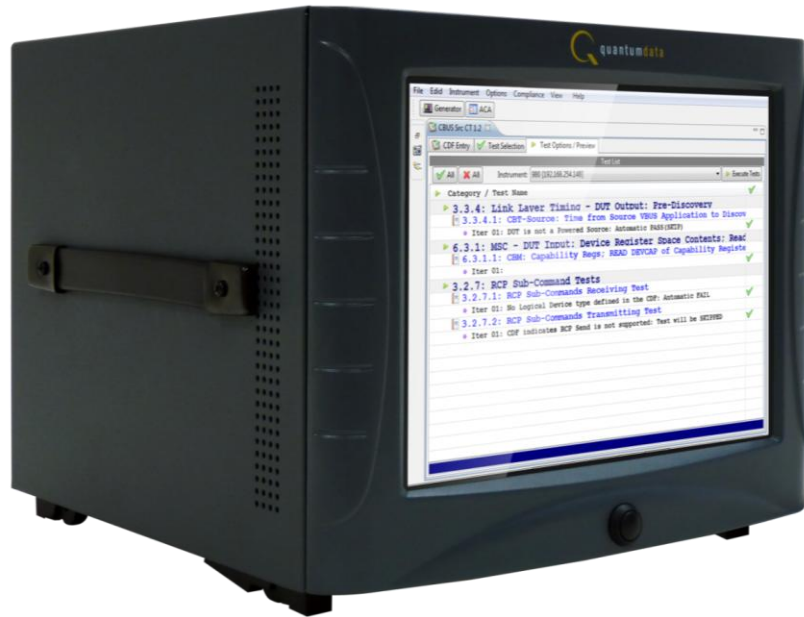




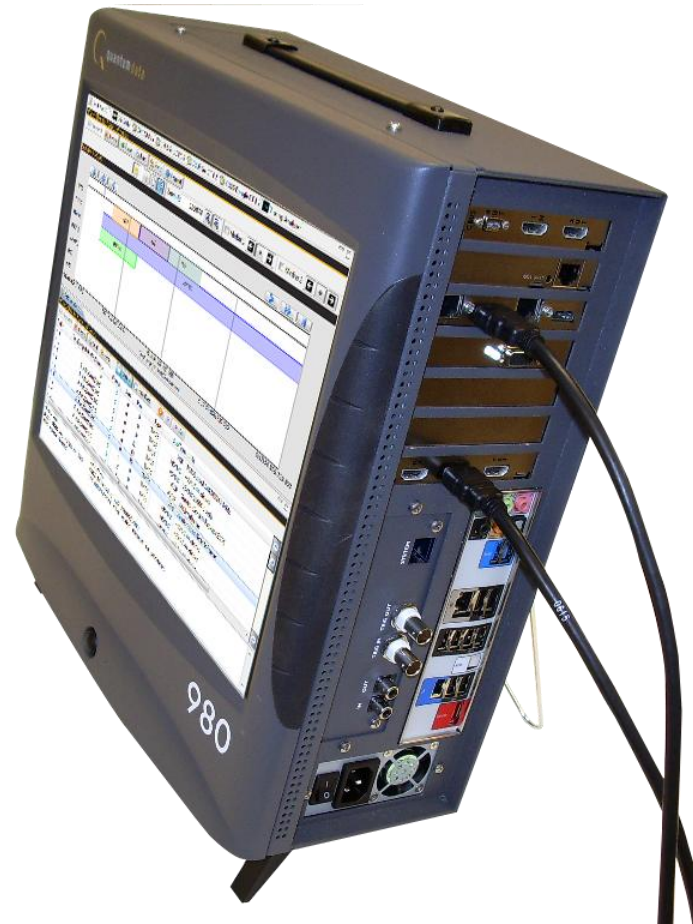
quantumdata

980 MHL CBUS Compliance Testing

980 MHL CBUS Compliance Testing



980 Advanced Test Platform

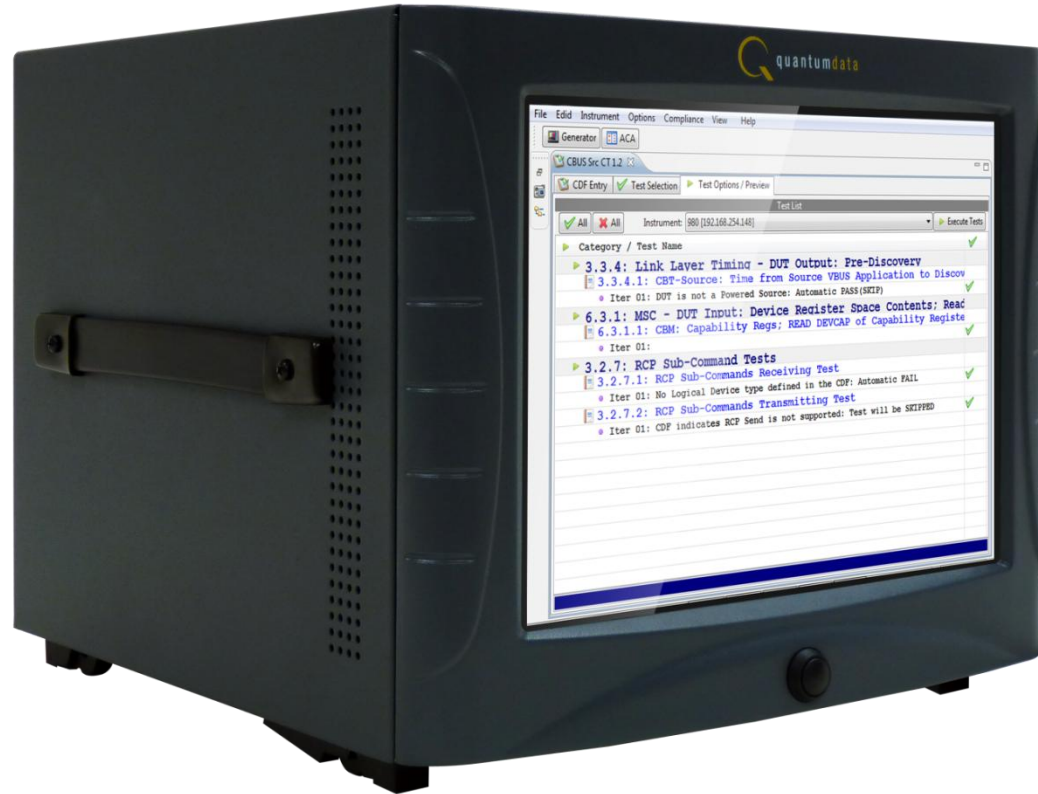


980B Advanced Test Platform

CBUS Compliance Test Module:

- Equipped in either the Advanced Test Platform:
 - 980
 - 980B

980 MHL CBUS Compliance Testing



CBUS Compliance requires new module:
980 MHL CBUS Compliance Module
No external equipment or devices required.

980 MHL CBUS Source Compliance Test Coverage

- MHL CBUS source compliance tests currently supported through 980 MHL CBUS Compliance Test Module:
 - CBUS compliance test support for MHL Source devices per MHL CTS 1.2 & 2.0.
 - Test 3.1.1.7: Rx Sense Impedance test (MHL 2.0).
 - Section 3.2.6: EDID and Device Capability Registers tests.
 - Section 3.2.7: RCP tests.
 - Section 3.2.10: UCP tests (MHL 2.0).
 - Sections 3.3.1 through 3.3.23: Link Layer electrical and timing tests.
 - Section 6.3.1 through 6.3.22: Common MSC & DDC tests.

980 MHL CBUS Sink & Dongle Compliance Coverage

- MHL CBUS sink and dongle compliance tests supported through 980 MHL CBUS Compliance Test Module:
 - CBUS compliance test support for Sinks and Dongles with support for MHL CTS 1.2 & 2.0.
 - Tests 4.1.1.7/5.1.1.7/8: Rx Sense Impedance test (MHL 2.0).
 - Sections 4.2.5/5.2.5: EDID and Device Capability Registers tests.
 - Sections 4.2.6/5.2.6: RCP tests.
 - Sections 4.2.9/5.2.9: UCP tests (MHL 2.0).
 - Sections 4.3.3/5.3.3 through 4.3.25/5.3.26: Link Layer electrical and timing tests.
 - Section 6.3.1 through 6.3.22: Common MSC & DDC tests.

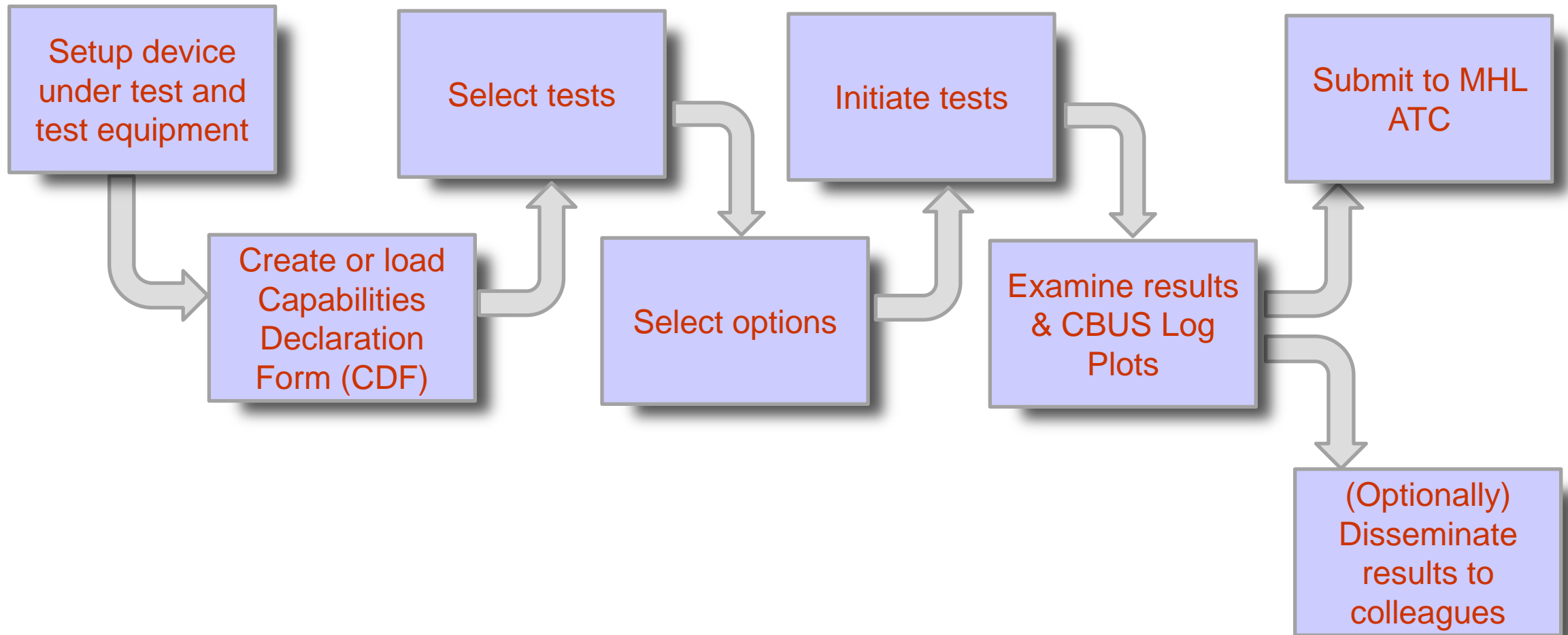
Additional 980 MHL Compliance Test Coverage

- MHL Source and Sink Compliance – Approved by MHL Consortium – supported through **980 HDMI Protocol Analyzer module**:
 - MHL source compliance tests in Sections 3.2.2, 3.2.3, 3.2.4 of MHL Compliance Test Specification version 1.2.
 - MHL sink/dongle compliance tests in Sections 4.2.1/5.2.1, 4.2.2/5.2.2, 4.2.3/5.2.3 of MHL Compliance Test Specification.
- Quantum Data 882EA supports HDCP compliance testing for MHL sources Sections 3.2.5 and sinks Section 4.2.4/5.2.4.

MHL CBUS Source Compliance Test Module - Benefits

- **Pre-Testing** - Invaluable tool for ensuring that your MHL source device is compliant. Ideal solution for pre-testing prior to submission to ATC.
No external equipment or devices required.
- **Faster Time to Market** - Enables you to get your product to market quicker by avoiding submission delays at the ATC. And reduces expenses of submission to ATC.
- **Root Cause Identification** - Optimized for debugging compliance test failures; Solution provides easy access to the raw MHL CBUS event data in the Event Log Plots to view the details about the failure.
- **Data Portability** - Enables you to share test results, CBUS Log Plots and captured data with other subject matter experts without requiring a 980. Use 980 GUI Manager available from Quantum Data website.

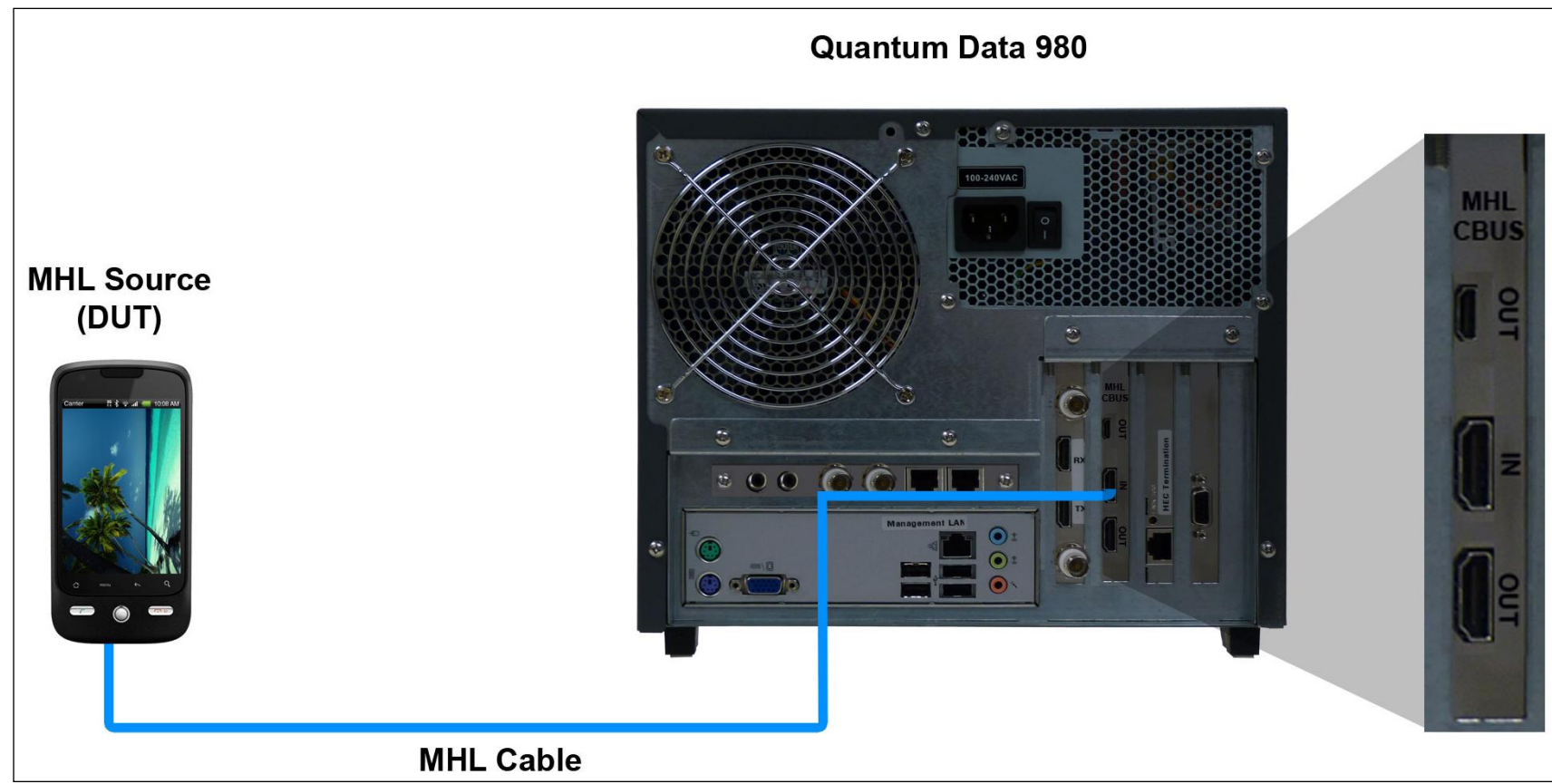
MHL CBUS Compliance - Workflow



MHL CBUS Source Compliance Testing

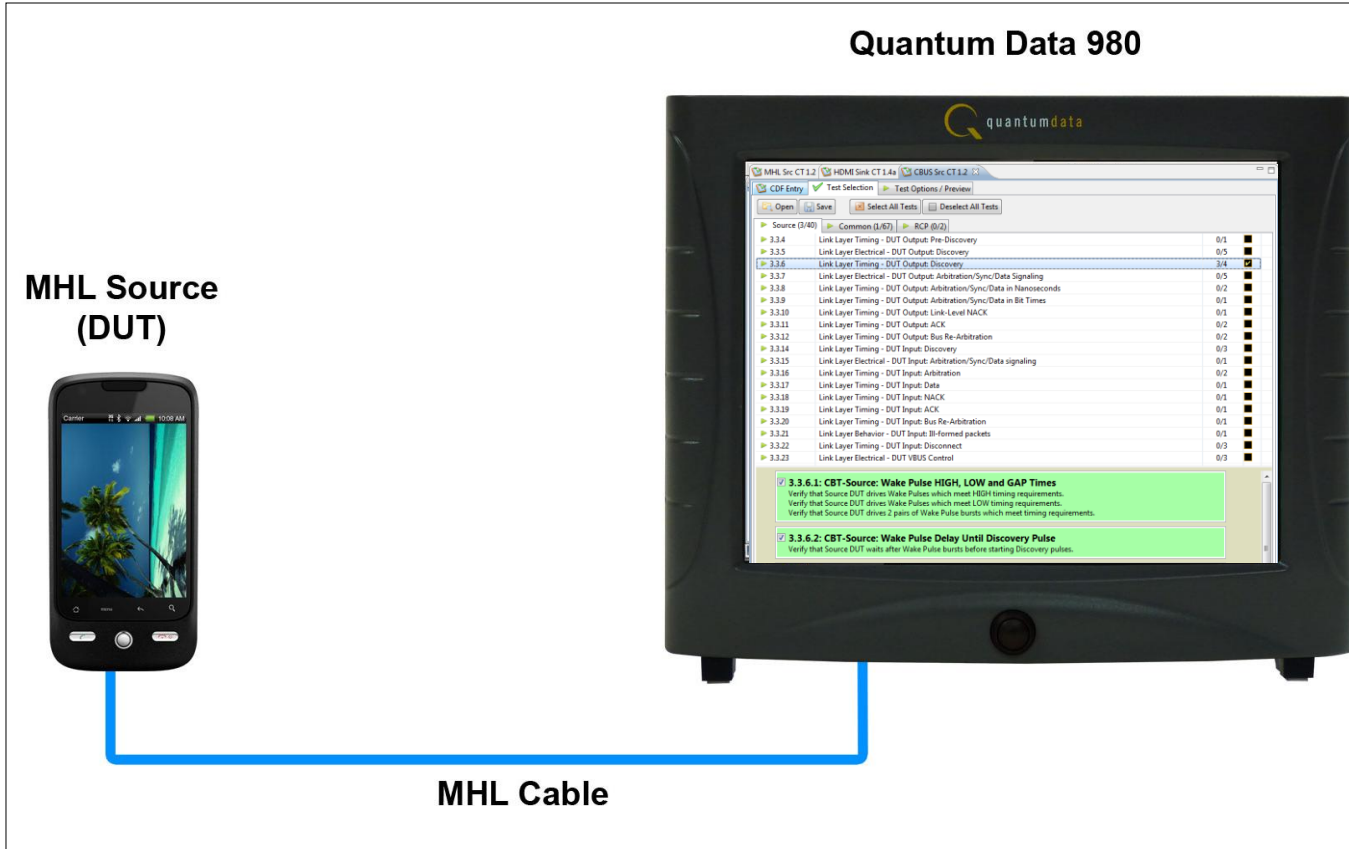
MHL CBUS Source Compliance Test – Setup

- Test setup with external GUI shown below



MHL CBUS Source Compliance Test – Setup

- Run tests through the embedded GUI.



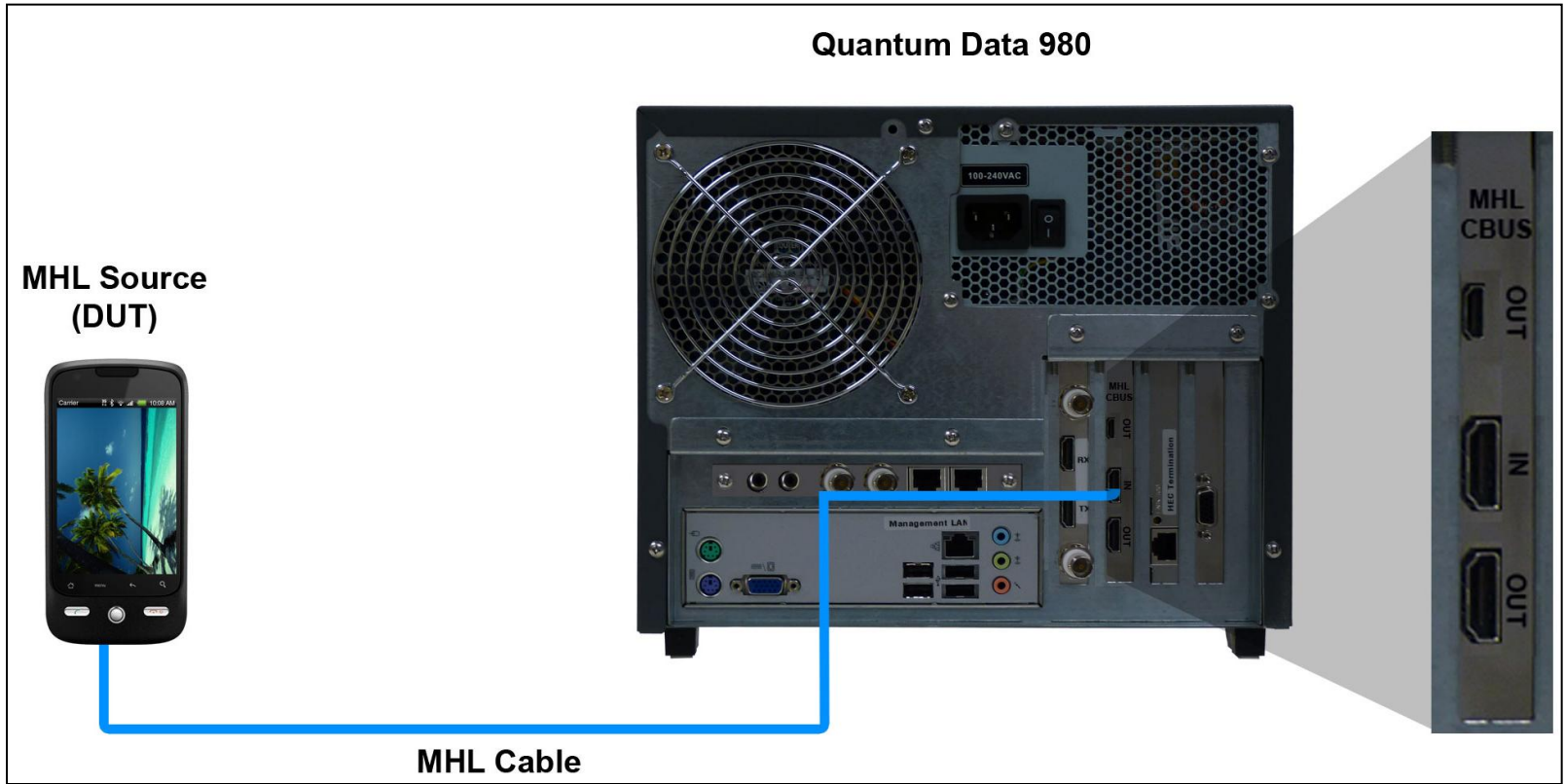
MHL CBUS Source Compliance Test – Setup

- Run tests through the external GUI.



MHL CBUS Source Compliance Test – Setup

- Rear connections to CBUS module.



MHL CBUS Source Compliance - CDF

The screenshot shows the 'CDF Entry' software window with the 'General' tab selected. The interface includes a menu bar with 'Open', 'New', and 'Save' options, and a toolbar with 'Test Selection' and 'Test Options / Preview' buttons. The 'CDF File' is currently '<not saved>'. Below the toolbar, there are several tabs for different test categories: 'General', 'Registers', 'RCP Rcv', 'RCP Send', 'RCP LD Map', 'UCP Rcv (2.0)', 'UCP Send (2.0)', and '3D Video (2.0)'. The 'General' tab is active and contains the following fields:

CDF_CTS_VERSION	CTS Version to test <input type="radio"/> 1.2 <input checked="" type="radio"/> 2.0
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_SRC_POWERED	Can the Source drive the VBUS? <input checked="" type="radio"/> Yes <input type="radio"/> No
CDF_SRC_CBUS_THRESHOLD_V	Voltage at which CBUS Timing Measurements should be taken. This voltage should be halfway between the HIGH and LOW CBUS voltages for data driven by this device. This will be related to the device's VOH. 0.90 V (0.75 to 1.05)
CDF_PROC_SET_ACTIVE	Set Device into Active Mode for Discovery Tests. Edit Procedure
CDF_PROC_SET_STANDBY	Set Device into Standby-Discover Mode. Edit Procedure

CDF:

- Defines the capabilities of the device under test.
- Provides a series of tabs for each type of feature.
- Provides description of each field.
- Example: General tab.
- Determines which tests to run.

Note: You can enter helpful information using the “Edit Procedure” dialog box. The information entered into this dialog box will appear during the test and can be helpful to users running a particular test.

MHL CBUS Source Compliance - CDF

Event Plot HDMI Src CT 1.4b CBUS Src CT 2.0

CDF Entry Test Selection Test Options / Preview

Open New Save CDF File: <not saved>

General Registers RCP Rcv RCP Send RCP LD Map UCP Rcv (2.0) UCP Send (2.0) 3D Video (2.0)

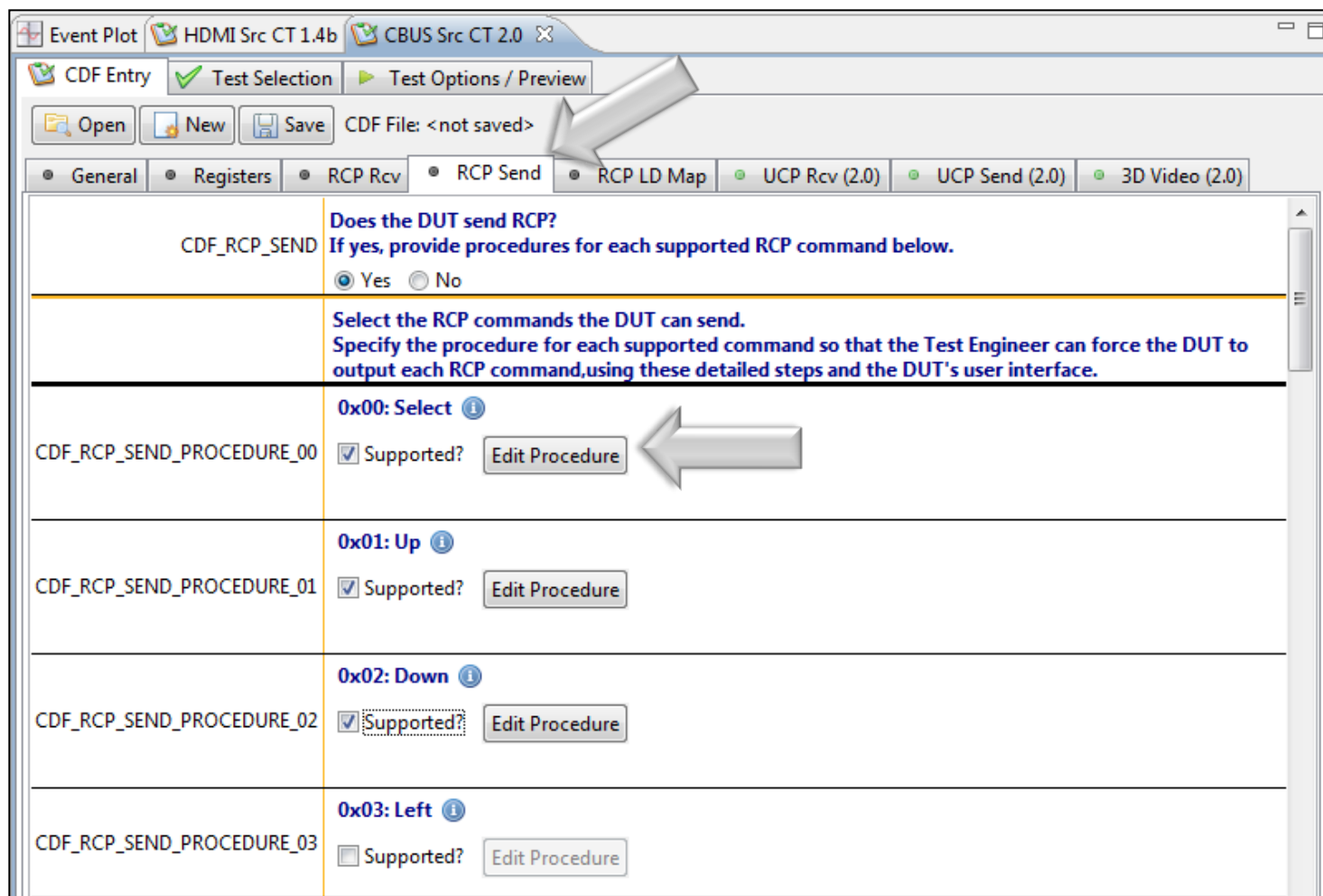
Declare the expected value of each of the DUT's Capability Registers.

CDF_CR_MHL_VER_MAJOR	Register: MHL_VERSION	Field: MHL_VER_MAJOR
	<input type="text" value="1"/>	
CDF_CR_MHL_VER_MINOR	Register: MHL_VERSION	Field: MHL_VER_MINOR
	<input type="text" value="0"/>	
CDF_CR_DEV_TYPE	Register: DEV_CAT	Field: DEV_TYPE
	<input type="radio"/> (1) Sink <input checked="" type="radio"/> (2) Source <input type="radio"/> (3) Dongle	
CDF_CR_ADOPTER_ID_H	Register: ADOPTER_ID_H	Field: ADOPTER_ID_H
	<input type="text" value="0"/>	00 - FF
CDF_CR_ADOPTER_ID_L	Register: ADOPTER_ID_L	Field: ADOPTER_ID_L
	<input type="text" value="0"/>	00 - FF
CDF_CR_DEVICE_ID_H	Register: DEVICE_ID_H	Field: DEVICE_ID_H
	<input type="text" value="0"/>	00 - FF
CDF_CR_DEVICE_ID_L	Register: DEVICE_ID_L	Field: DEVICE_ID_L
	<input type="text" value="0"/>	00 - FF
CDF_CR_BANDWIDTH	Register: BANDWIDTH	Field: BANDWIDTH
	<input type="text" value="15"/>	5..15
CDF_CR_INT_SIZE	Register: INT_STAT_SIZE	Field: INT_SIZE
	<input type="text" value="4"/>	4..15
CDF_CR_STAT_SIZE	Register: INT_STAT_SIZE	Field: STAT_SIZE
	<input type="text" value="4"/>	4..15
CDF_CR_SP_SIZE	Register: SCRATCHPAD_SIZE	Field: SP_SIZE
	<input type="text" value="0"/>	0 or 16..64

CDF:

- Example: Registers CDF tab.

MHL CBUS Source Compliance - CDF

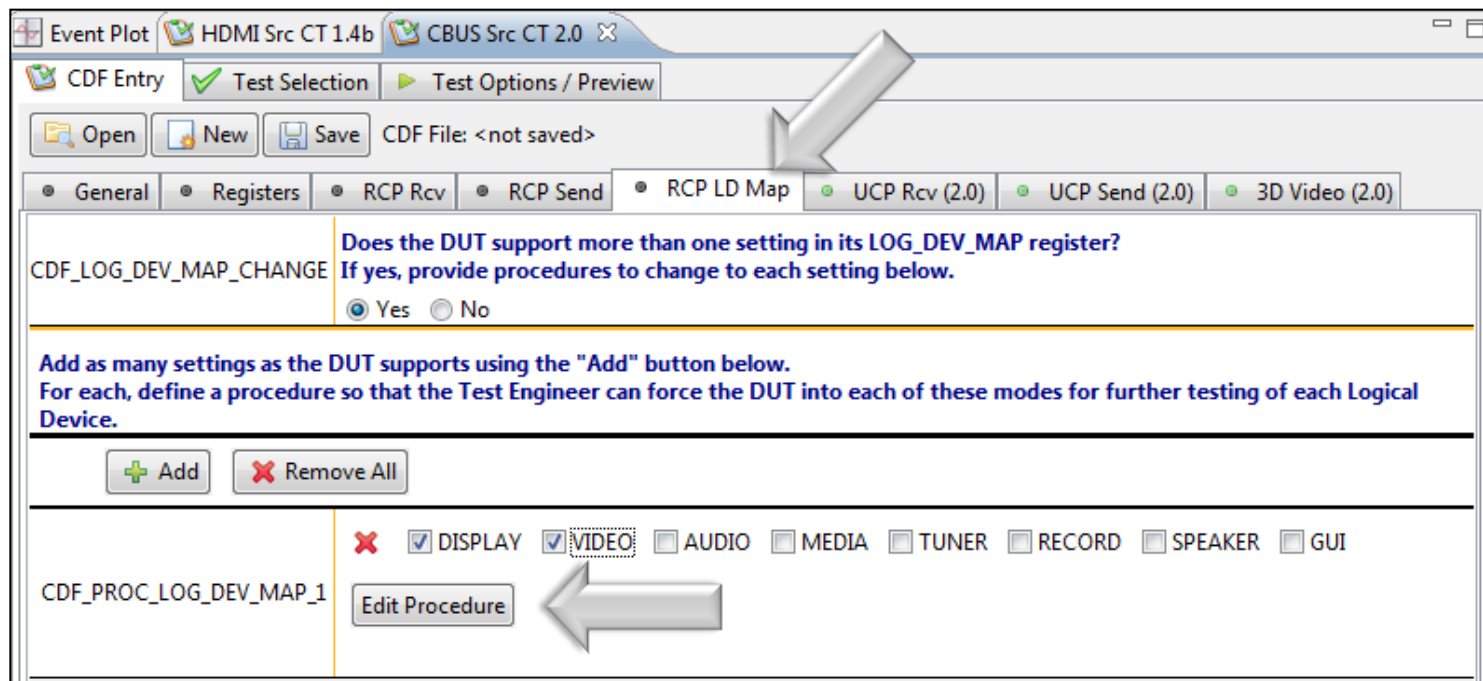


CDF:

- Example: RCP Send Tab.

Note: You can enter helpful information using the “**Edit Procedure**” dialog box. The information entered into this dialog box will appear during the test and can be helpful to users running a particular test.

