Keysight N5412D SAS-3 Electrical Compliance Test Application

KEYSIGHT TECHNOLOGIES

Programmer's Reference

Notices

Manual Part Number

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CAUTION

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In This Book

This book is your guide to programming the Keysight Technologies N5412D SAS-3 Electrical Compliance Test Application.

· **Chapter 1**, "Introduction to Programming," starting on page 7, describes compliance application programming basics.

· **Chapter 2**, "Configuration Variables and Values," starting on page 11, **Chapter 3**, "Test Names and IDs," starting on page 57, and **Chapter 4**, "Instruments," starting on page 67, provide information specific to programming the N5412D SAS-3 Electrical Compliance Test Application.

How to Use This Book   Programmers who are new to compliance application programming should read all of the chapters in order. Programmers who are already familiar with this may review chapters 2, 3, and 4 for changes.

Contents

1 Introduction to Programming

This chapter introduces the basics for remote programming a compliance application. The programming commands provide the means of remote control. Basic operations that you can do remotely with a computer and a compliance app running on an oscilloscope include:

- Launching and closing the application.
- Configuring the options.
- Running tests.
- Getting results.
- Controlling when and were dialogs get displayed
- Saving and loading projects.

You can accomplish other tasks by combining these functions.

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Remote Programming Toolkit

The majority of remote interface features are common across all the Keysight Technologies, Inc. family of compliance applications. Information on those features is provided in the N5452A Compliance Application Remote Programming Toolkit available for download from Keysight here: **"www.keysight.com/find/scope-apps-sw"**. The N5412D SAS-3 Electrical Compliance Test Application uses Remote Interface Revision 3.40. The help files provided with the toolkit indicate which features are supported in this version.

In the toolkit, various documents refer to "application-specific configuration variables, test information, and instrument information". These are provided in Chapters 2, 3, and 4 of this document, and are also available directly from the application's user interface when the remote interface is enabled (View>Preferences::Remote tab::Show remote interface hints). See the toolkit for more information.

Licensing

To enable programming of compliance applications on your oscilloscope, please visit "www.keysight.com/find/scope-apps" to purchase an N5452A remote programming option license.

2 Configuration Variables and Values

The following table contains a description of each of the N5412D SAS-3 Electrical Compliance Test Application options that you may query or set remotely using the appropriate remote interface method. The columns contain this information:

· GUI Location — Describes which graphical user interface tab contains the control used to change the value.

· Label — Describes which graphical user interface control is used to change the value.

· Variable — The name to use with the SetConfig method.

· Values — The values to use with the SetConfig method.

· Description — The purpose or function of the variable.

For example, if the graphical user interface contains this control on the **Set Up** tab:

· Enable Advanced Features

then you would expect to see something like this in the table below:

Table 1   Example Configuration Variables and Values

GUI Location	Label	Variable	Values	Description
Set Up	Enable Advanced Features	EnableAdvanced	True, False	Enables a set of optional features.

and you would set the variable remotely using:

```
ARSL syntax
-----------
arsl -a ipaddress -c "SetConfig 'EnableAdvanced' 'True'"

C# syntax
```

```
---------
remoteAte.SetConfig("EnableAdvanced", "True");
```

Here are the actual configuration variables and values used by this application:

NOTE	Some of the values presented in the table below may not be available in certain configurations. Always perform a "test run" of your remote script using the application's graphical user interface to ensure the combinations of values in your program are valid.

NOTE	The file, ""ConfigInfo.txt"", which may be found in the same directory as this help file, contains all of the information found in the table below in a format suitable for parsing.

