

videoQC v7

User Guide



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2 Introduction

This manual is for videoQC 7.x software from Drastic Technologies, Ltd.

2.1 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, macOS or Linux 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.

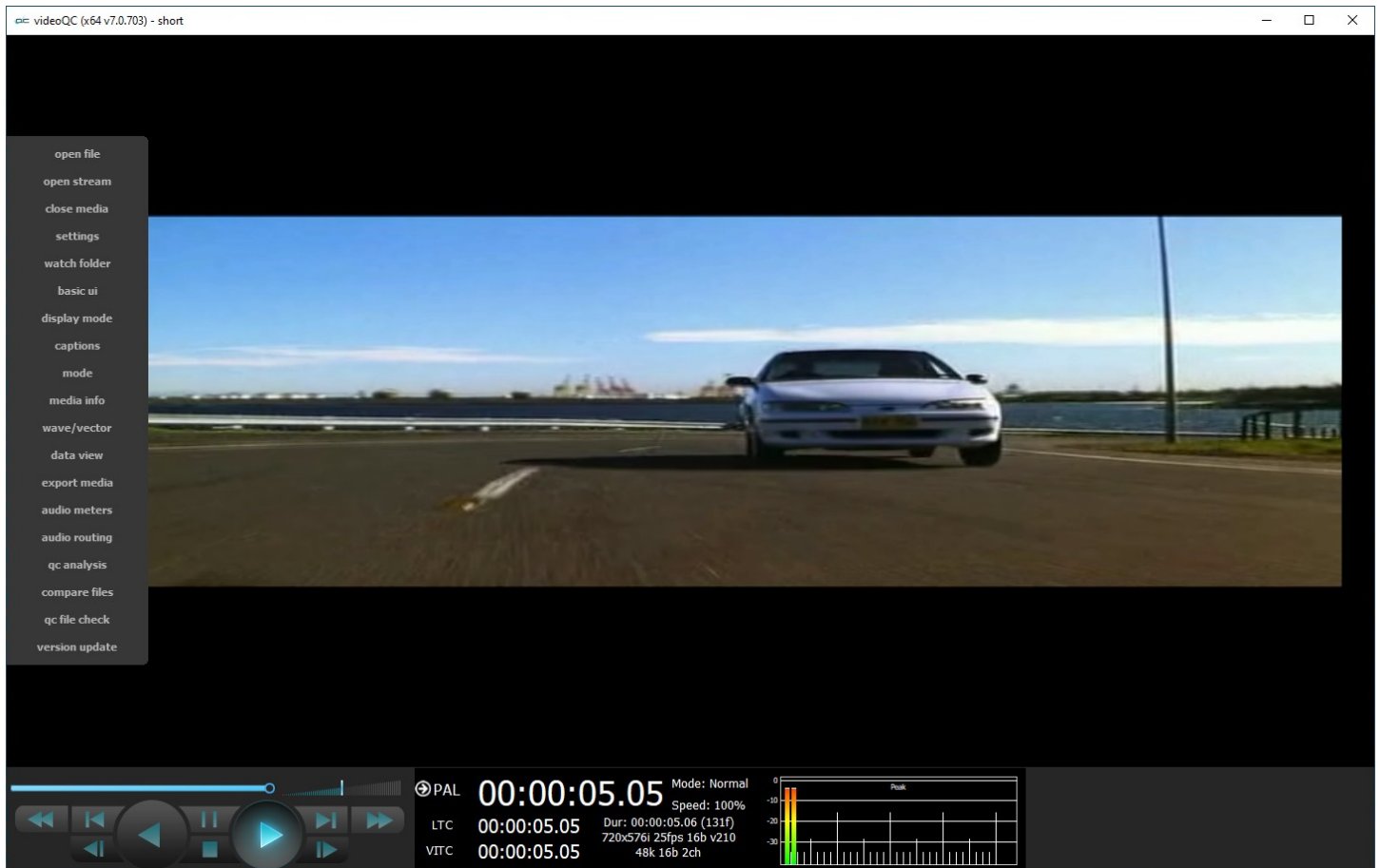
Where a portion of the manual is referred to the name of section mentioned will be displayed in *italics*.

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.

2.2 About videoQC Software

videoQC is a file and IP stream player, with support for a wide range of broadcast and production files, as well as various IP stream input types.

videoQC also provides video and audio analysis with both visual and automated quality checking tools.



videoQC GUI

videoQC can take files coming into your facility and perform a series of tests on the video, audio and metadata values. It can analyze the audio and video in the files and compare your files against a template or a known good file.

It includes metadata extraction, comparison and templating tools, intuitive charting of audio and video metrics, a full set of audio and video waveform/vectorscope/phase tools, db and PDF reporting, file to file visual comparison and clipping and exporting tools. The standard database format allows seamless and instant sharing of analysis results. Hot folders allow automation, optimizing those in the

QC workflow

videoQC's automated server components can run headless (no interface) for analysis tools. Integration with Net-X-Code suite provides quality control for IP based workflows.

Each level of videoQC was designed to fill a particular part of the Quality Control workflow, from intern to master QC operators and even back end servers.

2.3 videoQC Versions

videoQC is available in as a desktop application in four versions:

2.3.1 videoQC Workstation

- Automated video and audio metric generation, HTTP remote control and monitoring, Single ended analysis of metadata and audio/video, PSNR, SSIM, MS-SSIM analysis, and Full Reference Comparisons – compressed file to original source file
- File clipping and export, Audio routing, Automated metadata comparison to template, Video and audio metric charting, PDF of results, RS-422 serial control as a VTR.
- R.128 Loudness audio meters, Closed caption display, CEA-608, CEA-708, OP-47, Subtitle formats, SDI HDMI output with AJA, Bluefish444 or Blackmagic card, Full set of audio and video scopes, Hex/decimal pixel display.
- Player/View, most standard broadcast and post production files. Supports SD, HD, 2K, QHD, 4K., 8K Provides Time code, metadata display, RMS/Peak Audio meters.

2.3.2 videoQC Inspect

- File clipping and export, Audio routing, Automated metadata comparison to template, Video and audio metric charting, PDF of results, RS-422 serial control as a VTR.
- R.128 Loudness audio meters, Closed caption display, CEA-608, CEA-708, OP-47, Subtitle formats, SDI HDMI output with AJA, Bluefish444 or Blackmagic card, Full set of audio and video scopes, Hex/decimal pixel display.
- Player/View, most standard broadcast and post production files. Supports SD, HD, 2K, QHD, 4K, 8K. Provides Time code, metadata display, RMS/Peak Audio meters.

2.3.3 videoQC Pro

- R.128 Loudness audio meters, Closed caption display, CEA-608, CEA-708, OP-47, Subtitle formats, SDI HDMI output with AJA, Bluefish444 or Blackmagic card, Full set of audio and video scopes, Hex/decimal pixel display.
- Player/View, most standard broadcast and post production files. Supports SD, HD, 2K, QHD, 4K, 8K. Provides Time code, metadata display, RMS/Peak Audio meters.

2.3.4 videoQC View

- Player/View, most standard broadcast and post production files. Supports SD, HD, 2K, QHD, 4K, 8K. Provides Time code, metadata display, RMS/Peak Audio meters.

2.3.5 Options

There are options to add the licensable codecs: CineForm, and Avid DNxHD/DNxHR.

There is an option to purchase an annual support package, which provides enhanced support and includes all version updates.

2.4 System Requirements

videoQC software will generally install and run on most modern computers, but to support real time playback of specific file types, typically a powerful, fast system will be required. For this reason videoQC is offered as a demo so the user can qualify their system for the types of files they need to play.

To install and take advantage of some of the features of videoQC the system will need to be connected to various other hardware devices.

The system will need to be supplied with a dependable source of power. The user would do well to consider installing a UPS (uninterruptible power supply) device to provide power to the system so that software is not affected by any surge or drop in the power level.

The system will need to be set up with a monitor, keyboard and mouse. The monitor is required to view the interface, and the mouse and keyboard allow the user to input commands. The use of 2 monitors (if available) is recommended.

To view the output using an AJA, Bluefish444, DekTec, or Blackmagic board, a supported board will have to be installed on the system, along with the required drivers. Typically the manufacturer will be the best source for a list of recommended hardware environments for their boards.

2.4.1 Recommended Hardware Environment

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

2.4.2 Installing videoQC Software

How you will install videoQC depends on your operating system:

2.4.2.1 Windows

Run the installer and follow the prompts. The installer will install it and make links in under the Start Menu and on the desktop. An uninstaller will also be created.

2.4.2.2 macOS

The macOS version is a single executable that does not require installing. Normally it should be unpacked and copied into the Applications folder. It can then be run by double clicking on it.

