16 Testing HDCP

Topics in this chapter:

Overview

You can use the generator with the High-bandwidth Digital Content Protection (HDCP) to test HDCP 1.0 and 1.1 compliant devices. The procedures in this chapter instruct you on how to complete the HDCP tests for a DVI or HDMI display.

For more information about HDCP, see http://www.digital-cp.com/.

Testing DVI displays with HDCP

This section describes how to test DVI and HDMI receivers with HDCP.

To set up the generator for testing a DVI display:

1. Connect an HDMI-to-DVI converter cable between the HDMI OUT connector on the generator and the device's DVI receiver.
2. Activate the HDMI-D interface on the output port as follows:
   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

   b. Choose the **HDMI-D** item by pressing the adjacent soft key. The interface is activated, and the port outputs the currently selected image and format.

   Alternatively, to activate the interface through the command line interface, enter the following commands:

```
XVSI 3        // Activates the HDMI-D interface
ALLU          // Applies the interface setting to the generator
```

3. Choose the **HDCPprod** test image, or, if you are using HDMI OUT port 2, choose the **HDCP2** test image.

   If you are testing a device with a production key, select the **HdcpProd** image (or, if you are using HDMI OUT port 2, choose the **HDCP2** test image). These test images assume that both the HDCP transmitter and receiver have a production key.

   The image will indicate if the test passed or failed. If the test fails, see “Understanding the HDCP test” on page 501.

4. To test another device, connect the cable to the new device.

   The HDCP test starts automatically.

   Alternatively, you can enter the following command to initiate and run the test with any image displayed. A zero is returned if the HDCP test is successful.

   ```
   HDCP? (OUT1:HDCP?, OUT2:HDCP?)
   ```

   You can also specify a number of frames to run the test for. For example to run the test for 2000 frames you would enter:

   ```
   HDCP? (OUT1:HDCP?, OUT2:HDCP?) 2000
   ```

Testing HDMI displays with HDCP

To test HDCP with an HDMI device:

1. Connect an HDMI cable between the HDMI OUT connector on the generator and the HDMI display.
2. Activate the HDMI-H interface on the output port as follows:
   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

   b. Choose the **HDMI-H** item by pressing the adjacent soft key. The interface is activated and the port outputs the currently selected image and format.

   Alternatively, to activate the interface through the command line interface, enter the following commands:

```
XVSI 4          // Activates the HDMI-H interface
ALLU            // Applies the interface setting to the generator
```

3. Choose the **HDCPprod** test image, or, if you are using HDMI OUT port 2, choose the **HDCP2** test image.

   If you are testing a device with a production key, select the **HdcpProd** image, or, if you are using HDMI OUT port 2, choose the **HDCP2** test image. These test images assume that both the HDCP transmitter and receiver have a production key.

   The image will indicate if the test passed or failed. If the test fails, see “Understanding the HDCP test” on page 501.

4. To test another device, connect the cable to the new device.

   The HDCP test starts automatically.

   Alternatively, you can enter the following command to initiate and run the test with any image displayed. A zero is returned if the HDCP test is successful.

   ```
   HDCP? (OUT1:HDCP?, OUT2:HDCP?)
   ```

   You can also specify a number of frames to run the test for. For example to run the test for 2000 frames you would enter:

   ```
   HDCP? (OUT1:HDCP?, OUT2:HDCP?) 2000
   ```

HDCP? (OUT1:HDCP?, OUT2:HDCP?) 2000

The image will indicate if the test passed or failed. If the test fails, see “Understanding the HDCP test” on page 501.

5. To test another device, connect the cable to the new device.

   The HDCP test starts automatically.

Running HDCP test in step mode

The generator normally runs the steps in the HDCP test automatically. However, to troubleshoot a failed test, you can run the test in “step” mode. This enables you to read the values at the step where the test failed.

To run the HDCP test in step mode:

1. Connect a cable between the HDMI OUT connector on the generator and the device’s HDMI receiver.
2. Activate the HDMI-H or HDMI-D interface on the output port as follows:
   a. Press the **Interface** key. A listing of signal interfaces appears on the generator’s display as shown below.

3. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated, and the port outputs the currently selected image and format.

   Alternatively, to activate the interface through the command line interface, enter the following commands:

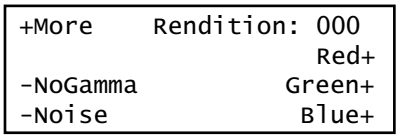
```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

4. Press the **Content** key and choose the **HdcpProd** image by pressing the adjacent soft key. Or, if you are using HDMI OUT port 2, choose the **HDCP2** test image.

5. Enable and view image versions for the test image as follows:

   a. Press the **Options** key. The following menu appears on the generator's display:

   b. Choose the **More** item by pressing the adjacent soft key until a + and Rendition appears next to the item.



   c. Press the + key to advance through the image versions.

   Alternatively, to enable and view image versions using the command line interface, enter the following commands:

```
ISUB 1      // Enables sub images
IVER 1      // Specifies the first image version
IMGU        // Activates the image version
```

6. When you are finished, disable image versions by pressing the **Options** key and choosing **More** until a - appears next to it.

   Alternatively, to disable image versions using the command line interface, enter the following command:

```
ISUB 0     // Disables sub images
```

Running an HDCP self-test

An HDCP self-test checks that HDCP authentication is working properly between the transmitter and receiver on the analyzer. This test can also be used to confirm that a cable is not interfering with HDCP authentication, and that the DDC clock and DDC data pins (used by the I2C bus) are working correctly.

To run an HDCP self-test:

1. Connect the HDMI cable between the HDMI IN and HDMI OUT connectors on the generator.
2. Activate the HDMI-H interface on the output port as follows:
   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

   b. Choose **HDMI-H** item by pressing the adjacent soft key. The interface is activated, and the port outputs the currently selected image and format.

   Alternatively, to activate the interface through the command line interface, enter the following commands:

```
XVSI 3          // Selects the HDMI-H interface
ALLU            // Applies the interface setting to the generator
```

3. Enter the following command to initiate and run the test with any image displayed. A zero is returned if the HDCP test is successful.

```
HDCP? (OUT1:HDCP?, OUT2:HDCP?)
```

   You can also specify a number of frames to run the test for. For example to run the test for 2000 frames you would enter:

```
HDCP? (OUT1:HDCP?, OUT2:HDCP?) 2000
HDCP? (OUT1:HDCP?, OUT2:HDCP?) 2000
```

Understanding the HDCP test

Understanding what the generator does during an HDCP test can help you determine why an HDCP test failed. The HDCP test sequence performed by the generator is listed below.

HDCP test sequence:

1. Reset the transmitter.
2. If the “Reset HDCP Rx by gating clock” mode is enabled, the generator initializes the transmitter. Otherwise, do not initialize the transmitter.
3. Transmitter generates An (session random number).
4. Transmitter writes An to the receiver, using the I2C bus.

   This step is the first interaction between the transmitter and receiver. The transmitter reads the Bksv over the I2C bus and verifies that it has 20 zeros and 20 ones. You can query this value with the following command:

   ```
   i2cr? 74 0 5
   ```

   The display may return a value such as the following which is:

   ```
   07BE05CEA9
   ```

   The value in binary is 1111011111000000101110011101010100 1 the following which does contain 20 zeros and 20 ones.
5. Write the transmitter KSV to the receiver.
6. Read and verify the receiver KSV.
7. Write receiver KSV to transmitter.
8. Ri ready at transmitter.
9. The transmitter reads the Ri value from the receiver and compares it with its own generated Ri value. They should match to proceed. If this step fails, the test returns to step 1.
10. Generate authentication.
11. Transmitting encrypted data.

Running the HDCP compliance test

The 882CA supports the running of an HDCP compliance test on HDCP-enabled HDMI sources, sinks and repeaters. The HDCP compliance test was developed while working closely with Digital Content Protection.

The HDCP compliance test system enables developers of HDMI products to perform a fast and comprehensive HDCP compliance test. Because the 882CA can emulate HDMI HDCP sources, sinks and repeaters, it can perform a complete HDCP compliance tests on any source, sink or repeater.

The HDCP compliance test can be run entirely through the 882CA front panel or through the command line. The HDCP commands enable you to run a specific subset of the tests in the series of tests.

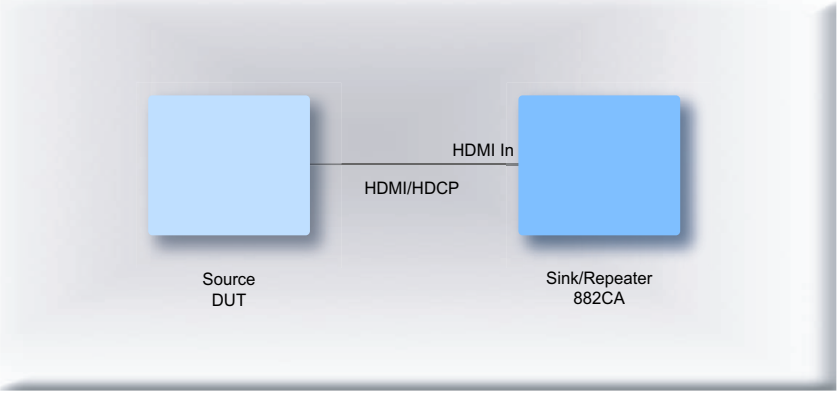
Note: *While running the HDCP compliance test, you can monitor the transactions using the Auxiliary Channel Analyzer (APA) application.*

There are several configurations depending on what type fo HDCP device you are testing. Procedures for each are provided below.

To run the HDCP compliance test on an HDMI source with sink or repeater (Test 1A and 1B):

1. Connect a cable between the HDMI In connector on the generator and the device's HDMI transmitter interface with the HDCP function.

   The following diagram depicts the test setup:



2. Activate the HDMI-H or HDMI-D interface on the output port as follows:

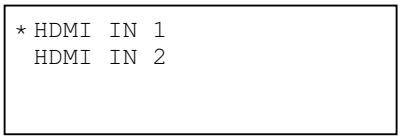
   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

   b. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated and the display is shown below.

   Alternatively, to activate the interface through the command line interface, enter the following commands:

```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

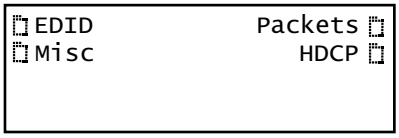
3. Press the **Interface** key repeatedly until the following menu appears:



4. Choose the HDMI Input connector to which the HDMI transmit device under test is connected by pressing the adjacent soft key.

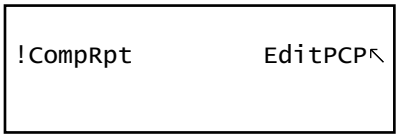
5. Press the **Tools** key and choose the **Reports** item by pressing the adjacent soft key.

   The following is displayed on the generator's LCD.



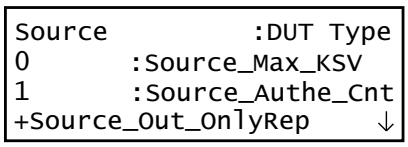
6. Select **HDCP** to access the HDCP compliance test menu.

   The following is displayed on the generator's LCD.



7. Select **EditPCP** to define the capabilities of the HDCP device under test.

   The following is displayed on the generator's LCD.



The following table describes the test parameters and their settings (gray = N/A).

Parameter	Explanation
DUT type	Specifies the type of device under test. This can be one of Source, Sink, Repeater, Repeater3AB, or Repeater3C. For this test , select Source.
Source Max KSV	Specifies the maximum number of KSVs the source can read. The valid values are 1 through 127.
Source Authentication Control	Specifies the number of times a source DUT attempts authentication before transitioning into the authentication state. The valid values are 1 or greater.
Source Out Only Repeater	Indicates whether the DUT outputs contents to a repeater to which no downstream device is connected. The values are + for yes and - for no.
Sink 1.1 Features Supported	Indicates whether the DUT supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Sink 1.1 Audio Supported	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater 1.1 Features Supported	Indicates whether supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Repeater Audio Support	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater HPD Pulse	Indicates whether the DUT has the capability to output HPD pulse by user operation. The values are + for yes and - for no.
Repeater Max KSV	Specifies the maximum number of KSVs the repeater can read. The valid values are 1 through 27.
Repeater Out OnlyRep	Indicates whether the DUT outputs content to the downstream repeater that has no downstream device connected. The values are + for yes and - for no.

8. Select **Source** device by pressing the adjacent soft key to specify that the device under test is a source.

   Alternatively, you can specify the device under test as a source using the following commands:

```
CPTX:DUTT 1      // specifies the device under test as a source
```

9. (Optional) Specify the remaining parameters in the **EditPCP** menu using the table above.

   Alternatively, you can specify the parameters through the command line as follows:

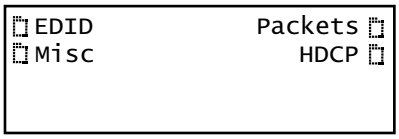
```
CPTX:SKSV 10      // specifies maximum number of downstream devices
                     listed in the KSV list of the device under test.
CPTX:SRAC 5       // specifies number of times a source DUT attempts
                     authentication before transitioning into the
                     authenticated state. Valid values, 1 or greater.
CPTX:SOOR 1       // indicates whether DUT (source) outputs contents
                     to repeater with no downstream devices.
                     1 = yes; 0 = no.
```

10. Press the **Options** key to save the capabilities definition.

    The generator LCD will display the message “Saved”.

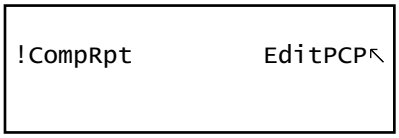
11. Press the **Tools** key get back to the Reports menu.

    The generator LCD will display the reports menu as shown below.



12. Select **HDCP** to access the HDCP compliance test menu.

    The following is displayed on the generator’s LCD.



13. Select **!CompRpt** to initiate the HDCP compliance test.

    The message “HDCP Compliance Test” is shown and then all the tests are shown in sequence.

    Refer to “To view the HDCP compliance report:” on page 531 for procedures on how to view the generated report.

    Alternatively, you can run the tests using the following commands:

```
CPTX:CPTR 46      // specifies that all applicable tests will be run.
CPTX:CPTU         // Initiates the execution of the test
```

14. (Optional) To run a specific test with the generator as **sink** (1A tests), you can use the command line like shown below:

```
CPTX:CPTR 1      // Selects specific test (e.g. 1A_1) see table below
CPTX:CPTU        // Initiates the execution of the test.
```

You can query the complete list of tests to choose from:

```
CPTX:GCTN?       // Queries the list of tests supported
```

You can query the list of completed reports with:

```
CPTX:CPTR?       // Queries the list of tests run (see table)
```

15. (Optional) To run a specific test with the generator as **repeater** (1B tests), you can use the command line like shown below:

```
CPTX:CPTR 10      // Selects specific test (e.g. 1B_1) see table below
CPTX:CPTU        // Initiates the execution of the test.
```

You can query the complete list of tests to choose from:

```
CPTX:GCTN?       // Queries the list of tests supported
```

You can query the list of completed reports with:

```
CPTX:CPTR?       // Queries the list of tests run (see table)
```

The following table describes the applicable tests that can be performed (gray = N/A).

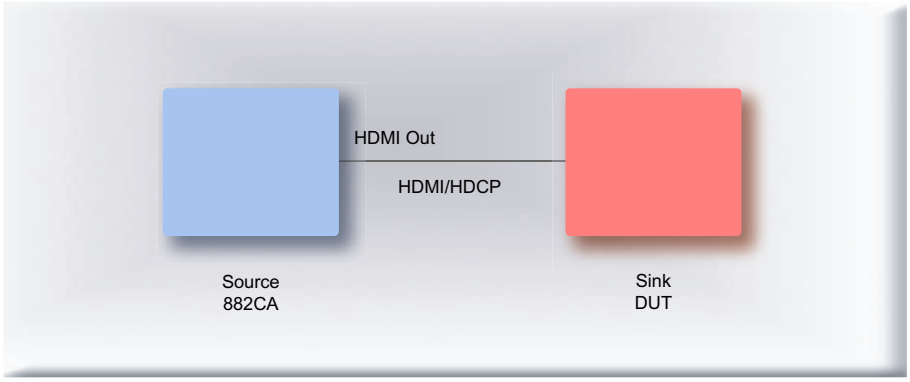
CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
1	1A_01 (Source)	24	3A_05 (Repeater)
2	1A_02 (Source)	25	3B_01 (Repeater)
3	1A_03 (Source)	26	3B_02 (Repeater)
4	1A_04 (Source)	27	3B_03 (Repeater)
5	1A_05 (Source)	28	3B_04 (Repeater)
6	1A_06 (Source)	29	3B_05 (Repeater)
7	1A_07 (Source)	30	3C1_01 (Repeater)
8	1A_08 (Source)	31	3C1_02 (Repeater)
9	1A_09 (Source)	32	3C1_03 (Repeater)
10	1B_01 (Source)	33	3C1_04 (Repeater)
11	1B_02 (Source)	34	3C1_05 (Repeater)
12	1B_03 (Source)	35	3C1_06 (Repeater)
13	1B_04 (Source)	36	3C1_07 (Repeater)
14	1B_05 (Source)	37	3C2_01 (Repeater)
15	1B_06 (Source)	38	3C2_02 (Repeater)
16	2C_1 (Sink)	39	3C2_03 (Repeater)
17	2C_2 (Sink)	40	3C2_04 (Repeater)

CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
18	2C_3 (Sink)	41	3C2_05 (Repeater)
19	2C_4 (Sink)	42	3C2_06 (Repeater)
20	3A_01 (Repeater)	43	3C2_07 (Repeater)
21	3A_02 (Repeater)	44	3C2_08 (Repeater)
22	3A_03 (Repeater)	45	3C2_09 (Repeater)
23	3A_04 (Repeater)	46	All tests

To run the HDCP compliance test on an HDMI sink (Test 2C):

1. Connect a cable between the HDMI In connector on the generator and the device's HDMI receiver interface with the HDCP function.

