



User Guide

980 HDMI Protocol Analyzer

HDMI HDCP 2.2 Compliance Tests

Rev: A5



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1 About the 980 Protocol Analyzer module

This chapter provides an overview of features of the 980 HDMI Protocol Analyzer module and the 980 GUI Manager. The 980 HDMI Protocol Analyzer module is an analyzer for HDMI/MHL source devices. It provides visibility into the HDMI/MHL protocol to help resolve common interoperability problems in HDMI/MHL systems. The 980 GUI Manager is a PC application to manage and use the 980 HDMI Protocol Analyzer module and other 980 modules.

The module can be equipped in either of the 980 Advanced Test Platforms:

- 1) The 980 Advanced Test Platform – 5-slot chassis with a 10.4 inch touch display.
- 2) The 980B Advanced Test Platform – 5-slot chassis with a 15 inch touch display.
- 3) The 980R Advanced Test Platform – 5-slot chassis with a 7 inch touch display.

Note: The module is always equipped in the first slot of the 980 platform from the factory.

The 980 HDMI Protocol Analyzer module is able to parse HDMI streams from source devices with a TMDS clock and pixel clock up to 300MHz.



1.1 What makes the 980 HDMI Protocol Analyzer Module Unique?

The 980 HDMI Protocol Analyzer module for HDMI or MHL source devices provides full visibility into the protocol, timing, control and auxiliary data. It captures and decodes encrypted or unencrypted metadata (audio sample, inframes and other data packets) as well as DDC transactions and CEC messages (C-Bus transactions for MHL).

Competitive “analyzers” available on the market are more limited because they utilize commercial silicon chips. The 980 HDMI Protocol Analyzer module uses a proprietary solution and therefore can provide much greater visibility into the protocol, timing and control data. The competitive “analyzers” support some of the 980 HDMI Protocol Analyzer features but not nearly all of them. They support functional testing but not true interoperability

testing. Functional test “analyzers” often support only real time monitoring. The 980 module supports capture, store and analysis as well as Real Time monitoring.

For these same reasons, the 980 HDMI Protocol Analyzer module can support all of the tests in the HDMI and MHL source protocol compliance test specification. Functional test instruments cannot. For example, the 980 HDMI Protocol Analyzer supports all the source Protocol tests in Test 7-17 of the HDMI Compliance Test Specification and the Basic Protocol source tests in the section 3.2.2.2 in the MHL Compliance Test Specification related to control periods, preamble and guard bands. Similarly the 980 HDMI Protocol Analyzer module can measure the audio sample rate precisely and therefore measure audio jitter correctly. Functional test instruments cannot support these tests correctly.

1.2 Scope of this User Guide

This User Guide provides descriptive and procedural information on the HDMI HDCP 2.2 compliance test option. Although you can run the compliance tests through the 980 HDMI Protocol Analyzer’s “embedded GUI,” all the examples used in the procedures in this document are taken from the external standalone PC 980 GUI Manager. The procedures are identical between the embedded GUI running through the 980 front panel display and the external standalone PC application but the look and feel is slightly different.

The following is a list of the User Guides available for the 980 systems:

- 980 HDMI Protocol Analyzer Gen 3 System – Covers source analysis testing for HDMI and MHL source devices as well as various transmitter features. This user guide is specifically for the functions of the 980 HDMI Protocol Analyzer Gen 3 system sold through 2012.
- 980 Advanced Test Platform Quick Start Guide – This Quick Start Guide covers startup procedures for the 980/980B platform. Used in conjunction with the 980 HDMI Protocol Analyzer Module User Guide for purchases in 2013.
- 980 HDMI Protocol Analyzer module – Covers source analysis testing for HDMI and MHL source devices as well as various transmitter features. This user guide is specifically for the functions of the 980 HDMI Protocol Analyzer module equipped in one of the 980 Advanced Test Platform slots (980 Gen 3 or 980B). Used in conjunction with the 980 Advanced Test Platform Quick Start Guide.
- 980 HDMI Protocol Analyzer HDMI/MHL Source Compliance Test – Covers source compliance testing for both MHL and HDMI sources. These compliance test applications are provided by the 980 HDMI Protocol Analyzer module or the 980 HDMI Protocol Analyzer Gen 3 system. Used in conjunction with the 980 Advanced Test Platform Quick Start Guide.
- 980 HDMI Protocol Analyzer HDMI/MHL Sink Compliance Test – Covers sink compliance testing for both MHL and HDMI sinks (and MHL dongles). These compliance test applications are provided by the 980 HDMI Protocol Analyzer module or the 980 HDMI Protocol Analyzer Gen 3 system. Used in conjunction with the 980 Advanced Test Platform Quick Start Guide.
- 980 MHL CBUS Compliance Test Module - Covers MHL CBUS compliance testing for both MHL sources as well as sinks and dongles. This compliance test applications are provided by the 980 CBUS Compliance Test module. Used in conjunction with the 980 Advanced Test Platform Quick Start Guide.
- 980 HDMI Video Generator module – Covers the features and functions offered by the 980 HDMI Video Generator module. Used in conjunction with the 980 Advanced Test Platform Quick Start Guide.

- 980 HDMI Protocol Analyzer HDMI HDCP Source Compliance Test – Covers HDMI HDCP compliance tests on source devices. These compliance test applications are provided by the 980 HDMI Protocol Analyzer module.
- 980 HDMI Protocol Analyzer HDMI HDCP 2.2 Compliance Test (This User Guide) - Covers HDMI HDCP compliance tests on source and sink devices. These compliance test applications are provided by the 980 HDMI Protocol Analyzer module.

1.3 Changes to this User Guide

The following updates have been added to the HDMI compliance test descriptions and procedures:

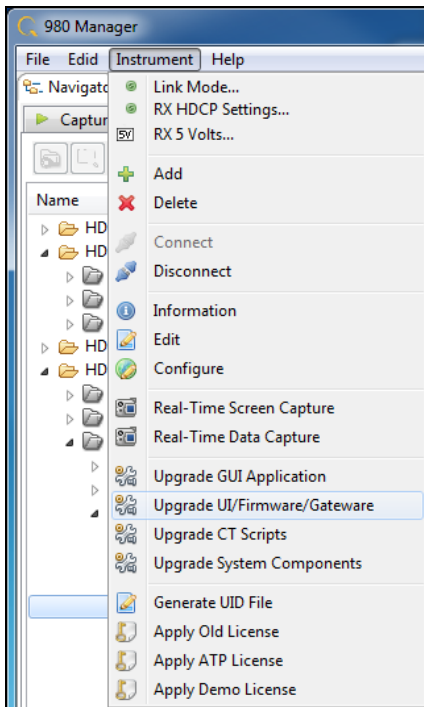
- Updated to remove need to issue physical hot plug during sink and repeater test procedures.

Note: Please be sure to check the Quantum Data website for updates to this User Guide.

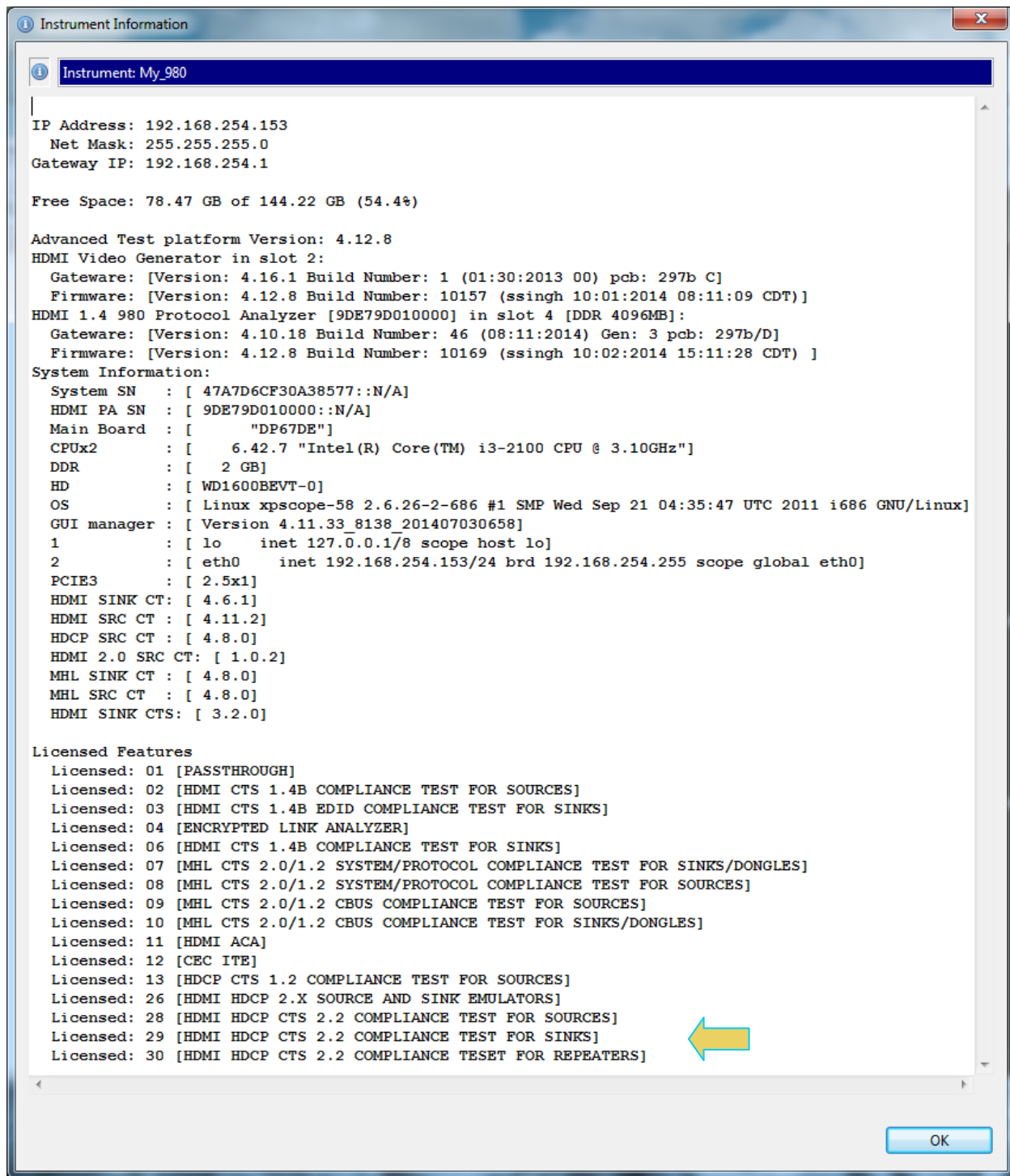
1.4 What options are available with the 980?

The 980 offers four options that you can purchase with the 980 HDMI Protocol Analyzer module. You must have a license to use these optional features: 1) Encrypted Link Analyzer mode for monitoring encrypted data between an HDMI source and sink device. 2) HDMI Source Compliance tests in accordance with HDMI 1.4 CTS Sections 7.4 through 7.8. 3) EDID Compliance test in accordance with Sections 8.2 and 8.5 of the HDMI 1.4 CTS. 4) HDMI Sink Compliance tests in accordance with HDMI 1.4 CTS Sections 8.2 and 8.4 through 8.8. 5) MHL Source Compliance tests in accordance with MHL 1.2 & 2.0 CTS Section 3. 6) MHL Sink Compliance tests in accordance with MHL 1.2 & 2.0 CTS Section 4. 7) HDMI HDCP Source Compliance test in accordance with HDCP 1.2 CTS. 8) HDMI HDCP 2.2 Source and Sink Emulators for HDMI 1.4b HDCP 2.2 functional test in accordance with HDCP 2.2 CTS. 9) HDMI HDCP 2.2 Source Compliance test in accordance with HDCP 2.2 CTS, 10) HDMI HDCP 2.2 Sink Compliance test in accordance with HDCP 2.2 CTS, 11) HDMI HDCP 2.2 Repeater Compliance test in accordance with HDCP 2.2 CTS.

You can determine what options the 980 is provisioned with by looking at the label on the bottom of the 980 or by accessing the **Instrument** Information screen on either the built-in or external 980 GUI manager. You will need to access the **Instrument** Information panel through embedded 980 GUI Manager as shown below.



The information is then displayed in a separate window. The information on the **Instrument Information** window will provide you with the information about what options are supported and will also be helpful if you call Quantum Data customer support during an upgrade process.



1.5 980 User Interface

The 980 Protocol Analyzer module provides a graphical user interface for operation. This GUI can run both on the 980 itself through the built-in color touch screen display or as a standalone application running on a PC. The look and feel and functions are similar but not identical.

1.5.1 External 980 GUI Manager

The external 980 GUI Manager provides easy access to the captured data on your PC for sharing with others. Also the external 980 GUI Manager enables you to operate the 980 HDMI Protocol Analyzer through a larger interface which allows you to use multiple panels at the same time.

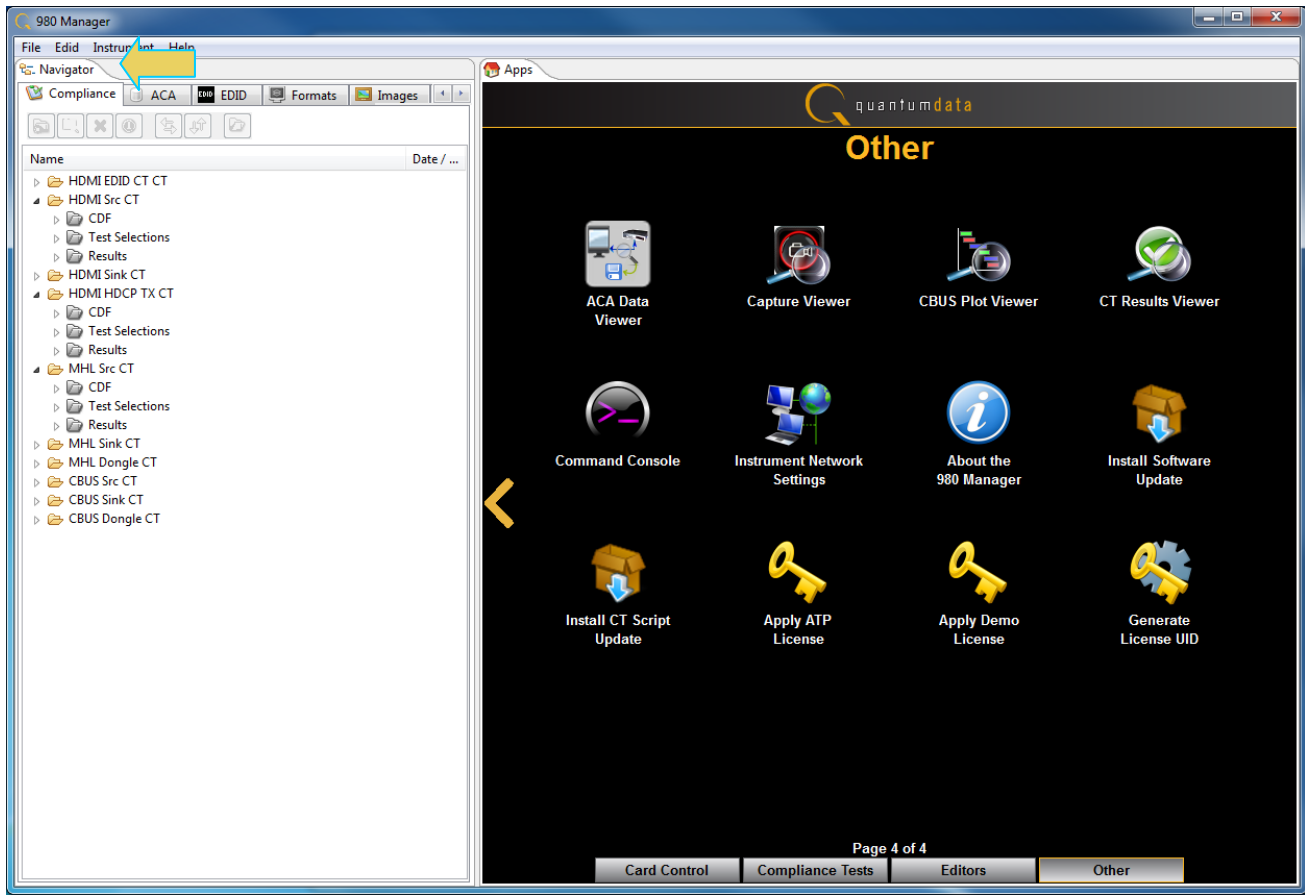
1.5.2 Embedded 980 GUI Manager

You can operate the 980 HDMI Protocol Analyzer module fully through the built-in color touch screen display. In addition to the basic operation of the 980 HDMI Protocol Analyzer module the touch screen display GUI there are two key features that are only available in the embedded 980 GUI Manager GUI: 1) viewing the video in real time, 2) viewing the MHL video/audio metadata and DDC (MHL C-Bus) transactions in real time using the **Real Time** mode. You can view the incoming video from a source even when encrypted with HDCP content protection. The ability to view the incoming video also enables you to control the menus of the HDMI and MHL source device to ensure that it is in the correct mode. The built-in GUI also enables you to view the HDMI and MHL video metadata and DDC and MHL C-Bus transactions in real time, as they are being captured, using the **Real Time** mode.

You can transfer data captures taken from the built-in touch display to your PC where they can be viewed through the external 980 GUI Manager and also disseminated to others for analysis.

1.5.3 Embedded 980 GUI Manager and External GUI Manager layout differences

Aside from the “Real Time” mode using the receiver there are a few other differences in the layouts between the embedded 980 GUI Manager and the External 90 GUI Manager. The primary difference is the Navigator panel which enables you to access the data elements and test results from an instrument. In the External 980 GUI Manager, the **Navigator** panel is always present on the left side of the 980 GUI Manager application window as shown below.



In the Embedded 980 GUI Manager, the **Navigator** panel must be opened. You can access it either from the Other Page of the Apps window, refer to the first screen example below or you can access the Navigator from the Real Time window as shown in the second screen example. Finally you can also access the Navigator from any window in the embedded GUI using the activation key at the bottom of any screen as shown below.

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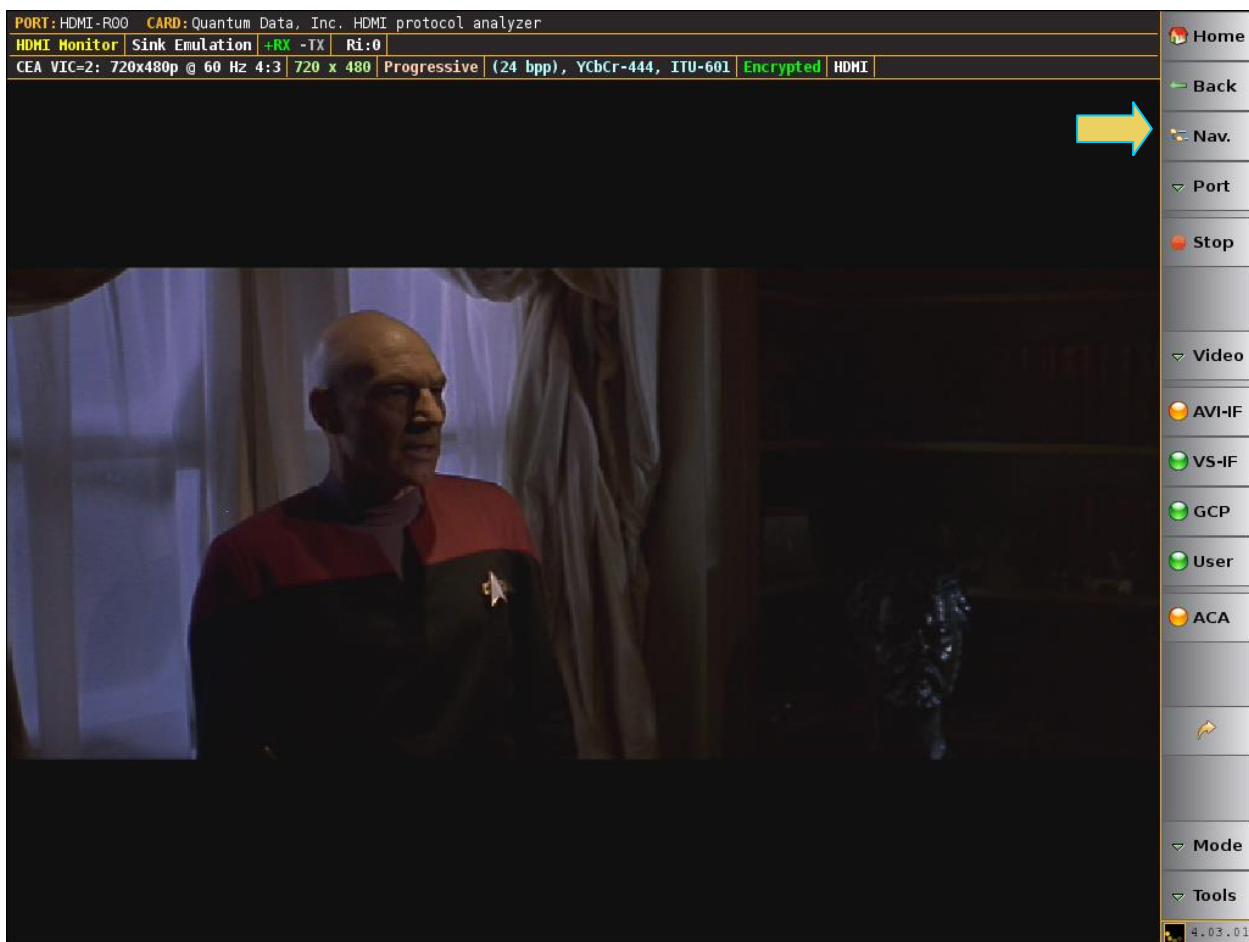
Other

- Navigator
- Capture Viewer
- CBUS Plot Viewer
- CT Results Viewer
- Command Console
- Instrument Network Settings
- About the 980 Manager
- Calibrate the LCD
- Apply ATP License
- Apply Demo License

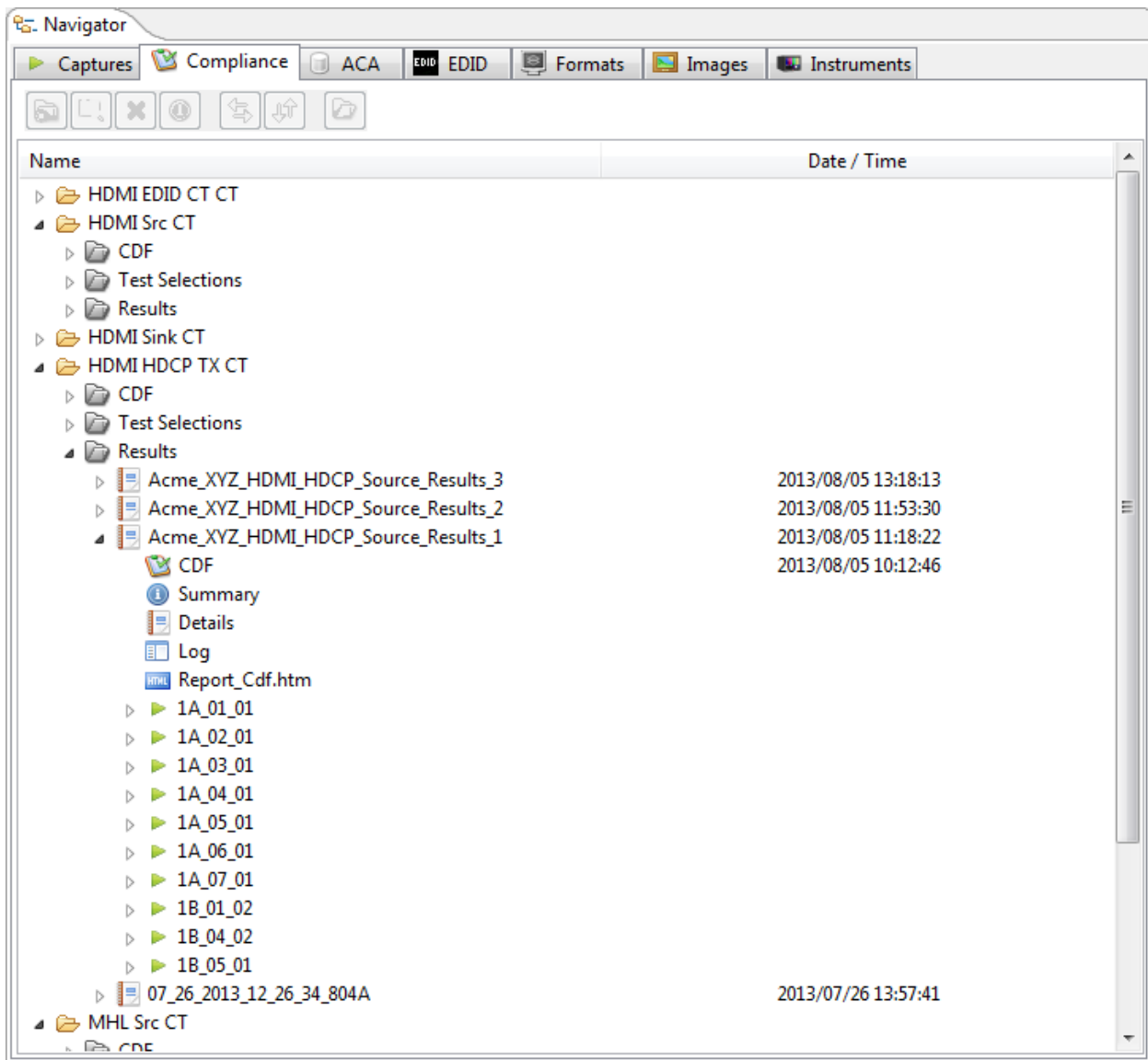
Page 4 of 4

Card Control | Compliance Tests | Editors | **Other**

Back | Navigator | DHCP: 192.168.254.160 | ATP Version: 4.8.15 (3 cards detected) | [Close]



When you access the **Navigator** it will appear in the window as shown below.



1.6 What kinds of data does the 980 Protocol Analyzer module allow you to view?

By providing visibility into the HDMI and MHL protocol, metadata, video, audio and auxiliary data, the 980 HDMI Protocol Analyzer module enables you to detect changes and identify anomalies in the HDMI or MHL signal. The following is a list of the data types you can view (currently):

- Video
 - Timing parameters
 - Pixel values
- Protocol Data
 - Guard band
 - Preamble
- Data Islands, including:
 - Inframes (AVI, Audio, Source Product Descriptor, etc.)

- General Control Packet (GCP)
- Audio Clock Regeneration (ACR)
- Audio Sample Packet Header including Channel Status Blocks
- Hot plug events
- DDC, C-Bus (MHL) transactions, including:
 - HDCP
 - EDID
- Control data (vsync, hsync, encryption enable)
- HDMI CEC transactions
- HDMI Audio Return Channel (ARC) data

2 Getting Started

Please refer to the *980 Advanced Test Platform Quick Start Guide* for detailed Getting Started Procedures. This Quick Start Guide is available on the Quantum Data Downloads page or the 980 product pages.

3 HDMI HDCP 2.2 Source Compliance Tests

This chapter describes how to use the *optional* HDMI HDCP 2.2 source compliance test feature of the 980 HDMI Protocol Analyzer module. Please note you will have to purchase the HDCP 2.2 Compliance Test for Sources license in order to run these tests.

The 980 supports the following test sections in the HDMI HDCP 2.2 Compliance Test specification:

- Transmitter Downstream w/Receiver) w/HDMI Capable Receiver
 - 1A-01: Regular Procedure: With previously connected Receiver (with stored Km)
 - 1A-02: Regular Procedure: With newly connected Receiver (without stored Km)
 - 1A-03: Regular Procedure: Receiver disconnect after AKE_Init
 - 1A-04: Irregular Procedure: Receiver disconnect after Km
 - 1A-05: Regular Procedure: Receiver disconnects after locality check.
 - 1A-06: Regular Procedure: Receiver disconnects after Ks
 - 1A-07: Regular Procedure: Receiver sends REAUTH_REQ after Ks.
 - 1A-08: Irregular Procedure: Rx Certificate not received.
 - 1A-09: Irregular Procedure: Verify Receiver Certificate.
 - 1A-10: Irregular Procedure: SRM.
 - 1A-11: Irregular Procedure: Invalid H'.
 - 1A-12: Irregular Procedure: Pairing Failure.
 - 1A-13: Irregular Procedure: Locality Failure.
- Transmitter w/ Downstream Repeater
 - 1B_01 Regular Procedure: With Repeater.
 - 1B_02 Irregular Procedure: Timeout of Receiver ID list.
 - 1B_03 Irregular Procedure: Verify V'.
 - 1B_04 Irregular Procedure: MAX_DEVS_EXCEEDED.
 - 1B_05 Irregular Procedure: MAX_CASCADE_EXCEEDED.
 - 1B_06 Irregular Procedure: Incorrect seq_num_V
 - 1B_07 Regular Procedure: Re-authentication on HDCP_HPD.
 - 1B_08 Regular Procedure: Re-authentication on REAUTH_REQ.
 - 1B_09 Irregular Procedure: Rollover of seq_num_V
 - 1B_10 Irregular Procedure: Failure of Content Stream Management

3.1 Workflow for running the HDMI HDCP 2.2 Source Compliance Tests

The following is the high level workflow for running the HDMI HDCP 2.2 Source Compliance Tests. This workflow assumes that you have powered up the 980 and established an Ethernet session with the 980 as described in [Connection for 980 GUI Manager and 980](#).

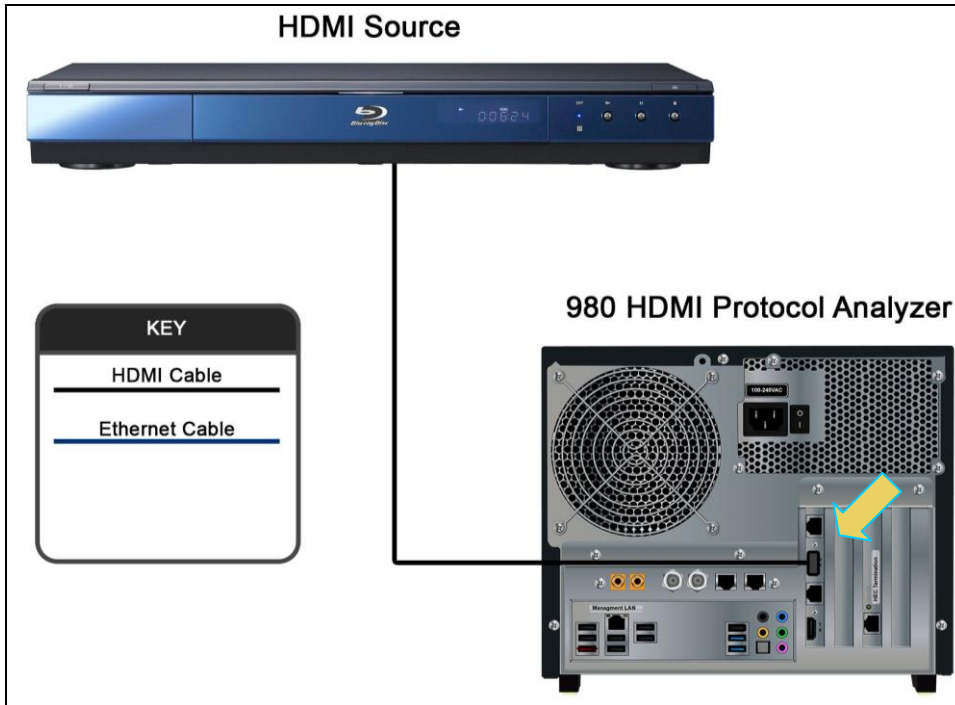
The following is the high level workflow for running the HDMI HDCP 2.2 Source Compliance Tests.

1. Connect the source device under test to the 980 HDMI Protocol Analyzer module via HDMI.
2. Activate HDCP 2.2 in the source device under test.
3. Set the monitor mode properly to HDMI and Sink Emulation.
4. Enable HDCP 2.2 in the 980 HDMI Protocol Analyzer module.
5. Complete (or load an existing) Capabilities Declaration Form (CDF) for the device under test using the **CDF Entry** panel.
6. Select the tests that you wish to run from the **Test Selection** panel.
7. Initiate the tests through the **Test Options / Review** panel.
8. View the detailed data for test failures if failures occur.

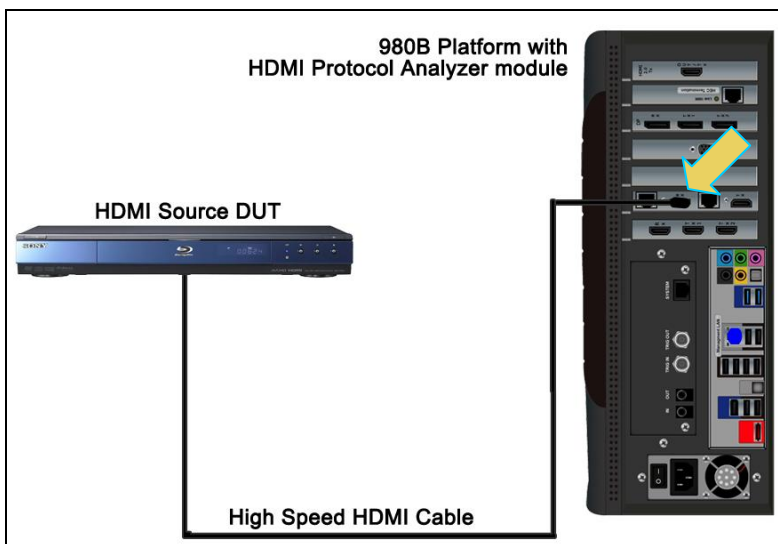
- View the results in the **Test Results** panel under the **Navigator** panel.

3.2 Making the HDMI connections

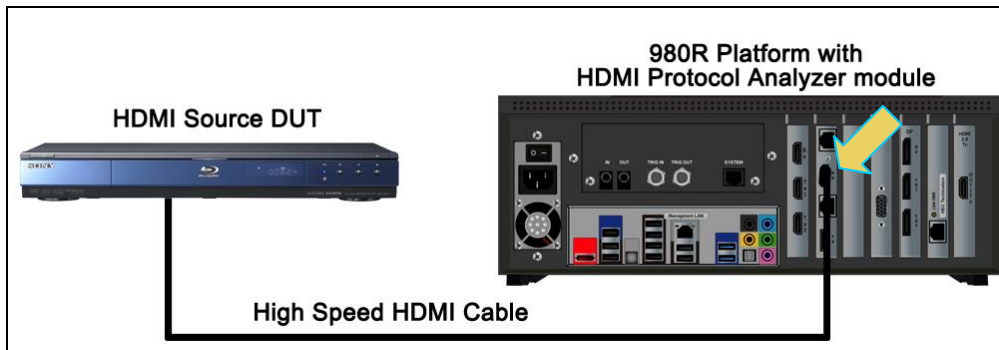
This procedure describes how to establish an HDMI connection between the HDMI source device under test and the 980. This procedure assumes that you have assembled the 980 and source device under test and applied power to all these devices. Refer to the procedures and diagram below.



HDMI connection for source compliance test – 980 Rev D Protocol Analyzer module



HDMI connection for source compliance test – 980B



HDMI connection for source compliance test – 980R

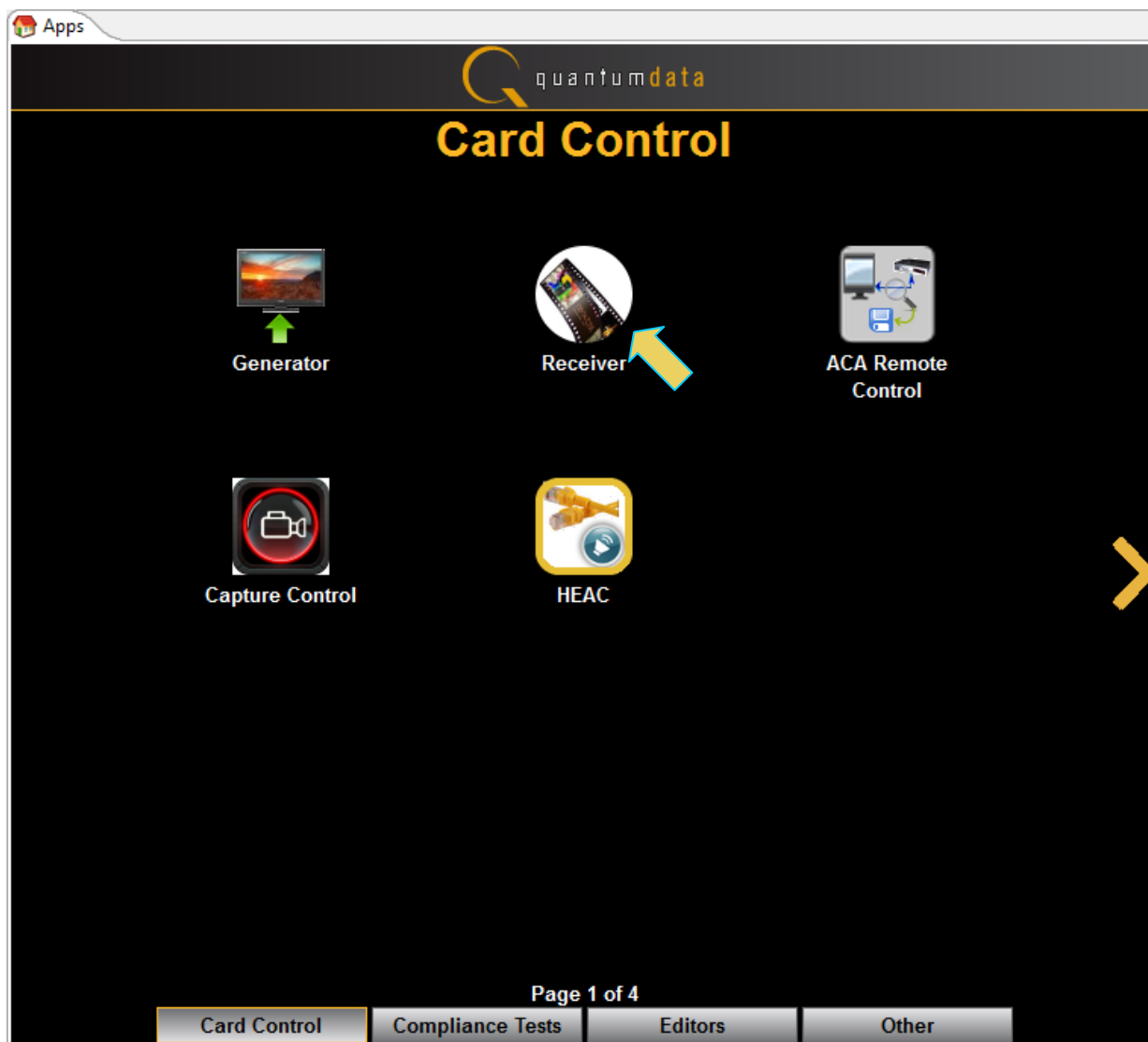
1. Connect your HDMI source device under test to the HDMI Rx connector (the top most HDMI connector shown in the figure below) on the 980 HDMI Protocol Analyzer module. Use a high speed HDMI cable.

3.3 Setting the Link mode and the HDMI mode

Use the following procedures to set the 980 HDMI Protocol Analyzer to the HDMI mode and set the link mode to Sink Emulation. These procedures assume that you are using the external 980 GUI. Exceptions will indicate different screens for the embedded GUI.

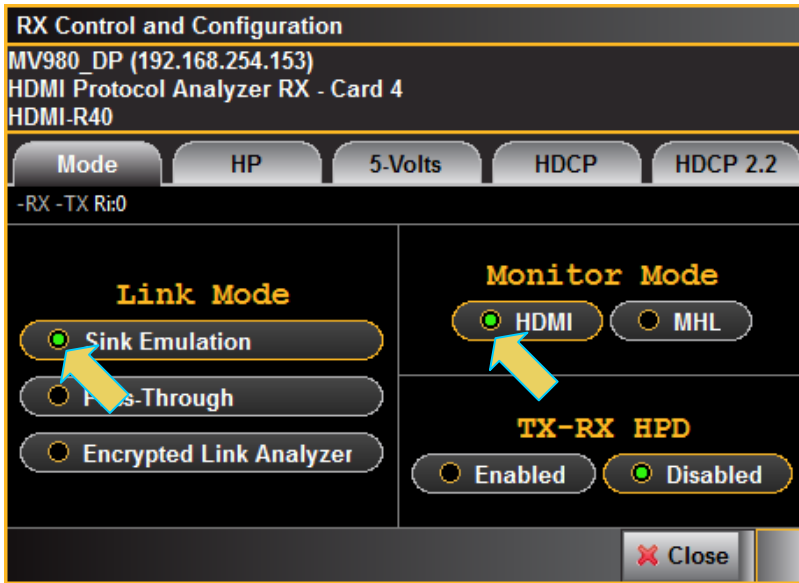
To set the 980 mode to HDMI and the Link Mode to Sink Emulation:

1. From the **Card Control** window, select **Receiver**.

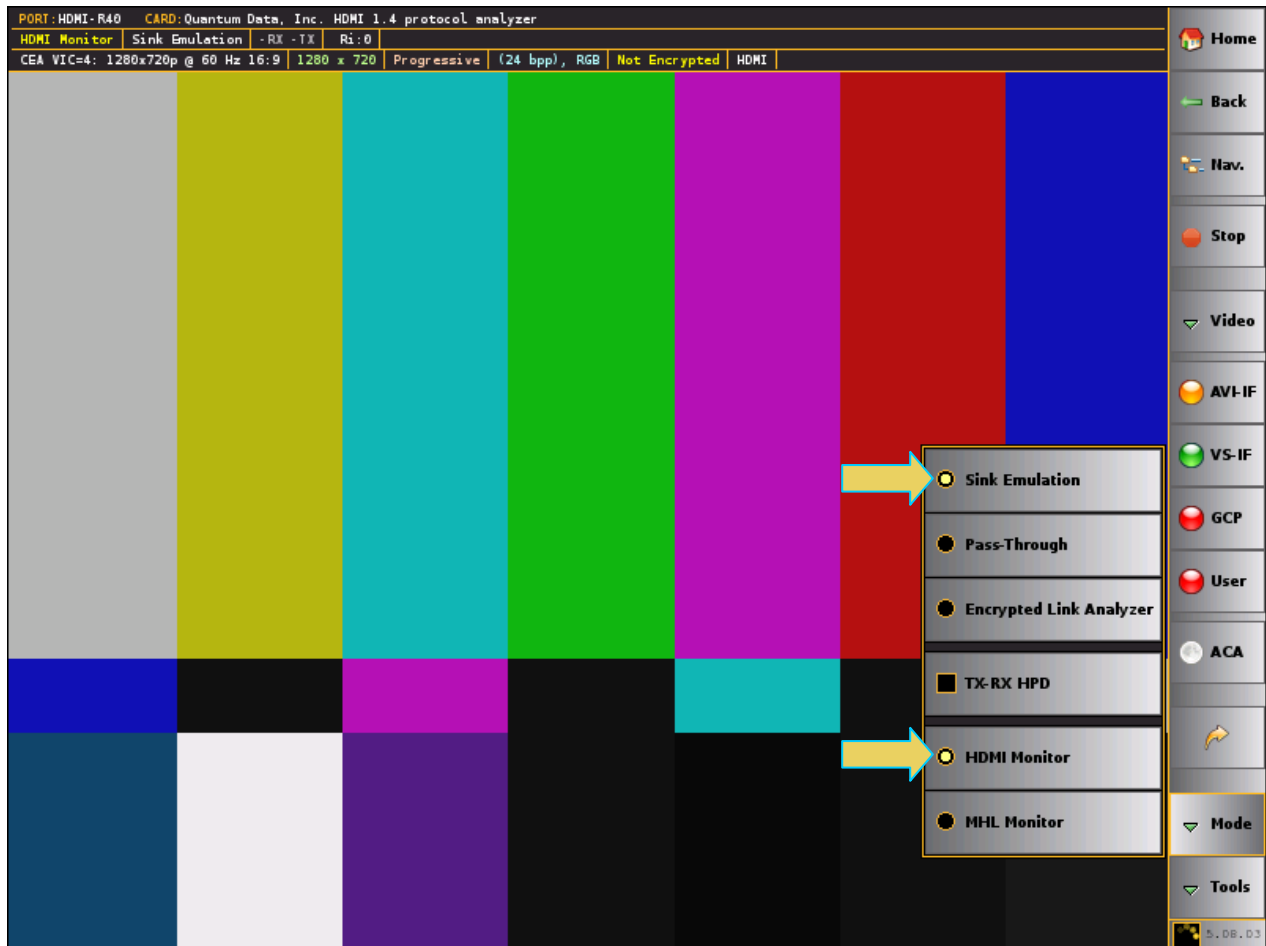


The **Rx Control and Configuration** dialog box appears.

From the **Rx Control and Configuration** dialog box, select the **Mode** tab and then select HDMI as the mode and select Sink Emulation as the Link mode.



2. If you are using the embedded GUI, Select the **Mode** flyout menu on the lower right of the Real Time window as shown below. Then select the **HDMI Monitor** radio button and the **Sink Emulation** radio button. Refer to the screen example below.

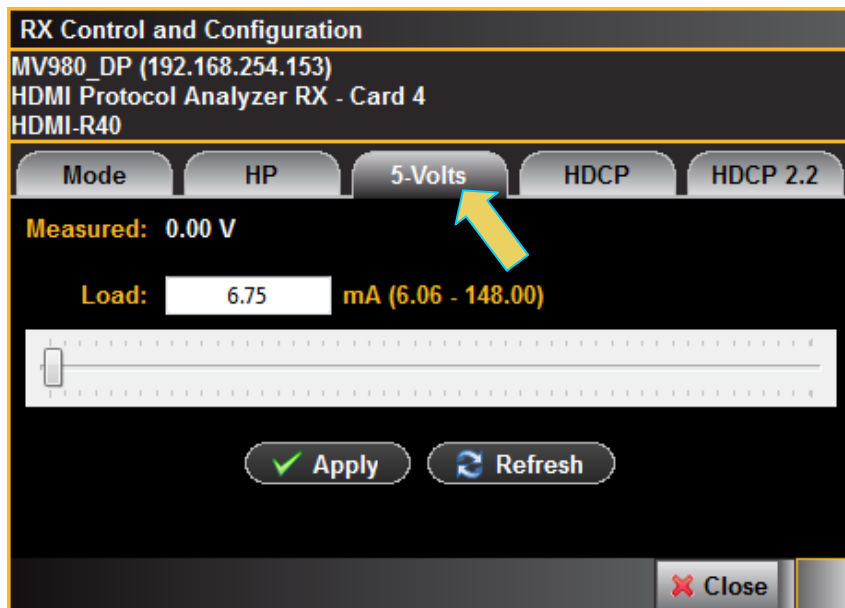


The Link Mode menu will show HDMI (or MHL accordingly) as the Link Mode.

3.4 Setting the +5V levels

The 980 enables you to view the +5V levels from the source device under test and to set the current load on the +5V lead.

1. Select the **RX 5 Volts...** item from the **Instrument** pull-down menu on the built-in front panel as shown below.



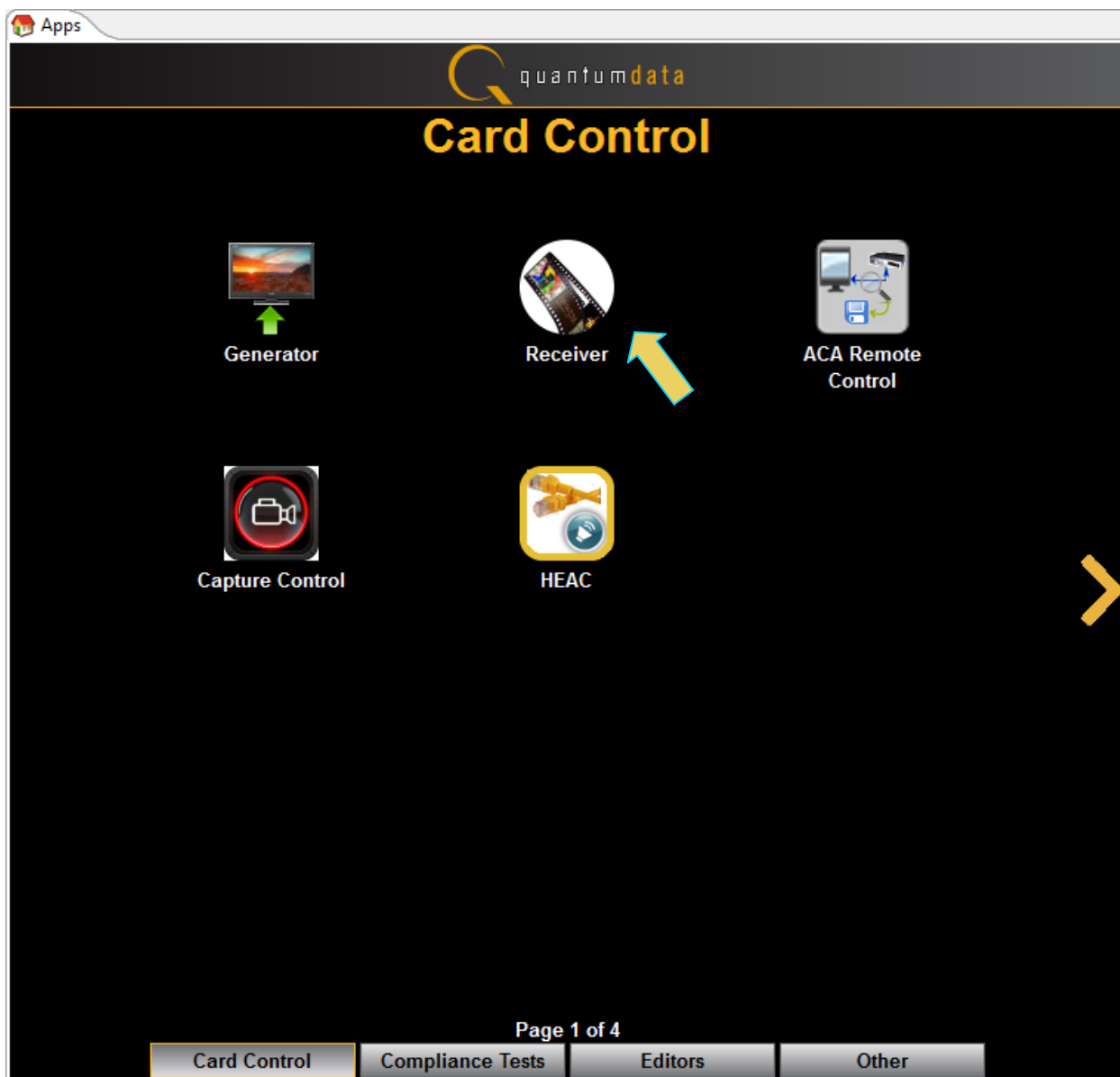
The RX 5V Status/Configuration dialog box is displayed as shown below.

2. Note the current Measured 5V level (4.98 in the example above).
3. Select the Threshold Level using the upper slidebar (0.0 to 5.3V). Be sure to select the **Apply** button. Then hit **Refresh** to view the new value. You may wish to lower the threshold to enable testing of a source whose 5V level is too low. If you specify a threshold higher than the voltage detected there will be no effect on the ability to test.
4. Select the current Load using the lower slidebar provided. Increasing the current load will cause the detected voltage to fall. Be sure to select the **Apply** button. Then hit **Refresh** to view the new value.

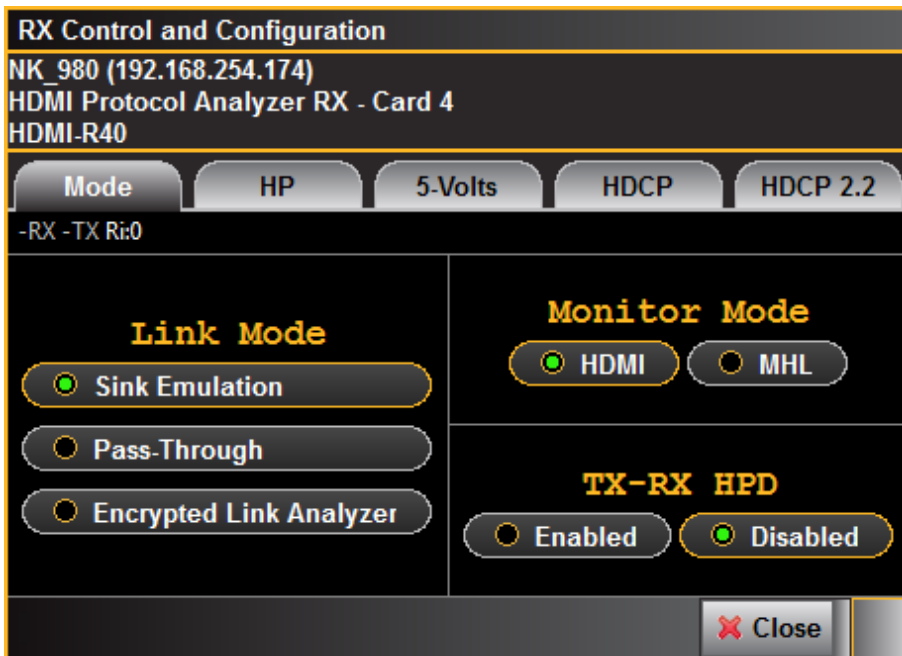
3.5 Enabling HDCP 2.2 on Protocol Analyzer's Rx Port

The 980 Protocol Analyzer module's Rx port has to be configured to respond to HDCP 2.2 authentication from a source. Use the following procedure to enable HDCP 2.2 authentication in the 980 Protocol Analyzer module. You can enable HDCP 2.2 on the Protocol Analyzer receiver either through the embedded 980 GUI or the external 980 GUI. The following procedures assume you are using the external GUI but exceptions are provided instructing you how to enable HDCP 2.2 through the embedded GUI.

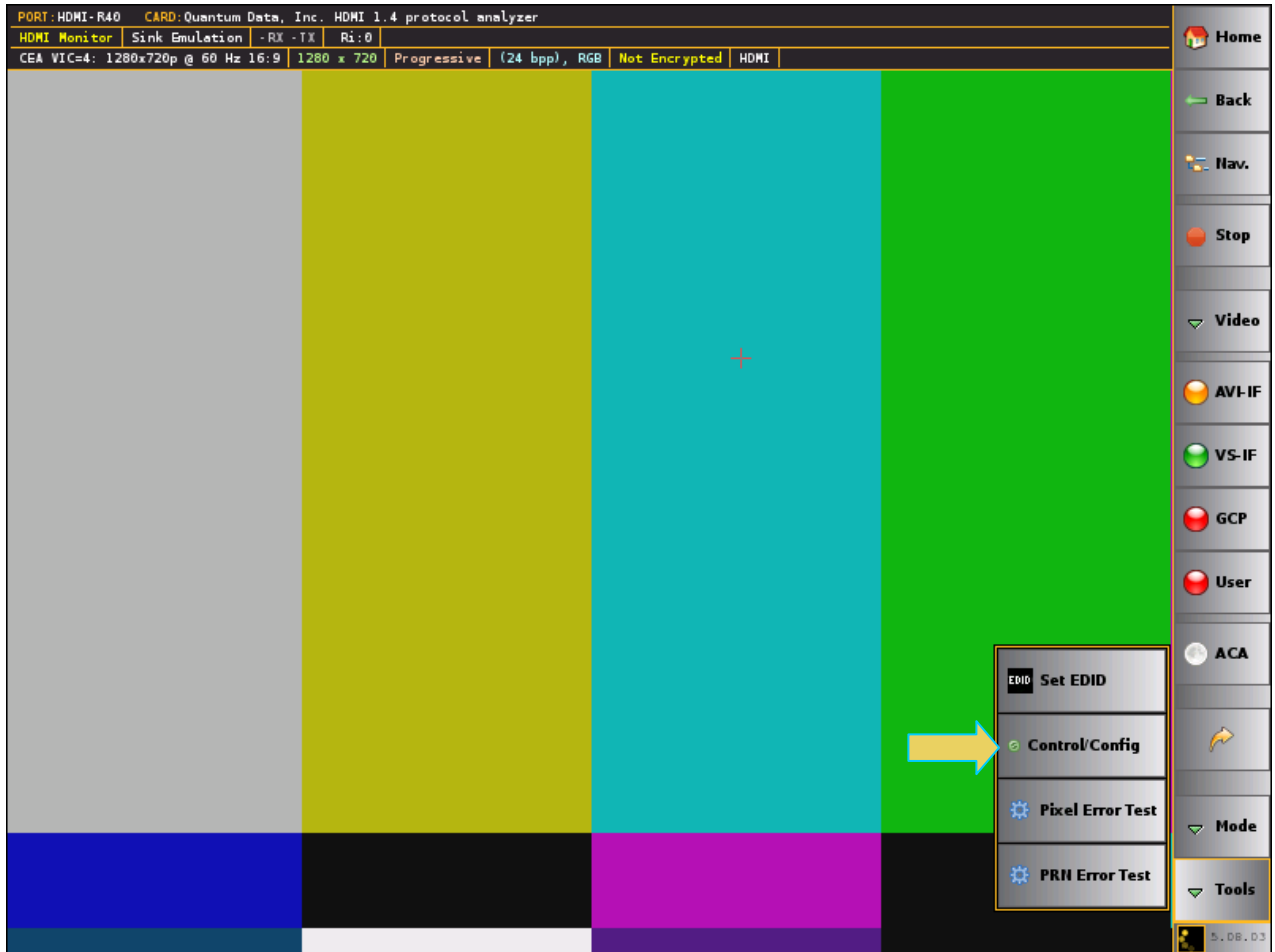
1. From the **Card Control** window, select **Receiver**. Refer to the screen example below.



The Rx Control and Configuration dialog box appears as shown below.

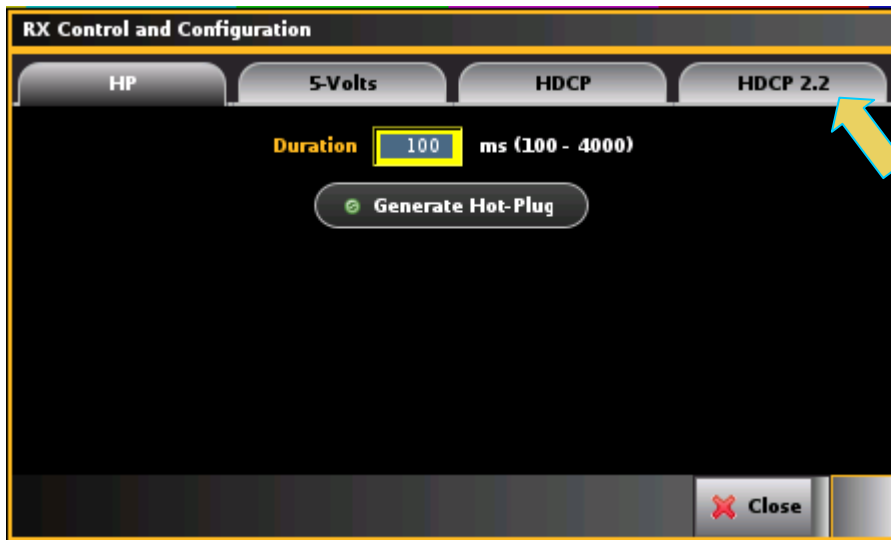


If you are working from the embedded 980 GUI, the Real Time screen will appear and you will have to select the **Tools** button on the lower right. Refer to the following screen examples for the workflow using the embedded 980 GUI.



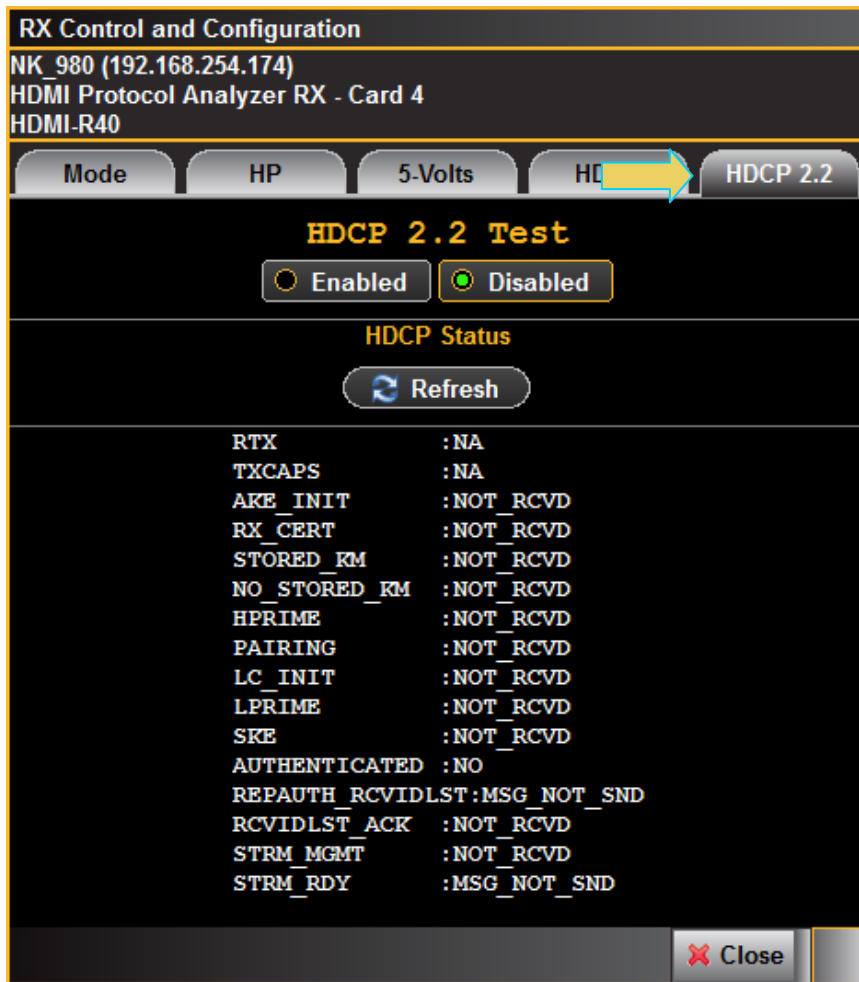
2. From the embedded GUI Real Time window, select the **Control/Config** item as shown above.

The **Control and Configuration** dialog box appears as shown below.



3. Select the **HDCP 2.2** tab indicated in the screen example above.

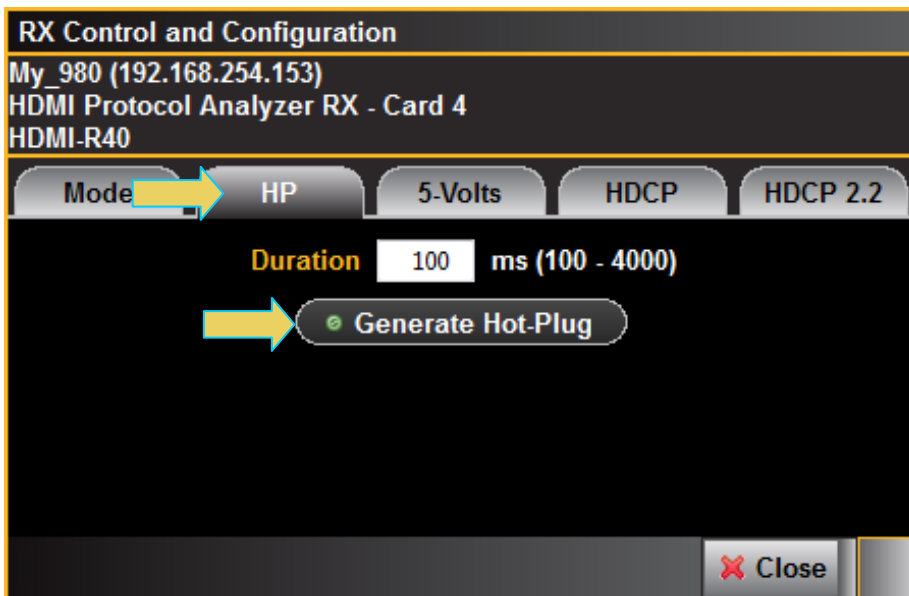
Refer to the following screen example.



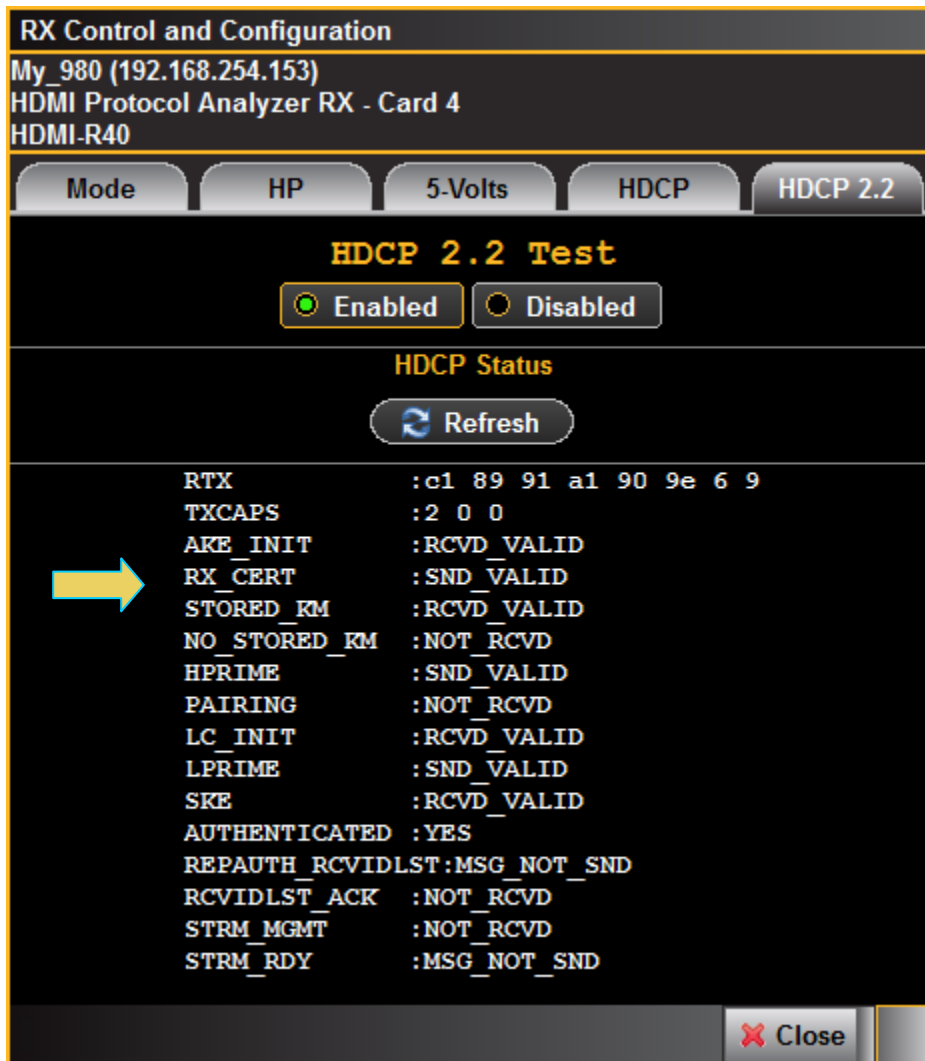
4. Enable HDCP 2.2 by clicking on the **Enabled** radio button as shown below.



5. Select the **HP** tab and generate a hot plug. Refer to the screen example below.



6. Return to the **HDCP 2.2** tab and click on **Refresh** to view the status of the HDCP 2.2 authentication. Refer to the screen example below.



