

Optical Wavelength Laboratories

ZOOM 2 Series Test Kits

Optical Loss Testing

Quick Reference Guide

For part numbers:
KIT-Z2-D2xx
KIT-Z2-D285xx
KIT-Z2-D2xx-L2xx
KIT-Z2-D285xx-L213xx



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 optical loss test kit. Included in this kit is a ZOOM 2 optical power meter and a Dual OWL series multimode fiber optic light source.

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 ZOOM 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.

QUICK REFERENCE GUIDES

Optical Power Meter: ZOOM 2
Fiber Optic Light Source: DUAL OWL Series

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This quick reference guide demonstrates the procedure for performing a dual-wavelength insertion loss test at both 850nm and 1300nm.

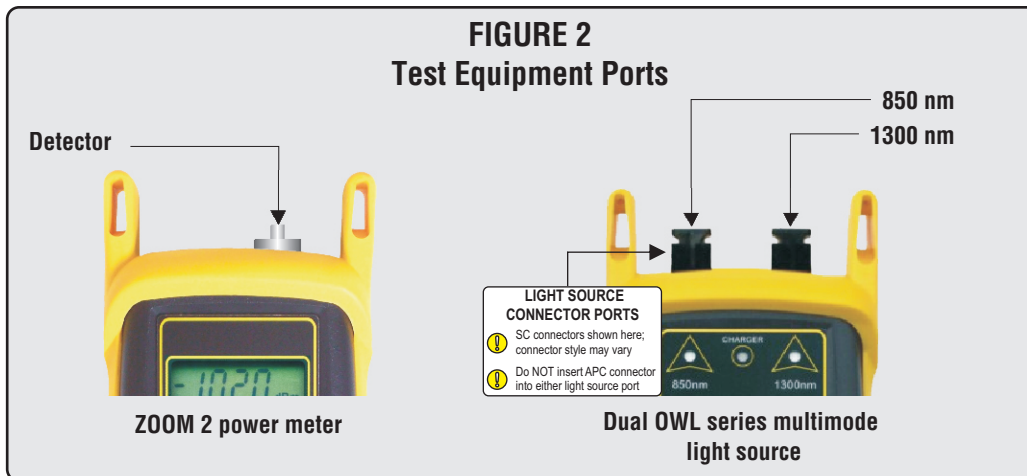
 **to test at only one wavelength, ignore the steps related to the other wavelength**

There are three main parts to performing an insertion loss test:

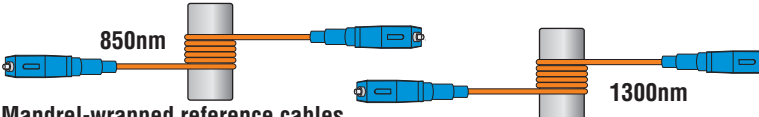
- PART 1** verify proper operation of the test equipment and patch cables;
- PART 2** set a reference for the wavelength(s) used during fiber link measurement; and
- PART 3** take measurements.

EQUIPMENT PORTS


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






REQUIRED ACCESSORIES



Mandrel-wrapped reference cables



(1) Straight patch cable

-  ensure test cables have the proper core size and connector type
-  multimode reference cables must be wrapped and secured around a mandrel as required by national and international Fiber Optic Test Procedures (Figure 2)
-  a mandrel-wrapped reference cable is required for each light source wavelength being used for testing

