# Keysight D9050DDRC DDR5 Compliance Test Application

KEYSIGHT

PROGRAMMER'S REFERENCE

# Notices



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## Safety Notices

**CAUTION**

A **CAUTION** 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 damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

**WARNING**

**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 D9050DDRC DDR5 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 39, Chapter 4, “Instruments,” starting on page 47, and Chapter 5, “Message IDs,” starting on page 49 provide information specific to programming the D9050DDRC DDR5 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, 4, and 5 for changes.

# Contents

# 1 Introduction to Programming



This chapter introduces the basics for remote programming a compliance/test application. The programming commands provide the means of remote control. Basic operations that you can do remotely with a computer and a compliance/test 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 Keysight Technologies, Inc. family of compliance/test 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 D9050DDRC DDR5 Compliance Test Application uses Remote Interface Revision 7.12. 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 D9050DDRC DDR5 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 | Burst Length Limit | MaxBurstLenLimit | (Accepts user-defined text), 4, 8, 10000 | This value is used to limit the maximum number of bits used in a valid data burst found when generating an eye diagram(Read or Write). For example, when this value is set to '8', the maximum number of bits used in a data burst to generate an eye diagram is limit to the first 8 data bit. User can specify custom value for this option. |
| Configure | CI_max | CI_max | 0, 1 | Select the CI_max that may affect the test limits of the CA (Command Address) tests. |
| Configure | CheckScpiErrorMode | optCheckScpiErrorMode | Normal, Dual, Always | [For Internal debugging use ONLY] Specify the Sicl method where the app send Scpi command to the scope. The "Normal" method is the typical option used where the DualOutput and Output Sicl methods both execute Output. In "Dual" method, the DualOutput executes CheckOutput, while the Output executes Output. In "Always" method, DualOutput and Ouptut both execute CheckOutput. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | Control Script Location | ScriptLoc | (Accepts user-defined text), Default | Set the location for all the DUT Automation control scripts. Default will run the scripts installed with the application. Please make sure to use the same script names as installed by the app. Do not use the word "Default" in the path name. Format of path should be C:\Temp\MyScriptDir |
| Configure | DQ delay offset mode | DQDelayOffsetMode | 0, 1 | Select the method of DQ Skew Mode for tDQS2DQ correction.In "Auto" mode, application will perform tDQS2DQ measurement then use the result for DQ delay offset. In "Manual" mode, application will use the value in config of "DQ delay offset". |
| Configure | DQ delay offset(ps) | DQDelayOffset | (Accepts user-defined text), 0, 100, 200, 300 | Identifies the user defined tDQS2DQ level for DQ skew shifting of the write burst test. The value set here is applicable ONLY when the "DQ delay offset mode" option is set to "Manual". |
| Configure | Debug Info Logging | EnableDebugLogging | 0, 1 | This option enables/disables additional debug information logging during test run. This option is ONLY used for internal debugging purposes and should not be enable during normal test run. |
| Configure | DutAuto_DelaySignalCheck (ms) | DutAuto_DelaySignalCheck | (Accepts user-defined text), 0, 5000, 10000, 15000, 20000, 30000, 60000 | Delay to be applied prior to performing signal amplitude check when runnng DUT Automation. This represent the delay time after all the automation scripts have been executed. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | DutAuto_EnableOutputOnAllDQ | DutAuto_EnableOutputOnAllDQ | true, false | [For Internal debugging use ONLY] Select true to enable all DQ pins to output a toggle signal. When this setting is set to false, only customized DQ pins will output a toggle signal while the rest of the DQ pins will remain at logic high all the time. |
| Configure | EyeTest_ApplyDFE_Mode | EyeTest_ApplyDFE_Mode | Off, Auto, Manual | Enable/disable the DFE feature option when performing the Write Eye Diagram tests. When set to "Auto" mode, the app will automatically determine the DFE settings using the scope 'Auto Set...' feature when running the Write Eye Diagram tests. When set to "Manual" mode, the actual DFE settings used when runnning the Write Eye Diagram tests is manually specified using the "EyeTest_DFE_TapX" config options. |
| Configure | EyeTest_DFE_BW_DQ | EyeTest_DFE_BW_DQ | (Accepts user-defined text), 3.2e9 | Set the bandwidth limit for VGA. *Note: Reference receiver value is 2.4G |
| Configure | EyeTest_DFE_CTLE | EyeTest_DFE_CTLE | Off, On | Enable/disable the use of CTLE feature to model the variable gain amplifier (VGA) before the DFE in an actual DDR5 DUT. When this option is enabled, the EyeTest_DFE_VGA_Gain config is used to specify the actual DFE_VGA Gain value setting for the Write Eye Diagram tests. |
| Configure | EyeTest_DFE_LTarget | EyeTest_DFE_LTarget | (Accepts user-defined text), -1 | Specify the DFE Lower Target value setting for Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option is enabled in Manual mode. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | EyeTest_DFE_Tap 1 | EyeTest_DFE_Tap1 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap1 setting (unitless) for Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | EyeTest_DFE_Tap 2 | EyeTest_DFE_Tap2 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap2 setting (unitless) for Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | EyeTest_DFE_Tap 3 | EyeTest_DFE_Tap3 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap3 setting (unitless) for Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | EyeTest_DFE_Tap 4 | EyeTest_DFE_Tap4 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap4 setting (unitless) for Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | EyeTest_DFE_UTa rget | EyeTest_DFE_UTarget | (Accepts user-defined text), 1 | Specify the DFE Upper Target value setting for Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | EyeTest_DFE_VG A_Gain | EyeTest_DFE_VGA_Gain | (Accepts user-defined text), -6, -4, -2, 0, 2, 4, 6 | Specify the DFE_VGA Gain value setting for the Write Eye Diagram tests. This option is only applicable when the EyeTest_ApplyDFEMode option and the EyeTest_DFE_CTLE option is enabled. |
| Configure | First DQ Transition Search Range (UI) | FirstDQSearchRange | (Accepts user-defined text), 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0 | Specify the search range in Unit Interval (UI) to look for the first DQ transition bit. This config ONLY affects tDQS2DQ test. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | JitterTest Scope RJrms (s) | JitterTest_ScopeRJrms | (Accepts user-defined text), 200E-15 | Specify the actual oscilloscope random jitter value that should be removed when runnning the jitter tests. This is applicable only when the "RemoveScopeRJ_Mode" config option is set to "Manual". |
| Configure | JitterTest_BER_Level | JitterTest_BER_Level | E6, E7, E8, E9, E10, E11, E12, E13, E14, E15, E16, E17, E18 | Specify the BER Level setting to be used when performing the Jitter tests. |
| Configure | JitterTest_ISI_Filter_Lag | JitterTest_ISI_Filter_Lag | (Accepts user-defined text), 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 | Specify the ISI Filter Lag value that will be used when the "PatLen_Method" config is set to "Arbitrary". |
| Configure | JitterTest_ISI_Filter_Lead | JitterTest_ISI_Filter_Lead | (Accepts user-defined text), 0, -1, -2, -3, -4 | Specify the ISI Filter Lead value that will be used when the "PatLen_Method" config is set to "Arbitrary". |
| Configure | JitterTest_MaxUIWidthAllowed (UI) | JitterTest_MaxUIWidthAllowed | (Accepts user-defined text), 1.5, 2.0 | Specify the maximum allowable UI width in the test signal when runnning the jitter tests. This is applicable only when the "JitterTest_UIWidthCheck" config option is set to "On". |
| Configure | JitterTest_NumOfAcqToCheck | JitterTest_NumOfAcqToCheck | (Accepts user-defined text), 10, 50, 100, 150 | Specify the number of acquisition needed to perform the UI width checking routine when runnning the jitter tests. This is applicable only when the "JitterTest_UIWidthCheck" config option is set to "On". |
| Configure | JitterTest_NumOfUI_PerAcq | JitterTest_NumOfUI_PerAcq | (Accepts user-defined text), 1000000, 100000, 500000 | Set the minimum number of UI per acquisition value when performing the Jitter test. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | JitterTest_NumOfUI_PerTest | JitterTest_NumOfUI_PerTest | (Accepts user-defined text), 1000000, 5000000, 10000000, 100000000, 1000000000 | Set the minimum number of UI per test value when performing the Jitter test. The application may make multiple acquisition when performing the actual jitter measurement algorithm. The minimum number of UI in each acquisition is specified in the JitterTest_NumOfUI_PerAcq config option. |
| Configure | JitterTest_PatLen_Method | JitterTest_PatLen_Method | Periodic, Arbitrary | Specify the Pattern Length Method setting to be used when performing the Jitter tests. The "Periodic" method is typically used on waveforms wth repeating data patterns. The repeating data pattern will be automatically detected in the app. The "Arbitrary" method should be used on waveforms with non-repeating patterns. When using the "Arbitrary" method, the ISI Filter values specified in the ISI_Filter_Lead and ISI_Filter_Lag config options will be used. |
