

# D9010CPHC MIPI C-PHY Conformance Test Application

Keysight D9010CPHC Software Version 1.70.9.0

Release Date:	April 4, 2023
Requirements Category (e.g., operating system):	Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.74.00402 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.50.00601 (UXR/UXR/EXR/MXR/MXR -B Series)
File Name:	SetupInfMIPI_C-PHY01700009.exe
License:	Please see the product data sheet on <a href="https://www.keysight.com">Keysight.com</a>

## New Features

- Supports UXR-B Series and MXR-B Series oscilloscope.

## Modification

- Update Keysight License Manager 5.

## Enhancement

- Added remote command support for N7010A calibration.

## Keysight D9010CPHC Software Version 1.70.4.0

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Release Date:	January 14, 2022
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.73.00102 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.40.00202 (UXR-Series, MXR-Series, EXR-Series)
File Name:	SetupInfMIPI_C-PHY01700004.exe
License:	Please see the product data sheet on <a href="https://www.keysight.com">Keysight.com</a>

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### Bug Fixes

- Fixed the issue for Eye Diagram tests that cannot run all at once at baseline version later than 11.15.00000

### Known issues

- The reference for Test 1.2.21 HS-Tx-Eye diagram is missing.
- The "Export Tested waveform" option in configuration tab exported waveform in "wfm" only although "wfm and bin" has been chosen.
- Pattern checking feature required so that T3-PROGSEQMode test and Preamble tests don't run simultaneously.

## Keysight D9010CPHC Software Version 1.70.0.0

Release Date:	September 30, 2021
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.55.00504 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.25.00902 (UXR-Series) 11.05.00514 (MXR-Series)
File Name:	SetupInfMIPI_C-PHY01700000.exe
License:	Please see the product data sheet on Keysight.com

### Bug Fixes

- Fixed the issue in test 1.2.21 HS-Tx Eye Diagram when 10MUI Total Acquisition Length was chosen and the result only captured 4.5MUI.

### Known issues

- The reference for Test 1.2.21 HS-Tx-Eye diagram is missing.
- The "Export Tested waveform" option in configuration tab exported waveform in "wfm" only although "wfm and bin" has been chosen.
- Pattern checking feature required so that T3-PROGSEQMode test and Preamble tests don't run simultaneously.

## Keysight D9010CPHC Software Version 1.60.0.0

Release Date:	September 30, 2021
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.55.00504 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.25.00902 (UXR-Series) 11.05.00514 (MXR-Series)
File Name:	SetupInfMIPI_C-PHY01600000.exe
License:	Please see the product data sheet on <a href="https://www.keysight.com">Keysight.com</a>

### New Features

- Added support for new license subscription bundle.

### Enhancements

- Added support for InfiniiSim HW Acceleration.

## Keysight D9010CPHC Software Version 1.50.0.0

Release Date:	March 23, 2021
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.55.00504 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.25.00902 (UXR-Series) 11.05.00514 (MXR-Series)
File Name:	SetupInfMIPI_C-PHY01500000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Added support for the following informative tests:
  - o 1.5.1 T3-CALPREMABLE Duration (Informative)
  - o 1.5.2 T3-ASID Duration (Informative)
  - o 1.5.3 T3-CALALTSEQ Duration (Informative)
  - o 1.5.4 Calibration Sequence T3-SYNC Duration (Informative)
- Provided a warning message indicating HS Symbol Rate should be 500 Msps or slower when running VOD and VOHHS tests.
- Added support for disabling screenshot while running C-PHY tests.

### Enhancements

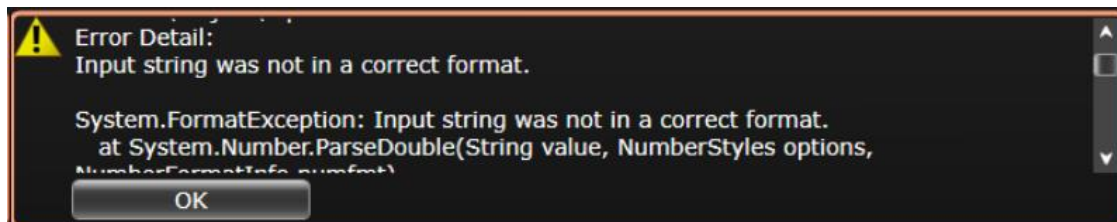
- Enhanced the final compliance result reporting for slew rate tests when unable to perform the measurement.

### Bug Fixes

- The warning message indicating the unavailability of Test 1.2.21 HS-TX Eye Diagram [CTLE] and 1.2.22 HS-TX UI Jitter Peak [CTLE] due to missing InfiniiSim and/or Equalization licenses are now only targeted specifically to CTS v2.0.

