E5071C Performance Test Program

<Agilent Service Center Use Only>

Operation Manual

Third Edition

Agilent Part No. N/A

June 2007

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Manual Printing History

The manual’s printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates that are incorporated at reprint do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

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1 Installation

This chapter provides information for the installation of E5071C performance test program.

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Warm-up for Performance Test

Allow the E5071C to warm up for at least 30 minutes before you execute any of the performance tests.

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Required Equipment

Table 1-1 lists the recommended equipment for performing maintenance on the E5071C.

Table 1-1 Recommended Test Equipment

Equipment	Critical Specification	Recommended Model	Qty
Frequency Counter	Frequency: 9 kHz to 8.5 GHz	Agilent 53181A with Opt. 010 and 124 Agilent 53132A with Opt. 010 and 124	1
Frequency Standard	Frequency: 10 MHz, Time Base	5071A	1
Power Meter	No Substitute	E4419A/B	1
Function Generator	No Substitute	Agilent 33120A or Agilent 33250A	1
Digital Multi Meter	No Substitute	Agilent 3458A, Agilent 34401A, Agilent 34410A and Agilent 34411A	1
Dynamic Accuracy Test Kit	No Substitute	Agilent Z5623A Opt H01	1
Power Sensor	No Substitute	Agilent E9304A with Opt H18 Agilent 8482A	1 1
Calibration Kit	No Substitute	Agilent 85032F	1
Fixed Attenuator (6dB)	50 ohm, N(m)-N(f), VSWR <= 1.015	Agilent 8491A Opt.006 and H60	1
Cable	BNC(m)-BNC(m) Cable, 61 cm 48 inch BNC cable Coaxial Cable with Type-N(m) connectors, 61 cm (24 in) 20 inch 50 ohm cable GPIB Interconnection Cable	Agilent p/n 8120-1839 Agilent p/n 8120-1840 Agilent N6314A (p/n 8120-8862) Agilent p/n 5062-6691 Agilent 10833A/B	1 1 2 1 1
Adapter	N(m)-BNC(f) Adapter Dual Banana – BNC (f) Adapter N-SMA Adapter BNC T Adapter	Agilent p/n 1250-0780 Agilent p/n 1251-2277 Agilent p/n 1250-2879	1 1 2 2
BNC Short Termination	No Substitute		2

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Preparation for using the E5071C Performance Test Program

The performance test can be performed using this E5071C Performance Test Program. To use the Performance Test Program, some preparations are required. This section describes how to proceed.

(i) Using External PC

Required Controller

The following controller system is required to run the performance test program.

Windows PC	PC-AT Compatible, RAM:ε64MBytes, CPU Pentium 200 MHz or faster, HDD: 10 MBytes or more free space
OS	Microsoft Windows XP
Software	Agilent VEE (Rev. 7.xx)
GPIB Card	82350A, 82340B, 82341C/D

Installing a GPIB Card (82350A, 82340B or 82341C/D)

Install a GPIB Card into your computer (see the GPIB Card manual). The select code of the GPIB Card should be set to “7”.

Installing Agilent VEE for Personal Computer

Install the Agilent VEE (Rev 7.xx) into your computer (see the Agilent VEE for Windows).

Installing Performance Program into Your PC

Step 1. Make a copy of the E5071C performance test program named `pte5071c.exe` in a directory of the hard disk drive in your PC. The program is downloadable from the CTD-Kobe web site.

Step 2. Double-click on the filename on the Windows’ Explorer to start extracting the self-extracting archive.

Step 3. You will be prompted to enter folder name for installing the program files. Enter the folder name, then click on `UNZIP`. The default folder is `G:\pte5071c` but since you are using external PC, please change the default folder to `C:\pte5071c.`

Step 4. Connect GPIB cable as shown in Figure 1.1

(ii) Using USB Pen Drive

Installing Performance Program into Your PC

Step 1. Unzip pte5071c.exe and copy "pte5071c" folder to USB pen drive.

Step 2. Connect USB pen drive to USB port in the E5071C front panel.

Step 3. Connect the USB connector of GPIB controller (82357A USB/GPIB Interface) to the USB port of the E5071C front panel.

Step 4 Connect GPIB cable as shown in Figure 1.2

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Equipment Setup

Performing performance test program using external PC or USB Pen Drive (E5071C itself) requires the system described in this section. The Hardware Setup for using the external PC is shown in Figure 1-1 while for using the USB Pen Drive is shown in Figure 1-2.

