

# WaveTester Series Test Kits

## Certification Testing

## Quick Reference Guide

For part numbers:

KIT-WT-D2st

KIT-WT-D2sc



## 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 WaveTester 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 WaveTester:

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

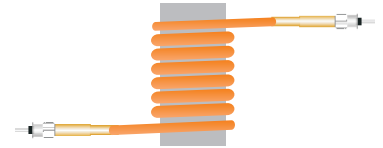
Also, ensure that your patch cable connectors match the patch panel ports on the link under test.

## REQUIRED ACCESSORIES

- ▶ (3) multimode patch cables
- ▶ mandrel (wrap patch cable 5-7 times around the appropriate mandrel)
  - 0.7" outside diameter for 62.5/125  $\mu\text{m}$  fibers
  - 0.9" outside diameter for 50/125  $\mu\text{m}$  fibers

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.

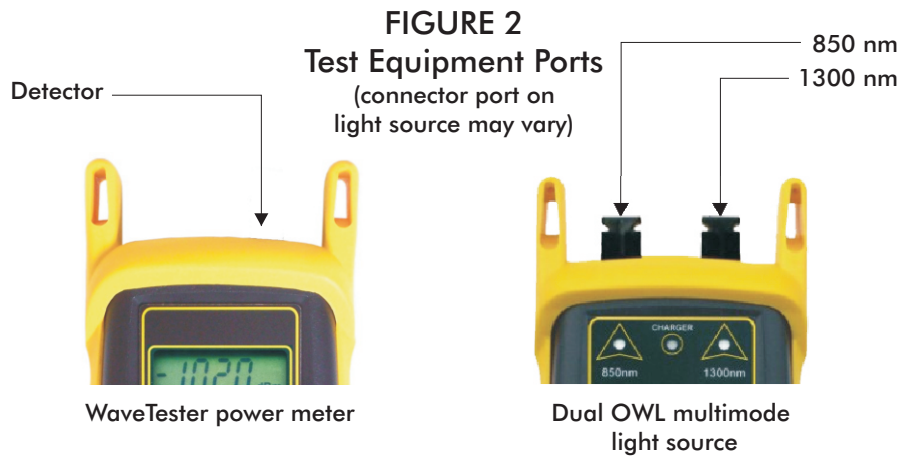
**NOTE:** if you are testing at both 850nm and 1300nm, each light source wavelength will require its own mandrel-wrapped patch cable.



**FIGURE 1**  
Mandrel Wrap

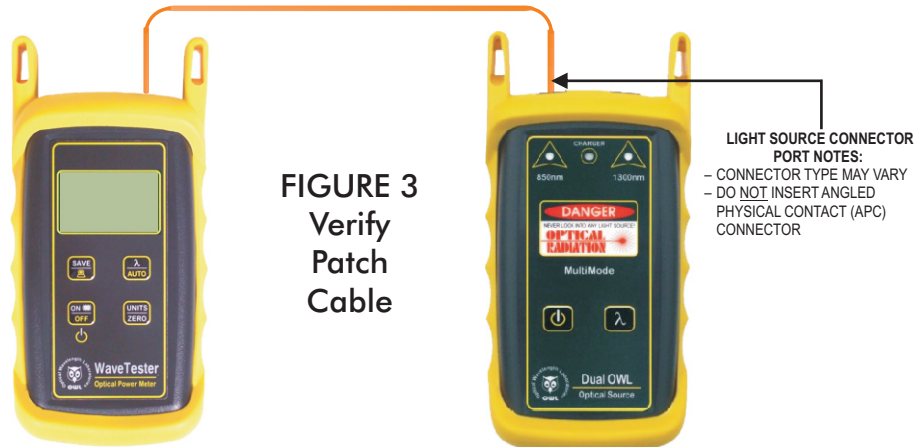
## EQUIPMENT PORTS

Figure 2 shows the ports 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 the first patch cable as shown in Figure 3.