## Known issues

- Calibration preamble begins with a sequence of “1” symbols instead of a sequence of “3” symbols. App does not check for the test sequence right now. Therefore, HS-TX timing tests in test group 1.2 can be ran simultaneously with HS-TX Calibration Preamble timing tests in test group 1.5 with a sequence that begins with either “1” or “3”, but test will fail if unable to find the desired symbol pattern.
- Baseline 11.05.00514 might not detect the D9010SCNA InfiniiScan license even though it has been installed. The app will prompt for this missing license during launch. As a workaround, upgrade to newer baseline.
- While loading projects created using C-PHY version 1.50, users cannot append to the existing results.
- When user selects “HS Symbol Rate” value without pressing “Enter”, it might happen occasionally that the value only changes on GUI, but is not actually applied.
- When user tries to replace the test result on next trial run, the following error message might be displayed intermittently. Click “OK” to proceed.



## Keysight D9010CPHC Software Version 1.40.1

Release Date:	August 25, 2020
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.55.00504 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.25.00902 (UXR-Series) 11.05.00514 (MXR-Series)
File Name:	SetupInfMIPI_C-PHY01400001.exe
License:	Please see the product data sheet on Keysight.com

### Bug Fixes

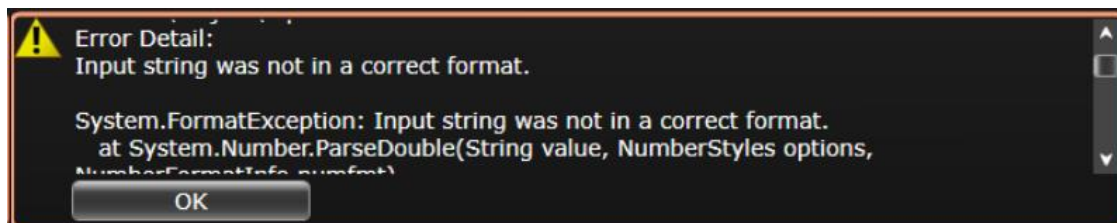
- Fixed the intermittent “Error 41” issue observed on “Eye Diagram test.

### Enhancements

- Enhanced the final compliance result reporting for VOD, VOHHS tests when unable to perform the measurement.

### Known issues

- In loading projects created in C-PHY version 1.40, users cannot append the existing results.
- When user selected “HS Symbol Rate” value without clicking “Enter” on keyboard, it may happen rarely that the value only changed on GUI, but not actually applied.
- When user trying to replace the test result on next trial run, error message as below may happen intermittently. User may click “OK” on the error message to proceed.



## Keysight D9010CPHC Software Version 01.40

Release Date:	May 14, 2020
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.55.00504 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.20.00503 (UXR-Series) 11.05.00514 (MXR-Series)
File Name:	SetupInfMIPI_C-PHY01400000.exe
License:	Please see the product data sheet on Keysight.com

### Miscellaneous Notes

- CTS v2.0 feature will only be available with “D9010CPHC” license installed.
- Test 1.2.21 HS-TX Eye Diagram (VAB)[CTLE][above 3.5Gps](C) and Test 1.2.22 HS-TX UI Jitter Peak [CTLE][above 3.5Gps] (C) will have shorter test time on new scope models(S-Series, V-Series, Z-Series, UXR-Series) whereas longer test time will be taken on other scope models(90000 Series, 90000 X-Series, 90000 Q-Series).

### New Features

- Added “v2.0” option to “CTS” configurable option in Setup tab to support CTS v2.0 test items.
- Added “HS Mode” configurable option (with remote name of “HSMode”) in Setup tab. This option is used to specify the HS mode.
- Added “HS Single Ended Threshold - LVHS” configurable option (with remote name of “HSSingleEndedThresholdLVHS”) in Configure tab. This option is used to specify the threshold level for single-ended HS signal in LVHS mode.
- Added the following new test IDs to support Test 1.2.7 VOD Weak0, Test 1.2.7 VOD Weak1, Test 1.2.10 Vcptx and Test 1.2.11 Vcptx Mismatch tests in LVHS Mode.
  - o Test ID: 1708 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak1)(LVHS) [Mean]
  - o Test ID: 1709 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak0)(LVHS) [Mean]
  - o Test ID: 1718 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak1)(LVHS) [Mean]
  - o Test ID: 1719 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak0)(LVHS) [Mean]
  - o Test ID: 1728 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak1)(LVHS) [Mean]
  - o Test ID: 1729 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak0)(LVHS) [Mean]
  - o Test ID: 1744 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak1)(LVHS) [Mean] (C)



