

User Guide 980 HDMI Protocol Analyzer Module HDMI Sink & MHL Sink/Dongle Compliance Tests

Rev: A4

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1080c 16 36 67.5 No 2200 1125 1920 88 44 1080 5
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1920x1080p 59.9 0.:25.952.241.008 0.016.666.485 60.00 67.50 01125 010
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1 003 0:1:25.968.892.677 0:0:000.014.815 02200 003300 0
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1 About the 980 Protocol Analyzer module

This chapter provides an overview of features of the 980 HDMI Protocol Analyzer and the 980 GUI Manager. The 980 HDMI Protocol Analyzer is an analyzer for HDMI/MHL source devices. It provides deep 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 980 HDMI Protocol Analyzer module is able to parse HDMI streams from source devices with a TMDS clock and pixel clock up to 297MHz.

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te Captu 😪	Navig 🗄 Live V 🗐 Data	HEvent	Timin	Video B	I Data	EAC STHOM BE Care		
Data	C Fiter	(10,000,000)		(Hoto)	a 0-000 1111	CAC CHOMI La CONS		
R Find	Sync Details	Daw Data						
Packet	TimeStamp (HH:MM:SS)	Frame Line		- All	A 1			
• 0	X	0 0	Pitter	TNOC	SubType	nto -		
• 1	0:1:25.935.574.550	0 0	0	TMDS	PXR	MDS clock rate 222.75		
• 2	0:1:25.935.574.550	0 1	0	TMDS	VEVNC	15 YINC 66 clocks		
• 3	0:1:25.935.574.590	0 1	175	TMDS	GCP	Seperal Control	0.087	
• 4	0:1:25.935.574.734	0 1	207	TMDS	GCP	Seneral Control		
• 5	0:1:25.935.574.877	0 1	239	TMDS	AVLIE	VI InfoFrame		
4 h	0-1-25 935 575 021	0 1	271	TMDS	ALID IF	udio InfoFrame		
Name of Concession, Name of Street, or other			- AINGAG	ated		-	-	
HB: 03 0 SP0: 10 SP1: 10 SP2: 10 I15M of	0 00 de 00 00 00 00 00 00 00 00 00 00 00 00 00	c1 c1 c1						

1.1 What makes the 980 HDMI Protocol Analyzer Module Unique?

The 980 HDMI Protocol Analyzer 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, infoframes 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 HDMI Protocol Analyzer supports capture and store 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 Protocol source tests in Test 7-17 of the HDMI Compliance Test Specification and the Protocol 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 sink & MHL sink/dongle compliance test options.

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.

Note: There is a separate user guide for the HDMI and MHL source compliance tests. This HDMI compliance test user guide can be found on the Quantum Data website.

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

- 980 HDMI Protocol Analyzer Gen 3 System This User Guide 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 and the Source and Sink Compliance test User Guides.
- 980 HDMI Protocol Analyzer module This User Guide 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 This User Guide 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 This User Guide 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. (This User Guide.)
- 980 MHL CBUS Compliance Test Module This User Guide 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 This User Guide 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.

1.3 Changes to this User Guide

The following changes were made to this document:

- Updated to include procedures for MHL 1.3 and 2.1 compliance support.
- Updated to include new 980 GUI Manager screens.

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 HDMI Protocol Analyzer module?

There are six (6) options that you can purchase with the 980 HDMI Protocol Analyzer module. You must have a license to use these options:

- Encrypted Link Analyzer mode for monitoring encrypted data between an HDMI source and sink device.
- HDMI Source Compliance tests in accordance with HDMI 1.4 CTS Sections 7.4 through 7.8.
- EDID Compliance test in accordance with Sections 8.2 and 8.5 of the HDMI 1.4 CTS.
- HDMI Sink Compliance tests in accordance with HDMI 1.4 CTS Sections 8.2 and 8.4 through 8.8.
- MHL Source Compliance tests in accordance with MHL 1.2, 1.3, 2.0 & 2.0 CTS Section 3.
- MHL Sink/Dongle Compliance tests in accordance with MHL 1.2, 1.3, 2.0 & 2.1 CTS Sections 4 and 5.

The MHL Sink/Dongle Compliance test suite requires the Quantum Data 882E or 882EA instrument, release 2.25.0 or later which uses firmware version 20.1887600.

You can determine what options the 980 HDMI Protocol Analyzer module is provisioned with by looking at the label on the bottom of the 980 HDMI Protocol Analyzer module or by accessing the Instrument Information screen on either the built-in or external 980 GUI manager. Refer to the following screens. When using the external 980 GUI Manager you must be connected to the 980 HDMI Protocol Analyzer module in order to read the Instrument Information.



Instrument Information

```
Instrument: My980
IP Address: 192.168.254.163
 Net Mask: 255.255.255.0
Gateway IP: 192.168.254.1
Free Space: 107.38 GB of 144.22 GB (74.5%)
Advanced Test platform Version: 4.6.7
HDMI 980 protocol Analyzer in slot 0:
 Gateware: [Version: 4.6.3 Build Number: 1 (10:29:2012) Gen: 3 pcb: 297b/D]
 Firmware: [Version: 4.6.6 Build Number: 1902 (ssingh 11:06:2012 13:47:15 CST) ]
HDMI Video Generator in slot 2:
 Gateware: [Version: 4.5.2 Build Number: 2 (07:20:2012 00) pcb: 297b C]
 Firmware: [Version: 4.5.27 Build Number: 1902 (ssingh 10:31:2012 12:46:49 CDT)]
System Information:
 System SN : [ 47A7D6CF30A38577::N/A]
HDMI PA SN : [ 9DE79D010000::N/A]
 Main Board : [
                      "DP67DE"]
 6.42.7 "Intel(R) Core(TM) i3-2100 CPU @ 3.10GHz"]
            : [ 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 4.6.5 39626 201210251456]
       : [lo inet 127.0.0.1/8 scope host lo]
: [eth0 inet 192.168.254.163/24 brd 192.168.254.255 scope global eth0]
 1
 2
 HDMI SINK CTS: [ 4.6.1]
 HDMI SRC CTS: [ 3.1.9]
 MHL SINK CTS: [ 1.2.0]
 MHL SRC CTS : [ 1.2.1]
 HDMI SINK CTS: [ 3.2.0]
Licensed Features
 Licensed: 01 [PASS THRU]
 Licensed: 02 [HDMI_SOURCE_COMPLIANCE_TEST]
 Licensed: 03 [EDID COMPLIANCE TEST]
 Licensed: 04 [ENCRYPTED LINK ANALYZER]
 Licensed: 06 [HDMI SINK COMPLIANCE TEST]
 Licensed: 07 [MHL SINK/DONGLE COMPLIANCE TEST]
 Licensed: 08 [MHL SOURCE COMPLIANCE TEST]
 Licensed: 09 [CBUS SOURCE COMPLIANCE TEST]
 Licensed: 11 [HDMI ACA]
                                                                                                 OK
```

1.5 980 User Interface

The 980 HDMI Protocol Analyzer 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. There are two key features that are not available in the external 980 GUI Manager GUI however: 1) viewing the incoming video stream, 2) viewing the video/audio metadata and auxiliary transactions in real time using the **Real Time** mode.

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

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🔁 Navigator	· · · · · · · · · · · · · · · · · · ·
Captures 💟 Compliance 📄 ACA 🛛 🖽 EDID	🗐 Formats 📘 Images 💷 Instruments
Name	Date / Time
b 🗁 HDMI EDID CT CT	
A 🗁 HDMI Src CT	
Definitions	
Experimental Arrows	
a 804A Test	2013/07/26 11:43:39
CDF	2013/07/26 11:25:22
Summary	
Details	
Log	
Fest_/_23_03 Report Cdf htm	
► HDMI Sink CT	
HDMI HDCP TX CT	
MHL Src CT	
MHL Sink CT	
MHL Dongle CT CRUS Sec CT	
CBUS SICCI	
CBUS Dongle CT	
[

1.6 What kinds of data does the 980 HDMI 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
 - o Timing parameters
 - Pixel values
- Protocol Data
 - o Guard band
 - o Preamble

- Data Islands, including:
 - Infoframes (AVI, Audio, Source Product Descriptor, etc.)
 - o 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
 - o 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 Sink Compliance Tests

This chapter describes how to use the HDMI sink compliance test feature. Please note you will have to purchase the 980 HDMI Sink Compliance Test option in order to run these tests.

The following test sections in the HDMI 1.4a Sink Compliance Test specification are supported through the 980 GUI Manager:

- 8.2 Sink EDID/E-DDC Tests
 - Test ID 8-1 EDID Readable
 - Test ID 8-2 VESA Structure
 - Test ID 8-3 CEA Timing Extension
- 8.4 Sink Protocol Tests
 - Test ID 8-15 Character Synchronization
 - Test ID 8-16 Acceptance of Valid Packet Types
- 8.5 Video Video Timing Tests
 - Test ID 8-17 Basic Format Support
 - Test ID 8-18 HDMI Format Support
 - Test ID 8-19 Pixel Encoding
 - Test ID 8-20 Video Format Timing
- 8.6 Sink Audio Tests
 - Test ID 8-21 Audio Clock Regeneration
 - Test ID 8-23 Audio Formats
- 8.7 Sink Interoperability with DVI Tests
 - Test ID 8-24 Interoperability with DVI
- 8.8 Sink Advanced Features Tests
 - o Test ID 8-25 Deep Color
 - Test ID 8-27 High Bitrate Audio (this test requires 882)
 - Test ID 8-29 3D Video Format Timing
 - Test ID 8-30 4K by 2K Video Format Timing (only available on the 980 297MHz version "Gen 3")
 - Test ID 8-31 AVI Infoframe support for Extended Colorimetry, Content Type, Selectable YCC Quantization Range

3.1 Workflow for running the HDMI Sink Compliance Tests

The following is the high level workflow for running the HDMI Sink Compliance Tests. This workflow assumes that you have powered up the 980 and the sink device under test. The procedure also assumes you will be running the compliance test through the external 980 GUI Manager.

- 1. Established an Ethernet session with the 980.
- 2. Connect the source device under test to the 980 HDMI Protocol Analyzer via HDMI.
- 3. Complete a (or load an existing) Capabilities Declaration Form (CDF) for the device under test using the **CDF Entry** panel.

Note: You can now select addition formats for testing on an individual test basis. This enables you to run a particular test on a format that is not specified in the CTS.

- 4. Select the tests that you wish to run from the **Test Selection** panel.
- 5. Initiate the tests through the **Test Options / Review** panel.
- 6. View the detailed data for test failures if failures occur.
- 7. View the results in the **Test Results** panel under the **Navigator** panel.

3.2 Connection for 980 GUI Manager and 980/980B – HDMI Sink Compliance

This subsection describes the procedures for connecting the external 980 GUI Manager to the 980/980B when testing an HDMI sink device for compliance. *If you are using the embedded 980 GUI Manager this procedure does not apply.* In order to operate the 980/980B with the external 980 GUI Manager you will need to establish a connection between the 980 and the 980 GUI Manager. The 980 GUI Manager will be running on your laptop or host PC. You will either be connecting directly from the 980 GUI Manager to the 980 through an Ethernet cable or you will be connecting through your corporate LAN network or local Ethernet hub.

When using the external 980 GUI Manager, you will need to ensure that the IP addresses of the 980 and the network interface card on the PC hosting the 980 GUI Manager are compatible. To be compatible, the IP addresses must have the same network portions of their IP address but different host portions. You can either change the IP address of the host PC using standard Windows OS techniques or you can change the IP address of the 980. The 980 is provisioned with a default IP address (192.168.1.10).

If you are connecting directly between your host PC and the 980 or through a local Ethernet hub, you will manually set the IP addresses of the host PC and 980/980B such that they are compatible. If you are connecting through your corporate LAN, the PC that the external 980 GUI Manager is running on will typically have an IP address assigned to it through DHCP services. In this case you can either assign an IP address to the 980/980B directly or allow the network DHCP server on your corporate network to assign one to the 980/980B.

The procedures for setting the IP address of the 980/980B are provided in the following subsection. These procedures also describe how to enable the 980 DHCP client to allow the network to assign an IP address.

3.2.1 Establishing the Ethernet connections between the 980 GUI Manager and the 980/980B

This subsection describes how to make the physical Ethernet connections between the PC hosting the external 980 GUI Manager and the 980. This procedure assumes that you have assembled the 980/980B and host PC for the 980 GUI Manager and applied power to them.

To make the physical Ethernet connection when using the external 980 GUI Manager and connecting through your corporate LAN or local Ethernet hub:

This procedure is used when you using the external 980 GUI Manager and connecting to the 980/980B through your corporate LAN network or local Ethernet hub. If you are connecting directly from the 980/980B to the 980 GUI Manager, use the next procedure.

- 1. Connect an Ethernet cable from the 980/980B Ethernet jack on the lower left half of the back panel of the 980/980B to your corporate LAN or local Ethernet hub. Refer to the diagrams below.
- 2. Connect an Ethernet cable from your PC hosting the external 980 GUI Manager to your corporate LAN or local Ethernet hub. Refer to the diagrams below. The first diagram depicts the configuration for HDMI sink testing and the second diagram depicts the configuration for MHL sink devices.





Ethernet connection through corporate LAN or hub – 980



Ethernet connection through corporate LAN or hub - 980B

To make the physical connections using Ethernet Point-to-Point connection with the external GUI Manager:

This procedure is used when you using the external 980 GUI Manager and connecting to the 980/980B directly. If you are connecting through your corporate LAN, use the previous procedure.

1. Connect an Ethernet cable from the 980/980B Ethernet jack on the lower left half of the back panel of the 980/980B frame to your PC hosting the 980 GUI Manager. The first diagram depicts the configuration for HDMI sink testing and the second diagram depicts the configuration for MHL sink devices.



Ethernet direct connection – 980



Ethernet direct connection – 980B

To set the IP address of the 980 through the embedded 980 GUI Manager:

This procedure assumes that you have established a physical Ethernet connection between your PC and the 980. Note that you will have to use the embedded 980 GUI Manager to set the IP address for the initial connection.

1. Touch select the Instrument Network Settings icon on Page 4 (Other apps) page as shown below.



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A dialog box will appear showing the current IP address and enabling you to reset the IP address.

🔲 Instrument Network Setti 💻 🌉							
Instr	Instrument "980B_JB"						
_	DHCP Enabled						
IP Address:	192.168.254.160						
Netmask:	255.255.255.0						
Gateway: 192.168.254.1							
Change	e Cancel						

- 2. If the IP address of the 980 is compatible with IP address of your PC and corporate network, no further action is required. If you wish to change the IP address, continue.
- 3. If you are wish to allow the 980's IP address to be set through DHCP services, select the DHCP Checkbox as shown above.
- 4. Alternatively, is you wish to set the IP address without DHCP, deselect DHCP (see example below) and touch select the IP address field to access the on-line keyboard which enables you to change the IP address. Edit the IP address and press the Enter key on the on-line keyboard.

📧 Instrument Network Setti 🔜						
Instrument "980B_JB"						
	DHCP Enabled					
IP Address:						
Netmask:	255.255.255.0					
Gateway:	192.168.254.1					
Change	Cancel					

Note: You will have to deselect DHCP if it is checked in order to access the pop up keyboard.

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C				I	P Adress					_ = ×
192.168.254.157								<	>	Bsp Del
` 1	2	3	4	5	6	7	8	9	0	
qw	•	r	t	У	u	1	•	P		
as	d	f	g	h	i	k	1	;		Enter
z x c v b n m , .								Shift		
			Spa	ice					Ins	Cancel

5. Touch select the **Change** activation button to initiate the change. You do not have to reboot the 980 for the IP address change to take effect.

To set the IP address of the 980 through the command line

1. Open up a DOS window on your PC.

Note: This procedure requires a telnet session. Use standards Windows OS utilities or third party utilities.

2. Establish a telnet session to the 980 using the default IP address as follows:

telnet 192.168.1.10

You will be prompted with the Pscope login: prompt. Enter the following for a user name and password:

Pscope login: qd

Password: qd

When the p-scope prompt appears, you will need to execute a command to change its IP address using the following command:

Setip <IP address> <subnet mask> <gateway>

Note: You will have to include the subnet mask and gateway address as arguments.

The following is an example:

p-scope> setip 192.168.254.100 255.255.255.0 192.168.254.1

If you wish to use DHCP to set the IP address, use the following command:

p-scope> setip dhcp

You will be able to view the new IP address on the bottom status strip next to the **Navigator** button. The status strip will indicate if the IP was set through DHCP as show in the example below.

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	Other							
	Navigator	Capture Viewer	CBUS Plot Viewer	CT Results Vie	wer			
			i	2				
<	Command Console	Instrument Network Settings	About the 980 Manager	Calibrate the LCD				
	0	0						
	Apply ATP	Apply Demo						
	License	License						
	·							
		Page	4 of 4	011				
	Card Control	Compliance Tests	Editors	Other				
🖙 Back	C Navigator DHCP: 192.168.254.	160 ATP Version: 4	1.8.15 (3 cards detecte	d)	×			

3.2.2 Establishing a Management Session between the 980 GUI Manager and the 980/980B

This procedure describes how to establish a management session between your 980 GUI Manager and the 980. The procedure assumes that you have IP addresses provisioned in the 980/980B and the PC hosting the 980 GUI Manager and that you have a suitable Ethernet cable connected between the PC and the 980/980B either directly or through your corporate LAN.

1. Add your 980 to the 980 GUI Manager application using the green + icon or the + Add item on the Instrument pull-down menu identified below.



C 980 Manager					
File Edid Instrument Help					
CA	© © 5V	Link Mode RX HDCP Settings RX 5 Volts			
	•	Add			
Name	×	Delete			
⊿ 🥟 EDI ⊿ ն		Connect Disconnect			
	 Image: Construction of the second seco	Information Edit Configure			
	: :	Real-Time Screen Capture Real-Time Data Capture			
	20 20 20 20 BY BY BY	Upgrade GUI Application Upgrade UI/Firmware/Gateware Upgrade CT Scripts Upgrade System Components			
		Generate UID File Apply Old License Apply ATP License			
	5	Apply Demo License			

The **Add Instrument** dialog appears enabling you to enter the name and IP information for the 980 that you are trying to connect to (below).

III Add Instrument						
Name:	My980					
IP Address:	192.168.254.160					
	Add Cancel					

2. Enter the name (any suitable name) and IP address of the 980 that you want to connect to in the **Add Instrument** dialog box (above). Then click on the **Add** activation button.

You will see a series of messages on a dialog boxes describing the progress. One example is shown below:



The 980/980B with the IP address you entered appears on the list in the **980 Navigator** panel (below). The 980 GUI Manager application will automatically connect to the 980/980B once you add the 980 to the application.

3. (If not already connected) Connect to the 980 using either the **Connect** icon or the **Connect** item on the right click menu as shown in the screen below. Note that you can also double click on the 980/980B in the **Instrument** dialog box in order to initiate a connection.



A dialog box appears indicating that a connection is in progress:



Once the connection is made the information about the connected 980/980B is available via the right click menu as shown below.

The information is then displayed in a separate window. The information on the **Instrument Information** window will be helpful if you call Quantum Data customer support during an upgrade process.

```
Instrument Information
 Instrument: My980
 IP Address: 192.168.254.163
  Net Mask: 255.255.255.0
 Gateway IP: 192.168.254.1
 Free Space: 107.38 GB of 144.22 GB (74.5%)
 Advanced Test platform Version: 4.6.7
 HDMI 980 protocol Analyzer in slot 0:
   Gateware: [Version: 4.6.3 Build Number: 1 (10:29:2012) Gen: 3 pcb: 297b/D]
   Firmware: [Version: 4.6.6 Build Number: 1902 (ssingh 11:06:2012 13:47:15 CST) ]
 HDMI Video Generator in slot 2:
   Gateware: [Version: 4.5.2 Build Number: 2 (07:20:2012 00) pcb: 297b C]
   Firmware: [Version: 4.5.27 Build Number: 1902 (ssingh 10:31:2012 12:46:49 CDT)]
 System Information:
   System SN : [ 47A7D6CF30A38577::N/A]
HDMI PA SN : [ 9DE79D010000::N/A]
  Main Board : [
                        "DP67DE"]
   CPUx2 : [
DDR : [
                      6.42.7 "Intel(R) Core(TM) i3-2100 CPU @ 3.10GHz"]
                    3 GB + 512 MB]
   DDR
   HD
             : [ WD1600BEVT-0]
               : [ Linux xpscope-58 2.6.26-2-686 #1 SMP Wed Sep 21 04:35:47 UTC 2011 i686 GNU/Linux]
   os
   GUI manager : [ Version 4.6.5 39626 201210251456]
                        inet 127.0.0.1/8 scope host lo]
   1
              : [ lo
               : [ eth0 inet 192.168.254.163/24 brd 192.168.254.255 scope global eth0]
   2
   HDMI SINK CTS: [ 4.6.1]
   HDMI SRC CTS: [ 3.1.9]
   MHL SINK CTS: [ 1.2.0]
   MHL SRC CTS : [ 1.2.1]
   HDMI SINK CTS: [ 3.2.0]
 Licensed Features
   Licensed: 01 [PASS THRU]
   Licensed: 02 [HDMI SOURCE COMPLIANCE TEST]
   Licensed: 03 [EDID COMPLIANCE TEST]
   Licensed: 04 [ENCRYPTED LINK ANALYZER]
   Licensed: 06 [HDMI SINK COMPLIANCE TEST]
   Licensed: 07 [MHL SINK/DONGLE COMPLIANCE TEST]
   Licensed: 08 [MHL SOURCE COMPLIANCE TEST]
   Licensed: 09 [CBUS SOURCE COMPLIANCE TEST]
   Licensed: 11 [HDMI ACA]
                                                                                                  OK
```

3.3 Making the HDMI connections

This subsection describes the physical connections required to run the HDMI sink compliance tests. This procedure assumes that you have assembled the 980/980B with the HDMI Protocol Analyzer module and sink device under test into your work area.

To make the physical HDMI connections:

Refer to the procedures and diagram below.



Connections for HDMI sink compliance – 980 Rev C Protocol Analyzer module



Connections for HDMI sink compliance – 980 Rev D Protocol Analyzer module



Connections for HDMI sink compliance – 980B

1. Connect your HDMI sink device under test to the HDMI Tx connector (the bottom most HDMI connector shown in the figure above) on the 980 Protocol Analyzer. Use a high speed HDMI cable.

Special Note about High Bitrate Audio Test: The High Bitrate Audio test requires the use of the Quantum Data 882E or 882EA. When the 980 GUI Manager is ready to run the High Bitrate audio test 8-27 during the test execution, it will instruct you to reconfigure the test setup such that the 882EA HDMI Out port is connected to the sink device under test. The following dialog box is presented.

1	Test Setup
	Test 8-27, Iter-01 Verify that a High-Bitrate Audio-capable Sink DUT is able to support High Bitrate Audio packets and signaling.
	Connect the input of the DUT to the 880 HDMI TX-1 output.
	Cancel Compliance Test
	© Continue

The following diagram is a depiction of the test setup for the High Bitrate audio test along with the procedures for making the connections.



 Connect an HDMI cable from the Quantum Data 882E/EA HDMI Out port to the sink device under test (above). The HDMI cable connected from the 980 Protocol Analyzer module to the sink device will be temporarily removed.

Note: You will have to ensure that you have the High Bitrate audio files stored on the CF Card in the 882. A dialog box instructs you to do this (below).

Test Setup
Test 8-27, Iter-01 Verify that a High-Bitrate Audio-capable Sink DUT is able to support High Bitrate Audio packets and signaling.
Make sure that HBR audio clips are present in the CF Card of 882 at /card0/library/audio and 882 was powered on with CF card inserted.
Gancel Compliance Test
🚫 Continue

3.4 Completing the CDF

Use the following procedures to complete the CDF. You will have to know the capabilities of the sink device under test. You can determine this from the spec sheet or by reading its EDID. You can read the EDID through the 980 Protocol Analyzer GUI interface. Use the following procedure.

To read the EDID of the sink device under test:

Note: The 980 will have to be connected to the sink device in order to read the EDID.

1. Select Read 980 Tx EDID from the EDID top level menu as shown below.



A dialog box will appear asking you which port you want to read the EDID from. Note that if there are no other modules in the 980 you will not get this dialog box. In this case select the Tx port that corresponds to the 980 Protocol Analyzer module's Tx port.

Read EDID
Select a Transmitter
CUT01: HDMI-T01 CUT20: HDMI-T20 CUT21: HDMI-T21
🗹 Ok 😢 Cancel

2. Assign a name to the EDID. You will be prompted to assign a file name in order to store the EDID for later viewing. The dialog box is shown below.

EDID Rea	d EDID
	Local Files
⊿ 🕞 L	Jser
E	10 780.xml
	_
(┢ N	ew 🎝 🎝 Rename 🗶 Delete
Path:	/User
Name:	MyEDID
	V Ok 🙆 Cancel

You will then see the EDID appear in the **Navigator** panel.

🕾 Navigator	
ACA EDID 🗐 For	rmats 📘 Ima 🔹 🕨
944 9	
Name	Date / Time
▲ EDID ▲ Diser EDID MyEDID.xml EDID 780.xml	2013/08/08 14:38:49 2013/05/29 14:10:16

3. View the EDID by navigating to the **Navigator/EDID** window and opening up the EDIDs directory. Then right click on the EDID file you wish to view and select View Decoded EDID as shown below.

🖶 Navigator		
ACA EDID	For	mats 📘 Images 💷 🔹 🕨
) (f	
Name		Date / Time
a 🗁 EDID		
⊿ 🚡 User		
EDID MyEDID.xml		2013/08/08 14:38:49
EDID 780.xml	è	Import
	4	Export EDID
	D	Open
	0	Information
	×	Delete
		Rename
	4	Use
	EDID	View Decoded EDID
	EDID	Edit EDID

A window opens up allowing you to view the entire contents of the EDID in hex and human readable text. The first page of the EDID report is shown on the screen below.

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				C:\	Users\nken	dall\Desktop	\GUI_Mgr_3	_1_6\980mg	jr\workspac	e\edid\data	a\Acme_2_e	did.xml				
								Block 1								
	0	1	2	3	4	5	6	7	8	9	А	В	С	D	Е	F
00:	02	03	24	77	4A	90	05	04	03	07	02	06	01	20	22	23
10:	09	07	07	6C	03	0C	00	20	00	00	1E	C0	22	22	2B	2B
20:	E3	05	03	01	01	1D	00	72	51	D0	1E	20	6E	28	55	00
30:	C4	8E	21	00	00	1E	8C	0A	A0	14	51	F0	16	00	26	7C
40:	43	00	C4	8E	21	00	00	98	8C	0A	D0	8A	20	E0	2D	10
50:	10	3E	96	00	13	8E	21	00	00	18	8C	0A	A0	14	51	F0
60:	16	00	26	7C	43	00	13	8E	21	00	00	98	01	1D	80	18
70:	71	1C	16	20	58	2C	25	00	C4	8E	21	00	00	9E	00	F5
• Supports basic audio: Yes • Supports YCbCr 4:4:4: Yes																
	• Support	ts YCbCr ;s YCbCr	4:4:4: 4:2:2:	Yes Yes												
	• Support	ts YCbCr	4:4:4: 4:2:2:	Yes Yes CE	A Dat	a Bloc	k: Tac	12, b	vtes 1	.0: Vi	deo Da	ta				
1	• Support Jumber of	ts YCbCr ts YCbCr f Descri	4:4:4: 4:2:2: ptors: 1	Yes Yes CE 10	A Dat	a Bloc	k: Taç	<mark>,2,</mark> b	ytes 1	.0: Vi	deo Da	ta				
2	• Support Number of VIC 16	ts YCbCr ts YCbCr f Descrij : 1920 x	4:4:4: 4:2:2: ptors: 1	Yes Yes CE 10 59.94/60	A Dat	a Bloc Native	k: Taç	<mark>, 2, b</mark>	ytes 1	.0: Vi	deo Da	ta				_
1	• Support Number o VIC 16 VIC 5:	ts YCbCr ts YCbCr f Descrij : 1920 x 1920 x	4:4:4: 4:2:2: ptors: 1 : 1080 p 1080 i S	Yes Yes CE 10 59.94/60	A Dat	a Bloc Native	k: Taç	<mark>, 2, b</mark>	ytes 1	.0: Vi	deo Da	ta				
P 	• Support Number o VIC 16 VIC 5: VIC 4:	ts YCbCr ts YCbCr f Descri : 1920 x 1920 x 1280 x	4:4:4: 4:2:2: ptors: 1 : 1080 p 1080 i § 720 p 59	Yes Yes CE 10 59.94/60 59.94/60 9.94/60 12	A Dat	a Bloc Native	k: Taç	<mark>, 2, b</mark>	ytes 1	.0: Vi	deo Da	ta				_
<u>-</u>	• Support Number of VIC 16 VIC 15: VIC 4: VIC 3:	ts YCbCr ts YCbCr f Descri : 1920 x 1920 x 1280 x 720 x 4	4:4:4: 4:2:2: ptors: 1 : 1080 p 1080 i \$ 720 p 59 80 p 59	Yes Yes CE 59.94/60 59.94/60Hz 94/60Hz	A Dat	a Bloc Native	k: Taọ	<mark>92, b</mark>	ytes 1	.0: Vi	deo Da	ta				-
- -	• Support Number of VIC 16 VIC 5: VIC 4: VIC 3: VIC 7:	ts YCbCr ts YCbCr f Descri : 1920 x 1920 x 1280 x 720 x 4 720 (144	4:4:4: 4:2:2: ptors: 1 : 1080 p 1080 i \$ 720 p 59 80 p 59 .0) x 480	Yes Yes CE 59.94/60 59.94/60H 9.94/60Hz 9.94/60Hz 0 i 59.94	A Dat	a Bloc Native	k: Taọ	12, b	ytes 1	.0: Vi	deo Da	ta				-
2	• Support Jumber o VIC 16 VIC 5: VIC 4: VIC 3: VIC 7: VIC 2:	ts YCbCr ts YCbCr f Descri : 1920 x 1280 x 720 x 4 720 (144 720 x 4	4:4:4: 4:2:2: ptors: 1 : 1080 p 1080 i \$ 720 p 59 80 p 59 .0) x 480 80 p 59. 0) x 480	Yes Yes CE 59.94/60 59.94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz	CH Dat CHZ 16:9 16:9 16:9 16:9 16:9 16:9 16:9 16:9	a Bloc Native 6:9	k: Taọ	12, b	ytes 1	.0: Vi	deo Da	ta				-
1	• Support Number o VIC 16 VIC 5: VIC 4: VIC 3: VIC 7: VIC 2: VIC 2: VIC 2:	ts YCbCr ts YCbCr f Descri : 1920 x 1920 x 720 x 4 720 (144 720 (144 720 (144	4:4:4: 4:2:2: ptors: 1 : 1080 p 1080 i \$ 720 p 59 80 p 59 .0) x 480 80 p 59 .0) x 480	Yes Yes CE 59.94/60 3.94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz	A Dat.	A BLOC Native 6:9 :3	k: Taç	1 2, b	ytes 1	.0: Vi	deo Da	ta				-
1	• Support Jumber o VIC 16 VIC 5: VIC 4: VIC 3: VIC 7: VIC 2: VIC 2: VIC 6: VIC 1: VIC 32	ts YCbCr ts YCbCr f Descri 	4:4:4: 4:2:2: ptors: 1 : 1080 p : 1080 i 5 720 p 59 80 p 59 .0) x 480 80 p 59 .0) x 480 80 p 59.	Yes Yes CE 59.94/60 9.94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz 94/60Hz	A Dat.	A BLOC Native 6:9 :3	k: Taç	1 , 2, b	ytes 1	0: Vi	deo Da	ta				-
2	• Support Number o VIC 16 VIC 5: VIC 4: VIC 3: VIC 7: VIC 2: VIC 2: VIC 6: VIC 1: VIC 2: VIC 34	f Descri f Descri : 1920 x 1920 x 1280 x 720 x 4 720 (144 720 (144 640 x 4 : 1920 x : 1920 x	4:4:4: 4:2:2: ptors: 1 1080 p 1080 i 5 720 p 59 80 p 59 0) x 480 80 p 59 0) x 480 80 p 59 : 1080 p	Yes Yes CE 59.94/60 9.94/60Hz 94/60Hz 94/60Hz 94/60Hz 23.97/24 23.97/24	A Dat DHz 16:9 z 16:9	A BLOC Native 6:9 :3	k: Taọ	, 2, b	ytes 1	.0: Vi	deo Da	ta				-

The second page of the EDID report is shown on the next screen below.

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You can save the EDID report to your PC by clicking on the **Save As** activation button on the lower right side. Click on **Close** to exit out of the viewing window.

To complete the CDF for the 980 sink compliance test:

1. From the **Compliance Tests page of the Apps panel**, select HDMI Sink Compliance test as shown below.

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💮 Apps					
		C, quan	tum <mark>data</mark>		
		Complian	ce Tests		
	\bigcirc			(
	HDMI EDID CTS 1.4b	HDMI S	ource 4b	HDMI Sink CTS 1.4b	
			.40		
	\bigcirc			\bigcirc	
	HDMI HDCP Transmitter CTS 1.2	r MHL So CTS 1.2	ource 2 - 2.1	MHL Sink CTS 1.2 - 2.1	/
	\checkmark			\checkmark	
	MHL Dongle CTS 1.2 - 2.1	CBUS S	ource 2 - 2.1	CBUS Sink	
		Page 2	of 4		
	Card Control	Compliance Tests	Editors	Other	

2. Select the CDF Entry panel as shown below.

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HDMI Sink CT 1.4b						
CDF Entry	election 🕨 Test Options / Preview					
CDF File: < not saved>						
🔒 Product 💿 Options 💿 Formats 🔍 Audio						
The Manufacturer field is	The Manufacturer field is blank.					
Manufacturer	What is the product manufacturer's name?					
Model	What is the model name/number of the product?					
Sink_HDMI_Output_Count	How many HDMI output ports are on the product? ● 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9					
Sink_P	Image: Second system Image: Se					
Sink_Image_Size	Does the DUT indicate correct size at Image Size area in the EDID? Yes No X Cm Cm					
Sink_Max_TMDS_Clock	What is the maximum TMDS clock frequency (in MHz) supported by the product? (Any value, e.g. 74.25, 148.5, 222.75, etc. 74.25					
		X Close				

3. To create a new CDF, click on the **New** activation button.

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

4. 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.



