

Quick Card

T-BERD[®]/MTS-2000 Modular Test Set CWDM Expert OTDR

This quick card describes how to connect to a fiber under test, configure **EXPERT OTDR** test setups, run tests, and analyze results with a T-BERD/MTS-2000 equipped with a 4100-series CWDM OTDR module.



The CWDM OTDR is meant to test specific wavelengths on a live Course Wavelength Division Multiplexed (CWDM) network. Care must be taken to test the correct wavelength.

Equipment Requirements:

- T-BERD/MTS-2000 equipped with the following:
 - Fiber Optics Software V17.30 or greater
 - E4100 Series OTDR Module:
 - E41CWDM10L (1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451 nm)
 - E41CWDM10U (1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611 nm)
 - E41CWDM8U (1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611 nm)
- Fiber optic cleaning and inspection tools
- Launch Cable with connectors matching the OTDR port and Fiber Under Test (a 20-meter Fiber optic patch cable or leash is recommended).
- Optical Coupler to connect the Launch Cable to the Fiber Under Test



Figure 1: Equipment Requirements

The following information is required to complete the test:

- Type of Connector (SC UPC, SC APC, LC UPC, etc.)
- Distance unit (feet, meters, miles, kilometers)
- CWDM Wavelength(s) to be tested

Fiber Inspection Guidelines:

- Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (OTDR Port, Launch Cable, bulkhead connector, patch cord, 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.

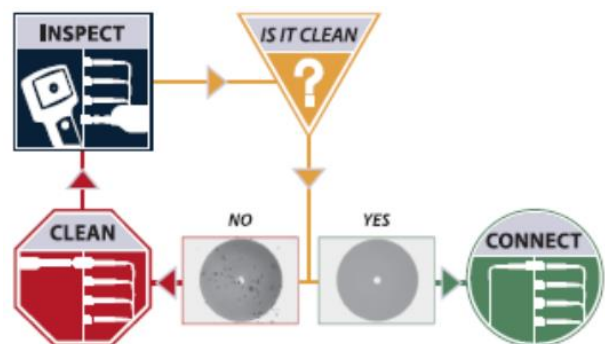


Figure 2: Inspect Before You Connect (IBYC)

Connect to Fiber Under Test (FUT):

All fibers and connectors should be clean and pass an inspection test prior to connection, as described on page 1. The OTDR may be connected to the FUT via an optical patch panel (OPP) or a CWDM MUX if testing a live system:

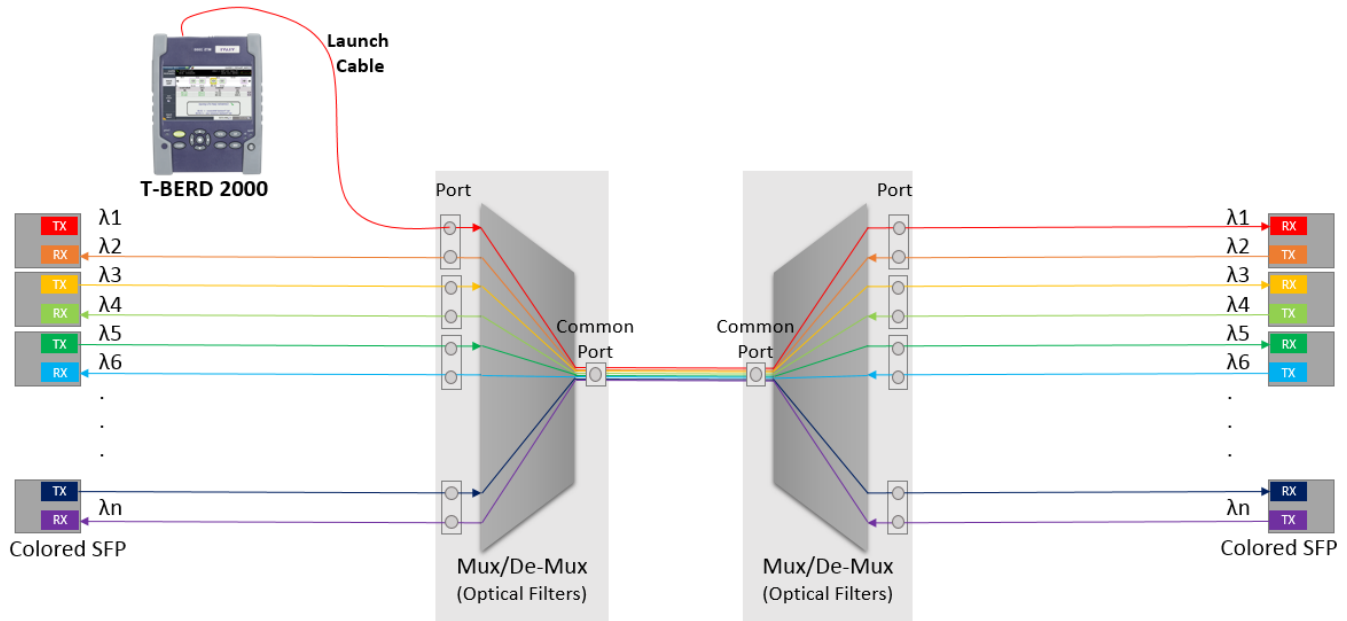


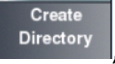


Figure 3: Connecting to Fiber Under Test

1. Inspect the OTDR port on top of the test set.
2. If the interface to the FUT is a patch cord, connect the patch cord to an optical coupler with the same connector type.
3. Inspect the FUT connected to the coupler or Mux port.
4. Inspect the fiber end face of the Launch Cable.
5. Connect the Launch Cable to the OTDR port.
6. Inspect the other fiber end face of the Launch Cable.
7. Connect the Launch Cable to the coupler or Mux port **for the specific wavelength to be tested.**
8. Disconnect or disable the far end SFP on this wavelength.

Launch and Configure Test:

1. Press the **ON/OFF**  button to turn on the test set.
2. If files are to be saved, tap the **FILE**  and tap the **results** folder to view the **File Manager**. Otherwise, proceed to step 5.
3. Tap the **Create Directory** soft key , enter a name for your new folder, and tap the **Enter** key. All trace files will be saved to this directory.

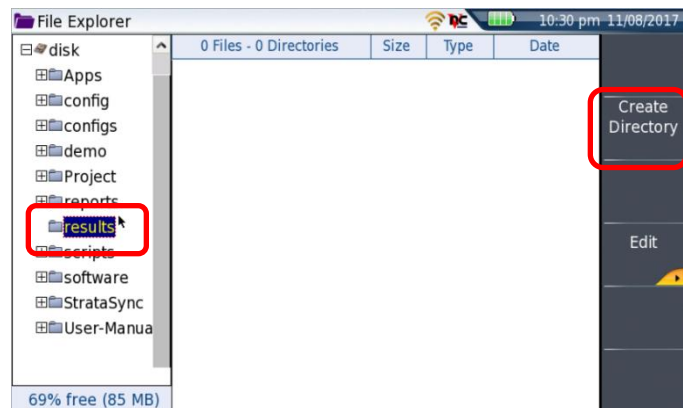






Figure 4: File Manager

4. Press the **HOME** button  to display the Home Screen.
5. Tap the **OTDR SM/Singlemode OTDR** icon  until it is yellow and highlighted .
6. Tap the **SETUP** button  to view setup parameters.
7. Configure Acquisition Settings as follows:
 - **Laser:** choose the **Wavelength to be tested**. **DO NOT select "ALL" if testing a live System with active wavelengths.**
 - **Acquisition Mode:**
 - Select **Manual** to manually enter **Range** and **Pulse** width settings.
 - Select **Auto** to automatically configure **Range**, **Pulse** width, and **SmartAcq** settings.
 - Select **SmartAcq** to perform an acquisition with a short pulse width, followed by an acquisition with a longer pulse width. The first acquisition allows events at the beginning of the fiber to be detected more precisely.
 - Press the **Top Menu** soft key to return to the main setup screen.