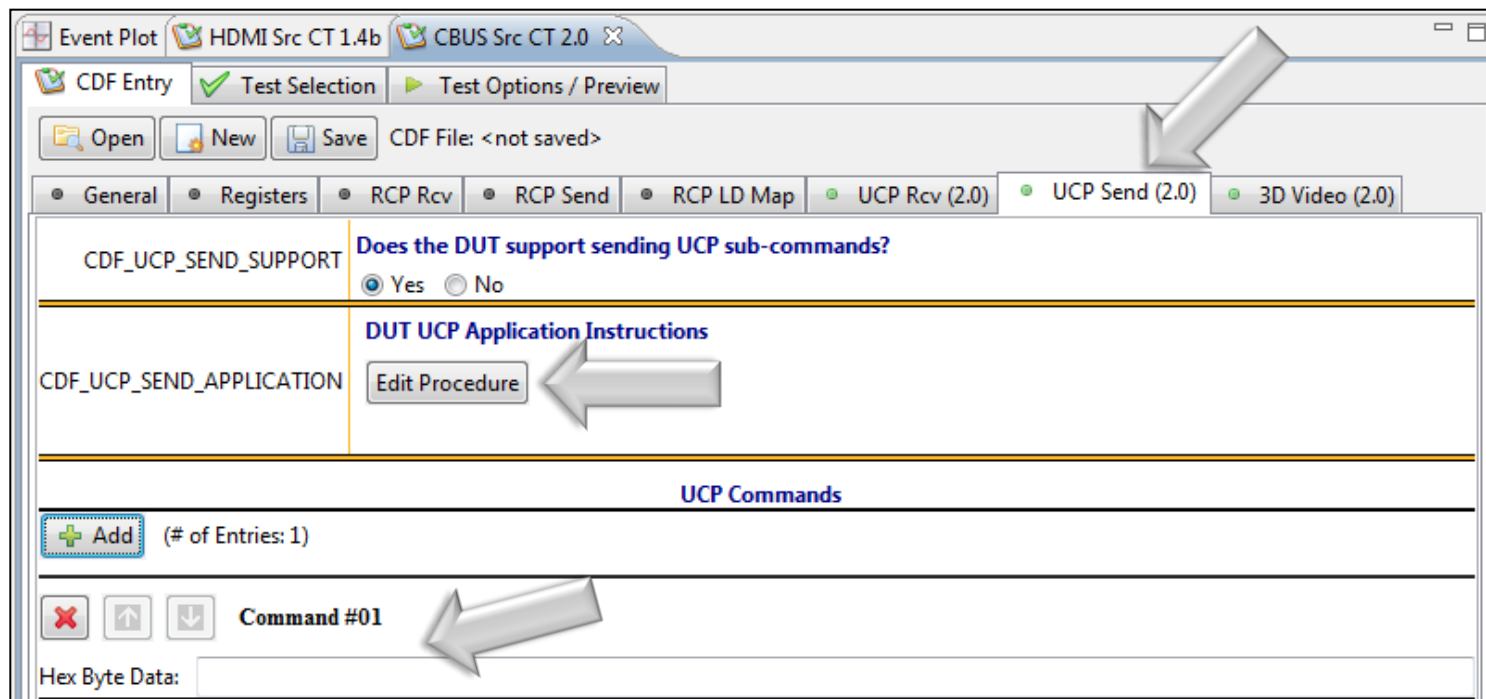
MHL CBUS Source Compliance - CDF



CDF:

- Example: RCP LD Map Tab.
Note: You can enter helpful information using the “**Edit Procedure**” dialog box. The information entered into this dialog box will appear during the test and can be helpful to users running a particular test.

MHL CBUS Source Compliance - CDF



CDF:

- Example: UCP Send Tab.

Note: You can enter helpful information using the “**Edit Procedure**” dialog box. The information entered into this dialog box will appear during the test and can be helpful to users running a particular test.

- Enter the UCP commands supported in the command section at the lower portion of the window.

MHL CBUS Source Compliance - CDF

CDF Entry Test Selection Test Options / Preview

Open New Save CDF File: <not saved>

General Registers RCP Rcv RCP Send RCP LD Map UCP Rcv (2.0) UCP Send (2.0) 3D Video (2.0)

CDF_VIDEO_3D Does the DUT support 3D video?
 Yes No

Supported Normal Mode 3D Video Formats

CDF_VIDEO_1280x720P_60_3D_Top_Bottom	<input checked="" type="radio"/> Yes <input type="radio"/> No	(4)	1280x720p 59.94/60Hz, 3D, Top-Bottom
CDF_VIDEO_1280x720P_50_3D_Top_Bottom	<input checked="" type="radio"/> Yes <input type="radio"/> No	(19)	1280x720p 50Hz, 3D, Top-Bottom
CDF_VIDEO_1920x1080p_24_Top_Bottom	<input checked="" type="radio"/> Yes <input type="radio"/> No	(32)	1920x1080p 23.97/24Hz, 3D, Top-Bottom
CDF_VIDEO_1920x1080i_60_3D_Left_Right	<input checked="" type="radio"/> Yes <input type="radio"/> No	(5)	1920x1080i 59.94/60Hz, 3D, Left-Right
CDF_VIDEO_1920x1080i_50_3D_Left_Right	<input checked="" type="radio"/> Yes <input type="radio"/> No	(20)	1920x1080i 50Hz, 3D, Left-Right
CDF_VIDEO_1280x720P_60_3D_Frame	<input checked="" type="radio"/> Yes <input type="radio"/> No	(4)	1280x720p 59.94/60Hz, 3D, Frame-Sequential
CDF_VIDEO_1280x720P_50_3D_Frame	<input checked="" type="radio"/> Yes <input type="radio"/> No	(19)	1280x720p 50Hz, 3D, Frame-Sequential
CDF_VIDEO_1920x1080p_24_Frame	<input checked="" type="radio"/> Yes <input type="radio"/> No	(32)	1920x1080p 23.97/24Hz, 3D, Frame-Sequential

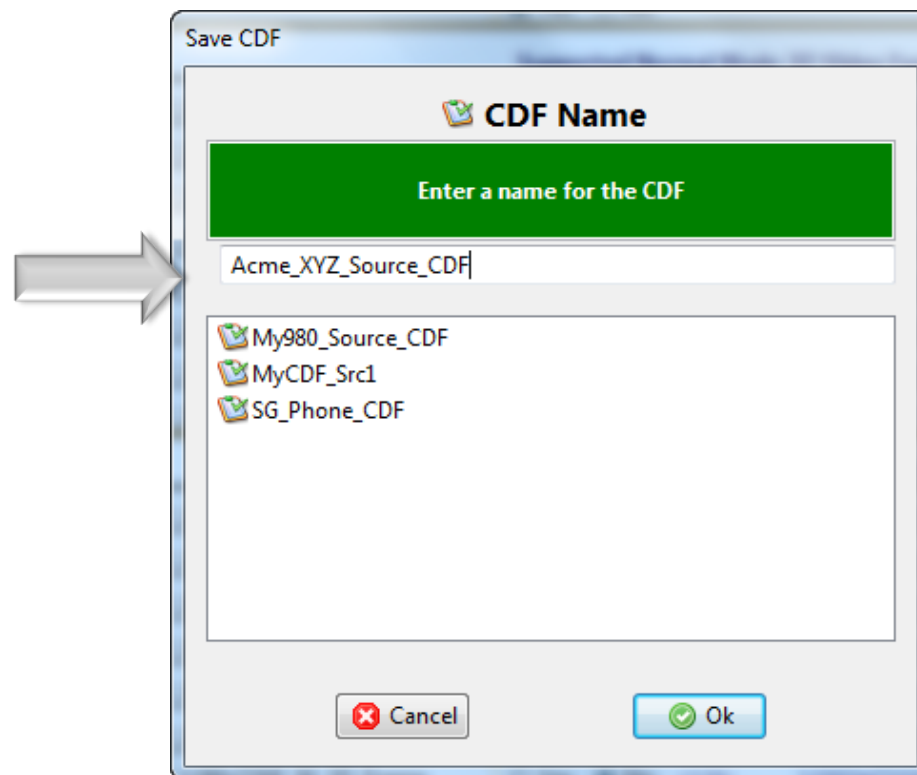
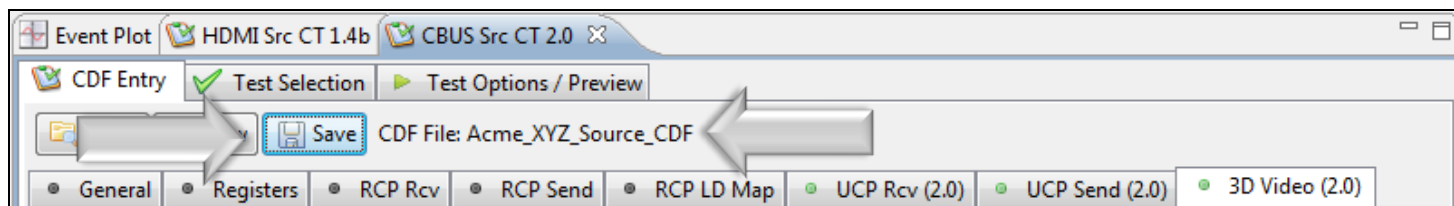
Supported PixelPacked Mode 3D Video Formats

CDF_VIDEO_1280x720P_60_3D_Top_Bottom	<input type="radio"/> Yes <input checked="" type="radio"/> No	(4)	1280x720p 59.94/60Hz, 3D, Top-Bottom
CDF_VIDEO_1280x720P_50_3D_Top_Bottom	<input type="radio"/> Yes <input checked="" type="radio"/> No	(19)	1280x720p 50Hz, 3D, Top-Bottom

CDF:

- Example: 3D Video Tab.
- Indicate the 3D formats supported.

MHL CBUS Source Compliance - CDF

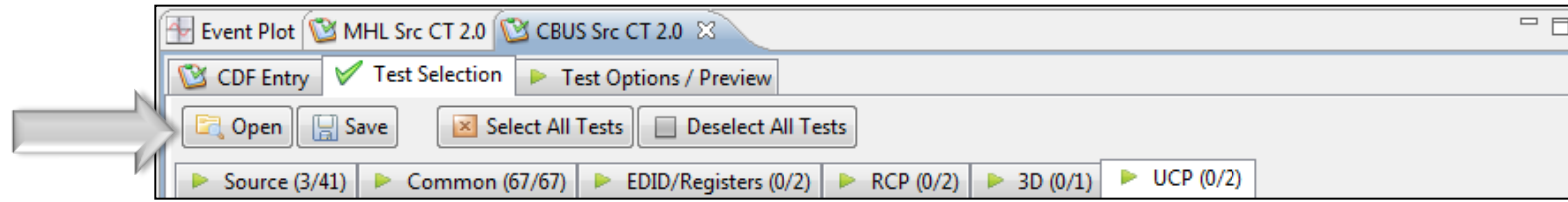


CDF:

- CDF file used is shown in status area on top of panel. Indicates file used or “not saved”.
- Save and reuse CDF definitions.
- Saves time of re-entering data.
- Files can be transferred to colleagues to help expedite product capability selection process in a test series.

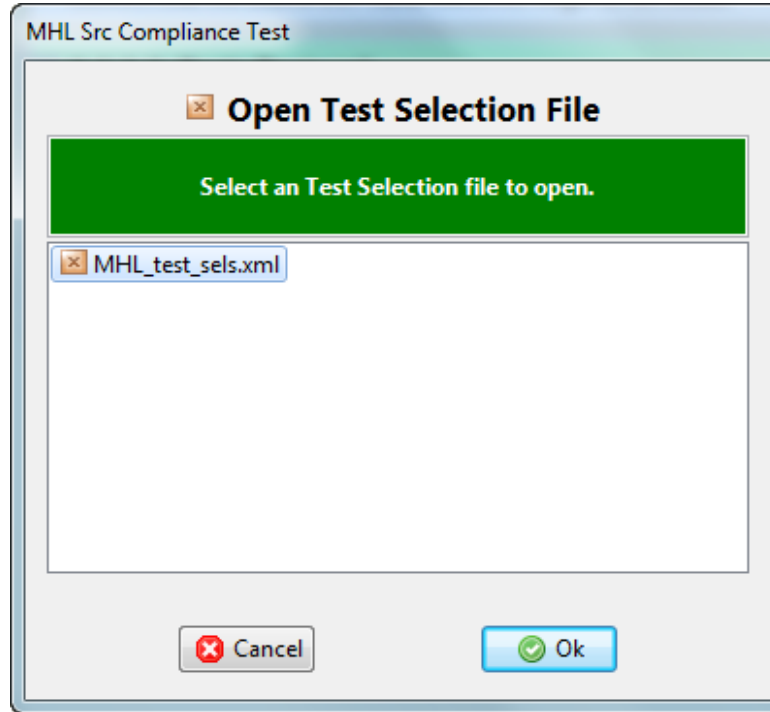
MHL CBUS Source Compliance Test Selection

MHL CBUS Source Compliance – Test Selection



Test Selection:

- Open an existing Test Selection file.



MHL CBUS Source Compliance – Test Selection

The screenshot shows the 'Test Selection' window in the MHL Src CT 2.0 software. The interface includes a menu bar with 'CDF Entry', 'Test Selection', and 'Test Options / Preview'. Below the menu are buttons for 'Open', 'Save', 'Select All Tests', and 'Deselect All Tests'. The main area is a tree view showing test categories: 'Source (3/41)', 'Common (0/67)', 'EDID/Registers (0/2)', 'RCP (0/2)', '3D (0/1)', and 'UCP (0/2)'. The 'Source' category is expanded, showing a list of tests with their progress and selection status. A callout box highlights three tests under the 3.3.5 category:

- 3.3.5.1: CBE-Source: Response to Initial Plug-in to MHL Device**
Verify correct Source DUT behavior when going from unplugged to Z[CBUS_SINK_DISCOVER] within the MHL range.
- 3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL device**
Verify correct Source DUT behavior when Sink HIGH-Z's the CBUS to invoke a new (second or subsequent) CBUS Discovery, then attaches with Z[CBUS_SINK_DISCOVER] within the MHL range.
- 3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Voltage**
Verify that Source DUT Pull-up Voltage has correct value when connecting Z[CBUS_SRC_DISCOVER].

Test Selection:

- Determine which specific tests to run in a test suite.
- Select all tests or select specific test sections or particular tests within each section.
- Check box indicators inform how many tests in each section and how many are selected.
- Example: CBUS Source test tab with Link Layer Electrical – DUT output Arbitration/ sync/data signaling.

MHL CBUS Source Compliance – Test Selection

The screenshot displays the 'Test Selection' window for 'CBUS Src CT 2.0'. The interface includes a menu bar with 'CDF Entry', 'Test Selection', and 'Test Options / Preview'. Below the menu are buttons for 'Open', 'Save', 'Select All Tests', and 'Deselect All Tests'. The main area shows a tree view of test categories: 'Source (3/41)', 'Common (67/67)', 'EDID/Registers (0/2)', 'RCP (0/2)', '3D (0/1)', and 'UCP (0/2)'. The 'Common' category is expanded, showing a list of tests from 6.3.1 to 6.3.19. Each test entry includes a description, a pass/fail ratio (e.g., 1/1, 7/7), and a checkmark icon. A large grey arrow points to the 'Common' tab, and another points to the '6.3.10' test entry. Below the list, a detailed view of test 6.3.10.1 is shown, including its title and description.

Test ID	Description	Pass/Fail	Status
6.3.1	MSC - DUT Input: Device Register Space Contents; Reads	1/1	✓
6.3.2	MSC - DUT Output: Vendor-specific and Reserved Header Values	1/1	✓
6.3.3	MSC - DUT Output: Normal Commands	7/7	✓
6.3.4	MSC - DUT Output: NACK Packet Response to MSC_MSG	1/1	✓
6.3.5	MSC - DUT Output: Never Initiates Bad Commands	8/8	✓
6.3.6	MSC - DUT Output: Errors and Exceptions	5/5	✓
6.3.7	MSC - DUT Output: Disconnect	1/1	✓
6.3.8	MSC - DUT Input: Device Register Space Contents; Writes	2/2	✓
6.3.9	MSC - DUT Input: Vendor-specific and Reserved Header Values	1/1	✓
6.3.10	MSC - DUT Input: Normal Commands	8/8	✓
6.3.11	MSC - DUT Input: Errors and Exceptions	22/22	✓
6.3.12	MSC - DUT Input: Argument Timeouts	9/9	✓
6.3.13	MSC - DUT Output: Never Initiates Bad Commands	2/2	✓
6.3.14	MSC - DUT Input: Normal Commands	2/2	✓
6.3.17	DDC - DUT Output; DUT Never Sends Illegal DDC Command	2/2	✓
6.3.18	DDC - DUT Output; Normal Operation	4/4	✓
6.3.19	DDC - DUT Output; Illegal Responses	4/4	✓

6.3.10.1: CBM: DUT receives (0x62) GET_STATE Command
Verify that if DUT responds appropriately when it receives a GET_STATE. It should return the value defined in the MHL Spec as the value stored in the DEV_STATE Capability Register, which is always 0.

6.3.10.2: CBM: DUT receives (0x63) GET_VENDOR_ID Command
Verify that if DUT responds appropriately when it receives a GET_VENDOR_ID. This test does not check the return value.

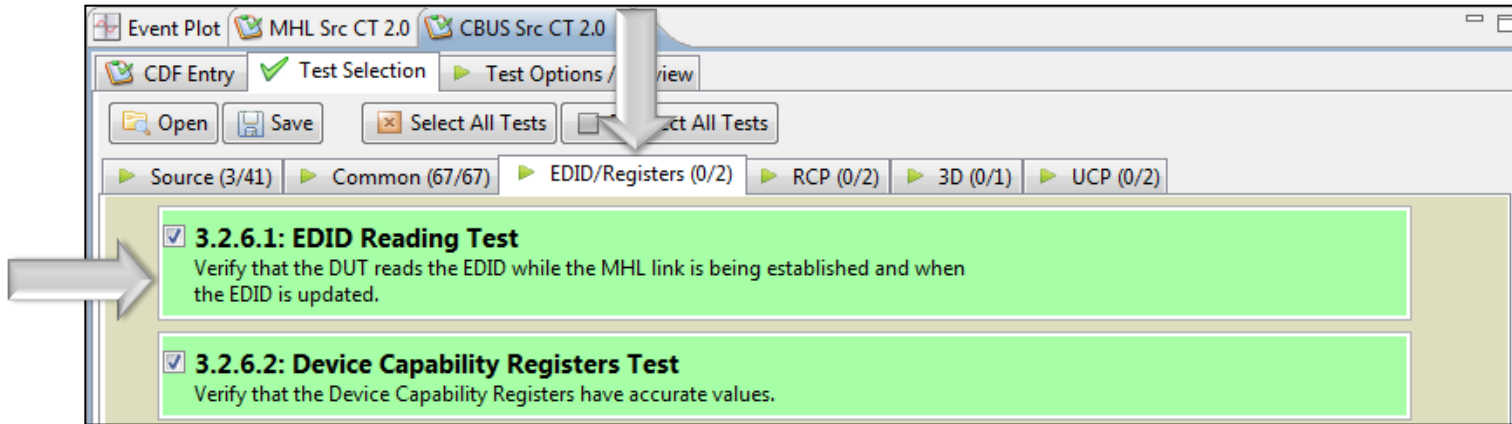
6.3.10.3: CBM: DUT receives (0x61) READ_DEVCAP Command
Verify that if DUT responds appropriately when it receives a READ_DEVCAP. This test returns the values found in the CDF in section 2.3 (MHL Capability Registers).

6.3.10.4: CBM: DUT Receives (0x6B) GET_MSC_ERRORCODE Command (When No Error)
Verify that if DUT responds appropriately when it receives a MSC_ERRORCODE when no error has occurred.

Test Selection:

- Select “Common” tests for MSC and DDC.

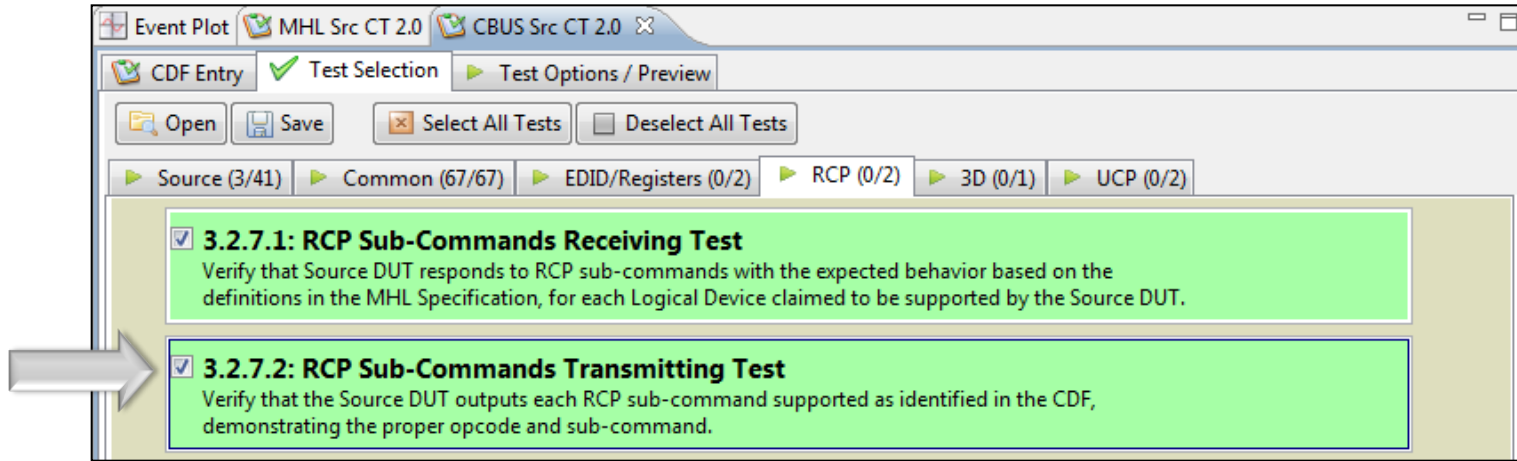
MHL CBUS Source Compliance – Test Selection



Test Selection:

- Select “EDID/Registers” tests.

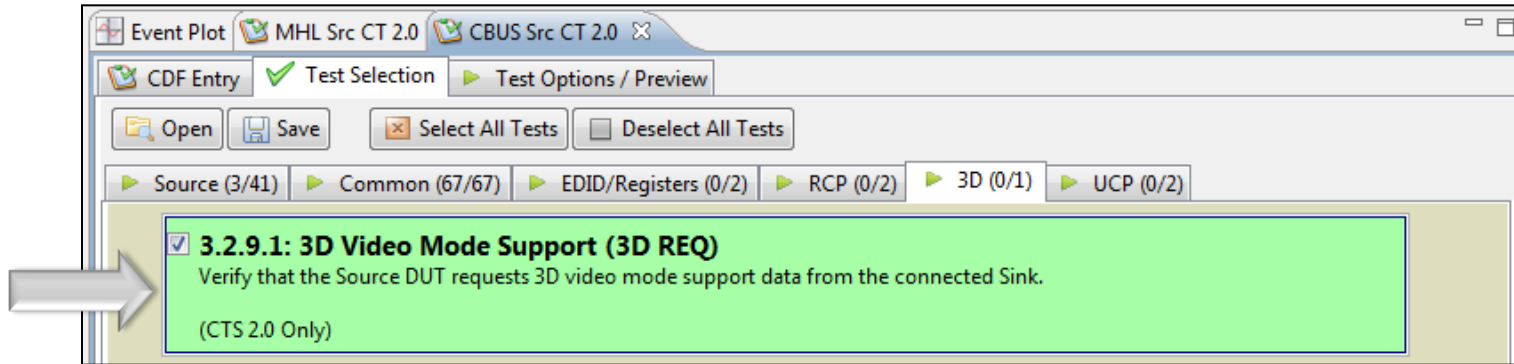
MHL CBUS Source Compliance – Test Selection



Test Selection:

- Select “RCP” tests.

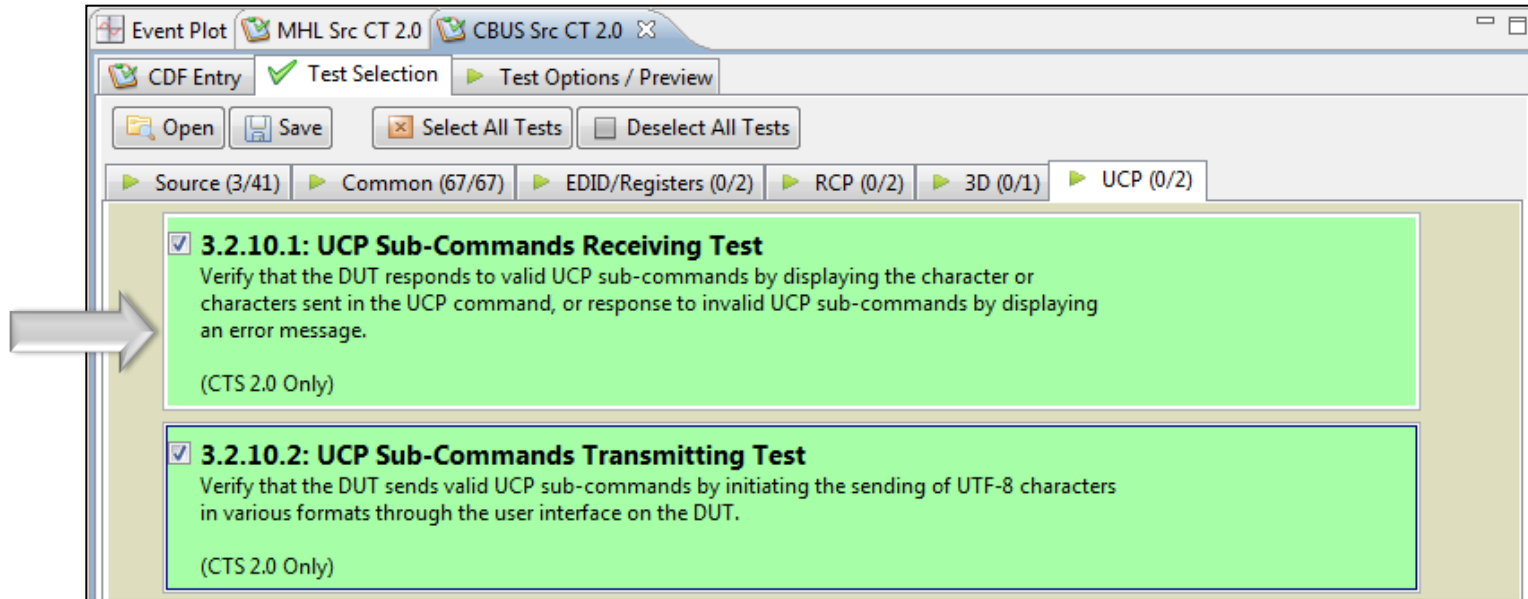
MHL CBUS Source Compliance – Test Selection



Test Selection:

- Select “3D” test tab.

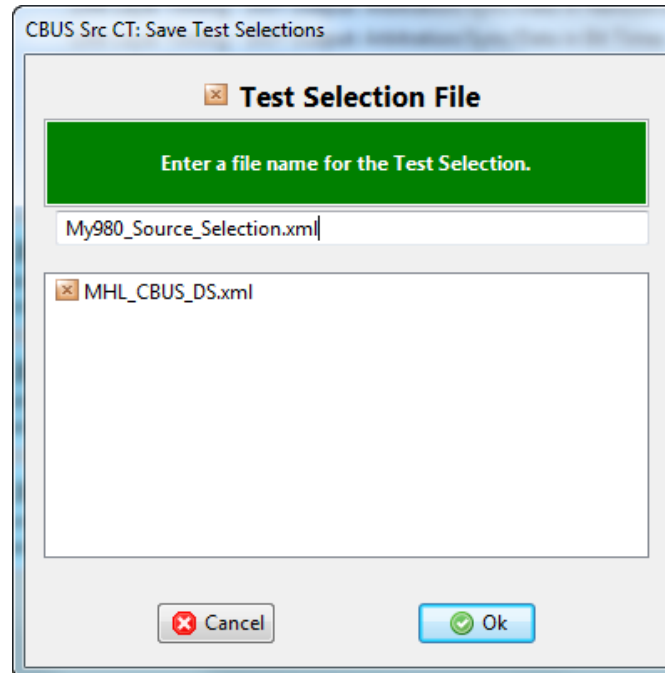
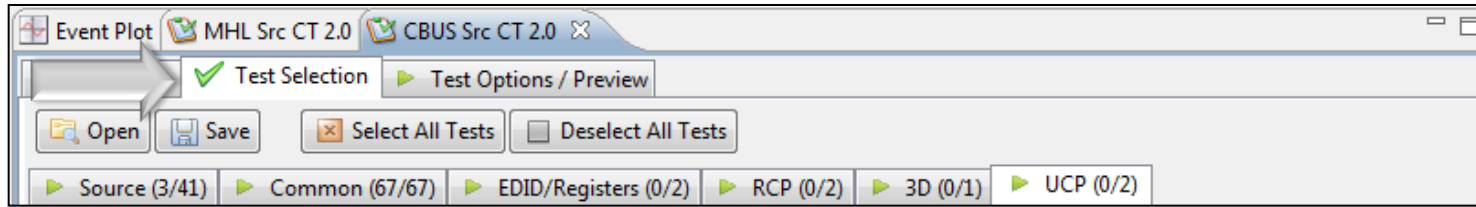
MHL CBUS Source Compliance – Test Selection



Test Selection:

- Select “UCP” test tab.

MHL CBUS Source Compliance – Test Selection



Test Selection:

- Save and reuse Test Select definitions.
- Saves time of re-entering specific tests.

Running the CBUS Source Compliance Tests

MHL CBUS Source Compliance – Review Test Selections

Event Plot | MHL Src CT 2.0 | CBUS Src CT 2.0

CDF Entry | Test Selection | Test Options / Preview

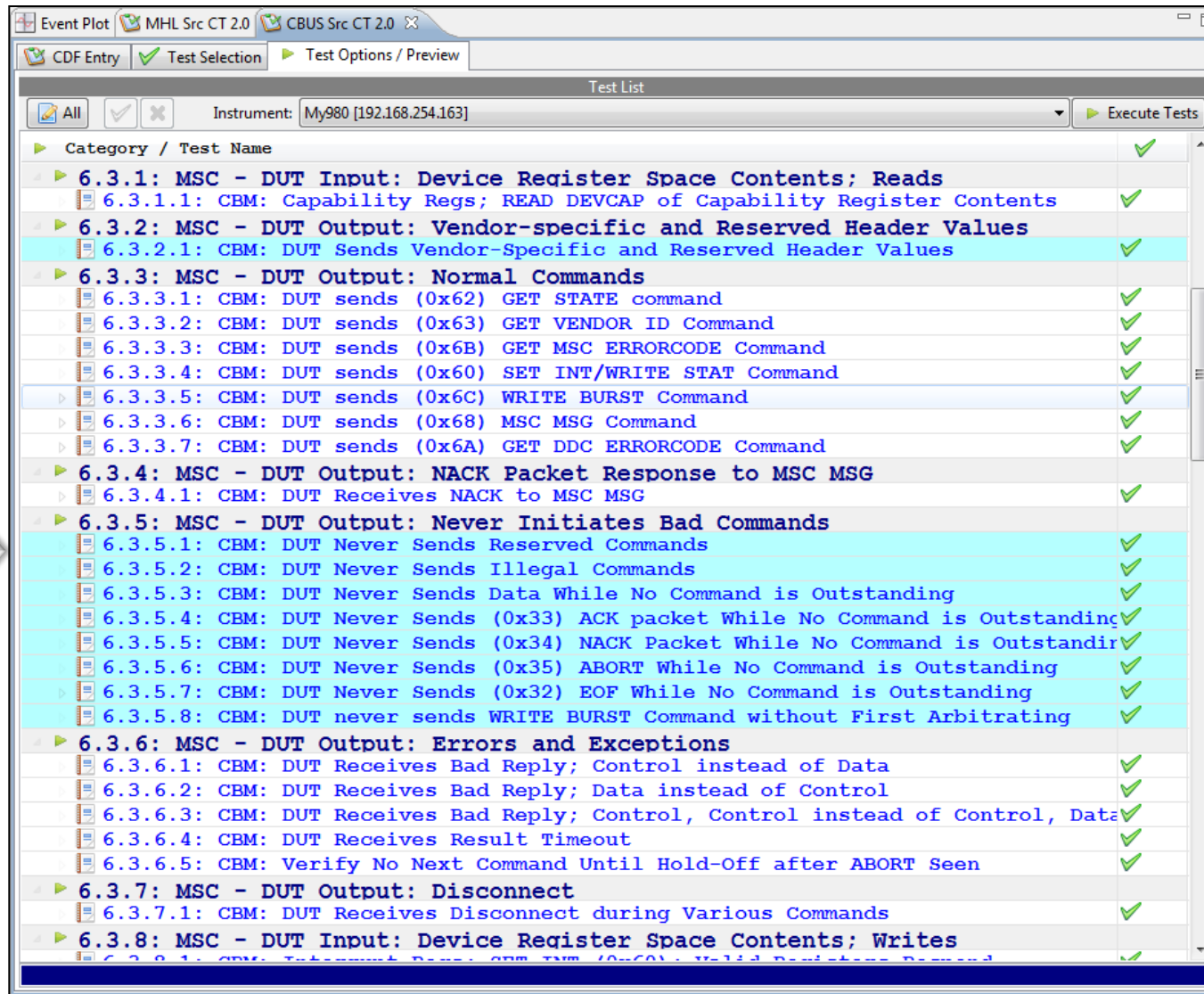
Instrument: My980 [192.168.254.163] Execute Tests

Category / Test Name	
▶ 3.2.6: EDID and Device Capability Register Test	✓
▶ 3.2.6.1: EDID Reading Test	✓
▶ 3.2.6.2: Device Capability Registers Test	✓
▶ 3.2.9: 3D Test	
▶ 3.2.9.1: 3D Video Mode Support (3D REQ)	✓
▶ 3.2.10: UCP Sub-Command Tests	
▶ 3.2.10.1: UCP Sub-Commands Receiving Test	✓
• Iter 01: Test all supported Commands.	✓
▶ 3.2.10.2: UCP Sub-Commands Transmitting Test	✓
• Iter 01: Test all supported Commands.	✓
▶ 3.3.3: Link Layer Electrical: Absolute Maximum Voltages	
▶ 3.3.3.2: CBE-Source: VBUS Absolute Maximum Positive Voltage	✓
▶ 3.3.3.3: CBE-Source: CBUS Absolute Maximum Positive Voltage	✓
▶ 3.3.5: Link Layer Electrical - DUT Output: Discovery	
▶ 3.3.5.1: CBE-Source: Response to Initial Plug-in to MHL Device	✓
▶ 3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL device	✓
▶ 3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Voltage	✓
▶ 3.3.9: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	
▶ 3.3.9.2: CBT-Source: Continuous Monitor: Bit Timing Variation within a Packet	✓
▶ 3.3.12: Link Layer Timing - DUT Output: Bus Re-Arbitration	
▶ 3.3.12.3: CBT Source: Source Never Sends Too Many Back-to-Back Packets	✓
▶ 3.3.13: Link Layer Behavior - DUT Output: Ill-formed packets	
▶ 3.3.13.1: CBT-Source: Source Never Sends Impulse Noise	✓
▶ 3.3.13.2: CBT-Source: Source Never Sends Partial Packets	✓
▶ 6.3.1: MSC - DUT Input: Device Register Space Contents; Reads	
▶ 6.3.1.1: CBM: Capability Regs; READ DEVCAP of Capability Register Contents	✓
▶ 6.3.2: MSC - DUT Output: Vendor-specific and Reserved Header Values	
▶ 6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header Values	✓
▶ 6.3.3: MSC - DUT Output: Normal Commands	
▶ 6.3.3.1: CBM: DUT sends (0x62) GET STATE command	✓
▶ 6.3.3.2: CBM: DUT sends (0x63) GET VENDOR ID Command	✓
▶ 6.3.3.3: CBM: DUT sends (0x6B) GET MSC ERRORCODE Command	✓
▶ 6.3.3.4: CBM: DUT sends (0x6C) GET MSC ERRORCODE Command	✓

Test Options / Preview:

- Review list of tests by Section.
- Scroll through list.
- Example: Section 3.3.x.
- Note tests in light blue are tests that are run in background mode.

