Keysight D9010ONFC ONFI Compliance Test Application

KEYSIGHT
TECHNOLOGIES

Programmer's
Reference

Notices

Revision

Version 1.30.0.0

Edition

October 12, 2021

Available in electronic format only

Published by:
Keysight Technologies, Inc.
1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

Warranty

Technology License

U.S. Government Rights

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 D9010ONFC ONFI 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 27, and Chapter 4, "Instruments," starting on page 35 provide information specific to programming the D9010ONFC ONFI Compliance Test Application.

How to Use This Book

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

Contents

1 Introduction to Programming

Remote Programming Toolkit / 8

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.

KEYSIGHT
TECHNOLOGIES

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 D9010ONFC ONFI Compliance Test Application uses Remote Interface Revision 6.21. The help files provided with the toolkit indicate which features are supported in this version.

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

2 Configuration Variables and Values

The following table contains a description of each of the D9010ONFC ONFI 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	ALE_SE	ALESEChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for ALE Signal.
Configure	ALE_SE High Voltage (V)	InputThreshold_ALE_SE_High	(Accepts user-defined text), 1.15, 0.750	Identifies the High Voltage for ALE Single-Ended.
Configure	ALE_SE Low Voltage (V)	InputThreshold_ALE_SE_Low	(Accepts user-defined text), 0.650, 0.450	Identifies the Low Voltage for ALE Single-Ended.
Configure	Base Ratio	BurstTriggerBaseRatio_ALESE	(Accepts user-defined text), 0.20	Specify the value of the top ratio used when triggering for the ALE Signal. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_CE_SE	(Accepts user-defined text), 0.20	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_CLESE	(Accepts user-defined text), 0.20	Specify the value of the top ratio used when triggering for the CLE Signal. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Base Ratio	BurstTriggerBaseRatio_DQ	(Accepts user-defined text), 0.20	Specify the value of the base ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_DQS	(Accepts user-defined text), 0.20	Specify the value of the base ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_DQS Minus	(Accepts user-defined text), 0.20	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_DQS Plus	(Accepts user-defined text), 0.20	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_RE	(Accepts user-defined text), 0.20	Specify the value of the base ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_REMinus	(Accepts user-defined text), 0.20	Specify the value of the base ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Base Ratio	BurstTriggerBaseRatio_REPlus	(Accepts user-defined text), 0.20	Specify the value of the base ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Base Ratio	BurstTriggerBaseRatio_WESE	(Accepts user-defined text), 0.20	Specify the value of the top ratio used when triggering for the WE Signal. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	CE_SE Channel	CESEChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for CE Single-Ended Signal.
Configure	CE_SE High Voltage (V)	CE_SE_High_ac	(Accepts user-defined text), 1.15, 0.750	Identifies the High Voltage for CE Single-Ended.
Configure	CE_SE Low Voltage (V)	CE_SE_Low_ac	(Accepts user-defined text), 0.650, 0.450	Identifies the Low Voltage for CE Single-Ended.
Configure	CLE_SE	CLESEChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for CLE Single-Ended Signal.
Configure	CLE_SE High Voltage (V)	InputThreshold_CLE_SE_High	(Accepts user-defined text), 1.15, 0.750	Identifies the High Voltage for CLE Single-Ended.
Configure	CLE_SE Low Voltage (V)	InputThreshold_CLE_SE_Low	(Accepts user-defined text), 0.650, 0.450	Identifies the Low Voltage for CLE Single-Ended.
Configure	Consecutive DQS/RE Cycles	ConsecutiveCycles	(Accepts user-defined text), 200	This Parameter allow to change the consecutive periods for tDSC(avg), tJITper and tJITcc tests
Configure	DQ Channel	DQChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for DQ Single-Ended Signal.
Configure	DQS Minus	DQSMinusChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for DQS Minus Signal.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	DQS Plus	DQSPlusChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for DQS Plus Signal.
Configure	DQS signal source	UseDQSdiff	1, 0	Specifies the available DQS signal source to be used for all DQS required Tests.
Configure	DQS_Diff Channel	DQSChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for DQS Differential Signal.
Configure	DQS_SE High Voltage (V)	InputThreshold_DQS_SE_High	(Accepts user-defined text), 1.15, 0.750	Identifies the High Voltage for DQS Single Ended.
Configure	DQS_SE Low Voltage (V)	InputThreshold_DQS_SE_Low	(Accepts user-defined text), 0.650, 0.450	Identifies the Low Voltage for DQS Single Ended.
