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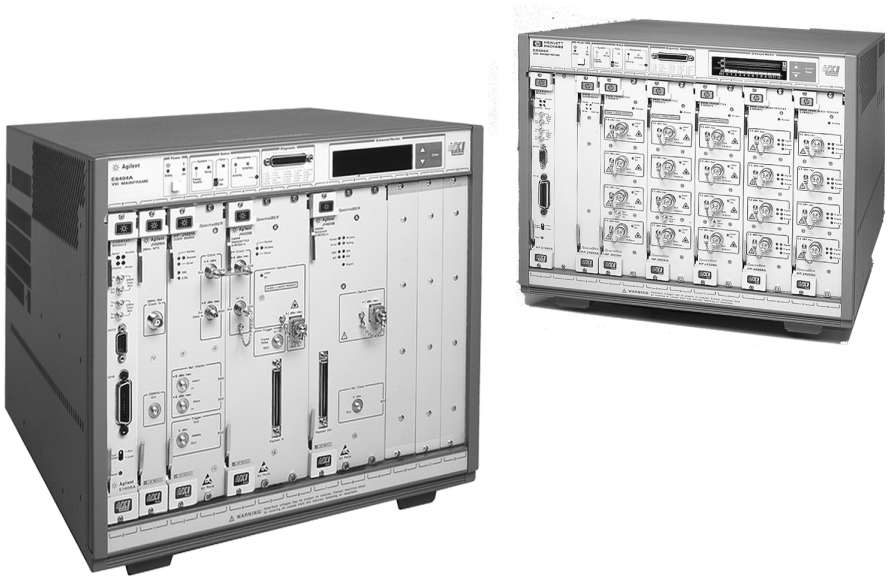
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SpectraIBER

The expandable test solution
– to 10 Gb/s

Configuration Guide



VXI bus

Agilent Technologies
Innovating the HP Way

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Overview

SpectralBER is a flexible, expandable multi-port test system, providing test solutions to 10 Gb/s. You can easily configure it to suit your requirements.

This configuration guide is arranged in four sections to assist you to specify:

- **Typical SpectralBER test solutions at 10 Gb/s 3**
  Single Channel System (1 transmitter + 1 receiver) 3
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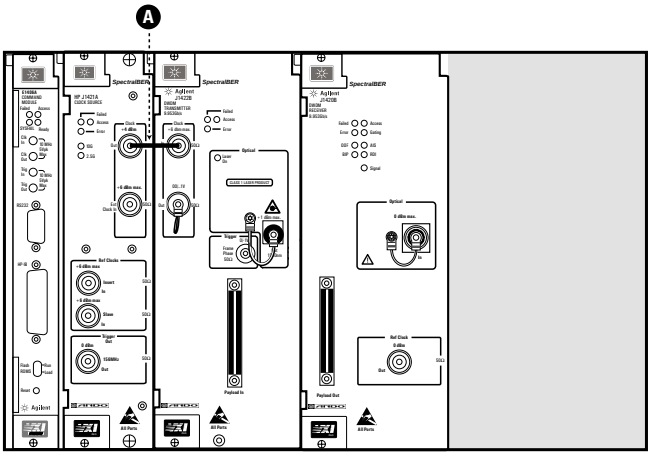
For applications that require a mix of 10 Gb/s and lower rates, or a combination of SpectralBER and other equipment, Agilent's experienced systems and applications engineers can help you develop an integrated Test System tailored to your own test needs.

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Typical SpectralBER test solutions at 10 Gb/s

For other configurations please use the step-by-step sequence described on page 6.

Single Channel System (1 transmitter + 1 receiver)

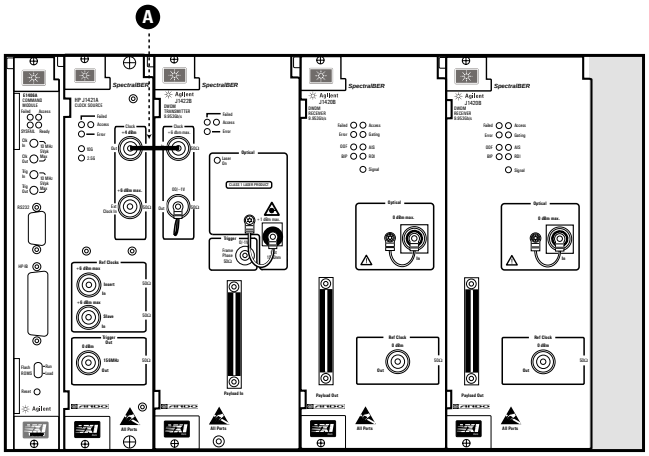


You need:

