

GETTING STARTED MANUAL

T-BERD/MTS-4000 V2 – Fiber Inspection and OTDR Measurements

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9. CONFIGURING A TEST IN EXPERT MODE

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SAFETY INFORMATION

Laser safety

The provisions contained in two standards define the safety procedures to be observed both by users and by manufacturers when utilizing laser products:

- IEC 60825-1: 2014 - Safety of laser products – Part 1: Classification of products, requirements and user guidelines.

- FDA 21 CFR § 1040.10 - Performance standards for light-emitting products - Laser products.

Due to the range of possible wavelengths, power values and injection characteristics of a laser beam, the risks inherent in its usage vary. The laser classes form groups representing different safety thresholds.

-VFL option: Laser Class 2.

Due to the reduced dimensions of the optical modules, it is not possible to attach the required warning labels to them. In line with the provisions of Article 7.1 of the IEC 60825-1:2014 standard, the laser class identification labels are shown below:

| Ref. standard | IEC 60825-1:2014 | FDA21CFR§1040.10 |
|---------------|--|---|
| Class 2 | LASER RADIATION DO NOT STARE INTO BEAM CLASS 2 LASER PRODUCT | CAUTION LASER RADIATION - DO NOT STARE INTO BEAM CLASS II LASER PRODUCT |

The user must take the necessary precautions concerning the optical outputs of the instrument and follow the manufacturer's instructions.

AC/DC power supply safety



Always use the proper adaptable plug to connect the power supply to an electrical outlet. VIAVI is not responsible for direct or indirect damage including damage to persons or property if the power supply is not use correctly. For assistance using one of the VIAVI supplied adapters (your specific regional adapter may not be available) please refer to the user manual.

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INSPECT AND CLEAN CONNECTORS


Before connecting a fiber into a test module, inspect and clean the module bulkhead and the fiber jumper connectors.

1. Use a fiber microscope (such as P5000i or FiberChek) to verify the connector quality. Follow this simple “INSPECT BEFORE YOU CONNECT” process
2. Use appropriate cleaning material (e.g. IBC™ cleaner, cotton swab, etc...) and re-inspect to confirm.
3. Carefully align the connector and test port prior to mating both,



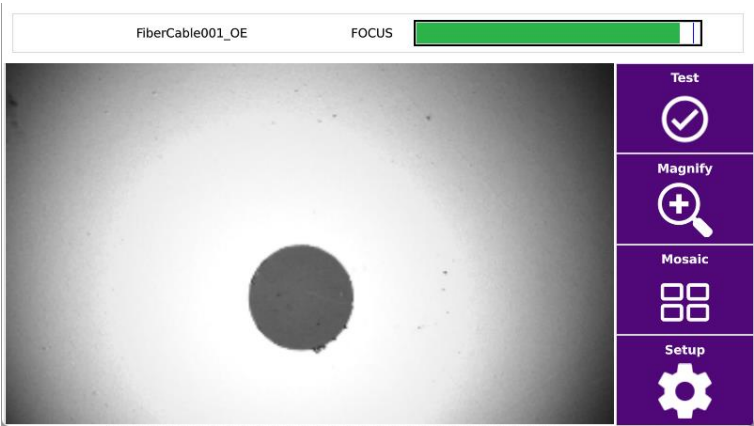
Never force the connector ferrule or insert it with an angle into the test port adapter. Mechanical stress may permanently damage the ceramic sleeve of the adapter or the end face of the connector,

USING A P5000i WITH THE 4000v2 PLATFORM

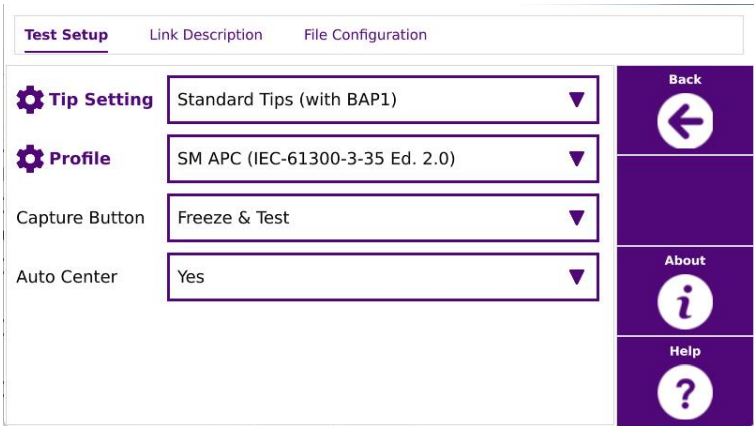
1. Connect the Microscope to the 4000 V2 Mainframe USB port.
2. On the **Home** page, select the **Microscope** icon .
3. Use the **Focus** control button of the Microscope to adjust the focus



