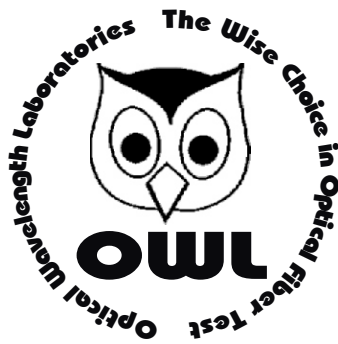# Fiber OWL 4 Series Test Kits

Certification Testing

Quick Reference Guide

For part numbers:
KIT-FO4-WSSDst
KIT-FO4-WSSDsc
KIT-FO4-WSSDfc

Optical Wavelength Laboratories

Quick Reference Guide
Fiber OWL 4 Series
Firmware Version 4.65

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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 singlemode fiber optic laser 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
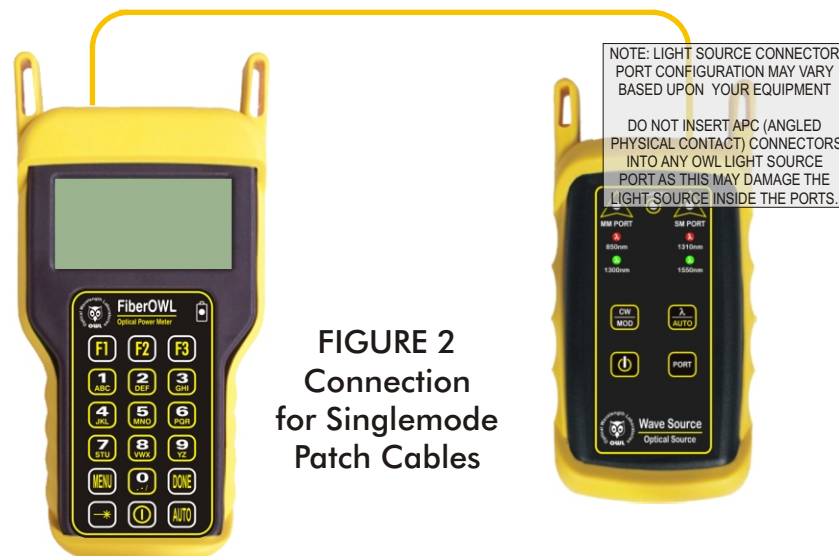
► (2) singlemode patch cables

EQUIPMENT PORTS

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

FIGURE 1
Test Equipment Ports

Detector

1310/1550 nm

Fiber OWL 4 power meter   WaveSource light source

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.

NOTE: LIGHT SOURCE CONNECTOR PORT CONFIGURATION MAY VARY BASED UPON YOUR EQUIPMENT

DO NOT INSERT APC (ANGLED PHYSICAL CONTACT) CONNECTORS INTO ANY OWL LIGHT SOURCE PORT AS THIS MAY DAMAGE THE LIGHT SOURCE INSIDE THE PORTS.

FIGURE 2
Connection
for Singlemode
Patch Cables

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.

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

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

STEP 6 The power reading on the Fiber OWL 4 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 and the WaveSource, as shown in Figure 2.

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

VERIFY PROPER OPERATION OF THE EQUIPMENT, cont.

STEP 10   Once proper operation has been verified, press <DONE> to return to the OPERATING MODE menu.

RUN LINK WIZARD

STEP 11   From the OPERATING MODE menu, select CERTIFICATION METER.

STEP 12   From the START MENU, press <1>LINK WIZARD.

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

STEP 13   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 14   **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 15   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:


[03-20-08]
_____
 <--- | SHIFT | --->
```

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

STEP 16   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 17   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 18   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


[01000]
_____
 <--- | FEET | --->
```

STEP 19   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 20   Enter the number of splices in the link under test. Splices can be either fusion or mechanical. Typical singlemode networks will have zero splices.

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

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

⚠️ **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.

RUN LINK WIZARD, cont.

STEP 21   Review your Link Wizard setup.

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

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

If changes need to be made, press **<F3>** and go back to STEP 14.

STEP 22   Press **<F1>** until the asterisk (*****) is in front of 1310nm (as shown at right).

```
SET SOURCE REFERENCES
WAVELEN REF dBm  TYP.
─────────────────────
*1310nm NOT SET (-10)
 1550nm NOT SET (-10)

WAVE  |  SET  | DONE
```

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

STEP 23   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).

```
   CONNECT
   1310nm
   SOURCE
─────────────────
DONE |      |
```

Press **<F1>** to continue.

STEP 24   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 25   Confirm setting the 1310nm reference.

```
SET 1310nm
REFERENCE?
─────────────────
YES |      | NO
```

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

STEP 26   For setting a 1550nm reference, repeat steps 23 through 26, except you will press **<F1>** to select 1550nm (as shown at right). Also make sure that the WaveSource is set to 1550nm (the right-hand indicator LED will be the color green).

```
SET SOURCE REFERENCES
WAVELEN REF dBm  TYP.
─────────────────────
 1310nm -10.00  (-10)
*1550nm NOT SET (-10)

WAVE  |  SET  | DONE
```

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

STEP 27   Press **<F3>** to complete the Link Wizard.

STEP 28   Press **<F1>** to begin taking readings.

TAKE READINGS

STEP 29   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 30   Disconnect the singlemode 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.

TAKE READINGS, cont.

STEP 31 Connect the units to the first fiber to test as shown in Figure 4. Your readings will vary from the example below.

FIGURE 4
Equipment
Connection for
Optical Loss
Measurements
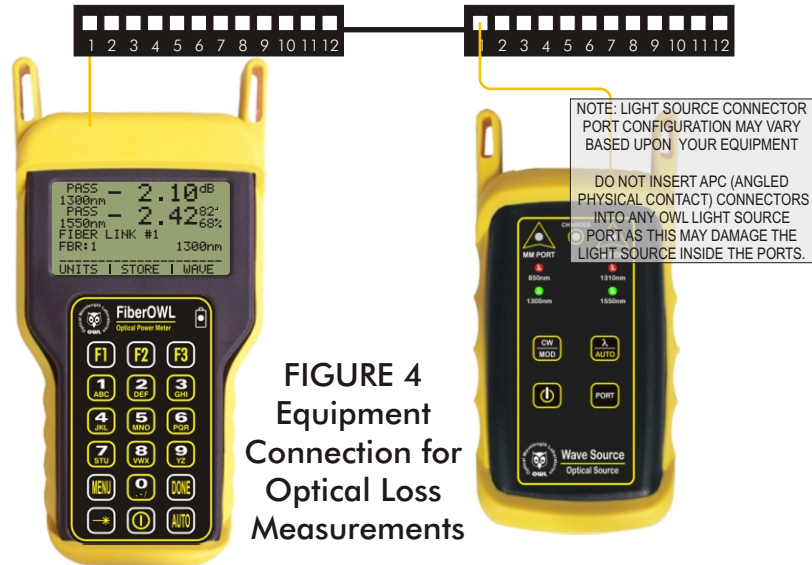
STEP 32 Once the STORE button becomes active, press <F2> to store the data point. If this is the first fiber in the link, you may be prompted to enter a new label.

STEP 33 Press <F3> to save the data point.

STEP 34 Disconnect the patch cables from the patch panels and move them to the next port in the patch panel, then repeat steps 32 through 34 until all fibers in the link have been tested.