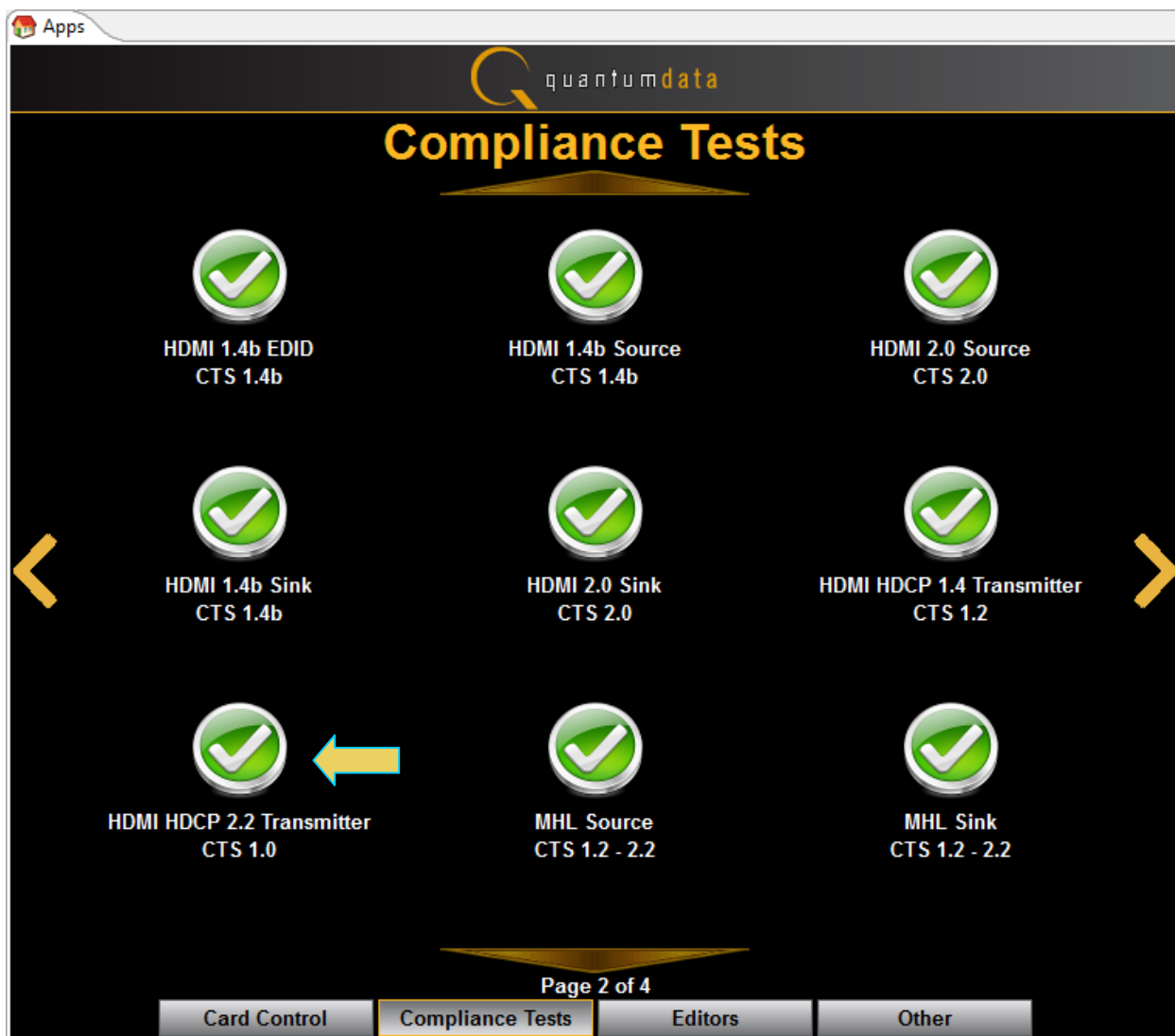
HDCP 2.2 is now active.

3.6 Completing the HDCP 2.2 Source Capabilities Declaration Form (CDF)

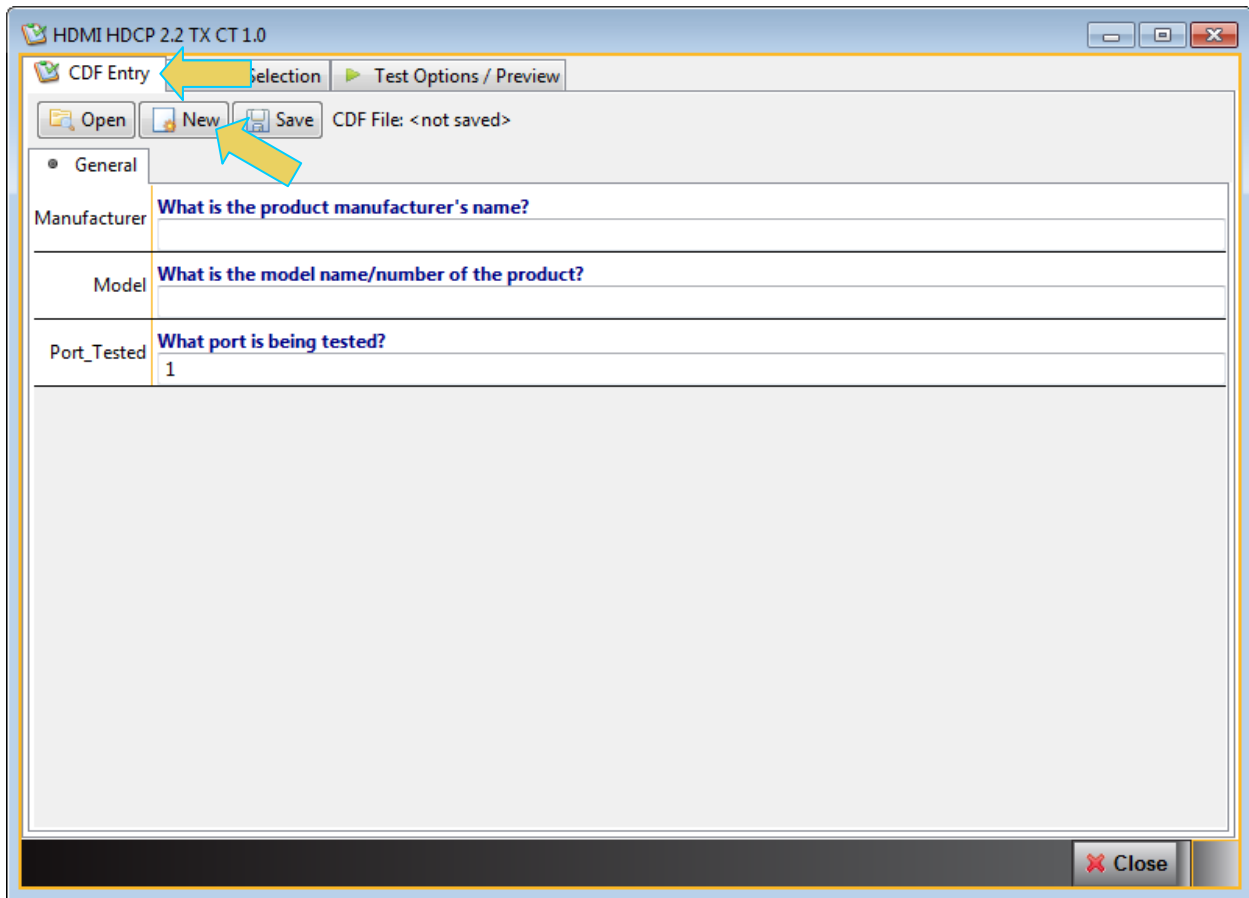
Use the following procedures to complete the CDF for the HDMI source compliance tests.

To complete the CDF:

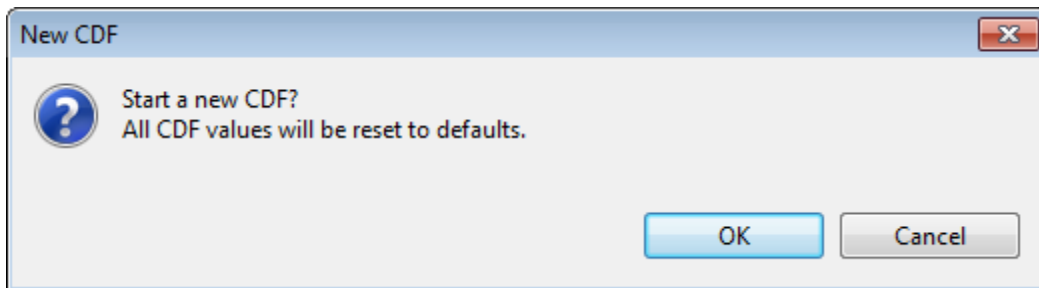
1. From the **Compliance Tests** page of the **Apps** panel, enable viewing of the **HDMI HDCP Source Compliance Test**.



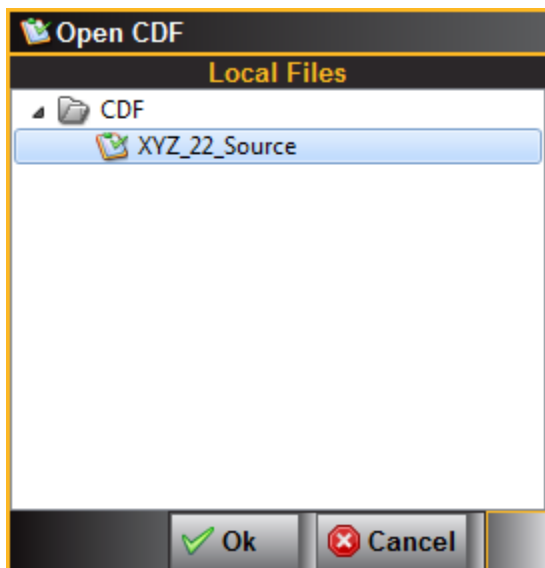
2. Select the **CDF Entry** panel as shown below.



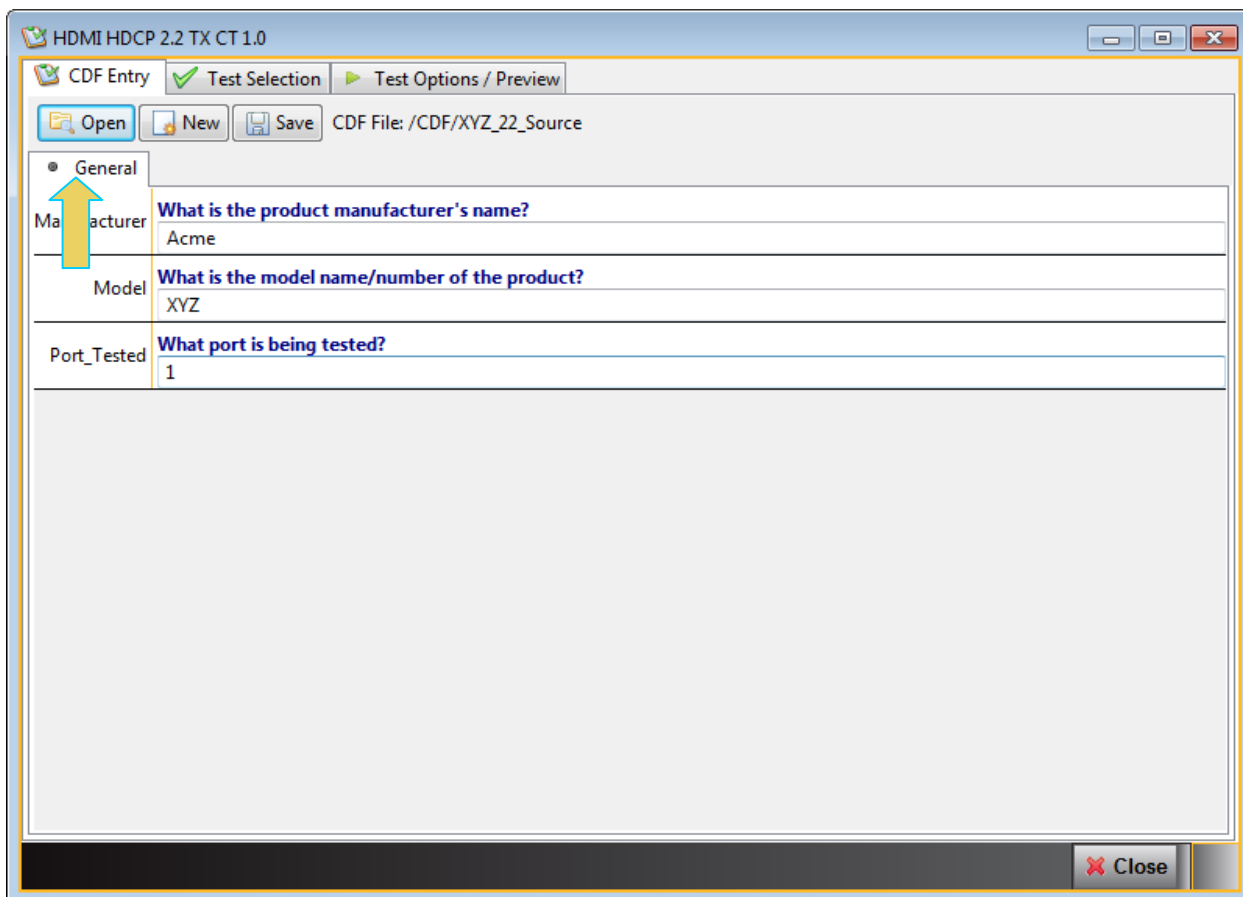
- To create a new CDF, click on the **New** activation button as can be seen in the screen example above. You will be prompted with a confirmation that you want to start a new CDF and reset the values. Click **OK** to proceed.



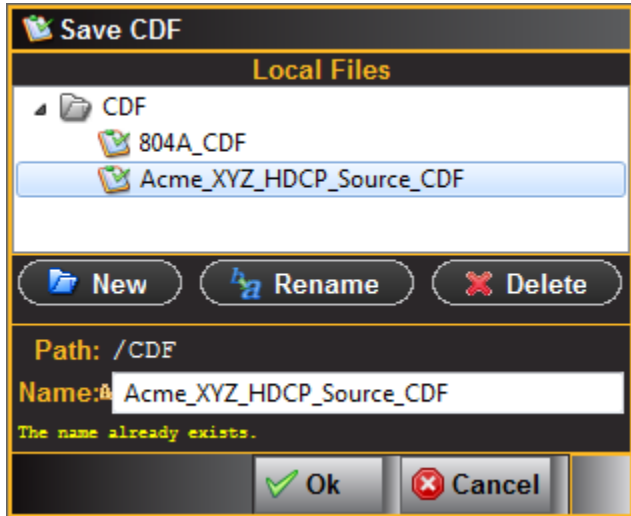
- To open an existing CDF, click on the **Open** activation button. You will be prompted with a dialog box that enables you to open a CDF. Select a CDF and then **OK** to proceed.



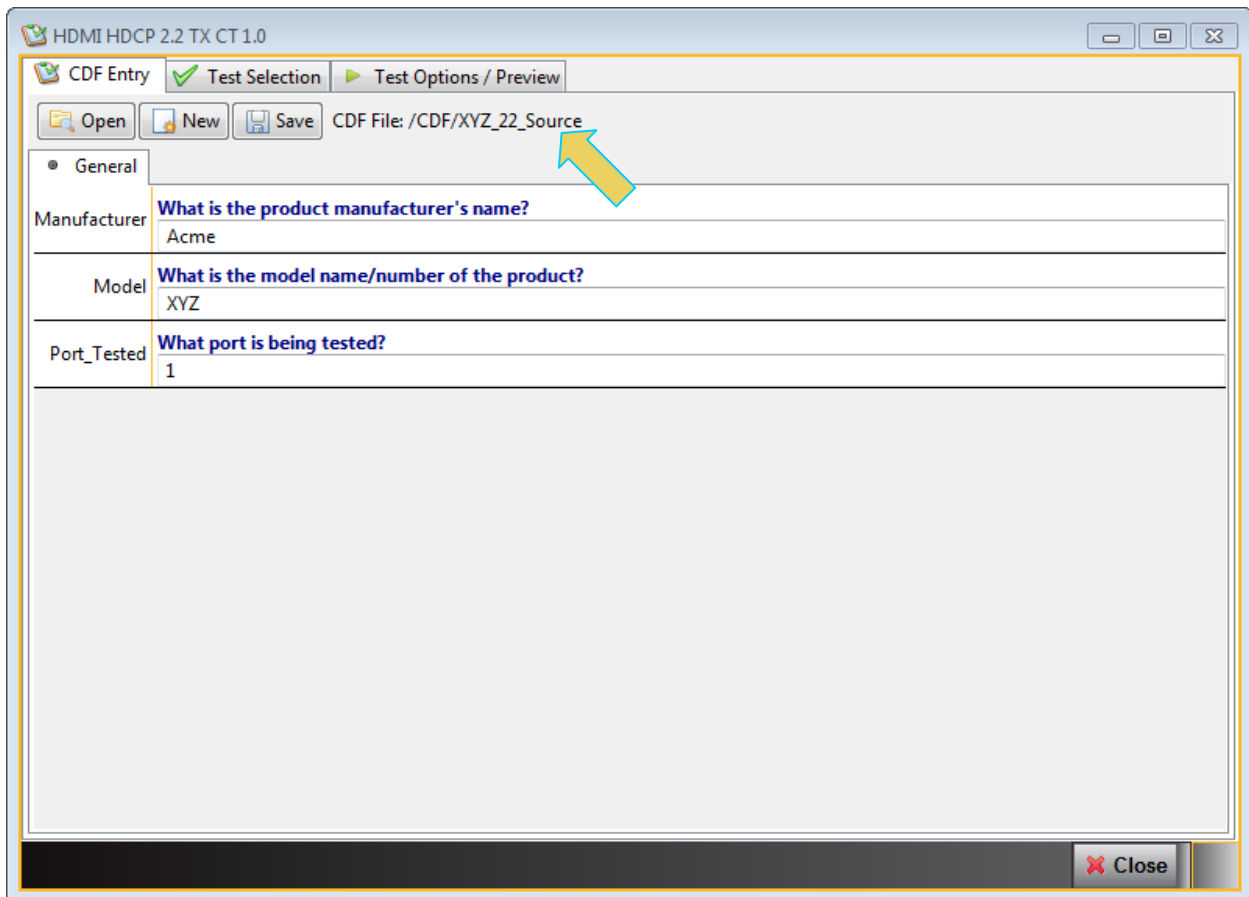
5. Complete the items in the **Products** tab of the CDF Entry panel shown below.



6. Save the CDF. A confirmation box with a default name will appear as shown below. Edit the name if necessary and click OK.



CDF name in use is shown on panel.

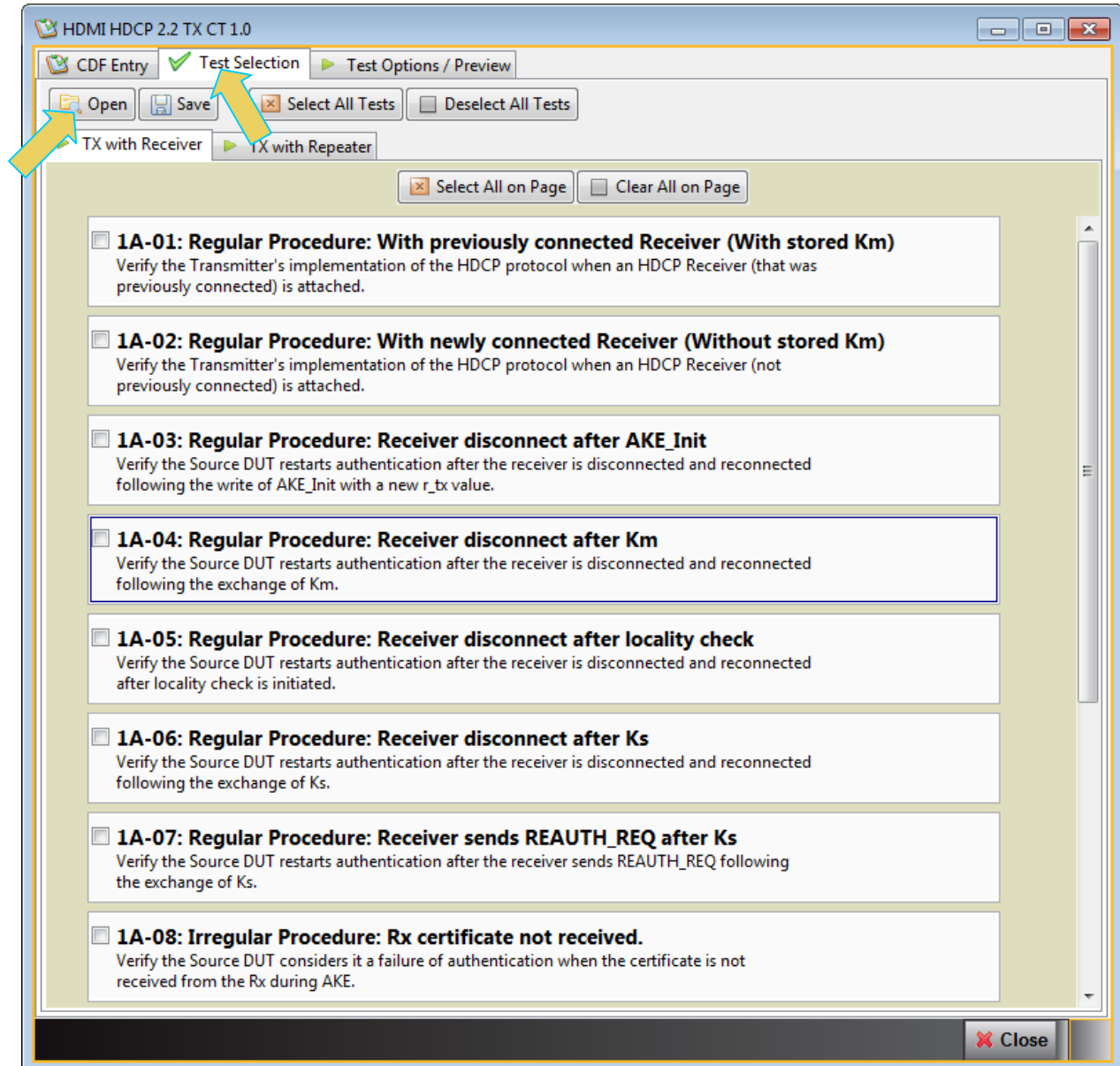


3.7 Selecting the 1A series tests

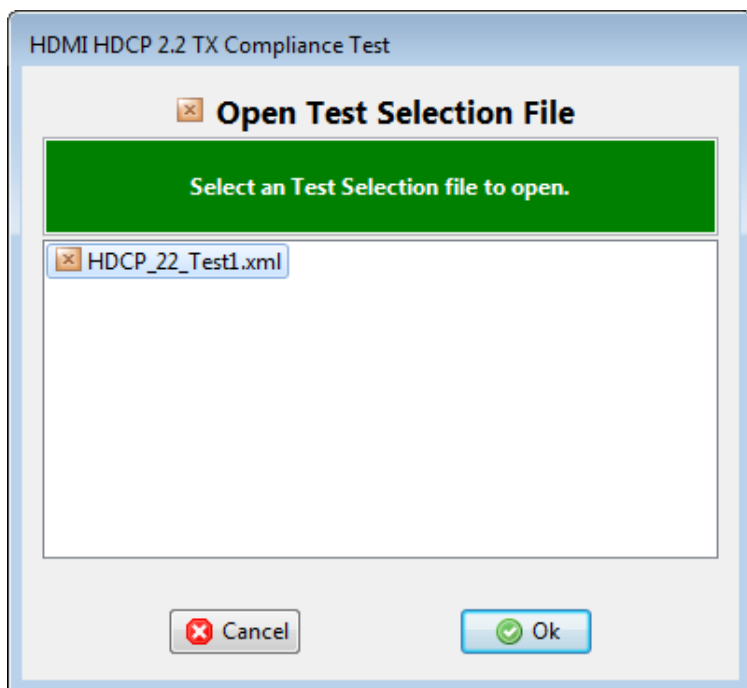
Use the following procedures to select the tests to run. There are multiple tabs which correspond to each section in the CTS.

To select the tests to run:

1. Select the **Test Selection** panel as shown below.
2. If you have an existing Test Selection option file saved you can recall that for use in your testing. Simply click on the **Open** activation button.



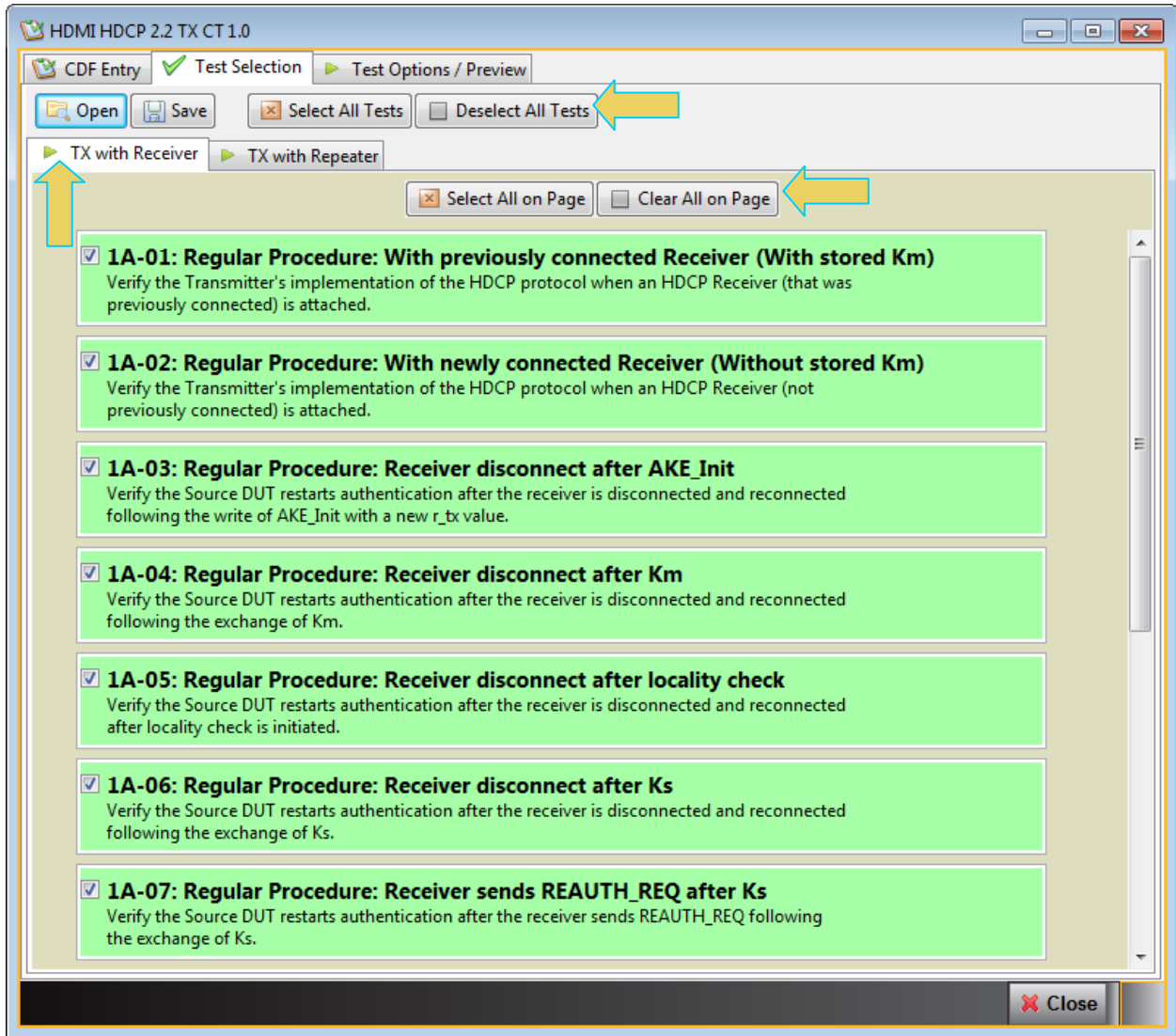
A dialog box will appear as follows. Simply select the file and click on the **OK** activation button.

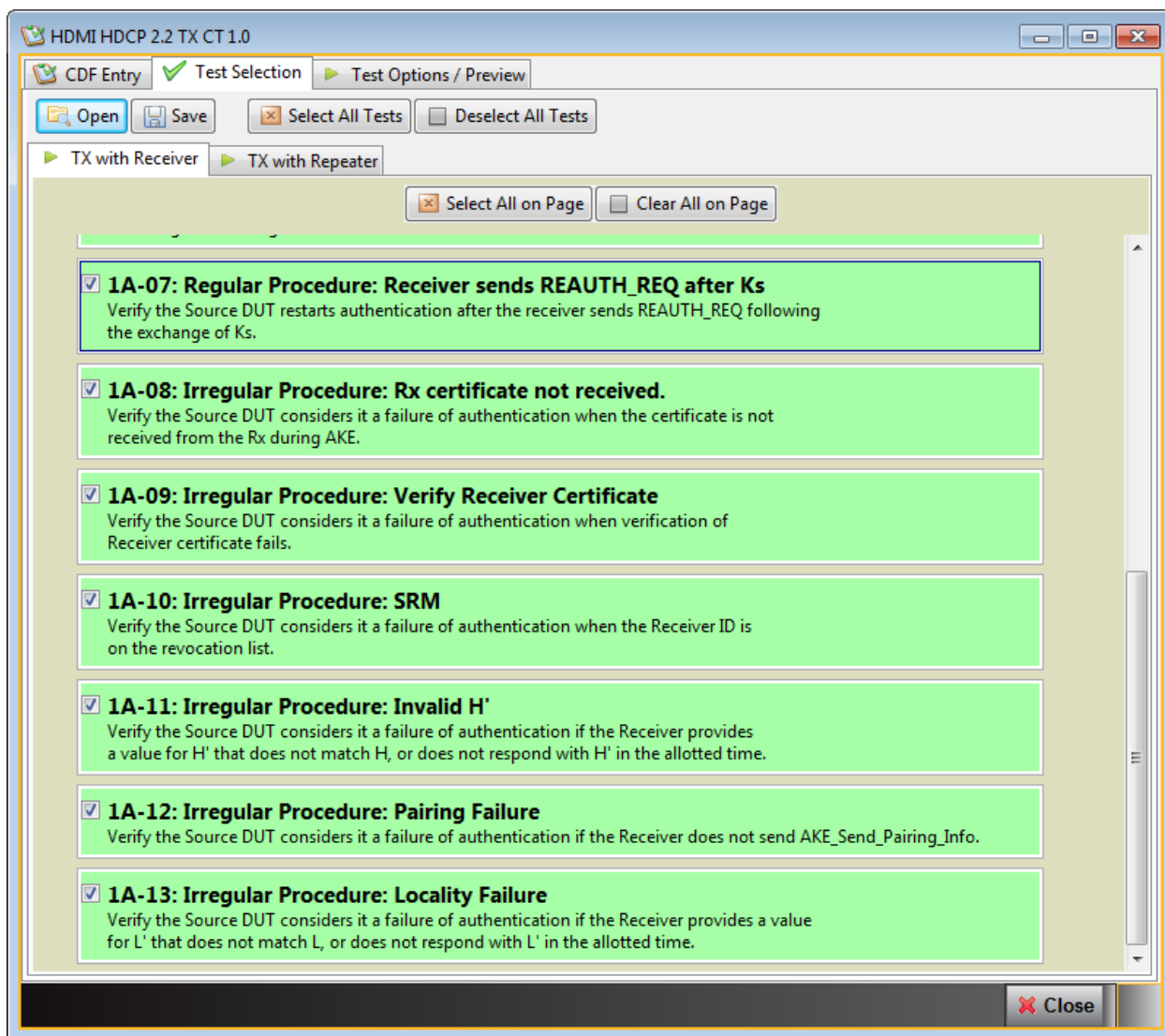


3. Complete the items in the **1A Tests** tab of the **Test Selection** panel shown below.

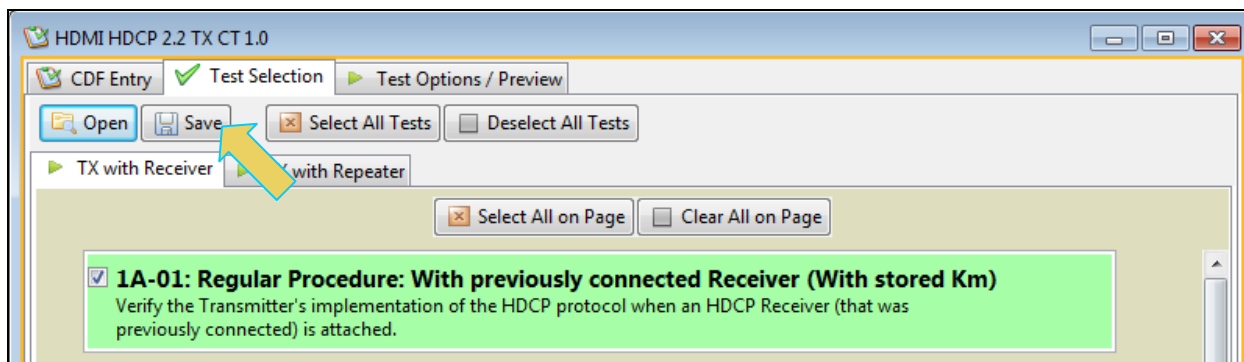
For convenience you can **Select All Tests** or **Deselect All Tests** for both tabs or for group selection over each page **Select All on Page** or **Clear All on Page** tests using the activation buttons provided.

The following screens examples show the tests selected.

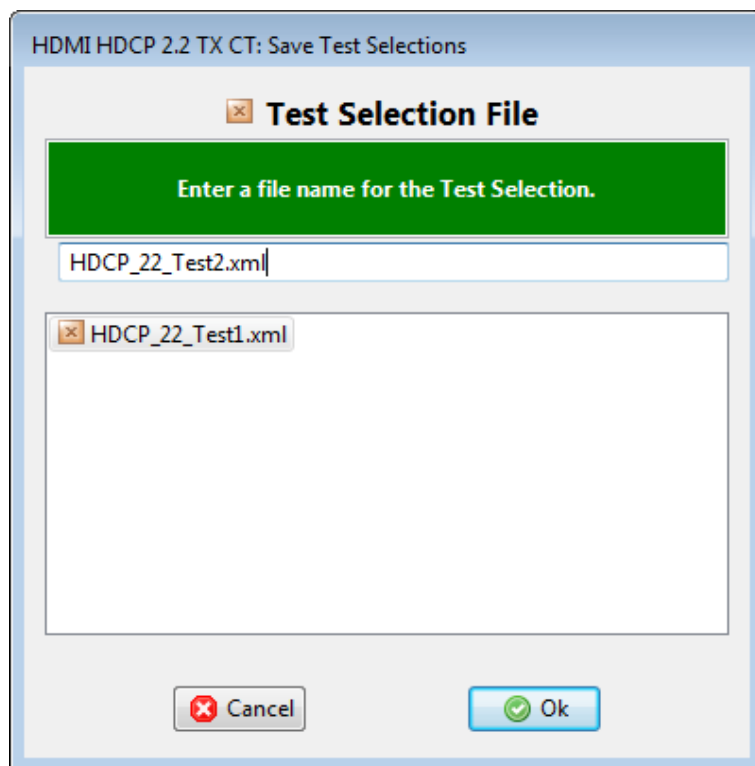




4. You can save the Test Selection options using the **Save** activation button.



A dialog box will appear as follows. Simply assign a name and click on the **OK** activation button. Click **Cancel** to exit.



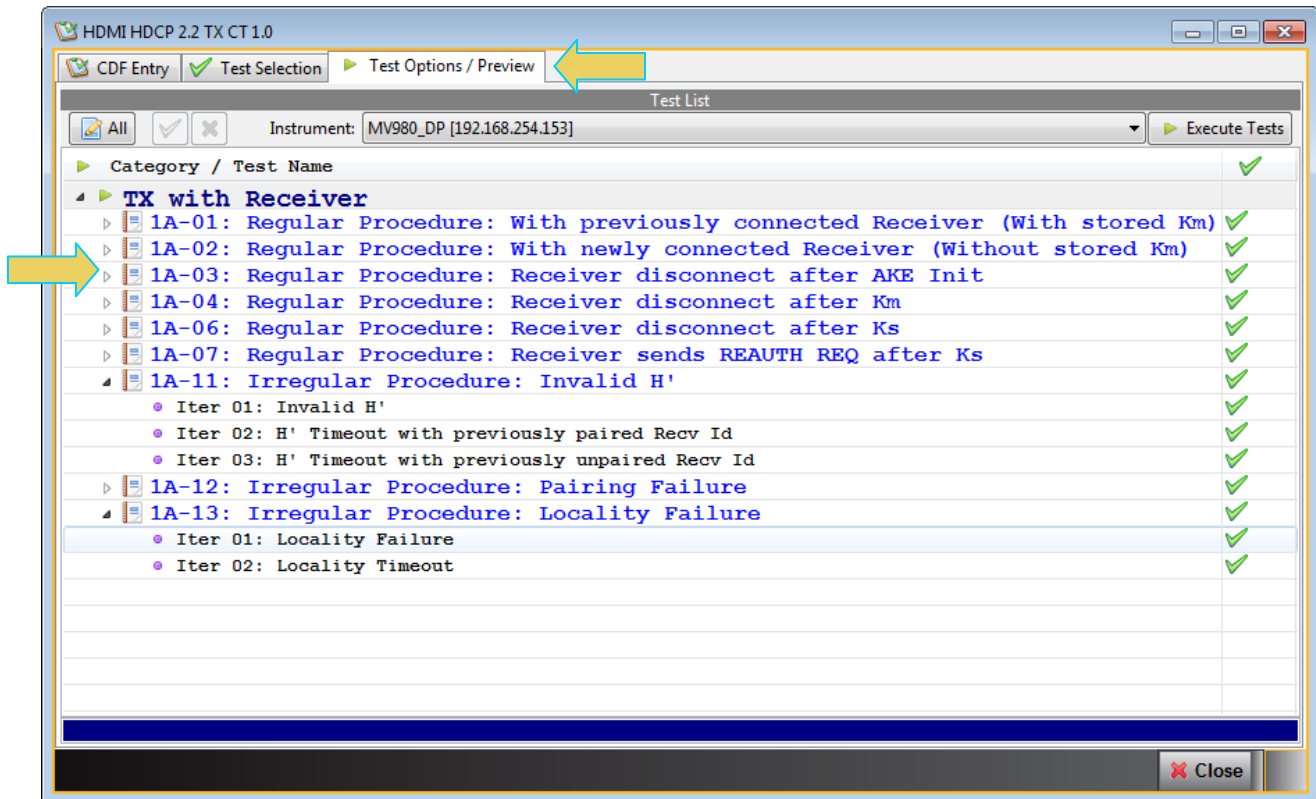
3.8 Executing the HDMI HDCP 2.2 1A Series Source Compliance Tests

Use the following procedures to initiate the execution of an HDMI HDCP 2.2 1A series Source Compliance test series.

Note: You can monitor the HDCP 2.2 transactions using the Auxiliary Channel Analyzer (ACA) utility. Please refer to the main 980 HDMI Protocol Analyzer module User Guide for instructions on using the ACA.

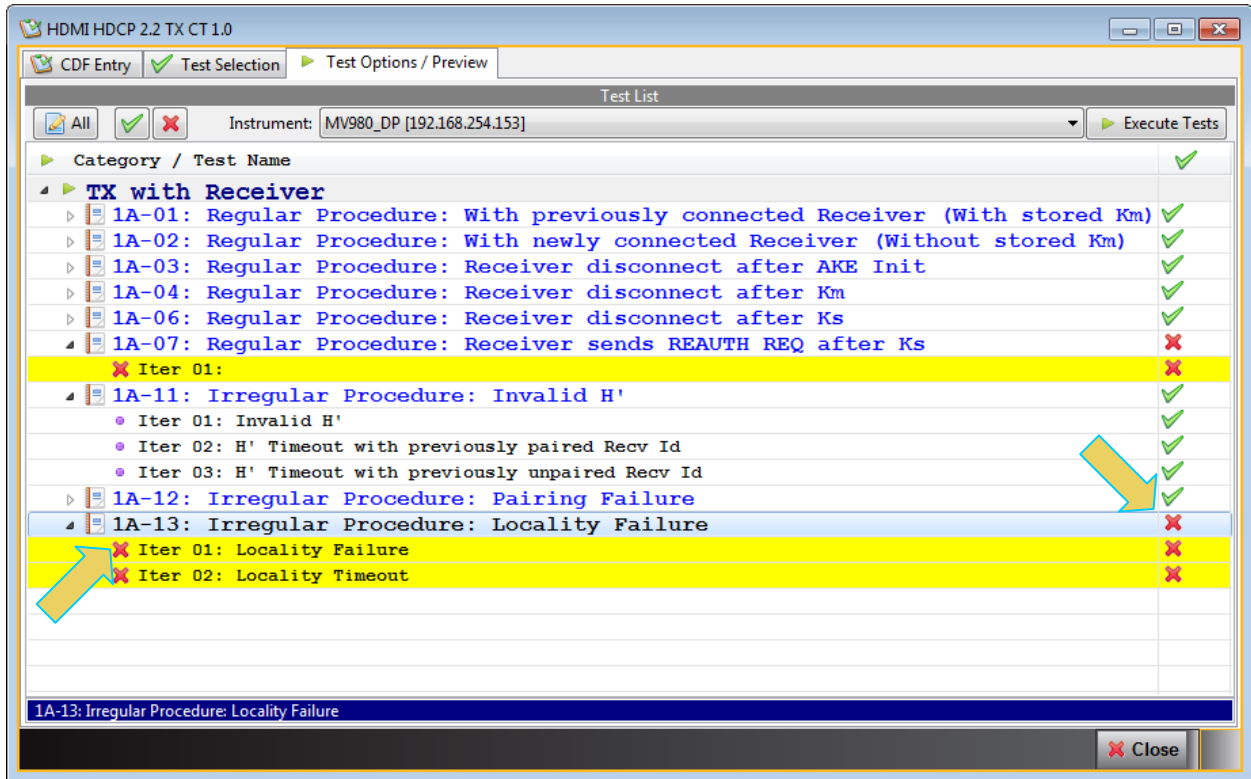
To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below.

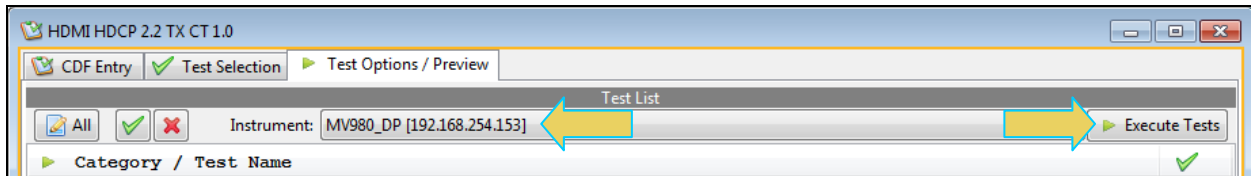


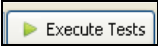
2. (Optional) Review the list of tests for each category. If you wish to skip some of the tests. You can skip tests by clicking on the Check mark on the right side of the **Test Options / Preview** panel.

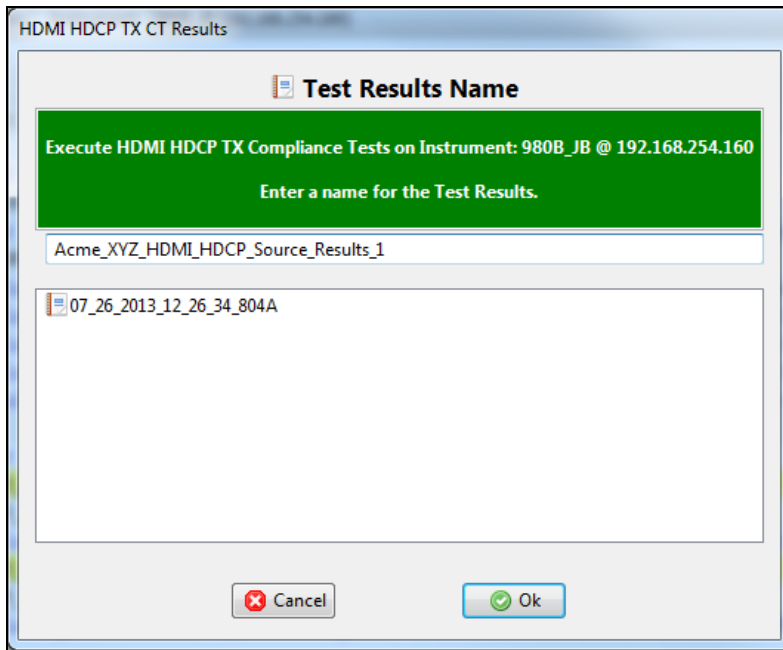
The screen shot below shows some of the tests that have been skipped (highlighted in yellow with a red X).



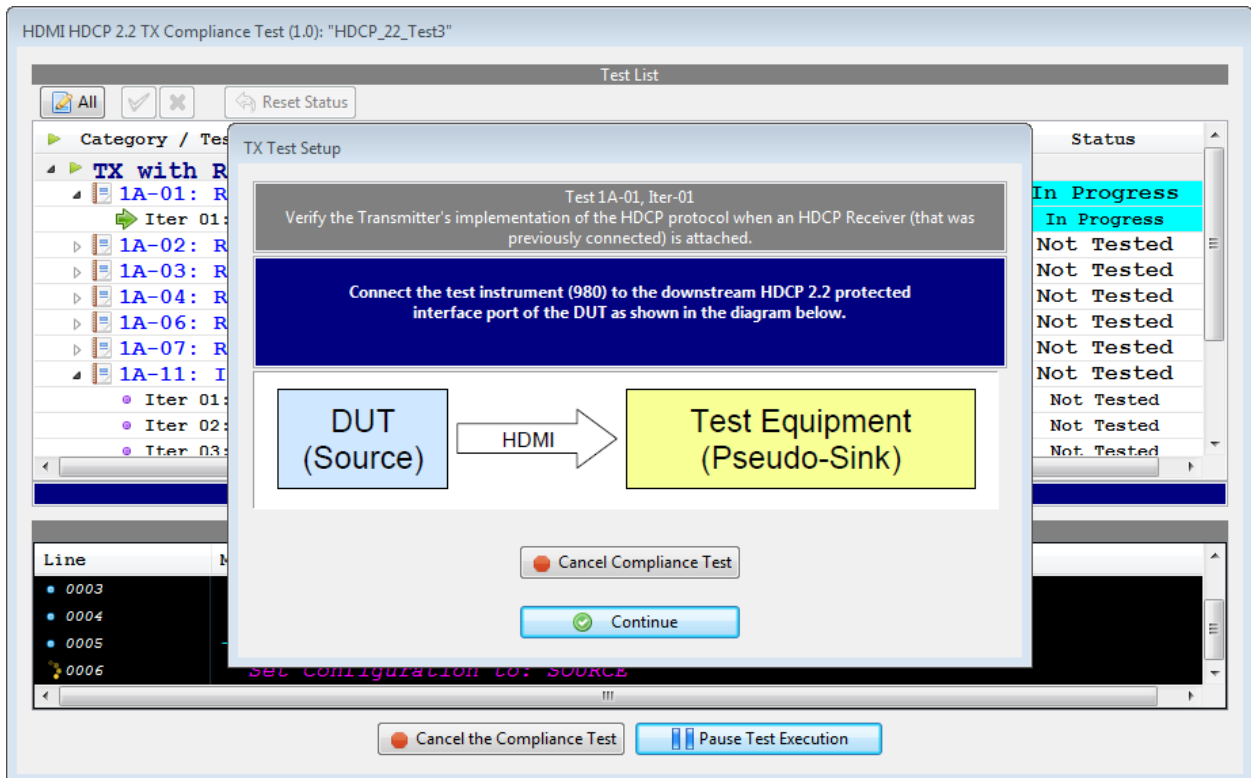
3. Select the 980 Test Instrument from the pull-down menu of the HDCP Test Options / Preview tab shown below.




Click on the **Execute Tests**  activation button to initiate the test suite. You will be prompted for a name for the tests. This dialog box is shown below.

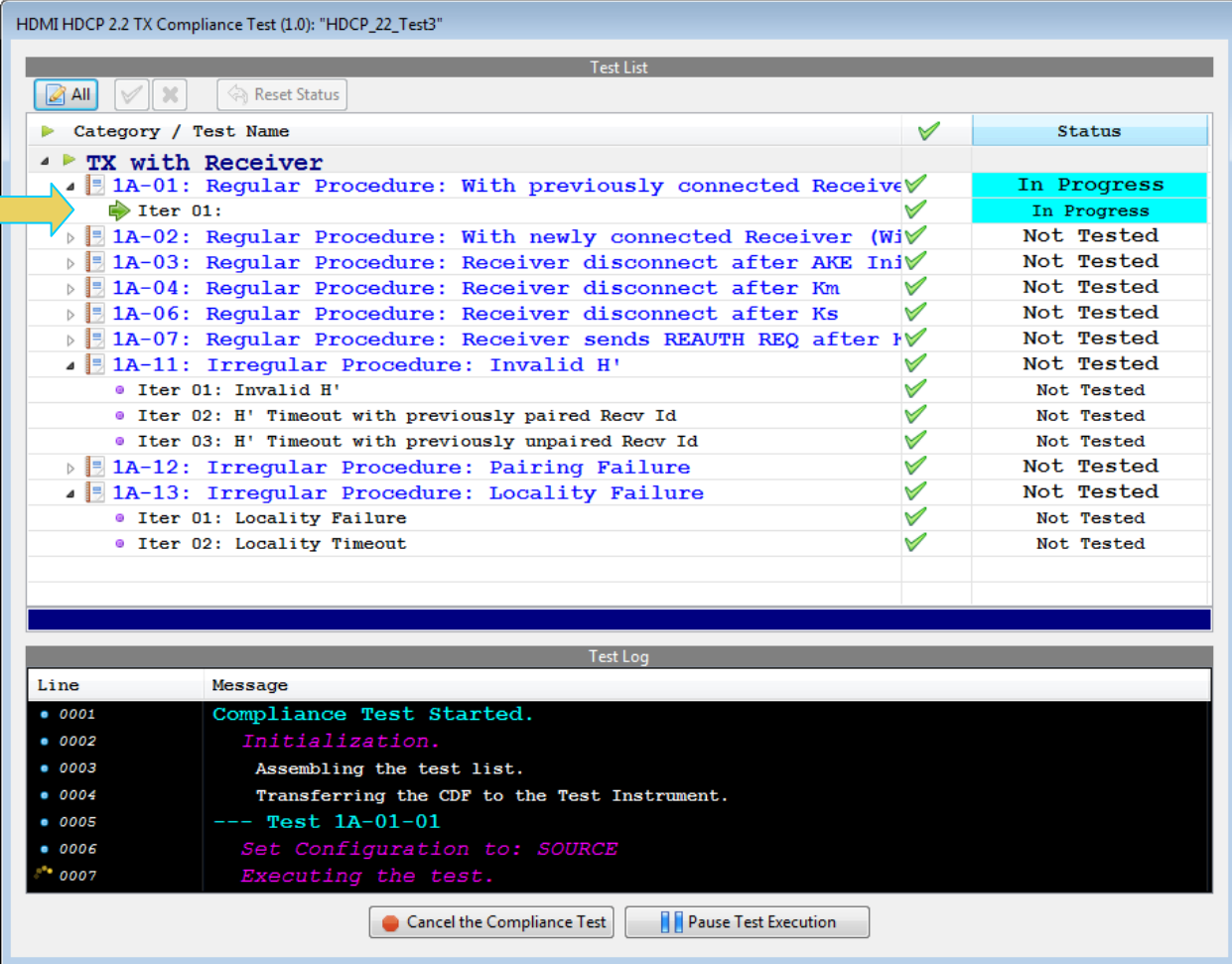


During the tests a **Source Test Configuration** dialog box will appear which requires that you to verify that the source device under test is connected properly. The following screen shot depicts this. Press **Continue** when you have the source device connected properly. You can cancel the test using the **Cancel Compliance Test** button.



If you do not have the source device under test in the proper mode, an error dialog box will appear.

During the test, the test results are shown as they occur in the **Test Options / Preview** panel. There is a green progress arrow  which points to the test that is currently being run. Refer to the screen shot below.



The screenshot displays the 'HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test3"' window. It is divided into two main sections: 'Test List' and 'Test Log'.

Test List: This section contains a table of test items. A yellow arrow points to the first item, '1A-01: Regular Procedure: With previously connected Receiver', which is currently 'In Progress'. Other items are listed with their respective statuses.

Category / Test Name	Status
TX with Receiver	
1A-01: Regular Procedure: With previously connected Receiver	In Progress
Iter 01:	In Progress
1A-02: Regular Procedure: With newly connected Receiver (Wi	Not Tested
1A-03: Regular Procedure: Receiver disconnect after AKE Ini	Not Tested
1A-04: Regular Procedure: Receiver disconnect after Km	Not Tested
1A-06: Regular Procedure: Receiver disconnect after Ks	Not Tested
1A-07: Regular Procedure: Receiver sends REAUTH REQ after H	Not Tested
1A-11: Irregular Procedure: Invalid H'	Not Tested
Iter 01: Invalid H'	Not Tested
Iter 02: H' Timeout with previously paired Recv Id	Not Tested
Iter 03: H' Timeout with previously unpaired Recv Id	Not Tested
1A-12: Irregular Procedure: Pairing Failure	Not Tested
1A-13: Irregular Procedure: Locality Failure	Not Tested
Iter 01: Locality Failure	Not Tested
Iter 02: Locality Timeout	Not Tested

Test Log: This section shows a log of messages from the test execution. The messages are as follows:

```

0001 Compliance Test Started.
0002 Initialization.
0003 Assembling the test list.
0004 Transferring the CDF to the Test Instrument.
0005 --- Test 1A-01-01
0006 Set Configuration to: SOURCE
0007 Executing the test.
    
```

At the bottom of the window, there are two buttons: 'Cancel the Compliance Test' and 'Pause Test Execution'.

The lower panel **Test Log** shows the testing activity as it occurs. You can cancel the compliance test or pause at any time. If you pause the test you can resume later at any time even if you exit the 980 Manager application. Refer to the following screen examples.

HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test3"

Test List

Category / Test Name	✓	Status
▶ TX with Receiver		
▶ 1A-01: Regular Procedure: With previously connected Receiver (With stored Km)	✓	Fail
▶ Iter 01:	✓	Fail
▶ 1A-02: Regular Procedure: With newly connected Receiver (Without stored Km)	✓	Fail
▶ Iter 01:	✓	Fail
▶ 1A-03: Regular Procedure: Receiver disconnect after AKE Init	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-04: Regular Procedure: Receiver disconnect after Km	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-06: Regular Procedure: Receiver disconnect after Ks	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-07: Regular Procedure: Receiver sends REAUTH REQ after Ks	✓	In Progress
▶ Iter 01:	✓	In Progress
▶ 1A-11: Irregular Procedure: Invalid H'	✓	Not Tested
▶ Iter 01: Invalid H'	✓	Not Tested
▶ Iter 02: H' Timeout with previously paired Recv Id	✓	Not Tested
▶ Iter 03: H' Timeout with previously unpaired Recv Id	✓	Not Tested

Test Log

Line	Message
0026	--- Test 1A-06-01
0027	Executing the test.
0028	Processing test results.
0029	Test 1A-06 Iter 01 -> Pass
0030	--- Test 1A-07-01
0031	Executing the test.

HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test3"

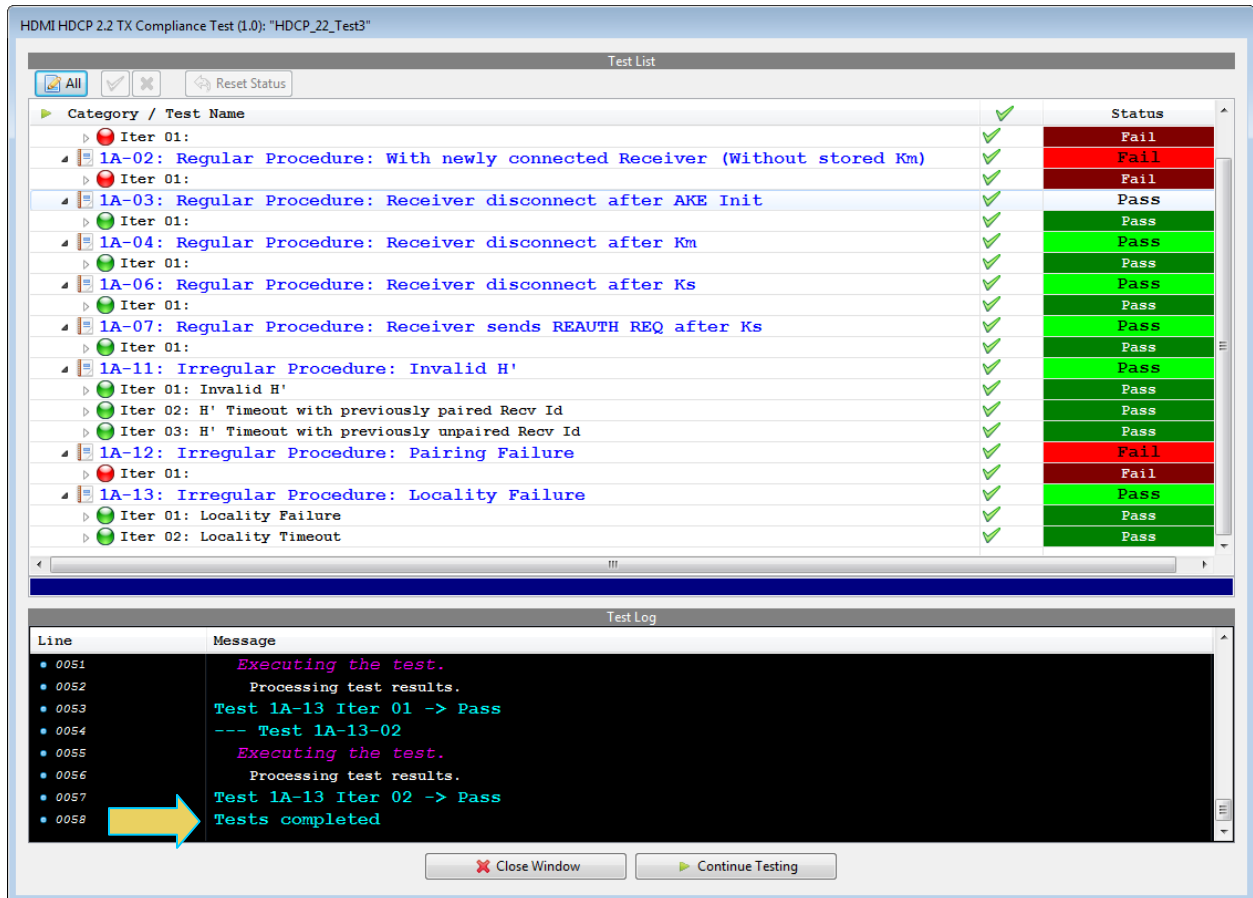
Test List

Category / Test Name	✓	Status
▶ Iter 01:	✓	Fail
▶ 1A-02: Regular Procedure: With newly connected Receiver (Without stored Km)	✓	Fail
▶ Iter 01:	✓	Fail
▶ 1A-03: Regular Procedure: Receiver disconnect after AKE Init	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-04: Regular Procedure: Receiver disconnect after Km	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-06: Regular Procedure: Receiver disconnect after Ks	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-07: Regular Procedure: Receiver sends REAUTH REQ after Ks	✓	Pass
▶ Iter 01:	✓	Pass
▶ 1A-11: Irregular Procedure: Invalid H'	✓	Pass
▶ Iter 01: Invalid H'	✓	Pass
▶ Iter 02: H' Timeout with previously paired Recv Id	✓	Pass
▶ Iter 03: H' Timeout with previously unpaired Recv Id	✓	Pass
▶ 1A-12: Irregular Procedure: Pairing Failure	✓	Fail
▶ Iter 01:	✓	Fail
▶ 1A-13: Irregular Procedure: Locality Failure	✓	Pass
▶ Iter 01: Locality Failure	✓	Pass
▶ Iter 02: Locality Timeout	✓	Pass

Test Log

Line	Message
0051	Executing the test.
0052	Processing test results.
0053	Test 1A-13 Iter 01 -> Pass
0054	--- Test 1A-13-02
0055	Executing the test.
0056	Processing test results.
0057	Test 1A-13 Iter 02 -> Pass
0058	Tests completed

When the tests are completed the Test Log will indicate Test Completed as shown below.



When you close the test execution window, the Compliance Test Viewer window will appear showing the results of the test. Please refer to the following section for details on viewing the compliance test results.

3.9 Viewing Details of 1A Source Compliance Test Results

When you have completed the test series you will have an opportunity to view the detailed data for a particular failure or a test that passed. Use the following procedures to view the details of a failure.

To view the details of a failure:

1. Expose the detailed results of a failure and highlight a results record. Refer to the screen example below.

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test3 Manufacturer: Acme [HTML Report](#)
 Date Tested: June 11, 2014 4:06 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
▶ 1A-01: Regular Procedure: With previously connected Receiver	Fail
▶ 1A-02: Regular Procedure: With newly connected Receiver	Fail
▶ 1A-03: Regular Procedure: Receiver disconnect after AKE	Pass
▶ 1A-04: Regular Procedure: Receiver disconnect after Km	Pass
▶ 1A-06: Regular Procedure: Receiver disconnect after Ks	Pass
▶ 1A-07: Regular Procedure: Receiver sends REAUTH REQ aft	Pass
▶ 1A-11: Irregular Procedure: Invalid H'	Pass
▶ 1A-12: Irregular Procedure: Pairing Failure	Fail
▶ 1A-13: Irregular Procedure: Locality Failure	Pass

1A-01: Regular Procedure: With previously connected Receiver (With stored Km)

Instrument: MV980_DP [192.168.254.153] [Continue Test Execution](#) [Close](#)

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test3 Manufacturer: Acme [HTML Report](#)
 Date Tested: June 11, 2014 4:06 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
Iter 01:	Fail
• HPD Deasserted regular	
• MSG:HPD_DIS ts:0x1192ff8 ns	
• TX:UNAUTH::enter	
• HPD Asserted regular	
• RX:UNAUTH	
• HDMI/VIDEO Present	
• MSG:VALID_VER ts:0x0 ns	
• MSG:HPD_EN ts:0x330 ns	
• AKE_INIT ts:0xba926e03 ns	
• RCVD:AKE_INIT ts:0 us	
• **Test Cond.** NoStrdKm	
• MSG RCVD:AKE_Send_Cert ts:0xbaa0eb1a ns	
• Snd Stored_KM ts:0xbd294d63 ns	
• MSG SND:AKE_Send_Cert ts:101844 us	
• MSG RCVD:AKE_Stored_Km ts:108711 us	
• Stored KM received	
• Timer RETRY Expired	
• AKE_INIT ts:0xff657e7c ns	
• MSG RCVD:AKE_INIT ts:2889526 us	
• RCVD:AKE_INIT ts:2889526 us	
• MSG RCVD:AKE_Send_Cert ts:0xff7585ac ns	
• Snd Stored_KM ts:0x1fdab2f ns	
• MSG SND:AKE_Send_Cert ts:2991626 us	
• MSG RCVD:AKE_Stored_Km ts:2998453 us	
• MSG RCVD:AKE_Send_H_Prime ts:0x21085fa ns	

Instrument: MV980_DP [192.168.254.153] [Continue Test Execution](#) [Close](#)

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test3 Manufacturer: Acme [HTML Report](#)
 Date Tested: June 11, 2014 4:06 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
Iter 01:	Pass
• HPD Deasserted regular	
• MSG:HPD_DIS ts:0x113dcdd ns	
• TX:UNAUTH::enter	
• HPD Asserted regular	
• RX:UNAUTH	
• HDMI/VIDEO Present	
• MSG:VALID_VER ts:0x0 ns	
• MSG:HPD_EN ts:0x338 ns	
• AKE_INIT ts:0x6d4a5755 ns	
• RCVD:AKE_INIT ts:0 us	
• **Test Cond.** hpd	
• HPD Deasserted irregular	
• MSG:HPD_DIS ts:0x1b15 ns	
• HPD Asserted irregular	
• MSG:HPD_EN ts:0x331 ns	
• AKE_INIT ts:0x72266814 ns	
• RCVD:AKE_INIT ts:204539 us	
• **Test Cond.** ake_init	
• Encryption Disabled	
• MSG RCVD:AKE_Send Cert ts:0x7234fd25 ns	
• Snd Stored_KM ts:0x74bc94f1 ns	
• MSG SND:AKE_Send Cert ts:306424 us	
• MSG RCVD:AKE_Stored_Km ts:313138 us	
• MSG SND:AKE_Send_H_Prime ts:324864 us	
• MSG RCVD:AKE_Send_H_Prime ts:0x74d53e86 ns	

Iter 01:

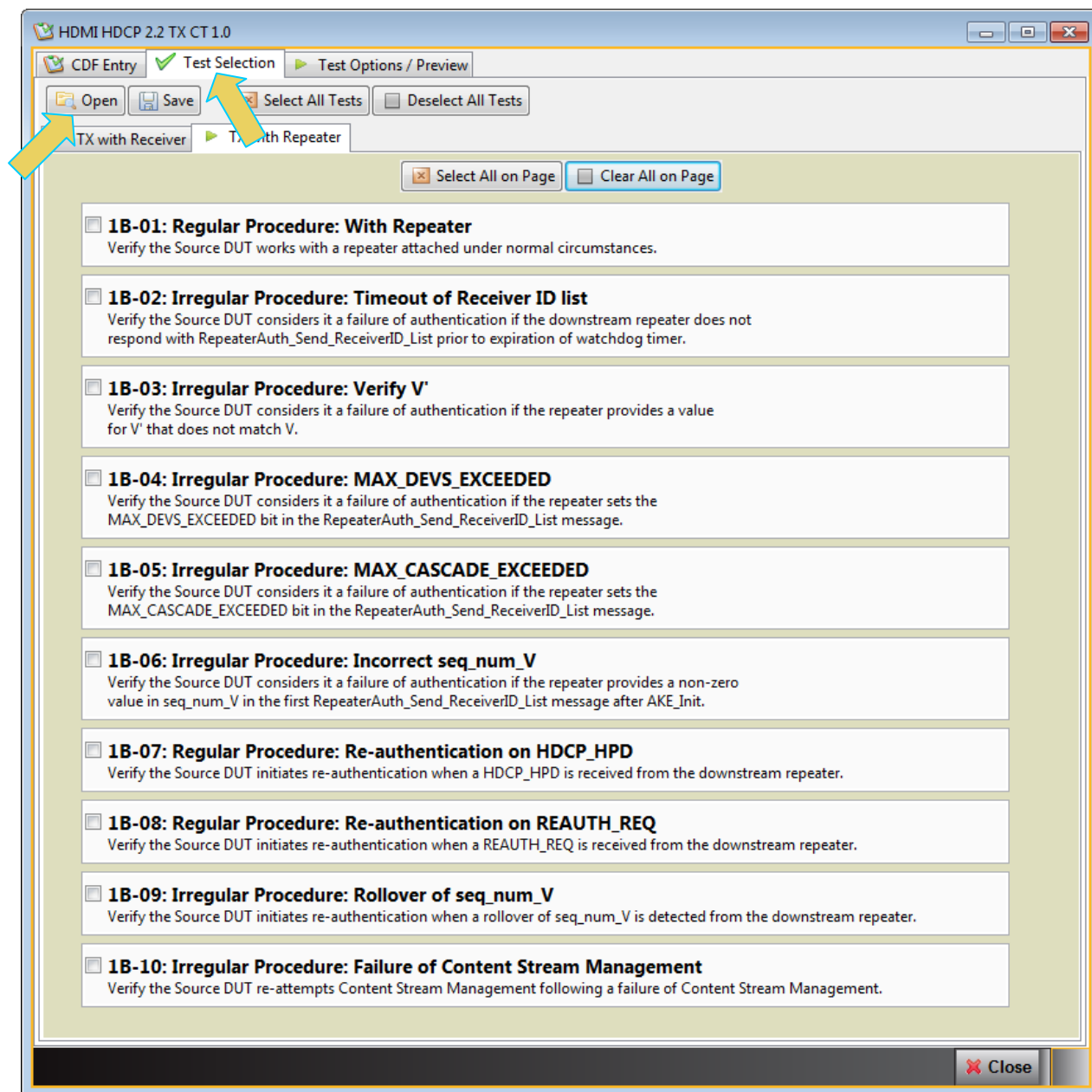
Instrument: MV980_DP [192.168.254.153] [Continue Test Execution](#) [Close](#)

3.10 Selecting the 1B series tests

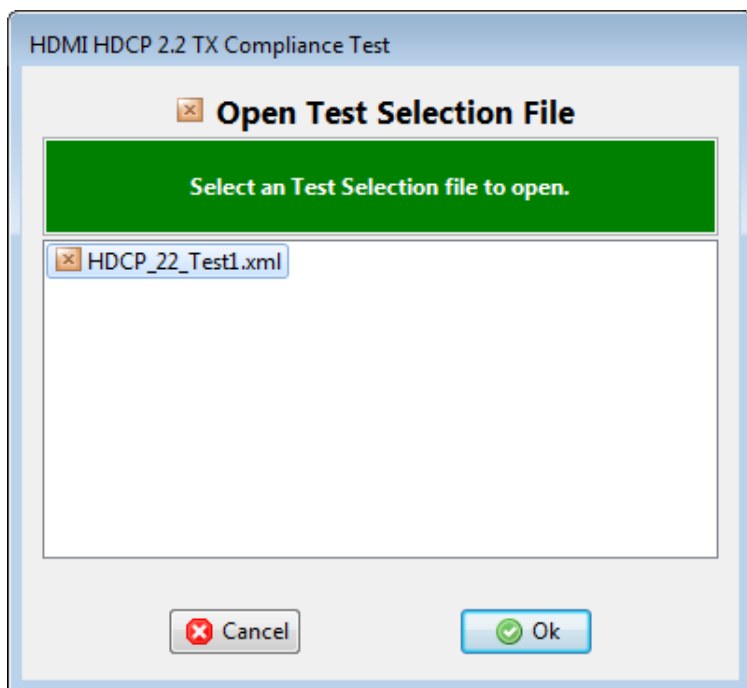
Use the following procedures to select the 1B series tests to run. There are multiple tabs which correspond to each section in the CTS.