Table 2   Configuration Variables and Values

GUI Location	Label	Variable	Values	Description
Confgure	#Aligns Dword in one Align Sequence	NumberOfAlignInAlignSequence	0, 2	The number of Aligns Dwords for one Align sequence to be inserted in every 256 test pattern Dwords during the pattern files generation in loopback mode.
Confgure	Average Count	Averaging_TX_NRZData_VPP	(Accepts user-defined text), 2, 16	Select the average count for acquisition averaging. This config only applicable for TX Peak-to-Peak Voltage, IT test and TX Peak-to-Peak Voltage, ET (with .tf4 file) test.
Confgure	BER Level	BERLevel	E10, E11, E12, E13, E14, E15, E16, E17, E18	Select the BER level used to calculate the total jitter peak-to-peak voltage.
Confgure	Coefficient Request Step Amount	StepAmount_CoeffRequest	(Accepts user-defined text), 5E-3, 20E-3, 50E-3	Select the amount of adjustment represented by one increment or one decrement to the coefficient for TX Coefficient Requests and Circuit Response Requirements tests.
Confgure	Enable Automated QA Testing	AutomatedQATestingEnabled	0, 1	Select to enable or disable automated QA testing.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Fixed RJ(rms) Value	FixedRJValue	(Accepts user-defined text), 200E-15	Choose the fixed RJ(rms) value use in jitter separation. This config only applicable when the [Use Fixed RJ in Jitter Separation] config variable is set to [Yes]. When used, the remaining amount of the total jitter measured is reported as periodic jitter (PJ). Unit: second.
Confgure	ISI Filter Lagging Bit	ISILagBit	0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0	Select the number of trailing bits used to calculate the ISI filter. This config only applicable when the [Jitter Pattern Length] config variable is set to [Arbitrary]. The trailing bits is greater than or equal to 0.
Confgure	ISI Filter Leading Bit	ISILeadBit	0.0, -1.0, -2.0, -3.0, -4.0, -5.0, -6.0, -7.0, -8.0, -9.0, -10.0	Select the number of leading bits used to calculate the ISI filter. This config only applicable when the [Jitter Pattern Length] config variable is set to [Arbitrary]. The leading bits is less than or equal to 0.
Confgure	Interpolation Point	InterpolationPoint	OFF, ON, INT1, INT2, INT4, INT8, INT16	Select the Sin(x)/x interpolation point for the waveform acquisition of all SAS tests, except TX Device End-to-End Simulation Characteristics Requirements tests.
Confgure	Jitter Pattern Length	JitterPLength	ARBitrary, AUTO	Select the type of pattern length used for RjDj measurement. [Periodic] is only for periodic and repetitive patterns and the period length would be detected automatically.
Confgure	LPF Bandwidth	LongTermStability_LPF_BW	(Accepts user-defined text), 3.7E+6, 2.0E+6, 200.0E+3	Select the bandwidth of low pass filter to be applied on the measurement trend for Physical Link Rate Long Term Stability test. Unit: Hz.
Confgure	LPF Bandwidth	SSCDfDt_LPF_BW	1st_3.7E+6, 2nd_2E+6, 2nd_3.7E+6, 4th_200E+3	Select the type of low pass filter to be applied on the measurement trend for SSC DfDt test.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	LPF Bandwidth	SSCModDev_LPF_BW	1st_3.7E+6, 2nd_2E+6, 2nd_3.7E+6, 4th_200E+3	Select the type of low pass filter to be applied on the measurement trend for SSC Modulation Deviation test.
Confgure	LPF Bandwidth	SSCModFreq_LPF_BW	1st_3.7E+6, 2nd_2E+6, 2nd_3.7E+6, 4th_200E+3	Select the type of low pass filter to be applied on the measurement trend for SSC Modulation Frequency test.
Confgure	Max SAS3_EYEOPENING Analysis Number	SAS3EYEOPENINGMaxAnalysisNum	(Accepts user-defined text), 2, 5, 10, 20	Choose the maximum number of analysis waveform for the SAS3_EYEOPENING script.
Confgure	Memory Depth	MemDepth_TX_CoeffPreset	(Accepts user-defined text), 100.0E+3, 140.0E+3, 1.0E+6	Select the memory points use for the waveform acquisition of all TX Coefficient Requests and Circuit Response Requirements tests. Unit: pts.
Confgure	Memory Depth	MemDepth_TX_EndtoEndSimulation	(Accepts user-defined text), 100.0E+3, 140.0E+3, 1.0E+6	Select the memory points use for the waveform acquisition of all TX Device End-to-End Simulation Characteristics Requirements tests. Unit: pts.
Confgure	Memory Depth	MemDepth_TX_NRZData	(Accepts user-defined text), 4.0E+6, 8.0E+6, 10.0E+6	Select the memory points use for the waveform acquisition of all TX NRZ Data Signaling Requirements tests, except TX Rise/Fall Time, TX Jitter tests and TX WDP tests. Unit: pts.
Confgure	Memory Depth	MemDepth_TX_NRZData_Jitter	(Accepts user-defined text), 4.0E+6, 8.0E+6, 10.0E+6	Select the memory points use for the waveform acquisition of all TX Jitter tests. Unit: pts.
Confgure	Memory Depth	MemDepth_TX_NRZData_RiseFallTime	(Accepts user-defined text), 0, 4.0E+6, 8.0E+6, 10.0E+6	Select the memory points use for the waveform acquisition of all TX Rise/Fall Time tests. Unit: pts. For [Auto], the application will set the memory point base on the sampling rate to cover at least 100us.
Confgure	Memory Depth	MemDepth_TX_OOB	(Accepts user-defined text), 100.0E+3, 140.0E+3, 1.0E+6	Select the memory points used for the waveform acquisition of all TX OOB Signaling tests. Unit: pts.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Memory Depth	MemDepth_TX_SSC	(Accepts user-defined text), 4.0E+6, 8.0E+6, 10.0E+6, 16.0E+6	Select the memory points use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 1.5Gbps, 3.0Gbps and 6.0Gbps. Unit: pts.
Confgure	Memory Depth	MemDepth_TX_SSC12G	(Accepts user-defined text), 4.0E+6, 8.0E+6, 10.0E+6, 16.0E+6	Select the memory points use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 12.0Gbps. Unit: pts.
Confgure	Mid FEXT Crosstalk File	MidFEXTXtalkFileDriveNonSeparable	(Accepts user-defined text)	Select the Mid section FEXT crosstalk file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid FEXT Crosstalk File	MidFEXTXtalkFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Xtalk Files\ MidFEXTFileDriveSeparable.csv	Select the Mid section FEXT crosstalk file for drive device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

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Confgure	Mid FEXT Crosstalk File	MidFEXTXtalkFileHostNonSeparable	(Accepts user-defined text)	Select the Mid section FEXT crosstalk file for host device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

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GUI Location	Label	Variable	Values	Description
Confgure	Mid FEXT Crosstalk File	MidFEXTXtalkFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\MidFEXTFileHostSeparable.csv	Select the Mid section FEXT crosstalk file for host device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid NEXT Crosstalk File	MidNEXTXtalkFileDriveNonSeparable	(Accepts user-defined text)	Select the Mid section NEXT crosstalk file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

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GUI Location	Label	Variable	Values	Description
Confgure	Mid NEXT Crosstalk File	MidNEXTXtalkFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Xtalk Files\ MidNEXTFileDriveSeparable.csv	Select the Mid section NEXT crosstalk file for drive device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid NEXT Crosstalk File	MidNEXTXtalkFileHostNonSeparable	(Accepts user-defined text)	Select the Mid section NEXT crosstalk file for host device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid NEXT Crosstalk File	MidNEXTXtalkFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\MidNEXTFileHostSeparable.csv	Select the Mid section NEXT crosstalk file for host device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.
Confgure	Mid Transfer File	MidTransferFileDriveNonSeparable	(Accepts user-defined text)	Select the Mid section transfer function file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid Transfer File	MidTransferFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveD2H_ITs_IR.s4p	Select the Mid section transfer function file for drive device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Mid Transfer File	MidTransferFileHostNonSeparable	(Accepts user-defined text)	Select the Mid section transfer function file for host device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid Transfer File	MidTransferFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveH2D_ITs_IR.s4p	Select the Mid section transfer function file for host device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Mid and Rx Transfer File	MidAndRxTransferFileDriveNonSeparable	(Accepts user-defined text)	Select the Mid and Rx section transfer function file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid and Rx Transfer File	MidAndRxTransferFileDriveSeparable	(Accepts user-defined text)	Select the Mid and Rx section transfer function file for drive device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Mid and Rx Transfer File	MidAndRxTransferFileHostNonSeparable	(Accepts user-defined text)	Select the Mid and Rx section transfer function file for host device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Mid and Rx Transfer File	MidAndRxTransferFileHostS eparable	(Accepts user-defined text)	Select the Mid and Rx section transfer function file for host device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	RJ Bandwidth	RJBandwidth	NARRow, WIDE	Select the type of filter bandwidth used to separate the DDJ from the RJ and PJ.
Confgure	RJ Separation Method	RJMethod	BOTH, SPECtral	Select the type of method used to separate the RJ component.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx FEXT Crosstalk File	RxFEXTXtalkFileDriveNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Xtalk Files\ RxFEXTFileDriveNonSeparable.csv	Select the Rx section FEXT crosstalk file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx FEXT Crosstalk File	RxFEXTXtalkFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Xtalk Files\ RxFEXTFileDriveSeparable.csv	Select the Rx section FEXT crosstalk file for drive device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

