

HP E5500B Phase Noise Measurement System

Installation Guide

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What You'll Find in This Manual...

Chapter 1 • HP E5500B Installation

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Contents

1.

Notice	2
HP SOFTWARE LICENSE TERMS	3
What You'll Find in This Manual	5
Limited Warranty	6
Software	6
Media	6
Notice of Warranty Claims	6
Limitation of Warranty	6
Exclusive Remedies	6
Assistance	6
Service and Support	7
Welcome to the HP E5500B Phase Noise Measurement System	Series of
Solutions	Series of
What You'll Find in This Chapter	12
Introduction	
System Requirements	
Step 1. Unpacking Your System	
Step 2. Installing the Hardware	
Step 2a - Removing your Computer's Cover	
Step 2b - Accessing your Computer's ISA Slots	
Step 2c - Taking ESD Precautions	
Step 2d- Installing the Interface Cards	
Step 2e - Replacing the Computer Cover	
Step 3. Installing the I/O Libraries	
Step 3a - Installing the HP I/O Libraries	
Step 3b - Installing the HP I/O Library Upgrade	
Step 4. Installing the PC-Digitizer Software	
Step 5. Installing the Windows NT 4.0 [°] Service Pack	30
Step 6. Installing the Measurement Software	31
Step 7. Using the Asset Manager to Configure your System	32
Default Device Addresses	40
Step 8. Entering the License Key for the Phase Noise Test Set	42
Step 9. Starting the Measurement Software	
Step 10. Using Server Hardware Connections to Specify Assets fo	r the
Confidence Test	46
Step 11. Running the System Confidence Test	48
Making the Measurement	50
Congratulations	50

1	Welcome to the HP E5500B Phase Noise
	Measurement System Series of Solutions

What You'll Find in This Chapter...

- "Introduction" on page 1-13
- "System Requirements" on page 1-14
- "Step 1. Unpacking Your System" on page 1-15
- "Step 2. Installing the Hardware" on page 1-16
- "Step 3. Installing the I/O Libraries" on page 1-26
- "Step 4. Installing the PC-Digitizer Software" on page 1-29
- "Step 5. Installing the Windows NT 4.0" Service Pack" on page 1-30
- "Step 6. Installing the Measurement Software" on page 1-31
- "Step 7. Using the Asset Manager to Configure your System" on page 1-32
- "Step 8. Entering the License Key for the Phase Noise Test Set" on page 1-42
- "Step 9. Starting the Measurement Software" on page 1-45
- "Step 10. Using Server Hardware Connections to Specify Assets for the Confidence Test" on page 1-46
- "Step 11. Running the System Confidence Test" on page 1-48

Introduction

Preconfigured System

A preconfigured system includes a computer shipped from Hewlett-Packard with the hardware and software preinstalled. This installation guide will take you though the process of installing both the hardware (if you did not order a **preconfigured system** from Hewlett-Packard) and the HP E5500 Phase Noise Software. A confidence test is also included as the last step in the installation procedure.

If you ordered a preconfigured system, do these steps:	If you ordered an Option 1FF (delete computer), do these steps:
Skip "System Requirements" on page 1-14	Read "System Requirements" on page 1-14
"Step 1. Unpacking Your System" on page 1-15	"Step 1. Unpacking Your System" on page 1-15
Skip Steps 2 to 8	"Step 2. Installing the Hardware" on page 1-16
	"Step 3. Installing the I/O Libraries" on page 1-26
	"Step 4. Installing the PC-Digitizer Software" on page 1-29
	"Step 5. Installing the Windows NT 4.0" Service Pack" on page 1-30
	"Step 6. Installing the Measurement Software" on page 1-31
	"Step 7. Using the Asset Manager to Configure your System" on page 1-32
	"Step 8. Entering the License Key for the Phase Noise Test Set" on page 1-42
"Step 9. Starting the Measurement Software" on page 1-45	"Step 9. Starting the Measurement Software" on page 1-45
"Step 10. Using Server Hardware Connections to Specify Assets for the Confidence Test" on page 1-46	"Step 10. Using Server Hardware Connections to Specify Assets for the Confidence Test" on page 1-46
"Step 11. Running the System Confidence Test" on page 1-48	"Step 11. Running the System Confidence Test" on page 1-48

Table 1Installation Steps

System Requirements

The setup program in the HP E5500 Phase Noise Measurement Software makes installation easy. In case you want a quick review of the system requirements, we have listed them first. HP E5500 Option 1FF (delete computer) users are required to supply an HP 82341C HP-IB Interface Card for their computer. The system requirements for the phase noise measurement software are: Pentium[®] microprocessor (100 MHz or higher recommended) 32 megabytes (MB) of memory (RAM) 1 gigabyte (GB) hard disk Super Video Graphics Array (SVGA) 2 additional 16-bit ISA slots available for the phase noise system hardware. 1 for PC-Digitizer \mathbf{O} 1 for HP-IB Interface Card 0 Windows NT $4.0^{\text{®}}$ Windows NT 4.0 Service Pack 3 ٠ HP 82341C HP-IB Interface Card (required)

NOTE

1-14 HP E5500 Phase Noise Measurement System

Step 1. Unpacking Your System

1. Unpack and inspect the shipping container and its contents thoroughly to ensure that nothing was damaged during shipment.

If the container or packing material is damaged, the contents should be checked both mechanically and electrically. If the contents are damaged or defective, contact your nearest Hewlett-Packard Sales and Service office. Keep the shipping materials for the carrier's inspection.

