

Keysight D3000NFCA/ D4000NFCA Near Field Communication Test Application

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In This Book

This book is your guide to programming the Keysight Technologies D3000NFCA/ D4000NFCA Near Field Communication Test Application.

- **Chapter 1**, “Introduction to Programming,” starting on page 7, describes compliance application programming basics.
- **Chapter 2**, “Configuration Variables and Values,” starting on page 9, **Chapter 3**, “Test Names and IDs,” starting on page 17, and **Chapter 4**, “Instruments,” starting on page 25, provide information specific to programming the D3000NFCA/ D4000NFCA Near Field Communication Test Application.

How to Use This Book

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

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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. The D3000NFCA/ D4000NFCA Near Field Communication Test 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 D3000NFCA/ D4000NFCA Near Field Communication Test Application options that you may query or set remotely using the appropriate remote interface method. The columns contain this information:

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

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

- Enable Advanced Features

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

Table 1 Example Configuration Variables and Values

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

and you would set the variable remotely using:

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

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

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

NOTE

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

NOTE

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

Table 2 Configuration Variables and Values

GUI Location	Label	Variable	Values	Description
Configure	AWG Amplitude (Carrier of polling signal)	PollerAWGAmplitude	(Accepts user-defined text), 1.0, 2.0, 3.0, 4.0, 5.0	Select or enter the amplitude when sending the carrier of the polling signal.
Configure	AWG Amplitude (Response to poller)	ListenerAWGAmplitude	(Accepts user-defined text), 1.0, 2.0, 3.0, 4.0, 5.0	Select or enter the amplitude when sending the response to the Poller.
Configure	AWG output state after running tests	AWGOutPutAfterRunTest	On, Off	Specify whether to turn off the AWG after each run.
Configure	Brick wall filter lower cut-off frequency	BWFreqLower	(Accepts user-defined text), 7.56E6, 8.56E6, 9.56E6	Select or enter the lower cut-off frequency of the brick wall filter. A brick wall filter is applied to waveform to remove DC and higher harmonic components before generating the envelope waveform.
Configure	Brick wall filter upper cut-off frequency	BWFreqUpper	(Accepts user-defined text), 17.56E6, 18.56E6, 19.56E6	Select or enter the upper cut-off frequency of the brick wall filter. A brick wall filter is applied to waveform to remove DC and higher harmonic components before generating the envelope waveform.
Configure	Capture Attempt	CaptureAttemptCount	(Accepts user-defined text), 1, 3, 5, 10	Specify the number of times the scope tries to check for a valid response before timing out.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Command Analyzed	UseArmAndTrigger	false, true	Specify whether analyze 1st Poller packet (Sense REQ) or Poller's response to Sense RES packet (2nd Poller Request). Arm and trigger method will be used to analyze the poller's response to Sense RES. This option is applicable for NFC-A, NFC-B, NFC-F only.
Configure	LMA Test Methodology	LMATestMethod	1.0, 2.0	Specify whether to method to use to measure LMA. Select "1" to use test methodology as per NFC Analog Specification Version 1.0 which measures the amplitude of envelope waveform. Select "2" to use test methodology as per NFC Analog Specification Version 2.0 which uses the FFT sideband measurement to measure LMA.
Configure	Listener A poller type	ListenerAPollerType	Sense_REQ, ALL_REQ	Specify whether to use ALL_REQ or Sense_REQ for Listener poller packet.
Configure	Listener J1/Vr Channel	LisJ1Chan	CHAN1, CHAN2, CHAN3, CHAN4	Scope input channel to use for Listener J1 output.
Configure	Listener J4/Sense Channel	LisJ4Chan	CHAN1, CHAN2, CHAN3, CHAN4	Scope input channel to use for Listener J4 output.
Configure	Listener Reference Vertical Range	LisRefVertRange	(Accepts user-defined text), 80E-3, 800E-3, 4.0	Specify the vertical range used to begin searching for the Listener tests signal. This value will need to be decreased as the signal gets weaker, i.e. when a greater separation is used.
Configure	Listener Settling Time	ListenerSettlingTime	(Accepts user-defined text), 0, 1000, 5000	In listener tests, specify the amount of time to wait after the AWG is turned on before capturing the signal.
Configure	NFC-A FTD: NFC-A Response to poller	NFCARespDelay	(Accepts user-defined text), 30E-6, 52E-6, 55E-6, 80E-6, 100E-6, 150E-6, 180E-6	The time to wait before sending a response to SENS_REQ/ALL_REQ. Nominal value (last bit 0): $(9.0 / bd) + (20 / Fc)$ Nominal value (last bit 1): $(9.0 / bd) + (84 / Fc)$

