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QUICK CARD

DWDM Expert OTDR

This quick card explains how to connect to a fiber under test, configure EXPERT OTDR test settings, run tests, and analyze results with a VIAVI T-BERD/MTS-5800 equipped with a 4100-series DWDM OTDR module.

🖐 **Note: The DWDM OTDR module is used to test individual DWDM channels on a live network. Care must be taken to select and test the correct channel or wavelength.**

► T-BERD/MTS-5800 equipped with the following:

- Fiber Optics Software Release V21.0 or greater

- 4100 Series DWDM OTDR Module (E41DWDMC-PC or E41DWDM-APC)

► Fiber optic cleaning and inspection tools

► 20-meter Fiber optic patch cable (Launch Cable)

► Optical Coupler to connect Launch Cable to Fiber Under Test

Figure 1: Equipment Requirements

► 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.

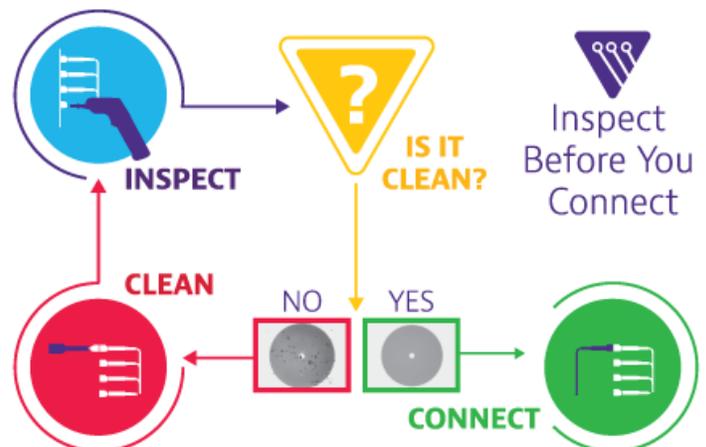► If it fails, clean the fiber and re-run inspection test. Repeat until it passes.

Figure 2: Inspect Before You Connect

T-BERD®/MTS-5800 Network Tester

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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:

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 fiber end face of the Launch Cable.
6. Connect the Launch Cable to the coupler or OPP.
7. Disconnect or disable the far end SFP on this channel/wavelength.

