

Keysight D9040SASC SAS-4 Electrical Compliance Test Application

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CAUTION

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A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

In This Book

This book is your guide to programming the Keysight Technologies D9040SASC SAS-4 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 9, **Chapter 3**, “Test Names and IDs,” starting on page 65, and **Chapter 4**, “Instruments,” starting on page 77 provide information specific to programming the D9040SASC SAS-4 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.

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1 Introduction to Programming

Remote Programming Toolkit / 8

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 where dialogs get displayed
- Saving and loading projects.

You can accomplish other tasks by combining these functions.

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/rpi. The D9040SASC SAS-4 Electrical Compliance Test Application uses Remote Interface Revision 6.21. 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.

2 Configuration Variables and Values

The following table contains a description of each of the D9040SASC SAS-4 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
Configure	#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.
Configure	Auto Detect SASWDPLength	AutoDetectSASWDPLength	0.0, 1.0	Select [Enable] to turn on auto detect the pattern length for WDP test. If [Enable] is selected, SASWDPLength config value will be ignored.
Configure	Average Count (TX Coefficient Requests and Circuit Response Requirements)	Averaging_TX_CoeffPreset	(Accepts user-defined text), 1, 16, 32, 64	Select the average count for acquisition averaging of all TX Coefficient Requests and Circuit Response Requirements tests.
Configure	Average Count (TX Device End-to-End Simulation Characteristics Requirements)	Averaging_TX_EndtoEndSimulation	(Accepts user-defined text), 1, 16, 32, 64	Select the average count for acquisition averaging of all TX Device End-to-End Simulation Characteristics Requirements tests.
Configure	Average Count (TX Vpp, VMA, EQ)	Averaging_TX_NRZData_VPP	(Accepts user-defined text), 2, 16	Select the average count for acquisition averaging. This configuration variable only applicable for TX Peak-to-Peak Voltage, IT test and TX Peak-to-Peak Voltage, ET (with .tf4 file) test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	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.
Configure	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.
Configure	Default Vertical Range	DefaultVerticalRange	(Accepts user-defined text), 200.0E-03, 400.0E-03, 600.0E-03, 800.0E-03, 1000.0E-03	Choose the single-ended signal default vertical range for the waveform acquisition of all SAS tests. Unit: volt.
Configure	Deskew Value (ps) (Data Rate 1.5Gbps)	Deskew_Value_1Gbps	(Accepts user-defined text), 0	Manually input deskew value (ps) between Channel 1 and Channel 2 in stimulus M8045A only.
Configure	Enable Automated QA Testing	AutomatedQATestingEnabled	0, 1	Select to enable or disable automated QA testing.
Configure	Fixed RJ(rms) Value	FixedRJValue	(Accepts user-defined text), 200E-15	Choose the fixed RJ(rms) value use in jitter separation. Unit: second. This configuration variable only applicable when the [Use Fixed RJ in Jitter Separation] configuration variable is set to [Yes]. When used, the remaining amount of the total jitter measured is reported as periodic jitter (PJ).
Configure	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 configuration variable only applicable when the [Jitter Pattern Length] configuration variable is set to [Arbitrary]. The trailing bits is greater than or equal to 0.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	ISI Filter Leading Bit	ISILeadingBit	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 configuration variable only applicable when the [Jitter Pattern Length] configuration variable is set to [Arbitrary]. The leading bits is less than or equal to 0.
Configure	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.
Configure	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.
Configure	LPF Bandwidth (Long Term Stability)	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.
Configure	LPF Bandwidth (SSC DfDt)	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.
Configure	LPF Bandwidth (SSC Modulation Deviation)	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.
Configure	LPF Bandwidth (SSC Modulation Frequency)	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Longest Run Length Bits (Pulse Width Trigger) (TX Device End-to-End Simulation Characteristics Requirements)	PulseWidthLongestRunLengthBit_EndtoEndSimulation	(Accepts user-defined text), 14.5	Select the longest run length of bits of all TX Device End-to-End Simulation Characteristics Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [Pulse Width].
Configure	Longest Run Length Bits (Pulse Width Trigger)(TX Coefficient Requests and Circuit Response Requirements)	PulseWidthLongestRunLengthBit_CoeffRequest	(Accepts user-defined text), 14.5	Select the longest run length of bits of all TX Coefficient Requests and Circuit Response Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [Pulse Width].
Configure	Longest Run Length Bits (Pulse Width Trigger)(TX NRZ Data Signaling Requirement)	PulseWidthLongestRunLengthBit_DataSignaling	(Accepts user-defined text), 14.5	Select the longest run length of bits of all TX NRZ Data Signaling Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [Pulse Width].
Configure	M8041A Module	M8020AModule	M1, M2, M3, M4, M5	Select the M8041A module use for pulse generator stimulus.
Configure	M8045A Module	M8040AModule	M1, M2, M3, M4, M5	Select the M8045A module use for pulse generator stimulus.
Configure	M8061A/M8062A Module	M8061A_M8062AModule	M1, M2, M3, M4, M5	Select the M8061A/M8062A module use for pulse generator stimulus for bit rate greater than 16Gbps.
Configure	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.
Configure	Measurement Threshold Hysteresis	MeasurementThresholdHysteresis	(Accepts user-defined text), Auto, 0.050	Set the hysteresis level of the measurement threshold to be used of all SAS tests. Unit: volt. For [Auto], the SAS-4 application will set the hysteresis level of the measurement threshold based on the signal amplitude.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Memory Depth (Jitter)	MemDepth_TX_NRZData_Jitter	(Accepts user-defined text), 250E-6, 4.0E+6, 8.0E+6, 10.0E+6, 6.4E+6, 12.8E+6, 16.0E+6	Select the memory points use for the waveform acquisition of all TX Jitter tests. Unit: pts. For [Auto], the application will set the memory point base on the sampling rate to cover at least 250us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)
Configure	Memory Depth (NRZ Data Signaling)	MemDepth_TX_NRZData	(Accepts user-defined text), 100E-6, 4.0E+6, 8.0E+6, 10.0E+6, 6.4E+6, 12.8E+6, 16.0E+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. For [Auto], the application will set the memory point base on the sampling rate to cover at least 100us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)
Configure	Memory Depth (OOB)	MemDepth_TX_OOB	(Accepts user-defined text), 100.0E+3, 140.0E+3, 1.0E+6, 160.0E+3, 224.0E+3, 1.6E+6	Select the memory points used for the waveform acquisition of all TX OOB Signaling tests. Unit: pts. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)
Configure	Memory Depth (Rise/Fall Time)	MemDepth_TX_NRZData_RiseFallTime	(Accepts user-defined text), 100E-6, 4.0E+6, 8.0E+6, 10.0E+6, 6.4E+6, 12.8E+6, 25.6E+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. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Memory Depth (SSC) (1.5G, 3.0G or 6.0G)	MemDepth_TX_SSC	(Accepts user-defined text), 400E-6, 4.0E+6, 8.0E+6, 10.0E+6, 16.0E+6, 6.4E+6, 12.8E+6, 16.0E+6, 25.6E+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. For [Auto], the application will set the memory point base on the sampling rate to cover at least 400us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)
Configure	Memory Depth (SSC) (12.0G)	MemDepth_TX_SSC12G	(Accepts user-defined text), 400E-6, 4.0E+6, 8.0E+6, 10.0E+6, 16.0E+6, 6.4E+6, 12.8E+6, 16.0E+6, 25.6E+6	Select the memory points use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 12.0Gbps. Unit: pts. For [Auto], the application will set the memory point base on the sampling rate to cover at least 400us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)
Configure	Memory Depth (SSC) (22.5G)	MemDepth_TX_SSC24G	(Accepts user-defined text), 400E-6, 4.0E+6, 8.0E+6, 10.0E+6, 16.0E+6, 32.0E+6, 6.4E+6, 12.8E+6, 16.0E+6, 25.6E+6, 51.2E+6	Select the memory points use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 22.5Gbps. Unit: pts. For [Auto], the application will set the memory point base on the sampling rate to cover at least 400us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Memory Depth (TX Coefficient Requests and Circuit Response Requirements)	MemDepth_TX_CoeffPreset	(Accepts user-defined text), 1.75E-6, 100.0E+3, 140.0E+3, 1.0E+6, 160.0E+3, 224.0E+3, 1.6E+6	Select the memory points use for the waveform acquisition of all TX Coefficient Requests and Circuit Response Requirements tests. Unit: pts. For [Auto], the application will set the memory point base on the sampling rate to cover at least 1.75us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)
Configure	Memory Depth (TX Device End-to-End Simulation Characteristics Requirements)	MemDepth_TX_EndtoEndSimulation	(Accepts user-defined text), 1.75E-6, 100.0E+3, 140.0E+3, 1.0E+6, 160.0E+3, 224.0E+3, 1.6E+6	Select the memory points use for the waveform acquisition of all TX Device End-to-End Simulation Characteristics Requirements tests. Unit: pts. For [Auto], the application will set the memory point base on the sampling rate to cover at least 1.75us. (Real Edge Connection will use 160GSa/s sampling rate as Memory Depth's calculation by default.)

