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JANUARY 1994
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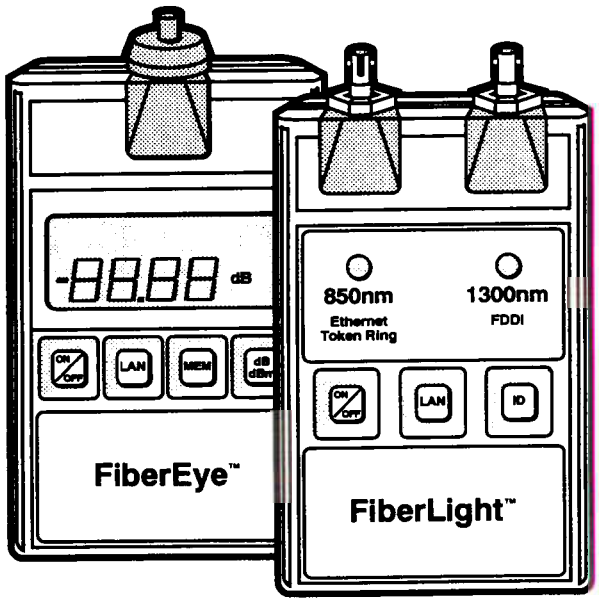
Fiber Solution Kit
FiberEye
FiberLight



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Chapter Page

Appendix A: Specifications 34

Appendix B: Ownership Rights and Technical Support 35

1.0 Overview

1.1 Introduction

Welcome to the family of fiber optic installation, test and diagnostic products. Introducing FiberEye™ and FiberLight™, the first fiber optic troubleshooting tools designed specifically for LANs.

FiberEye, an optical power meter (OPM), and FiberLight, an optical light source (OLS), address the challenges of installing, maintaining, and troubleshooting fiber optic Local Area Networks (LANs). FiberEye allows users to quickly and accurately assess the performance of fiber optical transmission paths and equipment. FiberEye measures the power or level of light injected into or emerging from the fiber network at any point. By measuring optical power, FiberEye verifies the proper installation and operation of various fiber optic components, such as fiber optic hub modules, repeaters, and adapter cards.

FiberEye also helps identify faulty patch cables, failing splices, or bad couplers and connectors by measuring signal loss. Accurate, repeatable measurements of optical power and signal loss are essential for installing, maintaining, or troubleshooting fiber optics.

Easy and rapid identification of typical failure points in a fiber network enables the LAN administrator to quickly restore critical network operation.

Using FiberLight in conjunction with FiberEye provides a consistent, calibrated light source that increases the ease and effectiveness of fiber optic testing.

FiberLight incorporates two highly efficient Light-Emitting Diodes (LEDs), each with their own external connector. One transmits at the wavelength used in Ethernet and token ring networks, the other at the wavelength used in FDDI networks. With two built-in light sources, you can use FiberLight to test fiber cable plants that support all three network types and do it quicker than using conventional light sources.

At the speed of light, FiberEye and FiberLight locate common fiber problems to ensure maximum "up-time" on fiber-based LANs.

FiberEye and FiberLight are sold together in a convenient kit, complete with a nylon carrying case, fiber optic cables and accessories. FiberEye and FiberLight may also be purchased separately.

1.2 Fiber Solution Kit

The Fiber Solution Kit is designed with the LAN administrator in mind. It includes necessary diagnostic accessories, troubleshooting aids, and how-to-test documentation not normally found in other test sets.

For instance, proper testing of fiber optic networks requires both the fiber optic launch/receive cables and coupling sleeves included in this kit. This kit also contains the optical cleaning supplies required to keep fiber connectors and adapters free from contamination.

Finally, to help LAN administrators understand proper fiber testing methods, we have included this simple *Testing and Troubleshooting Guide*. All this helps ensure trouble-free operation, day after day.

The Fiber Solution Kit includes:

- *FiberEye*
- *FiberLight*
- *ST® style adapters (one with FiberEye and one extra)*
- *Two 2-meter launch/receive cables (62.5/125 multimode with ST style connectors)*
- *ST-ST coupling sleeve (2)*
- *Batteries (two AA alkaline batteries installed in each instrument)*
- *Fiber cleaning supplies*
- *Testing and Troubleshooting Guide*
- *Custom soft carrying case*

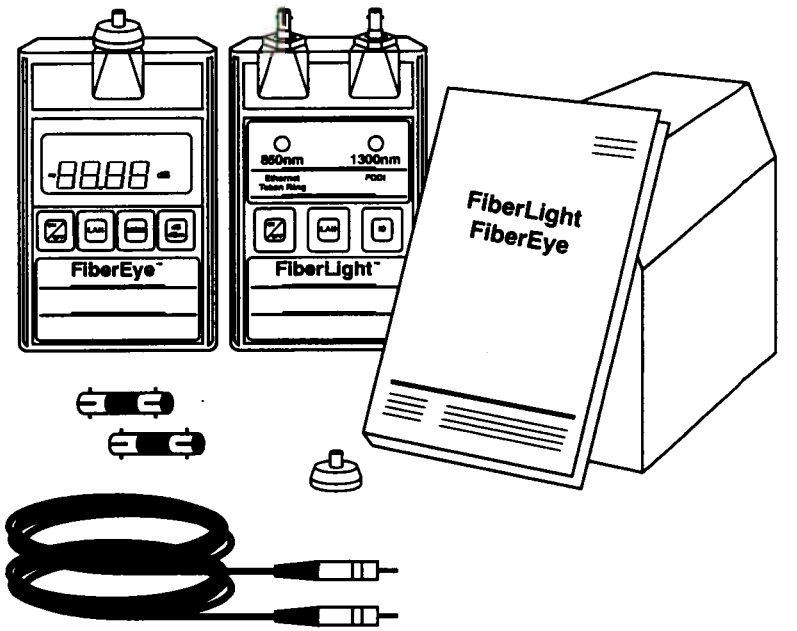


Fig. 1-1. Fiber Solution Kit.