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GUI Location	Label	Variable	Values	Description
Confgure	Rx FEXT Crosstalk File	RxFEXTXtalkFileHostNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Xtalk Files\ RxFEXTFileHostNonSeparable.csv	Select the Rx section FEXT crosstalk file for host device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx FEXT Crosstalk File	RxFEXTXtalkFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Xtalk Files\ RxFEXTFileHostSeparable.csv	Select the Rx section FEXT crosstalk file for host device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx NEXT Crosstalk File	RxNEXTXtalkFileDriveNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxNEXTFileDriveNonSeparable.csv	Select the Rx section NEXT crosstalk file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx NEXT Crosstalk File	RxNEXTXtalkFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxNEXTFileDriveSeparable.csv	Select the Rx section NEXT crosstalk file for drive device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx NEXT Crosstalk File	RxNEXTXtalkFileHostNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxNEXTFileHostNonSeparable.csv	Select the Rx section NEXT crosstalk file for host device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx NEXT Crosstalk File	RxNEXTXtalkFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxNEXTFileHostSeparable.csv	Select the Rx section NEXT crosstalk file for host device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.
Confgure	Rx Transfer File	RxTransferFileDriveNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveD2H_IR_RR.s4p	Select the Rx Host section transfer function file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx Transfer File	RxTransferFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveD2H_CR_RR.s4p	Select the Rx Host section transfer function file for drive device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Rx Transfer File	RxTransferFileHostNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveH2D_CR_RR.s4p	Select the Rx Drive section transfer function file for host device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Rx Transfer File	RxTransferFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveH2D_CR_RR.s4p	Select the Rx Drive section transfer function file for host device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	SAS3_EYEOPENING Form Auto Close	SAS3EYEOPENINGFormAutoClose	1.0, 0.0	Select [Enable] to automatic close the SAS3_EYEOPENING display form after finish running the script.
Confgure	SASWDPAverage	SASWDPAverage	(Accepts user-defined text), 8, 16	Select the number of pattern use for WDP test.
Confgure	SASWDPLength	SASWDPLength	(Accepts user-defined text), 2320, 4840	Select the pattern length for WDP test.
Confgure	Sampling Rate	SampRate_TX_CoeffPreset	80.0E+9, 40.0E+9	Select the sampling rate use for the waveform acquisition of all TX Coefficient Requests and Circuit Response Requirements tests. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_EndtoEndSimulation	80.0E+9, 40.0E+9	Select the sampling rate use for the waveform acquisition of all TX Device End-to-End Simulation Characteristics Requirements tests. Unit: Sa/s.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Sampling Rate	SampRate_TX_NRZData	40.0E+9, 20.0E+9	Select the sampling rate use for the waveform acquisition of all TX NRZ Data Signaling Requirements tests, except TX Rise/Fall Time, TX Jitter tests and TX WDP tests. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_NRZData_Jitter	40.0E+9, 20.0E+9	Select the sampling rate use for the waveform acquisition of all TX Jitter tests. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_NRZData_RiseFallTime	0, 80.0E+9, 40.0E+9, 20.0E+9	Select the sampling rate use for the waveform acquisition of all TX Rise/Fall Time tests. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_NRZData_WDP	40.0E+9, 20.0E+9	Select the sampling rate use for the waveform acquisition of TX WDP tests. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_OOB	80.0E+9, 40.0E+9	Select the sampling rate use for the waveform acquisition of all TX OOB Signaling tests. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_SSC	20.0E+9, 40.0E+9	Select the sampling rate use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 1.5Gbps, 3.0Gbps and 6.0Gbps. Unit: Sa/s.
Confgure	Sampling Rate	SampRate_TX_SSC12G	40.0E+9	Select the sampling rate use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 12.0Gbps. Unit: Sa/s.
Confgure	Signal Acquisition Sequence	SignalAcqSequence	Test Sequence, Pattern Sequence	Select the signal acquisition sequence. For [Test Sequence], the signals are acquired base on the test sequence in the [Select Tests] tab. For [Pattern Sequence], the signals are acquired base on the pattern name in alphabetical order.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Signal Check	EnableSignalCheck	1.0, 0.0	Select to enable or disable signal check. When signal check is enabled, the input signal is pre-tested and verified to be within a reasonable range of timing and voltage limits. This can be useful for detecting problems like cabling errors before a test is run.
Confgure	Signal Trigger Level	TriggerThreshold	(Accepts user-defined text), -300.0E-03, -250.0E-03, -200.0E-03, -150.0E-03, -100.0E-03, -50.0E-03, 0.0E-03, 50.0E-03, 100.0E-03, 150.0E-03, 200.0E-03, 250.0E-03, 300.0E-03	Choose the trigger level for the waveform acquisition of all SAS tests. Unit: volt.
Confgure	Stimulus Frequency Gen1 (Ghz)	PulsegenStimulusFreqGen1	(Accepts user-defined text), 1.500000000	Gen1 Non-OOB Tests Only: The stimulus frequency enables the user to set the offset of the pulsegen stimulus frequency which correspond to the desired frequency measured using the scope. Unit: GHz.
Confgure	Stimulus Frequency Gen2 (Ghz)	PulsegenStimulusFreqGen2	(Accepts user-defined text), 3.000000000	Gen2 Non-OOB Tests Only: The stimulus frequency enables the user to set the offset of the pulsegen stimulus frequency which correspond to the desired frequency measured using the scope. Unit: GHz.
Confgure	Stimulus Frequency Gen3 (Ghz)	PulsegenStimulusFreqGen3	(Accepts user-defined text), 6.000000000	Gen3 Non-OOB Tests Only: The stimulus frequency enables the user to set the offset of the pulsegen stimulus frequency which correspond to the desired frequency measured using the scope. Unit: GHz.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Stimulus Frequency Gen4 (Ghz)	PulsegenStimulusFreqGen4	(Accepts user-defined text), 12.000000000	Gen4 Non-OOB Tests Only: The stimulus frequency enables the user to set the offset of the pulsegen stimulus frequency which correspond to the desired frequency measured using the scope. Unit: GHz.
Confgure	Stimulus Vpp Output (mVpp)	PulsegenStimulusOOBVppOutput	(Accepts user-defined text), 250, 300, 450, 600, 850	OOB Tests only: Pulsegen Stimulus Peak to Peak Voltage. Please be sure that the settings can be supported by the DUT. Unit : mV.
