QUICK CARD

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). Traffic may be generated head-to-head between two VIAVI Ethernet testers, or to a Loopback device.

- T-BERD/MTS 5800 equipped with the following:
  - Transport software release V31.2.1 or greater
  - C510M1GE test option for 10 Megabit to 1 Gigabit Ethernet
  - C510GELAN test option for 10 Gigabit Ethernet
  - C525GE test option for 25 Gigabit Ethernet
  - C540GE test option for 40 Gigabit Ethernet
  - C550GE test option for 50 Gigabit Ethernet
  - C5100GE test option for 100 Gigabit Ethernet
- Optical Transceiver supporting the line rate to be tested (SFP or QSFP)
- Cables to match the optical transceiver and the line under test
- Fiber optic inspection microscope (P5000i or FiberChek Probe)
- Fiber optic cleaning supplies

LAUNCH TEST

1. Press the Power button to turn on the T-BERD.
2. Tap the Test icon at the top of the screen to display the Launch Screen.
3. Using the Select Test menu, Quick Launch menu, or Job Manager, launch the Ethernet Layer 2 Traffic test on Port 1 for the desired data rate. For example: Ethernet ►1GigE Optical ►Layer 2 Traffic ► P1 Terminate.
4. Tap to open the Tools Panel and select .
5. Tap to continue.
The following Information is needed to configure the test:

- Physical Interface (10/100/1000BASE-T, 1000BASE-LX, 10GBASE-LR, 100GBASE-LR4, etc.)
- Auto Negotiation settings of the port under test.

For 10/100/1000 Electrical tests:
1. Tap the Ethernet tab of the Quick Configuration menu and set Auto Neg. to the same value as the Ethernet port under test (On or Off).
2. Tap the Setup soft key on the top right side of the screen and proceed to page 3.

For Optical Interfaces:
1. Tap the Setup soft key on the top right side of the screen.
2. Select the Interface/Connector folder.
3. Insert desired Optical Transceiver into the Port 1 SFP or QSFP slot on the top of the T-BERD/MTS.
4. Review SFP information:
   - Verify that the SFP operates on the required wavelength (850nm, 1310nm or 1550nm).
   - Verify that the SFP supports the required data rate (1G, 10G LAN, etc).
   - Note the Min and Max Tx Levels (dBm) and Max Rx Level (dBm) to assess if optical attenuators are required.

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Select the **Ethernet** settings tab.

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

2. If you are testing head-to-head with another T-BERD/MTS:
   - Tap the **SA** field 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.
   - Tap the **DA** field and enter the Source Address (SA) of the far-end T-BERD/MTS in the **Destination MAC** field.

3. If you wish to measure Bit Error Rate, tap the **Data** field, and set **Acterna Payload** to **BERT**.

Select the **Traffic** settings tab. Set **Load Unit** to **Bit Rate** and set **Load** to the desired traffic rate or Committed Information Rate (CIR).

Tap the **Results** soft key.
CONNECT TO LINE UNDER TEST

► For Optical Interfaces:
1. Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (SFP, attenuators, patch cables, bulkheads)
   - Focus the fiber on the screen.
   - If it appears dirty, clean the fiber end-face and re-inspect.
   - If it appears clean, run the inspection test.
   - If it fails, clean the fiber and re-run the inspection test. Repeat until it passes.
2. If necessary, insert optical attenuators into the SFP TX and/or RX ports.
3. Connect the SFP to the port under test using a jumper cable compatible with the line under test.
4. Select the Laser tab in the Actions panel.
5. Tap . The button will turn yellow and be relabeled .
6. Tap the Restart soft key .
7. Verify the following:
   - Summary LED is yellow or green.
   - Signal Present LED is green.
   - Sync Acquired LED is green.
   - Link Active LED is green.

► For Copper 10/100/1000BASE-T interfaces:
1. Connect the 10/100/1000 RJ-45 jack to the port under test using CAT 5E or better cable.
2. Tap the Restart soft key .
3. Verify the following:
   - Summary LED is yellow or green.
   - Sync Acquired LED is green.
   - Link Active LED is green.
LOOP UP AND RUN TEST

1. Select the **Actions** tab in the **Actions** Panel.
   - 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 2.
   - If the Loopback device is a T-BERD/MTS or another VIAVI compatible loopback device, tap **Loop Up** to loop up the far end device.

2. Tap **Start Traffic**. The button will turn yellow and be relabeled **Traffic Started**.

3. 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.

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