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Mid FEXT Crosstalk File (Drive Non Separable)	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
Configure	Mid FEXT Crosstalk File (Drive Separable)	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Mid FEXT Crosstalk File (Host Non Separable)	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Mid FEXT Crosstalk File (Host Separable)	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
Configure	Mid NEXT Crosstalk File (Drive Non Separable)	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Mid NEXT Crosstalk File (Drive Separable)	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
Configure	Mid NEXT Crosstalk File (Host Non Separable)	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
Configure	Mid NEXT Crosstalk File (Host Separable)	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.
Configure	Mid Transfer File (Drive Non Separable)	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
Configure	Mid Transfer File (Drive Separable)	MidTransferFileDriveSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveD2H_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.
Configure	Mid Transfer File (Host Non Separable)	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
Configure	Mid Transfer File (Host Separable)	MidTransferFileHostSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Transfer Files\LongPassiveH2D_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.
Configure	Mid and Rx Transfer File (Drive Non Separable)	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
Configure	Mid and Rx Transfer File (Drive Separable)	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.
Configure	Mid and Rx Transfer File (Host Non Separable)	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
Configure	Mid and Rx Transfer File (HostSeparable)	MidAndRxTransferFileHostSeparable	(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.
Configure	Pattern Length (Pattern Check)	PatternLengthSignalCheck	(Accepts user-defined text), 20, 80	Select pattern length for pattern checking. This configuration is only applicable on pattern HFTP, CJPAT, D303 and MFTP only.
Configure	Polarity (Pulse Width Trigger) (TX Coefficient Requests and Circuit Response Requirements)	PulseWidthPolarity_CoeffRequest	Positive, Negative	Select the pulse polarity of pulse width trigger mode of all TX Coefficient Requests and Circuit Response Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [Pulse Width].
Configure	Polarity (Pulse Width Trigger) (TX Device End-to-End Simulation Characteristics Requirements)	PulseWidthPolarity_EndtoEndSimulation	Positive, Negative	Select the pulse polarity of pulse width trigger mode of all TX Device End-to-End Simulation Characteristics Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [Pulse Width].

