

Keysight  
N1091 APCA/BMCA/BACA/BJCA  
IEEE 802.3 Compliance and  
Debug Application

# Notices

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## Safety Notices

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

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## In This Book

This book is your guide to programming the Keysight Technologies N1091APCA/BMCA/BACA/BJCA IEEE 802.3 Compliance and Debug 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 17, and **Chapter 4**, “Instruments,” starting on page 39, provide information specific to programming the N1091APCA/BMCA/BACA/BJCA IEEE 802.3 Compliance and Debug Application.

### How to Use This Book

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



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# 1 Introduction to Programming

Remote Programming Toolkit / 8

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

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

You can accomplish other tasks by combining these functions.

## Remote Programming Toolkit

The majority of remote interface features are common across all the Keysight Technologies, Inc. family of compliance applications. Information on those features is provided in the N5452A Compliance Application Remote Programming Toolkit available for download from Keysight here: [www.keysight.com/find/rpi](http://www.keysight.com/find/rpi). The N1091APCA/BMCA/BACA/BJCA IEEE 802.3 Compliance and Debug Application uses Remote Interface Revision 6.00. 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 N1091APCA/BMCA/BACA/BJCA IEEE 802.3 Compliance and Debug 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	86108A/B JSA State	JSASate	ON, OFF	Controls state of Jitter Spectrum Analysis functionality. You may enable or add JSA feature to improve jitter results.
Configure	Channels for N1045x/N1055A/N1046A	CHANPAIR	DIFF1A, DIFF1C, DIFF2A, DIFF2C	When using the N1045x/N1055A/N1046A, you may use a 2-channel or 4-channel module and install the module in Slot 1 or Slot 2 (not Slots 3 or 4). You may choose one of the four differential pairs above. The default choice is Slot 1, channels A and B. If the application does not find a module in Slot 1, it will search for Slot 2; if found, the default channels will be 2A and 2B unless you have selected 2C and 2D. If there are no choices listed above, multi-lane automation of the N1045x/N1055A was selected in the setup tab. These selections will be automated and require an N1045x/N1055A is both slot 1 and slot 2. See connection diagram for more info.

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

GUI Location	Label	Variable	Values	Description
Configure	Channels for N109x	CHANPAIR_DCAM	DIFF7A, DIFF7C	When using the N109x, you may use a 2-channel or 4-channel module and install the module in Slot 7.
Configure	Channels for Switch chan1	CHANSWITCH1	1A, 1C, 2A, 2C	Channel 1 for switch
Configure	Channels for Switch chan2	CHANSWITCH2	2A, 1B, 1D, 2B, 2D	Channel 1 for switch
Configure	Equalize Coefficient Measurements	EquCoef	No, Yes	100GBASE-KR4 specifies to measure at TPO. If it is not possible to test at TPO due to fixtures, probing locations, etc, select Y to equalize the sampled pulse response.
Configure	Eye Height/Width Probability	EyeProb	1e-6, 1e-15	Select the eye probability to test to for Eye Height and Width tests. Note: selecting 1e-6 is the default as direct measure due to spec requirement. This setting does take longer. User can set to lower probability for quick results.
Configure	Fixed Rj for Lane0	RjLane0	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane1	RjLane1	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane2	RjLane2	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane3	RjLane3	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.

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

GUI Location	Label	Variable	Values	Description
Configure	Fixed Rj for Lane4	RjLane4	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane5	RjLane5	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane6	RjLane6	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane7	RjLane7	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane8	RjLane8	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Fixed Rj for Lane9	RjLane9	(Accepts user-defined text), 1e-12	Allows you to provide a fixed RJ value for use in Eye Mode. Enter the value in seconds using the format 374E-15 or 1.13E-12. The allowable range is 0 to 10 ps.
Configure	Host - CTLE for Eye Height A.	EHACTLE	0, 1, 2	Select the CTLE option to test Eye Height A and Eye Width.
Configure	Host - Recommended CTLE value	HostCTLE	Off, 1, 2, 3, 4, 5, 6, 7, 8, 9	Select the recommended CTLE value by the host. Note: This will be used in Eye Height B in measuring all three CTLE measurements 1. Host Recommended 2. 1dB less than Host Recommended 3. 1dB more than Host Recommended.

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

GUI Location	Label	Variable	Values	Description
Configure	Module Calibration	ModCal	Required, Not Required	Allows measurements to be completed if plug-in modules are not calibrated. Only available in Debug Mode.
Configure	Number of Patterns for Jitter	JitPat	(Accepts user-defined text), 5, 10, 16	Select or enter how many patterns are collected before calculating jitter measurement results. Default is 5 patterns. Value can be typed in by user.
Configure	Number of averages for Coefficient Tests	StepLoop	(Accepts user-defined text), 10, 16, 20	Set the number of averages used for the Coefficient tests.
Configure	Pattern Length for Jitter	RjPattern	Short, Long	Select "Short Pattern" to have the DCA measure RJ using Jitter Mode only to measure, such as pattern2. Jitter will run faster and not require a change of pattern or Advanced Eye Analysis. Select "Long Pattern" if you are going to be running a longer pattern than PRBS15, such as pattern 3. When selecting "Long Pattern", select under source for Rj to use Enhanced Jitter Analysis, or a user defined Rj. Measuring a long pattern requires Advanced Eye Analysis.
Configure	Pattern Verification	DisablePattern	Enable, Disable	Select "Disable" to disable the pattern verification for square 8 pattern tests and suppress pattern error pop-ups. Select "Enable" to ensure that the correct pattern is being tested as per specification.
Configure	Run Simulation Signals	RunSim	No, Yes	Select Yes to run simulation signals. Set simulation signals to slot 5 (channels 5A and 5B).
Configure	Samples Taken for Eye Mode	EyeSamples	(Accepts user-defined text), 150e3, 250e3, 500e3, 1e6, 2e6	Select or enter how many samples are collected before calculating eye measurement results. Default is 250,000 samples. The range of allowable values is 100K to 2M samples.

