multiLane sal

Marketing Datasheet

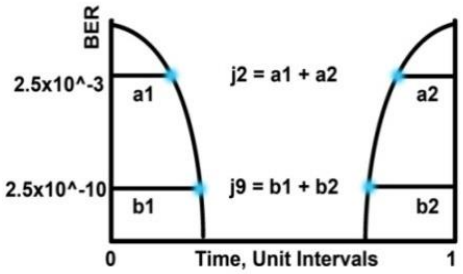
ML4054-QSFP28

QSFP28 Analyzer – Dual Channel

Two full-fledged quad BERTs in one
Automated tests for modules and AOCs
QSFP28 Host Management
Advanced troubleshooting GUI
Stress Signal Generation up to 30.2Gbaud
Vertical & Horizontal Eye Closure
Bathtub Curve Measurement
Eye Contour Measurement
Automated J2/J9

ML4054

8x30Gbps BERT with QSFP28 Interface



Summary

The ML4054 is a fully featured dual BERT integrated in an ultra-compact form factor. This instrument has been specifically engineered for testing QSFP transceivers and cables; it combines a dual 4-lane BERT with two QSFP28 MCBs. The GUI is tailored for automated modules testing and yet it allows you to individually control each TX and RX and gives you advanced troubleshooting capabilities. It optionally comes with an ML4020-N breakout module that enables you to turn this instrument into a traditional BERT with coax connectors.

Key Features

- Low cost instrument grade BERT optimized for high speed data analysis of QSFP transceivers and cables.
- Integrated QSFP28 hosts
- Data Rates: 3.1–5, 6.2–15 and 18.6 – 30.2 Gbps
- Performs all the measurement functions of the BERT, and a QSFP28 host in terms of I2C control for configuration, monitoring, function, and power supply corner testing
- Features industrial temperature components, suitable for reliability testing inside an oven over a wide temperature range -5°C to 85°C.
- Low intrinsic Jitter
- Low power consumption
- AOC test application
- Switch GUIs between traditional BERT mode and QSFP module testing mode
- Automated J2/J9 measurements
- API library, LabView driver and Python wrapper
- QSFP MSA GUI and API
- Eye Contour measurements
- Bathtub measurements
- Repeatable, traceable measurements
- Compact stand-alone package
- 6 dB pre-emphasis
- 10 dB CTLE tuning

Target Applications

- Production testing of cables and modules
- Benchtop testing for functional and SI functionality
- The PCBA variant can be used from -5 to 85C for in-situ AC tests
- Host for a golden reference transceiver
- Transceiver functional tester, for simple validation

QSFP AOC Analysis View

The AOC Production Testing GUI combines the various functions and properties of the three main components of the system in a consolidated, fully-automated API library

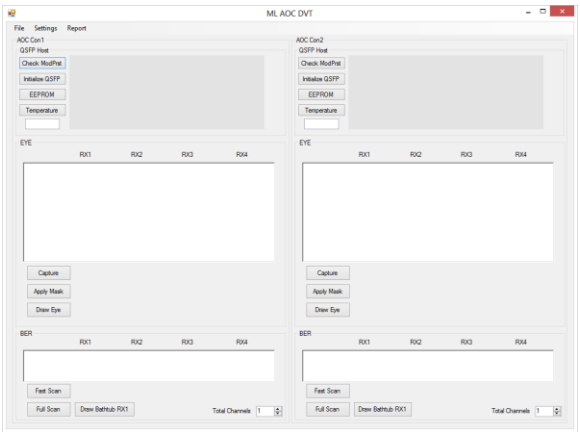


Figure 1 AOC Tester main GUI

The above image displays the main page of the AOC GUI. This page contains the option to carry out most major tests, including voltage, current,

power and temperature readings, EEPROM verification, eye parameters with a pass/fail decision, options to draw an eye diagram with eye mask, BER results and bathtub curve creation.

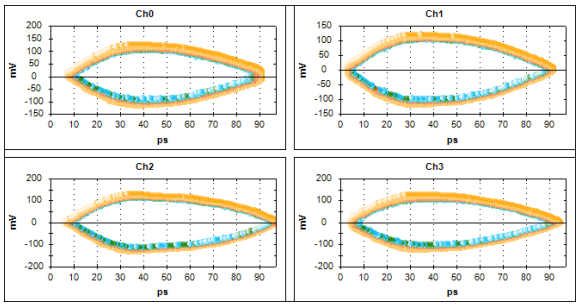


Figure 2 Eye contour measurement - 4 Channels

A user can also choose which channels to test whether they be individually or simultaneously in parallel. Finally, the 'Report' button allows the user to automatically save the test results for a certain AOC as a spreadsheet in .csv format.

The Four Corner Setup page allows the user to set the supply voltage and data amplitude levels at which the four corner test must be executed.

