

Quick Card

T-BERD[®]/MTS-5800 Modular Test Set

Measuring Optical Insertion Loss with the E4100 OTDR Module

This quick card describes how to use an E4100-series OTDR module as an Optical Power Meter (OPM) to measure Optical Insertion Loss (OIL). If optioned, the OTDR module can operate as an OPM or Optical Light Source (OLS), but not both at the same time.

Equipment Requirements:

- T-BERD/MTS-5800 equipped with the following:
 - Fiber Optics Software Release V16.22 or greater
 - E4100 Series OTDR Module
 - E410TDRPM Power Meter option
- Fiber optic cleaning and inspection tools
- 20-meter Fiber optic patch cord (Launch Cable)
- Optical Coupler to connect Launch Cable to Fiber Under Test



The following information is required to complete the test:

- Type of Fiber (Multimode or Single Mode)
- Type of Connectors (SC UPC, SC APC, LC UPC, etc.)
- Wavelength of signal(s) to measure

Fiber Inspection Guidelines:

Inspect and clean (if necessary) both sides of every connection being used (bulkhead connectors, patch cords, and OTDR port) prior to reconnection for each test. Using the P5000i or FiberChek Probe:

- Focus fiber on the screen. If dirty, clean the connector.
- If it appears clean, run inspection test.
- If it fails, clean fiber and re-run inspection test. Repeat until it passes.



Figure 1: FiberChek Probe



Figure 2: Image of Clean Fiber

Referencing the Power Meter to the Light Source:

All fibers and connectors should pass fiber inspection prior to connection, as described on page 1.

1. Inspect the OTDR port on top of the test set.
2. Inspect the fiber end face of the Launch Cable.
3. Connect the Launch Cable to the OTDR port.
4. Inspect the other fiber end face of the Launch Cable.
5. Inspect the fiber end face of the Reference Cable of the OLS.
6. Connect the Launch Cable to the reference cable of the OLS via a coupler.

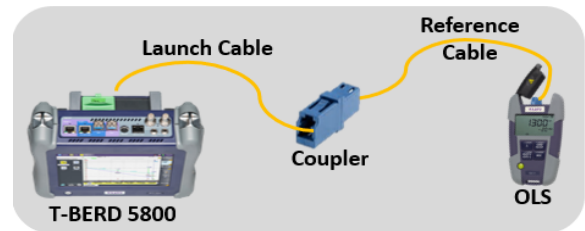





Figure 3: Connecting OTDR to OLS for Reference

7.  Press the Power button to turn on the test set.
8.  Tap the **Fiber Optics** icon in the **Status Bar** at the top of the display.
9.  Tap the **Home** icon to display the Home view, showing **POWERMETER** icon(s).