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Polarity (Pulse Width Trigger) (TX NRZ Data Signaling Requirement)	PulseWidthPolarity_DataSignaling	Positive, Negative	Select the pulse polarity of pulse width trigger mode of all TX NRZ Data Signaling Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [Pulse Width].
Configure	RJ Bandwidth	RJBandwidth	NARRow, WIDE	Select the type of filter bandwidth used to separate the DDJ from the RJ and PJ.
Configure	RJ Separation Method	RJMethod	BOTH, SPECTral	Select the type of method used to separate the RJ component.
Configure	Rx FEXT Crosstalk File (Drive Non Separable)	RxFEXTXtalkFileDriveNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxFEXTFireDriveNonSeparable.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
Configure	Rx FEXT Crosstalk File (Drive Separable)	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Rx FEXT Crosstalk File (Host Non Separable)	RxFEXTXtalkFileHostNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxFEXTXtalkFileHostNonSeparable.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
Configure	Rx FEXT Crosstalk File (Host Separable)	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
Configure	Rx NEXT Crosstalk File (Drive Non Separable)	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
Configure	Rx NEXT Crosstalk File (Drive Separable)	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
Configure	Rx NEXT Crosstalk File (Host Non Separable)	RxNEXTXtalkFileHostNonSeparable	(Accepts user-defined text), %STG:ApplicationDataAppDir%\EndtoEndSimulation\Xtalk Files\RxBNEXTFileHostNonSeparable.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
Configure	Rx NEXT Crosstalk File (Host Separable)	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.
Configure	Rx Transfer File (Drive Non Separable)	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
Configure	Rx Transfer File (Drive Separable)	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.
Configure	Rx Transfer File (Host Non Separable)	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
Configure	Rx Transfer File (Host Separable)	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.
Configure	SAS3_EYEOPENING Form Auto Close	SAS3EYEOPENINGFormAuto Close	1.0, 0.0	Select [Enable] to automatic close the SAS3_EYEOPENING display form after finish running the script.
Configure	SASWDPAverage	SASWDPAverage	(Accepts user-defined text), 8, 16	Select the number of pattern use for WDP test.
Configure	SASWDPLength	SASWDPLength	(Accepts user-defined text), 2320, 4840	Select the pattern length for WDP test. This config value will be ignored if Auto Detect SASWDPLength is enabled.
Configure	SCPI Command Timeout	SCPICommandTimeout	(Accepts user-defined text), 50000, 80000, 100000	Set the timeout period for scpi command sent to oscilloscope in miliseconds.
Configure	Sampling Rate (Jitter)	SampRate_TX_NRZData_Jitter	0, 20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+9	Select the sampling rate use for the waveform acquisition of all TX Jitter tests. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Sampling Rate (NRZ Data Signaling)	SampRate_TX_NRZData	0, 20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+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. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (OOB)	SampRate_TX_OOB	80.0E+9, 40.0E+9, 128.0E+9, 64.0E+9	Select the sampling rate use for the waveform acquisition of all TX OOB Signaling tests. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (Rise/Fall Time)	SampRate_TX_NRZData_RiseFallTime	0, 20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+9	Select the sampling rate use for the waveform acquisition of all TX Rise/Fall Time tests. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (SSC) (1.5G, 3.0G or 6.0G)	SampRate_TX_SSC	20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+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. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (SSC) (12.0G)	SampRate_TX_SSC12G	20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+9	Select the sampling rate use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 12.0Gbps. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (SSC) (22.5G)	SampRate_TX_SSC24G	20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+9	Select the sampling rate use for the waveform acquisition of all TX Spread Spectrum Clocking Requirements tests for 22.5Gbps. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Sampling Rate (TX Coefficient Requests and Circuit Response Requirements)	SampRate_TX_CoeffPreset	80.0E+9, 40.0E+9, 128.0E+9, 64.0E+9	Select the sampling rate use for the waveform acquisition of all TX Coefficient Requests and Circuit Response Requirements tests. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (TX Device End-to-End Simulation Characteristics Requirements)	SampRate_TX_EndtoEndSimulation	80.0E+9, 40.0E+9, 128.0E+9, 64.0E+9	Select the sampling rate use for the waveform acquisition of all TX Device End-to-End Simulation Characteristics Requirements tests. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	Sampling Rate (WDP)	SampRate_TX_NRZData_WDP	0, 20.0E+9, 40.0E+9, 80.0E+9, 32.0E+9, 64.0E+9, 128.0E+9	Select the sampling rate use for the waveform acquisition of TX WDP tests. Unit: Sa/s. (Real Edge Connection will hard-code sampling rate to 160GSa/s by default.)
Configure	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.
Configure	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	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.
Configure	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.
Configure	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.
Configure	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.
Configure	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Stimulus Frequency Gen5 (GHz)	PulsegenStimulusFreqGen5	(Accepts user-defined text), 22.5000000000	Gen5 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.
Configure	Stimulus Vpp Output (mVpp) (Non OOB Tests)	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.
Configure	Stimulus Vpp Output (mVpp) (OOB Tests)	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.
Configure	TCTF Test Load	TCTFTestLoad	Untrained_1_5Gbps_IT.tf2, Untrained_1_5Gbps_CT.tf2, Untrained_3_0Gbps_IT.tf2, Untrained_3_0Gbps_CT.tf2	Select the TCTF test load to be used for TX OOB Signaling tests with TCTF Test Load.
Configure	Trigger Mode (TX Coefficient Requests and Circuit Response Requirements)	TriggerMode_CoeffRequest	InfiniiScan, PulseWidth	Select the type of averaging trigger mode of all TX Coefficient Requests and Circuit Response Requirements tests.
Configure	Trigger Mode (TX Device End-to-End Simulation Characteristics Requirements)	TriggerMode_EndtoEndSimulation	InfiniiScan, PulseWidth	Select the type of averaging trigger mode of all TX Device End-to-End Simulation Characteristics Requirements tests.
Configure	Trigger Mode (TX NRZ Data Signaling Requirement)	TriggerMode_DataSignaling	InfiniiScan, PulseWidth	Select the type of averaging trigger mode of all TX NRZ Data Signaling Requirements tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Trigger Pattern (InfiniiScan Trigger) (TX Coefficient Requests and Circuit Response Requirements)	TriggerPattern_CoeffRequest	(Accepts user-defined text), 11111111111111	Select the trigger pattern of InfiniiScan trigger mode of all TX Coefficient Requests and Circuit Response Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [InfiniiScan].
Configure	Trigger Pattern (InfiniiScan Trigger) (TX Device End-to-End Simulation Characteristics Requirements)	TriggerPattern_EndtoEndSimulation	(Accepts user-defined text), 11111111111111	Select the trigger pattern of InfiniiScan trigger mode of all TX Device End-to-End Simulation Characteristics Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [InfiniiScan].
Configure	Trigger Pattern (InfiniiScan Trigger) (TX NRZ Data Signaling Requirement)	TriggerPattern_DataSignaling	(Accepts user-defined text), 10000111000111100011	Select the trigger pattern of InfiniiScan trigger mode of all TX NRZ Data Signaling Requirements tests. This configuration variable only applicable when the [Trigger Mode] configuration variable is set to [InfiniiScan].
Configure	Tx Connection	TxConnection	1, 2, 3	Select the input channel connection for the waveform acquisition of all Non-OOB and OOB Signaling tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Tx FEXT Crosstalk File (Drive Non Separable)	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
Configure	Tx FEXT Crosstalk File (Drive Separable)	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
Configure	Tx FEXT Crosstalk File (Host Non Separable)	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
Configure	Tx FEXT Crosstalk File (Host Separable)	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
Configure	Tx NEXT Crosstalk File (Drive Non Separable)	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
Configure	Tx NEXT Crosstalk File (Drive Separable)	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
Configure	Tx NEXT Crosstalk File (Host Non Separable)	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
Configure	Tx NEXT Crosstalk File (Host Separable)	TxNEXTXtalkFileHostSeparable	(Accepts user-defined text)	<p>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.</p>
Configure	Tx Reverse Transfer File (Drive Non Separable)	TxRevTransferFileDriveNonSeparable	(Accepts user-defined text)	<p>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.</p>

