

High-Definition Multimedia Interface

Version 2.0

Quantum Data MOI v1.0a

Test ID: HF2-54

December 8, 2015

Preface

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Document Revision History

1.0a December 8, 2015 – Updated Generic Procedure. Added additional detail in the Vendor Specific Procedure.

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Contact Information

The URL for the HDMI Forum web site is: <http://www.hdmiforum.org/>

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Introduction

This document provides a set of Method of Implementation for test method described in HDMI Compliance Test Specification Version 2.0 (HDMI CTS 2.0). HDMI Forum created HDMI CTS 2.0 to specify a set of tests that should be performed to verify features described in HDMI Specification Version 2.0.

Scope

This document provides testing procedures for HDMI CTS 2.0 Test ID HF2-54: Sink EDID – HDR Static Metadata Data Block. The procedure below deals with single resolution and only one Test ID is considered at a time.

References Document

Normative References

High-Definition Multimedia Interface Specification Version 1.4b, October 11, 2011.
HDMI Compliance Test Specification Version 1.4b, October 11, 2011.
High-Definition Multimedia Interface Specification Version 2.0, August, 2013.
HDMI 2.0 Generic Compliance Test Specification Version 2.0b, January 2015.

Informative Reference

No additional informative references.

Test ID HF2-54: Sink EDID – HDR Static Metadata Data Block

Objective

Confirm that the Sink DUT contains a valid HDR Static Metadata Data Block.

Table 8-77 Sink EDID – HDR Static Metadata Data Block

Reference	Requirement
[HDMI 2.0a: 10.3.4] HDR Static Metadata Data Block	<See reference for details>

Capability(s)

The Sink DUT supports any High Dynamic Range content reception.

Test Equipment

Item	Generic Equipment	Vendor Specific Equipment	Quantity
1	EDID Analyzer	980 Advanced Test Platform series:	1
1	HDR Signal Generator	980 HDMI 2.0 Video Generator module HDMI CTS 2.0 Compliance Test Package #4	1

Generic Procedure

- 1 If all of the CDF fields Sink_HDR_Traditional_SDR, Sink_HDR_Traditional_HDR and Sink_HDR_SMPTE_ST_2084 are “N”, then SKIP this test.

Setup:

- 2 Connect the EDID Analyzer to the Sink DUT.

Measure:

- 3 Perform the following for the first CEA Extension in the EDID:
 - 3.1 Find the HDR Metadata Data block with the values Tag_Code = 0x07 and Extended_Tag_Code = 0x06.
 - 3.2 If no HDR Metadata Data Block is found, then FAIL.

[Verify that content of HDR Static Metadata Data Block]

- 3.3 Check the HDR Metadata Data Block as following:
 - 3.3.1 If byte 1, bit4-0 (Length) is less than 3 or more than 6, then FAIL.
 - 3.3.2 If byte 3, bit 7-6 is not equal to 0, then FAIL.
 - 3.3.3 If byte 3, bit 5-4 is not equal to 0, then FAIL.

3.3.4 If byte 3, bit 3 is not equal to 0, then FAIL.

[Verify that consistency between capability and HDR Static Metadata Data Block]

3.3.5 If byte3, bit 0 is not equal to 1, then FAIL.

3.3.6 If the CDF field Sink_HDR_Traditional_HDR is “Y”, then

3.3.6.1 If byte 3, bit 1 is not equal to 1, then FAIL.

3.3.7 If the CDF field Sink_HDR_SMPTE_ST_2084 is “Y”, then

3.3.7.1 If byte 3, bit2 is not equal to 1, then FAIL.

[Verify that reception of HDR Video format]

Setup:

4 Connect the HDR Signal Generator to the Sink DUT.

Measure:

5 Configure the HDR Signal Generator to transmit a Traditional gamma-SDR Luminance Range signal defined in CEA-861.3 and associated metadata of any video format which is indicated in the EDID.

6 If the Sink DUT does not adequately support this format, then FAIL.

7 If the CDF field Sink_HDR_Traditional_HDR is “Y”, then

7.1 Configure the HDR Signal Generator to transmit a Traditional gamma-HDR Luminance Range signal defined in CEA-861.3 and associated metadata of any video format which is indicated in the EDID.

7.2 If the Sink DUT does not adequately support this format, then FAIL.

8 If the CDF field Sink_HDR_SMPTE_ST_2084 is “Y”, then

8.1 Configure the HDR Signal Generator to transmit a SMPTE ST 2084 signal defined in CEA-861.3 and associated metadata of any video format which is indicated in the EDID.

8.2 If the Sink DUT does not adequately support this format, then FAIL.

Vendor Specific Test Procedure

Test Equipment

A variety of equipment is needed for testing HDMI products. Each piece is authorized and included by name in this Compliance Test Specification. This section describes the Quantum Data test equipment.