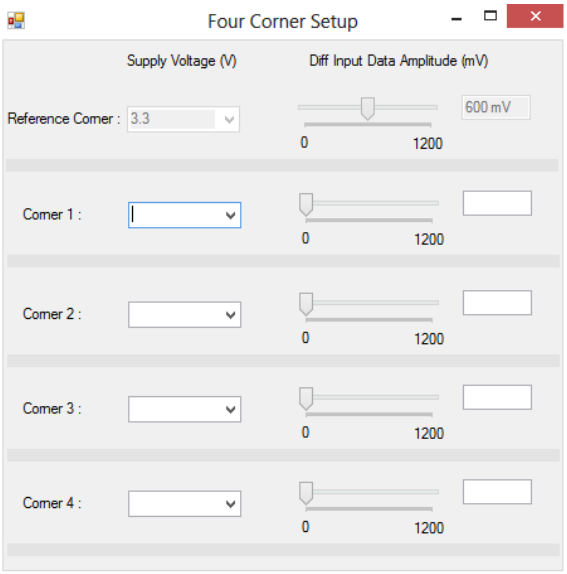


Figure 3 AOC four-corner test window

The test application also supports multiLane DSO for in-depth testing.

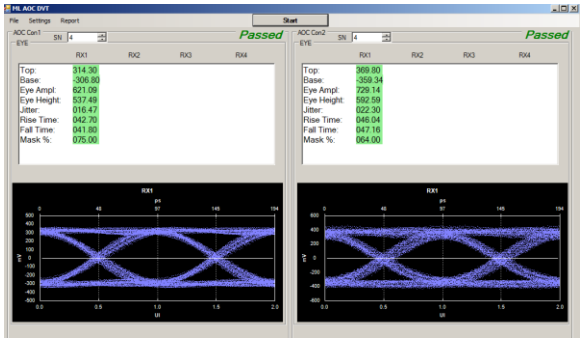


Figure 4 Connect to your ML DSO for additional testing capabilities

QSFP Module Analysis View

Monitor alarms, power consumption and bias current of each lane. Find out with one click if the DUT is OK or not.