2.4.2.3 Linux

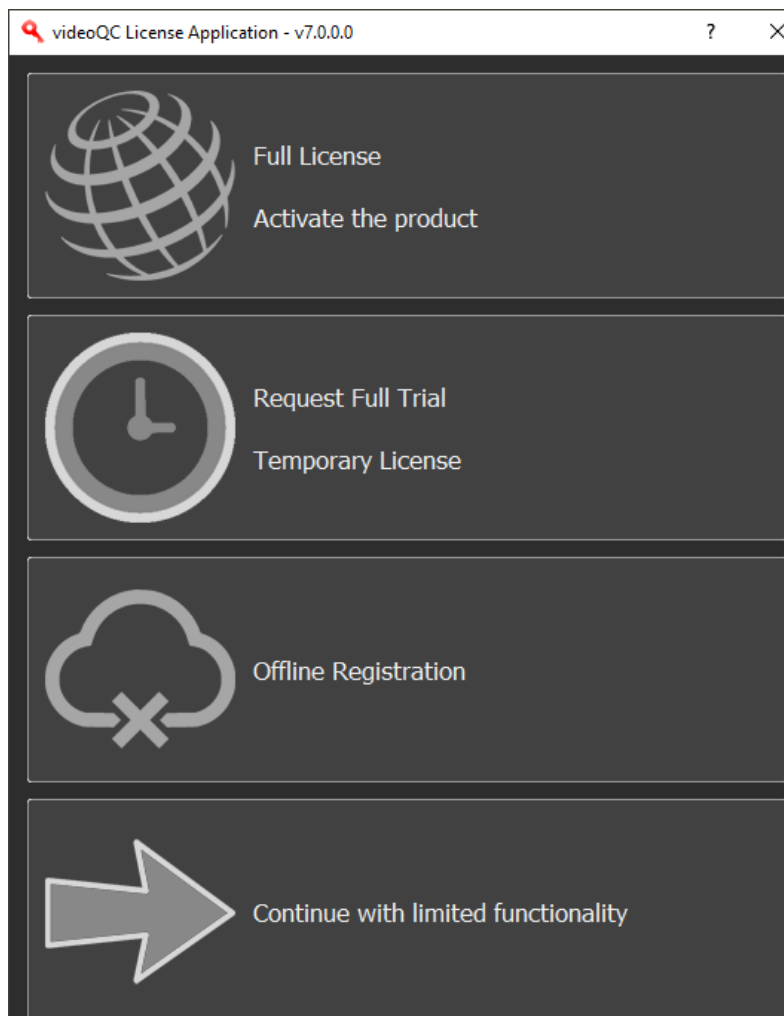
The installer's executable bit may need to be set (`chmod a+x <installer>`) to run it. Follow the install prompts and the videoQC executable link will be placed in the applications menus.

2.5 License the Software

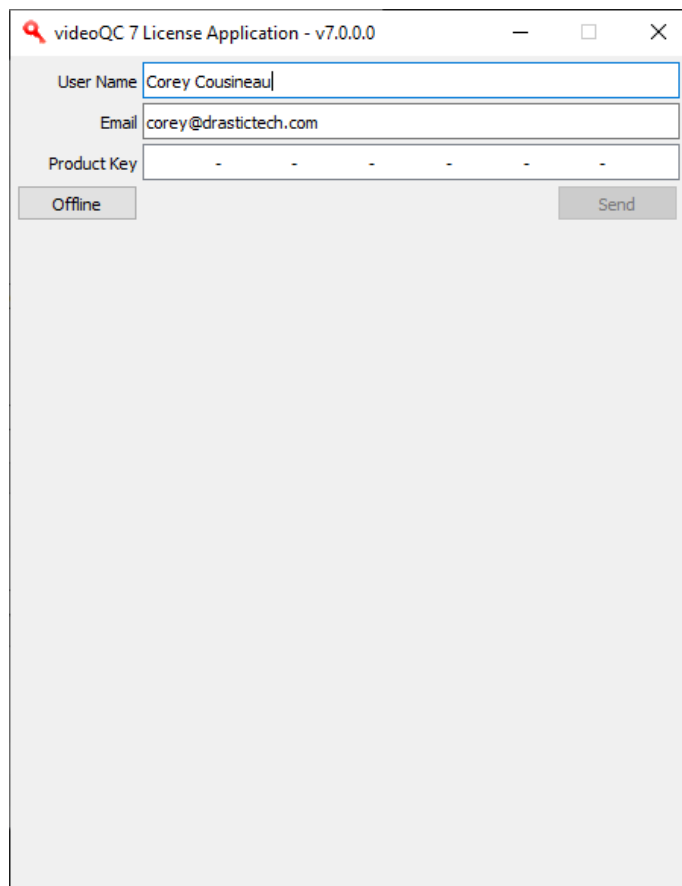
2.5.1 How Do I Remove the Watermarks?

If you run Drastic software without a license, many of the features will be unavailable. Also, there will be watermarks you cannot remove (image below), 10 second media duration, length of run limitations, no hardware support, nag screen, auto-shutoff, and other significant limitations. To remove these limitations, you will need a valid license.

If you have downloaded a demo of videoQC and run the software with no license, the following videoQC licensing window will open:



The top panel opens the full license section of the licensing (below). If you have been issued a permanent key, you can enter it here.



videoQC 7 License Application - v7.0.0.0

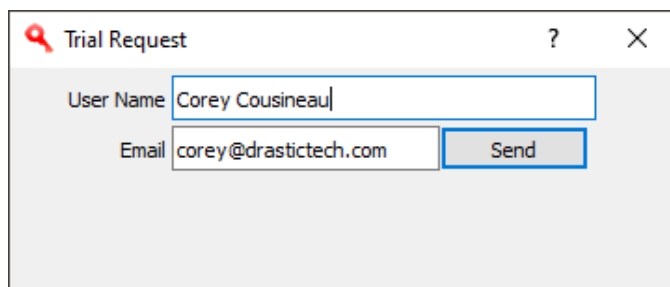
User Name: Corey Cousineau

Email: corey@drasticttech.com

Product Key: - - - - -

Offline Send

If you simply wish to try a demo, you can click Request Full Trial. This opens the trial request window, so you can enter a user name and email. Pressing the **Send** button sends an email request to Drastic, and the Drastic server will reply with a full featured, but temporary, demo key.

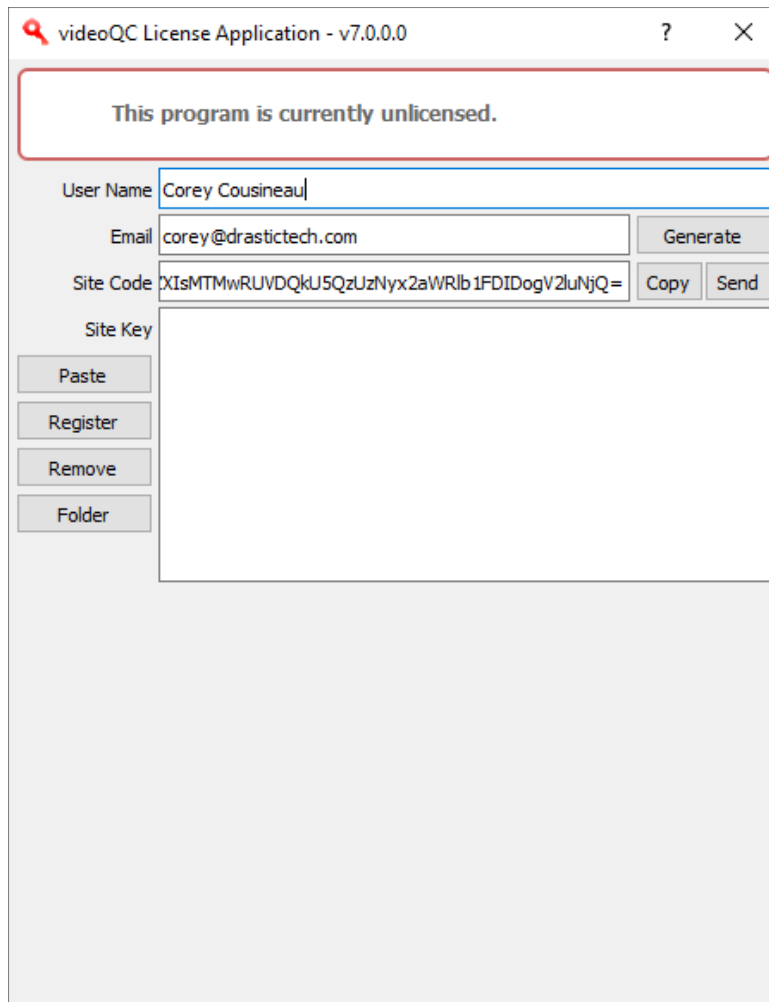


Trial Request

User Name: Corey Cousineau

Email: corey@drasticttech.com Send

When the key arrives in your inbox, copy it and run the Offline licensing (third panel).