Figure 1-1 Performance Test Hardware Setup (External PC)

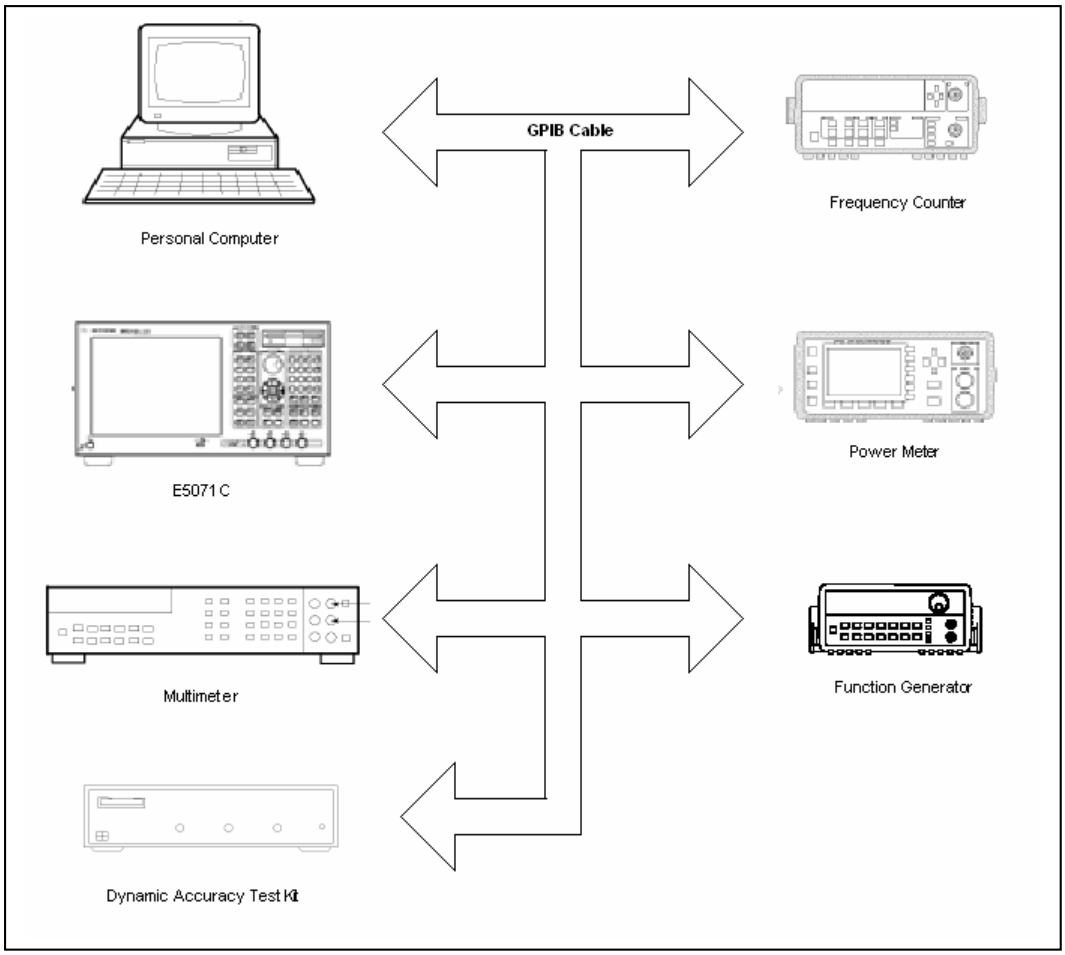
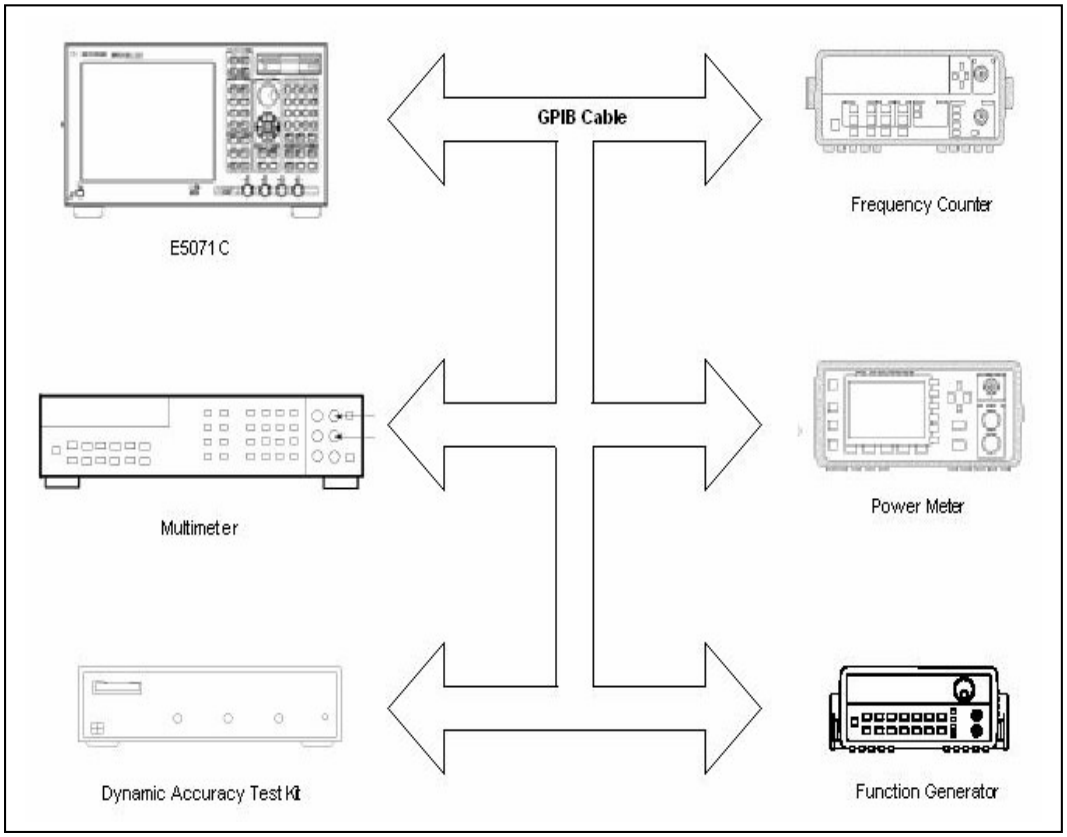


