# Test Pattern Generator v8

User Guide

July 17, 2026

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# 1 Introduction

This manual is for Test Pattern Generator 8.x software from Drastic Technologies, Ltd.

## 1.1 Conventions

This manual assumes the following:

That the user knows how to operate a mouse and keyboard and perform the basic functions of Microsoft Windows operating system.

That the user is familiar with the creative software in use.

That the user has access to technicians capable of placing the device on the network and setting up any SAN systems if necessary.

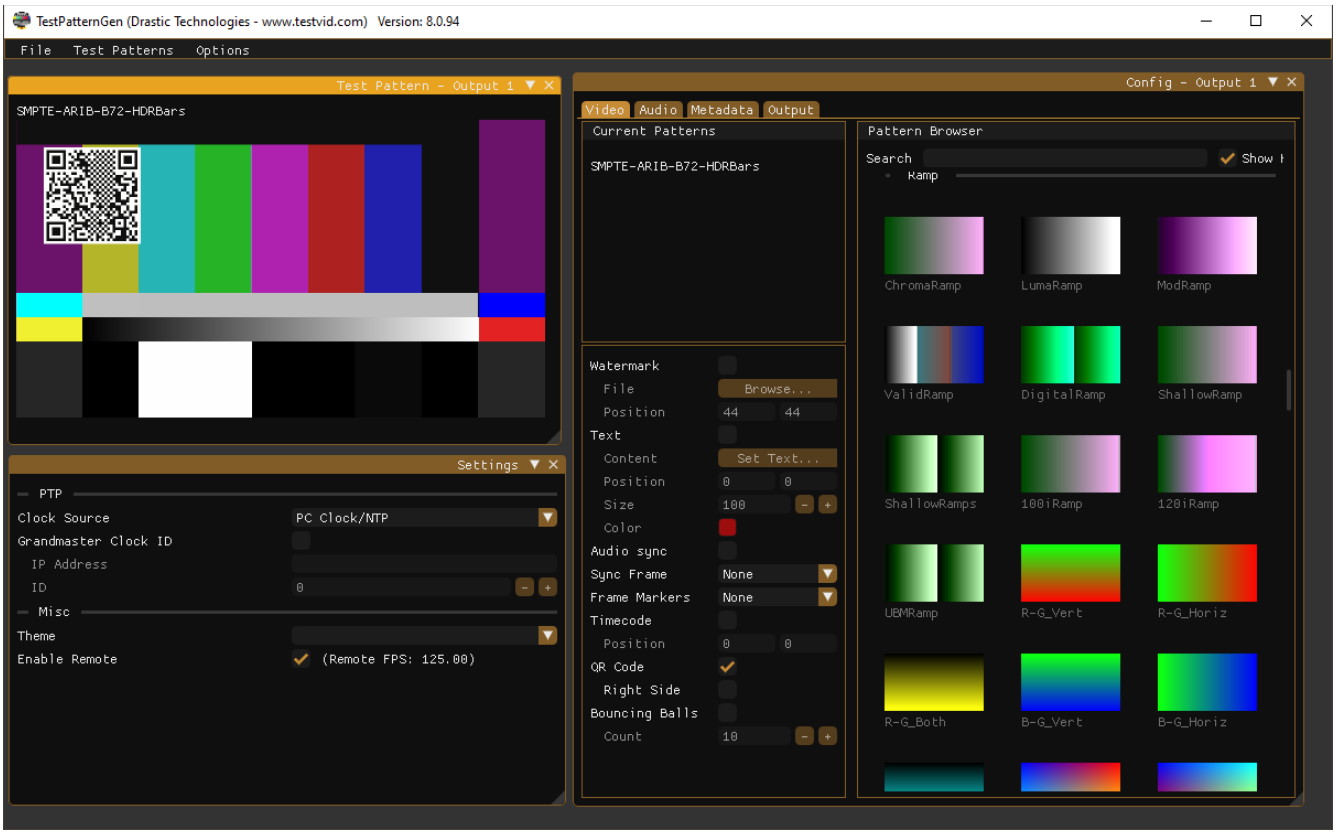
The name of a control or display present on the interface will be displayed in **bold** text.

Where a portion of the manual is referred to the name of section mentioned will be displayed in *italics*.

Certain images in this document may have been grayed out where it is useful or necessary to place indicator marks to show specific controls or displays above a darker background.

## 1.2 About Test Pattern Generator

**Test Pattern Generator** is a software based test pattern generator. It is designed to output test patterns for digital video facility commissioning and device setup.




Test Pattern Generator can output to:

- Fullscreen (second screen output for 2 screen setups)
- ScopeDirect AvVr3D (UnReal Engine)
- AJA
- Bluefish444
- Blackmagic
- Matrox
- NDI
- SMPTE 2110
- RTP/UDP/SRT/RIST

It provides hundreds of test patterns with customizable elements including watermark, text overlay, audio sync and sync frame, time code, audio tones and beeps, and closed caption display.

Patterns can be output in various industry standard sizes, with user selectable frame type and size, compression, number of audio channels, audio frequency and bit depth, and the video signal format.

Test Patterns are useful for analyzing and calibrating lip sync (AV Sync), format conversion and compression artefacts, color space mismatch, chroma subsampling errors, frequency response, field order, clipping, bit depth, skin tones, linearity and gamma.

## 1.3 Versions

**Base Version** - supports single channel output. Features include

- all static patterns
- watermark overlay (file/position)
- text overlay (content/position/size/color)
- frame markers overlay
- timecode overlay (position)
- QR Code Custom overlay (mode/content)
- Bouncing balls overlay (quantity/colors)
- audio output (silence/sine wave/square wave/white noise/pink noise/channel pattern beep)
- send CC
- Starting timecode
- Active Format Description

There are options to add specific workflows

**Advanced option** - 4 Channel Server with Remote Control

**A/V Sync option** - Audio/Video Sync patterns and features

- Audio sync beep
- QR Code AVSync overlay
- Sync Frame

**VVQ option –** Motion Patterns for Visual Video Quality analysis

**ST-2110 option** – adds ST-2110 output (requires third party hardware/software and a special setup)

**IP Stream option** – adds Matrox Origin Fabric, RTP, UDP, SRT, and RIST output

## 1.4 System Requirements

### 1.4.1 Recommended Environment

Test Pattern Generator can run on a variety of hardware, but for real time performance on multiple outputs, here are some general guidelines:

**HD 1080p60**
- A recent Intel, AMD or NVidia with at least 1G memory card is fine for the GPU
- A recent Quad Core i5/i7/AMD processor with at least 8G of ram

**4K/QHD**
- A gaming level NVidia or AMD (NVidia 1080 or better/AMD Vega 2 or better)
- Minimum 8 cores [16 virtual] Intel/AMD, recommended 8~12 cores with at least 8G ram

SDI/HDMI output hardware;

- AJA: KONA 5, KONA HDMI, KONA IP, KONA IP25, KONA 4, KONA 1, KONA X, KONA Lhe Plus, T-TAP Pro, Corvid 88, Corvid 44, Io4K Plus, Io X3
  - Current release driver for version 8 Drastic software: 17.x
- Blackmagic (version 15.x drivers required): DeckLink series, Intensity Pro series.
- Bluefish444: Epoch Supernova, Epoch Neutron, KRONOS
  - Current release driver for Drastic software: 6.3.2.x
- Matrox: DSX series (use latest drivers)
- NDI: NDI®

# 2 Getting Set Up

## 2.1 Install the Software

Here is how to install Test Pattern Generator. Attach a standard keyboard, mouse and VGA monitor to the system. Plug the system in and turn it on.

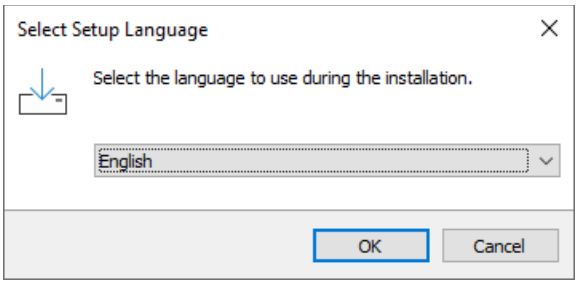
Confirm that any other programs are closed before starting this installation.

Make sure the system clock is properly set. Open the Control Panel, go to Date/Time. If the time is reset while running a duration-limited license, it may destroy the license.

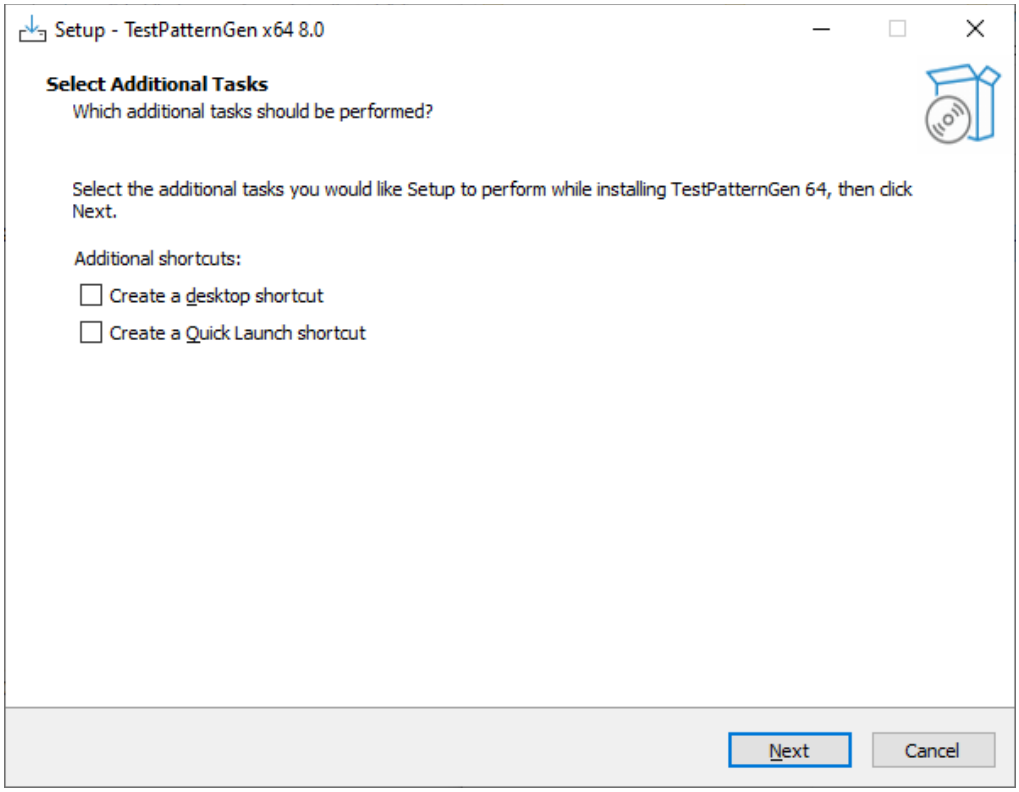
For Windows: Double-click or run the executable Test Pattern Generator installation file.

SetupTestPatternGen_8_#_###.exe

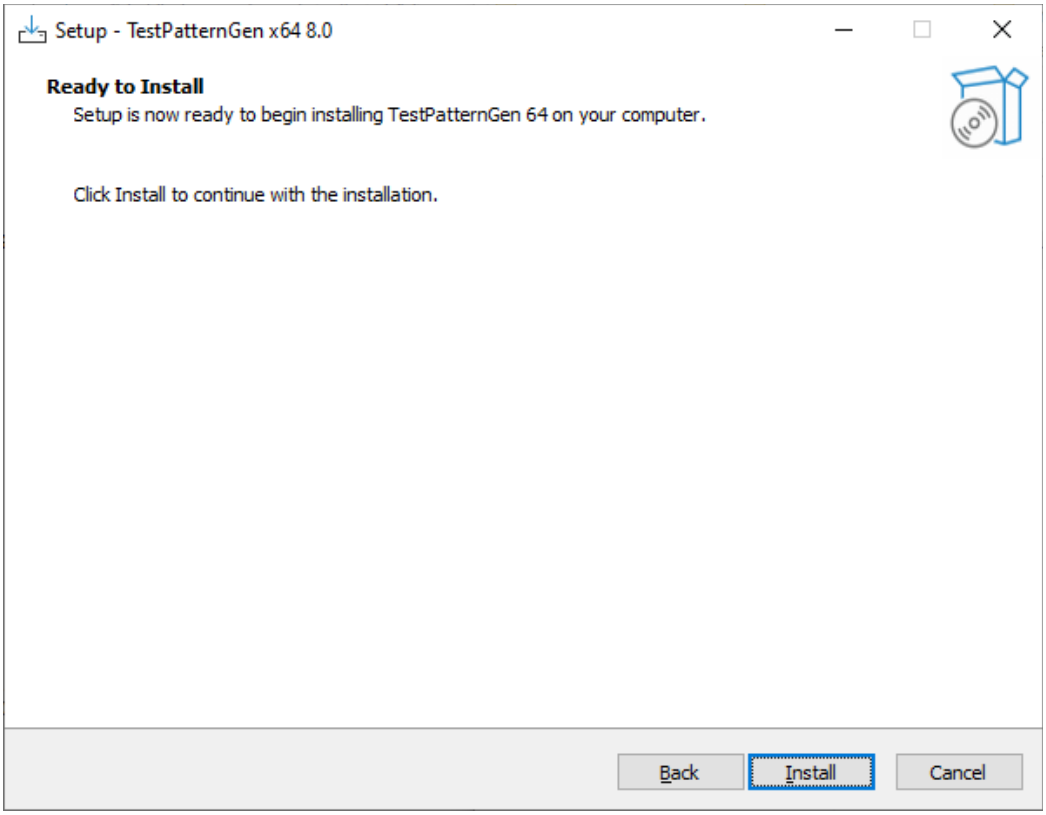
You may need to allow the installer to run. Once you have done this, you will see a dialog similar to this:



Decide if you want desktop or Quick Launch shortcuts:



Then you are ready to install.

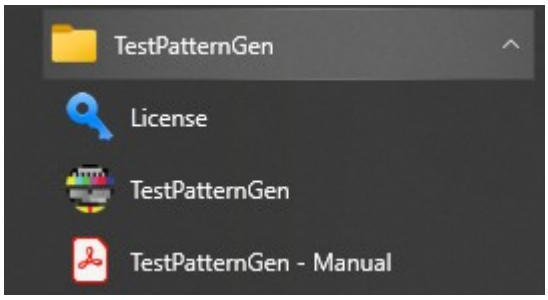



Upon completion of the install, please restart the system.

## 2.2 License Test Pattern Generator

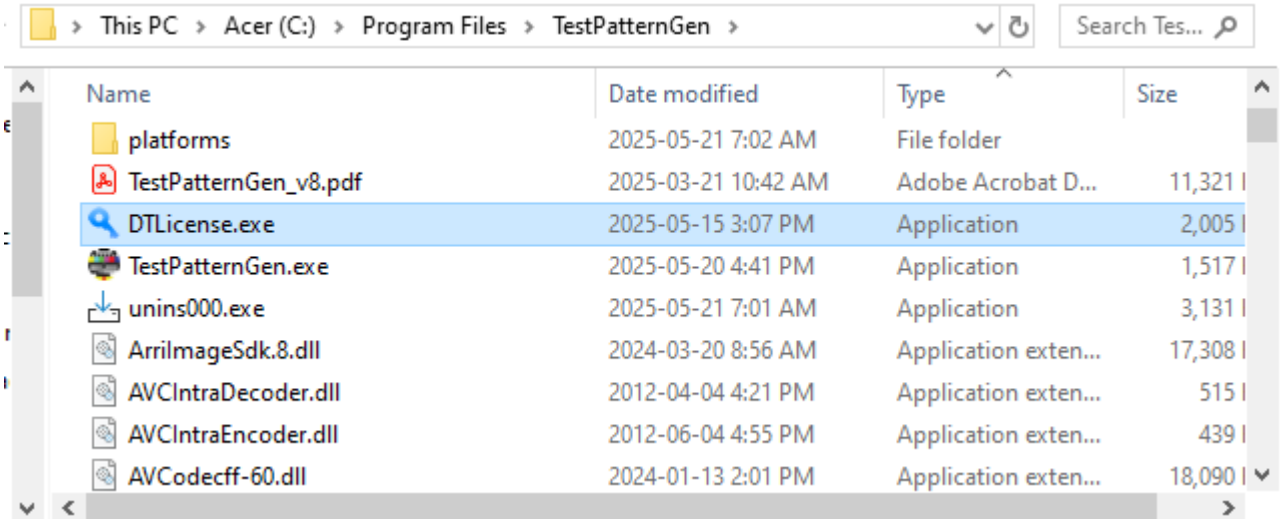
We provide licenses via email.

Run the licensing that is installed with the software. It can be run from the start menu.

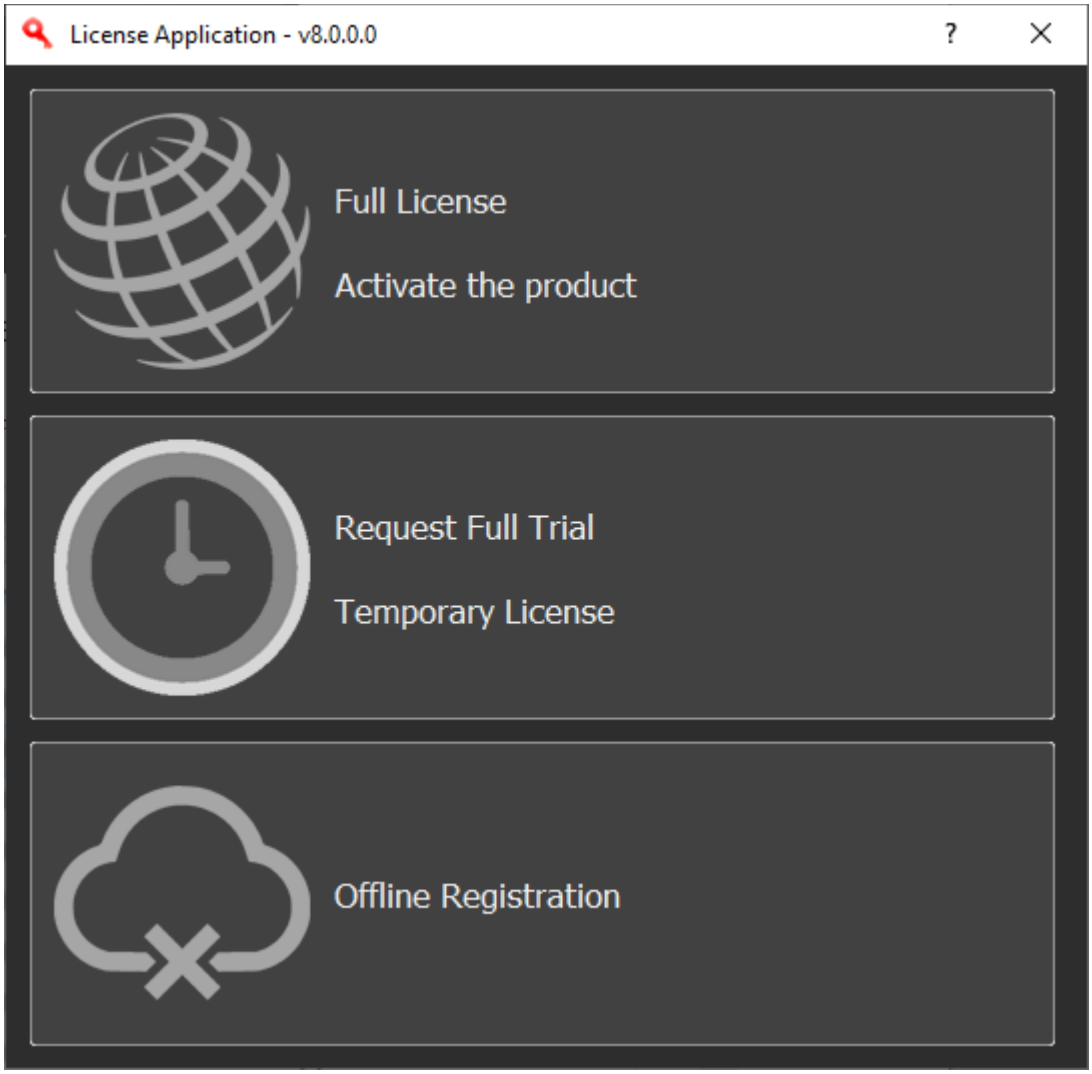



You can also find it in the Program folder, at:

C:\Program Files\TestPatternGen\DTLicense.exe

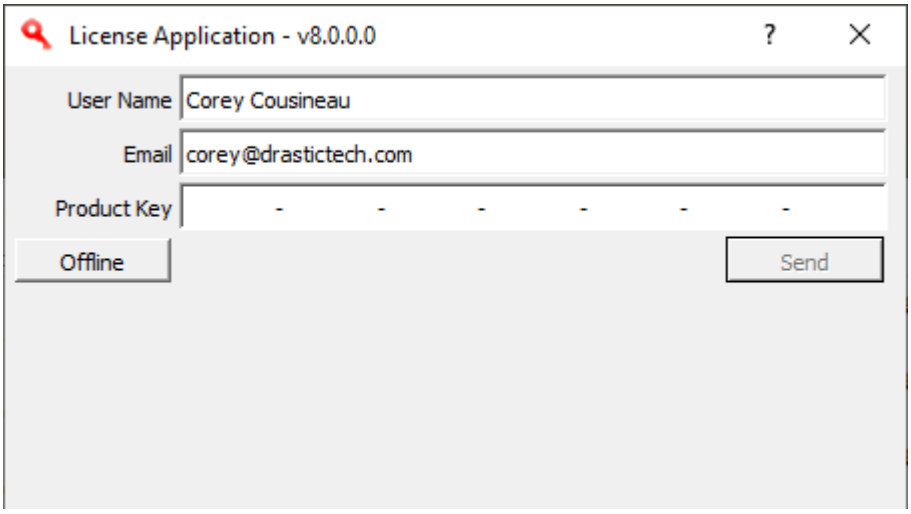


An unlicensed install will open the following dialog:

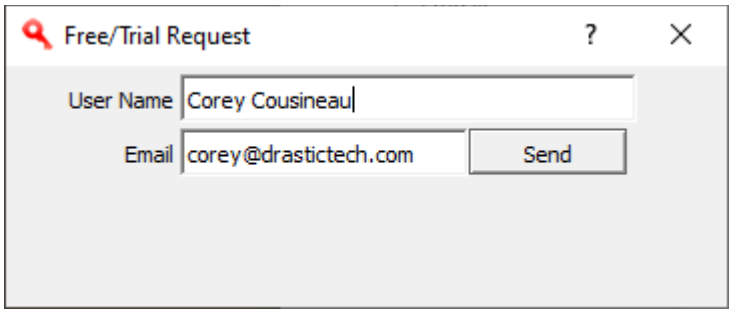



If you have purchased a license and wish to activate the product, select the first option, **Full License – Activate the product**.

Selecting **Full License – Activate the Product** opens an activation dialog window so you can enter the 16 digit site key.




Selecting **Request Full Trial – Temporary License** opens the request trial dialog. Confirm that you have entered a first and last name, and the email address is valid. Press **Send** to receive a full trial key in your email.




The key will arrive in your inbox. Open the email and copy the entire site key. Run the licensing app again and select the **Offline Registration** option. Paste the site key into the site key area and press the **Register** button.

Details at licensing.

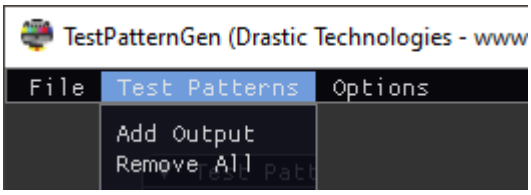
# 3 Workflows

## 3.1 Single Pattern Output

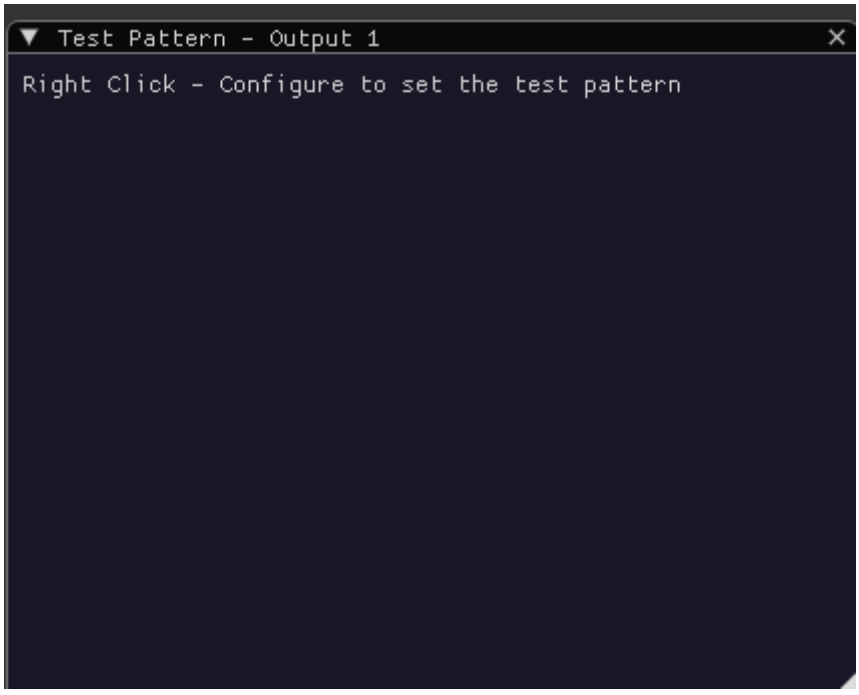
Test Pattern Generator will output a single pattern using one or more outputs. Here is how to set up a single pattern.

### 3.1.1 Add a Pattern to an Output

Assuming you have installed and licensed the software, run Test Pattern Generator.
Click the **Test Patterns** menu and select **Add Output**.

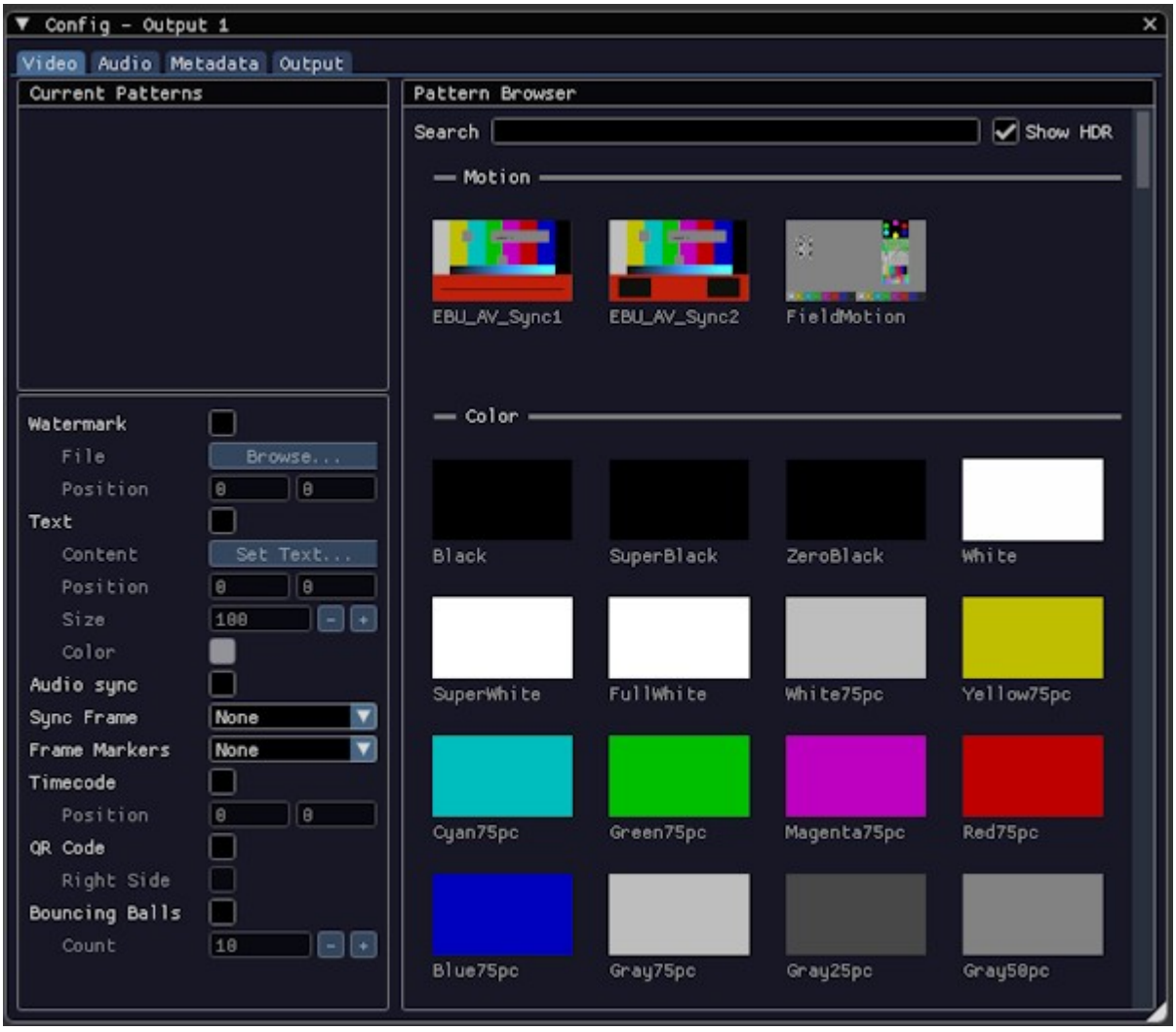



This will open a new output called **Test Pattern – Output 1**.



Right click on the output and select **Configure**.

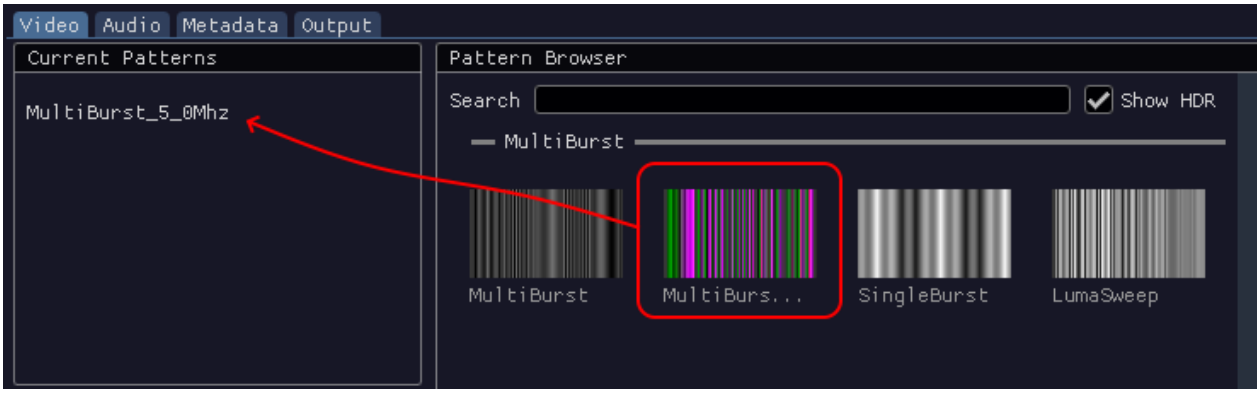
This will open the Config dialog for the output.



In the **Video** tab, scroll through the Pattern Browser to locate a pattern to use.

If you know the pattern you are looking for, type its name into the **Search** field to limit the patterns displayed to that one. In fact, while you are typing Test Pattern Generator will narrow the field down to patterns starting with the letters you have typed.

Drag it and Drop it onto the **Current Patterns** section. Its name will appear in the **Current Patterns** section.




In the example above, the pattern **MultiBurst_5_0Mhz** has been dragged onto the **Current Patterns** section.

### 3.1.2 Add Overlays

Decide if you want to add any overlays. Available overlays include:

- Watermark
- Text
- Audio Sync
- Sync Frame
- Frame Markers
- Time Code
- QR Code AVSync
- QR Code Custom
- Bouncing Balls

For a more detailed look at the overlays, see the *Operations* | *Configure the Pattern and Output Type* | *Video Tab* | *Overlays* section of this document.

### 3.1.3 Add Audio

Decide if you would like to send audio along with the test pattern output. Available audio output includes:

- Silence
- Sine Wave
- Square Wave
- White Noise
- Pink Noise
- Channel Pattern Beep

For a more detailed look at the audio output, see the *Operations* | *Configure the Pattern and Output Type* | *Audio Tab* section of this document.

### 3.1.4 Add Metadata

Decide if you would like to send metadata along with the test pattern output. Available metadata includes:

- Send CC
- Starting Timecode
- Active Format Description

For a more detailed look at the metadata output, see the *Operations* | *Configure the Pattern and Output Type* | *Metadata Tab* section of this document.

### 3.1.5 Set the Output

Select the output. Available output types include:

- Fullscreen
- ScopeDirect AvVr3D (UnReal Engine)
- AJA
- Bluefish
- Blackmagic
- Matrox
- Matrox Origin Fabric
- NDI

- SMPTE 2110 (option – requires capable NVIDIA hardware + Rivermax software under support)
- RTP/UDP/SRT/RIST (option, outputs via IP stream)

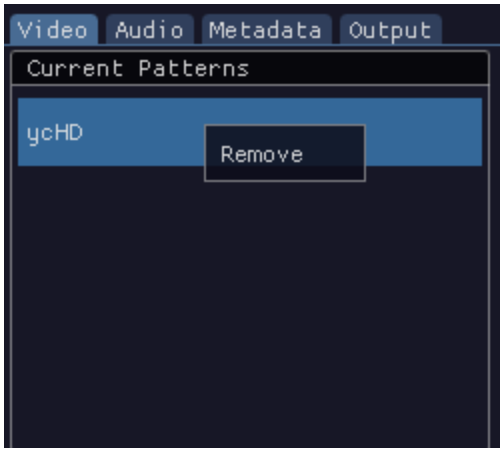
For a more detailed look at the metadata output, see the *Operations* | *Configure the Pattern and Output Type* | *Output Tab* section of this document.

Once an output type has been set, and a pattern has been selected you should begin seeing the test pattern output through your selected output.

### 3.1.6 How To Replace a Pattern

Having set a pattern up for output, you may want to try a different pattern. You can do this by removing the first pattern, and dragging and dropping another pattern there. It is a two step process.

The user can remove a pattern at any time by right clicking on the pattern. This reveals a **Remove** option.




Select **Remove** and the pattern will be removed from the **Current Patterns** section, and from the output.

## 3.2 Multiple Patterns on One Output

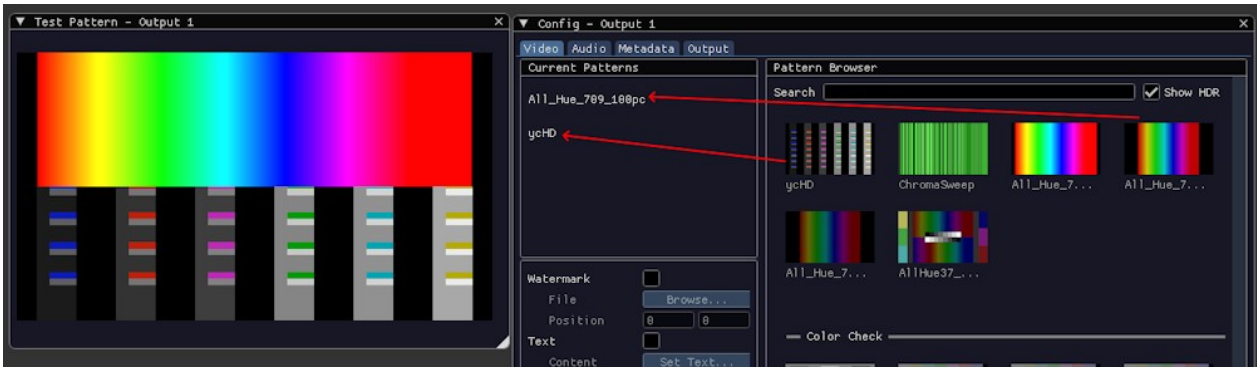
Test Pattern Generator will output multiple patterns on the same output.

### 3.2.1 Repeat the Single Pattern Output Process

The process is the same as the prior section for *Single Channel Output*.

### 3.2.2 Add More Patterns

Once you are seeing a single pattern on the output, go back to the **Video Tab** of the **Config**. Scroll through the **Pattern Browser** and find another pattern. Drag it and Drop it onto the **Current Patterns** section.

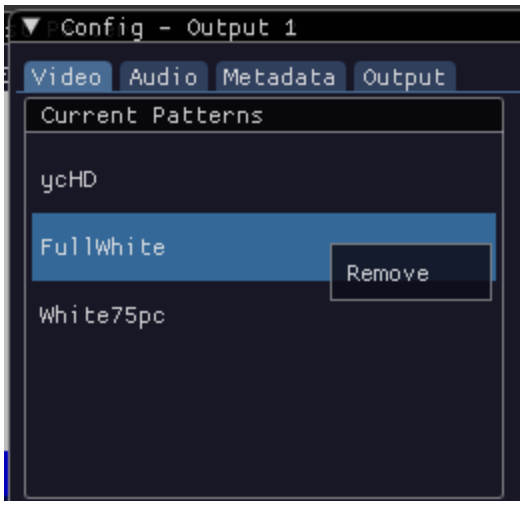



In the example above, the patterns “All_Hue_709_100pc”, and “ycHD” have been dragged onto the Current Patterns section. The Test Patterns preview shows the two patterns stacked, one on top and one beneath.

### 3.2.3 Removing Patterns From a Multipattern Output

Having set multiple patterns up for output, you may want to remove patterns to replace them with other patterns, or to simply have fewer outputs.

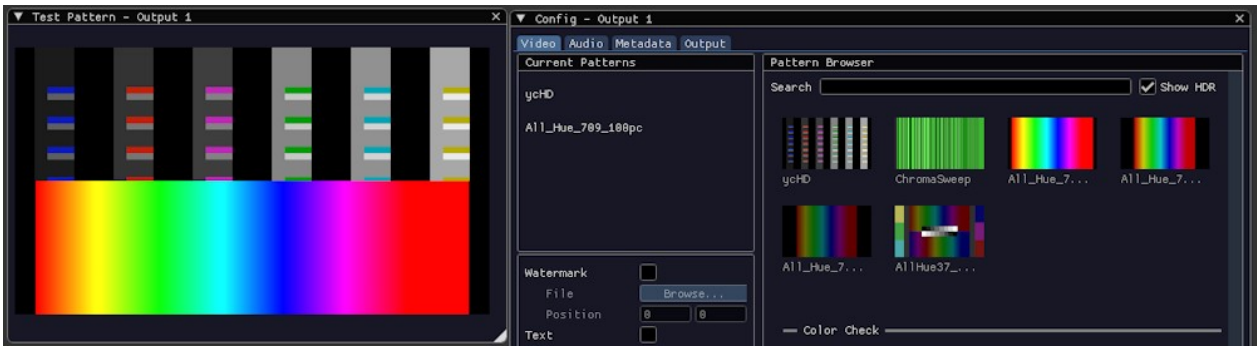
The user can remove a pattern at any time by right clicking on the pattern. This reveals a **Remove** option.




Select **Remove** and the pattern will be removed from the **Current Patterns** section, and from the output.

### 3.2.4 Changing the order of the Patterns

You can change the order of the patterns by dragging them within the **Current Patterns** section. Either drag the top one down, or drag the lower one up, both actions are supported.




Up to 5 patterns are supported per output.

## 3.3 Multiple Patterns on Multiple Outputs

Test Pattern Generator will output multiple patterns on the different outputs of a multichannel board. This feature is added with the **Advanced** Option.

### 3.3.1 Repeat the Single Pattern Output Process

The process is the same as the prior section for *Single Channel Output*.

### 3.3.2 Add Another Test Pattern Output

Once you have set up the first output, setting up another one basically repeats the process, on another output

Click the **Test Patterns** menu and select **Add Output**. This will open another test pattern output window, called T**est Pattern – Output 2**.

Right click on Output 2 and select **Configure**. This opens the Config menu for Output 2.

Set up the patterns, overlays, audio, metadata to taste.

Go to the **Output** tab, and select the hardware device.

Use the **Video Channel** pulldown menu to select the channel of the board that will be used for the second output.

Above, the two outputs are sending two different patterns to two different channels.

## 3.4 Output Types

### 3.4.1 Fullscreen

Test Pattern Generator can send its output to the desktop in fullscreen mode. Fullscreen mode is handy for getting a good closeup look at certain patterns. It is mostly used in a 2 screen setup, so you can run applications on one screen, and see a test pattern on the other screen.

Here is how to set this up.

Repeat the process as described in the *Single Channel Output* section above.

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **Fullscreen**. This changes the **Video Channel** menu into a **Display** menu.
Use the **Display** pulldown menu to select the screen you want to use for test pattern output.

You should now be seeing the test patterns on your preferred screen.

**Note**: in a two screen setup, if you set up two outputs, and set their outputs to fullscreen on screens 1 and 2, they will take over the desktop. This may cramp your working style, since it hides all your windows.
In this state, you can use Alt+Tab to cycle through open windows to bring up Test Pattern Generator, and adjust the setup as needed.
We recommend you remove one of the outputs.

You can also send two (or more) outputs to the same desktop, and use the taskbar to switch between the two outputs.

DrasticScope at the 4KScope level and above supports using the desktop as an input, so you could view these patterns through vectorscope/waveform tools.

### 3.4.2 ScopeDirect AvVr3D (UnReal Engine) (Not Currently Implemented)

Test Pattern Generator can be used in an UnReal Engine environment, so you can send patterns and use Drastic scopes tools to set up the lighting.

There are tips on getting the AvVr3D UnReal Engine plugin successfully installed for use in Drastic software, at: https://www.drastic.tv/support-59/supporttipstechnical/271-scopedirect-plugin-for-unreal-

engine

### 3.4.3 AJA

Test Pattern Generator will use a supported AJA board installed in the system.

Supported boards include:

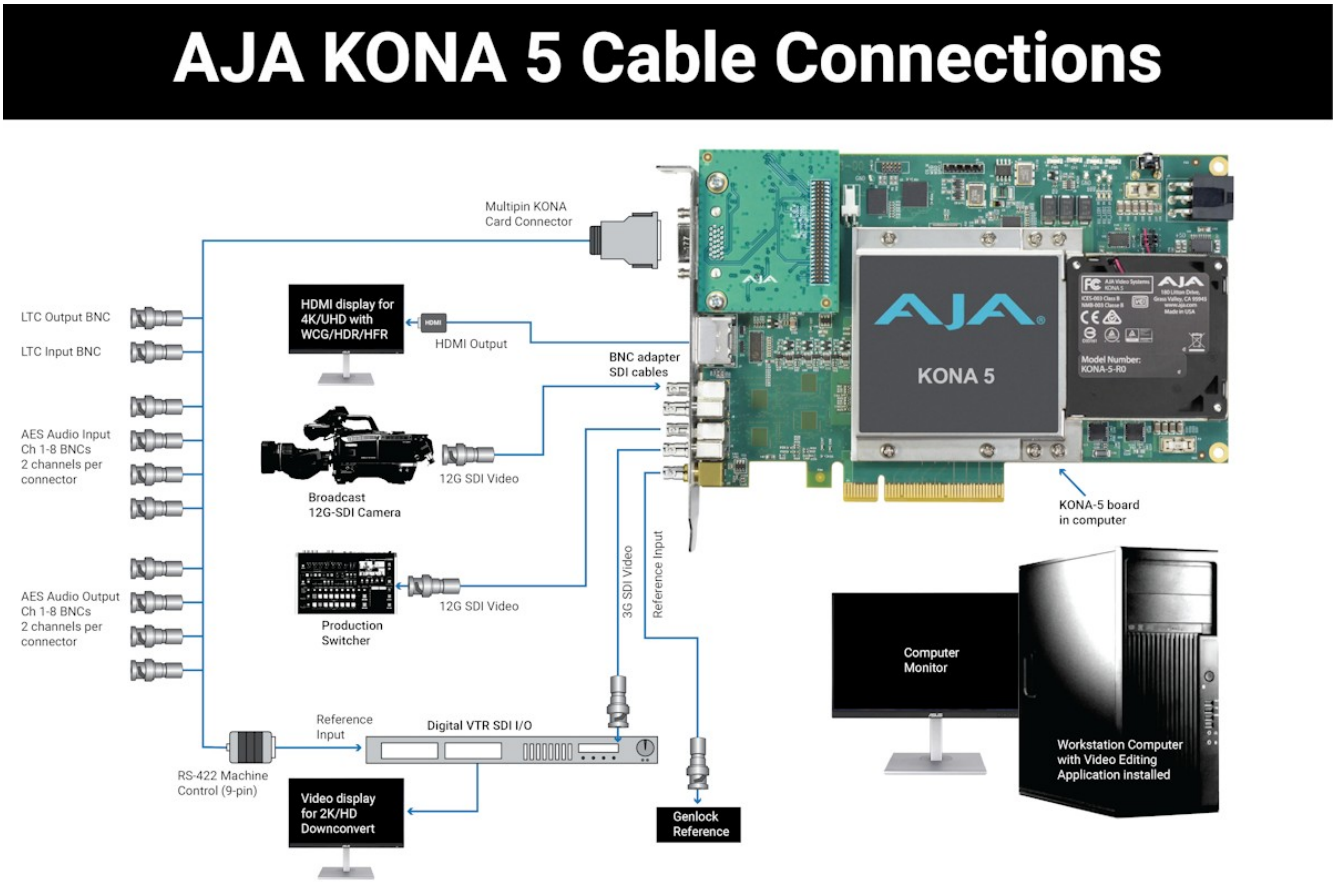
- KONA 5, KONA HDMI, KONA IP, KONA IP25, KONA 4, KONA 1, KONA X, KONA Lhe Plus, T-TAP Pro
- Corvid 88, Corvid 44
- Io4K Plus, Io X3

The manufacturer will be able to recommend a supported hardware environment for any boards listed above. They will also be able to confirm detailed specifications for any of their standalone devices.

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **Aja**.

For 8K workflows, we have mainly implemented on the KONA 5 board from AJA Video. The following cabling diagram provides details on connecting the inputs and outputs for the board to external devices.

The KONA 5 is mainly recommended for our 8K and SUHD workflows, but it is supported by all of our video I/O and signal analysis software.




### 3.4.4 Bluefish444

Test Pattern Generator will use a supported Bluefish444 board installed in the system.

Supported boards include:

- Epoch 4K Neutron/Supernova, Kronos 3G/K8

The manufacturer will be able to recommend a supported hardware environment for any boards listed

above. They will also be able to confirm detailed specifications for any of their standalone devices.

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **BlueFish**.

### 3.4.5 Blackmagic

Test Pattern Generator will use a supported Blackmagic board installed in the system.

Supported boards include:

- DeckLink series, Intensity series

The manufacturer will be able to recommend a supported hardware environment for any boards listed above. They will also be able to confirm detailed specifications for any of their standalone devices.

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **BlackMagic**.

### 3.4.6 Matrox

Test Pattern Generator will use a supported Matrox board installed in the system.

Supported boards include:

- DSX series boards (Matrox X.mio Series may be added if there is interest)

The manufacturer will be able to recommend a supported hardware environment for any boards listed above. They will also be able to confirm detailed specifications for any of their standalone devices.

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **Matrox**.

### 3.4.7 Matrox Origin Fabric

Test Pattern Generator will use the Matrox Origin framework to send media “grains”, timing, and metadata as specified.

### 3.4.8 NDI

Test Pattern Generator will use NDI to send test patterns out over the local network.

Hardware devices that support NDI are numerous, and produced by a wide range of manufacturers.

There are also quite a few software products that support NDI.

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **NDI**.

### 3.4.9 SMPTE-2110

Test Pattern Generator will use ST-2110 to send test patterns out over the web. Third party hardware/software is required to implement this feature.

Most of our implementation has been on NVIDIA hardware, but we also support AJA and Matrox ST-2110 output. Contact us if you need more details.

Here are links to the relevant hardware.

- NVIDIA Connect-X 6/7 with software and valid Rivermax license under support
- NVIDIA BlueField-2/3 with software and valid Rivermax license under support
- AJA Kona IP

Once the system has a supported device installed (and licensed if necessary), enable 2110 output using the following steps:

Open the **Configure** dialog, and go to the **Output** tab.
Use the **Output** pulldown menu to select **SMPTE2110**.
Open the **NMOS Config** application to configure 2110 settings.

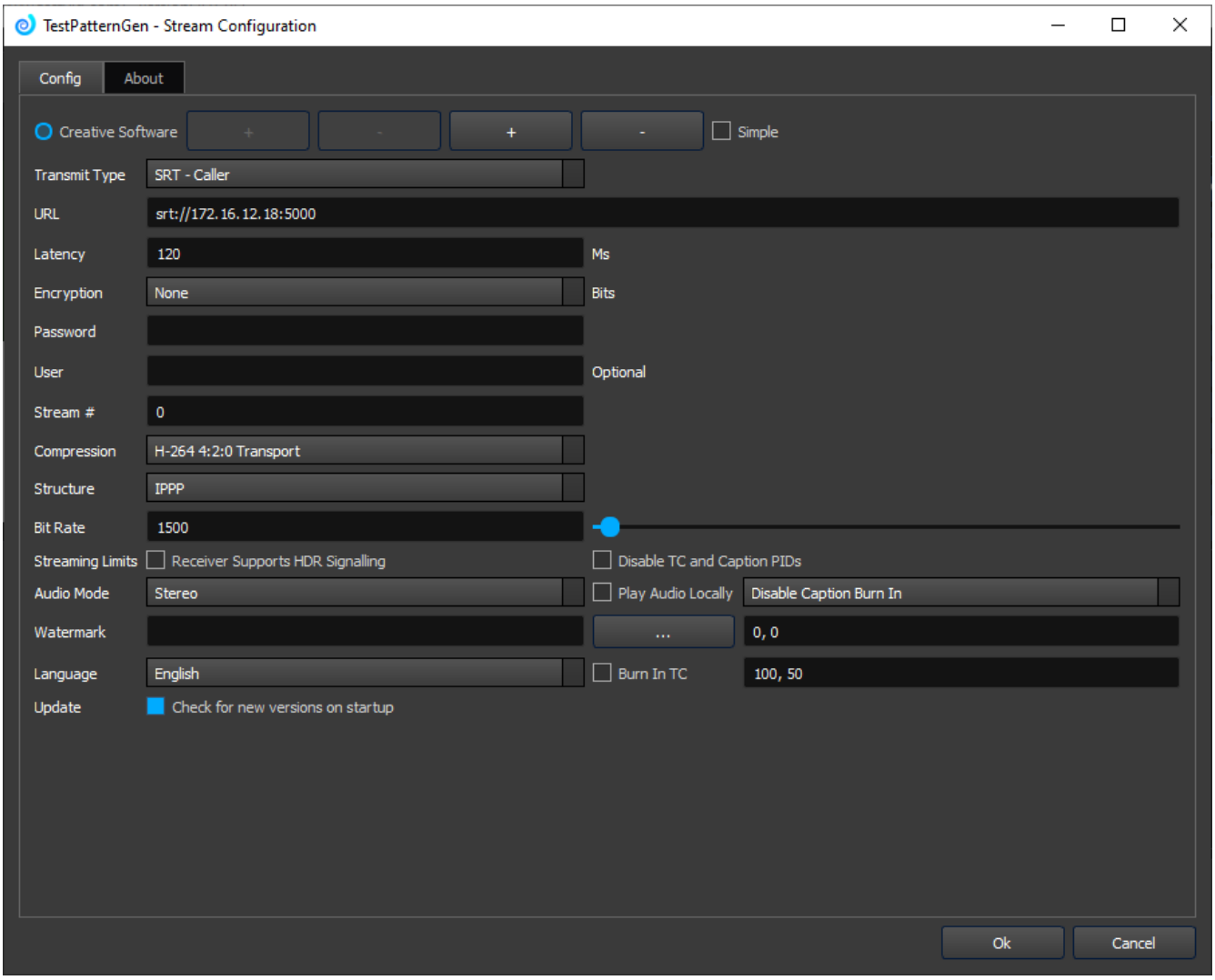
2110 output can be set up using NMOS, or the flows can be set up manually.

### 3.4.10 RTP/UDP/SRT/RIST/TCP/OMT

Test Pattern Generator will use RTP/UDP/SRT/RIST protocols to send test patterns out over the web. Selecting this option adds a Stream Config button to the right of the pulldown

Clicking this button opens the FlowCaster Configuration application.

The user may set up the stream to taste.




Test Pattern Generator currently supports outputting:

**RTP** - (Real-time Transport Protocol) - provides end-to-end, real-time transfer of streaming media, with jitter compensation, detection of packet loss, and reordering for out-of-order delivery

**UDP** - (User Datagram Protocol) UDP is one of the core communication protocols of the Internet protocol suite used to send messages (transported as datagrams in packets) to other hosts on an IP network.

**SRT** - (Secure Reliable Transport), an open source protocol developed by Haivision, used by everybody.

**RIST** - (Reliable Internet Stream Transport) - an open-source, open-specification transport protocol designed for reliable transmission of video over lossy networks with low

latency and high quality

**TCP** - (Transmission Control Protocol) -TCP provides reliable, ordered, and error-checked delivery of a stream of octets (bytes) between applications running on hosts communicating via an IP network.

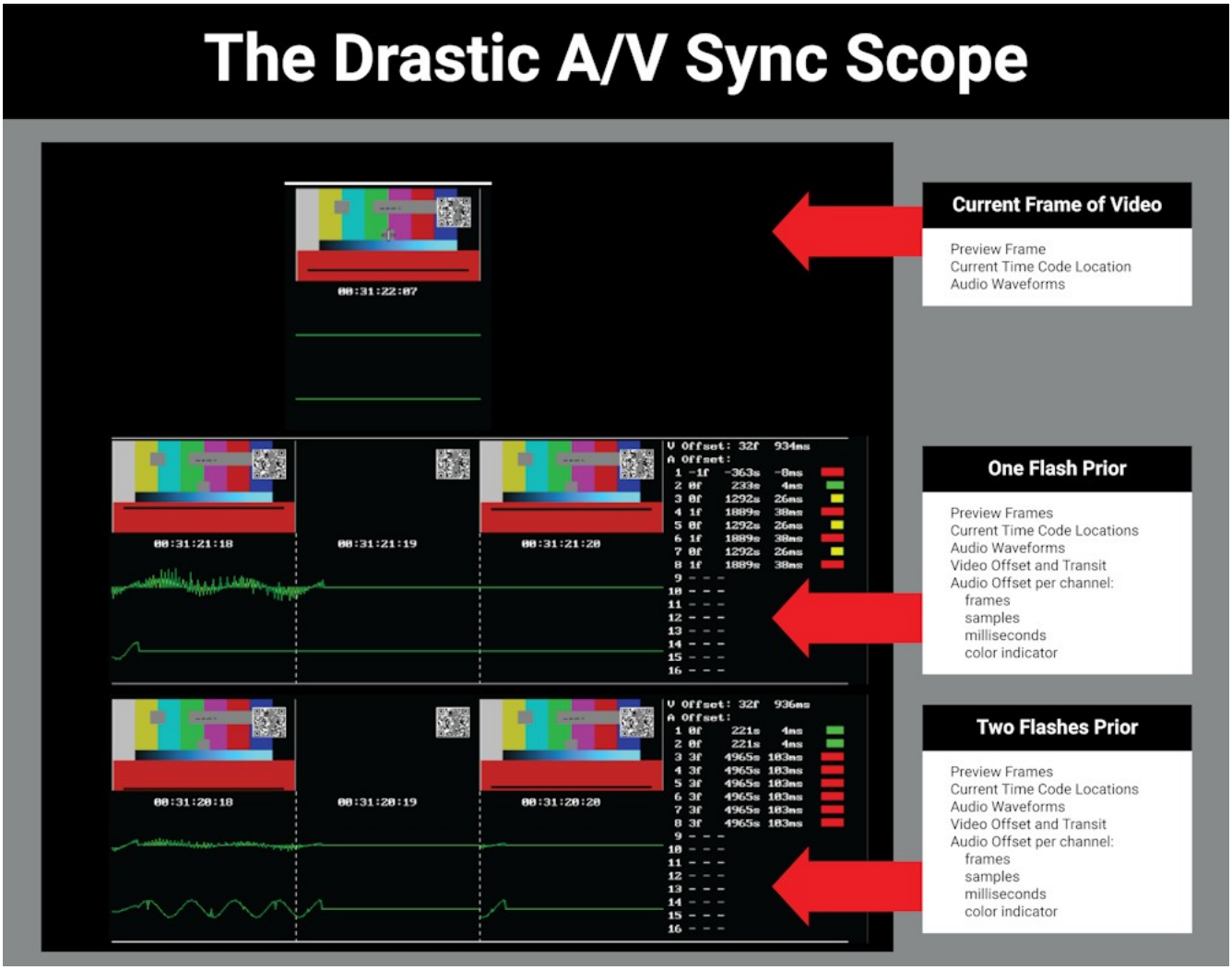
**OMT** - (Open Media Transport) an open-source network protocol for high performance, low latency video over a local area network. It has been designed to support multiple high-definition A/V feeds on a standard gigabit network without any specialised hardware

## 3.5 A/V Sync Setup

Test Pattern Generator can be used in conjunction with an install of HDRScope to provide a full featured audio video synchronization test. Test Pattern Generator sends a motion audio video sync pattern out and HDRScope receives the pattern along with its QR code and other details, and features an A/V Sync display that provides details on audio and video sync, and time in transit. Here is how to set up AV Sync testing.

The AV Sync pattern output can be added as an option to Test Pattern Generator.

The A/V Sync scope is added at the HDRScope level of DrasticScope. Test Pattern Generator can be purchased as a standalone software, or in conjunction with an HDRScope license for a complete A/V Sync testing solution.



To set up AV Sync testing, first run Test Pattern Generator. It will need to be set up to output an A/V Sync pattern and its related options.

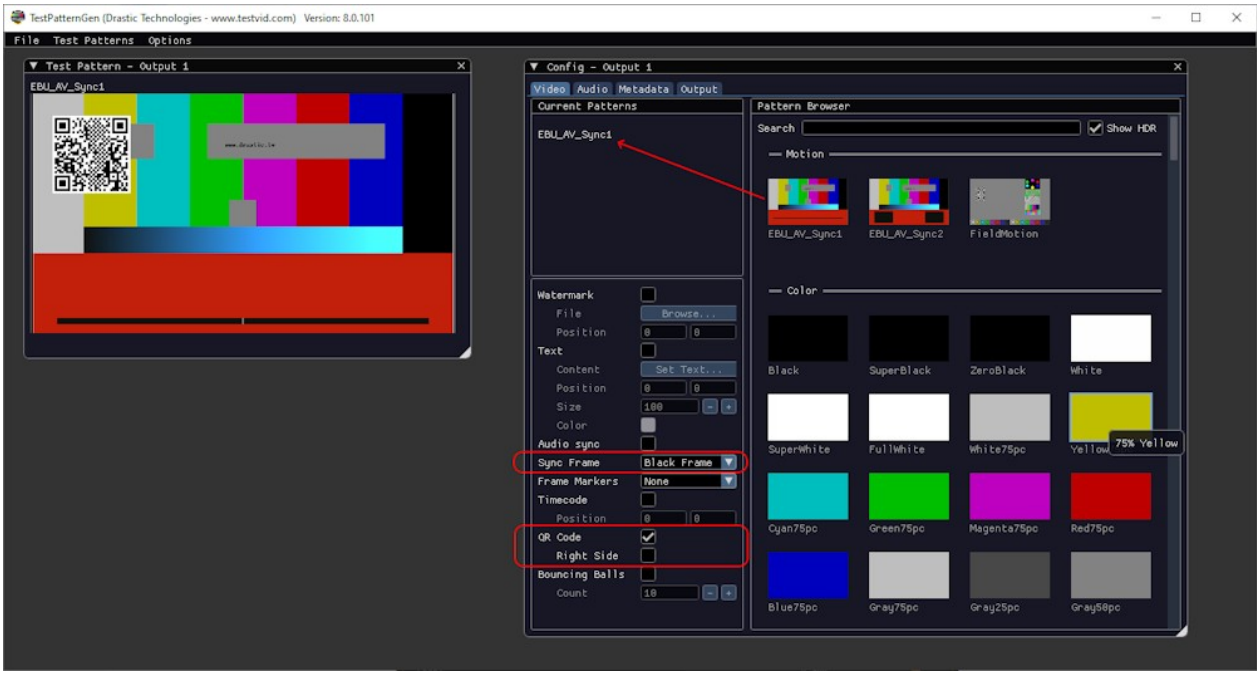
### 3.5.1 Set Up a Test Pattern

The process is the same as the section for *Single Channel Output*, except instead of using a static pattern, Drag one of the available A/V Sync patterns over and drop it onto the **Current Patterns** section to load it. Currently there are two such patterns available.

### 3.5.2 Set the Sync Frame and QR Code

Use the Sync Frame menu to set one of the sync frame conditions, i.e. either black frame or white frame.

Click the **QR Code** checkbox to overlay it onto the output. The QR Code provides in-flight details about audio and video transit, which can be displayed in HDRScope. At this point the Test Pattern Generator will be sending out the AV Sync pattern, along with either a white or black flash, and the QR Code, for AV Sync detection.

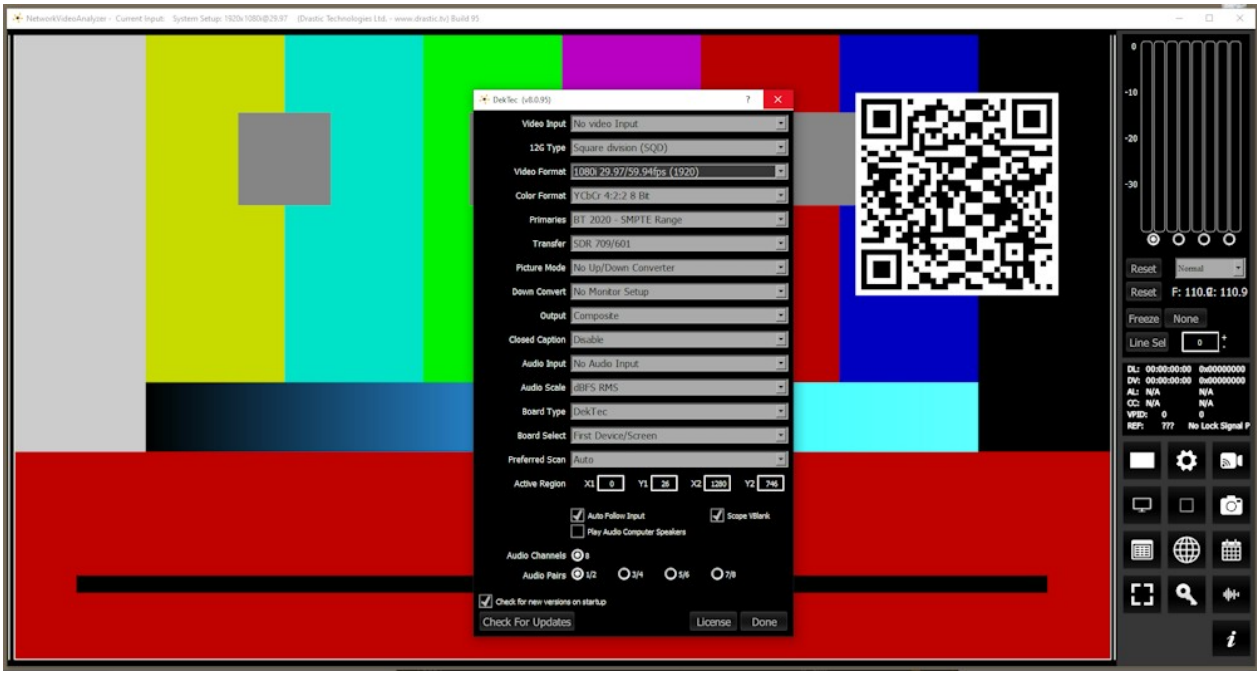



### 3.5.3 Select Audio Tone/Silence

Confirm the audio parameters. The AV Sync pattern will use **Silence**, or a **Sine Wave**, or a **Square Wave**, to look for any offset.