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

GUI Location	Label	Variable	Values	Description
Configure	Save Tested Waveforms	SaveWFM	No, Yes	Select Yes to save the waveform files of the tested signals. Files will be saved to directory set in Select waveform directory.
Configure	Select Waveform Directory	DirWFM	(Accepts user-defined text), C:\Temp\KRwfm	Type in a directory path to save your measured waveforms.
Configure	Signaling Rate	SignalingRate	(Accepts user-defined text), 10.3125e9, 25.78125e9	Set the Signaling Rate to be tested. Enter value in the format 10.3125e9.
Configure	Source for Rj	RjSource	JitterMode, User	Select "Enhanced Jitter Analysis" to have the DCA measure RJ using Jitter Mode for shorter patterns, such as PRBS9. You will need license N1010100A installed for this choice. If you select "User Provided", enter the values that you would like to use for Fixed RJ on the Configure tab for each lane that you'll display.
Configure	Start value for CTLE utility for Eye Opening	StartCTLE	1, 2, 3, 4, 5, 6, 7, 8, 9	Select the starting CTLE setting to use for the "Find optimal CTLE Eye Opening" test. The test will test the range of settings from this start value, to the stop value set in the next config.
Configure	Stop value for CTLE utility for Eye Opening	StopCTLE	1, 2, 3, 4, 5, 6, 7, 8, 9	Select the last CTLE setting to use for the "Find optimal CTLE Eye Opening" test. The test will test the range of settings from start value selected in the previous config, to the stop value set here.
Configure	TX Off Voltage Scale	TXOFFSCALE	(Accepts user-defined text), Auto, 10e-3	Auto will automatically set the voltage scale for tests with the transmitter off. To manually set the scale, enter in the scale per division number (i.e. 10e-3)

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

GUI Location	Label	Variable	Values	Description
Configure	TX On Voltage Scale	TXONSCALE	(Accepts user-defined text), Auto, 200e-3	Auto will automatically set the voltage scale for tests with the transmitter on. To manually set the scale, enter in a scale per division number (i.e. 200e-3).
Configure	Use Optimized CTLE for Eye Opening.	UseCTLE	Off, 1, 2, 3, 4, 5, 6, 7, 8, 9	Select the optimized setting to use. Default is off. Run "Find Optimal CTLE Eye Opening" Test under "Utilities" to find the optimal setting. When the utility is run, it will automatically set the optimal setting. This value will only be automatically set if utility is run any time after app load or if project is loaded with setting. All other instances, the setting will be the default of off and will need to be manually selected. Note: This is the optimized CTLE setting, For Host Eye Height B, the app will automatically run 1dB below and 1dB above. For Host Eye Height A, select which value to measure in Host - Eye Height A CTLE.
Configure	Using Switch or N1045x	SWITCH	Yes, No, Other	Only available in Debug Mode.
Configure	Variable Equalization Level	VarEQ	(Accepts user-defined text), 0, 100	To "open" closed/degraded signals. The equalizer level value can be set from 0 to 100 percent. Default is 0.
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	Device ID	pcboOverallDeviceID	(Accepts user-defined text)	This option allows user to key in related test details.

