O1S-AG811T

User Manual

Version 0.1

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REVISION HISTORY

Revision	Release Date	Summary
V0.1		Initial version

1 Introduction

O1S-AG811T 8K/48Gbps HDMI 2.1 Test Pattern Generator & Analyzer is a powerful and versatile HDMI 2.1 generator and analyzer designed to streamline installation and testing of HDMI 2.1 systems. Fully supporting HDMI 2.1 bandwidth and HDCP 2.3, this all-in-one toolkit simplifies setup with both signal generation and analysis capabilities.

Compact and portable, the O1S-AG811T features a built-in rechargeable battery, a wide range of video test patterns, and an intuitive 7.0" touch screen interface. In addition to local control, the device also supports web-based control, allowing users to remotely operate and configure the unit through a standard web browser without installing additional software—ideal for rack-mounted installations or remote testing environments.

The O1S-AG811T supports USB firmware updates, along with advanced functions like EDID & analysis, loop testing, and 8-channel LPCM audio output with selectable sample rates. One standout feature is the device's HDMI input bypass, which allows users to quickly verify video sources either on a connected display or directly on the built-in touch panel.

With its robust feature set and affordable price point, the O1S-AG811T is one of the most cost-effective HDMI 2.1 testing solutions available—perfect for installers, integrators, and engineers looking to simplify HDMI deployments.

2 Feature List

- Supports video resolution outputs up to 8K@30 4:4:4 8bit & 4K2K 120Hz
- Both HDMI input and output support up to HDMI 2.1
- Supports PSNR and SSIM measurement at 4K/60 for AVoIP systems
- Supports video and audio latency measurement, including A/V sync, for AVoIP and other HDMI transport systems
- Supports video waveform monitoring up to 8K/30 resolution
- Supports web-based control and API protocol integration
- Supports detailed video timing diagram and format analysis, including parsing of standard AVI InfoFrames
- Built-in motion video patterns
- HDCP 1.4 & 2.3 compliant
- 7" Capacitive Touch Screen(1920x1200)
- Supports mouse control
- Supports user control device through Ethernet
- Firmware update through USB Flash Drive
- Embedded Linux kernel system with unlimited expandability
- Scrambler supported for videos over 340MHz output wise

- Supports HDMI loop through function
- HDCP test allow verify HDCP of HDMI source and transmit HDCP encrypted video
- Supports EDID Analysis
- 2 Internal Speakers
- Qualified physical layer performance to ensure the best compatibility
- Supports voltage measurement on +5V and hotplug & DDC from HDMI source and display*

Note:

- Due to the variance of passive components, the measurement outcomes may have 1~3% variance in value.
- Before using the O1S-AG811T, please plug the power adapter to switch off the shipping mode.

3 Package Contents

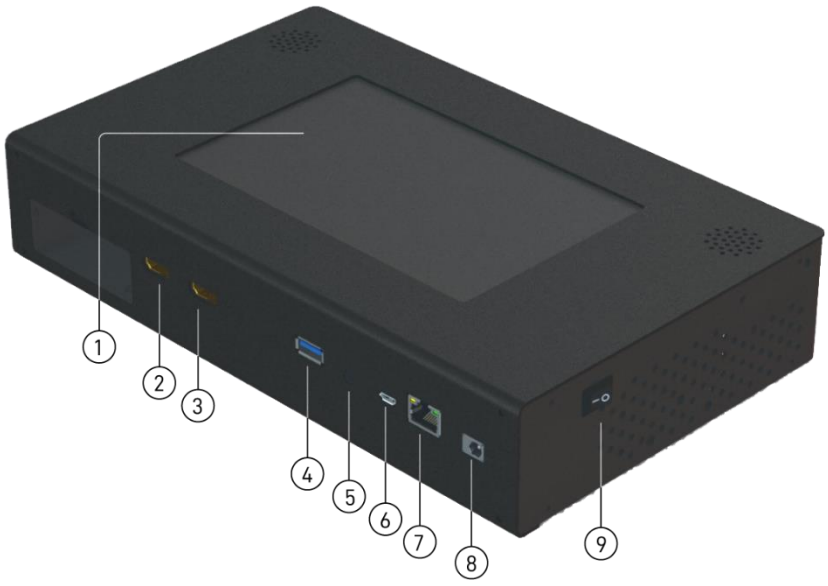
- 1x O1S-AG811T
- 1x DC 12V power supply
- 1x HDMI 2.1 cable
- 1x User Manual

4 Specifications

Model Name	O1S-AG811T
Technical	
Role of usage	Generator / Analyzer
Video bandwidth	Input up to FRL 6 (48G) Output up to FRL 6 (48G)
HDMI compliance	HDMI 2.1 and below
HDCP compliance	HDCP 2.3 and below
Video Support	Up to 8K60 4:2:0 10bits, 8K30 4:4:4 & 4K2K 120Hz & 4K2K@60 4:2:0 10-bits/12-bits (HDR)
Video Format Support	HDMI
Audio support	8ch LPCM up to 192K
Control	USB mouse / touch panel / Ethernet
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
Input	1x HDMI + 1xUSB + 1x RJ-45(Ethernet)

Output		1x HDMI + 1x 3.5mm(Stereo)
USB Support		USB 3.1
HDMI connector		Type A [19-pin female]
USB Connector		Type A
RJ-45 connector		WE/SS 8P8C with 2 LED indicators
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	
	Package	
	Carton	
Weight	Model	
	Package	
Power supply		12V DC / Battrery
Power consumption		?? Watts
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

5 Panel Descriptions

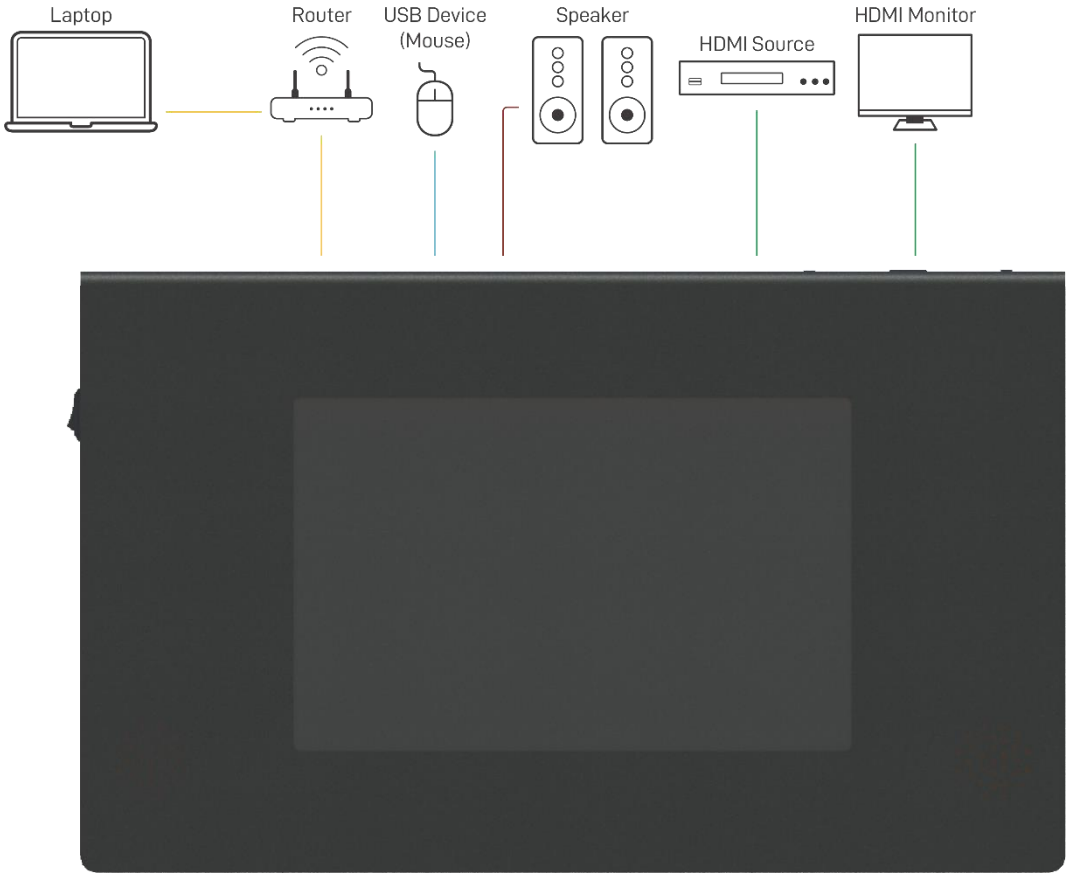


1. **Touch Panel:** Touch screen for control
2. **OUTPUT:** HDMI output
3. **INPUT:** HDMI input
4. **USB:** Connect to USB device for control or firmware update
5. **Stereo Out:** Analog audio output
6. **Micro-USB:** Console port
7. **Ethernet:** Ethernet control
8. **+12V DC:** 12V 5A DC power jack
9. **Power Switch:** Power ON/OFF switch

