

QUICK CARD

4100-series 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 4000 equipped with a 4100-series OTDR module.

EQUIPMENT REQUIREMENTS

- ▶ T-BERD/MTS 4000 equipped with the following:
 - Fiber Optics Software Release V21.14 or greater
 - 4100 Series OTDR Module
 - Fiber optic cleaning and inspection tools
- ▶ Minimum 20-meter Fiber optic patch cable (Launch Cable)
- ▶ Optical Coupler to connect Launch Cable to Fiber Under Test



Figure 1: Equipment Requirements

FIBER INSPECTION GUIDELINES

- ▶ Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (OCC Port, Launch Cable, bulkhead connectors, patch cables, etc.)
- ▶ Focus fiber on the screen. If dirty, clean the end-face.
- ▶ 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

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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:



Figure 3: OTDR Port Inspection

1. Inspect the OTDR port on top of the test set.
2. Inspect the fiber end face of the Launch Cable.
3. Connect the Launch Cable to the OTDR port.
4. If the interface to the FUT is a patch cord, connect the patch cord to an optical coupler.
5. Inspect the FUT connected to the coupler or OPP port and the fiber end face of the Launch Cable.
6. Connect the Launch Cable to the coupler or OPP port.

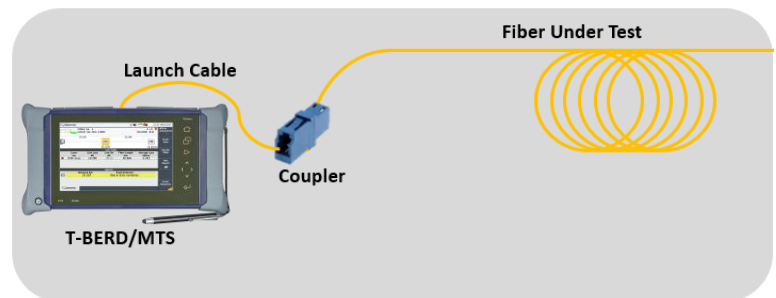


Figure 4: Connecting to coupler

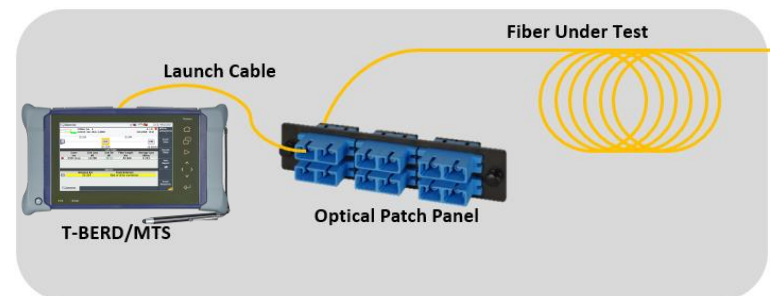





Figure 5: Connecting to OPP

LAUNCH TEST

1. Press the ON/OFF button  to start the test set.
2. Press the Home button  to display the Home view with the **SMART TEST** icon.
3. Tap the **SMART TEST** icon  until it is yellow and highlighted.

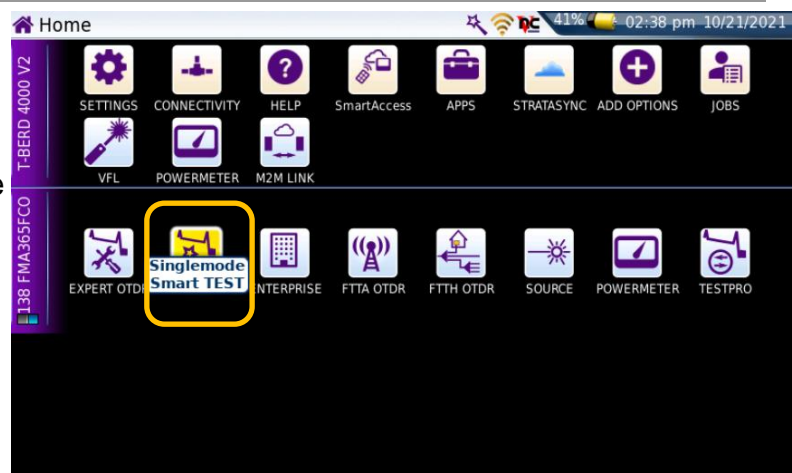



Figure 6: Home Screen

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CONFIGURE TEST

1. Select a configuration file:
 - ▶ Select the **CERTIFICATION_AutoTest_20s** configuration file to setup the T-BERD/MTS 4000 for automatic 20 second acquisitions to confirm loss and distance AND analyze all events (splices, connectors, etc.)
 - ▶ Select the **CERTIFICATION_SmartAcq_20s** configuration file to setup the T-BERD/MTS 4000 for multiple 20 second acquisitions using different pulse widths.
 - ▶ Select the **EXPRESS_AutoTest_5s** configuration file to setup the T-BERD/MTS 4000 for 5 second acquisitions to quickly confirm total span loss and distance.
 - ▶ Tap  to select a user configuration file stored in the /disk/fiber/config folder.