Figure 1-2 Performance Test Hardware Setup (USB Pen Drive)



Setting GPIB address of the E5071C

To control the E5071C in the performance test program, the talker/listener GPIB address must be set. Check and set the GPIB address according to the following procedure.

Step 1. Press – [System] – **SYSTEM CONFIG.** If the GPIB ADDR "17" has not been set, proceed to the next step.

Step 2. Use the cursor keys to select the GPIB ADDR field. Enter the GPIB address "17" using the entry keys on the front panel, then press **x1** soft key

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Registering 8482A Power Sensor Calibration Data

The calibration data of the 8482A power sensor must be set before running the performance test program.
There are two ways to register calibration data for 8482A which are using external PC and using E5071C itself.

Below are the instructions to install the calibration data for 8482A power sensor.

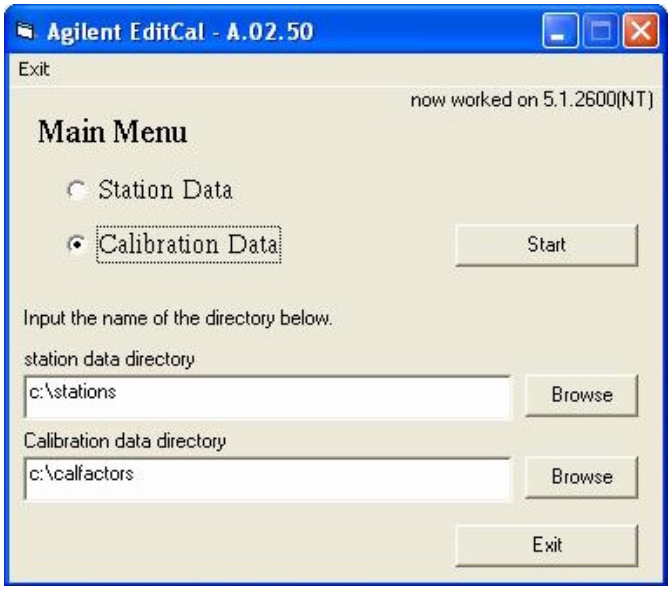
(i) Using External PC

The calibration data of the 8482A power sensor must be registered before running the performance test program. Execute the Agilent EditCal Calibration Factor Editor to register it.

Step 1. Start the EditCal to click on `Start` button, `Programs` and `Agilent EditCal` on Windows.

Step 2. The top window appears as shown in Figure 1-4. Choose `Calibration Data`, then press `Start`.

Figure 1-4 EditCal Top Window



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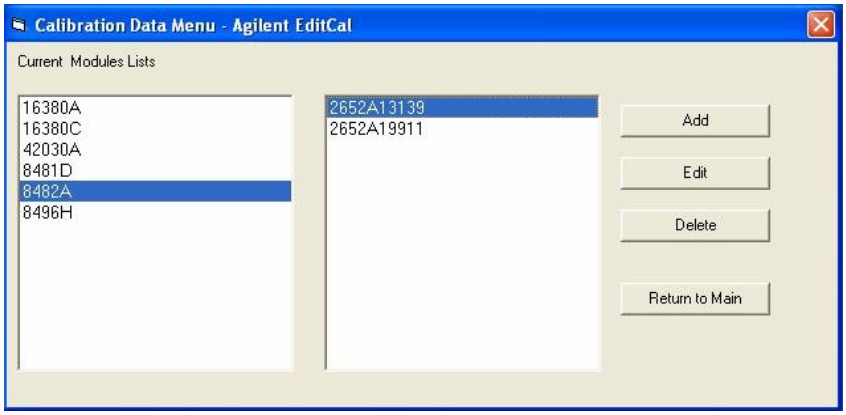
Step 3. The calibration data menu appears as shown in Figure 1-5. Choose `8482A` and the serial number to edit, then click on `Edit`. If the serial number is not registered, Click on `Add` and choose `8482A`.

