Quick Card

T-BERD®/MTS-5800 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-5800 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-5800 equipped Software Release V18.0 or greater
- E4100 Series DWDM OTDR Module (E41DWDMC-PC or E41DWD-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

**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

**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.
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:

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.

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.
Setup Test:
1. Press the ON/OFF button to turn on the test set.
2. Tap the Fiber Optics icon in the status bar at the top of the screen.
3. Tap the Home icon to display the Home view.
4. Tap the SMART TEST icon until it is yellow and highlighted.
5. Select the Point To Point configuration file and tap LOAD to view the SMART TEST Setup screen.
6. Laser: Select the desired Channel, Wavelength (nm) or Frequency (THz) 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 \( X \) to clear existing text, enter value on the keypad and tap \( \leftarrow \) to return.
   d. To measure the launch cable length, tap Measure and tap Confirm. The measured value will auto-populate when measurement is finished.
   e. Note: The Launch Cable must be at least 20m and must be disconnected from the Fiber Under Test during measurement.
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.
11. Before proceeding, confirm that you are connected to the correct port on the DWDM Mux, that the OTDR is configured for the correct wavelength, and that the fiber is not lit on that wavelength.
Run Test:

1. Tap START to start the test. After auto-configuration, the OTDR will perform a connection check to ensure that the connection is Good and will test 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.
   - **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 check ✅. Acquisitions with events that exceed pass/fail thresholds for loss or reflectance are marked with a red ❌.
     - The lower display shows events that exceed alarm thresholds.
     - Tap an event icon and tap the Event View soft key to show detailed results for the event.
   - **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 screen.
     - Tap the Zoom soft key to enable the following controls:
       - Toggle between auto zoom and full trace view.
       - Expand and contract trace.

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.

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