

MOST® Test Solutions

QPHY-MOST50

QPHY-MOST150



Key Features

- The MOST® QualiPHY solution provides a highly automated and easy-to-use solution to MOST compliance testing
- Complete physical layer test package available, including the required probes
- Supports MOST50 ePHY, MOST150 oPHY, and MOST150 cPHY standards
- QPHY-MOST150 compatible with most Teledyne LeCroy 2 GHz (or greater) oscilloscopes
- QPHY-MOST50 compatible with most Teledyne LeCroy 500 MHz (or greater) oscilloscopes
- Advanced debugging ability with Teledyne LeCroy's SDA and SDM

Teledyne LeCroy has worked with the MOST® Cooperation to create the first physical layer test package for the MOST50 ePHY, MOST150 oPHY, and MOST 150 cPHY standards. MOST (Media Oriented Systems Transport) was originally developed for multimedia applications in the automotive environment where an extremely robust, yet cost-effective network is needed.

Automated and Easy-to-Use Solution

QPHY-MOST50 and QPHY-MOST150 are automated compliance test packages that perform electrical compliance testing for MOST signals. It provides connection diagrams to ensure the proper setup for the required measurements, automates the oscilloscope for performing these measurements, and provides a comprehensive report of results including screenshots. These capabilities make QPHY-MOST50 and QPHY-MOST150 all-inclusive test suites that meet the needs of MOST transceiver compliance testing.

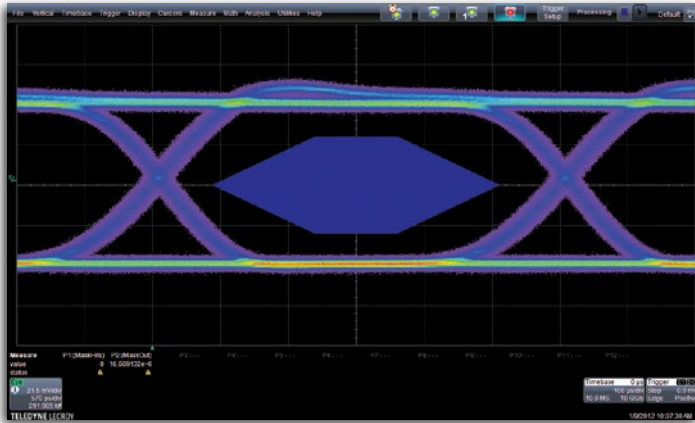
Complete Electrical Compliance Test

The complete Teledyne LeCroy MOST compliance test package will perform all electrical compliance tests

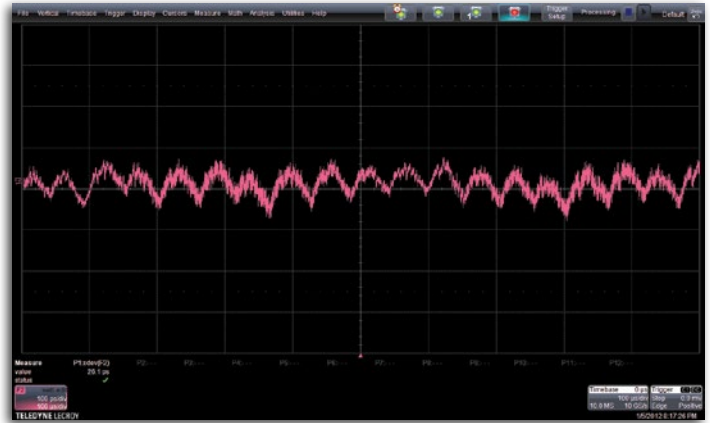
as defined in the MOST150 oPHY Automotive Physical Layer Sub-Specification Rev. 1.1, MOST150 cPHY Automotive Physical Layer Sub-Specification Rev 1.0, and MOST Electrical Physical Layer Specification Rev. 1.1. The QualiPHY solution includes tests at SP1, SP2, SP3, and SP4. Tests vary from eye diagram testing, transferred jitter testing, bitrate calculations, overshoot and undershoot masks, and transition time tests.

Teledyne LeCroy's WaveRunner 6 Zi series of oscilloscopes are the perfect instruments for performing MOST compliance measurements and more importantly for debugging compliance failures allowing the engineers to quickly find the root cause of serial data problems.