To select the tests to run:

1. Select the **Test Selection** panel as shown below.
2. If you have an existing Test Selection option file saved you can recall that for use in your testing. Simply click on the **Open** activation button.

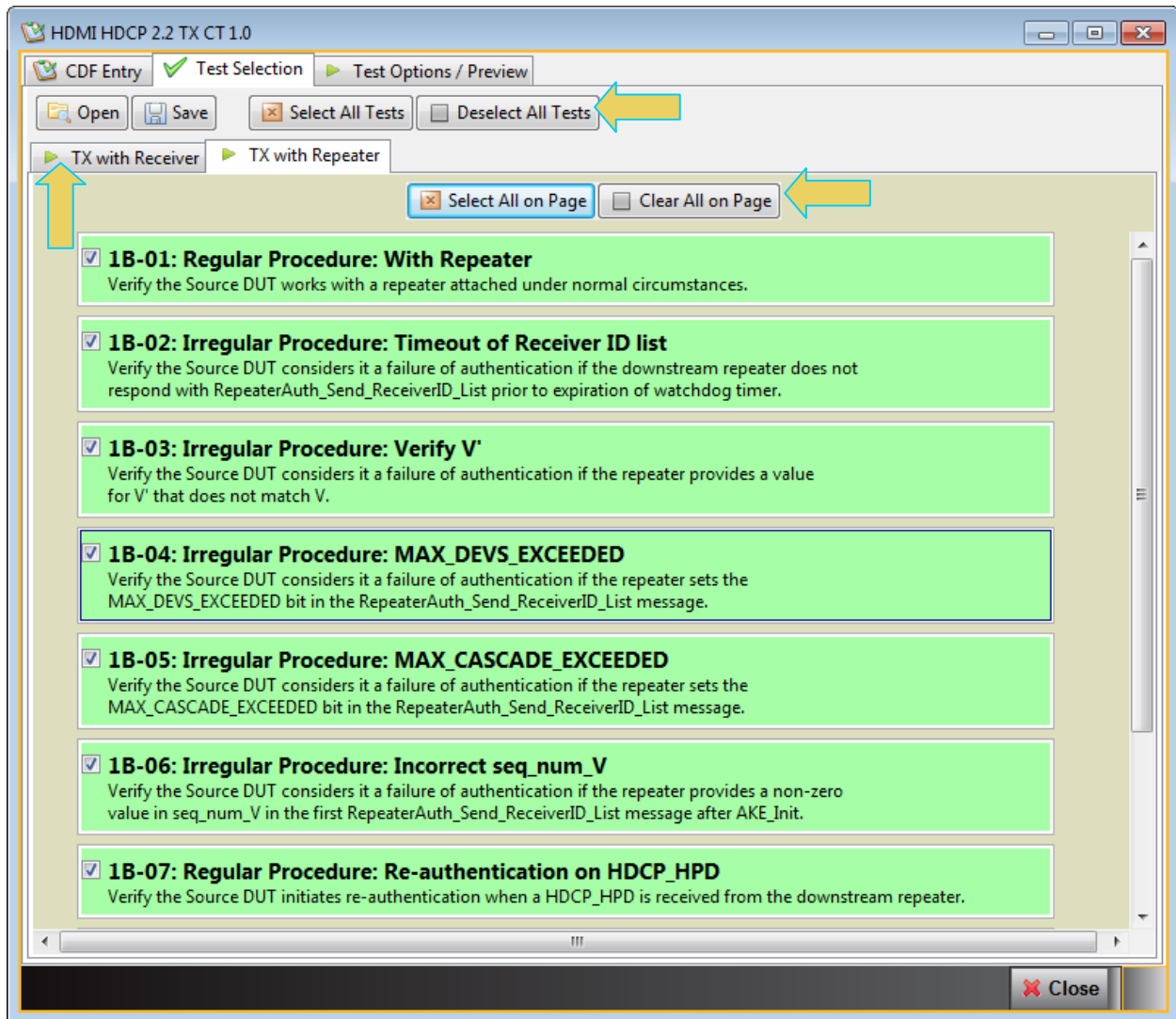


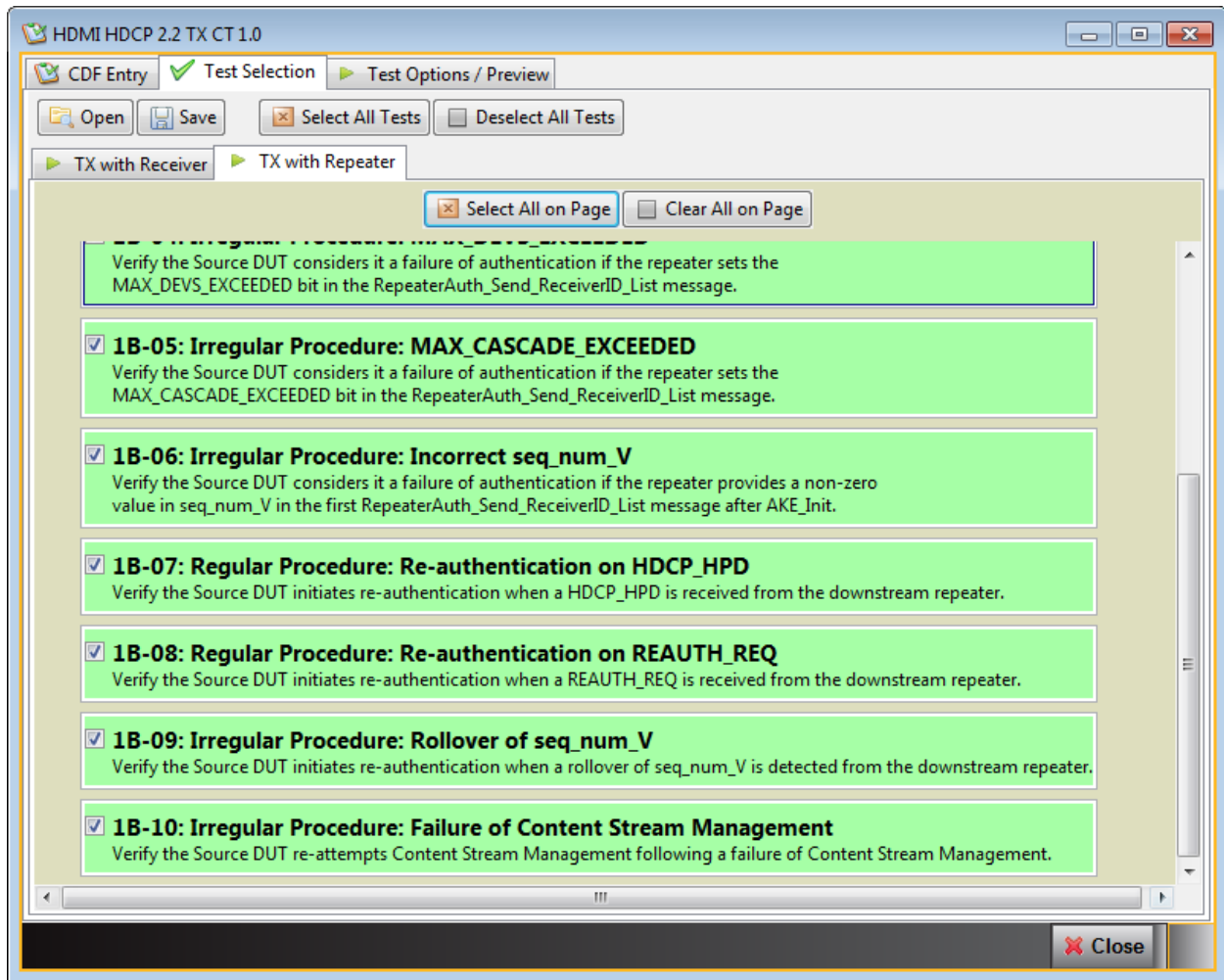
A dialog box will appear as follows. Simply select the file and click on the **OK** activation button.



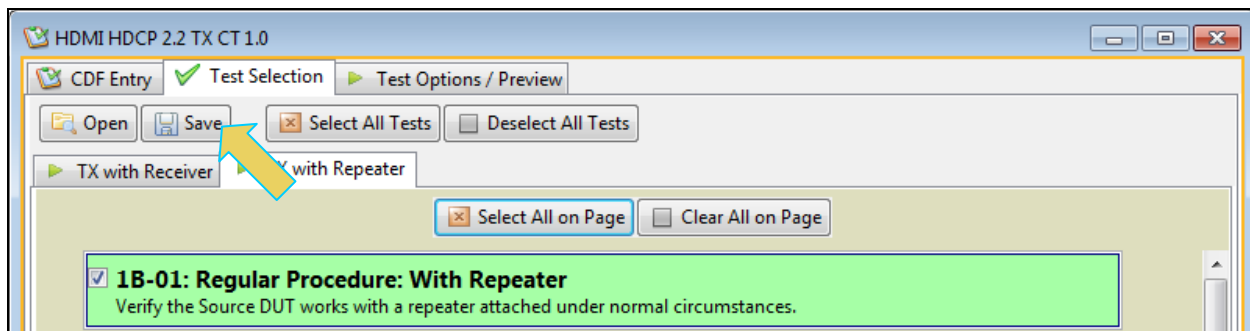
3. Complete the items in the **1B Tests** tab of the **Test Selection** panel shown below.

For convenience you can **Select All Tests** or **Deselect All Tests** for both tabs or for group selection over each page **Select All on Page** or **Clear All on Page** tests using the activation buttons provided.

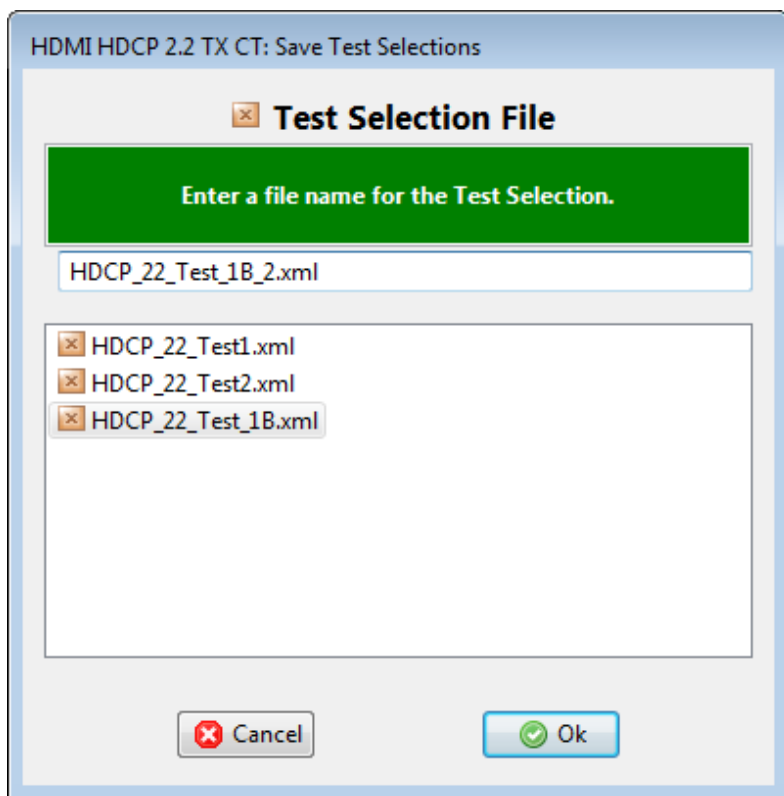




4. You can save the Test Selection options using the **Save** activation button.



A dialog box will appear as follows. Simply assign a name and click on the **OK** activation button. Click **Cancel** to exit.

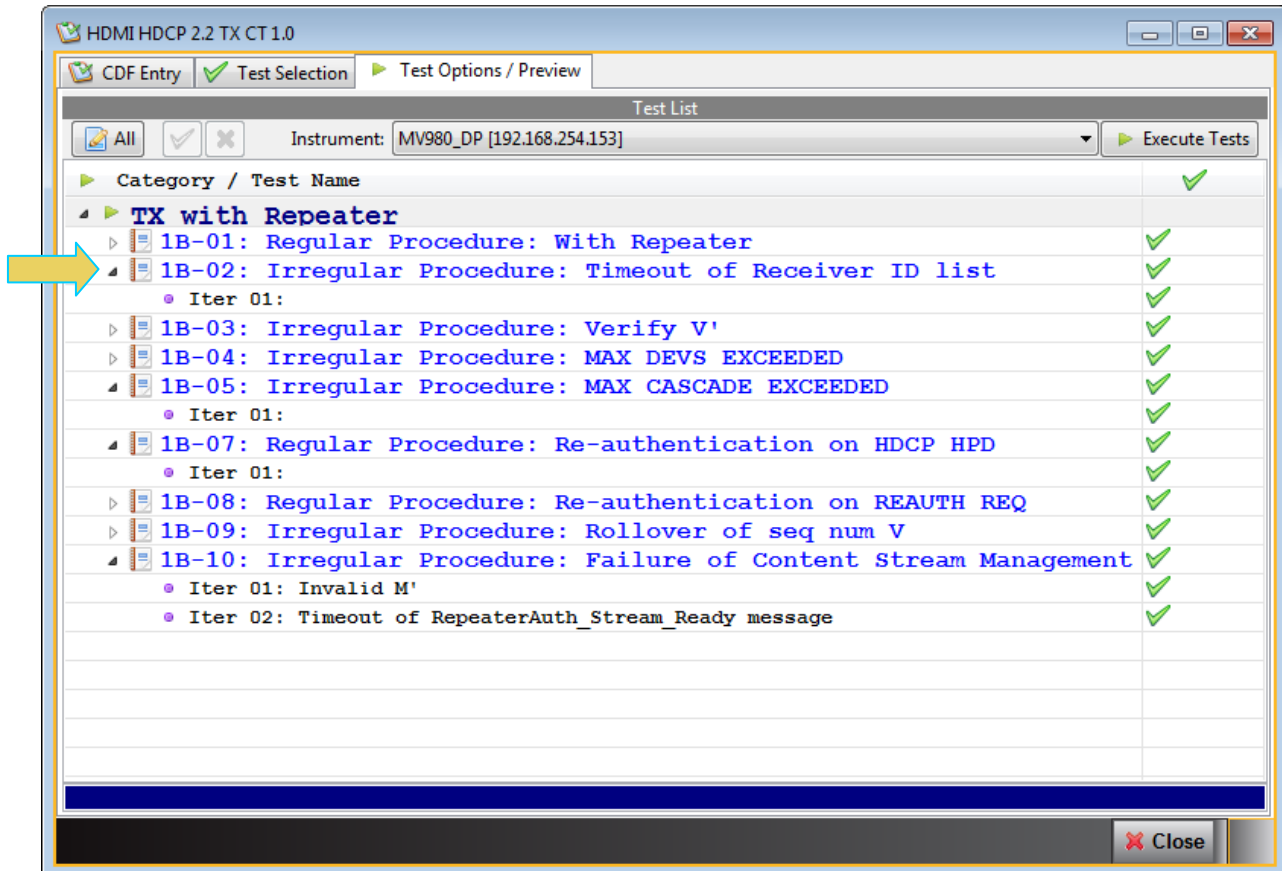


3.11 Executing the HDMI HDCP 2.2 1B Series Source Compliance Tests

Use the following procedures to initiate the execution of an HDMI HDCP 2.2 1B series Source Compliance test series.

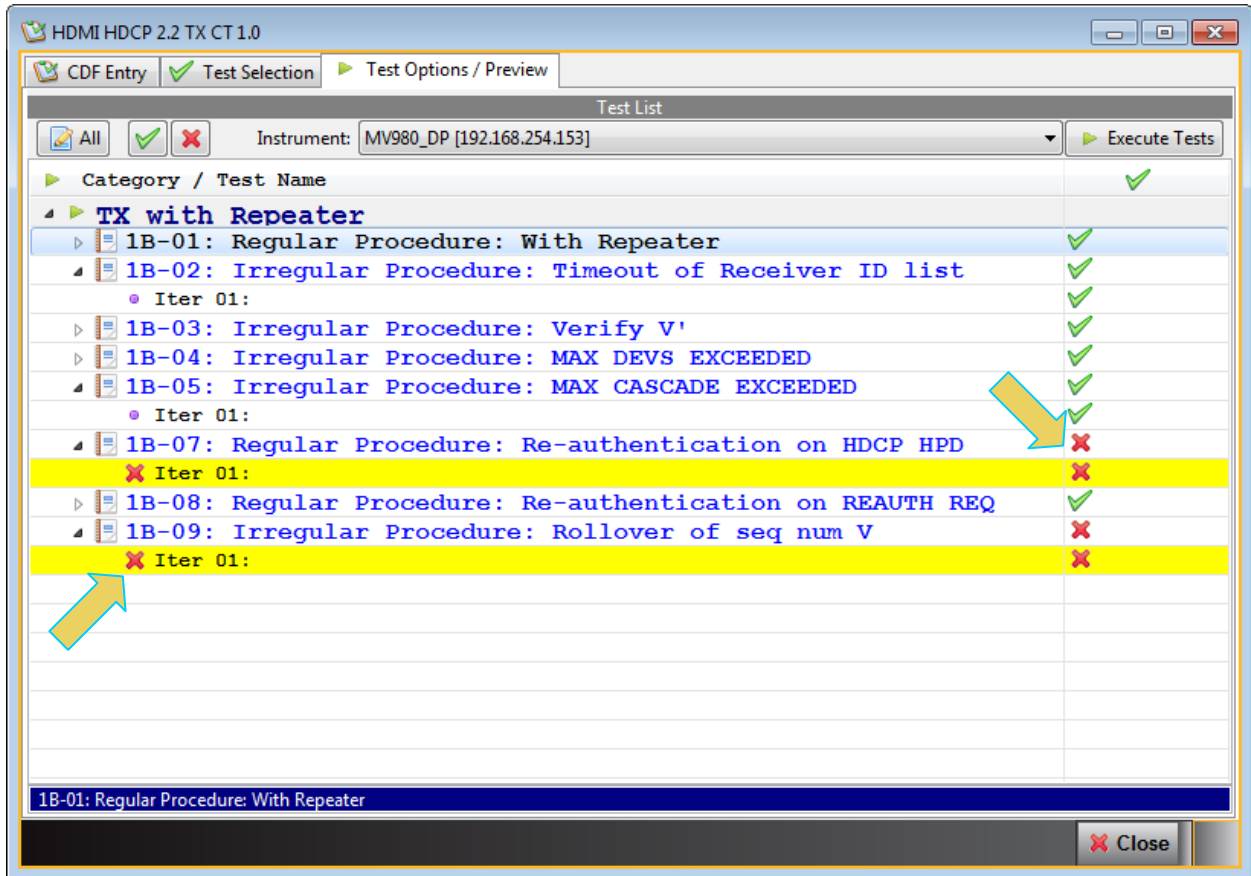
To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below.

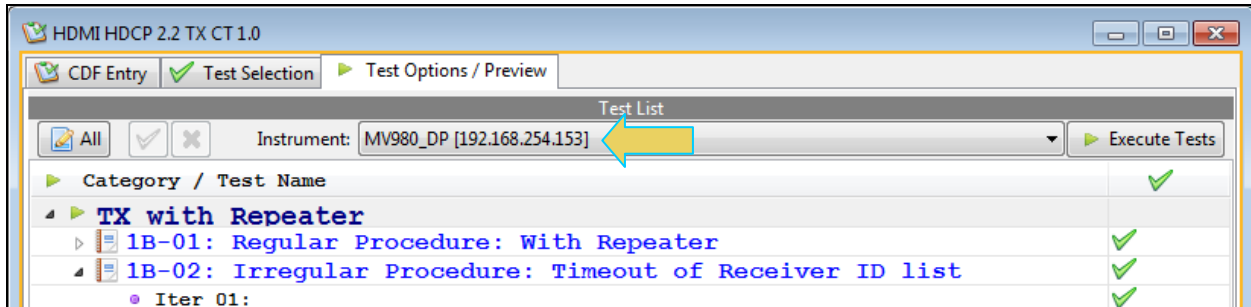


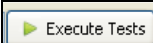
2. (Optional) Review the list of tests for each category. If you wish to skip some of the tests. You can skip tests by clicking on the Check mark on the right side of the **Test Options / Preview** panel.

The screen shot below shows some of the tests that have been skipped (highlighted in yellow with a red X).

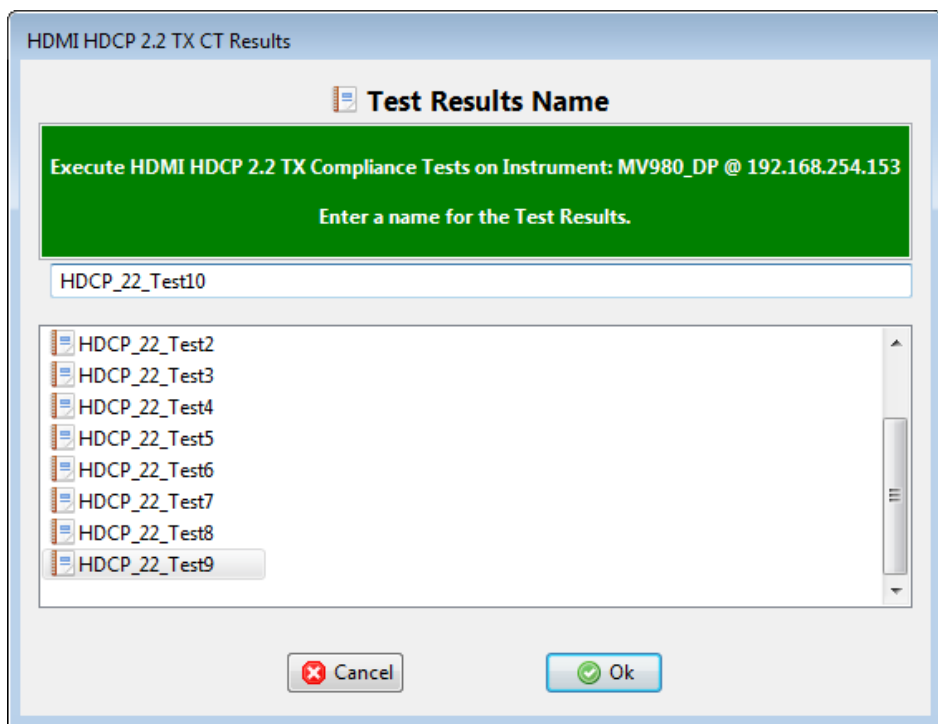


3. Connect to the 980 Test Instrument if you have not already done so. Use the **Instrument** selection pull-down as indicated below.



Click on the **Execute Tests**  activation button to initiate the test suite. You will be prompted for a name for the tests. This dialog box is shown below.

A dialog box prompting you to name the test results files appears as shown below:



Select a name and click on the **OK** activation button. The tests begin.

HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test10"

Test List

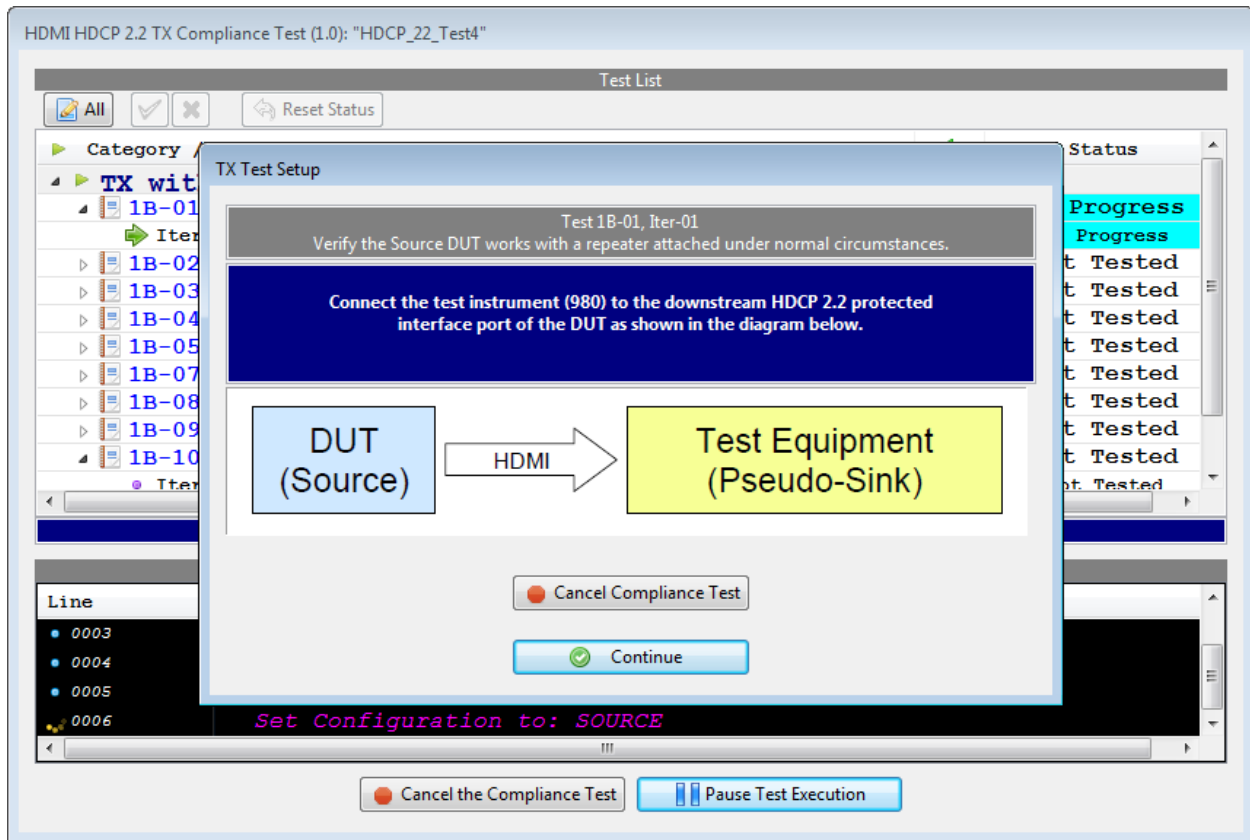
Category / Test Name	Status
TX with Repeater	✓
1B-01: Regular Procedure: With Repeater	✓ In Progress
Iter 01:	✓ In Progress
1B-02: Irregular Procedure: Timeout of Receiver ID list	✓ Not Tested
1B-03: Irregular Procedure: Verify V'	✓ Not Tested
1B-04: Irregular Procedure: MAX DEVS EXCEEDED	✓ Not Tested
1B-05: Irregular Procedure: MAX CASCADE EXCEEDED	✓ Not Tested
1B-07: Regular Procedure: Re-authentication on HDCP HPD	✗ Incomplete
✗ Iter 01:	✗ User Skipped
1B-08: Regular Procedure: Re-authentication on REAUTH REQ	✓ Not Tested
1B-09: Irregular Procedure: Rollover of seq num V	✗ Incomplete
✗ Iter 01:	✗ User Skipped

Test Log


Line	Message
0002	Initialization.
0003	Assembling the test list.
0004	Transferring the CDF to the Test Instrument.
0005	--- Test 1B-01-01
0006	Set Configuration to: SOURCE
0007	Executing the test.

Buttons: Cancel the Compliance Test, Pause Test Execution

During the tests a **Source Test Configuration** dialog box will appear which requires that you to verify that the source device under test is connected properly. The following screen shot depicts this. Press **Continue** when you have the source device connected properly. You can cancel the test using the **Cancel Compliance Test** button.



If you do not have the source device under test in the proper mode, an error dialog box will appear.

During the test, the test results are shown as they occur in the **Test Options / Preview** panel. There is a green progress arrow  which points to the test that is currently being run. Refer to the screen shot below.

Test List

Category / Test Name	Status	Status
TX with Repeater	✓	
1B-01: Regular Procedure: With Repeater	✓	Fail
Iter 01:	✓	Fail
1B-02: Irregular Procedure: Timeout of Receiver ID list	✓	Pass
Iter 01:	✓	Pass
1B-03: Irregular Procedure: Verify V'	✓	Pass
Iter 01:	✓	Pass
1B-04: Irregular Procedure: MAX DEVS EXCEEDED	✓	In Progress
Iter 01:	✓	In Progress
1B-05: Irregular Procedure: MAX CASCADE EXCEEDED	✓	Not Tested
1B-07: Regular Procedure: Re-authentication on HDCP HPD	✗	Incomplete
Iter 01:	✗	User Skipped
1B-08: Regular Procedure: Re-authentication on REAUTH REQ	✓	Not Tested
1B-09: Irregular Procedure: Rollover of seq num V	✗	Incomplete
Iter 01:	✗	User Skipped

Test Log

Line	Message
0013	Test 1B-02 Iter 01 -> Pass
0014	--- Test 1B-03-01
0015	Executing the test.
0016	Processing test results.
0017	Test 1B-03 Iter 01 -> Pass
0018	--- Test 1B-04-01
0019	Executing the test.

The lower panel **Test Log** shows the testing activity as it occurs. You can cancel the compliance test or pause at any time. If you pause the test you can resume later at any time even if you exit the 980 Manager application. Refer to the following screen examples.

HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test10"

Test List

All [check] [x] [Reset Status]

Category / Test Name	✓	Status
TX with Repeater		
1B-01: Regular Procedure: With Repeater	✓	Fail
Iter 01:	✓	Fail
1B-02: Irregular Procedure: Timeout of Receiver ID list	✓	Pass
Iter 01:	✓	Pass
1B-03: Irregular Procedure: Verify V'	✓	Pass
Iter 01:	✓	Pass
1B-04: Irregular Procedure: MAX DEVS EXCEEDED	✓	Pass
Iter 01:	✓	Pass
1B-05: Irregular Procedure: MAX CASCADE EXCEEDED	✓	In Progress
Iter 01:	✓	In Progress
1B-07: Regular Procedure: Re-authentication on HDCP HPD	✗	Incomplete
Iter 01:	✗	User Skipped
1B-08: Regular Procedure: Re-authentication on REAUTH REQ	✓	Not Tested
1B-09: Irregular Procedure: Rollover of seq num V	✗	Incomplete
Iter 01:	✗	User Skipped

Test Log

Line	Message
0017	Test 1B-03 Iter 01 -> Pass
0018	--- Test 1B-04-01
0019	Executing the test.
0020	Processing test results.
0021	Test 1B-04 Iter 01 -> Pass
0022	--- Test 1B-05-01
0023	Executing the test.

HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test10"

Test List

All [check] [x] [Reset Status]

Category / Test Name		Status
TX with Repeater		
1B-01: Regular Procedure: With Repeater	✓	Fail
Iter 01:	✓	Fail
1B-02: Irregular Procedure: Timeout of Receiver ID list	✓	Pass
Iter 01:	✓	Pass
1B-03: Irregular Procedure: Verify V'	✓	Pass
Iter 01:	✓	Pass
1B-04: Irregular Procedure: MAX DEVS EXCEEDED	✓	Pass
Iter 01:	✓	Pass
1B-05: Irregular Procedure: MAX CASCADE EXCEEDED	✓	Pass
Iter 01:	✓	Pass
1B-07: Regular Procedure: Re-authentication on HDCP HPD	✗	Incomplete
Iter 01:	✗	User Skipped
1B-08: Regular Procedure: Re-authentication on REAUTH REQ	✓	In Progress
Iter 01:	✓	In Progress
1B-09: Irregular Procedure: Rollover of seq num V	✗	Incomplete
Iter 01:	✗	User Skipped

Test Log

Line	Message
0021	Test 1B-04 Iter 01 -> Pass
0022	--- Test 1B-05-01
0023	Executing the test.
0024	Processing test results.
0025	Test 1B-05 Iter 01 -> Pass
0026	--- Test 1B-08-01
0027	Executing the test.

When the tests are completed the Test Log will indicate Test Completed as shown below.

When you close the test execution window, the Compliance Test Viewer window will appear showing the results of the test. Please refer to the following section for details on viewing the compliance test results.

The screenshot displays the 'HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test10"' window. It is divided into two main sections: 'Test List' and 'Test Log'.

Test List: This section shows a tree view of test categories and individual test items. The 'TX with Repeater' category is expanded, showing several sub-items. The status of each item is indicated by a checkmark (Pass), a red X (Fail), or a yellow X (Incomplete/User Skipped).

Category / Test Name	Status
TX with Repeater	✓
1B-01: Regular Procedure: With Repeater	Fail
Iter 01:	Fail
1B-02: Irregular Procedure: Timeout of Receiver ID list	Pass
Iter 01:	Pass
1B-03: Irregular Procedure: Verify V'	Pass
Iter 01:	Pass
1B-04: Irregular Procedure: MAX DEVS EXCEEDED	Pass
Iter 01:	Pass
1B-05: Irregular Procedure: MAX CASCADE EXCEEDED	Pass
Iter 01:	Pass
1B-07: Regular Procedure: Re-authentication on HDCP HPD	Incomplete
Iter 01:	User Skipped
1B-08: Regular Procedure: Re-authentication on REAUTH REQ	Pass
Iter 01:	Pass
1B-09: Irregular Procedure: Rollover of seq num V	Incomplete
Iter 01:	User Skipped

Test Log: This section shows a log of messages with line numbers. A yellow arrow points to the 'Tests completed' message at line 0030.

```

0024 Processing test results.
0025 Test 1B-05 Iter 01 -> Pass
0026 --- Test 1B-08-01
0027 Executing the test.
0028 Processing test results.
0029 Test 1B-08 Iter 01 -> Pass
0030 Tests completed
    
```

At the bottom of the window, there are two buttons: 'Close Window' (with a red X icon) and 'Continue Testing' (with a play icon).

3.12 Viewing Details of Source Compliance Test Results

When you have completed the test series you will have an opportunity to view the detailed data for a particular failure or a test that passed. Use the following procedures to view the details of a failure.

To view the details of a failure:

1. Expose the detailed results of a failure and highlight a results record. Refer to the screen example below.

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test10 Manufacturer: Acme HTML Report

Date Tested: June 26, 2014 3:48 PM Model Name: XYZ

Overall Status: **CTS 1.0 - Incomplete** Port Tested: 1

Test Results

Test Name / Details	Status
▶ 1B-01: Regular Procedure: With Repeater	Fail
▶ 1B-02: Irregular Procedure: Timeout of Receiver ID list	Pass
▶ 1B-03: Irregular Procedure: Verify V'	Pass
▶ 1B-04: Irregular Procedure: MAX DEVS EXCEEDED	Pass
▶ 1B-05: Irregular Procedure: MAX CASCADE EXCEEDED	Pass
▶ 1B-07: Regular Procedure: Re-authentication on HDCP HPD	Incomplete
▶ 1B-08: Regular Procedure: Re-authentication on REAUTH REQ	Pass
▶ 1B-09: Irregular Procedure: Rollover of seq num V	Incomplete

1B-01: Regular Procedure: With Repeater

Instrument: MV980_DP [192.168.254.153] Continue Test Execution

Close

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test10 Manufacturer: Acme [HTML Report](#)
 Date Tested: June 26, 2014 3:48 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Incomplete** Port Tested: 1

Test Results

Test Name / Details	Status
1B-01: Regular Procedure: With Repeater	Fail
Iter 01:	Fail
HPD Deasserted regular	
HPD Asserted regular	
RX:UNAUTH	
HDMI/VIDEO Present	
MSG:VERSION ts:0x0 us	
MSG:Encryption disabled	
RCVD:AKE_INIT ts:0x200bde29 us	
Test Cond. auth	
MSG SND:AKE_Send_Cert ts:0x200d6ff6 us	
MSG RCVD:AKE_Stored_Km ts:0x200d8a14 us	
MSG SND:AKE_Send_H_Prime ts:0x200da952 us	
MSG RCVD:LC_Init ts:0x200db1e1 us	
MSG SND:LC_Send_L_Prime ts:0x200dd11f us	
MSG RCVD:SKE_Send_Eks ts:0x200de4f6 us	
MSG SND:RepAuth_Snd_RcvID_List ts:0x200e715c us	
RX MSG RCVD:RepAuth_Snd_Ack ts:0x200e7f85 us	
RX:MSG RCVD:RepAuth_Strm_Mgmt ts:0x200ed55c us	
RX:AUTHENTICATED	
MSG:RepAuth_Strm_Rdy ts:0x200ef852 us	
Timer Expired to receive ENC_EN	Fail
1B-02: Irregular Procedure: Timeout of Receiver ID list	Pass

1B-01: Regular Procedure: With Repeater

Instrument: MV980_DP [192.168.254.153] [Continue Test Execution](#) [Close](#)

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test10 Manufacturer: Acme [HTML Report](#)
 Date Tested: June 26, 2014 3:48 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Incomplete** Port Tested: 1

Test Results

Test Name / Details	Status
Iter 01:	Pass
• HPD Deasserted regular	
• HPD Asserted regular	
• RX:UNAUTH	
• HDMI/VIDEO Present	
• MSG:VERSION ts:0x0 us	
• MSG:Encryption disabled	
• RCVD:AKE_INIT ts:0x113f900 us	
• **Test Cond.** torcvidlist	
• MSG SND:AKE_Send_Cert ts:0x11589cd us	
• MSG RCVD:AKE_Stored_Km ts:0x115a40a us	
• MSG SND:AKE_Send_H_Prime ts:0x115c3ae us	
• MSG RCVD:LC_Init ts:0x115cc33 us	
• MSG SND:LC_Send_L_Prime ts:0x115eb66 us	
• MSG RCVD:SKE_Send_Eks ts:0x115ff29 us	
• MSG:VERSION ts:0x115ff29 us	
• MSG RCVD:AKE_INIT ts:0x15a9585 us	
• Warn:AKE_INIT sooner than 3s.INFO:RX:UNAUTH	
• RCVD:AKE_INIT ts:0x15a9585 us	
• MSG SND:AKE_Send_Cert ts:0x15c2470 us	
• MSG RCVD:AKE_Stored_Km ts:0x15c3e8f us	
• MSG SND:AKE_Send_H_Prime ts:0x15c5dae us	
• MSG RCVD:LC_Init ts:0x15c6629 us	
• MSG SND:LC_Send_L_Prime ts:0x15c8570 us	
• MSG RCVD:SKE_Send_Eks ts:0x15c9933 us	
• MSG SND:RepAuth_Snd_RcvID_List ts:0x15d25ae us	

1B-01: Regular Procedure: With Repeater

Instrument: MV980_DP [192.168.254.153] [Continue Test Execution](#)

[Close](#)

3.13 Canceling and Resuming the HDMI HDCP 2.2 Source Compliance

You can complete or resume a test series that was canceled earlier. The test results are saved in a directory that is accessible through the 980 GUI Manager interface. Use the following procedures in [Canceling and Resuming the HDMI HDCP 2.2 Compliance](#) to cancel and resume a canceled HDCP 2.2 Compliance test.

3.14 Viewing the HDMI HDCP 2.2 Source Compliance Test Results from the Navigation View

You can access the results of any test at any time through the **Navigation** view. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance Test Results from the Navigation View](#).

3.15 Viewing the HDMI HDCP 2.2 Source Compliance HTML test report

After you have completed the tests, you can view an HTML report. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance HTML test report](#) to view the HDCP 2.2 Compliance test HTML report.

4 HDMI HDCP 2.2 Sink Compliance Tests

This chapter describes how to use the *optional* HDMI HDCP 2.2 sink compliance test feature of the 980 HDMI Protocol Analyzer module. Please note you will have to purchase the HDCP 2.2 Compliance Test for Sinks license in order to run these tests.

The 980 supports the following test sections in the HDMI HDCP 2.2 Compliance Test specification:

- Receiver Upstream w/Transmitter
 - 2C-01: Regular Procedure – With Transmitter.
 - 2C-02: Irregular Procedure – New Authentication after AKE init.
 - 2C-03: Irregular Procedure – New Authentication during Locality Check.
 - 2C-04: Irregular Procedure – New Authentication after SKE Send EKs.
 - 2C-05: Irregular Procedure – New Authentication during Link Synchronization.

4.1 Workflow for running the HDMI HDCP 2.2 Sink Compliance Tests

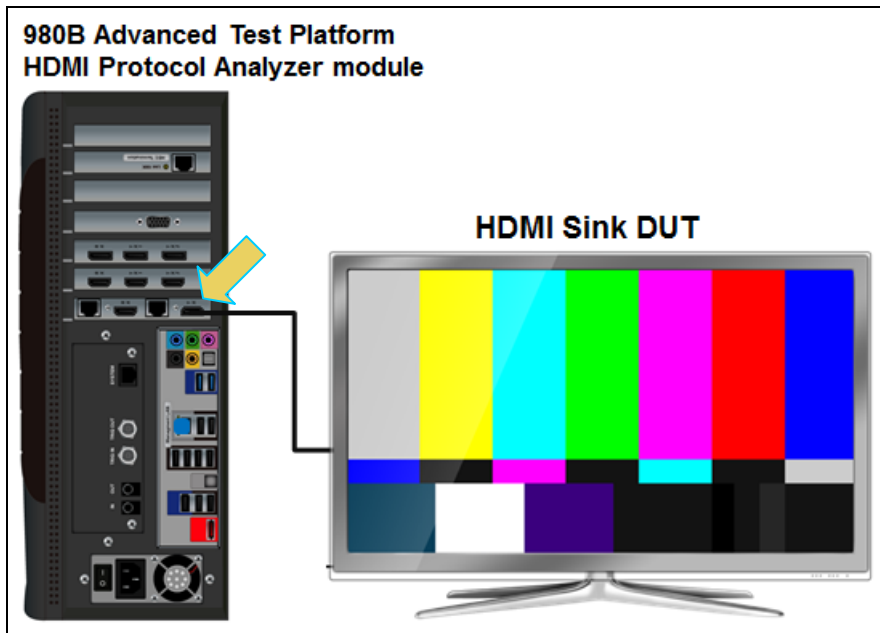
The following is the high level workflow for running the HDMI HDCP 2.2 Sink Compliance Tests. This workflow assumes that you have powered up the 980 and established an Ethernet session with the 980 as described in [Connection for 980 GUI Manager and 980](#).

The following is the high level workflow for running the HDMI HDCP 2.2 Sink Compliance Tests.

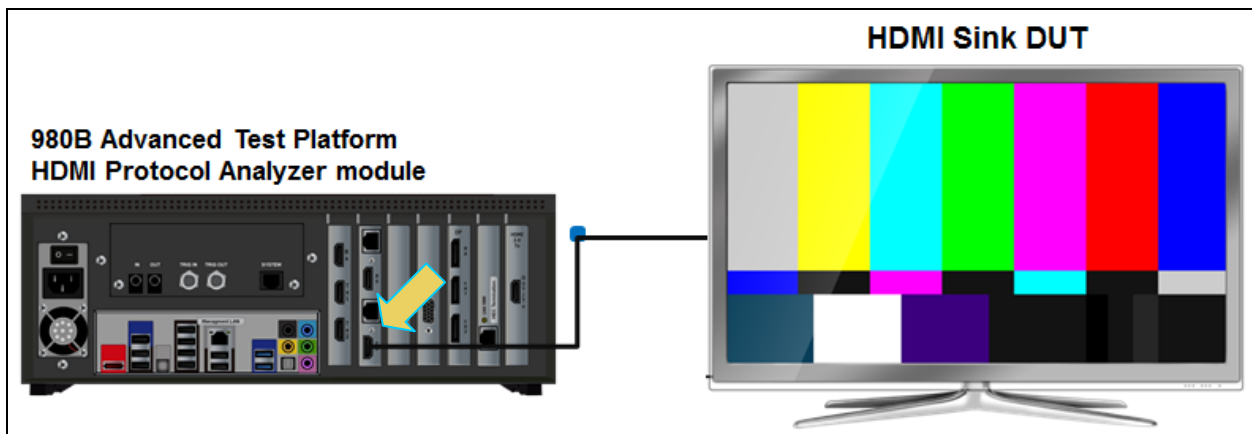
1. Connect the sink device under test to the 980 HDMI Protocol Analyzer Rx port via HDMI.
2. Complete a (or load an existing) Capabilities Declaration Form (CDF) for the device under test using the **CDF Entry** panel.
3. Select the tests that you wish to run from the **Test Selection** panel.
4. Initiate the tests through the **Test Options / Review** panel.
5. View the detailed data for test failures if failures occur.
6. View the results in the **Test Results** panel under the **Navigator** panel.

4.2 Making the HDMI connections

This procedure describes how to establish an HDMI connection between the HDMI sink device under test and the 980. This procedure assumes that you have assembled the 980 and sink device under test and applied power to all these devices. Refer to the procedures and diagram below.



HDMI connection for source compliance test – 980B



HDMI connection for source compliance test – 980R

1. Connect your HDMI source device under test to the HDMI Rx connector (the top most HDMI connector shown in the figure below) on the 980 HDMI Protocol Analyzer module. Use a high speed HDMI cable.

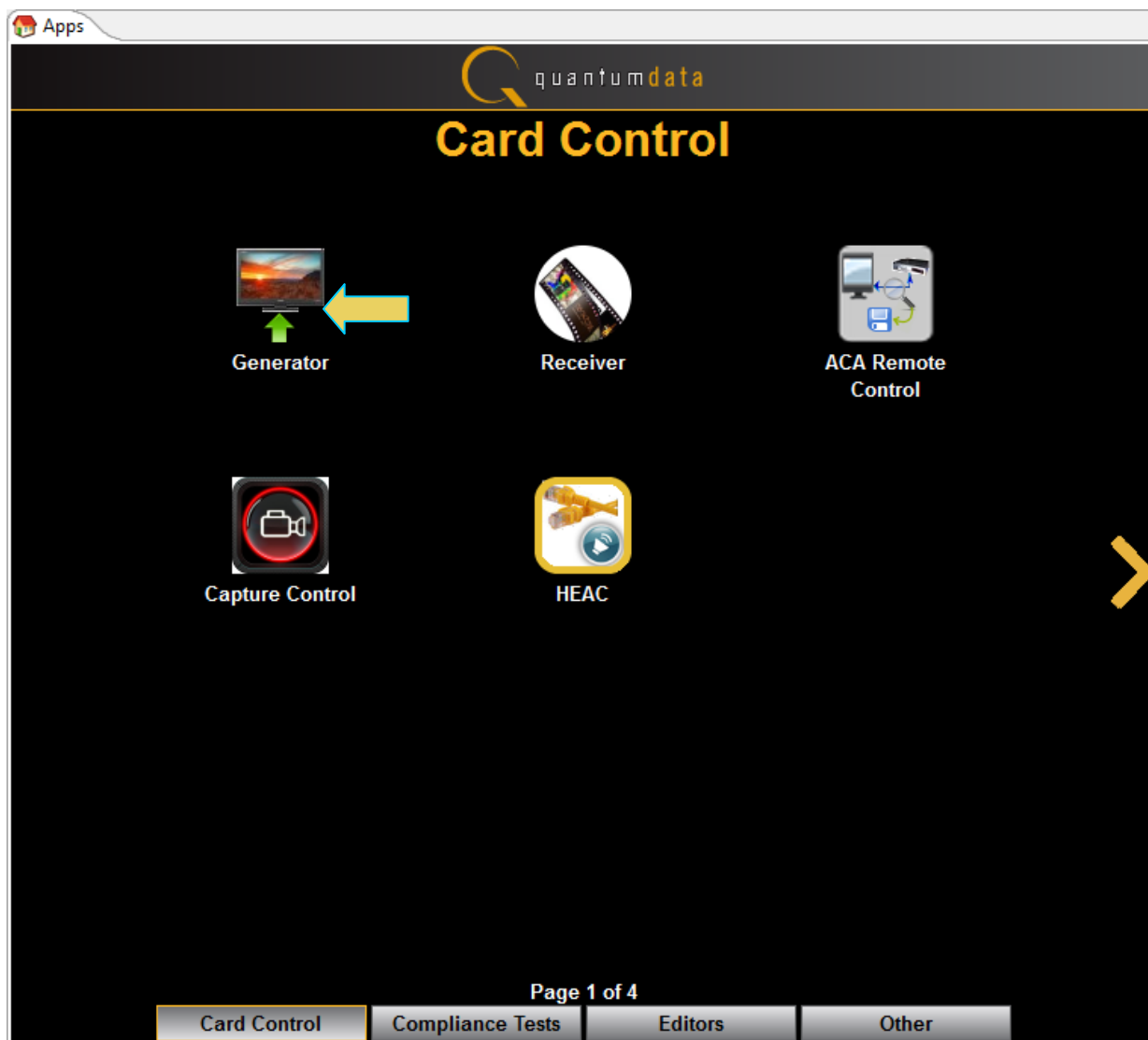
4.3 Running a Playback file

Use the following procedures to set the 980 HDMI Protocol Analyzer to playback a file out the module's HDMI output port.

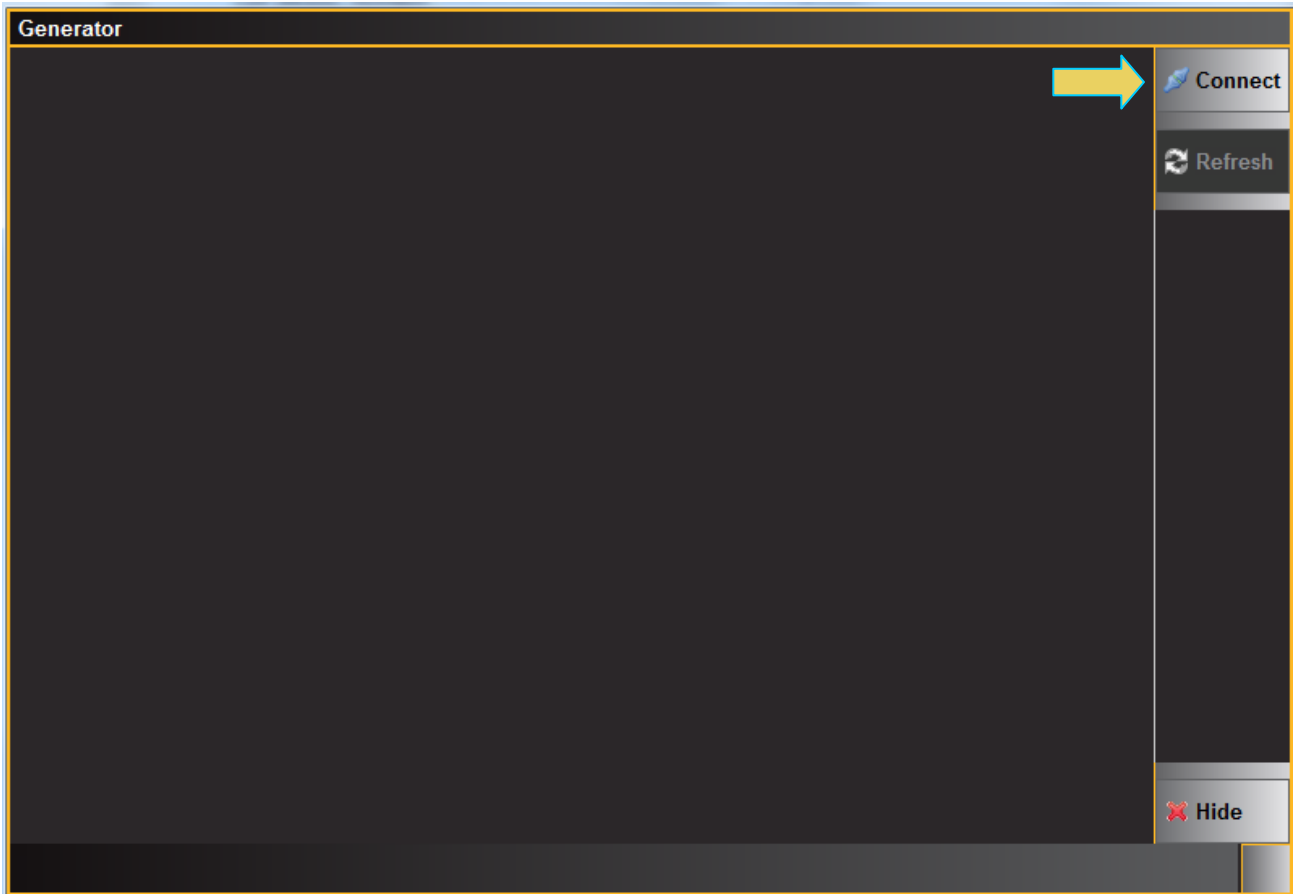
To playback a captured file to an HDMI display:

Note: Detailed procedures for capturing a file and playing the captured file back are provided in the 980 HDMI Protocol Analyzer module User Guide available on the Quantum Data website. The instructions below assume that you have a captured file already available for playback.

1. Access the Playback panel. You access the Generator Playback function through the main screen **Generator** icon as indicated below:

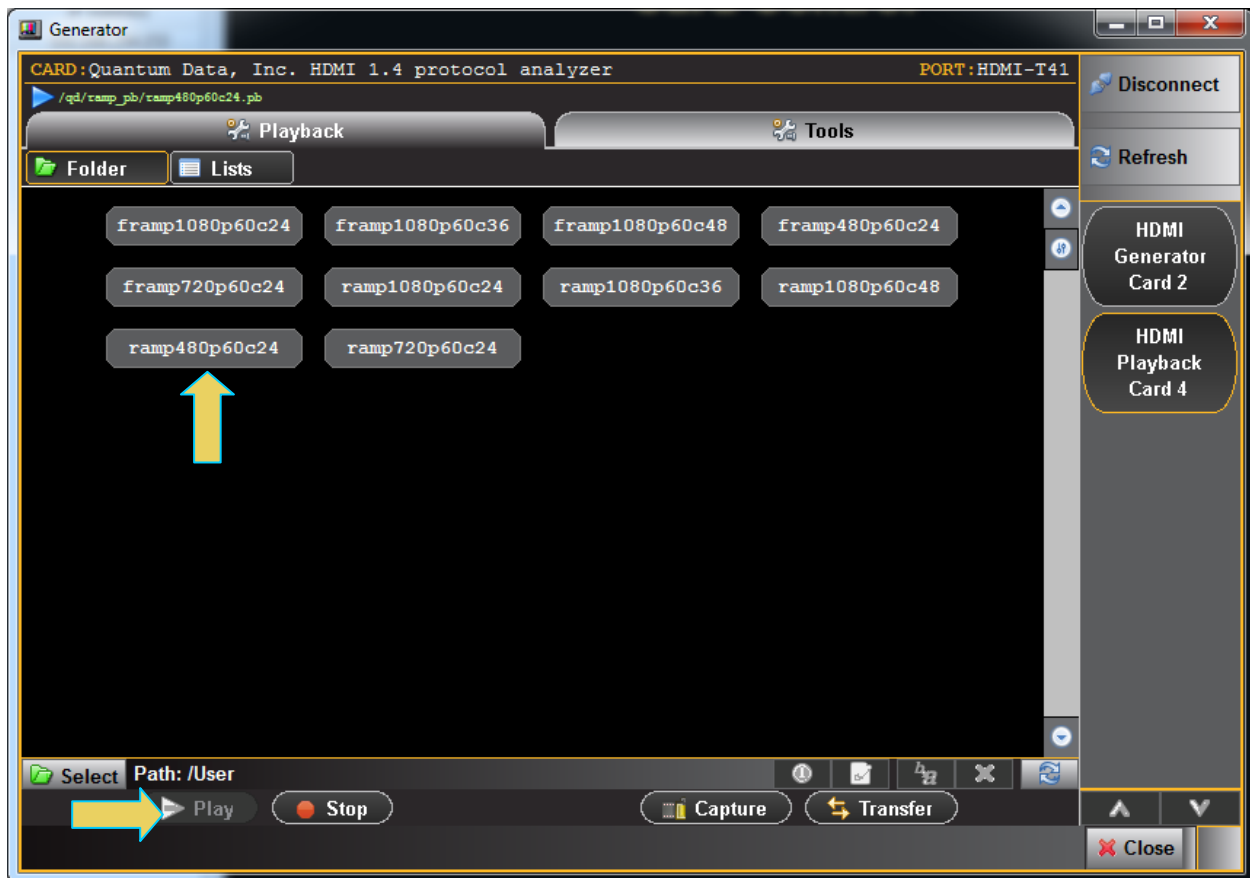


The **Generator** panel is shown below:



2. Connect to the 980 HDMI Protocol Analyzer using the **Connect** icon and button as indicated above. The 980 will read its directories and present the list of captured files in the window under the **Playback** tab as shown below. If there are no files the area will be blank.

Note: You may have to refresh the view using the global refresh button on the upper right or the local refresh button on the lower right.

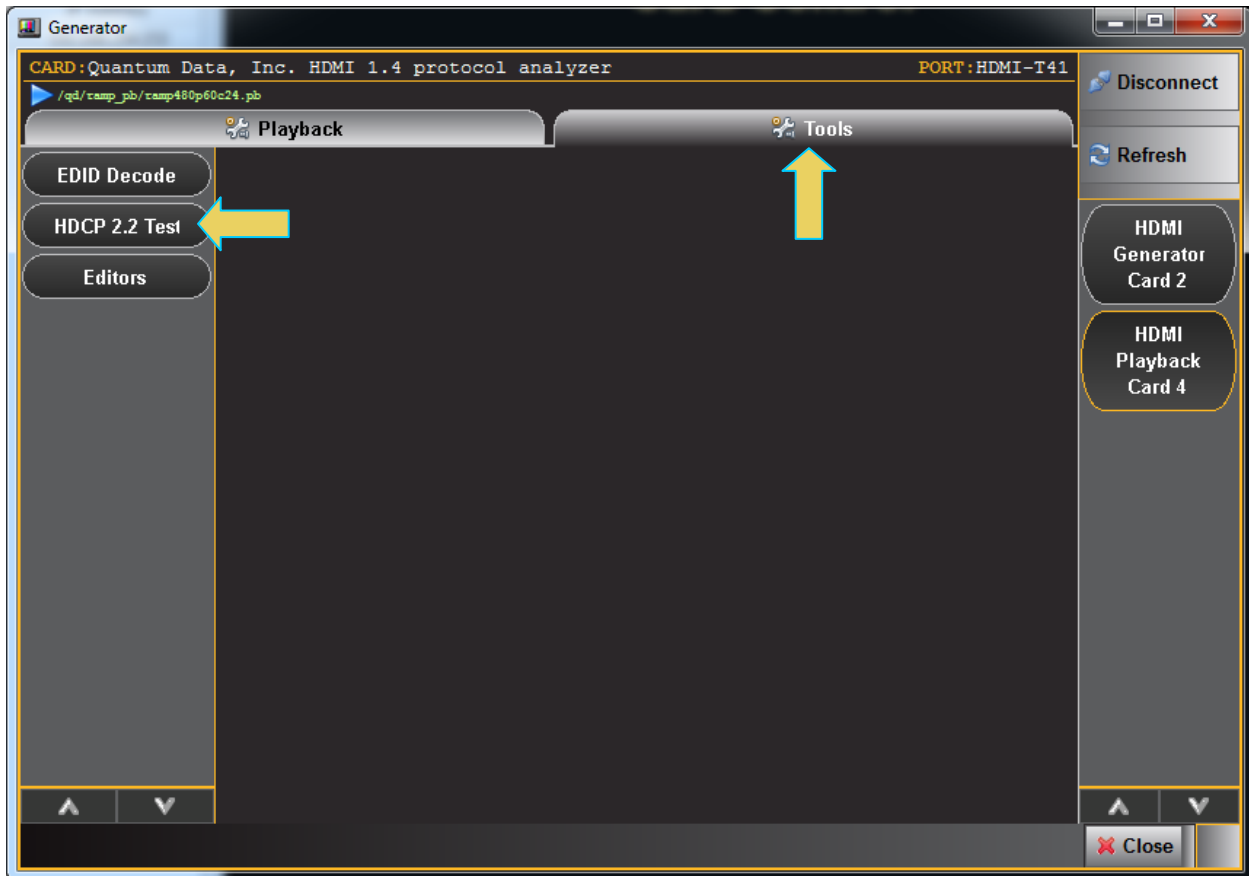


3. Select the file you wish to playback and click on the **Play** button as indicated above.
Monitor your sink device for the proper response.

4. Stop the playback at anytime by pressing the **Stop** button.

To playback enable HDCP on the playback file:

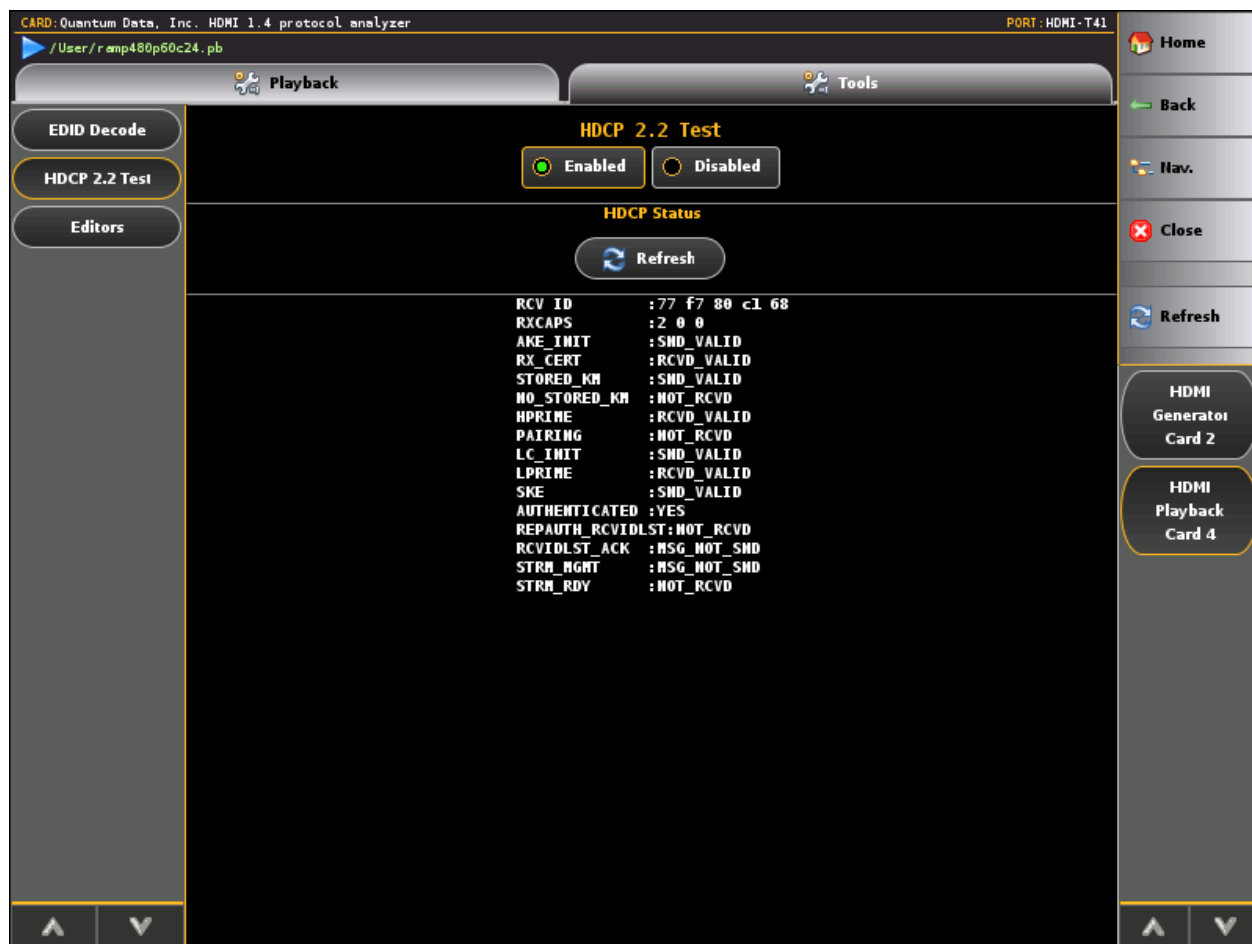
1. From the Playback panel, select the Tools tab as shown below.



2. Select HDCP 2.2 Test activation button on the left panel (indicated on the screen example above).
3. Select the Enable radio button as shown below.



- 4. Click on the Refresh button to view the HDCP 2.2 status. Refer to the screen example below.

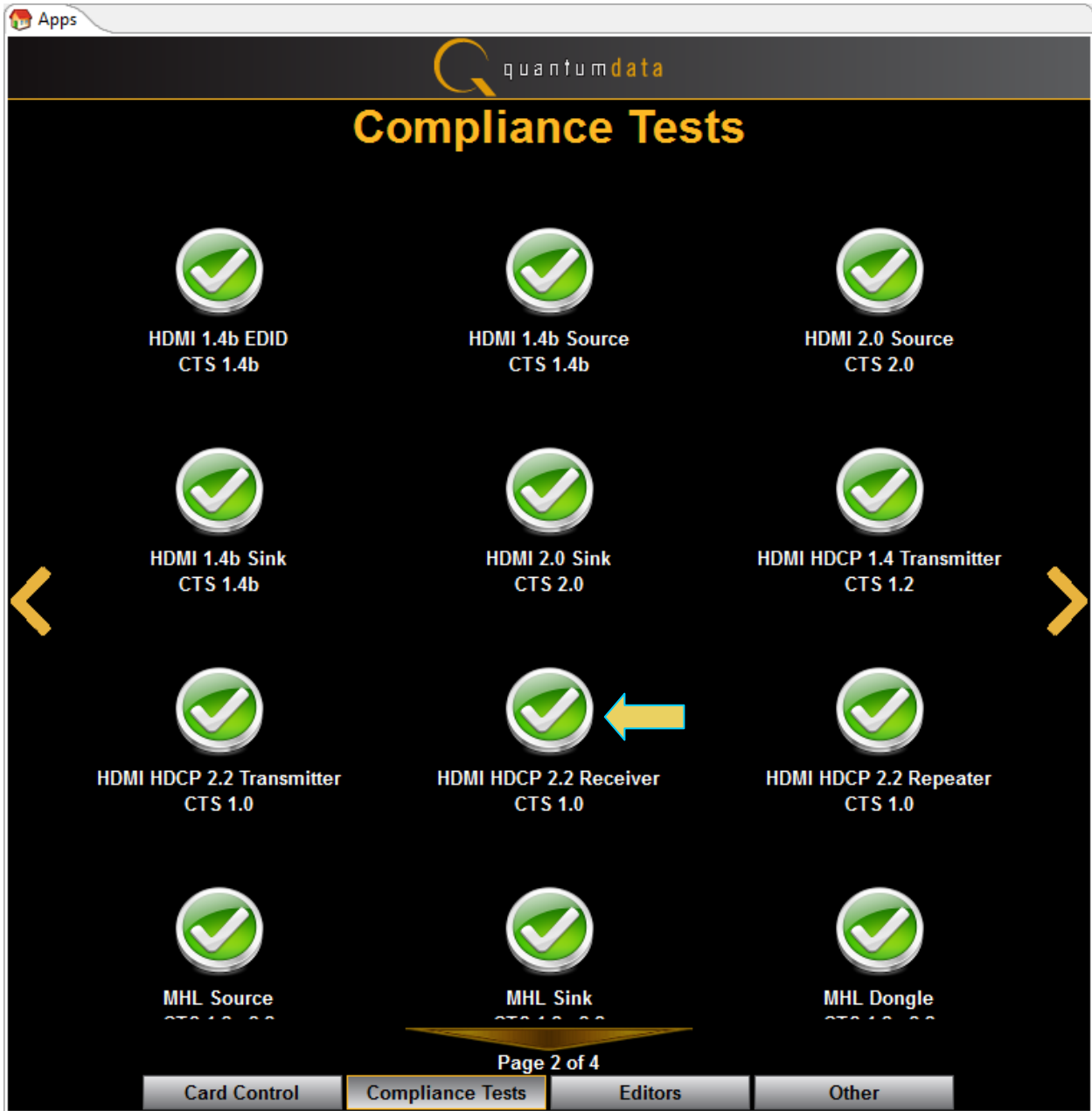


4.4 Completing the HDCP 2.2 Sink Test CDF

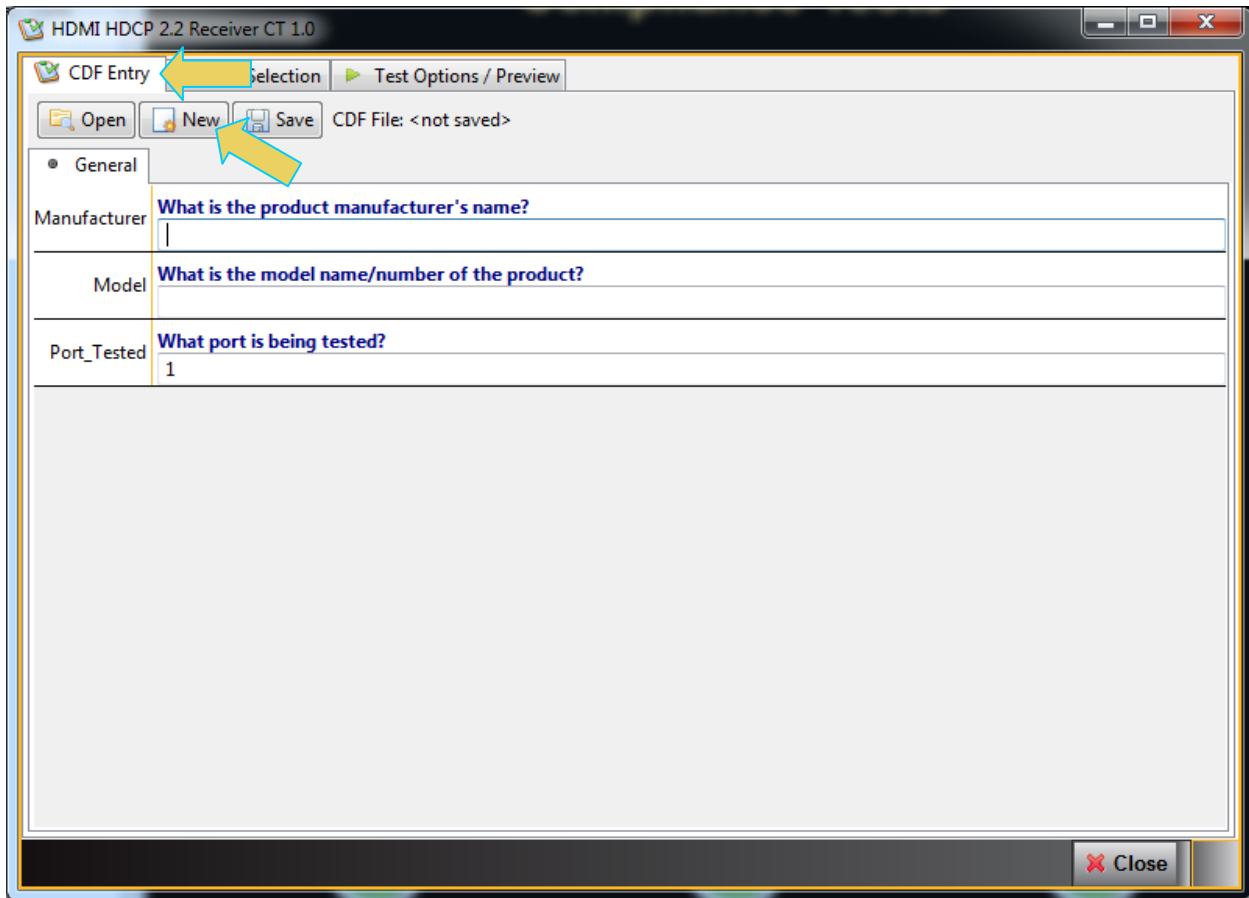
Use the following procedures to complete the CDF for the HDMI sink compliance tests.