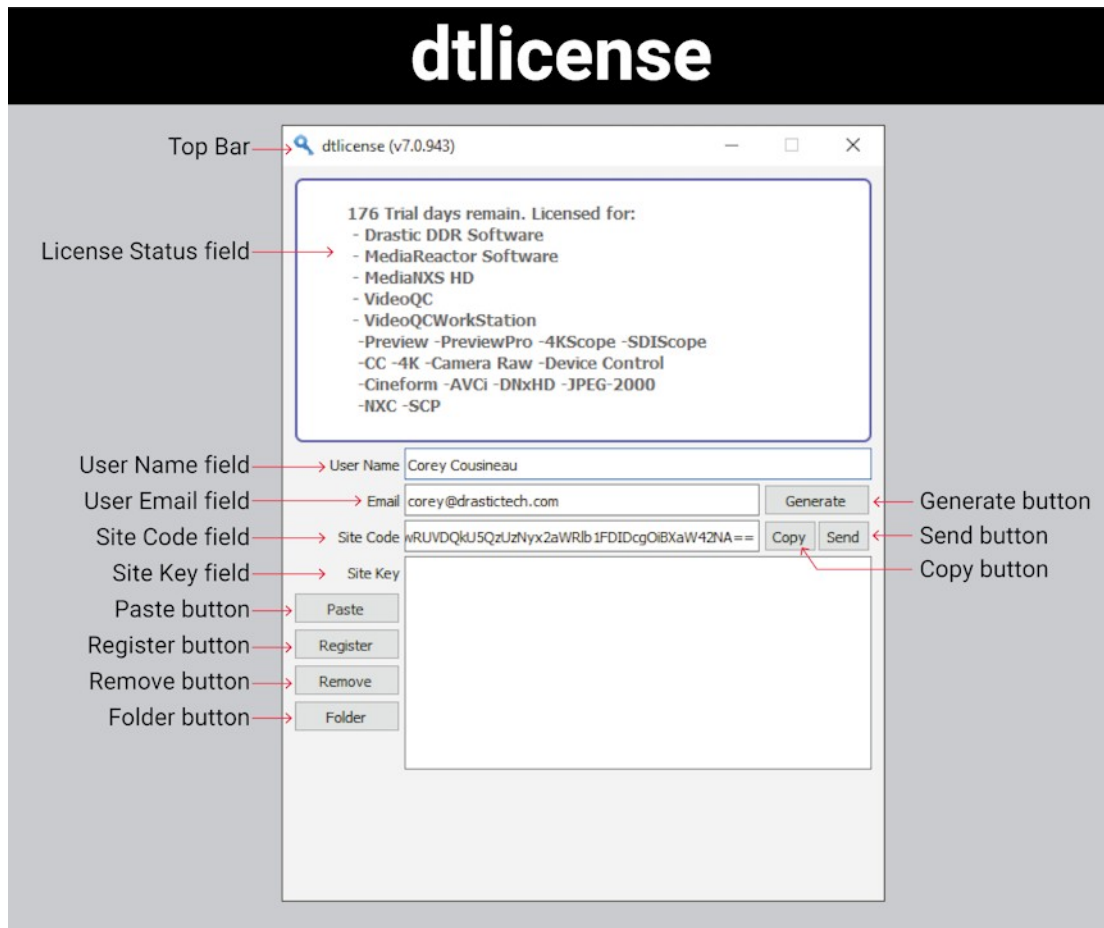


The screenshot shows a window titled "videoQC License Application - v7.0.0.0". At the top, a red-bordered box contains the text "This program is currently unlicensed." Below this, there are several input fields and buttons. The "User Name" field contains "Corey Cousineau". The "Email" field contains "corey@drastictech.com" and has a "Generate" button next to it. The "Site Code" field contains "XIsMTMwRUVDQkU5QzUzNyx2aWRlb1FDIDogV2luNjQ=" and has "Copy" and "Send" buttons next to it. The "Site Key" field is empty and has a "Paste" button to its left. Below the "Site Key" field, there are four buttons: "Register", "Remove", and "Folder".

This opens the above Offline licensing window. Paste the key in and press Register.

Restart the system.

For systems where email access is not available, you can simply run the Offline licensing, and use the following method:

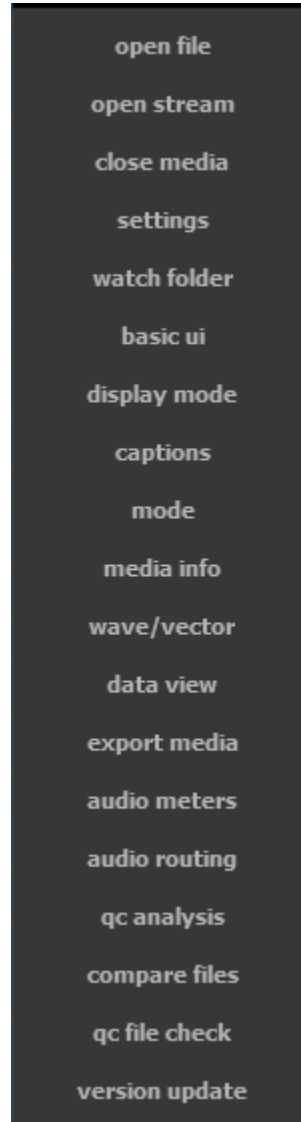


- Open the Offline licensing application and enter a user name into the field to the right of the **User Name** label. The Offline licensing window shown above is a system that has been licensed for various features, but for a limited number of days.
- Enter a name into the **User Name** field.
- Enter an email address into the **Email Address** field.
- Press the **Generate** button. This creates a Site Code (a string of alphanumeric characters) in the field to the right of the **Site Code** label.
- Copy the Site Code to the clipboard using the **Copy** button. (or you can select it and use Ctrl+C)
- Send the Site Code to us at authorization@drasticttech.com. (if the system is set up with email, pressing the **Send** button should open a new email you can send containing the Site Code) We will send back an email containing a Site Key (another string of alphanumeric characters).
- Copy the Site Key and paste it in the field to the right of the **Site Key** label using the **Paste** button. (or you can select it and use Ctrl+V).
- Press the **Register** button.
- Restart the system.

3 Controls and Displays

3.1 Using the Main Menu

In Windows, the main menu is conjured whenever the user moves their mouse near the left edge of the GUI. Here is the main menu:



3.2 Transport Controls and Displays

The transport controls and displays are located along the bottom of the videoQC GUI.

videoQC has two modes for its main display: Basic mode and Advanced mode. The user can switch between the two modes using the main menu.

3.2.1 Basic Mode

Basic Mode features a limited set of controls for more viewing area:



Basic Mode display

From left to right, the controls are:

Load Media – opens a browser so the user can load media to play and analyze.

Toggle Fullscreen – switch between full screen mode and less than full screen.

Toggle Lock/Unlock – switch between having the controls docked, or separate.

Reverse Play, Pause, Play buttons – The most basic transport controls are presented. Note that the standard j-k-l keyboard transport controls are always available.

Time Code display – provides the current time code location.

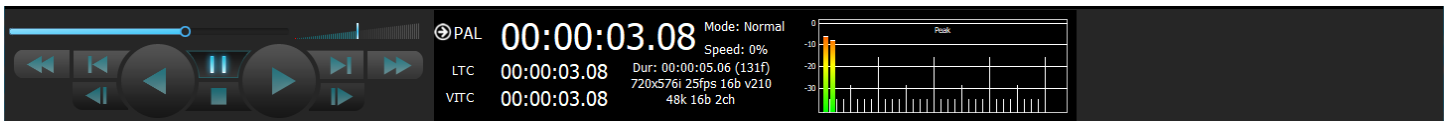
Audio meters – provides audio meters to confirm levels during playback for up to 16 audio meters showing peak/RMS or r.128/1194 EBU loudness levels. The line 0 corresponds to -24 decibels.

Volume slider – allows the user to adjust their playback level. Zero volume would be slid to the left, and as the slider is moved to the right, the volume is increased. The center of the slider indicates 100%, or normal playback level. Sliding all the way to the right sets the volume to 200%.

Position slider – shows the current position within the file. Clicking on the Position Bar cues the clip to that relative location. To scrub through the file, 'grab' the pointer and 'drag' it toward the relative location you're looking for.

3.2.2 Advanced Mode

Advanced Mode features a more comprehensive set of controls and displays for media transport.

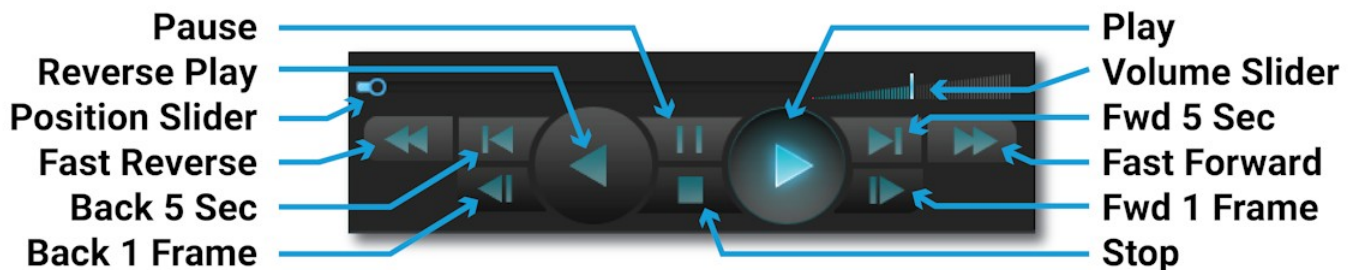


Advanced Mode Display

The interface can be changed between the two modes using the Basic/Advanced menu setting.

Under windows, the menu is available on the left pop out menu. Under macOS and Linux, it is the first menu under the View menu.

videoQC Transport Controls



Transport section

Pause button - Stop any playback and display the frame at the current location.

