

User Guide 980 HDMI Protocol Analyzer Module HDMI & MHL Source Compliance Tests

Rev: A4

Ele Eu	Navia 🗐	Live V 🗐 Data 🗍	Event		deo 🖬 Data			Cons
Frame	Stats 🗔 Lir	ne Stats				1		
Video For	nat			ا				
1080c 16	BPF HFree	67.5 No 3		Hactive	HITONE HSy	A4 1		F T
10000-10		07.5 110 2	200 112.	5 1320		44 1		<u> </u>
Frame S	tatistics: 😫	Sync				A V	* 3 4	§ 🕸
CEA Na	ime 🗍	Frame TimeStan	np (HH:1 Di	uration (HH:N	VFreq (Hz)	HFreq (kHz	Vtotal	Vact -
1920x	1080p 59.9	0.:25.952.2	41.008 0.0	016.666.485	60.00	67.50	01125	010
1920x	1080p 59.9	1 .:25.968.9	07.493 0.0	016.666.474	60.00	67.50	01125	010
1920x	1080p 59.§	2 .: 25.985.5	73.968 0.0	016.666.474	60.00	67.50	01125	010
1920x	1080p 59.9	3.:26.002.2	40.442 0.0	016.666.474	60.00	67.50	01125	010
L'and the							<u> </u>	
Line Sta	usucs: 455	sync					× • 4	
Frame	Line	Imestamp (HH:MM:	SS.I Durat	ION (HH:MM:SS	S.ms HIG	tal IMDS H	otal HSy	nc Wid
1	000	0:1:25.966.646.	047	0.0.0.000.014	915 022	00 003	200	0.
1	002	0:1:25.968.877	862 0	0.0.0.000.014	815 022	00 003	300	0
1	003	0:1:25.968.892.	677 (0:0:0.000.014	.815 022	200 003	300	01
•								2
83M o	f 254M							
0 1								_
	-		_	_	_	_		_
				-				
			1					

Table of Contents

1	Abo	out the 980 HDMI Protocol Analyzer Module	3
	1.1	What makes the 980 HDMI Protocol Analyzer Unique?	3
	1.2	Scope of this User Guide	4
	1.3	Changes to this User Guide	5
	1.4	What options are available with the 980?	5
	1.5	980 User Interface	7
	1.6	What kinds of data does the 980 Protocol Analyzer module allow you to view?	11
2	Get	ting Started	13
3	HDI	MI Source Compliance Tests	14
	3.1	Workflow for running the HDMI Source Compliance Tests	15
	3.2	Making the HDMI connections	15
	3.3	Setting the 980 mode to HDMI	17
	3.4	Setting the Configuration of the Link Mode	18
	3.5	Setting the +5V levels	20
	3.6	Completing the CDF	22
	3.7	Selecting which tests to run	43
	3.8	Executing the HDMI Source Compliance Tests	49
	3.9	Viewing Details of Source Compliance Test Failures	63
	3.10	Canceling and Resuming the HDMI Source Compliance after cancel	65
	3.11	Viewing the HDMI Source Compliance HTML test report	67
4	МН	L Source Compliance Tests	71
	4.1	Workflow for running the MHL Source Compliance Tests	71
	4.2	Making the physical MHL connections	73
	4.3	Setting the 980 Mode to MHL	76
	4.4	Completing the CDF	78
	4.5	Selecting which tests to run	87
	4.6	Executing the MHL Source Compliance Tests	95
	4.7	Canceling and Resuming the MHL Source Compliance after cancel	106
	4.8	Viewing Details of Source Compliance Test Failures	109
	4.9	Viewing the MHL Source Compliance HTML test report	111

1 About the 980 HDMI Protocol Analyzer Module

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

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

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

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

The 980 HDMI Protocol Analyzer module is able to parse HDMI streams from source devices with a TMDS clock and pixel clock up to 297MHz.

-		quanta	mdata 9	980			
Ele E	did Capture Instrume	nt Compliance	Options View	Help			
🗟 Captu	Navig E Live V Dat	- HEvent	Timin 🗔 Video	Data A HEAC SKHOM	Concil		
Data	C Filter				cons		
S Find	Sync Datalle	Raw Data		a last a tast and			
Parket	TimeStemp (HULDBLCC)	Ca Row Cata		A V X V Q	1		
• 0	rimeatamp (rin:mm:55.)	Hame Line	Potel Type	SubType Info		0.00	
• 1	0-1-25 625 574 550	0 0	0 TMDS	PXR TMDS clock rate 22	22.75		
• 2	0-1-25.935.574.550	0 0	0 TMDS	HSYNC HSYNC 66 clocks			
• 3	0:1:25 935 574 500	0 1	0 TMDS	VSYNC VSYNC 16500			
+ 4	0:1:25.935.574.724	0 1	175 TMDS	GCP General Control		(60)	
• 5	0:1:25.935.574.877	0 1	207 TMDS	GCP General Control			
• 6	0-1-25 935 575 021	0 1	239 TMDS	AVI IF AVI InfoFrame			
4			271 TMDS	ALID IF Audio InfoFrame			
color o pixel p HB: 03 SP0: 10	WMUTE flag: depth: backing phase: 00 00 de 0 00 00 co co co	0 Color De Phase no	pth not indicated	ated			
HB: 03 SP0: 10 SP1: 10 SP2: 17 115M	WADTE Flag: acking phase: acking phase: 00 00 de 00	0 Color De Phase no cl cl	pth not indicated	ated			

1.1 What makes the 980 HDMI Protocol Analyzer Unique?

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

1.2 Scope of this User Guide

This User Guide provides descriptive and procedural information on the HDMI compliance test options for testing HDMI sources and sinks.

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-based 980 GUI Manager. The procedures are nearly 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 sink compliance tests. This HDMI compliance test user guide can be found on the Quantum Data website at: <u>http://www.quantumdata.com/products/980_PA.asp</u>.

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 HDMI Protocol Analyzer module This User Guide covers source analysis features of the 980 HDMI Protocol Analyzer module. Used in conjunction with the 980 Advanced Test Platform Quick Start Guide for purchases in 2013.
- 980 Advanced Test Platform Quick Start Guide This Quick Start Guide covers startup procedures for the 980/980B platform. Used in conjunction with the 980 HDMI Protocol Analyzer Module User Guide for purchases in 2013.
- 980 HDMI Protocol Analyzer module 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 HDCP Source Compliance Test This User Guide covers source compliance HDCP testing for 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 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. (This User 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.

- 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

This is a new document which combines the HDMI and MHL source compliance tests. The following updates have been added to the HDMI and MHL source compliance test descriptions and procedures:

- The MHL source compliance test was updated to indicate support for MHL 1.3 & 2.1 CTS.
- The updated GUI for the 980B Advanced Test Platform.

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

1.4 What options are available with the 980?

The 980 offers four options that you can purchase with the 980 HDMI Protocol Analyzer module. You must have a license to use these optional features: 1) Encrypted Link Analyzer mode for monitoring encrypted data between an HDMI source and sink device. 2) HDMI Source Compliance tests in accordance with HDMI 1.4 CTS Sections 7.4 through 7.8. 3) EDID Compliance test in accordance with Sections 8.2 and 8.5 of the HDMI 1.4 CTS. 4) HDMI Sink Compliance tests in accordance with HDMI 1.4 CTS. 5) MHL Source Compliance tests in accordance with HDMI 1.4 CTS Sections 8.2 and 8.4 through 8.8. 5) MHL Source Compliance tests in accordance with MHL 1.2, 1.3, 2.0 & 2.1 CTS Section 3. 6) MHL Sink Compliance tests in accordance with MHL 1.2, 1.3, 2.0 & 2.1 CTS Section 4.

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



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

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"]
 Main boss

CPUx2 : [ 6.42.7 inco

: [ 3 GB + 512 MB]

: [ 3 GB + 512 MB]
                      6.42.7 "Intel(R) Core(TM) i3-2100 CPU @ 3.10GHz"]
        : [ 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]
       : [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 Protocol Analyzer module provides a graphical user interface for operation. This GUI can run both on the 980 itself through the built-in color touch screen display or as a standalone application running on a PC. The look and feel and functions are similar but not identical.

1.5.1 External 980 GUI Manager

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

1.5.2 Embedded 980 GUI Manager

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

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

1.5.3 Embedded 980 GUI Manager and External GUI Manager layout differences

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



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

Rev. A4

quantumdata									
Other									
	Navigator	Capture Viewer	CBUS Plot Viewer	CT Results Viewer					
<	Command Console	Instrument Network Settings	About the 980 Manager	Calibrate the LCD					
	Apply ATP License	Apply Demo License							
	Card Control	Page Compliance Tests	4 of 4 Editors	Other					
🖙 Back	Card Control	Page Compliance Tests 160 ATP Version: 4	4 of 4 Editors	Other	ş				

980 User Guide – HDMI & MHL Source Compliance



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

Rev. A	4
--------	---

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

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

- Video
 - o Timing parameters
 - Pixel values
- Protocol Data
 - o Guard band
 - o Preamble
- Data Islands, including:

- Infoframes (AVI, Audio, Source Product Descriptor, etc.)
- General Control Packet (GCP)
- Audio Clock Regeneration (ACR)
- Audio Sample Packet Header including Channel Status Blocks
- Hot plug events
- DDC, C-Bus (MHL) transactions, including:
 - HDCP
 - 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 Source Compliance Tests

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

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

The 980 supports the following test sections in the HDMI 1.4b Compliance Test specification:

- 7.4 Source Protocol Tests
 - o 7-16 Legal Codes
 - o 7-17 Basic Protocol
 - o 7-18 Extended Control Period
 - 7-19 Packet Types
- 7.5 Source Video Tests
 - o 7-21 Minimum Format Support
 - o 7-22 Additional Format Support
 - o 7-23 Pixel Encoding (RGB)
 - o 7-24 Pixel Encoding (YCbCr)
 - 7-25 Video Format Timing
 - o 7-26 Pixel Repetition
 - o 7-27 AVI Infoframe
- 7.6 Source Audio Tests
 - o 7-28 IEC 60958/61937
 - 7-29 ACR
 - o 7-30 Audio Sample Packet Jitter
 - 7-31 Audio Infoframe
 - 7-32 Audio Sample Packet Layout
- 7.7 Source Interoperability with DVI Tests
 - o 7-32 Interoperability with DVI
- 7.8 Source Advanced Features Tests
 - o 7-34 Deep Color
 - o 7-35 Gamat Metadata Transmission
 - o 7-36 High Bitrate Audio
 - o 7-37 One Bit Audio
 - o 7-38 3D Video Format Timing
 - o 7-39 4K x 2K Video Format Timing
 - o 7-40 Extended Colorimetry Transmission

3.1 Workflow for running the HDMI Source Compliance Tests

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

- 1. Connect the source 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.

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.

3.2 Making the HDMI connections

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



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



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



HDMI connection for source compliance test - 980B

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

3.3 Setting the 980 mode to HDMI

Use the following procedures to set the 980 HDMI Protocol Analyzer module to the HDMI mode.

To set the 980 mode to HDMI:

1. From the Instrument menu, select the Link Mode.



The following menu appears:



2. Select the pull-down menu as shown below and select the HDMI Monitor checkbox. The default mode is HDMI.

🗔 Hide
🗹 On Top
O Sink Emulation
• Pass-Through
Encrypted Link Analyzer
TX-RX HPD
O HDMI Monitor
MHL Monitor

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

Link Mod	de: HDMI				\wp	
980JB [192	.168.254.140]					
Sink E	mulation:	+RX	- TX	Ri:0		
💈 Refre	sh					

3.4 Setting the Configuration of the Link Mode

When running the HDMI or MHL source compliance tests you will need to set the configuration of the **Link Mode** to Sink Emulation.

To set the 980 link configuration mode:

- 1. Ensure that you are sending video from your source device under test.
- 2. Select the configuration of the **Link Mode** item from the Instrument pull-down menu on the built-in front panel as shown below.

🖅 Navigator			
国 Images 🛛 💵 Instru	iments	4 >	
» • • • •) 🗙 🕕		
Name		IP Address	
5 980_MB		192.168.254.229	
980B_JB2		192.168.254.161	
980B_JB	Link Mode	102 169 254 160	J
	RX HDCP Sett	ings	
57	RX 5 Volts		
S. 1	Disconnect		
+	Add		
	Information		
	Edit		
	Configure		
<mark>0</mark> 5	Upgrade UI/Fi	rmware/Gateware	
<u>0</u> 49	Upgrade CT S	cripts	
<u></u>	Upgrade Syste	em Components	
	Generate UID	File	
5	Apply Old Lice	ense	
	Apply ATP Lic	ense	
Đ	Apply Demo I	icense	

The mode dialog box appears as shown below.



3. Select the **Link Mode** item from the pull-down menu on the built-in front panel as shown below.

A pop out menu will appear enabling you to select the desired mode using the check boxes provided.

🗔 Hide	
🖬 On Top	
O Sink Emulation	
• Pass-Through	
Encrypted Link Analyzer	
TX-RX HPD	
O HDMI Monitor	
MHL Monitor	

- Sink emulation In the sink emulation monitoring configuration the 980 HDMI Protocol Analyzer module's HDMI Rx port is connected directly to the source device under test. The 980 HDMI Protocol Analyzer module is emulating an HDMI/MHL sink device. The sink emulation mode is the typical mode of operation. You can monitor the HDMI/MHL transactions between the source device under test and the 980 HDMI Protocol Analyzer Rx port. All of the data types described in this manual can be monitored in the sink emulation mode unless noted otherwise. This is the mode used for the HDMI or MHL source compliance tests.
- Pass-Through Monitor In the Pass-Through monitoring configuration the 980 HDMI Protocol Analyzer module's HDMI Rx port is connected to the source device under test and the 980 HDMI Protocol Analyzer HDMI Tx port is connected to a sink device. The pass-through mode enables you to monitor the HDMI traffic passively between an HDMI/MHL source and an HDMI/MHL sink device. This mode is **not used** for the HDMI or MHL source compliance tests.
- Encrypted Link Analyzer (Optional) In the Encrypted Link Analyzer configuration the 980 HDMI Protocol Analyzer HDMI Rx port is connected to the source device under test and the 980 HDMI Protocol Analyzer HDMI Tx port is connected to a sink device. The Encrypted Link Analyzer configuration enables you to monitor and analyze HDCP encrypted protocol data transmitted between an HDMI source device and sink device. This mode is not used for the HDMI or MHL source compliance tests.
- **TX-RX HPD** Enabling this option will replicate the hot plug signal from the TX side (an attached sink device) on the RX side (like a hot plug repeater). *This is the mode used for the HDMI or MHL source compliance tests.*

3.5 Setting the +5V levels

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

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



🧭 Generate UID File Apply Old License Apply ATP License

D

D Apply Demo License The RX 5V Status/Configuration dialog box is displayed as shown below.

SV RX 5V Status/Co	nfiguration	×
Instrument "	MyMHL980@192	2.168.254.132"
Measured: 4	1.98 V	
Threshold Level:	4.70	V (0.00 - 5.30)
1 I I I I I I I I		· · · · · · · · · ·
Load:	6.06	mA (6.06 - 148.00)
Load:	6.06	mA (6.06 - 148.00)
Load:	6.06	mA (6.06 - 148.00)
Load:	6.06	mA (6.06 - 148.00)
	6.06	mA (6.06 - 148.00)

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

3.6 Completing the CDF

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

To complete the CDF:

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

💮 Apps					
		C, qua	ntum <mark>data</mark>		
		Compliar	nce Tests		
	\bigcirc			\bigcirc	
	HDMI EDID CTS 1.4b	HDMI S CTS	Source 1.4b	HDMI Sink CTS 1.4b	
l	\bigcirc			\bigcirc	>
	HDMI HDCP Transmitter CTS 1.2	MHL S CTS 1.	ource 2 - 2.1	MHL Sink CTS 1.2 - 2.1	
	\bigcirc			\bigcirc	
	MHL Dongle CTS 1.2 - 2.1	CBUS S	Source 2 - 2.1	CBUS Sink CTS 1.2 - 2.1	
		Page	2 of 4		
	Card Control	Compliance Tests	Editors	Other	
	Card Control	Page Compliance Tests	2 of 4 Editors	Other	

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

Rev. A4

HDMI Src CT 1.4b						
CDF Entry	lection 🕨 Test Options / Preview					
CDF File: /CDF/804_Test						
Product Opt	Product Options Formats H Add. Formats Other Outputs Addi Add. Formats Other Outputs Addi Other Outputs Other Output Other Other Output Other Ou					
One or more essentia	al fields are blank.					
Manufacturer	What is the product manufacturer's name?					
Model Name/Number	What is the model name/number of the product? 1					
HDMI_output_count	How many HDMI output ports are on the product? 1					
Port Tested	Which HDMI output port is being tested? 1					
Connector Vendor	The connector vendor name.					
Connector Model	The connector model name/ID.					
	K 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.

C	IDF Editor	
	🕸 Open CDF File	
	Select a CDF to open in the CDF editor.	
	C Acme_XYW_CDF	
	Cancel Ok	

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

🖄 HDMI Src CT 1.4b						
🕲 CDF Entry 📝	lection 🕨 Test Options / Preview					
🔄 Open 🛃 New	CDF File: /CDF/804_Test					
🔒 Product 🔹 Opt	ions 💿 Formats 😣 Add. Formats 💿 Other Outputs 💿 Audio 💿 3D 💿 4Kx2K 💿 Other Formats					
One or more essentia	al fields are blank.					
Manufacturer	What is the product manufacturer's name?					
Model Name/Number What is the model name/number of the product? 1						
HDMI_output_count	How many HDMI output ports are on the product? 1					
Port Tested	Which HDMI output port is being tested? 1					
Connector Vendor	The connector vendor name.					
Connector Model	The connector model name/ID.					

6. Complete the items in the **Option** tab.

🔯 HDMI Src CT 1.4b						
🔯 CDF Entry 🖌 Test Se	election 🕨 Test Options / Preview					
CDF File: /CDF/804_Test						
Options	Formats 1 Add. Formats Other Outputs Addio Ad					
Source_HDMI_YCbCr	Will the product transmit an HDMI video signal using YCbCr (4:4:4 or 4:2:2) pixel encoding under some conditions (user selection, EDID indication, etc.)?					
Source_AVI_Required	Is the product ever required to transmit an AVI InfoFrame?					
Source_AVI_Supported	Does the product support the transmission of the AVI InfoFrame under some conditions? ⓐ Yes ○ No					
Source_AVI_Info_Available	Is any of the following information available and valid at the Source?: Active Format Aspect Ratio. Bar Widths. Overscan vs. underscan. non-uniform picture scaling. The colorimetry of the video.					
Source_Alt_Colorimetry	Colorimetry Ves O No					
Source_xvYCC	YCC Will the product ever transmit video using xvYCC colorimetry under some condition?					
Source_AR_Converter	Does the product have the ability to convert between aspect ratios of 4:3 and 16:9 (and vice versa)?					
Source_Non_CEA_Formats	Can the product support formats that are not described in [HDMI 6.3]? Yes 					
Source_Q_FullRange	Is the product capable of transmitting video using RGB "Full" quantization range under EDID indication? If "Yes" then the appropriate content must be supplied. • Yes • No					
	X Close					

7. Complete the items in the **Formats** tab.

🖄 HDMI Src CT 1.4b							
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview							
CDF File: /CDF/804_Test							
Product Options Formats Add Formats Other Outputs Add Formats Other Outputs Add Formats							
Source_Video_Formats	Which (Select	HDMI vi support	deo form ed items	iats are : below.)	supported by the product and at which color depths?		
Source_Deep_Color	Does th Yes	ne produc No	ct suppor	rt any Do	eep Color modes?		
SELECT ALL AS ->	24	30	36	48	(bits per pixel)		
(1) 640x480p @ 60 Hz 4:3	V 24	30	36	48	(bits per pixel)		
(2) 720x480p @ 60 Hz 4:3	V 24	V 30	V 36	48	(bits per pixel)		
(3) 720x480p @ 60 Hz 16:9	24	30	36	48	(bits per pixel)		
(4) 1280x720p @ 60 Hz 16:9	V 24	V 30	V 36	48	(bits per pixel)		
(5) 1920x1080i @ 60 Hz 16:9	24	30	36	48	(bits per pixel)		
(6) 1440x480i @ 60 Hz 4:3	24	30	36	48	(bits per pixel)		
(7) 1440x480i @ 60 Hz 16:9	24	30	36	48	(bits per pixel)		
(16) 1920x1080p @ 60 Hz 16:9	V 24	V 30	V 36	48	(bits per pixel)		
(17) 720x576p @ 50 Hz 4:3	24	30	36	48	(bits per pixel)		
(18) 720x576p @ 50 Hz 16:9	24	30	36	48	(bits per pixel)		
(19) 1280x720p @ 50 Hz 16:9	24	30	36	48	(bits per pixel)		
(20) 1920x1080i @ 50 Hz 16:9	24	30	36	48	(bits per pixel)		
(21) 1440x576i @ 50 Hz 4:3	24	30	36	48	(bits per pixel)		
(22) 1440x576i @ 50 Hz 16:9	24	30	36	48	(bits per pixel)		
(31) 1920x1080p @ 50 Hz 16:9	24	30	36	48	(bits per pixel)		
					X Close		