To complete the CDF:

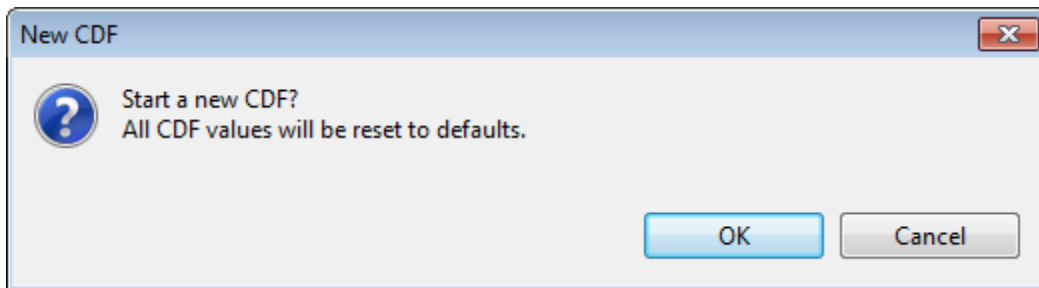
1. From the **Compliance Tests** page of the **Apps** panel, enable viewing of the **HDMI HDCP Sink Compliance Test (Receiver)**.



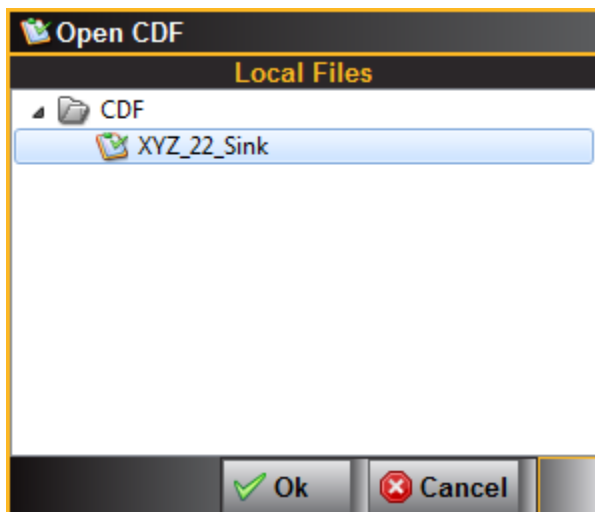
2. Select the **CDF Entry** panel as shown below.



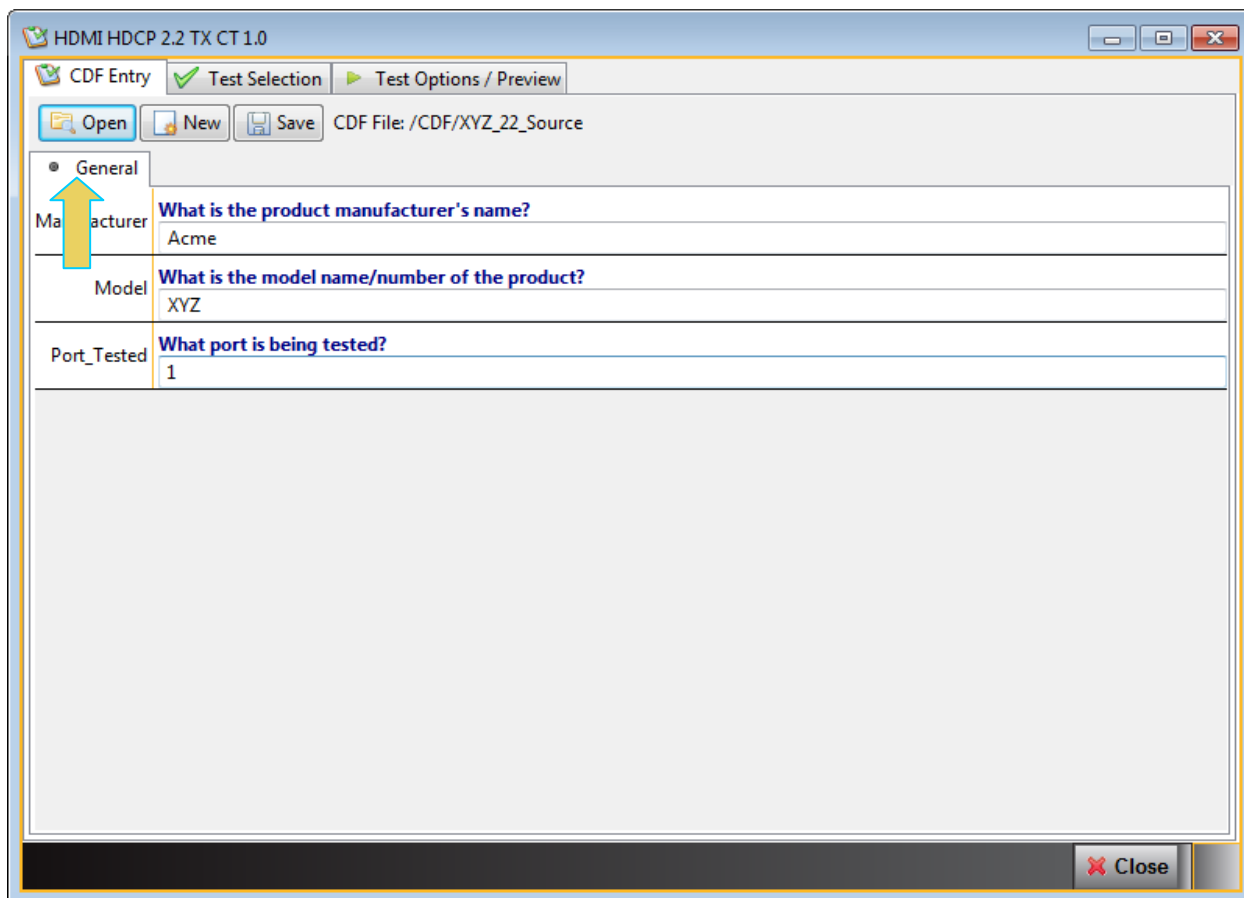
- To create a new CDF, click on the **New** activation button as can be seen in the screen example above. You will be prompted with a confirmation that you want to start a new CDF and reset the values. Click **OK** to proceed.



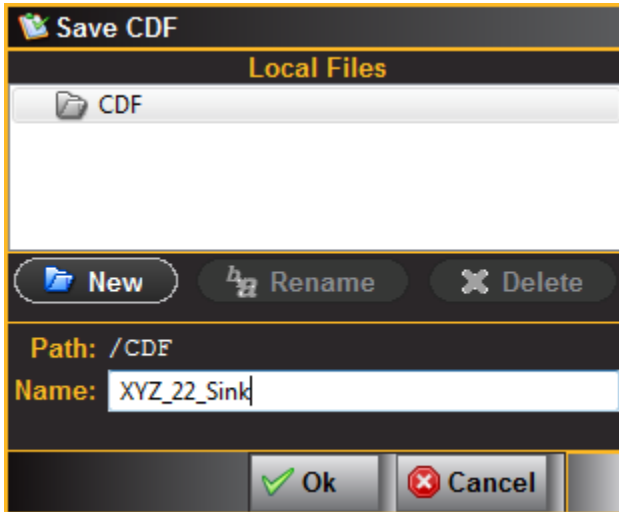
- To open an existing CDF, click on the **Open** activation button. You will be prompted with a dialog box that enables you to open a CDF. Select a CDF and then **OK** to proceed.



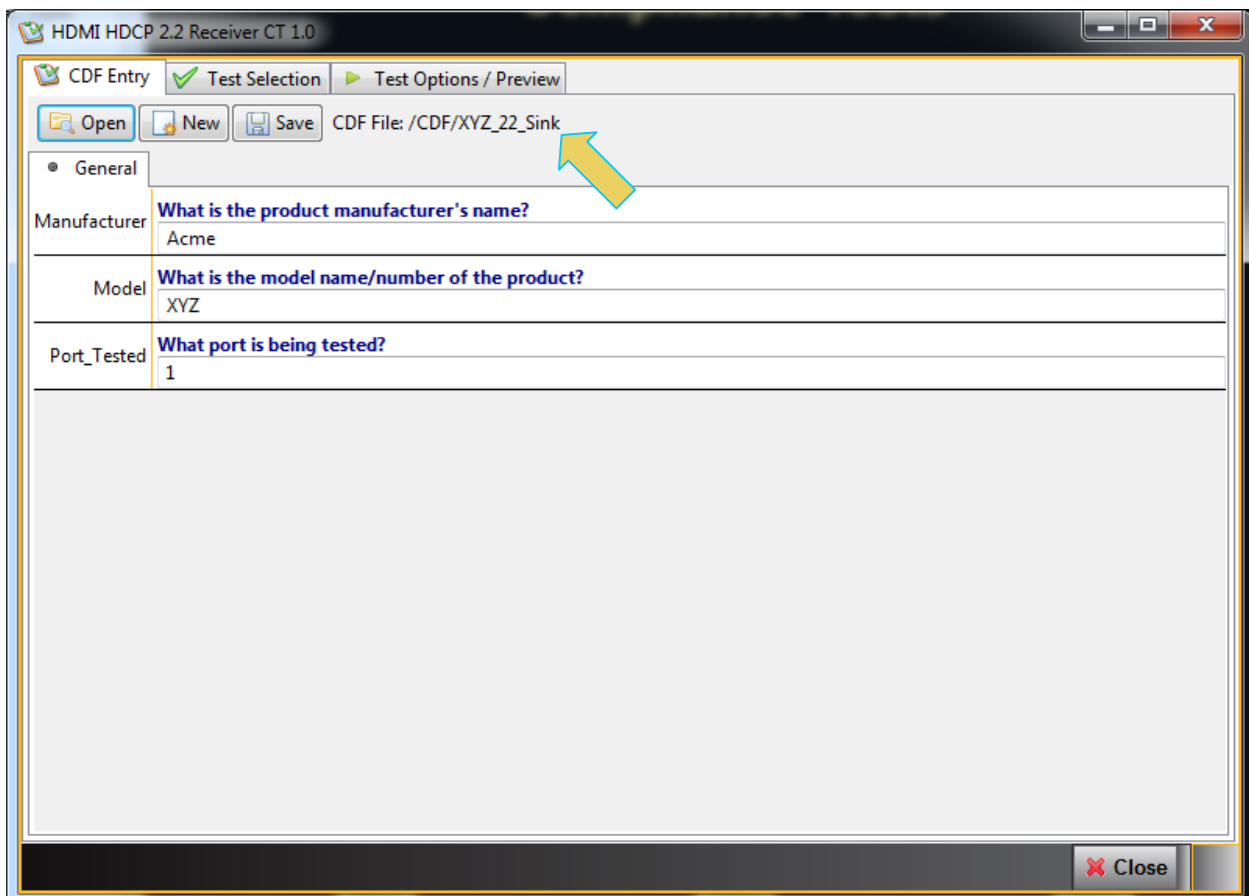
5. Complete the items in the **Products** tab of the CDF Entry panel shown below.



- Save the CDF. A confirmation box with a default name will appear as shown below. Edit the name if necessary and click OK.



CDF name in use is shown on panel.

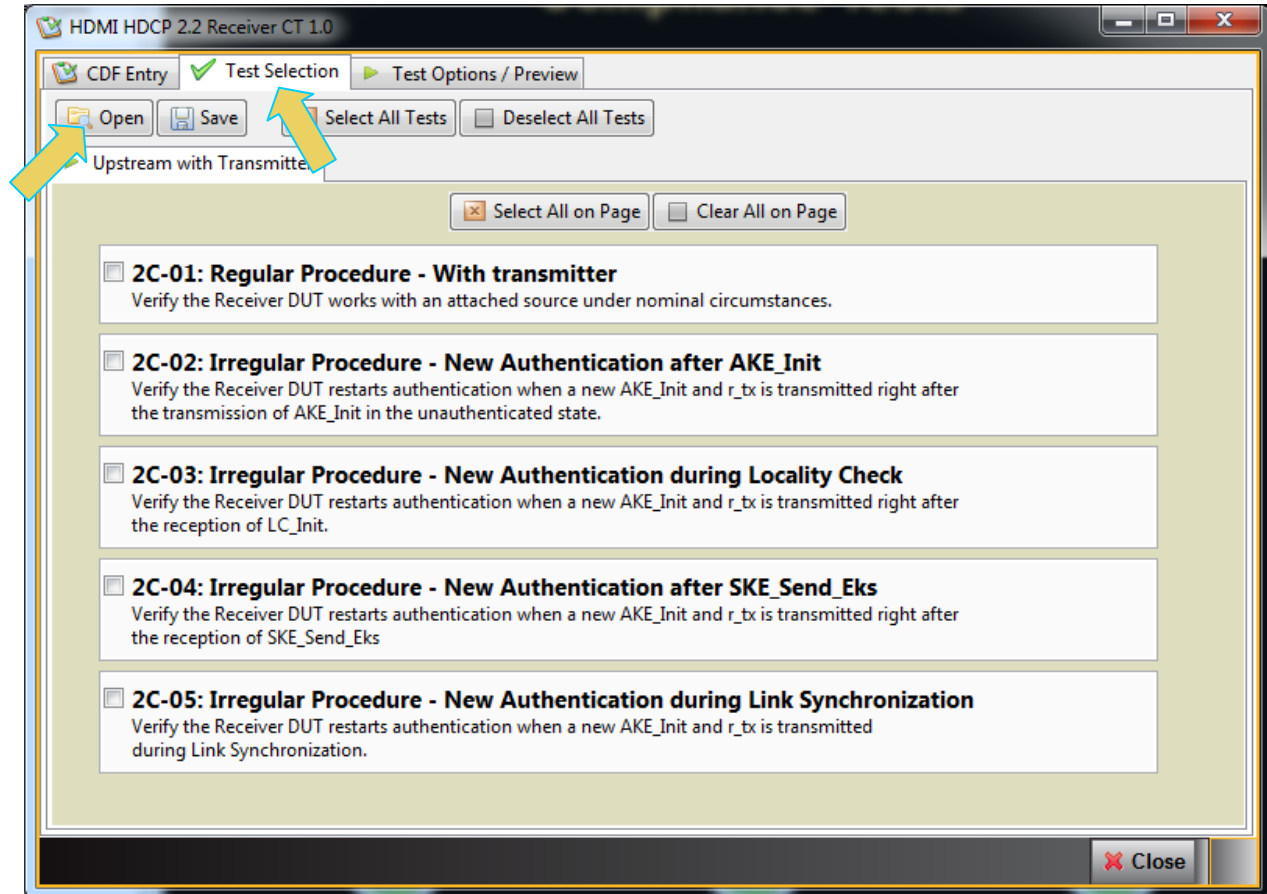


4.5 Selecting the 2C series tests

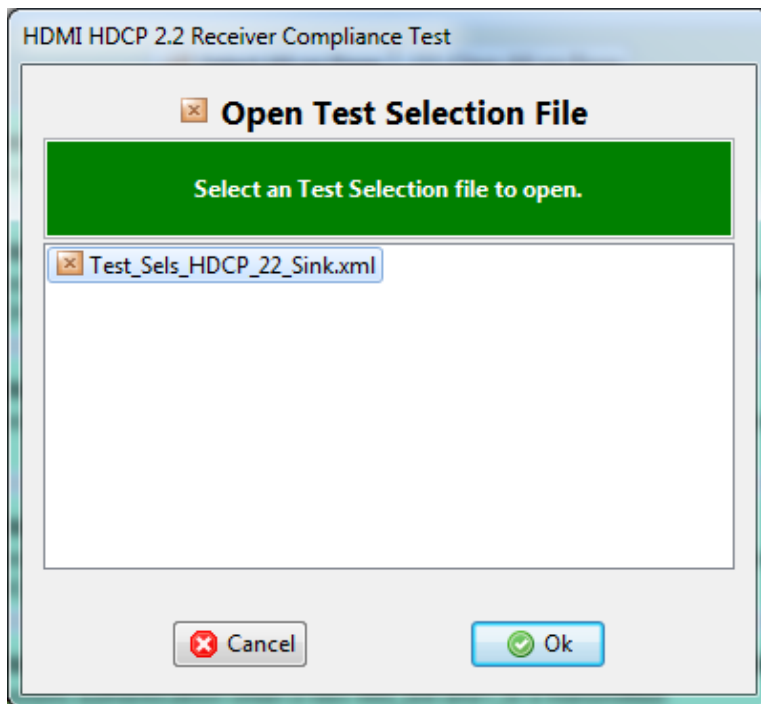
Use the following procedures to select the tests to run. There are multiple tabs which correspond to each section in the CTS.

To select the tests to run:

1. Select the **Test Selection** panel as shown below.
2. If you have an existing Test Selection option file saved you can recall that for use in your testing. Simply click on the **Open** activation button.



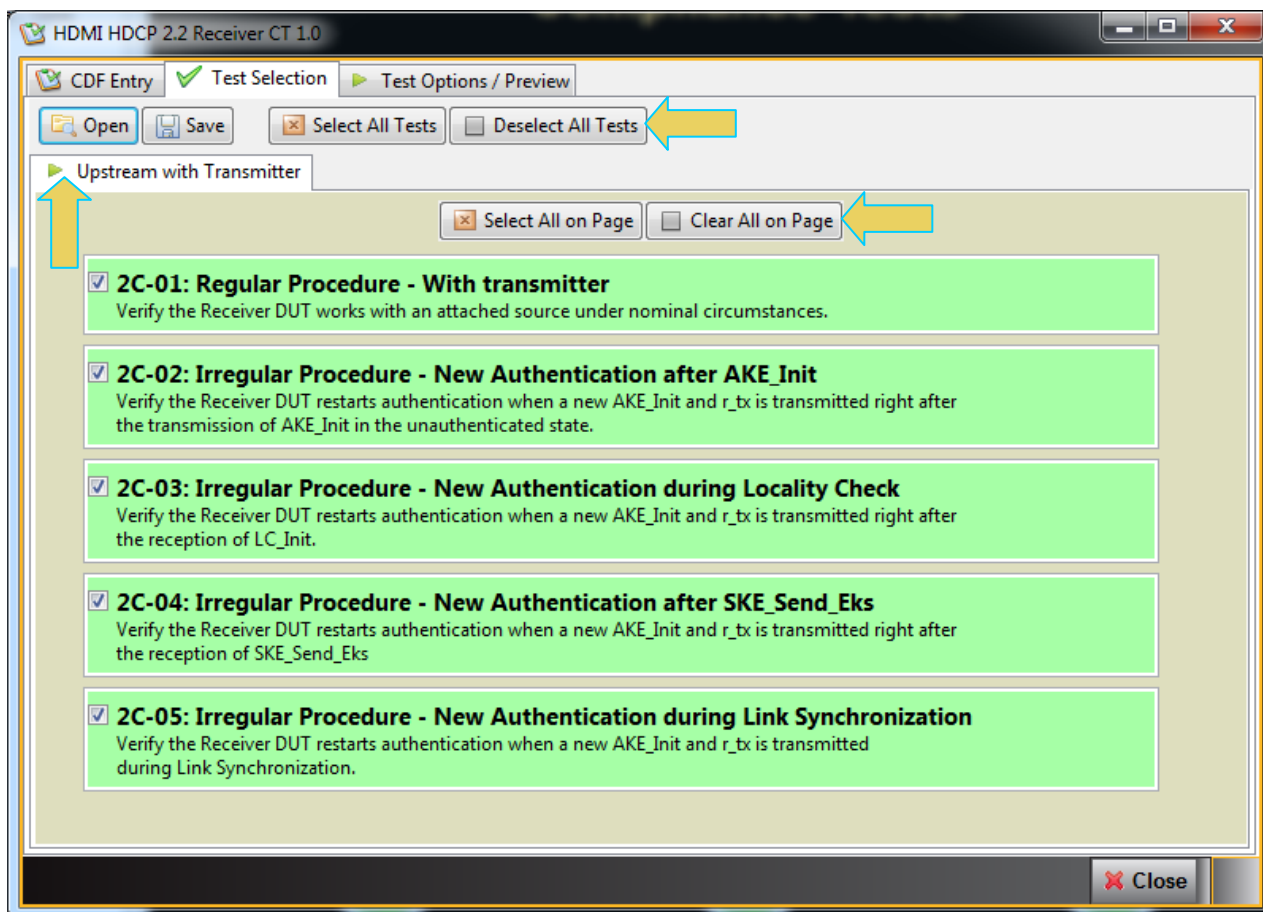
A dialog box will appear as follows. Simply select the file and click on the **OK** activation button.



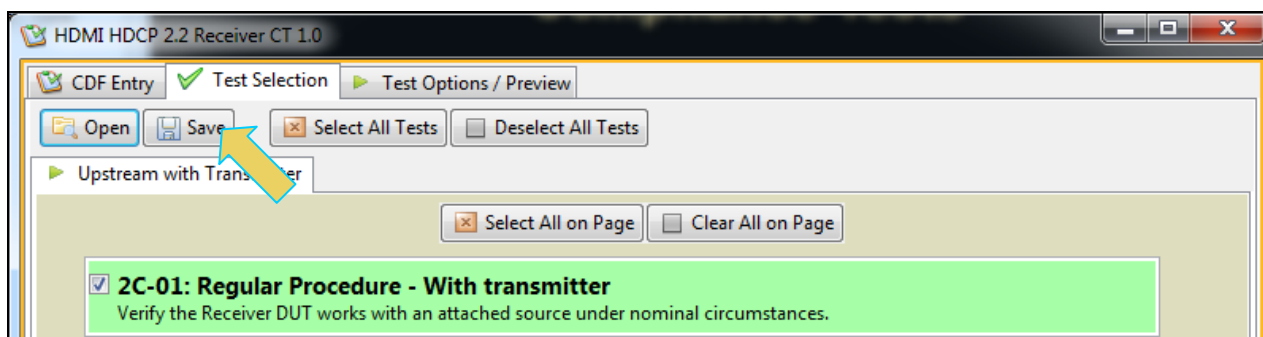
3. Complete the items in the **2C Tests** of the **Test Selection** panel shown below.

For convenience you can **Select All Tests** or **Deselect All Tests** for both tabs or for group selection over each page **Select All on Page** or **Clear All on Page** tests using the activation buttons provided.

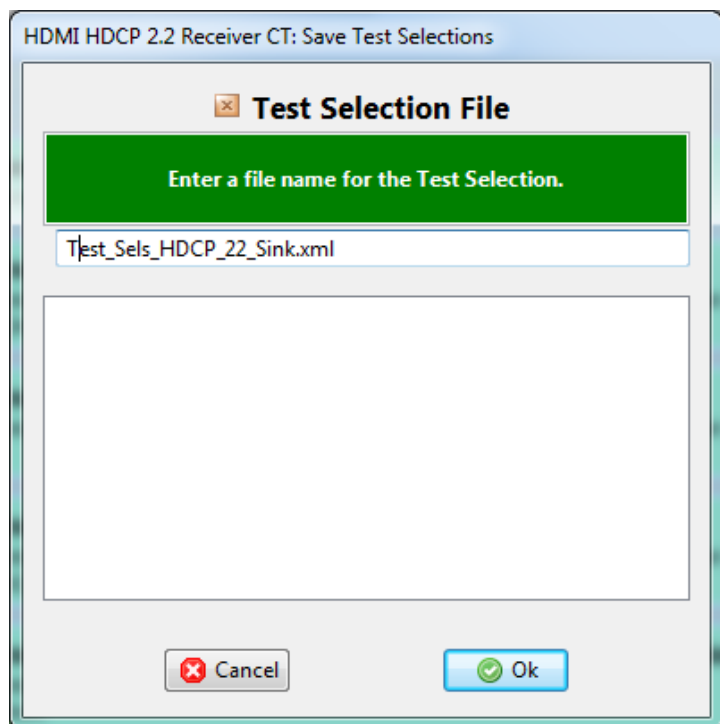
The following screens examples show the tests selected.



4. You can save the Test Selection options using the **Save** activation button.



A dialog box will appear as follows. Simply assign a name and click on the **OK** activation button. Click **Cancel** to exit.

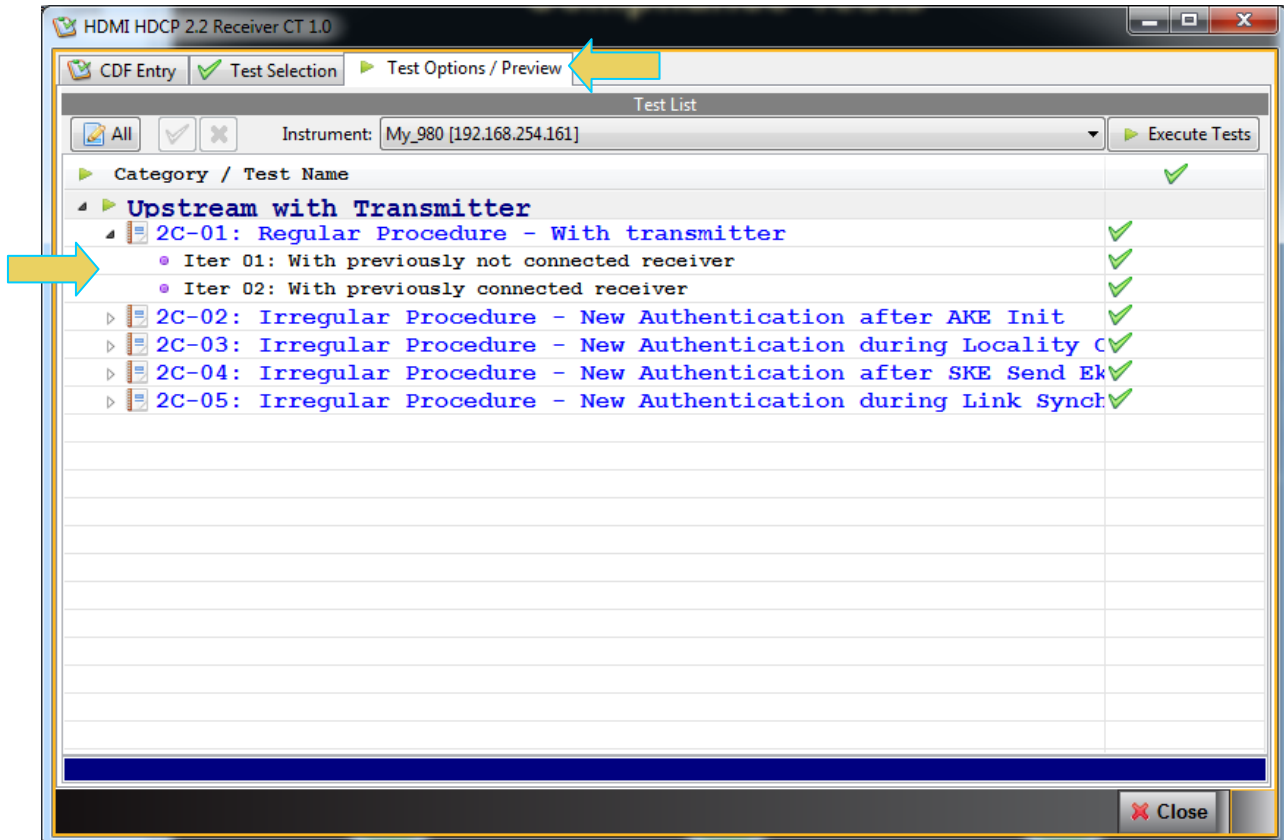


4.6 Executing the HDMI HDCP 2.2 2C Series Sink Compliance Tests

Use the following procedures to initiate the execution of an HDMI HDCP 2.2 2C series Sink Compliance test series.

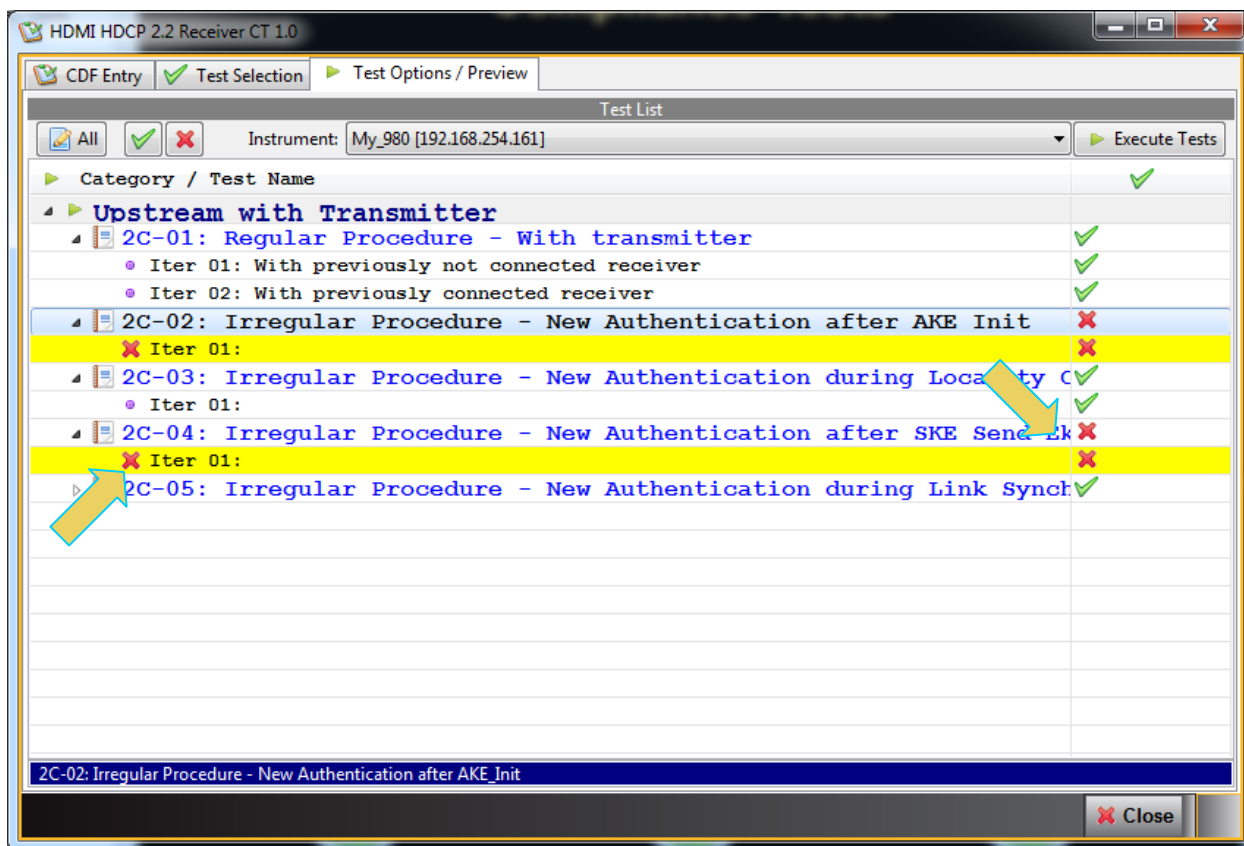
To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below.

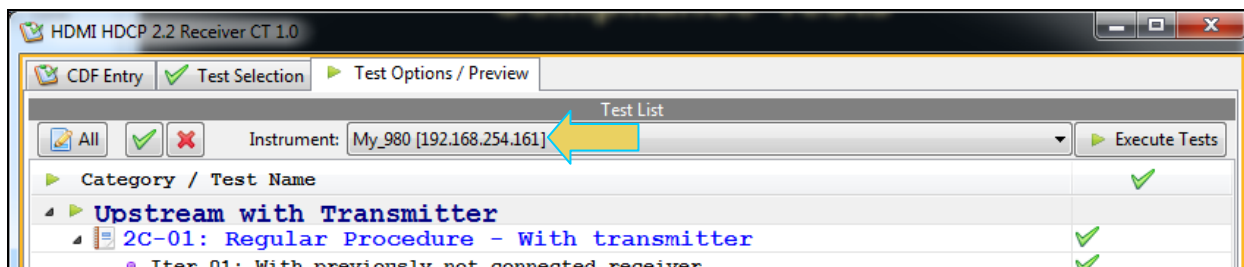


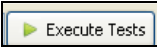
2. (Optional) Review the list of tests for each category. If you wish to skip some of the tests. You can skip tests by clicking on the Check mark on the right side of the **Test Options / Preview** panel.

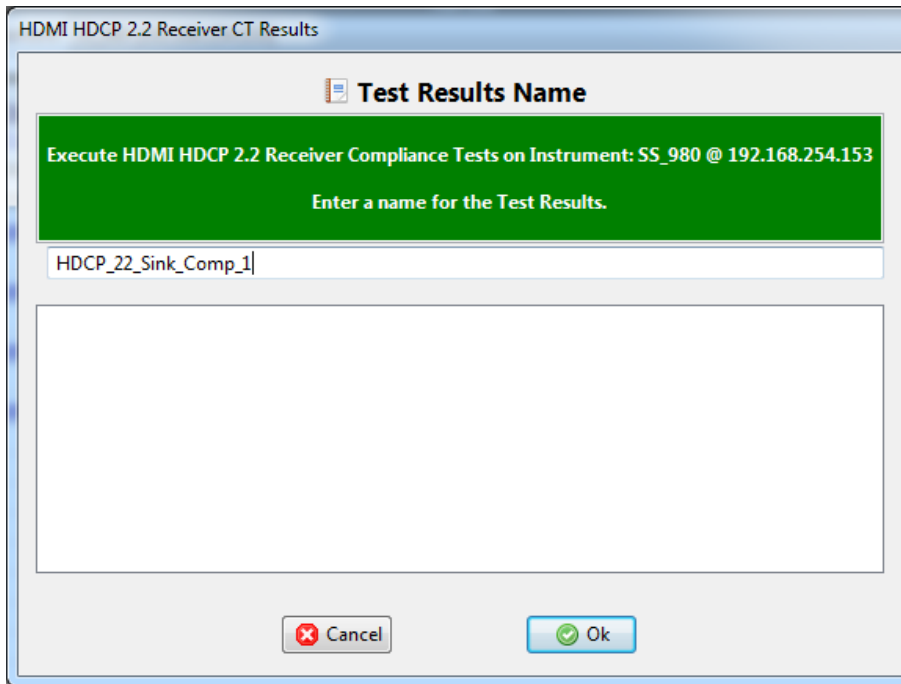
The screen shot below shows some of the tests that have been skipped (highlighted in yellow with a red X).



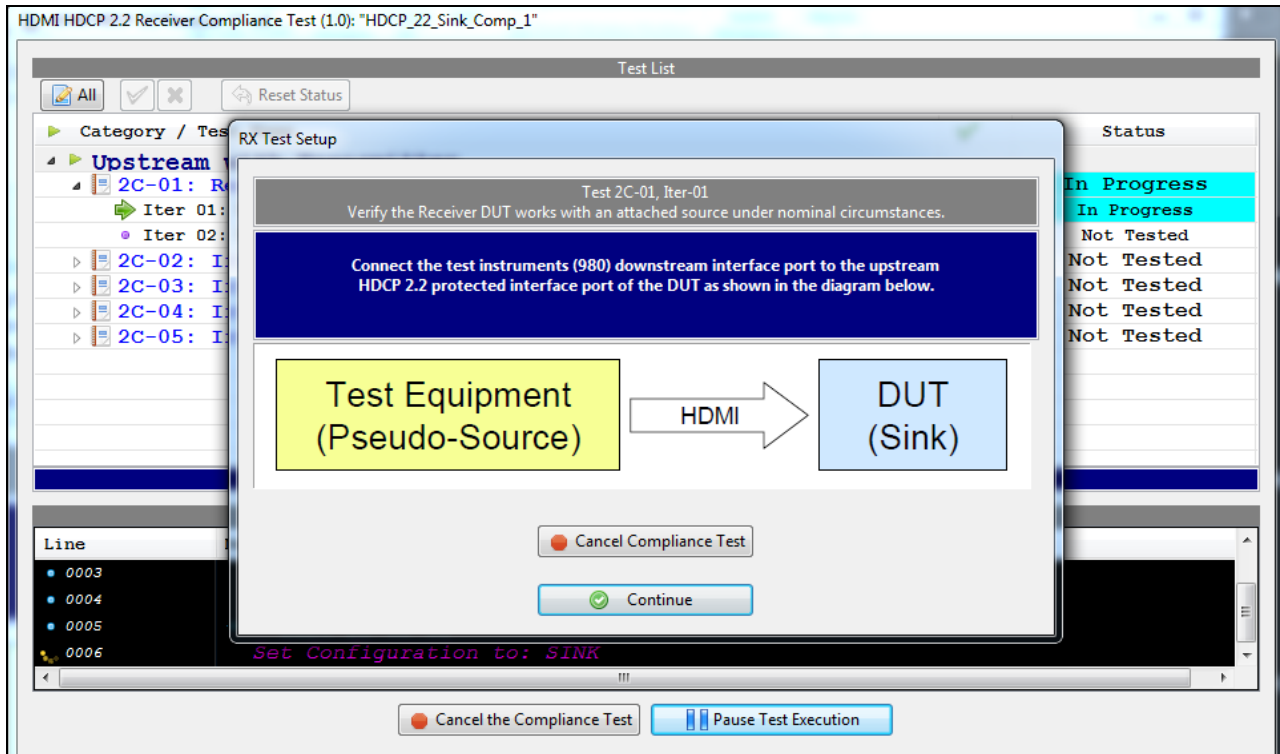
- 3. Select the 980 Test Instrument from the pull-down menu of the HDCP Test Options / Preview tab shown below.



Click on the **Execute Tests**  activation button to initiate the test suite. You will be prompted for a name for the tests. This dialog box is shown below.

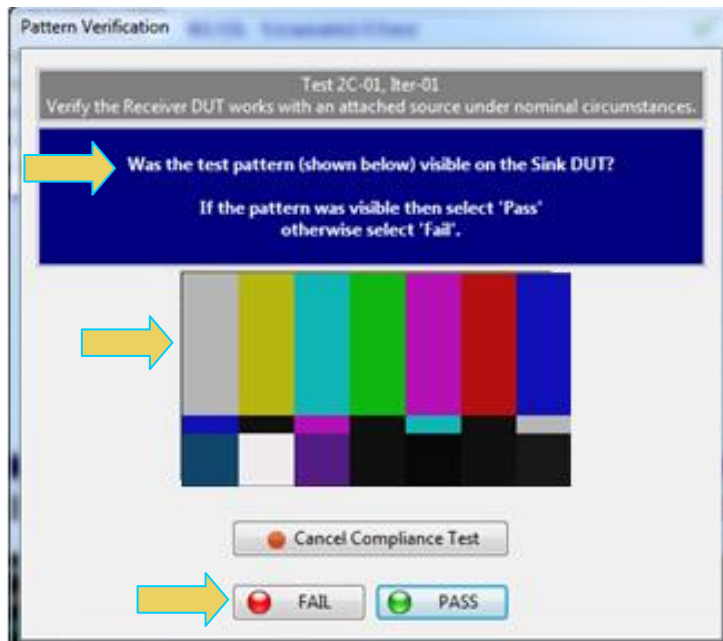


During the tests a **Sink Test Configuration** dialog box will appear which requires that you to verify that the sink device under test is connected properly. The following screen shot depicts this. Press **Continue** when you have the sink device connected properly. You can cancel the test using the **Cancel Compliance Test** button.




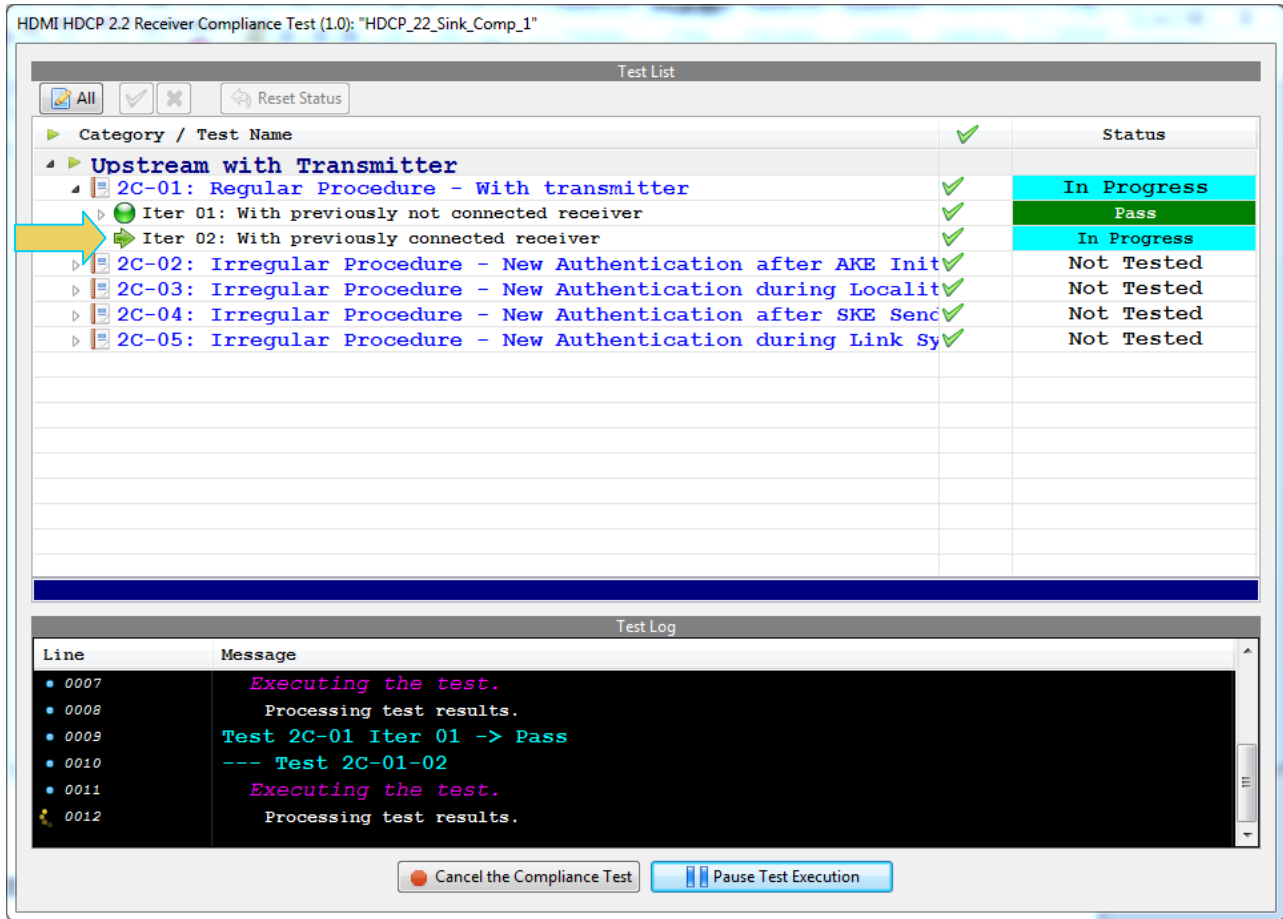
4. Click **Continue** after verifying that the connections have been made.

During the test, you will be prompted with a dialog box asked to observe a test image on the sink device under test. If the pattern is visible then click **Pass** on the dialog box. Otherwise click **Fail**. Refer to the screen shot below.



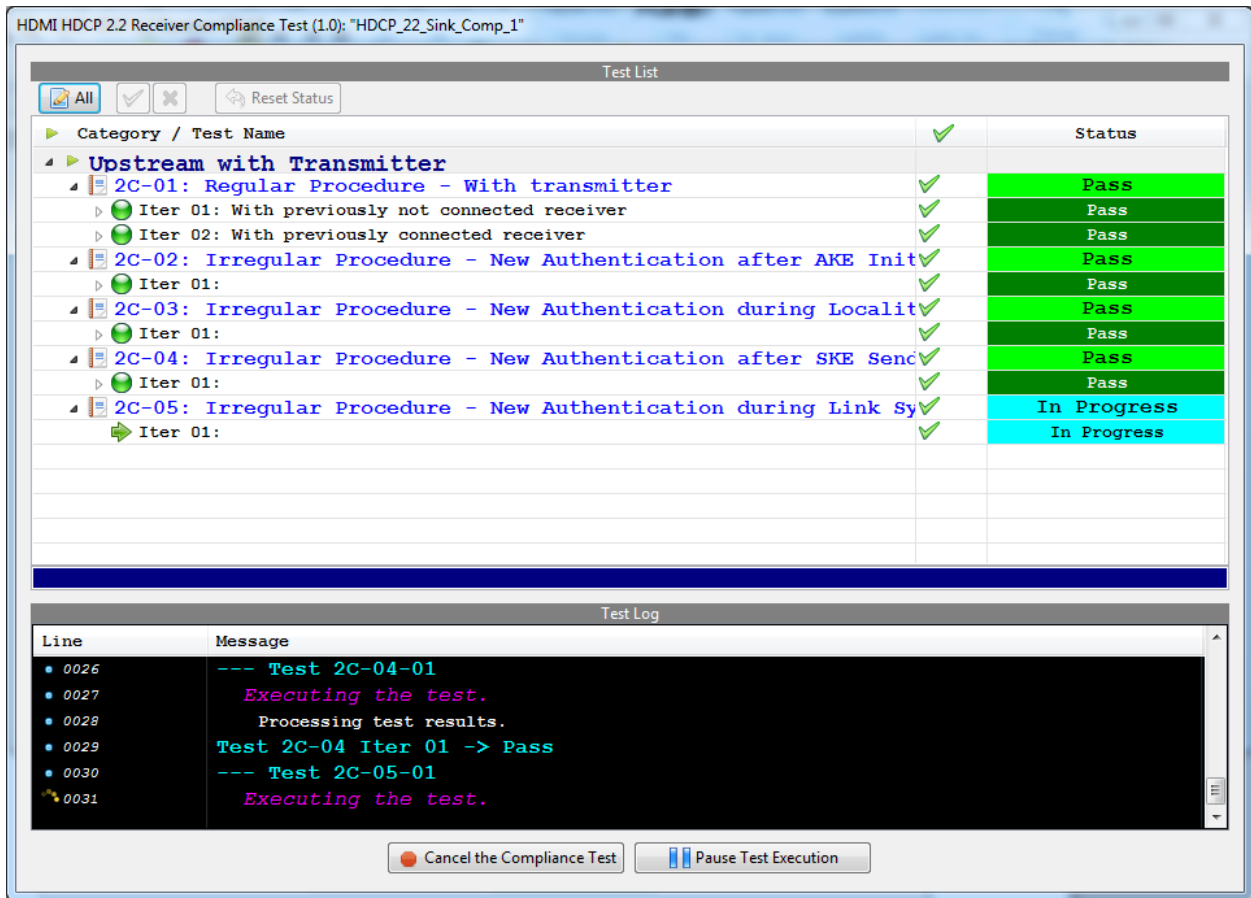
The previous sequence of actions will repeat for the first test (2C-01).

There is a green progress arrow  which points to the test that is currently being run.

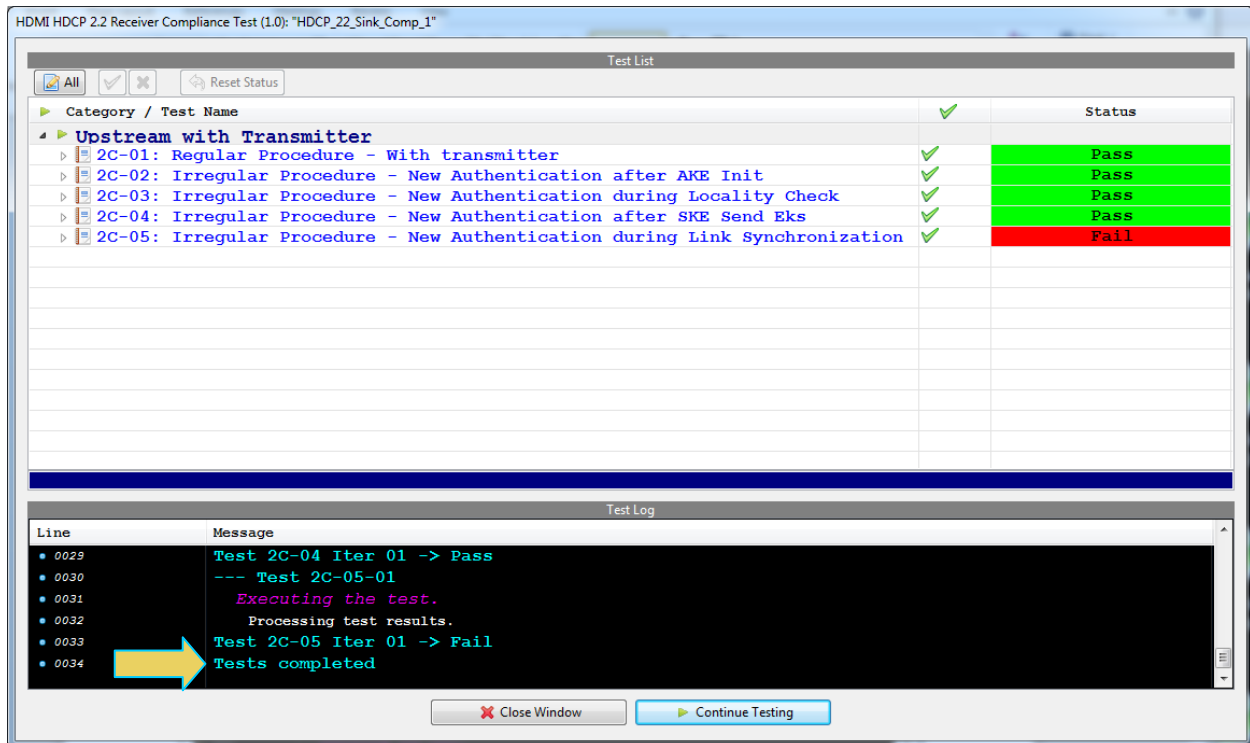


The lower panel **Test Log** shows the testing activity as it occurs. You can cancel the compliance test or pause at any time. If you pause the test you can resume later at any time even if you exit the 980 Manager application. Refer to the following screen examples.

This process will repeat itself for the remaining tests. The test window will inform you of the status. Refer to the screen example below.



When the tests are complete the test window will indicate Test Complete and show the results of each Test ID. Refer to the screen example below.



When you close the test execution window, the Compliance Test Viewer window will appear showing the results of the test. Please refer to the following section for details on viewing the compliance test results.

4.7 Viewing Details of 2C Sink Compliance Test Results

When you have completed the test series you will have an opportunity to view the detailed data for a particular failure or a test that passed. Use the following procedures to view the details of a failure.

To view the details of a failure:

1. Expose the detailed results of a failure and highlight a results record. Refer to the screen examples below.

Compliance Test Results Viewer
 HDMI HDCP 2.2 Receiver (1.0) Compliance Test Results

Results Name: HDCP_22_Sink_Comp_1 Manufacturer: Acme
 Date Tested: October 3, 2014 9:50 AM Model Name: XYZ
 Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
2C-01: Regular Procedure - With transmitter	Pass
2C-02: Irregular Procedure - New Authentication after AKE Init	Pass
2C-03: Irregular Procedure - New Authentication during Locality Check	Pass
2C-04: Irregular Procedure - New Authentication after SKE Send Eks	Pass
2C-05: Irregular Procedure - New Authentication during Link Synchronization	Fail

Instrument: SS_980 [192.168.254.153] Continue Test Execution

Compliance Test Results Viewer
 HDMI HDCP 2.2 Receiver (1.0) Compliance Test Results

Results Name: HDCP_22_Sink_Comp_1 Manufacturer: Acme
 Date Tested: October 3, 2014 9:50 AM Model Name: XYZ
 Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
2C-01: Regular Procedure - With transmitter	Pass
2C-02: Irregular Procedure - New Authentication after AKE Init	Pass
2C-03: Irregular Procedure - New Authentication during Locality Check	Pass
Iter 01:	--
ERROR: ioctl_QDVIIOC_TX_DDC_READ failed. Error: '-1'	
ERROR: I2C 74:70 READ error=-1'	
MSG:HPD_DIS ts:0x1115f36 us	
MSG:VALID_VER ts:0x0 us	
MSG:HPD_EN ts:0x330 us	
TX:UNAUTH::enter	
AKE_INIT ts:0xf5338 us	
MSG RCVD:AKE_Send_Cert ts:0xf5613 us	
Snd No_Stored_RM ts:0x113fa9 us	
MSG RCVD:AKE_Send_H_Prime ts:0x171f29 us	
MSG RCVD:AKE_Send_pairing_info ts:0x1742fb us	
Snd LC_Init ts:0x175e0d us	
MSG RCVD:LC_Send_L_Prime ts:0x1767b7 us	
Snd SKE_Send_EKS ts:0x179943 us	
TX:AUTH::enter	
2C-04: Irregular Procedure - New Authentication after SKE Send Eks	Pass
2C-05: Irregular Procedure - New Authentication during Link Synchronization	Fail
Iter 01:	--
ERROR: ioctl_QDVIIOC_TX_DDC_READ failed. Error: '-1'	
ERROR: I2C 74:70 READ error=-1'	
MSG:HPD_DIS ts:0xc7bdb8 us	
MSG:VALID_VER ts:0x0 us	
MSG:HPD_EN ts:0x32a us	
TX:UNAUTH::enter	
AKE_INIT ts:0xeb8df59c us	

Instrument: SS_980 [192.168.254.153] Continue Test Execution

4.8 Canceling and Resuming the HDMI HDCP 2.2 Sink Compliance

You can complete or resume a test series that was canceled earlier. The test results are saved in a directory that is accessible through the 980 GUI Manager interface. Use the following procedures in [Canceling and Resuming the HDMI HDCP 2.2 Compliance](#) to cancel and resume a canceled HDCP 2.2 Compliance test.

4.9 Viewing the HDMI HDCP 2.2 Sink Compliance Test Results from the Navigation View

You can access the results of any test at any time through the **Navigation** view. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance Test Results from the Navigation View](#).

4.10 Viewing the HDMI HDCP 2.2 Sink Compliance HTML test report

After you have completed the tests, you can view an HTML report. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance HTML test report](#) to view the HDCP 2.2 Compliance test HTML report.

5 HDMI HDCP 2.2 Repeater Compliance Tests

This chapter describes how to use the HDMI HDCP 2.2 repeater compliance test option of the 980 HDMI Protocol Analyzer module. Please note you will have to purchase the HDMI HDCP 2.2 Compliance Test for Repeaters license in order to run these tests.

The 980 HDMI Protocol Analyzer module supports the following test sections in the HDMI HDCP 2.2 Compliance Test specification for repeaters:

- Repeater Downstream w/Receiver
 - 3A-01: Regular Procedure: With newly connected Receiver (With stored Km).
 - 3A-02: Irregular Procedure: With newly connected Receiver (Without stored Km).
 - 3A-03: Regular Procedure: Rx certificate not received.
 - 3A-04: Irregular Procedure: Verify Receiver Certificate.
 - 3A-05: Irregular Procedure: Invalid H'.
 - 3A-06: Irregular Procedure: Pairing Failure.
 - 3A-07: Irregular Procedure: Locality Failure.
- Repeater Downstream w/Receiver
 - 3B-01: Regular Procedure: With Repeater.
 - 3B-02: Irregular Procedure: Timeout of Receiver ID list.
 - 3B-03: Irregular Procedure: Verify V'.
 - 3B-04: Irregular Procedure: MAX_DEVS_EXCEEDED.
 - 3B-05: Irregular Procedure: MAX_CASCADE_EXCEEDED.
 - 3B-06: Irregular Procedure: Rollover of seq_num_V.
 - 3B-07: Irregular Procedure: Failure of Content Stream Management.
- Repeater Upstream w/Transmitter
 - 3C-01: Regular Procedure: Transmitter – DUT - Receiver.
 - 3C-02: Regular Procedure: ReceiverID_List Propagation when an Active Receiver is Disconnected.
 - 3C-03: Regular Procedure: ReceiverID_List Propagation when an Active Receiver is Connected.
 - 3C-04: Irregular Procedure: New Authentication after AKE_Init.
 - 3C-05: Irregular Procedure: New Authentication during Locality Check.
 - 3C-06: Irregular Procedure: New Authentication after SKE_Send_Eks.
 - 3C-07: Irregular Procedure: New Authentication during Link Synchronization.
 - 3C-08: Irregular Procedure: Rx Certificate Invalid.
 - 3C-09: Irregular Procedure: Invalid H'.
 - 3C-10: Irregular Procedure: Locality Failure.
- Repeater Upstream w/Transmitter and Repeater
 - 3C-11: Regular Procedure: Transmitter – DUT – Repeater (With stored Km).
 - 3C-12: Regular Procedure: Receiver disconnected after AKE.
 - 3C-13: Regular Procedure: Receiver disconnect after Km.
 - 3C-14: Irregular Procedure: Receiver disconnect after locality check.
 - 3C-15: Irregular Procedure: Receiver disconnect after Ks.
 - 3C-16: Irregular Procedure: Timeout of Receiver ID list.
 - 3C-17: Irregular Procedure: Verify V'.
 - 3C-18: Irregular Procedure: DEVICE_COUNT.
 - 3C-19: Irregular Procedure: DEPTH.
 - 3C-20: Irregular Procedure: MAX_DEVS_EXCEEDED.
 - 3C-21: Irregular Procedure: MAX_CASCADE_EXCEEDED.
 - 3C-22: Irregular Procedure: Repeater with zero downstream device.
 - 3C-23: Irregular Procedure: Propagation of HDCP 2.0 REPEATER_DOWNSTREAM flag.
 - 3C-24: Irregular Procedure: Propagation of HDCP1 DEVICE_DOWNSTREAM flag.

- 3C-25: Irregular Procedure: Content Stream Management.

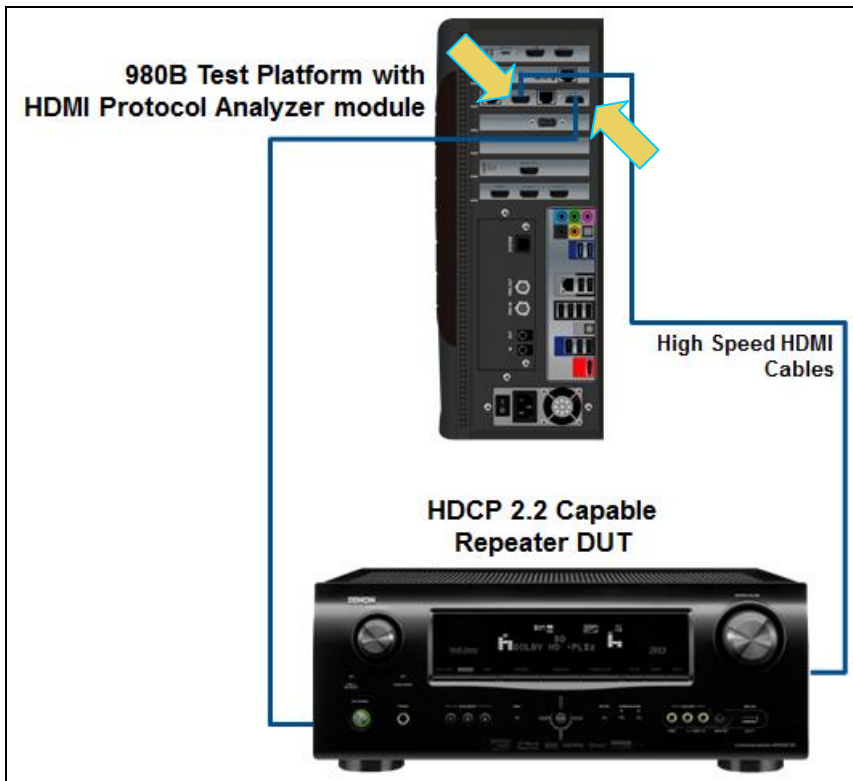
5.1 Workflow for running the HDMI HDCP 2.2 Repeater Compliance Tests

The following is the high level workflow for running the HDMI HDCP 2.2 Repeater Compliance Tests. This workflow assumes that you have powered up the 980 and established an Ethernet session with the 980 as described in [Connection for 980 GUI Manager and 980](#).

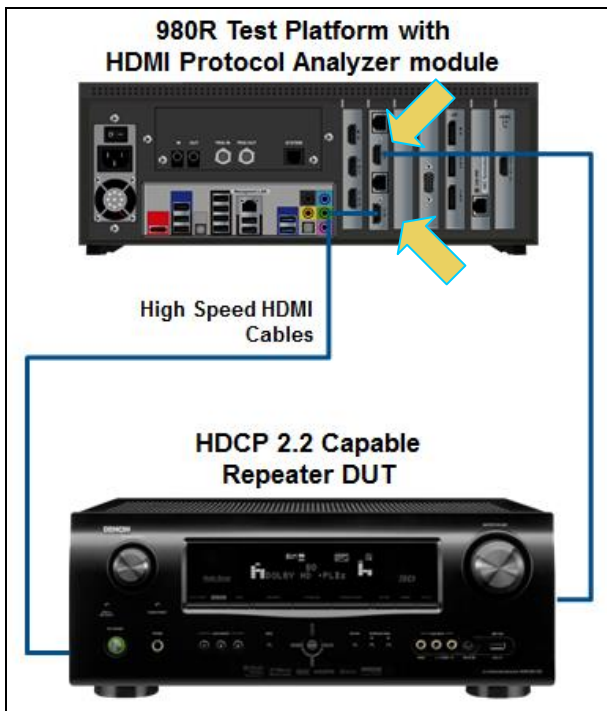
1. Connect the repeater device under test to the 980 HDMI Protocol Analyzer module's Tx and Rx ports via HDMI.
2. Configure the monitor mode on the HDMI Protocol Analyzer module Rx port properly to HDMI and Sink Emulation.
3. Initiate the playing back of an HDMI stream on the HDMI Protocol Analyzer module Tx port.
4. Enable HDCP 2.2 in the 980 HDMI Protocol Analyzer module Rx port.
5. Activate HDCP 2.2 in the 980 HDMI Protocol Analyzer module's Tx port.
6. Complete (or load an existing) Capabilities Declaration Form (CDF) for the device under test using the **CDF Entry** panel.
7. Select the tests that you wish to run from the Section 3A **Test Selection** panel.
8. Initiate the tests through the **Test Options / Review** panel.
9. View the results in the **Test Results** panel under the **Navigator** panel.
10. Repeat for the remaining repeater test sections (3B, 3C)

5.2 Making the HDMI connections

This procedure describes how to establish an HDMI connection between the HDMI repeater device under test and the 980. This procedure assumes that you have assembled the 980 and repeater device under test and applied power to all these devices. Refer to the procedures and diagram below.



HDMI connection for repeater compliance test – 980B



HDMI connection for repeater compliance test – 980R

1. Connect your HDMI repeater device under test to the HDMI Rx connector (the top most HDMI connector shown in the figure above) on the 980 HDMI Protocol Analyzer module. Use a high speed HDMI cable.

5.3 Setting the Link mode and the HDMI mode on the Protocol Analyzer Rx Port

Use the following procedures to set the 980 HDMI Protocol Analyzer Rx port to the HDMI mode and set the Link Mode to Sink Emulation. These procedures assume that you are using the external 980 GUI. Exceptions will indicate different screens for the embedded GUI.