- 2. Verify that all parts and materials were included in the shipping container:
- HP E5500 Phase Noise Measurement System CD-ROM
- HP E5500 Software Keyword Licence Certificate
- HP E5500 User's Guide
- HP E5500B Installation Guide
- HP 9300-1408 Disposable Grounding Strap (Option 1FF)
- HP 5957-4369 Electrostatic Discharge (ESD) Warning Pamphlet

2

• PC-Digitizer Card (Option 1FF)

Tuble 1-2 Connectors and Adapters					
Part Number	Description	HP 70420A	HP 70420A Option 001	HP 70420A Option 201	HP
1250-0207	BNC, 50 ohm Termination	1	1	1	
1250-0780	Adapter, N(m) - BMC(f)	3	2	3	
1250-1250	Adapter, N(m) - SMA(f)		1		
1250-2015	Adapter, SMA(f) - BNC(m)				
5061-5311	Adapter/Saver, 3.5mm(f) - 3.5mm(f)		2	2	

Table 1-2Connectors and Adapters

Adapter, SMA(m) - BNC(f)

1250-1200

70422A

1 2 1

Step 2. Installing the Hardware

NOTE	If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.
	Installing the phase noise hardware into your computer involves the following steps:
	Step 2a - Removing your Computer's Cover, page 1-17
	Step 2b - Accessing your Computer's ISA Slots, page 1-18
	Step 2c - Taking ESD Precautions, page 1-19
	Step 2d- Installing the Interface Cards, page 1-20
	Step 2e - Replacing the Computer Cover, page 1-23

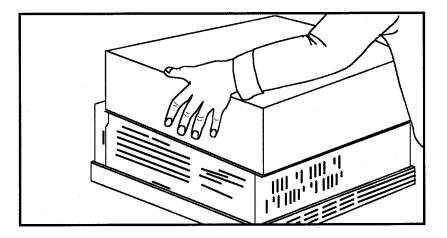
Step 2a - Removing your Computer's Cover

CAUTION

Refer to your computer's documentation for installation safety instructions and specific instructions for opening your computer.

Use the following steps to install the HP-IB and PC-Digitizer cards in your computer:

- 3. Power down the computer and all its peripherals
- 4. Disconnect the power cord from the computer
- 5. Unlock and remove the cover from the computer. This gives access to the I/O slots. (See your computer documentation for detailed instructions.)

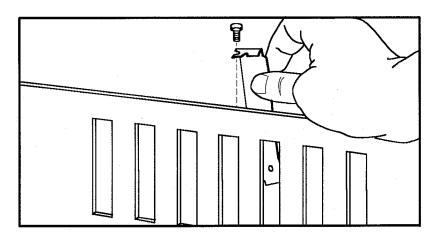


Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 2. Installing the Hardware

Step 2b - Accessing your Computer's ISA Slots

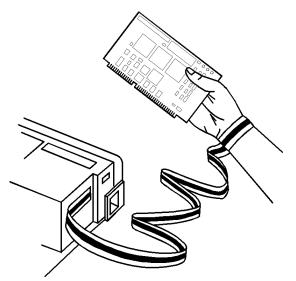
6. Look for suitable ISA expansion slots for both the HP-IB and PC-Digitizer cards and remove the back panel's cover plates. Choose slots that give good access to the HP-IB and PC-Digitizer connectors.

The following drawing shows a view of the ISA slots vertically mounted; your computer's ISA slots may be horizontally mounted, but the process is the same.



Step 2c - Taking ESD Precautions

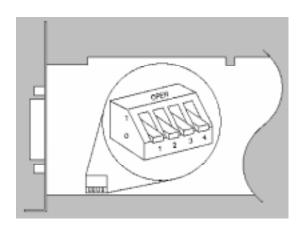
CAUTION	To prevent possible ESD damage, you must be properly grounded with a grounding wrist strap before touching the PC-Digitizer or HP-IB (customer supplied) Interface Cards. While inserting the cards, be sure to hold the cards by their edges.
	7. Using the disposable grounding strap, supplied with the PC-Digitizer interface card, unwrap the first two folds of the wrist strap and wrap the exposed adhesive side firmly around your wrist.
CAUTION	Wear this grounding wrist strap before unpacking or touching the PC-Digitizer or HP-IB interface cards; it is provided for control of static electricity. Failure to use the grounding wrist strap properly can result in damage to electronic devices and assemblies
	8. Unroll the rest of the wrist strap and peel the liner from the copper foil at the opposite end.
	9. Attach the copper foil to a convenient and exposed electrical ground somewhere on the computer's chassis. This should be an unpainted surface of the computer cabinet.



Step 2d- Installing the Interface Cards

Installing the HP-IB Interface Card

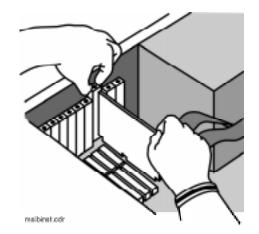
- 10. Verify that the HP-IB (HP 82341C HP-IB) Interface card is set to the following settings:
- switches 1-2-3 set the base port address
 0-0-0: 0x250-0x257 (default)
- switch 4 is not used



11. Insert the HP-IB interface edge connector into the expansion slot connector of the computer. Make sure the interface is fully seated by pushing firmly on the edge of the card with the palm of your hand. The HP-IB connector should extend through the back panel opening to allow cable installation.

