


Quick Card

T-BERD[®]/MTS-2000 Modular Test Set DWDM 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 VIAVI T-BERD/MTS-2000 equipped with a 4100-series DWDM OTDR module.

 **The DWDM OTDR is meant to test a specific wavelength on a live Dense Wavelength Division Multiplexed (DWDM) network. Care must be taken to select and test the correct wavelength.**

Equipment Requirements:

- T-BERD/MTS-2000 equipped with the following:
 - Fiber Optics Software Release V16.22 or greater
 - E41DWDMC OTDR Module
 - SMARTLINK Mapper (SLM) Icon-based OTDR results 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 Connectors (SC UPC, SC APC, LC UPC, etc.)
- Distance unit (feet, meters, miles, kilometers)
- DWDM Wavelength(s) to be tested



Fiber Inspection:

Inspect and clean (if necessary) both sides of every connection being used (bulkhead connectors, mux ports, 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

- To inspect SFP ports with the **P5000i**, insert the probe tip into the SFP port, move the focus wheel all the way to one end, and slowly move the focus wheel to the other end.
- To inspect SFP ports with the **FiberChek Probe**, manually focus with middle toggle switch or pull the trigger to auto-focus.
- If a fiber stub (a darker circle on a lighter background as shown in figure 2) is detected follow standard inspection and cleaning procedures. If you are unable to focus on a fiber end face, do not clean the port. The SFP uses a lens of some sort, that cannot be cleaned.

Connect to Fiber Under Test (FUT):