Reverse Play button - Play the clip in reverse at negative normal play speed (-100%).

Position Slider - The pointer indicates the current position in the clip. Clicking on the Position Bar cues the clip to that relative location. To scrub through the file, 'grab' the pointer and 'drag' it toward the relative location you're looking for.

Fast Reverse button - Play the clip from the cued point in reverse at the fastest possible speed.

Back 5 Seconds button - Cue to a point 5 seconds prior to the current location, or the beginning if the current location is less than 5 seconds into the clip.

Back One Frame button - Cue the frame immediately prior to the current frame.

Play button - Play the clip forward at normal play speed (+100%).

Volume slider - May be used to adjust the volume of the audio during playback. Zero volume would be slid to the left, and as the slider is moved to the right, the volume is increased. The center of

the slider indicates 100%, or normal playback level. Sliding all the way to the right sets the volume to 200%.

Forward Five Seconds button - Cues to a point 5 seconds after the current location, or the end if the current location is less than 5 seconds before the end of the clip.

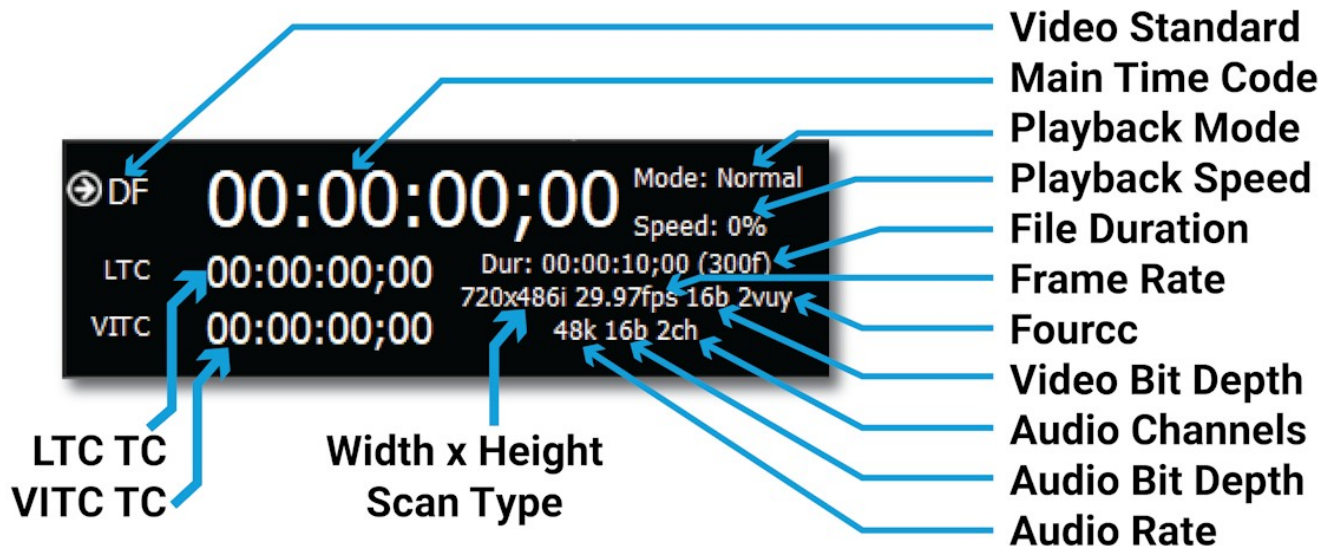
Fast Forward button – Play the clip from the cued point forward at the fastest possible speed.

Forward One Frame button - Cue the frame immediately after the current frame.

Stop button - Stop any playback in progress and cue the first frame of the clip.

Time Code Display advanced mode display:

videoQC Transport Display



LTC time code display – longitudinal time code if present

VITC time code display – vertical interval time code if present

Width, Height, and Scan method – height and width in number of pixels, and where available, whether the file is Progressive, Progressive Segmented Frame, or Interlaced

Video Standard – displays the current video standard, and allows the user to choose which time code source is displayed in the Main Time Code window. Sources include TC (time code), LTC, VITC, and Frame.

Main Time Code display - displays the current time code location, based on which source has been selected. The time code may be copied using Ctrl+C, and pasted into another application. Alternately a time code location may be pasted into this field to cue up a specific location.

Playback Mode – choices include Normal, Loop, and Palindrome

Playback Speed – as a percentage of 100.

File Duration – length of the file, displayed as HH:MM:SS:FF, also displayed as number of video frames.

Frame Rate – number of frames per second

Fourcc (Codec) identifier – an internal identifier for the specific codec used

Video Bit Depth - the number of bits used for each color component of a single pixel

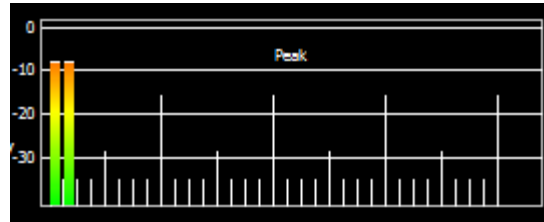
Number of Audio Channels – how many audio channels are currently set up

Audio Bit Depth - the number of bits of information in each sample

Audio Rate – the audio sample rate in kHz

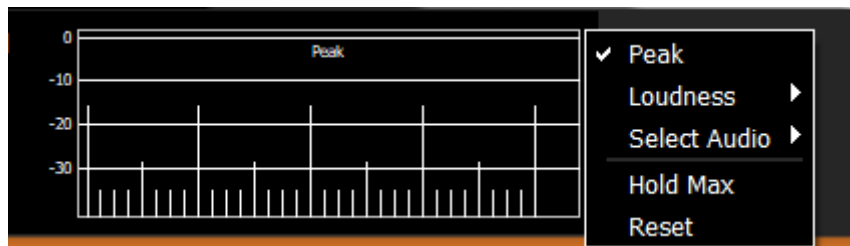
3.2.3 Audio Monitor Setup

The audio monitor setup is available in either the basic ui or the advanced ui by clicking on the audio meters.



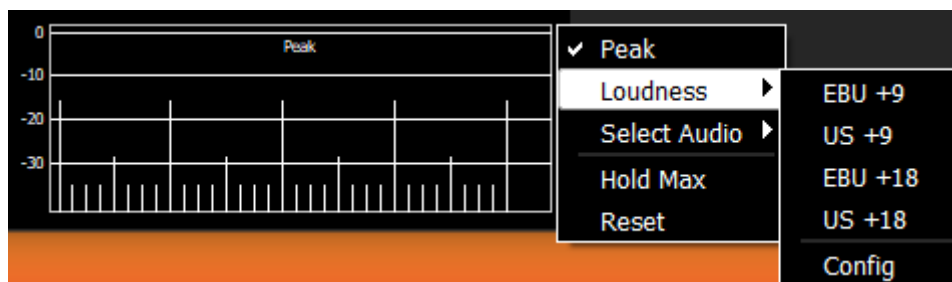
Audio Meters display advanced mode - Up to 16 audio meters showing dBFS RMS audio.

Clicking on the audio meters offers setup control for the audio output.



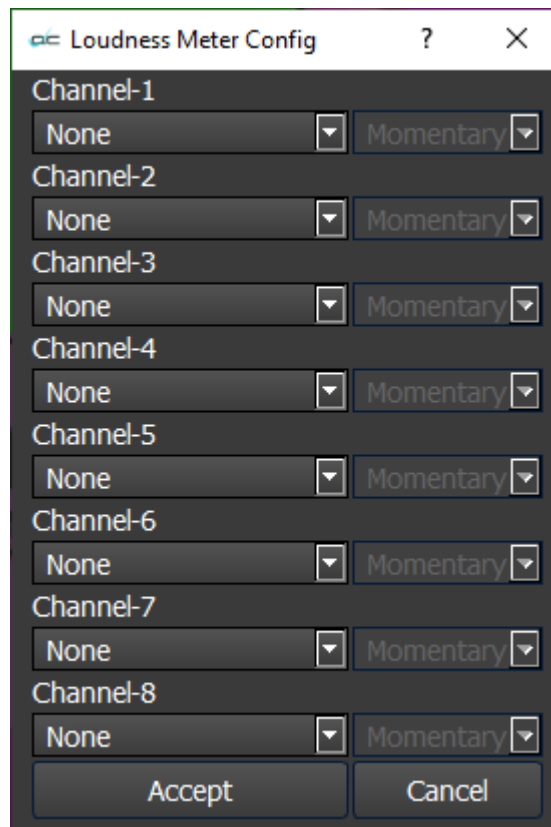
The Peak/RMS meters are selected using the link at the top, and will be checked when in Peak/RMS mode.

Clicking on the **Loudness** pulldown offers the following menu:



The **Loudness** configuration lets the user select between: EBU +9, US +9, EBU +18, and US +18 audio scale settings.