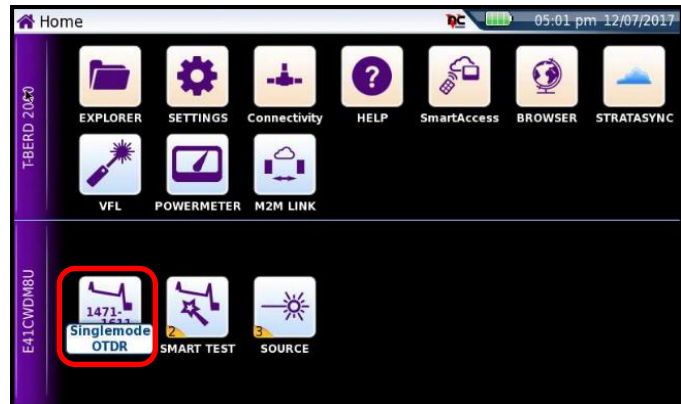


Figure 5: Home Screen

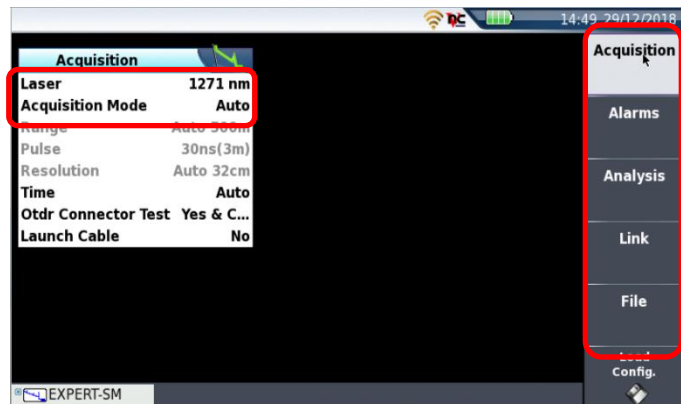


Figure 6: Acquisition Setup

8. Optionally, tap the soft keys on the right side of the screen to view or edit other settings.
 - **Alarms:** Pass/Fail thresholds for Splice Loss, Connector Loss, Reflectance, and other parameters. Recommended settings are: **Alarm Level = Fail, Threshold = Default.**
 - **Analysis:** Distance units (km, miles, etc.) and other measurement parameters.
 - **Link:** Link Description and Project Information.
 - **File:** Directory, Results Storage, and Report Configuration settings.

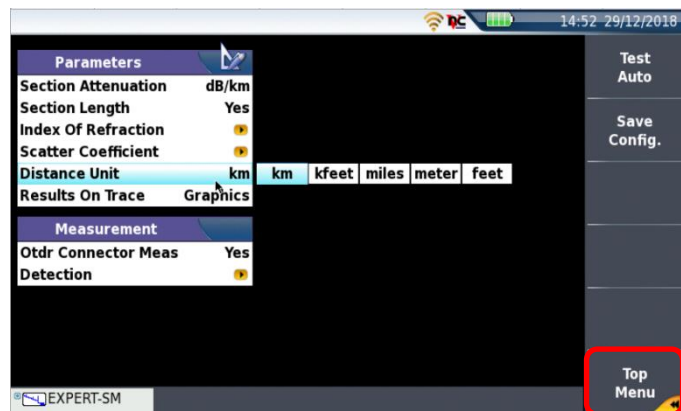



Figure 7: Analysis Setup

Run Test:

1.  Tap the **START/STOP** button to start the test. After auto-configuration, the OTDR will perform a connection check to ensure that the connection is **Good**.
2. If the Connection is **Bad**, disconnect the launch cable and repeat steps 1 through 8 on page 2. Also, inspect and clean the fiber end faces in any patch panels or connectors near the OTDR.

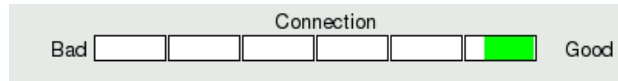


Figure 8: Connection Check

3. After the connection check, the OTDR will perform acquisitions at the configured wavelength.
4. Results may be displayed in two different formats: **Trace view** or **SmartLink view**. Tap the

Trace/SmartLink soft key  to toggle between views:

Trace view:





- Results for each wavelength are shown in different colors in the upper display.
- After selecting trace view, use the following controls to change the display:
 -  Toggle between results for each wavelength.
 -  Toggle between single event and multiple event view in lower screen.
- Tap the **Zoom** soft key to enable the following controls:
 -  Toggle between auto zoom and full trace view.
 -  Expand and contract trace.



Figure 9: Trace View

SmartLink view:







- The FUT is displayed as a series of icons representing each event (mux/demux, connector, splice, bend, etc.).
- The center display shows summary results for the entire span. Acquisitions for which all events are acceptable are marked with a green check . Acquisitions with events that exceed pass/fail thresholds for loss or reflectance are marked with a red .
- The lower display shows each event that exceeds thresholds.
- Tap an event icon and tap the **Event View** soft key to show results for the event.



Figure 10: SmartLink View

5. Repeat steps 1 through 4 for all wavelengths and fibers under test being careful to verify the wavelength to be tested.

Fast Report:

1. In the SmartLink view, tap the **Fast Report** soft key  and enter **Fiber Number**, **Cable ID**, and **Direction**.
2. Tap the **Save All** soft key .
3. Tap the **Auto Filenaming** soft key .
4. Tap the **Enter** soft key .

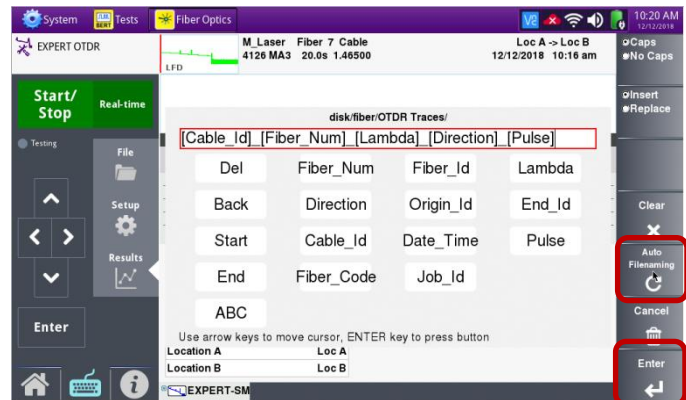


Figure 11: Fast Report