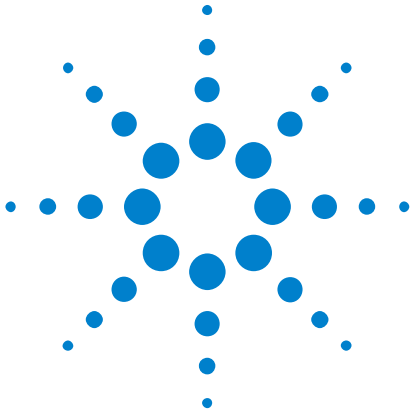

Agilent U7248A/U7248B HSIC Compliance Application

Programmer's Reference

Agilent Technologies

Notices

Manual Part Number

Version 01.11.0000

Edition

April 16, 2015

Available in electronic format only

Agilent Technologies, Inc.
1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

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In This Book

This book is your guide to programming the Agilent Technologies U7248A/U7248B HSIC Compliance Application.

- Chapter 1, “Introduction to Programming,” starting on page 7, describes compliance application programming basics.
- Chapter 2, “Configuration Variables and Values,” starting on page 11, Chapter 3, “Test Names and IDs,” starting on page 21, and Chapter 4, “Instruments,” starting on page 27, provide information specific to programming the U7248A/U7248B HSIC Compliance Application.

How to Use This Book

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

Contents

1 Introduction to Programming

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

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

You can accomplish other tasks by combining these functions.

Remote Programming Toolkit

The majority of remote interface features are common across all the Agilent Technologies, Inc. family of compliance applications. Information on those features is provided in the N5452A Compliance Application Remote Programming Toolkit available for download from Agilent here: "www.agilent.com/find/scope-apps-sw". The U7248A/U7248B HSIC Compliance Application uses Remote Interface Revision 2.80. The help files provided with the toolkit indicate which features are supported in this version.

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

Licensing

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

1 Introduction to Programming

2 Configuration Variables and Values

The following table contains a description of each of the U7248A/U7248B HSIC Compliance Application options that you may query or set remotely using the appropriate remote interface method. The columns contain this information:

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

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

- Enable Advanced Features

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

Table 1 Example Configuration Variables and Values

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

and you would set the variable remotely using:

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

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

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

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

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

Table 2 Configuration Variables and Values

GUI Location	Label	Variable	Values	Description
Confgure	Bus State Signaling Test Data File Directory	BusStateDataFile	(Accepts user-defined text)	This variable use to store the directory of data waveform file use in the Bus State Signaling Test.
Confgure	Bus State Signaling Test Strobe File Directory	BusStateStrobeFile	(Accepts user-defined text)	This variable use to store the directory of strobe waveform file use in the Bus State Signaling Test.
Confgure	Connect State Trigger Lower Limit Time Range	ConnectLowerLimitTime	4.0E-09, 5.0E-09, 6.0E-09, 7.0E-09, 8.0E-09, 9.0E-09	Choose the lower limit time value for the pattern trigger of Connect state signal. Unit: second.
Confgure	Connect State Trigger Upper Time Range	ConnectUpperLimitTime	8.0E-09, 9.0E-09, 10.0E-09, 11.0E-09, 12.0E-09, 13.0E-09	Choose the upper limit time value for the pattern trigger of Connect state signal. Unit: second.
Confgure	Data Channel	DP	CHANNEL1, CHANNEL2, CHANNEL3, CHANNEL4	Select the channel number for data output.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Data Signal Measurement Threshold Level	DataBusStateThreshold	(Accepts user-defined text), PERCENT, 90, 50, 10, PERCENT, 80, 50, 20, PERCENT, 60, 50, 40, ABSOLUTE, 0.65, 0.60, 0.55, ABSOLUTE, 0.70, 0.60, 0.50, ABSOLUTE, 0.80, 0.60, 0.40, ABSOLUTE, 1.00, 0.60, 0.20, ABSOLUTE, 1.10, 0.60, 0.10	Choose the threshold level for data signal measurement in bus state signaling test.
Confgure	Data Signal Measurement Threshold Level	DataPackParamThreshold	AUTO, 100.0E-03, 200.0E-03, 300.0E-03, 350.0E-03, 400.0E-03, 450.0E-03, 500.0E-03, 550.0E-03, 600.0E-03, 700.0E-03, 800.0E-03	Choose the threshold level for data signal measurement in package parameter test. Choose AUTO for automatic search of threshold base on max and min voltage. Unit: volt.
Confgure	HSIC Port Under Test	HSICPort	Port1, Port2, Port3, Port4, Port5, Port6, Port7, Port8, Port9, Port10, Port11, Port12, Port13, Port14	Select the HSIC port under test. This is for reporting purposes and does not affect the test.
Confgure	Idle State Trigger Lower Limit Time Range	IdleLowerLimitTime	2.0E-9, 2.5E-9, 3.0E-9, 3.5E-9, 4.0E-9, 4.5E-9, 5.0E-9	Choose the lower limit time value for the pattern trigger of Idle state signal. The lower limit should be greater than 1 unit interval. Unit: second.
Confgure	Idle State Trigger Upper Time Range	IdleUpperLimitTime	2.2E-3, 2.4E-3, 2.6E-3, 2.8E-3, 3.0E-3, 3.2E-3, 3.4E-3, 3.6E-3, 3.8E-3	Choose the upper limit time value for the pattern trigger of Idle state signal. The upper limit should be less than 3ms, before entering Suspend state. Unit: second.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Marker Placement	Marker	AUTO, MANUAL	Choose AUTO for automatic marker placement. Choose MANUAL for manual marker placement.
Confgure	Mask Template (Far-End)	TemplateFarEnd	HSIC_FarIndustry, HSIC_FarSymmetrical, USB_1, USB_2, USB_3, USB_4, USB_5, USB_6	Select the template mask to be used in Signal Quality test.
Confgure	Memory Depth-Electrical Specification Tests	MemoryDepth	(Accepts user-defined text), 400.0E+3, 500.0E+3, 1.0E+6, 2.0E+6, 5.0E+6, 10.0E+6	Select the memory depth use for acquiring the waveform for Electrical Specification Tests. Unit : points.
Confgure	Number of Cycle to Remove	NoOfCycleToRemove	1, 2, 3, 4, 5	Select the number of Strobe cycle to be removed after the start and before the stop of the Strobe burst.
Confgure	Number of Embedded Hubs	NoOfHub	1, 2, 3, 4, 5	Choose the number of hubs present in the embedded host .
Confgure	Number of Waveform	NoOfWav	(Accepts user-defined text), 1, 5, 10, 15, 20, 25, 30	Select the number of waveform to acquire
Confgure	Packet Parameters Enumeration Data File Directory	EnumerationDataFile	(Accepts user-defined text)	This variable use to store the directory of enumeration data waveform file use in the Packet Parameters Test.
Confgure	Packet Parameters Enumeration Strobe File Directory	EnumerationStrobeFile	(Accepts user-defined text)	This variable use to store the directory of enumeration strobe waveform file use in the Packet Parameters Test.
Confgure	Packet Parameters SOF Data File Directory	SOFDataFile	(Accepts user-defined text)	This variable use to store the directory of SOF data waveform file use in the Packet Parameters Test.
Confgure	Packet Parameters SOF Strobe File Directory	SOFStrobeFile	(Accepts user-defined text)	This variable use to store the directory of SOF strobe waveform file use in the Packet Parameters Test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Reset State Trigger Lower Limit Time Range	ResetLowerLimitTime	110.0E-06, 112.0E-06, 114.0E-06, 116.0E-06, 118.0E-06, 120.0E-06, 122.0E-06, 124.0E-06, 126.0E-06	Choose the lower limit time value for the pattern trigger of Reset state signal. 1st SOF will be used for trigger setting of the Reset signal. Unit: second.
Confgure	Reset State Trigger Upper Time Range	ResetUpperLimitTime	124.0E-06, 126.0E-06, 128.0E-06, 130.0E-06, 132.0E-06, 134.0E-06, 136.0E-06, 138.0E-06, 140.0E-06	Choose the upper limit time value for the pattern trigger of Reset state signal. 1st SOF will be used for trigger setting of the Reset signal. Unit: second.
