

# D9030DDRC DDR3 and LPDDR3 Compliance Test Application Software

The Keysight Technologies, Inc. DDR3 and LPDDR3 compliance test application provides a fast and easy way to test, debug and characterize your DDR3 and LPDDR3 designs. The tests performed by the D9030DDRC software are based on the JEDEC DDR3 and LPDDR3 Specification. In addition, the application features Custom mode, which covers crucial measurements such as eye-diagram, mask testing, ringing and other tests that are not covered in the specifications but are critical for characterizing DDR3 and LPDDR3 devices. The test application offers a user-friendly setup wizard and a comprehensive report that includes margin analysis.



## Features

- Setup wizard for quick setup, configuration and test selection.
- Execution speed and proven test algorithm which minimizes test time.
- User-select tests and configuration based on the JEDEC DDR3 and LPDDR3 specification.
- Option to use phase difference or mixed signal oscilloscope read-write command trigger allowing for robust read and write data separation.
- Read and write cycle separation in real time mode for powerful debug and analysis.
- Ability to analyze the loading effect of adjacent rank of the same memory channel.
- DDR debug tool for navigation to areas of interest in a saved waveform with pre and post compliance testing capability.
- Test framework that reports multi trial results with full array of statistics for each measurement with worst case measurement result.

## Comprehensive Test Coverage

The DDR3 and LPDDR3 compliance test application automatically configures the oscilloscope for each test and provides information test results which includes margin and statistical analysis. The tests coverage includes electrical, timing and eye diagram tests as stated in the JEDEC specification. The signal is optimized for most accurate test result and measurement repeatability. If you discover a problem with your device, the Custom mode feature and debug tool are available to aid in root-cause analysis.

## Easy Test Definition

The test application enhances the usability of Keysight Infiniium oscilloscopes for testing DDR3 and LPDDR3 devices. The Keysight automated test framework guides you quickly through the steps required to define the setup, perform the tests and view the test results. You have the option to use the conventional DQS-DQ phase difference or MSOV logic triggering (used only with MSOV series Infiniium oscilloscopes) for read and write data separation. You can select a category of tests or select an individual test. The user interface is designed to minimize unnecessary reconnections, which will help save test time and minimize potential operator error. You can save the tests and configurations as project files and recall them for quick testing and review previous results. You can also run the compliance test with saved waveform files from the oscilloscope or the ADS simulation tool on your PC, freeing the oscilloscope for other data acquisition purposes.

