VIAVI Solutions

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

Figure 1: Equipment Requirements

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.)

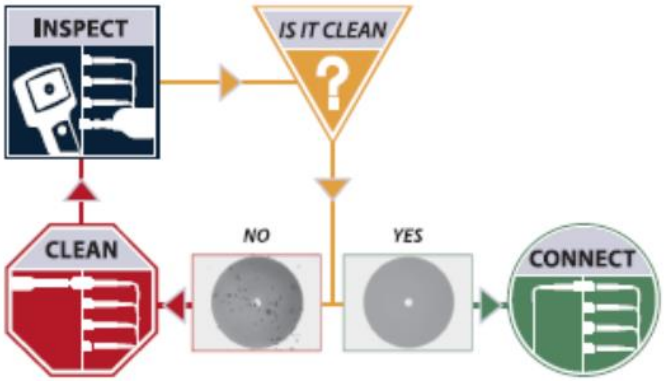


Figure 2: Inspect Before You Connect

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

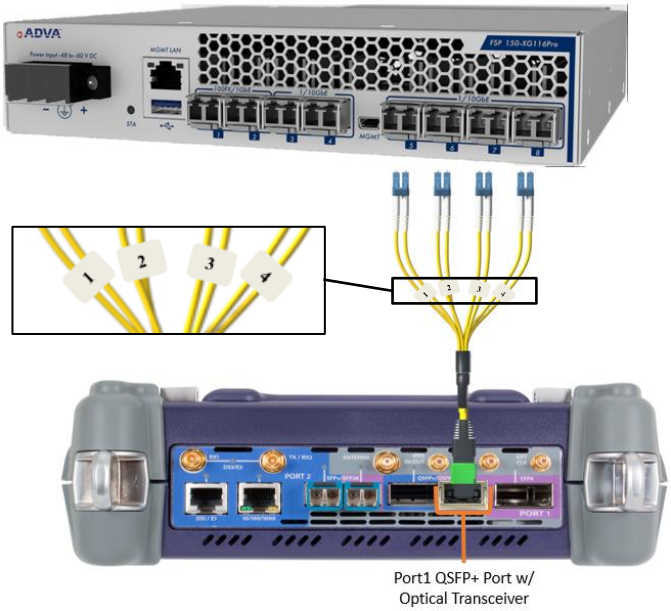


Figure 3: T-BERD 5800-100G and Fanout

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**.

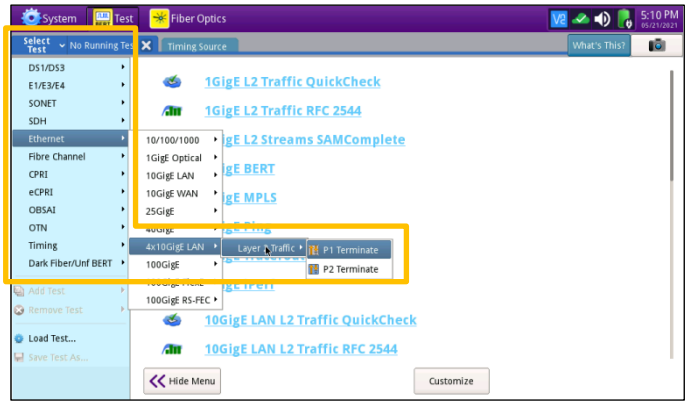


Figure 4:Launch Test

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**.**

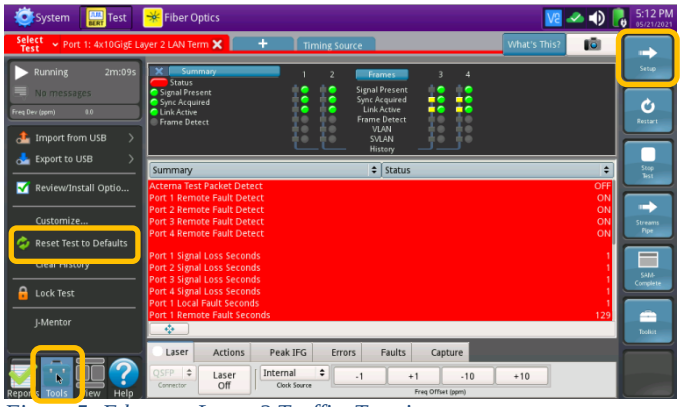


Figure 5: Ethernet, Layer 2 Traffic, Terminate test

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.