8. Complete the items in the **AddFormats** tab. These are the additional formats beyond the more common CEA formats.

🔯 HDMI Src CT 1.4b		<u> </u>			
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview					
CDF File: /CDF/804_Test					
Product Ontions Formate	Add, Formats Other Outputs Audio Audio				
Source_Additional_Formats	Which other CEA video formats are supported by the product?				
	None				
SELECT ALL AS ->	O Yes O No				
(08) 720(1440)x240p @ 60 Hz 4:3	O Yes O No				
(09) 720(1440)x240p @ 60 Hz 16:9	♥es ● No 目	=			
(10) 2880x480i @ 60 Hz 4:3 2:9	O Yes No				
(11) 2880x480i @ 60 Hz 16:9	O Yes O No				
(12) 2880x240p @ 60 Hz 4:3	● Yes ◎ No				
(13) 2880x240p @ 60 Hz 16:9	Yes ● No				
(14) 1440x480p @ 60 Hz 4:3	O Yes 💿 No				
(15) 1440x480p @ 60 Hz 16:9	O Yes 💿 No				
(23) 720(1440)x288p @ 50 Hz 4:3	O Yes 💿 No				
(24) 720(1440)x288p @ 50 Hz 16:9	O Yes 💿 No				
(25) 2880x576i @ 50 Hz 4:3	O Yes 💿 No				
(26) 2880x576i @ 50 Hz 16:9	O Yes 💿 No				
(27) 2880x288p @ 50 Hz 4:3	O Yes 💿 No				
(28) 2880x288p @ 50 Hz 16:9	© Yes ⊚ No				
(29) 1440x576p @ 50 Hz 4:3	O Yes 💿 No				
(30) 1440x576p @ 50 Hz 16:9	O Yes 💿 No				
(32) 1920x1080p @ 24 Hz 16:9					
(33) 1920x1080p @ 25 Hz 16:9	O Yes O No	-			
	X Close				

9. Complete the items in the **Other Outputs** tab. These are the formats available on the analog outputs.

🖄 HDMI Src CT 1.4b					
😢 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview					
🔄 Open 😡 New	CDF File: /CDF/804_Test				
Product Op	tions Formats Add. Formats Cher Outputs Audio Addio Addio Addio Addio Addio Addio Addio Addio Addio Addio Addio Addio Addio Add				
Is the DUT capable the tested port?	of transmitting any of the following timings using any component analog or uncompressed digital video output OTHER than				
Source_720p60_Other	1280x720p @ 59.94/60 Hz on non-HDMI output? Yes <a>No				
Source_1080i60_Other	1920x1080i @ 59.94/60 Hz on non-HDMI output? Yes <a>No				
Source_480p60_Other	720x480p @ 59.94/60 Hz on non-HDMI output? Yes <a>No				
Source_720p50_Other	1280x720p @ 50 Hz on non-HDMI output? O Yes No				
Source_1080i50_Other	1920x1080i @ 50 Hz on non-HDMI output? Yes <a>No				
Source_576p50_Other	720x576p @ 50 Hz on non-HDMI output? Yes No				

10. Complete the items in the **Audio** tab. Notice in the screen shot below there is an error flagged indicating that the format has not been completed properly. This can happen if for example you have specified compressed formats without specifying the permissible sampling rates for them. The second example slide below shows the error resolved by selecting a sampling rate for compressed audio.

🕑 HDMI Src CT 1.4b						
🕲 CDF Entry 🗹 Test	Selection Test Options / Preview					
Copen New	Save CDE File: /CDE/804 Test	٦				
Product Optio	ns 🔍 Formats 🔍 Add. Formats 🔍 Other Outputs 🥶 Audio 🔍 3D 👘 4Kx2K 🔍 Other Formats					
Non-PCM MaxES is no	it set.					
Source Basic Audio	Is Basic Audio supported?					
	● Yes ◎ No					
Source PCM Channels	Max supported L-PCM Channel Count.					
	0 0 2 3 4 5 6 7 8					
Sauraa May Fa OCh	L-PCM Maximum Freq for 2-channel audio.					
Source_Max_Fs_2Ch	◎ 32 kHz ◎ 44.1 kHz ◎ 48 kHz ◎ 88.2 kHz ◎ 96 kHz ◎ 176.4 kHz ◎ 192 kHz					
	L-PCM Maximum Freq for multi-channel audio.					
Source_Max_Fs_MultiCh	◎ 32 kHz ○ 44.1 kHz ○ 48 kHz ○ 88.2 kHz ○ 96 kHz ○ 176.4 kHz ○ 192 kHz					
	Under what conditions can the above occur?					
	(Media required, signal input required, UI actions, etc.)					
	Additional audio coding types supported.					
	None					
	✓ 2: AC-3 (Dolby Digital)	1				
	3: MPEG1 (Layers 1 2)					
	14: MP3: MPEG1 Layer 3					
	5: MPEG2 (multichannel)					
	6: AAC					
Source_NonPCM_Types	▼ 7: DTS					
	🔲 8: ATRAC					
	🗐 9: One Bit Audio					
	V 10: Dolby Digital +					
	X Close					

980 User Guide – HDMI & MHL Source Compliance

🖄 HDMI Src CT 1.4b				
🖄 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview				
Open Save CDF File: /CDF/804_Test				
Product Ontion	ns @ Formats @ Add Formats @ Other Outnuts @ Audio @ 3D @ 4Kv2K @ Other Formats			
	None A Contraction of the second seco			
	2: AC-3 (Dolby Digital)			
	3: MPEG1 (Layers 1 2)			
	4: MP3: MPEG1 Layer 3			
	5: MPEG2 (multichannel)			
	6: AAC			
Source_NonPCM_Types	✓ 7: DTS			
	8: ATRAC			
	9: One Bit Audio			
	☑ 10: Dolby Digital +			
	11: DTS-HD			
	12: MAT (e.g. MLP, Dolby TrueHD)			
	13: UST Audio			
	14: WMA Pro			
Source NonPCM MaxEs	Maximum fs for non-PCM formats (where fs = ACR rate).			
	○ N/A ○ 32 kHz ○ 44.1 kHz ◎ 48 kHz ○ 88.2 kHz ○ 96 kHz ○ 176.4 kHz ○ 192 kHz			
Source HBRA	Does the DUT support any high Bitrate Audio formats such as Dolby TrueHD (MAT/MLP) or DTS-HD Master Audio?			
	O Yes O No			
	Which HBRA formats are supported?.			
Source_HBRA_Formats	Dolby TrueHD DTS-HD MA Other			
Source One Bit Audio	Does the DUT support One Bit Audio (e.g. SuperAudio CD) transmission across the HDMI output?			
	Ves O No			
	X Close			

Rev. A4

11. Complete the items in the **3D** tab. An error is shown in the screen sample below because 3D formats are indicated but none selected. The second screen shows the error resolved by selecting some mandatory 3D formats.

😢 HDMI Src CT 1.4b							
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview							
CDF File: /CDF/804 Test							
Product Options Formats Add. Formats Other Outputs Addi Options Add. Formats Other Outputs Addi Options Options							
At least one mandatory 50 format must be selected.							
Source 3D Does the DUT support 3D formats?							
● Yes ◎ No							
Source_Mandatory_3D_Video_Formats Which HDMI mandatory 3D video format timings are supported by the product?							
(32) 1920x1080p @ 23.98/24 Hz (Frame packing) 💿 Yes 💿 No							
(4) 1280x720p @ 59.94/60 Hz (Frame packing) 💿 Yes 💿 No							
(19) 1280x720p @ 50 Hz (Frame packing)							
(5) 1920x1080i @ 59.94/60 Hz (Side-by-Side (Half)) 💿 Yes 💿 No							
(20) 1920x1080i @ 50 Hz (Side-by-Side (Half))							
(32) 1920x1080p @ 23.98/24 Hz (Top-and-Bottom) 💿 Yes 💿 No							
(4) 1280x720p @ 59.94/60 Hz (Top-and-Bottom) 💿 Yes 💿 No							
(19) 1280x720p @ 50 Hz (Top-and-Bottom) 💿 Yes 💿 No							
Source_Other_Primary_3D_Video_Formats Which HDMI other Primary 3D video format timings are supported by the product?							
(5) 1920x1080i @ 59.94/60 Hz (Frame packing) 💿 Yes 💿 No							
(20) 1920x1080i @ 50 Hz (Frame packing) 💿 Yes 💿 No							
(34) 1920x1080p @ 30 Hz (Frame packing) 💿 Yes 💿 No							
(60) 1280x720p @ 23.98/24 Hz (Frame packing) 💿 Yes 💿 No							
(62) 1280x720p @ 29.97/30 Hz (Frame packing) 💿 Yes 💿 No							
(4) 1280x720p @ 59.94/60 Hz (Side-by-Side (Half)) 💿 Yes 💿 No							
(19) 1280x720p @ 50 Hz (Side-by-Side (Half))							
(32) 1920x1080p @ 23.98/24 Hz (Side-by-Side (Half)) 🔘 Yes 💿 No							
(16) 1920x1080p @ 59.94/60 Hz (Top-and-Bottom) 💿 Yes 💿 No							

980 User Guide – HDMI & MHL Source Compliance

Page 33

🖄 HDMI Src CT 1.4b							
🕲 CDF Entry 🧹 Test Selection 🕨 Test Options / P	review						
CDF File: /CDF/804 Test							
Product Options Formats Add. Forr	mats of Other Outputs of Audio of 30 of 4KX2K of Other Formats						
Source 3D	Does the DUT support 3D formats?						
	● Yes ◎ No						
Source_Mandatory_3D_Video_Formats	Which HDMI mandatory 3D video format timings are supported by the product?						
(32) 1920x1080p @ 23.98/24 Hz (Frame packing)	◎ Yes 🔘 No						
(4) 1280x720p @ 59.94/60 Hz (Frame packing)	● Yes 🔘 No						
(19) 1280x720p @ 50 Hz (Frame packing)	● Yes ◎ No						
(5) 1920x1080i @ 59.94/60 Hz (Side-by-Side (Half))	◎ Yes 🔘 No						
(20) 1920x1080i @ 50 Hz (Side-by-Side (Half))	◎ Yes 🔘 No						
(32) 1920x1080p @ 23.98/24 Hz (Top-and-Bottom)	◎ Yes 🔘 No						
(4) 1280x720p @ 59.94/60 Hz (Top-and-Bottom)	● Yes ◎ No E						
(19) 1280x720p @ 50 Hz (Top-and-Bottom)	● Yes ◎ No						
Source_Other_Primary_3D_Video_Formats	Which HDMI other Primary 3D video format timings are supported by the product?						
(5) 1920x1080i @ 59.94/60 Hz (Frame packing)	🔿 Yes 🔘 No						
(20) 1920x1080i @ 50 Hz (Frame packing)	🔿 Yes 💿 No						
(34) 1920x1080p @ 30 Hz (Frame packing)	🖉 Yes 💿 No						
(60) 1280x720p @ 23.98/24 Hz (Frame packing)	🖉 Yes 💿 No						
(62) 1280x720p @ 29.97/30 Hz (Frame packing)	🔘 Yes 🔞 No						
(4) 1280x720p @ 59.94/60 Hz (Side-by-Side (Half))	🔘 Yes 🔞 No						
(19) 1280x720p @ 50 Hz (Side-by-Side (Half))	Ves No						
(32) 1920x1080p @ 23.98/24 Hz (Side-by-Side (Half))	🔍 Yes 🔞 No						
(16) 1920x1080p @ 59.94/60 Hz (Top-and-Bottom)	🔿 Yes 🔘 No 🗸 🗸						
	Close						

Rev. A4

12. Complete the items in the **4Kx2K** tab.

😢 HDMI Src CT 1.4b							
😢 CDF Entry 🧹 Test Selection 🕨 Test Options / Preview							
CDF File: /CDF/804_Test							
Product Options Formats Add. Formats Other Outputs Add. Add. Formats Formats Add. Formats Add. Formats Add. Formats Formats Add. Formats Forma	iats						
Source 4Kx2K Does the DUT support 4K x 2K formats?							
● Yes ⊘ No							
(1) 4K x 2K 29.97, 30 Hz 💿 Yes 💿 No							
(2) 4K x 2K 25 Hz O Yes O No							
(3) 4K x 2K 23.98, 24 Hz 💿 Yes 💿 No							
(4) 4K x 2K 24 Hz (SMPTE) (6) Yes (9) No							
	X Close						

13. 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.

You can either select additional formats for all tests or you can specify formats to test only for specific tests. To

select formats to apply to all tests, simply click on the **Add/Remove Formats** button and a dialog box will open (second example slide below) and select the additional formats that you wish to test.

🔁 HDMI Src CT 1.4b
CDF Entry ✓ Test Selection Preview Test Options / Preview
CDF File: < not saved>
🕒 Product 🔍 Options 🔍 Formats 🔍 Add. Formats 🔍 Other Outputs 🔍 Audio 🔍 3D 🔍 4Kx2K 🔍 Other Formats
Split_DualAR_Fmts Split all dual aspect ratio format pairs into two independent test iterations? O Yes No
Use the button below to add selected formats to every applicable test or to remove selected formats.
Add/Remove Formats
Use the button next to each test number below to add/remove formats for that specific test.
7-16 Zegal Codes
7-17 📓 Basic Protocol
7-18 Zextended Control Period
7-19 Packet Types
7-23 Pixel Encoding - RGB to RGB-only sink
7-24 Pixel Encoding - YCbCr to YCbCr Sink
7-25 🖉 Video Format Timing
7-26 Pixel Repetition
7-27 Z AVI InfoFrame
7-28 ZEC 60958 / IEC 61937
7-29 🖉 ACR
7-30 Z Audio Sample Packet Jitter
7-31 📓 Audio InfoFrame
X Close

Sormat Selection: All Tests	
	Name
	(01) 640x480p @ 60 Hz 4:3
V	(02) 720x480p @ 60 Hz 4:3
	(03) 720x480p @ 60 Hz 16:9
V	(04) 1280x720p @ 60 Hz 16:9
	(05) 1920x1080i @ 60 Hz 16:9
	(06) 720(1440)x480i @ 60 Hz 4:3
	(07) 720(1440)x480i @ 60 Hz 16:9
	(08) 720(1440)x240p @ 60 Hz 4:3
	(09) 720(1440)x240p @ 60 Hz 16:9
	(10) 2880x480i @ 60 Hz 4:3 2:9
	(11) 2880x480i @ 60 Hz 16:9
	(12) 2880x240p @ 60 Hz 4:3
	(13) 2880x240p @ 60 Hz 16:9
	(14) 1440x480p @ 60 Hz 4:3
	(15) 1440x480p @ 60 Hz 16:9
	I ■ None 🕂 Add 💥 Remove 🙆 Cancel

The result is that you will see these formats listed under each test. As shown in the following screen example.
980 User Guide – HDMI & MHL Source Compliance

HDMI Src CT 1.4b			
🔯 CDF Entry 🧹	Test Selection Freview		
🔄 Open 😡 N	ew Save CDF File: /CDF/804_Test		
Product	Options		
Split_DualAR_Fmts	Split_DualAR_Fmts Split all dual aspect ratio format pairs into two independent test iterations? Ves No		
Use the button be	low to add selected formats to every applicable test or to remove selected formats.		
📝 Add/Remo	ove Formats		
Use the button ne	xt to each test number below to add/remove formats for that specific test.		
7.16	Codes Codes		
/-10	(02) 720x480p @ 60 Hz 4:3 (04) 1280x720p @ 60 Hz 16:9		
	Basic Protocol		
7-17	(02) 720x480p @ 60 Hz 4:3 (04) 1280x720p @ 60 Hz 16:9		
	Extended Control Period		
7-18	(02) 720x480p @ 60 Hz 4:3 (04) 1280x720p @ 60 Hz 16:9		
	📝 Packet Types		
7-19	(02) 720x480p @ 60 Hz 4:3 (04) 1280x720p @ 60 Hz 16:9		
	Pixel Encoding - RGB to RGB-only sink		
7-23	(02) 720x480p @ 60 Hz 4:3 (04) 1280x720p @ 60 Hz 16:9		
	Pixel Encoding - YCbCr to YCbCr Sink		
7-24	(02) 720x480p @ 60 Hz 4:3 (04) 1280x720p @ 60 Hz 16:9		
	🧭 Video Format Timing		
7-25	(02) 720x480p @ 60 Hz 4:3		
	X Close		

If you wish to select additional formats for testing on an individual basis, click on the icon adjacent to a particular test. When you click on this icon a dialog box appears enabling you to select "Other Formats" for that particular test. You can select individual formats using the check boxes beside each format or you can select all formats with the **All** check box at the bottom of the dialog box. You can clear all selected formats with the **None** check box at the bottom of the dialog box. Click **OK** or **Cancel** appropriately.

Refer to the screen shots below showing the selection of other formats for the 7-17 test.

🕲 HDMI Src CT 1.4b
😢 CDF Entry 🧹 Test Selection 🕨 Test Options / Preview
Open Save CDF File: < not saved>
🕒 Product 🔍 Options 🔍 Formats 🔍 Add. Formats 🔍 Other Outputs 🔍 Audio 🔍 3D 🔍 4Kx2K 🔍 Other Formats
Split_DualAR_Fmts Split all dual aspect ratio format pairs into two independent test iterations?
Use the button below to add selected formats to every applicable test or to remove selected formats.
Add/Remove Formats
Use the button next to each at number below to add/remove formats for that specific test.
7-16 Zal Codes
7-17 Z Basic Protocol
7-18 Zextended Control Period
7-19 Z Packet Types
7-23 📝 Pixel Encoding - RGB to RGB-only sink
7-24 See Pixel Encoding - YCbCr to YCbCr Sink
7-25 📝 Video Format Timing
7-26 Pixel Repetition
7-27 Z AVI InfoFrame
7-28 📝 IEC 60958 / IEC 61937
7-29 🖉 ACR
7-30 Z Audio Sample Packet Jitter
7-31 🧟 Audio InfoFrame
X Close

📝 For	rmat Selection: 7-17	
	Name	•
	(01) 640x480p @ 60 Hz 4:3	
	(02) 720x480p @ 60 Hz 4:3	Ξ
V	(03) 720x480p @ 60 Hz 16:9	
V	(04) 1280x720p @ 60 Hz 16:9	
	(05) 1920x1080i @ 60 Hz 16:9	
	(06) 720(1440)x480i @ 60 Hz 4:3	
	(07) 720(1440)x480i @ 60 Hz 16:9	
	(08) 720(1440)x240p @ 60 Hz 4:3	
	(09) 720(1440)x240p @ 60 Hz 16:9	
	(10) 2880x480i @ 60 Hz 4:3 2:9	
	(11) 2880x480i @ 60 Hz 16:9	
	(12) 2880x240p @ 60 Hz 4:3	
	(13) 2880x240p @ 60 Hz 16:9	
	(14) 1440x480p @ 60 Hz 4:3	
	(15) 1440x480p @ 60 Hz 16:9	
	(10) 1000 1000 - @ C0 11 10 0	Υ.
	🗹 All 🔳 None 🛛 🎸 Ok 🛛 🙆 Cancel	

Notice in the screen shot below that the other formats that you have selected for the 7-17 test appear underneath the test.

🖄 HDMI Src CT 1.4b		x
[™] CDF Entry ✓ Test Selection ► Test Options / Preview		
🔄 Open 😡 N	CDF File: < not saved>	
🔒 Product 🔹	Options	
Split_DualAR_Fmts	Split all dual aspect ratio format pairs into two independent test iterations?	
Use the button be	low to add selected formats to every applicable test or to remove selected formats.	-
📝 Add/Rem	ove Formats	
Use the button ne	xt to each test number below to add/remove formats for that specific test.	_
7-16	Codes Codes	
	Sasic Protocol	
7-17	(03) 720x480p @ 60 Hz 16:9 (04) 1280x720p @ 60 Hz 16:9	
7-18	Extended Control Period	E
7-19	Packet Types	-
7-23	Pixel Encoding - RGB to RGB-only sink	-
7-24	Pixel Encoding - YCbCr to YCbCr Sink	-
7-25	Z Video Format Timing	-
7-26	Pixel Repetition	-
7-27	🛃 AVI InfoFrame	
7-28	IEC 60958 / IEC 61937	
7-29	ACR	
7-30	Audio Sample Packet Jitter	*
	💢 Close	

Add/Remove Formats on the Format Selection dialog box as shown below. You can add tests by selecting them using the check boxes then clicking the Add button. You can delete additional formats by selecting them using the check boxes and then clicking on the Remove button.