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

GUI Location	Label	Variable	Values	Description
Set Up	External Address	txtExternallInstrumentAddresses	(Accepts user-defined text)	This option allows user to connect an ENA or PNA. Please select ENA or PNA in the pull down menu and press the Connect PNA/ENA button.
Set Up	LaneNumOption10Lane	LaneNumOption10Lane	Lane0, Lane1, Lane2, Lane3, Lane4, Lane5, Lane6, Lane7, Lane8, Lane9	This option allows user to select which lane is testing when testing Single Lane.
Set Up	LaneNumOption4Lane	LaneNumOption4Lane	Lane0, Lane1, Lane2, Lane3	This option allows user to select which lane is testing when testing Single Lane.
Set Up	Measurement Option	DeviceType	10GBASE-KR, 40GBASE-KR4, 40GBASE-CR4, 100GBASE-CR10, 100GBASE-KR4, 100GBASE-CR4, XLAUI, CAUI-10, XLPPI, CPPI, CAUI-4	This option allows user to select specific specification group to test.
Set Up	PNAENA	PNAENA	PNA, ENA, N1055A	This option allows user to select which device is being used to measure return loss. PNA, ENA, or N1055A.
Set Up	Switch Option	SwitchType	Switch Matrix, N1045x/55A/46A, Single Lane	This option allows user to select Switch Matrix or N1045x/N1055A/N1046A (for four lane) for automated lane testing. User can select Single Lane to test one lane in any measurement option.
Set Up	User Comment	txtOverallUserComment	(Accepts user-defined text)	This option allows user to key in related test detail.
Set Up	User Description	pcboOverallDeviceDescription	(Accepts user-defined text)	This option allows 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();
```

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

**NOTE**

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

**Table 4** Test IDs and Names

Name	TestID	Description
(v1+v4)/v1 (Additional) - Coefficient Status dis-max-dis	513	(v1+v4)/v1 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
(v1+v4)/v1 (Additional) - Coefficient Status dis-max-dis	1513	(v1+v4)/v1 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
(v1+v4)/v1 (Additional) - Coefficient Status dis-min-dis	505	(v1+v4)/v1 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
(v1+v4)/v1 (Additional) - Coefficient Status dis-min-dis	1505	(v1+v4)/v1 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
(v1+v4)/v1 (Additional) - Coefficient Status dis-min-min	527	(v1+v4)/v1 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
(v1+v4)/v1 (Additional) - Coefficient Status dis-min-min	1527	(v1+v4)/v1 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
(v1+v4)/v1 (Additional) - Coefficient Status min-min-dis	520	(v1+v4)/v1 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
(v1+v4)/v1 (Additional) - Coefficient Status min-min-dis	1520	(v1+v4)/v1 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
(v2+v5)/v2 (Additional) - Coefficient Status dis-max-dis	514	(v2+v5)/v2 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
(v2+v5)/v2 (Additional) - Coefficient Status dis-max-dis	1514	(v2+v5)/v2 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
(v2+v5)/v2 (Additional) - Coefficient Status dis-min-dis	506	(v2+v5)/v2 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
(v2+v5)/v2 (Additional) - Coefficient Status dis-min-dis	1506	(v2+v5)/v2 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
(v2+v5)/v2 (Additional) - Coefficient Status dis-min-min	528	(v2+v5)/v2 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
(v2+v5)/v2 (Additional) - Coefficient Status dis-min-min	1528	(v2+v5)/v2 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
(v2+v5)/v2 (Additional) - Coefficient Status min-min-dis	521	(v2+v5)/v2 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
(v2+v5)/v2 (Additional) - Coefficient Status min-min-dis	1521	(v2+v5)/v2 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
(v3+v6)/v3 (Additional) - Coefficient Status dis-max-dis	515	(v3+v6)/v3 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled

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

Name	TestID	Description
(v3+v6)/v3 (Additional) - Coefficient Status dis-max-dis	1515	(v3+v6)/v3 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
(v3+v6)/v3 (Additional) - Coefficient Status dis-min-dis	507	(v3+v6)/v3 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
(v3+v6)/v3 (Additional) - Coefficient Status dis-min-dis	1507	(v3+v6)/v3 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
(v3+v6)/v3 (Additional) - Coefficient Status dis-min-min	529	(v3+v6)/v3 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
(v3+v6)/v3 (Additional) - Coefficient Status dis-min-min	1529	(v3+v6)/v3 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
(v3+v6)/v3 (Additional) - Coefficient Status min-min-dis	522	(v3+v6)/v3 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
(v3+v6)/v3 (Additional) - Coefficient Status min-min-dis	1522	(v3+v6)/v3 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
AC Common Mode Output Voltage Test	5103	Test the AC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
AC Common Mode Output Voltage Test	205103	Test the AC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
AC Common Mode Output Voltage Test	206103	Test the AC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
AC Common Mode Output Voltage Test	306103	Test the AC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
AC Common Mode Output Voltage Test	6103	Test the AC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
Amplitude Peak-to-Peak Test	2102	Test the maximum peak to peak voltage with the TX enabled
Bounded Uncorrelated Jitter	5202	Bounded Uncorrelated Jitter measurement
Bounded Uncorrelated Jitter	205202	Bounded Uncorrelated Jitter measurement
Bounded Uncorrelated Jitter	6202	Bounded Uncorrelated Jitter measurement
Coefficient Initialization (c(0)+c(1)-c(-1))/(c(0)+c(1)+c(-1))	5502	Calculates the Coefficients on an initialized signal and ratio
Coefficient Initialization (c(0)+c(1)-c(-1))/(c(0)+c(1)+c(-1))	6502	Calculates the Coefficients on an initialized signal and ratio
Coefficient Initialization (c(0)-c(1)+c(-1))/(c(0)+c(1)+c(-1))	5503	Calculates the Coefficients on an initialized signal and ratio
Coefficient Initialization (c(0)-c(1)+c(-1))/(c(0)+c(1)+c(-1))	6503	Calculates the Coefficients on an initialized signal and ratio

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

Name	TestID	Description
Common Mode AC Output Voltage Test	2103	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	3103	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	7101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	17101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	27101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	8101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	18101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	28101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	9101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	19101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	29101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode AC Output Voltage Test	39101	Test the AC common mode voltage. This test can only be tested in dual single ended connection
Common Mode Voltage Limits Test	2101	Test the common mode voltage limits. This test can only be tested in dual single ended connection
Common Mode Voltage Limits Test	3101	Test the common mode voltage limits. This test can only be tested in dual single ended connection
