Micro OWL 2 Series Test Kits

Certification Testing

Quick Reference Guide

For part numbers:
KIT-M2-WSMDst
KIT-M2-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 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 Micro OWL 2 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 Micro OWL 2:

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.
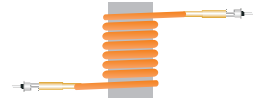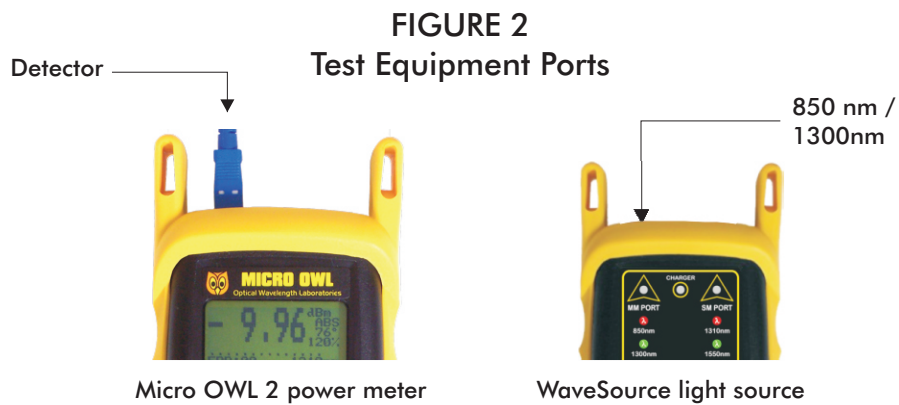
FIGURE 1
Mandrel Wrap

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

Detector

850 nm / 1300nm

Micro OWL 2 power meter   WaveSource light source

VERIFY PROPER OPERATION OF THE EQUIPMENT

STEP 1   Connect the power meter and light source together with the straight patch cable as shown in Figure 3.

FIGURE 3
Connection
for Straight
Patch Cables

LIGHT SOURCE CONNECTOR
PORT NOTES:
– CONNECTOR TYPE MAY VARY
– DO NOT INSERT ANGLED
  PHYSICAL CONTACT (APC)
  CONNECTOR

STEP 2   Power on the light source.

STEP 3   Power on the Micro OWL 2.

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

STEP 5 Compare the reading on the Micro OWL 2 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 straight patch cable from both units and set it aside.

STEP 7 Connect the mandrel-wrapped patch cable between the Micro OWL 2 and the WaveSource as shown in Figure 4.

LIGHT SOURCE CONNECTOR PORT NOTES:
– CONNECTOR TYPE MAY VARY
– DO NOT INSERT ANGLED PHYSICAL CONTACT (APC) CONNECTOR

FIGURE 4
Connection for
Mandrel-Wrapped
Patch Cables

STEP 8 Compare the reading on the Micro OWL 2 display to Table 1 for acceptable power levels.

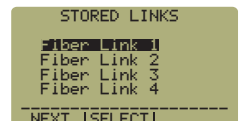**STEP 9** Press <DONE> to return to the OPERATING MODE menu.

RUN LINK WIZARD

STEP 10 From the OPERATING MODE menu, select CERTIFY LINK.

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

```
        START MENU

<1>LINK WIZARD
<2>MAIN MENU
```

STEP 12 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|
```

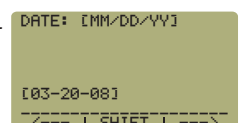**STEP 13** **OPTIONAL:** you may change the link name to something that better describes the group of fibers you are testing.

Press <DONE> to continue.

```
LINK NAME:


[Fiber Link 1     ]
 _____
  <--- | SHIFT | --->
```
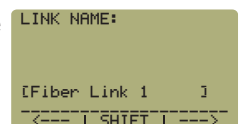
STEP 14 Change the LINK DATE to the date the fiber will be tested using the format *MM-DD-YY*.

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

```
DATE: [MM/DD/YY]


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

⚠ It is important to set the current date in order to ensure that the correct date appears on the certification reports.
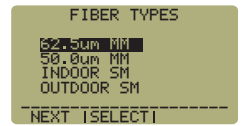
STEP 15   Highlight the cabling standard to use for the set of fibers you are testing.

Press <F2> to select the chosen standard.

```
   FIBER STANDARDS
─────────────────────
USER DEFINED #1
USER DEFINED #2
TIA-568B.3
ISO/IEC 11801
─────────────────────
 NEXT │SELECT│
```
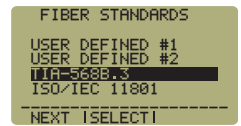
STEP 16   Highlight the fiber type of the network under test.

Press <F2> to select the fiber type.

```
   FIBER TYPES
─────────────────────
62.5um MM
50.0um MM
INDOOR SM
OUTDOOR SM
─────────────────────
 NEXT │SELECT│
```

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

Press <DONE> to continue.