1 x J1425A mainframe bundle
1 x J1421A clock source module
1 x J1422B transmitter module
1 x J1420B receiver module

Clock cable (A) is supplied as standard with J1421A

Two Channel System (1 transmitter + 2 receivers)



You need:

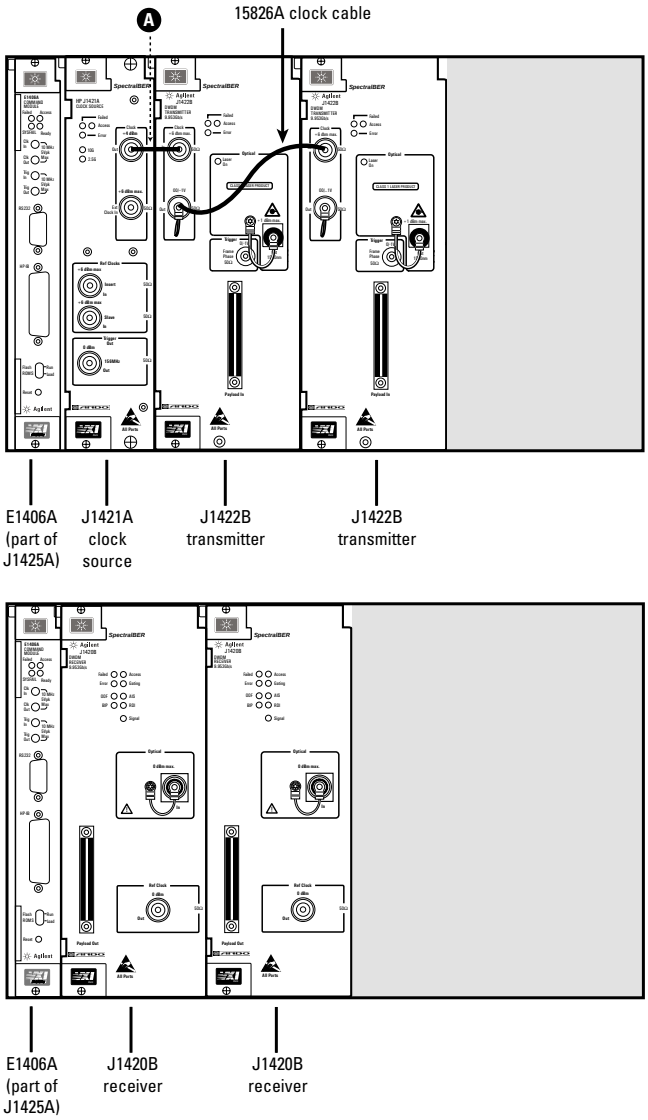
1 x J1425A mainframe bundle
1 x J1421A clock source module
1 x J1422B transmitter module
2 x J1420B receiver modules

Clock cable (A) is supplied as standard with J1421A

In this configuration the transmitter output would be routed via a 1-to-2 optical splitter (not supplied) to provide two identical optical test signals.

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Two Channel System (2 transmitters + 2 receivers)



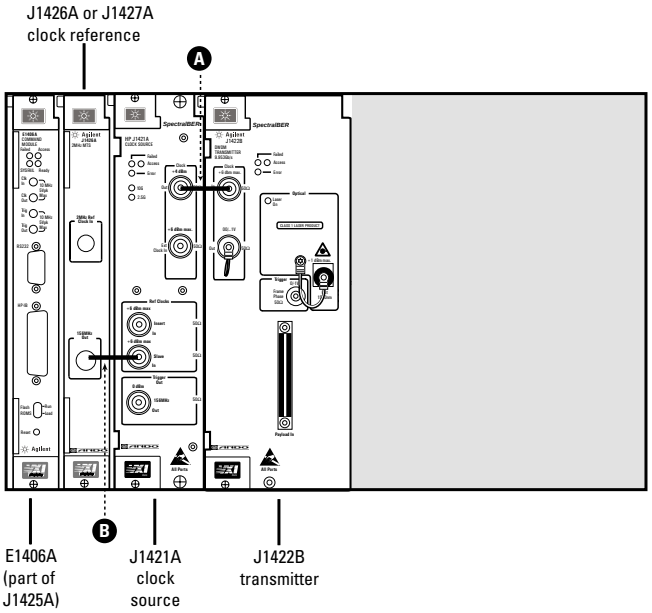
You need:

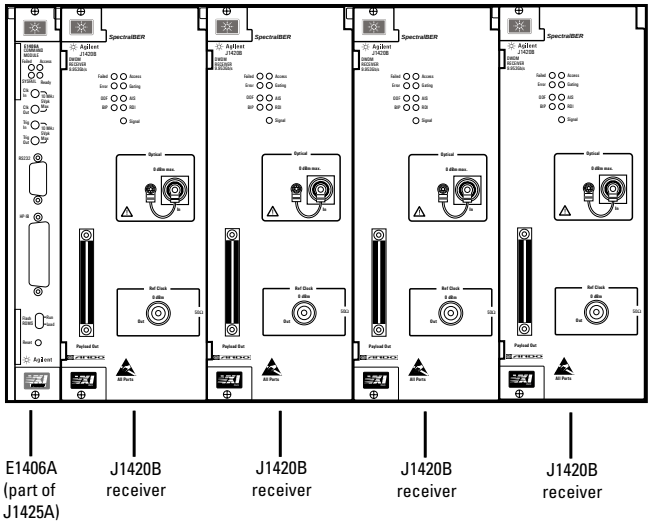
2 x J1425A mainframe bundles
1 x J1421A clock source module
2 x J1422B transmitter modules
1 x 15826A clock cable
2 x J1420B receiver modules

Clock cable A is supplied as standard with J1421A

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Four Channel System (1 transmitter + 4 receivers)
with optional reference clock input (2 MHz or 1.5 Mb/s)





You need:

2 x J1425A mainframe bundles
1 x J1426A 2MHz MTS clock reference module
1 x J1421A clock source module
1 x J1422B transmitter module
4 x J1420B receiver modules

Or:

2 x J1425A mainframe bundles
1 x J1427A 1.5 Mb/s BITS clock reference module
1 x J1421A clock source module
1 x J1422B transmitter module
4 x J1420B receiver modules

Clock cable Ⓐ is supplied as standard with J1421A

Clock cable Ⓑ is supplied as standard with J1426A or J1427A

In this configuration the transmitter output would be routed via a 1-to-4 optical splitter (not supplied) to provide four identical optical test signals.

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SpectraIBER test solutions at 10 Gb/s

The following step-by-step sequence will help you to specify the transmitter modules, clock modules, receiver modules and mainframes you need to configure your 10 Gb/s SpectraIBER test system.

		Number Required	VXI Slots Used	Options Required
Step 1	**How many channels will you be testing?** Keep this figure in mind when completing steps 2 and 5.	☐		
Step 2	**Decide how many transmitter output ports you need.** Order transmitter modules as required.			
	J1422B 10 Gb/s transmitter module (1550 nm, 1 output port) [3 VXI slots wide]	☐	× **3** = ☐	
	Option 001 High power (+2.5 dBm) output.			☐
	Option 100 Replace FC/PC connector with ST type.			☐
Step 3	**Order one or more clock source modules.** You can clock all your 10 Gb/s transmitter modules from a single J1421A clock source module. Alternatively, if you require each transmitter to be independently clocked, you should order one J1421A per transmitter module.			
	J1421A Clock source module (supplied with one clock cable) [2 VXI slots wide]	☐	× **2** = ☐	
	If you have specified one clock source for *n* transmitters, you should order *(n – 1)* additional clock cables.			
	15826A Clock cable (transmitter clock out to transmitter clock in)	☐		
Step 4	**Order a clock reference if required.** *If you want to synchronize your system to a 2 MHz or 1.5 Mb/s reference clock, order the appropriate clock reference module. You must order this* ***in addition*** *to the J1421A clock source module.*			
	J1426A 2 MHz MTS clock reference module (Supplied with one clock cable) [1 VXI slot wide]	☐	× **1** = ☐	
	J1427A 1.5 Mb/s BITS clock reference module (Supplied with one clock cable) [1 VXI slot wide]	☐	× **1** = ☐	