6 Connection Diagram

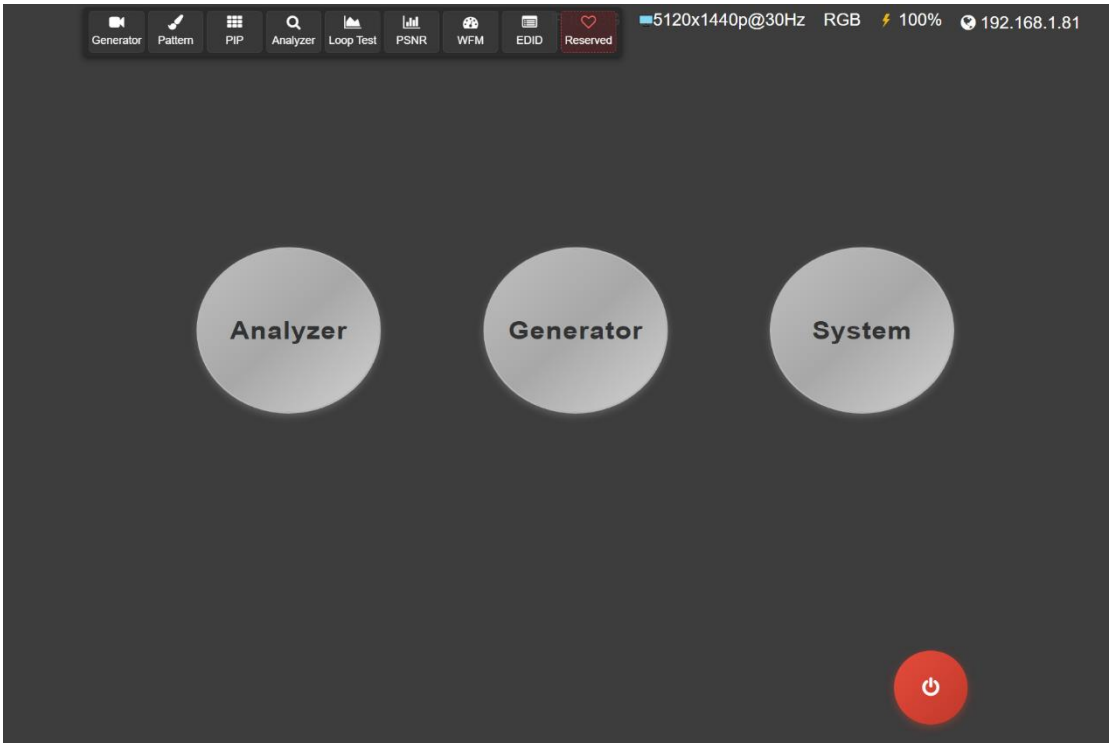
Multiple Control Options

7" touch panel, mouse control & through Ethernet



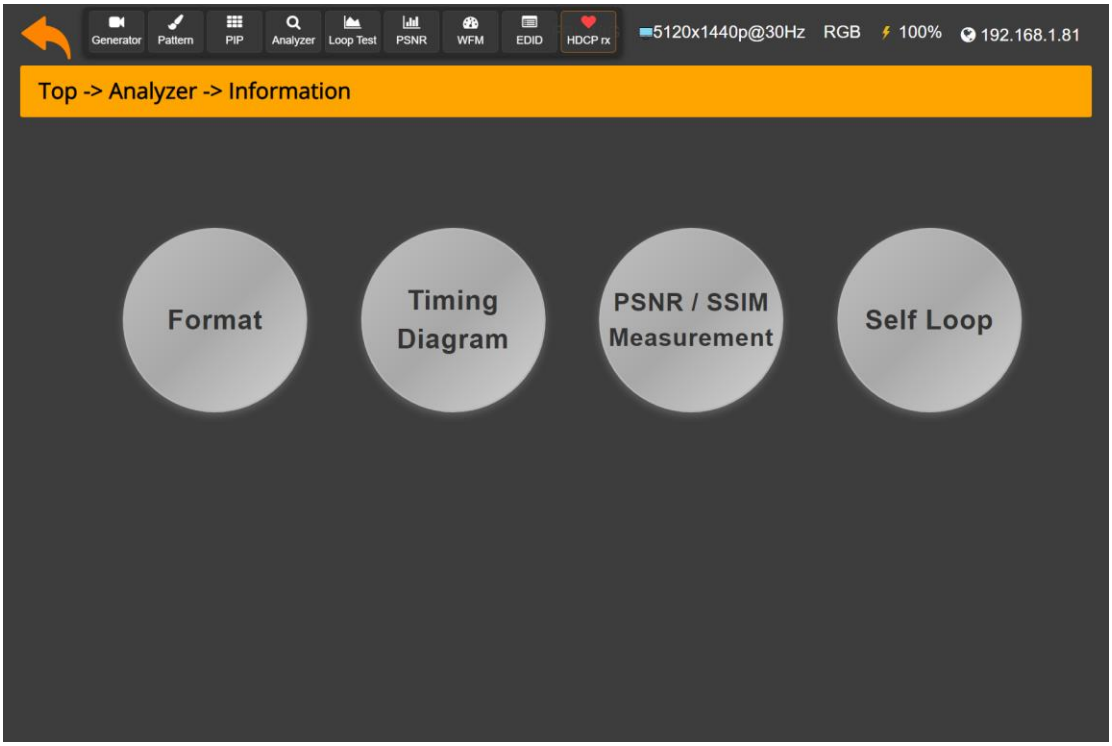
7 Menu Operation

Main Navigation & Overview

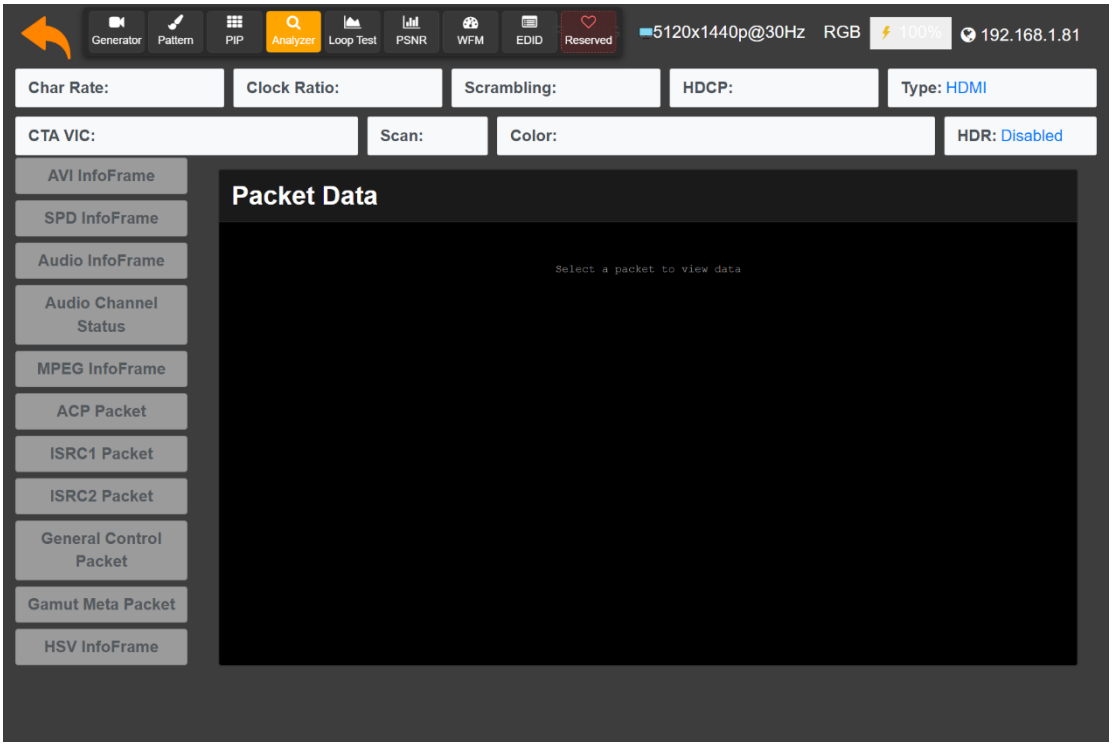


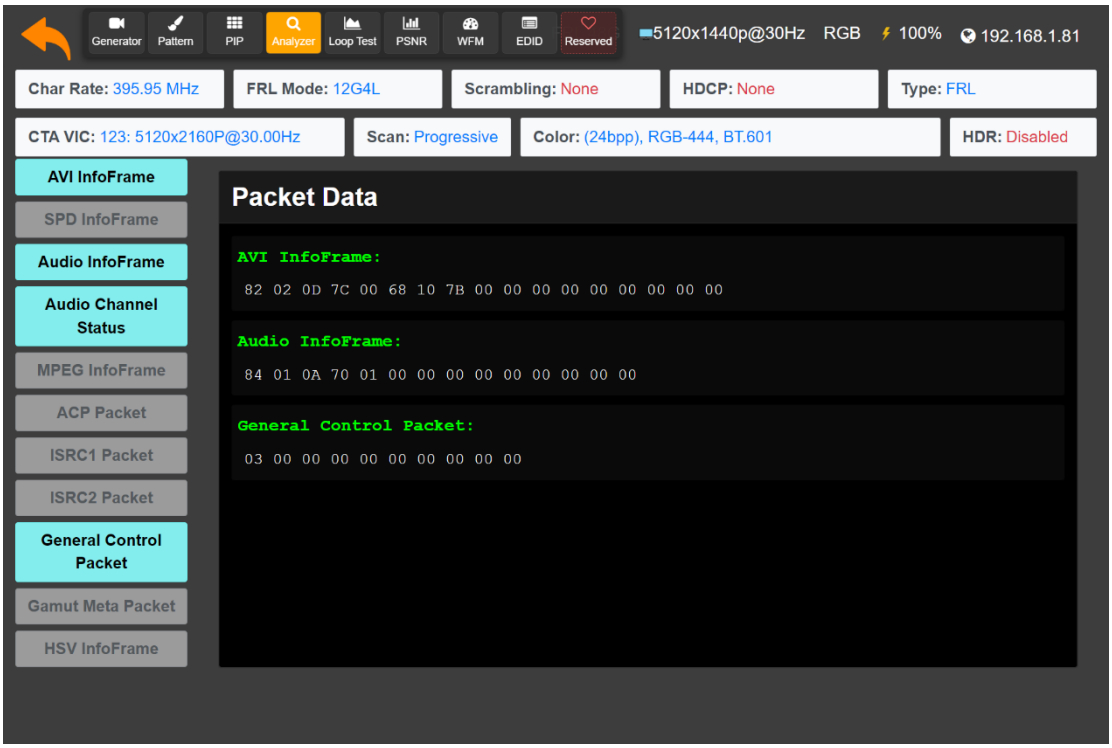
- Root Page The main dashboard serves as the central hub of the device, featuring three prominent circular buttons for accessing the core operational modes: **Analyzer**, **Generator**, and **System**. The interface includes a persistent top toolbar for quick access to specific functions (like PIP, Pattern, and EDID) and network/display status. A power button is located in the bottom right corner.

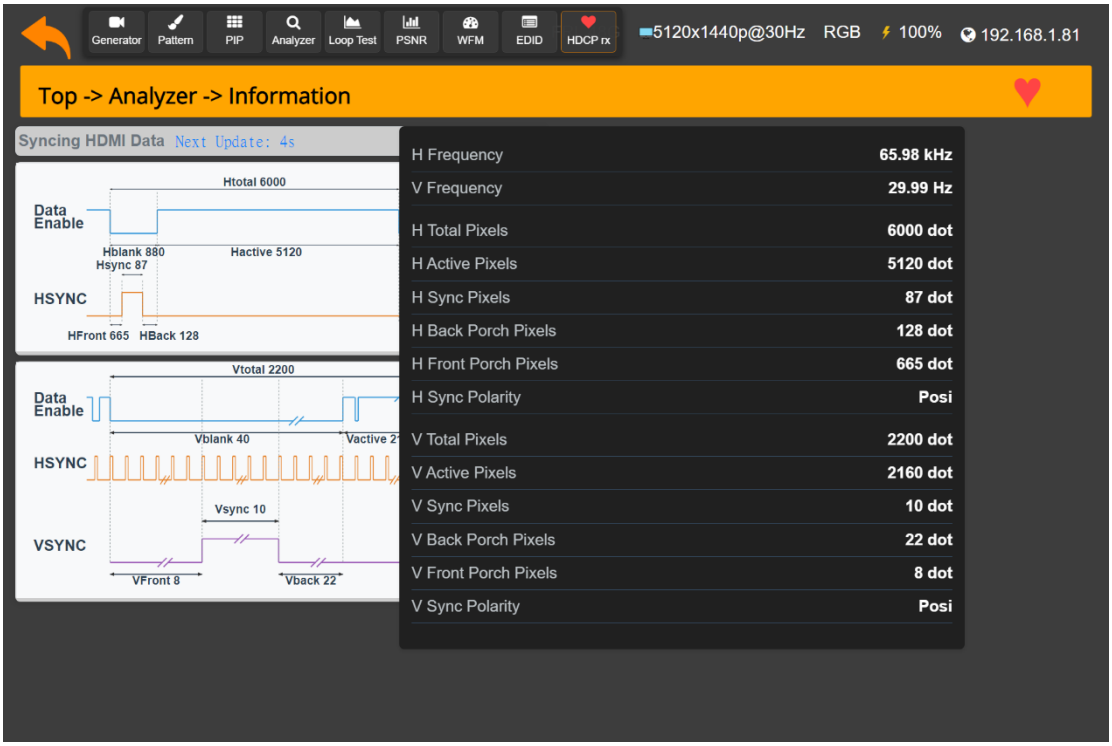
Analyzer Mode



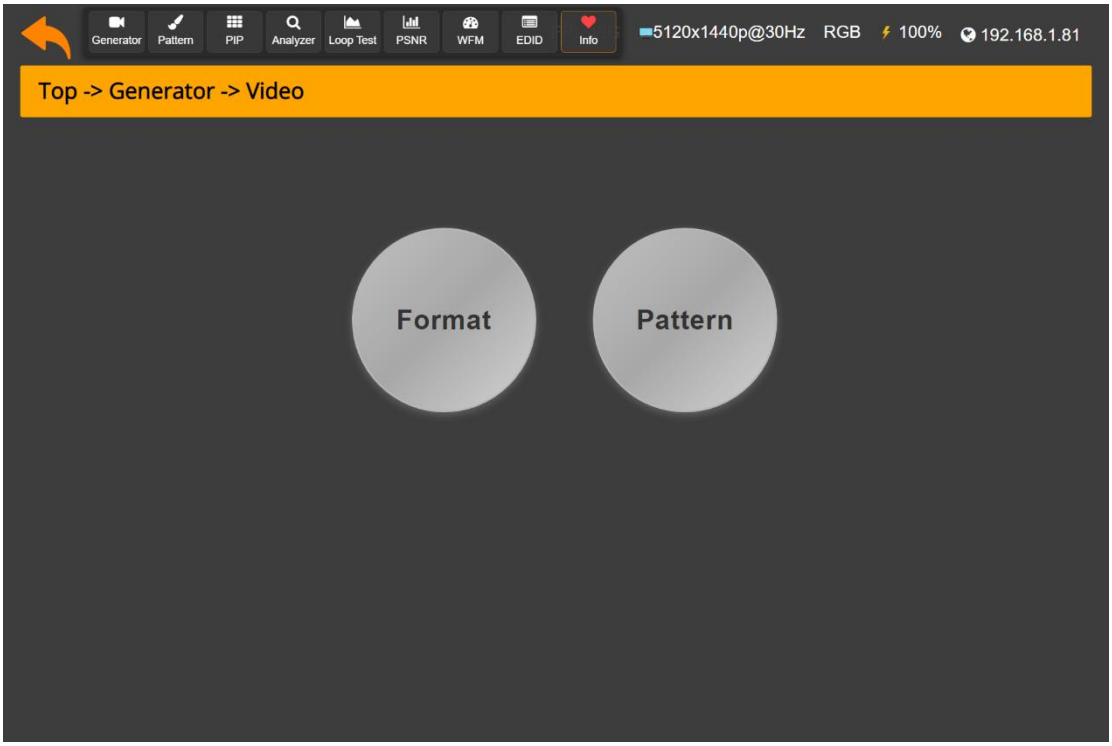
- Analyzer Dashboard & Information: The top-level Analyzer menu contains four primary categories: **Display**, **Information**, **EDID**, and **HDCP**. Selecting the Information button reveals a secondary menu containing **Format**, **Timing Diagram**, **PSNR / SSIM Measurement**, and **Self Loop**. The Format interface provides an in-depth breakdown of packet data, highlighting key metrics like Character Rate, CTA VIC, FRL Mode, and detailed payload data for various InfoFrames (e.g., AVI, Audio, and General Control Packets).
- Timing Information: The Timing Diagram page offers a visual and numerical analysis of the synchronization data. It displays precise horizontal and vertical metrics, including Frequency, Total Pixels, Active Pixels, Sync Pixels, and Front/Back Porch pixel counts.
- HDCP: The HDCP menu allows users to quickly configure the HDMI Port's HDCP version, providing toggle options between **HDCP 1.4** and **HDCP 2.3**.
- Display: The Analyzer Display section offers signal routing and viewing options. Users can select the HDMI Port source, enable or disable Passthrough mode, and select their preferred viewing method (View Display, View Format, or View Waveform).