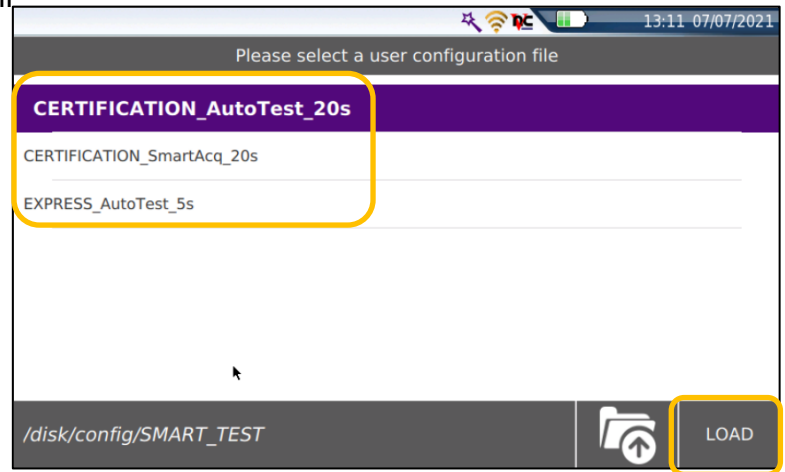



Figure 7: SMART TEST Configuration Files

2. Tap **LOAD** to load the configuration and view the SMART TEST Setup screen.
3. Configure test settings:

- ▶ **Laser:** Select the wavelength(s) to test.
 - Select 1310 nm and 1550 nm to enable bend detection.
- ▶ **Distance Unit:** Tap the desired unit of measure.
- ▶ **Launch Cable:** Tap **YES** if you are using a Launch Cable. Tap the  icon and enter the Launch Cable length. Enter 20 meters or 66 feet for Viavi supplied 20-meter launch cables.
- ▶ **Alarms:** Tap **YES** and choose **Default** for Viavi recommended Pass/Fail limits.

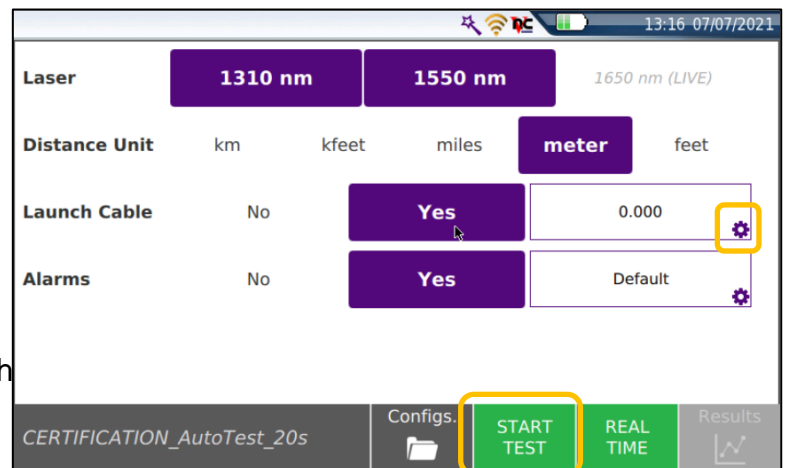


Figure 8: SMART TEST Setup

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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**. If the Connection is **Bad**, disconnect the launch cable, and reconnect as described on pages 1 and 2, cleaning every fiber end-face that fails the inspection test.
2. The OTDR will perform acquisitions at the configured wavelengths. Overall test results (Pass or Fail) will be displayed in a popup window. Touch the popup window to close it.
3. Tap the **SmartLink** tab at the left screen top to select SmartLink view.
4. Set the toggle switch at the right screen top to **Event Line**.
5. View SmartLink results:
 - ▶ The FUT is displayed as a series of icons representing events (front connector, launch cable, connectors, splices, bends, etc.) and distances. Swipe left or right to view additional icons on spans with more than 5 events.
 - ▶ The lower display shows summary results for the entire span for each acquisition or wavelength. Tap any event in the upper display to view detailed results for that specific event.
 - ▶ Events and Acquisitions are marked with a green check or red **x** based on the Alarms setting.