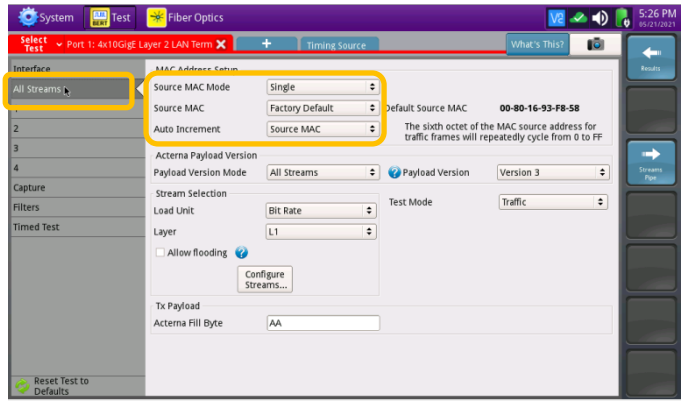


Figure 6: All Streams settings, Layer 2/MAC Address hash

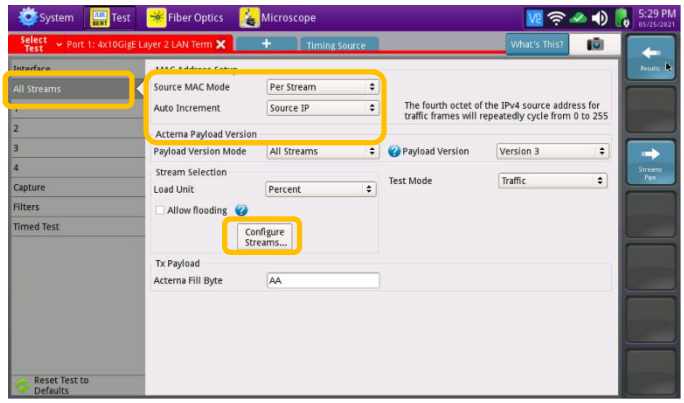


Figure 7: All Streams settings, Layer 3/IP Address hash

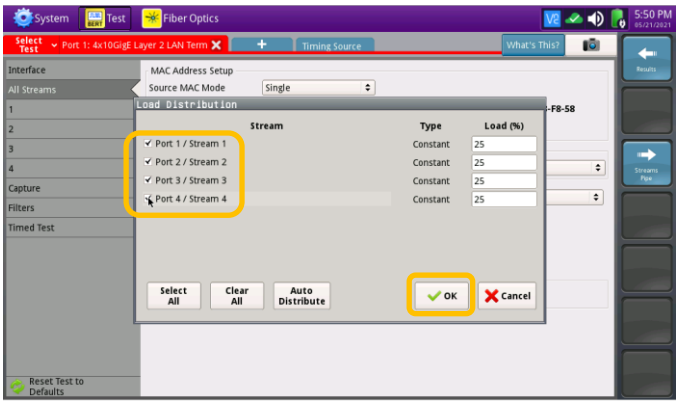


Figure 8: Configure Streams

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.

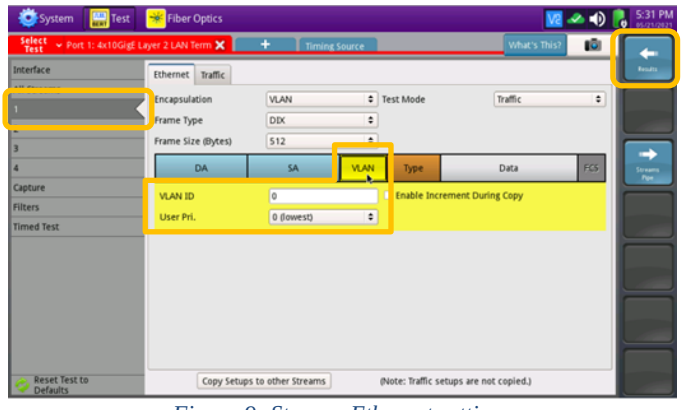


Figure 9: Stream, Ethernet settings

13. Select the **Laser** tab in the **Action panel** at the bottom of the screen**,** and tap 

. The button will turn yellow and be relabeled 

.
14. Tap the **Restart** Soft Key 

, on the right side of the screen.

15. Confirm that **Signal Present**, **Sync Acquired** and **Link Active** LEDs are green ● 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.

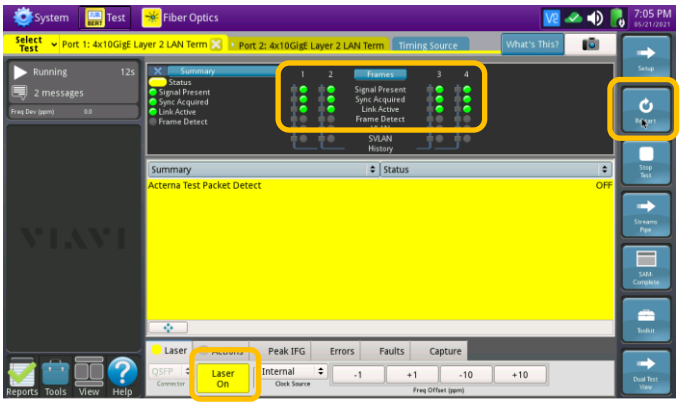
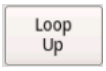


Figure 10: Results

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

17. Tap 

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 

. The button will turn yellow and be relabeled 

.

