VIAVI Solutions

Quick Card

# T-BERD®/MTS-5800 Network Tester

## Ethernet Capture/Decode from an Optical TAP

This document outlines how to use the T-BERD 5800 to capture and analyze live, in-service network traffic from a **TAP** (Test Access Point). A **TAP** is a passive optical splitter used to provide a monitor point for packet capture and protocol analysis.

**Equipment Requirements:**

- T-BERD/MTS-5800 equipped with the following:
  - BERT software release V28.0 or greater
  - Ethernet test options:
    - C510M1GE, C5LSCAPTURE, and C5DUALPORT for 10/100/1000 copper and 1 Gigabit Optical.
    - C510GELAN, C510GCAPTURE, and C5DUAL10G for 10 Gigabit Ethernet.
  - SFP optical transceiver to match the line under test
- Patch Cables to match the optical transceiver and line under test (CAT5E, Single mode or Multimode fiber)
- Fiber optic inspection microscope (VIAVI P5000i or FiberChek Probe)
- Fiber Optic Cleaning supplies


*Figure 1: Equipment Requirements*

**The following information is required to complete the test:**

- Physical Interface (10/100/1000BASE-T, 1000BASE-LX, 10GBASE-LR, etc.)
- Filtering criteria (VLAN ID, Destination MAC address, or Source MAC address

**Fiber Inspection Guidelines:**

- All fiber end-faces must be clean and pass an inspection test prior to connection.
- Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (SFP Port, bulkhead connectors, patch cables, etc.)

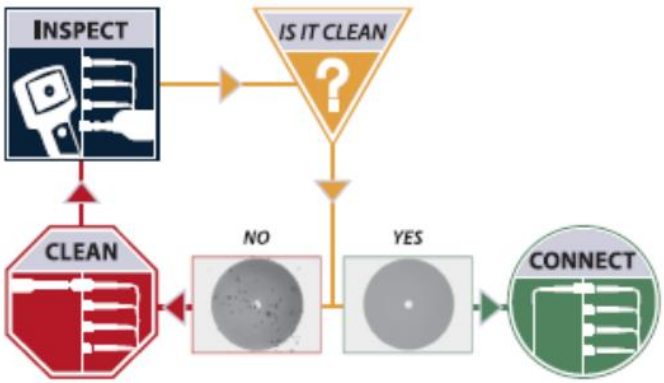



*Figure 2: Inspect Before You Connect*

**Connect to TAP:**

- SFPs must be installed in Port 1 and Port 2 of the T-BERD, and two tests must be launched to receive bidirectional traffic.
  - Insert the TAP between equipment and line under test.
  - Connect the RX (Receive) port of the SFP in Port 1 to the TAP's first Monitor or Analyzer port.
  - Connect the RX (Receive) port of the SFP in Port 2 to the TAP's second Monitor or Analyzer port.

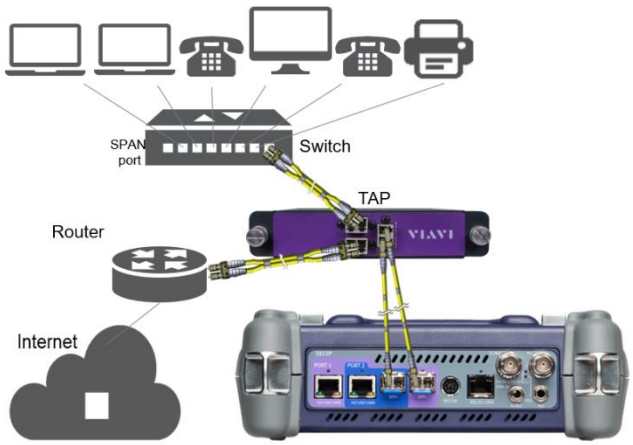



*Figure 3: Optical TAP connection*

**Launch 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, Monitor/Thru** test on **Port 1** as follows:
   - For 1GigE optical TAPs: **Ethernet▶1GigE Optical▶Layer 2 Traffic▶P1 Monitor/Thru**
   - For 10GigE optical TAPs: **Ethernet▶10GigE LAN▶Layer 2 Traffic▶P1 Monitor/Thru**

