

## Quick Card

# T-BERD<sup>®</sup>/MTS-5800 Network Tester

## Ethernet Layer 3 Multicast Traffic Analysis

This document outlines how to use the T-BERD 5800 to join Layer 3 Multicast groups and receive and analyze multicast traffic. Multicast traffic generation is covered in a separate Quick Card.

### Equipment Requirements:

- T-BERD/MTS-5800 equipped with the following:
  - BERT software release V27.2 or greater
  - C510M1GE Gigabit Ethernet test option
  - SFP, QSFP, or CFP4 optical transceiver to match the line under test
- Patch Cables 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



Figure 1: Equipment Requirements

### 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)
- IP address for the Multicast Router that handles Multicast Group registration.
- One or more Multicast Group IP Address to receive multicast test traffic.

### 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.)

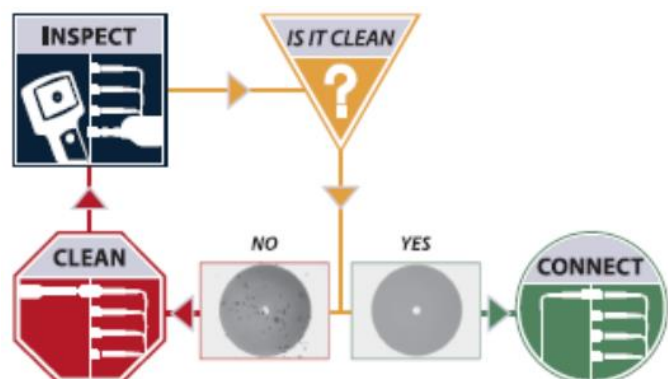


Figure 2: Inspect Before You Connect

### 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.

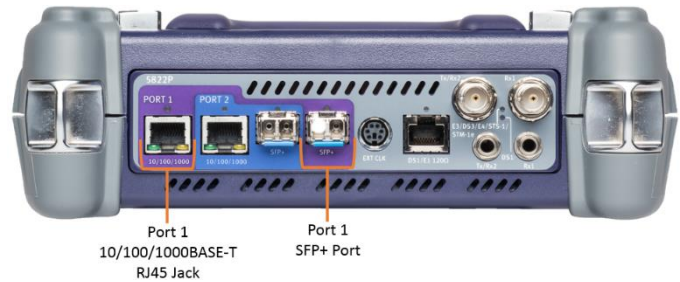


Figure 3: T-BERD 5800v2 Dual Port mainframe

3. For optical interfaces:
  - Insert SFP 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 to the port under test using a Single Mode or Multimode jumper cable compatible with the interface under test.

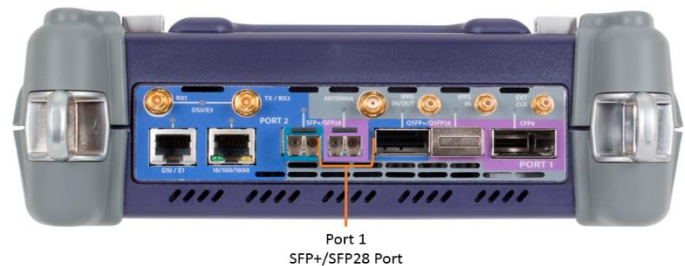




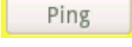


Figure 4: T-BERD 5800-100G mainframe

### 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, IPv4, Terminate** test on port 1 for the desire physical interface. For example: **Ethernet ▶ 10/100/1000 ▶ Layer 3 Traffic ▶ IPv4 ▶ P1 Terminate**.
3. If the test is not in the default settings, tap the **Tools icon**  and select **Reset Test to Defaults** . Tap  and wait for test to reconfigure.
4. Tap 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 the network under test uses VLAN tagging, select the **Ethernet** settings tab, set **Encapsulation** to **VLAN**, tap **[VLAN]** and enter your **VLAN ID**.

