

U7238C/U7238D

MIPI D-PHY Conformance

Test Application Software

Keysight U7238C/U7238D Software Version 03.51

Released Date:	28 MARCH 2017
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	06.00.00602 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series), 06.00.00602 (9000 Series)
File Name:	SetupInfMIPI_D-PHY03510000.exe

New Features

- Added support for “CTS v1.0” and “CTS v1.1”.

The following changes have been added to support CTS v1.0 and CTS v1.1.

- o Added options of “v1.0” and “v1.1” for the configurable option of “CTS” (with remote name of “CTSVersion”) in Set Up tab. This configurable option allows user to specify the CTS version to reflect the available test lists accordingly.
- o Added “MIPI D-PHY Test Limit v1.0” compliance limit set. This compliance limit set will be activated if user selected “v1.0” for configurable option of “CTS”.
- o Updated “MIPI D-PHY Test Limit v1.1” compliance limit set. This compliance limit set will be activated if user selected “v1.1” for configurable option of “CTS”.
- o Added configurable option of “CLoad” (with remote name of “LPCLoad”) in Set Up tab. This configurable option is applicable for all LP tests only.

The choices for this configuration options are “50pF” and “Without CLoad”. The option of “Without CLoad” will be enabled only if user selected “v1.0” for configurable option of “CTS”. By default, “50pF” will be selected.

The selected CLoad value will be reported in the test report for all LP tests.

- Added configurable option of “ZID” (with remote name of “HSZIDTermination”) in Set Up tab. This configurable option is applicable for all HS tests only.

The choices for this configuration options are “80 ohm”, “100 ohm” and “125 ohm”. The available test lists will be affected by this selection. By default, “100 ohm” resistance termination will be selected.

The selected ZID value will be reported in the test report for all HS tests.

- Updated the test list to support “CTS v1.0” and “CTS v1.1”.

Test Name	CTS v1.0	CTS v1.1	CTS v1.2
Test ID: 1911 - 1.4.18 Clock Lane HS Clock Delta(UI variation)	Not applicable	Applicable	Applicable (HS Data Rate <=1.5Gbps)
Test ID: 917 - 1.5.5 Initial HS Skew Calibration Burst(TSKEWCAL-SYNC)	Not applicable	Not Applicable	Applicable (HS Data Rate > 1.5Gbps)
Test ID: 918 - 1.5.5 Initial HS Skew Calibration Burst(TSKEWCAL)	Not applicable	Not Applicable	Applicable (HS Data Rate > 1.5Gbps)
Test ID: 919 - 1.5.6 Periodic HS Skew Calibration Burst(TSKEWCAL-SYNC)	Not applicable	Not Applicable	Applicable (HS Data Rate > 1.5Gbps)
Test ID: 920 - 1.5.6 Periodic HS Skew Calibration Burst(TSKEWCAL)	Not applicable	Not Applicable	Applicable (HS Data Rate > 1.5Gbps)

- Added test IDs to support the rise time and fall time tests (Test 1.3.11, Test 1.3.12, Test 1.4.11 and Test 1.4.12) for “CTS v1.0” and “CTS v1.1” due to different test algorithm and test requirement as compared to “CTS v1.2”.

For “CTS v1.0” and “CTS v1.1”, both maximum and minimum compliance limits will be tested as compliance test which is different from “CTS v1.2” where the minimum compliance limit is tested as informative test.

Test Name	CTS v1.0	CTS v1.1	CTS v1.2
Test 1.3.11 20%-80% Rise Time (tR)	Test ID: 8110 - 1.3.11 20%-80% Rise Time (tR)	Test ID: 8110 - 1.3.11 20%-80% Rise Time (tR)	Test ID: 81101 – 1.3.11 20%-80% Rise Time (tR)[Burst Data] Test ID: 81102 – 1.3.11 20%-80% Rise Time (tR)[Continuous Data] Informative Tests: Test ID: 81104 – 1.3.11 20%-80% Rise Time (tR)[Burst Data](Min Conformance Limit)(Informative)

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			Test ID: 81105 - 1.3.11 20%-80% Rise Time (tR)[Continuous Data](Min Conformance Limit)(Informative)
Test 1.3.12 80%-20% Fall Time (tF)	Test ID: 8111 - 1.3.12 80%-20% Fall Time (tF)	Test ID: 8111 - 1.3.12 80%-20% Fall Time (tF)	<p>Test ID: 81111 - 1.3.12 80%-20% Fall Time (tF)[Burst Data]</p> <p>Test ID: 81112 - 1.3.12 80%-20% Fall Time (tF)[Continuous Data]</p> <p>Informative Tests:</p> <p>Test ID: 81114 - 1.3.12 80%-20% Fall Time (tF)[Burst Data](Min Conformance Limit)(Informative)</p> <p>Test ID: 81115 - 1.3.12 80%-20% Fall Time (tF)[Continuous Data](Min Conformance Limit)(Informative)</p>
Test 1.4.11 20%-80% Rise Time (tR)	Test ID: 18110 - 1.4.11 20%-80% Rise Time (tR)	Test ID: 18110 - 1.4.11 20%-80% Rise Time (tR)	<p>Test ID: 181101 - 1.4.11 20%-80% Rise Time (tR)[Burst Clock]</p> <p>Test ID: 181102 - 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Burst Data]</p> <p>Test ID: 181103 - 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Continuous Data]</p> <p>Informative Tests:</p> <p>Test ID: 181104 - 1.4.11 20%-80% Rise Time (tR)[Burst Clock](Min Conformance Limit)(Informative)</p> <p>Test ID: 181105 - 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Burst Data](Min Conformance Limit)(Informative)</p> <p>Test ID: 181106 - 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Continuous Data](Min</p>