   The following diagram depicts the test setup:



2. Activate the HDMI-H or HDMI-D interface on the output port as follows:

   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

```
* VGA                    CVBS
  HDMI-D               S-VIDEO
  HDMI-H                  SDI
```

   b. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated and the display is shown below.

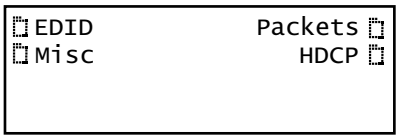
```
  VGA                    CVBS
  HDMI-D               S-VIDEO
 *HDMI-H                 SDI
```

   Alternatively, to activate the interface through the command line interface, enter the following commands:

```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

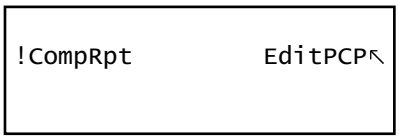
3. Press the **Tools** key and choose the **Reports** item by pressing the adjacent soft key.

   The following is displayed on the generator's LCD.



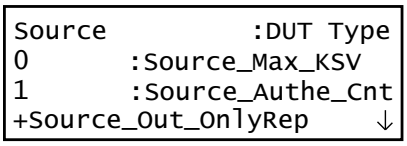
4. Select **HDCP** to access the HDCP compliance test menu.

   The following is displayed on the generator's LCD.



5. Select **EditPCP** to define the capabilities of the HDCP device under.

   The following is displayed on the generator's LCD.



The following table describes the test parameters and their settings (gray = N/A).

Parameter	Explanation
DUT type	The type of device under test. This can be one of Source, Sink, Repeater, Repeater3AB, or Repeater3C. For this test, select Sink.
Source Max KSV	Specifies the maximum number of KSVs the source can read. The valid values are 1 through 127.
Source Authentication Control	Specifies the number of times a source DUT attempts authentication before transitioning into the authentication state. The valid values are 1 or greater.
Source Out Only Repeater	Indicates whether the DUT outputs contents to a repeater to which no downstream device is connected. The values are + for yes and - for no.
Sink 1.1 Features Supported	Indicates whether the DUT supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Sink 1.1 Audio Supported	Indicates whether the DUT supports audio output. The values are + for yes and - for no.

Parameter	Explanation
Repeater 1.1 Features Supported	Indicates whether supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Repeater Audio Support	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater HPD Pulse	Indicates whether the DUT has the capability to output HPD pulse by user operation. The values are + for yes and - for no.
Repeater Max KSV	Specifies the maximum number of KSVs the repeater can read. The valid values are 1 through 27.
Repeater Out OnlyRep	Indicates whether the DUT outputs content to the downstream repeater that has no downstream device connected. The values are + for yes and - for no.

6. Select **Sink** device by pressing the adjacent soft key to specify that the device under test is a sink.

   The following is displayed on the generator's LCD.

   ```
   Sink            :DUT Type
   0       :Source_Max_KSV
   1       :Source_Authe_Cnt
   +Source_Out_OnlyRep     ↓
   ```

   Alternatively, you can specify the device under test as a sink using the following commands:

   ```
   CPTX:DUTT 0     // specifies the device under test as a sink
   ```

7. (optional) Specify the remaining parameters in the **EditPCP** menu using the table above.

   Alternatively, you can specify the parameters through the command line as follows:

   ```
   CPTX:SRFT 0      // indicates whether DUT (sink) supports 1.1
                       features such as Advanced Cipher and Enhanced
                       Link Verification. 1 = yes; 0 = no.
   CPTX:SNAS 1      // indicates whether DUT (sink) supports audio
                       output. 1 = yes; 0 = no.
   ```

8. Press the **Options** key to save the capabilities definition.

   The generator LCD will display the message "Saved".

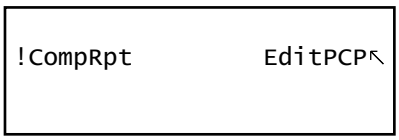
9. Press the **Tools** key get back to the Reports menu.

   The generator LCD will display the reports menu as shown below.

   ```
   EDID            Packets
   Misc              HDCP
   ```

10. Select **HDCP** to access the HDCP compliance test menu.

    The following is displayed on the generator's LCD.



11. Select **!CompRpt** to initiate the HDCP compliance test.

    The message "HDCP Compliance Test" is shown and then all the tests are shown in sequence.

    Alternatively, you can run the tests using the following command:

```
CPTX:CPTR 46     // specifies that all applicable tests will be run.
CPTX:CPTU        // Initiates the execution of the test
```

    Refer to "To view the HDCP compliance report:" on page 531 for procedures on how to view the generated report.

12. (Optional) To run a specific test you can use the command line as shown below:

```
CPTX:CPTR 16     // Selects specific test (e.g. 2C_1) see table below
CPTX:CPTU        // Initiates the execution of the test
```

    You can query the complete list of tests to choose from:

```
CPTX:GCTN?       // Queries the list of tests supported
```

    You can query the list of completed reports with:

```
CPTX:CPTR?       // Queries the list of tests run (see table)
```

The following table describes the applicable tests that can be performed (gray = N/A).

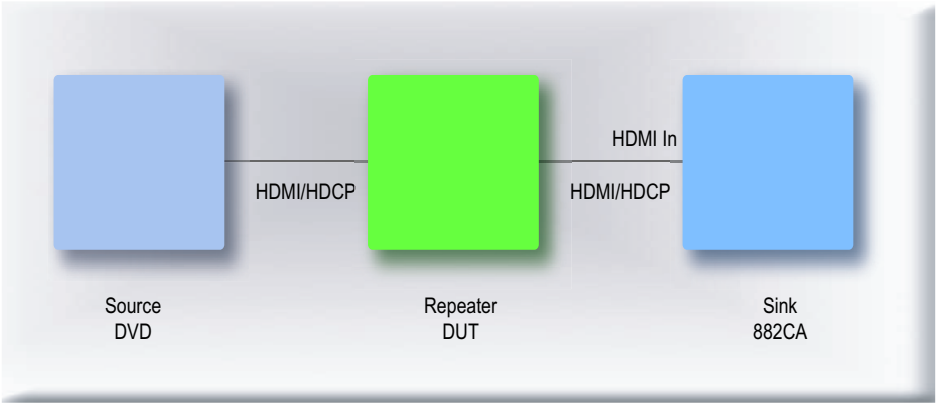
CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
1	1A_01 (Source)	24	3A_05 (Repeater)
2	1A_02 (Source)	25	3B_01 (Repeater)
3	1A_03 (Source)	26	3B_02 (Repeater)
4	1A_04 (Source)	27	3B_03 (Repeater)
5	1A_05 (Source)	28	3B_04 (Repeater)
6	1A_06 (Source)	29	3B_05 (Repeater)
7	1A_07 (Source)	30	3C1_01 (Repeater)
8	1A_08 (Source)	31	3C1_02 (Repeater)
9	1A_09 (Source)	32	3C1_03 (Repeater)
10	1B_01 (Source)	33	3C1_04 (Repeater)
11	1B_02 (Source)	34	3C1_05 (Repeater)
12	1B_03 (Source)	35	3C1_06 (Repeater)

CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
13	1B_04 (Source)	36	3C1_07 (Repeater)
14	1B_05 (Source)	37	3C2_01 (Repeater)
15	1B_06 (Source)	38	3C2_02 (Repeater)
16	2C_1 (Sink)	39	3C2_03 (Repeater)
17	2C_2 (Sink)	40	3C2_04 (Repeater)
18	2C_3 (Sink)	41	3C2_05 (Repeater)
19	2C_4 (Sink)	42	3C2_06 (Repeater)
20	3A_01 (Repeater)	43	3C2_07 (Repeater)
21	3A_02 (Repeater)	44	3C2_08 (Repeater)
22	3A_03 (Repeater)	45	3C2_09 (Repeater)
23	3A_04 (Repeater)	46	All tests

To run the HDCP compliance test on an HDMI repeater (Test 3A with source and sink):

1. Connect a cable between the HDMI In connector on the generator and the device's HDMI transmitter interface with the HDCP function.

   The following diagram depicts the test setup:



2. Activate the HDMI-H or HDMI-D interface on the output port as follows:

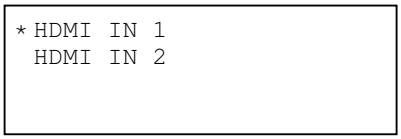
   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

   b. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated and the display is shown below.

   Alternatively, to activate the interface through the command line interface, enter the following commands:

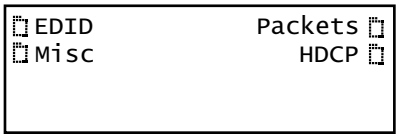
```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

3. Press the **Interface** key repeatedly until the following menu appears:



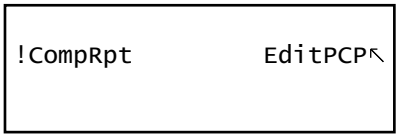
4. Choose the connector to which the HDMI transmit device under test is connected by Press the **Tools** key and choose the **Reports** item by pressing the adjacent soft key.