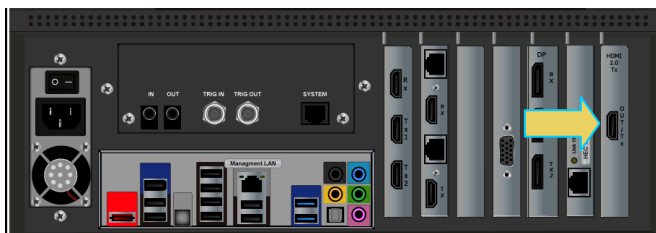
HDMI 2.0 Video Generator module

The Quantum Data 980 HDMI 2.0 Video Generator module can be installed in the 980B or 980R Advanced Test Platforms. This 980 HDMI 2.0 Video Generator module serves the generic test functions called out in the HDMI 2.0 Generic CTS. Refer to the table below:

Item	Quantum Data Equipment	
1	980 Advanced Test Platform series:	
	Equipped with:	980 HDMI 2.0 Video Generator module
		HDMI CTS 2.0 Compliance Test Package #4

980 HDMI 2.0 Video Generator Module with 980 Series Platform Configurations

The figures below show depictions of the 980 HDMI 2.0 Video Generator module equipped in various 980 series platforms. **Note:** Card positioning may vary depending on configuration.



Sink EDID – HDR Status Metadata Data Block

Test ID HF2-54: Sink EDID – HDR Status Metadata Data Block

1. Objective

Confirm that the Sink DUT contains a valid HDR Static Metadata Data Block.

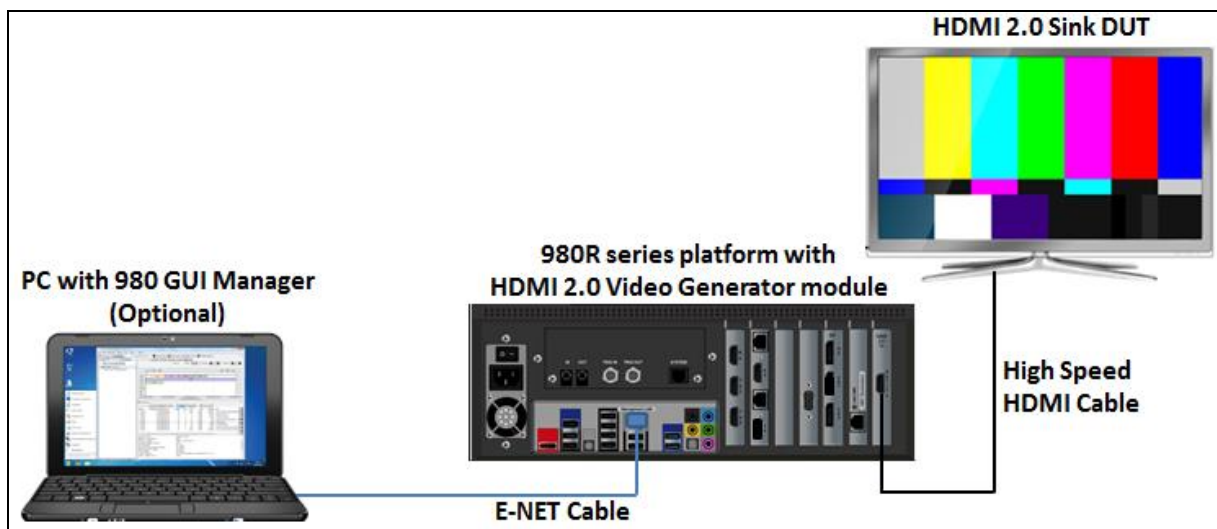
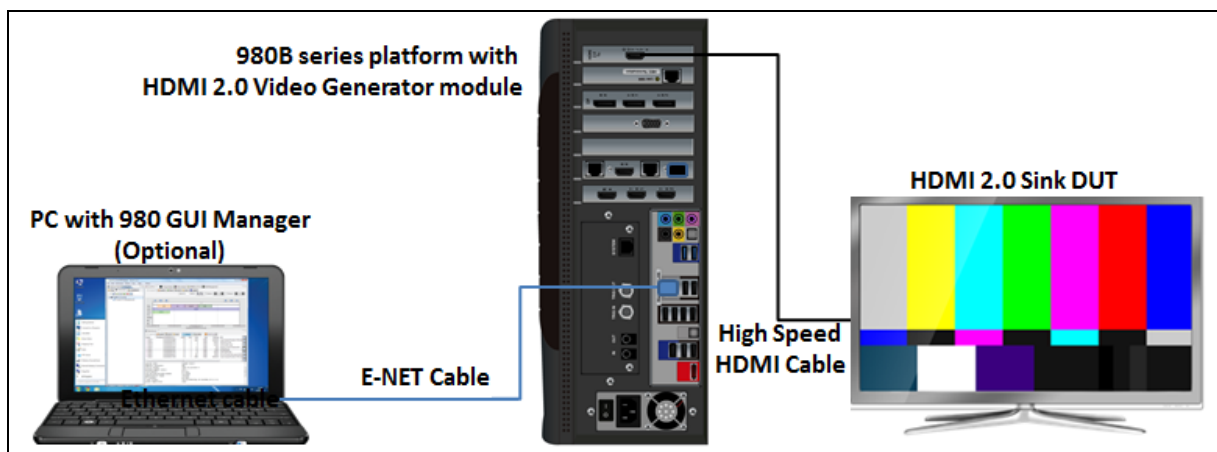
2. Test Overview

The Pass/Fail criteria for this test is assessed by the test application without any human observation required.