NOTE

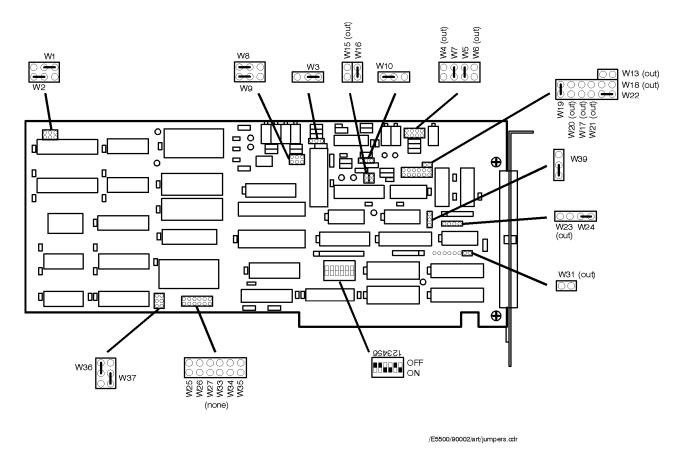
Use of a HP-IB connector extender may be necessary for adequate clearance between the HP-IB cable and the computer chassis.



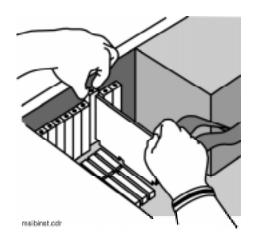
12. Replace the HP-IB back-panel cover plate screw to hold the interface in place. (Save the blank cover plate for use if the interface is removed later.

Installing the PC-Digitizer Interface Card

13. Verify the following jumper and DIP switch settings prior to installing the PC-Digitizer interface card.



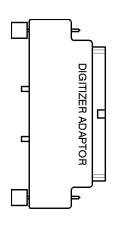
14. Insert the PC-Digitizer interface edge connector into the expansion slot connector of the computer. Make sure the interface is fully seated by pushing firmly on the edge of the card with the palm of your hand.



- 15. Replace the PC-Digitizer back-panel cover plate screw to hold the interface in place. (Save the blank cover plate for use if the interface is removed later.
- 16. Replace the computer's cover as described in you computer's documentation.

Installing the Digitizer Adapter.

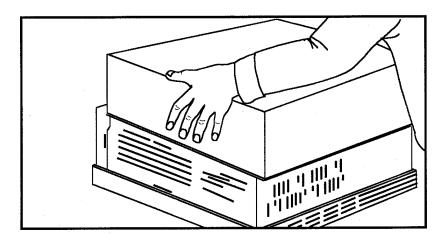
17. Connect the Digitizer Adapter to the back of the PC-Digitizer interface card.



adapter.cdr

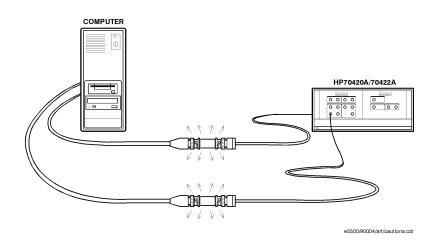
Step 2e - Replacing the Computer Cover

18. Replace the computer cover as described in your computer's documentation.



- 19. Connect the following cables between the PC digitizer and HP 70420A Test Set (refer to the connect diagrams examples on the next page):
 - SMB (f) to BNC (m) cable between the PC digitizer interface card adapter's input connector and the HP 70420A Test Set's front-panel <100 kHz output connector.
 - SMB (f) to BNC (m) cable between the PC digitizer interface card adapter's output connector and the HP 70420A Test Set's rear-panel Noise Source Input connector.

When using extender cables, do not allow the PC Digitizer input/output cables to touch. Shorting the PC Digitizer input/output cables together defeats the floating input circuit on the PC Digitizer's interface board, which may cause severe ground loops and unwanted spurs.

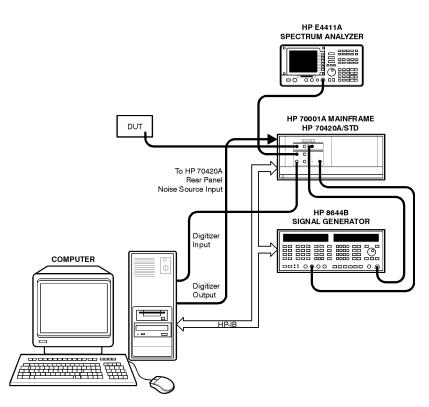


CAUTION

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 2. Installing the Hardware

- 20. Refer to the following system connect diagram examples for more information about system interconnections:
 - o "HP E5501B Connect Diagram Example" on page 1-24
 - o "HP E5503B Connect Diagram Example" on page 1-25
 - o "HP E5504B Connect Diagram Example" on page 1-25