If any of these items are missing, please contact your local dealer.

In addition to the Fiber Solution Kit, FiberEye and FiberLight are available individually. The FiberEye and FiberLight Kits are designed for those users who wish to purchase additional units to complement the Fiber Solution Kit or to replace existing optical power meters and optical light sources.

1.3 FiberEye Kit

The FiberEye Kit includes:

- *FiberEye*
- *ST style adapters (one with FiberEye, one extra)*
- *Batteries (two AA alkaline batteries, installed)*
- *Testing and Troubleshooting Guide*
- *Soft carrying case*

If any of the items are missing, please contact your local dealer.

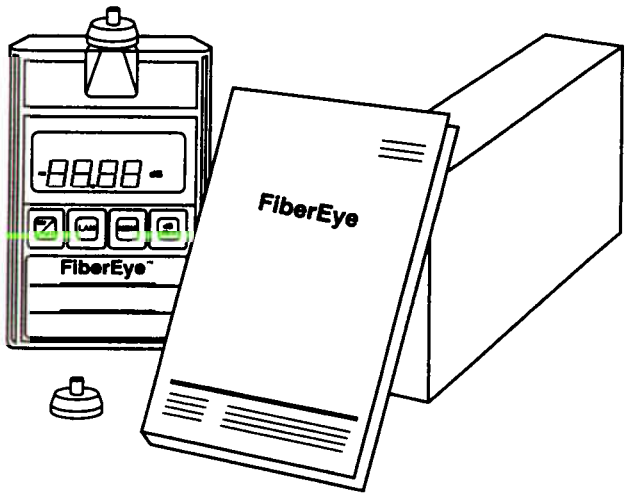


Fig. 1-2. FiberEye Kit.

1.4 FiberLight Kit

The FiberLight Kit includes:

- *FiberLight*
- *ST style adapters (two with FiberLight)*
- *Batteries (two AA alkaline batteries installed in FiberLight)*
- *Testing and Troubleshooting Guide*
- *Soft carrying case*

If any of the items are missing, please contact the dealer from whom you purchased the FiberLight Kit.

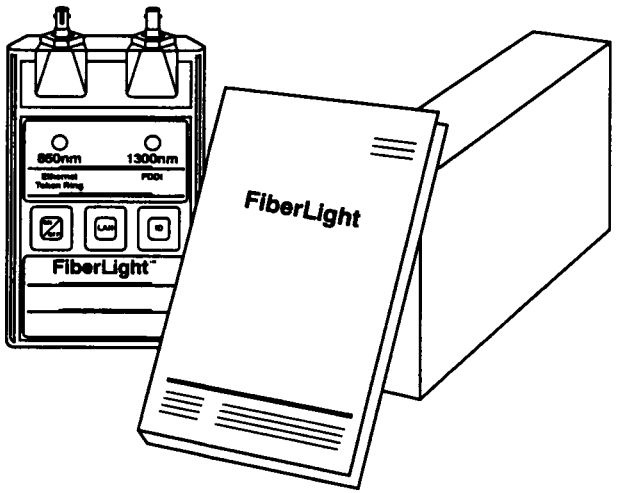
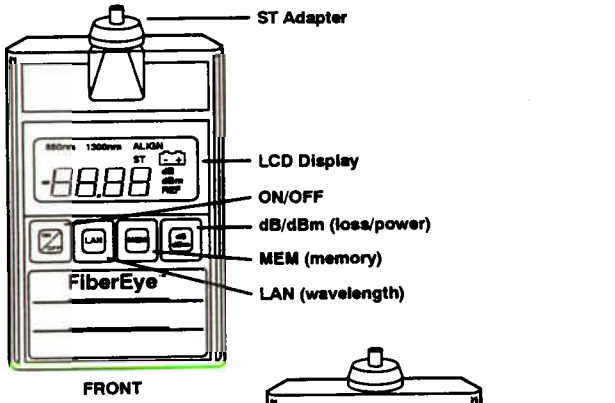


Fig. 1-3. FiberLight Kit.

1.5 About FiberEye

FiberEye, a palm sized optical power meter, provides quick, accurate assessment of fiber optical transmission paths and equipment. Accurate and repeatable measurement of optical power and signal loss (attenuation) is essential for installing, maintaining, and troubleshooting fiber optic systems used in LANs.

Use FiberEye for Ethernet, token ring, and FDDI networks.



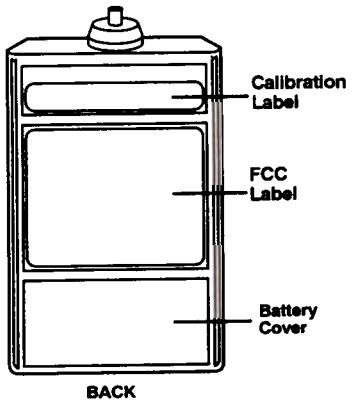


Fig. 1-4. FiberEye, Front and Back.

1.5.1 Using the Keypad

Use the FiberEye keypad to select the functions necessary to test and troubleshoot fiber optic LANs. Each key performs a function, each with two selections. Press the key once to toggle between functions. When multiple keys are required to activate a function, press and hold each key in the order it is shown below. The key functions are:

Key	Functions
ON/OFF	Turns unit On/Off; Performs self-test
LAN	Selects network type: Ethernet/Token Ring (850nm) FDDI (1300nm)
MEM	Displays/stores reference value Press once to display current value Press twice to store new value
dB dBm	Display loss value (dB) or Power value (dBm)
LAN + ON/OFF	View software version
dB dBm + ON/OFF	Enables Auto-zero
MEM + dB dBm + ON/OFF	Enables Alignment function

Fig. 1-5. Key Functions.