Confgure	Resume State Trigger Lower Limit Time Range	ResumeLowerLimitTime	19.0E-3, 19.2E-3, 19.4E-3, 19.6E-3, 19.8E-3, 20.0E-3, 20.2E-3, 20.4E-3	Choose the lower limit time value for the pattern trigger of Resume state signal. The lower limit should be less than 20ms. Unit: second.
Confgure	SOF Interval	SOFInterval	130.0E-06, 125.0E-06, 120.0E-06, 115.0E-06, 110.0E-06	Choose the time interval between Start of Frame (SOF) packet for trigger setting. Choose the SOF interval value with slightly lower than the actual interval. Unit: second.
Confgure	Sampling Rate-Connect & Idle State	SRateConnectIdle	10.0E9, 5.0E9, 4.0E9, 2.0E9, 1.0E9, 0.5E9	Select the sampling rate use for acquiring the waveform for Connect and Idle State Signaling Tests.
Confgure	Sampling Rate-Electrical Specification Tests	SRate	40.0E9, 20.0E9, 10.0E9, 5.0E9	Select the sampling rate use for acquiring the waveform for Electrical Specification Tests.
Confgure	Sampling Rate-Packet Parameter	SRatePP	40.0E9, 20.0E9, 10.0E9, 5.0E9, 4.0E9, 2.0E9	Select the sampling rate use for acquiring the waveform for Packet Parameters Tests.
Confgure	Sampling Rate-Reset	SRateReset	0.40E9, 0.25E9, 0.20E9, 0.10E9	Select the sampling rate use for acquiring the waveform for Reset State Signaling Tests.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Sampling Rate-Suspend & Resume State	SRateSuspendResume	1.0E9, 0.50E9, 0.40E9, 0.30E9, 0.25E9, 0.20E9, 0.10E9	Select the sampling rate use for acquiring the waveform for Suspend and Resume State Signaling Tests.
Confgure	Signal Check	EnableSignalCheck	1.0, 0.0	When signal check is enabled, the input signal is pre-tested and verified to be within a reasonable range of timing and voltage limits. This can be useful for detecting problems like cabling errors before a test is run.
Confgure	Signal Packet Search	SignalPacketSearch	AUTO, MANUAL	Choose AUTO for automatic search of signal packet for Packet Parameters Test. Choose MANUAL for manual marker placement.
Confgure	Signal Quality Test Data File Directory	SignalQualityDataFile	(Accepts user-defined text)	This variable use to store the directory of Test Packet data waveform file use in the Signal Quality Test.
Confgure	Signal Quality Test Strobe File Directory	SignalQualityStrobeFile	(Accepts user-defined text)	This variable use to store the directory of Test Packet strobe waveform file use in the Signal Quality Test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Signal Trigger Level	DataTriggerThreshold	(Accepts user-defined text), 100.0E-03, 150.0E-03, 200.0E-03, 250.0E-03, 300.0E-03, 350.0E-03, 400.0E-03, 450.0E-03, 500.0E-03, 550.0E-03, 600.0E-03, 650.0E-03, 700.0E-03, 750.0E-03, 800.0E-03, 850.0E-03, 900.0E-03, 950.0E-03	Choose the trigger level for all the data signal in the HSIC tests. Unit: volt.
Confgure	Signal Voltage (VDD)	TemplateSignalVDD	(Accepts user-defined text), 1.1, 1.2, 1.3	Select the HSIC signaling voltage (VDD). This value will affect the vertical scale of the template mask. Unit : Volt.
Confgure	Strobe Channel	DN	CHANNEL1, CHANNEL2, CHANNEL3, CHANNEL4	Select the channel number for strobe output.
Confgure	Strobe Frequency Measurement Tolerance	FreqTolerance	200.0E+3, 150.0E+3, 100.0E+3, 50.0E+3	Select the strobe frequency measurement's tolerance. Unit : PPM.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Strobe Signal Measurement Threshold Level	StrobeBusStateThreshold	(Accepts user-defined text), PERCENT, 90, 50, 10, PERCENT, 80, 50, 20, PERCENT, 60, 50, 40, ABSOLUTE, 0.65, 0.60, 0.55, ABSOLUTE, 0.70, 0.60, 0.50, ABSOLUTE, 0.80, 0.60, 0.40, ABSOLUTE, 1.00, 0.60, 0.20, ABSOLUTE, 1.10, 0.60, 0.10	Choose the threshold level for strobe signal measurement in bus state signaling test.
Confgure	Strobe Signal Measurement Threshold Level	StrobePackParamThreshold	AUTO, 100.0E-03, 200.0E-03, 300.0E-03, 350.0E-03, 400.0E-03, 450.0E-03, 500.0E-03, 550.0E-03, 600.0E-03, 700.0E-03, 800.0E-03	Choose the threshold level for strobe signal measurement in package parameter test. Choose AUTO for automatic search of threshold base on max and min voltage. Unit: volt.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Confgure	Strobe Trigger Level	StrobeTriggerThreshold	(Accepts user-defined text), 100.0E-03, 150.0E-03, 200.0E-03, 250.0E-03, 300.0E-03, 350.0E-03, 400.0E-03, 450.0E-03, 500.0E-03, 550.0E-03, 600.0E-03, 650.0E-03, 700.0E-03, 750.0E-03, 800.0E-03, 850.0E-03, 900.0E-03, 950.0E-03	Choose the trigger level for all the strobe signal in the HSIC tests. Unit: volt.
Confgure	Suspend State Trigger Lower Limit Time Range	SuspendLowerLimitTime	2.5E-3, 2.6E-3, 2.7E-3, 2.8E-3, 2.9E-3, 3.0E-3, 3.1E-3, 3.2E-3	Choose the lower limit time value for the pattern trigger of Suspend state signal. The lower limit should be less than 3ms. Unit: second.
Confgure	Trigger Lower Limit Time Range	LowerLimitTime	90.0E-09, 95.0E-09, 100.0E-09, 105.0E-09, 110.0E-09	Choose the lower limit time value for the pattern trigger of TEST_PACKET signal for Signal Quality Test and Enumeration signal for Packet Parameters Test. Unit: second.
Confgure	Trigger Upper Limit Time Range	UpperLimitTime	350.0E-09, 400.0E-09, 450.0E-09, 500.0E-09, 550.0E-09, 600.0E-09, 650.0E-09, 700.0E-09	Choose the upper limit time value for the pattern trigger of Enumeration signal for Packet Parameters Test. Unit: second.
Run Tests	Event	RunEvent	(None), Fail, Margin < N, Pass	Names of events that can be used with the StoreMode=Event or RunUntil RunEventAction options

