Agilent U7249C/D MIPI M-PHY Compliance Application

Programmer's Reference

Agilent Technologies

Notices

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In This Book

This book is your guide to programming the Agilent Technologies U7249C/D MIPI M-PHY Compliance Application.

- Chapter 1, "Introduction to Programming," starting on page 7, describes compliance application programming basics.
- Chapter 2, "Configuration Variables and Values," starting on page 11, Chapter 3, "Test Names and IDs," starting on page 33, and Chapter 4, "Instruments," starting on page 51, provide information specific to programming the U7249C/D MIPI M-PHY Compliance Application.

How to Use This Book

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

Contents

1
Introduction to Programming

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

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

You can accomplish other tasks by combining these functions.

Remote Programming Toolkit

The majority of remote interface features are common across all the Agilent Technologies, Inc. family of compliance applications. Information on those features is provided in the N5452A Compliance Application Remote Programming Toolkit available for download from Agilent here: "www.agilent.com/find/scope-apps-sw". The U7249C/D MIPI M-PHY Compliance Application uses Remote Interface Revision 2.80. The help files provided with the toolkit indicate which features are supported in this version.

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

Licensing

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

2
Configuration Variables and Values

The following table contains a description of each of the U7249C/D MIPI M-PHY Compliance Application options that you may query or set remotely using the appropriate remote interface method. The columns contain this information:

- GUI Location — Describes which graphical user interface tab contains the control used to change the value.
- Label — Describes which graphical user interface control is used to change the value.
- Variable — The name to use with the SetConfig method.
- Values — The values to use with the SetConfig method.
- Description — The purpose or function of the variable.

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

- Enable Advanced Features

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

Table 1 Example Configuration Variables and Values

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

and you would set the variable remotely using:

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

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

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

NOTE

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

NOTE

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

Table 2 Configuration Variables and Values

GUI Location	Label	Variable	Values	Description
Confgure	Acquisition Points	AcqPoints	100E+3, 200E+3, 500E+3, 1E+6, 2E+6, 4E+6, 5E+6, 6E+6, 8E+6, 10E+6	Enter the acquisition points to capture at least one cycle including PREPARE and STALL state. The actual sampling window length when running all the tests (excluding the jitter tests) is determined based on this acquisition points value together with the corresponding sampling rate used. Sampling Window = [Acquisition point] / [Sampling Rate] For example; If the acqusition points is set to 5 Mpts and the sampling rate used is 40GSa/s, then the Sampling Window = 125 us The sampling rate used is automatically set in the application based on the following criteria. [Burst Data] For data rate less than 10 Mbps, Sampling Rate = 2.5 GSa/s For data rate less than 50 Mbps, Sampling Rate = 5 GSa/s For data rate less than 1.5 Gbps, Sampling Rate = 10 GSa/s For data rate less than 2 Gbps, Sampling Rate = 20 GSa/s For data rate of 2 Gbps and above, Sampling Rate = 40 GSa/s [Continuous Data] Always use maximum available sampling rate of the scope.
Confgure	Acquisition length [UI]	RJDJAcqLen	(Accepts user-defined text), 10000, 20000, 30000, 40000, 50000, 100000, 150000, 200000, 250000, 300000, 350000, 400000	For TJ and DJ tests under HS Continuous Data mode. This option is used to set the single acquisition length in terms of UI. The actual sample points equivalent to then number of UI specified will be calculated based on the value used in the "HS Data Rate" option(maximum number of sample points is limit at 10Mpts for efficiency and responsiveness when running the jitter measurements).
Confgure	CRPAT Packet Bit Length	TestPatternLength	(Accepts user-defined text), 1280, 1320, 3584, 30240	Enter the bit length for CRPAT test patterns. This value is used to determined the sample length when performing DJ tests under HS Burst Data mode. For example; HS Burst Data Rate = 1248 Mbps CRPAT Packet Bit Length = 1320 Sample length used in HS Burst DJ test = 1/1248000000 * 1320 = 1.058 us