### 3.5.4 Set Up HDRScope

Next, run HDRScope and set its input to receive the signal from the Test Pattern Generator. In the below example we are running Test Pattern Generator out of an AJA board, and through a router, then receiving its output through a DekTec device.

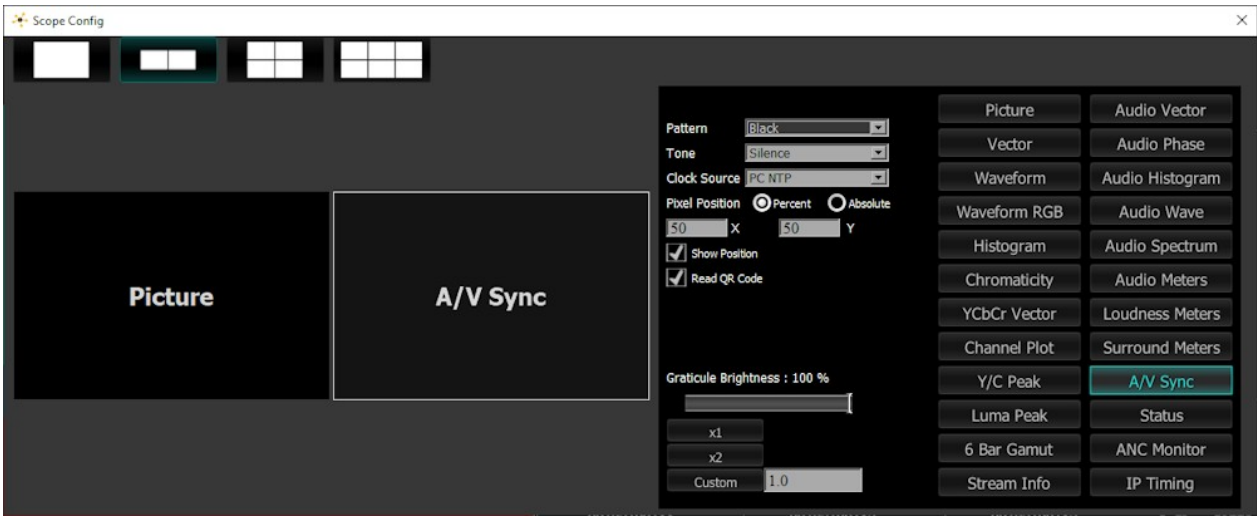



Once you're seeing the output from Test Pattern Generator, you will want to add the A/V Sync display and set it up.

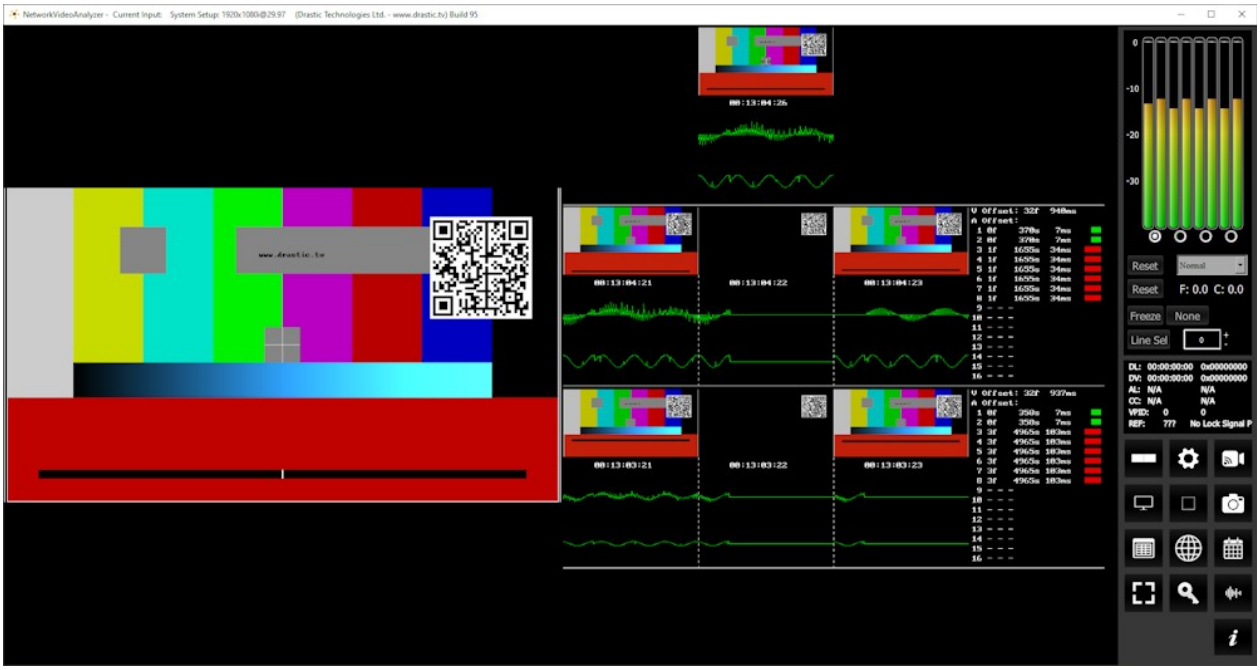
### 3.5.5 Add the A/V Sync Scope

In Scopes Config, select the A/V Sync pattern. In the below image we have set up a 2 up display layout, with the Picture view on the left and the A/V Sync display on the right.

- Use the **Pattern** menu to set the condition, i.e. whether you are using **Black**, **White**, or another condition to trigger synchronization.
- Use the **Clock Source** pulldown menu to set HDRScope to the same clock source as the Test Pattern Generator.
- Click the **Read QR Code** checkbox to have this information displayed in the A/V Sync display.



Now the signal can be seen in HDRScope. Below, the **Picture View** is on the left and the **A/V Sync** display is on the right.




The A/V Sync display shows the current frame of video on the top, with video preview, time code, and audio waveforms.

The second row displays details around the frame one flash prior, and the third row displays details about the frame two flashes prior.

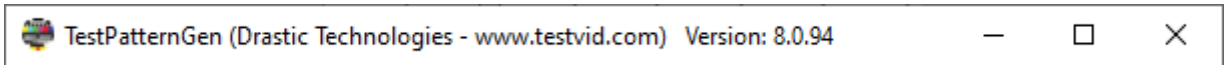
To the right of each are details about the video and audio elements, whether there is an offset, how many samples and milliseconds off if any, and a condition marker which can be either red (bad), yellow (not great, should be looked at), or green (is running fine with not too much offset).

NetXScope and HDRScope support the A/V Sync display and functions.

# 4 Operations

## 4.1 Run the Software

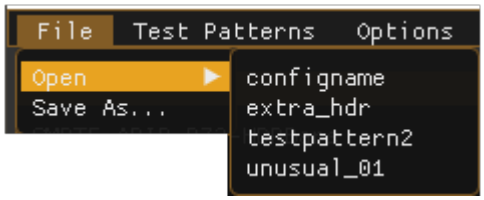
Run **Test Pattern Generator** software.




At the top of the Test Pattern Generator, the title bar provides the software name, a gratuitous mention of Drastic Technologies, a link to the Test Pattern Generator product page at www.testvid.com, and the version number of the software. There are also controls to minimize/maximize the interface window, and to close the application.

**Test Pattern Generator** provides three options via the main menu.

**File** menu – save the current setup or open an existing setup that has been saved. Here is a system where a few setups have been saved.

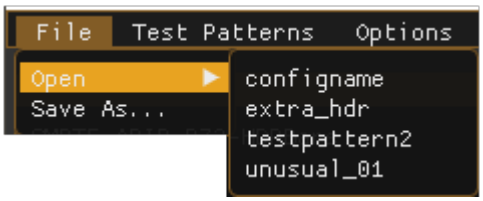



**Test Patterns** menu – add a test pattern output, or remove all test pattern outputs.

**Options** menu – opens the **Settings** window, where the user can set the clock source, and a Grandmaster Clock ID, set the theme, or “look” of the interface, enable/disable remote control, and check the status of the license.

### 4.1.1 File Menu

**File** menu – clicking the file menu provides two options.

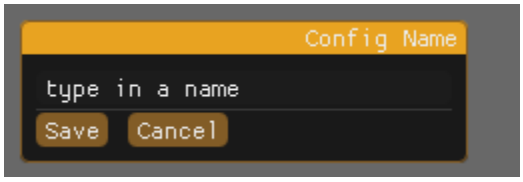



#### *4.1.1.1 Open Config File*

**Open** – open a saved configuration file. Clicking the **Open** option should reveal a list of saved configuration files to choose from.

#### *4.1.1.2 Save As Config File*

**Save As** – save the current configuration file for future use. If you like the configuration you have set up, you can save it for later use. Clicking Save As opens a dialog so you can provide a name for the configuration file.




Configuration files are saved in: Documents\TestPatternGen\configs\filename.ini. Deleting a config file from this location will remove it from the list.

Test Pattern Generator also creates a document called AutoSave.ini in the same directory. It is a default configuration file, and will update with each change you make to the application. If your config has some bad settings, you can delete it and Test Pattern Generator will create a new one the next time it is run.

The long name for the directory is:

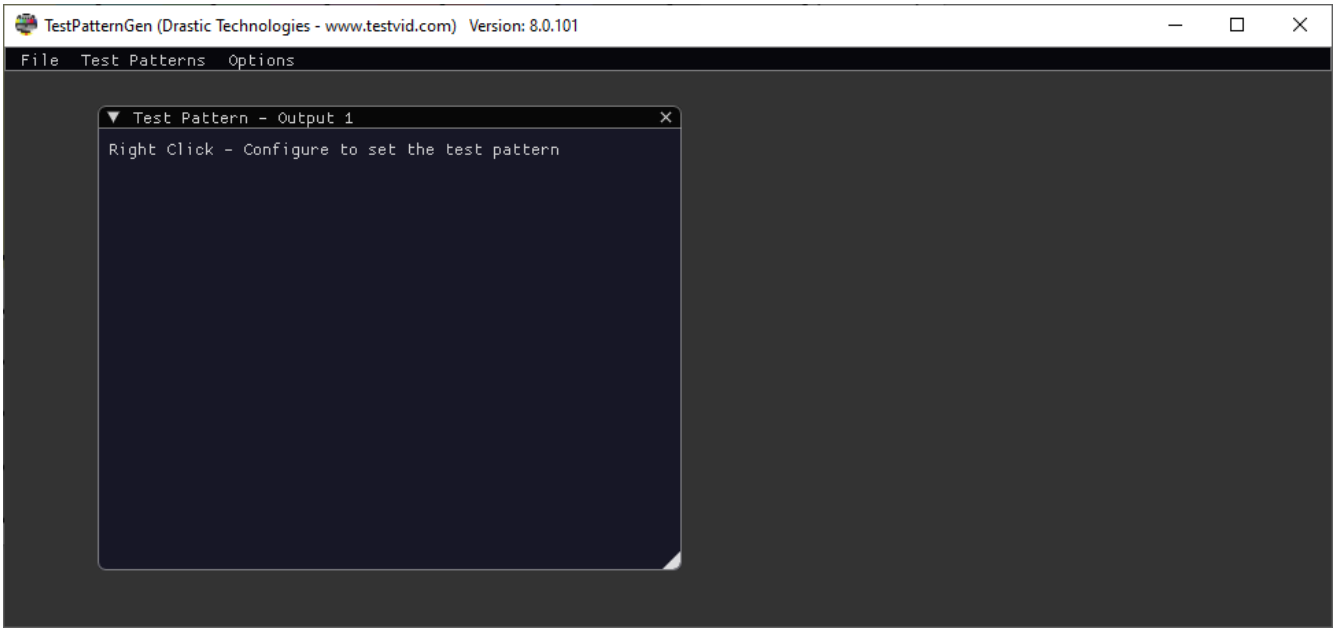
C:\Users\username\OneDrive\Documents\TestPatternGen\configs

## 4.1.2 Test Patterns Menu

### *4.1.2.1 Add Output*

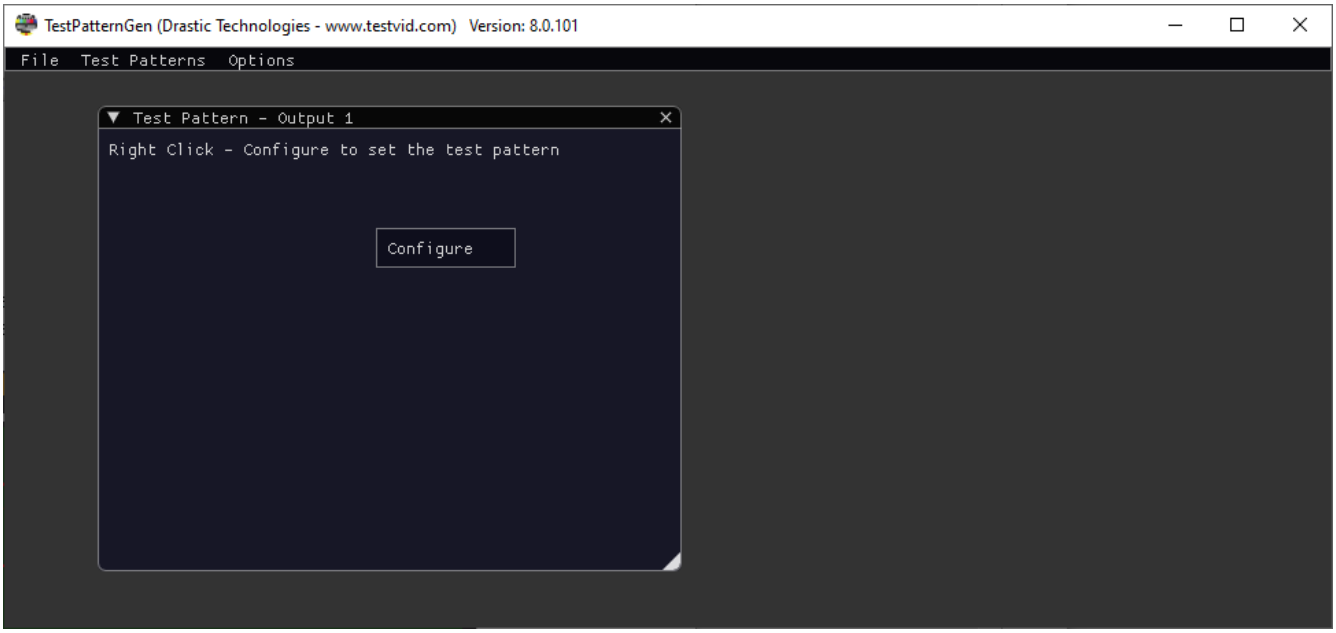
Clicking the **Test Patterns** menu provides an option to add a test pattern output. This menu can also be used to **Remove All** of the test patterns.

Clicking the **Add Output** menu item opens a Display for the output. The user is prompted to right click on the window to summon the Configure dialog for the output.



### *4.1.2.2 Configure Output*

Right clicking on the **Display** provides a **Configure** option. This is where the user can set up test patterns and associated tones, closed captions etc.



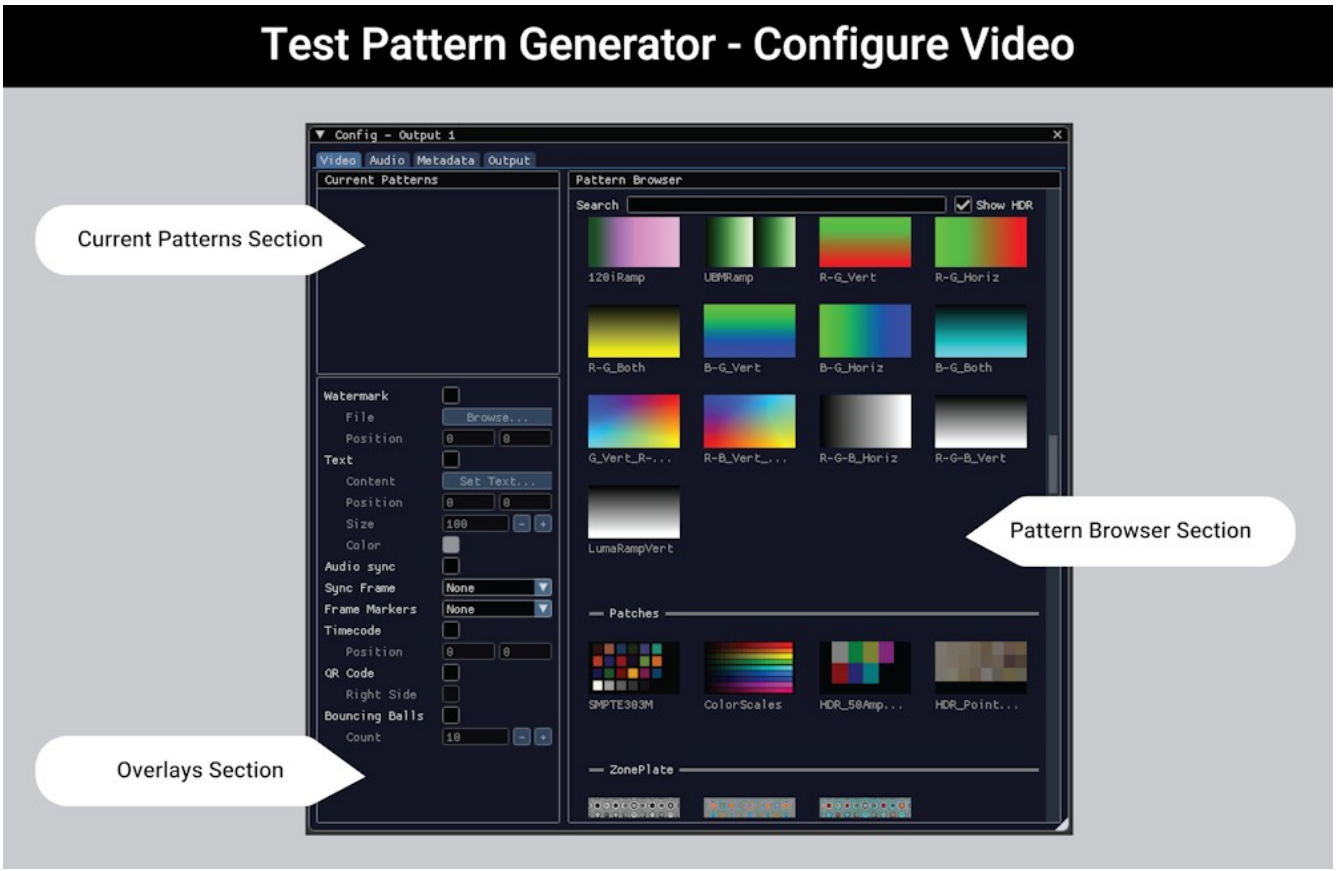

Clicking the **Configure** button opens the Configure window.

## 4.1.3 Configure the Pattern and Output Type

The Configuration is specific to each test pattern display, since **Test Pattern Generator** supports outputting different video standards and frame rates at the same time. The configure menu has four tabs; one each for Video, Audio, Metadata, and Output, respectively.

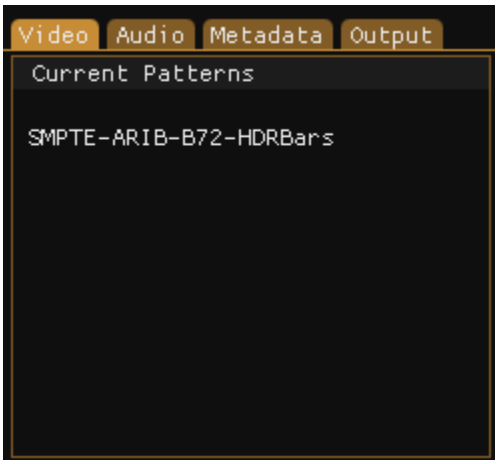
### *4.1.3.1 Video Tab*

Provides options for setting up the test pattern output, including various overlays.



#### 4.1.3.1.1 Current Patterns Section

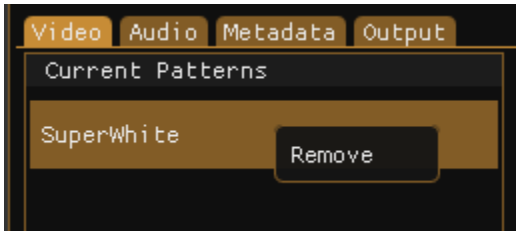
**Current Patterns** section - this section shows the name of any test patterns that have been loaded into the Display.




**Drag and Drop** – To load a pattern for output, use the mouse to “drag” a pattern from the **Pattern Browser**, and “drop” it onto the **Current Patterns** window.

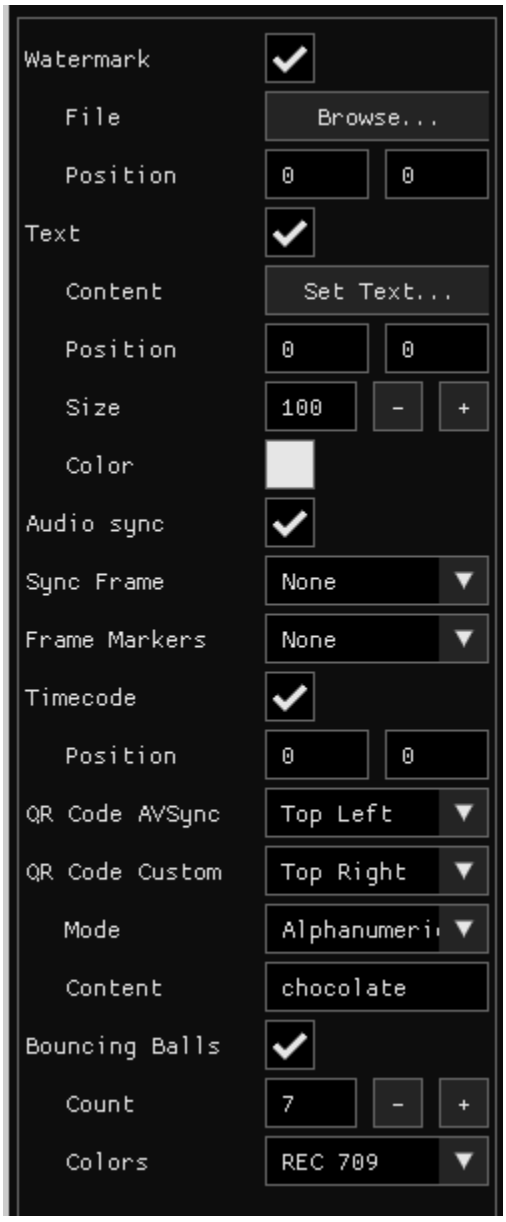
Up to 5 patterns may be loaded in one display. Simply drag another onto the **Current Patterns** section. And another if you like.

To remove a pattern, right click on the pattern and a **Remove** option will appear. Click it to remove the pattern.

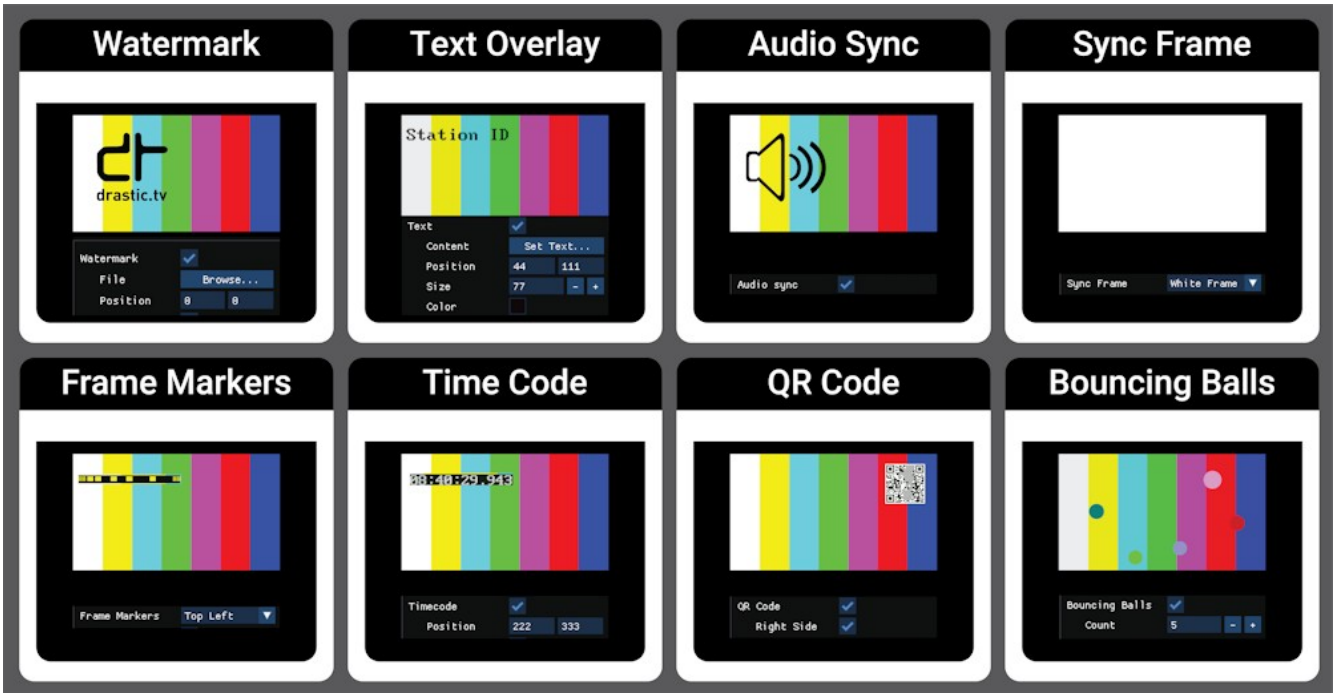


#### 4.1.3.1.2 Overlays

On the Video tab below the Current Patterns section, there is a section with overlays.



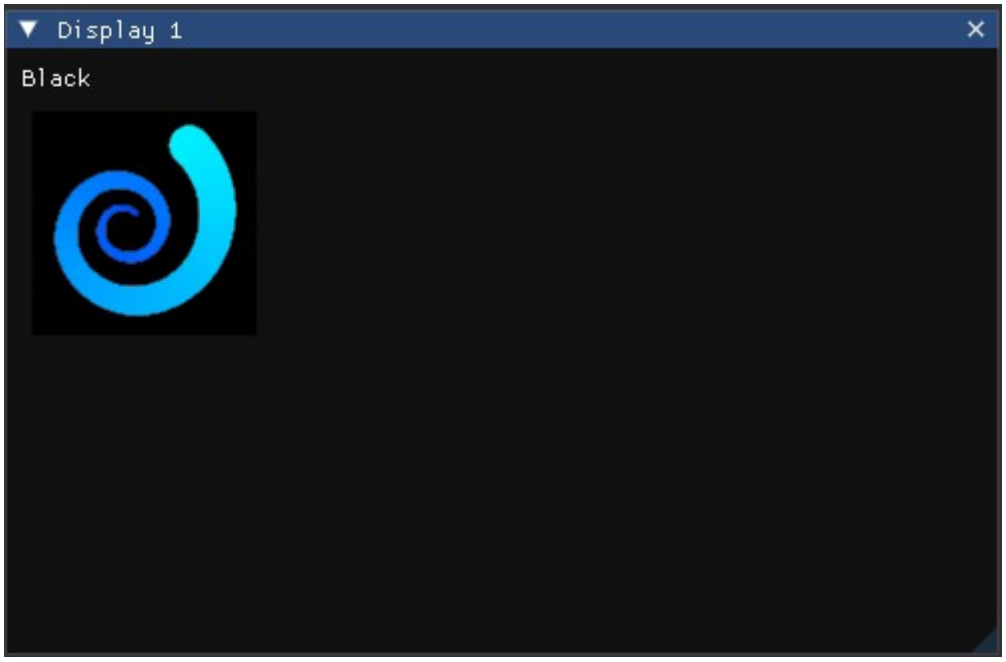
**Overlay Options** section - this section provides options to overlay watermarks, text overlays, audio sync tones, sync frames, time code, a QR code, and/or bouncing balls.




The available options are:

- **Watermark** – click the checkbox to enable a watermark overlay on output. Supports 32 bit PNG files with transparency.
  - **File Browse** – click the **Browse** button to open a browser to add a watermark file.

Browse to the location of the file, and select it. Press OK in the dialog to use the watermark on output.



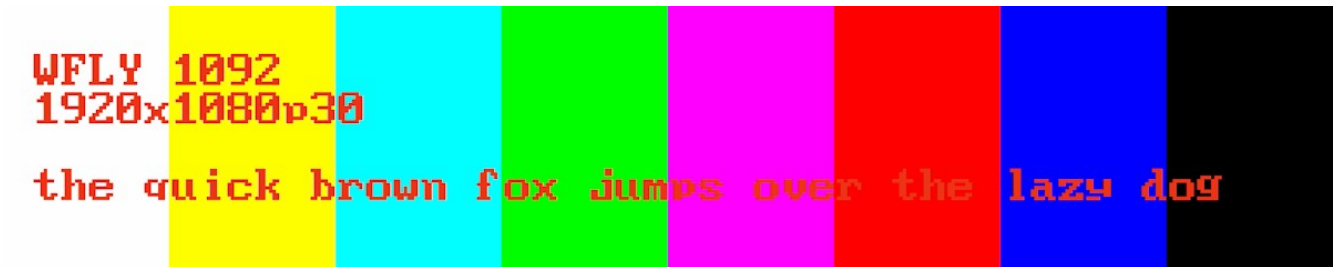

- **Position** – use the x and y fields to specify a location for the watermark. The default location (0, 0) will place the watermark in the upper left corner for example. Note that the watermark and any text that has been added may come into conflict unless their positions have been set carefully.

- **Text** – the test area lets you type in some text to be overlaid. To add a text overlay, click to select the checkbox to the right of the **Text** label.

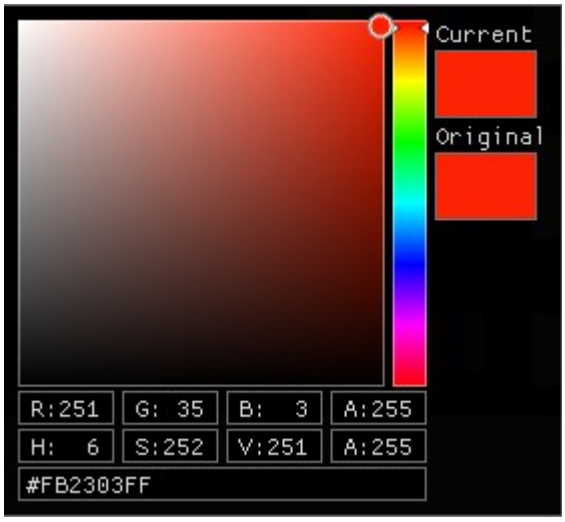
  - **Content –** once you have selected the Text overlay, click the **Set Text** control to type some text in this field. The text overlay was designed for short text strings, such as station IDs, video standard details, feed number etc..

The **Position** boxes let you set the x and y location of the text.
The **Size** field lets you type in a size, and there are minus and plus controls to increment the size of the text smaller or larger.
The **Color** box shows the current color, and pressing it lets you change the color.

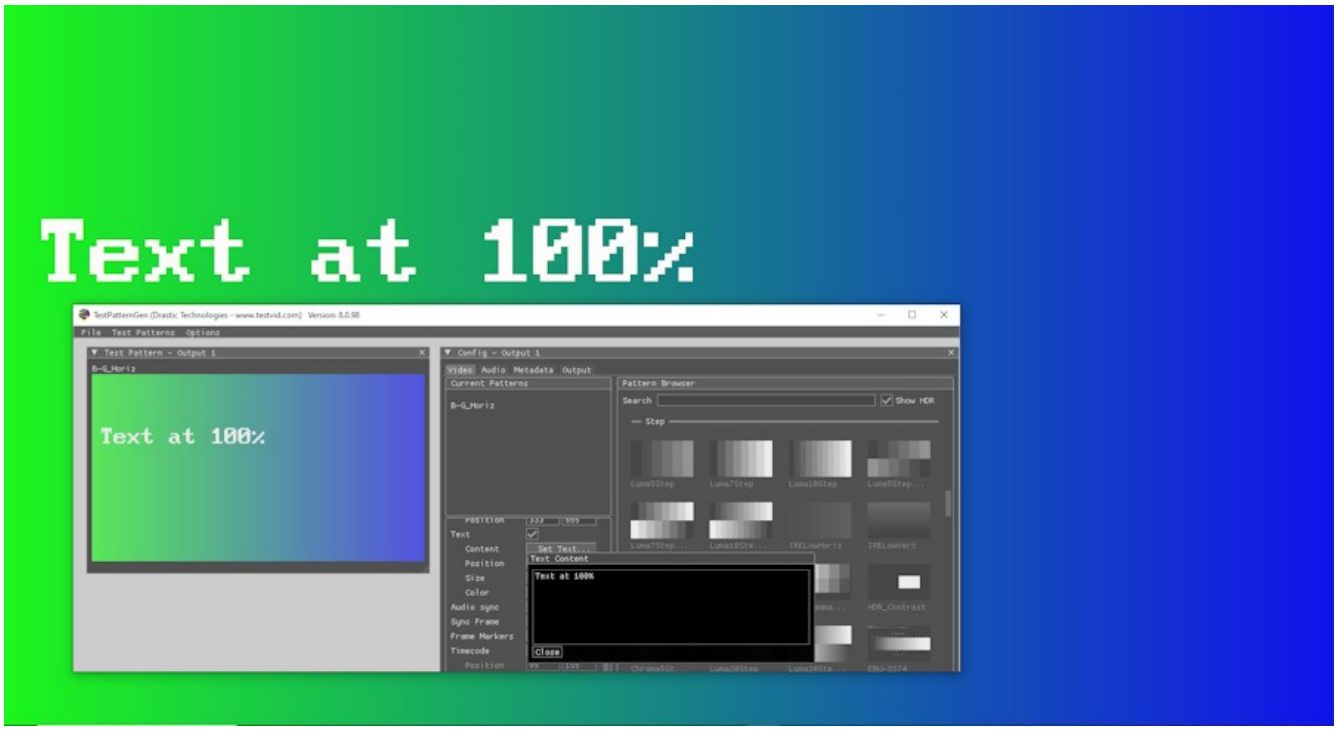
**Choose a good color.** Depending on the test pattern you are sending, the color of the text may become an issue. In the example below, the user will see that the red text works great on the left, where the pattern has white, yellow, and cyan bars. The red text however, mostly disappears on the red bar, and is only dimly seen on the magenta.



Clicking the Color control opens a color picker. The current color is shown, along with its RGB(A), HSV(A), and hex values. Where a new color has been selected, its details will also be displayed.




Here is some text that has been overlaid at 100% size.



- **Audio Sync** – specify an audio beep to be sent regularly, for AV Sync testing. To add an audio sync output, click to select the checkbox to the right of the **Audio Sync** label.

  - **Sync Frame** – specify a condition for a Sync Frame to be sent along with the audio tone. The options include:
    - **None** – do not interpose a frame of black or white (turn Sync Frame off).
    - **Black Frame** – show a black frame every second
    - **White Frame** – show a white frame every second.

  - **Frame Markers** – specify a condition for frame markers to be overlaid on output. The options include:

    - **None –** do not show frame markers on the output.
    - **Top Left** – show frame markers along the top left
    - **Bottom Left** – show frame markers along the bottom left

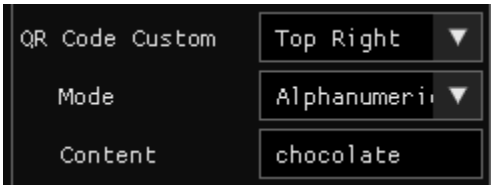
  - **Timecode** – display time code as an overlay. Its position can be set using the X and Y coordinates. To add a time code overlay, click to select the checkbox to the right of the **Timecode** label.

    - **Position** – use the x and y fields to specify a starting point for left-to-right time code display

- **QR Code AVSync** – display an AV Sync QR code over the output, which provides details about the signal and its timing. To add an AV Sync QR Code overlay, click to select the checkbox to the right of the **QR Code** label.

  - **Right Side** – By default the QR Code will be situated on the upper left of the image. Sometimes the user already has overlays on the left, and doesn't want the QR code to cover them. In this case, the user can click to specify the QR Code should be displayed to the right side of the image.

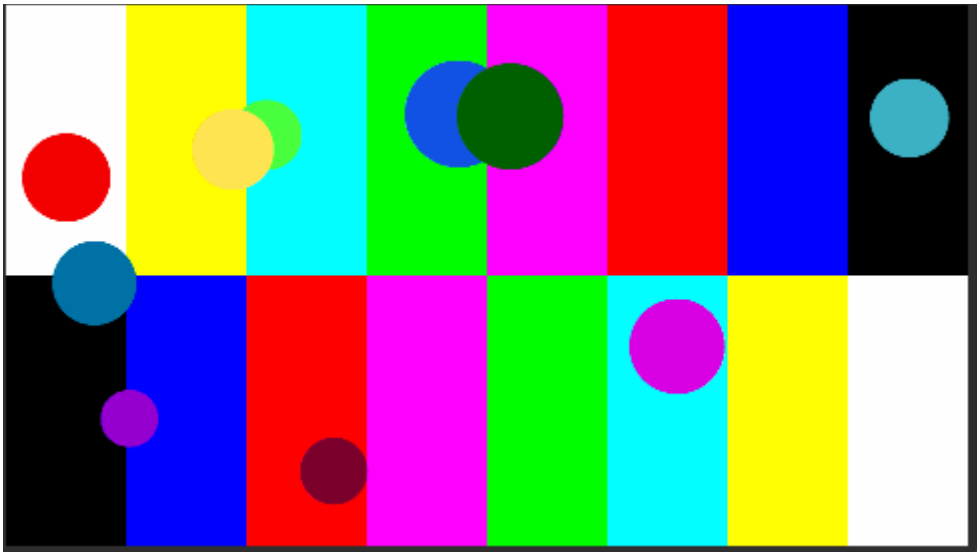
- **QR Code Custom** – display a custom QR code over the output, which provides user generated text. These are often used to point viewers to a target web page for example, but could be any string of text. To add a custom QR Code overlay, click to select the checkbox to the right of the **QR Code** label.




  - **Location –** none, top left, top right
  - **Mode** – numeric, alphanumeric, binary
  - **Content** – type in a short string here

- **Bouncing Balls** checkbox – lets you add bouncing balls over the output, so there is a motion component to the signal. Check the checkbox to add bouncing balls on the output.

  - The **Count** can be edited to adjust the number of balls. Edit the number in the **Count** field, or press the minus and plus buttons to adjust the number. Up to 10 bouncing balls are supported.
  - **Colors** – select between:
    - Random RGB
    - CCIR 601
    - REC 709
    - BT 2020



**Note**: the bouncing balls may interfere with A/V Sync black frame detection, so they should probably be turned off if you are testing A/V Sync. Also, they will cover any of the other overlays, such as text, time code etc.

- **Pattern Browser – Motion** – provides motion test patterns for AV Sync testing. Specific patterns are detailed in the *Patterns* section.
- **Pattern Browser – Single** – lets the user select between the available single frame

(static) video test patterns. Specific patterns are detailed in the *Patterns* section.

### *4.1.3.2 Audio Tab*

Provides options for setting up the audio output.

The **Audio** tab provides options for adding audio to the output.

#### 4.1.3.2.1 Silence

- **Silence** – Clicking this checkbox will turn the other audio output settings off.

#### 4.1.3.2.2 Sine Wave

- **Sine Wave** – click to add a sine wave tone on output. A sine wave provides a single frequency output.
  - **Frequency** – opens set to 440 Hz. Provides plus (+) and minus (-) buttons to adjust the frequency.
  - **Level** – output level, opens set to 0.900. Provides plus (+) and minus (-) buttons to adjust the output level.
  - **Increment per channel** – increments the frequency of the sine wave per audio channel, to help diagnose any per channel issues.

#### 4.1.3.2.3 Square Wave

- **Square Wave** – click to add a square wave tone on output. A square wave provides multiple frequencies, or harmonics, in addition to its fundamental frequency.
  - **Frequency** – opens set to 440 Hz. Provides plus (+) and minus (-) buttons to adjust the frequency.

- **Level** – output level, opens set to 0.900. Provides plus (+) and minus (-) buttons to adjust the output level.
- **Increment per channel** – increments the frequency of the square wave per audio channel, to help diagnose any per channel issues.

#### 4.1.3.2.4 White Noise

- **White Noise** – add white noise on output. White noise has a flat frequency spectrum when plotted as a linear function of frequency (e.g., in Hz). In other words, the signal has equal power in any band of a given bandwidth (power spectral density) when the bandwidth is measured in Hz.

#### 4.1.3.2.5 Pink Noise

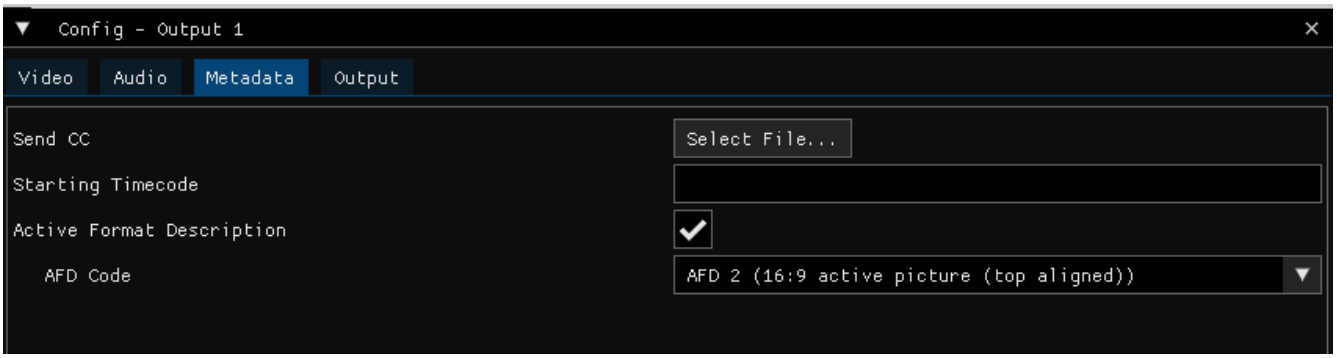
- **Pink Noise** – add pink noise on output. Pink noise has equal power per octave. The spectral power density, compared with white noise, decreases by 3.01 dB per octave (10 dB per decade); density proportional to 1/f. For this reason, pink noise is often called "1/f noise" Pink noise offers more of the lower frequencies, generally considered more soothing than White Noise.

#### 4.1.3.2.6 Current Pattern Beep

- **Current Pattern Beep** – add beeps on output per channel. Options include:
  - **None** – do not specify a beep pattern per channel.
  - **1/2 sec on, 1/2 sec off** – output a beep for ½ a second, and silence for ½ a second, then do the same for the next channel.
  - **Start C** – add a beep per channel using the note of C. (middle C, or C4).
  - **One scale note up per channel** – provides an incremented series of notes in the scale of C major, so the first channel would output C (middle C, or C4), and second channel would output a D (the next note in the scale) and so on.
  - **Pause at end for 1 sec** – when cycling through channels, add a 1 second pause at the last channel.

### *4.1.3.3 Metadata Tab*

Provides options for adding metadata to the output, including adding closed captions, starting timecode, and Active Format Description.




#### 4.1.3.3.1 Send CC

- **Send CC** – send closed captions as an overlay on the test pattern. Pressing the Select File button opens a browser, so you can navigate to a closed caption file and add it to the output.

#### 4.1.3.3.2 Starting Timecode

- **Starting Timecode** – specify a starting time code location, so when you overlay time code, it will use this as the first frame of time code.

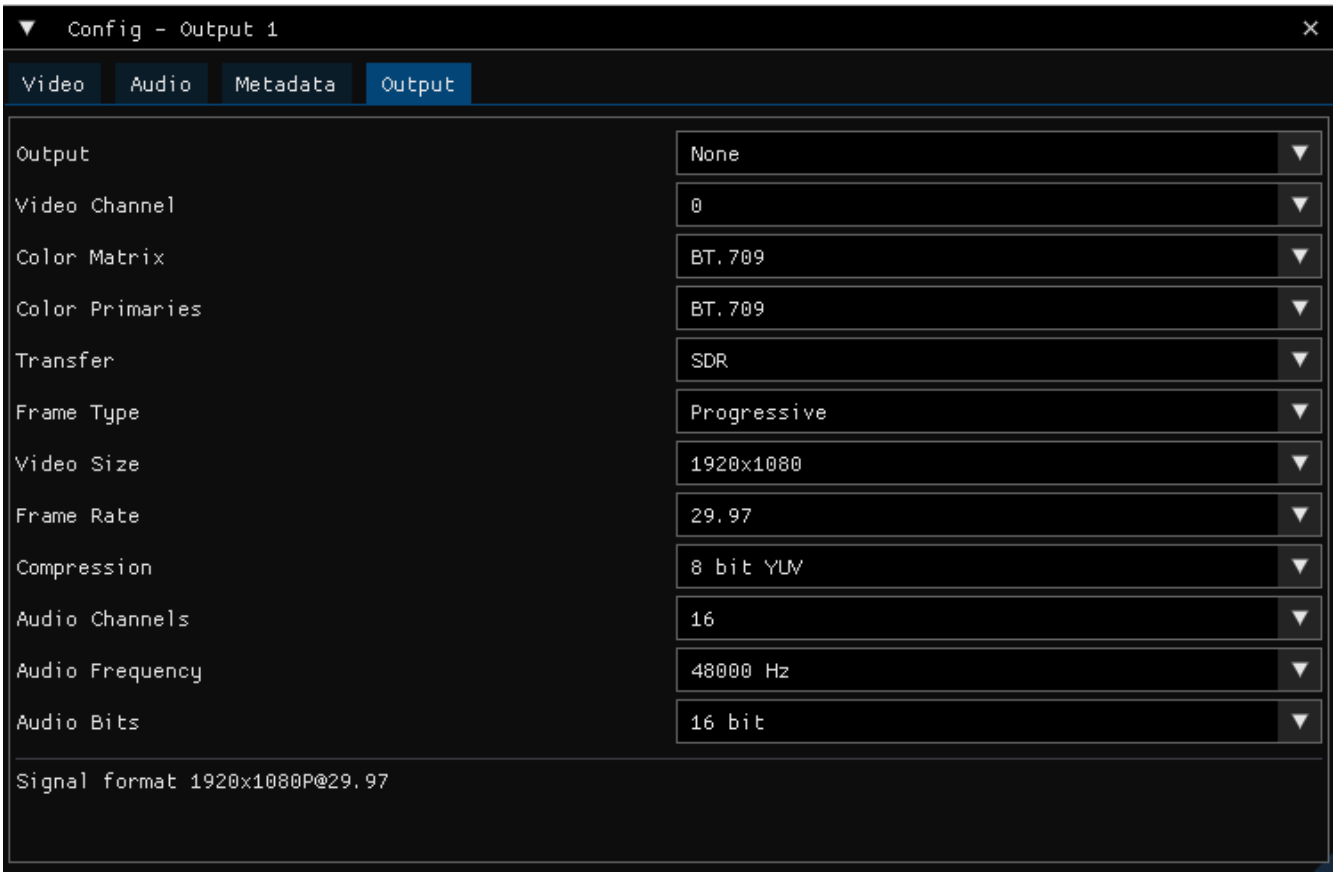
#### 4.1.3.3.3 Active Format Description

- **Active Format Description** – Check to display the active format description on output. Available types include:

    - AFD 2 (16:9 active picture (top aligned))
    - AFD 3 (14:9 active picture (top aligned))
    - AFD 4 (box > 16:9 (center): wider than 16:9 active picture)
    - AFD 8 (Full Frame image, same as the frame (4:3 or 16:9))
    - AFD 9 (4:3 Image: Full Frame in 4:3 frame, Pillarbox in 16:9 frame)
    - AFD 10 (16:9 Image: Letterbox in 4:3 frame, Full Frame in 16:9 frame)
    - AFD 11 (14:9 Pillarbox/Letterbox image)
    - AFD 13 (4:3 with shoot and protect 14:9 centre)
    - AFD 14 (16:9 with shoot and protect 14:9 center)
    - AFD 15 (16:9 with shoot and protect 4:3 center)

### *4.1.3.4 Output Tab*

Provides configuration for the output.

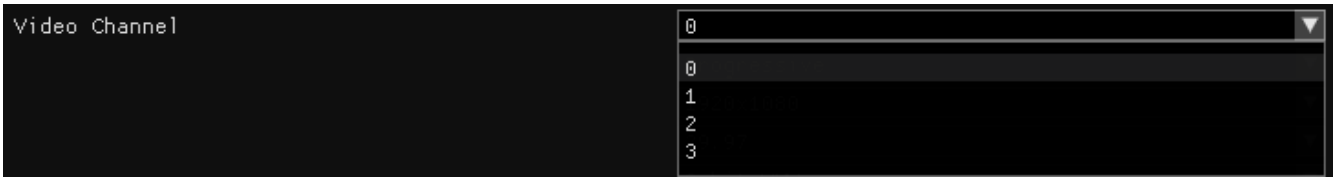



#### 4.1.3.4.1 Output

- **Output** – set the output type. Options include:
  - **None** – This setting turns the output off.

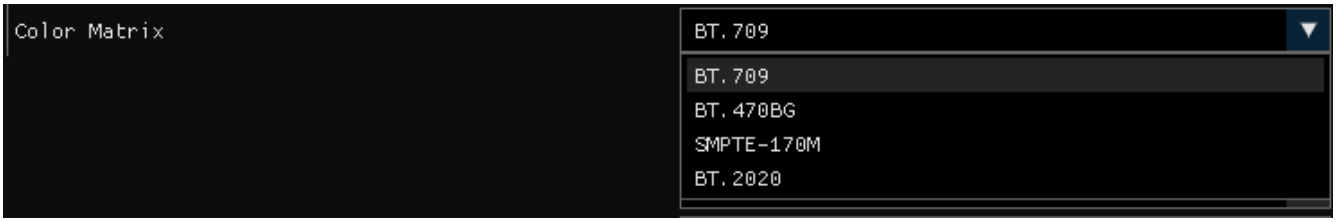
- **Fullscreen** – output via fullscreen (desktop). This option turns the Video Channel pulldown menu into a Display pulldown menu, so you can select between available monitors in a multiple monitor setup, typically between screen 1 or 2.
- **ScopeDirect (AvVr3D)** – use the ScopeDirect plugin for UnReal Engine as the output channel, so you can view test patterns in UnReal Engine.
- **Aja** – use an AJA board installed in the system as the output.
- **BlueFish** – use a Bluefish444 board installed in the system as the output.
- **BlackMagic** – use a Blackmagic board installed in the system as the output.
- **Matrox** – use a Matrox board installed in the system as the output.
- **Matrox Origin Fabric** – send patterns out as Matrox Origin Fabric compatible flows. Requires **IP Stream** option.
- **NDI** – send out the test patterns via NDI for local network use.
- **SMPTE2110** – send out the test patterns as an ST-2110 stream or streams, for remote workflows. Requires **ST-2110 option**, plus third party hardware and a separate third party software license under support.
- **RTP/UDP/SRT/RIST** – send test pattern signal out via IP stream. Requires **IP Stream** option.

#### 4.1.3.4.2 Video Channel




- **Video Channel** – on a system where a supported video board (list above) has multiple channels, use this pulldown menu to set which channel the Display outputs video on.
  - When set to a fullscreen output, this menu turns into a **Display** menu, so you can select between screen 1 and screen 2.

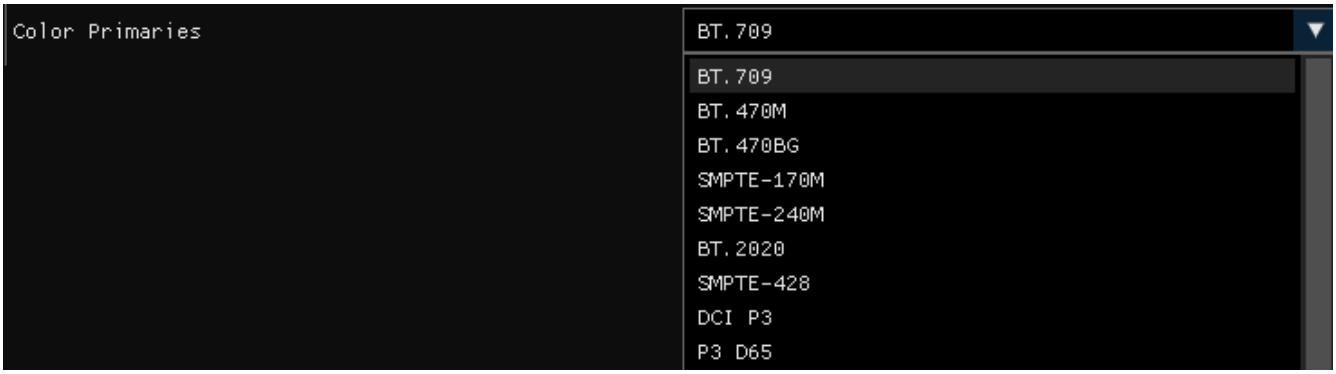
#### 4.1.3.4.3 Color Matrix




Select the color matrix for output. Choices include:

BT.709
BT.470BG
SMPTE-170M
BT.2020

#### 4.1.3.4.4 Color Primaries




Select the Color Primaries for output. Choices include:

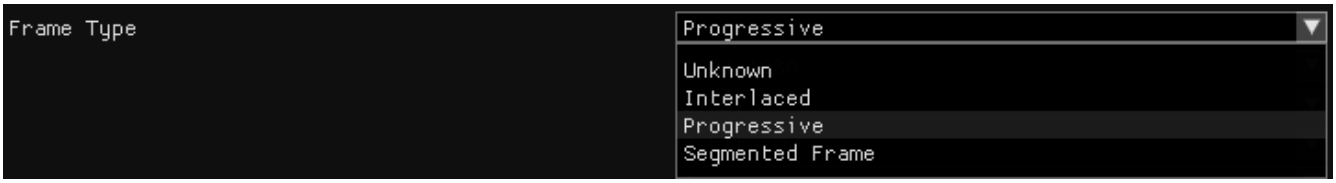
BT.709
BT.470M
BT.470BG
SMPTE-170M
SMPTE-240M
BT.2020
SMPTE-420
DCI P3

### 4.1.3.4.5 Transfer

Select the Transfer type for output. Choices include:

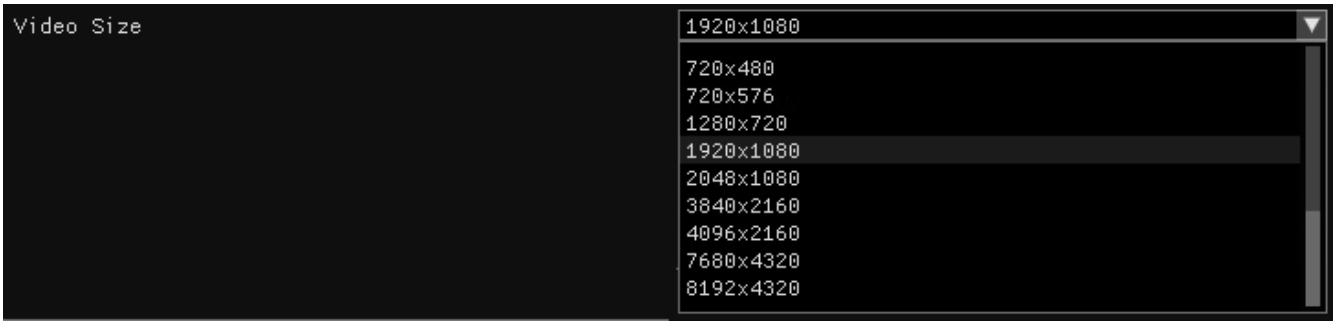
SDR
HDR-PQ
HDR-HLG

### 4.1.3.4.6 Frame Type



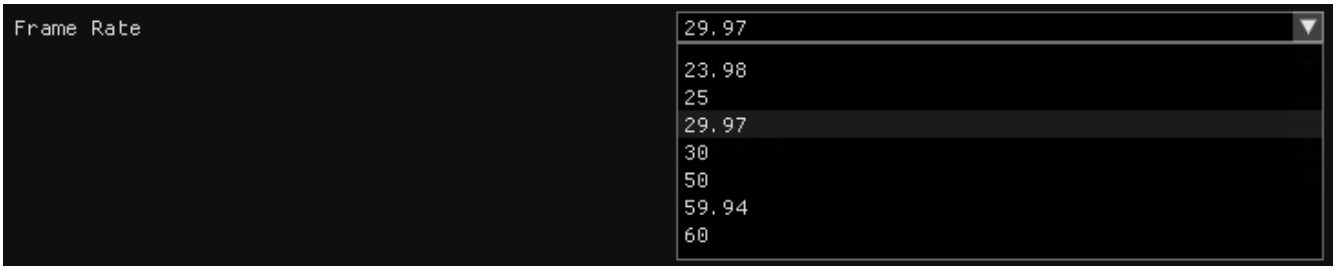

- **Frame Type** – sets the frame type. Options include:
    - **Unknown** – don't know what to set? Use this and Test Pattern Generator will try to set a compatible type.
    - **Interlaced** – send the even and the odd numbered lines of a frame alternately as separate fields that make up a frame.
    - **Progressive** – send whole frames at once, one after another.
    - **Segmented Frame** – send progressive segmented (PsF) frames as output.

#### 4.1.3.4.7 Video Size



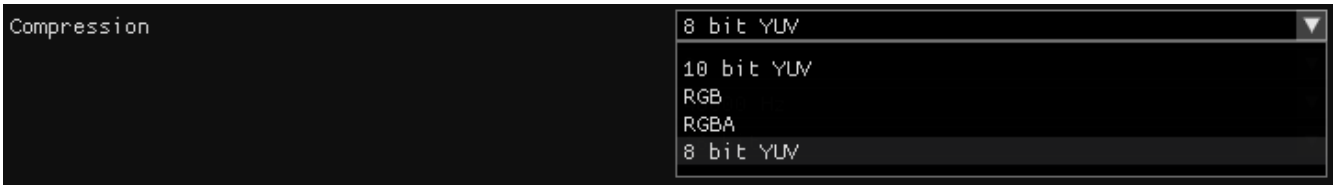

- **Video Size** – the size of the video frame in pixels, width by height. Test Pattern Generator uses standard size frames. Options include:
  - 720x480 (NTSC)
  - 720x576 (PAL)
  - 1280x720 (HD)
  - 1920x1080 (Full HD/2K)
  - 2048x1080 (2K Cinema)
  - 3840x2160 (4K)
  - 4096x2160 (4K Cinema)
  - 7680x4320 (8K)
  - 8192x4320 (8K Cinema)

#### 4.1.3.4.8 Frame Rate



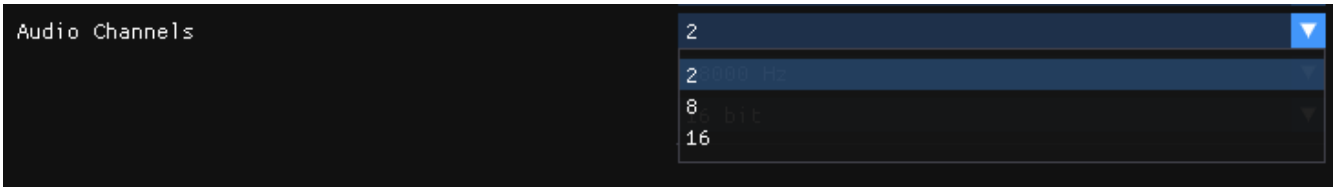

- **Frame Rate** – the frame rate, in frames per second. Test Pattern Generator uses standard frame rates. Options include:
    - 23.98
    - 25
    - 29.97
    - 30
    - 50
    - 59.94
    - 60

#### 4.1.3.4.9 Compression




- **Compression** – compression options. Select between:
    - 10 bit YUV
    - RGB
    - RGBA
    - 8 bit YUV

#### 4.1.3.4.10 Audio Channels




- **Audio Channels** – number of audio channels options. Select between:
  - 2
  - 8
  - 16

#### 4.1.3.4.11 Audio Frequency

- **Audio Frequency** – audio frequency settings. Currently only 48000 Hz (48kHz) is supported.

#### 4.1.3.4.12 Audio Bits

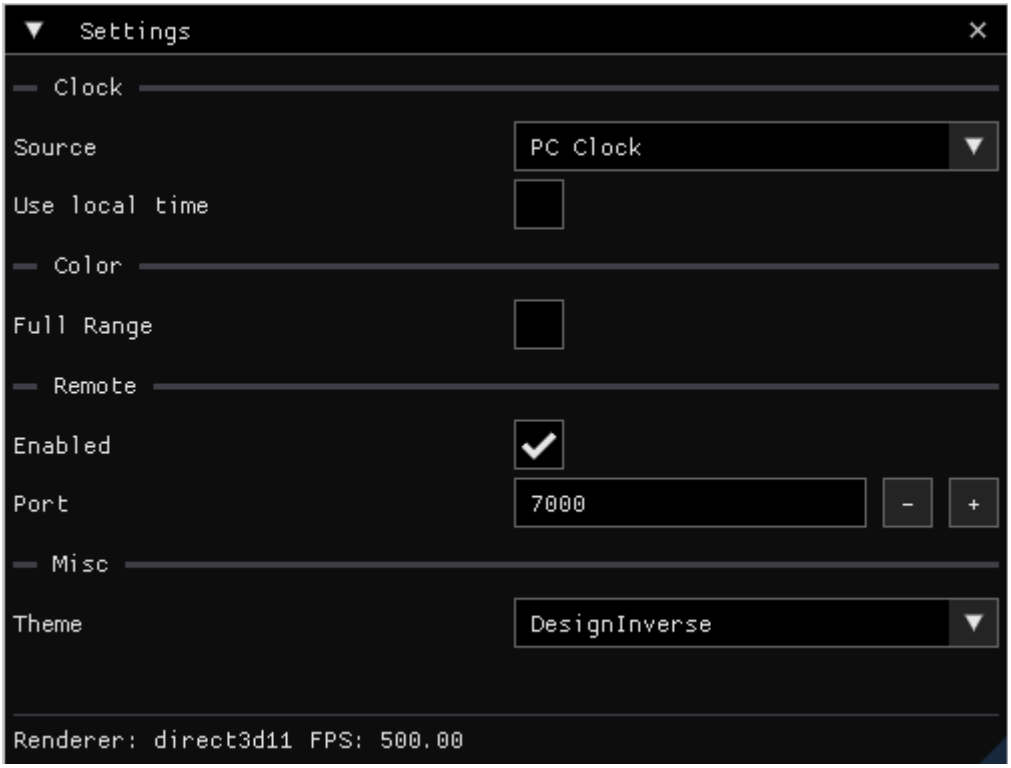
- **Audio Bits** – audio bit depth setting. Select between:
  - 16 bit
  - 24 bit
  - 32 bit

#### 4.1.3.4.13 Signal Format Display

- **Signal format display** – shows the current signal format details.

