

Fiber OWL 4 BOLT Series Test Kits

Certification Testing

Quick Reference Guide

For part numbers:
KIT-FO4B-WSSDst
KIT-FO4B-WSSDsc



Optical Wavelength Laboratories

NOTICE TO NEW USERS:

All personnel testing optical fibers should be adequately trained in the field of fiber optics before using any fiber optic test equipment.

If the user is not completely familiar with testing fiber optics, they should seek professional training. Such training can be acquired from a variety of sources, such as local hands-on training classes.

Valuable information about fiber optic testing can also be gathered from reading printed literature carefully or by thoroughly reading supplied operations manuals.

Fiber optic testers vary from other types of test equipment due to issues such as:

- 1) standards-based testing
- 2) proper fiber optic test procedures (FOTPs)
- 3) "zeroing" or referencing of power levels
- 4) determining the correct link budget to pass or fail by

Complete understanding of each of these issues is critical for performing proper fiber optic tests.

GETTING STARTED

Thank you for your purchase of this OWL certification test kit. Included in this kit is a Fiber OWL 4 BOLT optical power meter and a WaveSource multimode fiber optic light source. This quick reference guide will assist you in setting up your test kit for a standards-based certification test.

BEFORE YOU TEST

Prior to performing a certification test, there are a few things you need to know about your link:

- ▶ *Fiber Type*
- ▶ *Fiber Length*
- ▶ *Number of Connections (i.e. patch panels)*
- ▶ *Number of Splices*
- ▶ *Fiber Cabling Standard*
- ▶ *Connector Type*

It is also important to understand the definition of a fiber optic link as it pertains to the Fiber OWL 4 BOLT:

A link is a group of fibers that have the same characteristics, and follow the same pathway from one end to the other.

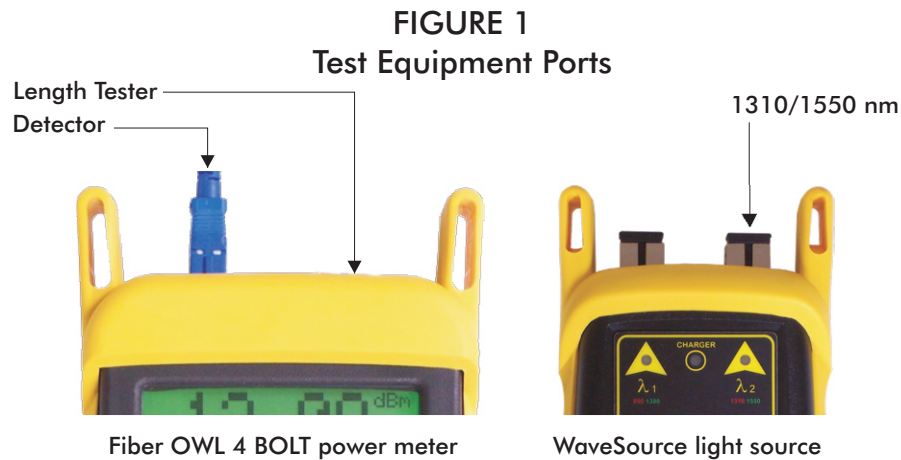
Also, ensure that your patch cable connectors match the patch panel ports on the link under test.

REQUIRED ACCESSORIES

- ▶ (3) singlemode patch cables

EQUIPMENT PORTS

Figure 1 shows the ports of the equipment used during this procedure. These ports may vary depending upon the model of equipment.



VERIFY PROPER OPERATION OF THE EQUIPMENT

STEP 1 Connect the power meter and light source together with one of the patch cables as shown in Figure 2.



STEP 2 Power on the light source, and press the PORT button to switch to the SM PORT. The indicator LED on the right-hand side should be red (1310nm).

STEP 3 Power on the Fiber OWL 4 BOLT.

STEP 4 From the OPERATING MODE menu, select SIMPLE METER.

STEP 5 Press <F3> until the Fiber OWL 4 BOLT is set to 1310nm wavelength.

STEP 6 The power reading on the Fiber OWL 4 BOLT display should be approximately -10.00 dBm. If the reading is -12.00 dBm or below, it is recommended to replace the cable.

STEP 7 Once proper operation has been verified, remove the first patch cable from both units and set it aside.

STEP 8 Connect the second patch cable between the Fiber OWL 4 BOLT and the WaveSource, as shown in Figure 2.

STEP 9 The power reading on the Fiber OWL 4 BOLT display should be approximately -10.00 dBm. If the reading is -12.00 dBm or below, it is recommended to replace the cable.

STEP 10 Once proper operation has been verified, remove the second patch cable from both units and set it aside.

STEP 11 Connect the third singlemode patch cable between the Fiber OWL 4 BOLT and the WaveSource as shown in Figure 2.

STEP 12 The power reading on the Fiber OWL 4 BOLT display should be approximately -10.00 dBm. If the reading is -12.00 dBm or below, it is recommended to replace the cable.

STEP 13 Disconnect this cable from both units, and set it aside. Press **<DONE>** to return to the OPERATING MODE menu.