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Clock Recovery Method [Burst Data Mode]	ClockRecoveryMethod	FIXed, SOPLL	Clock recovery method for eye diagram and jitter related tests. This applies to all Burst Data mode test.
Confgure	Clock Recovery Method [Continuous Data Mode]	ClockRecoveryMethod_ContData	FIXed, SOPLL	Clock recovery method for eye diagram and jitter related tests. This applies to all Continuous Data mode test.
Confgure	DIF-N State Duration (UI)	DIFNStateDuration	(Accepts user-defined text), 9, 20	Enter the DIF-N state duration in UI. This value is used in trigger acquisition for all tests excluding the jitter and TEYE(BER10) tests.
Confgure	DIF-P State Duration (UI)	DIFPStateDuration	(Accepts user-defined text), 9, 20	Enter the DIF-P state duration in UI. This value is used in trigger acquisition for jitter and TEYE(BER10)tests only.
Confgure	Damping Factor (for 2nd Order PLL)	DampingFactor	(Accepts user-defined text), 0.707, 1	For 2nd Order PLL only.
Confgure	FolderHS_L2L_L1L0	FolderHS_L2L_L1L0	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.1.9 T_L2L_L1_L0_LA_RT_TX test.
Confgure	FolderHS_L2L_L2L0	FolderHS_L2L_L2L0	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.1.9 T_L2L_L2_L0_LA_RT_TX test.
Confgure	FolderHS_L2L_L3L0	FolderHS_L2L_L3L0	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.1.9 T_L2L_L3_L0_LA_RT_TX test.
Confgure	FolderPWM_L2L_L1L0	FolderPWM_L2L_L1L0	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.2.9 T_L2L_L1_L0_PWM_LA_NT_TX test.
Confgure	FolderPWM_L2L_L2L0	FolderPWM_L2L_L2L0	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.2.9 T_L2L_L2_L0_PWM_LA_NT_TX test.
Confgure	FolderPWM_L2L_L3L0	FolderPWM_L2L_L3L0	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.2.9 T_L2L_L3_L0_PWM_LA_NT_TX test.
Confgure	Folder_SR_DIF	Folder_SR_DIF	(Accepts user-defined text), None	Saved folder path that contain Waveform Files for 1.1.10 SR_DIF_TX, 1.1.11 SR_DIF_TX Monotonicity and 1.1.12 ?SR_DIF_TX Resolution tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	HS Data Eye Filter	HSDataEyeFilter	1, 0	This option is used to enable/disable HS Data Eye filtering where the SYNC regions from all the burst data will be removed before generating an eye diagram. For the filter to work, the HS burst data stream must contain DIF-P, DIF-N, valid SYNC pattern and Marker0 pattern.
Confgure	Hysteresis Level	MeasThres_HysteresisLevel	(Accepts user-defined text), 0	Specify the value of the hysteresis level voltages used in setting the measurement thresholds. By default, this value is set to 0V. This option is only applicable for all the tests that does NOT have explicit specified measurement threshold method in the CTS specifications. This option is not applicable for TR_TF test, SR_DIF test and TIntra_Skew test.
Confgure	Hysteresis Range	MeasThres_HysteresisRange	(Accepts user-defined text), 0.030, 0.050	Specify the value of the hysteresis range used in setting the measurement thresholds. By default, this value is set to 30mV. This option is only applicable for all the tests that does NOT have explicit specified measurement threshold method in the CTS specifications. This option is not applicable for TR_TF test, SR_DIF test and TIntra_Skew test.
Confgure	Ignore DIF-N State After Change in Termination (UI)	DIFNStateB4TerminationChange	(Accepts user-defined text), 0, 9, 20	Enter the DIF-N state duration in UI before changing termination from 50ohms to 500ohms so that the region at 500ohms will be ignored when measuring VDIF. Enter "No termination change" if the DUT does not change termination during STALL state.
Confgure	Interpolation	Interpolation	1, 0	This option is used to turn on interpolation for HS Burst Data mode. This config is only applicable for 1.1.8 TR_TF and 1.1.10 SR_DIF tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	IntraSkewEdgeHysteresis [V]	IntraSkewEdgeHysteresis	(Accepts user-defined text), 0.050, 0.030	This option is used to set the measurement thresholds when performing the Intra-Lane Output Skew test. The upper and lower measurement thresholds will be determined by adding or subtracting this value from the measured common-mode level of the test signal. By default this value is set to 30mV. In that case, if the common-mode level of a test signal is 110mV, then the measurement thresholds used will be as follow: Upper measurement threshold = 140mV Middle measurement threshold = 110mV Lower measurement threshold = 80mV
Confgure	Logger	DJ_STDJLogger	1, 0	This option is used to enable/disable the logger feature for 1.1.17 DJ_TX and 1.1.18 STDJ_TX tests where the waveform captured for each acquisition and result will be saved in the following directory: Win7:C:\ProgramData\Agilent\Infiniium\Apps\MIPI_M-PHYTest\Project\app\DJ_STDJLogger\ WinXP:C:\Documents and Settings\All Users\Application Data\Agilent\Infiniium\Apps\MIPI_M-PHYTest\Project\app\DJ_STDJLogger\
Confgure	Loop Bandwidth (for 2nd Order PLL)	LoopBandwidth	(Accepts user-defined text), 2E+6, 3E+6, 4E+6	For 2nd Order PLL only.
Confgure	Lower Percent	MeasThres_LowerPct	(Accepts user-defined text), 10, 20	Specify the value of the lower threshold used when the "MeasThreshold Mode" option is set to use "TopBaseRatio". By default, this value is set to 10%.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	MC_LS_PREPARE_LENGTH	MC_LS_PREPARE_LENGTH	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	Specify the value of the MC_LS_PREPARE_LENGTH. MC_LS_PREPARE_LENGTH is the PWM-BURST PREPARE length multiplier for OMC. MC_LS_PREPARE_LENGTH will be used to compute test limit for 1.2.3 TPWM_PREPARE test if Optical Media Converter(OMC) is present. The actual test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. Example 1, TX_LS_PREPARE_LENGTH = 10, MC_LS_PREPARE_LENGTH = 15, TLINE_RESET_DETECT = 1ms, GEAR = 1 and PWM bit rate = 9Mbps. if OMC is present, TPWM_PREPARE_TestLimit = 512SI. if OMC is not present, TPWM_PREPARE_TestLimit = 16SI. Example 2, TX_LS_PREPARE_LENGTH = 10, MC_LS_PREPARE_LENGTH = 15, TLINE_RESET_DETECT = 1ms, GEAR = 1 and PWM bit rate = 3Mbps. if OMC is present, TPWM_PREPARE_TestLimit = 300SI. if OMC is not present, TPWM_PREPARE_TestLimit = 16SI. This config is only applicable for 1.2.3 TPWM_PREPARE test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	MaxNumOfAcq	RJDJMaxNumOfAcq	(Accepts user-defined text), 10, 20, 30, 40, 50, 100	For TJ and DJ tests. This option is used to set the maximum number of single acquisition that the application will acquire when performing the jitter tests. The sample length of each single acquisition is specified in the "Acquisition Length [UI]" option.
Confgure	MeasThreshold Mode	MeasThresMode	0, 1	This option sets the measurement threshold method that is used when performing all the test measurements that does NOT have explicit specified measurement threshold method in the CTS specifications. * When the "Hysteresis" method is selected, the "Hysteresis Range" and "Hysteresis Level" options will be used as the setting values. * When the "TopBaseRatio" method is selected, the "Upper Percent", "Middle Percent" and "Lower Percent" options will be used as the setting values. This option is not applicable for TR_TF test, SR_DIF test and TIntra_Skew test.
Confgure	Middle Percent	MeasThres_MiddlePct	(Accepts user-defined text), 50	Specify the value of the middle threshold used when the "MeasThreshold Mode" option is set to use "TopBaseRatio". By default, this value is set to 50%.
Confgure	Non-periodic pattern Filter Lag	RJDJFilterLag	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	For TJ and DJ tests.
Confgure	Non-periodic pattern Filter Lead	RJDJFilterLead	-3, -2, -1, 0	For TJ and DJ tests.
Confgure	Number of 0011 and 1100 Patterns	NumOfPatternTRTF	(Accepts user-defined text), 16, 32	This config is used to specify the number of 0011 and 1100 patterns to used for Rise and Fall times measurement. For example, if 32 is selected, rise and fall times will be measured for 32 copies of 1100 and 0011 patterns, respectively. This config is only applicable for 1.1.8 TR_TF and 1.1.10 SR_DIF tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Optical Media Converter(OMC)	OMC	1, 0	Specify the presence of OMC. This config variable will be used to determine the test limit for 1.2.3 TPWM_PREPARE test. The actual test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. Example 1, TX_LS_PREPARE_LENGTH = 10, MC_LS_PREPARE_LENGTH = 15, TLINE_RESET_DETECT = 1ms, GEAR = 1 and PWM bit rate = 9Mbps. if OMC is present, TPWM_PREPARE_TestLimit = 512SI. if OMC is not present, TPWM_PREPARE_TestLimit = 16SI. Example 2, TX_LS_PREPARE_LENGTH = 10, MC_LS_PREPARE_LENGTH = 15, TLINE_RESET_DETECT = 1ms, GEAR = 1 and PWM bit rate = 3Mbps. if OMC is present, TPWM_PREPARE_TestLimit = 300SI. if OMC is not present, TPWM_PREPARE_TestLimit = 16SI. This config is only applicable for 1.2.3 TPWM_PREPARE test.
Confgure	PSD termination	PSDTermination	1, 2, 3	Select termination to be used for PSD measurement.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	PWM Data Eye Filter	PWMDataEyeFilter	1, 0	This option is used to enable/disable PWM Data Eye filtering where the SYNC regions from all the burst data will be removed before generating an eye diagram. For the filter to work, the PWM burst data stream must contain DIF-P, DIF-N, valid SYNC pattern and Marker0 pattern.
Confgure	Pattern repetition	RJDJPatternLength	AUTO, ARBitrary	For TJ and DJ tests.
Confgure	Protocol Specification	ProtocolSpecificationL2L	DigRFv4, LLI, UniPro, SSIC	Identifies the Protocol Specification which will be used to define the test limit for 1.1.9 T_L2L_SKEW_HS_LA_RT_TX test.
Confgure	RJ Method	RJMethod	SPECtral, BothReportSpectral, BothReportTailFit	For TJ and DJ tests in Continuous Data mode. This option is used for RJ Method selection.
Confgure	RSE_TX [ohm]	RSE_TX	(Accepts user-defined text), 40, 50, 60	Specify the value of RSE_TX in unit ohm. This config is only applicable for 1.1.4 VCM and 1.2.4 VCM tests if "Direct Connect" probing method is selected VCM is computed based on equation: VCM = (Vp + Vn)/2. VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Reference Channel Transfer Function File (G3)	BEREyeRefChanTF File	(Accepts user-defined text), AUTO, OFF, CH1, CH2	This option is used to set the Reference Channel transfer function file that the application will be embeded when performing test. * When the "OFF" is selected, no transfer function file will be embeded when performing test. * When the "AUTO" is selected, the "short" channel (CH1) will be used for Small Amplitude and "long" options (CH2) will be used for Large Amplitude. * User may specify custom Reference Channel file by providing the full path of the transfer function file (*.tf4). This config is applicable for 1.1.7 TEYE_G3_TX, VDIF_AC_G3_TX tests only.
Confgure	SYNC Pattern	SyncID	0, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90	This option specifies the additional M-PHY SYNC pattern that will be searched for besides the expected default "D10.5" and "D26.5" patterns when trying to identify the Marker0 pattern in the HS Burst data. When this option is set to "default", the SYNC patterns that will be searched for are "D10.5" and "D26.5" only. If this option is set to "D21.5", then the SYNC pattern search list will consist of "D10.5", "D26.5" and "D21.5" patterns.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Sampling Rate, GSa/s	SRate	Default, 80.0E+9, 40.0E+9, 20.0E+9, 10.0E+9, 5.0E+9	Specify the Sampling Rate to use for all tests. Example 1, if the value of "Default" is selected, the Sampling Rate used is automatically set in the application based on the following criteria. [Burst Data] For data rate less than 10 Mbps, Sampling Rate = 2.5 GSa/s For data rate less than 50 Mbps, Sampling Rate = 5 GSa/s For data rate less than 1.5 Gbps, Sampling Rate = 10 GSa/s For data rate less than 2 Gbps, Sampling Rate = 20 GSa/s For data rate of 2 Gbps and above, Sampling Rate = 40 GSa/s [Continuous Data] Always use maximum available sampling rate of the scope. Example 2, if the value of "20GSa/s" is selected, the Sampling Rate used is automatically set in the application based on the following criteria. [Burst Data] The Sampling rate used is set to 20GSa/s for all tests. [Continuous Data] Always use maximum available sampling rate of the scope. If the configuration variable "Scope Bandwidth" is not set to "AUTO", the minimum Sampling Rate used will be 20GSa/s.
Confgure	Save Waveforms	SlewRateSaveWaveform	1, 0	This option is used to enable/disable the save waveform feature for 1.1.10 SR_DIF_TX, 1.1.11 SR_DIF_TX Monotonicity and 1.1.12 ?SR_DIF_TX Resolution tests where the waveforms captured for each acquisition will be saved in the following directory: Win7:C:\ProgramData\Agilent\Infiniium\Apps\MIPI_M-PHYTest\Project\app\SlewRate_DIF\ WinXP:C:\Documents and Settings\All Users\Application Data\Agilent\Infiniium\Apps\MIPI_M-PHYTest\Project\app\SlewRate_DIF\
Confgure	SavedSignalType	SavedSignalType	Differential, Single-ended	Signal type of the saved signal.
Confgure	SavedSignalTypeL2LSkewTest	SavedSignalTypeL2LSkewTest	Differential, Single-ended	Signal type of the saved signal for 1.1.9 T_L2L_SKEW_HS_LA_RT_TX test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Scope Bandwidth	ScopeBandwidth	AUTO, 1E+9, 2E+9, 3E+9, 4E+9, 5E+9, 6E+9, 7E+9, 8E+9, 9E+9, 10E+9, 11E+9, 12E+9, 13E+9, 14E+9, 15E+9, 16E+9, 17E+9, 18E+9, 19E+9, 20E+9, 21E+9, 22E+9, 23E+9, 24E+9, 25E+9, 26E+9, 27E+9, 28E+9, 29E+9, 30E+9, 31E+9, 32E+9	Enter the desired scope bandwidth here.
Confgure	Single Acquisition Length [UI]	BEREyeAcqLen	(Accepts user-defined text), 3.0E+5, 4.0E+5, 5.0E+5, 1.0E+6, 2.0E+6, 3.0E+6, 4.0E+6, 5.0E+6	This option is used to set the single acquisition length in terms of UI. The actual sample points equivalent to then number of UI specified will be calculated based on the measured data rate. This config is applicable for 1.1.6 TEYE_TX, VDIF_AC_TX (C) and 1.1.7 TEYE_G3_TX, VDIF_AC_G3_TX (C) tests only.
Confgure	Switch Matrix Data Lane Probing Method	SwitchMatrixProbe Method	SMA, DiffProbe	The method used to connect the data lane testpoint to the scope. This option is used when the Switch Matrix option is enabled.
Confgure	TLINE_RESET_DE TECT(s)	TLINE_RESET_DE TECT	(Accepts user-defined text), 0.001, 0.003	Specify the minimum value of the TLINE_RESET_DETECT. TLINE_RESET_DETECT will be used to compute the test limit for 1.2.3 TPWM_PREPARE test. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). This config is only applicable for 1.2.3 TPWM_PREPARE test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	TX_HS_PREPARE_LENGTH	TX_HS_PREPARE_LENGTH	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	Specify the value of the TX_HS_PREPARE_LENGTH which used for 1.1.3 T_HS_PREPARE_LA_RT_TX test and 1.1.3 T_HS_PREPARE_SA_RT_TX test. The actual test limit(TX_HS_PREPARE_length) will be calculated based on equation [TX_HS_PREPARE_length = (TX_HS_PREPARE_LENGTH) * (2 ^(GEAR-1))]. The GEAR value is depends on the HS Data Rate value selected in Set Up Tab. Example 1: If Data Rate value of HS-G1A(1248) and TX_HS_PREPARE_LENGTH value of 15 are selected. Then, GEAR = 1 and test limit(TX_HS_PREPARE_length) = 15. Example 2: If Data Rate value of HS-G2A(2496) and TX_HS_PREPARE_LENGTH value of 15 are selected. Then, GEAR = 2 and test limit(TX_HS_PREPARE_length) = 30