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		Number Required	VXI Slots Used	Options Required
Step 5	**Decide how many receiver input ports you need.** Order receiver modules as required.			
	J1420B 10 Gb/s short reach receiver module (1 input port) [3 VXI slots wide]		× **3 =**	
	Option 100 Replace FC/PC connector with ST type.			
Step 6	**Order one or more mainframe bundles.** Each J1425A mainframe provides 12 free VXI slots. Add up the total number of VXI slots you noted in steps 2, 3,4 and 5, and order the appropriate number of mainframes.		**Total**	
	J1425A SpectraIBER mainframe (comprises E8404A VXI mainframe, E1406A slot 0 command module, J1423A manual set and other accessories)			
Step 7	**Do you require additional manuals?** Order as required.			
	J1423A Additional manual set			

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Remote Control

Control of the measurement hardware is via a GPIB interface provided on the E1406A slot 0 command module. SpectraIBER provides a GPIB command set based on the industry standard SCPI format. SpectraIBER is also supplied with Universal Instrument Driver (UID) software.

Graphical User Interface

SpectraIBER is supplied with Graphical User Interface (GUI) software. This is a standalone virtual front panel application that runs on Windows 95/98/2000/NT or Solaris.

A PC or workstation equipped with a GPIB interface (not supplied) is required to use SpectraIBER.

For PC hardware requirements, please see panel on back page

Calibration Certificate

10 Gb/s SpectraIBER modules are supplied with a commercial calibration certificate, including test data, as standard. This information is provided to aid traceability and is equivalent to option UK6 on other products.

Optical Accessories

E4545A
3m fiber optic cable (FC/PC connectors)

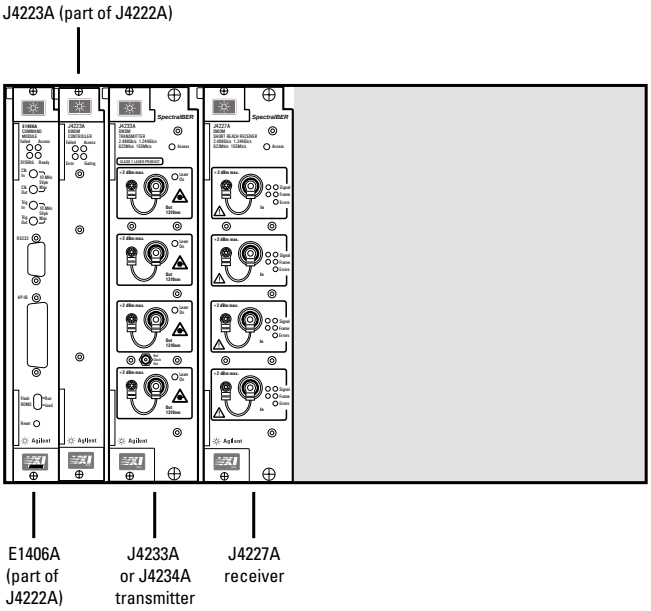
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Typical SpectralBER test solutions at 2.5 Gb/s and below

For other configurations please use the step-by-step sequence described on page 12.

Four Channel System (4 transmitters + 4 receivers)



You need:

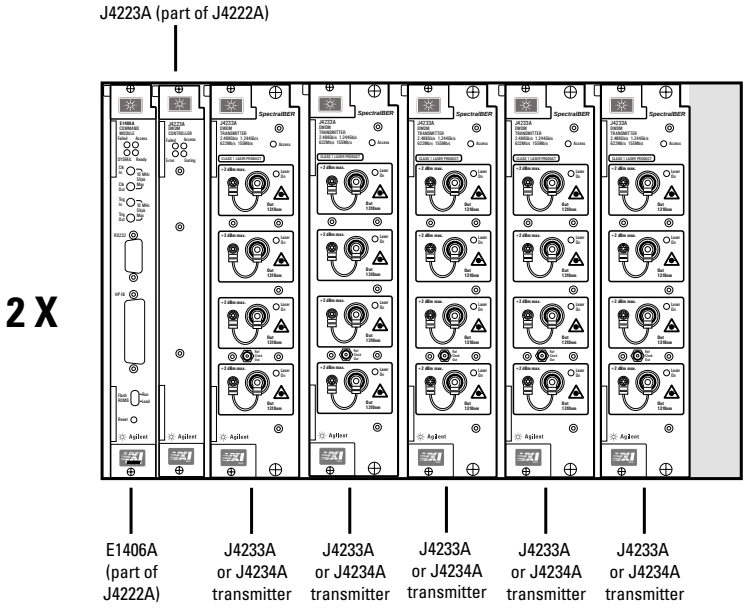
1 x J4222A	mainframe bundle
1 x J4233A	*1310 nm transmitter module*
1 x J4227A	Short reach receiver module

