

D9050DDRC DDR5 Test Application Software

Keysight D9050DDRC Software Version 01.91.0.0

Release Date:	April 2024
Operating System:	Microsoft Windows 10
Infiniium Software Version:	11.52.00301 (UXR Series and UXR-B Series) 06.74.01101 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, and V-Series)
File Name:	SetupD9050DDRC_DDR5_Test_1.91.0.0.exe
Licenses:	Please see the product data sheet on Keysight.com .

New Feature / Addition

- Added Vertical Scaling Mode configuration for Jitter tests.

Modifications / Changes

- For Clock, DQS, and DQ jitter tests, changed default value of “BER Level” to “1E-16”.
- For Clock, DQS, and DQ jitter tests, changed default value of “RJ Method” to “Report Tail Fit”.
- For DFE configuration options, in case of missing Equalization license, “Auto” and “Manual” will be hidden.

Issues Fixed

- Fixed the issue wherein tWPRE_4 test was unexpectedly missing when “Expected Burst Data” was set to “WriteOnly”.
- Fixed an issue related to Write Eye Diagram tests, wherein the eye was not folding correctly in DFE mode due to non-utilization of the Explicit Clock in Clock Recovery.
- Fixed issue where wrong burst type was being folded in Write Eye Diagram test.
- Fixed Stressed Eye Tests’ abort issue when “SESTest_RN_Report” config was set to “Report Spectral”.
- Fixed Stressed Eye Tests’ abort issue when DFE was enabled with “RemoveScopeRJ” configuration set to “Auto”.
- Fixed Stressed Eye Tests’ abort issue when “InfiniiSim” was enabled.

Known Issues

- Some jitter tests with “User Defined Display Vertical Scale/Offset” along with “InfiniiSim” enabled may not run successfully. This only involves jitter tests that perform on pair of Single-Ended signals, such as CK_t signal & CK_c signal.

Keysight D9050DDRC Software Version 01.90.0.0

Release Date:	November 2023
Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 10 11.51.00302 (UXR Series, UXR-B Series), 6.74.00701 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series),
File Name:	SetupD9050DDRC_DDR5_Test_1.90.0.0.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Added Vertical Scaling Mode configuration for the Clock Jitter test.
- Added the following new tests:
 - TestID 14090 (Write Eye Diagram)
 - TestID 12050 (Eye Diagram for CA)

Bug Fixes

- Resolved CA4+Burst Latency Burst Identification Method, which regards inconclusive Read/Write bursts as valid Read/Write bursts.
- Correction on EZJIT clock reference settings on Infiniium software for each test of Stressed Eye tests.

Modifications

- Modified threshold settings for tCK tests into hysteresis instead of “10%, 50%, 90% ratio of top, base”.
- For SRQdiffR, SRQdiffF, SRIdiffR_DQS, and SRIdiffF_DQS tests, updated VOHdiff/VOLdiff/VIHdiff/VILdiff level for Slew rate reference to refer to the average of 25/75% voltage level according to the JESD209-5C specification.
- Most Read/Write burst tests now will process all bursts instead of one burst, except pre-amble/post-amble tests.

Known Issues

- For SRQseR and SRQseR tests, VOH/VOL level for Slew rate reference does not refer to the average of 25/75% voltage level according to the JESD209-5C specification.
- tWPRE test is missing when the Write Preamble Mode is DDR5_4tCK and the Burst Identification Method is "Rd or Wrt ONLY".
- tCIPW test may intermittently report an extra waveform grid in result screenshot.
- While running the tDQS2DQ test under "Disable Infiniium user interface during run (decreases runtime)", this test will report a screenshot where the DQS signal is not folded perfectly, despite the correct result.

Workaround: Please uncheck "Disable Infiniium user interface during run (decreases runtime)".

Keysight D9050DDRC Software Version 01.80.6.0

Release Date:	June 2023
Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 7, Microsoft Windows 10 11.50.00401 (UXR Series, UXR-B Series), 6.73.00102 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series),
File Name:	SetupD9050DDRC_DDR5_Test_1.80.6.0.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Support UXR-B Series oscilloscope.

Bug Fixes

- Resolved the port issue using the Advanced Design System (ADS).

Keysight D9050DDRC Software Version 01.80.5.0

Release Date:	April 2023
Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 7, Microsoft Windows 10 11.50.00102 (UXR Series), 6.73.00102 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series),
File Name:	SetupD9050DDRC_DDR5_Test_1.80.5.0.exe
Licenses:	Please see the product data sheet on Keysight.com.

Modification

- Update Keysight License Manager 5.

