OneAdvisor 800 Transport and Wireless Platforms

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QUICK CARD

Ethernet Layer 3 Traffic Generation

This quick card describes how to set up the OneAdvisor 800 as a Layer 3 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 utilizing IPv4 addressing, the same workflow may be applied to other data rates and IPv6.

EQUIPMENT REQUIREMENTS

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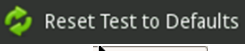- Optical Transceiver supporting the Ethernet data rate to be tested (SFP, SFP+, SFP28, or QSFP28)
- Cables to match the optical transceiver and the line under test
- Fiber optic inspection microscope (P5000i, FiberChek Probe, or INX-760)
- Fiber optic cleaning supplies

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 **🏠 Home** to display the Home Screen.

3. Tap **∿⫶ Tests** to display the Tests menu.

4. Tap **Radio Analysis Transport >** or **400G Transport >** to show the Transport test application.

5. Tap the **Transport** icon. **[TRANSPORT]**

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 Layer 3 Traffic test for the desired data rate and port (P1 or P2). For example: **Ethernet ▶1GigE Optical ▶ Layer 3 Traffic ▶IPv4 ▶P1 Terminate.**

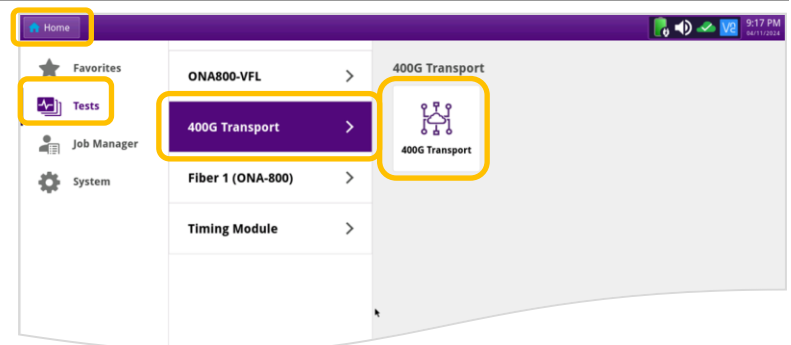8. If the current configuration is unknown, tap 🧰 (Tools) to open the **Tools** Panel and select **🔄 Reset Test to Defaults**.

9. Press **✔ OK** to continue.

Figure 2: Transport Launch screen

Figure 3: Select Test

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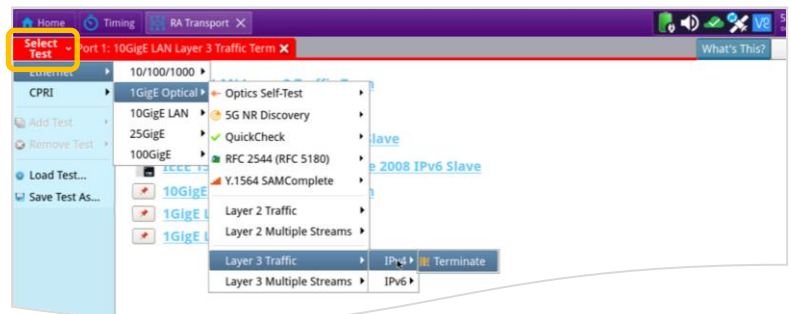
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CONFIGURE TEST

► The following info is needed to configure the test:

   • Type of Optical Transceiver (10/100/1000 Copper SFP, 1G/10G Multimode SFP+, 10G/25G Single mode SFP+, 100G LR4 QSFP28, etc.)
   • Auto Negotiation settings of the port under test.
   • IP Address settings (DHCP or Static, Source IP, Default Gateway, Subnet Mask, and Destination IP)

Figure 4: Work Order

► For 1GigE Optical or 10/100/1000 Copper tests, tap the **Ethernet** tab of the Quick Configuration menu and set **Auto Neg**. to the same value as the Ethernet port under test (**On** or **Off**).