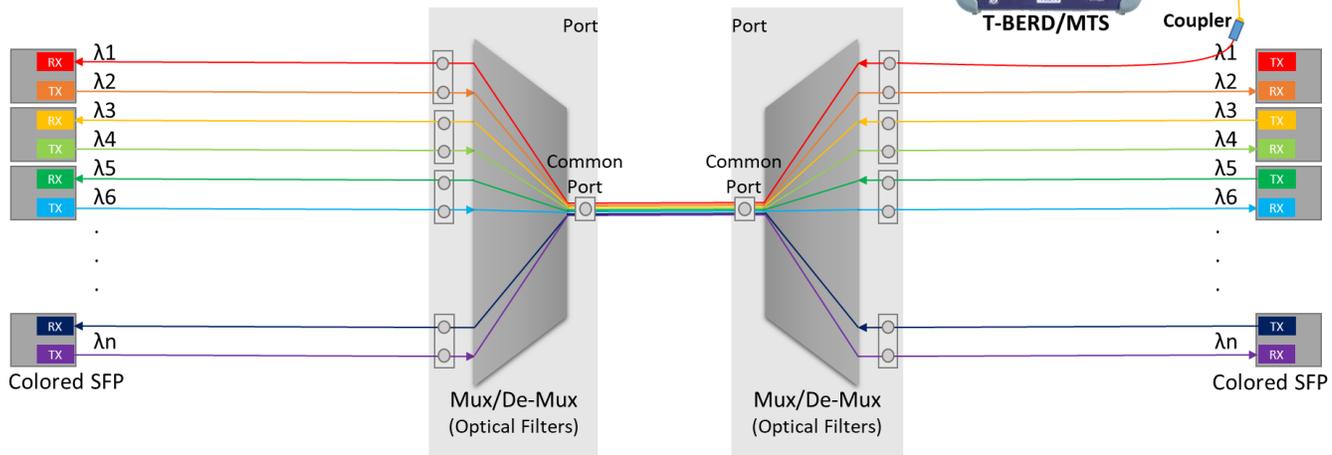
Figure 3: Inspecting the OTDR Port

Figure 4: Connecting to the Fiber Under Test

LAUNCH TEST

1. Press the Power button to start the test instrument.
2. Tap the **Fiber Optics** icon in the Status Bar at the top of the screen.
3. If a purple symbol is displayed on the left screen side, tap it to display the **Fiber Optics** home screen.
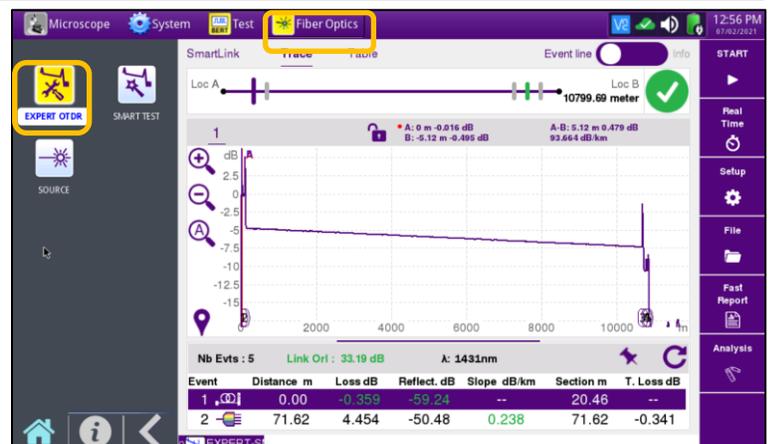4. Tap the **EXPERT OTDR SM** icon until it is yellow and highlighted.

Figure 5: Fiber Optics Home Screen

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CONFIGURE TEST

1. Tap the **Setup** soft key.

2. Tap **Display** and set **Distance Unit** to your desired unit of measure.

3. Tap **Acquisition** and configure the following basic settings for the trace:

   ► **Unit:** Select the unit of measure for channel selection:
     – Select **THz** to enter the frequency.
     – Select **nm** to enter the wavelength.
     – Select **Channel** to enter the ITU channel number.

   ► **Frequency, Wavelength, or Channel**: Select the channel to test.

   ► **Acquisition Mode**:
     – Select **Manual** to manually to enter Range and Pulse width settings.
     – Select **Auto** to automatically configure Range, Pulse width, and Resolution settings.
     – Select **SmartAcq** to perform an acquisition with a short pulse width, followed by an acquisition with a longer pulse width. The first acquisition allows events at the beginning of the fiber to be detected more precisely.

   ► **Acq. Time**: Select Realtime, Auto or the desired time to sample the fiber.

   ► **Launch Cable**: Select and enter **Length** if you are using a Launch Cable. Enter 20 meters or 66 feet for Viavi supplied 20-meter launch cables.

4. Tap **Alarms** and configure pass/fail criteria:

   ► Set **Alarm Level** to **Fail.**

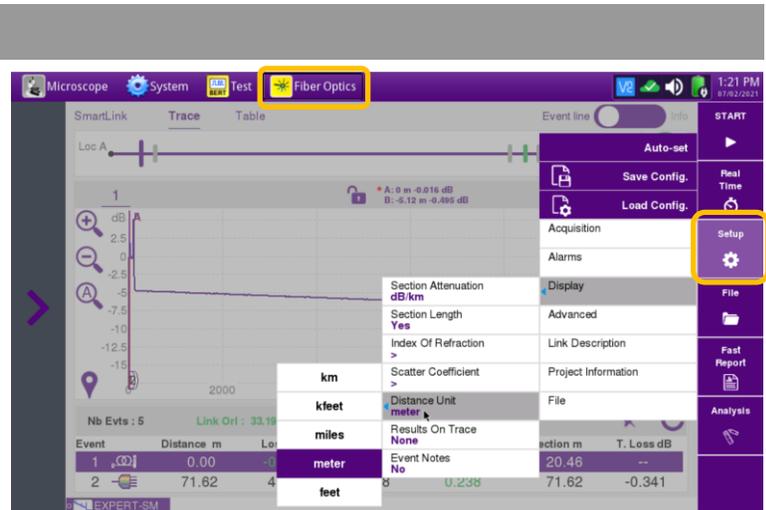   ► Set **Threshold** to **Default**, or select alternate alarm thresholds (TIA-568.3, User, etc.)
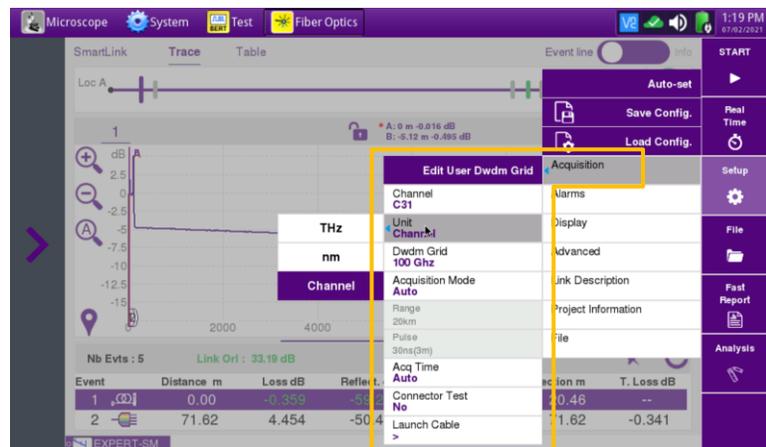

