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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.71
Released Date: 23 May 2014
File Name: SetupInfSATA6G01710000.exe
Minimum Infiniium Oscilloscope Baseline Version:
    Window XP : 4.20.0000 (90000 and 90000X)
    Window 7   : 4.60.0005 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80

Additions:

- Support for Serial ATA Interoperability Program Revision 1.5.0 Unified Test Document.
- Support user configurable OOB sequence with/without D10.2 (Device) or ALIGN (Host). Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- Support user configurable ISI Filter Leading Bit and Lagging Bit for Transmit Jitter test. Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- InfiniiSim now includes new Normalize Gain option.

Modifications:

- Fixed the issue of missing SSC profile in PHY-03 Spread-Spectrum Modulation Frequency test and PHY-04 Spread-Spectrum Modulation Deviation test.
- Fixed the issue of TSG-03 Differential Skew test.
- Fixed the issue of signal clipping in TSG-04 AC Common Mode Voltage test.
- Fixed the issue of TSG-13 Gen3 (6Gb/s) Transmitter Jitter used RJ test of invalid total jitter limit.
- Fixed the issue of the progress window appear in the screenshot of the report.
- Fixed the issue of unhandled error when running in MSO oscilloscope.
- Remote Interface updated to version 2.50.
- Fixed Connection tab "Suppress" checkbox.
- When using BitifEye BIT2100 instrument for switch matrix, now requires minimum firmware version: 3.4-1.10.

Note:

- This will be the last version to support Infiniium Oscilloscope Baseline Version 4.20.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

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Agilent N5411B Software Version 1.70
Released Date: 13 December 2013
Minimum Infiniium Oscilloscope Baseline Version:
Window XP : 4.20.0000 (90000 and 90000X)
Window 7   : 4.60.0005 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01700000.exe

Additions:

- Update tests to support UTD 1.5.
- Update and add tests to support u interface.
- Support for BIST mode automation by loading the JBERT sequence file and pattern file.
- Support for pattern checking. Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- Support for user configurable jitter test's CDR setting under debug mode. Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- Support for user configurable low pass filter's bandwidth for OOB signal detector. Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- Support for OOB Gap Detection Windows debug under debug mode. Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- User can now suppress connection prompts from the user interface (see Connect tab).
- If a project opens as Read-Only and there are no settings conflicts with the current version of the app, user may use File > Save Project (Settings-Only) As… menu item to extract the configuration (and no results) from that project.
- If user creates the folder:
  (Win7)   *C:\ProgramData\ Agilent\Infiniium\Apps\<app_name>\app\scripts*
  (WinXP)   *C:\Documents and Settings\All Users\Application Data\Agilent\Infiniium\Apps\<app_name>\app\scripts*
  Then menu item File > Execute Script… becomes visible and enables user to pick a file to execute (e.g a.Python or Visual Basic script). Scripts in this folder may also be executed via the Automation tab or remote interface.
- HTML reports include probe info.

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Modifications:

- Projects saved by previous versions of this application will open in read-only mode.
- Update the test limit for Spread-Spectrum Modulation DFDT to range of +/-1250ppm/us for both minimum and maximum measurement.
- Update the OOB signal sequence for device DUT by adding the D10.2 pattern in the sequence for COMWAKE response.
- Update the SATA CIC embedding by using InfiniiSim.
- Last location when saving/opening/exporting project/ files/etc. will be saved.
- ARSL scripts supports for .txt file extension.
- Last Test Date reported using international format.
- Fixed launch on Win7 for non-admin user.
- Fixed statistics display for items in the Referenced Values section.
- Preserves line breaks for "User Comments" field in HTML Report.
- Includes new Delay option in InfiniiSim.
- New option to control jump behavior when user double-click a test name on the Select Tests tab. See View > Preferences > Report.
- Remote Interface updated to version 2.40.

Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.65
Released Date: 16 July 2013
Minimum Infiniium Oscilloscope Baseline Version: 3.21 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01650000.exe

Additions:

- Support for MSOX Infiniium oscilloscope.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.64
Released Date: 27 July 2012
Minimum Infiniium Oscilloscope Baseline Version: 3.21 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01640000.exe

Additions:

- InfiniiSim feature is now available during the run for all PHY tests and TSG tests. InfiniiSim feature can be access through the main menu (see Tools > Infiniium > InfiniiSim).

Modifications:

- The COMRESET/COMINIT response detection window increased from 10.0us to 20.0us.
- Fixed the issue of slow measurement of OOB-2/3/4/5 OOB signal Burst/Gap Length test using Infiniium 3.50.0001.
- Fixed the issue of wrong judgment for the COMWAKE response (non-continuous ALIGN response from the device DUT).

Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

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Agilent N5411B Software Version 1.63
Released Date: 17 April 2012
Minimum Infiniium Oscilloscope Baseline Version: 3.21 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01630000.exe

Additions:

- Support latest baseline 3.21.
- Additional test added for UTD 1.4.3. Please refer to the Table 1.63.1.
- Project file of SATA application version 1.62 and below is treated as read-only.
- User may disable the use of SATA CIC via "Use SATA CIC" in Configure tab. Please refer to Programmer's Reference for more details (see Help > Remote Interface).
- User may select the frequency window for the TSG-16 Gen3 (6Gb/s) Tx AC Common Mode Voltage measurement via "FFT Frequency Window, Min" and "FFT Frequency Window, Max". Please refer to Programmer's Reference for more details (see Help > Remote Interface).

Modifications:

- Several tests changed to informative test for UTD 1.4.3. Please refer to the Table 1.63.1.
- Change of the TSG-02 Rise/Fall Time test limit for UTD 1.4.3.
- Change of the PHY-01: Unit Interval and PHY-02: Frequency Long-Term Stability default Sample Size from 100,000 to 200,000 UI to covers at least one SSC profile.
- Change of the stimulus differential voltage output to 600mV for Compliance mode of non-OOB test.
- Bandwidth Limit feature for acquisition setup is available for both Compliance and Debug Mode. To access the Bandwidth Limit feature see menu: Tools > Infiniium > Acquisition Setup.
- Fixed ALIGN field detection issue for OOB COMWAKE test.
- Remove the config "Memory Depth" for TSG-16 Gen3 (6Gb/s) Tx AC Common Mode Voltage measurement.

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Before UTD 1.4.3		UTD 1.4.3		Comments
Test Name	**Test ID**	**Test Name**	**Test ID**	
TSG-01[b] : Differential Output Voltage (Max) (Informative)	20121	TSG-01[b] : Differential Output Voltage (Max) (Informative)	20121	Change to Informative Test in all UTD
TSG-02[a] : Rise Time	20211	TSG-02[a] : Rise Time (Informative)	20231	Change to Informative Test in UTD 1.4.3.
	20212		20232	
	20213		20233	
	20214		20234	
TSG-02[a] : Fall Time	20221	TSG-02[a] : Fall Time (Informative)	20241	Change to Informative Test in UTD 1.4.3
	20222		20242	
	20223		20243	
	20224		20244	
TSG-03[a] : Differential Skew, HFTP	20311	TSG-03[a] : Differential Skew, HFTP (Informative)	20331	Change to Informative Test in UTD 1.4.3
	20312		20332	
TSG-13[a] : RJ before CIC, MFTP, Clock To Data, JTF Defined	20311	TSG-13[a] : RJ before CIC, MFTP, Clock To Data, JTF Defined (Informative)	21312	Change to Informative Test in UTD 1.4.3
TSG-13[f] : TJ after CIC, HFTP, Clock To Data, JTF Defined (BER=1E-12)	21511	TSG-13[f] : TJ after CIC, HFTP, Clock To Data, JTF Defined (BER=1E-12) (Informative)	21517	Change to Informative Test in UTD 1.4.3
TSG-13[g] : TJ after CIC, HFTP, Clock To Data, JTF Defined (BER=1E-6)	21513	TSG-13[g] : TJ after CIC, HFTP, Clock To Data, JTF Defined (BER=1E-6) (Informative)	21517	Change to Informative Test in UTD 1.4.3
-	-	TSG-04 : AC Common Mode Voltage, HFTP	20412	New test added in UTD 1.4.3 for 3.0Gb/s
-	-	TSG-04 : AC Common Mode Voltage, MFTP	20423	New test added in UTD 1.4.3 for 6.0Gb/s
-	-	TSG-04 : AC Common Mode Voltage, HFTP	20424	New test added in UTD 1.4.3 for 6.0Gb/s

Table 1.63.1

Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.62
Released Date: 2 February 2012
Minimum Infiniium Oscilloscope Baseline Version: 3.21 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01620000.exe

Additions:

- Support latest baseline 3.21.
- Support for various Unified Test Document version. UTD 1.1, UTD 1.2, UTD 1.3, UTD 1.4, UTD 1.4.1, UTD 1.4.2, UTD 1.4.3. Please refer to each Unified Test Document for tests details.
- Addition Transmit Jitter informative tests for SSOP, MFTP and LFTP test pattern. "Hide Informative Tests" check box to hide all the informative tests.
- User-defined compliance limits feature for user to select, edit and create tests limit. This feature can be access through the main menu (see Tools > Compliance limits).
- Bandwidth Limit feature for acquisition setup set the frequency limit to be used during a run for all PHY tests and TSG tests ONLY (Debug Mode only). To access the Bandwidth Limit feature see menu: Tools > Infiniium > Acquisition Setup.
- Infiniium's Precision Probe and Precision Cable feature configuration setup can be accessed through the main menu (see Tools > Infiniium > PrecisionProbe/PrecisionCable).
- Remote interface help and PDF files can be accessed through the main menu (see Help > Remote Interface).
- New 'Automation' tab enables you to create command scripts that modify settings and execute tests.
- New user preference to set default project location (Menu: View > Preferences > Save/Load : Default Location).

Modifications:

- Change of the test display name according to UTD.
- Change of the Rise/Fall Time test limit based on ECN053 for 6Gb/s Rise/Fall Time max limit from 68ps to 80ps.
- Change of the Spread-Spectrum Modulation DFDT limit from +/- 1200pp to +/-1250ppm.
- Change of the TSG-04 AC Common Mode Voltage measurement bandwidth to 200MHz to 4.5GHz for UTD 1.4.2.

- Change of the TSG-15 Minimum Differential Voltage Amplitude eye height measurement location at 0.50 UI from [0.45UI, 0.55UI].
- Change of the OOB-03 COMINIT/COMRESET and COMWAKE Transmit Burst Length limit to [103.5ns, 110.9ns] from [103.5ns, 109.9ns] for UTD 1.4.1 and above.
- Change of the OOB-05 COMWAKE Transmit Gap Length limit to [102.4ns, 109.9ns] from [103.5ns, 109.9ns] for UTD 1.4.1 and above.
- Fixed issue for the OOB trigger algorithm.
- Fixed issue for the OOB Signal Detection Threshold of file is not found.
- Fixed issue for the 6.0Gb/s Tx Differential Output Voltage (Minimum) error.
- PrecisionProbe dialog screens now have tooltips and remote hints.
- A calibration creation wizard is added to the PrecisionProbe dialog box.
- Now supports Remote Interface version 2.00. For more information, see Agilent's N5452A Remote Programming Toolkit (www.agilent.com/find/scope-apps).
- Fixed app startup under Windows Standard User login.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.61
Released Date: 30 September 2011
Minimum Infiniium Oscilloscope Baseline Version: 3.10 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01610000.exe

Additions:

- Supports Win 7.

Modifications:

- No Modification

Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.60
Released Date: 12 August 2011
Minimum Infiniium Oscilloscope Baseline Version: 3.10 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01600000.exe

Additions:

- Supports latest baseline 3.10.

Modifications:

- Vdiff Test for Gen3i modified for ECN50.
- Remote TestIDs Changes (see Remote User Changes Table below):
    1. TestID Merge: Auto substitution by app, this ensures backward interoperability:
        - 20112, 20113, 20114 -> 20111
        - 20122, 20123, 20124 -> 20121
    2. TestID Split:
        - Original 20115
            - 20115 for Drive Tests only
            - 20116 for Host Tests only
- Fixed Gen3i TX AC Common Mode Voltage Test FFT 3G Conversion Factor to 25Ohm Common Mode Type Termination (FFTdBmV3G = FFTdBm3G + 43.9794), previously incorrectly referenced to 50Ohm Termination
- Fixed Gen1 & 2 Vdiff MAX Test(Informative Test) histogram hits issue. Each section of the test does not complete the required number of acquisition before proceeding to the next section.

Remote User Changes:

Old TestIDs	New TestIDs	Action
20112	20111	Merge to 20111
20113	20111	Merge to 20111
20114	20111	Merge to 20111
20122	20121	Merge to 20121
20123	20121	Merge to 20121
20124	20121	Merge to 20121
20115	20115	Split: For Drive Test
	20116	Split: For Host Test

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

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Agilent N5411B Software Version 1.50
Released Date: 11 Feb 2011
Minimum Infiniium Oscilloscope Baseline Version: 3.03 (90000 and 90000X)
Minimum JBERT-B Firmware Version: 6.80
File Name: SetupInfSATA6G01500000.exe

Additions:

- Supports latest baseline 3.03.
- Supports N4903B J-BERT as stimulus in addition to 81134A Pulse Pattern Generator.
    1. The calibration procedure for J-BERT does not require the use of attenuator. It might not work well if attenuators are added to the connections.
- Adds Jitter measurement 1E-12 and 1E-6 for Gen1,2,3.