   The following is displayed on the generator's LCD.



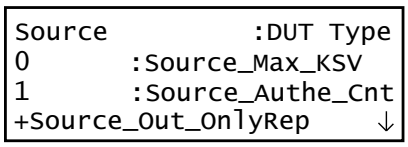
5. Select **HDCP** to access the HDCP compliance test menu.

   The following is displayed on the generator's LCD.



6. Select **EditPCP** to define the capabilities of the HDCP device under.

   The following is displayed on the generator's LCD.



The following table describes the test parameters and their settings (gray = N/A).

Parameter	Explanation
DUT type	The type of device under test. This can be one of Source, Sink, Repeater, Repeater3AB, or Repeater3C. For this test, select Repeater3AB.
Source Max KSV	Specifies the maximum number of KSVs the source can read. The valid values are 1 through 127.
Source Authentication Control	Specifies the number of times a source DUT attempts authentication before transitioning into the authentication state. The valid values are 1 or greater.
Source Out Only Repeater	Indicates whether the DUT outputs contents to a repeater to which no downstream device is connected. The values are + for yes and - for no.
Sink 1.1 Features Supported	Indicates whether the DUT supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Sink 1.1 Audio Supported	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater 1.1 Features Supported	Indicates whether supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Repeater Audio Support	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater HPD Pulse	Indicates whether the DUT has the capability to output HPD pulse by user operation. The values are + for yes, repeater DUT allows the user to initiate a HPD; and - for no, the repeater DUT does not support a user to manually force of a hot plug pulse.
Repeater Max KSV	Specifies the maximum number of KSVs the repeater can read. The valid values are 1 through 27.
Repeater Out OnlyRep	Indicates whether the DUT outputs content to the downstream repeater that has no downstream device connected. The values are + for yes, the repeater will forward encrypted video to a downstream repeater when there are no other downstream devices; and - for no, the repeater will not forward encrypted video to a downstream repeater when there are no other downstream devices.

7. Select **Repeater3AB** device by pressing the adjacent soft key to specify that the device under test is a repeater.

   The following is displayed on the generator's LCD.

   ```
   Repeater3AB    :DUT Type
   0      :Source_Max_KSV
   1      :Source_Authe_Cnt
   +Source_Out_OnlyRep    ↓
   ```

   Alternatively, you can specify the device under test as a repeater for the 3A test using the following commands:

   ```
   CPTX:DUTT 3      // specifies the device under test as a repeater
                       for test 3A.
   ```

8. (optional) Specify the remaining parameters in the **EditPCP** menu using the table above.

   Alternatively, you can specify the parameters through the command line as follows:

   ```
   CPTX:RPFT 0      // indicates whether DUT (repeater) supports 1.1
                       features such as Advanced Cipher and Enhanced
                       Link Verification. 1 = yes; 0 = no.
   CPTX:RPAS 1      // indicates whether DUT (repeater) supports audio
                       output. 1 = yes; 0 = no.
   CPTX:RHPD 1      // indicates whether DUT (repeater) outputs HPD pulse
                       by user operation output. 1 = yes; 0 = no.
   CPTX:RKSV 10     // specifies maximum number of downstream devices
                       that can be supported in the repeater's KSV list
   CPTX:ROOR 0      // indicates whether DUT (repeater) outputs outputs
                       content to the downstream repeater that does not
                       have any downstream device connected.
                       1 = yes; 0 = no.
   ```

9. Press the **Options** key to save the capabilities definition.

   The generator LCD will display the message "Saved".

10. Press the **Tools** key get back to the Reports menu.

    The generator LCD will display the message "Saved".

11. Select **HDCP** to access the HDCP compliance test menu.

    The following is displayed on the generator's LCD.

    ```
    !CompRpt          EditPCP↖
    ```

12. Select **!CompRpt** to initiate the HDCP compliance test.

    The message “HDCP Compliance Test” is shown and then all the tests are shown in sequence.

    Alternatively, you can run the tests using the following command:

    ```
    CPTX:CPTR 46     // specifies that all applicable tests will be run.
    CPTX:CPTU        // Initiates the execution of the test
    ```

    Refer to “To view the HDCP compliance report:” on page 531 for procedures on how to view the generated report.

13. (Optional) To run a specific test you can use the command line as shown below:

    ```
    CPTX:CPTR 20     // Selects specific test (e.g. 3A_01) see table below
    CPTX:CPTU        // Initiates the execution of the test
    ```

    You can query the complete list of tests to choose from:

    ```
    CPTX:GCTN?       // Queries the list of tests supported
    ```

    You can query the list of completed reports with:

    ```
    CPTX:CPTR?       // Queries the list of tests run (see table)
    ```

The following table describes the applicable tests that can be performed (gray = N/A).

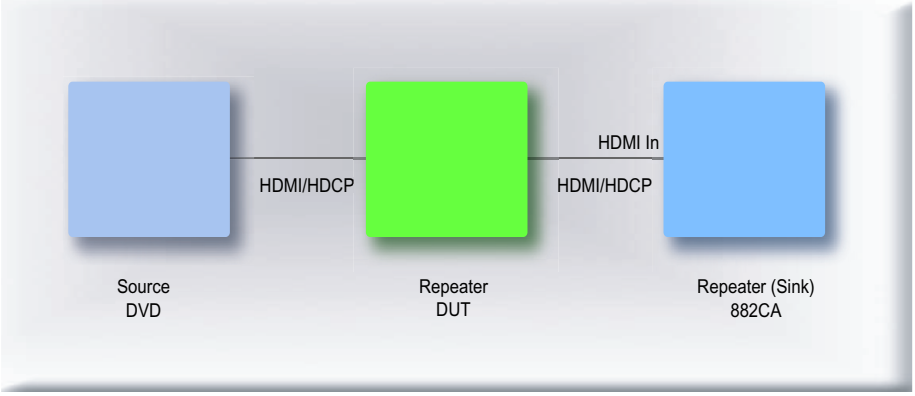
CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
1	1A_01 (Source)	24	3A_05 (Repeater)
2	1A_02 (Source)	25	3B_01 (Repeater)
3	1A_03 (Source)	26	3B_02 (Repeater)
4	1A_04 (Source)	27	3B_03 (Repeater)
5	1A_05 (Source)	28	3B_04 (Repeater)
6	1A_06 (Source)	29	3B_05 (Repeater)
7	1A_07 (Source)	30	3C1_01 (Repeater)
8	1A_08 (Source)	31	3C1_02 (Repeater)
9	1A_09 (Source)	32	3C1_03 (Repeater)
10	1B_01 (Source)	33	3C1_04 (Repeater)
11	1B_02 (Source)	34	3C1_05 (Repeater)
12	1B_03 (Source)	35	3C1_06 (Repeater)
13	1B_04 (Source)	36	3C1_07 (Repeater)
14	1B_05 (Source)	37	3C2_01 (Repeater)
15	1B_06 (Source)	38	3C2_02 (Repeater)
16	2C_1 (Sink)	39	3C2_03 (Repeater)
17	2C_2 (Sink)	40	3C2_04 (Repeater)

CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
18	2C_3 (Sink)	41	3C2_05 (Repeater)
19	2C_4 (Sink)	42	3C2_06 (Repeater)
20	3A_01 (Repeater)	43	3C2_07 (Repeater)
21	3A_02 (Repeater)	44	3C2_08 (Repeater)
22	3A_03 (Repeater)	45	3C2_09 (Repeater)
23	3A_04 (Repeater)	46	All tests

To run the HDCP compliance test on an HDMI repeater (Test 3B with source and repeater):

1. Connect a cable between the HDMI In connector on the generator and the device's HDMI transmitter and receiver interface with the HDCP function.