| Configure | JitterTest_RJ_Method | JitterTest_RJ_Method | SPECTRAL, BOTH | Specify the RJ Method setting to be used when performing the Jitter tests. |
| Configure | JitterTest_RJ_Report | JitterTest_RJ_Report | SPECTRAL, TAILFIT | This option is applicable ONLY when the JitterTest_RJ_Method is set to Spectral & Tail Fit. It specifies the report method used when performing the Jitter tests. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | JitterTest_RemoveScopeRJ_Mode | JitterTest_RemoveScopeRJ_Mode | Off, Manual, Auto | Enable/disable the removal of oscilloscope random jitter option when performing the jitter tests. When set to "Manual" mode, the actual oscilloscope random jitter value that should be removed when running the jitter tests is specified using the "Scope RJrms" config option. When set to "Auto" mode (*not supported in Offline test mode), the app will need to perform some oscilloscope jitter calibration procedures when running the jitter tests. User will be prompt to disconnect and reconnect the test signal from the scope channel of interest. The actual oscilloscope random jitter value that should be removed when running the jitter tests will automatically be determined by the app. *Note: The "Auto" mode is not supported in Offline test mode. For single-ended DQS or CK input signals, only (CH1,CH3) or (CH2,CH4) signal sources pair is supported for the "Auto" mode in order for the scope 'Differential Mode Channels' feature to be applicable. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | JitterTest_UIWidthCheck | JitterTest_UIWidthCheck | Off, On | Enable/disable the UI width checking option when performing the jitter tests. When set to "On" mode, the maximum allowable UI width in the test signal is specified using the "JitterTest_MaxUIWidthAllowed" config option. The number of acquisition needed to perform the UI width checking routine is specified using the "JitterTest_NumOfAcqToCheck" config option. |
| Configure | Mask Height of Rhombus Shape Mask | EyeTestCA_MaskHeight | (Accepts user-defined text), 0.100 | Identifies the mask height of rhombus shape mask for Eye Diagram tests. |
| Configure | Mask Height of Rhombus Shape Mask | EyeTest_MaskHeight | (Accepts user-defined text), 0.100 | Identifies the mask height of rhombus shape mask for Write Eye Diagram tests. |
| Configure | Mask Vertical Level Mode | EyeTestCA_MaskVerticalMode | 0, 1 | Select the method of mask level evaluation for Eye Diagram tests for Command Address. |
| Configure | Mask Vertical Level Mode | EyeTest_MaskVerticalMode | 0, 1 | Select the method of mask level evaluation for Write Eye Diagram tests. |
| Configure | Mask Width of Rhombus Shape Mask (ps) | EyeTestCA_MaskWidth | (Accepts user-defined text), 100 | Identifies the mask height of rhombus shape mask for Eye Diagram tests. |
| Configure | Mask Width of Rhombus Shape Mask (ps) | EyeTest_MaskWidth | (Accepts user-defined text), 100 | Identifies the mask height of rhombus shape mask for Write Eye Diagram tests. |
| Configure | Mask horizontal location mode | EyeTestCA_MaskHorizontalMode | 0, 1 | Select the method of mask horizontal evaluation for Eye Diagram tests. |
| Configure | Mask horizontal location mode | EyeTest_MaskHorizontalMode | 0, 1 | Select the method of mask horizontal evaluation for Write Eye Diagram tests. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | MaxDutAutoAttempt | MaxDutAutoAttempt | (Accepts user-defined text), 1, 5, 10, 15, 20, 25, 30 | Specify the maximum number of attempt to perform the DUT automation procedures when no output signal is detected from the DUT. |
| Configure | Padding for First DQ Bit | DQPaddingBit | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 | Specify the number of DQ bit(s) to pad/skip in a valid Write burst in order to identify the first valid DQ bit in a burst when performing the tDQS2DQ test. For example, if the Padding for First DQ Bit is set to 2, the app will skip 2 UI before performing the test. This config ONLY affects tDQS2DQ test. |
| Configure | Pause for Debug | PausedForDebug | true, false | [For Internal debugging use ONLY] Select true to pause the application for debug. |
| Configure | SESTest Scope RJrms (s) | SESTest_ScopeRJrms | (Accepts user-defined text), 200E-15 | Specify the actual oscilloscope random jitter value that should be removed when runnning the stressed eye tests. This is applicable only when the "SES_RemoveScopeRJ_Mode" config option is set to "Manual". |
| Configure | SESTest Scope RNrms L0 (V) | SESTest_ScopeRNrms_L0 | (Accepts user-defined text), 50E-6 | Specify the actual oscilloscope random noise value that should be removed when runnning the stressed eye tests. This is applicable only when the "RemoveScopeRN_Mode" config option is set to "Manual". |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | SESTest Scope RNrms L1 (V) | SESTest_ScopeRNrms_L1 | (Accepts user-defined text), 50E-6 | Specify the actual oscilloscope random noise value that should be removed when runnning the stressed eye tests. This is applicable only when the "RemoveScopeRN_Mode" config option is set to "Manual". |
| Configure | SESTest_ApplyDFE_Mode | SESTest_ApplyDFE_Mode | Off, Auto, Manual | Enable/disable the DFE feature option when performing the stressed eye tests. When set to "Auto" mode, the app will automatically determine the DFE settings using the scope 'Auto Set...' feature when running the Stressed Eye tests. When set to "Manual" mode, the actual DFE settings used when runnning the stressed eye tests is manually specified using the "SESTest_DFE_TapX" config options. *Note: This feature is not applicable when the operation mode of the DQ source signal is set to 'Continuous1010'. It requires the DQ operation mode to be set to the 'DataPattern' option. |
| Configure | SESTest_BER_Level | SESTest_BER_Level | E6, E7, E8, E9, E10, E11, E12, E13, E14, E15, E16, E17, E18 | Specify the BER Level setting to be used when performing the Stressed Eye tests. |
| Configure | SESTest_DFE_BW_DQ | SESTest_DFE_BW_DQ | (Accepts user-defined text), 3.2e9 | Set the bandwidth limit for VGA. *Note: Reference receiver value is 2.4G |
| Configure | SESTest_DFE_CTLE | SESTest_DFE_CTLE | Off, On | Enable/disable the use of CTLE feature to model the variable gain amplifier (VGA) before the DFE in an actual DDR5 DUT. When this option is enabled, the SESTest_DFE_VGA_Gain config is used to specify the actual DFE_VGA Gain value setting for Stressed Eye test. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | SESTest_DFE_LTarget | SESTest_DFE_LTarget | (Accepts user-defined text), -1 | Specify the DFE Lower Target value setting for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | SESTest_DFE_SetupOnly_SamplingPoints | SESTest_DFE_SetupOnly_SamplingPoints | (Accepts user-defined text), 2000000, 1000000, 500000, 250000, 100000 | Specifies the sampling points to be used when performing the CTLE/DFE setup in Stressed Eye tests. |
| Configure | SESTest_DFE_Tap1 | SESTest_DFE_Tap1 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap1 setting (unitless) for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | SESTest_DFE_Tap2 | SESTest_DFE_Tap2 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap2 setting (unitless) for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | SESTest_DFE_Tap3 | SESTest_DFE_Tap3 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap3 setting (unitless) for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | SESTest_DFE_Tap4 | SESTest_DFE_Tap4 | (Accepts user-defined text), -0.015, -0.01, -0.005, 0, 0.005, 0.01, 0.015 | This is the Tap4 setting (unitless) for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option is enabled in Manual mode. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | SESTest_DFE_UTarget | SESTest_DFE_UTarget | (Accepts user-defined text), 1 | Specify the DFE Upper Target value setting for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option is enabled in Manual mode. |
| Configure | SESTest_DFE_VGA_Gain | SESTest_DFE_VGA_Gain | (Accepts user-defined text), -6, -4, -2, 0, 2, 4, 6 | Specify the DFE_VGA Gain value setting for Stressed Eye test. This option is only applicable when the SESTest_ApplyDFEMode option and the SESTest_DFE_CTLE option is enabled. |
| Configure | SESTest_ISI_Filter_Lag | SESTest_ISI_Filter_Lag | (Accepts user-defined text), 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 | Specify the ISI Filter Lag value that will be used when the "PatLen_Method" config is set to "Arbitrary". |
| Configure | SESTest_ISI_Filter_Lead | SESTest_ISI_Filter_Lead | (Accepts user-defined text), 0, -1, -2, -3, -4 | Specify the ISI Filter Lead value that will be used when the "PatLen_Method" config is set to "Arbitrary". |
| Configure | SESTest_NumOfUI_PerAcq | SESTest_NumOfUI_PerAcq | (Accepts user-defined text), 1000000, 100000, 500000 | Set the minimum number of UI per acquisition value when performing the Stressed Eye test. |
