

QUICK CARD

Ethernet Breakout Cable Test

This quick card describes how to configure and run an Ethernet Cable Test to verify proper operation and the stability of QSFP Active Optical Cables (AOC), Active Electrical Cables (AEC), and Direct Attach Copper Cables (DAC) Breakout Cables. The quick card documents a procedure to set up one OneAdvisor to test a 40G QSFP+ to 4x10G SFP+ cable, but a similar workflow may be applied to other breakout cables or to test cables between two OneAdvisor 800s.





EQUIPMENT REQUIREMENTS

- OneAdvisor 800 equipped with the following:
 - TM400GB-QQ 400G Module
 - Transport software release V5.1.0 or greater
 - CA10GELAN 10 Gigabit Ethernet option
 - CA40GE 40 Gigabit Ethernet option
 - CALPBK Layer 1 loopback option



Figure 1: Equipment Requirements

LAUNCH TEST

- Press the Power button  on the top panel of the ONA-800 base unit to turn on the OneAdvisor.
- Tap  to display the Home Screen.
- Tap  to display the Tests menu.
- Tap  to show the Transport test application.
- Tap the **400G Transport** icon.
- If the **Select Test** menu is not displayed, tap **>> All Tests** in the lower left screen corner.
- Using the **Select Test** menu or favorite test list, launch the Ethernet Cable Test for the data rate of the breakout/branch cable on Port 1. For example:
Ethernet ▶ 10GigE LAN ▶ Cable Test ▶ P1 Cable Test.
- Tap the **Go →** button next to “**Start a New Configuration (reset to defaults)**”

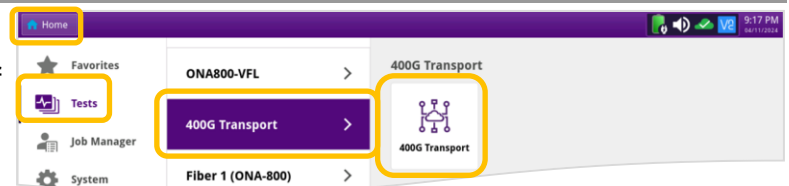


Figure 2: Transport Launch screen

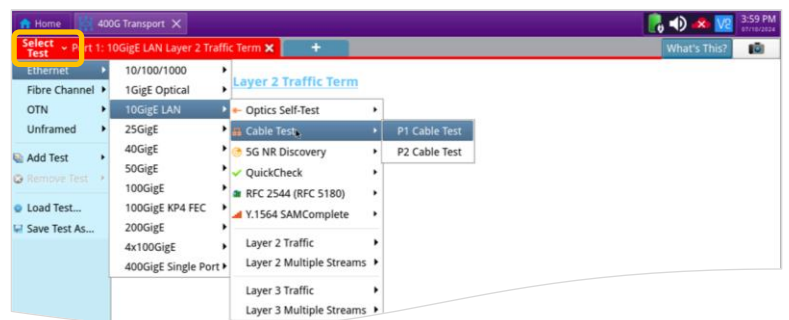


Figure 3: Select Test

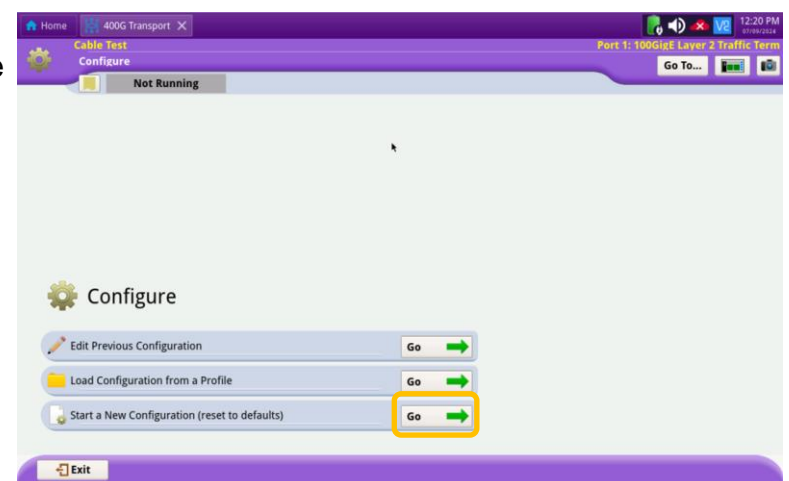


Figure 4: Configure

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CONFIGURE TEST

1. Set **Cable Type** to **Breakout**.
2. 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 breakout 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:

Interface Type	FEC Type	BER Threshold Type	BER Threshold	Optic Temperature Threshold (°C)
200GBASE-SR4	RS (544, 514)	Pre-FEC	1x10 ⁻⁵ *	75*
200GBASE-CR4	RS (544, 514)	Pre-FEC	1x10 ⁻⁵ *	75*
100GBASE-SR4	RS (528,514)	Pre-FEC	1x10 ⁻⁸ *	75*
100GBASE-CR4	RS (544, 514)	Pre-FEC	1x10 ⁻⁸ *	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*

5. 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.
6. Tap **Next** → to display the **Report Info** screen. If you wish to generate a report, enter Test Report Information.
7. Tap **Next** → to display the **Cable Test** screen.
8. Enter the **Breakout Label** for the first breakout interface (typically 1 or A).
9. Tap the blue **?** Next to **Host Lane CDR** for guidance and select the Lane for the first breakout.

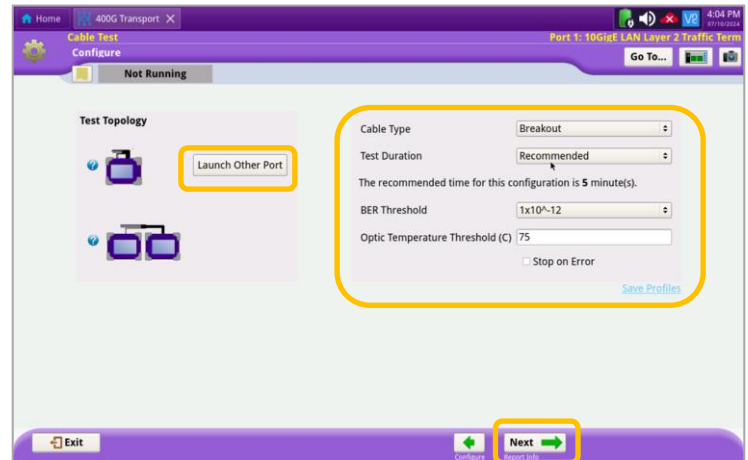


Figure 5: Cable Settings