Figure 6: Setup, Display
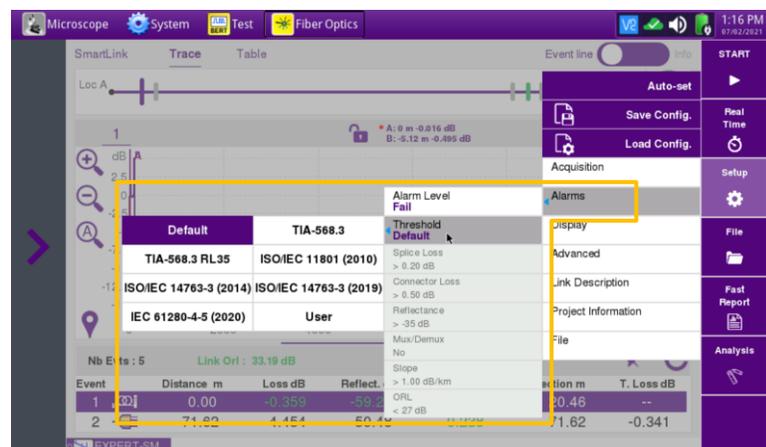

Figure 7: Setup, Acquisition

Figure 8: Setup, Alarms

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RUN TEST

1. Press the Start soft key [START ►] 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 that fails the inspection test.

2. The OTDR will perform an acquisition at the configured wavelength.

Figure 9: Connection Check

VIEW SMARTLINK MAP

1. Tap the **SmartLink** tab at the left screen top to select SmartLink view.

2. Set the toggle switch at the right screen top to **Event Line**.

3. View SmartLink results:

   ► The FUT is displayed as a series of icons representing events (Mux, Demux, splices, bends, connectors, etc.) and distances. Swipe left or right to view additional icons on spans with more than 4 events.

   ► The center of the 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.

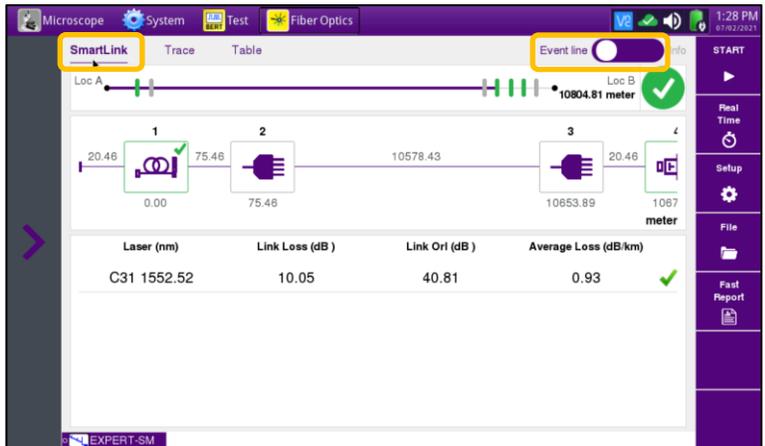   ► Events are marked with a green check or red x based on the Alarms setting.

   Note: the icon-based view may not be available on older T-BERD/MTS 5800s when acquisition Mode = SmartAcq. Rerun the test with the **Mode = Auto** or contact VIAVI to upgrade your unit to add this feature.
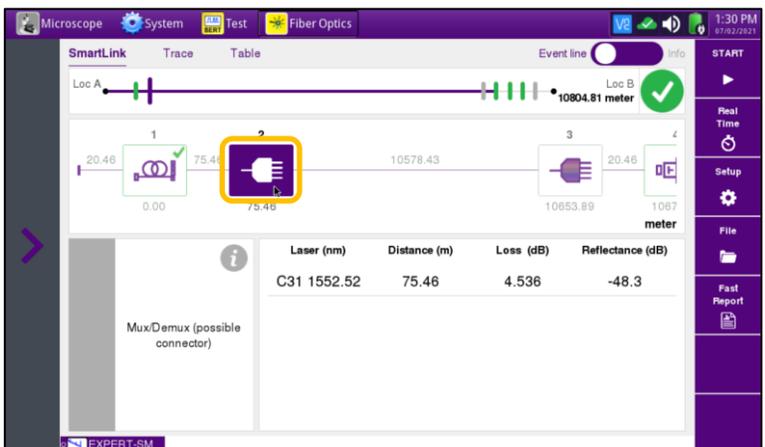
Figure 10: SmartLink View, Summary Results

Figure 11: SmartLink View, Event Results

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VIEW TRACE

1. Tap the **Trace** tab at the left screen top to select **Trace view**.

2. Set the toggle switch at the screen top to **Info**.

3. Tap 🔍Ⓐ to auto-zoom.

4. View trace results:
   ► Trace information is shown in the upper 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.