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

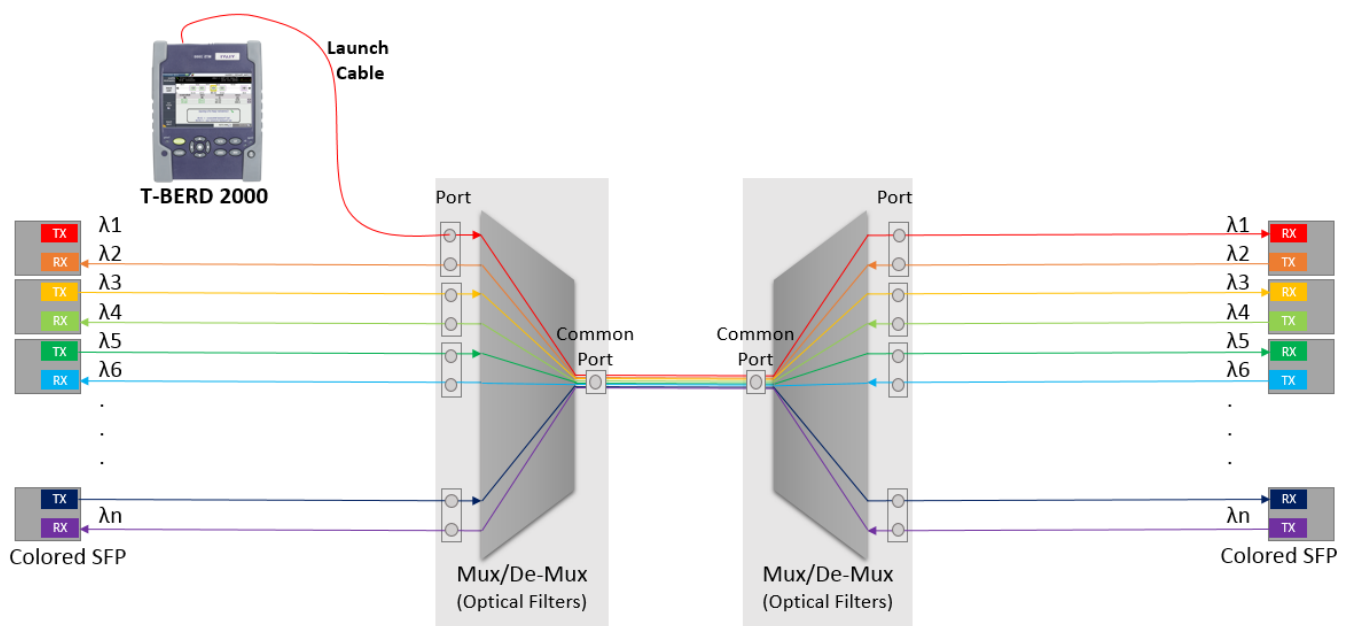


Figure 3: Connecting to Fiber Under Test



The DWDM OTDR is meant to test a specific wavelength on a live wave division multiplexed network and care must be taken to connect to the correct wavelength.

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:



Figure 4: Home View

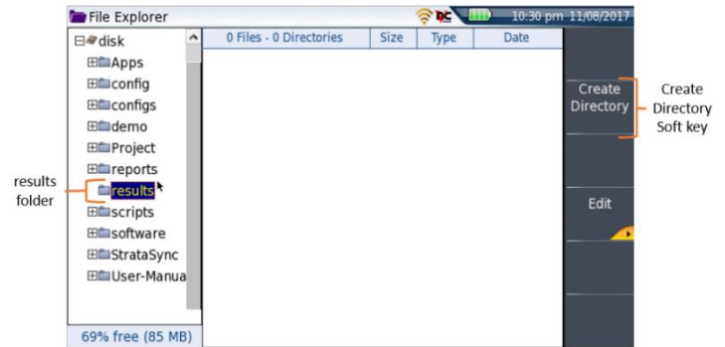


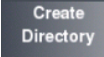




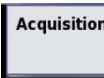

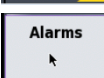

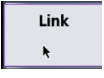
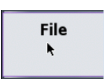



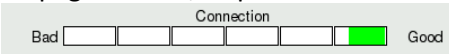


Figure 5: File Explorer


1.  Press the **ON/OFF** button to turn on the test set.
2.  If files are to be saved, tap the **FILE** Button and tap the **results** folder to view the **File Explorer**. 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.
4.  Press the **HOME** button to display the Home Screen.
5.  Tap the **OTDR SM/Single mode OTDR** icon until it is yellow and highlighted .
6.  Tap the **SETUP** button to view setup parameters.
7.  In the Acquisition setup, tap **Laser** to choose the **Wavelength/Channel/Frequency to be tested**. **DO NOT select ALL if working on a live System**.
8.  Press the Top menu soft key to return to the setup screen.
9.  The **Alarms** soft key allows the user to edit different alarm parameters.
10.  The **Analysis** soft key allows user to select IOR or Distance units (km, miles, etc.)
11.  The **Link** soft key allows the user to Set Cable/Fiber ID, Fiber Number, turn on Increment, and cable structure.
12.  The **File** soft key allows user to auto store, save files as PDF and/or text and include microscope image.

Run Test


1.  Tap the **RESULTS** button.
2.  Confirm that you are connected to the correct port on the Mux, that the OTDR is configured for the correct wavelength, and that the fiber is not lit on that wavelength.
3.  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**. If the Connection is **Bad**, 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.






After the connection check, the OTDR will perform acquisitions at the configured wavelength/channel.

4.  Results may be displayed in two different formats: **Trace view** or **SmartLink view**. Tap the **Trace/SmartLink** soft key to toggle between views:


a. **Trace view:** Results for the wavelength are shown in the upper display.



-  After selecting trace view, use the following controls to change the display:



-   Use the right and left arrow keys to 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

b. **SmartLink view:** The FUT is displayed as a series of icons representing each event (mux/demux, connector, splice, bend, etc.). The center of the 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 events that fail to meet pass/fail thresholds.


-  Tap an event icon and tap the **Event View** soft key to show detailed results for the event.



Figure 6: Trace view



Figure 7: DWDM SmartLink View

5. Repeat steps 1 through 4 for all wavelengths/channels and fibers under test being careful to check and double check the wavelength/channel to be tested.