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

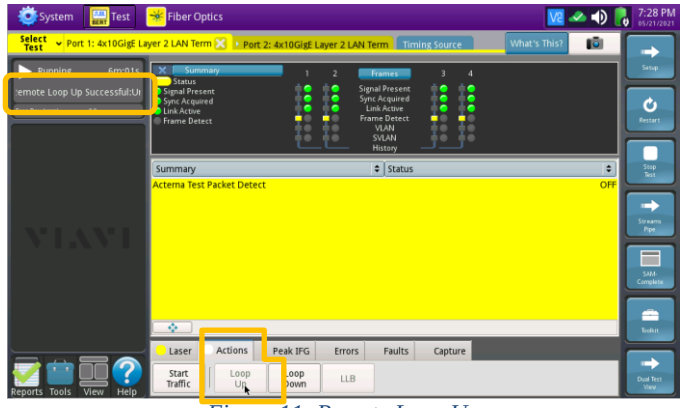


Figure 11: Remote Loop Up

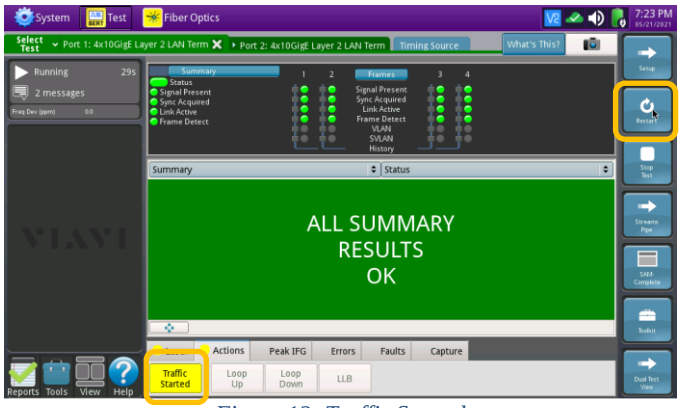


Figure 12: Traffic Started

20. Additional results may be viewed by tapping the drop-down menus above the “All Summary Results OK” window.

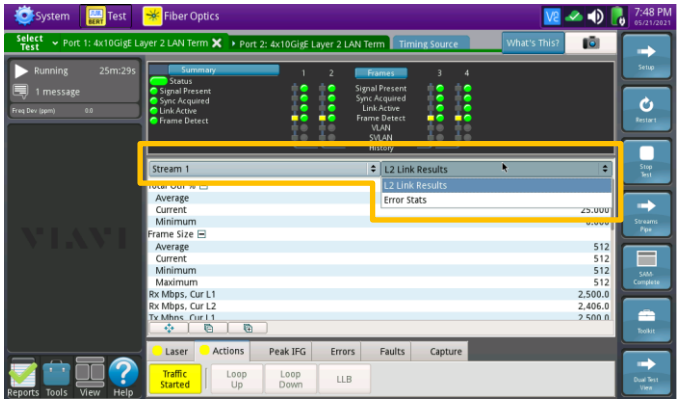


Figure 13: Stream 1 results

Save Report:

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

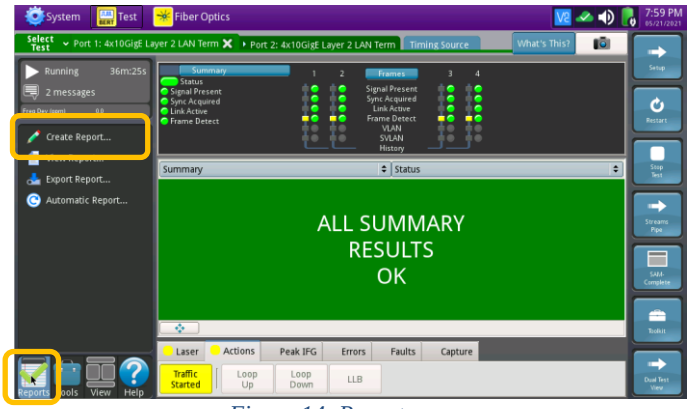


Figure 14: Reports menu

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

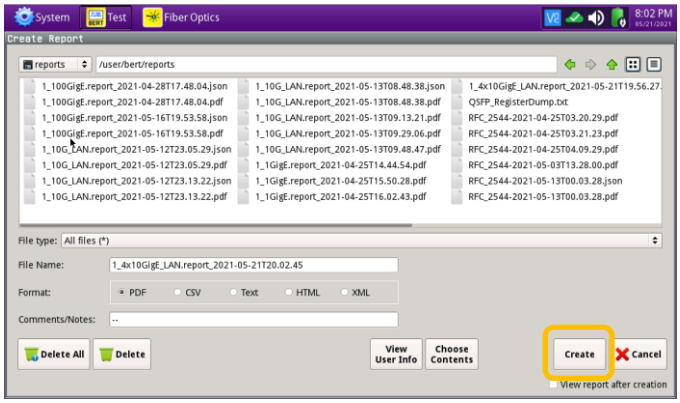


Figure 15: Create Report