| Configure | SESTest_NumOfUI_PerTest | SESTest_NumOfUI_PerTest | (Accepts user-defined text), 1000000, 5000000, 10000000, 100000000, 1000000000 | Set the minimum number of UI per test value when performing the Stressed Eye test. The application may make multiple acquisition when performing the actual Stressed Eye measurement algorithm. The minimum number of UI in each acquisition is specified in the SESTest_NumOfUI_PerAcq config option. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | SESTest_PatLen_Method | SESTest_PatLen_Method | Periodic, Arbitrary | Specify the Pattern Length Method setting to be used when performing the Stressed Eye tests. The "Periodic" method is typically used on waveforms wth repeating data patterns. The repeating data pattern will be automatically detected in the app. The "Arbitrary" method should be used on waveforms with non-repeating patterns. When using the "Arbitrary" method, the ISI Filter values specified in the ISI_Filter_Lead and ISI_Filter_Lag config options will be used. |
| Configure | SESTest_RJ_Method | SESTest_RJ_Method | SPECTRAL, BOTH | Specify the RJ Method setting to be used when performing the Stressed Eye Width tests. |
| Configure | SESTest_RJ_Report | SESTest_RJ_Report | SPECTRAL, TAILFIT | This option is applicable ONLY when the SESTest_RJ_Method is set to Spectral & Tail Fit. It specifies the report method used when performing the Stressed Eye Width tests. |
| Configure | SESTest_RN_Method | SESTest_RN_Method | SPECTRAL, BOTH | Specify the RN Method setting to be used when performing the Stressed Eye Height tests. |
| Configure | SESTest_RN_Report | SESTest_RN_Report | SPECTRAL, TAILFIT | This option is applicable ONLY when the SESTest_RN_Method is set to Spectral & Tail Fit. It specifies the report method used when performing the Stressed Eye Height tests. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | SESTest_Remove ScopeRJ_Mode | SESTest_RemoveScopeRJ_ Mode | Off, Manual, Auto | Enable/disable the removal of oscilloscope random jitter option when performing the stressed eye tests. When set to "Manual" mode, the actual oscilloscope random jitter value that should be removed when runnning the stressed eye tests is specified using the "SES Scope RJrms" config option. When set to "Auto" mode (*not supported in Offline test mode), the app will need to perform some oscilloscope jitter calibration procedures when running the jitter tests. User will be prompt to disconnect and reconnect the test signal from the scope channel of interest. The actual oscilloscope random jitter value that should be removed when running the stressed eye tests will automatically be determined by the app. |
| Configure | SESTest_Remove ScopeRN_Mode | SESTest_RemoveScopeRN_ Mode | Off, Manual | Enable/disable the removal of oscilloscope random noise option when performing the stressed eye tests. When set to "Manual" mode, the actual oscilloscope random noise value that should be removed when runnning the stressed eye tests is specified using the "Scope RNrms Level0" and "Scope RNrms Level1" config options. |
| Configure | Sampling Rate (GSa/s) | SamplingRate | MAX, 80, 40, 20, 10, 128, 64, 32, 16, 8 | Specifies the sampling rate for the signal acquisition of all tests. If the selected sampling rate is higher than oscilloscope capability, application will set maximum sampling rate during runtime. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | Screenshot Mode | ScreenshotMode | 1, 0 | Used to enable or disable screenshot capture for applicable measurement in the test report. Setting it to "Off" may improve the overall test execution time. However, the related measurement screenshot information will not be available for that particular test trial run. |
| Configure | ShowISimGraphDisplay | ShowISimGraphDisplay | 0, 1 | This option enables/disables the display of the InfiniiSim graph during test run when the InfiniiSim feature is used. This option is ONLY used for internal debugging purposes. |
| Configure | TcIVW | WindowWidth_tCIVW | (Accepts user-defined text), 0.200 | This value multiplied with the Clock Rate is the width of the mask to measure tCIVW. The value set here is applicable ONLY when the "TcIVW/VcIVW setup mode" option is set to "Custom". |
| Configure | TcIVW/VcIVW setup mode | TcIVW_VcIVW_SetupMode | 0, 1 | In "Auto" setup mode, the application will automatically configure the TcIVW and VcIVW settings based on the DDR data rate used. In "Custom" setup mode, the application will use the "TcIVW" and "VcIVW (V)" configuration options as the TcIVW and VcIVW settings. |
| Configure | Total CA Waveform | EyeDiagramCANumOfWave | (Accepts user-defined text), 500, 1000, 1500, 3000, 5000 | Select or type the total number of waveforms required for CA eye diagram tests. |
| Configure | Total Waveform | EyeDiagramNumOfWave | (Accepts user-defined text), 500, 1000, 1500, 3000, 5000 | Select or type the total number of waveforms with valid burst data to be processed for the eye diagram generated in the tTx_DQS2DQ test. |
| Configure | Tpkg_Delay_CA | Tpkg_Delay_CA | 0, 1, 2 | Select the Tpkg_Delay_CA that may affect the test limits of the CA (Command Address) tests. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | Trigger timeout (ms) | TimeOut_Compliance | (Accepts user-defined text), 5000, 10000, 15000, 20000, 30000, 60000, 120000, 600000 | Identifies the trigger time out value. This represent the time taken to terminate the test when the scope unable to trigger any signal. |
| Configure | User Defined Display Vertical Offset (V) | ClockJitter_UserDefinedDisplayVerticalOffset | (Accepts user-defined text), 0 | Identifies the display vertical offset value of the Clock signal for the Clock Jitter Tests. |
| Configure | User Defined Display Vertical Scale (V) | ClockJitter_UserDefinedDisplayVerticalScale | (Accepts user-defined text), 1.0 | Identifies the display vertical scale value of the Clock signal for the Clock Jitter Tests. |
| Configure | User Defined HW Vertical Offset (V) | ClockJitter_UserDefinedHWVerticalOffset | (Accepts user-defined text), 0 | Identifies the acquisition HW vertical offset value of the Clock signal for the Clock Jitter Tests. |
| Configure | User Defined HW Vertical Scale (V) | ClockJitter_UserDefinedHWVerticalScale | (Accepts user-defined text), 1.0 | Identifies the acquisition HW vertical scale value of the Clock signal for the Clock Jitter Tests. |
| Configure | User Defined Mask Horizontal Location (ps) | EyeTestCA_UserDefinedMaskHorizontalLocation | (Accepts user-defined text), 0 | Identifies the user defined mask horizontal location for Eye Diagram tests. The value set here is applicable ONLY when the "Mask horizontal location Mode" option is set to "User defined mask horizontal location". |
| Configure | User Defined Mask Horizontal Location (ps) | EyeTest_UserDefinedMaskHorizontalLocation | (Accepts user-defined text), 0 | Identifies the user defined mask horizontal location for Write Eye Diagram tests. The value set here is applicable ONLY when the "Mask horizontal location Mode" option is set to "User defined mask horizontal location". |
| Configure | User Defined Mask Vertical Level | EyeTestCA_UserDefinedMaskVerticalLevel | (Accepts user-defined text), 0.800 | Identifies the user defined mask vertical level for Eye Diagram tests. The value set here is applicable ONLY when the "Mask Vertical Level Mode" option is set to "User defined Mask Vertical Level". |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | User Defined Mask Vertical Level | EyeTest_UserDefinedMaskVerticalLevel | (Accepts user-defined text), 0.800 | Identifies the user defined mask vertical level for Write Eye Diagram tests. The value set here is applicable ONLY when the "Mask Vertical Level Mode" option is set to "User defined Mask Vertical Level". |
| Configure | User Defined Vcent (CA) | UserDefinedVcent_CA | (Accepts user-defined text), 0.800 | Identifies the user defined Vcent level for shifting of the tCIVW/vCIVW mask. The value set here is applicable ONLY when the "Vcent Evaluation Mode (CA)" option is set to "User defined Vcent". |
| Configure | User Defined Vcent (DQ) | UserDefinedVcent_DQ | (Accepts user-defined text), 0.800 | Identifies the user defined Vcent level for shifting of the tDIVW/vDIVW mask. The value set here is applicable ONLY when the "Vcent Evaluation Mode" option is set to "User defined Vcent". |
| Configure | VcIVW (V) | InputThreshold_VciVW | (Accepts user-defined text), 0.140, 0.130 | Identifies the voltage CA input valid window. The value set here is applicable ONLY when the "TcIVW/VcIVW setup mode" option is set to "Custom". |
| Configure | Vcent Evaluation Mode (CA) | VcentEvalMode_CA | 0, 1 | Select the method of Vcent level evaluation for shifting of the tCIVW/vCIVW mask. |
| Configure | Vcent Evaluation Mode (DQ) | VcentEvalMode_DQ | 0, 1 | Select the method of Vcent level evaluation for shifting of the tDIVW/vDIVW mask. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Configure | Vertical Scaling Mode | ClockJitter_VerticalScaling Mode | 0, 1 | Select the method of vertical scaling for Clock Jitter Tests. If the "Auto" option was chosen, the vertical scale and offset level of the oscilloscope display value will be set Automatic. While, the option "User defined" was selected, the vertical scale and offset level of the oscilloscope display will be set by the values input by user. |
| Configure | VrefDQ_ThresMo de | ContData_VrefDQ_ThresMo de | UseVrefDQ_Cfg, Auto | Set the method for determining the VrefDQ measurement threshold that is applicable to the DQ Jitter tests and Stressed Eye tests. When set to "Auto" mode, the app will automatically determine the VrefDQ measurement threshold. When set to "UseVrefDQ_Cfg" mode, the VrefDQ measurement threshold is manually specified using the "VrefDQ" config option under the Measurement Setup window. |
| 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 | App Test Mode | optAppTestMode | Live Signal, Offline | Set the application test mode. Available options include [Live Signal] or [Offline] |