Core Size	50/125 μm	62.5/125 μm
Diameter	0.9 in.	0.7 in.
Wraps	5	5

Figure 2

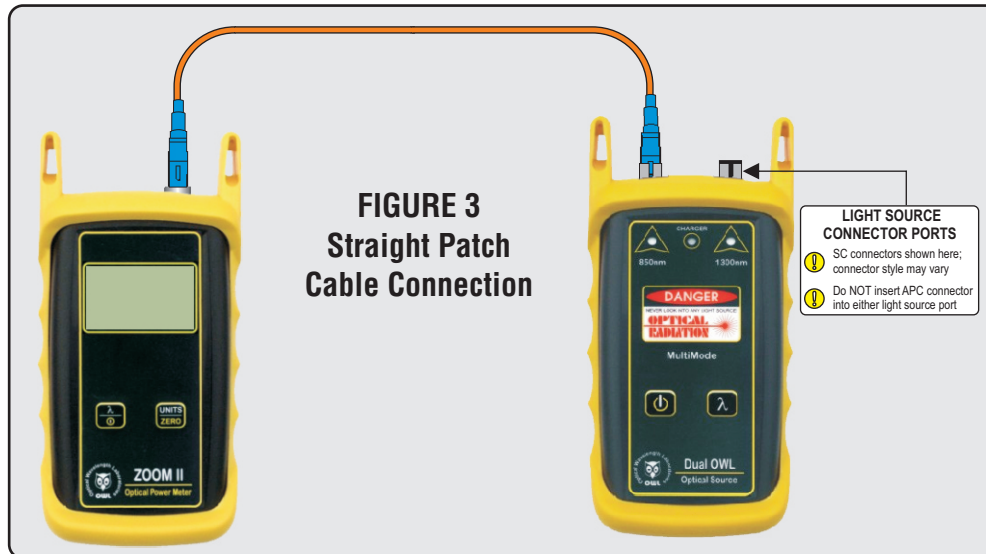
QUICK REFERENCE GUIDES

Optical Power Meter: **ZOOM 2**
Fiber Optic Light Source: **DUAL OWL Series**

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PART 1 – VERIFY EQUIPMENT OPERATION

- 1 Connect the power meter and light source together with the straight patch cable (Figure 3).



- 2 Press to power on the Dual OWL multimode light source. The left-hand indicator LED (850nm) will be lit.
- 3 Press to power on the ZOOM 2 optical power meter.
- 4 Press on the ZOOM 2 so that the wavelength is set to '850nm'.
- 5 If necessary, press so that the ZOOM 2 is set to 'dBm'.
- 6 Compare the reading on the ZOOM 2 to Table 1 for acceptable power levels. The patch cable should be replaced if it is below the acceptable power level.

Core Size	Acceptable Power Level	Replace at
62.5/125 μ M	-19.0 to -21.0 dBm	-21.00 dBm
50/125 μ M	-22.0 to -24.0 dBm	-24.00 dBm

TABLE 1

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

(continue procedure on next page)