MHL CBUS Source Compliance – Review Test Selections



Category / Test Name	✓
6.3.1: MSC - DUT Input: Device Register Space Contents; Reads	✓
6.3.1.1: CBM: Capability Regs; READ DEVCAP of Capability Register Contents	✓
6.3.2: MSC - DUT Output: Vendor-specific and Reserved Header Values	✓
6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header Values	✓
6.3.3: MSC - DUT Output: Normal Commands	✓
6.3.3.1: CBM: DUT sends (0x62) GET STATE command	✓
6.3.3.2: CBM: DUT sends (0x63) GET VENDOR ID Command	✓
6.3.3.3: CBM: DUT sends (0x6B) GET MSC ERRORCODE Command	✓
6.3.3.4: CBM: DUT sends (0x60) SET INT/WRITE STAT Command	✓
6.3.3.5: CBM: DUT sends (0x6C) WRITE BURST Command	✓
6.3.3.6: CBM: DUT sends (0x68) MSC MSG Command	✓
6.3.3.7: CBM: DUT sends (0x6A) GET DDC ERRORCODE Command	✓
6.3.4: MSC - DUT Output: NACK Packet Response to MSC MSG	✓
6.3.4.1: CBM: DUT Receives NACK to MSC MSG	✓
6.3.5: MSC - DUT Output: Never Initiates Bad Commands	✓
6.3.5.1: CBM: DUT Never Sends Reserved Commands	✓
6.3.5.2: CBM: DUT Never Sends Illegal Commands	✓
6.3.5.3: CBM: DUT Never Sends Data While No Command is Outstanding	✓
6.3.5.4: CBM: DUT Never Sends (0x33) ACK packet While No Command is Outstanding	✓
6.3.5.5: CBM: DUT Never Sends (0x34) NACK Packet While No Command is Outstanding	✓
6.3.5.6: CBM: DUT Never Sends (0x35) ABORT While No Command is Outstanding	✓
6.3.5.7: CBM: DUT Never Sends (0x32) EOF While No Command is Outstanding	✓
6.3.5.8: CBM: DUT never sends WRITE BURST Command without First Arbitrating	✓
6.3.6: MSC - DUT Output: Errors and Exceptions	✓
6.3.6.1: CBM: DUT Receives Bad Reply; Control instead of Data	✓
6.3.6.2: CBM: DUT Receives Bad Reply; Data instead of Control	✓
6.3.6.3: CBM: DUT Receives Bad Reply; Control, Control instead of Control, Data	✓
6.3.6.4: CBM: DUT Receives Result Timeout	✓
6.3.6.5: CBM: Verify No Next Command Until Hold-Off after ABORT Seen	✓
6.3.7: MSC - DUT Output: Disconnect	✓
6.3.7.1: CBM: DUT Receives Disconnect during Various Commands	✓
6.3.8: MSC - DUT Input: Device Register Space Contents; Writes	✓
6.3.8.1: CBM: DUT Receives Bad Reply; Control, Control instead of Control, Data	✓

Test Options / Preview:

- Review list of tests by Section.
- Tests highlighted in blue are tests that are run in background mode.
Example: Section 6.3.5.x

MHL CBUS Source Compliance - Optionally Skip Tests

Event Plot | MHL Src CT 2.0 | CBUS Src CT 2.0

CDF Entry | Test Selection | Test Options / Preview

Test List

Instrument: My980 [192.168.254.163] Execute Tests

Category / Test Name	Status
3.2.6: EDID and Device Capability Register Test	✓
3.2.6.1: EDID Reading Test	✓
3.2.6.2: Device Capability Registers Test	✓
3.2.9: 3D Test	✓
3.2.9.1: 3D Video Mode Support (3D REQ)	✓
3.2.10: UCP Sub-Command Tests	✓
3.2.10.1: UCP Sub-Commands Receiving Test	✗
✗ Iter 01: Test all supported Commands.	✗
3.2.10.2: UCP Sub-Commands Transmitting Test	✓
Iter 01: Test all supported Commands.	✓
3.3.3: Link Layer Electrical: Absolute Maximum Voltages	✓
3.3.3.2: CBE-Source: VBUS Absolute Maximum Positive Voltage	✓
3.3.3.3: CBE-Source: CBUS Absolute Maximum Positive Voltage	✓
3.3.5: Link Layer Electrical - DUT Output: Discovery	✓
3.3.5.1: CBE-Source: Response to Initial Plug-in to MHL Devi	✓
✗ Iter 01:	✗
3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL d	✓
3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Volt	✓
3.3.9: Link Layer Timing - DUT Output: Arbitration/Sync/D	✓
3.3.9.2: CBT-Source: Continuous Monitor: Bit Timing Variatio	✓
3.3.12: Link Layer Timing - DUT Output: Bus Re-Arbitratio	✓
3.3.12.3: CBT Source: Source Never Sends Too Many Back-to-Ba	✓
3.3.13: Link Layer Behavior - DUT Output: Ill-formed pack	✓
3.3.13.1: CBT-Source: Source Never Sends Impulse Noise	✓
3.3.13.2: CBT-Source: Source Never Sends Partial Packets	✓
6.3.1: MSC - DUT Input: Device Register Space Contents; I	✓
6.3.1.1: CBM: Capability Regs; READ DEVCAP of Capability Reg	✓
6.3.2: MSC - DUT Output: Vendor-specific and Reserved Hea	✓
6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header	✓
6.3.3: MSC - DUT Output: Normal Commands	✓
6.3.3.1: CBM: DUT sends (0x62) GET STATE command	✓
6.3.3.2: CBM: DUT sends (0x63) GET VENDOR ID Command	✓
6.3.3.3: CBM: DUT sends (0x64) GET MSC_FUNC_CAPAB Command	✓
3.3.13.2: CBT-Source: Source Never Sends Partial Packets	✓

CBUS Src CT Results

Test Results Name

Execute CBUS Src Compliance Tests on Instrument: My980 @ 192.168.254.135

Enter a name for the Test Results.

Acme_MHL_Tests

05_02_2012_14_18_59
MHL_CBUS_04_30_2012_17_07_55
MHL_CBUS_2_04_30_2012_17_07_55
MHL_CBUS_3_04_30_2012_17_07_55

Cancel Ok

Test Options / Preview:

- Optionally, skip certain tests (red X).
- Initiate test with Execute Tests button when ready.
- You will be prompted to name the test results file.

MHL CBUS Source Compliance – Test Execution/Setup

The screenshot displays a software interface for test execution. The main window is titled "CBUS Src Compliance Test (1.2): 'Acme_MHL_Tests'". It features a "Test List" table with columns for "Category / Test Name" and "Status". A "Test Setup" dialog box is overlaid on the test list, providing instructions for connecting the Source DUT to the MHL input of the Test Instrument. The dialog includes a diagram showing the connection between the Source DUT and the Test Instrument via MHL OUT and MHL IN ports. Below the diagram are buttons for "Cancel Compliance Test" and "Continue". At the bottom of the main window, there are buttons for "Cancel the Compliance Test" and "Pause Test Execution". A log window at the bottom left shows the following messages:

```
Line      Message
• 0001    Compliance Test
• 0002    Initialization
• 0003    Assembling the
• 0004    Transferring th
• 0005    --- Test 3.2.6.1
```

Test Options / Preview:

- Test Setup and special notes are provided where necessary

MHL CBUS Source Compliance – Test Execution

CBUS Src Compliance Test (1.2): "Acme_MHL_Tests"

Test List

Category / Test Name	Status
Iter 01:	User Skipped
3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL device	Fail
Iter 01:	Fail
3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Voltage	Incomplete
Iter 01:	User Skipped
3.3.5.4: CBE-Source: Discovery Pulse Drive HIGH Voltage	Pass
Iter 01:	Pass
3.3.5.5: CBE-Source: Discovery Pulse float LOW Voltage	Pass
Iter 01:	Pass
3.3.9: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	Pass
3.3.9.2: CBT-Source: Continuous Monitor: Bit Timing Variation within a Packet	Pass
3.3.12: Link Layer Timing - DUT Output: Bus Re-Arbitration	Pass
3.3.12.3: CBT-Source: Source Never Sends Too Many Back-to-Back Packets	Pass
3.3.13: Link Layer Behavior - DUT Output: Ill-formed packets	Pass
3.3.13.1: CBT-Source: Source Never Sends Impulse Noise	Pass
3.3.13.2: CBT-Source: Source Never Sends Partial Packets	Pass
3.3.14: Link Layer Timing - DUT Input: Discovery	Fail
3.3.14.1: CBT-Source: Discovery; Sink Responds Correctly; Time to Source Pull-up Change	Fail
Iter 01:	Fail
3.3.14.2: CBT-Source: Discovery; Sink Responds Late	Incomplete
Iter 01:	User Skipped
3.3.14.3: CBT-Source: Discovery; Sink Never Drives MHL+/- HIGH	In Progress
Iter 01:	In Progress

Test Log

Line	Message
0041	Test 3.3.5.5 Iter 01 -> Pass
0042	--- Test 3.3.14.1-01
0043	Executing the test.
0044	Retrieving test results.
0045	Processing test results.
0046	Saving the test logs.
0047	Test 3.3.14.1 Iter 01 -> Fail
0048	--- Test 3.3.14.3-01
0049	Executing the test.

Cancel the Compliance Test | Pause Test Execution

Test Execution log:

- Summary of test progress status shown on top.
- Progress arrow indicates current test.
- Detailed log of test events shown on bottom.

MHL CBUS Source Compliance – Test Execution

CBUS Src Compliance Test (1.2): "Acme_MHL_Tests"

Test List

Category / Test Name	Status
3.3.14.3: CBT-Source: Discovery; Sink Never Drives MHL+/- HIGH	Pass
3.3.22: Link Layer Timing - DUT Input: Disconnect	Pass
3.3.22.1: CBT-Source: Remove MHL+/- Pull-ups for Less than Glitch Reject Time	Pass
3.3.22.2: CBT-Source: Remove MHL+/- Pull-up for More than Glitch Reject Time	Pass
3.3.22.3: CBT-Source: Time from Disconnect until VOUT Falls	Fail
01: DUT does enable VBUS as part of Discovery	Fail
02: DUT does react to the long MHL glitch by floating CBUS	Pass
03: DUT does stop driving VBUS within TSRC:CBUS TMD5 DIS{max} from the end of the M	Pass
6.3.2: MSC - DUT Output: Vendor-specific and Reserved Header Values	Pass
6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header Values	Pass
6.3.3: MSC - DUT Output: Normal Commands	Pass
6.3.3.1: CBM: DUT sends (0x62) GET STATE command	Pass
6.3.3.2: CBM: DUT sends (0x63) GET VENDOR ID Command	In Progress
6.3.3.3: CBM: DUT sends (0x6B) GET MSC ERRORCODE Command	Not Tested

Test Log

Line	Message
0071	Test 3.3.22.3 Iter 01 -> Fail
0072	--- Test 6.3.3.1-01
0073	Executing the test.
0074	Retrieving test results.
0075	Processing test results.
0076	Saving the test logs.
0077	Test 6.3.3.1 Iter 01 -> Pass
0078	--- Test 6.3.3.2-01
0079	Executing the test.

Quantum Data 980 Manager - Version 4.5.29

Test Execution failures:

- Detailed information when failures occur.

MHL CBUS Source Compliance – Test Results

Results Name: Acme_MHL_Tests Manufacturer: Acme HTML Report

Date Tested: October 2, 2012 2:05 PM Model Name: XYZ

Overall Status: **CTS 1.2 - Incomplete** Port Tested: 1

Test Name / Details	Status
3.3.3.2: CBE-Source: VBUS Absolute Maximum Positive Voltage	Pass
3.3.3.3: CBE-Source: CBUS Absolute Maximum Positive Voltage	Pass
3.3.4.1: CBT-Source: Time from Source VBUS Application to Disc	Fail
3.3.5.1: CBE-Source: Response to Initial Plug-in to MHL Device	Incomplete
3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL dev	Fail
3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Voltag	Incomplete
3.3.5.4: CBE-Source: Discovery Pulse Drive HIGH Voltage	Pass
3.3.5.5: CBE-Source: Discovery Pulse float LOW Voltage	Pass
3.3.9.2: CBT-Source: Continuous Monitor: Bit Timing Variation	Pass
3.3.12.3: CBT Source: Source Never Sends Too Many Back-to-Back	Pass
3.3.13.1: CBT-Source: Source Never Sends Impulse Noise	Pass
3.3.13.2: CBT-Source: Source Never Sends Partial Packets	Pass
3.3.14.1: CBT-Source: Discovery; Sink Responds Correctly; Time	Fail
Iter 01:	--
DUT discovered in 3370 ms.	
DUT in discovery mode: measured 1654/1659/1657.42 mv (min/max/avg)	
DUT in on mode: measured 1513/1517/1515.91 mv (min/max/avg)	
voltage change: -8.54 %	
unexpected voltage change. Expected about 5 percent increase.	Fail
01: Source does complete Discovery	Pass
02: DUT does switch its pull-up from ZCBUS SRC DISCOVER to	Pass
3.3.14.2: CBT-Source: Discovery; Sink Responds Late	Incomplete
3.3.14.3: CBT-Source: Discovery; Sink Never Drives MHL+/- HIGH	Pass
3.3.22.1: CBT-Source: Remove MHL+/- Pull-ups for Less than Gli	Pass
3.3.22.2: CBT-Source: Remove MHL+/- Pull-up for More than Glit	Pass
3.3.22.3: CBT-Source: Time from Disconnect until VOUT Falls	Fail
6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header Va	Pass
6.3.3.1: CBM: DUT sends (0x62) GET STATE command	Pass
6.3.3.2: CBM: DUT sends (0x63) GET VENDOR ID Command	Pass

3.2.6.1: EDID Reading Test

Instrument: My980 [192.168.254.135] Continue Test Execution

Test Results:

- Results tab shows summary of test results.
- Results can be saved and viewed through 980 GUI Manager.

MHL CBUS Source Compliance – Test Results

Results Name: Acme_MHL_Tests Manufacturer: Acme HTML Report

Date Tested: October 2, 2012 2:05 PM Model Name: XYZ

Overall Status: **CTS 1.2 - Incomplete** Port Tested: 1

Test Name / Details	Status
3.3.3.2: CBE-Source: VBUS Absolute Maximum Positive Voltage	Pass
3.3.3.3: CBE-Source: CBUS Absolute Maximum Positive Voltage	Pass
3.3.4.1: CBT-Source: Time from Source VBUS Application to Disc	Fail
3.3.5.1: CBE-Source: Response to Initial Plug-in to MHL Device	Incomplete
3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL dev	Fail
3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Voltag	Incomplete
3.3.5.4: CBE-Source: Discovery Pulse Drive HIGH Voltage	Pass
Iter 01:	Pass
Running pass 1, VBUS not driven by tester	
Discovery pulse high measurement: 1606 mv	
Discovery pulse high measurement: 1608 mv	
Discovery pulse high measurement: 1609 mv	
Running pass 2, VBUS driven by tester	
Discovery pulse high measurement: 1627 mv	
Discovery pulse high measurement: 1628 mv	
01: HIGH voltage is greater than VIH CBUS{min}	Pass
3.3.5.5: CBE-Source: Discovery Pulse float LOW Voltage	Pass
3.3.9.2: CBT-Source: Continuous Monitor: Bit Timing Variation	Pass
3.3.12.3: CBT Source: Source Never Sends Too Many Back-to-Back	Pass
3.3.13.1: CBT-Source: Source Never Sends Impulse Noise	Pass
3.3.13.2: CBT-Source: Source Never Sends Partial Packets	Pass
3.3.14.1: CBT-Source: Discovery; Sink Responds Correctly; Time	Fail
3.3.14.2: CBT-Source: Discovery; Sink Responds Late	Incomplete
3.3.14.3: CBT-Source: Discovery; Sink Never Drives MHL+/- HIGH	Pass
3.3.22.1: CBT-Source: Remove MHL+/- Pull-ups for Less than Gli	Pass
3.3.22.2: CBT-Source: Remove MHL+/- Pull-up for More than Glit	Pass
3.3.22.3: CBT-Source: Time from Disconnect until VOUT Falls	Fail
6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header Va	Pass
6.3.3.1: CBM: DUT sends (0x62) GET STATE command	Pass

Instrument: My980 [192.168.254.135] Continue Test Execution

Test Execution Pass Results:

- Results tab shows detail results for tests that pass and fail.

MHL CBUS Source Compliance – Test Results

Results Name: Acme_MHL_Tests Manufacturer: Acme HTML Report
Date Tested: October 2, 2012 2:05 PM Model Name: XYZ
Overall Status: **CTS 1.2 - Incomplete** Port Tested: 1

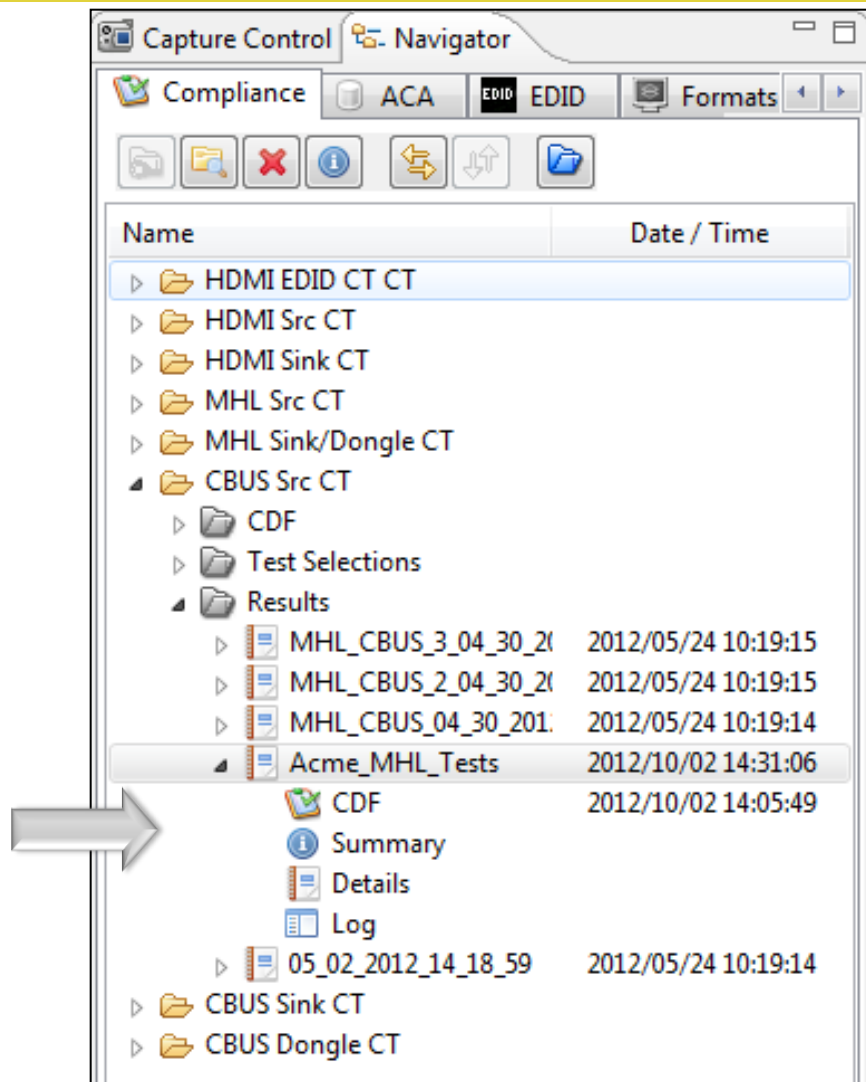
Test Name / Details	Status
3.3.3.2: CBE-Source: VBUS Absolute Maximum Positive Voltage	Pass
3.3.3.3: CBE-Source: CBUS Absolute Maximum Positive Voltage	Pass
3.3.4.1: CBT-Source: Time from Source VBUS Application to Disc	Fail
3.3.5.1: CBE-Source: Response to Initial Plug-in to MHL Device	Incomplete
3.3.5.2: CBE-Source: Response to Sink Priming Pulse to MHL dev	Fail
3.3.5.3: CBE-Source: Pre-Discovery Success Pull-up HIGH Voltag	Incomplete
3.3.5.4: CBE-Source: Discovery Pulse Drive HIGH Voltage	Pass
3.3.5.5: CBE-Source: Discovery Pulse float LOW Voltage	Pass
3.3.9.2: CBT-Source: Continuous Monitor: Bit Timing Variation	Pass
3.3.12.3: CBT Source: Source Never Sends Too Many Back-to-Back	Pass
3.3.13.1: CBT-Source: Source Never Sends Impulse Noise	Pass
3.3.13.2: CBT-Source: Source Never Sends Partial Packets	Pass
3.3.14.1: CBT-Source: Discovery; Sink Responds Correctly; Time	Fail
Iter 01:	Fail
DUT discovered in 3370 ms.	
DUT in discovery mode: measured 1654/1659/1657.42 mv (min/max/avg)	
DUT in on mode: measured 1513/1517/1515.91 mv (min/max/avg)	
voltage change: -8.54 %	
unexpected voltage change. Expected about 5 percent increase.	Fail
01: Source does complete Discovery	Pass
02: DUT does switch its pull-up from ZCBUS SRC DISCOVER to	Pass
3.3.14.2: CBT-Source: Discovery; Sink Responds Late	Incomplete
3.3.14.3: CBT-Source: Discovery; Sink Never Drives MHL+/- HIGH	Pass
3.3.22.1: CBT-Source: Remove MHL+/- Pull-ups for Less than Gli	Pass
3.3.22.2: CBT-Source: Remove MHL+/- Pull-up for More than Glit	Pass
3.3.22.3: CBT-Source: Time from Disconnect until VOUT Falls	Fail
6.3.2.1: CBM: DUT Sends Vendor-Specific and Reserved Header Va	Pass
6.3.3.1: CBM: DUT sends (0x62) GET STATE command	Pass
6.3.3.2: CBM: DUT sends (0x63) GET VENDOR ID Command	Pass

3.2.6.1: EDID Reading Test
Instrument: My980 [192.168.254.135] Continue Test Execution

Test Execution failures:

- Results tab shows detail results for tests that pass and fail.

MHL CBUS Source Compliance – Test Results



Test Results:

- Access results at any time through Navigator/Compliance tab.

MHL CBUS Source Compliance – Test Results

```
Log Viewer
Log
From: Acme_MHL_Tests

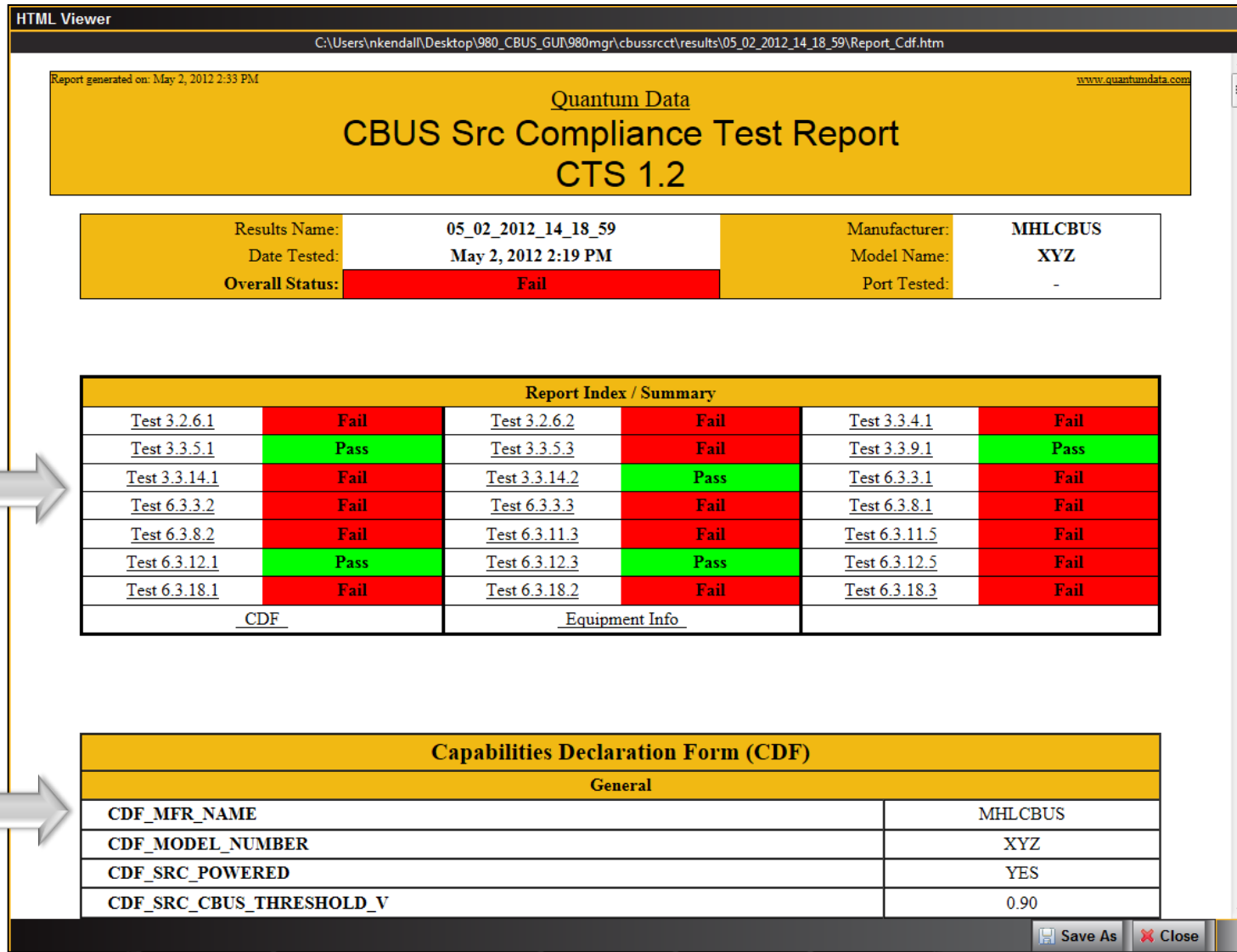
Line      Message
• 14:05:50:260      Compliance Test Started.
• 14:05:50:363      Initialization.
• 14:05:50:397      Assembling the test list.
• 14:05:51:295      Transferring the CDF to the Test Instrument.
• 14:05:51:295      FTP Connect
• 14:05:51:557      FTP Put
•                   From "C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbussroot\results\Acme_MHL_Tests\cdf.txt"
•                   To "cdf.txt"
• 14:05:51:919      --- Test 3.2.6.1-01
• 14:06:51:640      Configuration Change: UNRKNOWN -> SRC_ACTIVE
• 14:06:51:692      Executing the test.
• 14:06:51:693      exec rm -f /home/qd/cbus_results.log
• 14:06:51:710      exec rm -f /home/qd/cbus_results.log
• 14:06:51:900      #cbus-scope>
• 14:06:51:901      IN10:cbus_test 3.2.6.1 -o "/home/qd/" -c "/home/qd/cdf.txt"
• 14:06:51:910      IN10:cbus_test 3.2.6.1 -o "/home/qd/" -c "/home/qd/cdf.txt"
• 14:07:35:805      #cbus-scope>
• 14:07:36:031      Retrieving test results.
• 14:07:36:031      FTP Connect
• 14:07:36:289      FTP Get
•                   From "cbus_results.log"
•                   To "C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbussroot\results\Acme_MHL_Tests\lastResult.log"
• 14:07:36:533      Processing test results.
• 14:07:36:565      Saving the test logs.
• 14:07:36:568      exec test -e "/home/qd/cbus_log.log" && echo exists
• 14:07:36:580      exec test -a "/home/qd/cbus_log.log" && echo exists
• 14:07:36:770      exists
•                   #cbus-scope>
• 14:07:36:771      FTP Connect
• 14:07:37:028      FTP Get
•                   From "cbus_log.log"
•                   To "C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbussroot\results\Acme_MHL_Tests\3.2.6.1.01\cbus_log.log"

Close
```

Test Results:

- Access detailed test log through Navigator/ Compliance tab.

MHL CBUS Source Compliance – HTML Test Report



The screenshot shows an HTML test report viewer with the following content:

Report generated on: May 2, 2012 2:33 PM www.quantumdata.com

Quantum Data
CBUS Src Compliance Test Report
CTS 1.2

Results Name:	05_02_2012_14_18_59	Manufacturer:	MHLCBUS
Date Tested:	May 2, 2012 2:19 PM	Model Name:	XYZ
Overall Status:	Fail	Port Tested:	-

Report Index / Summary

Test 3.2.6.1	Fail	Test 3.2.6.2	Fail	Test 3.3.4.1	Fail
Test 3.3.5.1	Pass	Test 3.3.5.3	Fail	Test 3.3.9.1	Pass
Test 3.3.14.1	Fail	Test 3.3.14.2	Pass	Test 6.3.3.1	Fail
Test 6.3.3.2	Fail	Test 6.3.3.3	Fail	Test 6.3.8.1	Fail
Test 6.3.8.2	Fail	Test 6.3.11.3	Fail	Test 6.3.11.5	Fail
Test 6.3.12.1	Pass	Test 6.3.12.3	Pass	Test 6.3.12.5	Fail
Test 6.3.18.1	Fail	Test 6.3.18.2	Fail	Test 6.3.18.3	Fail

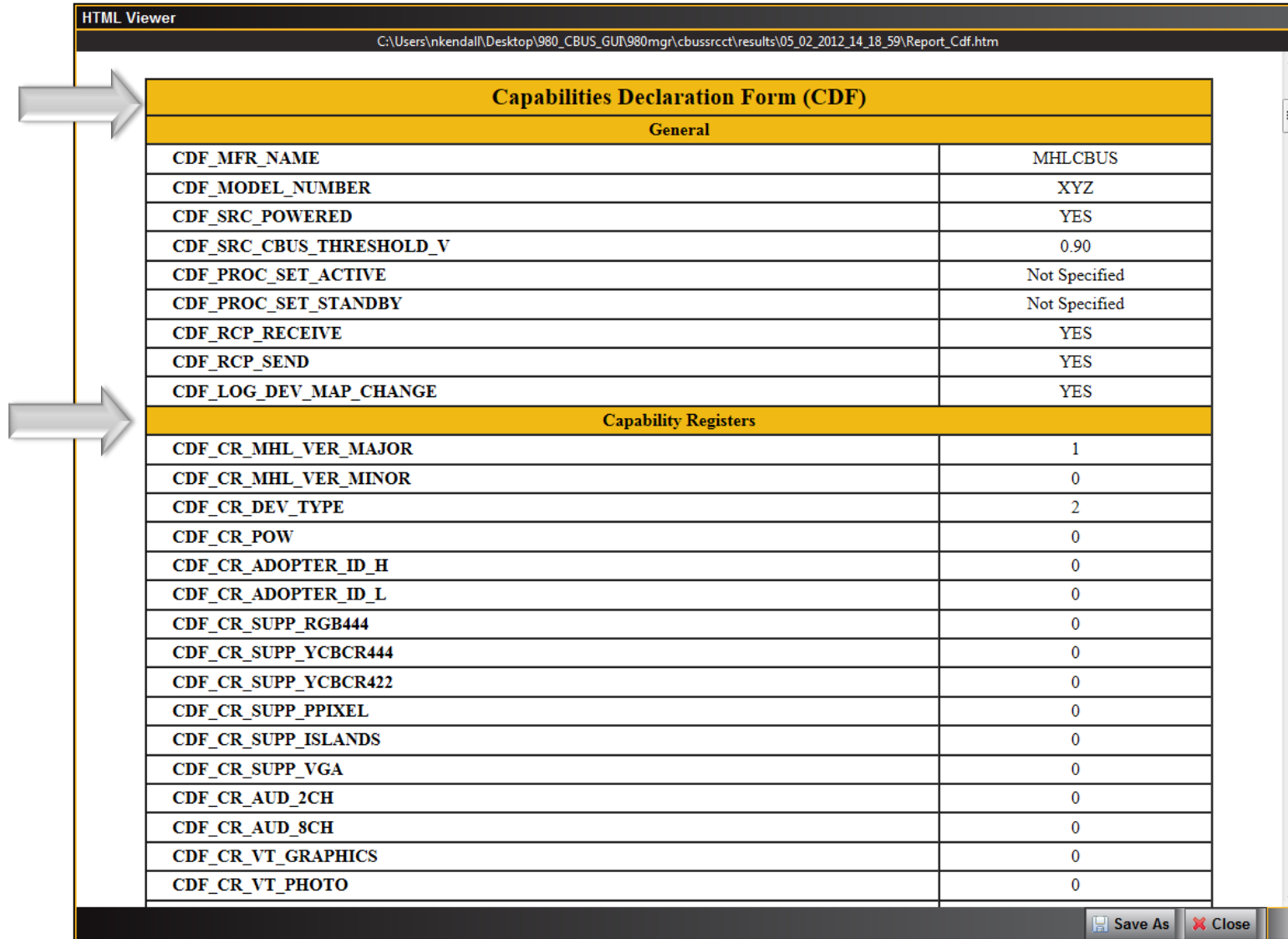
Capabilities Declaration Form (CDF)

General	
CDF_MFR_NAME	MHLCBUS
CDF_MODEL_NUMBER	XYZ
CDF_SRC_POWERED	YES
CDF_SRC_CBUS_THRESHOLD_V	0.90

HTML Test Report:

- Shows summary information and pass/fail.
- Example shows MHL 1.2 test; MHL 2.0 test results are similar in structure and content.

MHL CBUS Source Compliance – HTML Test Report



HTML Viewer
C:\Users\nkendall\Desktop\980_CBUS_GUT\980mgr\cbussrct\results\05_02_2012_14_18_59\Report_Cdf.htm

Capabilities Declaration Form (CDF)	
General	
CDF_MFR_NAME	MHLCBUS
CDF_MODEL_NUMBER	XYZ
CDF_SRC_POWERED	YES
CDF_SRC_CBUS_THRESHOLD_V	0.90
CDF_PROC_SET_ACTIVE	Not Specified
CDF_PROC_SET_STANDBY	Not Specified
CDF_RCP_RECEIVE	YES
CDF_RCP_SEND	YES
CDF_LOG_DEV_MAP_CHANGE	YES
Capability Registers	
CDF_CR_MHL_VER_MAJOR	1
CDF_CR_MHL_VER_MINOR	0
CDF_CR_DEV_TYPE	2
CDF_CR_POW	0
CDF_CR_ADOPTER_ID_H	0
CDF_CR_ADOPTER_ID_L	0
CDF_CR_SUPP_RGB444	0
CDF_CR_SUPP_YCBCR444	0
CDF_CR_SUPP_YCBCR422	0
CDF_CR_SUPP_PPIXEL	0
CDF_CR_SUPP_ISLANDS	0
CDF_CR_SUPP_VGA	0
CDF_CR_AUD_2CH	0
CDF_CR_AUD_8CH	0
CDF_CR_VT_GRAPHICS	0
CDF_CR_VT_PHOTO	0

Save As Close

HTML Test Report:

- Shows Capabilities Declaration information.

MHL CBUS Source Compliance – HTML Test Report

HTML Viewer
C:\Users\inkendall\Desktop\980_CBUS_GUT\980mgr\cbussrct\results\05_02_2012_14_18_59\Report_Cdf.htm

Test 3.2.6.1
EDID Reading Test Fail

• Iter 01:

- DUT discovered in 3010 ms.
- DUT discovered in 2470 ms.
- Continuous test results to follow
- 3.3.3: Tester began driving VBUS at 00050229.20; VBUS expected to be stable by 00065229.20.
- 3.3.3: Tester began driving VBUS at 20125651.20; VBUS expected to be stable by 20140651.20.
- 3.3.3: CBUS and VBUS within Absolute Maximum voltages during entire test
- 3.3.12.3: max incoming back to back packets: 1 (good)
- 3.3.13.1: narrow pulse (20 ns) at 09192483.55 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.59 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.63 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.67 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.71 us
- 3.3.13.1: narrow pulse (10 ns) at 09192483.75 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.78 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.82 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.86 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.90 us
- 3.3.13.1: narrow pulse (20 ns) at 09192483.94 us
- not reporting subsequent narrow pulses
- 3.3.13.1: total of 24 narrow pulses detected
- 3.3.13.2: At 12071120.06 us, DUT sent malformed packet
- 3.3.13.2: detected 1 bad packets from DUT

• 01: DUT reads block 0 and block 1 while MHL link is being established	Pass
■ EDID read check: bytes 0-255 were read. ■ DUT finished reading EDID in 1060 ms.	
• 02: DUT reads block 0 and block 1 after EDID_CHG	Fail
■ EDID read check: bytes 0-255 were NOT read. ■ DUT failed to read EDID. Timed out after 8000 ms. ■ Complete EDID not read after EDID_CHG	
• 03: DUT reads block 0 and block 1 after SET_HPD	Fail
■ EDID read check: bytes 0-255 were NOT read. ■ DUT failed to read EDID. Timed out after 8000 ms. ■ Complete EDID not read after CLR_HPD/SET_HPD	

Save As Close

HTML Test Report:

- Shows detailed results for each whether pass or fail.

MHL CBUS Source Compliance – HTML Test Report

HTML Viewer
C:\Users\inkendall\Desktop\980_CBUS_GUT\980mgr\cbussrcct\results\05_02_2012_14_18_59\Report_Cdf.htm

Test 3.2.6.2
Device Capability Registers Test

Fail

Fail

• Iter 01:

- DUT discovered in 2492 ms.
- Continuous test results to follow
- 3.3.3: Tester began driving VBUS at 00050362.40; VBUS expected to be stable by 00065362.40.
- 3.3.3: CBUS and VBUS within Absolute Maximum voltages during entire test
- 3.3.12.3: max incoming back to back packets: 0 (good)
- 3.3.13.1: no narrow pulses detected
- 3.3.13.2: no bad packets from DUT detected

• 01: MHL_VERSION register matches CDF_CR_MHL_VER_MAJOR and CDF_CR_MHL_VER_MINOR	Fail
■ DUT has wrong major version; wanted 1 but got 0	
■ DUT minor version matches	
• 02: DEV_TYPE in the DEV_CAT(offset:0x02) register is 0b0010:Source	Fail
■ DUT DEV_TYPE doesn't match CDF; wanted 2 but got 0	
• 03: POW in the DEV_CAT(offset:0x02) register matches the CDF_CR_POW field in CDF	Pass
■ DUT POW is correct	
• 04: ADOPTER_ID_H(offset:0x03) and ADOPTER_ID_L(offset:0x04) register matches the corresponding CDF_CR_ADOPTER_ID_H and CDF_CR_ADOPTER_ID_L fields in the CDF	Pass
■ DUT ADOPTER_ID_H is correct	
■ DUT ADOPTER_ID_L is correct	
• 05: SUPP_RGB444, SUPP_YCBCR444, SUPP_YCBCR422, SUPP_PPIXEL, SUPP_ISLANDS and SUPP_VGA bits in the VID_LINK_MODE(offset:0x05) register match the corresponding CDF_CR_SUPP_RGB444, CDF_CR_SUPP_YCBCR444, CDF_CR_SUPP_YCBCR422, CDF_CR_SUPP_PPIXEL, CDF_CR_SUPP_ISLANDS and CDF_CR_SUPP_VGA field in the CDF	Pass
■ DUT SUPP_RGB444 is correct	
■ DUT SUPP_YCBCR444 is correct	
■ DUT SUPP_YCBCR422 is correct	
■ DUT SUPP_PPIXEL is correct	
■ DUT SUPP_ISLANDS is correct	

Save As Close

HTML Test Report:

- Shows detailed results for each whether pass or fail.

