VIAVI Solutions

Quick Card

T-BERD®/MTS-5800 Network Tester

Ethernet Optics Self-Test

This quick card describes how to test SFP+, SFP28, QSFP+, QSFP28 and CFP4 optical transceivers using the T-BERD/MTS 5800.

Equipment Requirements:

- T-BERD/MTS-5800 equipped with the following:
  - BERT software release V27.2 or greater
  - Test options:
    - C510GELAN for 10G Gigabit Ethernet
    - C525GE for 25Gigabit Ethernet
    - C540GE for 40Gigabit Ethernet
    - C5100GE for 100Gigabit Ethernet
- Jumper Cable or Loopback Plug:
  - Single Mode LC Loopback plug or LC-LC Jumper Cable for 10GBASE-LR, 25GBASE-LR, 40GBASE-LR4, and 100GBASE-LR4 (VIAVI Part # CB-019965)
  - Multimode LC Loopback plug or -LC Jumper Cable for 10GBASE-SR and 25GBASE-SR (VIAVI Part # CB-019967)
  - 12-Fiber Multimode MPO Loopback plug for 40GBASE-SR4 and 100GBASE-SR4 (VIAVI Part # CB-MPOLB-12F)
- Fiber optic inspection microscope (VIAVI P5000i or FiberChek Probe)
- Fiber Optic Cleaning supplies

Figure 1: Equipment Requirements

Information Requirements:

- BER Threshold

Fiber Inspection Guidelines:

- Use the VIAVI P5000i or FiberChek Probe microscope to inspect the jumper cable or loopback plug before connection to the optical transceiver.
- Focus the fiber on the screen. If dirty, clean the connector.
- If it appears clean, run inspection test.
- If it fails, clean the fiber and re-run inspection test. Repeat until it passes.

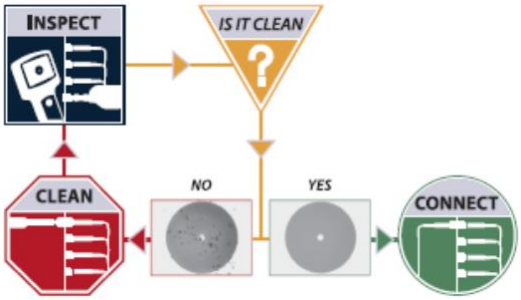

Figure 2: Inspect Before You Connect (IBYC)

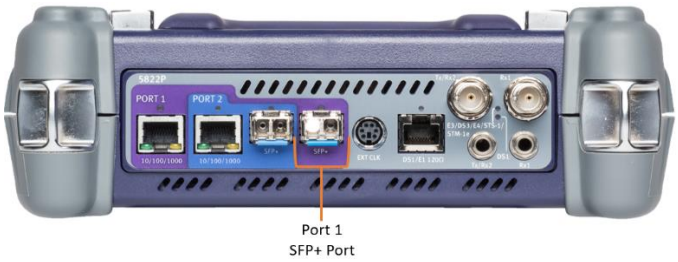

Figure 3: T-BERD 5800v2 Dual Port mainframe

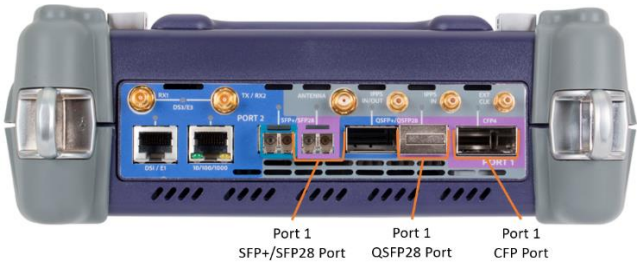

Figure 4: T-BERD 5800-100G mainframe

Connect Optics Under Test:

1. Insert optics under test into the Port 1 slot on the top of T-BERD/MTS 5800.
2. After inspecting the fiber end faces, connect the Tx and Rx ports using an LC-LC jumper cable or loopback plug.

Launch Test:

1. Press the Power button to turn on the test set.
2. Using the **Select Test** menu, **Quick Launch** menu, or **Job Manager**, launch an **Ethernet 10GigE LAN, 25GigE, 40GigE or 100GigE, P1 Optics Self-Test**; for example: **Ethernet►100GigE►P1 Optics Self-Test**.
3. Tap the bottom Go button to **Start a New Configuration**.

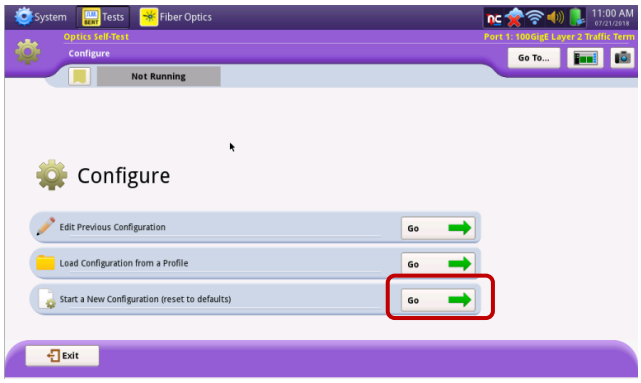

Figure 5: Startup screen

Configure Test:

1. Choose the **Test Duration**. **Recommended** is the suggested setting. Duration will be calculated based on the Line Rate and BER Threshold.
2. Select the **BER Threshold**. Lower values increase the **Recommended** test duration.
3. Check **Enable the PPM Line Offset** box.
4. The default value for **PPM Max Offset** is +/- 100 and is the recommended value.
5. Check the **Stop on Error** box if you don't want the test to continue in case of failure.
6. Tap Next to proceed to the **Report Information** screen.