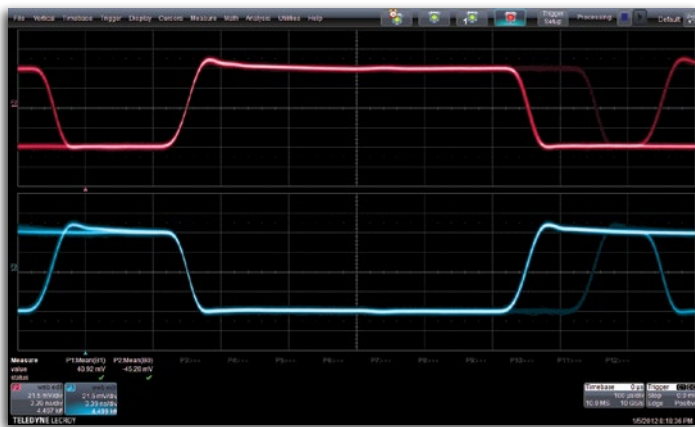
COMPREHENSIVE MOST TEST COVERAGE



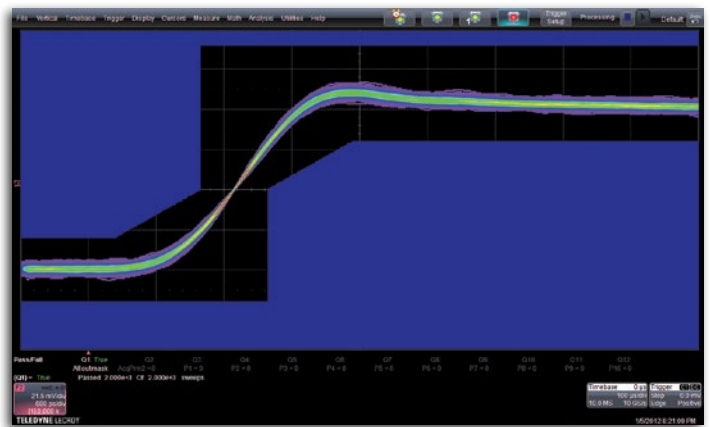
SP2 - LQ Eye Diagram – MOST50 ePHY performs an eye diagram test at SP1, SP2, SP3, and SP4. MOST150 oPHY performs an eye diagram test at SP1, SP2, and SP4. The eye diagrams are created from the input signal and tests it against the appropriate mask using the specified clock edge. The measurements at test point SP2 use a normalized mask (i.e. relative to the B0/B1 measured levels) while those at the remaining test points use an absolute mask.



SP1 - Transferred Jitter – In MOST50 ePHY the transferred jitter test is performed at S1 and S2. In MOST150 oPHY the transferred jitter test is performed at points SP1, SP2, and SP4. The test captures a long signal record and a TIE-track is generated where the PLL from the clock recovery is set to a very low frequency. This TIE-track is then filtered by an IIR Butterworth filter for best conformance to the standard. The transfer jitter value is the RMS (sdev) of this filtered TIE-track.



SP2 - B0 and B1 Level Measurement – The MOST150 oPHY script will measure the low and high values at B0 and B1 respectively. The values are calculated by taking the mean values at the specified location.



SP2 - Overshoot – The specification defines a single mask for the positive signal edges and individual masks for the negative edges for each of the allowed pulse widths. The script creates these masks automatically and saves them on the oscilloscope. The signal amplitude is normalized using the measured B0 and B1 levels and a minimum of 1000 edges are tested. As shown above, a passing signal will not intersect the mask.

QualiPHY

QualiPHY is designed to reduce the time, effort, and specialized knowledge needed to perform compliance testing on high-speed serial buses.

- Guides the user through each test setup
- Performs each measurement in accordance with the relevant test procedure
- Compares each measured value with the applicable specification limits
- Fully documents all results
- QualiPHY helps the user perform testing the right way—every time!

Compliance Reports contain all of the tested values, the specific test limits and screen captures. Compliance Reports can be created as HTML, PDF, or XML.



MOST50 ePHY Test Report

Overall result: Pass

DUT: MOST Waveforms
 Comment:
 Time of session start: 01/04/2012 14:12:23
 Operator:
 Temperature: 0° C
 Standard in use: MOST50 ePHY

Run1:
 Time of run: 2012/01/04 14:12:24
 Configuration in use: Compliance Tests [demo]
 Limits in use: MOST50ePhy
 Oscilloscope Name: LCRY0805N48006 Model: SDA8302
 Oscilloscope Serial #: LCRY0805N48006
 Computer: LCRY0805N48006
 Oscilloscope firmware version: 0.8.8.0 (Build 164437)
 QualiPHY core version: 6.7.0.0 (Build 161039)

QualiPHY script version: 1.0.0.0
 Stylesheet version: 1.2.0.6

Summary Table

Pass	Run #	Test	Measurement	Current Value	Test Criteria
✓	1	1.1	SP1E - TO Eye Diagram	0 Hits	x = 0 Hits
✓	1	1.2	SP1E - Transferred Jitter	21.4 ps	x <= 140.0 ps
?	1	2.1	SP2E - BR48 Btrate	49.120000 Mbits/s	Informational Only
?	1	2.1	SP2E - Btrate Deviation	-651 ppm	Informational Only
✓	1	2.1	SP2E - TO Eye Diagram	0 Hits	x = 0 Hits
✓	1	2.2	SP2E - Transferred Jitter	27.5 ps	x <= 150.0 ps
✓	1	3.1	SP3E - RT Eye Diagram	0 Hits	x = 0 Hits
✓	1	4.1	SP4E - RT Eye Diagram	0 Hits	x = 0 Hits

