

## Quick Card

# T-BERD<sup>®</sup>/MTS-5800 Network Tester Ethernet Capture/Decode in Optical SFP Through Mode

This document outlines how to use the T-BERD 5800 to capture and analyze live, in-service network traffic in pass-through mode on an optical interface.

### **Equipment Requirements:**

- T-BERD/MTS-5800 equipped with the following:
  - $\circ$  BERT software release V29.0 or greater
  - Ethernet test options:
    - C510M1GE, C5LSCAPTURE, and C5DUALPORT for 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

# VIANU VIANU

Figure 1: Equipment Requirements

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

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

### 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.)

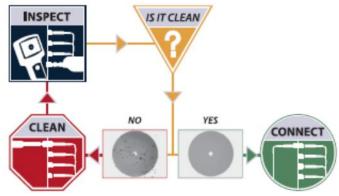


Figure 2: Inspect Before You Connect



### **Connect to Line Under Test:**

- 1. Optical in-line Monitoring uses both ports in the T-BERD in "through" mode. Two transceivers and two tests are required to pass through bidirectional traffic.
- For optical testing, packets received on each SFP/SFP+ are retransmitted on the transmit fiber of the same SFP/SFP+, as in figure 3.

### Launch Test:

- 1. Press the Power button to turn on the test set and view the startup screen.
- Using the Select Test menu, Quick Launch menu, or Job Manager, launch an Ethernet, Layer 2 Traffic, Thru test on Port 1 as follows:
  - For 1GigE Through mode: Ethernet ► 1GigE Optical ► Layer 2 Traffic ► P1 Monitor/Thru
  - For 10GigE Through mode: Ethernet ► 10GigE LAN ► Layer 2 Traffic ► P1 Monitor/Thru
- 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
- 4. Tap the **Port 1** folder at the top of the screen.
- 5. Tap to display the T-BERD's **Tools Panel**. Tap Reset Test to Defaults and press to continue.
- 6. Select the **Laser** tab in the **Actions panel**, and press Griff. The button will turn

yellow and be relabeled

- 7. Select the **Actions** tab and press
- 8. Repeat steps 4 through 7 for **Port 2**.

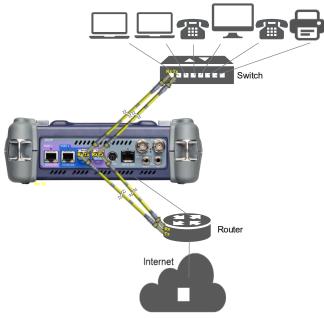


Figure 3: Optical Dual Thru mode connection

Select ~ Port 1: 10 Test ~	SigE Layer 2 Traffic Terr	m 🗙 👘 🕂	<ul> <li>TrueSAM</li> </ul>	Layer 3 Ping	What's This?
DS1/DS3 > E1/E3/E4 > SONET > SDH > Ethernet >			QuickCheck RFC 2544 (RFC 5180) V.1564 SAMComplete RFC 6349 TrueSpeed PTP Check	Layer 3 Traceroute Layer 3 Traffic Layer 3 Multiple Stream Layer 3 Multiple Stream Layer 4 Traffic	15
Fibre Channel  CPRI CPRI		100/1000 Eti	Test Controller     Synce Wander	Layer 4 Multiple Stream Layer 4 PTP/1588 Layer 4 NTP	15 <b>)</b>
OBSAI OTN	Ethernet	100/1000   2 10/100/1000 • 100M Optical •	Layer 1 BERT	Layer 4 TCP Wirespeed      PWidep	•
Optical BERT	CPRI • eCPRI • OBSAI •	1GigE Optical 10GigE LAN 10GigE WAN	Layer 2 Traffic Layer 2 Traffic Layer 2 Multiple Streams	P1 Terminate     P2 Terminate	•
🗞 Add Test 🔹 🕨	OTN + C37.94 BERT +	TUGIge WAN	Layer 2 Triple Play Layer 2 EoE Traffic Layer 2 MiM Traffic	P1 Monitor/Thru     P2 Monitor/Thru	
<ul> <li>Load Test</li> <li>Save Test As</li> </ul>	Optical BERT +		Layer 2 MPLS-TP Traffic Layer 2 PTP/1588	•	Close



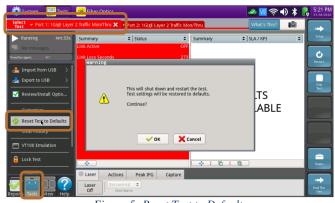


Figure 5: Reset Test to Defaults

Figure 6: Laser On

Capture

Actions

Laser

Peak IFG

Figure 7: Connect Rx to Tx



### **Configure Test:**

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



- 3. In the **Filters/Ethernet** settings, set desired encapsulation, MAC Address filter (DA or SA), VLAN filter, or Type filter.
- 4. In the Filters/Rx/Payload settings, set Payload Analysis to Off.
- 5. Press the **Results** soft key to the Results screen.