Modifications:

- Improved Calibration Routine GUI.
- Improved GUI user model logics. SSC, ASR, BIST Mode Options now grouped under "Capabilities" Group.
- Modified COMWAKE Response tests lower and upper boundary to 153UI and 167UI respectively according to ECN.
- Remote Programming Variable Changes, notably
    1. [OptConnection] now provides 5 options "none", "PPG_IP", "PPG_Sicl", "JBERT_IP", "JBERT_Sicl".
    2. [HostASR] provides "1.0" as checked option, and "0.0" as unchecked option.
    3. [BISTMode] provides "BIST-L" and "BIST-T" options (replaced older config variable [TPSource])
- Connection Diagram now includes JBERT's instruction
- Miscellaneous changes on the OOB tests verification due to accommodate changes in the baseline system.
- Default 81134A and N4903B voltage to 600mV single channel setting on the pattern generator
- Selecting debug mode in configure tab will not uncheck the selected tests in select test tab
- Averaging is now disabled in Gen3i AC Common Mode Test Group
- Host ASR enabled: COMWAKE min & max Response Test: Previously there is an issue of some hosts treating the COMINIT from the stimulus

instrument to be an unsolicited COMINIT sometimes with a certain probability, which results in an initial COMRESET reply from host instead. In this version, the app will now retry 10 times to re-fire the stimulus instrument (81134A or N4903B) to get an initial COMWAKE, whereby from the host's perspective, is supposed to be an in reply to a solicited COMINIT from the stimulus instrument.

Additional Note:

- Please ensure the Infiniium Scope has at least 25Mpts installed for compliance test. The tests could still be run, however the tests may not run correctly.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.30
Released Date: 20 Sep 2010
Minimum Infiniium Oscilloscope Baseline Version: 2.51 (90000) and 2.95(90000X)
File Name: SetupInfSATA6G01300000.exe

Additions:

- Supports White/Pink noise selection for Jitter test.
- Adds Jitter measurement selection at BER 1E12(default) and 1E6(informative).

Modifications:

- Fixed Far End Retimed Connection Diagram loading too slow issue
- Fixed missing Jitter Tests Periodic/Arbitrary selection in configure tab
- Fixed missing MFTP test when Pulsegen Usage = "No" and SSC = "Yes"
- Fixed AC Common Mode Test for Gen3 dbm to dbmV conversion factor to 43.9794. => $FFTdBmV6G = FFTdBm6G + 43.9794$
- Remote Test: Configured a default response for BIST-T/BIST-L dialog during "messagebox suppression"
- Modified Jitter Test Gen3i Criteria, now consists of tests below:
    1. RJ Before CIC
    2. TJ Before CIC HFTP, using RJ
    3. TJ Before CIC LBP, using RJ
    4. TJ after CIC HFTP, using RJ
    5. TJ after CIC LBP, using RJ
    6. TJ 1E12 after CIC HFTP
    7. TJ 1E6 after CIC HFTP
    8. TJ 1E12 after CIC LBP
    9. TJ 1E6 after CIC LBP

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.20
Released Date: 22 January 2010
Minimum Infiniium Oscilloscope Baseline Version: 5.71 (80000B), 2.10 (90000 series)
File Name: SetupInfSATA6G01200000.exe

Additions:

- Supports Baseline 2.10 for 90000 Series
- Adds Jitter measurement selection at BER 1E12(default) and 1E6(informative)
- Jitter test reports additional DCD Jitter value(informative), this value does not affect overall Jitter results calculation.
- Remote Interface Variable Changes:
    1. Added [JitterAtBER]

Miscellaneous Notes:

- This will be the last version to support the 80000 series oscilloscope. Following releases will only support 90000 series oscilloscope.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.11
Released Date: 21 December 2009
Minimum Infiniium Oscilloscope Baseline Version: 5.71 (80000B), 2.01 (90000 series)
File Name: SetupInfSATA6G01110000.exe

Modifications:

- Fixed OOB detection threshold test not able to run if non-debug mode calibration is selected issue.

Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

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Agilent N5411B Software Version 1.10
Released Date: 23 November 2009
Minimum Infiniium Oscilloscope Baseline Version: 5.71 (80000B), 2.01 (90000 series)
File Name: SetupInfSATA6G01100000.exe

Additions:

- Added Loopback mode for Gen3i
- Added Debug capability for OOB Vthresh Test to downsweep from defined voltage level voltage to a threshold level that has 1st encountered rejected response.
- Added Gen3i Minimum TX Differential Voltage
- Support for baseline 5.71 (80000B) and 2.01(90000A)

Modifications:

- Replaced SATA_Gen3i.txt S parameter file for CIC with standardized SATA-IO s4p file.
- Gen3i AC Common Mode Test:
  - Allow peak to peak measurement from -5350ppm to 350ppm at both 3Ghz and 6Ghz
- Jitter Tests:
  - Baseline modified Jitter Algorithm to improve measurement accuracy
  - 90000A scopes increased target memory data length to 2.048Mpts using default arbitrary mode
  - Restructured jitter test configure options with enhanced descriptions
- Thresholds Definitions:
  - Uses Hysteresis centered 0 +/- 10mV for all TSG tests except for rise/fall time related tests.
- Gen3i Maximum TX Differential Voltage
  - Vertical markers measurement boundary redefined to +/- 2UI centered about the trigger.
- Gen3i Minimum TX Differential Voltage
  - Explicitly show out measurement details: Eye Height = (Vtop_mean – 3 Vtop_stddev) – (Vbase_mean – 3 Vbase_stddev).
- Remote Interface Variable Changes:
  - [Jitter_DataLength] moved to debug mode

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- o [Jitter_DataLength] and [Jitter_PatternMode] are only asserted when [OverrideJitterDefault] setting is "ENABLED" in debug mode.
- o Added [DifferentialSkew_RetrialGlitch]
- o Redefinition and addition:
    - [VthreshDebugResponsetoInconsistent]
    - [VthreshDebugResponsetoInconsistentStartVdiff]
    - [VthreshDebugInconsistentToReject]
    - [VthreshDebugInconsistentToRejectStartVdiff]
- OOB testing for Gap/Vthresh Response Verification Testgroup: increased Sampling rate to 10GSa/s to preserve better signal integrity prior to low passed filtering. This will also enhance OOB response detection precision.

Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.02
Released Date: 24 April 2009
Minimum Infiniium Oscilloscope Baseline Version: 5.60 (80000B), 1.40 (90000 series)
File Name: SetupInfSATA6G01020000.exe

Modifications:

- Fixed the conversion error in the AC Common Mode Test where the HTML Compliance report now uses the correct reporting unit of "dbmV" instead of "dbm".
- Modified the Max TX Vdiff test for Gen3i, to use acquisition averaging instead of histogram peak to peak (worst case amplitude).
- Fixed the Jitter Gen3i specification interpretation issue, whereby the "Total Jitter(TJ)" is now extracted directly from the Jitter Results Panel.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.01
Released Date: 16 March 2009
Minimum Infiniium Oscilloscope Baseline Version: 5.60 (80000B), 1.40 (90000 series)
File Name: SetupInfSATA6G01010000.exe

Modifications:

- Fixed the Gen1im and Gen2im Jitter Tests loop bandwidth error.

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Agilent N5411B Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411B Software Version 1.00
Released Date: 9 Feb 2009
Minimum Infiniium Oscilloscope Baseline Version: 5.60 (80000B), 1.40 (90000 series)
File Name: SetupInfSATA6G01000000.exe

Additions:

- Added Gen3i group of tests for BIST-T mode which include:
  - Channel Speed, FBaud & Unit Interval
  - Frequency Long Term Stability
  - TX Differential Voltage Test (Maximum)
  - TX Rise/Fall Time
  - TX Skew
    - HFTP
    - MFTP
  - TX AC Common Mode Voltage
  - TJ & DJ at Connector, Clk-Data
    - RJ before CIC
    - TJ before CIC, HFTP
    - TJ before CIC, LBP
    - TJ after CIC, HFTP
    - TJ after CIC, LBP
- Obsolete the DC Coupled Common Mode Voltage Test.
- Matlab MCR Checking to force Matlab 7.5 only.
- Added OOB Gap/Vthresh % Thresholds for manual adjustment in case the default threshold touches the low passed filter ripples.

Modifications:

- Amend the Vdiff Test:
  - Reporting Statistics Redundancy
  - 0.5 UI to 0.45-0.55 in Gen1
  - LBP waveform inaccurate timebase
- Fixed OOB Low Pass Filter Smearing Issue on 2GSa/s sampling rate limitation by turning off the interpolation.
- Expanded UTD required patterns on the Select Test tab:
  - Test pattern option were removed for these tests
- To prompt message box only once for the same test pattern in the BIST-T mode.