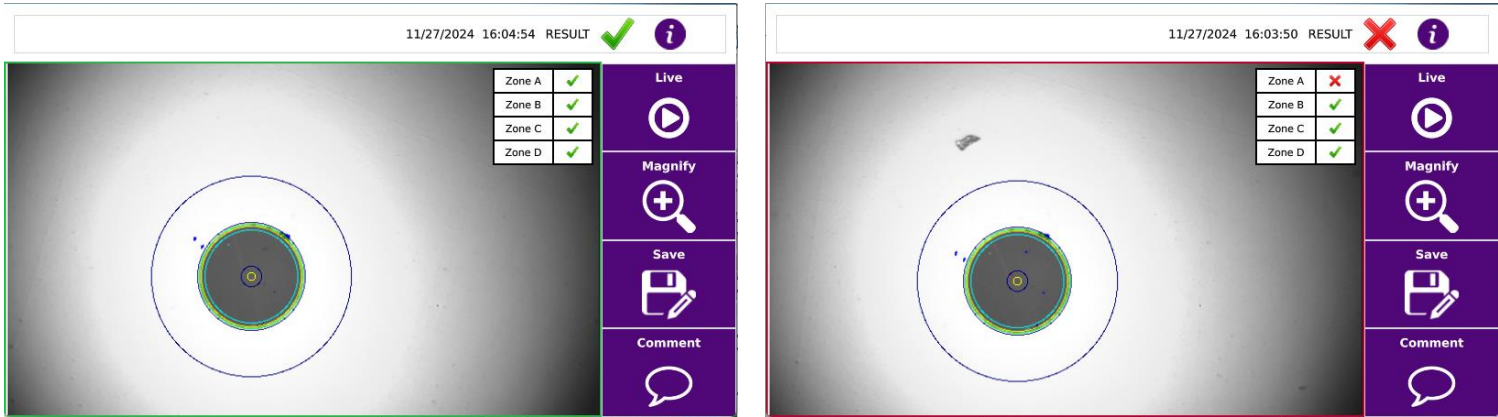
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4. Press **Setup** key and touch the **Test Setup** link to configure the test of the connector.



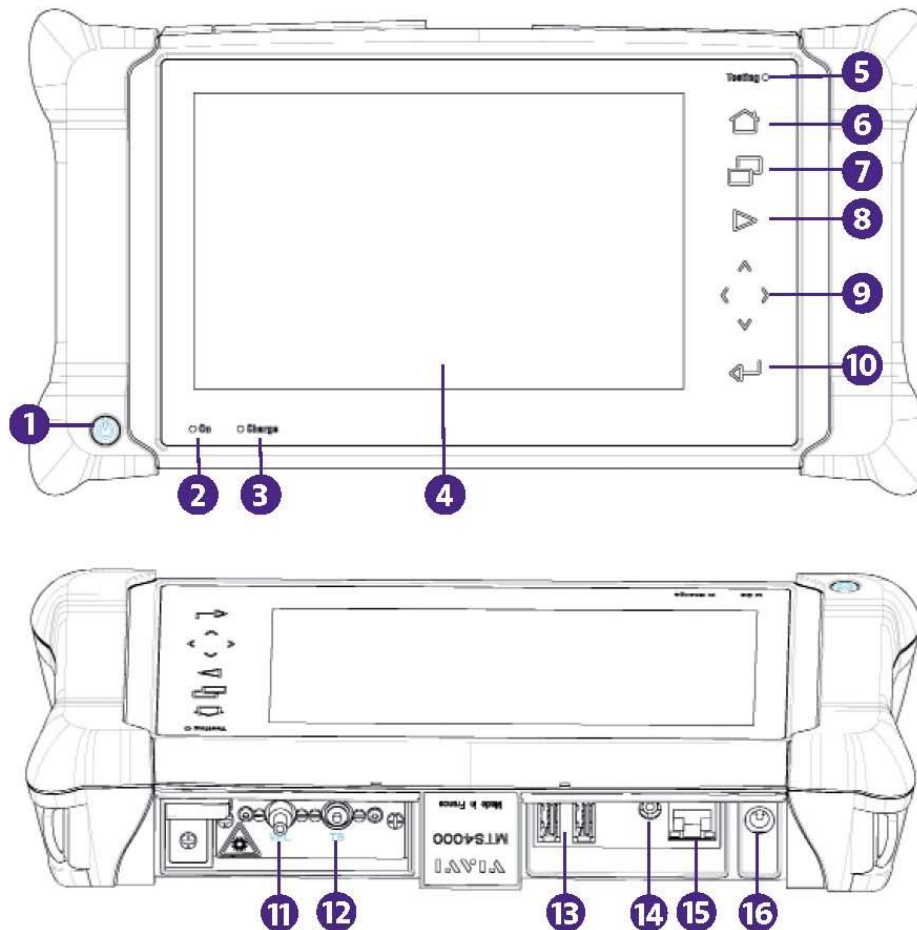
5. Press **Back** to return to Results page, and press (or press on the **Quick Capture** button on the probe), to launch the test of the connector.