MHL CBUS Source Compliance – HTML Test Report

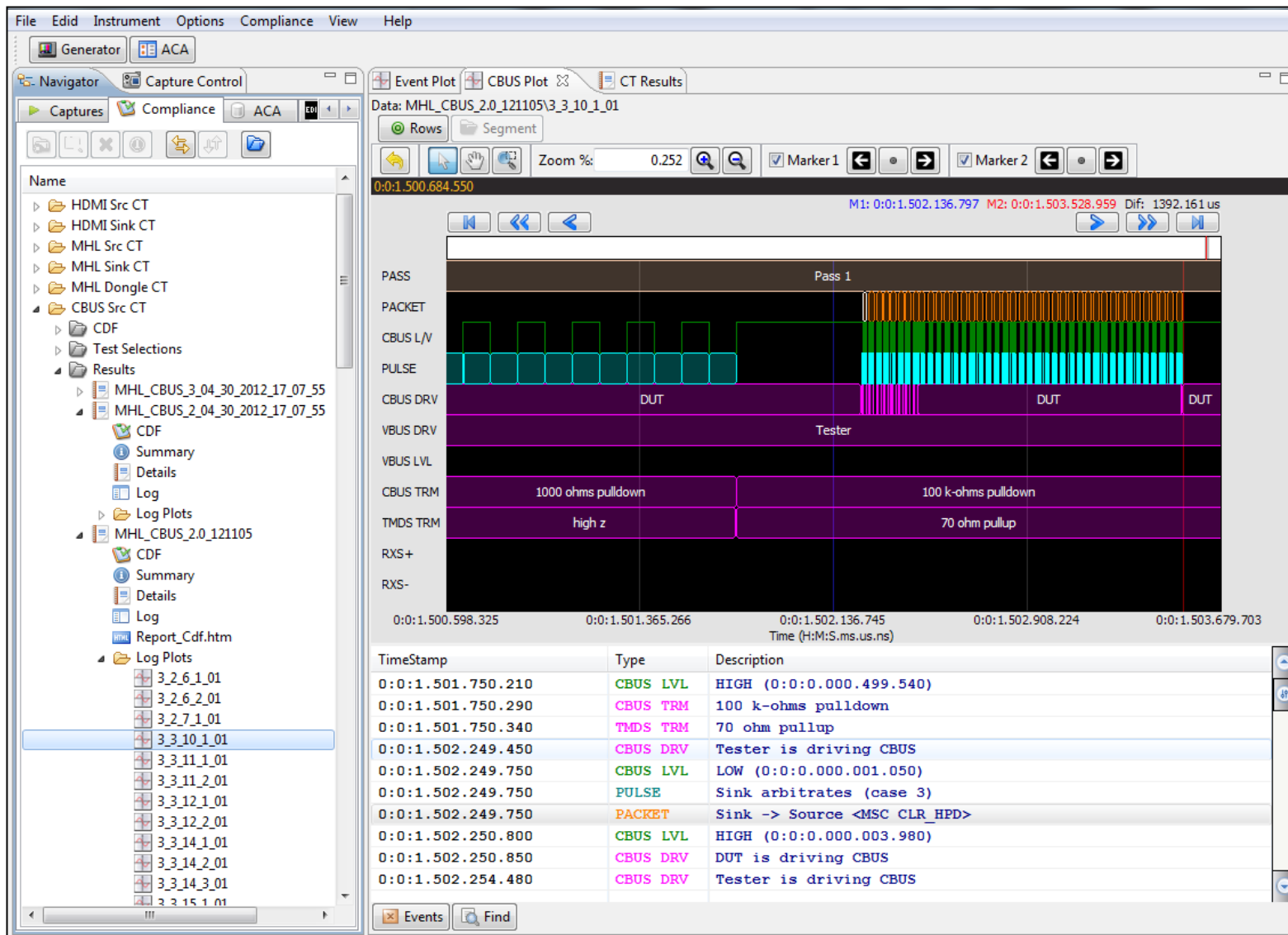
Test Equipment Information	
Instrument	
<pre>Name: Dan_980_CBUS IP Address: 192.168.254.155 Net Mask: 255.255.255.0 Gateway IP: 192.168.254.1 Version: QD980 Advanced Test platform Version: 4.3.0 MHL CBUS Protocol Analyzer in slot 1: Gateware: [Version: 0 Build Number: 1 (05:02:2012 100000) pcb: 23232323] Firmware: [Version: 1.0.0 beta Build Number: 242 (dsmith 05:02:2012 13:21:41 CDT)] System Information: SN : [N/A::N/A] Main Board : ["DG41RQ"] CPUx1 : [6.22.1 "Intel(R) Celeron(R) CPU 440 @ 2.00GHz"] DDR : [2 GB] HD : [WD1600BEVT-1] OS : [Linux xpscope-97 2.6.26-2-686 #1 SMP Wed Aug 19 06:06:52 UTC 2009 i686 GNU/Linux] GUI manager : [Version 3.1.0_26501_201107071448] 1 : [lo inet 127.0.0.1/8 scope host lo] 2 : [eth0 inet 192.168.254.155/24 brd 192.168.254.255 scope global eth0] HDMI SRC CTS: [2.4.4] MHL SRC CTS : [NOT Installed] HDMI SNK CTS: [NOT Installed]</pre>	
Host	
<pre>UI Name: Quantum Data 980 Manager - Version 3.1.14 UI Home: platform:/base/plugins/com.quantumdata.i980.app Java Vendor: Null Java Runtime: 1.6.0_15-b03 Java Home: C:\Users\mkendall\Desktop\MHL_CBUS_Release_4_26\980mgr\jre OS: win32 OS Arch: x86 Locale: en_US</pre>	

HTML Test Report:

- Show test equipment information.

MHL CBUS Log Plots – Source Tests

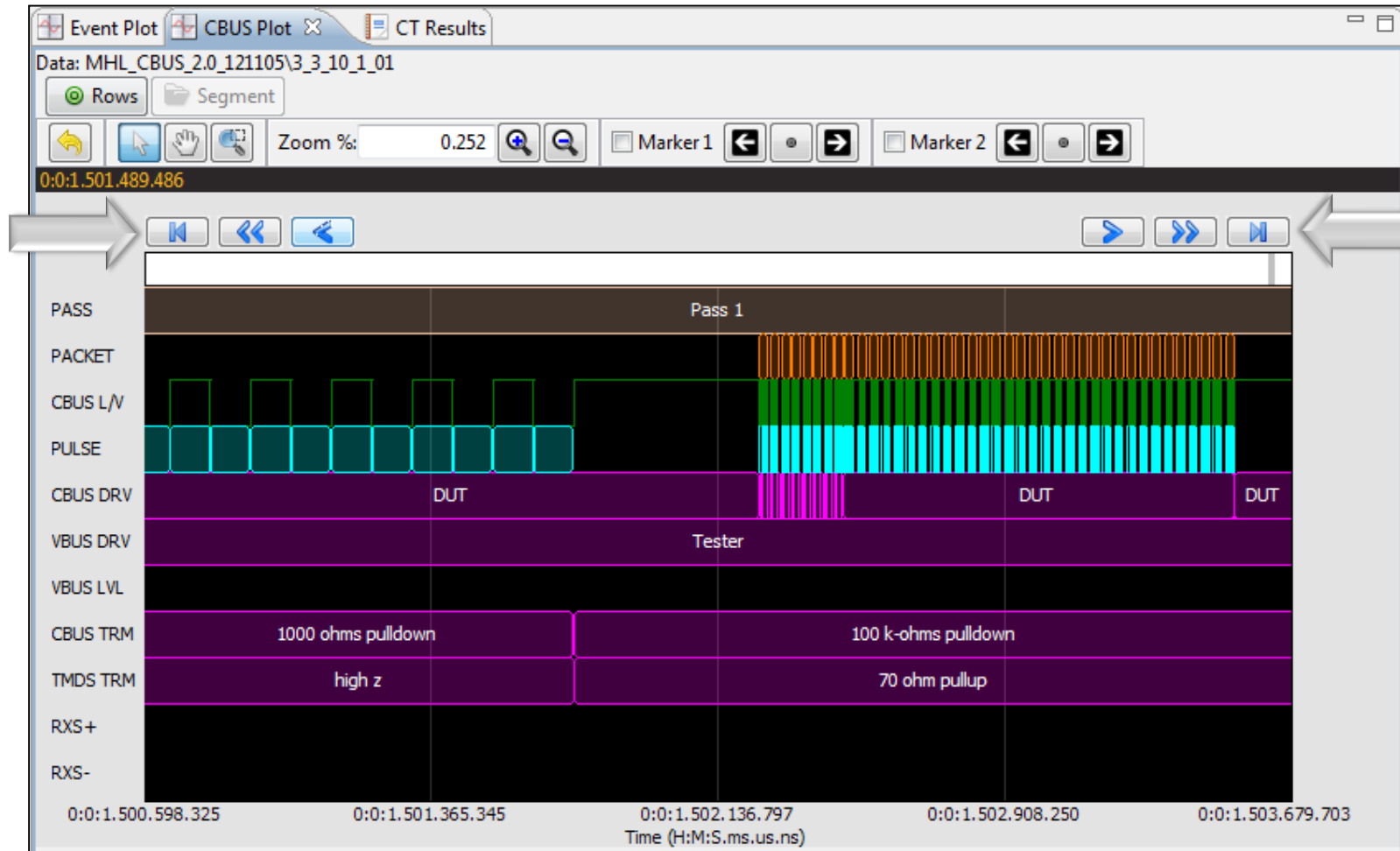
MHL CBUS Log Plots – Graphical Event View



CBUS Event Log Plot:

- View Events for each test.
- Access Event Log Plots from Navigator/Compliance panel.
- Diagnose compliance test failures.

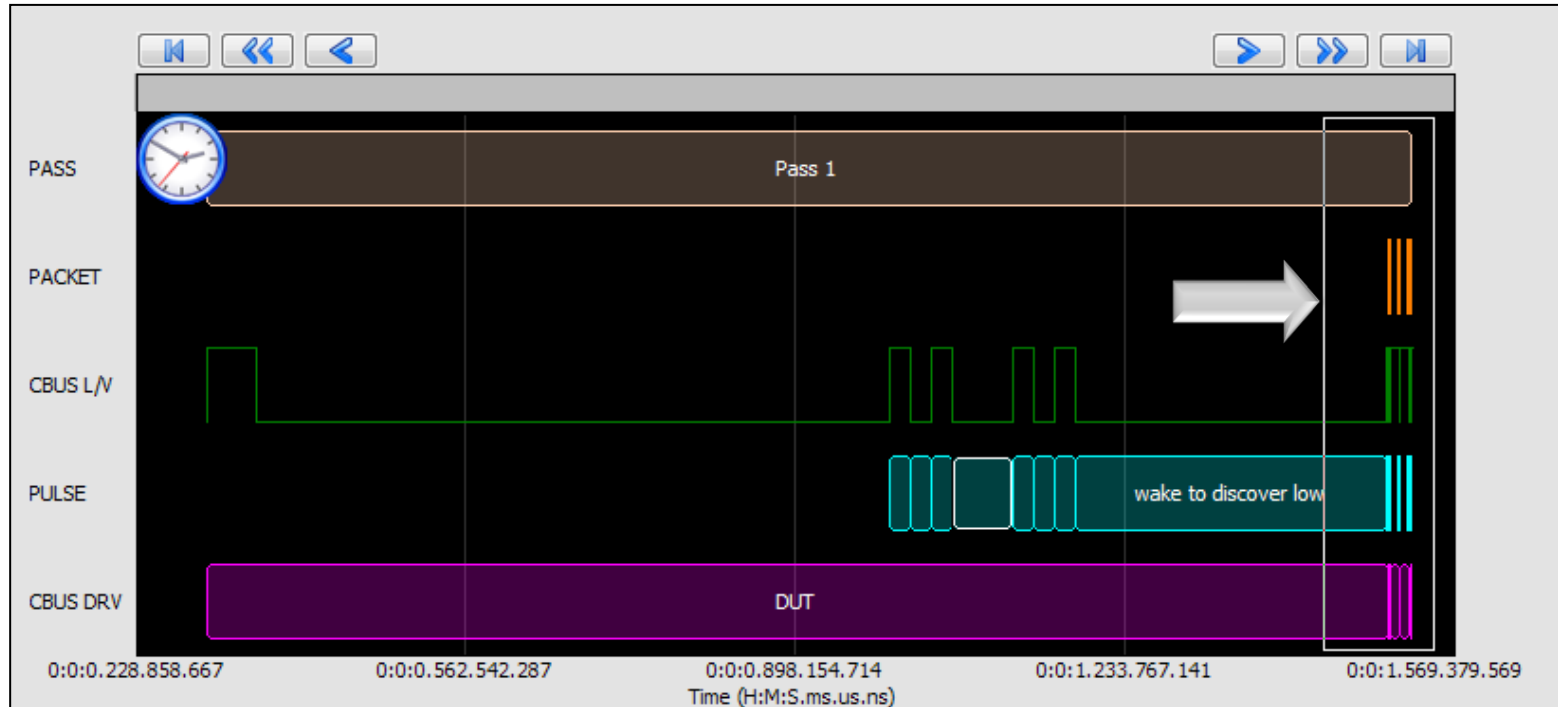
MHL CBUS Log Plots – Graphical Event View



Scrolling through the graphical time line view:

- Arrow forward and back.

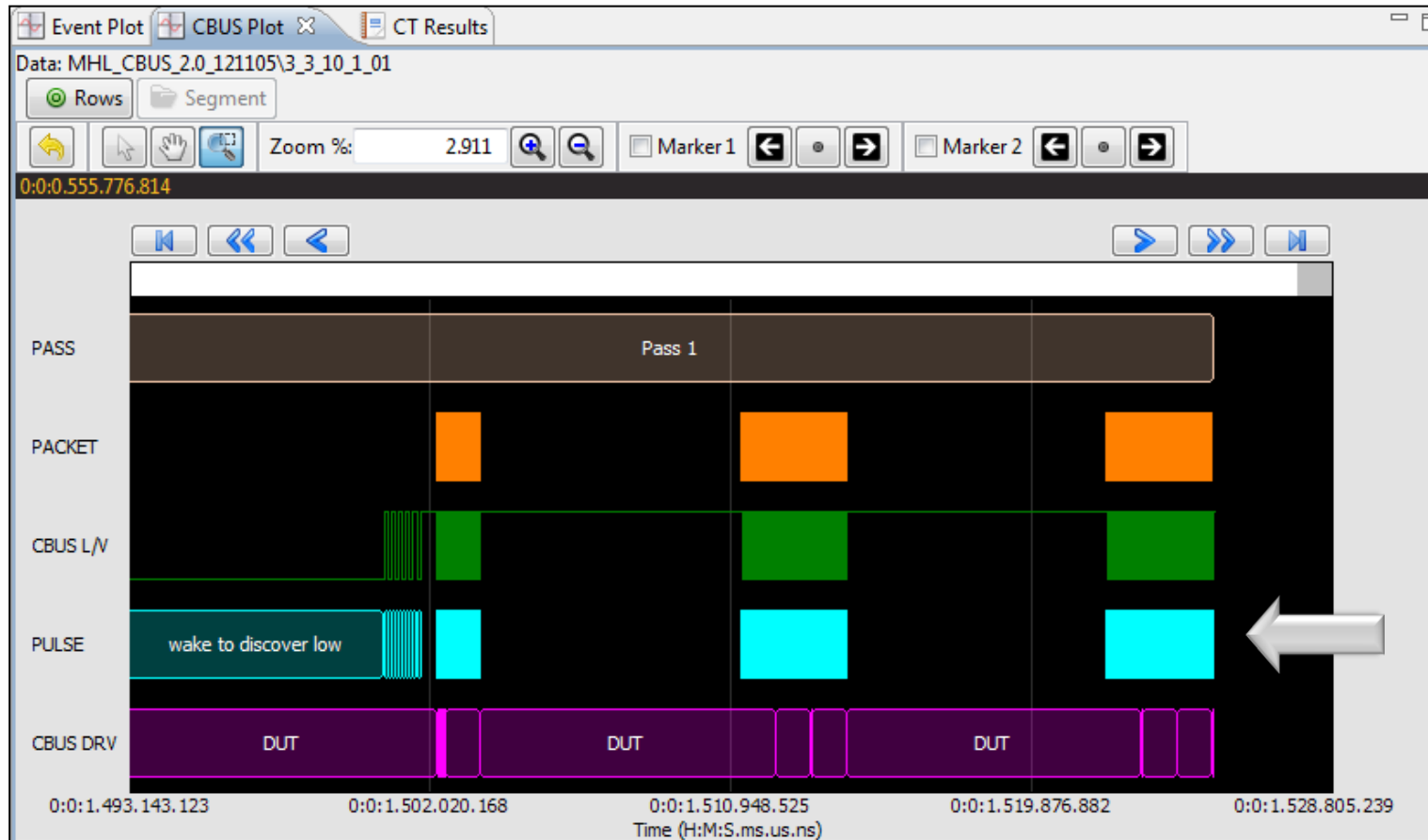
MHL CBUS Log Plots – Graphical Event View



Range Zoom tool.

- View a specific range of events on the Event Log Plot.
- Surround an area to zoom in.

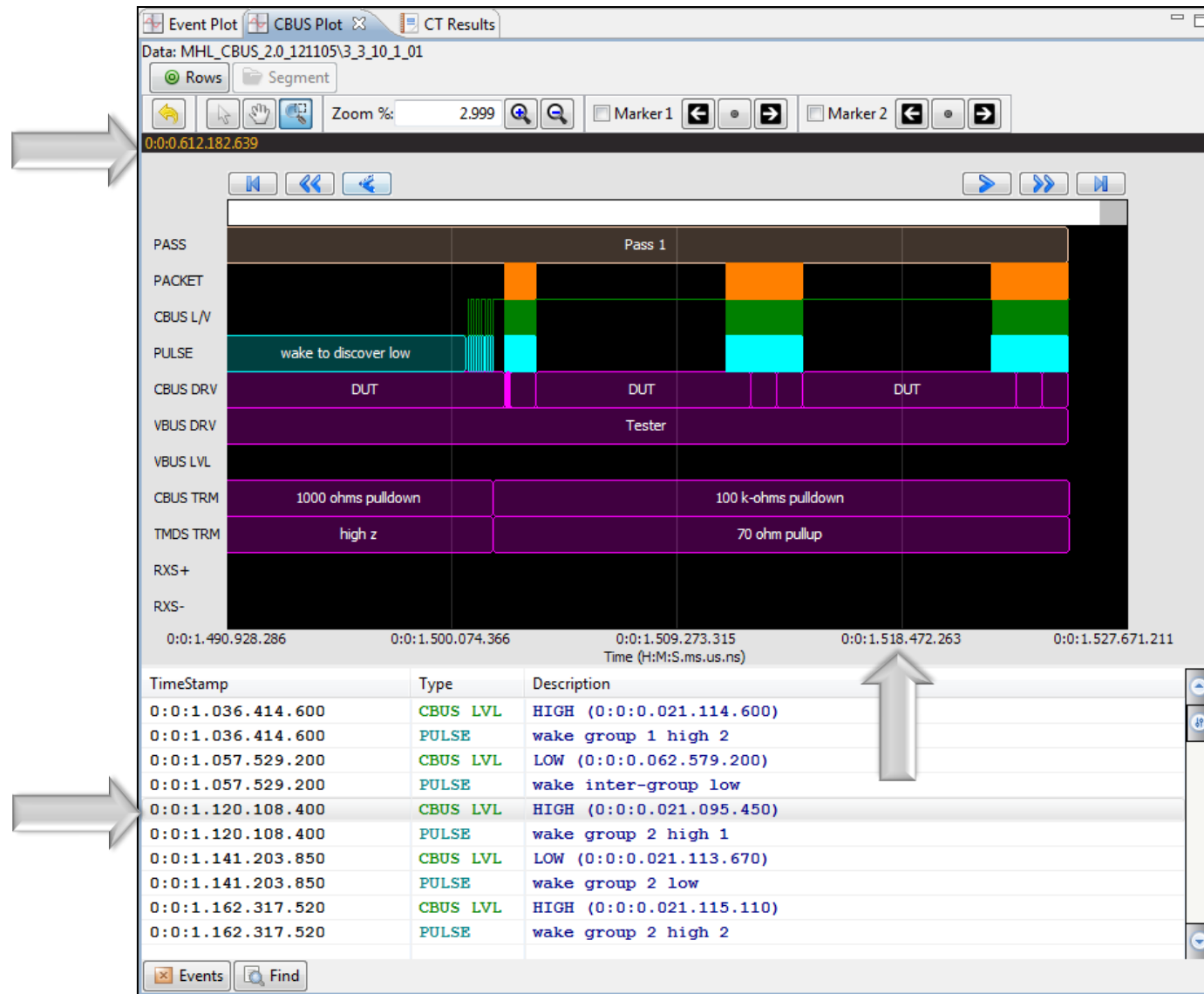
MHL CBUS Log Plots – Graphical Event View



Range Zoom tool.

- View a specific range of events on the Event Log Plot.
- Zoom select - Result.

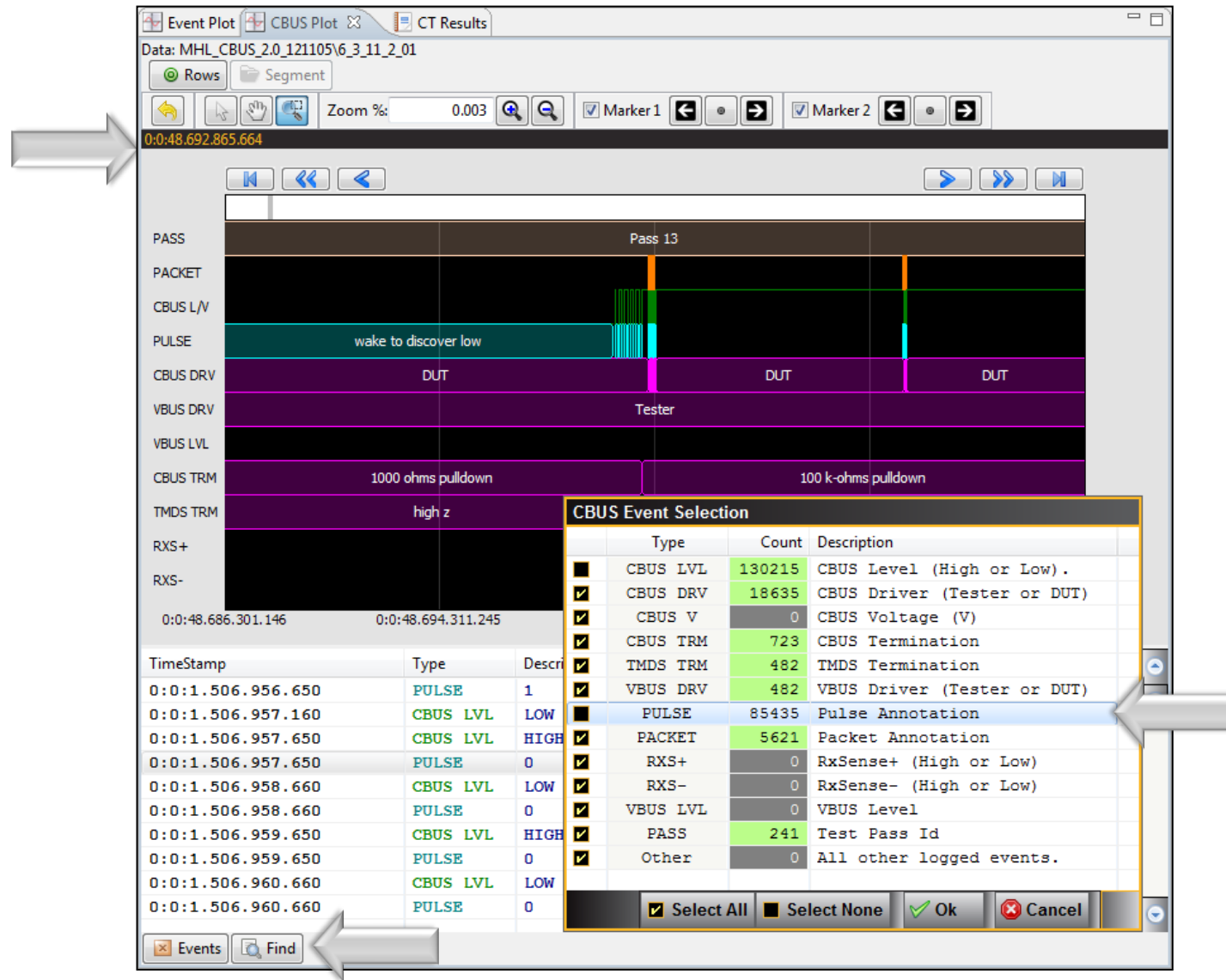
MHL CBUS Log Plots – Graphical Event View



CBUS Event Log Plot
Timestamps:

- Specific cursor location shown on top panel status strip.
- Shown on graphical timeline view.
- Shown in the table view for each event.

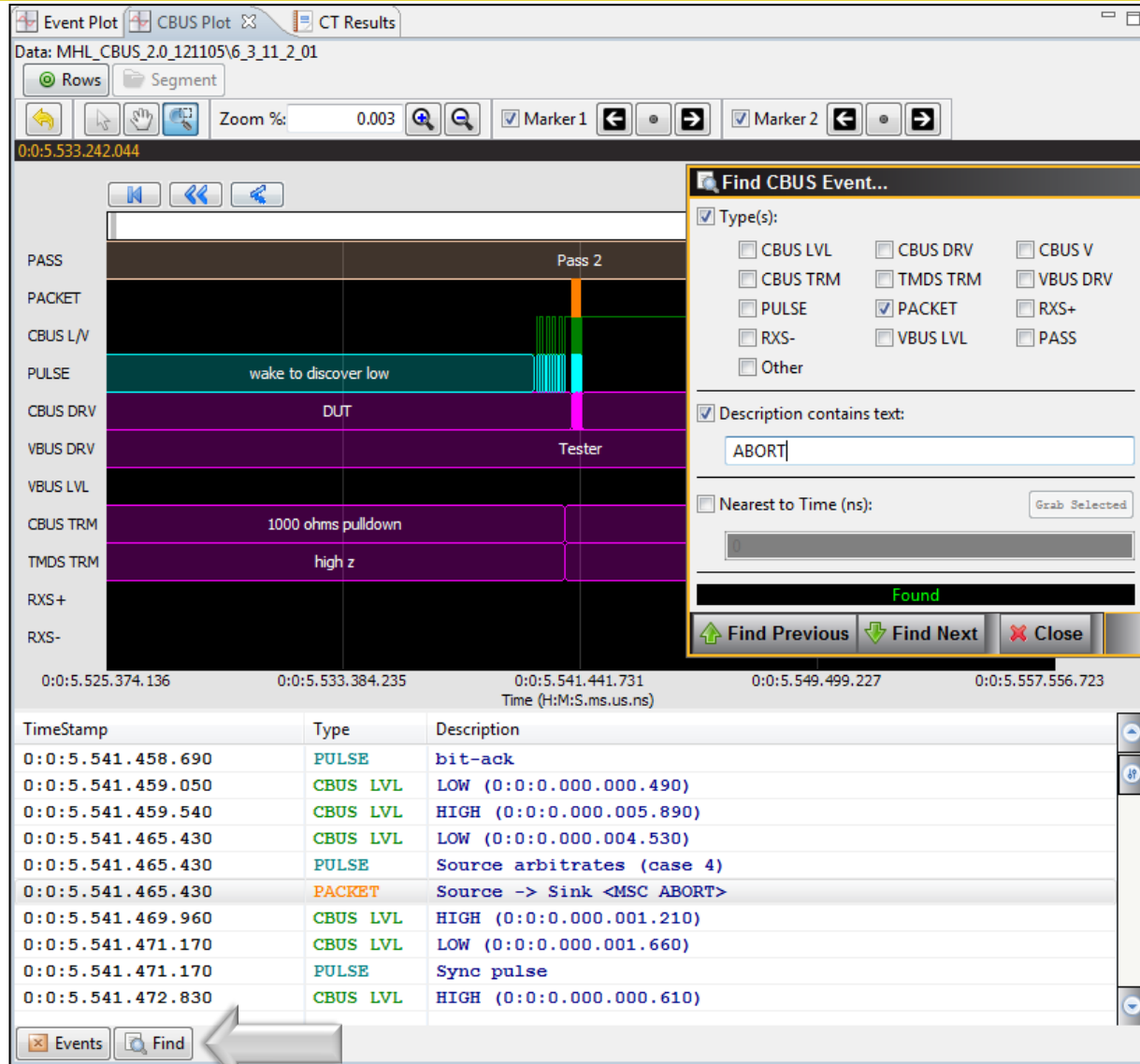
MHL CBUS Log Plots – Graphical Event View



CBUS Event Log Plot Filtering:

- Select which CBUS events to view on the plot.
- Example shows CBUS LVL and Pulse deselected.

MHL CBUS Log Plots – Graphical Event View



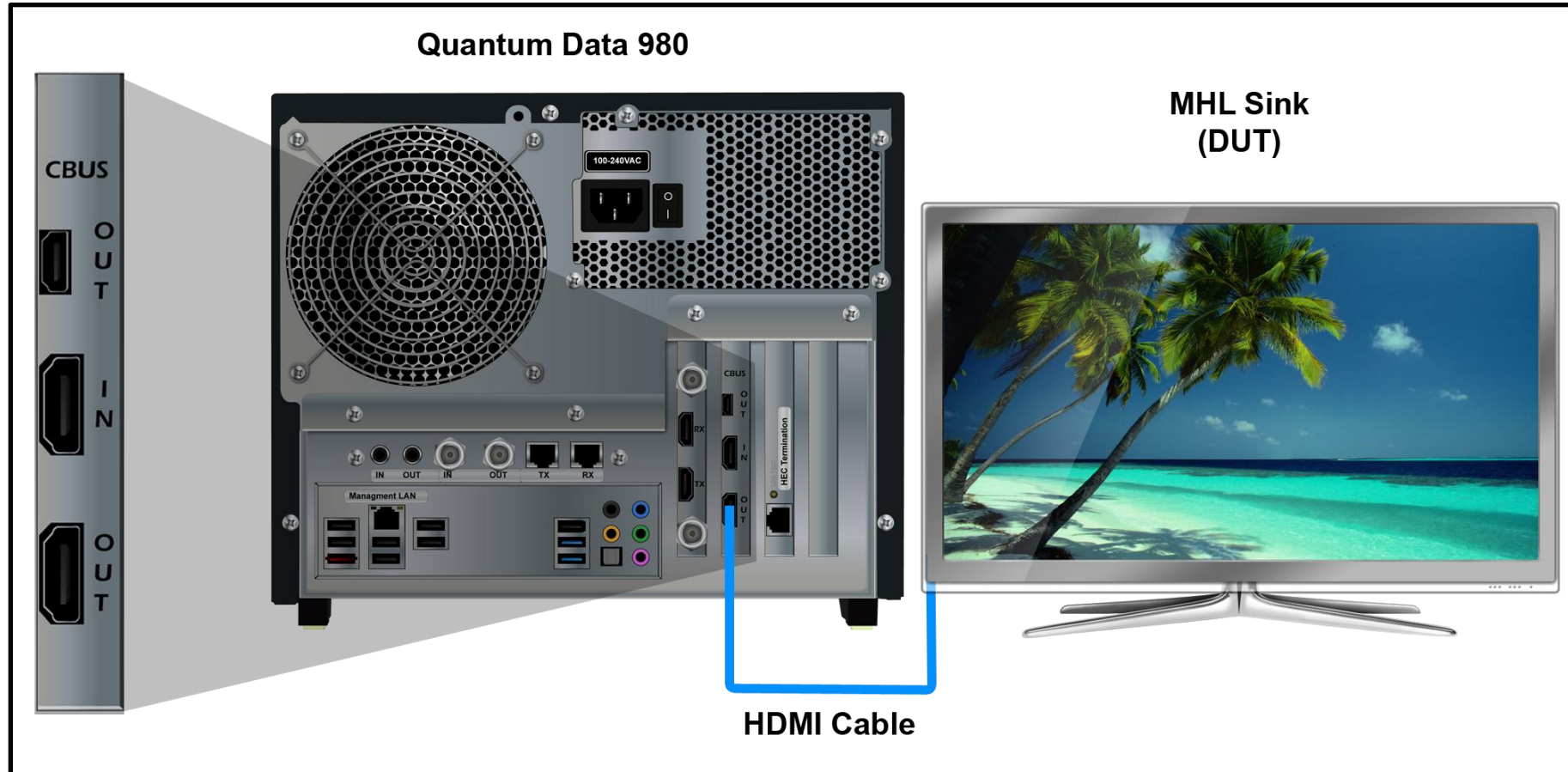
CBUS Event Log Plot Searching:

- Specify a CBUS event type (PACKET shown in example) to view on the plot.
- Enter text in a message (example ABORT).
- Search through the Event Log Plot forward and backward.

MHL CBUS Sink Compliance Test

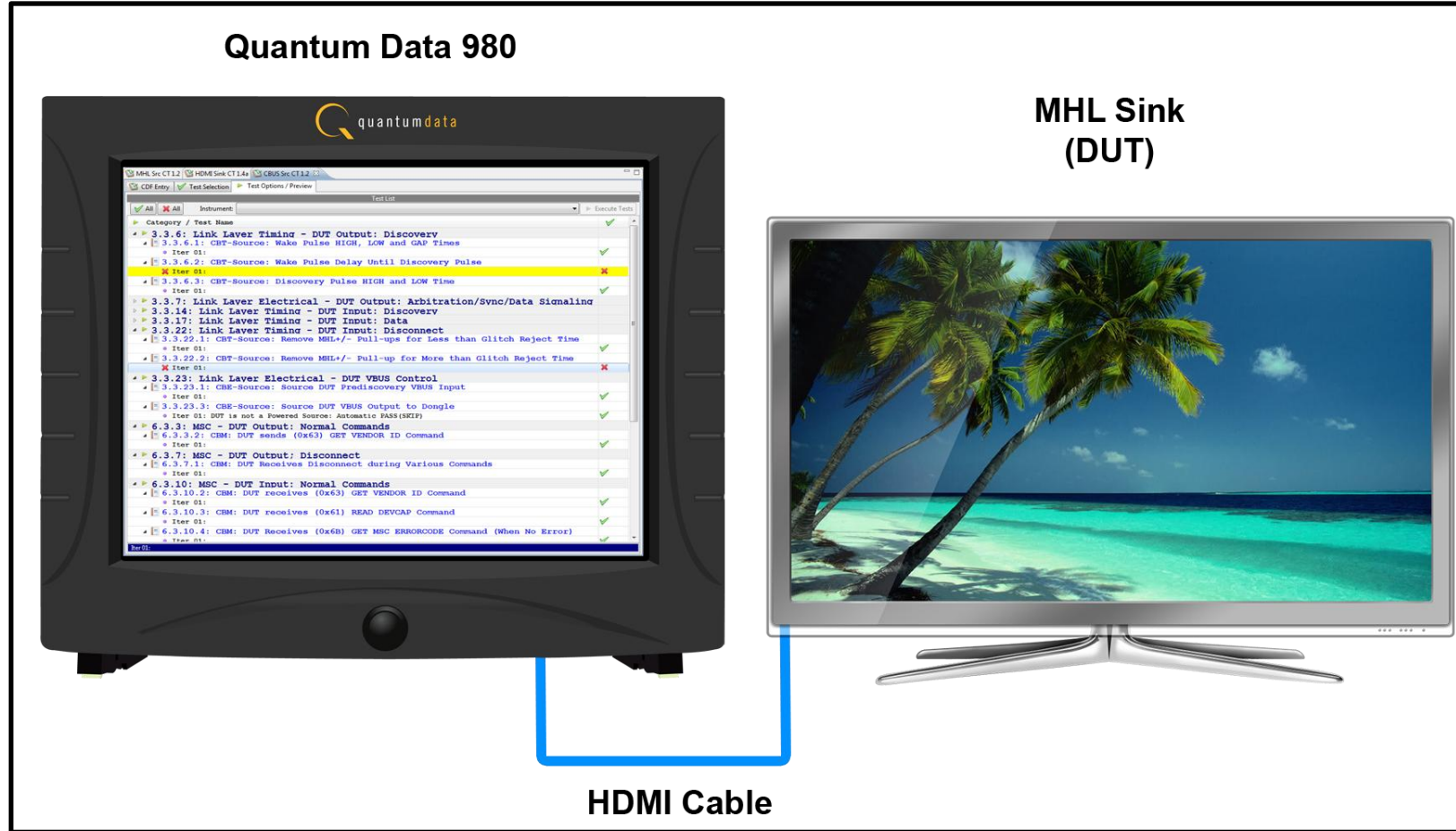
MHL CBUS Sink Compliance Test – Setup

- Test setup with external GUI shown below



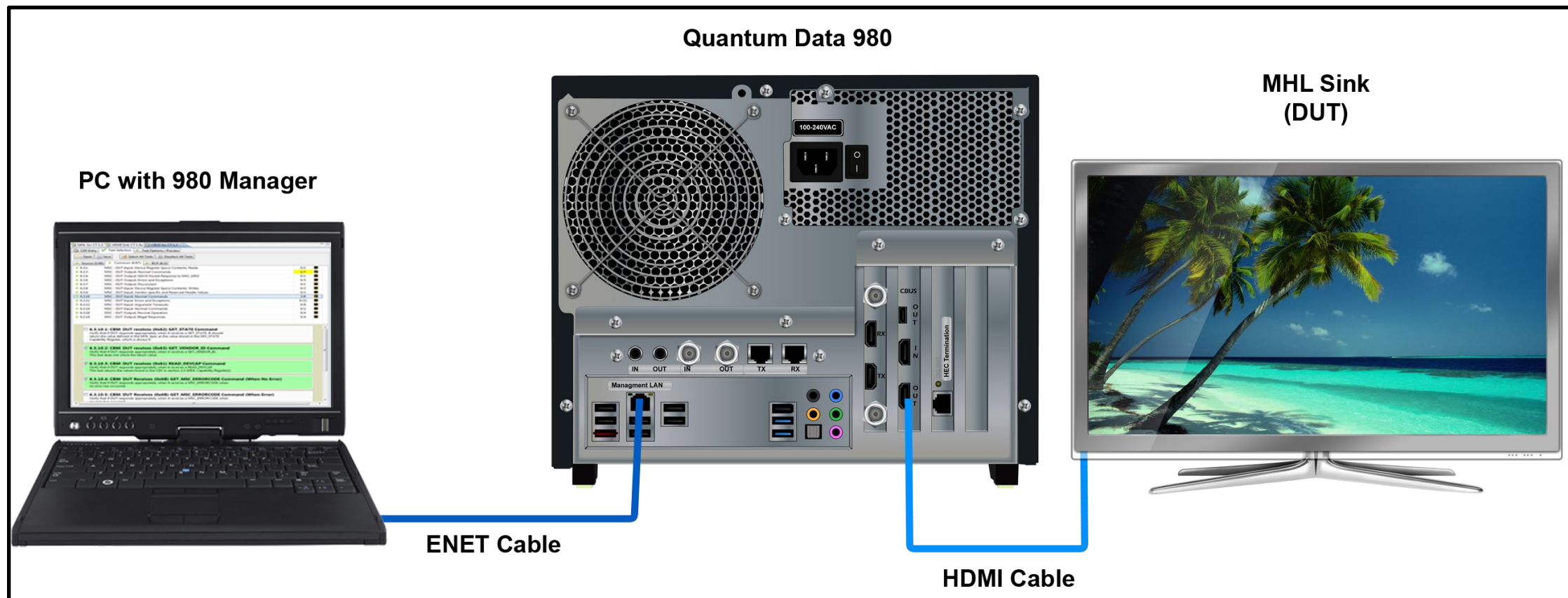
MHL CBUS Sink Compliance Test – Setup

- Run tests through the embedded GUI.