| Set Up | Burst Identification Method | optBurstIDMethod | DQS-DQ Phase Difference, Rd or Wrt ONLY, CA4 + Burst Latency | Set Burst Identification Method |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | CK (Diff) operation mode | optSignalSrcOpMode_CK_Diff | Burst, Continuous | Set the operation mode of the CK (Diff) source signal. Available options include [Burst] or [Continuous] |
| Set Up | CK_SE_HighV | InputThreshold_CLK_SE_High | (Accepts user-defined text), 0.7 | CK_SE_HighV |
| Set Up | CK_SE_LowV | InputThreshold_CLK_SE_Low | (Accepts user-defined text), 0.5 | CK_SE_LowV |
| Set Up | CmdBatchScriptType (Debug ONLY) | optDutAutoSetup_CmdBatchScriptType | DQS_JitterTests, DQ_JitterTests, StressedEyeTests, DebugOnly_Data, DebugOnly_1010 | Set the CmdBatchFile that will be used when running the 'Apply DCA Setting' procedures. |
| Set Up | DCA AutoOptiType | optDCAAutoOptiType | Basic, Advance, MultiStep | Set the DCA auto-optimization type. Available options include [Basic] or [Advance] |
| Set Up | DCA Mode for DQ | optDCAMode_DQ | Disable, Auto, Manual | Set the DCA mode for DQ signal. Available options include [Disable], [Auto] or [Manual] |
| Set Up | DCA Mode for DQS | optDCAMode_DQS | Disable, Auto, Manual | Set the DCA mode for DQS signal. Available options include [Disable], [Auto] or [Manual] |
| Set Up | DCAOffset_DQ | optDCAOffset_DQ | (Accepts user-defined text) | DCA Offset list for DQ |
| Set Up | DCAOffset_DQS | optDCAOffset_DQS | (Accepts user-defined text) | DCA Offset list for DQS |
| Set Up | DCAstep_AutoList_DQS_IBCLK | optDCAStep_AutoList_DQS_IBclk | (Accepts user-defined text) | DCA Step iteration list for DQS IBCLK |
| Set Up | DCAstep_AutoList_DQS_QBCLK | optDCAStep_AutoList_DQS_QBclk | (Accepts user-defined text) | DCA Step iteration list for DQS QBCLK |
| Set Up | DCAstep_AutoList_DQS_QCLK | optDCAStep_AutoList_DQS_Qclk | (Accepts user-defined text) | DCA Step iteration list for DQS QCLK |
| Set Up | DCAstep_AutoList_DQ_IBCLK | optDCAStep_AutoList_DQ_IBclk | (Accepts user-defined text) | DCA Step iteration list for DQ IBCLK |
| Set Up | DCAstep_AutoList_DQ_QBCLK | optDCAStep_AutoList_DQ_QBclk | (Accepts user-defined text) | DCA Step iteration list for DQ QBCLK |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | DCAstep_AutoList_DQ_QCLK | optDCAStep_AutoList_DQ_Qclk | (Accepts user-defined text) | DCA Step iteration list for DQ QCLK |
| Set Up | DCAstep_DQS_IBCLK | optDCAStep_Manual_DQS_IBclk | -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7 | DCA Step for DQS IBCLK |
| Set Up | DCAstep_DQS_QBCLK | optDCAStep_Manual_DQS_QBclk | -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7 | DCA Step for DQS QBCLK |
| Set Up | DCAstep_DQS_QBCLK | optDCAStep_Manual_DQS_Qclk | -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7 | DCA Step for DQS QBCLK |
| Set Up | DCAstep_DQ_IBCLK | optDCAStep_Manual_DQ_IBclk | -3, -2, -1, 0, 1, 2, 3 | DCA Step for DQ IBCLK |
| Set Up | DCAstep_DQ_QBCLK | optDCAStep_Manual_DQ_QBclk | -3, -2, -1, 0, 1, 2, 3 | DCA Step for DQ QBCLK |
| Set Up | DCAstep_DQ_QBCLK | optDCAStep_Manual_DQ_Qclk | -3, -2, -1, 0, 1, 2, 3 | DCA Step for DQ QBCLK |
| Set Up | DDR Data Rate - User Defined | optDDRDataRate | (Accepts user-defined text), 3200, 3600, 4000, 4400, 4800, 5200, 5600, 6000, 6400 | Set DDR Data Rate based on user defined values. |
| Set Up | DDR5 READ Postamble Mode | optReadBurstPostambleMode | DDR5_0.5tCK, DDR5_1.5tCK | Set the expected Read Postamble Mode. |
| Set Up | DDR5 READ Preamble Mode | optReadBurstPreambleMode | DDR5_1tCK, DDR5_2tCK_0010, DDR5_2tCK_1110, DDR5_3tCK, DDR5_4tCK | Set the expected Read Preamble Mode. |
| Set Up | DDR5 Signal Source | optDDRSignalSrc | CK (Diff), DQS (Diff), DQ, CA, CK (Diff), DQS (Diff), DQ, DQS (Diff), DQ, CA, DQS (Diff), DQ, CK (Diff), CA, CK (Diff), DQS (Diff), CK_t (Single Ended), CK_c (Single Ended), DQS_t (Single Ended), DQS_c (Single Ended), DQ, DQS_t (Single Ended), DQS_c (Single Ended), DQ, CA | Set DDR5 Signal Source. |
| Set Up | DDR5 WRITE Postamble Mode | optWriteBurstPostambleMode | DDR5_0.5tCK, DDR5_1.5tCK | Set the expected Write Postamble Mode. |
| Set Up | DDR5 WRITE Preamble Mode | optWriteBurstPreambleMode | DDR5_2tCK, DDR5_3tCK, DDR5_4tCK | Set the expected Write Preamble Mode. |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | DIMM Channel | optDutAutoSetup_DimmChan | Channel A, Channel B | Set the DIMM Channel. Available options include [Channel A] or [Channel B] |
| Set Up | DIMM Rank | optDutAutoSetup_DimmRank | Rank0, Rank1 | Set the DIMM Rank. Available options include [Rank0] or [Rank1] |
| Set Up | DQ | optDutAutoSetup_DQNum | DQL0, DQL1, DQL2, DQL3, DQL4, DQL5, DQL6, DQL7, DQU0, DQU1, DQU2, DQU3, DQU4, DQU5, DQU6, DQU7 | Set the DQ to test. This affect the local DCA mode registers setting. |
| Set Up | DQ operation mode | optSignalSrcOpMode_DQ | DataPattern, Continuous1010 | Set the operation mode of the DQ source signal. Available options include [DataPattern] or [Continuous1010] |
| Set Up | DQS (Diff) operation mode | optSignalSrcOpMode_DQS_Diff | Burst, Continuous | Set the operation mode of the DQS (Diff) source signal. Available options include [Burst] or [Continuous] |
| Set Up | DQS_SE_HighV | InputThreshold_DQS_SE_High | (Accepts user-defined text), 0.7 | DQS_SE_HighV |
| Set Up | DQS_SE_LowV | InputThreshold_DQS_SE_Low | (Accepts user-defined text), 0.5 | DQS_SE_LowV |
| Set Up | DUT Automation | optDutAutomation | 0.0, 1.0 | Enable or disable the DUT Automation mode. |
| Set Up | Data source for CA live signal | optSignalSrc_Live_CA | Channel1, Channel2, Channel3, Channel4 | Data source for CA live signal |
| Set Up | Data source for CA offline waveform | optSignalSrc_Offline_CA | (Accepts user-defined text) | Data source for CA offline waveform |
| Set Up | Data source for CK (Diff) live signal | optSignalSrc_Live_CK_Diff | Channel1, Channel2, Channel3, Channel4 | Data source for CK (Diff) live signal |
| Set Up | Data source for CK (Diff) offline waveform | optSignalSrc_Offline_CK_Diff | (Accepts user-defined text) | Data source for CK (Diff) offline waveform |
| Set Up | Data source for CK_c live signal | optSignalSrc_Live_CK_c_SE | Channel1, Channel2, Channel3, Channel4 | Data source for CK_c live signal |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | Data source for CK_c offline waveform | optSignalSrc_Offline_CK_c_SE | (Accepts user-defined text) | Data source for CK_c offline waveform |
| Set Up | Data source for CK_t live signal | optSignalSrc_Live_CK_t_SE | Channel1, Channel2, Channel3, Channel4 | Data source for CK_t live signal |
| Set Up | Data source for CK_t offline waveform | optSignalSrc_Offline_CK_t_SE | (Accepts user-defined text) | Data source for CK_t offline waveform |
| Set Up | Data source for DQ live signal | optSignalSrc_Live_DQ | Channel1, Channel2, Channel3, Channel4 | Data source for DQ live signal |
| Set Up | Data source for DQ offline waveform | optSignalSrc_Offline_DQ | (Accepts user-defined text) | Data source for DQ offline waveform |
| Set Up | Data source for DQS (Diff) live signal | optSignalSrc_Live_DQS_Diff | Channel1, Channel2, Channel3, Channel4 | Data source for DQS (Diff) live signal |
| Set Up | Data source for DQS (Diff) offline waveform | optSignalSrc_Offline_DQS_Diff | (Accepts user-defined text) | Data source for DQS (Diff) offline waveform |
| Set Up | Data source for DQS_c live signal | optSignalSrc_Live_DQS_c_SE | Channel1, Channel2, Channel3, Channel4 | Data source for DQS_c live signal |
| Set Up | Data source for DQS_c offline waveform | optSignalSrc_Offline_DQS_c_SE | (Accepts user-defined text) | Data source for DQS_c offline waveform |
| Set Up | Data source for DQS_t live signal | optSignalSrc_Live_DQS_t_SE | Channel1, Channel2, Channel3, Channel4 | Data source for DQS_t live signal |
| Set Up | Data source for DQS_t offline waveform | optSignalSrc_Offline_DQS_t_SE | (Accepts user-defined text) | Data source for DQS_t offline waveform |
| Set Up | DoInitDimm_Debug | optDutAutoSetup_DoInitDimm | 0.0, 1.0 | Enable / disable the full DUT initialization when running the 'Apply DCA Setting' procedures. |
| Set Up | Expected Burst Data | optExpectedBurstDataType | ReadAndWrite, ReadOnly, WriteOnly | Set the expected burst data type available in test signal. |
| Set Up | InfiniiSim Threshold Mode | optThreshSetMode_ISim | Auto, Manual | InfiniiSim Threshold Mode |
| Set Up | Lower Threshold [ISim] for CA | optLowerThres_InfiniiSim_CA | (Accepts user-defined text), 0.5 | Lower Threshold [ISim] for CA |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | Lower Threshold [ISim] for CK (Diff) | optLowerThres_InfiniiSim_CK_Diff | (Accepts user-defined text), -0.3, -0.2, -0.15 | Lower Threshold [ISim] for CK (Diff) |
| Set Up | Lower Threshold [ISim] for CK_c (Single Ended) | optLowerThres_InfiniiSim_CK_c_SE | (Accepts user-defined text), 0.5 | Lower Threshold [ISim] for CK_c (Single Ended) |
| Set Up | Lower Threshold [ISim] for CK_t (Single Ended) | optLowerThres_InfiniiSim_CK_t_SE | (Accepts user-defined text), 0.5 | Lower Threshold [ISim] for CK_t (Single Ended) |
| Set Up | Lower Threshold [ISim] for DQ | optLowerThres_InfiniiSim_DQ | (Accepts user-defined text), 0.5 | Lower Threshold [ISim] for DQ |
| Set Up | Lower Threshold [ISim] for DQS (Diff) | optLowerThres_InfiniiSim_DQS_Diff | (Accepts user-defined text), -0.3, -0.2, -0.15 | Lower Threshold [ISim] for DQS (Diff) |
| Set Up | Lower Threshold [ISim] for DQS_c (Single Ended) | optLowerThres_InfiniiSim_DQS_c_SE | (Accepts user-defined text), 0.5 | Lower Threshold [ISim] for DQS_c (Single Ended) |