📝 For	mat Selection: All Tests	
	Name	1
	(01) 640x480p @ 60 Hz 4:3	
	(02) 720x480p @ 60 Hz 4:3	=
V	(03) 720x480p @ 60 Hz 16:9	
	(04) 1280x720p @ 60 Hz 16:9	
V	(05) 1920x1080i @ 60 Hz 16:9	
	(06) 720(1440)x480i @ 60 Hz 4:3	
V	(07) 720(1440)x480i @ 60 Hz 16:9	
	(08) 720(1440)x240p @ 60 Hz 4:3	
	(09) 720(1440)x240p @ 60 Hz 16:9	
	(10) 2880x480i @ 60 Hz 4:3 2:9	
	(11) 2880x480i @ 60 Hz 16:9	
	(12) 2880x240p @ 60 Hz 4:3	
	(13) 2880x240p @ 60 Hz 16:9	
	(14) 1440x480p @ 60 H: 3	
	(15) 1440x480p @ 60 H; ; ;9	_
		<u> </u>
🖬 All	None 🖧 Add 💥 Remove 🙆 Cancel	

14. Save the CDF. A confirmation box with a default name will appear as shown below. Edit the name if necessary and click OK. You can also rename CDF files or remove them from the saved list.

🛍 Save CDF	
Local Files	
🔺 🗁 CDF	
🔯 804_Test	
	_
🚺 New 🤇 🧏 Rename 🤇 🗶 Delete	D
Path: /CDF	
Name: 804ALTest	
V Ok 🙆 Cancel	

The name you assigned to the CDF will appear beside the **Save** button as shown below.

THDMI Src CT 1.4b		
😢 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview		
CDF File: /CDF/804_Test		
🕒 Product 🔹 Options 🔹 Formats 🔹 Add. Formats 🔹 Other Outputs 🔹 Audio 🔹 3D 🔹 4Kx2K 🔍 Other Formats		
Use the button below to add selected formats to every applicable test or to remove selected formats.		
Add/Remove Formats		
Use the button next to each test number below to add/remove formats for that specific test.		
7-16 🛃 Legal Codes		
7-17 Z Basic Protocol		

3.7 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. 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.

🔊 ні	DMI Src CT 1.4b	
1	CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
	Open Save Select All Tests Deselect All Tests	
	Protocol 🕨 Video 🍽 Audio 🍽 Interop. With DVI 🍽 Advanced Features	
	🔀 Select All on Page 📃 Clear All on Page	

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

HDMI Src Compliance Test		
Open Test Selection File		
Select an Test Selection file to open.		
804A_Source.xml		
Cancel Ok		

3. Select the tests you wish to run in the **Protocol** tab of the **Test Selection** panel shown below.

980 User Guide – HDMI & MHL Source Compliance

💢 Close

Jser Guide – HDMI & MHL Source Compliance	Rev. A4
BMI Src CT 1.4b	
CDF Entry V Test Selection ptions / Preview	
C Open Save Select All Tests Deselect All Tests	
Protocol Video Audio Interop. With DVI Advanced Features	
Select All on Page Clear All on Page	
✓ 7-16: Legal Codes Verify that the source outputs legal 10-bit codes.	
7-17: Basic Protocol Verify that the Source only outputs code sequences for Control Periods, Data Island Periods and Video Data Periods corresponding to basic HDMI protocol rules.	
7-18: Extended Control Period Verify that Source outputs an Extended Control Period within the required period.	
✓ 7-19: Packet Types Verify that Source only transmits permitted Packet Types and reserved fields are zero.	

4. Select the tests you wish to run 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.

😰 HDMI Src CT 1.4b		
🔯 CDF Entry 🗸 Test Selection 🕨 Test Options / Preview		
C Open Save Select All Tests Deselect All Tests		
Protocol Video Audio Interop. With DVI Advanced Features		
Select All on Page Clear All on Page		
Verify that the Source meets minimum Video Format support requirement.		
7-22: Additional Format Support Verify that Source is capable of transmitting formats required due to similar support on non-HDMI interfaces.		
✓ 7-23: Pixel Encoding - RGB to RGB-only sink Verify that the Source DUT always outputs required pixel encoding (RGB), which also correlates with AVI fields Y0 and Y1 when connected to an RGB-only Sink.		
7-24: Pixel Encoding - YCbCr to YCbCr Sink Verify that the Source DUT always outputs pixel encoding that correlates with AVI fields Y0 and Y1 when presented with a YCbCr-capable Sink and that the DUT is capable of supporting YCbCr pixel encoding when required.		
7-25: Video Format Timing Verify that Source DUT, whenever transmitting any CEA video format, complies with all required pixel and line counts and pixel clock frequency range.		
7-26: Pixel Repetition Verify that Source DUT indicates Pixel Repetition values in the AVI as required and that the pixels are actually repeated the indicated number of times.		
✓ 7-27: AVI InfoFrame Verify that at least one AVI InfoFrame is transmitted for every two video fields when required and that any AVI InfoFrame is accurate.		
	se	

5. Select the tests you wish to run in the Formats tab of the Test Selection panel shown below.

C HDMI Src CT 1.4b	
CDF Entry 🗸 Test Selection 🕨 Topptions / Preview	
🔄 Open 🔚 Save 🛛 Sele Tests 📄 Deselect All Tests	
Protocol Video Audio Interop. With DVI Advanced Features	
Select All on Page	
7-28: IEC 60958 / IEC 61937 Verify that the behavior of all fields within the Audio Sample or High Bitrate Audio Stream Subpackets follow the corresponding rules specified in the IEC 60958 or IEC 61937 specifications.	
7-29: ACR Verify that the relationship between the parameters (N, CTS, audio sample rate) is correct with respect to the Audio Clock Regeneration mechanism.	
7-30: Audio Sample Packet Jitter Verify that the Source audio packet jitter is within the limits specified.	
✓ 7-31: Audio InfoFrame Verify that the Source transmits an Audio InfoFrame whenever required and that the contents are valid.	
7-32: Audio Sample Packet Layout Verify that the Source transmits audio using permitted layout type.	
	X Close

6. Select the tests you wish to run in the Interoperability with DVI tab of the Test Selection panel shown below.

🖄 HDMI Src CT 1.4b	
🔯 CDF Entry 🗸 Test Selection 🕨 Test Options / Previ	
Copen Save Select All Tests De t All Tests	
Protocol > Video > Audio > Interop. With DVI > Advanced Features	
Select All on Page	
7-33: Interoperability with DVI Verify that the Source never outputs a Video Guard band or Data Island to a device without an HDMI VSDB.	

7. Select the tests you wish to run in the Advanced Features tab of the Test Selection panel shown below.

Note: Support for the 4K by 2K test (Test ID 7-39) is only available on the 980 297MHz "Gen 3" version of the Protocol Analyzer.

😢 HDMI Src CT 1.4b	
CDF Entry V Test Selection Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
Protocol P Video P Audio P Interop. With DVI Advanced Features	
🔀 Select All on Page 🔲 Clear All on Page	
✓ 7-34: Deep Color Verify that a Deep Color capable Source DUT outputs correct Deep Color packing and signaling.	
7-35: Gamut Metadata Transmission Verify that an xvYCC capable Source outputs valid Gamut Metadata Packets.	
7-36: High Bitrate Audio Verify that a High Bitrate Audio capable source is able to transmit High Bitrate Audio Stream Packets with packet jitter limited to compliant values.	
7-37: One Bit Audio Verify that a One Bit Audio capable source is able to transmit One Bit Audio Packets in a compliant manner.	
7-38: 3D Video Format Timing Verify that Source DUT, whenever transmitting any supported mandatory 3D video format or other primary 3D video format, complies with all required pixel and line counts and pixel clock frequency range.	
✓ 7-39: 4K x 2K Video Format Timing Verify that Source DUT, whenever transmitting any 4K x 2K video format, complies with all required pixel and line counts and pixel clock frequency range. (Requires 4Kx2K capable test equipment)	
7-40: Extended Colorimetry Transmission (without xvYCC) Verify that a Source does not transmit sYCC601 or AdobeYCC601 or AdobeRGB to a Sink which does not support these Extended Colorimetries.	
	X Close

8. You can save the Test Selection options using the **Save** activation button. This enables you to quickly recall the test list for re-testing.

🔁 HDMI Src CT 1.4b	X
CDF Entry V Test Selection > Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
Protocol Video > Audio > Interop. With DVI > Advanced Features	
🔀 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.

HDMI Src CT: Save Test Selections				
Test Selection File				
Enter a file name for the Test Selection.				
804A_Source.xml				
Cancel Ok				

3.8 Executing the HDMI Source Compliance Tests

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

To initiate a test series:

1. Select the **Test Options / Preview** panel as shown below. Notice that the "Other" formats appear underneath the required formats for each test.

😰 HDMI Src CT 1.4b							
🔯 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview							
Test List							
All V X Q Duration Options Instrument: 980B_JB [192.168.254.160]	🕨 Exect	ute Tests					
Category / Test Name	Ø	1					
Protocol							
🖌 📃 7-16: Legal Codes		\checkmark					
Iter 01: (1) 640x480p @ 60 Hz	2 s	\checkmark					
Iter 02: The DUT does not support format 4, 5, 19 or 20; This iteration will be		\checkmark					
⊿ 🗏 7-17: Basic Protocol		\checkmark					
Iter 01: (1) 640x480p @ 60 Hz	2 s	\checkmark					
Iter 02: The DUT does not support format 4, 5, 19 or 20; This iteration will be		\checkmark					
▲ 🗏 7-19: Packet Types		\checkmark					
Iter 01: (1) 640x480p @ 60 Hz, AI=1	2 s	\checkmark					
Iter 02: (1) 640x480p @ 60 Hz, AI=0, PREQ: ACP, ISRC1 or ISRC2 found in Iter 01	2 s	V =					
\circ Iter 03: The DUT does not support format 4, 5, 19 or 20; This iteration will be	2 s	\checkmark					
Video							
🖌 📃 7-21: Minimum Format Support		\checkmark					
 Iter 01: CDF Check Only; No DUT setup required. 		\checkmark					
▲ 🗏 7-23: Pixel Encoding - RGB to RGB-only sink		\checkmark					
Iter 01: (1) 640x480p @ 60 Hz, Pixel Encoding Content	15 f	\checkmark					
⊿ 🗏 7-25: Video Format Timing		\checkmark					
• Iter 01: (1) 640x480p @ 60 Hz	15 f	\checkmark					
🔺 📃 7-27: AVI InfoFrame		\checkmark					
Iter 01: (1) 640x480p @ 60 Hz 4:3, known Content AR	15 f	✓ _					
🔺 🕨 Audio							
▲ 📃 7-28: IEC 60958 / IEC 61937		\checkmark					
Iter 01: Inspect DUT for other audio outputs.		\checkmark					
▲ 📃 7-29: ACR		\checkmark					
Iter 01: Basic Audio not Supported: Automatic PASS		\checkmark					
🖌 📃 7-31: Audio InfoFrame		V .					
	💥 Clo	se					

2. Set the **Options** for the tests by clicking on the Options button. The following dialog box appears:

Compliance Test Options				
IDMI Src Compliance Test Options				
Test Execution Order	Saving Captures			
 Maximize Capture Reuse. 	O Do not save any Captures.			
Minimize DUT Format Changes.	 Save Capture data for failures only. 			
	◯ Save all Captures.			
HDCP	Protocol/TMDS Tests			
Require that HDCP be disabled.	Detailed Results (requires more time)			
X Cancel	✓ ок			

There are a few settings you can define. These relate to what test execution order, saving captured data and enabling or disabling HDCP content protection. The table below describes the options. When completed with the options select the OK activation button to continue.

Option	Description		
Test Execution Order	 There are two selections: Maximize Capture Reuse – Will run tests in an order that will be quicker because it reuses captures. Minimize DUT format changes – Will run tests in an order that will minimize user interaction in changing formats. Note: The 980 Rx port will automatically configure its EDID to cause or encourage the source device to send the proper video resolution and audio format for any give test. 		
Saving Captures	 There are three selections: Do not save any captures – no captures are saved regardless of the results, pass or fail. Save Capture data for failures only – Saves only captures for tests where failures occur. Saves all Captures – Saves all captures regardless of the results, pass or fail. 		
HDCP	Require that HDCP be disabled - A check box that when selected will only run the tests if HDCP content protection on the source is disabled.		
Protocol/TMDS Tests	Detailed Results (requires more time) - A check box that when selected will provide the raw protocol data. This will enable you to determine why a test failed. If unchecked you will only receive summary results.		

3. (Optional) Set the number of frames to capture during the Protocol Tests. Use the alarm clock icon indicated in the screen shot below.

뒢 Event Plot 🔯 HDMI Sink CT 1.4a 🔯 HDMI Src CT 1.4a 🕴 🔯 MHL Src CT 1.1 🔯 MHL Sink CT 1.1 📑 CT Results			
CDF Entry V Test Selection F Test Options / Preview			
Test List			
All V All All U Duration Options Instrument: My980 [192.168.254.112]	- - E	xecute Tests	5
Category / Test Name	0	V .	*
▲ ▶ Protocol			
🔺 🗏 7-16: Legal Codes			
• Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	\checkmark	
 Iter 02: (5) 1920x1080i @ 60 Hz, Basic Audio 	15 f	\checkmark	
🔺 🗏 7-17: Basic Protocol			
Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	\checkmark	
Iter 02: (5) 1920x1080i @ 60 Hz, Basic Audio	15 f	\checkmark	
⊿ 📑 7-18: Extended Control Period			
Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	\checkmark	
Iter 02: (5) 1920x1080i @ 60 Hz, Basic Audio	15 f	\checkmark	
> 🖪 7-19: Packet Types			

In the example below, the number of frames are set to 15.

Iteration Configu	uration			
Set Capture Duration				
	Test 7-1	6, Iter-01		
Duration:	15		Frames	
🔲 Set to Default				
	Cancel	V	🖊 ОК	

4. (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).

🖄 HDMI Src CT 1.4b		
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview		
Test List		
All 🗸 🙀 🔯 Duration 🐵 Options Instrument: 980_MB [192.168.254.229]	- E	xecute Tests
Category / Test Name		× •
Protocol		
↓ 7-16: Legal Codes		
💢 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	2 s	×
Iter 02: (4) 1280x720p @ 60 Hz, Basic Audio	2 s	\checkmark
🖌 📃 7-17: Basic Protocol		V
🔀 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	2 s	× =
• Iter 02: (4) 1280x720p @ 60 Hz, Basic Audio	2 s	V
🔽 📃 7-19: Packet Types	_	
X Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio, AI=1	2 \$	×
, Iter 02: (2,3) 720x480p 0 60 Hz, Basic Audio, AI=0, PREQ: ACP, ISRCI or ISRC2	2 5	
• Iter 03: (4) 1280x720p 0 60 Hz, Basic Audio, AI=1	2 8	
Tier 04. (4) 1200X/20p 6 60 Hz, Basic Addio, AI-0, FREQ: ACF, ISKCI OF ISKC2	2 3	V
A 7-21: Minimum Format Support		V
• Iter 01: CDF Check Only: No DUT setup required.		V
▲ 🗏 7-23: Pixel Encoding - RGB to RGB-only sink		×
• Iter 01: (1) 640x480p @ 60 Hz, Pixel Encoding Content	15 f	V
Iter 02: (2,3) 720x480p @ 60 Hz, Pixel Encoding Content	15 f	V
Iter 03: (4) 1280x720p @ 60 Hz, Pixel Encoding Content	15 f	V
Iter 04: (16) 1920x1080p @ 60 Hz, Pixel Encoding Content	15 f	\checkmark
🖌 📃 7-25: Video Format Timing		\checkmark
💢 Iter 01: (1) 640x480p @ 60 Hz	15 f	×
💢 Iter 02: (2,3) 720x480p @ 60 Hz	15 f	×
• Iter 03: (4) 1280x720p 0 60 Hz	15 f	V
• Iter 04: (16) 1920x1080p @ 60 Hz	15 f	V
▲ 📃 7-27: AVI InfoFrame	45.5	
A lter U1: (1) 64UX48Up 0 60 Hz 4:3, known Content AR	15 f	
Iter 02: (2,3) 720x480p @ 60 Hz, Deep Color 36 bpp, Basic Audio		
	×	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.

HDMI Src CT Results						
Test Results Name						
Execute HDMI Src Co	ompliance Tests on Ins	strument: 980_MB @ 192.168.254.22	9			
	Enter a name for th	ne Test Results.				
804A_Test						
ſ	Cancel					
		UK I				

When you click on the **Ok** button the tests will begin and a new window will appear with a Test Log on the bottom providing status information about the tests. A sample screen is shown below.

Rev. A4

HDMI Src Compliance Test (1.4b): "804A_Test"				
Test List				
V X U Duration Reset Status Options				
Category / Test Name	Q	1	Status	
Protocol				
🖌 📃 7-16: Legal Codes		\checkmark	Incomplete	
💢 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	2 s	×	User Skipped	
• Iter 02: (4) 1280x720p @ 60 Hz, Basic Audio	2 s	V	Not Tested	
⊿ 🛃 7-17: Basic Protocol		1	Incomplete _	11
💥 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	2 s	×	User Skipped	
• Iter 02: (4) 1280x720p @ 60 Hz, Basic Audio	2 s		Not Tested	
⊿ 🗒 7-19: Packet Types		×	Incomplete	
X Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio, AI=1	2 s	×	User Skipped	
💢 Iter 02: (2,3) 720x480p @ 60 Hz, Basic Audio, AI=0, PREQ	2 s	×	User Skipped	
Iter 03: (4) 1280x720p @ 60 Hz, Basic Audio, AI=1	2 s	×	Not Tested	
★ Iter 04: (4) 1280x720p @ 60 Hz, Basic Audio, AI=0, PREQ:	2 5	V	Not Tested	
▲ ▶ Video				
▲ 🛃 7-21: Minimum Format Support		V	Not Tested	
• Iter 01: CDF Check Only; No DUT setup required.		V	Not Tested	
▲ 🗏 7-23: Pixel Encoding - RGB to RGB-only sink		×	Incomplete	-
•			4	
Test Log				
Line Message				1
• 0001 Compliance Test Started.				
• 0002 Initialization.				
• 0003 Assembling the test list.				
0004 Disabling Pass-through.				
Cancel the Compliance Test	ution			

During the tests a **Required DUT Configuration** dialog box will appear which requires that you to verify that the source device under test is in the correct mode (video and audio format are correct). The following screen shot depicts this. This example shows the dialog box for the 7-29 test but the dialog box is similar for other tests. Press **Continue** when you have the source device in the correct mode. If you need to pause the test to configure the source device under test, you can do so by clicking on the **Pause Execution** activation button. You can cancel the test using the **Cancel Compliance** Test button.

)UT Configura	tion	
	% Required DUT Configuration	
	Test 7-16, Iter-02 Verify that the source outputs legal 10-bit codes.	
Pi N You can i	ease verify that the DUT is configured per the requirements below. OTE: The test EDID has been applied and hot-plug has been toggled and the DUT may already be configured per the EDID. use the 980 Real-Time to help verify that the DUT is configured and stable. Press "Continue" when the DUT is ready to be tested.	
<u>Format</u> :		^
• [\	/IC = 4]1280x720p @ 60 Hz	
Content:		
• т	here is no content requirement for this test.	
<u>Audio</u> :		
• C	onfigure the Source DUT to transmit Basic Audio. 32kHz, 44.1kHz or 48kHz LPCM 2-channel)	
		-
EDID (Defau	lt): <generated></generated>	
EDID C	nange EDID 🔗 Defet EDID 🔀 View EDID	
e Cancel	Compliance Test Pause Execution Continue	

For some tests there are audio requirements. An example is shown below.

JT Confi	guration						
	% Required DUT Configuration						
v	Test 7-29, Iter-02 erify that the relationship between the parameters (N, CTS, audio sample rate) is correct with respect to the Audio Clock Regeneration mechanism.						
You	Please verify that the DUT is configured per the requirements below. NOTE: The test EDID has been applied and hot-plug has been toggled and the DUT may already be configured per the EDID. can use the 980 Real-Time to help verify that the DUT is configured and stable.						
	Press "Continue" when the DUT is ready to be tested.						
<u>Forma</u>	<u>t</u> :						
• [VIC = 2 or 3] 720x480p @ 60 Hz							
Deep Color: 36 bits per pixel							
<u>Conte</u>	<u>nt</u> :						
There is no content requirement for this test.							
<u>Audio</u>	Configure the Source DUT to transmit Basic Audio. (32kHz, 44.1kHz or 48kHz LPCM 2-channel)						
EDID (D	efault): < ge ated>						
E	Change EDID G Default EDID						
😑 Ca	ncel Compliance Test						

The **Required DUT Configuration** dialog box also has a few options for EDID selection. The 980 GUI Manager can auto-generate an appropriate EDID to evoke the proper response from the source device under test. The **View EDID** option enables you to view the EDID that the 980 GUI Manager has auto-generated. An example is shown on the screen shot below. Note that the EDID report is a scrolling window that allows you to view the entire EDID in human readable text.