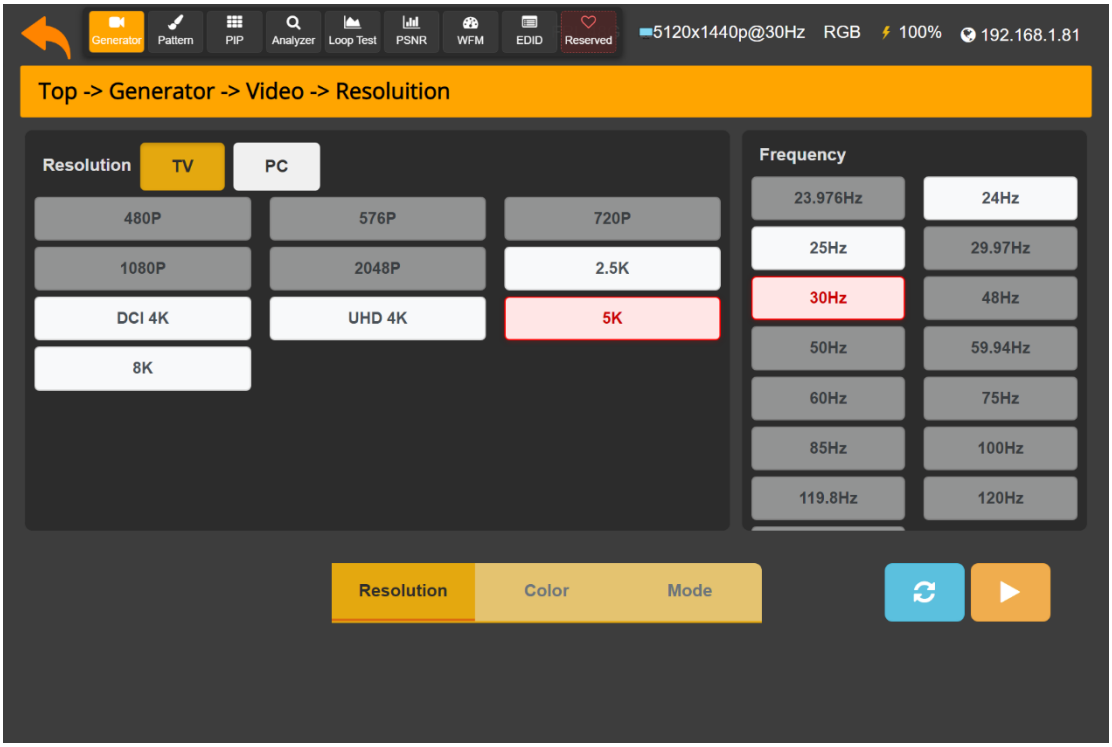


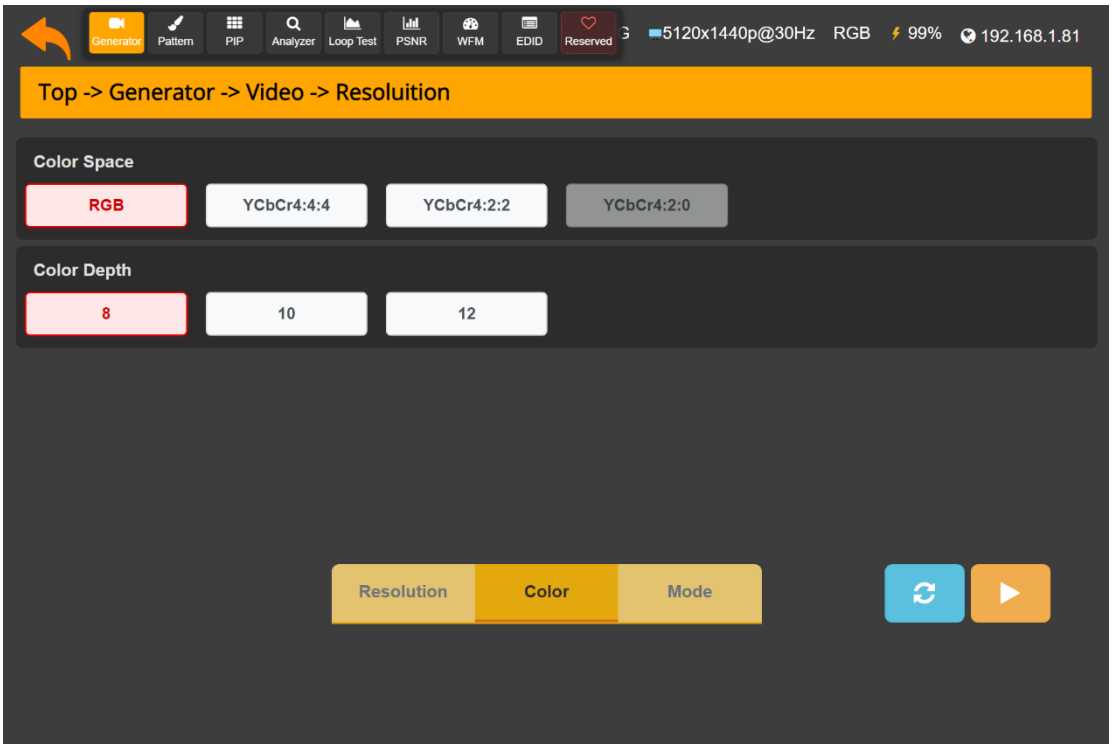
Generator Mode

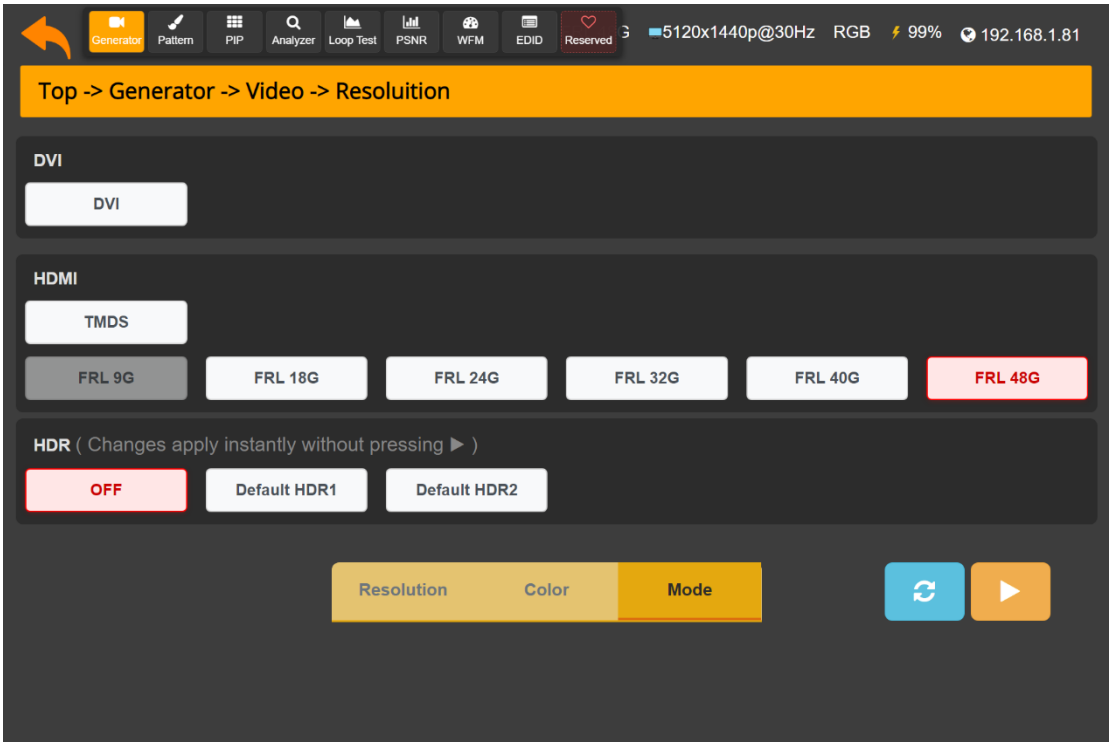


- Generator Format Settings: The Video Generator menu splits into **Format** and **Pattern** configurations. Within the Format sub-menu, users navigate three primary tabs:
    - **Resolution:** Select between TV and PC standards, choose resolutions up to 8K (e.g., 5K selected), and assign the desired refresh rate frequency (e.g., 30Hz).

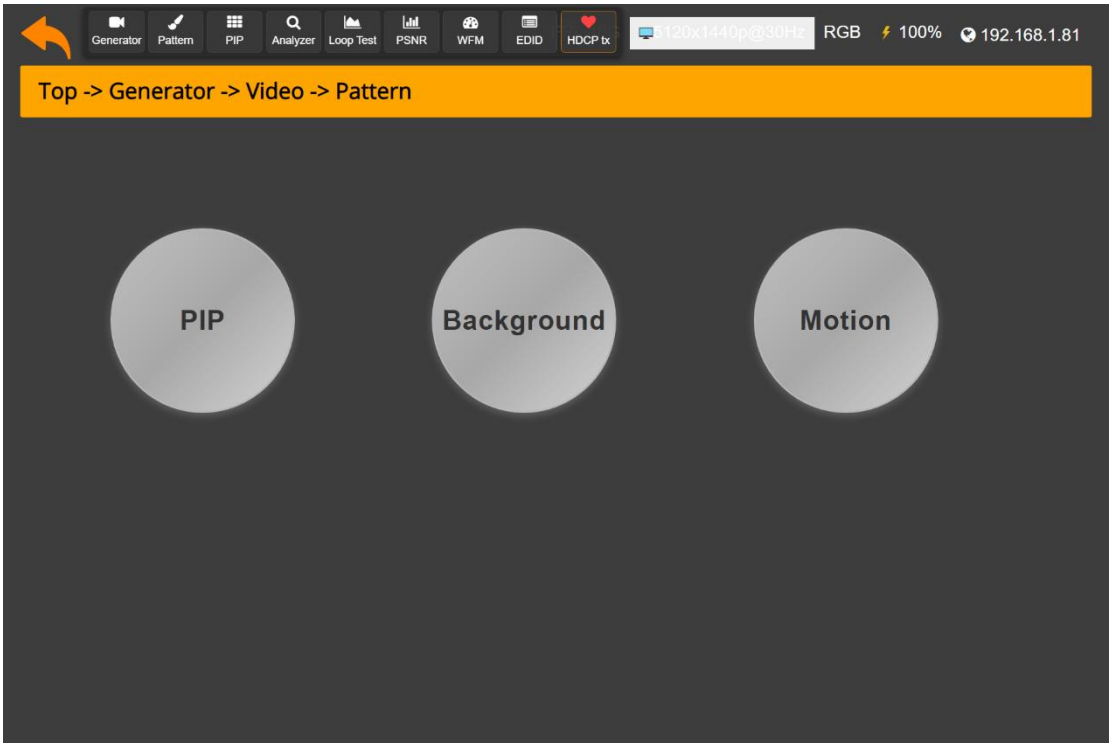
- **Color:** Adjust the Color Space (e.g., RGB, YCbCr) and Color Depth (e.g., 8, 10, or 12-bit).
- **Mode:** Configure the signal interface type, toggling between DVI, various TMDS/HDMI FRL modes (up to FRL 48G), and applying default HDR profiles.



