VIAVI Solutions

Quick Card

# T-BERD®/MTS-5800 Network Tester

## Ethernet Layer 2 Traffic Generation

This document outlines how to set the T-BERD/MTS 5800 up as a Layer 2 Traffic Generator and measure Metro Ethernet key performance indicators (KPIs).

**Equipment Requirements:**


- T-BERD/MTS-5800 equipped with the following:
  - BERT software release V26.0 or greater
  - Ethernet test options:
    - C510M1GE for 10 Megabit to 1 Gigabit Ethernet
    - C510GELAN for 10 Gigabit Ethernet
    - C525GELAN for 25 Gigabit Ethernet
    - C540GELAN for 40 Gigabit Ethernet
    - C5100GELAN for 100 Gigabit Ethernet
  - SFP, QSFP, or CFP4 optical transceiver to match the line under test
- Jumper Cables to match the optical transceiver and the line under test
- Fiber optic inspection microscope (VIAVI P5000i or FiberChek Probe)
- Fiber optic cleaning supplies

**The following information is required to complete the test:**

- Physical Interface (10/100/1000BASE-T, 1000BASE-SX, 1000BASE-LX, 10GBASE-LR, 25GBASE-SR, 40GBASE-SR4, 100GBASE-LR4, etc.)
- Auto Negotiation settings of the port under test
- VLAN ID (if encapsulation = VLAN)

**Fiber Inspection Guidelines:**

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

- Focus the fiber on the screen. If dirty, clean the connector.
- If it appears clean, run the 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.
- To inspect SFP ports 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 that cannot be cleaned.

*Figure 1: FiberChek Probe*


*Figure 2: Image of Clean Fiber*

**Connect to Port Under Test:**

1. For copper 10/100/1000BASE-T interface testing with the T-BERD/MTS 5800v2, connect the Port 1 10/100/1000 RJ-45 jack to the port under test using CAT 5E or better cable.
2. For copper 10/100/1000BASE-T interface testing with the T-BERD/MTS 5800-100G, insert a copper SFP into the Port 1 SFP+/SFP28 slot and connect to the port under test using CAT 5E or better cable.
3. For optical interfaces:
   - Insert desired SFP, QSFP, or CFP4 into the Port 1 slot on the top of the T-BERD/MTS.
   - Inspect and, if necessary, clean all SFPs, fibers, and bulkheads, as described on page 1.
   - Connect the SFP, QSFP, or CFP4 to the port under test using a Single Mode or Multimode jumper cable compatible with the interface under test.