HP E5501B Connect Diagram Example



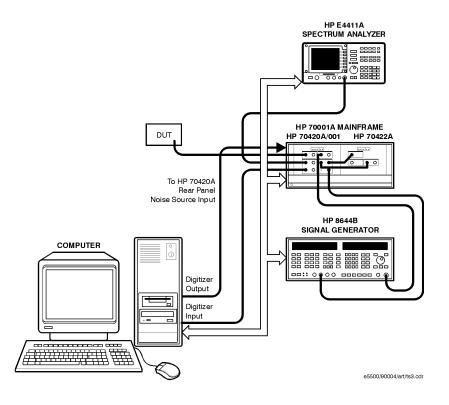
HP E5501B Phase Noise System

e5500/90004/art/ts2.cdr

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 2. Installing the Hardware

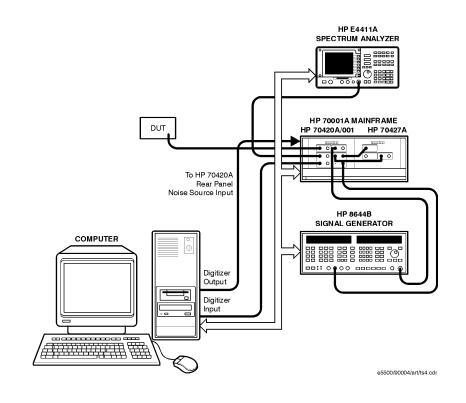
HP E5503B Connect Diagram Example

HP E5503B Phase Noise System





HP E5504B Phase Noise System



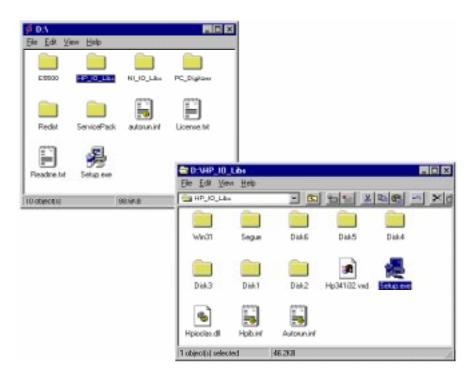
Step 3. Installing the I/O Libraries

NOTE	If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.	
	Installing the I/O libraries involves the following steps:	
	• Step 3a - Installing the HP I/O Libraries, page 1-26	
	• Step 3b - Installing the HP I/O Library Upgrade, page 1-28	
Step 3a - Installing the	1. Make sure your computer and monitor are turned on.	
HP I/O Libraries	2. Place the HP E5500 Phase Noise Measurement Software disk in the disc holder and insert in the CD-ROM drive.	

3. The following dialog box will appear.



4. Double-click on **HP_IO_libs**, then on **Setup.exe** and follow the instructions (accept the default settings).



5. Click the Auto Add button to automatically configure the HP-IB Card.

installed in the computer or when o To configure a new interface, selec	It must be run whenever a new 1/D interface hanges need to be made to an existing 1/D interface it is in the Available Interface. Types list and clic figured interface, select it in the Configured Interface.	orface. sk an
- Available Interface Types	- Configured Interfaces	
HP 82340/82341 HP48 HP E2075 GPI0 Internal Instrument LAN Cleret LAN Server HS-222 VISA LAN Cleret VISA LAN Cleret VISA Convend Module	SICL Name VISA Nawe COM1 ASRL1 COM2 ASRL2	OK.
Gerlans	Ed., Revove	

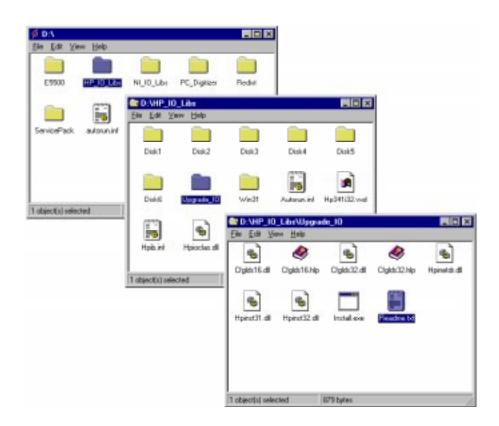
When offered the choice, do not restart your computer at this time.

Step 3b - Installing the HP I/O Library Upgrade

- 1. Make sure your computer and monitor are turned on.
- 2. Place the HP E5500 Phase Noise Measurement Software disk in the disc holder and insert in the CD-ROM drive.
- 3. The following dialog box will appear.



4. Double-click on **HP_IO_libs**, **Upgrade_IO**, then on **Readme.txt** and follow the instructions in the Readme.txt file.



When offered the choice, do not restart your computer at this time.

Step 4. Installing the PC-Digitizer Software

If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.

- 1. Make sure your computer and monitor are turned on.
- 2. Place the HP E5500 Phase Noise Measurement Software disk in the disc holder and insert in the CD-ROM drive.
- 3. The following dialog box will appear.



4. Double-click on **PC_Digitizer**, then on **Setup.exe** and follow the instructions (accept the default settings).



When offered the choice, do not restart your computer at this time.

Step 5. Installing the Windows NT 4.0[®] Service Pack

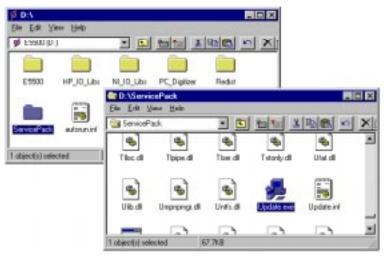
NOTE

If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.

- 1. Make sure your computer and monitor are turned on.
- 2. Place the HP E5500 Phase Noise Measurement Software disk in the disc holder and insert in the CD-ROM drive.
- 3. The following dialog box will appear.



4. Double-click on **Service Pack**, then on **Update exe** and follow the instructions (accept the default settings).



5. Reboot your computer at this time.

Step 6. Installing the Measurement Software

NOTE	If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.
	1. Make sure your computer and monitor are turned on.
	2. Place the HP E5500 Phase Noise Measurement Software disk in the disc holder and insert in the CD-ROM drive.

3. The following dialog box will appear. Double click on **Setup.exe** and follow the instructions (accept the default settings).



Step 7. Using the Asset Manager to Configure your System

The following procedure will configure both the HP 70420A Phase Noise Test Set and PC-Digitizer so they can be used the E5500A Phase Noise Measurement System to make measurements.

If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.

- 1. Make sure your computer and monitor are turned on.
- 2. Place the HP E5500 Phase Noise Measurement Software disk in the disc holder and insert in the CD-ROM drive.
- 3. Click the **Start** button, point to **Programs**, point to **HP Measurement Systems**, point to **HP E5500 Phase Noise**, and then click **Asset Manager**.