Common Mode Voltage Test	101	Test the common mode voltage. This test can only be tested in dual single ended connection
Common Mode Voltage Test	1101	Test the common mode voltage. This test can only be tested in dual single ended connection
Common-mode Output Return Loss	10001	Common-mode Output Return Loss measurement
Common-mode Output Return Loss	20001	Common-mode Output Return Loss measurement
Common-mode Output Return Loss	12002	Common-mode Output Return Loss measurement for XLAUI/CAUI Host

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

Name	TestID	Description
Common-mode Output Return Loss	12001	Common-mode Output Return Loss measurement for XLAUI/CAUI Module
Common-mode Output Return Loss	12003	Common-mode Output Return Loss measurement for XLAUI/CAUI Module
Common-mode Output Return Loss	11001	Common-mode Output Return Loss measurement for XLAUI/CAUI Transmitter
Common-mode to Common-mode Output Return Loss	10002	Common-mode to Common-mode Output Return Loss measurement
Common-mode to Differential Output Return Loss	210003	Common-mode to Differential Output Return Loss measurement
Common-mode to Differential Output Return Loss	310003	Common-mode to Differential Output Return Loss measurement
Common-mode to Differential Output Return Loss	10003	Common-mode to Differential Output Return Loss measurement
Crosstalk source Fall Time (20%-80%)	19303	Crosstalk source Fall Time measurement at TP1a
Crosstalk source Fall Time (20%-80%)	39303	Crosstalk source Fall Time measurement at TP1a
Crosstalk source Fall Time (20%-80%)	9303	Crosstalk source Fall Time measurement at TP4
Crosstalk source Fall Time (20%-80%)	29303	Crosstalk source Fall Time measurement at TP4
Crosstalk source Rise Time (20%-80%)	19302	Crosstalk source Rise Time measurement at TP1a
Crosstalk source Rise Time (20%-80%)	39302	Crosstalk source Rise Time measurement at TP1a
Crosstalk source Rise Time (20%-80%)	9302	Crosstalk source Rise Time measurement at TP4
Crosstalk source Rise Time (20%-80%)	29302	Crosstalk source Rise Time measurement at TP4
Crosstalk source VMA	19104	Measures the Crosstalk source VMA at TP1a
Crosstalk source VMA	9104	Measures the Crosstalk source VMA at TP4
Crosstalk source VMA	29104	Measures the Crosstalk source VMA at TP4
Crosstalk source VMA	39104	Measures the Crosstalk source VMA at TP4
DC Common Mode Output Voltage Test	5101	Test the DC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
DC Common Mode Output Voltage Test	205101	Test the DC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
DC Common Mode Output Voltage Test	206101	Test the DC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
DC Common Mode Output Voltage Test	6101	Test the DC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.

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

Name	TestID	Description
DC Common Mode Voltage Test	306101	Test the DC common mode voltage. This test can only be tested in dual single ended connection. Must be DC coupled.
DME Differential Peak to Peak Output Voltage Test	700	Test the maximum voltage of the signal during DME
DME Differential Peak to Peak Output Voltage Test	1700	Test the maximum voltage of the signal during DME
DME Differential Peak to Peak Output Voltage Test	2700	Test the maximum voltage of the signal during DME
DME Differential Peak to Peak Output Voltage Test	3700	Test the maximum voltage of the signal during DME
DME Differential Peak to Peak Output Voltage Test	5700	Test the maximum voltage of the signal during DME
DME T1-Transition Position Spacing (period) Test	701	Test transition position spacing when in mode DME
DME T1-Transition Position Spacing (period) Test	1701	Test transition position spacing when in mode DME
DME T1-Transition Position Spacing (period) Test	2701	Test transition position spacing when in mode DME
DME T1-Transition Position Spacing (period) Test	3701	Test transition position spacing when in mode DME
DME T1-Transition Position Spacing (period) Test	5701	Test transition position spacing when in mode DME
DME T2-Clock Transition to Clock Transition Test	702	Test Clock Transition to Clock Transition in mode DME
DME T2-Clock Transition to Clock Transition Test	1702	Test Clock Transition to Clock Transition in mode DME
DME T2-Clock Transition to Clock Transition Test	2702	Test Clock Transition to Clock Transition in mode DME
DME T2-Clock Transition to Clock Transition Test	3702	Test Clock Transition to Clock Transition in mode DME
DME T2-Clock Transition to Clock Transition Test	5702	Test Clock Transition to Clock Transition in mode DME
DME T3-Clock Transition to Data Transition Test	703	Test transition time between clock transition to data transition in mode DME
DME T3-Clock Transition to Data Transition Test	1703	Test transition time between clock transition to data transition in mode DME
DME T3-Clock Transition to Data Transition Test	2703	Test transition time between clock transition to data transition in mode DME

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

Name	TestID	Description
DME T3-Clock Transition to Data Transition Test	3703	Test transition time between clock transition to data transition in mode DME
DME T3-Clock Transition to Data Transition Test	5703	Test transition time between clock transition to data transition in mode DME
Data Dependent Pulse Width Shrinkage (DDPWS)	9201	Data Dependent Pulse Width Shrinkage (DDPWS) T - min(pulse)
Data Dependent Pulse Width Shrinkage (DDPWS)	29201	Data Dependent Pulse Width Shrinkage (DDPWS) T - min(pulse)
De-emphasis	7103	Measures the Maximum and Minimum De-emphasis of the signal
De-emphasis	17103	Measures the Maximum and Minimum De-emphasis of the signal
De-emphasis	8103	Measures the Maximum and Minimum De-emphasis of the signal
De-emphasis	18103	Measures the Maximum and Minimum De-emphasis of the signal
Deterministic Jitter	202	Deterministic Jitter measurement
Deterministic Jitter	1202	Deterministic Jitter measurement
Deterministic Jitter	7202	Deterministic Jitter measurement
Deterministic Jitter	17202	Deterministic Jitter measurement
Deterministic Jitter	27202	Deterministic Jitter measurement
Deterministic Jitter	8202	Deterministic Jitter measurement
Deterministic Jitter	18202	Deterministic Jitter measurement
Deterministic Jitter	28202	Deterministic Jitter measurement
Differential Input Return Loss - TP1	12000	Differential Output Return Loss measurement for XLAUI/CAUI Module at TP1
Differential Input Return Loss - TP1a	15000	Differential Output Return Loss measurement for XLAUI/CAUI Module at TP1a
Differential Output Return Loss	210000	Differential Output Return Loss measurement
Differential Output Return Loss	310000	Differential Output Return Loss measurement
Differential Output Return Loss	10000	Differential Output Return Loss measurement
Differential Output Return Loss	20000	Differential Output Return Loss measurement
Differential Output Return Loss	13000	Differential Output Return Loss measurement for XLAUI/CAUI Host
Differential Output Return Loss	17000	Differential Output Return Loss measurement for XLAUI/CAUI Module at TP4
Differential Output Return Loss	11000	Differential Output Return Loss measurement for XLAUI/CAUI Transmitter

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

Name	TestID	Description
Differential Output Return Loss - TP4	14000	Differential Output Return Loss measurement for XLAUI/CAUI Module at TP4