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	NFC-A, NFC-B, NFC-F, NFC-V Trigger Level (%)	PollerB_F_TrigLevel	4.0, 8.0, 12.0, 16.0	Select the trigger level (%) below carrier peak relative to carrier peak-to-peak for NFC-A, NFC-B, NFC-F and NFC-V.
Configure	NFC-B FTD: NFC-B Response to poller	NFCBRespDelay	(Accepts user-defined text), 150E-6, 180E-6, 210E-6, 240E-6, 270E-6, 300E-6	The time to wait before sending a response to SENS _B _REQ/ALL _B _REQ. Minimum time: TR0min + TR1min Maximum time: FWTS _{SENS_B}
Configure	NFC-F (212Kbps) FTD: NFC-F (212Kbps) Response to poller	NFCF212RespDelay	(Accepts user-defined text), 2.00E-3, 2.21E-3, 2.65E-3, 2.63E-3, 2.84E-3	The time to wait before sending a response to SENS _F _REQ/ALL _F _REQ. Minimum time: TR0Listen lower limit (TR1min is included in waveform) Maximum time: TR0Listen upper limit
Configure	NFC-F (424Kbps) FTD: NFC-F (424Kbps) Response to poller	NFCF424RespDelay	(Accepts user-defined text), 2.00E-3, 2.21E-3, 2.53E-3, 2.63E-3, 2.84E-3	The time to wait before sending a response to SENS _F _REQ/ALL _F _REQ. Minimum time: TR0Listen lower limit (TR1min is included in waveform) Maximum time: TR0Listen upper limit
Configure	NFC-V FTD: NFC-V Response to poller	NFCVRespDelay	(Accepts user-defined text), 316E-6, 317E-6, 318E-6, 319E-6, 320E-6, 321E-6, 322E-6, 323E-6, 324E-6, 325E-6, 326E-6	The time to wait before sending a response to SENS _V _REQ/ALL _V _REQ. Nominal value (last bit 0): $(9.0 / \text{bd}) + (20 / \text{Fc})$ Nominal value (last bit 1): $(9.0 / \text{bd}) + (84 / \text{Fc})$
Configure	NFC-V Smoothing Points for Envelope Waveform	SmoothingNFCVPoller	(Accepts user-defined text), 5, 7, 9, 11, 13	Select or enter number of smoothing points for the envelope waveform. This config is only applicable to NFC-V Poller tests.
Configure	Poller F trigger polarity	PollerFTrigPolarity	OFF, ON	Specify the polarity of the poller F trigger.
Configure	Poller J2/RX and Resonance Frequency Channel	PolJ2Chan	CHAN1, CHAN2, CHAN3, CHAN4	Scope input channel to use for Poller J2 output and resonant frequency test.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Poller Reference Vertical Range	PolRefVertRange	(Accepts user-defined text), 80E-3, 800E-3, 4.0	Specify the vertical range used to begin searching for the Poller tests signal. This value will need to be decreased as the signal gets weaker, i.e. when a greater separation is used.
Configure	Resonance Frequency: Start Frequency	ResFreqStartFreq	(Accepts user-defined text), 10E+6, 11E+6, 12E+6, 13E+6, 14E+6, 15E+6	The start frequency for the sweep range of the resonance frequency test.
Configure	Resonance Frequency: Stop Frequency	ResFreqStopFreq	(Accepts user-defined text), 15E+6, 16E+6, 17E+6, 18E+6, 19E+6, 20E+6	The stop frequency for the sweep range of the resonance frequency test.
Configure	Resonance Frequency: Sweep Time	ResFreqSweepTime	(Accepts user-defined text), 1E-3, 5E-3, 10E-3, 50E-3, 100E-3, 500E-3	The sweep time for the resonance frequency test.
Configure	Resonance Frequency: Transmit Power	ResFreqTxPower	(Accepts user-defined text), -10, -8, -6, -4, -2, 0, 2, 4, 6, 8, 10	The transmit power for the resonance frequency test (in dBm).
Configure	Save Waveform	SaveWaveform	1, 0	Specify whether to save the waveform.
Configure	Scope Timeout	ScopeTimeout	(Accepts user-defined text), 1000, 3000, 5000, 7000, 10000	Time to wait in milliseconds for the signal before the scope times out.
Configure	Smoothing Points for Envelope Waveform	Smoothing	(Accepts user-defined text), 21, 31, 41, 51, 61, 71, 81, 91	Select or enter number of smoothing points for the envelope waveform. This config is only applicable to NFC-A, NFC-B, NFC-F Poller tests and all Listener tests. For NFC-V Poller tests, specify the smoothing point using 'NFC-V Smoothing Points for Envelope Waveform' configurable option.