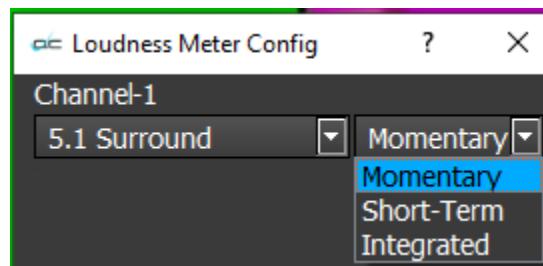
Selecting the **Config** option opens the audio output configuration dialog:



In the **Loudness Meter Config** dialog, the user can click on a Channel's pulldown menu to reveal the following audio loudness meter setup options:

- None
- 5.1 Surround
- 5.1-Pro Tools - L C R Ls Rs Lfe
- 5.1-Smpte - L R C lfe Ls Rs
- 5.1-AAC - C L R Ls Rs Lfe
- 5.1-DTS - L R Ls Rs C Lfe
- Stereo Pair 1
- 7.1-Surround
- 7.1-Pro Tools - L C R Lss Rss Lsr Rsr Lfe
- 7.1-Smpte - L R C Lfe Lss Rss Lsr Rsr
- 7.1-EXT - L R C Lfe Lsr Rsr Lss Rss
- 7.1-Dolby - L C R Ls Rs Lfes Bsl Bsr
- Stereo Pair 2

With a loudness setting selected for the channel, the user can set the peak indicator behavior.

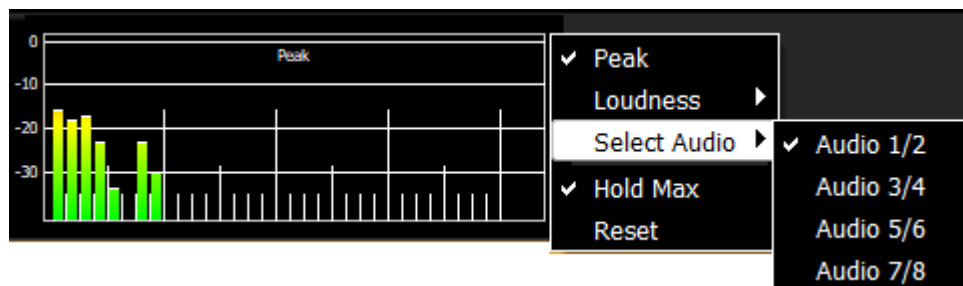


Momentary – momentarily allow the white peak indicators to remain at their highest level, then allow them to fall back down to the top of the channel level.

Short Term – Hold peak for 4 seconds, then drop to the top of the channel level.

Integrated – leave the white peak indicators at the top of the channel level.

The **Select Audio** pulldown lets the user select between available audio channels to monitor. This also sets which audio pair is fed to the audio scopes.



Hold Max – when selected, the peak indicators will remain at the highest level the channel has reached.

Reset – clear any audio loudness settings and return to default values for audio monitoring.

3.3 Controls Available via the Main Menu

In Windows, the main menu is displayed upon opening. It arises on the left side of the display area when the user moves their mouse toward the left edge of the GUI. A number of controls and displays can be accessed through the menu. Not all features are present in all versions. So depending on the level of videoQC licensed, some of the below controls seen below will be disabled.

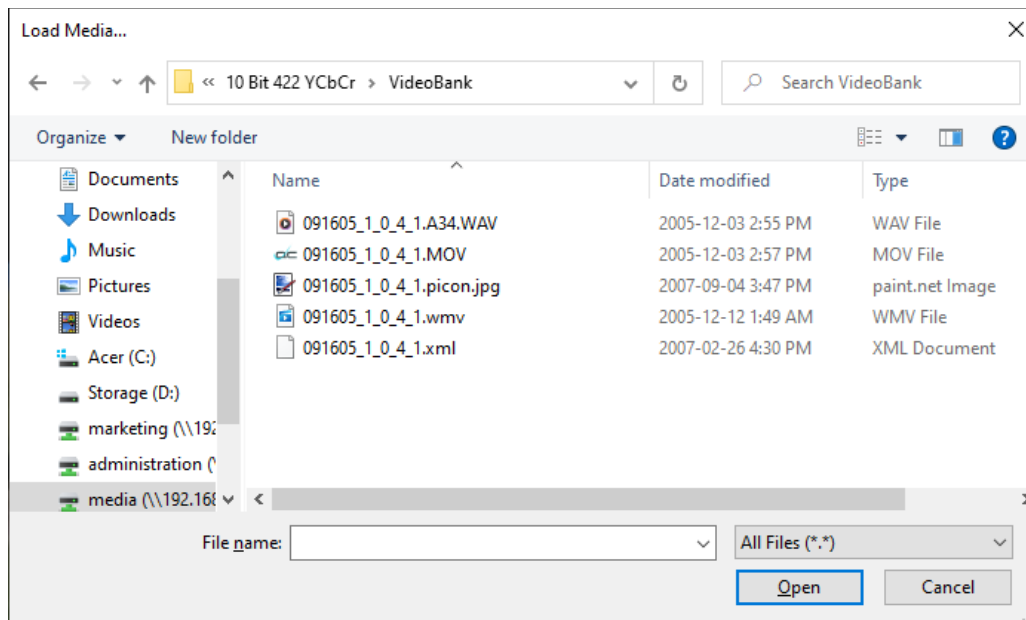
open file	All versions
open stream	Pro level and above
close media	All versions
settings	All versions
watch folder	Workstation level and above
basic ui	All versions
display mode	All versions
captions	Pro level and above
mode	All versions
media info	All versions
wave/vector	Pro level and above
data view	Pro level and above
export media	Inspect level and above
audio meters	Pro level and above
audio routing	Pro level and above
qc analysis	Workstation level and above
compare files	Workstation level and above
qc file check	Workstation level and above
version update	All versions

Once video has been loaded, the menu disappears but can be called up by moving the mouse to the left of the display area. The menu offers access to a wide range of system controls, settings dialog boxes, and signal analysis tools.

3.3.1 Open File

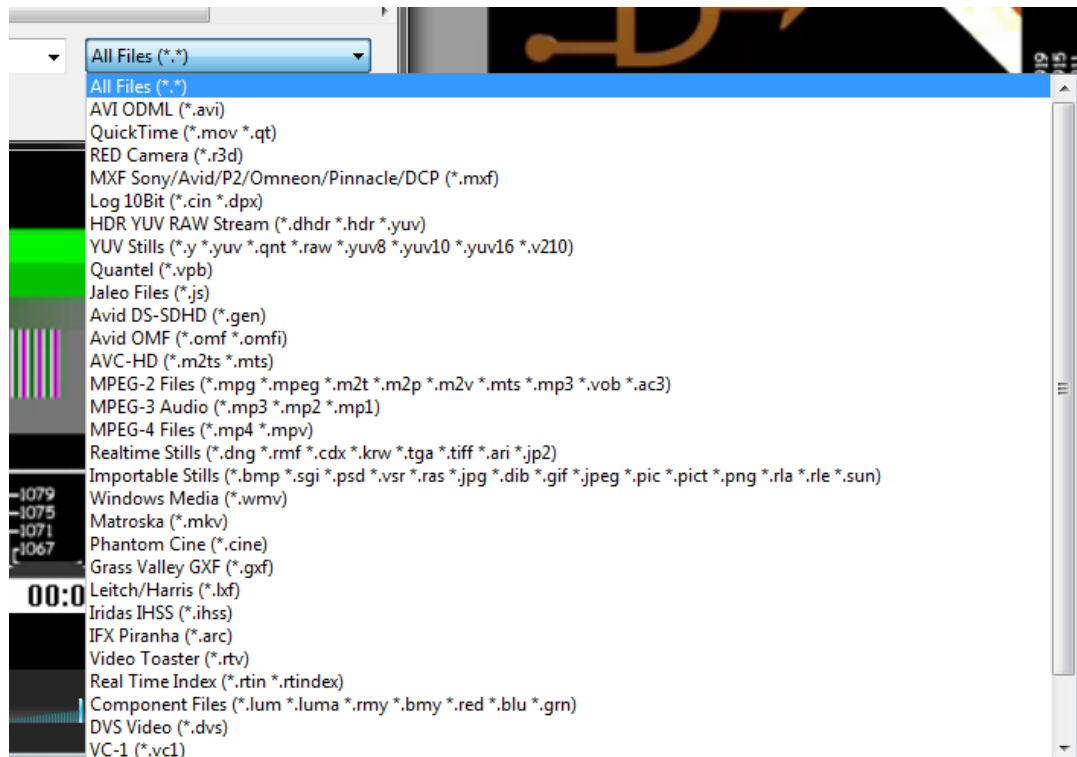
open file

Open File button - pressing the Open File button opens the **Load Media** window, which allows the user to browse to an accessible media file and load it into videoQC.