			Conformance Limit)(Informative)
Test 1.4.12 80%-20% Fall Time (tF)	Test ID: 18111 - 1.4.12 80%-20% Fall Time (tF)	Test ID: 18111 - 1.4.12 80%-20% Fall Time (tF)	Test ID: 181111 - 1.4.12 80%-20% Fall Time (tF)[Burst Clock] Test ID: 181112 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Burst Data] Test ID: 181113 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Continuous Data] Informative Tests: Test ID: 181114 - 1.4.12 80%-20% Fall Time (tF)[Burst Clock](Min Conformance Limit)(Informative) Test ID: 181115 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Burst Data](Min Conformance Limit)(Informative) Test ID: 181116 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Continuous Data](Min Conformance Limit)(Informative)

- Updated the test algorithm for rise time and fall time tests (Test 1.3.11, Test 1.3.12, Test 1.4.11 and Test 1.4.12) for “CTS v1.0” and “CTS v1.1” selection which is different from “CTS v1.2” where the VOD(0) and VOD(1) measurement results from VOD tests (Test 1.3.4, Test 1.4.4) will be used as 0%/100% reference levels to calculate the 20%/80% threshold levels.

Test 1.3.4 will be used as the pre-requisite tests for the following tests:

- Test ID: 8110 - 1.3.11 20%-80% Rise Time (tR)
- Test ID: 8111 - 1.3.12 80%-20% Fall Time (tF)

Test 1.4.4 will be used as the pre-requisite tests for the following tests:

- Test ID: 18110 - 1.4.11 20%-80% Rise Time (tR)
- Test ID: 18111 - 1.4.12 80%-20% Fall Time (tF)

- Updated all LP tests for “CTS v1.0” selection where the 400MHz, 4th order Butterworth low pass filter will **NOT** be applied prior to LP measurement for LP tests. This filter will be applied for “CTS v1.1” and “CTS v1.2” selection only.

Test Name	CTS v1.0	CTS v1.1	CTS v1.2
All LP tests	Not apply 400MHz, 4th order Butterworth low pass filter prior to measurement	Apply 400MHz, 4th order Butterworth low pass filter prior to measurement	Apply 400MHz, 4th order Butterworth low pass filter prior to measurement

- Updated the default value of VIH(MIN) configurable option in the Configure tab where the default value is 880mV for “CTS v1.0” and “CTS v1.1” selection regardless of selected HS Data Rate value.

Parameter	CTS v1.0	CTS v1.1	CTS v1.2
VIH(MIN)	880mV	880mV	880mV (for HS Data Rate <=1.5Gbps) 740mV (for HS Data Rate >1.5Gbps)

- Update the following test as **compliance test** for “CTS v1.0” selection. These tests will be **informative tests** for “CTS v1.1” and “CTS v1.2” selection.
 - Test ID: 8272 - 1.1.6 Pulse Width of LP TX Exclusive-OR Clock (TLP-PULSE-TX) [Last]
 - Test ID: 18272 - 1.1.6 Pulse Width of LP TX Exclusive-OR Clock (TLP-PULSE-TX) [Last]

Test Name	CTS v1.0	CTS v1.1	CTS v1.2
Test ID: 8272 - 1.1.6 Pulse Width of LP TX Exclusive-OR Clock (TLP-PULSE-TX) [Last]	Compliance Test	Informative Test	Informative Test
Test ID: 18272 - 1.1.6 Pulse Width of LP TX Exclusive-OR Clock (TLP-PULSE-TX) [Last]	Compliance Test	Informative Test	Informative Test

- Updated Test 1.1.6 TLP-PULSE-TX and Test 1.1.7 TLP-PER-TX tests for “CTS v1.0” and “CTS v1.1” selection where the maximum trip level threshold of 930mV will be used regardless of HS data rate selection.

Test Name	CTS v1.0	CTS v1.1	CTS v1.2
Test 1.1.6 TLP-PULSE-TX	Maximum Trip Level = 930mV	Maximum Trip Level = 930mV	Maximum Trip Level = 930mV (HS Data Rate <=1.5Gbps) Maximum Trip Level = 790mV (HS Data Rate <=1.5Gbps)
Test 1.1.7 TLP-PER-TX	Maximum Trip Level =	Maximum Trip Level =	Maximum Trip Level = 930mV (HS Data Rate

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	930mV	930mV	<=1.5Gbps Maximum Trip Level = 790mV (HS Data Rate <=1.5Gbps)
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- Updated Test 1.1.5 LP TX Slew Rate Vs Cload and Test 1.2.5 LP TX Slew Rate Vs Cload tests for “CTS v1.0” and “CTS v1.1” selection where the same region will be used regardless of HS data rate selection.