1.5.2 Reading the Display

The LCD provides instant high resolution readouts when any key is pressed. To start FiberEye, press **ON/OFF**. The display is operational whenever the unit is turned on. The LCD displays the following icons:

Display Icon	Indication
λ850nm	Measure at 850nm wavelength
λ1300nm	Measure at 1300nm wavelength
ALIGN	Alignment function is active
ST	Self-test function in progress
	Low battery power
-	Negative value
	Numeric value
	Numeric value exceeds 3 dB/dBm
	Numeric value is below -55 dB/dBm
dB	Loss measurement value displayed
dBm	Power measurement value displayed
REF	Reference value being stored or displayed
	Unit needs calibration
	Value stored in memory

Fig. 1-6. Display Icons.

NOTE

All icons appear on the LCD when it is turned on. If no icons appear when the unit is in operation, check the batteries for correct installation or install new batteries.

1.5.3 Understanding Self Test

The unit has a built in self test function which runs automatically when the unit is turned ON. The LCD displays all icons during Self Test. Self Test takes approximately 1 to 2 seconds. If the Self Test fails, the LCD displays the **ST** icon with an error code. An explanation of error codes appears in Chapter 4.

1.5.4 Selecting the Proper Wavelength

Press **LAN** to select the desired wavelength. The LCD displays the **λ850nm** or **λ1300nm** icons to indicate the selected wavelength. Select 850nm wavelength for troubleshooting Ethernet and token ring networks or 1300nm wavelength for FDDI networks.

1.5.5 Understanding Numeric Values

The numeric values displayed on the LCD can range from 3 dB/dBm to -55 dB/dBm.

The - icon appears when negative values are displayed.

When a measurement is less than -55 dB/dBm, the LCD alternately displays the value "-55.00" and the LO icon.

When a measurement is greater than 3 dB/dBm, the LCD alternately displays the value "3.00" and the HI icon.

1.5.6 Storing Reference Values

Store a reference value in the FiberEye memory to calculate loss measurements. FiberEye subtracts the reference value from the actual measured value to determine loss. See Chapter 2 for an explanation of loss calculation measurement procedures.

NOTE

FiberEye can store a separate reference value for each wavelength.

■ Storing a reference value:

1. Turn ON FiberEye and press **LAN** to select the desired wavelength.
2. Press **dB/dBm** until **dBm** appears in the LCD. The numeric value is the power of light measured by FiberEye.
3. Press **MEM** twice (or hold down for 2 seconds) to store the current power measurement as a reference.

When the reference value is successfully stored, the OK icon displays. The numeric values in the display are cleared to zero, and the loss measurement **dB** icon indicates the unit is ready to calculate loss.

NOTE

The unit does not store reference values that are above 3 dBm or below -55 dBm.

1.5.7 Understanding Auto Shutdown

FiberEye is designed to shutdown automatically to conserve battery life when not in use. FiberEye turns itself off if no key has been pressed within 120 minutes. Auto Shutdown does not affect any stored reference values. To prevent Auto Shutdown, periodically toggle FiberEye's display using **dB/dBm**. This does not in any way affect FiberEye's operation.

1.5.8 Using the Auto-Zero Function

The Auto-Zero function resets the calibration offsets. Use this function when the unit is used under extreme temperature conditions (below 50° F or above 95° F), to account for linearity drift.

■ To use the Auto-Zero function:

1. Remove FiberEye from the testing or troubleshooting setup and place the protective dust cap firmly over the ST style adapter. The Auto-Zero function requires that no light enter FiberEye.

2. Press **LAN** and hold down while turning FiberEye ON.

NOTE

The unit automatically resets the offset values by displaying a "zero numeric value" in each of the numeric value positions of the LCD (left to right). An error code appears if the Auto-Zero function fails (see Chapter 4).

1.5.9 Aligning FiberEye

FiberEye has an Alignment function. Alignment ensures consistent readings for multiple FiberEye power meters using one FiberLight source. It is not necessary to perform the Alignment function when using only one meter.

NOTE

Alignment is the process of aligning the meters to each other. It is not calibration.

A maximum alignment adjustment of ± 0.4 dB is possible.

Cable connections should be clean.

■ To align multiple meters:

1. Attach a known good launch cable to the FiberLight 850nm or 1300nm source output and connect the launch cable to FiberEye.

2. Turn ON FiberEye and FiberLight and select 850nm or 1300nm wavelength. Set both units to the same wavelength.

3. Turn OFF FiberEye. Press **MEM** and **dB/dBm** and hold them down while you turn FiberEye ON.

4. The **ALIGN** icon flashes on the display. FiberEye displays the power (dBm) measured from FiberLight.

5. Select an alignment value. Hold down **MEM** to scroll down to the desired value. Hold down **dB/dBm** to scroll up to the desired value. The maximum alignment adjustment that can be made is ± 0.4 dB.

6. To store the alignment value, press **ON/OFF**. The alignment value is automatically stored in the memory when the unit is turned OFF.

7. Disconnect FiberEye from the launch cable and attach another unit. Align FiberEye to the same desired value by repeating steps 2 through 6.

NOTE

To cancel or remove the alignment adjustment, perform steps 3, 4, and 6.