3. Procedure

Use the following procedure to conduct this test.

1. Connect Sink DUT to the Quantum Data 980 HDMI 2.0 Video Generator module HDMI Tx port. Use a High Speed HDMI cable. Refer to the figures below for reference. The first diagram shows the HDMI 2.0 Video Generator module equipped in the 980B, the second diagram shows the 980R Test Platform

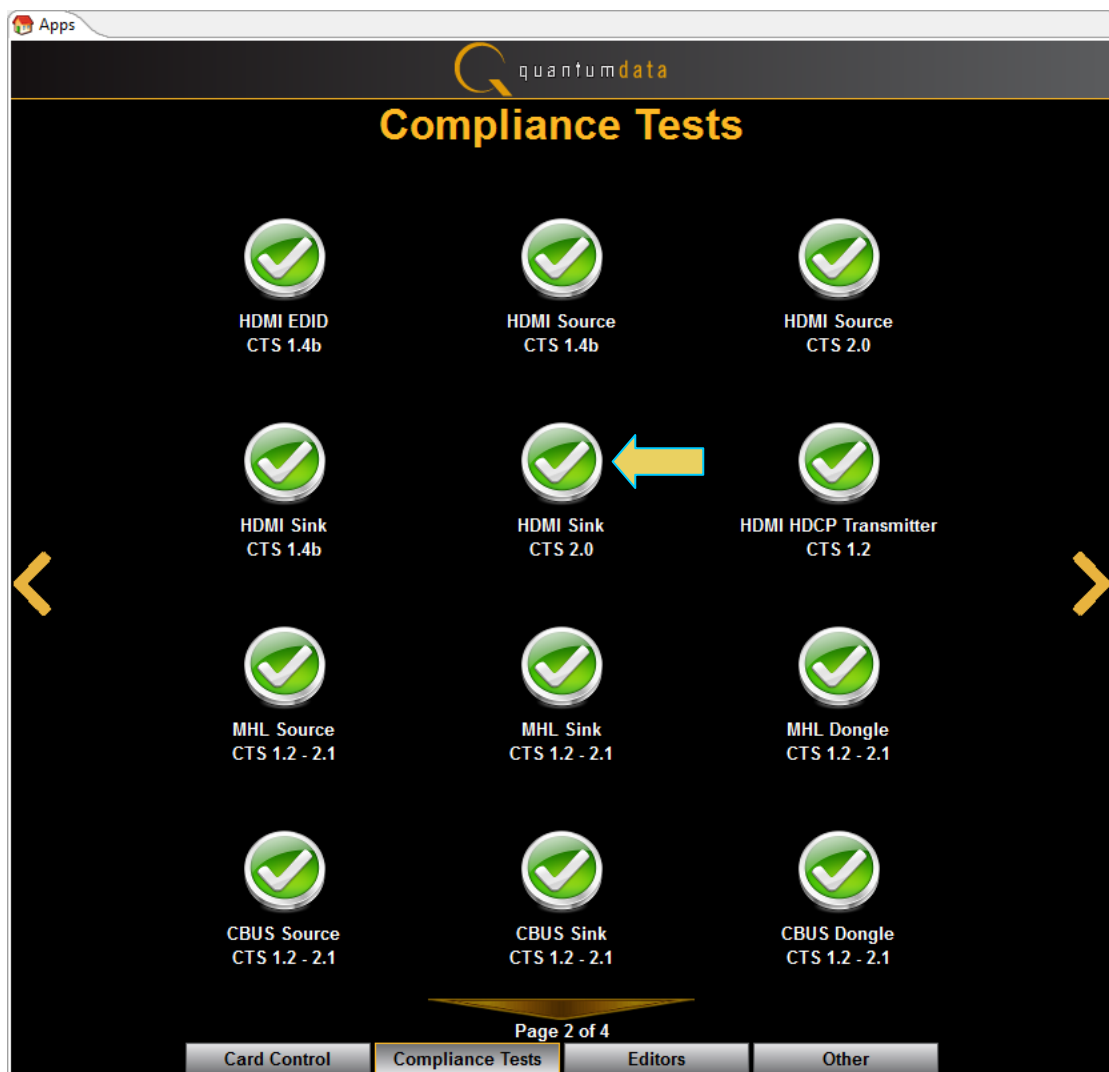


2. Use Quantum Data 980 Embedded Manager GUI (touchscreen) or invoke Quantum Data 980 External Manager GUI (Windows application).

