



quantumdata

980 HDMI Video Generator Module Video Pattern Testing of HDMI HDTVs & Displays

980 HDMI Video Generator Module



980 HDMI Video Generator Module - Features & Benefits

- Placed in slot 2 of 980 HDMI Protocol Analyzer chassis
- Supports speeds up to 297MHz for testing 4K displays:
 - 4K x 2K at frame rates up to 30Hz.
 - 1080p at 120Hz.
- Supports deep color up to pixel clock rate of 165MHz; TMDS clock rates of 2.25Gb/s.
 - 1080p at 60Hz frame rate at 36-bit color.
- **(Coming Soon!)** Optional video analyzer for basic functional testing of HDMI source devices.

980 HDMI Video Generator Module – Slot 2 of 980

- 980 HDMI Video Generator module placed in the second slot of the 980 chassis.
- 980 HDMI Protocol Analyzer module always equipped in first slot.



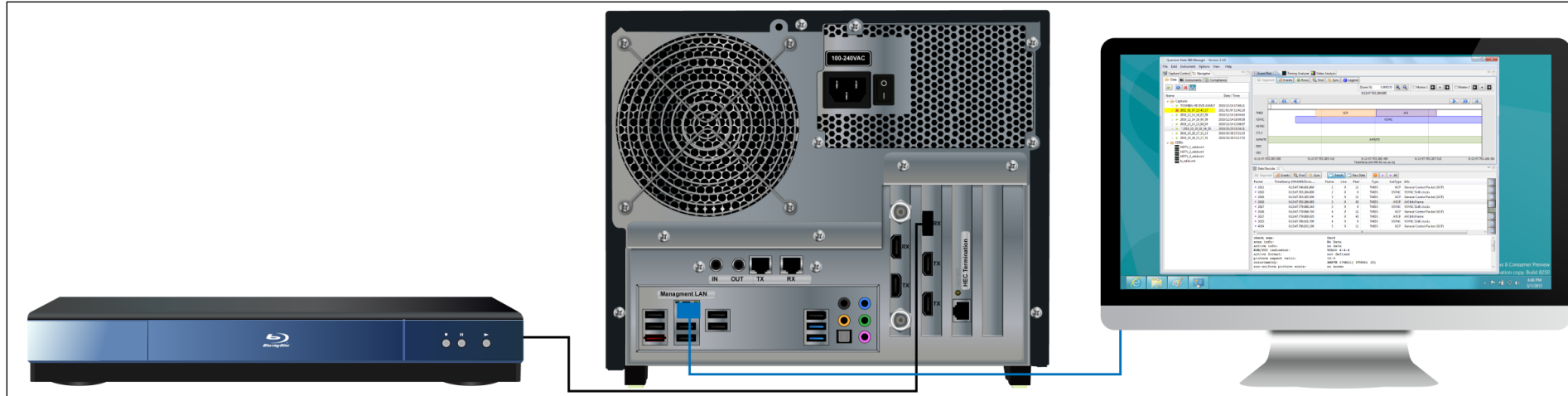
980 HDMI Video Generator Module - Configuration