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Tx Reverse Transfer File (Drive Separable)	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.
Configure	Tx Reverse Transfer File (Host Non Separable)	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
Configure	Tx Reverse Transfer File (Host Separable)	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.
Configure	Tx Transfer File (Drive Non Separable)	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
Configure	Tx Transfer File (Drive Separable)	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.
Configure	Tx Transfer File (Host Non Separable)	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
Configure	Tx Transfer File (Host Separable)	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.
Configure	Tx Transfer File (TX Vpp)	TxTransferFileToETPoint	(Accepts user-defined text), %STG:ApplicationDataAppDir%\Filters\DoNothing.tf4	Select the path of transfer function file for de-embedding to ET point. This configuration variable 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
Configure	Use Fixed RJ in Jitter Separation	UseFixedRJ	true, false	Select to use fixed RJ value in jitter separation. Use [Fixed RJ Value] configuration variable to set the known amount of random jitter (RJ). This configuration variable 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 <= 99	Specify N using the 'Minimum required margin %' control.
Set Up	Bit Rate (Gbps)	BitRate	1.5, 3.0, 6.0, 12.0, 22.5	Select the bit rate supported by DUT to either 1.5 Gbps, 3.0 Gbps, 6.0 Gbps, 12.0 Gbps or 22.5 Gbps. Select the bit rate supported by DUT to either 1.5 Gbps, 3.0 Gbps, 6.0 Gbps, 12.0 Gbps or 22.5 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	Custom De-Embed Fixture S-Parameter File.	CustomDeEmbedFixtureSPParameterFile	(Accepts user-defined text)	Set the custom s-parameter file path use for fixture de-embedding. Set the custom s-parameter file path use for fixture de-embedding.
Set Up	Custom Embed Standard Fixture S-Parameter File	CustomEmbedStandardFixtureSPParameterFile	(Accepts user-defined text)	Set the custom s-parameter file path use for standard fixture embedding Set the custom s-parameter file path use for standard fixture embedding.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
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 wth SSC off. This variable use to store the directory of D30.3 differential signal waveform wth SSC off.
Set Up	De-Embed Fixture	DeEmbedFixture	0.0, 1.0	Enable or disable fixture de-embedding. Enable or disable fixture de-embedding.
Set Up	De-Embed Fixture Type	DeEmbedFixtureType	Wilder SAS-4 SAS-TPA-P Primary TX (Yellow), Wilder SAS-4 SAS-TPA-P Secondary TX (Green), Wilder SAS-4 SAS-TPA-R Primary TX (Red), Wilder SAS-4 SAS-TPA-R Secondary TX (White), Wilder SAS-4 Mini-SAS HD TX (All), Other	Select the type of fixture to be de-embedded. Select the type of fixture to be de-embedded.
Set Up	Device Identifier	DevicelIdentifier	(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.
Set Up	Embed Standard Fixture	EmbedStandardFixture	0.0, 1.0	Enable or disable standard fixture embedding. Enable or disable standard fixture embedding.
Set Up	Embed Standard Fixture Type	EmbedStandardFixtureType	SAS-4 Specification, Other	Select the type of standard fixture to be embedded. Select the type of standard fixture to be embedded.