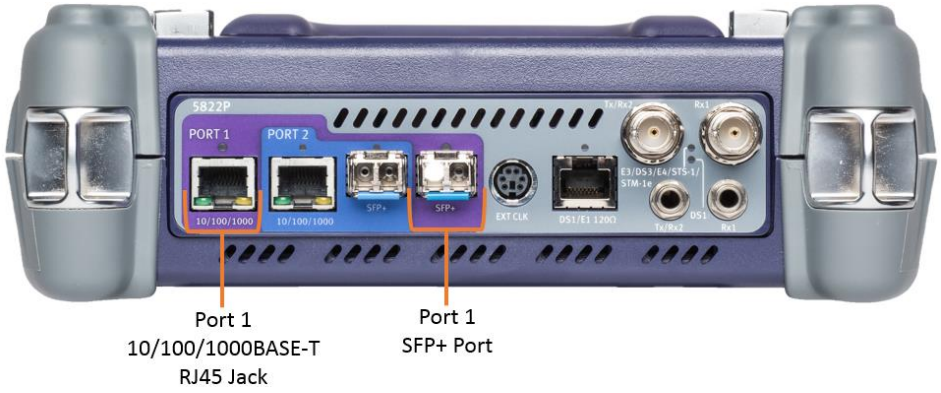



*Figure 3: T-BERD 5800v2 Dual Port mainframe*

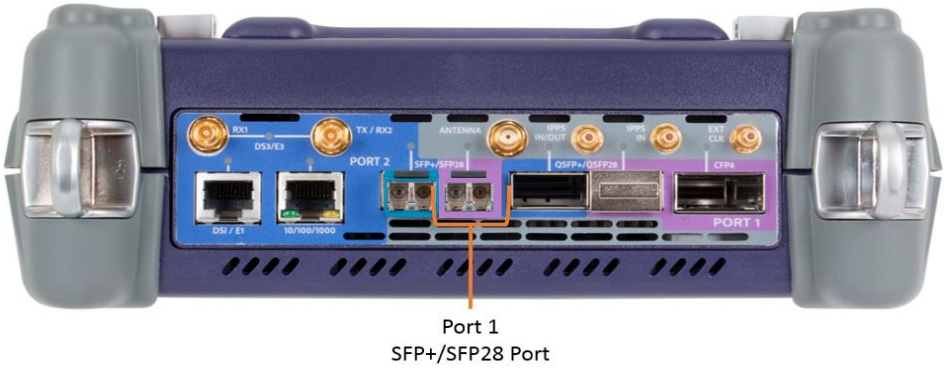



*Figure 4: T-BERD 5800-100G mainframe*

**Launch and Configure Test:**

1. Press the Power button  to turn on the test set.

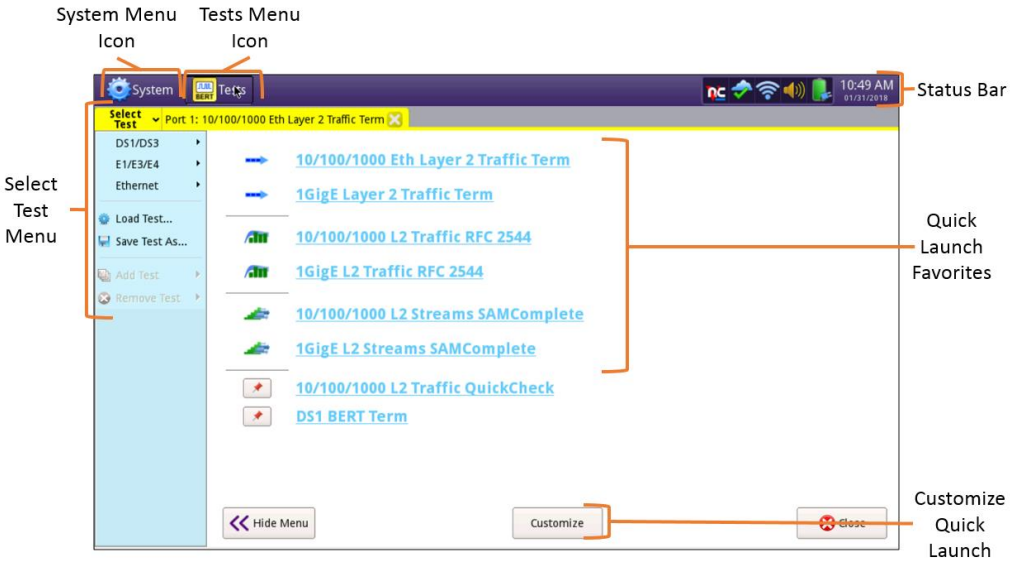



*Figure 5: Startup screen*

2. Using the **Select Test** menu, **Quick Launch** menu, or **Job Manager**, launch an **Ethernet**, **Layer 2 Traffic, Terminate** test on port 1 for the desire physical interface. For example: **Ethernet►10/100/1000►Layer 2 Traffic►P1 Terminate**.
3. If the test is not in the default settings, tap the **Tools icon**  , and select  . Press  to continue and wait for test to reconfigure.
4. Press the **Setup** Soft Key,  to display the **Interface** settings tab**.** If you are testing a **10/100/1000** Electrical or **1GigE** Optical tests with auto negotiation disabled, select the **Physical Layer** tab and configure settings to match the Ethernet port under test.
5. Select the **Ethernet** settings tab.