| Set Up | Lower Threshold [ISim] for DQS_t (Single Ended) | optLowerThres_InfiniiSim_DQS_t_SE | (Accepts user-defined text), 0.5 | Lower Threshold [ISim] for DQS_t (Single Ended) |
| Set Up | Lower Threshold for CA | optLowerThres_CA | (Accepts user-defined text), 0.5 | Lower Threshold for CA |
| Set Up | Lower Threshold for CK (Diff) | optLowerThres_CK_Diff | (Accepts user-defined text), -0.3, -0.2, -0.15 | Lower Threshold for CK (Diff) |
| Set Up | Lower Threshold for CK_c (Single Ended) | optLowerThres_CK_c_SE | (Accepts user-defined text), 0.5 | Lower Threshold for CK_c (Single Ended) |
| Set Up | Lower Threshold for CK_t (Single Ended) | optLowerThres_CK_t_SE | (Accepts user-defined text), 0.5 | Lower Threshold for CK_t (Single Ended) |
| Set Up | Lower Threshold for DQ | optLowerThres_DQ | (Accepts user-defined text), 0.5 | Lower Threshold for DQ |
| Set Up | Lower Threshold for DQS (Diff) | optLowerThres_DQS_Diff | (Accepts user-defined text), -0.3, -0.2, -0.15 | Lower Threshold for DQS (Diff) |
| Set Up | Lower Threshold for DQS_c (Single Ended) | optLowerThres_DQS_c_SE | (Accepts user-defined text), 0.5 | Lower Threshold for DQS_c (Single Ended) |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | Lower Threshold for DQS_t (Single Ended) | optLowerThres_DQS_t_SE | (Accepts user-defined text), 0.5 | Lower Threshold for DQS_t (Single Ended) |
| Set Up | Middle Threshold [ISim] for CA | optMiddleThres_InfiniiSim_CA | (Accepts user-defined text), 0.6 | Middle Threshold [ISim] for CA |
| Set Up | Middle Threshold [ISim] for CK (Diff) | optMiddleThres_InfiniiSim_CK_Diff | (Accepts user-defined text), 0 | Middle Threshold [ISim] for CK (Diff) |
| Set Up | Middle Threshold [ISim] for CK_c (Single Ended) | optMiddleThres_InfiniiSim_CK_c_SE | (Accepts user-defined text), 0.6 | Middle Threshold [ISim] for CK_c (Single Ended) |
| Set Up | Middle Threshold [ISim] for CK_t (Single Ended) | optMiddleThres_InfiniiSim_CK_t_SE | (Accepts user-defined text), 0.6 | Middle Threshold [ISim] for CK_t (Single Ended) |
| Set Up | Middle Threshold [ISim] for DQ | optMiddleThres_InfiniiSim_DQ | (Accepts user-defined text), 0.6 | Middle Threshold [ISim] for DQ |
| Set Up | Middle Threshold [ISim] for DQS (Diff) | optMiddleThres_InfiniiSim_DQS_Diff | (Accepts user-defined text), 0 | Middle Threshold [ISim] for DQS (Diff) |
| Set Up | Middle Threshold [ISim] for DQS_c (Single Ended) | optMiddleThres_InfiniiSim_DQS_c_SE | (Accepts user-defined text), 0.6 | Middle Threshold [ISim] for DQS_c (Single Ended) |
| Set Up | Middle Threshold [ISim] for DQS_t (Single Ended) | optMiddleThres_InfiniiSim_DQS_t_SE | (Accepts user-defined text), 0.6 | Middle Threshold [ISim] for DQS_t (Single Ended) |
| Set Up | Middle Threshold for CA | optMiddleThres_CA | (Accepts user-defined text), 0.6 | Middle Threshold for CA |
| Set Up | Middle Threshold for CK (Diff) | optMiddleThres_CK_Diff | (Accepts user-defined text), 0 | Middle Threshold for CK (Diff) |
| Set Up | Middle Threshold for CK_c (Single Ended) | optMiddleThres_CK_c_SE | (Accepts user-defined text), 0.6 | Middle Threshold for CK_c (Single Ended) |
| Set Up | Middle Threshold for CK_t (Single Ended) | optMiddleThres_CK_t_SE | (Accepts user-defined text), 0.6 | Middle Threshold for CK_t (Single Ended) |
| Set Up | Middle Threshold for DQ | optMiddleThres_DQ | (Accepts user-defined text), 0.6 | Middle Threshold for DQ |
| Set Up | Middle Threshold for DQS (Diff) | optMiddleThres_DQS_Diff | (Accepts user-defined text), 0 | Middle Threshold for DQS (Diff) |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | Middle Threshold for DQS_c (Single Ended) | optMiddleThres_DQS_c_SE | (Accepts user-defined text), 0.6 | Middle Threshold for DQS_c (Single Ended) |
| Set Up | Middle Threshold for DQS_t (Single Ended) | optMiddleThres_DQS_t_SE | (Accepts user-defined text), 0.6 | Middle Threshold for DQS_t (Single Ended) |
| Set Up | MultiStep_DQS_Base_IBCLK | optMultiStep_DQS_Base_IBclk | -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7 | Initial Base DCA setting for DQS IBCLK |
| Set Up | MultiStep_DQS_Base_QBCLK | optMultiStep_DQS_Base_QBclk | -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7 | Initial Base DCA setting for DQS QBCLK |
| Set Up | MultiStep_DQS_Base_QBCLK | optMultiStep_DQ_Base_QBclk | -3, -2, -1, 0, 1, 2, 3 | Initial Base DCA setting for DQS QBCLK |
| Set Up | MultiStep_DQS_Base_QCLK | optMultiStep_DQS_Base_Qclk | -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7 | Initial Base DCA setting for DQS QCLK |
| Set Up | MultiStep_DQ_Base_IBCLK | optMultiStep_DQ_Base_IBclk | -3, -2, -1, 0, 1, 2, 3 | Initial Base DCA setting for DQ IBCLK |
| Set Up | MultiStep_DQ_Base_QBCLK | optMultiStep_DQ_Base_Qclk | -3, -2, -1, 0, 1, 2, 3 | Initial Base DCA setting for DQ QBCLK |
| Set Up | Read Burst Latency - User Defined | optReadBurstLatency | (Accepts user-defined text), 26, 28, 30 | Set read burst latency value. |
| Set Up | Read Burst Preamble and Postamble Lower threshold - User Defined | optReadBurst_Vsw1 | (Accepts user-defined text), -0.24 | Set read burst Preamble and Postamble Lower threshold. |
| Set Up | Read Burst Preamble and Postamble Upper threshold - User Defined | optReadBurst_Vsw2 | (Accepts user-defined text), -0.06 | Set read burst Preamble and Postamble Upper threshold. |
| Set Up | Upper Threshold [ISim] for CA | optUpperThres_InfiniiSim_CA | (Accepts user-defined text), 0.7 | Upper Threshold [ISim] for CA |
| Set Up | Upper Threshold [ISim] for CK (Diff) | optUpperThres_InfiniiSim_CK_Diff | (Accepts user-defined text), 0.3, 0.2, 0.15 | Upper Threshold [ISim] for CK (Diff) |
| Set Up | Upper Threshold [ISim] for CK_c (Single Ended) | optUpperThres_InfiniiSim_CK_c_SE | (Accepts user-defined text), 0.7 | Upper Threshold [ISim] for CK_c (Single Ended) |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | Upper Threshold [ISim] for CK_t (Single Ended) | optUpperThres_InfiniiSim_CK_t_SE | (Accepts user-defined text), 0.7 | Upper Threshold [ISim] for CK_t (Single Ended) |
| Set Up | Upper Threshold [ISim] for DQ | optUpperThres_InfiniiSim_DQ | (Accepts user-defined text), 0.7 | Upper Threshold [ISim] for DQ |
| Set Up | Upper Threshold [ISim] for DQS (Diff) | optUpperThres_InfiniiSim_DQS_Diff | (Accepts user-defined text), 0.3, 0.2, 0.15 | Upper Threshold [ISim] for DQS (Diff) |
| Set Up | Upper Threshold [ISim] for DQS_c (Single Ended) | optUpperThres_InfiniiSim_DQS_c_SE | (Accepts user-defined text), 0.7 | Upper Threshold [ISim] for DQS_c (Single Ended) |
| Set Up | Upper Threshold [ISim] for DQS_t (Single Ended) | optUpperThres_InfiniiSim_DQS_t_SE | (Accepts user-defined text), 0.7 | Upper Threshold [ISim] for DQS_t (Single Ended) |
| Set Up | Upper Threshold for CA | optUpperThres_CA | (Accepts user-defined text), 0.7 | Upper Threshold for CA |
| Set Up | Upper Threshold for CK (Diff) | optUpperThres_CK_Diff | (Accepts user-defined text), 0.3, 0.2, 0.15 | Upper Threshold for CK (Diff) |
| Set Up | Upper Threshold for CK_c (Single Ended) | optUpperThres_CK_c_SE | (Accepts user-defined text), 0.7 | Upper Threshold for CK_c (Single Ended) |
| Set Up | Upper Threshold for CK_t (Single Ended) | optUpperThres_CK_t_SE | (Accepts user-defined text), 0.7 | Upper Threshold for CK_t (Single Ended) |
| Set Up | Upper Threshold for DQ | optUpperThres_DQ | (Accepts user-defined text), 0.7 | Upper Threshold for DQ |
| Set Up | Upper Threshold for DQS (Diff) | optUpperThres_DQS_Diff | (Accepts user-defined text), 0.3, 0.2, 0.15 | Upper Threshold for DQS (Diff) |
| Set Up | Upper Threshold for DQS_c (Single Ended) | optUpperThres_DQS_c_SE | (Accepts user-defined text), 0.7 | Upper Threshold for DQS_c (Single Ended) |
| Set Up | Upper Threshold for DQS_t (Single Ended) | optUpperThres_DQS_t_SE | (Accepts user-defined text), 0.7 | Upper Threshold for DQS_t (Single Ended) |
| Set Up | User Comment | txtOverallUserComment | (Accepts user-defined text) | This option allow user to key in related test detail. |
| Set Up | VDD | InputVDD | (Accepts user-defined text), 1.1 | VDD |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | VDDQ | InputVDDQ | (Accepts user-defined text), 1.1 | VDDQ |
| Set Up | VIH_CA_AC | InputThreshold_Vih_ac_CA | (Accepts user-defined text), 0.7 | VIH_CA_AC |
| Set Up | VIH_CA_DC | InputThreshold_Vih_dc_CA | (Accepts user-defined text), 0.7 | VIH_CA_DC |
| Set Up | VIH_DQ_AC | InputThreshold_Vih_ac_DQ | (Accepts user-defined text), 0.7 | VIH_DQ_AC |
| Set Up | VIH_DQ_DC | InputThreshold_Vih_dc_DQ | (Accepts user-defined text), 0.7 | VIH_DQ_DC |
| Set Up | VIHdiff_CK | VIHdiff_ac_CK | (Accepts user-defined text), 0.3 | VIHdiff_CK |
| Set Up | VIHdiff_DQS | VIHdiff_ac_DQS | (Accepts user-defined text), 0.3 | VIHdiff_DQS |
| Set Up | VIL_CA_AC | InputThreshold_Vil_ac_CA | (Accepts user-defined text), 0.5 | VIL_CA_AC |
| Set Up | VIL_CA_DC | InputThreshold_Vil_dc_CA | (Accepts user-defined text), 0.5 | VIL_CA_DC |
| Set Up | VIL_DQ_AC | InputThreshold_Vil_ac_DQ | (Accepts user-defined text), 0.5 | VIL_DQ_AC |
| Set Up | VIL_DQ_DC | InputThreshold_Vil_dc_DQ | (Accepts user-defined text), 0.5 | VIL_DQ_DC |
| Set Up | VILdiff_CK | VILdiff_ac_CK | (Accepts user-defined text), -0.3 | VILdiff_CK |
| Set Up | VILdiff_DQS | VILdiff_ac_DQS | (Accepts user-defined text), -0.3 | VILdiff_DQS |
| Set Up | VOH_DQ_AC | InputThreshold_Voh_ac | (Accepts user-defined text), 0.7 | VOH_DQ_AC |
| Set Up | VOH_DQ_DC | InputThreshold_Voh_dc | (Accepts user-defined text), 0.7 | VOH_DQ_DC |
| Set Up | VOHdiff_DQS | VOHdiff_ac_DQS | (Accepts user-defined text), 0.3 | VOHdiff_DQS |
| Set Up | VOL_DQ_AC | InputThreshold_Vol_ac | (Accepts user-defined text), 0.5 | VOL_DQ_AC |
| Set Up | VOL_DQ_DC | InputThreshold_Vol_dc | (Accepts user-defined text), 0.5 | VOL_DQ_DC |