A summary of test results is displayed.
Zones: A - Core / B - Cladding / C - Epoxy / D - Ferrule.

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4000V2 PLATFORM OVERVIEW

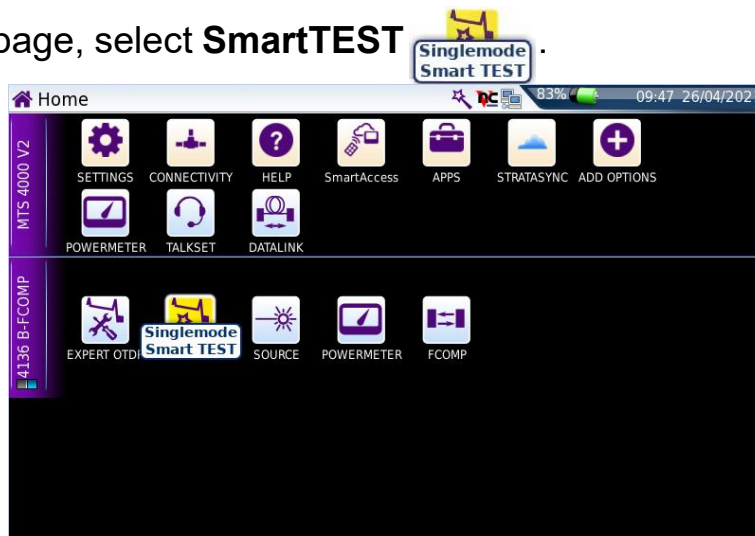


| | |
|---|-------------------------------------|
| 1. On/Off | 9. Direction key |
| 2. On indicator | 10. Enter |
| 3. Charge indicator | 11. Powermeter input |
| 4. TFT Color touchscreen | 12. Talkset connection / VFL output |
| 5. Testing indicator Setup | 13. USB ports (2) |
| 6. Home Start/Stop | 14. Headset jack |
| 7. View (give access to Results / Setup / File) | 15. RJ45 connector |
| 8. Start Stop | 16. AC/DC Input |

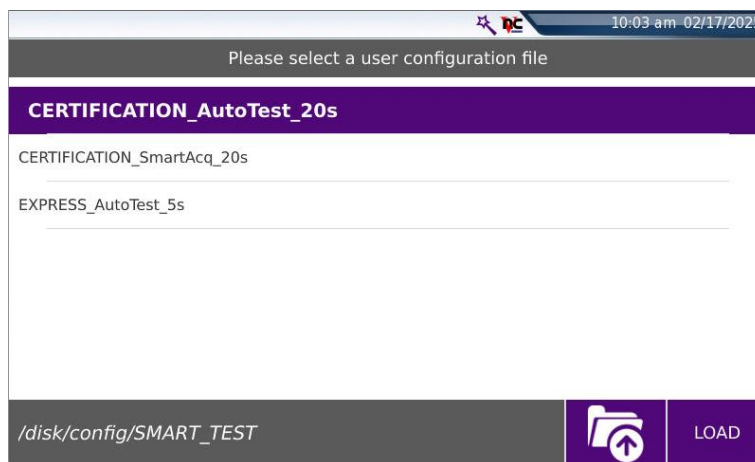
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CONFIGURING A TEST IN SMART TEST MODE