Note: You will not need to connect the PC shown in the figures above if you are running the compliance test through the 980's embedded display. The PC running the 980 HDMI 2.0 Video Generator module's compliance test application is connected to the 980 through a standard Ethernet cable.

3. Complete the following steps:

- 3.1 Click on the HDMI Sink CTS 2.0 icon in the Compliance Tests page of the Apps panel. Refer to the screen example below.



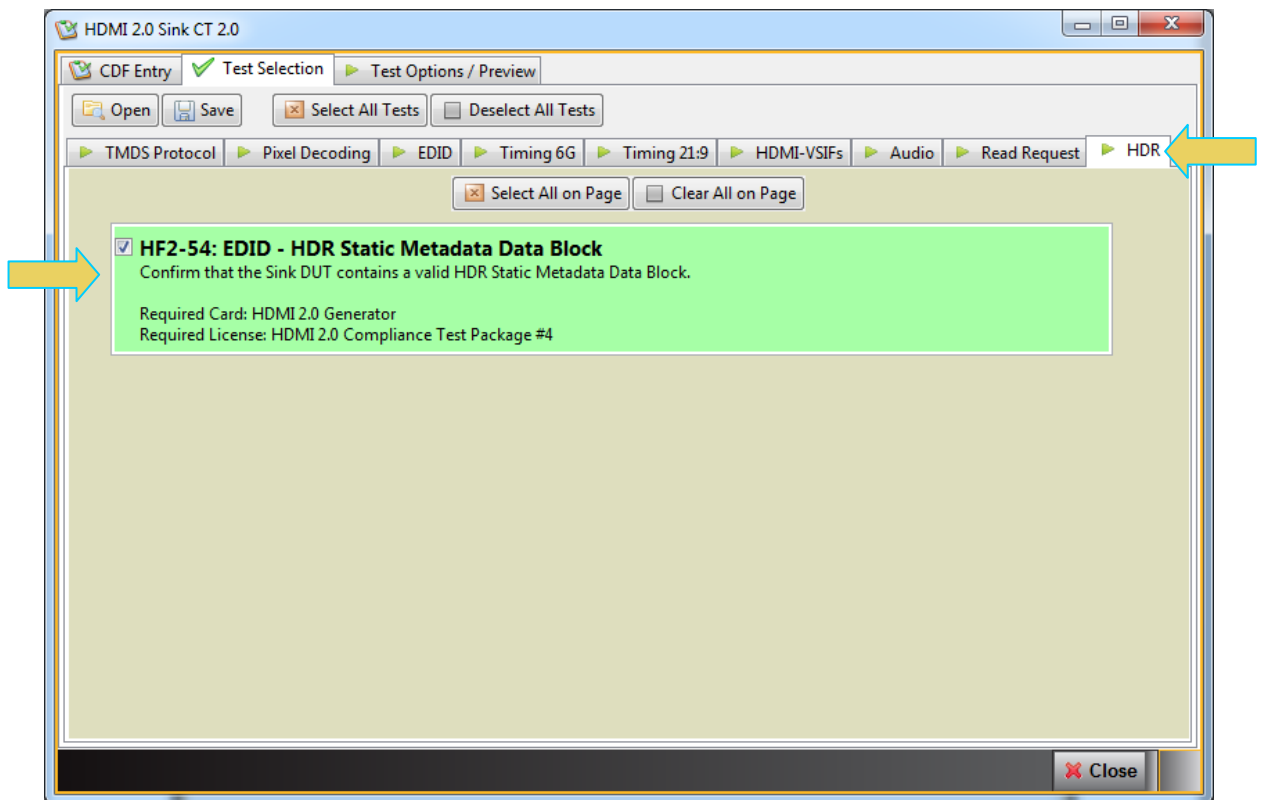
- 3.2 Navigate to the CDF tab if not already there. Complete the General sub tab and the HDR sub tabs in the CDF. If there is a saved CDF file, then click on Open and select it. Otherwise, enter the DUT's CDF information and optionally click on Save to save the CDF. Refer to the screen example below.

