Quick Card

T-BERD®/MTS-5800 Network Tester
Ethernet 4x10GigE Layer 2 Traffic Test

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) across a Link Aggregation Group (LAG) with up to 4 10GigE links.

Equipment Requirements:
- T-BERD/MTS-5800 equipped with the following:
  - BERT software release V29.1.1 or greater
  - Ethernet test options:
    - C510GELAN for 10 Gigabit Ethernet
    - C54x10GELAN for 40 Gigabit Ethernet
  - 40GBASE-SR4 or 4x10GBASE-LR4 QSFP+ optical transceiver to match the line under test
- MPO to LC fanout Cable to match the optical transceiver and line under test (Single mode or Multimode Fiber)
- Fiber optic inspection microscope with MPO and LC tips (VIAVI Sidewinder)
- Fiber Optic Cleaning supplies

The following information is required to complete the test:
- Type of hash (Layer 2/MAC Address or Layer 3/IP Address)
- Number of 10GigE LAN physical ports in the LAG
  (2 for 20Gig service, 3 for 30Gig service, 4 for 40Gig service)

Fiber Inspection Guidelines:
- All fiber end-faces must be clean and pass an inspection test prior to connection.
- Use the VIAVI Sidewinder microscope to inspect both sides of every connection being used (QSFP Port, Breakout Cable, bulkhead connectors, etc.)
Connect to Fibers Under Test (FUT):
1. For optical interfaces:
   - Insert QSFP+ Optical Transceiver into the Port 1 slot on the top of T-BERD.
   - Inspect and, if necessary, clean all SFPs, fibers, and bulkheads, as described on page 1.
   - Connect the QSFP+ to the MPO to LC fanout cable.
   - Connect the LC fanouts to the 10GigE LAN physical ports under test as follows, per your work order:
     ▪ Fanouts #1 and #2 for 20Gig service
     ▪ Fanouts #1, #2 and #3 for 30Gig service
     ▪ Fanouts #1, #2, #3 & #4 for 40Gig service

Launch and Configure Test:
1. Press the Power button to turn on the test set and view the startup screen.
2. Using the Select Test menu, Quick Launch menu, or Job Manager, launch an Ethernet Layer 2 Traffic test as follows:
   Ethernet ► 4x10GigE LAN ► Layer 2 Traffic ► P1 Terminate.
3. If the test is not in the default settings, tap the Tools icon, and select Reset Test to Defaults. Press OK to continue and wait for test to reconfigure.
4. Press the Setup Soft Key to display the Interface settings tab.
5. Select the **All Streams** settings tab.

a. If you are using a Layer 2/MAC Address Hash, set **Source MAC Mode** to **Single** and set **Auto Increment** to **Source MAC**.

b. If you are using a Layer 3/IP Address Hash, set **Source MAC Mode** to **Per Stream** and set **Auto Increment** to **Source IP**.

6. Tap the **Configure Streams** button.

7. Enable the physical ports in the LAG by tapping the check boxes:
   - ✓ Select **Port 1/Stream 1** and **Port 2/Stream 2** for 20Gig service.
   - ✓ Select **Port 1/Stream 1**, **Port 2/Stream 2** and **Port 3/Stream 3** for 30Gig service.
   - ✓ Select **Port 1/Stream 1** through **Port 4/Stream 4** for 40Gig service.

8. Tap **OK** to return to **All Streams** settings.

9. Select the **1** settings tab.

10. If you are testing a VLAN, set **Encapsulation** to **VLAN**, tap the **VLAN** field and enter your **VLAN ID**.

11. Repeat steps 9 and 10 for each stream in the LAG.

12. Tap the **Results** Soft Key, to view the Results screen.
13. Select the **Laser** tab in the **Action panel** at the bottom of the screen, and tap ![Laser On](image). The button will turn yellow and be relabeled ![Laser On](image).

14. Tap the **Restart** Soft Key ![Restart](image), on the right side of the screen.

15. Confirm that **Signal Present, Sync Acquired** and **Link Active** LEDs are green ![Green LED](image) for each port in the LAG. A green **Signal Present** LED indicates the T-BERD/MTS is receiving an optical signal from the port. Green **Sync Acquired** and **Link Active** LEDs indicate that the T-BERD/MTS has successfully connected to the port and the link is active.

![Figure 10: Results](image)

16. Select the **Actions** tab in the **Actions Panel**.

17. Tap ![Loop Up](image) to loop up the remote T-BERD/MTS 5800. Loop up status will be briefly displayed in the message panel on the left side of the screen.

18. Tap ![Start Traffic](image). The button will turn yellow and be relabeled ![Traffic Started](image).

19. Allow the Test to run for the desired duration. Verify that the Left Result window displays “**ALL SUMMARY RESULTS OK**” throughout the test.

![Figure 11: Remote Loop Up](image)

![Figure 12: Traffic Started](image)
20. Additional results may be viewed by tapping the drop-down menus above the “All Summary Results OK” window.

Save Report:

1. Tap the Reports icon, and select Create Report...

2. Press to save a report in PDF format to the /user/bert/reports folder on the T-BERD/MTS 5800.