Keysight D9050DDRC Software Version 01.80.3.0

Release Date:	December 2022
Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 7, Microsoft Windows 10 11.30.00601 (UXR Series), 6.73.00102 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series),
File Name:	SetupD9050DDRC_DDR5_Test_1.80.3.0.exe
Licenses:	Please see the product data sheet on Keysight.com.

Bug Fixes

- Resolved the issue of unexpected test run abort when performing the Stressed Eye tests using the Advanced Design System (ADS).
- Resolved the issue where the scope timeout used when running the Stressed Eye tests are not consistent.

Known Defects

- The “Auto” option for the RemoveScopeRJ_Mode feature may not work correctly when running the Stressed Eye tests with the scope sampling rate option set to “MAX”.
Workaround for this issue is to configure the scope sampling rate option to use the maximum supported value applicable when the adjacent channels of the scope are enabled.

Keysight D9050DDRC Software Version 01.80.0.0

Release Date:	September 2022
Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 7, Microsoft Windows 10 11.30.00502 (UXR Series), 6.71.00001 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series),
File Name:	SetupInfDDR501800000.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Updated test references according to JESD79-5B specification.
- Added new tests.
 - TestID 10100 [SRIdiffR_CK]
 - TestID 10105 [SRIdiffF_CK]
 - TestID 19100 [Vix_DQS_ratio]
 - TestID 14060 [tDQSH_pre]
 - TestID 14070 [tDQSL_pre]
 - TestID 14081 [tDQSL2PRE]
 - TestID 14082 [tDQSL3PRE]
 - TestID 14083 [tDQSL4PRE]
 - TestID 14031 [tWPRE2]
 - TestID 14032 [tWPRE3]
 - TestID 14033 [tWPRE4]
 - TestID 14041 [tWPST_0_5]
 - TestID 14042 [tWPST_1_5]
- Enabled Stressed Eye tests in Offline test mode.

Modifications

- Updated the default value of the JitterTest_BER_Level and SESTest_BER_Level config to "1E-9".
- Updated the Vix_CK_ratio test (TestID 11100) to use the VRMS approach when performing the measurement.
- tWPST (14030) and tWPST (14040) tests are removed to be consistent with the JESD79-5B specification.
- Updated the availability of the tDQS2DQ test based on the Test Mode config option.
- Enhanced the preamble and postamble detection for the Read and Write burst data processing.
- Updated the default automation scripts used in the DUT Automation feature.

Bug Fixes

- Resolved the issue of unexpected test run abort when performing the Stressed Eye tests.
- Resolved the issue of incorrect test result reporting for the Jitter tests and Stressed Eye tests when the auto scope jitter removal feature is enabled.
- Resolved the issue where the tRPST test is not able to correctly identify the postamble region when the Read Postamble mode is set to 1.5tCK.

Known Defects

- The "Auto" option for the RemoveScopeRJ_Mode feature may not work correctly when running the Stressed Eye tests with the scope sampling rate option set to "MAX".

Workaround for this issue is to configure the scope sampling rate option to use the maximum supported value applicable when the adjacent channels of the scope are enabled.

Keysight D9050DDRC Software Version 01.70.0.0

Release Date:	Dec 2021
Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 7, Microsoft Windows 10 11.20.00101 (UXR Series), 6.70.00101 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series),
File Name:	SetupInfDDR501700000.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Added support for the “DIMM Rank” option when using the DUT automation feature.
- Added the “MultiStep” option of the Auto-DCA algorithm under the “DCA auto-optimization type” section.
- Added a configuration option (Debug only) for specifying a user-defined path for all the DUT Automation control scripts.
- Added an option for setting the method to determine the VrefDQ measurement threshold used in the DQ Jitter tests and Stressed Eye tests.
- Added the DUT Automation feature support for DQS and DQ Duty_UI tests.

Modifications

- Updated the CDR setup procedures for all the tests that use the Infiniium clock recovery feature to ensure that the CDR setting is applied to the expected source data.
- Added new test reporting items to report the DFE Tap values when running the Stressed Eye tests.
- Disabled the InifiniiSim Graph during test run when the InifiniiSim feature is enabled for better test time optimization.

Bug Fixes

- Resolved a project loading issue in which the app would prompt a warning about being unable to restore some configuration variables when the saved project contained some Clock Jitter test results.
- Resolved an issue with incorrect placement of the measurement marker during a test run.
- Resolved an issue in which the "ContData_VrefDQ_ThresMode = Auto" mode is not being applied when performing the DQ Auto-DCA optimization.
- Resolved an issue in which the “DataPattern” setting value under the DQ Signal operation mode option is not being persisted when loading from a saved project file.

