D9050LDDC LPDDR5 Validation Test Application Software

Keysight D9050LDDC Software Version 2.11.5.0

Release Date:	May 2025
Operating System:	Microsoft Windows 10, Microsoft Windows 11 (UXR-Series)
	Microsoft Windows 10 (V-Series, or Z-Series)
Instrument Software Version:	06.74.01101 (V-Series, or Z-Series)
	11.71.00021 (UXR-Series)
File Name:	SetupD9050LDDC_LPDDR5_2.11.5.0.exe
License:	Please see the product data sheet on Keysight.com

New Features / Additions

- Added CTLE DFE for the following Write Eye Diagram tests:
    1. tDIVW1 Margin [Test ID: 141000]
    2. tDIVW2 Margin [Test ID: 141001]
    3. vDIVW [Test ID: 141002]
    4. Write Eye Diagram [Test ID: 141009]
    5. tDIHL [Test ID: 141004]
    6. vDIHL_AC [Test ID: 141005]

Modifications / Changes

- Enhanced tRPST as earlier it did not report meaningful result to the user.
    - Toggle mode will add 1UI.
    - Static mode will add 1UI, 5UI, or 9UI based on tWCK length config.
- Moved "DFE Setting" config under "WRITE" config.

KEYSIGHT

Issues Fixed

- Fixed Eye Diagram for CA which was using wrong UI width "U I= 1 / CK Freq" instead of "UI = 1 / (2 * CK Freq)"

    - Eye Diagram for CA [Test ID: 142007)

- Fixed Overshoot CA and CK_t/CK_t VDD tests, whose references were not updated.

    1. Overshoot_Amplitude_CK_t [Test ID: 152000]

    2. Overshoot_Area_CK_t [Test ID: 152002]

    3. Overshoot_Amplitude_CK_c [Test ID: 152004]

    4. Overshoot_Area_CK_c [Test ID: 152006]

    5. Overshoot_Amplitude_CA [Test ID: 152300]

    6. Overshoot_Area_CA [Test ID: 152302]

Keysight D9050LDDC Software Version 2.10.2.0

Release Date:	September 2024
Operating System:	Microsoft Windows 10
Instrument Software Version:	06.74.01101 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, or Z-Series) 11.60.00115 (UXR-Series)
File Name:	SetupD9050LDDC_LPDDR5_2.10.2.0.exe
License:	Please see the product data sheet on Keysight.com

Issues Fixed

- Resolved the folded postamble issue with the following write eye mask diagram tests, where the "WCK Postamble" configuration was not functioning as expected when the "Burst Identification Method" was set to "Rd or Wr ONLY".

  - tDIVW1 [Test ID:141000]
  - tDIVW2 [Test ID:141001]
  - vDIVW [Test ID:141002]
  - tDIPW [Test ID:141003]
  - tDIHL [Test ID:141004]
  - VDIHL_AC [Test ID:141005]
  - tWCK2DQI_HF [Test ID:141007]
  - tDQ2DQ [Test ID:141008]

Keysight D9050LDDC Software Version 2.10.1.0

Release Date:	June 2024
Operating System:	Microsoft Windows 10
Instrument Software Version:	06.74.01101 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, or Z-Series) 11.60.00115 (UXR-Series)
File Name:	SetupD9050LDDC_LPDDR5_2.10.1.0.exe
License:	Please see the product data sheet on Keysight.com

Issues Fixed

- Fixed the following two tests to report the worst case as final result in case of User-Defined Limits:

    - tWCKH(abs) [Test ID:102004]
    - tWCKL(abs) [Test ID:102005]

- Fixed the issue wherein Post-InfiniiSim Signal settings were not available/visible for certain signal types when InfiniiSim was enabled.

    <u>App Path</u>: **Set Up** tab > **Thresholds…** button > **Threshold Setup** dialog box > **Signal Threshold** tab

Modifications / Changes

- **RDQS Preamble/Postamble Length** settings will be enabled for configuration only when **RDQS (Diff) mode** drop-down is set to "Burst".
  <u>App Path</u>: **Set Up** tab > **Settings...** button > **LPDDR5 General Setup** dialog box > **Signal Operation Mode** section.