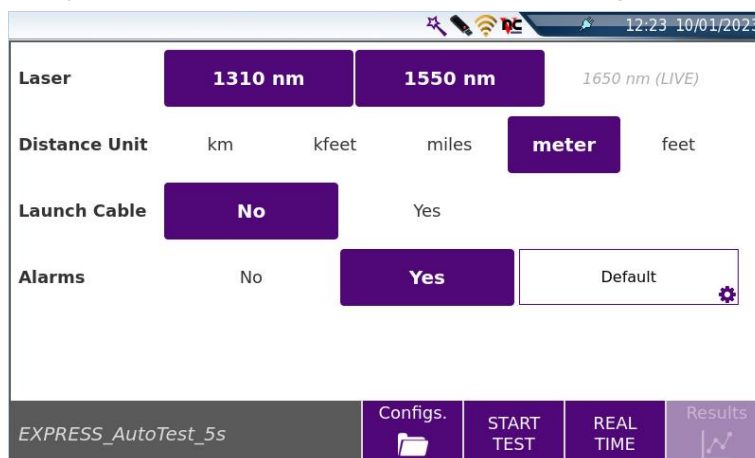
1. On the **Home** page, select **SmartTEST**



2. Select the configuration file corresponding to your application and press LOAD key.



3. If necessary, modify some parameters before starting the acquisition,



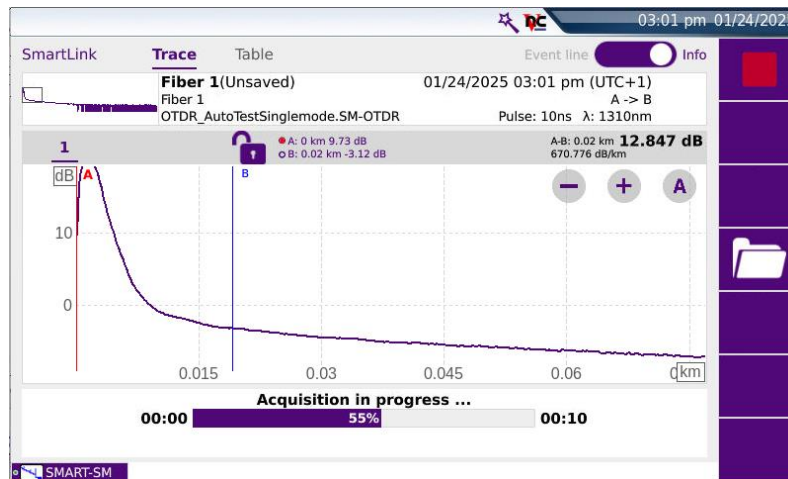
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PERFORMING AN OTDR TEST IN SMART TEST MODE

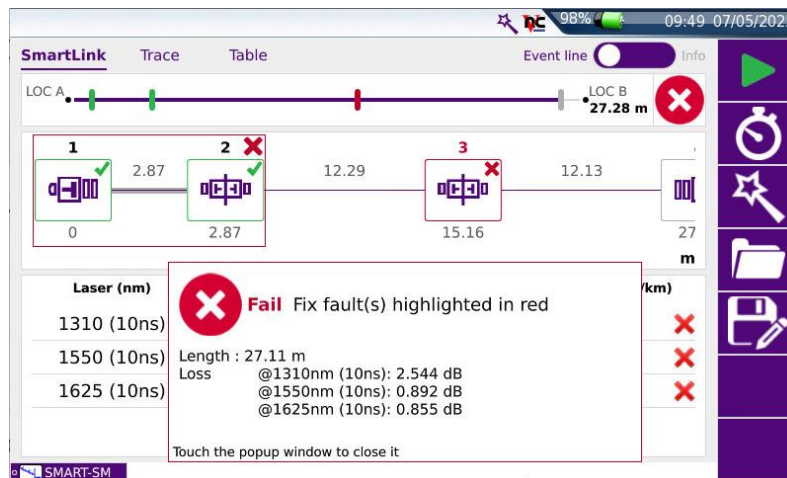
1. From the previous configuration screen  .

