

Quick Card

T-BERD[®]/MTS-5800 Modular Test Set CWDM Optical Spectrum Analyzer (COSA)

This quick card describes how to connect to a fiber under test, configure COSA test setups, run tests, and analyze results with a T-BERD/MTS-5800 equipped with a COSA module.



Note: The COSA module is used to monitor wavelengths on a live network. Care should be exercised when unplugging fibers from the network as the fibers may be carrying traffic.

Equipment Requirements:

- T-BERD/MTS-5800 equipped with the following:
 - Fiber Optics Software Release V16.22 or greater
 - E4100 Series COSA Module
- Fiber optic cleaning and inspection tools
- 20-meter Fiber optic patch cord (Launch Cable)
- Optical Coupler to connect Launch Cable to Fiber Under Test



The following information is required to complete the test:

- Type of Connectors (SC UPC, SC APC, LC UPC, etc.)
- CWDM Wavelengths used

Fiber Inspection Guidelines:

Inspect and clean (if necessary) both sides of every connection being used (bulkhead connectors, patch cords, and OTDR port) prior to reconnection for each test. Using the P5000i or FiberChek Probe:

- Focus fiber on the screen. If dirty, clean the connector.
- If it appears clean, run inspection test.
- If it fails, clean fiber and re-run inspection test. Repeat until it passes.
- To inspect SFP ports:
 - With the P5000i, insert the probe tip into the SFP port, move the focus wheel all the way to one end, and slowly move the focus wheel to the other end.
 - With the FiberChek Probe, manually focus with middle toggle switch or pull the trigger to auto-focus.
- If a fiber stub (a darker circle on a lighter background as shown in figure 2) is detected follow standard inspection and cleaning procedures. If you are unable to focus on a fiber end face, do not clean the port. The SFP uses a lens of some sort, that cannot be cleaned.



Figure 1: FiberChek Probe



Figure 2: Image of Clean Fiber

Connect to Fiber Under Test (FUT):

All fibers and connectors should be cleaned and inspected prior to connection, as described on page 1. The COSA is typically connected to the FUT via a Monitor Port or splitter/tap to not disrupt service. The COSA can also be directly connected to the common port or common fiber via a coupler during turn up or maintenance:

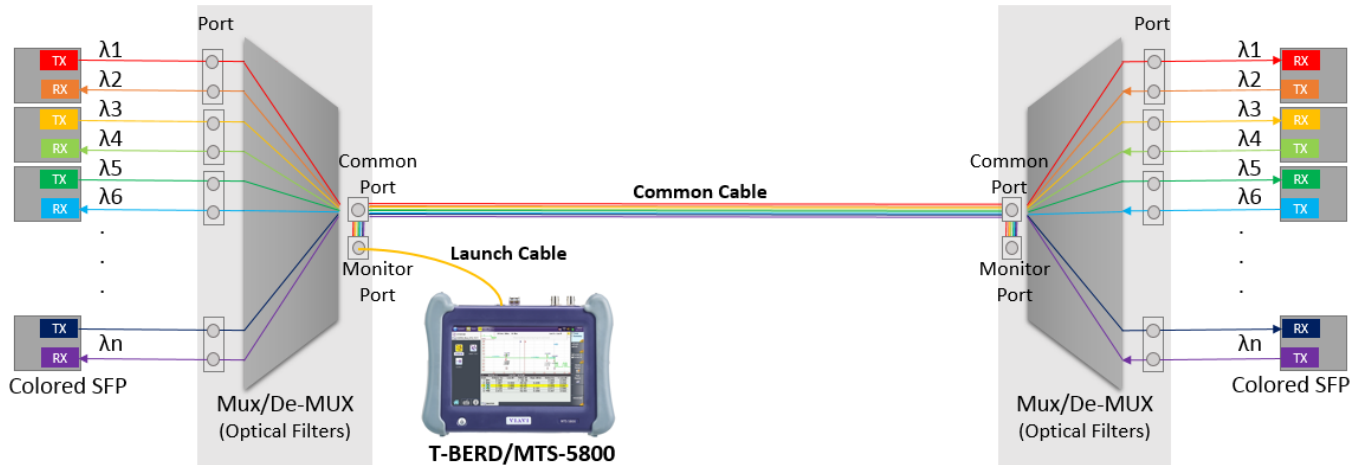


Figure 3: Connecting to Monitor Port

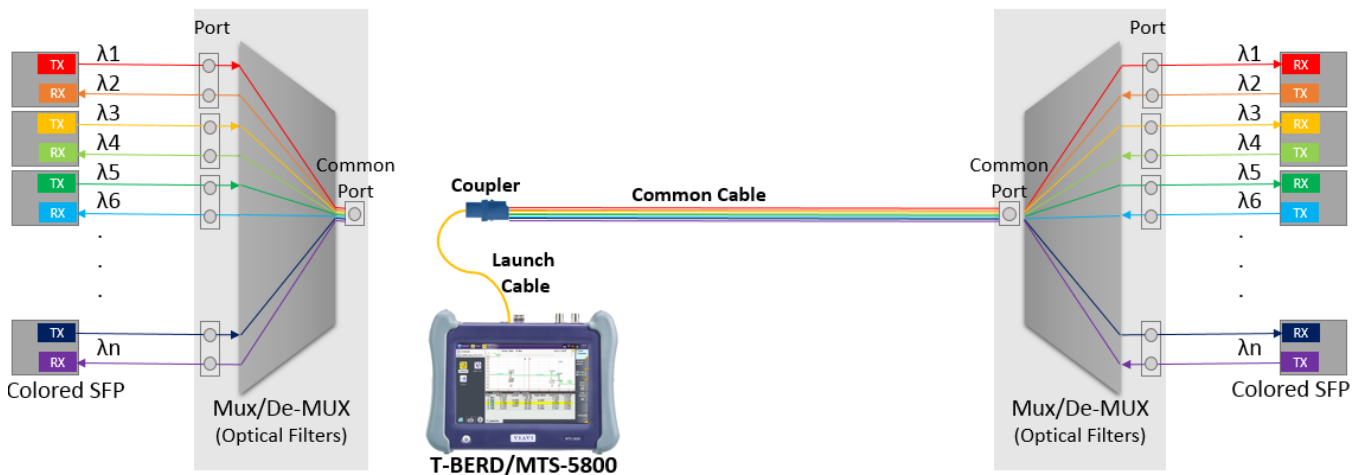


Figure 4: Connecting to common cable

1. Inspect the **COSA** port on top of the test set.
2. If connecting to the **Common Cable**, connect the **Common Cable** to an optical coupler with the same connector type and inspect the fiber end face in the coupler.
3. If connecting to the **Monitor Port** or **Common Port** on the Mux, inspect the Mux Port.
4. Inspect the fiber end face of the Launch Cable.
5. Connect the **Launch Cable** to the COSA port.
6. Inspect the other fiber end face of the Launch Cable.
7. Connect the **Launch Cable** to the coupler or Mux port.

Launch and Configure Test:

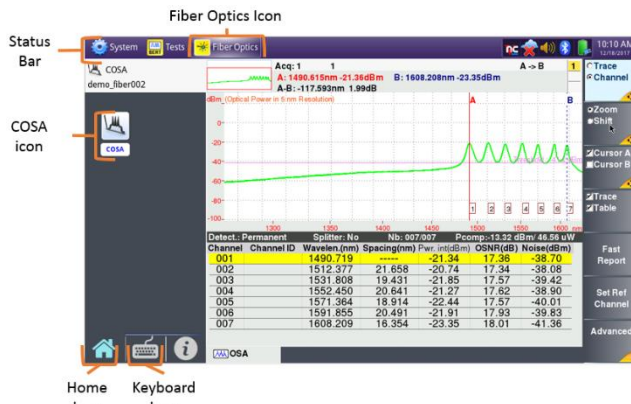


Figure 5: Home View

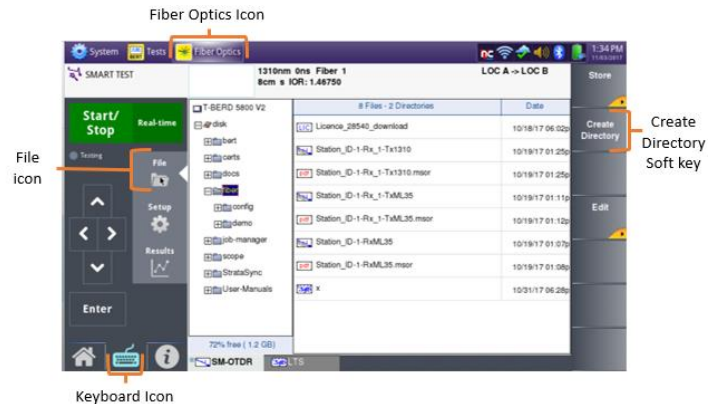











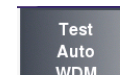
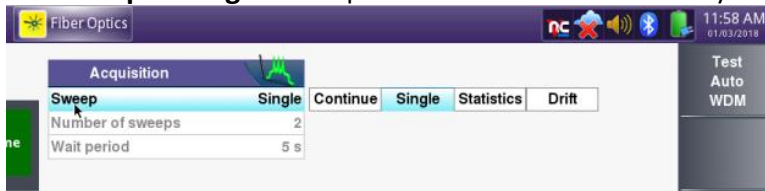



Figure 6: File Explorer

1.  Press the Power button to turn on 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 **COSA** icon.
4.  Tap the **COSA** icon until it is yellow and highlighted .
5.  Tap the **Keyboard** icon to operate the COSA.
6.  If files are to be saved, Tap the **File** icon in the Control Panel, and tap the fiber folder . Otherwise proceed to step 8.
7.  Tap the **Create Directory** soft key, enter a name for your new folder, and tap the **Enter** key. All trace files will be saved to this directory.
8.  Tap the **SETUP** button.
9.  Tap the **Acquisition** soft key.
10.  Set **Sweep** to **Single** and tap the **TEST AUTO WDM** soft key.



The screenshot shows the 'Acquisition' menu with 'Sweep' set to 'Single'. Other options include 'Continue', 'Single', 'Statistics', and 'Drift'. The 'Number of sweeps' is set to 2 and the 'Wait period' is 5 s.
11.  Tap the **Top Menu** soft key.



- Tap the **Analysis** soft key. Set **Signal Threshold** to **Auto** and **Mode** to **Permanent**. If a splitter/tap is used to access the signal, set Splitter Compensation **Value** to the splitter loss (in dB or %).



Run Test:



- Tap the **START/STOP** button to start the test. The COSA will sweep the entire CWDM wavelength range. Results will be shown in graphical and tabular formats as shown in **Figure 7**.

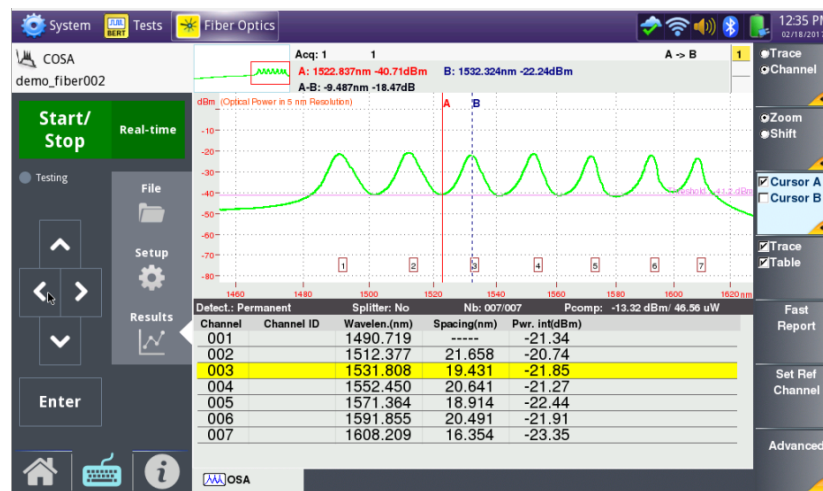


Figure 7: COSA Trace and Summary Table

- Verify that traffic is on all expected channels, at the anticipated wavelengths and power levels, and that there are no unexpected wavelengths present. Things to look for:
 - Every expected wavelength/channel is there
 - Channels are about 20 nm apart
 - Power levels of each channel are within roughly 3 dB of each other, or within the relative amplitude specification of the Network Equipment Manufacturer.