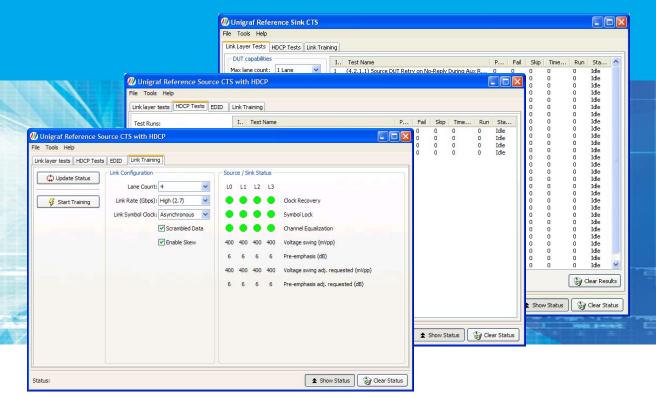
DP CTS TOOLS DisplayPortTM compliance testing



Full DP Compatibility Validation

Unigraf DP CTS Tools enable the user to reliably evaluate the compatibility of his equipment with VESA DisplayPort[™] Link Layer and HDCP standards. Unigraf DP CTS Tools provide more than only the pass / fail information. The on-screen and printable reports give a reliable and easy to understand explanation of the performance of the tested equipment on each step of the tests.

Shortened Development Cycle

Early diagnosis of compliance issues will help to make the product implementation sound. By using Unigraf CTS Tools the testing of the functionality of the DP design will be a timely operation without unnecessary delays. The use of Unigraf DPA-400 AUX Channel Monitor will accelerate even more the achievement of this goal.

Benefits

- User friendly GUI
- Detailed HTML style reports
- Clear and precise error reporting
- EDID read / write
- DPCD read / write
- CTS LL and HDCP versions
- Test automation and manual modes
- Used by ATC Labs
- Use for Self Certification (upon approval)





Reference Source CTS Tool

Unigraf's Reference Source CTS Tool can be used with VTG-5225 DP units.

The tool GUI consists of the following seven task oriented dialogs. They are accessible through tabs or pull-down menus from the main dialog. The PC with CTS software is connected to both devices by using a RS-232 port. A separate USB to serial conversion cable can be used if a RS-232 port is not available.

RefSource Dialogs

- Link layer tests: LL test grid with result reporting
- HDCP tests: HDCP test grid with result reporting
- EDID: EDID view in HEX or decoded
- Link Training: Link training status and link configuration
- DPCD Read / Write: Access to DPCD register values
- Most Packed Timing: Selection of tested video timings
- Colorimetry: Definition of used video color formats

🕖 Unigraf Reference Source CTS	with HDCP						
File Tools Help							
Link layer tests HDCP Tests EDID	Link Training						
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	EDID HEV contents EDID 1 3/1.	4 Decoder					
🔁 La	WUnigraf Reference Source CTS with HDCP File Tools Help						
		Source / Sink Status					
Quer		L0 L1 L2 L3					
Status:							
Most Packed timing modes se		Clock Recovery					
Most packed timing for 1 lane:		Symbol Lock					
	Refresh rate Interlace/Progressive Blanking m bpp Packing ratio	P 🔍 Channel Equalization					
CVT 1280 800 6	Colorimetry	400 400 400 Voltage swing (mVpp)					
DMT 800 600 6	Format Bit Depth Dynamic Range Color Coeff.	6 6 6 Pre-emphasis (dB)					
DMT 1024 768 6	RGB 6 VESA -	DPCD Read / Write					
Most packed timing for 2 lanes:	RGB 8 VESA -						
Standard H-Res V-Res F	□ RGB 10 VE5A - □ RGB 8 CEA -	Source / Target Address:					
DMT 1280 1024 6	RGB 10 CEA -	Data:					
DMT 1360 768 6	VCbCr422 8 CEA ITU.601						
CVT 1280 800 6	VCbCr422 10 CEA ITU.601						
DMT 1400 1050 6	VCbCr422 8 CEA ITU.709	Previous Op: None					
🔲 🛄 DMT 1280 768 6	CEA ITU.709						
CVT 1600 1200 6	VCbCr444 8 CEA ITU.601						
Most packed timing for 4 lanes:	YCbCr444 10 CEA ITU.601						
Standard H-Res V-Res F	YCbCr444 8 CEA ITU.709 YCbCr444 10 CEA ITU.709						
CVT 2048 1536 6	E 10.709	★ Show Status 🚱 Clear Status					
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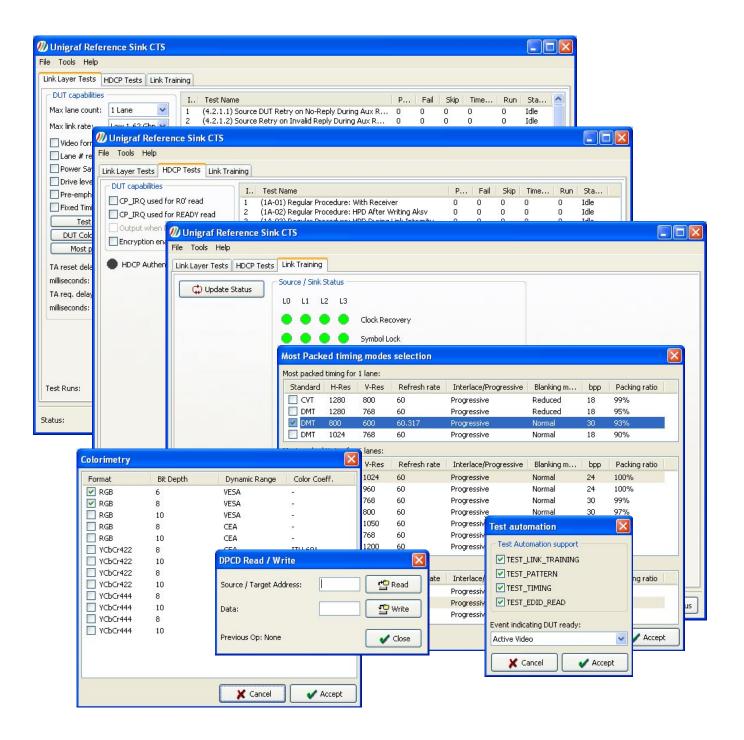
Reference Sink CTS Tool