Test Name	CTS v1.0	CTS v1.1	CTS v1.2
Test 1.1.5 LP TX Slew Rate Vs Cload	Falling edge: Minimum Slew Rate is measured on 400mV-930mV region Rising edge: Minimum Slew Rate is measured on 400mV-700mV region Slew Rate margin is measured on 700-930mV region	Falling edge: Minimum Slew Rate is measured on 400mV-930mV region Rising edge: Minimum Slew Rate is measured on 400mV-700mV region Slew Rate margin is measured on 700-930mV region	For HS Data Rate <=1.5Gbps Falling edge: Minimum Slew Rate is measured on 400mV-930mV region Rising edge: Minimum Slew Rate is measured on 400mV-700mV region Slew Rate margin is measured on 700-930mV region
Test 1.2.5 LP TX Slew Rate Vs Cload			For HS Data Rate >1.5Gbps Falling edge: Minimum Slew Rate is measured on 400mV-790mV region Rising edge: Minimum Slew Rate is measured on 400mV-550mV region Slew Rate margin is measured on 550-790mV region

- Updated the compliance test limit for the following tests for “CTS v1.0” selection where the test limits are different from “CTS v1.2”.
 - Test ID: 8141 – 1.3.5 Differential Voltage Mismatch (Pulse)
 - Test ID: 18141 – 1.4.5 Differential Voltage Mismatch (Pulse)

- Updated compliance test limit for the following tests of for “CTS v1.1” selection where the test limits are different from “CTS v1.2”.
 - Test ID: 1911 – 1.4.18 Clock Lane HS Clock Delta UI(UI variation)
- Updated compliance test limit for the following tests for “CTS v1.0” and “CTS v1.1” selection where the test limits are different from “CTS v1.2”.
 - Test ID :821 – 1.1.1 Thevenin Output High Voltage Level (VOH)
 - Test ID: 8211 – 1.1.1 Thevenin Output High Voltage Level (VOH)
ESCAPEMODE
 - Test ID: 1821 – 1.2.1 Thevenin Output High Voltage Level (VOH)
 - Test ID: 18211 – 1.2.1 Thevenin Output High Voltage Level (VOH)
ESCAPEMODE
 - Test ID: 28211 – 1.2.1 Thevenin Output High Voltage Level (VOH)
ULPSMODE
 - Test ID: 8291 – 1.1.5 Slew Rate Vs. CLoad (Min)
 - Test ID: 18291 – 1.2.5 Slew Rate Vs. CLoad (Min)
 - Test ID: 8110 – 1.3.11 20%-80% Rise Time (tR)
 - Test ID: 8111 – 1.3.12 80%-20% Fall Time (tF)
 - Test ID: 18110 – 1.4.11 20%-80% Rise Time (tR)
 - Test ID: 18111 – 1.4.12 80%-20% Fall Time (tF)
 - Test ID: 913 – 1.5.4 Data-to-Clock Skew (TSKEW(TX))(Max,Min)
 - Test ID: 9131 – 1.5.4 Data-to-Clock Skew (TSKEW(TX))(Mean)

Enhancements

- Removed Tskew histogram measurement on the right crossing of the eye diagram for following tests:
 - Test ID: 913 – 1.5.4 Data-to-Clock Skew (TSKEW(TX))(Max,Min)
 - Test ID: 9131 – 1.5.4 Data-to-Clock Skew (TSKEW(TX))(Mean)
- Updated the test algorithm of Test 1.4.11 and Test 1.4.12 to load waveform file with interpolation (INT16) prior to rise time and fall time measurement to improve the accuracy.
- Updated the test algorithm of Test 1.3.13 HS EXIT: DATA TX THS-TRAIL to support signal with THS-TRAIL duration less than 50% of TEOT duration.

Bug Fixes

- Fixed memory issue.
- Corrected the threshold value used when finding LP edges for Test 1.1.6 Pulse Width of LP TX Exclusive-OR Clock(TLP-PULSE-TX).

Known issues

- In loading projects created in MIPI version 3.12, users cannot append the existing results.

Keysight U7238C/U7238D Software Version 03.12

Released Date:	16 Jan 2017
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	5.70.00715 (90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series), 5.70.00715 (9000 Series)
File Name:	SetupInfMIPI_D-PHY03120000.exe

