

QUICK CARD

Ethernet Layer 2 Multiple Streams Traffic Generation

This quick card describes how to set up the OneAdvisor 800 as a Layer 2 Multiple Streams Traffic Generator and measure Metro Ethernet key performance indicators (KPIs). The quick card documents a procedure to set up the OneAdvisor on a 1GigE Optical Interface, but the same workflow may be applied to other data rates.





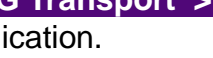

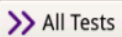

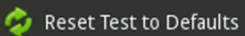

EQUIPMENT REQUIREMENTS

- OneAdvisor 800 equipped with the following:
 - RAXxMA-O Radio Analysis Module, SPA06MA-O Spectrum Analyzer Module, TM400GB-QQ 400G Module, or TM400GB-QO 400G Module.
 - Transport software release V5.1.0 or greater
 - CA10M1GE or ONA-SP-10M1GE 1 Gigabit Ethernet option
- Optical Transceiver supporting the Ethernet data rate to be tested (SFP, SFP+, SFP28, or QSFP28)
- Cables to match the optical transceiver and the line under test
- Fiber optic inspection microscope (P5000i, FiberChek Probe, or INX-760)
- Fiber optic cleaning supplies



Figure 1: Equipment Requirements

LAUNCH TEST

1. Press the Power button  on the ONA-800 base top panel to turn on the OneAdvisor.
2. Tap  to display the Home Screen.
3. Tap  to display the Tests menu.
4. Tap  or  to show the Transport test application.
5. Tap the **Transport** icon. 
6. If the **Select Test** menu is not displayed, tap  in the lower left screen corner.
7. Using the **Select Test** menu or favorite test list, launch the Ethernet Layer 2 Traffic test for the desired data rate and port (P1 or P2). For example: **Ethernet ▶ 1GigE Optical ▶ Layer 2 Multiple Streams ▶ P1 Terminate**. 
8. If the current configuration is unknown, tap to open the **Tools** Panel and select .
9. Press  to continue.

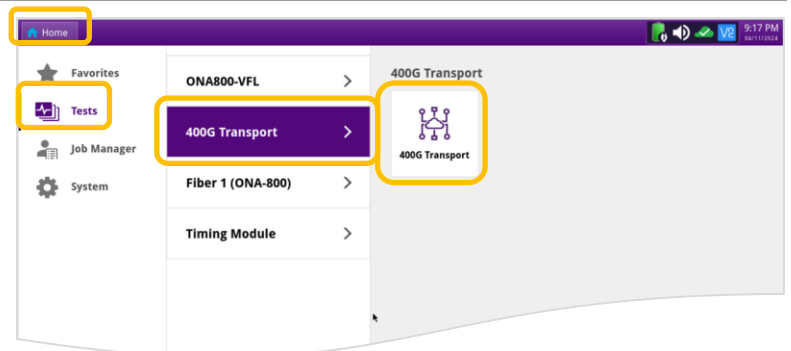


Figure 2: Transport Launch screen

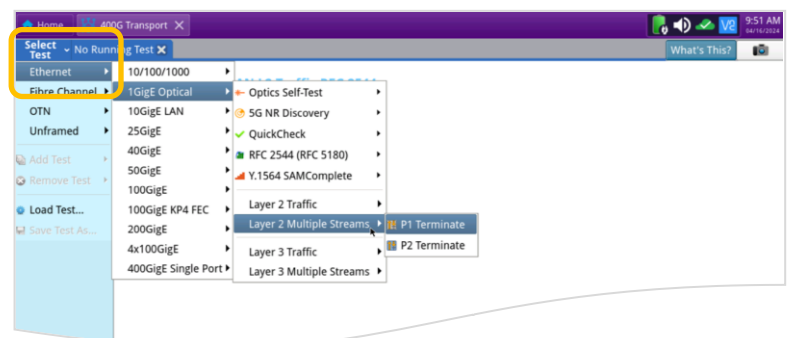


Figure 3: Select Test


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CONFIGURE TEST

- ▶ The following Information is needed to configure the test:
 - Type of Optical Transceiver (10/100/1000 Copper SFP, 1G/10G Single mode, 100G LR4 QSFP28, etc.)
 - Auto Negotiation settings of the port under test.
 - Stream Definitions (Encapsulation, VLAN IDs, Frame Sizes, Destination Addresses, etc.)