**Table 2** Configuration Variables and Values (continued)

| GUI Location | Label | Variable | Values | Description |
|---|---|---|---|---|
| Set Up | VOLdiff_DQS | VOLdiff_ac_DQS | (Accepts user-defined text), -0.3 | VOLdiff_DQS |
| Set Up | VTT | InputRefV_VTT | (Accepts user-defined text), 0.6 | VTT |
| Set Up | VrefCA | InputRefV_VrefCA | (Accepts user-defined text), 0.6 | VrefCA |
| Set Up | VrefDQ | InputRefV_VrefDQ | (Accepts user-defined text), 0.6 | VrefDQ |
| Set Up | Write Burst Latency - User Defined | optWriteBurstLatency | (Accepts user-defined text), 20, 22, 24 | Set write burst latency value. |
| Set Up | Write Burst Preamble and Postamble Lower threshold - User Defined | optWriteBurst_Vsw1 | (Accepts user-defined text), -0.24 | Set write burst Preamble and Postamble Lower threshold. |
| Set Up | Write Burst Preamble and Postamble Upper threshold - User Defined | optWriteBurst_Vsw2 | (Accepts user-defined text), -0.06 | Set write burst Preamble and Postamble Upper threshold. |

# 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 |
|---|---|---|
| CA VIHL(ac) | 12010 | CA VIHL(ac) voltage must meet or exceed VIHL at any time in the UI (with not time requirement above VIHL) |
| Eye Diagram for Command Address | 12050 | Eye Diagram for Command Address |
| Overshoot amplitude (CK_c) | 11050 | Peak amplitude of AC overshoot |
| Overshoot amplitude (CK_t) | 11000 | Peak amplitude of AC overshoot |
| Overshoot area above VDD Abs Max(CK_c) | 11060 | OverShoot area above VDD Absolute Max |
| Overshoot area above VDD Abs Max(CK_t) | 11010 | OverShoot area above VDD Absolute Max |
| Overshoot area between VDD and VDD Abs Max(CK_c) | 11070 | OverShoot area between VDD and VDD Absolute Max |
| Overshoot area between VDD and VDD Abs Max(CK_t) | 11020 | OverShoot area between VDD and VDD Absolute Max |
| SRIN_cIVW | 12020 | Measures rising and falling slew rates over vCIVW |
| SRIdiffF_CK | 10105 | CK Differential Input Slew Rate for Clock Falling |
| SRIdiffF_DQS | 13005 | Differential Input Falling Slew Rate |
| SRIdiffR_CK | 10100 | CK Differential Input Slew Rate for Clock Rising |
| SRIdiffR_DQS | 13000 | Differential Input Rising Slew Rate |
| SRQdiffF | 13505 | Differential Output Falling Slew Rate |
| SRQdiffR | 13500 | Differential Output Rising Slew Rate |
| SRQseF | 13545 | Output signal minimum falling slew rate |
| SRQseR | 13540 | Output signal minimum rising slew rate |
| TxEH_DQ_SES_1UI | 18010 | Eye Height specified at the transmitter with a skew between DQ and DQS of 1UI |
| TxEH_DQ_SES_2UI | 18020 | Eye Height specified at the transmitter with a skew between DQ and DQS of 2UI |

**Table 4** Test IDs and Names (continued)

| Name | TestID | Description |
|---|---|---|
| TxEH_DQ_SES_3UI | 18030 | Eye Height specified at the transmitter with a skew between DQ and DQS of 3UI |
| TxEH_DQ_SES_4UI | 18040 | Eye Height specified at the transmitter with a skew between DQ and DQS of 4UI |
| TxEH_DQ_SES_5UI | 18050 | Eye Height specified at the transmitter with a skew between DQ and DQS of 5UI |
| TxEW_DQ_SES_1UI | 18015 | Eye Width specified at the transmitter with a skew between DQ and DQS of 1UI |
| TxEW_DQ_SES_2UI | 18025 | Eye Width specified at the transmitter with a skew between DQ and DQS of 2UI |
| TxEW_DQ_SES_3UI | 18035 | Eye Width specified at the transmitter with a skew between DQ and DQS of 3UI |
| TxEW_DQ_SES_4UI | 18045 | Eye Width specified at the transmitter with a skew between DQ and DQS of 4UI |
| TxEW_DQ_SES_5UI | 18055 | Eye Width specified at the transmitter with a skew between DQ and DQS of 5UI |
| Undershoot amplitude (CK_c) | 11055 | Peak amplitude of AC undershoot |
| Undershoot amplitude (CK_t) | 11005 | Peak amplitude of AC undershoot |
| Undershoot area below VSS(CK_c) | 11065 | UnderShoot area below VSS |
| Undershoot area below VSS(CK_t) | 11015 | UnderShoot area below VSS |
| VIHdiff.CK(AC) | 10000 | Differential AC Input Logic High Voltage |
| VIHdiff.CK(DC) | 10005 | Differential DC Input Logic High Voltage |
| VILdiff.CK(AC) | 10010 | Differential AC Input Logic Low Voltage |
| VILdiff.CK(DC) | 10015 | Differential DC Input Logic Low Voltage |
| VOH(AC) | 13520 | AC Output Logic High |
| VOH(DC) | 13525 | DC Output Logic High |
| VOHdiff(AC) | 13510 | Differential AC Output Logic High Voltage |
| VOL(AC) | 13530 | AC Output Logic Low |
| VOL(DC) | 13535 | DC Output Logic Low |
| VOLdiff(AC) | 13515 | Differential AC Output Logic Low Voltage |
| Vix_CK_ratio | 11100 | Clock Cross Point Voltage Ratio Test |
| Vix_DQS_ratio | 19100 | DQS Cross Point Voltage Ratio Test |
| Write Eye Diagram | 14090 | Eye Diagram for write burst. |

**Table 4** Test IDs and Names (continued)

| Name | TestID | Description |
|---|---|---|
| tCIPW | 12030 | Command Address Input Pulse Width |
| tCIVW Margin | 12000 | Command Address Valid Window Margin |
| tCK | 15000 | DRAM Reference clock frequency |
| tCK_10UI_Dj_NoBUJ | 15410 | Dj pp value of 10-UI Jitter without BUJ |
| tCK_10UI_Rj_NoBUJ | 15310 | Rj RMS value of 10-UI Jitter without BUJ |
| tCK_10UI_Tj_NoBUJ | 15510 | Tj value of 10-UI Jitter without BUJ |
| tCK_11UI_Dj_NoBUJ | 15411 | Dj pp value of 11-UI Jitter without BUJ |
| tCK_11UI_Rj_NoBUJ | 15311 | Rj RMS value of 11-UI Jitter without BUJ |
| tCK_11UI_Tj_NoBUJ | 15511 | Tj value of 11-UI Jitter without BUJ |
| tCK_12UI_Dj_NoBUJ | 15412 | Dj pp value of 12-UI Jitter without BUJ |
| tCK_12UI_Rj_NoBUJ | 15312 | Rj RMS value of 12-UI Jitter without BUJ |
| tCK_12UI_Tj_NoBUJ | 15512 | Tj value of 12-UI Jitter without BUJ |
| tCK_13UI_Dj_NoBUJ | 15413 | Dj pp value of 13-UI Jitter without BUJ |
| tCK_13UI_Rj_NoBUJ | 15313 | Rj RMS value of 13-UI Jitter without BUJ |
| tCK_13UI_Tj_NoBUJ | 15513 | Tj value of 13-UI Jitter without BUJ |
| tCK_14UI_Dj_NoBUJ | 15414 | Dj pp value of 14-UI Jitter without BUJ |
| tCK_14UI_Rj_NoBUJ | 15314 | Rj RMS value of 14-UI Jitter without BUJ |
| tCK_14UI_Tj_NoBUJ | 15514 | Tj value of 14-UI Jitter without BUJ |
| tCK_15UI_Dj_NoBUJ | 15415 | Dj pp value of 15-UI Jitter without BUJ |
| tCK_15UI_Rj_NoBUJ | 15315 | Rj RMS value of 15-UI Jitter without BUJ |
| tCK_15UI_Tj_NoBUJ | 15515 | Tj value of 15-UI Jitter without BUJ |
| tCK_16UI_Dj_NoBUJ | 15416 | Dj pp value of 16-UI Jitter without BUJ |
| tCK_16UI_Rj_NoBUJ | 15316 | Rj RMS value of 16-UI Jitter without BUJ |
| tCK_16UI_Tj_NoBUJ | 15516 | Tj value of 16-UI Jitter without BUJ |
| tCK_17UI_Dj_NoBUJ | 15417 | Dj pp value of 17-UI Jitter without BUJ |
| tCK_17UI_Rj_NoBUJ | 15317 | Rj RMS value of 17-UI Jitter without BUJ |
| tCK_17UI_Tj_NoBUJ | 15517 | Tj value of 17-UI Jitter without BUJ |
| tCK_18UI_Dj_NoBUJ | 15418 | Dj pp value of 18-UI Jitter without BUJ |
| tCK_18UI_Rj_NoBUJ | 15318 | Rj RMS value of 18-UI Jitter without BUJ |
| tCK_18UI_Tj_NoBUJ | 15518 | Tj value of 18-UI Jitter without BUJ |
| tCK_19UI_Dj_NoBUJ | 15419 | Dj pp value of 19-UI Jitter without BUJ |

