

Fiber OWL 4 Series Test Kits

Certification Testing

Quick Reference Guide

For part numbers:
KIT-FO4-WSMDst
KIT-FO4-WSMDsc



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 competent 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 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:

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

- ▶ (2) multimode patch cables
- ▶ mandrel (wrap patch cable 5-7 times around the appropriate mandrel)
 - 0.7" outside diameter for 62.5/125 μm fibers
 - 0.9" outside diameter for 50/125 μm fibers

One of the multimode reference cables must be **wrapped** and **secured** around a mandrel as required by national and international Fiber Optic Test Procedures (FOTPs). See Figure 1 for a diagram of a mandrel wrap.

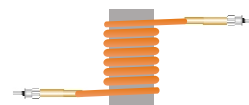
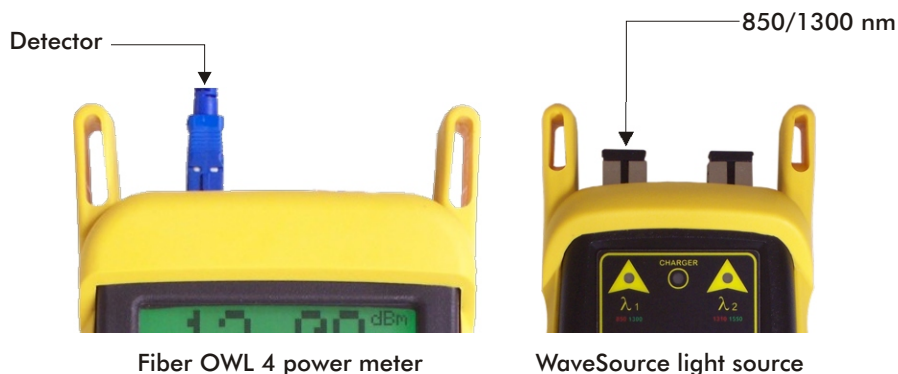


FIGURE 1
Mandrel Wrap

EQUIPMENT PORTS

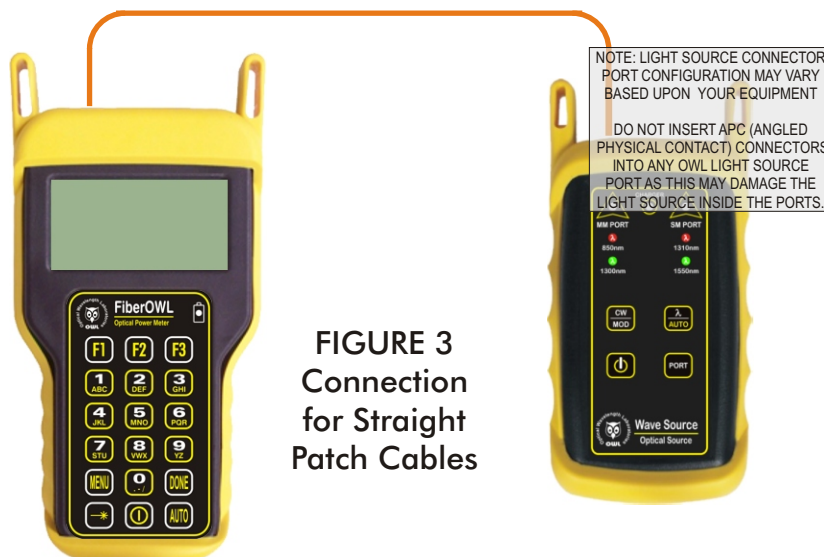
Figure 2 shows the ports of the equipment used during this procedure. These ports may vary depending upon the model of equipment.

FIGURE 2
Test Equipment Ports



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 3.



STEP 2 Power on the light source.

STEP 3 Power on the Fiber OWL 4.

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

STEP 5 Compare the reading on the Fiber OWL 4 display to Table 1 for acceptable power levels.