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	TX_LS_PREPARE_ LENGTH	TX_LS_PREPARE_ LENGTH	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	Specify the value of the TX_LS_PREPARE_LENGTH. The actual test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. Example 1, TX_LS_PREPARE_LENGTH = 10, MC_LS_PREPARE_LENGTH = 15, TLINE_RESET_DETECT = 1ms, GEAR = 1 and PWM bit rate = 9Mbps. if OMC is present, TPWM_PREPARE_TestLimit = 512SI. if OMC is not present, TPWM_PREPARE_TestLimit = 16SI. Example 2, TX_LS_PREPARE_LENGTH = 10, MC_LS_PREPARE_LENGTH = 15, TLINE_RESET_DETECT = 1ms, GEAR = 1 and PWM bit rate = 3Mbps. if OMC is present, TPWM_PREPARE_TestLimit = 300SI. if OMC is not present, TPWM_PREPARE_TestLimit = 16SI. This config is only applicable for 1.2.3 TPWM_PREPARE test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Test Limit for DigRFv4 Protocol Specification(UI)	DigRFv4TestLimitL2L	(Accepts user-defined text), 10	Specify the test limit value for 1.1.9 T_L2L_SKEW_HS_LA_RT_TX test. This config is only applicable if "DigRFv4" value is selected for Protocol Specification configuration variable.
Confgure	Total Acquisition Length [UI]	TotalBEREyeAcqLen	(Accepts user-defined text), 3.0E+6, 4.0E+6, 5.0E+6	This option is used to set the total acquisition length in terms of UI. The actual sample points equivalent to then number of UI specified will be calculated based on the measured data rate. The default value is 3E6 UIs. This config is applicable for 1.1.6 TEYE_TX, VDIF_AC_TX (C) and 1.1.7 TEYE_G3_TX, VDIF_AC_G3_TX (C) tests only.
Confgure	Total Jitter BER Target	RJDJBER	E6, E7, E8, E9, E10, E11, E12, E13, E14, E15, E16, E17, E18	For TJ and DJ tests.
Confgure	Transition Density Dependent	TransDensityDependent	1, 0	This option is used to enable/disable the Transition Density Dependent for 1.1.6 TEYE_TX and 1.1.7 VDIF_AC tests where the JTF and OJTF responses are dependent on transition density.
Confgure	TrigThreshold Mode	TrigThresMode	0, 1	This option is used to set the trigger threshold mode. When this option is set to "Auto", the application will automatically determine the threshold value. When this option is set to "Manual", then the value of the "Trigger Level" option will be used as the trigger threshold.
Confgure	Trigger Level	TrigThresLevel	(Accepts user-defined text), 0	Specify the value of the trigger level used for triggering the test signal when running the M-PHY tests. The value of this option will be used ONLY when the "TrigThreshold Mode" option is set to "Manual". By default, this value is set to 0V.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Trigger Location	StartOfTrig	0, 1	This option is used to set the starting location of the trigger for all tests excluding the slew rate, jitter and TEYE(BER10) tests. When this option is set to "DIF-N", the application will trigger at the location where a DIF-N region begins. When this option is set to "DIF-P", the application will trigger at the location where a DIF-P region begins.
Confgure	Upper Percent	MeasThres_Upper Pct	(Accepts user-defined text), 90, 80	Specify the value of the upper threshold used when the "MeasThreshold Mode" option is set to use "TopBaseRatio". By default, this value is set to 90%.
Confgure	VDIF_AC Histogram Window	HistogramWindow Ratio	(Accepts user-defined text), 0.2, 0.8, 0.9	This config is used to specify the location of histogram window for VDIF_AC measurement. For example, if 0.8 is selected, VDIF_AC is measured at location (+/-0.4)*(TPWM/3) from center of fraction bit of PWM_Major_TX. This config is only applicable for 1.2.7 VDIF_AC test.
Confgure	WfmFileDiffData	WfmFileDiffData	(Accepts user-defined text), None	Saved Data differential signal.
Confgure	WfmFileDiffDataB urst	WfmFileDiffDataB urst	(Accepts user-defined text), None	Saved Data differential signal for HS-Burst signal type.
Confgure	WfmFileDiffDataB urstTEYEG3	WfmFileDiffDataB urstTEYEG3	(Accepts user-defined text), None	Saved Data differential signal for HS-Burst TEYE_G3 Test.
Confgure	WfmFileDiffDataB urstTRTF	WfmFileDiffDataB urstTRTF	(Accepts user-defined text), None	Saved Data differential signal for HS-Burst TR_TF Test.
Confgure	WfmFileDiffDataCo n	WfmFileDiffDataCo n	(Accepts user-defined text), None	Saved Data differential signal for HS-Continuous signal type.
Confgure	WfmFileDiffDataP WM	WfmFileDiffDataP WM	(Accepts user-defined text), None	Saved Data differential signal for LS-PWM signal type.
Confgure	WfmFileDiffDataT OLPWMG1	WfmFileDiffDataT OLPWMG1	(Accepts user-defined text), None	Saved Data differential signal for LS-PWM TOLPWM-G1 Test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	WfmFileSETXDN	WfmFileSETXDN	(Accepts user-defined text), None	Saved TXDN single ended signal.
Confgure	WfmFileSETXDNBurst	WfmFileSETXDNBurst	(Accepts user-defined text), None	Saved TXDN single ended signal for HS-Burst signal type.
Confgure	WfmFileSETXDNBurstTRTF	WfmFileSETXDNBurstTRTF	(Accepts user-defined text), None	Saved TXDN single ended signal for HS-Burst TR_TF Test.
Confgure	WfmFileSETXDNCon	WfmFileSETXDNCon	(Accepts user-defined text), None	Saved TXDN single ended signal for HS-Continuous signal type.
Confgure	WfmFileSETXDNPWM	WfmFileSETXDNPWM	(Accepts user-defined text), None	Saved TXDN single ended signal for LS-PWM signal type.
Confgure	WfmFileSETXDNTOLPWMG1	WfmFileSETXDNTOLPWMG1	(Accepts user-defined text), None	Saved TXDN single ended signal for LS-PWM TOLPWM-G1 Test.
Confgure	WfmFileSETXDP	WfmFileSETXDP	(Accepts user-defined text), None	Saved TXDP single ended signal.
Confgure	WfmFileSETXDPBurst	WfmFileSETXDPBurst	(Accepts user-defined text), None	Saved TXDP single ended signal for HS-Burst signal type.
Confgure	WfmFileSETXDPBurstTRTF	WfmFileSETXDPBurstTRTF	(Accepts user-defined text), None	Saved TXDP single ended signal for HS-Burst TR_TF Test.
Confgure	WfmFileSETXDPCon	WfmFileSETXDPCon	(Accepts user-defined text), None	Saved TXDP single ended signal for HS-Continuous signal type.
Confgure	WfmFileSETXDPPWM	WfmFileSETXDPPWM	(Accepts user-defined text), None	Saved TXDP single ended signal for LS-PWM signal type.
Confgure	WfmFileSETXDPTOLPWMG1	WfmFileSETXDPTOLPWMG1	(Accepts user-defined text), None	Saved TXDP single ended signal for LS-PWM TOLPWM-G1 Test.
Run Tests	Event	RunEvent	(None), Fail, Margin < N, Pass	Names of events that can be used with the StoreMode=Event or RunUntil RunEventAction options

