
E5504B E18 Phase Noise Measurement System

Modification Note

Use this modification with manual
part numbers E5500-90001 and
E5500-90004

Part number: E5504-90011
Printed in USA
August 2000

Revision 1.0

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WARNING

The **WARNING** notice denotes a hazard. It calls attention to a procedure, practice, or the like, that, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

CAUTION

The **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

Instrument Markings



When you see this symbol on your instrument, you should refer to the instrument's instruction manual for important information.



This symbol indicates hazardous voltages.



The laser radiation symbol is marked on products that have a laser output.



This symbol indicates that the instrument requires alternating current (ac) input.



The CE mark is a registered trademark of the European Community. If it is accompanied by a year, it indicates the year the design was proven.



The CSA mark is a registered trademark of the Canadian Standards Association.

Safety and Regulatory Information

1SM1-A This text indicates that the instrument is an Industrial Scientific and Medical Group 1 Class A product (CISPER 11, Clause 4).



This symbol indicates that the power line switch is ON.



This symbol indicates that the power line switch is OFF or in STANDBY position.

Safety Earth Ground



This is a Safety Class I product (provided with a protective earthing terminal). An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and secured against any unintended operation.

Before Applying Power

Verify that the product is configured to match the available main power source as described in the input power configuration instructions in this manual. If this product is to be powered by autotransformer, make sure the common terminal is connected to the neutral (grounded) side of the ac power supply.

Typeface Conventions

- Italics***

 - Used to emphasize important information:
Use this software *only* with the Agilent Technologies xxxxxX system.
 - Used for the title of a publication:
Refer to the *Agilent Technologies xxxxxX System-Level User's Guide*.
 - Used to indicate a variable:
Type `LOAD BIN filename`.

- Instrument Display**

 - Used to show on-screen prompts and messages that you will see on the display of an instrument:
The Agilent Technologies xxxxxX will display the message
`CAL1 SAVED`.

- [Keycap]**

 - Used for labeled keys on the front panel of an instrument or on a computer keyboard:
Press **[Return]**.

- {Softkey}**

 - Used for simulated keys that appear on an instrument display:
Press **{Prior Menu}**.

- User Entry**

 - Used to indicate text that you will enter using the computer keyboard; text shown in this typeface must be typed *exactly* as printed:
Type `LOAD PARMFILE`
 - Used for examples of programming code:
`#endif // ifndef NO_CLASS`

- Path Name**

 - Used for a subdirectory name or file path:
Edit the file `usr/local/bin/sample.txt`

- Computer Display**

 - Used to show messages, prompts, and window labels that appear on a computer monitor:
The **Edit Parameters** window will appear on the screen.
 - Used for menus, lists, dialog boxes, and button boxes on a computer monitor from which you make selections using the mouse or keyboard:
Double-click **EXIT** to quit the program.

Contents

General Description	1
A-Series Systems	1
B-Series Systems	1
The E17 Special Option	1
Monitor and Swing Arm	2
Monitor Installation	2
Standard Input and Output Connections	3
System Cabling	3
Keyboard Caddy	3
Keyboard Caddy Installation	4
E17 Option Components	6
Component Addresses	7

General Description

The E5500 phase noise measurement solution series contains four standard hardware configurations in four frequency ranges.

Model number	Frequency range
E5501A/B	50 kHz to 1.6 GHz
E5502A/B	50 kHz to 6 GHz
E5503A/B	50 kHz to 18 GHz
E5504A/B	50 kHz to 26.5 GHz

A-Series Systems

The standard A-series configurations are automatic test equipment (ATE) subsystems consisting of software, a VXI mainframe, an MMS mainframe, and plug-in instruments. Computers and other ancillary instruments are not included with the A-series systems unless added by special options.

A-series subsystems use a VXI digitizer and have an offset frequency range from 0.01 Hz to 4 MHz.

