

# VIAVI

## XhaulAdvisor

### Real-Time Xhaul Analyzer

Interoperability is both the essence of Open RAN and critical to bring products to market on time and gain market acceptance. Interoperability issues can arise at multiple points in the network. The VIAVI XhaulAdvisor is a scalable tool running on COTS hardware and enables interoperability testing and troubleshooting between equipment of different manufacturers.

It can be used with other VIAVI tools including TM500 and TeraVM to troubleshoot errors observed during end-to-end test case execution, rapidly flagging and isolating issues caused by RAN, transport or synchronization functions.

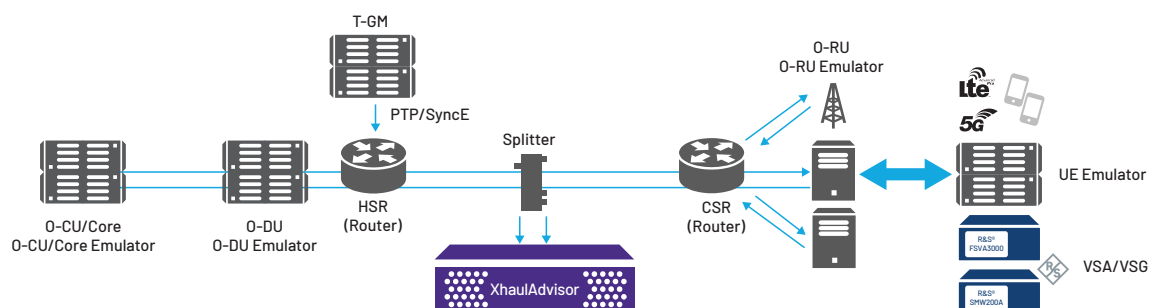


#### Operation modes:

- Live mode: it enables users to quickly identify any issues and correlate them with events observed in other parts of the network or user equipment
- Capture mode: users can capture and store fronthaul flows for post-capture analysis
- Passive mode: using an optical tap analyze fronthaul flows in DL and UL
- Non-intrusive mode: placed between DU and RU analyze fronthaul flows in DL/UL without impacting the fronthaul flows
- Intrusive mode: placed between DU and RU analyze fronthaul flows in DL/UL without impacting them, and independently obtain RU data by initiating an M-plane session to an RU

#### Applications include:

- Transport Functions: observe optical power level, signal line rates and Ethernet data
- Fronthaul Explorer: identify and display all fronthaul flows and respective data bandwidth consumed
- Fronthaul CU Timing Analysis: display early/on-time/late packet transmit/arrival times for CU flows in DL/UL
- Fronthaul M-Plane Analysis: display all M-plane sessions established on the fronthaul link
- Fronthaul M-Plane Emulation: obtain RU data by establishing an M-plane session to an RU
- S-Plane Analysis: display master and slave information including domain numbers and PTP message rates
- Fronthaul RE/RB Channel Utilization: display channel utilization and power levels for C and U plane packets in DL and UL



## Specifications

General (Typical at 25°C)	
Weight	27.3 kg (60.19 lb)
Dimensions (w x h x d)	434.0 x 86.8 x 647.1 mm
	(17.09 x 3.42 x 25.48 in)
Memory	8 GB for a single session
	Up to 10 sessions
Transport Functions	
Optical Interfaces	10G, 25G, 100G
Transport Stats	Optical power level, Rx Frequency, Ethernet and MAC info
Setup Modes	
Passive mode	Requires optical tap to connect to DL/UL fronthaul signals
Non-intrusive through mode	Instrument placed between DU and RU, but not impacting fronthaul signals
Intrusive through mode	Instrument placed between DU and RU, while not impacting CUSM plane traffic. It can initiate a secondary M-plane session to RU.
Live/Capture Modes	
Live Mode	Live analysis of Xhaul flows
Capture/Replay Mode	Simultaneously captures packets at up to 100 Gbps on DL and UL
Flow Explorer	
Flow identification	Identifies all CUSM flows distinguished by MAC/IP address, VLAN, eAxC ID in DL/UL
CU Timing Analysis	
Profiles	Profiles per Open RAN WG4 IOT
Fronthaul Delay $T_{12}/T_{34}$	Programmable by user
Packet Arrival/Departure	Early/On-time/Late, CU, DL/UL
S-Plane	
Reference	Reference time from Open Fronthaul or an external source (ToD, 1 PPS, 10 MHz)
Analyzer	Displays PTP Master and Slave/Subordinate info including domain number, clockClass, clockAccuracy and message rates
M-Plane	
Analysis	Displays all M-plane sessions and respective VLAN, MAC,/IP addresses
Emulation	Establishes an M-plane session with the RU and displays various RU parameters
RE/RB Channel Utilization	
Radio Frames	Displays utilization (%) for each radio frame
C-plane stats	Displays C-plane RE utilization for each radio frame in respective PRB/Symbol grid
U-plane stats	Displays Power vs. Symbol vs. Carrier for each radio frame in respective PRB/Symbol grid

## Ordering Information

Description	Catalog Number
XhaulAdvisor Mainframe (includes Capture, Transport and Flow Explorer)	XA1000
10G Ethernet	XA2000
25G Ethernet	XA2001
100G Ethernet	XA2002
CU Timing Analysis	XA2003
Channel Utilization	XA2004
S-Plane Analysis	XA2005
S-Plane Stack Emulation (Live Analysis)	XA2006
M-Plane Analysis	XA2007
M-Plane Client	XA2008
QSFP-SFP adaptor to support SFP+/SFP28 application	ADAP-QSFPSFP28
SFP28 (10G/25G, 1310 nm)	CSFP28-10G-25G-3-1
SFP28 (25G, 850 nm)	CSFP28-25G-8-1
SFP+ (1G/10G, 1310 nm)	CSFPPLUS-1G-10G-3-1
SFP+ (1G/10G, 850 nm)	CSFPPLUS-1G-10G-8-1
QSFP28 (100G, SR-4, 850 nm)	CQSFP-103G-8-4-SR4
QSFP28 (100G, FR, 1310 nm)	CQSFP-103G-3-1-FR
BiDi SFP+ (10G, 1290/1330 nm)	CSFPPLUS-10G-23-1B
BiDi SFP+ (10G, 1330/1290 nm)	CSFPPLUS-10G-32-1B
BiDi SFP28 (10G/25G, 1290/1330 nm)	CSFP28-25G-23-1B
BiDi SFP28 (10G/25G, 1330/1290 nm)	CSFP28-25G-32-1B