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Run Tests	RunEvent=Margin < N: Minimum required margin %	RunEvent_Margin < N_MinPercent	Any integer in range: 0 <= value <= 100	Specify N using the 'Minimum required margin %' control.
Set Up	ChanDiffInputLane A	ChanDiffInputLane A	Channel 1, Channel 2, Channel 3, Channel 4	Identifies the channel for the Differential data signal (TXDP-TXDN) for all tests. For the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests, the Differential (TXDP-TXDN) is referred to as the channel connection for LANE0. Identifies the channel for the Differential data signal (TXDP-TXDN) for all tests. For the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests, the Differential (TXDP-TXDN) is referred to as the channel connection for LANE0.
Set Up	ChanDiffInputLane B	ChanDiffInputLane B	Channel 1, Channel 2, Channel 3, Channel 4	Identifies the channel for Differential data signal (TXDP-TXDN). This configuration applies only to the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests. If you select 2 for the Number of Supported Lane, the Differential (TXDP-TXDN) is referred to as the channel connection for LANE1. If you select 3 for the Number of Supported Lane, the Differential (TXDP-TXDN) is referred to as the channel connection for LANE1 and LANE2. You will be prompted to change the connection through the test. Identifies the channel for Differential data signal (TXDP-TXDN). This configuration applies only to the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests. If you select 2 for the Number of Supported Lane, the Differential (TXDP-TXDN) is referred to as the channel connection for LANE1. If you select 3 for the Number of Supported Lane, the Differential (TXDP-TXDN) is referred to as the channel connection for LANE1 and LANE2. You will be prompted to change the connection through the test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	ChanSEInputLane A	ChanSEInputLane A	Channel 1 and Channel 3, Channel 2 and Channel 4	Identifies the channels for Single-Ended TXDP and Single-Ended TXDN for all tests. For the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests, the Single-Ended (TXDP and TXDN) is referred to as the channel connection for LANE0. Identifies the channels for Single-Ended TXDP and Single-Ended TXDN for all tests. For the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests, the Single-Ended (TXDP and TXDN) is referred to as the channel connection for LANE0.
Set Up	ChanSEInputLane B	ChanSEInputLane B	Channel 1 and Channel 3, Channel 2 and Channel 4	Identifies the channels for Single-Ended TXDP and Single-Ended TXDN. This configuration applies only to the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests. If you select 2 for the Number of Supported Lane, the Single-Ended (TXDP and TXDN) is referred to as the channel connection for LANE1. If you select 3 for the Number of Supported Lane, the Single-Ended (TXDP and TXDN) is referred to as the channel connection for LANE1 and LANE2. You will be prompted to change the connection through the test. Identifies the channels for Single-Ended TXDP and Single-Ended TXDN. This configuration applies only to the 1.1.9 T_L2L_SKEW_HS and 1.2.9 T_L2L_SKEW_PWM tests. If you select 2 for the Number of Supported Lane, the Single-Ended (TXDP and TXDN) is referred to as the channel connection for LANE1. If you select 3 for the Number of Supported Lane, the Single-Ended (TXDP and TXDN) is referred to as the channel connection for LANE1 and LANE2. You will be prompted to change the connection through the test.
Set Up	Connection Type	DataConnectionTy pe	Single-Ended, Differential	Select the channel connection type for all tests. Select the channel connection type for all tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	HS Data Rate [Mbps]	DUTDataRate	HS-G1A (1248), HS-G1B (1456.0), HS-G1B (1457.6), HS-G1B (1459.2), HS-G2A (2496), HS-G2B (2912.0), HS-G2B (2915.2), HS-G2B (2918.4), HS-G3A (4992), HS-G3B (5824.0), HS-G3B (5830.4), HS-G3B (5836.8)	This option allow user to select the HS data rate.
Set Up	NoOfSlewRateState	NoOfSlewRateState	(Accepts user-defined text), 1, 2, 3	Select the Number of Slew Rate States for the 1.1.10 HS-TX Slew Rate Control Range test. Selecting the Number of Slew Rate States as 1 disables the 1.1.10 HS-TX Slew Rate Control Range test.
Set Up	NumSupportedLaneL2L	NumSupportedLaneL2L	1, 2, 3, 4	Select the Number of Supported Lane for the 1.1.9 HS-TX Lane-to-Lane Skew test and 1.2.9 PWM-TX Lane-to-Lane Skew test. Selecting the Number of Supported Lane as 1 disables these tests.
Set Up	OfflineEnable	OfflineEnable	0.0, 1.0	Use offline waveform Use offline waveform
Set Up	PWM Gear	DUTPWMGear	PWM-G0 (0.01 - 3), PWM-G1 (3 - 9), PWM-G2 (6 - 18), PWM-G3 (12 - 36), PWM-G4 (24 - 72), PWM-G5 (48 - 144), PWM-G6 (96 - 288), PWM-G7 (192 - 576), AUTO	This option allow user to select the PWM Gear.
Set Up	Probing Method	ProbingMethod	Active Probe, Direct Connect	Select the probing method for all tests. Select the probing method for all tests.
Set Up	pcbHSTests	TestGroup_HS	0.0, 1.0	HS tests - Burst Data
Set Up	pcbHSTestsContData	TestGroup_HS_ContData	0.0, 1.0	HS tests - Continuous Data