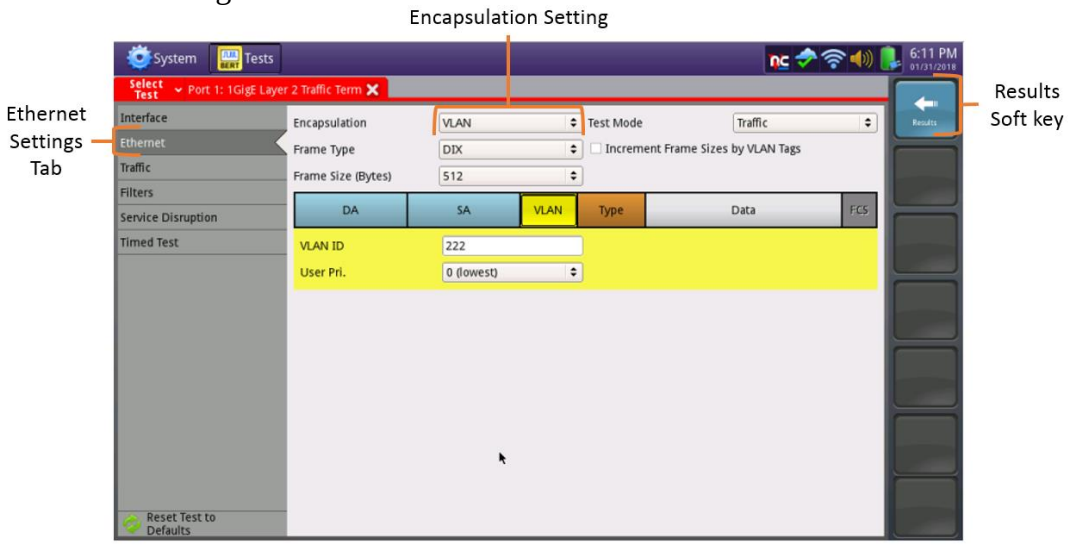



*Figure 6: Ethernet settings*

- If you are testing a VLAN, set **Encapsulation** to **VLAN,** tap **[VLAN]** and enter your **VLAN ID**.
- If you are testing head-to-head with another T-BERD/MTS, tap **[ SA ]** to display the factory default Source MAC Address of your T-BERD/MTS. Provide this address to the operator of the other T-BERD/MTS, upon request.
- If you wish to measure Bit Error Rate, tap **[ Data ]** and set **Acterna Payload** to **BERT**.

6. Select the **Traffic** settings tab. Set **Load Unit** to **Bit Rate** and set **Load** to the desired traffic rate or Committed Information Rate (CIR).
7. Press the **Results** Soft Key,  , to view the Results screen.

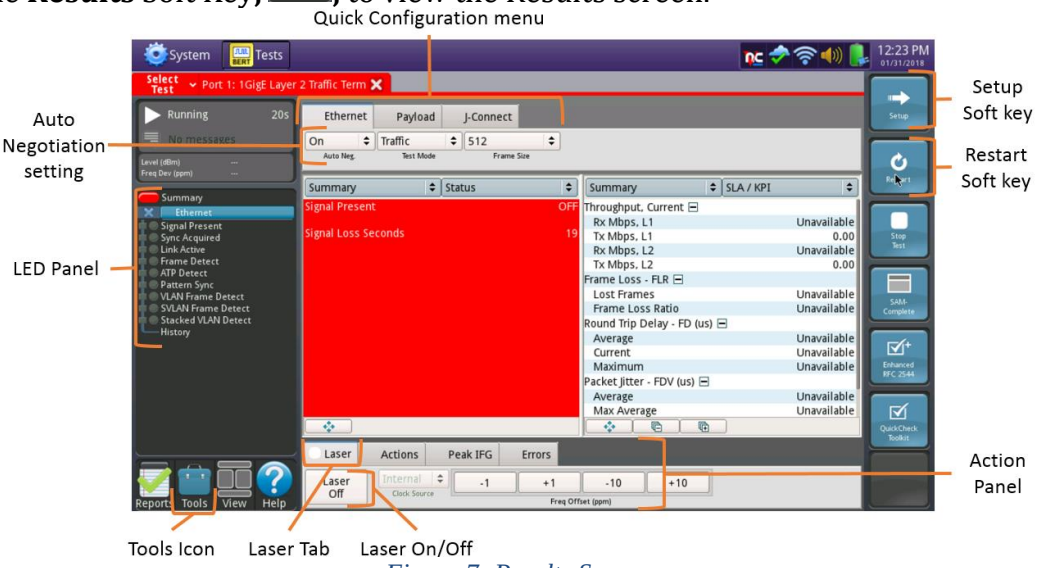
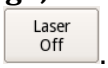
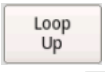



*Figure 7: Results Screen*

8. For **1GigE, 10GigE, 25GigE, 40GigE,** or **100GigE** optical tests, select the **Laser** tab in the **Action panel,** and press  . The button will turn yellow and be relabeled  .
9. Press the **Restart** Soft Key  , on the right side of the screen.
10. A green **Signal Present** LED ● indicates the T-BERD/MTS is receiving an optical signal from the port under test. Green **Sync Acquired** and **Link Active** LEDs indicate that the T-BERD/MTS has successfully connected to the port under test and the link is active.
11. If you are testing head-to-head, to a hard loop, or if the loopback device is already in Local Loop Back (LLB) mode, proceed to step 12.
    Otherwise, Select the **Actions** tab in the **Actions Panel**. If the Loopback device is a T-BERD/MTS or another VIAVI compatible loopback device, press  to loop up the far end device.
12. Press  . The button will turn yellow and be relabeled  .
13. Press the **Restart** Soft Key  on the right side of the screen. Verify that:
    - The Right Results window shows "Rx Mbps, L1" is approximately equal to the Committed Information Rate.
    - The Right Results window shows Lost Frames = 0.
14. Allow the Test to run for the desired duration. Verify that the Left Result window displays "**ALL SUMMARY RESULTS OK**" throughout the test.