**Table 4** Test IDs and Names (continued)

| Name | TestID | Description |
|---|---|---|
| tCK_19UI_Rj_NoBUJ | 15319 | Rj RMS value of 19-UI Jitter without BUJ |
| tCK_19UI_Tj_NoBUJ | 15519 | Tj value of 19-UI Jitter without BUJ |
| tCK_1UI_Dj_NoBUJ | 15401 | Dj pp value of 1-UI Jitter without BUJ |
| tCK_1UI_Rj_NoBUJ | 15301 | Rj RMS value of 1-UI Jitter without BUJ |
| tCK_1UI_Tj_NoBUJ | 15501 | Tj value of 1-UI Jitter without BUJ |
| tCK_20UI_Dj_NoBUJ | 15420 | Dj pp value of 20-UI Jitter without BUJ |
| tCK_20UI_Rj_NoBUJ | 15320 | Rj RMS value of 20-UI Jitter without BUJ |
| tCK_20UI_Tj_NoBUJ | 15520 | Tj value of 20-UI Jitter without BUJ |
| tCK_21UI_Dj_NoBUJ | 15421 | Dj pp value of 21-UI Jitter without BUJ |
| tCK_21UI_Rj_NoBUJ | 15321 | Rj RMS value of 21-UI Jitter without BUJ |
| tCK_21UI_Tj_NoBUJ | 15521 | Tj value of 21-UI Jitter without BUJ |
| tCK_22UI_Dj_NoBUJ | 15422 | Dj pp value of 22-UI Jitter without BUJ |
| tCK_22UI_Rj_NoBUJ | 15322 | Rj RMS value of 22-UI Jitter without BUJ |
| tCK_22UI_Tj_NoBUJ | 15522 | Tj value of 22-UI Jitter without BUJ |
| tCK_23UI_Dj_NoBUJ | 15423 | Dj pp value of 23-UI Jitter without BUJ |
| tCK_23UI_Rj_NoBUJ | 15323 | Rj RMS value of 23-UI Jitter without BUJ |
| tCK_23UI_Tj_NoBUJ | 15523 | Tj value of 23-UI Jitter without BUJ |
| tCK_24UI_Dj_NoBUJ | 15424 | Dj pp value of 24-UI Jitter without BUJ |
| tCK_24UI_Rj_NoBUJ | 15324 | Rj RMS value of 24-UI Jitter without BUJ |
| tCK_24UI_Tj_NoBUJ | 15524 | Tj value of 24-UI Jitter without BUJ |
| tCK_25UI_Dj_NoBUJ | 15425 | Dj pp value of 25-UI Jitter without BUJ |
| tCK_25UI_Rj_NoBUJ | 15325 | Rj RMS value of 25-UI Jitter without BUJ |
| tCK_25UI_Tj_NoBUJ | 15525 | Tj value of 25-UI Jitter without BUJ |
| tCK_26UI_Dj_NoBUJ | 15426 | Dj pp value of 26-UI Jitter without BUJ |
| tCK_26UI_Rj_NoBUJ | 15326 | Rj RMS value of 26-UI Jitter without BUJ |
| tCK_26UI_Tj_NoBUJ | 15526 | Tj value of 26-UI Jitter without BUJ |
| tCK_27UI_Dj_NoBUJ | 15427 | Dj pp value of 27-UI Jitter without BUJ |
| tCK_27UI_Rj_NoBUJ | 15327 | Rj RMS value of 27-UI Jitter without BUJ |
| tCK_27UI_Tj_NoBUJ | 15527 | Tj value of 27-UI Jitter without BUJ |
| tCK_28UI_Dj_NoBUJ | 15428 | Dj pp value of 28-UI Jitter without BUJ |
| tCK_28UI_Rj_NoBUJ | 15328 | Rj RMS value of 28-UI Jitter without BUJ |

**Table 4** Test IDs and Names (continued)

| Name | TestID | Description |
|---|---|---|
| tCK_28UI_Tj_NoBUJ | 15528 | Tj value of 28-UI Jitter without BUJ |
| tCK_29UI_Dj_NoBUJ | 15429 | Dj pp value of 29-UI Jitter without BUJ |
| tCK_29UI_Rj_NoBUJ | 15329 | Rj RMS value of 29-UI Jitter without BUJ |
| tCK_29UI_Tj_NoBUJ | 15529 | Tj value of 29-UI Jitter without BUJ |
| tCK_2UI_Dj_NoBUJ | 15402 | Dj pp value of 2-UI Jitter without BUJ |
| tCK_2UI_Rj_NoBUJ | 15302 | Rj RMS value of 2-UI Jitter without BUJ |
| tCK_2UI_Tj_NoBUJ | 15502 | Tj value of 2-UI Jitter without BUJ |
| tCK_30UI_Dj_NoBUJ | 15430 | Dj pp value of 30-UI Jitter without BUJ |
| tCK_30UI_Rj_NoBUJ | 15330 | Rj RMS value of 30-UI Jitter without BUJ |
| tCK_30UI_Tj_NoBUJ | 15530 | Tj value of 30-UI Jitter without BUJ |
| tCK_3UI_Dj_NoBUJ | 15403 | Dj pp value of 3-UI Jitter without BUJ |
| tCK_3UI_Rj_NoBUJ | 15303 | Rj RMS value of 3-UI Jitter without BUJ |
| tCK_3UI_Tj_NoBUJ | 15503 | Tj value of 3-UI Jitter without BUJ |
| tCK_4UI_Dj_NoBUJ | 15404 | Dj pp value of 4-UI Jitter without BUJ |
| tCK_4UI_Rj_NoBUJ | 15304 | Rj RMS value of 4-UI Jitter without BUJ |
| tCK_4UI_Tj_NoBUJ | 15504 | Tj value of 4-UI Jitter without BUJ |
| tCK_5UI_Dj_NoBUJ | 15405 | Dj pp value of 5-UI Jitter without BUJ |
| tCK_5UI_Rj_NoBUJ | 15305 | Rj RMS value of 5-UI Jitter without BUJ |
| tCK_5UI_Tj_NoBUJ | 15505 | Tj value of 5-UI Jitter without BUJ |
| tCK_6UI_Dj_NoBUJ | 15406 | Dj pp value of 6-UI Jitter without BUJ |
| tCK_6UI_Rj_NoBUJ | 15306 | Rj RMS value of 6-UI Jitter without BUJ |
| tCK_6UI_Tj_NoBUJ | 15506 | Tj value of 6-UI Jitter without BUJ |
| tCK_7UI_Dj_NoBUJ | 15407 | Dj pp value of 7-UI Jitter without BUJ |
| tCK_7UI_Rj_NoBUJ | 15307 | Rj RMS value of 7-UI Jitter without BUJ |
| tCK_7UI_Tj_NoBUJ | 15507 | Tj value of 7-UI Jitter without BUJ |
| tCK_8UI_Dj_NoBUJ | 15408 | Dj pp value of 8-UI Jitter without BUJ |
| tCK_8UI_Rj_NoBUJ | 15308 | Rj RMS value of 8-UI Jitter without BUJ |
| tCK_8UI_Tj_NoBUJ | 15508 | Tj value of 8-UI Jitter without BUJ |
| tCK_9UI_Dj_NoBUJ | 15409 | Dj pp value of 9-UI Jitter without BUJ |
| tCK_9UI_Rj_NoBUJ | 15309 | Rj RMS value of 9-UI Jitter without BUJ |
| tCK_9UI_Tj_NoBUJ | 15509 | Tj value of 9-UI Jitter without BUJ |

**Table 4** Test IDs and Names (continued)

| Name | TestID | Description |
|---|---|---|
| tCK_Duty_UI_Error | 15020 | Duty Cycle Error |
| tCK_Duty_UI_High | 15010 | Duty Cycle (High) |
| tCK_Duty_UI_Low | 15015 | Duty Cycle (Low) |
| tDQS2DQ | 14050 | Delay of any data lane relative to the DQS_t/DQS_c crossing. |
| tDQSCK | 14500 | DQS output access time from CK,/CK |
| tDQSH_pre | 14060 | Write preamble |
| tDQSL2PRE | 14081 | DQS_t, DQS_c differential initial low pulse width during WRITE Preamble (2tCK Preamble) |
| tDQSL3PRE | 14082 | DQS_t, DQS_c differential initial low pulse width during WRITE Preamble (3tCK Preamble) |
| tDQSL4PRE | 14083 | DQS_t, DQS_c differential initial low pulse width during WRITE Preamble (4tCK Preamble) |
| tDQSL_pre | 14070 | Write preamble |
| tDSH | 14010 | DQS falling edge hold time from CK |
| tDSS | 14000 | DQS falling edge to CK setup time |
| tHZDQS | 14520 | DQS high-impedance time from CK,/CK |
| tLZDQS | 14510 | DQS low-impedance time from CK,/CK |
| tRPRE | 14530 | Read preamble |
| tRPST | 14540 | Read postamble |
| tTX_DQS_1UI_Dj_NoBUJ | 16401 | Dj pp value of 1-UI Jitter without BUJ |
| tTX_DQS_1UI_Rj_NoBUJ | 16301 | Rj RMS value of 1-UI Jitter without BUJ |
| tTX_DQS_2UI_Dj_NoBUJ | 16402 | Dj pp value of 2-UI Jitter without BUJ |
| tTX_DQS_2UI_Rj_NoBUJ | 16302 | Rj RMS value of 2-UI Jitter without BUJ |
| tTX_DQS_3UI_Dj_NoBUJ | 16403 | Dj pp value of 3-UI Jitter without BUJ |
| tTX_DQS_3UI_Rj_NoBUJ | 16303 | Rj RMS value of 3-UI Jitter without BUJ |
| tTX_DQS_4UI_Dj_NoBUJ | 16404 | Dj pp value of 4-UI Jitter without BUJ |
| tTX_DQS_4UI_Rj_NoBUJ | 16304 | Rj RMS value of 4-UI Jitter without BUJ |
| tTX_DQ_1UI_Dj_NoBUJ | 17401 | Dj pp value of 1-UI Jitter without BUJ |
| tTX_DQ_1UI_Rj_NoBUJ | 17301 | Rj RMS value of 1-UI Jitter without BUJ |
| tTX_DQ_2UI_Dj_NoBUJ | 17402 | Dj pp value of 2-UI Jitter without BUJ |
| tTX_DQ_2UI_Rj_NoBUJ | 17302 | Rj RMS value of 2-UI Jitter without BUJ |
| tTX_DQ_3UI_Dj_NoBUJ | 17403 | Dj pp value of 3-UI Jitter without BUJ |

**Table 4** Test IDs and Names (continued)

| Name | TestID | Description |
|---|---|---|
| tTX_DQ_3UI_Rj_NoBUJ | 17303 | Rj RMS value of 3-UI Jitter without BUJ |
| tTX_DQ_4UI_Dj_NoBUJ | 17404 | Dj pp value of 4-UI Jitter without BUJ |
| tTX_DQ_4UI_Rj_NoBUJ | 17304 | Rj RMS value of 4-UI Jitter without BUJ |
| tTx_DQS_Duty_UI | 16000 | Strobe Duty Cycle Error |
| tTx_DQ_Duty_UI | 17000 | DQ Duty Cycle Error |
| tWPRE_2 | 14031 | Write preamble |
| tWPRE_3 | 14032 | Write preamble |
| tWPRE_4 | 14033 | Write preamble |
| tWPST_0_5 | 14041 | Write postamble |
| tWPST_1_5 | 14042 | Write postamble |
| vCIVW Margin | 12005 | vCIVW Margin |

# 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.

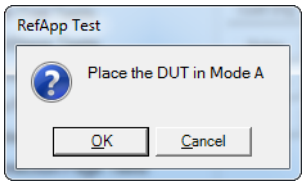
**Table 6** Instrument Names

| Instrument Name | Description |
|---|---|
| Infiniium | The primary oscilloscope |

# 5 Message IDs

During the normal course of operation, an application displays multiple message prompts. The application's remote interface exposes a callback capability which enables remote clients to receive the text found in the prompt and to programmatically select the desired response (OK, Cancel, etc.). In order to determine which message is being received, the remote program could parse the message and look for key words. However, because message text is subject to change, a more reliable approach is to use the "message ID" that is attached to the more frequently-seen messages. The following table shows the IDs of the messages that this application may prompt during nominal operation.