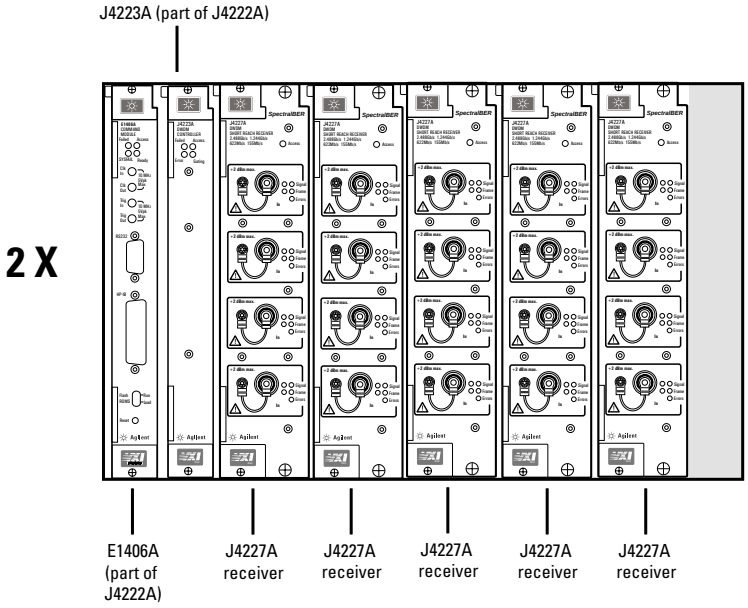
Or:

1 x J4222A	mainframe bundle
1 x J4234A	*1550 nm transmitter module*
1 x J4227A	Short reach receiver module

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Forty Channel System (40 transmitters + 40 receivers)





You need:

4 x J4222A	mainframe bundle
10 x J4233A	*1310 nm transmitter modules*
10 x J4227A	Short reach receiver modules

Or:

4 x J4222A	mainframe bundle
10 x J4234A	*1550 nm transmitter modules*
10 x J4227A	Short reach receiver modules

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SpectraIBER test solutions at 2.5 Gb/s and below

The following step-by-step sequence will help you to specify the transmitter modules, receiver modules and mainframes you need to configure your Multi-rate SpectraIBER test system.

		Number Required	VXI Slots Used	Options Required
Step 1	**How many channels will you be testing?** Keep this figure in mind when completing steps 2 and 3.	☐		
Step 2	**Decide how many transmitter output ports you need.** Order transmitter modules as required.			
	J4233A Multi-rate (155 Mb/s, 622 Mb/s, 2.5 Gb/s) transmitter module (1310 nm, 4 output ports) [2 VXI slots wide]	☐	× **2 =** ☐	
	Option 100 Replace FC/PC connectors with ST type.			☐
	Option 200 Add 1.244 Gb/s unframed PRBS operation.			☐
	J4234A Multi-rate (155 Mb/s, 622 Mb/s, 2.5 Gb/s) transmitter module (1550 nm, 4 output ports) [2 VXI slots wide]	☐	× **2 =** ☐	
	Option 001 High power (+3 dBm) outputs.			☐
	Option 100 Replace FC/PC connectors with ST type.			☐
	Option 200 Add 1.244 Gb/s unframed PRBS operation.			☐

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Number Required	VXI Slots Used	Options Required
	× 2 =	

J4235A
Multi-rate (155 Mb/s, 622 Gb/s, 2.5 Gb/s) transmitter module (ITU-T selected wavelengths, 4 output ports) [2 VXI slots wide].

