

1. Press **System** Key.
2. Click **Misc Setup > Key Lock**.
3. Click the corresponding key to switch the lock on/off.

Softkey	Function
Front Panel & Keyboard Lock	Switches the lock for the front panel keys and keyboard on/off.
Touch Screen & Mouse Lock	Switches the lock for the touch screen and mouse on/off.

NOTE You cannot use a locked device to unlock that same device. To unlock the front panel keys, keyboard, touch screen and mouse that have been locked, press the Standby switch to turn off the power supply and then turn it on again. When setting at power-on, the front panel keys, keyboard, touch screen and mouse are all in an unlocked condition.

Other topics about Setting Control Functions

Setting the Beeper (Built-in Speaker)

- Setting the Operation Complete Beeper
- Setting the Warning Beeper

Other topics about Setting Control Functions

The E5071C has a built-in speaker that sounds a beep tone. The beeper allows you to make two types of settings.

Type	Function
Operation complete beeper	<p>Sounds a beep tone to inform the user that operations have completed.</p> <ul style="list-style-type: none"> • When calibration data measurements are done • When data storage has completed
Warning beeper	<p>Sounds a beep tone to prompt the user to use caution.</p> <ul style="list-style-type: none"> • When an instrument error occurs (An error message appears at the same time.) • When a limit test fails

The warning beeper sounds slightly longer than the operation complete beeper.

Setting the Operation Complete Beeper

1. Press **System** key.
2. Click **Misc Setup > Beeper > Beep Complete** to switch the operation complete beeper on/off.
3. Clicking **Test Beep Complete** allows you to hear and check the beep tone of the operation complete beeper.

Setting the Warning Beeper

1. Press **System** key.
2. Click **Misc Setup > Beeper > Beep Warning** to switch the warning beeper on/off.
3. Clicking **Test Beep Warning** allows you to hear and check the beep tone of the warning beeper.

Setting the preset function

- Showing/hiding the confirmation buttons when presetting
- Setting the user preset function
- Saving a user-preset instrument state

Other topics about Setting Control Functions

Showing/hiding the confirmation buttons when presetting

The preset function can be executed without displaying the **OK** and **Cancel** softkey buttons when pressing the preset button of the E5071C.

1. Press **System** key.
2. Click **Misc Setup > Preset Setup**.
3. **Confirm** to toggle on (show)/off (hide) the confirmation buttons.

Setting the user preset function

You can save the instrument state of the E5071C into a file in the mass storage, and then recall it with the preset function to reproduce that state.

If no user preset instrument state is stored, you cannot set the user preset function.

1. Press **System** key.
2. Click **Misc Setup > Preset Setup > State**.
3. Use one of the following keys for the desired setting.

Softkey	Function
Factory	Specifies the normal preset function.
User	Specifies the user-preset function.
Cancel	Returns to the softkey display in one upper level.

Saving a user-preset instrument state

To execute the user-preset function, you must have a preset setting file that has been saved. Follow these steps to save a preset instrument state of the E5071C.

1. Press **Save/Recall** key.
2. Press **Save State > User Pres**.

Overload Detection and Power Trip Feature

Overload detection and Power Trip function is a safety feature to protect your E5071C from over-input. When an overload is detected, the power output is automatically turned off by the power trip feature. If the power output is turned off by the power trip, remove the cause of the over-input and turn on the power output to restart the measurement .

When you make a measurement at the frequency between 9.375 MHz and 8.5 GHz, an overload may occurs even if the input signal level is below the maximum input level. In that case, you may turn off overload detection. Even if the overload detection is turned off, overload may occur at the excessive input level.

CAUTION

When you need to turn off this feature, be sure to control that your input signal is under the maximum input level for specified measurements, and never exceeds the damage level (26 dBm) written on the instrument panel, or the instrument is damaged.

Follow the procedure described below to turn ON/OFF Overload Detection/Power Trip function:

1. Press **System** Key.
2. Click **Service Menu > Overload Detect ON|OFF**.

The SCPI command to turn this feature ON/OFF remotely is SCPI.SERVICE.POWER:AC:OVERload:DETECT:STATE.

Other topics about Setting Control Functions

Exit/Restart E5071C Measurement Application

Pressing **System** > **Service Menu** > **Exit Firmware** shuts down the firmware of E5071C.

Pressing **System** > **Service Menu** > **Restart Firmware** restarts the firmware of the E5071C.

Other topics about Setting Control Functions