- The following tests have been updated to support RDQS continuous mode:

  - tQW [Test ID:140000]

  - SRQdiffR_RDQS [Test ID:150002]

  - SRQdiffF_RDQS [Test ID:150003]

  - tDQSQ [Test ID:130002]

  - tQSH [Test ID:130003]

  - tQSL [Test ID:130004]

- These tests have been disabled/removed for RDQS continuous mode:

  - tRPRE[Test ID:130000]

  - tRPST[Test ID:130001]

  - tRPRE (Read Data Strobe Plus/Minus) [Test ID:152700]

Keysight D9050LDDC Software Version 2.10.0.0

Release Date:	January 2024
Requirements Category (e.g., operating system):	Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.74.00701 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.52.00301 (UXR-Series)
File Name:	SetupD9050LDDC_LPDDR5_2.10.0.0.exe
License:	Please see the product data sheet on Keysight.com

New Feature

- Updated test reference based on JESD209-5C.
- Added the following new tests:
  - Write Eye Diagram [Test ID: 141009]
  - Eye Diagram for CA [Test ID: 142007]
  - tRPRE (Read Data Strobe Plus & Minus) [Test ID: 152700]
- Added RDQSjit continuous mode support.

Defect Fixes

- Fixed tRPRE test in Timing Tests to be executed with Measurement Server enabled.
- Fixed tRPRE test in Timing Tests which shows incorrect preamble region.
- Fixed Overshoot_Amplitude_RDQS_c test incorrectly refers to RDQS_t when executed alongside any Overshoot/Undershoot tests for RDQS_t.
- Fixed Overshoot_Amplitude_RDQS_c test that wrongly refer to RDQS_t in offline mode.
- Fixed Overshoot_Amplitude_WCK_c test incorrectly refers to WCK_t when executed alongside any Overshoot/Undershoot tests for WCK_t.
- Fixed Overshoot_Amplitude_WCK_c test that wrongly refer to WCK_t in offline mode Fixed Overshoot_Amplitude_WCK_c test from using incorrect signal.
- Fixed test result showing screenshot from previous test when the test is invalid.
- Fixed tjit(CC) tests from reporting negative values.

- Fixed incorrect results for tRPRE test when RDQS preamble is selected as Static:2tWCK Toggle:2tWCK.

Keysight D9050LDDC Software Version 2.0.2.0

Release Date:	June 2023
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.73.00102 (9000 Series, 90000 Series, 90000 X–Series, 90000 Q–Series, V–Series, Z–Series) 11.50.00102 (UXR–Series)
File Name:	SetupD9050LDDC_LPDDR5_2.0.2.0.exe
License:	Please see the product data sheet on Keysight.com

New Feature

- Added custom horizontal offset for eye diagram.

Modification

- Modified Measurement Threshold for WCK threshold to be customizable for eye diagram for deviated eye diagram.

Keysight D9050LDDC Software Version 2.0.1.0

Release Date:	May 2023
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.73.00102 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.50.00102 (UXR-Series)
File Name:	SetupD9050LDDC_LPDDR5_2.0.1.0.exe
License:	Please see the product data sheet on Keysight.com

Modification

- – Silence the installation process of the prerequisite installer.

Keysight D9050LDDC Software Version 2.0.0.0

Release Date:	April 2023
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.73.00102 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.30.00406 (UXR-Series)
File Name:	SetupD9050LDDC_LPDDR5_2.0.0.0.exe
License:	Please see the product data sheet on Keysight.com

New Features

- Filter read and write tests based on expected burst data (for burst and continuous WCK)
- Adjusted precision for compliance value
- Enable Write DQ Eye Diagram Tests for continuous WCK
- Added Vinse_CK test under "CK_t + CK_c" test group
- Added Vinse_WCK test under "WCK_t + WCK_c" test group
- Auto-save of projects at the end of a run
  - Either as project folder or as zip archive
  - With and without waveforms
  - At the end of every run or only if a run failed
- Export/import project as zip archive

Defect Fixes

- Fixed an issue due to System.Exception when trying to set Minimum Burst Gap Width as 3.5.

- Fixed an issue due to unable to find Hi-Z 0V state error.

- Fixed an issue due to incorrect of absolute clock period tCK(abs) pass limit.