RUN LINK WIZARD

STEP 14 From the OPERATING MODE menu, select CERTIFICATION METER.

STEP 15 From the START MENU, press **<1>LINK WIZARD**.

```
START MENU
<1>LINK WIZARD
<2>TAKE READINGS
<3>MAIN MENU
```

STEP 16 From the STORED LINKS menu, highlight the stored link name you wish to use and press **<F2>** to select.

```
STORED LINKS
Fiber Link #1
Fiber Link #2
Fiber Link #3
Fiber Link #4
-----
NEXT |SELECT|
```

STEP 17 **OPTIONAL:** you may change the link name to something that better describes the group of fibers you are testing.

Press **<DONE>** to continue.

```
LINK NAME:
[Fiber Link #1 ]
-----
<--- |SHIFT| --->
```

STEP 18 Change the LINK DATE to the date the fiber will be tested using the format MM-DD-YY.

Press **<DONE>** when you are finished entering the current date.

```
DATE: [MM/DD/YY]
[03-20-00]
-----
<--- |SHIFT| --->
```

! It is important to set the current date in order to ensure that the correct date appears on the certification report.

STEP 19 Highlight the cabling standard to use for the set of fibers you are testing.

Press **<F2>** to select the chosen standard.

```
FIBER STANDARDS
USER DEFINED #1
USER DEFINED #2
ISO/IEC 11801
ISO/IEC 11801
-----
NEXT |SELECT|
```

STEP 20 Highlight the fiber type of the network under test.

Press **<F2>** to select the fiber type.

```
FIBER TYPES
62.5um MultiMode
50.0um MultiMode
INDOOR SingleMode
OUTDOOR SingleMode
-----
NEXT |SELECT|
```

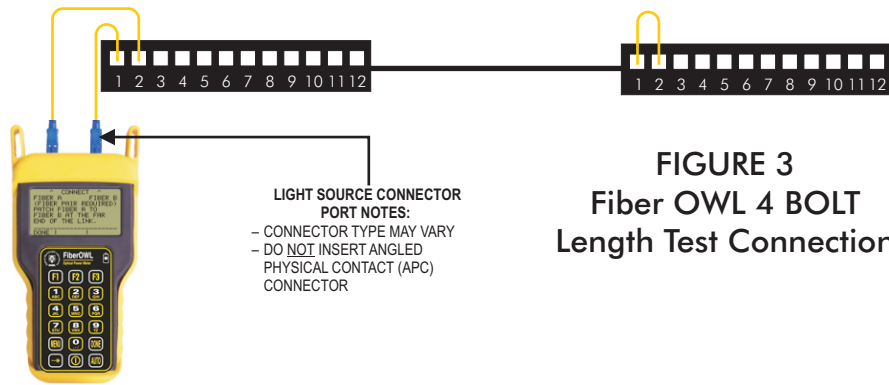
STEP 21 Press **<1>** to use measure the fiber length with the Fiber OWL 4 BOLT.

```
FIBER LENGTH METHOD
<1> USE THE METER TO
MEASURE LENGTH
<2> ENTER LENGTH
MANUALLY
```

RUN LINK WIZARD, cont.

STEP 22 Connect the Fiber OWL 4 BOLT to your fiber link as shown in Figure 3.

Press <F1> to continue.



```
^ CONNECT ^
FIBER A    FIBER B
<FIBER PAIR REQUIRED>
PATCH FIBER A TO
FIBER B AT THE FAR
END OF THE LINK.
-----
DONE |
```

STEP 23 Review the end-to-end fiber length. In the example screenshot at right, the end-to-end fiber length could be within the range of 1000 to 1006 meters.

Press <F2> to continue.

STEP 24 The end-to-end length shown here is the length that will be entered into the Link Wizard configuration.

OPTIONAL: you may also enter the fiber length manually.

Press <DONE> to continue.

NOTE: Length testing is complete. You may now remove all of the patch cables from the link under test.

STEP 25 Enter the number of connections (i.e. patch panels) in the link under test. Typical fiber networks will have 2 connections – one for a patch panel located at each end of the link.

Press <DONE> to continue.

STEP 26 Enter the number of splices in the link under test. Splices can be either fusion or mechanical. Typical singlemode networks will have zero splices.

NOTE: some connectors use mechanical splice technology for termination. If the link under test is terminated with these “no-polish, no-epoxy” type connectors, they should be considered as mechanical splices.

Press <DONE> to continue.

STEP 27 Review your Link Wizard setup.

If correct, press <F1> and continue on to the next step.

If changes need to be made, press <F3> and go back to STEP 17.

STEP 28 Press <F1> until the asterisk (*) is in front of 1310nm (as shown at right).

Press <F2> to begin the SET REFERENCE procedure for 1310nm.

STEP 29 Connect the detector port on the meter and 1310nm light source (right-hand port) together with a singlemode cable as shown in Figure 2 (on the reverse side of this page).