Confgure	Stimulus Vpp Output (mVpp)	PulsegenStimulusVppOutput	(Accepts user-defined text), 250, 300, 500, 600, 850	Non OOB Tests only: Stimulus peak-to-peak voltage. Please ensure that the settings can be supported by the DUT. Unit: mVpp.
Confgure	Tx Connection	TxConnection	1, 2	Select the input channel connection for the waveform acquisition of all Non-OOB Signaling tests.
Confgure	Tx FEXT Crosstalk File	TxFEXTXtalkFileDriveNonSeparable	(Accepts user-defined text)	Select the Tx section FEXT crosstalk file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx FEXT Crosstalk File	TxFEXTXtalkFileDriveSeparable	(Accepts user-defined text)	Select the Tx section FEXT crosstalk file for drive device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx FEXT Crosstalk File	TxFEXTXtalkFileHostNonSeparable	(Accepts user-defined text)	Select the Tx section FEXT crosstalk file for host device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx FEXT Crosstalk File	TxFEXTXtalkFileHostSeparable	(Accepts user-defined text)	Select the Tx section FEXT crosstalk file for host device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx NEXT Crosstalk File	TxNEXTXtalkFileDriveNonSeparable	(Accepts user-defined text)	Select the Tx section NEXT crosstalk file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx NEXT Crosstalk File	TxNEXTXtalkFileDriveSeparable	(Accepts user-defined text)	Select the Tx section NEXT crosstalk file for drive device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx NEXT Crosstalk File	TxNEXTXtalkFileHostNonSeparable	(Accepts user-defined text)	Select the Tx section NEXT crosstalk file for host device end-to-end simulation with a non-separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx NEXT Crosstalk File	TxNEXTXtalkFileHostSeparable	(Accepts user-defined text)	Select the Tx section NEXT crosstalk file for host device end-to-end simulation with a separable TxRx connection segment. All default crosstalk files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Xtalk Files\ To use custom crosstalk files, add the complete S4P or TXT filenames into the CSV file. Then, drop all the S4P, TXT and CSV files into the directory above. After that, type the complete CSV path in the textbox where the crosstalk files will be applied in the simulation.
Confgure	Tx Reverse Transfer File	TxRevTransferFileDriveNonSeparable	(Accepts user-defined text)	Select the Rx Host section NEXT Tx transfer function file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx Reverse Transfer File	TxRevTransferFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveD2H_ET_ITs_rev.s4p	Select the Rx Host section NEXT Tx transfer function file for drive device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Tx Reverse Transfer File	TxRevTransferFileHostNonSeparable	(Accepts user-defined text)	Select the Rx Drive section NEXT Tx transfer function file for host device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx Reverse Transfer File	TxRevTransferFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\ EndtoEndSimulation\Transfer Files\ LongPassiveH2D_ET_ITs_rev.s4p	Select the Rx Drive section NEXT Tx transfer function file for host device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\ Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Tx Transfer File	TxTransferFileDriveNonSeparable	(Accepts user-defined text)	Select the Tx Drive section transfer function file for drive device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ ProgramData\Keysight\Infiniium\ Apps\SAS-3Test\app\ EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\ SAS-3Test\app\ EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx Transfer File	TxTransferFileDriveSeparable	(Accepts user-defined text)	Select the Tx Drive section transfer function file for drive device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Tx Transfer File	TxTransferFileHostNonSeparable	(Accepts user-defined text)	Select the Tx Host section transfer function file for host device end-to-end simulation with a non-separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Tx Transfer File	TxTransferFileHostSeparable	(Accepts user-defined text)	Select the Tx Host section transfer function file for host device end-to-end simulation with a separable TxRx connection segment. All default transfer files are available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\EndtoEndSimulation\Transfer Files\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.
Confgure	Tx Transfer File	TxTransferFileToETPoint	(Accepts user-defined text), %STG:ApplicationDataAppDir%\Filters\DoNothing.tf4	Select the path of transfer function file for de-embedding to ET point. This config only applicable for TX Peak-to-Peak Voltage, ET (with .tf4 file) test. The default transfer file is available in following directory: Win7:C:\ProgramData\Keysight\Infiniium\Apps\SAS-3Test\app\Filters\ WinXP:C:\Documents and Settings\All Users\Application Data\Keysight\Infiniium\Apps\SAS-3Test\app\Filters\ To use custom transfer file, drop the S4P or TXT file into the directory above and type the complete path of the transfer file in the textbox above to apply it in the simulation.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Use Fixed RJ in Jitter Separation	UseFixedRJ	true, false	Select to use fixed RJ value in jitter separation. Use [Fixed RJ Value] config variable to set the known amount of random jitter (RJ). This config only applicable when the [RJ Separation Method] config variable is set to [Spectral]. When used, the remaining amount of the total jitter measured is reported as periodic jitter (PJ).
Run Tests	Event	RunEvent	(None), Fail, Margin < N, Pass	Names of events that can be used with the StoreMode=Event or RunUntil RunEventAction options
Run Tests	RunEvent=Margin < N: Minimum required margin %	RunEvent_Margin < N_MinPercent	Any integer in range: 0 <= value <= 100	Specify N using the 'Minimum required margin %' control.
Set Up	Bit Rate (Gbps)	BitRate	1.5, 3.0, 6.0, 12.0	Select the bit rate supported by DUT to either 1.5 Gbps, 3.0 Gbps, 6.0 Gbps or 12.0 Gbps. Select the bit rate supported by DUT to either 1.5 Gbps, 3.0 Gbps, 6.0 Gbps or 12.0 Gbps.
Set Up	CJTPAT_SSCOff_CM_Directory	CJTPAT_SSCOff_CM_wfm	(Accepts user-defined text)	This variable use to store the directory of CJTPAT common mode signal waveform with SSC off. This variable use to store the directory of CJTPAT common mode signal waveform with SSC off.
Set Up	D303_SSCOff_Diff_Directory	D303_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of D30.3 differential signal waveform with SSC off. This variable use to store the directory of D30.3 differential signal waveform with SSC off.
Set Up	Device Identifier	DeviceIdentifier	(Accepts user-defined text)	Identifier of the DUT in testing. Identifier of the DUT in testing.