Core Size	Acceptable Power Level	Replace at
62.5/125 μM	-19.0 to -22.0 dBm	-22.00 dBm
50/125 μM	-22.0 to -25.0 dBm	-25.00 dBm

TABLE 1

STEP 6 Once proper operation has been verified, remove the first patch cable from both units and set it aside.

STEP 7 Connect the mandrel-wrapped patch cable between the Fiber OWL 4 and the WaveSource as shown in Figure 4.

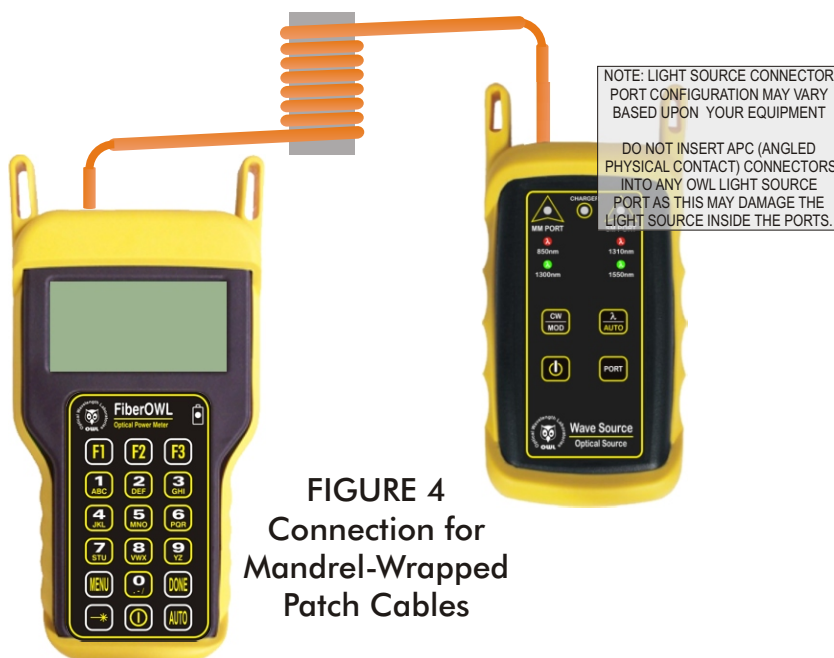


FIGURE 4
Connection for
Mandrel-Wrapped
Patch Cables

STEP 8 Compare the reading on the Fiber OWL 4 display to Table 1 for acceptable power levels.

STEP 9 Press **<DONE>** to return to the OPERATING MODE menu.

RUN LINK WIZARD

STEP 10 From the OPERATING MODE menu, select CERTIFICATION METER.

STEP 11 From the START MENU, press **<1>LINK WIZARD**.

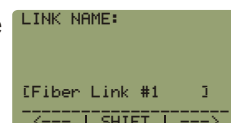


STEP 12 From the STORED LINKS menu, highlight the stored link name you wish to use and press **<F2>** to select.

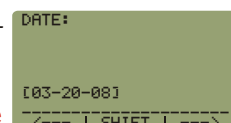


STEP 13 **OPTIONAL:** you may change the link name to something that better describes the group of fibers you are testing.

Press **<DONE>** to continue.



STEP 14 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.



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

RUN LINK WIZARD, cont.

STEP 15 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
TIA-568B.3/CAN-T529
ISO/IEC 11801
-----
NEXT |SELECT|
```

STEP 16 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 17 Enter the length of the fiber link under test from end-to-end in meters.

Press <DONE> to continue.

```
ENTER FIBER LENGTH:
[1 TO 65535] METERS

[1000 ]
<--- | FEET | --->
```

STEP 18 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.

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

STEP 19 Enter the number of splices in the link under test. Splices can be either fusion or mechanical. Typical multimode 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.

```
ENTER THE NUMBER OF
SPLICES IN THE FIBER
BEING TESTED:

[0 ]
<--- | FEET | --->
```

STEP 20 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 13.

STEP 21 Press <F1> until the asterisk (*) is in front of 850nm (as shown at right).

Press <F2> to begin the SET REFERENCE procedure for 850nm.