Typically, A-series ATE solutions are equipment configurations that are installed into, and function as subsystems of, a customer's manufacturing test system. This type of subsystem is not installed in a system cabinet initially and may be used in a bench top arrangement. However, depending upon the instruments and options chosen, portions of the equipment may require further integration.

B-Series Systems

The standard B-series configurations are complete tested systems consisting of a computer with preconfigured software, an MMS mainframe, plug-in instruments, and a spectrum analyzer. B-series systems include a PC digitizer card, an RF spectrum analyzer, and have an offset frequency range from 0.1 Hz to 100 MHz.

Typically, the B-series systems are bench-top, research and development oriented systems, but can also be installed in system cabinets in many combinations.

General Description

The E5504B E18 Special Option

The Agilent E5504B special option E18 adds the following key components to the following phase noise measurement system, Agilent E5504B with option 001, 406, and 406:

- Adds a custom instrument cabinet configuration (figure 1).
- Adds options 001 and H15 to the Agilent 8664A signal generator.
- Adds option H02 to the Agilent 70420A Phase Noise test set.
- Adds numerous product licenses-to-use (LTU) software keys.
Agilent E5484A, E5485A, E5489A, E5493A, E5494A, and E5495A.

Refer to “System Parts and Accessories” for a listing of all components used to create this custom system configuration.

System Parts and Accessories

E5504B Standard Components

A standard E5504 phase noise system consists of the following components. This configuration is the basis to which other options may be added.

Description	Part Number	Qty
Adapter, GPIB	10834A	1
Adapter, N(m)/BNC(f)	1250-0780	3
Termination, BNC(m), 50 ohm	1250-0207	1
Mainframe, MMS	70001A	1
Phase noise test set, MMS module	70420A	1
Down converter, MMS module	70427A	1
Cable, GPIB, 0.5 meter	8120-3444	1
Cable, GPIB, 2.0 meter	8120-3446	1
Cable, BNC(m)(m), 8ft	8120-5370	2
Cable, BNC(m)/(m), 4 ft	8120-2582	3
GPIB interface card (Installed in PC)	82341C	1
Cable, SMB(f)/BNC(m) 2235C	84000-60451	2
Monitor, 15"	E2500-80006	1
Economy spectrum analyzer, 1.5 GHz	E4411A	1
Add GPIB and centronics interface	E4411A Opt A4H	1
License to use software key for PC digitizer module	E5481A	1
License to use software key for Economy Spectral Analyzer	E5483A	1
Adapter, PC digitizer	E5500-60003	1
PC digitizer (Installed in PC)	E5500-60004	1
Personal Computer HP Vectra D7962T	E5500-80010	1
Manual, <i>E5500 Installation Guide</i>	E5500-90002	1
Manual, <i>E5500 Users Guide</i>	E5500-90004	1

System Parts and Accessories

STD Option 001 Components

The E5504B standard option 001 includes the following additions and deletions to the basic E5504B system.

Description	Part Number	Qty
Delete the following:		
Adapter, BNC(f)/N(m)	1250-0780	-1
Add the following:		
Adapter, BNC(f)/SMA(m)	1250-1200	2
Adapter, Type N(m)/SMA(f)	1250-1250	1
Add Hi power input	70420A opt 001	1
Cable RF, IF out, semirigid SMA(m)/(m)	E5500-20001	1
Cable RF, Sig In, semirigid SMA(m)/(m)	E5504-20001	1

STD Option 406 Components

The E5504B standard option 406 includes the following additions to the basic E5504B system.

Description	Part Number	Qty
Add the following:		
Aapter BNC(f)/N(m)	1250-0780	1
Cable, GPIB, 1 m	8120-3445	1
Synthesizer signal generator	8664A	1
Low Phase Noise	8664A Option 004	1
License to use software key for 8643-65 signal generators	E5484A	1

NOTE

The Agilent E5504B-E18 requires quantity two of the option 406 material.

System Parts and Accessories

Special Option E18 Components

The E5504B option E18 includes the following additions to the basic E5504B system.