The measurement starts:




- Step1: Test port connection health check
- Step2: OTDR measurement



2. At the end of the test, the Smart Link view is displayed, with a pop up window indicating global test results (loss, length at each wavelength, and alarm status).



The pop up window displays:

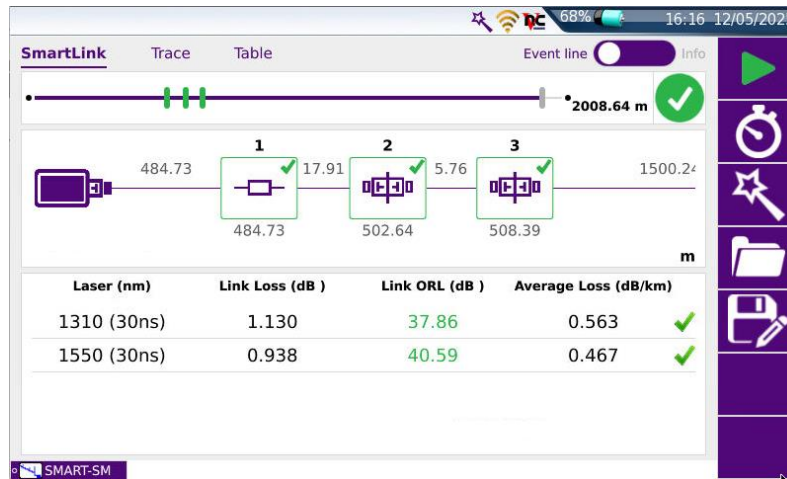
- the icon  if no alarm thresholds are defined.
- the icon  if no event exceeds the alarm thresholds.
- the icon  if at least one event exceeds the alarm thresholds.

Touch the popup window to close it, and get access to the detailed SmartLink map view

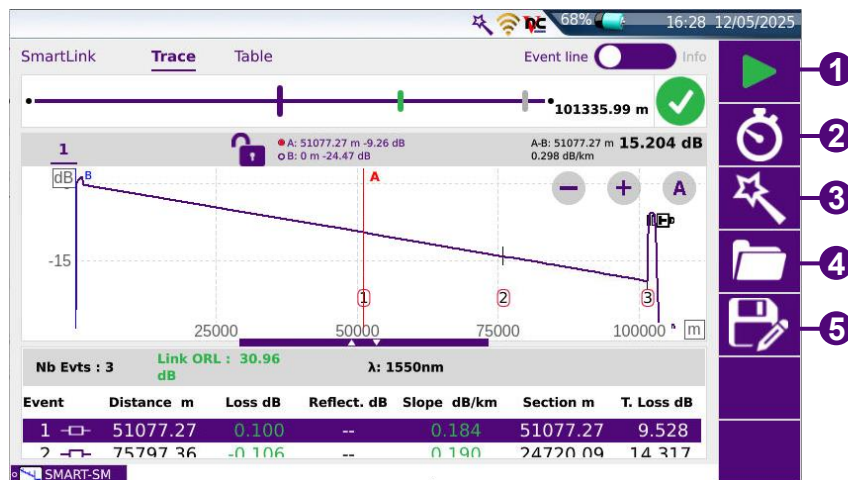
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RESULTS DISPLAY IN SMART TEST MODE

The SmartLink View is displayed at the end of the acquisition.



1. Click on the tab **Trace** to display the result trace.




1. **Start:** press to perform a new measurement
2. **Real Time:** press to perform a new measurement in Real Time
3. **Assistant:** press to return to Setup information page (see ["Configuring a test in Smart Test Mode"](#))
4. **File:** press to open the File Explorer
5. **Save:** press to save the results (.sor and .pdf formats)

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CONFIGURING A TEST / CREATING A CONFIG. IN EXPERT MODE

- On the **Home** page, select **Expert OTDR** icon.



- From the **Results** page, press  to manually configure the OTDR parameters.