Configure	Derated Limit Method	DeratedLimitMethod	0, 1	This option is used to select the method to determine the derating values used in calculation of the dynamic test limit for tests that support derating [tDS-Diff(derate),tDH-Diff(derate)]. When the "Nominal Method" option is selected, the nominal slew rates of the relevant test signal (DQ) will be used to determine the derating value. Otherwise if "Tangent Method" option is selected, the slew rates of a tangent line to the actual test signal (DQ) will be used to determine the derating value instead.
Configure	Lower Threshold (V)	ALESE_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for ALE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Lower Threshold (V)	CE_SE_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for ALE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	CLESE_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for CLE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	DQSMinus_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for DQS Minus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	DQSPlus_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for DQS Plus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	DQS_Low_Thresh	(Accepts user-defined text), -0.50	Specify the lower measurement threshold used for DQS Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	DQ_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for DQ Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	REMinus_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for RE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Lower Threshold (V)	REPlus_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for RE Plus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	RE_Low_Thresh	(Accepts user-defined text), -0.50	Specify the lower measurement threshold used for RE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Lower Threshold (V)	WESE_Low_Thresh	(Accepts user-defined text), 0.650	Specify the lower measurement threshold used for WE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Max Acquisition Count	MaxAcqCount	(Accepts user-defined text), 5, 10, 20, 50	Determine the maximum number of acquisition that the app will used to try and achieved the required READ/WRITE measurement burst count(as specified in the "Multi Burst Count" option) when performing the tests. *Note: This option is applicable to all READ /WRITE burst related tests in the Electrical Tests group and Timing Tests group.
Configure	Middle Threshold (V)	ALESE_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for ALE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	CE_SE_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for CE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Middle Threshold (V)	CLESE_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for CLE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	DQSMinus_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for DQS Minus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	DQSPlus_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for DQS Plus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	DQS_Mid_Thresh	(Accepts user-defined text), 0.00	Specify the middle measurement threshold used for DQS Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	DQ_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for DQ Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	REMinus_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for RE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	REPlus_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for RE Plus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Middle Threshold (V)	RE_Mid_Thresh	(Accepts user-defined text), 0.00	Specify the middle measurement threshold used for RE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Middle Threshold (V)	WESE_Mid_Thresh	(Accepts user-defined text), 0.900	Specify the middle measurement threshold used for WE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Multi Burst Count	MultiBurstCount	(Accepts user-defined text), 1, 10, 100, 1000	Determine the number of READ/WRITE measurement burst(s) that is required when performing the tests. *Note: This option is applicable to all READ /WRITE burst related tests in the Electrical Tests group and Timing Tests group with the exception of VOH(AC), VOH(DC), VOL(AC), VOL(DC), VIHDiff(AC), VILDiff(AC), VOHDiff(AC) and VOLDiff(AC) tests.
Configure	OfflineDataMode(Must be hidden)	OfflineDataMode	(Accepts user-defined text), 0.0, 1.0	For supporting offline
Configure	Output Slew Rate Requirements	OutputSlewRateRequirements	0, 1	This Parameter allow to change the Output Slew Rate requirements option with ZQ Calibration and without ZQ calibration
Configure	RE Minus Channel	REMinusChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for RE Minus Signal.
Configure	RE Plus Channel	REPlusChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for RE Plus Signal.
Configure	RE signal source	UseREdiff	1, 0	Specifies the available RE signal source to be used for all RE required Read Tests.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	RE_Diff Channel	REChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for RE Differential Signal.
Configure	RE_Diff High Voltage (V)	REHdiff_ac	(Accepts user-defined text), 0.500, 0.300	Identifies the High Voltage for RE Differential.