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Run Tests	RunEvent=Margin < N: Minimum required margin %	RunEvent_Margin < N_MinPercent	Any integer in range: 0 <= value <= 100	Specify N using the 'Minimum required margin %' control.
Set Up	DUTType	DUTType	Device, Host	Device Test Point Device Test Point
Set Up	Offline Enable Checkbox	OfflineEnable	0.0, 1.0	Enable or disable the use of offline waveform in the test Enable or disable the use of offline waveform in the test
Set Up	Update Offline Test List	UpdateTrigger	0.0, 1.0	Change the state to 1.0 to update the offline test list Change the state to 1.0 to update the offline test list
Set Up	cmbIPaddr	cmbIPaddr	(Accepts user-defined text), 141.183.183.101	IP address IP address
Set Up	cmbSicl	cmbSicl	(Accepts user-defined text), gpib3, 13	Gpib address Gpib address
Set Up	optConnection	optConnection	none, pulsegen, pulsegenSicl, powersupply, dmm	optConnection optConnection
Set Up	pcboOverallDeviceDescription	pcboOverallDeviceDescription	(Accepts user-defined text), (Select or Type)	User Description User Description
Set Up	pcboOverallDeviceID	pcboOverallDeviceID	(Accepts user-defined text), (Select or Type), (Select or Type), (Select or Type), (Select or Type)	Device ID Device ID
Set Up	pcboTestMethod	pcboTestMethod	(Accepts user-defined text), Manual	Test Method Test Method
Set Up	txtOverallUserComment	txtOverallUserComment	(Accepts user-defined text)	Comments