Figure 12: Trace view

VIEW TABLE

1. Tap the **Table** tab at the left screen top to select **Table view**.

2. Set the toggle switch at the right screen top to the center (off) position.

3. View table results:
   ► Distance, Loss, and Reflectance are shown for each event.
   ► Tap the toggle switch to view All events or Failed events.
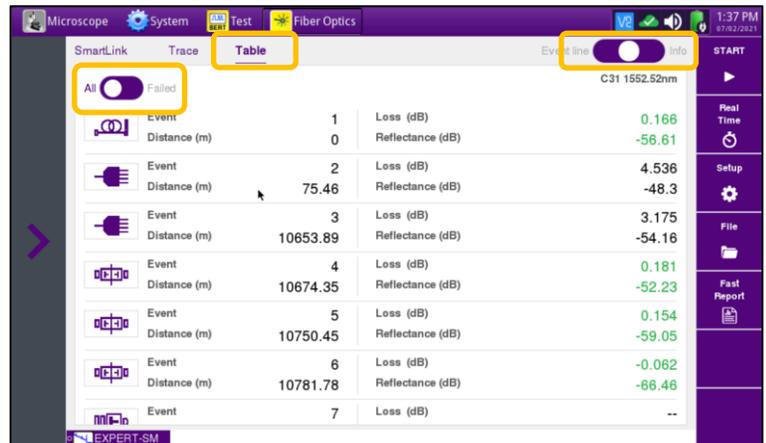

Figure 13: Table view

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FAST REPORT

1. Tap the **File** soft key and tap the **fiber** folder.

2. Tap the **Create Directory** soft key and enter a name for your new folder. All trace files will be saved to this directory.
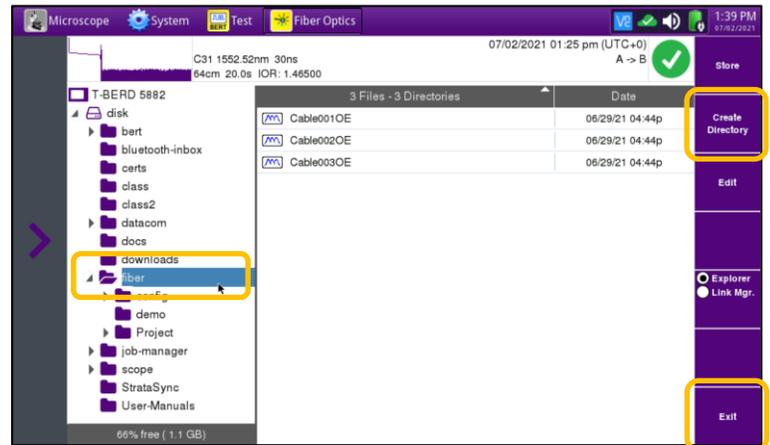
3. Tap the **Exit** soft key.

Figure 14: File Explorer

4. Tap the **Fast Report** soft key and enter **Cable ID**, **Fiber Number**, **Locations**, **Direction**, and **Save Mode**.

5. Tap **Save**.

6. Tap ✔ to accept the default filename and save test results.

7. Tap the **Fast Report** soft key again to return to the results display.
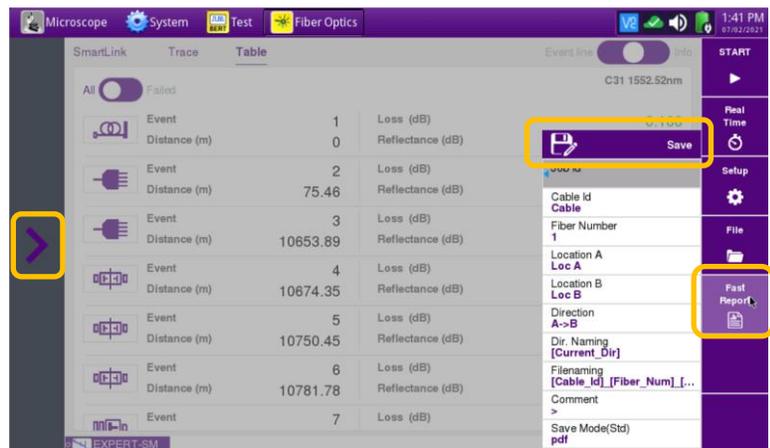
8. Tap to return to the OTDR Home screen.

Figure 15: Fast Report

Contact Us

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