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 connected to a separable TxRx connection segment or a transmitter device connected to a non separable TxRx connection segment. Select the end-to-end simulation type either for a transmitter device connected to a separable TxRx connection segment or a transmitter device connected to a non separable TxRx connection segment.
Set Up	HFTPWEqu_SSCOff_Diff_Directory	HFTPWEqu_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of equalized HFTP differential signal waveform with SSC off. This variable use to store the directory of equalized HFTP differential signal waveform with SSC off.
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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
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.
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	PRBS15_SSCOff_CM_Directory	PRBS15_SSCOff_CM_wfm	(Accepts user-defined text)	This variable use to store the directory of PRBS15 common mode signal waveform with SSC off. This variable use to store the directory of PRBS15 common mode signal waveform with SSC off.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	PRBS15_SSCOff_Diff_Directory	PRBS15_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of PRBS15 differential signal waveform with SSC off. This variable use to store the directory of PRBS15 differential signal waveform with SSC off.
Set Up	PRBS15_SSCSASCenter_Diff_Directory	PRBS15_SSCSASCenter_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of PRBS15 differential signal waveform with SAS Center Spreading SSC. This variable use to store the directory of PRBS15 differential signal waveform with SAS Center Spreading SSC.
Set Up	PRBS15_SSCSASDown_Diff_Directory	PRBS15_SSCSASDown_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of PRBS15 differential signal waveform with SAS Down Spreading SSC. This variable use to store the directory of PRBS15 differential signal waveform with SAS Down Spreading SSC.
Set Up	PRBS15_SSCSATADown_Diff_Directory	PRBS15_SSCSATADown_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of PRBS15 differential signal waveform with SATA Down Spreading SSC. This variable use to store the directory of PRBS15 differential signal waveform with SATA Down Spreading SSC.
Set Up	PRBS9_SSCOff_Diff_Directory	PRBS9_SSCOff_Diff_wfm	(Accepts user-defined text)	This variable use to store the directory of PRBS9 differential signal waveform with SSC off. This variable use to store the directory of PRBS9 differential signal waveform with SSC off.
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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	RandomPatternDefaultEqu_SSCOff_Diff_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.
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	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	RandomPatternRef2_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	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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
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.
Set Up	Remote Connection	RemoteConnection	none, PPG_IP, PPG_Sicl, JBERT_IP, JBERT_Sicl, M8020A_IP, M8020A_Sicl, M8040A_IP, M8040A_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 (SAS Center Spreading) supported by the DUT. Select the SSC modulation type (SAS Center Spreading) supported by the DUT.
Set Up	SAS Down Spreading SSC Type	SASDownSSCType	0.0, 1.0	Select the SSC modulation type (SAS Down Spreading) supported by the DUT. Select the SSC modulation type (SAS Down Spreading) supported by the DUT.
Set Up	SATA Down Spreading SSC Type	SATADownSSCType	0.0, 1.0	Select the SSC modulation type (SATA Down Spreading) supported by the DUT. Select the SSC modulation type (SATA Down Spreading) 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.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	Stimulus Device	StimulusDevice	None, N4903B, 81134A, M8020A, M8040A	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, De_embedding File	Select the test method for Tx Vpp, ET test. Select the test method for Tx Vpp, ET test.
Set Up	User Comments	UserComment	(Accepts user-defined text)	Additional comments for the DUT. Additional comments for the DUT.
Set Up	User Description	UserDescription	(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.

2 Configuration Variables and Values

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. Listed at the end, you may also find:

- Deprecated IDs and their replacements.
- Macro IDs which may be used to select multiple related tests at the same time.