980 User Guide – HDMI & MHL Source Compliance

ort generated on: February 5, 2013 2:56 PM Quantumdata.com																
EDID Data Report																
								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	B2	00	04	00	00	00
10:	20	14	01	03	80	50	2D	78	0A	0D	C9	A0	57	47	98	27
20:	12	48	4C	20	00	00	01	01	01	01	01	01	01	01	01	01
30:	01	01	01	01	01	01	8F	0A	D0	8A	20	E0	2D	10	10	3E
40:	96	00	20	C2	31	00	00	18	8F	0A	D0	8A	20	E0	2D	10
50:	10	3E	96	00	58	C2	21	00	00	18	00	00	00	FC	00	48
60:	44	4D	49	20	43	54	20	54	45	53	54	0A	00	00	00	FD
70:	00	17	F1	08	8C	1E	00	0A	20	20	20	20	20	20	01	BC
C V E	hecksun ersion DID Ver	m verifi 1 heade rsion 1,	ed r verif Revisi	ied on 3	, J	<u> </u>	n	r <u>.</u>	<u>.</u>	n <u> </u>	n <u> </u>	r <u>.</u>	r <u>.</u>		r.	<u>, , , , , , , , , , , , , , , , , , , </u>
N	umber (or addit Manufact	urer: Q	locks: 1 DI	L											

There may be cases where you wish to change the EDID for a particular test. For example the EDID that is auto-generated may have some parameters or may be formed in a way that your source device is having difficulty parsing. To change the EDID you can use the **Change EDID** option on the **Required DUT Configuration** dialog box. When you click on the Change EDID dialog box a Windows browsing window (shown below) is opened allowing you to browse and select alternative EDIDs.

C Open			x
	mgr ▶ edid ▶ data	✓ Search data	٩
Organize 🔻 New	folder	:== -	
☆ Favorites	Name	Date modified	<u>^</u>
	H7P2L04X.XML	8/7/2012 4:15 PM	
🥽 Libraries	H7P2L12X.XML	8/7/2012 2:46 PM	
	H7P2L11X.XML	8/7/2012 2:45 PM	=
🜉 Computer	H7P2L10X.XML	8/7/2012 2:20 PM	
	H7P2L08X.XML	8/7/2012 2:18 PM	
🗣 Network	H7P2L07X.XML	8/7/2012 2:16 PM	
	H7P2L06X.XML	8/7/2012 2:06 PM	
	H7P2L05X.XML	8/7/2012 2:05 PM	
	H7P2L03X.XML	8/7/2012 2:03 PM	
	H7P2L02X.XML	8/7/2012 2:02 PM	
	H7P2L01X.XML	8/7/2012 2:02 PM	
	H8I2D01C.XML	8/6/2012 4:53 PM	
	H8I2D00C.XML	8/6/2012 4:52 PM	
	H8P3L07Q.XML	8/6/2012 1:10 PM	
	H7P2L00Q.xml	8/6/2012 1:01 PM	
	H8P3D00Q.XML	8/6/2012 12:55 PM	
	H8P2D00Q.XML	8/6/2012 11:48 AM	
	H8P2H01Q.XML	8/6/2012 11:47 AM	
	H8P2H04Q.XML	8/6/2012 11:45 AM	
	H8P2H05Q.XML	8/6/2012 11:38 AM	-
	•		•
	File name: H7P2L05X.XML	▼ EDID (xml)	•
		Open Ca	ancel

If you do not have the source device under test in the proper mode, an error dialog box will appear. A sample of this error dialog box is shown below. In this case you can reset the device under test and then retest.

DUT Configuration
% DUT Configuration Error
Test 7-16, Iter-01 Verify that the source outputs legal 10-bit codes.
The measured Format does not match the required Format.
REQUIRED (1) 640x480p @ 60 Hz
MEASURED (4) 720p60
Cancel Compliance Test

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

The lower panel **Test Log** shows the testing activity as it occurs. A progress arrow indicates the current 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 Manager application.

HDMI Src Compliance Test (1.4b): "804A_Test"			
T			
lest List			
V A Q Duration Reset Status			
Category / Test Name	Q	\checkmark	Status
Iter 01: CDF Check Only; No DUT setup required.		\checkmark	Pass
⊿ 🗏 7-23: Pixel Encoding - RGB to RGB-only sink		\checkmark	Incomplete
💢 Iter 01: (1) 640x480p @ 60 Hz, Pixel Encoding Content	15 f	×	User Skipped
🙀 Iter 02: (2,3) 720x480p @ 60 Hz, Pixel Encoding Content	15 f	×	User Skipped
⊿ 😝 Iter 03: (4) 1280x720p 0 60 Hz, Pixel Encoding Content	15 f	\checkmark	Fail
• Visual verification: The image was transmitted with t			
▲ ⊖ 01: Test pixel encoding			Fail =
AVI Invalid RGB YCC indicator 1 at frame 1			
02: Test AVI occurence every 2 video field			Pass
▷			<u> </u>
⊖ 04: CDF field Source Q FullRange==Y			Pass
X Iter 04: (16) 1920x1080p @ 60 Hz, Pixel Encoding Conten	15 f	×	User Skipped
4 📑 7-25: Video Format Timing		\checkmark	Incomplete
X Iter 01: (1) 640x480p @ 60 Hz	15 f	×	User Skipped
X Iter 02: (2,3) 720x480p @ 60 Hz	15 f	×	User Skipped
F Iter 03: (4) 1280x720p @ 60 Hz	15 f	×	In Progress
X Iter 04: (16) 1920x1080p @ 60 Hz	15 f	×	User Skipped 🚽
Test Log			
Line Message			*
• 0554 preprocess 18 frames			
• 0555 Generating decode data			
• 0556 decode 0 frames			
• 0557 decode 1 frames			
• 0561 decode 11 frames			
			-
•			4
Cancel the Compliance Test Pause Test Ex	ecution		

980 User Guide - HDMI & MHL Source Compliance

HDMI Src Compliance Test (1.4b): "804A_Test" Test List X 😥 Duration 🛛 🔄 Reset Status Options Status ÷ Θ Category / Test Name \checkmark ▲ 🗏 7-29: ACR \checkmark Pass ⊳ 😝 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio \checkmark 3 s Pass b lter 02: (2,3) 720x480p @ 60 Hz, Deep Color 36 bpp, Bas \checkmark Pass 3 s Pass ⊿ 🗏 7-31: Audio InfoFrame \checkmark Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio \checkmark Pass 15 f Advanced Features V 🔺 📑 7-34: Deep Color Incomplete 💢 Iter 01: 30 bpp is currently not supported (36 bpp only × User Skipped ---💢 Iter 02: (2,3) 720x480p @ 60 Hz, Deep Color 36 bpp 15 f × User Skipped 💢 Iter 03: 30 bpp is currently not supported (36 bpp only --× User Skipped b Iter 04: (4) 1280x720p @ 60 Hz, Deep Color 36 bpp \checkmark Pass 15 f 💢 Iter 05: 30 bpp is currently not supported (36 bpp only --× User Skipped 💢 Iter 06: (16) 1920x1080p @ 60 Hz, Deep Color 36 bpp × User Skipped 15 f 🛛 📃 7-38: 3D Video Format Timing \checkmark Skipped Iter 01: The DUT does not support 3D formats: Test will \checkmark Skipped ---🛛 📑 7-39: 4K x 2K Video Format Timing \checkmark Pass 15 f 🗹) Iter 01: (1) 4K x 2K 29.97, 30 Hz Pass Line Message • 1183 Processing analysis results. • 1184 Test 7-39 Iter 01 -> Pass • 1185 Tests completed • 1186 Restarting Test Execution • 1187 Tests completed 4 💢 Close Window Continue Testing

Rev. A4

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 shots to see examples of the **CT Results** panel. Note that you may have to view the specifics of each test indicated as Incomplete to see failures. This can be seen in the following two screen examples.

Compliance Test Results Viewer		-	
HDMI Sou	arce Compliance Test Results		
Results Name: 804A_Test Date Tested: July 26, 2013 11:25 AM Overall Status: CTS 1.4b - Incomplete	Manufacturer: Acme Model Name: 1 Port Tested: 1		HTML Report
	Test Results		
🕨 Test Name / Details		0	Status
🕨 🗏 7-16: Legal Codes			Incomplete
🖻 🗏 7-17: Basic Protocol			Incomplete
🖻 🗐 7-19: Packet Types			Incomplete
🕞 🗏 7-21: Minimum Format Suppor	t		Pass
Fixel Encoding - RGB	to RGB-only sink		Incomplete
7-25: Video Format Timing			Incomplete
⊳ 🗏 7-27: AVI InfoFrame			Incomplete
▷ 3-28: IEC 60958 / IEC 61937			Pass
▶ 📃 7-29: ACR			Pass
▷ 3-31: Audio InfoFrame			Pass
⊳ 🗏 7-34: Deep Color			Incomplete
🕞 🗦 7-38: 3D Video Format Timin	g		Skipped
▷ 37-39: 4K x 2K Video Format	Timing		Pass
Den Capture			
Instrument: 980_MB [192.168.254.229]		•	Continue Test Execution
			💥 Close

980 User Guide – HDMI & MHL Source Compliance

Compliance Test Results Viewer	_		x
HDMI Source Compliance Test Results			
Results Name: 804A_Test Manufacturer: Acme Date Tested: July 26, 2013 11:25 AM Model Name: 1		HTML Rej	port
Overall Status: CIS 1.4b - Incomplete Port Tested: 1			
Test Results			_
Test Name / Details	C	Status	
b 😝 Iter 03: (4) 1280x720p @ 60 Hz, Basic Audio, AI=1	2 s	Pass	
Iter 04: (4) 1280x720p @ 60 Hz, Basic Audio, AI=0, PREQ: ACP,	2 s	Skipped	
> 🗏 7-21: Minimum Format Support		Pass	
🖌 📃 7-23: Pixel Encoding - RGB to RGB-only sink		Incomplete	
💥 Iter 01: (1) 640x480p @ 60 Hz, Pixel Encoding Content	15 f	User Skipped	
💢 Iter 02: (2,3) 720x480p @ 60 Hz, Pixel Encoding Content	15 f	User Skipped	
🛛 😝 Iter 03: (4) 1280x720p @ 60 Hz, Pixel Encoding Content	15 f	Fail	Ε
• Visual verification: The image was transmitted with the cor			
🖌 😡 01: Test pixel encoding		Fail	
AVI Invalid RGB YCC indicator 1 at frame 1			
Ø 02: Test AVI occurence every 2 video field		Pass	
>		Fail	
		Pass	
💥 Iter 04: (16) 1920x1080p @ 60 Hz, Pixel Encoding Content	15 f	User Skipped	
⊿ 📃 7-25: Video Format Timing		Incomplete	
💢 Iter 01: (1) 640x480p @ 60 Hz	15 f	User Skipped	
💢 Iter 02: (2,3) 720x480p @ 60 Hz	15 f	User Skipped	-
Open Capture AVI Invalid RGB YCC indicator 1 at frame 1			
Instrument: 980_MB [192.168.254.229]	•	Continue Test Executi	ion
		🔀 Close	

Rev. A4

Viewing Details of Source Compliance Test Failures 3.9

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

To view the details of a failure:

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

Compliance Test Results Viewer		
HDMI Source Compliance Test Results		
Results Name: 804A_Test Manufacturer: Acme Date Tested: July 26, 2013 11:25 AM Model Name: 1		HTML Report
Overall Status: CTS 1.4b - Incomplete Port Tested: 1		
Test Results		
Test Name / Details	Q	Status
þ 🔵 Iter 03: (4) 1280x720p @ 60 Hz, Basic Audio, AI=1	2 s	Pass
Iter 04: (4) 1280x720p @ 60 Hz, Basic Audio, AI=0, PREQ: ACP,	2 s	Skipped
7-21: Minimum Format Support		Pass
4 🗏 7-23: Pixel Encoding - RGB to RGB-only sink		Incomplete
💥 Iter 01: (1) 640x480p @ 60 Hz, Pixel Encoding Content	15 f	User Skipped
💥 Iter 02: (2,3) 720x480p @ 60 Hz, Pixel Encoding Content	15 f	User Skipped
🛛 😝 Iter 03: (4) 1280x720p 0 60 Hz, Pixel Encoding Content	15 f	Fail
• Visual verification: The image was transmitted with the cor		
4 01: Test pixel encoding		Fail
AVI Invalid RGB YCC indicator 1 at frame 1		
02: Test AVI occurence every 2 video field		Pass
▷		Fail
◎ 04: CDF field Source Q FullRange==Y		Pass
X Iter 04: (16) 1920x1080p @ 60 Hz, Pixel Encoding Content	15 f	User Skipped
4 7-25: Video Format Timing		Incomplete
X Iter 01: (1) 640x480p @ 60 Hz	15 f	User Skipped
Iter 02: (2,3) 720x480p @ 60 Hz	15 f	User Skipped
Open Capture AVI Invalid RGB YCC indicator 1 at frame 1		
Instrument: 980_MB [192.168.254.229]	•	Continue Test Execution
		🔀 Close

When you highlight a failure in the Details window of the CT Results panel, you can navigate to the details in the Data Decode panel by clicking on the Open Capture activation button on the bottom left of the panel (indicated in the screen example above). The resulting capture windows are is shown in the screen shot below. The application will take you to the entry in the **Data Decode** panel where the error occurred.

Capture V	iewer		_	_						• X	
(📴 Open) (📕 Clear) 🛛 HH:MI	A:SS.ms.us.	ns(.ps) 👻]							
Event Plot	t 🕄 🔤 Timing Analysis 🛺	Video Analys	is	,							
C:\Users\nkend:	all\980_Capture_Files_4_8\hdmict\r	esults\804A_Tes	t\Test_7_23_03								
📄 📄 Segmer	nt 🛛 🔀 Events 🖉 🐵 Rows 🕅	🕻 Find 🛛 🔄 S	ync 🕕 🕕 Le	gend							
	🔊 🔍 Η Zoom %:	0.001		Marker	1 🖪 💿	Mark	er 2 🖪 💿 与				
0:30:6.528.983	8.539.843										
						\wedge					
					-						
THE			CCD	r	A1/7	1.15					
IMDS	-		GCP		AVI	AUD	IF VEN				
HSYNC	-	HSYN	c			101					
ENCR-F			с 	1							
AVMUTE											
DDC											
CEC											
0:30:6.528.98	31.937.257 0:3	0:6.528.982.69	0, 196		0:30:6.528.9	983,443,136	0:30:6.528.984	4, 196, 075	0:30:6.528.984	.949.014	
					Time (H:M:S.	ms.us.ns.ps)					
🔲 Data Deco	ode 🖾										
C:\Users\nkend:	all\980_Capture_Files_4_8\hdmict\r	esults\804A_Tes	t\Test_7_23_03								
Segmen	t 🔟 Events 🔯 Find 🔄	Sync 🔤	Details	Raw Dat	a 😣	• All					_
Packet	Time (H:M:S.ms.us.ns.ps) Frame	e Line	Pixel	Туре	SubType	Info			(
• 3	0:30:6.528.982.500.000		0	0	TMDS	HSYNC	HSYNC 40 clocks				19
• 4	0:30:6.528.982.500.000		0	0	TMDS	VSYNC	VSYNC 8250 clocks				
0 5	0:30:6.528.982.650.000		0	11	TMDS	GCP	General Control	CP)			
0 0	0:30:6.528.983.080.970		0	43	TMDS	AVIIF	AVI InfoFrame				
• /	0:30:0.528.983.511.940		0	107	TMDS	AUD IF	Audio InfoFrame	-			
	0:30:6 528 994 890 000		0	920	TMDS	AUDSAM	Audio Sample Packet/L-P(e CM and IEC 61937 cor	nnressed formats)		
	0.50.0.520.554.050.000		·	520		ADDSAM	Addio Sample Facket(E F		npresseu ronnaes)		•
•				<u> </u>						- '	
scan info	n: >:	ver	data							-	ŝ.
Bar Info	:	no	Data 🖌								- 1
active in	nfo:	no	data 느	S							
RGB/YCC :	indicator:	YCb	cr 4:2:2								-
•										Þ	
				_						1	
									× C	lose	

3.10 Canceling and Resuming the HDMI Source 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. Use the following procedures to cancel and then resume a 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.



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

	Test Log				
Line	Message				
• 0113	Configuring the DUT and Test Instrument.				
• 0114	Creating a Test EDID.				
• 0115	Transferring the Test ID to the Instrument.				
• 0116	Installing the Test E				
• 0117	Toggling hot-plug.				
• 0118	Test 7-18 Iter 02 -> Čanceled				
• 0119	Test Canceled by User				
Close Window Continue Testing					

To resume a canceled test:

- 1. Navigate to the Navigator/Compliance panel and open the HDMI Source CT/Results directory as shown below.
- 2. Right click on the results file and select Open as shown below.



The CT Results window appears as shown below.

980 User Guide – HDMI & MHL Source Compliance

Rev. /	44
--------	----

🗄 Event Plot 🔯 HDMI Sink CT 1.4a 📃 CT Results 🛛 🔯 HDMI Src CT 1.4a		
HDMI Source Compliance Test Results		
Results Name: 08_17_2011_14_00_02 Manufacturer: Acme Date Tested: August 17, 2011 2:00 PM Model Name: Acme HDTV Overall Status: CTS 1.4a - Incomplete Port Tested: 1		HTML Report
Test Results		
Fest Name / Details	Q	Status 🔺
🔺 🗏 7-16: Legal Codes		Incomplete
þ 🝚 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	Pass
💥 Iter 02: (5) 1920x1080i @ 60 Hz, Basic Audio	15 f	User Skipped
▲ 🗏 7-17: Basic Protocol		Incomplete
þ 😝 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	Pass
💥 Iter 02: (5) 1920x1080i @ 60 Hz, Basic Audio	15 f	User Skipped
▲ 📑 7-18: Extended Control Period		Canceled
b	15 f	Pass
Iter 02: (5) 1920x1080i @ 60 Hz, Basic Audio	15 f	Canceled
⊿ 📑 7-19: Packet Types		Incomplete
Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio, AI=1	2 5	Not Tested
X Iter 02: (2,3) 720x480p @ 60 Hz, Basic Audio, AI=0, PREQ: ACP, IS	2 s	User Skipped
🞇 Iter 03: (5) 1920x1080i @ 60 Hz, Basic Audio, AI=1	2 s	User Skipped
X Iter 04: (5) 1920x1080i @ 60 Hz, Basic Audio, AI=0, PREQ: ACP, IS	2 s	User Skipped
> 7-21: Minimum Format Support		Not Tested
> 7-22: Additional Format Support		Not Tested
> 7-23: Pixel Encoding - RGB to RGB-only sink		Incomplete
> 7-24: Pixel Encoding - YCbCr to YCbCr Sink		Incomplete
V 7-25: Video Format Timing		Incomplete
P 7 7-20: Pixel Repetition		
/-Z/: AVI INIOFTAME		THCout are
Open Capture 7-16: Legal Codes		
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.

3.11 Viewing the HDMI Source 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.

980 User Guide – HDMI & MHL Source Compliance



Generate Report
🗟 HTML Report
804A_Test
Select the desired report options.
Show Test Summary Only.
Include CDF Information.
🔀 Cancel 📝 OK

The following screens show examples of various parts of the HTML report.

X Close

The html report is shown in the following screens.