Figure 4: Work Order

1. Tap the **Setup** soft key  on the top right side of the screen.
2. Select the **Interface/Connector/SFP** folder.
 - Insert desired Optical Transceiver into the Port 1 SFP or QSFP slot on the top of the OneAdvisor.
 - Review SFP information:
 - ✓ Verify that the SFP operates on the required wavelength (850nm, 1310nm or 1550nm).
 - ✓ Verify that the SFP supports the required data rate (1G, 10G, etc.)
 - ✓ Note the Min and Max Tx Levels (dBm) and Max Rx Level (dBm) to assess if optical attenuators are required.
3. For 1GigE Optical or 10/100/1000 Copper tests, select the **Physical Layer** tab and set **Auto Negotiation** to the same values as the Ethernet port under test.
4. Select the **All Streams** folder.
 - If your loopback device is a Carrier Ethernet Switch or NID supporting IEEE802.1ag LBM/LBR loopback, set **Test Mode** to **LBM Traffic**. Select the LBM folder and set **Maint. Domain Level** to **5**.
 - For all other loopbacks, set **Test Mode** to **Traffic**.
 - Tap the **Configure Steams...** button. Select the number of streams to generate and the **Load (%)** per stream, and tap **✓OK**.

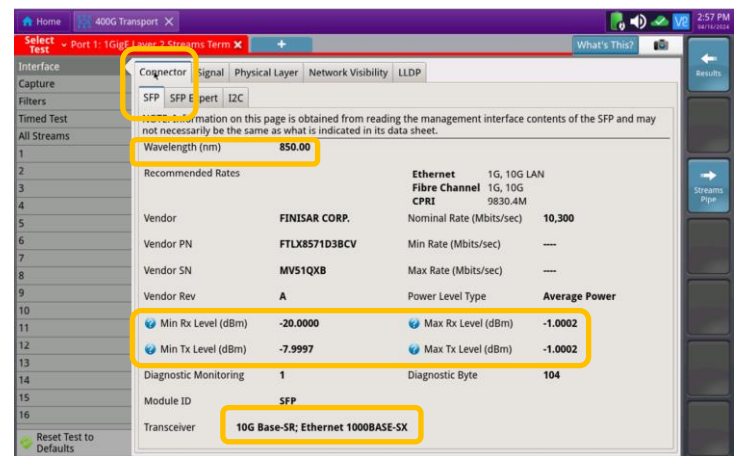


Figure 5: Setup, Interface/Connector/SFP

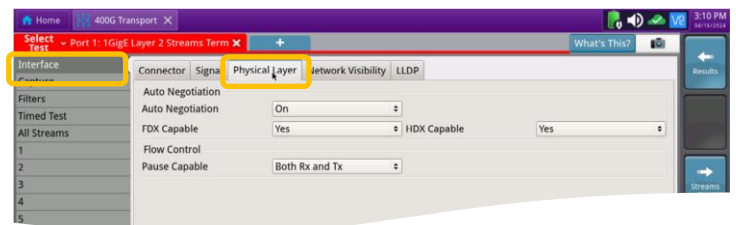


Figure 6: Setup, Interface/Physical Layer

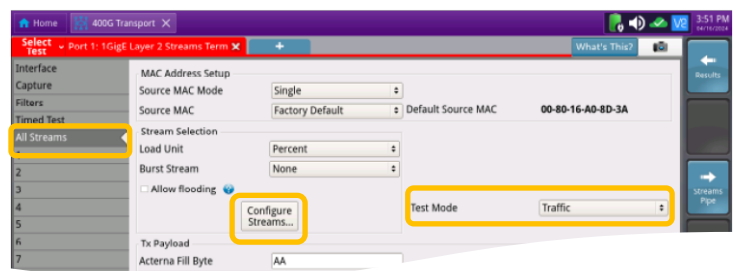


Figure 7: Setup, All Streams

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CONFIGURE TEST (CONTINUED)

5. Select the **1** tab and enter settings for Stream 1:

- If you are testing a VLAN, set **Encapsulation** to **VLAN**, tap the **VLAN** field and enter your **VLAN ID**.
- Set **Frame Size (Bytes)** to the desired frame size or **EMIX**.
- Tap the **SA** field to display the Factory Default Source MAC Address. Provide this address to the operator of the far-end test instrument (OneAdvisor, T-BERD/MTS, NSC-200, etc.) upon request.
- Tap the **DA** field, Set **Loop Type** to **Unicast**, and enter the Source Address (SA) of the far-end test instrument in the **Destination MAC** field.
- Provide the stream number to the operator of the far-end test instrument. Their stream number must match yours.

