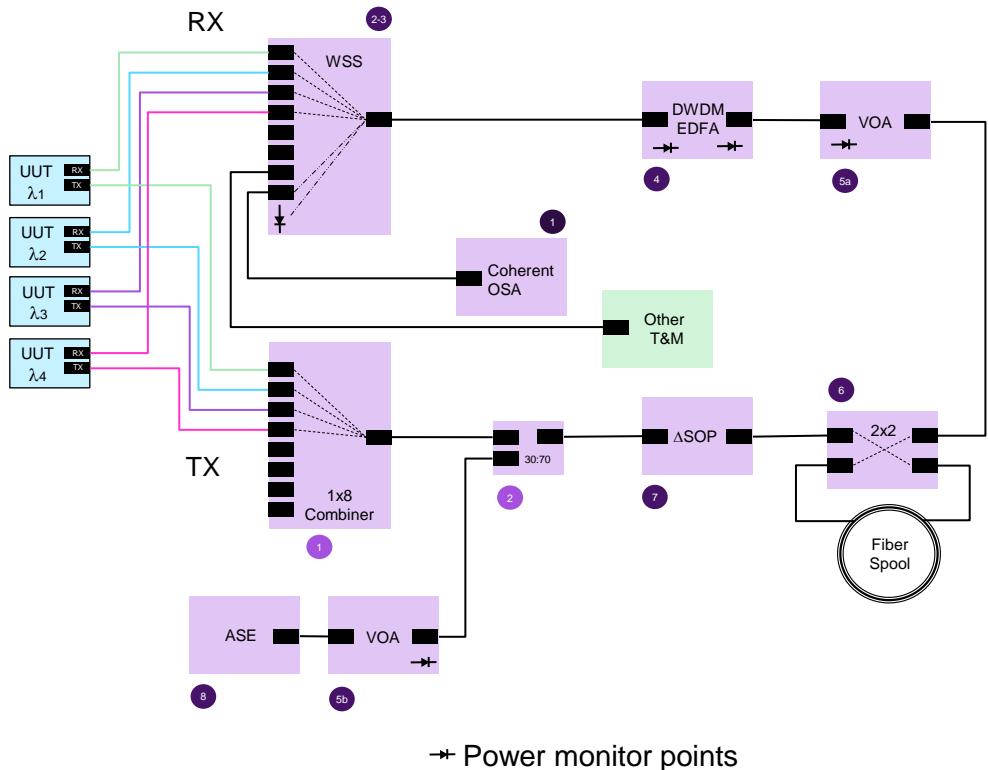


MAP Series Optical Test Platform

Coherent transceiver testing

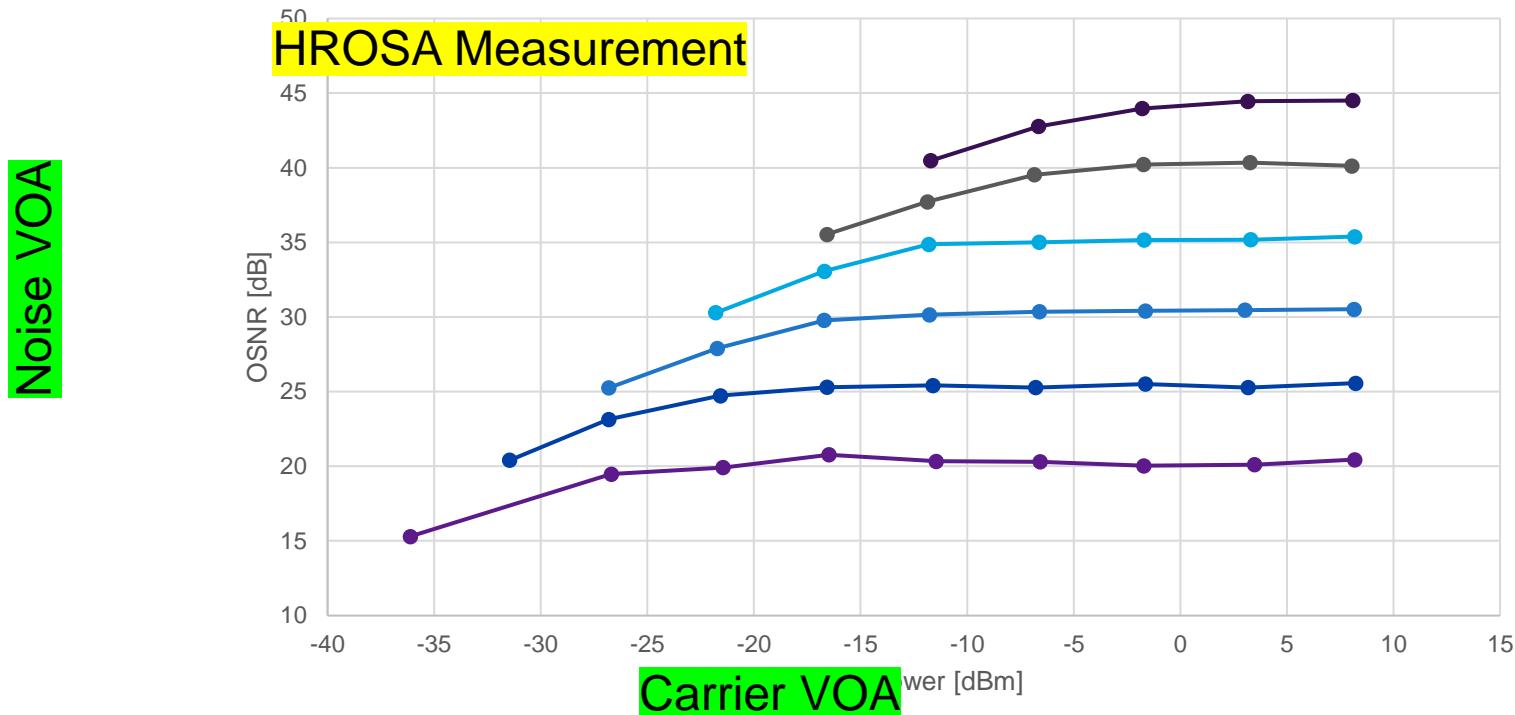
400GZR Test (up to 7 UUT)



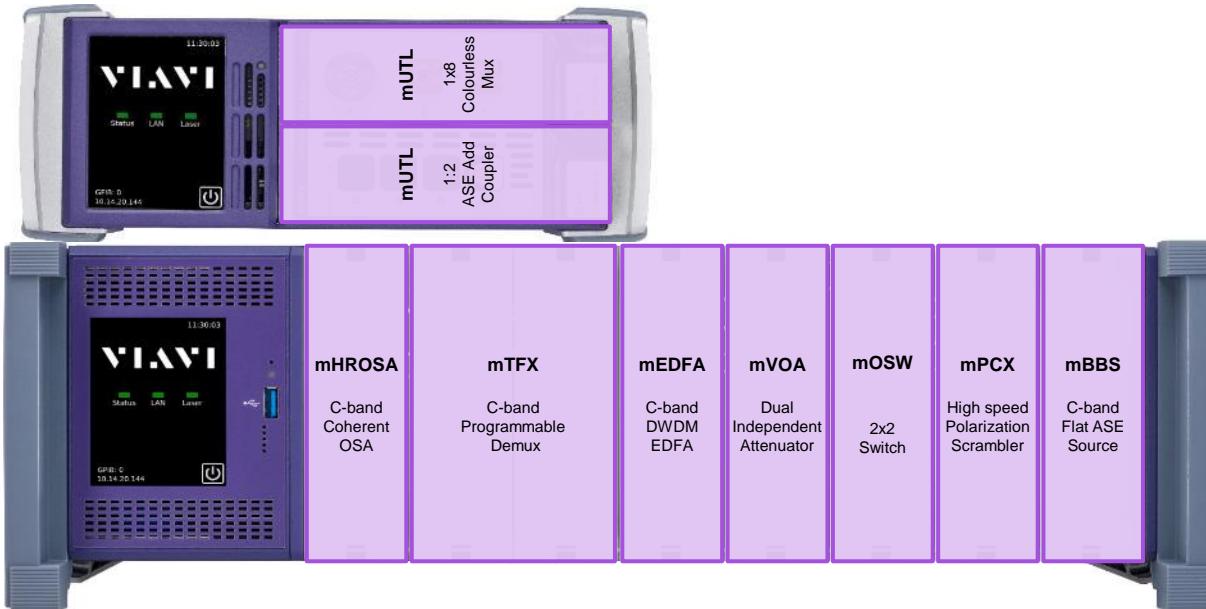
1. C-band coherent high-resolution OSA [mHROSA;1-slot]
 - 300MHz RBW to resolve modulation products
2. Programmable DEMUX (WSS) signal manager [mTFX;2-slot]
 - Set port, Cλ & BW (0.5 GHz res), Loss (up to 20dB) and shape
 - Hitless switching to embedded OPM and OSA access port
 - Loopback so same UUT or change port/λ to other UUT
4. C-band optical amplifier [mEDFA; 1-slot]
 - 20dBm saturated power, 35dB gain, 5.2 to 5.5 dB NF
5. Dual VOA independent level controller [mVOA; 1-slot]
 - a) EDFA level input control and shutter
 - b) ASE level input control and shutter
 - 70dB Linear control of OSNR with 0.01 dB resolution
 - Shutter control to toggle to TX limited state
6. 2x2 switch add/remove fiber spool [mOSW; 1-slot]
7. Rate programmable Pol. Scrambler [mPCX; 1-slot]
 - Random or Rayleigh scrambling modes up to 3Mrad/s
8. C-band ASE noise source for OSNR set [mBBS; 1-slot]
 - 1dB wavelength flatness