Note: the icon-based view may not be available on older T-BERD/MTS 4000s when acquisition Mode = SmartAcq. Rerun the test with the **CERTIFICATION_AutoTest_20s** configuration file or contact VIAVI to upgrade your unit to add this feature.

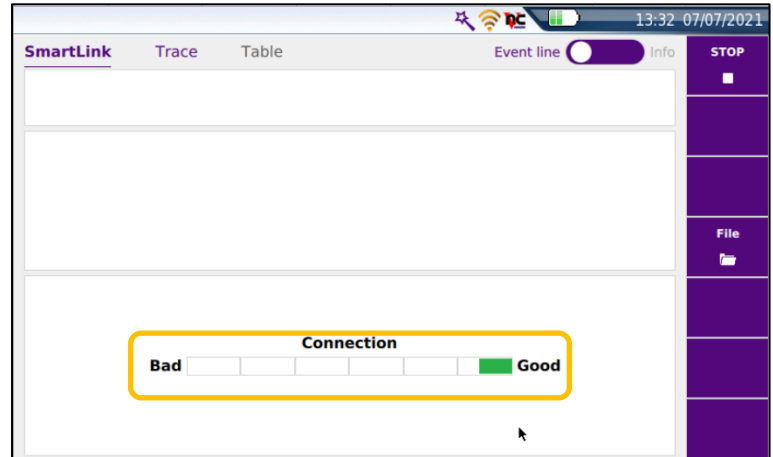


Figure 9: Connection Check

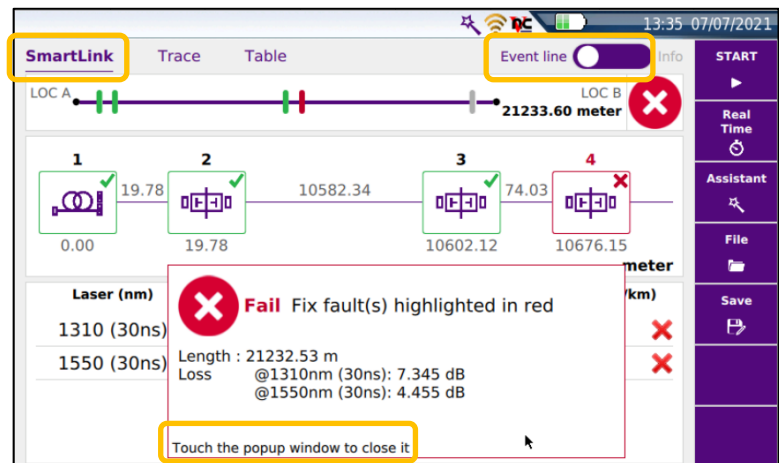


Figure 10: SmartLink View, Summary Results

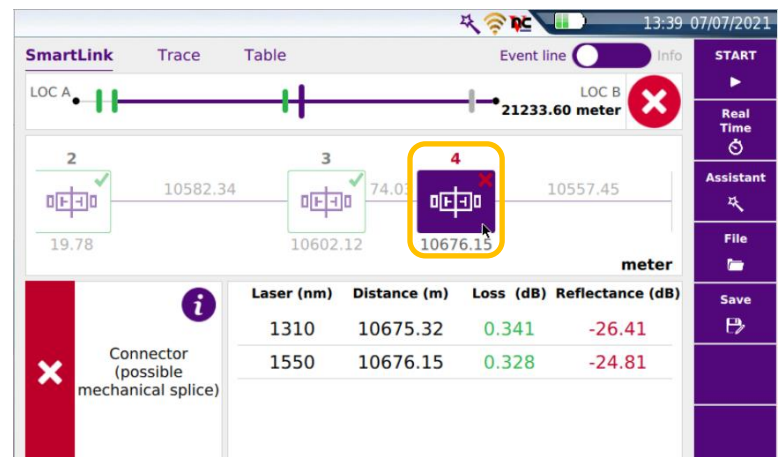


Figure 11: SmartLink View, Event Results

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6. Tap the **Trace** tab at the left screen top to select **Trace view**.
7. Set the toggle switch at the right screen top to **Info**.
8. Tap to auto-zoom.
9. View trace results:
 - ▶ Trace information is shown in the upper display. Tap **1** or **2** to select the acquisition (wavelength or pulse width) for results display.
 - ▶ Graphical results (dB versus distance) are shown in the center display.
 - ▶ A color-coded **Event table** is shown in the lower display. Swipe up and down to view all events.
9. Tap the **Table** tab to select **Table view**.
10. Set the toggle switch to the center (off) position.
11. View table results:
 - ▶ Distance, Loss, and Reflectance are shown for each event.
 - ▶ Tap the toggle switch to view **All** events or **Failed** events.