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5. Complete the items in the **Product** tab of the **CDF Entry** panel shown below. Note that you will have to complete the essential fields in order to proceed. A status message in red will appear indicating if you have not completed all the essential fields.

🔯 HDMI Sink CT 1.4b						
CDF Entry	election 🕨 Test Options / Preview					
CDF File: < not saved>						
Product						
Manufacturer field is	s blank.					
Manufacturer	What is the product manufacturer's name?					
Model	What is the model name/number of the product?					
Sink_HDMI_Output_Count	How many HDMI output ports are on the product? ● 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9					
Sink_P	The number of the HDMI Input Port being tested. • 1 • 2					
Sink_Image_Size	Does the DUT indicate correct size at Image Size area in the EDID? Yes No					
Sink_Max_TMDS_Clock	What is the maximum TMDS clock frequency (in MHz) supported by the product? (Any value, e.g. 74.25, 148.5, 222.75, etc. 74.25					
		X Close				

Once you have completed all the required fields the message will go away as shown in the following screen.

🔯 HDMI Sink CT 1.4b						
🔯 CDF Entry 🧹 Test S	🖄 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview					
CDF File: < not saved>						
Product Options Formats Audio						
Manufacturer	What is the product manufacturer's name? Acme					
Model	What is the model name/number of the product? XYZ					
Sink_HDMI_Output_Count 0 1 0 3 4 5 6 7 8 9						
Sink_P	The number of the HDMI Input Port being tested. ● 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 10 ○ 11 ○ 12 ○ 13 ○ 14 ○ 15					
Sink_Image_Size	Does the DUT indicate correct size at Image Size area in the EDID? \[Image Yes (a) No (b) No (c)					
Sink_Max_TMDS_Clock	What is the maximum TMDS clock frequency (in MHz) supported by the product? (Any value, e.g. 74.25, 148.5, 222.75, etc. 74.25					
	X Close					

6. Complete the items in the **Options** tab. Refer to the following screen shots.

🖄 HDMI Sink CT 1.4b
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview
CDF File: < not saved>
Product Options Formats Audio
Does the device act as a CEC root device? Meaning: DUT is a Sink or Repeater and DUT's Physical Address is 0.0.0.0 and DUT's EDID(s) [if present] contain Sink_CEC_Root_Device Source Physical Addres of P.0.0.0 Note: If device has no HDMI inputs, answer "No" Yes
Sink_xvYCC Does the device support xvYCC601 or xvYCC709?
Sink_HDTV Does the device support HDTV capability? ⓐ Yes ○ No
Sink_YUV_On_Other Sink_YUV_ON_
Sink_60Hz Ocean Sink_60Hz Ocea
Sink_50Hz Does the product support standard, enhanced or high-definition 50Hz video formats on any video input?
Sink_ConTypeA Connector Type A?
Sink_exceeds165 MHz?
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🖄 HDMI Sink CT 1.4b			x
🔯 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview		
Copen 🛃 New	Save CDF File: < not saved>		
Product Opti	ions 🛛 Formats 🔍 Audio		
Sink_LipSync	⊙ Yes		*
Sink_DualLatency	Dual Lipsync Latencies? Yes No		
Sink_Deep_Color	Does the device support Deep Color? Yes No		-
Sink_DC_30bit	Does the device support Deep Color at 30 bits per pixel?		
Sink_DC_36bit	Does the device support Deep Color at 36 bits per pixel?		
Sink_DC_48bit	Does the device support Deep Color at 48 bits per pixel?		=
Sink_DC_Y444	Does the device support Deep Color in YCbCr 4:4:4? Yes No		
Sink_3D	Does the DUT support 3D formats? Yes <a>No		
Sink_3D_Additional	Does the DUT support 3D additional formats in addition to the mandatory 3D formats?		
Sink_4Kx2K	Does the DUT support 4K x 2K formats?		Ŧ
		X Close	

7. Complete the items in the ${\bf Formats}$ tab.

Ľ	3 HDMI Sink CT 1.4b			x
Γ	🕲 CDF Entry 🖌	Test Selection 🕨 Test Options / Preview		
	🔄 Open 🔒 Net	w Save CDF File aved>		
	Product O	ntions Pormats Audio		
		Which HDMI "Primary" video format timings are supported by the product?		
		Select supported items below.)		
		√ (1) 640x480p @ 60 Hz 4/3		
		📝 (2) 720x480p @ 60 Hz 4/3		
		📝 (3) 720x480p @ 60 Hz 16/9		
		(5) 1920x1080i @ 60 Hz 16/9		
		(6) 1440x480i @ 60 Hz 4/3		
	Sink_Video_Formats	(7) 1440x480i @ 60 Hz 16/9		
		✓ (16) 1920x1080p @ 60 Hz 16/9		
		(17) 720x576p @ 50 Hz 4/3		
		(18) 720x576p @ 50 Hz 16/9		
		(19) 1280x720p @ 50 Hz 16/9		
		(20) 1920x1080i @ 50 Hz 16/9		
		(21) 1440x576i @ 50 Hz 4/3		
		(22) 1440x5/6i @ 50 Hz 16/9		
		(31) 1920x1080p @ 50 Hz 16/9		_
Ľ				
L			X Close	

8. Complete the items in the **Audio** tab.

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🖄 HDMI Sink CT 1.4b	
🖄 CDF Entry 🧹	Test Selection 🕨 Test Options / Preview
🔄 Open 🔂 Ne	w 🔚 Save CDF File: < not saved>
Product O	ptions 🔹 Formats 🔹 Audio
Sink_Supports_AI	Does the Sink support ACP, ISRC1 or ISRC2 packets? Ves No
Sink_Basic_Audio	Does the Sink support Basic Audio?
Sink_HBRA	Does the Sink support High-Bitrate Audio stream packets?
Sink_HBRA_Format	Which HBRA formats are supported by the Sink? Dolby TrueHD DTS-HD Master Audio
Sink_One_Bit_Audio	Does the Sink support One Bit Audio sample packets? Yes No
	🗱 Close

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

隧 Save CDF		
	Local Files	
CDF		
🕒 New 👌	Rename) 🔀 Delete
Path: /CDF		
Name:A XYZ_CDF		
The name already exists.		
	🗹 Ok	🙆 Cancel

When you save the CDF the name appears next to the Save button as indicated on the screen below.

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🖄 HDMI Sink CT 1.4b		
🕲 CDF Entry 🖌 Test S	election 🕨 Test Options / Preview	
🔄 Open 🔒 New	Save CDF File: /CDF/XYZ_CDF	
Product Options	s • Formats • Audio	
Manufacturer	What is the product manufacturer's name? Acme	
Model	What is the model name/number of the product? XYZ	
Sink_HDMI_Output_Count	How many HDMI output ports are on the product?	
Sink_P	The number of the HDMI Input Port being tested. •1 •2 •3 •4 •5 •6 7 8 9 10 11 12 13 14 15	
Sink_Image_Size	Does the DUT indicate correct size at Image Size area in the EDID? Yes No X	
Sink_Max_TMDS_Clock	What is the maximum TMDS clock frequency (in MHz) supported by the product? (Any value, e.g. 74.25, 148.5, 222.75, etc. 148.5	
		X Close

3.5 Selecting which tests to run

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. To open an existing Test Selection file, click on the **Open** activation button.

You will be prompted with a dialog box that enables you to open a Test Selection. Select a Test Selection file and then **OK** to proceed; **Cancel** to exit.

1	HDMI Sink Compliance Test	
	Open Test Selection File	
	Select an Test Selection file to open.	
	▼ test_sels.xml	
	Cancel Ok	

3. Select the tests in the EDID / E-DDC tab of the Test Selection panel shown below.

Note: The EDID / E-DDC tab will only appear if you have purchased the EDID Compliance Test option.

😢 HDMI Sink CT 1.4b	
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
▶ EDID / E-DDC ▶ Protocol ▶ Video ▶ Audio ▶ Interop. with DVI ▶ Advanced Features	
Select All on Page Clear All on Page	
✓ 8-1: EDID Readable Verify that the entire EDID can be read.	
8-2: EDID VESA Structure Verify that the data in the base EDID 1.3 block and basic EDID Extension handling is correct and meets all aspects of the relevant specifications.	
 8-3: CEA Timing Extension Structure Verify that the data in any CEA Timing Extension present in the EDID is formatted properly and meets all aspects of the relevant specifications. [Note: The accuracy of the video and audio related EDID information is tested in the Video and Audio test sections] 	
	X Close

4. Select the tests in the **Protocol** tab of the **Test Selection** panel shown below.

For convenience you can Select All or Clear All tests using the activation buttons provided.

HDMI Sink CT 1.4b	
🔯 CDF Entry 🗸 Test Selection 🕨 Test O	ptions / Preview
Copen 🔛 Save 🛛 Select All Tests	Deselect All Tests
EDID / E-DDC Protocol P Video	Audio Interop. with DVI Advanced Features
	Select All on Page Clear All on Page
8-15: Character Synchronizat Verify that the Sink establishes synchrominimum-length Control Periods.	ion onization with the data when it receives only
8-16: Acceptance of All Valid Verify that the Sink DUT supports rece	Packet Types ption of all valid packet types.
	X Close

5. Select the tests in the Video tab of the Test Selection panel shown below.

😢 HDMI Sink CT 1.4b		x
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview		
Copen Save Select All Tests Deselect All Tests		
EDID / E-DDC Protocol P Video Audio P Interop. with DVI Advanced Features		
Select All on Page Clear All on Page		
8-17: Basic Format Support Requirements Verify that no CEA video format is declared only in a DTD.		
8-18: HDMI Format Support Requirements Verify that the Sink DUT indicates support for all required Video Formats in its EDID.		
8-19: Pixel Encoding Requirements Verify that the Sink DUT supports YCbCr pixel encoding when required.		
8-20: Video Format Timing Verify that the Sink DUT supports the required variations on the mandatory video formats and CEA video formats indicated in its EDID.		
	CI.	
	X Close	

6. Select the tests in the Audio tab of the Test Selection panel shown below.

C HDMI Sink CT 1.4b	
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
EDID / E-DDC Protocol Video Audio Interop. with DVI Advanced Features	
Select All on Page Clear All on Page	
8-21: Audio Clock Regeneration Verify proper Sink DUT operation with respect to Audio Clock Regeneration.	
✓ 8-23: Audio Formats Verify that the Sink DUT supports every audio format specified in its EDID.	
	X Close

7. Select the tests in the Interop. With DVI tab of the Test Selection panel shown below.

🔯 HDMI Sink CT 1.4b		23
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview		
Copen 🔚 Save Select All Tests 📄 Deselect All Tests		
EDID / E-DDC Protocol Video Audio Interop. with DVI Advanced Features		
Select All on Page		
✓ 8-24: Interoperability with DVI Verify that the Sink DUT can handle the required transition from DVI to HDMI mode.		
	X Close	

8. Select the tests in the Advanced Features tab of the Test Selection panel shown below.

🔁 HDMI Sink CT 1.4b	x
CDE Entry V Test Selection Test Ontions / Preview	_
C Open Save Select All Tests Deselect All Tests	
EDID / E-DDC Protocol Video Audio Interop. with DVI Advanced Features	
Select All on Page	
8-25: Deep Color Verify that a Deep Color-capable Sink DUT supports Deep Color packing and signaling.	
8-27: High Bitrate Audio Verify that a High-Bitrate Audio-capable Sink DUT is able to support High Bitrate Audio packets and signaling.	
8-29: 3D Video Format Timing Verify that a 3D-capable Sink DUT supports the required variations on the mandatory 3D video formats and other primary 3D video formats listed in its EDID.	ш
8-30: 4K x 2K Video Format Timing Verify that a 4K x 2K-capable Sink DUT supports 4K x 2K video formats indicated in EDID. (Requires 4Kx2K capable test equipment)	
8-31: AVI InfoFrame supporting Extended Colorimetry, Content Type and Selectable YCC Quantization I Verify that the Sink DUT supports reception of particular AVI InfoFrame packets supporting Extended Colorimetry, Content Type and selectable YCC Quantization Rnage settings, and if the Sink DUT displays the image with no significant distortions (spurious dots, horizontal or vertical jitter, incorrect colors).	•

 When you are done with the Test Selection panel you may choose to save these selections. Click on the Save activation button to save these selection. The dialog box below appears enabling you to assign a name. Enter the name and then click on the OK button to save or Cancel to exit without saving.

н	IDMI Sink CT: Save Test Selections
	Test Selection File
	Enter a file name for the Test Selection.
	XYZSink.xml
	XYZSinkn.xml
	Cancel Ok

3.6 Executing the HDMI Sink Compliance Tests

Use the following procedures to initiate the execution of an HDMI 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. You can choose to skip all or test all with the associated activation buttons in the upper left. These are shown in the screen images below along with a sample selection of tests. The tests that have been skipped (highlighted in yellow with a red X).

C HDMI Sink CT 1.4b	
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Test List	
All V X Options Instrument: 980_MB [192.168.254.229]	Execute Tests
Category / Test Name	× _
EDID / E-DDC	
▲ 🗏 8-1: EDID Readable	✓ =
• Iter 01: Read the EDID	Image: A transmission of the second secon
▲ 📑 8-2: EDID VESA Structure	\checkmark
• Iter 01: Read and analyze the EDID	V
▲ 📑 8-3: CEA Timing Extension Structure	V
• Iter 01: Read and analyze the EDID	×
Protocol	
🔺 📑 8-15: Character Synchronization	×
Iter 01: 640x480p Ver. and Hor. blanking filled with data islands	✓
🔺 📃 8-16: Acceptance of All Valid Packet Types	V
 Iter 01: NULL, GCP, VSP, AVI, SPD, AUD, and MPEG 	V
Video	
🔺 📃 8-17: Basic Format Support Requirements	×
Iter 01: Read and analyze the EDID	V
🔺 📑 8-18: HDMI Format Support Requirements	V
• Iter 01: Read and analyze the EDID	V
🔺 📃 8-19: Pixel Encoding Requirements	V
Iter 01: Read and analyze the EDID	V
• Iter 02: RGB 4:4:4 pixel encoding	V
Iter 03: YCbCr 4:4:4 and 4:2:2 pixel encoding, PREQ: EDID indicates YCbCr support	
🔺 📑 8-20: Video Format Timing	
• Iter 01: EDID Val range Check	
💥 Iter 02: VIC 1: 640x480p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz	×
💥 Iter 03: VIC 2: 720x480p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in EDID	- ×
Iter 60: VIC 59: 720(1440)x480i @ 240 Hz 16:9 Min-238.56Hz, Max-241.20Hz, PREQ: SVD in EDID	
	X Close

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X Close

HDMI Sink CT 1.4b	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Test List	
Image: All State Image: Options Strument: 980_MB [192.168.254.229]	Execute Tests
Category / Test Name	
* Iter 58: VIC 57: 720x480p @ 240 Hz 16:9 Min-238.56Hz, Max-241.20Hz, PREQ: SVD in EDID	V
🗡 🚰 💥 Iter 59: VIC 58: 720(1440)x480i @ 240 Hz 4:3 Min-238.56Hz, Max-241.20Hz, FREQ: SVD in EDID	×
💥 Iter 60: VIC 59: 720(1440)x480i @ 240 Hz 16:9 Min-238.56Hz, Max-241.20Hz, PREQ: SVD in EDID	×
🛊 Iter 61: VIC 60: 1280x720p @ 24 Hz 16:9 Min-23.86Hz, Max-24.12Hz, PREQ: SVD in EDID	V
🛊 Iter 62: VIC 61: 1280x720p @ 25 Hz 16:9 Min-24.88Hz, Max-25.12Hz, PREQ: SVD in EDID	\checkmark
🛊 Iter 63: VIC 62: 1280x720p @ 30 Hz 16:9 Min-29.82Hz, Max-30.15Hz, PREQ: SVD in EDID	\checkmark
🛊 Iter 64: VIC 63: 1920x1080p 🖗 120 Hz 16:9 Min-119.28Hz, Max-120.60Hz, PREQ: SVD in EDID	\checkmark
🛊 Iter 65: VIC 64: 1920x1080p @ 100 Hz 16:9 Min-99.50Hz, Max-100.50Hz, PREQ: SVD in EDID	\checkmark
▲ ► Audio	
🖌 📒 8-21: Audio Clock Regeneration	\checkmark
• Iter 01: Minimum N	\checkmark
• Iter 02: Maximum N	\checkmark
🖌 📃 8-23: Audio Formats	\checkmark
• Iter 01: 2-channel 32 kHz PCM.	
• Iter 02: 2-channel 44.1 kHz PCM.	\checkmark
• Iter 03: 2-channel 48 kHz PCM.	V =
Interop. with DVI	
🖌 🗏 8-24: Interoperability with DVI	V 🗌
• Iter 01: 720x480p DVI	\checkmark
Advanced Features	
🖌 🗒 8-25: Deep Color	\checkmark
• Iter 01: (1) 640x480p @ 60 Hz 4:3, 36 bpp, RGB	\checkmark
• Iter 02: (1) 640x480p @ 60 Hz 4:3, 36 bpp, YCbCr 4:4:4	\checkmark
• Iter 03: (1) 640x480p @ 60 Hz 4:3, 30 bpp, RGB	\checkmark
Iter 04: (1) 640x480p @ 60 Hz 4:3, 30 bpp, YCbCr 4:4:4	✓
Iter 60: VIC 59: 720(1440)x480i @ 240 Hz 16:9 Min-238.56Hz, Max-241.20Hz, PREQ: SVD in EDID	

Set the **Options** for the tests. The following dialog box appears.

Note: In order to run the 8-27 High Bitrate Audio test, you will have to specify the IP address of the 882E or 882EA.

Compliance Test Options
HDMI Sink Compliance Test Options
880 Instrument IP Address
192.168.254.238
Cancel V OK

When you have entered the IP address, click **OK**. Click **Cancel** to exit.

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.

HDMI Sink CT Results					
🗉 Test Results Name					
Execute HDMI Sink Compliance Tests on Instruments 980: 980B_JB @ 192.168.254.160 Enter a name for the Test Results.					
08_09_2013_10_45_45_XYZ_Test5					
<pre> 07_26_2013_11_51_34_XYZ_Test 08_09_2013_10_45_45_XYZ_Test1 08_09_2013_10_45_45_XYZ_Test2 08_09_2013_10_45_45_XYZ_Test3 08_09_2013_10_45_45_XYZ_Test4 </pre>					
Cancel Ok					

When you press OK the tests will begin in a new window. This window provides a listout of the tests and the lower **Test Log** panel showing the test activity as it occurs.

Refer to the following two screen examples.

HDMI Sink Compliance Test (1.4b): "08_09_2013_10_45_45_XYZ_Test5"	_	
Tert lift		
Reset Status		
		Ctatura A
Category / Test Name	V	Status
<pre>4 P EDID / E-DDC</pre>	1	Not Montod
4 8-1: EDID Readable		Not Tested
	×	Not Tested
4 8-2: EDID VESA Structure		Not Tested
• Iter UI: Read and analyze the EDID	V	Not Tested
▲ 8-3: CEA Timing Extension Structure	V	Not Tested
• Iter 01: Read and analyze the EDID	V	Not Tested
Protocol		Materia and a start of the star
▲ 🗏 8-15: Character Synchronization	V	Not Tested
• Iter 01: 640x480p Ver. and Hor. blanking filled with data islands	V	Not Tested
▲ 🗏 8-16: Acceptance of All Valid Packet Types	V	Not Tested
Iter 01: NULL, GCP, VSP, AVI, SPD, AUD, and MPEG	V	Not Tested
▲ ▶ Video		
<pre>(</pre>		•
Test Log		
Line Message		
• 0001 Compliance Test Started.		
• 0002 Initialization.		
• 0003 Assembling the test list.		
0004 Disabling Pass-through		
browning rubb ontolign		
Cancel the Compliance Test Pause Test Execution]	

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

Test Setup	NO. OF CONTRACTOR OF CONTRACTO	
	Test 8-1, Iter-01 Verify that the entire EDID can be read.	
	Connect the input of the DUT to the 980 HDMI TX output. Power up the DUT.	
	Cancel Compliance Test	
	© Continue	

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You will be instructed to power cycle the sink device under test for the EDID tests as indicated in the following two screen shots.

Sink Power Off
Test 8-1, Iter-01 Verify that the entire EDID can be read.
Power OFF the Sink DUT. Press "Continue" when the DUT is ready.
Cancel Compliance Test
Sink Power On
Test 8-1, Iter-01 Verify that the entire EDID can be read.
Power ON the Sink DUT. Press "Continue" when the DUT is powered up and ready.
Cancel Compliance Test

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 GUI Manager application.

	Test List		
🖉 🗶 🔄 🥱 Reset S	tatus		
Category / Tes	t Name	V	Status
Protocol			
🔺 📑 8-15: Ch	aracter Synchronization	\checkmark	Pass
> 🔵 Iter 01:	640x480p Ver. and Hor. blanking filled with data islands	\checkmark	Pass
🔺 📑 8-16: Ac	ceptance of All Valid Packet Types	\checkmark	Pass
> 🔵 Iter 01:	NULL, GCP, VSP, AVI, SPD, AUD, and MPEG	\checkmark	Pass
🖌 🕨 Video			
a 📑 8-17: Ba	sic Format Support Requirements	\checkmark	Pass
\varTheta Iter 01:	Read and analyze the EDID	\checkmark	Pass
⊿ 🗏 8-18: HD	MI Format Support Requirements	\checkmark	Pass
🛛 😝 Iter 01:	Read and analyze the EDID	\checkmark	Pass
🔺 🗏 8-19: Pi	xel Encoding Requirements	\checkmark	In Progress
😝 Iter 01:	Read and analyze the EDID	\checkmark	Pass
📦 Iter 02:	RGB 4:4:4 pixel encoding	V	In Progress
Iter 03:	YCbCr 4:4:4 and 4:2:2 pixel encoding, PREQ: EDID indicates YCbCr support	V	Not Tested
⊿ 🛃 8-20: Vi	deo Format Timing	V	Not Tested
Iter 01:	EDID Val range Check	V	Not Tested
	Tect I on		
.ine	Message	_	
0049	Test 8-19-02		
0050	Configuring the Test Source File		
0051	HDMI, 480p60, SmpteBar, RGB, 24 ppp, NO REO, 48 kHz		
0052	play /gd/hdmi pb/8-19/480p60 SmpteBar RGB444/playback.bit.the refer	ence vide	o file
0053	Pausing		
0054	Paused.		
0.0013			

The pass/fail assessment requires that you observe the video image on the HDTV and indicate Pass or Fail. You will be prompted with a dialog box as shown below. The dialog box also enables you to cancel the tests.

Refer to the following two screen examples.

Adequate Support Check	× 1
Test 8-1 Verify that the Sink establishes synchroni minimum-lengtl	5, Iter-01 zation with the data when it receives only n Control Periods.
Does the Sink DUT adequa	tely support the test signal?
HDMI: (1) 640x4	180p @ 60 Hz 4:3
Image: S (No Audio R	mpteBar equirement)
Display products are defined to "adequately su	upport" a particular video format if they display
that format, legibly and correctly (e.g. centere aspect ratio and over/underscan amount.	d) horizontally and vertically in the expected
For overscanned formats, horizontally and ver	tically, at least some portion of the active
portion of the image must not be visible due t For underscanned images, 100% of the active	o border obstruction or clipping. portion must be visible.
Gancel Co	ompliance Test
😝 FAIL	PASS
Adequate Support Check	
Test 8-2 Verify that the Sink DUT supports eve	3, Iter-02 ery audio format specified in its EDID.
Does the Sink DUT adequa	tely support the test signal?
HDMI: (1) 640x4	180p @ 60 Hz 4:3
Image: S PCM 2 Channel	mpteBar Audio, 44.1 kHz
Display products are defined to "adequately su	pport" a particular video format if they display
that format, legibly and correctly (e.g. centered aspect ratio and over/underscan amount.	d) horizontally and vertically in the expected
For overscanned formats, horizontally and ver portion of the image must not be visible due t	ically, at least some portion of the active o border obstruction or clipping.
For underscanned images, 100% of the active	portion must be visible.
Displays, audio amplifiers or other products de sound) are defined to "adequately support" a audio at approximately the same level of fidelr	signed to "render" the audio (convert to actual particular audio format if they reproduce the ty as any other audio input on that device.
Cancel Co	mpliance Test
FAIL	PASS

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

	Test List		
Reset Status			
Category / Test Name			Statue
· Category / Test Nam	ng Extension Structure		Fail
J D-S. CEA IIIII	and analyze the RDID		Pail
A Drotogol	and analyze the BDID	~	rait
▲ ■ 8-15: Charact	er Synchronization		Pass
▶ Tter 01: 640x4	180p Ver, and Hor, blanking filled with data islands	×	Pass
A 8-16: Accepta	nce of All Valid Packet Types	×	Pass
▶ M Iter 01: NULL	GCP. VSP. AVI. SPD. AUD. and MPEG	×	Pass
A Nideo			
⊿ 🗏 8-17: Basic F	ormat Support Requirements	V	Pass
Iter 01: Read	and analyze the EDID	V	Pass
⊿ 🗏 8-18: HDMI Fo	ormat Support Requirements	V	Pass
🕞 Iter 01: Read	and analyze the EDID	V	Pass
⊿ 🗏 8-19: Pixel E	Incoding Requirements	V	Pass
😝 Iter 01: Read	and analyze the EDID	\checkmark	Pass
> \varTheta Iter 02: RGB 4	1:4:4 pixel encoding	\checkmark	Pass
þ 🔵 Iter 03: YCbCı	r 4:4:4 and 4:2:2 pixel encoding, PREQ: EDID indicates YCbCr support	. 🖌 🖉	Pass
🔺 🗏 8-20: Video F	'ormat Timing	\checkmark	In Progress
📔 Iter 01: EDID	Val range Check	\checkmark	Pass
🔶 Iter 02: VIC 1	L: 640x480p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz	V	In Progress
🔹 Iter 03: VIC 2	2: 720x480p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in EDID	\checkmark	Not Tested
	Tect I on		
Line Mess	101009		
e ooco	most 8, 20, 01		
	1050 0-20 01		
Tes	$m_{-+} = 0.0000$		
	Test 0-20-02		
C	Duriguring the Test Source File		
• 0072	HDM1, DMTU660, SmpteBar, RGB, 24 bpp, NO_REQ, 48 kHz		
• 0073	play /qd/hdm1_pb/8-20/DMT0660_SmpteBar_1/playback.bit, the reference	e video fil	e
• 0074 1	ausing		
• 0075 E	aused.		

If the Compliance test application determines that a function is not supported by reading its EDID, the test will skip the related tests. For example, if you specify feature in the CDF but the HDTV does not support this format, the test will be skipped. The test will indicate "Skipped" in the test list panel and the reason the test was skipped with be shown. Refer to the example below.



	Tert Lirt		
🖌 🧄 Rec	rest List		
Category / 1	'est Name	V	Status
D 😸 Iter 6	5: VIC 64: 1920x1080p @ 100 Hz 16:9 Min-99.50Hz, Max-100.50Hz, PREQ: SVD in EDID	V	Pass
Audio			D = = =
▲ 📑 8-21: A	Audio Clock Regeneration	V	Pass
De Iter (1: Minimum N	V	Pass
	2: Maximum N		Pass
▲ [] 0-23: A	Audio Formalis		Pass
b Tter (1: 2-channel 32 kHz FCM.		Page
N A Iter (3. 2-channel 48 kHz PCM		Pass
Thterer	with DVT	•	1433
▲ ■ 8-24 · 1	Interoperability with DVI	V .	Pass
b M Iter (11: 720x480p DVT	V	Pass
Advanced	Festures		
▶ 8-25 : I	Deep Color	V .	Pass
▲ <mark>■ 8-27:</mark> I	ligh Bitrate Audio	V	Not Tested
Iter 0	11: Check High-Bitrate Audio	V	Not Tested
▶ 🗏 8-29: 3	BD Video Format Timing	V	Pass
▲ 🗏 8-30: 4	4K x 2K Video Format Timing	V	In Progress
🛛 🕞 Iter 🛛	1: (01) 4K x 2K 29.97,30 Hz Min-29.82Hz, Max-30.15Hz, PREQ: EDID indicated support	rt 🗸	Pass
🛛 þ 🗑 Iter 🛛	2: (02) 4K x 2K 25 Hz Min-24.87Hz, Max-25.12Hz, PREQ: EDID indicated support	V	Pass
🛛 🛛 \varTheta Iter 🛛	3: (03) 4K x 2K 23.98,24 Hz Min-23.85Hz, Max-24.12Hz, PREQ: EDID indicated support	nt 🗸	Pass
🔶 Iter (4: (04) 4K x 2K 24 Hz (SMPTE) Min-23.88Hz, Max-24.12Hz, PREQ: EDID indicated supp	x 🗸	In Progress
38: VIC 37: 2880x570	5p @ 50 Hz 4:3 Min-49.75Hz, Max-50.25Hz, PREQ: SVD in EDID		
	Testlar		
	Test Lög		
he	Message		
0564	Performing adequate support check		
565	Test 8-30 Iter 03 -> Pass		
566	Test 8-30-04		
0567	Configuring the Test Source File		
568	HDMI, fktk, SmpteBar, RGB, 24 bpp, NO_REQ, 48 kHz		
569	play /qd/hdmi_pb/8-30/fktk_SmpteBar_SMPTE/playback.bit, the reference vi	deo file	
570	Pausing		
0571	Paused.		
	Cancel the Compliance Test		
	Concerne compliance rest		

HDMI Sink Compliance Test	(1.4b): "08_09_2013_10_45_45_XYZ_Test5"			
	Test List			
🖌 🗙 🥱 Reset	Status			
Category / Tes	st Name	V	Status	*
\varTheta Iter 01	: Read and analyze the EDID	V	Pass	
> \varTheta Iter 02	: RGB 4:4:4 pixel encoding	\checkmark	Pass	
> 📔 Iter 03	: YCbCr 4:4:4 and 4:2:2 pixel encoding, PREQ: EDID indicates YCbCr support	×	Pass	
🔺 📑 8-20: Vi	deo Format Timing	\checkmark	Incomplete	Ε
😝 Iter 01	: EDID Val range Check	\checkmark	Pass	
📦 Iter 02	: VIC 1: 640x480p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz	\checkmark	In Progress	
🔀 Iter 03	: VIC 2: 720x480p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in EDID	×	User Skipped	_
🔀 Iter 04	: VIC 3: 720x480p @ 60 Hz 16:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in EDID	×	User Skipped	
* Iter 05	: VIC 4: 1280x720p 0 60 Hz 16:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in EDI	DV	Not Tested	_
* Iter 06	: VIC 5: 1920x1080i @ 60 Hz 16:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in ED	IV	Not Tested	_
X Iter 07	: VIC 6: 720(1440)x480i @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in	X	User Skipped	_
X Iter 08	: VIC 7: 720(1440)x480i @ 60 Hz 16:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD i	n 👗	User Skipped	_
X Iter 09	: VIC 8: 720(1440)x240p @ 60 Hz 4:3 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in	× ×	User Skipped	_
X Iter 10	: VIC 9: 720(1440)x240p 0 60 Hz 16:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD 1	n 🗶	User Skipped	_
Iter 11	: VIC 10: 2880x4801 @ 60 Hz 4:3 2:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in	-	User Skipped	_
Then 12	: VIC 11: 2660x4601 0 60 Hz 16:9 Min-59.64Hz, Max-60.30Hz, PREQ: SVD in ED		User Skipped	_
V Iter 14	: VIC 12: 2000x240p 6 60 Hz 4:5 Min-59.64Hz, Max-60.30Hz, PREQ: SVD IN EDI		User Skipped	-
V Iter 15	. VIC 14: 1440x480p @ 60 Hz 4:3 Min-59.64Hz Max-60.30Hz PREC: SVD in ED		User Skipped	-
X Iter 16	· VIC 15: 1440x480p @ 60 Hz 16:9 Min-59 64Hz, Max 60.30Hz, FRE2. SVD in ED	т¥	User Skipped	_
Ter 16: VIC 15: 1440:480 p		- <u>,</u>	USCI Skipped	-
Ref 10. VIC 13. 1440.400p				
	Test Log			
Line	Message			
• 0068	Test 8-20-01			
• 0069	Test 8-20 Iter 01 -> Pass			
• 0070	Test 8-20-02			
• 0071	Configuring the Test Source File			
• 0072	HDMI, DMT0660, SmpteBar, RGB, 24 bpp, NO_REQ, 48 kHz			
• 0073	play /qd/hdmi_pb/8-20/DMT0660_SmpteBar_1/playback.bit, the reference	video file		
• 007 4	Pausing			
• 0075	Paused.			-
	Cancel the Compliance Test			

The test will run the High-Bit Rate audio test separately as it requires the Quantum Data 882 Test Instrument to complete. Refer to the section above in the beginning discussion of: <u>Making the HDMI connections</u>.

1	Fest Setup
	Test 8-27, Iter-01 Verify that a High-Bitrate Audio-capable Sink DUT is able to support High Bitrate Audio packets and signaling.
	Connect the input of the DUT to the 880 HDMI TX-1 output.
	Cancel Compliance Test
	© Continue

Test Setup	
Verify that a High-Bitrate A	Test 8-27, Iter-01 udio-capable Sink DUT is able to support High Bitrate Audio packets and signaling.
Make sure that H at /card0/library/au	IBR audio clips are present in the CF Card of 882 dio and 882 was powered on with CF card inserted.
	Cancel Compliance Test
	📀 Continue

When the tests are completed the test window that shows the current activity will close. A new tab and panel will appear next to the **HDMI CT 1.4** tab called the **CT Results** tab. You can view the test results in this panel. Refer to the following screen to see an example of the **CT Results** panel. You can view the details of any test as shown in the following example.