   The following diagram depicts the test setup:



2. Activate the HDMI-H or HDMI-D interface on the output port as follows:

   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

```
* VGA                    CVBS
  HDMI-D               S-VIDEO
  HDMI-H                  SDI
```

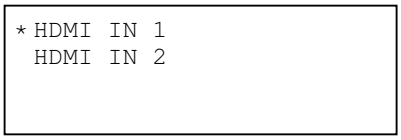
   b. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated and the display is shown below.

```
  VGA                    CVBS
  HDMI-D              S-VIDEO
 *HDMI-H                 SDI
```

   Alternatively, to activate the interface through the command line interface, enter the following commands:

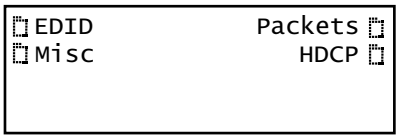
```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

3. Press the **Interface** key repeatedly until the following menu appears:



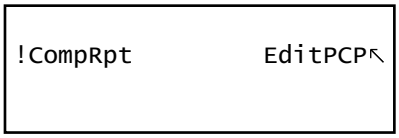
4. Choose the connector to which the HDMI transmit device under test is connected by pressing the adjacent soft key.
5. Press the **Tools** key and choose the **Reports** item by pressing the adjacent soft key.

   The following is displayed on the generator's LCD.



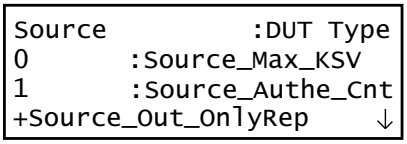
6. Select **HDCP** to access the HDCP compliance test menu.

   The following is displayed on the generator's LCD.



7. Select **EditPCP** to define the capabilities of the HDCP device under.

   The following is displayed on the generator's LCD.



The following table describes the test parameters and their settings (gray = N/A).

Parameter	Explanation
DUT type	The type of device under test. This can be one of Source, Sink, Repeater, Repeater3AB, or Repeater3C. For this test, select Repeater3AB.
Source Max KSV	Specifies the maximum number of KSVs the source can read. The valid values are 1 through 127.
Source Authentication Control	Specifies the number of times a source DUT attempts authentication before transitioning into the authentication state. The valid values are 1 or greater.

Parameter	Explanation
Source Out Only Repeater	Indicates whether the DUT outputs contents to a repeater to which no downstream device is connected. The values are + for yes and - for no.
Sink 1.1 Features Supported	Indicates whether the DUT supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Sink 1.1 Audio Supported	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater 1.1 Features Supported	Indicates whether supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Repeater Audio Support	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater HPD Pulse	Indicates whether the DUT has the capability to output HPD pulse by user operation. The values are + for yes, repeater DUT allows the user to initiate a HPD; and - for no, the repeater DUT does not support a user to manually force of a hot plug pulse.
Repeater Max KSV	Specifies the maximum number of KSVs the repeater can read. The valid values are 1 through 27.
Repeater Out OnlyRep	Indicates whether the DUT outputs content to the downstream repeater that has no downstream device connected. The values are + for yes, the repeater will forward encrypted video to a downstream repeater when there are no other downstream devices; and - for no, the repeater will not forward encrypted video to a downstream repeater when there are no other downstream devices.

8. Select **Repeater3AB** device by pressing the adjacent soft key to specify that the device under test is a repeater.

   The following is displayed on the generator's LCD.

   ```
   Repeater3AB    :DUT Type
   0      :Source_Max_KSV
   1      :Source_Authe_Cnt
   +Source_Out_OnlyRep    ↓
   ```

   Alternatively, you can specify the device under test as a repeater for the 3B test using the following commands:

   ```
   CPTX:DUTT 3      // specifies the device under test as a repeater
                       for test 3B
   ```

9. (optional) Specify the remaining parameters in the **EditPCP** menu using the table above.

   Alternatively, you can specify the parameters through the command line as follows:

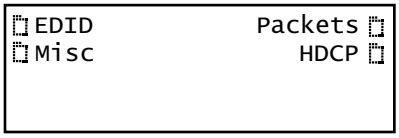
```
CPTX:RPFT 0      // indicates whether DUT (repeater) supports 1.1
                    features such as Advanced Cipher and Enhanced
                    Link Verification. 1 = yes; 0 = no.
CPTX:RPAS 1      // indicates whether DUT (repeater) supports audio
                    output. 1 = yes; 0 = no.
CPTX:RHPD 1      // indicates whether DUT (repeater) outputs HPD pulse
                    by user operation output. 1 = yes; 0 = no.
CPTX:RKSV 10     // specifies maximum number of downstream devices
                    that can be supported in the repeater's KSV list
CPTX:ROOR 0      // indicates whether DUT (repeater) outputs outputs
                    content to the downstream repeater that does not
                    have any downstream device connected.
                    1 = yes; 0 = no.
```

10. Press the **Options** key to save the capabilities definition.

    The generator LCD will display the message “Saved”.

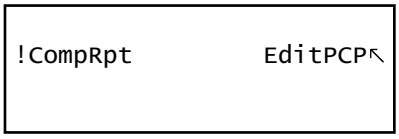
11. Press the **Tools** key get back to the Reports menu.

    The generator LCD will display the reports menu as shown below.



12. Select **HDCP** to access the HDCP compliance test menu.

    The following is displayed on the generator's LCD.



13. Select **!CompRpt** to initiate the HDCP compliance test.

    The message “HDCP Compliance Test” is shown and then all the tests are shown in sequence.

    Alternatively, you can run the tests using the following command:

```
CPTX:CPTR 46     // specifies that all applicable tests will be run.
CPTX:CPTU        // Initiates the execution of the test
```

    Refer to “To view the HDCP compliance report:” on page 531 for procedures on how to view the generated report.

14. (Optional) To run a specific test you can use the command line as shown below:

```
CPTX:CPTR 25     // Selects specific test (e.g. 3B_01) see table below
CPTX:CPTU        // Initiates the execution of the test
```

    You can query the complete list of tests to choose from:

```
CPTX:GCTN?       // Queries the list of tests supported
```

You can query the list of completed reports with:

```
CPTX:CPTR?       // Queries the list of tests run (see table)
```

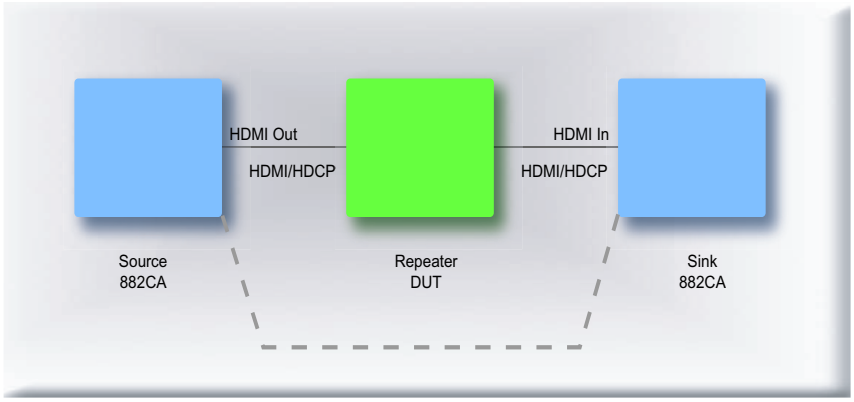
The following table describes the applicable tests that can be performed (gray = N/A).

CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
1	1A_01 (Source)	24	3A_05 (Repeater)
2	1A_02 (Source)	25	3B_01 (Repeater)
3	1A_03 (Source)	26	3B_02 (Repeater)
4	1A_04 (Source)	27	3B_03 (Repeater)
5	1A_05 (Source)	28	3B_04 (Repeater)
6	1A_06 (Source)	29	3B_05 (Repeater)
7	1A_07 (Source)	30	3C1_01 (Repeater)
8	1A_08 (Source)	31	3C1_02 (Repeater)
9	1A_09 (Source)	32	3C1_03 (Repeater)
10	1B_01 (Source)	33	3C1_04 (Repeater)
11	1B_02 (Source)	34	3C1_05 (Repeater)
12	1B_03 (Source)	35	3C1_06 (Repeater)
13	1B_04 (Source)	36	3C1_07 (Repeater)
14	1B_05 (Source)	37	3C2_01 (Repeater)
15	1B_06 (Source)	38	3C2_02 (Repeater)
16	2C_1 (Sink)	39	3C2_03 (Repeater)
17	2C_2 (Sink)	40	3C2_04 (Repeater)
18	2C_3 (Sink)	41	3C2_05 (Repeater)
19	2C_4 (Sink)	42	3C2_06 (Repeater)
20	3A_01 (Repeater)	43	3C2_07 (Repeater)
21	3A_02 (Repeater)	44	3C2_08 (Repeater)
22	3A_03 (Repeater)	45	3C2_09 (Repeater)
23	3A_04 (Repeater)	46	All tests

To run the HDCP compliance test on an HDMI repeater (Test 3C-I with source and sink):

1. Connect a cables between the HDMI Out and In connector on the generator and the device's HDMI transmitter and receiver interface with the HDCP function.

   The following diagram depicts the test setup:



2. Activate the HDMI-H or HDMI-D interface on the output port as follows:

   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

```
* VGA                  CVBS
  HDMI-D            S-VIDEO
  HDMI-H                SDI
```

   b. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated and the display is shown below.

```
  VGA                  CVBS
  HDMI-D            S-VIDEO
 *HDMI-H                SDI
```

   Alternatively, to activate the interface through the command line interface, enter the following commands:

```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

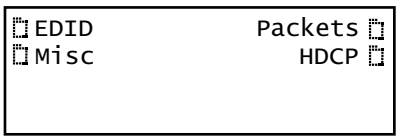
3. Press the **Interface** key repeatedly until the following menu appears:

```
* HDMI IN 1
  HDMI IN 2
```

4. Choose the connector to which the HDMI transmit device under test is connected by pressing the adjacent soft key.

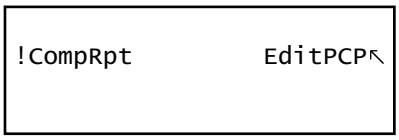
5. Press the **Tools** key and choose the **Reports** item by pressing the adjacent soft key.