- Changed x Interface Jitter Tests from "at connector" algorithm to "after CIC" algorithm.
- Fixed x Interface Amplitude Imbalance timebase inaccurate problem.
- Changed SSC Tests Sampling Rate from 10GSa/s to 20GSa/s.
- Changed Rise/Fall Time to LFTP Test Pattern with 8UI on screen.
- Added cancel button to abandon the calibration request on the calibration pop up dialog box.
- Changed the Skew reporting variables to non-absolute values ("Tx+ Rising to Tx- Falling" & "Tx+ Falling to Tx- Rising") for debugging purpose, however the final compliance result formula still remains the same as intended by SATA-IO:
  - Diff Skew = average(abs[(mean (TX+ rising)) – (mean(TX- falling))] + abs[(mean(TX+falling)) – (mean(TX- rising))])
- Changed SSC sampling rate for 90000A scopes to 40GSa/s and 80000B scopes to 20GSa/s.
- Limited the SSC maximum memory depth to 10Mpts in 90000A scope to provide safety margin to match the baseline analysis memory limitation.

Known Issues:

- In some very rare cases of OOB Burst and Gap Width measurement, the desired COMINIT and COMWAKE bursts are not easily captured (the probability of capturing is low) by using automation due to OOB response inconsistencies. In such cases, the user should opt for manual testing or retry manually.

Miscellaneous Notes:

- Project files from the old N5411A SATAII application would not be able to be loaded into N5411B SATA6G application. The user should view the old project files in an Internet Browser or by using the previous N5411A application.

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Agilent N5411A Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411A Software Version 2.60
Released Date: 7 Nov 2008
Minimum Infiniium Oscilloscope Baseline Version: 5.50 (80000 series), 1.30 (90000 series)
File Name: SetupInfSATAII0260.exe

Additions:

- Supports the Asynchronous Signal Recovery Host DUT Response in OOB COMRESET/COMINIT/COMWAKE Gap Detection Windows and Vthresh Tests
- Added the Vthresh Debug mode that sweeps from upper boundary Vthresh = 210mV stimulus (expected to give consistent response) to a Vthresh level that gives the first Inconsistent Response from the DUT
- In SATA_App_Remote_Prog_Ref.chm
  - Added Remote Interface variables:
    - VthreshDebugResponsetoInconsistent
    - HostASR
  - Removed Remote Interface variables:
    - DebugAmplitudeImbalance

Modifications:

- Changed the minimum baseline requirements to 5.50 (for 80000 Series) and 1.30 (for 90000 Series)
- Added the SSC Optimization Memory Buffer for the last SSC Acquisition (if required)
- Fixed the Advanced Communication Trigger not found error for the single ended signals which is approximately below 200Vpp during the setup for non-00B tests.
- Added the Burst/Gap/Align tolerance as a workaround to OOB Gap/Vthresh Detection due to the Low Pass Filter smearing issue.
- Split the Spread Spectrum Modulation Deviation into two tests:
  - Spread Spectrum Modulation Deviation (Max)
  - Spread Spectrum Modulation Deviation (Min)
- Split the Amplitude Imbalance test into two tests:
  - TX Amplitude Imbalance HFTP
  - TX Amplitude Imbalance MFTP
- Enhanced the 90000 Scope Calibration Acquisition to 100 Acquisitions Average for every calibration target pair.

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- Fixed the 80000A Series scope calibration dialog box mismatch with the windows resolution of 640X480.
- Fixed the issue of Vthresh Change Connection dialog box hidden behind the SATA application.
- Enhanced the OOB Gap/Vthresh Detection comments field information in the HTML Report
- Changed the Amplitude Imbalance test to Real Time Eye Implementation test to better match SATA-IO measurement definition and for faster execution speed.

Known Issues:

- In some very rare cases of OOB Gap and Vthresh tests, especially 'Responds to in-spec COMWAKE' measurement, it is difficult to determine a valid response by using automation due to the differences in SATA product behavior. In such cases, the tester should opt for manual visual verification. This control is located in the N5411A product's Configure tab, and is called 'OOB Gap and Vthresh Detection mode. Select 'Manual'. This will allow the tester to determine either PASS or FAIL per the specification's requirement and mark the measurement correctly. This is not the default mode.

- In some very rare cases of OOB Burst and Gap Width measurement, the desired COMINIT and COMWAKE bursts are not easily captured (the probability of capturing is low) by using automation due to OOB response inconsistencies. In such cases, the tester should opt for manual testing.