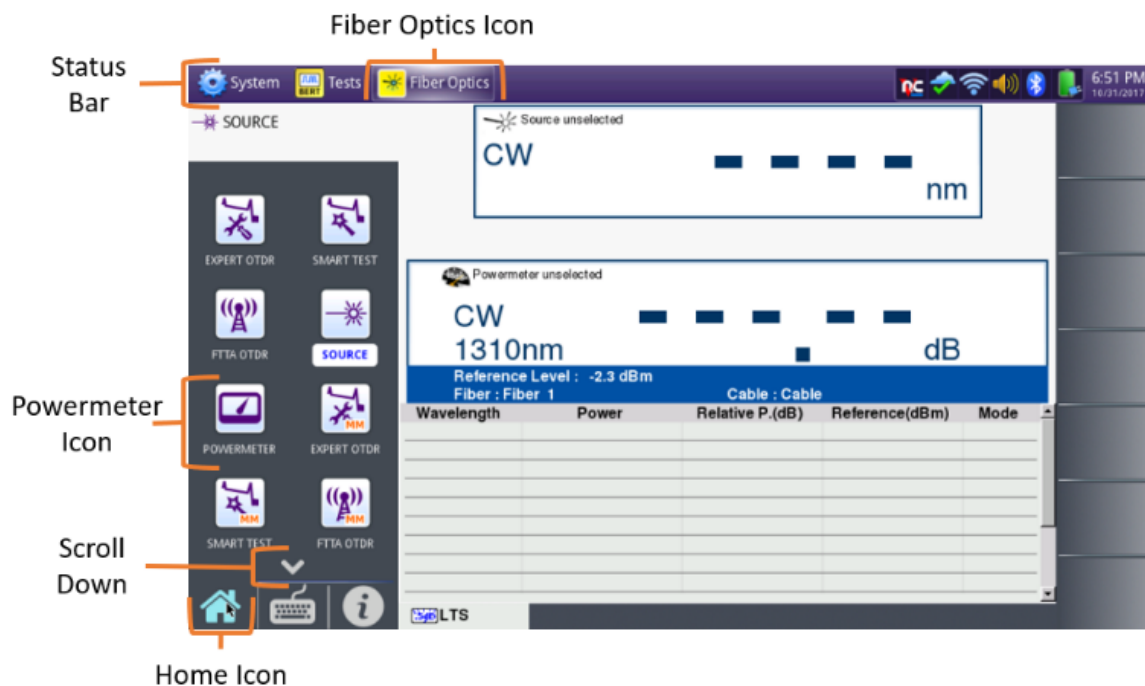





Figure 4: Home View

10.   Tap the desired **POWERMETER** icon until it is yellow and highlighted . The **Results view** will be shown with Power Meter settings and results in the box labeled **Powermeter on Module**. Note: If you are running a Multimode test using the QUAD OTDR Module, you may need to Scroll Down or swipe up to display the **Multimode POWERMETER** icon.



11. Tap the **Keyboard** icon to show the **Results View**.

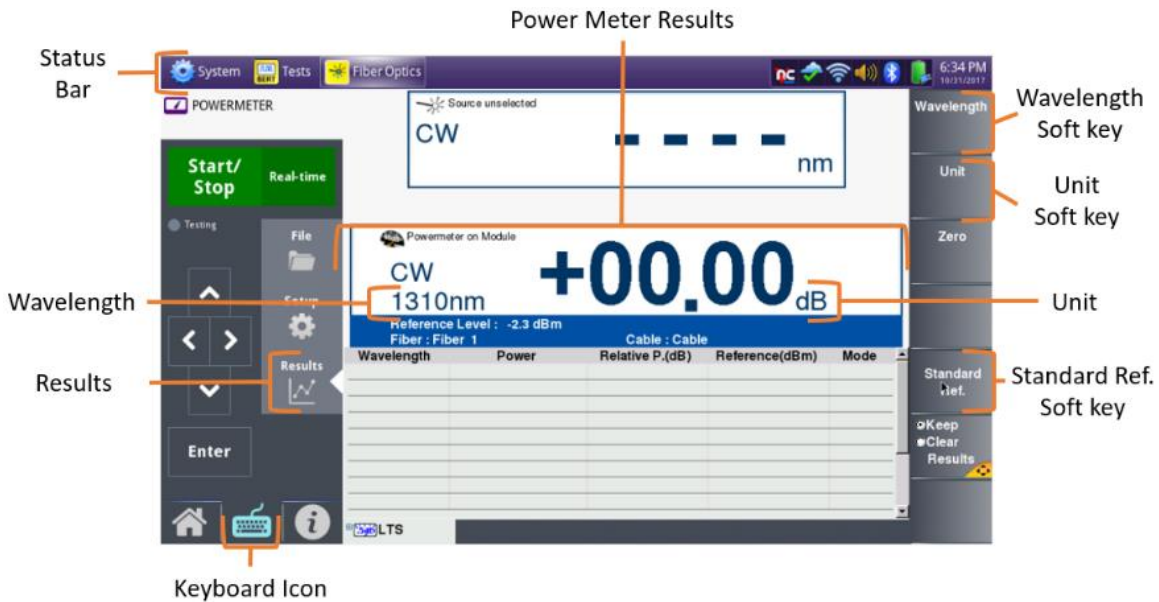


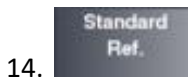
Figure 5: Results View



12. Tap the **Unit** soft key and set unit to **dB**.



13. Tap the **Wavelength** soft key to select the desired Wavelength (850nm, 1300nm, 1310nm, 1550nm, etc.)



14. Confirm that the OLS laser is on, and Tap the **Standard Ref.** soft key to reference the Power Meter to the OLS. The signal level will change to 00.00 dB.

Note: The **Standard Ref.** soft key will be greyed out until a signal is detected.