- Test ID: 1745 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak0)(LVHS) [Mean] (C)
- Test ID: 1754 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak1)(LVHS) [Mean] (C)
- Test ID: 1755 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak0)(LVHS) [Mean] (C)
- Test ID: 1764 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak1)(LVHS) [Mean] (C)
- Test ID: 1765 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak0)(LVHS) [Mean] (C)
- Test ID: 2020 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+X)(LVHS)
- Test ID: 2021 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-X)(LVHS)
- Test ID: 2022 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+Y)(LVHS)
- Test ID: 2023 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-Y)(LVHS)
- Test ID: 2024 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+Z)(LVHS)
- Test ID: 2025 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-Z)(LVHS)
- Test ID: 2030 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+X)(LVHS) (C)
- Test ID: 2031 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-X)(LVHS) (C)
- Test ID: 2032 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+Y)(LVHS) (C)
- Test ID: 2033 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-Y)(LVHS) (C)
- Test ID: 2034 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+Z)(LVHS) (C)
- Test ID: 2035 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-Z)(LVHS) (C)
- Test ID: 2120 - 1.2.11 HS-TX Static Common-Point Voltage Mismatch ( $\Delta$  VCPTX(HS))(LVHS)
- Test ID: 2130 - 1.2.11 HS-TX Static Common-Point Voltage Mismatch ( $\Delta$  VCPTX(HS))(LVHS) (C).
- CTS v2.0 does not support Test 1.2.20 Delta UI. App provides support by adding the following new informative test IDs with the “obsolete” tag in CTS v2.0.
  - Test ID: 3002 - 1.2.20 HS Delta UI ( $\Delta$  UI) [1Gsp and below] (obsolete)
  - Test ID: 3003 - 1.2.20 HS Delta UI ( $\Delta$  UI) [above 1Gsp] (obsolete)
  - Test ID: 3012 - 1.2.20 HS Delta UI ( $\Delta$  UI) [1Gsp and below](C) (obsolete)
  - Test ID: 3013 - 1.2.20 HS Delta UI ( $\Delta$  UI) [above 1Gsp](C) (obsolete)
- Added the following new test IDs to support Test 1.2.21 Eye Diagram for Symbol Rate above 3.5Gsp. Available for Symbol Rate > 3.5Gsp only. These tests require InfiniiSim and Equalization licenses.
  - Test ID: 3104 - 1.2.21 HS-TX Eye Diagram (VAB)[CTLE][above 3.5Gsp](C)
  - Test ID: 3105 - 1.2.21 HS-TX Eye Diagram (VBC)[CTLE][above 3.5Gsp](C)
  - Test ID: 3106 - 1.2.21 HS-TX Eye Diagram (VCA)[CTLE][above 3.5Gsp](C)
  - Test ID: 3107 - 1.2.21 HS-TX Eye Diagram (VABC)[CTLE][above 3.5Gsp](C)

- Added the following new test ID to support Test 1.2.22 UI Jitter Peak for Symbol Rate 2.5Gbps to 3.5Gbps. Available for Symbol Rate 2.5Gbps - 3.5Gbps only. This test requires InfiniiSim license.
  - o Test ID: 3201 - 1.2.22 HS-TX UI Jitter Peak [2.5Gbps - 3.5Gbps] (C)
- Added the following new test ID to support Test 1.2.22 UI Jitter Peak for Symbol Rate above 3.5Gbps. Available for Symbol Rate > 3.5Gbps only. This test requires InfiniiSim and Equalization licenses.
  - o Test ID: 3202 - 1.2.22 HS-TX UI Jitter Peak [CTLE][above 3.5Gbps] (C)
- Added "Transfer Function Setting[with CTLE]" configurable option (with remote name of "TxEyeRefChanTFFileSettingCTSv20") in Configure tab. This option is used to set the transfer function file that the application will be embedded when performing Test 1.2.1 HS-TX Eye Diagram and Test 1.2.22 HS-TX UI Jitter Peak tests for CTS v2.0 on symbol rate > 3.5Gbps.
- Added "CTLE Setting File" configurable option (with remote name of "CTLESettingFile") in configure tab.
- Added "CTLE Optimization Criterion" configurable option (with remote name of "CTLEOptimizationCriterion") in configure tab.
- Added "InfiniiSim Method" configurable option (with remote name of "InfiniiSimMethod") in configure tab.
- Added "Eye Height [Eye Window Start]" configurable option (with remote name of "EyeHeightWindowStart") in configure tab.
- Added "Eye Height [Eye Window Stop]" configurable option (with remote name of "EyeHeightWindowStop") in configure tab.
- Added "CTLE Iteration Eye Source" configurable option (with remote name of "CTLEIterationEyeSource") in configure tab.
- Added "CDR Positive Pulse Width(UI)" configurable option (with remote name of "PosPulseRatio") in Configure tab under "Debug" Mode. This option is used to specify the positive pulse width of CDR in terms of HS UI width.
- Added "CDR Jitter position" configurable option (with remote name of "JitterPosition") in Configure tab under "Debug" Mode. This option is used to specify the CDR Jitter position.
- Added configurable "LP Mode" configurable option (with remote name of "LPMode") in configure tab. This feature is only applicable for Test 1.1.1 LP-TX Thevenin Output High Level Voltage (VOH) ESCAPEMODE and Test 1.1.1 LP-TX Thevenin Output High Level Voltage (VOH) where the maximum test limit for these tests are depending on the user selection on this "LP Mode" configurable option.