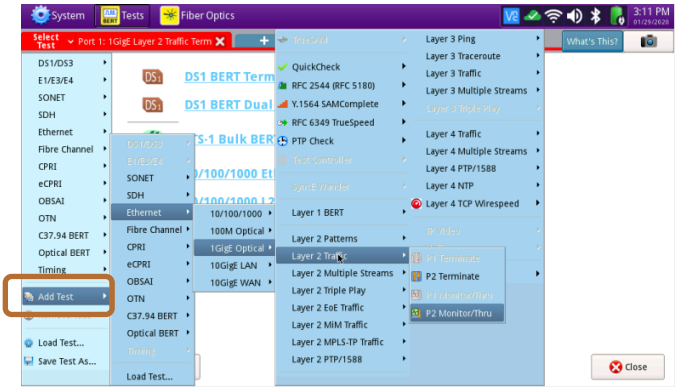
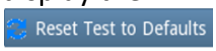



*Figure 4: Adding an Optical Monitor/Thru test on Port 2*

3. Add a second test on **Port 2** using the **Select Test** menu:
   - For 1GigE: **Add Test▶Ethernet▶1GigE Optical▶Layer 2 Traffic▶P2 Monitor/Thru**
   - For 10GigE: **Add Test▶Ethernet▶10GigE LAN▶Layer 2 Traffic▶P2 Monitor/Thru**

**Configure Test:**

1. Tap the **Port 1** folder at the top of the screen.
2. Tap 

to display the T-BERD's **Tools Panel**. Tap 

and press 

to continue.
3. Press the **Setup** soft key 

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4. In the **Interface/Physical Layer** settings, set **Auto Negotiation** to **Off.**
5. In the **Filters/Ethernet** settings, set desired encapsulation, MAC Address filter (DA or SA), VLAN filter, or Type filter.
6. In the **Filters/Rx/Payload** settings, set **Payload Analysis** to **Off.**
7. Press the **Results** soft key 

to return to the Results screen.
8. Press the **Restart** Soft Key 

on the right side of the screen.
9. Check LEDs: a green **Signal Present** LED ● indicates the T-BERD is receiving an optical signal from the TAP. Green **Sync Acquired** and **Link Active** LEDs indicate that the T-BERD has successfully connected to the TAP.
10. Set the right Results Window to display **Ethernet/Capture** results.
11. Tap the **Port 2** folder at the top of the screen.
12. Repeat steps 2 through 10 for **Port 2**.