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 for all data rates.
RECEIVE COMSAS Idle Time	31201	To verify that the DUT transmits the OOB signal COMSAS idle time within conformance limits for all data rates.
RECEIVE COMWAKE Idle Time	31301	To verify that the DUT transmits the OOB signal COMWAKE idle time within conformance limits for all data rates.
RX DFE Coefficient Amplitude Ratio	61501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio (Drive Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX DFE Coefficient Amplitude Ratio	60501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio (Drive Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX DFE Coefficient Amplitude Ratio	51501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio (Host Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX DFE Coefficient Amplitude Ratio	50501	To verify that the simulated DFE coefficient amplitude to reference pulse response cursor ratio (Host Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Reference Pulse Response Cursor	61301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude (Drive Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Reference Pulse Response Cursor	60301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude (Drive Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
RX Reference Pulse Response Cursor	51301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude (Host Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Reference Pulse Response Cursor	50301	To verify that the simulated reference pulse response cursor peak-to-peak amplitude (Host Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Vertical Eye Opening Ratio	61401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio (Drive Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Vertical Eye Opening Ratio	60401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio (Drive Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Vertical Eye Opening Ratio	51401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio (Host Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
RX Vertical Eye Opening Ratio	50401	To verify that the simulated vertical eye opening to reference pulse response cursor ratio (Host Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 1 (C1)	60101	To verify that the simulated coefficient 1 (C1) (Drive Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 1 (C1)	61101	To verify that the simulated coefficient 1 (C1) (Drive Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 1 (C1)	51101	To verify that the simulated coefficient 1 (C1) (Host Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 1 (C1)	50101	To verify that the simulated coefficient 1 (C1) (Host Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 3 (C3)	61103	To verify that the simulated coefficient 3 (C3) (Drive Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 3 (C3)	60103	To verify that the simulated coefficient 3 (C3) (Drive Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient 3 (C3)	51103	To verify that the simulated coefficient 3 (C3) (Host Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX Coefficient 3 (C3)	50103	To verify that the simulated coefficient 3 (C3) (Host Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Coefficient Requests and Circuit Response	40101	To verify that the transmitter circuit response for the corresponding coefficient requests is within the conformance limits for data rate 12.0Gbps.
TX Coefficient Requests and Circuit Response	40111	To verify that the transmitter circuit response for the corresponding coefficient requests is within the conformance limits for data rate 22.5Gbps.
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 for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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 for data rate 12.0Gbps.
TX Common Mode RMS Voltage Limit	20221	To verify that the common mode RMS voltage of the DUT's transmitter device is less than the maximum allowed value for data rate 22.5Gbps.
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 for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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 for data rate 12.0Gbps.
TX Common Mode Spectrum	20321	To verify that the common mode spectral characteristics of the DUT's transmitter device are below the maximum allowable limits for data rate 22.5Gbps.
TX Common Mode Voltage	21221	To verify that the common mode voltage of the DUT's transmitter device is within the conformance limits for data rate 22.5Gbps.
TX Device End-to-End Simulation	61999	Transmitter device end-to-end simulation (Drive Non-Seperable) using SAS3_EYEOPENING script.
TX Device End-to-End Simulation	60999	Transmitter device end-to-end simulation (Drive Seperable) using SAS3_EYEOPENING script.
TX Device End-to-End Simulation	51999	Transmitter device end-to-end simulation (Host Non-Seperable) using SAS3_EYEOPENING script.
TX Device End-to-End Simulation	50999	Transmitter device end-to-end simulation (Host Seperable) using SAS3_EYEOPENING script.
TX Duty Cycle Distortion (T_DCD) (No Equalization)	21521	To verify that the transmit duty cycle distortion of the DUT transmitter device with no equalization is within the conformance limits for data rate 22.5Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX Duty Cycle Distortion (T_DCD) (With Equalization)	21522	To verify that the transmit duty cycle distortion of the DUT transmitter device with equalization is within the conformance limits for data rate 22.5Gbps.
TX EQ (Informative)	20502	To verify that the equalization (EQ) of the DUT's transmitter device is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Fall Time	20602	To verify that the fall time of the DUT's transmitted SAS signaling are within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Fall Time	20612	To verify that the fall time of the DUT's transmitted SAS signaling are within the conformance limits for data rate 12.0Gbps.
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 for all data rates.
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 for data rate 12.0Gbps.
TX No Equalization Post-cursor Equalization Ratio (Rpost)	40513	To verify that the post-cursor equalization ratio (Rpost) of the DUT's transmitter device with no equalization is within the conformance limits for data rate 2.5Gbps.
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 for data rate 12.0Gbps.
TX No Equalization Pre-cursor Equalization Ratio (Rpre)	40512	To verify that the pre-cursor equalization ratio (Rpre) of the DUT's transmitter device with no equalization is within the conformance limits for data rate 22.5Gbps.
TX OOB Burst Amplitude Minimum (TCTF Test Load)	30203	To verify that the minimum amplitude (TCTF Test Load) of the DUT transmitter OOB bursts is within the conformance limits for all data rates.
TX OOB Burst Amplitude Minimum (Zero-Length Test Load)	30202	To verify that the minimum amplitude (Zero-Length Test Load) of the DUT transmitter OOB bursts is within the conformance limits for all data rates.
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 for all data rates.
TX OOB Common Mode Delta	30401	To verify that the OOB common mode delta of the DUT transmitter device is within the conformance limit for all data rates.
TX OOB Offset Delta	30301	To verify that the OOB offset delta of the DUT transmitter device is within the conformance limit for all data rates.