## Enhancements

- Updated options of “Scope Sampling Rate” in configure tab.
- Updated Test 1.2.7 VOD Weak0, Test 1.2.7 VOD Weak1 as informative tests for CTS v2.0 selection.
- Renamed "Reference Channel Transfer Function File Setting" configurable option in Configure tab to "Transfer Function Setting[without CTLE]".

## Bug Fixes

- Fixed test limit for Test 1.2.3 T3-PREBEGIN Duration.

## Known issues

- In loading projects created in C-PHY version 1.33, users cannot append the existing results.
- When user selected “HS Symbol Rate” value without clicking “Enter” on keyboard, it may happen rarely that the value only changed on GUI, but not actually applied.

## Keysight D9010CPHC Software Version 01.33

Release Date:	May 31, 2019
Requirements category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7,
Requirements category (e.g., instrument software version):	06.40.00714 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series, 10.10.04513 (UXR-Series)
File Name:	SetupInfMIPI_C-PHY01330000.exe
License:	Please see the product data sheet on Keysight.com

### Miscellaneous Notes

- Updated the product number from “U7250A” to “D9010CPHC” to support PPKS licenses.

### New Features

- NA

### Enhancements

- Updated option name of “OFF” to “Custom Channel” for “Reference Channel Transfer Function File Setting” (with remote name of “TxEyeRefChanTFFileSetting”) configurable option in Configure tab.
- Updated the default value of “Mask” (with remote name of “TxMaskBERType”) configurable option in Configure tab from “Original(1E-12)” to “Prorated(1E-6)”.
- Updated prorated mask value (1E-6) for 1.2.21 HS-TX Eye Diagram tests.

### Bug Fixes

- Fixed eye diagram test where the voltage level of the trigger point might locate slightly above 0V.

### Known issues

- In loading projects created in C-PHY version 1.32, users cannot append the existing results.
- Screenshot timeout issue can happen rarely when running tests.
- No message will be prompted when user selected “Tools-> Infiniium -> InfiniiSim...” or “Tools-> Infiniium -> PrecisionProbe/PrecisionCable...” feature without installing the required license.

## Keysight U7250A Software Version 01.32

Release Date:	December 13, 2018
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	06.30.00701 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series, 10.00.03902 (UXR-Series)
File Name:	SetupInfMIPI_C-PHY01320000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- NA

### Enhancements

- Updated algorithm of burst mode VOD and VOHHS tests.
- Added “Acquisition Points[HS Tests] - Burst Mode VOD, VOHHS” configurable option (with remote name of “HSTestVODVOHHSAcqPoints”) in Configure tab. This option is used to specify the acquisition points Burst signal for VOD and VOHHS tests.
- Removed “Interpolation Factor[VOD,VOHHS]” configurable option (with remote name of “InterpolationFactor\_VOD\_VOHHS”) in Configure tab.

### Bug Fixes

- NA

### Known issues

- In loading projects created in C-PHY version 1.31, users cannot append the existing results.
- Screenshot timeout issue can happen rarely when running tests.
- For eye diagram test, the voltage level of the trigger point might locate slightly above 0V.

## Keysight U7250A Software Version 01.31

Release Date:	September 27, 2018
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	06.30.00517 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series, 10.00.03708 (UXR-Series)
File Name:	SetupInfMIPI_C-PHY01310000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Supports Infiniium Oscilloscope Software version 10.00 for UXR-Series oscilloscope.
  - o Added new options (8GSa/s, 16GSa/s, 32GSa/s, 64GSa/s) for “Scope Sampling Rate (with remote name of “ScopeSampleRate”) configurable option in Configure tab. These options will be available when launching application on UXR-Series Oscilloscope. The default value is 32GSa/s for UXR-Series Oscilloscope.

### Enhancements

- Updated the VOD mismatch equation on Test 1.2.8 HS-TX Differential Voltage Mismatch( $\Delta$ VOD).
- Updated Test 1.2.16 T3-POST position finding algorithm to cater for noise at end of the burst.
  - o Added “HS Differential Threshold[T3-POST]” configurable option (with remote name of “HSDifferentialThreshold\_T3POST”) in Configure tab. This option is used to determine the end point of T3-POST and only applicable for Test 1.2.16 T3-POST Duration.
  - o Updated the configurable option name from “HS Differential Threshold[T3-POST, THS-EXIT]” to “HS Differential Threshold[THS-EXIT]”. This option is used to determine the start point of THS-EXIT and only applicable for Test 1.2.18 THS-EXIT Value.
- Updated Test 1.2.7 VOD to enable the histogram window position value to be configurable.
  - o Added “VOD Histogram Window Position(UI)” configurable option (with remote name of “VODHistogramWindowPosition”) in Configure tab. This option is used to specify the histogram window position for VOD measurement.
- Updated Test 1.2.9 VOHHS to enable the histogram window position value to be configurable.
  - o Added “VOHHS Histogram Window Position(UI)” configurable option (with remote name of “VOHSHistogramWindowPosition”) in Configure tab. This option is used to specify the histogram window position for VOHHS measurement.