Compliance Test Results Viewer		
HDMI Sink Compl	iance Test Results	
Results Name: 08_09_2013_10_45_45_XYZ_Test5 Manufa	cturer: Acme	HTML Report
Date Tested: August 9, 2013 12:31 PM Model	Name: XYZ	
Overall Status: CTS 1.4b - Incomplete Port	Fested: 1	
Tes	t Results	
Test Name / Details	0	Status
▶ 🗏 8-1: EDID Readable		Fail
▷ -2: EDID VESA Structure		Pass
> 🗏 8-3: CEA Timing Extension Structure		Fail
B-15: Character Synchronization		Pass
B-16: Acceptance of All Valid Packet Typ	es	Pass
> 🗏 8-17: Basic Format Support Requirements		Pass
> 🗏 8-18: HDMI Format Support Requirements		Pass
> 🗏 8-19: Pixel Encoding Requirements		Pass
> 🗏 8-20: Video Format Timing		Incomplete
B-21: Audio Clock Regeneration		Pass
⊳ 🗏 8-23: Audio Formats		Pass
B-24: Interoperability with DVI		Pass
⊳ 🗏 8-25: Deep Color		Pass
🕨 🗏 8-27: High Bitrate Audio		Fail
🕨 🗏 8-29: 3D Video Format Timing		Pass
🕨 📃 8-30: 4K x 2K Video Format Timing		Pass
8-1: EDID Readable		
Instrument: 980B_JB [192.168.254.160]		Continue Test Execution
		🔀 Close

You can view the details of any test as shown in the following example.

	HDMI Sink Compliance Test Results		
Results Name: 08 09 2013 10 45 45 XYZ Test5	Manufacturer: Acme		
Date Tested: August 9, 2013 12:31 PM	Model Name: XYZ		
Overall Status: CTS 1.4b - Incomplete	Port Tested: 1		
	Test Results		
Test Name / Details		0	Status
8-1: EDID Readable		~	Fail
▶ ■ 8-2: EDID VESA Structure			Pass
▲ ■ 8-3: CEA Timing Extension Structure			Fail
A liter 01: Read and analyze the EDID			Fail
Additional 3D capability indicated despi	te additional 3D video formats support not applied		
Additional 3D video formats support indi	cated despite additional 3D video formats support not applied		
8-15: Character Synchronization			Pass
8-16: Acceptance of All Valid Packet	: Types		Pass
🔺 🝚 Iter 01: NULL, GCP, VSP, AVI, SPD, AUD, and	d MPEG		Pass
• Manual inspection of the DUT verified ad	equate support of the test signal.		
🔊 📃 8-17: Basic Format Support Requireme	ents		Pass
🔈 📃 8-18: HDMI Format Support Requiremen	lts		Pass
🛛 🗏 8-19: Pixel Encoding Requirements			Pass
🛛 🗏 8-20: Video Format Timing			Incomplete
8-21: Audio Clock Regeneration			Pass
🛛 😝 Iter 01: Minimum N			Pass
• Manual inspection of the DUT verified ad	equate support of the test signal.		
Iter 02: Maximum N			Pass
8-23: Audio Formats			Pass
8-24: Interoperability with DVI			Pass
8-25: Deep Color			Pass
8-27: High Bitrate Audio			Fall
8-29: 3D Video Format Timing			Pass
🛛 📴 8-30: 4K 🗴 2K Video Format Timing			Pass
3-1: EDID Readable			
Instrument: 980_MB [192.168.254.229]			Continue Test Exec
· · · · · · · · · · · · · · · · · · ·			

3.7 Resuming the HDMI Sink Compliance after cancel

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

To resume a canceled test:

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



2. Right click on the results file and select Open as shown below.

📧 Capture Control 😤	5- Nav	igator 🛛 🗖
🗁 Data 💷 Instrun	nents	🔯 Compliance
Name		Date / Time
 EDID CT HDMI Src CT HDMI Sink CT CDF Test Select Results Results Acme_ CD Sur Det Log MHL Src CT MHL Sink CT 	ions	View as Text Delete Rename Export
		Browse

The CT Results window appears as shown below.

🗄 Event Plot 🔯 HDMI Sink CT 1.4a 📃 CT Results 🕺		- 0
HDMI Sink Compliance Test Re	sults	
Results Name: Acme_HD_TV_08_17_2011_08_54_13 Manufacturer: Acme Date Tested: August 17, 2011 8:56 AM Model Name: ALT-HiDef Overall Status: CTS 1.4a - Incomplete Port Tested: 1		HTML Report
Test Results		
Test Name / Details	C	Status
▷ 3-1: EDID Readable		Pass
▷ - 8-2: EDID VESA Structure		Pass
▷ 3 8-3: CEA Timing Extension Structure		Incomplete
▷		Pass
▷ 5 8-16: Acceptance of All Valid Packet Types		Incomplete
▷ 5 8-17: Basic Format Support Requirements		Pass
> 🛃 8-18: HDMI Format Support Requirements		Incomplete
▶ 📑 8-19: Pixel Encoding Requirements		Pass
▶ 3-20: Video Format Timing		Incomplete
▶ 8-21: Audio Clock Regeneration		Pass
▶ 8-23: Audio Formats		Pass
▶ 8-24: Interoperability with DVI		Incomplete
▶ 8-25: Deep Color		Error
▶ 8-27: High Bitrate Audio		Not Tested
8-29: 3D Video Format Timing		Not Tested
8-30: 4K x 2K Video Format Timing	- t	Not Tested
▶ 8-31: AVI Informate supporting Extended Colorin	etry, Con	Not Tested
8-2/: High Bitrate Audio		
Instrument: My980 [192.168.254.112]	•	Continue Test Execution

3. Click on the **Continue Test Execution** button on the lower left (above) to resume the tests.

3.8 Viewing the HDMI Sink 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.

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.

Compliance Test Results Viewer			
	HDMI Sink Compliance Test Results		
Results Name: 08_09_2013_10_45_45_XYZ_Test5	Manufacturer: Acme		HTML Report
Date Tested: August 9, 2013 12:31 PM	Model Name: XYZ		
Overall Status: CTS 1.4b - Incomplete	Port Tested: 1		
	Test Results		
Test Name / Details		1	Status *
► 8-2: EDID VESA Structure		× -	Pass
A = 8-3: CEA Timing Extension Structure	ro		Fail
▲ G Iter 01: Read and analyze the EDID			Fail
Additional 3D capability indicated d	espite additional 3D video formats support not applie	d	
Additional 3D video formats support	Generate Report		
▶ ■ 8-15: Character Synchronization			Pass
B-16: Acceptance of All Valid Pa	HTML Report		Pass
B-17: Basic Format Support Requi:			Pass
B-18: HDMI Format Support Require	08_09_2013_10_45_45_XYZ_1est5		Pass
8-19: Pixel Encoding Requirement:	Select the desired report options.		Pass
B-20: Video Format Timing	Show Test Summany Only		Incomplete
8-21: Audio Clock Regeneration	Show rest summary only.		Pass
B-23: Audio Formats	Include CDF Information.		Pass
▷ 8-24: Interoperability with DVI			Pass
▶ 8-25: Deep Color			Pass
▲ 🖪 8-27: High Bitrate Audio	🗙 Cancel 🔗 OK		Fall
Filer U1: Check High-Bitrate Audio			Fall
> 30 Video Format Timing			Pass
A = 8-30: 4K X 2K Video Format Timing	A DOM- New 20 1EM- DREA, EDID in diseted success		Pass
→ 01. MIN Date 20.920	3.62hz, Max-50.15hz, FREQ: EDID Indicated Support		Page
▷ ○ 01: MIN Rate 29.02H2 ▷ ○ 02: MIN Rate 20.15Uz			Pass
▶ ₩ UZ: MAA Rate 50.15HZ	Max-25 12Hz PREO: EDID indicated support		Page
= 1 ter 03; (02) 4K x 2K 23 98 24 Hz Min - 24 ter 03; (03) 4K x 2K 23 98 24 Hz Min - 24 ter 03; (03) 4K x 2K 23 98 24 Hz Min - 24 ter 03; (03) 4K x 2K 23 98 24 Hz Min - 24 ter 03; (03) 4K x 2K 23 98 24 Hz Min - 24 ter 03; (03) 4K 3 ter 03; (03	3 85Hz Max-24 12Hz PREO: EDID indicated support		Pass
▶	-23.88Hz, Max-24.12Hz, PREO: EDID indicated support		Pass
8-1: EDID Readable	· · · · · · · · · · · · · · · · · · ·		
Instrument: 980B_JB [192.168.254.160]			 Continue Test Execution
			🔀 Close

The HTML report is shown in the following screens.

er					
	C:\Users\nkendall\9	80_Capture_Files_4_8\hdmict_sink\r	esults\08_09_2013_10_45_45_XYZ	_Test5\Report_Cdf.htm	
merated on: August 9, 2013 12:54 PM	HDM	Quantun I Sink Compli CTS	<u>n Data</u> ance Test R 1.4b	eport	<u>uvvv quarhusda</u>
Results 1	Name:	08_09_2013_10_45_45_2	XYZ_Test5	Ν	Manufacturer: Acme
Date T	ested:	August 9, 2013 12:3	31 PM	Ν	Model Name: XYZ
Overall St	tatus:	Incomplete			Port Tested: 1
		Report Index	/ Summary		
Test 8-1	Fail	<u>Test 8-2</u>	Pass	Test 8-3	Fail
Test 8-15	Pass	<u>Test 8-16</u>	Pass	Test 8-17	Pass
Test 8-18	Pass	Test 8-19	Pass	Test 8-20	Incomplete
<u>Test 8-21</u>	Pass	<u>Test 8-23</u>	Pass	Test 8-24	Pass
Test 8-25	Pass	Test 8-27	Fail	Test 8-29	Pass
Test 8-30	Pass	CD	F	Equipn	nent Info
		Capabilities Declara	ation Form (CDF)		
		Prod	uct		
Manufacturer					Acme
Model					2
Sink_HDMI_Output_Count 2		2			
Sink_P					1
Sink_Image_Size					NU
Sink_Image_Size_H					
Sink_Image_Size_V					149.5
SINK_MAX_IMDS_Clock					148.5
		Optic	/113		

HTML Viewer

Capabilities Declaration	on Form (CDF)
Product	
Manufacturer	Acme
Model	XYZ
Sink_HDMI_Output_Count	2
Sink_P	1
Sink_Image_Size	NO
Sink_Image_Size_H	
Sink_Image_Size_V	
Sink_Max_TMDS_Clock	148.5
Options	
Sink_CEC_Root_Device	YES
Sink_xvYCC	NO
Sink_HDTV	YES
Sink_YUV_On_Other	YES
Sink_60Hz	YES
Sink_50Hz	NO
Sink_Deep_Color	YES
Sink_DC_30bit	YES
Sink_DC_36bit	YES
Sink_DC_48bit	NO
Sink_DC_Y444	YES
Sink_3D	YES
Sink_3D_Additional	NO
Sink_4Kx2K	YES
Sink_720p60_Other	NO
Sink_1080i60_Other	NO
Sink_720p50_Other	NO
Sink_1080i50_Other	NO
Sink_480p60_Other	NO
Sink 576p50 Other	NO

August 14, 2013

L Viewer		
C:\Users\nkendall\980_Capture_Files_4_8\hdmict_sink\results\08_09_2013_10_45_45_XYZ_Test5\Report_Cdf.htm		
Test 8-1 EDID Readable	Fail	
• Iter 01: Read the EDID	Fail	
 EDID read succeeded HDMI TX 5v applied, HPD NOT asserted 		
Test 8-2 EDID VESA Structure	Pass	
• Iter 01: Read and analyze the EDID	Pass	
Test 8-3 CEA Timing Extension Structure	Fail	
• Iter 01: Read and analyze the EDID	Fail	
 Additional 3D capability indicated despite additional 3D video formats support not applied Additional 3D video formats support indicated despite additional 3D video formats support not applied 		
Test 8-15 Character Synchronization	Pass	
• Iter 01: 640x480p Ver. and Hor. blanking filled with data islands	Pass	
 Manual inspection of the DUT verified adequate support of the test signal. 		
Test 8-16 Acceptance of All Valid Packet Types	Pass	
• Iter 01: NULL, GCP, VSP, AVI, SPD, AUD, and MPEG	Pass	
 Manual inspection of the DUT verified adequate support of the test signal. 		
Sack 1	Forward 📙 Save As 🛛 💥 Close	е

Viewer		
C:\Users\nkendall\980_Capture_Files_4_8\hdmict_sink\results\08_09_2013_10_45_45_XYZ_Test5\Report_	_Cdf.htm	
Fest 8-16 Autoration of All Valid Packet Types		Pass
• Iter 01: NULL, GCP, VSP, AVI, SPD, AUD, and MPEG		Pass
 Manual inspection of the DUT verified adequate support of the test signal. 		
Teet & 17		
Basic Format Support Requirements		Pass
• Iter 01: Read and analyze the EDID		Pass
Test 8-18 HDMI Format Support Requirements		Pass
• Iter 01: Read and analyze the EDID		Pass
Test 8-19 Pixel Encoding Requirements		Pass
• Iter 01: Read and analyze the EDID		Pass
• Iter 02: RGB 4:4:4 pixel encoding		Pass
• Manual inspection of the DUT verified adequate support of the test signal.		
• Iter 03: YCbCr 4:4:4 and 4:2:2 pixel encoding, PREQ: EDID indicates YCbCr support		Pass
• 01: YCbCr 4:2:2	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
• 02: YCbCr 4:4:4	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
	🔶 Back 🌩 Forward 🛛 🗜 Save	As X Close

CALIFORM AND	If htm	
C:/Users/nkenoaii/900_Capture_mes_4_6/nomict_sink/resuits/08_09_2013_10_45_45_ATZ_TESD/keport_Co	ir.ntm	
'est 8–30 K x 2K Video Format Timing		Pass
• Iter 01: (01) 4K x 2K 29.97,30 Hz Min-29.82Hz, Max-30.15Hz, PREQ: EDID indicated support		Pass
• 01: MIN Rate 29.82Hz	Pass	
 Manual inspection of the DUT verified adequate support of the test signal. 		
• 02: MAX Rate 30.15Hz	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
• Iter 02: (02) 4K x 2K 25 Hz Min-24.87Hz, Max-25.12Hz, PREQ: EDID indicated support		Pass
• 01: MIN Rate 24.87Hz	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
• 02: MAX Rate 25.12Hz	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
• Iter 03: (03) 4K x 2K 23.98,24 Hz Min-23.85Hz, Max-24.12Hz, PREQ: EDID indicated support		Pass
• 01: MIN Rate 23.85Hz	Pass	
• Manual inspection of the DUT verified adequate support of the test signal.		
• 02: MAX Rate 24.12Hz	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
• Iter 04: (04) 4K x 2K 24 Hz (SMPTE) Min-23.88Hz, Max-24.12Hz, PREQ: EDID indicated support		Pass
• 01: MIN Rate 23.88Hz	Pass	
Manual inspection of the DUT verified adequate support of the test signal.		
• 02: MAX Rate 24.12Hz	Pass	
 Manual inspection of the DUT varified adequate support of the test signal 		


3.9 Viewing the HDMI Sink Compliance test results and disseminating to others

After you have completed the tests, you can view the CDF, test results, HTML report and detailed log at any time. Assuming you have run the tests from the external 980 GUI Manager from your PC, you can easily disseminate the results to other colleagues or subject matter experts or officials at the HDMI Authorized Test Centers. Instructions for viewing the test results and disseminating to others are provided below.

To view the CDF for the device under test:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Select CDF and either double click or click on the **Open** icon as shown below.



The CDF appears in a new window as shown below.

🕲 HDMI Sink CT 1.4b	
🔯 CDF Entry 🧹 Test S	election 🕨 Test Options / Preview
🔄 Open 🔂 New	Save CDF File: C:\Users\nkendall\980_Capture_Files_4_8\hdmict_sink\results\08_09_2013_10_45_45_XYZ_Test5\cdf.txt
Product Options	Formats O Audio
Manufacturer	What is the product manufacturer's name? Acme
Model	What is the model name/number of the product? XYZ
Sink_HDMI_Output_Count	How many HDMI output ports are on the product? ○ 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9
Sink_P	The number of the HDMI Input Port being tested. ① 1 ① 2 ② 3 ② 4 ③ 5 ◎ 6 ◎ 7 ◎ 8 ◎ 9 ◎ 10 ◎ 11 ◎ 12 ◎ 13 ◎ 14 ◎ 15
Sink_Image_Size	Does the DUT indicate correct size at Image Size area in the EDID? O Yes No x cm
Sink_Max_TMDS_Clock	What is the maximum TMDS clock frequency (in MHz) supported by the product? (Any value, e.g. 74.25, 148.5, 222.75, etc. 148.5
	X Close

To view a Summary of the results:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Select Summary and either double click or click on the **Open** icon as shown below.

🔁 Navigator	
🕨 Captures 🔯 Compliance 🗐 ACA	EDID 📴 F 🔹 🕨
Film (S) (S) (S) (Film)	
Name	Date / Time
HDMI EDID CT CT	
D 🔁 HDMI Src CT	
a 🗁 HDMI Sink CT	
DF CDF	
Dest Selections	
Results	
⊿ 📃 08_09_2013_10_45_45_XYZ_Test5	2013/08/09 12:54:50
CDF	2013/08/09 12:31:50
0 Summary	
📃 Details	
Log	
TestedEdid.xml	
Report_Cdf.htm	
08_09_2013_10_45_45_XYZ_Test4	2013/08/09 12:30:05
08_09_2013_10_45_45_XYZ_Test3	2013/08/09 11:30:39
08_09_2013_10_45_45_XYZ_Test2	2013/08/09 11:02:39
08_09_2013_10_45_45_XYZ_Test1	2013/08/09 11:26:57
▷ □ 07_26_2013_11_51_34_XYZ_Test	2013/07/26 11:59:52
DE HOMI HOCP TX CT	
Discontraction of the second s	
D B MHL Sink CI	
MHL Dongle CI	
🕞 🗁 CBUS Dongle CT	

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The Summary file appears in a new window as shown below.

① File Viewer	X
Iie: C:\Users\nkendall\980_Capture_Files_4_8\hdmict_sink\results\08_09_2013_10_45_45_XYZ_Test5\summary.txt	
[Created]	
Created On: August 9, 2013 12:31:50 PM CDT	
[Status]	
Ok: All tests executed.	
[Test Summary]	
Test: 8-1 - Fail	
Test: 8-2 - Pass	=
Test: 8-3 - Fall	
Test: 8-16 - Pass	
Test: 8-17 - Pass	
Test: 8-18 - Pass	
Test: 8-19 - Pass	
Test: 8-20 - Incomplete	
Test: 8-21 - Pass	
Test: 8-23 - Pass	
Test: 8-25 - Pass	
Test: 8-27 - Fail	
Test: 8-29 - Pass	
Test: 8-30 - Pass	
[Instrument]	
Name: 980B_JB	
IP Address: 192.168.254.160	
Net Mask: 255.255.255.0	
Udleway IF: 192.100.224.1 Free Share- 107 58 GB of 162 23 GB (66 3%)	
Version:	
Advanced Test platform Version: 4.8.15	
HDMI 980 protocol Analyzer in slot 0 [DDR 4096MB]:	
Gateware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcb: 297b/D]	
Firmware: [Version: 4.8.15 Build Number: 8650 (qd 08:01:2013 18:23:27 CDT)]	
MHL CBUS Protocol Analyzer in slot 1:	
Galeware, [version: 1 Dulla Number: 362 (00:01:2015 100000) ptp: 25252525] Firmware: [Version: 4.8 15 Bnild Number: 8650 (ad 08:01:2013 18:23:47 CDT)]	
HDMI Video Generator in slot 2:	
Gateware: [Version: 4.7.6 Build Number: 2 (05:21:2013 00) pcb: 297b C]	
Firmware: [Version: 4.8.15 Build Number: 8647 (qd 08:01:2013 18:21:47 CDT)]	
•	

To view a Details results:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Select Details and either double click or click on the **Open** icon as shown below.

🔁 Navigator	
🕨 Captures 🔯 Compliance 🗐 ACA	EDID 🕘 F 🔸 🕨
Filme (Section (Secti	
Name	Date / Time
HDMI EDID CT CT	
HDMI Src CT	
a 🗁 HDMI Sink CT	
CDF	
Dest Selections	
Results	
08_09_2013_10_45_45_XYZ_Test5	2013/08/09 12:54:50
🔯 CDF	2013/08/09 12:31:50
0 Summary	
📃 Details	
Log	
TestedEdid.xml	
Report_Cdf.htm	
08_09_2013_10_45_45_XYZ_Test4	2013/08/09 12:30:05
08_09_2013_10_45_45_XYZ_Test3	2013/08/09 11:30:39
08_09_2013_10_45_45_XYZ_Test2	2013/08/09 11:02:39
06_09_2015_10_45_45_472_Test	2013/06/09 11:20:37
	2013/07/20 11.33.32
MHL Sink CT	
MHL Donale CT	
CBUS Src CT	
CBUS Sink CT	
CBUS Dongle CT	

The Details file appears in a new window as shown below.

Compliance Test Results Viewer			
HDMI Sin	k Compliance Test Resu	lts	
Results Name: 08_09_2013_10_45_45_XYZ_Test5 Date Tested: August 9, 2013 12:31 PM Overall Status: CTS 1.4b - Incomplete	Manufacturer: Acme Model Name: XYZ Port Tested: 1		HTML Report
	Test Results		
Fest Name / Details		0	Status
⊳ 🗏 8-1: EDID Readable			Fail
> 🗏 8-2: EDID VESA Structure			Pass
> 🗏 8-3: CEA Timing Extension Str	ucture		Fail
🕟 🗏 8-15: Character Synchronizati	on		Pass
B-16: Acceptance of All Valid	Packet Types		Pass
B-17: Basic Format Support Re	quirements		Pass
> 🗏 8-18: HDMI Format Support Req	uirements		Pass
8-19: Pixel Encoding Requirem	ents		Pass
🕨 🗏 8-20: Video Format Timing			Incomplete
B-21: Audio Clock Regeneratio	n		Pass
▷			Pass
▷ 8-24: Interoperability with D	VI		Pass
▷ 📑 8-25: Deep Color			Pass
▷ 8-27: High Bitrate Audio			Fail
▷			Pass
🕨 📑 8-30: 4K x 2K Video Format Ti	ming		Pass
Instrument: 980B_JB [192.168.254.160]		•	Continue Test Execution
		(X Close

To view the detailed Log of the results:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Select Log and either double click or click on the **Open** icon as shown below.

🕾 Navigator	
🕨 Captures 🔯 Compliance 🗐 ACA 🛛	EDID 📴 F 🔸 🕨
5 L X () 🔄 🕸 🖻	
Name	Date / Time
👂 🗁 HDMI EDID CT CT	
D 🔁 HDMI Src CT	
🔺 🗁 HDMI Sink CT	
DF	
Dest Selections	
Results	
08_09_2013_10_45_45_XYZ_Test5	2013/08/09 12:54:50
CDF	2013/08/09 12:31:50
Summary	
📃 Details	
I estedEdid.xml	
Report_Cdf.htm	2012/00/00 12 20 05
08_09_2013_10_45_45_XYZ_1est4	2013/08/09 12:30:05
08_09_2013_10_45_45_XYZ_Test3	2013/08/09 11:30:39
00_09_2015_10_45_45_472_1652	2013/06/09 11:02:59
07 26 2013 11 51 34 XV7 Tect	2013/06/09 11:20:37
	2013/07/20 11.33.32
MHL Src CT	
MHL Sink CT	
MHL Dongle CT	
CBUS Src CT	
CBUS Sink CT	
CBUS Dongle CT	

The detail Log appears in a new window as shown below.

Log Viewer	
	From: 08 09 2013 10 45 45 XYZ Test5
Line	Nonenze (
12,21,50,600	Compliance Most Stand
12:31:50:699	Initialization
12:31:50:709	Assembling the test list
• 12:31:50:769	Disabling Pass-through.
• 12:31:50:769	hdmits disable
• 12:31:50:779	hdmitx disable
• 12:31:52:779	#p-scops>
• 12:31:52:779	slink down
• 12:31:52:789	slink down
• 12:31:54:799	
• 12:31:54:799	Transferring the CDF to the Test Instrument.
• 12:31:54:799	FTP Connect
• 12:31:55:039	FTP Put
•	From *C:\Users\nkendall\980_Capture_Files_4_8\hdmict_sink\results\08_09_2013_10_45_45_XYZ_Test5\cdf.txt*
•	To "odf.txt"
• 12:31:55:269	Test 8-1-01
• 12:32:11:668	Running the EDID Compliance Test.
• 12:32:11:688	Deleting any old results log.
• 12:32:11:688	exec rm -fR "/home/qd/edid_ct.log"
• 12:32:11:688	exec rm -fR "/home/qd/edid_ct.log"
• 12:32:11:898	#p-scope>
• 12:32:11:898	exec test -e "/home/qd/edid_ct.log" && echo exists
• 12:32:11:898	exec test -e */home/qd/edid_ct.log* && echo exists
• 12:32:12:108	\$p-scope>
• 12:32:12:118	Deleting any old CDF file.
• 12:32:12:118	exec rm -fR */home/qd/edidot.cdf*
• 12:32:12:128	axec rm -fR */homs/qd/sdidct.cdf*
• 12:32:12:328	\$p=scop8>
• 12:32:12:328	exec fest -e "/nome/qd/ediddt.cdf" 66 echo exists
• 12:32:12:328	exec test -e "/nome/qd/edidct.cdf" && echo exists
• 12:32:12:538	
12:32:12:548	Generating the test OF file.
	" · · · · · · · · · · · · · · · · · · ·
	🐥 Close

To view the EDID of the sink device:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Right click on **Tested EDID** and select **View Decoded EDID** as shown below.

🖶 Navigator	
🕨 Captures 🔯 Compliance 📄 ACA	🖻 EDID 🛛 🖳 F 🔸 🕨
Name	Date / Time
D HDMI EDID CT CT	
D 🔁 HDMI Src CT	
a 🗁 HDMI Sink CT	
DF	
Dest Selections	
Results	
08_09_2013_10_45_45_XYZ_Test5	2013/08/09 12:54:50
CDF	2013/08/09 12:31:50
i Summary	
Details	
Log	
Pen Ar Import HDMI Sink (T Tost Posults
	of Test Results
View Decoded EDID	
► 08 09 2 Edit EDID	
08 09 2013 10 45 45 XYZ_Test1	2013/08/09 11:26:57
07_26_2013_11_51_34_XYZ_Test	2013/07/26 11:59:52
HDMI HDCP TX CT	
MHL Src CT	
MHL Sink CT	
b 🗁 MHL Dongle CT	
CBUS Src CT	
CBUS Sink CT	
D BUS Dongle CT	

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The EDID report appears in a new window as shown below.

	ou August I	, 2010 1.43 FA				Е	DID	^{uantum} Data	Data Rep	ort					<u></u>	- uni et uni su a t d. CC
								Block	0							
	0	1	2	3	4	5	6	7	8	9	А	В	с	D	Е	F
00:	00	FF	FF	FF	FF	FF	FF	00	44	89	0A	78	15	CD	5B	07
10:	0E	17	01	03	80	50	2D	78	0A	0D	C9	A0	57	47	98	27
20:	12	48	4C	FF	FF	80	01	01	01	01	01	01	01	01	01	01
30:	01	01	01	01	01	01	04	74	00	30	F2	70	5A	80	B0	58
40:	8A	00	20	C2	31	00	00	1E	02	3A	80	18	71	38	2D	40
50:	58	2C	45	00	20	C2	31	00	00	1E	00	00	00	FC	00	48
60:	44	4D	49	20	41	6E	61	6C	79	7 A	65	72	00	00	00	FD
70:	00	17	F1	08	8C	17	00	0A	20	20	20	20	20	20	01	3A
Ci V Ei N	hecksum ersion 1 DID Vers umber of	verified header ion 1, R additio	verified evision : nal bloc	3 Ks: 1	<u>r</u>	<u>n</u>	r <u>.</u>	r <u>.</u>	16		n	16	<u>n</u>	1.	а х	n
_	Ma Pr	nufactur oduct Co Serial	er: QDI de: 3073	0												

To view the HTML report:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Select Report_CDF and either double click or click on the **Open** icon as shown below.

🖶 Navigator Captures 墜 Compliance ACA EDID EDID 🖲 F 1 🕨 × D Date / Time Name HDMI EDID CT CT D HDMI Src CT a 🗁 HDMI Sink CT D CDF D Test Selections A D Results 08_09_2013_10_45_45_XYZ_Test5 2013/08/09 12:54:50 1 🗹 👔 2013/08/09 12:31:50 Summary 😑 Details 🔳 Log TestedEdid.xml 🚾 Report_Cdf.htm 08_09_2013_10_45_45_XYZ_Test4 2013/08/09 12:30:05 b 3 08_09_2013_10_45_45_XYZ_Test3 2013/08/09 11:30:39 08_09_2013_10_45_45_XYZ_Test2 2013/08/09 11:02:39 08_09_2013_10_45_45_XYZ_Test1 2013/08/09 11:26:57 07_26_2013_11_51_34_XYZ_Test 2013/07/26 11:59:52 D IDMI HDCP TX CT MHL Src CT MHL Sink CT MHL Dongle CT CBUS Src CT CBUS Sink CT CBUS Dongle CT

The HTML report appears in a new window as shown below.

Quantum Data Quantum Data HDMI Sink Compliance Test Report CTS 1.4b Results Name Date Tested 08_09_2013 10_45_45_XYZ_Test5 August 9, 2013 12:31 PM Manufacturer Model Name Acme XYZ Overall Status: Incomplete Port Tested Acme Results Name Date Tested Report Index / Summary Test 5.3 Manufacturer Model Name Acme Cert 8-13 Fail Test 8-16 Pass Test 8-17 Pass Test 8-13 Pass Test 8-19 Pass Test 8-20 Incomplete Test 8-13 Pass Test 8-21 Pass Test 8-20 Incomplete Test 8-23 Pass Test 8-24 Pass Test 8-20 Incomplete Test 8-25 Pass Test 8-27 Fail Test 8-20 Pass Test 8-30 Pass CDF Equipment Info Sink_BDML_Output_Count Quantum Coupe Sink_P NO Sink_P Sink_P Sink_P Sink_P <th colspan="2" sink_p<="" th=""><th>erated on: August 9, 2013 12:54 PM</th><th></th><th></th><th></th><th></th><th>יייליאנוס ערורע</th></th>	<th>erated on: August 9, 2013 12:54 PM</th> <th></th> <th></th> <th></th> <th></th> <th>יייליאנוס ערורע</th>		erated on: August 9, 2013 12:54 PM					יייליאנוס ערורע
Results Name: 08_09_2013_10_45_45_XYZ_Text5 Manufacturer: Acme Date Tested: August 9, 2013 12:31 PM Model Name: XYZ Overall Status: Incomplete Port Tested: 1 Test 8-1 Fail Test 8-2 Pass Fail 1 Test 8-13 Pass Test 8-16 Pass Test 8-20 Incomplete Test 8-13 Pass Test 8-10 Pass Test 8-20 Incomplete Test 8-13 Pass Test 8-10 Pass Test 8-20 Incomplete Test 8-21 Pass Test 8-23 Pass Test 8-24 Pass Test 8-25 Pass Test 8-27 Fail Test 8-29 Pass Test 8-30 Pass _CDF Equipment Info Sink Index Size Sink Index Size Sink_HDML[Output_Count 2 Sink_Index Size 1 Sink Index Size NO Sink_Index Size NO Sink_Index Size Size M NO Sink Index Size Size M Sink Index Size Size M Sink Index Size N <th>aled on, Progins 9, 2013 12, 94 7 44</th> <th>HDM</th> <th>Quantum II Sink Complia CTS 1</th> <th><u>Data</u> ance Test R I.4b</th> <th>Report</th> <th><u>www.quartur</u></th>	aled on, Progins 9, 2013 12, 94 7 44	HDM	Quantum II Sink Complia CTS 1	<u>Data</u> ance Test R I.4b	Report	<u>www.quartur</u>		
Overall Status: Incomplete Port Tested: 1 Report Index / Summary Test 8-1 Fail Test 8-2 Pass Test 8-3 Fail Test 8-15 Pass Test 8-16 Pass Test 8-20 Incomplete Test 8-13 Pass Test 8-16 Pass Test 8-20 Incomplete Test 8-12 Pass Test 8-20 Pass Test 8-20 Incomplete Test 8-21 Pass Test 8-20 Pass Test 8-20 Pass Test 8-21 Pass Test 8-27 Pass Test 8-29 Pass Test 8-30 Pass CDF Equipment Info	Results N Date Te	ame: sted:	08_09_2013_10_45_45_X August 9, 2013 12:3	YZ_Test5 1 PM	M N	lanufacturer: Acme Model Name: XYZ		
Report Index / Summary Test 8-1 Fail Test 8-2 Pass Test 8-3 Fail Test 8-15 Pass Test 8-16 Pass Test 8-17 Pass Test 8-18 Pass Test 8-19 Pass Test 8-20 Incomplete Test 8-21 Pass Test 8-23 Pass Test 8-24 Pass Test 8-25 Pass Test 8-27 Fail Test 8-29 Pass Test 8-30 Pass CDF Equipment Info Test 8-20 CDF	Overall St	itus:	Incomplete			Port Tested: 1		
Test 8-1 Fail Test 8-2 Pass Test 8-3 Fail Test 8-15 Pass Test 8-16 Pass Test 8-17 Pass Test 8-18 Pass Test 8-19 Pass Test 8-20 Incomplete Test 8-21 Pass Test 8-23 Pass Test 8-24 Pass Test 8-25 Pass Test 8-27 Fail Test 8-29 Pass Test 8-30 Pass _CDF Equipment Info Kanufacturer Acme Viole! XYZ XYZ XYZ Sink_HDMI_Output_Count 2 NO NO Sink_P 1 NO NO NO Sink_Inage_Size_H Inage_Size_V 148.5 I48.5			Report Index /	Summary				
Test 8-15 Pass Test 8-16 Pass Test 8-17 Pass Test 8-18 Pass Test 8-19 Pass Test 8-20 Incomplete Test 8-21 Pass Test 8-23 Pass Test 8-24 Pass Test 8-25 Pass Test 8-27 Fail Test 8-29 Pass Test 8-30 Pass	<u>Test 8-1</u>	Fail	<u>Test 8-2</u>	Pass	<u>Test 8-3</u>	Fail		
Test 8-18PassTest 8-19PassTest 8-20IncompleteTest 8-21PassTest 8-23PassTest 8-24PassTest 8-25PassTest 8-27FailTest 8-29PassTest 8-30Pass CDF Equipment InfoEquipment InfoSink_fIndge_Size_MSink_Indge_Size_KSink_Indge_Size_KIncompleteSink_Indge_Size_KSink_Indge_Size_KTest 8-19IncompleteSink_Indge_Size_KSink_Indge_Size_KTest 8-19IncompleteSink_Indge_Size_KTest 8-20IncompleteTest 8-20PassTest 8-29PassCDFEquipment InfoSink IndicaturerSink IndicatureSink_P1Sink_P1Sink_PSink IndicatureSink_PSink IndicatureSink_PSink IndicatureSink_PSinkSink_IndicatureSink IndicatureSink_IndicatureSink IndicatureSink_IndicatureSink IndicatureSink_IndicatureSink Indicature<td colspan="4</td> <td><u>Test 8-15</u></td> <td>Pass</td> <td><u>Test 8-16</u></td> <td>Pass</td> <td><u>Test 8-17</u></td> <td>Pass</td>	<u>Test 8-15</u>	Pass	<u>Test 8-16</u>	Pass	<u>Test 8-17</u>	Pass		
Test 8-21 Pass Test 8-23 Pass Test 8-24 Pass Test 8-25 Pass Test 8-27 Test 8-29 Pass Test 8-30 Pass _CDF Equipment Info	Test 8-18	Pass	<u>Test 8-19</u>	Pass	<u>Test 8-20</u>	Incomplete		
Test 8-25 Pass Test 8-27 Fail Test 8-29 Pass Test 8-30 Pass _CDF _Equipment Info Product Manufacturer Acme Model XYZ Sink_PDMI_Output_Count 2 Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H 148.5	Test 8-21	Pass	Test 8-23	Pass	<u>Test 8-24</u>	Pass		
Test 8-30 Pass CDF_ Equipment Info Capabilities Declaration Form (CDF) Product Manufacturer Model	<u>Test 8-25</u>	Pass	<u>Test 8-27</u>	Fail	<u>Test 8-29</u>	Pass		
Capabilities Declaration Form (CDF) Product Manufacturer Acme Model XYZ Sink_HDMI_Output_Count 2 Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H 1 Sink_Image_Size_V 148.5	Test 8-30	Pass	CDF	1	Equipn	ient Info		
Product Manufacturer Acme Model XYZ Sink_HDMI_Output_Count 2 Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H			Capabilities Declara	tion Form (CDF)				
Manufacturer Acme Model XYZ Sink_HDMI_Output_Count 2 Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H			Produ	ct				
Model XYZ Sink_HDMI_Output_Count 2 Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H					4	Acme		
Sink_HDML_Output_Count 2 Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H	Manufacturer					-tellie		
Sink_P 1 Sink_Image_Size NO Sink_Image_Size_H	Manufacturer Model					XYZ		
Sink_Image_Size NO Sink_Image_Size_H	Manufacturer Model Sink_HDMI_Output_Cou	nt				XYZ 2		
Sink_Image_Size_H	Manufacturer Model Sink_HDMI_Output_Cou Sink_P	nt				2 1		
Sink_Image_Size_V Sink_Max_TMDS_Clock 148.5	Manufacturer Model Sink_HDMI_Output_Cou Sink_P Sink_Image_Size	nt				XYZ 2 1 NO		
Sink_Max_TMDS_Clock 148.5	Manufacturer Model Sink_HDMI_Output_Cou Sink_P Sink_Image_Size Sink_Image_Size_H	nt				XYZ 2 1 NO		
	Manufacturer Model Sink_HDMI_Output_Cou Sink_P Sink_Image_Size Sink_Image_Size_H Sink_Image_Size_V	nt				XYZ 2 1 NO		

To disseminate the results to others:

- 1. From the Navigator/Compliance panel, select the HDMI Sink CT results directory.
- 2. Right click on the set of results you wish to disseminate and select Export as shown below.