		-				
	Results Name: 804A_Test Date Tested: July 26, 2013 11:25 AM		25 AM	Manufacturer: Acme Model Name: 1		Acme 1
	Overall Status:	Incomplete		Port Tested: 1		
		Report Inde	ex / Summary			-
Test 7-16 Test 7-21	Incomplete Pass	<u>Test 7-17</u> Test 7-23	Incomplete	Test 7-19 Test 7-25	Incomp	lete lete
Test 7-27	Incomplete	Test 7-28	Pass	<u>Test 7-29</u>	Pass	
<u>Test 7-31</u>	Pass	<u>Test 7-34</u>	Incomplete	<u>Test 7-38</u>	Skipp	ed
<u>Test 7-39</u>	Pass		DF	Equipr	nent Info	
		Capabilities Decla	ration Form (CDF)			
		Product I	nformation			
Manufacturer				Acme		
Model Name					1	
Model Name HDMI output count					1	
Model Name HDMI_output_count Port Tested					1 1 1	
Model Name HDMI_output_count Port Tested	Ci\User	s\nkendall\980_Capture_Files_4_8	\hdmict\results\804A_Test\Report_1	Cdf.htm	1 1 ▶ Forward 🛛 🗜 S	ave As 🛛 🗱
Model Name HDMI_output_count Port Tested	C4User	s\nkendall\980_Capture_Files,4_8	\hdmict\results\804A_Test\Report_t	Cdf.htm	1 1 ▶ Forward 🛛 🗔 S	ave As X
Model Name HDMI_output_count Port Tested	CAUser 60 Hz, Basic Audio	s\nkendall\980_Capture_Files_4_8	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 ▶ Forward 🛛 🖓 S	iave As
Model Name HDMI_output_count Port Tested er : 7-17 Protocol ter 01: (2,3) 720x480p @ ter 02: (4) 1280x720p @	CAUser 60 Hz, Basic Audio 50 Hz, Basic Audio	s\nkendall\980_Capture_Files_4_8	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 ■ Forward 🛛 🗔 S	iave As A Incomplete Skippee Pass
Model Name HDMI_output_count Port Tested	CAUser 60 Hz, Basic Audio 50 Hz, Basic Audio 61 Hz, Basic Audio	s\nkendall\980_Capture_Files_4_8 nortunity	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 ► Forward 🛛 🔛 S	ave As
Model Name HDMI_output_count Port Tested 7 6 6 7 7-17 Protocol ter 01: (2,3) 720x480p @ ter 02: (4) 1280x720p @ • 01: Varify that ENC_EN co • 02: Varify 12pix of Control.	CiUser 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch	s\nkendall\980_Capture_Files_4_8 portunity aracter	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 Forward IIS Pass Pass	ave As
Model Name HDMI_output_count Port Tested 7 7 7 7 7 7 7 7 7 7 7 7 7	C:User 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble should not	s\nkendall\980_Capture_Files_4_8 portunity aracter have DI preamble control code	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 Forward ■ S Pass Pass Pass	ave As A Incomple User Skippee Pass
Model Name HDMI_output_count Port Tested r Port Tested r r rotocol ter 01: (2,3) 720x480p @ ter 01: (2,3) 720x480p @ ter 02: (4) 1280x720p @ 01: Verify that ENC_EN co 02: Verify 12pix of Control, 03: Verify Control period pr 04: Inconsistent/Illegal DI co	CAUser 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble should not to Tideo preamble, 8 pix match the	s\nkendall\980_Capture_Files_4_8 nortunity aracter have DI preamble control code	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 Forward I I S Pass Pass Pass Pass	iave As Incomple User Skipped Pass
Model Name HDMI_output_count Port Tested 7 7-17 Protocol ter 01: (2,3) 720x480p @ ter 02: (4) 1280x720p @ 01: Verify that ENC_EN co 02: Verify 12pix of Control 03: Verify Control period pr 04: Inconsistent/Illegal DI of 05: Verify Data Island Lead	CAUser 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble should not ir Video preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x	s\nkendall\980_Capture_Files_4_8 nortunity aracter have DI preamble control code : CTLx val for any other "pix :28e,0x271,0x163,0x2c3, Ch1-C	\hdmict\results\804A_Test\Report_	Cdf.htm	1 1 Forward R S Pass Pass Pass Pass Pass Pass	ave As
Model Name HDMI_output_count Port Tested 7 6 6 6 7 7-17 Protocol 6 7 7 7 7 7 7 7 7 7 7 7 7 7	CiUser 60 Hz, Basic Audio 50 Hz, Basic Audio 60 is not detected in window of opp period before transition to next ch ior to the DI preamble should not rr Video preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x	Ankendəll 980_Cəpture_Files.4.8 Portunity aracter have DI preamble control code : CTLx val for any other 7pix :28e,0x271,0x163,0x2c3, Ch1-C	\hdmict\results\804A_Test\Report_ \hdmict\results\804A_Test\Report_ h2:0x133 h2:0x133	Cdf.htm	1 1 <t< td=""><td>ave As</td></t<>	ave As
Model Name HDMI_output_count Port Tested er er er er er er er er er	C:User 60 Hz, Basic Audio 50 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch tior to the DI preamble should not to to the DI preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing	s\nkendall\980_Capture_Files_4_8 portunity aracter have DI preamble control code c CTLx val for any other 7pix 28e,0x271,0x163,0x2c3, Ch1-C 28e,0x271,0x163,0x2c3, Ch1-C	\hdmict\results\804A_Test\Report_ \hdmict\results\804A_Test\Report_ k2:0x133 k2:0x133	Cdf.htm	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ave As
Model Name HDMI_output_count Port Tested er er er er er er 01: (2,3) 720x480p @ ter 01: (2,3) 720x480p @ 01: Verify 12pix of Control 02: Verify 12pix of Control 03: Verify Control period pr 04: Inconsistent/Illegal DI of 05: Verify Data Island Lead 06: Verify Data Island Trail 07: verify DI IERC4 encod 08: Verify first Chr followin 90: the control period pr	CiUser 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble should not to tideo preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x	s\nkendall\980_Capture_Files_4_8 nortunity aracter have DI preamble control code t CTLx val for any other 7pix 28e,0x271,0x163,0x2c3, Ch1-C 28e,0x271,0x163,0x2c3, Ch1-C 28e,0x271,0x163,0x2c3, Ch1-C	\hdmict\results\804A_Test\Report_ hdmict\results\804A_Test\Report_ h2:0x133 h2:0x133	Cdf.htm	1 1 1 Forward R S 1 1 1 1 1 1 1 1 1 1 1 1 1	iave As Incomple User Skippee Pass
Model Name HDMI_output_count Port Tested er er er 7.17 Protocol ter 01: (2,3) 720x480p @ ter 02: (4) 1280x720p @ 01: Verify that ENC_EN co 02: Verify 12pix of Control, 03: Verify Control period pr 04: Inconsistent/Illegal DI co 05: Verify Data Island Trait 06: Verify Data Island Trait 07: verify DI TERC4 encod 08: Verify first Chr followin 09: Any other Chr prior to to 10: Verify DI an in 10	CAUser 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble should not rr Video preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing g the Leading GB should NOT ha railing GB should have TERC4 ch	s\nkendall\980_Capture_Files_4_8 sortunity aracter have DI preamble control code c CTLx val for any other 7pix :28e,0x271,0x163,0x2c3, Ch1-C :28e,0x271,0x163,0x2c3, Ch1-C ve TERC4 Ch0, bit 3==1 0, bit 3==1 where on c =19	\hdmict\results\804A_Test\Report_ h2:0x133 h2:0x133	Cdf.htm	1 1 1 Forward R S 7 7 7 7 7 7 7 7 7 7 7 7 7	iave As Incomple User Skippec Pass
Model Name HDMI_output_count Port Tested 7 7 7 7 7 7 7 7 7 7 7 7 7	GiUser 60 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble should not or Video preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:00 ing Guard Band:Exp Vals Ch0:00 ing g the Leading GB should NOT ha railing GB should have TERC4 ch nd is integral of 32 pix and no. of	Ankendall/980_Capture_Files.4.8 nortunity aracter have DI preamble control code : CTLx val.for any other 7pix :28e,0x271,0x163,0x2c3, Ch1-C :28e,0x271,0x163,0x2c3, Ch1-C ve TERC4 ch0, bit 3==1 0, bit 3==1 pkts are <=18	\hdmict\results\804A_Test\Report_ h2:0x133 h2:0x133	Cdf.htm	1 1 <t< td=""><td>iave As</td></t<>	iave As
Model Name HDMI_output_count Port Tested T-17 Protocol ter 01: (2,3) 720x480p @ ter 02: (4) 1280x720p @ 01: Verify that ENC_EN co 02: Verify 12pix of Control, 03: Verify 12pix of Control, 03: Verify Data Island Lead 06: Verify Data Island Trait 07: verify DI TERC4 encod, 08: Verify first Chr followin 09: Any other Chr prior to to 10: Verify DI Len. is not 0 d 11: BCH Parity check 12: Video Gurad Read-Trait	CiUser 60 Hz, Basic Audio 50 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing g the Leading GB should NOT ha railing GB should have TERC4 ch nd is integral of 32 pix and no. of Vale 0x20x 0x132 0x20x	s\nkendall\980_Capture_Files_4_8 portunity aracter have DI preamble control code c CILx val for any other 7pix 28e,0x271,0x163,0x2c3, Ch1-C 28e,0x271,0x163,0x2c3, Ch1-C ve TERC4 ch0, bit 3==1 0, bit 3==1 pkts are <=18	\hdmict\results\804A_Test\Report_ hdmict\results\804A_Test\Report_ h2:0x133 h2:0x133	Cdf.htm	1 1 Forward S S S S S S S S S S S S S S	ave As
Model Name HDMI_output_count Port Tested er er er er er er er er er	C:User 60 Hz, Basic Audio 50 Hz, Basic Audio 50 Hz, Basic Audio de is not detected in window of opp period before transition to next ch ior to the DI preamble, 8 pix match the ing Guard Band:Exp Vals Ch0:0x ing Guard Band:Exp Vals Ch0:0x ing g the Leading GB should NOT ha railing GB should have TERC4 ch nd is integral of 32 pix and no. of Vals 0x2cc, 0x133, 0x2cc	s\nkendslf\980_Cspture_Files_4_8 vortunity aracter have DI preamble control code c CTLx val for any other 7pix 28e,0x271,0x163,0x2c3, Ch1-C 28e,0x271,0x163,0x2c3, Ch1-C ve TERC4 ch0, bit 3==1 0, bit 3==1 pkts are <=18	\hdmict\results\804A_Test\Report_ h2:0x133 h2:0x133	Cdf.htm	1 1 <td< td=""><td>ave As</td></td<>	ave As



The report also provides information on the 980 used to run the test. This is shown below.

ver					
C:\Users\nkendall\980_Capture_Files_4_8\hdmict\results\804A_Test\Report_Cdf.htm					
Test Equipment Information					
Instrument					
<pre>Name: 980_MB IF Address: 192.168.254.229 Net Mask: 255.255.05 Gateway IP: 192.168.254.1 Free Space: 68.58 GB of 162.23 GB (42.3%) Version: Advanced Test platform Version: 4.8.9 HDMI 980 protocol Analyzer in slot 0 [DDR 2048MB]: Gateware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcb: 297b/D] Firmware: [Version: 4.7.6 Build Number: 1 (04:22:2013) 10:39:42 CDT)] HDMI Video Generator in slot 1: Gateware: [Version: 4.6.9 Build Number: 2 (05:21:2013 00) pcb: 297b C] Firmware: [Version: 4.8.9 Build Number: 2 (05:21:2013 00) pcb: 297b C] Firmware: [Version: 4.7.6 Build Number: 2 (05:21:2013 10:37:55 CDT)] System Information: System SN : [6779FAAF800C2657::100000] HDMI FA SN : [779FAAF800C2657::100000] HDMI FA SN : [779FAAF800C2657::100000] HDMI FA SN : [739FAAF800C2657::100000] HDM FA SN : [6739FAAF800C2657::100000] HDM FA SN : [6739FAAF800C2657::100000] HDM FA SN : [750BCCCT18] OS : [1.1nux xprope=4a 2.6.26-2-686 \$1 SMP Sun Mar 4 22:19:19 UTC 2012 1686 GNU/Linux] GUI manager : [Version 4.8.99_99182_201307250940] 1 : : [10 intel 127.0.0.178 score host lo] 2 : [eth0 intel 127.0.0.178 score host lo] 2 : [eth0 intel 127.0.0.178 score host lo] 2 : [eth0 intel 127.0.0.178 score host lo] HDM SRC CT : [4.7.1] HDMC SRC CT : [4.7.10] HDMI SRC CT : [4.7.20] HDMI SRC</pre>					
Host					
UI Name: Quantum Data 980 Manager - Version 4.8.99 UI Home: platform:/base/plugins/com.quantumdata.i980.app2 Java Vendor: Null Java Runtime: 1.6.0_15-b03 Java Home: C:/Users/nkendall\Desktop\980 Release MHL NewGUI 4.8.99.99182 Win\980mgr\jre					
🕁 Back 🖒 Forward 🛛 🖫 Save As 🛛 💥 C					

4 MHL Source Compliance Tests

This chapter describes how to use the *optional* MHL source compliance test feature. Please note you will have to purchase the MHL Compliance Test option in order to run these tests. The 980 supports the following test sections in the MHL 1.2, 1.3, 2.0 & 2.1 Compliance Test specification:

3.2.2 TMDS Coding

- 3.2.2.1 Legal Codes Normal Mode
- 3.2.2.2 Basic Protocol Normal Mode
- 3.2.2.3 Packet Types Normal Mode
- 3.2.2.4 Legal Codes Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)
- 3.2.2.5 Basic Protocol Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)
- 3.2.2.6 Packet Types Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)

3.2.3 Video Modes

- 3.2.3.1 Video Formats Normal Mode
- 3.2.3.2 Pixel Encoding Normal Mode
- 3.2.3.3 AVI Infoframes Normal Mode
- 3.2.3.4 Video Quantization Ranges
- 3.2.3.5 Video Formats Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)
- 3.2.3.6 Pixel Encoding Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)
- 3.2.3.7 AVI Infoframes Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)

3.2.4 Audio Test

- 3.2.4.1 IEC 60958 / IEC 61937
- 3.2.4.2 Audio Clock Regeneration
- 3.2.4.3 Audio Infoframe

3.2.6 EDID and Device Status Register Test

- 3.2.6.3 Device Status Registers Test Normal Mode (MHL CTS 1.3, 2.0, 2.1 only)
- 3.2.6.4 Device Status Registers Test Packed Pixel Mode (MHL CTS 1.3, 2.0, 2.1 only)

3.2.8 RAP Sub-Command Tests

3.2.8.1 RAP and RAPK Sub-Commands Test (MHL CTS 2.0, 2.1 only)

3.2.9 3D Video Tests

- 3.2.9.2 3D Video Format Timings (MHL CTS 1.3, 2.0, 2.1 only)
- 3.2.9.3 3D Video Mode Indicator (MHL CTS 1.3, 2.0, 2.1 only)

4.1 Workflow for running the MHL Source Compliance Tests

The following is the high level workflow for running the MHL Source Compliance Tests. This workflow assumes that you have powered up the 980 and established an Ethernet session with the 980 as described in 980 Advanced Test Platform Quick Start Guide available on the Quantum Data website: http://www.guantumdata.com/products/980.asp.

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

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.

980 User Guide – HDMI & MHL Source Compliance
4.2 Making the physical MHL connections

This subsection describes the physical MHL connections required to run the MHL source compliance tests. It assumes that you have established and Ethernet/IP session between the 980 and the 980 GUI Manager.

You will use on the Quantum Data Test Point Adapters between the MHL device under test and the 980 HDMI Protocol Analyzer. For MHL 1.2 testing you will use the TPA-MHL-8R. For MHL 1.3, 2.0 & 2.1 testing you will use TPA-MHL2-8R. The general setup is depicted below.

4.2.1 Making physical connections for MHL 1.2 test configurations

These procedures are used when connecting source compliance tests on MHL 1.2 devices

To make the physical HDMI and MHL connections for 1.2 testing with the TPA-MHL-8R:

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

- Connect your MHL source device under test to the TPA-MHL-8R Test Point Adapter. Use the MHL IN FROM DUT connector on the section on the TPA labeled 980 CONNECTIONS – SOURCE DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.
- Using an HDMI cable, connect the TPA-MHL-8R Test Point Adapter to the 980 HDMI Protocol Analyzer. Connect the HDMI cable to the topmost HDMI connector on the 980 labeled Rx. Use the OUT TO 980 PORT 1 connector on the section on the TPA labeled 980 CONNECTIONS – SOURCE DUT. Use an HDMI-compliant cable.



Connections for MHL 1.2 source compliance testing – 980 Rev C Protocol Analyzer module)



Connections for MHL 1.2 source compliance testing – 980 Rev D Protocol Analyzer module

4.2.2 Making physical connections for MHL 1.3, 2.0, 2.1 test configurations

These procedures are used when connecting source compliance tests on MHL 1.3, 2.0, 2.1 devices

To make the physical HDMI and MHL connections for 1.3, 2.0, 2.1 testing with the TPA-MHL2-8R:

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

- Connect your MHL source device under test to the TPA-MHL2-8R Test Point Adapter. Use the MHL IN FROM DUT connector on the section on the TPA labeled VIDEO ANALYSIS – MHL SOURCE DUT. Use an MHL compliant cable connecting the HDMI end to the TPA and the micro USB end to the MHL source.
- Using an HDMI cable, connect the TPA-MHL2-8R Test Point Adapter to the 980 HDMI Protocol Analyzer module. Connect the HDMI cable to the topmost HDMI connector on the 980 labeled Rx. Use the TO PROTOCOL ANALYZER RX connector on the section on the TPA labeled VIDEO ANALYSIS – MHL SOURCE DUT. Use an HDMI-compliant cable.



Connections for MHL 1.3, 2.0, 2.1 source compliance testing - 980 Rev C Protocol Analyzer module



Connections for MHL 1.3, 2.0, 2.1 source compliance testing – 980 Rev D Protocol Analyzer module



Connections for MHL 1.3, 2.0, 2.1 source compliance testing – 980B

4.3 Setting the 980 Mode to MHL

Use the following procedures to set the 980 HDMI Protocol Analyzer module to the MHL mode.

To set the 980 mode to MHL:

1. From the **Instrument** menu, select the **Link Mode**.



The following menu appears:



2. Select the pull-down menu as shown below.

🗔 Hide
On Top
O Sink Emulation
Pass-Through
Encrypted Link Analyzer
TX-RX HPD
HDMI Monitor
O MHL Monitor

- 3. Select the MHL Monitor checkbox and the Sink Emulation checkbox as shown above. The various modes are described below.
 - Sink emulation In the sink emulation monitoring configuration the 980 HDMI Protocol Analyzer HDMI Rx port is connected directly to the source device under test. The 980 HDMI Protocol Analyzer is emulating an HDMI/MHL sink device. The sink emulation mode is the typical mode of operation. You can monitor the HDMI/MHL transactions between the source device under test and the 980 HDMI Protocol Analyzer Rx port. All of the data types described in this manual can be monitored in the sink emulation mode unless noted otherwise. This is the mode used for the HDMI or MHL source compliance tests.
 - Pass-Through Monitor In the Pass-Through monitoring configuration the 980 HDMI Protocol Analyzer HDMI Rx port is connected to the source device under test and the 980 HDMI Protocol Analyzer HDMI Tx port is connected to a sink device. The pass-through mode enables you to monitor the HDMI traffic passively between an HDMI/MHL source and an HDMI/MHL sink device. This mode is **not used** for the HDMI or MHL source compliance tests.
 - Encrypted Link Analyzer (Optional) In the Encrypted Link Analyzer configuration the 980 HDMI Protocol Analyzer HDMI Rx port is connected to the source device under test and the 980 HDMI Protocol Analyzer HDMI Tx port is connected to a sink device. The Encrypted Link Analyzer configuration enables you to monitor and analyze HDCP encrypted protocol data transmitted between an HDMI source device and sink device. This mode is not used for the HDMI or MHL source compliance tests.
 - **TX-RX HPD** Enabling this option will replicate the hot plug signal from the TX side (an attached sink device) on the RX side (like a hot plug repeater). *This is the mode used for the HDMI or MHL source compliance tests.*

4.4 Completing the CDF

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

Note: All the examples used in the following procedures use the MHL 2.1 test flow. The operation for running MHL 1.2, 1.3 and 2.0 tests is quite similar.

To complete the CDF:

1. From the **Compliance** menu, enable viewing of the **MHLSrc CT** panel.

💮 Apps					
		C, qua	ntum <mark>data</mark>		
		Compliar	nce Tests	5	
	\bigcirc			\bigotimes	
	HDMI EDID CTS 1.4b	HDMI S CTS	Source 1.4b	HDMI Sink CTS 1.4b	
1	\bigcirc			\bigcirc	>
	HDMI HDCP Transmitter CTS 1.2	MHL S CTS 1.	ource 2 - 2.1	MHL Sink CTS 1.2 - 2.1	
				\bigcirc	
	MHL Dongle CTS 1.2 - 2.1	CBUS S CTS 1.	Source 2 - 2.1	CBUS Sink CTS 1.2 - 2.1	
		Page	2 of 4		
	Card Control	Compliance Tests	Editors	Other	

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

980 User Guide – HDMI & MHL Source Compliance

MHL Src CT 2.1		<u> </u>
S CDF Entry	ection 🕨 Test Options / Preview	
🔄 Open 😡 New	CDF File: <not saved=""></not>	
😣 General 💿 Vide	o Audio 3D Video	
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?	
	When is the model arm of the product?	-
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 DU1?	
	Is audio supported on this DUT?	-
		_
CDF_RAP_SUPPORT	Does the DUT support RAP Sub-Commands? (CTS >= 2.0 Only)	
	● Yes ◎ No	
	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.