100	Open Office Document		🍓 HP Measurment Subsystems	🔹 🛤 HP ESSUE Phase Noise 🔹	. Accel Control Panets
1			HP Davielack I	•	SE Arret Manager
-	Experie	•	🕞 Marcualt Developer Network		🔗 HP E 5500 Heip
12	-		A Microsoft NetShow		HPE5500 Readme
-	Documents	1	Account Paternos		💋 Measurmers Cherr
44	Settings	•	Microsoft Visual C++ 5.0		SCPI (Manual) Client
on.	End		Metocape Communicator	+	SCPI (LAN) Clent
2	Due	1	🧃 Statup	•	😭 Uninstal HP E5500
3	Heb	1			
-	But.				

NOTE

4. To place the Asset Manager in non-demo mode, click **Options,** and then click **Demo Mode** to unselect Demo Mode.

📫 Asset Hanages		
Server Asset Options Help		20110000
Linnis Koya		
	Value	
174502		
Enable or Disable Dieno Mode	Local Server	

5. Click **OK**. The Asset Manager can be invoked from within the phase noise measurement software, and if that were the case you would need to restart the software for any changes made in the Asset Manager to take effect.



Configuring the HP 70420A Test Set

6. Click the **Asset Wizard** button to start configuring the HP 70420A Phase Noise Test Set using the Asset Manager Asset Wizard.

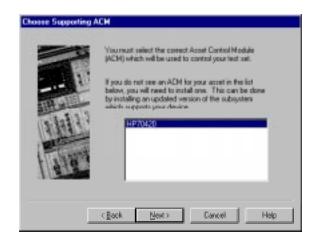
Auto Asset Wizard	×
	configured for this Asset Server a new installation. Would you and configure some assets?
Asset Wizard	Cancel

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 7. Using the Asset Manager to Configure your System

7. From the **Asset Type** pull-down list, select **Test Set**, then click the **Next** button.

Choose Asset Role	You are now adding a new accet. Please select the role you want for this accet Accel Type: The SM	
	Cancel Halp	J

8. Click on HP70420, then click the Next button.



- 9. From the Interface pull-down list, select GPIB0.
- 10. In the **Address** box, type **20.** 20 is the default address for the HP 70420A phase noise test set.

The following are default device addresses used by Hewlett-Packard.

Table 1-3Default Device Addresses

Instrument	Address
HP 70420A Test Set	20
HP 70422A Downconverter	28
PC Digitizer	320
RF Analyzer	18
Source	19
Counter	3

CAUTION

If an address is a single digit address, for example the counter at address 3, do not add a leading zero (03) to the address. The phase noise software treats 3 and 03 as different addresses.

NOTE

The **Library** pull-down list does not apply to this example. It applies specifically to either the Hewlett-Packard HP-IB or the National GPIB

11. Click the **Next** button.

	You will now meet to asled the interface through which you will talk to the accel and the accel's address on that interface. Address: 20
100	Library Plevielt Packard VISA

- 12. In the Model Number box, type HP 70420A.
- 13. In the **Serial Number** box, type the serial number for your HP 70420A test set. Click the **Next** button.

Set Hedel & Serial N	Vou vell read to enter your asseft model number and see an number. If it is "on aff instrument, you may be able to query the information. Model Number: HP 70420A
	<pre>cBack Met> Cancel Hep</pre>

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 7. Using the Asset Manager to Configure your System

14. You may type a comment in this dialog box. The comment will associate itself with the asset you have just configured. Click the **Finish** button.

Erter A Connent	Congratulations! You have added a new asset to your asset server. If you voculd like, you may enter an asset comment for your own use. These your return to the main screen, you may also want to perform an L/D check on this asset. You can do this by using five check mark icon. Comment
	cgack Finish Cancel Help

15. The following dialog box will appear.

The left pane shows either the demo mode, or in this case, a list of assets or asset roles. An asset is any piece of hardware (HP 70420A) that you want configured for system use. An asset role is the general category for hardware (test sets, downconverters, counters, for example. The right pane is information only. The information can be changed by double-clicking a specific asset.

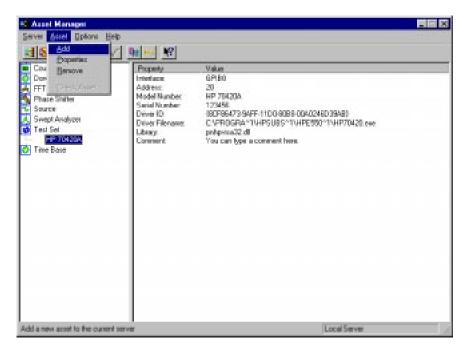
Asset Hanager			
Server Asset Options Hei			
Counter Connectorwarter FFT Andylon Swapt Andylon Test Set HP 70428A	Property Interface Address Model Munder Savid Wumber Driver ID Driver ID Driver Filenene Library Comment	Value GPI50 20 HP 70420A 125458 (8079847394FF-1100-9088-004024603948) C VF9005PA*TUHP5085*TUHP500348) C VF9005PA*TUHP5085*TUHP500348) C VF9005PA*TUHP5085*TUHP5003480 Visu can type a comment here.	
For Help, press F1		Local Server	

You have just used the Asset Manager to configure the HP 70420A test set. The process for configuring any asset is essentially the same. As a second example, we will now configure the PC-Digitizer. Both the test set and PC-digitizer are required to perform the confidence test at the end of this chapter.