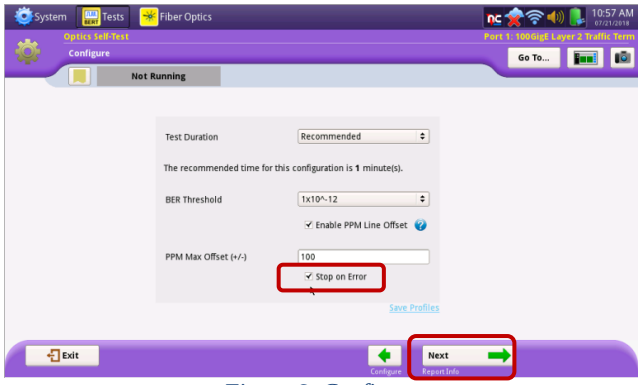

Figure 6: Configure

Report Information:

1. If you wish to save a report, you can enter the **Customer Name, Technician ID, Test Location, Work Order,** and **Comments/Notes.**
2. Tap Next to proceed to the **Optics Self-Test** screen.

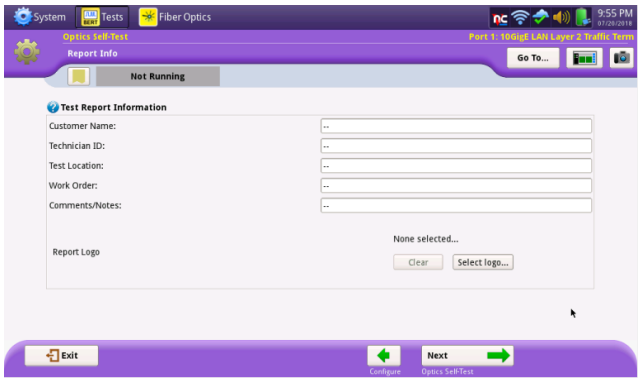

Figure 7: Report Information

Optics Self-Test:

1. Tap **Test SFP Optics**, **Test QSFP28 Optics**, or **Test CFP4 Optics** to start the test.
2. At the end of the test, select the **Result Overview** tab and verify all tests pass.

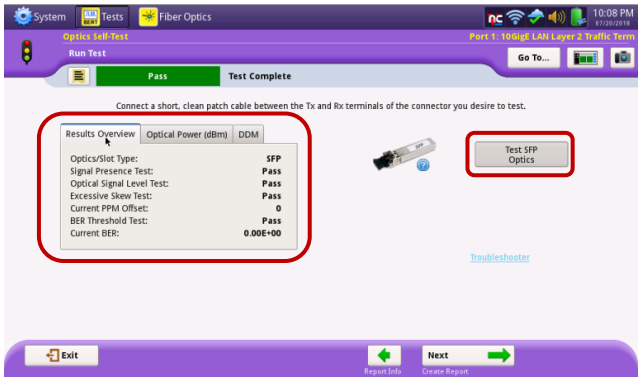

Figure 8: Results Overview (10GBASE-LR Optics)

3. If you are testing QSFP+, QSFP28, or CFP4 optics, select the **Optical Power (dBm)** tab and verify Rx Level for each Lambda is within +/- 1 dBm of each other.
4. Tap Next to proceed to the **Report** screen.

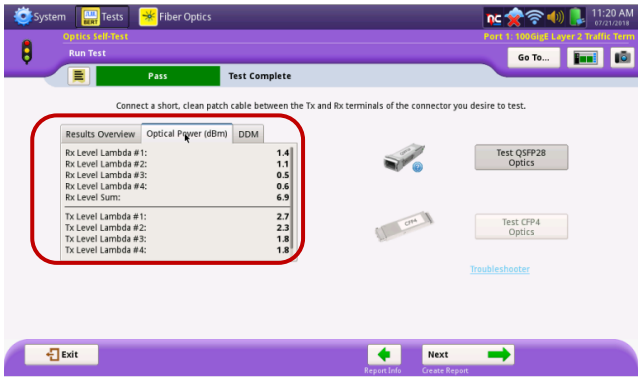

Figure 9: Optical Power (dBm) Results (100GBASE-LR4 optics)

Create Report:

1. Tap Create Report to generate a test report in .pdf format
2. Tap Exit twice to exit the **Optics Self-Test** workflow.

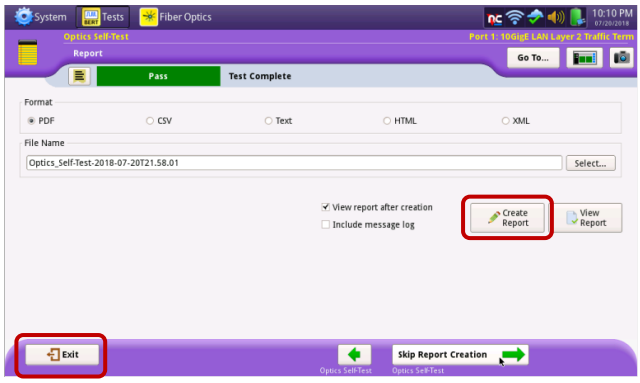

Figure 10: Report screen