Configure	RE_Diff Low Voltage (V)	RELdiff_ac	(Accepts user-defined text), -0.500, -0.300	Identifies the Low Voltage for RE Differential.
Configure	RE_SE High Voltage (V)	InputThreshold_RE_SE_High	(Accepts user-defined text), 1.15, 0.750	Identifies the High Voltage for RE Single Ended.
Configure	RE_SE Low Voltage (V)	InputThreshold_RE_SE_Low	(Accepts user-defined text), 0.650, 0.450	Identifies the Low Voltage for RE Single Ended.
Configure	Sampling Points (Pts) Electrical and Timing Tests Only	SamplingPoints	(Accepts user-defined text), 2000000, 1000000, 500000, 4000000	Specifies the sampling points to be captured in all the tests except Eye Digram tests. Reduce the sampling points if the read/write bursts are occuring very frequently.
Configure	Sampling Points (Pts) For Eye Diagram Tests Only	SamplingPointsNormalEyeDiagram	(Accepts user-defined text), 2000000, 250000, 500000, 4000000	Specifies the sampling points to be captured in Eye Digram tests. Reduce the sampling points if the read/write bursts are occuring very frequently. The 500000 sample points is recomended for the oscilloscope having Sampling rate between 20G/Sa to 40G/Sa because the slowness peformance will happen in setting higher sample points. For the oscilloscope have higher sampling rate like 80G/Sa or above, user require to set the sample points to a higher value.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
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.
Configure	Threshold Mode	ThreshSetMode	1, 0	By selecting "TopBaseRatio", the system will automatically determine the threshold settings that are used for the READ/WRITE burst triggering and identification using the TopRatio and BaseRatio specified for a particular channel input. Setting "Custom Threshold" allows user to directly set the threshold settings used instead.
Configure	Top Ratio	BurstTriggerTopRatio_ALESE	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for ALE Signal. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_CE_SE	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_CLESE	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for CLE Signal. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_DQ	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Top Ratio	BurstTriggerTopRatio_DQS	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_DQSMinus	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_DQSPlus	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_RE	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_REMinus	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_REPlus	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for the READ/WRITE burst data. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".
Configure	Top Ratio	BurstTriggerTopRatio_WESE	(Accepts user-defined text), 0.80	Specify the value of the top ratio used when triggering for WE Signal. The value set here is applicable ONLY when the "Threshold Mode" option is set to "TopBaseRatio".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Upper Threshold (V)	ALESE_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for ALE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	CE_SE_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for CE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	CLESE_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for CLE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	DQSMinus_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for DQS Minus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	DQSPlus_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for DQS Plus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	DQS_Up_Thresh	(Accepts user-defined text), 0.50	Specify the upper measurement threshold used for DQS Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	DQ_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for DQ Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Upper Threshold (V)	REMinus_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for RE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	REPlus_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for RE Plus Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	RE_Up_Thresh	(Accepts user-defined text), 0.50	Specify the upper measurement threshold used for RE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	Upper Threshold (V)	WESE_Up_Thresh	(Accepts user-defined text), 1.15	Specify the upper measurement threshold used for WE SE Channel. The value set here is applicable ONLY when the "Threshold Mode" option is set to "Custom Threshold".
Configure	VCC (V)	InputVCC	(Accepts user-defined text), 1.95, 1.8, 1.7, 1.2	Identifies the input supply voltage.
Configure	VCCQ (V)	InputVCCQ	(Accepts user-defined text), 1.95, 1.8, 1.7, 1.2	Identifies the input supply voltage for data signal.
Configure	VIH(ac) (V)	InputThreshold_Vih_ac_DQ	(Accepts user-defined text), 1.15, 0.750	Identifies the ac input logic HIGH voltage for DQ and DM inputs.
Configure	VIH(dc) (V)	InputThreshold_Vih_dc_DQ	(Accepts user-defined text), 1.05, 0.700	Identifies the dc input logic HIGH voltage for DQ and DM inputs.
Configure	VIHdiff(ac) (V)	VIHdiff_ac_DQS	(Accepts user-defined text), 0.500, 0.300	Differential input high. Affects only differential DQS only.