Load Media window

3.3.1.1 Load Media File Type Filter

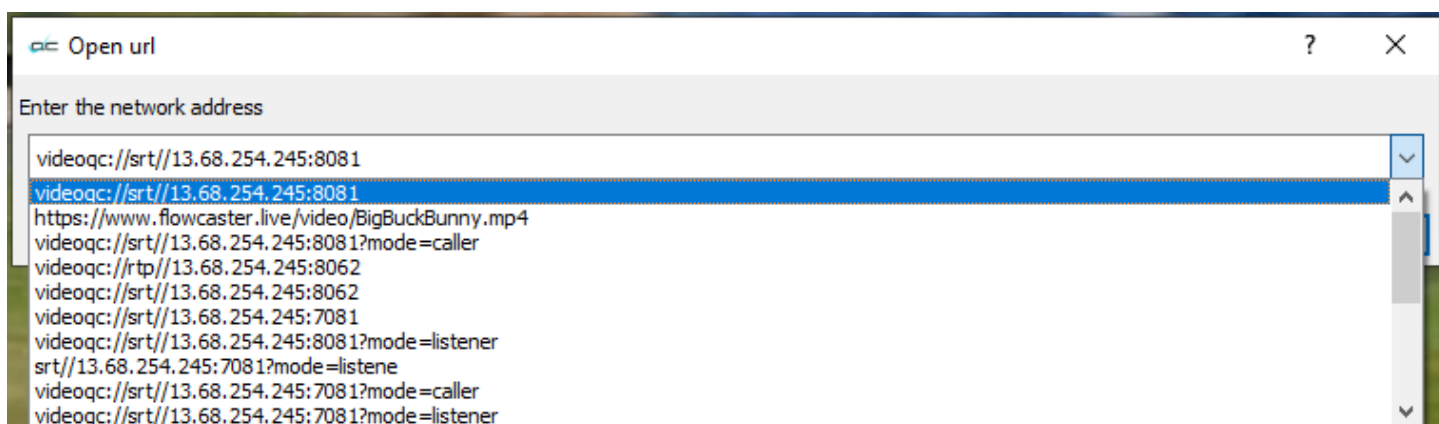


Pressing the **All Files*** button reveals a list of file types. Selecting a file type from this list lets the user search by specific file type, to help locate files more quickly.

3.3.2 Open Stream

open stream

Open Stream button - Opens the **Open url** window, which allows the user to select between the available streams or video assets online. This list will be populated by the most recent sources selected. You can also enter a known IP stream string via the keyboard to search for it.



Once the user has entered the network address into the URL field, pressing the **OK** button loads the stream for viewing.

For tips on using IP Streaming URLs in videoQC, please see:

[Using Video IP Streaming](#)

3.3.3 Close Media

close media

Close Media button - Close the current file. This action does not clear the screen, but it does release the file itself, so it may be moved, renamed, deleted, etc.

3.3.4 Settings

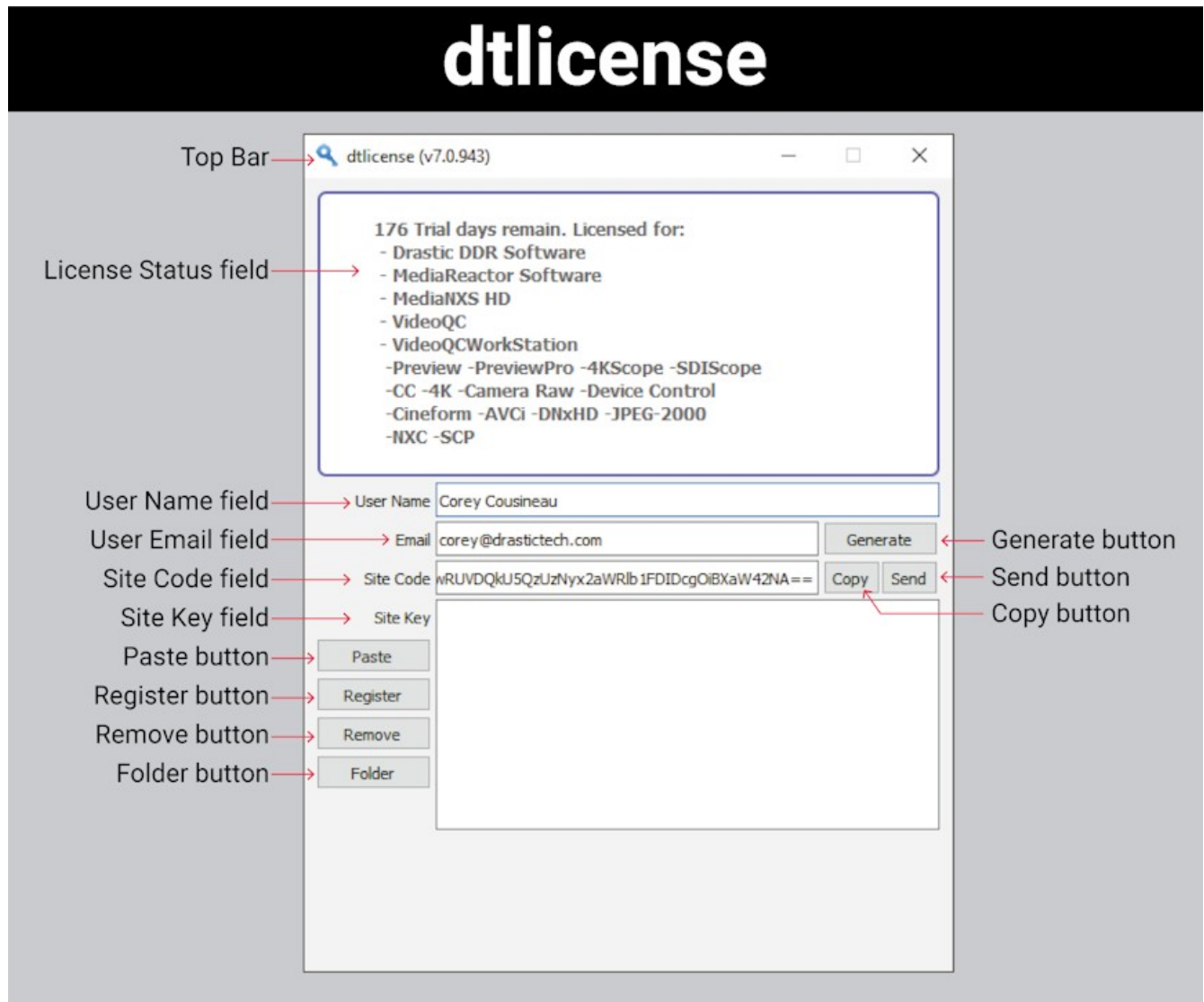
settings

Settings button - Open the **Settings** window

License	IP Config	Accept	Close
Disable Hardware For Videoqc <input type="checkbox"/> Disabled			
Disable Aja Kona <input checked="" type="checkbox"/> Enabled			
Disable Blue Fish444 <input checked="" type="checkbox"/> Enabled			
Disable Decklink <input checked="" type="checkbox"/> Enabled			
DisableIP Video <input checked="" type="checkbox"/> Enabled			
Disable Matrox <input checked="" type="checkbox"/> Enabled			
Enable Flow Caster Out <input type="checkbox"/> Disabled			
Default Log Name ... C:\UwAmp\www\logs\default.log			
No Internal Audio Video <input type="checkbox"/> Disabled			
Production Mode <input type="checkbox"/> Disabled			
ShowVITC Lines <input checked="" type="checkbox"/> Enabled			
Skip Boards 0			
Superimpose <input type="checkbox"/> Disabled			
Superimpose Type Vtr Style ▼			
Allow Aspect Ratio Changes <input type="checkbox"/> Disabled			
Allow Frequency Changes <input type="checkbox"/> Disabled			
Allow Resolution Changes <input type="checkbox"/> Disabled			
OP47 Default Character Set 0			
De Interlace Type Disable ▼			
Audio12 Encoded <input type="checkbox"/> Disabled			
Dither8 Bit <input type="checkbox"/> Disabled			
Genlock Enabled <input type="checkbox"/> Disabled			
Use Both Board Channels <input type="checkbox"/> Disabled			
EnableNDI Search <input checked="" type="checkbox"/> Enabled			
IgnoreHTTP <input type="checkbox"/> Disabled			
IgnoreCTL <input type="checkbox"/> Disabled			
Ignore Net <input type="checkbox"/> Disabled			
SD Aspect Ratio16by9 <input checked="" type="checkbox"/> Enabled			
HTTP Port 1080			
Port 0			
Auto Select Proxy <input type="checkbox"/> Disabled			
Color Space Rec 709 SMPTE ▼			
Color Transfer Default/Auto ▼			
Check For Updates On Startup <input type="checkbox"/> Disabled			

3.3.4.1 License

On the Settings window, press the **License** button to open the licensing dialog.



The Top bar provides the **dtlicense** icon and app name, along with the version number of the software.

The **License Status** field displays the current status of the license.

The **User Name** field allows the user to type in a first and last name during the licensing process.

The **User Email** field allows the user to type in the email at which they would like to receive the site key for their license.

Once the name and address fields have been filled out, pressing the **Generate** button populates the **Site Code** field with a string of alphanumeric characters. This string is the Site Code.

The **Site Code** field is where the site code displayed during the licensing process. The user may select the site code and use Ctrl+C to copy it to the clipboard, or use the **Copy** button. The user will need to send the site code to Drastic Authorization to get a Site Key to enable the license.

The **Site Key** field is where the user will paste a site key to update the license status. You can click in the field and press CTRL+V, or use the **Paste** button to paste a copied site key.