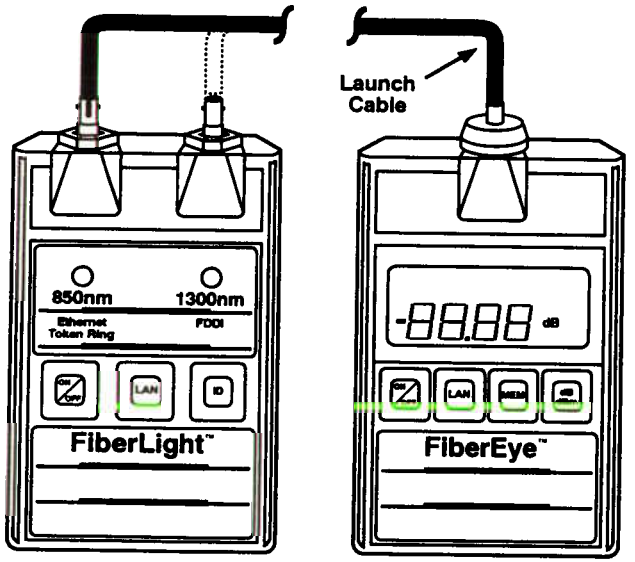


Fig. 1-7. Launch Cable.

1.5.10 Calibrating FiberEye

The Calibration label is located on the back of FiberEye. The label lists the unit's calibration date and the next calibration due date. Have FiberEye calibrated annually.

NOTE

FiberEye cannot be calibrated in the field. Specialized equipment is required for calibration. Contact Technical Support for information on calibration fees, and service requirements.

1.6 About FiberLight

FiberLight, a palm-sized optical source, provides a consistent, calibrated light source for effectively measuring signal loss in fiber optic LAN cables.

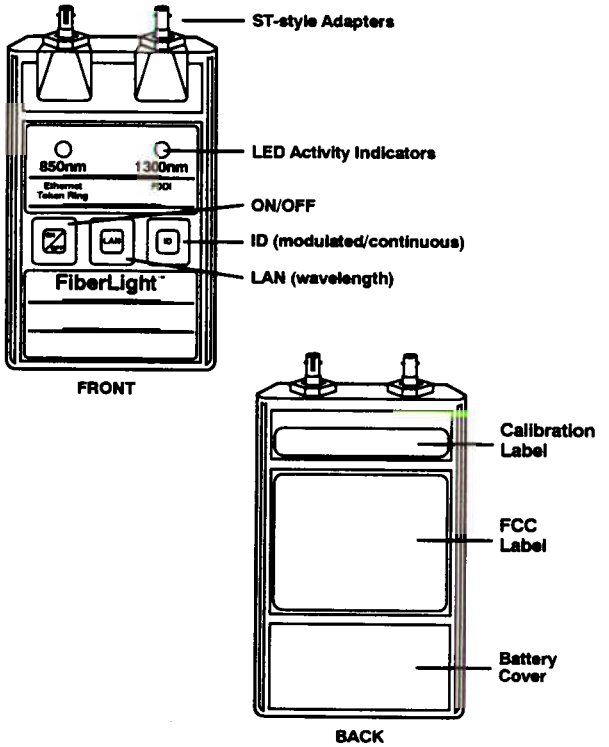


Fig. 1-8. FiberLight, Front and Back.

1.6.1 Using the Keypad

Use the FiberLight keypad to select the wavelength and modulation required for testing and troubleshooting fiber optic LANs.

The key functions are:

Key	Functions
ON/OFF	Turns unit On/Off
LAN	Selects network type: Ethernet/Token Ring (850nm) FDDI (1300nm)
ID	Selects continuous or modulated operation

Fig. 1-9. Keys and Functions.

1.6.2 Selecting the Proper Wavelength

The LEDs on the face of the instrument indicate 850nm or 1300nm wavelength operation. Select the 850nm wavelength for troubleshooting and testing Ethernet or token ring networks and the 1300nm wavelength for FDDI networks.

1.6.3 Selecting the Proper Operation Mode

FiberLight is designed to transmit light continuously or modulated (2 KHz).

Use continuous light mode (sometimes referred to as continuous wave or CW) when testing fiber for loss.

Use modulated mode in conjunction with a fiber identifier tool (not included) to identify the appropriate fiber under test. A fiber identifier is used with FiberLight when two people are testing a common fiber, separated by one or more floors or buildings.

When in continuous mode, the LED Activity Indicator under the selected wavelength is continuously lit. When in modulation mode, the LED Activity Indicator under the selected wavelength slowly blinks (approximately once a second).

NOTE

In modulation mode (2 KHz), FiberLight provides 3 dB less power.

1.6.4 Understanding Auto Shutdown

FiberLight is designed to shutdown automatically to conserve battery life when not in use. FiberLight turns itself off if no key has been pressed within 80 minutes. An extra long Auto Shutdown window was chosen due to the passive nature of FiberLight during testing and troubleshooting. To prevent Auto Shutdown, periodically toggle **ID**. This momentarily affects the amount of light output by 3 dB.

NOTE

When the unit is powered off, FiberLight stores the wavelength and the operation mode in use at the time. It comes back up in the same state when powered on again.

1.6.5 Low Battery Operation

Low battery power is indicated by a rapidly blinking (about four times per second) LED Activity Indicator. When the battery is low, shutdown occurs in ten minutes. If you have just one more test to run, or don't have a battery handy, turn the unit off and back on for another ten minutes of operation.

The following table describes the LED Activity Indicator state during normal and low battery conditions.

Table 1-1. LED Activity Indicator State.

Mode	LED Activity Indicator
Continuous	Steady on
2 KHz modulation	Slow blink
Continuous with low battery	Rapid blink
2 KHz modulation with low battery	Rapid double blink

1.6.6 Calibrating FiberLight

The calibration label is located on the back of FiberLight. The label lists the unit's calibration date and the next calibration due date. Have FiberLight calibrated annually.