Set Up	Device Type	DeviceType	Drive, Host	Select the device type to either Drive or Host. Select the device type to either Drive or Host.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	End-to-end Simulation Type	EndtoEndSimulationType	Connected to separable TxRx, Connected to non-separable TxRx	Select the end-to-end simulation type either for a transmitter device conected to a separable TxRx connection segment or a transmitter device conected to a non separable TxRx connection segment Select the end-to-end simulation type either for a transmitter device conected to a separable TxRx connection segment or a transmitter device conected to a non separable TxRx connection segment
Set Up	HFTP_SSCOff_Diff_Directory	HFTP_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of HFTP differential signal waveform with SSC off. This variable use to store the directory of HFTP differential signal waveform with SSC off.
Set Up	HFTP_SSCSASCenter_Diff_Directory	HFTP_SSCSASCenter_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of HFTP differential signal waveform with SAS Center Spreading SSC. This variable use to store the directory of HFTP differential signal waveform with SAS Center Spreading SSC.
Set Up	HFTP_SSCSASDown_Diff_Directory	HFTP_SSCSASDown_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of HFTP differential signal waveform with SAS Down Spreading SSC. This variable use to store the directory of HFTP differential signal waveform with SAS Down Spreading SSC.
Set Up	HFTP_SSCSATADown_Diff_Directory	HFTP_SSCSATADown_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of HFTP differential signal waveform with SATA Down Spreading SSC. This variable use to store the directory of HFTP differential signal waveform with SATA Down Spreading SSC.
Set Up	Hide Informative Tests	HideInfoTests	0.0, 1.0	Check to hide all the informative tests. Check to hide all the informative tests.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	MFTP_SSCOff_Diff_Directory	MFTP_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of MFTP differential signal waveform with SSC off. This variable use to store the directory of MFTP differential signal waveform with SSC off.
Set Up	MFTP_SSCSASCenter_Diff_Directory	MFTP_SSCSASCenter_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of MFTP differential signal waveform with SAS Center Spreading SSC. This variable use to store the directory of MFTP differential signal waveform with SAS Center Spreading SSC.
Set Up	MFTP_SSCSASDown_Diff_Directory	MFTP_SSCSASDown_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of MFTP differential signal waveform with SAS Down Spreading SSC. This variable use to store the directory of MFTP differential signal waveform with SAS Down Spreading SSC.
Set Up	MFTP_SSCSATADown_Diff_Directory	MFTP_SSCSATADown_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of MFTP differential signal waveform with SATA Down Spreading SSC. This variable use to store the directory of MFTP differential signal waveform with SATA Down Spreading SSC.
Set Up	RandomPatternCoeRequest_SSCOff_Diff_Directory	RandomPatternCoeRequest_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of coefficient request long random pattern differential signal waveform with SSC off. This variable use to store the directory of coefficient request long random pattern differential signal waveform with SSC off.
Set Up	RandomPatternDefaultEqu_SSCOff_Dif f_Directory	RandomPatternDefaultEqu_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of default equalization preset long random pattern differential signal waveform with SSC off. This variable use to store the directory of default equalization preset long random pattern differential signal waveform with SSC off.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	RandomPatternNoEqu_SSCOff_Diff_Directory	RandomPatternNoEqu_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of No Equalization Preset long random pattern differential signal waveform with SSC off. This variable use to store the directory of No Equalization Preset long random pattern differential signal waveform with SSC off.
Set Up	RandomPatternNoEqu_SSCOff_Diff_Directory	RandomPatternRef2_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of Reference 2 Preset long random pattern differential signal waveform with SSC off. This variable use to store the directory of Reference 2 Preset long random pattern differential signal waveform with SSC off.
Set Up	RandomPatternRef1_SSCOff_Diff_Directory	RandomPatternRef1_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of Reference 1 Preset long random pattern differential signal waveform with SSC off. This variable use to store the directory of Reference 1 Preset long random pattern differential signal waveform with SSC off.
Set Up	RandomPatternRpost_SSCOff_Diff_Directory	RandomPatternRpost_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of pre-cursor equalization disabled (C1=0) long random pattern differential signal waveform with SSC off. This variable use to store the directory of pre-cursor equalization disabled (C1=0) long random pattern differential signal waveform with SSC off.
Set Up	RandomPatternRpre_SSCOff_Diff_Directory	RandomPatternRpre_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of post-cursor equalization disabled (C3=0) long random pattern differential signal waveform with SSC off. This variable use to store the directory of post-cursor equalization disabled (C3=0) long random pattern differential signal waveform with SSC off.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	Remote Connection	RemoteConnection	none, PPG_IP, PPG_Sicl, JBERT_IP, JBERT_Sicl	Select the type of stimulus during remote setup. "None" for no stimulus being used. Select the type of stimulus during remote setup. "None" for no stimulus being used.
Set Up	SAS Center Spreading SSC Type	SASCenterSSCType	0.0, 1.0	Select the SSC modulation type supported by the DUT. Select the SSC modulation type supported by the DUT.
Set Up	SAS Down Spreading SSC Type	SASDownSSCType	0.0, 1.0	Select the SSC modulation type supported by the DUT. Select the SSC modulation type supported by the DUT.
Set Up	SATA Down Spreading SSC Type	SATADownSSCType	0.0, 1.0	Select the SSC modulation type supported by the DUT. Select the SSC modulation type supported by the DUT.
Set Up	Scrambled0_SSCOff_Diff_Directory	Scrambled0_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of SCRAMBLED_0 differential signal waveform with SSC off. This variable use to store the directory of SCRAMBLED_0 differential signal waveform with SSC off.
Set Up	Stimulus Device	StimulusDevice	None, N4903B, 81134A	Select stimulus device to either None, 81134A Pulse Pattern Generator or N4903B J-BERT. Select stimulus device to either None, 81134A Pulse Pattern Generator or N4903B J-BERT.
Set Up	Test Pattern Source	TPSource	SavedWFM, BIST_T	Select the test pattern source. Select the test pattern source.
Set Up	Test Point	TestPoint	IT, CT	Select the test point of DUT to either IT, CT test point. Select the test point of DUT to either IT, CT test point.
Set Up	Tx Vpp, ET Method	TxVppETMethod	SAS 3 Eye Opening Script	Select the test method for Tx Vpp, ET test Select the test method for Tx Vpp, ET test