► For 10/100/1000 Copper tests, tap the **Setup** soft key on the top right side of the screen and proceed to page 3.
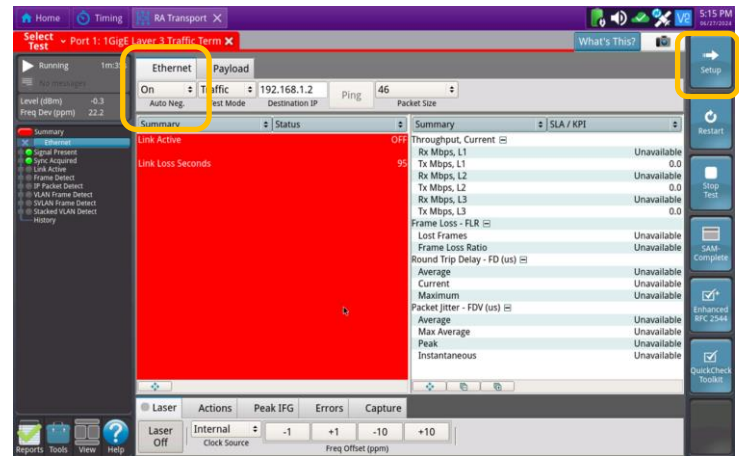

Figure 5: Quick Config, Auto Neg.

► For Optical Interfaces:
  1. Tap the **Setup** soft key on the top right side of the screen.
  2. Select the **Interface/Connector** folder.
  3. Insert desired Optical Transceiver into the Port 1 SFP or QSFP slot on the top of the OneAdvisor.
  4. Review SFP information:
     o Verify that the SFP operates on the required wavelength (850nm, 1310nm, 1550nm, etc..).
     o Verify that the SFP supports the required data rate (10G, 25G, etc..)
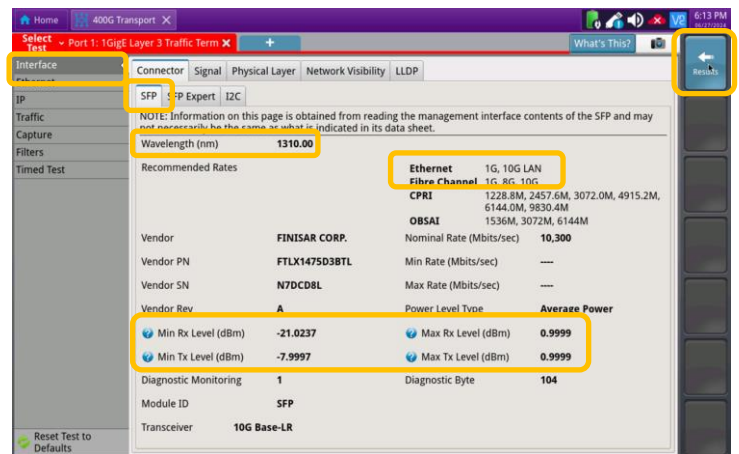   o Note: the Min and Max Tx Levels (dBm) and Max Rx Level (dBm) to assess if optical attenuators are required.

Figure 6: Setup, Interface/Connector/SFP

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CONFIGURE TEST (CONTINUED)

► If you are testing a VLAN, select the **Ethernet** settings tab, set **Encapsulation** to **VLAN,** tap the <mark>VLAN</mark> field and enter your **VLAN ID**.
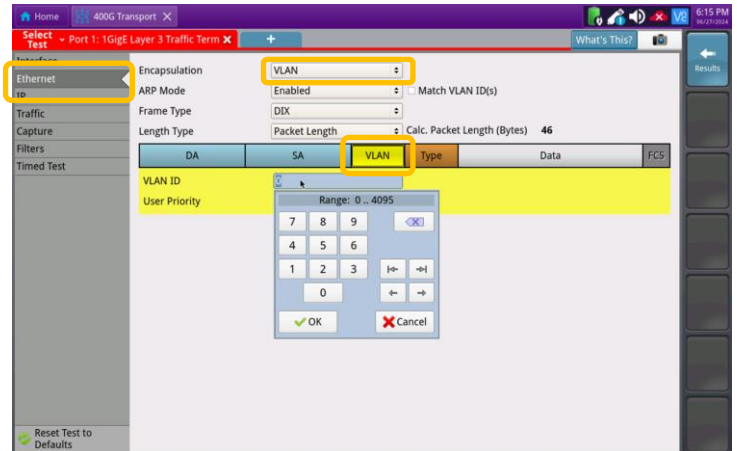
Figure 7: Setup, Ethernet/VLAN

► Select the **IP** settings tab:

  o Enter your desired Packet Length.

  o Tab the <mark>Source/Destination Addresses</mark> field and configure **Source IP Type**, **Source IP** Address, **Default Gateway**, and **Subnet Mask**.

