

Quick Card

T-BERD[®]/MTS-5800 Modular Test Set E4100-series OTDR SMART TEST

This quick card describes how to connect to a fiber under test, configure **SMART TEST** OTDR settings, run tests, and analyze results with a VIAVI T-BERD/MTS-5800 and 4100-series OTDR module.

Equipment Requirements:

- T-BERD/MTS-5800 equipped with the following:
 - Fiber Optics Software Release V17.22 or greater
 - E4100 Series OTDR Module
- Fiber optic cleaning and inspection tools
- Launch Cable with connectors matching the OTDR port and Fiber Under Test (minimum 20-meter Fiber optic patch cable) with connectors matching the OTDR port and Fiber Under Test
- 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 Fiber (Multimode or Single Mode)
- Type of Connectors (SC UPC, SC APC, LC UPC, etc.)
- Distance unit (feet, meters, miles, kilometers)

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 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.

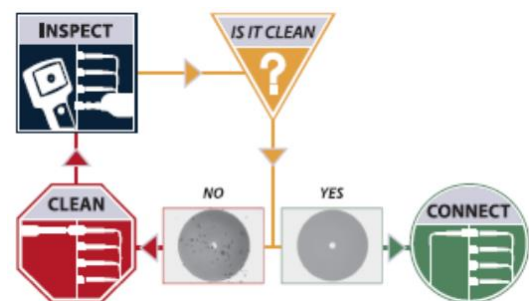





Figure 2: Inspect Before You Connect (IBYC)


Connect Launch Cable to OTDR port:





1. Inspect the OTDR port on top of the test set.
2. Inspect the fiber end face of Launch Cable.
3. Connect Launch Cable to the OTDR port.

Launch and Configure Smart Test:

1. Press the Power button  to start 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 with the **SMART TEST** icon.
4. Tap the **SMART TEST** icon until it is yellow and



5. 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.

6. Tap  to load the configuration and view the **SMART TEST Setup** screen.
7. **Laser:** If the wrong wavelength is selected, Tap the screen to deselect. Tap the desired wavelength(s) to test.
8. **Distance Unit:** Tap the desired unit of measure for the launch cable.
9. **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 new 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 not be connected to the Fiber Under Test during measurement.

10. **Alarms:** Choose **User** for Viavi recommended Pass/Fail limits.
11. **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.