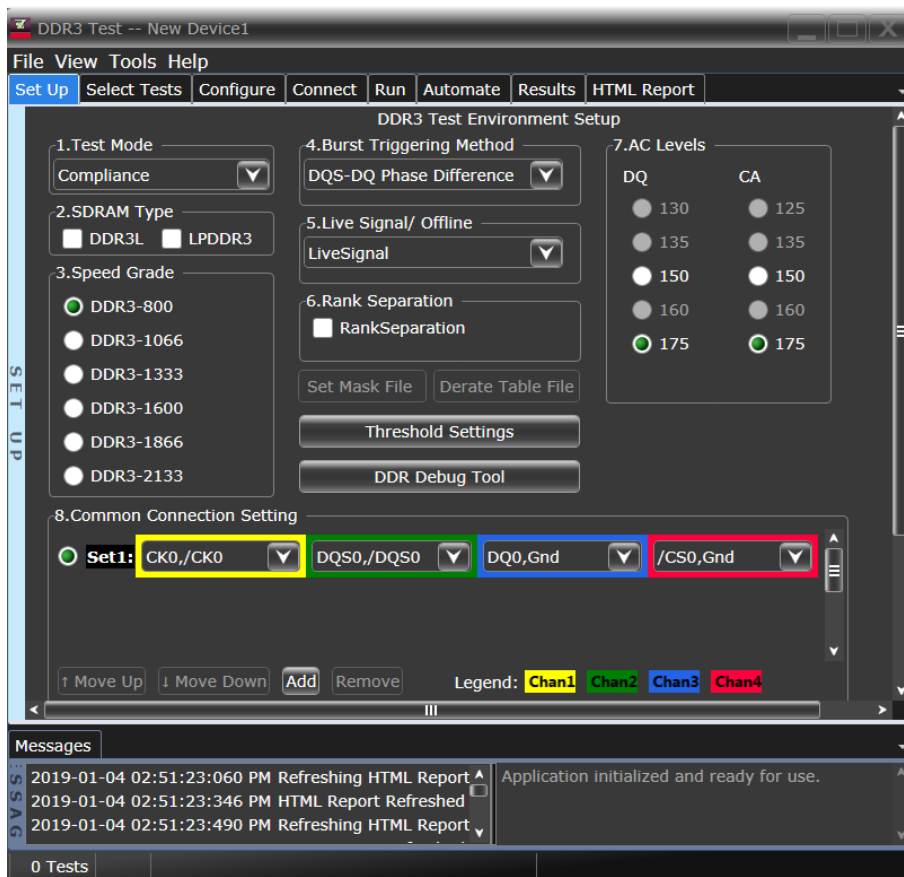


Figure 1: DDR3 and LPDDR3 application test setup screen. Select the speed grade of your device.

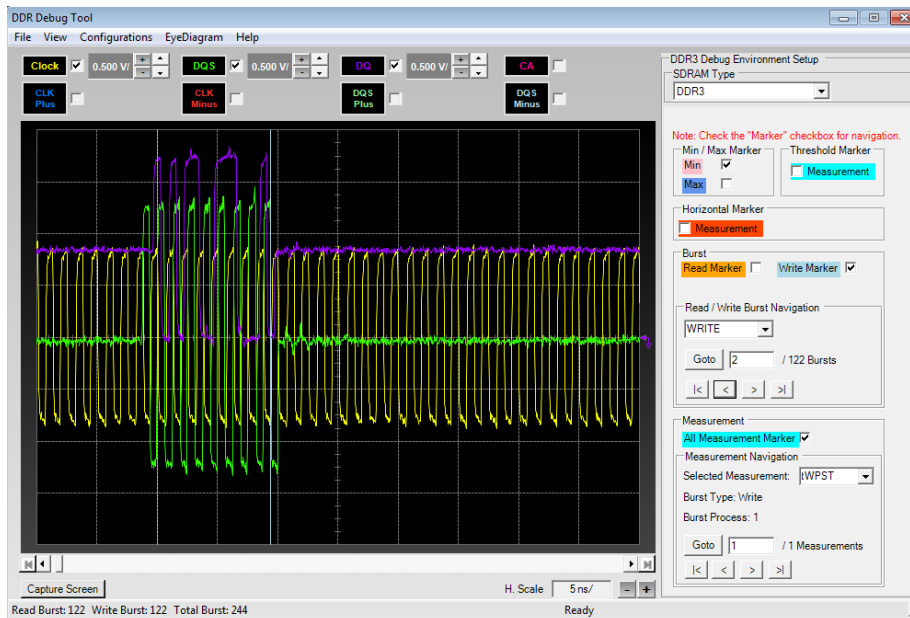


Figure 2: DDR debug tool enables markers to help navigate to bursts of interests with JEDEC measurements and statistical results.

## Configurability and Guided Connection

The DDR3 and LPDDR3 compliance test application provides flexibility in your test setup. The application lets you define controls for critical test parameters such as voltage threshold values, number of waveforms used for analysis and customizable violation settings. Once you have configured the tests, the connection page will display the connection diagram for the test you have selected.

You can also specify the number of test trials and only stop running selected tests when the stop condition is met. The application will save the worst-case test result to help you track down the anomalies in your signals.