- 980 HDMI Video Generator testing sink – front and rear view

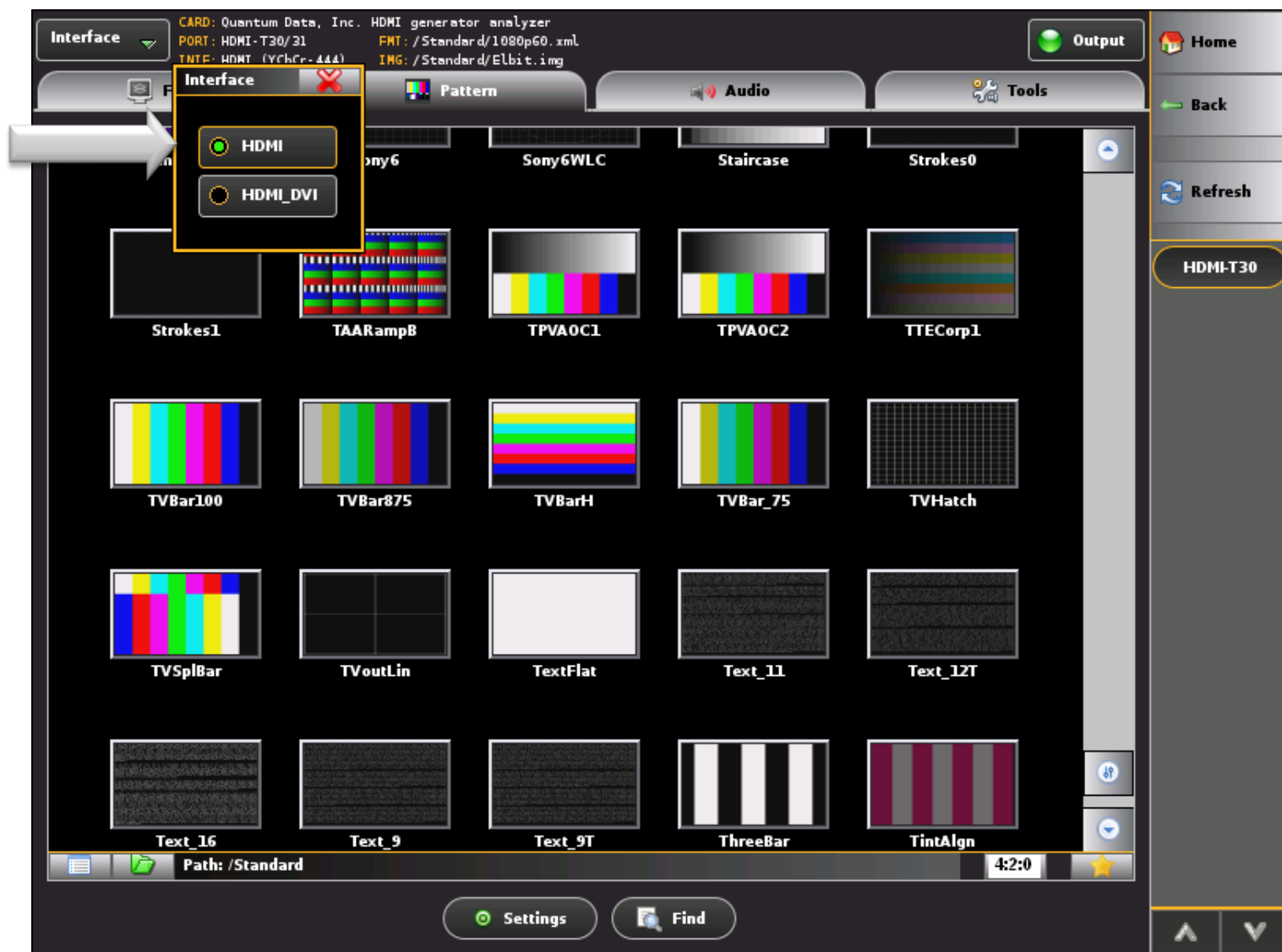


980 HDMI Video Generator Module – Video Analyzer

- (**Coming Soon!**) 980 HDMI Video Generator with optional analyzer for testing HDMI source devices.



980 HDMI Video Generator Module – HDMI Transmitter



Select video mode:

- Select between HDMI and DVI.

980 HDMI Video Generator Module – HDMI Transmitter



The screenshot shows the software interface for the HDMI generator. At the top, there is a status bar with the following information: CARD: Quantum Data, Inc. HDMI generator analyzer; PORT: HDMI-T30/31; INTF: HDMI (RGB); FMT: /Standard/DHT0660.xml; IMG: /Standard/Elbit.img. Below this, there are tabs for Interface, Format, Pattern, Audio, and Tools. The Format tab is selected, and a grid of video format buttons is displayed. A white arrow points to the 'Format' tab. The grid contains various video formats such as 1035i29, 1035i30, 1080i25, 1080i29, 1080i30, 1080i50, 1080i59, 1080i60, 1080p100, 1080p119, 1080p120, 1080p23, 1080p24, 1080p25, 1080p29, 1080p30, 1080p50, 1080p59, 1080p60, 1080s23, 1080s24, 1080i25_, 1152iLA, 1152iLA_, 1152iLH, 1152iLH_, 1152iSH, 1152iSH_, 2160p24, 240p2xL1, 240p2xL2, 240p2xL3, 240p2xL4, 240p2xS1, 240p2xS2, 240p2xS3, 240p2xS4, 240p2x_1, 240p2x_2, 240p2x_3, 240p2x_4, 240p4xL1, 240p4xL2, 240p4xL3, 240p4xL4, 240p4xS1, 240p4xS2, 240p4xS3, 240p4xS4, 240p4x_1, 240p4x_2, 240p4x_3, 240p4x_4, 288p2xL1, 288p2xL2, 288p2xL3, 288p2xS1, 288p2xS2, 288p2xS3, 288p2x_1, 288p2x_2, 288p2x_3, 288p4xL1, 288p4xL2, 288p4xL3, 288p4xS1, 288p4xS2, 288p4xS3, 288p4x_1, 288p4x_2, 288p4x_3, 480i#, 480i#KA, 480i, 480i2x29, 480i2x30, 480i2x59. On the right side, there are buttons for Home, Back, Refresh, and a highlighted button for HDMI-T30. At the bottom, there are buttons for Edit, Settings, and Find, along with a path indicator showing Path: /Standard.

Select Format (Timing):

- Select timing format from Format Library.
- Over 600 formats to select from.
- Use Format Editor to create additional custom formats.