Configure	VIHdiff(dc) (V)	VIHdiff_dc_DQS	(Accepts user-defined text), 0.300, 0.200	Differential input high. Affects only differential DQS only.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	VIL(ac) (V)	InputThreshold_Vil_ac_DQ	(Accepts user-defined text), 0.650, 0.450	Identifies the ac input logic LOW voltage for DQ and DM inputs.
Configure	VIL(dc) (V)	InputThreshold_Vil_dc_DQ	(Accepts user-defined text), 0.750, 0.500	Identifies the dc input logic LOW voltage for DQ and DM inputs.
Configure	VILdiff(ac) (V)	VILdiff_ac_DQS	(Accepts user-defined text), -0.500, -0.300	Differential input low. Affects only differential DQS only.
Configure	VILdiff(dc) (V)	VILdiff_dc_DQS	(Accepts user-defined text), -0.300, -0.200	Differential input high. Affects only differential DQS only.
Configure	VOH (V)	InputThreshold_Voh	(Accepts user-defined text), 1.020, 0.720	Identifies the ac output logic HIGH voltage.
Configure	VOHdiff(ac) (V)	VOHdiff_ac	(Accepts user-defined text), 0.540, 0.360	Differential output high. Affects only differential DQS only.
Configure	VOL (V)	InputThreshold_Vol	(Accepts user-defined text), 0.600, 0.480	Identifies the dc output logic LOW voltage.
Configure	VOLdiff(ac) (V)	VOLdiff_ac	(Accepts user-defined text), -0.540, -0.360	Differential output low. Affects only differential DQS only.
Configure	VRefQ (V)	InputRefV_VrefQ	(Accepts user-defined text), 0.900, 0.600	Identifies the input reference voltage for DQ input.
Configure	VSSQ (V)	InputVSSQ	(Accepts user-defined text), 0.0	Identifies the ground voltage for data signal.
Configure	VTT (V)	InputVTT	(Accepts user-defined text), 1.00, 0.900, 0.800, 0.600	Identifies the termination voltage.
Configure	WE_SE	WESEChannel	CHANnel1, CHANnel2, CHANnel3, CHANnel4	Identifies the source channel for WE Single-Ended Signal.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	WE_SE High Voltage (V)	InputThreshold_WE_SE_High	(Accepts user-defined text), 1.15, 0.750	Identifies the High Voltage for WE Single-Ended.
Configure	WE_SE Low Voltage (V)	InputThreshold_WE_SE_Low	(Accepts user-defined text), 0.650, 0.450	Identifies the Low Voltage for WE Single-Ended.
Configure	Waveform File Type	WfmFileType	.wfm, .h5	By selecting ".wfm", the application will save the waveform in wfm format for measurement. While selecting ".h5", the application will save the waveform in h5 format for measurement.
Configure	searchRange_RE2DQS	searchRange_RE2DQS	(Accepts user-defined text), 19, 20, 21	Search range of the algorithm to find first edge after preamble behavior
Configure	tRPRECriteria	tRPRECriteria	(Accepts user-defined text), 1.5, 2, 2.5	If the gap>tRPRECriteria*UI then that gap is identify as tRPRE. This info is used to differentiate between a preamble and normal UI. This is useful if the data rate is very low and tRPRE is very short
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	Data Interface	DataInterfaceOptionSetVar	NVDDR2, NVDDR3	Options to select the data interface. Either NVDDR2 or NVDDR3.
Set Up	Data rate	pcboSpeedGrade	(Accepts user-defined text), 533, 800, 1200	This option allows user to enter specific data rate.
Set Up	Device ID	pcboOverallDeviceID	(Accepts user-defined text)	This option allow user to key in related test details.
Set Up	Input Signal Setup	InputSignalOptionSetVar	Live, Offline	Options to select the input signal. Either live signal or saved signal.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	OffALEWfmFile	OfflineALEFilePath	(Accepts user-defined text)	Saved ALE signal. Only available for Offline Mode. Saved ALE signal. Only available for Offline Mode.
Set Up	OffCEWfmFile	OfflineCEFilePath	(Accepts user-defined text)	Saved Chip Enable signal. Only available for Offline Mode. Saved Chip Enable signal. Only available for Offline Mode.
Set Up	OffCLEWfmFile	OfflineCLEFilePath	(Accepts user-defined text)	Saved CLE signal. Only available for Offline Mode. Saved CLE signal. Only available for Offline Mode.
Set Up	OffDQSDiffWfmFile	OfflineDQSFilePath	(Accepts user-defined text)	Saved DQS Differential signal. Only available for Offline Mode. Saved DQS Differential signal. Only available for Offline Mode.
Set Up	OffDQSMinusWfmFile	OfflineDQSMinusFilePath	(Accepts user-defined text)	Saved DQS Minus signal. Only available for Offline Mode. Saved DQS Minus signal. Only available for Offline Mode.
Set Up	OffDQSPlusWfmFile	OfflineDQSPlusFilePath	(Accepts user-defined text)	Saved DQS Plus signal. Only available for Offline Mode. Saved DQS Plus signal. Only available for Offline Mode.
Set Up	OffDQWfmFile	OfflineDQFilePath	(Accepts user-defined text)	Saved Data (DQ) signal. Only available for Offline Mode. Saved Data (DQ) signal. Only available for Offline Mode.
Set Up	OffREDiffWfmFile	OfflineREFilePath	(Accepts user-defined text)	Saved Read Enable Differential signal. Only available for Offline Mode. Saved Read Enable Differential signal. Only available for Offline Mode.
Set Up	OffREMinusWfmFile	OfflineREMinusFilePath	(Accepts user-defined text)	Saved RE Minus signal. Only available for Offline Mode. Saved RE Minus signal. Only available for Offline Mode.
Set Up	OffWEWfmFile	OfflineWEFilePath	(Accepts user-defined text)	Saved WE signal. Only available for Offline Mode. Saved WE signal. Only available for Offline Mode.