- Fixed an issue due to incorrect of absolute write clock period tWCK(abs) pass limit.

- Fixed an issue due to write eye diagram tests for DQ doesn't run.

- Fixed an issue due to app throw 'Object reference not set to an instance of an object' error if thresholds are not according to the signal

- Fixed an issue due to app should not perform Read/Write separation when running WCK Single Ended tests.

- Fixed an issue due to reported results are incorrect for Vinse_WCK test.

- Fixed an issue due to DQ Electrical and DQ Timing tests are not running in Single Ended mode for Continuous WCK

- Fixed an issue due to app uses incorrect Overshoot Amplitude Reference value for CK Single Ended tests.

- Fixed an issue due to app uses incorrect Overshoot Amplitude reference to perform Overshoot Amplitude and Area measurement in MR mode.

- Fixed an issue due to app uses incorrect Undershoot Amplitude (DQ, CA) results are measured wrong in MR mode.

- Fixed an issue due to reported results are incorrect for Vinse_CK test

- Fixed an issue due to Undershoot Amplitude (DQ, CA) results are measured wrong in MR mode

- Fixed an issue due to getting triggering timeout error when running WCK Timing tests for Continuous WCK mode.

- Fixed an issue due to Vinse_WCK signal doesn't match the target signal in spec

- Fixed an issue due to Vinse_CK signal doesn't match the target signal in spec

- Fixed an issue due to incorrect tRPRE result for '2tWCK Static, 2tWCK Toggle' mode.

- Fixed an issue due to signal source setup - cosmetic issue.

Modification

- Update Keysight License Manager 5.

Keysight D9050LDDC Software Version 1.50.1.0

Release Date:	December 2022
Requirements Category (e.g., operating system):	Microsoft Windows 10, Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.71.00001 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.30.00406 (UXR-Series)
File Name:	SetupInfLPDDR501500001.exe
License:	Please see the product data sheet on Keysight.com

Known Defects/Missing Features

- HTML Report might become empty when running an offline test.
  Workaround: File > Save Project or Save Project As

- Read Bursts are considered as Write when running Eye Diagram tests with a higher number of sampling points.

- Incorrect marker placement for the Undershoot_Area_WCK_c test (Intermittent).
  Note: To be fixed in a later Infiniium.

- Error message will be prompted when saving the project intermittently.
  Workaround: Re-save the project.

Bug Fixes

- Resolved Infiniium disconnect issue when running CA Eye Diagram tests.

Keysight D9050LDDC Software Version 1.50.0.0

Release Date:	July 2022
Requirements Category (e.g., operating system):	Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.71.00001 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.30.00202 (UXR-Series)
File Name:	SetupInfLPDDR501500000.exe
License:	Please see the product data sheet on Keysight.com

New Features

- Added the following new tests according to the JESD209-5B specification:
    - vDIHP1 [Test ID: 153000]
    - vDILP1 [Test ID: 153001]
    - vDIHP2 [Test ID: 153002]
    - vDILP2 [Test ID: 153003]
    - tDIPW1 [Test ID: 160000]
    - tDIPW2 [Test ID: 160001]
    - tDIHL [Test ID: 160002]
    - tjitRDQS_1UI(avg) [Test ID: 102028]
    - tjitRDQS_1UI(abs) [Test ID: 102029]
    - tjitRDQS_2UI(abs) [Test ID: 102030]
    - tjitRDQS_3UI(abs) [Test ID: 102031]
    - tjitRDQS_4UI(abs) [Test ID: 102032]
    - tjitRDQS_1UI [Test ID: 102033]
    - tjitRDQS_3UI [Test ID: 102034]
    - tDQ2DQ [Test ID: 141008]
    - tCA2CA_share [Test ID: 142006]
- Updated test limits according to the JESD209-5B specification.
- Support for the following new data rates according to the JESD209-5B specification:
    - 7500MT/s (WCK Frequency:3750MHz)

- 8533MT/s (WCK Frequency:4266.5MHz)
  - Added configuration of Custom Eye Vertical Scaling for Eye Diagram tests.
  - Enhancement of speed and processing for bursty clock processing in Clock Timing Tests and Write Clock (WCK) Timing Tests.