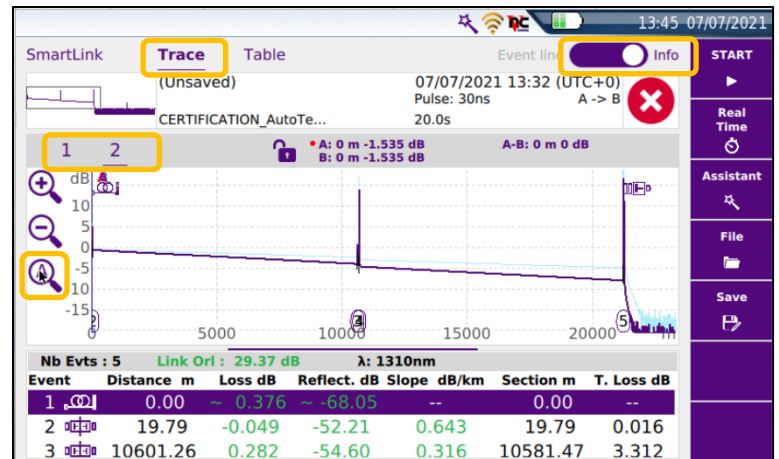


Figure 12: Trace view

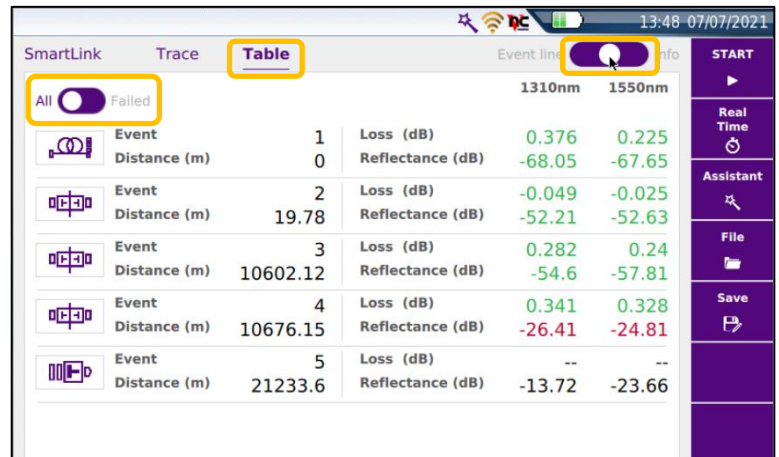


Figure 13: Table view

SAVE RESULTS

1. Tap the Save softkey to view File Recording Information.
2. Enter Job Id, Cable Id, Fiber Id and Fiber Number.
 - ▶ The Job Id field identifies the Job and creates a folder by the same name. Results are saved to this folder.
 - ▶ The Cable Id, Fiber Id, and Fiber Number fields determine the file name.
3. Tap to save a report in PDF format and save a file containing the fiber trace data.

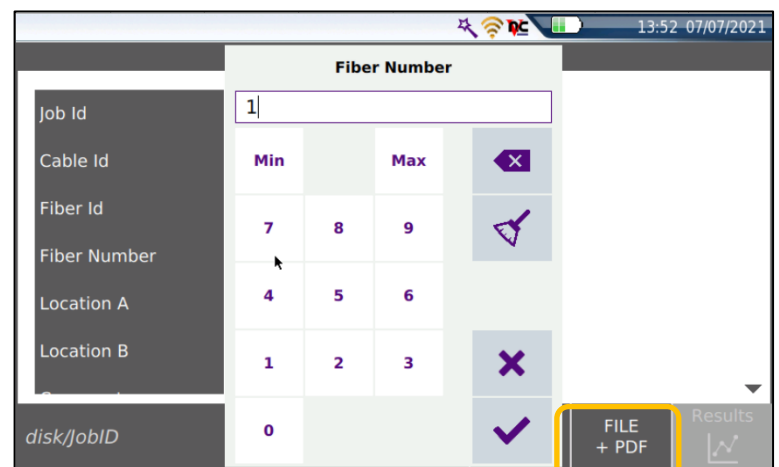


Figure 14: Save Report