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
Device Connect Timing Response	210	For Connect bus state, the HSIC interface drives STROBE line LOW, DATA line HIGH for 2 Strobe-periods. Note: The connect state is an event that only occurs after a peripheral detects an IDLE bus state for the first time, usually after Power On Reset (POR).
Device Data Eye and Mask Test (Far-End)	21000	Eye diagram of the DATA signal must within the parameters as specified in the specification.
Device Data Hold Time	2302	Receiver DATA hold time with respect to the STROBE signal must be greater than specification's minimum hold time. The hold time is measured at 50% point.
Device Data Setup Time	2301	Receiver DATA setup time with respect to the STROBE signal must be greater than specification's minimum setup time. The setup time is measured at 50% point.
Device Data Slew Rate	2201	Slew rate of DATA signal must within the specification for both rising and falling edges. The slew rate measurement is based on averaged from 30% - 70% points.
Device Fall Time	20002	A USB 2.0 HS driver must a differential rise and fall times of greater than 500ps. However, slew rate measurement will be made and expressed in terms of (V/us) to ensure waveform with slow corners will not result in a measured rise/fall time that is slower than the actual edge rate. The conversion from rise time to edge rate uses the specified rise time over 80% of the nominal peak to peak signal amplitude.
Device Idle Timing Response	212	For Idle bus state, the HSIC interface drives STROBE line HIGH, DATA line LOW for 1 or more Strobe-periods. Note: When tranistioning from any non-IDLE bus state to an IDLE bus state, the transmitter must drive IDLE for 2 Strobe-periods.
Device Reset Timing Response	211	For Reset bus state, the HSIC interface drives STROBE line LOW, DATA line LOW for a minimum of 10ms to match USB 2.0 Specification, Section 7.1.7.5.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Device Resume Timing Response	214	For Resume bus state, the HSIC interface drives STROBE line LOW, DATA line HIGH for a minimum of 20ms to match USB 2.0 Specification, Section 7.1.7.7. Note : RESUME can be signaled by either a host or a peripheral, i.e. remote wake up.
Device Rise Time	20001	A USB 2.0 HS driver must a differential rise and fall times of greater than 500ps. However, slew rate measurement will be made and expressed in terms of (V/us) to ensure waveform with slow corners will not result in a measured rise/fall time that is slower than the actual edge rate. The conversion from rise time to edge rate uses the specified rise time over 80% of the nominal peak to peak signal amplitude.
Device Strobe Frequency (Max)	2102	The maximum frequency of the STROBE transmitted must within the specification. Jitter and duty cycle are not separately specified parameters, they are incorporated into the value.
Device Strobe Frequency (Mean)	2100	The frequency of the STROBE transmitted must within the specification. Jitter and duty cycle are not separately specified parameters, they are incorporated into the value.
Device Strobe Frequency (Min)	2101	The minimum frequency of the STROBE transmitted must within the specification. Jitter and duty cycle are not separately specified parameters, they are incorporated into the value.
Device Strobe Slew Rate	2202	Slew rate of STROBE signal must within the specification for both rising and falling edges. The slew rate measurement is based on averaged from 30% - 70% points.
Device Suspend Timing Response	213	For Suspend bus state, the HSIC interface drives STROBE line HIGH, DATA line LOW for a minimum of 3ms to match USB 2.0 Specification, Section 7.1.7.6.
EOP Length Test (Device)	221	The EOP for all transmitted packets (except SOFs) must be an 8-bit NRZ byte of 01111111 without bit stuffing.
EOP Length Test (Host)	121	The EOP for all transmitted packets (except SOFs) must be an 8-bit NRZ byte of 01111111 without bit stuffing. (Note, that a longer EOP is waiverable)

