

# Quick Card

# T-BERD<sup>®</sup>/MTS-5800 Network Tester Ethernet RFC 2544 Layer 3 Traffic

This document outlines how to configure and run an RFC 2544 Layer 3 Traffic Test for Metro Ethernet Service Activation. 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:
  - o 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.)

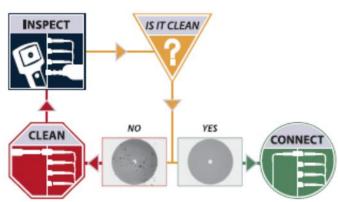


Figure 2: Inspect Before You Connect



Figure 1: Equipment Requirements



# Connect to Fiber Under Test (FUT):

- 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.
- 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 the test set.
  - 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.



Port 1 Port 1 10/100/1000BASE-T SFP+ Port RJ45 Jack Figure 3: T-BERD 5800v2 Dual Port mainframe



Port 1 SFP+/SFP28 Port Figure 4: T-BERD 5800-100G mainframe

# Launch Test:



- 1. Press the Power button is 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, RFC 2544, L3 Traffic, Terminate test on port 1 for the desired physical interface. For example: Ethernet ▶ 10/100/1000 ▶ RFC 2544 ▶ L3 Traffic ▶ P1 Terminate.

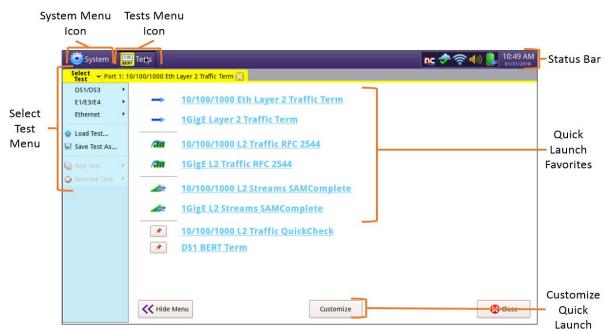


Figure 5: Startup Screen



Go To... 🚺

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Traffic

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# **Configure Test:**

- Tap the Next button to display the L2 Network Settings screen. If you are testing a VLAN, set Encapsulation to VLAN and enter your VLAN ID.
- Tap the Next button to display the RFC 2544 Test: L3 Networks Settings Local screen.
- Enter IP Parameters (Source IP Type, 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.

- 4. Tap the **RFC 2544 Test: Select Tests** screen.
- 5. Select the Throughput, Latency, Frame Loss, Packet Jitter, and Burst Test Tests.



est Mode

ser Priority

Frame Typ

VLAN ID

VLAN

222

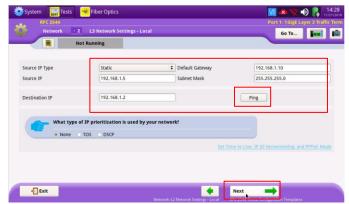
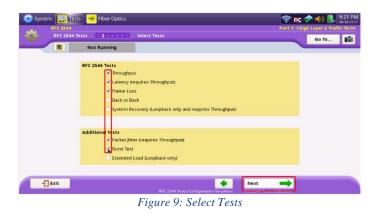


Figure 8: L3 Network Settings: Local





- 6. Tap the Next button to display the RFC 2544 Test: Utilization screen. Set Max Bandwidth to the Committed Information Rate (CIR).
- 7. Tap the Next button to display the RFC 2544 Test: Frame Lengths screen.
   Select the 1<sup>st</sup>, 4<sup>th</sup>, and 8<sup>th</sup> Frame Lengths.

If the MTU is greater than 1518 (1522 with VLAN), also enter and select the frame length of the MTU. Deselect (uncheck) all other frame sizes.

System Test			Cort 1: Ligit Layer 2 Traffic Term
🕜 Bandwidth Unit	L1 Mbps ¢	Wax Bandwidth (L1 Mbps)	
	Set advanced Utilization settings		
- Exit		Mext	→
		2544 Tests: Select Tests	runne i con <sub>S</sub> dis

Figure 10: Utilization

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RFC 2544 RFC 2544 Tests 1 2	3 4 3 6 7 Frame Lengths	Port 1: 1GigE Layer 2 Traffic Term
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	260	
	516	
	772	
	1028	
	1284	
Reset	1522	
Clear All	2000	
Select All	9604	
Exit	•	Next 🗪
	RFC 2544 Tests: Ütilizatio	

Figure 11: Frame Lengths

	Not Running		Go To
🥜 Burst Test Type	Committed Burst Size     CBS Policing (MEF 34)     Burst Hunt	<b>(2) CB5 (kB)</b> 128	
() CBS Duration (s)			Set advanced CBS Se
	2		
			*

Figure 12: Burst Test

- 10 Go To Threshold 4 ghput Threshold (L1 Mbps 200.00 Throughput Frame Loss Toleran 0.0000 4 Latency RTD (us 10000.0 Packet Jitter (us) Burst (CBS) N/A 🕜 Acterna Payload Version \$ sion 3 🕂 Exit 🔶 Next -
  - Figure 13: Test Thresholds

8. Tap the Next button 3 times to display the RFC 2544 Test: Burst Test screen. Set CBS (kB) to the Committed Burst Size.

Tap the Next button twice to display the Test Ctls: Test Thresholds screen. Check all boxes for which a Pass/Fail Threshold is known. Enter the Threshold for each selection.



# **Run Test:**

1. Tap the **Next** button 3 times to display the Run J-QuickCheck screen. Tap the Not what you want? link and check Test using configured RFC2544 Max bandwidth box, then tap **Back** to return to previous screen.

Start Tap the button.

Verify that the Remote Loop is recognized, and that **Measured Throughput** is greater than or equal to the Committed Information Rate.

2. Tap the **Next** button to display the Run RFC 2544 Tests screen. Run

Tap the Test button.

Wait for the test to complete and verify that all tests pass or complete as indicated by a green or blue checkmark.

- 3. Tap the **Next** button three times to 🖋 Create Report display the **Report** screen. Tap
- 4. Tap the etimes to close the report and exit the RFC-2544 test.

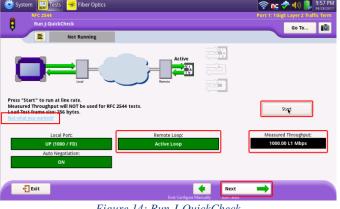


Figure 14: Run J-QuickCheck

Pass	Test Complete	
RFC 2	544 Tests	
Throughput		Run Teste
Latency		<u>.</u>
Packet Jitter		전쟁 전의 전력
Frame Loss		
Burst (CBS)		V Pass
		Fail Complete
		Running
		··· Scheduled

Figure 15: Run RFC 2544 Tests

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	Pass	Test Complete			_
Format					
PDF	○ CSV	<ul> <li>Text</li> </ul>	⊖ HTML	○ XML	
File Name					
RFC_2544-2017-08-	28T22.25.36				Select
			✓ View report after creation ☐ Include message log	Create Report	Report
🕂 Exit			<b>(</b>		

Figure 16: Create Report

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