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Configure	Timebase Setting for Signal Optimization	TimebaseScaleSignalOptimization	(Accepts user-defined text), 500E-9, 50E-6, 500E-6	Specify the timebase scale(s/div) used to acquire signal for initial vertical scaling signal optimization. This option is applicable for NFC-A, NFC-B, NFC-F and NFC-V Poller tests only.
Configure	Trigger Method for Signal Optimization	TriggerMethodSignalOptimization	Nth Edge Burst Trigger Method, NFC-A Trigger Method	Specify the trigger method used to acquire signal for initial vertical scaling signal optimization. This option is applicable for NFC-A, NFC-B, NFC-F and NFC-V Poller tests only.
Configure	Turn AWG Poller output off gently	TurnOffAWGPollerGently	true, false	Specify whether to minimize the AWG output before disabling it and wait until the signal is off before continuing. Only valid if the AWG output state after running tests is Off. The wait for AWG amplitude to decrease is only done on Listener tests.
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	FixtureType	FixtureType	Keysight 3-in-1, NFC-Forum	Select the Antennas Type Select the Antennas Type
Set Up	Listener Type	ListenerType	Listener-1, Listener-3, Listener-6	Select the Listener Type Select the Listener Type
Set Up	ListenerDUTAntennaType	ListenerDUTAntennaType	CAT C, CAT B, CAT A, Tag	Select the Listener DUT Antenna Type Select the Listener DUT Antenna Type
Set Up	PollerType	PollerType	Poller-0, Poller-3, Poller-6	Select the Poller Type Select the Poller Type
Set Up	checkbox3in1Connect	checkbox3in1Connect	0.0, 1.0	Remotely connect the Keysight 3-in-1 Remotely connect the Keysight 3-in-1

Table 2 Configuration Variables and Values (continued)

GUI Location	Label	Variable	Values	Description
Set Up	checkboxAWGConnect	checkboxAWGConnect	0.0, 1.0	Remotely connect the AWG Remotely connect the AWG
Set Up	checkboxScopeConnect	checkboxScopeConnect	0.0, 1.0	Remotely connect the oscilloscope Remotely connect the oscilloscope
Set Up	checkboxTCI2Connect	checkboxTCI2Connect	0.0, 1.0	Remotely connect the TCI-II Remotely connect the TCI-II
Set Up	comboBox3in1Ports	comboBox3in1Ports	0	Drop down combo box for Keysight 3-in-1 port Drop down combo box for Keysight 3-in-1 port
Set Up	comboBoxTCICOMPorts	comboBoxTCICOMPorts		Drop down combo box for TCI-II COM port Drop down combo box for TCI-II COM port
Set Up	textBoxAWGAddresses	textBoxAWGAddress	(Accepts user-defined text)	Select the AWG IP address Select the AWG IP address
Set Up	textBoxScopeAddress	textBoxScopeAddress	(Accepts user-defined text)	Select the Oscilloscope IP address Select the Oscilloscope IP address
Set Up	turnOffAWG	turnOffAWG	0.0, 1.0	Remotely turn off the AWG Remotely turn off the AWG
Set Up	txtDeviceID	txtDeviceID	(Accepts user-defined text)	Optional user defined device ID displayed in the test report. Optional user defined device ID displayed in the test report.
Set Up	txtUserComment	txtUserComment	(Accepts user-defined text)	Optional user comments displayed in the test report. Optional user comments displayed in the test report.