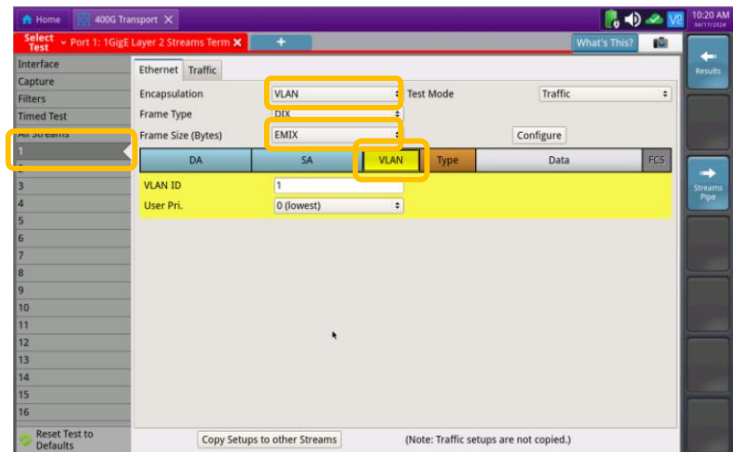


Figure 8: Setup, Stream 1/Ethernet/VLAN

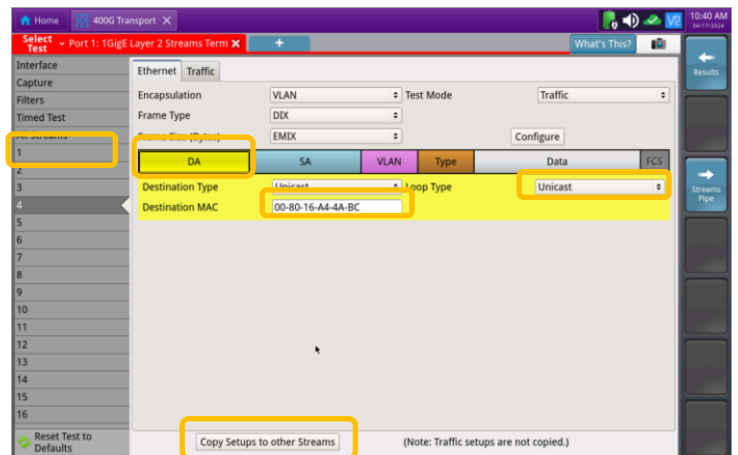






Figure 9: Setup, Stream 1/Ethernet/DA

6. Tap **Copy Setups to other Streams**.
7. Repeat step 5 for all other streams.
8. Tap the **Results** soft key .

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CONNECT TO LINE UNDER TEST

► For Optical Interfaces:

- Use the VIAVI P5000i, FiberChek Probe, or INX 760 microscope to inspect both sides of every connection being used (SFP, attenuators, patch cables, bulkheads)
 - Focus the fiber on the screen.
 - If it appears dirty, clean the fiber end-face and re-inspect.
 - If it appears clean, run the inspection test.
 - If it fails, clean the fiber and re-run inspection test. Repeat until it passes.
- If necessary, insert optical attenuators into the SFP TX and/or RX ports.
- Connect the optical transceiver to the port under test using a jumper cable compatible with the line under test.
- Select the **Laser** tab in the **Actions** panel.
- Press . The button will turn yellow and be relabeled .
- Press the **Restart** soft key .
- Verify the following:
 - Signal Present** LED is green.
 - Sync Acquired** LED is green.
 - Link Active** LED is green.