General

Test configuration

Load Configuration Save Configuration

Current Config. Name:

Test Cables

Launch Cable ☒ Event 2

Include Link Connection No ☐

Receive Cable ☐

Distance Unit km

Back to classic setup

Default setup EXPERT-SM

Load or Save a configuration. Set Test cables lengths and distance unit

General

Laser 1310 nm 1550 nm 1625 nm

Acquisition

Acquisition Mode Auto Manual SmartAcq+

Acq Time Auto

Alarms

Link

Files

Display

Default setup EXPERT-SM

Define the acquisition parameters Laser, Mode, Time

General

Detection Thresholds

Splice Auto (> 0.05 dB) Bend Auto (> 0.30 dB)

Reflectance All Slope on Section Auto (> 200 m)

Fiber End Auto (> 8 dB) Ghost No

Mux/Demux Auto (> 0.80 dB)

Analysis

Test Port Check No

Test Port Meas. ☒ Yes

Event After Fiber End No ☐

Default setup EXPERT-SM

Define the Advanced parameters: Detection Thresholds, Analysis, IOR and Scatter Coefficient

General

Index Of Refraction

Preset Index G652 G657

| Wavelength | SM | Value | Wavelength | SM | Value |
|------------|----|-----------|------------|----|---------|
| 1310 | SM | 1.46750 * | 1360-1520 | SM | 1.46800 |
| 1550 | SM | 1.46800 | 1590-1650 | SM | 1.46850 |

Section AB 5034.7 Link Length 5034.1

Scatter Coefficient

Scatter Coefficient Auto

| Wavelength | SM | Value | Wavelength | SM | Value |
|------------|----|---------|------------|----|-------|
| 1310 | SM | -79.0 * | 1360-1520 | SM | -81.0 |
| 1550 | SM | -81.0 | 1590-1650 | SM | -81.0 |

Default setup EXPERT-SM

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CONFIGURING A TEST IN EXPERT MODE

General
Alarm Level: None Fail **Warning**

Advanced
Event

Alarms
Splice Loss ☒ > 6.00 dB
Connector Loss ☐
Reflectance ☒ > -50 dB

Link
Files
Display

Default setup
EXPERT-SM

Define the alarms thresholds

General
Technician Id: technician Job ID:

Acquisition
Advanced
Location A: DUNGARVAN. Location B: LITTLE ISLAND.

Alarms
Direction: A->B B->A

Link
Extremities are different: Yes

Files
Cable Id: Fiber Id: ff
Fiber Number: 1 13
Change Fiber Nbr: Increment

Display

Default setup
EXPERT-SM

Define the Link Id parameters (Cable/Fiber Id, Locations...)

General
File(s) save in: [Function]

Acquisition
Directory: disk/OTDR

Advanced
Filenaming: [Cable_Id][Fiber] Default
Filename: 96F_0001_ML_OEO

Link
Files
Display

Type: ☒ Single Trace .sor ☒ Multi Traces
Report: ☒ PDF ☐ JSON ☐ TXT
Comment:
Auto Save: Yes
Confirm if alarm=fail: No

Default setup
EXPERT-SM

Define the Files and Reports saving parameters (directory, filename, files format...)

General
Show Cursors: Yes

Acquisition
Section Length: Yes

Advanced
Section Attenuation: dB/km



Alarms
Results On Trace: None All Graphics

Link
Files
Display

Event: Yes
Slope: Yes
Distance: Yes
Loss: Yes
Reflectance: Yes

Default setup
EXPERT-SM

Define Features on Traces

- If needed, save all the configured parameters by pressing **Save Configuration** in **General** page.
- Type a file name in the edition keypad and press  to validate.
- Press  to check the configuration file has been correctly saved.