A Window opens up for you to browse to a directory to store the files.

3. Select **Save** to save the result files. A zip file is created and stored in the directory. You can now email the file or post the file on an FTP site or store on a storage service (e.g. dropbox).



C Export To		-				x
← Vest_Results →				🗸 🍫 Search Test_	Results	P
Organize 🔻 New folder						(?)
🔆 Favorites	A Name	*	Date modified	Туре	Size	
🐌 Downloads 骗 Recent Places 💻 Desktop	■ 08_13_2013_16_35_	_03_XYZ_Test3	8/14/2013 1:11 PM	Compressed (zipp	11 KB	
 □ Libraries □ Documents □ Music □ Pictures □ Subversion □ Videos 						
🖳 Computer 🏭 Local Disk (C:)	Ŧ					
File name: 08_09_2013_10_45	_45_XYZ_Test5					•
Save as type: *.zip						•
Hide Folders				Save	Cance	1

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4 HDMI EDID Sink Compliance Tests

This chapter describes how to use the *optional* HDMI EDID sink compliance test feature. The EDID Compliance Test supports the following test sections in the HDMI 1.4 EDID Compliance Test specification:

- 8.2 Sink EDID/E-DDC Tests
 - Test ID 8-1 EDID Readable
 - Test ID 8-2 VESA Structure
 - Test ID 8-3 CEA Timing Extension
- 8.5 Video Video Timing Tests
 - Test ID 8-17 Basic Format Support
 - Test ID 8-18 HDMI Format Support
 - Test ID 8-19 Pixel Encoding
 - Test ID 8-20 Video Format Timing

4.1 Workflow for running the HDMI EDID Compliance Tests

The following is the high level workflow for running the HDMI EDID Compliance Tests.

- 1. Make the physical connections between the 980 and the HDMI sink device under test.
- 2. Launch either the embedded 980 GUI Manager or the external 980 GUI Manager and access the EDID Compliance Test Panel.
- 3. Complete a (or load an existing) Capabilities Declaration Form (CDF) for the device under test using the **CDF Entry** panel.
- 4. Execute the tests through EDID compliance window.
- 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 subsection describes the HDMI connections required to run the HDMI EDID compliance tests. This procedure assumes that you have assembled the 980 Protocol Analyzer and sink device under test into your work area.

To make the physical HDMI connections:

This procedure assumes that you have assembled the 980 Protocol Analyzer and source device under test and applied power to all these devices. Refer to the procedures and diagram below.



Connection for HDMI Sink Testing – 980 Rev D Protocol Analyzer module



Connection for HDMI Sink Testing – 980 Rev C Protocol Analyzer module)



Connection for HDMI Sink Testing 980B

1. Connect your HDMI sink device under test to the HDMI Tx connector (the bottom most HDMI connector shown in the figure above) on the 980 Protocol Analyzer. Use a high speed HDMI cable.

4.3 Completing the CDF

Use the following procedures to complete the CDF for the EDID compliance test.

To complete the CDF:

1. From the View menu, enable viewing of the EDID Compliance Test panel.



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

The following screen appears:

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🖄 EDID CT 1.4b	
🕲 CDF Entry 🧹 Test S	election 🕨 Test Options / Preview
Copen 😡 New	Save CDF File: /CDF/MyEDID_CDF
Product Basic Op	otions Adv. Options Formats
Manufacturer	What is the product manufacturer's name? Acme
Model Name/Number	What is the model name/number of the product? XYZ
Sink HDMI Output Count	How many HDMI output ports are on the product?
Sink_P	The number of the HDMI Input Port being tested.
	●1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 ○11 ○12 ○13 ○14 ○15
	🗱 Close

3. You can either create a new CDF or you can load an existing CDF. To create a new CDF you click on the **New** activation button. A confirmation dialog box will open as shown below:

Cancel

Click **OK** to continue with a new CDF.

4. You can save the CDF using the **Save** activation button. A confirmation box with a default name will appear as shown below. Edit the name if necessary and click **OK**.

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🛍 Save CDF			
Local Files			
DF CDF			
🜔 📴 New 🔵 🦓 Rename 🛛 🗶 Delete			
Path: /CDF			
Name: MyEDID_CDF			
V Ok 🙆 Cancel			

The name will appear next to the **Save** button as shown below.

5. Complete the items in the CDF Product tab using the radio buttons and text fields. An example is shown below:

🔯 EDID CT 1.4b	
🖄 CDF Entry 🧹 Test S	election 🕨 Test Options / Preview
Copen New	Save CDF File: /CDF/MyEDID_CDF
Product Basic Op	otions Adv. Options Formats
Manufacturer	What is the product manufacturer's name? Acme
Model Name/Number	What is the model name/number of the product? XYZ
Sink UDMI Output Count	How many HDMI output ports are on the product?
Sink_HDIVII_Output_Count	$\bigcirc 0 \bigcirc 1 \bigcirc 2 \oslash 3 \oslash 4 \oslash 5 \oslash 6 \oslash 7 \oslash 8 \oslash 9$
Sink D	The number of the HDMI Input Port being tested.
Sink_P	$\textcircled{O}1 \ \textcircled{O}2 \ \textcircled{O}3 \ \textcircled{O}4 \ \textcircled{O}5 \ \textcircled{O}6 \ \textcircled{O}7 \ \textcircled{O}8 \ \textcircled{O}9 \ \textcircled{O}10 \ \textcircled{O}11 \ \textcircled{O}12 \ \textcircled{O}13 \ \textcircled{O}14 \ \textcircled{O}15$
	X Close

6. Complete the items in the CDF Basic Options tab using the radio buttons. An example is shown below:

🖄 EDID CT 1.4b	
🕲 CDF Entry 🧹 Te	st Selection 🕨 Test Options / Preview
🔄 Open 😡 New	Save CDF File: /CDF/MyEDID_CDF
Product Basi	c Options Adv. Options Formats
Sink_CEC_Root_Device	Does the device act as a CEC root device? Advantage of the device act as a CEC root device? Advantage of the device act as a CEC root device? Advantage of DUT is a Sink or Repeater and DUT's Physical Address is 0.0.0.0 and DUT's EDID(s) [if present] contain Source Physical Address of P.0.0.0 Note: If device has no HDMI inputs, answer "No" Yes No
Sink_HDTV	Does the device support HDTV capability?
Sink_YUV_On_Other	Is the product capable of receiving a color-difference color space across any other component analog or digital video interface?
Sink_60Hz	Does the product support standard, enhanced or high-definition 60Hz video formats on any video input in addition to 640x480p @ 60Hz? Yes No
Sink_50Hz	Does the product support standard, enhanced or high-definition 50Hz video formats on any video input? Yes No
Sink_Supports_AI	Does the Sink support ACP, ISRC1 or ISRC2 packets? Yes No
Sink_Basic_Audio	Does the Sink support Basic Audio?
Sink_ConTypeA	Connector Type A?
	X Close

7. Complete the items in the CDF Advanced Options tab using the radio buttons. An example is shown below:

🖄 EDID CT 1.4b		x
🖄 CDF Entry 🧹	Test Selection Frest Options / Preview	
🔄 Open 😡 Ne	EW Save CDF File: /CDF/MyEDID_CDF	
● Product ● E	Basic Options Adv. Options Formats	
Sink_DeepColor	Deep Color?	Â
Sink dc30Bit	30-bit Deep Color?	
Sink dc36Bit	36-bit Deep Color?	
Sink_desour	● Yes ◎ No	
Ciple de/QDit	48-bit Deep Color?	Ξ
Slfik_uc4obit	⊘ Yes ⑧ No	
Circle deV/444	YCbCr Deep Color?	
SINK_0C1444	● Yes ◎ No	
Sink w/VCC	xvYCC?	
SINK_XVTCC	⊙ Yes	
Sink exceeds165	Exceeds 165 MHz?	
SILIK_EXCEEd2103	● Yes ◎ No	
Sink Duall inkD\/I	Dual-link DVI?	
Shik_Dualchikovi	⊙ Yes () No	
Sink LinSync	Lipsync?	
Jink_cipoyne	🔘 Yes 💿 No	
Cielle Durell et an an	Dual Lipsync Latencies?	-
	X Close	

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8. Complete the items in the CDF Formats tab using the radio buttons. An example is shown below:

🖄 EDID CT 1.4b	
🖄 CDF Entry 🧹	Test Selection 🕨 Test Options / Preview
📴 Open 😡 N	ew Save CDF File: /CDF/MyEDID_CDF
Product Product	Basic Options Adv. Options Formats
Sink 640x480p60	640x480p 60Hz 4:3
	◎ Yes ○ No
Sink 576p50	720x576p 50Hz 4:3
	O Yes O No
Sink 576p50W	720x576p 50Hz 16:9
	🔘 Yes 💿 No
Sink 480p60	720x480p 60Hz 4:3
	◎ Yes ◎ No
Sink 480p60W	720x480p 60Hz 16:9
	◎ Yes ◎ No
Sink 720n50	1280X720p 50Hz 16:9
	🔘 Yes 💿 No
Sink 720n60	1280x720p 60Hz 16:9
	◎ Yes ◎ No
Sink 1080i50	1920x1080i 50Hz 16:9
	🔘 Yes 💿 No
Sink 1080i60	1920x1080i 60Hz 16:9
Ci1. 1440-490:60	1440x480i 60Hz 4:3
	🔀 Close

9. Save the CDF using the **Save** activation button. A confirmation box with a default name will appear as shown below. Edit the name if necessary and click **OK**.

🛍 Save CDF			
Local Files			
D CDF			
🖻 New 🦄 Aga Rename 🗶 Delete			
Path: /CDF			
Name: MyEDID_CDF			
V Ok 🙆 Cancel			

4.4 Selecting the Tests to Run

Use the following procedures to select which of the EDID related tests to run.

1. Select the tests from the EDID / E-DDC tab that you wish to run.

C EDID CT 1.4b	x
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Copen Save	
EDID / E-DDC Video	
✓ 8-1: EDID Readable	
Verify that the entire EDID can be read.	
8-2: EDID VESA Structure Verify that the data in the base EDID 1.3 block and basic EDID Extension handling is	
correct and meets all aspects of the relevant specifications.	
8-3: CEA Timing Extension Structure Verify that the data in any CEA Timing Extension present in the EDID is formatted properly and meets all aspects of the relevant specifications.	
X Close	

2. Select the tests from the **EDID / E-DDC** tab that you wish to run.



4.5 Executing the EDID Compliance Tests

Use the following procedures to initiate the execution of an EDID Compliance test series.

To initiate a test series:

1. If you are connected to more than one 980, select the desired device from the pull-down menu as shown below.

C EDID CT 1.46	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Test List	
All Instrument: 980_MB [192.168.254.229]	► Execute Tests
Category / Te 980_MB [192.168.254.229] 980B_JB [192.168.254.160]	
▲ ► EDID / E-980B_B2 [192.168.254.161]	

2. Select the **Execute Tests** activation button on the top panel.

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C EDID CT 1.4b ж 🔯 CDF Entry 🛛 🗸 Test Selection 🕨 Test Options / Preview Test Lis Instrument: 980_MB [192.168.254.229] Execute Tests 🛛 🖉 📶 Category / Test Name ▲ ► EDID / E-DDC ▷ 1: EDID Readable B-2: EDID VESA Structure B-3: CEA Timing Extension Structure 🔺 🕨 Video b 🗏 8-17: Basic Format Support Requirements b 🗏 8-18: HDMI Format Support Requirements b - 8-19: Pixel Encoding Requirements B-20: Video Format Timing K Close

The application will present a dialog box asking you to assign a name to the EDID test results. Refer to the sample screen shot below:

EDID CT Results			
📃 Test Results Name			
Execute EDID Compliance Tests on Instrument: 980_MB @ 192.168.254.229			
Enter a name for the Test Results.			
08_12_2013_11_30_08_Acme_XYZ			
Cancel Ok			

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The tests will begin when you click **Ok** on the preceding dialog box. A new dialog box will appear instructing you to connect the 980 to the sink device under test. Refer to the following screen example.



Sink Power Off			
Test 8-1, Iter-01 Verify that the entire EDID can be read.			
Connect the input of the DUT to the 980 HDMI TX output. Power OFF the Sink DUT. Press "Continue" when the DUT is ready.			
Cancel Compliance Test			

The test results are shown in a new window when the test is completed. You can view the details of any test including the failures as shown below.

Compliance Test Results Viewer	compnance in		
HDMI EDID Compliance Test Results			
Results Name: 08_12_2013_11_30_08_Acme_XYZ	Manufacturer: Acme		HTML Report
Date Tested: August 12, 2013 11:44 AM	Model Name: XYZ		<u>.</u>
Overall Status: CTS 1.4b - Fail	Port Tested: 1		
	Test Results		
Test Name / Details		0	Status
▲ ■ 8-1: EDID Readable			Pass
b 🖨 Iter 01:			Pass
4 8-2: EDID VESA Structure			Pass
G Iter 01:			Pass
4 🗏 8-3: CEA Timing Extension Structure			Fail
⊿ 🔒 Iter 01:			Fail
3D/4Kx2K video formats support indicated despite 3D/4	4Kx2K video formats support not applied		
3D video formats support indicated despite 3D video :	formats support not applied		
Additional 3D capability indicated despite additional	1 3D video formats support not applied		
Additional 3D video formats support indicated despite	e additional 3D video formats support no		
4Kx2K video formats support indicated despite 4Kx2K	video formats support not applied		
▲ 🗏 8-17: Basic Format Support Requirements			Pass
Iter 01:			Pass
🔺 📃 8-18: HDMI Format Support Requirements			Pass
\varTheta Iter 01:			Pass
🔺 🗏 8-19: Pixel Encoding Requirements			Pass
😝 Iter 01:			Pass
🔺 📃 8-20: Video Format Timing			Pass
😝 Iter 01:			Pass
8-1: EDID Readable			
Instrument: 980B_JB [192.168.254.160]			Continue Test Execution
			× Close

4.6 Viewing the HTML Test Report

Use the following procedures to view the HTML test report for the EDID Compliance test.

To view the test report:

1. Click on the HTML Report activation button as shown below.

Compliance Test Results Viewer	Compnance reata	
	HDMI EDID Compliance Test Results	
Results Name: 08_12_2013_11_30_08_Acme_XYZ	Manufacturer: Acme	HTML Report
Date Tested: August 12, 2013 11:44 AM	Model Name: XYZ	
Overall Status: CTS 1.4b - Fail	Port Tested: 1	

2. Select whether you wish to also include the sink device CDF information in the report. This is shown in the following dialog box.

Generate Report	
🗟 HTML Report	
08_12_2013_11_30_08_Acme_XYZ	
Select the desired report options.	
Show Test Summary Only.	
Include CDF Information.	
X Cancel	

The beginning of the report shows some basic information about when the test was run, the model number and a summary of the results. The CDF is shown and then the detailed results. The hex readout of each block is also shown before the human readable text. Refer to the following screen examples.

/er					
	C:\Users\nken	dall\980_Capture_Files_4_8\edid\ct\08	8_12_2013_11_30_08_Acme_XYZ	\Report_Cdf.htm	
enerated on: August 12, 2013 11:53 AM	HDMI	Quantum EDID Compli CTS 1	<u>_{Data}</u> ance Test R I.4b	Report	<u>unu quadund</u>
Results I Date I	Name: Fested:	08_12_2013_11_30_08_A/ August 12, 2013 11:4	cme_XYZ 4 AM		Manufacturer: Acme Model Name: XYZ
Overall S	tatus:	Fail			Port Tested: 1
T .0.1		Report Index /	Summary	T : 0.2	
<u>Test 8-1</u>	Pass	<u>Test 8-2</u>	Pass	Test 8-3	Fail
<u>Test 8-17</u>	Pass	<u>1051 8-18</u>	rass	<u>1 est 8-15</u>	rass
1est 8-20 Tested E				Equ	ipment inio
		Comphiliting Declare	the Form (CDF)		
M-aufaatunan		Capabilities Declara			Aama
Manufacturer					Acme
Model Sint 1080:50					NO
Sink 1080:50 Other					NO
Sink_1000150_Other					VES
Sink 1080i60 Other					NO
Sink 1080n50					NO
Sink 1080p50					NO
Sink 1440x480i60					NO
Sink 1440x480i60W					NO
Sink 1440x576i50					NO
Sink 1440x576i50W					NO
JIIIK ATTOACTORES.					

HTML Viev	ver		
	C:\Users\nkendall\980_Capture_Files_4_8\edid\ct\08_12_2013_11_30_08_Acme_XYZ\Report_Cdf.htm		
	Capabilities Declaration Form (CDF)		^
	Manufacturer	Acme	_
	Model	XYZ	_
	Sink_1080i50	NO	=
	Sink_1080i50_Other	NO	
	Sink_1080i60	YES	
	Sink_1080i60_Other	NO	
	Sink_1080p50	NO	
	Sink_1080p60	NO	
	Sink_1440x480i60	NO	
	Sink_1440x480i60W	NO	
	Sink_1440x576i50	NO	
	Sink_1440x576i50W	NO	
	Sink_3D	NO	
	Sink_3D_Additional	NO	
	Sink_430p60	YES	
	Sink_480p60W	YES	
	Sink_480p60_Other	NO	
	Sink_4Kx2K	NO	
	Sink_50Hz	YES	
	Sink_576p50	NO	
	Sink_576p50W	NO	
	Sink_576p50_Other	NO	
	Sink_60Hz	YES	
	Sink_640x480p60	YES	
	Sink_720p50	NO	
	Sink_720p50_Other	NO	
	Sink_720p60	YES	
	Sink_720p60_Other	NO	
[Sink_Basic_Audio	YES	
[Sink_CEC_Root_Device	YES	
	Sink_ConTypeA	YES	-
	Sack 1	Forward 📙 Save As 🗱	Close

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est 8-1 DD Readable	Pass
• Iter 01:	Pass
 EDID read succeeded HDMI TX 5v applied, HPD asserted 	
Sest 8-2 DID VESA Structure	Pass
• Iter 01:	Pass
EA Timing Extension Structure Iter 01: 3D/4Kx2K video formats support indicated despite 3D/4Kx2K video formats support not applied Additional 3D video formats support indicated despite additional 3D video formats support not applied Additional 3D video formats support indicated edspite additional 3D video formats support not applied Additional 3D video formats support indicated despite 4ditional 3D video formats support not applied Additional 3D video formats support indicated despite 4Kx2K video formats support not applied	Fail
Test 8-17	Pass
• Iter 01:	Pass
Test 8-18 DMI Format Support Requirements • Iter 01:	Pass Pass

Date of Manufacture: Week 14 of 2013

H

							Te	ested E	DID							
								Block	0							
	0	1	2	3	4	5	6	7	8	9	А	в	с	D	Е	F
00:	00	FF	FF	FF	FF	FF	FF	00	44	89	0A	78	15	CD	5B	07
10:	0E	17	01	03	80	50	2D	78	0A	0D	C9	A0	57	47	98	27
20:	12	48	4C	FF	FF	80	01	01	01	01	01	01	01	01	01	01
30:	01	01	01	01	01	01	04	74	00	30	F2	70	5A	80	В0	58
40:	8A	00	20	C2	31	00	00	1E	02	3A	80	18	71	38	2D	40
50:	58	2C	45	00	20	C2	31	00	00	1E	00	00	00	FC	00	48
60:	44	4D	49	20	41	6E	61	6C	79	7A	65	72	00	00	00	FD
70:	00	17	F1	08	8C	17	00	0A	20	20	20	20	20	20	01	3A
Ch	lecksum	verifi	ed	IL		IL	11	11		1	IL	JL	11	JL	л	и

Each EDID block, block 0 VESA and block 1 CEA are shown in hex before the data in human readable text.

🗢 Back 🌩 Forward 🛛 🔛 Save As

Clo

980 User Guide – HDMI/MHL Sink Compliance Tests

					C.(03C13(1	incention (500	_cupture_	E	Block 1			(T2 (Keport					
	0	1		2	3	4	5	6	7	8	9	А	В	С	D	E	F
0	0: 02	03	3	67	71	5F	90	1F	20	05	14	04	13	03	02	12	11
1	0: 07	00	5	16	15	3E	0F	0E	1E	1D	0D	0C	17	18	19	1A	1B
2	0: 1C	0.4	4	0B	09	5C	08	21	22	23	24	25	26	27	28	29	2A
3	0: 2B	20	2	2D	2E	2F	30	31	32	33	34	35	36	37	38	39	3A
4	0: 3B	44	4	3F	40	3C	3D	23	09	07	07	83	01	00	00	70	03
5	0: 0C	00	D	10	00	38	3C	20	A0	82	01	02	03	04	81	49	E7
6	0: 0E	60)	61	65	66	6A	6B	00	00	00	00	00	00	00	00	00
7	0: 00	00	b	00	00	00	00	00	00	00	00	00	00	00	00	00	58
	Checks E-EDID Reserv •Nati' •Supp •Supp •Supp	um veri CEA Ex ed data re DTDs orts un orts bas orts YCI	in E dersc sic a bCr 4	ion Ver ck offs 2DID: 1 can: No audio: 1 1:4:4: 1 1:2:2: 1	sion 3 et 103 Yes Yes Yes												
	CEA	Data I	Bloc	ck: T	ag 2,	bytes	31:	Video	Data								

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Each EDID block, block 0 VESA and block 1 CEA are shown in hex before the data in human readable text.

C:\User>nkd Checksum verified E-EDID CEA Extension Version 3	ndall\980_Capture_Files_4_8\edid\ct\08_12_2013_11_30_08_Acme_XYZ\Report_Cdf.htm	
Checksum verified E-EDID CEA Extension Version 3		<u> </u>
E-EDID CEA Extension Version 3		
Reserved data block offset 103		
• Native DTDs in EDID: 1		
• Supports underscan: No		
• Supports basic audio: Yes		
• Supports YCbCr 4:4:4: Yes		
• Supports YCbCr 4:2:2: Yes		
CEA Data Block: Tag 2, 1	oytes 31: Video Data	
Number of Descriptors: 31	-	
VIC 16: 1920x1080p @ 60 Hz 16:9	Native	
VIC 31: 1920x1080p @ 50 Hz 16:9		
VIC 32: 1920x1080p @ 24 Hz 16:9		
VIC 5: 1920x1080i @ 60 Hz 16:9		
VIC 20: 1920x1080i @ 50 Hz 16:9		
VIC 4: 1280x720p @ 60 Hz 16:9		
VIC 19: 1280x720p @ 50 Hz 16:9		
VIC 3: 720x480p @ 60 Hz 16:9		
VIC 2: 720x480p @ 60 Hz 4:3		
VIC 18: 720x576p @ 50 Hz 16:9		
VIC 17: 720x576p @ 50 Hz 4:3		
VIC 7: 720(1440)x480i @ 60 Hz 1	6:9	-
VIC 6: 720(1440)x480i @ 60 Hz 4	:3	1
VIC 22: 720(1440)x576i @ 50 Hz	16:9	-
VIC 21: 720(1440)x576i @ 50 Hz	4:3	
VIC 62: 1280x720p @ 30 Hz 16:9		
VIC 15: 1440x480p @ 60 Hz 16:9		
VIC 14: 1440x480p @ 60 Hz 4:3		
VIC 30: 1440x576p @ 50 Hz 16:9		
VIC 29: 1440x576p @ 50 Hz 4:3		
VIC 13: 2880x240p @ 60 Hz 16:9		
VIC 12: 2880x240p @ 60 Hz 4:3		
VIC 23: 720(1440)x288p @ 50 Hz	4:3	
VIC 24: 720(1440)x288p @ 50 Hz	16:9	
VIC 25: 2880x576i @ 50 Hz 4:3		
VIC 26: 2880x576i @ 50 Hz 16:9		

• Content types: None •Latency: Not Present

3D: S

• Interlaced Latency: Not Present

C:\llsers\nkendal\980 Canture Files 4 8\edid\ct\98 12 2012 11 20 08 Acros	(VZ) Report Cdf htm
CEA Data Block: Tag 2, bytes 4: Video Data	
Number of Descriptors: 4	
VIC 63: 1920x1080p @ 120 Hz 16:9	
VIC 64: 1920x1080p @ 100 Hz 16:9	
VIC 60: 1280x720p @ 24 Hz 16:9	
VIC 61: 1280x720p @ 25 Hz 16:9	
CEA Data Block: Tag 1, bytes 3: Audio Data	
Number of Descriptors: 1	
Audio Format Code: IEC 60958 FCM [30, 31]	
Channels: 2	
Sampling Freq (kHz): 48, 44.1, 32	
Sampling Size (bit): 24, 20, 16	
CEA Data Block: Tag 4, bytes 3: Speaker Allocation	
FL/FR	
CEA Data Block: Tag 3, bytes 16: Vendor Specific	
24-bit IEEE Registration ID: 0x000C03	
HDMI 1.4b Vendor Specific Data Block	
• CEC Physical Address: 1.0.0.0	
• ISRC/ACP: Not supported	
• Deep Color:	
36 bits per color	
30 bits per color	
YCbCr 4:4:4 supported	
• DVI dual-link: Not supported	

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The last page in the report shows the version information about the 980 used for the test.

_ Viewe		
	C:\Users\nkendalf\980_Capture_Files_4_8\edid\ct\08_12_2013_11_30_08_Acme_XYZ\Report_Cdf.htm	
_		
	Test Equipment Information	
_	Instrument	
	Name: 980B JB	
	IF Address: 192.168.254.160	
	Net Mask: 255.255.255.0	
	Gateway 1P: 192.168.254.1	
	Version:	
	Advanced Test platform Version: 4.8.15	
	HDMI 980 protocol Analyzer in slot 0 [DDR 4096MB]:	
	Gateware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcb: 297b/D]	
	MLC GDS Protocol Analyzer in slot 1:	
	Gateware: [Version: 1 Build Number: 562 (08:01:2013 160000) pcb: 23232323]	
	Firmware: [Version: 4.8.15 Build Number: 8650 (qd 08:01:2013 18:23:47 CDT)]	
	HDMI Video Generator in slot 2:	
	Firmware: [Version: 4.8.15 Build Number: 2 (05:11:015 00) pDS: 29:0 C]	
	System Information:	
	System SN : [675F8CEA60F91A92::13030006]	
	HDMI PA SN : [53FDC3010000::N/A]	
	Main Board : ["DF6/86"] CPUry - (6.2.7 "Thref/D) Celeron/D) CPU G530 0.2.40GHz"]	
	DDR : $[3 \text{ GB} + 512 \text{ MJ}]$	
	HD : [SSDSC2CT18]	
	OS : [Linux xpscope-4a 2.6.26-2-666 #1 SMP Sun Mar 4 22:19:19 UTC 2012 1686 GNU/Linux]	
	GOI manager : [Version 4.6.15 4245 _2013UBUILIN]	
	2 : [eth] inet 192.168.10.1/24 brd 192.168.10.255 scope global eth]	
	3 : [eth0 inet 192.168.254.160/24 brd 192.168.254.255 scope global eth0]	
	PCIE3 : [2.5x8]	
	HDMI SINK CT: [4.6.1]	
	HDCF SRC CT : [4.8.0]	
	MHL SINK CT : [4.8.0]	
	MHL SRC CT : [4.8.0]	
	Host	
	UI Name: Quantum Data 980 Manager - Version 4.8.15	
	Java Vendor: Null	
	Java Runtime: 1.6.0_15-b03	
	Java Home: C:\Users\nkendall\Desktop\980_Release_4.8.15.42457_Win\980mgr\jre	
	OS 1 w152	
	Locale: en US	
	Free Space: 10.94 GB of 223.47 GB (4.9%)	
Generated		a.com
	Carl Back Carl Forward State As 🕺	Close

3. To close the window click on the **Close** activation button on the lower left.
5 MHL Sink Compliance Tests

This chapter describes how to use the MHL sink compliance test feature. Please note you will have to purchase the 980 MHL Sink Compliance Test option in order to run these tests. *Also note that this test suite requires the Quantum Data 882 instrument, release 2.25.0 which uses firmware version 20.1887600.* The 980 HDMI Protocol Analyzer serves only as a controller for running the MHL sink/dongle compliance tests (except where noted) as a convenience to owners of the 882 test instrument. The following test sections in the MHL 1.2, 1.3, 2.0 & 2.1 Sink Compliance Test specification are supported through the 980 GUI Manager:

Sink Compliance Tests

- 4.2.1 Sink System Tests
 - Test ID 4.2.1.1 Character Synchronization Normal Mode
 - Test ID 4.2.1.2 Packet Types Normal Mode
 - Test ID 4.2.1.3 Character Synchronization Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
 - o Test ID 4.2.1.4 Packet Types Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
- 4.2.2 Sink Video Tests
 - Test ID 4.2.2.1 Video Formats Normal Mode
 - Test ID 4.2.2.2 Pixel Encoding Normal Mode
 - Test ID 4.2.2.3 Video Quantization
 - o Test ID 4.2.2.4 Video Formats Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
 - Test ID 4.2.2.5 Pixel Encoding Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
- 4.2.3 Sink Audio Tests
 - o Test ID 4.2.3.1 IEC 60958 / IEC 61937
 - Test ID 4.2.3.2 Audio Clock Regeneration
- 4.2.7 Sink RAP and RAPK Sub-Commands Test
 - Test ID 4.2.7.1 RAP and RAPK Sub-Commands Test (MHL 1.3, 2.0, 2.1 only)
- 4.2.8 Sink RAP and RAPK Sub-Commands Test
 - Test ID 4.2.8.2 Video Format in Normal Mode
 - Test ID 4.2.8.3 Video Format in PackedPixel Mode (MHL 1.3, 2.0, 2.1 only)

5.1 Workflow for running the MHL Sink Compliance Tests

The following is the high level workflow for running the MHL Sink Compliance Tests. This workflow assumes that you have powered up the 980/980B and established an Ethernet session with the 980/980B as described in <u>Connection for 980 GUI Manager and 980</u>.

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

- 1. Connect the sink device under test to the 980 HDMI Protocol Analyzer 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.

5.2 Making the physical connections for 980 GUI Manager control

This subsection describes the physical connections required to run the MHL sink compliance tests. The 980 HDMI Protocol Analyzer and the 980 GUI Manager serve only as a controller for running the MHL Sink Compliance Tests. The tests are executed by the 882E/EA (except where noted).