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	pcbInformativeTests	InfoTestEnable	0.0, 1.0	Enable or disable informative tests. The informative tests includes 1.1.10, 1.1.11, 1.1.12 tests for G2, G3, 1.1.17, 1.1.18 tests for HS-Burst mode, 1.1.8 test for HS-Continuous mode, 1.1.6, 1.1.7 tests for HS-Burst mode and HS-Continuous mode at far-end HS-RX test point. Enable or disable informative tests. The informative tests includes 1.1.10, 1.1.11, 1.1.12 tests for G2, G3, 1.1.17, 1.1.18 tests for HS-Burst mode, 1.1.8 test for HS-Continuous mode, 1.1.6, 1.1.7 tests for HS-Burst mode and HS-Continuous mode at far-end HS-RX test point.
Set Up	pcbLA_NT	TestGroup_LA_NT	0.0, 1.0	LA_NT tests
Set Up	pcbLA_RT	TestGroup_LA_RT	0.0, 1.0	LA_RT tests
Set Up	pcbLSTests	TestGroup_LS	0.0, 1.0	LS tests
Set Up	pcbLane0	Lane0	0.0, 1.0	Data Lane - Lane0
Set Up	pcbLane1	Lane1	0.0, 1.0	Data Lane - Lane1
Set Up	pcbLane2	Lane2	0.0, 1.0	Data Lane - Lane2
Set Up	pcbLane3	Lane3	0.0, 1.0	Data Lane - Lane3
Set Up	pcbSA_NT	TestGroup_SA_NT	0.0, 1.0	SA_NT tests
Set Up	pcbSA_RT	TestGroup_SA_RT	0.0, 1.0	SA_RT tests
Set Up	txtDeviceID	txtDeviceID	(Accepts user-defined text)	Optional user defined device ID displayed in the test report.
Set Up	txtUserComments	txtUserComment	(Accepts user-defined text)	Optional user comments displayed in the test report.

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:

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
1.1.1 f_OFFSET_LA_NT_TX[MAX] (B)	627	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_LA_NT_TX[MAX] (C)	1627	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_LA_NT_TX[MEAN] (B)	617	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_LA_NT_TX[MEAN] (C)	1617	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_LA_NT_TX[MIN] (B)	628	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.1 f_OFFSET_LA_NT_TX[MIN] (C)	1628	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.1 f_OFFSET_LA_RT_TX[MAX] (B)	827	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_LA_RT_TX[MAX] (C)	1827	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_LA_RT_TX[MEAN] (B)	817	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_LA_RT_TX[MEAN] (C)	1817	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_LA_RT_TX[MIN] (B)	828	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.1 f_OFFSET_LA_RT_TX[MIN] (C)	1828	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.1 f_OFFSET_SA_NT_TX[MAX] (B)	527	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_SA_NT_TX[MAX] (C)	1527	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_SA_NT_TX[MEAN] (B)	517	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_SA_NT_TX[MEAN] (C)	1517	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_SA_NT_TX[MIN] (B)	528	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.1 f_OFFSET_SA_NT_TX[MIN] (C)	1528	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.1 f_OFFSET_SA_RT_TX[MAX] (B)	727	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_SA_RT_TX[MAX] (C)	1727	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MAX]
1.1.1 f_OFFSET_SA_RT_TX[MEAN] (B)	717	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_SA_RT_TX[MEAN] (C)	1717	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MEAN]
1.1.1 f_OFFSET_SA_RT_TX[MIN] (B)	728	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.1 f_OFFSET_SA_RT_TX[MIN] (C)	1728	Test 1.1.1 - HS-TX Transmitter Frequency Offset[MIN]
1.1.10 SR_DIF_LA_RT_TX[MAX] (B)	806	Test 1.1.10 - HS-TX Slew Rate[MAX]
1.1.10 SR_DIF_LA_RT_TX[MIN] (B)	807	Test 1.1.10 - HS-TX Slew Rate[MIN]

