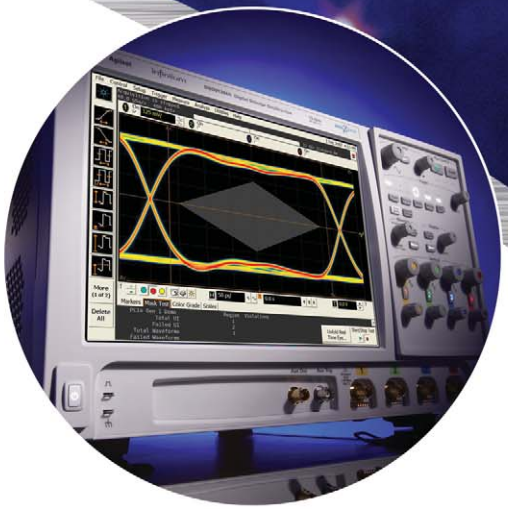
N5413A DDR2 Compliance Test Application for Infiniium Series Oscilloscope

Test, debug and characterize your DDR2 designs easily and quickly



Test, debug and characterize your DDR2 designs quickly and easily

The N5413A DDR2 compliance test application provides a fast and easy way to test, debug and characterize your DDR2 designs. The tests performed by the N5413A software are based on the JEDEC JESD79-2C DDR2 SDRAM Specification and Intel® DDR2 667/800 JEDEC Specification Addendum Rev. 1.1. In addition, the DDR2 test application features Advanced Debug mode, which covers crucial measurements such as eye-diagram, mask testing and ringing that are critical for characterizing DDR2 devices. The test application offers a user-friendly setup wizard and a comprehensive report that includes margin analysis.

Features

The N5413A DDR2 test application offers several features to simplify the validation of DDR2 devices.

- New setup wizard for quick setup, configuration and test
- Enhanced execution speed and proven test algorithm for clock jitter measurement
- User-selectable tests and configurations
- Unique technique for read-write burst signal separation on the same data bus
- Multi-trial feature that provides powerful signal characterization
- Automated electrical and timing analysis

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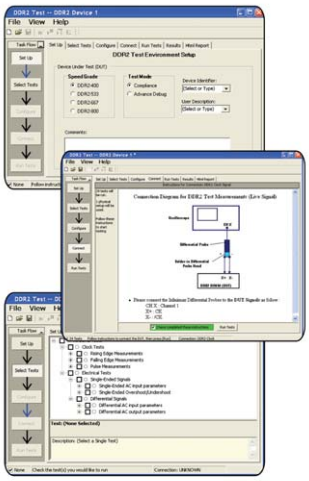
Easy operation reduces test time

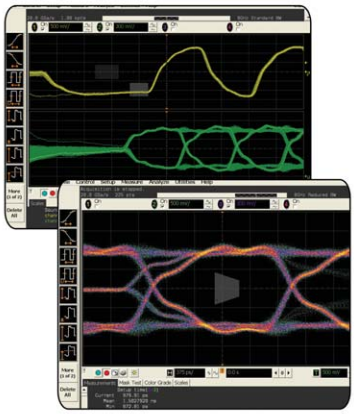
The application new setup wizard extends the ease-of-use of Agilent Infiniium oscilloscope for testing of DDR2 devices. It guides you quickly through the steps required to define the setup, perform the tests and view the test results.



Automated signal analysis

Instead of doing the analysis manually which will limit the characterization, the application offer automated clock jitter, electrical and timing measurements which can run through the night or weekend.

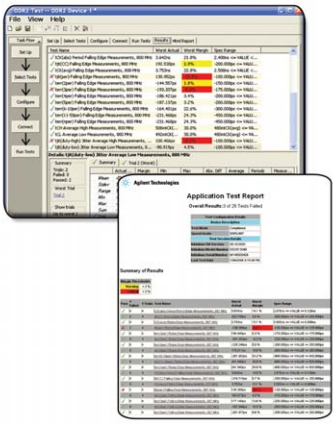
Timing measurement



DDR2 Eye Analysis

Thorough performance reporting

The application generates thorough HTML reports that capture the performance, status and margins of your signal. Details are available for each test including the test limits, test description and results.



Oscilloscope compatibility:

DDR2 data rate	Compatible DSO/DSA oscilloscope	Bandwidth	Sampling rate
Up to 800 MT/s	54853A	3 GHz	20 GSa/s
	54854A	4 GHz	20 GSa/s
	54855A	6 GHz	20 GSa/s
	80204B/90254A	2 GHz/2.5 GHz	20 or 40 GSa/s
	80304B	3 GHz	20 or 40 GSa/s
	80404B/90404A	4 GHz	20 or 40 GSa/s
	80604B/90604A	6 GHz	20 or 40 GSa/s
	80804A/B/90804A	8 GHz	20 or 40 GSa/s
	81004A/B	10 GHz	20 or 40 GSa/s
	81204A/B/91204A	12 GHz	20 or 40 GSa/s
	81304A/B/91304A	13 GHz	20 or 40 GSa/s

Notes:

1. Recommended 4 GHz bandwidth or greater for full characterization.
2. Option 005 noise reduction is recommended for 8-GHz or higher bandwidth oscilloscopes.
3. The JEDEC JESD-79C specification does not specify the rise time and fall time for DDR2 signals. The required oscilloscope bandwidth is also not mentioned. It is advisable for you to determine oscilloscope bandwidth requirement based on the fastest rise time and fall time of the DDR2 signals. Please refer to Table 3.

For DSO80000B Series oscilloscope, you can choose the oscilloscope bandwidth using the calculation below.

Maximum signal frequency content = 0.4/fastest rise or fall time (20 - 80%)
Scope bandwidth required = 1.4x maximum signal frequency for 3% accuracy measurement
Scope bandwidth required = 1.2x maximum signal frequency for 5% accuracy measurement
Scope bandwidth required = 1.0x maximum signal frequency for 10% accuracy measurement

Requirements:

Model number	Description
54850A/80000	Infiniium Series scope with software A.05.20 or higher
N5404A	Deep memory option (Option 001 on new oscilloscope – recommended)
N5413A DDR2	DDR2 compliance test application
116xA/113xA1	InfiniiMax I/II probe amplifier (minimum quantity 1 required)

Intel DDR2 667/800 JEDEC Specifications Addendum Rev 1.1 Clock Tests and JESD79-2C DDR2 SDRAM Electrical and Timing Specifications and Advanced Debug features

Model number	Description
54850/80000/90000	Infiniium Series scope
N5404A	Deep memory option (Option 001 on new oscilloscope – recommended)
N5413A	DDR2 compliance test application
E2688A	High-speed serial data analysis and clock recovery software (Option 003 on new oscilloscope)
N5414A	InfiniiScan event identification software (Option 009 on new oscilloscope)
116xA/113xA1	InfiniiMax I/II probe amplifier (minimum quantity 3 required)

1 Ensure that the probe amplifier meets the bandwidth requirement for your signal measurements. Refer to the "Probe accessories" section on page 10 to configure the probe head to go with your probe amplifier.

For more information:
www.agilent.com/find/N5413A

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