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	User Comments	UserComment	(Accepts user-defined text)	Additional comments for the DUT. Additional comments for the DUT.
Set Up	User Description	DeviceDescription	(Accepts user-defined text)	Short description of the DUT. Short description of the DUT.
Set Up	pcboIPAddress	IP_Address	(Accepts user-defined text)	Set the IP address of the stimulus. Set the IP address of the stimulus.
Set Up	pcboSiclAddress	Sicl_Address	(Accepts user-defined text)	Sets the Sicl address of the stimulus. Sets the Sicl address of the stimulus.

3 Test Names and IDs

The following table shows the mapping between each test's numeric ID and name. The numeric ID is required by various remote interface methods.

- Name — The name of the test as it appears on the user interface **Select Tests** tab.

- Test ID — The number to use with the RunTests method.

- Description — The description of the test as it appears on the user interface **Select Tests** tab.

For example, if the graphical user interface displays this tree in the **Select Tests** tab:

- All Tests
  - Rise Time
  - Fall Time

then you would expect to see something like this in the table below:

Table 3   Example Test Names and IDs

Name	Test ID	Description
Fall Time	110	Measures clock fall time.
Rise Time	100	Measures clock rise time.

and you would run these tests remotely using:

```
ARSL syntax
-----------
arsl -a ipaddress -c "SelectedTests '100,110'"
arsl -a ipaddress -c "Run"

C# syntax
---------
remoteAte.SelectedTests = new int[]{100,110};
remoteAte.Run();
```

Here are the actual Test names and IDs used by this application:

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NOTE   The file, ""TestInfo.txt"", which may be found in the same directory as this help file, contains all of the information found in the table below in a format suitable for parsing.

Table 4   Test IDs and Names

Name	TestID	Description
RECEIVE COMINIT Idle Time	31101	To verify that the DUT transmits the OOB signal COMINIT idle time within conformance limits
RECEIVE COMSAS Idle Time	31201	To verify that the DUT transmits the OOB signal COMSAS idle time within conformance limits
RECEIVE COMWAKE Idle Time	31301	To verify that the DUT transmits the OOB signal COMWAKE idle time within conformance limits
RX DFE Coefficient Amplitude Ratio	50501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
RX DFE Coefficient Amplitude Ratio	51501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
RX DFE Coefficient Amplitude Ratio	60501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
RX DFE Coefficient Amplitude Ratio	61501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
RX Reference Pulse Response Cursor	50301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude of the DUT's transmitter device is within the conformance limits.
RX Reference Pulse Response Cursor	51301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude of the DUT's transmitter device is within the conformance limits.
RX Reference Pulse Response Cursor	60301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude of the DUT's transmitter device is within the conformance limits.
RX Reference Pulse Response Cursor	61301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude of the DUT's transmitter device is within the conformance limits.
RX Vertical Eye Opening Ratio	50401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
RX Vertical Eye Opening Ratio	51401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
RX Vertical Eye Opening Ratio	60401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
RX Vertical Eye Opening Ratio	61401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio of the DUT's transmitter device is within the conformance limits.
TX Coefficient 1 (C1)	50101	To verify that the simulated coefficient 1 (C1) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 1 (C1)	51101	To verify that the simulated coefficient 1 (C1) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 1 (C1)	60101	To verify that the simulated coefficient 1 (C1) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 1 (C1)	61101	To verify that the simulated coefficient 1 (C1) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 3 (C3)	50103	To verify that the simulated coefficient 3 (C3) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 3 (C3)	51103	To verify that the simulated coefficient 3 (C3) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 3 (C3)	60103	To verify that the simulated coefficient 3 (C3) of the DUT's transmitter device is within the conformance limits.
TX Coefficient 3 (C3)	61103	To verify that the simulated coefficient 3 (C3) of the DUT's transmitter device is within the conformance limits.
TX Coefficient Requests and Circuit Response	40101	To verify that the transmitter circuit response for the corresponding coefficient requests is within the conformance limits.
TX Common Mode RMS Voltage Limit	20201	To verify that the common mode RMS voltage of the DUT's transmitter device is less than the maximum allowed value.
TX Common Mode RMS Voltage Limit	20211	To verify that the common mode RMS voltage of the DUT's transmitter device is less than the maximum allowed value.