1. 1x8 combiner for colourless mux [mUTL; 1-slot]
 - Allow individual TX λ to be independently set
2. Broadband noise multiplexer [mUTL; 1-slot]
 - Injection point for ASE to generate controllable OSNR

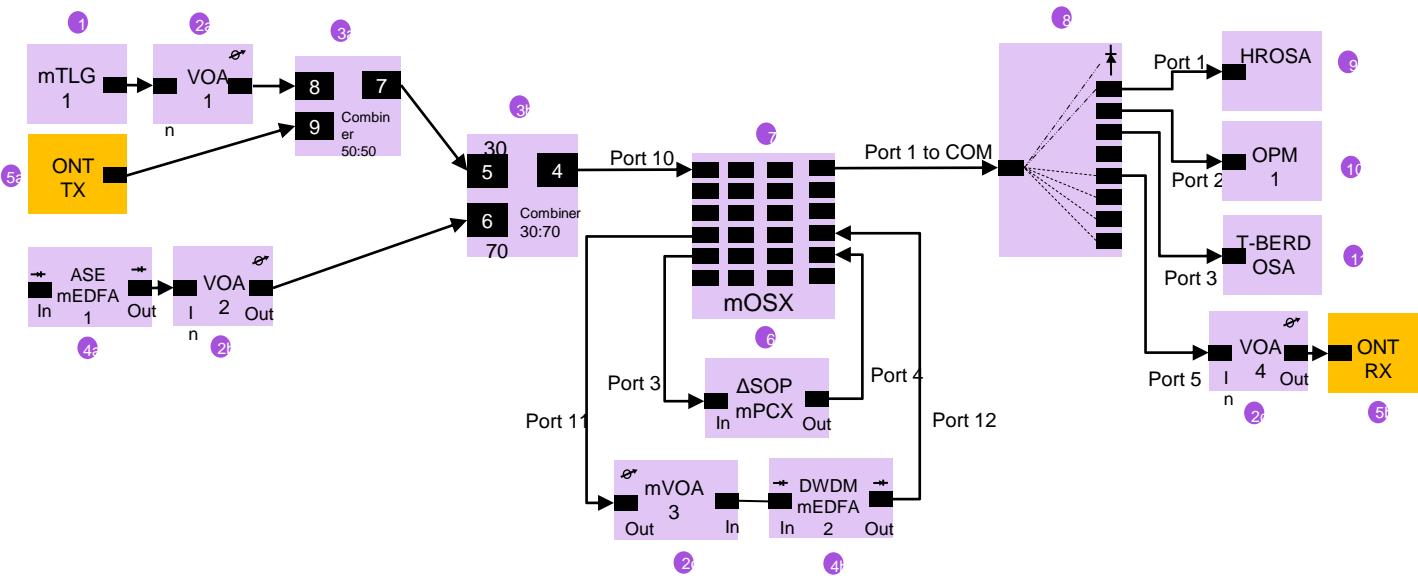
OSNR Measurements (function of input power and OSNR)