Unigraf's Reference Sink CTS Tool can be used with either the DPR-100 or the UFG 04 DP frame grabber. The functionality of the CTS tool is identical between the two devices.

The tool GUI consists of the following seven task oriented dialogs. They are accessible through tabs or pull-down menus from the main dialog. The PC with CTS software is connected to to the UFG 04 DP using a RS-232 port and to the DPR-100 through a USB port.

RefSink Dialogs

- Link layer tests: LL test grid with result reporting
- HDCP tests: HDCP test grid with result reporting
- Link Training: Link training status
- DPCD Read / Write: Access to DPCD register values
- Most Packed Timing: Selection of tested video timings
- Colorimetry: Definition of used video color formats
- Test automation: Definition of DUT capabilities



DP CTS Tools DisplayPort[™] compliance testing

DisplayPort Sink Compliance Test Report

CONTENTS					
Test Summary General Information	TEST SUMMARY	DACCED		TIMED OUT	CHIDDED
View all test details View details by test 1 (-5.2.1.3) Read One Byle 1 ↑ 2 (-5.2.1.2) DPCD Receiver (- 3 (-5.2.1.3) Write Nine Byles 5 (-5.2.1.5) Write Nine Byles 5 (-5.2.1.5) Read One EDD I 7 (-5.2.1.7) EDD Read (1 Byles 6 (-5.2.1.6) Read One EDD I 7 (-5.2.1.7) EDD Read (1 Byles 6 (-5.2.1.6) Regal Aux Requi 9 (-5.2.1.8) Gitch Rejection ♥ Printer Friendly	1 - (5.2.1.1) Read One Byte from Valid DPCD Address	1	0	0	0
	2 - (5.2.1.2) DPCD Receiver Capability Read (Read Twelve Bytes from Valid DPCD Address)	1	0	0	0
	3 - (5.2.1.3) Write One Byte to Valid DPCD Address	1	0	0	0
	4 - (5.2.1.4) Write Nine Bytes to Valid DPCD Addresses	1	1	0	0
	5 - (5.2.1.5) Write EDID Offset (One Byte I2C-Over-Aux Write)	1	0	0	0
	6 - (5.2.1.6) Read One EDID Byte (One Byte I2C-Over-Aux Read)	1	0	0	0
	7 - (5.2.1.7) EDID Read (1 Byte 12C-Over-Aux Segment Write, 1 Byte 12C-Over-Aux Offset Write, 128 Byte	1	0	0	O

Tool Structure

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Unigraf DP CTS Tools provide the functionality required for Unigraf Reference Sink or Reference Source Test Equipment to conduct the compliance tests of DisplayPort[™] Link Layer and HDCP. They execute the full CTS test as required by VESA DisplayPort™ Link Layer Compliance Test Specification.

The DP CTS tools consist of two components: the Windows graphical user interface and the target firmware for the DisplayPort™ controller located on the Test Equipment. The actual tests are implemented by the firmware, while system control and status reporting are done by the user interface. The GUI and the FW are communicating using a serial interface. The firmware implements both the functions needed in the CTS tests and the normal functionality as DP video generator or frame grabber.

The tools can generate detailed HTML test reports and may include both Link Layer and HDCP compliance tests.



Specifications

Contents	Graphical User Interface and DP inteface controller (DPTx or DPRx) Firmware		
HW interface	STM gm 60028 (Tx), gm 68020 (Rx)		
RefSource CTS RefSink CTS	VTG-5225 DP pattern genarator UFG-04 DP frame grabber, DPR-100		
Communication	RS-232C (VTG-5225 DP and UFG-04 DP), USB 2.0 (DPR-100)		
Operating System	Windows XP		
Standard	Certified for testing to VESA DisplayPort™ Link Layer Compliance Test Standard, Version 1.1		



UNIGRAF OY

Ruukintie 3, FI-02330 Espoo, Finland Tel +358 9 859 550, fax +358 9 802 6699 UNIGRAF-USA Tel +1 888 362 7960, fax +1 605 362 7961 www.unigraf-us.com

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