Differential Output Return Loss - TP4a	16000	Differential Output Return Loss measurement for XLAUI/CAUI Module at TP4a
Differential Output Voltage Test	306102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	1102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	3102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	5102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	205102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	206102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test	6102	Test the maximum voltage with the TX enabled
Differential Peak to Peak Output Voltage Test with TX disabled	100	Test the maximum voltage with the TX disabled
Differential Peak to Peak Output Voltage Test with TX disabled	1100	Test the maximum voltage with the TX disabled
Differential Peak to Peak Output Voltage Test with TX disabled	3100	Test the maximum voltage with the TX disabled
Differential Peak to Peak Output Voltage Test with TX disabled	5100	Test the maximum voltage with the TX disabled
Differential Peak to Peak Output Voltage Test with TX disabled	205100	Test the maximum voltage with the TX disabled
Differential Peak to Peak Output Voltage Test with TX disabled	206100	Test the maximum voltage with the TX disabled
Differential Peak to Peak Output Voltage Test with TX disabled	6100	Test the maximum voltage with the TX disabled
Differential Peak-to-Peak Output Voltage Test with TX disabled	2100	Test the maximum voltage with the TX disabled
Duty Cycle Distortion	203	Duty Cycle Distortion measurement
Duty Cycle Distortion	1203	Duty Cycle Distortion measurement



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

Name	TestID	Description
Duty Cycle Distortion	2203	Duty Cycle Distortion measurement
Duty Cycle Distortion	3203	Duty Cycle Distortion measurement
EEE Common Mode Voltage Deviation Test	802	Test the common mode voltage Deviation in EEE. This test can only be tested in dual single ended connection
EEE Common Mode Voltage Deviation Test	1802	Test the common mode voltage Deviation in EEE. This test can only be tested in dual single ended connection
EEE Common Mode Voltage Deviation Test	2802	Test the common mode voltage Deviation in EEE. This test can only be tested in dual single ended connection
EEE Common Mode Voltage Deviation Test	3802	Test the common mode voltage Deviation in EEE. This test can only be tested in dual single ended connection
EEE Common Mode Voltage Deviation Test	5802	Test the common mode voltage Deviation in EEE. This test can only be tested in dual single ended connection
EEE Differential Peak to Peak Output Voltage Test	801	Test the maximum voltage with the TX enabled in EEE
EEE Differential Peak to Peak Output Voltage Test	1801	Test the maximum voltage with the TX enabled in EEE
EEE Differential Peak to Peak Output Voltage Test	2801	Test the maximum voltage with the TX enabled in EEE
EEE Differential Peak to Peak Output Voltage Test	3801	Test the maximum voltage with the TX enabled in EEE
EEE Differential Peak to Peak Output Voltage Test	5801	Test the maximum voltage with the TX enabled in EEE
EEE Differential Peak to Peak Output Voltage Test with TX disabled	800	Test the maximum voltage with the TX disabled in EEE
EEE Differential Peak to Peak Output Voltage Test with TX disabled	1800	Test the maximum voltage with the TX disabled in EEE
EEE Differential Peak to Peak Output Voltage Test with TX disabled	2800	Test the maximum voltage with the TX disabled in EEE
EEE Differential Peak to Peak Output Voltage Test with TX disabled	3800	Test the maximum voltage with the TX disabled in EEE
EEE Differential Peak to Peak Output Voltage Test with TX disabled	5800	Test the maximum voltage with the TX disabled in EEE
Even-Odd Jitter	5201	Even-Odd Jitter measurement
Even-Odd Jitter	205201	Even-Odd Jitter measurement
Even-Odd Jitter	6201	Even-Odd Jitter measurement
Eye Height	306600	Measures the height of each the eye at user selected CTLE

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

Name	TestID	Description
Eye Height A	206600	Measures the height of each the eye at user selected CTLE
Eye Height B	206603	Measures the height of the eye at Host recommended CTLE, 1dB higher, and 1dB lower of optimal CTLE
Eye Mask	27205	Verifies that the Host eye does not violate the defined mask
Eye Mask	28205	Verifies that the Host eye does not violate the defined mask
Eye Mask	17205	Verifies that the Module eye does not violate the defined mask
Eye Mask	18205	Verifies that the Module eye does not violate the defined mask
Eye Mask	7205	Verifies that the XLAUI/CAUI Transmitter eye does not violate the defined mask
Eye Mask	8205	Verifies that the XLAUI/CAUI Transmitter eye does not violate the defined mask
Eye Mask	9205	Verifies that the nPPI Host eye does not violate the defined mask
Eye Mask	29205	Verifies that the nPPI Host eye does not violate the defined mask
Eye Mask	19205	Verifies that the nPPI Module eye does not violate the defined mask
Eye Mask	39205	Verifies that the nPPI Module eye does not violate the defined mask
Eye Width	206601	Measures the width of the eye at user CTLE
Eye Width	306601	Measures the width of the eye at user CTLE
Far-end transmit output noise: High insertion loss channel	3601	Tests the Far-end transmit out noise for the High insertion loss channel - Square 8 pattern
Far-end transmit output noise: High insertion loss channel	2601	Tests the Far-end transmit out noise for the high insertion loss channel - Square 8 pattern
Far-end transmit output noise: Low insertion loss channel	2600	Tests the Far-end transmit out noise for the low insertion loss channel - Square 8 pattern
Far-end transmit output noise: Low insertion loss channel	3600	Tests the Far-end transmit out noise for the low insertion loss channel - Square 8 pattern
Find Optimal CTLE Eye Opening	6602	Measures the eye width and height with each CTLE setting and reports the optimal setting to use in Eye Width and Eye Height measurements. The optimal value is automatically set in the configure tab after this test has run.
Initialize State Rpre (Pattern: Square 8)	900	Rpre measurement when in Initialize State.
Initialize State Rpst	2901	Rpst measurement for Initialize Rpst
Initialize State Rpst	3901	Rpst measurement for Initialize Rpst
Initialize State Rpst	5901	Rpst measurement for Initialize Rpst
Initialize State Rpst (Pattern: Square 8)	901	Rpst measurement for Initialize Rpst

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

Name	TestID	Description
Initialize State Rpst (Pattern: Square 8)	1901	Rpst measurement for Initialize Rpst
Intialize State Rpre	2900	Rpre measurement when in Initialize State.
Intialize State Rpre	3900	Rpre measurement when in Initialize State.
Intialize State Rpre	5900	Rpre measurement when in Initialize State.
Intialize State Rpre (Pattern: Square 8)	1900	Rpre measurement when in Initialize State.
J2 Jitter	9202	J2 jitter measurement
J2 Jitter	19202	J2 jitter measurement
J2 Jitter	29202	J2 jitter measurement
J2 Jitter	39202	J2 jitter measurement
J9 Jitter	9204	J9 Jitter measurement
J9 Jitter	19204	J9 Jitter measurement
J9 Jitter	29204	J9 Jitter measurement
J9 Jitter	39204	J9 Jitter measurement
Linear Fit Pulse	2301	Linear Fit Pulse
Linear Fit Pulse Peak	3301	Linear Fit Pulse Peak
Linear Fit Pulse Peak	5301	Linear Fit Pulse Peak