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.10 SR_DIF_SA_RT_TX[MAX] (B)	706	Test 1.1.10 - HS-TX Slew Rate[MAX]
1.1.10 SR_DIF_SA_RT_TX[MIN] (B)	707	Test 1.1.10 - HS-TX Slew Rate[MIN]
1.1.11 SR_DIF_LA_RT_TX Monotonicity (B)	808	Test 1.1.11 - HS-TX Slew Rate State Monotonicity. Results should be monotonically decreasing.
1.1.11 SR_DIF_SA_RT_TX Monotonicity (B)	708	Test 1.1.11 - HS-TX Slew Rate State Monotonicity. Results should be monotonically decreasing.
1.1.12 ?SR_DIF_LA_RT_TX Resolution (B)	809	Test 1.1.12 - HS-TX Slew Rate State Resolution. 1% < ?SR_DIF_LA_RT_TX < 30%.
1.1.12 ?SR_DIF_SA_RT_TX Resolution (B)	709	Test 1.1.12 - HS-TX Slew Rate State Resolution. 1% < ?SR_DIF_SA_RT_TX < 30%.
1.1.13 TINTRA_SKEW_LA_NT_TX (B)	610	Test 1.1.13 - HS-TX Intra-Lane Output Skew
1.1.13 TINTRA_SKEW_LA_RT_TX (B)	810	Test 1.1.13 - HS-TX Intra-Lane Output Skew
1.1.13 TINTRA_SKEW_SA_NT_TX (B)	510	Test 1.1.13 - HS-TX Intra-Lane Output Skew
1.1.13 TINTRA_SKEW_SA_RT_TX (B)	710	Test 1.1.13 - HS-TX Intra-Lane Output Skew
1.1.14 TPULSE_LA_NT_TX (B)	611	Test 1.1.14 - HS-TX Transmitter Pulse Width
1.1.14 TPULSE_LA_RT_TX (B)	811	Test 1.1.14 - HS-TX Transmitter Pulse Width
1.1.14 TPULSE_SA_NT_TX (B)	511	Test 1.1.14 - HS-TX Transmitter Pulse Width
1.1.14 TPULSE_SA_RT_TX (B)	711	Test 1.1.14 - HS-TX Transmitter Pulse Width
1.1.15 TJ_LA_NT_TX (B)	612	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_LA_NT_TX (C)	1612	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_LA_RT_TX (B)	812	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_LA_RT_TX (C)	1812	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_SA_NT_TX (B)	512	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_SA_NT_TX (C)	1512	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_SA_RT_TX (B)	712	Test 1.1.15 - HS-TX Total Jitter
1.1.15 TJ_SA_RT_TX (C)	1712	Test 1.1.15 - HS-TX Total Jitter

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.16 STTJ_LA_NT_TX (B)	614	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_LA_NT_TX (C)	1614	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_LA_RT_TX (B)	814	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_LA_RT_TX (C)	1814	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_SA_NT_TX (B)	514	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_SA_NT_TX (C)	1514	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_SA_RT_TX (B)	714	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.16 STTJ_SA_RT_TX (C)	1714	Test 1.1.16 - HS-TX Short-Term Total Jitter
1.1.17 DJ_LA_NT_TX (B)	613	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_LA_NT_TX (C)	1613	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_LA_RT_TX (B)	813	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_LA_RT_TX (C)	1813	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_SA_NT_TX (B)	513	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_SA_NT_TX (C)	1513	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_SA_RT_TX (B)	713	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.17 DJ_SA_RT_TX (C)	1713	Test 1.1.17 - HS-TX Deterministic Jitter
1.1.18 STDJ_LA_NT_TX (B)	615	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_LA_NT_TX (C)	1615	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_LA_RT_TX (B)	815	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_LA_RT_TX (C)	1815	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_SA_NT_TX (B)	515	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_SA_NT_TX (C)	1515	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_SA_RT_TX (B)	715	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.18 STDJ_SA_RT_TX (C)	1715	Test 1.1.18 - HS-TX Short-Term Deterministic Jitter
1.1.2 PSDCM_LA_RT_TX (B)	816	Test 1.1.2 - HS-TX Common-Mode AC Power Spectral Magnitude Limit
1.1.2 PSDCM_SA_RT_TX (B)	716	Test 1.1.2 - HS-TX Common-Mode AC Power Spectral Magnitude Limit
1.1.3 T_HS_PREPARE_LA_RT_TX (B)	818	Test 1.1.3 - HS-TX PREPARE Length

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.3 T_HS_PREPARE_SA_RT_TX (B)	718	Test 1.1.3 - HS-TX PREPARE Length
1.1.4 VCM_LA_NT_TX (B)	603	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2
1.1.4 VCM_LA_NT_TX (B)	633	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.1.4 VCM_LA_RT_TX (B)	803	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2
1.1.4 VCM_LA_RT_TX (B)	833	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.1.4 VCM_SA_NT_TX (B)	503	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2
1.1.4 VCM_SA_NT_TX (B)	533	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.1.4 VCM_SA_RT_TX (B)	703	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.4 VCM_SA_RT_TX (B)	733	Test 1.1.4 - HS-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.1.5 VDIF_DC_LA_NT_TX (B)	600	Test 1.1.5 - HS-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.1.5 VDIF_DC_LA_RT_TX (B)	800	Test 1.1.5 - HS-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.1.5 VDIF_DC_SA_NT_TX (B)	500	Test 1.1.5 - HS-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.1.5 VDIF_DC_SA_RT_TX (B)	700	Test 1.1.5 - HS-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.1.6 TEYE_LA_NT_TX (B)	601	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye
1.1.6 TEYE_LA_RT_TX, VDIF_AC_LA_RT_TX (B)	801	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye
1.1.6 TEYE_LA_RT_TX, VDIF_AC_LA_RT_TX (C)	1821	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye
1.1.6 TEYE_LA_RT_TX, VDIF_AC_LA_RT_TX [Far End HS-RX Test Point](B)	841	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.6 G1 and G2 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.6 TEYE_LA_RT_TX, VDIF_AC_LA_RT_TX [Far End HS-RX Test Point](C)	1841	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.6 G1 and G2 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.6 TEYE_SA_NT_TX (B)	501	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye
1.1.6 TEYE_SA_RT_TX, VDIF_AC_SA_RT_TX (B)	701	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.6 TEYE_SA_RT_TX, VDIF_AC_SA_RT_TX (C)	1721	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye
1.1.6 TEYE_SA_RT_TX, VDIF_AC_SA_RT_TX [Far End HS-RX Test Point](B)	741	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.6 G1 and G2 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.6 TEYE_SA_RT_TX, VDIF_AC_SA_RT_TX [Far End HS-RX Test Point](C)	1741	Test 1.1.6 - HS-TX G1 and G2 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.6 G1 and G2 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.7 TEYE_G3_LA_RT_TX, VDIF_AC_G3_LA_RT_TX (B)	802	Test 1.1.7 - HS-TX G3 Differential AC Eye. The "long" channel (CH2) will be embeded when performing this test.
1.1.7 TEYE_G3_LA_RT_TX, VDIF_AC_G3_LA_RT_TX (C)	1822	Test 1.1.7 - HS-TX G3 Differential AC Eye. The "long" channel (CH2) will be embeded when performing this test.
1.1.7 TEYE_G3_LA_RT_TX, VDIF_AC_G3_LA_RT_TX [Far End HS-RX Test Point](B)	842	Test 1.1.7 - HS-TX G3 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.7 G3 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.7 TEYE_G3_LA_RT_TX, VDIF_AC_G3_LA_RT_TX [Far End HS-RX Test Point](C)	1842	Test 1.1.7 - HS-TX G3 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.7 G3 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.7 TEYE_G3_SA_RT_TX, VDIF_AC_G3_SA_RT_TX (B)	702	Test 1.1.7 - HS-TX G3 Differential AC Eye. The "short" channel (CH1) will be embeded when performing this test.
1.1.7 TEYE_G3_SA_RT_TX, VDIF_AC_G3_SA_RT_TX (C)	1722	Test 1.1.7 - HS-TX G3 Differential AC Eye. The "short" channel (CH1) will be embeded when performing this test.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.7 TEYE_G3_SA_RT_TX, VDIF_AC_G3_SA_RT_TX [Far End HS-RX Test Point](B)	742	Test 1.1.7 - HS-TX G3 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.7 G3 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.7 TEYE_G3_SA_RT_TX, VDIF_AC_G3_SA_RT_TX [Far End HS-RX Test Point](C)	1742	Test 1.1.7 - HS-TX G3 Differential AC Eye [Far End HS-RX Test Point]. This test is customized test that is leveraged from the test algorithm of Test 1.1.7 G3 Differential AC Eye test where the Receiver eye mask is used instead of the Transmitter eye mask. The intention of this test is to support additional information (FYI) testing purposes.
1.1.7 VDIF_AC_LA_NT_TX (B)	602	Test 1.1.7 - HS-TX Maximum Differential AC Output Voltage Amplitude
1.1.7 VDIF_AC_SA_NT_TX (B)	502	Test 1.1.7 - HS-TX Maximum Differential AC Output Voltage Amplitude
1.1.8 TR_TF_HS_LA_NT_TX (B)	604	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_LA_NT_TX (C)	1604	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_LA_RT_TX (B)	804	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_LA_RT_TX (C)	1804	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_SA_NT_TX (B)	504	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_SA_NT_TX (C)	1504	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_SA_RT_TX (B)	704	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.8 TR_TF_HS_SA_RT_TX (C)	1704	Test 1.1.8 - HS-TX 20/80% Rise and Fall Times
1.1.9 T_L2L_L1_L0_LA_RT_TX	822	Test 1.1.9 - HS-TX Lane-to-Lane Skew
1.1.9 T_L2L_L2_L0_LA_RT_TX	823	Test 1.1.9 - HS-TX Lane-to-Lane Skew
1.1.9 T_L2L_L3_L0_LA_RT_TX	824	Test 1.1.9 - HS-TX Lane-to-Lane Skew