Rev. A4

隧 Open CDF					
	Local File	s			
🔺 🗁 CDF					
🔯 XYZ_CD	F				
	✓ Ok				
	VUK	Cancer			

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

MHL Src CT 2.1	
🕲 CDF Entry 🗹 Te	st Selection 🕨 Test Options / Preview
Copen 😡 New	Save CDF File: <not saved=""></not>
🔒 General 💿 Vide	o • Audio • 3D Video
One or more essentia	al fields are blank.
CDF_C VERSION	CTS Version to test against. ◎ 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 ⑧ 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? (CTS >= 2.0 Only)

After you fill in all the mandatory information the message will clear as shown below:

980 User Guide – HDMI & MHL Source Compliance

MHL Src CT 2.1						
🕲 CDF Entry 🧹 Te	[™] CDF Entry [✓] Test Selection [▶] Test Options / Preview					
🔄 Open 😡 New	🔄 Open 🕞 New 🕞 Save CDF File: < not saved>					
 General Vide 	o • Audio • 3D Video					
	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?					
CDF_AVI_SUPPORT	Is AVI InfoFrame supported on this DUT?					
CDF_AUDIO_SUPPORT	Is audio supported on this DUT? ◎ Yes ◎ No					
CDF_RAP_SUPPORT	Does the DUT support RAP Sub-Commands? (CTS >= 2.0 Only)					
	◎ Yes ◎ No					
L	X Close					

6. Save the CDF. You can save the CDF at any time from the **Save** button near the top of the panel as shown below:

MHL Src CT 2.1	
😂 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview	
Copen Save File: < not saved>	
General Video Audio Video	

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

Rev. A4

隧 Save CDF				
		Local Files		
	CDF			
(🙋 N	ew) (^h z	Rename	🔰 🗶 Delete	
D-4h	/005			
Path:	/CDF			
Name: XYZ_CDF				
		🗹 Ok	🙆 Cancel	

Once you save the CDF it will appear near the top of the panel adjacent to the **Save** button as shown below:

MHL Src CT 2.1	
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview	
CDF File: /CDF/XYZ_CDF	
🔍 General 🔍 Video 🔍 Audio 🔍 3D Video	

7. Complete the items in the **Video** tab.

MHL Src CT 2.1					
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview					
CDF File: /CDF/XYZ_CDF					
General Video Audio 3D Video					
Describe DUT support PCP and direct					
VIDEO_RGB					
Does the DUT support YCBCR 4:4:4 encoding?		-			
CDF_VIDEO_YCBCR_444					
CDE VIDEO VCPCP 422 Does the DUT support YCBCR 4:2:2 encoding?		-			
Ves No		Ξ			
CDF SOURCE YO FULL Does the DUT support full range video quantization as defined by the AVI Infoframe YQ bits?					
Ves No					
Supported Normal Mode Video Formats					
CDF_VIDEO_VGA O Yes O No (1) 640x480p (VGA) 59.94/60Hz					
CDF_VIDEO_480p_60		_			
CDF_VIDEO_720p_60		_			
CDF_VIDEO_1080i_60		-			
CDF_VIDEO_480i_60_2X O Yes O No (6,7) 1440x480i 59.94/60Hz		-			
CDF_VIDEO_480i_60_4X O Yes O No (10,11) 2880x480i 59.94/60Hz		-			
CDF_VIDEO_480p_60_2X O Yes O No (14,15) 1440x480p 59.94/60Hz		-			
CDF_VIDEO_576p_50		-			
CDF_VIDEO_720p_50		-			
CDF_VIDEO_1080i_50		-			
CDF_VIDEO_576i_50_2X O Yes O No (21,22) 1440x576i 50Hz		-			
CDF_VIDEO_576i_50_4X					
X Close					

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

MHL Src CT 2.1					
🔯 CDF Entry 🗹 Test Selection 🕨 Test Options / Preview					
🔄 Open 🔂 New 🔛 Sa	CDF File: /CDF/XYZ_CDF				
General Video	Audio 3D Video				
	Linear PCM Audio Support				
CDF_AUDIO_2CH_32kHz	◉ Yes ◎ No PCM 2Ch 32kHz Audio?				
CDF_AUDIO_2CH_44kHz	⑧ Yes ◎ No PCM 2Ch 44.1kHz Audio?				
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	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 ◎ 48kHz ◎ 88.2kHz ◎ 96kHz ◎ 176.4kHz ◎ 192kHz				
	Non-PCM Audio Support				
CDF_AUDIO_AC3	🔘 Yes 💿 No 2: AC-3 (Dolby Digital)				
CDF_AUDIO_MPEG1	O Yes O No 3: MPEG1 (Layers 1 2)				
CDF_AUDIO_MP3	O Yes O 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 💿 No 7: DTS				
	×	Close			

9. Complete the items in the **3D** tab if it applies.

MHL Src CT 2.1						
😢 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview						
CDF File: /C	DF/XYZ_CDF					
General Video Audio 3D	lideo					
(CTS >= 2.0 Only)						
CDF_PRODUCT_3D_CAPABLE	Is the DUT capable on other O Yes O No	ports to support 3D video?				
CDF_VIDEO_3D	Does the DUT support 3D vi Yes No	ideo?				
	Supported Normal Mode 3	D Video Formats				
CDF_VIDEO_1280x720P_60_3D_Top_Bottom		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			
	Supported PackedPixel Mode	e 3D Video Formats				
CDF_VIDEO_1280x720P_60_3D_Frame		1280x720p 59.94/60Hz,	3D, Frame-Sequential			
CDF_VIDEO_1280x720P_50_3D_Frame	Ves No (19)	1280x720p 50Hz,	3D, Frame-Sequential			
CDF_VIDEO_1920x1080p_24_3D_Frame	Yes No (32)	1920x1080p 23.97/24Hz,	3D, Frame-Sequential			

X Close

4.5 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.

Note: All the examples used in the following procedures use the MHL 2.1 test flow. You can also run MHL 1.2, 1.3 or 2.0 tests and the operation is the same.

To select the tests to run:

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

MHL Src CT 2.1	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
F S Coding Video Modes Audio Test Register Test RAP Test 3D Test	
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 Src Compliance Test	
Open Test Selection File	
Select an Test Selection file to open.	
XYZ_Select.xml	
Cancel Ok	

980 User Guide – HDMI & MHL Source Compliance	Rev. A4
---	---------

3. Select the tests in the TMDS Coding tab of the Test Selection panel shown below.

Note: You can select (or deselect/clear) all tests on a page Select All on Page Clear All on Page or all tests
the series Select All Tests Deselect All Tests using the activation buttons provided.
MHL Src CT 2.1
CDF Entry V Test Selection Test Options / Preview
Copen Save Select All Tests Deselect All Tests
TMDS Coding Video Modes Audio Test Register Test RAP Test 3D Test
Select All on Page Clear All on Page
3.2.2.1: Legal Codes in Normal Mode Confirm that the source DUT never transmits illegal 10-bit codes in Normal Mode.
✓ 3.2.2.2: Basic Protocol in Normal Mode Confirm that the source DUT always transmits code sequences for Control Periods, Data Island Periods, and Video Data Periods conforming to the basic protocol requirements when in Normal Mode.
3.2.2.3: Packet Types in Normal Mode Confirm that the packets transmitted by the source DUT are in the specified format when in Normal Mode.
✓ 3.2.2.4: Legal Codes in PackedPixel Mode Confirm that the source DUT never transmits illegal 10-bit codes in PackedPixel Mode.
✓ 3.2.2.5: Basic Protocol in PackedPixel Mode Confirm that the source DUT always transmits code sequences for Control Periods, Data Island Periods, and Video Data Periods conforming to the basic protocol requirements when in PackedPixel Mode.
3.2.2.6: Packet Types in PackedPixel Mode Confirm that the packets transmitted by the source DUT are in the specified format when in PackedPixel Mode.
X Close

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

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

🖄 MHL Src CT 2.1	- 0 X
😂 CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
Copen Save Select All Tests Deselect All Tests	
TMDS Coding Video Modes Audio Test Register Test RAP Test AJD Test	
Select All on Page Clear All on Page	
3.2.3.1: Video Formats in Normal Mode Verify that the Source DUT supports the required video formats and the optional video formats which use the Normal Mode, - compliant with the EIA/CEA-861E specification.	Î
3.2.3.2: Pixel Encoding in Normal Mode Verify that Source is capable of supporting RGB pixel encoding and YCbCr 4:4:4 Encoding.	
3.2.3.3: AVI InfoFrame in Normal Mode Verify that source transmit an accurate AVI InfoFrame at least once every two video fields for video modes using Normal Mode.	Ξ
3.2.3.4: Video Quantization Ranges Verify that Source complies with quantization ranges and QY and QS bits in the Video Capability Data Block defined in EIA/CEA-861E.	
✓ 3.2.3.5: Video Formats in PackedPixel Mode Verify that the Source DUT supports the required video formats and the optional video formats which use the PackedPixel Mode, - compliant with the EIA/CEA-861E specification.	
3.2.3.6: Pixel Encoding in PackedPixel Mode Verify that Source is capable of supporting PackedPixel Encoding.	
	Close
	Cluse

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

MHL Src CT 2.1	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
🔄 Open 🔄 Save 🛛 Select All Tests 🔲 Deselect All Tests	
▶ TMDS Coding ▶ Video Modes ▶ Audio Test ▲ r Test ▶ RAP Test ▶ 3D Test	
Select All on Page Clear All on Page	
✓ 3.2.4.1: IEC 60958 / IEC61937 Verify that Source is capable of audio transmission that is compliant with either IEC60958 format or IEC61937 format.	
✓ 3.2.4.2: Audio Clock Regeneration Verify that N, CTS and audio sample frequency have correct correlation.	
✓ 3.2.4.3: Audio InfoFrame Verify that whenever an active audio stream is being transmitted an accurate Audio InfoFrame is transmitted at least as often as T-aif.	
	X Close

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



7. Select the tests in the **RAP** tab of the **Test Selection** panel shown below.

980 User Guide – HDMI & MHL Source Compliance



8. Select the tests in the **3D** tab of the **Test Selection** panel shown below.

980 User Guide – HDMI & MHL Source Compliance

C MHL Src CT 2.1	
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview	
🔄 Open 🔛 Save 🛛 Select All Tests 🔲 Deselect All Tests	
🕨 TMDS Coding 🕨 Video Modes 🕨 Audio Test 🕨 Register Test 🕨 RAP Test 🍡 3D Test	
Select All on Page Clear All on Page	
3.2.9.2: 3D Video Format Timings in Normal Mode Verify that the Source DUT supports 3D video formats in Normal Mode if DUT indicates 3D support, and verify the timing.	
✓ 3.2.9.3: 3D Video Mode Indicator Verify that the Source DUT indicates 3D video mode using MHL Vendor-Specific InfoFrame (VSIF).	
✓ 3.2.9.4: 3D Video Format Timings in PackedPixel Mode Verify that the Source DUT supports 3D video formats which use PackedPixel Mode if DUT indicates 3D support, and verify the timing.	
	X Close

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

MHL Src CT 2.1	
🔯 CDF Entry 🗸 Test Selections / Preview	
Copen Save Select All Tests Deselect All Tests	
🕨 TMDS Coding 🕨 Video Modes 🕨 Audio Test 🕨 Register Test 🕨 RAP Test 🍽 3D Test	

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

MHL Src CT: Save Test Selections
Test Selection File
Enter a file name for the Test Selection.
XYZ_Selectixml
Cancel Ok

4.6 Executing the MHL Source Compliance Tests

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

Note: All the examples used in the following procedures use the MHL 2.1 test flow. You can also run MHL 1.2, 1.3 and 2.0 tests and the operation is the same.

To initiate a test series:

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

MHL Src CT 2.1		u X
CDF Entry 🗸 Test Selection 🕨 Test Options / Preview		
Test List		
All 🗸 🔛 😳 Duration 🞯 Options Instrument: 980B_JB [192.168.254.160]	🕨 Execu	ite Tests
Category / Test Name	0	× ^
▲ ► TMDS Coding		
🛽 🗏 3.2.2.1: Legal Codes in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	\checkmark
Iter 02: The DUT does not support format 4, 5, 19 or 20 (Skip).		\checkmark
🔺 📃 3.2.2.2: Basic Protocol in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	\checkmark
Iter 02: The DUT does not support format 4, 5, 19 or 20 (Skip).		\checkmark
✓ Video Modes		
3.2.3.1: Video Formats in Normal Mode		V =
Iter 01: (2,3) 720x480p @ 60 Hz	15 f	\checkmark
Iter 02: (17,18) 720x576p @ 50 Hz	15 f	\checkmark
J.2.3.2: Pixel Encoding in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, RGB, Chess Pattern	15 f	\checkmark
Iter 02: YCbCr444/422 not supported: Manual check		\checkmark
J.2.3.3: AVI InfoFrame in Normal Mode		\checkmark
Iter 01: CDF AVI SUPPORT not selected but required: Automatic FAIL		\checkmark
▲ ▶ Audio Test		
▲ 3.2.4.1: IEC 60958 / IEC61937		V 🗆
Iter 01: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 32 kHz	15 f	\checkmark
Iter 02: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 44.1 kHz	15 f	\checkmark
Iter 03: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 48 kHz	15 f	\checkmark
3.2.4.2: Audio Clock Regeneration		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 32 kHz	15 f	V .
۲ III		•
	🗙 Clo	se

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

Compliance Test Options	
⊚ MHL Src Comp	liance Test Options
Test Execution Order	Saving Captures
 Maximize Capture Reuse. 	O Do not save any Captures.
O Minimize DUT Format Changes.	 Save Capture data for failures only.
	◯ Save all Captures.
	Protocol/TMD5 Tests
Require that HDCP be disabled.	Detailed Results (requires more time)
X Cancel	Г ок

There are three settings you can define. These relate to what test execution order, saving captured data and enabling or disabling HDCP content protection. The table below describes the options. When completed with the options select the OK activation button to continue.

Option	Description
Test Execution Order	 There are two selections: Maximize Capture Reuse – Will run tests in an order that will be quicker because it reuses captures. Minimize DUT format changes – Will run tests in an order that will minimize user interaction in changing formats. Note: The 980 Rx port will automatically configure its EDID to cause or encourage the source device to send the proper video resolution and audio format for any give test.
Saving Captures	 There are three selections: Do not save any captures – no captures are saved regardless of the results, pass or fail. Save Capture data for failures only – Saves only captures for tests where failures occur. Saves all Captures – Saves all captures regardless of the results, pass or fail.
HDCP	Require that HDCP be disabled - A check box that when selected will only run the tests if HDCP content protection on the source is disabled.
Protocol/TMDS Tests	Detailed Results (requires more time) - A check box that when selected will provide detailed results. If unchecked you will just receive summary results.

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 Src CT 2.1		X
😂 CDF Entry 🖌 Test Selection 🕨 Test Options / Preview		
Test List		
All 🖌 🚺 Duration 💿 Options Instrument: 980_MB [192.168.254.229] 🔹	🕨 Execu	ite Tests
Category / Test Name	C	V -
TMDS Coding		
3.2.2.1: Legal Codes in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	\checkmark
Iter 02: (17,18) 720x576p @ 50 Hz, Basic Audio	15 f	×
🖌 📃 2.2.2: Basic Protocol in Normal Mode		V =
Iter 01: (2,3) 720x480p 0 60 Hz, Basic Audio	15 f	\checkmark
💢 Iter 02: (17,18) 720x576p @ 50 Hz, Basic Audio	15 f	×
🔺 🗏 3.2.2.4: Legal Codes in PackedPixel Mode		
Iter 01: The DUT does not support PackedPixel Mode: SKIPPED		\checkmark
🔺 🗏 3.2.2.5: Basic Protocol in PackedPixel Mode		\checkmark
Iter 01: The DUT does not support PackedPixel Mode: SKIPPED		\checkmark
Video Modes		
3.2.3.1: Video Formats in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz	15 f	\checkmark
💥 Iter 02: (17,18) 720x576p @ 50 Hz	15 f	×
🔺 🗏 3.2.3.2: Pixel Encoding in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, RGB, Chess Pattern	15 f	\checkmark
Iter 02: (2,3) 720x480p @ 60 Hz, YCbCr-444, Chess Pattern	15 f	\checkmark
🔺 🗏 3.2.3.3: AVI InfoFrame in Normal Mode		\checkmark
Iter 01: (2,3) 720x480p @ 60 Hz, Chess Pattern	15 f	\checkmark
💢 Iter 02: (17,18) 720x576p 0 50 Hz, Chess Pattern	15 f	×
🔺 🗏 3.2.3.5: Video Formats in PackedPixel Mode		\checkmark
Iter 01: The DUT does not support PackedPixel Mode: Automatic PASS(SKIP)		🖌 🚽
		•
Iter 02: (17,18) 720x576p @ 50 Hz, Chess Pattern		
	💢 Clo	se

- Duration for each test by selecting the test and then specifying how many 4. (Optional) Set the duration iterations of the test are conducted. Typically you would specify the duration in the number of frames but the pull-down menu also enables you to specify this in milliseconds or percent.

Iteration Co	nfiguration	
	🙋 Set Capture Durati	on
	Test 3.2.4.3, Iter-02	
Duration:	15	Frames 😽
	Set to Default	Milli-Seconds Frames Percent
	Cancel	ок

5. 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.

N	MHL Src CT Results								
	Test Results Name								
	Execute MHL Src Compliance Tests on Instrument: 980_MB @ 192.168.254.229								
	Enter a name for the Test Results.								
	07_26_2013_14_06_19_XYZ								
	Cancel Ok								
L									

When you click OK on the Test Results Name dialog box the tests will begin.

During the tests a **DUT Setup** dialog box will appear which provides you with instructions for physically connecting the devices. An example is shown in the screen below.

DUT Setup	on the prote that dealers, and hadnes to a with
Verify th	Test 3.2.6.3, Iter-01 at the Device Status Registers have proper values in Normal Mode.
	Configure the DUT to enable Normal 24-bit Mode. (if not already in that mode)
	Disconnect the MHL cable from the TPA.
	Cancel Compliance Test
	📀 Continue

During the tests a **Required DUT Configuration** dialog box will appear that instructs you to verify that the source device under test is in the correct mode (video and audio format are correct). The following screen shot depicts this. Press **Continue** when you have the source device in the correct mode. If you need to pause the test to configure the source device under test, you can do so by clicking on the **Pause Execution** activation button. You can cancel the test using the **Cancel Compliance** Test button.

E

JT Configu	ration	
	Addie 🎇 Required DUT Configuration	
у начна 1 у Пачна 1 Пачна	Test 3.2.2.2, Iter-02 Confirm that the source DUT always transmits code sequences for Control (2) Periods, Data Island Periods, and Video Data Periods conforming to (3) the basic protocol requirements.	
You ca	Please verify that the DUT is configured per the requirements below. NOTE: The test EDID has been applied and hot-plug has been toggled and the DUT may already be configured per the EDID. n use the 980 Real-Time to help verify that the DUT is configured and st Press "Continue" when the DUT is ready to be tested.	able.
Format		^
· Content	[VIC = 4] 1280x720p @ 60 Hz	
•	There is no content requirement for this test.	
<u>Audio</u> :		
•	Configure the Source DUT to transmit Basic Audio.	
EDID (Def	ault): <generated> to the Test Instrument.</generated>	
EDIB	Change EDID 🛛 🖓 Deřault EDID 🔀 View EDID)
Ganc	el Compliance Test	

You can view the EDID (**View EDID**) and/or change the EDID (**Change EDID**) to evoke a particular format from the MHL source device under test. When you click on **View EDID** an HTML report appears as shown below. This enables you to verify that an EDID's preferred timing is appropriate for a particular test. When you click on **Change EDID** a navigation window appears enabling you to select any EDID files that you have stored on your PC. A few screen examples of the EDID report are shown below.