```
Standard TIA-568B.3/CAN-T529
Length 01000 Meters
Connections 02 Connections
Splices 00 Splices
Fiber Type 62.5um MultiMode
IS THIS CORRECT?
YES |-----| NO
```

STEP 22 Connect the detector port on the meter and 850nm light source (left-hand port) together with the mandrel-wrapped cable as shown in Figure 4 (on the reverse side of this page).

Press <F1> to continue.

```
CONNECT
850nm
SOURCE
-----
DONE |-----|
```

STEP 23 Make sure that the 850nm light source port is powered ON and selected (the indicator LED on the left-hand side will be the color red).

STEP 24 Confirm setting the 850nm reference.

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

```
SET 850nm
REFERENCE?
-----
YES |-----| NO
```

STEP 25 For setting a 1300nm reference, repeat steps 21 through 24, except you will press <F1> to select 1300nm (as shown at right). Also remember to set the WaveSource to 1300nm (the left-hand indicator LED will be the color green).

After the 1300nm reference is set, the REF dBm field will be filled in with a reference value.

STEP 26 Press <F3> to complete the Link Wizard.

```
SET SOURCE REFERENCES
WAVELEN REF dBm TYP.
850nm -20.00 (-20)
*1300nm NOT SET (-20)
-----
WAVE | SET | DONE
```

RUN LINK WIZARD, cont.

STEP 27 Press <F1> to begin taking readings.

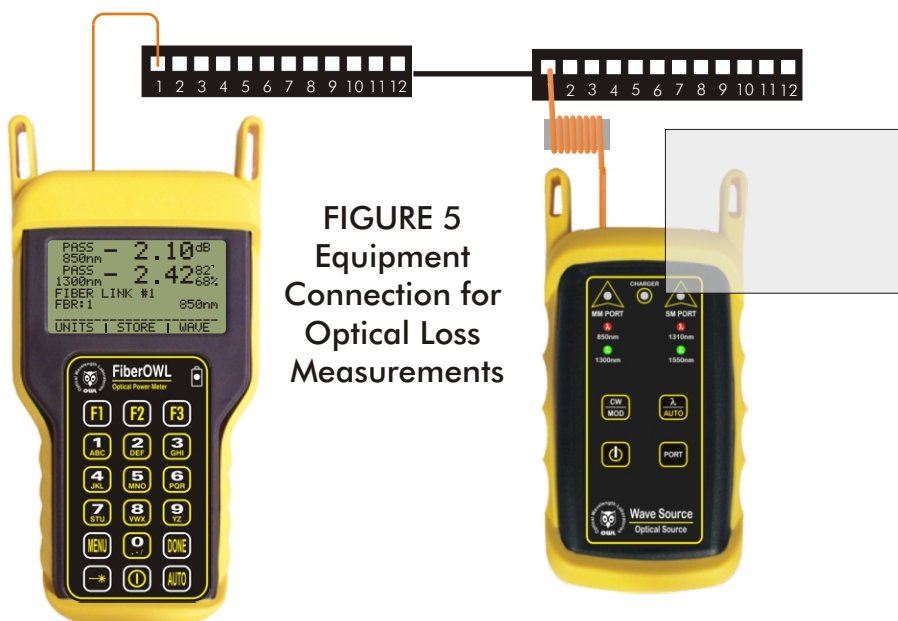
TAKE READINGS

STEP 28 If testing two wavelengths, press the <AUTO> button to set the Fiber OWL 4 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 29 Disconnect the mandrel-wrapped patch cable from the Fiber OWL 4 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 30 Connect the units to the first fiber to test as shown in Figure 5. Your readings will vary from the example below.



STEP 31 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 32 Press <F3> to save the data point.

STEP 33 Disconnect the patch cables from the patch panels and move them to the next port in the patch panel, then repeat steps 31 through 33 until all fibers in the link have been tested.