Figure 1-5 Calibration Data Menu



Step 4. The 8482A calibration data window appears as shown in Figure 1-6. Input the following items and click on `OK`.

- Model number
- Serial number (for addition)
- Calibration Number
- Calibration Date
- Calibration Due Date
- Calibration Data

NOTE : Delete the calibration points which are not described on the calibration report because the performance test program interpolates the calibration factor for the frequency which calibration factor is not registered.

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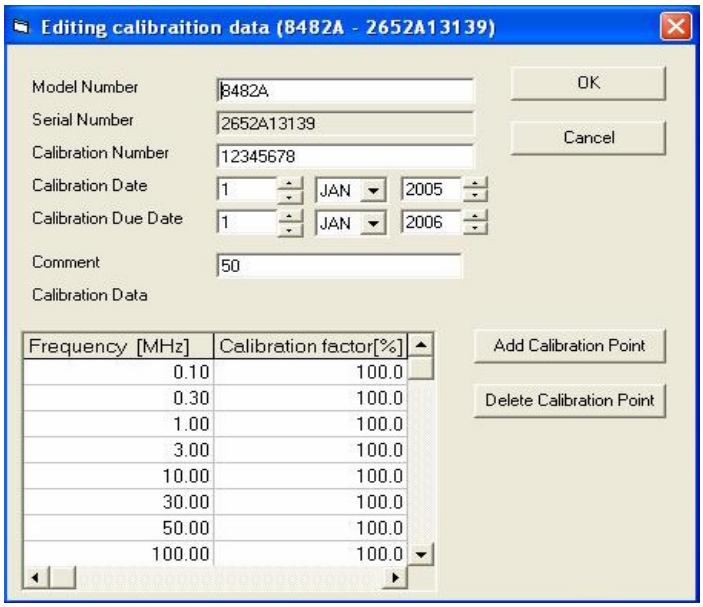
Figure 1-6 8482A Calibration Data Window



(ii) Using USB Pen Drive

The user can choose either to set the calibration data of 8482A directly to Power meter (E4419A or E4419B) or to read the calibration data of 8482A from the syscal data file in the calfactors folder that been generated by EditCal program.

If want to set the calibration data of 8482A directly to the power meter, please refer to the instruction below.

Step 1. Set the calibration data of 8482A to Power meter (E4419A or E4419B).

If want the program to read the calibration data of 8482A from the syscal data file in the calfactors folder, the steps will be the same as installing the calibration data in the external PC.

After finished installing the calibration data of 8482A using EditCal program, the user has to copy the calfactors folder inside home directory folder in the USB pen drive.

2 Operation

This chapter provides information for the operation of E5071C performance test program.

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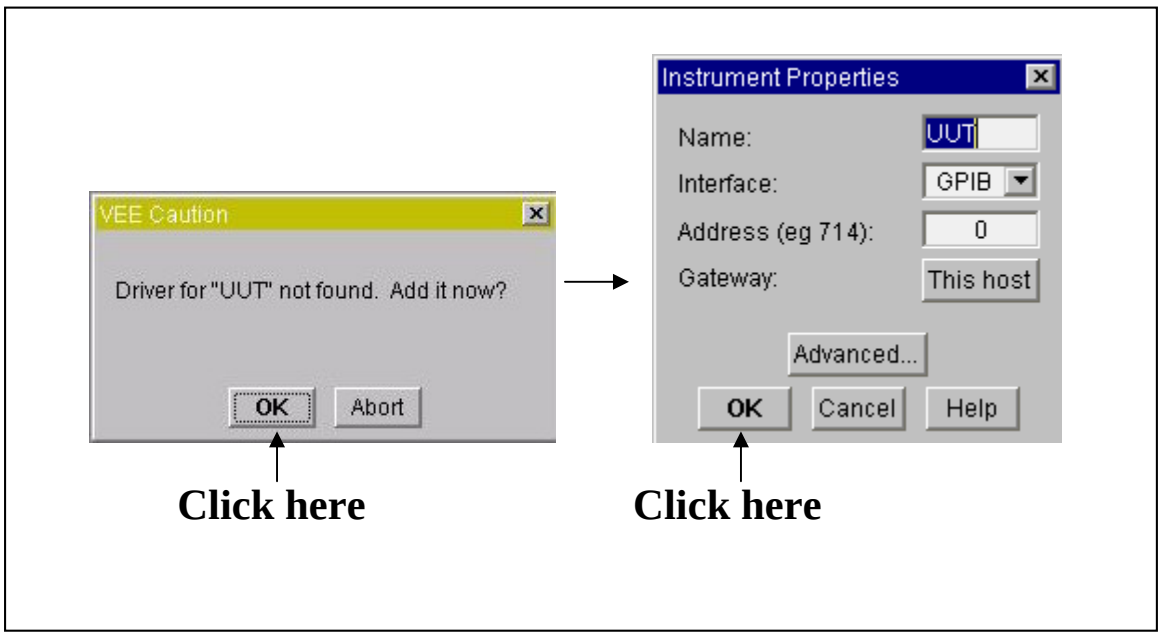
How to perform the E5071C Performance Test Program