Known Defects/Missing Features

- HTML Report might become empty when running an offline test.
  Workaround: File > Save Project or Save Project As
- Read Bursts are considered as Write when running Eye Diagram tests with a higher number of sampling points.
- Incorrect marker placement for the Undershoot_Area_WCK_c test (Intermittent).
  Note: To be fixed in a later Infiniium.
- Error message will be prompted when saving the project intermittently.
  Workaround: Re-save the project.

Modifications

- The following tests now support Write Clock(WCK) Continuous mode:
  - Vindiff_WCK [Test ID: 151100]
  - Vindiff_WCK/2HighPulse [Test ID: 151101]
  - Vindiff_WCK/2LowPulse [Test ID: 151102]
  - VIHdiff_WCK [Test ID: 151106]
  - VILdiff_WCK [Test ID: 151107]
  - SRIdiffR_WCK [Test ID: 151108]
  - SRIdiffF_WCK [Test ID: 151109]
  - Vinse_WCK (Positive Pulse) [Test ID: 151110]
  - Vinse_WCK (Negative Pulse)   [Test ID: 151111]
  - Vinse_WCK_High (WCK_t) [Test ID: 151112]
  - Vinse_WCK_High (WCK_c) [Test ID: 151113]
  - Vinse_WCK_Low (WCK_t) [Test ID: 151114]
  - Vinse_WCK_Low (WCK_c) [Test ID: 151115]
  - Vix_WCK_ratio [Test ID: 151116]
  - Vinse_WCK_SE [Test ID: 251100]
  - Vinse_WCK_SE_High [Test ID: 251112]

- Vinse_WCK_SE_Low [Test ID: 251114]

- SRIseR_WCKSE [Test ID: 251108]

- SRIseF_WCKSE [Test ID: 251109]

- tWCKHL [Test ID: 251107]

- tWCKH [Test ID: 251110]

- tWCKL [Test ID: 251111]

- The Test Mode (Live Signal or Offline) updates every time the Test Execution Mode changes in the Preference > Run.

Defect Fixes

- Resolved issue where the WCK input test is only performed on the WCK signal on Write operation. Now it also includes processing on the WCK signal on Read operation.

- Resolved Electrical Write Clock (WCK) tests running which unexpectedly acquire Data where it is not necessary for processing.

- Resolved issue on tests that used the Dynamic limit feature where it didn't take worst result as reported result.

- Resolved missing connection diagram for the "WCK, DQ[x], DQ[y], RDQS" channel configuration.

- Corrected the test limit polarity of VILdiff_WCK test [Test ID:151107] into a negative value and also modified the algorithm to report the negative value accordingly.

D9050LDDC LPDDR5 Compliance Test Application Software Release Notes

Keysight D9050LDDC Software Version 1.40.0.0

Release Date:	January 2022
Requirements Category (e.g., operating system):	Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.70.00101 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.20.00101 (UXR-Series)
File Name:	SetupInfLPDDR501400000.exe
License:	Please see the product data sheet on Keysight.com

New Features

- Added support for Keysight D9010AGGC Measurement Server.
- Clicking 'X' button for Signal Source Setup dialog will prompt for saving/discarding the changes.

Known Defects/Missing Features

- Intermittent waveform scaling issue.
  Workaround: Re-run the test.
- HTML Report might become empty when running an offline test.
  Workaround: File>Save Project or Save Project As
- Read Bursts considered as write when running eye diagram with higher number of sampling points.
- Incorrect marker placement for Undershoot_Area_WCK_c test (Intermittent). To be fixed in a later Infiniium.
- Error message will be prompted when saving the project intermittently.
  Workaround: Re-save the project.

Defect Fixes

- Fixed an issue due to which when de-embedding would be turned on, a -221 "Setting conflict" message would be prompted.
- Fixed an issue due to which marker placement is out of screen.
- Fixed an issue due to which wrong test limit would be used with certain speed grades.

- Fixed an issue for certain tests due to which if there is no signal, the app would still get triggered and continue with the test.

Keysight D9050LDDC Software Version 1.20.2.0

Release Date:	May 2021
Requirements Category (e.g., operating system):	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.60.00403 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 11.10.00202 (UXR-Series)
File Name:	SetupInfLPDDR501200002.exe
License:	Please see the product data sheet on Keysight.com

Known Defects/Missing Features

- Intermittent waveform scaling issue. Re-run the test as workaround.