New Features

- Added “40GSa/s” option for “Scope Sampling Rate” configurable option (with remote name of “ScopeSampleRate”) in Configure tab.
- Enabled “Disable Infiniium user interface during run” feature.
- Added the following tests under “HS Skew Calibration Burst” test group. These tests are only applicable for HS data rate >1.5Gbps. These tests require repetitive HS skew calibration burst.
 - o Test ID: 917 - 1.5.5 Initial HS Skew Calibration Burst(TSKEWCAL-SYNC)
 - o Test ID: 918 - 1.5.5 Initial HS Skew Calibration Burst(TSKEWCAL)
 - o Test ID: 919 - 1.5.6 Periodic HS Skew Calibration Burst(TSKEWCAL-SYNC)
 - o Test ID: 920 - 1.5.6 Periodic HS Skew Calibration Burst(TSKEWCAL)
- Added the following informative tests to test for minimum conformance limits for Test 1.3.11, Test 1.3.12, Test 1.4.11 and Test 1.4.12.
 - o Test ID: 81104 - 1.3.11 20%-80% Rise Time (tR)[Burst Data](Min Conformance Limit)(Informative)
 - o Test ID: 81105 - 1.3.11 20%-80% Rise Time (tR)[Continuous Data](Min Conformance Limit)(Informative)
 - o Test ID: 81114 - 1.3.12 80%-20% Fall Time (tF)[Burst Data](Min Conformance Limit)(Informative)
 - o Test ID: 81115 - 1.3.12 80%-20% Fall Time (tF)[Continuous Data](Min Conformance Limit)(Informative)
 - o Test ID: 181104 - 1.4.11 20%-80% Rise Time (tR)[Burst Clock](Min Conformance Limit)(Informative)

- Test ID: 181105 - 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Burst Data](Min Conformance Limit)(Informative)
- Test ID: 181106 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Continuous Data](Min Conformance Limit)(Informative)
- Test ID: 181114 - 1.4.12 80%-20% Fall Time (tF)[Burst Clock](Min Conformance Limit)(Informative)
- Test ID: 181115 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Burst Data](Min Conformance Limit)(Informative)
- Test ID: 181116 - 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Continuous Data](Min Conformance Limit)(Informative)

Enhancements

- Updated Test 1.3.4 Differential Voltage(VOD0 Pulse) and Test 1.3.4 Differential Voltage(VOD1 Pulse) to use explicit clock recovery method.
- Updated Test 1.3.6 Single Ended Output High Voltage(VOHHS Pulse) to use explicit clock recovery method.
- Updated Test 1.5.3 HS Clock Rising Edge Alignment to First Payload Bit to report PASS/FAIL value as final test result.
- Updated Test 1.3.6 Single Ended Output High Voltage(VOHHS Pulse) where the application will now automatically determine the threshold values used to identify the conformant pattern of "011111". Removed "PSearch Low Threshold [VOHHS ONLY]" (with remote name of "VOHHS_LowThres") and "PSearch High Threshold [VOHHS ONLY]" (with remote name of "VOHHS_HighThres") configurable options in Configure tab.
- Updated HS Clock tests to support "HS Full Dynamic Range" feature.
- Updated connection diagram for all tests for "Auto Load Switching" fixture.
- Updated the sequence of all test groups.

Bug Fixes

- Corrected the connection diagram shown for Test group "Electrical Characteristics – LP Clock TX" when user selected "Manual Load Switching" Fixture.
- Fixed the resolution issue when finding edge location on HS tests.

- Fixed the issue on Test 1.1.5 Slew Rate Vs CLoad to apply 4th order Butterworth Low Pass Filter on the test signal prior to slew rate measurement.
- Corrected the reference table of all tests in the compliance limit set.
- Corrected the test limits for the following tests:
 - o Test ID: 8141 - 1.3.5 Differential Voltage Mismatch (Pulse)
 - o Test ID: 18141- 1.4.5 Differential Voltage Mismatch (Pulse)
- Fixed the issue where the app is not responding after running unselected tests.

Known issues

- In loading projects created in MIPI version 3.11, users cannot append the existing results.

Keysight U7238C/U7238D Software Version 03.11

Released Date:	5 April 2016
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	5.60 (90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series), 5.60 (9000 Series)
File Name:	SetupInfMIPI_D-PHY03110000.exe

New Features

- Added “THS-SKIP(s)” configuration option (with remote name of “THS_SKIP”) in Configure tab. This option is used to specify the value of THS-SKIP which is useful to avoid glitch problem during THS-TRAIL measurement.
- Added new test IDs for Test 1.3.11 and Test 1.3.12 to support Continuous Data mode. The VOD(0), VOD(1) voltage measured from Test 1.3.4 will be used to calculate 20/80% reference voltage for rise/fall time measurement for the following tests.
 - o Test ID: 81102 – 1.3.11 20%-80% Rise Time (tR)[Continuous Data]
 - o Test ID: 81112 – 1.3.12 80%-20% Fall Time (tF)[Continuous Data]
- Added new test IDs for Test 1.4.11 and Test 1.4.12 to support Continuous Data mode. The VOD(0), VOD(1) voltage measured from Test 1.4.4 will be used to calculate 20/80% reference voltage for rise/fall time measurement for the following tests.
 - o Test ID: 181103 – 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Continuous Data]
 - o Test ID: 181113 – 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Continuous Data]
- Added “Pattern Check[tR,tF]” configuration option (with remote name of “Pattern_check_RiseFallTime”) in Configure tab. This option is used to enable or disable the pattern check of “000111” and “111000” for Test 1.3.11 and Test 1.3.12 in debug mode.
- Supported Differential clock connection type for “Continuous Clock Mode” for HS clock tests.
- Added “Number of Iterations[End of TCLK-PRE]” configuration option(with remote name of “NumOfIterateCheck_EndOfTCLKPRE”) in Configure tab. This option is used for “End of TCLK-PRE” position searching in Test 1.5.1 HS Exit: CLK TX TCLK-PRE.