- Correction of test limit values for the following tests:
 - o All the Eye Width tests under the Stressed Eye tests group
 - o tCIVW Margin
 - o vCIVW Margin
 - o CA VIHL(ac)
- Resolved the issue of using incorrect DUT Automation setting (DCA Step for DQ) during a test run when the DCA Mode is set to "Manual" for the DQ signal.
- Resolved an issue of setting incorrect VrefDQ_threshold for the equalized data when the DFE mode is enabled while running the Stressed Eye tests.

Known Defects

- The tRPST test is not able to correctly identify the postamble region when the Read Postamble mode is set to 1.5tCK.
- The "Auto" option for the RemoveScopeRJ_Mode feature may not work correctly when running the Stressed Eye tests with the scope sampling rate option set to "MAX". A workaround for this issue is to configure the scope sampling rate option to use the maximum supported value applicable when the adjacent channels of the scope are enabled.

Keysight D9050DDRC Software Version 01.60.0.0

Release Date:	July 2021
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Requirements Category (e.g., operating system, Infiniium Software Version)	Microsoft Windows 7, Microsoft Windows 10 10.25.00902 (UXR Series), 6.60.00403 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, Z-Series, S-Series, V-Series)
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File Name:	SetupInfDDR501600000.exe
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Licenses:	Please see the product data sheet on Keysight.com.
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New Features

- Added DUT Automation and DCA(Duty Cycle Adjuster) feature. These feature are for evaluation purpose only.
- Added DFE mode feature for Stressed Eye tests group.
- Added new test: tDQS2DQ[Test ID: 14050]
- Added DQ delay offset mechanism for Write Burst tests group.
- Updated test references according to JESD79-5 specification.

Modifications

- Test Name change for Test ID 13000: SRIdiffR to SRIdiffR_DQS
- Test Name change for Test ID 13005: SRIdiffF to SRIdiffF_DQS
- tDQSS test is removed as this test is not testable based on the definition in the JESD79-5 specification.

Bug Fixes

- Correction of report item labels of slew rate transition time for SRQseR(Test ID:13540) and SRQseF(Test ID:13545).
- Correction of test limit value of tCK_1UI_Dj_NoBUJ test (Test ID:15401).
- Resolved a test abortion issue in Jitter test group. This issue would be seen when running in offline mode with the configuration of JitterTest_UIWidthCheck set to "On".
- Resolved an issue in the "CA4+Burst Latency" feature of the Burst Triggering Method, because of which a burst could not be detected.
- Resolved an issue because of which Auto Scope RJ calibration mode would not work properly if the InfiniiSim feature was enabled.
- Resolved the performance issue of Clock Jitter tests on UXR oscilloscopes, which would result in very long completion times for the measurements.

- Resolved wrong result unit issue of tDQSCK test, which reported the value in seconds. It has now been corrected to the tCK unit.

Known Defects

- DFE Auto Tap Optimization feature does not work correctly in UXR-series oscilloscope.

Keysight D9050DDRC Software Version 01.50.0001

Release Date:	Jul 2020
Requirements Category (e.g., operating system)	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., minimum 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:	SetupInfDDR501500001.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Support KSF-IPC 3.0 and cdm-protobuf 3.1 communication protocol for configuring and running tests using the Advanced Design System (ADS).

Keysight D9050DDRC Software Version 01.50.0000

Release Date:	Jun 2020
Requirements Category (e.g., operating system)	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., minimum instrument software Version)	06.55.00504 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series), 10.20.00503 (UXR-Series)
File Name:	SetupInfDDR501500000.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Support for configuring and running tests using the Advanced Design System (ADS).
- Added new UI width checking feature that is applicable to all the Jitter tests.
- Added the "Auto" option in the scope jitter removal feature that is applicable to all Jitter tests and relevant Stressed Eye tests (Eye Width tests).

Modifications

- The test name of TestID 15000 has been changed from "fCK" to "tCK".

Bug Fixes

- Fixed issue where the following tests considered an incorrect worst case value as the final test result.
 - o VILdiff.CK(AC)
 - o VILdiff.CK(DC)
- Fixed issue where WFM file loading failed when using the new WFM format in Infiniium baseline version 10.20 and above.
- Fixed issue where the remote access for the "optSignalSrcOpMode_DQ" configuration is not available.
- Fixed issue where single-ended clock tests are not reporting the correct measurement results when performing multi trial testing in a single test run.

Known Defects/Missing Features

- For certain versions of the Infiniium Baseline (such as v6.50.01004), the marker location, displayed on the reported screenshot, may be slightly offset in resolution by a few pixels.
- The report parameter labels for the rise/fall time measured in the SRQse tests are incorrect.