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


[01000] METERS
─────────────────────
 <--- │ UNITS │ --->
```
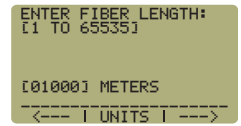
STEP 18   Enter the number of connections (i.e. patch panels) in the link under test. Typical fiber networks will have 2 connections – one for a patch panel located at each end of the link.
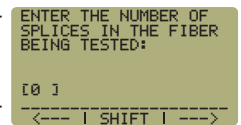
Press <DONE> to continue.

```
INLINE CONNECTIONS?
<A CONNECTION IS WHEN
TWO FIBER CONNECTORS
MATE. USUALLY A PATCH
PANEL>
[2 ]
─────────────────────
 <--- │ SHIFT │--->
```
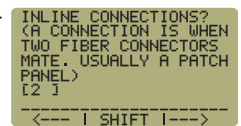
STEP 19   Enter the number of splices in the link under test. Splices can be either fusion or mechanical. Typical multimode networks will have zero splices.

⚠ **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 ]
─────────────────────
 <--- │ SHIFT │ --->
```
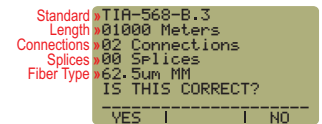
STEP 20   Review your Link Wizard setup.

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.

```
Standard »TIA-568-B.3
Length »01000 Meters
Connections »02 Connections
Splices »00 Splices
Fiber Type »62.5um MM
 IS THIS CORRECT?
─────────────────────
 YES │       │ NO
```

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.

```
SET REFERENCES
WAVELEN REF dBm
─────────────────────
* 850nm NOT SET
  1300nm NOT SET

─────────────────────
WAVE │ SET │ DONE
```

STEP 22   Connect the detector 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).
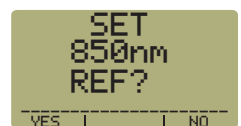
Press <F1> to continue.

```
  CONNECT
   850nm
  SOURCE
─────────────────────
DONE │    │
```
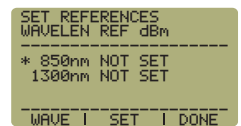
STEP 23   Make sure that the 850nm light source port is powered ON and selected (the indicator LED on the left-hand side will be lit).
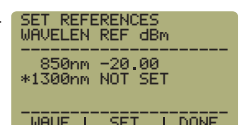
STEP 24   Confirm setting the 850nm reference.

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

```
   SET
  850nm
  REF?
─────────────────────
YES │      │ NO
```

STEP 25   For setting a 1300nm reference, repeat steps 21 through 24, except you will select 1300nm (as shown at right). Also, make sure that you 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.

```
SET REFERENCES
WAVELEN REF dBm
─────────────────────
 850nm -20.00
*1300nm NOT SET

─────────────────────
WAVE │ SET │ DONE
```

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

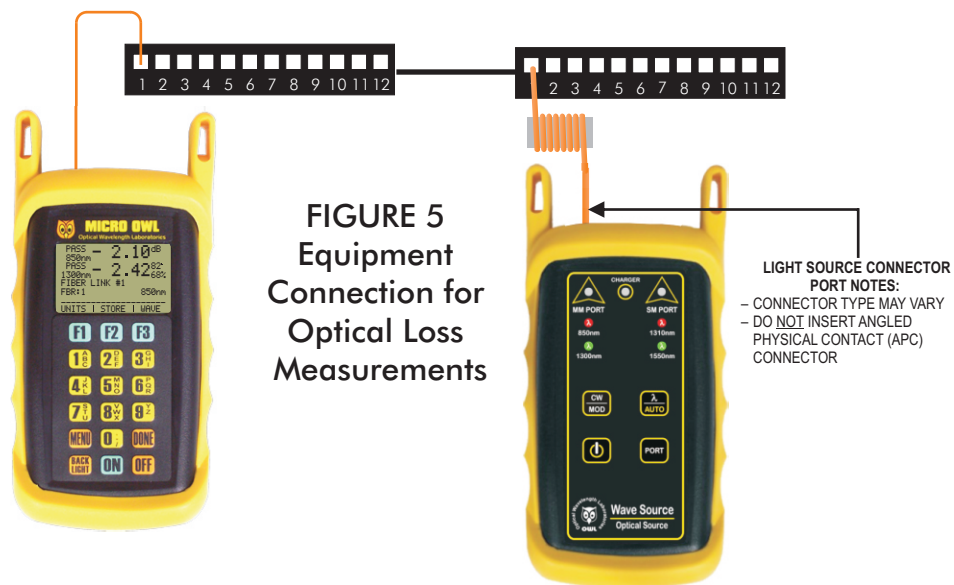**STEP 27**   Press <F1> to begin taking readings.

TAKE READINGS

STEP 28   If testing two wavelengths, press the <1> button to set the Micro OWL 2 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 Micro OWL 2 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.

FIGURE 5
Equipment
Connection for
Optical Loss
Measurements

LIGHT SOURCE CONNECTOR
PORT NOTES:
– CONNECTOR TYPE MAY VARY
– DO NOT INSERT ANGLED
   PHYSICAL CONTACT (APC)
   CONNECTOR

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.