## Bug Fixes

- Fixed intermittently incomplete test issue on Test HS-TX Differential Voltage(VOD-ABC)(Informative Test)(C).
- Fixed issue on Test 1.2.2 T3-PREPARE when finding end of T3-PREPARE position.
  - o Added “HS Differential Hysteresis[T3-PREPARE]” configurable option (with remote name of “HSDifferentialHysteresis\_T3PREPARE”) in Configure tab. This option is used to determine the hysteresis level when finding the end point of T3\_PREPARE Duration.

## Known issues

- In loading projects created in C-PHY version 1.30, users cannot append the existing results.
- Screenshot timeout issue can happen rarely when running tests in UXR-Series oscilloscope.

## Keysight U7250A Software Version 01.30

Release Date:	February 22, 2018
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	06.10.00806 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series),
File Name:	SetupInfMIPI_C-PHY01300000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Added Test 1.2.3 T3-PREBEGIN Duration, Test 1.2.4 T3-PROGSEQ Duration, Test 1.2.5 T3-PREEND Duration, Test 1.2.6 T3-SYNC Duration and Test 1.2.16 T3-POST Duration tests.
  - o Test ID: 1300 - 1.2.3 T3-PREBEGIN Duration
  - o Test ID: 1400 - 1.2.4 T3-PROGSEQ Duration
  - o Test ID: 1500 - 1.2.5 T3-PREEND Duration
  - o Test ID: 1600 - 1.2.6 T3-SYNC Duration
  - o Test ID: 2600 - 1.2.16 T3-POST Duration
- Added “T3-PROGSEQMode” configurable option (with remote name of “pcbT3\_ProgSeq”) in Set Up tab. This option allows user to select T3-PROGSEQ mode.
- Added “T3-PROGSEQ Sequence” configurable option (with remote name of “T3PROGSEQSequence”) in Set Up tab. This option allows user to specify the T3-PROGSEQ symbol Sequence.
- Added support for N7010A Active Termination Adapter. This feature will be enabled when user connected N7010A Active Termination Adapter to the VA, VB and VC channels on the scope based on the selection of “Channel Selection” Configurable option in the Connection Setup form.
  - o Added “Direct Connect (Active Termination Adapter)” Probing Method option in Connection Setup form in Set Up tab. This probing method supports for continuous signal.
  - o Added “Check Probe” feature to check if the N7010A Active Termination Adapter has been connected to the VA, VB and VC channels on the scope based on the selection of “Channel Selection” Configurable option. The available probing method will be shown.
- Added N7010A Active Termination Adapter Calibration feature. The continuous HS signal is required for N7010A calibration.
  - o Added “RSE Method” selection(with remote name of “RSEValueMethod”) in Connection Setup form with the options of “Manual RSE” and “Calculated RSE”. This option allows user to specify the RSE value manually or auto calculated by application for N7010A Calibration.



- Added “RSE Value” configurable option (with remote name of “RSEValue”) in Connection Setup form which is only available if user selected “Manual RSE” for “RSE Method” selection. This option allows user to specify the RSE value manually.
- Added “N7010A Calibration” option which enable user to find the appropriate Vterm value. The calculated “Vterm” value will be displayed and applied for all tests after performing the N7010A Calibration.
- Added the following new tests to support Continuous signal. These tests will be enabled if user selected “v1.1” for “CTS” configurable option and “Direct Connect (Active Termination Adapter)” for “Probing Method” configurable option.
  - Test ID: 1910 - 1.2.9 HS-TX Single-Ended Output High Voltages (VOHHS(VA))(C)
  - Test ID: 1911 - 1.2.9 HS-TX Single-Ended Output High Voltages (VOHHS(VB))(C)
  - Test ID: 1912 - 1.2.9 HS-TX Single-Ended Output High Voltages (VOHHS(VC))(C)
  - Test ID: 2010 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+X)(C)
  - Test ID: 2011 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-X)(C)
  - Test ID: 2012 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+Y)(C)
  - Test ID: 2013 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-Y)(C)
  - Test ID: 2014 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_+Z)(C)
  - Test ID: 2015 - 1.2.10 HS-TX Static Common-Point Voltages (VCPTX\_HS\_-Z)(C)
  - Test ID: 2110 - 1.2.11 HS-TX Static Common-Point Voltage Mismatch ( $\Delta$ VCPTX(HS))(C)
  - Test ID: 2210 - 1.2.12 HS-TX Dynamic Common-Point Variations Between 50-450MHz ( $\Delta$ VCPTX(LF))(C)
  - Test ID: 2310 - 1.2.13 HS-TX Dynamic Common-Point Variations Above 450MHz ( $\Delta$ VCPTX(HF))(C)
- Updated Test 1.2.7 HS-TX Differential Voltages (VOD) tests to measure MEAN VOD. Added the following Test IDs to support VOD-Mean measurement for CTS v1.1 option.
  - Test ID: 1704 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Strong1) [Mean]
  - Test ID: 1705 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak1) [Mean]
  - Test ID: 1706 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak0) [Mean]
  - Test ID: 1707 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Strong0) [Mean]
  - Test ID: 1714 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Strong1) [Mean]
  - Test ID: 1715 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak1) [Mean]
  - Test ID: 1716 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak0) [Mean]
  - Test ID: 1717 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Strong0) [Mean]
  - Test ID: 1724 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Strong1) [Mean]
  - Test ID: 1725 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak1) [Mean]
  - Test ID: 1726 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak0) [Mean]
  - Test ID: 1727 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Strong0) [Mean]
  - Test ID: 1801 - 1.2.8 HS-TX Differential Voltage Mismatch ( $\Delta$  VOD)