Table 4   Test IDs and Names (continued)

Name	TestID	Description
TX Common Mode Spectrum	20301	To verify that the common mode spectral characteristics of the DUT's transmitter device are below the maximum allowable limits.
TX Common Mode Spectrum	20311	To verify that the common mode spectral characteristics of the DUT's transmitter device are below the maximum allowable limits.
TX Device End-to-End Simulation	50999	Transmitter device end-to-end simulation using SAS3_EYEOPENING script.
TX Device End-to-End Simulation	51999	Transmitter device end-to-end simulation using SAS3_EYEOPENING script.
TX Device End-to-End Simulation	60999	Transmitter device end-to-end simulation using SAS3_EYEOPENING script.
TX Device End-to-End Simulation	61999	Transmitter device end-to-end simulation using SAS3_EYEOPENING script.
TX EQ (Informative)	20502	To verify that the equalization (EQ) of the DUT's transmitter device is within the conformace limits.
TX Fall Time	20602	To verify that the fall time of the DUT's transmitted SAS signaling are within the conformance limits.
TX Fall Time	20612	To verify that the fall time of the DUT's transmitted SAS signaling are within the conformance limits.
TX Maximum Noise During OOB Idle	30101	To verify that the peak noise during OOB idle of the DUT transmitter is within the conformance limit
TX No Equalization Post-cursor Equalization Ratio (Rpost)	40503	To verify that the post-cursor equalization ratio (Rpost) of the DUT's transmitter device with no equalization is within the conformance limits.
TX No Equalization Pre-cursor Equalization Ratio (Rpre)	40502	To verify that the pre-cursor equalization ratio (Rpre) of the DUT's transmitter device with no equalization is within the conformance limits.
TX OOB Burst Amplitude Minimum	30202	To verify that the minimum amplitude of the DUT transmitter OOB bursts is within the conformance limits
TX OOB Burst Amplitude Vpp	30201	To verify that the maximum peak to peak voltage of the DUT transmitter OOB bursts is within the conformance limits
TX OOB Common Mode Delta	30401	To verify that the OOB common mode delta of the DUT transmitter device is within the conformance limit
TX OOB Offset Delta	30301	To verify that the OOB offset delta of the DUT transmitter device is within the conformance limit

Table 4   Test IDs and Names (continued)

Name	TestID	Description
TX Peak-to-Peak Voltage	20401	To verify that the peak-to-peak output voltage (Vpp) of the DUT's transmitter device is less than the maximum allowed value.
TX Peak-to-Peak Voltage, ET	40411	To verify that the peak-to-peak output voltage (Vpp) of the DUT's transmitter device at test point ET is greater than the minimum allowed value.
TX Peak-to-Peak Voltage, ET (with .tf4 file)	40412	To verify that the peak-to-peak output voltage (Vpp) of the DUT's transmitter device at test point ET is greater than the minimum allowed value.
TX Peak-to-Peak Voltage, IT	20411	To verify that the peak-to-peak output voltage (Vpp) of the DUT's transmitter device is less than the maximum allowed value.
TX Physical Link Rate Long Term Stability (Mean)	20103	To verify that the mean of long term stability of the DUT transmitter's physical link rate is within the conformance limits.
TX Physical Link Rate Long Term Stability (Mean)	20113	To verify that the mean of long term stability of the DUT transmitter's physical link rate is within the conformance limits.
TX Post-cursor Equalization Ratio (Rpost), Max	40302	To verify that the maximum post-cursor equalization ratio (Rpost) of the DUT's transmitter device with pre-cursor disabled and peak-to-peak voltage set to maximum is within the conformance limits.
TX Post-cursor Equalization Ratio (Rpost), Min	40301	To verify that the minimum post-cursor equalization ratio (Rpost) of the DUT's transmitter device with pre-cursor disabled and peak-to-peak voltage set to maximum is within the conformance limits.
TX Pre-cursor Equalization Ratio (Rpre), Max	40202	To verify that the maximum pre-cursor equalization ratio (Rpre) of the DUT's transmitter device with post-cursor disabled and peak-to-peak voltage set to maximum is within the conformance limits.
TX Pre-cursor Equalization Ratio (Rpre), Min	40201	To verify that the minimum pre-cursor equalization ratio (Rpre) of the DUT's transmitter device with post-cursor disabled and peak-to-peak voltage set to maximum is within the conformance limits.
TX Pre-cursor and Post-cursor Measurement	40999	Pre-cursor and post-cursor measurement for the coefficient preset
TX Random Jitter (RJ)	20701	To verify that the random jitter (RJ) of the DUT transmitter device is within the conformance limits.
TX Random Jitter (RJ)	20711	To verify that the random jitter (RJ) of the DUT transmitter device is within the conformance limits.

Table 4   Test IDs and Names (continued)

Name	TestID	Description
TX Reference 1 Post-cursor Equalization Ratio (Rpost)	40603	To verify that the post-cursor equalization ratio (Rpost) of the DUT's transmitter device with coefficient set to Reference 1 is within the conformance limits.
TX Reference 1 Pre-cursor Equalization Ratio (Rpre)	40602	To verify that the pre-cursor equalization ratio (Rpre) of the DUT's transmitter device with coefficient set to Reference 1 is within the conformance limits.
TX Reference 2 Post-cursor Equalization Ratio (Rpost)	40703	To verify that the post-cursor equalization ratio (Rpost) of the DUT's transmitter device with coefficient set to Reference 2 is within the conformance limits.
TX Reference 2 Pre-cursor Equalization Ratio (Rpre)	40702	To verify that the pre-cursor equalization ratio (Rpre) of the DUT's transmitter device with coefficient set to Reference 2 is within the conformance limits.
TX Rise Time	20601	To verify that the rise time of the DUT's transmitted SAS signaling are within the conformance limits.
TX Rise Time	20611	To verify that the rise time of the DUT's transmitted SAS signaling are within the conformance limits.
TX SSC DFDT (SAS-SAS Center Spreading, Max) (Informative)	10701	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Center Spreading, Max) (Informative)	10711	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Center Spreading, Min) (Informative)	10702	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Center Spreading, Min) (Informative)	10712	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Down Spreading, Max) (Informative)	10601	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Down Spreading, Max) (Informative)	10611	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Down Spreading, Min) (Informative)	10602	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SAS Down Spreading, Min) (Informative)	10612	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.