MHL CBUS Sink Compliance Test – Setup

- Run tests through the external GUI.



Note: Quantum Data provides a short HDMI cable with low capacitance for these tests.

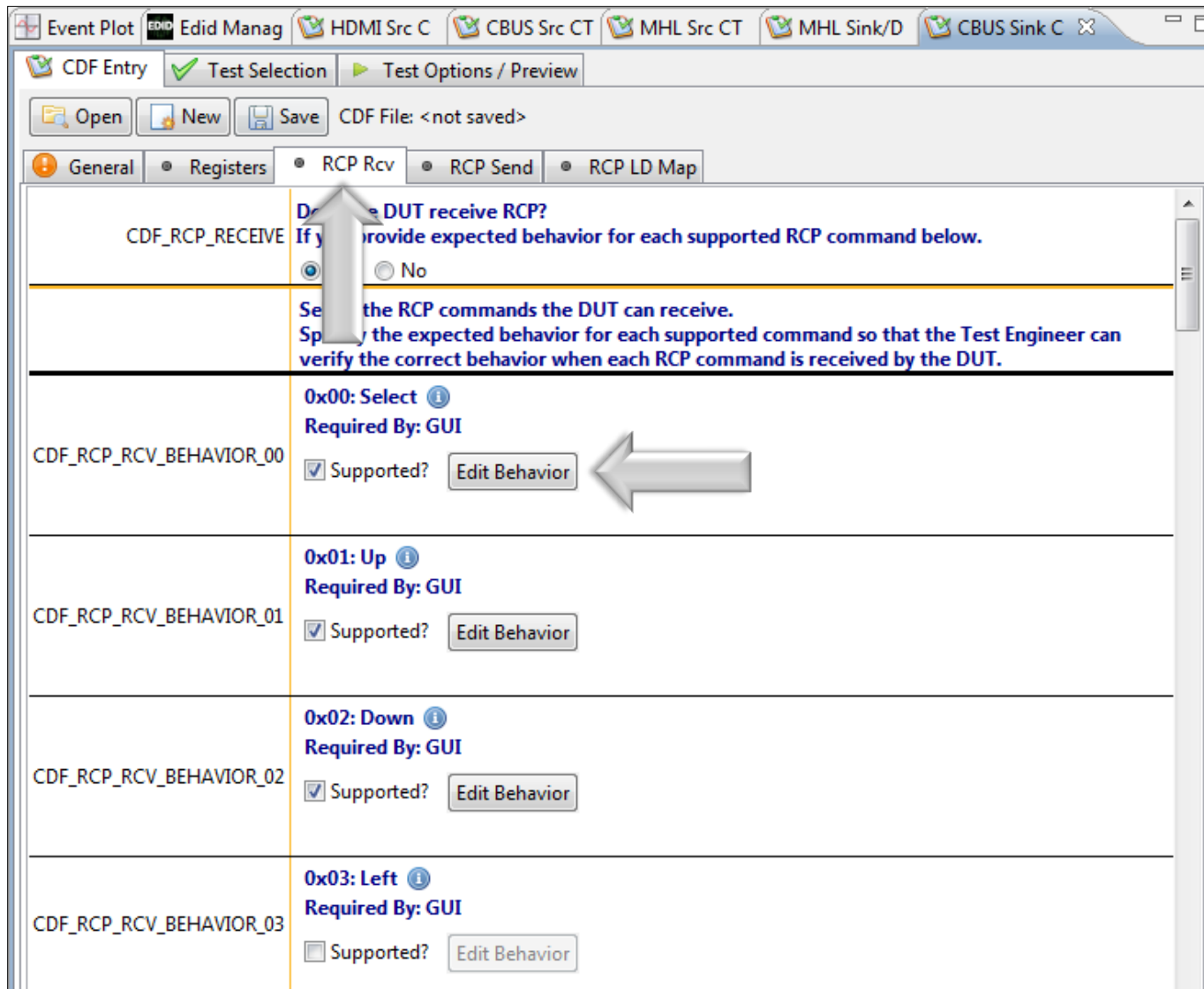
MHL CBUS Sink Compliance - CDF

Field Name	Description	Value
CDF_MFR_NAME	What is the product manufacturer's name?	Quantum Data
CDF_MODEL_NUMBER	What is the model name/number of the product?	980
CDF_SINK_CBUS_THRESHOLD_V	Voltage at which CBUS Timing Measurements should be taken. This voltage should be halfway between the HIGH and LOW CBUS voltages for data driven by this device. This will be related to the device's VOH.	0.90 V (0.75 to 1.05)
CDF_SINK_CABLE_DETECT_TO_R_DISCOVER	Time from Cable Detect until Sink presents valid Z_CBUS_SINK_DISCOVER.	60 sec. (0.0 to 300)
CDF_HDCP_SUPPORT	Is HDCP supported on this DUT?	<input type="radio"/> Yes <input checked="" type="radio"/> No
CDF_PROC_SET_ACTIVE	Set Device into Active Mode for Discovery Tests.	<input type="button" value="Edit Procedure"/>
CDF_PROC_SET_STANDBY	Set Device into Standby Mode for Discovery Tests.	<input type="checkbox"/> Standby Mode Supported? <input type="button" value="Edit Procedure"/>

CDF:

- Defines the capabilities of the device under test.
- Provides a series of tabs for each type of feature.
- Provides description of each field.
- Example: General tab.
- Determines which tests to run.

MHL CBUS Sink Compliance - CDF



CDF:

- Example: RCP Rcv tab.

Note: You can enter helpful information using the “Edit Procedure” dialog box. The information entered into this dialog box will appear during the test and can be helpful to users running an particular test.

MHL CBUS Sink Compliance - CDF

Event Plot | EDID Manag | HDMI Src C | CBUS Src CT | MHL Src CT | MHL Sink/D | CBUS Sink C

CDF Entry | Test Selection | Test Options / Preview

Open | New | Save | CDF File: <not saved>

General | Registers | RCP Rcv | RCP Send | RCP LD Map

Does the DUT send RCP?
If yes, provide procedures for each supported RCP command below.

Yes No

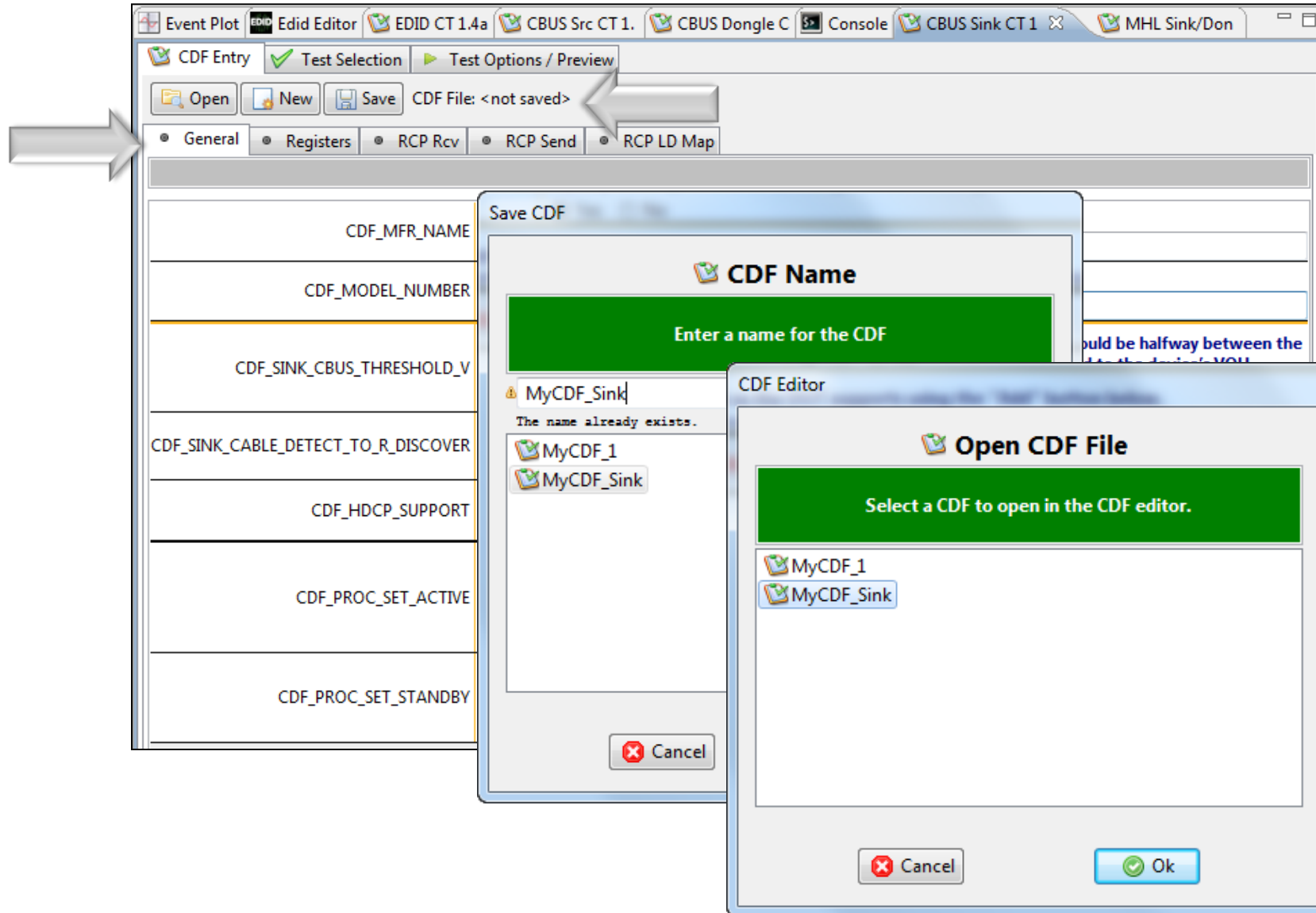
Select the RCP commands the DUT can send.
Specify the procedure for each supported command so that the Test Engineer can force the DUT to output each RCP command, using these detailed steps and the DUT's user interface.

CDF_RCP_SEND_PROCEDURE_00	0x00: Select	<input checked="" type="checkbox"/> Supported?	Edit Procedure
CDF_RCP_SEND_PROCEDURE_01	0x01: Up	<input checked="" type="checkbox"/> Supported?	Edit Procedure
CDF_RCP_SEND_PROCEDURE_02	0x02: Down	<input checked="" type="checkbox"/> Supported?	Edit Procedure
CDF_RCP_SEND_PROCEDURE_03	0x03: Left	<input checked="" type="checkbox"/> Supported?	Edit Procedure
CDF_RCP_SEND_PROCEDURE_04	0x04: Right	<input checked="" type="checkbox"/> Supported?	Edit Procedure

CDF:

- Example: RCP Send Tab.

MHL CBUS Sink Compliance – CDF Saving and Loading



CDF:

- Status of the file is shown in the header area. Either the name will be indicated or “<not saved>”.
- Save and reuse CDF definitions.
- Saves time of re-entering data.
- Files can be transferred to colleagues to help expedite product capability selection process in a test series.

CBUS Sink Compliance Test Selection

MHL CBUS Sink Compliance – Test Selection

Test Selection:

- Determine which specific tests to run in a test suite.
- Select all tests or select specific test sections or particular tests within each section.
- Check box indicators inform how many tests in each section and how many are selected.
- Example: CBUS Sink test tab with Link Layer Timing – DUT Output Bus Re-Arbitration.

The screenshot displays the 'Test Selection' window in the MHL Sink/Don software. The window is organized into a tree view with the following sections:

- Sink (21/33)
 - Common (68/68)
 - EDID/Registers (0/2)
 - RCP (2/2)

The 'Link Layer Timing - DUT Output: Bus Re-Arbitration' section (4.3.11) is expanded, showing a list of tests with their status (selected/total) and checkboxes:

Test ID	Test Description	Status	Checkbox
4.3.3	Link Layer Electrical: Absolute Maximum Voltages	3/3	<input checked="" type="checkbox"/>
4.3.4	Link Layer Electrical - DUT Output: Standby Discovery Impedance	0/1	<input checked="" type="checkbox"/>
4.3.5	Link Layer Timing - DUT Output: Pre-Discovery	1/1	<input checked="" type="checkbox"/>
4.3.6	Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	4/4	<input checked="" type="checkbox"/>
4.3.7	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	0/2	<input checked="" type="checkbox"/>
4.3.8	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	2/2	<input checked="" type="checkbox"/>
4.3.9	Link Layer Timing - DUT Output: Link Level NACK	1/1	<input checked="" type="checkbox"/>
4.3.10	Link Layer Timing - DUT Output: Link Level ACK	0/2	<input checked="" type="checkbox"/>
4.3.11	Link Layer Timing - DUT Output: Bus Re-Arbitration	3/4	<input checked="" type="checkbox"/>
4.3.12	Link Layer Timing - DUT Output: Ill-formed packets	2/2	<input checked="" type="checkbox"/>
4.3.13	Link Layer Electrical - DUT Input: Discovery	1/1	<input checked="" type="checkbox"/>
4.3.14	Link Layer Timing - DUT Input: Discovery OK	0/3	<input checked="" type="checkbox"/>
4.3.15	Link Layer Timing - DUT Input: Discovery Reject	2/2	<input checked="" type="checkbox"/>
4.3.16	Link Layer Electrical - DUT Input: Arbitration/Sync/Data Signaling	1/1	<input checked="" type="checkbox"/>
4.3.17	Link Layer Timing - DUT Input: Arbitration	0/2	<input checked="" type="checkbox"/>
4.3.18	Link Layer Timing - DUT Input: Data	1/1	<input checked="" type="checkbox"/>
4.3.19	Link Layer Timing - DUT Input: NACK	0/1	<input checked="" type="checkbox"/>
4.3.20	Link Layer Timing - DUT Input: ACK	1/1	<input checked="" type="checkbox"/>
4.3.21	Link Layer Timing - DUT Input: Bus Re-Arbitration	1/1	<input checked="" type="checkbox"/>

The expanded view for the selected test (4.3.11.1) shows the following details:

- 4.3.11.1: CBT-Sink: Sink uses Case 2 Regular Arbitration after NACK**
Verify that Sink DUT backs off after a link-level NACK, and uses Case 2 regular arbitration timing to re-acquire the bus.
- 4.3.11.2: CBT-Sink: Sink Case 3 Long Re-arbitration when it Gives up the Bus**
Verify that Sink DUT uses Case 3 Long Arbitration whenever it gives up the bus and later re-acquires it.
- 4.3.11.3: CBT-Sink: Sink Uses Case 1 Back-to-Back Timing (No Re-arbitration)**
Verify that Sink DUT uses correct delay from ACK period start to Sync falling edge on Case 1 back-to-back packet sends.
- 4.3.11.4: CBT-Sink: Sink Never Sends Too Many Back-to-Back Packets**
Continuously monitor the CBUS to verify that the Sink DUT does not send too many packets back-to-back.

MHL CBUS Sink Compliance – Test Selection

The screenshot displays the 'Test Selection' window in the MHL Sink/Don software. The interface shows a tree view of test categories: Sink (21/33), Common (68/68), EDID/Registers (0/2), and RCP (2/2). The 'Common' category is expanded, showing a list of tests with their pass/fail counts and checkboxes. A large arrow points to the 'Common' category, and another arrow points to the '6.3.12' test category. Below the list, a detailed view of the selected test '6.3.12.1: CBM: DUT Receives (0x61) READ_DEVCAP - Offset Timeout' is shown, along with its description and other sub-tests in the same category.

Test ID	Description	Pass/Fail	Checkbox
6.3.1	MSC - DUT Input: Device Register Space Contents; Reads	1/1	<input checked="" type="checkbox"/>
6.3.2	MSC - DUT Output: Vendor-specific and Reserved Header Values	1/1	<input checked="" type="checkbox"/>
6.3.3	MSC - DUT Output: Normal Commands	7/7	<input checked="" type="checkbox"/>
6.3.5	MSC - DUT Output: Never Initiates Bad Commands	7/7	<input checked="" type="checkbox"/>
6.3.6	MSC - DUT Output: Errors and Exceptions	5/5	<input checked="" type="checkbox"/>
6.3.7	MSC - DUT Output: Disconnect	1/1	<input checked="" type="checkbox"/>
6.3.8	MSC - DUT Input: Device Register Space Contents; Writes	2/2	<input checked="" type="checkbox"/>
6.3.9	MSC - DUT Input: Vendor-specific and Reserved Header Values	1/1	<input checked="" type="checkbox"/>
6.3.10	MSC - DUT Input: Normal Commands	8/8	<input checked="" type="checkbox"/>
6.3.11	MSC - DUT Input: Errors and Exceptions	22/22	<input checked="" type="checkbox"/>
6.3.12	MSC - DUT Input: Argument Timeouts	9/9	<input checked="" type="checkbox"/>
6.3.15	MSC - DUT Output: Normal Commands	2/2	<input checked="" type="checkbox"/>
6.3.16	MSC - DUT Input: Errors and Exceptions	2/2	<input checked="" type="checkbox"/>
6.3.20	DDC - DUT Input; Continuous Monitors and Normal Operation	2/2	<input checked="" type="checkbox"/>
6.3.21	DDC - DUT Input; Normal Operation	5/5	<input checked="" type="checkbox"/>
6.3.22	DDC - DUT Input; Illegal Responses	3/3	<input checked="" type="checkbox"/>

6.3.12.1: CBM: DUT Receives (0x61) READ_DEVCAP - Offset Timeout
Verify that if DUT does something predictable when it receives a READ_DEVCAP followed by a timeout instead of an Offset.

6.3.12.2: CBM: DUT Receives (0x60) SET_INT / WRITE_STAT - Offset Timeout
Verify that if DUT does something predictable when it receives a SET_INT / WRITE_STAT followed timeout instead of an Offset.

6.3.12.3: CBM: DUT Receives (0x60) SET_INT - Data Timeout
Verify that if DUT does something predictable when it receives a SET_INT followed by an offset followed by a timeout waiting for the Data.

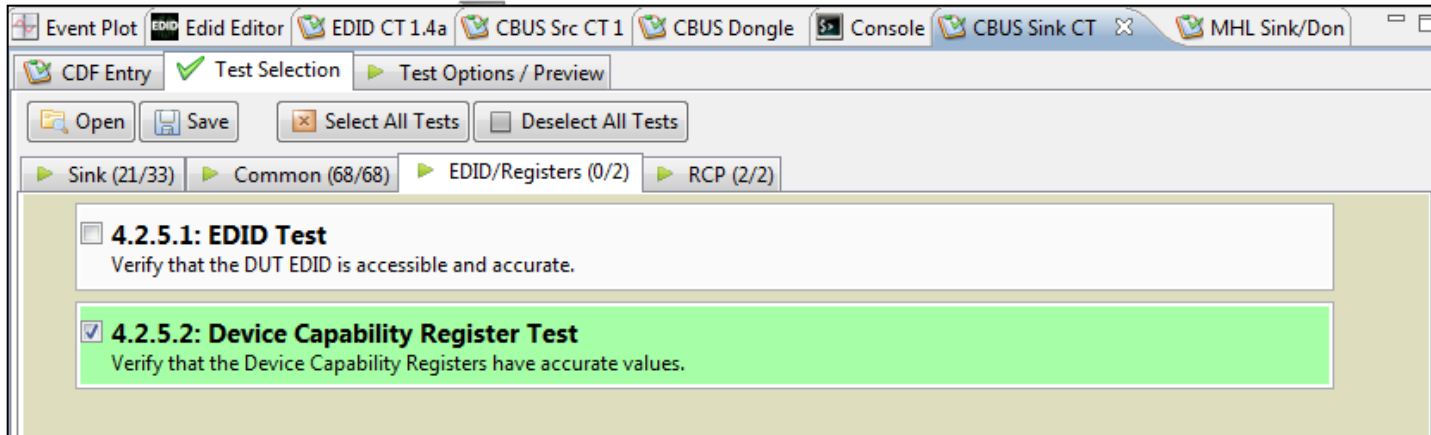
6.3.12.4: CBM: DUT Receives (0x60) WRITE_STAT - Data Timeout
Verify that if DUT does something predictable when it receives a WRITE_STAT followed by an Offset followed by a timeout instead of data.

6.3.12.5: CBM: DUT Receives (0x6C) WRITE_BURST - Offset Timeout

Test Selection:

- Select “Common” Sink tests for MSC and DDC.

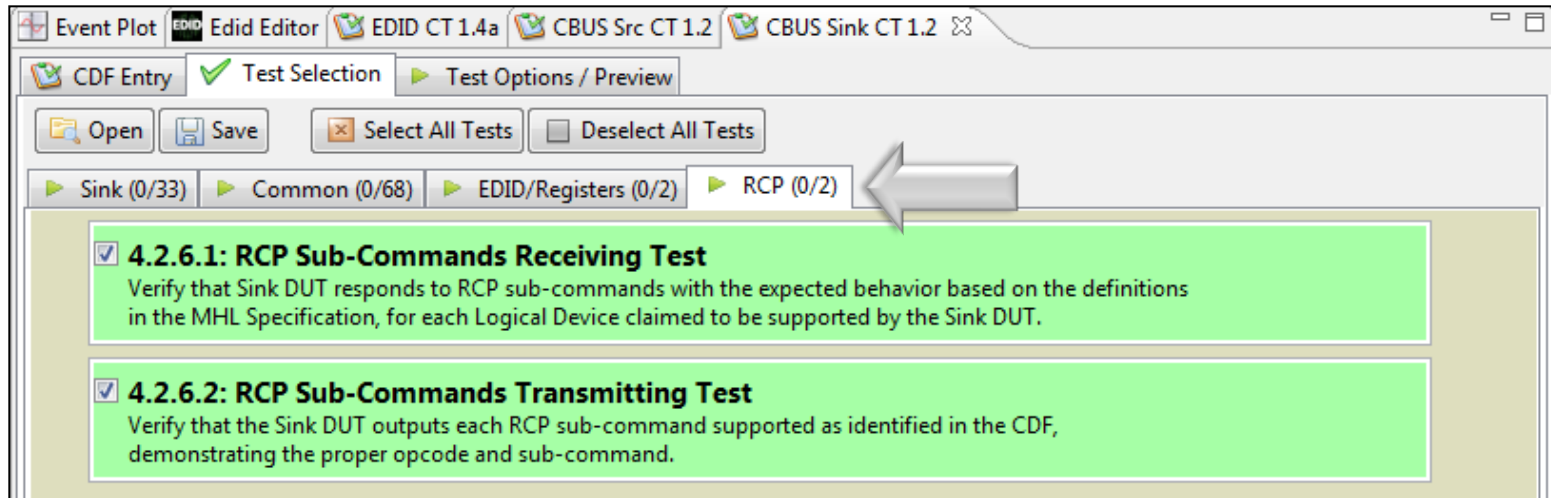
MHL CBUS Sink Compliance – Test Selection



Test Selection:

- Select EDID Registers Tests.

MHL CBUS Sink Compliance – Test Selection



Test Selection:

- Select “RCP” Sub-commands.

MHL CBUS Sink Compliance – Test Selection

The screenshot shows the 'Test Selection' window of the MHL Sink Compliance software. The main window displays a tree view of test categories and a table of selected tests. A grey arrow points to the 'Open' button in the top toolbar. Another grey arrow points to the 'Test Selection File' dialog box, which is open over the test list. This dialog box has a green header and a text input field containing 'MySelect_Sink.xml'. Below the input field, a file named 'MySelect1.xml' is listed. A third grey arrow points to the 'Open Test Selection File' dialog box, which is also open. This dialog box has a green header and a list of files: 'MySelect1.xml' and 'MySelect_Sink.xml'. The 'MySelect_Sink.xml' file is selected. Both dialog boxes have 'Cancel' and 'Ok' buttons at the bottom.

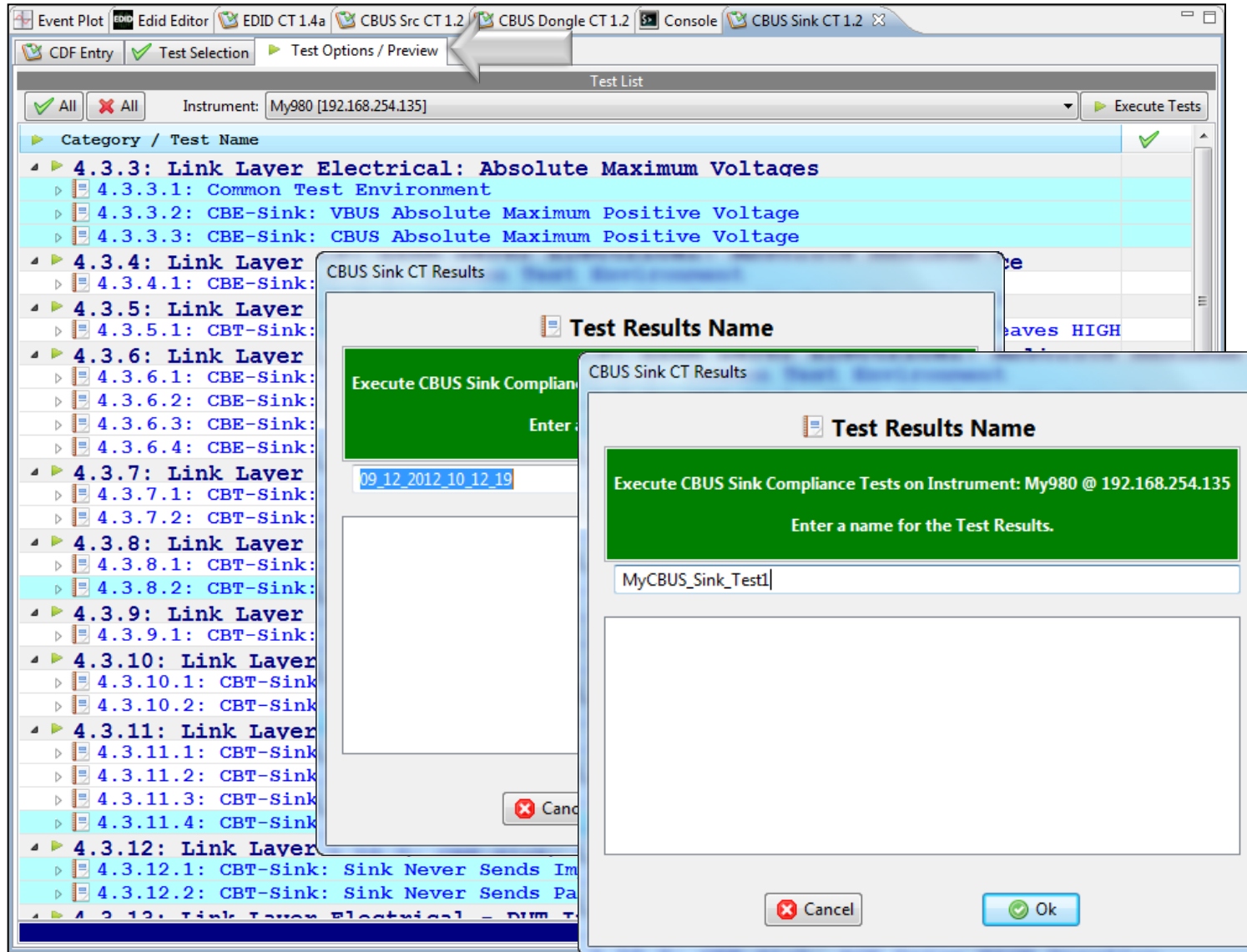
Test ID	Test Name	Progress	Status
4.3.3	Link Layer Electrical: Absolute Maximum Voltages	3/3	✓
4.3.4	Link Layer Electrical - DUT Output: Standby Discovery Impedance	0/1	✗
4.3.5	Link Layer Timing - DUT Output: Pre-Discovery	1/1	✓
4.3.6	Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	4/4	✓
4.3.7	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	0/2	✗
4.3.8	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	2/2	✓
4.3.9	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	1/1	✓
4.3.10	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	0/2	✗
4.3.11	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	3/4	✓
4.3.12	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times		
4.3.13	Link Layer Electrical - DUT Output: Standby Discovery Impedance		
4.3.14	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds		
4.3.15	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times		
4.3.16	Link Layer Electrical - DUT Output: Standby Discovery Impedance		
4.3.17	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds		
4.3.18	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times		
4.3.19	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds		
4.3.20	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times		
4.3.21	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds		

Test Selection:

- Save and reuse Test Select definitions.
- Saves time of re-entering specific tests.

Reviewing the CBUS Sink Compliance Tests

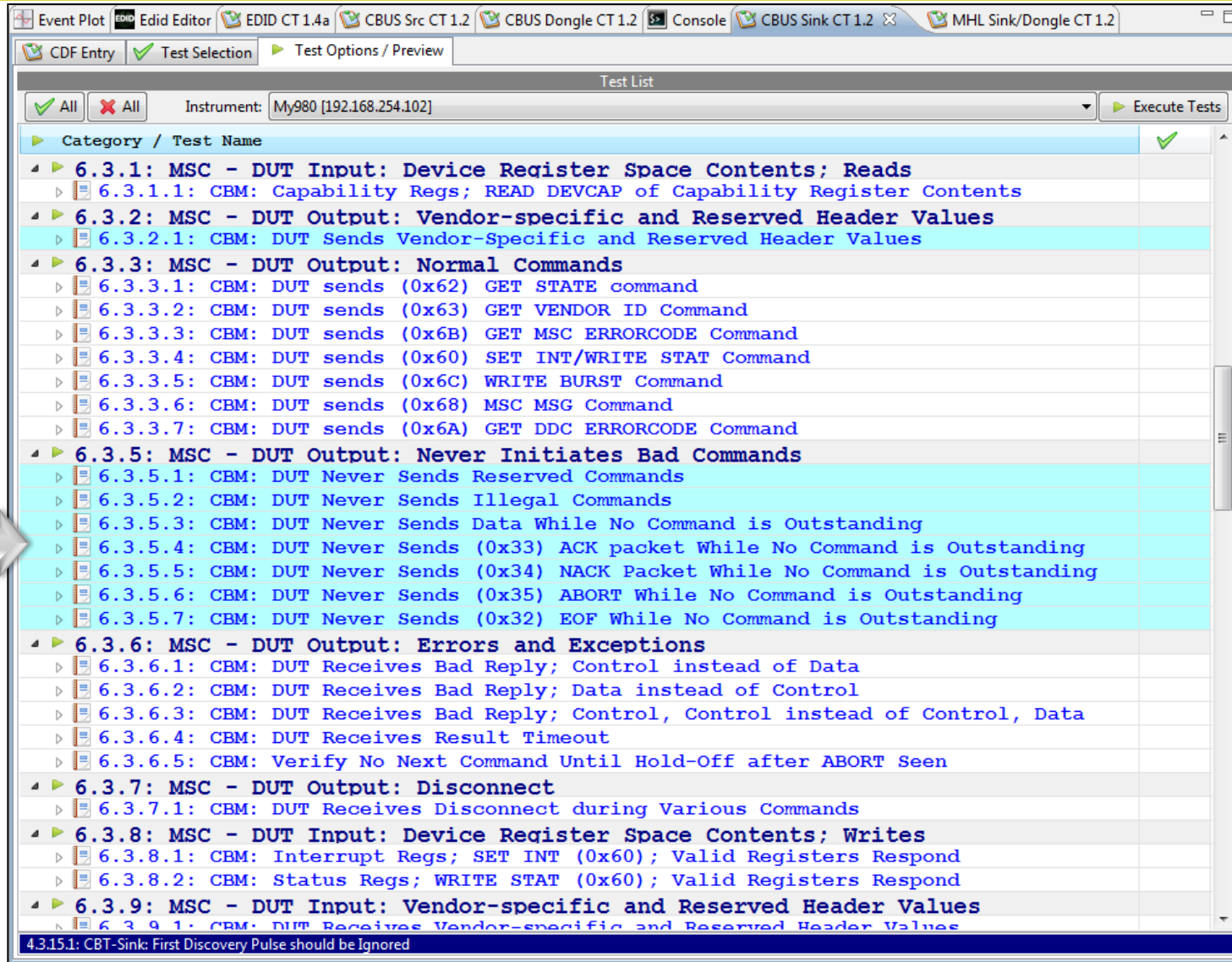
MHL CBUS Sink Compliance – Review Test Selections



Test Options / Preview:

- Review list of tests by Section.
- Example: Section 4.3.x.

