

## QUICK CARD

### 4100-series OTDR Expert OTDR Settings

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



## QUICK CARD

### 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.
- 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 3: OTDR Port Inspection

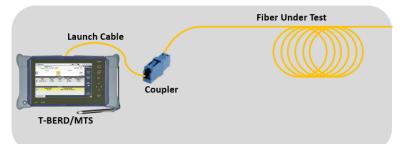
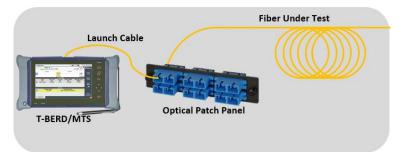


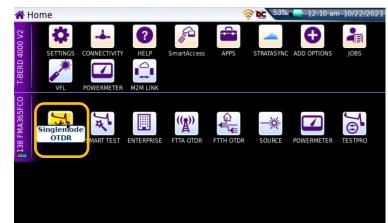
Figure 4: Connecting to coupler



#### Figure 5: Connecting to OPP

### LAUNCH TEST

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



#### Figure 6: Fiber Optics Home Screen



## QUICK CARD

#### CONFIGURE TEST

1. Tap the **Setup** soft key



- 2. Tap **Acquisition** and configure the following basic settings for the trace:
  - > **Laser:** Choose the wavelength(s) to test.
  - Acquisition Mode:
    - Select Manual to manually to enter Range and Pulse width settings.
    - Select Auto to automatically configure Range, Pulse width, and SmartAcq 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.
- 3. 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.)
- 4. Tap **Display** and set **Distance Unit** to your desired unit of measure.

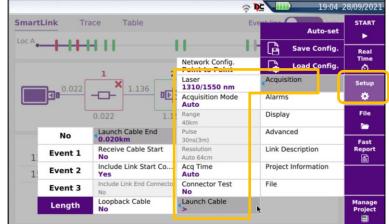


Figure 7: Acquisition settings

SmartLink	Trace Table		Event lies Auto-set	START
Loc A			2: 🗗 Save Config.	Real
	None		Load Config.	Time Š
_	Default	1	Acquisition	Setup
	TIA-568.3	Threshold	Alarms	
	TIA-568.3 RL35	> 0.20 dB	Display	File
	ISO/IEC 11801 (2010)	Connector Loss Advanced		-
Laser (nm) 130/IEC 11801 (2010) 1310 (30n ISO/IEC 14763-3 (2014)				Fast Report
1550 (30r	1550 (30n ISO/IEC 14763-3 (2019)		Project Information	
	IEC 61280-4-5 (2020)	No Slope > 1.00 dB/km	File	
	User	ORL < 27 dB		Manage Project

Figure 8: Alarm Settings

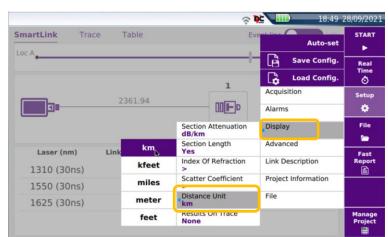


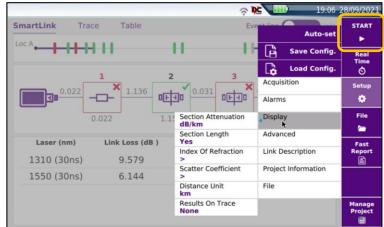
Figure 9: Display settings

## QUICK CARD

### RUN TEST

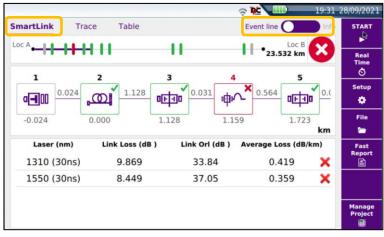
- Tap the Start soft-key to start the test. After auto-configuration, the OTDR will perform a connection check to ensure that the connection is **Good**. If the Connection is **Bad**, disconnect the launch cable, and reconnect as described on pages 1 and 2, cleaning every fiber end-face that fails the inspection test.
- 2. After connection checks, the OTDR will perform acquisitions at the configured wavelengths.
- 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 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 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 Manual or Auto Acquisition or contact VIAVI to upgrade your unit to add this feature.