2 Configuration Variables and Values

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
Listener: NFC-A, Parameter: Frame Delay Time(FDT)	10001	The purpose of this test is to ensure that a NFC-A Listening Device works.
Listener: NFC-A, Parameter: Load Modulation Amplitude(LMA) (Specification Version 1.0)	10002	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 1.0
Listener: NFC-A, Parameter: Load Modulation Amplitude(LMA) (Specification Version 2.0)	10006	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 2.0
Listener: NFC-A, Parameter: Number of capture attempts	10004	The purpose of this test is to ensure that a NFC-A Listening Device works.
Listener: NFC-A, Parameter: Response Data	10003	The purpose of this test is to ensure that a NFC-A Listening Device works.
Listener: NFC-A, Parameter: Screen capture	10005	The purpose of this test is to ensure that a NFC-A Listening Device works.
Listener: NFC-B, Parameter: Frame Delay Time(FDT)	10101	The purpose of this test is to ensure that a NFC-B Listening Device works.
Listener: NFC-B, Parameter: Load Modulation Amplitude(LMA) (Specification Version 1.0)	10102	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 1.0
Listener: NFC-B, Parameter: Load Modulation Amplitude(LMA) (Specification Version 2.0)	10106	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 2.0
Listener: NFC-B, Parameter: Number of capture attempts	10104	The purpose of this test is to ensure that a NFC-A Listening Device works.
Listener: NFC-B, Parameter: Response Data	10103	The purpose of this test is to ensure that a NFC-B Listening Device works.
Listener: NFC-B, Parameter: Screen capture	10105	The purpose of this test is to ensure that a NFC-B Listening Device works.
Listener: NFC-F (212 Kbps), Parameter: Frame Delay Time(FDT)	10201	The purpose of this test is to ensure that a NFC-F Listening Device works.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Listener: NFC-F (212 Kbps), Parameter: Load Modulation Amplitude(LMA) (Specification Version 1.0)	10202	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 1.0
Listener: NFC-F (212 Kbps), Parameter: Load Modulation Amplitude(LMA) (Specification Version 2.0)	10206	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 2.0
Listener: NFC-F (212 Kbps), Parameter: Number of capture attempts	10204	The purpose of this test is to ensure that a NFC-F (212 Kbps) Listening Device works.
Listener: NFC-F (212 Kbps), Parameter: Response Data	10203	The purpose of this test is to ensure that a NFC-F Listening Device works.
Listener: NFC-F (212 Kbps), Parameter: Screen capture	10205	The purpose of this test is to ensure that a NFC-F (212 Kbps) Listening Device works.
Listener: NFC-F (424 Kbps), Parameter: Frame Delay Time(FDT)	10301	The purpose of this test is to ensure that a NFC-F Listening Device works.
Listener: NFC-F (424 Kbps), Parameter: Load Modulation Amplitude(LMA) (Specification Version 1.0)	10302	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 1.0
Listener: NFC-F (424 Kbps), Parameter: Load Modulation Amplitude(LMA) (Specification Version 2.0)	10306	The purpose of this test is to ensure that a NFC-A Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 2.0
Listener: NFC-F (424 Kbps), Parameter: Number of capture attempts	10304	The purpose of this test is to ensure that a NFC-F Listening Device works.
Listener: NFC-F (424 Kbps), Parameter: Response Data	10303	The purpose of this test is to ensure that a NFC-F Listening Device works.
Listener: NFC-F (424 Kbps), Parameter: Screen capture	10305	The purpose of this test is to ensure that a NFC-F (424 Kbps) Listening Device works.
Listener: NFC-V, Parameter: Frame Delay Time(FDT)	10401	The purpose of this test is to ensure that a NFC-V Listening Device works.
Listener: NFC-V, Parameter: Load Modulation Amplitude(LMA) (Specification Version 2.0)	10406	The purpose of this test is to ensure that a NFC-V Listening Device works. The Load Modulation Amplitude(LMA) will be measured as per NFC Analog Specification Version 2.0