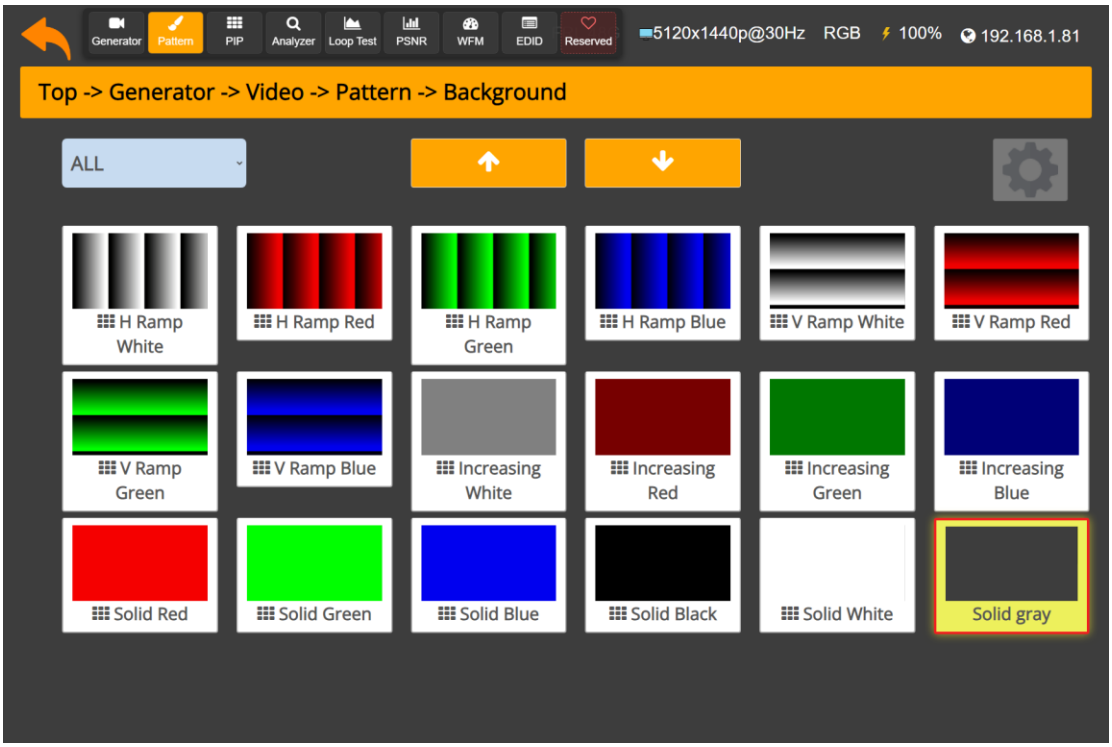




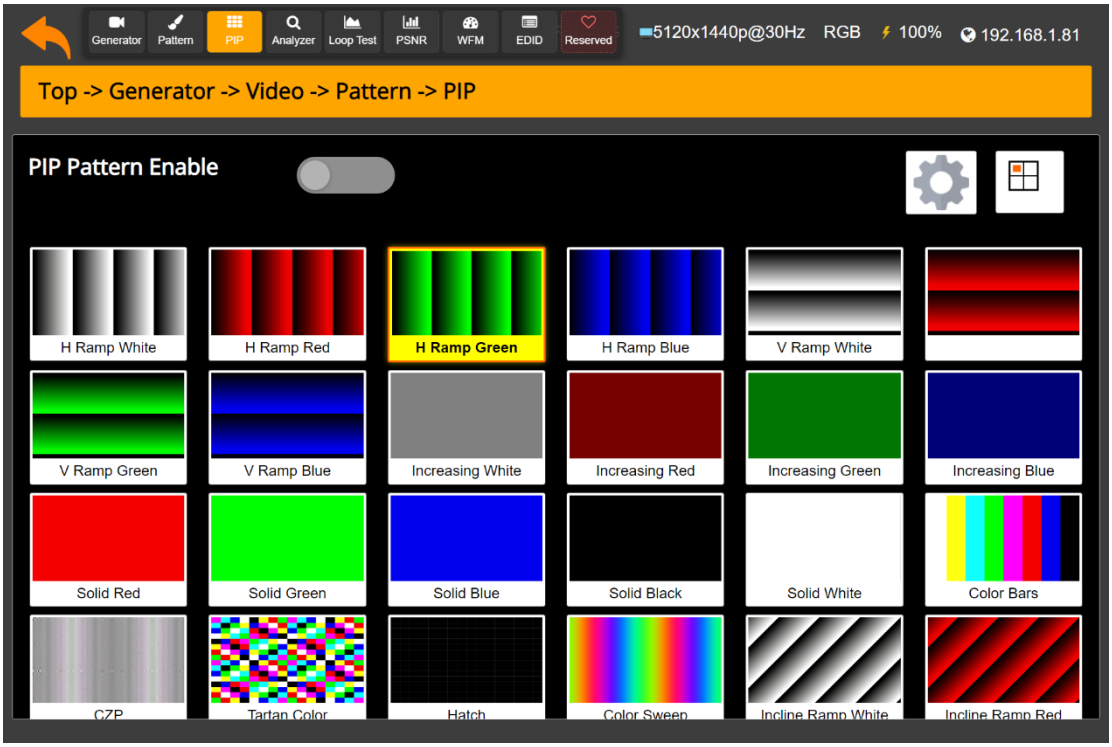
- Pattern Selection: The Pattern menu provides three main categories for video output testing: **PIP**, **Background**, and **Motion**.

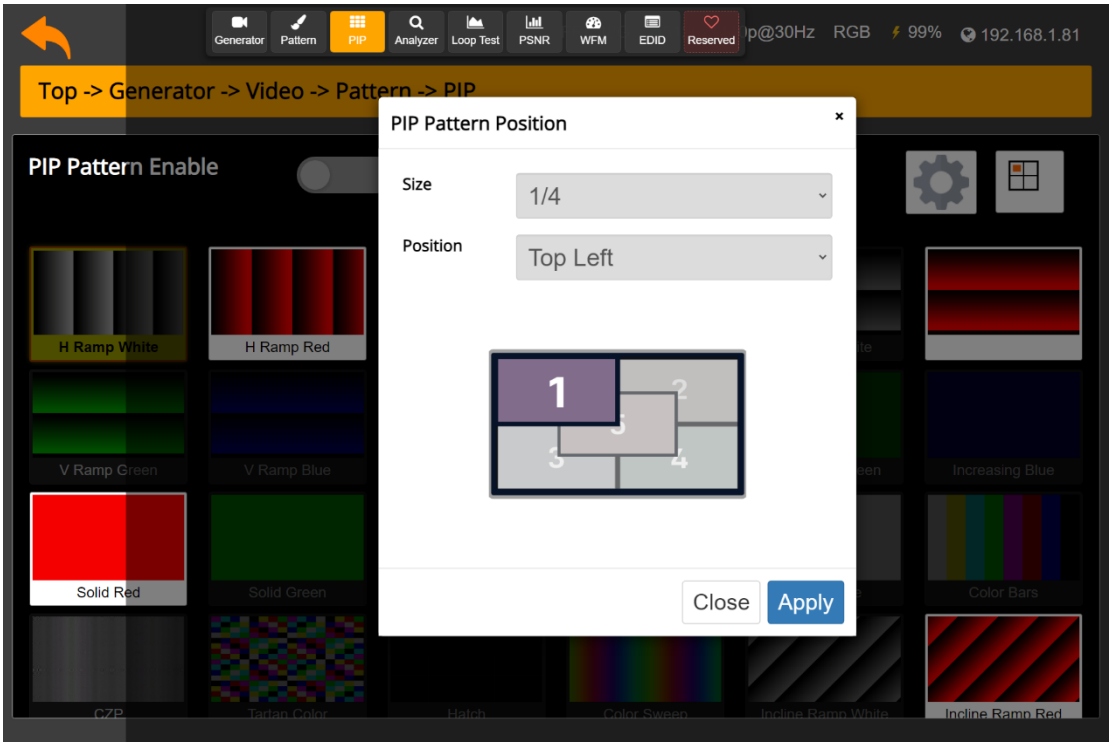


- Background Pattern: Users can define the base video output by selecting from a comprehensive library of static background patterns, which includes color bars, horizontal/vertical ramps, increasing color gradients, and solid color fills (like Solid gray).

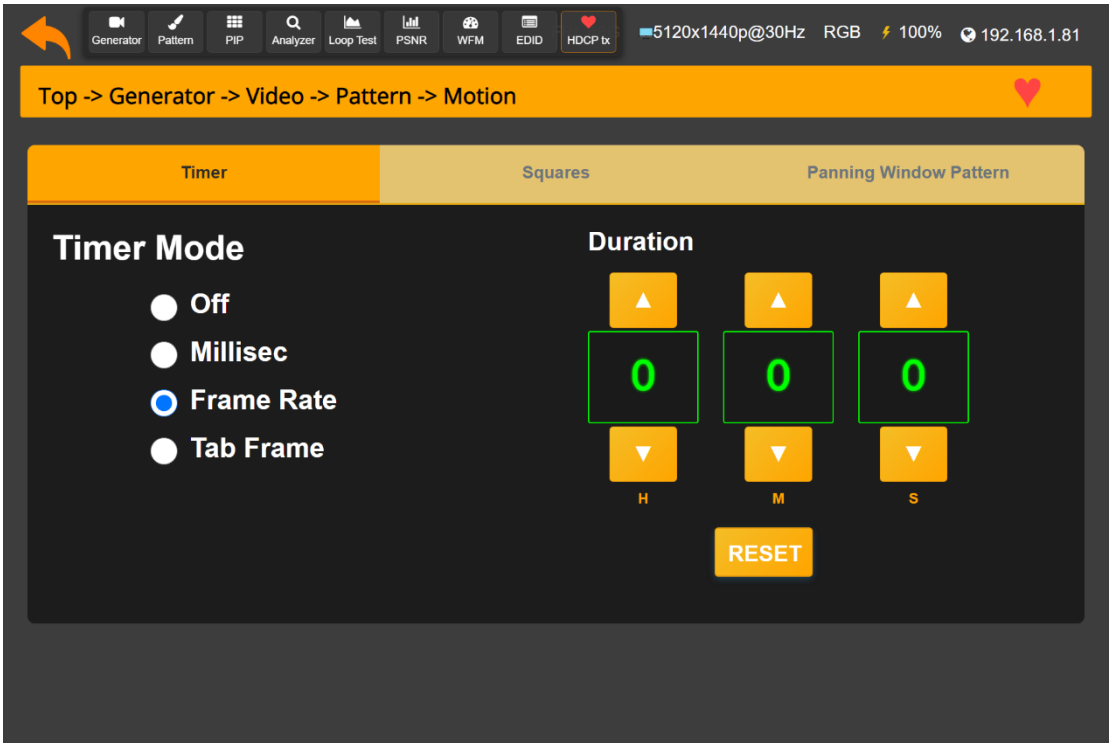


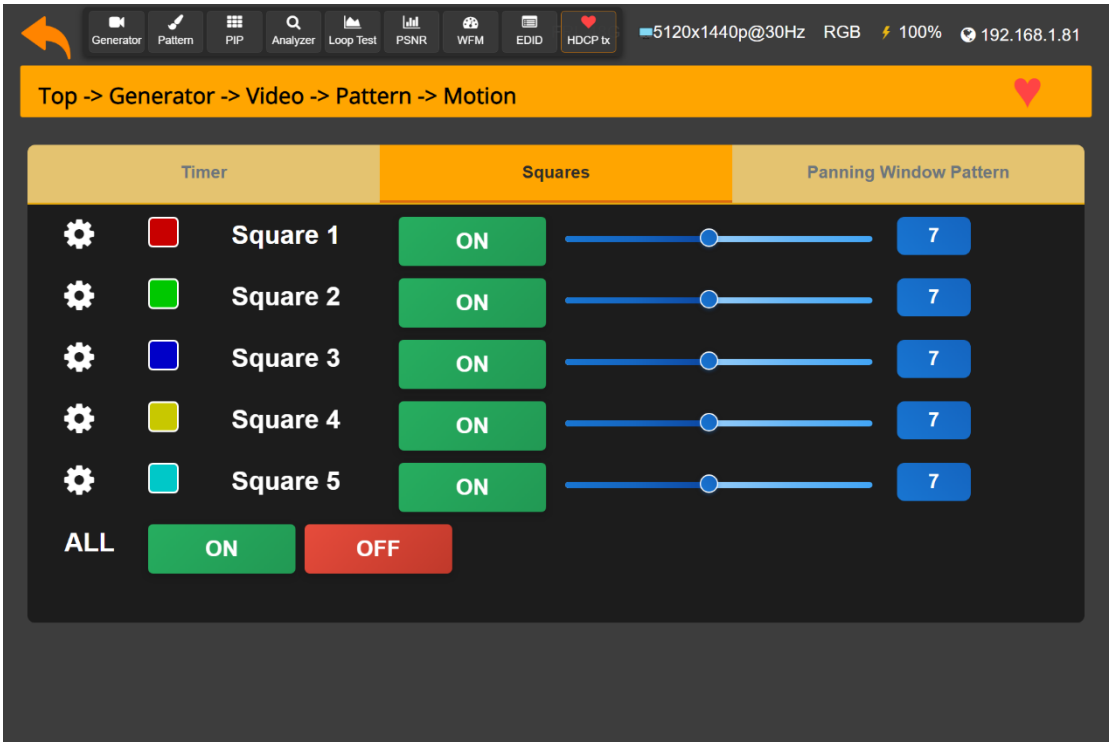
- PiP (Picture-in-Picture) Pattern: The PIP menu includes a master switch to enable the PIP pattern overlay. Users can choose the overlay pattern from the visual grid and utilize the settings menu to define the PIP's physical Size (e.g., 1/4) and on-screen Position (e.g., Top Left).