Linear Fit Pulse Peak	205301	Linear Fit Pulse Peak
Linear Fit Pulse Peak	6301	Linear Fit Pulse Peak
Max RMS normalized error	2302	max RMS normalized error - linear fit
Max RMS normalized error	3302	max RMS normalized error - linear fit
Maximum Differential Output Voltage Peak-to-Peak	7102	Test the maximum peak-to-peak voltage
Maximum Differential Output Voltage Peak-to-Peak	17102	Test the maximum peak-to-peak voltage
Maximum Differential Output Voltage Peak-to-Peak	8102	Test the maximum peak-to-peak voltage
Maximum Differential Output Voltage Peak-to-Peak	18102	Test the maximum peak-to-peak voltage
Minimum Output Fall Time (20%-80%)	206401	Fall Time measurement
Minimum Output Fall Time (20%-80%)	306401	Fall Time measurement
Minimum Output Fall Time (20%-80%)	7301	Fall Time measurement
Minimum Output Fall Time (20%-80%)	17301	Fall Time measurement

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

Name	TestID	Description
Minimum Output Fall Time (20%-80%)	27301	Fall Time measurement
Minimum Output Fall Time (20%-80%)	8301	Fall Time measurement
Minimum Output Fall Time (20%-80%)	18301	Fall Time measurement
Minimum Output Fall Time (20%-80%)	28301	Fall Time measurement
Minimum Output Rise Time (20%-80%)	206400	Rise Time measurement
Minimum Output Rise Time (20%-80%)	306400	Rise Time measurement
Minimum Output Rise Time (20%-80%)	7300	Rise Time measurement
Minimum Output Rise Time (20%-80%)	17300	Rise Time measurement
Minimum Output Rise Time (20%-80%)	27300	Rise Time measurement
Minimum Output Rise Time (20%-80%)	8300	Rise Time measurement
Minimum Output Rise Time (20%-80%)	18300	Rise Time measurement
Minimum Output Rise Time (20%-80%)	28300	Rise Time measurement
Minimum Post-cursor Full-scale Range	5501	Minimum Post-cursor Full-scale measurement for Coefficient c(1)zero c(0)minimum c(-1)minimum
Minimum Post-cursor Full-scale Ratio	2501	Minimum Post-cursor Full-scale measurement for Coefficient c(1)zero c(0)minimum c(-1)minimum
Minimum Post-cursor Full-scale Ratio	3501	Minimum Post-cursor Full-scale measurement for Coefficient c(1)zero c(0)minimum c(-1)minimum
Minimum Post-cursor Full-scale Ratio	6501	Minimum Post-cursor Full-scale measurement for Coefficient c(1)zero c(0)minimum c(-1)minimum
Minimum Pre-cursor Full-scale Range	5500	Minimum Pre-cursor Full-scale measurement for Coefficient c(1)minimum c(0)minimum c(-1)zero
Minimum Pre-cursor Full-scale Ratio	2500	Minimum Pre-cursor Full-scale measurement for Coefficient c(1)minimum c(0)minimum c(-1)zero
Minimum Pre-cursor Full-scale Ratio	3500	Minimum Pre-cursor Full-scale measurement for Coefficient c(1)minimum c(0)minimum c(-1)zero
Minimum Pre-cursor Full-scale Ratio	6500	Minimum Pre-cursor Full-scale measurement for Coefficient c(1)minimum c(0)minimum c(-1)zero
Minimum VMA	7104	Measures the minimum VMA
Minimum VMA	17104	Measures the minimum VMA
Minimum VMA	8104	Measures the minimum VMA
Minimum VMA	18104	Measures the minimum VMA
Normalized Coefficient Step Size c(1)dec c(0)hold c(-1)hold	5401	Normalized Coefficient Step Size measurement for Coefficient update c1-dec c0-hold c-1-hold

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

Name	TestID	Description
Normalized Coefficient Step Size c(1)dec c(0)hold c(-1)hold	205401	Normalized Coefficient Step Size measurement for Coefficient update c1-dec c0-hold c-1-hold
Normalized Coefficient Step Size c(1)hold c(0)dec c(-1)hold	5403	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-dec c-1-hold
Normalized Coefficient Step Size c(1)hold c(0)dec c(-1)hold	205403	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-dec c-1-hold
Normalized Coefficient Step Size c(1)hold c(0)hold c(-1)dec	5405	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-dec
Normalized Coefficient Step Size c(1)hold c(0)hold c(-1)dec	205405	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-dec
Normalized Coefficient Step Size c(1)hold c(0)hold c(-1)inc	5404	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-inc
Normalized Coefficient Step Size c(1)hold c(0)hold c(-1)inc	205404	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-inc
Normalized Coefficient Step Size c(1)hold c(0)inc c(-1)hold	5402	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-inc c-1-hold
Normalized Coefficient Step Size c(1)hold c(0)inc c(-1)hold	205402	Normalized Coefficient Step Size measurement for Coefficient update c1-hold c0-inc c-1-hold
Normalized Coefficient Step Size c(1)inc c(0)hold c(-1)hold	5400	Normalized Coefficient Step Size measurement for Coefficient update c1-inc c0-hold c-1-hold
Normalized Coefficient Step Size c(1)inc c(0)hold c(-1)hold	205400	Normalized Coefficient Step Size measurement for Coefficient update c1-inc c0-hold c-1-hold
Output Fall Time (20%-80%)	9301	Fall Time measurement
Output Fall Time (20%-80%)	19301	Fall Time measurement
Output Fall Time (20%-80%)	29301	Fall Time measurement
Output Fall Time (20%-80%)	39301	Fall Time measurement
Output Rise Time (20%-80%)	9300	Rise Time measurement
Output Rise Time (20%-80%)	19300	Rise Time measurement
Output Rise Time (20%-80%)	29300	Rise Time measurement
Output Rise Time (20%-80%)	39300	Rise Time measurement
Post-cursor equalization Local_eq_c1(0)	205504	Measures Post-cursor equalization for c(1) weight 0
Post-cursor equalization Local_eq_c1(1)	205505	Measures Post-cursor equalization for c(1) weight 1
Post-cursor equalization Local_eq_c1(2)	205506	Measures Post-cursor equalization for c(1) weight 2

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

Name	TestID	Description
Post-cursor equalization Local_eq_c1(3)	205507	Measures Post-cursor equalization for c(1) weight 3
Post-cursor equalization Local_eq_c1(4)	205508	Measures Post-cursor equalization for c(1) weight 4
Post-cursor equalization Local_eq_c1(5)	205509	Measures Post-cursor equalization for c(1) weight 5
Pre-cursor equalization Local_eq_cm1(0)	205500	Measures Pre-cursor equalization for c(-1) weight 0
Pre-cursor equalization Local_eq_cm1(1)	205501	Measures Pre-cursor equalization for c(-1) weight 1
Pre-cursor equalization Local_eq_cm1(2)	205502	Measures Pre-cursor equalization for c(-1) weight 2
Pre-cursor equalization Local_eq_cm1(3)	205503	Measures Pre-cursor equalization for c(-1) weight 3
Preset	1	Measures the preset signal for step size and full scale tests.
Qsq	9103	Measures the amplitude to noise ratio
Qsq	29103	Measures the amplitude to noise ratio
Random Jitter	201	Random Jitter measurement
Random Jitter	1201	Random Jitter measurement
Random Jitter	2201	Random Jitter measurement
Random Jitter	3201	Random Jitter measurement
Rpre - Coefficient Status dis-max-dis	508	Rpre measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
Rpre - Coefficient Status dis-max-dis	1508	Rpre measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
Rpre - Coefficient Status dis-min-dis	500	Rpre measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
Rpre - Coefficient Status dis-min-dis	1500	Rpre measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
Rpre - Coefficient Status dis-min-min	523	Rpre measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
Rpre - Coefficient Status dis-min-min	1523	Rpre measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
Rpre Result	608	Rpre measurement
Rpre Result	1608	Rpre measurement

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

Name	TestID	Description