There are three connection scenarios for running and controlling the tests through the 980 GUI Manager application. These scenarios are described below and shown in the set up diagrams that follow:

- Using the embedded 980 GUI Manager running on the 980.
- Using the external 980 GUI Manager with point to point Ethernet configurations between the 980 and the Host PC (where the external 980 GUI Manager resides) and between the 980 and the 882.
- Using the external 980 GUI Manager and connecting from a Host PC to the 980 and 882 through a corporate Ethernet LAN.

To make the physical Ethernet connections when using the embedded GUI Manager:

Use this procedure when you are running the MHL sink compliance test suite through the embedded 980 GUI Manager. This procedure assumes that you have assembled the 882, 980 Protocol Analyzer and sink device under test and applied power to all these devices. Refer to the procedures and diagram below.

1. Connect an Ethernet cable from the 980 Ethernet jack on the lower left half of the back panel of the 980 Protocol Analyzer frame (refer to the diagram below) to the 882EA Ethernet jack. The IP address on this port can be configured using the procedures at <u>Connection Scenarios for 980 Manager to 980 Protocol Analyzer</u>.



Ethernet connection for MHL sink compliance testing (MHL 1.3/2.0/2.1 example with TPA-MHL2-8R)

To make the physical connections using Ethernet network connections with the external GUI Manager:

This procedure assumes that you have assembled the 882, Host PC, 980 HDMI Protocol Analyzer and sink device under test and applied power to all these devices. Refer to the procedures and diagram below.



Ethernet connection for MHL sink compliance testing (MHL 1.2 example with TPA-MHL-8R)

- 1. Connect an Ethernet cable from your PC hosting the external 980 GUI Manager to an Ethernet jack on your corporate network or Ethernet hub.
- 2. Connect an Ethernet cable from the 882 to an Ethernet jack on your corporate network or Ethernet hub.
- 3. Connect an Ethernet cable from the 980 Ethernet jack on the lower left half of the back panel of the 980/980B frame to an Ethernet jack on your corporate network or Ethernet hub. The IP address on this 980 port is configurable using the procedures at: <u>Setting the IP address of the 980 Protocol Analyzer</u>. Refer to the diagram below.

5.2.1 Setting the IP address of the 980/980B

This procedure describes how to set the IP address of the 980 HDMI Protocol Analyzer module. You can change the 980's IP address through the 980's front panel touch screen display. You can also allow the network DHCP server to assign an IP address. This procedure assumes that you have powered up the 980, have the physical Ethernet connections in place and that the embedded 980 GUI Manager has been launched.

If you are using the external 980 GUI Manager it will be running on your laptop or host PC you will be connecting the 980 GUI Manager to the 980/980B through your corporate LAN network or a local Ethernet hub. You will need to ensure that the IP addresses of the 980 and the network interface card on your host PC and the 882 are compatible. To be compatible, the IP addresses must have the same network portions of their IP address but different host portions. The 980 is provisioned with a default IP address (192.168.1.10). You can either assign an IP address to the 980 directly or allow the network DHCP server to assign one to the 980 that is compatible with your corporate network. The procedures for changing the IP address of the 980 are provided in the following subsection.

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If you are using the embedded 980 GUI Manager you will only have to ensure that the IP address of the 980 is compatible with the IP address of the 882. But you can set the IP address of the 882 through the 980 GUI Manager.

To set the IP address of the 980 through the embedded 980 GUI Manager:

This procedure assumes that you have established a physical Ethernet connection between your PC and the 980. Note that you will have to use the embedded 980 GUI Manager to set the IP address for the initial connection.

1. Touch select the Instrument Network Settings icon on Page 4 (Other apps) page as shown below.



A dialog box will appear showing the current IP address and enabling you to reset the IP address.

🔝 Instrument Network Setti 🔜						
Instr	ument "980B_JB"					
DHCP Enabled						
IP Address:	192.168.254.160					
Netmask:	255.255.255.0					
Gateway:	192.168.254.1					
Change Cancel						

- 2. If the IP address of the 980 is compatible with IP address of your PC and corporate network, no further action is required. If you wish to change the IP address, continue.
- 3. If you are wish to allow the 980/980B's IP address to be set through DHCP services, select the DHCP Checkbox as shown below.

Instrumen	t Network Setti 💌						
Instrument "980B_JB"							
DHCP Enabled							
IP Address:	IP Address: 192.168.254.160						
Netmask:	255.255.255.0						
Gateway:	192.168.254.1						
Change Cancel							

- 4. Touch select the **Change** activation button to initiate the change. You do not have to reboot the 980 for the IP address change to take effect.
- 5. Alternatively, if you wish to set the IP address without DHCP, deselect DHCP checkbox (below).

Instrument Network Setti							
Instr	ument "980B_JB"						
DHCP Enabled							
IP Address:							
Netmask:	255.255.255.0						
Gateway:	192.168.254.1						
Change	Cancel						

6. Touch select the IP address field to access the on-line keyboard which enables you to change the IP address. Edit the IP address and press the **Enter** key on the on-line keyboard.

Note: Be sure to use an IP address that is compatible with your corporate LAN as described above.

	1	L 92.1	68.25	4.157				<	>	Bsp	Del
` 1	2	3	4	5	6	7	8	9	0	•	-
qw	e (r	t) 🖌	u	1)	P		C	
as	d	f	g	h	j	k) <u> </u>	;		Ent	ter
ZX	c	V	b	n	m),	$\left(\cdot \right)$			Shift	
			Sp	ace					Ins	Can	cel
IP Address: Netmask:	ument " DHCP E 192.16 255.25	980B_, nablec 8 5.255.0	JB" I								
Gateway: Change	192.16	8.254.1 Ca	ancel								

7. Touch select the **Change** activation button to initiate the change.

You do not have to reboot the 980 for the IP address change to take effect.

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A dialog box will appear indicating that the IP address is being changed and you will be able to view the new IP address on the bottom status strip next to the **Navigator** button. The information provided will tell you if the IP was set through DHCP or if it was set manually "Static."

Ç quantumdata									
Other									
	Navigator	Capture Viewer	CBUS Plot Viewer	CT Results Viewer					
	Command Console	Instrument Network	About the	Calibrate					
	Q	Settings	980 Manager	the LCD					
	Apply ATP License	Apply Demo License							
	Card Control	Page 4 Compliance Tests	Editors	Other					
🖙 Back	🕾 Navigator DHCP: 192.168.254	4.160 ATP Version: 4.	8.15 (3 cards detected)	×				

To set the IP address of the 980 through the command line

1. Open up a DOS window on your PC.

Note: This procedure requires a telnet session. Use standards Windows OS utilities or third party utilities.

2. Establish a telnet session to the 980 using the default IP address as follows:

telnet 192.168.1.10

You will be prompted with the Pscope login: prompt. Enter the following for a user name and password:

Pscope login: qd

Password: qd

When the p-scope prompt appears, you will need to execute a command to change its IP address using the following command:

Setip <IP address> <subnet mask> <gateway>

Note: You will have to include the subnet mask and gateway address as arguments.

The following is an example:

p-scope> setip 192.168.254.100 255.255.255.0 192.168.254.1

If you wish to use DHCP to set the IP address, use the following command:

p-scope> setip dhcp

Reboot the 980 by pressing the power button on the lower middle part of the front panel bezel. When the 980 initializes, you will be able to view the new IP address on the bottom status strip next to the **Navigator** button.



5.3 Making the physical connections for the MHL Sink Device Under Test

This subsection describes the physical connections required to run the MHL sink compliance tests. The 980 HDMI Protocol Analyzer and the 980 GUI Manager serve only as a controller for running the MHL Sink Compliance Tests. The tests are executed by the 882E/EA (except where noted).

You will use one of the Quantum Data Test Point Adapters (TPAs) between the MHL sink device under test and the 882 for these tests. There are two TPAs: 1) for MHL CTS 1.2 testing you will use the TPA-MHL-8R Test Point Adapter; 2) for MHL CTS 1.3, 2.0 and 2.1 testing you will use the TPA-MHL2-8R Test Point Adapter. The tests are executed by the 882.

Making the physical HDMI and MHL connections for MHL 1.2 CTS testing

- 1. Connect an HDMI cable from the Quantum Data 882 HDMI Out 1 port to the TPA-MHL-8R Test Point Adapter. Use the **HDMI IN** connector on the section on the TPA labeled **882 CONNECTIONS SINK DUT**.
- Connect the TPA-MHL-8R Test Point Adapter to the MHL sink device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled 882 CONNECTIONS – SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.



Connection for MHL 1.2 sink compliance testing

Making the physical HDMI and MHL connections for MHL 1.3, 2.0, 2.1 CTS testing

- 1. Connect an HDMI cable from the Quantum Data 882 HDMI Out 1 port to the TPA-MHL2-8R Test Point Adapter. Use the HDMI IN connector on the section on the TPA labeled HDMI → MHL MHL SINK DUT.
- Connect the TPA-MHL2-8R Test Point Adapter to the MHL sink device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled HDMI → MHL MHL SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.



Connection for MHL 1.2, 2.0, 2.1 sink compliance testing

5.4 Completing the CDF

Use the following procedures to complete the CDF for your MHL sink device under test.

Note: The examples used in this workflow are MHL 2.0 except where noted. The MHL 1.2 workflow is similar.

To complete the CDF:

1. From the View menu, enable viewing of the MHL Sink Compliance Test panel.



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2. 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.

🛍 Open CDF
Local Files
🔺 应 CDF
🔯 XYZ_MHL_CDF_Sink
V Ok 🙆 Cancel

3. To create a new CDF, click on the **New** activation button.

🔯 MHL Sink CT 2.1	Compliance Tests	
🔯 CDF Entry 🗹 Test Selec	ction 🕨 Test Options / Preview	
C Open New	CDF File: <not saved=""></not>	
🔒 General 💿 Video 🔍	Audio 😐 3D Video 🔍 Other	

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



4. Select the **CDF Entry** panel as shown below. Note that a status message and an exclamation point will appear indicating that not all required fields have been completed.

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MHL Sink CT 2.1	
🕲 CDF Entry 🖌 Te	st Selection 🕨 Test Options / Preview
🔄 Open 😡 New	Save CDF File: < not saved>
🔒 General 💩 Vide	o Other
One or more essentia	al fields are blank.
	CTS Version to test against.
CDF_CTS_VERSION	◎ 1.2 ◎ 1.3 ◎ 2.0 ◎ 2.1
CDF_MFR_NAME	What is the product manufacturer's name?
CDF_MODEL_NUMBER	What is the model name/number of the product?
CDF_HDCP_SUPPORT	Is HDCP supported on this DUT? Yes No
CDF_AVI_SUPPORT	Is AVI InfoFrame supported on this DUT? Yes No
CDF_AUDIO_SUPPORT	Is audio supported on this DUT? Yes No
CDF_RAP_SUPPORT	Does the DUT support RAP Sub-Commands?
	X Close

Once you have entered in all the required fields the error indication disappears as shown below:

🔯 MHL Sink CT 2.1	Compliance Tests
🕲 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview
🔄 Open 😡 New	Save CDF File: < not saved>
 General Video 	o 🔍 Audio 🔍 3D Video 🔍 Other
	CTS Version to test against.
CDF_CTS_VERSION	◎ 1.2 ◎ 1.3 ◎ 2.0 ● 2.1
CDF_MFR_NAME	What is the product manufacturer's name?
	Acme
CDF_MODEL_NUMBER	What is the model name/number of the product? XYZ
CDF HDCP SUPPORT	Is HDCP supported on this DUT?
	© Yes
CDF_AVI_SUPPORT	Is AVI InfoFrame supported on this DUT?
	Is audio supported on this DUT?
CDF_AUDIO_SUPPORT	● Yes ◎ No
CDF_RAP_SUPPORT	Does the DUT support RAP Sub-Commands?
	X Close

- 5. Complete the items in the **General** tab of the **CDF Entry** panel shown above.
- 6. Complete the items in the **Video** tab.

🖄 MHL Sink CT 2.1							
🖄 CDF Entry 🧹 Test Sel	lection 🕨 Test Options / Preview						
CDF File: < not saved>							
● Genera ● Video ● Audio ● 3D Video ● Other							
	Does the DUT support RGB encoding?						
CDF_VIDEO_RGB	● Yes ◎ No						
CDE VIDEO VCBCR 444	Does the DUT support YCBCR 4:4:4 encoding?						
	● Yes ◎ No						
CDF_VIDEO_YCBCR_422	Does the DUT support YCBCR 4:2:2 encoding?						
	© Yes ⊚ No						
CDF_VIDEO_YCC_FULL	Does the DUT support full range video quantization ranges in YCbCr format?						
	Ves 💿 No	1					
	Supported Normal Mode Video Formats						
CDF_VIDEO_VGA							
CDF_VIDEO_480p_60							
CDF_VIDEO_720p_60							
CDF_VIDEO_1080i_60	○ Yes						
CDF_VIDEO_480i_60_2X	○ Yes						
CDF_VIDEO_480i_60_4X	○ Yes						
CDF_VIDEO_480p_60_2X	○ Yes						
CDF_VIDEO_576p_50	Ves No (17,18) 720x576p 50Hz						
CDF_VIDEO_720p_50	○ Yes						
CDF_VIDEO_1080i_50	○ Yes						
CDF_VIDEO_576i_50_2X	○ Yes						
CDF_VIDEO_576i_50_4X	○ Yes	r					
	X Close	Ē					

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7. Complete the items in the Audio tab.

🖄 MHL Sink CT 2.1					
🔯 CDF Entry 🖌 Test Select	tion 🕨 Test Options / Preview				
CDF File: < not saved>					
🛛 General 🔍 Video 🔎	Audio 💿 3D Video 🔍 Other				
	Linear PCM Audio Support				
CDF_AUDIO_2CH_32kHz	Ø Yes ○ No PCM 2Ch 32kHz Audio?				
CDF_AUDIO_2CH_44kHz	Ø Yes ◎ No PCM 2Ch 44.1kHz Audio?				
CDF_AUDIO_2CH_48kHz	Yes O No PCM 2Ch 48kHz Audio?				
CDF_AUDIO_2CH_88kHz	O Yes No PCM 2Ch 88.2kHz Audio?				
CDF_AUDIO_2CH_96kHz	O Yes No PCM 2Ch 96kHz Audio?				
CDF_AUDIO_2CH_176kHz	O Yes No PCM 2Ch 176.4kHz Audio?				
CDF_AUDIO_2CH_192kHz	O Yes No PCM 2Ch 192kHz Audio?				
	Max supported Channel Count.				
CDF_AUDIO_PCM_Channels	○ 0				
	Maximum Freq for multi-channel audio (kHz)				
CDF_AUDIO_Max_Fs_Multi_Ch	◯ 32kHz ◯ 44.1kHz ⑧ 48kHz ◯ 88.2kHz ◯ 96kHz ◯ 176.4kHz ◯ 192kHz				
	Non-PCM Audio Support				
CDF_AUDIO_AC3	Ø Yes ◎ No 2: AC-3 (Dolby Digital)				
CDF_AUDIO_MPEG1	O Yes No 3: MPEG1 (Layers 1 2)				
CDF_AUDIO_MP3	O Yes No 4: MP3: MPEG1 Layer 3				
CDF_AUDIO_MPEG2	O Yes No 5: MPEG2 (multichannel)				
CDF_AUDIO_AAC	O Yes No 6: AAC				
CDF_AUDIO_DTS	O Yes O No 7: DTS				
	Close X Close				

8. Complete the items in the **3D Video** tab.

MHL Sink CT 2.1		C	0111	pliance lests		
🕲 CDF Entry 🗹 Test Selection 🕨 Test O	ptions / Pre	view				
CDF File: < not saved>						
General Video Audio 3D \	/ideo 🛛 🖉	Other]			
(CTS >= 2.0 Only)			1			
	Does the D)UT si	upport	3D video?		
CDF_VIDEO_3D	🖲 Yes 🔘) No				
	Supporte	d Nor	mal Mo	ode 3D Video Formats		
CDF_VIDEO_1280x720P_60_3D_Top_Bottom	🔘 Yes 🔘) No	(4)	1280x720p 59.94/60Hz,	зD,	Top-Bottom
CDF_VIDEO_1280x720P_50_3D_Top_Bottom	🔘 Yes 🏾 🍳) No	(19)	1280x720p 50Hz,	зD,	Top-Bottom
CDF_VIDEO_1920x1080p_24_Top_Bottom	🔘 Yes 🔘) No	(32)	1920x1080p 23.97/24Hz,	3D,	Top-Bottom
CDF_VIDEO_1920x1080i_60_3D_Left_Right	🔘 Yes 🏾 🍳) No	(5)	1920x1080i 59.94/60Hz,	3D,	Left-Right
CDF_VIDEO_1920x1080i_50_3D_Left_Right	🔘 Yes 🏾 🎯) No	(20)	1920x1080i 50Hz,	3D,	Left-Right
	Supported F	Packe	dPixel	Mode 3D Video Formats		
CDF_VIDEO_1280x720P_60_3D_Frame	🔘 Yes 🔘) No	(4)	1280x720p 59.94/60Hz,	3D,	Frame-Sequential
CDF_VIDEO_1280x720P_50_3D_Frame	🔘 Yes 🏾 🍳) No	(19)	1280x720p 50Hz,	3D,	Frame-Sequential
CDF_VIDEO_1920x1080p_24_3D_Frame	🔘 Yes 🏾 🍳) No	(32)	1920x1080p 23.97/24Hz,	3D,	Frame-Sequential
					_	
						🔀 Close

9. Complete the items in the **Other** tab.

🖄 MHL Sink CT 2.1		
🔯 CDF Entry 🧹	Test Selection 🕨 Test Options / Preview	
CDF File: < not saved>		
◎ General ◎ Vi	ideo 🔍 Audio 🔍 3D Video 🍽 Other	
NOTE: The following questions are not in the official CDF. These are questions that are asked in various "Required Methodology" sections of the CTS. For Users convenience they are asked once here rather than repeatedly during testing.		
QD_60HZ	Does the DUT support standard, enhanced or high-definition 60Hz video formats on any video input in addition to 640x480p @ 60Hz?	
QD_50HZ	 Yes No Does the DUT support standard, enhanced or high-definition 50Hz video formats on any video input? Yes No 	
QD_HDTV	Does the DUT support HDTV capability? O Yes No	
QD_OTHER_EN_DEF	Does the DUT support enhanced definition video formats on any other input? Ves No	
QD_OTHER_VGA	Does the DUT support 640x480(VGA) format on any other input? Yes No 	
QD_OTHER_YCC	Does the DUT support YCbCr color space on any other analog or digital video input? Yes No 	
QD_OTHER_AUDIO	Does the DUT support audio reception across any other input? Yes No 	
QD_OTHER_3D	Does the DUT support 3D video on any other analog or digital input port? Yes No 	
	X Close	

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

🐞 Save CDF
Local Files
🔺 🗁 CDF
XYZ_MHL_CDF_Sink
🌘 🖢 New 🕽 🦾 🧏 Rename 🔵 🌘 🗶 Delete
Path: /CDF
Name: XYZ_MHL_CDF_Sink_1
V Ok 🙆 Cancel

When you save the CDF the name will appear next to the Save button as shown below.

MHL Sink CT 2.1	
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview	
CDF File: /CDF/XYZ_MHL_CDF_Sink_1	
General Video Audio 3D Video Other	

5.5 Selecting which tests to run

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.

MHL Sink CT 2.1	
🔯 CDF Entry 🗹 Test Selection	Test Options / Preview
🔄 Open 🔛 Save 🛛 🗷 Se	lect All Tests
🕨 System 🕨 Videc 🕨 Audi	o 🕨 RAP 🕨 3D

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.

MHL Sink CT 2.1	
🔯 CDF Entry 🖌 Test Selection	Test Options / Preview
Copen Save Sel	ect All Tests Deselect All Tests
🕨 🕨 Sy 🗖 🕨 Video 🕨 Audio	RAP > 3D
	Select All on Page Clear All on Page

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

MHL Sink Compliance Test		
Open Test Selection File		
Select an Test Selection file to open.		
XYZ_MHL_Sink_Select.xml		
Cancel 🖉 Ok		

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

Note: The Character Sync tests require a direction connection from the 980 to the sink device under test. The 882E is not used. The 980 GUI Manager will instruct you to change the connection.



4. Complete the items in the Video tab of the Test Selection panel shown below.

For convenience you can Select All or Deselect All tests using the activation buttons provided.



5. Complete the items in the Audio tab of the Test Selection panel shown below.

🔁 MHL Sink CT 2.1	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Copen 🔄 Save Select All Tests	
▶ System ▶ Video ▶ Audio ▶ RAP ▶ 3D	
Select All on Page Clear All on Page	
✓ 4.2.3.1: IEC 60958 / IEC61937 Verify that the Sink DUT reproduces audio properly.	
4.2.3.2: Audio Clock Regeneration Verify that the Sink DUT properly regenerates audio when different Audio Clock Regeneration clock is used.	
X Close	

6. Complete the items in the **RAP** tab of the **Test Selection** panel shown below.



7. Complete the items in the **3D** tab of the **Test Selection** panel shown below.

MHL Sink CT 2.1	x
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Copen 🔄 Save Select All Tests 🔲 Deselect All Tests	
▶ System ▶ Video ▶ Audio ▶ RAP ▶ 3D	
Select All on Page Clear All on Page	
4.2.8.2: 3D Video Format in Normal Mode Verify that the Sink DUT supports the required and optional 3D Video Modes which use Normal Mode.	
4.2.8.3: 3D Video Format in PackedPixel Mode Verify that the Sink DUT supports the required and optional 3D Video Modes which use PackedPixel Mode.	
X Close	

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

MHL Sink CT 2.1	
🔯 CDF Entry 🖌 Test Selection 🕨	Test Options / Preview
Copen 🔄 Save 🛛 🖂 Select A	II Tests Deselect All Tests
🕨 System 🕨 deo 🕨 Audio 🖡	RAP > 3D
	Select All on Page Clear All on Page

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

MHL Sink CT: Save Test Selections
Test Selection File
Enter a file name for the Test Selection.
XYZ_MHL_Sink_Select_2.xml
XYZ_MHL_Sink_Select.xml
Cancel Ok

5.6 Executing the MHL Sink Compliance Tests

Use the following procedures to initiate the execution of an MHL Sink Compliance test series. The 980 HDMI Protocol Analyzer and the 980 GUI Manager serve only as a controller for running the MHL Sink Compliance Tests. The tests are executed by the 882E/EA except for the Character Synchronization Test discussed immediately below.

5.6.1 Character Synchronization and 3D Formats Test

The Character Synchronization and 3D Format tests are run directly from the 980 (not through the 882). The following diagram is a depiction of the test setup for the Character Synchronization and 3D Format tests. The first diagram shows the MHL 1.2 test setup with the TPA-MHL-8R. The second diagram shows the MHL 1.3, 2.0, 2.1 test setup with the TPA-MHL2-8R.





Connection for MHL 1.2 Character Synchronization/3D Format Compliance Tests

- Connect an HDMI cable from the Quantum Data 980 Tx port to the TPA-MHL-8R Test Point Adapter. Use the HDMI IN connector on the section on the TPA labeled 882 CONNECTIONS – SINK DUT. Refer to the illustration below for the 980 Tx port.
- Connect the TPA-MHL-8R Test Point Adapter to the MHL sink device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled 882 CONNECTIONS – SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.

To make the connections for the MHL Character Synchronization/3D Format Tests for MHL 1.3, 2.0, 2.1 CTS:



Connection for MHL 1.3, 2.0, 2.1 Character Synchronization/3D Format Compliance Tests

When the 980 GUI Manager controller is ready to run the Character Synchronization 4.2.1.1/3 and 3D Format 4.2.8.2/3 tests during the test execution, it will instruct you to reconfigure the test setup such that the 980 Tx port is directly connected to the MHL sink device under test. The following dialog box is presented.



- Connect an HDMI cable from the Quantum Data 980 Tx port to the TPA-MHL2-8R Test Point Adapter. Use the HDMI IN connector on the section on the TPA labeled HDMI → MHL - MHL SINK DUT. Refer to the illustration below for the 980 Tx port.
- Connect the TPA-MHL2-8R Test Point Adapter to the MHL sink device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled HDMI → MHL MHL SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.

When the Character Synchronization and 3D Format tests are complete, you will be instructed to re-connect the 882 with a dialog box (below).

To initiate a test series:

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



2. Set the **Options** for the tests. The following dialog box below appears. Note that you will have to specify the IP address of the 882 that you are using to initiate these tests in this dialog box.

Compliance Test Opti	ons
MHL Si	nk Compliance Test Options
	880 Instrument IP Address 192.168.254.236
×c	ancel V OK

When you have completed entering the IP address, click the OK activation button.

3. (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).

🖄 MHL Sink CT 2.1	
😢 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Test List	
All 🗸 All 🖉 🙀 🐵 Options Instrument: 980B_JB [192.168.254.160]	Execute Tests
Category / Test Name	
4 4 2 1 1: Character Synchronization in Normal Mode	\checkmark
• Iter 01: 480p60, blanking filled with data islands	
4 🗏 4.2.1.2: Packet Types in Normal Mode	
Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	V
Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	\checkmark
• Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	\checkmark
4.2.1.4: Packet Types in PackedPixel Mode	×
💢 Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	×
Video	
4 🛃 4.2.2.1: Video Formats in Normal Mode	V
• Iter 01: CDF Checks	
• Iter 02: (1) 640x480p(VGA) 59.94/60Hz	
• Iter 03: (2,3) 720x480p 59.94/60Hz	V
• Iter 04: (4) 1280x720p 59.94/60Hz	
• Iter US: (32) 192UX108Up 23.97/24Hz	
4 3 4.2.2.2: Pixel Encoding in Normal Mode	
• Iter 01: CDF Checks	
• Iter U2: 480p60, RGB Encoding	
• Iter U3: 480p60, ICbCr-444 Encoding	
4 2.2.2.3: VIGEO QUANTIZATION KANGE	
• Iter of, No ice_roll support indicated: Automatic PASS(SKIP)	V
# 12 4.2.2.4. VIGEO FOIMALS IN FACKEGPINEL Mode: Antomatic DASS(SPID)	
A = 4 2 2 5: Pixel Encoding in PackedPixel Mode	X
Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKTP)	X
A Nudio	
4.2.1.4: Packet Types in PackedPixel Mode	
	X Close

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.

MHL Sink CT Results				
📃 Test Results Name				
Execute MHL Sink Compliance Tests on Instruments 980: 980B_JB @ 192.168.254.160 Enter a name for the Test Results.				
08_13_2013_16_35_03_XYZ_Test3				
08_13_2013_16_35_03_XYZ_Test1 08_13_2013_16_35_03_XYZ_Test2				
Cancel 📀 Ok				

A new window appears showing the test results status with a Test Log panel on the bottom (below).

Test List Image: Category / Test Name Image: Status Image: Category / Test Name Image	sted sted
 Reset Status Category / Test Name System System Iter 01: 480p60, blanking filled with data islands Not Test Iter 01: 480p60, blanking filled with data islands Not Test Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Test Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 	sted sted
 Category / Test Name Statu System 4 2.1.1: Character Synchronization in Normal Mode Iter 01: 480p60, blanking filled with data islands Not Test 4 3.2.1.2: Packet Types in Normal Mode Not Test Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Test 	sted sted
 System 4.2.1.1: Character Synchronization in Normal Mode Iter 01: 480p60, blanking filled with data islands Iter 01: 480p60, blanking filled with data islands Not Tee Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tee Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 	sted sted
▲ ■ 4.2.1.1: Character Synchronization in Normal Mode ✓ Not Te ● Iter 01: 480p60, blanking filled with data islands ✓ Not Tes ▲ ■ 4.2.1.2: Packet Types in Normal Mode ✓ Not Tes ● Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL ✓ Not Tes ● Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 ✓ Not Tes	sted sted
 Iter 01: 480p60, blanking filled with data islands Iter 01: 480p60, blanking filled with data islands Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tes 	sted sted
▲ 🗐 4.2.1.2: Packet Types in Normal Mode ✓ Not Tes ● Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL ✓ Not Tes ● Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 ✓ Not Tes	sted
Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Tes Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tes	
Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 V Not Tes	sted
	sted
 Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tes 	sted
🖌 🔄 4.2.1.4: Packet Types in PackedPixel Mode 🛛 🗙 Incomp	lete
🔀 Iter 01: The DUT does not support PackedPixel Mode: Automatic PAS 🗱 🛛 User Sk	ipped
Video	
🖌 🔄 4.2.2.1: Video Formats in Normal Mode 🛛 🗸 Not Te	sted
• Iter 01: CDF Checks 🗸 Not Tes	sted
• Iter 02: (1) 640x480p(VGA) 59.94/60Hz 🗸 Not Tes	sted
• Iter 03: (2,3) 720x480p 59.94/60Hz 🗸 Not Tes	sted
• Iter 04: (4) 1280x720p 59.94/60Hz 🛛 🗸 Not Tes	sted
Ttop 05: /201 1000+1090p 02 07/04Ur	atod 1
Test Log	
Line Message	
• 0001 Compliance Test Started.	
• 0002 Initialization.	
• 0003 Assembling the test list.	
0004 Disabling Pass-through.	
Cancel the Compliance Test Pause Test Execution	

During the tests a **Test Setup** dialog box will appear instructing you how to set up for the tests if there is a change from the original configuration. Refer to the following dialog box for an example. Press **Continue** when you have the source device in the correct mode. You can cancel the test using the **Cancel Compliance** Test button.



A green progress arrow shows which test is currently being run. Refer to the screen example below.

MHL Sink Compliance Test (2.1): "08_13_2013_16_35_03_XYZ_Test3"						
Test list						
🖌 🔀 🥱 Reset Status						
Category / Test Name	V	Status ^				
Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	V	Pass				
Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	1	Pass				
Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	\checkmark	Pass				
4 🗏 4.2.1.4: Packet Types in PackedPixel Mode	×	Incomplete =				
🔀 Iter 01: The DUT does not support PackedPixel Mode: Automatic 1	PAS: 💢	User Skipped				
Video						
4.2.2.1: Video Formats in Normal Mode	\checkmark	In Progress				
Iter 01: CDF Checks	\checkmark	Pass				
▷ ● Iter 02: (1) 640x480p(VGA) 59.94/60Hz	\checkmark	Pass				
▶ 🕤 Iter 03: (2,3) 720x480p 59.94/60Hz	\checkmark	Pass				
➡ Iter 04: (4) 1280x720p 59.94/60Hz	\checkmark	In Progress				
Iter 05: (32) 1920x1080p 23.97/24Hz	\checkmark	Not Tested				
🔺 📃 4.2.2.2: Pixel Encoding in Normal Mode	\checkmark	Not Tested				
Iter 01: CDF Checks	\checkmark	Not Tested				
Iter 02: 480p60, RGB Encoding	\checkmark	Not Tested				
Tton 02: 400m60 VObCn 444 Presiding		Not Tootod				
4.2.8.3: 3D Video Format in PackedPixel Mode						
Tastian						
Line Message		*				
• 0049 Performing adequate support check						
• 0050 Test 4 2 2 1 Tter 03 \rightarrow Pass						
• 0051 Test 4.2.2.1-104						
• 0052 Configuring the Test Source						
OOS OS HDMT 720m60 TPVACC1 RGB 24 hmp PCM 2CH 48 kHz						
Cancel the Compliance Test Pause Test Execution						

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During the test, you will be asked to observe your sink device under test and select Pass or Fail depending on whether your sink device is displaying the video properly. The following dialog box is an example.



When the test is complete a message will indicate this on Test Log as shown in the following screen example.

MHL Sink Compliance Test (2.1): "08_13_2013_16_35_03_XYZ_Test3"		
Test List		
🗸 😫 🥱 Reset Status		
Category / Test Name	1	Status 🔺
▲ ▶ System		
4.2.1.1: Character Synchronization in Normal Mode	V	Pass
Iter 01: 480p60, blanking filled with data islands	V	Pass
4.2.1.2: Packet Types in Normal Mode	V	Pass
Description of the second s	V	Pass
a 😝 Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	\checkmark	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 		
Jeff Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	V	Pass
4 🔄 4.2.1.4: Packet Types in PackedPixel Mode	×	Incomp
💢 Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	×	User Skipped
Video		
4.2.2.1: Video Formats in Normal Mode	V	Pass
Iter 01: CDF Checks	V	Pass
▷ Ulter 02: (1) 640x480p (VGA) 59.94/60Hz	×	Pass
b Uter 03: (2,3) 720x480p 59.94/60Hz	V	Pass
⊿ 🥌 Iter 04: (4) 1280x720p 59.94/60Hz	\checkmark	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 		
▶	V	Pass
4 24.2.2.2: Pixel Encoding in Normal Mode	V	Pass 🔻
4.2.8.3: 3D Video Format in PackedPixel Mode		
Test Log		
Line Message		*
• 0114 Test 4.2.3.2 Iter 05 -> Pass		
• 0115 Test 4.2.3.2-06		
• 0116 Configuring the Test Source		
• 0117 HDMI, 480p60, /cache0/images/SmpteBar, RGB, 24 bpp, PCM_2CH, 48 k	Hz	
• 0118 Performing adequate support check		
• 0119 Test 4.2.3.2 Iter 06 -> Pass		
• 0120 Tests completed		
Y Close Window		
When the tests are completed and you select **Close Window** the test window that shows the current activity will close. A new **Compliance Test Viewer** window will appear showing the results. Refer to the following screen shots. The second example shows some of the test details exposed.