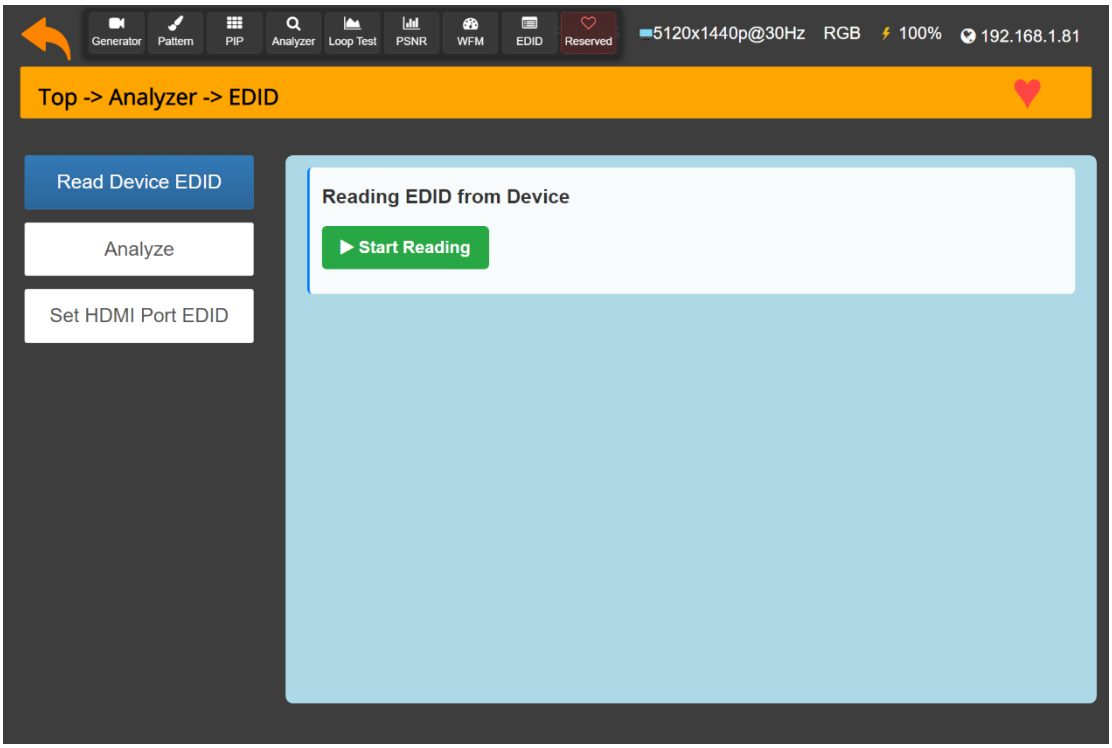
- Motion Pattern: The Motion settings are divided into three control tabs: Timer, Squares, and Panning Window Pattern. The Timer allows configuration by Millisec, Frame Rate, or Tab Frame alongside adjustable duration counters. The Squares tab provides individual toggle switches and adjustment sliders for up to five independently moving squares.



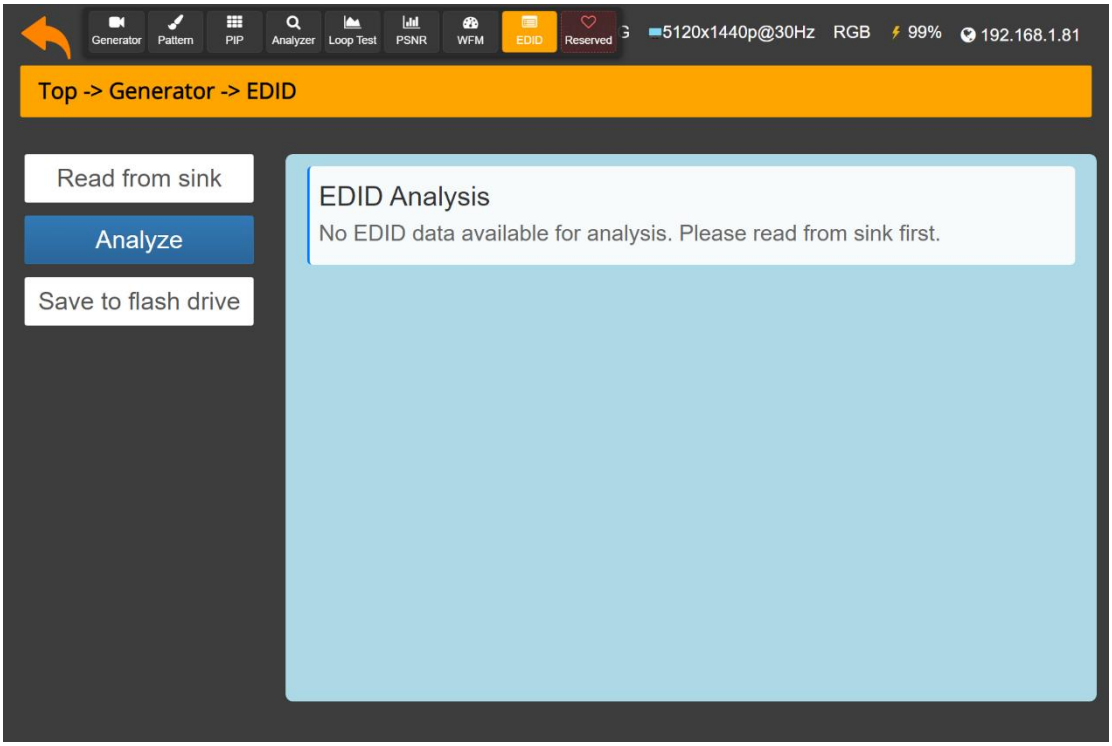


EDID Management

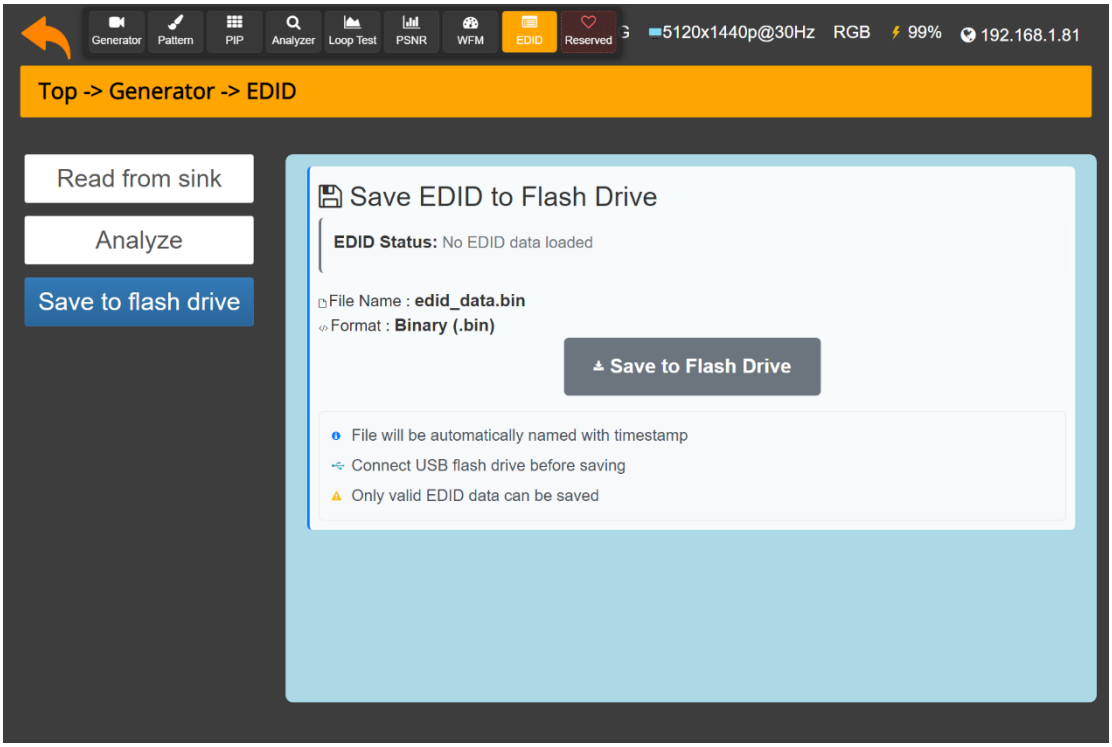
- Read EDID: Located under the Analyzer menu, the Read Device EDID interface allows users to extract EDID information directly from a connected device by pressing the green **Start Reading** button.



- Analyze EDID: Within the Generator EDID menu, the Analyze tab displays the currently loaded EDID data. If no data is present, the system will prompt the user to "Read from sink first".



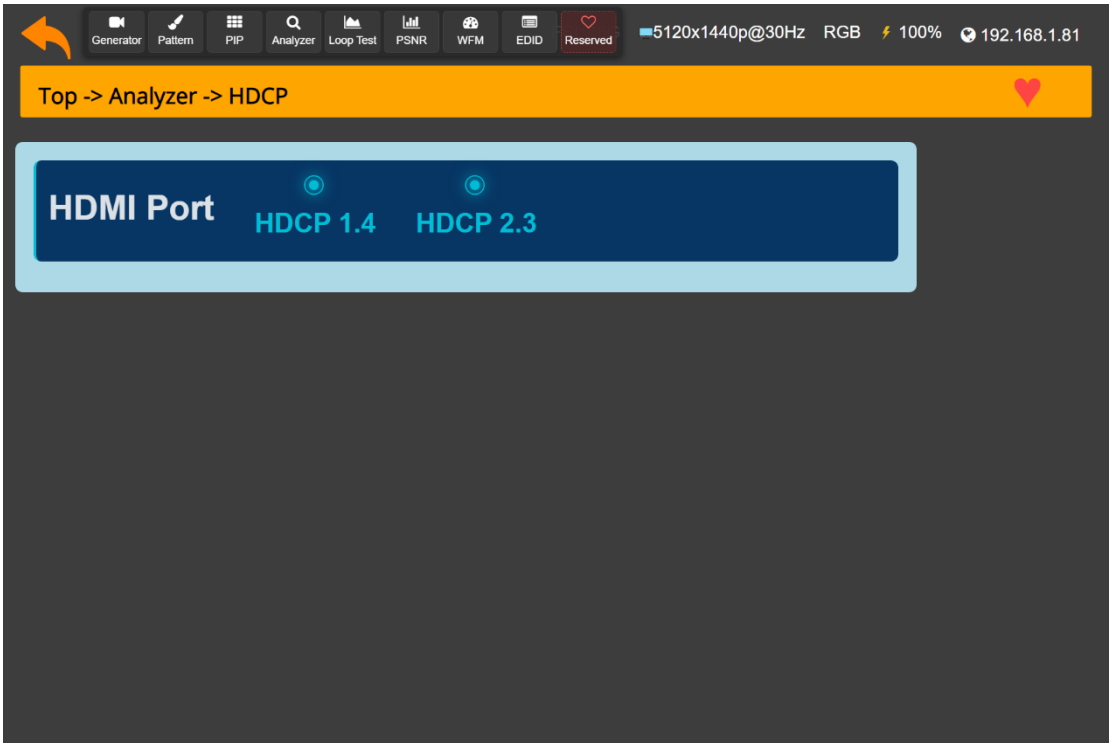
- Save EDID: The Save to flash drive page provides a simple export utility. Users can save the loaded EDID configuration as a binary file (edid_data.bin) directly to a connected USB flash drive.



Analyzer: HDCP

The HDCP (High-bandwidth Digital Content Protection) page provides a straightforward interface for configuring the compliance protocol of the connected HDMI port. Users can use the radial buttons to

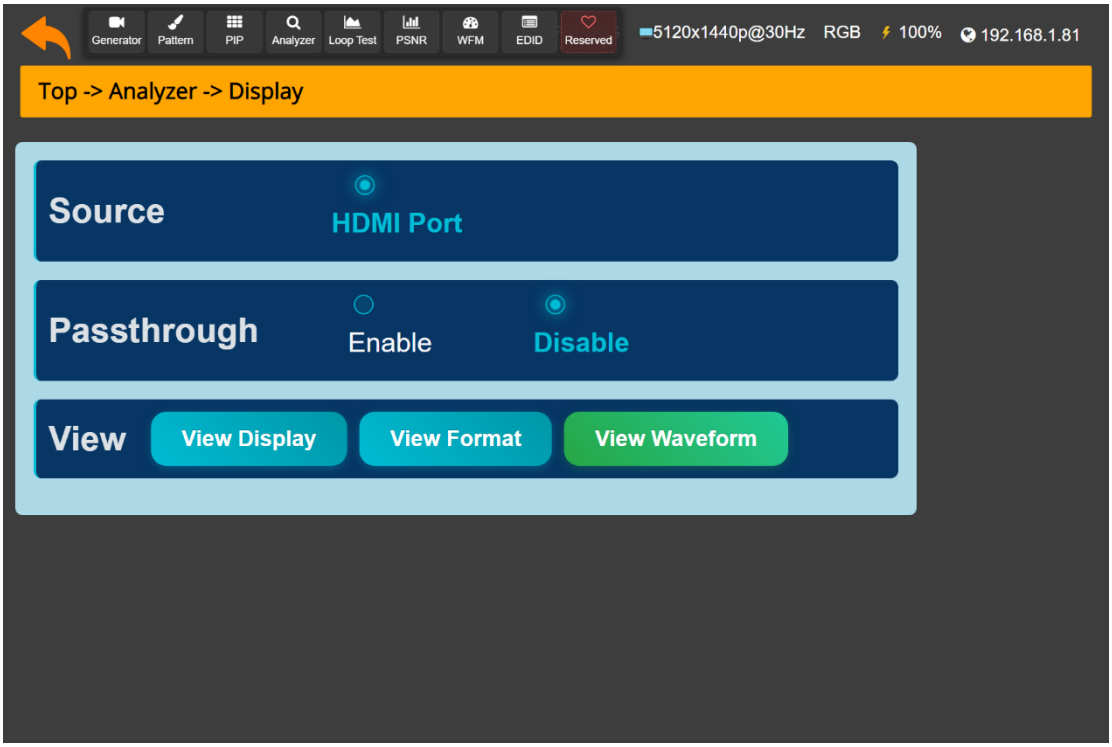
seamlessly toggle the port's settings between **HDCP 1.4** and **HDCP 2.3**, depending on the specific testing requirements of the sink or source device.



