Quick Card

**T-BERD®/MTS-5800 Network Tester**

**Ethernet Layer 3 Traffic Generation**

This document outlines how to configure and run an Ethernet IPv4 Layer 3 Traffic test to measure Metro Ethernet key performance indicators (KPIs). A second T-BERD/MTS 5800 or compatible loopback device should be used at the far-end of the line under test for traffic loopback.

**Equipment Requirements:**
- T-BERD/MTS-5800 equipped with the following:
  - BERT software release V27.0 or greater
  - Ethernet test options:
    - C510M1GE for 1 Gigabit or less
    - 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
- Patch Cords to match the T-BERD/MTS optics 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-LX, 10GBASE-LR, 100GBASE-LR4, etc.)
- Auto Negotiation settings of the port under test
- VLAN ID, if VLAN tagging is used
- IP Address Parameters (DHCP or Static, Source IP, Default Gateway, Subnet Mask, and Destination IP)

**Fiber Inspection Guidelines:**
- All fiber end-faces must be clean and pass an inspection test prior to connection.
- Use the VIAVI P5000i, FiberChek Probe, or Sidewinder microscope to inspect both sides of every connection being used (SFP Port, bulkhead connectors, patch cords, etc.)
Connect to Fiber Under Test (FUT):
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 SFP, QSFP, or CFP4 compatible with your physical interface into the Port 1 slot on the top of T-BERD.
   - Inspect and, if necessary, clean all 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.

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 3 Traffic, Terminate test on port 1 for the desired physical interface. For example: Ethernet ► 10/100/1000 ► Layer 3 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. 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.

6. If you are testing a **VLAN**, select the **Ethernet** settings tab, set **Encapsulation** to **VLAN**, tap **VLAN** and enter your **VLAN ID**.

![Figure 6: Ethernet Settings](image)

7. Select the **IP settings tab**.

8. Select **Source/Destination Addresses** and complete IP Parameters (**Source IP**, **Default Gateway**, **Subnet Mask**, and **Destination IP**). The T-BERD/MTS will resolve the destination IP address using the Address Resolution Protocol (ARP). Once resolved, the **Ping** button becomes available and you can use it to verify connectivity to the far-end loopback device.

![Figure 7: IP Settings](image)

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

11. 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.

12. If you are testing head-to-head or if the loopback device is already in Local Loop Back (LLB) mode, proceed to step 13. Otherwise, Select the Actions tab in the Actions Panel and tap to loop up the far end device.

13. Press Traffic. The button will turn yellow and be relabeled Traffic Started.

14. 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 CIR.
   - The Right Results window shows Lost Frames = 0.

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