The **Paste** button pastes whatever is on the clipboard to the **Site Key** field.

The **Register** button is used to register a site code. Once a valid site key is in the **Site Key** field, pressing the **Register** button will update the status of the license.

The **Remove** button lets you delete the current license. Note: you can also go to: C:\ProgramData\Drastic, and delete the "Drastic.lic7" file to remove a license.

The **Folder** button provides a quick way to open the C:\ProgramData\Drastic folder, so you can check or delete the license file there.

The **Generate** button is used to generate a site code. This requires the user to first enter a user name and email.

The **Send** button will open a new email to Drastic Authorization, with the site code in the body of the email.

Once a reply email containing the **Site Key** has been returned by Drastic Authorization, the user may select it and copy it, then paste it into the Site Key field either using the **Paste** button or Ctrl+V.

Once the Site Key has been pasted into the **Site Key** field, pressing the **Register** button registers the license. The system may need to be restarted for the change in license status to be updated.

3.3.4.2 IP Config

Press the IP Config button to open the IP Video Setup window.

IP Video Setup controls the settings for ST-2110, ST-2022, and TR-01 streams. Note that these stream formats require capable hardware – please contact Drastic for more info.

There are separate settings for Video, Audio, And Ancillary data streams.

3.3.4.2.1 IP Video – Video Stream Settings

The screenshot shows the 'IP Video Setup' window. At the top, there's a 'Channel' dropdown menu set to 'channel-0'. Below it, there are two checkboxes: 'Override NMOS Settings' (checked) and 'NMOS Log to file' (unchecked). To the right of these is a button labeled 'NMOS Config'. The main area is divided into two sections: 'Receive' and 'Send'. Each section has a 'Type' dropdown (both set to 'SMPTE-2110'), a 'Video Format' dropdown (both set to '1080i 59.94fps (1920)'), and an 'Audio Channels / μs' dropdown (both set to '8'). The 'Receive' section also has a 'lock all' checkbox (unchecked). Below these are fields for 'Source Address', 'Source port', 'Destination Address', 'Destination Port', and 'Interface', each with a 'lock' checkbox. The 'Send' section has similar fields for 'Source Address', 'Source Port', 'Destination Address', 'Destination Port', and 'Interface', also with 'lock' checkboxes. At the bottom, there are fields for 'Clock Source' (set to 'Internal'), 'Clock Info' (set to 'GMT Time'), 'Clock Time' (set to '2025-06-05 T12:11:59.221'), and 'Clock Mac Address / ID' (set to '0'). A 'Save Video SDP' button is located at the bottom right. At the very bottom, there are four buttons: 'Load File', 'Save File', 'Accept', and 'Cancel'.

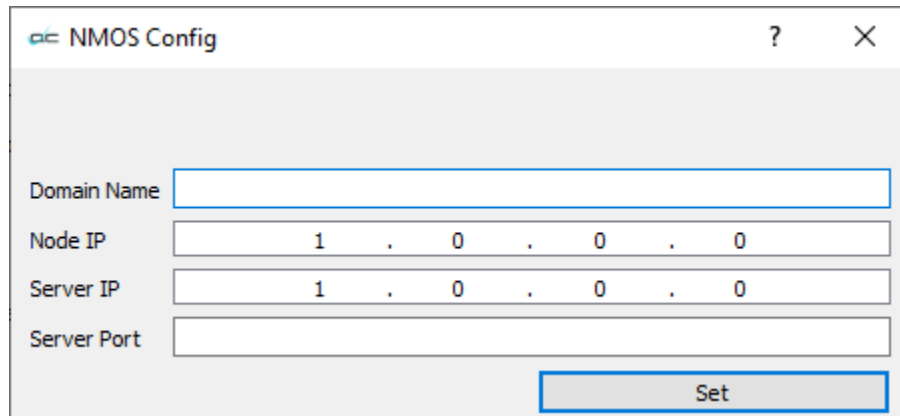
Channel pulldown menu – for multichannel systems, select between available channels.

Override NMOS Settings checkbox – disable any default NMOS (Networked Media Open Specification) settings.

NMOS Log to file checkbox – checking this box specifies that an NMOS file will be saved to disk for later use.

NMOS Config button – opens the NMOS Config window, which allows the user to enter details about the stream, specifically:

- Domain Name
- Node IP
- Server IP
- Server Port



Type pulldown menu – select between available internet stream types. This dialog is for setting up ST2110, ST2022-6, and optionally TR-01 streams.

Video Format – provides a pulldown menu to set the video input, whether HD, Quad HD, 4K etc.

Audio Channels / μ s – provides a pulldown menu to set the number of channels in the system, and a pulldown to select between microsecond settings. Up to 16 channels of audio can be selected, but must be an even number.

Receive Section

Receive pulldown menu and **Lock All** checkbox – select between available internet protocol types to receive. The **Lock All** checkbox locks all the IP addresses together.

Source Address field and **Lock** checkbox – type in the receive source IP address. The Lock checkbox locks this IP address.

Source Port field and **Lock** checkbox – type in the receive source port. The Lock checkbox locks this IP address.

Destination Address field and **Lock** checkbox – type in the receive destination source IP address. The Lock checkbox locks this IP address.

Destination Port field and **Lock** checkbox – type in the receive destination source port. The Lock checkbox locks this IP address.

Interface field and **Lock** checkbox – type in the receive interface IP address. The Lock checkbox locks this IP address.

Send Section

Send pulldown menu – select between available internet protocol types to send

Source Address field and **Lock** checkbox – type in the send source IP address. The Lock checkbox locks this IP address.

Source Port field and **Lock** checkbox – type in the send source port. The Lock checkbox locks this IP address.

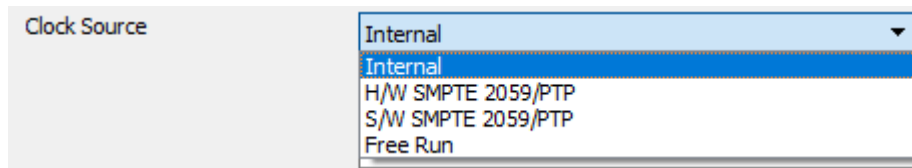
Destination Address field and **Lock** checkbox – type in the send destination IP address. The Lock checkbox locks this IP address.

Destination Port field and **Lock** checkbox – type in the send destination port. The Lock checkbox locks this IP address.

Interface field and **Lock** checkbox – type in the send interface IP address. The Lock checkbox locks this IP address.

Clock Section

Clock Source pulldown menu – select between available clock sources. Choices here include Internal (system clock), H/W SMPTE 2059/PTP, S/W SMPTE 2059/PTP, and Free Run.



Clock Info field – displays the time setting

Clock Time field – displays the time in YYYY/MM/DD THH:MM:SS:FFF

Clock Mac Address / ID – Enter the clock mac (Media Access Control) address, and the system ID.

Video/Audio/Anc radio buttons – select between the IP Video Setup for the Video, Audio, or Ancillary stream.

Save Video SDP – opens a standard save as browser, so the user can save a (.sdp) Session File to recall the element for later retrieval.

Load File button – load a (.ini) IP settings file to use its settings.

Save File button – save the current IP settings as a (.ini) file for later retrieval.

Accept button – Press the **Accept** button to accept any changes that have been made, and close the IP Video Setup window.

Cancel button – Press the **Cancel** button to close the IP Video Setup window without making any settings changes.

3.3.4.2.2 IP Video – Audio Stream Settings

The screenshot shows the 'IP Video Setup' window with the 'Audio Stream Settings' tab selected. The 'Channel' dropdown is set to 'channel-0'. The 'Override NMOS Settings' checkbox is checked. The 'NMOS Log to file' checkbox is unchecked. The 'NMOS Config' button is highlighted. The 'Type' dropdown is set to 'SMPTE-2110'. The 'Video Format' dropdown is set to '1080i 59.94fps (1920)'. The 'Audio Channels / μs' dropdown is set to '8'. The 'Receive' dropdown is set to 'IPv4'. The 'Source Address' field is '239 . 200 . 100 . 21'. The 'Source port' field is '50004'. The 'Destination Address' field is '239 . 200 . 100 . 21'. The 'Destination Port' field is '50004'. The 'Interface' field is '192 . 168 . 100 . 166'. The 'Send / μs' dropdown is set to 'IPv4'. The 'Source Address' field is '1 . 0 . 0 . 0'. The 'Source Port' field is '5001'. The 'Destination Address' field is '239 . 200 . 100 . 10'. The 'Destination Port' field is '5001'. The 'Interface' field is '192 . 168 . 100 . 166'. The 'Clock Source' dropdown is set to 'Internal'. The 'Clock Info' field is 'GMT Time'. The 'Clock Time' field is '2025-06-05 T12:33:34.252'. The 'Clock Mac Address / ID' field is '0'. The 'Audio Channel' section has the 'Use single flow' checkbox checked. The 'Audio Channel' radio buttons are numbered 1 through 8. The 'Save Audio SDP' button is visible. The 'Accept' button is highlighted.

Channel pulldown menu – for multichannel systems, select between available channels.

Override NMOS Settings checkbox – disable any default NMOS (Networked Media Open Specification) settings.