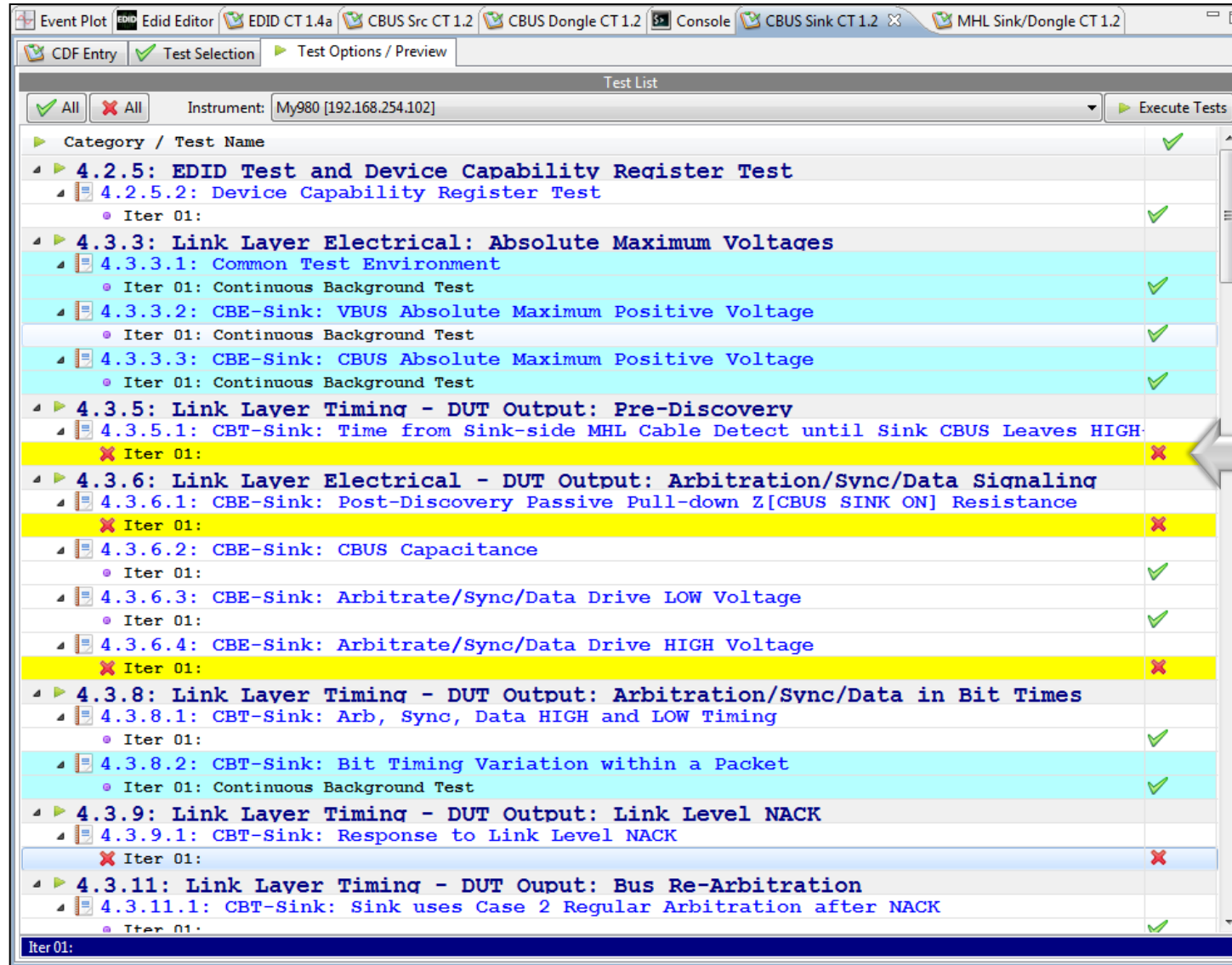
MHL CBUS Sink Compliance – Review Test Selections



Test Options / Preview:

- Review list of tests by Section.
- Example: Section 6.3.5.x.
- Tests highlighted in blue are test that are run in background mode.

MHL CBUS Sink Compliance – Review Test Selections



The screenshot shows a software window titled "Test List" with a toolbar containing "All", "Test Selection", and "Test Options / Preview". The instrument is identified as "My980 [192.168.254.102]". The table below lists various tests, their sub-items, and their execution status. A grey arrow points to the failed "Iter 01" for test 4.3.5.1.

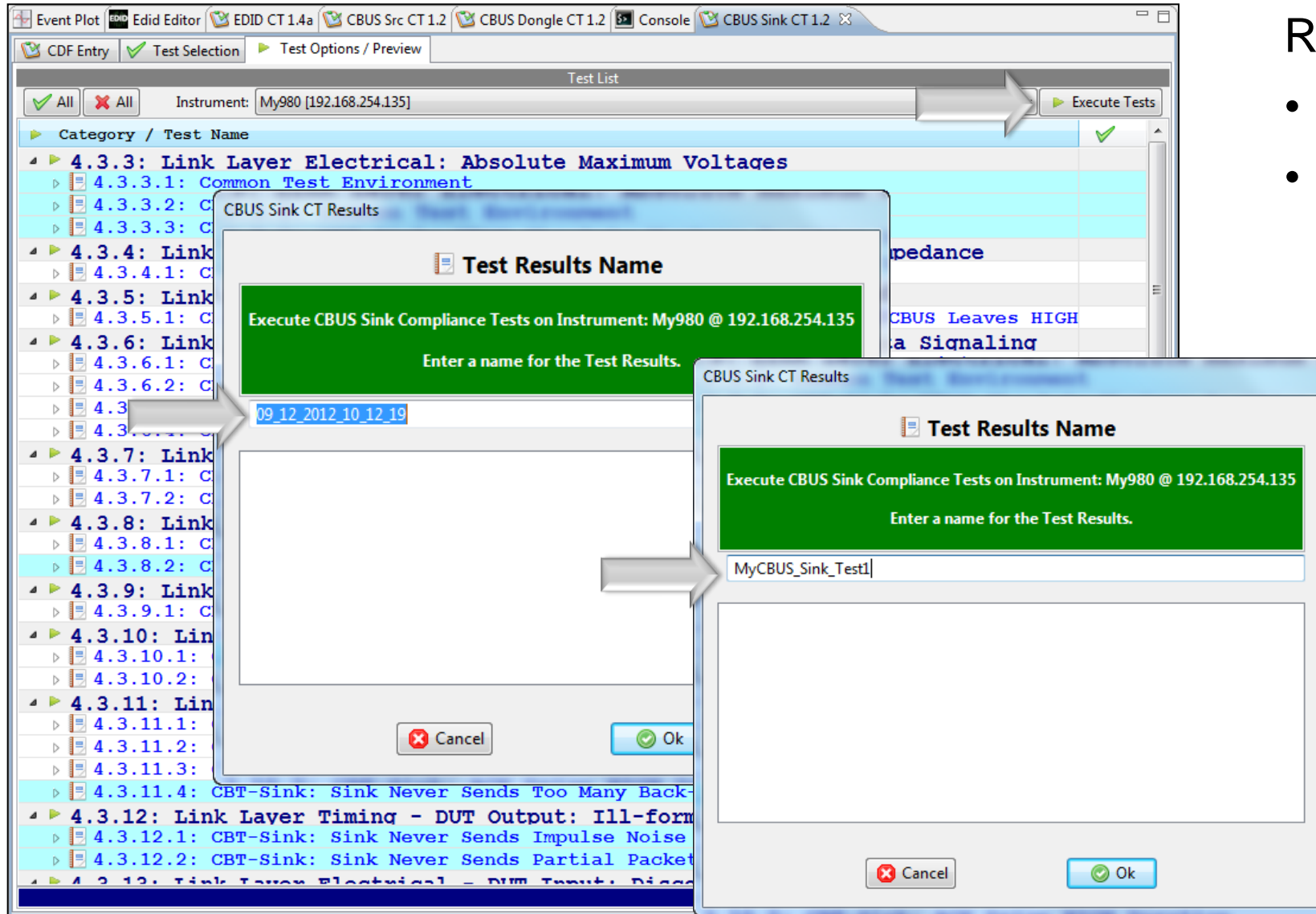
Category / Test Name	Status
4.2.5: EDID Test and Device Capability Register Test	✓
4.2.5.2: Device Capability Register Test	✓
Iter 01:	✓
4.3.3: Link Layer Electrical: Absolute Maximum Voltages	✓
4.3.3.1: Common Test Environment	✓
Iter 01: Continuous Background Test	✓
4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage	✓
Iter 01: Continuous Background Test	✓
4.3.3.3: CBE-Sink: CBUS Absolute Maximum Positive Voltage	✓
Iter 01: Continuous Background Test	✓
4.3.5: Link Layer Timing - DUT Output: Pre-Discovery	✓
4.3.5.1: CBT-Sink: Time from Sink-side MHL Cable Detect until Sink CBUS Leaves HIGH	✓
Iter 01:	✗
4.3.6: Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	✓
4.3.6.1: CBE-Sink: Post-Discovery Passive Pull-down Z[CBUS SINK ON] Resistance	✓
Iter 01:	✗
4.3.6.2: CBE-Sink: CBUS Capacitance	✓
Iter 01:	✓
4.3.6.3: CBE-Sink: Arbitrate/Sync/Data Drive LOW Voltage	✓
Iter 01:	✓
4.3.6.4: CBE-Sink: Arbitrate/Sync/Data Drive HIGH Voltage	✓
Iter 01:	✗
4.3.8: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	✓
4.3.8.1: CBT-Sink: Arb, Sync, Data HIGH and LOW Timing	✓
Iter 01:	✓
4.3.8.2: CBT-Sink: Bit Timing Variation within a Packet	✓
Iter 01: Continuous Background Test	✓
4.3.9: Link Layer Timing - DUT Output: Link Level NACK	✓
4.3.9.1: CBT-Sink: Response to Link Level NACK	✓
Iter 01:	✗
4.3.11: Link Layer Timing - DUT Output: Bus Re-Arbitration	✓
4.3.11.1: CBT-Sink: Sink uses Case 2 Regular Arbitration after NACK	✓
Iter 01:	✓

Test Options / Preview:

- Optionally, skip certain tests (red X).

Running the CBUS Sink Compliance Test

MHL CBUS Sink Compliance – Running the Tests



Running the tests:

- Execute Tests.
- Assign a name for test results file.

MHL CBUS Sink Compliance – Running the Tests

CBUS Sink Compliance Test (1.2): "MyCBUS_Sink_Test1"

Test List

Category / Test Name	Status
4.3.3: Link Layer Electrical: Absolute Maximum Voltages	Pass
4.3.3.1: Common Test Environment	Pass
4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage	Pass
4.3.3.3: CBE-Sink: CBUS Absolute Maximum Positive Voltage	Pass
4.3.4: Link Layer Electrical - DUT Output: Standby Discovery Impedance	Skipped
4.3.4.1: CBE-Sink: Powered-Off Z[CBUS SINK DISCOVER]	Skipped
Iter 01: PROC_SET_STANDBY marked as not supported in the CDF: Automatic PASS(SKIP)	Skipped
4.3.5: Link Layer Timing - DUT Output: Pre-Discovery	Skipped
4.3.5.1: CBT-Sink: Time from Sink-side MHL Cable Detect until Sink CBUS Leaves HIGH-Z	Skipped
Iter 01:	Skipped
4.3.6: Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	Fail
4.3.6.1: CBE-Sink: Post-Discovery Passive Pull-down Z[CBUS SINK ON] Resistance	Fail
Iter 01:	In Progress
4.3.6.2: CBE-Sink: CBUS Capacitance	In Progress
Iter 01:	Not Tested
4.3.6.3: CBE-Sink: Arbitrate/Sync/Data Drive LOW Voltage	Not Tested
4.3.6.4: CBE-Sink: Arbitrate/Sync/Data Drive HIGH Voltage	Not Tested
4.3.7: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	Not Tested
4.3.7.1: CBT-Sink: Arbitration/Sync/Data Active Drive HIGH Duration	Not Tested
4.3.7.2: CBT-Sink: Arbitration/Sync/Data Edge Rate	Not Tested
4.3.8: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	Not Tested
4.3.8.1: CBT-Sink: Arb, Sync, Data HIGH and LOW Timing	Not Tested

Test Log

Line	Message
0014	--- Test 4.3.6.1-01
0015	Executing the test.
0016	Retrieving test results.
0017	** FTP Get
0018	** SocketTimeoutException: Read timed out
0019	Test 4.3.6.1 Iter 01 -> Fail
0020	--- Test 4.3.6.2-01
0021	Executing the test.

Cancel the Compliance Test Pause Test Execution

Running the tests:

- Green arrow indicates which test is being run.
- Status column provides Pass/Fail results or In Progress.
- Log panel provides detailed information about each step in the test.
- You can pause or cancel the test at any time.

MHL CBUS Sink Compliance – Running the Tests

CBUS Sink Compliance Test (1.2): "MyCBUS_Sink_Test2"

Test List

Category / Test Name	Status
4.2.5: EDID Test and Device Capability Register Test	✓
4.2.5.1: EDID Test	In Progress
Iter 01:	In Progress
4.2.5.2: Device Capability Register Test	Not Tested
4.3.3: Link Layer Electrical: Absolute Maximum Voltages	
4.3.3.1: Common Test Environment	Not Tested
4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage	Not Tested
4.3.3.3: CBE-Sink: CBUS Absolute	Not Tested
4.3.4: Link Layer Electrical - D	
4.3.4.1: CBE-Sink: Powered-Off Z	Not Tested
Iter 01: PROC_SET_STANDBY marked as not	Not Tested
4.3.5: Link Layer Timing - DUT C	
4.3.5.1: CBT-Sink: Time	Not Tested
4.3.6: Link Layer Elect	
4.3.6.1: CBE-Sink: Post-Discovery	Not Tested
4.3.6.2: CBE-Sink: CBUS Capacitan	Not Tested
4.3.6.3: CBE-Sink: Arbitrate/Sync	Not Tested
4.3.6.4: CBE-Sink: Arbitrate/Sync	Not Tested
4.3.7: Link Layer Timing - DUT C	
4.3.7.1: CBT-Sink: Arbitration/Sy	Not Tested
4.3.7.2: CBT-Sink: Arbitration/Sy	Not Tested
4.3.8: Link Layer Timing - DUT C	

Test Setup

Test 4.2.5.1, Iter-01
Verify that the DUT EDID is accessible and accurate.

Connect the input of the Sink DUT to the MHL output of the Test Instrument as shown in the diagram below. Apply power to the Sink DUT.

Use the procedure specified below to put the Sink into an active state.

<Procedure not specified in the CDF>

Cancel Compliance Test

Continue

Line Message

- 0001 Compliance Test Started.
- 0002 Initialization.
- 0003 Assembling the test list.
- 0004 Transferring the CDF to the Test Instrument.
- 0005 --- Test 4.2.5.1-01

Cancel the Compliance Test Pause Test Execution

Running the tests:

- Review list of tests by Section.
- Example: Section 4.3.4.x.
- Instructions provided on test setup configuration.

MHL CBUS Sink Compliance – Running the Tests

CBUS Sink Compliance Test (1.2): "MyCBUS_Sink_Test2"

Test List

Category / Test Name	✓	Status
▶ 4.2.5: EDID Test and Device Capability Register Test	✓	
▶ 4.2.5.1: EDID Test		In Progress
▶ Iter 01:	✓	In Progress
▶ 4.2.5.2: Device Capability Register Test		Not Tested
▶ 4.3.3: Link Layer Electrical: Absolute Maximum Voltages		
▶ 4.3.3.1: Common Test Environment		Not Tested
▶ 4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage		Not Tested
▶ 4.3.3.3: CBE-Sink: CBUS Absolute		Not Tested
▶ 4.3.4: Link Layer Electrical - D		
▶ 4.3.4.1: CBE-Sink: Powered-Off Z	✓	Not Tested
▶ Iter 01: PROC_SET_STANDBY marked as not	✓	Not Tested
▶ 4.3.5: Link Layer Timing - DUT C		
▶ 4.3.5.1: CBT-Sink: Time from Sink		Not Tested
▶ 4.3.6: Link Layer Electrical - D		
▶ 4.3.6.1: CBE-Sink: Post-Discovery		Not Tested
▶ 4.3.6.2: CBE-Sink: CBUS Capacitan		Not Tested
▶ 4.3.6.3: CBE-Sink: Arbitrate/Sync		Not Tested
▶ 4.3.6.4: CBE-Sink: Arbitrate/Sync		Not Tested
▶ 4.3.7: Link Layer Timing - DUT C		
▶ 4.3.7.1: CBT-Sink: Arbitration/Sy		Not Tested
▶ 4.3.7.2: CBT-Sink: Arbitration/Sy		Not Tested
▶ 4.3.8: Link Layer Timing - DUT C		

Test Setup

Test 4.2.5.1, Iter-01

Verify that the DUT EDID is accessible and accurate.

Connect the input of the Sink DUT to the MHL output of the Test Instrument as shown in the diagram below. Apply power to the Sink DUT.

Use the procedure specified below to put the Sink into an active state.

<Procedure not specified in the CDF>

Cancel Compliance Test

Continue

Line Message

- 0001 Compliance Test Started.
- 0002 Initialization.
- 0003 Assembling the test list.
- 0004 Transferring the CDF to the Test Instrument.
- 0005 --- Test 4.2.5.1-01

Cancel the Compliance Test Pause Test Execution

Running the tests:

- Review list of tests by Section.
- Example: Section 6.3.5.x.

MHL CBUS Sink Compliance – Running the Tests

Category / Test Name	Status
4.2.5: EDID Test and Device Capability Register Test	✓
4.2.5.1: EDID Test	
Iter 01:	✓
4.2.5.2: Device Capability Register Test	Fail
Iter 01:	Fail
4.3.3: Link Layer Electrical: Absolute Maximum Voltages	✓
4.3.3.1: Common Test Environment	Pass
4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage	Pass
4.3.3.3: CBE-Sink: CBUS Absolute Maximum Positive Voltage	Pass
4.3.4: Link Layer Electrical - DUT Output: Standby Discovery Impedance	
4.3.4.1: CBE-Sink: Powered-Off Z[CBUS SINK DISCOVERY]	Skipped
Iter 01: PROC_SET_STANDBY marked as not supported in the CDF: Automatic PASS (SKIP)	Skipped
4.3.5: Link Layer Timing - DUT Output: Pre-Discovery	
4.3.5.1: CBT-Sink: Time from Sink-side MHL Cable Detect until Sink CBUS Leaves HIGH	In Progress
Iter 01:	In Progress
4.3.6: Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	
4.3.6.1: CBE-Sink: Post-Discovery Passive Pull-down Z[CBUS SINK ON] Resistance	Not Tested
4.3.6.2: CBE-Sink: CBUS Capacitance	Not Tested
4.3.6.3: CBE-Sink: Arbitrate/Sync/Data Drive LOW Voltage	Not Tested
4.3.6.4: CBE-Sink: Arbitrate/Sync/Data Drive HIGH Voltage	Not Tested
4.3.7: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	
4.3.7.1: CBT-Sink: Arbitration/Sync/Data Active Drive HIGH Duration	Not Tested
4.3.7.2: CBT-Sink: Arbitration/Sync/Data Edge Rate	Not Tested

Line	Message
0017	Test 4.2.5.2 Iter 01 -> Fail
0018	--- Test 4.3.4.1-01
0019	Test 4.3.4.1 Iter 01 -> Skipped
0020	--- Test 4.3.5.1-01
0021	Executing the test.
0022	Retrieving test results.
0023	Processing test results.
0024	Saving the test logs.

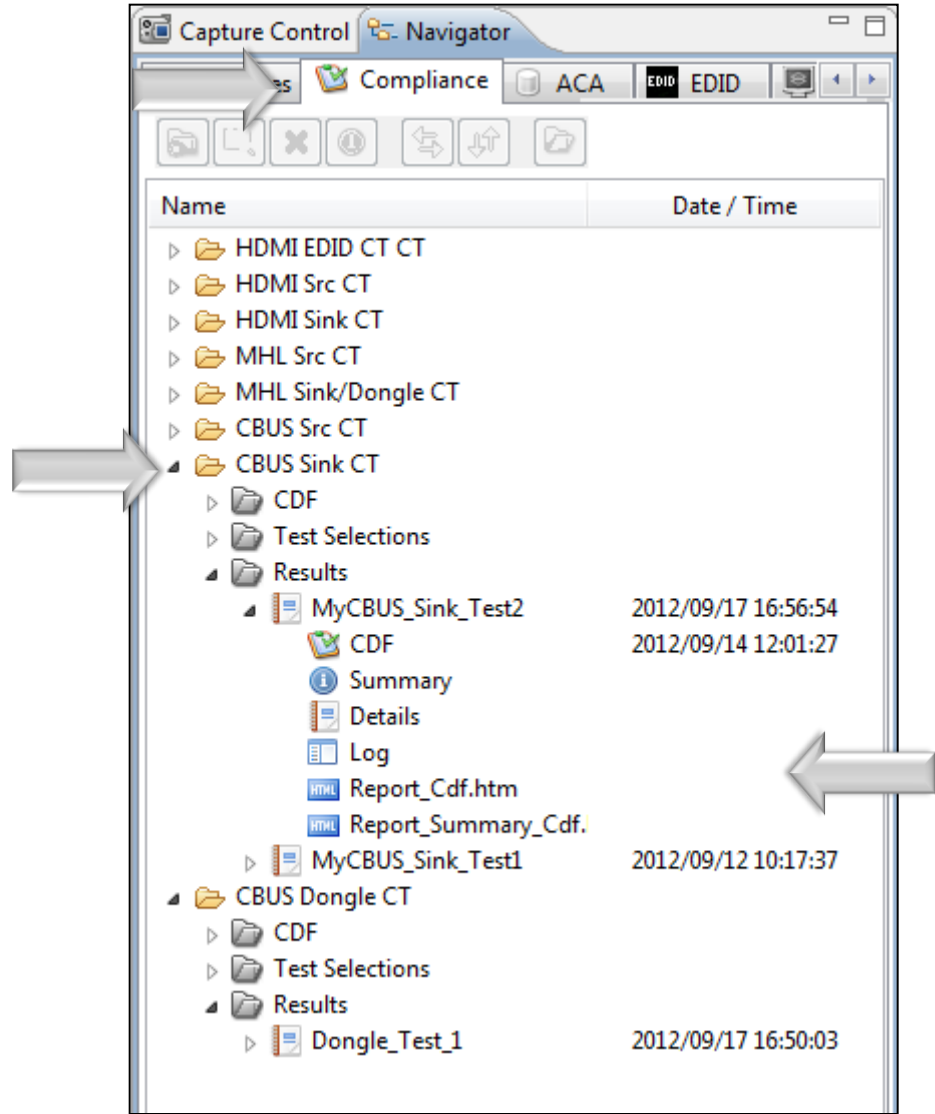
Running the tests:

- Pass/Fail indication shown under status.
- Note that status of test highlighted in blue is provided as these background tests progress. Final test results for these tests are only provided when the test suite is completed.

Viewing the CBUS Sink Compliance Test Results

MHL CBUS Sink Compliance – Review Test Selections

Access test results through Navigator/Compliance panel:



MHL CBUS Sink Compliance – View Test Results

Results Name: MyCBUS_Sink_Test2
Date Tested: September 14, 2012 12:01 PM
Overall Status: **CTS 1.2 - Canceled**

Manufacturer: Samsung
Model Name: Unknown
Port Tested: 1

Test Results

Test Name / Details	Status
4.2.5.1: EDID Test	Fail
4.2.5.2: Device Capability Register Test	Fail
4.3.3.1: Common Test Environment	Pass
4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage	Pass
4.3.3.3: CBE-Sink: CBUS Absolute Maximum Positive Voltage	Pass
4.3.4.1: CBE-Sink: Powered-Off Z[CBUS SINK DISCOVER]	Skipped
4.3.5.1: CBT-Sink: Time from Sink-side MHL Cable Detect	Skipped
4.3.6.1: CBE-Sink: Post-Discovery Passive Pull-down Z[CBUS]	Fail
4.3.6.2: CBE-Sink: CBUS Capacitance	Fail
4.3.6.3: CBE-Sink: Arbitrate/Sync/Data Drive LOW Voltage	Fail
4.3.6.4: CBE-Sink: Arbitrate/Sync/Data Drive HIGH Voltage	Fail
4.3.7.1: CBT-Sink: Arbitration/Sync/Data Active Drive HIGH	Fail
4.3.7.2: CBT-Sink: Arbitration/Sync/Data Edge Rate	Fail
4.3.8.1: CBT-Sink: Arb, Sync, Data HIGH and LOW Timing	Fail
4.3.8.2: CBT-Sink: Bit Timing Variation within a Packet	Pass
4.3.9.1: CBT-Sink: Response to Link Level NACK	Fail
4.3.10.1: CBT-Sink: ACK Output Timing in Nanoseconds	Fail
4.3.10.2: CBT-Sink: ACK Drive HIGH Duration	Fail
4.3.11.1: CBT-Sink: Sink uses Case 2 Regular Arbitration	Fail
4.3.11.2: CBT-Sink: Sink Case 3 Long Re-arbitration when	Fail
4.3.11.3: CBT-Sink: Sink Uses Case 1 Back-to-Back Timing	Fail
4.3.11.4: CBT-Sink: Sink Never Sends Too Many Back-to-Back	Pass
4.3.12.1: CBT-Sink: Sink Never Sends Impulse Noise	Pass
4.3.12.2: CBT-Sink: Sink Never Sends Partial Packets	Pass
4.3.13.1: CBE-Sink: Discovery Sensitivity to Input Voltage	Fail
4.3.14.1: CBT-Sink: Valid Wake Pulse Timing	Fail
4.3.14.2: CBT-Sink: Valid Discovery Pulse Timing	Fail
4.3.14.3: CBT-Sink: Sink in Standby Discovers on Wake pulse	Skipped
4.3.15.1: CBT-Sink: First Discovery Pulse should be Ignored	Fail

Instrument: My980 [192.168.254.135] Continue Test Execution

View Test results:

- Pass/Fail indication provided under Status column.

Viewing the CBUS Sink Compliance Test Report

MHL CBUS Sink Compliance – Viewing the Test Results

Results Name: MyCBUS_Sink_Test2
Date Tested: September 14, 2012 12:01 PM
Overall Status: **CTS 1.2 - Canceled**

Manufacturer: Acme
Model Name: Unknown
Port Tested: 1

HTML Report

Test Name / Details	Status
4.2.5.1: EDID Test	Fail
4.2.5.2: Device Capability Register Test	Fail
4.3.3.1: Common Test Environment	Pass
4.3.3.2: CBE-Sink: VBUS Absolute Maximum Positive Voltage	Pass
4.3.3.3: CBE-Sink: CBUS Absolute Maximum Positive Voltage	Pass
4.3.4.1: CBE-Sink: Powered-Off Z[CBUS SINK DISCOVER]	Skipped
4.3.5.1: CBT-Sink: Time from Sink-side MHL Cable Detect until Sin	Skipped
4.3.6.1: CBE-Sink: Post-Discovery Passive Pull-down Z[CBUS SINK O	Fail
4.3.6.2: CBE-Sink: CBUS Capacitance	Fail
4.3.6.3: CBE-Sink: Arbitrate/Sync/Data Drive LOW Voltage	Fail
4.3.6.4: CBE-Sink: Arbitrate/Sync/Data Drive HIGH Voltage	Fail
4.3.7.1: CBT-Sink: Arbitration/Sync/Data Active Drive HIGH Durati	Fail
4.3.7.2: CBT-Sink: Arbitration/Sync/Data Edge Rate	Fail
4.3.8.1: CBT-Sink: Arb, Sync, Data HIGH and LOW Timing	Fail
4.3.8.2: CBT-Sink: Bit Timing Variation within a Packet	Pass
4.3.9.1: CBT-Sink: Response to Link Level NACK	Fail
4.3.10.1: CBT-Sink: ACK Output Timing in Nanoseconds	Fail
4.3.10.2: CBT-Sink: ACK Drive HIGH Duration	Fail
4.3.11.1: CBT-Sink: Sink uses Case 2 Regular Arbitration after NA	Fail
4.3.11.2: CBT-Sink: Sink Case 3 Long Re-arbitration when it Gives	Fail
4.3.11.3: CBT-Sink: Sink Uses Case 1 Back-to-Back Timing (No Re-a	Fail
4.3.11.4: CBT-Sink: Sink Never Sends Too Many Back-to-Back Packet	Pass
4.3.12.1: CBT-Sink: Sink Never Sends Impulse Noise	Pass
4.3.12.2: CBT-Sink: Sink Never Sends Partial Packets	Pass
4.3.13.1: CBE-Sink: Discovery Sensitivity to Input Voltages	Fail
4.3.14.1: CBT-Sink: Valid Wake Pulse Timing	Fail
4.3.14.2: CBT-Sink: Valid Discovery Pulse Timing	Fail
4.3.14.3: CBT-Sink: Sink in Standby Discovers on Wake plus Discov	Skipped
4.3.15.1: CBT-Sink: First Discovery Pulse should be Ignored	Fail

Instrument: My980 [192.168.254.135] Continue Test Execution

Viewing the test results:

- Pass/Fail indication shown under status.
- Obtain an HTML report.

MHL CBUS Sink Compliance – Viewing the Test Results

Results Name: MyCBUS_Sink_Test2
Date Tested: September 14, 2012 12:01 PM
Overall Status: **CTS 1.2 - Canceled**

Manufacturer: Acme
Model Name: Unknown
Port Tested: 1

Test Name / Details	Status
4.2.5.1: EDID Test	Fail
4.2.5.2: Device Capability Register Test	Fail
4.3.3.1: Common Test Environment	Pass
4.3.3.2: CBE-Sink: Input Voltage Absolute Maximum Positive Voltage	Pass
4.3.3.3: CBE-Sink: Input Voltage Absolute Maximum Negative Voltage	Pass
4.3.4.1: CBE-Sink: Input Voltage Absolute Maximum Positive Voltage	Skipped
4.3.5.1: CBT-Sink: Sink does not receive data until Sink is in Standby	Skipped
4.3.6.1: CBE-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.6.2: CBE-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.6.3: CBE-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.6.4: CBE-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.7.1: CBT-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.7.2: CBT-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.8.1: CBT-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.8.2: CBT-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.9.1: CBT-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.10.1: CBT-Sink: Sink does not receive data until Sink is in Standby	Fail
4.3.10.2: CBT-Sink: ACK Drive HIGH Duration	Fail
4.3.11.1: CBT-Sink: Sink uses Case 2 Regular Arbitration after NA	Fail
4.3.11.2: CBT-Sink: Sink Case 3 Long Re-arbitration when it Gives	Fail
4.3.11.3: CBT-Sink: Sink Uses Case 1 Back-to-Back Timing (No Re-a	Fail
4.3.11.4: CBT-Sink: Sink Never Sends Too Many Back-to-Back Packet	Pass
4.3.12.1: CBT-Sink: Sink Never Sends Impulse Noise	Pass
4.3.12.2: CBT-Sink: Sink Never Sends Partial Packets	Pass
4.3.13.1: CBE-Sink: Discovery Sensitivity to Input Voltages	Fail
4.3.14.1: CBT-Sink: Valid Wake Pulse Timing	Fail
4.3.14.2: CBT-Sink: Valid Discovery Pulse Timing	Fail
4.3.14.3: CBT-Sink: Sink in Standby Discovers on Wake plus Discov	Skipped
4.3.15.1: CBT-Sink: First Discovery Pulse should be Ignored	Fail

Instrument: My980 [192.168.254.135] Continue Test Execution

Viewing the test results:

- Obtain an HTML report.
- Indicate summary test report or include CDF.

MHL CBUS Sink Compliance – Viewing the Test Results

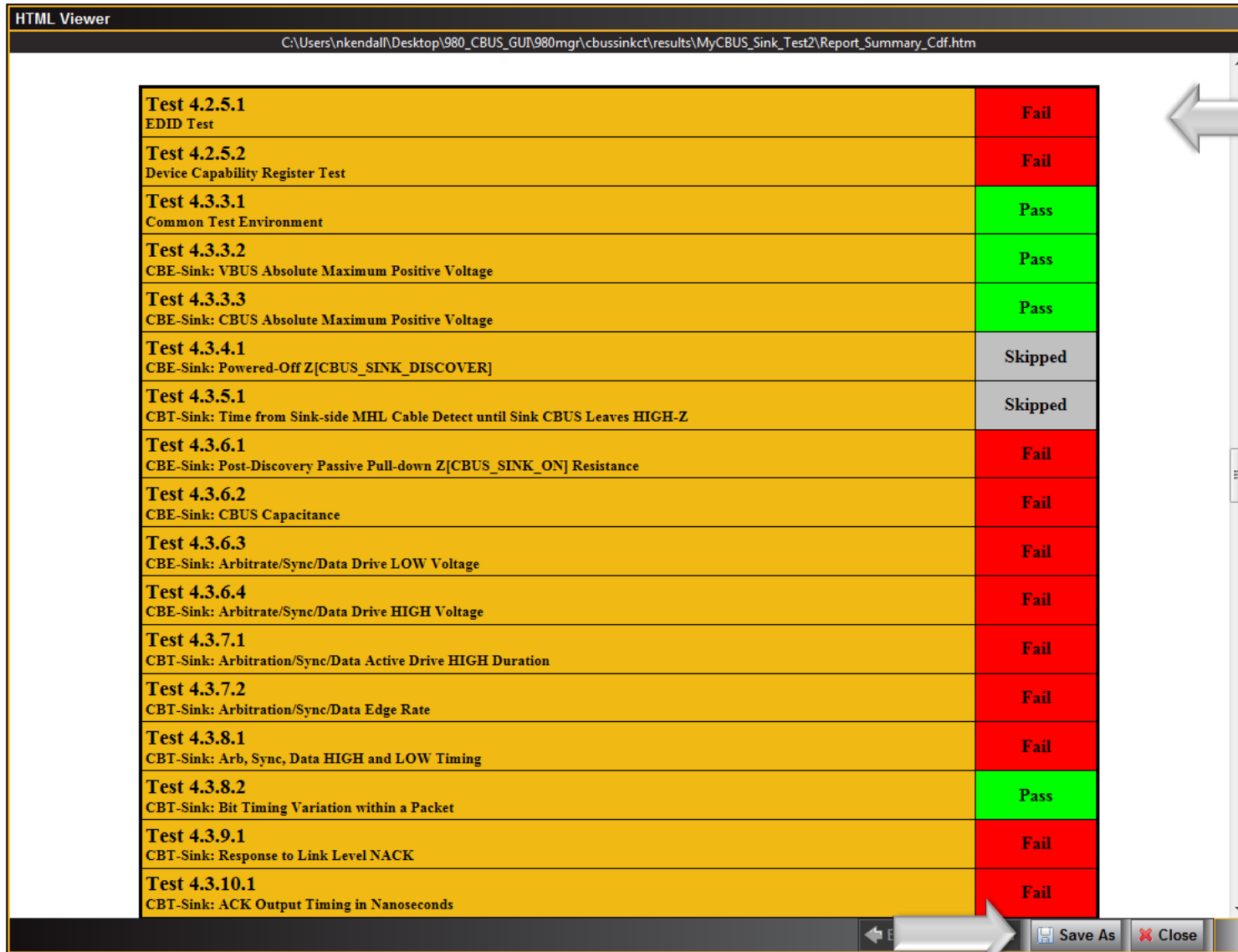
The screenshot shows a web browser window titled 'HTML Viewer' displaying a test report. The report header includes the Quantum Data logo and the title 'CBUS Sink Compliance Test Report CTS 1.2'. The report was generated on September 17, 2012, at 5:05 PM. The test results summary shows a 'Canceled' overall status. Below this is a table for the 'Capabilities Declaration Form (CDF)' with two sections: 'General' and 'Capability Registers'. The 'General' section lists various parameters and their values, such as 'CDF_MFR_NAME' being 'Samsung' and 'CDF_MODEL_NUMBER' being 'Unknown'. The 'Capability Registers' section lists parameters like 'CDF_CR_MHL_VER_MAJOR' and 'CDF_CR_MHL_VER_MINOR', all with a value of 1. The browser's address bar shows the file path: 'C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbussinkct\results\MyCBUS_Sink_Test2\Report_Summary_Cdf.htm'. The browser's navigation bar includes buttons for 'Back', 'Forward', 'Save As', and 'Close'.

Capabilities Declaration Form (CDF)	
General	
CDF_MFR_NAME	Samsung
CDF_MODEL_NUMBER	Unknown
CDF_SINK_CBUS_THRESHOLD_V	0.78
CDF_SINK_CABLE_DETECT_TO_R_DISCOVER	60
CDF_PROC_SET_ACTIVE	Not Specified
CDF_PROC_SET_STANDBY	Not Supported
CDF_RCP_RECEIVE	YES
CDF_RCP_SEND	YES
CDF_LOG_DEV_MAP_CHANGE	NO
Capability Registers	
CDF_CR_MHL_VER_MAJOR	1
CDF_CR_MHL_VER_MINOR	1
CDF_CR_DEV_TYPE	1
CDF_CR_POW	1
CDF_CR_ADOPTER_ID_H	0
CDF_CR_ADOPTER_ID_L	0

Viewing the HTML Test Report:

- Save report for later viewing or dissemination to colleagues.