Module Layout



Agile Impairment Test using mOSX

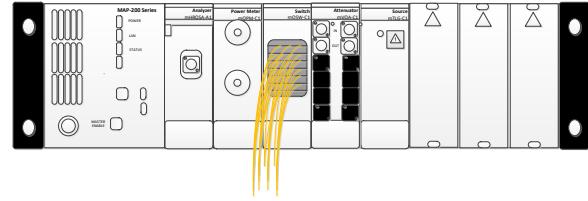
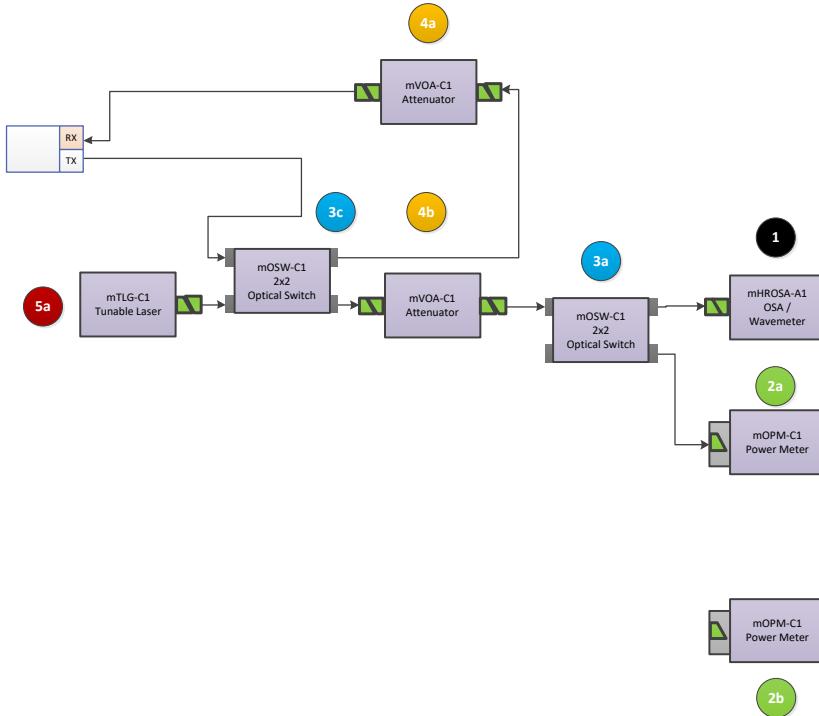


Notes:

- 1) TLG and OPM are in a MAP-220. All other modules are in the same MAP-380.
- 2) Due to not having the ONT we used mTLG2 for the TX and mOPM 2 for the RX
- 3) T-berd is also not available.