NOTE

FiberLight cannot be calibrated in the field. Specialized equipment is required for calibration. Contact Technical Support for information on calibration fees and service requirements.

2.0 Measuring Loss in Fiber Optic Systems

WARNING

During operation, testing, or maintenance of a fiber optic system, never look into an active fiber optic cable. Infrared (IR) radiation may be present and permanent eye damage can result.

The proper balance of the power of the source (transmitter), the losses of the cable plant, and the sensitivity of the detector (receiver) to receive weak signals are vital in fiber optics. Failures in fiber optic networks occur predominantly due to excess losses in the cable plant.

In this chapter, we describe the procedures for measuring loss in a fiber optic cable plant using an optical light source (FiberLight) and optical power meter (FiberEye). These procedures are standardized and documented in EIA/TIA-526-14, Optical Fiber Standard Test Procedure 14 (OFSTP-14).

There are two methods (A and B) documented in OFSTP-14. The method used depends on what is being tested. These methods are shown in the following examples.

NOTE

All connectors and fiber end faces should be cleaned prior to testing. Use the cleaning pads provided in the Fiber Solution Kit.

2.1 Measuring Loss Between a Transmitter and a Receiver (End-End)

Use OFSTP-14 method B to measure the loss of a fiber link connecting any two fiber optic transmitting and receiving devices (such as two fiber hub modules, two fiber repeaters, and so on). In the example below, we measure the loss between a fiber optic hub module and a desktop computer.

OFSTP-14 method B determines the loss of the fiber media, including patch cables and any associated splices, connectors, coupling sleeves, or splitters along the fiber link.

NOTE

OFSTP-14 method B requires the use of launch/receive cables. For optimum effectiveness, use the patch cables from the link to be tested as the launch/receive cables.

When testing between a transmitter and a receiver, always test in the same direction the equipment operates. This is done because of slight differences in the characteristics of the fiber, depending on the direction the fiber is used. Therefore, test the fiber using FiberLight at the end of the fiber link attached to the hub's transmit port, and FiberEye at the end attached to the PC adaptor's receive port.

In addition, the loss measurement should be done using a wavelength which matches that used by the transmitting and receiving equipment. In this example, we assume 850nm.

■ To measure loss:

1. Attach a launch cable (use patch cable 1 if possible) to FiberLight's 850nm port and to FiberEye.

2. Turn ON FiberLight and FiberEye. Press **LAN** on each unit to select **850nm**.

3. On FiberEye, press **dB/dBm** until **dBm** appears in the display. The number displayed is the power of light received by FiberEye, including any loss associated with the launch cable (patch cable1).

4. Press **MEM** twice quickly (or hold for two seconds) to store the value measured as a reference. The display value changes to all zeroes and the **dB** icon lights, indicating FiberEye is ready to calculate loss.

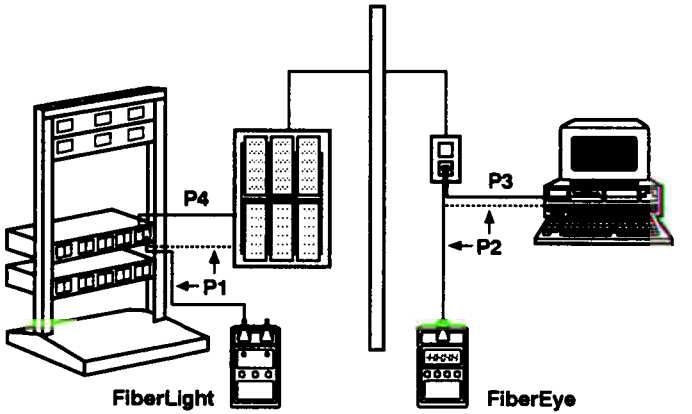


Fig. 2-1. Measuring Loss.

5. Disconnect FiberEye from the launch cable (patch cable 1), leaving it connected to FiberLight. Attach the launch cable (patch cable 1) to its appropriate port on the fiber cross-connect panel.

6. Disconnect the cable from the PC adaptor's receive port (patch cable 2) and attach to FiberEye. FiberEye displays the loss (dB) of the fiber link between the hub and the PC.

7. Compare with the power budget for this link.

   Loss<Power Budget=>PASS

   Loss > or = Power Budget=>FAIL

Since an operational link between a transmitter and receiver is made up of two fiber strands, the link between the PC adaptor's transmit port and the hub's receive port must also be tested. Reverse the position of FiberLight and FiberEye to test in the proper direction, use patch cables 3 and 4, and repeat steps 1 through 7.

2.2 Measuring Loss Between Fiber Distribution Points

The second test method, OFSTP-14 method A, is used to measure the loss of a fiber link that is connected to other fiber cables, not to transmitting or receiving devices. The difference in procedure is how you measure the reference value and how you connect FiberEye and FiberLight to the fiber under test.

In the example below, we test a fiber link connecting two fiber patch panels. We assume the fiber link is to be used at 850nm.