MHL CBUS Sink Compliance – Viewing the Test Results



Test ID	Test Description	Result
Test 4.2.5.1	EDID Test	Fail
Test 4.2.5.2	Device Capability Register Test	Fail
Test 4.3.3.1	Common Test Environment	Pass
Test 4.3.3.2	CBE-Sink: VBUS Absolute Maximum Positive Voltage	Pass
Test 4.3.3.3	CBE-Sink: CBUS Absolute Maximum Positive Voltage	Pass
Test 4.3.4.1	CBE-Sink: Powered-Off Z[CBUS_SINK_DISCOVER]	Skipped
Test 4.3.5.1	CBT-Sink: Time from Sink-side MHL Cable Detect until Sink CBUS Leaves HIGH-Z	Skipped
Test 4.3.6.1	CBE-Sink: Post-Discovery Passive Pull-down Z[CBUS_SINK_ON] Resistance	Fail
Test 4.3.6.2	CBE-Sink: CBUS Capacitance	Fail
Test 4.3.6.3	CBE-Sink: Arbitrate/Sync/Data Drive LOW Voltage	Fail
Test 4.3.6.4	CBE-Sink: Arbitrate/Sync/Data Drive HIGH Voltage	Fail
Test 4.3.7.1	CBT-Sink: Arbitration/Sync/Data Active Drive HIGH Duration	Fail
Test 4.3.7.2	CBT-Sink: Arbitration/Sync/Data Edge Rate	Fail
Test 4.3.8.1	CBT-Sink: Arb, Sync, Data HIGH and LOW Timing	Fail
Test 4.3.8.2	CBT-Sink: Bit Timing Variation within a Packet	Pass
Test 4.3.9.1	CBT-Sink: Response to Link Level NACK	Fail
Test 4.3.10.1	CBT-Sink: ACK Output Timing in Nanoseconds	Fail

Viewing the HTML Test Report:

- Save report for later viewing or dissemination to colleagues.

MHL CBUS Sink Compliance – Viewing the Test Results

HTML Viewer
C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbussinkct\results\MyCBUS_Sink_Test2\Report_Summary_Cdf.htm

Test Equipment Information

Instrument

```
Name: My980
IP Address: 192.168.254.135
Net Mask: 255.255.255.0
Gateway IP: 192.168.254.1
Free Space: 121.08 GB of 144.22 GB (84.0%)
Version:
Advanced Test platform Release: 4.5.27
MHL CBUS Protocol Analyzer in slot 1:
  Gateway: [Version: 0 Build Number: 4 (09:11:2012 121000) pcb: 23232323]
  Firmware: [Version: 1.0.1 Build Number: 1978 (mblair 09:13:2012 09:21:52 CDT)]
System Information:
System SN   : [ 47A7D6F8C0A385A0::N/A]
SN          : [ 318383010000::11120010c]
Main Board  : [ "DP67DE" ]
CPUx4       : [ 6.42.7 "Intel(R) Core(TM) i3-2100 CPU @ 3.10GHz" ]
DDR         : [ 3 GB + 768 MB ]
HD          : [ WD1600BEVT-1 ]
OS          : [ Linux xpscope-81 2.6.26-2-686 #1 SMP Wed Sep 21 04:35:47 UTC 2011 i686 GNU/Linux ]
GUI manager : [ Version 4.5.27_39005_201209061011 ]
1           : [ lo inet 127.0.0.1/8 scope host lo ]
2           : [ eth0 inet 192.168.254.135/24 brd 192.168.254.255 scope global eth0 ]
HDMI SINK CTS: [ 3.1.7 ]
HDMI SRC CTS: [ 3.1.8 ]
MHL SINK CTS: [ 1.2.0 ]
MHL SRC CTS : [ 1.2.1 ]
```

Host

```
UI Name: Quantum Data 980 Manager - Version 4.5.29
UI Home: platform:/base/plugins/com.quantumdata.i980.app
Java Vendor: Null
Java Runtime: 1.6.0_15-b03
Java Home: C:\Users\nkendall\Desktop\980_Release_5_29\980mgr\jre
OS: win32
OS Arch: x86
Locale: en_US
Free Space: 13.40 GB of 453.66 GB (3.0%)
```

Generated on: September 17, 2012 5:05 PM www.quantumdata.com

Back Forward Save As Close

Viewing the HTML Test Report:

- View Test Equipment information.

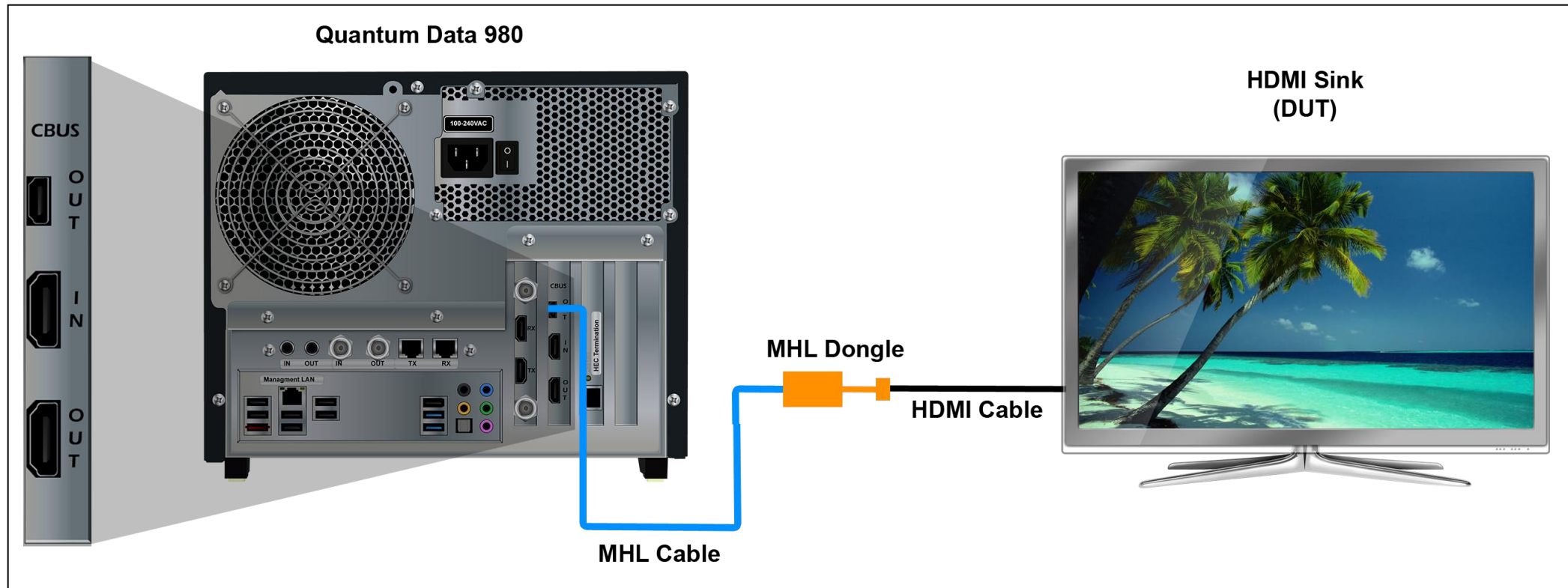
MHL CBUS Log Plots – Sink Tests

Refer to Source Section

MHL CBUS Dongle Compliance Test

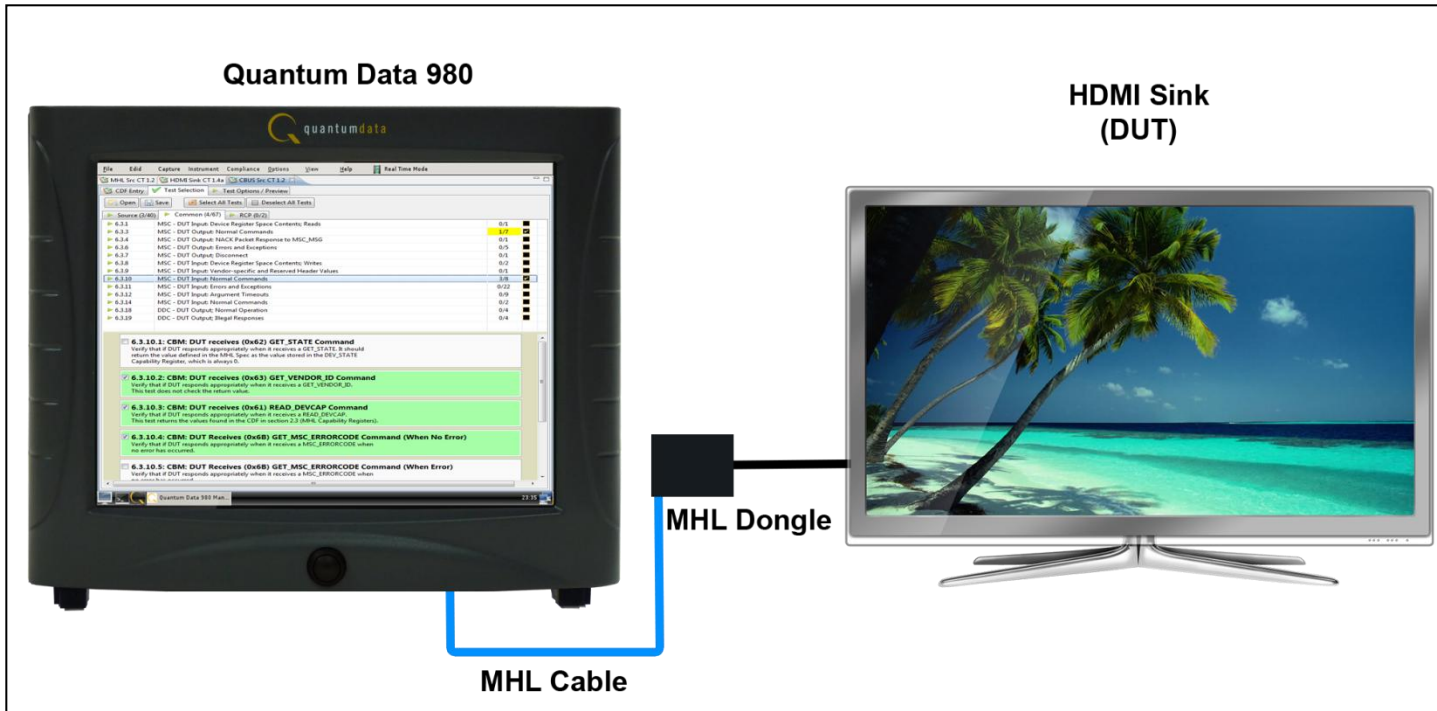
MHL CBUS Dongle Compliance Test – Setup

- Test setup with external GUI shown below



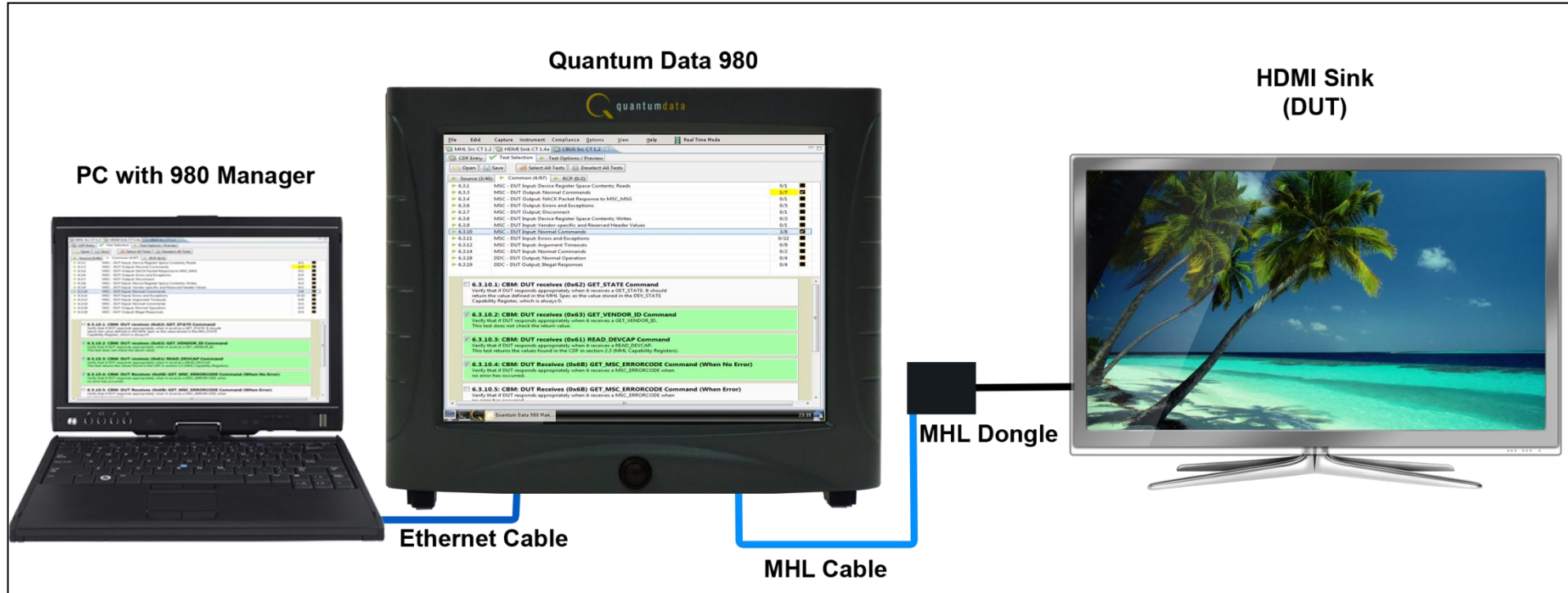
MHL CBUS Dongle Compliance Test – Setup

- Run tests through the embedded GUI.



MHL CBUS Dongle Compliance Test – Setup

- Run tests through the external GUI.



MHL CBUS Dongle Compliance - CDF

The screenshot shows the 'CDF Entry' software interface with the following fields and values:

Field Name	Description	Value
CDF_MFR_NAME	What is the product manufacturer's name?	Quantum Data
CDF_MODEL_NUMBER	What is the model name/number of the product?	980
CDF_PROC_SET_ACTIVE	Set Device into Active Mode for Discovery Tests.	Edit Procedure
CDF_PROC_SET_STANDBY	Set Device into Standby Mode for Discovery Tests.	<input type="checkbox"/> Standby Mode Supported? Edit Procedure
CDF_HDCP_SUPPORT	Is HDCP supported on this DUT?	<input type="radio"/> Yes <input checked="" type="radio"/> No
CDF_D_CBUS_THRESHOLD_V	Voltage at which CBUS Timing Measurements should be taken. This voltage should be halfway between the HIGH and LOW CBUS voltages for data driven by this device. This will be related to the device's VOH.	0.90 V (0.75 to 1.05)
CDF_D_MAX_CBUS_CAP	Specify the Dongle's maximum capacitance on CBUS.	0.1 pF
CDF_D_MAX_STANDBY_TO_ACTIVE	Maximum time from Wake Pulses until device leaves Standby Mode. Visible as Z[CBUS_SINK_DISCOVER].	60 sec.
CDF_D_ACCEPTS_POWER_FROM_SOURCE	Does the Dongle accept VBUS power input from the Source?	<input type="radio"/> Yes <input checked="" type="radio"/> No
CDF_D_POWERED	Does the DUT have its own power?	<input type="radio"/> Yes <input checked="" type="radio"/> No
CDF_D_MAX_POWER_DOWN	Specify the maximum time required for Dongle to power-down when disconnected from its own power source.	500 milliseconds
CDF_D_MAX_POWER_UP	Specify the maximum time required for Dongle to power-up when connected to its own power source.	500 milliseconds

CDF:

- Defines the capabilities of the device under test.
- Provides a series of tabs for each type of feature.
- Provides description of each field.
- Example: General tab.
- Determines which tests to run.

MHL CBUS Dongle Compliance - CDF

The screenshot shows the 'CDF Entry' window with the 'RCP Rcv' tab selected. The interface includes a menu bar with 'Open', 'New', and 'Save' options, and a toolbar with 'Test Selection' and 'Test Options / Preview' buttons. The main area is divided into sections for configuration:

- CDF_RCP_RECEIVE:** A section with a question 'Does the DUT receive RCP?' and two radio buttons for 'Yes' (selected) and 'No'. A grey arrow points to this section.
- Behavior List:** A table of RCP commands with their expected behavior. Each row includes a checkbox for 'Supported?' and an 'Edit Behavior' button. A grey arrow points to the 'Supported?' checkbox for '0x01: Up'.

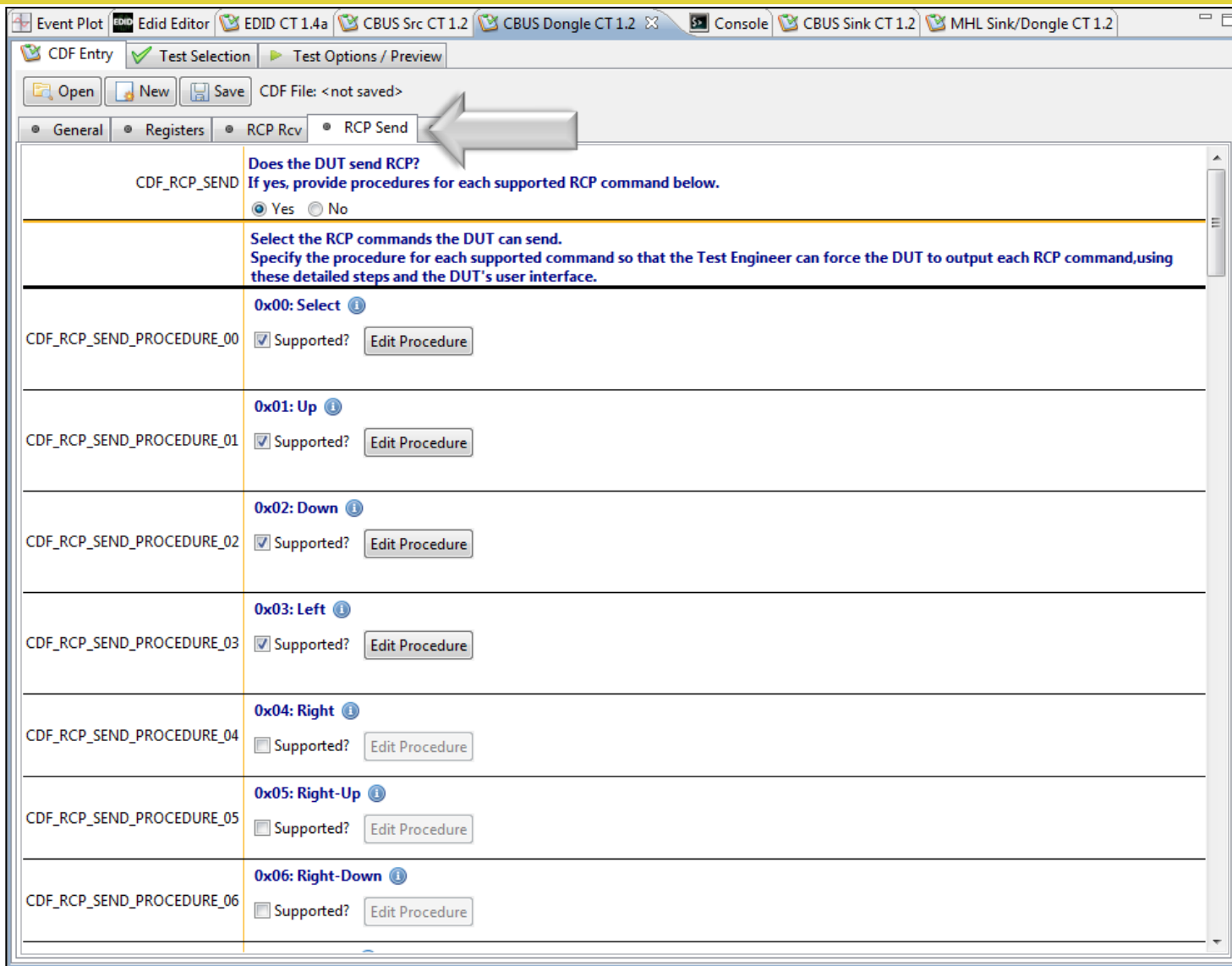
Behavior ID	Command	Required By	Supported?	Edit Behavior
CDF_RCP_RCV_BEHAVIOR_00	0x00: Select	GUI	<input type="checkbox"/>	Edit Behavior
CDF_RCP_RCV_BEHAVIOR_01	0x01: Up	GUI	<input checked="" type="checkbox"/>	Edit Behavior
CDF_RCP_RCV_BEHAVIOR_02	0x02: Down	GUI	<input checked="" type="checkbox"/>	Edit Behavior
CDF_RCP_RCV_BEHAVIOR_03	0x03: Left	GUI	<input type="checkbox"/>	Edit Behavior
CDF_RCP_RCV_BEHAVIOR_04	0x04: Right	GUI	<input type="checkbox"/>	Edit Behavior
CDF_RCP_RCV_BEHAVIOR_05	0x05: Right-Up		<input type="checkbox"/>	Edit Behavior
	0x06: Right-Down			

CDF:

- Example: RCP Rcv tab.

Note: You can enter helpful information using the “Edit Procedure” dialog box. The information entered into this dialog box will appear during the test and can be helpful to users running an particular test.

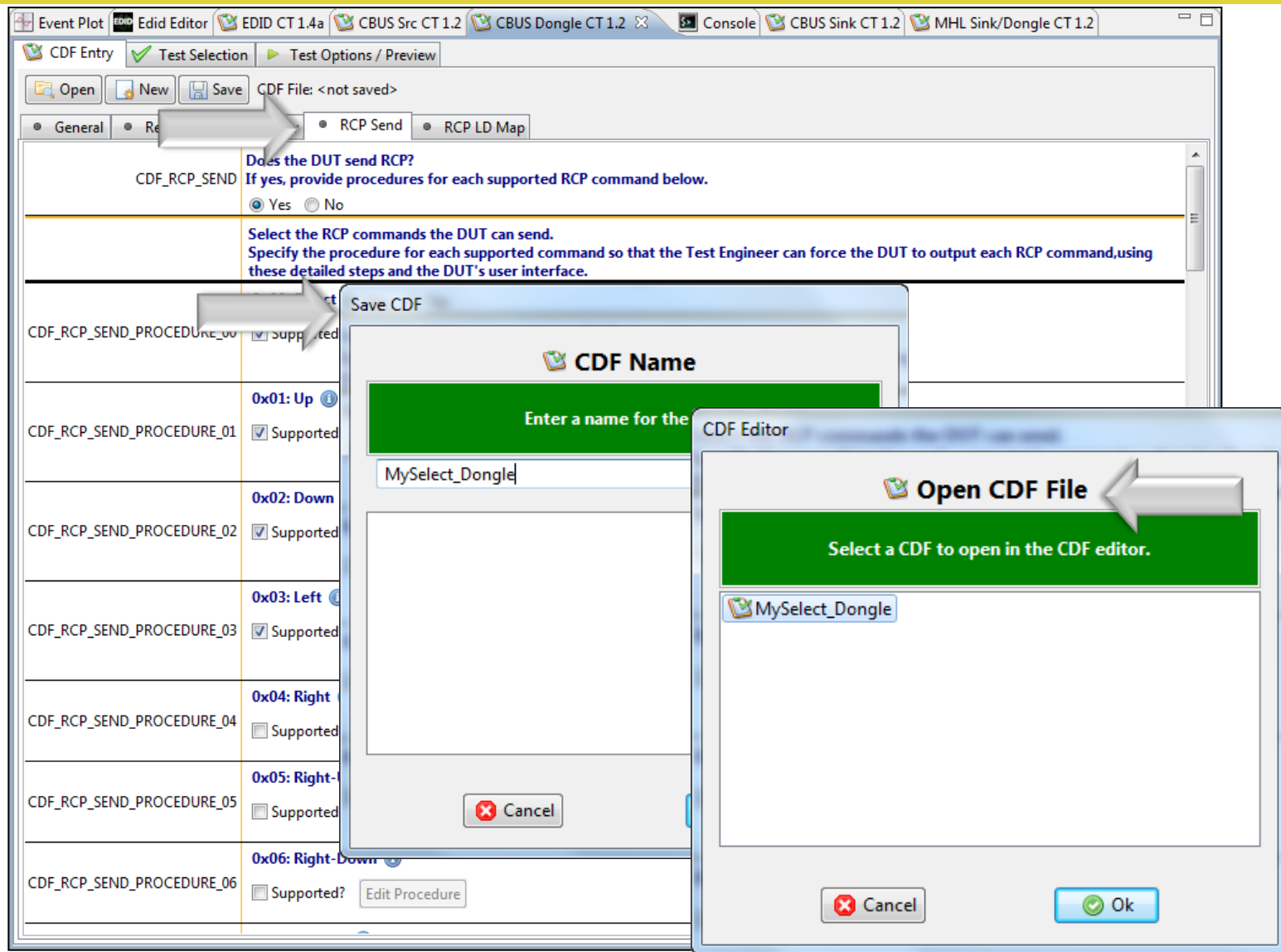
MHL CBUS Dongle Compliance - CDF



CDF:

- Example: RCP Send Tab.

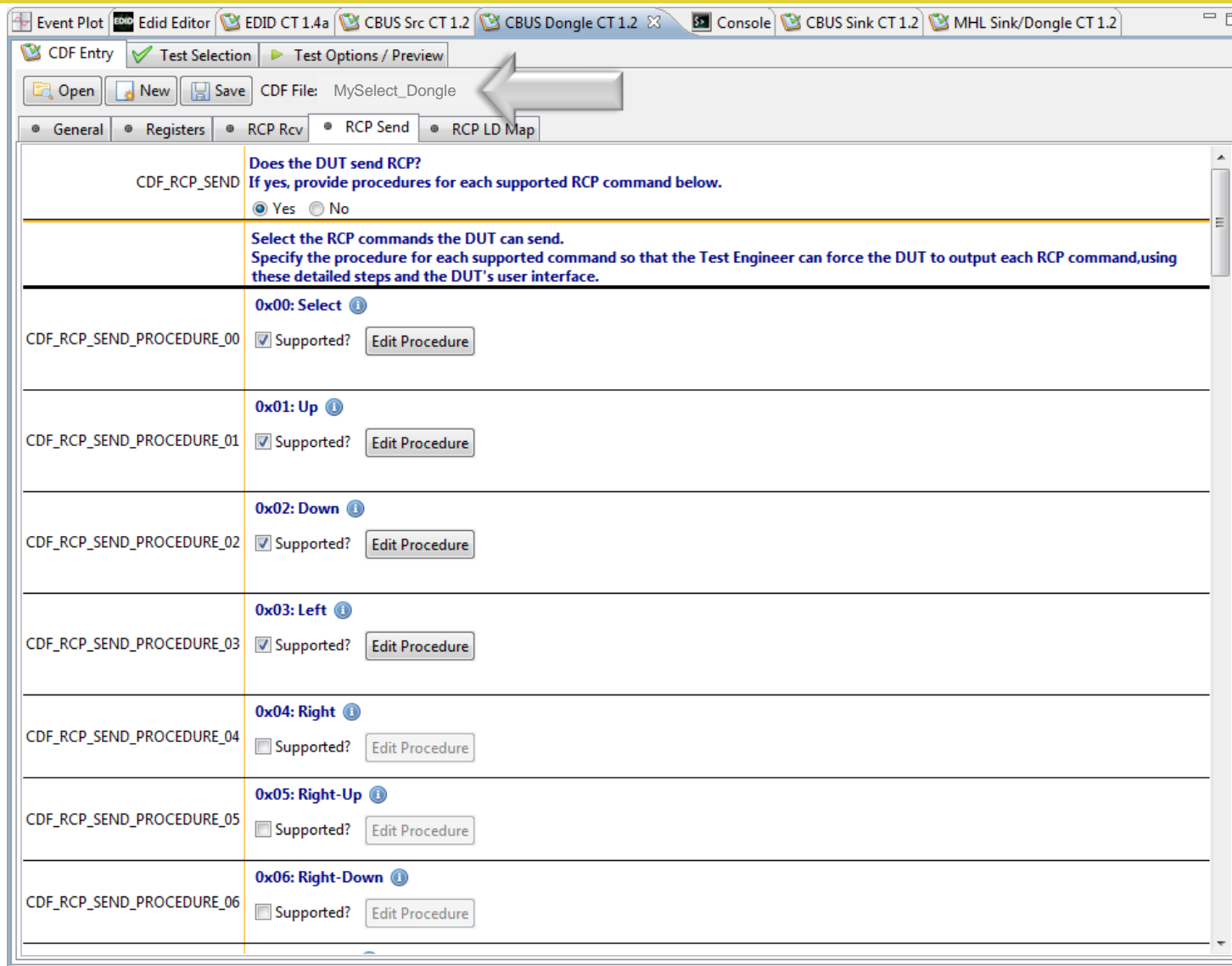
MHL CBUS Dongle Compliance - CDF



CDF:

- Save and reuse CDF definitions.
- Saves time of re-entering data.
- Files can be transferred to colleagues to help expedite product capability selection process in a test series.

MHL CBUS Dongle Compliance - CDF



CDF:

- CDF saved for later re-use.

CBUS Dongle Compliance Test Selection

MHL CBUS Dongle Compliance – Test Selection

Test Selection:

- Determine which specific tests to run in a test suite.
- Select all tests or select specific test sections or particular tests within each section.
- Check box indicators inform how many tests in each section and how many are selected.
- Example: CBUS Dongle test tab w/ Link Layer Electrical – DUT Output Bus Arbitration/ Sync/ Data Signaling.

Test ID	Test Description	Progress	Status
5.3.3	Link Layer Electrical: Absolute Maximum Voltages	3/3	✓
5.3.4	Link Layer Electrical - DUT Output: Discovery Impedance	3/3	✓
5.3.5	Link Layer Timing - DUT Output: Pre-Discovery	0/1	✗
5.3.6	Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	4/4	✓
5.3.7	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	2/2	✓
5.3.8	Link Layer Timing - DUT Output: Arbitration/Sync/Data in Bit Times	2/2	✓
5.3.9	Link Layer Timing - DUT Output: Link Level NACK	0/1	✗
5.3.10	Link Layer Timing - DUT Output: Link Level NACK	2/2	✓
5.3.11	Link Layer Timing - DUT Output: Bus Re-Arbitration	4/4	✓
5.3.12	Link Layer Timing - DUT Output: Ill-formed packets	2/2	✓
5.3.13	Link Layer Electrical - DUT Input: Discovery	0/1	✗
5.3.14	Link Layer Timing - DUT Input: Discovery OK	3/3	✓
5.3.15	Link Layer Timing - DUT Input: Discovery Reject	2/2	✓
5.3.16	Link Layer Electrical - DUT Input: Arbitration/Sync/Data Signaling	1/1	✓
5.3.17	Link Layer Timing - DUT Input: Arbitration	0/3	✗
5.3.18	Link Layer Timing - DUT Input: Data	1/1	✓
5.3.19	Link Layer Timing - DUT Input: NACK	1/1	✓
5.3.20	Link Layer Timing - DUT Input: ACK	1/1	✓
5.3.21	Link Layer Timing - DUT Input: Bus Re-Arbitration	1/1	✓
5.3.22	Link Layer Timing - DUT Input: Ill-formed Packets	1/1	✓
5.3.23	Link Layer Timing - DUT Input: Disconnect	3/3	✓

5.3.6.1: CBE-Dongle: Post-Discovery Passive Pulldown Z[CBUS_SINK_ON] Resistance
Verify that Dongle DUT Z[CBUS_SINK_ON] has correct value.

5.3.6.2: CBE-Dongle: CBUS Capacitance
Verify that the Dongle DUT has a low-enough input capacitance.

5.3.6.3: CBE-Dongle: Arbitrate/Sync/Data Drive LOW Voltage
Verify that Dongle DUT drives Arbitration, Sync, and Data Pulses with the correct DRIVE LOW voltage.

5.3.6.4: CBE-Dongle: Arbitrate/Sync/Data Drive HIGH Voltage
Verify that Dongle DUT drives Arbitration, Sync, and Data Pulses with correct DRIVE HIGH voltage.

MHL CBUS Dongle Compliance – Test Selection



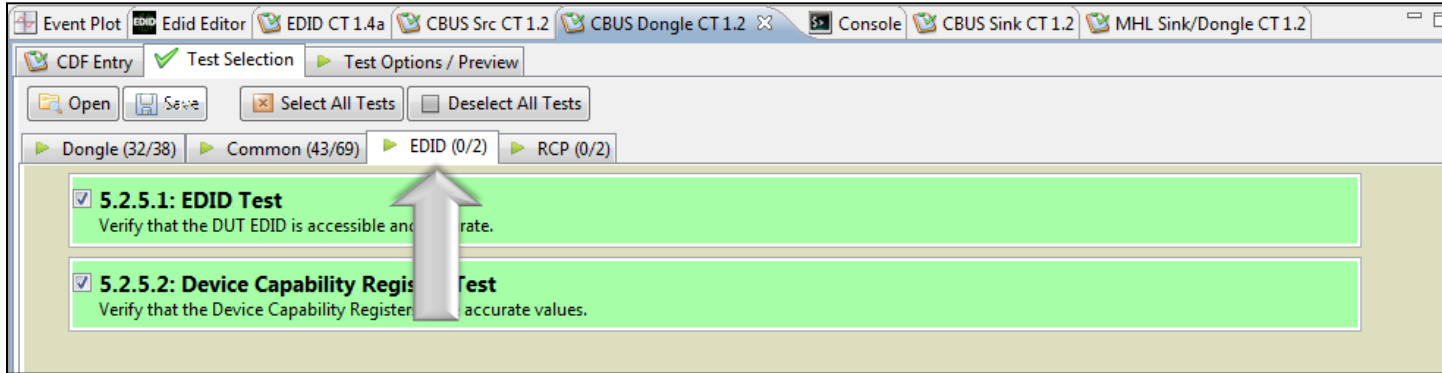
The screenshot displays the 'Test Selection' window of the software. The window title bar includes 'Event Plot', 'Edid Editor', 'EDID CT 1.4a', 'CBUS Src CT 1.2', 'CBUS Dongle CT 1.2', 'Console', 'CBUS Sink CT 1.2', and 'MHL Sink/Dongle CT 1.2'. The main area shows a tree view of test categories: 'Dongle (32/38)', 'Common (44/69)', 'EDID (0/2)', and 'RCP (0/2)'. A list of tests is shown with columns for test ID, description, and status. The test '6.3.6 MSC - DUT Output: Errors and Exceptions' is selected and highlighted in blue. Below the list, four detailed test descriptions are visible, each with a checkmark in a box:

- 6.3.6.1: CBM: DUT Receives Bad Reply; Control instead of Data**
Respond to valid MSC commands with illegal results, and observe the DUT responses. Verify that DUT does something predictable when Tester replies to a Command with a Control character when Data is expected.
- 6.3.6.2: CBM: DUT Receives Bad Reply; Data instead of Control**
Respond to valid MSC commands with illegal results, and observe the DUT responses. Verify that DUT does something predictable when Tester replies to a Command with Data when a Control character is expected.
- 6.3.6.3: CBM: DUT Receives Bad Reply; Control, Control instead of Control, Data**
Respond to valid MSC commands with illegal results, and observe the DUT responses. Verify that DUT does something predictable when Tester replies to a Command with a Control character when Data is expected.
- 6.3.6.4: CBM: DUT Receives Result Timeout**
Respond to valid MSC commands with illegal results, and observe the DUT responses. Verify that DUT responds to a Timeout with an ABORT.

Test Selection:

- Select “Common” Sink tests for MSC and DDC.

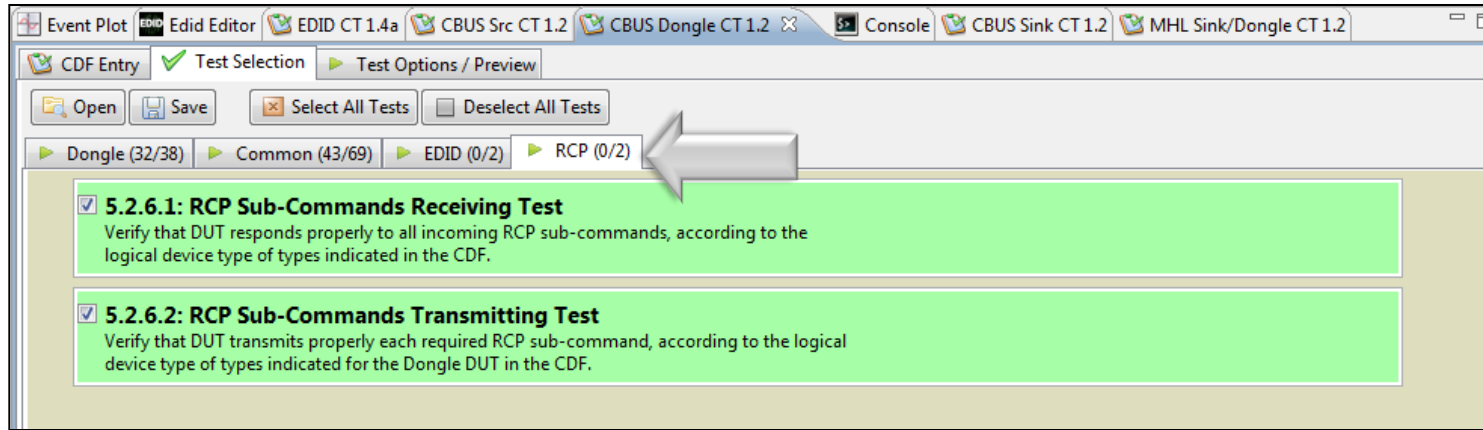
MHL CBUS Dongle Compliance – Test Selection



Test Selection:

- Select EDID Registers Tests.