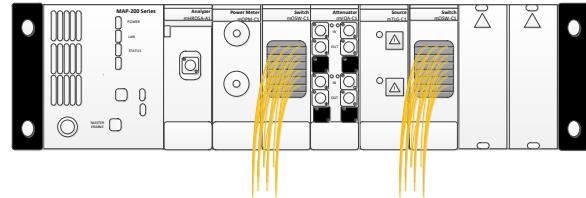
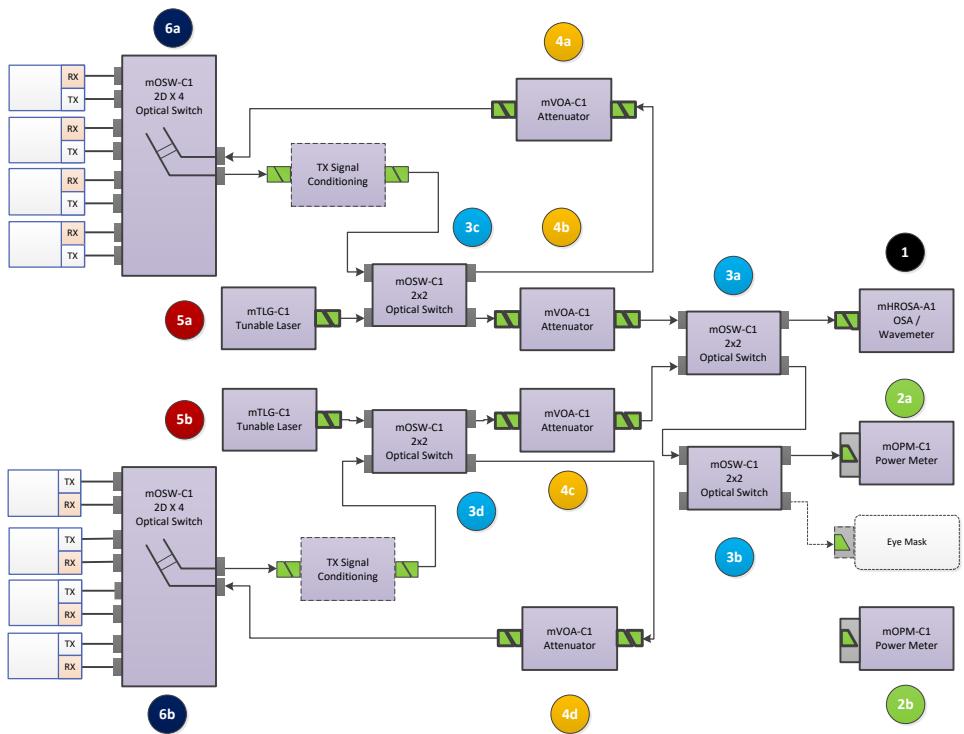
1. Tunable laser input signal [mTLG;1-slot]
2. Quad VOA independent level controller [mVOA; 1-slot]
 - a) Tunable laser source input controller and shutter
 - b) ASE level input control and shutter
 - c) EDFA level input control and shutter
 - d) Received ONT signal controller and shutter
 - 70dB Linear control of OSNR with 0.01 dB resolution
 - Shutter control to toggle to TX limited state
3. Combiner and splitter [mUTL; 1 slot]
 - a) 50:50 combiner for laser input signal and ONT
 - b) b) 70:30 combiner for ASE and input signal.
4. C-band Amplifier [mEDFA; 1-slot]
 - a) ASE noise source for OSNR
 - b) C-band optical amplifier
 - 20dBm saturated power, 35dB gain, 5.2 to 5.5 dB NF
5. Optical Network tester (ONT)
 - a) Transmission port
 - b) Receiver port
6. Rate programmable Port. Scrambler [mPCX; 1-slot]
 - Random or Rayleigh scrambling modes up to 3Mrad/s
7. 16 CC switch for managing signal direction [OSX; 1 slot]
8. Programmable DEMUX (WSS) signal manager [mTFX;2-slot]
 - Set port, C, & BW (0.5 GHz res), Loss (up to 20dB)
 - Hitless switching to embedded OPM and OSA access port
 - Loopback so same UUT or change port/λ to other UUT
9. C-band coherent high-resolution OSA [mHROSA;1-slot]
 - 300MHz RBW to resolve modulation products
10. Quad Power monitor [OPM; 1 slot]
11. T-BERD Coherent OSA