Table 2   Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	User Comment	txtOverallUserComment	(Accepts user-defined text)	This option allow user to key in related test detail.
Set Up	User Description	pcboOverallDeviceDescription	(Accepts user-defined text)	This option allow user to key in test detail.

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();
```

KEYSIGHT
TECHNOLOGIES

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
ALE Overshoot Amplitude	212050	ALE Overshoot Amplitude
ALE Overshoot Amplitude	312050	ALE Overshoot Amplitude
ALE Overshoot Area	212051	ALE Overshoot Area
ALE Overshoot Area	312051	ALE Overshoot Area
ALE Undershoot Amplitude	212052	ALE Undershoot Amplitude
ALE Undershoot Amplitude	312052	ALE Undershoot Amplitude
ALE Undershoot Area	212053	ALE Undershoot Area
ALE Undershoot Area	312053	ALE Undershoot Area
CLE Overshoot Amplitude	212060	CLE Overshoot Amplitude
CLE Overshoot Amplitude	312060	CLE Overshoot Amplitude
CLE Overshoot Area	212061	CLE Overshoot Area
CLE Overshoot Area	312061	CLE Overshoot Area
CLE Undershoot Amplitude	212062	CLE Undershoot Amplitude
CLE Undershoot Amplitude	312062	CLE Undershoot Amplitude
CLE Undershoot Area	212063	CLE Undershoot Area
CLE Undershoot Area	312063	CLE Undershoot Area
DummyTestToHideOfflineConfigVar	999000	DummyTestToHideOfflineConfigVar
Eye Diagram for Read DQ	240000	DQ eye diagram for Read bursts.
Eye Diagram for Read DQ	340000	DQ eye diagram for Read bursts.
Eye Diagram for Write DQ	241000	DQ eye diagram for Write bursts.
Eye Diagram for Write DQ	341000	DQ eye diagram for Write bursts.
SRIseF	231001	Input signal minimum falling slew rate
SRIseF	331001	Input signal minimum falling slew rate

Table 4   Test IDs and Names (continued)

Name	TestID	Description
SRIseR	231000	Input signal minimum rising slew rate
SRIseR	331000	Input signal minimum rising slew rate
SROFdiff	230013	Input signal minimum falling slew rate
SROFdiff	330013	Input signal minimum falling slew rate
SRORdiff	230012	Input signal minimum rising slew rate
SRORdiff	330012	Input signal minimum rising slew rate
SROseF	230011	Output signal minimum falling slew rate
SROseF	330011	Output signal minimum falling slew rate
SROseR	230010	Output signal minimum rising slew rate
SROseR	330010	Output signal minimum rising slew rate
VIH(AC) for DQ	211000	VIH(AC) for DQ
VIH(AC) for DQ	311000	VIH(AC) for DQ
VIH(DC) for DQ	211001	VIH(DC) for DQ
VIH(DC) for DQ	311001	VIH(DC) for DQ
VIH.diff(AC) for DQS	211004	VIH.diff(AC) for DQS
VIH.diff(AC) for DQS	311004	VIH.diff(AC) for DQS
VIH.diff(DC) for DQS	211005	VIH.diff(DC) for DQS
VIH.diff(DC) for DQS	311005	VIH.diff(DC) for DQS
VIL(AC) for DQ	211002	VIL(DC) for DQ
VIL(AC) for DQ	311002	VIL(DC) for DQ
VIL(DC) for DQ	211003	VIL(DC) for DQ
VIL(DC) for DQ	311003	VIL(DC) for DQ
VIL.diff(AC) for DQS	211006	VIL.diff(AC) for DQS