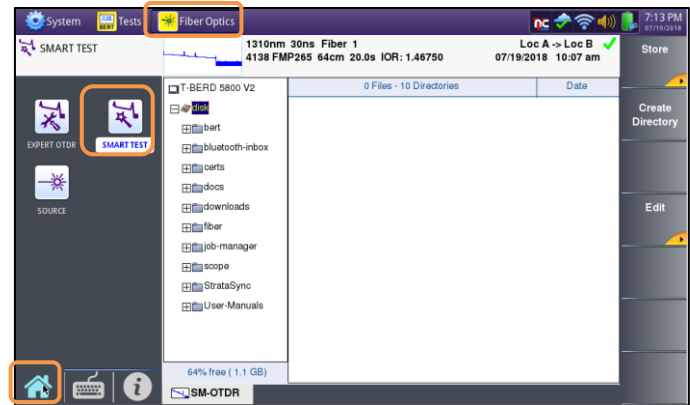


Figure 3: Fiber Optics Home screen

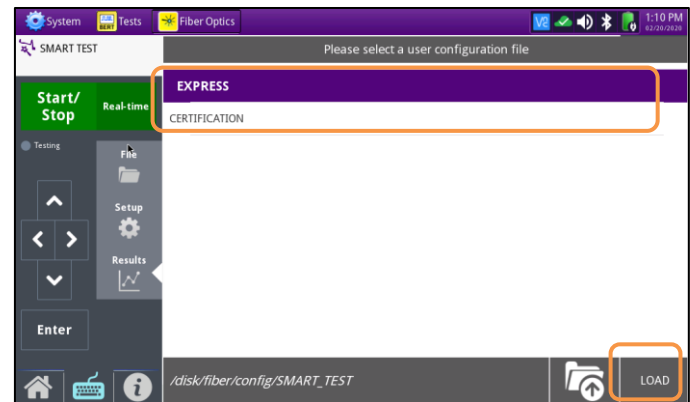


Figure 4: SMART TEST Configuration File

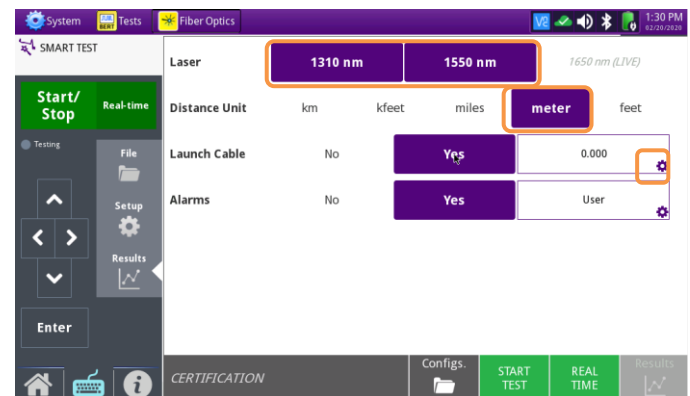


Figure 5: SMART TEST Setup

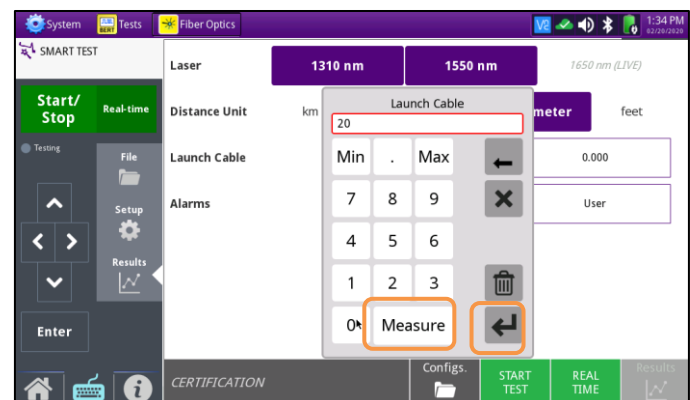


Figure 6: Launch Cable Setup

Connect to Fiber Under Test (FUT):

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

1. If the interface to the FUT is a patch cord, connect the patch cord to an optical coupler with the same connector type.
2. Inspect the FUT connected to the coupler or OPP.
3. Inspect the other fiber end face of the Launch Cable.
4. Connect the Launch Cable to the coupler or OPP.

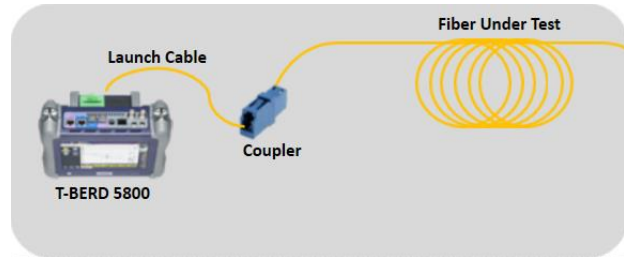


Figure 7: Connecting the Launch Cable to the FUT with a coupler

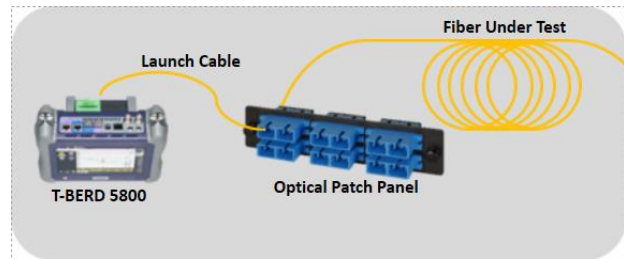



Figure 8: Connecting the Launch Cable to an OPP

Run Test:

1. Tap  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**, disconnect the launch cable, repeat steps 1 through 3 on page 1, and repeat steps 1 through 4 above on page 3, ensuring all fiber end faces are clean.
2. The T-BERD will perform acquisitions at the configured wavelengths. Overall test results (Pass or Fail) will be displayed in a pop-up window. Tap the window to close it.
3. Results can be viewed in 2 formats.

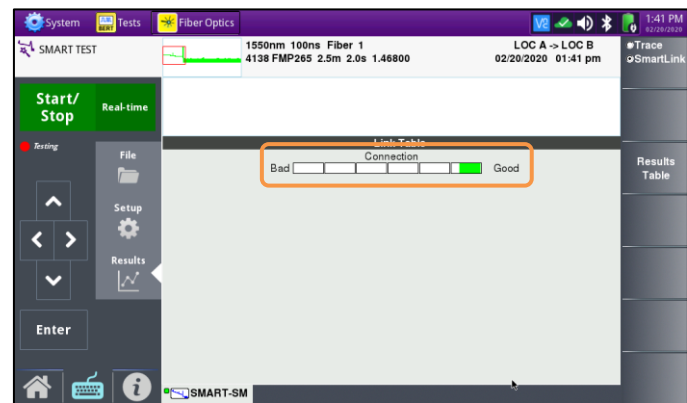






Figure 9: Connection Check

Tap the  soft key to toggle **views**.

