


Quick Card

T-BERD[®]/MTS-2000 Modular Test Set DWDM OTDR Smart Test Assistant

This quick card describes how to connect to a fiber under test and use the **Smart Test Assistant** to configure test setups, run tests, and analyze results on 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 Software Release V18.7 or greater
- E4100 Series DWDM OTDR Module (E41DWDMC-PC or E41DWDM-APC)
- Fiber optic cleaning and inspection tools
- Launch Cable (minimum 20-meter Fiber optic patch cable)
- Optical Coupler to connect Launch Cable to fiber under test



Figure 1: Equipment Requirements

The following information is required to complete the test:

- Type of Connectors (SC UPC, SC APC, LC)
- Distance unit (feet, meters, miles, kilometers)
- DWDM Wavelength to be tested



Figure 2: E41DWDMC-APC OTDR Module

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 cables, 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.

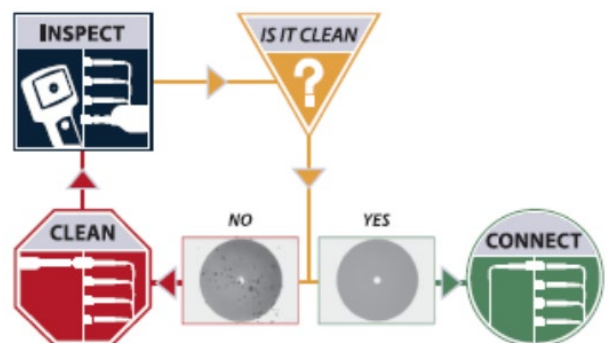


Figure 3: Inspect Before You Connect (IBYC)

Connect to Fiber Under Test (FUT):

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

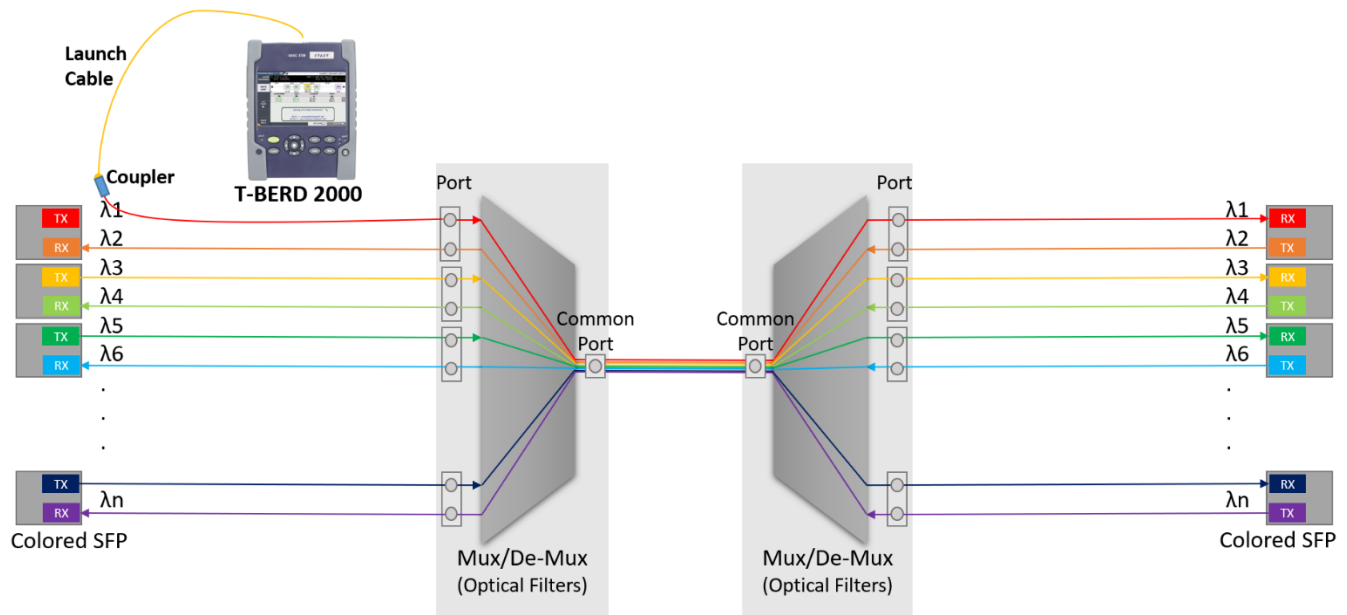







Figure 4: Connecting to Fiber Under Test



The DWDM OTDR is meant to test a specific wavelength on a live DWDM network and care must be taken to select and test 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 OPP 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 OPP port.
8. Disconnect or disable the far end SFP on this wavelength.

Setup Test:

1. Press the **ON/OFF** button to turn on the test set.
2. Press the **Home** button to display the Home view.
3. Tap the **SMART TEST** icon until it is yellow and highlighted.
4. Select a configuration file:
 - Select the **EXPRESS** configuration file to setup the T-BERD for 5 second acquisitions to quickly confirm loss and distance.
 - Select the **CERTIFICATION** configuration file to setup the T-BERD for 20 second acquisitions to confirm loss and distance AND analyze all events (splices, connectors, etc.)
 - Tap  to select a user configuration file stored in the /disk/fiber/config folder.
5. Tap  to load the configuration and view the **SMART TEST Setup** screen.
6. **Laser:** Select the desired **ITU Channel** to test.
7. **Distance Unit:** Tap the desired unit of measure for the launch cable.
8. **Launch Cable:**
 - a. Tap **YES** if you are using a Launch Cable.
 - b. Tap the  icon to enter or measure the **Launch Cable** length.
 - c. If the launch cable length is known, tap  to clear existing text, enter value on the keypad and tap  to return.
 - d. To measure the launch cable length, tap **Measure** and tap **Confirm**. The measured value will auto-populate when measurement is finished.