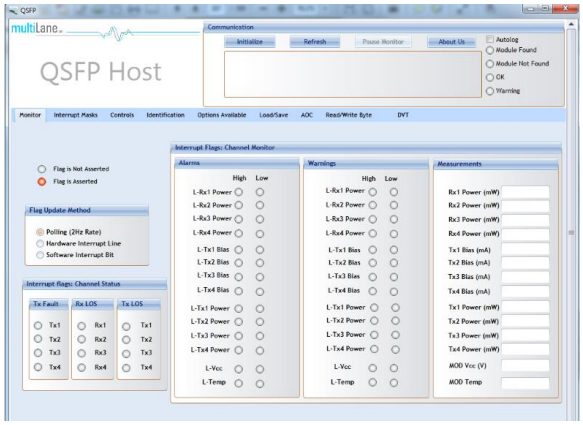


Figure 5 QSFP Module analyzer view

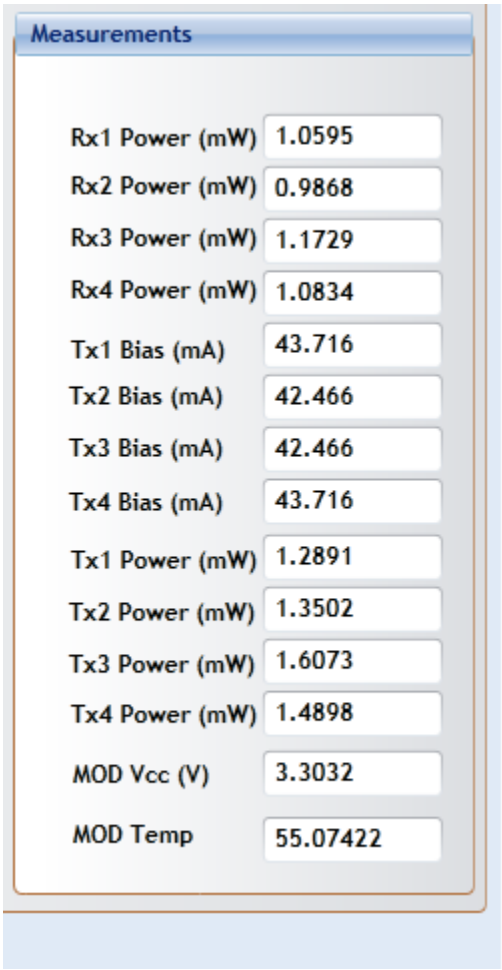


Figure 6: QSFP module monitoring

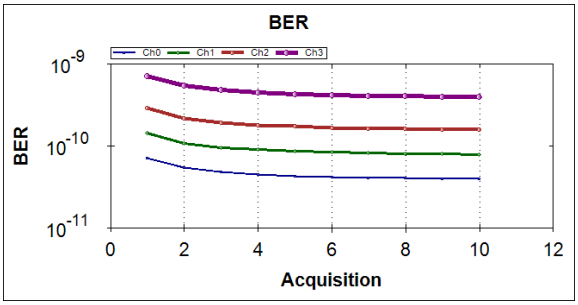


Figure 8 Quad channel BER

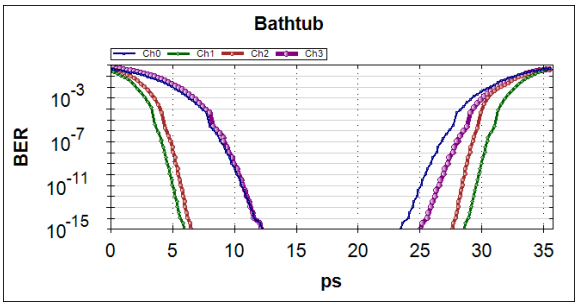


Figure 9 Bathtub curves

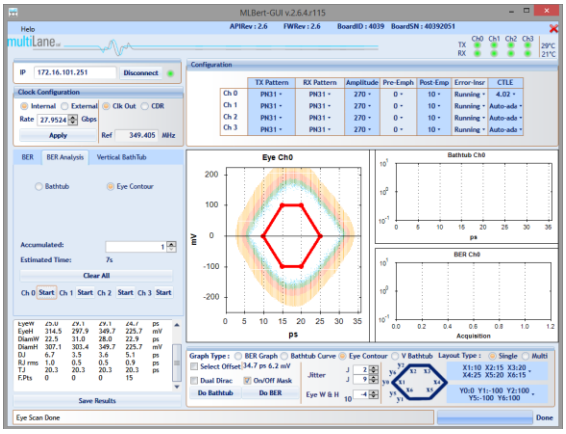


Figure 10: Limit test on eye contour

ML BERT GUI

This GUI is intuitive, featuring multiple and single layouts of bathtub and eye contour.

Typically, this mode requires an ML4020-N breakout module, enabling you to directly tap into the individual channels with coax cables.

Figure 7 ML4020-N breakout module

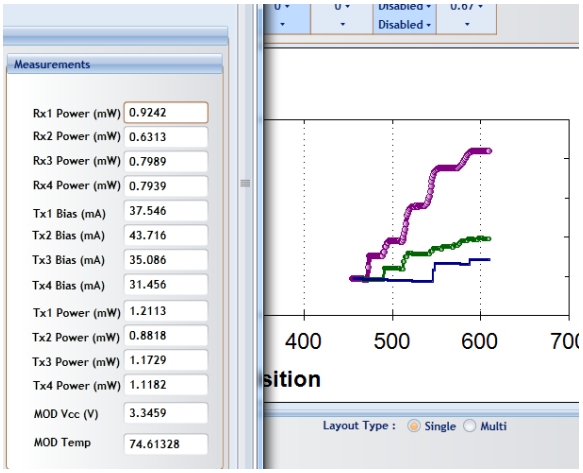


Figure 11: BER monitoring versus Temperature of QSFP module

PPG	Bit Rates	3.1-5 and 6.2-15 and 18.6-30.2Gbps
	TX Amplitude Differential	125-800mV
	Patterns	PRBS7/9/15/23/31 User Pattern 40 bits
	TX Amplitude Adjustment	Programmable adjustment (± 20%) of internal voltage regulators for margin testing
	Pre-Emphasis	6 dB
	Pre-Emphasis Resolution	10 steps
	Equalizing Filter Spacing	1UI
	Random Jitter RMS	200 fS
	Rise/ Fall Time (20–80%)	14 pS / 12 pS
	TX Skew control range	no
	TX Skew control	no
	Output Return Loss up to 10GHz	-12 dB
	Output Return Loss (16-25GHz)	-8 dB
ED	Error Detector Phase Margin	5 pS
	Error Detector Maximum Input	1200mV Diff
	Phase Scan Resolution	7 Bits
	Vertical Scan Resolution	8 Bits
	Input CTLE Dynamic Range	10 dB
	TX/RX and clock connectors	2.92 mm K Connectors
	Reference clock Output	Rate / 64

Worldwide

MultiLane SAL
Houmal Technology Park
141 Main Road
Houmal, Lebanon
+961 5 941668

Website: www.multilaneinc.com
Email: sales@multilaneinc.com

North America & Europe

MultiLane Inc
2000 Wyatt Drive, Suite 6
Santa Clara CA 95054
USA
+1 408 890 2234

Asia

MultiLane Asia Inc
No. 18, Prosperity Rd. 2
Hsinchu Science Park,
Taiwan
+886-3-6686667

About MultiLane SAL

MultiLane SAL is leading developer of high speed instruments and interconnects test modules for 10, 40 and 100 Gbps of SerDes and high speed IO for the semiconductor and cloud computing infrastructure. Products includes BERTs, Scopes, and a host of MSA Compliant development tools for CFP, CFP2, CFP4, QSFP, zQSFP, and QSFP28 modules. MultiLane's products are used to test semiconductors, AOC, electro-optical modules and blades.
MultiLane operates out of Houmal Technology Park in Lebanon, and has been offering leading-edge technology and products to Tier-1 equipment suppliers globally. Visit www.multilaneinc.com