Description	Part Number	Qty
Add:		
Adapter, BNC(f)/N(m)	1250-0780	1
Drawer, storage	35181M	1
Rack mount kit	5061-9678	2
Rack mount kit	5063-9215	2
Power cable, rack internal	8120-1405	4
Eprom modification	70420A opt H02	1
Add high stability timebase	8664A opt 001	2
Phase noise spec, custom	8664A opt H15	2
Instrument cabinet, 120 Vac, 1.6 M	E3661B-AW3	1
Rails	E3663-00001	4
Rails, non Agilent equipment	E3664-00001	6
Rack mount slide kit, spectrum analyzer	E4401-60057	1
Fan, 110V	E4470A	1
License to use software key for spectrum analyzer	E5484A	1
License to use software key for RF signal generator 8662/3	E5485A	1
License to use software key for frequency counter	E5489A	1
License to use software key for 3561A FFT Analyzer	E5493A	1
License to use software key for 3585A FFT Analyzer	E5494A	1
License to use software key for SCPI client software	E5495A	3
<i>E5504B E18 System Modification Note</i>	E5504-90011	1
Phase noise training CD	E5500-80016	1
Rack panel, filler 4U	E7734A	3

Component Addresses

The E5504B E18 system was configured at the factory with the following addresses.

Instrument	Address
8664A opt 001,004,H15	19 (GPIB)
8664A opt 001,004,H15	23 (Not connected to GPIB)
70420A opt 001, H02	20 (GPIB)
70427A	28 (GPIB)
E4411B opt A4H	17 (GPIB)

System Parts and Accessories

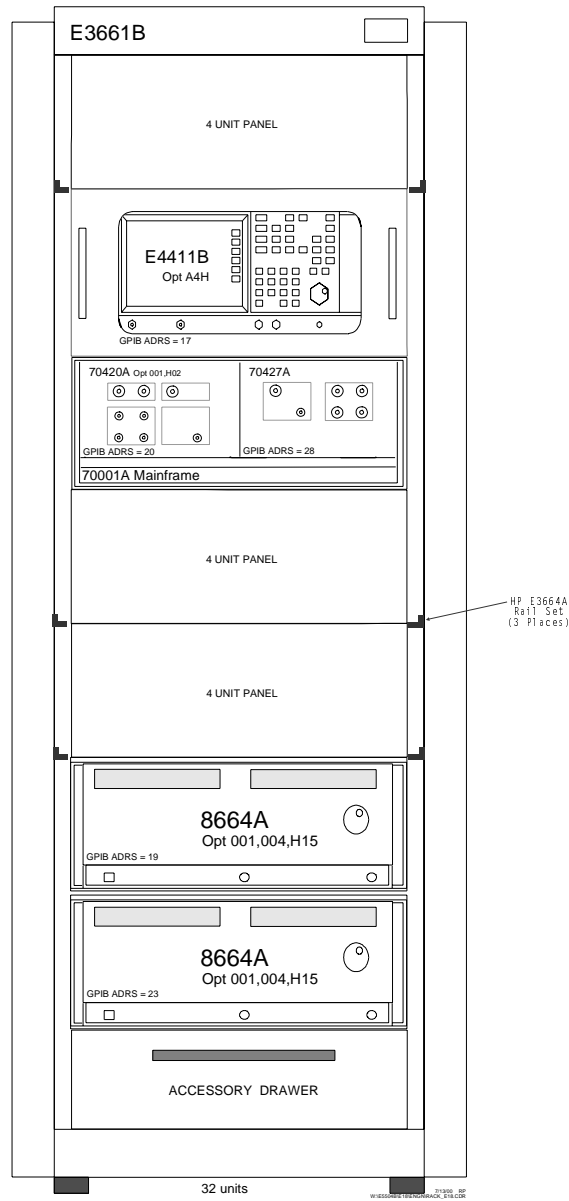


Figure 1 E5504B E18 Rack Configuration Diagram