### 4.1.4 Options Menu

The options menu provides optional settings for Test Pattern Generator. The settings window looks like this:




#### *4.1.4.1 PTP*

**Clock Source** – At the top, the PTP section provides controls to select the type of clock that will be used to handle timing display and analysis. Choices here include:

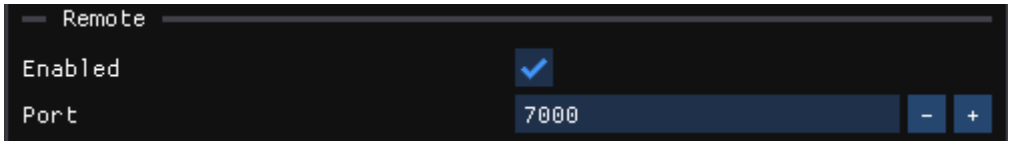
- **PC Clock/NTP** – use the system clock or a network timing protocol clock. Option to select **Use Local Time**.
- **SMPTE 2059/PTP** – use a SMPTE 2059 or PTP timing source. Option to select **Use Local Time**. Option to specify **Grandmaster Clock ID**, with an **ID** number area to specify the ID number (from 0 to 255).
- **NTP** – use an NTP time server source. Option to select **Use Local Time**. Source name field to specify which NTP server is being used. Field offers “ntp.pool.org”, and the user can add an

appropriate prefix to set which NTP time server is being used.

### 4.1.4.2 Color

**Full Range** checkbox – SMPTE/sRGB/Narrow is the limited range 16-235/240. Full/RGB is the full range 0-255. With the Full Range checkbox selected, the 0-255 range is used. Otherwise, the more limited SMPTE/sRGB/Narrow range is used.

### 4.1.4.3 Remote



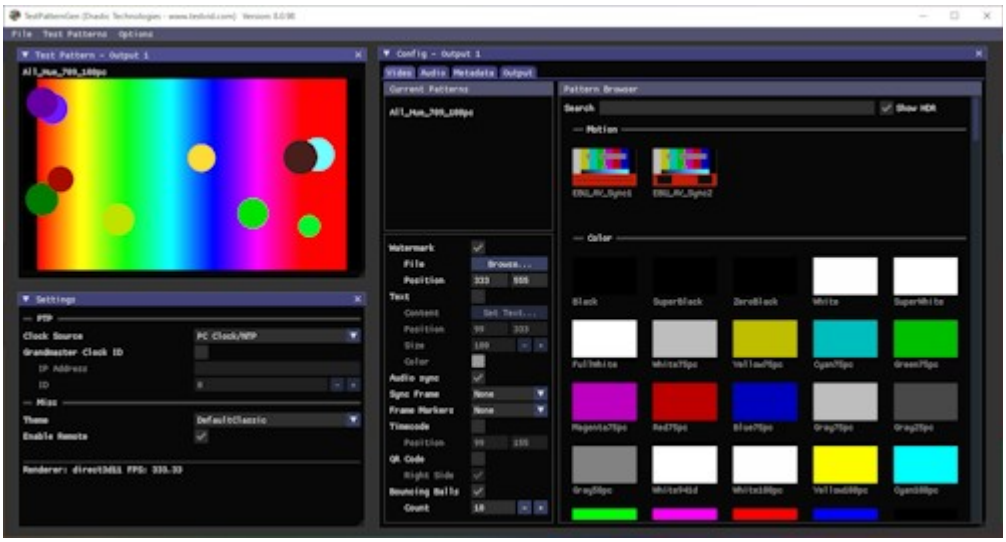

**Enable** checkbox – To enable remote control, the checkbox must be selected. The correct Port can then be entered via keyboard. The up and down arrows can be used to fine tune an incorrect port assignment.

### *4.1.4.4 Themes*

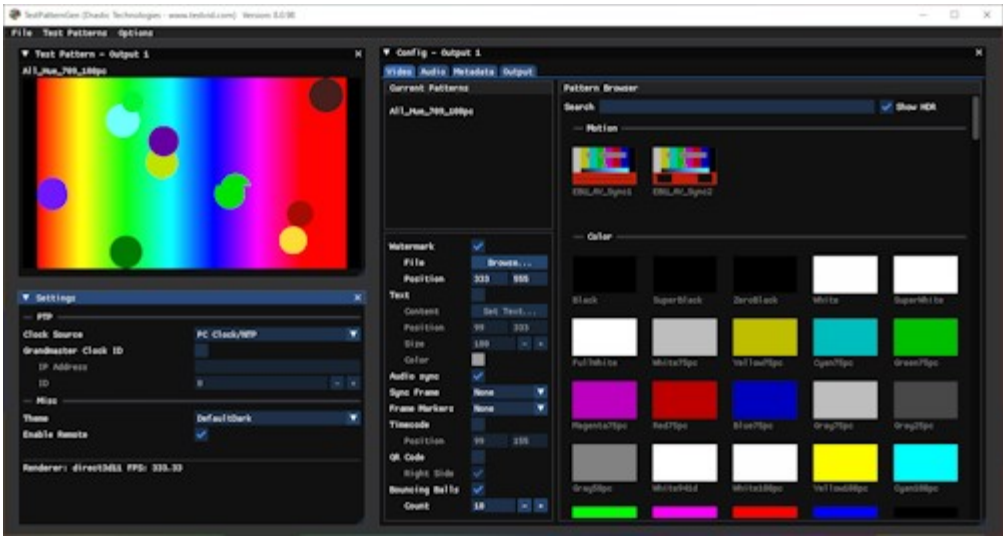
**Themes** – The **Theme** pulldown menu provides a number of “Themes” the user can apply to change how the GUI is displayed.

Here is a quick look at the themes:

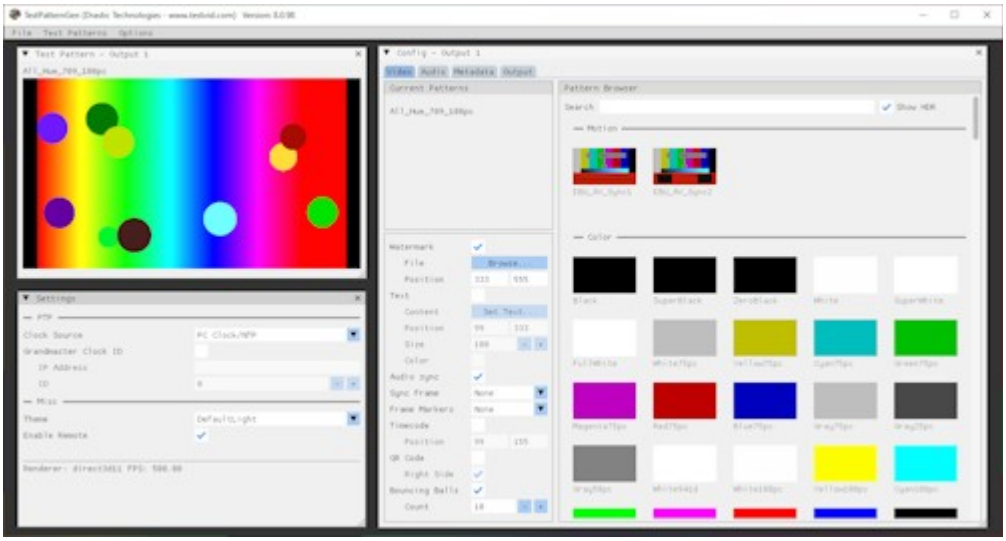
#### 4.1.4.4.1 DefaultClassic



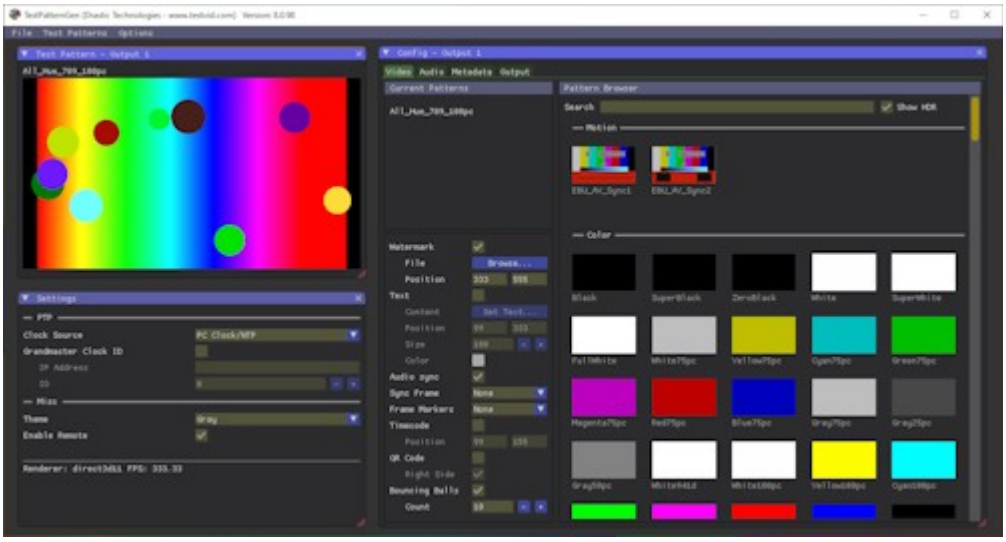
#### 4.1.4.4.2 DefaultDark



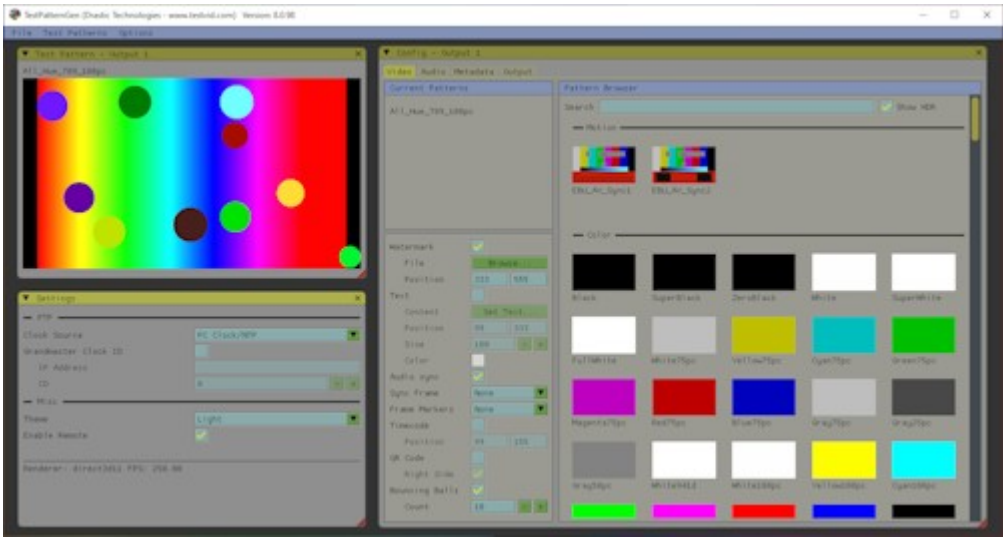
#### 4.1.4.4.3 DefaultLight



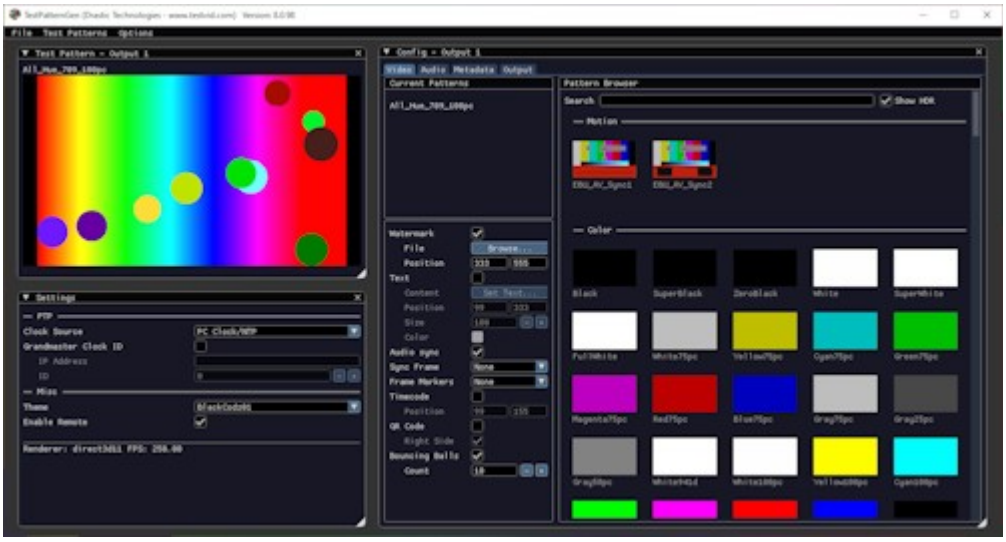
#### 4.1.4.4.4 Gray



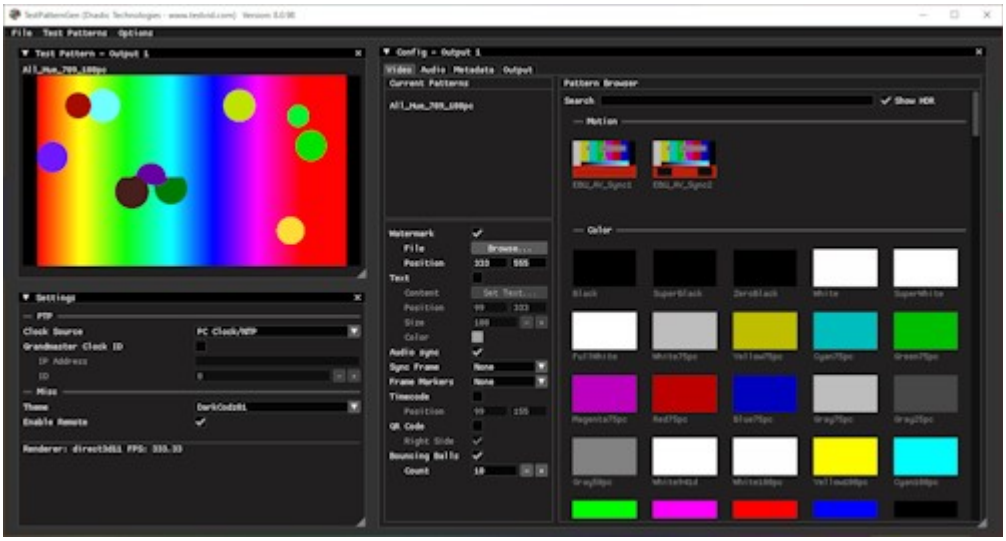
#### 4.1.4.4.5 Light



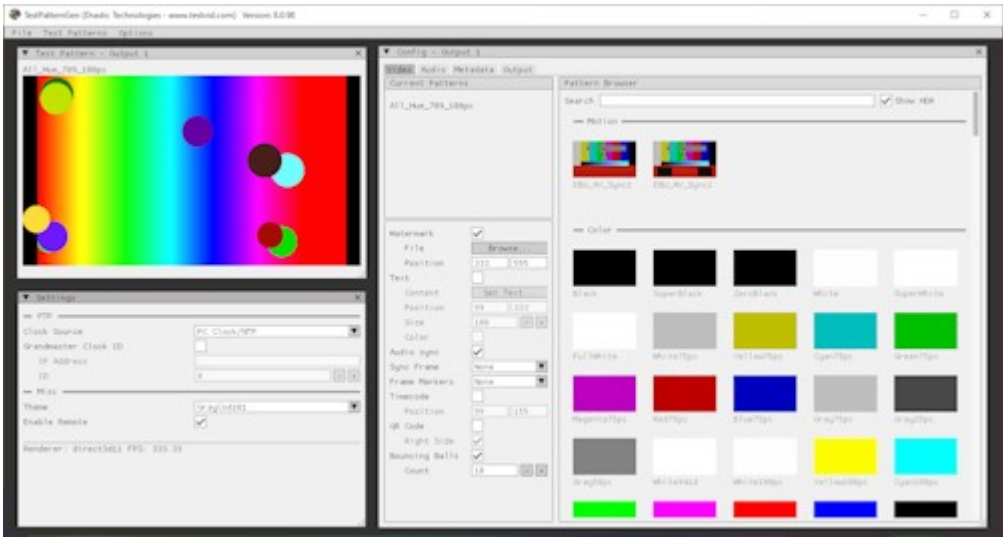
#### 4.1.4.4.6 BlackCodz01



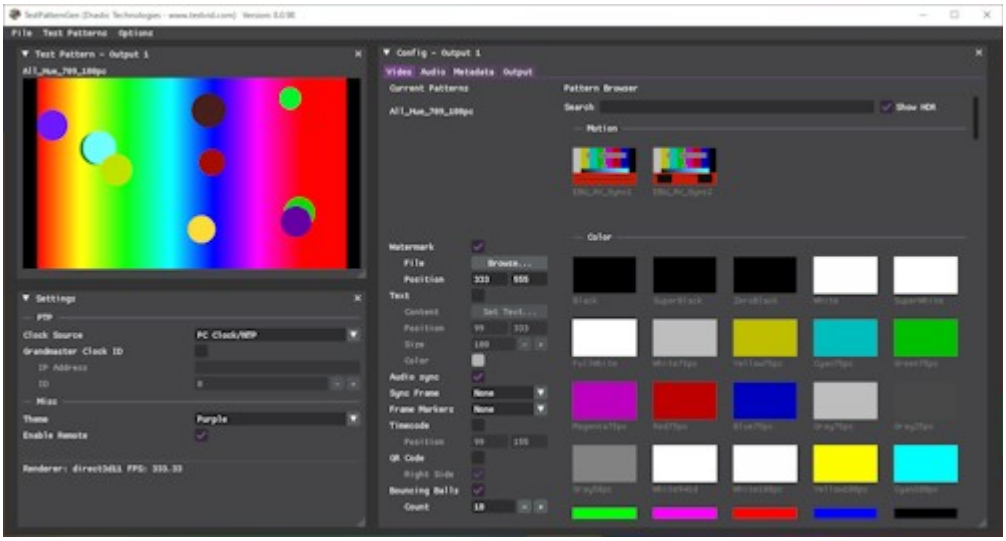
### 4.1.4.4.7 DarkCodz01



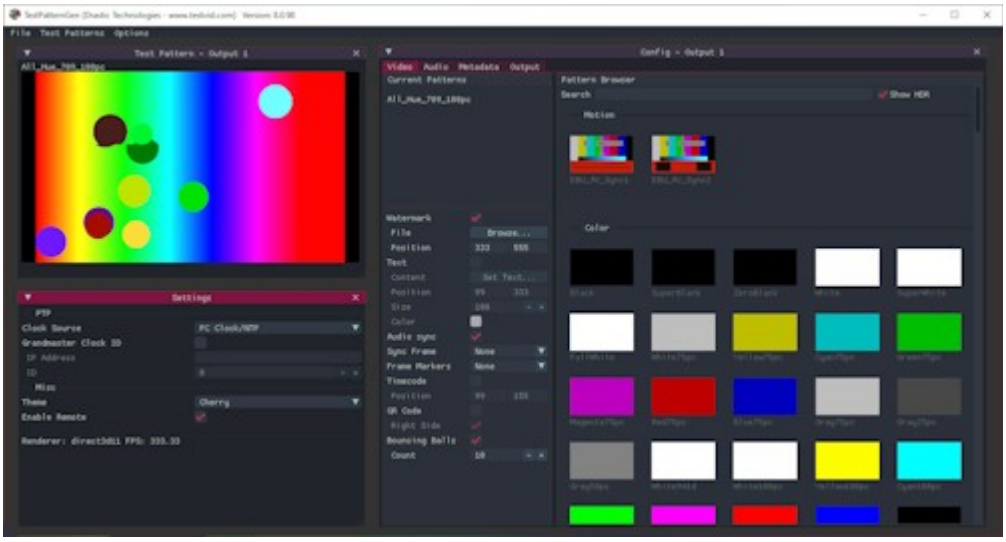
### 4.1.4.4.8 GrayCodz01



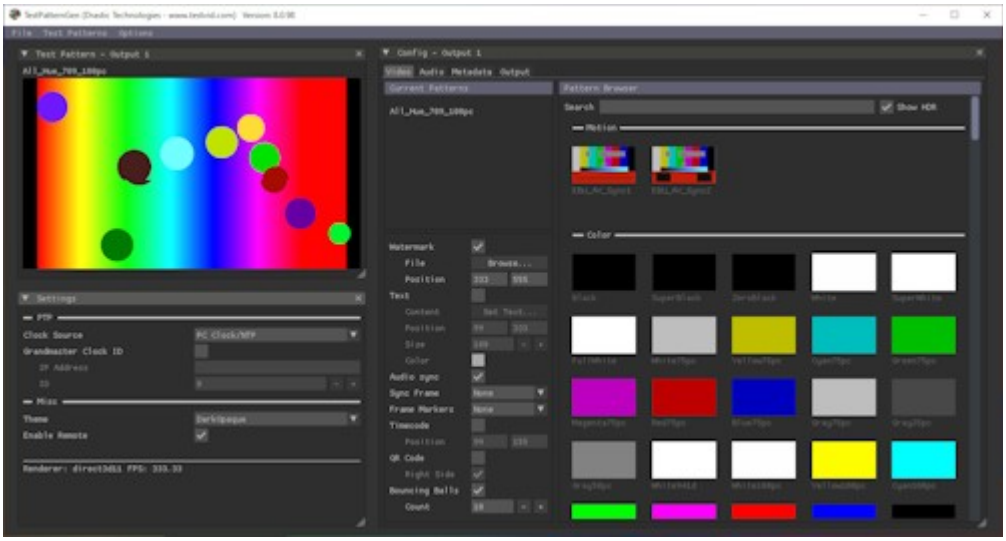
#### 4.1.4.4.9 Purple



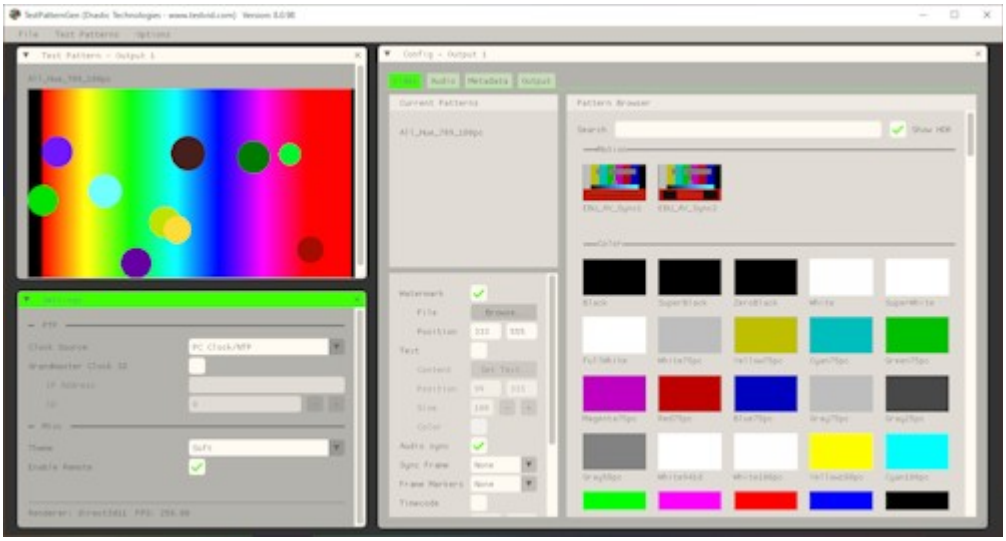
#### 4.1.4.4.10 Cherry



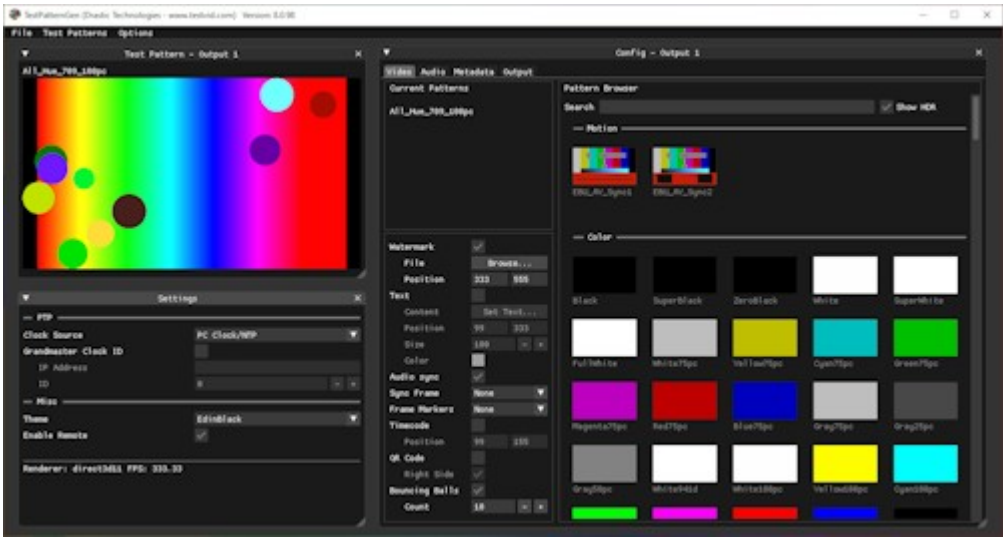
#### 4.1.4.4.11 DarkOpaque



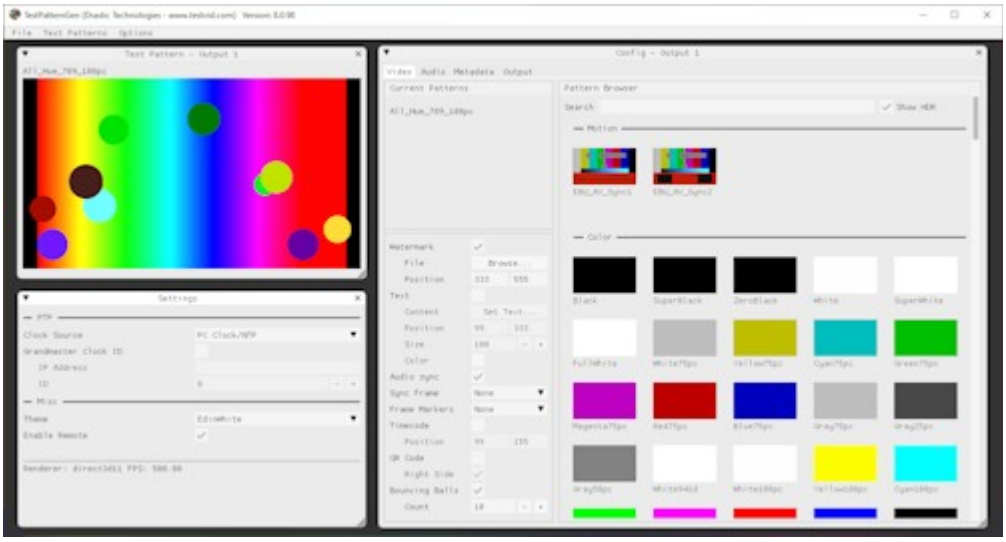
#### 4.1.4.4.12 Soft



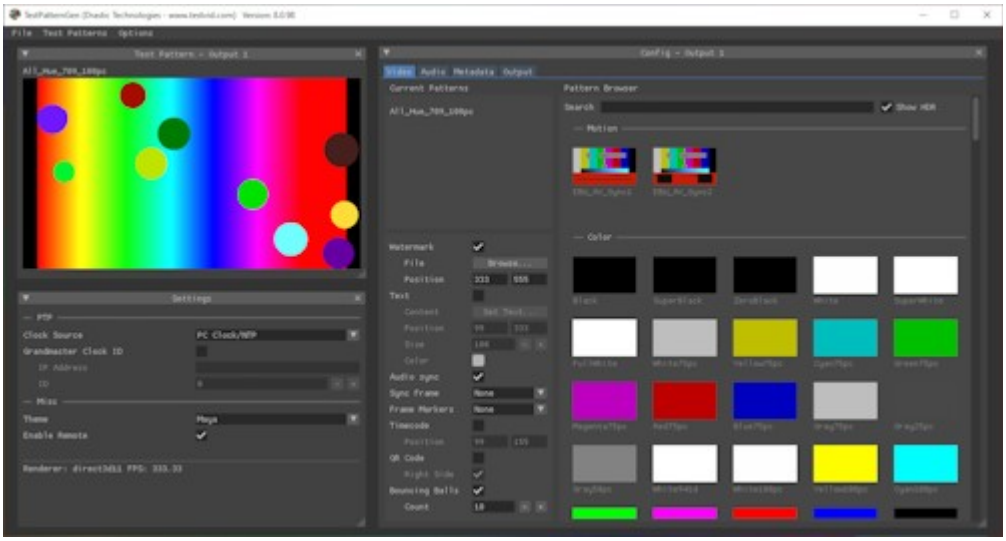
#### 4.1.4.4.13 EdinBlack



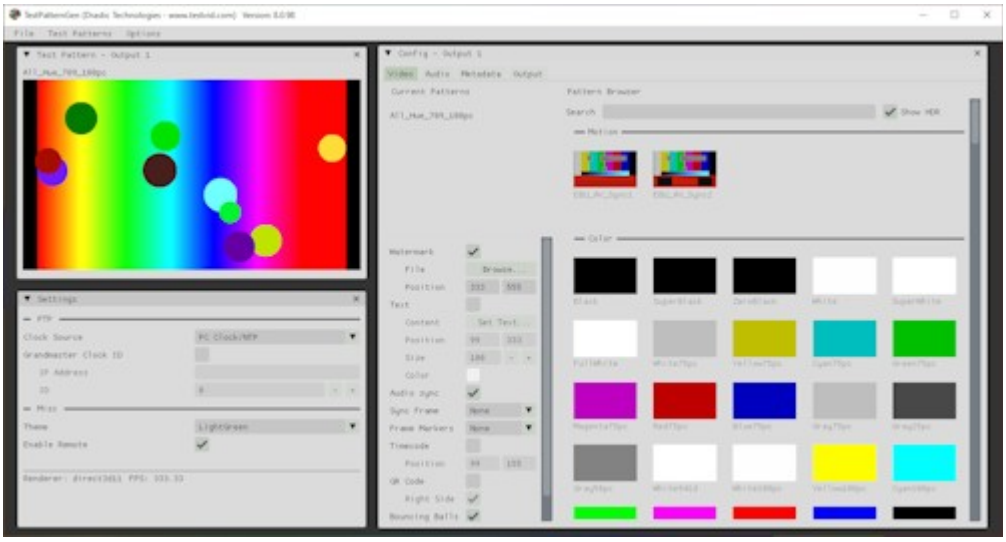
#### 4.1.4.4.14 EdinWhite



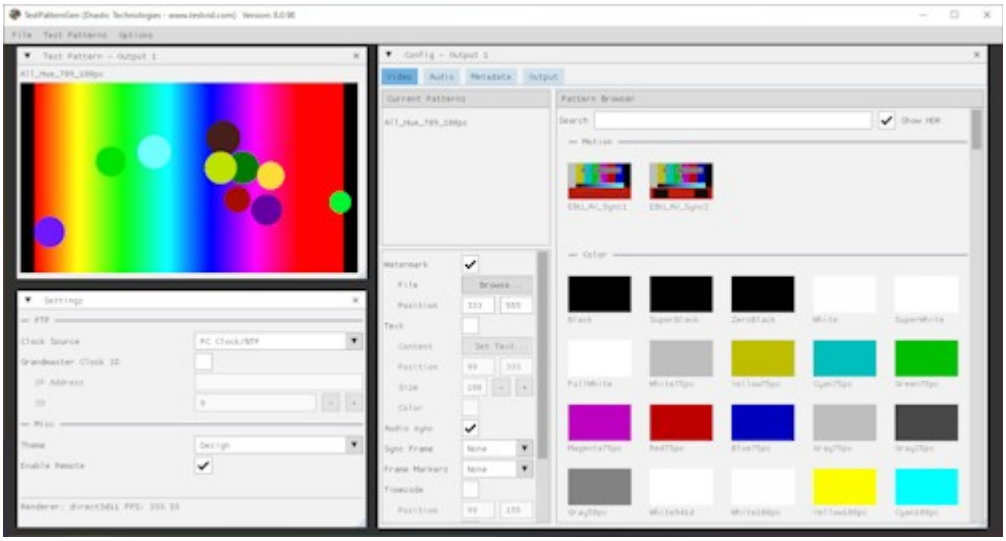
#### 4.1.4.4.15 Maya



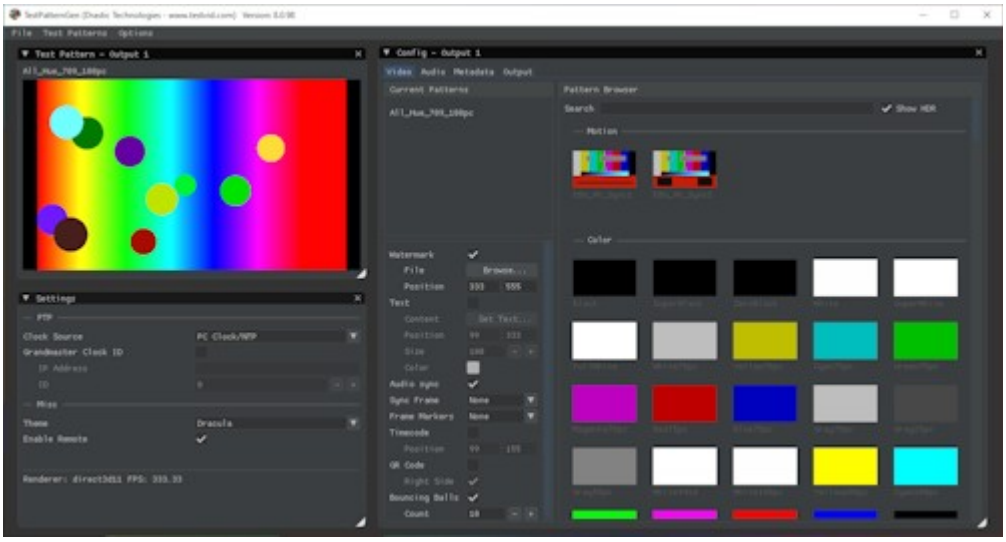
#### 4.1.4.4.16 LightGreen



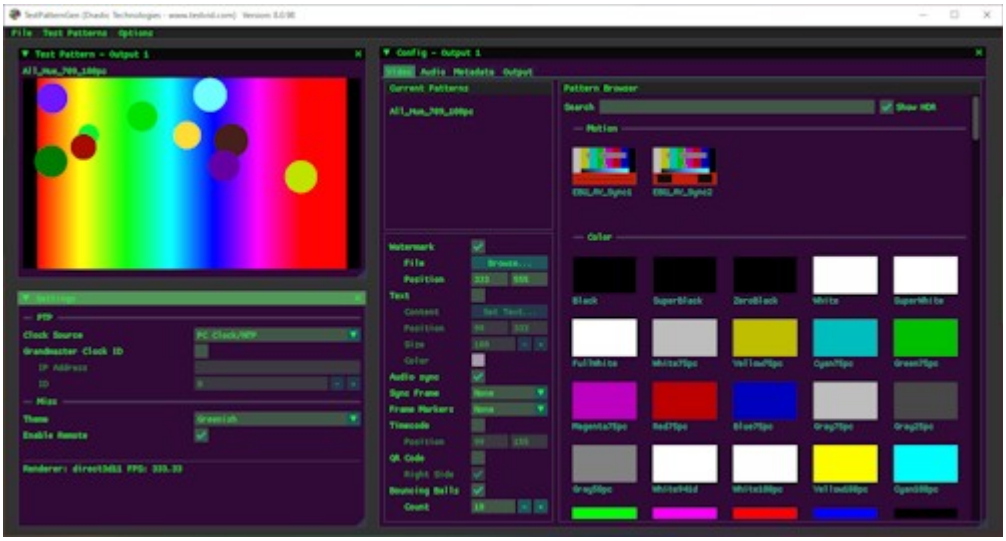
#### 4.1.4.4.17 Design



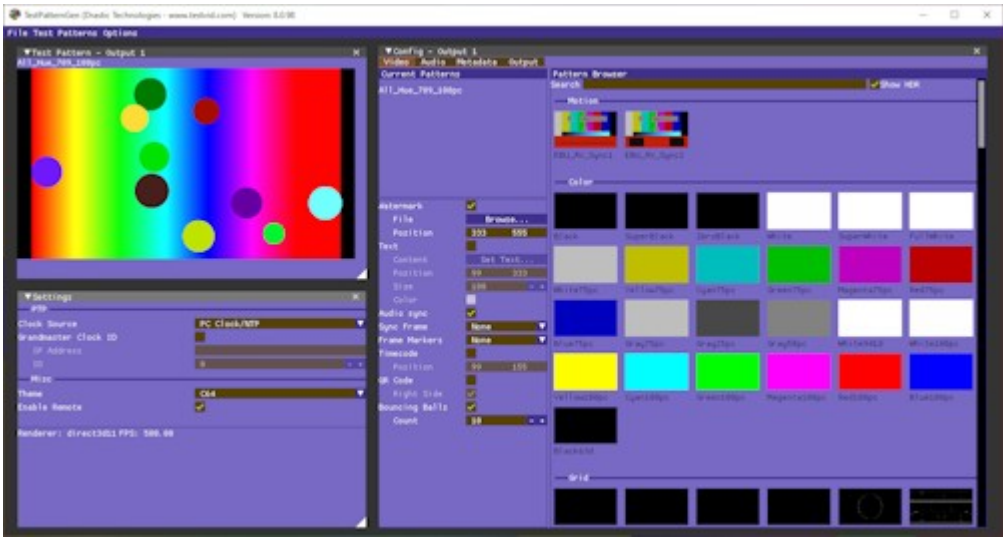
#### 4.1.4.4.18 Dracula



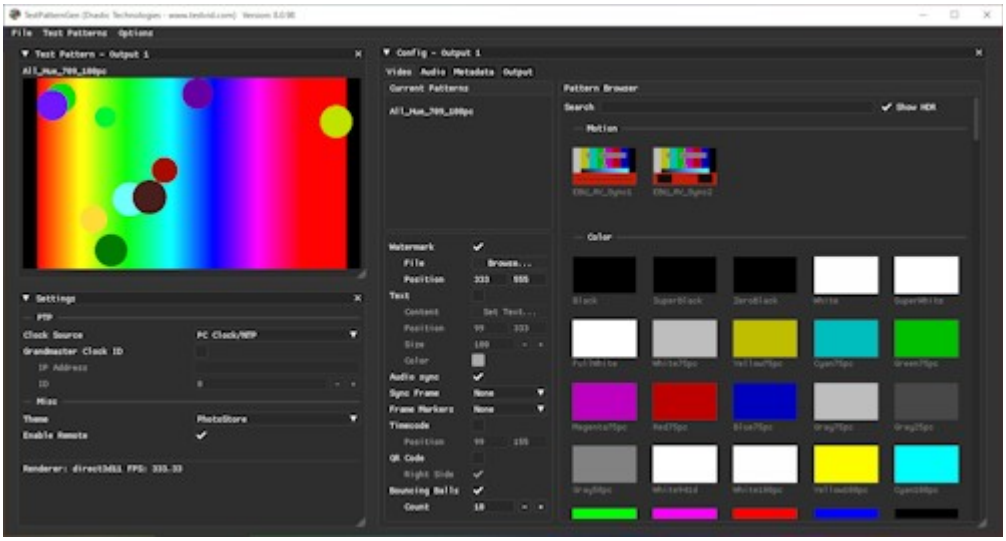
#### 4.1.4.4.19 Greenish



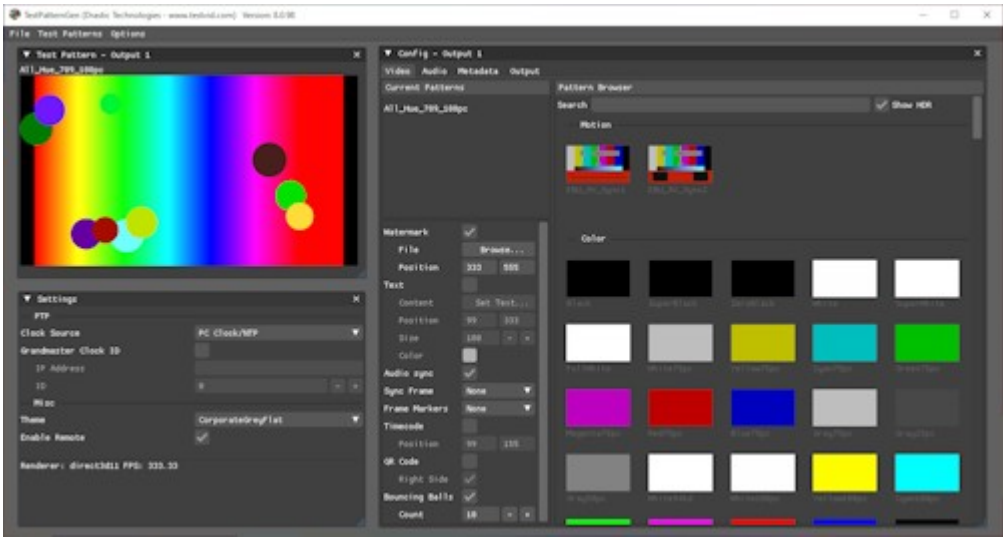
#### 4.1.4.4.20 C64



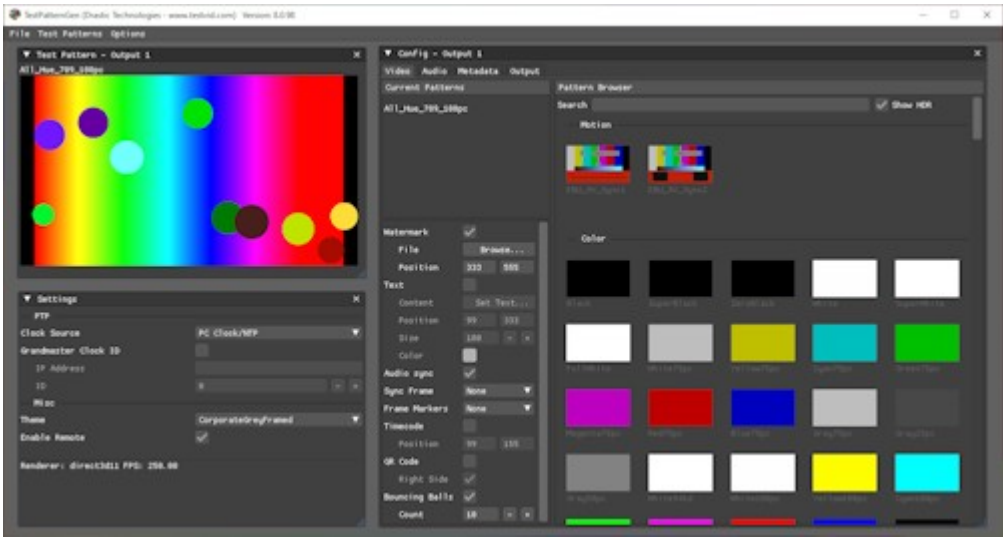
#### 4.1.4.4.21 PhotoStore



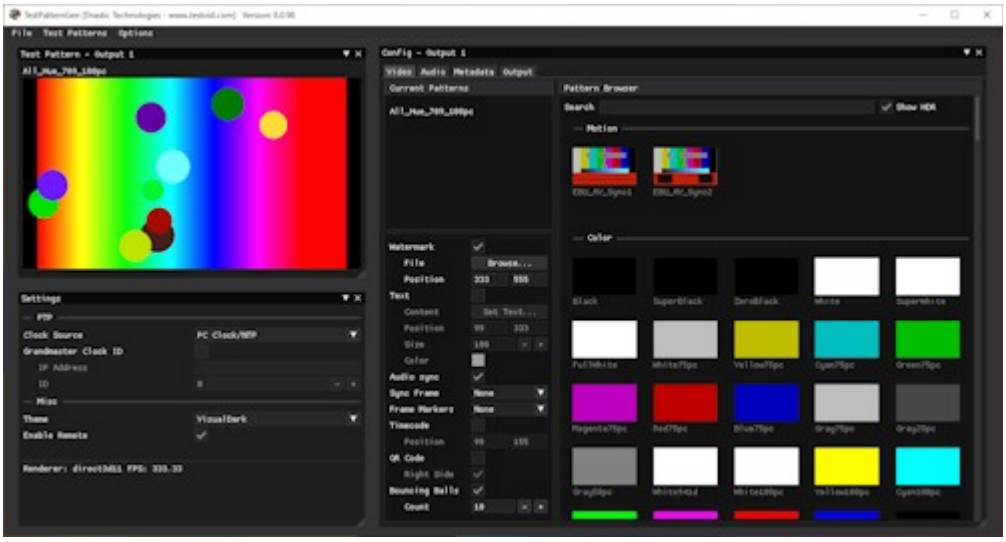
#### 4.1.4.4.22 CorporateGreyFlat



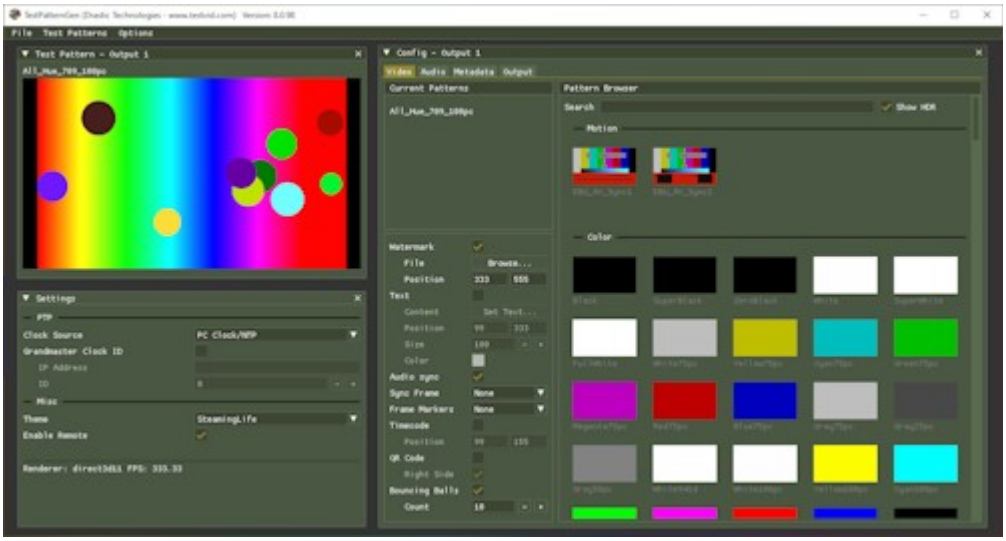
#### 4.1.4.4.23 CorporateGreyFramed



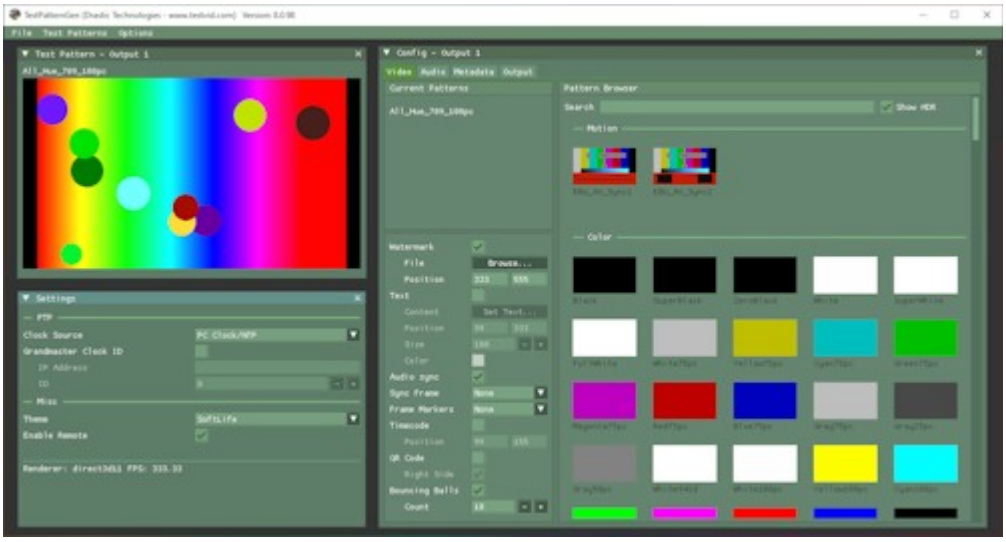
#### 4.1.4.4.24 VisualDark



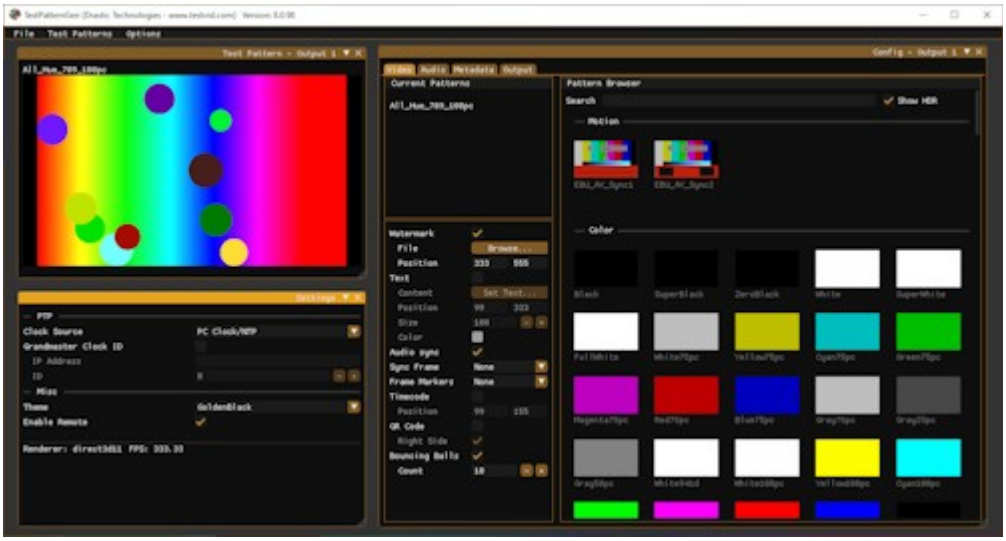
#### 4.1.4.4.25 SteamingLife



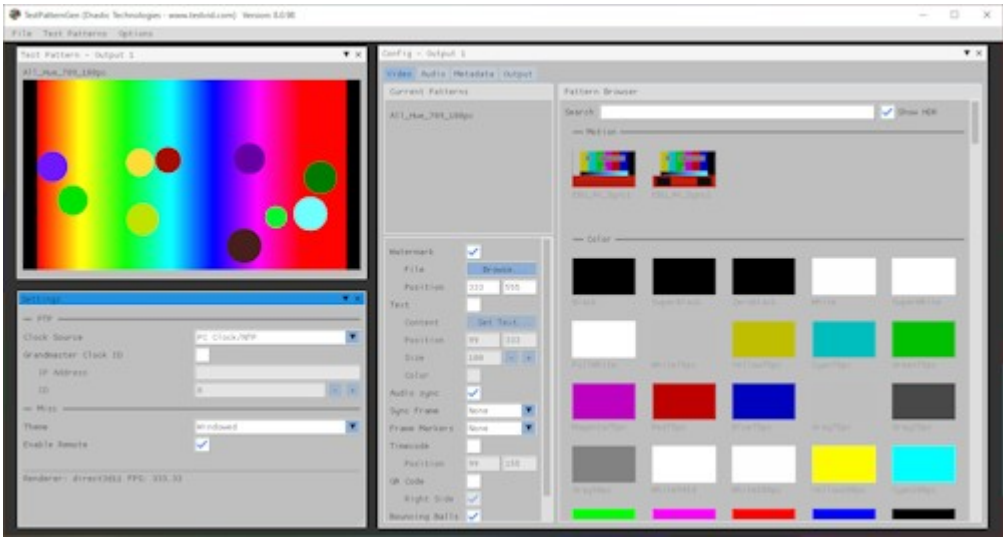
#### 4.1.4.4.26 SoftLife



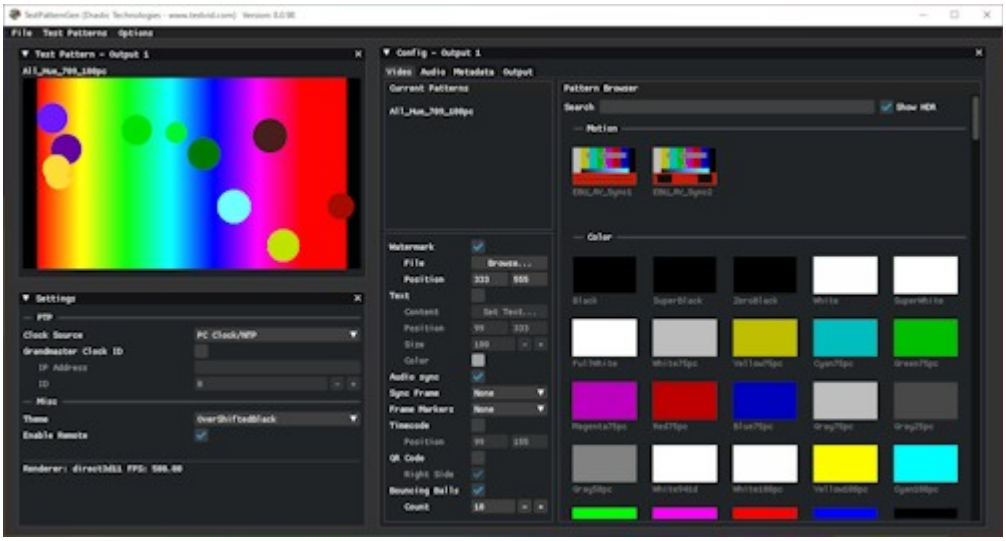
#### 4.1.4.4.27 GoldenBlack



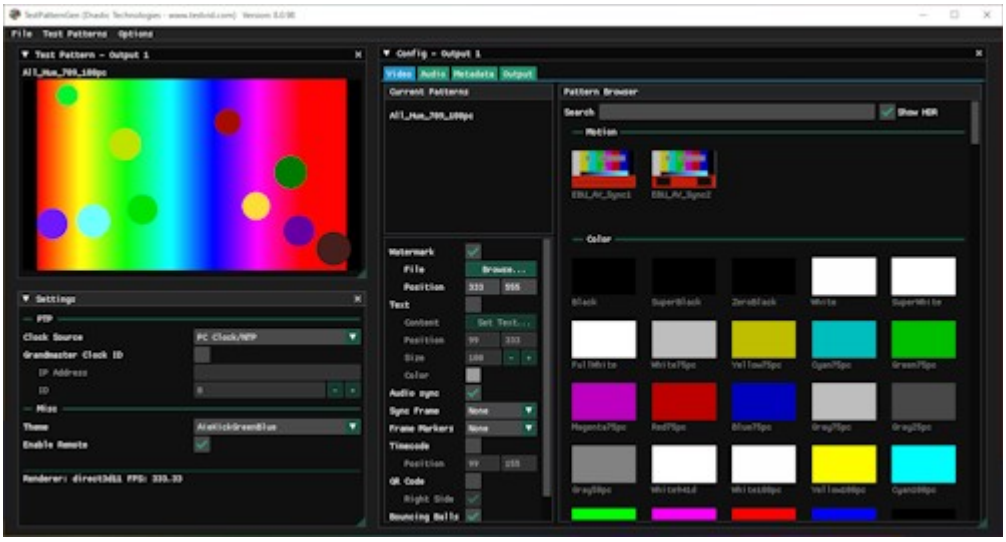
#### 4.1.4.4.28 Windowed



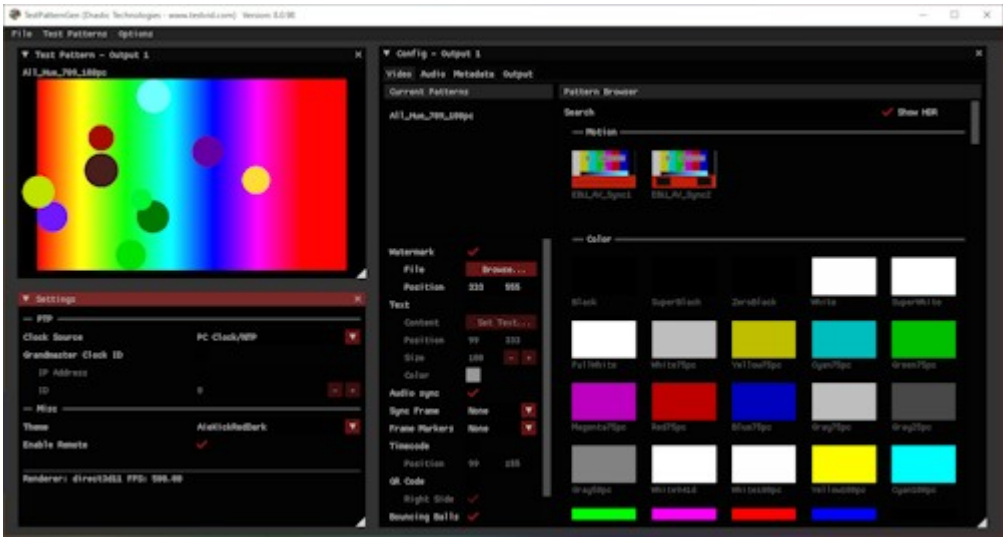
#### 4.1.4.4.29 OverShiftedBlack



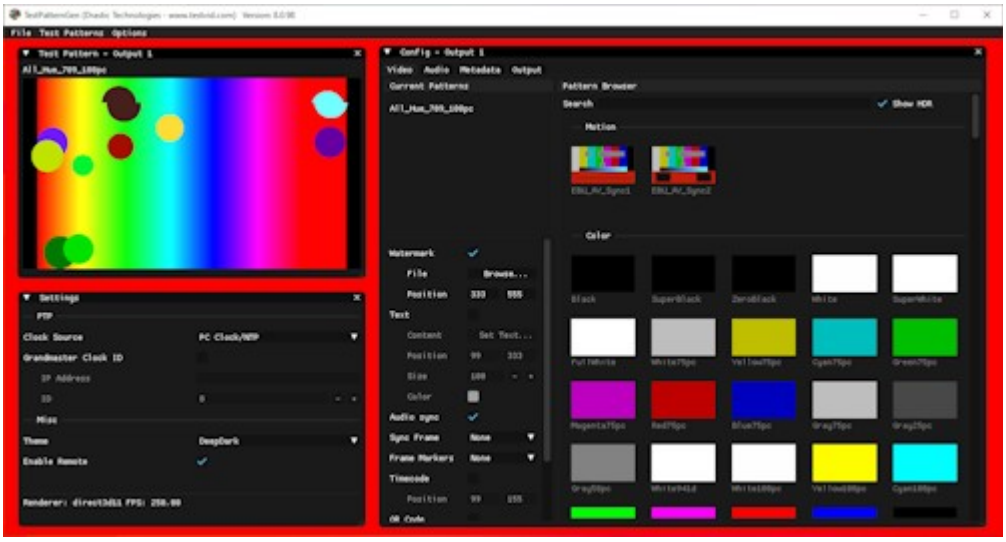
#### 4.1.4.4.30 AieKickGreenBlue



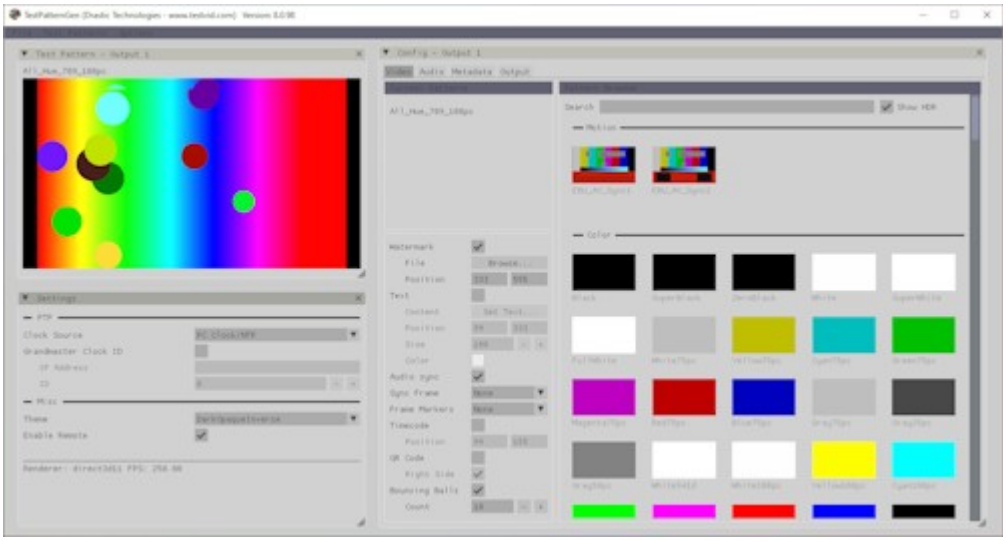
#### 4.1.4.4.31 AieKickRedDark



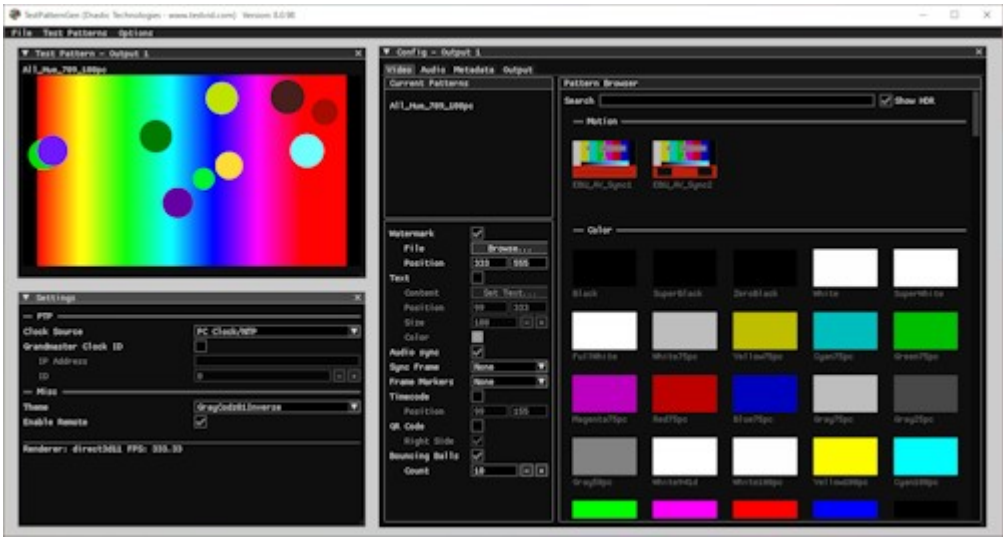
#### 4.1.4.4.32 DeepDark



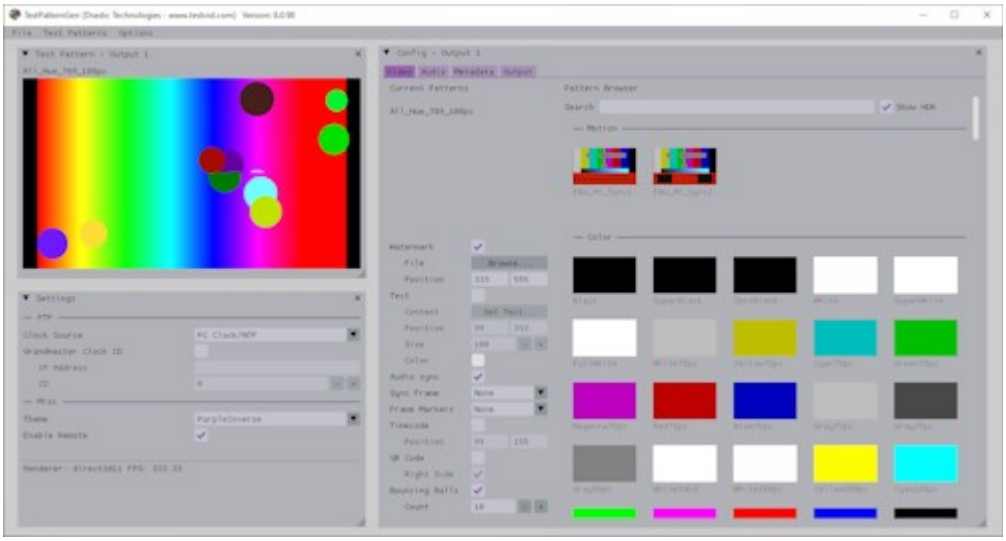
#### 4.1.4.4.33 DarkOpaqueInverse



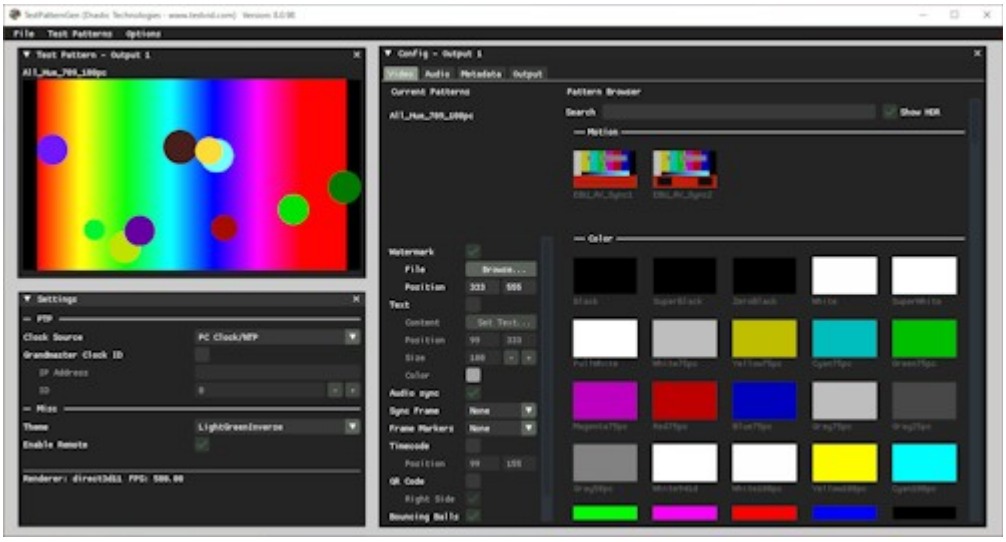
#### 4.1.4.4.34 GrayCodz01Inverse



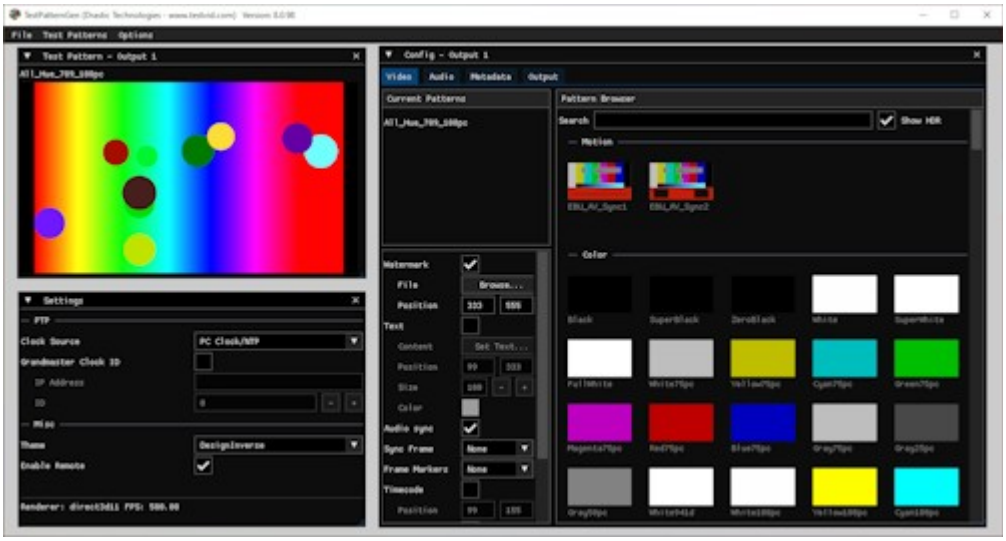
#### 4.1.4.4.35 PurpleInverse



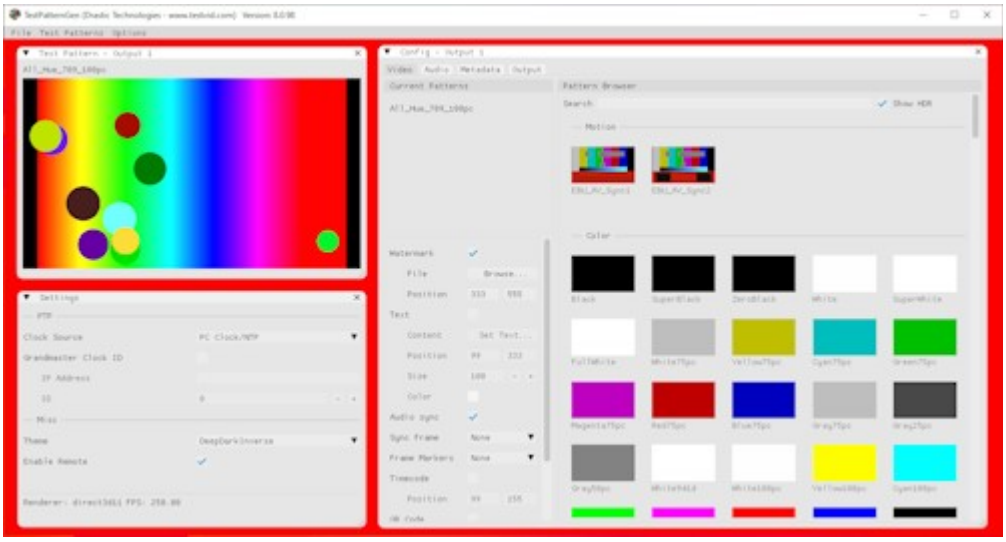
#### 4.1.4.4.36 LightGreenInverse



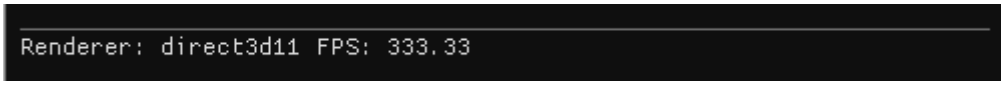
#### 4.1.4.4.37 DesignInverse



#### 4.1.4.4.38 DeepDarkInverse



## 4.1.5 Settings – Render Details

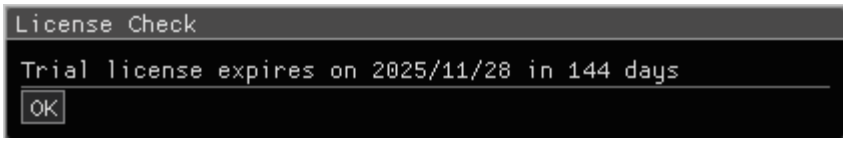


At the bottom of the Settings window, the renderer is displayed, and FPS values are indicated. The FPS is the frames per second that the display is rendered at, not the output frame rate.