Configuring the PC Digitizer

For this example we will use invoke the Asset Manager Wizard from within the Asset Manager. This is the most common way to add assets.

16. click Asset, and then click Add.

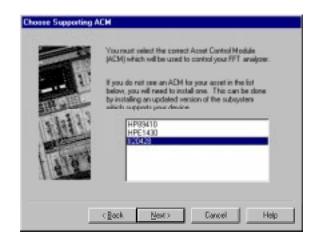


17. From the **Asset Type** pull-down list, select **FFT Analyzer**, then click the **Next** button.



Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 7. Using the Asset Manager to Configure your System

18. Click on **II20428**, then click the **Next** button.



- 19. From the Interface pull-down list, select PCI.
- 20. In the **Address** box, type **320.** 320 is the default address for the II20428 PC-Digitizer.

The following are default device addresses used by Hewlett-Packard.

Table 1-4Default Device Addresses

Instrument	Address
HP 70420A Test Set	20
HP 70422A Downconverter	28
PC Digitizer	320
RF Analyzer	18
Source	19
Counter	3

CAUTION

If an address is a single digit address, for example the counter at address 3, do not add a leading zero (03) to the address. The phase noise software treats 3 and 03 as different addresses.

NOTE

The **Library** pull-down list does not apply to this example. It applies specifically to either the Hewlett-Packard HP-IB or the National GPIB interface cards.

21. Click the **Next** button.

Select Interface and	Address You will now need to select the interface through which you will tak to the asset and the asset's address on that interface: Interface: Address: 320 Libsay: Newlett Packard VISA *
	< <u>Back Next</u> Cancel Hap

- 22. In the Model Number box, type II20428.
- 23. In the **Serial Number** box, type the serial number for your PC-digitizer. Click the **Next** button.

Set Model & Senial H	Vou vill reset to enter your asself a model number and send number. If it is a "amar" instrument, you may be able to query the information. Model Number: 120428 [2017] Seise Number: 120459 [2017]
E	<book next=""> Cancel Help</book>

24. You may type a comment in this dialog box. The comment will associate itself with the asset you have just configured. Click the **Finish** button.



Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 7. Using the Asset Manager to Configure your System

25. You have just used the Asset Manager to configure the PC-digitizer. The process you have used to configure both the HP 70420A and PC-digitizer is the same process you will use to add software controlled assets to the phase noise measurement software.

Asset Manager			
Server Satel Sphore He			
Courter Courter Courter Courter Courter FTT Analyzer Since Since Since Since Since Since Tree Set HP 70420A Time Base	Property Interface Address Model Number Sewid Number Driver ID Driver Flenene Libany Comment	Value PCI 320 ICDU28 13%56 I1ED 998 3F 46C4 11D0-ROEF 004024ED 394B1 C VPRIOGRA*TWHPS US S*TWHPE 590*TW20428 eve prhysica 22 dB Write your comment here.	
For Help, press F1		Local Server	

26. click **Server**, and then click **Exit** to exit the Asset Manager. Next we will enter the license key for the software.

Default Device Addresses

The following are default device addresses used by Hewlett-Packard.

Table 1-5Default Device Addresses

Instrument	Address
HP 70420A Test Set	20
HP 70422A Downconverter	28
PC Digitizer	320
RF Analyzer	18
Source	19
Counter	3

CAUTION

If an address is a single digit address, for example the counter at address 3, do not add a leading zero (03) to the address. The phase noise software treats 3 and 03 as different addresses.

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 7. Using the Asset Manager to Configure your System

Step 8. Entering the License Key for the Phase Noise Test Set

Use the following procedure enter your keyword for your HP 70420A Phase Noise Test Set.

If you have ordered a preconfigured phase noise system from Hewlett-Packard, skip this step and proceed to "Step 9. Starting the Measurement Software" on page 1-45.

1. Make sure your computer and monitor are turned on.

NOTE

2. Click the **Start** button, point to **Programs**, point to **HP Measurement Systems**, point to **HP E5500 Phase Noise**, and then click **Asset Manager**.

	New Office Document		🏨 HP Measurement Subsystems	•	🙇 HP E2500 Phase Nose 🔹		Acted Control Panels	
2			HP Dwellack I	•		50	Asset Manager	ľ
1	Dogene	•	🕞 Marosoft Developer Network	•		0	HPE5500 Heb	
	-		Microsoft NetShow	٠			HP E5500 Readne	
	Qocuments	1	Horost Peterson	•		ø	Meanament Cleret	
	Settings	•	Microsoft Visual C++ 5.0	•		S	SCP1 (Manual) Client	
0	End		Selscape Communicator	٠		38	SCPI (LAN) Cleve	
	David	1	😸 Statup	٠		-	Uninstal HP E5500	
	Heb				50 S			Ī
P	Bn.							
bi	Shgt Down							

3. click **Options**, and then click **License Keys**.

Asset Manager	-	
Server Asset Updans Help	and the second se	
1 SI - Dama Marta		
Courter Downcorrverter FT Anolyzen Phase Siller Swept Andyzen Test Set Time Baze	Piopety Value Interface: Address Model Number Swind Rumber Driver Filename Libary Comment	
Manage License Køys		Local Server

NOTE

The license key for your system is unique and may only be used with a specific HP 70420A Test Set serial number. The license key may be found both on your license-key document and in the file "license_key.txt" on the License_key floppy disk provided with your system.

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 8. Entering the License Key for the Phase Noise Test Set

- 4. Enter the license key for your HP 70420A Test Set and click the **Set** button. Use the Licence_key.txt file described in the next step to facilitate entering your license key into the licensing dialog box.
 - a. Insert the HP E5500 License Key disk in the computer.
 - b. Using Notepad, load License_key.txt.