WaveRunner 6Zi- The Ultimate Debug Machine

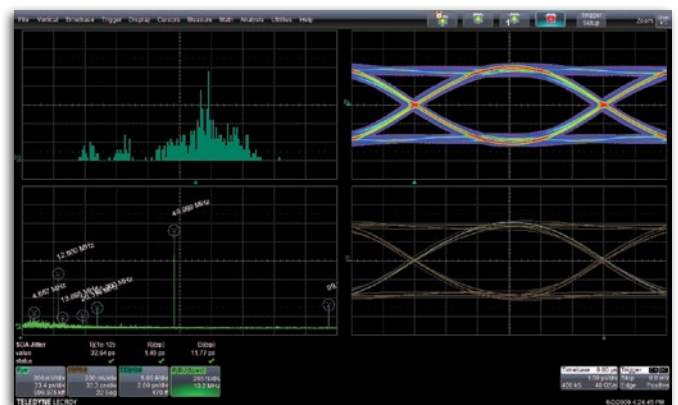
The MOST150 oPHY and MOST150 cPHY compliance package can be run on Teledyne LeCroy's WaveRunner 620 Zi, a 2 GHz oscilloscope. The MOST50 ePHY compliance package can be run on a Teledyne LeCroy WaveRunner 606 Zi, a 600 MHz oscilloscope. The WaveRunner 6 Zi defines superiority in a test instrument with a powerful feature set including a wide range of application packages, advanced triggering to isolate events, a user interface developed for quick and easy navigation, a wide range of probing options, and lightning-fast performance. WaveRunner 6Zi oscilloscopes offer mixed signal solutions, low speed serial trigger and decode, and analysis for a variety

of other automotive standards: CANbus, LINbus, FlexRay, BroadR-Reach, SENT, and more.



Advanced Debug Capability

If a compliance failure is found, Teledyne LeCroy offers a variety of packages which are fully integrated into the oscilloscope application to help find the root cause quickly and easily. Teledyne LeCroy's SDM serial data mask package adds eye pattern mask testing capability to the instrument. Additionally, Teledyne LeCroy's SDA II serial data analysis package has the ability to perform eye and jitter breakdown measurements simultaneously.



ORDERING INFORMATION

Product Description

Product Code

MOST150 oPHY and MOST150 cPHY Compliance Software

QPHY-MOST150

MOST50 ePHY Compliance Software

QPHY-MOST50

Required Software

SDA II Serial Data Analysis Option for WaveRunner 6Zi Oscilloscope

WR6Zi-SDAII*

Serial Data Mask Software Package for WaveRunner 6Zi Series

WR6Zi-SDM*

Digital Filter Software Package for WaveRunner 6Zi Series

WR6Zi-DFP2

Processing Web Editor Software Package for Functions and Parameters for WaveRunner Xi Series

WRXi-XWEB**

**Either SDAII or SDM are required*

***XWEB is only required for the WaveRunner Xi Series*

Product Description

Product Code

Recommended Oscilloscopes and Probes

MOST150 oPHY and MOST150 cPHY

2 GHz, 10 GS/s, 4 Ch, 16 Mpts/Ch DSO with 12.1" WXGA Color Display.
50 Ω and 1 M Ω Input 20 GS/s and 32 Mpts/Ch in Interleaved Mode

WaveRunner 620Zi

A minimum bandwidth of 2 GHz, a sample rate of at least 10 GS/s, and 10 Mpt of memory are required to run QPHY-MOST150

4 GHz Complete Probe System with Dx20-SI Solder-In Tip (Qty. 1), Dx20-SP Square Pin (Qty. 1), Dx20-QC Quick Connect (Qty. 1), and Dx20-PT-KIT Positioner Tip Browser (Qty. 1)

D420-PS

MOST50 ePHY

600 MHz, 10 GS/s, 4 Ch, 16 Mpts/Ch DSO with 12.1" WXGA Color Display.
50 Ω and 1 M Ω Input 20 GS/s and 32 Mpts/Ch in Interleaved Mode

WaveRunner 606Zi

A minimum bandwidth of 500 MHz, a sample rate of at least 5 GS/s, and 10 Mpt of memory are required to run QPHY-MOST50.

1 GHz, 1.0 pF Active Differential Probe, ± 8 V

ZD1000

Customer Service

Teledyne LeCroy oscilloscopes and probes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years and our probes are warranted for one year. This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to latest software at no charge



1-800-5-LeCroy
teledynelecroy.com

Local sales offices are located throughout the world.
Visit our website to find the most convenient location.