MHL CBUS Dongle Compliance – Test Selection



Test Selection:

- Select “RCP” Sub-commands.

MHL CBUS Dongle Compliance – Test Selection

The screenshot displays the software interface for MHL CBUS Dongle Compliance. The main window shows a list of tests under the 'Dongle (32/38)' category. The tests are listed with their IDs, descriptions, and completion status. For example, test 6.3.1 is 'MSC - DUT Input: Device Register Space Contents; Reads' with a status of 1/1. Test 6.3.6 is highlighted in blue. Below the list, there are checkboxes for selecting specific tests, such as '6.3.6.1: CBM: DUT Respond to valid MSC commands...'. Two dialog boxes are overlaid on the interface. The first dialog, titled 'CBUS Dongle CT: Save Test Selections', has a 'Test Selection File' section with a text input field containing 'MySelect_Dongle.xml'. The second dialog, titled 'CBUS Dongle Compliance Test', has an 'Open Test Selection File' section with a list box containing 'MySelect_Dongle.xml'. Arrows point to the 'Open' button in the top toolbar and the 'Open Test Selection File' dialog.

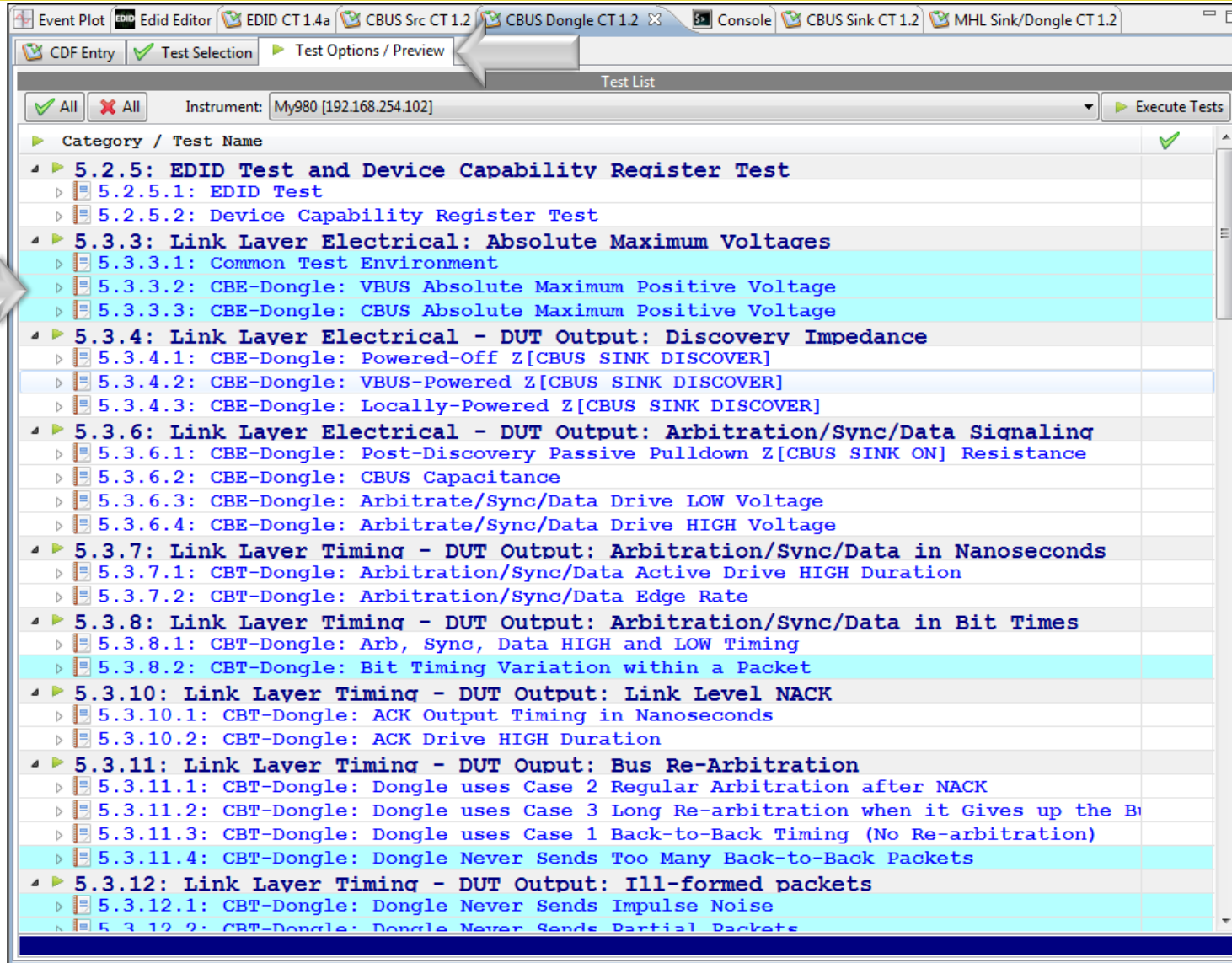
Test ID	Description	Progress	Pass/Fail
6.3.1	MSC - DUT Input: Device Register Space Contents; Reads	1/1	✓
6.3.2	MSC - DUT Output: Vendor-specific and Reserved Header Values	1/1	✓
6.3.3	MSC - DUT Output: Normal Commands	7/7	✓
6.3.5	MSC - DUT Output: Never Initiates Bad Commands	7/7	✓
6.3.6	MSC - DUT Output: Errors and Exceptions	5/5	✓
6.3.7	MSC - DUT Output: Disconnect	1/1	✓
6.3.8		2/2	✓
6.3.9		1/1	✓
6.3.10	MSC - DUT Input: N	8/8	✓
6.3.11	MSC - DUT Input: E	0/23	✗
6.3.12	MSC - DUT Input: A	9/9	✓
6.3.15	MSC - DUT Output:		
6.3.16	MSC - DUT Input: E		
6.3.20	DDC - DUT Input; C		
6.3.21	DDC - DUT Input; N		
6.3.22	DDC - DUT Input; Ill		

Test Selection:

- Save and reuse Test Select definitions.
- Saves time of re-entering specific tests.

Reviewing the CBUS Dongle Compliance Tests

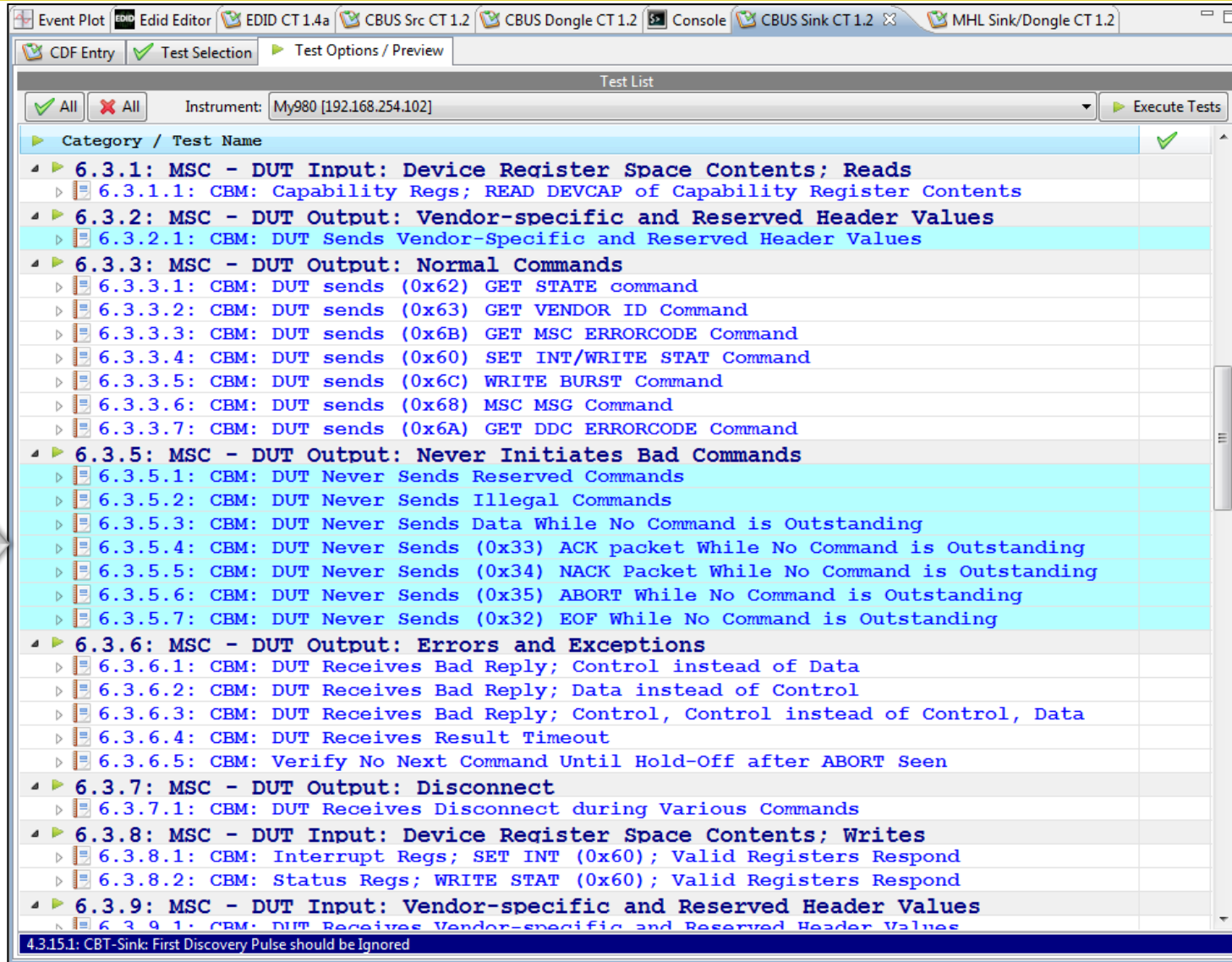
MHL CBUS Dongle Compliance – Review Test Selections



Test Options / Preview:

- Review list of tests by Section.
- Example: Section 5.3.x.
- Tests highlighted in blue are tests that are run in the background mode.

MHL CBUS Dongle Compliance – Review Test Selections



Test Options / Preview:

- Review list of tests by Section.
- Example: Section 6.3.x.

MHL CBUS Dongle Compliance – Review Test Selections

The screenshot shows a software interface for test selection. At the top, there are tabs for 'Event Plot', 'Edid Editor', 'EDID CT 1.4a', 'CBUS Src CT 1.2', 'CBUS Dongle CT 1.2', 'Console', 'CBUS Sink CT 1.2', and 'MHL Sink/Dongle CT 1.2'. Below the tabs, there are buttons for 'CDF Entry', 'Test Selection', and 'Test Options / Preview'. The main area is titled 'Test List' and contains a table of tests. The table has columns for 'Category / Test Name' and a status indicator (green checkmark or red X). The tests are grouped into categories, and some have sub-iterations. A grey arrow points to the test entry '5.3.4.1: CBE-Dongle: Powered-Off Z[CBUS SINK DISCOVER]' which has a red X next to it.

Category / Test Name	Status
5.2.5: EDID Test and Device Capability Register Test	✓
5.2.5.1: EDID Test	✓
Iter 01:	✗
5.2.5.2: Device Capability Register Test	✓
Iter 01:	✓
5.3.3: Link Layer Electrical: Absolute Maximum Voltages	✓
5.3.3.1: Common Test Environment	✓
Iter 01: Continuous Background Test	✓
5.3.3.2: CBE-Dongle: VBUS Absolute Maximum Positive Voltage	✓
Iter 01: Continuous Background Test	✓
5.3.3.3: CBE-Dongle: CBUS Absolute Maximum Positive Voltage	✓
Iter 01: Continuous Background Test	✓
5.3.4: Link Layer Electrical - DUT Output: Discovery Impedance	✓
5.3.4.1: CBE-Dongle: Powered-Off Z[CBUS SINK DISCOVER]	✗
Iter 01: PROC_SET_STANDBY marked as not supported in the CDF: Automatic PASS(SKIP)	✗
5.3.4.2: CBE-Dongle: VBUS-Powered Z[CBUS SINK DISCOVER]	✓
Iter 01:	✓
5.3.4.3: CBE-Dongle: Locally-Powered Z[CBUS SINK DISCOVER]	✗
Iter 01: The Dongle is not powered: Automatic PASS(SKIP)	✗
5.3.6: Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	✓
5.3.6.1: CBE-Dongle: Post-Discovery Passive Pulldown Z[CBUS SINK ON] Resistance	✓
Iter 01:	✓
5.3.6.2: CBE-Dongle: CBUS Capacitance	✗
Iter 01:	✗
5.3.6.3: CBE-Dongle: Arbitrate/Sync/Data Drive LOW Voltage	✗
Iter 01:	✗
5.3.6.4: CBE-Dongle: Arbitrate/Sync/Data Drive HIGH Voltage	✓
Iter 01:	✓
5.3.7: Link Layer Timing - DUT Output: Arbitration/Sync/Data in Nanoseconds	✓
5.3.7.1: CBT-Dongle: Arbitration/Sync/Data Active Drive HIGH Duration	✓
Iter 01:	✓
5.3.7.2: CBT-Dongle: Arbitration/Sync/Data Edge Rate	✓
Iter 01:	✓

Test Options / Preview:

- Optionally, skip certain tests (red X).

Running the CBUS Dongle Compliance Test

MHL CBUS Dongle Compliance – Running the Tests

The screenshot shows a software interface for running tests. The main window displays a 'Test List' for instrument 'My980 [192.168.254.102]'. The list includes various test categories and individual test items, some of which are highlighted in yellow to indicate failure. A dialog box titled 'CBUS Dongle CT Results' is open, prompting the user to 'Enter a name for the Test Results.' The text 'Execute CBUS Dongle Compliance Tests on Instrument: My980 @ 192.168.254.135' is displayed above the input field, which contains the text 'Dongle_Test_1'. The dialog box has 'Cancel' and 'Ok' buttons at the bottom.

Executing tests:

- Assign name to test results file.

MHL CBUS Dongle Compliance – Running the Tests

Test List

Category / Test Name	Status
5.2.5: EDID Test and D	In Progress
5.2.5.1: EDID Test	In Progress
5.2.5.2: Device Capabil	Not Tested
5.3.3: Link Layer Elec	Not Tested
5.3.3.1: Common Test E	Not Tested
5.3.3.2: CBE-Dongle: V	Not Tested
5.3.3.3: CBE-Dongle: C	Not Tested
5.3.4: Link Layer Elec	Not Tested
5.3.4.1: CBE-Dongle: P	Not Tested
5.3.4.2: CBE-Dongle: V	Not Tested
5.3.4.3: CBE-Dongle: L	Not Tested
5.3.5: Link Layer Timi	Not Tested
5.3.5.1: CBT-Dongle: T	Not Tested
5.3.6: Link Layer Elec	Not Tested
5.3.6.1: CBE-Dongle: P	Not Tested
5.3.6.2: CBE-Dongle: C	Not Tested
5.3.6.3: CBE-Dongle: A	Not Tested
5.3.6.4: CBE-Dongle: A	Not Tested
5.3.7: Link Layer Timi	Not Tested
5.3.7.1: CBT-Dongle: A	Not Tested

Test Setup

Test 5.2.5.1, Iter-01
Verify that the DUT EDID is accessible and accurate.

Connect the input of the Dongle DUT to the MHL output of the Test Instrument as shown in the diagram below. Apply power to the Dongle DUT.

Use the procedure specified below to put the Dongle into an active state.

<Procedure not specified in the CDF>

Test Instrument — MHL OUT — MHL IN — Dongle DUT — MHL OUT — MHL IN — Downstream Device

Cancel Compliance Test

Continue

Cancel the Compliance Test

Pause Test Execution

Line Message

- 0001 Compliance
- 0002 Initialia
- 0003 Assembling
- 0004 Transferr
- 0005 --- Test 5.

Executing the tests:

- Example: Section 5.3.4.x.
- Instructions provided on test setup configuration.

MHL CBUS Dongle Compliance – Running the Tests

Category / Test Name	Status
Iter 01:	Fail
5.2.5.2: Device Capability Register Test	Fail
Iter 01:	Fail
5.3.3: Link Layer Electrical: Absolute Maximum Voltages	
5.3.3.1: Common Test Environment	Pass
5.3.3.2: CBE-Dongle: VBUS Absolute Maximum Positive Voltage	Pass
5.3.3.3: CBE-Dongle: CBUS Absolute Maximum Positive Voltage	Pass
5.3.4: Link Layer Electrical - DUT Output: Discovery Impedance	
5.3.4.1: CBE-Dongle: Powered-Off Z[CBUS SINK DISCOVER]	Skipped
Iter 01: PROC_SET_STANDBY marked as not supported in the CDF: Automatic PASS(SKIP)	Skipped
5.3.4.2: CBE-Dongle: VBUS-Powered Z[CBUS SINK DISCOVER]	Pass
Iter 01:	Pass
5.3.4.3: CBE-Dongle: Locally-Powered Z[CBUS SINK DISCOVER]	Pass
Iter 01:	Pass
5.3.5: Link Layer Timing - DUT Output: Pre-Discovery	
5.3.5.1: CBT-Dongle: Time from Dongle Power applied until Dongle CBUS leaves HI	Fail
Iter 01:	Fail
5.3.6: Link Layer Electrical - DUT Output: Arbitration/Sync/Data Signaling	
5.3.6.1: CBE-Dongle: Post-Discovery Passive Pulldown Z[CBUS SINK ON] Resistance	Pass
Iter 01:	Pass
5.3.6.2: CBE-Dongle: CBUS Capacitance	In Progress
Iter 01:	In Progress

Line	Message
0040	--- Test 5.3.6.1-01
0041	Executing the test.
0042	Retrieving test results.
0043	Processing test results.
0044	Saving the test logs.
0045	Test 5.3.6.1 Iter 01 -> Pass
0046	--- Test 5.3.6.2-01
0047	Executing the test.

Executing the tests:

- Tests highlighted in blue are tests that are run in background mode. Example: Section 5.3.3.x.
- Pass/Fail results provided under status.
- Detailed Test Log on lower panel.
- Cancel or Pause test at any time.

MHL CBUS Dongle Compliance – Running the Tests

The screenshot displays the 'CBUS Dongle Compliance Test (1.2): "Dongle_Test_1"' window. It features a 'Test List' table and a 'Test Log' window.

Category / Test Name	Status
Iter 01:	Pass
6.3.5: MSC - DUT Output: Never Initiates Bad Commands	Pass
6.3.5.1: CBM: DUT Never Sends Reserved Commands	Pass
6.3.5.2: CBM: DUT Never Sends Illegal Commands	Pass
6.3.5.3: CBM: DUT Never Sends Data While No Command is Outstanding	Pass
6.3.5.4: CBM: DUT Never Sends (0x33) ACK packet While No Command is Outstanding	Pass
6.3.5.5: CBM: DUT Never Sends (0x34) NACK Packet While No Command is Outstanding	Pass
6.3.5.6: CBM: DUT Never Sends (0x35) ABORT While No Command is Outstanding	Fail
Iter 01: Continuous Background Test	Fail
6.3.21.2: At 01067298.50 us, DUT sent unexpected ABORT	
6.3.21.2: At 04137449.22 us, DUT sent unexpected ABORT	
6.3.21.2: At 07207399.58 us, DUT sent unexpected ABORT	
6.3.21.2: At 10277341.05 us, DUT sent unexpected ABORT	
6.3.21.2: DUT sent 4 unexpected ABORTs	
6.3.21.3: At 01067263.21 us, DUT sent unexpected ABORT	
6.3.21.3: At 04137660.33 us, DUT sent unexpected ABORT	
6.3.21.3: At 07207665.35 us, DUT sent unexpected ABORT	
6.3.21.3: At 10277580.78 us, DUT sent unexpected ABORT	
6.3.21.3: DUT sent 4 unexpected ABORTs	
6.3.21.4: At 01067252.66 us, DUT sent unexpected ABORT	
6.3.21.4: At 04137408.50 us, DUT sent unexpected ABORT	
6.3.21.4: At 07207421.03 us, DUT sent unexpected ABORT	
6.3.21.4: At 10277348.73 us, DUT sent unexpected ABORT	

The 'Test Log' window shows the following messages:

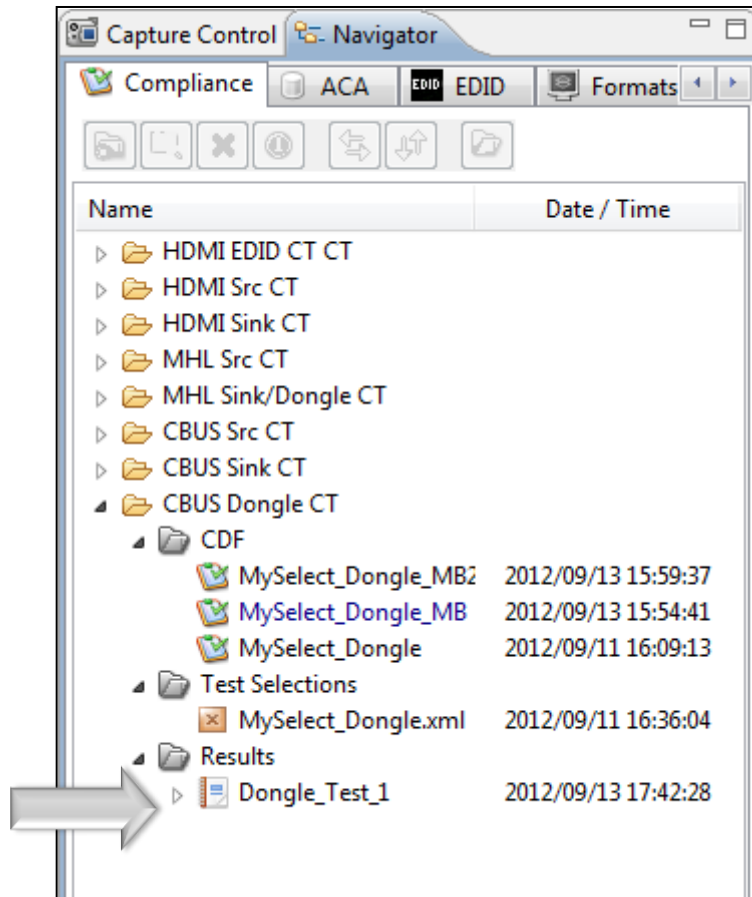
```
0638 Saving the test logs.
0639 Test 6.3.22.2 Iter 01 -> Pass
0640 --- Test 6.3.22.3-01
0641 Executing the test.
0642 Retrieving test results.
0643 Processing test results.
0644 Saving the test logs.
0645 Test 6.3.22.3 Iter 01 -> Pass
Tests completed
```

Executing the tests:

- Pass/Fail results provided under status.
- Details provided for failures. Example: Section 6.3.5.6.
- Test Complete message provided.

Viewing the CBUS Dongle Compliance Test Results

MHL CBUS Dongle Compliance – Viewing Test Results



Reviewing Test Results:

- Test results accessible in Navigator view.

MHL CBUS Dongle Compliance – Viewing Test Results

Results Name: Dongle_Test_1
Date Tested: September 13, 2012 4:24 PM
Overall Status: **CTS 1.2 - Fail**

Manufacturer: QD
Model Name: XYZ
Port Tested: 1

Test Name / Details	Status
5.2.5.1: EDID Test	Fail
5.2.5.2: Device Capability Register Test	Fail
5.3.3.1: Common Test Environment	Pass
5.3.3.2: CBE-Dongle: VBUS Absolute Maximum Positive Voltage	Pass
5.3.3.3: CBE-Dongle: CBUS Absolute Maximum Positive Voltage	Pass
5.3.4.1: CBE-Dongle: Powered-Off Z[CBUS SINK DISCOVER]	Skipped
5.3.4.2: CBE-Dongle: VBUS-Powered Z[CBUS SINK DISCOVER]	Pass
5.3.4.3: CBE-Dongle: Locally-Powered Z[CBUS SINK DISCOVER]	Pass
5.3.5.1: CBT-Dongle: Time from Dongle Power applied until Dongle CBUS leaves HIGH-	Fail
5.3.6.1: CBE-Dongle: Post-Discovery Passive Pulldown Z[CBUS SINK ON] Resistance	Pass
5.3.6.2: CBE-Dongle: CBUS Capacitance	Fail
5.3.6.3: CBE-Dongle: Arbitrate/Sync/Data Drive LOW Voltage	Pass
5.3.6.4: CBE-Dongle: Arbitrate/Sync/Data Drive HIGH Voltage	Pass
5.3.7.1: CBT-Dongle: Arbitration/Sync/Data Active Drive HIGH Duration	Pass
5.3.7.2: CBT-Dongle: Arbitration/Sync/Data Edge Rate	Pass
5.3.8.1: CBT-Dongle: Arb, Sync, Data HIGH and LOW Timing	Pass
5.3.8.2: CBT-Dongle: Bit Timing Variation within a Packet	Fail
5.3.9.1: CBT-Dongle: Response to Link Level NACK	Pass
5.3.10.1: CBT-Dongle: ACK Output Timing in Nanoseconds	Pass
5.3.10.2: CBT-Dongle: ACK Drive HIGH Duration	Pass
5.3.11.1: CBT-Dongle: Dongle uses Case 2 Regular Arbitration after NACK	Pass
5.3.11.2: CBT-Dongle: Dongle uses Case 3 Long Re-arbitration when it Gives up the	Pass
5.3.11.3: CBT-Dongle: Dongle uses Case 1 Back-to-Back Timing (No Re-arbitration)	Pass
5.3.11.4: CBT-Dongle: Dongle Never Sends Too Many Back-to-Back Packets	Pass
5.3.12.1: CBT-Dongle: Dongle Never Sends Impulse Noise	Pass
5.3.12.2: CBT-Dongle: Dongle Never Sends Partial Packets	Pass
5.3.13.1: CBE-Dongle: Discovery Sensitivity to Input Voltages	Fail
5.3.14.1: CBT-Dongle: Valid Wake Pulse Timing	Pass
5.3.14.2: CBT-Dongle: Valid Discovery Pulse Timing	Pass

Instrument: My980 [192.168.254.135] Continue Test Execution

Reviewing Test Results:

- Test Results tab appears in may panel.

Viewing the CBUS Dongle Compliance Test Report

MHL CBUS Dongle Compliance – View HTML Test Report

Results Name: Dongle_Test_1
Date Tested: September 13, 2012 4:24 PM
Overall Status: **CTS 1.2 - Fail**

Manufacturer: QD
Model Name: XYZ
Port Tested: 1

Test Name / Details	Status
5.2.5.1: EDID Test	Fail
5.2.5.2: Device Capability Register Test	Fail
5.3.3.1: Common Test Environment	Pass
5.3.3.2: CBE-Dongle: VBUS Absolute Maximum Positive Voltage	Pass
5.3.3.3: CBE-Dongle: CBUS Absolute Maximum Positive Voltage	Pass
5.3.4.1: CBE-Dongle: Powered-Off Z[CBUS SINK DISCOVER]	Skipped
5.3.4.2: CBE-Dongle: VBUS-Powered Z[CBUS SINK DISCOVER]	Pass
5.3.4.3: CBE-Dongle: Locally-Powered Z[CBUS SINK DISCOVER]	Pass
5.3.5.1: CBT-Dongle: Time from Dongle Power applied until Dongle CBUS leaves HIGH-	Fail
5.3.6.1: CBE-Dongle: Post-Discovery Passive Pulldown Z[CBUS SINK ON] Resistance	Pass
5.3.6.2: CBE-Dongle: CBUS Capacitance	Fail
5.3.6.3: CBE-Dongle: Arbitrate/Sync/Data Drive LOW Voltage	Pass
5.3.6.4: CBE-Dongle: Arbitrate/Sync/Data Drive HIGH Voltage	Pass
5.3.7.1: CBT-Dongle: Arbitration/Sync/Data Active Drive HIGH Duration	Pass
5.3.7.2: CBT-Dongle: Arbitration/Sync/Data Edge Rate	Pass
5.3.8.1: CBT-Dongle: Arb, Sync, Data HIGH and LOW Timing	Pass
5.3.8.2: CBT-Dongle: Bit Timing Variation within a Packet	Pass
5.3.9.1: CBT-Dongle: Response to Link Level NACK	Pass
5.3.10.1: CBT-Dongle: ACK Output Timing in Nanoseconds	Pass
5.3.10.2: CBT-Dongle: ACK Drive HIGH Duration	Pass
5.3.11.1: CBT-Dongle: Dongle uses Case 2 Regular Arbitration	Pass
5.3.11.2: CBT-Dongle: Dongle uses Case 3 Long Re-arbitration	Pass
5.3.11.3: CBT-Dongle: Dongle uses Case 1 Back-to-Back Transactions	Pass
5.3.11.4: CBT-Dongle: Dongle Never Sends Too Many Back-to-Back Transactions	Pass
5.3.12.1: CBT-Dongle: Dongle Never Sends Impulse Noise	Pass
5.3.12.2: CBT-Dongle: Dongle Never Sends Partial Packets	Pass
5.3.13.1: CBE-Dongle: Discovery Sensitivity to Input Voltage	Pass
5.3.14.1: CBT-Dongle: Valid Wake Pulse Timing	Pass
5.3.14.2: CBT-Dongle: Valid Discovery Pulse Timing	Pass

Instrument: My980 [192.168.254.135]

Generate Report

HTML Report

Dongle_Test_1

Select the desired report options.

Show Test Summary Only.

Include CDF Information.

Cancel OK

Reviewing Test Report:

- Test Report accessible from Test Results tab.
- Indicate if you wish to view report including CDF.

MHL CBUS Dongle Compliance – View HTML Test Report

HTML Viewer
C:\Users\nkendal\Desktop\980_CBUS_GUT\980mgr\cbusdonglect\results\Dongle_Test_1\Report_Summary_Cdf.htm

Report generated on: September 17, 2012 4:50 PM www.quantumdata.com

Quantum Data
CBUS Dongle Compliance Test Report
CTS 1.2

Results Name:	Dongle_Test_1	Manufacturer:	QD
Date Tested:	September 13, 2012 4:24 PM	Model Name:	XYZ
Overall Status:	Fail	Port Tested:	-

Capabilities Declaration Form (CDF)

General	
CDF_MFR_NAME	QD
CDF_MODEL_NUMBER	XYZ
CDF_D_CBUS_THRESHOLD_V	0.90
CDF_D_MAX_CBUS_CAP	0.1
CDF_D_POWERED	YES
CDF_D_MAX_POWER_DOWN	500
CDF_D_MAX_POWER_UP	500
CDF_D_MAX_STANDBY_TO_ACTIVE	60
CDF_PROC_SET_ACTIVE	Not Specified
CDF_PROC_SET_STANDBY	Not Supported
CDF_RCP_RECEIVE	NO
CDF_RCP_SEND	NO
CDF_LOG_DEV_MAP_CHANGE	NO

Capability Registers

CDF_CR_MHL_VER_MAJOR	1
CDF_CR_MHL_VER_MINOR	0

Back Forward Save As Close

Review HTML test report:

- View Capabilities Declaration Form (CDF).
- Save report for later viewing and dissemination to colleagues.

MHL CBUS Dongle Compliance – Review Test Selections

HTML Viewer
 C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbusdonglect\results\Dongle_Test_1\Report_Cdf.htm

Test 5.3.23.2	Fail	Test 5.3.23.3	Fail	Test 5.3.24.1	Pass
Test 5.3.25.1	Skipped	Test 5.3.26.1	Skipped	Test 6.3.1.1	Fail
Test 6.3.2.1	Pass	Test 6.3.3.1	Pass	Test 6.3.3.2	Pass
Test 6.3.3.3	Pass	Test 6.3.3.4	Pass	Test 6.3.3.5	Pass
Test 6.3.3.6	Pass	Test 6.3.3.7	Pass	Test 6.3.5.1	Pass
Test 6.3.5.2	Pass	Test 6.3.5.3	Pass	Test 6.3.5.4	Pass
Test 6.3.5.5	Pass	Test 6.3.5.6	Fail	Test 6.3.5.7	Pass
Test 6.3.6.1	Pass	Test 6.3.6.2	Pass	Test 6.3.6.3	Pass
Test 6.3.6.4	Pass	Test 6.3.6.5	Fail	Test 6.3.7.1	Pass
Test 6.3.8.1	Pass	Test 6.3.8.2	Pass	Test 6.3.9.1	Pass
Test 6.3.10.1	Pass	Test 6.3.10.2	Pass	Test 6.3.10.3	Pass
Test 6.3.10.4	Pass	Test 6.3.10.5	Pass	Test 6.3.10.6	Pass
Test 6.3.10.7	Pass	Test 6.3.10.8	Pass	Test 6.3.11.1	Pass
Test 6.3.11.2	Pass	Test 6.3.11.3	Pass	Test 6.3.11.4	Pass
Test 6.3.11.5	Pass	Test 6.3.11.6	Pass	Test 6.3.11.7	Fail
Test 6.3.11.8	Pass	Test 6.3.11.9	Pass	Test 6.3.11.10	Pass
Test 6.3.11.11	Pass	Test 6.3.11.12	Pass	Test 6.3.11.13	Pass
Test 6.3.11.14	Pass	Test 6.3.11.15	Fail	Test 6.3.11.16	Pass
Test 6.3.11.17	Pass	Test 6.3.11.19	Pass	Test 6.3.11.20	Pass
Test 6.3.11.21	Fail	Test 6.3.11.22	Pass	Test 6.3.11.23	Pass
Test 6.3.11.24	Pass	Test 6.3.12.1	Fail	Test 6.3.12.2	Fail
Test 6.3.12.3	Fail	Test 6.3.12.4	Fail	Test 6.3.12.5	Pass
Test 6.3.12.6	Pass	Test 6.3.12.7	Pass	Test 6.3.12.8	Pass
Test 6.3.12.9	Pass	Test 6.3.15.1	Skipped	Test 6.3.15.2	Skipped
Test 6.3.16.1	Skipped	Test 6.3.16.2	Skipped	Test 6.3.20.2	Pass
Test 6.3.20.3	Pass	Test 6.3.21.1	Pass	Test 6.3.21.2	Pass
Test 6.3.21.3	Pass	Test 6.3.21.4	Pass	Test 6.3.21.5	Fail
Test 6.3.22.1	Pass	Test 6.3.22.2	Pass	Test 6.3.22.3	Pass
CDF		Equipment Info			

Back Forward Save As Close

Review HTML test report:

- View Pass/Fail results.

MHL CBUS Dongle Compliance – Review Test Selections

HTML Viewer
C:\Users\nkendall\Desktop\980_CBUS_GUI\980mgr\cbusdonglect\results\Dongle_Test_1\Report_Summary_Cdf.htm

Test Equipment Information

Instrument

```
Name: My980
IP Address: 192.168.254.135
Net Mask: 255.255.255.0
Gateway IP: 192.168.254.1
Free Space: 121.08 GB of 144.22 GB (84.0%)
Version:
  Advanced Test platform Release: 4.5.27
  MHL CBUS Protocol Analyzer in slot 1:
    Gateway: [Version: 0 Build Number: 4 (09:11:2012 121000) pcb: 23232323]
    Firmware: [Version: 1.0.1 Build Number: 1978 (mblair 09:13:2012 09:21:52 CDT)]
System Information:
  System SN   : [ 47A7D6F8C0A385A0::N/A]
  SN         : [ 318383010000::11120010c]
  Main Board  : [ "DP67DE"]
  CPUx4      : [ 6.42.7 "Intel(R) Core(TM) i3-2100 CPU @ 3.10GHz"]
  DDR        : [ 3 GB + 768 MB]
  HD         : [ WD1600BEVT-1]
  OS         : [ Linux xpscope-81 2.6.26-2-686 #1 SMP Wed Sep 21 04:35:47 UTC 2011 i686 GNU/Linux]
  GUI manager : [ Version 4.5.27_39005_201209061011]
  1          : [ lo   inet 127.0.0.1/8 scope host lo]
  2          : [ eth0  inet 192.168.254.135/24 brd 192.168.254.255 scope global eth0]
  HDMI SINK CTS: [ 3.1.7]
  HDMI SRC CTS: [ 3.1.8]
  MHL SINK CTS: [ 1.2.0]
  MHL SRC CTS : [ 1.2.1]
```

Host

```
UI Name: Quantum Data 980 Manager - Version 4.5.29
UI Home: platform:/base/plugins/com.quantumdata.1980.app
Java Vendor: Null
Java Runtime: 1.6.0_15-b03
Java Home: C:\Users\nkendall\Desktop\980_Release_5_29\980mgr\jre
OS: win32
OS Arch: x86
Locale: en_US
Free Space: 13.80 GB of 453.66 GB (3.0%)
```

Generated on: September 17, 2012 4:50 PM www.quantumdata.com

← Back → Forward 📄 Save As ✖ Close

Review HTML test report:

- View Test Equipment information.

MHL CBUS Log Plots – Dongle Tests

Refer to Source Section

The Quantum Data 980 MHL CBUS Compliance Module...



... your solution for testing MHL source, sink, dongle devices for CBUS compliance.