15. Repeat steps 13 and 14 for all wavelengths to be tested.

16. Disconnect the Launch Cable from the coupler. Do not disconnect the Launch Cable from the OTDR port or power off the T-BERD/MTS until all OIL testing is complete. If the T-BERD/MTS is powered off or the Fiber is disconnected from the OTDR, you must reference the Power Meter and OLS again.

Measuring Insertion Loss:

If the Power Meter has been referenced to an OLS, the Reference Cable should already be connected to the OTDR port and the test set should be powered on and in the Fiber Optics/Powermeter Results view. The Reference Cable may be connected to the FUT via an optical patch panel (OPP) bulkhead or an optical coupler as follows:

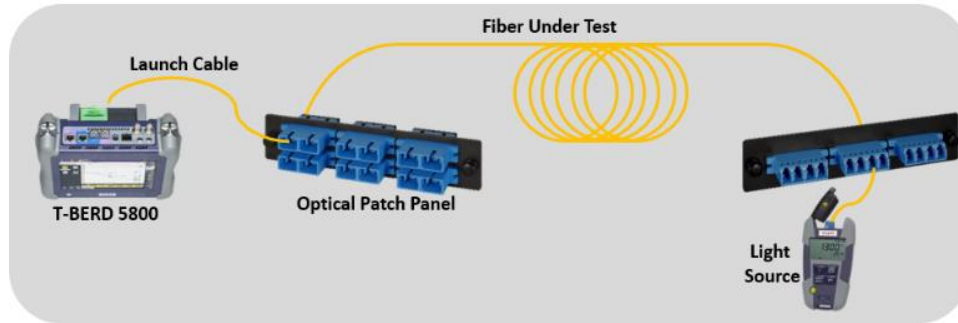



Figure 6: Connecting T-BERD/MTS to OPP or coupler

All fibers and connectors should pass fiber inspection prior to connection, as described on page 1.

1. If the interface to the Fiber under Test (FUT) is a patch cord, connect the patch cord to an optical coupler with the same connector type.
2. Inspect the FUT connected to the coupler or OPP.
3. Inspect the fiber end face of the Launch Cable.
4. Connect the Launch Cable to the coupler or OPP leading to the light source.

5.  Tap the **Wavelength** soft key to select the desired Wavelength (850nm, 1300nm, 1310nm, 1550nm, etc.)
6. View the Relative Power Level (dB) in the **Powermeter on Module** Results display in the center screen.

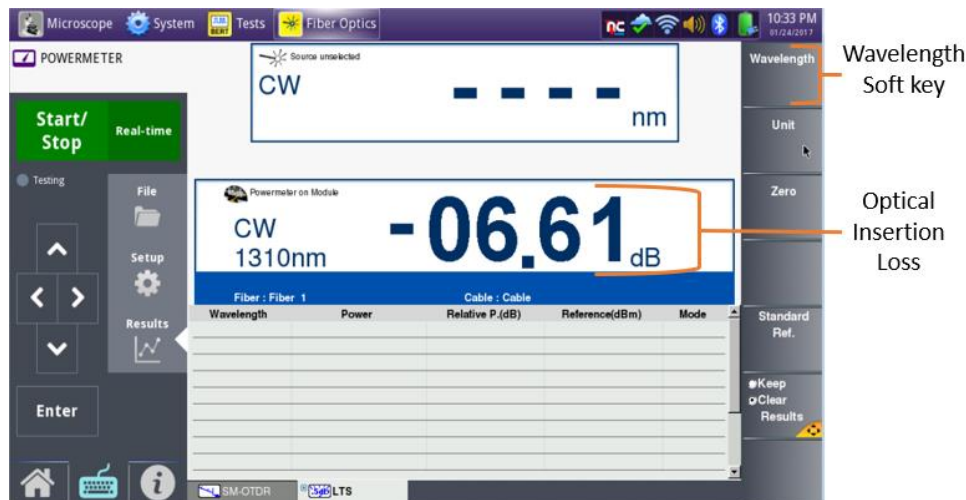


Figure 7: Optical Insertion Loss Results

7. Repeat steps 5 and 6 for all wavelengths to be tested.
8. Disconnect the Launch cable from the FUT. Do not disconnect the Launch Cable from the OTDR port or power off the T-BERD until all testing is complete. If the Fiber is disconnected, you must reference the Power Meter again.
9. Repeat steps 1 through 8 for all Fibers to be tested.