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.1.9 T_L2L_SKEW_HS_2LANE_LA_RT_TX	819	Test 1.1.9 - HS-TX Lane-to-Lane Skew (This test will not be supported under Switch Matrix mode)
1.1.9 T_L2L_SKEW_HS_3LANE_LA_RT_TX	820	Test 1.1.9 - HS-TX Lane-to-Lane Skew (This test will not be supported under Switch Matrix mode)
1.1.9 T_L2L_SKEW_HS_4LANE_LA_RT_TX	821	Test 1.1.9 - HS-TX Lane-to-Lane Skew (This test will not be supported under Switch Matrix mode)
1.2.1 TPWM-TX_LA_NT_TX[MAX]	216	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MAX]
1.2.1 TPWM-TX_LA_NT_TX[MEAN]	206	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MEAN]
1.2.1 TPWM-TX_LA_NT_TX[MIN]	226	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MIN]
1.2.1 TPWM-TX_LA_RT_TX[MAX]	416	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MAX]
1.2.1 TPWM-TX_LA_RT_TX[MEAN]	406	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MEAN]
1.2.1 TPWM-TX_LA_RT_TX[MIN]	426	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MIN]
1.2.1 TPWM-TX_SA_NT_TX[MAX]	116	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MAX]
1.2.1 TPWM-TX_SA_NT_TX[MEAN]	106	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MEAN]
1.2.1 TPWM-TX_SA_NT_TX[MIN]	126	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MIN]
1.2.1 TPWM-TX_SA_RT_TX[MAX]	316	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MAX]
1.2.1 TPWM-TX_SA_RT_TX[MEAN]	306	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MEAN]
1.2.1 TPWM-TX_SA_RT_TX[MIN]	326	Test 1.2.1 - PWM-TX Transmit Bit Duration (TPWM-TX)[MIN]
1.2.10 TOLPWM-G1-TX_LA_NT_TX[MAX]	207	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MAX]

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.10 TOLPWM-G1-TX_LA_NT_TX[MIN]	227	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MIN]
1.2.10 TOLPWM-G1-TX_LA_RT_TX[MAX]	407	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MAX]
1.2.10 TOLPWM-G1-TX_LA_RT_TX[MIN]	427	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MIN]
1.2.10 TOLPWM-G1-TX_SA_NT_TX[MAX]	107	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MAX]
1.2.10 TOLPWM-G1-TX_SA_NT_TX[MIN]	127	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MIN]
1.2.10 TOLPWM-G1-TX_SA_RT_TX[MAX]	307	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MAX]
1.2.10 TOLPWM-G1-TX_SA_RT_TX[MIN]	327	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-G1-TX)[MIN]
1.2.10 TOLPWM-TX_LA_NT_TX[MAX]	217	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MAX]
1.2.10 TOLPWM-TX_LA_NT_TX[MIN]	237	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MIN]
1.2.10 TOLPWM-TX_LA_RT_TX[MAX]	417	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MAX]
1.2.10 TOLPWM-TX_LA_RT_TX[MIN]	437	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MIN]
1.2.10 TOLPWM-TX_SA_NT_TX[MAX]	117	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MAX]
1.2.10 TOLPWM-TX_SA_NT_TX[MIN]	137	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MIN]

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.10 TOLPWM-TX_SA_RT_TX[MAX]	317	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MAX]
1.2.10 TOLPWM-TX_SA_RT_TX[MIN]	337	Test 1.2.10 - PWM-TX Transmit Bit Duration Tolerance (TOLPWM-TX)[MIN]
1.2.11 TPWM-MINOR-G0-TX_LA_NT_TX	209	Test 1.2.11 - PWM-TX PWM-G0 Minor Duration (TPWM-MINOR-G0-TX)
1.2.11 TPWM-MINOR-G0-TX_LA_RT_TX	409	Test 1.2.11 - PWM-TX PWM-G0 Minor Duration (TPWM-MINOR-G0-TX)
1.2.11 TPWM-MINOR-G0-TX_SA_NT_TX	109	Test 1.2.11 - PWM-TX PWM-G0 Minor Duration (TPWM-MINOR-G0-TX)
1.2.11 TPWM-MINOR-G0-TX_SA_RT_TX	309	Test 1.2.11 - PWM-TX PWM-G0 Minor Duration (TPWM-MINOR-G0-TX)
1.2.2 kPWM-TX_LA_NT_TX[MAX]	218	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MAX]
1.2.2 kPWM-TX_LA_NT_TX[MEAN]	208	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MEAN]
1.2.2 kPWM-TX_LA_NT_TX[MIN]	228	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MIN]
1.2.2 kPWM-TX_LA_RT_TX[MAX]	418	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MAX]
1.2.2 kPWM-TX_LA_RT_TX[MEAN]	408	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MEAN]
1.2.2 kPWM-TX_LA_RT_TX[MIN]	428	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MIN]
1.2.2 kPWM-TX_SA_NT_TX[MAX]	118	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MAX]
1.2.2 kPWM-TX_SA_NT_TX[MEAN]	108	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MEAN]
1.2.2 kPWM-TX_SA_NT_TX[MIN]	128	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MIN]