- **SmartLink view:** The FUT is displayed as a series of icons representing each event (connectors, splices, bends, 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 exceed thresholds. Softkeys can change the display:

-  Tap any icon in the upper display to show detailed results for the event.






-  Detailed results are shown for all events.



Figure 10: SmartLink View

- **Trace view:** Results for each wavelength are shown in different colors in the top section of the display. Each event is listed in the lower section of the display. Any events that violate pass/fail thresholds for loss or reflectance are shown in **RED**.

Use the right and left arrow keys  in the control panel to Toggle between results for each wavelength. Tap the **Zoom** soft key  to enable the following zoom controls:

-  Toggle between automatic zoom and full trace view
-  Expand and contract trace.

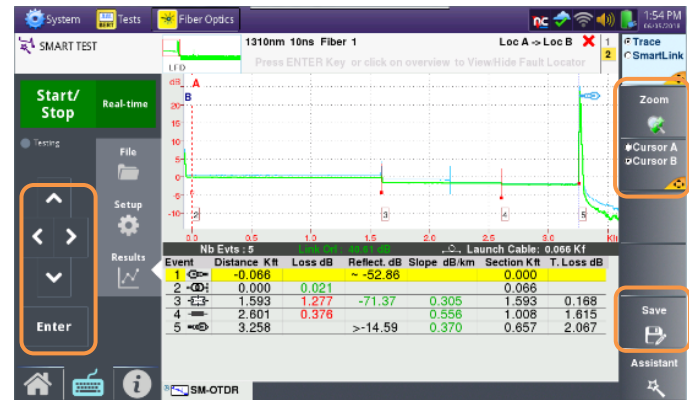







Figure 11: Trace View

4. Tap the **Save** softkey  to view **File Recording Information**.
5. Enter Fiber Id, Fiber Number, Locations, and Job ID as follows:
 - Tap field to open keyboard
 - Tap  to clear existing text.
 - Enter desired value.
 - Tap  icon to return.

Note: The Job ID field identifies the Job ID and creates a folder to save the result by the same name. The default save location is **JOB** folder under **disk**.

6. Tap  to save the OTDR trace in **.sor** format. Tap  to save OTDR trace in **.sor** and **.pdf** format. One file is saved per wavelength.

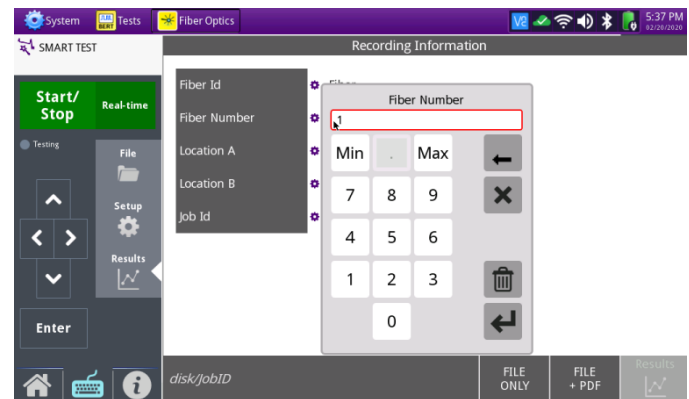



Figure 12: Recording Information

7. The T-BERD/MTS will return to the OTDR results screen.
8. Tap the **Assistant** soft key  to return to the **SMART TEST** Setup menu.
9. Repeat all steps on pages 3 and 4 for all Fibers under test.

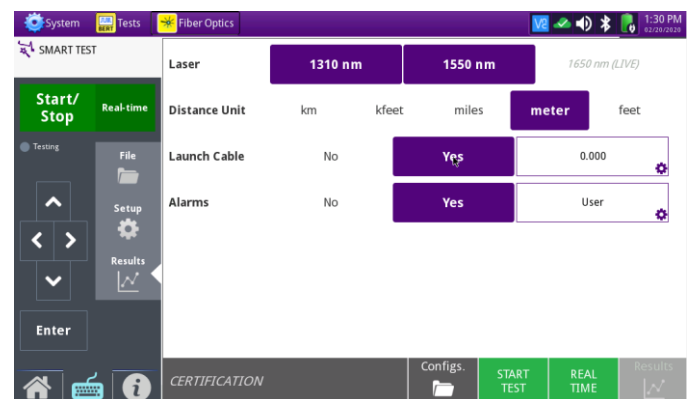


Figure 13: SMART TEST Setup