980 HDMI Video Generator Module – HDMI Transmitter

The screenshot displays the software interface for the HDMI generator. At the top, the 'Interface' tab is selected, showing system information: CARD: Quantum Data, Inc. HDMI generator analyzer; PORT: HDMI-T30/31; INTF: HDMI (RGB); FMT: /Standard/DMT0660.xml; IMG: /Standard/Elbit.img. The 'Format' tab is highlighted with a white arrow. Below the tabs, a grid of test patterns is visible, including CVR1260E, CVR1260G, CVR1260H, CVR1312H, CVR1360H, CVR1412, CVR1412D, CVR1460, CVR1460D, CVR1560D, CVR1612, CVR1612D, CVR1660, CVR1660D, CVR1660_, CVR1712, CVR1760D, CVR1760H, CVR1812, CVR1860, CVR1860H, CVR1912, CVR1912D, CVR1960, CVR1960D, CVR1960H, CVR2060, CVR2060D, CVR2060H, CVR2160H, CVR2360D, CVR2460D, CVR2560, CVR2560D, CVR2560E, CVR2560H, CVR2760H, CVR3060D, CVT0650, CVT0650D, CVT0650H, CVT0660, CVT0660D, CVT0660H, CVT0675, CVT0675D, CVT0675H, CVT0685, CVT0685D, CVT0685H, CVT0750D, CVT0760D, CVT0775D, CVT0785D, CVT0850, CVT0850H, CVT0860, CVT0860H, CVT0875, CVT0875H, CVT0885, CVT0885H, CVT0950D, CVT0960D, CVT0975D, CVT0985D, CVT1050, CVT1050D, CVT1050H, CVT1050_, CVT1060, CVT1060D, CVT1060H, CVT1060, CVT1075, CVT1075D, CVT1075H. A white arrow points to the 'HDMI-T30' button in the right sidebar. The bottom of the interface features an 'EDID' section with a file icon and 'Path: /Standard', and buttons for 'Edit', 'Settings', and 'Find'.

Select Format:

- Select timing format from Format Library.
- Scroll through list of test patterns.

980 HDMI Video Generator Module – HDMI Transmitter



Select Formats:

- Select 4K x 2K format.

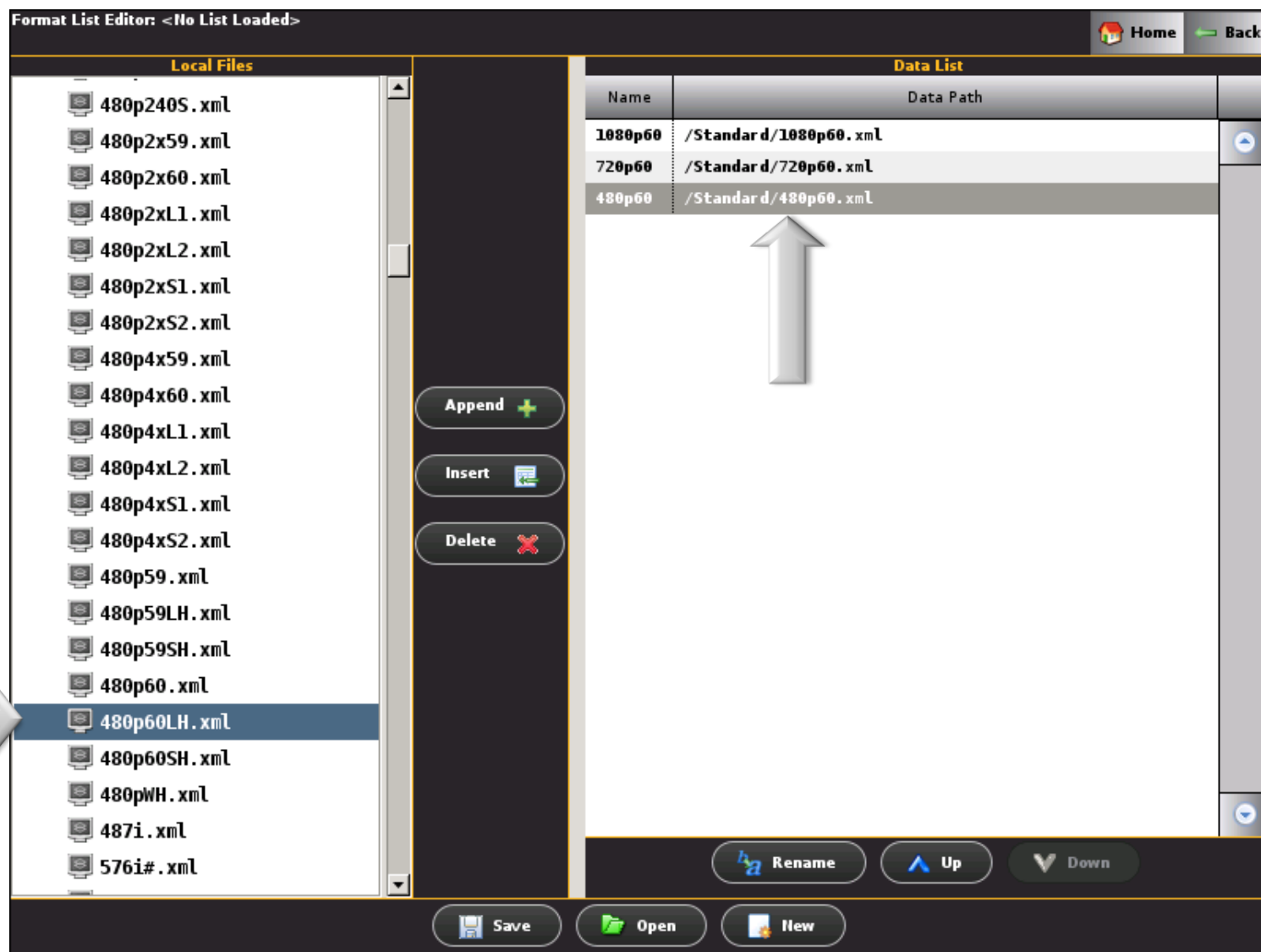
980 HDMI Video Generator Module – HDMI Transmitter