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Figure 10: Start Test





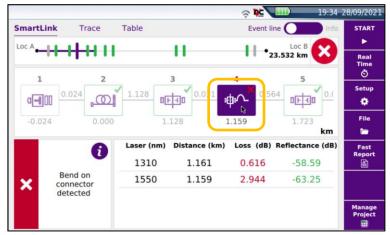


Figure 12: SmartLink View, Event Results



## QUICK CARD

- 6. Tap the **Trace** tab at the left screen top to select **Trace view**.
- 7. Set the toggle switch at the screen top to Info.
- 8. Tap the magnifying glass icons to zoom in ⊕, zoom out ⊖, or auto-zoom @ the display.
   You can also pinch and zoom with your fingers.
- 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.



Figure 13: Trace view

- 10. Tap the **Table** tab to select **Table view**.
- 11. Set the toggle switch at the right screen top to the center (off) position.
- 12. View table results:
  - Distance, Loss, and Reflectance are shown for each event.
  - Tap the toggle switch to view All events or Failed events.

			4	≈ <b>№</b> ()	19:43	28/09/2021
SmartLink	Trace	Table		Event line	Info	START
				1310nm	1550nm	
	Event	-0.024	Loss (dB) Reflectance (dB)	-66.46	-69.81	Real Time Ö
ത	Event Distance (km)	-0.024	Loss (dB) Reflectance (dB)	0.484	0.325	Setup
	Event Distance (km)	3	Loss (dB) Reflectance (dB)	-0.148	-0.004	File
ф^-	Event Distance (km)	4	Loss (dB) Reflectance (dB)	0.616	2.944	Fast Report
	Event Distance (km)	5 1.723	Loss (dB) Reflectance (dB)	0.392	0.335	
	Event Distance (km)	6 1.743	Loss (dB) Reflectance (dB)	0.063	-0.016 -57.72	Manage Project

Figure 14: Table view

## QUICK CARD

#### SAVE RESULTS

Tap the Fast Report soft key 1.



- 2. Enter Job Id, Cable ID, Fiber Number, Locations, and Direction.
  - The Job Id field identifies the Job and creates a folder by the same name. Results are saved to this folder.

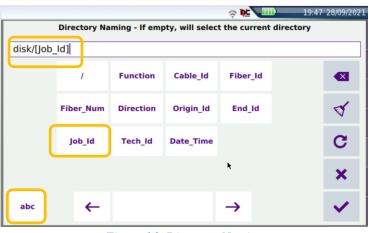
3. Set Dir. Naming to disk/[Job\_ld]. Use the

abc/[auto] button to toggle between test entry

▶ The Cable Id, Fiber Id, and Fiber Number fields determine the file name.

					15.40 2	8/09/202
SmartLink	Trace	Table		Event line	Info	START
				B,	Save	•
	Event	1	Loss (dB)	Job Id 1		Real Time
	Distance (km)	-0.024	Reflectance (dB)	Cable Id Cable		ð
.001	Event	2	Loss (dB)	Fiber Number		Setup
0-28-28	Distance (km)	0	Reflectance (dB)	Location A		File
	Event Distance (km)	3 1.128	Loss (dB) Reflectance (dB)	Location B Loc B		
-th-O	Event	4	Loss (dB)	Direction A->B		Fast Report
W Dista	Distance (km)	1.159	Reflectance (dB)	Dir. Naming disk/[Job_Id]		
	Event	5	Loss (dB)	Filenaming		
	Distance (km)	1.723	Reflectance (dB)	>		
	Event	6	Loss (dB)	Comment >		Manage
	Distance (km)	1.743	Reflectance (dB)	Save Mode(Sto File Only	ł)	Project

#### Figure 15: Report Settings



#### Figure 16: Directory Naming

			4	PC	19:49 2	8/09/2021
SmartLink	Trace	Table		Event line	Info	START
				E>	Save	•
	Event Distance (km)	-0.024	Loss (dB) Reflectance (dB)	Job Id 1 Cable Id Cable		Real Time Š
_	Event Distance (km)	2	Loss (dB) Reflectance (dB)	Fiber Number 10		Setup
마ㅋ미	Event Distance (km)	3	Loss (dB) Reflectance (dB)	Location A Loc A Location B Loc B		File
u∯ı∕_	Event Distance (km)	4	Loss (dB) Reflectance (dB)	Direction A->B Dir. Naming		Fast Report
	Event Distance (km)	5	txt file	disk/[Job_ld] Filenaming >		
	Event Distance (km)	No Yeş	yef file Yes json file	Comment	)	Manage Project

#### Figure 17: Fast Report

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4. Set Save Mode to pdf.

and field entry,



- Tap 
  to accept the default filename and 6. save test results.
- 7. Tap the Fast Report soft key again to return to the results display.

Save

8. Press the Home button to the Home view.



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