OTDR_Expert_Mode.SM-OTDR.fo_cfg
Acq: MAN

| | 14 Files - 5 Directories | Date | |
|-----------------|--------------------------------|----------------|------------|
| Apps | | | Load |
| AURORA DUN | | | Select all |
| AURORA DUN | | | Edit |
| BOM062 | | | Export |
| Calib_docs | | | Explorer |
| config | | | Link Mgr. |
| ENTERPRISE | | | |
| FCOMP | | | |
| FTTA | | | |
| FTTH | | | |
| SMART TEST | | | Exit |
| 7% free (73 MB) | | | |
| | OTDR_AutoTestMultimode.MM-OTDF | 12/03/25 10:04 | |
| | OTDR_AutoTestSinglemode.SM-OTD | 12/03/25 10:04 | |
| | OTDR_Expert_Mode.SM-OTDR | 12/03/25 10:04 | |
| | OTDR_LongReach_160km.SM-OTDR | 12/03/25 10:04 | |
| | OTDR_MediumReach_80km.SM-OTC | 12/03/25 10:04 | |
| | OTDR_ShortReach_20km.SM-OTDR | 12/03/25 10:04 | |
| | OTDR_VeryShortReach_1km.SM-OTI | 12/03/25 10:04 | |
| | PropagationDelay.SM-OTDR | 12/03/25 10:04 | |

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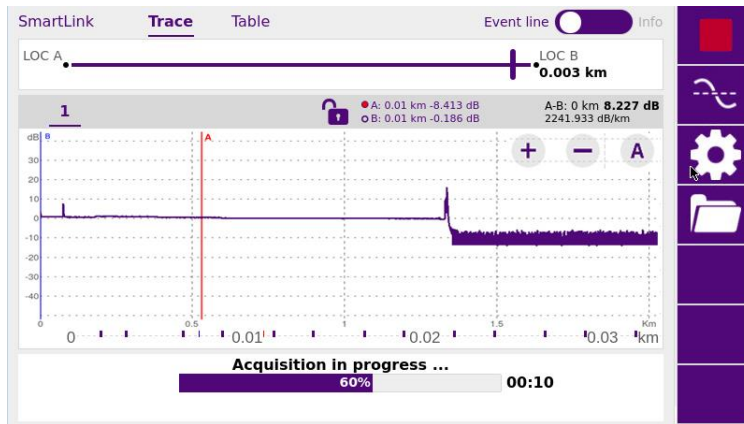
PERFORMING AN OTDR TEST IN EXPERT OTDR

1. Once the OTDR is configured, press  to launch the acquisition:

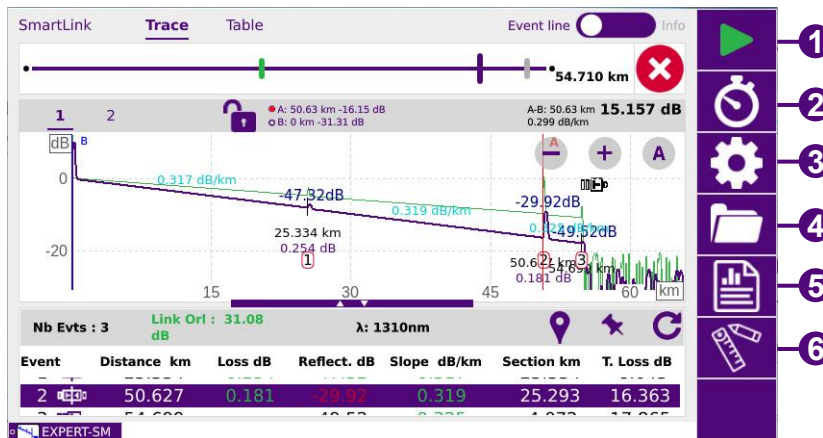
- **Step1:** if set up in Advanced page, test port connection health is checked and status (good/back) is displayed in the **Trace** view.



- **Step2:** OTDR measurement



2. At the end of the test, the OTDR trace(s) and SmartLink View is displayed.



1. **Start:** press to perform a new measurement in Expert mode

2. **Real Time:** press to perform a new measurement in Real Time

3. **Setup:** press to display OTDR parameters (see ["Configuring a Test / Creating a Smart config. in Expert Mode"](#))

4. **File:** press to open the File Explorer

5. **Fast Report:** press to save the results (.sor and .pdf formats) if no saving has been pre-set in the "Files" view

6. **Analysis:** press to access to manual measurements: Loss / ORL / Reflectance / Slope

T-BERD/MTS 4000V2

SW version \geq 25.xx



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TECHNICAL ASSISTANCE

If you require technical assistance, call 1-844-GO-VIAVI. For the latest TAC information, go to [Technical Support | VIAVI Solutions Inc.](#).