Configure Format Settings:

- Select timing format from Format Library.
- Configure format parameters such as Color Space, Sampling, Range and Bits per Component.

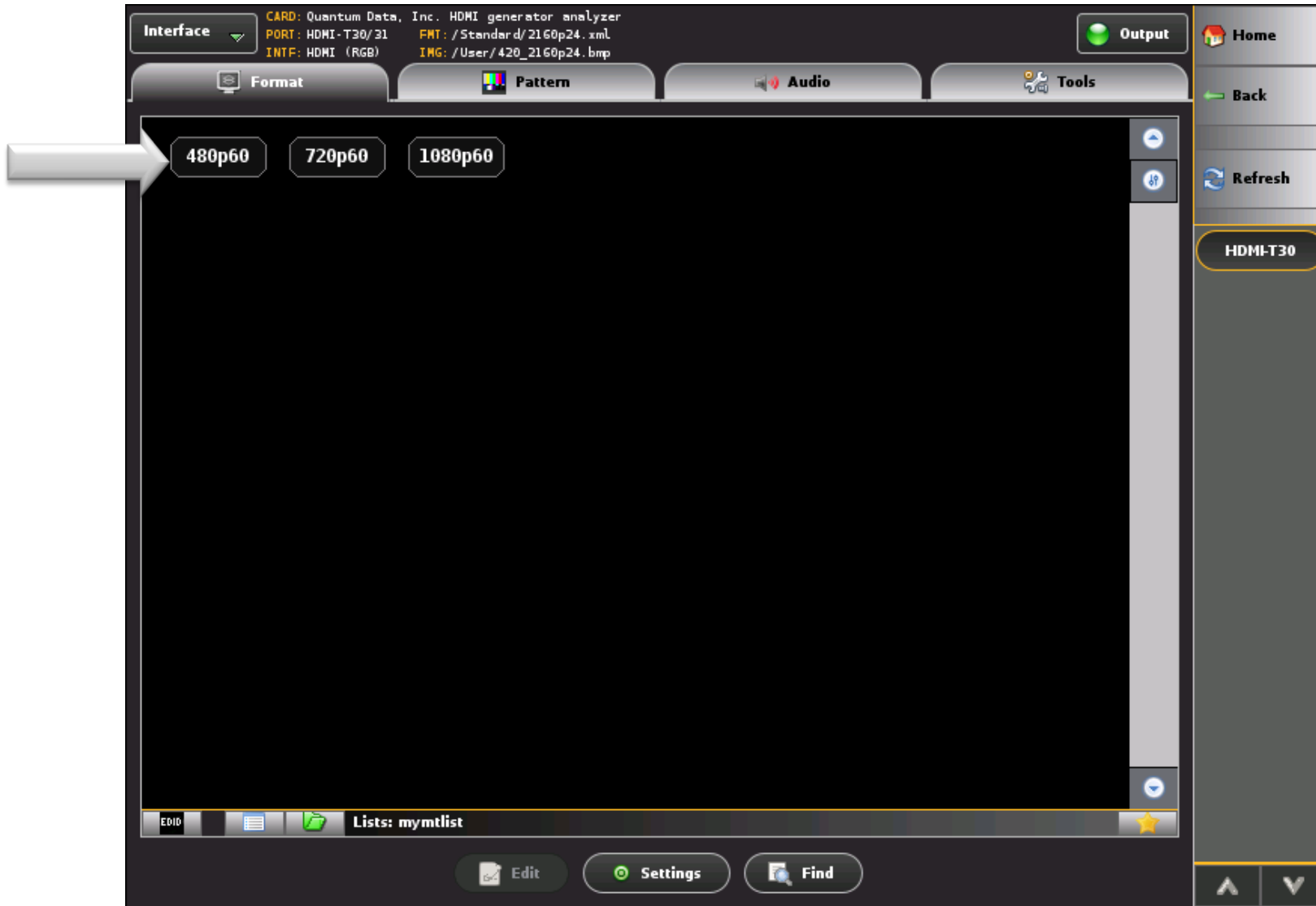
980 HDMI Video Generator Module – HDMI Transmitter



Create custom lists of formats:

- Configure a specific test of formats for viewing and selecting.
- Save for later reuse.