A system that doesn't have vertical sync enabled, and is not running a lot of processes, may show a fairly high FPS value. Your performance load and workflow will affect this rate.

### 4.1.6 Check License

**Check License** – click to display the current status of your license.

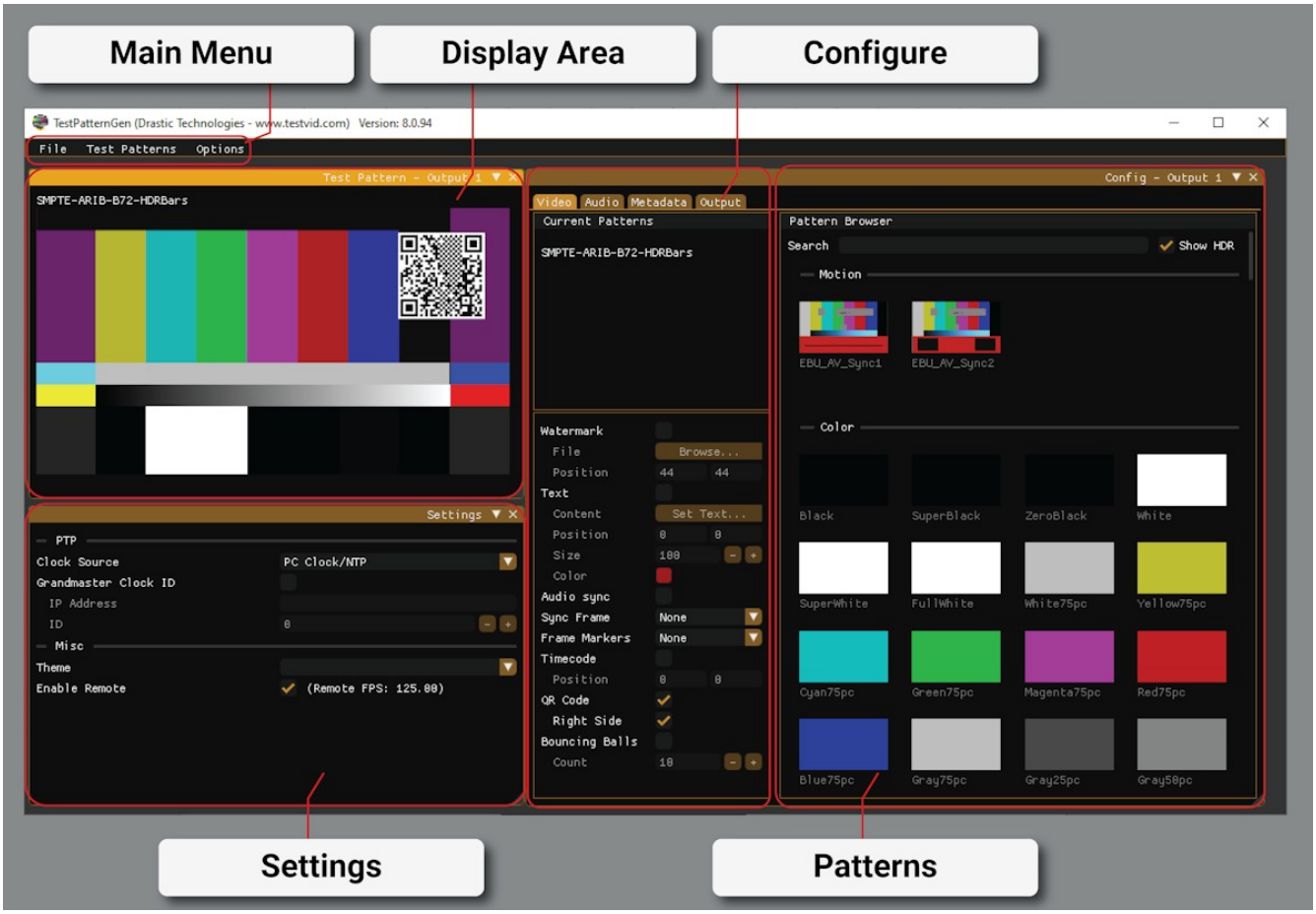



Since Test Pattern Generator won't run without a license, you would need at least a temp license before seeing this dialog.

# 5 Reference

The reference section provides a detailed look at each of the elements in the **Test Pattern Generator** graphical user interface.

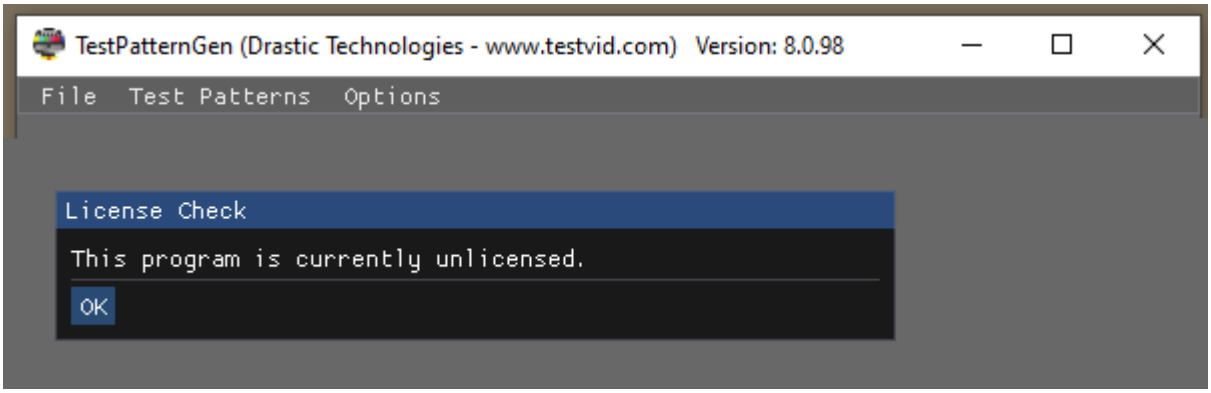
## 5.1 Main Interface Overview




### 5.1.1 Main Menu

**File** – save the configuration, or open a saved configuration.
**Test Patterns** – add a new test pattern output, or remove all test pattern outputs.
**Options** – opens the settings window, with a PTP section so the user can set the clock source and ID, and a miscellaneous section with controls for the “theme”, or look of the GUI. The user can also enable/disable the remote control feature here, and check the status of the

license. Note: if the system has no license at all, when you try to run the software, a warning message will arise and let you know the program is unlicensed.




Pressing the **OK** button closes Test Pattern Generator, so you can run the licensing and send us a site code. You must have at least a temp license to run the software.

### 5.1.2 Display Area

**Display Area –** for each test pattern output that is added, a Display window is opened.

### 5.1.3 Configure

**Configure** – once a Display window is open, the user can right click on it, and select Configure. The Configure dialog lets you configure the output, including which pattern(s) to send, the type of output channel, the audio and video type to send, and so on.

### 5.1.4 Settings

**Settings** – set the clock source, set the theme, enable/disable remote control. The renderer is displayed, and its frames per second (how fast the display is rendered) is shown.

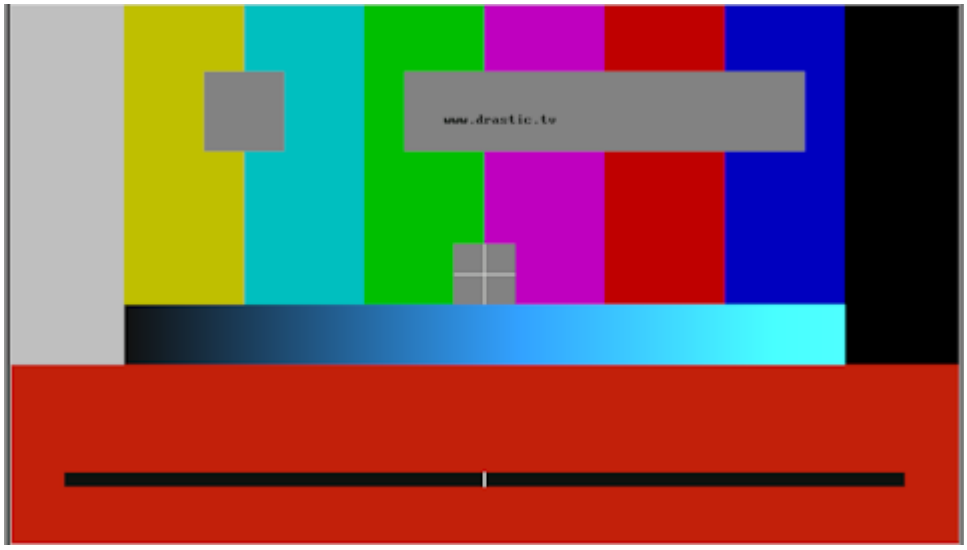
### 5.1.5 Patterns

**Patterns** – the patterns section provides all the patterns available for selection.

# 6 Patterns

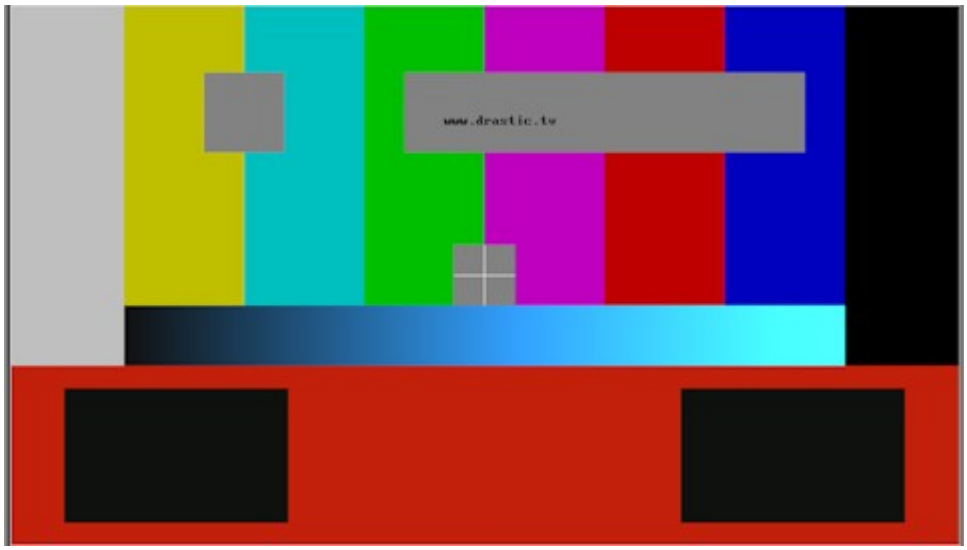
## 6.1 Motion Patterns

### 6.1.1 EBU Digital A/V Sync Motion 1



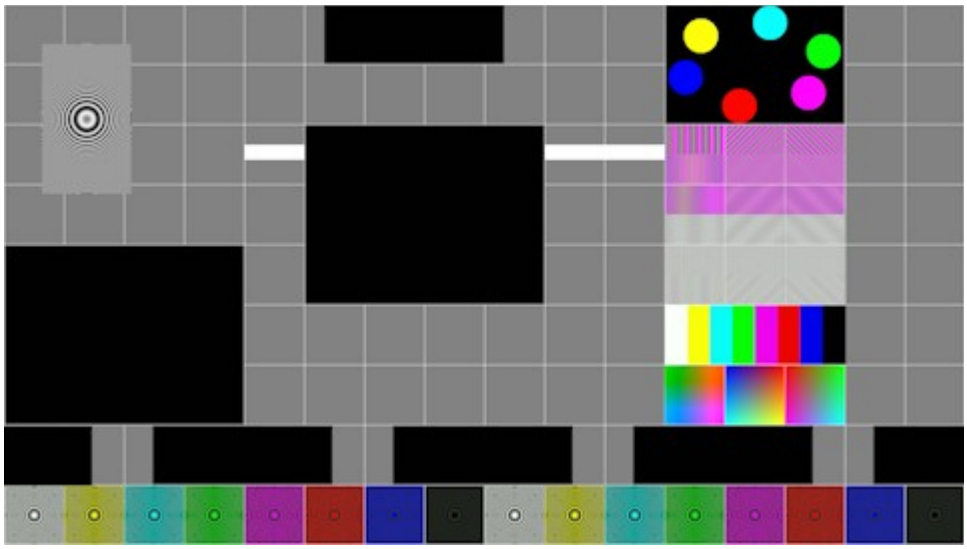

**EBU Digital A/V Sync Motion 1** – (EBU Digital A/V Sync | Motion 1 (time-varying) | Signal: SDR) Features bars and a black bar moving up and down synchronized to an audio pulse.

### 6.1.2 EBU_AV_Sync2




**EBU Digital A/V Sync Motion 2** – (EBU Digital A/V Sync | Motion 2 (time-varying) | Signal: SDR) Features bars and two black boxes that grow toward the center, synchronized to an audio pulse.

### 6.1.3 FieldMotion



**Field Motion** – (Field Motion | Motion (time-varying) | Signal: SDR) the main frame is a gray background overlaid with a white grid. Motion elements include a moving zone plate, color bars that go from 0% to 100%, and rotating colored spheres on black. Static elements

include multiburst patterns, lines, color ramps, and zone plates in various hues.

## 6.2 Static Patterns

### 6.2.1 Color Rec 709 Patterns

The full-field color test patterns (Red, Blue, Green Field etc.) are handy diagnostic test signals to help assess the ability of a device under test (such as a color monitor) to handle the individual primary color video signal components. In some cases the Red, Green, and Blue test signals are displayed on a monitor while adjustments are made to the yoke magnets of the monitor's tube to ensure proper display. The Red Field signal is often used to help visually detect the presence of noise introduced by a monitor. Our eyes are extremely sensitive to the presence of such noise on a red field.

ITU-R Recommendation 709, (Rec. 709)9, is a standard developed by the Radiocommunication Sector of the International Telecommunication Union (ITU-R) for image encoding and signal characteristics of high-definition television (HDTV). The standard specifies a scheme for digital encoding of colors as triplets of small integers, a widescreen format with 1080 active lines per picture and 1920 square pixels per line (a 16:9 aspect ratio), as well as several details of signal capture, transmission, and display.

### 6.2.1.1 Black

**Black** – SMPTE Rec.709 black, or 64 luma in 10 bit. (Black Frame Y 64 10-bit | Solid color | Signal: SDR}

### 6.2.1.2 SuperBlack

**Super Black** - Rec.709 Super Black, or 3 luma in 10 bit, the lowest legal value. (Superblack Frame Y 3 10-bit | Solid color | Signal: SDR)

### 6.2.1.3 ZeroBlack

**Zero black** – Rec.709 Zero Black – having zero luma, which is an illegal value. (Black Frame Y 0 10-bit | Solid color | Signal: SDR)

### 6.2.1.4 White



**White** – Rec.709 White, or 940 luma. (White Frame Y 940 10-bit | Solid color | Signal: SDR)

### 6.2.1.5 SuperWhite

**Super White** – Rec.709 Super white, at 1020 luma, the highest legal value. (Superwhite frame Y 1020 10-bit | Solid color | Signal: SDR)

### 6.2.1.6 FullWhite

**Full White** – Rec.709 full white, at 1023 luma, an illegal value. (Full white frame Y 1023 10-bit | Solid color | Signal: SDR)

### *6.2.1.7 White_709_75pc*

**White 709 75% –** a full frame of Rec.709 White at 75% saturation. Same as “Gray75pc”. (Solid white 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### *6.2.1.8 Yellow_709_75pc*

**Yellow 709 75% –** a full frame of Rec.709 Yellow at 75% saturation. (Solid yellow 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.9 Cyan_709_75pc

**Cyan 709 75% –** a full frame of Rec.709 Cyan at 75% saturation. (Solid cyan 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.10 Green_709_75pc

**Green 709 75% –** a full frame of Rec.709 Green at 75% saturation. (Solid green 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.11 Magenta_709_75pc

**Magenta 709 75% –** a full frame of Rec.709 Magenta at 75% saturation. (Solid magenta 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.12 Red_709_75pc

**Red 709 75% –** a full frame of Rec.709 Red at 75% saturation. (Solid red 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.13 Blue_709_75pc

**Blue 709 75% –** a full frame of Rec.709 Blue at 75% saturation. (Solid blue 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.14 Grey_709_75pc

**Grey 709 75% –** a full frame of Rec.709 grey at 75% saturation. (Solid grey 75 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.15 Grey_709_25pc

**Grey 709 25% –** a full frame of Rec.709 Grey at 25% saturation. (Solid grey 25 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.16 Grey_709_50pc

**Grey 709 50% –** a full frame of Rec.709 Grey at 50% saturation. (Solid grey 50 percent Rec.709 | Solid color | Colorspace: Rec.709 | Signal: SDR)

### 6.2.1.17 White941d



**White 941d –** a full frame of Rec.709 white at 941, one more than “White”. (White frame Y 941 10-bit | Solid color | Signal: SDR)

### 6.2.1.18 White100pc



**White 100%** – a full frame of Rec.709 White at 100% saturation. (White 100 % | Solid color | Signal: SDR)

### 6.2.1.19 Yellow100pc

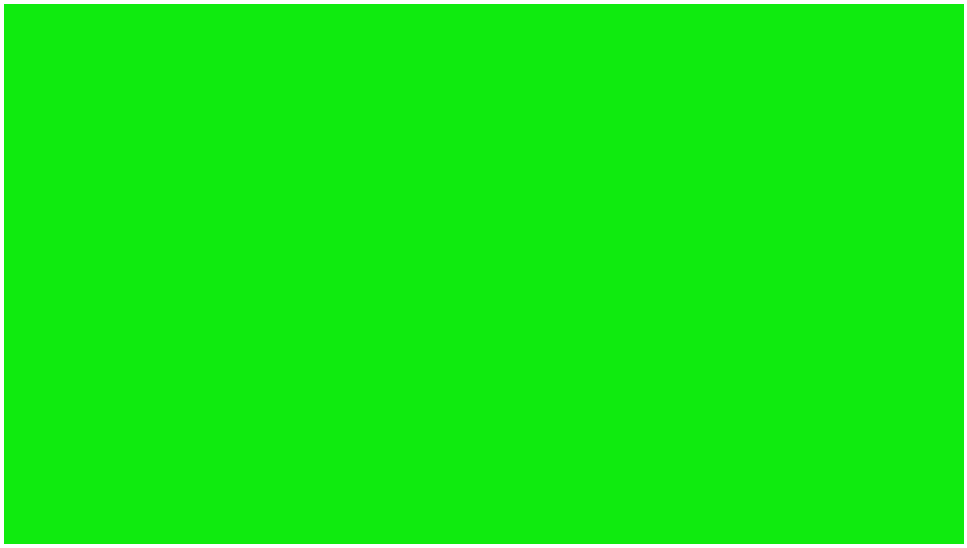


**Yellow 100%** – a full frame of Rec.709 yellow at 100% saturation. (Yellow 100 % | Solid color | Signal: SDR)

### 6.2.1.20 Cyan100pc

**Cyan 100%** – a full frame of Rec.709 cyan at 100% saturation. (Cyan 100 % | Solid color | Signal: SDR)

### 6.2.1.21 Green100pc



**Green 100%** – a full frame of Rec.709 green at 100% saturation. (Green 100 % | Solid color | Signal: SDR)

### 6.2.1.22 Magenta100pc

**Magenta 100%** – a full frame of Rec.709 magenta at 100% saturation. (Magenta 100% | Solid color | Signal: SDR)

### 6.2.1.23 Red100pc

**Red 100%** – a full frame of Rec.709 red at 100% saturation. (Red 100% | Solid color | Signal: SDR)

### 6.2.1.24 Blue100pc

**Blue 100%** – a full frame of Rec.709 blue at 100% saturation. (Blue 100% | Solid color | Signal: SDR)

### 6.2.1.25 Black63d

**Black 63d** – a full frame of Rec.709 black, at the 63 digital level, one lower than “Black”. (Black frame at 63 | Solid color | Signal: SDR)

### 6.2.1.26 Grey_709_18pc

**Grey 709 18%** – a full frame of Rec.709 18% grey. (18% Grey | Solid color | Signal: SDR)

### 6.2.2 Color CCIR 601 Patterns

ITU-R Recommendation BT.601, (BT.601), is a standard originally issued in 1982 by the CCIR (an organization, which has since been renamed as the International Telecommunication Union – Radiocommunication sector) for encoding interlaced analog video signals in digital video form. It includes methods of encoding 525-line 60 Hz and 625-line 50 Hz signals, both with an active region covering 720 luminance samples and 360 chrominance samples per line. The color encoding system is known as YCbCr 4:2:2.

### *6.2.2.1 White_601_75pc*

**White 601 75%** – a full frame of BT.601 75% White (75% White | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.2 Yellow_601_75pc*

**Yellow 601 75%** – a full frame of BT.601 75% Yellow (75% Yellow | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.3 Cyan_601_75pc*

**Cyan 601 75%** – a full frame of BT.601 75% Cyan (75% Cyan | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.4 Green_601_75pc*

**Green 601 75%** – a full frame of BT.601 75% Green (75% Green | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.5 Magenta_601_75pc*

**Magenta 601 75%** – a full frame of BT.601 75% Magenta (75% Magenta | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.6 Red_601_75pc*

**Red 601 75%** – a full frame of BT.601 75% Red (75% Red | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.7 Blue_601_75pc*

**Blue 601 75%** – a full frame of BT.601 75% Blue (75% Blue | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### *6.2.2.8 Grey_601_75pc*

**Grey 601 75%** – a full frame of BT.601 75% Grey (75% Grey | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### 6.2.2.9 Grey_601_25pc

**Grey 601 25%** – a full frame of BT.601 25% Grey (25% Grey | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### 6.2.2.10 Grey_601_50pc

**Grey 601 50%** – a full frame of BT.601 50% Grey (50% Grey | Solid color (BT.601) | Colorspace: BT.601 | Signal: SDR)

### 6.2.3 Color BT.2020 Patterns

ITU-R Recommendation BT.2020, (BT.2020), defines various aspects of ultra-high-definition television (UHDTV) with standard dynamic range (SDR) and wide color gamut (WCG), including picture resolutions, frame rates with progressive scan, bit depths, color primaries, RGB and luma-chroma color representations, chroma subsamplings, and an opto-electronic transfer function. Rec. 2020 defines two standard image formats of 3840 × 2160 ("4K") and 7680 × 4320 ("8K"), with an aspect ratio of 16:9 using square pixels.

### *6.2.3.1 White_2020_75pc*

**White 2020 75%** – a full frame of BT.2020 75% White (75% White | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.2 Yellow_2020_75pc*

**Yellow 2020 75%** – a full frame of BT.2020 75% Yellow (75% Yellow | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.3 Cyan_2020_75pc*

**Cyan 2020 75%** – a full frame of BT.2020 75% Cyan (75% Cyan | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.4 Green_2020_75pc*

**Green 2020 75%** – a full frame of BT.2020 75% Green (75% Green | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.5 Magenta_2020_75pc*

**Magenta 2020 75%** – a full frame of BT.2020 75% Magenta (75% Magenta | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.6 Red_2020_75pc*

**Red 2020 75%** – a full frame of BT.2020 75% Red (75% Red | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.7 Blue_2020_75pc*

**Blue 2020 75%** – a full frame of BT.2020 75% Blue (75% Blue | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.8 Grey_2020_75pc*

**Grey 2020 75%** – a full frame of BT.2020 75% Grey (75% Grey | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.9 Grey_2020_25pc*

**Grey 2020 25%** – a full frame of BT.2020 25% Grey (25% Grey | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### *6.2.3.10 Grey_2020_50pc*

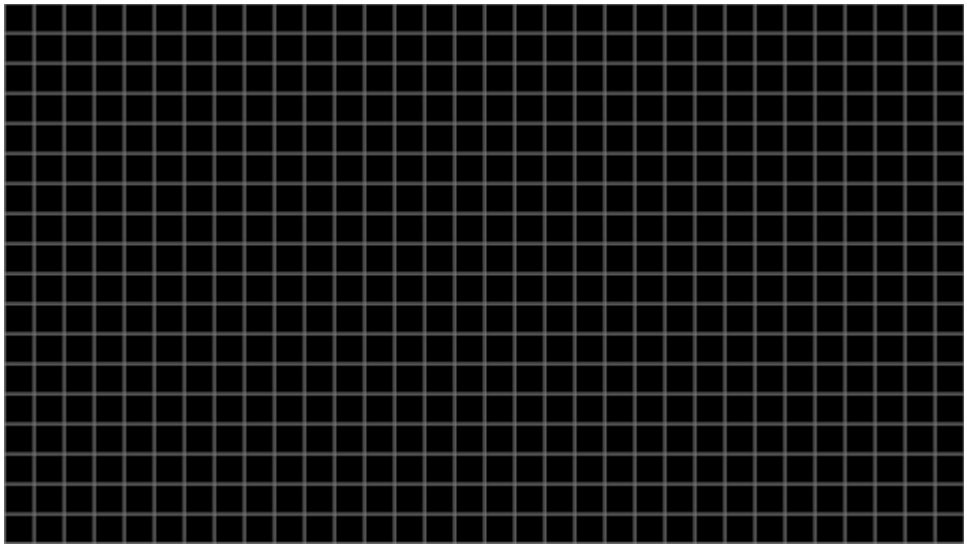
**Grey 2020 50%** – a full frame of BT.2020 50% Grey (50% Grey | Solid color (BT.2020) | Colorspace: BT.2020 | Signal: SDR)

### 6.2.4 Grid Patterns

Patterns based on geometry including grid patterns. Used for monitor calibration and to check aspect ratio preservation during transcode, or up- or down-sampling.

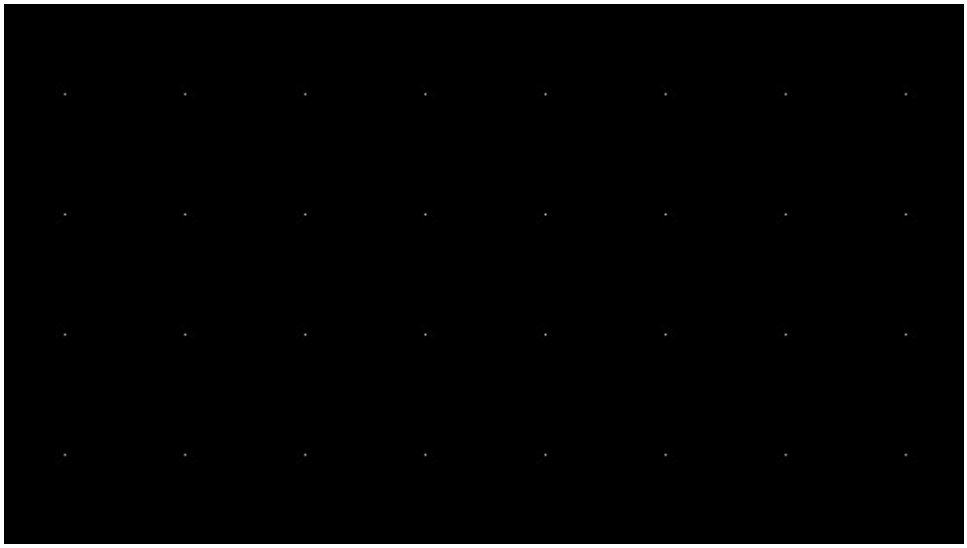
Grids or dots should be evenly spaced, and circles should be round, not stretched or squashed to an ellipse.

### 6.2.4.1 Grid



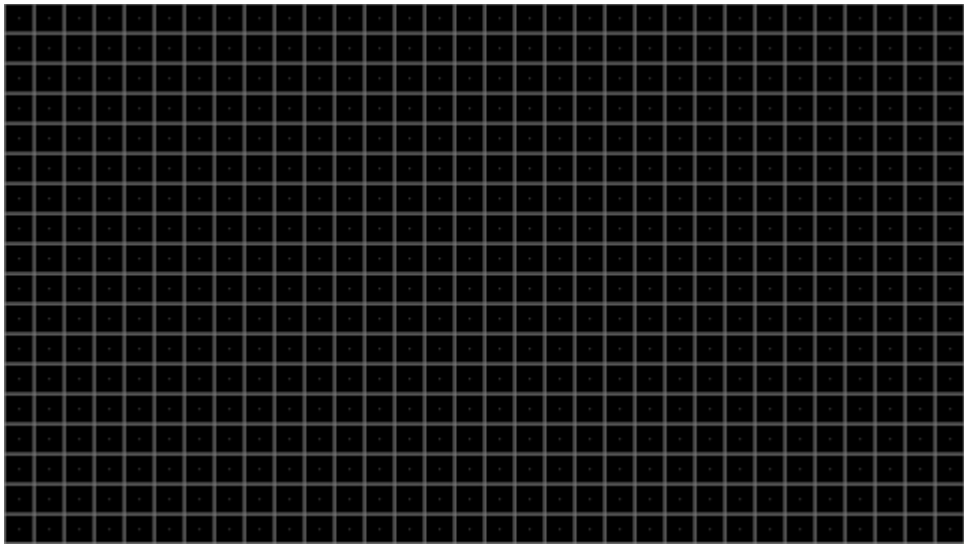
**Grid** – a standard grid used to calibrate RGB channels. (Standard Grid Pattern | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.2 Dots



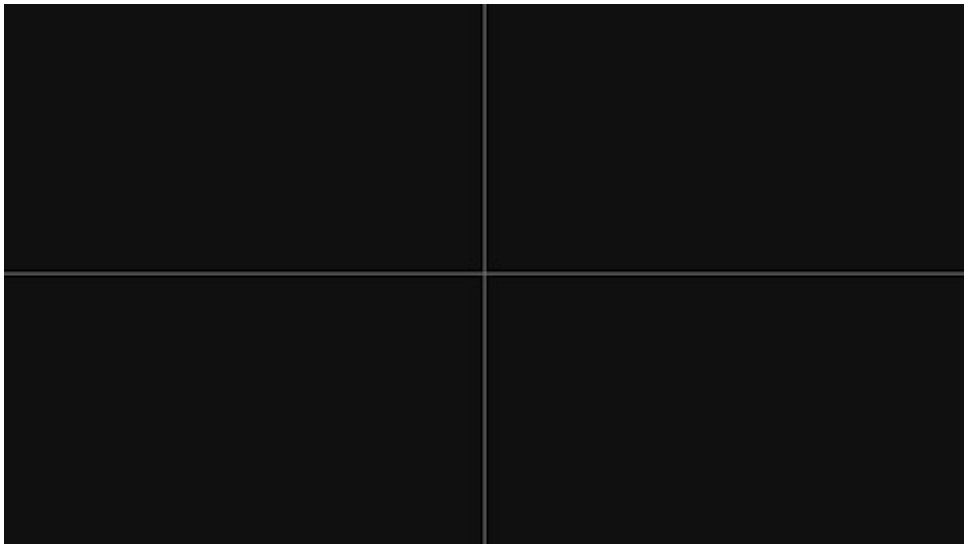
**Dots** – standard dots used to calibrate RGB channels. (Dot Grid Pattern | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.3 GridAndDots



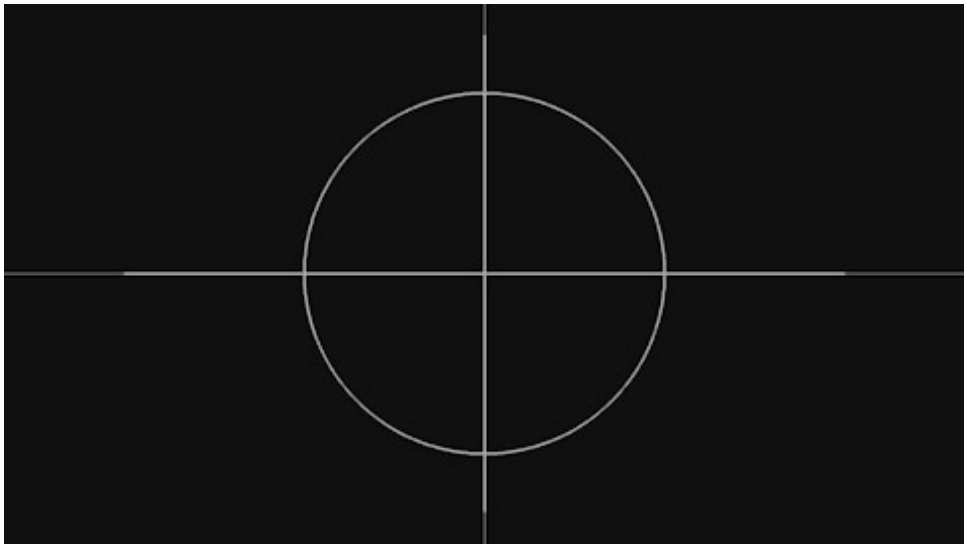
**Grid and Dots** – a grid and dots pattern used to calibrate RGB channels. (Grid with dot overlay Pattern | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.4 Cross



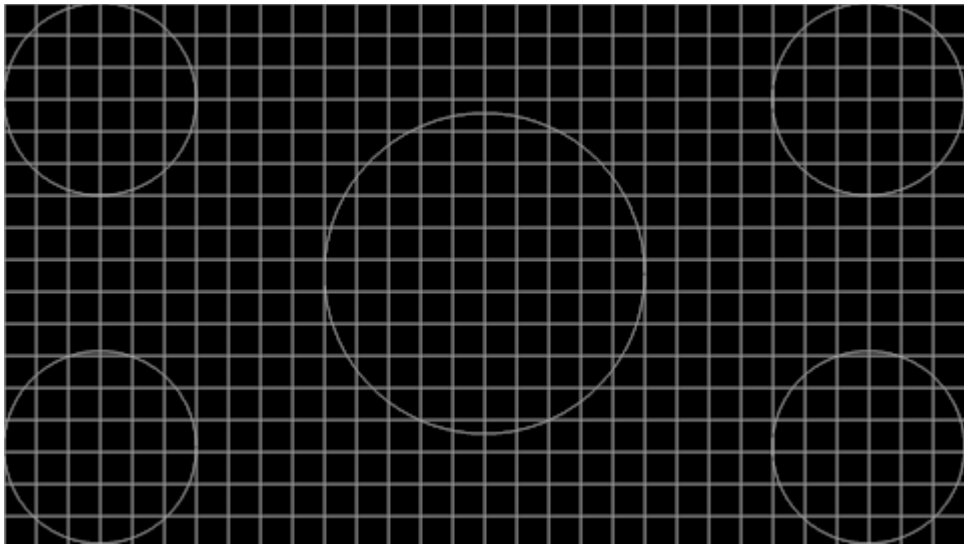
**Cross** – provides a frame of black with a white cross centered on the middle of the frame. (Center Cross | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.5 CrossCircle



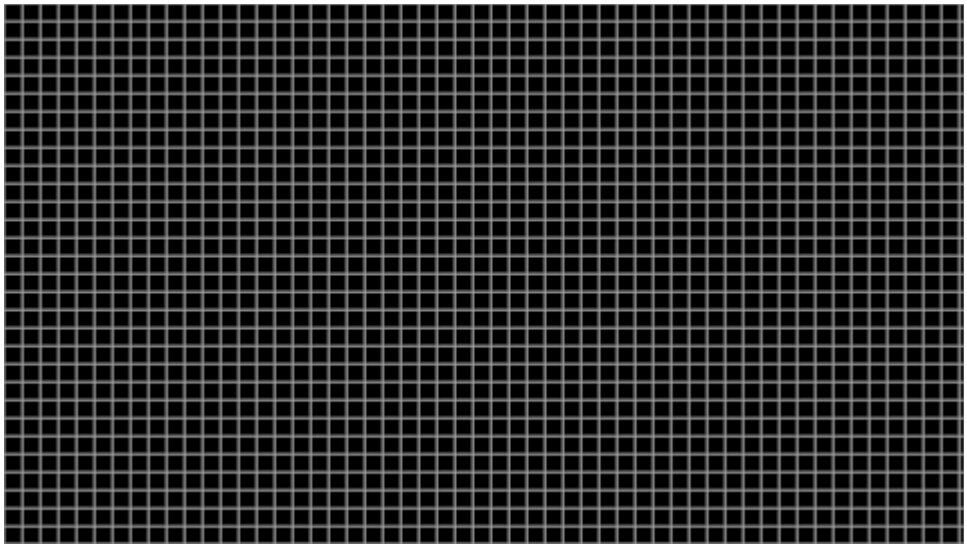
**Cross Circle** – provides a screen with a white cross in the center, and a circle centered on it. (Center Cross with circle | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.6 Circle



**Circle** – shows a frame of black with 5 circles on a grid for image alignment. (Circle Geometry | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.7 CrossHatch

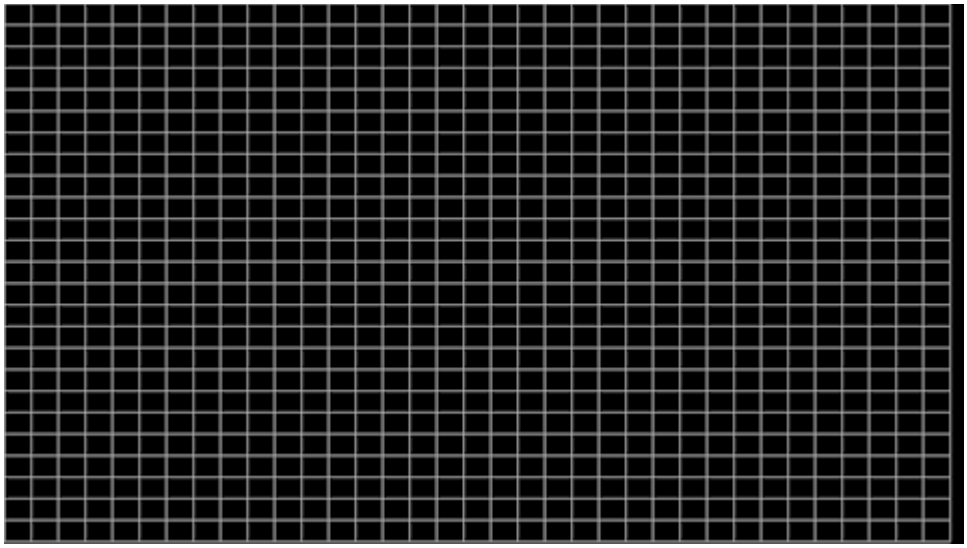


**Cross Hatch** – a white grid on a black background. (Crosshatch grid | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.8 EdgeMarkers

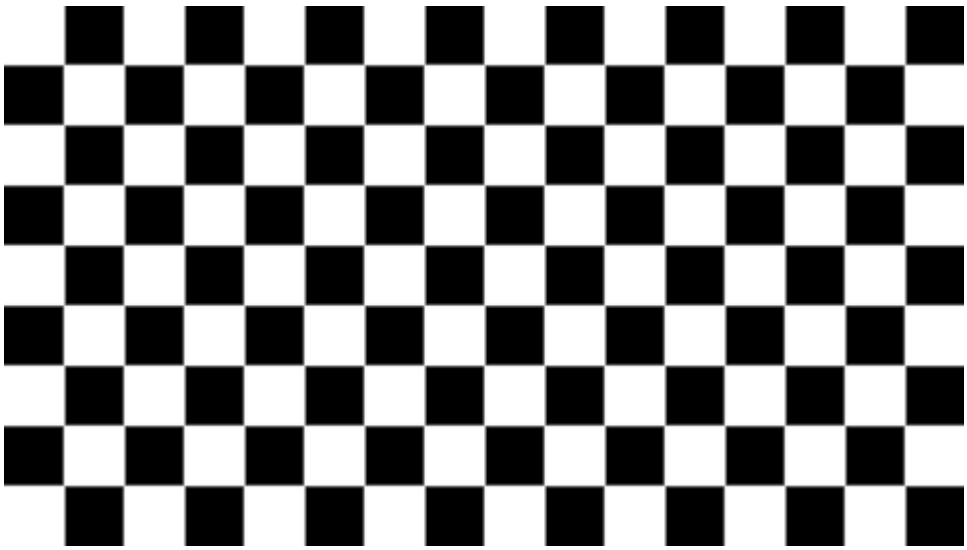
**Edge Markers** – a black screen with edge markers. (Edge markers and safe edges | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.9 HDR_GridPattern_1



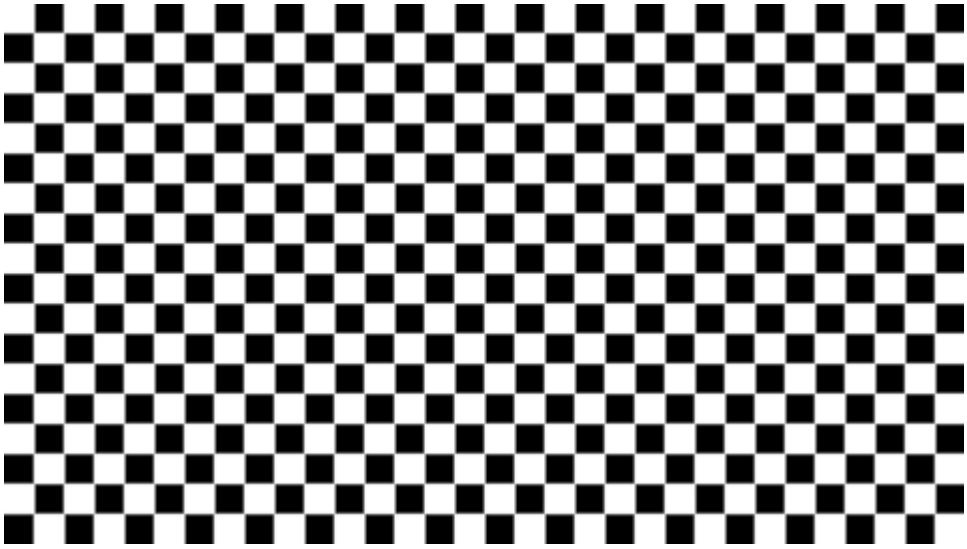
**HDR Grid Pattern 1** – a black screen with a grid overlaid for RGB calibration in HDR workflows. (HDR grid pattern | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.10 Checkerboard



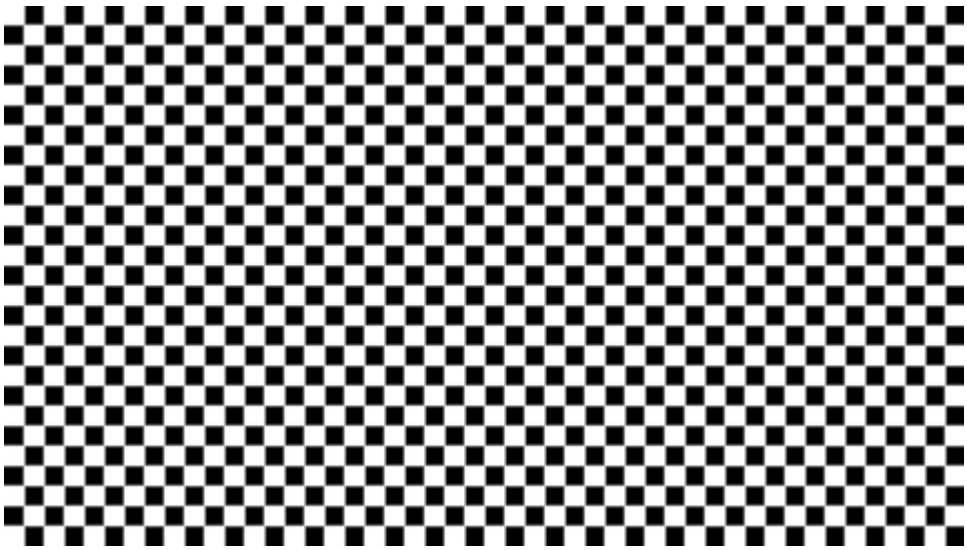
**Checkerboard** – a 16x9 grid of alternating black and white squares. (Checkerboard 100% | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.11 Checkerboard_x2



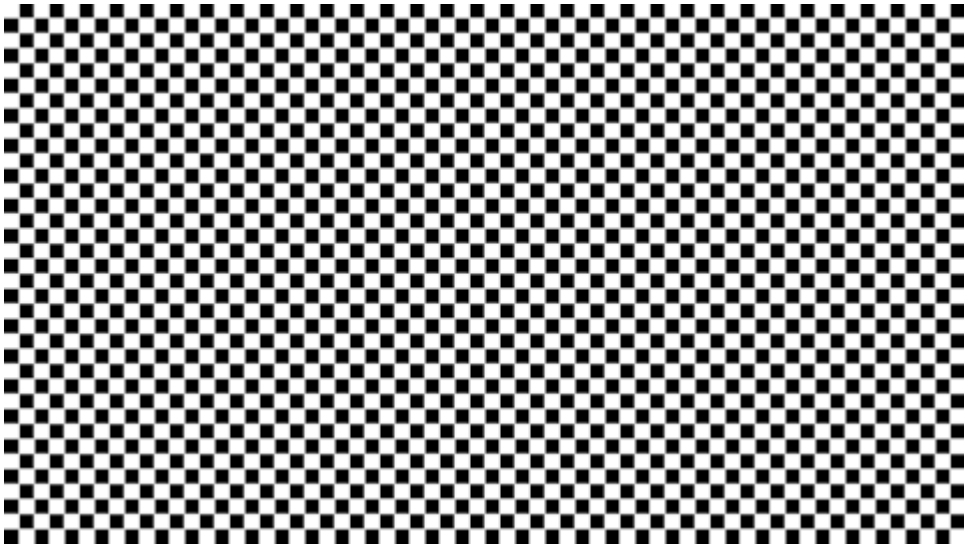
**Checkerboard x2** – a 32x18 grid of alternating black and white squares. (Checkerboard 100% | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.12 Checkerboard_x3



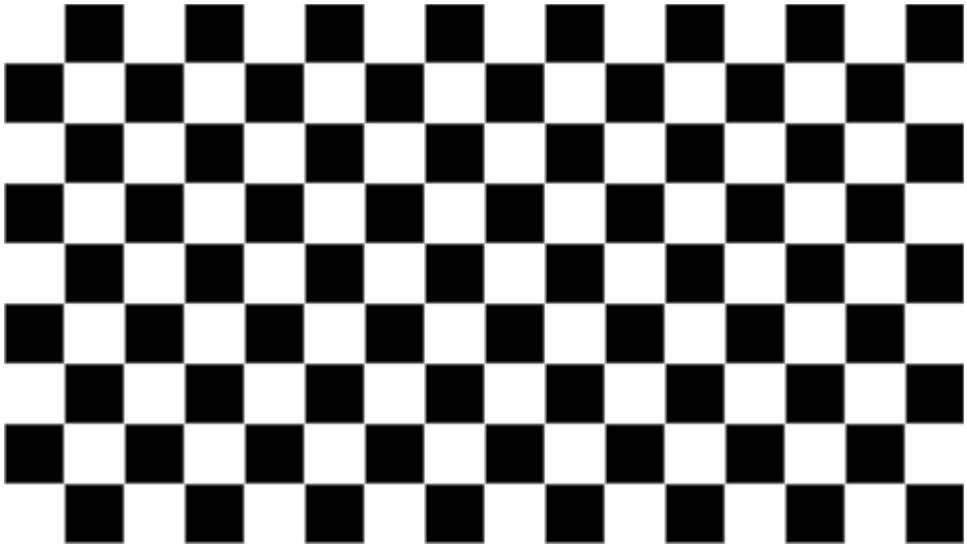
**Checkerboard x3** – a 48x27 grid of alternating black and white squares. (Checkerboard 100% | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.13 Checkerboard_x4



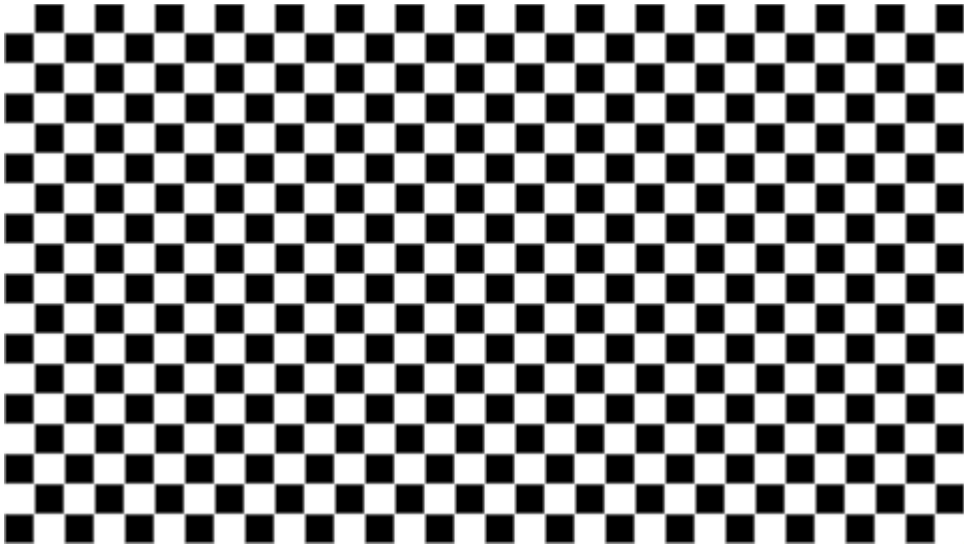
**Checkerboard x4** – a 64x36 grid of alternating black and white squares. (Checkerboard 100% | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.14 Checkerboard_Frame



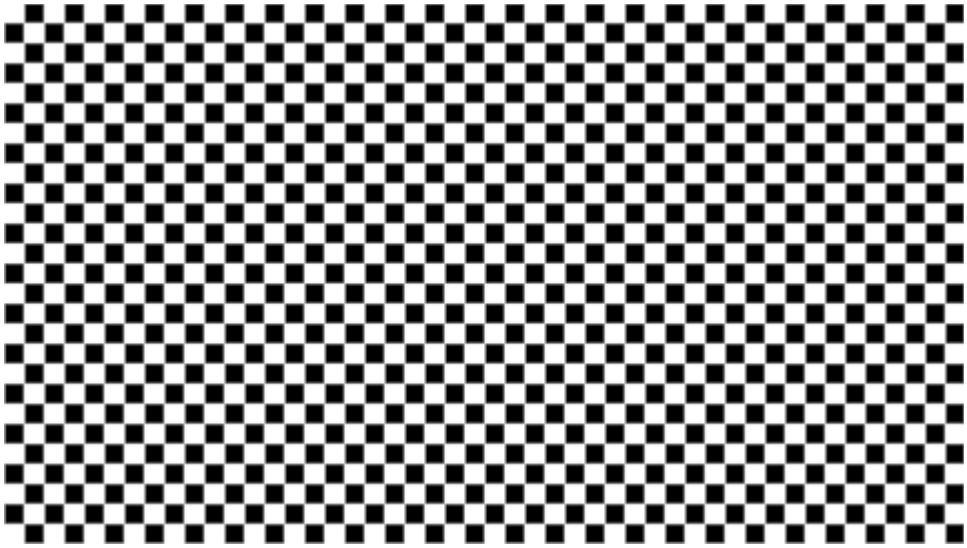
**Checkerboard Frame** – a framed 16x9 grid of alternating black and white squares. (Checkerboard Framed 100% | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.15 Checkerboard_Frame_x2



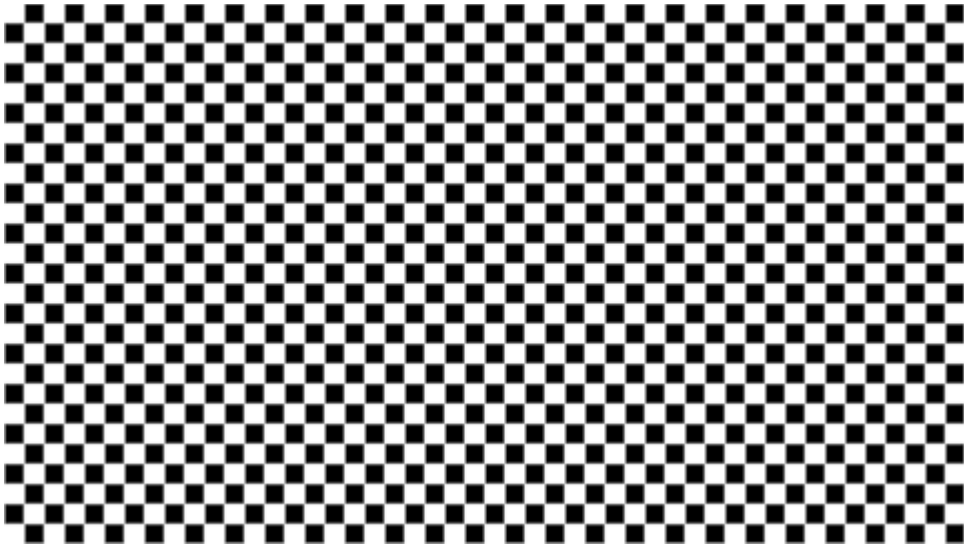
**Checkerboard Frame x2** – a framed 32x18 grid of alternating black and white squares.
(Checkerboard Framed 100% | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.16 Checkerboard_Frame_x3



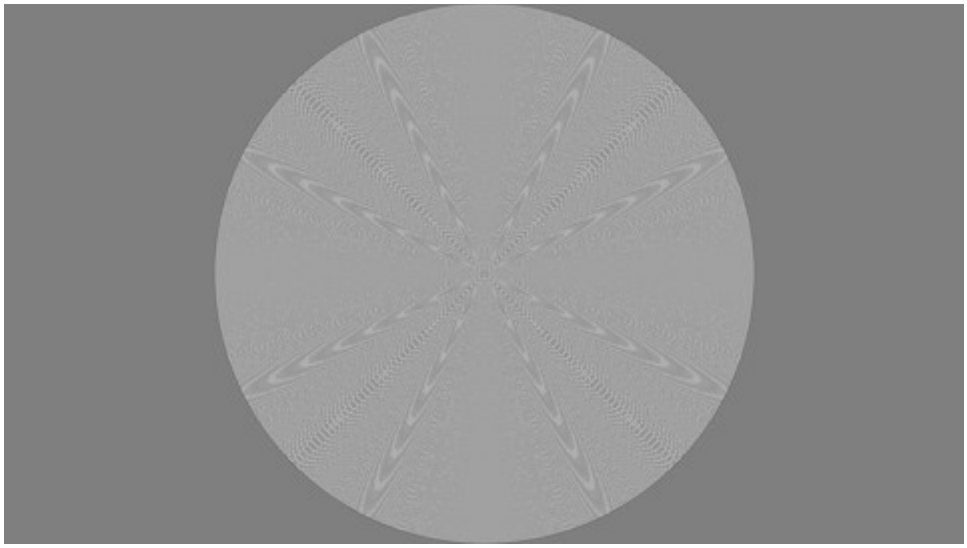
**Checkerboard Frame x3** – a framed 48x27 grid of alternating black and white squares.
(Checkerboard Framed 100% (tile size x3) | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.17 Checkerboard_Frame_x4



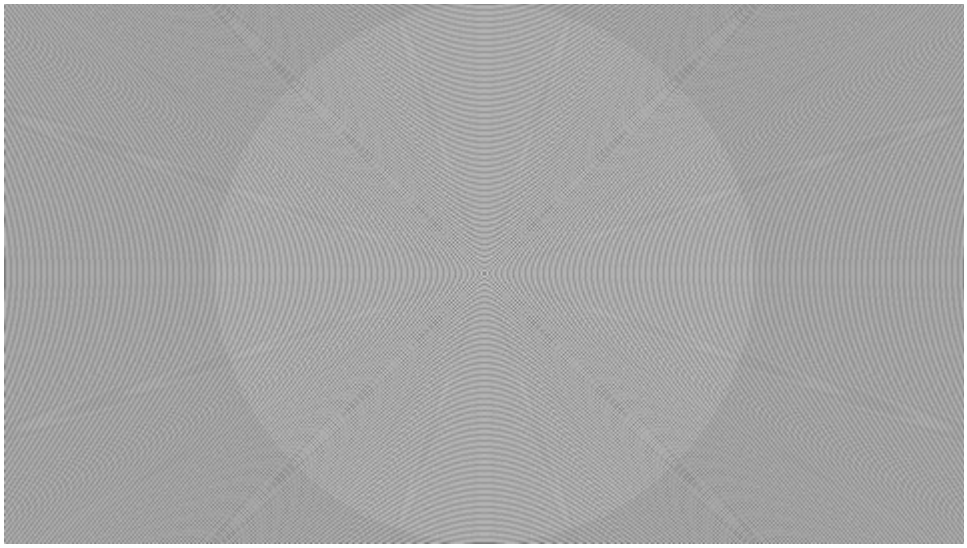
**Checkerboard Frame x4** – a framed 64x36 grid of alternating black and white squares. (Checkerboard Framed 100% (tile size x4) | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.18 ConcentricCircles1x1Pixel



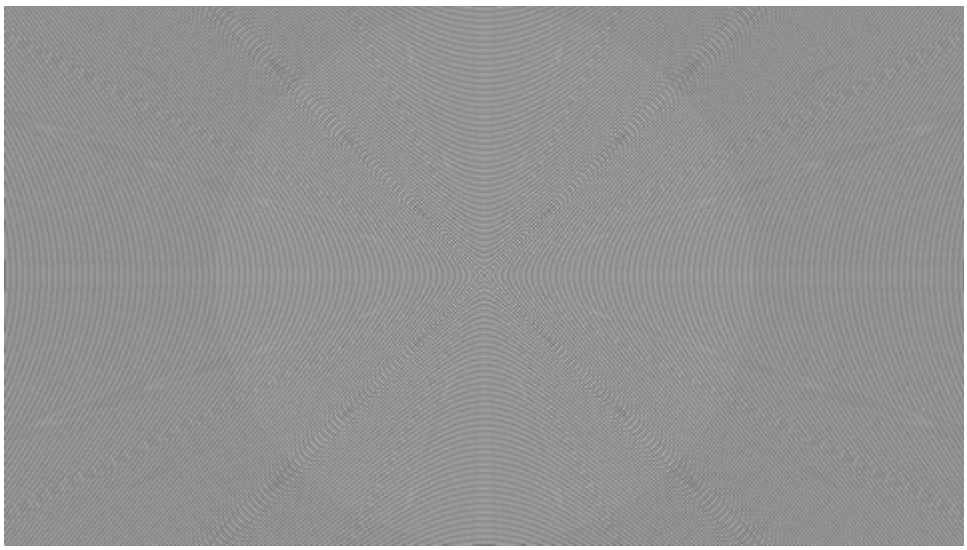
**Concentric Circles 1x1 Pixel** – a set of 1 pixel by 1 pixel concentric circles. (Concentric Circles 1x1 Pixel | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.19 ConcentricCircles2x1Pixel



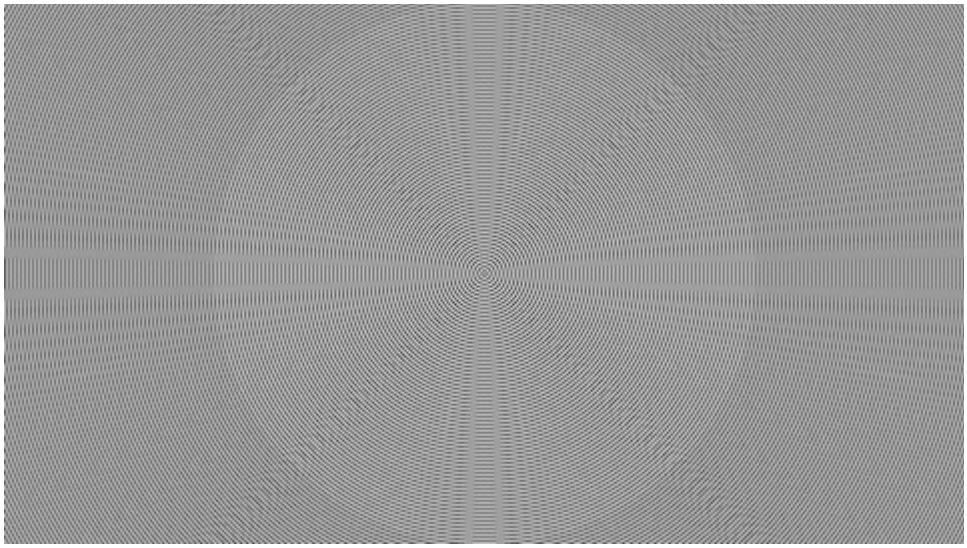
**Concentric Circles 2x1 Pixel** – a set of 2 pixel by 1 pixel concentric circles. (Concentric Circles 2x1 Pixel | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.20 ConcentricCircles1x2Pixel



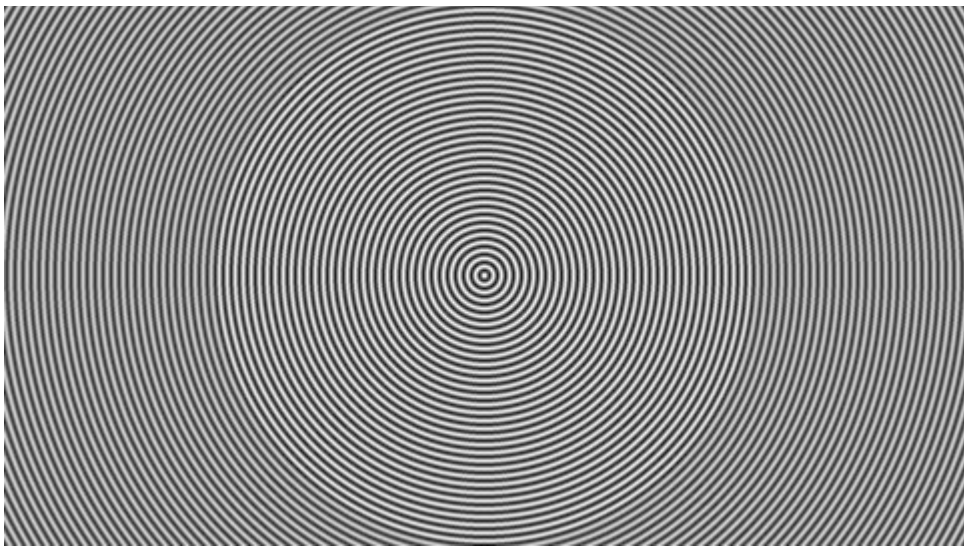
**Concentric Circles 1x2 Pixel** – a set of 1 pixel by 2 pixel concentric circles. (Concentric Circles 1x2 Pixel | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.21 ConcentricCircles2x2Pixel



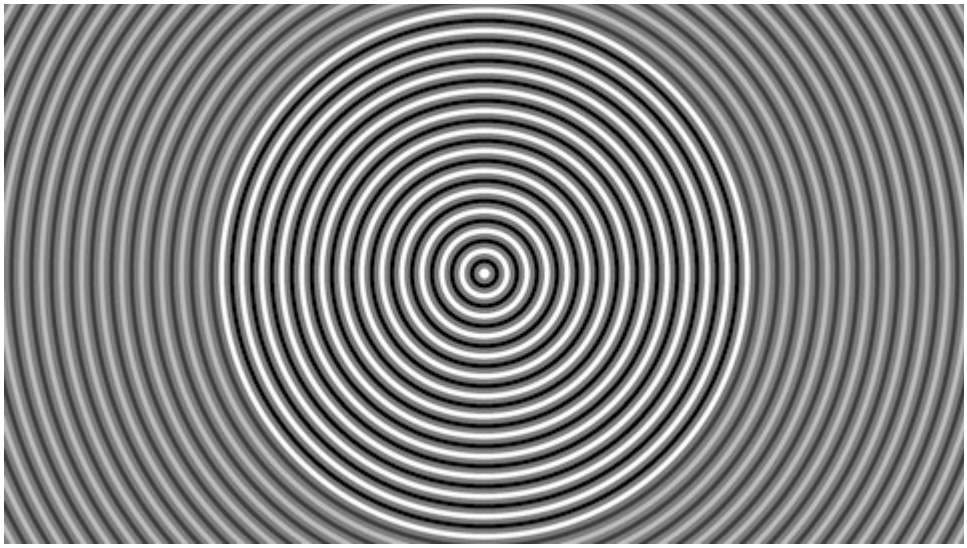
**Concentric Circles 2x2 Pixel** – a set of 2 pixel by 2 pixel concentric circles. (Concentric Circles 2x2 Pixel | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.22 ConcentricCircles4x4Pixel



**Concentric Circles 4x4 Pixel** – a set of 4 pixel by 4 pixel concentric circles. (Concentric Circles 4x4 Pixel | Geometry (grid/markers) | Signal: SDR)

### 6.2.4.23 ConcentricCircles10x10Pixel



**Concentric Circles 10x10 Pixel** – a set of 10 pixel by 10 pixel concentric circles. (Concentric Circles 10x10 Pixel | Geometry (grid/markers) | Signal: SDR)

### 6.2.5 Bars Patterns

Color bars are often used to test video levels and chrominance relationships. For example, 100% Color Bars is used to measure the insertion gain of a device under test, or the ability to preserve signal amplitudes through a device under test . Errors in insertion gain are visible in the video picture as areas which are too dark (loss of detail) or too light (washed out).

