Ethernet Layer 2 Traffic Loopback

This quick card describes how to set the T-BERD/MTS 5800 up as a Layer 2 Loopback device.

- T-BERD/MTS 5800 equipped with the following:
  - BERT software release V30.1.0 or greater
  - C510M1GE test option for 10 Megabit to 1 Gigabit Ethernet loopback
  - C510GELAN test option for 10 Gigabit Ethernet loopback
  - C525GE test option for 25 Gigabit Ethernet loopback
  - C540GE test option for 40 Gigabit Ethernet loopback
  - C550GE test option for 50 Gigabit Ethernet loopback
  - C5100GE test option for 100 Gigabit Ethernet loopback
- 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

Figure 1: Equipment Requirements

LAUNCH TEST

1. Press the Power button to turn on the T-BERD.
2. Press the **Test** icon Tests 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 Tools to open the **Tools** Panel and select Reset Test to Defaults.
5. Press OK to continue.

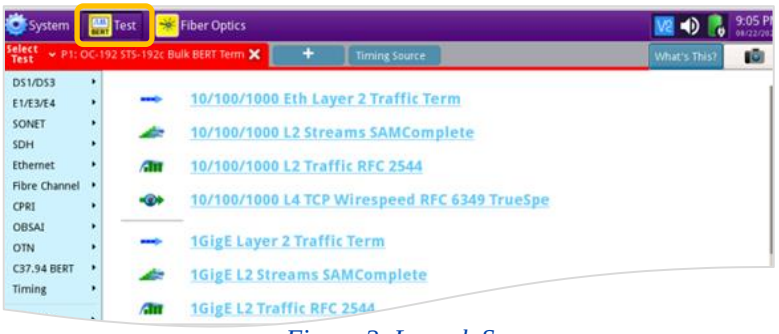

Figure 2: Launch Screen

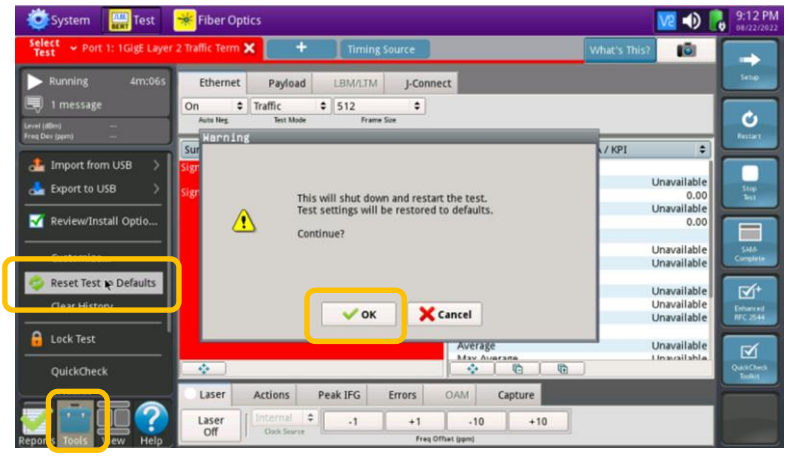

Figure 3: Tools Panel

QUICK CARD

CONFIGURE TEST

- 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.

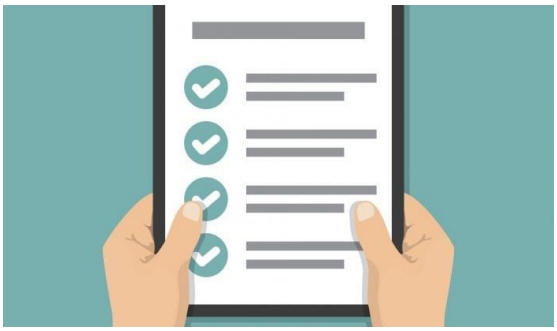

Figure 4: Work Order

- For Optical Interfaces:
  1. Press 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.
  4. Review SFP information in the **Connector** tab:
     - 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.
     - Press the **Results** soft key  to return to the Test Results screen.