Analyzer: Display Page

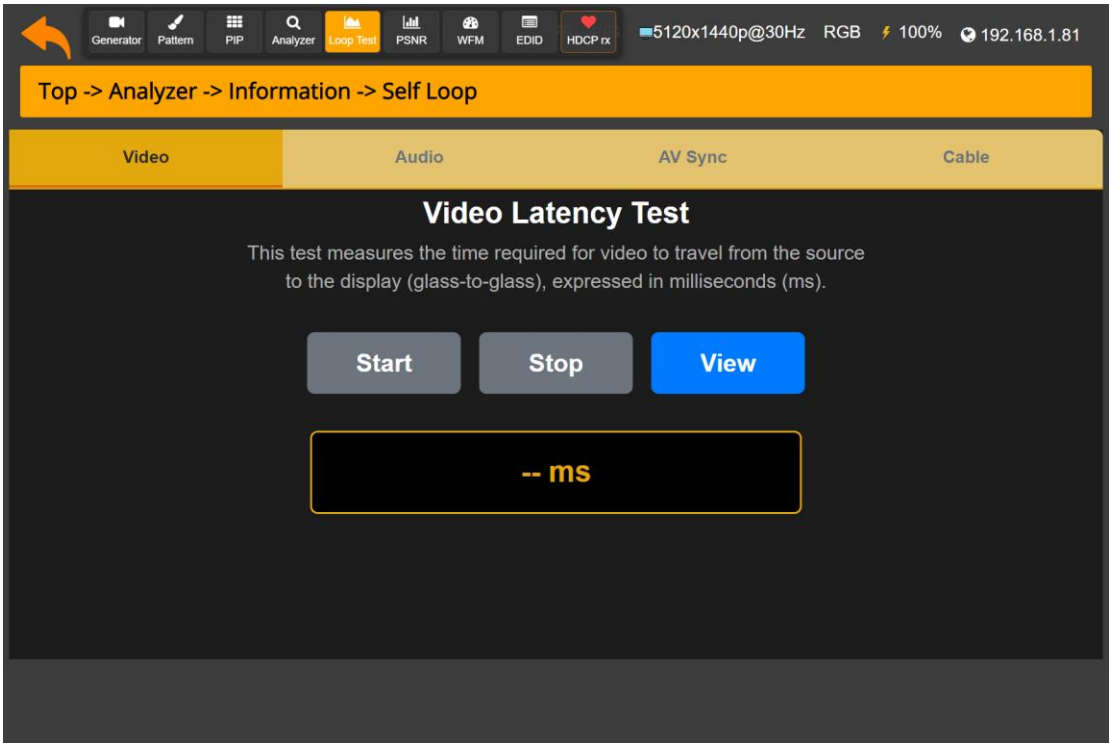
The Display page acts as the central control panel for signal routing and observation during analysis. It features three primary configuration blocks:

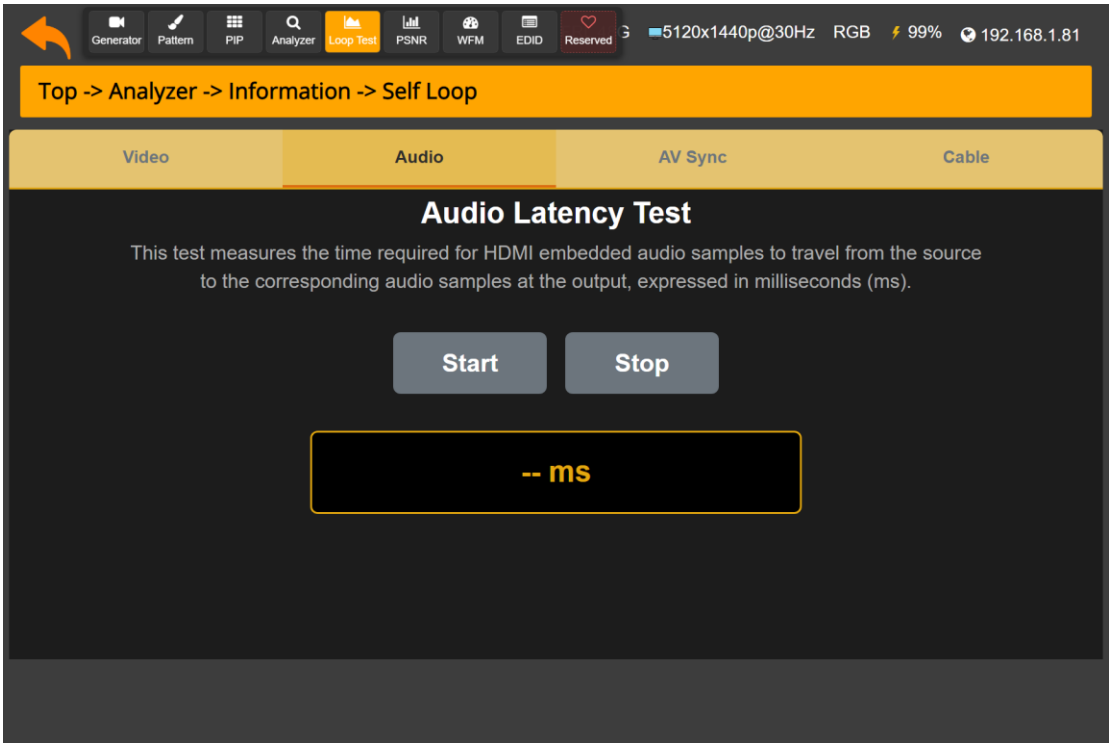
- **Source:** Allows the user to select the active input for analysis, utilizing a radial button to select the **HDMI Port**.
- **Passthrough:** Provides a simple toggle to either **Enable** or **Disable** the signal passthrough functionality, dictating whether the input signal is routed directly to an output display.
- **View:** Offers three distinct monitoring modes via green action buttons. Users can select **View Display** to see the visual output, **View Format** to examine the underlying data structure, or **View Waveform** to analyze the electrical characteristics of the signal.