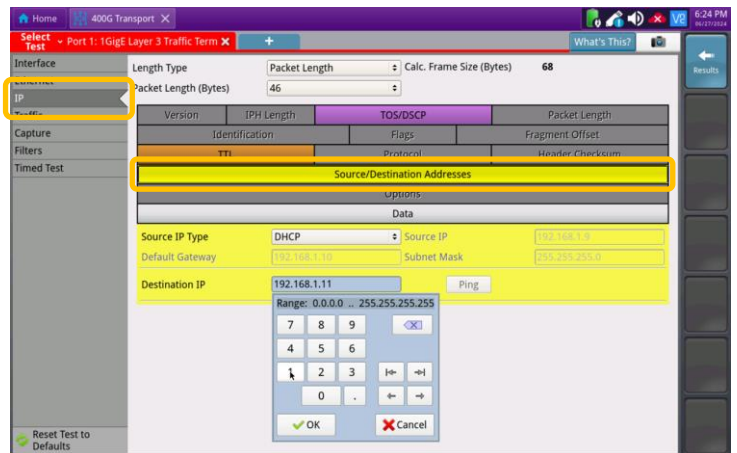 o Enter the **Destination IP** Address for the Loopback Device.

Figure 8: Setup, IP

► Select the **Traffic** settings tab. Set **Load Unit** to **Bit Rate** and set **Load** to the desired Layer 1 (L1) traffic rate or Committed Information Rate (CIR).
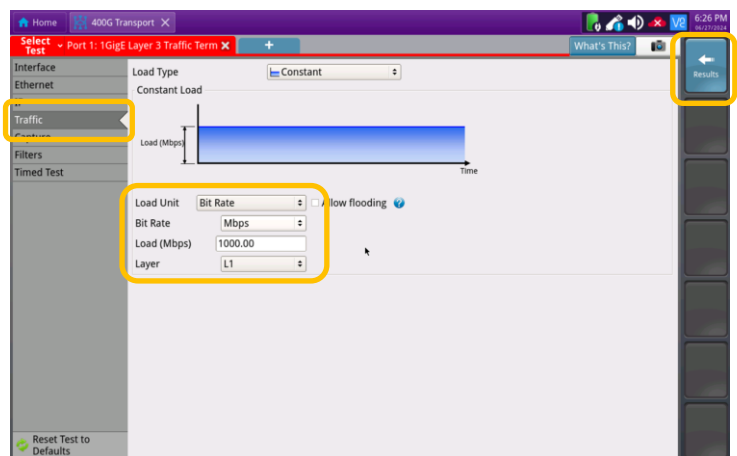
► Tap the Results soft key.

Figure 9: Setup, Traffic

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CONNECT TO LINE UNDER TEST

► **For Optical Interfaces:**

1. Use the VIAVI P5000i or FiberChek Probe 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.

2. If necessary, insert optical attenuators into the SFP TX and/or RX ports.

3. Connect the optical transceiver to the port under test using a jumper cable compatible with the line under test.

4. Select the **Laser** tab in the **Actions** panel.

5. Press [Laser Off]. The button will turn yellow and be relabeled [Laser On].

6. Press the [Restart] soft key.

7. Verify the following:
   - **Summary** LED is yellow.
   - **Signal Present** LED is green.
   - **Sync Acquired** LED is green.
   - **Link Active** LED is green.