Press <F1> to continue.

```
FIBER LENGTH
01000 -0/+6 meters
1310nm Index<n>=1.490
-----
TEST | DONE | INDEX
```

```
ENTER FIBER LENGTH:
[1 TO 65535]
[01000] METERS
<--- | UNITS | --->
```

```
INLINE CONNECTIONS?
<A CONNECTION IS WHEN
TWO FIBER CONNECTORS
MATE. USUALLY A PATCH
PANEL>
[2 ]
-----
<--- | SHIFT | --->
```

```
ENTER THE NUMBER OF
SPICES IN THE FIBER
BEING TESTED:
[0 ]
-----
<--- | SHIFT | --->
```

```
Standard *TIA-568B.3/CAN-T529
Length >01000 Meters
Connections >02 Connections
Splices >00 Splices
Fiber Type >INDOOR SingleMode
IS THIS CORRECT?
-----
YES | NO
```

```
SET SOURCE REFERENCES
WAVELEN REF dBm TYP.
*1310nm NOT SET <-10>
1550nm NOT SET <-10>
-----
WAVE | SET | DONE
```

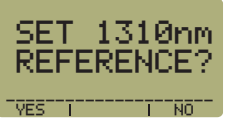
```
CONNECT
1310nm
SOURCE
-----
DONE |
```

RUN LINK WIZARD, cont.

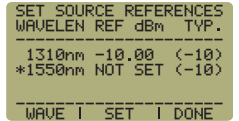
STEP 30 Make sure that the 1310nm light source port is powered ON and selected (the indicator LED on the right-hand side will be the color red).

STEP 31 Confirm setting the 1310nm reference.

Pressing <F1> to continue. You will be returned to the SET SOURCE REFERENCES screen.



STEP 32 For setting a 1550nm reference, repeat steps 28 through 31, except you will press <F1> to select 1550nm (as shown at right). You must also ensure that the WaveSource is set to 1550nm (the indicator LED on the right-hand side will be the color green).



After the 1550nm reference is set, the REF dBm field will be filled in with a reference value.

STEP 33 Press <F3> to complete the Link Wizard.

STEP 34 Press <F1> to begin taking readings.

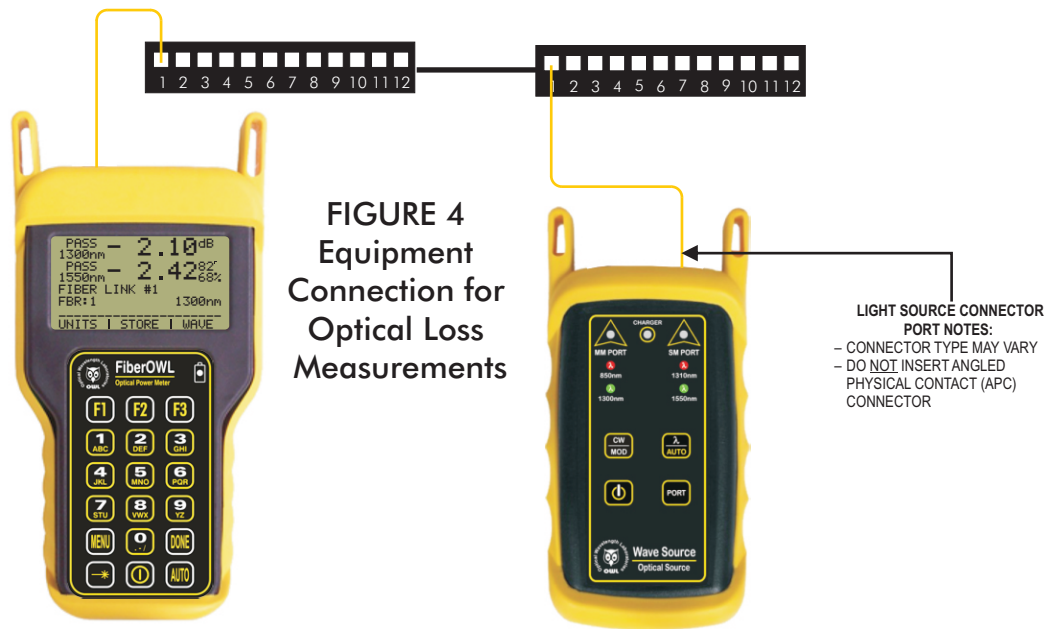
TAKE READINGS

STEP 35 If testing two wavelengths, press the <AUTO> button to set the Fiber OWL 4 BOLT into AUTO mode, then press and hold the λ /AUTO button on the WaveSource. You will begin to see the WaveSource indicator LED alternate between green and red.

STEP 36 Disconnect the singlemode patch cable from the Fiber OWL 4 BOLT and take the units to opposite ends of the link.

! Do NOT disconnect the patch cable(s) from the light source at any time until all fibers have been tested.

STEP 37 Connect the units to the first fiber to test as shown in Figure 4. Your readings will vary from the example below.



STEP 38 Once the STORE button becomes active, press <F2> to store the data point. If this is the first fiber in the link, you may be prompted to enter a new label.

STEP 39 Press <F3> to save the data point.

STEP 40 Disconnect the patch cables from the patch panels and move them to the next port in the patch panel, then repeat steps 38 through 40 until all fibers in the link have been tested.