Enhancements

- Updated the test name for the following tests:
 - o Test ID: 81101 – 1.3.11 20%-80% Rise Time (tR)[Burst Data]
 - o Test ID: 81111 – 1.3.12 80%-20% Fall Time (tF)[Burst Data]
 - o Test ID: 181102 – 1.4.11 20%-80% Rise Time (tR)[Continuous Clock, Burst Data]
 - o Test ID: 181112 – 1.4.12 80%-20% Fall Time (tF)[Continuous Clock, Burst Data]
- Updated test algorithm for Test 1.3.11, 1.3.12, 1.4.11 and 1.4.12 to use Infiniium software's measurement instead of using histogram methodology. Removed the configuration option "Transition Time Histogram Window" from Configure tab.
- Updated algorithm of MIPI Butter Filter User-Defined function. Check data size prior trimming process.
- Updated test algorithm of Test 1.3.13 HS Exit: Data TX THS-TRAIL to avoid glitch problem during THS-TRAIL measurement.
- Updated algorithm in finding "End of HS Payload" location to avoid glitch problem during TCLK-TRAIL measurement.
- Updated the application to display a more feasible message when scope is unable to trigger any signal.

Bug Fixes

- Fixed issue where different results were reported for slew rate test when user selected data lane and clock lane tests together compared to select only the clock lane test.
- Fixed issue where the compliance test limits queried via ARSL command are different with the test report.
- Fixed issue on Test 1.1.1 VOH and Test 1.1.2 VOL tests which occurred when 20GSa/s sampling rate is selected. This issue is due to an internal unexpected change of interpolation factor used.
- Fixed issue found on SerialPatternFinderDPHY User-Defined function. Use 0V as middle threshold to identify HS edges.
- Fixed screenshot issue on Test 1.3.11 Rise Time and Test 1.3.12 Fall Time tests where no real time eye can be generated with 1 clock edge. At least 2 edges are required.
- Updated code to fix some memory leak issue.

- Fixed false pass issue on Test 1.5.1 HS Entry: CLK TX TCLK-PRE.

Known issues

- In loading projects created in MIPI version 3.10, users cannot append the existing results.

Keysight U7238C/U7238D Software Version 03.10

Released Date:	6 March 2015
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	4.60 (90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series), 4.60 (9000 Series)
File Name:	SetupInfMIPI_D-PHY03100000.exe

Miscellaneous Notes

- Rebranding U7238C/U7238D MIPI D-PHY Conformance Test Application Software under Keysight Technologies.

New Features

- Added “Time Range (ns)” configuration option in Configure tab. This option is used to specify the value of time range to be used when performing measurement on HS Exit/Entry sequence.
- Updated the following tests to reflect the different maximum trip-level used for >1.5Gbps operation.
 - o Test 1.1.6 Pulse Width of LP TX Exclusive-OR Clock
 - o Test 1.1.7 Period of LP TX Exclusive-OR Clock
- Updated the following tests to perform the slew rate measurements at different measurement region for >1.5Gbps operation.
 - o Test 1.1.5 Slew Rate Vs. CLoad
 - o Test 1.2.5 Slew Rate Vs. CLoad
- Added test limit to support for >1.5Gbps operation for the following tests.
 - o Test 1.1.1 Thevenin Output High Voltage Level
 - o Test 1.1.5 Slew Rate Vs. CLoad
 - o Test 1.2.1 Thevenin Output High Voltage Level
 - o Test 1.2.5 Slew Rate Vs. CLoad
 - o Test 1.3.11 20%-80% Rise Time (tR)
 - o Test 1.3.12 80%-20% Fall Time (tF)

- Test 1.4.11 20%-80% Rise Time (tR)
- Test 1.4.12 80%-20% Fall Time (tF)
- Test 1.5.4 Data-to-Clock Skew (TSKEW(TX))
- Added new test ID for “TSKEW (Mean)” measurement. This test will be masked off for ≤ 1.5 Gbps operation.
 - Test ID: 9131 – 1.5.4 Data-to-Clock Skew (TSKEW(TX))(Mean)
- Added new test ID for rise/fall time measurement with Continuous Clock Mode. The VHS_ZERO level measured from Data Lane will be used to calculate 20/80% reference voltage for rise/fall time measurement in this test.
 - Test ID: 181102 – 1.4.11 20%-80% Rise Time (tR)
 - Test ID: 181112 – 1.4.12 80%-20% Fall Time (tF)
- Added the configuration option “Transition Time Histogram Window” in Configure tab. This configuration option is used to specify the position of histogram window for HS rise/fall times measurement.
- Updated the default value of configuration option “VIH(min)” to 740mV for > 1.5 Gbps operation.
- Masked off Test 1.4.18 Clock Lane HS Clock Delta UI for > 1.5 Gbps operation.