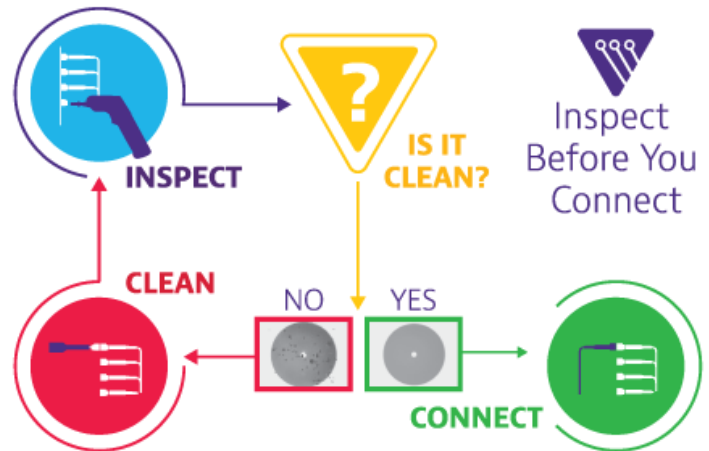



Figure 10: Inspect Before You Connect

► For 10/100/1000M Copper Interfaces:

- Connect the copper SFP to the port under test using CAT5e or better cable.
- Press the **Restart** soft key.
- Verify the following:
 - Sync Acquired** LED is green.
 - Link Active** LED is green.

► Select the **Actions** tab in the **Actions** Panel.

- If you are testing head-to-head to multiple loopback devices, to a hard loop, or if the loopback devices are already in Local Loop Back (LLB) mode, proceed to page 5.
- If the Loopback device is a OneAdvisor, T-BERD/MTS 5800 or another VIAVI compatible loopback device, tap  to loop up the far end device.

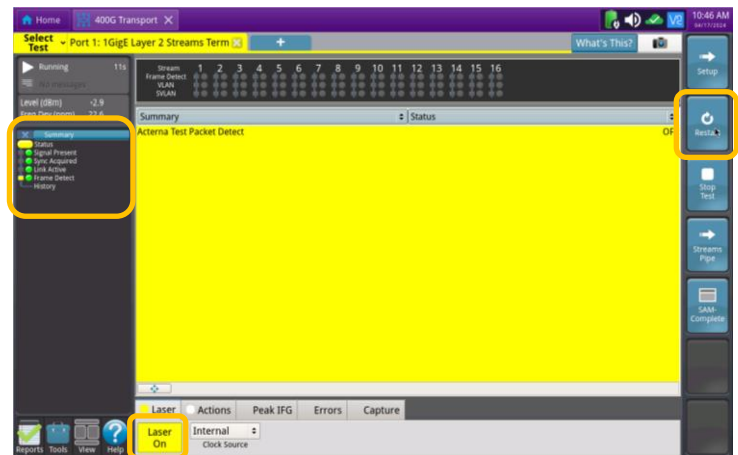


Figure 11: Optical Interface Results

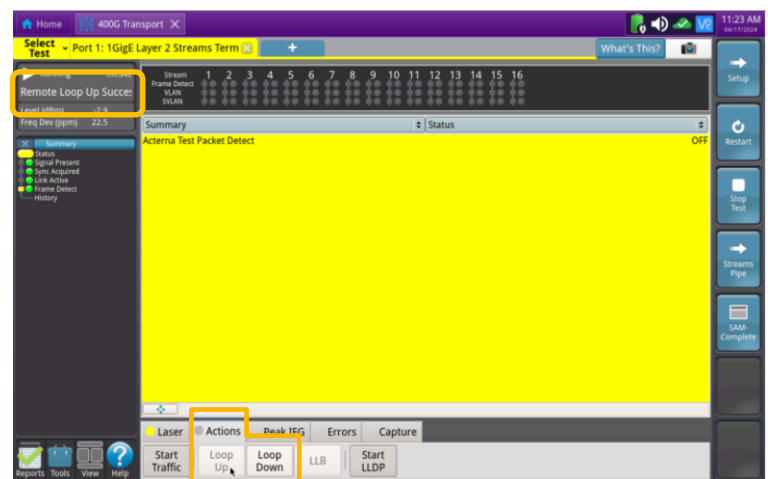


Figure 12: Loop Up

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LOOP UP AND RUN TEST

- Tap **Start Traffic**. The button will turn yellow and be relabeled **Traffic Started**.
- Press the **Restart** soft key on the right side of the screen. Verify that:
 - ✓ The **Frame Detect** LED is green for each configured stream.
 - ✓ The results window shows **ALL SUMMARY RESULTS OK**.
- Tap the **View** icon and select **Split Left/Right** or **2 x 2 Grid** to view additional results windows. Select desired results using the drop-down menus at the top of each results window.
- Tap the **Streams Pipe** soft key to view summary results for all streams.