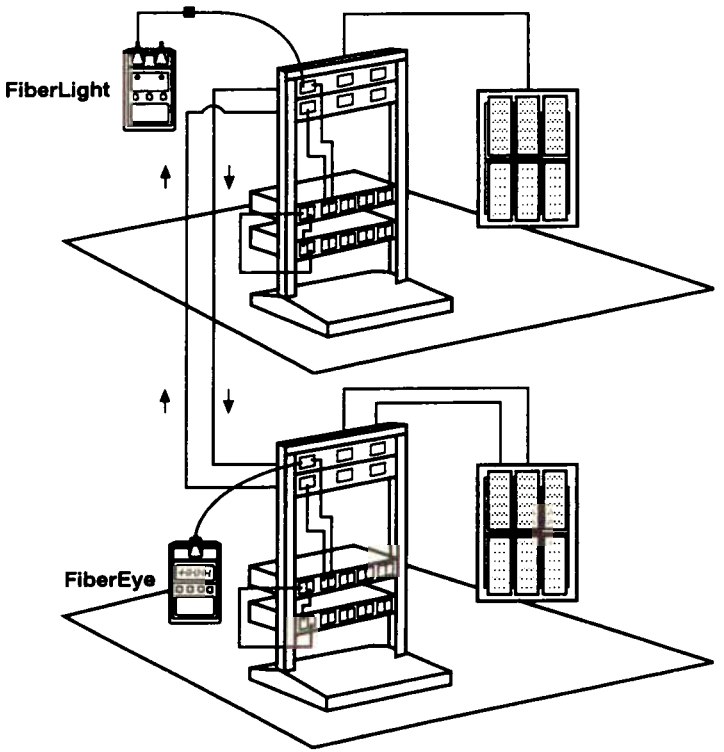


Fig. 2-2. Testing a Fiber Link.

■ To measure loss:

1. Attach a launch cable to FiberLight's 850nm port. Attach a second launch cable to FiberEye. Connect the two launch cables with an ST-ST coupling sleeve.

2. Turn ON FiberLight and FiberEye. Press **LAN** on each unit to select **850nm**.

3. On FiberEye, press **dB/dBm** until **dBm** appears in the display. The number displayed is the power of light received by FiberEye, including any loss associated with the launch cables, their connectors, and coupling sleeve.

4. Press **MEM** twice quickly (or hold for two seconds) to store the value measured as a reference. The display changes to all zeroes, indicating FiberEye is ready to calculate loss.

5. Disconnect the launch cables from each other, leaving them connected to FiberLight and FiberEye. Remove the coupling sleeve as well.

6. Attach each launch cable to the appropriate ports on each patch panel, ensuring the fiber is tested in the same direction it is being used. FiberEye displays the loss (dB) of the fiber link between the two patch panels.

7. Compare with the power budget for this link.

   Loss<Power Budget,=>PASS

   Loss> or = Power Budget,=> FAIL

Since an operational link between patch panels is made up of two fiber strands, the link between patch panel 2's transmit port and patch panel 1's receive port must also be tested. Reverse the position of FiberLight and FiberEye so as to test in the proper direction and repeat steps 5, 6, & 7.

3.0 Measuring Power in Fiber Optic Systems

WARNING

During operation, testing, or maintenance of a fiber optic system, never look into an active fiber optic cable. Infrared (IR) radiation may be present and permanent eye damage can result.

Proper operation of a fiber network can be affected by operation of its active components, such as transmitters and receivers. What can appear as excessive loss in the cable plant may actually be the result of a transmitter launching light at too low a power level. Transmitters can also deliver too much light into the fiber, causing the receiver to be overloaded.

In this chapter, we describe how to test a transmitter for proper operation. We also show a simple method for determining how much light is being received by the receiver. We use, as our example, the transmit and receive ports of a fiber optic adapter card in a PC operating at 1300nm. The PC is attached to an FDDI concentrator.

NOTE

All connectors and fiber end faces should be cleaned prior to testing. Use the cleaning pads provided in the Fiber Solution Kit (or other appropriate optical cleaning supplies)

NOTE

Power levels of 3 dBm or greater are displayed as 3.00 dBm alternating with HI. Power levels at or below -55 dBm appear as -55.00 alternating with LO.

Perform transmitter power measurement using the transmitter manufacturer's diagnostic software.

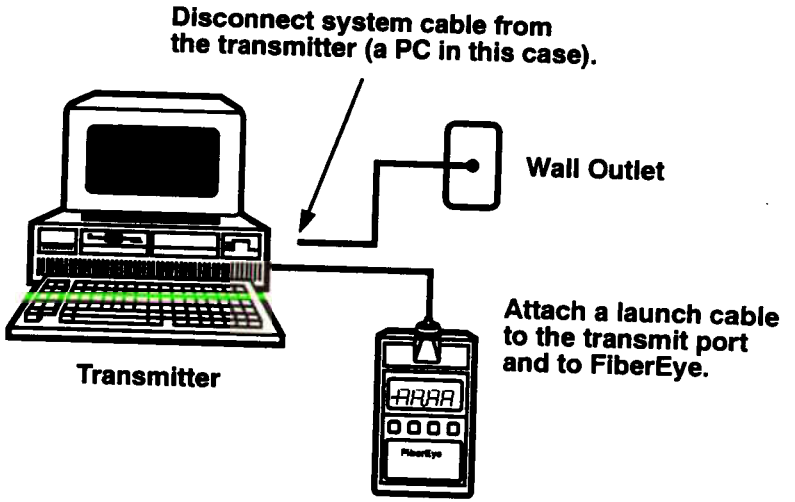


Fig. 3-1. Measuring Transmitter Power.

3.1 Measuring Transmitter Power

■ To measure transmitter power:

1. Disconnect the transmitter from its network connection. Connect a known good launch cable to the transmitter and FiberEye.

2. Turn ON FiberEye. Press **LAN** to select 1300nm.

3. Turn ON the transmitter. To activate the transmitter, it may be necessary to execute a test and diagnostic function supplied by the vendor.

4. Press **dB/dBm** until **dBm** appears in the LCD. The number displayed is the power of light received by FiberEye, including any loss associated with the launch cable (this should be negligible).

5.Compare the value displayed with the manufacturer's transmitter power limits. If below the minimum limit, the component may need to be replaced.