The screenshot shows the 'HDMI 2.0 Sink CT 2.0' application window. The 'CDF Entry' tab is active, displaying a toolbar with 'Open', 'New', and 'Save' buttons, and a 'CDF File: <not saved>' label. Below the toolbar, a series of sub-tabs are visible: 'General', '6G Video', '21:9 (64:27) Video', 'Y420 Video', 'Audio', and 'HDR'. The 'HDR' sub-tab is selected, indicated by a yellow arrow. The 'Sink_HDR' section is highlighted with a yellow arrow. The form contains four questions, each with 'Yes' and 'No' radio button options:

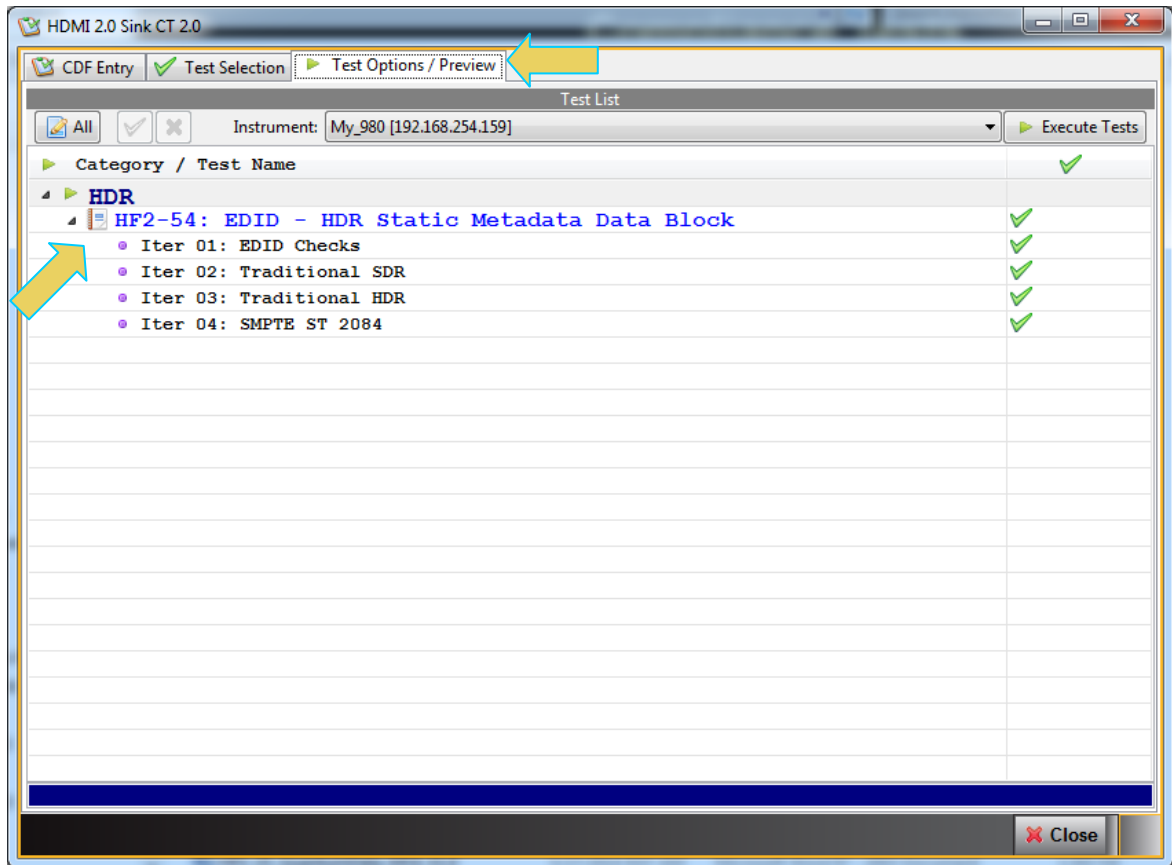
Sink_HDR	Does the product support any High Dynamic Range Video?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Sink_HDR_Traditional_SDR	Does the product support Traditional Gamma SDR Luminance Range of High Dynamic Range Video?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Sink_HDR_Traditional_HDR	Does the product support Traditional Gamma HDR Luminance Range of High Dynamic Range Video?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Sink_HDR_SMPTE_ST_2084	Does the product support SMPTE ST 2084 of High Dynamic Range Video?	<input checked="" type="radio"/> Yes <input type="radio"/> No

A large empty text area is located below the questions. The 'Close' button is visible in the bottom right corner.

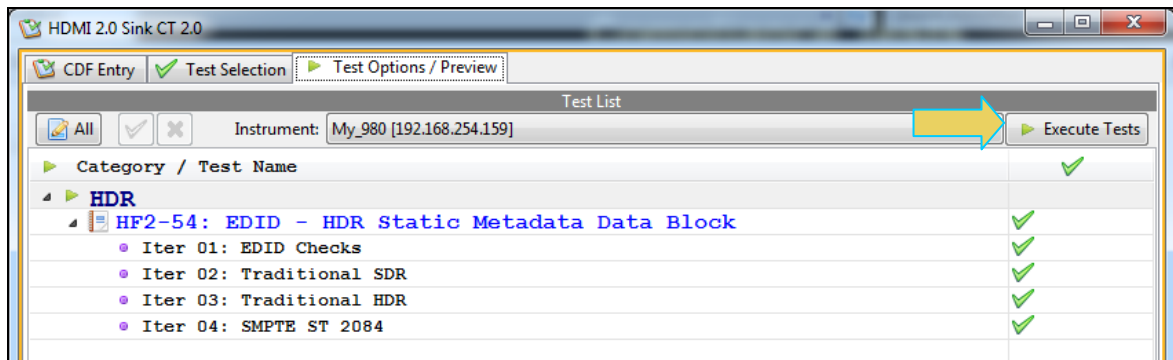
- 3.3 Click on the Test Selection tab, and select the HDR tab and then the Test ID HF2-54: Sink EDID – HDR Static Metadata Data Block Test. Refer to the screen example below.