- VIHdiff_WCK and VILdiff_WCK produce incorrect results if Measurement Threshold VREFdiff_WCK in Threshold Setup window is set to a value other than 0 V.

- Marker location on reported screenshot might be slightly offset in resolution for certain Infiniium versions. Upgrade to latest Infiniium as workaround.

- Vinse_CK_SE, Vinse_CK_SE_High, Vinse_CK_SE_Low, SRIseR_CKSE, SRIseF_CKSE and tCKHL have valid pass limits, where these tests should be reported Information only tests for a CK frequency other than 400MHz.

- In Offline Test Mode, closing the Signal Source Setup window with the (X) button will still have the waveform loaded and used for measurement even though the selected waveform file path is not being shown in the GUI. Click the "OK" button instead of (X) button.

Defect Fixes

- Fixed an issue where the Clock Jitter test is unable to perform signal conditioning correctly when the InfiniiSim feature is enabled.

Keysight D9050LDDC Software Version 1.20.1.0

Release Date:	January 2021
Requirements Category (e.g., operating system):	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., instriument software version):	06.55.00504 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.25.00902 (UXR-Series)
File Name:	SetupInfLPDDR501200001.exe
License:	Please see the product data sheet on Keysight.com

New Features

- Updated the license checking to cater for Support Subscription feature.

Known Defects/Missing Features

- Intermittent waveform scaling issue. Re-run the test as workaround.

- VIHdiff_WCK and VILdiff_WCK produce incorrect results if Measurement Threshold VREFdiff_WCK in Threshold Setup window is set to a value other than 0 V.

- Marker location on reported screenshot might be slightly offset in resolution for certain Infiniium versions. Upgrade to latest Infiniium as workaround.

- Vinse_CK_SE, Vinse_CK_SE_High, Vinse_CK_SE_Low, SRIseR_CKSE, SRIseF_CKSE and tCKHL have valid pass limits, where these tests should be reported Information only tests for a CK frequency other than 400MHz.

- In Offline Test Mode, closing the Signal Source Setup window with the (X) button will still have the waveform loaded and used for measurement even though the selected waveform file path is not being shown in the GUI. Click the "OK" button instead of (X) button.

Keysight D9050LDDC Software Version 1.20.0.0

Release Date:	January 2021
Requirements Category (e.g., operating system):	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.55.00504 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.25.00902 (UXR–Series)
File Name:	SetupInfLPDDR501200000.exe
License:	Please see the product data sheet on Keysight.com

New Features

- Added new available signal source options as follow.

  - "CK (Diff), CA[x], CA[y], CS"

  - "CK_t (SE), CK_c (SE), WCK_t (SE), WCK_c (SE)"

  - "CK_t (SE), CK_c (SE), RDQS_t (SE), RDQS_c (SE)"

  - "WCK_t (SE), WCK_c (SE), RDQS_t (SE), RDQS_c (SE)"

  - "CK (Diff), WCK (Diff), DQ, CS"

  - "CK (Diff), WCK (Diff), CA, CS"

- Added support for new "RDQS Detect" Burst Identification Method option. This option is only applicable when RDQS signal is available as the signal source input.

- Added new configuration option in the "LPDDR5 General Setup" dialog box to set the WCK postamble length.

Modifications

- Removed the SRQDiff tests for WCK as the WCK signal is an input type signal.

- The WCK tests will be performed on both READ and WRITE burst data.

- The Burst Identification method information is reported in the HTML test report.

Defect Fixes

- Fixed an issue because of which the Write eye diagram tests were not able to run successfully due to inability to find a recovered clock even though there were valid Write bursts found in the signal acquisition.

- Fixed an issue because of which the "optRDQS_Postamble_Mode" config option was not accessible using the remote command.

- Fixed an issue because of which the WCK tests were not running successfully in offline test mode.

- Fixed an issue because of which Vix_WCK_ratio test was aborting due to inability to find the required signal source data in live and offline test mode even though the mentioned test signal source was available.

- Fixed an issue because of which the CK and WCK Timing tests would be aborted on a UXR-series oscilloscope due to an unexpected timeout error message.