   The following is displayed on the generator's LCD.



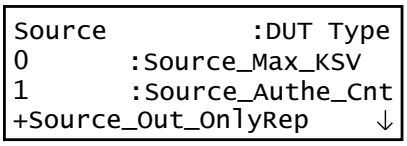
6. Select **HDCP** to access the HDCP compliance test menu.

   The following is displayed on the generator's LCD.



7. Select **EditPCP** to define the capabilities of the HDCP device under.

   The following is displayed on the generator's LCD.



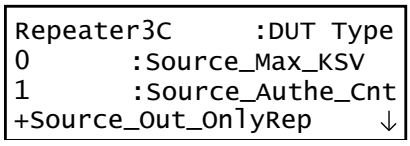
The following table describes the test parameters and their settings (gray = N/A).

Parameter	Explanation
DUT type	The type of device under test. This can be one of Source, Sink, Repeater, Repeater3AB, or Repeater3C. For this test, select Repeater3C.
Source Max KSV	Specifies the maximum number of KSVs the source can read. The valid values are 1 through 127.
Source Authentication Control	Specifies the number of times a source DUT attempts authentication before transitioning into the authentication state. The valid values are 1 or greater.
Source Out Only Repeater	Indicates whether the DUT outputs contents to a repeater to which no downstream device is connected. The values are + for yes and - for no.
Sink 1.1 Features Supported	Indicates whether the DUT supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Sink 1.1 Audio Supported	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater 1.1 Features Supported	Indicates whether supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.

Parameter	Explanation
Repeater Audio Support	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater HPD Pulse	Indicates whether the DUT has the capability to output HPD pulse by user operation. The values are + for yes, repeater DUT allows the user to initiate a HPD; and - for no, the repeater DUT does not support a user to manually force of a hot plug pulse.
Repeater Max KSV	Specifies the maximum number of KSVs the repeater can read. The valid values are 1 through 27.
Repeater Out OnlyRep	Indicates whether the DUT outputs content to the downstream repeater that has no downstream device connected. The values are + for yes, the repeater will forward encrypted video to a downstream repeater when there are no other downstream devices; and - for no, the repeater will not forward encrypted video to a downstream repeater when there are no other downstream devices.

8. Select **Repeater3C** device by pressing the adjacent soft key to specify that the device under test is a repeater.

   The following is displayed on the generator's LCD.

   Alternatively, you can specify the device under test as a repeater for the 3C test using the following commands:

   ```
   CPTX:DUTT 2      // specifies the device under test as a repeater
                       for the 3C test.
   ```

9. (optional) Specify the remaining parameters in the **EditPCP** menu using the table above.

   Alternatively, you can specify the parameters through the command line as follows:

   ```
   CPTX:RPFT 0      // indicates whether DUT (repeater) supports 1.1
                       features such as Advanced Cipher and Enhanced
                       Link Verification. 1 = yes; 0 = no.
   CPTX:RPAS 1      // indicates whether DUT (repeater) supports audio
                       output. 1 = yes; 0 = no.
   CPTX:RHPD 1      // indicates whether DUT (repeater) outputs HPD pulse
                       by user operation output. 1 = yes; 0 = no.
   CPTX:RKSV 10     // specifies maximum number of downstream devices
                       that can be supported in the repeater's KSV list
   ```

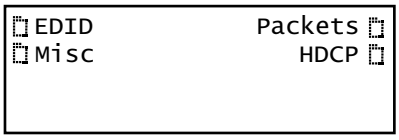
```
CPTX:ROOR 0      // indicates whether DUT (repeater) outputs outputs
                    content to the downstream repeater that does not
                    have any downstream device connected.
                    1 = yes; 0 = no.
```

10. Press the **Options** key to save the capabilities definition.

    The generator LCD will display the message “Saved”.

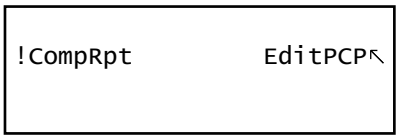
11. Press the **Tools** key get back to the Reports menu.

    The generator LCD will display the reports menu as shown below.



12. Select **HDCP** to access the HDCP compliance test menu.

    The following is displayed on the generator’s LCD.



13. Select **!CompRpt** to initiate the HDCP compliance test.

    The message “HDCP Compliance Test” is shown and then all the tests are shown in sequence.

    Alternatively, you can run the tests using the following command:

```
CPTX:CPTR 46     // specifies that all applicable tests will be run.
CPTX:CPTU        // Initiates the execution of the test
```

    Refer to “To view the HDCP compliance report:” on page 531 for procedures on how to view the generated report.

14. (Optional) To run a specific test you can use the command line as shown below:

```
CPTX:CPTR 30     // Selects specific test (e.g. 3C1_01) see table
below
CPTX:CPTU        // Initiates the execution of the test
```

    You can query the complete list of tests to choose from:

```
CPTX:GCTN?       // Queries the list of tests supported
```

    You can query the list of completed reports with:

```
CPTX:CPTR?       // Queries the list of tests run (see table)
```

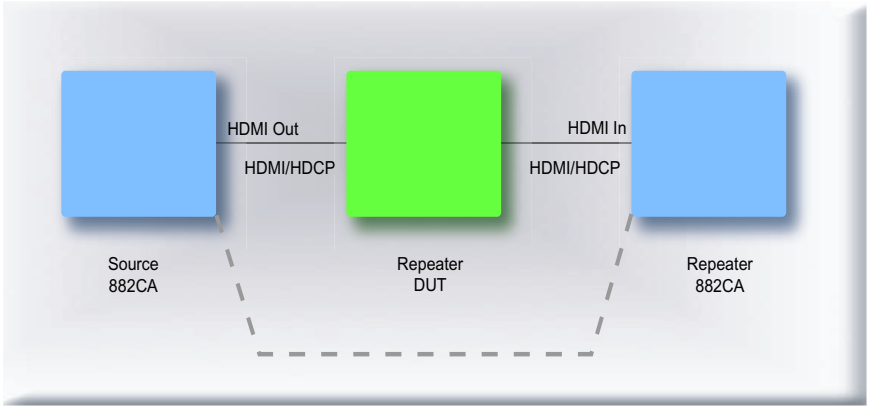
The following table describes the applicable tests that can be performed (gray = N/A).

CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
1	1A_01 (Source)	24	3A_05 (Repeater)
2	1A_02 (Source)	25	3B_01 (Repeater)
3	1A_03 (Source)	26	3B_02 (Repeater)
4	1A_04 (Source)	27	3B_03 (Repeater)
5	1A_05 (Source)	28	3B_04 (Repeater)
6	1A_06 (Source)	29	3B_05 (Repeater)
7	1A_07 (Source)	30	3C1_01 (Repeater)
8	1A_08 (Source)	31	3C1_02 (Repeater)
9	1A_09 (Source)	32	3C1_03 (Repeater)
10	1B_01 (Source)	33	3C1_04 (Repeater)
11	1B_02 (Source)	34	3C1_05 (Repeater)
12	1B_03 (Source)	35	3C1_06 (Repeater)
13	1B_04 (Source)	36	3C1_07 (Repeater)
14	1B_05 (Source)	37	3C2_01 (Repeater)
15	1B_06 (Source)	38	3C2_02 (Repeater)
16	2C_1 (Sink)	39	3C2_03 (Repeater)
17	2C_2 (Sink)	40	3C2_04 (Repeater)
18	2C_3 (Sink)	41	3C2_05 (Repeater)
19	2C_4 (Sink)	42	3C2_06 (Repeater)
20	3A_01 (Repeater)	43	3C2_07 (Repeater)
21	3A_02 (Repeater)	44	3C2_08 (Repeater)
22	3A_03 (Repeater)	45	3C2_09 (Repeater)
23	3A_04 (Repeater)	46	All tests

To run the HDCP compliance test on an HDMI repeater (Test 3C-II with source and repeater):

1. Connect a cable between the HDMI Out and In connector on the generator and the device's HDMI transmitter and receiver interface with the HDCP function.