Rpst - Coefficient Status dis-max-dis	509	Rpst measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
Rpst - Coefficient Status dis-max-dis	1509	Rpst measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
Rpst - Coefficient Status dis-min-dis	501	Rpst measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
Rpst - Coefficient Status dis-min-dis	1501	Rpst measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
Rpst - Coefficient Status min-min-dis	516	Rpst measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
Rpst - Coefficient Status min-min-dis	1516	Rpst measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
Rpst Result	609	Rpst measurement
Rpst Result	1609	Rpst measurement
Signal-to-noise-and-distortion ratio	5302	Measures the SNDR
Signal-to-noise-and-distortion ratio	205302	Measures the SNDR
Signal-to-noise-and-distortion ratio	6302	Measures the SNDR
Signaling Rate	1200	Signaling rate of the signal
Signaling Rate	2200	Signaling rate of the signal
Signaling Rate	3200	Signaling rate of the signal
Signaling Rate	5200	Signaling rate of the signal
Signaling Rate	205200	Signaling rate of the signal
Signaling Rate	206200	Signaling rate of the signal
Signaling Rate	306200	Signaling rate of the signal
Signaling Rate	6200	Signaling rate of the signal
Signaling Rate	7200	Signaling rate of the signal
Signaling Rate	8200	Signaling rate of the signal
Signaling Rate	200	Singaling Rate of the signal
Signaling Rate "Information Only"	9200	Signaling rate of the signal "Information Only"
Signaling Rate "Information Only"	19200	Signaling rate of the signal "Information Only"
Signaling Rate "Information Only"	29200	Signaling rate of the signal "Information Only"
Signaling Rate "Information Only"	39200	Signaling rate of the signal "Information Only"

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

Name	TestID	Description
Signaling Rate "Information Only"	27200	Signaling rate of the signal. This is information only, Signaling Rate is not specified for XLAUI Host test.
Signaling Rate "Information Only"	28200	Signaling rate of the signal. This is information only, Signaling Rate is not specified for XLAUI Host test.
Signaling Rate "Information Only"	17200	Signaling rate of the signal. This is information only, Signaling Rate is not specified for XLAUI module test.
Signaling Rate "Information Only"	18200	Signaling rate of the signal. This is information only, Signaling Rate is not specified for XLAUI module test.
Single-Ended Output Voltage Test	206104	Test the minimum and maximum voltages of the single-ended signals
Single-Ended Output Voltage Test	7100	Test the minimum and maximum voltages of the single-ended signals
Single-Ended Output Voltage Test	8100	Test the minimum and maximum voltages of the single-ended signals
Single-Ended Output Voltage Test	9100	Test the minimum and maximum voltages of the single-ended signals
Single-Ended Output Voltage Test	19100	Test the minimum and maximum voltages of the single-ended signals
Single-Ended Output Voltage Test	29100	Test the minimum and maximum voltages of the single-ended signals
Single-Ended Output Voltage Test	39100	Test the minimum and maximum voltages of the single-ended signals
Steady-State Voltage Vf	5300	Steady-State Voltage Vf measurement
Steady-State Voltage Vf	205300	Steady-State Voltage Vf measurement
Steady-State Voltage Vf	6300	Steady-State Voltage Vf measurement
Total Jitter	204	Total Jitter measurement
Total Jitter	1204	Total Jitter measurement
Total Jitter	2204	Total Jitter measurement
Total Jitter	3204	Total Jitter measurement
Total Jitter	7204	Total Jitter measurement
Total Jitter	17204	Total Jitter measurement
Total Jitter	27204	Total Jitter measurement
Total Jitter	8204	Total Jitter measurement
Total Jitter	18204	Total Jitter measurement
Total Jitter	28204	Total Jitter measurement



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

Name	TestID	Description
Total Uncorrelated Jitter	5203	Total Uncorrelated Jitter measurement
Total Uncorrelated Jitter	205203	Total Uncorrelated Jitter measurement
Total Uncorrelated Jitter	6203	Total Uncorrelated Jitter measurement
Transition Time (20%-80%) - Falling Edge	301	Fall Time measurement
Transition Time (20%-80%) - Falling Edge	1301	Fall Time measurement
Transition Time (20%-80%) - Falling Edge	6306	Fall Time measurement
Transition Time (20%-80%) - Rising Edge	300	Rise Time measurement
Transition Time (20%-80%) - Rising Edge	1300	Rise Time measurement
Transition Time (20%-80%) - Rising Edge	6305	Rise Time measurement
Transmitter DC Amplitude	3300	Transmitter DC Amplitude measurement
Transmitter DC Amplitude	2300	Transmitter DC Amplitude measurement
Vertical Eye Closure	306602	Measures the Vertical Eye Closure $20 \cdot \log(AV/EH15)$
abs Coefficient Step Size c(1)dec c(0)hold c(-1)hold	2401	abs Coefficient Step Size measurement for Coefficient update c1-dec c0-hold c-1-hold
abs Coefficient Step Size c(1)dec c(0)hold c(-1)hold	3401	abs Coefficient Step Size measurement for Coefficient update c1-dec c0-hold c-1-hold
abs Coefficient Step Size c(1)dec c(0)hold c(-1)hold	6401	abs Coefficient Step Size measurement for Coefficient update c1-dec c0-hold c-1-hold
abs Coefficient Step Size c(1)hold c(0)dec c(-1)hold	2403	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-dec c-1-hold
abs Coefficient Step Size c(1)hold c(0)dec c(-1)hold	3403	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-dec c-1-hold
abs Coefficient Step Size c(1)hold c(0)dec c(-1)hold	6403	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-dec c-1-hold
abs Coefficient Step Size c(1)hold c(0)hold c(-1)dec	2405	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-dec
abs Coefficient Step Size c(1)hold c(0)hold c(-1)dec	3405	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-dec
abs Coefficient Step Size c(1)hold c(0)hold c(-1)dec	6405	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-dec

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

Name	TestID	Description
abs Coefficient Step Size c(1)hold c(0)hold c(-1)inc	2404	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-inc
abs Coefficient Step Size c(1)hold c(0)hold c(-1)inc	3404	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-inc
abs Coefficient Step Size c(1)hold c(0)hold c(-1)inc	6404	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-hold c-1-inc
abs Coefficient Step Size c(1)hold c(0)inc c(-1)hold	2402	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-inc c-1-hold
abs Coefficient Step Size c(1)hold c(0)inc c(-1)hold	3402	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-inc c-1-hold
abs Coefficient Step Size c(1)hold c(0)inc c(-1)hold	6402	abs Coefficient Step Size measurement for Coefficient update c1-hold c0-inc c-1-hold
abs Coefficient Step Size c(1)inc c(0)hold c(-1)hold	2400	abs Coefficient Step Size measurement for Coefficient update c1-inc c0-hold c-1-hold
abs Coefficient Step Size c(1)inc c(0)hold c(-1)hold	3400	abs Coefficient Step Size measurement for Coefficient update c1-inc c0-hold c-1-hold
abs Coefficient Step Size c(1)inc c(0)hold c(-1)hold	6400	abs Coefficient Step Size measurement for Coefficient update c1-inc c0-hold c-1-hold
delta_v2 (Additional) - Coefficient Status dis-max-dis	511	delta_v2 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
delta_v2 (Additional) - Coefficient Status dis-max-dis	1511	delta_v2 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
