TELEDYNE LECROY

quantumdata 980

980/980B Advanced Test Platforms	HDMI 1.4 Protocol Analyzer	HDMI 1.4 Generator / Analyzer	MHL CBUS Compliance	HDMI 2.0 Video Generator	HDMI 2.0 Protocol Analyzer	12G-SDI Video Generator	DisplayPort 1.2 Generator / Analyzer	Phy & Protocol Aux Chan Analyzer	
Interface Technology / Feature	**Description**								**Notes on Interface Technology / Feature**
Tx HDMI 1.4 165MHz	Tests HDMI sink devices up to 165MHz	●1	●		●			●	1. Via capture and playback function.
Tx HDMI 225 MHz	Tests HDMI sink devices up to 225MHz	●1	●		●				2. Supported using MHL/HDMI dongle.
Tx HDMI 300 MHz	Test HDMI sink devices up to 300MHz	●1	●		●				3. Supported using HDMI to DVI adapter.
Tx HDMI 600 MHz	Test HDMI sink devices up to 600MHz				●				
Rx HDMI 225 MHz	Test HDMI source devices up to 225MHz	●	●			●			●
Rx HDMI 300 MHz	Test HDMI source devices up to 300MHz	●	●			●			
Rx HDMI 600 MHz	Test HDMI source devices up to 600MHz	●				●			
Rx MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2	Test MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2 Source devices	●2	●2			●2			
Tx MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2	Test MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2 Sink/Dongle devices	●2	●2		●2				
Tx DisplayPort 1.2	Test DisplayPort display devices up to HBR2 link rates						●		
Rx DisplayPort 1.2	Test DisplayPort source devices up to HBR2 link rates						●		
Tx DVI Single Link	Test DVI single link displays	●1,3	●3		●3				
Tx Single Link SDI	Test SDI, HD-SDI, 3G-SDI, 6G-SDI and 12G-SDI on for distinct Tx ports					●			
Tx Dual Link SDI	Test dual link HD-SDI and dual link 3G-SDI on two physical Tx ports					●			
Tx Quad Link SDI	Test quad link HD-SDI and quad link 3G-SDI on four physical Tx ports					●			
Compliance Test Support	**Description**								**Notes on Compliance Test Support**
HDCP 1.4 HDMI Tx	Supports all source compliance tests for HDCP 1.4 CTS for HDMI	●							1. Via HDMI/MHL dongle.
HDCP 1.4 HDMI Rx	Supports all sink compliance tests for HDCP 1.4 CTS for HDMI								2. Industry approved test solution.
HDCP 1.4 HDMI Repeater	Supports all repeater compliance tests for HDCP 1.4 CTS for HDMI								3. Not all tests are supported. Refer to datasheets.
HDCP 2.2 HDMI Tx	Supports all source compliance tests for HDCP 2.2 CTS for HDMI	●							
HDCP 2.2 HDMI Rx	Supports all sink compliance tests for HDCP 2.2 CTS for HDMI	●							
HDCP 2.2 HDMI Repeater	Supports all repeater compliance tests for HDCP 2.2 CTS for HDMI	●							
HDCP 1.4 MHL Tx	Supports all source compliance tests for HDCP 1.4 CTS for MHL	●1							
HDCP 1.4 MHL Rx	Supports all sink compliance tests for HDCP 1.4 CTS for MHL	●1							
HDMI CEC 1.4x	Supports all source/sink/repeater compliance tests for HDMI CTS 1.4								
HDMI 1.4 TMDS Source Test	Supports Protocol, video, audio, DVI and advanced features source compliance tests for HDMI	●							
HDMI 1.4 TMDS Sink Test	Supports Protocol, video, audio, DVI and advanced features sink compliance tests for HDMI 1.4	●							
HDMI 1.4 TMDS Source DDC Test	Supports DDC source tests per DDC Clarification HDMI CTS 1.4							●	
HDMI 1.4 TMDS Sink DDC Test	Supports DDC source tests per DDC Clarification HDMI CTS 1.4							●	
HDMI 2.0 TMDS Source Test	Supports Protocol, video, audio, metadata tests on source devices for HDMI 2.0 CTS	●2,3			●2,3				
HDMI 2.0 TMDS Sink Test	Supports Protocol, video, audio, metadata features tests on sink devices for HDMI 2.0 CTS	●2,3				●2,3			
MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2 Source	Supports TMDS (protocol), video, audio source compliance tests for MHL CTSs	●1,2							
MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2	Supports TMDS (protocol), video, audio sink compliance tests for MHL CTSs	●1,2							
MHL 1.2, 1.3, 1.4, 2.0, 2.1 & 2.2 CBUS	Supports CBUS compliance tests for sources, sinks & dongles for MHL CTSs			●					
HDMI 2.0 CEC Test	Supports HDMI 2.0 CEC MOIs for source, sinks and repeaters source tests								
Functional Tests (Sources)	**Description**								**Notes on Source Functional Tests**
Real Time Data Analysis	View incoming video, metadata and timing data from source in real time	●	●			●1		●2	1. Supports HDMI 2.0 testing up to 600MHz.