- Supports the 54855 and 80000A Series scopes with limitation for the OOB Gap/Vthresh Detection test due to the older scopes' hardware graphics limitation. It is recommended to use the Agilent 80000B or 90000A Series Infiniium oscilloscopes with 12GHz or greater bandwidth with Agilent N5411A Software version 2.60.

Agilent N5411A Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411A Software Version 2.52
Released Date: 30 May 2008
Minimum Infiniium Oscilloscope Baseline Version: 5.40 (80000 series), 1.20 (90000 series)
File Name: SetupInfSATAll0252.exe

Modifications:

- Fixed the missing calibration information issue for the Vthresh Detection Tests
- Fixed the missing MWArray.dll issue for the Skew Test
- Increased the OOB Trigger level to avoid triggering at power-up glitches when acquiring the COMRESET
- Removed the long/short patterns option in the user configure tab
- Enhanced the AC Common Mode to be more robust in handling high AC Common Mode Spikes
- Modified the RESETDUT Message Box of the Host OOB Tests
- Added filtering to the glitches in the skew measurement at certain parallel edges which results to double UI reporting (e.g. 666ps)
- Increased the number of images that can be reported to the maximum of 25 images
- Fixed the issue of pulse generator SICL address unable to close during certain sequences.
- Increased timeout for the channel speed sample with the size of 500k
- Added retries to the Tx Differential Voltage Test in the event the trigger fails in the BIST-TAS mode
- Fixed the popup consistency of the "Set DUT To OOB Mode" Message Box
- Moved the '#aligns' option from compliance mode to debug mode in the configure tab
- Removed the additional COMRESET options in user configure tab
- Either 2*10dB attenuators or 2*20dB attenuators can now be used in the calibration procedure

Agilent N5411A Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411A Software Version 2.51
Released Date: 29 Feb 2008
Minimum Infiniium Oscilloscope Baseline Version: 5.40 (80000 series), 1.00 (90000 series)
File Name: SetupInfSATAII0251.exe

Modifications:

- Modified from previous implementation of: two 10dBs or four 10dBs attenuator (as illustrated in the calibration diagram) to two 20dBs attenuator for Gen1 Host/Drive OOB Vthresh Rejection Test only. "using attenuators" checkbox is removed.
- Modified the Long Term Frequency Accuracy Test to acquire the maximum SSC cycles in Maximum Memory Available. The algorithm is generic to 80000 and 90000 series scopes.
- Modified the OOB Vthresh Signal Detection Test Calibration procedure to use Vampt measurement on 1 OOB Burst instead of using Vpp measurement to take the corresponding voltages between the scope and pulse generator.
- Modified the Skew Test to Matlab implementation, where Infiniiscan is no longer required. The previous implementation uses the Infiniiscan whenever available.
- Modified the connection diagram display logic to match the new attenuator configuration requirements.
- Fixed the phenomena of inconsistent results issue in skew test.
- Provided workaround on the DUTs that trigger error messages, reporting unfound signal when the histogram is turned on. This occurs on 90000 series scopes only.

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Agilent N5411A Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411A Software Version 2.50
Released Date: 11 Jan 2008
Minimum Infiniium Oscilloscope Baseline Version: 5.40 (80000 series), 1.00 (90000 series)
File Name: SetupInfSATAII0250.exe

Additions:

- General Specifications and Transmitted Signal Requirements:
  - Added periodic mode option for the Jitter Tests in the debug mode.
  - Added Long Term Frequency Stability Test for the Non-SSC Tests
  - Dynamic Test Pattern Generation with alignment to improve the Loopback functionality
  - Implemented Fbaud/500 or JTF Loop Bandwidth selection for the Clock to Data Jitter Test. This selection is only available for i and m interfaces. Removed the Data-Data Jitter Tests.

- Compliance Test Framework and miscellaneous:
  - Supports baseline 5.40(80000 series) and baseline 1.00 (90000 series)
  - Supports the Unified Test Document 1.2 and
    - ECN 006 - FB10removal
    - ECN 008 - fbaud/500 Jitter Parameter Clarification
    - ECN 016 - Long Term Frequency Accuracy and SSC Profile Tests for Transmitters
    - ECN 017 - OOB Burst/Gap Duration Clarification
  - Supports the Remote Interface Control
  - Calibration and attenuators usage options:
    - With attenuators, all tests are available. Calibration factors which are generated by performing the calibration will be required.
    - Without attenuators, the OOB Signal Detection Threshold tests will be hidden.