Updated test name for Test 1.2.7 HS-TX Differential Voltages (VOD) (C). [Test IDs: 1740, 1741, 1742, 1743, 1750, 1751, 1752, 1753, 1760, 1761, 1762, 1763]. Updated the VOD tests to measure MEAN VOD.

- Added “VOD Histogram Window Mode” configurable option(with remote name of “VODHistogramWindowMode”) in Configure tab. This option allows user to specify the method to be used to determine the histogram window position for Test 1.2.7 VOD test.
- Added “VOD Histogram Window Height(V)[AUTO Mode]” configurable option(with remote name of “VODHistogramWindowHeightAutoMode”) in Configure tab. This option allows user to specify the histogram height which is used to determine the histogram window position for Test 1.2.7 VOD test.
- Added “VOD(Strong1, Weak1) Histogram Window(V)[Manual Mode]” configurable option(with remote name of “VODTestStrong1Weak1HistogramWindowManualMode”) in Configure tab. This option allows user to specify the bottom limit of the histogram window for VOD-Strong1 and top limit of the histogram window for VOD-Weak1 measurement.
- Added “VOD(Strong0, Weak0) Histogram Window(V)[Manual Mode]” configurable option(with remote name of “VODTestWeak0Strong0HistogramWindowManualMode”) in Configure tab. This option allows user to specify the bottom limit of the histogram window for VOD-Weak0 and top limit of the histogram window for VOD-Strong0 measurement.
- Added support for new export to repository feature where user can export test results to a repository (such as a database). [File->Export Results...->Repository]

## Enhancements

- Migrated application to use new graphics user interface environment.
- Updated the configurable option name from “HS Differential Threshold[THS-EXIT]” to “HS Differential Threshold[T3-POST, THS-EXIT]”.
- Updated HS Symbol Rate verification.

## Bug Fixes

- Fixed issue on Test 1.2.7 VOD tests where the LP state is included in the real time eye.

## Known issues

- Does NOT support backward compatibility. Project files saved in previous versions will be available as READ-ONLY. User have to save previous project files as Settings Only before loading the project in the current software to access all the supported configurations. [File->Save Project (Settings Only) As...]

## Keysight U7250A Software Version 01.21

Release Date:	September 15, 2017
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	06.10.00524 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series),
File Name:	SetupInfMIPI_C-PHY01210000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Added “LP-000 To LP-111 Transition Effect Duration(s)” configurable option (with remote name of “LP000ToLP111TransitionEffectDuration”) in Configure tab. This option is used to avoid glitch problem for TREOT and THS-EXIT measurement.
- Added “CdrCPHY Hysteresis Threshold(V)” configurable option (with remote name of “CdrCPHY\_HysThresh”) in Configure tab. This option is used to specify the hysteresis value when finding edges' position on single-ended signal and differential signal using CdrCPHY User-Defined Function for burst signal.
- Added “Minimum Valid HS Length[Global Timing Tests]” configurable option (with remote name of “MinValidHSLengthT3TimingTest”) in Configure tab. This option is used to specify the minimum valid HS length during triggering for Global Timing tests except THS-EXIT and TREOT tests.

### Enhancements

- Updated burst finding algorithm to support signal integrity issue on LP-001 state.
- Updated test procedure of Test 1.2.2 T3-PREPARE Duration.
- Updated default value of “HS Differential Threshold[T3-PREPARE, TREOT]” and “HS Differential Threshold[THS-EXIT]” configurable option.

### Bug Fixes

- Fixed issue on channel InfiniiSim for Test 1.2.21 HS-TX Eye Diagram.
- Corrected the  $\Delta VCPTX(HS)$  calculation on Test 1.2.11 HS-TX Static Common-Point Voltage Mismatch.

### Known issues

- In loading projects created in C-PHY version 1.20, users cannot append the existing results.