7. Select the **IP** settings tab.
8. Select the **Source/Destination Addresses** field.
  - Enter the **Source IP, Default Gateway** and **Subnet Mask** values.
  - Set **Destination IP** to the Multicast Router IP address.
  - The T-BERD/MTS will resolve the destination IP address using the Address Resolution Protocol (ARP).

Once resolved, the  button becomes available and you can use it to verify connectivity to the Multicast Router.

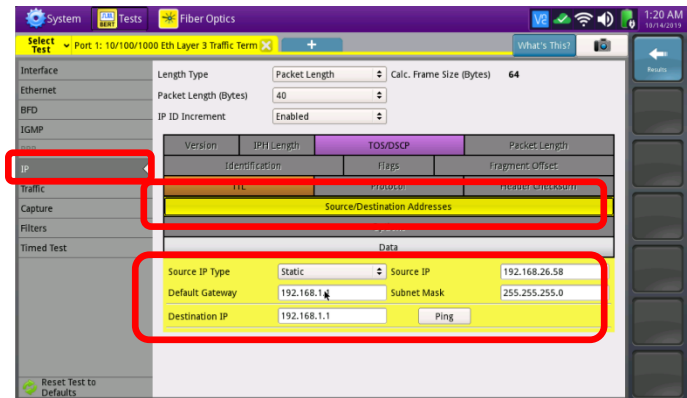


Figure 5: IP Settings

9. Select the **IGMP** settings tab.
10. Set **IGMP Mode** to **Enabled**.
11. Tap the **Address Book** button to configure the **Multicast Group Membership**.

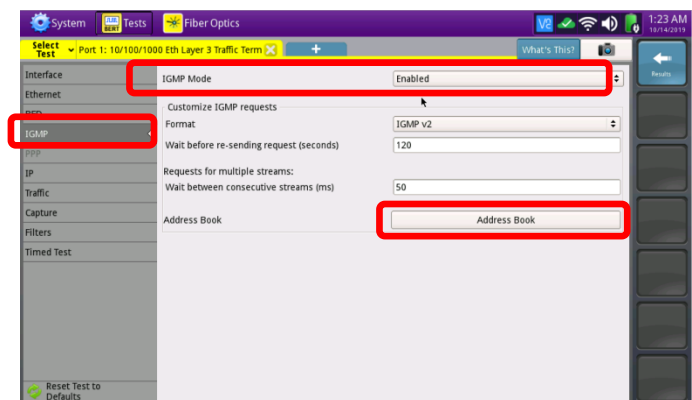


Figure 6: IGMP Settings

12. Under the **New Entry**, enter the source IP address of the T-BERD/MTS Source IP address in the **Source IP** field and enter the **Multicast Group IP address** in the **Dest. IP** field. Optionally, enter a name for the new entry.
13. Tap on the **Add Entry** button to save the **Multicast Group** entry.
14. If more **Multicast Groups** need to be joined during the test, repeat **Steps 12 and 13** for all additional **Multicast Groups**.
15. Tap on **Save and Close** button to save the Address Book information.
16. Tap on the **Results** button in the upper left screen corner to move to the **Results** screen.