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Host Connect Timing Response	110	For Connect bus state, the HSIC interface drives STROBE line LOW, DATA line HIGH for 2 Strobe-periods. Note: The connect state is an event that only occurs after a peripheral detects an IDLE bus state for the first time, usually after Power On Reset (POR).
Host Data Eye and Mask Test (Far-End)	11000	Eye diagram of the DATA signal must within the parameters as specified in the specification.
Host Data Hold Time	1302	Receiver DATA hold time with respect to the STROBE signal must be greater than specification's minimum hold time. The hold time is measured at 50% point.
Host Data Setup Time	1301	Receiver DATA setup time with respect to the STROBE signal must be greater than specification's minimum setup time. The setup time is measured at 50% point.
Host Data Slew Rate	1201	Slew rate of DATA signal must within the specification for both rising and falling edges. The slew rate measurement is based on averaged from 30% - 70% points.
Host Fall Time	10002	A USB 2.0 HS driver must a differential rise and fall times of greater than 500ps. However, slew rate measurement will be made and expressed in terms of (V/us) to ensure waveform with slow corners will not result in a measured rise/fall time that is slower than the actual edge rate. The conversion from rise time to edge rate uses the specified rise time over 80% of the nominal peak to peak signal amplitude.
Host Idle Timing Response	112	For Idle bus state, the HSIC interface drives STROBE line HIGH, DATA line LOW for 1 or more Strobe-periods. Note: When tranistioning from any non-IDLE bus state to an IDLE bus state, the transmitter must drive IDLE for 2 Strobe-periods.
Host Reset Timing Response	111	For Reset bus state, the HSIC interface drives STROBE line LOW, DATA line LOW for a minimum of 10ms to match USB 2.0 Specification, Section 7.1.7.5.
Host Resume Timing Response	114	For Resume bus state, the HSIC interface drives STROBE line LOW, DATA line HIGH for a minimum of 20ms to match USB 2.0 Specification, Section 7.1.7.7. Note : RESUME can be signaled by either a host or a peripheral, i.e. remote wake up.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Host Rise Time	10001	A USB 2.0 HS driver must a differential rise and fall times of greater than 500ps. However, slew rate measurement will be made and expressed in terms of (V/us) to ensure waveform with slow corners will not result in a measured rise/fall time that is slower than the actual edge rate. The conversion from rise time to edge rate uses the specified rise time over 80% of the nominal peak to peak signal amplitude.
Host Strobe Frequency (Max)	1102	The maximum frequency of the STROBE transmitted must within the specification. Jitter and duty cycle are not separately specified parameters, they are incorporated into the value.
Host Strobe Frequency (Mean)	1100	The frequency of the STROBE transmitted must within the specification. Jitter and duty cycle are not separately specified parameters, they are incorporated into the value.
Host Strobe Frequency (Min)	1101	The minimum frequency of the STROBE transmitted must within the specification. Jitter and duty cycle are not separately specified parameters, they are incorporated into the value.
Host Strobe Slew Rate	1202	Slew rate of STROBE signal must within the specification for both rising and falling edges. The slew rate measurement is based on averaged from 30% - 70% points.
Host Suspend Timing Response	113	For Suspend bus state, the HSIC interface drives STROBE line HIGH, DATA line LOW for a minimum of 3ms to match USB 2.0 Specification, Section 7.1.7.6.
Inter-packet Gap Between First 2 Packets Test (Host)	123	Hosts transmitting two packets in a row must have an inter-packet gap of at least 88 bit times and not more than 192 bit times.
Inter-packet Gap Between Host And Device Packet Test (Device)	222	When transmitting after receiving a packet, hosts and devices must provide an inter-packet gap of at least 8 bits times and not more than 192 bit times.
Inter-packet Gap Between Host And Device Packet Test (Host)	122	When transmitting after receiving a packet, hosts and devices must provide an inter-packet gap of at least 8 bit times and not more than 192 bit times.
No test selected	0	Dummy test for development purpose.
SOF EOP Length Test (Host)	124	Hosts trasmitting SOF packets must provide a 40-bit EOP without bit stuffing where the first symbol of the EOP is a transition from the last data symbol.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
SYNC Field Length Test (Device)	220	The SYNC field for all transmitted packets (not repeated packets) must begin with a 32 bits SYNC field. However since the first K bit is allowed to be distorted, the test will measure the SYNC field from the first J bit onwards (31 bits).
SYNC Field Length Test (Host)	120	The SYNC field for all transmitted packets (not repeated packets) must begin with a 32 bits SYNC field. However since the first K bit is allowed to be distorted, the test will measure the SYNC field from the first J bit onwards (31 bits).

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
scope	The primary oscilloscope

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