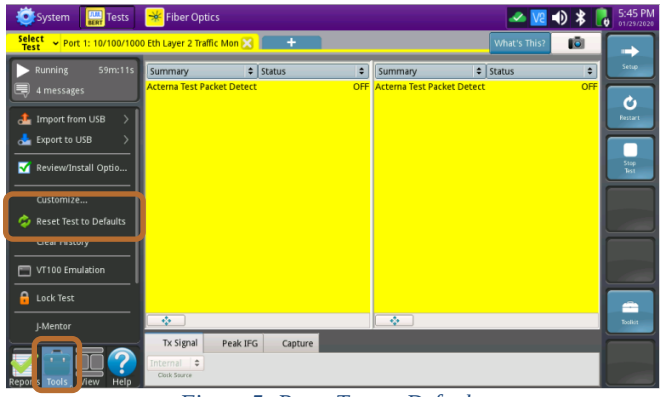

*Figure 5: Reset Test to Defaults*

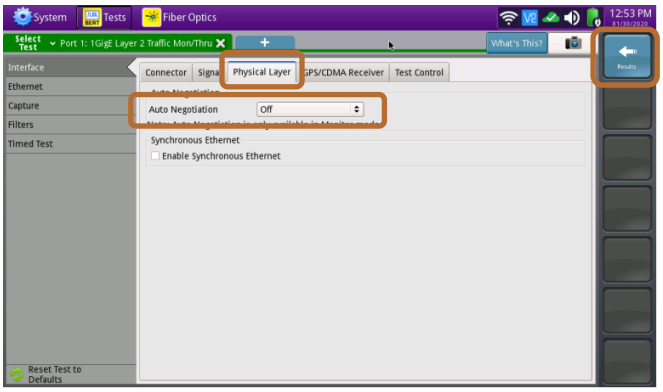

*Figure 6: Setup, Auto Negotiation*

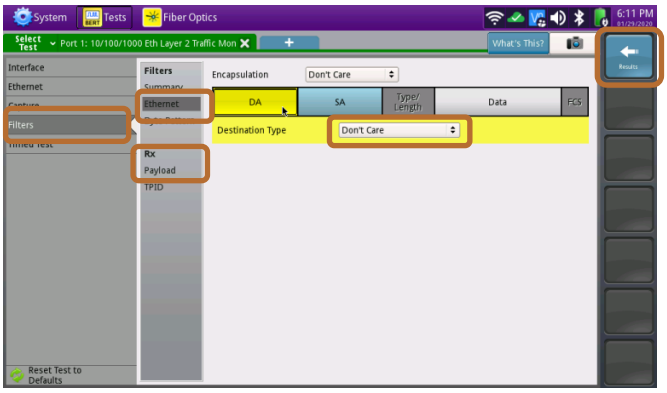

*Figure 7: Setup, Filters*

**Packet Capture/Decode:**

1. Tap the **Port 1** folder at the top of the screen.
2. Select the **Capture** tab in the **Actions panel,** and press Start Capture. The button will turn yellow and be relabeled Capture Started.
3. Repeat Steps 1 and 2 for **Port 2**.

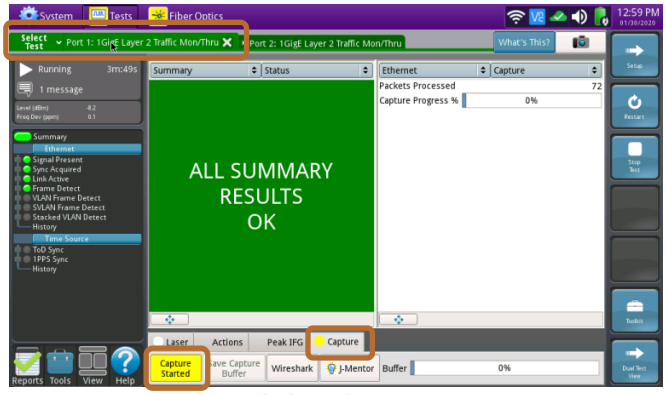

*Figure 8: Start Capture, Port 1*

4. Tap the **Port 1** folder at the top of the screen.
5. When the desired number of packets have been processed, press Capture Started to stop packet capture. The button will turn gray and be relabeled Start Capture.
6. Repeat Steps 4 and 5 for **Port 2**.

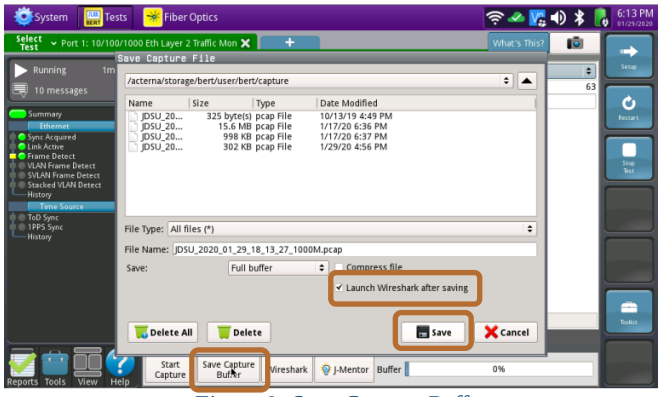
*Figure 9: Save Capture Buffer*

7. Tap the **Port 1** folder at the top of the screen.
8. Press Save Capture Buffer. Ensure "Launch Wireshark after saving" is checked and press Save to save the **PCAP** (**P**acket **CAP**ture) file to the /bert/capture folder of the T-BERD's hard drive.
9. View and analyze the packet capture using WireShark.
10. Tap **File** and **Quit** to exit WireShark.
11. Repeat steps 7 through 10 for **Port 2**.

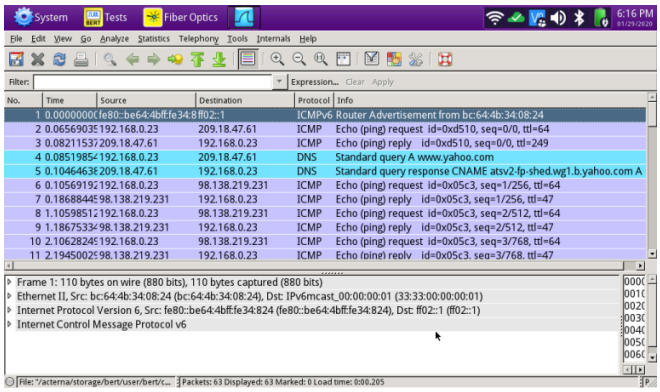
*Figure 10: Wireshark*

Note: Go to https://www.wireshark.org/ for information and tutorials on WireShark.