Capture/Store Detailed Analysis	Capture/store incoming video, protocol, metadata, control data & timing from source	●				●1		●2	2. Supports DP 1.2 testing up to HBR2 bit rates.
EDID Emulation	Emulate any EDID and test source response EDIDs	●				●1		●2	3. Future.
DP DPCD emulation and editing	Emulate DisplayPort sink DPCD; edit DPCD registers							●	4. Basic timing analysis only.
DP Multi-Stream Transport emulation	Emulate DisplayPort sink Multi-Stream Transport (MST)							●	
HDCP 1.x authentication	Verify HDCP 1.x authentication w/ HDMI, MHL or DP source device	●	●			●3			
HDCP 2.2 authentication	Verify HDCP 2.2 authentication w/ HDMI 2.0 source device	●				●			
Aux Channel Monitoring	View DDC, Link Training (DP) and CEC message (HDMI) exchange with source	●	●			●		●	
Timing Analyzer	View detailed timing data, compare with standard timing	●	●4			●		●	
Frame Compare Test	Test for pixel errors with “golden frame”	●							
Aux Channel Monitoring (Passive)	View HDMI DDC message exchange passively between HDMI source & sink	●							
TMDS Passive Monitor (ELA)	View HDMI TMDS stream passively between HDMI source & sink with Encrypted Link Analyzer	●							
Functional Tests (Sinks)	**Description**								**Notes on Sink Functional Tests**
Video Pattern Testing	Run pattern tests using standard patterns and timing formats	●1	●		●		●	●	1. Via capture and playback function.
Audio Test Signals	Run audio tests with uncompressed and compressed formats	●1	●		●		●2	●2	2. Uncompressed LPCM only.
EDID Verification	Read sink EDID in human text	●	●		●	●		●	
DP DPCD Verification	Read DisplayPort DPCD registers in human text							●	
HDCP 1.x authentication	Verify HDCP 1.x authentication w/ HDMI, MHL or DisplayPort sinks device	●			●			●	
HDCP 2.2 authentication	Verify HDCP 2.2 authentication w/ HDMI 2.0 sinks	●			●				
View SCDC registers (HDMI)	Verify SCDC registers of HDMI 2.0 sinks				●				
DP Link Training testing	Verify link training with DP sink using user selectable parameters							●	
DP Multi-Stream Transport	Verify Multi-Stream Transport (MST) function with MST-capable DisplayPort sink device							●	
Aux Channel Monitoring (Emulate	View HDMI DDC, Aux Chan Link Layer (DP) message exchange w/ sink		●		●			●	
Playback Capture	Capture a file from source and replay to test sink	●							
CEC Verification	Send/receive any CEC message		●						
CEC Fault Testing	Test corrupt bits, bit timings changes, arbitration & nack scenarios		●						
Functional Tests (Cables/Links)	**Description**								**Notes on Cables/Links) Functional Tests**
Cable & Link Test (loopback)	Run pseudo-random noise and/or pixel error tests on cables or distribution networks	●						●	
Aux Channel Passive Monitoring	View DDC, CEC (HDMI), AuxChan (DisplayPort) transactions w/ source	●							