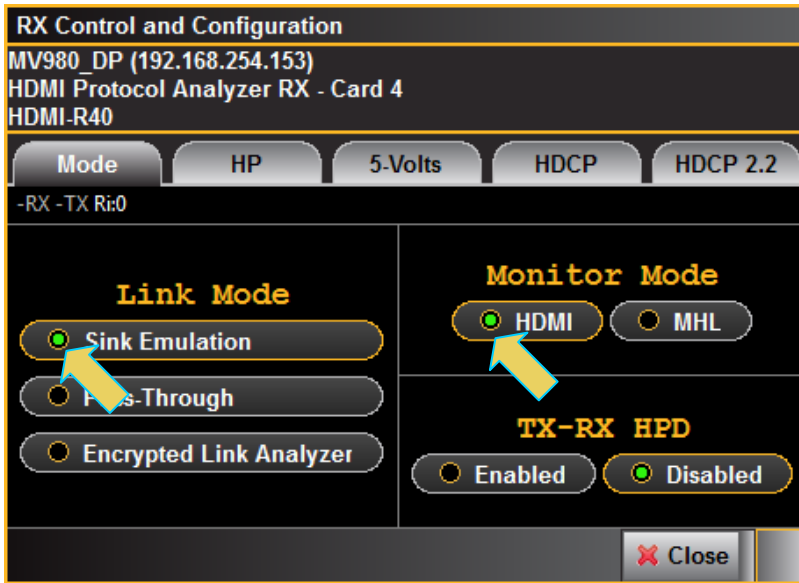
To set the 980 Protocol Analyzer mode to HDMI and the Link Mode to Sink Emulation:

1. From the **Card Control** window of the 980 GUI Manager, select **Receiver**.

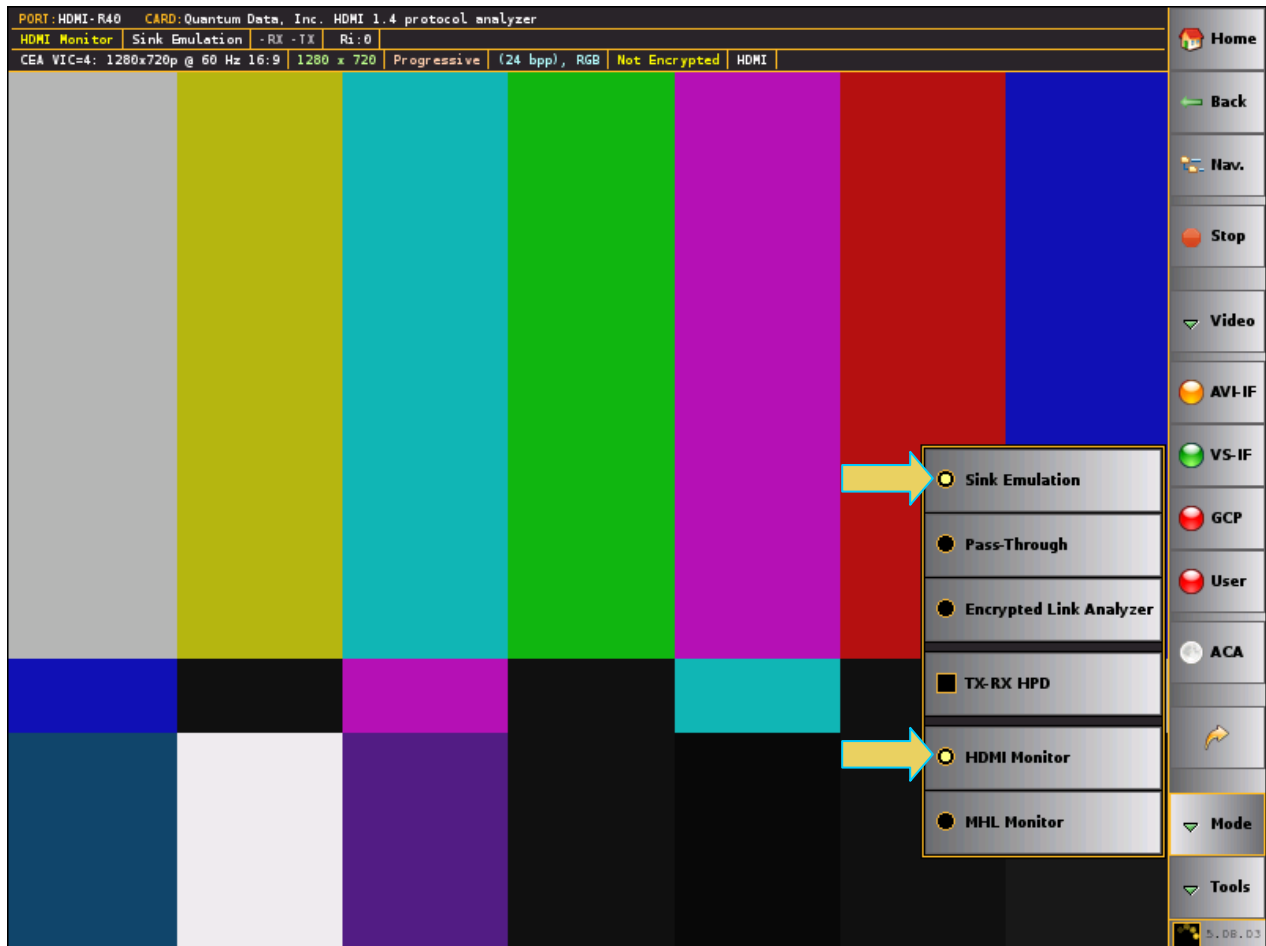


The **Rx Control and Configuration** dialog box appears (below).

2. From the **Rx Control and Configuration** dialog box, select the **Mode** tab and then select HDMI as the Monitor Mode and select Sink Emulation as the Link Mode.



3. If you are using the embedded GUI, Select the **Mode** flyout menu on the lower right of the Real Time window as shown below. Then select the **HDMI Monitor** radio button and the **Sink Emulation** radio button. Refer to the screen example below.

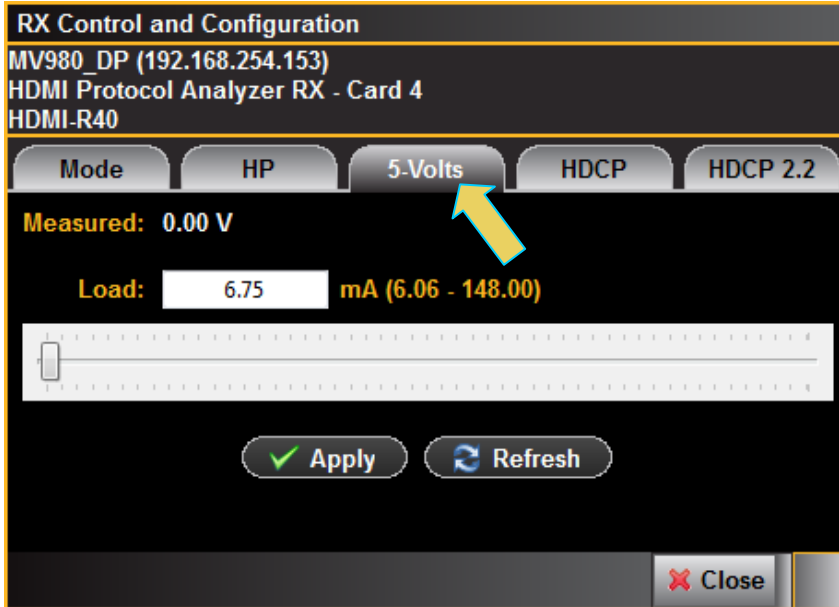


The Link Mode menu will show HDMI as the Link Mode.

5.4 Setting the +5V levels

The 980 enables you to view the +5V levels from the source device under test and to set the current load on the +5V lead.

1. Select the **RX 5 Volts...** item from the **Instrument** pull-down menu on the built-in front panel as shown below.



The RX 5V Status/Configuration dialog box is displayed as shown below.

2. Select the Threshold Level using the upper slidebar (0.0 to 5.3V). Be sure to select the **Apply** button. Then hit **Refresh** to view the new value. You may wish to lower the threshold to enable testing of a source whose 5V level is too low. If you specify a threshold higher than the voltage detected there will be no effect on the ability to test.
3. Select the current Load using the lower slidebar provided. Increasing the current load will cause the detected voltage to fall. Be sure to select the **Apply** button. Then hit **Refresh** to view the new Measured value.

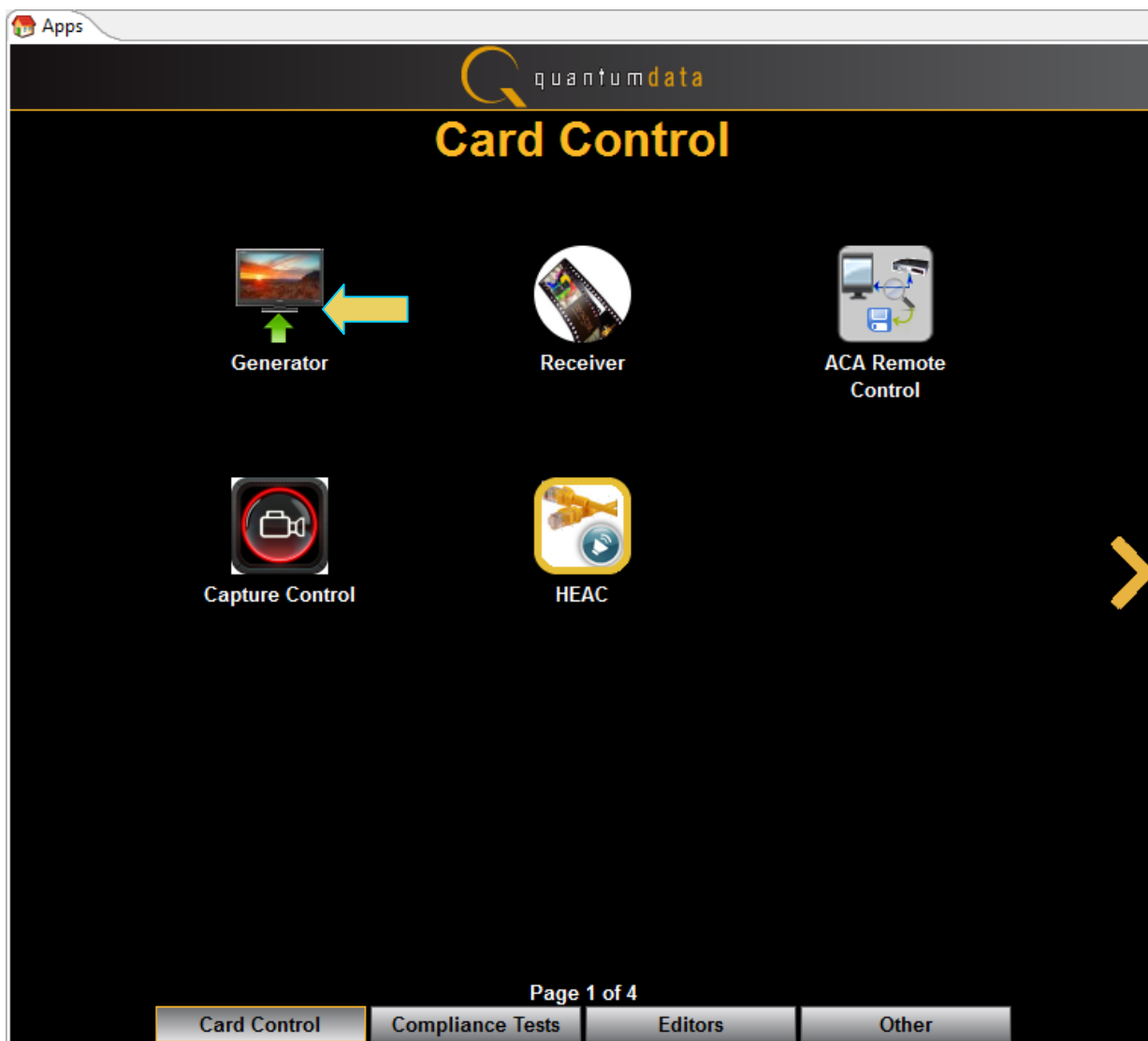
5.5 Running an HDMI Playback File on the Protocol Analyzer Tx Port

Use the following procedures to set the 980 HDMI Protocol Analyzer to playback a file out the module's HDMI Tx port. Note that you need to run a playback file in order to provide an HDMI output stream over which the HDCP 2.2 authentication occurs.

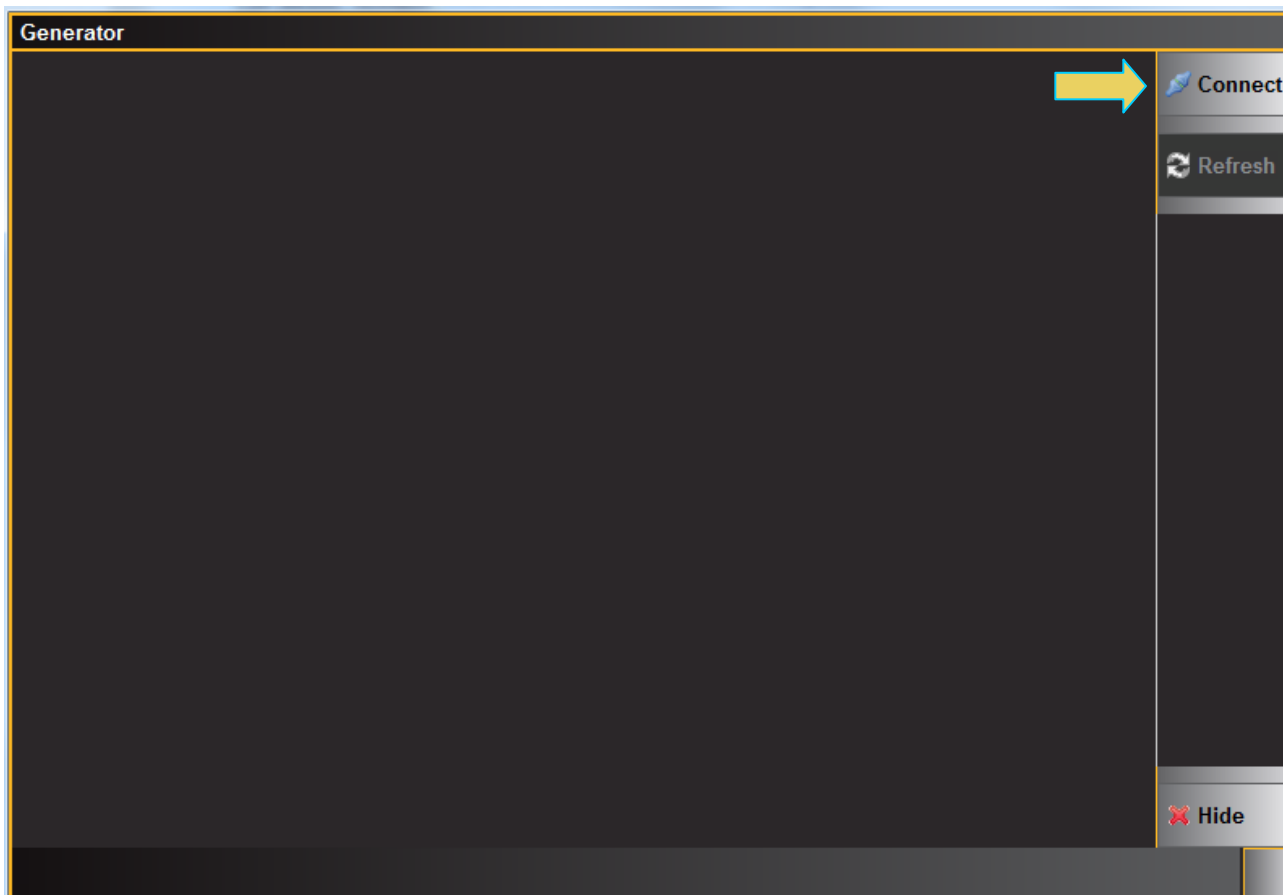
To playback a captured file to an HDMI display:

Note: Detailed procedures for capturing a file and playing the captured file back are provided in the 980 HDMI Protocol Analyzer module User Guide available on the Quantum Data website. The instructions below assume that you have a captured file already available for playback.

1. Access the **Playback** panel. You access the Generator Playback function through the main screen **Generator** icon as indicated below:

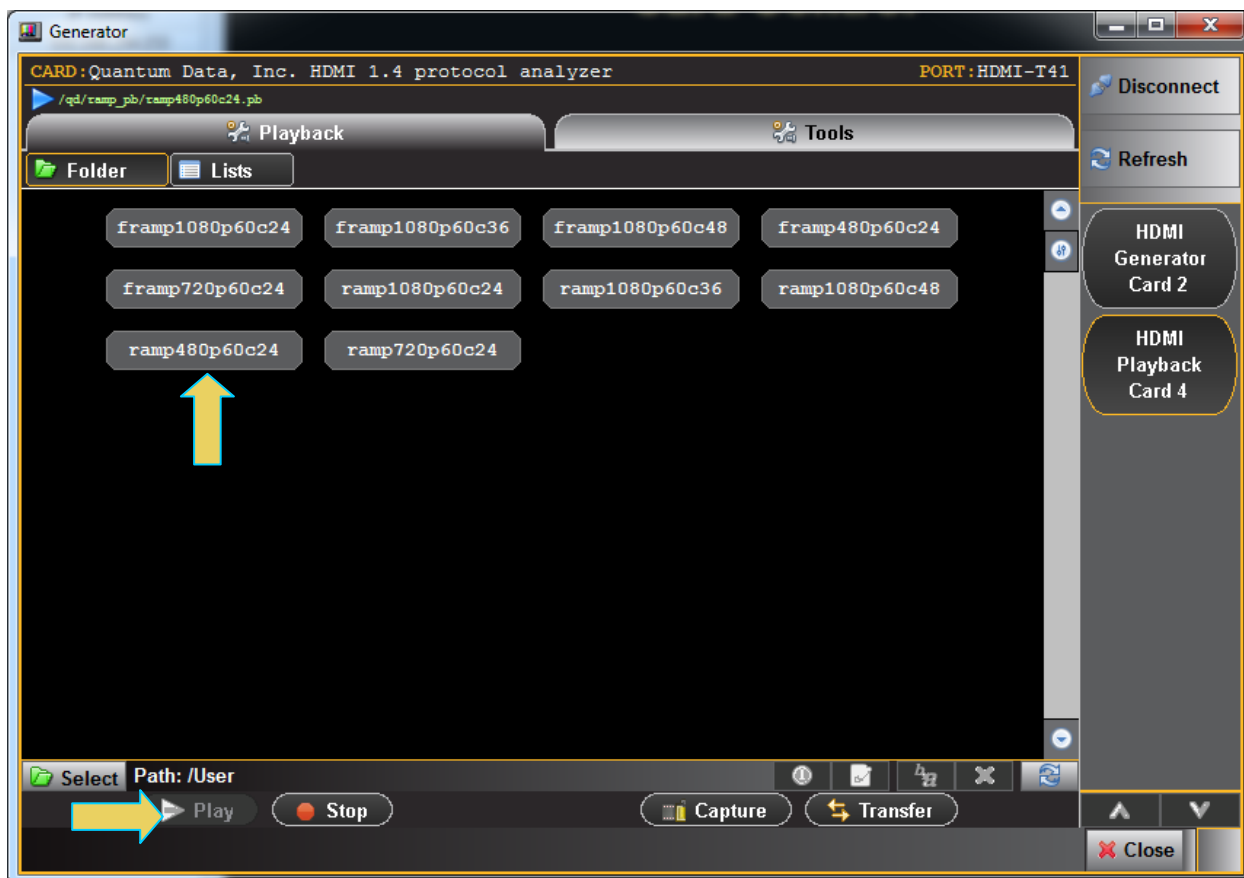


The **Generator** panel is shown below:

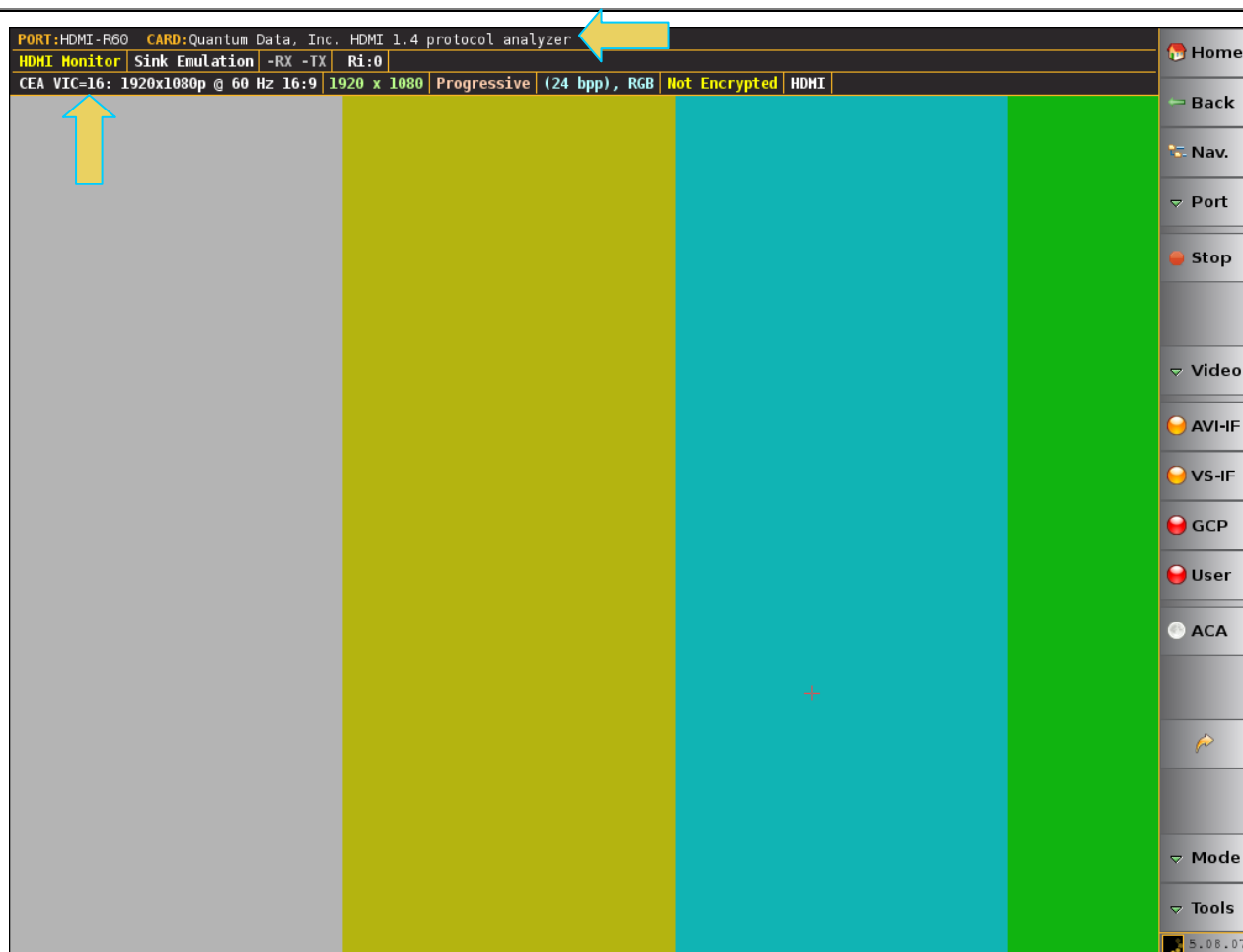


2. Connect to the 980 HDMI Protocol Analyzer using the **Connect** icon and button as indicated above. The 980 will read its directories and present the list of captured files in the window under the **Playback** tab as shown below. If there are no files the area will be blank.

Note: You may have to refresh the view using the global refresh button on the upper right or the local refresh button on the lower right.



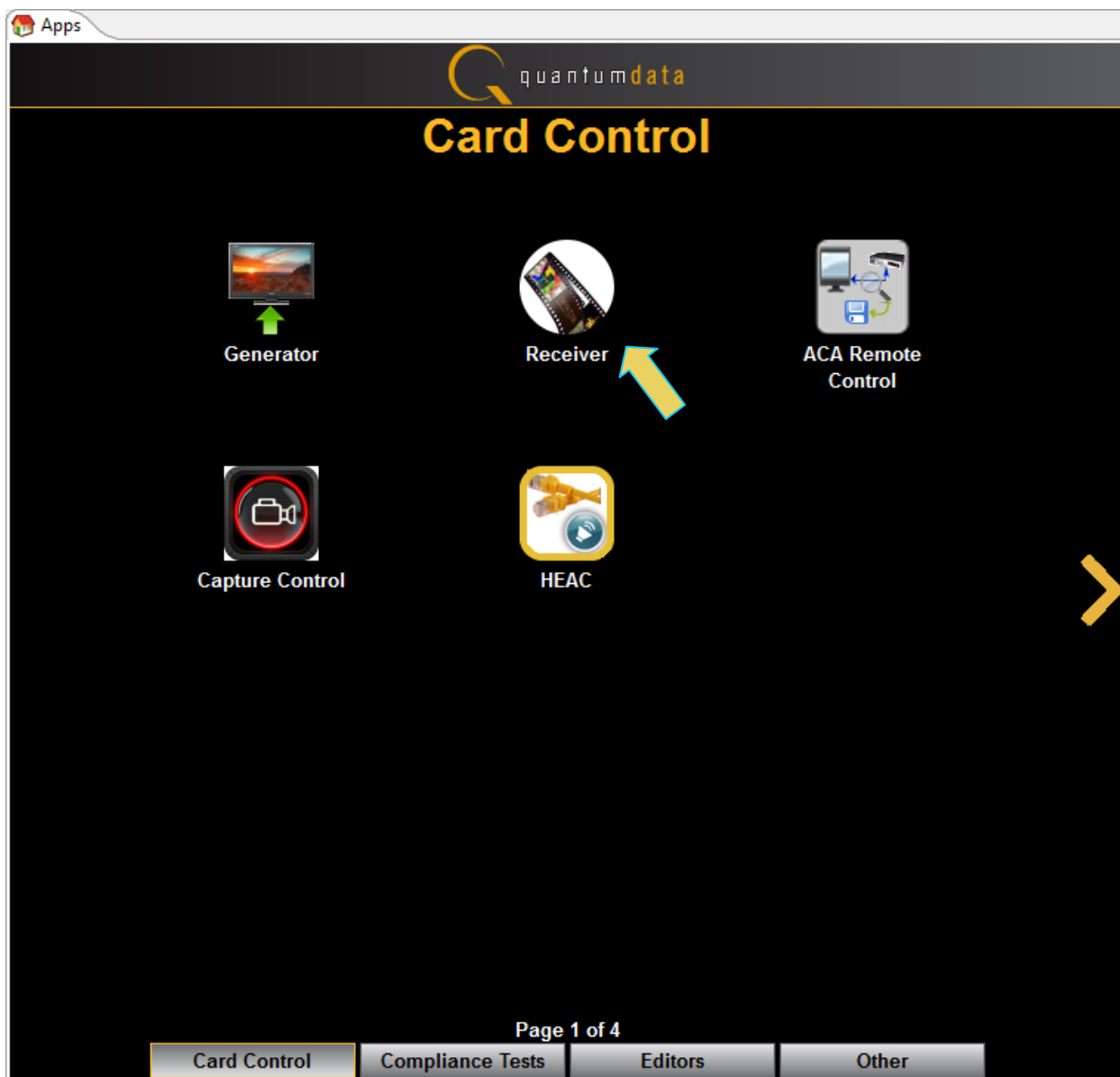
3. Select the file you wish to playback and click on the **Play** button as indicated above.
4. Stop the playback at anytime by pressing the **Stop** button.
5. Return to the 980 HDMI Protocol Analyzer's Real Time interface for the Rx port and verify that the video from the playback file appears and is the correct resolution. Note in the example below the playback file is SMPTEBar test pattern. Your playback stream may be different.



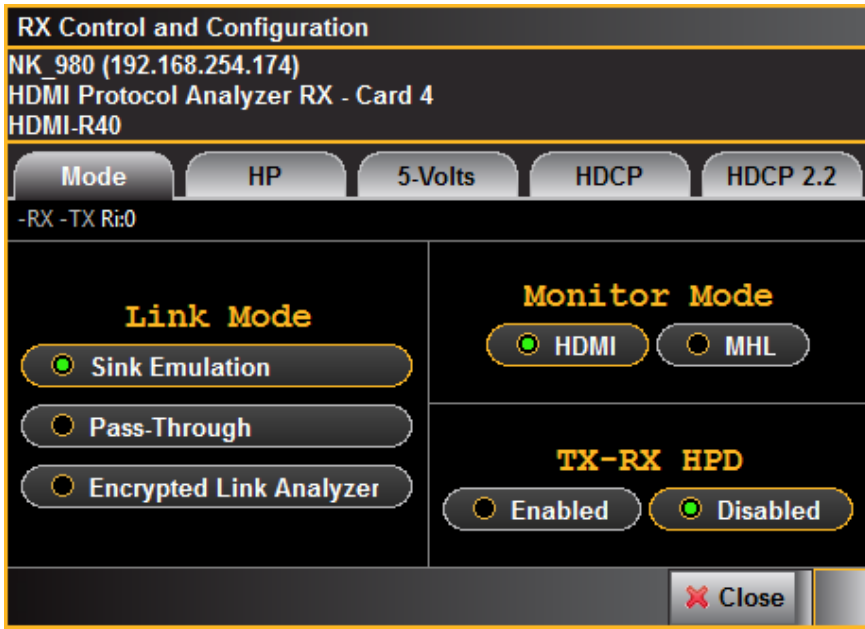
5.6 Enabling HDCP 2.2 on the Protocol Analyzer module Rx port

The 980 Protocol Analyzer module Rx port has to be configured to respond to HDCP 2.2 authentication from a source or repeater output. Use the following procedure to enable HDCP 2.2 authentication in the 980 Protocol Analyzer module. You can enable HDCP 2.2 on the 980 HDMI Protocol Analyzer module's Rx port either through the embedded 980 GUI or the external 980 GUI. The following procedures assume you are using the external GUI but exceptions are provided instructing you how to enable HDCP 2.2 through the embedded GUI.

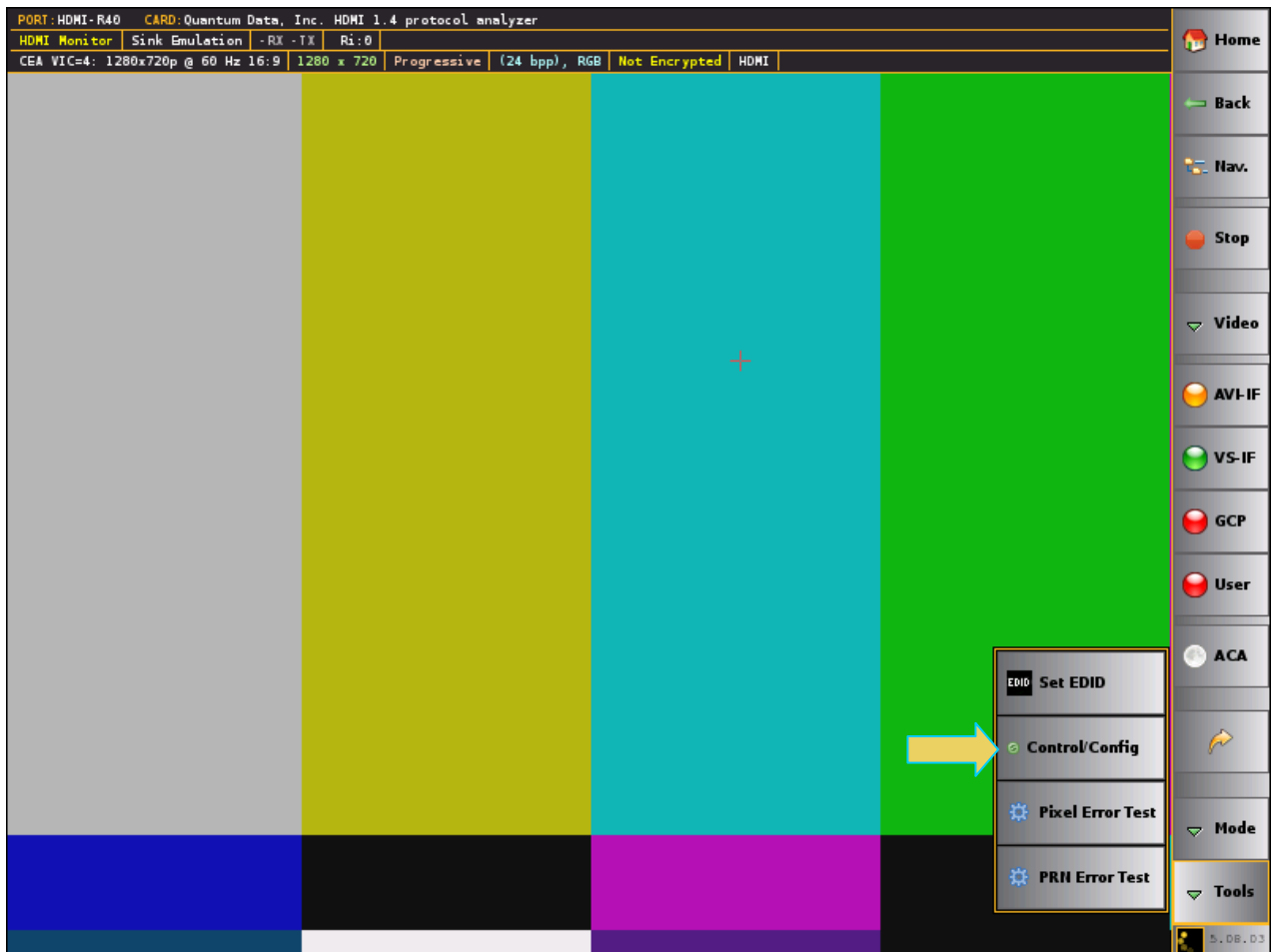
1. From the **Card Control** window, select **Receiver**. Refer to the screen example below.



The Rx **Control and Configuration** dialog box appears as shown below.

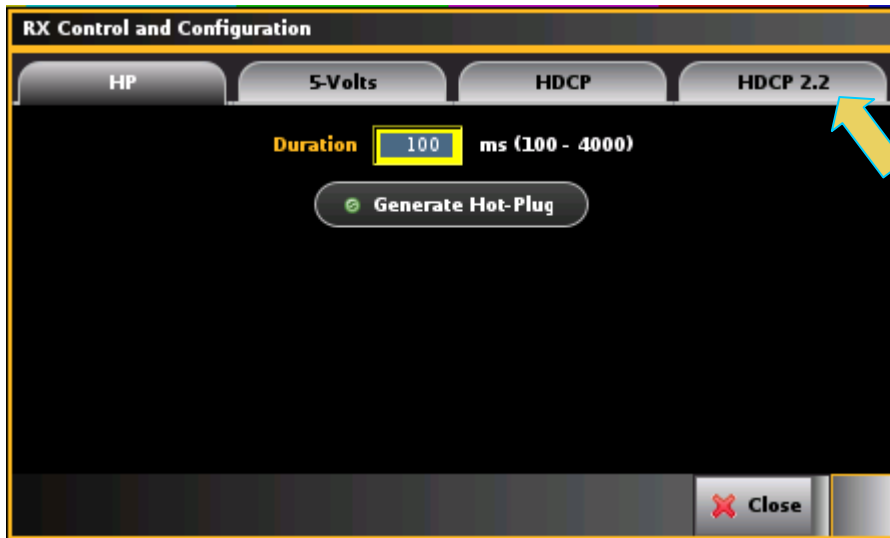


If you are working from the embedded 980 GUI, the Real Time screen will appear and you will have to select the **Tools** button on the lower right. Refer to the following screen examples for the workflow using the embedded 980 GUI.



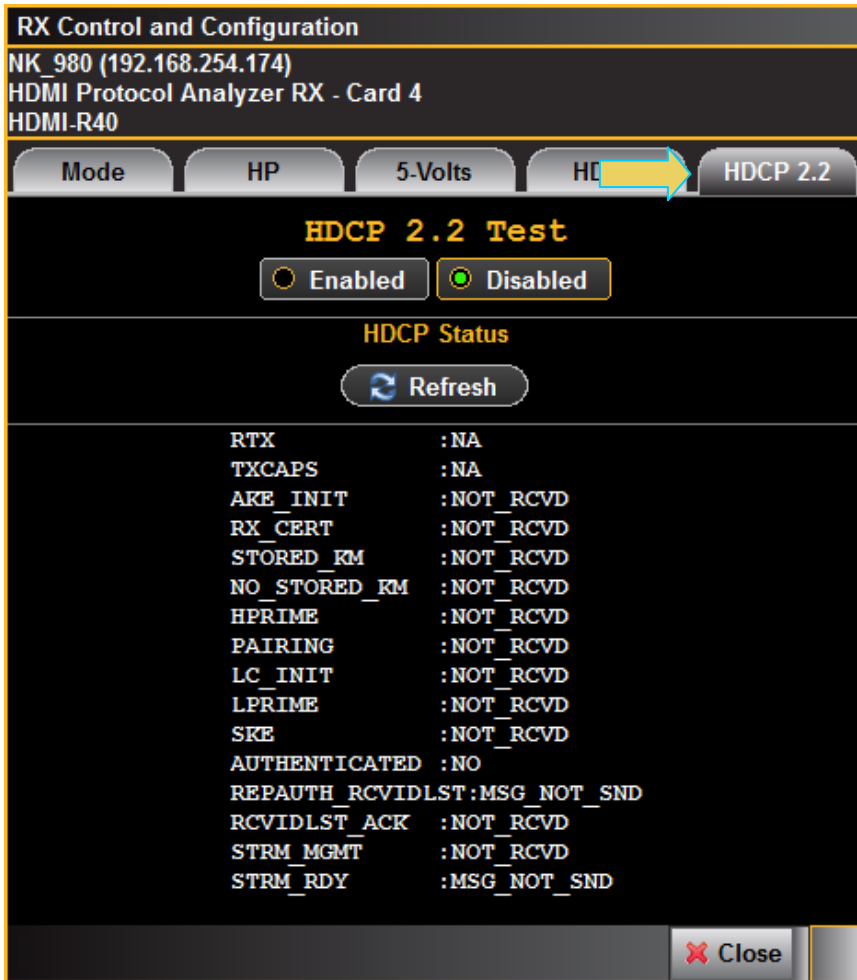
- From the embedded GUI Real Time window, select the **Rx Control and Configuration** item as shown above.

The **Rx Control and Configuration** dialog box appears as shown below.



- Select the **HDCP 2.2** tab indicated in the screen example above.

Refer to the following screen example.



4. Enable HDCP 2.2 by clicking on the **Enabled** radio button as shown below.

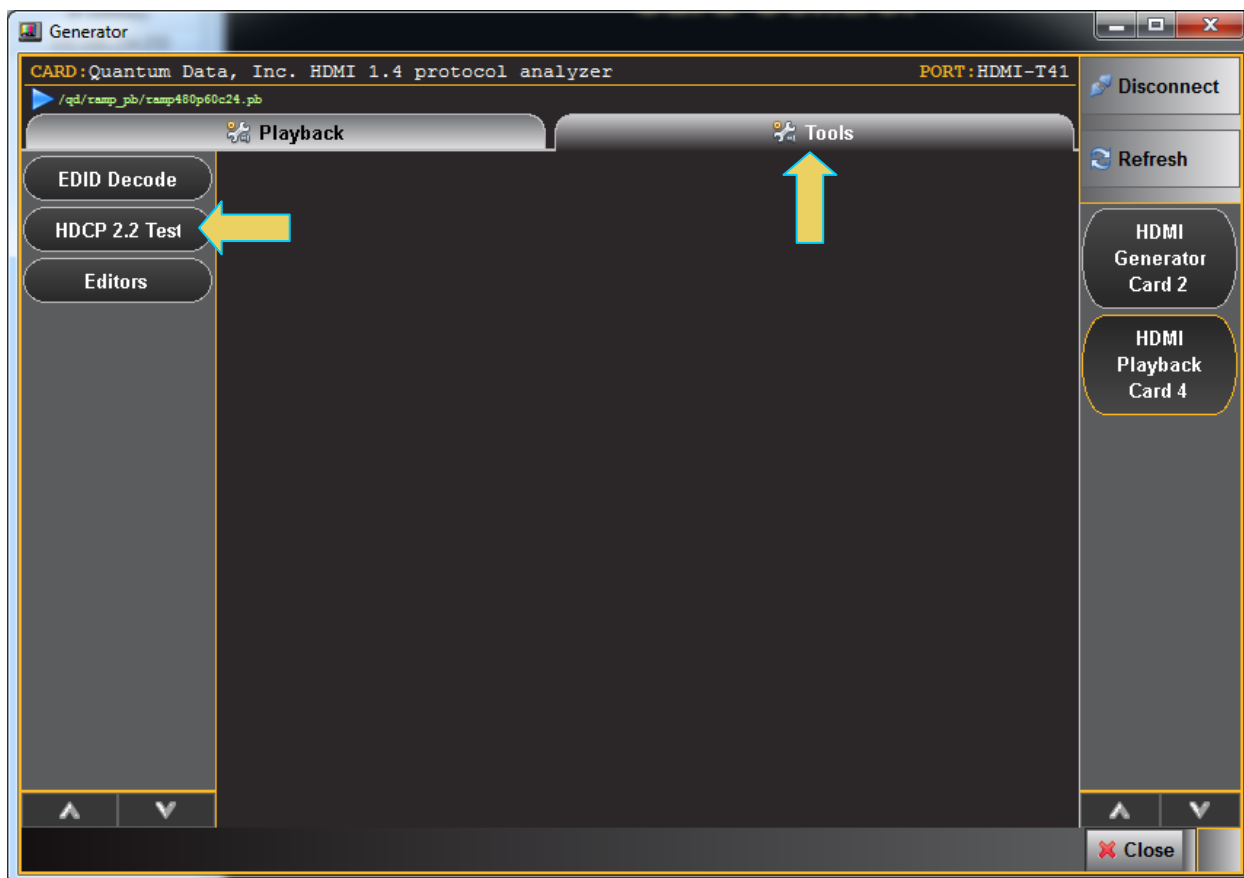


5.7 Enabling HDCP 2.2 on the Protocol Analyzer Tx Port

Use the following procedures to enable HDCP 2.2 on the 980 HDMI Protocol Analyzer module's HDMI output (Tx) port.

To enable HDCP 2.2 on the playback file:

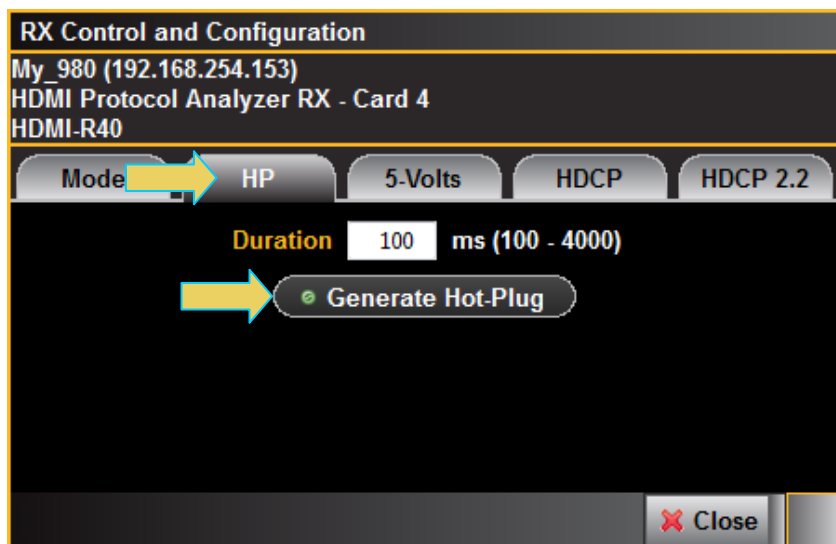
1. Select the **Tools** tab on the 980 HDMI Protocol Analyzer's Tx Generator window as shown below.



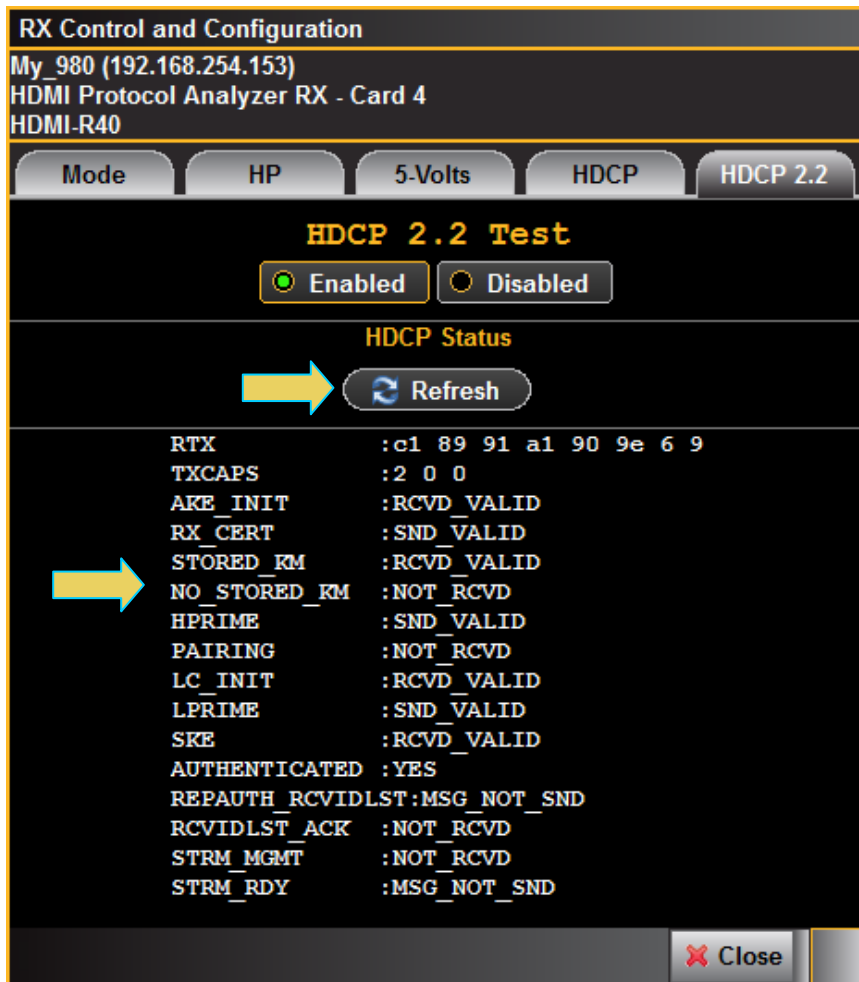
2. Select **HDCP 2.2 Test** activation button on the left panel (indicated on the screen example above).
3. Select the **Enable** radio button as shown below.



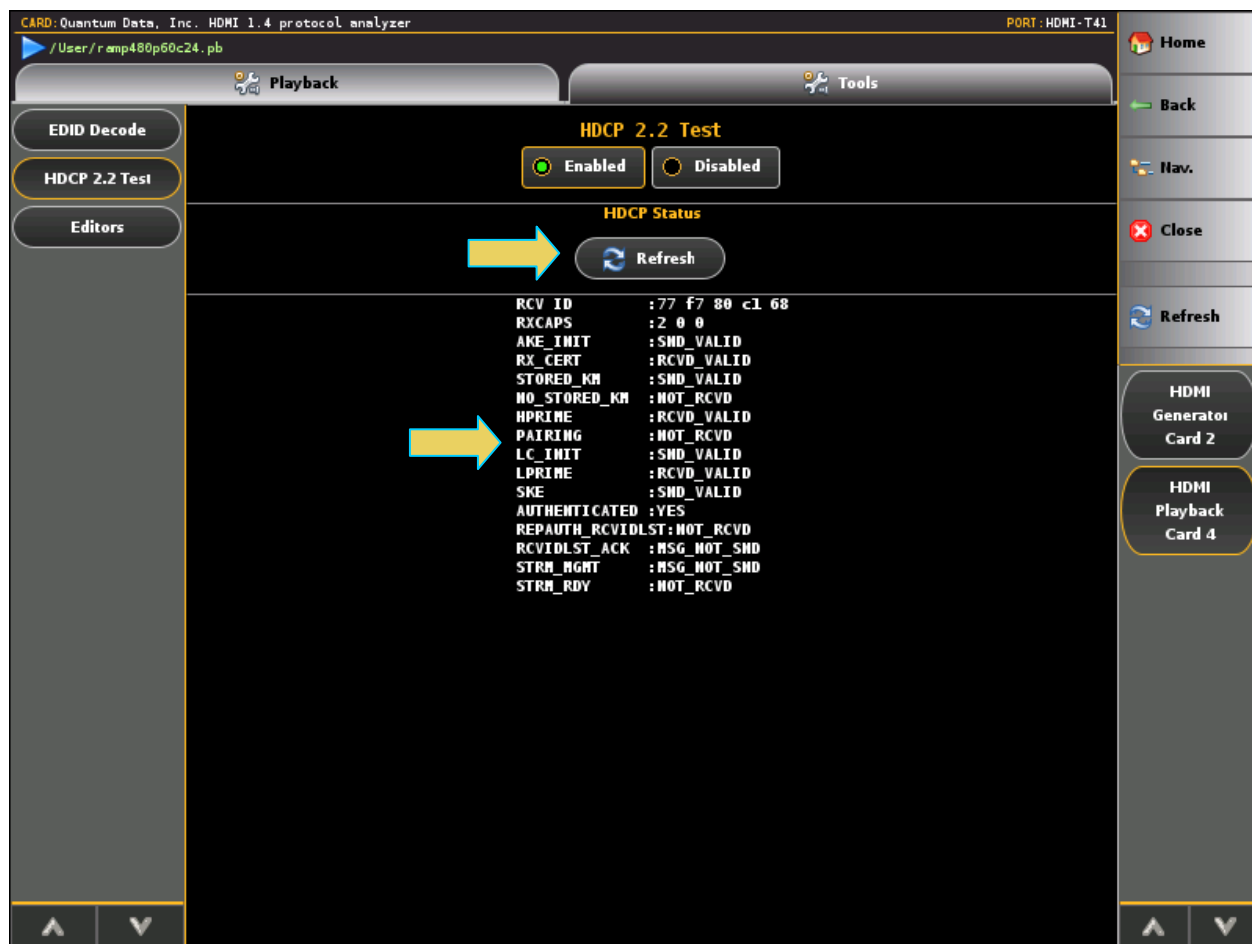
4. Click on the **Refresh** button to view the HDCP 2.2 status. Refer to the screen example above.
5. Return to the 980 HDMI Protocol Analyzer module’s Rx window and select the **HP** tab and generate a hot plug. Refer to the screen example below.



6. Select the **HDCP 2.2** tab on the on the Protocol Analyzer’s Rx port and click on **Refresh** to view the status of the HDCP 2.2 authentication. Refer to the screen example below.



- Return to the **HDCP 2.2** tab on the Protocol Analyzer's Tx port and click on **Refresh** to view the status of the HDCP 2.2 authentication on the Tx port. Refer to the screen example below.



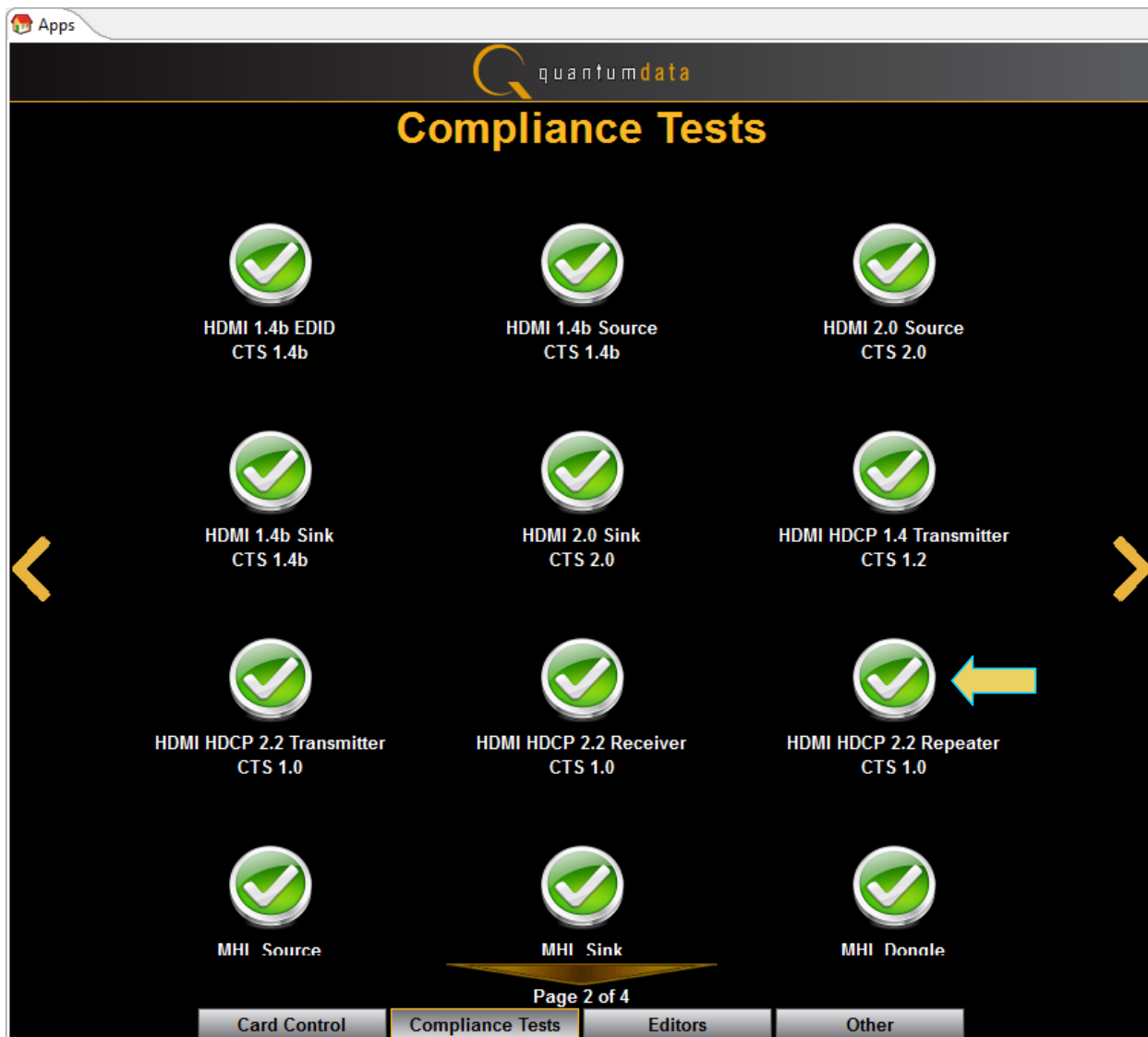
HDCP 2.2 is now active.

5.8 Completing the HDCP 2.2 Repeater Capabilities Declaration Form (CDF)

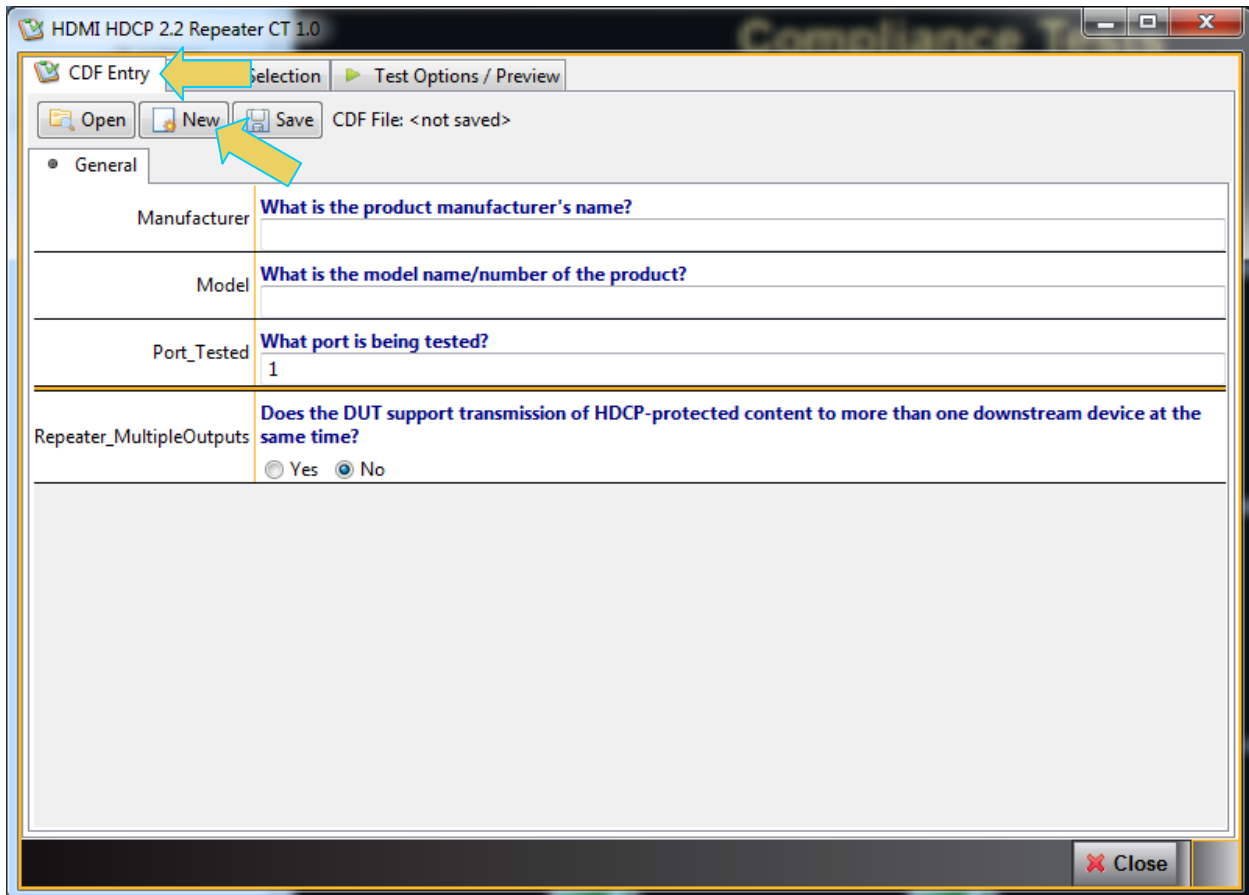
Use the following procedures to complete the CDF for the HDMI repeater compliance tests.

To complete the CDF:

1. From the **Compliance Tests** page of the **Apps** panel, enable viewing of the **HDMI HDCP 2.2 Repeater Compliance Test**.



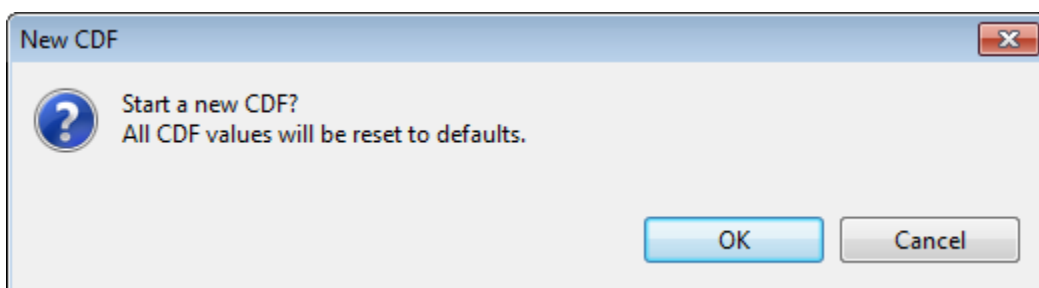
2. Select the **CDF Entry** panel as shown below.



Note: If there is a second output on the repeater DUT set the Repeater_MultipleOutput radio button to Yes.

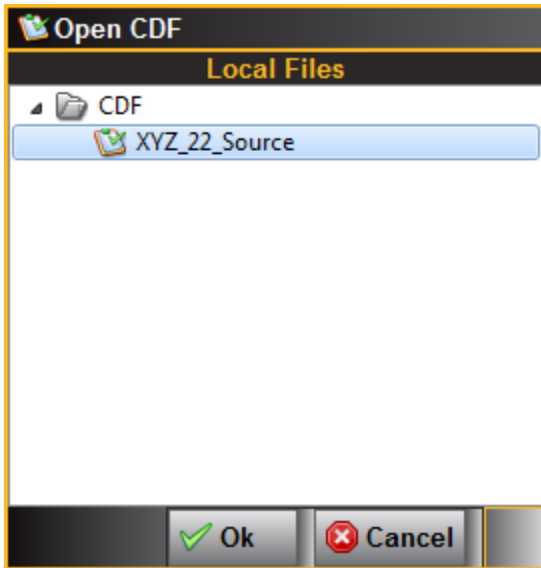
- To create a new CDF, click on the **New** activation button as can be seen in the screen example above.

You will be prompted with a confirmation that you want to start a new CDF and reset the values. Click **OK** to proceed.

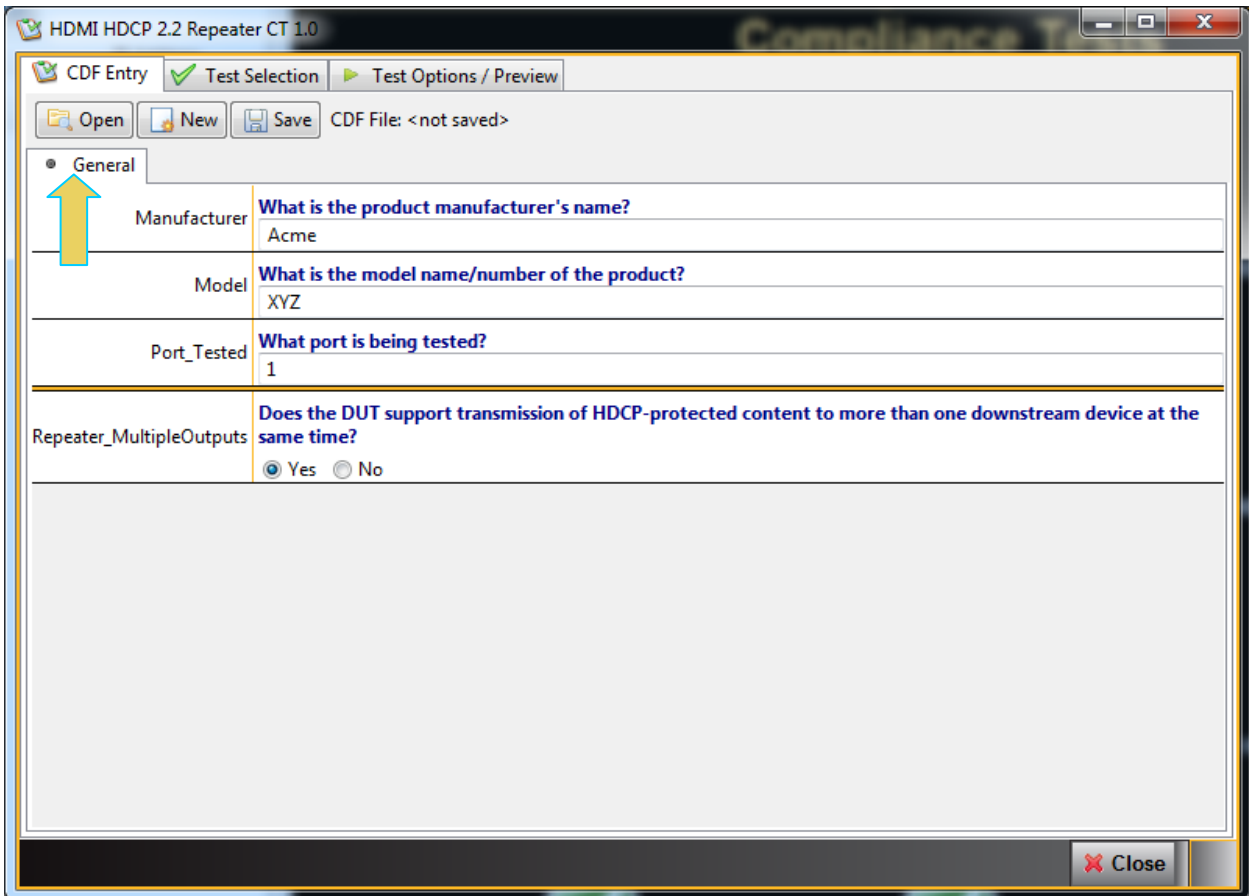


- To open an existing CDF, click on the **Open** activation button.

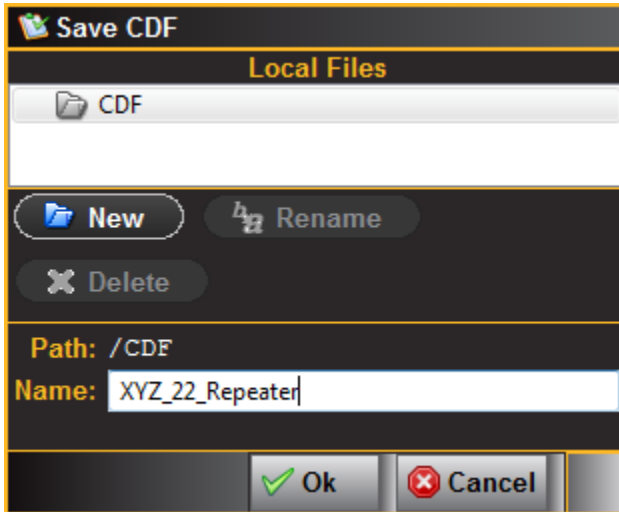
You will be prompted with a dialog box that enables you to open a CDF. Select a CDF and then **OK** to proceed.



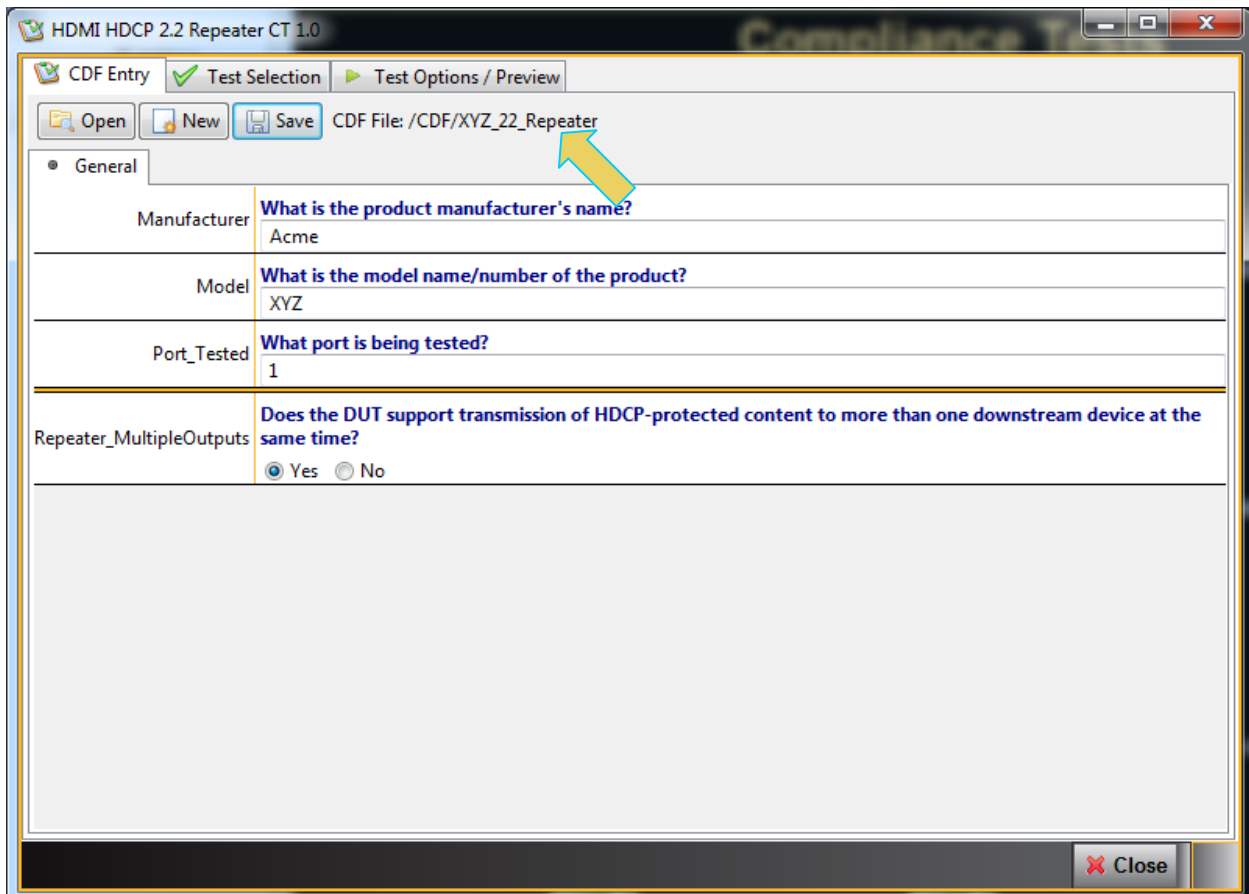
5. Complete the items in the **Products** tab of the CDF Entry panel shown below.



- Save the CDF. A confirmation box with a default name will appear as shown below. Edit the name if necessary and click OK.



CDF name in use is shown on panel.