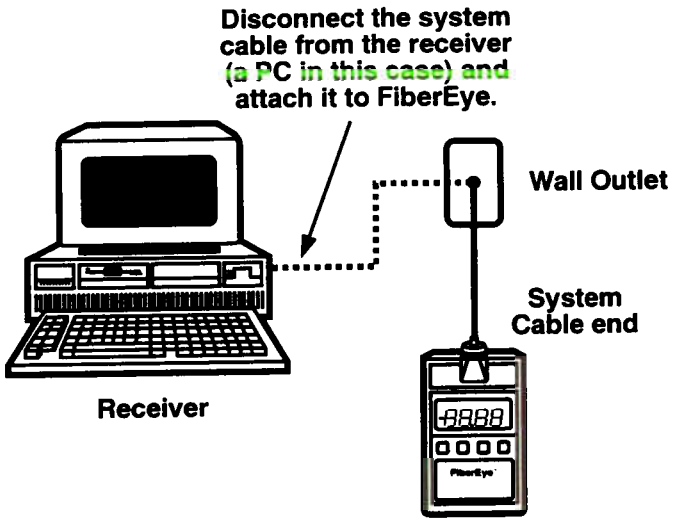


Fig. 3-2. Measuring Received Power.

3.2 Measuring Received Power

■ To measure received power:

1.Disconnect the receiver from its network connection. Attach the receiver's cable to FiberEye.

2.Turn ON FiberEye. Press **LAN** to select 1300nm.

3.Turn ON the transmitter (the FDDI concentrator port for this PC, for example). To activate the transmitter, it may be necessary to execute a test and diagnostic function supplied by the vendor.

4.Press **dB/dBm** until **dBm** appears in the LCD. The number displayed is the power of light received by FiberEye.

5.Compare the value displayed with the manufacturer's receiver operating range. If too low, it indicates a likely problem in the cable plant. If too high, it indicates a problem with the far end transmitter. In either case, further diagnosis is required.

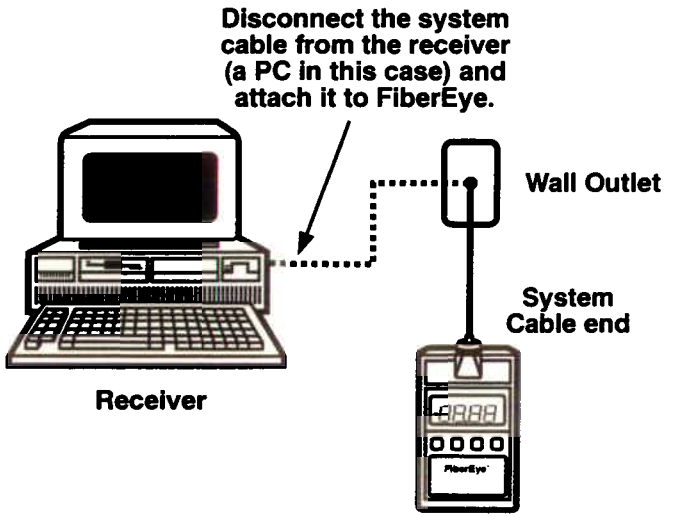


Fig. 3-2. Measuring Received Power.

4.0 Care and Troubleshooting

WARNING

During operation, testing, or maintenance of a fiber optic system, never look into an active fiber optic cable. Infrared (IR) radiation may be present and permanent eye damage can result.

The fiber optic launch/receive cables and ST-ST coupling sleeves in the Fiber Solution Kit come with protective hoods. Do not lose or discard these protective hoods—they are designed to keep the fiber and coupling sleeves free of dirt and oil.

4.1 Fiber Optic Cables and Connections

Fiber optic cables and connectors should be kept clean and protected at all times. This helps ensure dirt and oils from handling fiber cables do not affect system performance or test measurements.

Clean fiber optic cables and connections using OpticPads (or other appropriate optical cleaning supplies). Perform cleaning during the following operations:

- *System or component installation*
- *System troubleshooting*
- *Routine system maintenance*
- *Relocation of LAN components*

4.2 Changing the Batteries

NOTE

FiberEye and FiberLight shut down automatically when battery power is low.

For FiberEye, the battery icon appears on the FiberEye display two hours prior to shutdown. The battery icon flashes five minutes prior to shutdown, indicating low battery.

For FiberLight, a low battery condition is indicated by rapid blinking (approximately four times per second) of the selected wavelength activity indicator. Rapid blinking continues for 10 minutes prior to automatic shutdown. If FiberLight is operating in modulated mode during a low battery condition, the selected LED activity indicator displays a rapid double blink.

A low battery condition occurs eighty minutes prior to shutdown.

Both FiberEye and FiberLight are shipped with two AA alkaline batteries installed. The battery cover is located on the back of each unit.

■ To change the batteries:

1. Use your thumb to press down on the battery cover clip and slide the battery cover off.
2. Remove batteries from the battery compartment. Install two AA alkaline batteries. Position the batteries according to the + and - signs in the battery case.

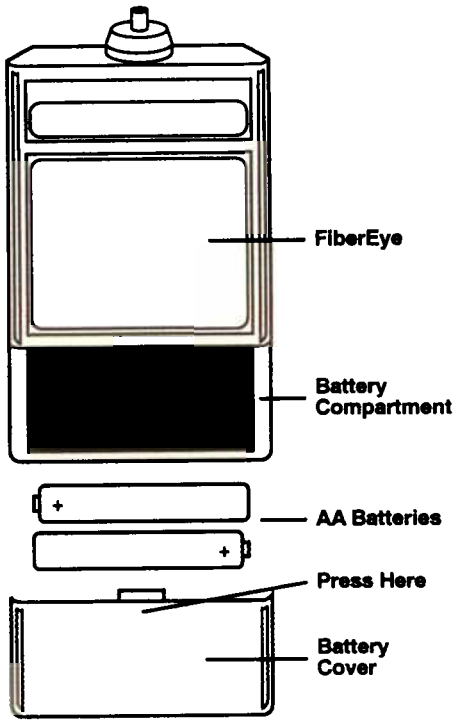


Fig. 4-1. Changing the Batteries in the FiberEye.