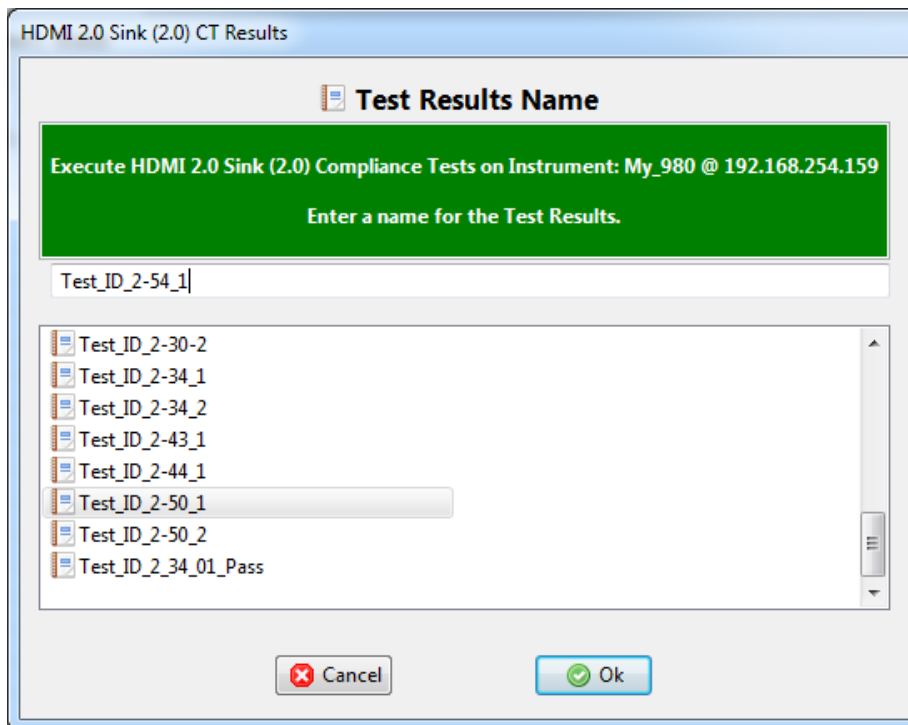
- 3.4 Click on Test Options / Preview tab and review the list of tests. Refer to the screen example below.



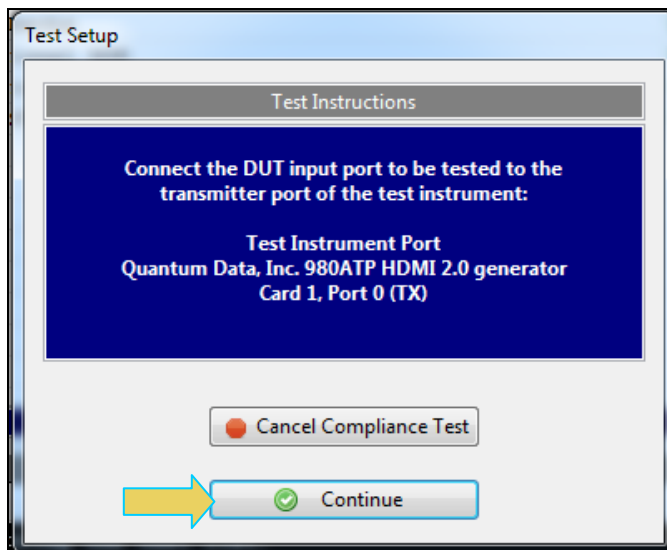
- 3.5 Click on the Execute tests activation button to initiate the test. Refer to the screen example below.



Note: You will be prompted with a dialog box to assign a name to the test results. Refer to the screen example below.