Note: The Launch Cable should be disconnected from the Fiber Under Test during measurement.
9. **Alarms:** Choose **User** for Viavi recommended Pass/Fail limits.
10. **Distance Unit:** If you wish to use a different unit of measure for the test results, change the unit of measure to the desired value.

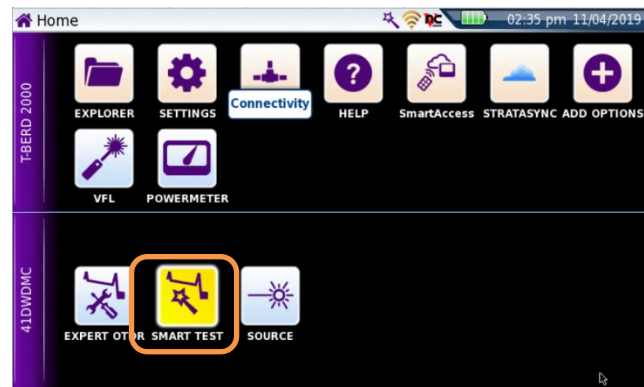


Figure 5: Home Screen

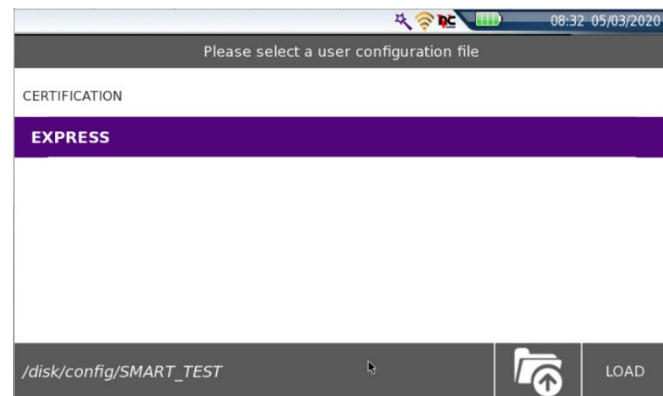


Figure 6: Smart Test Configuration File

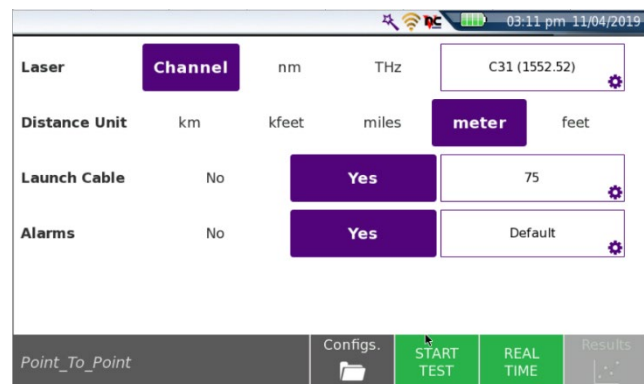


Figure 7: Smart Test Setup

Run Test:

1. Tap **START TEST** to start the test. After auto-configuration, the OTDR will perform a connection check to ensure that the connection is **Good** and will test at the configured wavelength.
2. Results may be displayed in 2 formats: **Trace** view or **SmartLink** view. Tap the **Trace/SmartLink** soft key to toggle between views.

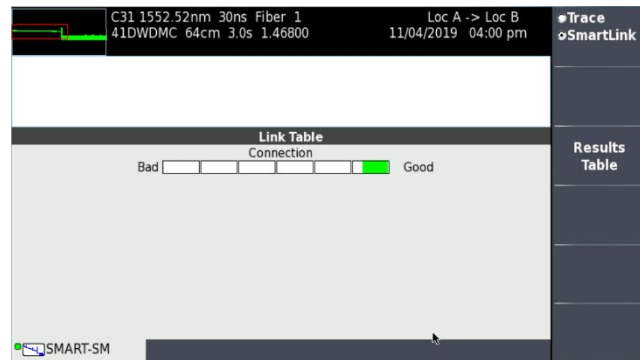


Figure 8: Connection Check

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

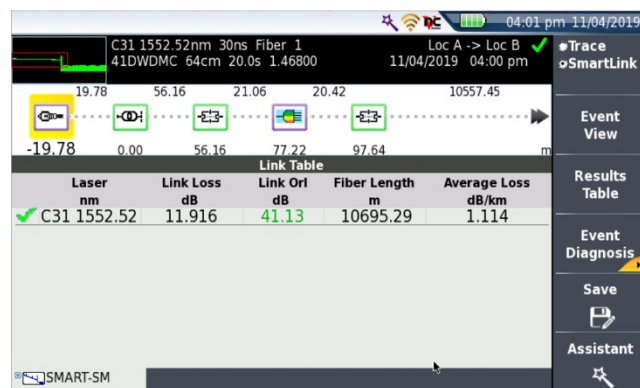


Figure 9: SmartLink view




- **Trace view:** Graphical result for the wavelength are shown in the upper display. Use the following controls to change the display:
 -  Toggle between single event and multiple event view in lower display. Tap the **Zoom** soft key to enable the following controls:
 -  Toggle between auto zoom and full trace view.
 -  Expand and contract trace.



Figure 10: Trace view

3. Repeat steps 1 and 2 for all wavelengths and fibers under test being careful to check and double check the wavelength to be tested.