Enhancements

- Changed default value of “Tskew Histogram Window” under HS Tests Configuration in configure tab to 10mV.
- Updated the threshold levels to (15% -85%) for Test 1.1.3 15%-85% Rise Time(TRLP) ESCAPEMODE.
- Updated the test algorithm for the following tests to perform measurement on averaged waveforms for defined data patterns of “000111” or “111000”. The 20%-80% voltage levels is calculated with respect to the reference static DC level measured(VHS_ZERO) during final 25% of HS-ZERO period. The pre-requisite test for the following test is updated.
 - Test ID: 81101 – 1.3.11 20%-80% Rise Time (tR)
 - Test ID: 81111 – 1.3.12 80%-20% Fall Time (tF)

- Updated the test algorithm for the following tests to perform measurement on averaged waveforms for defined data patterns of “01” or “10”. The 20%-80% voltage levels is calculated with respect to the reference static DC level measured(VHS_ZERO) during final 25% of Clock Lane HS-ZERO period. The pre-requisite test for the following test is updated.
 - o Test ID: 181101 - 1.4.11 20%-80% Rise Time (tR)
 - o Test ID: 181111 - 1.4.12 80%-20% Fall Time (tF)
- Updated the following tests to run Test 1.4.17 HS Clock Instantaneous (UInst) as pre-requisite test. The HS Unit Interval value measured from Test 1.4.17 will be used to calculate the dynamic limit for the following tests.
 - o Test ID: 547 - 1.3.15 HS Exit: DATA TX TEOT
 - o Test ID: 557 - 1.3.2 HS Entry: DATA TX THS-PREPARE
 - o Test ID: 558 - 1.3.3 HS Entry: DATA TX THS-PREPARE+THS-ZERO
 - o Test ID: 544 - 1.4.15 HS Exit: CLK TX TEOT
 - o Test ID: 551 - 1.5.1 HS Entry: CLK TX TCLK-PRE
 - o Test ID: 555 - 1.5.2 HS Exit: CLK TX TCLK-POST
 - o Test ID: 913 - 1.5.4 Data-to-Clock Skew (TSKEW(TX))(Max,Min)
- Removed the CTS v0.08 option in Set Up tab from the application.
- Removed all test reference related to DPHY CTS v0.08 as the DPHY app v3.10 onwards do not support that testing option. The following test IDs that reference to CTS v0.08 has been removed.
 - o Test ID: 8110 - 1.3.11 20%-80% Rise Time (tR)
 - o Test ID: 8111 - 1.3.12 80%-20% Fall Time (tF)
 - o Test ID: 813 - 1.3.4 Differential Voltage(VOD)
 - o Test ID: 814 - 1.3.5 Differential Voltage Mismatch
 - o Test ID: 815 - 1.3.6 Single Ended Output High Voltage(VOHHS)
 - o Test ID: 18110 - 1.4.11 20%-80% Rise Time (tR)
 - o Test ID: 18111 - 1.4.12 80%-20% Fall Time (tF)

- Test ID: 1813 – 1.4.4 Differential Voltage(VOD)
- Test ID: 1814 – 1.4.5 Differential Voltage Mismatch
- Test ID: 1815 – 1.4.6 Single Ended Output High Voltage(VOHHS)
- Updated test name for the following tests:
 - Test ID: 81111 – 1.3.12 80%-20% Fall Time (tF)
 - Test ID: 81101 – 1.3.11 20%-80% Rise Time (tR)
- Added a 400MHz low pass test filter to the measurement algorithm for the following tests.
 - Test 1.1.1 Thevenin Output High Voltage Level (VOH)
 - Test 1.1.2 Thevenin Output Low Voltage Level (VOL)
 - Test 1.1.4 15%-85% Fall Time (TFLP)
 - Test 1.2.1 Thevenin Output High Voltage Level (VOH)
 - Test 1.2.2 Thevenin Output Low Voltage Level (VOL)
 - Test 1.2.4 15%-85% Fall Time (TFLP)
 - Test 1.2.5 Slew Rate Vs. CLoad
- Added the “Number of Measurement” reporting item for the following tests.
 - Test 1.3.11, Test 1.3.12, Test 1.3.4, Test 1.3.6, Test 1.4.11, Test 1.4.12, Test 1.4.4, Test 1.4.6 and Test 1.5.4 tests.

Bug Fixes

- Fixed issue where the application crash when user selected more than one data lane.
- Corrected the typo of “Infomative” to “Informative” in Set Up tab.
- Fixed the functionality of the completion indicator in Select Tests tab.
- Fixed the issue in Test 1.3.6 HS Data TX Single Ended Output High Voltage (VOHHS Pulse) by correcting the threshold level setting.
- Fixed the UDF issue on Test 1.4.17 HS Clock Instantaneous.
- Fixed the invalid result issue on 1.3.9 VCMTX(LF), 1.3.10 VCMTX(HF), 1.4.9 VCMTX(LF), 1.4.10 VCMTX(HF) tests.