EDID Decod	ID Decode																	
	C:\Users\nkendall\Desktop'980_R.3.1_11_MHL_CTS_1_2\980mgr\workspace\mhlsrcct\results\03_06_2012_16_28_35\testEdid.xml																	
Report <u>s</u>	Report generated on: March 6, 2012 4:29 PM Quantum Data EDID Data Report											ntumdata.com						
	Block 0												E					
	0 1 2 3 4 5 6 7 8 9 A B C D E												F					
	00:	00	FF	FF	FF	FF	FF	FF	00	44	89	B2	00	04	00	00	00	
	10:	20	14	01	03	80	50	2D	78	0A	0D	C9	A0	57	47	98	27	
	20:	12	48	4C	20	00	00	01	01	01	01	01	01	01	01	01	01	
	30:	01	01	01	01	01	01	01	1D	00	72	51	D0	1E	20	6E	28	
	40:	55	00	20	C2	31	00	00	1E	00	00	00	10	00	00	00	00	
	50:	00	00	00	00	00	00	00	00	00	00	00	00	00	FC	00	48	
	60:	44	4D	49	20	43	54	20	54	45	53	54	0A	00	00	00	FD	
	70:	00	17	F1	08	8C	11	00	0A	20	20	20	20	20	20	01	54	
	Checksum verified Version 1 header verified EDID Version 1, Revision 3 Number of additional blocks: 1 Manufacturer: QDI Product Code: 178 Serial #: 4																	
								Displ	Lay Fea	tures								
	•	VESA D	FP 1.x n	on compa	tible												-	
	•	Horizo	ntal Scr	een Size	80 cm													
	•	Vertic	al Scree	n Size 4	5 cm													
	•	Displa	y Transf	er Chara	cteristi	cs (Gamm	a) 2.20											
	•	Active	off: No	Suspend	l: No Sta	ndby: No												
	•	RGB co	lor disp	lay														
	•	eDCR i	e not ue	ed as de	fault										Ĩ	Save A	s 🛛 💥 Close	Ť

ecode		
ccouc	C:\Users\nkendalN980 Capture Files 4 8\mhlsrcct\results\07 26 2013 14 06 19 XYZ\testEdid.xml	
	Checksum verified	
	Version 1 header verified	
	EDID Version 1, Revision 3	
	Number of additional blocks: 1	
	Manufacturer: QDI	
	Product Code: 178	
	Serial #: 4	
	Date of Manufacture: Week 32 of 2010	
	Display Features	
	• VESA DFP 1.x non compatible	
	• Horizontal Screen Size 80 cm	
	• Vertical Screen Size 45 cm	
	• Display Transfer Characteristics (Gamma) 2.20	
	•Active off: No Suspend: No Standby: No	
	• RGB color display	
	• sRGB is not used as default	
	• Preferred Timing is native	
	• Display is non-continuous frequency (multi-mode)	
	Chromaticity	
	Red: (0.625, 0.340)	
	Green: (0.280, 0.595)	
	Blue: (0.155, 0.070)	
	White: (0.283, 0.298)	
	Established Timings I	
	640 x 480 @ 60Hz	
	Established Timings II	
	No Timings Defined.	
	Manufacturer's Timings: None	
	Standard Timings	
	Timing #1: Not Defined	
	Timing #2: Not Defined	
	Timing \$3. Not Defined	

980 User Guide – HDMI & MHL Source Compliance

EDID Decode C:\Users\nkendall\980_Capture_Files_4_8\mhlsrcct\results\07_26_2013_14_06_19_XYZ\testEdid.x Checksum verified E-EDID CEA Extension Version 3 Reserved data block offset 23 • 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 4, bytes 3: Speaker Allocation - - - - - - FL/FR - - -CEA Data Block: Tag 3, bytes 7: Vendor Specific 24-bit IEEE Registration ID: 0x000C03 HDMI Vendor specific data Block • CEC Physical Address: 1.0.0.0 • ISRC/ACP: Not supported • Deep Color: Not Supported • DVI dual-link: Not supported • Max TMDS clock: 165 MHz CEA Data Block: Tag 1, bytes 3: Audio Data Number of Descriptors: 1 Audio Format Code: IEC 60958 PCM [30, 31] Channels: 2 Sampling Freq (kHz): 48, 44.1, 32 Sampling Size (bit): 24, 20, 16 CEA Data Block: Tag 2, bytes 2: Video Data Number of Descriptors: 2 VIC 2: 720x480p @ 60 Hz 4:3 Native VIC 3: 720x480p @ 60 Hz 16:9 🗢 Back 🜩 Forward 🛛 🔚 Save As 🛛 💥 Close

If you do not have the source device under test in the proper mode, an error dialog box will appear. Samples of these error dialog boxes are shown below.

DUT Configuration						
% DUT Configuration Error						
Test 3.2.2.1, Iter-01 Confirm that the source DUT never transmits illegal 10-bit codes.						
The measured Format does not match the required Format.						
REQUIRED (2,3) 720x480p @ 60 Hz						
MEA5URED (4) 720p60						
Cancel Compliance Test FAIL this Iteration Retry DUT Configuration						

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

Rev. A4

Test List			
Z X Up Duration Reset Status			
Category / Test Name	Q	V	Status
▲ 📑 3.2.3.6: Pixel Encoding in PackedPixel Mode		V	Skipped
Iter 01: The DUT does not support PackedPixel Mode: Automati		\checkmark	Skipped
🕨 Þ Audio Test			
⊿ 📃 3.2.4.1: IEC 60958 / IEC61937		\checkmark	Incomplete
🖌 🝚 Iter 01: (2,3) 720x480p 0 60 Hz, 2-Ch PCM Audio, 32 kHz	15 f	\checkmark	Pass
			Pass
			Pass
🔀 Iter 02: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 44.1 kHz	15 f	×	User Skipped
	15 f	\checkmark	In Progress
3.2.4.2: Audio Clock Regeneration			Incomplete
🛯 😝 Iter 01: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 32 kHz	15 f	\checkmark	Pass
⊖ 01: Verify N parameter value.			Pass
⊖ 02: Verify CTS parameter value.			Pass
03: Verify user supplied sampling freq matches			Pass
🞇 Iter 02: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 44.1 kHz	15 f	×	User Skipped
• Iter 03: (2,3) 720x480p 0 60 Hz, 2-Ch PCM Audio, 48 kHz	15 f	V	Pending
▲ 📑 3.2.4.3: Audio InfoFrame			Incomplete
↓ Jiter 01: (2,3) 720x480p @ 60 Hz, 2-Ch PCM A 10, 32 kHz	15 f		Fail
er 01: (2,3) 720x480p @ 60 Hz, 2-Ch PCM Audio, 32 kHz	16 +		Hoom Clannod
Tatlas			
. Test Log			
ine Message			
0409 Test 3.2.4.1-03			
0410 Configuring the DUT and Test Instrument.			
0411 Creating a Test EDID.			
0412 Transferring the Test EDID to the Instrument.			
0413 Installing the Test EDID.			
0414 Toggling hot-plug.			
• 0415 Verifying the captured format timing.			

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

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 **MHL Src CT** tab called the **CT Results** tab. You can view the test results in this panel. Refer to the following screen shots to see examples of the **CT Results** panel.

Note: The example below shows an MHL 2.1 test. The test operates in a similar fashion other MHL CTS versions of the test.

Compliance Test Results Viewer							
MHL Source Compliance Test Results							
Results Name: 07_26_2013_14_06_19_XYZ Man Date Tested: July 26, 2013 2:06 PM Mo Overall Status: CTS 2.1 - Incomplete Pc	ufacturer: Acme del Name: XYZ rt Tested: 1	HTML Report					
	Test Results						
Fest Name / Details		Status					
J 3.2.2.1: Legal Codes in Normal Mode		Pass					
Basic Protocol in Normal Model	le	Pass					
J 3.2.2.4: Legal Codes in PackedPixel I	lode	Skipped					
3.2.2.5: Basic Protocol in PackedPixe	el Mode	Skipped					
J 3.2.3.1: Video Formats in Normal Mode	9	Pass					
J 3.2.3.2: Pixel Encoding in Normal Mod	de	Pass					
J 3.2.3.3: AVI InfoFrame in Normal Mode	9	Fail					
3.2.3.5: Video Formats in PackedPixe	L Mode	Skipped					
3.2.3.6: Pixel Encoding in PackedPixe	el Mode	Skipped					
▷		Incomplete					
3.2.4.2: Audio Clock Regeneration		Incomplete					
3.2.4.3: Audio InfoFrame		Incomplete					
3.2.6.3: Device Status Registers in I	Normal Mode	Fail					
3.2.6.4: Device Status Registers in 1	PackedPixel Mode	Skipped					
▶ 🗏 3.2.8.1: RAP and RAPK Sub-Commands Te	est	Fail					
🕨 🛃 3.2.9.2: 3D Video Format Timings in D	Normal Mode	Skipped					
3.2.9.3: 3D Video Mode Indicator		Skipped					
🕨 🗏 3.2.9.4: 3D Video Format Timings in 🗄	PackedPixel Mode	Skipped					
Den Capture							
Instrument: 980_MB [192.168.254.229]		Continue Test Execution					
		🔀 Close					

4.7 Canceling and Resuming the MHL Source 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 Src Compliance Test (1.2): "03_06_2012_16_28_35"			(a. 8. 8
т	est List		
V All X All 🔯 Duration Reset Status Options			
Category / Test Name	0	V	Status
TMDS Coding			
🗏 3.2.2.2: Basic Protocol			Incomplete
💥 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	×	User Skipped
😝 Iter 02: (4) 1280x720p 0 60 Hz, Basic Audio	15 f	\checkmark	Pass
3.2.2.3: Packet Types			Incomplete
💥 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	×	User Skipped
😝 Iter 02: (4) 1280x720p @ 60 Hz, Basic Audio	15 f	\checkmark	Pass
Video Modes			
🗏 3.2.3.1: Video Formats			Incomplete
💢 Iter 01: (2,3) 720x480p @ 60 Hz	15 f	×	User Skipped
😝 Iter 02: (4) 1280x720p @ 60 Hz	15 f	\checkmark	Pass
💢 Iter 03: (20) 1920x1080i @ 50 Hz	15 f	×	User Skipped
😝 Iter 04: (16) 1920x1080p @ 60 Hz	15 f	\checkmark	Fail
🗏 3.2.3.2: Required Pixel Encoding			In Progress
📦 Iter 01: (2,3) 720x480p @ 60 Hz, RGB	15 f	\checkmark	In Progress
Iter 02: (2,3) 720x480p @ 60 Hz, YCbCr-444	15 f	\checkmark	Not Tested
🗏 3.2.3.3: AVI InfoFrame			Incomplete
💥 Iter 01: (2,3) 720x480p @ 60 Hz	15 f	×	User Skipped
😝 Iter 02: (4) 1280x720p 0 60 Hz	15 f	\checkmark	Pass
💥 Iter 03: (20) 1920x1080i @ 50 Hz	15 f	×	User Skipped
💥 Iter 04: (16) 1920x1080p @ 60 Hz	15 f	×	User Skipped
Audio Test			
🗏 3.2.4.1: IEC 60958 / IEC61937			Not Tested -
T	est Log		
Line Message			
• 0196 Post Capture Processing			
 0197 Generating field timing information 			
• 0198 Generating decode data			
• 0199 Indexing the decode data			
0200 Generating video content data			
0201 Verifying the captured format timi			
• 0202 Analyzing the captured test of a.			
• 0203 0 frames processed			
• 0204 Total frames to process:22			
			÷
Gancel the Compliance Tes	Pause Test Execution		

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

		Test Log	
	Line	Message	^
	• 0113	Configuring the DUT and Test Instrument.	
	• 0114	Creating a Test EDID.	
	• 0115	Transferring the Test EDID to the Instrument.	
l	• 0116	Installing the Test EDID.	
	• 0117	Togaling ht-plug.	
	• 0118	Test r 02 -> Canceled	
	• 0119	Test Canceled by User	
1			-
	•	III b	
		Close Window Continue Testing	

.

To resume a canceled test:

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



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

🗺 Capture Control 😪 Navigator 🛛 🗖						
🗁 Data 💷 Instruments 🔯 Compliance						
Name		Date / Time				
 EDID CT HDMI Src CT HDMI Sink CT HDMI Sink CT HDMI Src CT CDF Test Selections Results 						
▶ = 03_06_2012_17_22 03_06_2012_16_28 Open						
 MHL Sink/Dongle CT 		Vie	as Text			
3		Delete Rename				
	4	Export				
	6	Browse				

The CT Results window appears as shown below.

980 User Guide – HDMI & MHL Source Compliance

Rev. A4

🖶 Event Plot 🥸 MHL Src CT 1.2 🗐 CT Results 🛛					
MHL Source (Compliance Test Results				
Results Name: 03_06_2012_17_22_25 Date Tested: March 6, 2012 5:22 PM Overall Status: CTS 1.2 - Incomplete	Manufacturer: Acme Model Name: XYZ Port Tested: 1		HTML Report		
Test Results					
Test Name / Details		0	Status		
3.2.2.2: Basic Protocol			Incomplete		
3.2.2.3: Packet Types			Incomplete		
J 3.2.3.1: Video Formats			Incomplete		
3.2.3.2: Required Pixel Encoding	ł		Error		
3.2.3.3: AVI InfoFrame			Incomplete		
▷ 3.2.4.1: IEC 60958 / IEC61937			Not Tested		
> 3.2.4.2: Audio Clock Regeneratio	on		Not Tested		
3.2.4.3: Audio InfoFrame			Not Tested		
Open Capture 3.2.2.2: Basic Protocol					
Instrument: MyMHL980 [192.168.254.103]		•	► Continue Test Execution		

3. Click on the **Continue Test Execution** button on the lower left (above) to resume the tests.
4.8 Viewing Details of Source Compliance Test Failures

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

Note: The example below shows an MHL 1.2 test. The test operates in a similar fashion for other MHL CTS versions.

To view the details of a failure:

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

	Mil Source compitance rest Results		
Results Name: 07_26_2013_14_06_19_XYZ	Manufacturer: Acme		I HTML F
Date Tested: July 26, 2013 2:06 PM	Model Name: XYZ		
Verall Status: CTS 2.1 - Incomplete	Port Tested: 1		
	Test Results		
Test Name / Details		Q	Status
🛚 🗏 3.2.2.1: Legal Codes in Normal Mod	8		Pass
🛛 🗏 3.2.2.2: Basic Protocol in Normal 1	Mode		Pass
🛛 🗏 3.2.2.4: Legal Codes in PackedPixe	1 Mode		Skipped
🛛 🗏 3.2.2.5: Basic Protocol in PackedP	ixel Mode		Skipped
🛛 🗏 3.2.3.1: Video Formats in Normal M	ode		Pass
🔈 📃 3.2.3.2: Pixel Encoding in Normal 🛛	Mode		Pass
🛛 📃 3.2.3.3: AVI InfoFrame in Normal M	ode		Fail
🛛 🌢 📔 Iter 01: (2,3) 720x480p @ 60 Hz, Chess Pa	attern	15 f	Fail
🥥 01: Test AVI occurrence every :	2 video field.		Pass
⊖ 02: Test AVI version is 2.			Pass
⊖ 03: Test AVI aspect ratio.			Pass
○ 04: Test RGB or YCC coding is p	proper.		Pass
05: Test Overscan/Underscan bi:	ts.		Pass
06: Test Pixel repetition facto	or.		Pass
▲			Fail
Incorrect Video Identification Code:	0, expected: 2 or 3 [Frame 000, Line 0009,		
Incorrect Video Identification Code:	0, expected: 2 or 3 [Frame 001, Line 0009,		
Incorrect Video Identification Code:	0, expected: 2 or 3 [Frame 002, Line 0009,		
Incorrect Video Identification Code:	0, expected: 2 or 3 [Frame 003, Line 0009,		
Incorrect Video Identification Code:	U, expected: 2 or 3 [Frame UU4, Line UU09,		
<pre>Incorrect video Identification Code:</pre>	U, expected: 2 or 3 [Frame UU5, Line UU09,		
■ Show in Capture Incorrect Video Identification Code: 0, expected > [16922 130 0 9 43 1510671135.58 450497 AV	l: 2 or 3 [Frame 000, Line 0009, Pixel 43] I InfoFrame]		
Instrument: 980B_JB [192.168.254.160]			 Continue Test Exec

2. Navigate to view the results.

When you highlight a failure in the Details window of the **CT Results** panel, you can navigate to the details in the **Data Decode** and **Event Plot** panels by clicking on the **Show in Capture** activation button on the bottom left of the panel. This is shown in the screen shot above. The **Data Decode** and **Event Plot** panels showing the captured data associated with the failure are shown in the screen example below.

980 User Guide – HDMI & MHL Source Compliance

	/iewer										×
👍 Event Plo	ot 🕱 🔤 Timing Anal	ysis									
C:\Users\nkend	all\980_Capture_Files_4_8\	mhlsrcct\results\	07_26_201	13_14_06_1	_XYZ\Test	3_2_3_3_01					
📄 Segme	ent 🛛 🛛 Events 🖉 🔘 Ro	ws 🔯 Find	Syn 🔁	nc 🕕 L	egend						
	N C H Zoor	n %: 0.	003 🔍	Q	Marke	r1 🗲 💿	Marke	r 2 🗲	•		
0:25:10.868.6	60.552.398										_
				,		Ŷ				_	
TMDS	_	GCI	, ,	A	I	AUD IF	VEN	4	SPD		
VSYNC							VSYNC				
HSYNC		HS	YNC								
ENCR-E					_						
AVMUTE											
DDC											
000											
0:25:10.671.	133.701.835	0:25:10.671.	136.238.	.678		0:25:10.671. Time (H:M:S.r	138.775.520 ms.us.ns.ps)		0:25:10.671.1	141.312.363 0:25:10.671.143.849.	205
Data Dec	ode 🕅										=
C:\Users\nkend	iall\980_Capture_Files_4_8\;	mhlsrcct\results\	07_26_201	13_14_06_1	_XYZ\Test	3_2_3_3_01					
📄 Segmer	nt 🛛 🗷 Events 🗔 Find	d 🔄 Sync		Details	👼 Raw D	ata 🔒	• • All				
Packet											
Facket	Time (H:M:S.ms.u	us.ns.ps)	Frame	Line	Pixel	lype	SubType	Info			
• 1856	Time (H:M:S.ms.u 0:25:10.671.131	us.ns.ps) .400.000	Frame 0	Line 8	Pixel 756	TMDS	SubType AUDSAM	Info Audio Sa	mple Packet(L-	PCM and IEC 61937 compressed formats)	۲
• 1856 • 1857	0:25:10.671.131 0:25:10.671.135	us.ns.ps) .400.000 .170.000	Frame 0 0	Line 8 9	756 0	TMDS TMDS	SubType AUDSAM HSYNC	Info Audio Sa HSYNC 6	mple Packet(L- 52 clocks	PCM and IEC 61937 compressed formats)	۲ ۲
• 1856 • 1857 • 1858	Time (H:M:S.ms.u 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135	.400.000 .170.000 .170.000	Frame 0 0 0	Line 8 9 9	756 0 0	TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC	Info Audio Sa HSYNC 6 VSYNC 5	mple Packet(L- i2 clocks 148 clocks	PCM and IEC 61937 compressed formats)	\$
 1856 1857 1858 1859 	Time (H:M:S.ms.u 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135	us.ns.ps) .400.000 .170.000 .170.000 .580.000	Frame 0 0 0 0	Line 8 9 9 9	Pixel 756 0 0 11	TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP	Info Audio Sa HSYNC 6 VSYNC 5 General 0	imple Packet(L- i2 clocks 148 clocks Control Packet (PCM and IEC 61937 compressed formats) GCP)	•
• 1856 • 1857 • 1857 • 1858 • 1859 • 1860	Time (H:M:S.ms.u 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136	us.ns.ps) 400.000 .170.000 .170.000 .580.000 .765.191	Frame 0 0 0 0 0	Line 8 9 9 9 9	Pixel 756 0 0 11 43	TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF	Info Audio Sa HSYNC 6 VSYNC 5 General 0 AVI InfoF	imple Packet(L- i2 clocks 148 clocks Control Packet (Frame	PCM and IEC 61937 compressed formats) GCP)	8
• 1856 • 1857 • 1858 • 1859 • 1860 • 1861	Time (H:M:S.ms.a 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136	us.ns.ps) .400.000 .170.000 .170.000 .580.000 .765.191 .950.383 .255.74	Frame 0 0 0 0 0 0	Line 8 9 9 9 9 9 9	Pixel 756 0 0 11 43 75	TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF	Info Audio Sa HSYNC 6 VSYNC 5 General C AVI InfoF Audio Inf	imple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame	PCM and IEC 61937 compressed formats) GCP)	3
• 1856 • 1857 • 1858 • 1859 • 1860 • 1861 • 1862 • 1962	Time (H:M:S.ms.a 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.130 0:25:10.671.130	us.ns.ps) .400.000 .170.000 .170.000 .580.000 .765.191 .950.383 .135.574 .220.766	Frame 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9	Pixel 756 0 0 11 43 75 107	TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN	Info Audio Sa HSYNC 6 VSYNC 5 General 0 AVI InfoF Audio Inf Vendor-S	imple Packet(L- i2 clocks 148 clocks Control Packet (irame foFrame Specific InfoFrar	PCM and IEC 61937 compressed formats) GCP) me	8
• 1856 • 1857 • 1858 • 1859 • 1860 • 1861 • 1862 • 1863	Time (H:M:S.ms.a 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136 0:25:10.671.137 0:25:10.671.139 0:25:10.671.140	us.ns.ps) 400.000 170.000 580.000 .765.191 950.383 135.574 .320.766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9	Pixel 756 0 11 43 75 107 139	Type TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSVNC VSVNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5: General C AVI InfoF Audio Inf Vendor-S Source P	mple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame Specific InfoFran roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	8
● 1856 ● 1857 ● 1857 ● 1858 ● 1859 ● 1860 ● 1861 ● 1862 ● 1863 <	Time (H:M:S.ms.i 0.25:10.671.131 0.25:10.671.135 0.25:10.671.135 0.25:10.671.135 0.25:10.671.136 0.25:10.671.137 0.25:10.671.139 0.25:10.671.139	us.ns.ps) 400.000 170.000 170.000 580.000 .765.191 950.383 135.574 .320.766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9	Pixel 756 0 11 43 75 107 139	TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5 General C AVI InfoF Audio Inf Vendor-S Source P	mple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame Specific InfoFrar roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	3
• 1856 • 1857 • 1857 • 1858 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1863	Time (H:M:S.ms.i 0.25:10.671.131 0.25:10.671.135 0.25:10.671.135 0.25:10.671.135 0.25:10.671.136 0.25:10.671.137 0.25:10.671.139 0.25:10.671.140	us.ns.ps) 400.000 170.000 170.000 580.000 .765.191 .950.383 135.574 .320.766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9	Pixel 756 0 0 111 43 75 107 139 pixels	TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5 General C AVI InfoF Audio Int Vendor-S Source P	mple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame Specific InfoFran roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	 • •
• 1856 • 1857 • 1858 • 1859 • 1859 • 1860 • 1861 • 1862 • 1863 < check su scan inf Bar Info	Time (H:M:S.ms.i 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136 0:25:10.671.137 0:25:10.671.139 0:25:10.671.140	us.ns.ps) 400.000 170.000 580.000 .765.191 .950.383 135.574 .320.766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9 9 9	Рихеl 756 0 0 111 43 75 107 139 ріхеls	TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5: General C AVI InfoF Audio Inf Vendor-S Source P	imple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame Specific InfoFran roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	• •
● 1856 ● 1857 ● 1858 ● 1857 ● 1858 ● 1859 ● 1860 ● 1861 ● 1862 ● 1863 ≪ Check su scan inf Bar Info active i DCR/VCC	Time (H:M:S.ms. 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136 0:25:10.671.137 0:25:10.671.139 0:25:10.671.139 0:25:10.671.140 m: : : : : : : : : : : : : :	us.ns.ps) 400.000 170.000 580.000 765.191 950.383 135.574 .320.766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9 5 1 1 1 1 1 1 1 1 1 1	Pixel 756 0 0 111 43 75 107 139 pixels d	TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSVNC VSVNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5: General C AVI InfoF Audio Inf Vendor-S Source P	imple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame Specific InfoFran roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	
• 1856 • 1857 • 1858 • 1857 • 1858 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1863 • 1863 • 1863 • 1863 • 1864 • 1865 • 1865 • 1857 • 1858 • 1859 • 1858 • 1859 • 1859 • 1859 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1863 • 1863 • 1863 • 1864 • 1864 • 1865 • 1865	Time (H:M:S.ms. 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136 0:25:10.671.137 0:25:10.671.139 0:25:10.671.139 0:25:10.671.140 m: :o: :indicator: :ormat:	us.ns.ps) 400,000 170,000 580,000 755,191 950,383 135,574 320,766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9 9 9 4 ctive ata at vali	Pixel 756 0 0 11 43 75 107 139 pixels d	TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5 General 0 AVI InfoF Audio Inf Vendor-S Source P	imple Packet(L- i2 clocks 148 clocks Control Packet (Frame foFrame Specific InfoFran roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	 • •<
• 1856 • 1857 • 1858 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1863 • 1863 • 1863 • 1863 • 1864 • 1865 • 1867 • 1867 • 1858 • 1859 • 1859 • 1859 • 1859 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1863 • 1864 • 1865 • 1865	Time (H:M:S.ms. 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136 0:25:10.671.139 0:25:10.671.139 0:25:10.671.140 m: :: nfo: :: indicator: : :	us.ns.ps) 400,000 170,000 580,000 755,191 950,383 135,574 320,766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9 9 3 4 active ata at vali	Pixel 756 0 0 11 43 75 107 139 pixels d	Type TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5 General 0 AVI InfoF Audio Inf Vendor-S Source P	imple Packet(L- i2 clocks 148 clocks Control Packet (rame foFrame Specific InfoFrar roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	
• 1856 • 1857 • 1858 • 1857 • 1858 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1863 • 1863 • 1863 • 1864 • 1865 • 1857 • 1858 • 1859 • 1859 • 1859 • 1859 • 1859 • 1859 • 1859 • 1859 • 1860 • 1861 • 1862 • 1863 • 1863 • 1864 • 1865 • 186	Time (H:M:S.ms. 0:25:10.671.131 0:25:10.671.135 0:25:10.671.135 0:25:10.671.135 0:25:10.671.136 0:25:10.671.139 0:25:10.671.139 0:25:10.671.140 m: :: nfo: :: indicator: : :	us.ns.ps) 400.000 170.000 580.000 755.191 950.383 135.574 320.766	Frame 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Line 8 9 9 9 9 9 9 9 9 9 9 3 4 active ata at vali	Pixel 756 0 0 11 43 75 107 139 pixels d	Type TMDS TMDS TMDS TMDS TMDS TMDS TMDS TMDS	SubType AUDSAM HSYNC VSYNC GCP AVI IF AUD IF VEN SPD IF	Info Audio Sa HSYNC 6 VSYNC 5: General C AVI InfoF Audio Inf Vendor-S Source P	imple Packet(L- i2 clocks 148 clocks Control Packet (rame foFrame Specific InfoFra roduct Descript	PCM and IEC 61937 compressed formats) GCP) me or InfoFrame	