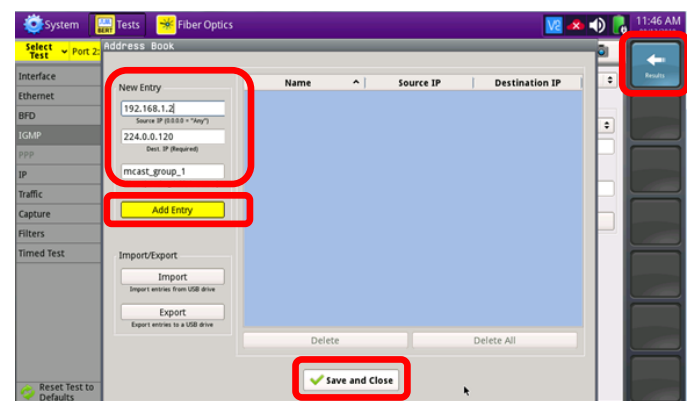


Figure 7: Address Book

### Join Multicast Groups:

1. If using the optical test port on T-BERD/MTS press the **Laser Off** button at the bottom of the screen to turn on the laser. The button will turn yellow and be relabeled **Laser On**.
2. Check LEDs: 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.
3. Use one of the two Results boxes in the middle of the screen to display the **Ethernet/L3 Link Counts** results view to analyze received multicast traffic.
4. Tap on the **Join Streams...** button in the Actions tab at the bottom of the screen to join the **Multicast Groups**.
5. Select one or more Multicast Group entries under **Address Book** and tap the **Add** button to add the entry to the **To Join** list.
6. Tap the **Join Streams** button to join the selected stream(s).

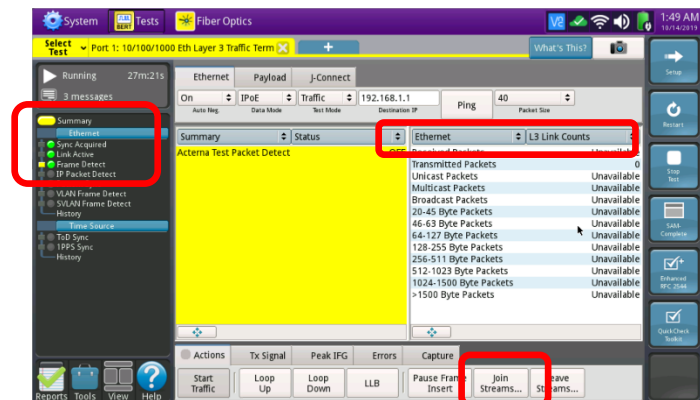


Figure 8: Results

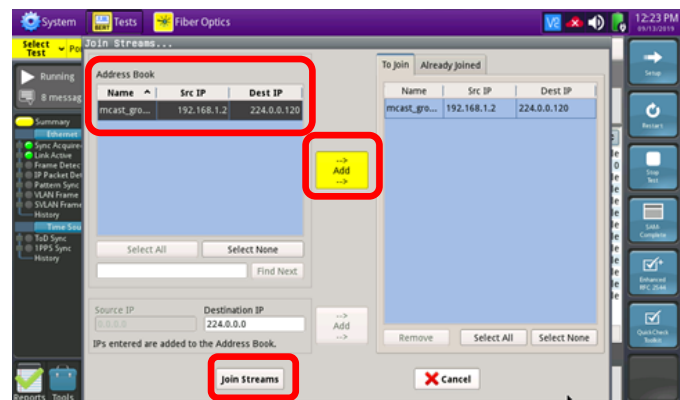


Figure 9: Join Streams...

### Analyze Multicast Traffic:

1. Once one or more **Multicast Groups** are successfully joined, the T-BERD/MTS will start receiving multicast test traffic as indicated by the **Multicast Packets** counter on the **Ethernet -> L3 Link Counts** results view.
2. You can now use other available results views to analyze the multicast traffic performance.

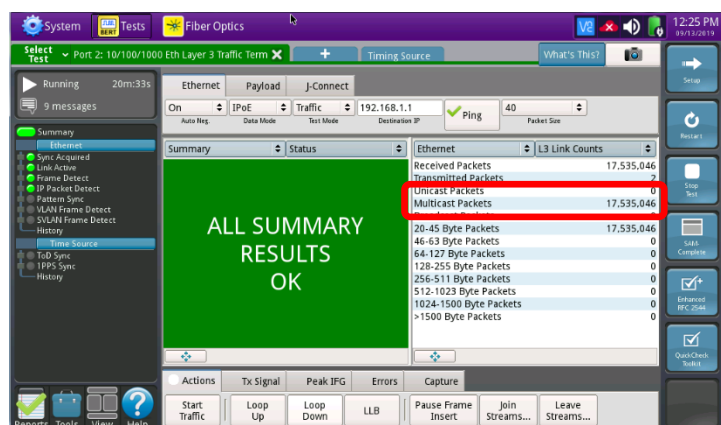


Figure 10: Results view