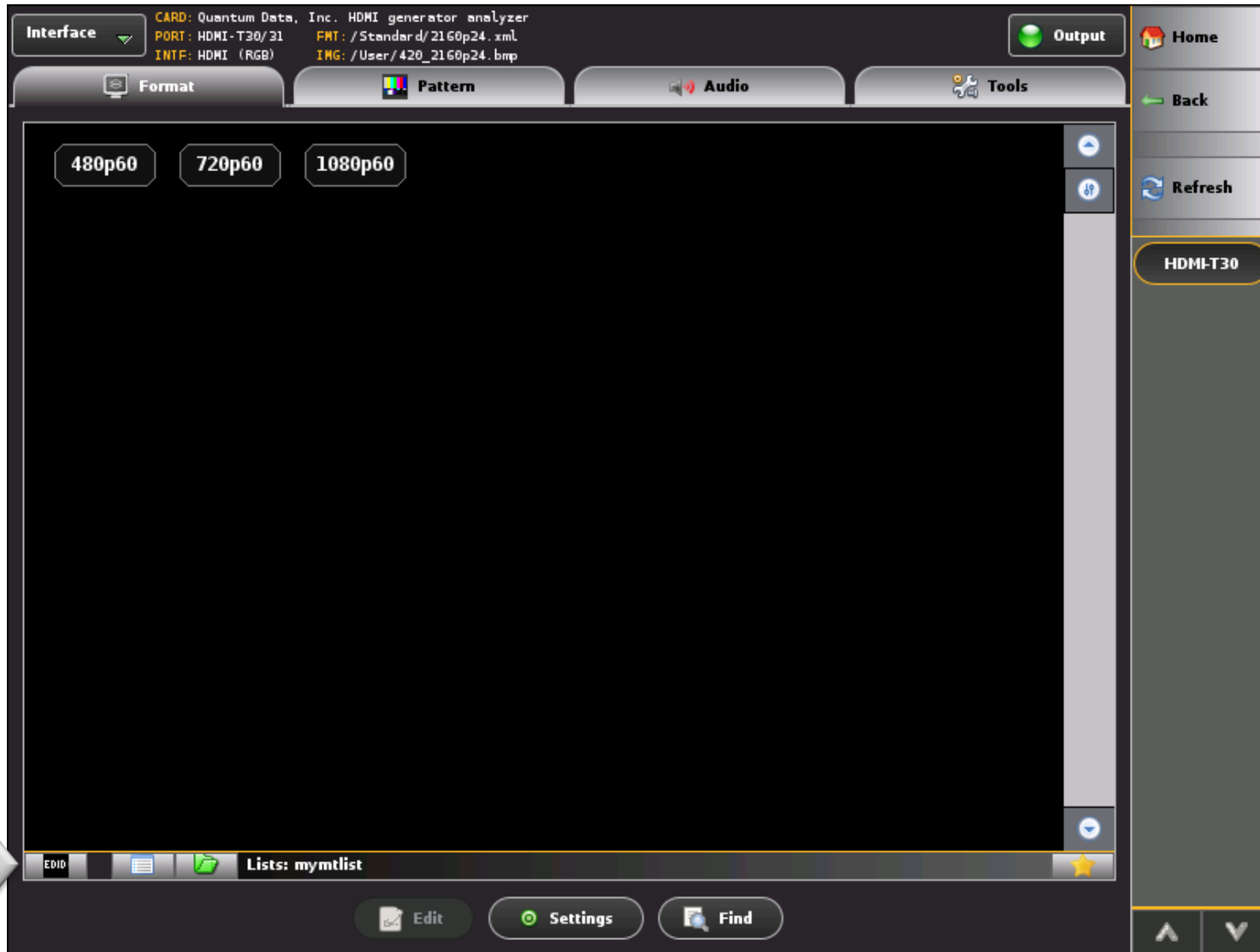
980 HDMI Video Generator Module – HDMI Transmitter



Create custom lists of formats:

- Configure a specific test of formats for viewing and selecting.

980 HDMI Video Generator Module – HDMI Transmitter



Configure list of formats in accordance with EDID:

- Configure the list of formats that are in the display connected.