Compliance Test Results Viewer		
MHL Sink Compliance Test Results		
Manufacturer: Acme Date Tested: August 14, 2013 9:51 AM Overall Status: CTS 2.1 - Incomplete Port Tested: -	HTML Report	
Test Results		
Fest Name / Details	Ø	Status
🕞 🗏 4.2.1.1: Character Synchronization in Normal Mode		Pass
4.2.1.2: Packet Types in Normal Mode		Pass
4.2.1.4: Packet Types in PackedPixel Mode		Incomplete
4.2.2.1: Video Formats in Normal Mode		Pass
4.2.2.2: Pixel Encoding in Normal Mode		Pass
🕨 🗏 4.2.2.3: Video Quantization Range		Pass
4.2.2.4: Video Formats in PackedPixel Mode		Incomplete
🕨 📑 4.2.2.5: Pixel Encoding in PackedPixel Mode	Incomplete	
▶ 📑 4.2.3.1: IEC 60958 / IEC61937	Pass	
4.2.3.2: Audio Clock Regeneration	Pass	
4.2.8.2: 3D Video Format in Normal Mode		Pass
4.2.8.3: 3D Video Format in PackedPixel Mode		Incomplete
4.2.1.1: Character Synchronization in Normal Mode		
Instrument: 980B_JB [192.168.254.160]	-	Continue Test Execution
		🔀 Close

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E Compliance Test Results Viewer		
MHL Sink Compliance Test Results		
Results Name: 08_13_2013_16_35_03_XYZ_Test3 Manufacturer: Acme Date Tested: August 14, 2013 9:51 AM Model Name: XYZ Overall Status: CTS 2.1 - Incomplete Port Tested: -		HTML Report
Test Results		
Fest Name / Details	Q	Status 🔺
🔺 🗏 4.2.1.1: Character Synchronization in Normal Mode		Pass
Iter 01: 480p60, blanking filled with data islands		Pass
4 🗏 4.2.1.2: Packet Types in Normal Mode		Pass
b lter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL		Pass
🛽 \ominus Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75		Pass
• Manual inspection of the DUT verified adequate support of th		
Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80		Pass
4.2.1.4: Packet Types in PackedPixel Mode		Incomplete
4 🗏 4.2.2.1: Video Formats in Normal Mode		Pass
😝 Iter 01: CDF Checks		Pass
b lter 02: (1) 640x480p (VGA) 59.94/60Hz		Pass
b		Pass
⊿ 🝚 Iter 04: (4) 1280x720p 59.94/60Hz		Pass
• Manual inspection of the DUT verified adequate support of th		
b		Pass
4.2.2.2: Pixel Encoding in Normal Mode		Pass
4.2.2.3: Video Quantization Range		Pass
4.2.2.4: Video Formats in PackedPixel Mode		Incomplete
4.2.2.5: Pixel Encoding in PackedPixel Mode		Incomplete 👻
4.2.1.1: Character Synchronization in Normal Mode		
Instrument: 980B_JB [192.168.254.160]	-	Continue Test Execution
		X Close

5.7 Canceling and Resuming the MHL Sink Compliance after cancel

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.

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.

MHL Sink Compliance Test (2.1): "08_13_2013_16_35_03_XYZ_Test4"		
Test list		
🗸 🕅 Reset Status		
Category / Test Name	1	Status ^
🛛 🌔 🕒 Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	\checkmark	Pass
🛛 🌔 Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	\checkmark	Pass
Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	\checkmark	In Progress
4.2.1.4: Packet Types in PackedPixel Mode	\checkmark	Skipped E
Iter 01: The DUT does not support PackedPixel Mode: Automatic F	AS: 🗸	Skipped
Video		
4.2.2.1: Video Formats in Normal Mode	\checkmark	Not Tested
Iter 01: CDF Checks	\checkmark	Not Tested
Iter 02: (1) 640x480p(VGA) 59.94/60Hz	\checkmark	Not Tested
Iter 03: (2,3) 720x480p 59.94/60Hz	\checkmark	Not Tested
Iter 04: (4) 1280x720p 59.94/60Hz	\checkmark	Not Tested
Iter 05: (32) 1920x1080p 23.97/24Hz	\checkmark	Not Tested
4.2.2.2: Pixel Encoding in Normal Mode	\checkmark	Not Tested
Iter 01: CDF Checks	V	Not Tested
Iter 02: 480p60, RGB Encoding	V	Not Tested
Tton 02: A90n60 VCbCn AAA Prooding	~	Not Tootod
Testine		
Test Log		
Line Message		
• 0037 Performing adequate support check		
• 0038 Test 4.2.1.2 Iter 02 -> Pass		
• 0039 Test 4.2.1.2-03		
• 0040 Configuring the Test Source		
• 0041 HDMI, 480p60, /cache0/in es/SmpteBar, RGB, 24 bpp, P	CM_2CH, 4	8 kHz
		· · · · · · · · · · · · · · · · · · ·
	_	
Cancel the Compliance Test		

An indication that the test was canceled with be shown in the Test Log lower panel.

	Test Log
Line	Message
• 0040	Configuring the Test Source
• 0041	HDMI, 480p60, /cache0/images/SmpteBar, RGB, 24 bpp, PCM_2CH, 48 kHz
• 0042	Performing adequate support check
• 0043	Test 4.2.1.2 Iter 03 -> Canceled
• 0044	Test Canceled by User
•	▼
	K Close Window Continue Testing

To resume a canceled test:

1. Navigate to the **Navigator/Compliance** panel and open the MHL Sink CT Results directory as shown below.



2. Expose the details of the test results and either double click on the Details or select Open icon (below).



The results will appear in the Compliance Test Results Viewer window as shown below.

Compliance Test Results Viewer				
MHL Sink Compliance Test Results				
Results Name: 08_13_2013_16_35_03_XYZ_Test4 Manufacturer: Acme Date Tested: August 14, 2013 11:10 AM Model Name: XYZ Overall Status: CTS 2.1 - Canceled Port Tested: -				
Test Results				
Fest Name / Details	Q	Status		
4.2.1.1: Character Synchronization in Normal Mode		Pass		
> 🗏 4.2.1.2: Packet Types in Normal Mode		Canceled		
4.2.1.4: Packet Types in PackedPixel Mode		Skipped		
🕨 🗏 4.2.2.1: Video Formats in Normal Mode		Not Tested		
🕞 🗏 4.2.2.2: Pixel Encoding in Normal Mode		Not Tested		
🕨 🗏 4.2.2.3: Video Quantization Range		Not Tested		
Þ 🗏 4.2.2.4: Video Formats in PackedPixel Mode		Skipped		
4.2.2.5: Pixel Encoding in PackedPixel Mode		Skipped		
▶ 📑 4.2.3.1: IEC 60958 / IEC61937		Not Tested		
🕨 📑 4.2.3.2: Audio Clock Regeneration		Not Tested		
🕨 🗏 4.2.8.2: 3D Video Format in Normal Mode		Pass		
🕨 📑 4.2.8.3: 3D Video Format in PackedPixel Mode		Skipped		
Instrument: 980B_JB [192.168.254.160]	•	Continue Test Execution		
		🔀 Close		

3. Click on the **Continue Test Execution** button on the lower left (above) to resume the tests.

5.8 Viewing the MHL Sink 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.

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.

Generate Report
🗟 HTML Report
08_13_2013_16_35_03_XYZ_Test3
Select the desired report options.
Show Test Summary Only.
🗶 Cancel 📝 OK

wer					
	C:\Users\nkendall\	980_Capture_Files_4_8\mhlct_sink\ı	results\08_13_2013_16_35_03_XYZ	_Test3\Report_Cdf.htm	
<u>Quantum Data</u> MHL Sink Compliance Test Report CTS 2.1					
Results Name: 08_13_2013_16_35_03_XYZ_Test3 Manufacturer: Acme Date Tested: August 14, 2013 9:51 AM Model Name: XYZ Overall Status: Incomplete Port Tested: -					
Tere 4.2.1.1	Dese	Report Index	C / Summary	Test 4.2.1.4	Translate
<u>Test 4.2.1.1</u>	Pass	<u>Test 4.2.1.2</u>	Pass	Test 4.2.1.4	Pass
Test 4 2 2 4	Incomplete	Test 4 2 2 5	Incomplete	Test 4 2 3 1	Pass
Test 4.2.3.2	Pass	Test 4.2.8.2	Pass	Test 4.2.8.3	Incomplete
CDF	7	Equipm	ent Info		
		Capabilities Declar	ation Form (CDF)		
ODD OTO UTDOLON		Gen	eral		
CDF_CIS_VERSION					2.1
CDF_MFR_NAME					Acme
CDF_MODEL_NUMBER					NO
CDF_AVI_SUPPORT					NO
CDF_AVI_SUFFORT				YES	
CDF_RAP_SUPPORT VES		YES			
		Vid	leo		
CDF VIDEO RGB YES					
CDF VIDEO YCBCR	444				YES
				A Back	

HTML Viewer			
CiUsers\nkendall\980_Capture_Files_4_8\nhlkt_sink\result\08_13_2013_16_35_03_XYZ_Test3\Report_Cdf.htm			
Capabilities Declaration Form (CDF)			
	General	1	
CDF_CTS_VERSION	2.1	1 n	
CDF_MFR_NAME	Acme	1	
CDF_MODEL_NUMBER	XYZ	=	
CDF_HDCP_SUPPORT	NO	1	
CDF_AVI_SUPPORT	NO		
CDF_AUDIO_SUPPORT	YES	1	
CDF_RAP_SUPPORT	YES		
	Video		
CDF_VIDEO_RGB	YES		
CDF_VIDEO_YCBCR_444	YES		
CDF_VIDEO_YCBCR_422	NO		
CDF_VIDEO_YCC_FULL	NO		
CDF_VIDEO_PACKEDPIXEL	NO		
CDF_VIDEO_3D	YES		
	Normal Mode Video Formats		
CDF_VIDEO_VGA	YES		
CDF_VIDEO_480p_60	YES		
CDF_VIDEO_720p_60	YES		
CDF_VIDEO_1080i_60	NO		
CDF_VIDEO_480i_60_2X	NO		
CDF_VIDEO_480i_60_4X	NO		
CDF_VIDEO_480p_60_2X	NO		
CDF_VIDEO_576p_50	NO		
CDF_VIDEO_720p_50	NO		
CDF_VIDEO_1080i_50	NO		
CDF_VIDEO_576i_50_2X	NO	4	
CDF_VIDEO_576i_50_4X	NO	4	
CDF_VIDEO_576p_50_2X	NO		
CDF_VIDEO_1080p_24	YES		
CDE VIDEO 1080p 25	🖓 Back 🗈 Forward 🖳 Save As		
	- Back - Toinaid - Sure As		

C:\Users\nkendall\980_Capture_Files_4_8\mhlct_sink\results\08_13_2013_16_35_03	_XYZ_Test3\Report_Cdf.htm
est 4.2.1.1 haracter Synchronization in Normal Mode	Pass
• Iter 01: 480p60, blanking filled with data islands	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
est 4.2.1.2 acket Types in Normal Mode	Pass
• Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 02: 480p60, 2-CH PCM Audio, GCP/AVJ/SPD/AUD/MPEG/Type75	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
est 4.2.1.4 acket Types in PackedPixel Mode	Incomplete
Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	User Skipped
est 4.2.2.1 ideo Formats in Normal Mode	Pass
Yest 4.2.2.1 jdeo Formats in Normal Mode • Iter 01: CDF Checks	Pass Pass
Pest 4.2.2.1 ideo Formats in Normal Mode • Iter 01: CDF Checks • Iter 02: (1) 640x480p(VGA) 59.94/60Hz	Pass Pass Pass Pass
Fest 4.2.2.1 ideo Formats in Normal Mode • Iter 01: CDF Checks • Iter 02: (1) 640x480p(VGA) 59.94/60Hz • Manual inspection of the DUT verified adequate support of the test signal.	Pass Pass Pass

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H

Viewer	
C:\Users\nkendall\980_Capture_Files_4_8\mhlct_sink\results\08_13_2013_16_35_03_XYZ_Test3\Re	port_Cdf.htm
Test 4.2.2.2 Pixel Encoding in Normal Mode	Pass
• Iter 01: CDF Checks	Pass
• Iter 02: 480p60, RGB Encoding	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 03: 480p60, YCbCr-444 Encoding	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
Fest 4.2.2.3 ideo Quantization Range	Pas
 Iter 01: No YCC_FULL support indicated: Automatic PASS(SKIP) 	Pas
Fest 4.2.2.4	Incomj
ideo formats in fackedrixel Mode	Use
• Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	Skipp
Fest 4.2.2.5	Incom
	Use
• Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	Skipj
Cest 4.2.3.1	Pa

• Iter 01: 480p60, PCM 2Ch 32kHz Audio

Manual inspection of the DUT verified adequate support of the test signal.

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Back Close

• Iter 03: (32) 1920x1080p 23.97/24Hz, 3D, Top-Bottom

Manual inspection of the DUT verified adequate support of the test signal.

😔 Back 🜩 Forward 🛛 🔚 Save As 🛛 💥 Close

r			
	C:\Users\nkendall\980_Capture_Files_4_8\mhlct_sink\results\08_13_2013_16_35_03_XYIZ_Test3\Report_Cdf.htm		
	Test Equipment Information		
	Instrument		
1	Name: 9005 JB		
1	IP Address: 192.168.254.160		
1	Net Mask: 255.255.255.0		
	SateWay 1F: 192.105.209.1		
1	Version:		
	Advanced Test platform Version: 4.8.15		
	HDMI 980 protocol Analyzer in slot 0 [DDR 4096MB]:		
	Gateware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcb: 297b/D]		
	Firmware: [Version: 4.8.15 Build Number: 8650 (qd 08:01:2013 18:23:27 CDT)] MHI CBIE Protocol Deluger in slot 1:		
	Gateware: [Version: 1 Build Number: 562 (08:01:2013 160000) pcb: 23232323]		
	Firmware: [Version: 4.8.15 Build Number: 8650 (qd 08:01:2013 18:23:47 CDT)]		
	HDMI Video Generator in slot 2:		
	Gateware: [Version: 4.7.6 Build Number: 2 (05:21:2013 00) pcb: 297b C]		
	System Information:		
	System SN : [675F8CEA60F91A92::13030006]		
	HDMI PA SN : [53FDC3010000::N/A]		
	Main Board : ["DP67B6"]		
	CPUXZ : [6.42./ "Intel(K) Celeron(K) CPU G530 @ 2.40GHZ"]		
	HD : [SSDSC2CT18]		
	OS : [Linux xpscope-4a 2.6.26-2-686 #1 SMP Sun Mar 4 22:19:19 UTC 2012 i686 GNU/Linux]		
	GUI manager : [Version 4.8.15_42457_201308011814]		
	1 : [lo inet 127.0.0.1/8 scope host lo]		
	2 : [eth1 inet 192.168.254.160/24 brd 192.168.254.255 scope global eth1] 3 : [eth0 inet 192.168.254.160/24 brd 192.168.254.255 scope global eth0]		
	PCIE3 : [2.5x1]		
	HDMI SINK CT: [4.6.1]		
	HDMI SRC CT : [4.8.0]		
	HDCP SRC CT : [4.8.0] MHI STMF CT : [4.8.0]		
	MHL SRC CI : [4.8.0] MHL SRC CI : [4.8.0]		
_	Host		
τ	UI Name: Quantum Data 980 Manager - Version 4.8.15		
t	JI Home: platform:/base/plugins/com.quantumdata.i980.app2		
	Java Vendor. Muli Java Runtine: 1.6.0 15-b03		
- 3	Java Home: C:\Users\nkendall\Desktop\980 Release 4.8.15.42457 Win\980mgr\jre		
Ċ	05: win32		
9	DS Arch: x86		
1	Locale: en US Frae Smear 11 31 GB of 233 47 GB (5 1)		
	The space. This as of \$2.57, as (3.14)		
	Test Source		
	😔 Back 🔶 Forward 🛛 😨 Save As 🛛 🗱		

5.9 Viewing the MHL Sink Compliance test results and disseminating to others

After you have completed the tests, you can view the CDF, test results, HTML report and detailed log at any time. Assuming you have run the tests from the external 980 GUI Manager from your PC, you can easily disseminate the results to other colleagues or subject matter experts or officials at the MHL Authorized Test Centers. Instructions for viewing the test results and disseminating to others are provided below.

To view the CDF for the device under test:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select CDF and either double click or click on the **Open** icon as shown below.



The CDF appears in a new window as shown below.

🔯 MHL Sink CT 2.1	
🔯 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview
🔄 Open 🔂 New	CDF File: C:\Users\nkendall\980_Capture_Files_4_8\mhlct_sink\results\08_13_2013_16_35_03_XYZ_Test3\cdf.txt
 General Video 	o 🔍 Audio 🔍 3D Video 🔍 Other
	CTS Version to test against.
CDF_CTS_VERSION	◎ 1.2 ◎ 1.3 ◎ 2.0 ◎ 2.1
	What is the product manufacturer's name?
	Acme
CDF_MODEL_NUMBER	What is the model name/number of the product?
CDF_HDCP_SUPPORT	
	Is AVI InfoFrame supported on this DUT?
CDF_AVI_SOFFORT	⊙ Yes ⊚ No
CDF AUDIO SUPPORT	Is audio supported on this DUT?
CDF_RAP_SUPPORT	Does the DUT support RAP Sub-Commands?
	◎ Yes ◎ No
	X Close

To view a Summary of the results:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Summary and either double click or click on the **Open** icon as shown below.



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The Summary file appears in a new window as shown below.

1) File Viewer	×
File: C:\Users\nkendall\980_Capture_Files 4_8\mhlct_sink\results\08_13_2013_16_35_03_XYZ_Test3\summary.txt	
[Created]	
Created On: August 14, 2013 9:51:55 AM CDT	
[Ctatue]	
Ok: All tests executed.	
[Test Summary]	
Test: 4.2.1.1 - Fass Test: 4.2.1.7 - Fass	
Test: 4.2.1.4 - Incomplete	=
Test: 4.2.2.1 - Pass	
Test: 4.2.2.2 - Pass	
Test: 4.2.2.3 - Pass	1
Test: 4.2.2.4 - Incomplete	
Test: 4.2.2.5 - Incomplete	
Test: 4.2.3.1 - Pass	
1051; 4.2, 3.2 - rass Test: 4.2,8.2 - Pass	1
Test: 4.2.8.3 - Incomplete	
[Instrument]	
Name: 9005_00 TD Advasse: 192 168 254 160	
Net Mask: 255.255.255.0	
Gateway IP: 192.168.254.1	
Free Space: 107.58 GB of 162.23 GB (66.3%)	
Version:	
Advanced Test platform Version: 4.8.15	
HDMI 980 protocol Analyzer in slot 0 [DDR 4096MB]	
Gateware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcp: 29/0/0]	
fitmware: [version: 4.0.13 build Number: 0000 (qu 00.01.2013 10.23.2, cut,] MHI CRNS Protocol balvzer in slot 1:	
Gateware: [Version: 1 Build Number: 562 (08:01:2013 160000) pcb: 23232323]	
Firmware: [Version: 4.8.15 Build Number: 8650 (qd 08:01:2013 18:23:47 CDT)]	
HDMI Video Generator in slot 2:	
Gateware: [Version: 4.7.6 Build Number: 2 (05:21:2013 00) pcb: 297b C]	
Firmware: [Version: 4.8.15 Build Number: 8647 (qd 08:01:2013 18:21:47 CDT)]	
System Information:	
SYSTEM SN · [6/DFOCEAGOFFIAFZ::15050000] HIMT DA SN · [53FDC310000::N/A]	
Main Board : ["DP67BG"]	
	T
	•
	ОК

To view a Details results:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Details and either double click or click on the **Open**

icon as shown below.

🔁 Navigator	
🕨 Captures 💟 Compliance 🗐 ACA	EDID 📴 F 🔹 🕨
🔊 L. X 💿 🔄 🖗	
Name	Date / Time
HDMI EDID CT CT	
HDMI Src CT	
D > > HDMI Sink CT	
D > > HDMI HDCP TX CT	
MHL Src CT	
a 🗁 MHL Sink CT	
CDF	
Dest Selections	
Results	
08_13_2013_16_35_03_XYZ_Test4	2013/08/14 11:13:31
08_13_2013_16_35_03_XYZ_Test3	2013/08/14 10:12:24
🔯 CDF	2013/08/14 09:51:55
0 Summary	
📃 Details	
E Log	
Report_Cdf.htm	
08_13_2013_16_35_03_XYZ_Test2	2013/08/13 17:15:05
08_13_2013_16_35_03_XYZ_Test1	2013/08/13 16:51:10
MHL Dongle CT	
CBUS Src CT	
CBUS Sink CT	
👂 🗁 CBUS Dongle CT	

The Details file appears in a new window as shown below.

Compliance Test Results Viewer			
MHL Sin	nk Compliance Test Results		
Results Name: 08_13_2013_16_35_03_XYZ_Test3 Date Tested: August 14, 2013 9:51 AM Overall Status: CTS 2.1 - Incomplete	Manufacturer: Acme Model Name: XYZ Port Tested: -		HTML Report
	Test Results		
Test Name / Details		0	Status
🕨 🗏 4.2.1.1: Character Synchroni	zation in Normal Mode		Pass
4.2.1.2: Packet Types in Nor	mal Mode		Pass
🕨 🗏 4.2.1.4: Packet Types in Pac	kedPixel Mode		Incomplete
🕨 🗏 4.2.2.1: Video Formats in No	rmal Mode		Pass
🕨 🗏 4.2.2.2: Pixel Encoding in N	ormal Mode		Pass
4.2.2.3: Video Quantization	Range		Pass
🕞 🗏 4.2.2.4: Video Formats in Pa	ckedPixel Mode		Incomplete
4.2.2.5: Pixel Encoding in P	Incomplete		
▶ 🗏 4.2.3.1: IEC 60958 / IEC6193	Pass		
🕨 🗏 4.2.3.2: Audio Clock Regener	Pass		
4.2.8.2: 3D Video Format in	Pass		
4.2.8.3: 3D Video Format in	Incomplete		
Instrument: 980B_JB [192.168.254.160]		•	Continue Test Execution
			💥 Close

To view the detailed Log of the results:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Log and either double click or click on the **Open** icon as shown below.

🕾 Navigator	
🕨 Captures 🔯 Compliance 🗐 ACA	EDID 🕘 F 🔸 🕨
5 C. X () 🔄 🛱 🖆	
Name	Date / Time
HDMI EDID CT CT	
D 🗁 HDMI Src CT	
HDMI Sink CT	
D > > HDMI HDCP TX CT	
MHL Src CT	
MHL Sink CT	
DEP CDF	
Dest Selections	
Results	
08_13_2013_16_35_03_XYZ_Test4	2013/08/14 11:13:31
08_13_2013_16_35_03_XYZ_Test3	2013/08/14 10:12:24
CDF	2013/08/14 09:51:55
Summary	
Details	
Log	
Report_Cdf.htm	
08_13_2013_16_35_03_XYZ_Test2	2013/08/13 17:15:05
▷ ■ 08_13_2013_16_35_03_XYZ_Test1	2013/08/13 16:51:10
MHL Dongle CT	
CBUS Src C1	
De CBUS Sink CT	
CBUS Dongle CT	

The detail Log appears in a new window as shown below.

Log Viewer		
	🔲 Loa	
	From: 08 13 2013 16 35 03 XYZ Test3	
line	Messara	
09:51:56:059	Compliance Test Startad	
09:51:56:061	Initialization	Ξ
09:51:56:062	Assembling the test list.	
• 09:51:56:114	Disabling Pass-through.	
• 09:51:56:115	hdmitx disable	
• 09:51:56:116	hdmitx disable	
09:51:58:119	#p-scopa>	
• 09:51:58:120	slink down	
• 09:51:58:126	slink down	
• 09:52:00:135	#p-scops>	
• 09:52:00:150	Transferring the CDF to the Test Instrument.	
• 09:52:00:151	FTP Connect	
• 09:52:00:372		
•	From "C:\Users\nkendall\980_Capture_Files_4_8\mhlct_sink\results\08_13_2013_16_35_03_XYZ_Test3\odf.txt"	
•	To "cdf.txt"	
• 09:52:00:595	Test 4.2.1.1-01	
• 09:56:11:431	Playing the reference video file	
• 09:56:11:432	play /qd/mhl_pb/chs480p.bit	
09:56:11:434	play /qd/mhl_pb/chs480p.bit	
• 09:56:13:628	#p-scopa ≻	
• 09:56:13:640	Performing adequate support check	
• 09:57:08:385		
• 09:57:08:387	play stop	
• 09:57:08:586	#p-scopa>	
• 09:57:08:603	Test 4.2.1.1 Iter $01 \rightarrow Pass$	
09:57:08:643	7 Test 4.2.8.2-01	
• 09:57:08:652	Test 4.2.8.2 Iter 01 -> Pass	
09:57:08:662	Test 4.2.8.2-02	
09:57:08:665		
09:57:08:668	play /q/vam_ph/su playback//20pounitie.po	
09:57:11:614	pag rayan <u>s</u> prospanyasyasok/raypominico.po	
		T
	11	
	X Close	

To view the HTML report:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Report_CDF and either double click or click on the **Open**

icon as shown below.

🔁 Navigator	· · · · · · · · · · · · · · · · · · ·
🕨 Captures 🔯 Compliance 🗐 ACA	EDID 📴 F 🔸 🕨
5 L X () 😫 (†) 🖻	
Name	Date / Time
HDMI EDID CT CT	
D 🗁 HDMI Src CT	
👂 🗁 HDMI Sink CT	
D > > HDMI HDCP TX CT	
MHL Src CT]
a 🗁 MHL Sink CT	
DF	
Dest Selections	
Results	
08_13_2013_16_35_03_XYZ_Test4	2013/08/14 11:13:31
08_13_2013_16_35_03_XYZ_Test3	2013/08/14 10:12:24
CDF	2013/08/14 09:51:55
Summary	
📃 Details	
Log	
Report_Cdf.htm	
08_13_2013_16_35_03_XYZ_Test2	2013/08/13 17:15:05
08_13_2013_16_35_03_XYZ_Test1	2013/08/13 16:51:10
👂 🗁 MHL Dongle CT	
CBUS Src CT	
CBUS Sink CT	
👂 🗁 CBUS Dongle CT	

The HTML report appears in a new window as shown below.

	C:\Users\nkendall\	980_Capture_Files_4_8\mhlct_sink\i	results\08_13_2013_16_35_03_XYZ	_Test3\Report_Cdf.htm		
rated on: August 14, 2013 10:12 AM	MHL	<u>Quantu</u> Sink Compli CTS	<u>m Data</u> ance Test Ro 2.1	eport	<u>www.c</u>	
Results N Date Te Overall St	lame: ested: a tus:	08_13_2013_16_35_03 August 14, 2013 9: Incomplete	XYZ_Test3 51 AM		Manufacturer: Acn Model Name: XY Port Tested: -	
		Report Index	t / Summary			
Test 4.2.1.1	Pass	Test 4.2.1.2	Pass	Test 4.2.1.4	Incomplete	
<u>Test 4.2.2.1</u>	Pass	<u>Test 4.2.2.2</u>	Pass	<u>Test 4.2.2.3</u>	Pass	
<u>Test 4.2.2.4</u>	Incomplete	<u>Test 4.2.2.5</u>	Incomplete	Test 4.2.3.1	Pass	
<u>Test 4.2.3.2</u>	Pass	<u>Test 4.2.8.2</u>	Pass	Test 4.2.8.3	Incomplete	
CDF	_	Equipm	ent Info			
		Capabilities Declar	ration Form (CDF)			
OPE OTS LEDSION		Capabilities Declar Gen	<mark>ration Form (CDF)</mark> eral			
CDF_CTS_VERSION		Capabilities Declar Gene	<mark>ration Form (CDF)</mark> eral		2.1	
CDF_CTS_VERSION CDF_MFR_NAME		Capabilities Declan Gen	r <mark>ation Form (CDF)</mark> eral		2.1 Acme	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBER	R	Capabilities Declan Gen	r <mark>ation Form (CDF)</mark> eral		2.1 Acme XYZ	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBER CDF_HDCP_SUPPORT	2	Capabilities Declar Gen	r <mark>ation Form (CDF)</mark> eral		2.1 Acme XYZ NO	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBER CDF_HDCP_SUPPORT CDF_AVI_SUPPORT	2	Capabilities Declar Gen	ration Form (CDF) eral		2.1 Acme XYZ NO NO	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBER CDF_HDCP_SUPPORT CDF_AVI_SUPPORT CDF_AUDIO_SUPPORT	2	Capabilities Declar Gen	ration Form (CDF) eral		2.1 Acme XYZ NO NO YES	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBEF CDF_HDCP_SUPPORT CDF_AVI_SUPPORT CDF_AUDIO_SUPPORT CDF_RAP_SUPPORT	2	Capabilities Declan Gen	ration Form (CDF) eral		2.1 Acme XYZ NO NO YES YES	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBER CDF_HDCP_SUPPORT CDF_AVI_SUPPORT CDF_AUDIO_SUPPORT CDF_RAP_SUPPORT	ξ	Capabilities Declan Gen-	eral		2.1 Acme XYZ NO NO YES YES	
CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMBER CDF_HDCP_SUPPORT CDF_AVI_SUPPORT CDF_AUDIO_SUPPORT CDF_RAP_SUPPORT CDF_VIDEO_RGB	ξ	Capabilities Declan Gen-	eral eral		2.1 Acme XYZ NO NO YES YES YES	

To disseminate the results to others:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Right click on the set of results you wish to disseminate and select Export as shown below.



A Window opens up for you to browse to a directory to store the files.

3. Select **Save** to save the result files. A zip file is created and stored in the directory. You can now email the file or post the file on an FTP site or store on a storage service (e.g. dropbox).





C Export To		-	8-w		_	x
	st_Results	-		🕶 🍫 Search Test	_Results	Q
Organize 🔻 Ne	w folder					0
★ Favorites ↓ Downloads ☆ Recent Places ▲ Desktop	A III	Name	No items match	Date modified your search.	Туре	g
 Libraries Documents Music Pictures Subversion Videos 						
1특 Computer 🏭 Local Disk (C:))	•	III			Þ
File name: Save as type:	08_13_2013_16_35_03_XYZ_T *.zip	'est3				•
Alide Folders				Save	Cance	

6 MHL Dongle Compliance Tests

This chapter describes how to use the MHL dongle compliance test feature. Please note you will have to purchase the 980 MHL Sink Compliance Test option in order to run these tests. *Also note that this test suite requires the Quantum Data 882 instrument, release 2.25.0 which uses firmware version 20.1887600.* The 980 HDMI Protocol Analyzer serves only as a controller for running the MHL sink/dongle compliance tests (except where noted) as a convenience to owners of the 882 test instrument. The following test sections in the MHL 1.2, 1.3, 2.0 and 2.1 Dongle Compliance Test specification are supported through the 980 GUI Manager:

Dongle Compliance Tests

- 5.2.1 Dongle System Tests
 - Test ID 5.2.1.1 Character Synchronization Normal Mode
 - Test ID 5.2.1.2 Packet Types Normal Mode
 - Test ID 5.2.1.3 Character Synchronization Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
 - Test ID 5.2.1.4 Packet Types Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
- 5.2.2 Dongle Video Tests
 - Test ID 5.2.2.1 Video Formats Normal Mode
 - Test ID 5.2.2.2 Pixel Encoding Normal Mode
 - Test ID 5.2.2.3 Video Quantization
 - o Test ID 5.2.2.4 Video Formats (MHL 1.3, 2.0, 2.1 only)
 - Test ID 5.2.2.5 Pixel Encoding Packed Pixel Mode (MHL 1.3, 2.0, 2.1 only)
- 5.2.3 Dongle Audio Tests
 - o Test ID 5.2.3.1 IEC 60958 / IEC 61937
 - Test ID 5.2.3.2 Audio Clock Regeneration
- 5.2.7 Dongle RAP Test
 - Test ID 5.2.7.1 RAP and RAPK Sub-Commands Test (MHL 1.3, 2.0, 2.1 only)
- 5.2.8 Dongle Audio Tests
 - Test ID 5.2.8.2 3D Video Format in Normal Mode (MHL 2.0, 2.1 only)
 - Test ID 5.2.8.3 3D Video Format in PackedPixel Mode (MHL 2.0, 2.1 only)

6.1 Workflow for running the MHL Dongle Compliance Tests

The following is the high level workflow for running the MHL Dongle Compliance Tests. This workflow assumes that you have powered up the 980 and established an Ethernet session with the 980 as described in <u>Connection</u> for 980 GUI Manager and 980.

The following is the high level workflow for running the MHL Dongle Compliance Tests.

- 1. Connect the source device under test to the 980 Protocol Analyzer.
- 2. Complete a (or load an existing) Capabilities Declaration Form (CDF) for the device under test using the **CDF Entry** panel.

Note: You can now select addition formats for testing on an individual test basis. This enables you to run a particular test on a format that is not specified in the CTS.

- 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.

6.2 Making the physical connections for 980 GUI Manager control

This subsection describes the physical connections required to run the MHL dongle compliance tests. The 980 HDMI Protocol Analyzer and the 980 GUI Manager serve only as a controller for running the MHL Dongle Compliance Tests. The tests are executed by the 882E/EA (except where noted).

There are three connection scenarios for running and controlling the tests through the 980 GUI Manager application. These scenarios are described below and shown in the set up diagrams that follow:

- Using the embedded 980 GUI Manager running on the 980.
- Using the external 980 GUI Manager with point to point Ethernet configurations between the 980 and the Host PC (where the external 980 GUI Manager resides) and between the 980 and the 882.
- Using the external 980 GUI Manager and connecting from a Host PC to the 980 and 882 through a corporate Ethernet LAN.

To make the physical Ethernet connections when using the embedded GUI Manager:

Use this procedure when you are running the MHL sink compliance test suite through the embedded 980 GUI Manager. This procedure assumes that you have assembled the 882, 980 HDMI Protocol Analyzer and sink device under test and applied power to all these devices. Refer to the procedures and diagram below.

1. Connect an Ethernet cable from the 980 Ethernet jack on the lower left half of the back panel of the 980 HDMI Protocol Analyzer frame (refer to the diagram below) to the 882EA Ethernet jack. The IP address on this port can be configured using the procedures at <u>Connection Scenarios for 980 Manager to 980 Protocol Analyzer</u>.



Ethernet direct connection for MHL dongle compliance testing (MHL 1.2 example shown)

To make the physical connections using Ethernet network connections with the external GUI Manager:

This procedure assumes that you have assembled the 882, Host PC, 980 Protocol Analyzer and sink device under test and applied power to all these devices. Refer to the procedures and diagram below.



Ethernet connection through Hub for MHL dongle compliance testing (MHL 1.2 example shown)

- 1. Connect an Ethernet cable from your PC hosting the external 980 GUI Manager to an Ethernet jack on your corporate network or Ethernet hub.
- 2. Connect an Ethernet cable from the 882 to an Ethernet jack on your corporate network or Ethernet hub.
- Connect an Ethernet cable from the 980 Ethernet jack on the lower left half of the back panel of the 980
 Protocol Analyzer frame to an Ethernet jack on your corporate network or Ethernet hub. The IP address on this
 980 port is configurable using the procedures at: <u>Setting the IP address of the 980 Protocol Analyzer</u>. Refer to
 the diagram below.