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 for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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 for data rate 12.0Gbps.
TX Peak-to-Peak Voltage, ET	40421	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 for data rate 22.5Gbps.
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 (with .tf4 file) is greater than the minimum allowed value for data rate 12.0Gbps.
TX Peak-to-Peak Voltage, ET (with .tf4 file)	40422	To verify that the peak-to-peak output voltage (Vpp) of the DUT's transmitter device at test point ET (with .tf4 file) is greater than the minimum allowed value for data rate 22.5Gbps.
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 for data rate 12.0Gbps.
TX Peak-to-Peak Voltage, IT	20421	To verify that the peak-to-peak output voltage (Vpp) of the DUT's transmitter device is less than the maximum allowed value for data rate 22.5Gbps.
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 for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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 for data rate 12.0Gbps.
TX Physical Link Rate Long Term Stability (Mean)	20123	To verify that the mean of long term stability of the DUT transmitter's physical link rate is within the conformance limits for data rate 22.5Gbps.
TX Post-cursor Equalization Ratio (Rpost), Max	40302	To verify that the max 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 for data rate 12.0Gbps.
TX Post-cursor Equalization Ratio (Rpost), Min	40301	To verify that the min 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 for data rate 12.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX Pre-cursor Equalization Ratio (Rpre), Max	40202	To verify that the max 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 for data rate 12.0Gbps.
TX Pre-cursor Equalization Ratio (Rpre), Min	40201	To verify that the min 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 for data rate 12.0Gbps.
TX Pre-cursor and Post-cursor Measurement	40999	Pre-cursor and post-cursor measurement for the coefficient preset for data rate 12.0Gbps.
TX Pre-cursor and Post-cursor Measurement	41999	Pre-cursor and post-cursor measurement for the coefficient preset for data rate 22.5Gbps.
TX Random Jitter (RJ)	20701	To verify that the random jitter (RJ) of the DUT transmitter device is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Random Jitter (RJ)	20711	To verify that the random jitter (RJ) of the DUT transmitter device is within the conformance limits for data rate 12.0Gbps.
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 for data rate 12.0Gbps.
TX Reference 1 Post-cursor Equalization Ratio (Rpost)	40613	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 for data rate 22.5Gbps.
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 for data rate 12.0Gbps.
TX Reference 1 Pre-cursor Equalization Ratio (Rpre)	40612	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 for data rate 22.5Gbps.
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 for data rate 12.0Gbps.
TX Reference 2 Post-cursor Equalization Ratio (Rpost)	40713	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 for data rate 22.5Gbps.
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 for data rate 12.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX Reference 2 Pre-cursor Equalization Ratio (Rpre)	40712	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 for data rate 22.5Gbps.
TX Rise Time	20601	To verify that the rise time of the DUT's transmitted SAS signaling are within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Rise Time	20611	To verify that the rise time of the DUT's transmitted SAS signaling are within the conformance limits for data rate 12.0Gbps.
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) (SAS-SAS Center Spreading) is within the conformance limit for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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) (SAS-SAS Center Spreading) is within the conformance limit for data rate 12.0Gbps.
TX SSC DFDT (SAS-SAS Center Spreading, Max) (Informative)	10721	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) (SAS-SAS Center Spreading) is within the conformance limit for data rate 22.5Gbps.
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) (SAS-SAS Center Spreading) is within the conformance limit for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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) (SAS-SAS Center Spreading) is within the conformance limit for data rate 12.0Gbps.
TX SSC DFDT (SAS-SAS Center Spreading, Min) (Informative)	10722	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) (SAS-SAS Center Spreading) is within the conformance limit for data rate 22.5Gbps.
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) (SAS-SAS Down Spreading) is within the conformance limit for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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) (SAS-SAS Down Spreading) is within the conformance limit for data rate 12.0Gbps.
TX SSC DFDT (SAS-SAS Down Spreading, Max) (Informative)	10621	To verify that the maximum short term rate of change (slope) of the SSC modulation profile (dF/dt) (SAS-SAS Down Spreading) is within the conformance limit for data rate 22.5Gbps.
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) (SAS-SAS Down Spreading) is within the conformance limit for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
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) (SAS-SAS Down Spreading) is within the conformance limit for data rate 12.0Gbps.
TX SSC DFDT (SAS-SAS Down Spreading, Min) (Informative)	10622	To verify that the minimum short term rate of change (slope) of the SSC modulation profile (dF/dt) (SAS-SAS Down Spreading) is within the conformance limit for data rate 22.5Gbps.
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) (SAS-SATA Down Spreading) is within the conformance limit for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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) (SAS-SATA Down Spreading) is within the conformance limit for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Max)	10301	To verify that the maximum of SSC modulation deviation (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Max)	10311	To verify that the maximum of SSC modulation deviation (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Max)	10321	To verify that the maximum of SSC modulation deviation (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Min)	10302	To verify that the minimum of SSC modulation deviation (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Min)	10312	To verify that the minimum of SSC modulation deviation (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Center Spreading, Min)	10322	To verify that the minimum of SSC modulation deviation (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Max)	10211	To verify that the maximum of SSC modulation deviation (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Max)	10221	To verify that the maximum of SSC modulation deviation (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Max)	10201	To verify that the maximum of SSC modulation deviation (SAS-SAS Down Spreading, Max) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Min)	10222	To verify that the minimum of SSC modulation deviation (AS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Min)	10202	To verify that the minimum of SSC modulation deviation (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Deviation (SAS-SAS Down Spreading, Min)	10212	To verify that the minimum of SSC modulation deviation (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.