Full field color bars are used in making subjective evaluations and adjustments on color monitors. The waveform view of the black and white bars can also be used as a reference to match the video levels of other video systems equipment.

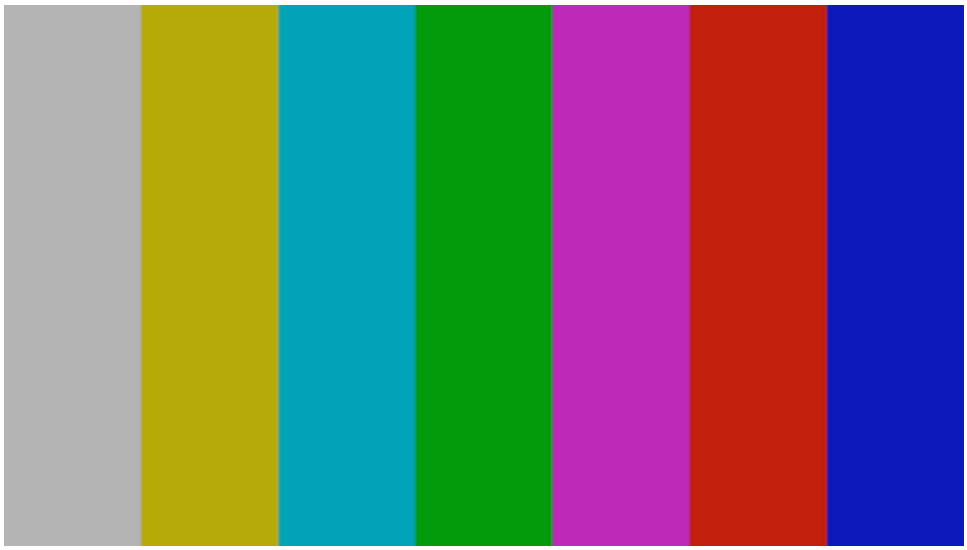
75.75 Color Bars (also known as 75% reduced amplitude bars with a 75% white reference) is a full field color bars test signal composed of a 75% gray bar (75% amplitude, 100% saturation) and 75% color bars (yellow, cyan, green, magenta, red, blue, and black).

Used to measure Insertion Gain, Monitor Alignment, Video Levels (WFM), Chroma Level and Phase.

Typical color bars are white, yellow, cyan, green, magenta, red, and blue. For brevity, these may be referred to as:

W/Y/C/G/M/R/B

### 6.2.5.1 Camera601Bars75pc

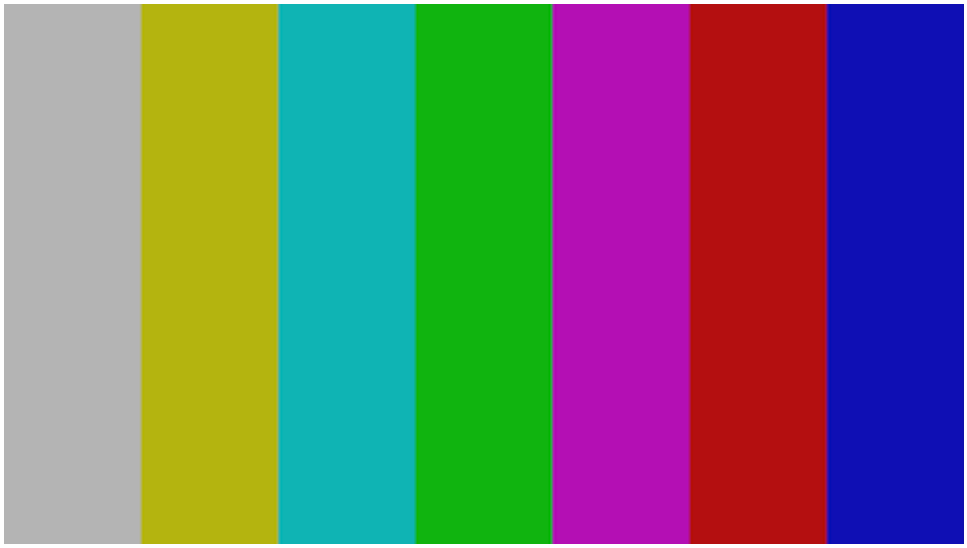


**Camera 601 Bars 75%** - Camera 601 (SD) W/Y/C/G/M/R/B bars at 75% saturation. (Camera Color Bars 75 percent BT.601 | Color Bars | Colorspace: BT.601 | Signal: SDR)

### 6.2.5.2 Camera601Bars100pc

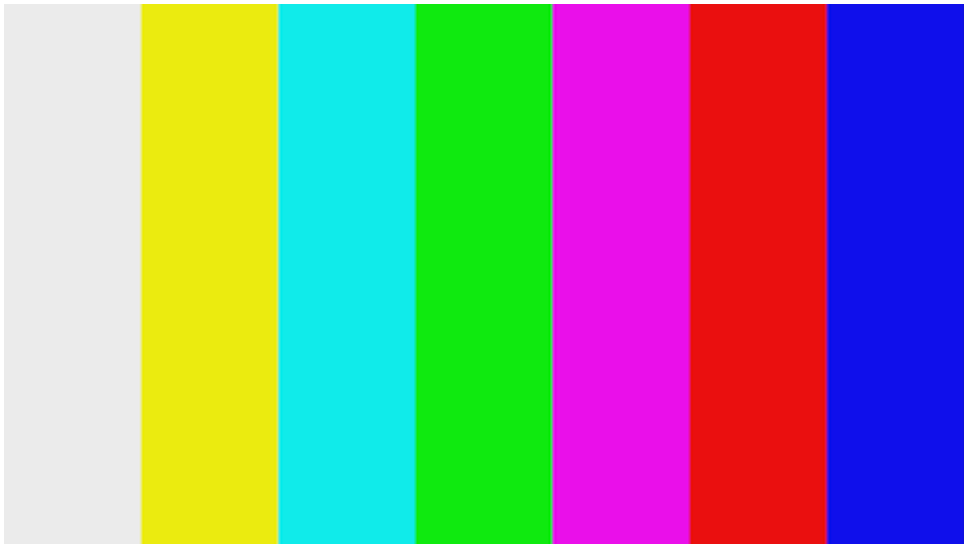
**Camera 601 bars at 100%** - Camera 601 (SD) bars with the white bar being at 100% saturation, and the yellow, cyan, green, magenta, red, and blue bars at 75% saturation. (Camera Color Bars 100 percent BT.601 | Color Bars | Colorspace: BT.601 | Signal: SDR)

### 6.2.5.3 Camera709Bars75pc



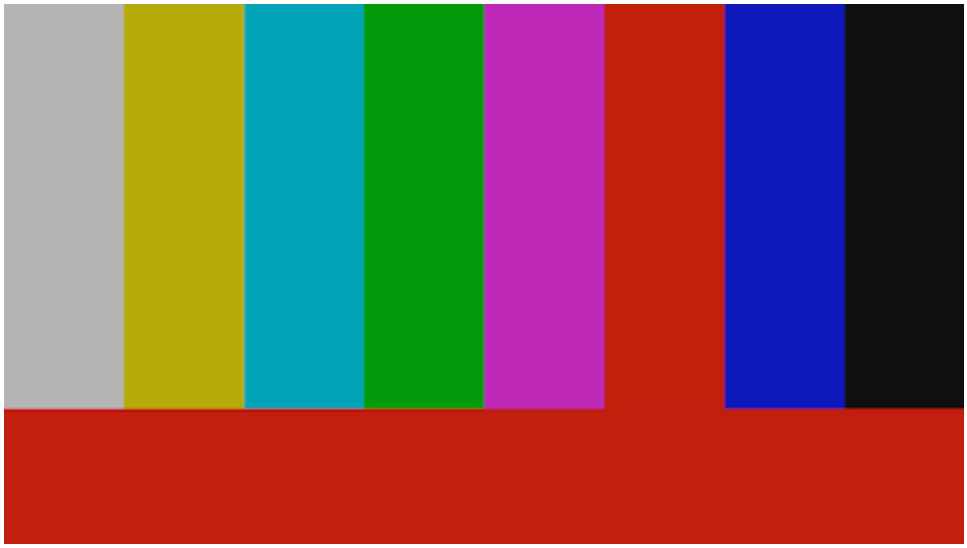
**Camera 709 bars at 75%** - Camera 709 (HD) W/Y/C/G/M/R/B bars at 75% saturation. (Camera Color Bars 75 percent Rec.709 | Color Bars | Colorspace: Rec.709 | Signal: SDR)

### 6.2.5.4 Camera709Bars100pc



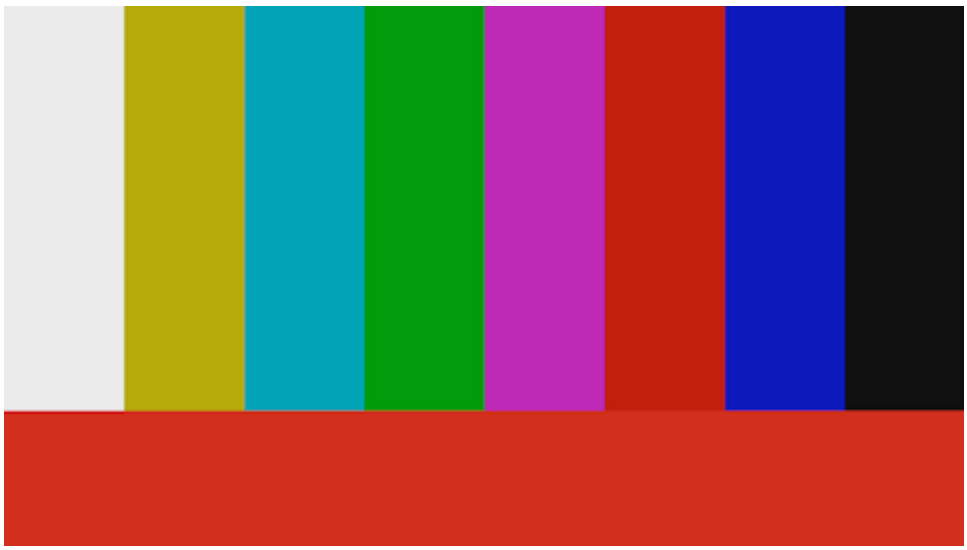
**Camera 709 bars at 100%** - Camera 709 (HD) W/Y/C/G/M/R/B bars at 100% saturation. (Camera Color Bars 100 percent Rec.709 | Color Bars | Colorspace: Rec.709 | Signal: SDR)

### 6.2.5.5 BarsRed75pc



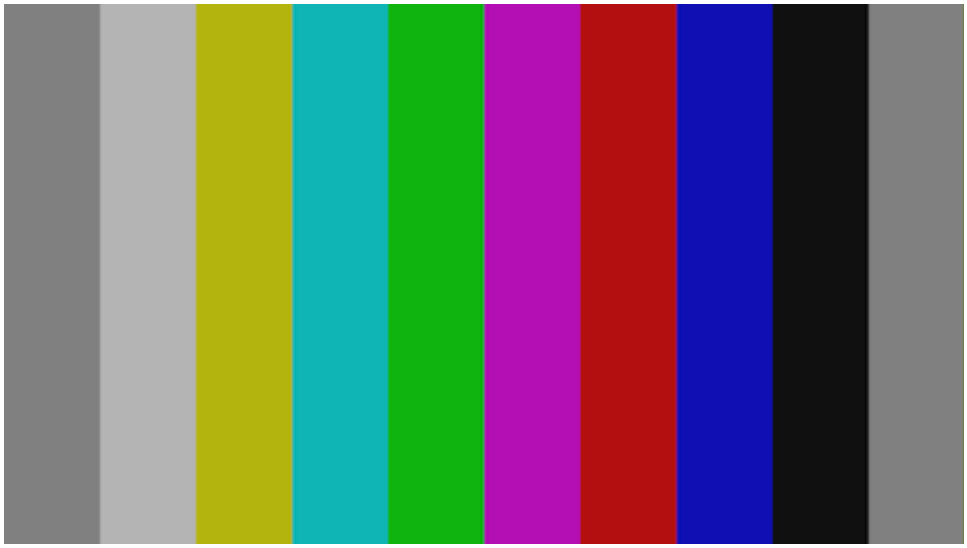
**Bars Red 75%** - W/Y/C/G/M/R/B, and Black, bars at 75% saturation, with a field of 75% red in the lower quarter. (Color bars with red reference 75 percent | Color Bars | Signal: SDR)

### 6.2.5.6 BarsRed100pc



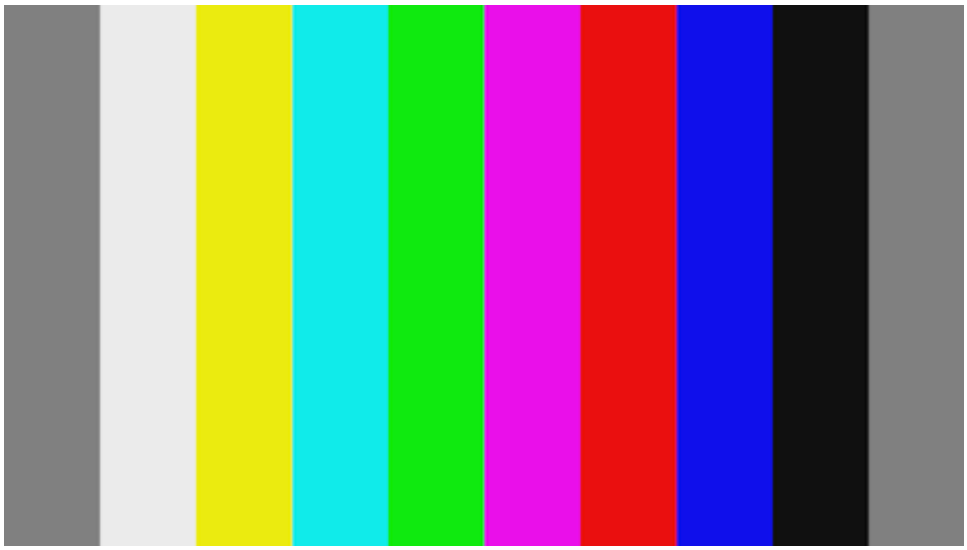
**Bars Red 100%** - Bars with the white bar being at 100% saturation, and the yellow, cyan, green, magenta, red, and blue bars at 75% saturation, a bar of black, plus a field of 100% red on the lower quarter. (Color bars with red reference 100 percent | Color Bars | Signal: SDR)

### 6.2.5.7 BarsBasicHD75pc



**Bars Basic HD 75%** - Basic HD W/Y/C/G/M/R/B bars at 75% saturation, with two bars of 50% gray on either side, and a bar of black second from the right. (Basic HD color bars 75 percent | Color Bars | Signal: SDR)

### 6.2.5.8 BarsBasicHD100pc



**Bars Basic HD 100%** - Basic HD W/Y/C/G/M/R/B bars at 100% saturation, with two bars of 50% gray on either side, and a bar of black second from the right. (Basic HD color bars 100 percent | Color Bars | Signal: SDR)

### *6.2.5.9 SMPTEBars601_75pc*

**SMPTE Bars 601 75%** – standard 601 (SD) W/Y/C/G/M/R/B SMPTE color bars at 75% saturation along the top, a second row with blue, black, magenta, black, cyan, black, and white, then a bottom row with violet, white, violet, and 3 blacks. (SMPTE color bars 75 percent BT.601 | Color bars | Colorscape: BT.601 | Signal: SDR)

### 6.2.5.10 SMPTEBars709_75pc

**SMPTE Bars 709 75%** – standard 709 (HD) W/Y/C/G/M/R/B SMPTE color bars at 75% saturation, a second row with blue, black, magenta, black, cyan, black, and white, then a bottom row with violet, white, violet, and 3 blacks. (SMPTE color bars 75 percent Rec.709 | Color bars | Colorscape: Rec.709 | Signal: SDR)

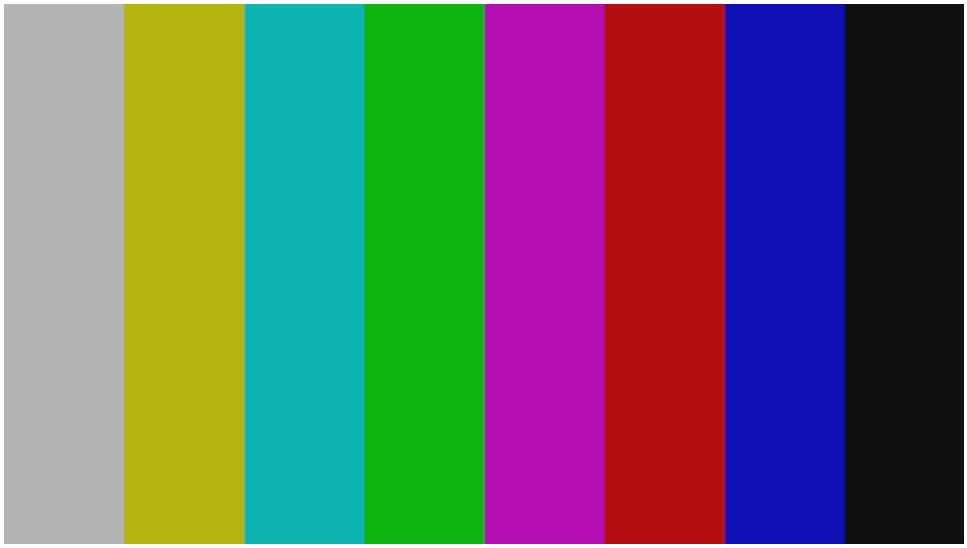
### *6.2.5.11 SMPTEBars601_100pc*

**SMPTE Bars 601 100%** – standard SD W/Y/C/G/M/R/B SMPTE color bars at 100% saturation, a second row with blue, black, magenta, black, cyan, black, and white, then a bottom row with violet, white, violet, and 3 blacks. (SMPTE color bars 100 percent BT.601 | Color bars | Colorscape: BT.601 | Signal: SDR)

### *6.2.5.12 SMPTEBars709_100pc*

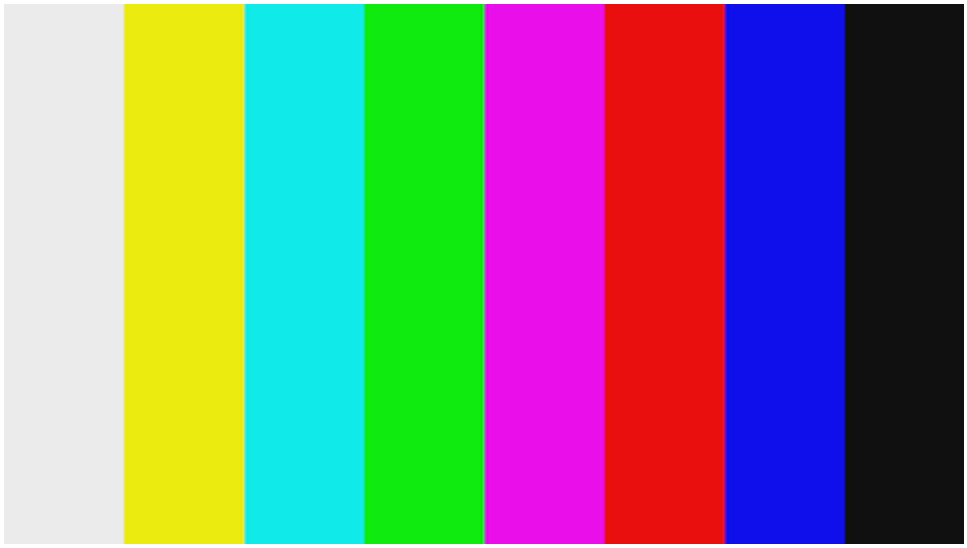
**SMPTE Bars 709 100%** – standard HD W/Y/C/G/M/R/B SMPTE color bars at 100% saturation, a second row with blue, black, magenta, black, cyan, black, and white, then a bottom row with violet, white, violet, and 3 blacks. (SMPTE color bars 100 percent Rec.709 | Color bars | Colorscape: Rec.709 | Signal: SDR)

### 6.2.5.13 CamBars_709_75pc



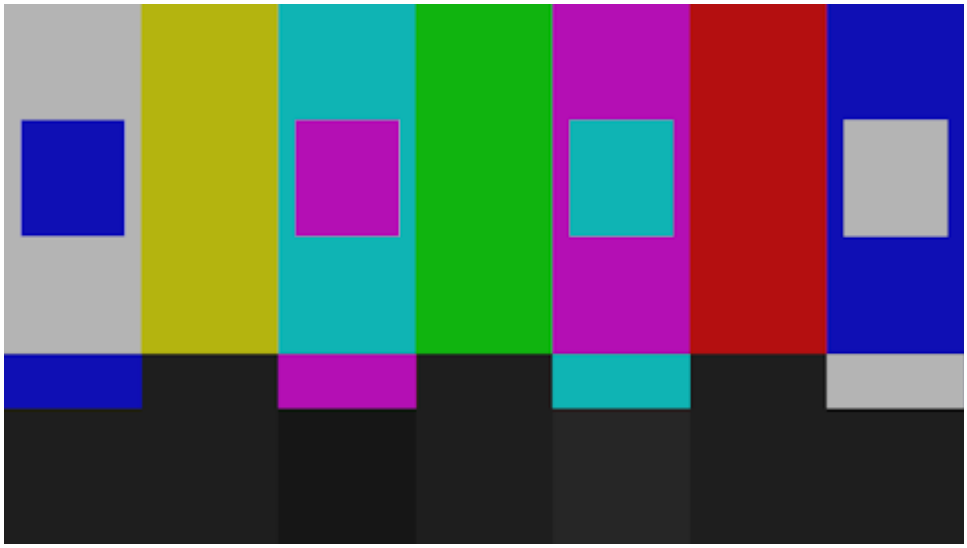
**Camera 709 bars at 75%** - camera 709 (HD) W/Y/C/G/M/R/B, plus Black, bars at 75% saturation. (Camera color bars 75 percent Rec.709 | Color bars | Colorscape: Rec.709 | Signal: SDR)

### 6.2.5.14 CamBars_709_100pc



**Camera 709 bars at 100%** - Camera 709 (HD) W/Y/C/G/M/R/B, plus Black, bars at 100% saturation. (Camera color bars 100 percent Rec.709 | Color bars | Colorscape: Rec.709 | Signal: SDR)

### 6.2.5.15 Bars709Inverts_75pc

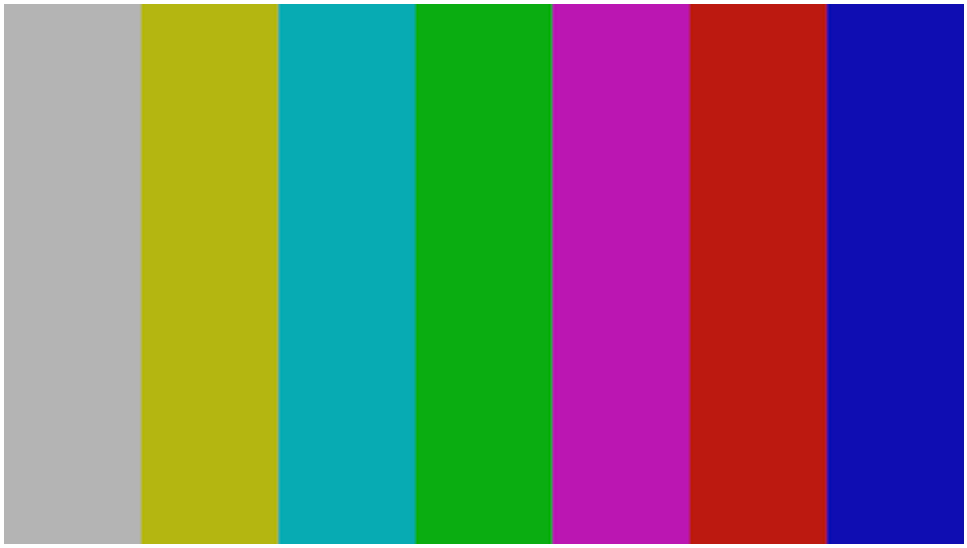


**Bars 709 Inverts 75%** – 709 (HD) 75% W/Y/C/G/M/R/B color bars with magenta/teal inversion, blue/white inversion, plus a panel with setup blacks along the bottom. (Inverted color bars 75 percent Rec.709 | Color bars | Colorscape: Rec.709 | Signal: SDR)

### 6.2.5.16 HDBars

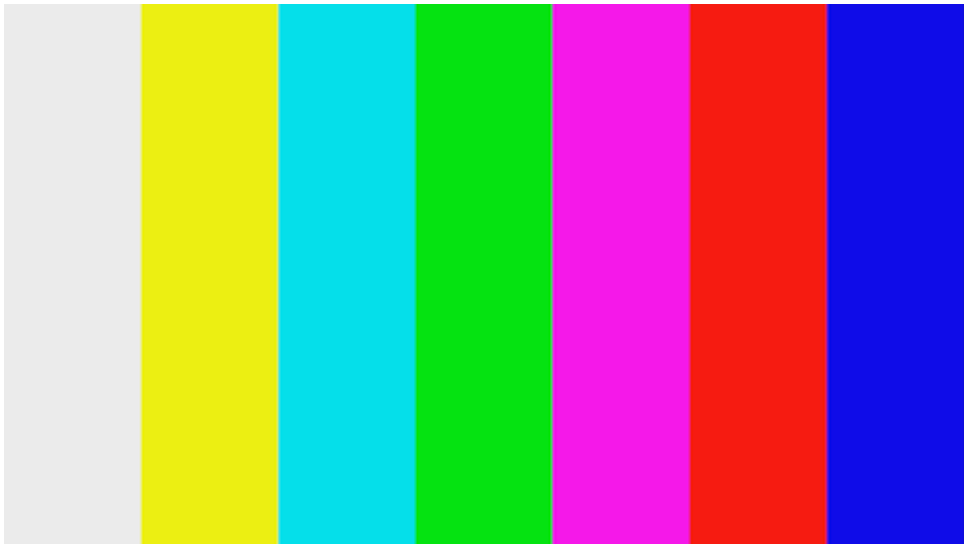
**HD Bars** – features standard HD W/Y/C/G/M/R/B color bars at 75% saturation, flanked by two 50% gray bars on top, and a panel of black along the bottom. (HD color bars | Color bars | Signal: SDR)

### 6.2.5.17 Camera2020Bars75pc



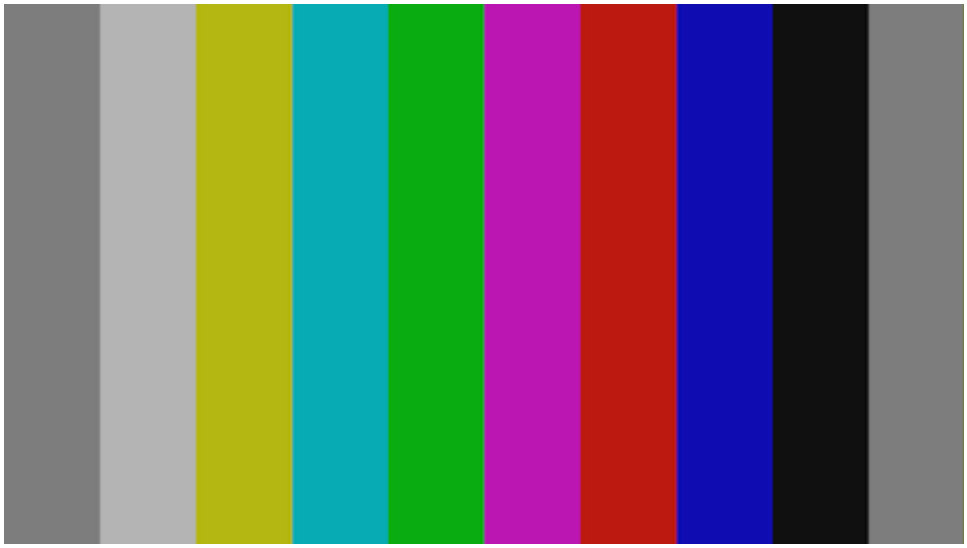
**Camera 2020 Bars 75%** – Camera BT-2020 W/Y/C/G/M/R/B color bars at 75% saturation.
(Camera color bars 75 percent BT.2020 | Color bars | Colorspace: BT.2020 | Signal: SDR)

### 6.2.5.18 Camera2020Bars100pc



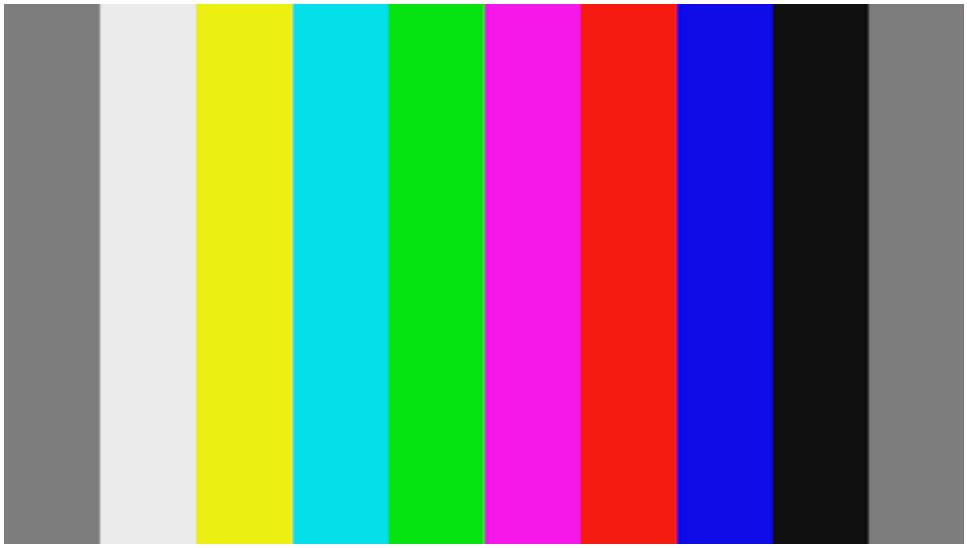
**Camera 2020 Bars 100%** – Camera BT-2020 W/Y/C/G/M/R/B color bars at 100% saturation.
(Camera color bars BT.2020 100% | Color bars | Colorspace: BT.2020 | Signal: SDR)

### 6.2.5.19 BarsHD2020_75pc



**Bars HD 2020 75%** – BT-2020 HD W/Y/C/G/M/R/B color bars at 75% saturation, flanked by two bars of 50% gray. (HD Bars BT.2020 75% | Color bars | Colorspace: BT.2020 | Signal: SDR)

### 6.2.5.20 BarsHD2020_100pc

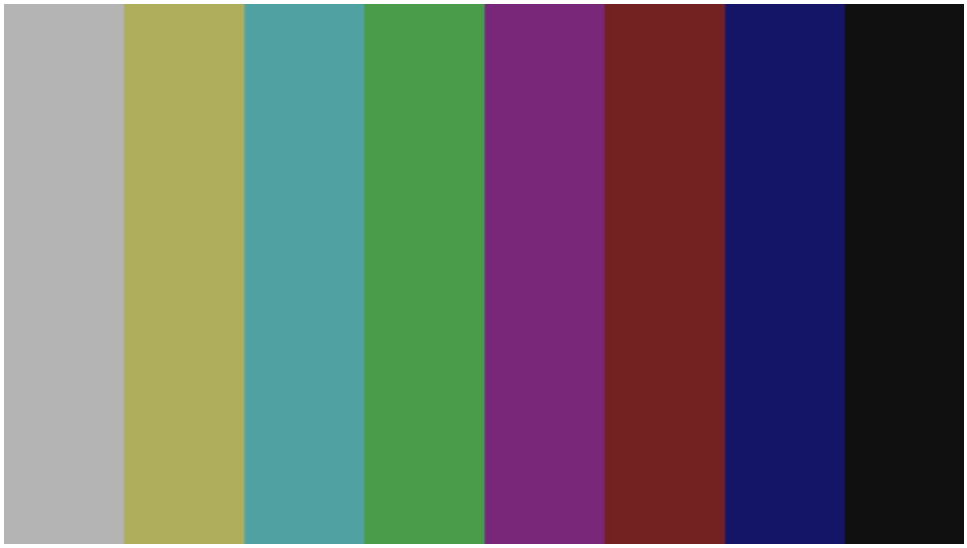


**Bars HD 2020 100%** – BT-2020 HD W/Y/C/G/M/R/B color bars at 100% saturation, flanked by two bars of 50% gray. (HD Bars BT.2020 100% | Color bars | Colorspace: BT.2020 | Signal: SDR)

### 6.2.5.21 BTBars

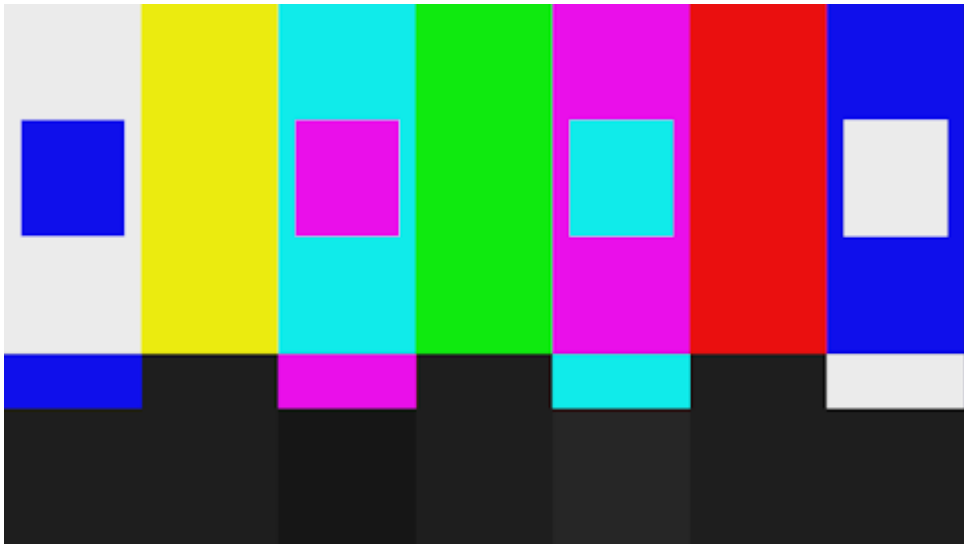
**BT Bars** – W/Y/C/G/M/R/B color bars at 75% saturation, flanked by two panels of 50% gray, plus a panel of black on the lower third. (BT Standard Bars | Color bars | Signal: SDR)

### 6.2.5.22 DSC_Camera_Bars_37pc



**DSC Camera Bars 37%** – W/Y/C/G/M/R/B, plus Black, color bars at 37.5% of saturation, for camera setup and lighting calibration. Corresponds to the DSC ChromaDuMonde color charts for setup purposes. (DSC Camera Bars | Color bars | Signal: SDR)

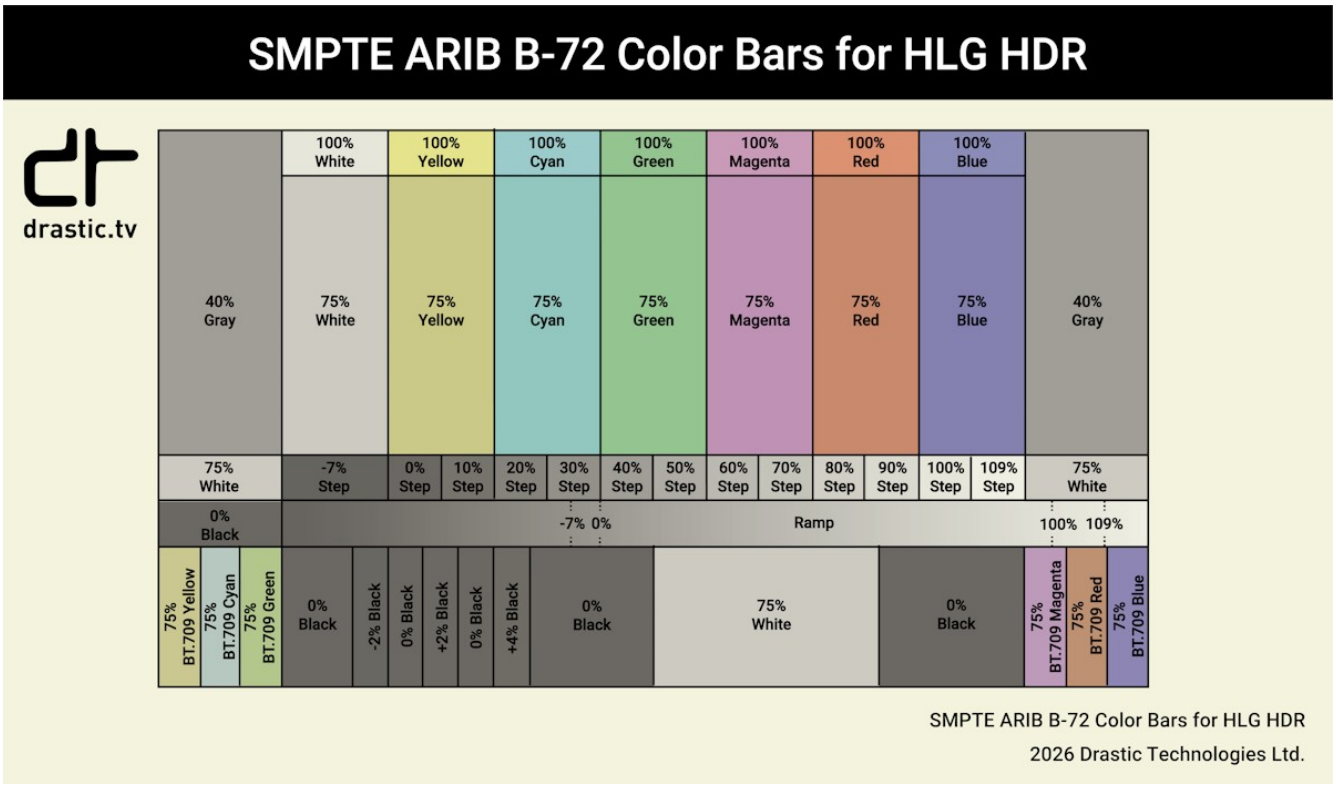
### 6.2.5.23 Bars709InvertsFull



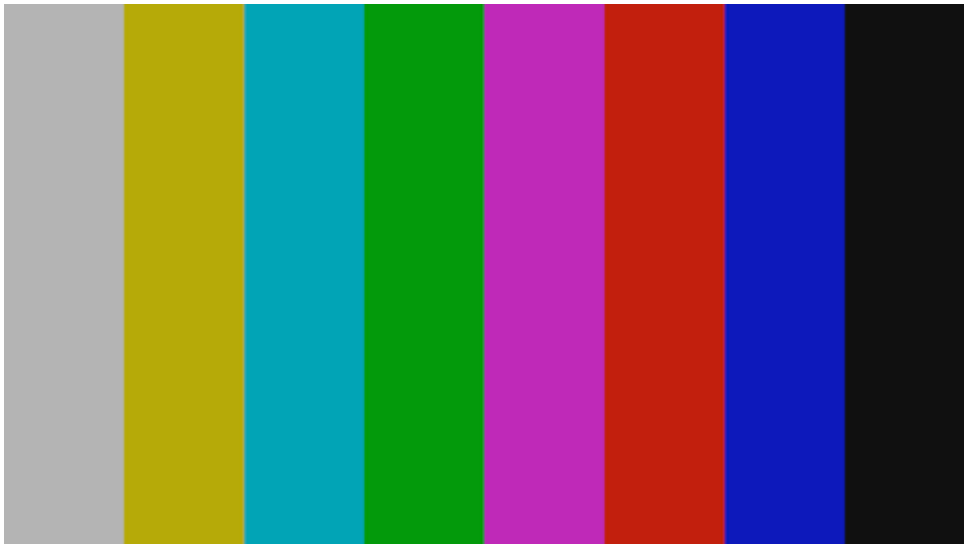
**Bars 709 Inverts Full** – 709 (HD) 100% W/Y/C/G/M/R/B color bars with magenta/teal inversion, blue/white inversion, plus a panel of black along the bottom. (Bars with inverts Rec.709 100% | Color bars | Colorspace: Rec.709 | Signal: SDR)

### 6.2.5.24 SMPTE-ARIB-B72_HDRBars

**SMPTE ARIB B72 HDR Bars** – color bars and panels, plus a ramp, to support the SMPTE ARIB B72 HDR specification. (SMPTE ARIB B.72 HD Bars | Color bars | Signal: SDR)

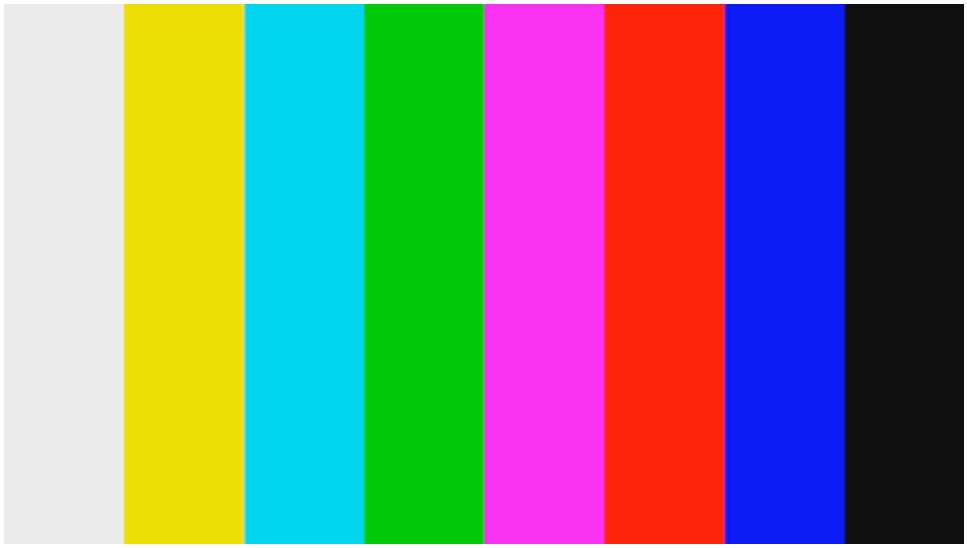


### 6.2.5.25 CamBars_601_75pc



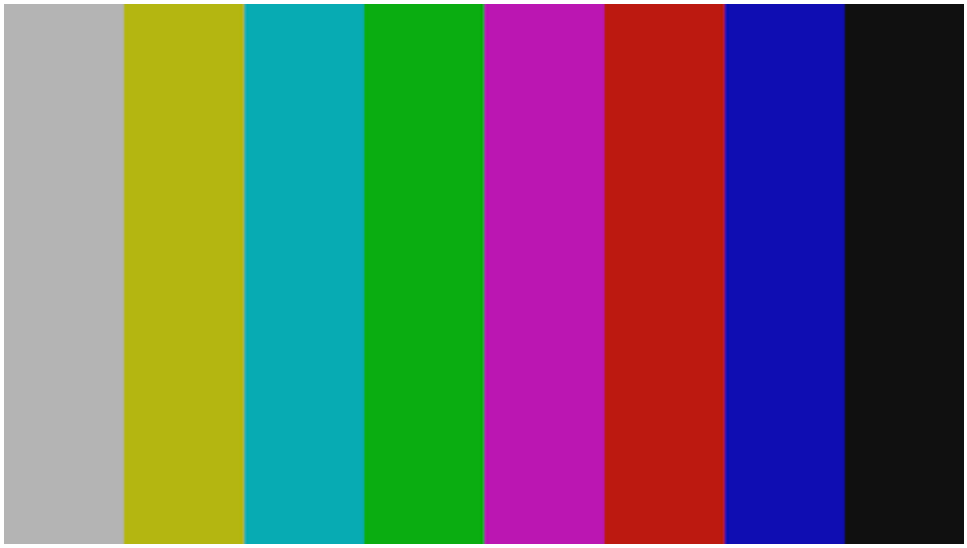
**Camera 601 Bars 75%** - Camera 601 (SD) W/Y/C/G/M/R/B bars, plus Black, at 75% saturation. (75% CCIR-601 Camera bars | Color bars | Colorspace: BT.601 | Signal: SDR)

### 6.2.5.26 CamBars_601_100pc



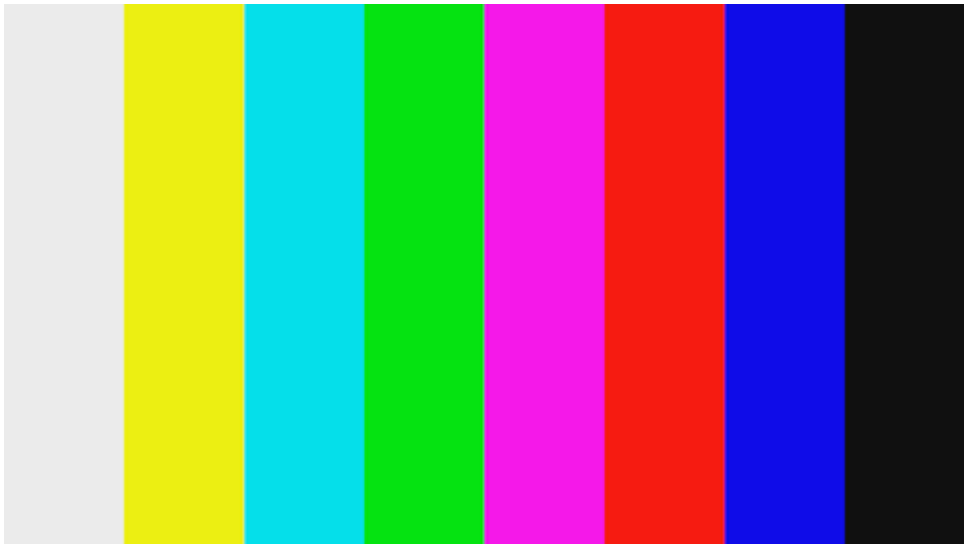
**Camera 601 bars at 100%** - camera 601 (SD) W/Y/C/G/M/R/B bars, plus Black, at 100% saturation. (100% CCIR-601 Camera bars | Color bars | Colorspace: BT.601 | Signal: SDR)

### 6.2.5.27 CamBars_2020_75pc



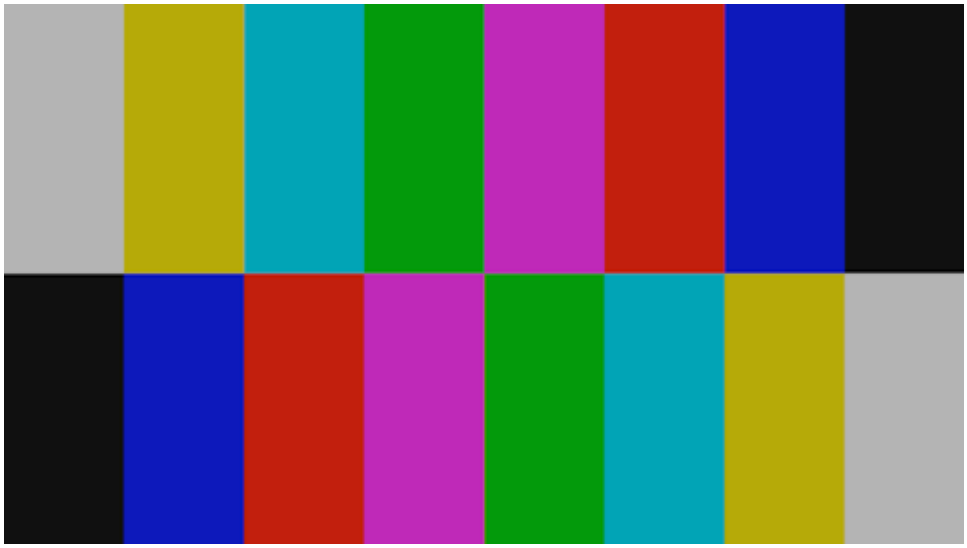
**Camera 2020 Bars 75%** - Camera BT.2020 W/Y/C/G/M/R/B bars, plus Black, at 75% saturation. (75% BT-2020 Camera bars | Color bars | Colorspace: BT.2020 | Signal: SDR)

### 6.2.5.28 CamBars_2020_100pc



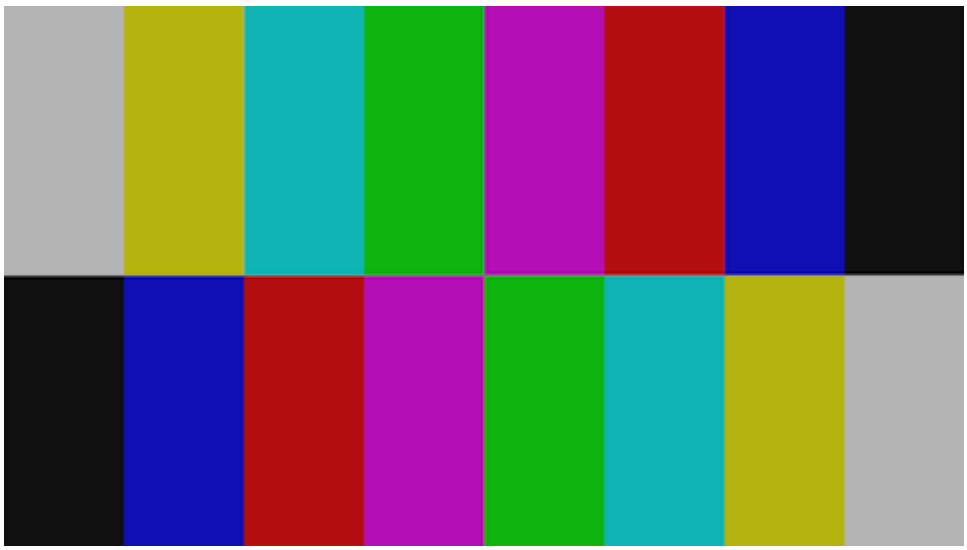
**Camera 2020 bars at 100%** - camera BT-2020 W/Y/C/G/M/R/B bars, plus Black, at 100% saturation. (100% BT-2020 Camera bars | Color bars | Colorspace: BT.2020 | Signal: SDR)

### 6.2.5.29 CamBarsInvert_601_75pc



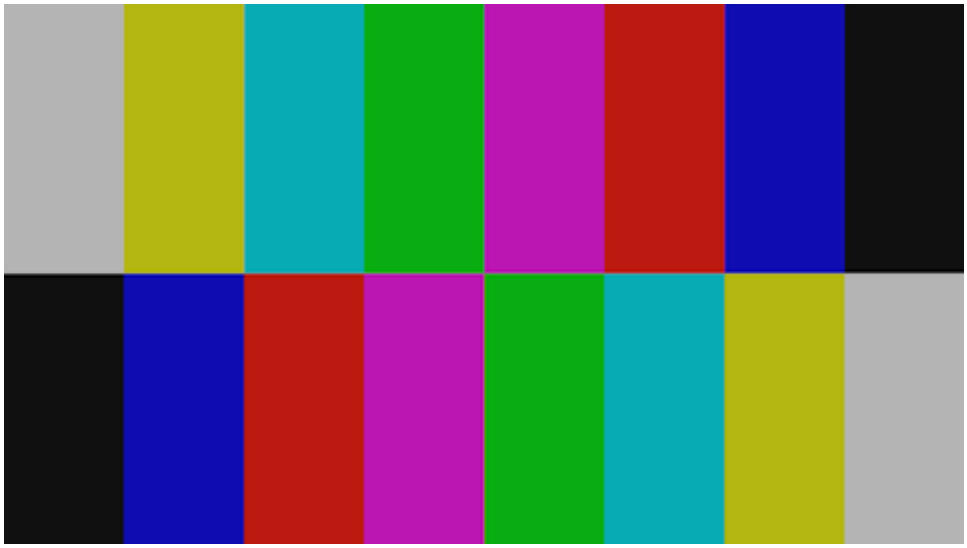
**Camera Bars Invert 601 75%** – CCIR-601 camera W/Y/C/G/M/R/B color bars at 75% saturation with invert. (75% CCIR-601 Camera bars | Color bars | Colorspace: BT.601 | Signal: SDR)

### 6.2.5.30 CamBarsInvert_709_75pc



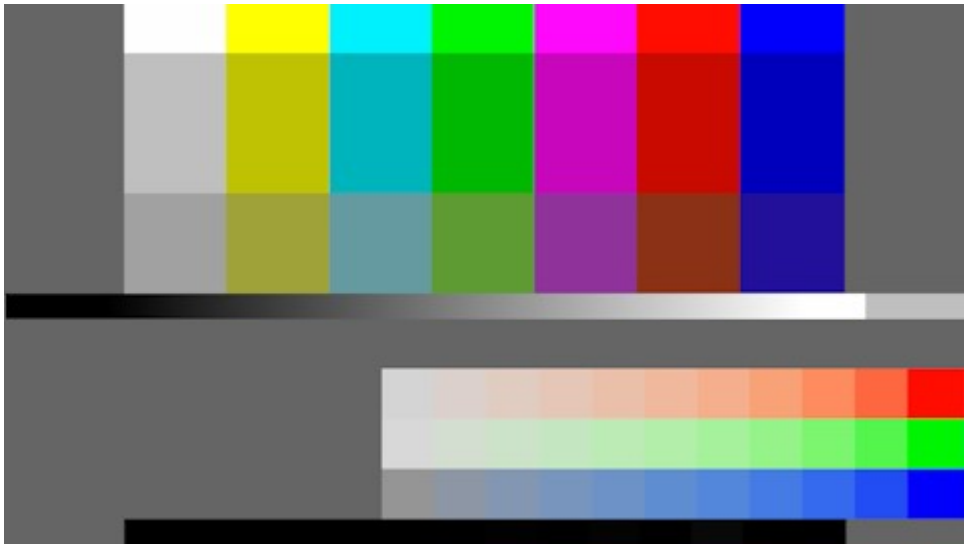
**Camera Bars Invert 709 75%** – Camera 709 W/Y/C/G/M/R/B color bars at 75% saturation with invert. (75% Rec.709 Invert Camera bars | Color bars | Colorspace: Rec.709 | Signal: SDR)

### 6.2.5.31 CamBarsInvert_2020_75pc

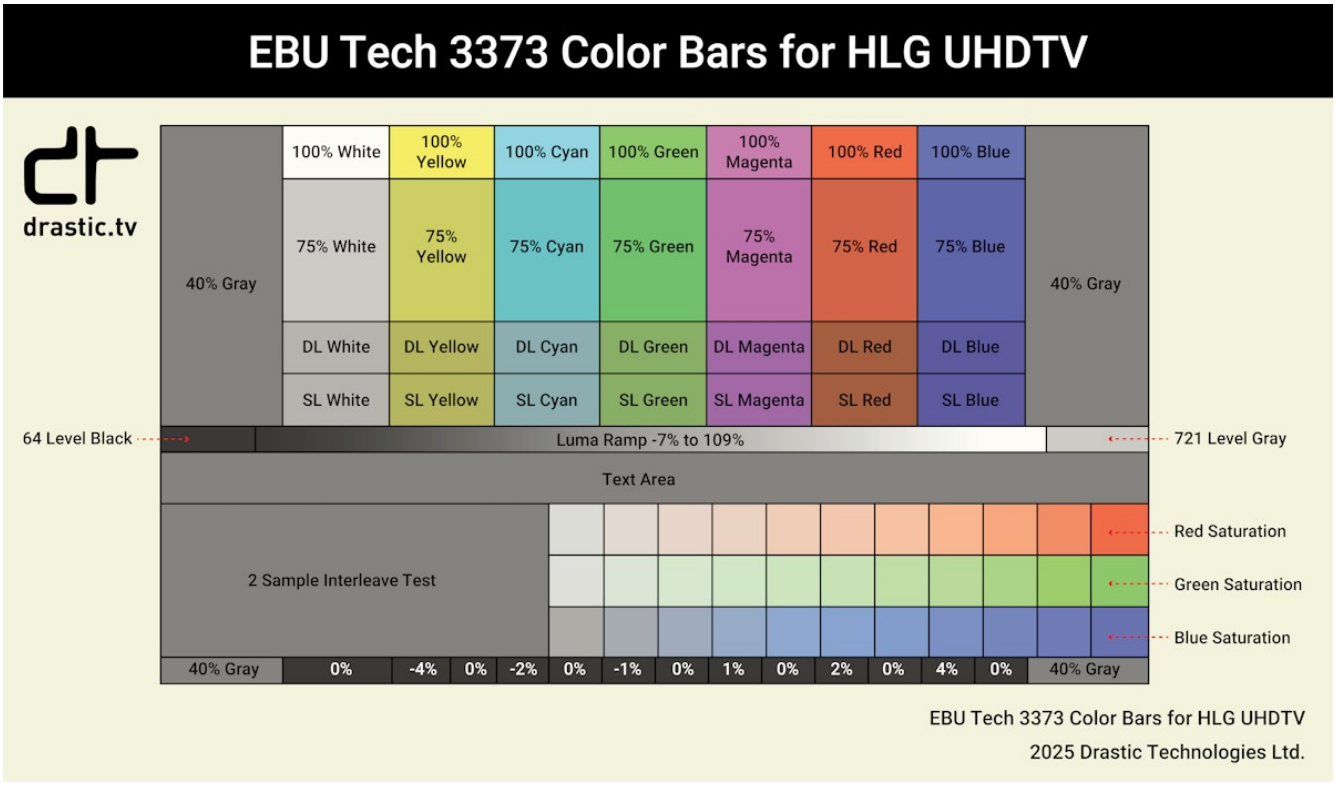


**Camera Bars Invert 2020 75%** – Camera 2020 W/Y/C/G/M/R/B color bars at 75% saturation with invert. (75% BT-2020 Invert Camera bars | Color bars | Colorspace: BT.2020 | Signal: SDR)

