QUICK CARD

Ethernet Cable Test

This quick card describes how to configure and run an Ethernet Cable Test to verify proper operation of Active Optical Cables (AOC), Active Electrical Cables (AEC), and Direct Attach Copper Cables (DAC). The guick card documents a procedure to set up the OneAdvisor to test a 100GBASE-CR4 straight cable, but a similar workflow may be applied to other straight cables or to test cables between two OneAdvisor 800s.

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System System

Tests

ONA800-VFL

400G Transport

Fiber 1 (ONA-800)

EQUIPMENT REQUIREMENTS

- OneAdvisor 800 equipped with the following:
 - TM400GB-QQ 400G Module
 - Transport software release V5.1.0 or greater
 - CA100GE 100 Gigabit Ethernet option
 - CALPBK Layer 1 loopback option



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Figure 1: Equipment Requirements

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400G Transport

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LAUNCH TEST

- Press the Power button on the top panel of 1. the ONA-800 base unit to turn on the OneAdvisor.
- 🟫 Home to display the Home Screen. Tap 2.
- Tests to display the Tests menu. Tap 3.
- Tap 400G Transport > to show the Transport 4. test application.
- Tap the 400G Transport icon. 5.
- 6. If the **Select Test** menu is not displayed, tap >> All Tests in the lower left screen corner.
- 7. Using the Select Test menu or favorite test list, launch the Ethernet Cable Test for the desired data rate on Port 1. For example: Ethernet ► 100GigE ► Cable Test ▶ P1 Cable Test.
- Tap the $Go \rightarrow$ button next to "Start a New 8. Configuration (reset to defaults)"



Figure 3: Select Test

Configure				CALMER AND ME REVEALED AND A	
				Go To	i
Not Running					
	*				
Configure					
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Configure	G	• →			
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Configure Celit Previous Configuration Load Configuration from a Profile	G	•			
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Edit Previous Configuration	G	•			



Figure 4: Configure



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CONFIGURE TEST

- 1. Set Cable Type to Straight.
- Set Test Duration to Recommended. The recommended duration is determined by the line rate, BER Threshold, and a 95% confidence level (CL) using BER theory.
- 3. Set **FEC Type** and **BER Threshold Type** per the following table, based on the Interface Type.
- 4. Set **BER Threshold** and **Optics Temperature Threshold** to match the cable manufacturer specifications or network requirements.

* Use the recommended values in the following table only if specifications are unknown:

				Optic
		BER		Temperature
Interface	FEC	Threshold	BER	Threshold
Туре	Туре	Туре	Threshold	(°C)
400GBASE-SR8	RS (544, 514)	Pre-FEC	1x10^-5*	75*
400GBASE-CR8	RS (544, 514)	Pre-FEC	1x10^-5*	75*
200GBASE-SR4	RS (544, 514)	Pre-FEC	1x10^-5*	75*
200GBASE-CR4	RS (544, 514)	Pre-FEC	1x10^-5*	75*
100G PSM4 MSA	RS (528,514)	Pre-FEC	1x10^-8*	75*
100GBASE-SR4	RS (528,514)	Pre-FEC	1x10^-8*	75*
100GBASE-CR4	RS (544, 514)	Pre-FEC	1x10^-8*	75*
40GBASE-SR4	No FEC	N/A	1x10^-12*	75*
40GBASE-CR4	No FEC	N/A	1x10^-12*	75*
25GBASE-SR	RS (528,514)	Pre-FEC	1x10^-8*	75*
25GBASE-CR	RS (528,514)	Pre-FEC	1x10^-8*	75*
10GBASE-SR	No FEC	N/A	1x10^-12*	75*
10GBASE-CR	No FEC	N/A	1x10^-12*	75*

- Tap Launch Other Port to add an Unframed QSFP Loopback test on Port 2 or launch an Unframed QSFP Loopback test on the far end OneAdvisor.
- Tap Next → to display the Report Info screen. If you wish to generate a report, enter Test Report Information.
- 7. Tap **Next** \rightarrow to display the **Cable Test** screen.



Figure 5: Cable Settings

		1 PM
eport Info	Port 1: 100Gige Layer 2 traffic T	rerm
Not Running		
est Report Information		
tomer Name:		
hnician ID:	-	
Location:	-	
rk Order:	-	
nments/Notes:	-	
port Logo	None selected Clear Select logo	
	Not Running ist Report Information tomer Name: hnician ID: t Location: rk Order: mments/Notes: port Logo	Not Running est Report Information tomer Name: hnician ID: c c c c c c c c c c c c c c c c c c c

Figure 6: Report Info



Figure 7: Cable Test



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TEST OPTICS

- Connect the cable between the two ports on the top of the OneAdvisor or between the two OneAdvisors.
- 2. Tap Test QSFP+ Optics button.
- 3. Wait for the test to complete and verify that all tests pass.
- 4. If you wish to save a report:
 - Tap the Next → button to display the Report screen.
 - Tap the Create Report button.
 - Tap the *Exit* button to close the report.
- 5. If you performed a Pre-FEC test on optics with RS FEC, optionally repeat the test with Threshold Type = Post-FEC. Set BER Threshold to match the cable vendor Post-FEC BER specifications or network requirements. If specifications are unknown, Set BER Threshold to 1x10^-12.
- Tap the ← Exit buttons twice to close the report and exit the Optics Self-Test.



Figure 8: Test Complete

Home 400G	i Transport 🗙			Port 1: 100GigE Layer 2 Traffic T
Report	Pass	Test Complete		Go To 📠
Format				
* PDF	\odot CSV	 Text 	O HTML	○ XML
Cable_Test-2024-0	07-10T15.07.33			Select
			✓ View report after creation ✓ Include message log	Create Report View Report
-€] Exit			Skip Report Creati	ion 🗪
C. Law			Cable Test Cable Test	

Figure 9: Create Report



Figure 10: Exit

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