- 6. Press the **Restart** Soft Key right side of the screen.
- Check LEDs: a green Signal Present LED 

   indicates the T-BERD is receiving an optical signal. Green Sync Acquired and Link
   Active LEDs indicate that the T-BERD has successfully connected to the network equipment.
- 8. Set the right Results Window to display **Ethernet/Capture** results.
- 9. Tap the **Port 2** folder at the top of the screen.
- 10. Repeat steps 2 through 9 for Port 2.

select v Port 1: 1Gi	Filters	Thru 🗙 🔸 Port 2: 1GigE I			Results
thernet	Cumming	Encapsulation	Don't Care 🗘		
	Ethernet	DA 💦	SA Type/ Length	Data	FC5
lters		Destination Type	Don't Care	•	
med Test	Rx Payload TPID				

Figure 8: Setup

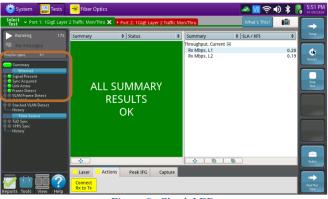


Figure 9: Check LEDs



Figure 10: Ethernet/Capture Results



### Packet Capture/Decode:

- 1. Tap the **Port 1** folder at the top of the screen.
- 2. Select the Capture tab in the Actions Start Capture panel, and press The button will Capture Started

turn yellow and be relabeled

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

Save Capture

Buffer . Ensure "Launch Wireshark 8. Press after saving" is checked and press

🔚 Save

to save the PCAP (Packet CAPture) file to the /bert/capture folder of the T-BERD's hard drive.

- 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**.

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

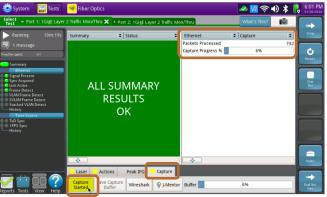


Figure 11: Start Capture

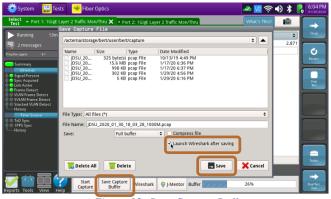


Figure 12: Save Capture Buffer

Cine	Edit View Go					
3	X 🕄 🔒	S 🗢 🔿 🍪	🜴 👱 🔲 🔍	୍ଷ୍	🖺 i 🖻 🔛 💥 i 💢	
Filter	-		Ŧ	Expression	Clear Apply	
ю.	Time	Source	Destination	Protocol	Info	
		)Cfe80::be64:4bff:fe34	:8ff02::1	ICMPv6	Router Advertisement from bc:64:4b:34:08:24	
	2 0.0656903	35192.168.0.23	209.18.47.61	ICMP	Echo (ping) request id=0xd510, seq=0/0, ttl=64	
	3 0.0821153	37209.18.47.61	192.168.0.23	ICMP	Echo (ping) reply id=0xd510, seq=0/0, ttl=249	
		54192.168.0.23	209.18.47.61	DNS	Standard query A www.yahoo.com	
	5 0.1046463	38 209.18.47.61	192.168.0.23	DNS	Standard query response CNAME atsv2-fp-shed.wg1.b.yah	ioo.com
		92192.168.0.23	98.138.219.231	ICMP	Echo (ping) request id=0x05c3, seq=1/256, ttl=64	
		4598.138.219.231	192.168.0.23	ICMP	Echo (ping) reply id=0x05c3, seq=1/256, ttl=47	
		2192.168.0.23	98.138.219.231	ICMP	Echo (ping) request id=0x05c3, seq=2/512, ttl=64	
		3498.138.219.231	192.168.0.23	ICMP	Echo (ping) reply id=0x05c3, seq=2/512, ttl=47	
		49192.168.0.23	98.138.219.231	ICMP	Echo (ping) request id=0x05c3, seq=3/768, ttl=64	
	11 2.1945002	2598.138.219.231	192.168.0.23	ICMP	Echo (ping) reply id=0x05c3. sea=3/768. ttl=47	_
-						000
			110 bytes captured (8			00
					_00:00:00:01 (33:33:00:00:00:01)	00
			реь4:4pm:re34:824 (fe)	so::pe64:4	lbff:fe34:824), Dst: ff02::1 (ff02::1)	:00
TU	ternet Control	Message Protocol v6			k.	100

Figure 13: Wireshark

Contact Us +1 844 GO VIAVI (+1 844 468 4284) To reach the VIAVI office nearest you, visit viavisolutions.com/contacts.

© 2021 VIAVI Solutions Inc. Product specifications and descriptions in this document are subject to change without notice.