

## Quick Card

# T-BERD<sup>®</sup>/MTS-2000 Modular Test Set

## Measuring Optical Insertion Loss with the E41OTDRPM Power Meter option

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

### Equipment Requirements:

- T-BERD/MTS-2000 equipped with the following:
  - Fiber Optics Software Release V17.30 or greater
  - E4100 Series OTDR module
  - E41OTDRPM Optical Power Meter option
- Optical Light Source with Reference Cable
- Fiber optic cleaning and inspection tools
- Patch cable or launch cable with connectors matching the power meter port and the fiber under test
- Optical coupler to connect patch cable/launch cable to the fiber under test



Figure 1: Equipment Requirements

### The following information is required to complete the test:

- Type of Fiber (Multimode or Single Mode)
- Type of connectors (LC, SC, SC APC, etc.)
- Wavelength(s) to be tested (850nm, 1300nm, 1310nm, 1550nm, etc.)

### Fiber Inspection Guidelines:

- Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (OTDR port, jumper cable, bulkhead connectors, patch cords, etc.)
- Focus the fiber on the screen. If dirty, clean the connector.
- If it appears clean, run inspection test.
- If it fails, clean the fiber and re-run inspection test. Repeat until it passes.

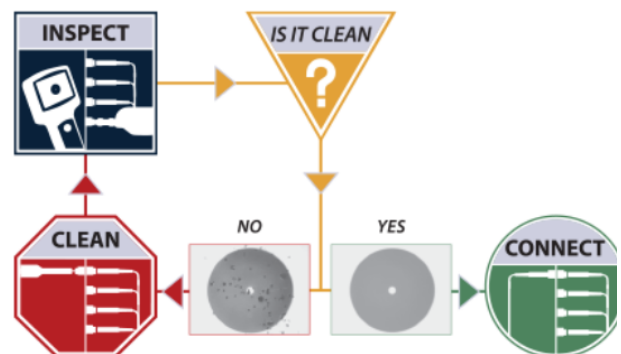


Figure 2: IBYC procedure

### Referencing the Power Meter to the Light Source:

Before measuring insertion loss, the Power Meter must be referenced to the Light Source. The “2-cable method” is described below. References may also be performed using 1 cable or 3 cables. All fibers and connectors should be inspected and clean prior to connection, as described on page 1.

1. Connect the Launch Cable to the OTDR port.
2. Connect the Launch Cable to the reference cable of the OLS via a coupler.

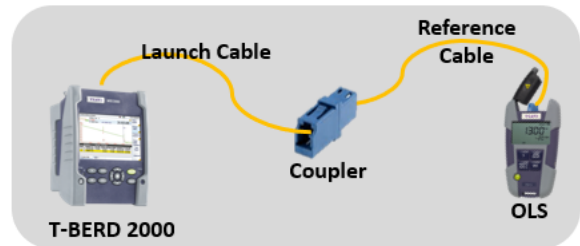




Figure 3: Connecting PM to OLS for Reference

3.  Press the **Power** button to start the test set.
4.  Press the **Home** button to display the **Home view**
5. Tap the **POWERMETER** icon until it is yellow and highlighted.
6. The Results view will be shown with settings and results in the box labeled **Powermeter on Module**.

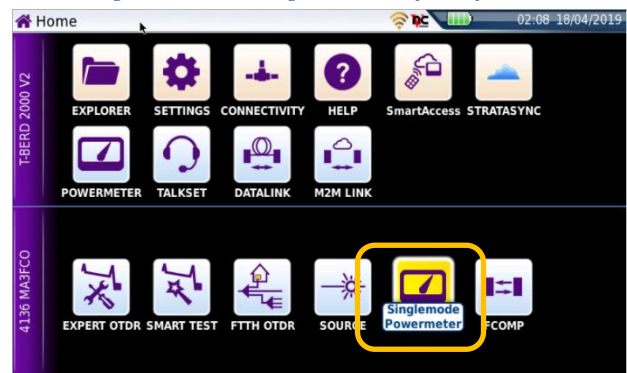





Figure 4: Home View

7.  Tap the **Unit** soft key and set unit to **dB**.
8.  Tap the **Wavelength** soft key to select the desired **Wavelength** (850nm, 1300nm, 1310nm, 1550nm, etc.)
9.  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.
10. Repeat steps 8 and 9 for all wavelengths to be tested.
11. Disconnect the Launch Cable from the coupler. **Do not disconnect the Launch Cable from the Power Meter Port or power off the T-BERD/MTS until all Insertion Loss testing is complete.** If the T-BERD/MTS is powered off or the fiber is disconnected, you should reference the Power Meter and OLS again.