VIL.diff(AC) for DQS	311006	VIL.diff(AC) for DQS
VIL.diff(DC) for DQS	211007	VIL.diff(DC) for DQS
VIL.diff(DC) for DQS	311007	VIL.diff(DC) for DQS
VIX for Strobe	211040	AC differential input cross point voltage(Strobe)
VIX for Strobe	311040	AC differential input cross point voltage(Strobe)
VOH(AC) for DQ	210000	VOH(AC) for DQ
VOH(AC) for DQ	310000	VOH(AC) for DQ
VOH.diff(AC) for DQS	210002	VOH.diff(DC) for DQS

Table 4   Test IDs and Names (continued)

Name	TestID	Description
VOH.diff(AC) for DQS	310002	VOH.diff(DC) for DQS
VOL(AC) for DQ	210001	VOL(AC) for DQ
VOL(AC) for DQ	310001	VOL(AC) for DQ
VOL.diff(AC) for DQS	210003	VOL.diff(AC) for DQS
VOL.diff(AC) for DQS	310003	VOL.diff(AC) for DQS
VOX for RE	210050	AC differential output signals cross point voltage (RE)
VOX for RE	310050	AC differential output signals cross point voltage (RE)
VOX for Strobe	210041	AC differential output cross point voltage(Strobe)
VOX for Strobe	310041	AC differential output signals cross point voltage (Strobe)
VSEH(AC) for DQS Minus	210032	VSEH(AC)(Strobes Minus)
VSEH(AC) for DQS Minus	310032	VSEH(AC)(Strobes Minus)
VSEH(AC) for DQS Plus	210030	VSEH(AC)(Strobes Plus)
VSEH(AC) for DQS Plus	310030	VSEH(AC)(Strobes Plus)
VSEL(AC) for DQS Minus	210033	VSEL(AC)(Strobes Minus)
VSEL(AC) for DQS Minus	310033	VSEL(AC)(Strobes Minus)
VSEL(AC) for DQS Plus	210031	VSEL(AC) (Strobes Plus)
VSEL(AC) for DQS Plus	310031	VSEL(AC) (Strobes Plus)
WE Overshoot Amplitude	212070	WE Overshoot Amplitude
WE Overshoot Amplitude	312070	WE Overshoot Amplitude
WE Overshoot Area	212071	WE Overshoot Area
WE Overshoot Area	312071	WE Overshoot Area
WE Undershoot Amplitude	212072	WE Undershoot Amplitude
WE Undershoot Amplitude	312072	WE Undershoot Amplitude
WE Undershoot Area	212073	WE Undershoot Area
WE Undershoot Area	312073	WE Undershoot Area
tAC	230210	Access window of DQ[7:0] from RE_n (RE_t/RE_c crosspoint)
tAC	330210	Access window of DQ[7:0] from RE_n (RE_t/RE_c crosspoint)
tCAH	232009	Command/address DQ Hold time
tCAH	332009	Command/address DQ Hold time
tCALH_ALE	232004	W/R_n and ALE Hold time
tCALH_ALE	332004	W/R_n and ALE Hold time

Table 4   Test IDs and Names (continued)

Name	TestID	Description
tCALH_CLE	232002	W/R_n and CLE Hold time
tCALH_CLE	332002	W/R_n and CLE Hold time
tCALS_ALE	232003	W/R_n and ALE Setup time
tCALS_ALE	332003	W/R_n and ALE Setup time
tCALS_CLE	232001	W/R_n and CLE Setup time
tCALS_CLE	332001	W/R_n and CLE Setup time
tCAS	232008	Command/address DQ setup time
tCAS	332008	Command/address DQ setup time
tCDQSS	231600	DQS setup time for data input start
tCDQSS	331600	DQS setup time for data input start
tCH	232007	CE_n hold time for WE_n
tCH	332007	CE_n hold time for WE_n
tCR	230600	CE_n to (RE_n low or RE_t/RE_c crosspoint)
tCR	330600	CE_n to (RE_n low or RE_t/RE_c crosspoint)
tCS	232006	CE_n setup time for WE_n
tCS	332006	CE_n setup time for WE_n