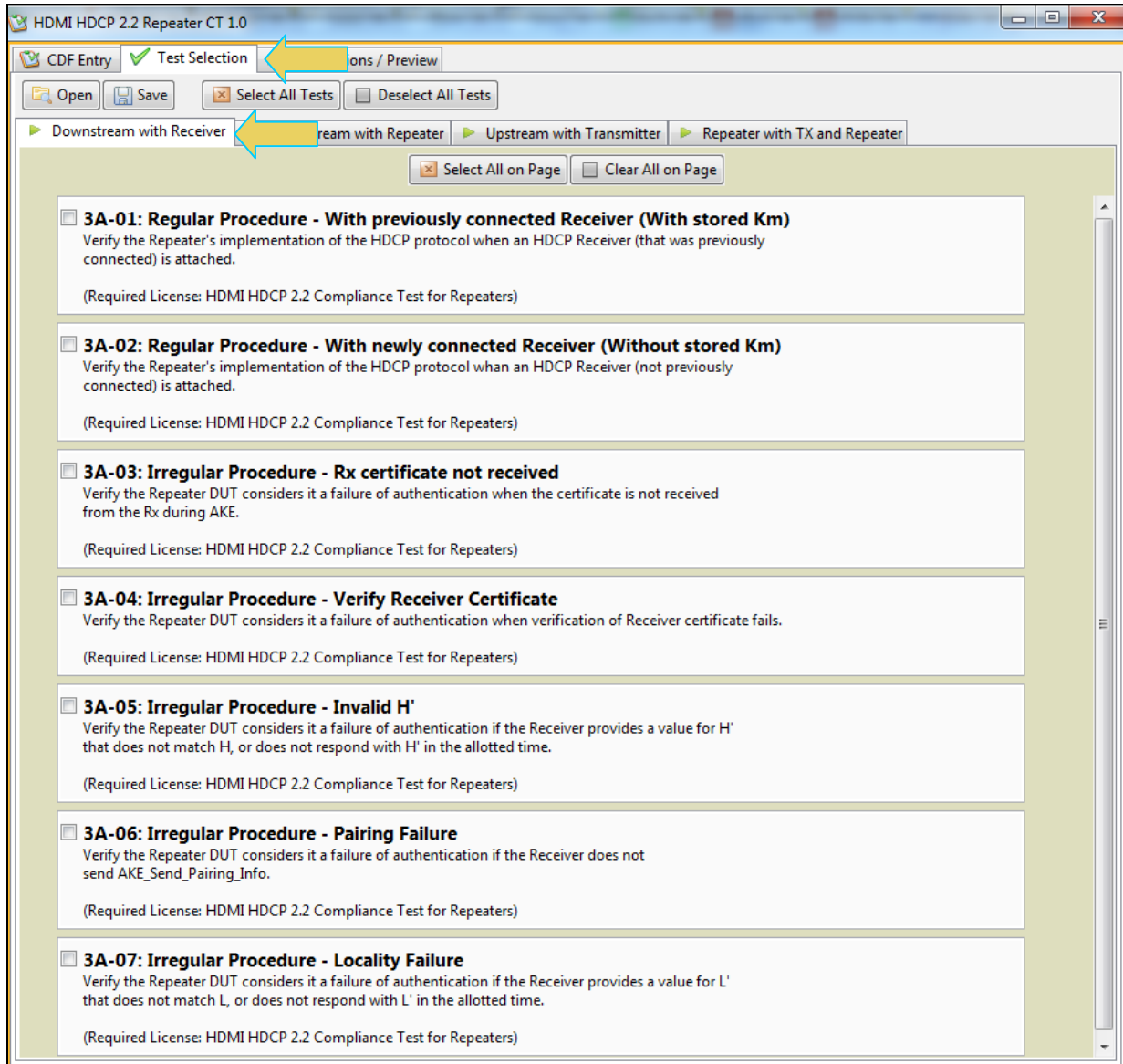


5.9 Selecting the 3A series tests

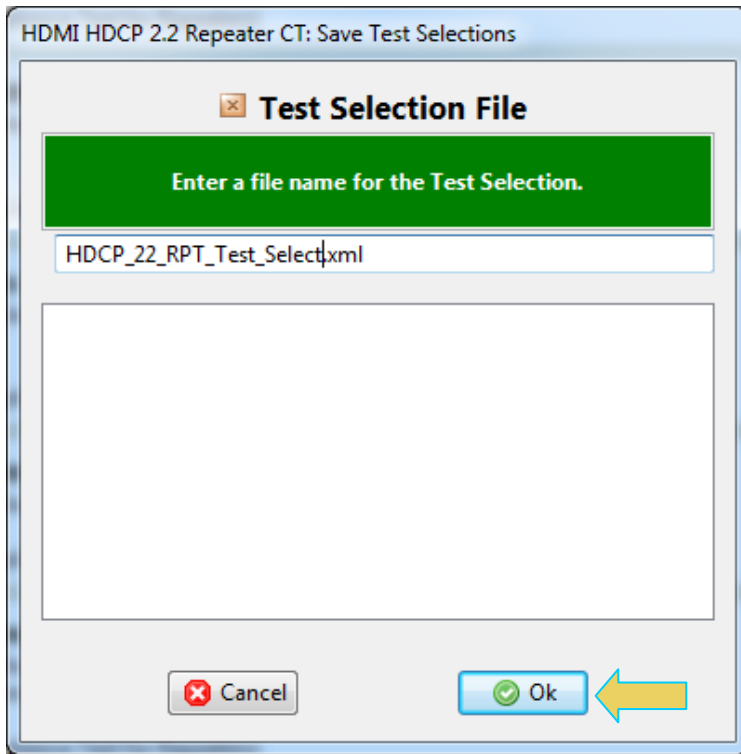
Use the following procedures to select the tests to run. There are multiple tabs which correspond to each section in the CTS.

To select the tests to run:

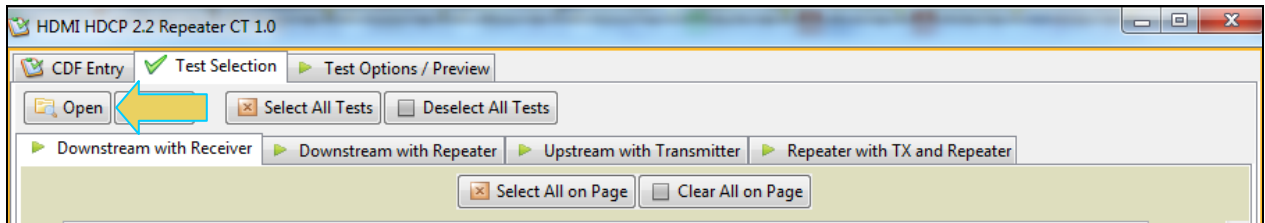
1. Select the **Test Selection** panel as shown below.
2. If you have an existing Test Selection file saved you can recall that for use in your testing. Simply click on the **Open** activation button.

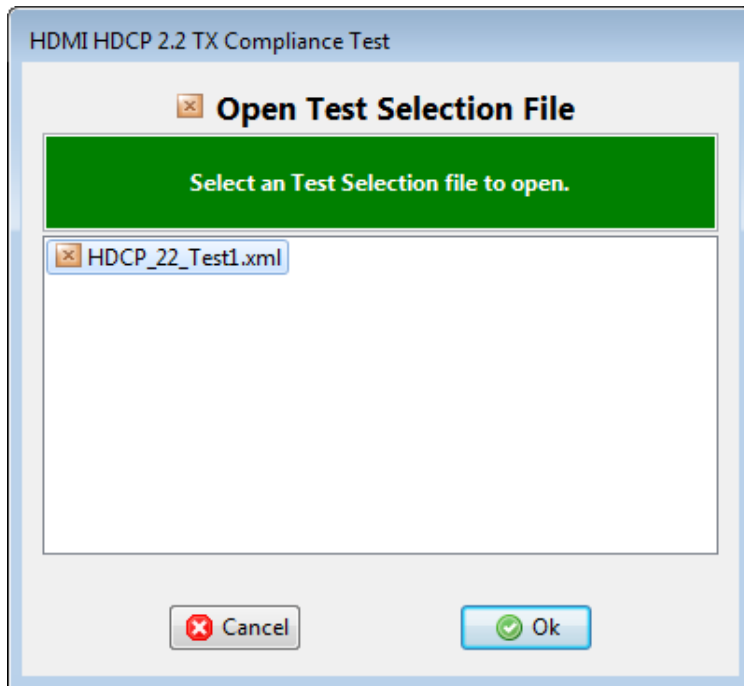


A dialog box will appear as follows. Simply select the file and click on the **Ok** activation button.



You can then open the Test Selection file using the **Open** activation button.

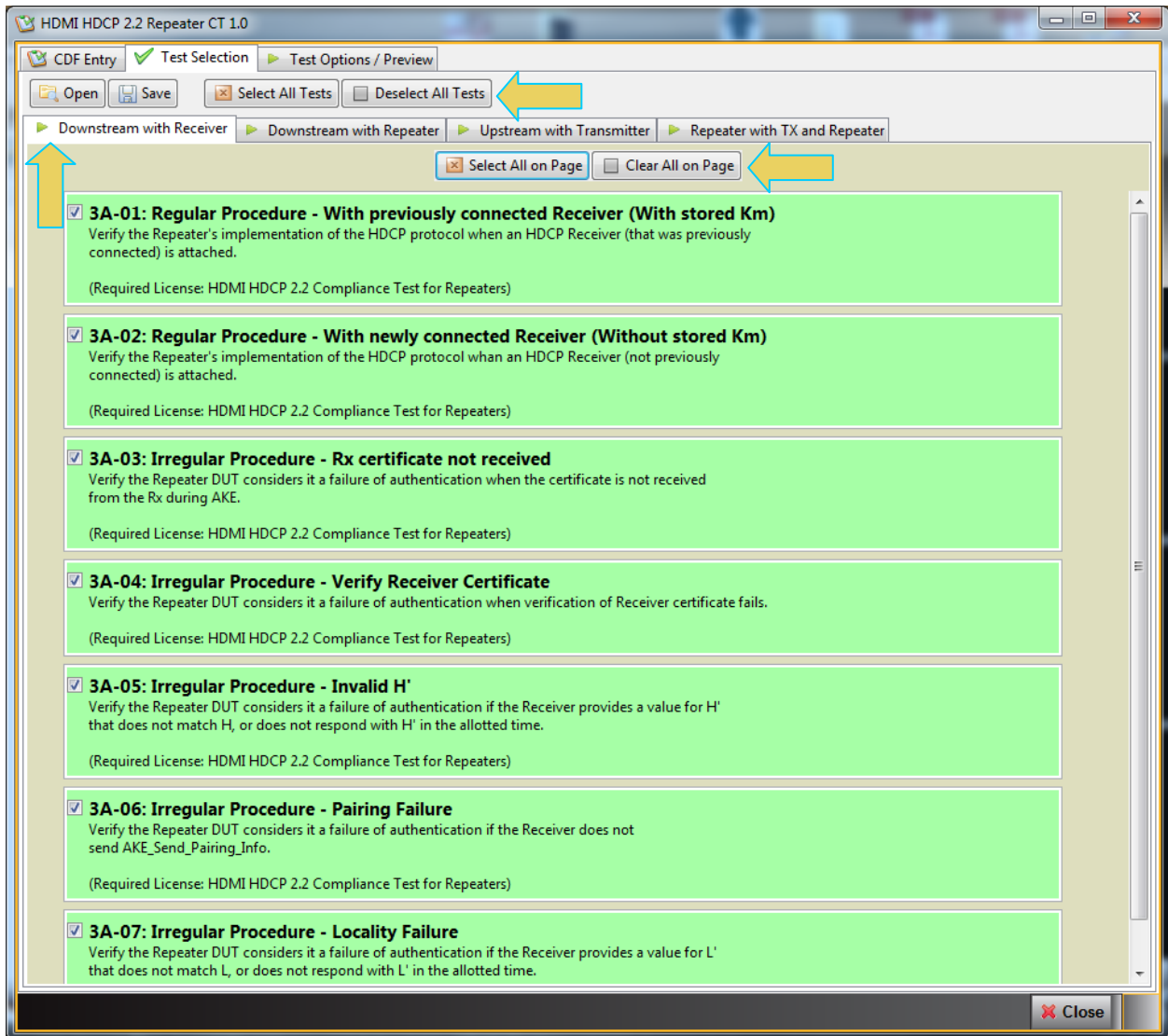




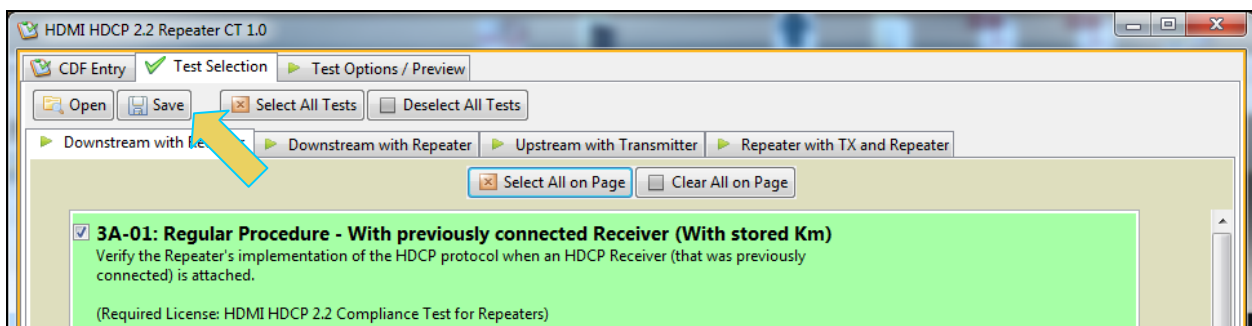
3. Complete the items in the **3A Tests** tab of the **Test Selection** panel shown below.

For convenience you can **Select All Tests** or **Deselect All Tests** for both tabs or for group selection over each page **Select All on Page** or **Clear All on Page** tests using the activation buttons provided.

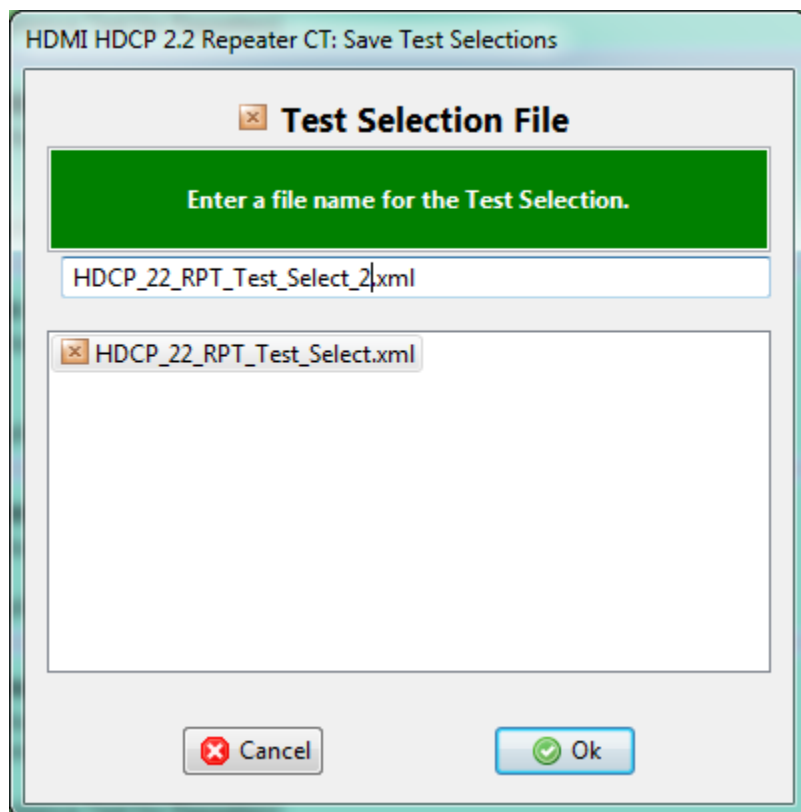
The following screens examples show the tests selected.



4. You can save the Test Selection options using the **Save** activation button (below).



A dialog box will appear as follows. Simply assign a name and click on the **OK** activation button. Click **Cancel** to exit.



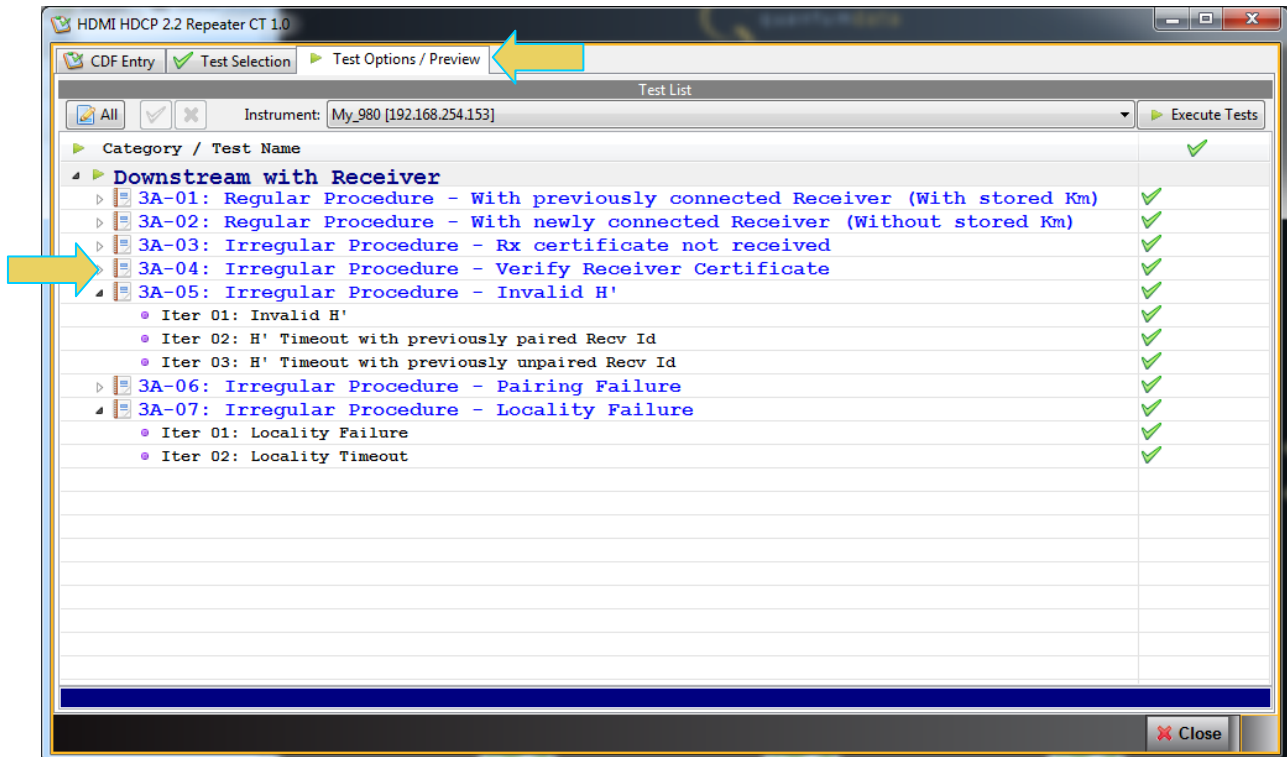
5.10 Executing the HDMI HDCP 2.2 3A Series Repeater Compliance Tests

Use the following procedures to initiate the execution of an HDMI HDCP 2.2 3A series Repeater Compliance test series. You must have completed the CDF and the Test Selection form prior to executing the tests.

Note: You can monitor the HDCP 2.2 transactions using the Auxiliary Channel Analyzer (ACA) utility. Please refer to the main 980 HDMI Protocol Analyzer module User Guide for instructions on using the ACA.

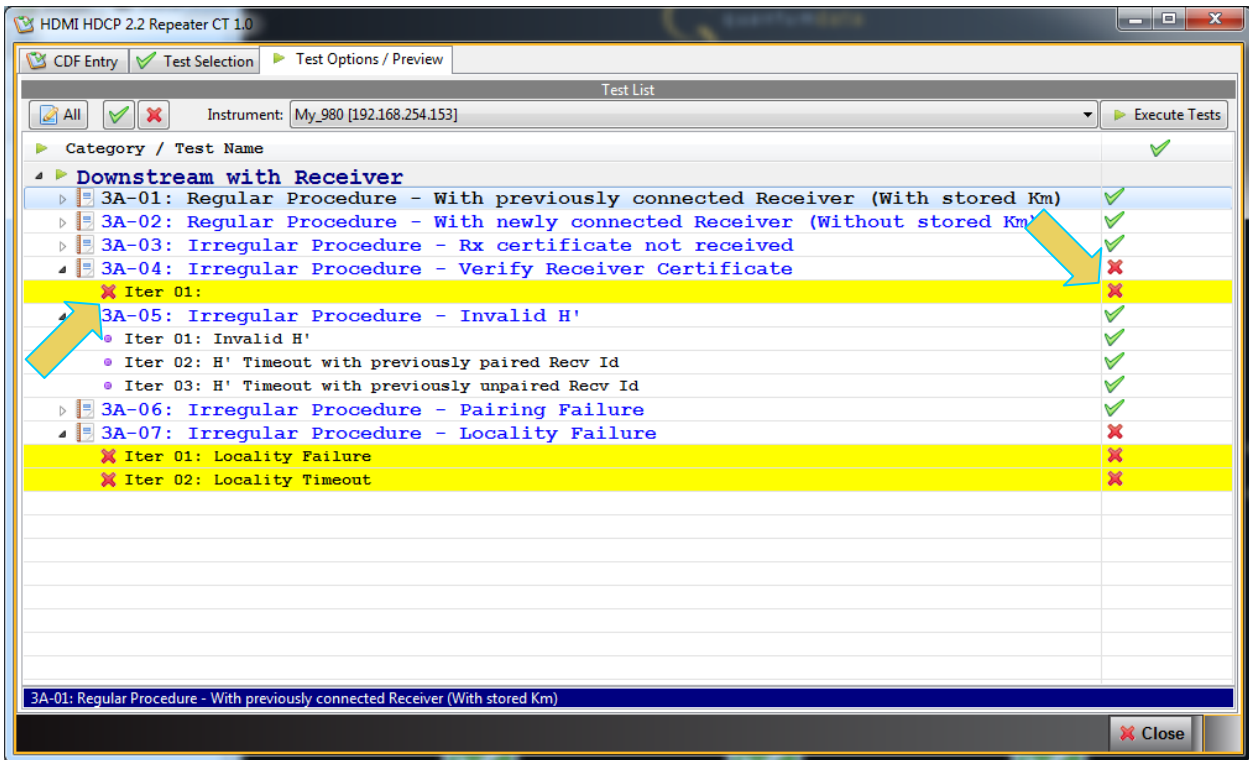
To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below.

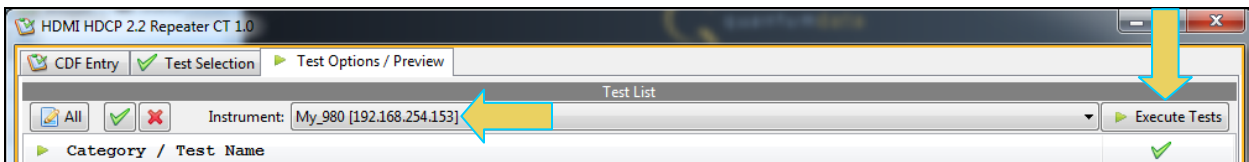


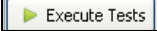
2. (Optional) Review the list of tests for each category. If you wish to skip some of the tests. You can skip tests by clicking on the Check mark on the right side of the **Test Options / Preview** panel.

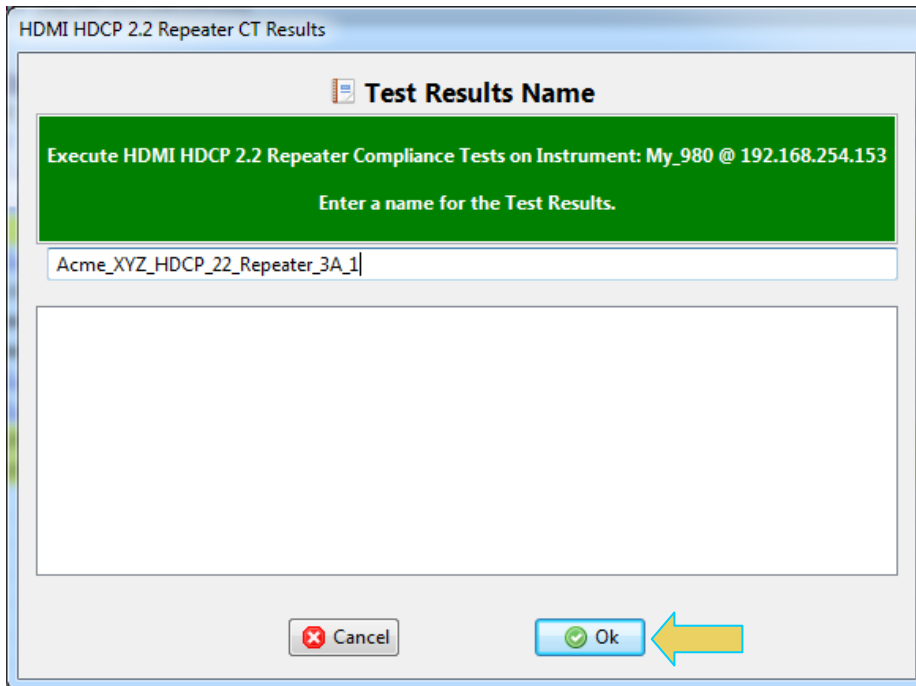
The screen shot below shows some of the tests that have been skipped (highlighted in yellow with a red X).



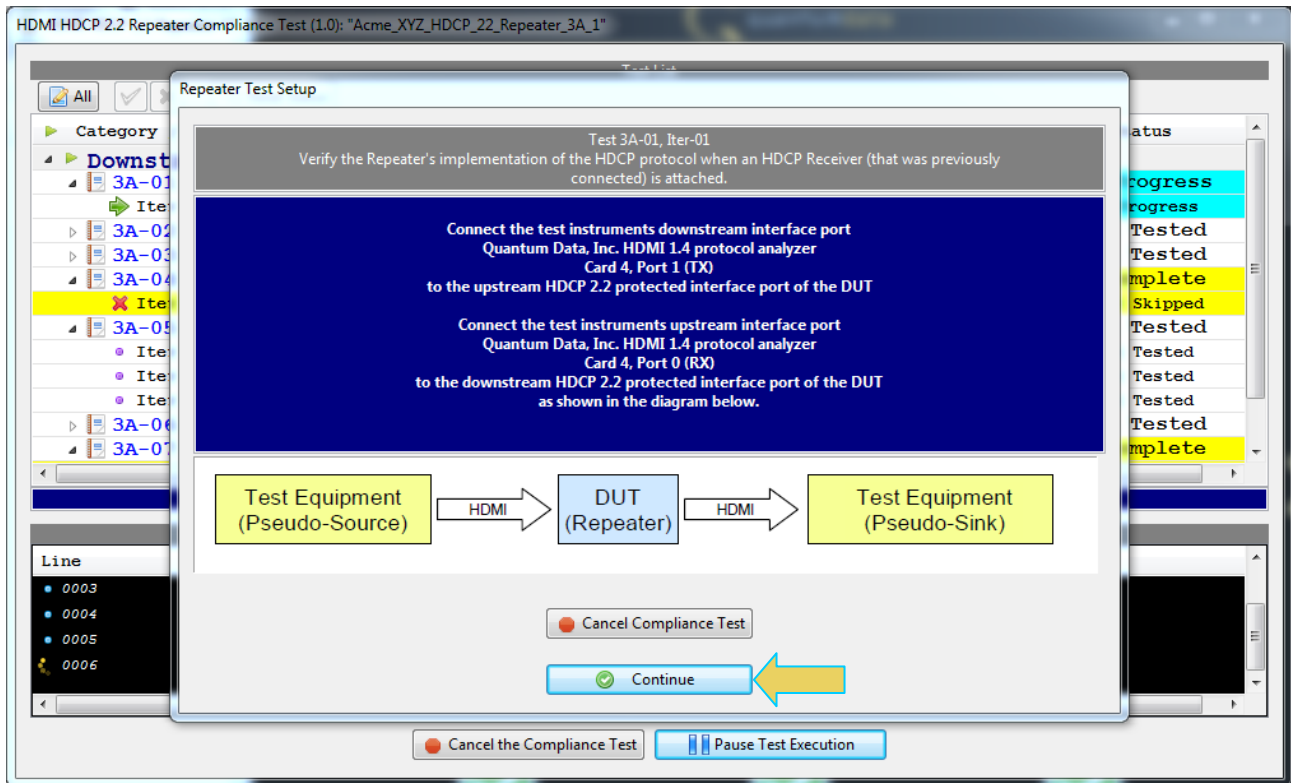
3. Select the 980 Test Instrument from the pull-down menu of the HDCP **Test Options / Preview** tab shown below.




Click on the **Execute Tests**  activation button to initiate the test suite. You will be prompted for a name for the tests. This dialog box is shown below. Click on the **Ok** activation button when ready to start the tests.



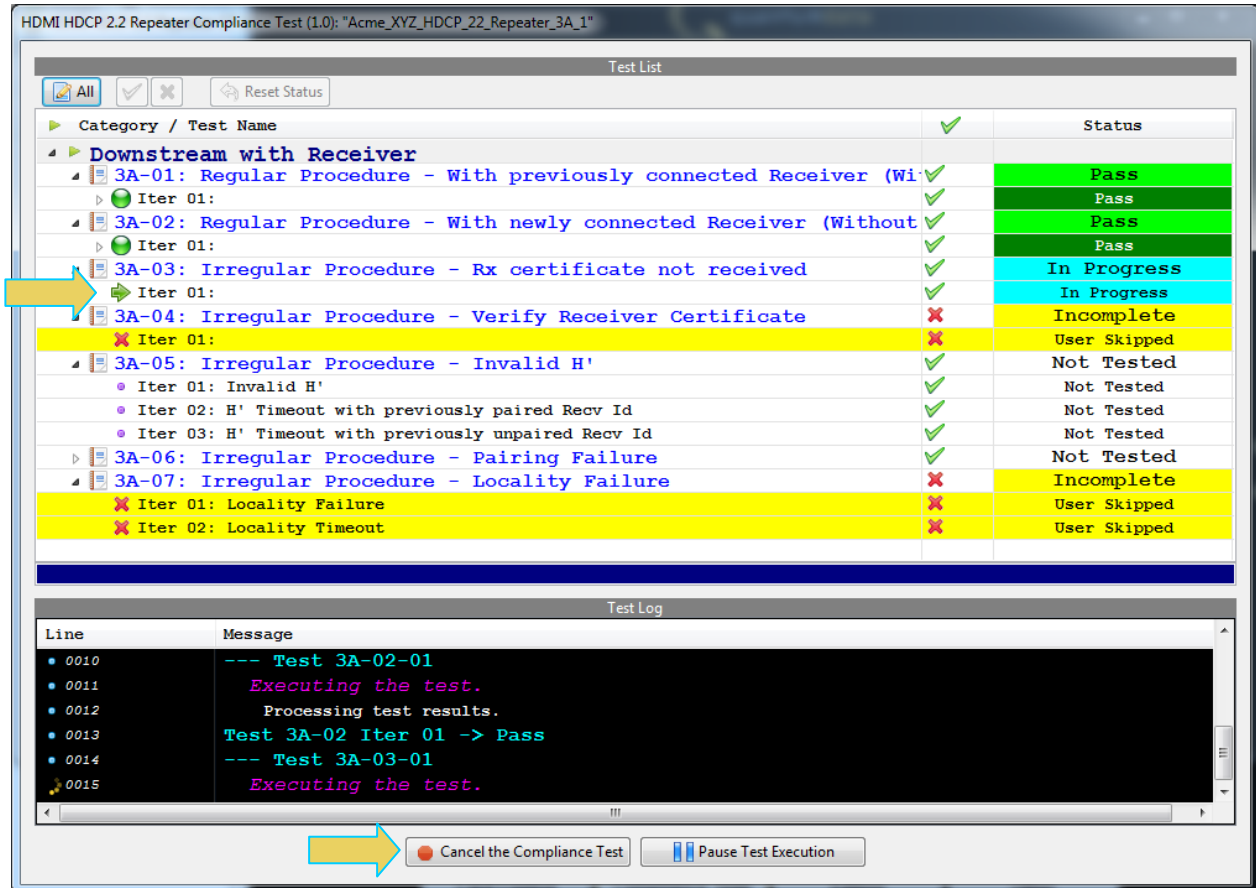
A test window will appear and then a **Repeater Test Configuration** dialog box which depicts the proper test setup (example below). Press **Continue** when you have the repeater device connected properly. You can cancel the test using the **Cancel Compliance Test** button.



If you do not have the repeater device under test in the proper mode, an error dialog box will appear.

During the test, the test results are shown as they occur in the **Test Options / Preview** panel. The lower panel **Test Log** shows the testing activity as it occurs. There is a green progress arrow  which points to the test that is currently being run.

You can cancel the compliance test or pause at any time. If you pause the test you can resume later at any time even if you exit the 980 Manager application. Refer to the following screen examples.



When the tests are completed, the lower panel **Test Log** will indicate Test Completed. The pass/fail results will be shown on the right. Refer to the screen example below.

HDMI HDCP 2.2 Repeater Compliance Test (1.0): "Acme_XYZ_HDCP_22_Repeater_3A_1"

Test List

Category / Test Name	Status
▶ Downstream with Receiver	✓
▶ 3A-01: Regular Procedure - With previously connected Receiver (Wi	Pass
▶ Iter 01:	Pass
▶ 3A-02: Regular Procedure - With newly connected Receiver (Without	Pass
▶ Iter 01:	Pass
▶ 3A-03: Irregular Procedure - Rx certificate not received	Pass
▶ Iter 01:	Pass
▶ 3A-04: Irregular Procedure - Verify Receiver Certificate	Pass
▶ Iter 01:	Pass
▶ 3A-05: Irregular Procedure - Invalid H'	Pass
▶ Iter 01: Invalid H'	Pass
▶ Iter 02: H' Timeout with previously paired Recv Id	Pass
▶ Iter 03: H' Timeout with previously unpaired Recv Id	Pass
▶ 3A-06: Irregular Procedure - Pairing Failure	Pass
▶ Iter 01:	Pass
▶ 3A-07: Irregular Procedure - Locality Failure	Fail
▶ Iter 01: Locality Failure	Fail
▶ Iter 02: Locality Timeout	Pass

3A-07: Irregular Procedure - Locality Failure

Test Log

Line	Message
0042	Processing test results.
0043	Test 3A-07 Iter 01 -> Fail
0044	--- Test 3A-07-02
0045	Executing the test.
0046	Processing test results.
0047	Test 3A-07 Iter 02 -> Pass
0048	Tests completed

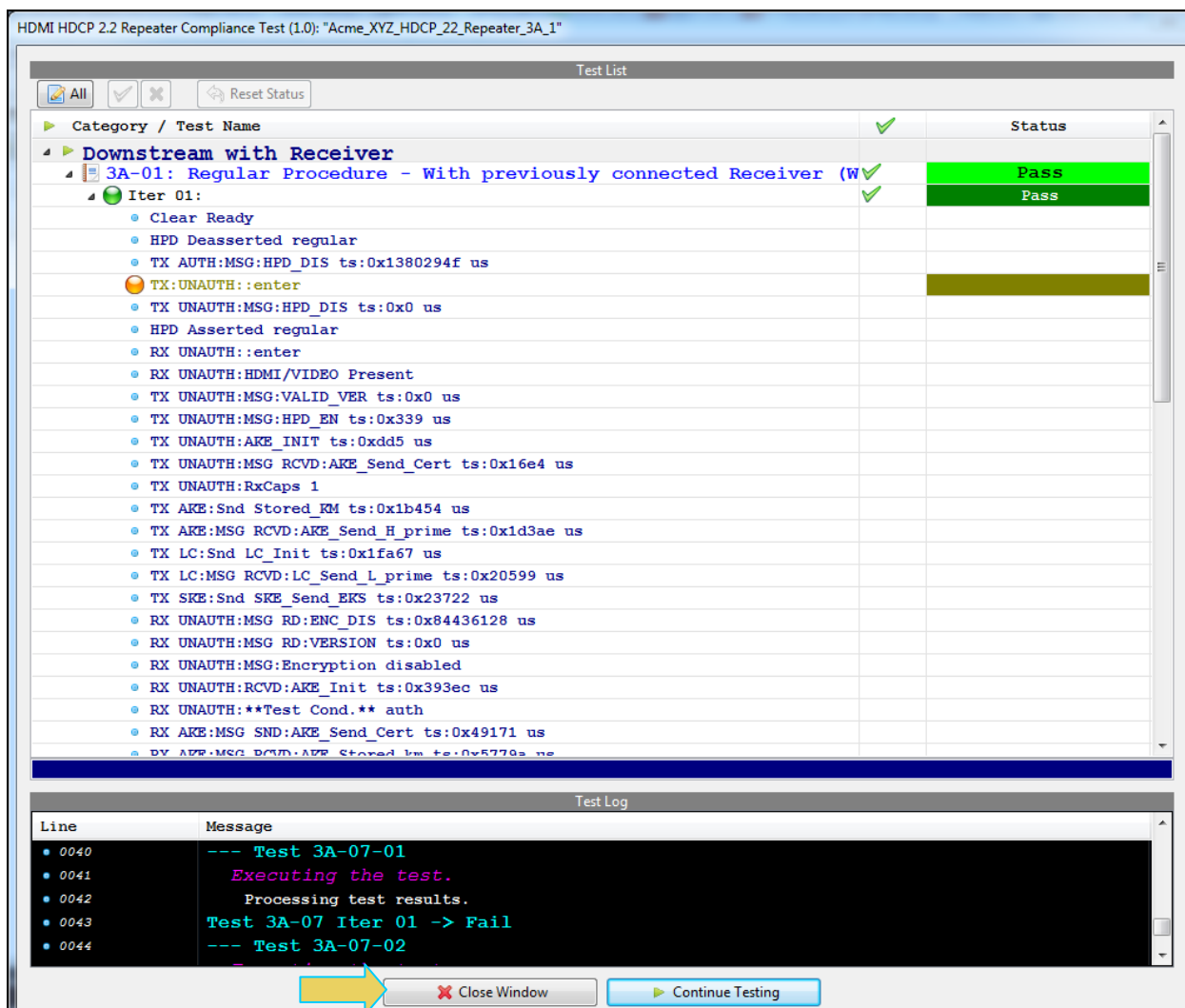
Close Window Continue Testing

You can view the details of any particular test by clicking on the test as shown in the sample screen shots below.

The screenshot displays the 'Test List' window for 'HDMI HDCP 2.2 Repeater Compliance Test (1.0): "Acme_XYZ_HDCP_22_Repeater_3A_1"'. The test list shows a failure for '3A-07: Irregular Procedure - Locality Failure' at 'Iter 01: Locality Failure'. A yellow arrow points to the 'TX:UNAUTH::enter' step in the test details. Below the test list is a 'Test Log' window showing the execution flow and the failure message.

Category / Test Name	Status
3A-07: Irregular Procedure - Locality Failure	Fail
Iter 01: Locality Failure	Fail
Clear Ready	
HPD Deasserted regular	
HPD Asserted regular	
RX UNAUTH::enter	
RX UNAUTH:NO VIDEO Present	
TX UNAUTH:MSG:VALID_VER ts:0x0 us	
TX UNAUTH:MSG:HPD_EN ts:0x33a us	
TX UNAUTH:AKE_INIT ts:0xd9d us	
TX UNAUTH:MSG RCVD:AKE_Send_Cert ts:0x16dc us	
TX UNAUTH:RxCaps 1	
TX AKE:Snd Stored_RM ts:0xdc578d34 us	
TX AKE:MSG:HPD_DIS ts:0x1a114 us	
TX:UNAUTH::enter	
TX UNAUTH:MSG:HPD_EN ts:0x3ae us	
TX UNAUTH:AKE_INIT ts:0xe64 us	
TX UNAUTH:MSG RCVD:AKE_Send_Cert ts:0x177a us	
TX UNAUTH:RxCaps 0	
TX AKE:Snd Stored_RM ts:0x1b8fb us	
TX AKE:MSG RCVD:AKE_Send_H_prime ts:0x1d7b3 us	
TX LC:Snd LC_Init ts:0x1fe51 us	
TX LC:MSG RCVD:LC_Send_L_prime ts:0x209ba us	
TX SKE:Snd SKE_Send_EKS ts:0x23b43 us	
RX UNAUTH:MSG RD:VERSION ts:0x0 us	
RX UNAUTH:MSG:Encryption disabled	
RX UNAUTH:RCVD:AKE_Init ts:0x895433 us	
RX UNAUTH:**Test_Cond ** invalid!	

Line	Message
0040	--- Test 3A-07-01
0041	Executing the test.
0042	Processing test results.
0043	Test 3A-07 Iter 01 -> Fail
0044	--- Test 3A-07-02



You can close the test window when you are finished examining the results. Note that you can view the details from the Compliance Test Viewer which is available any time after the tests. When you close the test execution window, the Compliance Test Viewer window will appear showing the results of the test. Please refer to the following section for details on viewing the compliance test results.

5.11 Viewing Details of 3A Repeater Compliance Test Results

When you have completed the test series you will have an opportunity to view the detailed data for a particular failure or a test that passed. Use the following procedures to view the details of a failure.

To view the details of a failure:

1. Expose the detailed results of a failure and highlight a results record. Refer to the screen example below.

Compliance Test Results Viewer
HDMI HDCP 2.2 Repeater (1.0) Compliance Test Results

Results Name: Acme_XYZ_HDCP_22_Repeater_3A_1 Manufacturer: Acme [HTML Report](#)
Date Tested: March 17, 2015 4:41 PM Model Name: XYZ
Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
▶ 3A-01: Regular Procedure - With previously connected Receiver (With stored Km)	Pass
▶ 3A-02: Regular Procedure - With newly connected Receiver (Without stored Km)	Pass
▶ 3A-03: Irregular Procedure - Rx certificate not received	Pass
▶ 3A-04: Irregular Procedure - Verify Receiver Certificate	Pass
▶ 3A-05: Irregular Procedure - Invalid H'	Pass
▶ 3A-06: Irregular Procedure - Pairing Failure	Pass
▶ 3A-07: Irregular Procedure - Locality Failure	Fail

3A-01: Regular Procedure - With previously connected Receiver (With stored Km)

Instrument: My_980 [192.168.254.153] [Continue Test Execution](#) [Close](#)

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

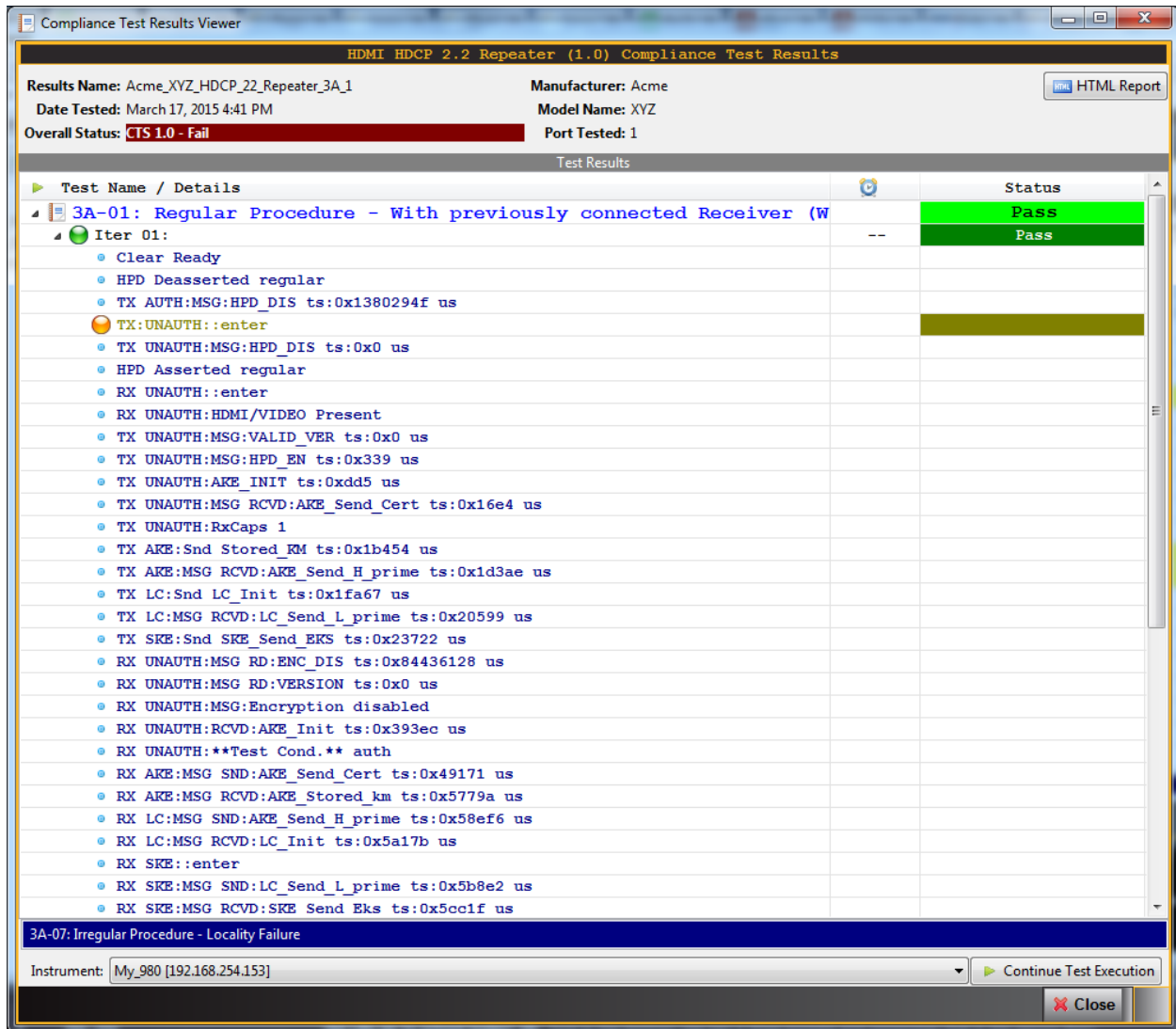
Results Name: HDCP_22_Test3 Manufacturer: Acme [HTML Report](#)
 Date Tested: June 11, 2014 4:06 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Fail** Port Tested: 1

Test Results

Test Name / Details	Status
Iter 01:	Pass
• HPD Deasserted regular	
• MSG:HPD_DIS ts:0x113dcdd ns	
• TX:UNAUTH::enter	
• HPD Asserted regular	
• RX:UNAUTH	
• HDMI/VIDEO Present	
• MSG:VALID_VER ts:0x0 ns	
• MSG:HPD_EN ts:0x338 ns	
• AKE_INIT ts:0x6d4a5755 ns	
• RCVD:AKE_INIT ts:0 us	
• **Test Cond.** hpd	
• HPD Deasserted irregular	
• MSG:HPD_DIS ts:0x1b15 ns	
• HPD Asserted irregular	
• MSG:HPD_EN ts:0x331 ns	
• AKE_INIT ts:0x72266814 ns	
• RCVD:AKE_INIT ts:204539 us	
• **Test Cond.** ake_init	
• Encryption Disabled	
• MSG RCVD:AKE_Send Cert ts:0x7234fd25 ns	
• Snd Stored_KM ts:0x74bc94f1 ns	
• MSG SND:AKE_Send Cert ts:306424 us	
• MSG RCVD:AKE_Stored_Km ts:313138 us	
• MSG SND:AKE_Send_H_Prime ts:324864 us	
• MSG RCVD:AKE_Send_H_Prime ts:0x74d53e86 ns	

Iter 01:

Instrument: MV980_DP [192.168.254.153] [Continue Test Execution](#) [Close](#)



5.12 Viewing the HDMI HDCP 2.2 Repeater Compliance HTML test report

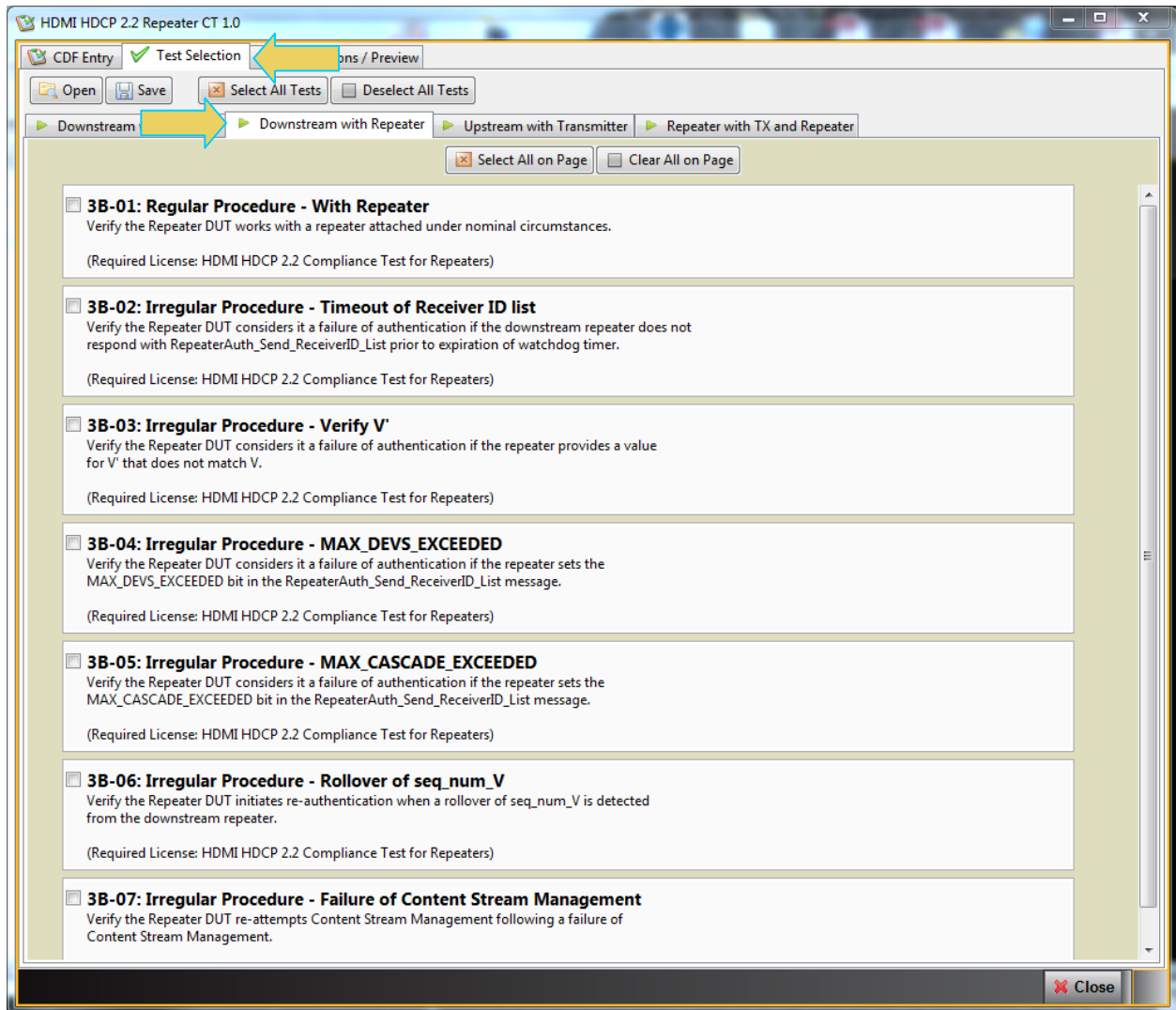
After you have completed the tests, you can view an HTML report. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance HTML test report](#) to view the HDCP 2.2 Compliance test HTML report.

5.13 Selecting the 3B series tests

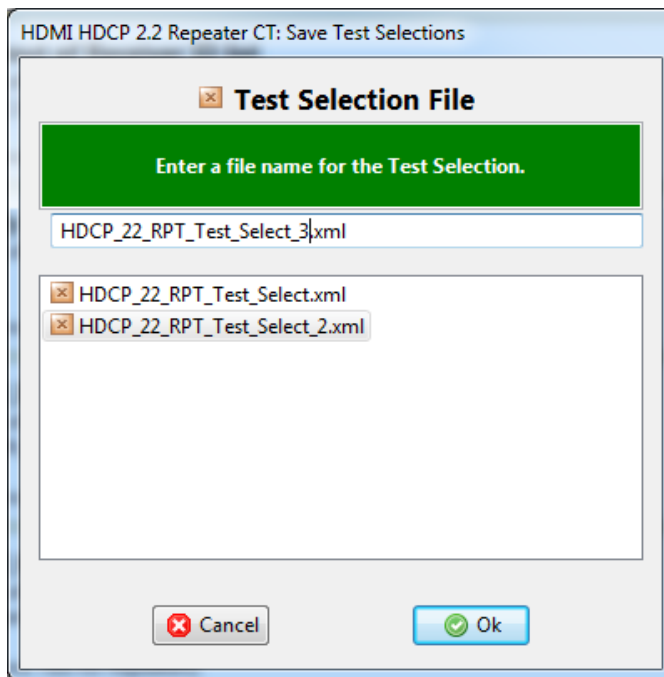
Use the following procedures to select the 3B series tests to run.

To select the tests to run:

1. Select the **Test Selection** panel as shown below.
2. If you have an existing Test Selection option file saved you can recall that for use in your testing. Simply click on the **Open** activation button.

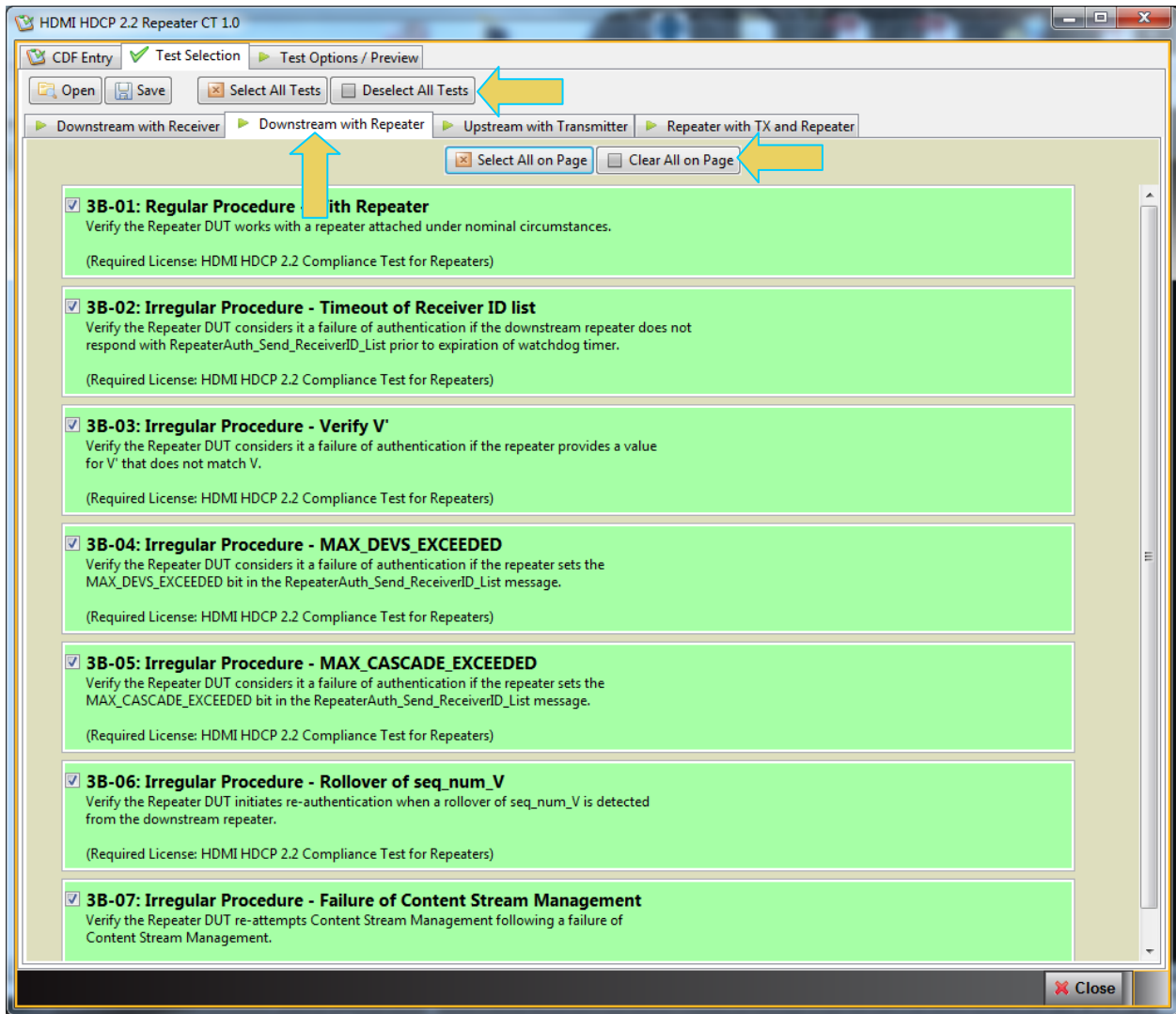


A dialog box will appear as follows. Simply select the file and click on the **OK** activation button.

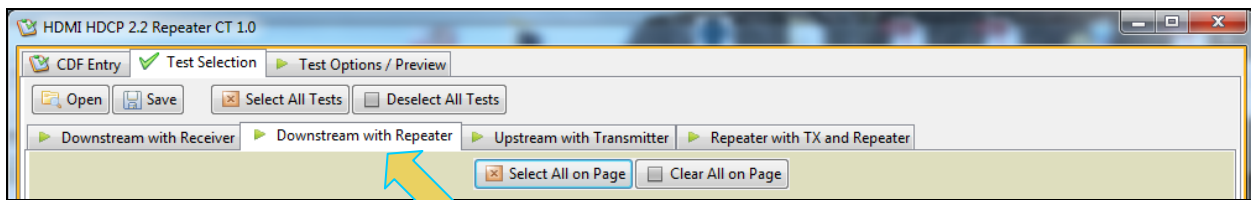


3. Complete the items in the **3B Tests** tab of the **Test Selection** panel shown below.

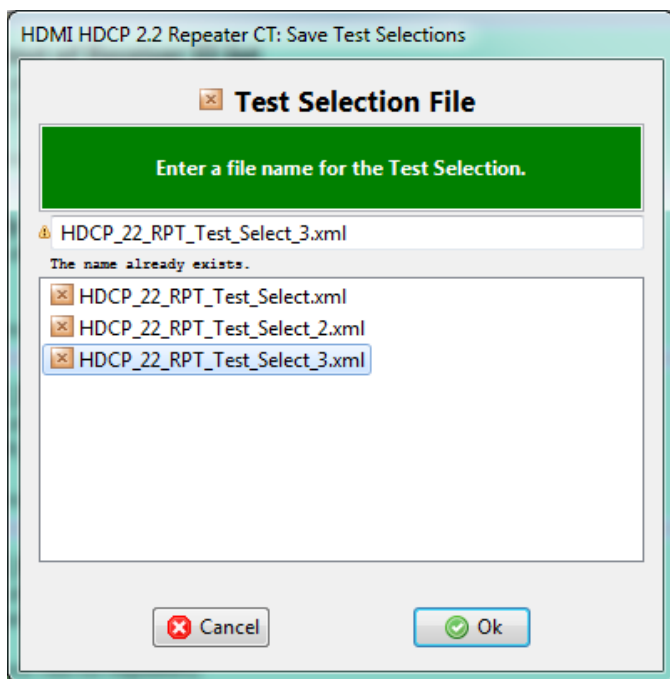
For convenience you can **Select All Tests** or **Deselect All Tests** for both tabs or for group selection over each page **Select All on Page** or **Clear All on Page** tests using the activation buttons provided.



4. You can save the Test Selection options using the **Save** activation button.



A dialog box will appear as follows. Simply assign a name and click on the **OK** activation button. Click **Cancel** to exit.

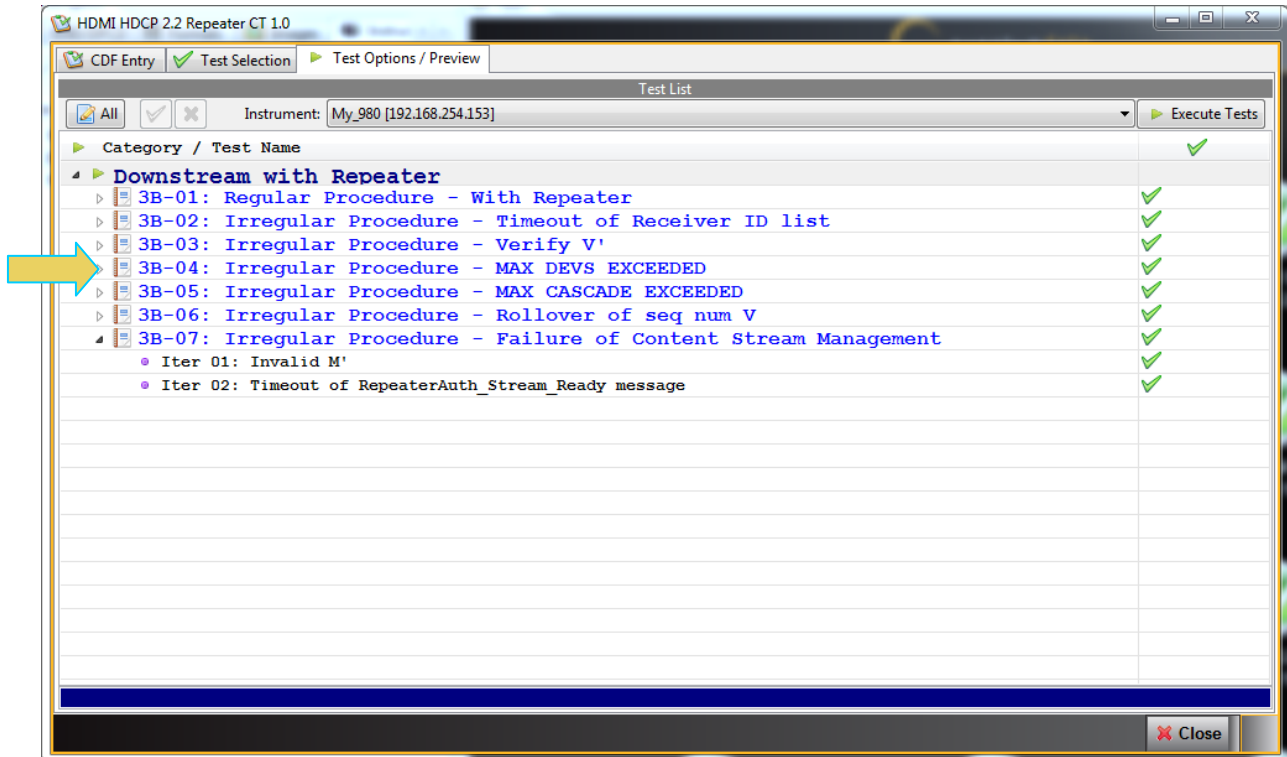


5.14 Executing the HDMI HDCP 2.2 3B Series Repeater Compliance Tests

Use the following procedures to initiate the execution of an HDMI HDCP 2.2 3B series Repeater Compliance test series.

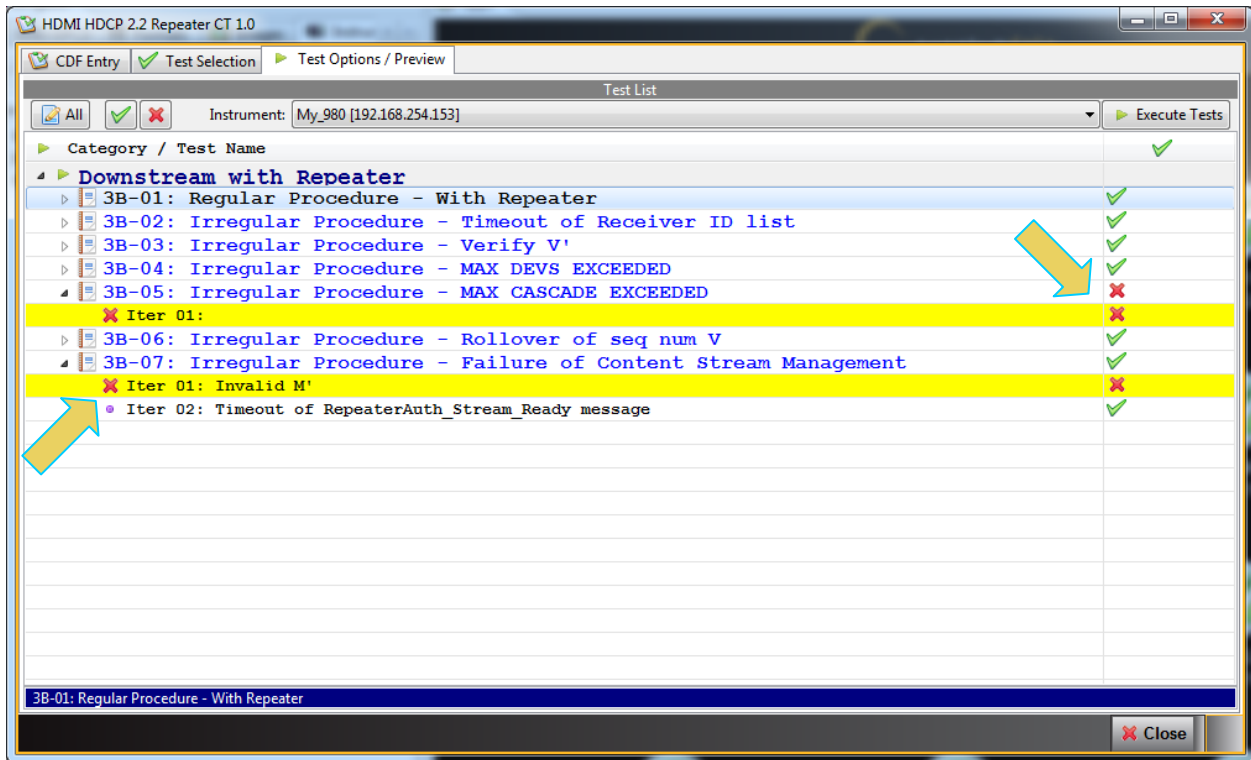
To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below.

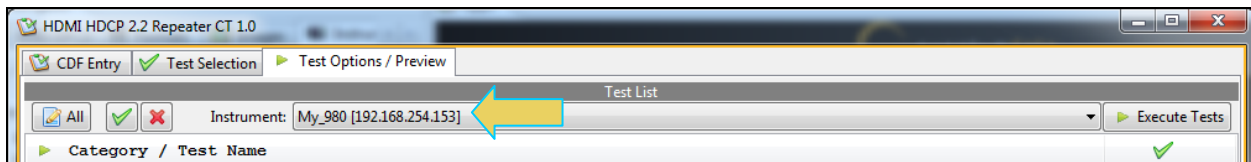


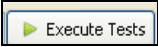
2. (Optional) Review the list of tests for each category. If you wish to skip some of the tests. You can skip tests by clicking on the Check mark on the right side of the **Test Options / Preview** panel.

The screen shot below shows some of the tests that have been skipped (highlighted in yellow with a red X).

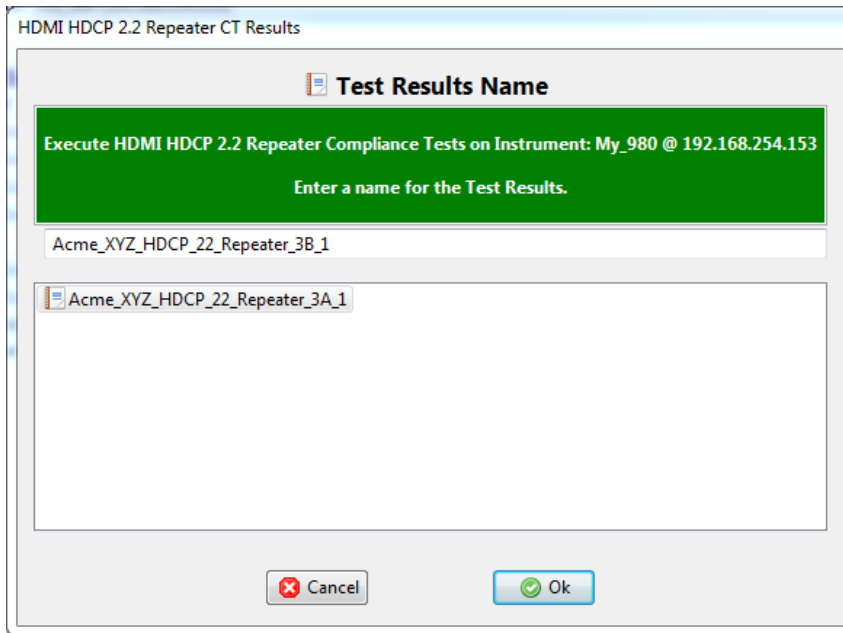


3. Connect to the 980 Test Instrument if you have not already done so. Use the **Instrument** selection pull-down as indicated below.