Step 1. Open Explore

Step 2. Double click ; pte5071c.vxe

Step 3. You may be asked to add drivers for the equipment during the program loading. Then, click OK and input the GPIB address for each equipment. Enter 0 as the address for each equipment which is not used for the performance test. (See Figure 2-1).

Figure 2-1 Direct I/O configuration



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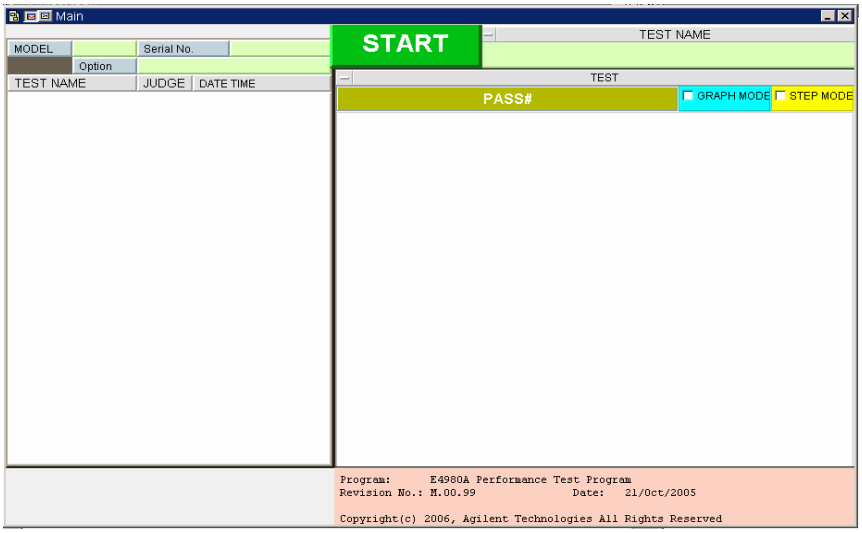
Step 4. Click START on the Agilent VEE Screen as shown in Figure 2-2.

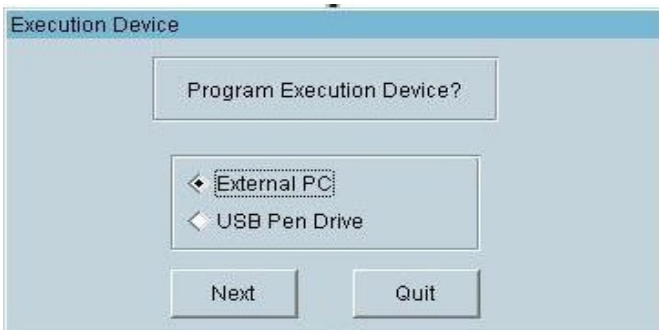
Figure 2-2 Main Window



Step 5. The Execution Device window appears as shown in Figure 2-3. Please select either one of the device and click on Next.

NOTE : The Execution Device means the device where the user want to execute the program either in external PC or using USB Pen Drive.

Figure 2-3 Execution Device Windows



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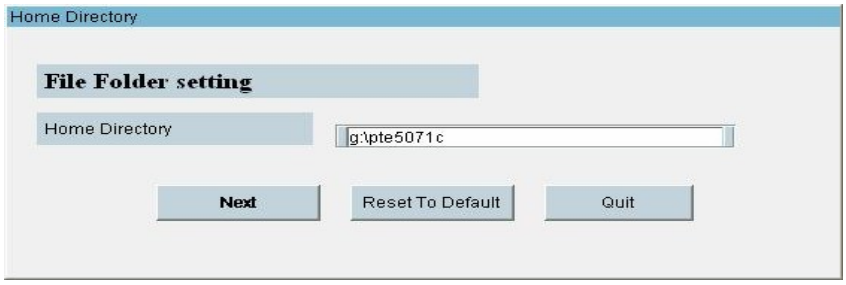
Step 6. The Home Directory window appears as shown in Figure 2-4. Input Home Directory column and click on Next.

NOTE : The Home Directory means the directory where `pte5071c.vxe` is stored.

Figure 2-4 Home Directory Window



Step 7. If the user select ‘External PC’ at Execution Device window, the ETE Configuration window will appears as shown in Figure 2-5.

Input all columns and click on Next.