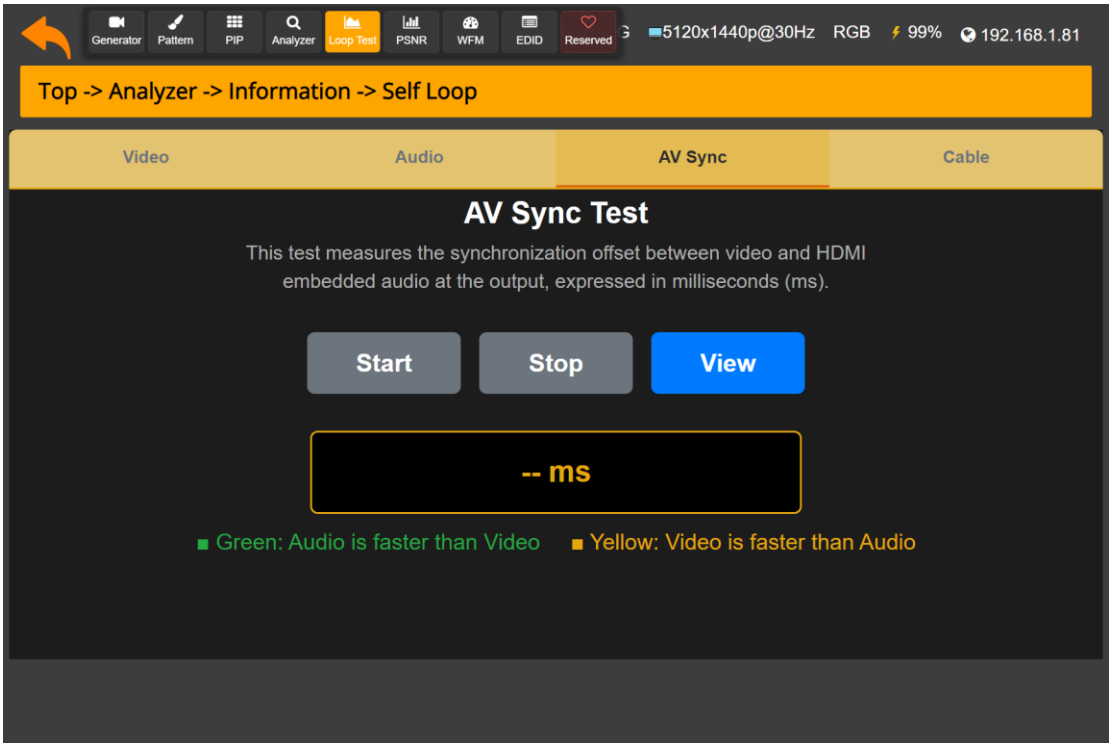


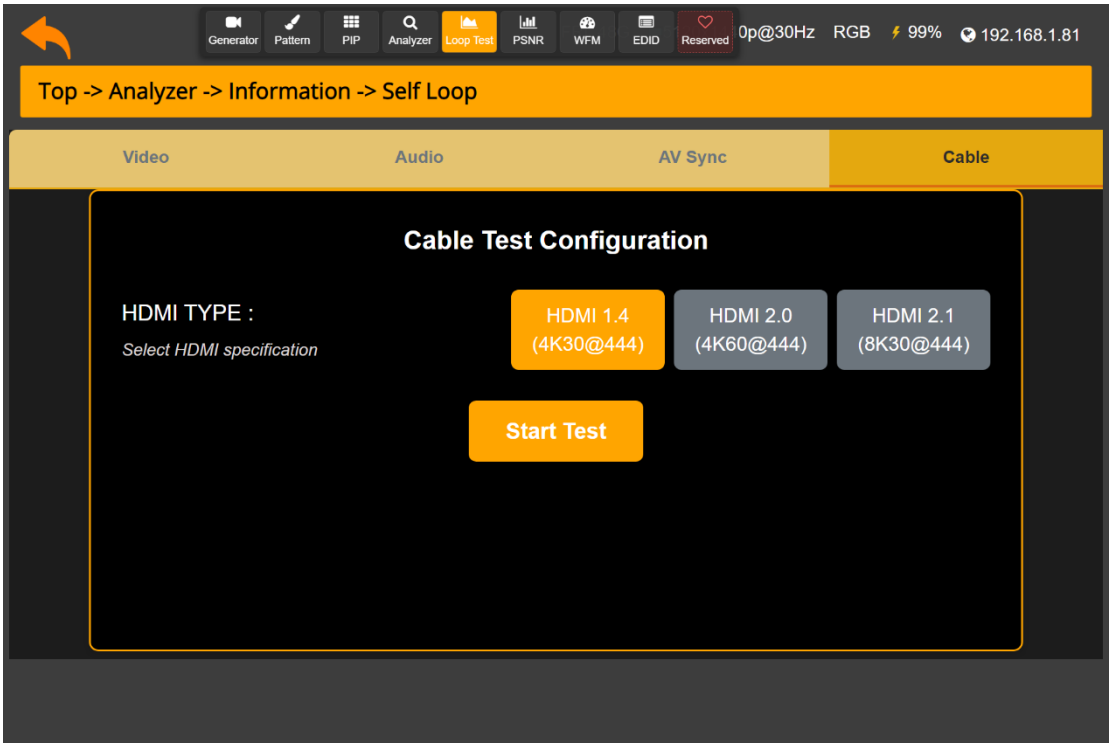
Self Loop & Advanced Measurements

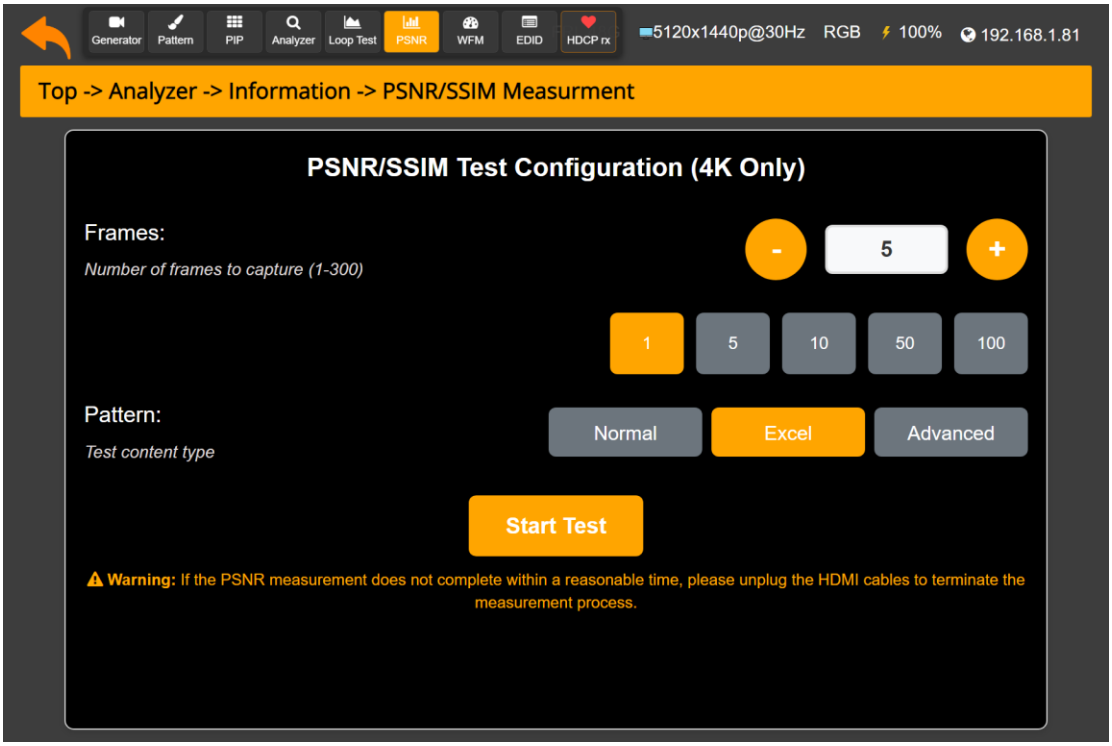
- Video Latency Found under Information -> Self Loop, this test calculates the glass-to-glass transit time of a video signal from the source to the display, outputting the result in milliseconds (ms).
- Audio Latency Similar to the video test, the Audio Latency tab measures the exact travel time of HDMI embedded audio samples from the source to the output, expressed in milliseconds.
- AV Sync The AV Sync Test analyzes the synchronization offset between the video and embedded audio. The results interface uses a color-coded legend where Green indicates audio is faster, and Yellow indicates video is faster.
- Cable Test The Cable Test Configuration tab allows users to validate cable integrity by selecting a target HDMI specification: HDMI 1.4 (4K30), HDMI 2.0 (4K60), or HDMI 2.1 (8K30).
- PSNR / SSIM This 4K-only measurement tool evaluates picture quality. Users configure the test by specifying the number of frames to capture (from 1 up to 300) and selecting the test content pattern type (Normal, Excel, or Advanced) before initiating.