3. Replace the battery cover by positioning it to drop into the grooves in the battery compartment.

4. Slide battery cover forward until it clicks firmly in place.

4.3 Protecting FiberEye and FiberLight

Store FiberEye and FiberLight in the carrying case when not in use. This prevents accidental damage to the units.

4.4 Error Codes

FiberEye executes a self-test each time the unit is powered on. Certain error conditions can arise. Those errors are described below, along with the appropriate corrective actions available.

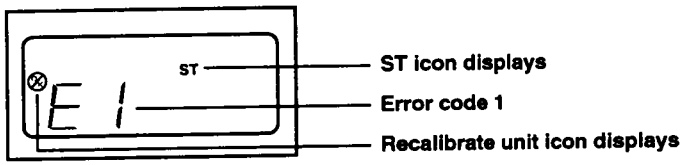


Fig. 4-2. Error Code 1.

Error code E1, with the ok icon displayed, indicates the following:

- The calibration data in the unit's memory is lost.
- Unit is not in calibration and all readings may be in error by ± 2 dB from their actual values.
- The unit must be recalibrated.

NOTE

FiberLight cannot be calibrated in the field. Specialized equipment is required for calibration. Contact Technical Support for more information.

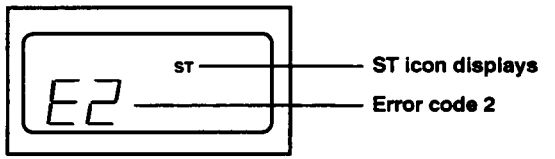


Fig. 4-3. Error Code 2.

Error code E2 indicates the following:

- The stored reference data in the unit's memory is lost
- The stored reference values equate to a zero numeric value

Before attempting to make further loss measurements, store new reference values. See "Chapter 2, Measuring Loss in Fiber Optic Systems" for details on how to store a reference value.

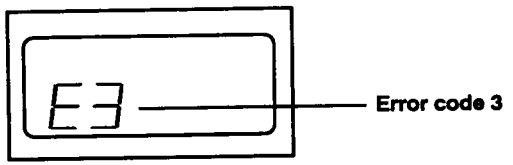


Fig. 4-4. Error Code 3.

Error code E3 indicates the following:

- Excessive light is entering FiberEye during Auto-Zero function
- The Auto-Zero function cannot be performed

If you wish to auto-zero FiberEye when using it in extreme temperature conditions, ensure the dust cap tightly covers FiberEye's ST style adapter during the Auto-Zero function. See "Chapter 1, Overview" for details on how to auto-zero FiberEye.

Appendix A: Specifications

A.1 FiberEye Specifications

Applications—Ethernet Token Ring, FDDI

Photodiode Type—Germanium

Calibrated Wavelength (nm)—850nm, 1300nm

Dynamic Range (Power)—+3 to -55 dBm

Accuracy/Linearity[1,2]—± 0.25dB

Display Resolution—0.01 dB/dBm

Optical Connector—Universal

Power Source—Two AA alkaline batteries

Battery Life—>100 operating hours

Calibration Period—12 months

Environment—Operating: 0° C to +50° C (+32°F to 122° F); Storage: -20° C to 60° C (-4° F to 140° F)

Alignment Adjustment Range—± 0.4 dB

Warm Up Time—<5 seconds

A.2 FiberLight Specifications

Applications—Ethernet Token Ring, FDDI

Calibrated Wavelength—850nm, 1300nm

Power Output[3]—850 nm: -21dBm, 1300nm: -21 dBm

Power Stability—± 0.02 dB

Optical Connector—ST

Power Source—Two AA alkaline batteries

Battery Life—>Eight operating hours

Certification Period—12 months

Environment—Operating: 0° C to +50° C (+32° F to 122° F); Storage: -20° C to 60° C (-4° F to 140° F)

Warm Up Time—<5 seconds

Footnotes:

1 ± 0.5 below -50 dB/dBm
2 Across operating temperature range when used with Auto-Zero function
3 Minimum light coupled into 62.5mm fiber, 15° C to 35°C temperature compensated

Appendix B: Ownership Rights and Technical Support

B.1 Important Information Concerning Ownership Rights

This guide and the product described in this guide have been protected internationally by copyright and other applicable laws with rights reserved. This means the guide and product (including software, whether incorporated into the product or delivered as a separate product), may not be copied, even in part, without the written agreement of Microtest®, except that any software may be copied as necessary for your normal use of the product or to make a backup copy of the software. These exceptions do not allow making copies of the software for others. The same copyright and ownership notices contained in the originals must be included in any permitted copies. Copying includes translating into another language.

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B.2 Certificate of Compliance

It is CERTIFIED that the described equipment has been assembled to manufacturer's specifications and found to be ACCEPTABLE.

The accuracy of the test equipment used for calibration is traceable to the U.S. National Institute of Standards and Technology.

Manager, Quality Engineering
Microtest, Inc.

B.3 Technical Support and Assistance

Many times our customers find ways to use our products that are unique. If you have suggestions or comments on FiberEye, FiberLight, or this *Testing and Troubleshooting Guide*, please let us know. For comments or technical questions, please call Technical Support.