For each J4235A module, you must select four wavelength options from the table below. Enter the option numbers in the boxes on the right (space is provided for one module; list options for additional modules on a separate sheet).

Option	Wavelength (nm)	Option	Wavelength (nm)	Option	Wavelength (nm)
001	1536.61	002	1537.01	003	1537.40
004	1537.90	005	1538.19	006	1538.59
007	1538.98	008	1539.38	009	1539.77
010	1540.17	011	1540.56	012	1540.96
013	1541.35	014	1541.75	015	1542.14
016	1542.54	017	1542.94	018	1543.33
019	1543.73	020	1544.12	021	1544.53
022	1544.91	023	1545.32	024	1545.72
025	1546.12	026	1546.52	027	1546.92
028	1547.32	029	1547.72	030	1548.12
031	1548.51	032	1548.91	033	1549.32
034	1549.72	035	1550.12	036	1550.52
037	1550.92	038	1551.32	039	1551.72
040	1552.12	041	1552.52	042	1552.92
043	1553.33	044	1553.73	045	1554.13
046	1554.53	047	1554.94	048	1555.34
049	1555.75	050	1556.15	051	1556.55
052	1556.95	053	1557.36	054	1557.76
055	1558.17	056	1558.57	057	1558.98
058	1559.39	059	1559.79	060	1560.20
061	1560.61				

Option 100
Replace FC/PC connectors with ST type.

Option 200
Add 1.244 Gb/s unframed PRBS operation.

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		Number Required	VXI Slots Used	Options Required
Step 3	**Decide how many receiver input ports you need.** Order receiver modules as required.			
	J4227A Multi-rate (155 Mb/s, 622 Mb/s, 2.5 Gb/s) short reach receiver module (4 input ports) [2 VXI slots wide].		× 2 =	
	Option 100 Replace FC/PC connectors with ST type.			
	Option 200 Add 1.244 Gb/s unframed PRBS operation.			
	J4226A Single-rate (2.5 Gb/s only) long reach receiver module (4 input ports) [2 VXI slots wide].		× 2 =	
Step 4	**Order one or more mainframe bundles.** Each J4222A mainframe provides 11 free VXI slots. Add up the total number of VXI slots you noted in steps 2 and 3, and order the appropriate number of mainframes.		**Total**	
	J4222A SpectraIBER mainframe (comprises E8404A VXI mainframe, E1406A slot 0 command module, J4223A DWDM Controller, manual set and other accessories)			

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Remote Control

Control of the measurement hardware is via a GPIB interface provided on the E1406A slot 0 command module. SpectraIBER provides a GPIB command set based on the industry standard SCPI format. SpectraIBER is also supplied with Universal Instrument Driver (UID) software.

Graphical User Interface

SpectraIBER is supplied with Graphical User Interface (GUI) software. This is a standalone virtual front panel application that runs on Windows 95/98/NT, Solaris or HP-UX.

A PC or workstation equipped with a GPIB interface (not supplied) is required to use SpectraIBER.

For PC hardware requirements, please see panel on back page.

Calibration Certificate

Option UK6
Commercial calibration certificate, including test data. Can be ordered for Multi-rate SpectraIBER module.

Optical Accessories

E4545A
3m fiber optic cable (FC/PC connectors)

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PC hardware requirements

When running SpectralBER software under Microsoft Windows 95/98/2000/NT, the following hardware is recommended:

- Pentium 2 or higher processor.
- 1024 x 768 pixel 256-color display or better.
- (Windows 95/98) 16 MB RAM minimum, 32 MB RAM recommended.
- (Windows 2000/NT) 32 MB RAM minimum, 64 MB RAM recommended.
- 20 MB free hard disk space.
- CD-ROM drive.
- GPIB card that supports Microsoft Windows 95/98/2000/NT and VISA drivers.

Regulatory Conformance
This product complies with all applicable European directives and carries the CE mark accordingly. For details of applicable standards please see product specification.

Warranty
Agilent Technologies provides a standard 1-year return-to-Agilent warranty on both mainframes and modules.

Class 1 laser product
EN 60825-1:1994 /
IEC 825-1 (1993)

Class I laser product
FDA 21 CFR Ch.1 1040.10

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Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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