- Fixed the incorrect reporting result issue on Test 1.2.5 ULPS clock TX Slew Rate Vs CLoad ULPSMODE.
- Fixed the typo on exception message thrown from Test 1.3.4 Differential Voltage(VODO Pulse).
- Corrected the label of the test reporting item for Test 1.4.17 HS Clock Instantaneous.

Known issues

- In loading projects created in MIPI version 3.00, users cannot append the existing results.

Agilent U7238C/U7238D Software Version 03.00

Released Date:	30 May 2014
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	4.60 (90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series), 4.60 (9000 Series)
File Name:	SetupInfMIPI_D-PHY03000000.exe

Enhancements

- Supports for Infiniium Oscilloscope Software version 5.00.

Agilent U7238B Software Version 02.44

Released Date:	19 May 2014
Requirements category (e.g., operating system):	Microsoft Windows XP, Microsoft Windows 7
Requirements category (e.g., instrument software version):	3.21 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02440000.exe

Miscellaneous Notes

- This will be the last version to support Infiniium Oscilloscope Baseline Version 4.20.

New Features

- Added HS Clock Instantaneous (UInst)(Min) test.
- Added ULPS Clock Mode test.
- Added Informative test group.
- Added Clock Lane HS Clock Delta UI (UI variation) test.
- Added LP_TX Pulse Width of Exclusive-OR Clock [Initial] and LP_TX Pulse Width of Exclusive-OR Clock [Last] tests.

Modifications

- Improved test measurement for LP slew rate test by added 400Mhz low pass filter.
- Improved test measurement for LP Escape Rise Time test by added 400Mhz low pass filter.
- Fixed connection diagram issue.
- Updated the "THSPREPARE+ZERO" portion in identifying the start of SYNC pattern to handle glitch in the test signal.

Known issues

- In loading projects created in MIPI version 02.44, users cannot append the existing results.

Agilent U7238A Software Version 02.43

Released Date:	15 May 2013
Requirements category (e.g., operating system):	Microsoft Windows XP, Microsoft Windows 7
Requirements category (e.g., instrument software version):	3.21 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02430000.exe

New Features

- Added Switch Matrix feature support.

Modifications

- Fixed the issue of Vcmtx tests where the worst case value reported is incorrect.

Agilent U7238A Software Version 02.42

Released Date:	15 October 2012
Requirements category (e.g., operating system):	Microsoft Windows XP, Microsoft Windows 7
Requirements category (e.g., instrument software version):	3.21 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02420000.exe

New Features

- Added new “Continuous Data” test mode.
- Added new “Window” triggering option under the Configure tab. This option is now set as the default triggering option instead of the previous “Pattern/State with InfiniiScan” triggering option.
 - o Related configuration variables:
 - WindowTriggerHighThreshold
 - WindowTriggerLowThreshold
 - TriggerMethod
- Added the CTS Test ID info to all the corresponding tests in the application.
- Added a debug configuration option that can set the threshold used in determining the THS-Prepare start location. This is used in a non-compliance testing mode to enable testing of data signals that are not terminated properly.
 - o Related configuration variables:
 - THSprepareStartThreshold
- Added configurable options to set the trigger timeout in the Configure tab of the application.
 - o Related configuration variables:
 - TriggerCheck
 - TriggerTimeout

Modifications

- Updated the GUI layout on Setup tab.
- The “InfiniiSim” button on the Setup tab has been removed. This same feature is now accessible via the “Tools” window menu of the application.
- Support User Defined Limit (UDL) feature.
- Fixed the issue of TSkew test where the worst case value reported is incorrect.
- Fixed the issue of incorrect VOD tests measurements when the “Scope Sampling Rate” option is set to “20G Sa/s” and the “Signal Scaling Mode” option is set to “AUTO”.
- Fixed the issue of tCLK-POST test where sometimes the test will report incorrect values in terms of “fs” range.
- Removed the need for InfiniiScan license option in order to run the application.

Agilent U7238A Software Version 02.41

Released Date:	15 January 2012
Requirements category (e.g., operating system):	Microsoft Windows XP, Microsoft Windows 7
Requirements category (e.g., instrument software version):	3.21 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02410000.exe

Modifications

- Optimize software to work with baseline 3.21 and above.
- Improve support for Win7 OS.

Agilent U7238A Software Version 02.40

Released Date:	30 August 2011
Requirements category (e.g., operating system):	Microsoft Windows XP, Microsoft Windows 7
Requirements category (e.g., instrument software version):	3.11 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02400000.exe

Modifications

- Optimize software to work with baseline 3.10.0005 and above.
- Added support for Win7 OS.

Agilent U7238A Software Version 02.30

Released Date:	19 April 2011
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	3.00 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02300000.exe

Modifications

- Improve HS Clock VOHHS test measurement.
- Improve test result reporting for Ulinst test and Data 1st edge to clock alignment test.

Agilent U7238A Software Version 02.20

Released Date:	3 January 2011
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	3.00 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02200000.exe

Modifications

- Improve Data 1st edge to clock alignment test behavior.
- Improve Vod, dVod & VOHHS tests. These tests will now show error message when the test patterns are not found.