tCS	331607	CE_n setup time with DQS
tCS-Read	230601	CE_n setup time with DQS RE_n
tCS-Read	330601	CE_n setup time with DQS RE_n
tCS-Write	231607	CE_n setup time with DQS
tCSD_ALE	232000	ALE hold time from CE_n high
tCSD_ALE	332000	ALE hold time from CE_n high
tCSD_CLE	232010	CLE hold time from CE_n high
tCSD_CLE	332010	CLE hold time from CE_n high
tDBS	231606	DQS (DQS_t) high setup to CE_n low during data burst
tDBS	331606	DQS (DQS_t) high setup to CE_n low during data burst
tDBS-Read	230602	RE_n (RE_t) high setup to CE_n low during data burst
tDBS-Read	330602	RE_n (RE_t) high setup to CE_n low during data burst
tDH(derate)	231203	DQ input hold time - Differential. Available for Timing Mode 0 to 3.
tDH(derate)	331203	DQ input hold time - Differential. Available for Timing Mode 0 to 3.
tDH_relaxed(derate)	231205	DQ input hold time - Differential. Available for Timing Mode 4 to 10.

Table 4   Test IDs and Names (continued)

Name	TestID	Description
tDH_relaxed(derate)	331205	DQ input hold time - Differential. Available for Timing Mode 4 to 10.
tDH_tight(derate)	231204	DQ input hold time - Differential. Available for Timing Mode 4 to 10.
tDH_tight(derate)	331204	DQ input hold time - Differential. Available for Timing Mode 4 to 10.
tDIPW	231605	DQ input pulse width
tDIPW	331605	DQ input pulse width
tDQSD	230230	(RE_n low or RE_t/RE_c crosspoint) to DQS/DQ driven by device)
tDQSD	330230	(RE_n low or RE_t/RE_c crosspoint) to DQS/DQ driven by device)
tDQSH	231603	DQS input high pulse width
tDQSH	331603	DQS input high pulse width
tDQSL	231604	DQS input low pulse width
tDQSL	331604	DQS input low pulse width
tDQSQ	230520	DQS-DQ skew, DQS to last DQ valid, per access
tDQSQ	330520	DQS-DQ skew, DQS to last DQ valid, per access
tDQSRE	230211	Access window of DQS from RE_n (RE_t/RE_c)
tDQSRE	330211	Access window of DQS from RE_n (RE_t/RE_c)
tDQSRH	230500	DQS hold time after (RE_n low or RE_t/RE_c crosspoint)
tDQSRH	330500	DQS hold time after (RE_n low or RE_t/RE_c crosspoint)
tDS(derate)	231200	DQ input setup time - Differential. Available for Timing Mode 0 to 3.
tDS(derate)	331200	DQ input setup time - Differential. Available for Timing Mode 0 to 3.
tDSC(abs)	231602	Absolute DQS cycle time
tDSC(abs)	331602	Absolute DQS cycle time
tDSC(avg)	231601	Average DQS cycle time
tDSC(avg)	331601	Average DQS cycle time
tDS_relaxed(derate)	231202	DQ input setup time - Differential. Available for Timing Mode 4 to 10.
tDS_relaxed(derate)	331202	DQ input setup time - Differential. Available for Timing Mode 4 to 10.
tDS_tight(derate)	231201	DQ input setup time - Differential. Available for Timing Mode 4 to 10.
tDS_tight(derate)	331201	DQ input setup time - Differential. Available for Timing Mode 4 to 10.
tDVW	230232	Output data valid window
tDVWd (device)	330232	Output data valid window
tJITcc(DQS)	221051	tjitcc(DQS) - DQS period jitter(Rising Edge)