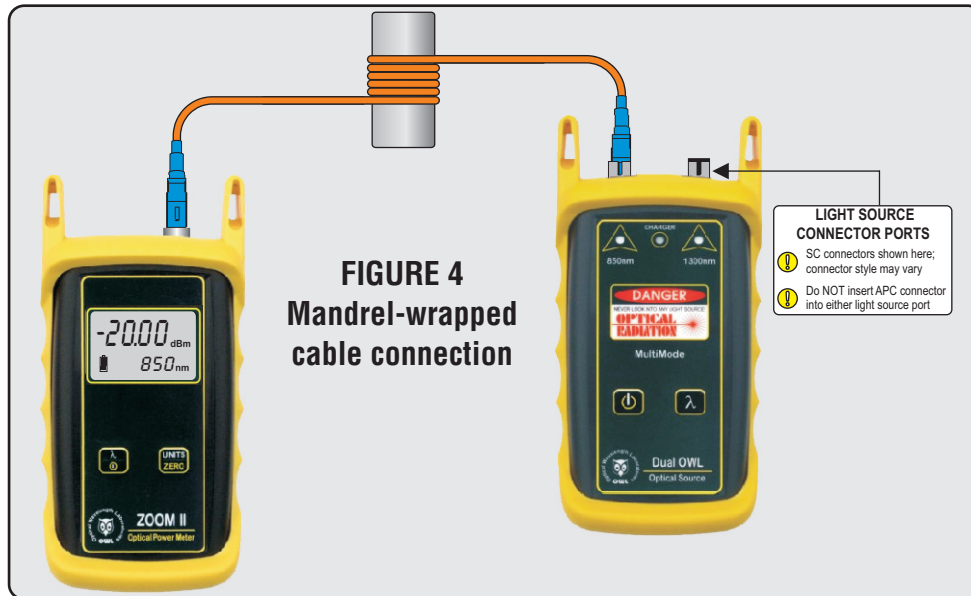
QUICK REFERENCE GUIDES

Optical Power Meter: **ZOOM 2**
Fiber Optic Light Source: **DUAL OWL Series**

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PART 1 – VERIFY EQUIPMENT OPERATION; cont.

- 8 Connect a mandrel-wrapped patch cable between the detector port on the ZOOM 2 and the left-hand port (850nm) on the Dual OWL (Figure 4).



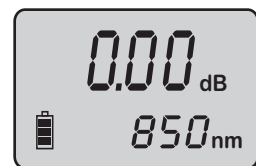
- 9 Compare the reading on the ZOOM 2 to Table 1 for acceptable power levels. The mandrel-wrapped patch cable should be replaced if it is below the acceptable power level. Once proper operation has been verified, remove the mandrel-wrapped cable from the power meter and light source, then continue to the next step.
- 10 Connect a second mandrel-wrapped patch cable between the detector port on the ZOOM 2 and the left-hand port (850nm) on the Dual OWL (Figure 4).
- 11 Compare the reading on the ZOOM 2 to Table 2 for acceptable power levels. The patch cable should be replaced if it is below the acceptable power level. Once proper operation has been verified, leave the mandrel-wrapped patch cable connected to the power meter and light source, then continue on to the next step.

PART 2 – SET REFERENCE

✓ **Setting a reference is commonly referred to as “zeroing”.**

- 12 Ensure the power meter and light source are still connected together (Figure 4), then press and hold **UNITS ZERO** on the ZOOM 2 to set the reference for 850nm.

The ZOOM 2 display should change to show readings in ‘dB’, and the power reading should be approximately 0.00 dB. This means that the meter and light source have been successfully “zeroed” at 850nm.



QUICK REFERENCE GUIDES

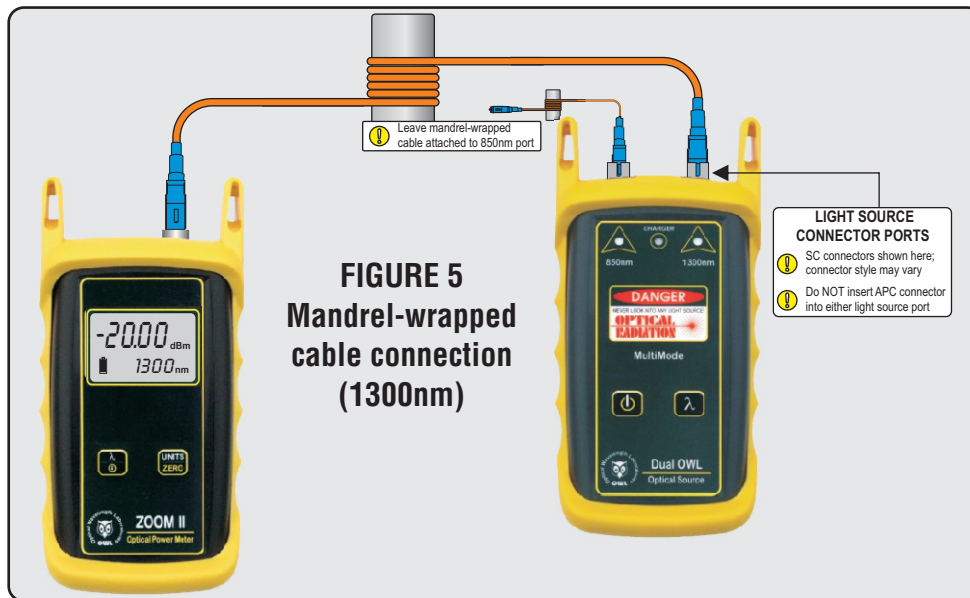
Optical Power Meter: **ZOOM 2**
Fiber Optic Light Source: **DUAL OWL Series**

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PART 2 – SET REFERENCE, cont.