Known Defects/Missing Features

- Intermittent waveform scaling issue. Re-run the test as workaround.

- VIHdiff_WCK and VILdiff_WCK produce incorrect results if Measurement Threshold VREFdiff_WCK in Threshold Setup window is set to a value other than 0 V.

- Marker location on reported screenshot might be slightly offset in resolution for certain Infiniium versions. Upgrade to latest Infiniium as workaround.

- Vinse_CK_SE, Vinse_CK_SE_High, Vinse_CK_SE_Low, SRIseR_CKSE, SRIseF_CKSE and tCKHL have valid pass limits, where these tests should be reported Information only tests for a CK frequency other than 400MHz.

- In Offline Test Mode, closing the Signal Source Setup window with the (X) button will still have the waveform loaded and used for measurement even though the selected waveform file path is not being shown in the GUI. Click the "OK" button instead of (X) button.

Keysight D9050LDDC Software Version 01.10.0.0

Release Date:	May 10, 2020
Requirements Category (e.g., operating system):	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., instrument software version):	06.55.00504 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series) 10.20.00501 (UXR-Series)
File Name:	SetupInfLPDDR501100000.exe
License:	Please see the product data sheet on Keysight.com

New Features

- Added support for Single-ended Mode.
    - All differential signals are being treated as single-ended when switched to Single-ended Mode. However, signals' naming is retained as differential (Diff).
    - All signal thresholds and measurement thresholds are configured to default single-ended values upon switching to Single-ended Mode and vice versa.
- Added support for new Electrical Tests
    - Write Clock signal [WCK (Diff)]
        - Vindiff_WCK
        - Vindiff_WCK/2HighPulse
        - Vindiff_WCK/2LowPulse
        - VIHdiff_WCK
        - VILdiff_WCK
        - SRIdiffR_WCK
        - SRIdiffF_WCK
        - SROdiffR_WCK
        - SROdiffF_WCK
        - Vinse_WCK (positive pulse)
        - Vinse_WCK (negative pulse)
    - Clock signal [CK (Diff)]
        - Vinse_CK (positive pulse)

- Vinse_CK (negative pulse)
- Read Data Strobe signal [RDQS (Diff)]
  - SRQdiffR_RDQS
  - SRQdiffF_RDQS
- Data signal [DQ]
  - Overshoot_Amplitude_DQ
  - Undershoot_Amplitude_DQ
  - Overshoot_Area_DQ
  - Undershoot_Area_DQ
  - SRQseR_DQ
  - SRQseF_DQ
- Write Clock true signal [WCK_t] and complement signal [WCK_c]
  - Overshoot_Amplitude_WCK_t
  - Undershoot_Amplitude_WCK_t
  - Overshoot_Area_WCK_t
  - Undershoot_Area_WCK_t
  - Vinse_WCK_High (WCK_t)
  - Vinse_WCK_Low (WCK_t)
  - Overshoot_Amplitude_WCK_c
  - Undershoot_Amplitude_WCK_c
  - Overshoot_Area_WCK_c
  - Undershoot_Area_WCK_c
  - Vinse_WCK_High (WCK_c)
  - Vinse_WCK_Low (WCK_c)
  - Vix_WCK_ratio
- Clock true signal [CK_t] and complement signal [CK_c]
  - Overshoot_Amplitude_CK_t
  - Undershoot_Amplitude_CK_t
  - Overshoot_Area_CK_t
  - Undershoot_Area_CK_t
  - Vinse_CK_High (CK_t)
  - Vinse_CK_Low (CK_c)

- Overshoot_Amplitude_CK_c
- Undershoot_Amplitude_CK_c
- Overshoot_Area_CK_c
- Undershoot_Area_CK_c
- Vinse_CK_High (CK_c)
- Vinse_CK_Low (CK_c)
- Vix_CK_ratio

- Read Data Strobe true signal [RDQS_t] and complement signal [RDQS_c]
  - Overshoot_Amplitude_RDQS_t
  - Undershoot_Amplitude_RDQS_t
  - Overshoot_Area_RDQS_t
  - Undershoot_Area_RDQS_t
  - Overshoot_Amplitude_RDQS_c
  - Undershoot_Amplitude_RDQS_c
  - Overshoot_Area_RDQS_c
  - Undershoot_Area_RDQS_c