Customer Name:	Your Company Mana
Froduct Number:	X5501B 1FF
Product Name: Pha	se Noise Test System
ACH'S included in the	license_key:
85481A LTU ACH SU	PC Digitider
E5463A LTU ACH ##	E4411A RF5A
Date of KEYWORD relea	upe: 05 Aug 1997
KEYWORD: LING+rul-	j+haqNTK-f5o8KOfv-9sXFcaoy
IHPORTANT: REYMORD :	mot be entered exactly as presented or the software
will fail to operate	

c. Highlight the keyword in the License_key.txt file and copy it to the dialog box show below, then click the **Set** button.

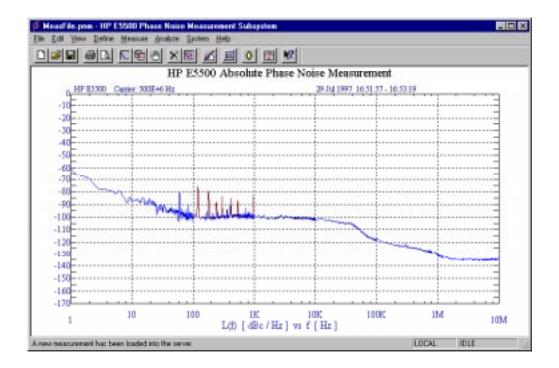
For information about how to copy and paste information in Windows, refer to the Windows documentation or On-Line Help.

icensing Please enter the license key you have a li you need to retrieve another copy of th http://www.hp.com/go/Phase	his key, open:
License Key ZN5+13-j+togNTK4	5c8K5N-3DFooty Set
Authorized Modules	
Press this button to check the key entered above:	
Charles Sec.	
	Close

5. The next step is to start the measurement software.

Step 9. Starting the Measurement Software

- 1. Make sure your computer and monitor are turned on.
- 2. Click the **Start** button, point to **Programs**, point to **HP Measurement Systems**, point to **HP E5500 Phase Noise**, and then click **Measurement Client**.



Step 10. Using Server Hardware Connections to Specify Assets for the Confidence Test

- D X 🕮 🕰 🔊 🖉 🖉 🖉 81805 HF oise Measurement 1997 16:51:57 - 16:53 -1.0-11 -1.2-13 -14 -19 -160 -17010 100 1K 10K 100K 1M 10M L(f) [dBc/Hz] vs f [Hz] Edit hardware configuration on server LOCAL IDLE
- 1. From the System menu, choose Server Hardware Connections.

2. The following dialog box will appear.

Server Hardware Connections	2 ×
Test Set	Frequency Counter
PFT Analpan 1111 [rore]	Input of FET Analysis is convected to
Swept Analyzer	inget of Benesicknology in correction is .
Down Converter	Baseband Analyzer I spatial Disvesorientics connected to
Since Economic Provide The Internet	Grandstan Pat
Attel Manager	OK.

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 10. Using Server Hardware Connections to Specify Assets for the Confidence Test

3. From the Test Set pull-down list, select HP 70420A. Click the Check I/O button. A green check-mark will appear after the I/O check has been performed by the software. If a red circle with a slash appears, return to the Asset Manager (click the Asset Manager button) and verify that the HP 70420A and PC-Digitizer are configured correctly (check that the license key has been entered correctly). Also check your system hardware connections. Click the Check I/O button for a re-check.

Server Hardware Connect	iont		1 ×
Text Set	*	Frequency Counter	
FFT Analyzer		Lipst of SST Analyses is connected to	7
Swept Analyzer	×	Input of Benesikinojan incorrected is	
Down Converter	×	Baseband Analyzer I tool of Development in a con	rested to
Since Source	×	Conversion of the start of the	
Annet Manager			OK.

4. From the **FFT Analyzer** pull-down list, select **II20428**. Click the **Check I/O** button. A green check-mark will appear after the I/O check has been performed by the software.

Server Hardware Connections	80
Test Set	Frequency Courter
FFT Anilyzer	inget of FFT Analysis is converted to
Swept Analyzer	inget of Breachtroiper in corrected to
Down Converter	Research Analyzer I tool of Developments is connected to -
Since Source	Brochouse Part
Attel Manager	DK.

Selecting both the HP 70420A test set and the II20428 PC-digitizer will tie both of those assets to the confidence test we will be performing in the next step.

Step 11. Running the System Confidence Test

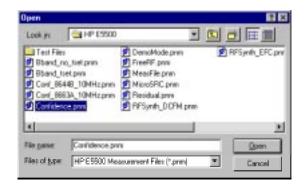
This measurement demonstration will introduce you to the system's operation by guiding you through an actual phase noise measurement.

This first measurement tests the HP 70420A Test Set's phase-lock loop and low-noise amplifier circuitry. The phase detectors are not tested. This measurement will also confirm that the PC and test set are communicating with each other.

1. From the File menu, choose Open.

Edt View Defin	e Mean
New	Dil+N
	Del+0
Save	Dal+S
Save <u>d</u> a	
Export Results	•
Bint.	Dal+P
Print Pregieve	
Pjint Setup	
Seng.	
1 Conlidence prim	
2 FreeRF.pnm	
3 MicroSRC.prm	
4 Residual pres	
5 RPS inth_EFC.prm	
§ Noize_1.prm	
7 Noise_2 prm	
§ Noise_3.prm	
Egt	

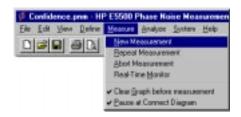
- 2. If necessary, choose the drive or directory where the file you want is stored.
- 3. In the File Name box, choose Confidence.pnm.