**STEP 2** Power on the light source.

**STEP 3** Power on the WaveTester.

**STEP 4** Press  $\lambda$ /AUTO several times until the wavelength is set to 850nm.

**STEP 5** Compare the reading on the WaveTester 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 $\mu$ M	-19.0 to -22.0 dBm	-22.00 dBm
50/125 $\mu$ M	-22.0 to -25.0 dBm	-25.00 dBm

TABLE 1

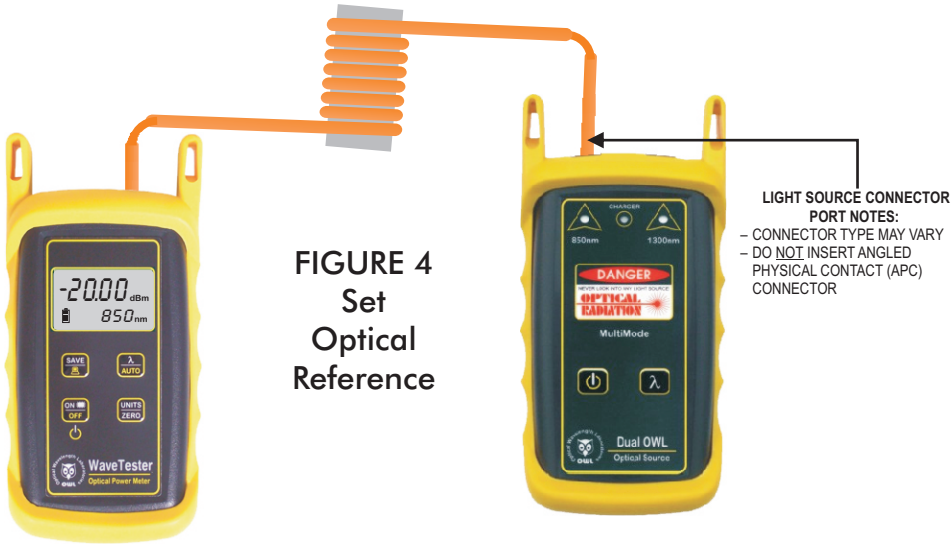
**STEP 6** Once proper operation has been verified, remove the first patch cable from both units and set it aside.

**STEP 7** Connect the power meter and light source together with the second patch cable as shown in Figure 3.

**STEP 8** Compare the reading on the WaveTester to Table 1 for acceptable power levels. The patch cable should be replaced if it is below the acceptable power level.

**STEP 9** Once proper operation has been verified, remove the second patch cable from both units and set it aside.

**STEP 10** Connect the power meter and light source together with the mandrel-wrapped patch cable as shown in Figure 4 below.



**STEP 11** Compare the reading on the WaveTester to Table 1 for acceptable power levels. The patch cable should be replaced if it is below the acceptable power level.

**STEP 12** Once proper operation has been verified, continue on to the next step.

**SET REFERENCE**

**STEP 13** Press and hold the UNITS/ZERO button on the WaveTester to set the reference for 850nm.

The WaveTester 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.

**NOTE:** if you are also testing at 1300nm, you will need to connect a separate mandrel-wrapped patch cable to the 1300nm port.

**STEP 14** Connect the 1300nm mandrel-wrapped patch cable to the detector port on the WaveTester.

**STEP 15** Press  $\lambda$ /AUTO several times until the WaveTester is set to 1300nm.

**STEP 16** Press and hold the UNITS/ZERO button on the WaveTester to set the reference for 1300nm.

The WaveTester 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.

## TAKE READINGS

**STEP 17** Remove the patch cable from the detector port on the WaveTester, and bring both units to the opposite ends of the link under test.

**STEP 18** Connect the WaveTester and Dual OWL to the link under test as shown in Figure 5 below.



**STEP 19** Press  $\lambda$ /AUTO several times until the WaveTester is set to 850nm.

**STEP 20** Press <SAVE> on the WaveTester to store the reading for the current fiber under test.

**STEP 21** Disconnect the patch cables from both ends of the patch panel and move to the next port on the patch panel.

**STEP 22** Repeat steps 20 and 21 for each fiber in the cable under test until all fibers have been tested at 850nm.

**STEP 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.

**STEP 24** Press  $\lambda$ /AUTO several times until the WaveTester is set to 1300nm.

**STEP 25** Press <SAVE> on the WaveTester to store the reading for the current fiber under test.

**STEP 26** Disconnect the patch cables from both ends of the patch panel and move to the next port on the patch panel.

**STEP 27** Repeat steps 25 and 26 for each fiber in the cable under test until all fibers have been tested at 1300nm.