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Listener: NFC-V, Parameter: Number of capture attempts	10404	The purpose of this test is to ensure that a NFC-V Listening Device works.
Listener: NFC-V, Parameter: Response Data	10403	The purpose of this test is to ensure that a NFC-V Listening Device works.
Listener: NFC-V, Parameter: Screen capture	10405	The purpose of this test is to ensure that a NFC-V Listening Device works.
Poller: NFC-A, Parameter: Data Rate	20014	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Fc	20003	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Frame Delay Time(FDT)	20001	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Modulation Depth	20009	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Modulation Index	20010	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Number of capture attempts	20013	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Overshoot	20011	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Response Data	20012	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Screen capture	20015	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: Vov	20002	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: t1	20004	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: t2	20005	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: t3	20006	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: t4	20007	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-A, Parameter: t5	20008	The purpose of this test is to ensure that a NFC-A Polling Device works.
Poller: NFC-B, Parameter: Data Rate	20110	The purpose of this test is to ensure that a NFC-B Polling Device works.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Poller: NFC-B, Parameter: Fc	20103	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Frame Delay Time(FDT)	20101	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Modulation Depth	20106	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Modulation Index	20107	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Number of capture attempts	20112	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Overshoot	20108	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Response Data	20111	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Screen capture	20113	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Undershoot	20109	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: Vov	20102	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: tf	20104	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-B, Parameter: tr	20105	The purpose of this test is to ensure that a NFC-B Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Data Rate	20210	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Fc	20203	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Frame Delay Time(FDT)	20201	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Modulation Depth	20206	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Modulation Index	20207	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Number of capture attempts	20212	The purpose of this test is to ensure that a NFC-F Polling Device works.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Poller: NFC-F (212 Kbps), Parameter: Overshoot	20208	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Response Data	20211	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Screen capture	20213	The purpose of this test is to ensure that a NFC-F (212 Kbps) Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Undershoot	20209	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: Vov	20202	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: tf	20204	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (212 Kbps), Parameter: tr	20205	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Data Rate	20310	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Fc	20303	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Frame Delay Time(FDT)	20301	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Modulation Depth	20306	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Modulation Index	20307	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Number of capture attempts	20312	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Overshoot	20308	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Response Data	20311	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Screen capture	20313	The purpose of this test is to ensure that a NFC-F (424 Kbps) Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Undershoot	20309	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: Vov	20302	The purpose of this test is to ensure that a NFC-F Polling Device works.

Table 4 Test IDs and Names (continued)

Name	TestID	Description
Poller: NFC-F (424 Kbps), Parameter: tf	20304	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-F (424 Kbps), Parameter: tr	20305	The purpose of this test is to ensure that a NFC-F Polling Device works.
Poller: NFC-V, Parameter: Data Rate	20414	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Fc	20403	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Modulation Depth	20409	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Modulation Index	20410	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Number of capture attempts	20413	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Overshoot	20411	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Response Data	20412	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Screen capture	20415	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: Vov	20402	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: t1	20404	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: t2	20405	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: t3	20406	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: t4	20407	The purpose of this test is to ensure that a NFC-V Polling Device works.
Poller: NFC-V, Parameter: t5	20408	The purpose of this test is to ensure that a NFC-V Polling Device works.
Resonance Frequency Measurement	10	The purpose of this test is to measure the resonance frequency of the DUT.
Resonant Frequency Measurement Screen capture	11	The purpose of this test is to measure the resonance frequency of the DUT.

3 Test Names and IDs

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
33522	33522
InfiniiVision	InfiniiVision

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