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.2 kPWM-TX_SA_RT_TX[MAX]	318	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MAX]
1.2.2 kPWM-TX_SA_RT_TX[MEAN]	308	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MEAN]
1.2.2 kPWM-TX_SA_RT_TX[MIN]	328	Test 1.2.2 - PWM-TX Transmit Ratio (kPWM-TX)[MIN]
1.2.3 TPWM_PREPARE_LA_NT_TX	210	Test 1.2.3 - PWM-TX PREPARE Length (TPWM-PREPARE). The test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1) TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. TPWM_PREPARE(SI) = TPWM_PREPARE(s)/(10 * TPWM_TX)

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.3 TPWM_PREPARE_LA_RT_TX	410	Test 1.2.3 - PWM-TX PREPARE Length (TPWM-PREPARE). The test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. TPWM_PREPARE(SI) = TPWM_PREPARE(s)/(10 * TPWM_TX)
1.2.3 TPWM_PREPARE_SA_NT_TX	110	Test 1.2.3 - PWM-TX PREPARE Length (TPWM-PREPARE). The test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1) TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. TPWM_PREPARE(SI) = TPWM_PREPARE(s)/(10 * TPWM_TX)

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.3 TPWM_PREPARE_SA_RT_TX	310	Test 1.2.3 - PWM-TX PREPARE Length (TPWM-PREPARE). The test limit(TPWM_PREPARE_TestLimit) for 1.2.3 TPWM_PREPARE test will be calculated based on equation: If OMC is present, TPWM_PREPARE_calc = MAX(2^(MAX(TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH) + GEAR - 7), 1) TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). If OMC is not present, TPWM_PREPARE_calc = MAX(2^(TX_LS_PREPARE_LENGTH + GEAR - 7), 1). TPWM_PREPARE_TestLimit = MIN(TPWM_PREPARE_calc, MIN(TLINE_RESET_DETECT)). The values of OMC, TX_LS_PREPARE_LENGTH, MC_LS_PREPARE_LENGTH and TLINE_RESET_DETECT(s) are configurable in Configure Tab. TLINE_RESET_DETECT(SI) = TLINE_RESET_DETECT(s)/(10 * TPWM_TX). The GEAR value is depends on the PWM Gear selected in Set Up Tab. TPWM_PREPARE(SI) = TPWM_PREPARE(s)/(10 * TPWM_TX)
1.2.4 VCM_LA_NT_TX	203	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2
1.2.4 VCM_LA_NT_TX	233	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.2.4 VCM_LA_RT_TX	403	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.4 VCM_LA_RT_TX	433	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.2.4 VCM_SA_NT_TX	103	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2
1.2.4 VCM_SA_NT_TX	133	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.2.4 VCM_SA_RT_TX	303	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. Reference: VCM = (Vp + Vn) / 2
1.2.4 VCM_SA_RT_TX	333	Test 1.2.4 - PWM-TX Common Mode Output Voltage Amplitude. This test is applicable for "Direct Connect" probing method. VCM is computed based on equation: VCM = (Vp + Vn)/2. The VCM_RSE_TX is computed based on equation: VCM_RSE_TX = [(Vp + Vn)/2] * Factor. The value of Factor: [(RSE_TX + Rin_Scope)/Rin_Scope]. The value of RinScope: [50ohm]. The nominal value of RSE_TX: [50ohm]. Reference: VCM_RSE_TX = [(Vp + Vn)/ 2]*[(RSE_TX + 50)/50].
1.2.5 VDIF_DC_LA_NT_TX	200	Test 1.2.5 - PWM-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.2.5 VDIF_DC_LA_RT_TX	400	Test 1.2.5 - PWM-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.2.5 VDIF_DC_SA_NT_TX	100	Test 1.2.5 - PWM-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.2.5 VDIF_DC_SA_RT_TX	300	Test 1.2.5 - PWM-TX Differential DC Output Voltage Amplitude (VDIF_DC_xA_xT_TX)
1.2.6 TEYE_LA_NT_TX	201	Test 1.2.6 - PWM-TX Transmitter Eye Opening

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.6 TEYE_LA_RT_TX	401	Test 1.2.6 - PWM-TX Transmitter Eye Opening
1.2.6 TEYE_SA_NT_TX	101	Test 1.2.6 - PWM-TX Transmitter Eye Opening
1.2.6 TEYE_SA_RT_TX	301	Test 1.2.6 - PWM-TX Transmitter Eye Opening
1.2.7 VDIF_AC_LA_NT_TX	202	Test 1.2.7 - PWM-TX Maximum Differential AC Output Voltage Amplitude
1.2.7 VDIF_AC_LA_RT_TX	402	Test 1.2.7 - PWM-TX Maximum Differential AC Output Voltage Amplitude
1.2.7 VDIF_AC_SA_NT_TX	102	Test 1.2.7 - PWM-TX Maximum Differential AC Output Voltage Amplitude
1.2.7 VDIF_AC_SA_RT_TX	302	Test 1.2.7 - PWM-TX Maximum Differential AC Output Voltage Amplitude
1.2.8 TR_TF_PWM_LA_NT_TX	204	Test 1.2.8 - PWM-TX 20/80% Rise and Fall Times. RiseFallTimeMaxLimit is determined by 0.07 * TPWM_TX.
1.2.8 TR_TF_PWM_LA_RT_TX	404	Test 1.2.8 - PWM-TX 20/80% Rise and Fall Times. RiseFallTimeMaxLimit is determined by 0.07 * TPWM_TX.
1.2.8 TR_TF_PWM_SA_NT_TX	104	Test 1.2.8 - PWM-TX 20/80% Rise and Fall Times. RiseFallTimeMaxLimit is determined by 0.07 * TPWM_TX.
1.2.8 TR_TF_PWM_SA_RT_TX	304	Test 1.2.8 - PWM-TX 20/80% Rise and Fall Times. RiseFallTimeMaxLimit is determined by 0.07 * TPWM_TX.
1.2.9 T_L2L_L1_L0_PWM_LA_NT_TX	222	Test 1.2.9 - PWM-TX Lane-to-Lane Skew
1.2.9 T_L2L_L2_L0_PWM_LA_NT_TX	223	Test 1.2.9 - PWM-TX Lane-to-Lane Skew
1.2.9 T_L2L_L3_L0_PWM_LA_NT_TX	224	Test 1.2.9 - PWM-TX Lane-to-Lane Skew
1.2.9 T_L2L_SKEW_PWM_2LANE_LA_NT_TX	219	Test 1.2.9 - PWM-TX Lane-to-Lane Skew (This test will not be supported under Switch Matrix mode)
1.2.9 T_L2L_SKEW_PWM_3LANE_LA_NT_TX	220	Test 1.2.9 - PWM-TX Lane-to-Lane Skew (This test will not be supported under Switch Matrix mode)

Table 4 Test IDs and Names (continued)

Name	TestID	Description
1.2.9 T_L2L_SKEW_PWM_4LANE_LA_NT_TX	221	Test 1.2.9 - PWM-TX Lane-to-Lane Skew (This test will not be supported under Switch Matrix mode)
No tests available	9999	

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
JBert	JBert
Ruby	Ruby
scope	scope

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