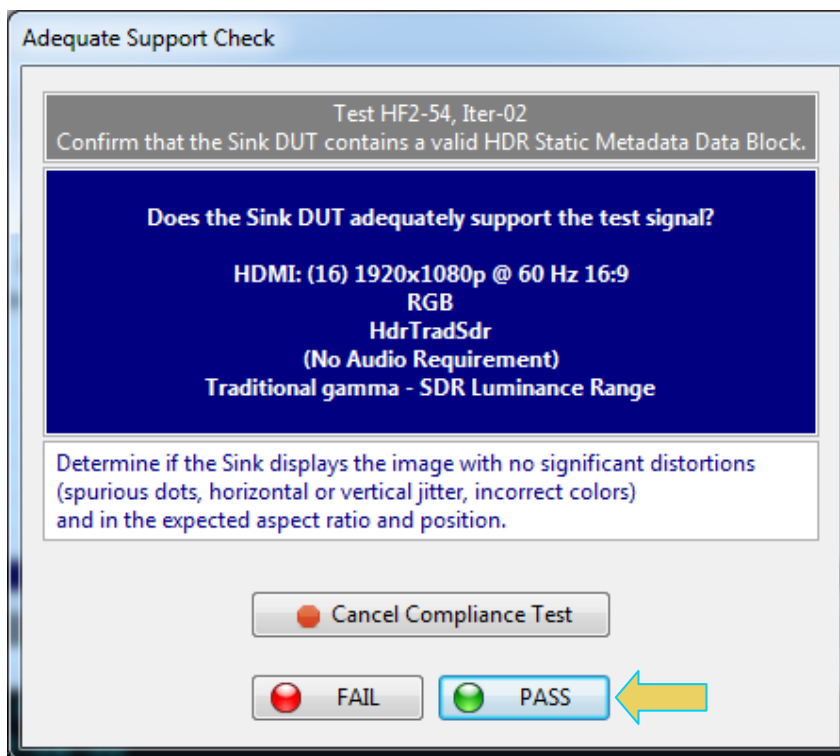


4. A Test window and log will appear and you will be prompted with the test setup description (below). Verify the test setup and click on **Continue** to run the test.

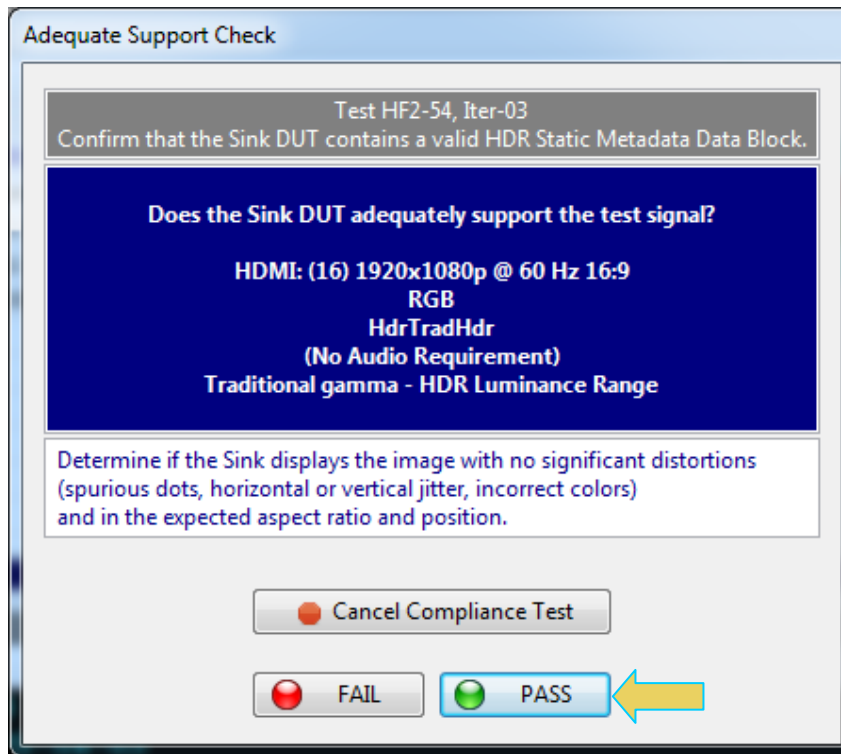


The test results will be assessed by the test application.

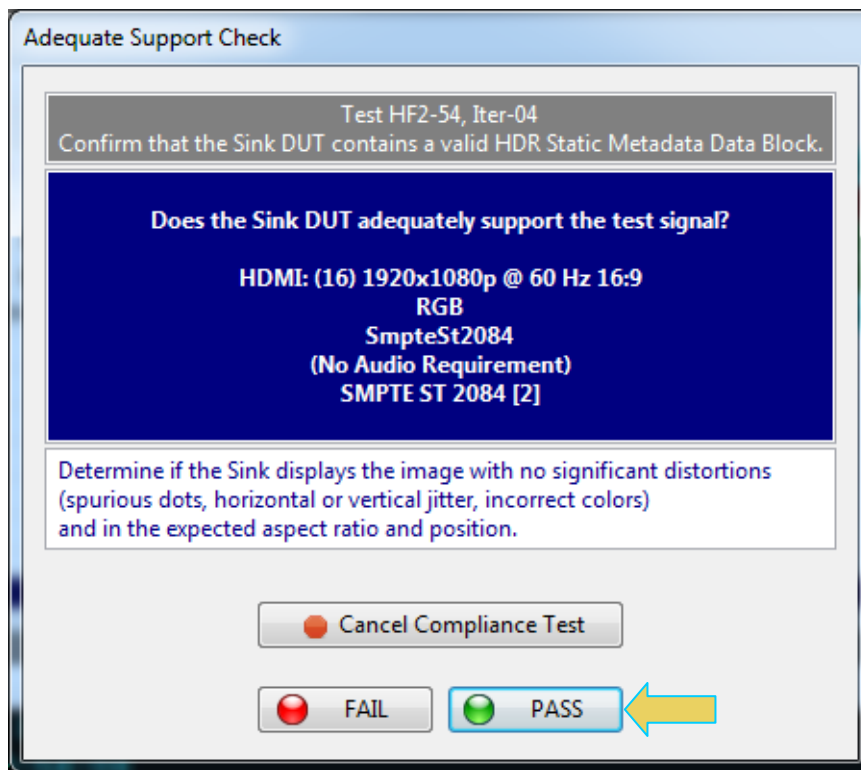
5. A dialog box will appear during the test (below) asking you to view an image on the display DUT. Click PASS or FAIL on the dialog box.