## Keysight U7250A Software Version 01.20

Release Date:	June 01, 2017
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	06.00.00628 (90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series),
File Name:	SetupInfMIPI_C-PHY01200000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Added “CTS” configurable option (with remote name of “CTSVersion”) in Set Up tab with the options of “v1.0” and “v1.1”. This option allows user to specify the CTS version to reflect the available test list accordingly.
- Added “MIPI C-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”.
- Added Connection Setup form in Set Up tab which allows user to specify the channel and probing method selection.
- Added “Probing Method” configurable option (with remote name of “ProbingMethod”) in Connection Setup form with the options of “Active Probe (Differential Probe)” and “Direct Connect”.
- The option of “Active Probe (Differential Probe)” is available for both CTS “v1.0” and “v1.1” selection. This probing method supports for burst signal.
- The option of “Direct Connect” probing method is only available for CTS “v1.1” selection. This probing method supports for continuous signal.
- Added the following new tests to support Continuous signal. These tests will be enabled if user selected “v1.1” for “CTS” configurable option and “Direct Connect” for “Probing Method” configurable option.
  - o Test ID: 1740 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Strong1) [Max](C)
  - o Test ID: 1741 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak1) [Min](C)
  - o Test ID: 1742 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Weak0) [Max](C)
  - o Test ID: 1743 - 1.2.7 HS-TX Differential Voltages (VOD-AB-Strong0) [Min](C)
  - o Test ID: 1750 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Strong1) [Max](C)
  - o Test ID: 1751 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak1) [Min](C)
  - o Test ID: 1752 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Weak0) [Max](C)
  - o Test ID: 1753 - 1.2.7 HS-TX Differential Voltages (VOD-BC-Strong0) [Min](C)
  - o Test ID: 1760 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Strong1) [Max](C)
  - o Test ID: 1761 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak1) [Min](C)
  - o Test ID: 1762 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Weak0) [Max](C)
  - o Test ID: 1763 - 1.2.7 HS-TX Differential Voltages (VOD-CA-Strong0) [Min](C)

- Test ID: 1810 - 1.2.8 HS-TX Differential Voltage Mismatch ( $\Delta$  VOD)(C)
  - Test ID: 2910 - 1.2.19 HS Instantaneous UI (UIINST\_Max)(C)
  - Test ID: 3010 - 1.2.20 HS Delta UI ( $\Delta$  UI) [1Gsps and below](C)
  - Test ID: 3011 - 1.2.20 HS Delta UI ( $\Delta$  UI) [above 1Gsps](C)
  - Test ID: 1770 - HS-TX Differential Voltages (VOD-ABC)(Informative)(C)
- Added the following configurable options in Configure tab to support Continuous signal.

Label	Variable
Acquisition Points[HS Tests] - Continuous Mode	HSTestContinuousAcqPoints

- Added the following new eye diagram tests under “HS Electrical Tests” test group. These tests will be enabled if user selected “v1.1” for configurable option of “CTS” and “Direct Connect” for configurable option of “Probing Method”. These tests support for continuous signal only.
- Test ID: 3100 - 1.2.21 HS-TX Eye Diagram (VAB)(C)
  - Test ID: 3101 - 1.2.21 HS-TX Eye Diagram (VBC)(C)
  - Test ID: 3102 - 1.2.21 HS-TX Eye Diagram (VCA)(C)
  - Test ID: 3103 - 1.2.21 HS-TX Eye Diagram (VABC)(C)

The license of (N5465A-001) InfiniiSim Basic or (N5465A-002) InfiniiSim Advanced will be required to enable Test 1.2.1 HS-TX Eye Diagram.

- Added “Eye Diagram Type” configurable option (with remote name of “TxEyeDiagramType”) in Set Up tab with the options of “Combined eye diagram” and “Separated 3 eye diagram”. This option is used to specify the eye diagram type between “Combined eye diagram” and “Separated 3 eye diagram” which reflects the available eye diagram tests in test list accordingly.

If user selected “Separated 3 eye diagram”, the following tests will be enabled.

- Test ID: 3100 - 1.2.21 HS-TX Eye Diagram (VAB)
- Test ID: 3101 - 1.2.21 HS-TX Eye Diagram (VBC)
- Test ID: 3102 - 1.2.21 HS-TX Eye Diagram (VCA)

If user selected “Combined eye diagram”, the following test will be enabled.

- Test ID: 3103 - 1.2.21 HS-TX Eye Diagram (VABC)

- Added the following configurable options in Configure tab for Test 1.2.21 HS-TX Eye Diagram tests.