980 HDMI Video Generator Module – Format Editor

Format Editor: /Standard/720p60.xml

Home Back

Timing General Digital Video Digital Audio AFD

Pixel Rate 74.250000 MHz ns

Horizontal Vertical

Rate KHz Hz

Tune Base KHz

Act Pixels μ s Lines ms

Blk Pixels μ s Lines ms

Tot Pixels μ s Lines ms

PD Pixels μ s Lines ms

PW Pixels μ s Lines ms

Serration width Adjustment Pixels

H to V Pulse Delay Pixels

Horizontal Broad Pulse Delay Pixels

Eq. Before Lines

Eq. After Lines

Entry Units

Machine

Time

Scan Type

Progressive

Interlace

Back Porch

Clock Pulse

PreEmphasis

DC Balance

Flat Front Porch

TriLevel

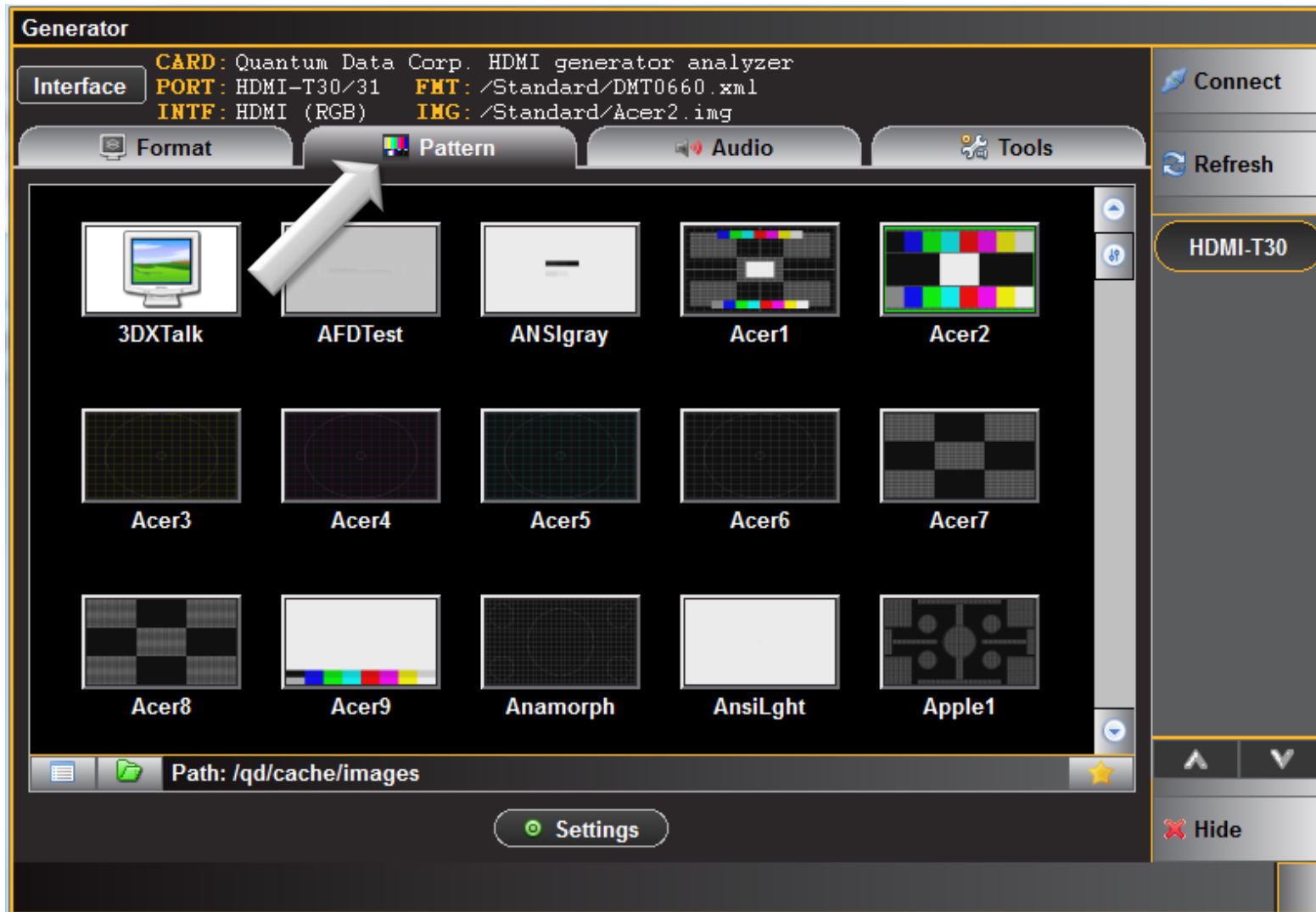
Repeat Field

Use New Open Save

Create custom formats:

- Use Format Editor to create additional custom formats.
- Apply immediately for testing or save custom formats for later reuse.

980 HDMI Video Generator Module – HDMI Transmitter



Select Test Patterns:

- Select test pattern from Pattern Library.
- Over 300 test patterns to select from.

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Select test pattern:

- Scroll through list of test patterns.

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Configure pattern parameters:

- Set test pattern parameters such as color and gamma.

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Select HDMI Generator application for 980 GUI Manager main screen:

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Scroll any image with Image Shift feature:

- Select scroll speed in horizontal and vertical axes.
- Select extent of travel.
- Select reverse or repeat scrolling.