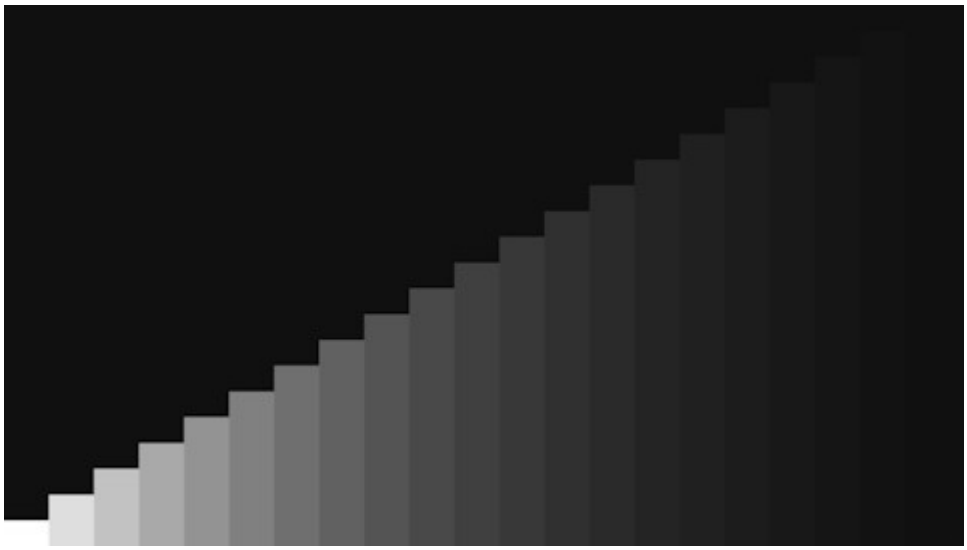
### 6.2.5.32 EBU-3373-HLG-ColorBars



**EBU-3373 HLG Color Bars** – Color bars with setup areas to support the EBU 3373 specification. (EBU 3373 HLG Color Bars | Color bars | Signal: HDR)

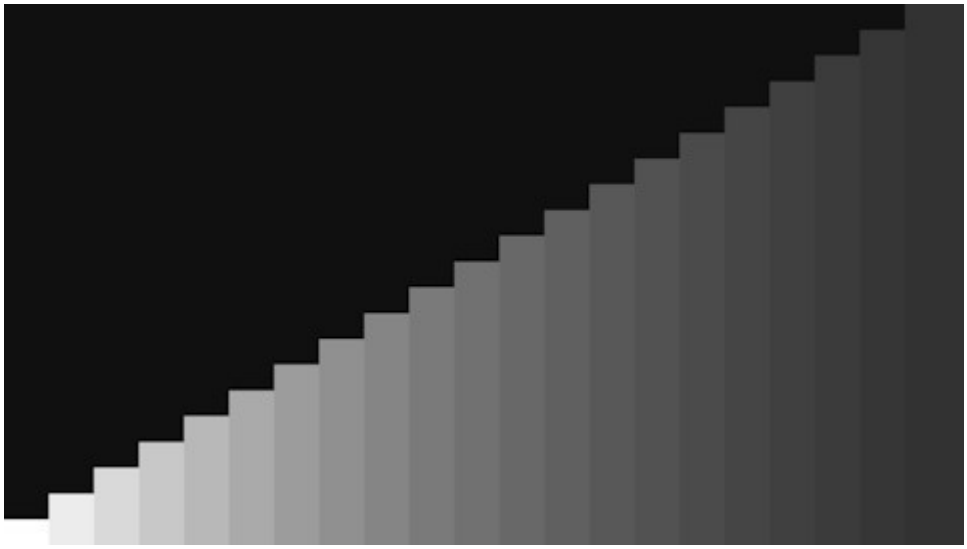


### 6.2.5.33 Luma20StopsFull



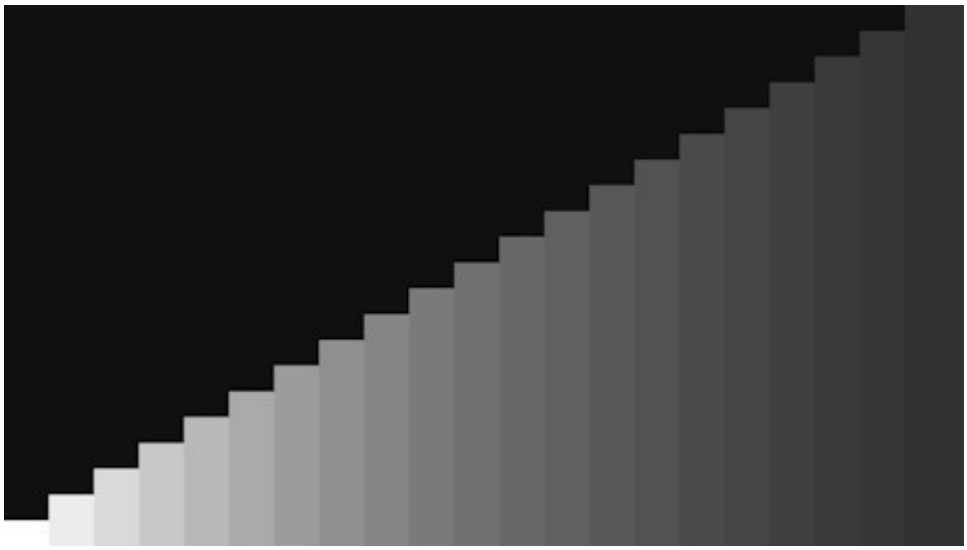
**Luma 20 Stops Full** – 20 stops of full range luminance bars (Luminance 20-Stop Full Range | Color Bars | Signal: SDR)

### 6.2.5.34 Luma20StopsOVB



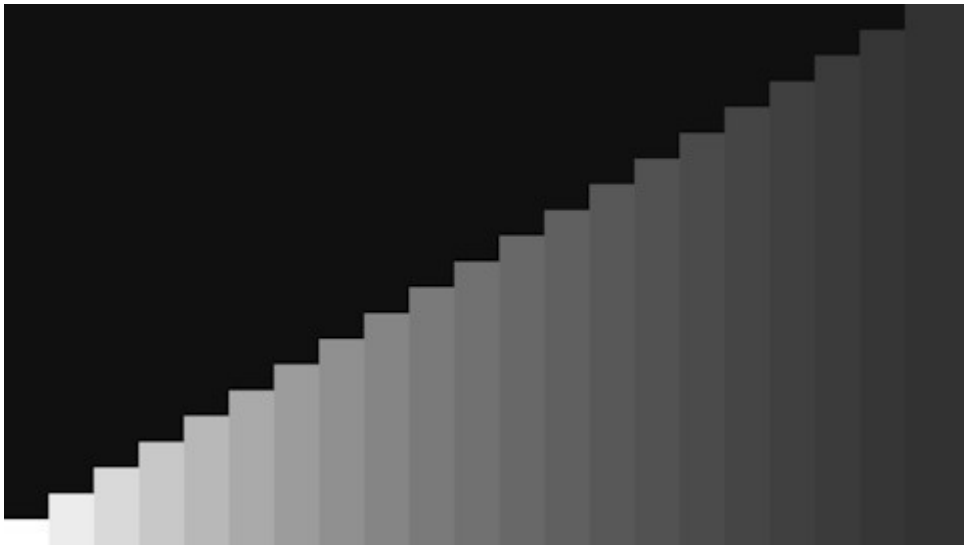
**Luma 20 Stops Overbright** – 20 stops of overbright luminance bars (Luminance 20-Stop Overbright | Color Bars | Signal: SDR)

### 6.2.5.35 Luma20StopsVideo



**Luma 20 Stops Video Range**– 20 stops of video range luminance bars (Luminance 20-Stop Video Range | Color Bars | Signal: SDR)

### 6.2.5.36 Luma20StopsInv



**Luma 20 Stops Inverted** – 20 stops of inverted video range luminance bars (Luminance 20-Stop Video Range Inverted | Color Bars | Signal: SDR)

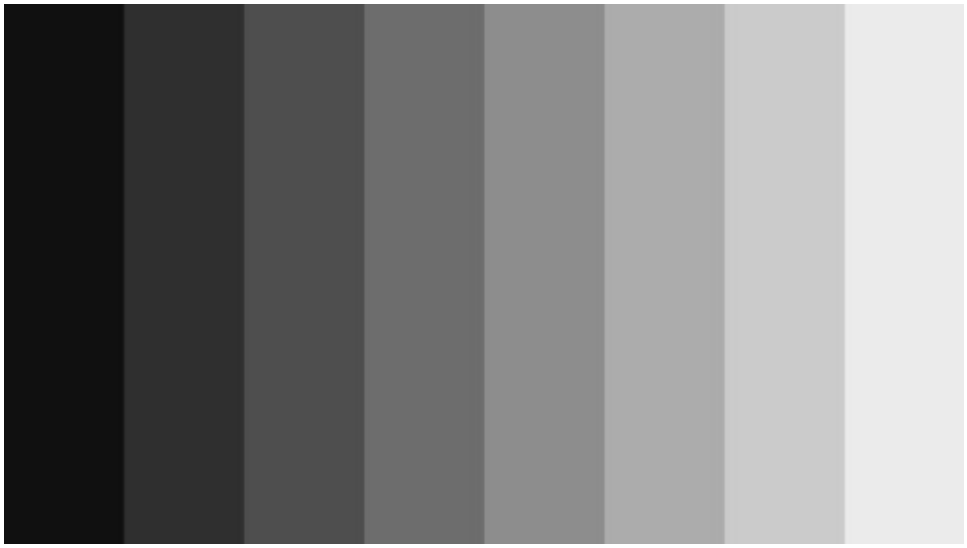
### 6.2.6 Step Patterns

Step patterns are useful for grayscale linearity accuracy and to check for discoloration.

### 6.2.6.1 Luma5Step

**Luma 5 step** – from black (floor) to a mid gray in 5 increasingly lighter steps, left to right. (Luma step wedge 5 steps | Step (discrete levels) | Signal: SDR)

### 6.2.6.2 Luma7Step

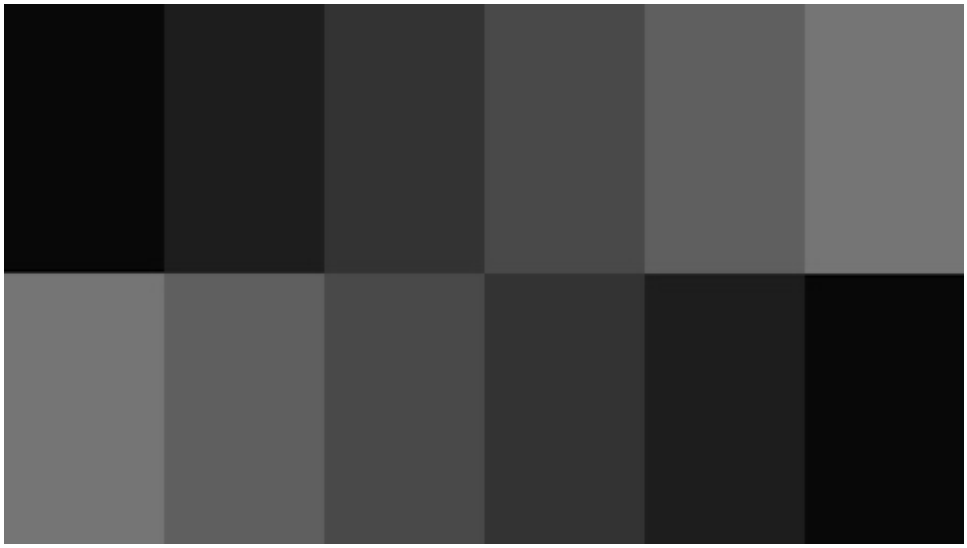


**Luma 7 Step** – from black (floor) to light grey in 7 increasingly lighter steps, left to right. (Luma step wedge 7 steps | Step (discrete levels) | Signal: SDR)

### *6.2.6.3 Luma10Step*

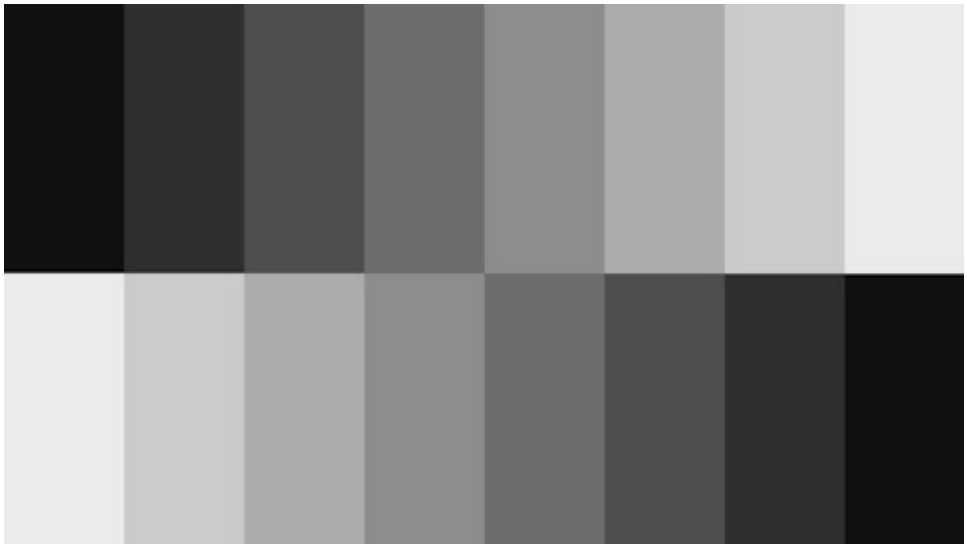
**Luma 10 Step** – from black (floor) to a mid gray in 10 increasingly lighter steps, left to right. (Luma step wedge 10 steps | Step (discrete levels) | Signal: SDR)

### *6.2.6.4 Luma5StepInvert*



**Luma 5 step Invert** – from black (floor) to a mid gray in 5 even steps, left to right on the top, and right to left (the invert) along the bottom. (Luma step wedge 5 steps inverted top or bottom | Step (discrete levels) | Signal: SDR)

### 6.2.6.5 Luma7StepInvert



**Luma 7 Step Invert** – a panel of black (floor) followed by 7 increasingly lighter bars of gray, left to right along the top, and from right to left (the invert) along the bottom. (Luma step wedge 7 steps inverted top or bottom | Step (discrete levels) | Signal: SDR)

### 6.2.6.6 Luma10StepInvert

**Luma 10 Step Invert** – from black (floor) to white in 10 even steps, left to right on the top, and right to left (the invert) along the bottom. (Luma step wedge 10 steps inverted top or bottom | Step (discrete levels) | Signal: SDR)

### 6.2.6.7 IRELowHoriz

**IRE Low Horizontal** – horizontal IRE dark grey 5 step scale, for setup. (Low light luma steps horizontal | Step (discrete levels) | Signal: SDR)

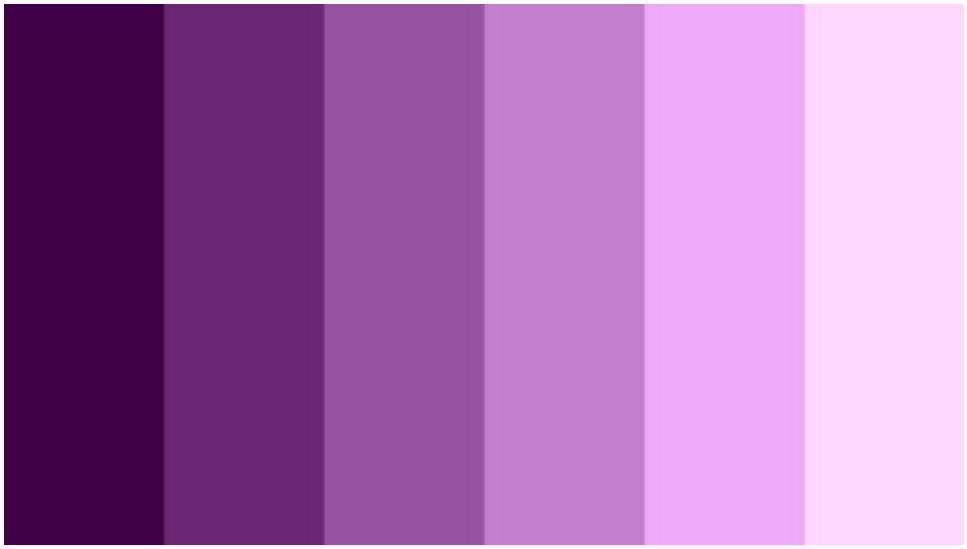
### 6.2.6.8 IRELowVert

**IRE Low Vertical** – a very dark set of 10 vertical IRE gray steps, for setup. (Low light luma steps vertical | Step (discrete levels) | Signal: SDR)

### 6.2.6.9 IRESplitSteps

**IRE Split Steps** – shows black to light gray across the top half, and white to dark gray across the bottom half, for luminance distribution analysis. (IRE Split Steps low and high | Step (discrete levels) | Signal: SDR)

### 6.2.6.10 Chroma5Step

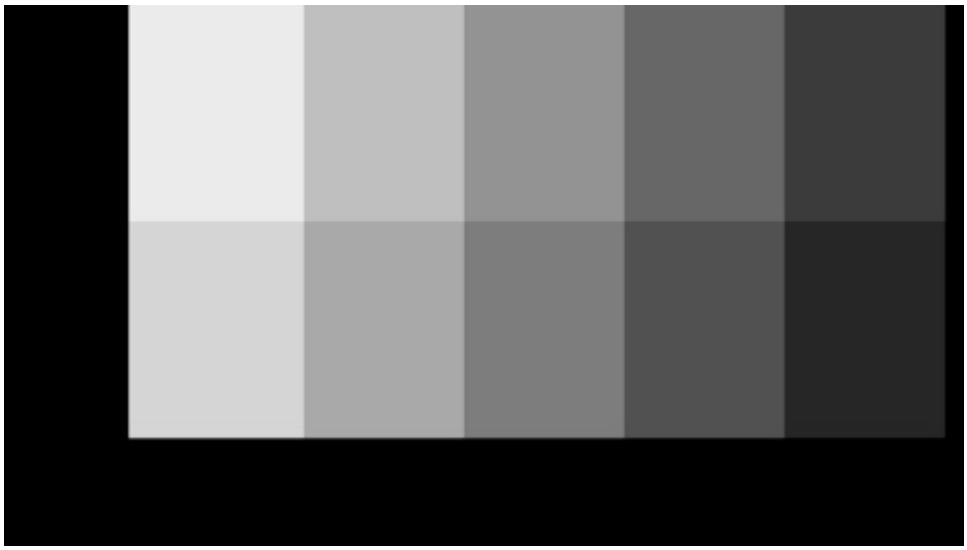


**Chroma 5 Step** – a vertical magenta five step, from dark magenta on the left (floor) with 5 steps of increasingly lighter magenta to its right. (Chroma step wedge 5 steps | Step (discrete levels) | Signal: SDR)

### 6.2.6.11 HDR_StepGreyscale_1

**HDR Step Grayscale 1** – a grey scale for HDR workflows. (HDR step grey scale | Step (discrete levels) | Signal: HDR)

### 6.2.6.12 HDR_GammaStep

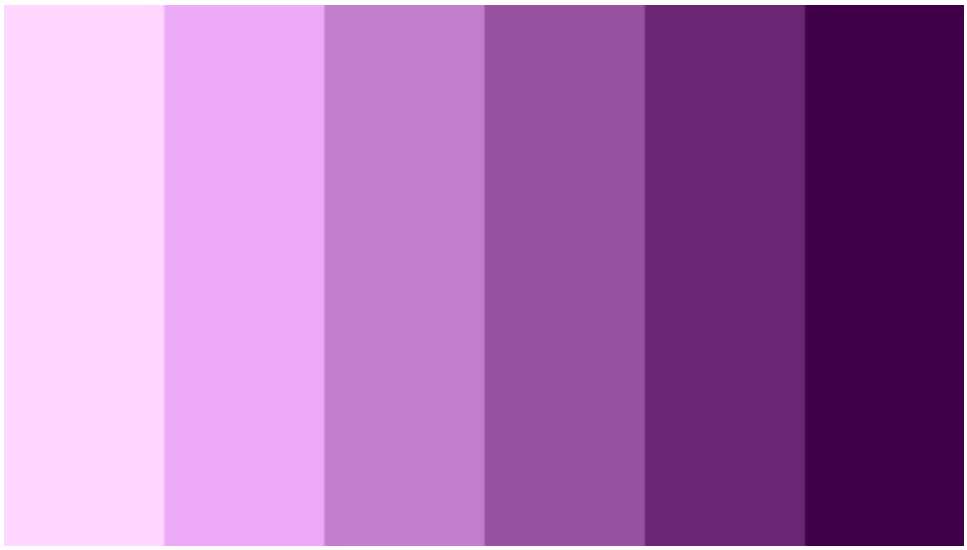


**HDR Gamma Step** – a grey scale for HDR gamma analysis. (HDR gamma step | Step (discrete levels) | Signal: HDR)

### 6.2.6.13 HDR_Contrast

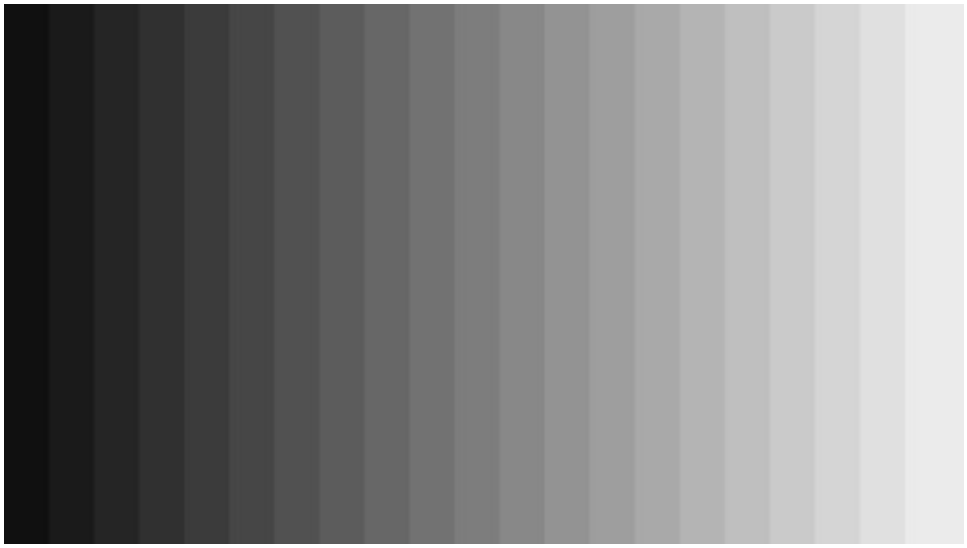
**HDR Contrast 1** – black screen with a white panel, to show contrast in HDR workflows. This pattern is removed when the **Show HDR** checkbox is deselected. (HDR Contrast | Step (discrete levels) | Signal: HDR)

### 6.2.6.14 Chroma5StepInvert



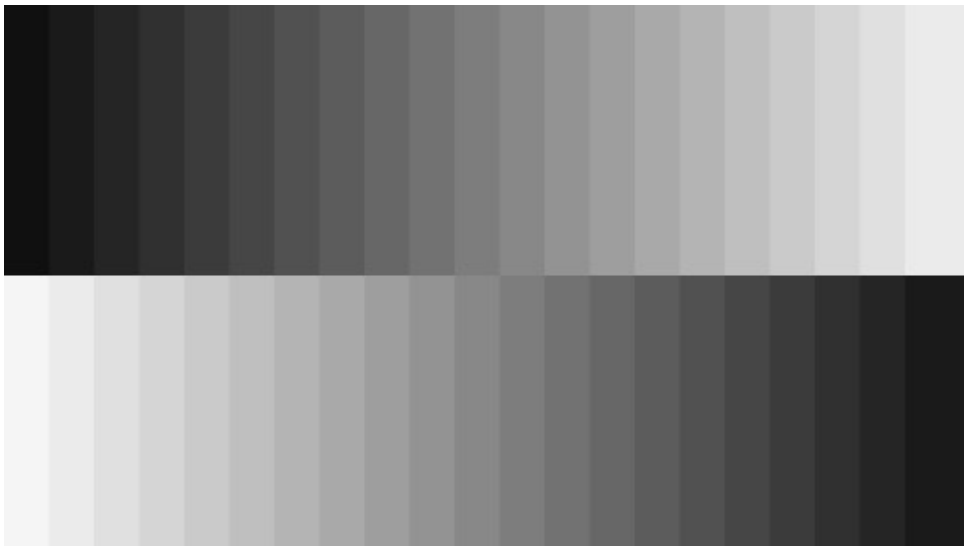
**Chroma 5 Step Invert** – a dark magenta vertical bar (floor) on the right, followed by five steps of increasingly lighter magenta toward the left. (Chroma 5 step inverted | Step (discrete levels) | Signal: SDR)

### 6.2.6.15 Luma20Step



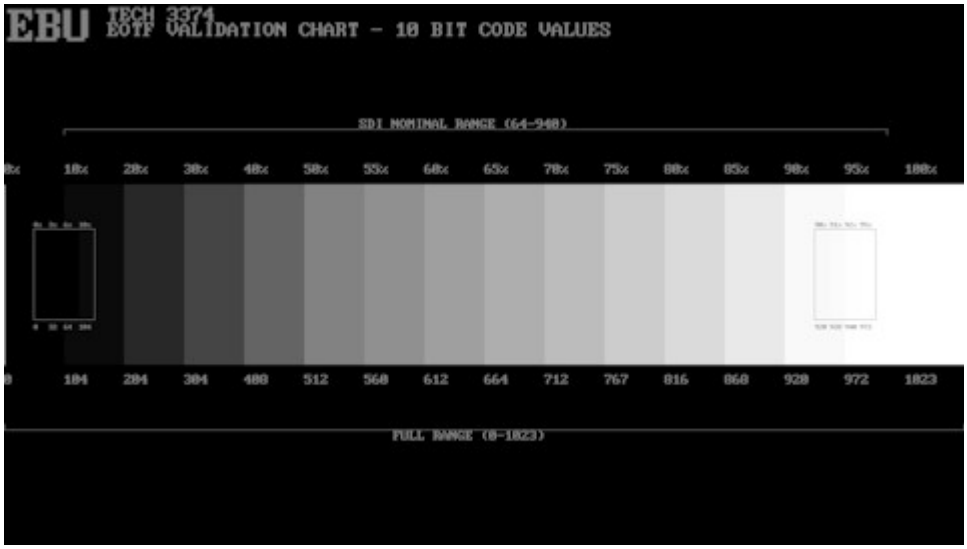
**Luma 20 Step** – a black vertical bar (floor), followed by a 20 steps fL-R rom dark gray to white, for luma adjustment in SDR workflows. (20 step luma | Step (discrete levels) | Signal: SDR)

### 6.2.6.16 Luma20StepInvert



**Luma 20 Step Invert**– a set of 20 steps from black to white with invert, for luma adjustment in SDR workflows. (20 step luma invert | Step (discrete levels) | Signal: SDR)

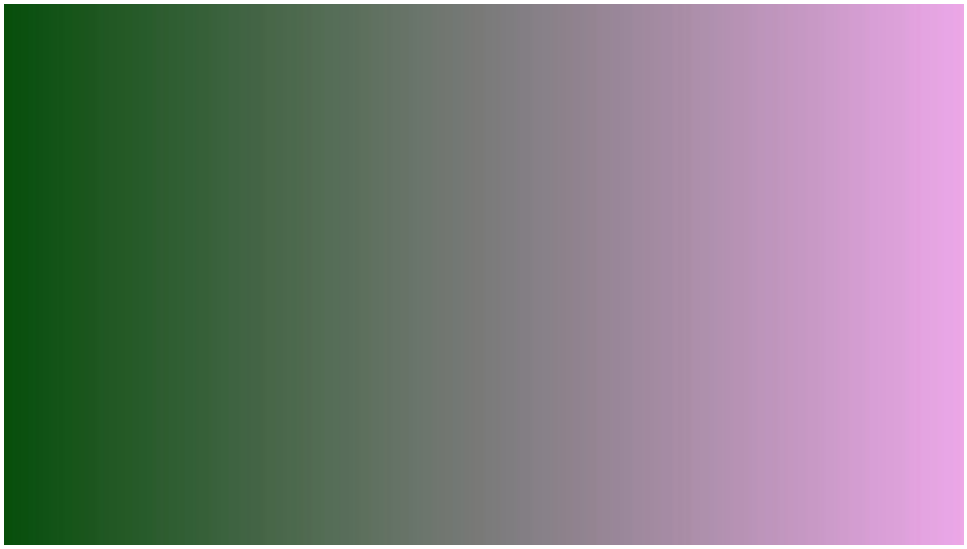
### 6.2.6.17 EBU-3374




**EBU-3374** – the EBU Tech 3374 calibration chart is designed to rapidly validate some of the most common issues encountered when setting up an HDR monitoring system. (EBU 3374 EOTF Monitor Calibration | Step (discrete levels) | Signal: HDR)

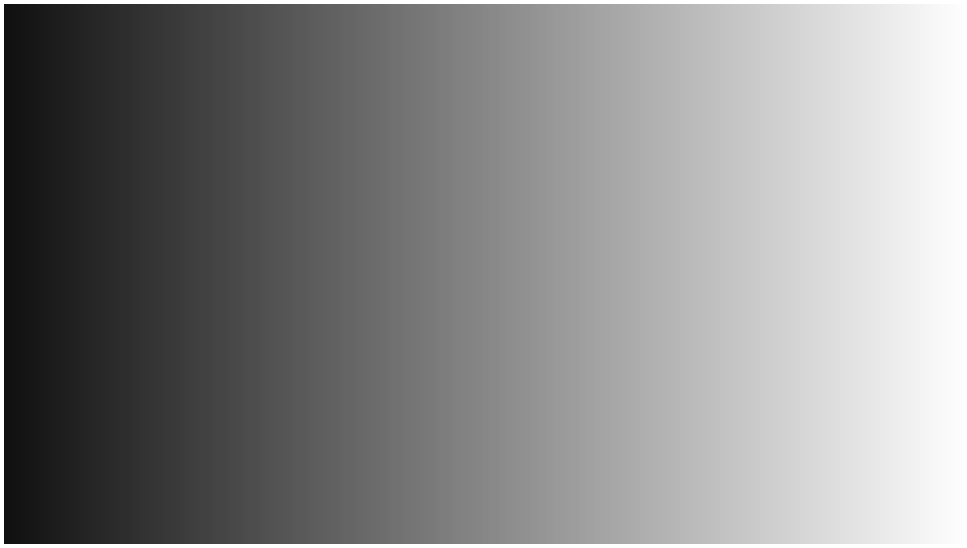
## 6.2.7 Ramp Patterns

### *6.2.7.1 ChromaRamp*



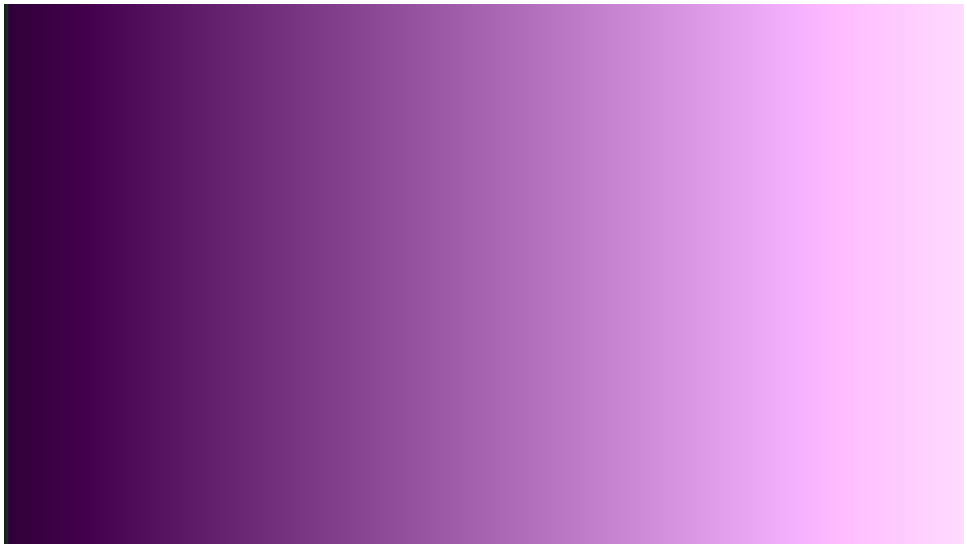
**Chroma Ramp** – shows a green to magenta chroma ramp, to confirm the chrominance is evenly gradated. (Chroma ramp sweep | Ramp (continuous) | Signal: SDR)

### *6.2.7.2 LumaRamp*



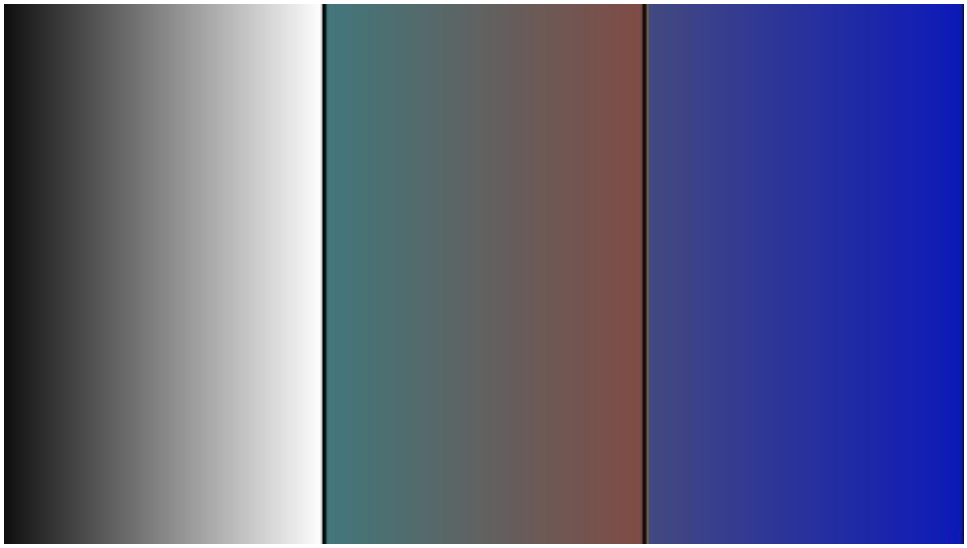
**Luma Ramp** – a luma ramp that goes from black on the left to white on the right. (Luma ramp sweep | Ramp (continuous) | Signal: SDR)

### 6.2.7.3 ModRamp



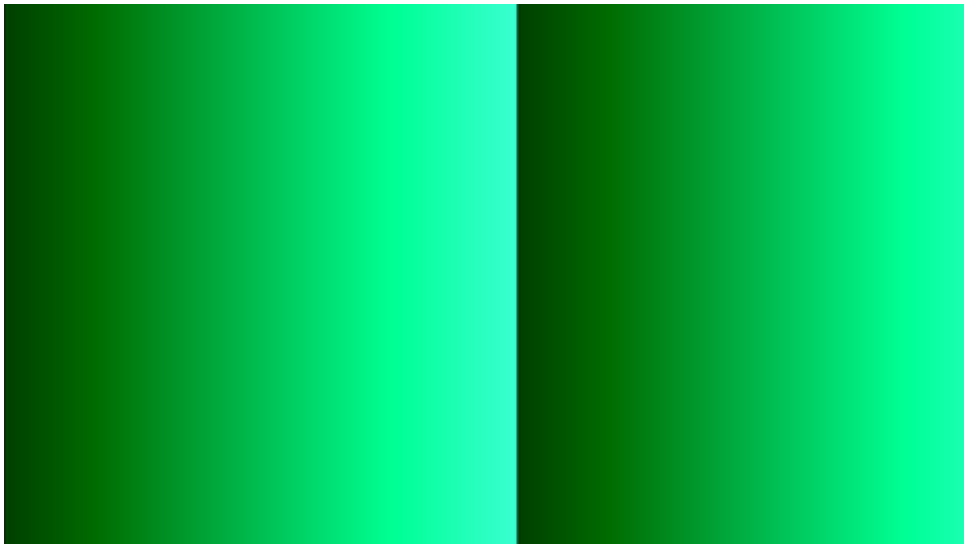
**Mod Ramp** – a screen of magenta whose luma goes from zero (black) on the left to 100 (white) on the right. (Modulated luma ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.4 ValidRamp



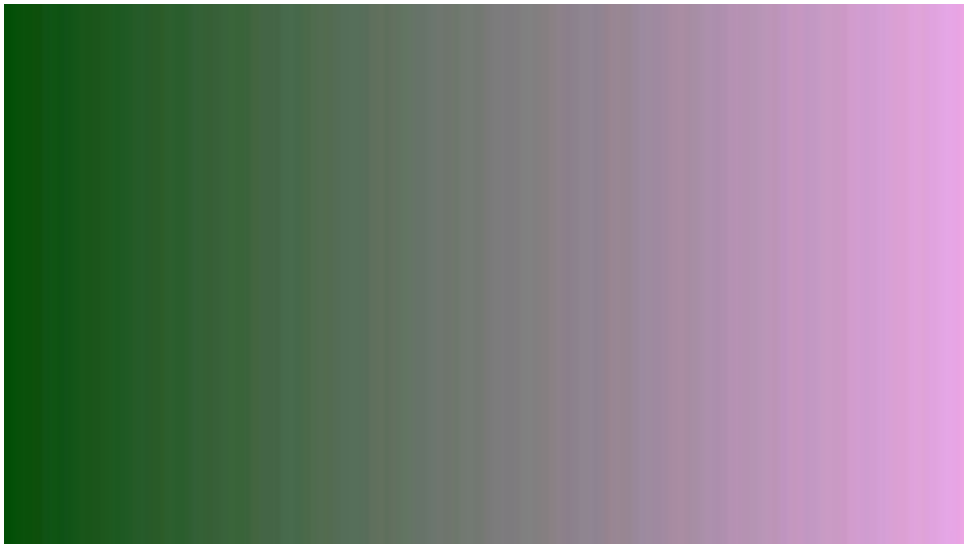
**Valid Ramp** – features a black to white ramp, a teal to red ramp, and a blue ramp. (Legal range ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.5 DigitalRamp



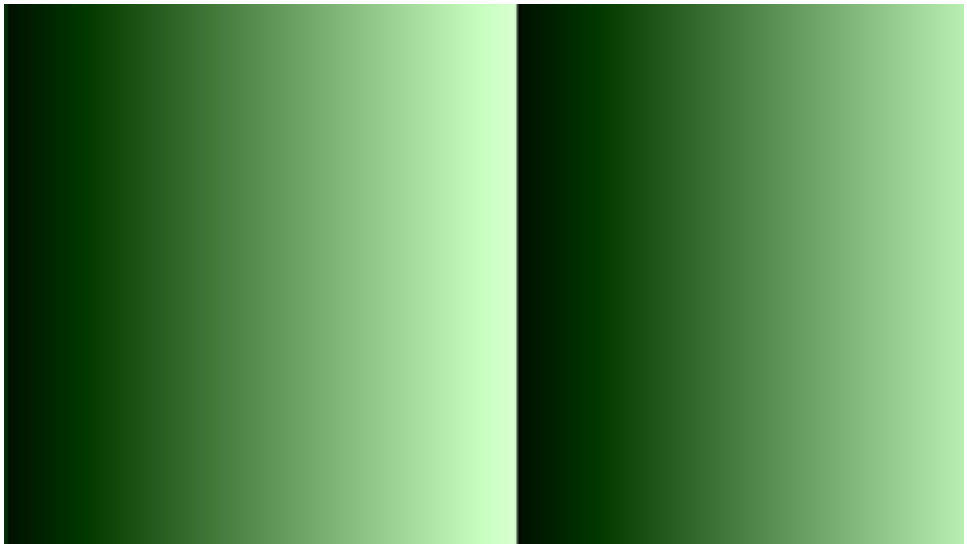
**Digital Ramp** – features two green ramps from black to rather light. (Digital code ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.6 ShallowRamp



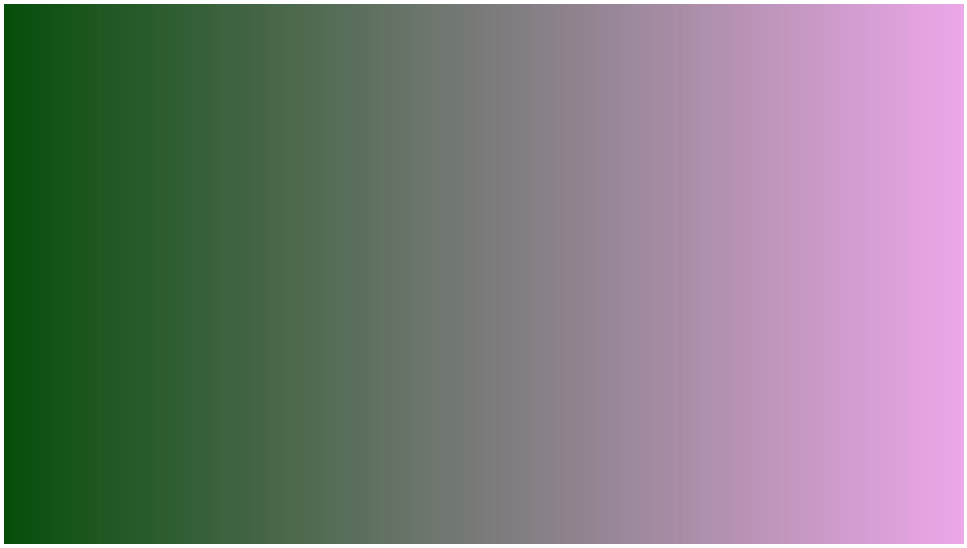
**Shallow Ramp** – features a green to magenta ramp. (Shallow luma ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.7 ShallowRamps



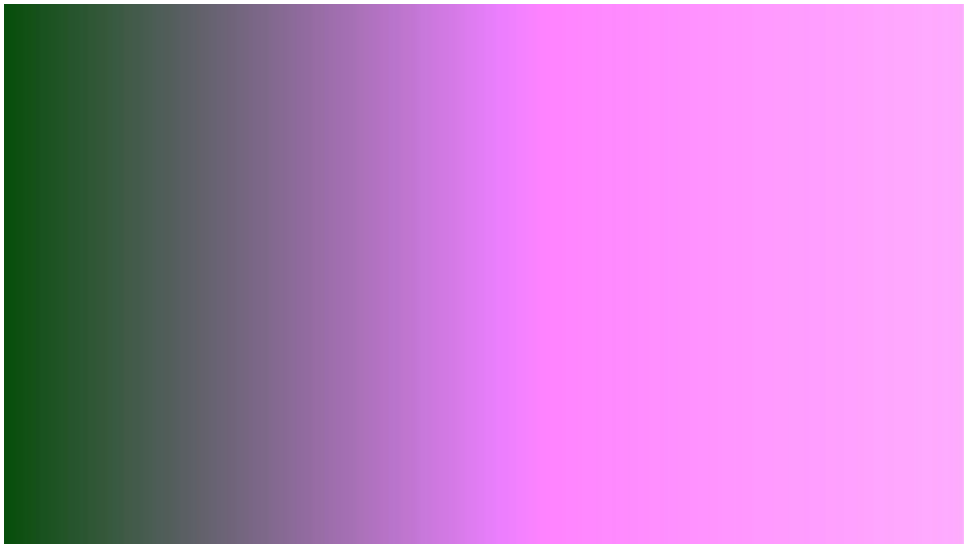
**Shallow Ramps** – features two dark green to rather light green ramps side by side. Same as UBMRamp. (Shallow luma ramps | Ramp (continuous) | Signal: SDR)

### 6.2.7.8 100iRamp



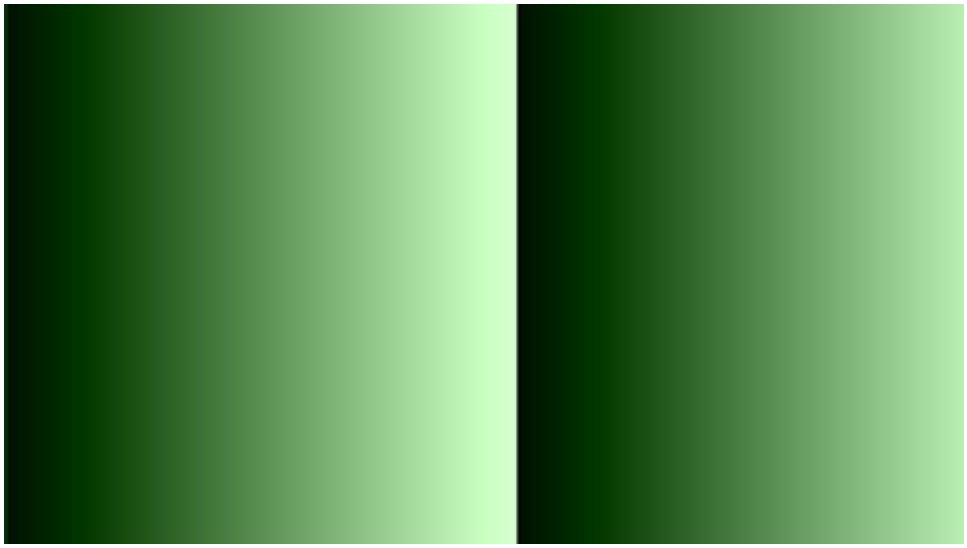
**100i Ramp** – features a smooth green to magenta ramp. (100 IRE luma ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.9 120iRamp



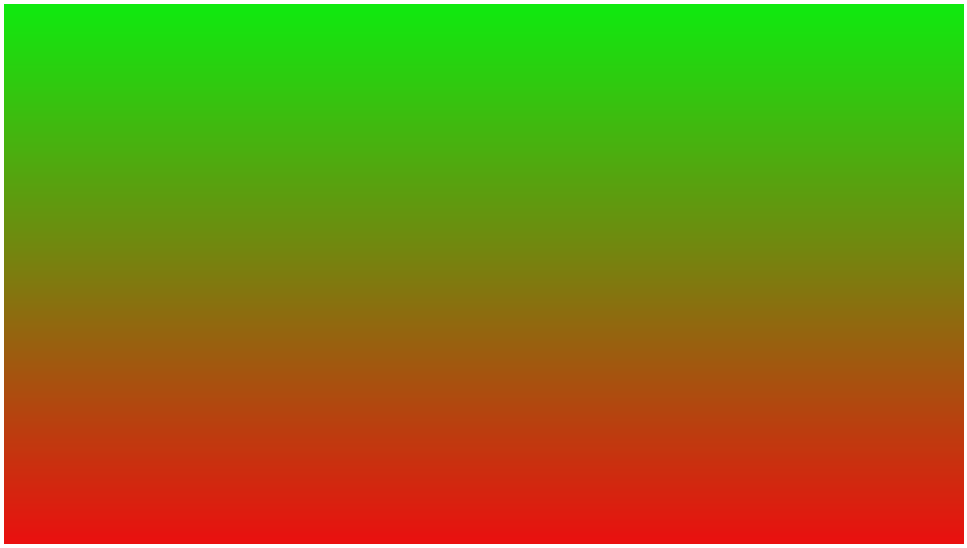
**120i Ramp** – features a green to magenta ramp, with a spike of green on the right. (120 IRE luma ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.10 UBMRamp



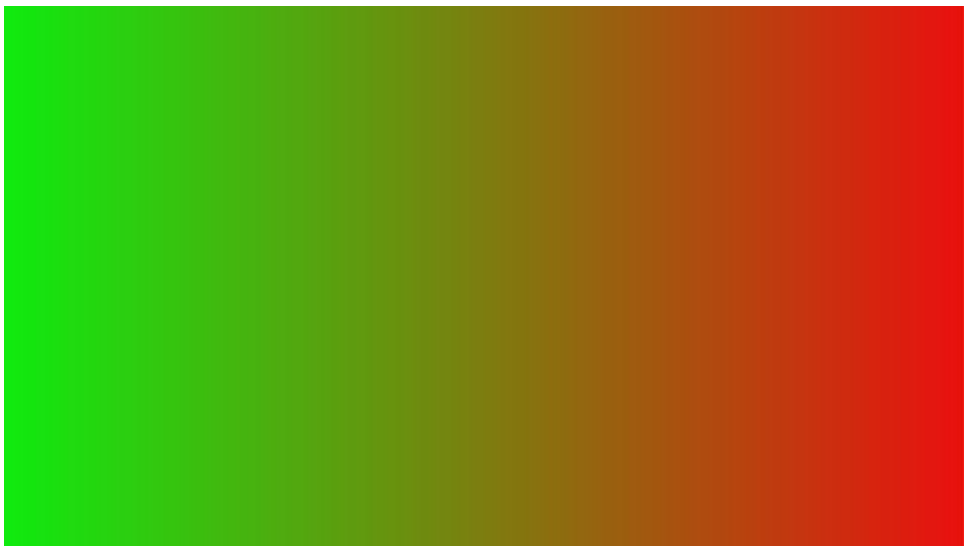
**UBM Ramp** – features two green vertical ramps side by side, from no saturation (black) to full saturation (white). Same as ShallowRamps. (UBM luma ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.11 R-G_Vert



**Red to Green Vertical** – a smooth vertical gradation from red on the bottom to green on top, at full saturation. (Red to green vertical ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.12 R-G_Horiz

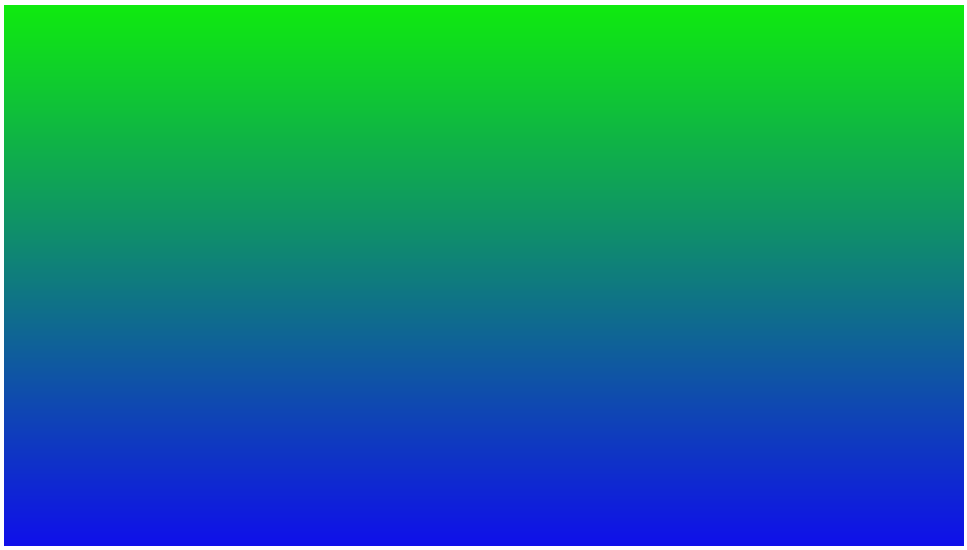


**Red to Green Horizontal** – a smooth horizontal gradation from red on the right to green on the left, at full saturation. (Red to green horizontal ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.13 R-G_Both

**Red and Green Both** – a smooth vertical gradation of yellow (R+G), from pure hue (yellow) at the bottom, to zero saturation (black) at the top. (Red to green both ramps | Ramp (continuous) | Signal: SDR)

### 6.2.7.14 B-G_Vert



**Blue to Green Vertical** – a smooth vertical gradation from blue on the bottom to green on top, at full saturation. (Blue to green vertical ramp | Ramp (continuous) | Signal: SDR)

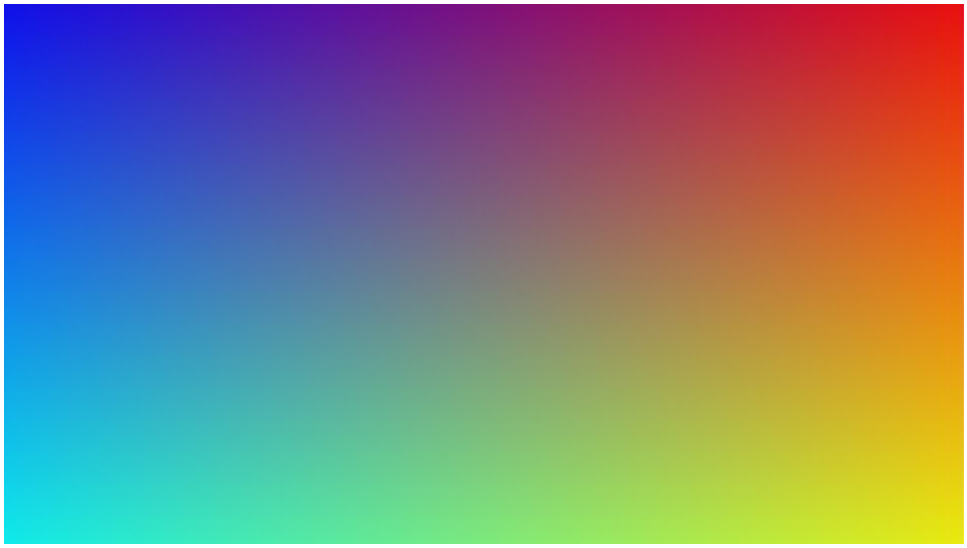
### 6.2.7.15 B-G_Horiz

**Blue to Green Horizontal** – a smooth horizontal gradation from blue on the right to green on the left, at full saturation. (Blue to green horizontal ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.16 B-G_Both

**Blue and Green Both** – a smooth vertical gradation of blue and green combined, with full saturation (teal) at the bottom and zero saturation (black) at the top. (Blue to green both ramps | Ramp (continuous) | Signal: SDR)

### 6.2.7.17 G_Vert_R-B_Horiz

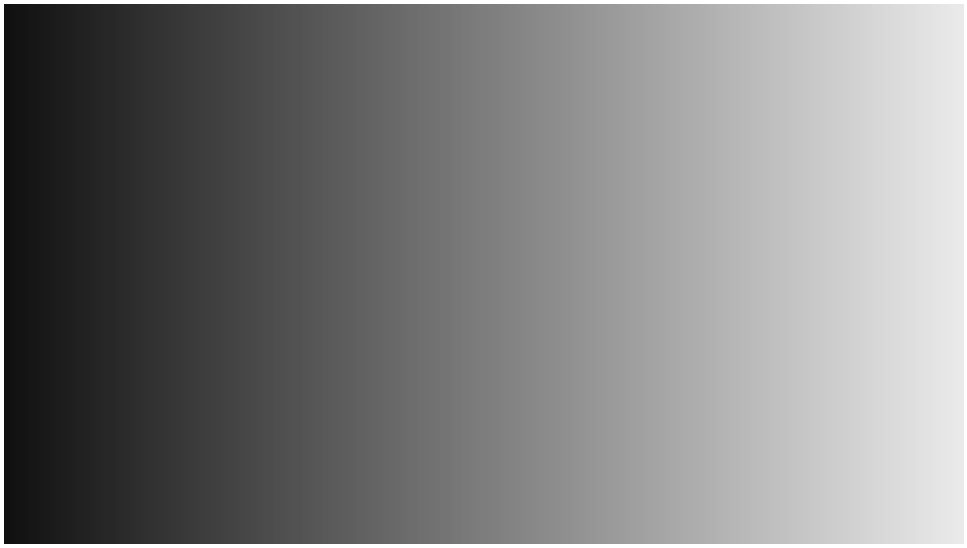


**Green Vertical Red to Blue Horizontal** – a smooth vertical gradation of green, combined with a red to blue horizontal gradation. (Green vertical with red to blue horizontal ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.18 R-B_Vert_G_Horiz

**Red to Blue Vertical Green Horizontal** – a smooth vertical gradation of red to blue, with a horizontal gradation of green. (Red to blue vertical and green horizontal ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.19 R-G-B_Horiz



**Red Green Blue Horizontal** – all three channels (R, G, and B) combined in a smooth gradation from zero saturation (black) to full saturation (white). (Luma (RGB) horizontal ramp | Ramp (continuous) | Signal: SDR)

### 6.2.7.20 R-G-B_Vert

**Red Green Blue Vertical** – all three channels (R, G, and B) combined in a smooth gradation from zero saturation (black) to full saturation (white). (Luma (RGB) vertical ramp | Ramp (continuous) | Signal: SDR)

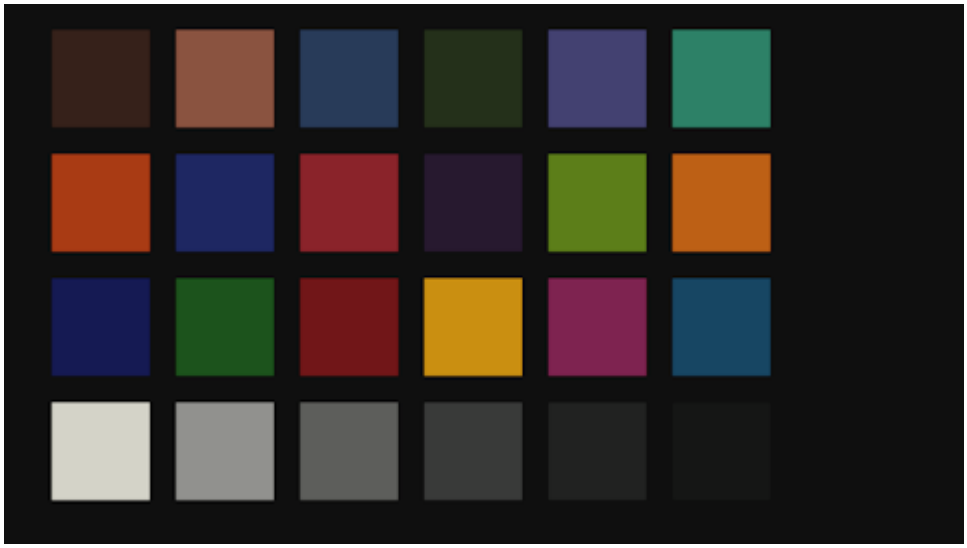
### 6.2.7.21 LumaRampVert

**Luma Ramp Vertical** – a smooth vertical luminance gradation, from zero saturation (black) to full saturation (white). (Luma ramp vertical | Ramp (continuous) | Signal: SDR)

### 6.2.8 Patches Patterns

Patches patterns have qualified a specific suite of color areas for monitoring and analysis of color range in their workflows. Pattern patches have known, fixed parameters that help set up and maintain a good chrominance range that has a known quality, or look, and is not just legal, but fully compliant.

### 6.2.8.1 SMPTE303M



**SMPTE 303M** – a MacBeth style SMPTE 303 chart with 24 sample colors whose colorimetric designations are distributed throughout the color television gamut. (SMPTE 303M Macbeth color chart | Color patches | Signal: SDR)

### 6.2.8.2 ColorScales

**Color Scales** – shows a 20 step scale for red, orange, yellow, green, cyan, light blue, blue, magenta, and red violet, from zero saturation (black) to full hue with no black. (Color scale patches | Color patches | Signal: SDR)

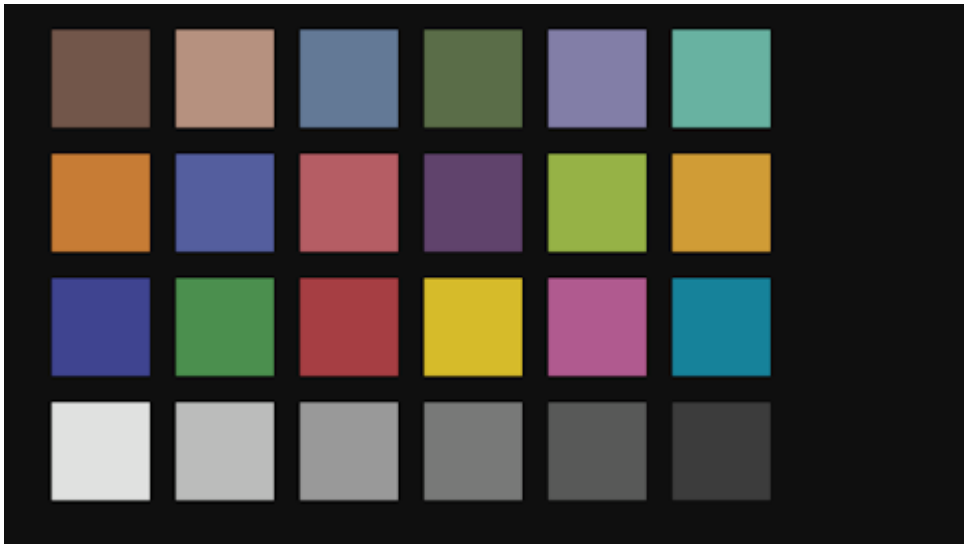
### *6.2.8.3 HDR_50Amp_100Sat_1*

**HDR 50 Amp 100 Saturation 1** – High dynamic range color bars with black. This pattern is removed when the **Show HDR** checkbox is deselected. (HDR 50% amplitude, 100% saturation | Color patches | Signal: HDR)

### *6.2.8.4 HDR_Point_SkinTones*

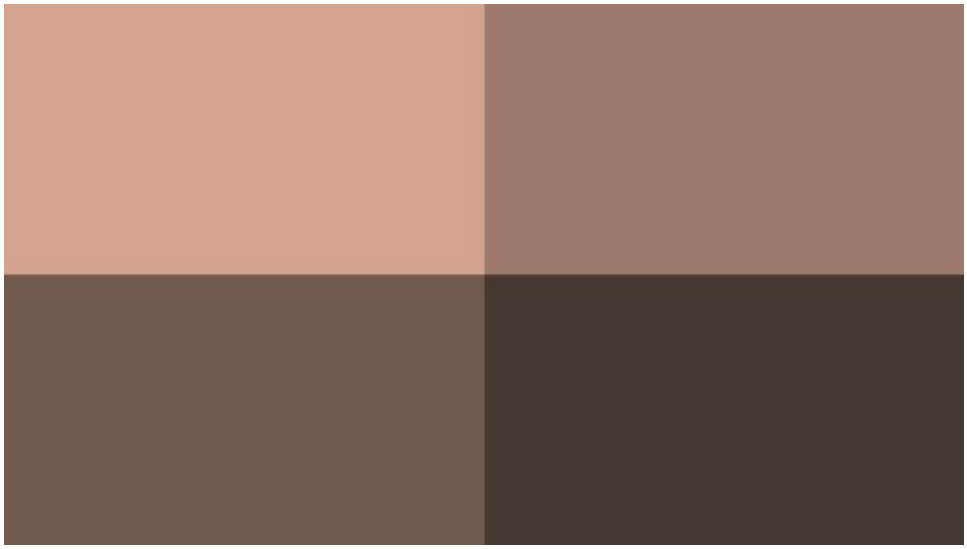
**HDR Point Pantone SkinTones Color** – various HDR range skin tones from the Pantone collection, along with a panel of black, for high dynamic range workflows. (HDR Point P SkinTones ColorChecker | Color patches | Signal: HDR)

### 6.2.8.5 SMPTE303M-Bright



**SMPTE 303M Bright** – a MacBeth style SMPTE 303 chart with 24 sample colors whose colorimetric designations are distributed throughout the color television gamut. Bright version. (Macbeth SMPTE 303M Color Checker | Color patches | Signal: SDR)

### 6.2.8.6 FleshColorQuadrant



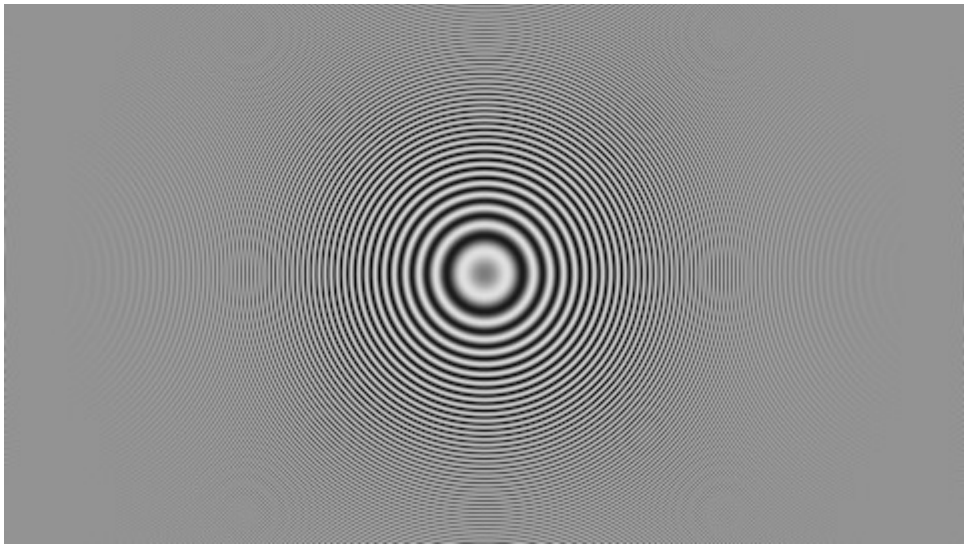
**Flesh Color Quadrant** – a set of 4 skin tones, arranged in a 2 x 2 grid. (Flesh color quadrant| Color patches | Signal: SDR)

### 6.2.9 ZonePlate Patterns

Zone Plate patterns are circular test patterns based on glass lenses using the Fresnel diffraction and light amplification principles through more or less closely spaced circular stripes.