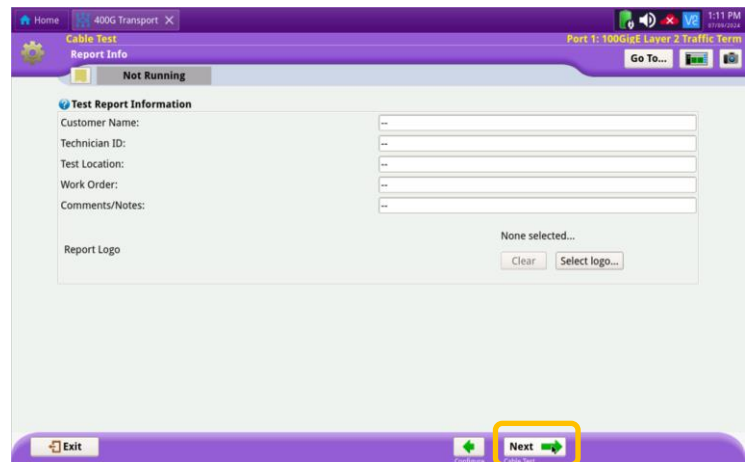


Figure 6: Report Info

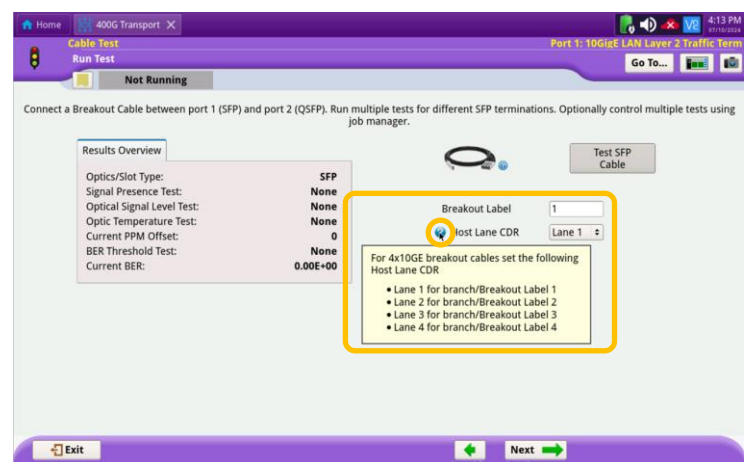


Figure 7: Cable Test

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TEST OPTICS

1. Connect the 1st branch of the breakout cable to the Port 1 SFP-DD or QSFP-DD port on the top of the OneAdvisor. Connect the high speed QSFP interface to the Port 2 QSFP-DD port on the top of the OneAdvisor.
2. Tap the **Test SFP Cable** or **Test QSFP Cable** 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 1×10^{-12} .
6. Repeat the test(s) for the other 3 breakout/branch cables.
7. Tap the **Exit** buttons twice to close the report and exit the Optics Self-Test.

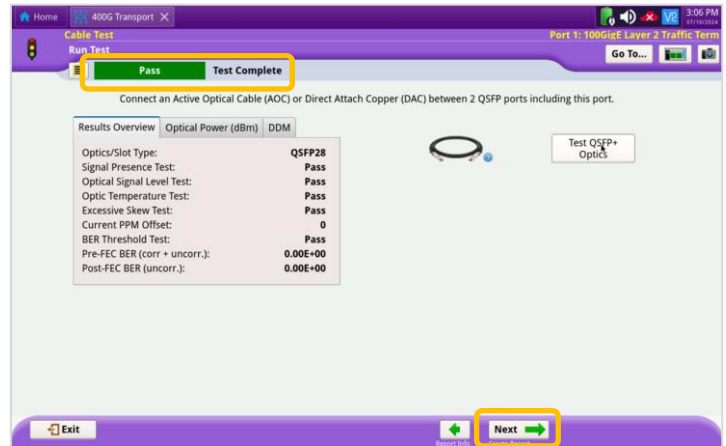


Figure 8: Test Complete

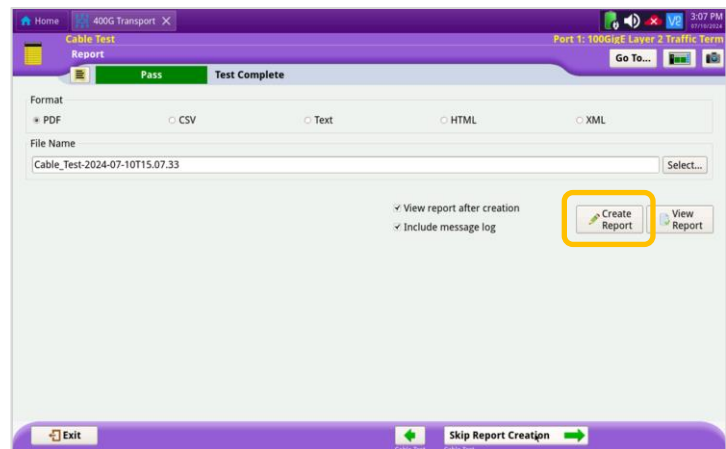


Figure 9: Create Report

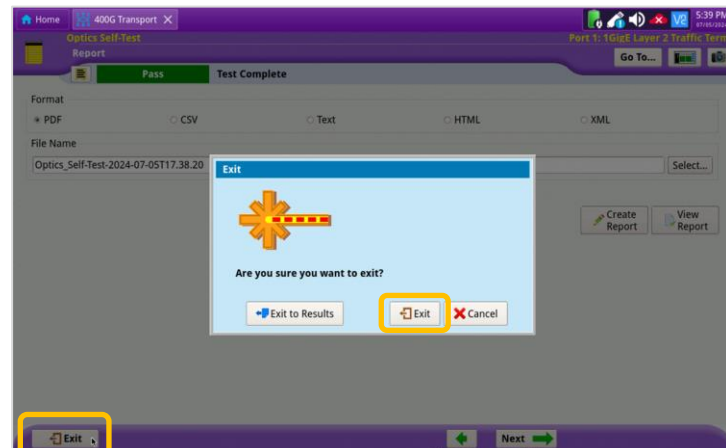


Figure 10: Exit