Simple Loopback with a Calibration channel



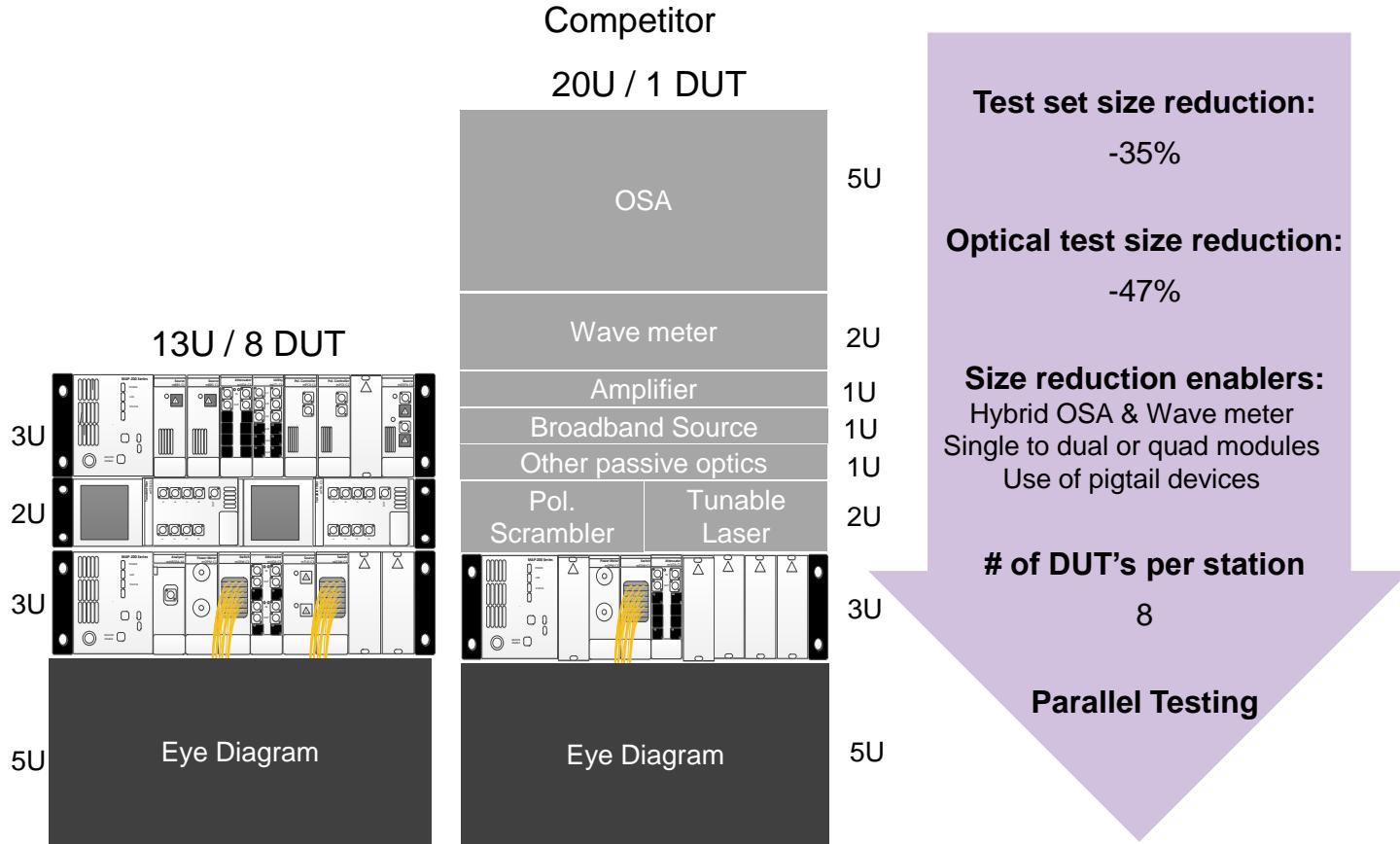
- Loop back and RX sensitivity
- Calibrate RX power monitoring
- Verify wavelength setting
- Basic electrical test

Parallel Test Upgrade



- MAP-200 module density enable doubling the number of DUT for minimal cost and in the same footprint

