

**Test multiple digital video interfaces
with a single test instrument!
HDMI – HDBaseT**

**780D HDMI PROTOCOL ANALYZER/GENERATOR
600 MHZ AND HDCP 2.2 FOR UHD TESTING**



**780D HDMI Protocol Analyzer/Generator
600 MHz for UHD Testing**



780D Front Edge



780D Rear Edge

HDMI

Output Port - Emulates an HDMI source. Operates up to 600MHz for testing on HDMI 2.0 HDMI Ultra HDTVs and other sink devices even at 50/60Hz even with HDMI 2.0 4:4:4 pixel encoding.

Input Port - Emulates an HDMI sink. Operates up to 600MHz for testing HDMI 2.0 Ultra HDMI source devices. Provides basic analysis of HDMI 2.0 Ultra HD source devices including timing, InfoFrames and protocol tests for HDCP (version 1.4 & 2.2), EDID, CEC and connection detection events.

Aux Channel Analyzer Ports (4) – Enables passive monitoring of the DDC channel and CEC bus between multiple HDMI devices.

HDBASET

Output Port - Emulates an HDBaseT source. Operates up to 300MHz for testing the inputs into an HDBaseT downstream distribution device or network or for testing sink devices such as UHD projectors and A/V receivers with native HDBaseT inputs.

Input Port - Emulates an HDBaseT sink. Operates up to 300MHz for testing UHD HDBaseT source devices. Provides basic analysis of HDBaseT source devices including timing, InfoFrames and protocol tests for HDCP, EDID, CEC and connection detection events.

ANALOG COMPONENT

Output Port - Emulates an analog component or RGB source. Operates up to 80MHz for testing on component analog inputs on HDTVs or RGB analog for testing computer displays.

780D HDMI PROTOCOL ANALYZER/GENERATOR

The Quantum Data 780D 600MHz HDMI Protocol Analyzer / Generator is a portable handheld digital video generator and analyzer that enables you to run tests on various digital video devices and network distribution devices on site or in the R&D lab. The 780D instrument provides a 7 inch color touch screen for operation and for viewing status of outgoing and incoming video and audio. The 780D is equipped with HDMI at 600MHz, HDBaseT, and component analog. Testing digital interfaces is supported by both an output port and an input port to allow testing of digital video sources, displays, audio devices and distribution devices. **Testing hybrid converter devices** supporting HDMI and HDBaseT distribution networks is a key application of the 780D as well.

Note: The 780D although portable is not battery powered.

MAIN FEATURES

Color Touch Screen - Large user friendly color touch screen enables you to operate the instrument and view incoming video and metadata from a one of the digital video source inputs.

Portability – Convenient size (7cm x 25cm x 15cm - 1.5Kg) enables easy transport throughout the lab or on site.

Test Pattern Library – Extensive test pattern library with over 50 patterns including 3D patterns and scrolling and panning patterns. Optional test pattern packages from THX and Imaging Science Foundation (ISF) are also available.

Format Timing Library – Extensive video format library with over 300 resolutions.

Custom formats and patterns – Import custom test pattern bitmaps and video timings for use in testing.

One Button “Installer” Tests – Convenient test suites for HDMI and HDBaseT source, sinks and repeaters.

Real Time Status Bar - Provides a real time at-a-glance status of the output and input of any of the digital video outputs and inputs and provides the output status of the analog output.

Passthrough – Pass the incoming HDMI or HDBaseT out the HDMI output port for monitoring.

Auxiliary Channel Analyzer (ACA) (optional feature) – Monitor the connection sequence transactions for HDMI and HDBaseT for EDID exchange, +5V and hot plug events and HDCP content protection transactions. Monitor HDMI (1.4 and 2.2) DDC transactions while emulating a source or sink or monitor DDC, hot plug event or CEC messages while passively monitoring between a source and a sink.

Protocol Tests – Run basic tests on HDMI and HDBaseT source and sink devices to verify InfoFrames, EDID, HDCP and CEC. The HDMI Tx and Rx ports support both HDCP 1.4 and 2.2 authentication testing.