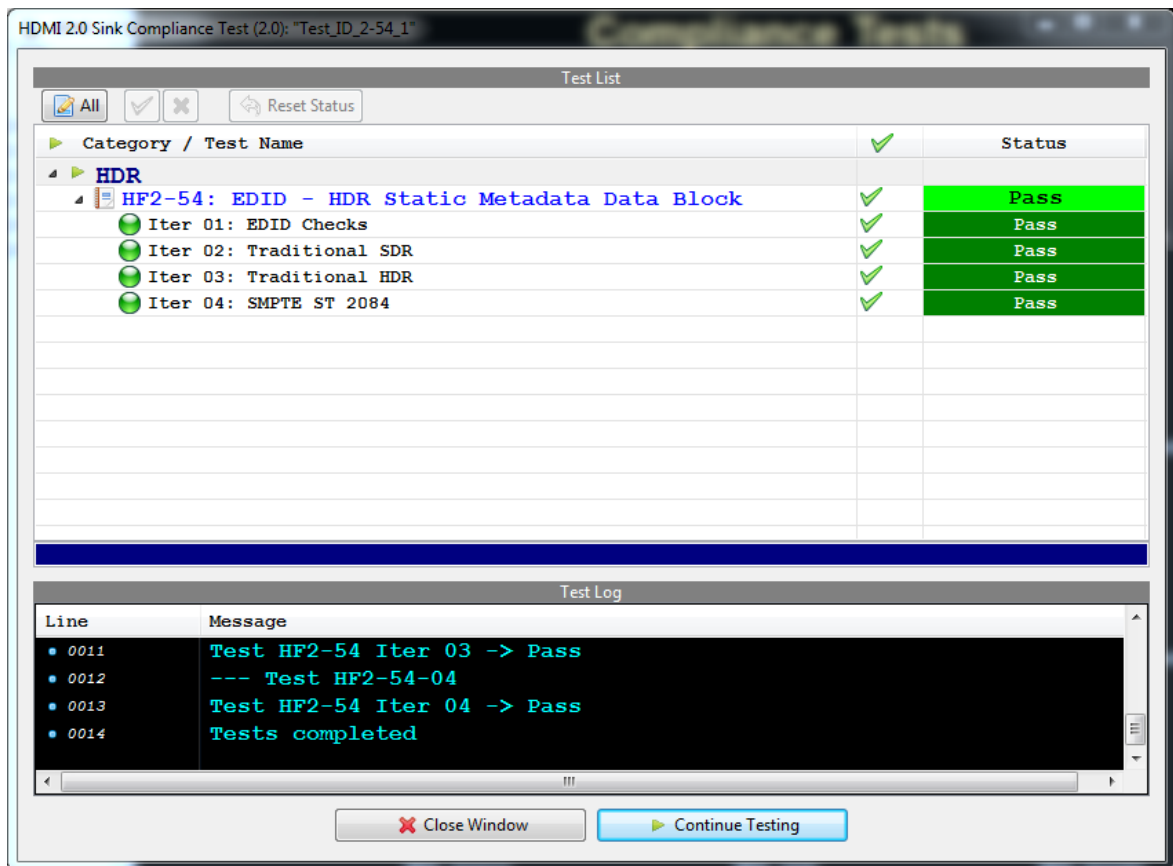
6. Another iteration of the test will occur and you will be prompted with a dialog box (below) to assess an image. Verify the image on the HDR display. Then click PASS or FAIL on the dialog box.



7. Another iteration of the test will occur and you will be prompted with a dialog box (below) to assess an image. Verify the image on the HDR display. Then click PASS or FAIL on the dialog box.



The test results will be indicated on the test window as shown below.



8. If the 980 HDMI 2.0 sink compliance test application reports PASS, then PASS. If the 980 HDMI 2.0 sink compliance test application reports FAIL, then FAIL.

When the test is completed a Test Results Viewer screen will appear. Note that tests are skipped if the EDID does not support a particular format.

