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# Quantum Data - Product Guide

Rev: A5

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## **1 About Quantum Data**

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Quantum Data invents test instruments that help manufacturers bring next-generation audio, video and control products to market – faster and without interoperability problems. You'll find Quantum Data instruments in the design laboratories and production facilities of major consumer electronics manufacturer's throughout the world.

With technologies rapidly evolving, the consumer electronics industry needs a way to reliably and quickly develop & manufacture products that work seamlessly – out of the box. Quantum Data has a proven track record for developing test tools, for emerging technologies, that simultaneously improve a manufacturer's time-to-market and interoperability with other manufacturer's products.

Quantum Data was founded in 1979 by Allen and Ann Jorgensen and has been at the leading edge of programmable video test generator technology since its inception. Over the years, the company has expanded the scope of its products to include other types of video test equipment. Quantum Data products are used throughout the world in a variety of applications.

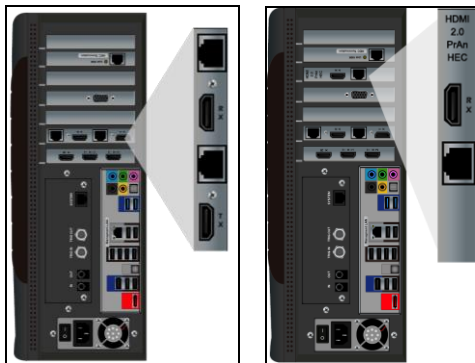
Quantum Data offers world class excellent in support including telephone, web/email, online support documentation and literature as well as training webinars.

## 2 980 Advanced Test Platforms and Modules

The **980 series Advanced Test Platforms** are modular based systems that can accommodate multiple 980 series modules. There are three 980 Advanced Test Platforms: 1) 980 Test Platform - 2-slot, 10.4 inch touch display; 2) 980B Test Platform - 5-slot, 15 inch touch display; 3) 980R Test Platform – 5-slot 7 inch touch display.



**980B Advanced Test Platform**



**980B with Analyzer Modules**



**980R Advanced Test Platform**



**980R with Video Generator modules**

There are seven (7) modules currently available:

**The 980 HDMI 1.4 Protocol Analyzer module** supports deep analysis of HDMI and MHL streams as well as HDMI and MHL compliance testing for source, sink, repeater/dongle devices. For HDMI the tool provides full visibility into the HDMI protocol, timing, control and auxiliary data up to 300MHz (HDMI). For MHL the module supports analysis of MHL 1.2 and 2.0 source devices.

The comprehensive suite of HDMI and MHL compliance test tools are ideal for pre-testing or self-testing (where permitted) your product prior to submission to an Authorized Test Center for approval. This reduces costs and speeds time to market.

**The 980 HDMI 2.0 Video Generator module** supports video and audio functional and compliance testing at data rates up to 600MHz for testing HDTVs with 4K x 2K resolutions at 60Hz. The module features a single HDMI output and supports testing of HDCP 2.2 for HDMI 2.0 sink devices.

The module supports HDMI-Forum approved compliance testing for HDMI 2.0 sink devices. The compliance test tools are ideal for pre-testing or self-testing (where permitted) your product prior to submission to an Authorized Test Center for approval enabling you to get your product to market more quickly and with reduced expense.

**The 980 HDMI 2.0 Protocol Analyzer module** supports video and audio functional and compliance testing at data rates up to 600MHz for testing HDTVs with 4K x 2K resolutions at 60Hz. The module features a single HDMI input and supports testing of HDCP 2.2 for HDMI 2.0 source devices.

The module supports HDMI-Forum approved compliance testing for HDMI 2.0 source devices. The compliance test tools are ideal for pre-testing or self-testing (where permitted) your product prior to submission to an Authorized Test Center for approval. This reduces costs and speeds time to market.

**The 980 HDMI 1.4 Video Generator module** supports video and audio functional testing at data rates up to 300MHz for testing HDTVs with 4K x 2K resolutions. The module features two (2) HDMI outputs—both active simultaneously—for testing HDTVs with multiple HDMI inputs.

**The 980 DP1.2 Generator / Analyzer module** supports video functional testing at link rates up to 5.4Gb/s with 1, 2, or 4 lanes for testing high-end displays. The module features two (2) DisplayPort 1.2 outputs—both active simultaneously—for testing displays with multiple DisplayPort inputs. The module also supports Multi-Stream Transport testing with support for up to 4 downstream MST Rx nodes. The DP 1.2 module's optional Rx port supports two analyzer options for testing DP 1.2 source devices: 1) Basic Analyzer – displays status of incoming DP 1.2 source video and metadata, emulates a DisplayPort 1.2 display device including EDID and DPCD emulation, Rx Link Training function and MST Rx function. 2) Protocol Analyzer supports capture and storage of all main link video and metadata.

**The 980 HDMI Phy & Protocol Aux Channel Analyzer module** tests DDC bus compliance of the HDMI DDC bus voltage and timing parameters in accordance with the HDMI 1.4b Clarification Version 1.04 – May 1, 2014.

**The 980 MHL CBUS Compliance module** enables you to conduct compliance tests on your MHL devices in accordance with the MHL Compliance Test Specifications (CTS) 1.2 and CTS 2.0. The 980's suite of compliance test applications are an ideal solution for pre-testing MHL devices as they enable you to get your source, sink or dongle product to market more quickly and to reduce the expense of re-testing at the Authorized Testing Centers.