980 HDMI Video Generator Module – HDMI Transmitter



HDMI 3D Video Formats:

- Enable 3D mode.
- Select 3D Structure.

980 HDMI Video Generator Module – HDMI Transmitter

Generator

CARD: Quantum Data Corp. HDMI generator analyzer
Interface PORT: HDMI-T30/31 FMT: /Standard/DMT0660.xml
INTF: HDMI (RGB) IMG: /Standard/Acer2.img

Format Pattern Audio Tools

PCM Sine Wave
Compr. Audio

Channels

Channels	Sample Rate	Bits Per Sample
<input checked="" type="radio"/> 2.0	<input type="radio"/> 32 kHz	<input checked="" type="radio"/> 16
<input type="radio"/> 2.1	<input type="radio"/> 44.1 kHz	<input type="radio"/> 20
<input type="radio"/> 5.1	<input checked="" type="radio"/> 48 kHz	<input type="radio"/> 24
<input type="radio"/> 6.1	<input type="radio"/> 88.2 kHz	
<input type="radio"/> 7.1	<input type="radio"/> 96 kHz	
	<input type="radio"/> 176.4 kHz	
	<input type="radio"/> 192 kHz	

Channel Selection

FL FR LFE FC RL RR RLC RRC

Per Channel Settings
<No Channel Selected>

Level (dB)	Frequency (Hz)
<input type="radio"/> -3dB	<input type="radio"/> -1000
<input checked="" type="radio"/> -99	<input type="radio"/> 8
<input type="radio"/> +3dB	<input type="radio"/> +1000
<input type="checkbox"/> Mute	

1 10 100 1K

Connect
Refresh
HDMI-T30
Hide

Select audio formats:

- Supports testing of LPCM and compressed formats.
- Enables precise control over channels, sampling rate, bits per sample level.
- Set sine wave amplitude and frequency.

980 HDMI Video Generator Module – HDMI Transmitter

Interface: CARD: Quantum Data, Inc. HDMI generator analyzer
PORT: HDMI-T30/31 FMT: /Standard/2160p24.xml
INTF: HDMI (RGB) IMG: /User/420_2160p24.bmp

Format Pattern Audio Tools

PCM Sine Wave
Compr. Audio

Type	Description
DOLBY (AC3)	Audio core address test
DOLBY (AC3)	Pink Noise 500-2kHz L channel
DOLBY (AC3)	Pink Noise 500-2kHz C channel
DOLBY (AC3)	Pink Noise 500-2kHz R channel
DOLBY (AC3)	Pink Noise 500-2kHz Cycle channels
DOLBY (AC3)	Pink Noise 500-2kHz LFE channel
DOLBY (AC3)	Pink Noise 500-2kHz All channels
DOLBY (AC3)	Pink Noise 500-2kHz Ls channel
DOLBY (AC3)	Pink Noise Rs channel
DOLBY (AC3)	Pink Noise 20-20kHz L channel
DOLBY (AC3)	Pink Noise 20-20kHz C channel
DOLBY (AC3)	Pink Noise 20-20kHz R channel
DOLBY (AC3)	Pink Noise 20-20kHz pulse ???
DOLBY (AC3)	Pink Noise 20-20kHz LFE
DOLBY (AC3)	Pink Noise 20-20kHz Ls channel
DOLBY (AC3)	Pink Noise 20-20kHz Rs channel
DOLBY (AC3)	Sine Wave 63Hz Cycle channels
DOLBY (AC3)	Sine Wave 63Hz All channels
DOLBY (AC3)	Sine Wave 125Hz Cycle channels
DOLBY (AC3)	Sine Wave 125Hz All channels
DOLBY (AC3)	Sine Wave 1kHz Cycle channels
DOLBY (AC3)	Sine Wave 1kHz All channels

Home Back Refresh HDMI-T30

Play Stop Refresh

Select audio format:

- Select from variety of compressed audio formats.
- Enables precise control over channels, sampling rate, bits per sample level.