EDID Testing – Emulate any EDID including those from the Quantum Data EDID Library and test source response.

Auto EDID Test (optional feature) – Run automated EDID tests on HDMI and HDBaseT source devices.

Cable and Network Test – Run tests on HDMI or HDBaseT cables or entire A/V distribution networks using loop back from HDMI Tx/Rx or HDBaseT Tx/Rx ports.

Frame Compare Test – Run test on installed A/V distribution network at far end using Frame Compare test. Capture reference frame and compare to subsequent video frames.

SD Card – Admin slot for upgrading and exporting test data.

RS-232 – Command line Interface for automated control and testing.

USB Port – Admin port used for command line and transferring custom video formats, test patterns, EDIDs and exporting test reports.

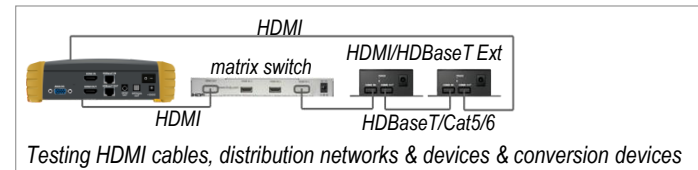
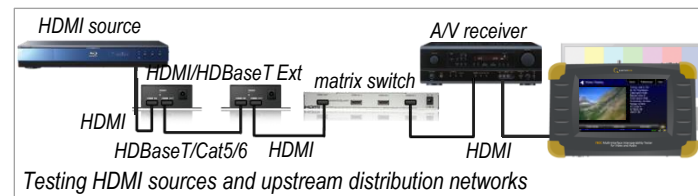
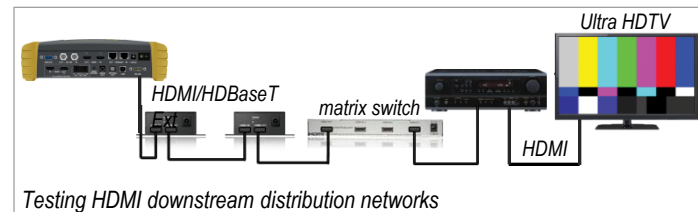
HDMI

The 780D 6G Multi-Interface Interoperability Tester supports an HDMI output and an HDMI input. The following specifications apply to HDMI.

HDMI Specs	
Version	HDMI 1.4a and 2.0
Connector	(1) Type A Tx; (1) Type A Rx
Protocol	HDMI, DVI
Video Colorimetry	ITU-R BT.601-5, ITU-R BT.709-5
Video Max Pixel Rate	600MHz (6.00Gbps/channel TMDS rate)
Color Depths	8, 10, 12 bits/component
Video Encoding	RGB, YCbCr
Video Sampling Modes	4:4:4, 4:2:2, 4:2:0 per HDMI 2.0
HDCP	Versions 1.4 & 2.2
Audio – Formats	LPCM, Dolby (DD, DD+ TrueHD), DTS (ES, HD, Master Audio)
Audio LPCM Settings	Sampling rates (32.0 – 192kHz) Bit per sample (16, 20, 24)

HDMI - APPLICATIONS

The HDMI interfaces support the following applications



HDBASET

The 780D 6G Multi-Interface Interoperability Tester supports an HDBaseT output and an input. The following specifications apply to HDBaseT.

HDBaseT Specs	
Connector	(1) 8P8C (RJ-45) Tx; (1) RJ-45 Rx
Video Colorimetry	ITU-R BT.601-5, ITU-R BT.709-5
Video Max Bit Rate	9.0 Gbps
Color Depths	8, 10, 12 bits/component
Video Encoding	RGB, YCbCr
Video Sampling Modes	4:4:4, 4:2:2, 4:2:0 per HDMI 2.0
HDCP	Version 1.4
Audio – Formats	LPCM, Dolby (DD, DD+ TrueHD), DTS (ES, HD, Master Audio)
Audio LPCM settings	Sampling rates (32.0 – 192kHz) Bit per sample (16, 20, 24)

HDBASET – APPLICATIONS

The HDBaseT interfaces support the following applications