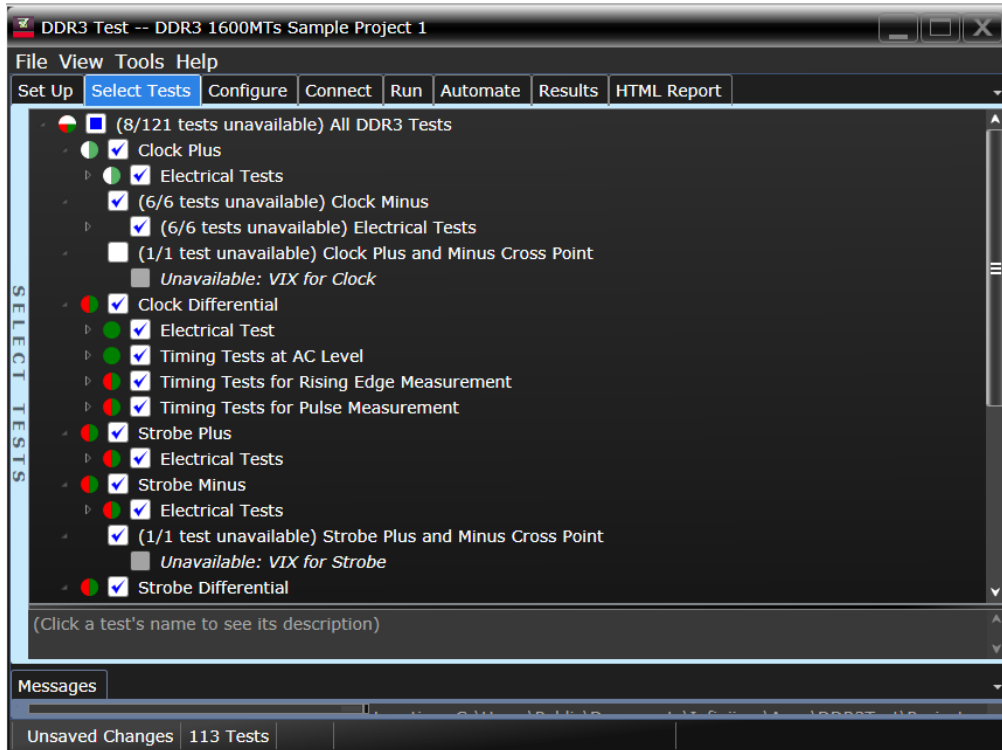


Figure 3: The Select tab list all the tests available in your setup. You can easily setup the individual test or group of tests.

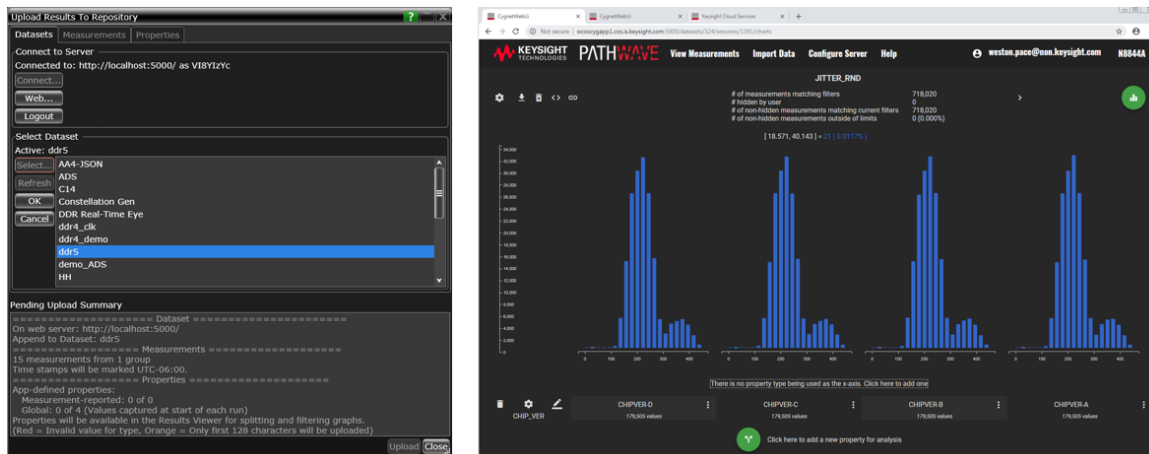


Figure 4. Infiniium Compliance Test Software with Data Analytics extension. The user can export the compliance test result to the repository via a URL address that connects to the server.