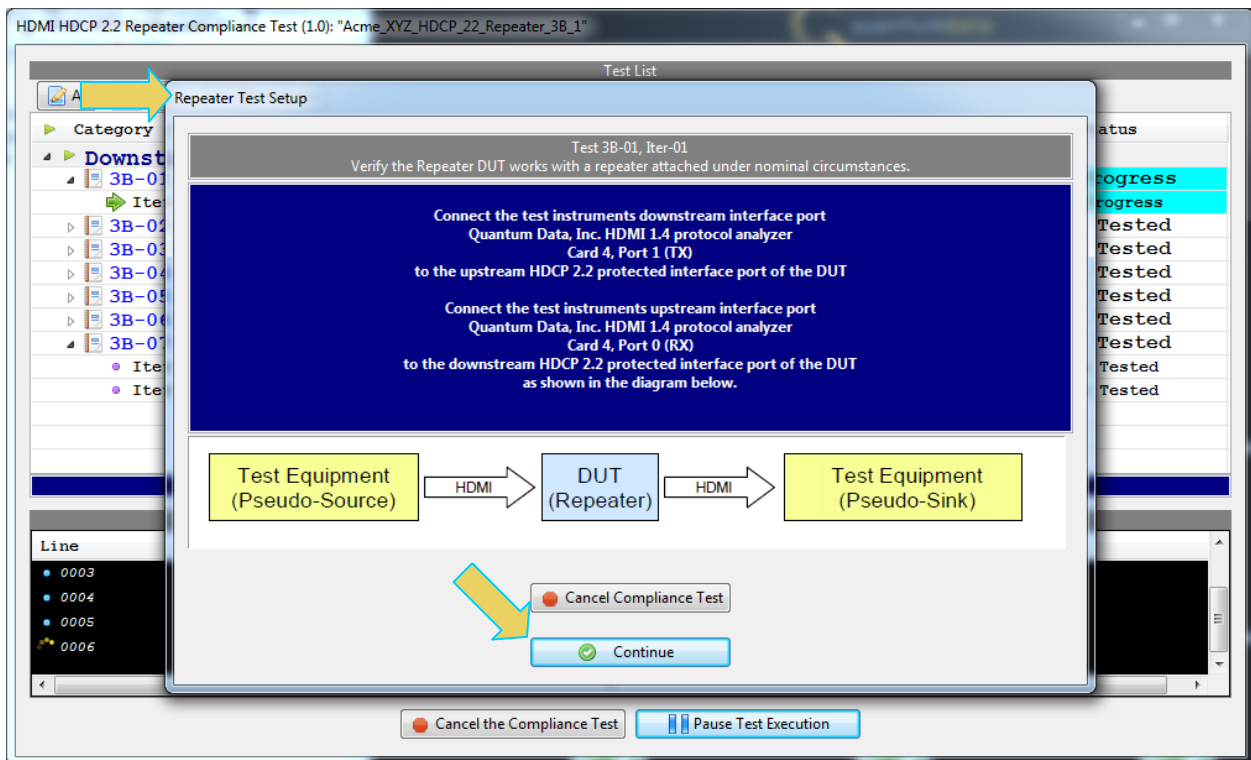
Click on the **Execute Tests**  activation button to initiate the test suite. You will be prompted for a name for the tests. This dialog box is shown below.

A dialog box prompting you to name the test results files appears as shown below:




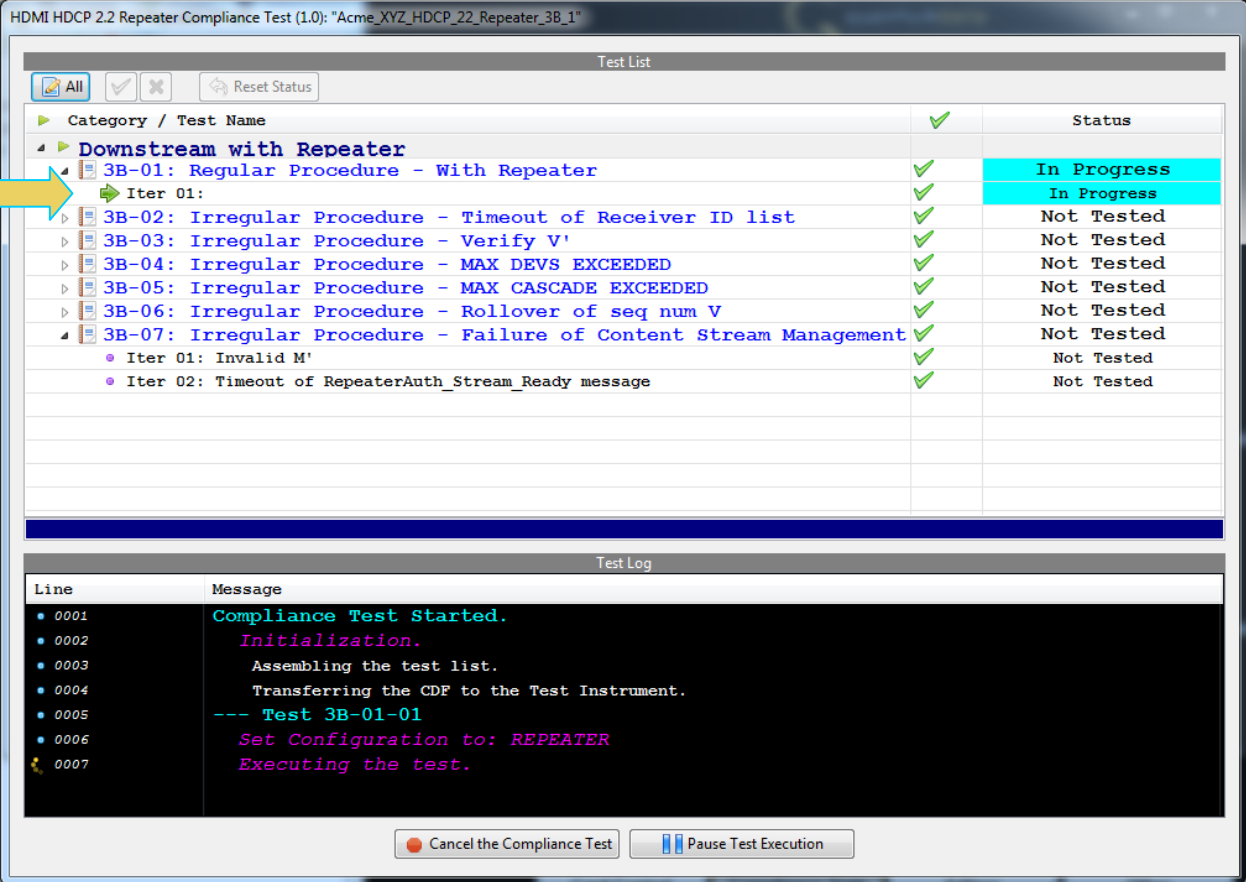
Select a name and click on the **OK** activation button. The tests begin.

During the tests a **Repeater Test Setup** dialog box will appear which requires that you to verify that the repeater device under test is connected properly. The following screen shot depicts this. Press **Continue** when you have the repeater device connected properly. You can cancel the test using the **Cancel Compliance Test** button.



If you do not have the repeater device under test in the proper mode, an error dialog box will appear.

During the test, the test results are shown as they occur in the **Test Options / Preview** panel. There is a green progress arrow  which points to the test that is currently being run. Refer to the screen shot below.



The screenshot displays the 'HDMI HDCP 2.2 Repeater Compliance Test (1.0): "Acme_XYZ_HDCP_22_Repeater_3B_1"' interface. It is divided into two main sections: 'Test List' and 'Test Log'.

Test List: This section shows a tree view of test categories and individual test items. A yellow arrow points to the '3B-01: Regular Procedure - With Repeater' item, which is currently 'In Progress'. Other tests are marked as 'Not Tested'.

Category / Test Name	Progress	Status
Downstream with Repeater	✓	
3B-01: Regular Procedure - With Repeater	✓	In Progress
Iter 01:	✓	In Progress
3B-02: Irregular Procedure - Timeout of Receiver ID list	✓	Not Tested
3B-03: Irregular Procedure - Verify V'	✓	Not Tested
3B-04: Irregular Procedure - MAX DEVS EXCEEDED	✓	Not Tested
3B-05: Irregular Procedure - MAX CASCADE EXCEEDED	✓	Not Tested
3B-06: Irregular Procedure - Rollover of seq num V	✓	Not Tested
3B-07: Irregular Procedure - Failure of Content Stream Management	✓	Not Tested
Iter 01: Invalid M'	✓	Not Tested
Iter 02: Timeout of RepeaterAuth_Stream_Ready message	✓	Not Tested

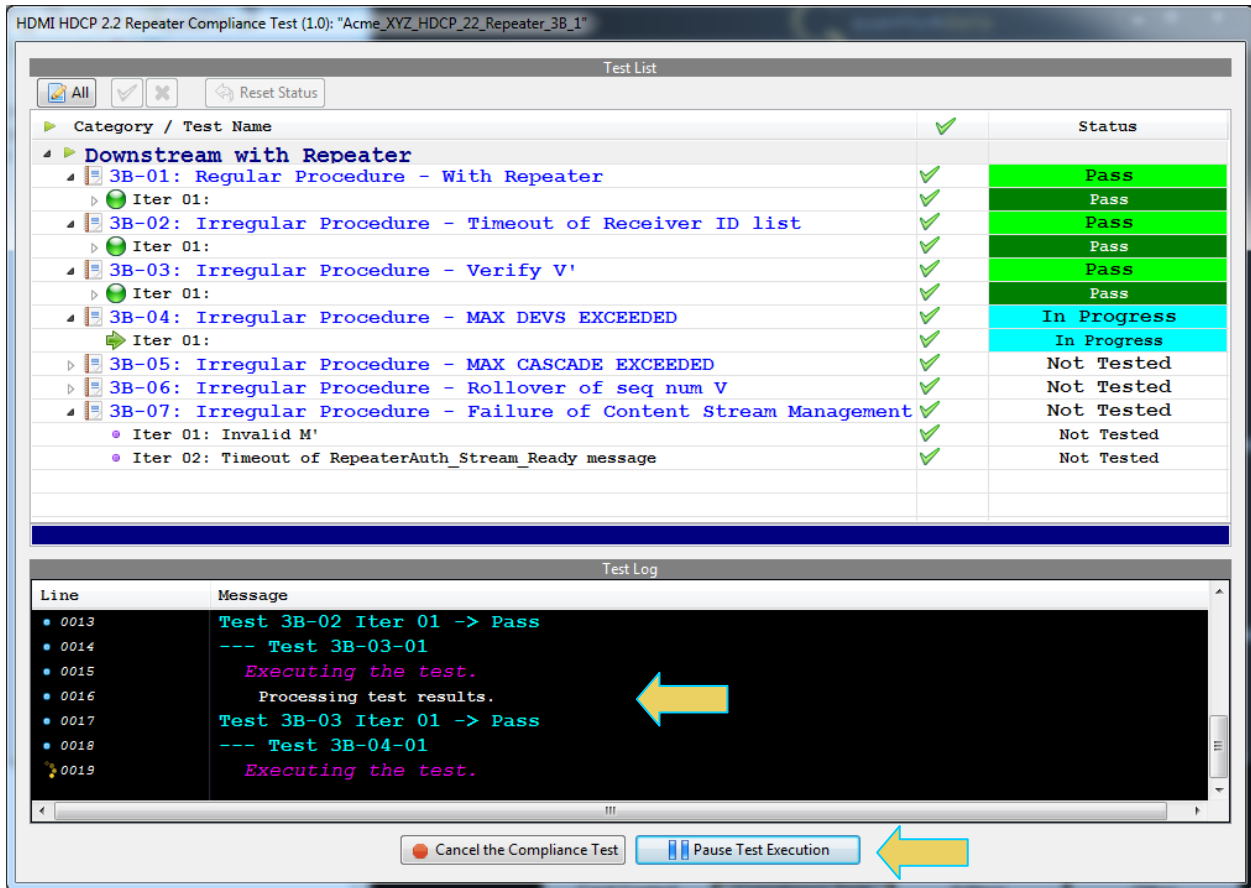
Test Log: This section shows the execution progress with line numbers and messages.

```

Line      Message
-----
0001     Compliance Test Started.
0002     Initialization.
0003     Assembling the test list.
0004     Transferring the CDP to the Test Instrument.
0005     --- Test 3B-01-01
0006     Set Configuration to: REPEATER
0007     Executing the test.
    
```

At the bottom of the interface, there are two buttons: 'Cancel the Compliance Test' and 'Pause Test Execution'.

The lower panel **Test Log** shows the testing activity as it occurs. You can cancel the compliance test or pause at any time. If you pause the test you can resume later at any time even if you exit the 980 Manager application. Refer to the following screen examples.



When the tests are completed the Test Log will indicate Test Completed as shown below.

The screenshot displays two windows from the HDMI HDCP 2.2 Repeater Compliance Test (1.0) application. The top window, titled 'Test List', shows a table of test results. The bottom window, titled 'Test Log', shows a list of messages with a yellow arrow pointing to the 'Tests completed' message.

Category / Test Name	Status
Downstream with Repeater	Pass
3B-01: Regular Procedure - With Repeater	Pass
Iter 01:	Pass
3B-02: Irregular Procedure - Timeout of Receiver ID list	Pass
Iter 01:	Pass
3B-03: Irregular Procedure - Verify V'	Pass
Iter 01:	Pass
3B-04: Irregular Procedure - MAX DEVS EXCEEDED	Pass
Iter 01:	Pass
3B-05: Irregular Procedure - MAX CASCADE EXCEEDED	Pass
Iter 01:	Pass
3B-06: Irregular Procedure - Rollover of seq num V	Pass
Iter 01:	Pass
3B-07: Irregular Procedure - Failure of Content Stream Management	Pass
Iter 01: Invalid M'	Pass
Iter 02: Timeout of RepeaterAuth_Stream_Ready message	Pass

```

Line      Message
0030     --- Test 3B-07-01
0031           Executing the test.
0032           Processing test results.
0033           Test 3B-07 Iter 01 -> Pass
0034     --- Test 3B-07-02
0035           Executing the test.
0036           Processing test results.
0037           Test 3B-07 Iter 02 -> Pass
0038           Tests completed
    
```

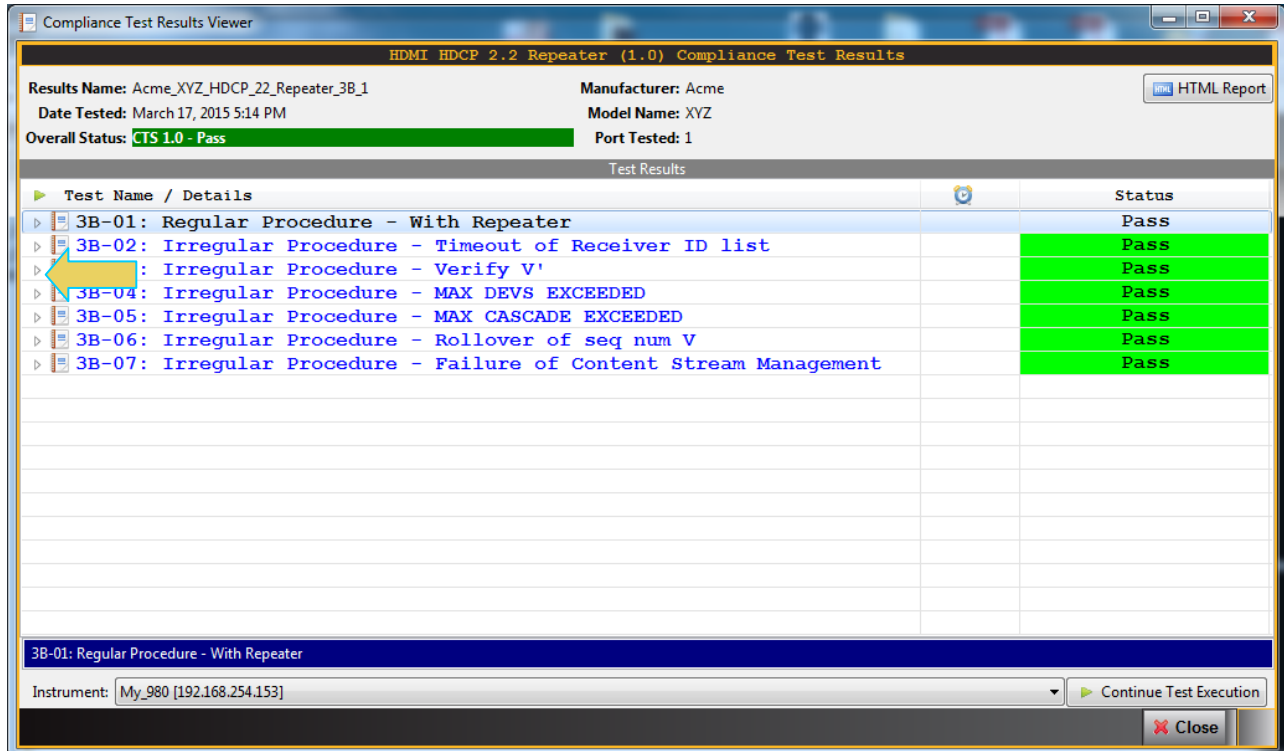
When you close the test execution window, the Compliance Test Viewer window will appear showing the results of the test. Please refer to the following section for details on viewing the compliance test results.

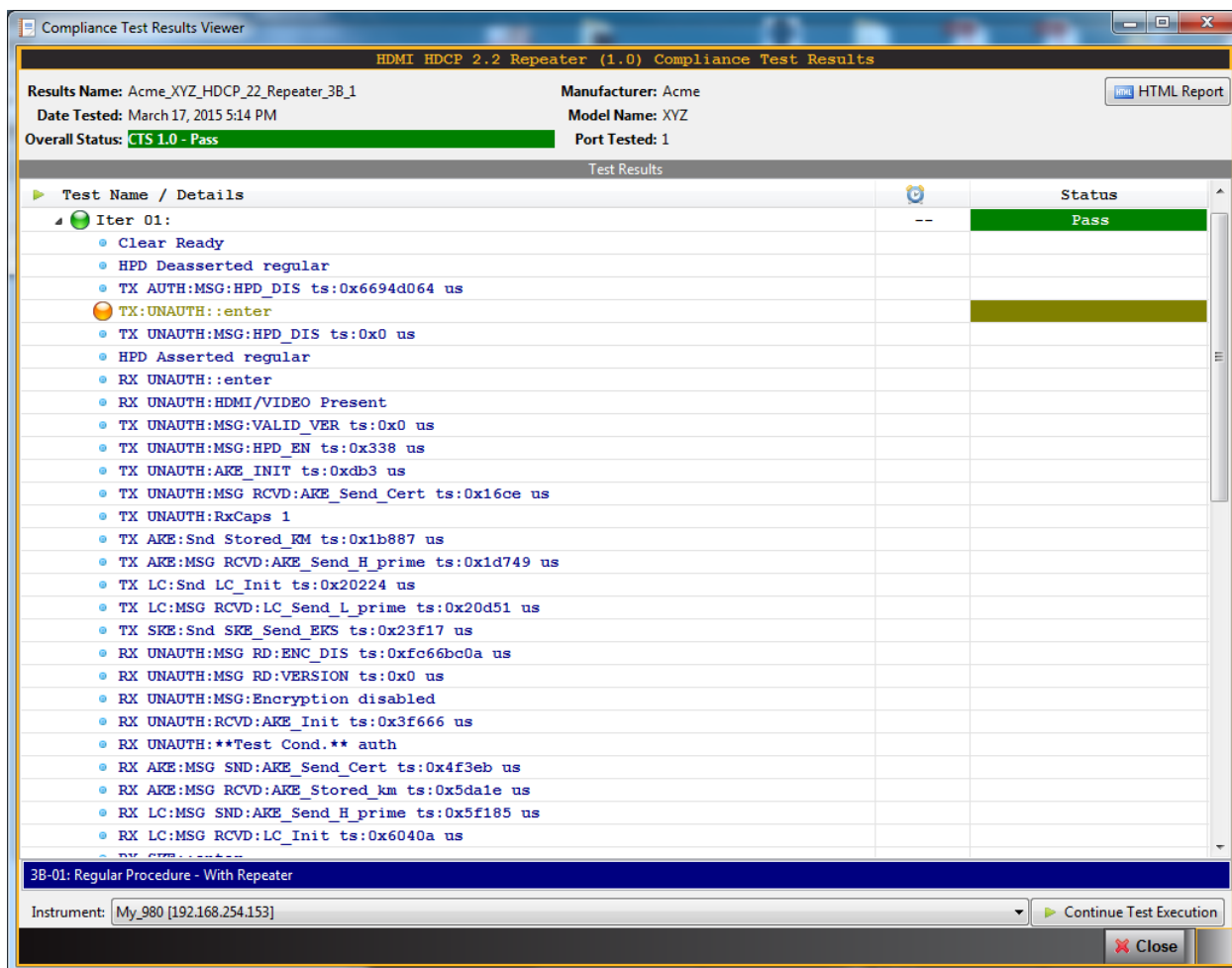
5.15 Viewing Details of Repeater 3B Compliance Test Results

When you have completed the test series you will have an opportunity to view the detailed data for a particular failure or a test that passed. Use the following procedures to view the details of a failure.

To view the details of a failure:

1. Expose the detailed results of a failure and highlight a results record. Refer to the screen examples below.





5.16 Viewing the HDMI HDCP 2.2 Repeater Compliance HTML test report

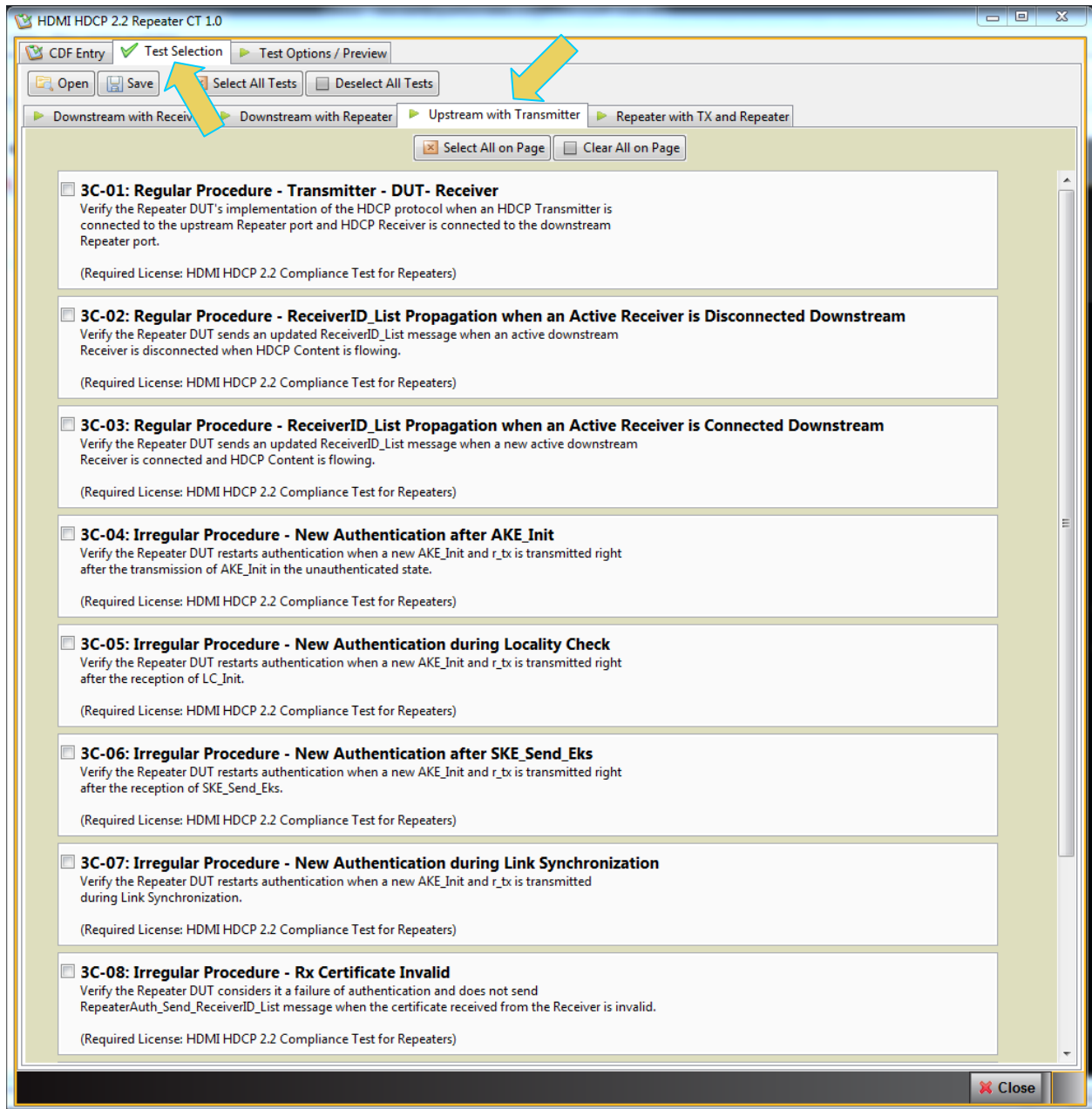
After you have completed the tests, you can view an HTML report. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance HTML test report](#) to view the HDCP 2.2 Compliance test HTML report.

5.17 Selecting the 3C series tests

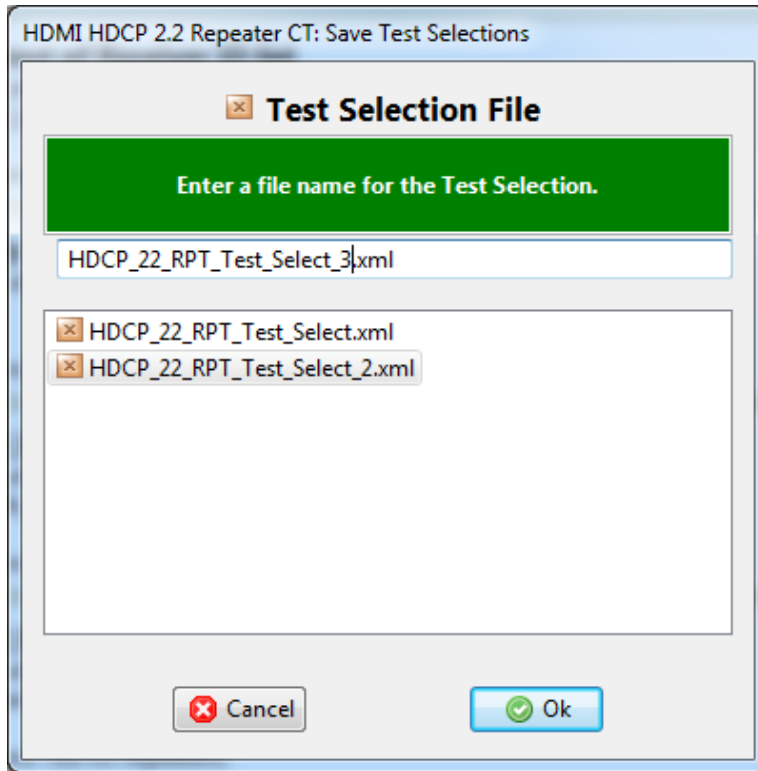
Use the following procedures to select the 3C series tests to run. There are multiple tabs which correspond to each section in the CTS.

To select the tests to run:

1. Select the **Test Selection** panel as shown below.
2. If you have an existing Test Selection option file saved you can recall that for use in your testing. Simply click on the **Open** activation button.

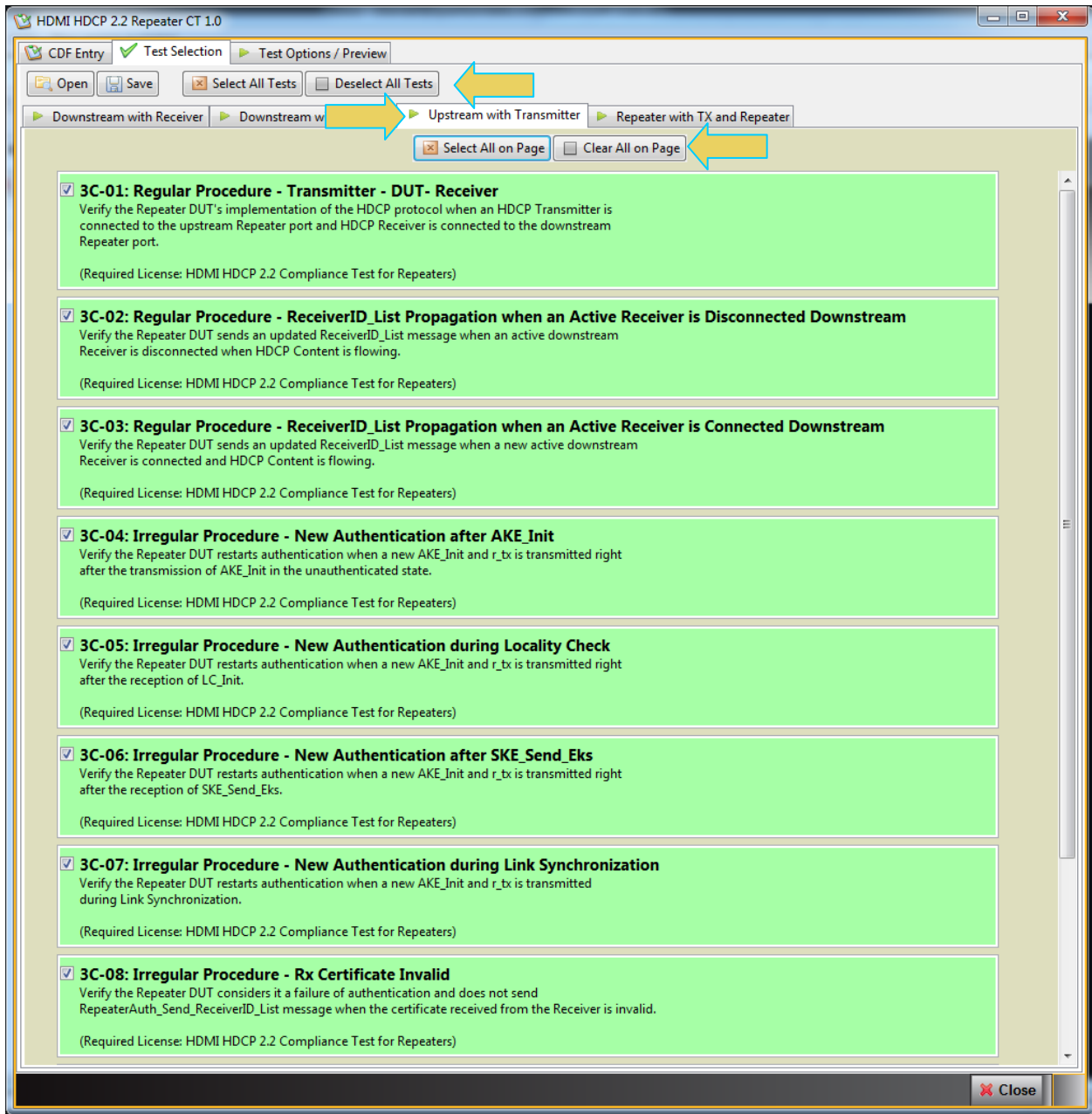


A dialog box will appear as follows. Simply select the file and click on the **OK** activation button.

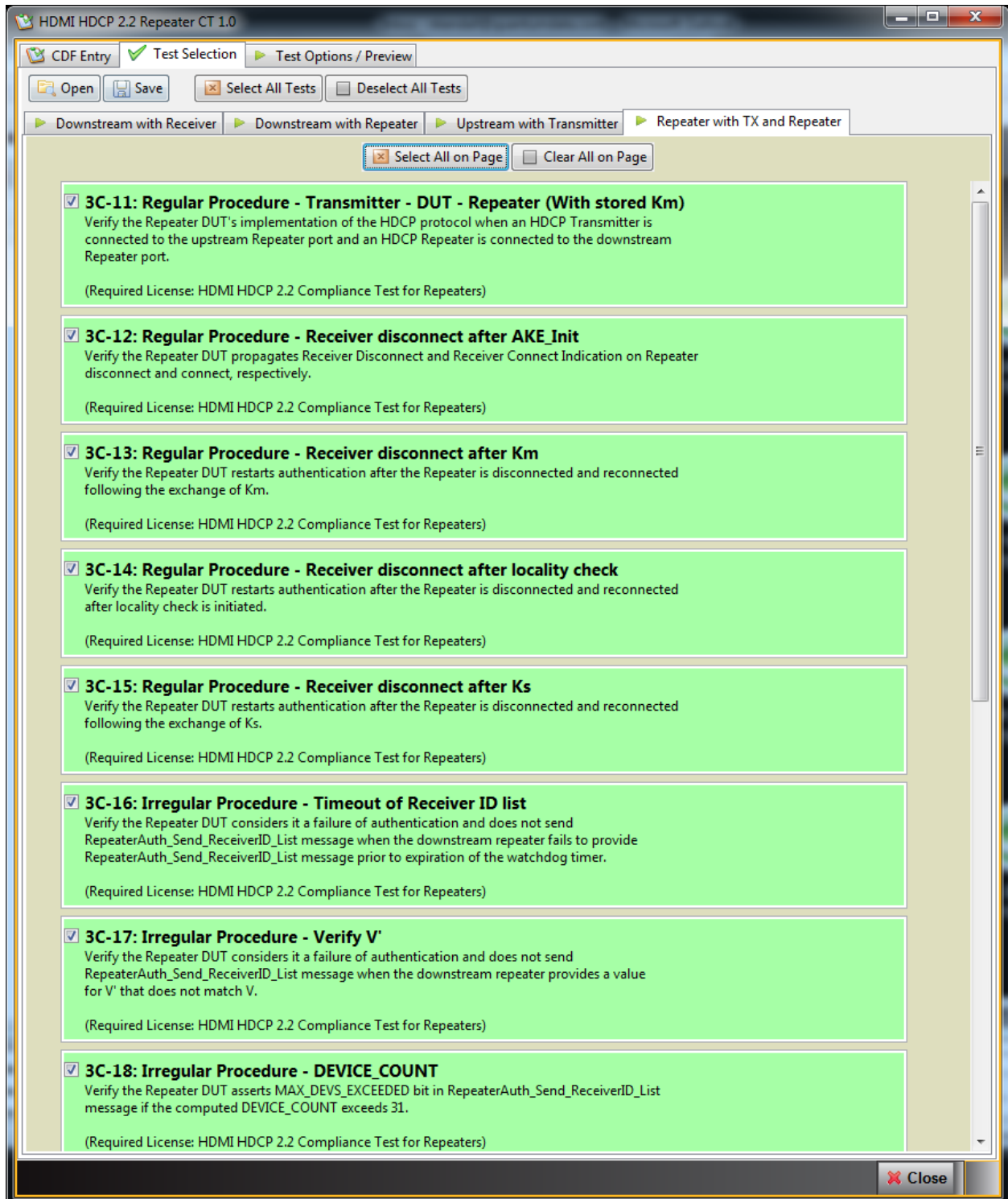


3. Complete the items in the **3C Tests** tab of the **Test Selection** panel shown below.

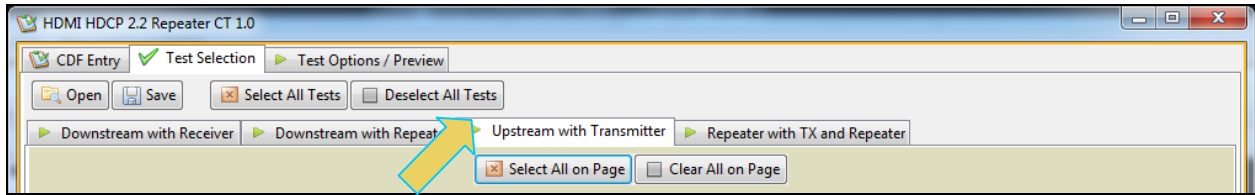
For convenience you can **Select All Tests** or **Deselect All Tests** for both tabs or for group selection over each page **Select All on Page** or **Clear All on Page** tests using the activation buttons provided.



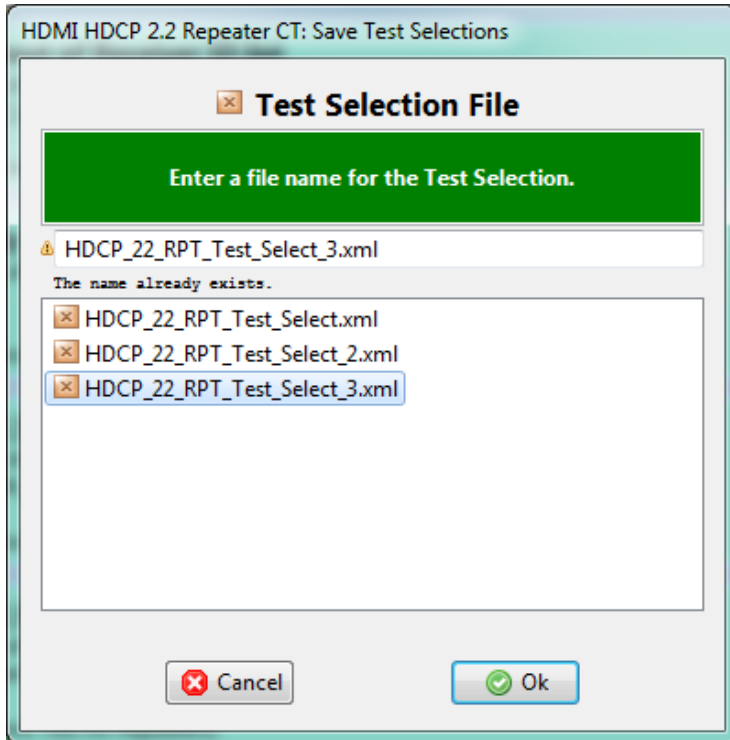
Select the second set of 3C tests on the **Repeater with Tx and Repeater** tab.



4. You can save the Test Selection options using the **Save** activation button.



A dialog box will appear as follows. Simply assign a name and click on the **Ok** activation button. Click **Cancel** to exit.

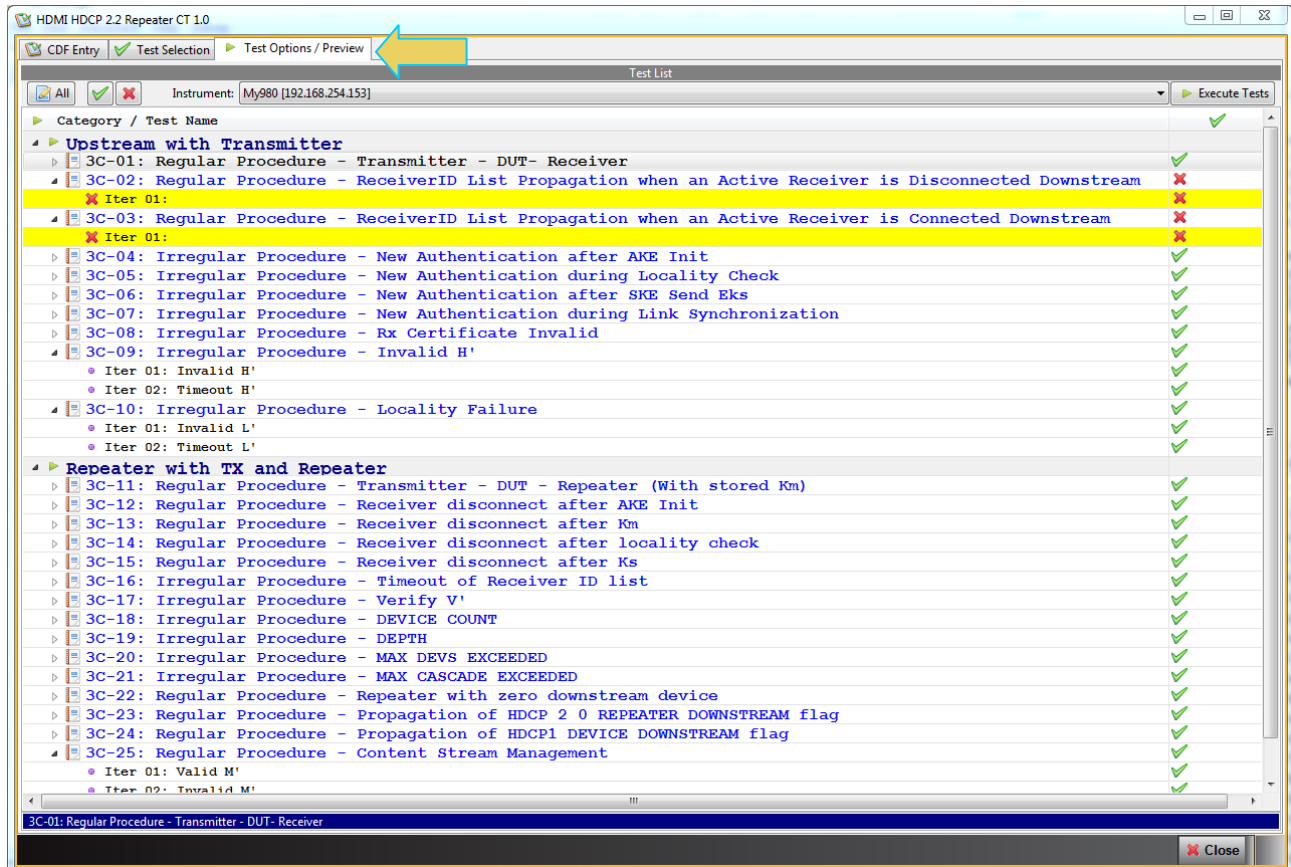


5.18 Executing the HDMI HDCP 2.2 3C Series Repeater Compliance Tests

Use the following procedures to initiate the execution of an HDMI HDCP 2.2 3C series Repeater Compliance test series.

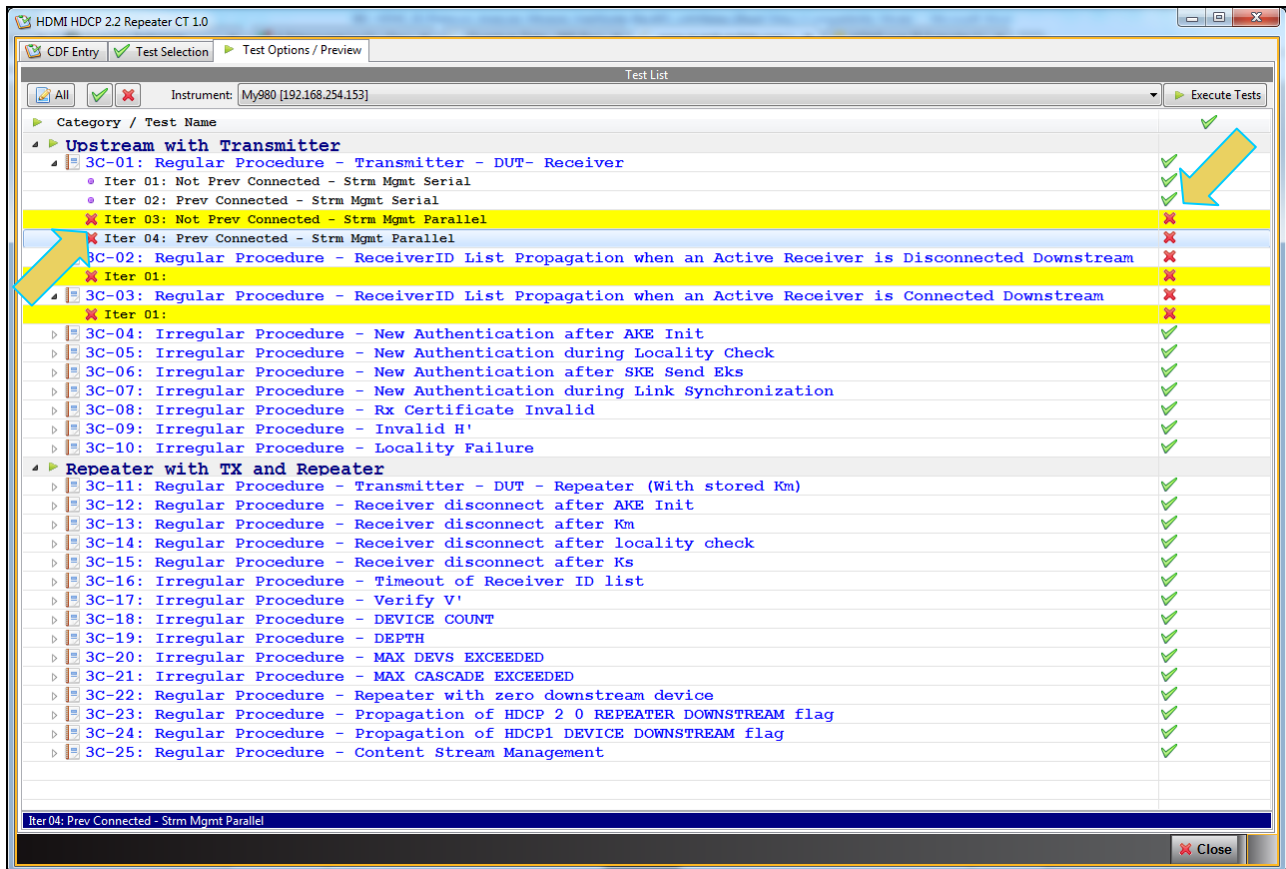
To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below.

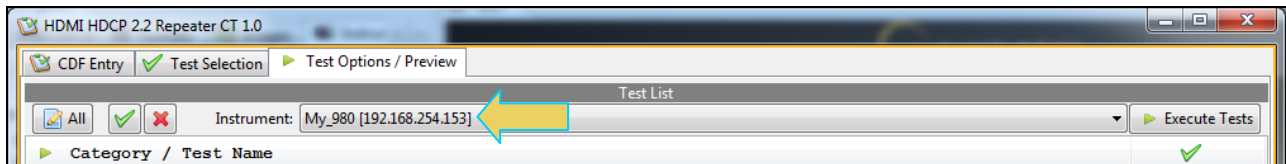


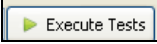
2. (Optional) Review the list of tests for each category. If you wish to skip some of the tests. You can skip tests by clicking on the Check mark on the right side of the **Test Options / Preview** panel.

The screen shot below shows some of the tests that have been skipped (highlighted in yellow with a red X).

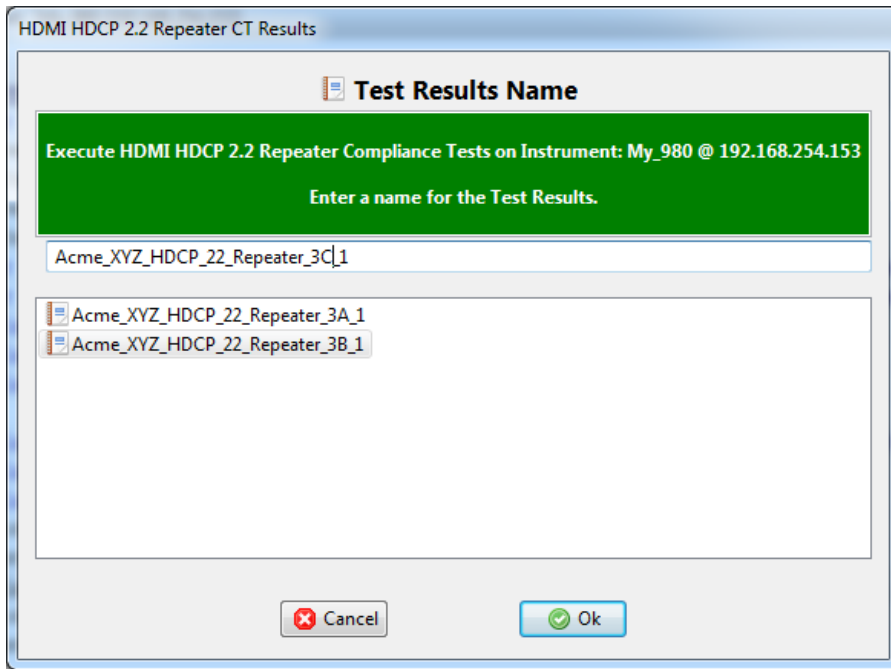


3. Connect to the 980 Test Instrument if you have not already done so. Use the **Instrument** selection pull-down as indicated below.

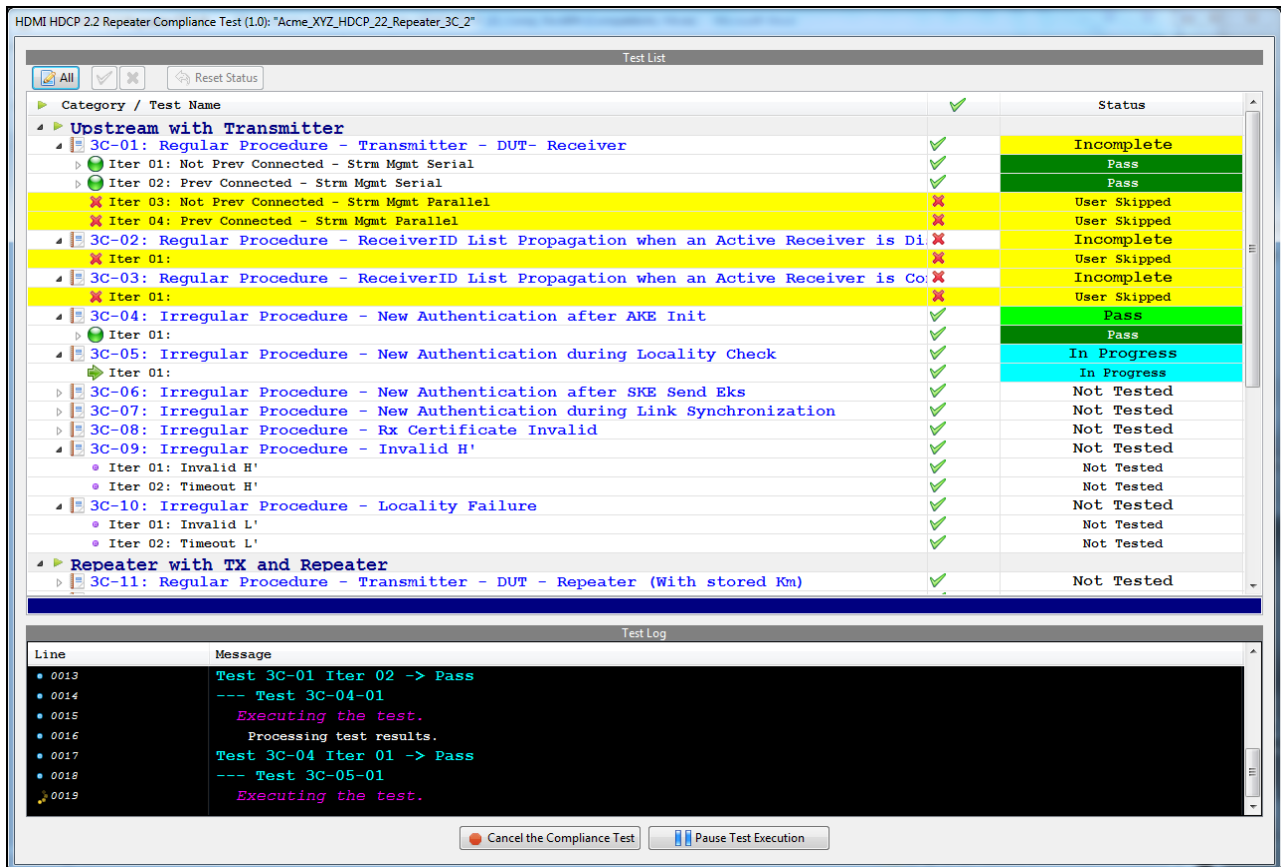


Click on the **Execute Tests**  activation button to initiate the test suite. You will be prompted for a name for the tests. This dialog box is shown below.

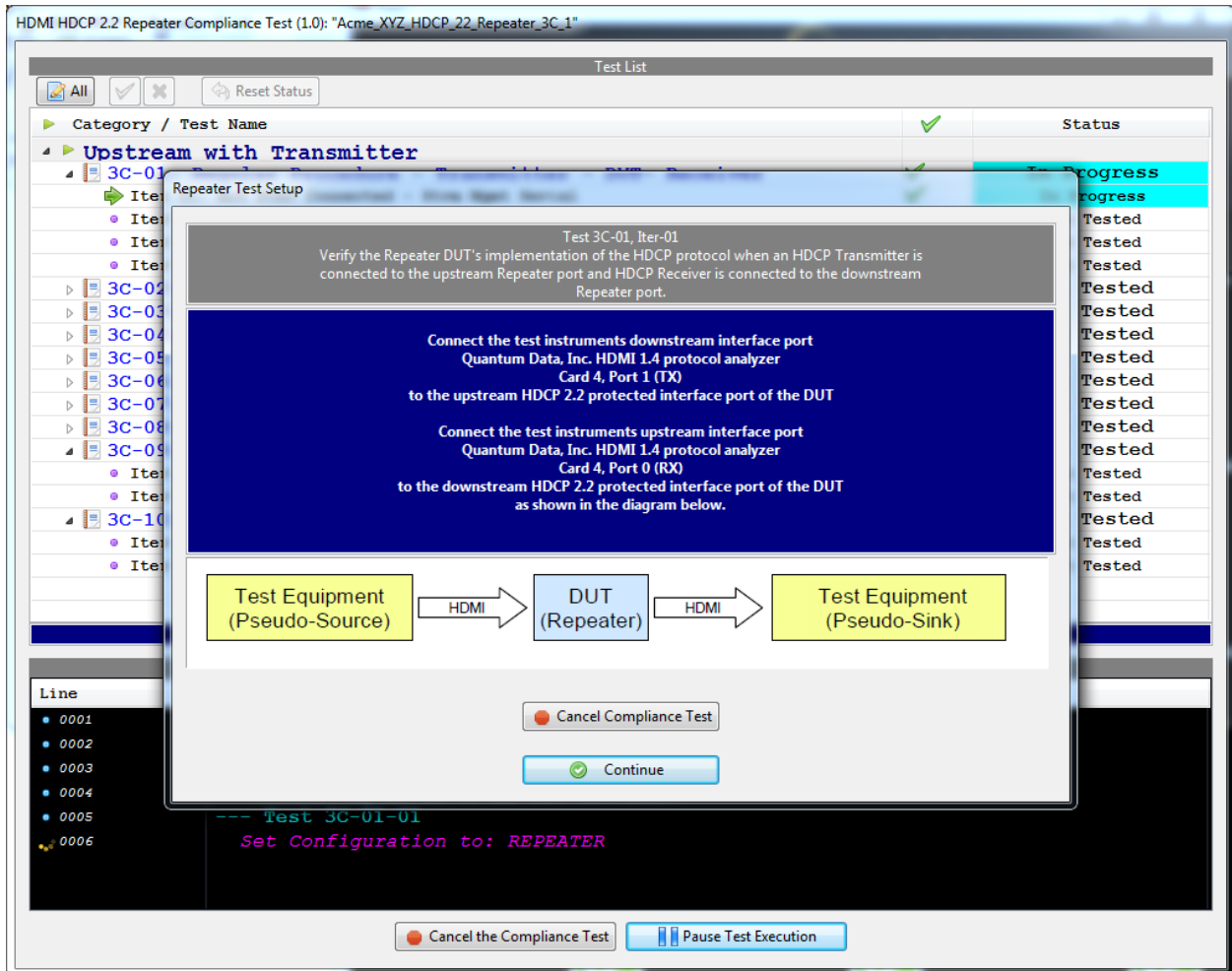
A dialog box prompting you to name the test results files appears as shown below:

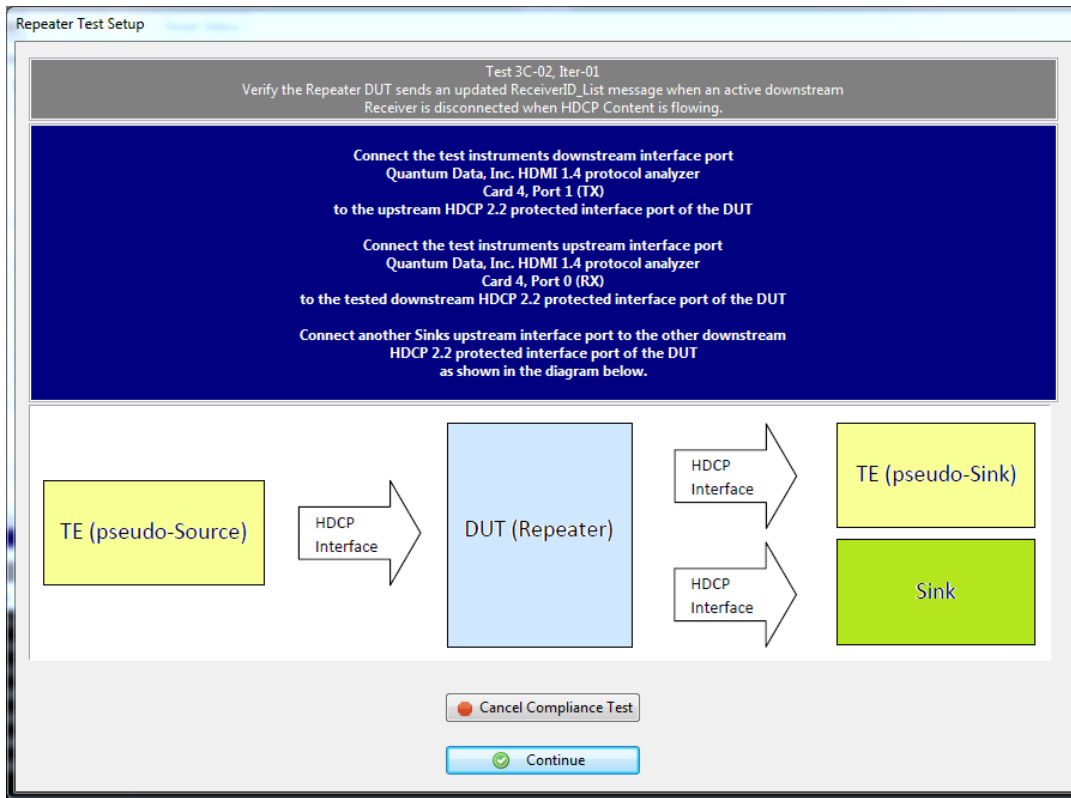


Select a name and click on the **Ok** activation button. A test window appears showing the progress of the test with a log window on the lower half. Refer to the screen example below.

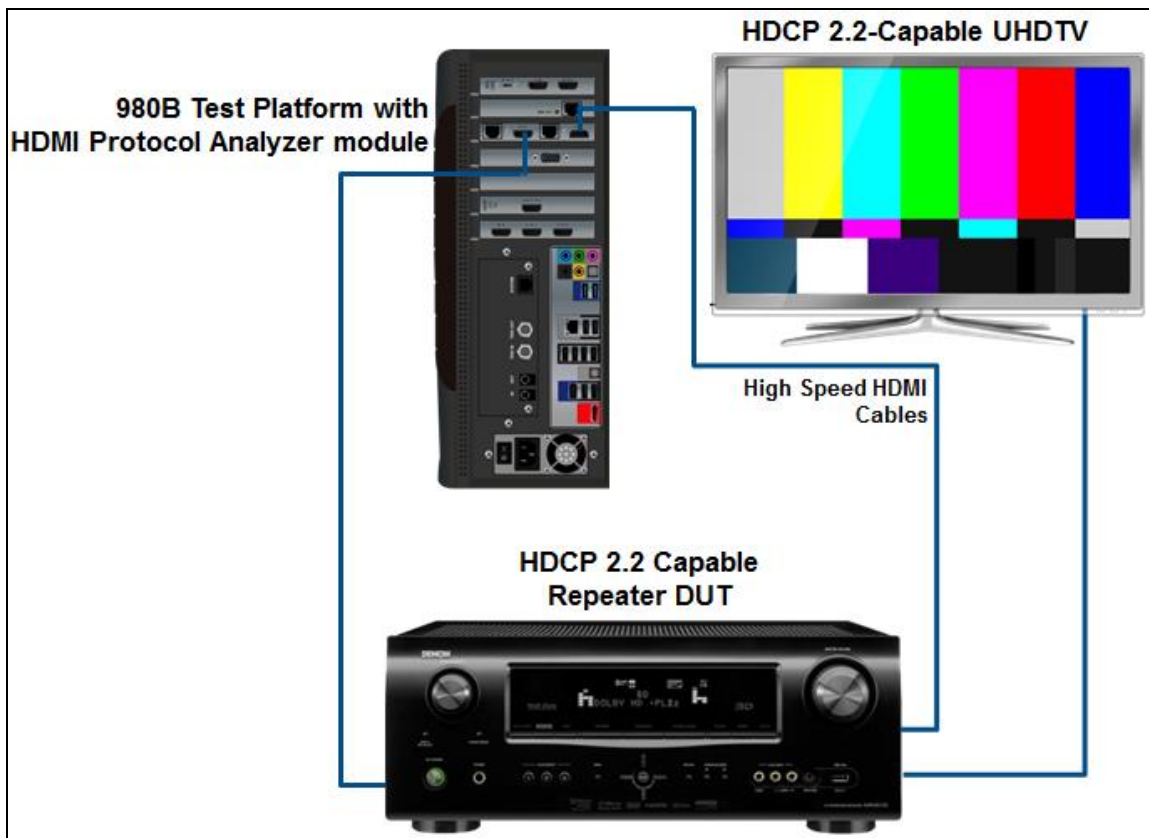


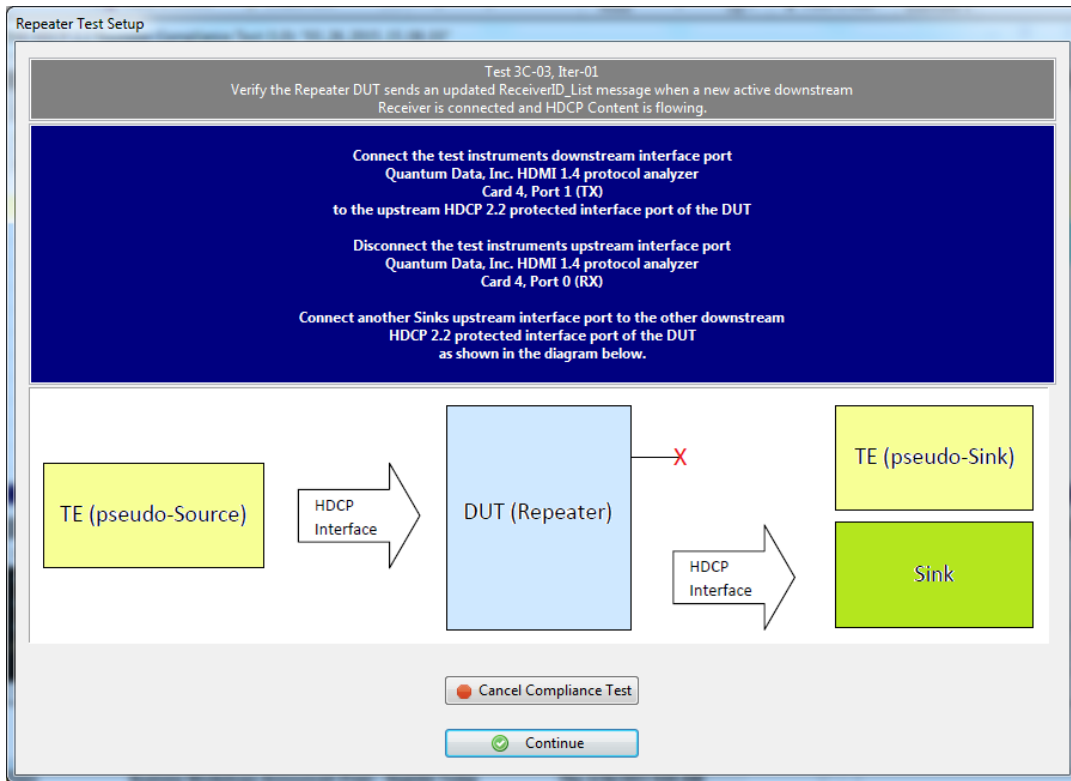
During the tests **Repeater Test Setup** dialog boxes will appear which require that you verify the repeater device under test is connected properly. The following screen shots depict these test setup instruction screens. Press **Continue** when you have the repeater device connected properly.



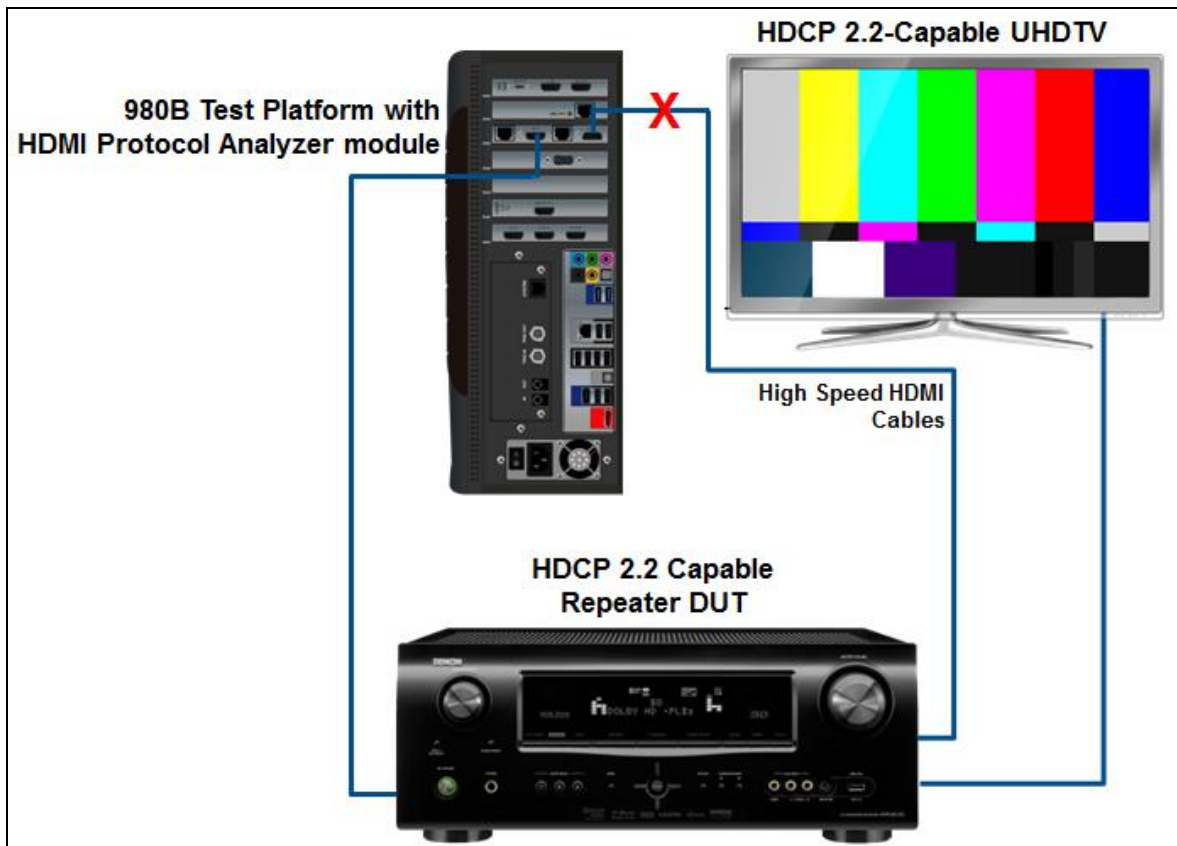


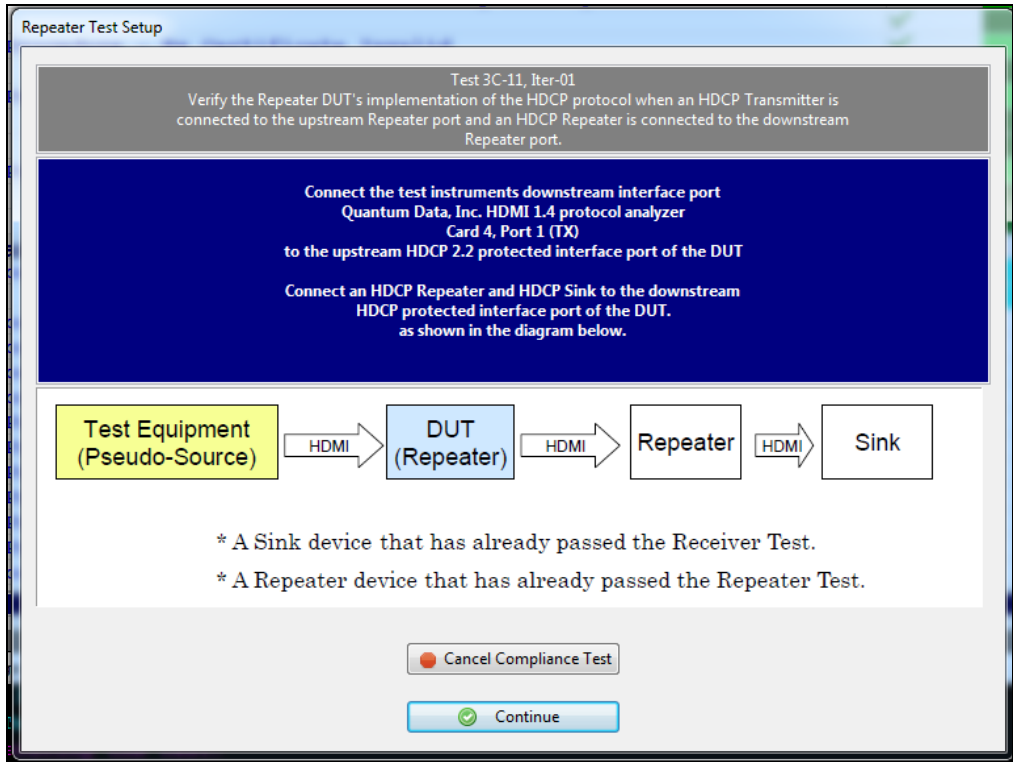
The following is an illustration of the test setup.