delta_v2 (Additional) - Coefficient Status dis-min-dis	503	delta_v2 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
delta_v2 (Additional) - Coefficient Status dis-min-dis	1503	delta_v2 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
delta_v2 (Additional) - Coefficient Status dis-min-min	525	delta_v2 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
delta_v2 (Additional) - Coefficient Status dis-min-min	1525	delta_v2 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
delta_v2 (Additional) - Coefficient Status min-min-dis	518	delta_v2 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
delta_v2 (Additional) - Coefficient Status min-min-dis	1518	delta_v2 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
delta_v2 Result	606	delta_v2 measurement
delta_v2 Result	1606	delta_v2 measurement

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

Name	TestID	Description
delta_v5 (Additional) - Coefficient Status dis-max-dis	512	delta_v5 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
delta_v5 (Additional) - Coefficient Status dis-max-dis	1512	delta_v5 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
delta_v5 (Additional) - Coefficient Status dis-min-dis	504	delta_v5 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
delta_v5 (Additional) - Coefficient Status dis-min-dis	1504	delta_v5 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
delta_v5 (Additional) - Coefficient Status dis-min-min	526	delta_v5 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
delta_v5 (Additional) - Coefficient Status dis-min-min	1526	delta_v5 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
delta_v5 (Additional) - Coefficient Status min-min-dis	519	delta_v5 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
delta_v5 (Additional) - Coefficient Status min-min-dis	1519	delta_v5 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
delta_v5 Result	607	delta_v5 measurement
delta_v5 Result	1607	delta_v5 measurement
v1 - Coefficient Update dec-hold-hold	403	v1 measurement for Coefficient update c1-dec c0-hold c-1-hold
v1 - Coefficient Update dec-hold-hold	1403	v1 measurement for Coefficient update c1-dec c0-hold c-1-hold
v1 - Coefficient Update hold-dec-hold	409	v1 measurement for Coefficient update c1-hold c0-dec c-1-hold
v1 - Coefficient Update hold-dec-hold	1409	v1 measurement for Coefficient update c1-hold c0-dec c-1-hold
v1 - Coefficient Update hold-hold-dec	415	v1 measurement for Coefficient update c1-hold c0-hold c-1-dec
v1 - Coefficient Update hold-hold-dec	1415	v1 measurement for Coefficient update c1-hold c0-hold c-1-dec
v1 - Coefficient Update hold-hold-inc	412	v1 measurement for Coefficient update c1-hold c0-hold c-1-inc
v1 - Coefficient Update hold-hold-inc	1412	v1 measurement for Coefficient update c1-hold c0-hold c-1-inc
v1 - Coefficient Update hold-inc-hold	406	v1 measurement for Coefficient update c1-hold c0-inc c-1-hold
v1 - Coefficient Update hold-inc-hold	1406	v1 measurement for Coefficient update c1-hold c0-inc c-1-hold
v1 - Coefficient Update inc-hold-hold	400	v1 measurement for Coefficient update c1-inc c0-hold c-1-hold
v1 - Coefficient Update inc-hold-hold	1400	v1 measurement for Coefficient update c1-inc c0-hold c-1-hold
v1 Result	600	v1 measurement
v1 Result	1600	v1 measurement
v2 - Coefficient Status dis-max-dis	510	v2 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled

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

Name	TestID	Description
v2 - Coefficient Status dis-max-dis	1510	v2 measurement for Coefficient status c1-disabled c0-maximum c-1-disabled
v2 - Coefficient Status dis-min-dis	502	v2 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
v2 - Coefficient Status dis-min-dis	1502	v2 measurement for Coefficient status c1-disabled c0-minimum c-1-disabled
v2 - Coefficient Status dis-min-min	524	v2 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
v2 - Coefficient Status dis-min-min	1524	v2 measurement for Coefficient status c1-disabled c0-minimum c-1-minimum
v2 - Coefficient Status min-min-dis	517	v2 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
v2 - Coefficient Status min-min-dis	1517	v2 measurement for Coefficient status c1-minimum c0-minimum c-1-disabled
v2 - Coefficient Update dec-hold-hold	404	v2 measurement for Coefficient update c1-dec c0-hold c-1-hold
v2 - Coefficient Update dec-hold-hold	1404	v2 measurement for Coefficient update c1-dec c0-hold c-1-hold
v2 - Coefficient Update hold-dec-hold	410	v2 measurement for Coefficient update c1-hold c0-dec c-1-hold
v2 - Coefficient Update hold-dec-hold	1410	v2 measurement for Coefficient update c1-hold c0-dec c-1-hold
v2 - Coefficient Update hold-hold-dec	416	v2 measurement for Coefficient update c1-hold c0-hold c-1-dec
v2 - Coefficient Update hold-hold-dec	1416	v2 measurement for Coefficient update c1-hold c0-hold c-1-dec
v2 - Coefficient Update hold-hold-inc	413	v2 measurement for Coefficient update c1-hold c0-hold c-1-inc
v2 - Coefficient Update hold-hold-inc	1413	v2 measurement for Coefficient update c1-hold c0-hold c-1-inc
v2 - Coefficient Update hold-inc-hold	407	v2 measurement for Coefficient update c1-hold c0-inc c-1-hold
v2 - Coefficient Update hold-inc-hold	1407	v2 measurement for Coefficient update c1-hold c0-inc c-1-hold
v2 - Coefficient Update inc-hold-hold	401	v2 measurement for Coefficient update c1-inc c0-hold c-1-hold
v2 - Coefficient Update inc-hold-hold	1401	v2 measurement for Coefficient update c1-inc c0-hold c-1-hold
v2 Result	601	v2 measurement
v2 Result	1601	v2 measurement
v3 - Coefficient Update dec-hold-hold	405	v3 measurement for Coefficient update c1-dec c0-hold c-1-hold
v3 - Coefficient Update dec-hold-hold	1405	v3 measurement for Coefficient update c1-dec c0-hold c-1-hold
v3 - Coefficient Update hold-dec-hold	411	v3 measurement for Coefficient update c1-hold c0-dec c-1-hold
v3 - Coefficient Update hold-dec-hold	1411	v3 measurement for Coefficient update c1-hold c0-dec c-1-hold
v3 - Coefficient Update hold-hold-dec	417	v3 measurement for Coefficient update c1-hold c0-hold c-1-dec

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

Name	TestID	Description
v3 - Coefficient Update hold-hold-dec	1417	v3 measurement for Coefficient update c1-hold c0-hold c-1-dec
v3 - Coefficient Update hold-hold-inc	414	v3 measurement for Coefficient update c1-hold c0-hold c-1-inc
v3 - Coefficient Update hold-hold-inc	1414	v3 measurement for Coefficient update c1-hold c0-hold c-1-inc
v3 - Coefficient Update hold-inc-hold	408	v3 measurement for Coefficient update c1-hold c0-inc c-1-hold
v3 - Coefficient Update hold-inc-hold	1408	v3 measurement for Coefficient update c1-hold c0-inc c-1-hold
v3 - Coefficient Update inc-hold-hold	402	v3 measurement for Coefficient update c1-inc c0-hold c-1-hold
v3 - Coefficient Update inc-hold-hold	1402	v3 measurement for Coefficient update c1-inc c0-hold c-1-hold
v3 Result	602	v3 measurement
v3 Result	1602	v3 measurement
v4 Result	603	v4 measurement
v4 Result	1603	v4 measurement
v5 Result	604	v5 measurement
v5 Result	1604	v5 measurement
v6 Result	605	v6 measurement
v6 Result	1605	v6 measurement



## 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
FlexDca	Primary oscilloscope
Infiniium	Secondary oscilloscope
Keysight ENA	Economy Network Analyzer
Keysight PNA	Performance Network Analyzer
N4877A	Clock/Data recovery and Demultiplexer



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