Label	Variable
Single Acquisition Points	TxEyeSingleAcqPoints
Total Acquisition Length [UI]	TxEyeTotalAcqUILength

Label	Variable
Reference Channel Transfer Function File Setting	TxEyeRefChanTFFileSetting
Mask Type	TxEyeMaskType
Mask	TxMaskBERType
Mask File Path	TxEyeMaskFilePath
Initial Mask Position for Trigger Points(UI)	InitialMaskPosition
Moving Mask Unit(UI)	MovingMaskUnit
Mask Shifting - Number of UI	MaskShiftingNoOfUI

## Enhancements

- Updated the default value of “Eye Diagram Display - Horizontal Center Position(UI)” configurable option (with remote name of “EyeDiagramCenterPos\_VOD\_VOHHS”) in Configure tab from “0UI” to “0.5UI”.
- Updated connection diagram for all tests.
- Renamed test group’s name from “HS Timing Tests” to “Global Timing Tests”.
- Moved the following test from “HS Electrical Tests” test group to “Global Timing Tests” test group.
- Test ID: 2700 - 1.2.17 30%-85% Post-EoT Rise Time (TREOT)
- Renamed the following tests:
  - o Test ID: 2900 - 1.2.19 HS Instantaneous UI (UIINST\_Max) [Old Name: 1.2.19 HS Clock Instantaneous UI (UIINST\_Max)]
  - o Test ID: 3000 - 1.2.20 HS Delta UI ( $\Delta$  UI) [1Gsp and below] [Old Name: 1.2.20 HS Clock Delta UI ( $\Delta$  UI) [1Gsp and below]]
  - o Test ID: 3001 - 1.2.20 HS Delta UI ( $\Delta$  UI) [above 1Gsp] [Old Name: 1.2.20 HS Clock Delta UI ( $\Delta$  UI) [above 1Gsp]]
- Renamed the following tests to indicate that these tests are informative tests.
  - o Test ID: 101 - 1.1.1 LP-TX Thevenin Output High Level Voltage (VOH)(Informative) [Old Name: 1.1.1 LP-TX Thevenin Output High Level Voltage (VOH)]
  - o Test ID: 201 - 1.1.2 LP-TX Thevenin Output Low Level Voltage (VOL)(Informative) [Old Name: 1.1.2 LP-TX Thevenin Output Low Level Voltage (VOL)]
  - o Test ID: 401 - 1.1.4 LP-TX 15%-85% Fall Time (TFLP)(Informative) [Old Name: 1.1.4 LP-TX 15%-85% Fall Time (TFLP)]

- Moved the following configurable options from Configure tab to Connection Setup form in Set Up tab.

Label	Variable
VA	VAChan
VB	VBChan
VC	VCChan

- Updated “CombinedCPHYWaveform” user defined function.
- Updated the “HS Symbol Rate” configurable option in Set Up tab to display warning message if value entered is less than the minimum value of 80Msps.

### Bug Fixes

- Corrected the test limit for Test ID: 401 - 1.1.4 LP-TX 15%-85% Fall Time (TFLP).

### Known issues

- In loading projects created in C-PHY version 1.12, users cannot append the existing results.

## Keysight U7250A Software Version 01.12

Release Date:	March 28, 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),
File Name:	SetupInfMIPI_C-PHY01120000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Added "VA(TrioA) edges(Edge)" configurable option (with remote name of "NumVAEdgesToExclude") in Configure tab. This option is used to specify the number of VA(TrioA) HS edges to be excluded when performing HS data measurement.
- Added the following informative test under "Informative Tests" test group.
- Test ID: 1730 - HS-TX Differential Voltages (VOD-ABC) (Informative)
- Enabled "Disable Infiniium user interface during run" feature.
- Added "LP Data Rate" configurable option (with remote name of "LPDataRate") in Configure tab. This option is used to calculate the zone's horizontal length for zone triggering when running LP Escape Mode tests. This option is only applicable for all LP Escape Mode tests.

### Known issues

- In loading projects created in C-PHY version 1.10, users cannot append the existing results.



## Keysight U7250A Software Version 01.10

Release Date:	September 29, 2016
Requirements category (e.g., operating system):	Microsoft Windows 7
Requirements category (e.g., instrument software version):	5.70.00713 (90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series),
File Name:	SetupInfMIPI_C-PHY01100000.exe
License:	Please see the product data sheet on Keysight.com

### New Features

- Added “HSBurstStart Check” configurable option (with remote name of “CdrCPHY\_HSBurstStart\_Check”) in Configure tab. This option is used to perform additional checking using VC LP falling edge when searching the starting location of HS burst data.
- Added “VC LP Falling Edge Threshold” configurable option (with remote name of “CdrCPHY\_VCLPFallingEdgeThreshold”) in Configure tab. This option is used to specify the threshold value used to locate the position of VC LP falling edge next to VA LP falling edge at LP001 region. This option is only applicable if “HSBurstStart Check” configurable option is enabled.

### Enhancements

- Updated the hysteresis range used for finding edges in CdrCPHY User Defined Function.

### Bug Fixes

- Fixed the issue found in Test 1.2.10 – HS-TX Static Common-Point Voltages.

### Known issues

- In loading projects created in C-PHY version 1.00, users cannot append the existing results.

## Keysight U7250A Software Version 01.00

Release Date:	May 05, 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),
File Name:	SetupInfMIPI_C-PHY01000000.exe
License:	Please see the product data sheet on Keysight.com

### Initial Release

### Miscellaneous Notes

- Initial release will consist of 3 main test groups namely HS Electrical Tests, LP Tests and HS Timing Tests based on MIPI CPHY CTS v1.0.