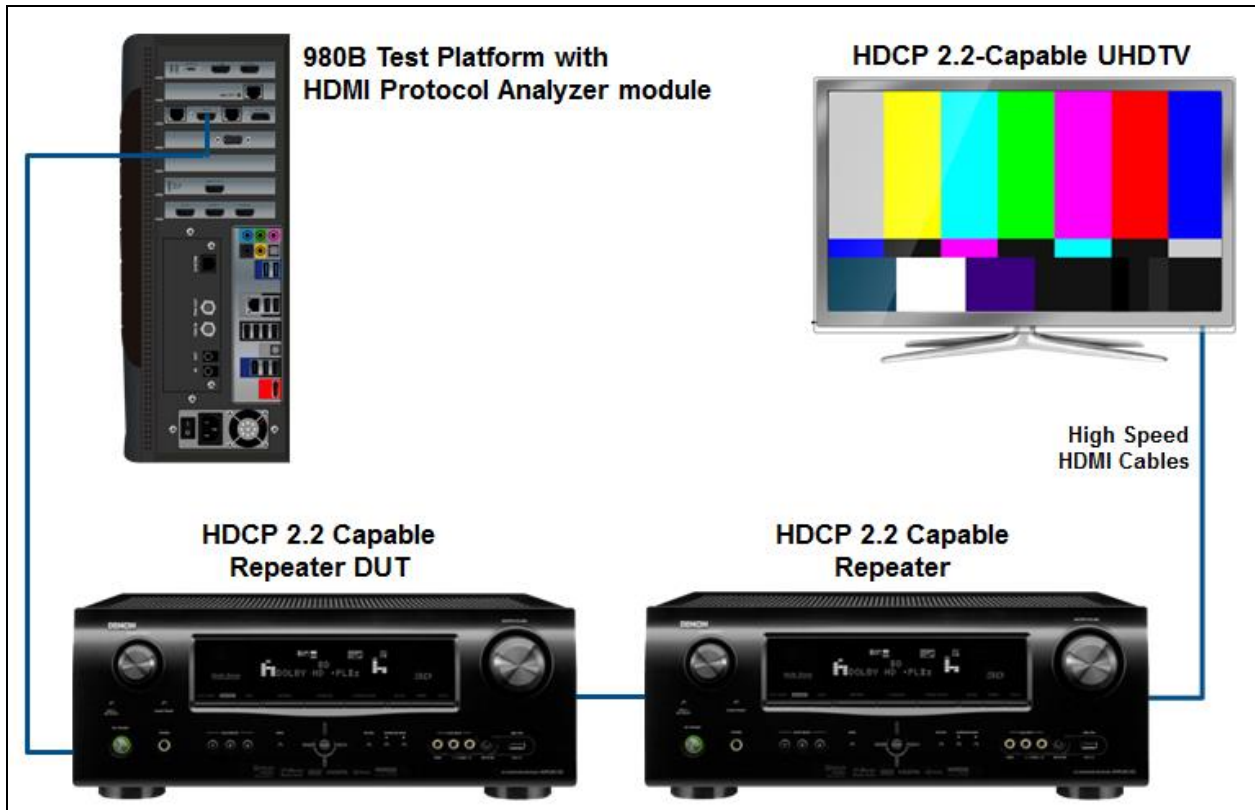


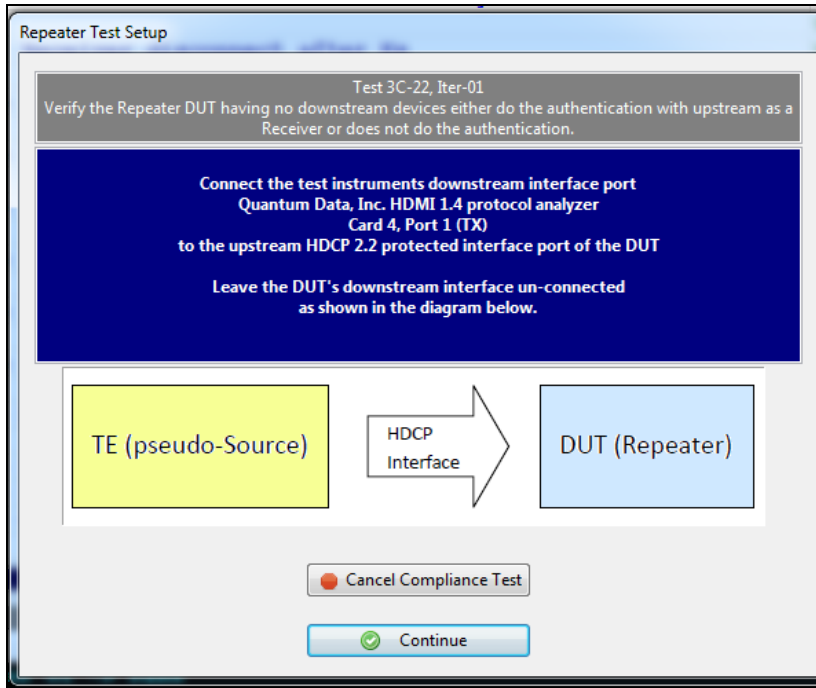
The following is an illustration of the test setup.



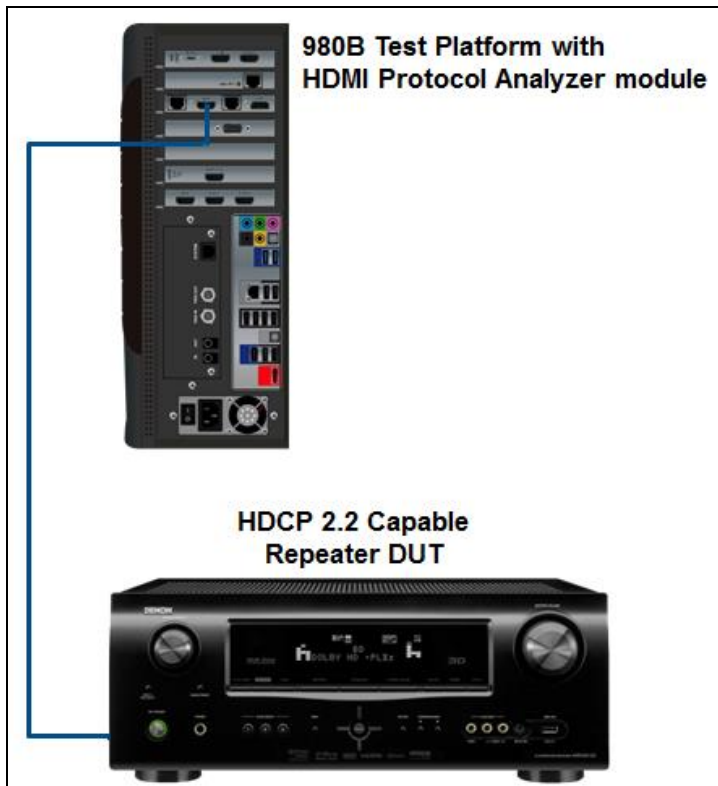


The following is an illustration of the test setup.






The following is an illustration of the test setup.



The test will continue and the results will be presented as shown in the screen example below.

During the test, the test results are shown as they occur in the **Test Options / Preview** panel. There is a green progress arrow  which points to the test that is currently being run. Refer to the screen shot below.

Test List

Category / Test Name	Status
▶ Upstream with Transmitter	✓
▶ 3C-01: Regular Procedure - Transmitter - DUT- Receiver	✓
▶ Iter 01: Not Prev Connected - Strm Mgmt Serial	✓
▶ Iter 02: Prev Connected - Strm Mgmt Serial	✓
✗ Iter 03: Not Prev Connected - Strm Mgmt Parallel	✗
✗ Iter 04: Prev Connected - Strm Mgmt Parallel	✗
▶ 3C-02: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Di	✗
✗ Iter 01:	✗
▶ 3C-03: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Co	✗
✗ Iter 01:	✗
▶ 3C-04: Irregular Procedure - New Authentication after AKE Init	✓
▶ Iter 01:	✓
▶ 3C-05: Irregular Procedure - New Authentication during Locality Check	✓
▶ Iter 01:	✓
▶ 3C-06: Irregular Procedure - New Authentication after SKE Send Eks	✓
▶ Iter 01:	✓
▶ 3C-07: Irregular Procedure - New Authentication during Link Synchronization	✓
▶ Iter 01:	✓
▶ 3C-08: Irregular Procedure - Rx Certificate Invalid	✓
▶ Iter 01:	✓
▶ 3C-09: Irregular Procedure - Invalid H'	✓
• Iter 01: Invalid H'	✓
• Iter 02: Timeout H'	✓
▶ 3C-10: Irregular Procedure - Locality Failure	✓
• Iter 01: Invalid L'	✓

Test Log

Line	Message
0025	Test 3C-06 Iter 01 -> Pass
0026	--- Test 3C-07-01
0027	Executing the test.
0028	Processing test results.
0029	Test 3C-07 Iter 01 -> Pass
0030	--- Test 3C-08-01
0031	Executing the test.

Buttons: Cancel the Compliance Test, Pause Test Execution

Important Note: If you are testing a repeater device that has more than one output and if you have indicated that on the CDF for these tests, then the 3C-02 and 3C-03 tests will be run and require a different test setup. The test setups will be presented in the dialog boxes of the test. Refer to the example screen shots below. The first screen shows the test setup for the 3C-02 test and second screen shows the test setup for the 3C-03 test.

If you do not have the repeater device under test in the proper mode, an error dialog box will appear.

The lower panel **Test Log** (above) shows the testing activity as it occurs. You can cancel the compliance test or pause at any time. If you pause the test you can resume later at any time even if you exit the 980 Manager application.

HDMI HDCP 2.2 Repeater Compliance Test (1.0): "Acme_XYZ_HDCP_22_Repeater_3C_2"

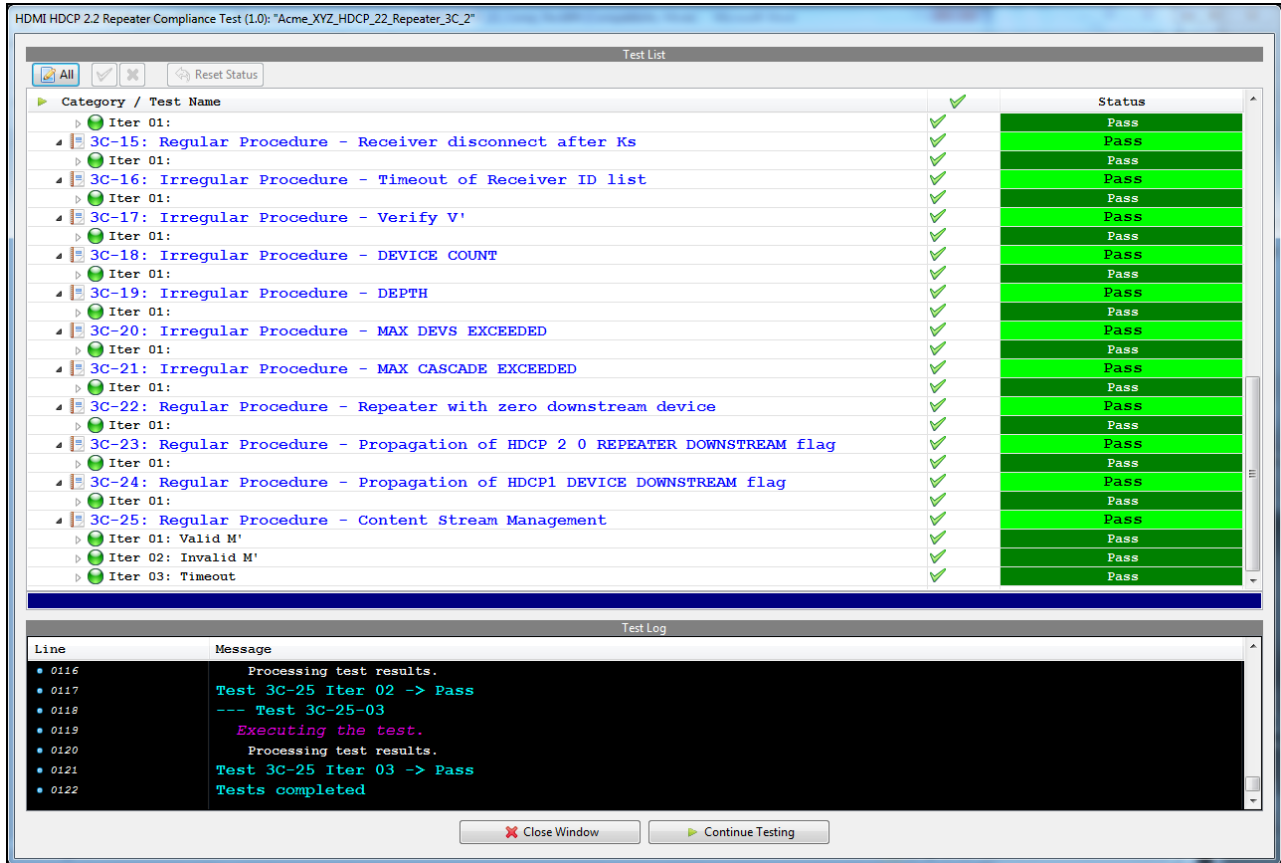
Test List

Category / Test Name	Status
Upstream with Transmitter	✓
3C-01: Regular Procedure - Transmitter - DUT- Receiver	Incomplete
Iter 01: Not Prev Connected - Strm Mgmt Serial	Pass
Iter 02: Prev Connected - Strm Mgmt Serial	Pass
Iter 03: Not Prev Connected - Strm Mgmt Parallel	User Skipped
Iter 04: Prev Connected - Strm Mgmt Parallel	User Skipped
3C-02: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Di	Incomplete
Iter 01:	User Skipped
3C-03: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Co	Incomplete
Iter 01:	User Skipped
3C-04: Irregular Procedure - New Authentication after AKE Init	Pass
Iter 01:	Pass
3C-05: Irregular Procedure - New Authentication during Locality Check	Pass
Iter 01:	Pass
3C-06: Irregular Procedure - New Authentication after SKE Send Eks	Pass
Iter 01:	Pass
3C-07: Irregular Procedure - New Authentication during Link Synchronization	Pass
Iter 01:	Pass
3C-08: Irregular Procedure - Rx Certificate Invalid	In Progress
Iter 01:	In Progress
3C-09: Irregular Procedure - Invalid H'	Not Tested
Iter 01: Invalid H'	Not Tested
Iter 02: Timeout H'	Not Tested
3C-10: Irregular Procedure - Locality Failure	Not Tested
Iter 01: Invalid L'	Not Tested

Test Log

Line	Message
0025	Test 3C-06 Iter 01 -> Pass
0026	--- Test 3C-07-01
0027	Executing the test.
	Processing test results.
	Test 3C-07 Iter 01 -> Pass
0030	--- Test 3C-08-01
0031	Executing the test.

When the tests are completed the **Test Log** will indicate Test Completed as shown below.



When you close the test execution window, the Compliance Test Viewer window will appear showing the results of the test. Please refer to the following section for details on viewing the compliance test results.

5.19 Viewing Details of Repeater 3C Compliance Test Results

When you have completed the test series you will have an opportunity to view the detailed data for a particular failure or a test that passed. Use the following procedures to view the details of a failure.

To view the details of a failure:

1. Expose the detailed results of a failure and highlight a results record. Refer to the screen example below.

The screenshot shows the 'Compliance Test Results Viewer' window. The title bar reads 'HDMI HDCP 2.2 Repeater (1.0) Compliance Test Results'. The main area displays test results for 'Acme_XYZ_HDCP_22_Repeater_3C_2' tested on April 6, 2015, at 4:09 PM. The overall status is 'CTS 1.0 - Incomplete'. The test results are as follows:

Test Name / Details	Status
3C-01: Regular Procedure - Transmitter - DUT- Receiver	Incomplete
3C-02: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Disconnected Downstream	Incomplete
3C-03: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Connected Downstream	Incomplete
3C-04: Irregular Procedure - New Authentication after AKE Init	Pass
3C-05: Irregular Procedure - New Authentication during Locality Check	Pass
3C-06: Irregular Procedure - New Authentication after SKE Send Eks	Pass
3C-07: Irregular Procedure - New Authentication during Link Synchronization	Pass
3C-08: Irregular Procedure - Rx Certificate Invalid	Pass
3C-09: Irregular Procedure - Invalid H'	Pass
3C-10: Irregular Procedure - Locality Failure	Pass
3C-11: Regular Procedure - Transmitter - DUT - Repeater (With stored Km)	Pass
3C-12: Regular Procedure - Receiver disconnect after AKE Init	Pass
3C-13: Regular Procedure - Receiver disconnect after Km	Fail
Iter 01:	Fail
3C-14: Regular Procedure - Receiver disconnect after locality check	Pass
3C-15: Regular Procedure - Receiver disconnect after Ks	Pass
3C-16: Irregular Procedure - Timeout of Receiver ID list	Pass
3C-17: Irregular Procedure - Verify V'	Pass
3C-18: Irregular Procedure - DEVICE COUNT	Pass
3C-19: Irregular Procedure - DEPTH	Pass
3C-20: Irregular Procedure - MAX DEVS EXCEEDED	Pass
3C-21: Irregular Procedure - MAX CASCADE EXCEEDED	Pass
3C-22: Regular Procedure - Repeater with zero downstream device	Pass
3C-23: Regular Procedure - Propagation of HDCP 2.0 REPEATER DOWNSTREAM flag	Pass
3C-24: Regular Procedure - Propagation of HDCP1 DEVICE DOWNSTREAM flag	Pass
3C-25: Regular Procedure - Content Stream Management	Pass

The bottom of the window shows the selected test '3C-01: Regular Procedure - Transmitter - DUT- Receiver' and the instrument 'My980 [192.168.254.153]'. There are buttons for 'Continue Test Execution' and 'Close'.

Compliance Test Results Viewer

HDMI HDCP 2.2 Repeater (1.0) Compliance Test Results

Results Name: Acme_XYZ_HDCP_22_Repeater_3C_2 Manufacturer: Acme
 Date Tested: April 6, 2015 4:09 PM Model Name: XYZ
 Overall Status: **CTS 1.0 - Incomplete** Port Tested: 1

HTML Report

Test Name / Details	Status
3C-01: Regular Procedure - Transmitter - DUT- Receiver	Incomplete
Iter 01: Not Prev Connected - Strm Mgmt Serial	Pass
Iter 02: Prev Connected - Strm Mgmt Serial	Pass
Iter 03: Not Prev Connected - Strm Mgmt Parallel	User Skipped
Iter 04: Prev Connected - Strm Mgmt Parallel	User Skipped
3C-02: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Disconnected Downstream	Incomplete
3C-03: Regular Procedure - ReceiverID List Propagation when an Active Receiver is Connected Downstream	Incomplete
3C-04: Irregular Procedure - New Authentication after AKE Init	Pass
3C-05: Irregular Procedure - New Authentication during Locality Check	Pass
3C-06: Irregular Procedure - New Authentication after SKE Send Eks	Pass
3C-07: Irregular Procedure - New Authentication during Link Synchronization	Pass
3C-08: Irregular Procedure - Rx Certificate Invalid	Pass
3C-09: Irregular Procedure - Invalid H'	Pass
3C-10: Irregular Procedure - Locality Failure	Pass
3C-11: Regular Procedure - Transmitter - DUT - Repeater (With stored Km)	Pass
3C-12: Regular Procedure - Receiver disconnect after AKE Init	Pass
3C-13: Regular Procedure - Receiver disconnect after Km	Fail
Iter 01:	Fail
RX AUTH::ENTER	
Clear Ready	
RX UNAUTH::enter	
RX UNAUTH:HDMI/VIDEO Present	
TX AUTH:MSG:HFD_DIS ts:0xdad577 us	
TX UNAUTH::enter	
TX UNAUTH:AKE_INIT ts:0x5297c00a us	
TX UNAUTH:MSG RD:HFD_DIS ts:0x0 us	
TX UNAUTH:**Test Cond.** hpdreg	
RX UNAUTH:Timer expired to receive AKE_INIT	
3C-14: Regular Procedure - Receiver disconnect after locality check	Pass
3C-15: Regular Procedure - Receiver disconnect after Ks	Pass
3C-16: Irregular Procedure - Timeout of Receiver ID list	Pass
3C-17: Irregular Procedure - Verify V'	Pass
3C-18: Irregular Procedure - DEVICE COUNT	Pass
3C-19: Irregular Procedure - DEPTH	Pass
3C-20: Irregular Procedure - MAX DEVS EXCEEDED	Pass
3C-21: Irregular Procedure - MAX CASCADE EXCEEDED	Pass
3C-22: Regular Procedure - Repeater with zero downstream device	Pass
3C-23: Regular Procedure - Propagation of HDCP 2 0 REPEATER DOWNSTREAM flag	Pass
3C-24: Regular Procedure - Propagation of HDCP1 DEVICE DOWNSTREAM flag	Pass
3C-25: Regular Procedure - Content Stream Management	Pass

3C-01: Regular Procedure - Transmitter - DUT - Receiver

Instrument: My980 [192.168.254.153] Continue Test Execution

Close

5.20 Viewing the HDMI HDCP 2.2 Repeater Compliance HTML test report

After you have completed the tests, you can view an HTML report. Use the procedures in [Viewing the HDMI HDCP 2.2 Compliance HTML test report](#) to view the HDCP 2.2 Compliance test HTML report.

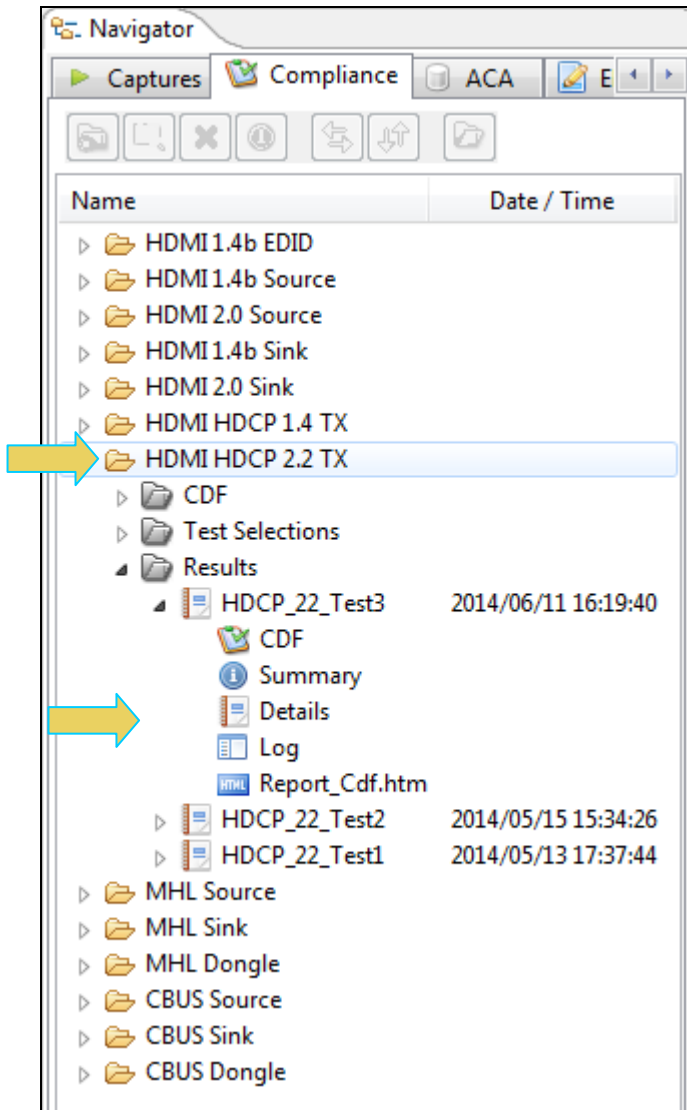
6 Viewing the HDMI HDCP 2.2 Compliance Test Results from the Navigation View


You can access the results of any test at any time through the **Navigation** view.

The examples in this section are taken from the HDCP 2.2 Source Compliance test, Section 1A; however please note that the procedure is the same for all sections of the HDCP 2.2 compliance test for sources, sinks or repeaters.

To view the test results of any test:

1. Access the **Navigator** pane and then select the **Compliance** sub-tab. Refer to the screen shot below.



2. Locate the Results you wish to view and double click on the file to view the results of all tests. Note that you can also open a test results file for viewing by using the Open  icon. Refer to the example below.

The test results will appear in the main window as shown below.

Results Name: HDCP_22_Test3 **Manufacturer:** Acme
Date Tested: June 11, 2014 4:06 PM **Model Name:** XYZ
Overall Status: **CTS 1.0 - Fail** **Port Tested:** 1

Test Results

Test Name / Details	Status
▶ 1A-01: Regular Procedure: With previously connected Receiver (With stored Km)	Fail
▶ 1A-02: Regular Procedure: With newly connected Receiver (Without stored Km)	Fail
▶ 1A-03: Regular Procedure: Receiver disconnect after AKE Init	Pass
▶ 1A-04: Regular Procedure: Receiver disconnect after Km	Pass
▶ 1A-06: Regular Procedure: Receiver disconnect after Ks	Pass
▶ 1A-07: Regular Procedure: Receiver sends REAUTH REQ after Ks	Pass
▶ 1A-11: Irregular Procedure: Invalid H'	Pass
▶ 1A-12: Irregular Procedure: Pairing Failure	Fail
▶ 1A-13: Irregular Procedure: Locality Failure	Pass

Instrument: MV980_DP [192.168.254.153] Continue Test Execution Close

7 Viewing the HDMI HDCP 2.2 Compliance HTML test report

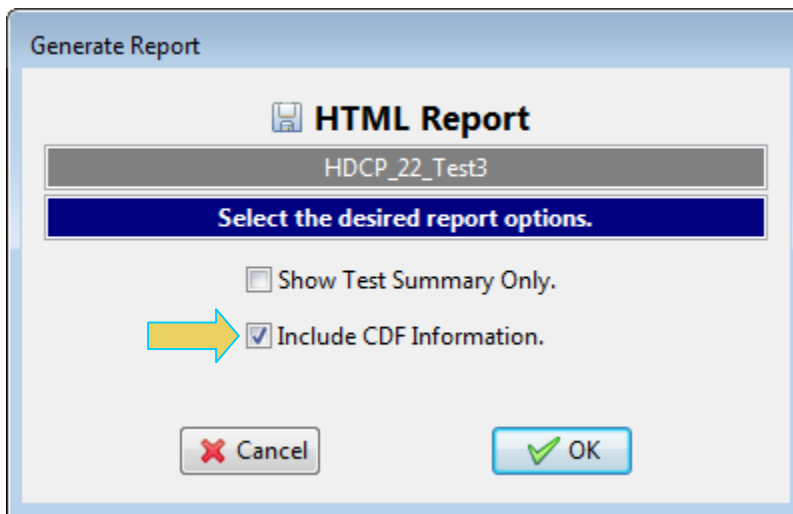
After you have completed the tests, an HTML Report activation button will appear in the upper right of the screen which enables you to access the html report of the test results. Use the following procedures to view the html test report.

The examples in this section are taken from the HDCP 2.2 Source Compliance test, Section 1A; however please note that the procedure is the same for all sections of the HDCP 2.2 compliance test for sources, sinks or repeaters.

To view the html test report:

1. Select the **CT Results** panel as shown below.
2. Click on the **HTML Report** activation button.

A dialog box will appear asking if you want a summary of the test results or a version that includes the CDF. This dialog box is shown in the screen shot below.



The html report is shown in the following screens.

HTML Viewer
 C:\Users\nkendall\980_Capture_Files_4_8\hdmi_hdc2_b\results\HDCP_22_Test3\Report_Cdf.htm

Report generated on: June 11, 2014 4:19 PM www.quantumdata.com

Quantum Data HDCP 2.2 on HDMI CTS 1.0 TX Compliance Test Report

Results Name:	HDCP_22_Test3	Manufacturer:	Acme
Date Tested:	June 11, 2014 4:06 PM	Model Name:	XYZ
Overall Status:	Fail	Port Tested:	1

Report Index / Summary					
Test 1A-01	Fail	Test 1A-02	Fail	Test 1A-03	Pass
Test 1A-04	Pass	Test 1A-06	Pass	Test 1A-07	Pass
Test 1A-11	Pass	Test 1A-12	Fail	Test 1A-13	Pass
CDF		Equipment Info			

Capabilities Declaration Form (CDF)

Test 1A-01	Fail
Regular Procedure: With previously connected Receiver (With stored Km)	
<ul style="list-style-type: none"> • Iter 01: <ul style="list-style-type: none"> ▪ INFO:RCVD:AKE_INIT ts:15297284 us ▪ INFO:MSG RCVD:AKE_Send_Cert ts:0x1b759a75 ns ▪ INFO:Snd No_Stored_KM ts:0x1e6ae01d ns ▪ INFO:MSG SND:AKE_Send_Cert ts:15397560 us ▪ INFO:MSG RCVD:AKE_No_Stored_Km ts:15422211 us ▪ INFO:Pairing:enter 	Fail

← Back → Forward Save As Close

HTML Viewer
 C:\Users\nkendall\980_Capture_Files_4_8\hdmi_hdc2_ba\results\HDCP_22_Test3\Report_Cdf.htm

Test 1A-02 Regular Procedure: With newly connected Receiver (Without stored Km)	Fail
<ul style="list-style-type: none"> • Iter 01: <ul style="list-style-type: none"> ■ HPD Deasserted regular ■ MSG:HPD_DIS ts:0x1192ff8 ns ■ TX:UNAUTH::enter ■ HPD Asserted regular ■ RX:UNAUTH ■ HDMI/VIDEO Present ■ MSG:VALID_VER ts:0x0 ns ■ MSG:HPD_EN ts:0x330 ns ■ AKE_INIT ts:0xba926e03 ns ■ RCVD:AKE_INIT ts:0 us ■ **Test Cond.** NoStrdKm ■ MSG RCVD:AKE_Send_Cert ts:0xbaa0eb1a ns ■ Snd Stored_KM ts:0xbd294d63 ns ■ MSG SND:AKE_Send_Cert ts:101844 us ■ MSG RCVD:AKE_Stored_Km ts:108711 us ■ Stored KM received ■ Timer RETRY Expired ■ AKE_INIT ts:0xff657e7c ns ■ MSG RCVD:AKE_INIT ts:2889526 us ■ RCVD:AKE_INIT ts:2889526 us ■ MSG RCVD:AKE_Send_Cert ts:0xff7585ac ns ■ Snd Stored_KM ts:0x1fdab2f ns ■ MSG SND:AKE_Send_Cert ts:2991626 us ■ MSG RCVD:AKE_Stored_Km ts:2998453 us ■ MSG RCVD:AKE_Send_H_Prime ts:0x21085fa ns ■ MSG SND:AKE_Send_H_Prime ts:3009246 us ■ Snd LC_Init ts:0x24ccc36 ns ■ MSG RCVD:LC_Init ts:3011429 us ■ MSG SND:LC_Send_L_Prime ts:3019353 us ■ MSG RCVD:LC_Send_L_Prime ts:0x24e1c32 ns ■ Snd SKE_Send_EKS ts:0x2a32a2d ns ■ TX:AUTH::enter ■ MSG RCVD:SKE_Send_Eks ts:3025595 us ■ RX:AUTHENTICATED 	Fail
Test 1A-03 Regular Procedure: Receiver disconnect after AKE_Init	Pass

← Back → Forward Save As Close

You can also view the test equipment information (980 HDMI Protocol Analyzer firmware configuration) below.

HTML Viewer
C:\Users\nkendall\980_Capture_Files_4_8\hdm_i_hdcp2_b\results\HDCP_22_Test3\Report_Cdf.htm

Test Equipment Information

Instrument

```
Name: MV980_DP
IP Address: 192.168.254.153
Net Mask: 255.255.255.0
Gateway IP: 192.168.254.1
Free Space: 86.44 GB of 144.22 GB (59.9%)
Version:
  Advanced Test platform Version: 4.11.29
  HDMI Video Generator in slot 2:
    Gateway: [Version: 4.16.1 Build Number: 1 (01:30:2013 00) pcb: 297b C]
    Firmware: [Version: 4.11.27 Build Number: 10776 (ssingh 06:05:2014 09:00:40 CDT)]
  HDMI 980 protocol Analyzer in slot 4 [DDR 4096MB]:
    Gateway: [Version: 4.10.11 Build Number: 40 (03:20:2014) Gen: 3 pcb: 297b/D]
    Firmware: [Version: 4.11.29 Build Number: 10809 (ssingh 06:10:2014 12:49:58 CDT) ]
System Information:
System SN      : [ 47A7D6CF30A38577::N/A]
HDMI PA SN    : [ 9DE79D010000::N/A]
Main Board    : [ "DP67DE"]
CPUx2         : [ 6.42.7 "Intel(R) Core(TM) i3-2100 CPU @ 3.10GHz"]
DDR           : [ 2 GB]
HD            : [ WD1600BEVT-0]
OS            : [ Linux xpscope-58 2.6.26-2-686 #1 SMP Wed Sep 21 04:35:47 UTC 2011 i686 GNU/Linux]
GUI manager   : [ Version 4.11.29_7919_201406051458]
1             : [ lo inet 127.0.0.1/8 scope host lo]
2             : [ eth0 inet 192.168.254.153/24 brd 192.168.254.255 scope global eth0]
PCIE3        : [ 2.5x8]
HDMI SINK CT : [ 4.6.1]
HDMI SRC CT  : [ 4.11.2]
HDCP SRC CT  : [ 4.8.0]
HDMI 2.0 SRC CT: [ 1.0.2]
MHL SINK CT  : [ 4.8.0]
MHL SRC CT   : [ 4.8.0]
HDMI SINK CTS: [ 3.2.0]
```

Host

```
UI Name: Quantum Data 980 Manager - Version 4.11.29
UI Home: platform:/base/plugins/com.quantumdata.i980.app2
Java Vendor: Null
Java Runtime: 1.6.0_15-b03
Java Home: C:\Users\nkendall\Desktop\980_Release_4_11_29\980mgr\jre
OS: win32
OS Arch: x86
Locale: en_US
Free Space: 6.49 GB of 223.47 GB (2.9%)
```

Back Forward Save As Close

8 Canceling and Resuming the HDMI HDCP 2.2 Compliance

You can complete or resume a test series that was canceled earlier. The test results are saved in a directory that is accessible through the 980 GUI Manager interface. Use the following procedures to cancel and resume a canceled test.

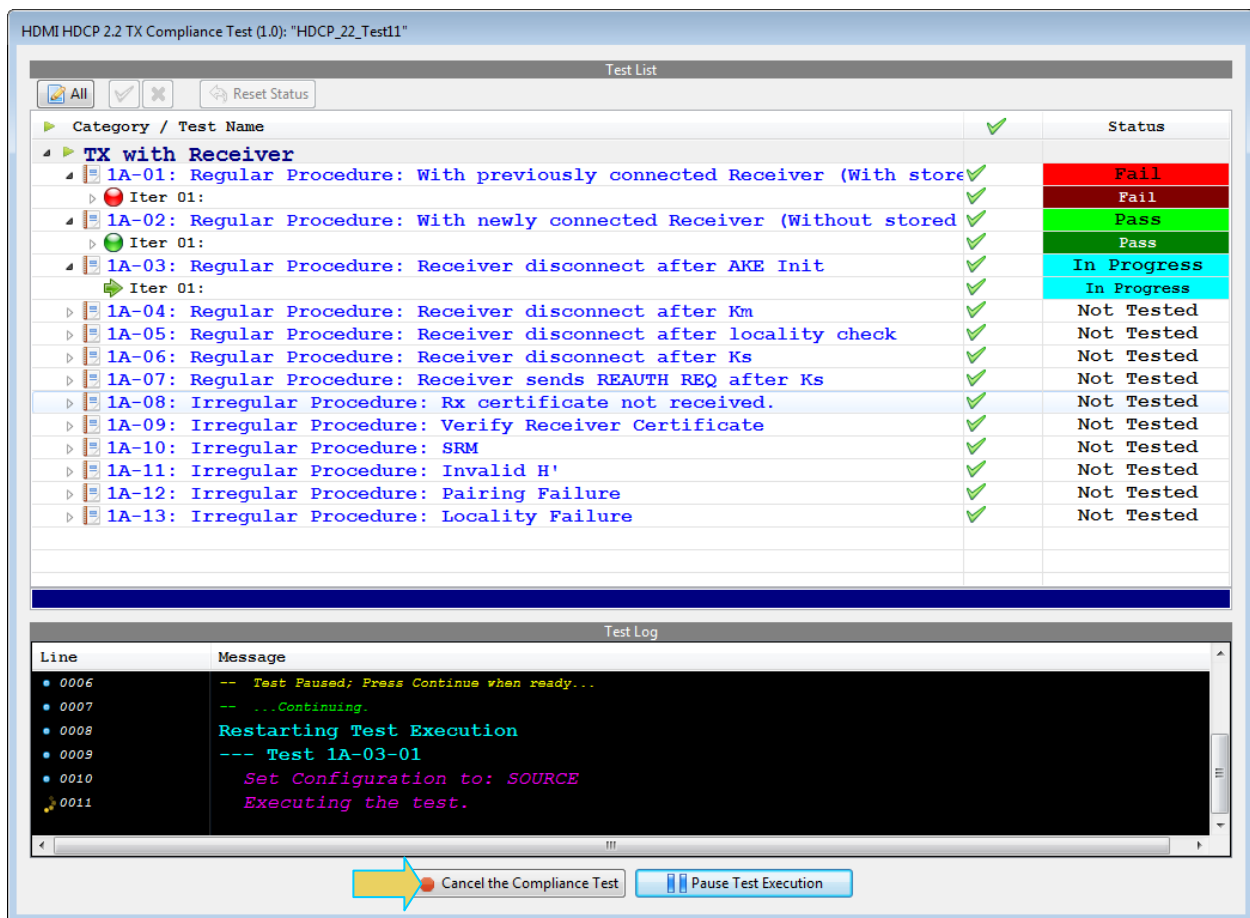
The examples in this section are taken from the HDCP 2.2 Source Compliance test, Section 1A; however please note that the procedure is the same for all sections of the HDCP 2.2 compliance test for sources, sinks or repeaters.

8.1 Canceling a Canceled HDCP 2.2 Test:

To cancel a suspended HDCP 2.2 compliance test, use the following procedures.

To cancel a test:

1. Click on the **Cancel Compliance Test** activation button either on the popup dialog box or the bottom of the test log panel. See the screen example below.



An indication that the test was canceled will be shown in the Test Log lower panel and the status (see below).

The screenshot displays the 'HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test11"' interface. It is divided into two main sections: 'Test List' and 'Test Log'.

Test List: This section shows a table of test results. The columns are 'Category / Test Name', a green checkmark icon, and 'Status'. The tests are grouped under 'TX with Receiver'. Test 1A-03 is highlighted in yellow, indicating it was canceled. Test 1A-01 is highlighted in red, indicating it failed. Test 1A-02 is highlighted in green, indicating it passed.

Category / Test Name	Checkmark	Status
TX with Receiver	✓	
1A-01: Regular Procedure: With previously connected Receiver	✓	Fail
Iter 01:	✓	Fail
1A-02: Regular Procedure: With newly connected Receiver (W)	✓	Pass
Iter 01:	✓	Pass
1A-03: Regular Procedure: Receiver disconnect after AKE Ir	✓	Canceled
Iter 01:	✓	Canceled
1A-04: Regular Procedure: Receiver disconnect after Km	✓	Not Tested
1A-05: Regular Procedure: Receiver disconnect after locali	✓	Not Tested
1A-06: Regular Procedure: Receiver disconnect after Ks	✓	Not Tested
1A-07: Regular Procedure: Receiver sends REAUTH REQ after	✓	Not Tested
1A-08: Irregular Procedure: Rx certificate not received.	✓	Not Tested
1A-09: Irregular Procedure: Verify Receiver Certificate	✓	Not Tested
1A-10: Irregular Procedure: SRM	✓	Not Tested
1A-11: Irregular Procedure: Invalid H'	✓	Not Tested
Iter 01: Invalid H'	✓	Not Tested
Iter 02: H' Timeout with previously paired Recv Id	✓	Not Tested
Iter 03: H' Timeout with previously unpaired Recv Id	✓	Not Tested
1A-12: Irregular Procedure: Pairing Failure	✓	Not Tested

Test Log: This section shows the execution of test 1A-03. The log messages are as follows:

```

0013 Test 1A-02 Iter 01 -> Pass
0014 --- Test 1A-03-01
0015 Executing the test.
0016 -- Cancel Requested...
0017 Test 1A-03 Iter 01 -> Canceled
0018 -- Test Canceled by User
  
```

A yellow arrow points to the 'Test 1A-03 Iter 01 -> Canceled' message in the Test Log.

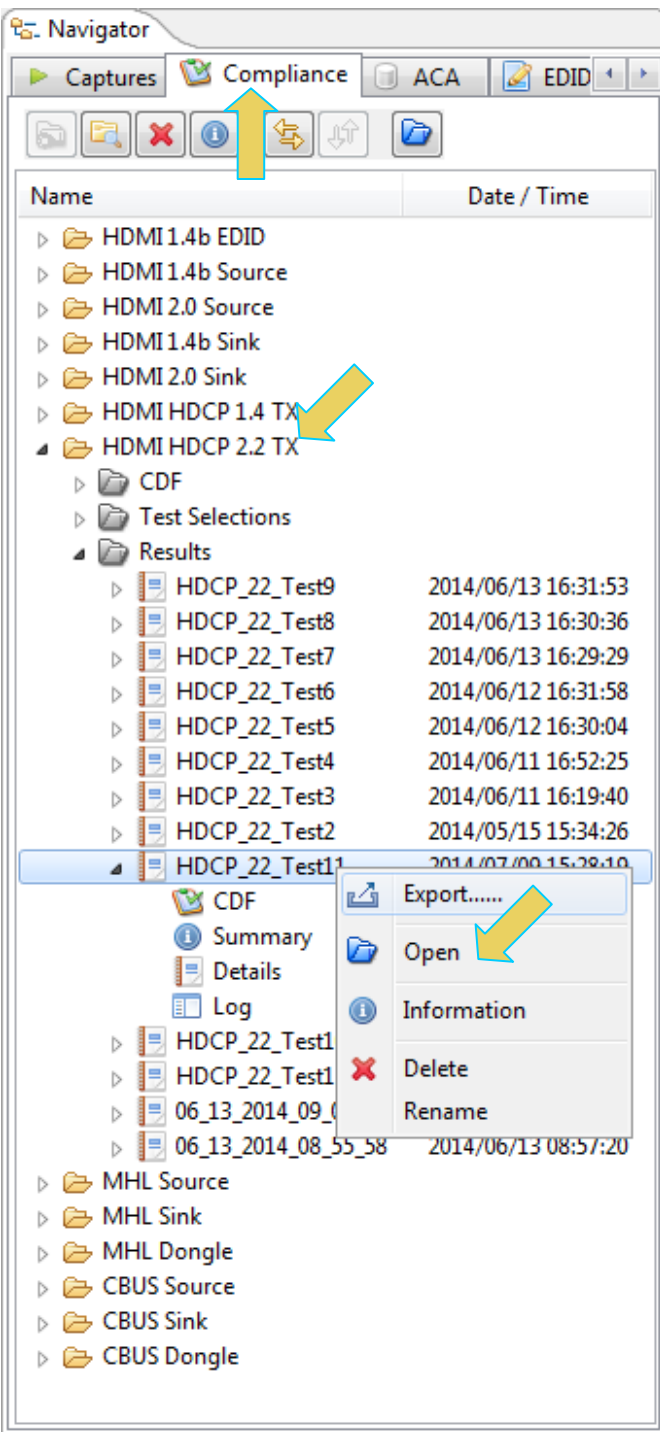
At the bottom of the interface, there are two buttons: 'Close Window' and 'Continue Testing'.

8.2 Resuming a Canceled HDCP 2.2 Test:

To resume a canceled HDCP 2.2 compliance test, use the following procedures.

To resume a canceled test:

1. Navigate to the Navigator/Compliance panel and open the HDMI HDCP Source CT/Results directory as shown below.



2. Either right click, double click or use the **Open** icon to open the CT Results panel on the main window.

The CT Results window appears as shown below.

Compliance Test Results Viewer

HDMI HDCP 2.2 TX (1.0) Compliance Test Results

Results Name: HDCP_22_Test11 Manufacturer: Acme HTML Report

Date Tested: July 9, 2014 3:27 PM Model Name: XYZ

Overall Status: **CTS 1.0 - Canceled** Port Tested: 1

Test Results

Test Name / Details	Status
▶ 1A-01: Regular Procedure: With previously connected Receiver (With stored K	Fail
▶ 1A-02: Regular Procedure: With newly connected Receiver (Without stored Km)	Pass
▶ 1A-03: Regular Procedure: Receiver disconnect after AKE Init	Pass
▶ 1A-04: Regular Procedure: Receiver disconnect after Km	Canceled
▶ 1A-05: Regular Procedure: Receiver disconnect after locality check	Not Tested
▶ 1A-06: Regular Procedure: Receiver disconnect after Ks	Not Tested
▶ 1A-07: Regular Procedure: Receiver sends REAUTH REQ after Ks	Not Tested
▶ 1A-08: Irregular Procedure: Rx certificate not received.	Not Tested
▶ 1A-09: Irregular Procedure: Verify Receiver Certificate	Not Tested
▶ 1A-10: Irregular Procedure: SRM	Not Tested
▶ 1A-11: Irregular Procedure: Invalid H'	Not Tested
▶ 1A-12: Irregular Procedure: Pairing Failure	Not Tested
▶ 1A-13: Irregular Procedure: Locality Failure	Not Tested

1A-01: Regular Procedure: With previously connected Receiver (With stored Km)

Instrument: MV980_DP [192.168.254.153] Continue Test Execution

Close

3. Click on the **Continue Test Execution** button on the lower left (above) to resume the tests. An indication that the test has been resumed will appear in the lower Test Log panel (below).

HDMI HDCP 2.2 TX Compliance Test (1.0): "HDCP_22_Test11"

Test List

All [check] [x] [Reset Status]

Category / Test Name	✓	Status
▶ TX with Receiver		
▶ 1A-01: Regular Procedure: With previously connected Receiver	✓	Fail
▶ Iter 01:		Fail
▶ 1A-02: Regular Procedure: With newly connected Receiver (Wi	✓	Pass
▶ 1A-03: Regular Procedure: Receiver disconnect after AKE Ini	✓	Pass
▶ 1A-04: Regular Procedure: Receiver disconnect after Km	✓	Canceled
▶ 1A-05: Regular Procedure: Receiver disconnect after localit	✓	Not Tested
▶ 1A-06: Regular Procedure: Receiver disconnect after Ks	✓	Not Tested
▶ 1A-07: Regular Procedure: Receiver sends REAUTH REQ after K	✓	Not Tested
▶ 1A-08: Irregular Procedure: Rx certificate not received.	✓	Not Tested
▶ 1A-09: Irregular Procedure: Verify Receiver Certificate	✓	Not Tested
▶ 1A-10: Irregular Procedure: SRM	✓	Not Tested
▶ 1A-11: Irregular Procedure: Invalid H'	✓	Not Tested
▶ 1A-12: Irregular Procedure: Pairing Failure	✓	Not Tested
▶ 1A-13: Irregular Procedure: Locality Failure	✓	Not Tested

Test Log

Line	Message
0001	Restarting the Compliance Test.
0002	July 9, 2014 3:31 PM
0003	Initialization.
0004	Assembling the test list.
0005	Transferring the CDF to the Test Instrument.
0006	-- Test Paused; Press Continue when ready...

Cancel the Compliance Test [Continue]

9 Exporting Compliance Test Results Files to a PC

The 980 HDMI Protocol Analyzer offers portability of data. You can disseminate compliance tests to other locations for analysis by other colleagues.

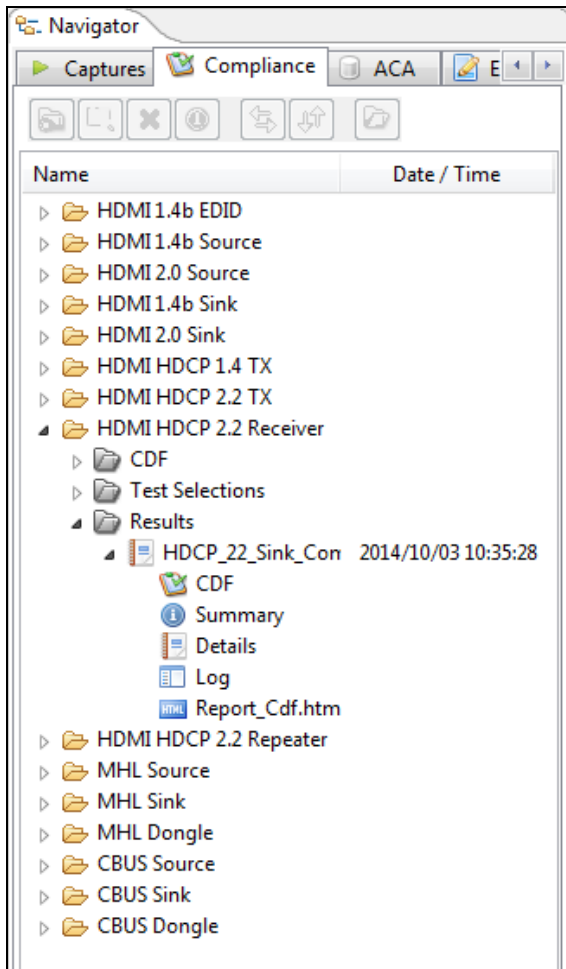
If you ran the HDCP compliance tests from the embedded GUI you will have to transfer these compliance test files to your PC if you want to disseminate them to others. You can transfer the files from the 980 HDMI Protocol Analyzer module to your host PC in three ways: 1) Data Transfer GUI utility, 2) USB drive, 3) command line FTP. Only the export method involving Data Transfer Utility will be described in the following.


9.1 Transferring Compliance Test Files using the Data Transfer Utility

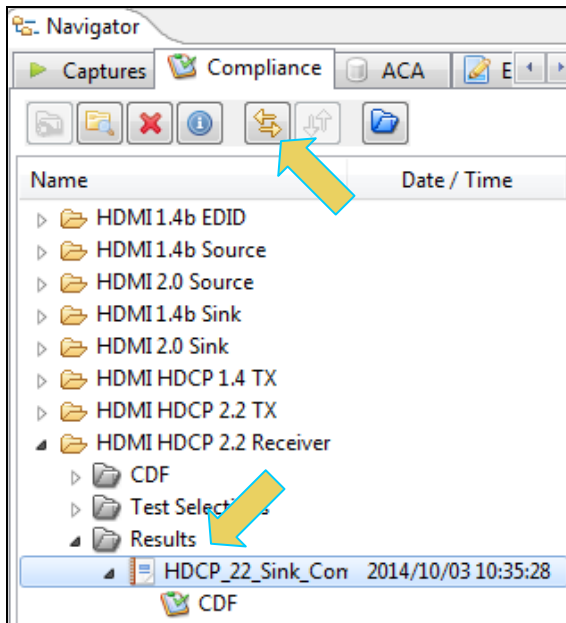
You can transfer files easily using the 980 GUI Manager's **Data Transfer** utility. If you have ran the compliance test through the embedded 980 GUI Manager then you will first have to transfer the compliance test results file from the 980 test instrument to you host PC. The procedure is the same whether you are transferring the results of the Transmitter test or the Receiver test. This procedure uses the HDCP 2.2 Receiver tests. Follow the procedures below.

To transfer Compliance Test files from the 980 Protocol Analyzer module to your PC using the Data Transfer utility:

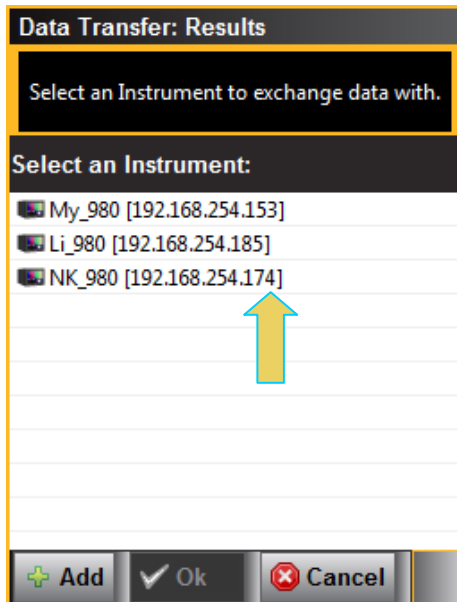
1. Through the external 980 GUI Manager, access the Compliance tab on the Navigator. Refer to the screen shots below.



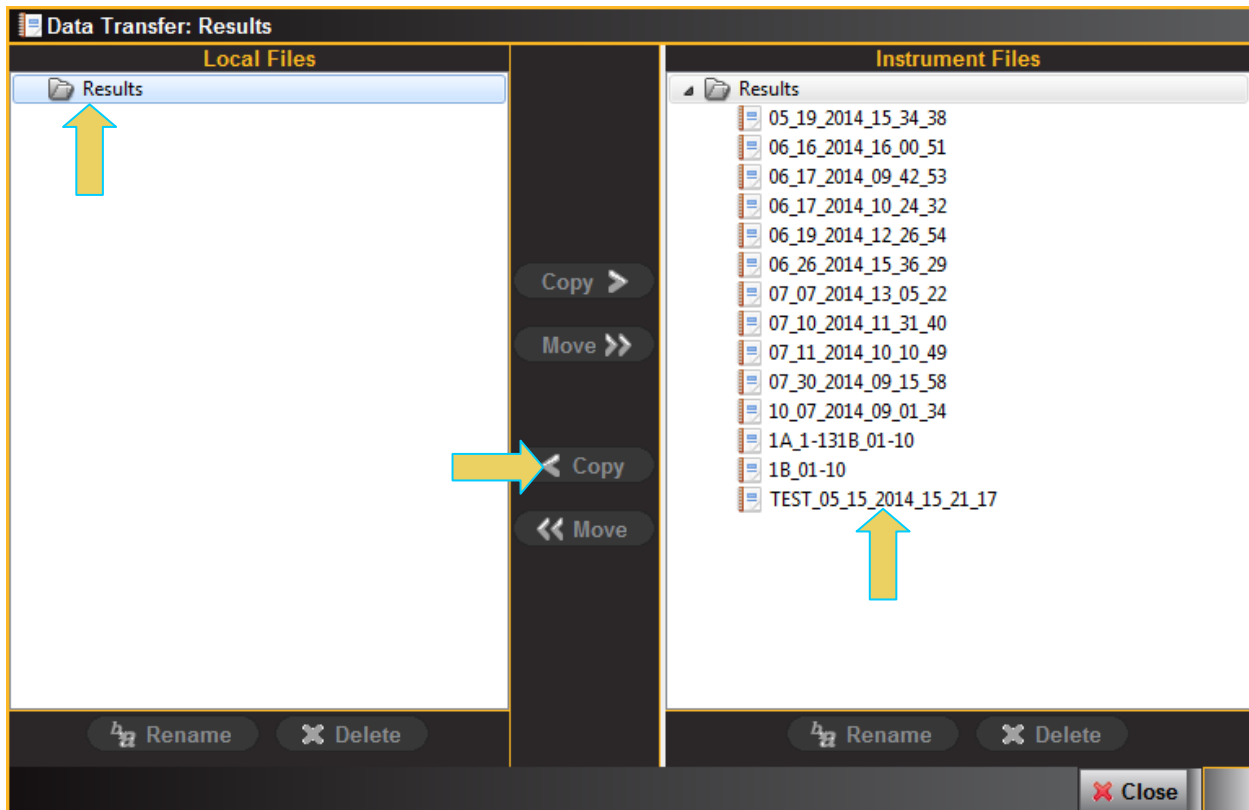
2. Access the **Data Transfer** utility by double clicking on the Transfer Data icon  on one of the data sets in the Navigator window.



The **Data Transfer: Results** dialog box appears (below) enabling you to select the 980 HDMI Protocol Analyzer that you want to transfer data from. Select the desired 980 HDMI Protocol Analyzer and click OK. The **Data Transfer** panel will appear.

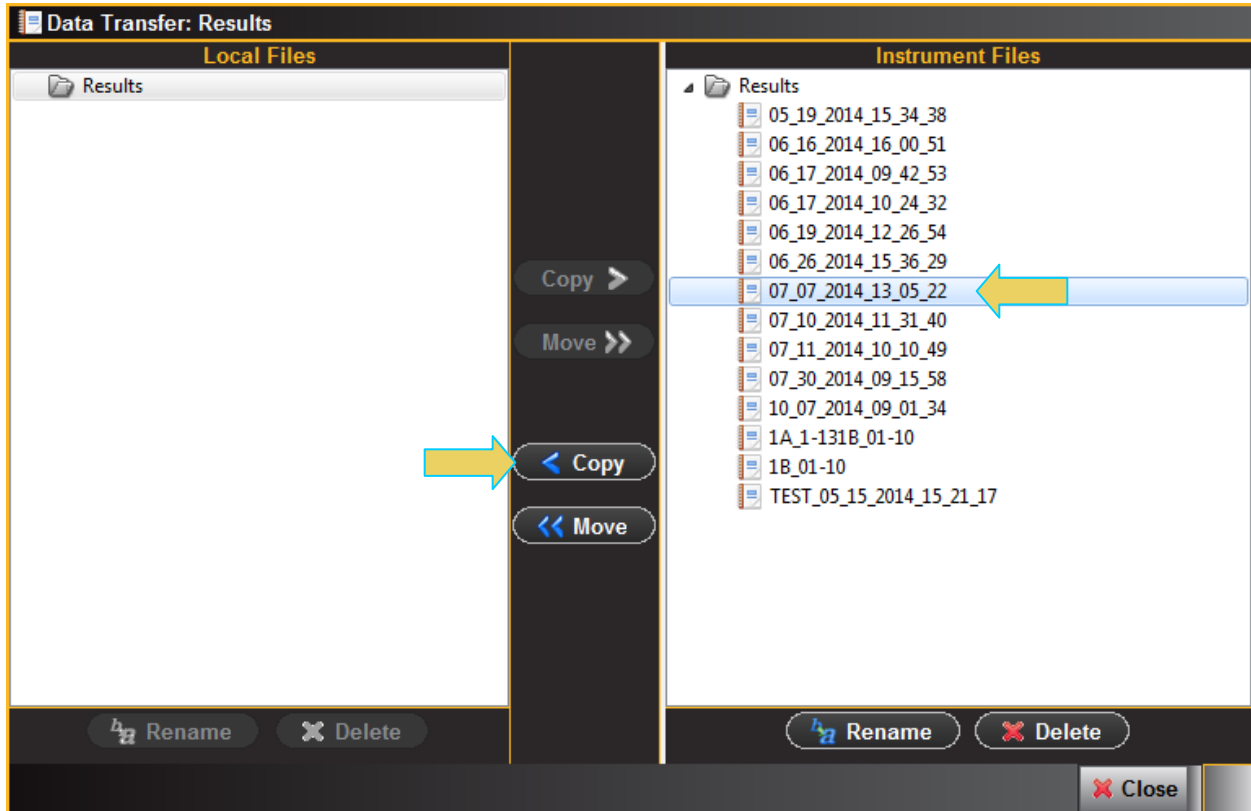


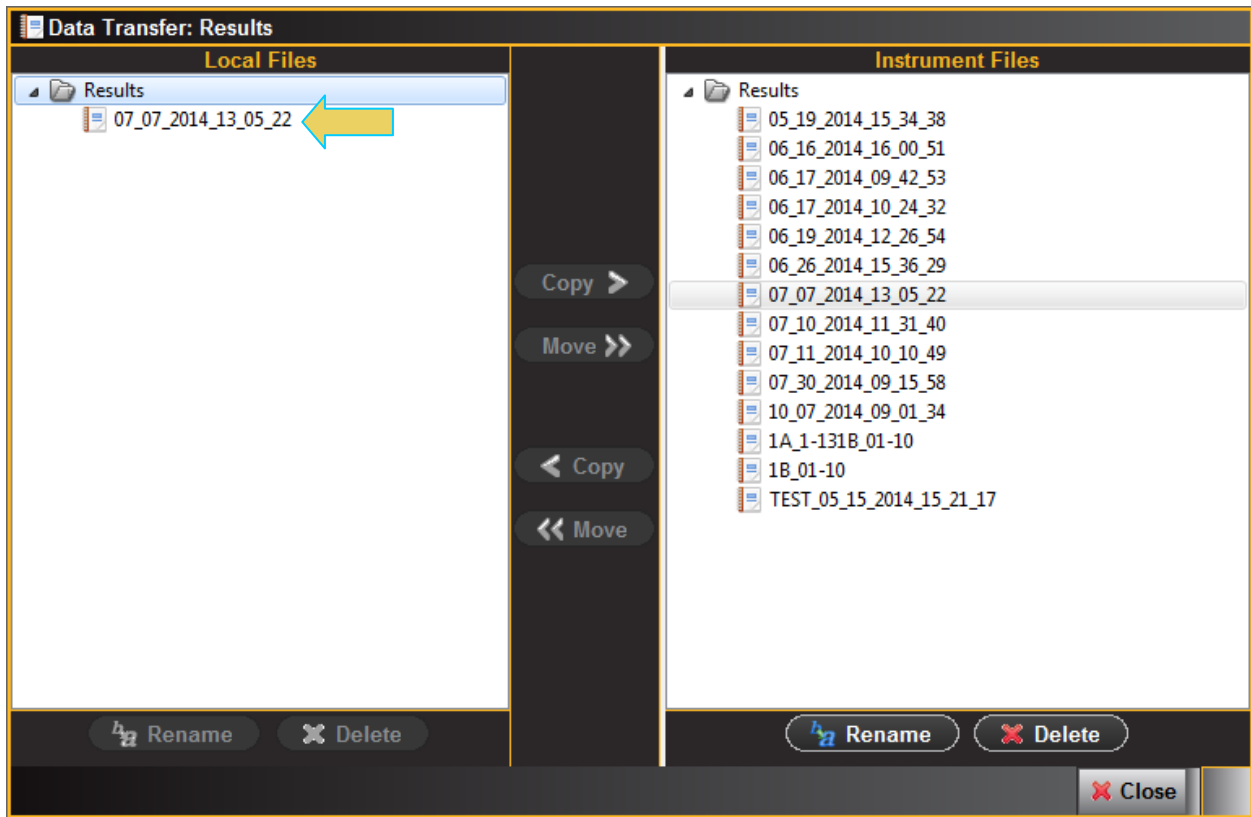
The **Data Transfer** panel appears in context with the files on the 980 (Instrument) under the **Instrument Files** available as shown below.

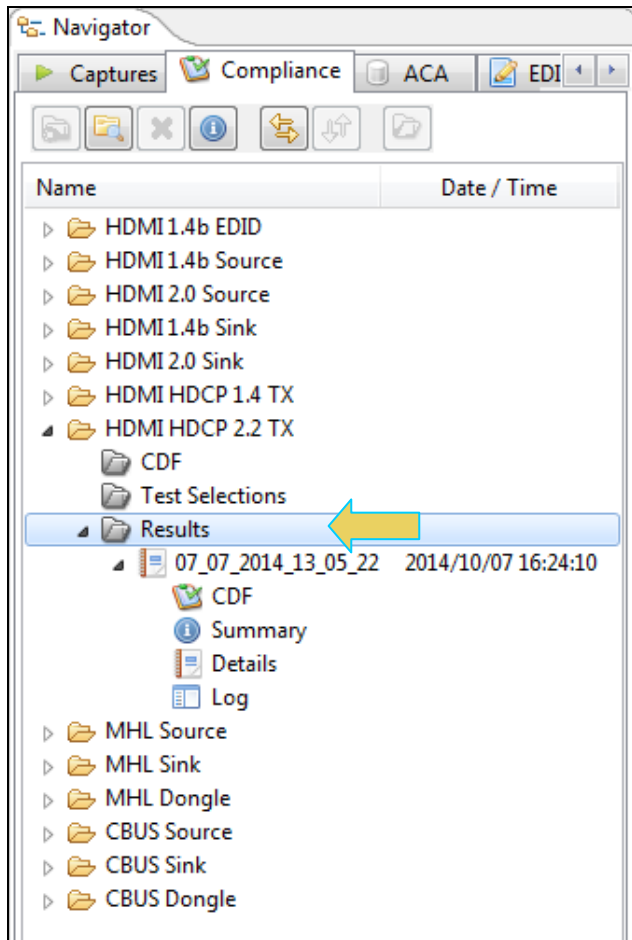


3. Highlight a directory on the **Local Files** side (host PC) and then initiate a **Copy** or **Move**.

The file appears on the PC host **Local Files** (below).





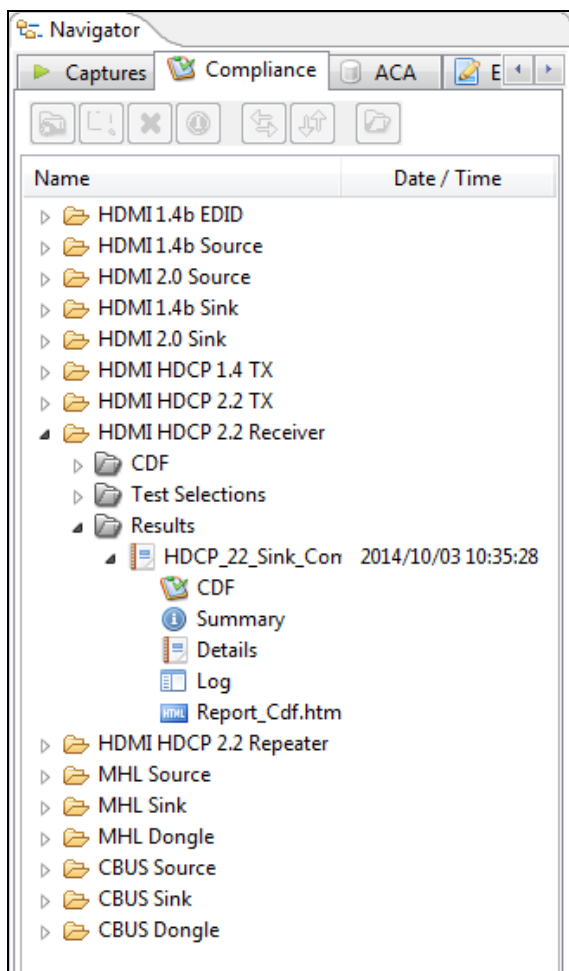


9.2 Exporting Compliance Test Files

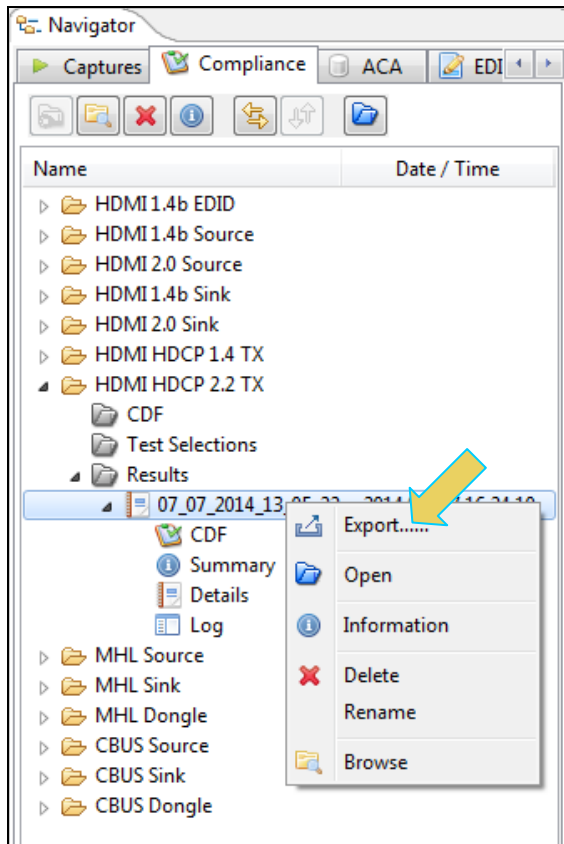
Once you transfer the files to your PC (or if you have them on the PC from running the test through the external GUI Manager, you can disseminate the results to others. When you export a results file, the 980 provides a zipped self-contained file with all the results. The procedures for exporting files for distribution are provided below.

To export compliance test results files:

1. Through the external 980 GUI Manager, access the Compliance tab on the Navigator. Refer to the screen shots below.



2. Right click on the Results file that you want to export. Refer to the screen example below.



You will then be presented with an Windows Explorer window to save the zipped export in a directory of your choosing.

You can then distribute this zip file to other through email, file transfer or cloud storage utilities.

END OF USER GUIDE