Rev. A4

4.9 Viewing the MHL Source 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.

Note: The example below shows an MHL 2.1 test. The test operates in a similar fashion for all MHL CTS versions.

To view the html test report:

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

Compliance Test Results Viewer		
MHL Source Compliance Test Results		
Results Name: 07_26_2013_14_06_19_XYZ Manufacturer: Acme Date Tested: July 26, 2013 2:06 PM Model Name: XYZ Overall Status: CTS 2.1 - Incomplete Port Tested: 1		HTML Report
Test Results		
Test Name / Details	Q	Status _
🖌 🗏 3.2.2.1: Legal Codes in Normal Mode		Pass
þ 😝 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	Pass
a 😝 Iter 02: (17,18) 720x576p @ 50 Hz, Basic Audio	15 f	Pass
\ominus 01: Verify that all TMDS chrs belong to either Control, DI		Pass
		Pass
🔺 🗏 3.2.2.2: Basic Protocol in Normal Mode		Pass
þ 😝 Iter 01: (2,3) 720x480p @ 60 Hz, Basic Audio	15 f	Pass
▷ ● Iter 02: (17,18) 720x576p @ 50 Hz, Basic Audio	15 f	Pass
3.2.2.4: Legal Codes in PackedPixel Mode		Skipped
> 3.2.2.5: Basic Protocol in PackedPixel Mode		Skipped
🔺 📃 3.2.3.1: Video Formats in Normal Mode		Pass
⊳ 😝 Iter 01: (2,3) 720x480p @ 60 Hz	15 f	Pass
▶ 😝 Iter 02: (17,18) 720x576p 0 50 Hz	15 f	Pass
3.2.3.2: Pixel Encoding in Normal Mode		Pass
a 😝 Iter 01: (2,3) 720x480p @ 60 Hz, RGB, Chess Pattern	15 f	Pass
○ 01: Test RGB pixel encoding.		Pass
Iter 02: YCbCr444/422 not supported: Manual check		Pass
3.2.3.3: AVI InfoFrame in Normal Mode		Fail
3.2.3.5: Video Formats in PackedPixel Mode		Skipped *
Open Capture 3.2.2.1: Legal Codes in Normal Mode		
Instrument: 980_MB [192.168.254.229]	▼ ▶	Continue Test Execution
		💥 Close

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.

Rev. A4

Generate Report
🗟 HTML Report
07_26_2013_14_06_19_XYZ
Select the desired report options.
Show Test Summary Only.
Include CDF Information.
Cancel V OK

The report includes a summary, the CDF information, a detailed result for each test and the configuration of the 980 when running the test. These are shown on the following screens.

Rest 10 whitercitiveals/07, 28, 2013 14, 06, 19 X/72 Report (GHAm Data Easts: Or 2.6, 2013 14, 06, 19 XYZ Manufacturer: Acme Date Testes: July 26, 2013 2.06 PM Manufacturer: Acme XYZ Manufacturer: Acme Test 3.2.2.1 Test 3.2.2.2 Rest: Test 3.2.3 Test 3.2.3 Test	_ Viewer					
Quantum Data MHL Source Compliance Test Report CTS 2.1 Results Name: 07.26.2013.14.06.19_XYZ Manufacturer Model Name Acme Date Tested: July 26,2013.206 PM Model Name XYZ Overall Status: Incomplete Port Tested: - Test 3.2.2.1 Bass Test 3.2.2.4 Skipped Test 3.2.2.5 Skipped Test 3.2.2.4 Skipped Test 3.2.2.5 Skipped Test 3.2.3.5 Skipped Test 3.2.2.3 Fail Test 3.2.4.2 Incomplete Test 3.2.6.3 Fail Test 3.2.4.3 Incomplete Test 3.2.2.5 Skipped Test 3.2.3.5 Skipped Test 3.2.2.3 Fail Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.9.3 Skipped Test 3.2.9.2 Skipped Test 3.2.9.4 Skipped CDF Culpment Info Col Col CDF Equipment Info Acme CDF General Quipment Info Acme CDF Organization Form (CDF) Acme CDF CDF Com Acme CDF		C:\Users\nke	ndall\980_Capture_Files_4_8\mhlsrco	:t\results\07_26_2013_14_06_19_XY	Z\Report_Cdf.htm	
Results Name: Date Tested: 07_26_2013_14_06_19_XYZ July 26, 2013 2:06 PM Manufacturer: Model Name: XYZ Port Tested: Acme XYZ Overall Status: Incomplete Port Tested: - Report Index / Summary Test 3.2.2.1 	Report generated on: July 26, 2013 2:33 PM	MHL	Quantu Source Comp CTS	<u>m Data</u> bliance Test F 5 2.1	Report	uuru quantumdata.com
Report Index / Summary Test 3.2.2.1 Pass Test 3.2.2.2 Pass Test 3.2.3.2 Pass Test 3.2.2.5 Skipped Test 3.2.3.1 Pass Test 3.2.3.2 Pass Test 3.2.3.3 Fail Test 3.2.3.5 Skipped Test 3.2.4.3 Incomplete Test 3.2.4.1 Incomplete Test 3.2.4.2 Incomplete Test 3.2.8.1 Fail Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped CDF CDF Equipment Info Test 3.2.9.4 Skipped Test 3.2.9.4 Skipped CDF_ Equipment Info Test 3.2.9.4 Skipped Test 3.2.9.4 Skipped CDF_OTS_VERSION CDF_OTS_VERSION 2.1 CDF 2.1 CDF_MIFR_NAME Acme CDF_MOPEL_NUMBER XYZ YZ YZ YZ YZ YZ CDF_MISUPPORT YES YES YES YES YES YES	Re I Ove	sults Name: Date Tested: rall Status:	07_26_2013_14_06_ July 26, 2013 2:0 Incomplete	19_XYZ 6 PM	M	lanufacturer: Acme lodel Name: XYZ Port Tested: -
Report Index / Summary Test 3.2.2.1 Pass Test 3.2.2.2 Pass Test 3.2.2.4 Skipped Test 3.2.2.5 Skipped Test 3.2.3.1 Pass Test 3.2.3.2 Pass Test 3.2.3.3 Fail Test 3.2.3.5 Skipped Test 3.2.3.6 Skipped Test 3.2.4.1 Incomplete Test 3.2.4.2 Incomplete Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped CDF Equipment Info						
Test 3.2.2.1 Pass Test 3.2.2.2 Pass Test 3.2.3.4 Skipped Test 3.2.2.5 Skipped Test 3.2.3.1 Pass Test 3.2.3.2 Pass Test 3.2.3.3 Fail Test 3.2.3.5 Skipped Test 3.2.3.6 Skipped Test 3.2.4.1 Incomplete Test 3.2.4.2 Incomplete Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped			Report Inde	x / Summary		
Test 3.2.2.5 Skipped Test 3.2.3.1 Pass Test 3.2.3.2 Pass Test 3.2.3.3 Fail Test 3.2.3.5 Skipped Test 3.2.3.6 Skipped Test 3.2.4.1 Incomplete Test 3.2.4.2 Incomplete Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped	Test 3.2.2.1	Pass	Test 3.2.2.2	Pass	Test 3.2.2.4	Skipped
Test 3.2.3.3 Fail Test 3.2.3.5 Skipped Test 3.2.3.6 Skipped Test 3.2.4.1 Incomplete Test 3.2.4.2 Incomplete Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped CDF_ Equipment Info_	Test 3.2.2.5	Skipped	Test 3.2.3.1	Pass	Test 3.2.3.2	Pass
Test 3.2.4.1 Incomplete Test 3.2.4.2 Incomplete Test 3.2.4.3 Incomplete Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped CDF Equipment Info	Test 3.2.3.3	Fail	Test 3.2.3.5	Skipped	Test 3.2.3.6	Skipped
Test 3.2.6.3 Fail Test 3.2.6.4 Skipped Test 3.2.8.1 Fail Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped Test 3.2.9.4 Skipped CDF Equipment Info Equipment Info Equipment Info Equipment Info CDF_Capabilities Declaration Form (CDF) Capabilities Declaration Form (CDF) CDF_CTS_VERSION CDF_MIR_NAME CDF_MIR_NAME CDF_MIR_NAME CDF_MIR_NAME CDF_MODEL_NUMBER YES CDF_AVI_SUPPORT YES YES	Test 3.2.4.1	Incomplete	Test 3.2.4.2	Incomplete	Test 3.2.4.3	Incomplete
Test 3.2.9.2 Skipped Test 3.2.9.3 Skipped CDF Equipment Info Capabilities Declaration Form (CDF) General CDF_CTS_VERSION 2.1 CDF_MIFR_NAME Acme CDF_MODEL_NUMBER XYZ CDF_MOPEL_NUMBER YES CDF_AVI_SUPPORT YES	Test 3.2.6.3	Fail	Test 3.2.6.4	Skipped	Test 3.2.8.1	Fail
CDF Equipment Info Capabilities Declaration Form (CDF) General CDF_CTS_VERSION 2.1 CDF_MIFR_NAME Acme CDF_MODEL_NUMBER XYZ CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES	Test 3.2.9.2	Skipped	Test 3.2.9.3	Skipped	Test 3.2.9.4	Skipped
Capabilities Declaration Form (CDF) General CDF_CTS_VERSION 2.1 CDF_MFR_NAME Acme CDF_MODEL_NUMBER XYZ CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES CDF_MUC_SUPPORT YES		DF	Equipm	ent Info		
General CDF_CTS_VERSION 2.1 CDF_MFR_NAME Acme CDF_MODEL_NUMBER XYZ CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES			Capabilities Declar	ration Form (CDF)		
CDF_CTS_VERSION 2.1 CDF_MFR_NAME Acme CDF_MODEL_NUMBER XYZ CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES			Gen	eral		
CDF_MFR_NAME Acme CDF_MODEL_NUMBER XYZ CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES	CDF_CTS_VERSION					2.1
CDF_MODEL_NUMBER XYZ CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES	CDF_MFR_NAME					Acme
CDF_HDCP_SUPPORT YES CDF_AVI_SUPPORT YES	CDF_MODEL_NUMB	ER				XYZ
CDF_AVI_SUPPORT YES	CDF HDCP SUPPOR	Т				YES
	CDF_AVI_SUPPORT					YES
	OPE AUDIO CUDDO					100

Н

ML Viewer			
C:\Users\nkendall\980_Capture_Files_4_8\mhlsrcct\results\07_26_2013_14_06_19_XYZ\Report_Cdf.htm			
Test 3.2.3.1 Video Formats in Normal Mode		Pass	^
• Iter 01: (2,3) 720x480p @ 60 Hz		Pass	
• 01: Verify pixel clock rate.	Pass		
• 02: Verify HS Front porch.	Pass		
• 03: Verify HS_LEN.	Pass		
• 04: Verify Hsync back porch.	Pass		=
• 05: Verify H_ACTIVE.	Pass		
• 06: Verify H Sync Polarity.	Pass		
• 07: Verify V Sync front porch.	Pass		
• 08: Verify VS_LEN.	Pass		
• 09: Verify V Sync back porch.	Pass		
• 10: Verify V_ACTIVE.	Pass		
• 11: Verify V Sync polarity.	Pass		
• 12: Verify offset between VSync and HSync active edge.	Pass		
• Iter 02: (17,18) 720x576p @ 50 Hz		Pass	
• 01: Verify pixel clock rate.	Pass		
• 02: Verify HS Front porch.	Pass		
• 03: Verify HS_LEN.	Pass		
• 04: Verify Hsync back porch.	Pass		
• 05: Verify H_ACTIVE.	Pass		
• 06: Verify H Sync Polarity.	Pass		
• 07: Verify V Sync front porch.	Pass		
• 08: Verify VS_LEN.	Pass		
• 09: Verify V Sync back porch.	Pass		
💠 Back 🌩 Fo	rward 🛛 🔚 Sa	ve As 🛛 💢 Close	

Page 114

Rev. A4

st 3.2.3.2		
l Encoding in Normal Mode		Pass
Iter 01: (2,3) 720x480p @ 60 Hz, RGB, Chess Pattern		Pass
• 01: Test RGB pixel encoding.	Pass	
Iter 02: YCbCr444/422 not supported: Manual check		Pass
st 3.2.3.3 InfoFrame in Normal Mode		Fail
Iter 01: (2,3) 720x480p @ 60 Hz, Chess Pattern		Fail
• 01: Test AVT occurrence every 2 video field.	Pass	
• 02: Test AVI version is 2.	Pass	
• 03: Test AVI aspect ratio.	Pass	
• 04: Test RGB or YCC coding is proper.	Pass	
• 05: Test Overscan/Underscan bits.	Pass	
• 06: Test Pixel repetition factor.	Pass	
• 07: Test VIC is correct.	Fail	
 Incorrect Video Identification Code: 0, expected: 2 or 3 16922 130 0 9 43 1510671135.58 450497 AVI InfoFrame [Frame 000, Line 0009, Pixel 43] Incorrect Video Identification Code: 0, expected: 2 or 3 34318 130 1 9 74 1510687818.94 900978 AVI InfoFrame [Frame 001, Line 0009, Pixel 74] Incorrect Video Identification Code: 0, expected: 2 or 3 52231 130 2 9 43 1510704502.38 1351397 AVI InfoFrame [Frame 002, Line 0009, Pixel 43] Incorrect Video Identification Code: 0, expected: 2 or 3 69639 130 3 9 43 1510721185.78 1801847 AVI InfoFrame [Frame 003, Line 0009, Pixel 43] Incorrect Video Identification Code: 0, expected: 2 or 3 69639 130 3 9 43 1510721185.78 1801847 AVI InfoFrame 		
 [r rame 004, june 0009, Pixel 43] Incorrect Video Identification Code: 0, expected: 2 or 3 104443 130 5 9 43 1510754552.58 2702747 AVI InfoFrame [Frame 005, Line 0009, Pixel 43] Incorrect Video Identification Code: 0, expected: 2 or 3 121851 130 6 9 74 1510771235.95 3153228 AVI InfoFrame [Frame 006, Line 0009, Pixel 74] 		
 incorrect video identification Code: 0, expected: 2 or 3 139232 130 7 9 43 1510787919.39 3603647 AVI InfoFrame [Frame 007, Line 0009, Pixel 43] Incorrect Video Identification Code: 0, expected: 2 or 3 157160 130 8 9 43 1510804602.79 4054097 AVI InfoFrame 		

wer	
	C:\Users\nkendall\980_Capture_Files_4_8\mhlsrcct\results\07_26_2013_14_06_19_XYZ\Report_Cdf.htm
	l est Equipment Information
	Instrument
	<pre>Name: 980_MB IP Address: 192.168.254.229 Net Mask: 255.255.255.0 Gareway IP: 192.168.254.1 Free Space: 68.04 GB of 162.23 GB (41.9%) Version: Advanced Test platform Version: 4.8.9 HDMI 980 protocol Analyzer in slot 0 [DDR 2048MB]: Gareware: [Version: 4.7.7 Build Number: 1 (04:22:2013) Gen: 3 pcb: 297b/D] Firmware: [Version: 4.7.7 Build Number: 8096 (mblair 07:18:2013 10:39:42 CDT)] HDMI Video Generator in slot 1: Gareware: [Version: 4.7.6 Build Number: 2 (05:21:2013 00) pcb: 297b C] Firmware: [Version: 4.7.6 Build Number: 8093 (mblair 07:18:2013 10:37:55 CDT)] System Information: System SN : [6779FAFE00C2657::10000] HDMI PA SN : [A7399D010000::NA] Main Board : ["SandyBridge Platform"] CFUx2 : [6.42.7 "Intel(R) Celeron(R) CFU G530 § 2.40GHz"] DDR : [2 GB+ 512 MB] HD : [SISDC2CT10] OS : [Linux xpscope-4a 2.6.26-2-686 \$1 SMP Sun Mar 4 22:19:19 UTC 2012 1686 GNU/Linux] GUI mmanger : [Version 4.8.99 99182_201307250940] 1 : [10 intel 192.168.254.229/24 brd 192.168.254.255 scope global eth0] FCIE3 : [2.5x8] HDMI SNE CT : [4.7.4] HDCP SNE CT : [4.7.4] HDCP SNE CT : [4.7.4] HDCP SNE CT : [4.7.4] HDL SNE VETS: [4.1.8] MHL SNE CT : [4.7.20] HDMI STME VETS: [4.1.8]</pre>
	Host
	UI Name: Quantum Data 980 Manager - Version 4.8.99 UI Home: platform:/base/plugins/com.quantumdata.1980.app2 Java Vendor: Null Java Runtme: 1.6.0_15-b03 Java Home: C:\Users\nkendall\Desktop\980_Release_MHL_NewGUI_4.8.99.99182_Win\980mgr\jre OS: win32 OS Arch: x86 Locale: en_US Free Space: 10.95 GB of 223.47 GB (4.9%)
ted on:	July 26, 2013 2:33 PM
	Back Provard Prova Provard Provard Pro

END OF USER GUIDE