If the user select ‘USB Pen Drive’ at Execution Device window, the ‘Cal Factor’ message box will appears as shown in Figure 2-6.

NOTE : The purpose of ‘Cal Factor’ message box is to confirm whether the user wants the program to read the calibration data of 8482A power sensor directly from E4419A/B power meter or from syscal data that been keyed in thru Editcal program.

Figure 2-5 ETE Configuration Windows

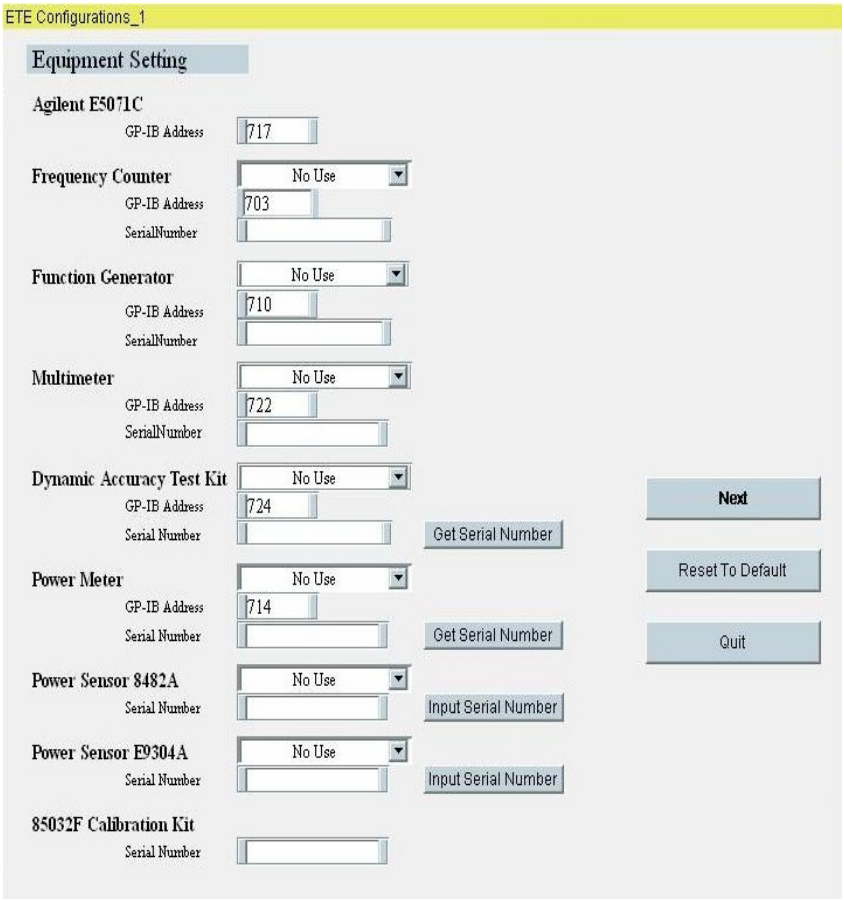


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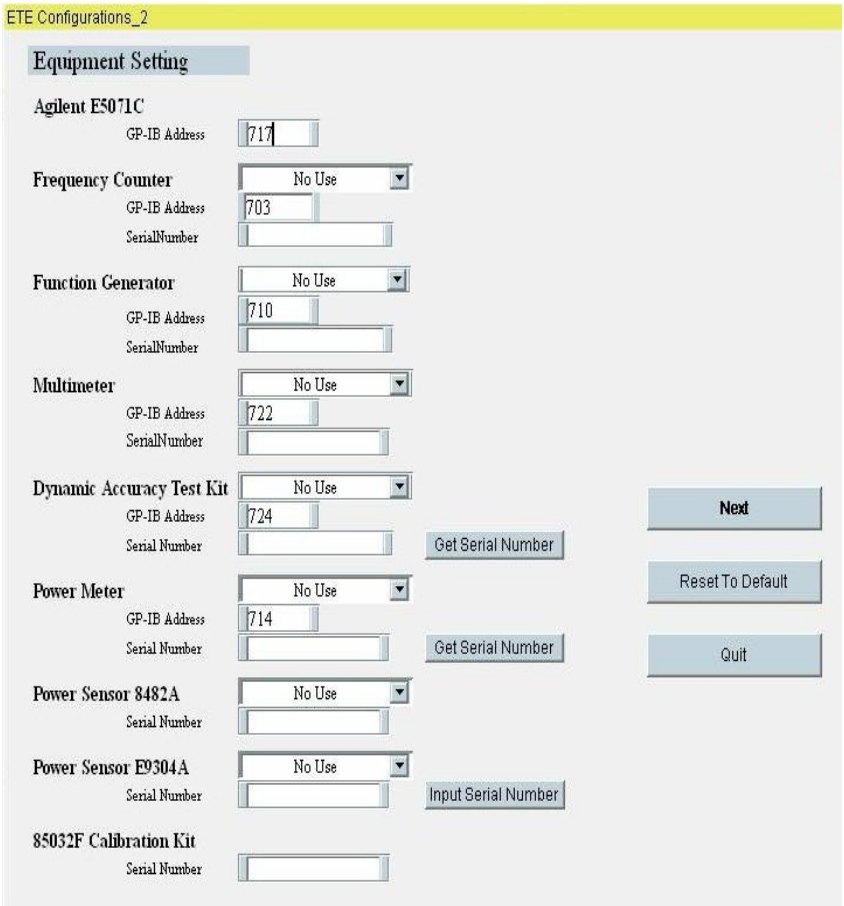
Figure 2-6 Cal Factor Message Box