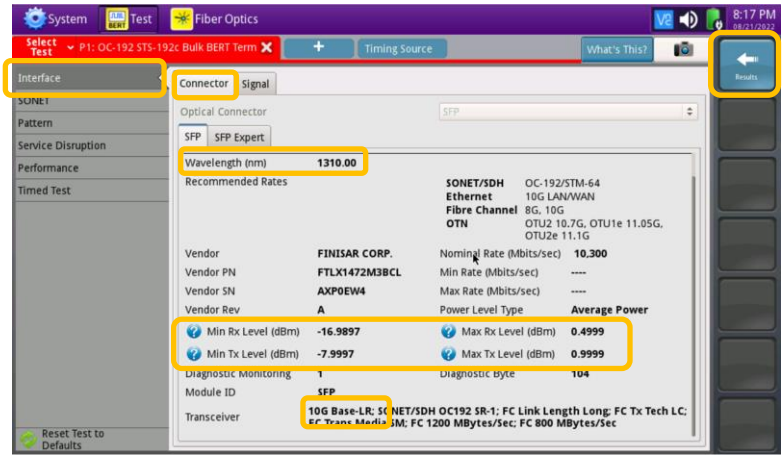

Figure 5: Setup, Interface/Connector

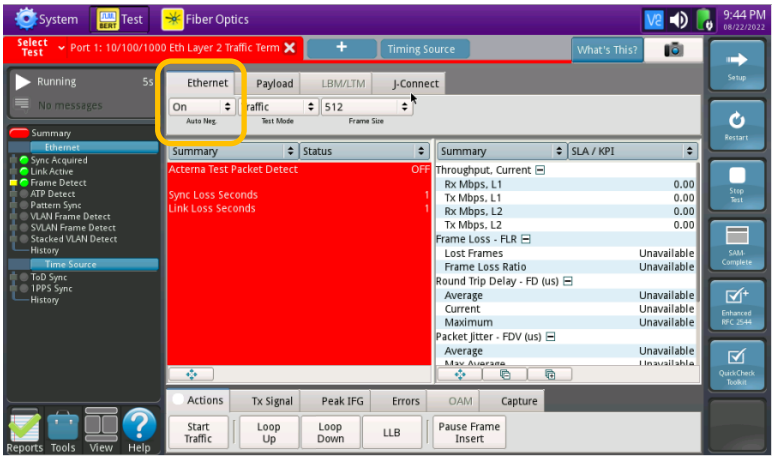

Figure 6: Quick Config, Auto Neg.

- For 10/100/1000 Electrical and 1GigE Optical tests, 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**).

QUICK CARD

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 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. Press Laser Off. The button will turn yellow and be relabeled Laser On.
6. Press the **Restart** soft key Restart.
7. Verify the following:
   - **Summary** LED is yellow.
   - **Signal Present** LED is green.
   - **Sync Acquired** LED is green.
   - **Link Active** LED is green.

Figure 7: Inspect Before You Connect

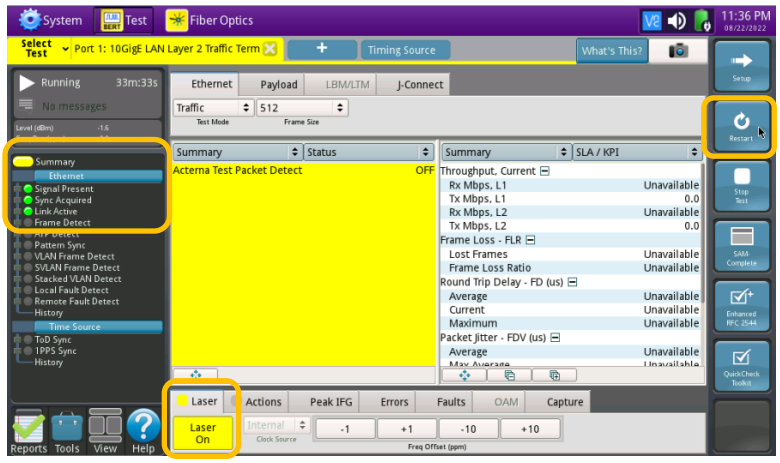

Figure 8: Optical Interface Results

► **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. Press the **Restart** soft key Restart.
3. Verify the following:
   - **Summary** LED is yellow.
   - **Sync Acquired** LED is green.
   - **Link Active** LED is green.

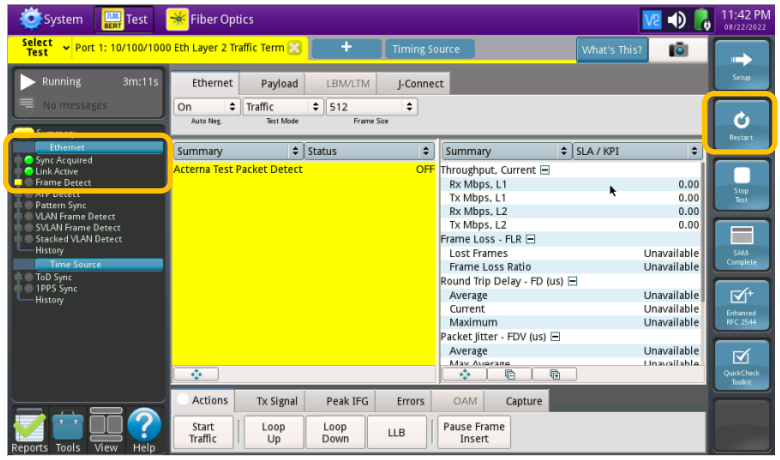

Figure 9: Copper Interface Results

QUICK CARD

LOOP UP

The T-BERD may be looped up by any of the following methods. Once looped, the T-BERD will reflect all received test packet after inverting Source and Destination MAC addresses.