Modifications:

- OOB Specifications:
  - Amended the UTD1.2: OOB1 Signal Detection Threshold boundary limits at 40mV, 210mV for Gen1, and 60mV, 210mV for Gen2
  - Amended the UTD1.2: OOB6, OOB7:

- Implemented a new algorithm for the COMINIT/COMRESET/COMWAKE Gap Detection Windows tests.
  - Amended the OOB Burst Length Test Information and Specification to comply with UTD1.2

  - Amended OOB Gap Length Test Information and Specification to comply with UTD1.2
  - For Host COMRESET tests, an additional COMINIT is sent to the host after user resets the DUT.

- General Specifications and Transmitted Signal Requirements:
  - Amended the specification range for the TX Differential Skew for Gen2x from 20ps to 15ps.
  - Reduced the SSC Measurement test time by
    - disabling interpolation
    - sampling at 10GSa/s
    - Memory Depth 1.03Mpts
  - Amended the Amplitude Imbalance Test for the HFTP and MFTP patterns' measurement algorithm.
    - For the HFTP, it is required that the measurement points be taken at 0.5UI of the bit within the pattern. All amplitude values for this measurement shall be the mode value measured at 0.5 UI nominal over a minimum of 10,000 UI
    - For the MFTP, it is required that the measurement points be taken at 0.5UI of the 2nd bit within the pattern. All amplitude values for this measurement shall be the mode value measured at 0.5 UI nominal over a minimum of 10,000 UI
  - Enhanced the "Sample Size" Configuration Variable to reflect the approximated sample size values corresponding to the measured edges.
  - Enhanced the Data Rate and Unit Interval Variables in the Unit Interval Test to be able to correlate with each other.
  - Decreased the sampling rate and memory depth for the SSC Tests to reduce the test time and also prevent the waveforms from being discarded due to edges not found during the SSC Frequency Measurement.
  - Amended the Skew Test Algorithm by using the measured mid point value instead of zero value reference to measure the skew. The new algorithm uses Infiniiscan, effectively reject the Aligns whenever the Infiniiscan license exists.
  - Amended the Rise/Fall Time measurement to use the mean value instead of the mode value.
  - Improved the Amplitude Imbalance Test reporting. The test reports both HFTP and MFTP values instead of just the worst case value.

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- Compliance Test Framework and miscellaneous:
  - Improved the overall connectivity experience of the pulse generator dialog box.
  - Added MultiTrials feature.
  - Amended the pattern files to comply with the latest 81134 pulse generator commands.
  - Updated test references to SATA 2.60 Gold.
  - Connection Diagram Updated
    - Differential probe is not needed anymore for OOB Signal Threshold Detection Tests

Agilent N5411A Serial ATA Electrical Performance Validation and Compliance Software Release Notes

Agilent N5411A Software Version 02.01
Released Date: 18 Dec 2006
Minimum Infiniium Oscilloscope Baseline Version: 05.00.00
File Name: SetupInfSATAllTest0201.exe

Additions:

- Selectable SSC Smoothing Point range in the DEBUG mode.
- User can change the 81134A's amplitude in the DEBUG mode.
- Added dynamic vertical scaling for OOB related test when using the Mask for COM Response tests.
- Added signal checking and verification before test run.
- SSC measurement algorithm is enhanced to work with DUTs with heavily distorted SSC waveform. The algorithm is also enhanced to test and measure multiple SSC if no edges are found during the acquisitions.
- Added Trigger Verify for Basic Trigger Integrity checking before the test run.

Modifications:

- Fixed illegal timeout for Gen 2 Host TJ & DJ Measurement.
- Updated Connection pages to include the DC Blockers into the illustration
- Change timing for OOB related tests.
- Added boundary limits to the number of UI during OOB.
- Rise / Fall Imbalance with results swapped for Tx- Rise and Tx- Fall.
- Changed skew measurement technique due to MOI changes.
- Added Amplitude Imbalance Test.
- TJ / DJ measurement will report 0UI if the measured TJ / DJ is in the Femto Second Range.
- Gen1 Jitter Description Data-Data was changed to Clock-Data.
- SSC smoothing point for Gen1 and Gen 2 SSC measurement was updated to 335 and 670 respectively.
- Added break for OOB measurement. The previous implementation was using a cancellation message box which will prompt for 6 times before the test is canceled.
- Connection page changed to include COMAX connector labeling.
- Added checking to allow the usage of Periodic Jitter measurement if the pattern selected is short (80 bits pattern) whereas longer patterns will use Arbitrary.

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- The entire host connection page had descriptions mismatched with the illustration. The descriptions were updated.