6.2.1 Setting the IP address of the 980/980B

This procedure describes how to set the IP address of the 980 HDMI Protocol Analyzer module. You can change the 980's IP address through the 980's front panel touch screen display. You can also allow the network DHCP server to assign an IP address. This procedure assumes that you have powered up the 980, have the physical Ethernet connections in place and that the embedded 980 GUI Manager has been launched.

If you are using the external 980 GUI Manager it will be running on your laptop or host PC you will be connecting the 980 GUI Manager to the 980/980B through your corporate LAN network or a local Ethernet hub. You will need to ensure that the IP addresses of the 980 and the network interface card on your host PC and the 882 are compatible. To be compatible, the IP addresses must have the same network portions of their IP address but different host portions. The 980 is provisioned with a default IP address (192.168.1.10). You can either assign an IP address to the 980 directly or allow the network DHCP server to assign one to the 980 that is compatible with your corporate network. The procedures for changing the IP address of the 980 are provided in the following subsection.

If you are using the embedded 980 GUI Manager you will only have to ensure that the IP address of the 980 is compatible with the IP address of the 882. But you can set the IP address of the 882 through the 980 GUI Manager.

To set the IP address of the 980 through the embedded 980 GUI Manager:

This procedure assumes that you have established a physical Ethernet connection between your PC and the 980. Note that you will have to use the embedded 980 GUI Manager to set the IP address for the initial connection.

1. Touch select the Instrument Network Settings icon on Page 4 (Other apps) page as shown below.



A dialog box will appear showing the current IP address and enabling you to reset the IP address.

📧 Instrument Network Setti 💻						
Instrument "980B_JB"						
V	DHCP Enabled					
IP Address:	192.168.254.160					
Netmask:	255.255.255.0					
Gateway:	Gateway: 192.168.254.1					
Change Cancel						

- 2. If the IP address of the 980 is compatible with IP address of your PC and corporate network, no further action is required. If you wish to change the IP address, continue.
- 3. If you are wish to allow the 980/980B's IP address to be set through DHCP services, select the DHCP Checkbox as shown below.

🔲 Instrument Network Setti 💻						
Instrument "980B_JB"						
	DHCP Enabled					
IP Address:	192.168.254.160					
Netmask:	255.255.255.0					
Gateway:	192.168.254.1					
Change Cancel						

- 4. Alternatively, if you wish to set the IP address without DHCP, deselect DHCP checkbox (below).
- 5. Touch select the **Change** activation button to initiate the change. You do not have to reboot the 980 for the IP address change to take effect.

Instrument Network Setti						
Instr	ument "980B_JB"					
	DHCP Enabled					
IP Address:						
Netmask:	255.255.255.0					
Gateway:	192.168.254.1					
Change	Cancel					

6. Touch select the IP address field to access the on-line keyboard which enables you to change the IP address. Edit the IP address and press the **Enter** key on the on-line keyboard.

Note: Be sure to use an IP address that is compatible with your corporate LAN as described above.

	1	192.1	68.25	4.157				<	>	Bsp	Del
` 1	2	3	4	5	6	7	8	9	0		-
qw	e (r	t)	u) i)	p			(
a (s)	d (f	g	h	j	k		;		Ent	ter
z x	c)(v)	b	n	m),	(\cdot)			Shift	-
	-		Sp	ace		-	-		Ins	Can	cel
	ument ' DHCP E	980B_	JB" J								
IP Address:	192.16	8									
Netmask:	255.25	5.255.0)								
Gateway:	192.16	8.254.1	L								
Change	e (C	ancel								

7. Touch select the **Change** activation button to initiate the change.

You do not have to reboot the 980 for the IP address change to take effect.

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A dialog box will appear indicating that the IP address is being changed and you will be able to view the new IP address on the bottom status strip next to the **Navigator** button. The information provided will tell you if the IP was set through DHCP or if it was set manually "Static."

📿 quantumdata							
Other							
	Navigator	Capture Viewer	CBUS Plot Viewer	CT Results Viewer			
	Command Console	Instrument Network	About the	Calibrate			
	0		980 Manager	the LCD			
	Apply ATP License	Apply Demo License					
		Page 4	4 of 4				
	Card Control	Compliance Tests	Editors	Other			
🖙 Back	Savigator DHCP: 192.168.2	54.160 ATP Version: 4.	.8.15 (3 cards detecte	d)	× .		

To set the IP address of the 980 through the command line

1. Open up a DOS window on your PC.

Note: This procedure requires a telnet session. Use standards Windows OS utilities or third party utilities.

2. Establish a telnet session to the 980 using the default IP address as follows:

telnet 192.168.1.10

You will be prompted with the Pscope login: prompt. Enter the following for a user name and password:

Pscope login: qd

Password: qd

When the p-scope prompt appears, you will need to execute a command to change its IP address using the following command:

Setip <IP address> <subnet mask> <gateway>

Note: You will have to include the subnet mask and gateway address as arguments.

The following is an example:

p-scope> setip 192.168.254.100 255.255.255.0 192.168.254.1

If you wish to use DHCP to set the IP address, use the following command:

p-scope> setip dhcp

Reboot the 980 by pressing the power button on the lower middle part of the front panel bezel. When the 980 initializes, you will be able to view the new IP address on the bottom status strip next to the **Navigator** button.



6.3 Making the physical connections for the MHL Dongle Device Under Test

This subsection describes the physical connections required to run the MHL dongle compliance tests. The 980 HDMI Protocol Analyzer and the 980 GUI Manager serve only as a controller for running the MHL dongle compliance Tests. The tests are executed by the 882E/EA (except where noted).

You will use one of the Quantum Data Test Point Adapters (TPAs) between the MHL sink device under test and the 882for these tests. There are two TPAs: 1) for MHL CTS 1.2 testing you will use the TPA-MHL-8R Test Point Adapter; 2) for MHLCTS 2.0 testing you will use the TPA-MHL2-8R Test Point Adapter. The tests are executed by the 882.

Making the physical HDMI and MHL connections for MHL 1.2 CTS testing

- 1. Connect an HDMI cable from the Quantum Data 882 HDMI Out 1 port to the TPA-MHL-8R Test Point Adapter. Use the **HDMI IN** connector on the section on the TPA labeled **882 CONNECTIONS SINK DUT**.
- Connect the TPA-MHL-8R Test Point Adapter to the MHL dongle device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled 882 CONNECTIONS – SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.



Connection for MHL 1.2 dongle compliance testing

Making the physical HDMI and MHL connections for MHL 1.3, 2.0, 2.1 CTS testing

- 1. Connect an HDMI cable from the Quantum Data 882 HDMI Out 1 port to the TPA-MHL2-8R Test Point Adapter. Use the HDMI IN connector on the section on the TPA labeled HDMI → MHL MHL SINK DUT.
- Connect the TPA-MHL2-8R Test Point Adapter to the MHL sink device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled HDMI → MHL MHL SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.



Connection for MHL 1.3, 2.0, 2.1 dongle compliance testing

6.4 Completing the CDF

Use the following procedures to complete the CDF for your MHL sink device under test.

Note: The examples used in this workflow are MHL 2.0 except where noted. The MHL 1.2 workflow is similar.

To complete the CDF:

1. From the View menu, enable viewing of the MHL Sink Compliance Test panel.



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

MHL Dongle CT 2.1	
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
CDF File: < not saved>	
🔒 General 💿 Video 🔍 Audio 🔍 3D Video 🔍 Other	

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



3. To create a new CDF, click on the **New** activation button.

MHL Dongle CT 2.1		
😢 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview		
CDF File: < not saved>		
😉 General 💿 Video 🔍 Audio 🔍 3D Video 🔍 Other		

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

C New CDF	
Start a new CDF? All CDF values will be reset to defaults.	OK Cancel

4. Select the **CDF Entry** panel as shown below. Note that a status message and an exclamation point will appear indicating that not all required fields have been completed.
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🖄 MHL Dongle CT 2.1	
🔯 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview
🔄 Open 🔒 New	GDF File: < not saved>
🔒 General 🔹 Video	o • Audio • 3D Video • Other
One or more essentia	I fields are blank.
	CTS Version to test against.
CDF_CTS_VERSION	◎ 1.2 ◎ 1.3 ◎ 2.0 ◎ 2.1
CDF MFR NAME	What is the product manufacturer's name?
CDF_MODEL_NUMBER	What is the model name/number of the product?
CDF HDCP SUPPORT	Is HDCP supported on this DUT?
	O Yes O No
CDF_AVI_SUPPORT	Is AVI InfoFrame supported on this DUT?
	Ves O No
CDF_AUDIO_SUPPORT	Saudio supported on this DU1? O Yes No
	Does the DUT support RAP Sub-Commands?
CDF_NAP_SOFFORT	● Yes ◎ No
	X Close

💟 MHL Dongle CT 2.1	
🔯 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview
🔄 Open 🔂 New	Given Save CDF File: < not saved>
 General Vide 	o 🔍 Audio 🔍 3D Video 🔍 Other
	CTS Version to test against.
CDF_CTS_VERSION	◎ 1.2 ◎ 1.3 ◎ 2.0 ◎ 2.1
CDF MFR NAME	What is the product manufacturer's name?
	Acme
CDF_MODEL_NUMBER	What is the model name/number of the product? XYZ
CDF HDCP SUPPORT	Is HDCP supported on this DUT?
	O Yes (No
CDF_AVI_SUPPORT	Is AVI InfoFrame supported on this DUT?
	V YES IN NO
CDF_AUDIO_SUPPORT	
CDE RAP SUPPORT	Does the DUT support RAP Sub-Commands?
	◎ Yes ◎ No
	🗶 Close

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



When you save the CDF the name will appear next to the **Save** button as shown below.

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MHL Sink CT 2.1	Compliance Tests	
🔯 CDF Entry 🗹 Test Selection	Test Options / Preview	
Copen New 📑 Save	CDF File: /CDF/XYZ_MHL_CDF_Sink_1	
General Video Audi	io 💿 3D Video 🔍 Other	

- 6. Complete the items in the **General** tab of the **CDF Entry** panel shown above.
- 7. Complete the items in the $\ensuremath{\textit{Video}}$ tab.

12 MHL Dongle CT 2.1		x
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview		
CDF File: /CDF/XYZ_MHL_Dongle_CDF		
Genera Video Audio JD Video Other		
CDF_VIDEO_RGB Does the DUT support RGB encoding?		
CDF_VIDEO_YCBCR_444 Ooses the DUT support YCBCR 4:4:4 encoding?		
CDF_VIDEO_YCBCR_422 Does the DUT support YCBCR 4:2:2 encoding?		_
CDF_VIDEO_YCC_FULL Does the DUT support full range video quantization ranges in YCbCr format?		-
Supported Normal Mode Video Formats		
CDF_VIDEO_VGA Ves No (1) 640x480p (VGA) 59.94/60Hz		
CDF_VIDEO_480p_60		
CDF_VIDEO_720p_60		_
CDF_VIDEO_1080i_60		_
CDF_VIDEO_480i_60_2X		_
CDF_VIDEO_480i_60_4X		_
CDF_VIDEO_480p_60_2X O Yes O No (14,15) 1440x480p 59.94/60Hz		_
CDF_VIDEO_576p_50		_
CDF_VIDEO_720p_50		-
	X Close	

8. Complete the items in the **Audio** tab.

🖄 MHL Dongle CT 2.1		۲.			
🔯 CDF Entry 🗹 Test Selec	tion 🕨 Test Options / Preview				
🔄 Open 🕞 New 🔚 Sa	CDF File: /CDF/XYZ_MHL_Dongle_CDF				
🔍 General 🔍 Video –	Audio 💿 3D Video 🔍 Other	_			
	Linear PCM Audio Support				
CDF_AUDIO_2CH_32kHz	Ø Yes ◎ No PCM 2Ch 32kHz Audio?				
CDF_AUDIO_2CH_44kHz					
CDF_AUDIO_2CH_48kHz					
CDF_AUDIO_2CH_88kHz	O Yes O No PCM 2Ch 88.2kHz Audio?				
CDF_AUDIO_2CH_96kHz	O Yes O No PCM 2Ch 96kHz Audio?				
CDF_AUDIO_2CH_176kHz	O Yes O No PCM 2Ch 176.4kHz Audio?				
CDF_AUDIO_2CH_192kHz	O Yes O No PCM 2Ch 192kHz Audio?	_			
CDE AUDIO DOM Chanada	Max supported Channel Count.	-			
CDF_AODIO_PCIM_Channels	0 0 2 3 4 5 6 7 8				
	Maximum Freq for multi-channel audio (kHz)				
CDF_AUDIO_Max_Fs_Multi_Ch	© 32kHz ◎ 44.1kHz ◎ 48kHz ◎ 88.2kHz ◎ 96kHz ◎ 176.4kHz ◎ 192kHz				
	Non-PCM Audio Support				
CDF_AUDIO_AC3					
CDF_AUDIO_MPEG1	⊘ Yes				
CDF_AUDIO_MP3	O Yes O No 4: MP3: MPEG1 Layer 3				
CDF_AUDIO_MPEG2	Yes No 5: MPEG2 (multichannel)	-			
	X Close				

9. Complete the items in the **3D Video** tab.

🖄 MHL Dongle CT 2.1						
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview						
CDF File: /CDF/XYZ_MHL_Dongle_CDF						
General Video Audio 3D	Video 🏾 🛛	Other]			
(CTS >= 2.0 Only)						
CDF_VIDEO_3D	Does the Yes	e DUT s	upport 3D	video?		
	Suppor	rted No	rmal Mode	3D Video Formats		
CDF_VIDEO_1280x720P_60_3D_Top_Bottom	Yes	🔘 No	(4)	1280x720p 59.94/60Hz,	3D,	Top-Bottom
CDF_VIDEO_1280x720P_50_3D_Top_Bottom	Yes	No	(19)	1280x720p 50Hz,	3D,	Top-Bottom
CDF_VIDEO_1920x1080p_24_Top_Bottom	Yes	© No	(32)	1920x1080p 23.97/24Hz,	3D,	Top-Bottom
CDF_VIDEO_1920x1080i_60_3D_Left_Right	Yes	No	(5)	1920x1080i 59.94/60Hz,	3D,	Left-Right
CDF_VIDEO_1920x1080i_50_3D_Left_Right	Yes	No	(20)	1920x1080i 50Hz,	3D,	Left-Right
	Supporte	d Packe	edPixel Mo	de 3D Video Formats		
CDF_VIDEO_1280x720P_60_3D_Frame	Yes	© No	(4)	1280x720p 59.94/60Hz,	3D,	Frame-Sequential
CDF_VIDEO_1280x720P_50_3D_Frame	Yes	No	(19)	1280x720p 50Hz,	3D,	Frame-Sequential
CDF_VIDEO_1920x1080p_24_3D_Frame	Yes	🔘 No	(32)	1920x1080p 23.97/24Hz,	3D,	Frame-Sequential
					_	
						💢 Close

10. Complete the items in the **Other** tab.

🖄 MHL Dongle CT 2.		x
🔯 CDF Entry 🧹	Test Selection 🕨 Test Options / Preview	
CDF File: /CDF/XYZ_MHL_Dongle_CDF		
⊖ General ⊖ Vi	deo 🔍 Audio 🔍 3D Video 🔍 Other	
NOTE: The follow sections of the CT For Users conven	ing questions are not in the official CDF. These are questions that are asked in various "Required Methodology" S. ience they are asked once here rather than repeatedly during testing.	*
QD_60HZ	Does the DUT support standard, enhanced or high-definition 60Hz video formats on any video input in addition to 640x480p @ 60Hz?	
QD_50HZ	Does the DUT support standard, enhanced or high-definition 50Hz video formats on any video input? Yes No 	
QD_HDTV	Does the DUT support HDTV capability? O Yes No	=
QD_OTHER_EN_DEF	Does the DUT support enhanced definition video formats on any other input? Yes No 	
QD_OTHER_VGA	Does the DUT support 640x480(VGA) format on any other input?	
QD_OTHER_YCC	Does the DUT support YCbCr color space on any other analog or digital video input? Yes No 	
QD_OTHER_AUDIO	Does the DUT support audio reception across any other input? Yes No 	
QD_OTHER_3D	Does the DUT support 3D video on any other analog or digital input port?	-
	X Close	

6.5 Selecting which tests to run

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.

MHL Dongle CT 2.1	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
System Video Audio RAP 3D	

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.

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

N	MHL Dongle Compliance Test					
	Open Test Selection File					
	Select an Test Selection file to open.					
	XYZ_MHL_Dongle_Selection.xml					
	Cancel 🖉 Ok					

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3. Complete the items in the System tab of the Test Selection panel shown below.

Note: The Character Sync and 3D Format tests require a direction connection from the 980 to the sink device under test. The 882E is not used. The 980 GUI Manager will instruct you to change the connection.

MHL Dongle CT 2.1
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview
Copen 🔄 Save Select All Tests Deselect All Tests
System Video P Audio P RAP P 3D
Select All on Page Clear All on Page
5.2.1.1: Character Synchronization in Normal Mode Confirm that the Dongle DUT synchronizes if the Normal Mode data stream provides only minimum length Control Periods.
5.2.1.2: Packet Types in Normal Mode Confirm that the Dongle DUT accepts all valid packet types in Normal Mode.
✓ 5.2.1.3: Character Synchronization in PackedPixel Mode Confirm that the Dongle DUT synchronizes if the data stream provides only minimum length Control Periods.
✓ 5.2.1.4: Packet Types in PackedPixel Mode Confirm that the Dongle DUT accepts all valid packet types in PackedPixel Mode.
X Close

4. Complete the items in the Video tab of the Test Selection panel shown below.

For convenience you can Select All or Deselect All tests using the activation buttons provided.



5. Complete the items in the Audio tab of the Test Selection panel shown below.

🖄 MHL Dongle CT 2.1	
😢 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Copen 🔄 Save Select All Tests Deselect All Tests	
▶ System ▶ Video ▶ Audio ▶ RAP ▶ 3D	
Select All on Page Clear All on Page	
5.2.3.1: IEC 60958 / IEC61937 Verify that the Dongle DUT reproduces audio properly.	
5.2.3.2: Audio Clock Regeneration Verify that the Dongle DUT properly regenerates audio when different Audio Clock Regeneration clock is used.	
	X Close

6. Complete the items in the **RAP** tab of the **Test Selection** panel shown below.



7. Complete the items in the **3D** tab of the **Test Selection** panel shown below.

🖄 MHL Dongle CT 2.1	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
🔄 Open 🔄 Save Select All Tests 🔲 Deselect All Tests	
▶ System ▶ Video ▶ Audio ▶ RAP ▶ 3D	
Select All on Page Clear All on Page	
S.2.8.2: 3D VIGEO FORMAT IN NORMAL MODE Verify that the Dongle DUT supports the required and optional 3D Video Modes which use Normal Mode.	
Image: Contract of the second state of the second	
Verify that the Dongle DUT supports the required and optional 3D Video Modes which use PackedPixel Mode.	
	X Close

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

MHL Dongle CT 2.1	
🔯 CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
🕨 System 🎽 deo 🕨 Audio 🕨 RAP 🏓 3D	
Select All on Page Clear All on Page	

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

MHL Dongle CT: Save Test Selections
Test Selection File
Enter a file name for the Test Selection.
XYZ_MHL_Dongle_Selection_2[xml
XYZ_MHL_Dongle_Selection.xml
Cancel Ok

6.6 Executing the MHL Dongle Compliance Tests

Use the following procedures to initiate the execution of an MHL Dongle Compliance test series.

Note: The example workflow in this section uses MHL 2.1 except where noted. The workflow for testing MHL 1.2, 1.3 and 2.0 devices is similar.

Special Note about Character Synchronization and 3D Format Tests: The Character Synchronization and 3D Format tests are run directly from the 980 (not through the 882). The following diagram is a depiction of the test setup for these tests.



Connection for MHL 1.2 dongle compliance testing with Rev C Protocol Analyzer module



Connection for MHL 1.2 dongle compliance testing with Rev D Protocol Analyzer module



Connection for MHL 1.3, 2.0, 2.1 dongle compliance testing with Rev C Protocol Analyzer module



Connection for MHL 1.3, 2.0, 2.1 dongle compliance testing with Rev D Protocol Analyzer module

When the 980 GUI Manager controller is ready to run the Character Synchronization 5.2.1.1/3 and 3D Format 5.2.8.2/3 tests during the test execution, it will instruct you to reconfigure the test setup such that the 980 Tx port is directly connected to the MHL sink device under test. The following dialog box is presented.

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- Connect an HDMI cable from the Quantum Data 980 Tx port to the TPA-MHL2-8R Test Point Adapter. Use the HDMI IN connector on the section on the TPA labeled HDMI → MHL - MHL SINK DUT. Refer to the illustration below for the 980 Tx port.
- Connect the TPA-MHL2-8R Test Point Adapter to the MHL sink device under test. Use the MHL OUT TO DUT connector on the section on the TPA labeled HDMI → MHL MHL SINK DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.

When the Character Synchronization and 3D Format tests are complete, you will be instructed to re-connect the 882 with a dialog box (below).

To initiate a test series:

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

MHL Dongle CT 2.1	
🕲 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Test List	
☑ All ☑ Options Instrument: 980B_JB [192.168.254.160]	Execute Tests
Category / Test Name	× _
System	
🖌 📃 5.2.1.1: Character Synchronization in Normal Mode	V
Iter 01: 480p60, blanking filled with data islands	V
Iter 02: 576p50, blanking filled with data islands	V
🖌 📃 5.2.1.2: Packet Types in Normal Mode	×
Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	V
Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	✓ =
Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	×
Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	V
Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	V
Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	V
🖌 📃 5.2.1.3: Character Synchronization in PackedPixel Mode	V
Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	V
🔺 🗏 5.2.1.4: Packet Types in PackedPixel Mode	V -
Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	\checkmark
Video	
🖌 🗐 5.2.2.1: Video Formats	V
<pre>o Iter 01: (2,3) 720x480p 59.94/60Hz</pre>	V
Iter 02: (17,18) 720x576p 50Hz	V
🔺 🗏 5.2.2.2: Pixel Encoding in Normal Mode	V
• Iter 01: CDF Checks	V
Iter 02: 480p60, RGB Encoding	V
🔺 📃 5.2.2.3: Video Quantization Range	V
Iter 01: No YCbCr-444 / YCbCr-422 support indicated: Automatic PASS(SKIP)	V
🔺 🗏 5.2.2.4: Video Formats in PackedPixel Mode	× .
•	
Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	
	🔀 Close

2. Set the **Options** for the tests. The following dialog box below appears. Note that you will have to specify the IP address of the 882 that you are using to initiate these tests in this dialog box.

Compliance Test Opti	ons
MHL Do	ngle Compliance Test Options
	880 Instrument IP Address
	192.168.254.230
×c	ancel V OK

When you have completed entering the IP address, click the OK activation button.

3. (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).

🔯 MHL Dongle CT 2.1		x
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview		
Test List		
All Ø Options Instrument: 980B_JB [192.168.254.160] •	 Execute Te 	ests
Category / Test Name	V	-
System		
🔺 📑 5.2.1.1: Character Synchronization in Normal Mode	×	- 11
Iter 01: 480p60, blanking filled with data islands	\checkmark	_
💥 Iter 02: 576p50, blanking filled with data islands	×	
🔺 📑 5.2.1.2: Packet Types in Normal Mode		- 11
Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	×	- 11
Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75		Ξ
 Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 	\checkmark	
Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	×	
💥 Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	×	
💥 Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	×	
🔺 📑 5.2.1.3: Character Synchronization in PackedPixel Mode	\checkmark	_
 Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP) 	\checkmark	
🔺 🗏 5.2.1.4: Packet Types in PackedPixel Mode	×	
🞇 Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	×	
Video		
5.2.2.1: Video Formats	V	
Iter 01: (2,3) 720x480p 59.94/60Hz	\checkmark	
<pre> Iter 02: (4) 1280x720p 59.94/60Hz </pre>	\checkmark	
• Iter 03: (17,18) 720x576p 50Hz	\checkmark	
🔺 🗏 5.2.2.2: Pixel Encoding in Normal Mode		
Iter 01: CDF Checks	\checkmark	
Iter 02: 480p60, RGB Encoding	\checkmark	
Iter 03: 480p60, YCbCr-444 Encoding	\checkmark	
🖌 📃 5.2.2.3: Video Quantization Range	\checkmark	
Iter 01: No YCC_FULL support indicated: Automatic PASS(SKIP)	\checkmark	-
5.2.8.3: 3D Video Format in PackedPixel Mode		
	🔀 Close	

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.

MHL Dongle CT Results
📃 Test Results Name
Execute MHL Dongle Compliance Tests on Instruments 980: 980B_JB @ 192.168.254.160 Enter a name for the Test Results.
08_14_2013_16_21_34_XYZ_Test1
Cancel Ok

A new window appears showing the test results status with a Test Log panel on the bottom (below).

TetList Category / Test Name Status Category / Test Name Status System Incomplete Iter 01: 480p60, blanking filled with data islands In Progress Netro 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Tested Iter 02: 576p50, blanking filled with data islands Not Tested Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type30 Not Tested Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type30 Not Tested Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type30 Not Tested Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type30 User Skipped Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type30 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type30 User Skipped Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: 1: Character Synchronization in PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: 1: Character Synchronization in PackedPixel Mode Not Tested Iter 01: 1: 2,3) T20x480p 59.94/60Hz<	MHL Dongle Compliance Test (2.1): "08_14_2013_16_21_34_XYZ_Test1"			
Category / Test Name Status System Status System Stern 01: 480p60, blanking filled with data islands In Progress Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL User Skipped Iter 02: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 01: The DUT does not support PackedPixel Node: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Video Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Iter 01: Continuing. Iter 01: Continuing. Iter 01: Continuing.	Test List			
Category / Test Name Category / Test Name Status System Incomplete Iter 01: 480p60, blanking filled with data islands Incomplete Iter 02: 576p50, blanking filled with data islands Incomplete Iter 02: 576p50, blanking filled with data islands Incomplete Iter 02: 576p50, blanking filled with data islands Incomplete Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Tested Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz <td< td=""><td>Reset Status</td><td></td><td></td><td></td></td<>	Reset Status			
Svstem Image: Solution of the state of the st	Category / Test Name	1	Status	*
<pre> S.2.1.1: Character Synchronization in Normal Mode</pre>	System			
<pre>Iter 01: 480p60, blanking filled with data islands In Progress Iter 02: 576p50, blanking filled with data islands User Skipped • 5.2.1.2: Packet Types in Normal Mode Incomplete • Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Tested • Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested • Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested • Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested • Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested • Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested • Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested • Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: (2,3) 720x480p 59.94/60Hz • Iter 01: CP Faused. • 0005 • Faused. • 0007 • Faused. • 0008 • - Faused. • 0008 •Continuing. • 0009 •Continuing. • 0009 •Continuing. • 0009 •Continuing. • 0000 •Continuing. • 0000</pre>	🖌 🖕 5.2.1.1: Character Synchronization in Normal Mod	e 🗸	Incomplete	
Iter 02: 576p50, blanking filled with data islands User Skipped • [5.2.1.2: Packet Types in Normal Mode Incomplete • Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Tested • Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested • Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested * Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested * Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped * Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped * Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped * Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Video Incomplete • Iter 01: C(2,3) 720x480p 59.94/60Hz • I	iter 01: 480p60, blanking filled with data islands 🔿	\checkmark	In Progress	
Image: Solution of the set of the s	💢 Iter 02: 576p50, blanking filled with data islands	×	User Skipped	=
 Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL Not Tested Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Iter 01: Transferring the CDF to the Test Instrument. 0005 Fausing 0006 Transferring the CDF to the Test Instrument. 0007 Paused. 0008 Continuing. 	🔺 🗏 5.2.1.2: Packet Types in Normal Mode	\checkmark	Incomplete	
 Iter 02: 480p60, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type75 Not Tested Iter 03: 480p60, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type80 Not Tested Iter 04: 576p50, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 05: 576p50, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 06: 576p50, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type80 User Skipped Iter 06: 576p50, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 06: 576p50, 2-CH PCM Andio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 01: The DUT does not support PackedPixel Node: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested S283:3D Video Formats Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested S283:3D Video Formatin PackedPixel Mode 	Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	. 🗸	Not Tested	
 Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 V Not Tested Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL User Skipped Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 User Skipped Iter 01: The DUT does not support PackedPixel Node: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: (2,3) 720x480p 59.94/60Hz Iter 01: (2,3) 720x480p 59.94/60Hz Iter 01: 02,3) 720x480p 59.94/60Hz Iter 01: 02,3) 720x480p 59.94/60Hz Iter 01: 02,3) 720x480p 59.94/60Hz Not Tested Iter 01: 02,3) 720x480p 59.94/60Hz Ite	Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type	75 🗸	Not Tested	
<pre>% Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL % User Skipped % Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 % User Skipped % Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 % User Skipped • E 5.2.1.3: Character Synchronization in PackedPixel IV Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode Not Tested • Iter 01: The DUT does not support PackedPixel Mode Not Tested • Iter 01: The DUT does not support PackedPixel Mode Not Tested • Iter 01: The DUT does not support PackedPixel Mode Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: (2,3) 720x480p 59.94/60Hz • S283:3D Video Formatin PackedPixel Mode</pre>	Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type	80 🗸	Not Tested	
Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75 X User Skipped X Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 X User Skipped • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Video Incomplete • Iter 01: (2,3) 720x480p 59.94/60Hz • Iter 01: (2,3) 720x480p 59.94/60Hz • S283:3D Video Format in PackedPixel Mode Not Tested • O005 Pausing • O005 Pausing • 0006 Transferring the CDF to the Test Instrument. • 0008 Continuing.	X Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	. 🗙	User Skipped	_
<pre>X Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80 X User Skipped 4 5.2.1.3: Character Synchronization in PackedPixel IV Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested • Iter 01: (2,3) 720x480p 59.94/60Hz • Iter 01: Canada Conada C</pre>	X Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type	75 👗	User Skipped	_
A 5.2.1.3: Character Synchronization in PackedPixel IV Not Tested Ott	X Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type	80 🗶	User Skipped	_
 Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested S.2.1.4: Packet Types in PackedPixel Mode Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Not Tested Incomplete Iter 01: (2,3) 720x480p 59.94/60Hz Iter 01: (2,3) 720x480p 59.94/60Hz S.2.8.3: 3D Video Formatin PackedPixel Mode Iter 01: (2,3) 720x480p 59.94/60Hz Iter	🔺 📑 5.2.1.3: Character Synchronization in PackedPixe	1 11	Not Tested	_
A S.2.1.4: Packet Types in PackedPixel Mode Not Tested Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Not Tested Incomplete Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested Not Tested S28.3: 3D Video Format in PackedPixel Mode Testlog Incomplete Not Tested Testlog Incomplete Outon Transferring the CDF to the Test Instrument. Outon Testlog S008 Paused. Outon Support Supp	• Iter 01: The DUT does not support PackedPixel Mode: Automa	tic	Not Tested	_
 Iter 01: The DUT does not support PackedPixel Mode: Automatic Not Tested Video 5.2.2.1: Video Formats Iter 01: (2,3) 720x480p 59.94/60Hz Not Tested S.2.8.3: 3D Video Format in PackedPixel Mode Line Message 0005 <i>Fausing</i> 0006 Transferring the CDF to the Test Instrument. 0007 <i>Faused.</i> 0008 <i>Continuing.</i> 	▲ 5.2.1.4: Packet Types in PackedPixel Mode	×	Not Tested	_
<pre> Video Image Incomplete Solution of the second s</pre>	Iter 01: The DUT does not support PackedPixel Mode: Automa	tic	Not Tested	_
Iter 01: (2,3) 720x480p 59.94/60Hz Incomplete Iter 01: (2,3) 720x480p 59.94/60Hz			T.,	_
Iter 01: (2,3) 720x480p 59.94/60Hz S2.8.3: 3D Video Format in PackedPixel Mode Test Log Line Message 0005 Pausing 0006 Transferring the CDF to the Test Instrument. 0007 Paused. 0008 Continuing.	A 5.2.2.1: Video Formats			_
S2.8.3: 3D Video Format in PackedPixel Mode Test Log Line Message 0005 Pausing 0006 Transferring the CDF to the Test Instrument. 0007 Paused. 0008 Continuing.	• Iter 01: (2,3) 720x480p 59.94/60Hz	×	Not Tested	
TestLog Line Message • 0005 Pausing • 0006 Transferring the CDF to the Test Instrument. • 0007 Paused. • 0008 Continuing.	5.2.8.3: 3D Video Format in PackedPixel Mode			
Line Message 0005 Pausing 0006 Transferring the CDF to the Test Instrument. 0007 Paused. 0008 Continuing.	Test I on			
• 0005 Pausing • 0006 Transferring the CDF to the Test Instrument. • 0007 Paused. • 0008 Continuing.	Line Message			
0005 Pausing 0006 Transferring the CDF to the Test Instrument. 0007 Paused. 0008 Continuing.	Line Message			
 0006 Transferring the CDr to the Test Instrument. 0007 Paused. 0008Continuing. 	• 0005 Pausing			
• 0007 Paused. • 0008Continuing.	• 0006 Transferring the CDF to the Test Instrument.			
• 0008Continuing.	• 0007 Paused.			
	• 0008Continuing.			Ξ
• 0009 Test 5.2.1.1-01	• 0009 Test 5.2.1.1-01			
• 0010 Playing the reference video file	• 0010 Playing the reference video file			+
	< III			F.
Cancel the Compliance Test Pause Test Execution	Cancel the Compliance Test	n		

During the tests a **Test Setup** dialog box will appear instructing you how to set up for the tests if there is a change from the original configuration. Refer to the following dialog box for an example. Press **Continue** when you have the source device in the correct mode. You can cancel the test using the **Cancel Compliance** Test button.



A green progress arrow shows which test is currently being run. Refer to the screen example below.