Table 4   Test IDs and Names (continued)

Name	TestID	Description
TX SSC DFDT (SAS-SATA Down Spreading, Max) (Informative)	10801	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC DFDT (SAS-SATA Down Spreading, Min) (Informative)	10802	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) is within the conformance limit.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Max)	10301	To verify that the maximum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Max)	10311	To verify that the maximum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Min)	10302	To verify that the minimum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Min)	10312	To verify that the minimum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Max)	10201	To verify that the maximum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Max)	10211	To verify that the maximum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Min)	10202	To verify that the minimum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Min)	10212	To verify that the minimum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SATA Down Spreading, Max)	10501	To verify that the maximum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation (SAS-SATA Down Spreading, Min)	10502	To verify that the minimum of SSC modulation deviation of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Deviation Asymmetry (SAS-SAS Center Spreading)	10411	To verify that the SSC modulation deviation asymmetry of the DUT's transmitted signaling is within the conformance limits.

Table 4   Test IDs and Names (continued)

Name	TestID	Description
TX SSC Modulation Deviation Asymmetry (SAS-SAS Center Spreading)	10401	To verify that the SSC modulation deviation asymmetry of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Frequency (SAS-SAS Center Spreading)	10102	To verify that the SSC modulation frequency of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Frequency (SAS-SAS Center Spreading)	10112	To verify that the SSC modulation frequency of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Frequency (SAS-SAS Down Spreading)	10101	To verify that the SSC modulation frequency of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Frequency (SAS-SAS Down Spreading)	10111	To verify that the SSC modulation frequency of the DUT's transmitted signaling is within the conformance limits.
TX SSC Modulation Frequency (SAS-SATA Down Spreading)	10103	To verify that the SSC modulation frequency of the DUT's transmitted signaling is within the conformance limits.
TX Total Jitter (TJ)	20801	To verify that the transmit jitter of the DUT transmitter device is within the conformance limits.
TX Total Jitter (TJ)	20811	To verify that the transmit jitter of the DUT transmitter device is within the conformance limits.
TX Total Jitter (TJ) (SAS-SAS Center Spreading)	20803	To verify that the transmit jitter of the DUT transmitter device with SSC on is within the conformance limits.
TX Total Jitter (TJ) (SAS-SAS Center Spreading)	20813	To verify that the transmit jitter of the DUT transmitter device with SSC on is within the conformance limits.
TX Total Jitter (TJ) (SAS-SAS Down Spreading)	20802	To verify that the transmit jitter of the DUT transmitter device with SSC on is within the conformance limits.
TX Total Jitter (TJ) (SAS-SAS Down Spreading)	20812	To verify that the transmit jitter of the DUT transmitter device with SSC on is within the conformance limits.
TX Total Jitter (TJ) (SAS-SATA Down Spreading)	20804	To verify that the transmit jitter of the DUT transmitter device with SSC on is within the conformance limits.
TX Total Jitter (TJ) (SAS-SATA Down Spreading)	20814	To verify that the transmit jitter of the DUT transmitter device with SSC on is within the conformance limits.
TX VMA	50201	To verify that the simulated voltage modulation amplitude (VMA) of the DUT's transmitter device is within the conformance limits.

Table 4   Test IDs and Names (continued)

Name	TestID	Description
TX VMA	51201	To verify that the simulated voltage modulation amplitude (VMA) of the DUT's transmitter device is within the conformance limits.
TX VMA	60201	To verify that the simulated voltage modulation amplitude (VMA) of the DUT's transmitter device is within the conformance limits.
TX VMA	61201	To verify that the simulated voltage modulation amplitude (VMA) of the DUT's transmitter device is within the conformance limits.
TX VMA (Informative)	20501	To verify that the voltage modulation amplitude (VMA) of the DUT's transmitter device is within the conformance limits.
TX Waveform Distortion Penalty (WDP)	20901	To verify that the Waveform Distortion Penalty (WDP) of the DUT transmitter device is below the maximum conformance limits.

4 Instruments

The following table shows the instruments used by this application. The name is required by various remote interface methods.

- Instrument Name — The name to use as a parameter in remote interface commands.

- Description — The description of the instrument.

For example, if an application uses an oscilloscope and a pulse generator, then you would expect to see something like this in the table below:

Table 5   Example Instrument Information

Name	Description
scope	The primary oscilloscope.
Pulse	The pulse generator used for Gen 2 tests.

and you would be able to remotely control an instrument using:

```
ARSL syntax (replace [description] with actual parameter)
----------------------------------------------------------------------
arsl -a ipaddress -c "SendScpiCommandCustom 'Command=[scpi
command];Timeout=100;Instrument=pulsegen'"

arsl -a ipaddress -c "SendScpiQueryCustom 'Command=[scpi
query];Timeout=100;Instrument=pulsegen'"


C# syntax (replace [description] with actual parameter)
----------------------------------------------------------------------
SendScpiCommandOptions commandOptions = new SendScpiCommandOptions();
commandOptions.Command = "[scpi command]";
commandOptions.Instrument = "[instrument name]";
commandOptions.Timeout = [timeout];
remoteAte.SendScpiCommand(commandOptions);

SendScpiQueryOptions queryOptions = new SendScpiQueryOptions();
queryOptions.Query = "[scpi query]";
queryOptions.Instrument = "[instrument name]";
```

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```
queryOptions.Timeout = [timeout];
remoteAte.SendScpiQuery(queryOptions);
```

Here are the actual instrument names used by this application:

NOTE The file, ""InstrumentInfo.txt"", which may be found in the same directory as this help file, contains all of the information found in the table below in a format suitable for parsing.

Table 6   Instrument Names

Instrument Name	Description
JBert	N4903B High Performance Serial BERT
pulsegen	81134A Pulse Pattern Generator
scope	The primary oscilloscope

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