   The following diagram depicts the test setup:



2. Activate the HDMI-H or HDMI-D interface on the output port as follows:

   a. Press the **Interface** key. A listing of signal interfaces appears on the generator's display as shown below.

```
* VGA                    CVBS
  HDMI-D               S-VIDEO
  HDMI-H                  SDI
```

   b. Choose either the **HDMI-H** or **HDMI-D** item by pressing the adjacent soft key. The interface is activated and the display is shown below.

```
  VGA                    CVBS
  HDMI-D              S-VIDEO
 *HDMI-H                 SDI
```

   Alternatively, to activate the interface through the command line interface, enter the following commands:

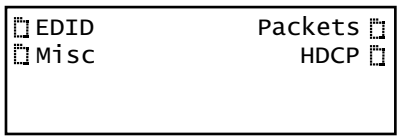
```
XVSI 4          // Activates the HDMI-H interface (or 3 for HDMI-D)
ALLU            // Applies the interface setting to the generator
```

3. Press the **Interface** key repeatedly until the following menu appears:

```
* HDMI IN 1
  HDMI IN 2
```

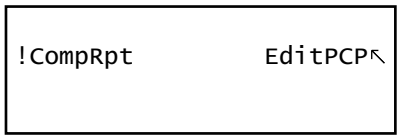
4. Choose the connector to which the HDMI transmit device under test is connected by pressing the adjacent soft key.
5. Press the **Tools** key and choose the **Reports** item by pressing the adjacent soft key.

   The following is displayed on the generator's LCD.



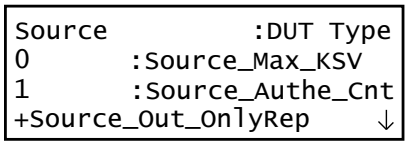
6. Select **HDCP** to access the HDCP compliance test menu.

   The following is displayed on the generator's LCD.



7. Select **EditPCP** to define the capabilities of the HDCP device under.

   The following is displayed on the generator's LCD.



The following table describes the test parameters and their settings (gray = N/A).

Parameter	Explanation
DUT type	The type of device under test. This can be one of Source, Sink, Repeater, Repeater3AB, or Repeater3C. For this test, select Repeater3C.
Source Max KSV	Specifies the maximum number of KSVs the source can read. The valid values are 1 through 127.
Source Authentication Control	Specifies the number of times a source DUT attempts authentication before transitioning into the authentication state. The valid values are 1 or greater.
Source Out Only Repeater	Indicates whether the DUT outputs contents to a repeater to which no downstream device is connected. The values are + for yes and - for no.
Sink 1.1 Features Supported	Indicates whether the DUT supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Sink 1.1 Audio Supported	Indicates whether the DUT supports audio output. The values are + for yes and - for no.

Parameter	Explanation
Repeater 1.1 Features Supported	Indicates whether supports Advanced_Cipher mode and Enhanced Link Verification. The values are + for yes and - for no.
Repeater Audio Support	Indicates whether the DUT supports audio output. The values are + for yes and - for no.
Repeater HPD Pulse	Indicates whether the DUT has the capability to output HPD pulse by user operation. The values are + for yes, repeater DUT allows the user to initiate a HPD; and - for no, the repeater DUT does not support a user to manually force of a hot plug pulse.
Repeater Max KSV	Specifies the maximum number of KSVs the repeater can read. The valid values are 1 through 27.
Repeater Out OnlyRep	Indicates whether the DUT outputs content to the downstream repeater that has no downstream device connected. The values are + for yes, the repeater will forward encrypted video to a downstream repeater when there are no other downstream devices; and - for no, the repeater will not forward encrypted video to a downstream repeater when there are no other downstream devices.

8. Select **Repeater3C** device by pressing the adjacent soft key to specify that the device under test is a repeater.

   The following is displayed on the generator's LCD.

   ```
   Repeater3C     :DUT Type
   0      :Source_Max_KSV
   1      :Source_Authe_Cnt
   +Source_Out_OnlyRep    ↓
   ```

   Alternatively, you can specify the device under test as a repeater using the following commands:

   ```
   CPTX:DUTT 2      // specifies the device under test as a repeater
   ```

9. (optional) Specify the remaining parameters in the **EditPCP** menu using the table above.

   Alternatively, you can specify the parameters through the command line as follows:

   ```
   CPTX:RPFT 0      // indicates whether DUT (repeater) supports 1.1
                       features such as Advanced Cipher and Enhanced
                       Link Verification. 1 = yes; 0 = no.
   CPTX:RPAS 1      // indicates whether DUT (repeater) supports audio
                       output. 1 = yes; 0 = no.
   CPTX:RHPD 1      // indicates whether DUT (repeater) outputs HPD pulse
                       by user operation output. 1 = yes; 0 = no.
   CPTX:RKSV 10     // specifies maximum number of downstream devices
                       that can be supported in the repeater's KSV list
   ```

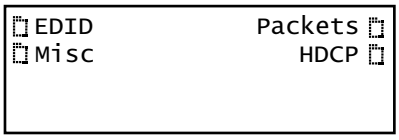
```
CPTX:ROOR 0      // indicates whether DUT (repeater) outputs outputs
                    content to the downstream repeater that does not
                    have any downstream device connected.
                    1 = yes; 0 = no.
```

10. Press the **Options** key to save the capabilities definition.

    The generator LCD will display the message “Saved”.

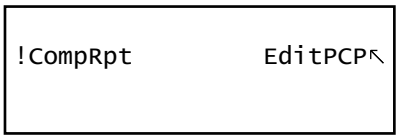
11. Press the **Tools** key get back to the Reports menu.

    The generator LCD will display the reports menu as shown below.



12. Select **HDCP** to access the HDCP compliance test menu.

    The following is displayed on the generator’s LCD.



13. Select **!CompRpt** to initiate the HDCP compliance test.

    The message “HDCP Compliance Test” is shown and then all the tests are shown in sequence.

    Alternatively, you can run the tests using the following command:

```
CPTX:CPTR 46     // specifies that all applicable tests will be run.
CPTX:CPTU        // Initiates the execution of the test
```

    Refer to “To view the HDCP compliance report:” on page 531 for procedures on how to view the generated report.

14. (Optional) To run a specific test you can use the command line as shown below:

```
CPTX:CPTR 37     // Selects specific test (e.g. 3C2_01) see table
                    below
CPTX:CPTU        // Initiates the execution of the test
```

    You can query the complete list of tests to choose from:

```
CPTX:GCTN?       // Queries the list of tests supported
```

    You can query the list of completed reports with:

```
CPTX:CPTR?       // Queries the list of tests run (see table)
```

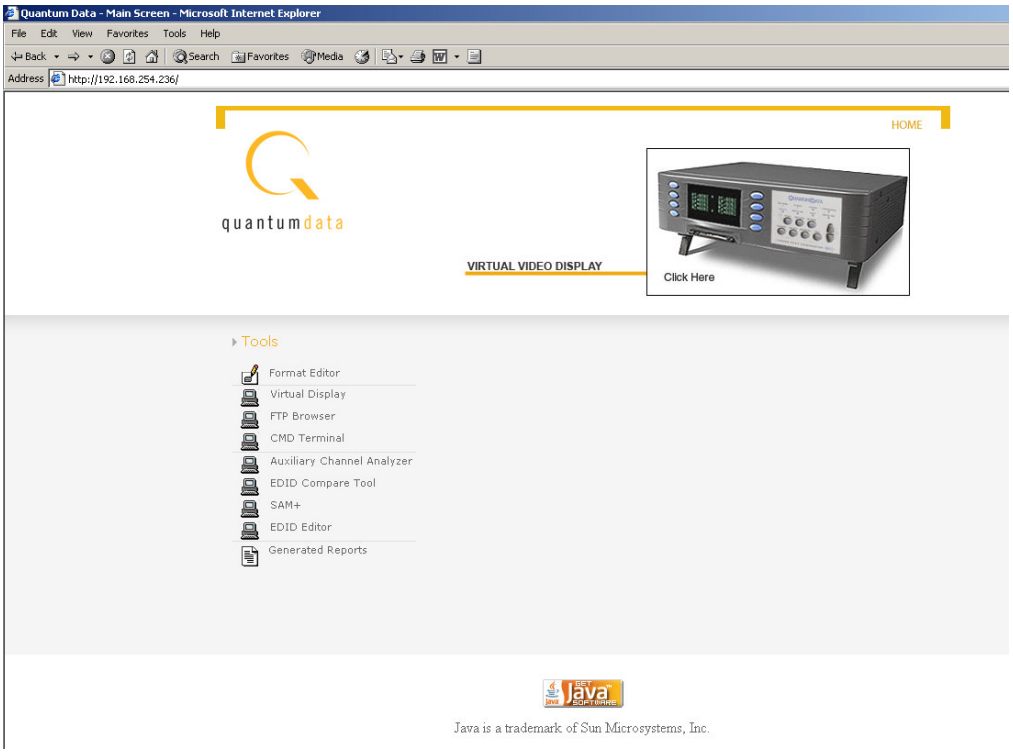
The following table describes the applicable tests that can be performed (gray = N/A).