### 3 780 Series Handheld Test Instruments

The **780 series Video Generator/Analyzers** for HDMI are battery-powered, portable video and audio generator and HDMI analyzer that enables you to conduct quick, on-site verification testing and troubleshooting of your HDMI system and analog video displays. The 780 is equipped with both a reference HDMI source and a reference HDMI sink interface allowing you to test audio, video and HDMI protocols—HDCP, EDID, CEC & infoframes—of any type of HDMI device: sources, repeaters and sinks.



**780AH – Front View**



**780AH/BH – Rear View with option ACA**



**780BH – Front View**



**780C – Front View**



**780C – Rear View**

There are four (4) 780 test instruments:

The **780 Video Generator/Analyzer** - Supports video and audio testing of HDMI source and sink devices up to pixel rates up to 165MHz and TMDS rates up to 225MHz for deep color on the output and pixel rates up to 150MHz on the HDMI input. The instrument also supports analog video testing of HDTVs and computer monitors up to 80MHz. The analog testing is provided through a VGA connector which can output RGB and YPbPr.

The 780 enables you to verify HDMI timing and protocol such as HDCP, EDID and CEC on both sources and sinks. The instrument optionally can monitor the DDC transactions or CEC messages passively between sources and sinks.

The **780AH Video Generator/Analyzer** - Supports all the features and functions of the 780 instrument but supports HDMI testing at pixel rates and TMDS rates up to 300MHz for testing 4K capable HDMI 2.0 devices and testing for HDCP 2.2 source and sinks. The 780AH also supports HDMI 2.0 4:2:0 pixel encoding for testing ultra Hi-Definition TVs at 4K resolutions at 60Hz.

The **780B Video Generator/Analyzer** - supports all the features of the 780A including the 300MHz on the HDMI Tx and Rx ports, but adds a larger screen (7 inches) for greater convenience in viewing analysis test results as well as a status bar on the bottom of the display for at-a-glance status on the HDMI Tx and Rx ports. The 780Bh also adds support for testing of HDCP 2.2 for HDMI 2.0 sources and sinks. Additionally the 780B optionally supports an auto-EDID testing feature which enables you to test a sources response to a series of user-selected EDIDs.

The **780C Multi-Interface Interoperability Tester for Video and Audio** - supports all the features of the 780B including the 300MHz on the HDMI Tx and Rx ports and larger screen (7 inches) and a status bar. Additionally the 780C is equipped with HDBaseTx and Rx ports for testing HDBaseT devices using native RJ-45 connectors. The HDBaseT ports have the same capabilities as the HDMI Tx and Rx ports. The 780C is also equipped with 3G-SDI Tx and Rx ports for testing SDI sources and displays.

**Note:** The 780C although portable is not battery powered.

## 4 804 Series Video Test Generators

The rack mountable **804, 804A and 804B Video Test Generators** are optimized for testing modern HDMI flat panel TVs in manufacturing facilities.



**804A – Front View**



**804A/B – Rear View**

There are three (3) 804 test instruments:

The **804 Video Generator** - Features four (4) HDMI outputs—all active simultaneously—for testing HDTVs with multiple HDMI inputs operating at pixel rates up to 165MHz and TMDS rates up to 225MHz. The instrument is also equipped with component analog and composite analog video. Switching between video timings and images is fast. The 804 is equipped with all the standard video timings and test patterns—including support for 3D—necessary for testing HDTVs including tests for HDMI protocols such as HDCP, EDID and CEC.

The **804A Video Generator** - Supports all the features and functions of the 804 instrument but supports HDMI testing at pixel rates and TMDS rates up to 300MHz for testing 4K capable HDMI devices. The 804A also supports HDMI 2.0 4:2:0 pixel encoding for testing ultra Hi-Definition TVs at 4K resolutions at 60Hz.

The **804B Video Generator** - Supports all the features and functions of the 804A instrument but supports HDMI testing at pixel rates and TMDS rates up to 600MHz for testing 4K capable HDMI devices. The 804B also supports HDCP 2.2 testing on HDMI 2.0 ultra Hi-Definition TVs.

## 5 882 Series Video Test Instruments

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The **882E/A/D Multimedia Test Instruments** offer video and audio testing of HDMI® or DisplayPort sources, sinks and repeaters (HDMI).



**882EA – Front View**

There are two (2) 882 models available:

The **882E Video Generator/Analyzer** can be equipped with an HDMI Tx or DisplayPort Tx. The HDMI Tx provides 12-bit/component deep color and HDMI 3D testing features. The DisplayPort Tx provides pattern testing at pixel rates up to 268MHz. The HDMI and DisplayPort options also support an analyzer (Rx) option for testing timing and video on source devices.

Industry approved compliance test tools for HDCP, CEC and EDID testing for HDMI are available with the HDMI analyzer. For DisplayPort the 882E analyzer option provides test tools for HDCP, Link Layer and EDID compliance.

The **882D Video Generator** is programmable test instrument packed with features for video and audio testing of HDMI®, dual link DVI, high speed analog displays (up to 400MHz) and a composite analog output for testing standard definition TVs. The HDMI output also supports 3D testing in accordance with HDMI 1.4a standard. The 882D can optionally be equipped with a single link SDI output.

## 6 802 Series Video Test Generators

*The 802BT Video Signal Generator* offers testing for CRTs, flat panels, projectors and TVs including HDTV. The 802BT is optimal for DTV, digital and analog displays and allows production and engineering users to create the most complex test images. You get the flexibility required to meet a tough production budget with the wide range of outputs the 802BT offers.



**802BT – Front View**

### Corporate contacts:

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