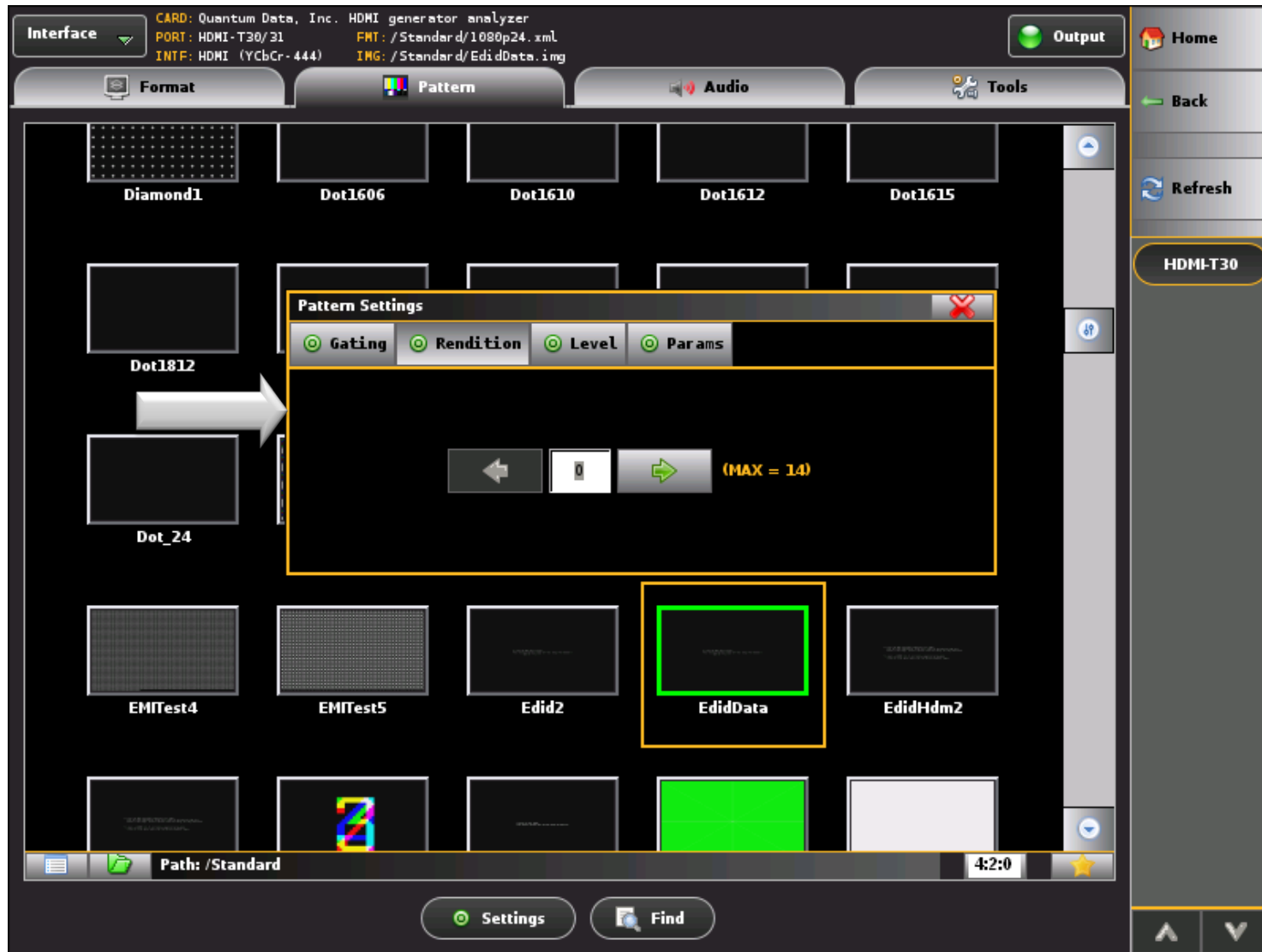
980 HDMI Video Generator Module – HDMI Transmitter



Select test images for HDMI protocols:

- Select HDCP test image.
- View progress of authentication and encryption on connected display.

980 HDMI Video Generator Module – HDMI Transmitter



Select test images for HDMI protocols:

- Select EDID test image.
- View pages of EDID on connected display.
- Select page through Rendition parameter.

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View EDIDs – Select Interface:

- Select which Tx port to view EDID of connected display.

980 HDMI Video Generator Module – HDMI Transmitter

The screenshot displays the 'Generator' software interface. At the top, it shows system information: 'CARD: Quantum Data Corp. HDMI generator analyzer', 'PORT: HDMI-T30/31', 'FMT: /Standard/DMT0660.xml', 'INTF: HDMI (RGB)', and 'IMG: /Standard/Acer2.img'. Below this are tabs for 'Format', 'Pattern', 'Audio', and 'Tools'. A sidebar on the left contains buttons for 'EDID Decode', 'AFD', '3D', 'Image Shift', 'AFC', 'CEC Ping', 'CEC Tester', and 'Lip Sync'. The main area shows 'HDMI-T30' selected, with 'Read', 'Save', and 'Load' buttons. The EDID decode results for 'Block #00' are displayed: 'Checksum verified', 'Version 1 header verified', 'EDID Version 1, Revision 3', and 'Number of additional blocks: 1'. Below this, the manufacturer details are shown: 'Manufacturer: AJ', 'Product Code: 14083', 'Serial #: 1', and 'Date of Manufacture: Week 1 of 2006'. At the bottom, there are navigation controls for 'Block' (1/1) and 'Page' (1/10), along with a 'Hide' button.

Decode and view EDIDs:

- View EDIDs of connected display.
- Navigate to view EDID by Blocks and Pages.
- Save EDIDs for emulation testing of sources.

Quantum Data 980 Video Test Generation



... now supports video pattern testing of HDMI HDTVs and displays.