TX SSC Modulation Deviation (SAS-SATA Down Spreading, Max)	10501	To verify that the maximum of SSC modulation deviation (SAS-SATA Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Deviation (SAS-SATA Down Spreading, Min)	10502	To verify that the minimum of SSC modulation deviation (SAS-SATA Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Deviation Asymmetry (SAS-SAS Center Spreading)	10411	To verify that the SSC modulation deviation asymmetry (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.
TX SSC Modulation Deviation Asymmetry (SAS-SAS Center Spreading)	10421	To verify that the SSC modulation deviation asymmetry (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Deviation Asymmetry (SAS-SAS Center Spreading)	10401	To verify that the SSC modulation deviation asymmetry (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Frequency (SAS-SAS Center Spreading)	10102	To verify that the SSC modulation frequency (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Frequency (SAS-SAS Center Spreading)	10112	To verify that the SSC modulation frequency (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.
TX SSC Modulation Frequency (SAS-SAS Center Spreading)	10122	To verify that the SSC modulation frequency (SAS-SAS Center Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Frequency (SAS-SAS Down Spreading)	10101	To verify that the SSC modulation frequency (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX SSC Modulation Frequency (SAS-SAS Down Spreading)	10111	To verify that the SSC modulation frequency (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 12.0Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX SSC Modulation Frequency (SAS-SAS Down Spreading)	10121	To verify that the SSC modulation frequency (SAS-SAS Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 22.5Gbps.
TX SSC Modulation Frequency (SAS-SATA Down Spreading)	10103	To verify that the SSC modulation frequency (SAS-SATA Down Spreading) of the DUT's transmitted signaling is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Total Jitter (TJ)	20801	To verify that the transmit jitter of the DUT transmitter device is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Total Jitter (TJ)	20811	To verify that the transmit jitter of the DUT transmitter device is within the conformance limits for data rate 12.0Gbps.
TX Total Jitter (TJ)	20821	To verify that the transmit jitter of the DUT transmitter device is within the conformance limits for data rate 22.5Gbps.
TX Total Jitter (TJ) (SAS-SAS Center Spreading)	20803	To verify that the transmit jitter (SAS-SAS Center Spreading) of the DUT transmitter device with SSC on is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Total Jitter (TJ) (SAS-SAS Center Spreading)	20813	To verify that the transmit jitter (SAS-SAS Center Spreading) of the DUT transmitter device with SSC on is within the conformance limits for data rate 12.0Gbps.
TX Total Jitter (TJ) (SAS-SAS Center Spreading)	20823	To verify that the transmit jitter (SAS-SAS Center Spreading) of the DUT transmitter device with SSC on is within the conformance limits with data rate 22.5Gbps.
TX Total Jitter (TJ) (SAS-SAS Down Spreading)	20802	To verify that the transmit jitter (SAS-SAS Down Spreading) of the DUT transmitter device with SSC on is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Total Jitter (TJ) (SAS-SAS Down Spreading)	20812	To verify that the transmit jitter (SAS-SAS Down Spreading) of the DUT transmitter device with SSC on is within the conformance limits for data rate 12.0Gbps.
TX Total Jitter (TJ) (SAS-SAS Down Spreading)	20822	To verify that the transmit jitter (SAS-SAS Down Spreading) of the DUT transmitter device with SSC on is within the conformance limits with data rate 22.5Gbps.
TX Total Jitter (TJ) (SAS-SATA Down Spreading)	20804	To verify that the transmit jitter (SAS-SATA Down Spreading) of the DUT transmitter device with SSC on is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
TX Total Jitter (TJ) (SAS-SATA Down Spreading)	20814	To verify that the transmit jitter (SAS-SATA Down Spreading) of the DUT transmitter device with SSC on is within the conformance limits for data rate 12.0Gbps.
TX Total Jitter (TJ) (SAS-SATA Down Spreading)	20824	To verify that the transmit jitter (SAS-SATA Down Spreading) of the DUT transmitter device with SSC on is within the conformance limits with data rate 22.5Gbps.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
TX Uncorrelated Bounded High Probability Jitter (T_UBHPJ)	21421	To verify that the transmit uncorrelated bounded high probability jitter of the DUT transmitter device is within the conformance limits for data rate 22.5Gbps.
TX Uncorrelated Unbounded Gaussian Jitter (T_UUGJ)	21321	To verify that the transmit uncorrelated unbounded gaussian jitter of the DUT transmitter device is within the conformance limits for data rate 22.5Gbps.
TX VMA	61201	To verify that the simulated voltage modulation amplitude (VMA) (Drive Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX VMA	60201	To verify that the simulated voltage modulation amplitude (VMA) (Drive Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX VMA	51201	To verify that the simulated voltage modulation amplitude (VMA) (Host Non-Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX VMA	50201	To verify that the simulated voltage modulation amplitude (VMA) (Host Seperable) of the DUT's transmitter device is within the conformance limits for data rate 12.0Gbps.
TX VMA (Informative)	20501	To verify that the voltage modulation amplitude (VMA) of the DUT's transmitter device is within the conformance limits for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.
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 for data rate 1.5Gbps, 3.0Gbps and 6.0Gbps.

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]";
```

```
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
Infiniium	The primary oscilloscope
pulsegen	81134A Pulse Pattern Generator
JBert	N4903B High Performance Serial BERT
M8020A	M8020A High Performance Serial BERT
M8040A	M8040A High Performance Serial BERT

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