NOTE : Before the user click on 'Yes' button, the user **MUST** copy the 'calfactors' folders to home folder in USB drive. The ETE Configuration windows will appears as same as shown in Figure 2-5.

Input all columns and click on Next.

If the user click on 'No' button, the ETE Configuration window will appears as shown in Figure 2-7.

Figure 2-7 ETE Configuration Windows



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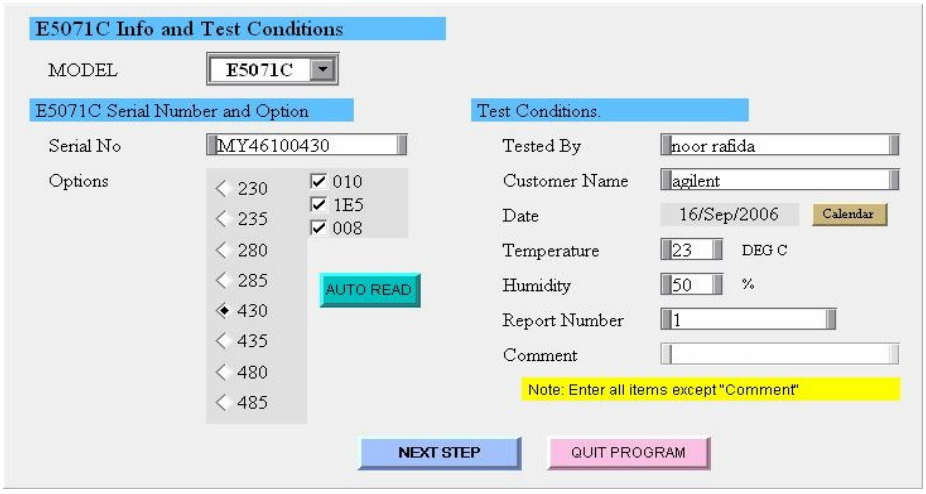
Step 8. The environment window appears as shown in Figure 2-8. Input the E5071C serial number, option and the test conditions. Click on NEXT STEP, when you complete the settings.

Figure 2-8 Environment Information Window



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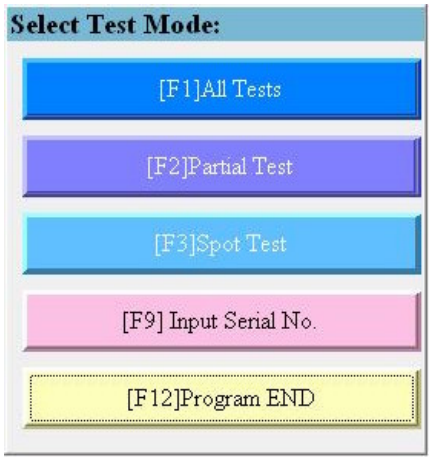
Step 9. The main menu appears as shown in Figure 2-9. For example, click **[F1]All Tests**, if you want to perform all performance tests.

Figure 2-9 Main Menu

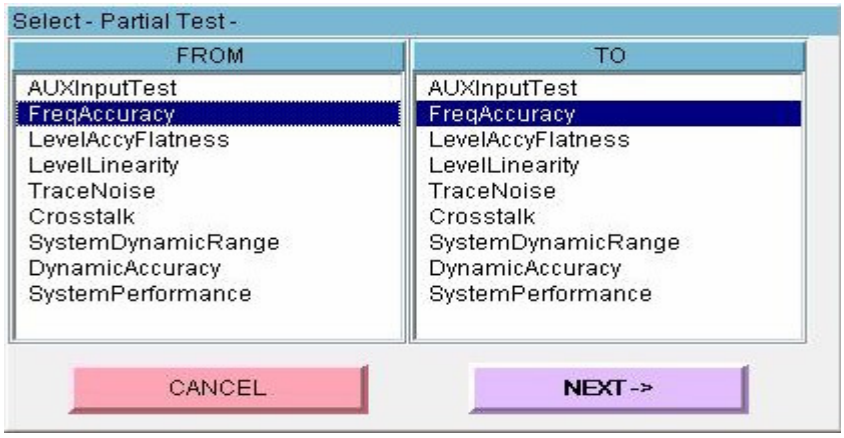


The main menu consists of the following.