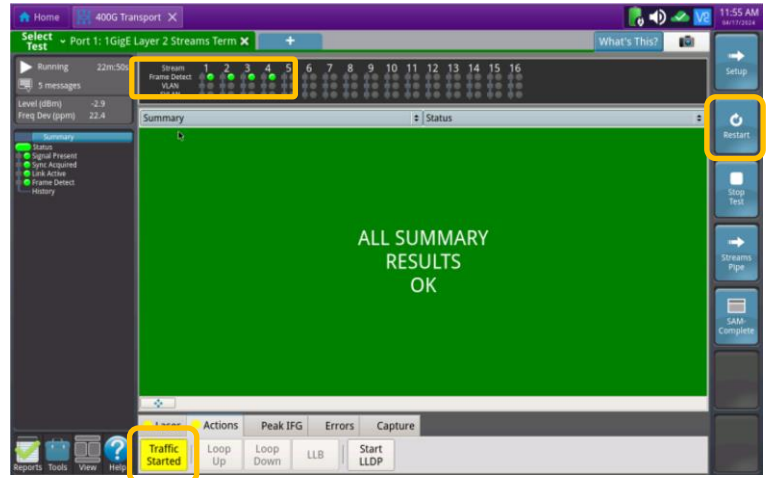


Figure 13: Start Traffic

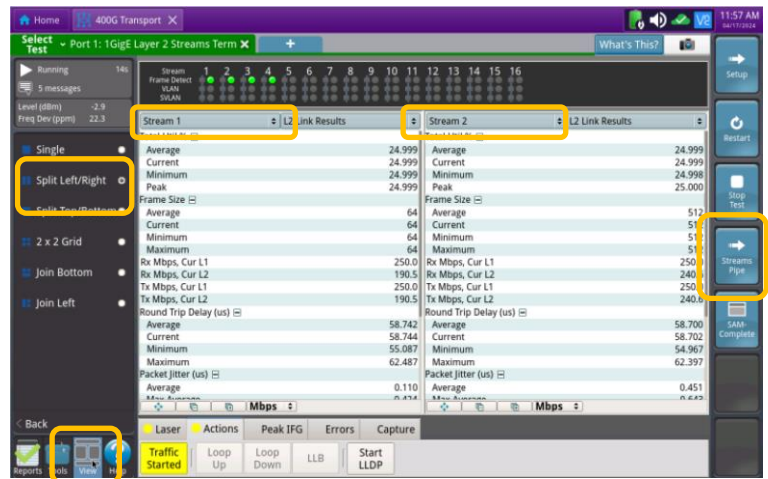


Figure 14: Split View

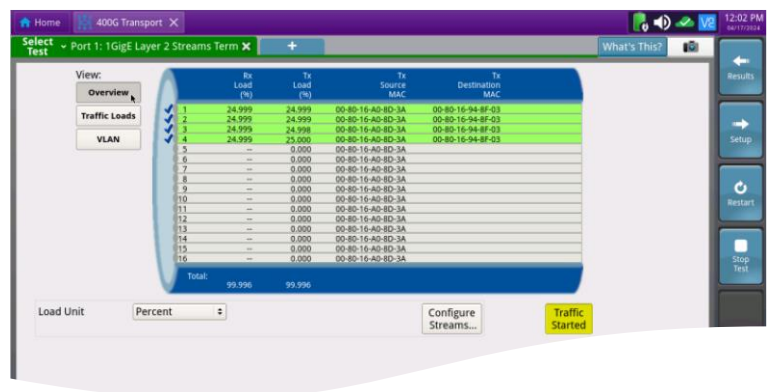


Figure 15: Streams Pipe