Keysight D9050DDRC Software Version 01.10.0001

Release Date:	Jun 2019
Requirements Category (e.g., operating system)	Microsoft Windows 7, Microsoft Windows 10
Requirements Category (e.g., minimum instrument software Version)	06.40.00714 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series), 10.10.04514 (UXR-Series)
File Name:	SetupInfDDR501100001.exe
Licenses:	Please see the product data sheet on Keysight.com.

New Features

- Supports PPKS license model. Product name changed from “N6475A DDR5” to “D9050DDRC DDR5”.

Modifications

- Added support for DQ Stressed Eye tests.
- Added support for Scope RJ removal feature when running Jitter and Stressed Eye tests.
- Added support for multi-acquisition feature when running Jitter and Stressed Eye tests.
- Added the new configurations for Jitter and Stressed Eye tests to support the RJ/RN Report options when the RJ/RN method is set to "Spectral & Tail Fit".
- Updated the signal thresholds used in the Jitter tests, for the CK_diff and DQS_diff will be using 0V reference with hysteresis and for DQ will be referring to the VrefDQ config.
- Updated the DQ NUI Jitter tests to have similar implementation as the DQS NUI Jitter tests where it will only process the DQ signal only.
- Added new DQ Signal Operation Mode option under the DDR5 General Setup window to filter tests based on "DataPattern" or "Continuous1010" mode.
- Removed the "JitterTest_DQS2DQ_Skew_Off" config as it is no longer applicable for any tests.
- Added the new test IDs to cater for individual Clock NUI Jitter tests (1UI to 30UI).
 - o Test ID range for tCK_xUI_Rj_NoBUJ is from 15301 to 15330.
 - o Test ID range for tCK_xUI_Dj_NoBUJ is from 15401 to 15430.
 - o Test ID range for tCK_xUI_Tj_NoBUJ is from 15501 to 15530.The previous Clock NUI Jitter tests are removed and replaced by the above-mentioned new tests.
- Added the new test IDs to cater for individual DQSNUI Jitter tests (1UI to 4UI) and DQ NUI Jitter tests (1UI to 4UI).
 - o Test ID range for tTX_DQS_xUI_Rj_NoBUJ is from 16301 to 16304.
 - o Test ID range for tTx_DQS_xUI_Dj_NoBUJ is from 16401 to 16404.

The previous DQS NUI Jitter tests and DQ NUI Jitter tests are removed and replaced by the above-mentioned new tests.

- Added the feature to support single-ended CK or DQS input signal when running the Jitter tests and Stressed Eye tests.
- Added new VIHdiff_DQS and VILdiff_DQS configuration under the Threshold Setup window.
- Changed configName for VOHdiff_DQS from “VOHdiff_ac” to “VOHdiff_ac_DQS”.
- Changed configName for VOLdiff_DQS from “VOLdiff_ac” to “VOHdiff_ac_DQS”.

Bug Fixes

- Fixed issue where the option to configure InfiniiSim thresholds is available even though the feature is disabled after starting a new project file.
- Fixed test run issues when InfiniiSim feature is enabled.
- Fixed test reporting issue for tCIVW/vCIVW test where the “Maskless screenshot” reported is incorrect when running in a UXR scope.

Known Defects/Missing Features

- Does NOT support backward compatibility due to change of test IDs. User will 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...].
- No message will be prompted when user selected “Tools-> Infiniium -> InfiniiSim...” or “Tools-> Infiniium -> PrecisionProbe/PrecisionCable...” feature without installing the required license.
- Remote access for the “optSignalSrcOpMode_DQ” configuration is not available.

Keysight N6475A Software Version 01.00.0000

Release Date:	08 Feb 2019
Requirements Category (e.g., operating system)	Microsoft Windows 7
Requirements Category (e.g., minimum instrument software Version)	06.30.00701 (9000 Series, 90000 Series, 90000 X-Series, 90000 Q-Series, V-Series, Z-Series), 10.00.04101 (UXR-Series)
File Name:	SetupInfDDR501000000.exe
Licenses:	Please see the product data sheet on Keysight.com.

Initial Release

Known Defects/Missing Features

- Some user configurations inputs from the Setup Tab windows may not properly get registered in the application when new custom values are being entered for the first time. A workaround fix for such scenario will be to reopen the Setup Tab windows that contain the corresponding user configurations before running the selected tests.
- The DDR tests may not work properly when the probe external scaling feature is used in the UXR-Series scope. This is due to a known issue in the scope where the signal conditioning of an input channel is not working under certain probe external scaling settings.