► **For 10/100/1000M Copper Interfaces:**

1. Connect the copper SFP to the port under test using CAT5e or better cable.

2. Press the **Restart** soft key.

3. Verify the following:
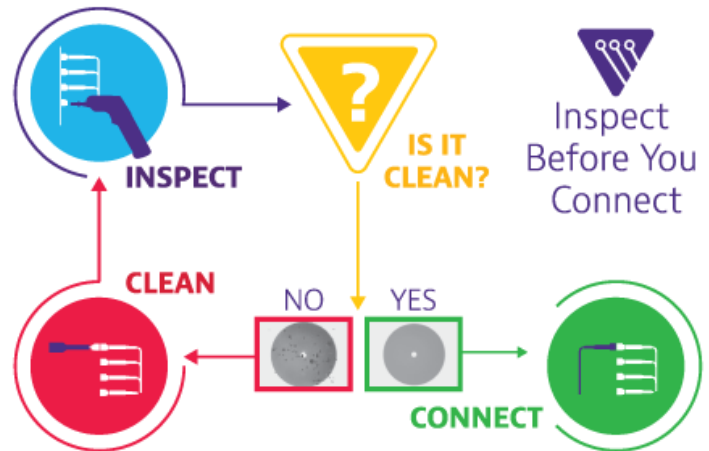   - **Summary** LED is yellow.
   - **Sync Acquired** LED is green.
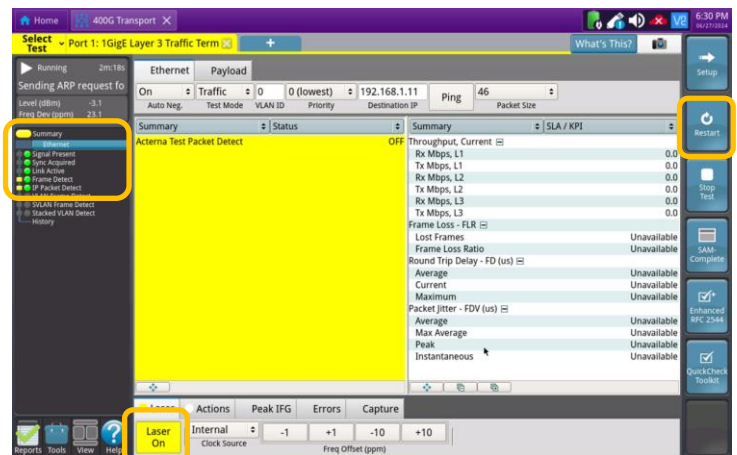   - **Link Active** LED is green.

Figure 10: Inspect Before You Connect

Figure 11: Optical Interface Results

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LOOP UP AND RUN TEST

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

   ▶ If you are testing head-to-head or if the loopback device is already in Local Loop Back (LLB) mode, proceed to step 2.

   ▶ 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. **Loop Up**

2. Tap **Start Traffic**. The button will turn yellow and be relabeled **Traffic Started**.

3. Press the **Restart** soft key on the right side of the screen.   Verify that:

   ✓ The Right Results window shows "Rx Mbps, L1" is approximately equal to the Committed Information Rate.

   ✓ The Right Results window shows Lost Frames = 0.

4. Allow the Test to run for the desired duration. Verify that the Left Result window displays "**ALL SUMMARY RESULTS OK**" throughout the test.
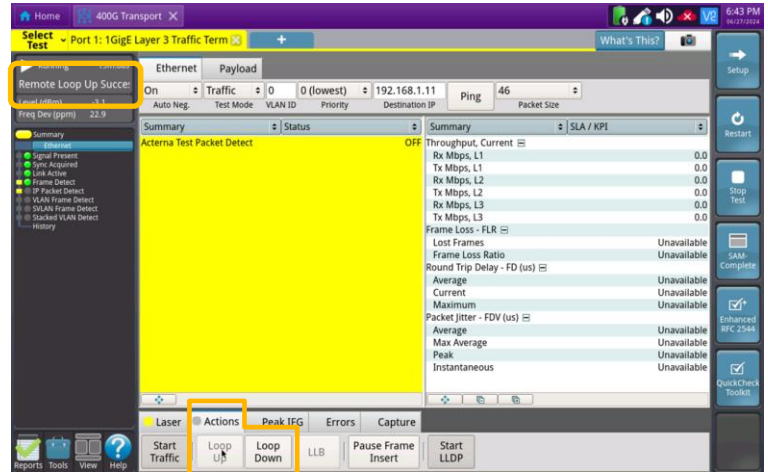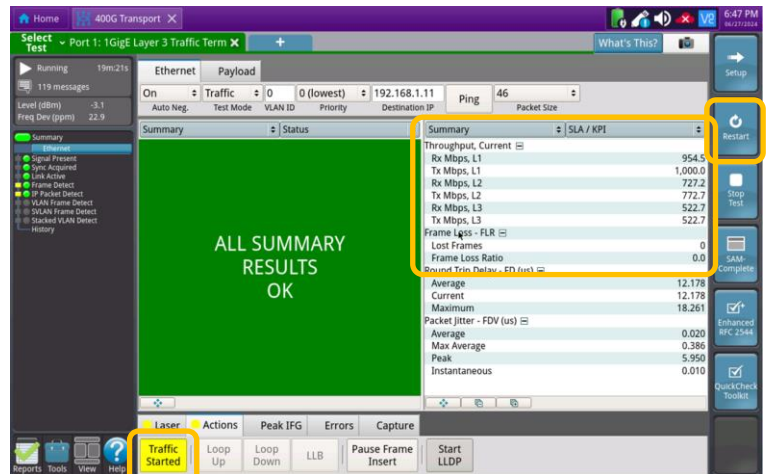

Figure 12: Loop Up

Figure 13: Start Traffic

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