tJITcc(DQS)	321051	tjitcc(DQS) - DQS period jitter(Rising Edge)

Table 4   Test IDs and Names (continued)

Name	TestID	Description
tJITcc(RE)	220061	tjitcc(RE) - RE period jitter(Rising Edge)
tJITcc(RE)	320061	tjitcc(RE) - RE period jitter(Rising Edge)
tJITper(DQS)	221050	tjitper(DQS) - DQS period jitter(Rising Edge)
tJITper(DQS)	321050	tjitper(DQS) - DQS period jitter(Rising Edge)
tJITper(RE)	220060	tjitper(RE) - RE period jitter(Rising Edge)
tJITper(RE)	320060	tjitper(RE) - RE period jitter(Rising Edge)
tQH	230300	DQ-DQS hold, DQS to first DQ to go non-valid, per access
tQH	330300	DQ-DQS hold, DQS to first DQ to go non-valid, per access
tQSH	230310	DQS output high time
tQSH	330310	DQS output high time
tQSL	230311	DQS output Low time
tQSL	330311	DQS output Low time
tRC(abs)	230400	Absolute read cycle period, measured from rising edge to the next consecutive rising edge
tRC(abs)	330400	Absolute read cycle period, measured from rising edge to the next consecutive rising edge
tRC(avg)	230401	Average read cycle time, also known as tRC
tRC(avg)	330401	Average read cycle time, also known as tRC
tREH(abs)	230402	Absolute read cycle period, measured from rising edge to the next consecutive falling edge
tREH(abs) (with training)	330402	Absolute read cycle period, measured from rising edge to the next consecutive falling edge
tREH(avg)	230403	Average RE_n/RE_t high level width
tREH(avg) (with training)	330403	Average RE_n/RE_t high level width
tRP(abs)	230404	Absolute read cycle period, measured from falling edge to the next consecutive rising edge
tRP(abs)	330404	Absolute read cycle period, measured from falling edge to the next consecutive rising edge
tRP(avg)	230405	Average RE_n/RE_t low level width
tRP(avg)	330405	Average RE_n/RE_t low level width
tRPRE	230450	Read preamble
tRPRE	330450	Read preamble
tRPRE2	230451	Read preamble with ODT Enable

Table 4   Test IDs and Names (continued)

Name	TestID	Description
tRPRE2	330451	Read preamble with ODT Enable
tRPST	230452	Read Postamble
tRPST	330452	Read Postamble
tRPSTH	230453	Read postamble hold time
tRPSTH	330453	Read postamble hold time
tWP	232005	WE_n pulse width
tWP	332005	WE_n pulse width
tWPRE	231450	DQS Write preamble
tWPRE	331450	DQS Write preamble
tWPRE2	231451	DQS Write preamble with ODT enabled
tWPRE2	331451	DQS Write preamble with ODT enabled
tWPST	231452	Write Postamble
tWPST	331452	Write Postamble
tWPSTH	231453	Write postamble hold time
tWPSTH	331453	Write postamble hold time

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

Index

C

configuration variables and values, 9
copyright, 2

I

IDs and names of tests, 27
instrument names, 35

N

names and IDs of tests, 27
names of instruments, 35
notices, 2

P

programming, introduction to, 7

R

Remote Programming Toolkit, 8

T

test names and IDs, 27

V

variables and values, configuration, 9

W

warranty, 2

Index