For example, if the application may display the following prompt:




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

| Message | ID | Responses | Usage |
|---|---|---|---|
| DUT mode message | 313AEE2F-9EF0-476f-A2EB-29A5C7DE686F | OK=action completed and proceed, Cancel = abort test | App |

- Message – A summary of the message in the prompt.
- ID – A unique code that will never change for this prompt, even if the message text changes (assuming the underlying purpose is maintained).
- Responses – The buttons on the prompt and their actions.
- Usage – The scope of the message:
  - "Common" – This message/ID may be used by other apps.

- "App" — This message/ID is unique to this app.
- "<testID>" — This message/ID is unique to this test ID.

A remote client would then structure the code in its message callback handler as shown below to manage message identification:

```
private static void OnSimpleMessage(object sender, MessageEventArgs e)
{
  if (e.ID == "313AEE2F-9EF0-476f-A2EB-29A5C7DE686F")
  {
    // Add code here to set the DUT in Mode A

    e.Response = DialogResult.OK;
  }
}
```

Here are actual message IDs used by this application:

**NOTE** The file, "MessageInfo.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 7** Message IDs

| Message | ID | Responses | Usage |
|---|---|---|---|
| Acq Limit: Can't determine minimum bandwidth | 25A86458-151E-413D-B890-FC30CFD5ECAA | OK | Instrument |
| Activating limit will conflict with existing resutls | 31A39751-6019-41de-89DF-59DB239DF978 | OK=delete conflicting results, Cancel=cancel activation | Instrument |
| Already running tests | 022467B0-6E08-40eb-B4D4-BBB018FBFBC7 | OK | Instrument |
| App startup aborted | C2B67F67-E5D5-4845-8B63-443781223010 | OK | Instrument |
| Can't set memory depth | FFFF1129-BD83-4318-993E-64C94033CEC4 | OK=skip step and continue, Cancel=abort test | Instrument |
| Channel Setup: Unknown scope channel | CDE944EB-F440-4CB1-AFDC-7596461BCD86 | OK | Instrument |
| Compliance/Debug mode change | 9C72A970-8D7D-4b37-9787-48AEEA5DC3F1 | OK=change mode, Cancel=abort action | Instrument |
| Confirmation Required | 37437505-160C-4cc8-BA06-093C12994C1E | OK=continue, Cancel=abort test | Instrument |
| Connection change | 879629E6-78FA-4a87-B247-A9DB4F0D7330 | Abort=abort run, Retry=connection changed - continue run, Ignore=connection not chagned - continue run | Instrument |

**Table 7** Message IDs (continued)

| Message | ID | Responses | Usage |
|---|---|---|---|
| Debug pause (messages vary) | 50B66A97-A6A9-413f-8329-76DFAC492FD6 | OK=resume, Cancel=abort run | Instrument |
| End of run summary | 602F9866-F975-42b7-842C-D8447E5E3FCB | OK | Instrument |
| End of run summary (test aborted) | 124580E4-4486-42d4-B908-C6D0FB2AEE93 | OK | Instrument |
| Error during CSV file generation | C88B1C64-8334-4b15-8727-81F5E2BA2ED4 | OK | Instrument |
| Error during app exit | 81112706-F720-4787-81D3-B22A9B692B41 | OK | Instrument |
| Expected signal not found | 86C74779-322E-4585-A07A-26A2C8FAAC84 | Abort=abort test, Retry=retry failed action, Ignore=skip failed step | Instrument |
| Expected signal not found | 7957D5B8-E62D-4224-A7DD-70361E816A43 | Retry=retry failed action, Cancel=abort test | Instrument |
| InfiniiSim: Not available because scope default prevented | B8461A2C-9F5F-4AF3-94C1-DF77080D517A | OK | Instrument |
| InfiniiSim: Scope doesn't support settings found in project | C9BC2205-8041-448b-AF31-CF602183E989 | OK | Instrument |
| InfiniiSim: Unknown scope channel | 4E5ECAF6-867C-47B3-982D-5F07E2090703 | OK | Instrument |
| Measurement Server no Measure Workers declared | 54A8428D-8E22-4286-AC88-7495821ABA77 | OK=retry, Cancel=abort run | Instrument |
| No test selected | B5D233AD-9EB4-4ac2-A443-A30A13643978 | OK | Instrument |
| PrecisionProbe and InfiniiSim controllers turned off after config change | B4477006-D6D1-4375-9FF7-D8177FFC1BF9 | OK | Instrument |
| PrecisionProbe/PrecisionCable: Not available because scope default prevented | 6E60C9F8-8FBF-419C-B70A-B666FBDE3677 | OK | Instrument |
| PrecisionProbe/PrecisionCable: Scope doesn't support settings found in project | 2FC3B6FA-E28C-4700-9F46-4ABBA86A0D90 | OK | Instrument |
| PrecisionProbe/PrecisionCable: Switch Controller is enabled | 22F46DA8-89AE-4370-A57C-571DCF5BB87E | OK | Instrument |
| PrecisionProbe/PrecisionCable: Unknown scope channel | 6788685B-9E88-47E6-BAE6-862F5BF3C9BA | OK | Instrument |

**Table 7** Message IDs (continued)

| Message | ID | Responses | Usage |
|---|---|---|---|
| Project loaded as read-only (reason) | 98C785F8-D24F-4758-A18D-1CCE61F25371 | OK | Instrument |
| Project loaded with errors | 58AD7A02-1E63-4d77-BC6C-6EF3E37AAD5B | OK | Instrument |
| Project not loaded | B2615E9C-5ED7-4db7-AEAF-2BC25C62B656 | OK | Instrument |
| Project save failed (unauthorized access) | 89DCC194-6254-4902-AE63-B7CCD12C8B2A | OK | Instrument |
| Run paused | FE2CF871-6D4A-4080-8FF9-770075590D9F | OK=resume, Cancel=abort run | Instrument |
| Setting change requires result deletion | 8732A3AB-142C-47e5-86EA-DB737F415DDE | OK=delete results; Cancel=abort change | Instrument |
| Store mode change requires result deletion | 884CDFDE-605E-4d04-B8FD-9B181E7FA468 | OK=delete results, Cancel=abort change | Instrument |
| Switch Matrix controller turned off after config change | FC95EBAA-F33F-4eae-90BB-6A6A8F16E2DF | OK | Instrument |
| Switch Matrix: Auto mode unavailable after config change | 6E5589DC-E073-4818-9E8A-782A75898475 | OK | Instrument |
| Switch Matrix: Auto mode unavailable for model, all settings will be reset | F78BD2E2-BF29-42e0-98F8-23B6CE565B08 | OK=go auto do reset, Cancel=abort action | Instrument |
| Switch Matrix: Confirm Auto mode | D5E1A12E-6218-4416-8451-5F9415D924BF | OK=go auto, Cancel=stay manual | Instrument |
| Switch Matrix: Obsolete items in settings discarded | 0C45BD20-E0C2-481e-A3B6-9C1A26C2103A | OK | Instrument |
| Switch Matrix: Reconnect drivers | 047FE44F-B251-49fa-B3C7-5590317230CD | Yes=use saved addresses, No=prompt for new addresses, Cancel=reset all settings | Instrument |
| Switch Matrix: Remove all InfiniiSim settings | C5560182-73BE-4901-941E-3DAEC9F07B33 | OK=remove, Cancel=abort action | Instrument |
| Switch Matrix: User cancelled settings load | 50F3FB70-AA6B-488e-8CFA-62CDA756F746 | OK | Instrument |
| SwitchMatrix: Correction reset due to application route change | 95FEA629-3BE1-4288-BA34-426516018B07 | OK=Accept new routing, Cancel=Reset switch matrix settings | Instrument |
| SwitchMatrix: Instrument already connected to another driver | 08556148-4D63-4edd-B894-22916F39849A | OK | Instrument |

**Table 7** Message IDs (continued)

| Message | ID | Responses | Usage |
|---|---|---|---|
| SwitchMatrix: Max num drivers exceeded | 7D8994AB-FCC2-4294-87B3-19B972BB6510 | OK | Instrument |
| SwitchMatrix: Reset after drive reconnect fail | CF3E93B6-77FA-4FD7-B656-D286BE1C7C75 | OK | Instrument |
| SwitchMatrix: Reset after drive reconnect fail | D298A4B8-F077-49BE-9CB2-AE6C14FB4705 | OK | Instrument |
| SwitchMatrix: Unexpected multi-SPDT module | 2723591D-55A9-44F3-9318-B732995D9427 | OK | Instrument |
| SwitchMatrix: Unknown current switch state | ECE6535B-5C1A-4688-9E45-FB255435CC92 | OK | Instrument |
| SwitchMatrix: Will reset due to requested change | 420FCEA9-0FF4-4088-B47A-3189413EA0AD | OK=Allow the reset, Cancel=Abort the original requested change | Instrument |
| Unknown EEyeLocation parameter | FCA1C61B-D2EA-4671-AD48-9C080A6C6039 | OK | Instrument |
| Upgrade app to open project | 794C6148-ADF4-4b24-895D-74D94B76F8AE | OK | Instrument |

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