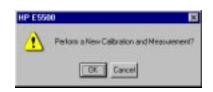
4. Click the **Open** button.

The appropriate measurement definition parameters for this example have been pre-stored in this file. Table 1-6 on page 1-51 lists the parameter data that has been entered for the HP 70420A Internal Noise measurement example.Beginning the Measurement

1. From the Measurement menu, choose New Measurement.



2. When the **Perform a New Calibration and Measurement** dialog box appears, click **OK**.



3. When the **Connect Diagram** dialog box appears, connect the 50 Ω termination provided with your system to the HP 70420A Test Set's Noise Input connector.

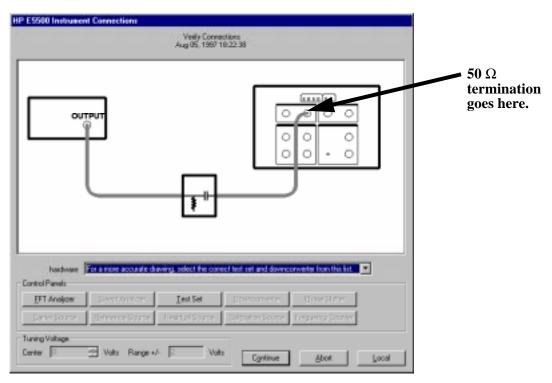


Figure 1-1 Software Confidence Test Connection Diagram.

Making the Measurement

1. Press the **Continue** key. Because you selected New Measurement to begin this measurement, the System starts by running the routines required to calibrate the current measurement setup.

Figure 1-2 shows a typical baseband phase noise plot for an HP 70420A Phase Noise Test Set.

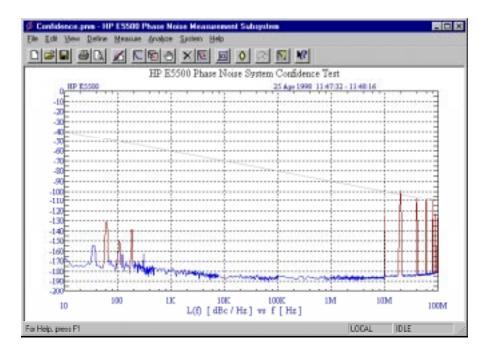


Figure 1-2 Typical Phase Noise Curve for a System Confidence Test.

Congratulations

You have completed a phase noise measurement. You will find that this measurement of the HP 70420A Phase Noise Test Set's phase-lock loop and low-noise amplifier circuitry provides a convenient way to verify that the System hardware and software are properly configured for making noise measurements.

Step	Parameters	Data
1	Type and Range Tab	
	Measurement Type	 Baseband Noise (using a test set)
	Start Frequency	• 10 Hz
	Stop Frequency	100E + 6 Hz (determined by analyzer used)
	Minimum Number of Averages	• 4
	FFT Quality	• Fast
2	Cal Tab	
	Gain preceding noise input	• 0 dB
3	Block Diagram Tab	
	Noise Source	Test Set Noise Input
4	Test Set Tab	
	Input Attenuation	• 0 dB
	LNA Low Pass Filter	20 MHz (Auto checked)
	LNA Gain	Auto Gain (Minimum Auto Gain - 14 dB)
	DC Block	Not checked
	PLL Integrator Attenuation	• 0 dBm
5	Graph Tab	
	• Title	HP E5500 Phase Noise System Confidence Test
		 Single-sideband noise(dBc/Hz)
	Graph Type	• 10 Hz
	X Scale Minimum	• 100 E + 6 Hz
	X Scale Maximum	• 0 dBc/Hz
	Y Scale Minimum	• - 200 dBc/Hz
	Y Scale Maximum	1 Hz bandwidth
	Normalize trace data to a:	
	Scale trace data to a new carrier	1 times the current carrier frequency
	frequency of:	• 0 dB
	Shift trace data DOWN by:	• 0
	Trace Smoothing Amount	• 0 dB
	 Power present at input of DUT 	

 Table 1-6
 Parameter Data for the HP 70420A Confidence Test Example

Welcome to the HP E5500B Phase Noise Measurement System Series of Solutions Step 11. Running the System Confidence Test

Index

A

accessing your computer's ISA slots, 18 Asset Manager Configuring your System, 32

С

computer cover replacing, 23 configuring your system asset manager, 32 connections using server hardware, 46 cover removing computer's, 17

E

entering the license key, 42 ESD precautions, 19

H

hardware installing, 16

I

I/O libraries installing, 26 installation steps, 13 installing the hardware, 16 installing the HP I/O library upgrade, 28 installing the I/O libraries, 26 installing the I/O libraries, 26 installing the interface cards, 20 installing the measurement software, 31 installing the PC-Digitizer software, 31 installing the PC-Digitizer software, 29 installing the Windows NT 4.0 Service Pack, 30 interface cards installing, 20 ISA slots accessing, 18

L

license key entering, 42

Μ

measurement software installing, 31 starting, 45

Ν

new measurement, 50

P

PC-Digitizer software installing, 29 precautions ESD, 19

R

removing your computer's cover, 17 replacing the computer cover, 23 requirements system, 14

S

starting the measurement software, 45 steps installation, 13 system unpacking, 15 system requirements, 14

U

unpacking your system, 15 upgrade HP I/O library, 28 using server hardware connections, 46 using this guide, 31

W

Windows NT 4.0 Service Pack installing, 30