• "All Tests" executes all performance tests according to the option that the E5071C has. All tests starts after clicking on this button.

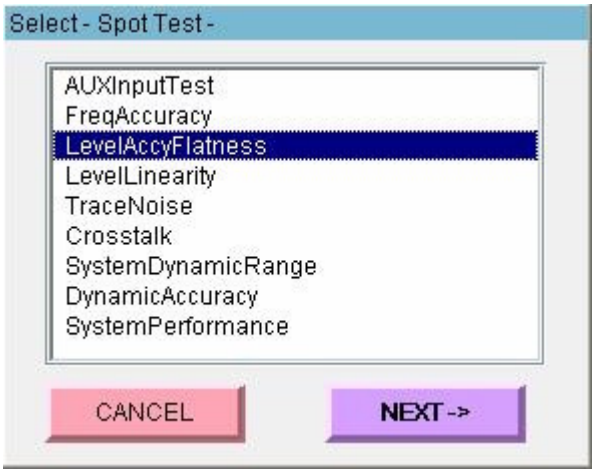
• "Partial Test" executes some of the consecutive tests in the performance tests. The window as Figure 2-10 appears. Choose the first test and the last test you want to perform

Figure 2-10 Partial Test Window



• “Spot Test” executes a performance test. The window as Figure 2-11 appears. Choose a test to execute.

Figure 2-11 Spot Test Window



• Test Record folder

folder\result\TEST_RECORD (log of the test record)

folder\result\TEST_RECORD_HISTORY (log of the test record with ETE information)

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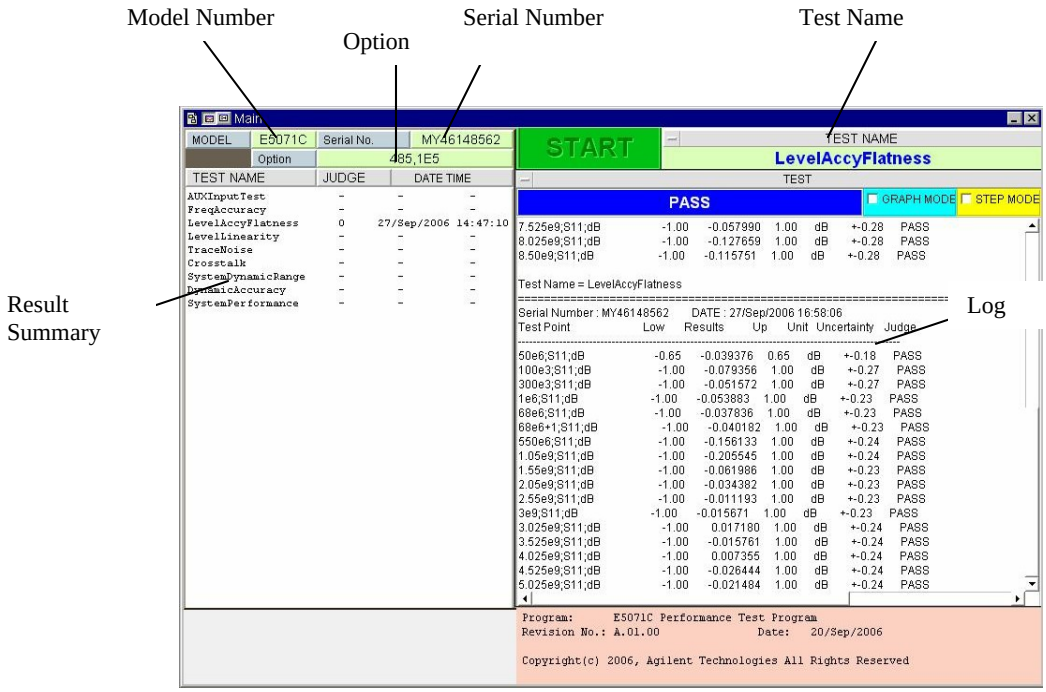
- “Input Serial No.” shows the window as Figure 2-8 to set the E5071C serial number and the test environment again.

- “Program End” finishes the performance test program.

Main Window Information

Figure 2-12 shows the displayed information

Figure 2-12 Displayed Information in Main Window



Model Number

The model number of the equipment to be tested.

Serial Number

The serial number of the equipment to be tested.

Option

The installed option in the equipment to be tested.

Test Name

The test executed now.

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Test Result Summary

This area shows the summary of the test results. The information displayed in each column

Table 2-1 Column in Test Result Summary

Column	Description
TEST NAME	Name of Test
JUDGE	Result of Test. O means “pass.” X means “fail.” - means “not performed.”
DATE TIME	Time when Test is finished.