Agilent U7238A Software Version 02.10

Released Date:	30 September 2010
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	3.00 (9000 Series, 90000 Series, 90000 X-Series)
File Name:	SetupInfMIPI_D-PHY02100000.exe

New Features

- Added TCLK-POST test.
- Added support for DSOX90000 series.

Modifications

- Updated test methodology as per MIPI CTS 1.00. (VOHHS, VOD and LP Slew Rate)

Agilent U7238A Software Version 02.00

Released Date:	15 March 2010
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	5.71 (80000 Series), 2.10 (9000 Series, 90000 Series)
File Name:	SetupInfMIPI_D-PHY02000000.exe

Miscellaneous Notes

- Added a troubleshooting guide in the CHM help file to assist users.
- This will be the last version to support the 80000 series oscilloscope. Following releases will only support 9000 & 90000 series oscilloscope.

New Features

- Added support for long DSI stream.
- Added filtering to handle continuous clock signals.
- Added InfiniiSim support. (Only for 9000 & 90000 series oscilloscope.)

Agilent U7238A Software Version 01.20

Released Date:	30 October 2009
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	5.71 (80000 Series), 2.01 (9000 Series, 90000 Series)
File Name:	SetupInfMIPI_D-PHY01200000.exe

Miscellaneous Notes

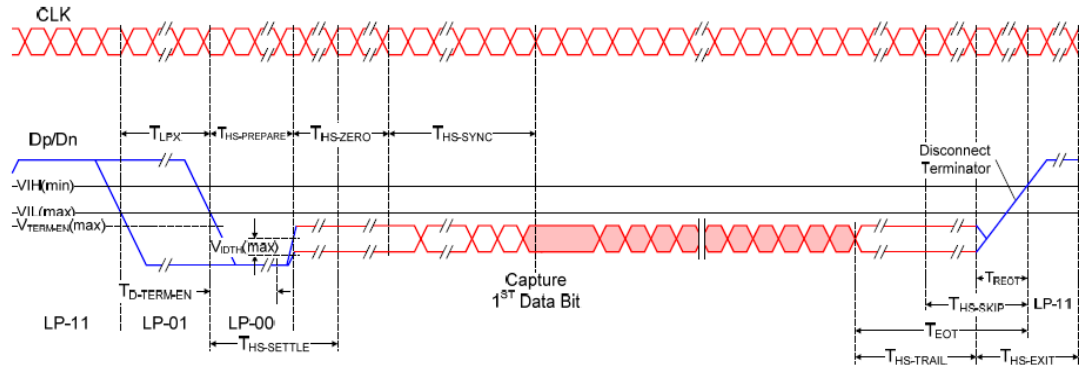


Diagram 1: A Single Analysis Window

- Data Processing Requirements:
 - o At least 2 Analysis Window above should be present for the software to process.
 - The total time length of the 2 Analysis Window should be lesser than the theoretical 200 microseconds (10GSa/s@2Mpts).
 - o The HS Burst in the Analysis Window should contain valid SYNC sequence
 - o The HS Burst Payload bits should be random and ideally should not have long 1's and 0's

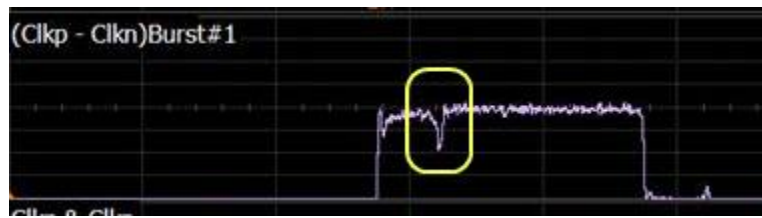


Diagram 2: Spike noise

- All noise effects (for example diagram 2) in Timing Test Group are treated as part of the waveform acquisition data for measurement processing.

New Features

- Added the LP Clock TX Electrical tests.
- Added support for using auto load switch board as fixture.

Modifications

- Filter for common mode variances tests changed to 8th order butterworth IIR filter.

Agilent U7238A Software Version 01.10

Released Date:	13 April 2009
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	5.60 (80000 Series), 1.40 (90000 Series)
File Name:	SetupInfMIPI_D-PHY01100000.exe

New Features

- Added the HS Clock TX Electrical tests.
- Added the Global Operation tests.
- Added the HS Data-Clock Timing tests.
- Added support for four probes.
- Added capability to export waveform data, generated from the signal of the Device Under Test.
- Added support for Device Under Test that does not send LP escape mode repetitively.

Modifications

- Renamed the HS TX Electrical tests to HS Data TX Electrical tests.
- Addressed the issue of HS TX Electrical tests running slow.
- Addressed the issue of unable to find the HS burst in some Device Under Test variances.

Known issues

- In loading projects created in MIPI version 01.00, users cannot append the existing results.

Agilent U7238A Software Version 01.10

Released Date:	1 August 2008
Requirements category (e.g., operating system):	Microsoft Windows XP
Requirements category (e.g., instrument software version):	5.50 (80000 Series), 1.20 (90000 Series)
File Name:	SetupInfMIPI_D-PHY01000000.exe

Initial Release

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