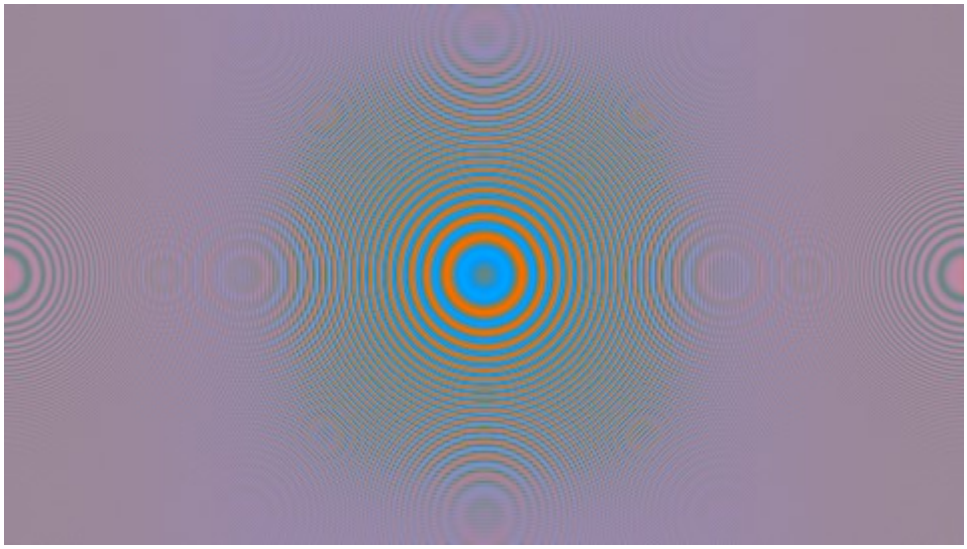
With Zone Plate patterns a frequency or set of frequencies is introduced into the image to generate interference that can be seen or measured.

### 6.2.9.1 ZonePlateY



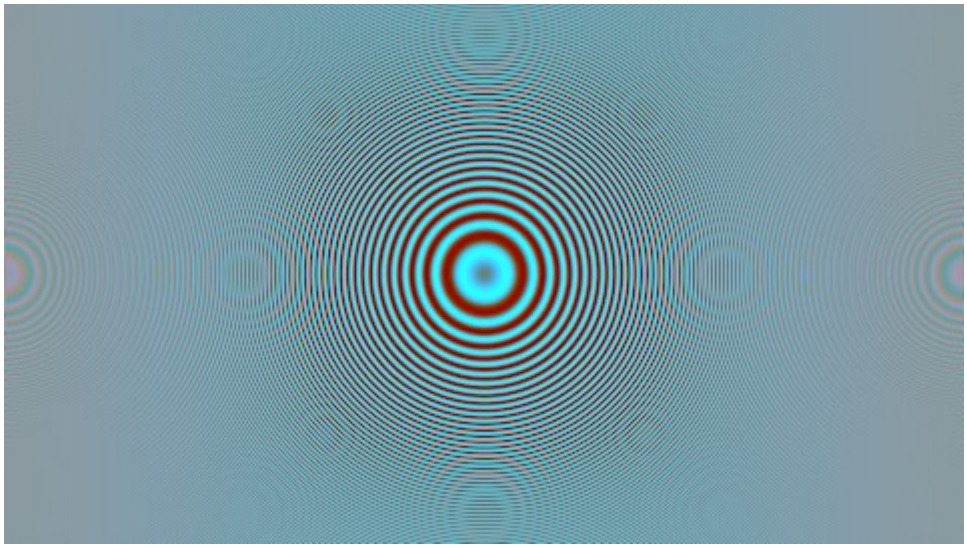
**Zone Plate Y** – luma (black and white) zone plate type patterns of overlaid concentric circles use frequencies in the image to assess issues in format or standards conversion. (Zone plate luma sweep | Zone plate (frequency sweep) | Signal: SDR)

### 6.2.9.2 ZonePlateC



**Zone Plate C** – chroma (orange to blue) zone plate type patterns of overlaid concentric circles use frequencies in the image to assess issues in format or standards conversion. (Zone plate chroma sweep | Zone plate (frequency sweep) | Signal: SDR)

### *6.2.9.3 ZonePlate*



**Zone Plate** – chroma (cyan to red) zone plate type patterns of overlaid concentric circles use frequencies in the image to assess issues in format or standards conversion. (Zone plate luma and chroma sweep | Zone plate (frequency sweep) | Signal: SDR)

### 6.2.10 Edges Patterns

Edges patterns are designed to check whether the aspect ratio and other frame size parameters are met.

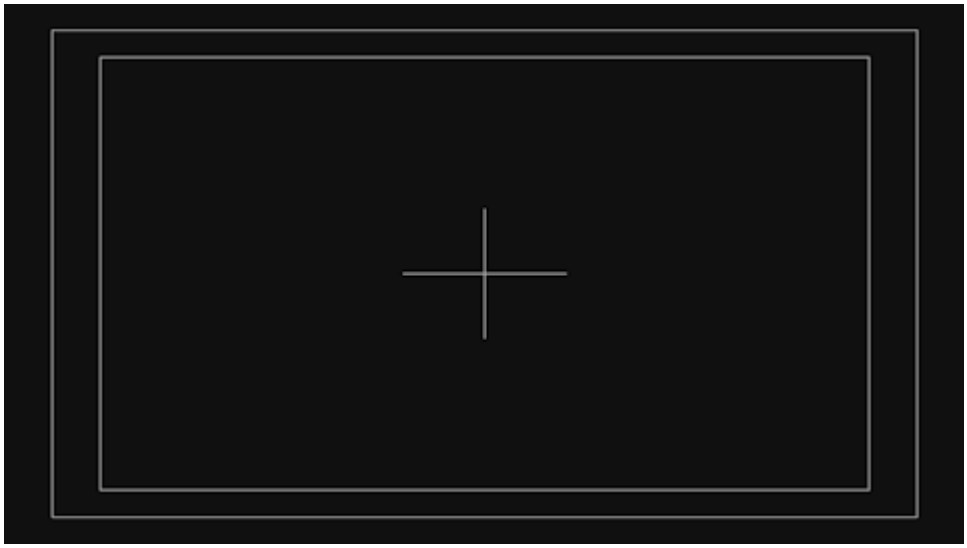
### 6.2.10.1 Border

**Border** – provides a screen of black with a single pixel border of white around it. (Edge border frame | Edge (edge/overscan) | Signal: SDR)

### 6.2.10.2 BorderColorQuadrant

**Border Color Quadrant** – provides a screen of black with a border and quadrant markers. (Border Color Quadrant BT.601 | Edge (edge/overscan) | Colorspace: BT.601 | Signal: SDR)

### 6.2.10.3 TitleActionSafe

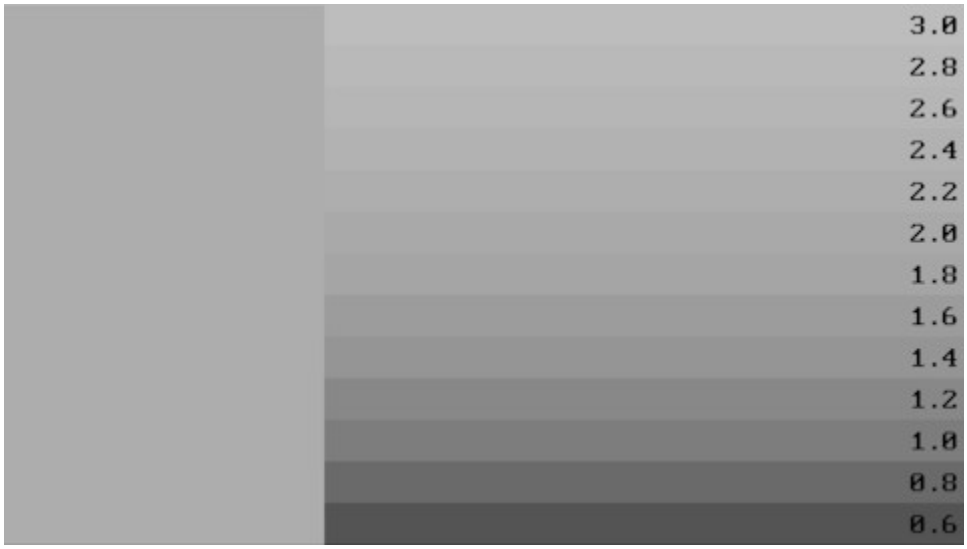


**Title Action Safe** – a black screen featuring title safe and action safe graticules with a cross in the center. (Title and action safe markers | Edge (edge/overscan) | Signal: SDR)

## 6.2.11 Gamma Patterns

Monitor and analyze gamma levels throughout the signal chain.

### *6.2.11.1 GammaStrip*




**Gamma Strip** – a panel of fine horizontal lines on the left, with a panel of evenly spaced grays and their corresponding gamma values on the right. (Gamma strip scale | Gamma | Signal: SDR)

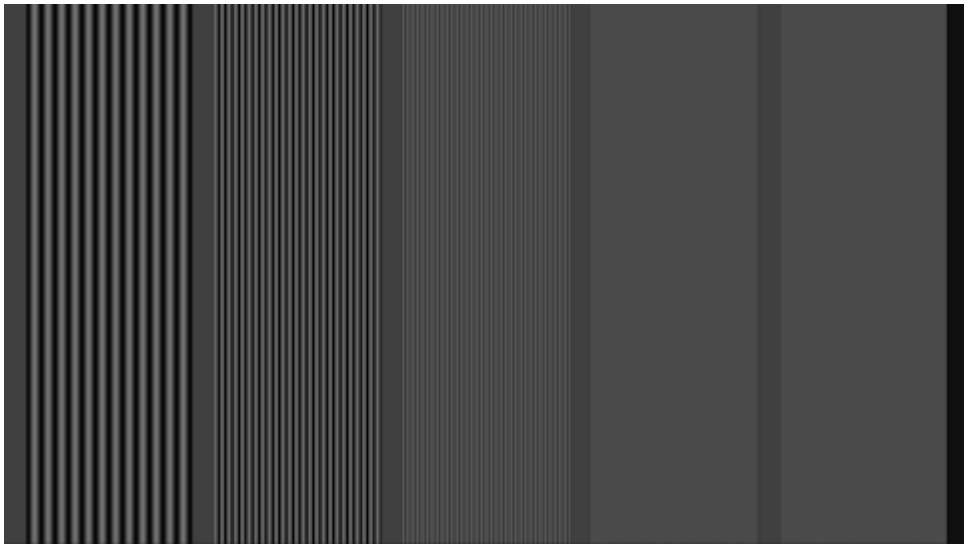
### 6.2.12 Multiburst Patterns

A multiburst waveform is used to test the frequency response of a video system. The pattern provides multiple bursts of sine wave in the active video generated with varying frequency, but identical in amplitude.

The test pattern is usually input at the start of the signal chain and analyzed at the end. By measuring the amplitude of each of the 'bursts' of waveform at the end of the video chain, spot measurements of the frequency response of the system can be obtained and errors in the response quickly identified.

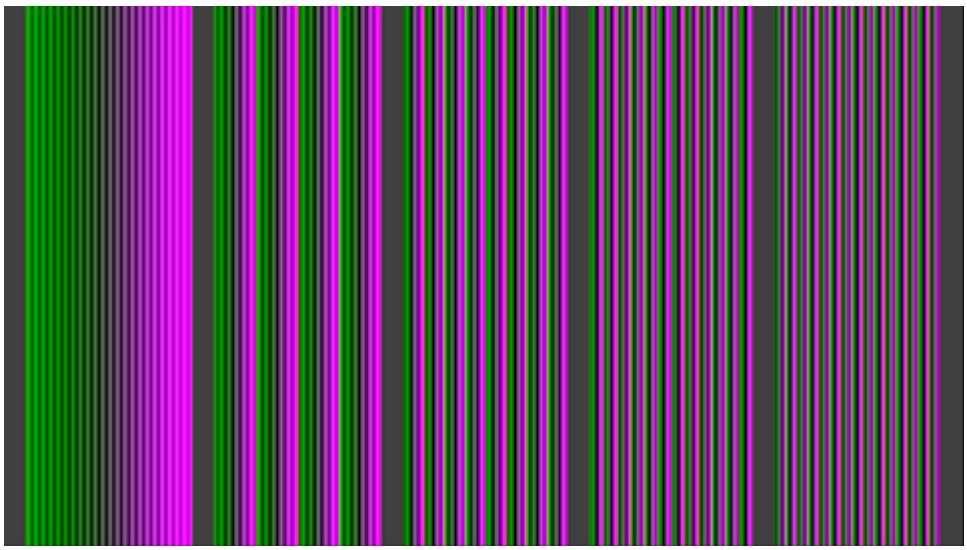
Used to evaluate if high-frequency luma channel information is being restricted by the display.

### 6.2.12.1 MultiBurst



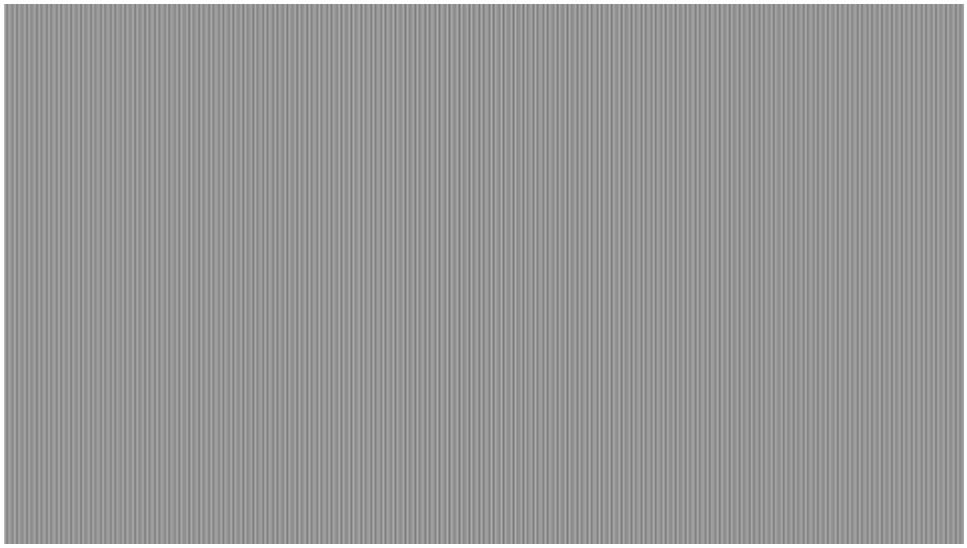
**Multiburst** – shows a series of vertical lines of varying thickness in shades of gray. (Multiburst frequency response | Multiburst (frequency response) | Signal: SDR)

### 6.2.12.2 MultiBurst_5_0Mhz



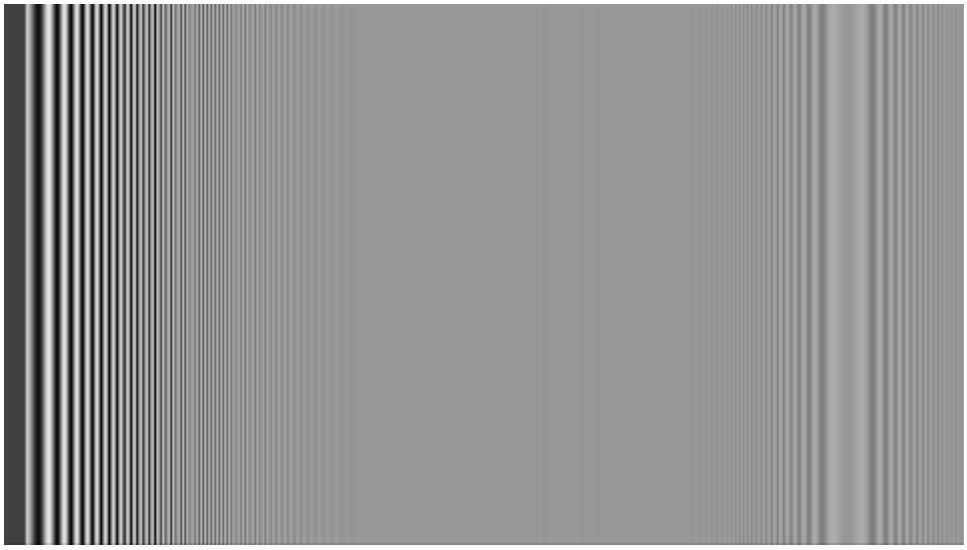
**Multiburst 5.0 Mhz** – shows a series of green, gray, and magenta vertical lines of varying thickness. (Multiburst 5.0 MHz | Multiburst (frequency response) | Signal: SDR)

### 6.2.12.3 SingleBurst



**Single Burst** – a frame of evenly spaced white and black vertical lines. (Single frequency burst | Multiburst (frequency response) | Signal: SDR)

### 6.2.12.4 LumaSweep



**Luma Sweep** – a series of white, gray, and black vertical lines of varying thickness. (Luma frequency sweep | Multiburst (frequency response) | Signal: SDR)

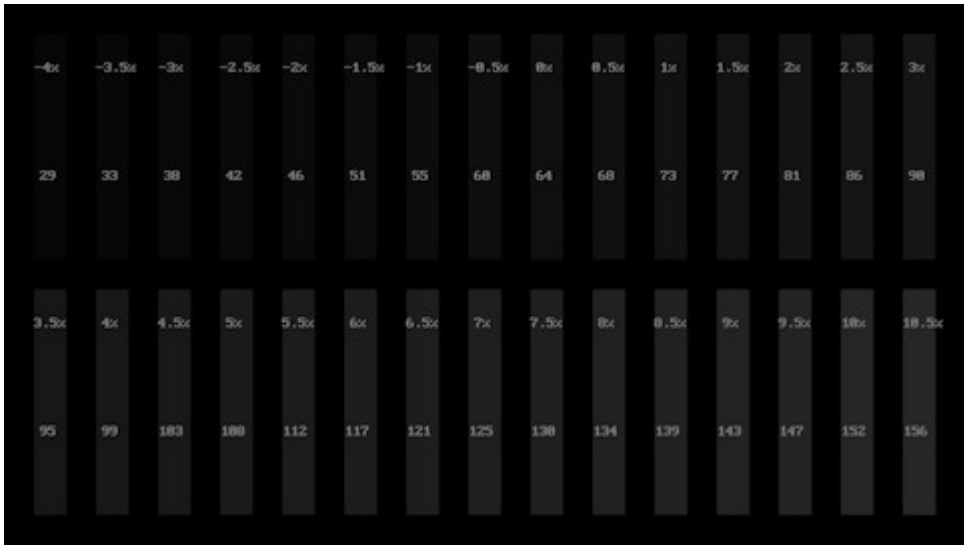
### 6.2.13 Luma Check Patterns

Luma patterns or fields used to check monitor response and luma levels.

### 6.2.13.1 Pluge

**Pluge** – Picture Lineup Generation Equipment uses pluge, a grayscale test pattern, to adjust the black level and contrast of the picture monitor. (PLUGE luma black level | luma check | Signal: SDR)

### 6.2.13.2 HDR_BlackClipping




**HDR Black Clipping** – a series of very dark black panels with their values displayed on them, used to check legal gamut in high dynamic range signals. (HDR black clipping | luma check | Signal: HDR)

### 6.2.13.3 HDR_WhiteClipping_1

**HDR White Clipping 1** – a series of rather light gray panels with their values displayed on them, used to check legal gamut in high dynamic range signals. (HDR white clipping | luma check | Signal: HDR)

### 6.2.13.4 IREField5i

**IRE Field 5** – a screen of IRE 5% gray. (IRE Field 5 | luma check | Signal: SDR)

### 6.2.13.5 IREField10i

**IRE Field 10** – a screen of IRE 10% gray. (IRE Field 10 | luma check | Signal: SDR)

### 6.2.13.6 IREField15i

**IRE Field 15** – a screen of IRE 15% gray. (IRE Field 15 | luma check | Signal: SDR)

### 6.2.13.7 IREField20i

**IRE Field 20** – a screen of IRE 20% gray. (IRE Field 20 | luma check | Signal: SDR)

### 6.2.13.8 IREField25i

**IRE Field 25** – a screen of IRE 25% gray. (IRE Field 25 | luma check | Signal: SDR)

### 6.2.13.9 IREField30i

**IRE Field 30**– a screen of IRE 30% gray. (IRE Field 30 | luma check | Signal: SDR)

### 6.2.13.10 IREField35i

**IRE Field 35** – a screen of IRE 35% gray. (IRE Field 35 | luma check | Signal: SDR)

### 6.2.13.11 IREField40i

**IRE Field 40** – a screen of IRE 40% gray. (IRE Field 40 | luma check | Signal: SDR)

### 6.2.13.12 IREField45i

**IRE Field 45** – a screen of IRE 45% gray. (IRE Field 45 | luma check | Signal: SDR)

### 6.2.13.13 IREField50i

**IRE Field 50** – a screen of IRE 50% gray. (IRE Field 50 | luma check | Signal: SDR)

### 6.2.13.14 IREField55i

**IRE Field 55** – a screen of IRE 55% gray. (IRE Field 55 | luma check | Signal: SDR)

### 6.2.13.15 IREField60i

**IRE Field 60** – a screen of IRE 60% gray. (IRE Field 60 | luma check | Signal: SDR)

### 6.2.13.16 IREField65i

**IRE Field 65** – a screen of IRE 65% gray. (IRE Field 65 | luma check | Signal: SDR)

### 6.2.13.17 IREField70i

**IRE Field 70** – a screen of IRE 70% gray. (IRE Field 70 | luma check | Signal: SDR)

### 6.2.13.18 IREField75i

**IRE Field 75** – a screen of IRE 75% gray. (IRE Field 75 | luma check | Signal: SDR)

### 6.2.13.19 IREField80i

**IRE Field 80** – a screen of IRE 80% gray. (IRE Field 80 | luma check | Signal: SDR)

### 6.2.13.20 IREField85i



**IRE Field 85** – a screen of IRE 85% gray. (IRE Field 85 | luma check | Signal: SDR)

### 6.2.13.21 IREField90i



**IRE Field 90** – a screen of IRE 90% gray. (IRE Field 90 | luma check | Signal: SDR)

### 6.2.13.22 IREField95i



**IRE Field 95** – a screen of IRE 95% gray. (IRE Field 95 | luma check | Signal: SDR)

### 6.2.13.23 IREField0i

**IRE Field 0** – a screen of IRE 0% (black). (IRE Field 0 | luma check | Signal: SDR)

### 6.2.13.24 IREField100i

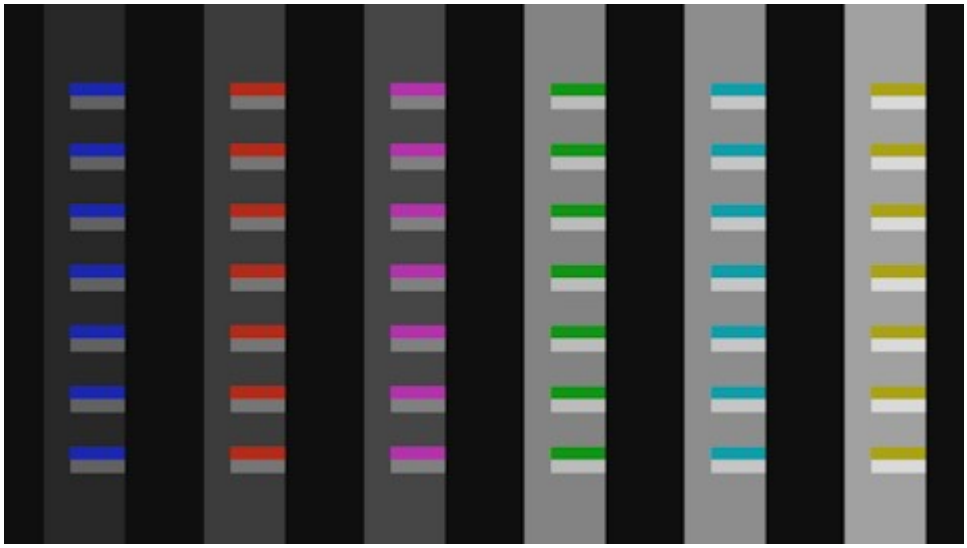


**IRE Field 100** – a screen of IRE 100% (white). (IRE Field 100 | luma check | Signal: SDR)

### 6.2.14 Chroma Check Patterns

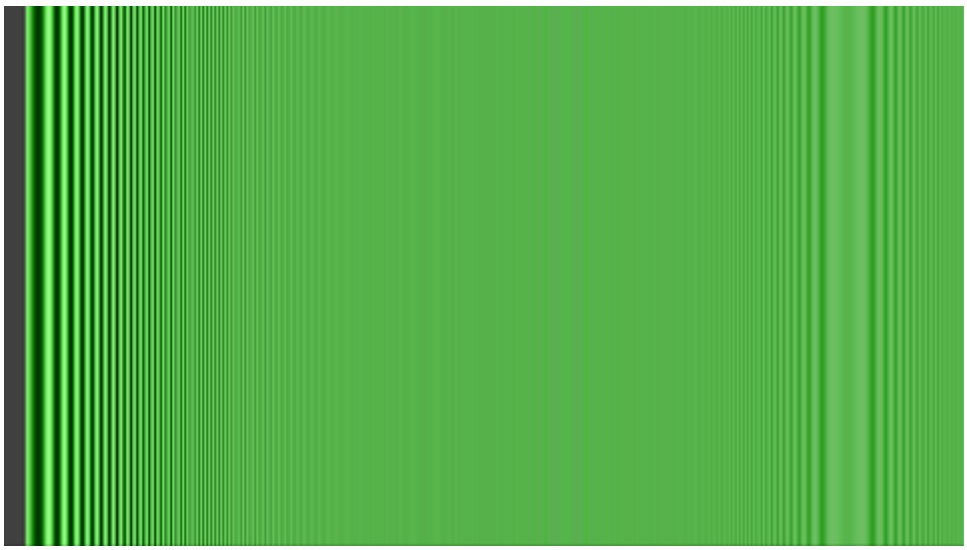
Chroma patterns or fields used to check monitor response and chroma levels.

### 6.2.14.1 ycHD



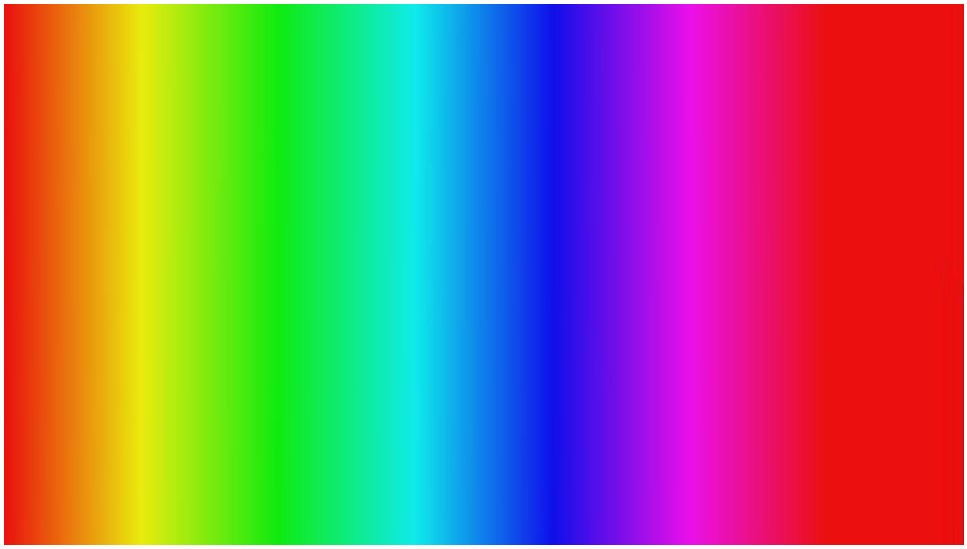
**YC HD** – a black screen with gray bars containing colored and gray to white rectangles for YC HD offset check. (Y/C HD Offset check pattern | Chroma check | Signal: SDR)

### 6.2.14.2 ChromaSweep



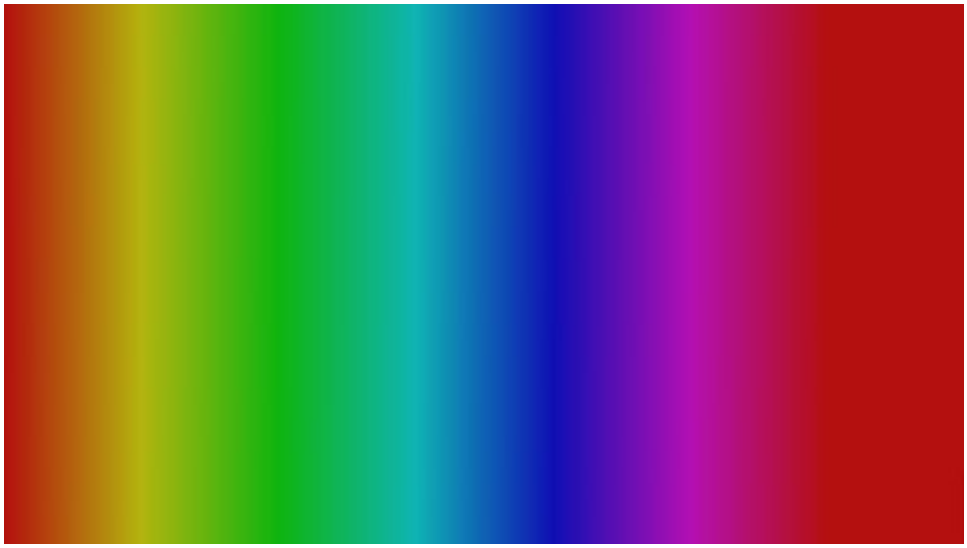
**Chroma Sweep** – a series of green and gray vertical lines of varying thickness. (Chroma frequency sweep | Chroma check | Signal: SDR)

### 6.2.14.3 All_Hue_709_100pc



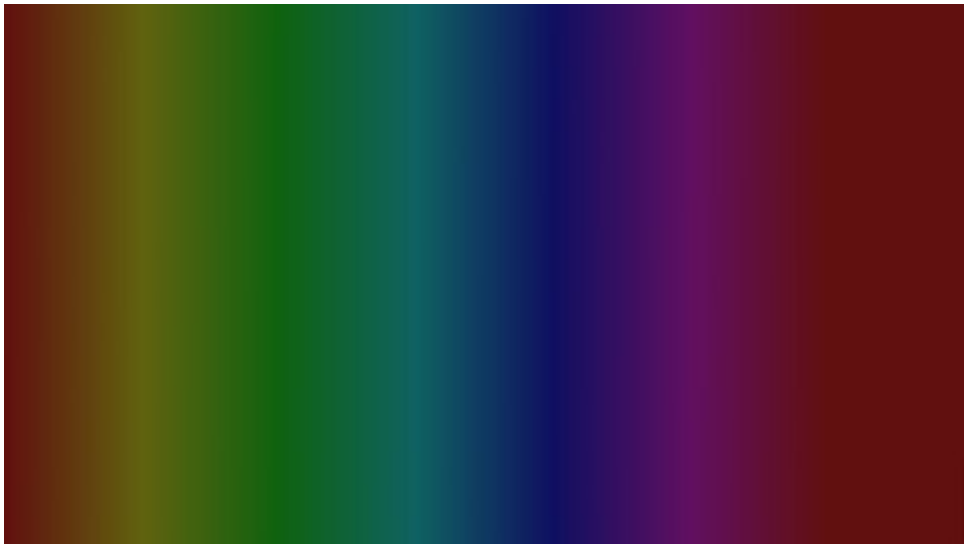
**All Hue 709 100%** – all the visible colors at full (100%) saturation arranged in a spectrum across the screen. (All hues Rec.709 100% | Chroma check | Colorspace: Rec.709 | Signal: SDR)

### 6.2.14.4 All_Hue_709_75pc



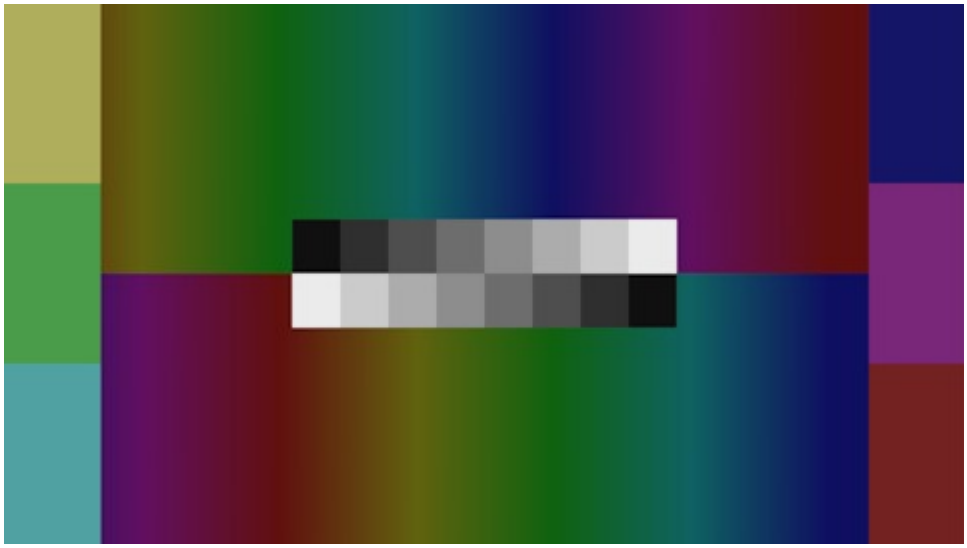
**All Hue 709 75%** – all the visible colors at three quarters (75%) saturation arranged in a spectrum, across the screen. (All hues Rec.709 75% | Chroma check | Colorspace: Rec.709 | Signal: SDR)

### 6.2.14.5 All_Hue_709_37pc



**All Hue 709 37%** – all the visible colors at 37.5% saturation arranged in a spectrum, with vertical bars of black on the left and on the right. (All hues Rec.709 37.5% | Chroma check | Colorspace: Rec.709 | Signal: SDR)

### *6.2.14.6 AllHue37_Markers*



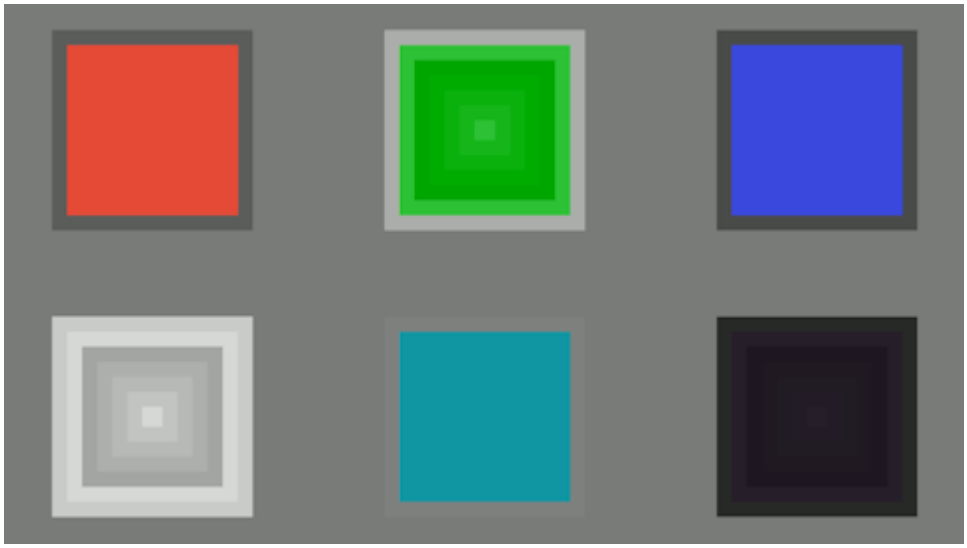
**All Hue 37% Markers** – features a panel with all the visible colors at 37.5% saturation arranged in a spectrum on top with inverse below, and adds a black and white 7 step with inverse, as well as two panels of gray, and the gamut primaries at 37.5% saturation. (All hues 37.5% markers | Chroma check | Signal: SDR)

### 6.2.15 Color Check Patterns

Color checks for high dynamic range workflows.

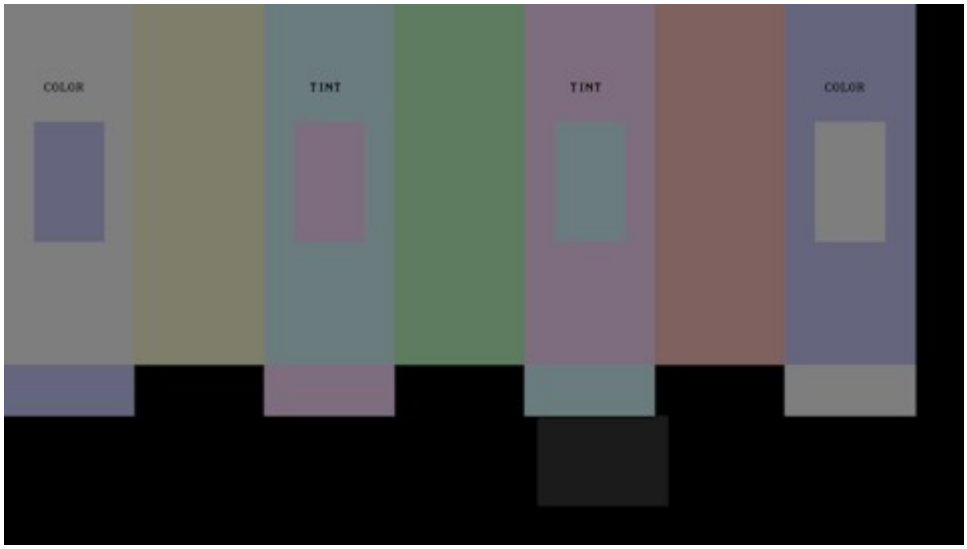
*Note*: these patterns may not display properly if you are not set up for HDR.

### 6.2.15.1 HDR_Clipping



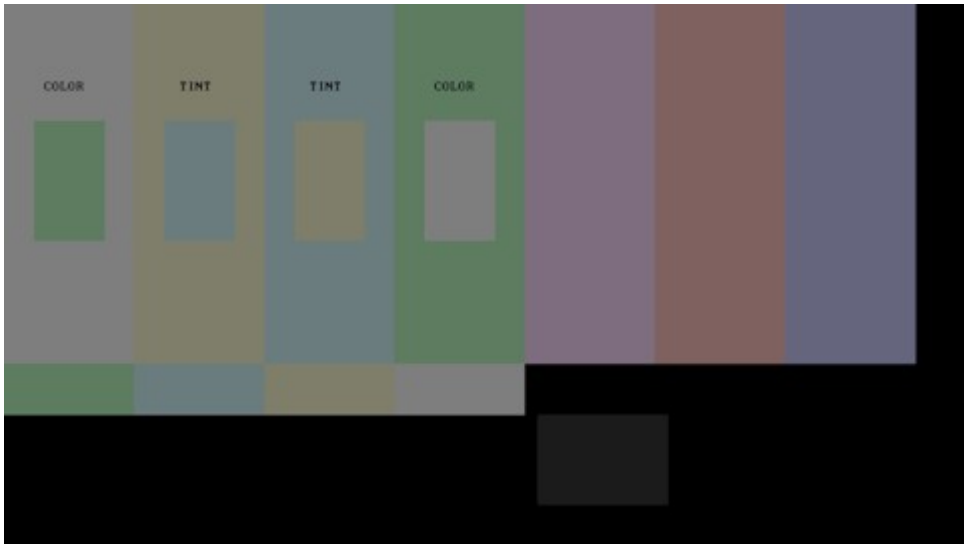
**Clipping** – a gray screen with 6 square sections, each designed to test whether a specific aspect of a high dynamic range signal is clipping. (HDR color clipping test | Color check | Signal: HDR)

### 6.2.15.2 HDR_BlueFilter



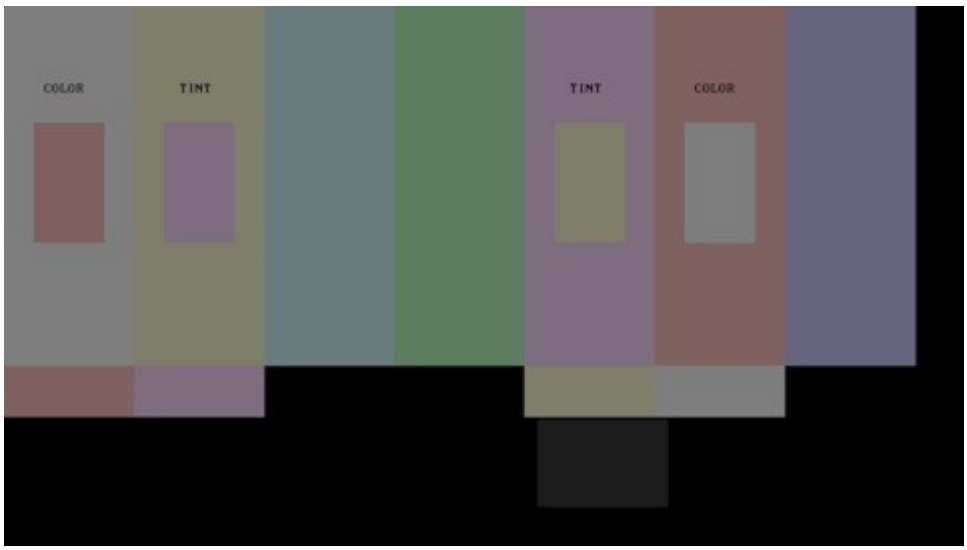

**HDR Blue Filter** – color bars with inverts, overlaid with a blue filter, for testing color processing in a high dynamic range signal. (HDR blue filter | Color check | Signal: HDR)

### 6.2.15.3 HDR_GreenFilter



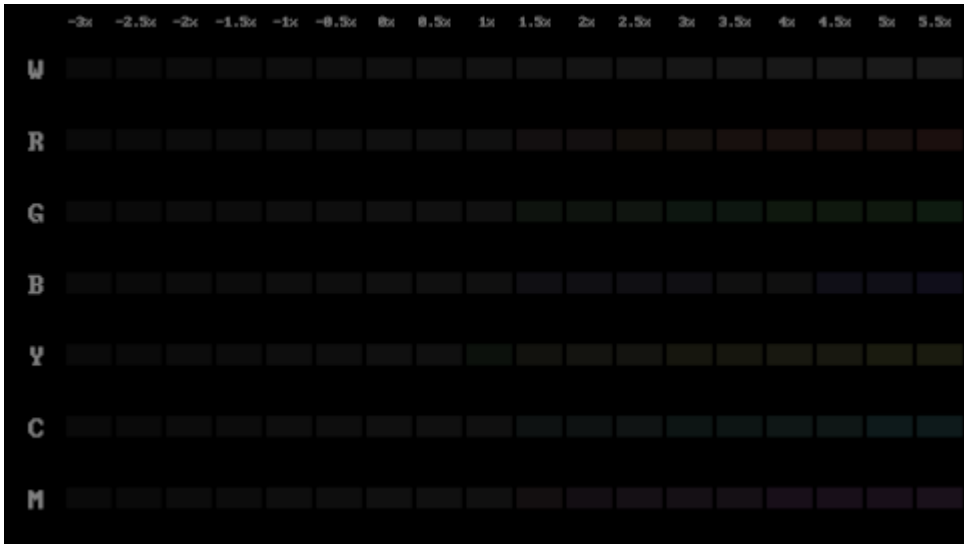

**HDR Green Filter** – color bars with inverts, overlaid with a green filter, for testing color processing in a high dynamic range signal. (HDR green filter | Color check | Signal: HDR)

### 6.2.15.4 HDR_RedFilter



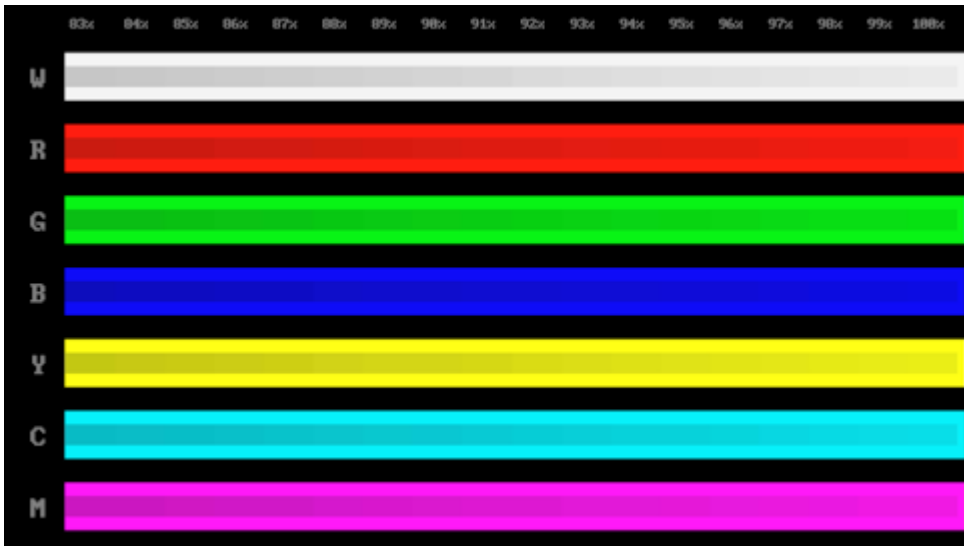

**HDR Red Filter 1** – color bars with inverts, overlaid with a red filter, for testing color processing in a high dynamic range signal. (HDR red filter | Color check | Signal: HDR)

### 6.2.15.5 HDR_ColorClippingLow



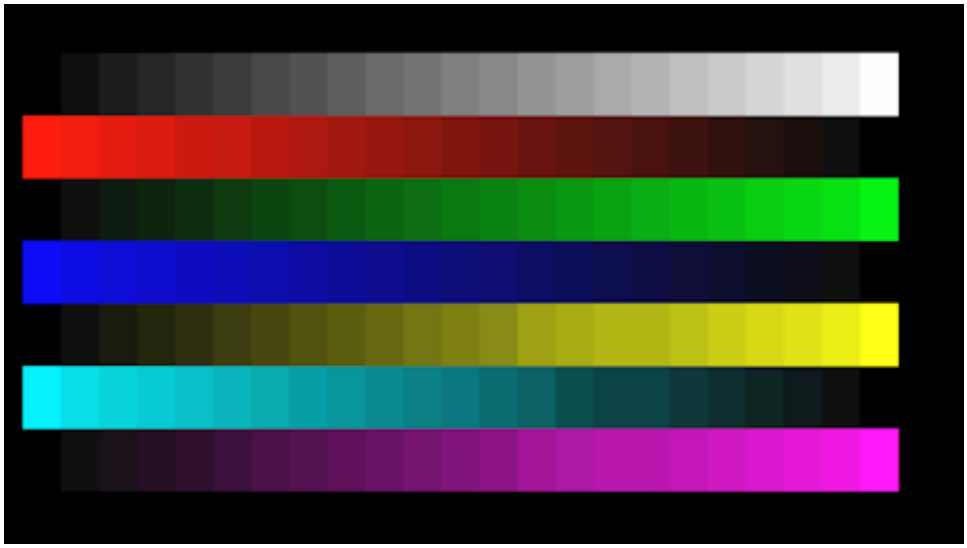

**HDR Color Clipping Low** – low values between -3% and 5.5%, for HDR range White, Red, Green, Blue, Yellow, Cyan, and Magenta, for testing color processing in a high dynamic range signal. (HDR low color clipping | color check | Signal: SDR)

### 6.2.15.6 HDR_ColorClippingHigh




**HDR Color Clipping High** – high values between 85% and 100%, for HDR range White, Red, Green, Blue, Yellow, Cyan, and Magenta, for testing color processing in a high dynamic range signal. (HDR high color clipping | color check | Signal: SDR)

### 6.2.15.7 HDR_ColorClippingSteps



**HDR Color Clipping Steps** – steps from light to dark values, for HDR range White, Red, Green, Blue, Yellow, Cyan, and Magenta, for testing color processing in a high dynamic range signal. (HDR color steps | color check | Signal: SDR)

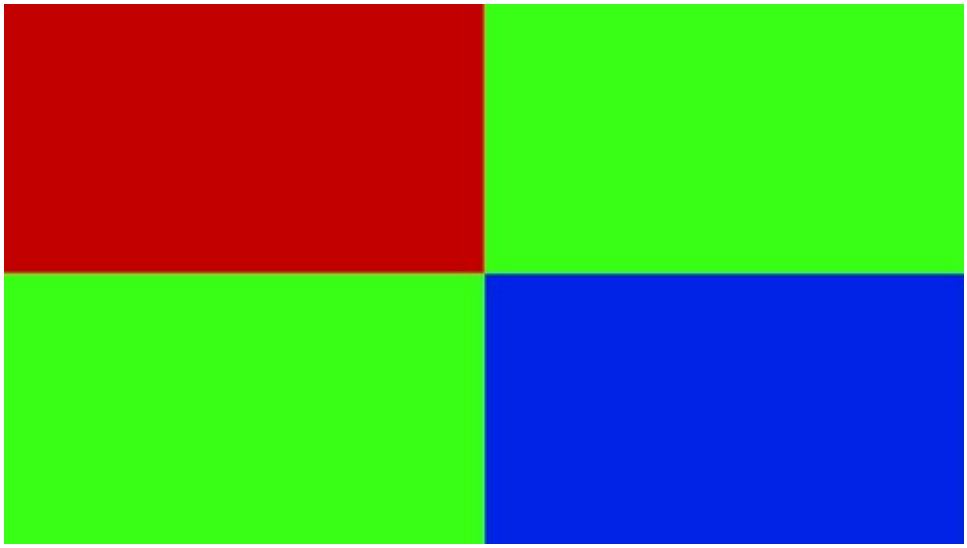
### 6.2.16 Signal Check Patterns

Confirm there is a signal, and its levels are valid and compliant.

### 6.2.16.1 CheckField

**Check Field** – provides a panel of magenta on top and a panel of gray on the bottom. (CheckField | Signal integrity | Signal: SDR)

### 6.2.16.2 ColorQuadrant



**Color Quadrant** – divides the screen into 4 quadrants, with red top left, green top right and lower left, and blue on the lower right. (Color quadrant test | Signal integrity | Signal: SDR)

### 6.2.16.3 FlatField

**Flat Field** – provides an even gray screen (same as 50% gray). (Flat field uniform | Signal integrity | Signal: SDR)

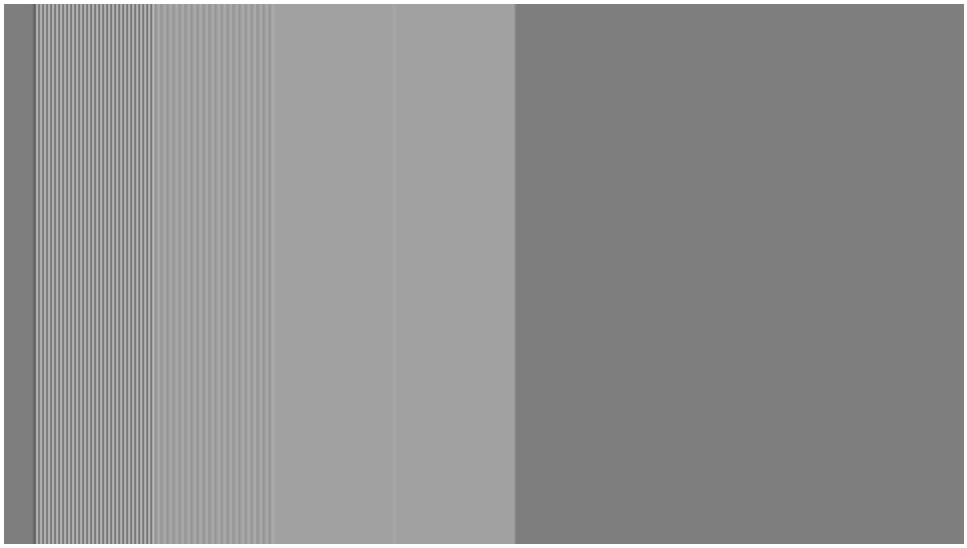
### 6.2.16.4 HorizPixOne

**Horizontal Pixel One** – provides a test of horizontal resolution with single pixel wide vertical columns across the screen. (Horizontal 1-pixel lines | Signal integrity | Signal: SDR)

### 6.2.16.5 HorizPixTwo

**Horizontal Pixel Two** – provides a test of horizontal resolution with two pixel wide vertical lines across the screen. (Horizontal 2-pixel lines | Signal integrity | Signal: SDR)

### 6.2.16.6 HorizRes



**Horizontal Resolution** – provides a test of horizontal resolution with a series of vertical lines across the screen. (Horizontal resolution wedge | Signal integrity | Signal: SDR)

### 6.2.16.7 VertPixOne

**Vertical Pixels One** – a series of horizontal one pixel lines for checking vertical resolution.
(Vertical 1-pixel lines | Signal integrity | Signal: SDR)

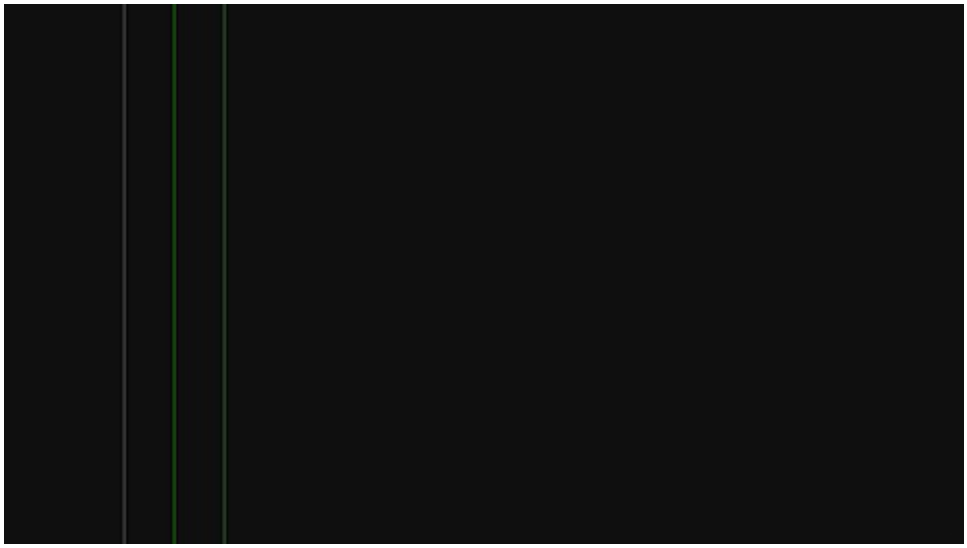
### 6.2.16.8 VertPixTwo

**Vertical Pixels Two** – a series of horizontal two pixel lines for checking vertical resolution.
(Vertical 2-pixel lines | Signal integrity | Signal: SDR)

### 6.2.16.9 VertRes

**Vertical Resolution** – a series of horizontal lines with gray spaces for checking vertical resolution. (Vertical resolution wedge | Signal integrity | Signal: SDR)

### 6.2.16.10 2TPulseLines



**2T Pulse Lines** – a mostly black screen with 3 narrow vertical lines on the left side. (2T pulse and line pair | Signal integrity | Signal: SDR)

### 6.2.16.11 Pathological

**Pathological** – pathological SDI check field pattern. (Pathological SDI check field | Signal integrity | Signal: SDR)

### 6.2.16.12 PathologicalEQ

**Pathological EQ** – pathological SDI EQ check pattern. (Pathological SDI EQ | Signal integrity | Signal: SDR)

### 6.2.16.13 PathologicalPLL

**Pathological PLL** – pathological SDI phase locked loop check pattern designed to stress the cable equalizers and clock timing. (Pathological SDI PLL | Signal integrity | Signal: SDR)

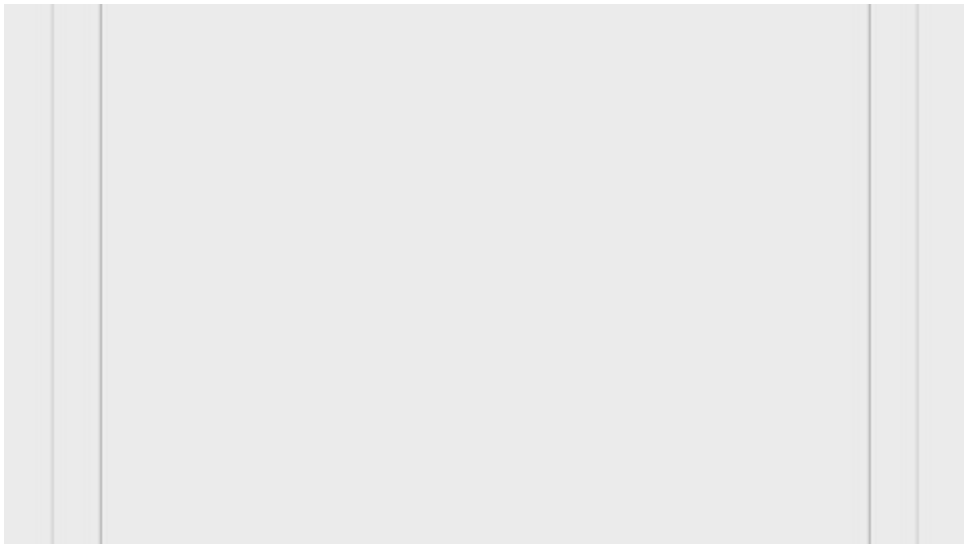
### 6.2.16.14 NeedlePulseGray

**Needle Pulse Gray** – a gray screen with vertical “needle pulses” of white. (Needle pulse, grey background | Signal integrity | Signal: SDR)

### 6.2.16.15 NeedlePulseBlack

**Needle Pulse Black**– a black screen with vertical needle pulses of white. (Needle pulse, black background | Signal integrity | Signal: SDR)

### 6.2.16.16 NeedlePulseWhite



**Needle Pulse White** – a white screen with vertical needle pulses of black. (Needle pulse, white background, black pulse | Signal integrity | Signal: SDR)

### 6.2.16.17 NeedlePulse

**Needle Pulse** – vertical needle pulses of white over a screen featuring four rectangles, two white and two black. (Needle pulse, black and white squares | Signal integrity | Signal: SDR)

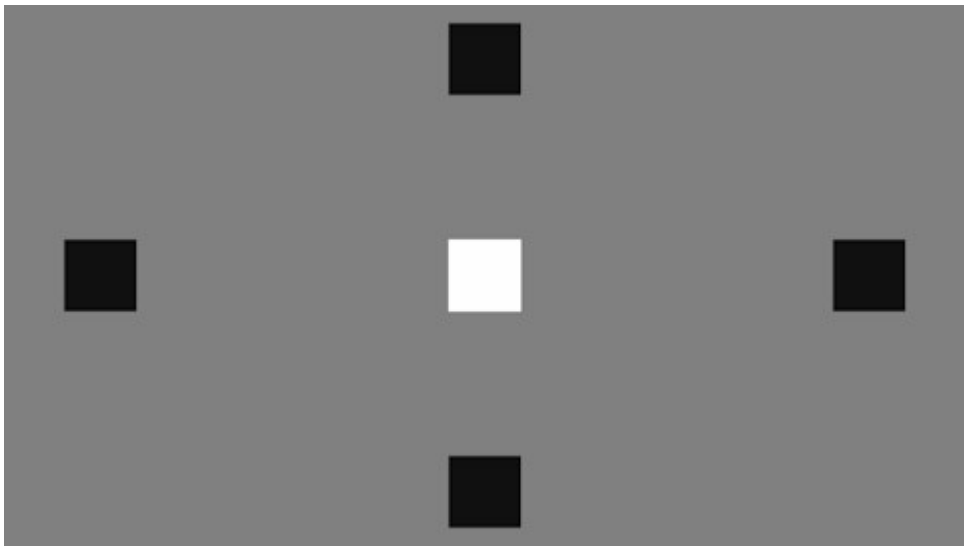
### 6.2.16.18 NeedlePulseF

**Needle Pulse F** – vertical needle pulses of white and a series of vertical bands of gray over a screen featuring four rectangles, two white and two black. (Needle pulse type F | Signal integrity | Signal: SDR)

### 6.2.16.19 EBU-3325-EBU_1

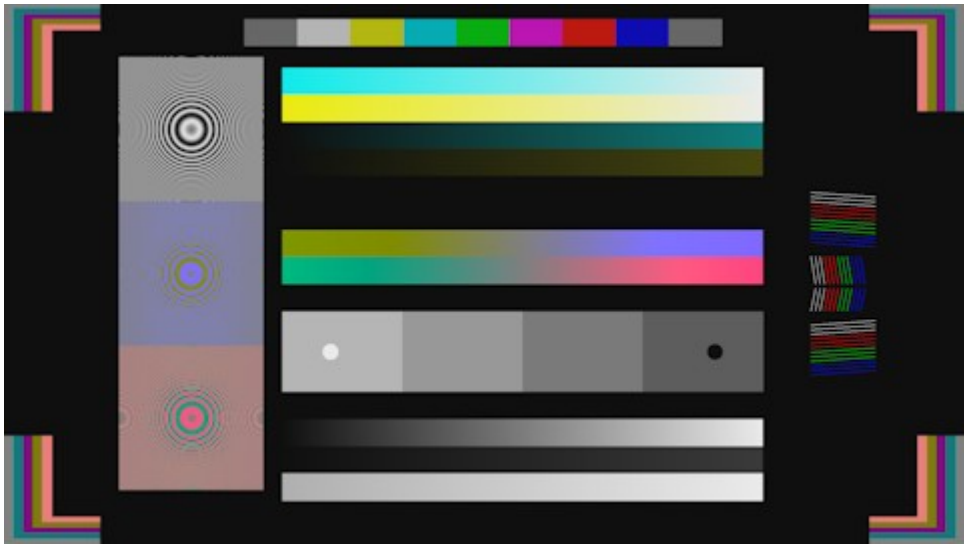
**EBU 3325 EBU 1** – a gray frame, overlaid with four black squares and a white square in the center. Features black, white, and simultaneous contrast (100%). (EBU 3325 EBU_1 Black, white and simultaneous contrast (White 100) | Signal integrity | Signal: SDR)