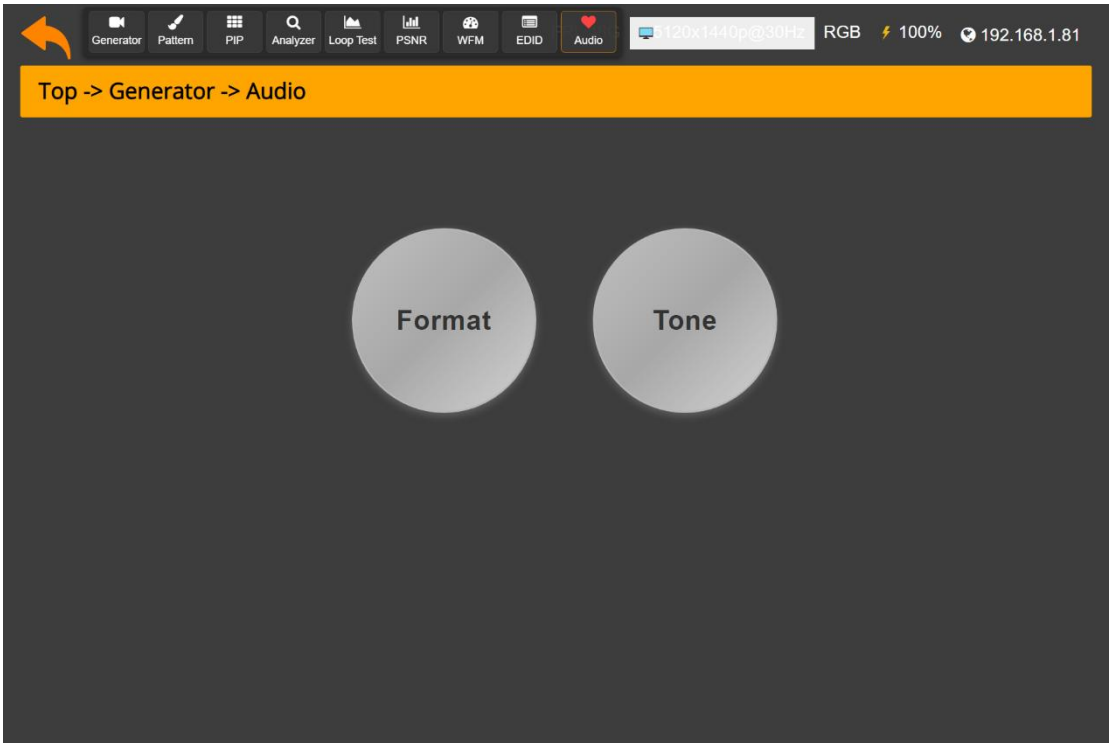


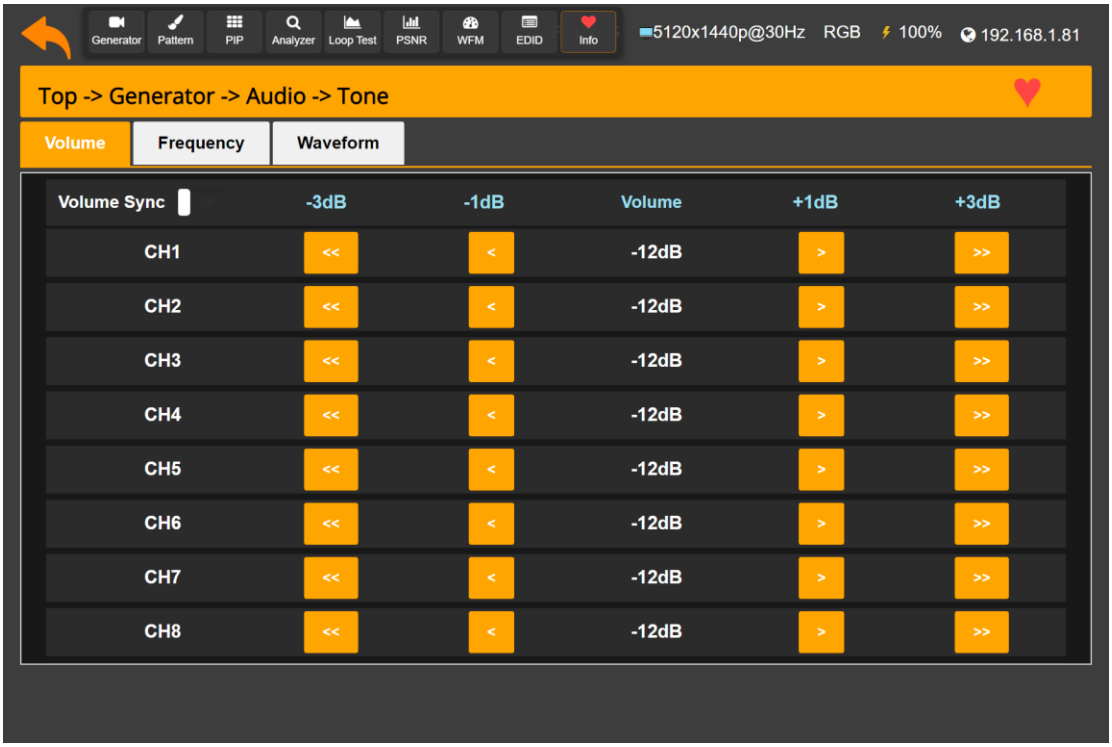


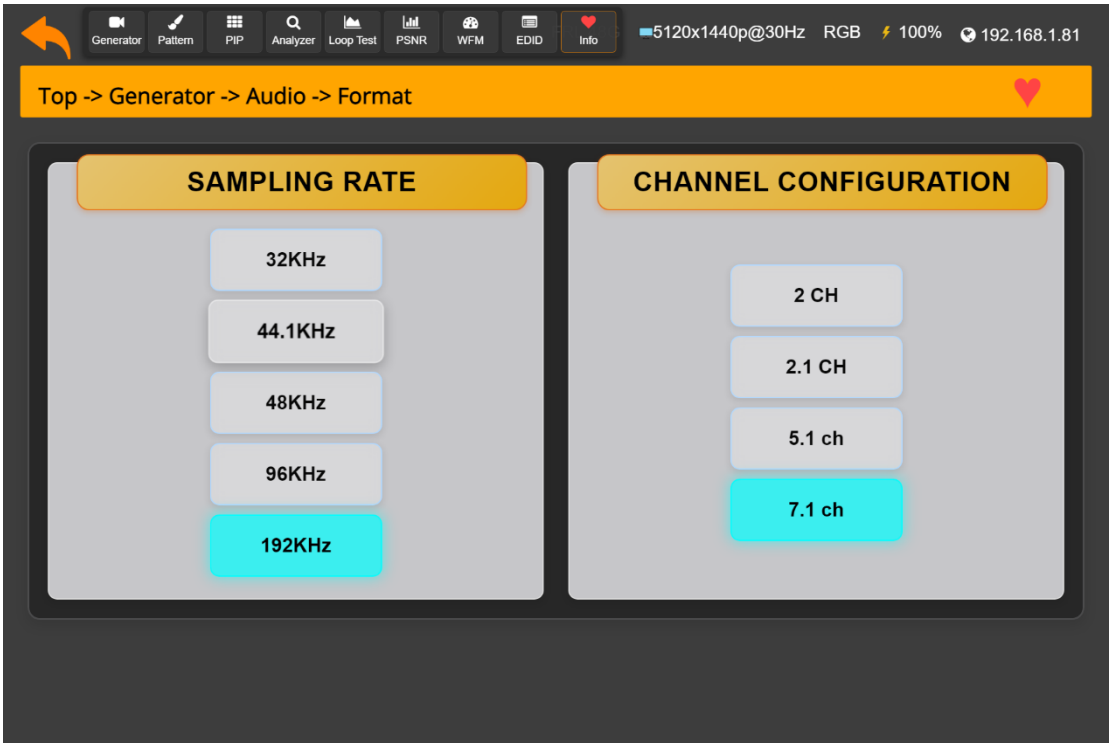


Generator Mode: Audio

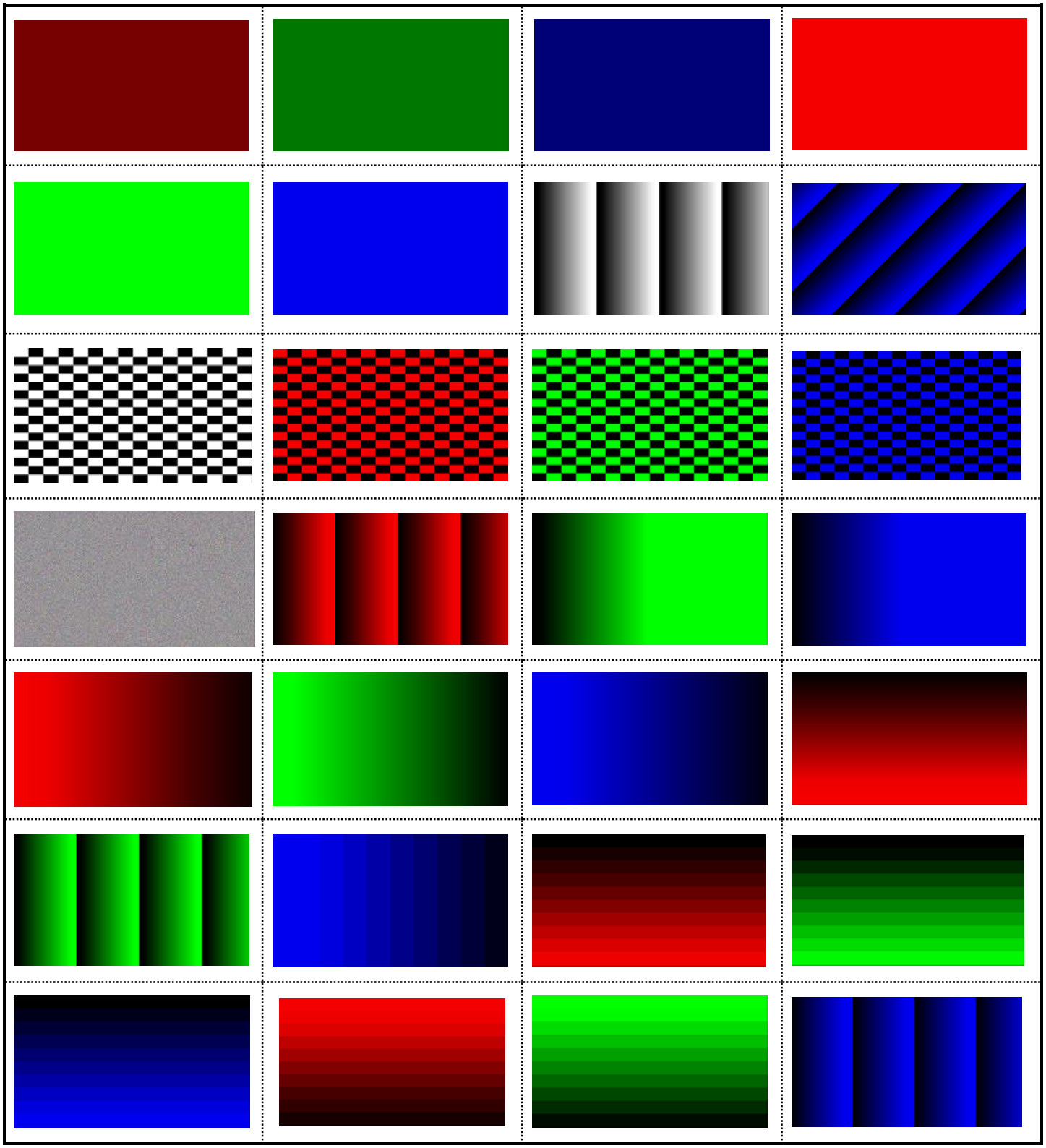
- Audio Overview The Generator Audio menu is split into two primary configuration paths: **Format** and **Tone**.
- Audio Tone The Tone interface consists of Volume, Frequency, and Waveform adjustments. The Volume tab allows users to synchronize volume globally or individually step the decibel levels (e.g., -12dB) across channels CH1 through CH8.
- Audio Format The Format menu gives users control over the base audio signal properties, allowing for the selection of the Sampling Rate (from 32KHz up to 192KHz) and the target Channel Configuration (from 2 CH up to 7.1 ch).

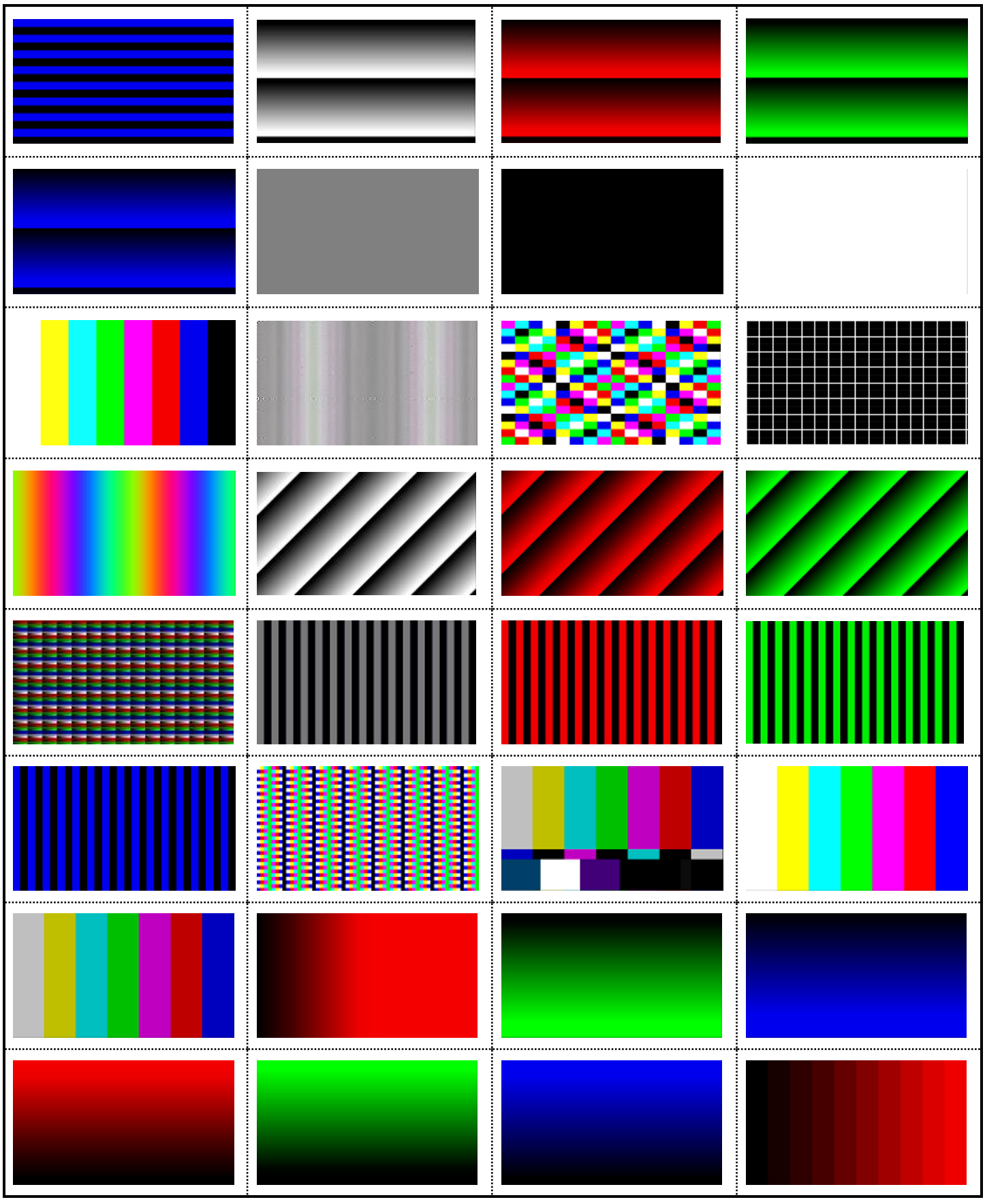


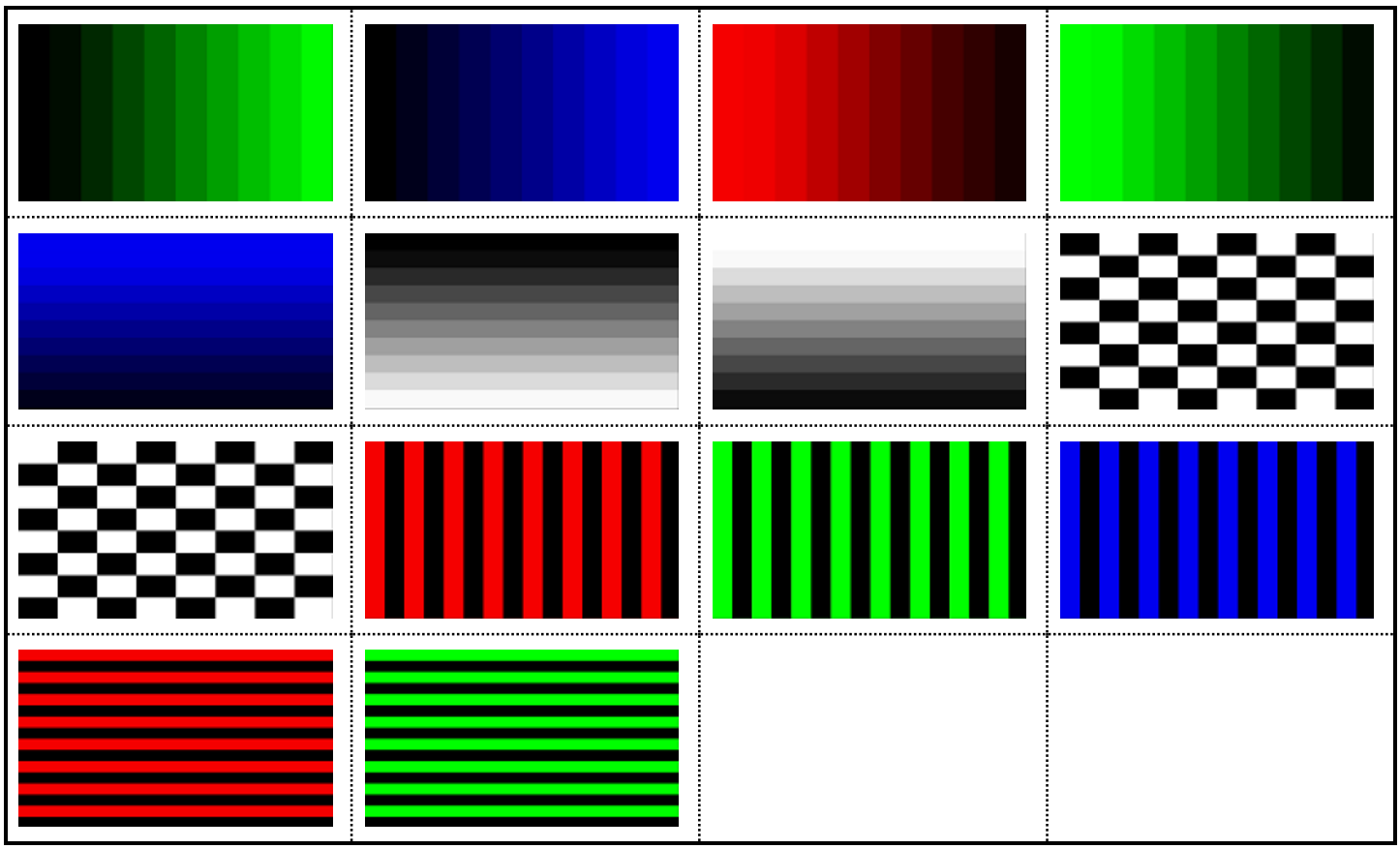




Video Patterns Reference







8 Appendix

- Resolution Table

Resolution	Color Space	Resolution	Color Space
480i@60	RGB/444/422	2048x1080@119	RGB/444/422
576i@50	RGB/444/422	2048x1080@120	RGB/444/422
480p@60	RGB/444/422	4K@23.98	RGB/444/422
576p@50	RGB/444/422	4K@24	RGB/444/422
720p@24	RGB/444/422	4K@25	RGB/444/422
720p@25	RGB/444/422	4K@29.97	RGB/444/422
720p@29.97	RGB/444/422	4K@30	RGB/444/422
720p@30	RGB/444/422	4K@50	RGB/444/422/420
720p@50	RGB/444/422	4K@59.94	RGB/444/422/420
720p@59.94	RGB/444/422	4K@60	RGB/444/422/420
720p@60	RGB/444/422	4K@100	RGB/444/422/420
1080p@23.98	RGB/444/422	4K@119.88	RGB/444/422/420
1080p@24	RGB/444/422	4K@120	RGB/444/422/420
1080p@25	RGB/444/422	4096@23.98	RGB/444/422
1080p@29.97	RGB/444/422	4096@24	RGB/444/422
1080p@30	RGB/444/422	4096@25	RGB/444/422
1080p@50	RGB/444/422	4096@29	RGB/444/422

1080p@59.94	RGB/444/422	4096@30	RGB/444/422
1080p@60	RGB/444/422	4096@59	RGB/444/422/420
1080p@100	RGB/444/422	4096@60	RGB/444/422/420
1080p@119	RGB/444/422	4096@100	RGB/444/422/420
1080p@120	RGB/444/422	4096@119	RGB/444/422/420
2.5K@24	RGB/444/422	4096@120	RGB/444/422/420
2.5K@25	RGB/444/422	5K@24	RGB/444/422
2.5K@30	RGB/444/422	5K@25	RGB/444/422
2.5K@50	RGB/444/422	5K@30	RGB/444/422
2.5K@60	RGB/444/422	8K@23.98	RGB/444/422/420
2.5K@100	RGB/444/422	8K@24	RGB/444/422/420
2.5K@120	RGB/444/422	8K@25	RGB/444/422/420
2048x1080@24	RGB/444/422	8K@29.97	RGB/444/422/420
2048x1080@25	RGB/444/422	8K@30	RGB/444/422/420
2048x1080@30	RGB/444/422	8K@48	420
2048x1080@48	RGB/444/422	8K@50	420
2048x1080@50	RGB/444/422	8K@59.94	420
2048x1080@60	RGB/444/422	8K@60	420
2048x1080@100	RGB/444/422		

9 Warranty

The SELLER warrants the **O1S-AG811T 8K/48Gbps HDMI 2.1 Test Pattern Generator & Analyzer** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the O1S-AG811T features and specifications is subject to change without further notice.**