MHL Dongle Compliand	re Test (2.1): "08_14_2013_16_21_34_XYZ_Test2"		_	
	Test List			
🖌 🗶 🄄 E	Reset Status			
Category /	Test Name	1	Status	*
🛛 🕞 🕞 Iter	01: 480p60, blanking filled with data islands	\checkmark	Pass	
💥 Iter	02: 576p50, blanking filled with data islands	×	User Skipped	
⊿ 🗏 5.2.1	.2: Packet Types in Normal Mode	\checkmark	Incomplete	
🛛 🕞 🕞 Iter	01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	\checkmark	Pass	_
🛛 🕞 🕞 Iter	02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	\checkmark	Pass	-
🛛 🛛 🕞 Iter	03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	\checkmark	Pass	
💢 Iter	04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	×	User Skipped	
🔀 Iter	05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	×	User Skipped	
🔀 Iter	06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	×	User Skipped	
⊿ 📑 5.2.1	.3: Character Synchronization in PackedPixel	11	Skipped	
Iter	01: The DUT does not support PackedPixel Mode: Automati	$<\!$	Skipped	
⊿ 📑 5.2.1	.4: Packet Types in PackedPixel Mode	\checkmark	Skipped	
Iter	01: The DUT does not support PackedPixel Mode: Automati	\checkmark	Skipped	
🔺 🕨 Video				
⊿ ₹ 5.2.2	.1: Video Formats	\checkmark	Incomplete	
🚽 🚽 Iter	01: (2,3) 720x480p 59.94/60Hz	\checkmark	In Progress	
🛛 🕺 Iter	02: (17,18) 720x576p 50Hz	×	User Skipped	
⊿ 📑 5.2.2	.2: Pixel Encoding in Normal Mode	\checkmark	Not Tested	
Iter	01: CDF Checks	\checkmark	Not Tested	-
	Test Log			
Line	Message			*
• 0037	Test 5.2.1.2 Iter 03 -> Pass			
• 0038	Test 5.2.2.1-01			
• 0039	Configuring the Test Source			
• 0040	HDMI, 480p60, TPVAOC1, RGB, 24 bpp, PCM 2CH, 48 kHz			
• 0041	Pausing			
• 0042	Performing adequate support check			-
• 0043	Paused.			-
	Cancel the Compliance Test			

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During the test, you will be asked to observe your sink device under test and select Pass or Fail depending on whether your sink device is displaying the video properly. The following dialog box is an example.





When the test is complete a message will indicate this on Test Log as shown in the following screen example.

MHL Dongle Compliance	e Test (2.1): "08_14_2013_16_21_34_XYZ_Test2"			_
	Test List			
🖌 🗙 🖓 R	eset Status			-
Category /	Test Name	1	Status	^
⊿ 📑 5.2.2	.3: Video Quantization Range	V .	Pass	
\varTheta Iter	01: No YCbCr-444 / YCbCr-422 support indicated: Automat	i 🖌 🛛	Pass	
⊿ 📑 5.2.2	.4: Video Formats in PackedPixel Mode	\checkmark	Skipped	
Iter	01: The DUT does not support PackedPixel Mode: Automatic	< 🖌	Skipped	
⊿ 📑 5.2.2	.5: Pixel Encoding in PackedPixel Mode	\checkmark	Skipped	
Iter	01: The DUT does not support PackedPixel Mode: Automatic	 Image: A start of the start of	Skipped	
🔺 🕨 Audio				
⊿ 📑 5.2.3	.1: IEC 60958 / IEC61937	\checkmark	Pass	
🛛 👌 📔 Iter	01: 480p60, PCM 2Ch 32kHz Audio	\checkmark	Pass	
🛛 👌 📔 Iter	02: 480p60, PCM 2Ch 44.1kHz Audio	\checkmark	Pass	
🔋 📄 Iter	03: 480p60, PCM 2Ch 48kHz Audio	\checkmark	Pass	
⊿ 📑 5.2.3	.2: Audio Clock Regeneration	\checkmark	Incomplete	-
🛛 💥 Iter	01: 480p60, PCM 2Ch 32kHz Audio, Minimum N	×	User Skipped	-
🔀 Iter	02: 480p60, PCM 2Ch 32kHz Audio, Maximum N	×	User Skipped	
🔀 Iter	03: 480p60, PCM 2Ch 44.1kHz, Minimum N	×	User Skipped	
🛛 🕺 Iter	04: 480p60, PCM 2Ch 44.1kHz, Maximum N	×	User Skipped	
🛛 👌 😸 Iter	05: 480p60, PCM 2Ch 48kHz, Minimum N	\checkmark	Pass	
🛛 👌 😸 Iter	06: 480p60, PCM 2Ch 48kHz, Maximum N	V .	Pass	
א ווי				×
	Test Log			
Line	Message			^
• 0074	Test 5.2.3.2 Iter 05 -> Pass			
• 0075	Test 5.2.3.2-06			
• 0076	Configuring the Test Source			
• 0077	HDMI, 480p60, /cache0/images/SmpteBar, RGB, 24 bpp,	PCM_2CI	H, 48 kHz	
• 0078	Performing adequate support check			
• 0079	Test 5.2.3.2 Iter 06 -> Pass			
• 0080	Tests completed			Ŧ
	Close Window Continue Testing			

When the tests are completed and you select **Close Window** the test window that shows the current activity will close. A new Compliance Test Viewer window will appear showing the results. Refer to the following screen shots. The second example shows some of the test details exposed.

Compliance Test Results Viewer	-	
MHL Dongle Compliance Test Results		
Results Name: 08_14_2013_16_21_34_XYZ_Test2 Manufacturer: Acme Date Tested: August 14, 2013 4:55 PM Model Name: XYZ Overall Status: CTS 2.1 - Incomplete Port Tested: - Port Tested: -		HTML Report
Test Results		
Fest Name / Details	Q	Status
5.2.1.1: Character Synchronization in Normal Mode		Incomplete
5.2.1.2: Packet Types in Normal Mode		Incomplete
5.2.1.3: Character Synchronization in PackedPixel Mod		Skipped
5.2.1.4: Packet Types in PackedPixel Mode		Skipped
5.2.2.1: Video Formats		Incomplete
5.2.2.2: Pixel Encoding in Normal Mode		Pass
5.2.2.3: Video Quantization Range		Pass
5.2.2.4: Video Formats in PackedPixel Mode		Skipped
5.2.2.5: Pixel Encoding in PackedPixel Mode		Skipped
▷		Pass
5.2.3.2: Audio Clock Regeneration		Incomplete
5.2.8.2: 3D Video Format in Normal Mode		Skipped
5.2.8.3: 3D Video Format in PackedPixel Mode		Skipped
Instrument: 980B_JB [192.168.254.160]	-	Continue Test Execution
		¥ Close

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Compliance Test Results Viewer	1 1	
MHL Dongle Compliance Test Results		
Results Name: 08_14_2013_16_21_34_XYZ_Test2 Manufacturer: Acme Date Tested: August 14, 2013 4:55 PM Model Name: XYZ Overall Status: CTS 2.1 - Incomplete Port Tested: -		HTML Report
Test Results		
Test Name / Details	Q	Status
🖌 🗏 5.2.1.1: Character Synchronization in Normal Mode		Incomplete
🖌 🔵 Iter 01: 480p60, blanking filled with data islands		Pass
• Manual inspection of the DUT verified adequate support of the test		
💢 Iter 02: 576p50, blanking filled with data islands		User Skipped
[] 5.2.1.2: Packet Types in Normal Mode		Incomplete
5.2.1.3: Character Synchronization in PackedPixel Mode		Skipped
b 5.2.1.4: Packet Types in PackedPixel Mode b		Skipped
5.2.2.1: Video Formats		Incomplete
🖌 📃 5.2.2.2: Pixel Encoding in Normal Mode		Pass
Iter 01: CDF Checks		Pass
🖌 🝚 Iter 02: 480p60, RGB Encoding		Pass
• Manual inspection of the DUT verified adequate support of the test		
5.2.2.3: Video Quantization Range		Pass
5.2.2.4: Video Formats in PackedPixel Mode		Skipped
5.2.2.5: Pixel Encoding in PackedPixel Mode		Skipped
▲ 🗏 5.2.3.1: IEC 60958 / IEC61937		Pass
b lter 01: 480p60, PCM 2Ch 32kHz Audio		Pass
b lter 02: 480p60, PCM 2Ch 44.1kHz Audio		Pass
Iter 03: 480p60, PCM 2Ch 48kHz Audio		Pass
5.2.3.2: Audio Clock Regeneration		Incomplete
5.2.8.2: 3D Video Format in Normal Mode		Skipped
5.2.8.3: 3D Video Format in PackedPixel Mode		Skipped
5.21.1: Character Synchronization in Normal Mode		
Instrument: 980B_JB [192.168.254.160]	•	Continue Test Execution
		🔀 Close

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6.7 Canceling and Resuming the MHL Sink Compliance after cancel

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.

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.

MHL Dongle Compliance Test (2.1): "08_14_2013_16_21_34_XYZ_Test1"			
Test List			
Reset Status			
Category / Test Name	1	Status	
▲ ▶ System			
5.2.1.1: Character Synchronization in Normal Mode	\checkmark	Incomplete	
Iter 01: 480p60, blanking filled with data islands	1	In Progress	
💢 Iter 02: 576p50, blanking filled with data islands	×	User Skipped	E
🔺 🖪 5.2.1.2: Packet Types in Normal Mode	\checkmark	Incomplete	
Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	\checkmark	Not Tested	
Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75		Not Tested	
Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80		Not Tested	
X Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	×	User Skipped	_
X Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	×	User Skipped	
X Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	X	User Skipped	
▲ 5.2.1.3: Character Synchronization in PackedPixel		Not Tested	-
• Iter UI: The DUT does not support PackedPixel Mode: Automati		Not Tested	
4 5.2.1.4: Packet Types in PackedPixel Mode		Not Tested	-
• Iter of: The bot does not support PackedFixer Mode: Automati		Not lested	-
VIGEO	1	Incomplete	
• Iter 01: (2.3) 720x480p 59.94/60Hz	<i>V</i>	Not Tested	-
	<u></u>		· •
5.2.8.3: 3D Video Format in PackedPixel Mode			
Test Log			
Line Message			^
• 0005 Pausing			
• 0006 Transferring the CDF to the Test Instrument.			
• 0007 Paused.			
• 0008Continuing.			=
• 0009 Test 5.2.1.1-01			
• 0010 Playing the refere e video file			
Image: A state of the state			
Cancel the Compliance Test			

An indication that the test was canceled with be shown in the Test Log lower panel.

	Test Log					
Line	Message					
• 0040	Configuring the Test Source					
• 0041	• 0041 HDMI, 480p60, /cache0/images/SmpteBar, RGB, 24 bpp, PCM_2CH, 48 kHz					
• 0042	• 0042 Performing adequate support check					
• 0043	• 0043 Test 4.2.1.2 Iter 03 -> Canceled					
• 0044	Test Canceled by User					
Close Window Continue Testing						

To resume a canceled test:

1. Navigate to the **Navigator/Compliance** panel and open the MHL Sink CT Results directory as shown below.



2. Expose the details of the test results and either double click on the Details or select Open icon (below).



The results will appear in the Compliance Test Results Viewer window as shown below.

📃 Compliance Test Results Viewer						
MHL Dongle (MHL Dongle Compliance Test Results					
Results Name: 08_14_2013_16_21_34_XYZ_Test1 M Date Tested: August 14, 2013 4:22 PM M Overall Status: CTS 2.1 - Incomplete M	lanufacturer: Acme Model Name: XYZ Port Tested: -		HTML Report			
	Test Results					
Test Name / Details		C	Status			
5.2.1.1: Character Synchronizat:	ion in Normal Mode		Incomplete			
5.2.1.2: Packet Types in Normal	Mode		Error			
5.2.1.3: Character Synchronizat.	ion in PackedPixel Mod		Skipped			
5.2.1.4: Packet Types in Packed	Pixel Mode		Skipped			
🕨 🗏 5.2.2.1: Video Formats			Incomplete			
5.2.2.2: Pixel Encoding in Norma	al Mode		Not Tested			
5.2.2.3: Video Quantization Ran	ge		Not Tested			
5.2.2.4: Video Formats in Packed		Incomplete				
5.2.2.5: Pixel Encoding in Pack	edPixel Mode		Incomplete			
▶ 🗏 5.2.3.1: IEC 60958 / IEC61937			Not Tested			
🕨 🗏 5.2.3.2: Audio Clock Regeneratio	on		Not Tested			
5.2.8.2: 3D Video Format in Norman	mal Mode		Skipped			
5.2.8.3: 3D Video Format in Paci		Incomplete				
Instrument: 980B_JB [192.168.254.160]		•	Continue Test Execution			
			💥 Close			

3. Click on the Continue Test Execution button on the lower left (above) to resume the tests.

6.8 Viewing the MHL Sink 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.

To view the html test report:

1. Select the **HTML Report** form the Compliance Test Results Viewer as shown below.

Compliance Test Results Viewer					
MHL Dongle Compliance Test Results					
Results Name: 08_14_2013_16_21_34_XYZ_Test2 Date Tested: August 14, 2013 4:55 PM Overall Status: CTS 2.1 - Incomplete	Manufacturer: Acme Model Name: XYZ Port Tested: -		HTML Report		
	Test Results				
Test Name / Details		Q	Status		
🕟 🗏 5.2.1.1: Character Synchroniz	ation in Normal Mode		Incomplete		
5.2.1.2: Packet Types in Norma	al Mode		Incomplete		
5.2.1.3: Character Synchroniz	ation in PackedPixel Mod		Skipped		
5.2.1.4: Packet Types in Packet	edPixel Mode		Skipped		
5.2.2.1: Video Formats			Incomplete		
5.2.2.2: Pixel Encoding in No:	rmal Mode		Pass		
5.2.2.3: Video Quantization Ration	Pass				
5.2.2.4: Video Formats in Pack	Skipped				
5.2.2.5: Pixel Encoding in Pace	ckedPixel Mode		Skipped		
▶ 🗏 5.2.3.1: IEC 60958 / IEC61937			Pass		
5.2.3.2: Audio Clock Regenera	tion		Incomplete		
5.2.8.2: 3D Video Format in No	ormal Mode		Skipped		
5.2.8.3: 3D Video Format in Page 5.2.8.3:		Skipped			
Instrument: 980B_JB [192.168.254.160]		•	► Continue Test Execution		
			X Close		

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.

Generate Report
HTML Report
08_14_2013_16_21_34_XYZ_Test2
Select the desired report options.
Show Test Summary Only.
Cancel V OK

The html report is shown in the following screens.

	C:\Users\nkendall\98	80_Capture_Files_4_8\mhlct_dongl	e\results\08_14_2013_16_21_34_XY2	Z_Test2\Report_Cdf.htm	
ated on: August 14, 2013 5:04 PM		Ouantu	m Data		www.quantum
	МНІ Г	Donale Comr	liance Test F	Report	
				Coport	
		015	o Z.1		
Results Name: 08 14 2013 16 21 34 XYZ Test2 Manufacturer: Acme					
Date	Tested:	August 14, 2013 4	August 14, 2013 4:55 PM		Model Name: XYZ
Overall	Status:	Incomplete	•		Port Tested: -
		Report Inde	x / Summary		
<u>Test 5.2.1.1</u>	Incomplete	Test 5.2.1.2	Incomplete	Test 5.2.1.3	Skipped
Test 5.2.1.4	Skipped	Test 5.2.2.1	Incomplete	Test 5.2.2.2	Pass
Test 5.2.2.3	Pass	Test 5.2.2.4	Skipped	Test 5.2.2.5	Skipped
Test 5.2.3.1	Pass	Test 5.2.3.2	Incomplete	Test 5.2.8.2	Skipped
Test 5.2.8.3 Skipped CDF					
<u>Test 5.2.8.3</u>	Skipped		DF	Equip	ment Info
<u>Test 5.2.8.3</u>	Skipped	 Capabilities Declar	DF ration Form (CDF)	_Equip	<u>ment Info</u>
<u>Test 5.2.8.3</u>	Skipped	 Capabilities Declar Gen	ration Form (CDF) eral	<u>Equip</u>	ment Info
Test 5.2.8.3 CDF_CTS_VERSION	Skipped	 Capabilities Declar Gen	<u>pration Form (CDF)</u> eral	_Equips	<u>nent Info</u>
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME	Skipped	 Capabilities Declar Gen	DF ration Form (CDF) eral	<u>Equip</u>	2.1 Acme
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB	Skipped	<u>C</u> Capabilities Declar Gen	<u>pration Form (CDF)</u> eral	<u>Equip</u>	2.1 Acme XYZ
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB CDF_HDCP_SUPPOR	Skipped ER T	<u>Capabilities Declar</u> Gen	<u>pration Form (CDF)</u> eral	<u>Equip</u>	2.1 Acme XYZ NO
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB CDF_HDCP_SUPPOR CDF_AVL_SUPPORT	Skipped Skipped ER T	<u>Capabilities Declar</u> Gen	<u>pF</u> ration Form (CDF) eral	<u>Equip</u>	2.1 Acme XYZ NO NO
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB CDF_HDCP_SUPPOR CDF_AVI_SUPPORT CDF_AUDIO_SUPPOI	Skipped Skipped ER T RT	 Capabilities Declar Gen	<u>pF</u> ration Form (CDF) eral	<u>Equip</u>	2.1 Acme XYZ NO NO YES
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB CDF_HDCP_SUPPOR CDF_AVI_SUPPORT CDF_AUDIO_SUPPOR CDF_RAP_SUPPORT	Skipped Skipped	 Capabilities Declar Gen	<u>ration Form (CDF)</u> eral	<u>Equip</u>	2.1 Acme XYZ NO NO YES YES
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB CDF_HOCP_SUPPORT CDF_AVI_SUPPORT CDF_AUDIO_SUPPORT CDF_RAP_SUPPORT	Skipped ER T RT	 Capabilities Declar Gen	DF ration Form (CDF) eral leo	<u>Equip</u>	2.1 Acme XYZ NO NO YES YES YES
Test 5.2.8.3 CDF_CTS_VERSION CDF_MFR_NAME CDF_MODEL_NUMB CDF_HOCP_SUPPORT CDF_AVI_SUPPORT CDF_AUDIO_SUPPORT CDF_RAP_SUPPORT CDF_VIDEO_RGB	Skipped Skipped ER T RT	 Capabilities Declar Gen	ration Form (CDF) eral leo	<u>Equip</u>	nent Info 2.1 2.1 Acme XYZ NO NO YES YES YES YES

HTML Viewer C:\Users\nkendall980 Capture Files 4 8\mhlct dongle\results\08 14 2013 16 21 34 XYZ Test2\Report Cdf.htm				
General				
CDF CTS VERSION	2.1	1 _		
CDF_MFR_NAME	Acme	1		
CDF_MODEL_NUMBER	XYZ	1		
CDF_HDCP_SUPPORT	NO	1		
CDF_AVI_SUPPORT	NO	1 4		
CDF_AUDIO_SUPPORT	YES	1		
CDF_RAP_SUPPORT	YES	1		
Video		1		
CDF_VIDEO_RGB	YES	1		
CDF_VIDEO_YCBCR_444	NO	1		
CDF_VIDEO_YCBCR_422	NO	1		
CDF_VIDEO_YCC_FULL	NO]		
CDF_VIDEO_PACKEDPIXEL	NO]		
CDF_VIDEO_3D	NO]		
Normal Mode Video Formats				
CDF_VIDEO_VGA	NO]		
CDF_VIDEO_480p_60	YES			
CDF_VIDEO_720p_60	NO			
CDF_VIDEO_1080i_60	NO			
CDF_VIDEO_480i_60_2X	NO			
CDF_VIDEO_480i_60_4X	NO			
CDF_VIDEO_480p_60_2X	NO			
CDF_VIDEO_576p_50	YES			
CDF_VIDEO_720p_50	NO			
CDF_VIDEO_1080i_50	NO			
CDF_VIDEO_576i_50_2X	NO			
CDF_VIDEO_576i_50_4X	NO			
CDF_VIDEO_576p_50_2X	NO			
CDF_VIDEO_1080p_24	NO			
CDF VIDEO 1080p 25	NO			
◆Back ◆ Forward Control of Co	rd 📙 Save As 🕻 🎽	Close		

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ML Viewer	
C:\Users\nkendall'980_Capture_Files_4_8\mhlct_dongle\vesults\08_14_2013_16_21_34_XYZ_Test2\Report_Cdf.htm	
Test 5.2.1.1	Incomplete
Character Synchronization in Normal Mode	Incomplete
• Iter 01: 480p60, blanking filled with data islands	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 02: 576p50, blanking filled with data islands	Skipped

Test 5.2.1.2 Packet Types in Normal Mode	Incomplet
• Iter 01: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 02: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 03: 480p60, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 04: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/NULL	User Skipped
• Iter 05: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type75	User Skipped
• Iter 06: 576p50, 2-CH PCM Audio, GCP/AVI/SPD/AUD/MPEG/Type80	User Skipped

Test 5.2.1.3 Character Synchronization in PackedPixel Mode	Skipped
• Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)	Skipped

🗲 Back 🜩 Forward 📙 Save As 🗱 Close

	-
Test 5.2.3.1 IEC 60958 / IEC 61937	Pas
• Iter 01: 480p60, PCM 2Ch 32kHz Audio	Pas
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 02: 480p60, PCM 2Ch 44.1kHz Audio	Pas
 Manual inspection of the DUT verified adequate support of the test signal. 	
• Iter 03: 480p60, PCM 2Ch 48kHz Audio	Pas
 Manual inspection of the DUT verified adequate support of the test signal. 	

Test 5.2.3.2 Audio Clock Regeneration	Incomplete
• Iter 01: 480p60, PCM 2Ch 32kHz Audio, Minimum N	User Skipped
• Iter 02: 480p60, PCM 2Ch 32kHz Audio, Maximum N	User Skipped
• Iter 03: 480p60, PCM 2Ch 44.1kHz, Minimum N	User Skipped
• Iter 04: 480p60, PCM 2Ch 44.1kHz, Maximum N	User Skipped
• Iter 05: 480p60, PCM 2Ch 48kHz, Minimum N	Pass
• Manual inspection of the DUT verified adequate support of the test signal.	
• Iter 06: 480p60, PCM 2Ch 48kHz, Maximum N	Pass
 Manual inspection of the DUT verified adequate support of the test signal. 	
Test 5.2.8.2 3D Video Format in Normal Mode	Skipped
• Iter 01: 3D not supported; Automatic PASS(SKIP)	Skipped
	💠 Back 💠 Forward 🔚 Save As 🗱 Cl

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6.9 Viewing the MHL Sink Compliance test results and disseminating to others

After you have completed the tests, you can view the CDF, test results, HTML report and detailed log at any time. Assuming you have run the tests from the external 980 GUI Manager from your PC, you can easily disseminate the results to other colleagues or subject matter experts or officials at the MHL Authorized Test Centers. Instructions for viewing the test results and disseminating to others are provided below.

To view the CDF for the device under test:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select CDF and either double click or click on the **Open** icon as shown below.



The CDF appears in a new window as shown below.

MHL Dongle CT 2.1	
🔯 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview
Copen 🛃 New	CDF File: C:\Users\nkendall\980_Capture_Files_4_8\mhlct_dongle\results\08_14_2013_16_21_34_XYZ_Test2\cdf.txt
	o 🔍 Audio 🔍 3D Video 🔍 Other
	CTS Version to test against.
CDF_CT3_VERSION	◎ 1.2 ◎ 1.3 ◎ 2.0 ◎ 2.1
CDF_MFR_NAME	What is the product manufacturer's name? Acme
CDF_MODEL_NUMBER	What is the model name/number of the product? XYZ
CDF_HDCP_SUPPORT	Is HDCP supported on this DUT? Yes <a>No
CDF_AVI_SUPPORT	Is AVI InfoFrame supported on this DUT? Ves No
CDF_AUDIO_SUPPORT	Is audio supported on this DUT?
CDF_RAP_SUPPORT	Does the DUT support RAP Sub-Commands? ⓐ Yes ○ No
	X Close

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To view a Summary of the results:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Summary and either double click or click on the **Open** icon as shown below.



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The Summary file appears in a new window as shown below.

① File Viewer	×
File: C:\Users\nkendall\980_Capture_Files_4_8\mhlct_dongle\results\08_14_2013_16_21_34_XYZ_Test2\summary.bt	
[Created]	
Created On: August 14, 2013 4:55:55 PM CDT	
[\$4:+00]	
Ok: All tests executed.	
[Test Summary]	
Test: 5.2.1.1 - Incomplete	
Test: 5.2.1.3 - Skipped	=
Test: 5.2.1.4 - Skipped	
Test: 5.2.2.1 - Incomplete	
Test: 5.2.2.2 - Pass	
Test: 5.2.2.3 - Fass	
Test: 5.2.2.5 - Skipped	
Test: 5.2.3.1 - Pass	
Test: 5.2.3.2 - Incomplete	
Test: 5.2.8.2 - Skipped	
Test: 5.2.8.3 - Skipped	
[Instrument]	
Name: 980B_JB	
IP Address: 192.168.254.160	
Net Mask: 255.255.255.0	
GateWay 17: 192.100.204.1 Free Shadee 107 58 (Re of 162 23 (R (66 3%)	
Version:	
Advanced Test platform Version: 4.8.15	
HDMI 980 protocol Analyzer in slot 0 [DDR 4096MB]:	
Gateware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcb: 297b/D]	
Firmware: [Version: 4.8.15 Build Number: 8650 (dd 08:01:2013 18:23:27 CDT)] MHI CBIE Protocol Analyzer in slot 1:	
Gateware: [Version: 1 Build Number: 562 (08:01:2013 160000) pdb: 23232323]	
Firmware: [Version: 4.8.15 Build Number: 8650 (qd 08:01:2013 18:23:47 CDT)]	
HDMI Video Generator in slot 2:	
Gateware: [Version: 4.7.6 Build Number: 2 (05:21:2013 00) pcb: 297b C]	
Firmware: [Version: 4.8.15 Build Number: 8647 (qd 08:01:2013 18:21:47 CDT)]	
System Information. System SN : [675F8CEA60F91A92::13030006]	
HDMI PA SN : [53FDC3010000::N/A]	
	-
4	•
	ОК

To view a Details results:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Details and either double click or click on the **Open** icon as shown below.



The Details file appears in a new window as shown below.

Compliance Test Results Viewer		
MHL Dongle Compliance Test Results		
Results Name: 08_14_2013_16_21_34_XYZ_Test2 Manufacturer: Acme Date Tested: August 14, 2013 4:55 PM Model Name: XYZ Overall Status: CTS 2.1 - Incomplete Port Tested: -		HTML Report
Test Results		
Test Name / Details	Q	Status
5.2.1.1: Character Synchronization in Normal Mode		Incomplete
5.2.1.2: Packet Types in Normal Mode		Incomplete
5.2.1.3: Character Synchronization in PackedPixel Mode		Skipped
5.2.1.4: Packet Types in PackedPixel Mode		Skipped
5.2.2.1: Video Formats		Incomplete
5.2.2.2: Pixel Encoding in Normal Mode		Pass
5.2.2.3: Video Quantization Range		Pass
5.2.2.4: Video Formats in PackedPixel Mode		Skipped
5.2.2.5: Pixel Encoding in PackedPixel Mode		Skipped
▶ 🗏 5.2.3.1: IEC 60958 / IEC61937		Pass
5.2.3.2: Audio Clock Regeneration		Incomplete
5.2.8.2: 3D Video Format in Normal Mode		Skipped
5.2.8.3: 3D Video Format in PackedPixel Mode		Skipped
Instrument: 980B_JB [192.168.254.160]	•	► Continue Test Execution
		💢 Close

To view the detailed Log of the results:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Log and either double click or click on the **Open** icon as shown below.



The detail Log appears in a new window as shown below.

Log Viewer		
	💷 Loa	
	From: 08 14 2013 16 21 34 XYZ Test2	
Line	Messare	j
16:55:56:287	Commission	
• 16:55:56:287	Initialization.	
• 16:55:56:297	Assembling the test list.	
• 16:55:56:347	Disabling Pass-through.	1
• 16:55:56:347	Admits disable	
• 16:55:56:347	hdmitx disable	
• 16:55:58:347	#p-scope>	
• 16:55:58:347	slink down	
• 16:55:58:357	slink down	
• 16:56:00:357	#p-scops>	
• 16:56:00:357	Transferring the CDF to the Test Instrument.	
• 16:56:00:367	FTP Connect	
• 16:56:00:577	FTF Fut	
•	From "C:\Users\nkendall\980_Capture_Files_4_6\mhlct_dongle\results\08_14_2013_16_21_34_XYZ_Test2\cdf.txt"	
•		
• 16:56:00:797	Test 5.2.1.1-01	
• 16:56:23:647	discover	
• 16:56:23:66/		
16:56:23:8//	stor: 0 war: 2	
	elassi - Chartum Data Inc. UDMI puntosol appluson	
	DOTT: 0:1:297 HIMI RX PA	
	port: 1:0:297: HDMI TX FA	
•	slot: 1	
•	rev: 1	
•	class: Quantum Data, Inc. MHL CBUS protocol analyzer	
•	device: e009	1
•	port: 0:1:297: MHL TX	
•	port: 1:1:297: MHL RX	
•	slot: 2	1
•		
•	· · · · · · · · · · · · · · · · · · ·	
	🗶 Close	

To view the HTML report:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Select Report_CDF and either double click or click on the **Open** icon as shown below.



The HTML report appears in a new window as shown below.

ted on: August 14, 2013 5:04 PM					www.e
		Quantu	m Data		
	MHL	Dongle Comp	oliance Test F	Report	
		CTS	\$ 2.1		
Results	Name:	08_14_2013_16_21_34	_XYZ_Test2		Manufacturer: Acr
Date 7	Fested:	August 14, 2013 4	:55 PM		Model Name: XY
Overall S	Status:	Incomplete	9		Port Tested: -
		Report Inde	x / Summary		
<u>Test 5.2.1.1</u>	Incomplete	<u>Test 5.2.1.2</u>	Incomplete	Test 5.2.1.3	Skipped
Test 5.2.1.4	Skipped	Test 5.2.2.1	Incomplete	Test 5.2.2.2	Pass
<u>Test 5.2.2.3</u>	Pass	<u>Test 5.2.2.4</u>	Skipped	Test 5.2.2.5	Skipped
	n	m		T	
<u>Test 5.2.3.1</u>	Pass	<u>Test 5.2.3.2</u>	Incomplete	1est 5.2.8.2	Skipped
<u>Test 5.2.3.1</u> <u>Test 5.2.8.3</u>	Pass Skipped	<u>lest 5.2.3.2</u>	DF	<u>16st 5.2.8.2</u> 	Skipped ment Info
<u>Test 5.2.8.3</u> <u>Test 5.2.8.3</u>	Pass Skipped	<u>lest 3.2.3.2</u> 	Incomplete DF ration Form (CDF)	<u>Test 3.2.8.2</u> Equip	Skipped ment Info_
Test 5.2.3.1 Test 5.2.8.3	Pass Skipped	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	Incomplete DF ration Form (CDF) eral	<u>Iest 5.2.8.2</u> Equip	Skipped ment Info
Test 5.2.8.3 Test 5.2.8.3 DF_CTS_VERSION DF_MER_NAME	Pass Skipped	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	Incomplete DF	<u>Iest 5.2.8.2</u> Equip	Skipped ment Info 2.1
Test 5.2.3.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE	Pass Skipped	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	Incomplete DF	<u>Iest 3.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XVZ
Test 5.2.3.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE DF_MODEL_NUMBE	R	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	Incomplete DF ration Form (CDF) eral	<u>Iest 3.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO
Test 5.2.3.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE DF_HDCP_SUPPORT DF_AVI SUPPORT	R	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	ration Form (CDF) eral	<u>Iest 3.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO
Test 5.2.8.1 Test 5.2.8.3 DF_CTS_VERSION DF_MIR_NAME DF_MODEL_NUMBE DF_HDCP_SUPPORT DF_AVI_SUPPORT DF_AVI_SUPPORT DF_AUIO SUPPOR	R T	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	incomplete DF	<u>Iest 3.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO NO NO
Test 5.2.3.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE DF_HDCP_SUPPORT DF_AVI_SUPPORT DF_AUDIO_SUPPORT DF_AUDIO_SUPPORT DF_RAP_SUPPORT	R T	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	incomplete DF	<u>Iest 3.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO NO NO YES YES
Test 5.2.8.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE DF_HDCP_SUPPORT DF_AVI_SUPPORT DF_AVI_SUPPORT DF_RAP_SUPPORT	R T	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	incomplete DF	<u>Iest S.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO NO NO YES YES
Test 5.2.8.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE DF_HDCP_SUPPORT DF_AVI_SUPPORT DF_AUDIO_SUPPORT DF_RAP_SUPPORT DF_RAP_SUPPORT DF_VIDEO_RGB	R T	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	Incomplete DF tration Form (CDF) teral	<u>Iest 5.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO NO VES YES YES
Test 5.2.3.1 Test 5.2.8.3 DF_CTS_VERSION DF_MFR_NAME DF_MODEL_NUMBE DF_HDCP_SUPPORT DF_AVI_SUPPORT DF_AUDIO_SUPPOR DF_RAP_SUPPORT DF_VIDEO_RGB DF_VIDEO_RGB	R T 444	<u>lest 3.2.3.2</u> <u>C</u> Capabilities Declar Gen	incomplete DF tration Form (CDF) teral	<u>Iest 5.2.8.2</u> Equip	Skipped ment Info 2.1 Acme XYZ NO NO YES YES YES NO

To disseminate the results to others:

- 1. From the Navigator/Compliance panel, select the MHL Sink CT results directory.
- 2. Right click on the set of results you wish to disseminate and select Export as shown below.



A Window opens up for you to browse to a directory to store the files.

3. Select **Save** to save the result files. A zip file is created and stored in the directory. You can now email the file or post the file on an FTP site or store on a storage service (e.g. dropbox).



August 14, 2013

END OF USER GUIDE

х Export... To... 🔾 🔾 🗸 🔰 🕨 Test_Results 🕨 9 ▼ 49 Search Test_Results Organize 🔻 New folder ? * Name Date modified Size Type 쑦 Favorites ш 鷆 Downloads 308_13_2013_16_35_03_XYZ_Test3 8/14/2013 1:11 PM Compressed (zipp... 11 KB 📃 Recent Places 🧮 Desktop ز Libraries Documents J Music Pictures 🗐 Subversion 😸 Videos 💻 Computer ڏ Local Disk (C:) File name: 08_14_2013_16_21_34_XYZ_Test2 • Save as type: *.zip Ŧ Hide Folders Save Cancel