1. **Broadcast Loop up message**: The T-BERD will respond to VIAVI **Loop up** messages received via Broadcast MAC address and enter Local Loopback (LLB) mode.

2. **Unicast Loop up message**:

   - The T-BERD will respond to VIAVI **Loop up** messages received via Unicast MAC address and enter **LLB** mode.

3. **Manual Local Loopback**:

   - Select the **Actions** Panel and tap 

to manually enter **LLB** mode.

   - Tap 

again to exit **LLB** mode when the test is complete.

With **Unicast** and **Manual** loopback, the operator of T-BERD traffic generator will need to know the MAC address of this T-BERD:

   - Tap the Setup soft key 

, select the Ethernet menu, and tap 

to display the Factory Default Source MAC Address of your T-BERD.

   - Provide this address to the operator of the T-BERD Traffic Generator, upon request.

   - Press the Results soft key 

to view the progress of the test.

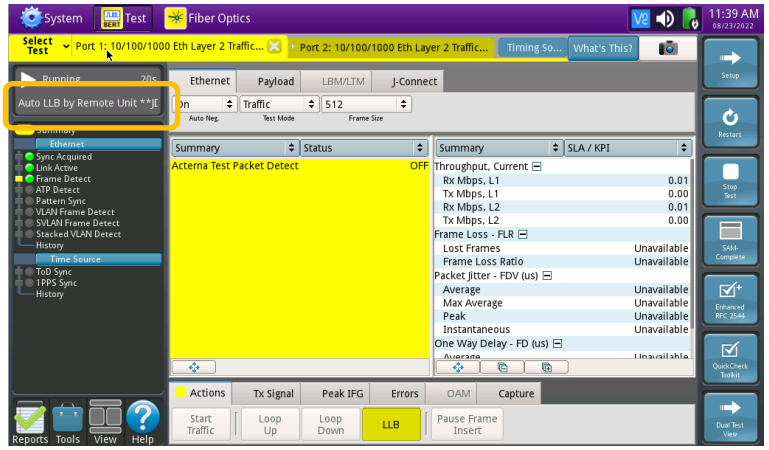

Figure 10: Loop Up message response

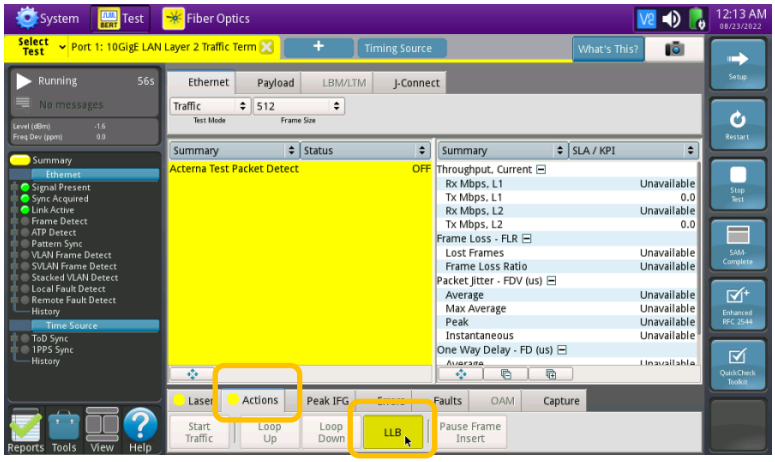

Figure 11: Manual LLB

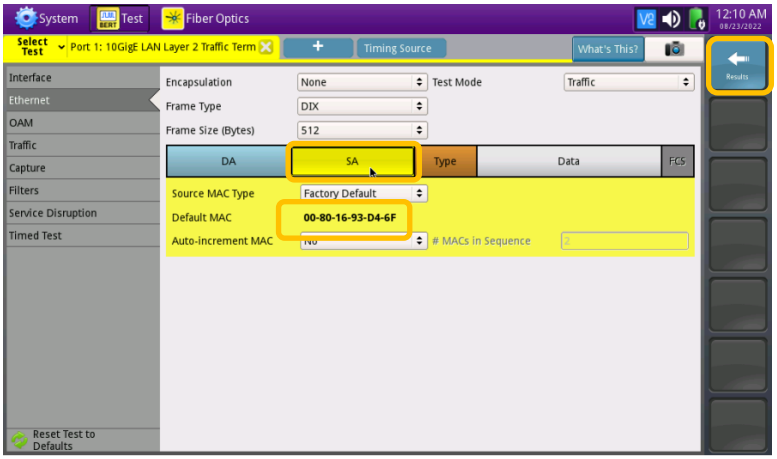

Figure 12: Ethernet Setup, Source MAC

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