 If testing at 1300nm is also required, a separate mandrel-wrapped patch cable is required.

- 13 Leaving the 850nm mandrel-wrapped patch cable connected to the Dual OWL, connect a separate mandrel-wrapped patch cable to the 1300nm port on the Dual OWL and the detector port on the ZOOM 2 (Figure 5).




- 14 Press $\frac{\lambda}{0}$ so that the ZOOM 2 is set to 1300nm.
- 15 Press λ so that the Dual OWL is set to 1300nm. The right-hand indicator LED will be lit.
- 16 Press and hold **UNITS ZERO** on the ZOOM 2 to set the reference for 1300nm. The ZOOM 2 display should show a power reading of approximately 0.00 dB. This means that the meter and light source have been successfully “zeroed” at 1300nm.



PART 3 – TAKE READINGS

- 17 Disconnect the mandrel-wrapped patch cable from the detector port on the ZOOM 2, then bring both units to the opposite ends of the link under test.

 Remember to bring the straight patch cable with the ZOOM 2.

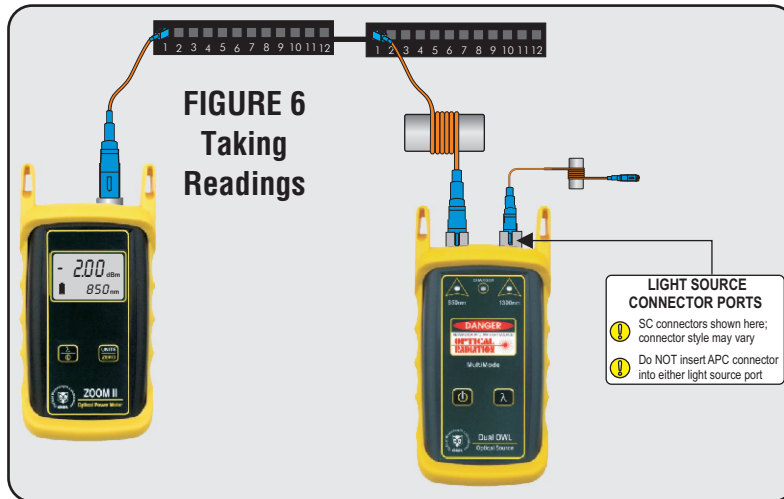
- 18 Connect the ZOOM 2 and the 850nm port on the Dual OWL to the link under test (Figure 6).

QUICK REFERENCE GUIDES

Optical Power Meter: **ZOOM 2**
Fiber Optic Light Source: **DUAL OWL Series**

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PART 3 – TAKE READINGS, cont.



- 19 Press $\frac{\lambda}{0}$ so that the ZOOM 2 is set to '850nm'.
- 20 Press λ so that the Dual OWL is set to '850nm'. The left-hand indicator LED will be lit.
- 21 Record the 850nm reading for the current fiber under test then disconnect the patch cables from both ends of the patch panel and move to the next port on the patch panel.
- 22 Repeat 20 and 21 for each fiber in the cable under test until all fibers have been tested at 850nm.
- 23 For testing 1300nm, again connect to the first fiber under test, except this time use the mandrel-wrapped patch cable connected to the 1300nm port.
- 24 Press $\frac{\lambda}{0}$ so that the ZOOM 2 is set to '1300nm', and press λ so that the Dual OWL is set to '1300nm'. The right-hand indicator LED will be lit.
- 25 Record the 1300nm reading for the current fiber under test.
- 26 Disconnect the patch cables from both ends of the patch panel and move to the next port on the patch panel.
- 27 Repeat 25 and 26 for each fiber in the cable under test until all fibers have been tested at 1300nm.

(end of procedure)