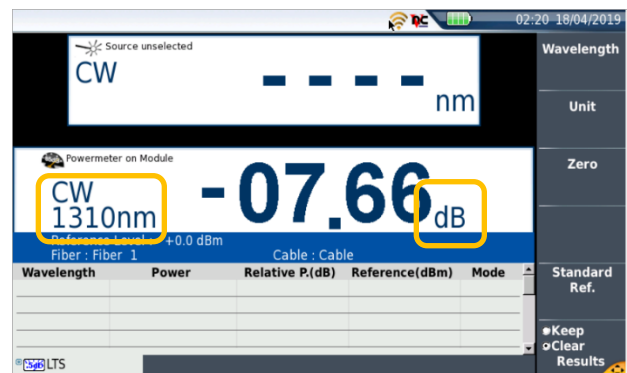


Figure 5: Results View, before reference

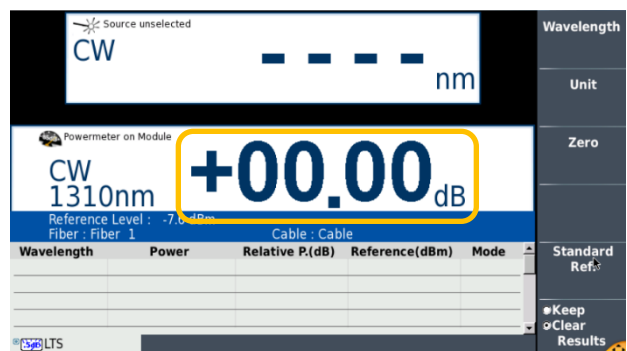


Figure 6: Results View, after reference

### Measuring Insertion Loss:

Prior to testing, the power meter should be referenced, the launch cable should be connected to the power meter port, and the test set should be in the Powermeter Results view, as described on page 2.

The Launch Cable may be connected to the FUT via an optical patch panel (OPP) bulkhead or an optical coupler as follows:

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. Connect the Launch Cable to the coupler or OPP leading to the light source.

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

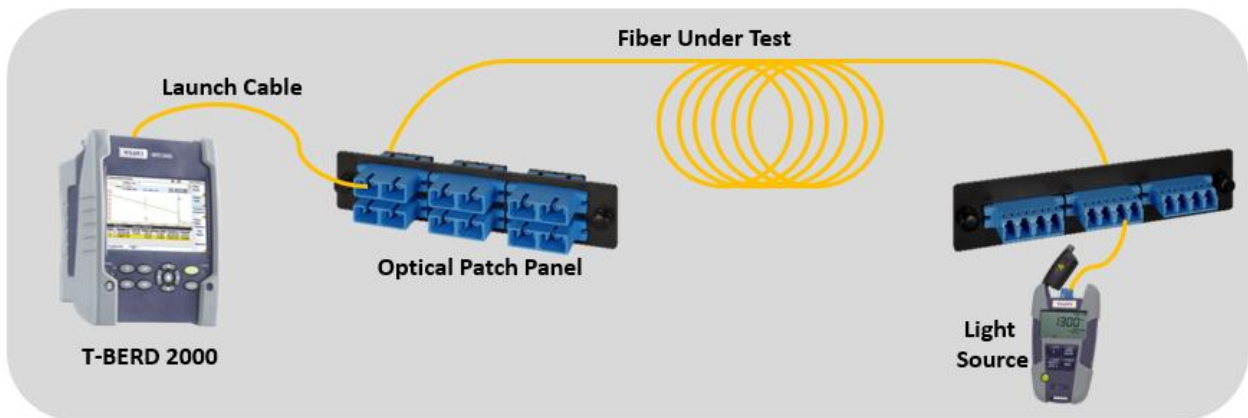


Figure 7: Connecting T-BERD/MTS to OPP or coupler.

3. **Wavelength** Tap the **Wavelength** soft key to select the desired Wavelength (850nm, 1300nm, 1310nm, 1550nm, etc.)
4. View the Insertion Loss (relative Power Level) in the **Powermeter on Module** results display in the center screen.
5. Repeat steps 3 and 4 for all wavelengths to be tested.
6. Disconnect the Launch cable from the FUT. Do not disconnect the Launch Cable from the Power Meter port or power off the T-BERD until all testing is complete. If the Fiber is disconnected, you must reference the Power Meter again.
7. Repeat steps 1 through 6 for all Fibers to be tested.

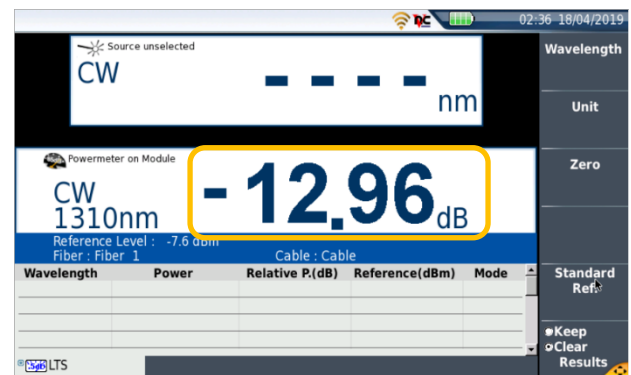


Figure 8: Insertion Loss