Putting it all together

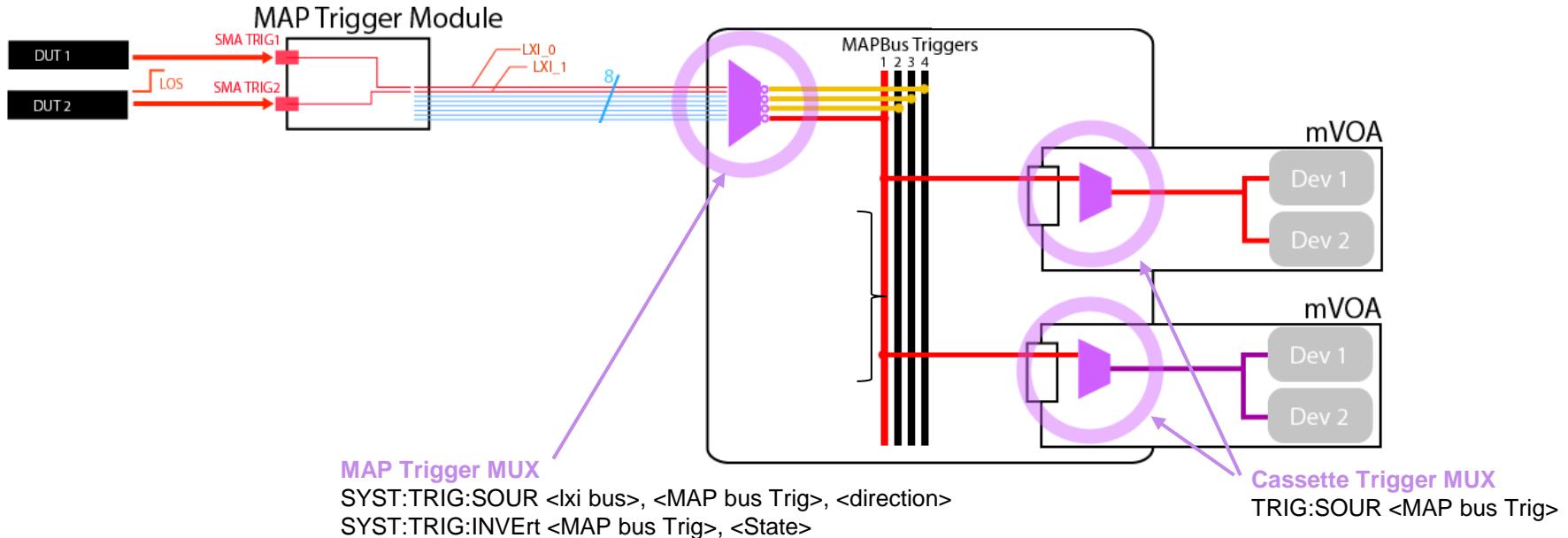


Coming Soon...



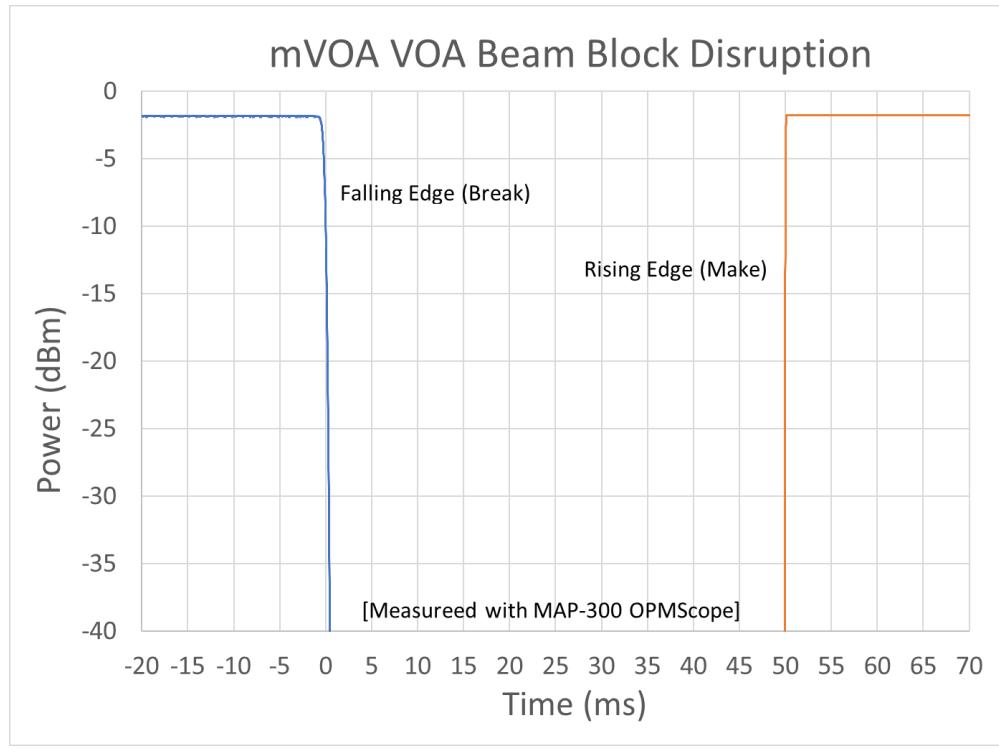
MAP Trigger Architecture for LOS

Dual DUT Proposal



- SMA Trigger INPUT routed to **LXI_0** and **LXI_1** lines on LXI Cable
- MAP LXI Trigger INPUT MUXed to MAPBus TRIG1 only (*mVOA mod only connects to TRIG1*)
 - Trigger INVERT optional
- mVOA cassette Selects TRIG1 of MAPBus (*mVOA mod only connects to TRIG1*)
 - VOA Trigger is common for both VOA Devices

Optical Beam Block for Transient Testing





VIAVI Solutions