- Command / Address signal [CA]
  - Overshoot_Amplitude_CA
  - Undershoot_Amplitude_CA
  - Overshoot_Area_CA
  - Undershoot_Area_CA

- Chip Select signal [CS]
  - Overshoot_Amplitude_CS
  - Undershoot_Amplitude_CS
  - Overshoot_Area_CS
  - Undershoot_Area_CS

- Write Clock signal [WCK (SE)]
  - Vinse_WCK_SE
  - Vinse_WCK_SE_High
  - Vinse_WCK_SE_Low
  - SRIseR_WCKSE
  - SRIseF_WCKSE

- Clock signal [CK (SE)]
  - Vinse_CK_SE
  - Vinse_CK_SE_High
  - Vinse_CK_SE_Low
  - SRIseR_CKSE
  - SRIseF_CKSE
- Added support for new Timing Tests
  - Write Cloc=k signal [WCK (Diff)]
    - tERR(2per) Write Clock Cumulative error across 2 cycles
    - tERR(3per) Write Clock Cumulative error across 3 cycles
    - tERR(4per) Write Clock Cumulative error across 4 cycles
  - Write Clock signal [WCK (SE)]
    - tWCKHL
    - tWCKH
    - tWCKL
  - Clock signal [CK (SE)]
    - tCKHL
    - tCKH
    - tCKL
- Added configuration option to display WCK eye diagram for tWCKDQI and tWCKDQO tests. This option is only available in debug mode.
- Added support for RDQS Postamble Mode.
- Added more options for RDQS Preamble/Postamble Length.

Defect Fixes

- Fixed issue where the OK and Cancel buttons of General Setup window are not accessible when using remote controlling tool such as UltraVNC with low screen resolution.

Known Defects/Missing Features

- Intermittent waveform scaling issue. Re-run the test as workaround.
- VIHdiff_WCK and VILdiff_WCK produce incorrect results if Measurement Threshold VREFdiff_WCK in Threshold Setup window is set to a value other than 0 V.

- Marker location on reported screenshot might be slightly offset in resolution for certain Infiniium versions. Upgrade to latest Infiniium as workaround.

- Vinse_CK_SE, Vinse_CK_SE_High, Vinse_CK_SE_Low, SRIseR_CKSE, SRIseF_CKSE and tCKHL have valid pass limits, where these tests should be reported Information only tests for a CK frequency other than 400MHz.

- In Offline Test Mode, closing the Signal Source Setup window with the (X) button will still have the waveform loaded and used for measurement even though the selected waveform file path is not being shown in the GUI. Press on "OK" button instead of (X) button.

Modifications

- Fixed issue regarding the WFM file loading failure observed when using new WFM format from the Infiniium baseline version 10.20 and above.

- Remote configuration name for Number of Clock Measurements is changed from "NumClockMeas" to "MinNumClockMeas".

- Relocated VrefCA control from the Measurement Threshold CA tab in Threshold Setup window to General tab. VrefCA is visible when either CS or CA signal is present in the signal source selection.

- Relocated VrefDQ control from the Measurement Threshold DQ tab in Threshold Setup window to General tab. VrefDQ is visible when either DQ or single-ended WCK signal is present in the signal source selection.

Keysight D9050LDDC Software Version 01.00.0.0

Release Date:	September 06, 2019
Requirements Category (e.g., operating system):	Microsoft Windows 7
Requirements Category (e.g., instrument software version):	06.40.01001 (9000 Series, 90000 Series, 90000 X–Series, 90000 Q-Series, V-Series, Z-Series) 10.11.04711 (UXR–Series)
File Name:	SetupInfLPDDR501000000.exe
License:	Please see the product data sheet on Keysight.com

Initial Release

- Initial release of software version 01.00.0000.

Known Defects/Missing Features

- The error 'Index out of range' will appear if the measurement thresholds or data rate entered does not match the connected input signals. The affected tests are tRPRE, tRPST, tDQSQ, tQSH, tQSL. Once the data rate and thresholds are set correctly, the error will not appear.

- The 'Connect' tab may not reappear when switching between 'Live Signal' and 'Offline' test mode under certain condition.

- Intermittent crash when changing the 'Signal Source' option in the General Setup window.

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