## Comprehensive Result Analysis

In addition to providing you with measurement results, the compliance test application reports how close your test results are to the specified test limit. You can specify the level at which warnings are to be issued. You are provided a full array of statistics for each measurement.

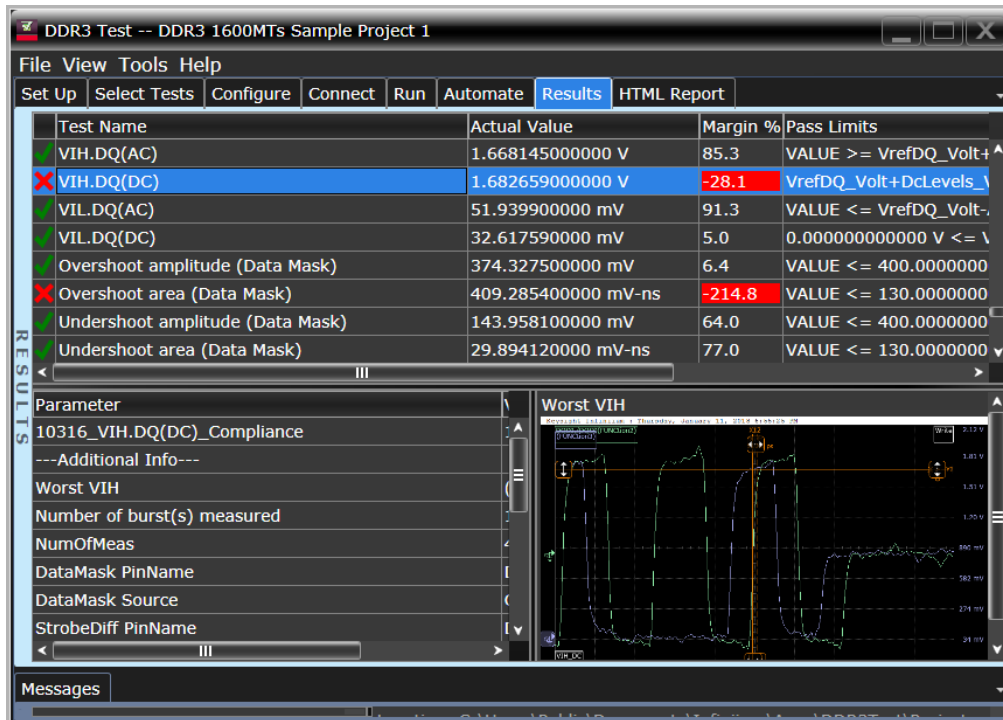


Figure 5: The DDR3 and LPDDR3 test application documents your test parameters, pass or fail status, test limits and measured values and margin.

## Thorough Performance Reporting

The DDR3 and LPDDR3 compliance test application generates HTML reports that captures the performance, status and margins of your device under test. It also captures screenshots of critical measurements of your reference and documentation. This report is suitable for printing and sharing with your test vendors, customers and suppliers.