### 6.2.16.20 EBU-3325-EBU_2



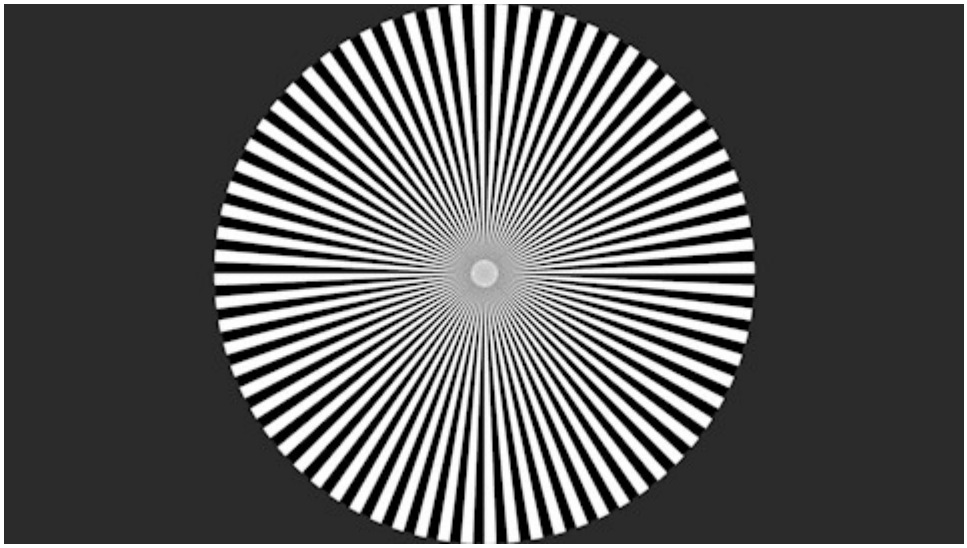
**EBU 3325 EBU 2** – a gray frame, overlaid with four black squares and a white square in the center. Features black, white, and simultaneous contrast (109%). (EBU 3325 EBU_2 Black, white and simultaneous contrast (White 109) | Signal integrity | Signal: SDR)

### 6.2.16.21 EBU-3325-EBU_7



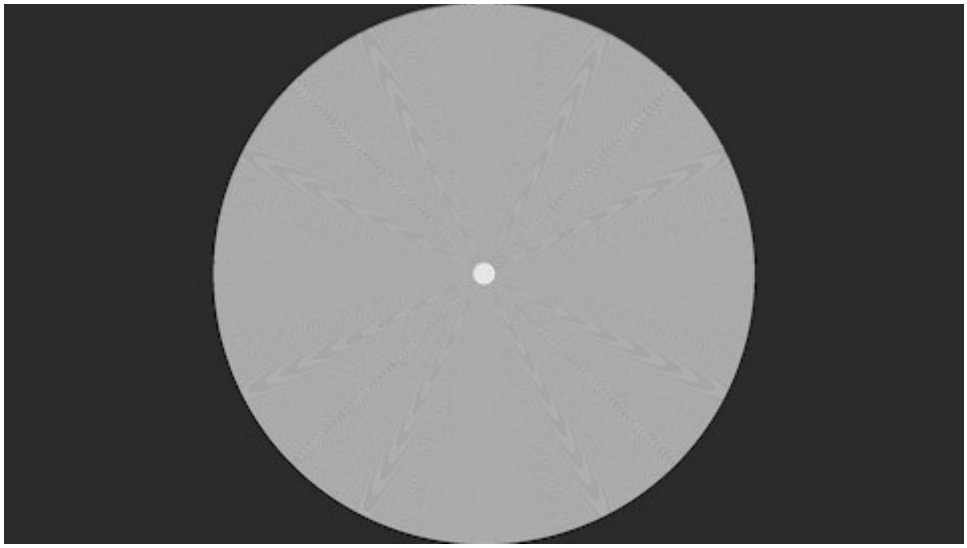
**EBU 3325 EBU 7** – a multipattern, with bars, zone plates, ramps, steps, diagonals, and several tertiary colors as corner markers. (EBU 3325 EBU_7 | Signal integrity | Signal: SDR)

### 6.2.16.22 Siemens_Star



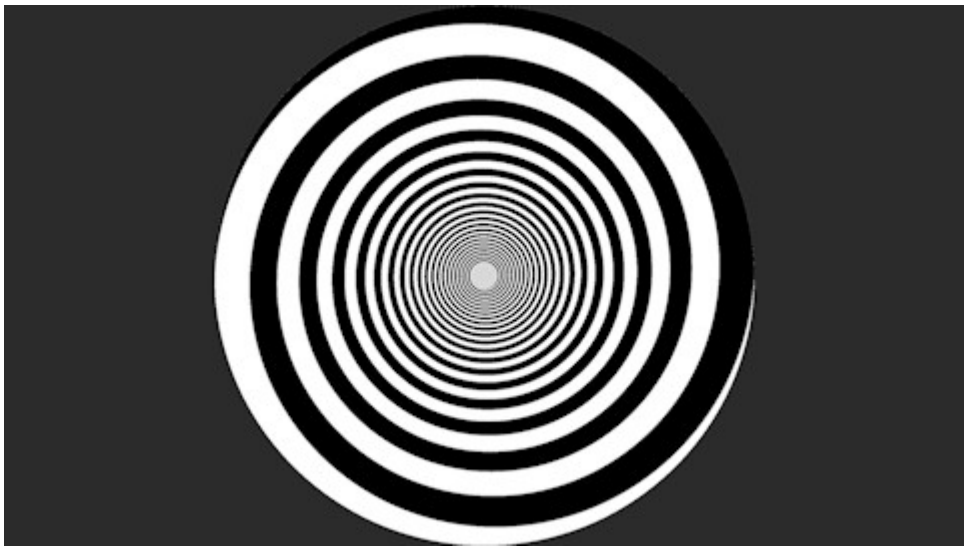
**Siemens Star** – Provides a Siemens Star type of test pattern, which tests monitor resolution, as lines grow increasingly narrow toward the center. (Siemens Start Pattern | Signal integrity | Signal: SDR)

### 6.2.16.23 Fiddle_Head_Fine



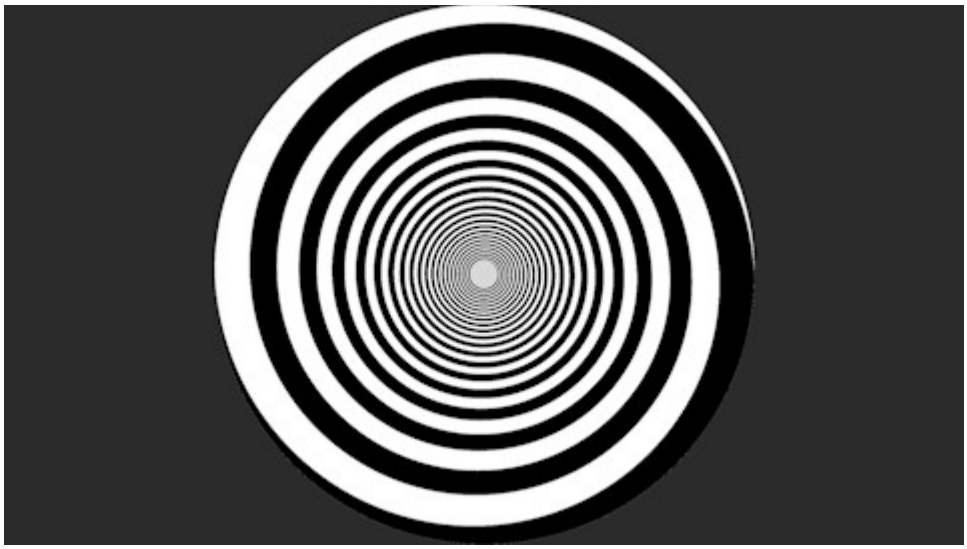
**Fiddle Head Fine** – features a decreasing radii spiral pattern that is designed to provide a visual pop at the precise point of optimum focus. (Fiddle Head Fine Pattern | Signal integrity | Signal: SDR)

### 6.2.16.24 Fiddle_Head_Left



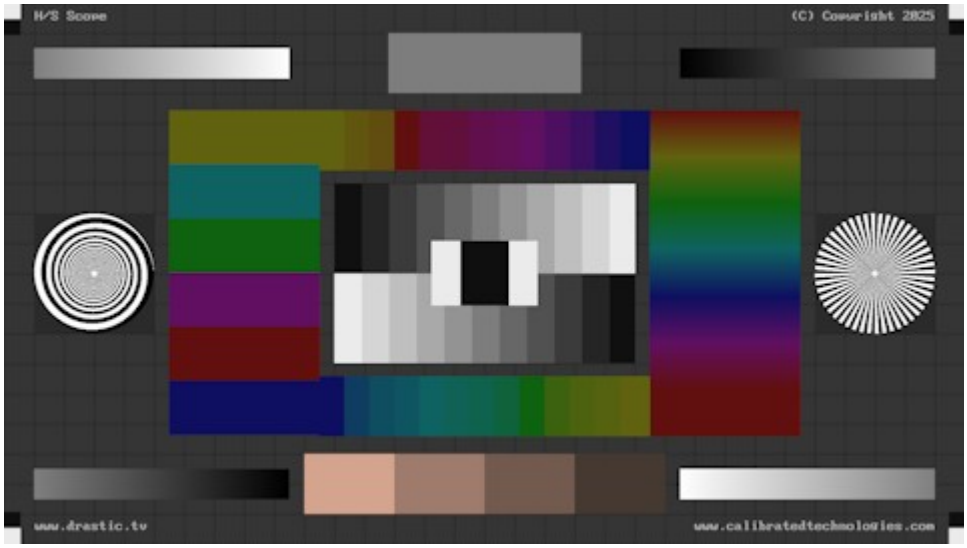
**Fiddle Head Left** – features a decreasing radii leftward (clockwise) spiral pattern that is designed to provide a visual pop at the precise point of optimum focus. (Fiddle Head Left Pattern | Signal integrity | Signal: SDR)

### *6.2.16.25 Fiddle_Head_Right*



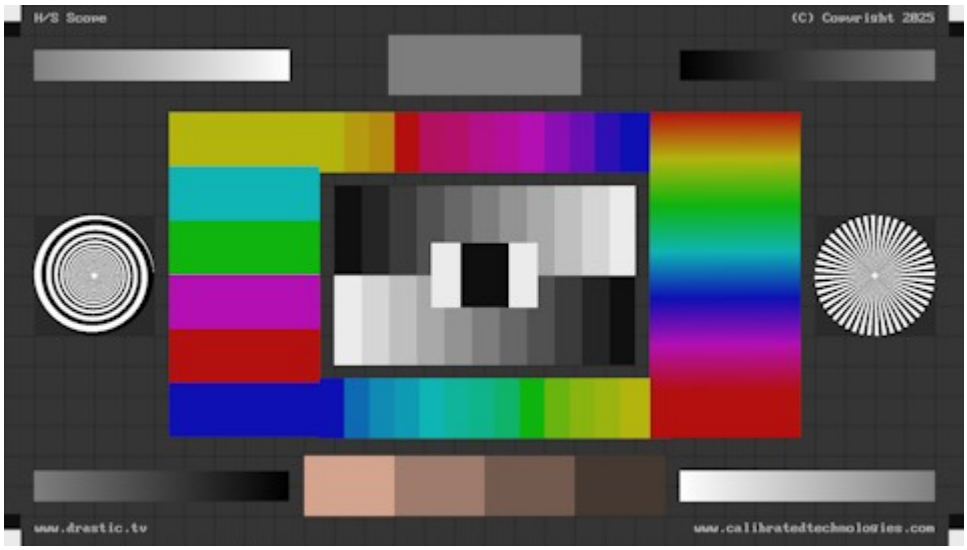
**Fiddle Head Right** – features a decreasing radii rightward (counter-clockwise) spiral pattern that is designed to provide a visual pop at the precise point of optimum focus. (Fiddle Head Right Pattern | Signal integrity | Signal: SDR)

### 6.2.16.26 Drastic_Color_Chart




**Drastic Color Chart** – Drastic's exclusive color test chart at 37.5% saturation, for use with Drastic's H/S Scope. Features a number of elements designed to test signal integrity. (Drastic Color Chart | Signal integrity | Signal: SDR)

### 6.2.16.27 Drastic_Color_Chart_75




**Drastic Color Chart 75** – Drastic's exclusive color test chart at 75% saturation. Features a number of elements designed to test signal integrity. (Drastic Color Chart 75% | Signal integrity | Signal: SDR)

## 6.2.17 Composite Patterns

Patterns with multiple, different regions or areas designed to test a range of functions. Frequently these have color bars combined with another pattern, such as multiburst, ramps, Pluge and so on.

***Note*** *for Drastic scope tools: Using a line select or area select allows specific elements of each multipattern to be monitored.*

### *6.2.17.1 SMPTE-ARIB-B28-HDBars75pc*

**SMPTE ARIB B28 HD Bars 75%** – a multi pattern corresponding to SMPTE ARIB B28 specification, at 75% saturation. (SMPTE/ARIB B.28 HD bars 75 percent | Composite (mixed elements) | Signal: SDR)

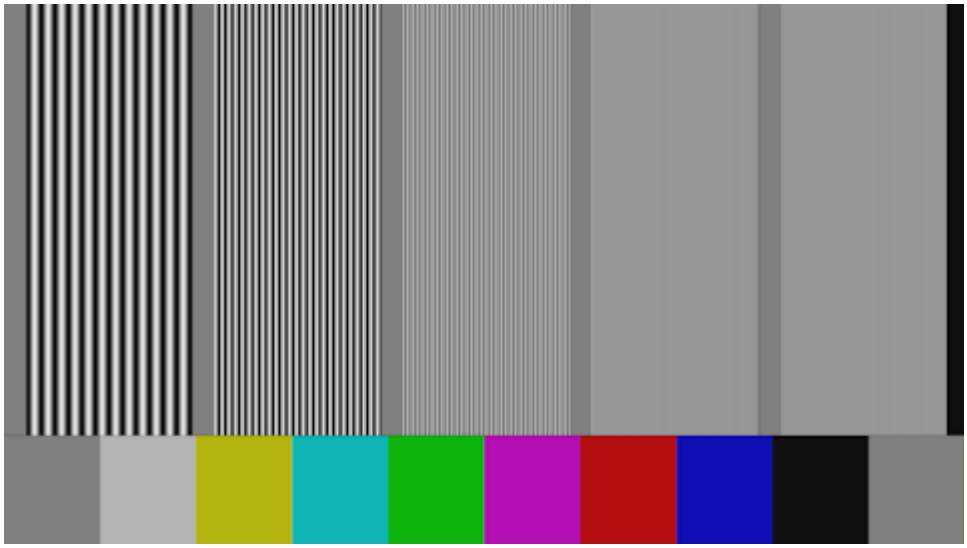
### 6.2.17.2 SMPTE-ARIB-B28-HDBars100pc

**SMPTE ARIB B28 HD Bars 100%** – a multi pattern corresponding to SMPTE ARIB B28 specification, at 100% saturation. (SMPTE/ARIB B.28 HD bars 100 percent | Composite (mixed elements) | Signal: SDR)

### 6.2.17.3 SMPTE-ARIB-B28-HDBarsPIpc

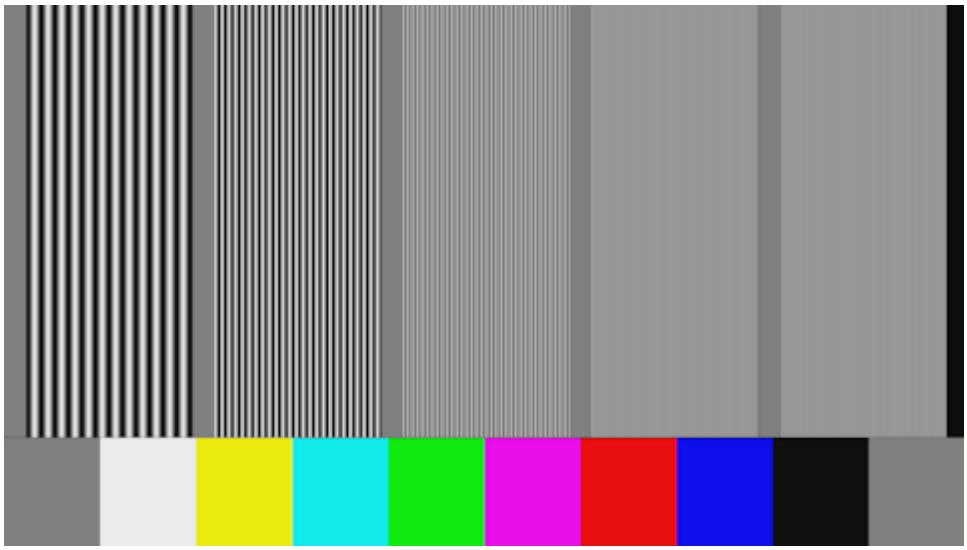
**SMPTE ARIB B28 HD Bars PI%** – a multi pattern corresponding to SMPTE ARIB B28 specification, with a brown chip to analyze PI saturation. (SMPTE/ARIB B.28 HD bars PI | Composite (mixed elements) | Signal: SDR)

### 6.2.17.4 BarsMultiburst_75pc



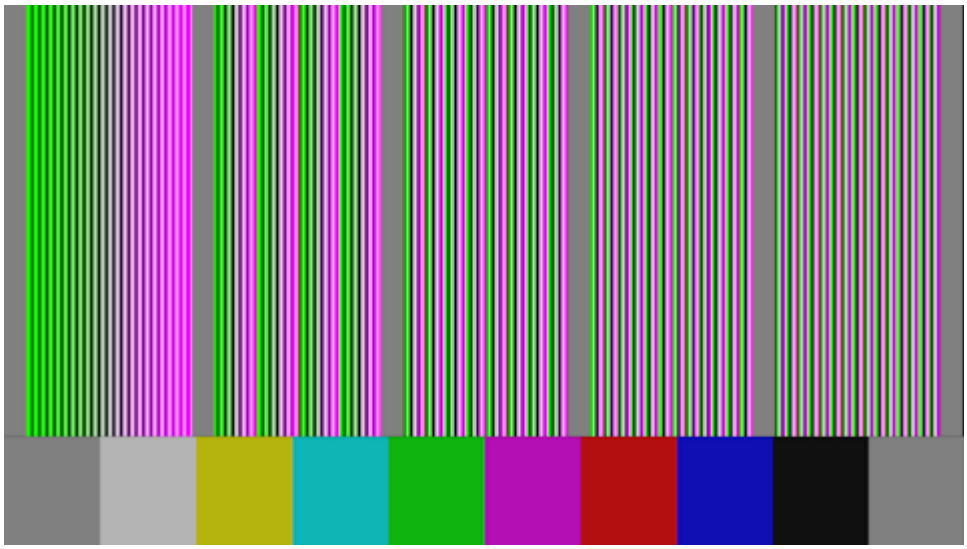
**Bars Multiburst 75%** – a composite pattern with a luma multiburst pattern on the top plus color bars at 75% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst with 75% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.5 BarsMultiburst_100pc



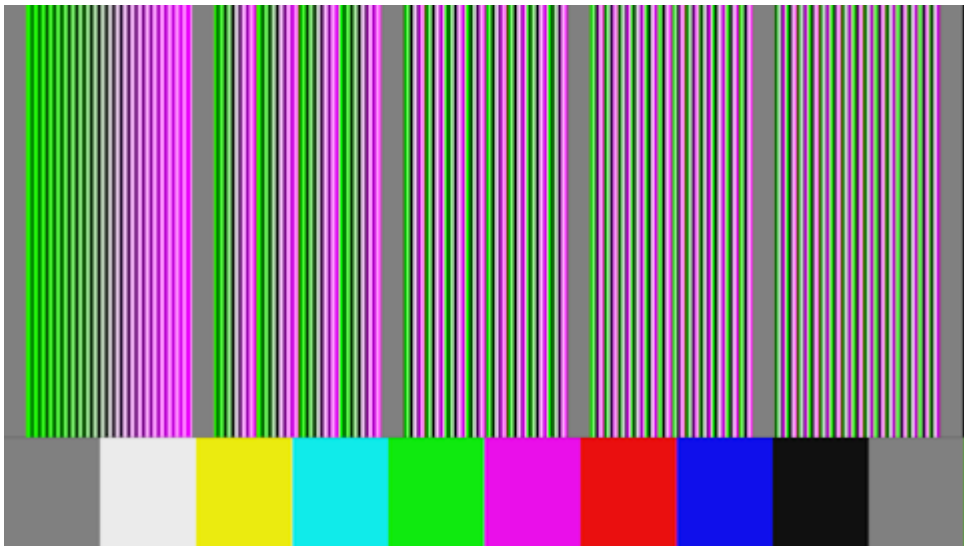
**Bars Multiburst 100%** – a composite pattern with a luma multiburst pattern on the top plus color bars at 100% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst with 100% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.6 BarsMultiburst1_75pc



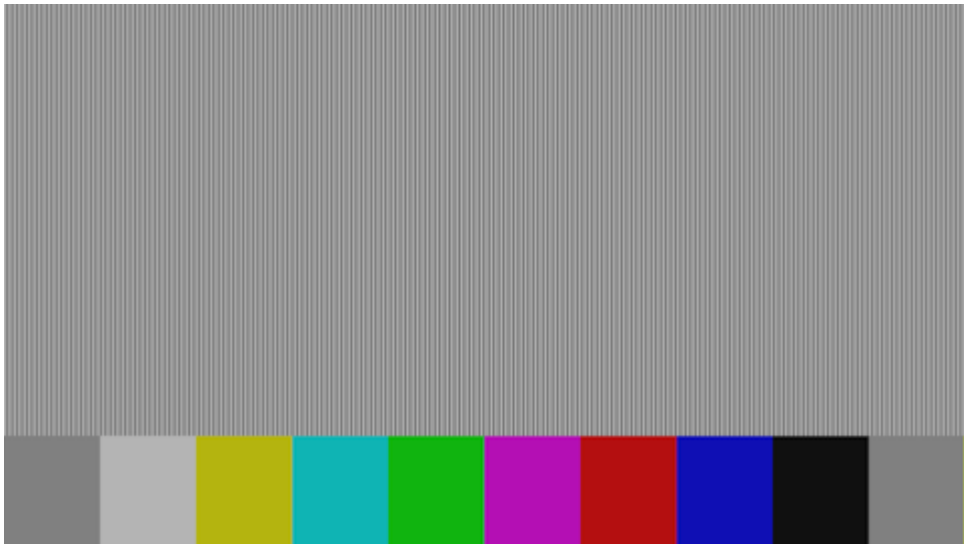
**Bars Multiburst1 75%** – a composite pattern with a chroma multiburst pattern on the top plus color bars at 75% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst1 with 75% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.7 BarsMultiburst1_100pc



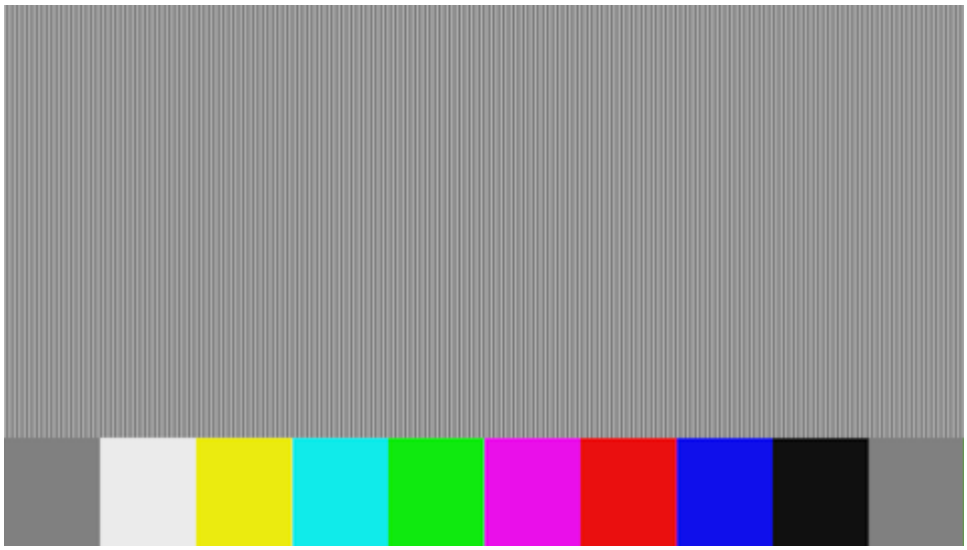
**Bars Multiburst1 100%** – a composite pattern with a chroma multiburst pattern on the top plus color bars at 100% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst1 with 100% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.8 BarsMultiburst2_75pc



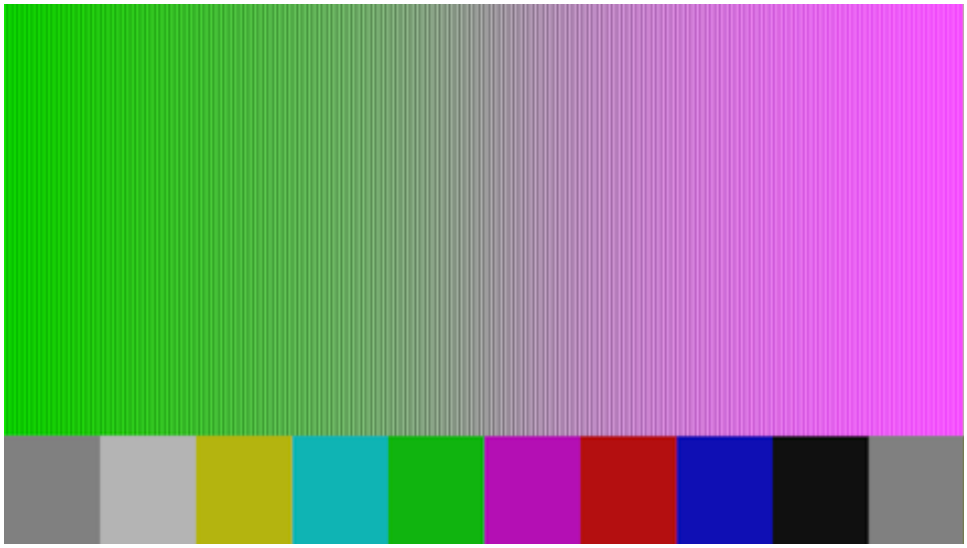
**Bars Multiburst2 75%** – a composite pattern with a luma multiburst pattern on the top plus color bars at 75% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst2 with 75% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.9 BarsMultiburst2_100pc



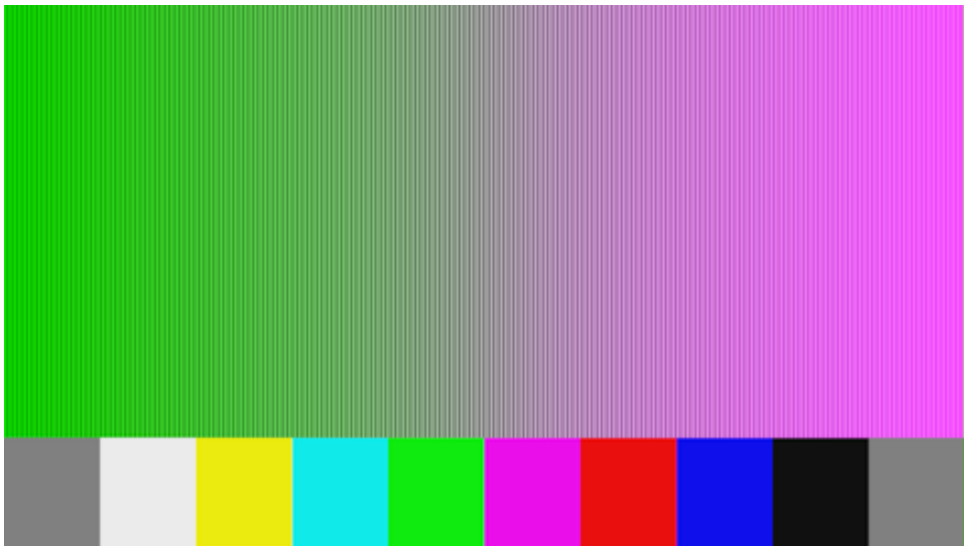
**Bars Multiburst2 100%** – a composite pattern with a luma multiburst pattern on the top plus color bars at 100% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst2 with 100% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.10 BarsMultiburst3_75pc



**Bars Multiburst3 75%** – a composite pattern with a luma multiburst pattern on the top plus color bars at 75% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst3 with 75% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.11 BarsMultiburst3_100pc



**Bars Multiburst3 100%** – a composite pattern with a luma multiburst pattern on the top plus color bars at 100% saturation along the bottom, flanked by two bars of 50% gray. (Multiburst3 with 100% Bars | Composite (mixed elements) | Signal: SDR)

### 6.2.17.12 RP-219_Bars

**RP-219 Bars** – a multi pattern as specified in SMPTE RP-219, featuring a 75% panel with no sub/pluge. (RP-219 no sub | Composite (mixed elements) | Signal: SDR)

### 6.2.17.13 RP-219_Bars_100pc

**RP-219 Bars 100%** – a multi pattern as specified in SMPTE RP-219, featuring a 100% panel with no sub/pluge. (RP-219 100% P2 white, no sub | Composite (mixed elements) | Signal: SDR)

### 6.2.17.14 RP-219_Bars_Pluge

**RP-219 Pluge** – a multi pattern as specified in SMPTE RP-219, featuring a 75% panel with sub, or pluge panels. (RP-219 with sub | Composite (mixed elements) | Signal: SDR)

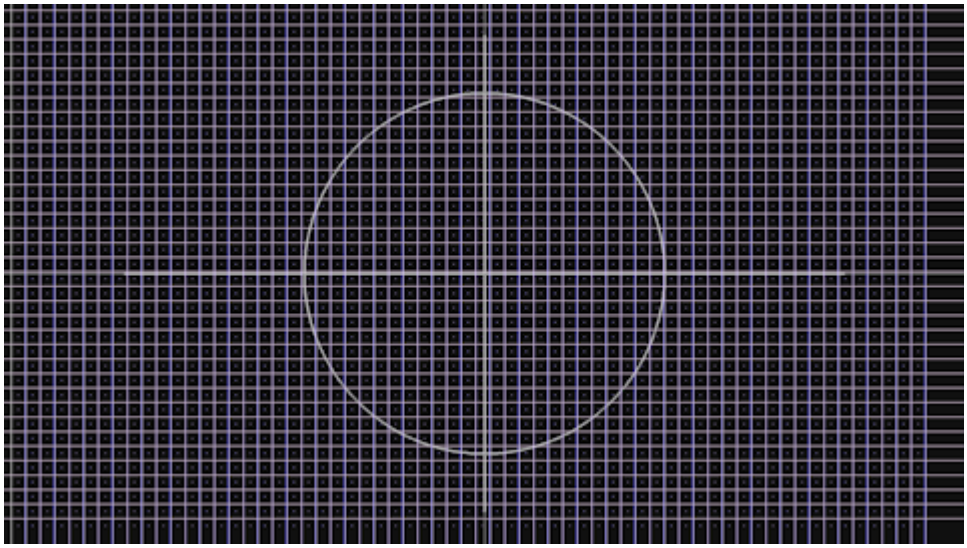
### 6.2.17.15 RP-219_Bars_Pluge_100pc

**RP-219 Pluge 100%** – a multi pattern as specified in SMPTE RP-219, featuring a 100% panel with sub, or pluge panels. (RP-219 100% P2, with sub | Composite (mixed elements) | Signal: SDR)

### 6.2.18 Aspect Ratio Patterns

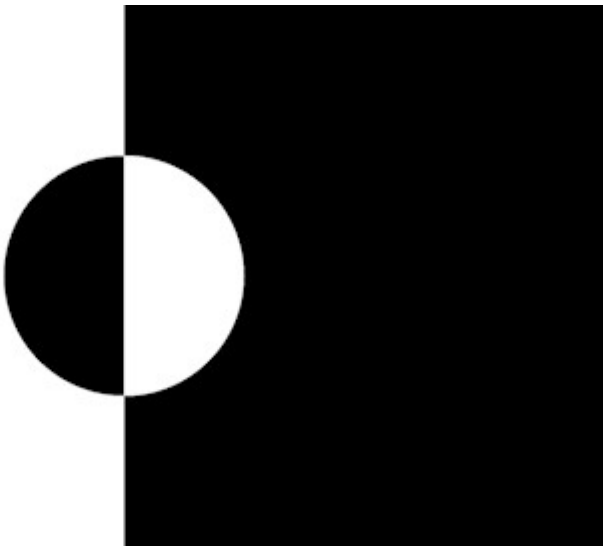
Patterns with circles used to confirm the aspect ratio being used is correct, or if a bad conversion has altered the circles' shape (stretched or squeezed).

### 6.2.18.1 ConvergenceCircle



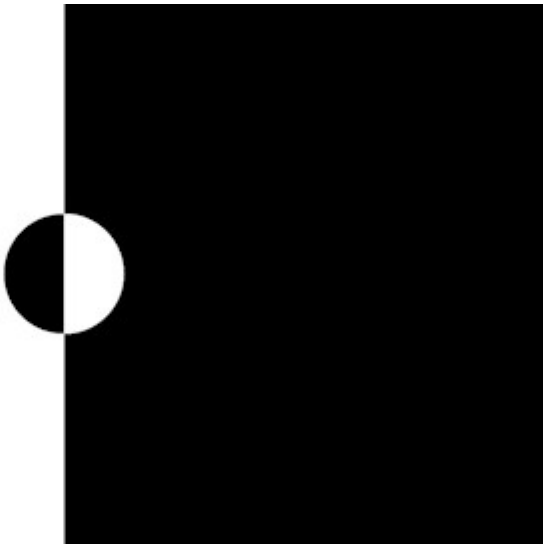
**Convergence Circle** – a black screen overlaid with a grid with dots, featuring a circle and a cross in the center, used to test aspect ratio and resolution. (Convergence Circle | Aspect ratio | Signal: SDR)

### 6.2.18.2 FillCircle240d



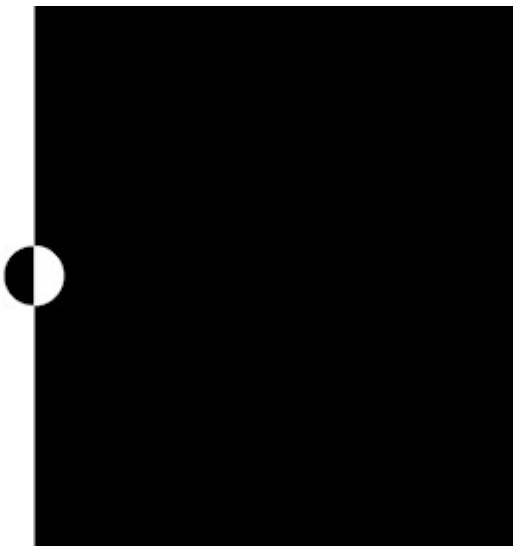
**Fill Circle 240d** – a black screen with a 240 pixel white circle in the middle, filled with black. (Filled Circle 240 degree arc | Aspect ratio | Signal: SDR)

### 6.2.18.3 FillCircle120d



**Fill Circle 120d** – a black screen with a 120 pixel white circle in the middle, filled with black. (Filled Circle 120 degree arc | Aspect ratio | Signal: SDR)

### 6.2.18.4 FillCircle60d



**Fill Circle 60d** – a black screen with a 60 pixel white circle in the middle, filled with black. (Filled Circle 60 degree arc | Aspect ratio | Signal: SDR)

### 6.2.19 Window Patterns

The window patterns feature a rectangle of a color in the center, on a screen of black, for various chroma and resolution tests.

### 6.2.19.1 WhiteWindow601c

**White Window 601 C** – a black screen with a CCIR-601 white rectangle in the center, at 75% of saturation. (White window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

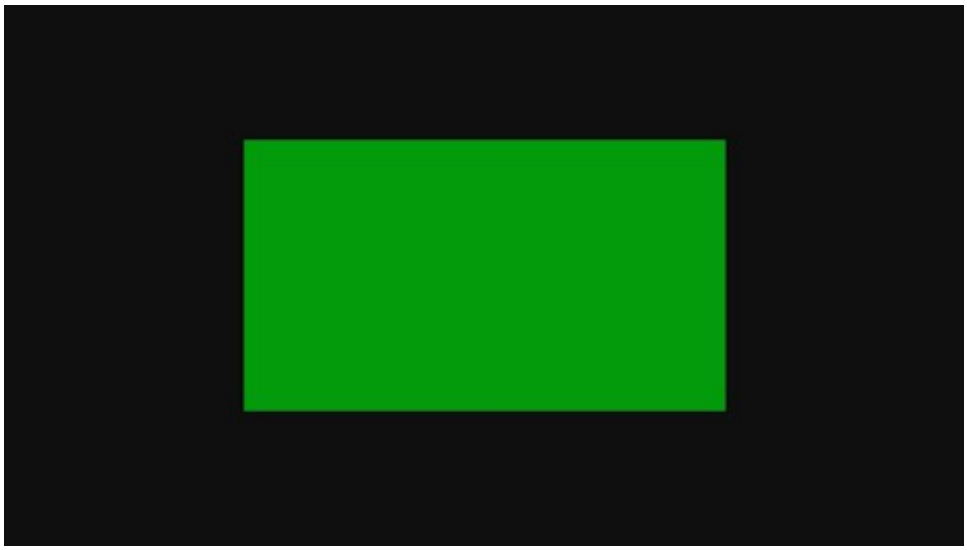
### 6.2.19.2 YellowWindow601c

**Yellow Window 601 C** – a black screen with a CCIR-601 yellow rectangle in the center, at 75% of saturation. (Yellow window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

### 6.2.19.3 CyanWindow601c

**Cyan Window 601 C** – a black screen with a CCIR-601 cyan rectangle in the center, at 75% of saturation. (Cyan window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

### 6.2.19.4 GreenWindow601c



**Green Window 601 C** – a black screen with a CCIR-601 green rectangle in the center, at 75% of saturation. (Green window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

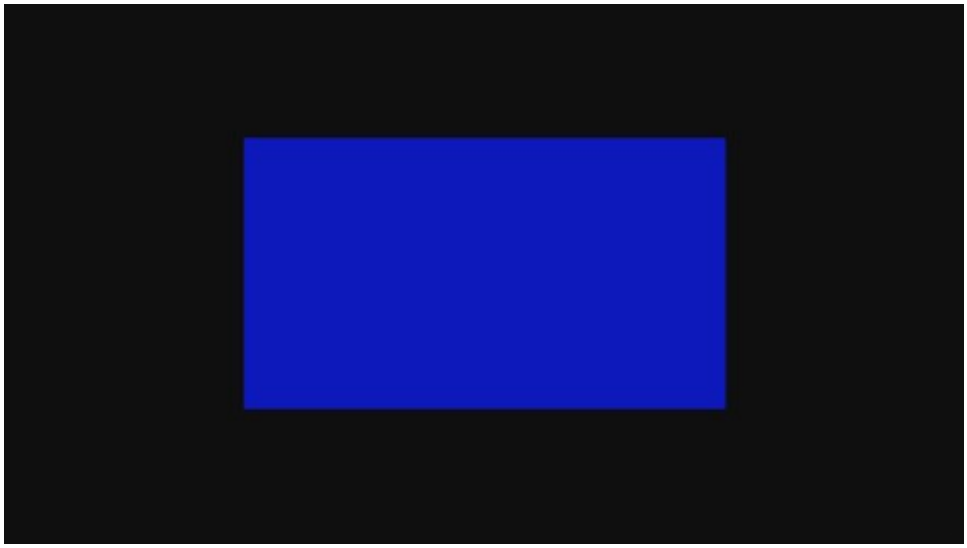
### 6.2.19.5 MagentaWindow601c

**Magenta Window 601 C** – a black screen with a CCIR-601 magenta rectangle in the center, at 75% of saturation. (Magenta window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

### 6.2.19.6 RedWindow601c

**Red Window 601 C** – a black screen with a CCIR-601 red rectangle in the center, at 75% of saturation. (Red window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

### 6.2.19.7 BlueWindow601c



**Blue Window 601 C** – a black screen with a CCIR-601 blue rectangle in the center, at 75% of saturation. (Blue window CCIR601 | Window (centered 50% area) | Colorspace: BT.601 | Signal: SDR)

### 6.2.19.8 WhiteWindow709p

**White Window 709** – a black screen with a 709 white rectangle in the center, at 75% of saturation. (White window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

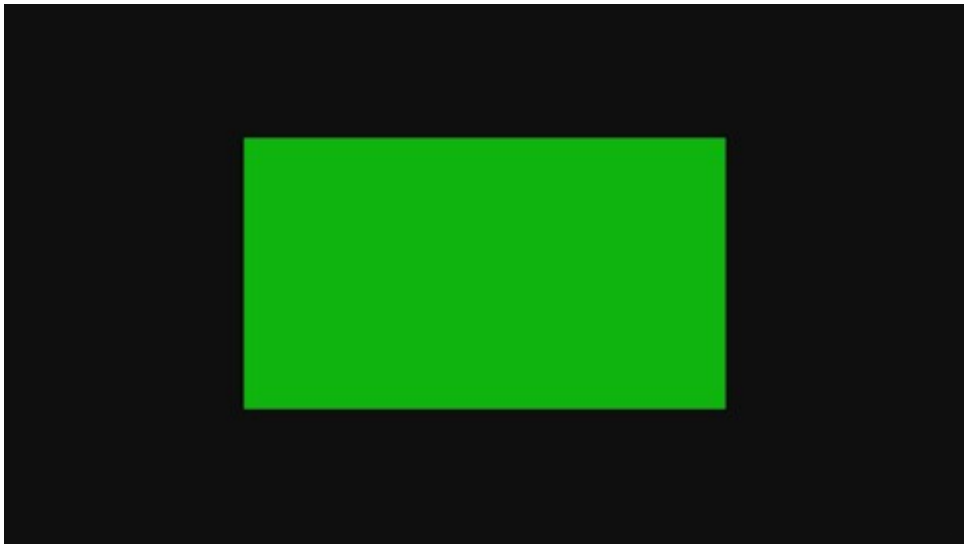
### 6.2.19.9 YellowWindow709p

**Yellow Window 709** – a black screen with a 709 yellow rectangle in the center, at 75% of saturation. (Yellow window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

### 6.2.19.10 CyanWindow709p

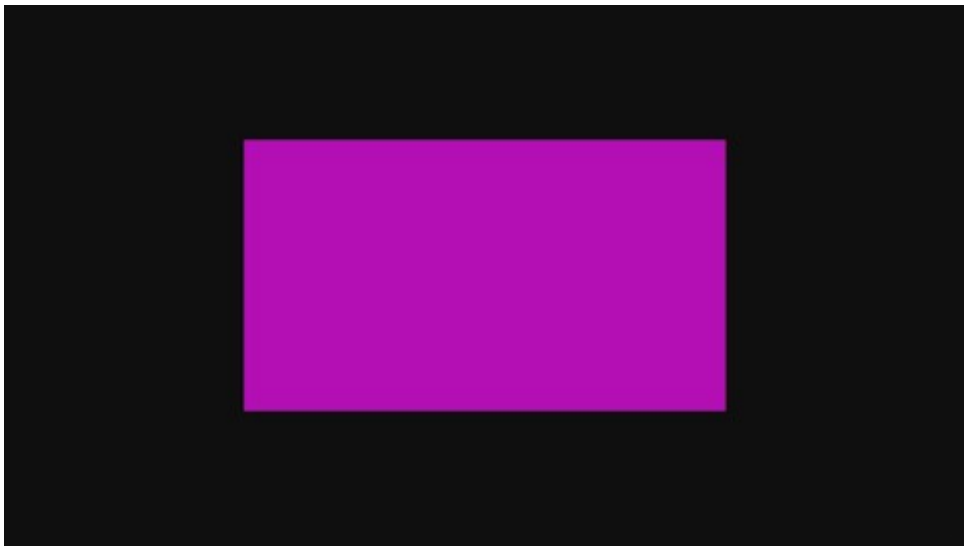
**Cyan Window 709** – a black screen with a 709 cyan rectangle in the center, at 75% of saturation. (Cyan window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

### 6.2.19.11 GreenWindow709p



**Green Window 709** – a black screen with a 709 green rectangle in the center, at 75% of saturation. (Green window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

### 6.2.19.12 MagentaWindow709p

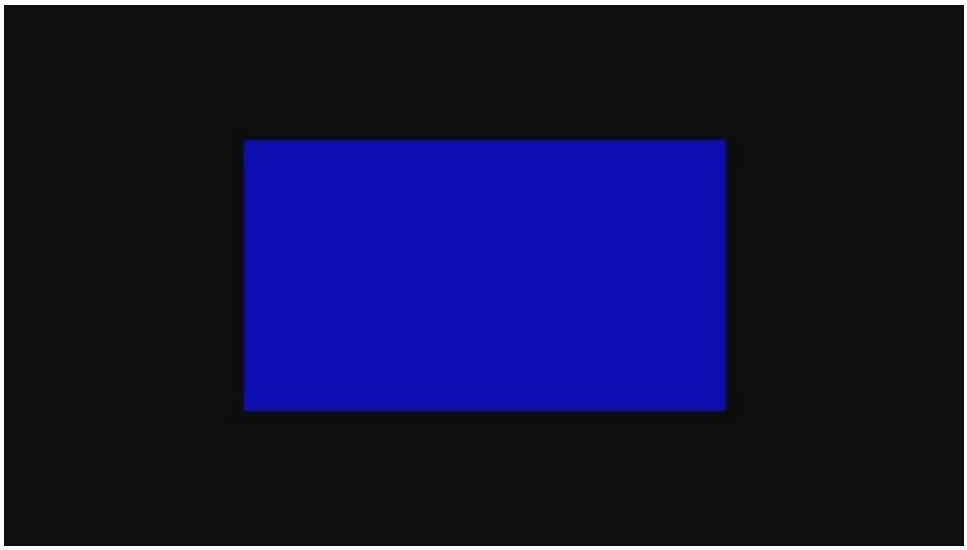


**Magenta Window 709** – a black screen with a 709 magenta rectangle in the center, at 75% of saturation. (Magenta window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

### 6.2.19.13 RedWindow709p

**Red Window 709** – a black screen with a 709 red rectangle in the center, at 75% of saturation. (Red window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

### 6.2.19.14 BlueWindow709p



**Blue Window 709** – a black screen with a 709 blue rectangle in the center, at 75% of saturation. (Blue window REC709 | Window (centered 50% area) | Colorspace: Rec.709 | Signal: SDR)

### 6.2.19.15 WhiteWindow2020p

**White Window 2020** – a black screen with a BT-2020 white rectangle in the center, at 75% of saturation. (White window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

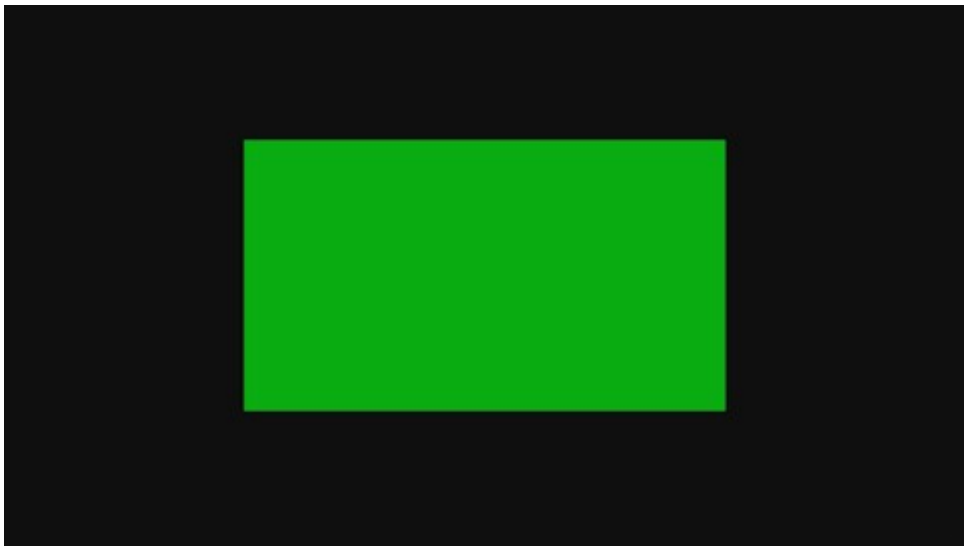
### 6.2.19.16 YellowWindow2020p

**Yellow Window 2020** – a black screen with a BT-2020 yellow rectangle in the center, at 75% of saturation. (Yellow window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

### 6.2.19.17 CyanWindow2020p

**Cyan Window 2020** – a black screen with a BT-2020 cyan rectangle in the center, at 75% of saturation. (Cyan window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

### 6.2.19.18 GreenWindow2020p



**Green Window 2020** – a black screen with a BT-2020 green rectangle in the center, at 75% of saturation. (Green window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

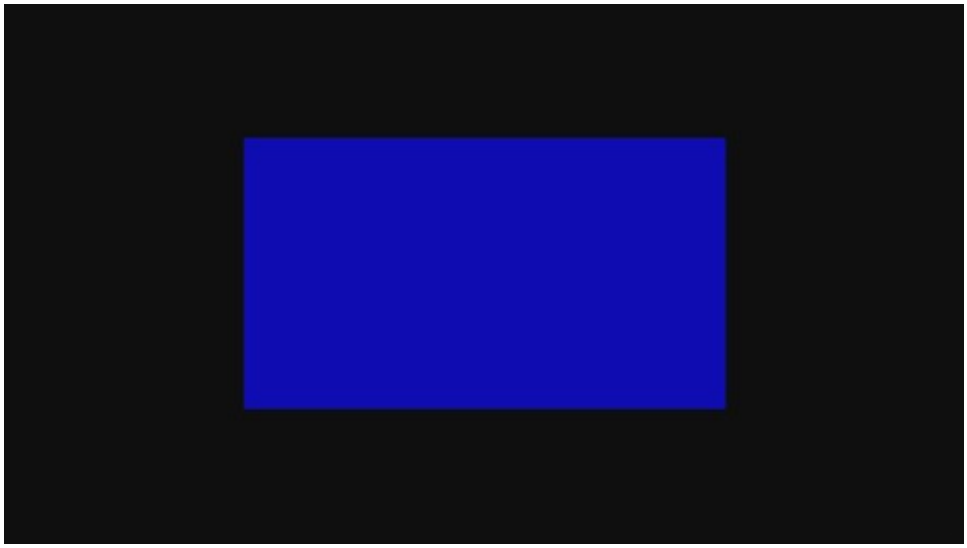
### 6.2.19.19 MagentaWindow2020p

**Magenta Window 2020** – a black screen with a BT-2020 magenta rectangle in the center, at 75% of saturation. (Magenta window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

### 6.2.19.20 RedWindow2020p

**Red Window 2020** – a black screen with a BT-2020 red rectangle in the center, at 75% of saturation. (Red window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

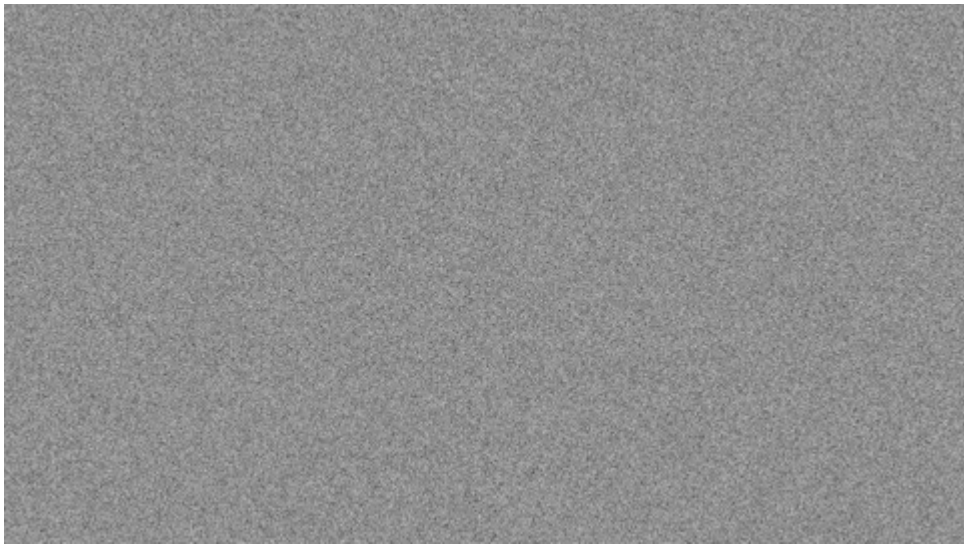
### *6.2.19.21 BlueWindow2020*



**Blue Window 2020** – a black screen with a BT-2020 blue rectangle in the center, at 75% of saturation. (Blue window BT2020 | Window (centered 50% area) | Colorspace: BT.2020 | Signal: SDR)

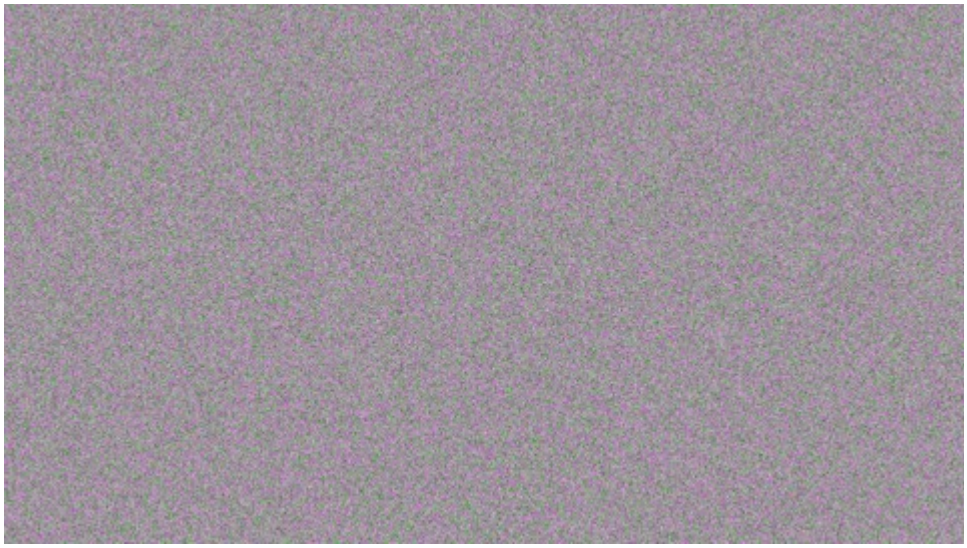
### 6.2.20 Digital Patterns

### 6.2.20.1 RandomLuma



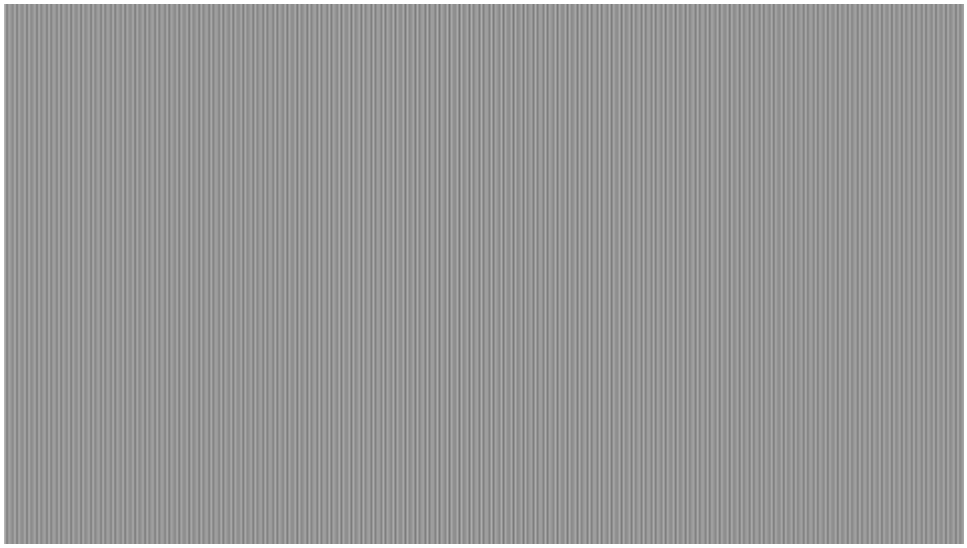
**Random Luma** – a screen filled with random black, white, and gray pixels. (Random luma values field | Digital | Signal: SDR)

### 6.2.20.2 RandomChroma



**Random Luma** – a screen filled with random colored pixels. (Random chroma values field | Digital | Signal: SDR)

### 6.2.20.3 SinFreq

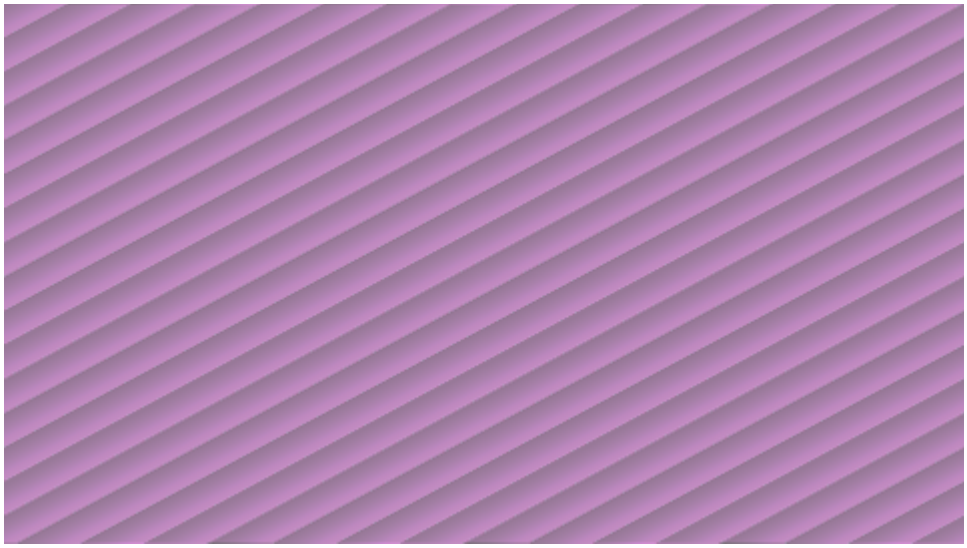


**Sin Freq** – a screen of sine frequency black and white vertical lines. (Sine burst max frequency | Digital | Signal: SDR)

### 6.2.20.4 0-value-0x000v

**0 Value 0x000V** – a digital single value pattern based on 0/0x0. (Digital single value 0/0x0 | Digital | Signal: SDR)

### 6.2.20.5 CountHoriz

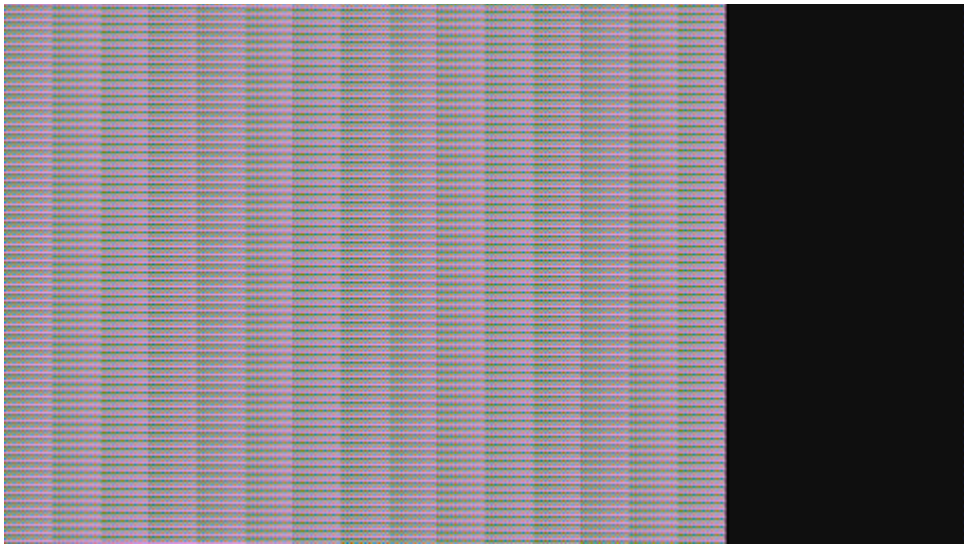


**Count Horizontal** – a series of offset magenta and green lines designed to test horizontal resolution. (Horizontal counting | Digital | Signal: SDR)

### 6.2.20.6 CountVert

**Count Vertical** – a magenta to green horizontal ramp on top, with a horizontal band of green at the bottom, designed to test vertical resolution. (Vertical counting | Digital | Signal: SDR)

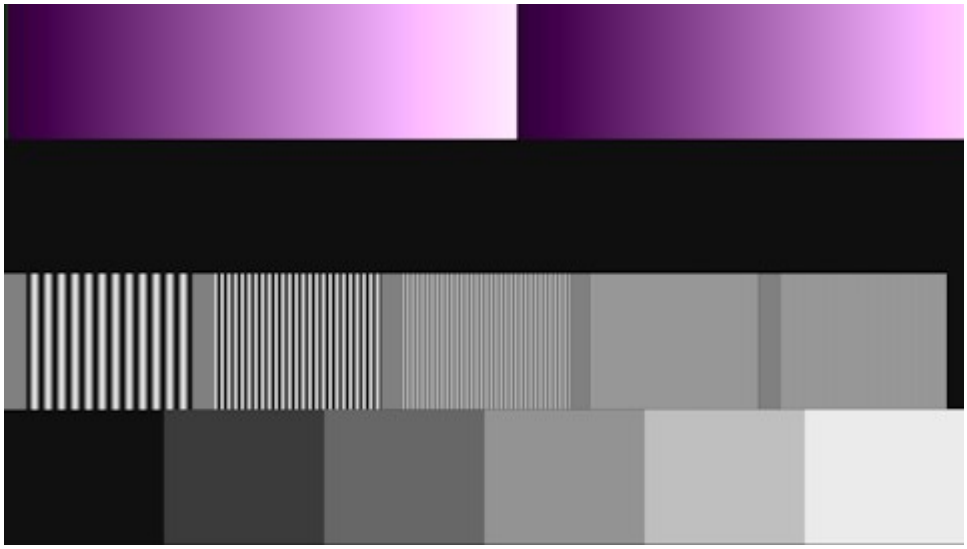
### 6.2.20.7 LineThenPixel



**Line Then Pixel** – a multicolor pattern on the left ¾ of the screen, with a vertical panel of black along the right side. (Line then pixel counting | Digital | Signal: SDR)

## 6.2.21 Multi Pattern Patterns

### *6.2.21.1 Combo709p*



**Combo 709p** – a multiple pattern feature, a top row of magenta ramps, a second row of black 64d, a luma multiburst, and a 5 step luma scale (Combo multipattern Rec.709 | Multi-pattern | Signal: SDR)

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The “Corresponding Application Code” for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

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#### *7.2.1.3 2. Conveying Modified Versions.*

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

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The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

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