CPTX:CPTR Index	Test	CPTX:CPTR Index	Test
1	1A_01 (Source)	24	3A_05 (Repeater)
2	1A_02 (Source)	25	3B_01 (Repeater)
3	1A_03 (Source)	26	3B_02 (Repeater)
4	1A_04 (Source)	27	3B_03 (Repeater)
5	1A_05 (Source)	28	3B_04 (Repeater)
6	1A_06 (Source)	29	3B_05 (Repeater)
7	1A_07 (Source)	30	3C1_01 (Repeater)
8	1A_08 (Source)	31	3C1_02 (Repeater)
9	1A_09 (Source)	32	3C1_03 (Repeater)
10	1B_01 (Source)	33	3C1_04 (Repeater)
11	1B_02 (Source)	34	3C1_05 (Repeater)
12	1B_03 (Source)	35	3C1_06 (Repeater)
13	1B_04 (Source)	36	3C1_07 (Repeater)
14	1B_05 (Source)	37	3C2_01 (Repeater)
15	1B_06 (Source)	38	3C2_02 (Repeater)
16	2C_1 (Sink)	39	3C2_03 (Repeater)
17	2C_2 (Sink)	40	3C2_04 (Repeater)
18	2C_3 (Sink)	41	3C2_05 (Repeater)
19	2C_4 (Sink)	42	3C2_06 (Repeater)
20	3A_01 (Repeater)	43	3C2_07 (Repeater)
21	3A_02 (Repeater)	44	3C2_08 (Repeater)
22	3A_03 (Repeater)	45	3C2_09 (Repeater)
23	3A_04 (Repeater)	46	All tests

To view the HDCP compliance report:

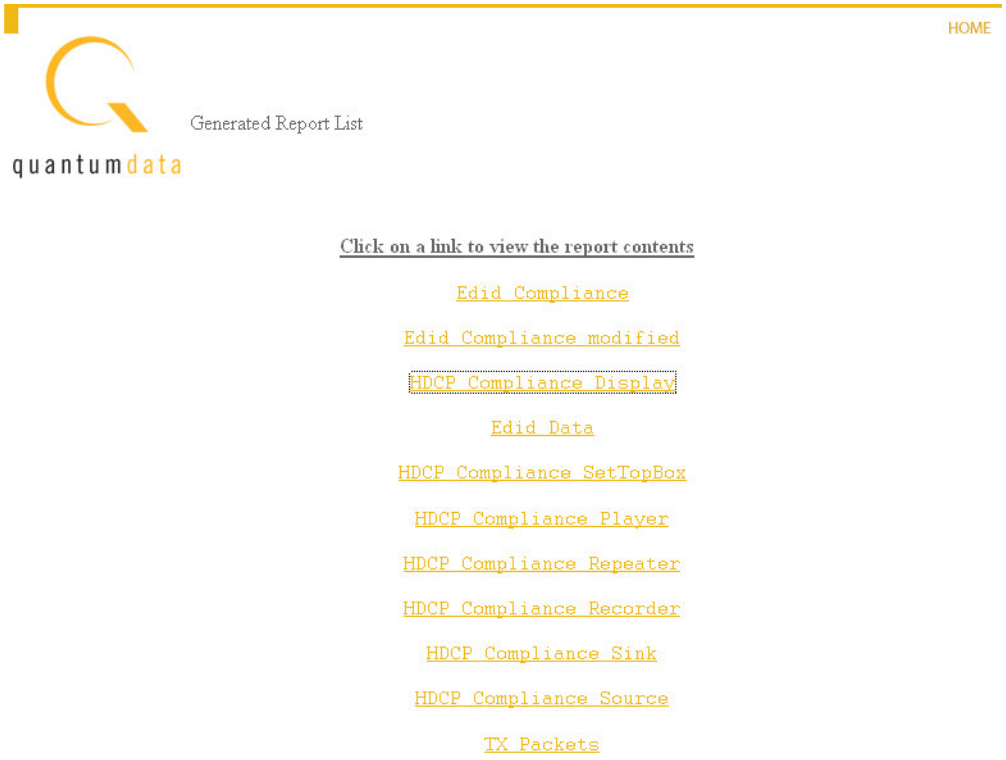
1. Open a Web browser (such as Internet Explorer) and type the generator's IP address in the address entry field. For example, enter the following: http://206.135.215.189/

   The generator home page appears in the browser.



Note: *You can add the page to your list of favorite pages in your Web browser to avoid retyping the IP address each time you want to access the page.*

2. Choose the **Generated Reports** item. The Generator the provides a list of reports currently available as shown below.



3. Select the HDCP compliance test report from the list. The report then appears in the browser window as shown below. You can then save the report as a web page file for

distribution. The following is an example of a report for the HDCP compliance test for a display.

HDCP Compliance Report

quantumdata

Generator Information

Model =	882CA
Unit Revision =	A
Unit SN =	6050019
Date =	05042006
Firmware =	20.1883502

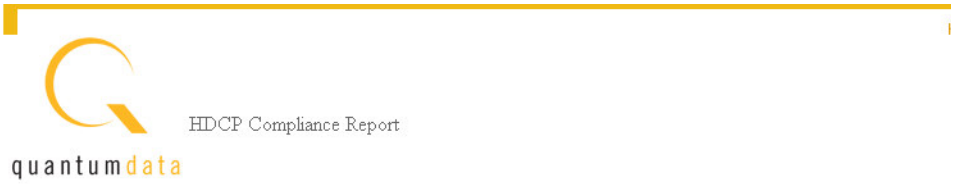
Unit Under Test Information (PCP Selections)

Unit Under Test Type =	Display
Source_Max_KSV =	0
Source_Authe_Count =	1
Source_Out_OnlyRep =	YES
Sink_1.1Features_Supported =	NO
Sink_Audio_Supported =	YES
Repeater_1.1Features_Supported =	YES
Repeater_Audio_Supported =	YES
Repeater_HPD_Pulse =	YES
Repeater_Max_KSV =	2
Repeater_Out_OnlyRep =	YES

Repeater TESTS Summary (Test 3C1-3C11)

```
Test 3C-1-01: Regular Procedure Transmitter-DUT-Receiver.
Test 3C-1-02: Regular procedure:HPD pulse output caused by user operation
Test 3C-1-03: Irregular procedure.(First part of authentication) New authentication.
Test 3C-1-04: Irregular procedure:(Second part of authentication) New Authentication.
Test 3C-1-05: Irregular Procedure (Third part of authentication) New Authentication.
Test 3C-1-06: Irregular procedure:(Second part of authentication) Verify Bksv
Test 3C-1-07: Irregular procedure:(Second part of authentication) Verify R0'.
Test 3C-11-01: Regular procedure:Transmittter-DUT-Repeater+Receiver.
Test 3C-11-02: Regular procedure:HPD after writing Aksv.
```

The following is an example of a report for the HDCP compliance test for a source (player).



enerator Information

Model =	882CA
Unit Revision =	A
Unit SN =	6050019
Date =	05042006
Firmware =	20.1883502
Unit Under Test Type =	Player

CP Selections

Source_Max_KSV =	0
Source_Authe_Count =	0
Source_Out_OnlyRep =	NO
Sink_1.1Features_Supported =	NO
Sink_Audio_Supported =	NO
Repeater_1.1Features_Supported =	NO
Repeater_Audio_Supported =	NO
Repeater_HPD_Pulse =	NO
Repeater_Max_KSV =	0
Repeater_Out_OnlyRep =	NO

OURCE TESTS

)1

```
arting Test 1A-01
mestamp:150.49644 secs., Ri' read (both bytes).
mestamp: 2.12720 secs., Hot plug detect timer expired.
mestamp: 3.41866 secs., Bstatus read.
mestamp: 3.42071 secs., Bcaps read.
mestamp: 3.42234 secs., Warning. Video Signal is not HDMI mode and is running an HDMI t
```

The following is an example of a report for the HDCP compliance test for a repeater.

quantumdata

HDCP Compliance Report

enerator Information

Model =	882CA
Unit Revision =	A
Unit SN =	6050019
Date =	05042006
Firmware =	20.1883610

NIT UNDER TEST INFORMATION (PCP SELECTIONS)

Unit Under Test Type =	Repeater
Repeater 1.1 Features Supported =	NO
Repeater Audio Supported =	YES
Repeater HPD Pulse =	YES
Repeater Max KSV =	2
Repeater Out OnlyRep =	YES

epeater TESTS Summary (Test 3C1-3C11)

-1-01: Regular Procedure Transmitter-DUT-Receiver.
-1-02: Regular procedure:HPD pulse output caused by user operation
-1-03: Irregular procedure.(First part of authentication) New authentication.
-1-04: Irregular procedure:(Second part of authentication) New Authentication.
-1-05: Irregular Procedure (Third part of authentication) New Authentication.
-1-06: Irregular procedure:(Second part of authentication) Verify Bksv
-1-07: Irregular procedure:(Second part of authentication) Verify R0'.
-11-01: Regular procedure:Transmittter-DUT-Repeater+Receiver.
-11-02: Regular procedure:HPD after writing Aksv.
_11_03: Regular procedure: HPD after reading R0'
-11-04: Regular procedure: HPD after starting third part of authentication.
-11-05: Irregular procedure:(Second part of authentication)Verify V'.
Test 3C-11-06: Irregular procedure:(second part of authentication) Device count
-11-07: Irregular procedure:(second part of authentication) Depth.
Test 3C-11-08: Irregular procedure:(second part of authentication) MAX_DEVS_EXC