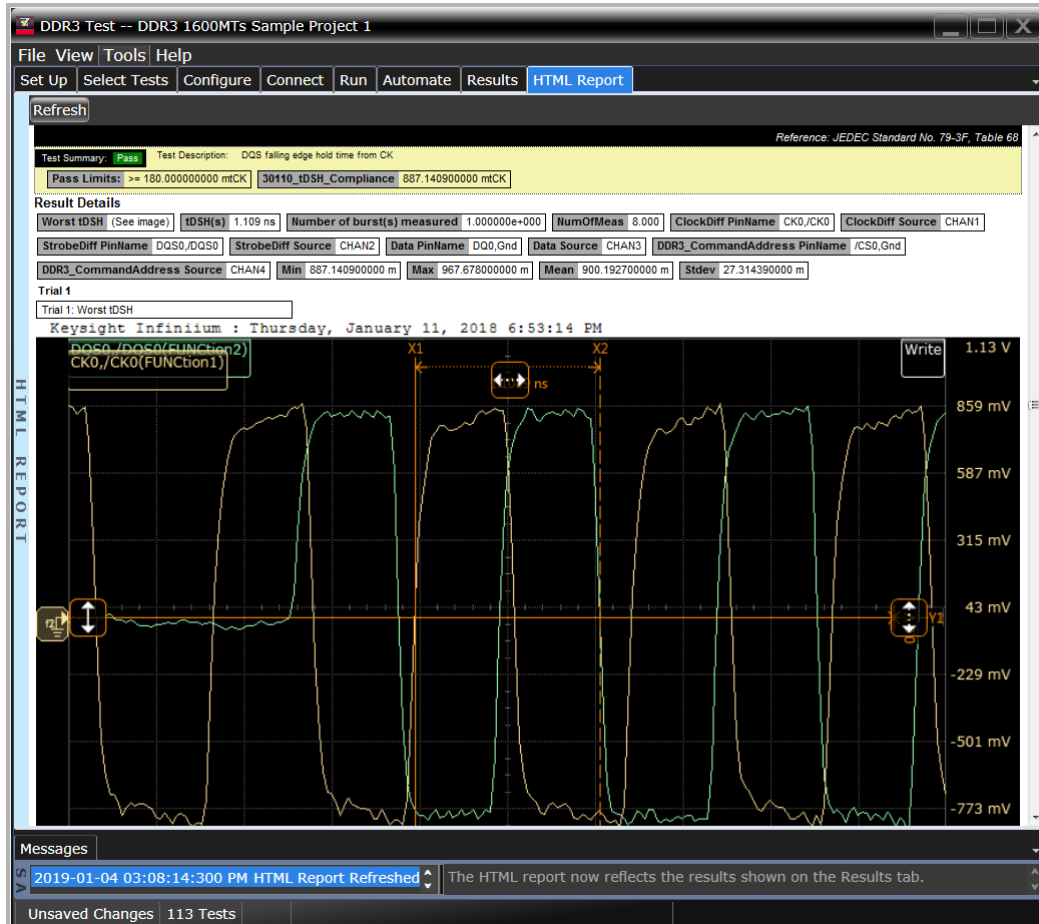
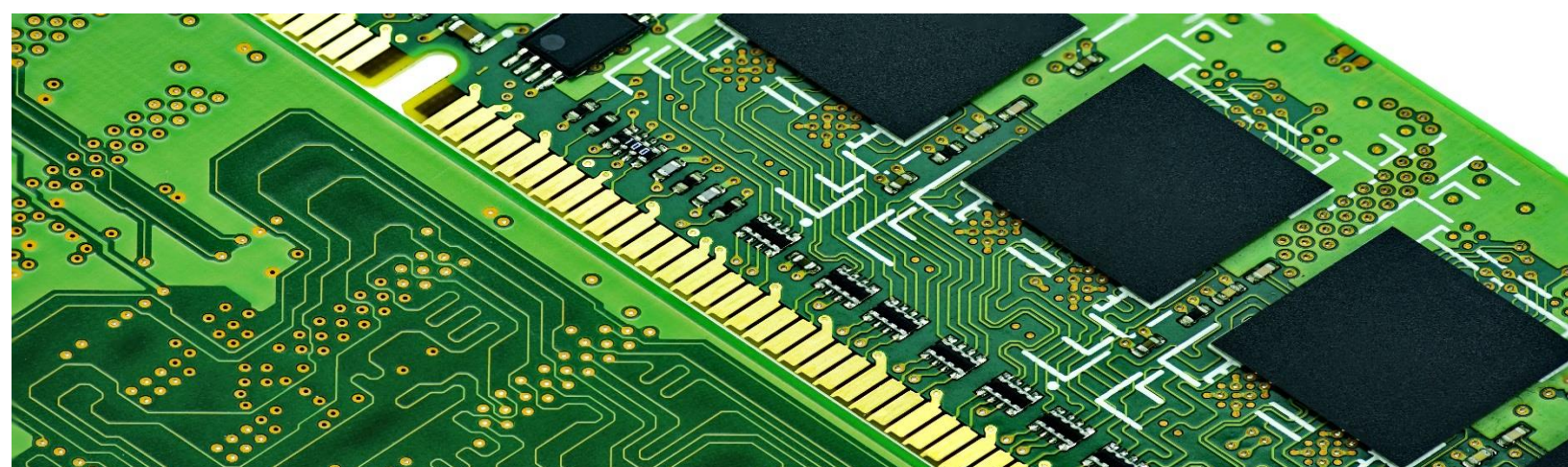


Figure 6: The DDR3 and LPDDR3 compliance test application generates a summary report for quick results viewing. The report includes details such as test limits, test description and test results.



## Recommended oscilloscope

The D9030DDRC DDR3 and LPDDR3 software is compatible with the Infiniium series oscilloscopes with operating software revision of 6.30 or higher.

Data rate	Minimum Bandwidth	Minimum Channels	Description
Up to 2133 MT/s	8 GHz	3	Infiniium 90000A, V-series, Z-series, UXR oscilloscopes

## Ordering Information

Model number	Description	Note
D9030DDRC	DDR3 and LPDDR3 Compliance Test Software	Required
D9020ASIA	Advanced Signal Integrity Software (EQ, InfiniiSim Advanced)	Optional
D9020SCNA	InfiniiScan Event Identification Software	Optional
KS6810A	Data Analytics software (1 license)	Optional

## Example of Hardware Configuration

Model number	Description	Quantity
DSOV804A	8 GHz Infiniium V-series oscilloscope	1
1169B	12 GHz differential InfiniiMax II probe amplifier	Minimum 3
N5381B	InfiniiMax II 12 GHz Differential solder-in probe head	Minimum 3
W2635/6A	DDR3 BGA adapter (kit of 10)	1

## Flexible Software Licensing and KeysightCare Software Support Subscriptions

Keysight offers a variety of flexible licensing options to fit your needs and budget. Choose your license term, license type, and KeysightCare software support subscription.

### License Terms

**Perpetual** – Perpetual licenses can be used indefinitely.

**Time-based** – Time-based licenses can be used through the term of the license only (6, 12, 24, or 36 months).

### License Types

**Node-locked** – License can be used on one specified instrument/computer.

**Transportable** – License can be used on one instrument/computer at a time but may be transferred to another using Keysight Software Manager (internet connection required).

**USB Portable** – License can be used on one instrument/computer at a time but may be transferred to another using a certified USB dongle (available for additional purchase with Keysight part number E8900-D10).

**Floating (single site)** – Networked instruments/computers can access a license from a server one at a time. Multiple licenses can be purchased for concurrent usage.

### KeysightCare Software Support Subscriptions

Perpetual licenses are sold with a 12 (default), 24, 36, or 60-month software support subscription. Support subscriptions can be renewed for a fee after that.

Time-based licenses include a software support subscription through the term of the license.

**KeysightCare Software Support Subscription provides peace of mind amid evolving technologies.**

- Ensure your software is always current with the latest enhancements and measurement standards.
- Gain additional insight into your problems with live access to our team of technical experts.
- Stay on schedule with fast turnaround times and priority escalations when you need support.

### Selecting your license:

- Step 1.** Choose your software product (eg. S1234567A).
- Step 2.** Choose your license term: perpetual or time-based.
- Step 3.** Choose your license type: node-locked, transportable, USB portable, or floating.
- Step 4.** Depending on the license term, choose your support subscription duration.

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