NMOS Log to file checkbox – checking this box specifies that an NMOS file will be saved to disk for later use.

NMOS Config button – opens the NMOS Config window, which allows the user to enter details about the stream, specifically:

- Domain Name
- Node IP
- Server IP
- Server Port

Type pulldown menu – select between available internet stream types. This dialog is for setting up ST2110, ST2022-6, and optionally TR-01 streams.

Video Format – provides a pulldown menu to set the video input, whether HD, Quad HD, 4K etc.

Audio Channels / μ s – provides a pulldown menu to set the number of channels in the system, and a pulldown to select between microsecond settings. Up to 16 channels of audio can be selected, but must be an even number.

Receive Section

Receive pulldown menu and **Lock All** checkbox – select between available internet protocol types to receive. The Lock All checkbox locks all the IP addresses together.

Source Address field and **Lock** checkbox – type in the receive source IP address. The Lock checkbox locks this IP address.

Source Port field and **Lock** checkbox – type in the receive source port. The Lock checkbox locks this IP address.

Destination Address field and **Lock** checkbox – type in the receive destination source IP address. The Lock checkbox locks this IP address.

Destination Port field and **Lock** checkbox – type in the receive destination source port. The Lock checkbox locks this IP address.

Interface field and **Lock** checkbox – type in the receive interface IP address. The Lock checkbox locks this IP address.

Send Section

Send pulldown menu – select between available internet protocol types to send

Source Address field and **Lock** checkbox – type in the send source IP address. The Lock checkbox locks this IP address.

Source Port field and **Lock** checkbox – type in the send source port. The Lock checkbox locks this IP address.

Destination Address field and **Lock** checkbox – type in the send destination IP address. The Lock checkbox locks this IP address.

Destination Port field and **Lock** checkbox – type in the send destination port. The Lock checkbox locks this IP address.

Interface field and **Lock** checkbox – type in the send interface IP address. The Lock checkbox

locks this IP address.

Clock Section

Clock Source pulldown menu – select between available clock sources

Clock Info field – displays the time setting

Clock Time field – displays the time in YYYY/MM/DD THH:MM:SS:FFF

Clock Mac Address / ID – Enter the clock mac (Media Access Control) address, and the system ID.

Video/Audio/Anc radio buttons – select between the IP Video Setup for the Video, Audio, or Ancillary stream.

Audio Channel **Use Single Flow** checkbox and radio buttons – with the Use Single Flow checkbox selected, all channels are sent as a single flow. With the Use Single Flow checkbox unselected, the user can click to select as many channels as the system has set up. This is limited by how many channels are set in the Audio Channels pulldown.

Save Audio SDP – opens a standard save as browser, so the user can save a (.sdp) Session File to recall the element for later retrieval.

Load File button – load a (.ini) IP settings file for later retrieval.

Save File button – save the current IP settings as a (.ini) file for later retrieval.

Accept button – Press the **Accept** button to accept any changes that have been made, and close the IP Video Setup window.

Cancel button – Press the **Cancel** button to close the IP Video Setup window without making any settings changes.

3.3.4.2.3 IP Video – Ancillary Stream Settings

The IP Video Setup dialog box is titled "IP Video Setup" and contains the following sections and controls:

- Channel:** A pulldown menu currently showing "channel-0".
- Override NMOS Settings:** A checked checkbox.
- NMOS Log to file:** An unchecked checkbox.
- NMOS Config:** A button highlighted with a blue border.
- Video/Audio/Ancillary Selection:** Three radio buttons on the right: "Video" (unchecked), "Audio" (unchecked), and "Anc" (checked).
- Receive Section:**
 - Type: SMPTE-2110 (dropdown)
 - Video Format: 1080i 59.94fps (1920) (dropdown)
 - Audio Channels / μ s: 8 (dropdown) and 125 (dropdown)
 - Receive: IPv4 (dropdown)
 - lock all: unchecked checkbox
- Source Address Section:**
 - Source Address: 239 . 200 . 100 . 22 (text field)
 - lock: unchecked checkbox
 - Source port: 50006 (text field)
 - lock: unchecked checkbox
- Destination Address Section:**
 - Destination Address: 239 . 200 . 100 . 22 (text field)
 - lock: unchecked checkbox
 - Destination Port: 50006 (text field)
 - lock: unchecked checkbox
- Interface Section:**
 - Interface: 192 . 168 . 100 . 166 (text field)
 - lock: checked checkbox
- Send / μ s Section:**
 - Send / μ s: IPv4 (dropdown) and 125 (dropdown)
- Source Address Section (Send):**
 - Source Address: 1 . 0 . 0 . 0 (text field)
 - lock: unchecked checkbox
 - Source Port: 5002 (text field)
 - lock: unchecked checkbox
- Destination Address Section (Send):**
 - Destination Address: 239 . 200 . 100 . 10 (text field)
 - lock: unchecked checkbox
 - Destination Port: 5002 (text field)
 - lock: unchecked checkbox
- Interface Section (Send):**
 - Interface: 192 . 168 . 100 . 166 (text field)
 - lock: checked checkbox
- Clock Source:** Internal (dropdown)
- Clock Info:** GMT Time (text field)
- Clock Time:** 2025-06-05 T12:38:51.142 (text field)
- Clock Mac Address / ID:** (text field) and 0 (text field)
- Save Anc SDP:** A button.
- Buttons:** Load File, Save File, Accept, and Cancel at the bottom.

Channel pulldown menu – for multichannel systems, select between available channels.

Override NMOS Settings checkbox – disable any default NMOS (Networked Media Open Specification) settings.

NMOS Log to file checkbox – checking this box specifies that an NMOS file will be saved to disk for later use.

NMOS Config button – opens the NMOS Config window, which allows the user to enter details about the stream, specifically:

- Domain Name
- Node IP
- Server IP
- Server Port

Type pulldown menu – select between available internet stream types. This dialog is for setting up ST2110, ST2022-6, and optionally TR-01 streams.

Video Format – provides a pulldown menu to set the video input, whether HD, Quad HD, 4K etc.

Audio Channels / μ s – provides a pulldown menu to set the number of channels in the system, and a pulldown to select between microsecond settings.

Receive Section

Receive pulldown menu and **Lock All** checkbox – select between available internet protocol types to receive. The Lock All checkbox locks all the IP addresses together.

Source Address field and **Lock** checkbox – type in the receive source IP address. The Lock checkbox locks this IP address.

Source Port field and **Lock** checkbox – type in the receive source port. The Lock checkbox locks this IP address.

Destination Address field and **Lock** checkbox – type in the receive destination source IP address. The Lock checkbox locks this IP address.

Destination Port field and **Lock** checkbox – type in the receive destination source port. The Lock checkbox locks this IP address.

Interface field and **Lock** checkbox – type in the receive interface IP address. The Lock checkbox locks this IP address.

Send Section

Send pulldown menu – select between available internet protocol types to send

Source Address field and **Lock** checkbox – type in the send source IP address. The Lock checkbox locks this IP address.

Source Port field and **Lock** checkbox – type in the send source port. The Lock checkbox locks this IP address.

Destination Address field and **Lock** checkbox – type in the send destination IP address. The Lock checkbox locks this IP address.

Destination Port field and **Lock** checkbox – type in the send destination port. The Lock checkbox locks this IP address.

Interface field and **Lock** checkbox – type in the send interface IP address. The Lock checkbox locks this IP address.

Clock Section

Clock Source pulldown menu – select between available clock sources

Clock Info field – displays the time setting

Clock Time field – displays the time in YYYY/MM/DD THH:MM:SS:FFF

Clock Mac Address / ID – Enter the clock mac (Media Access Control) address, and the system ID.

Video/Audio/Anc radio buttons – select between the IP Video Setup for the Video, Audio, or Ancillary stream.

Save Anc SDP – opens a standard save as browser, so the user can save a (.sdp) Session File to recall the element for later retrieval.

Load File button – load a (.ini) IP settings file to use its settings.

Save File button – save the current IP settings as a (.ini) file for later retrieval.

Accept button – Press the **Accept** button to accept any changes that have been made, and close the IP Video Setup window.

Cancel button – Press the **Cancel** button to close the IP Video Setup window without making any settings changes.

3.3.4.3 Other Settings

Accept button - Press the **Accept** button to accept any changes that have been made, and close the **Settings** window.

Close button – close the **Settings** window without making any changes

Disable Hardware for Videoqc – when set, the software will ignore any hardware in the system

Disable Aja Kona – when set, the software will ignore any AJA cards

Disable BlueFish444 – when set, the software will ignore any BlueFish444 cards

Disable Decklink – when set, the software will ignore any Blackmagic cards

DisableIP Video – when set, the system will not use IP video streams

Disable Matrox – when set, the software will ignore any Matrox cards

Enable Flow Caster Out – when set, enable stream output via FlowCaster.

Default Log Name field and button – if logging to a file is enabled, this is where the log file will be saved

No Internal Audio Video – if set, this forces the audio to an external audio card, rather than the internal audio of the AJA, BlueFish444 or Blackmagic card

Production Mode – if set, then playback will continue even if frames are dropped. Otherwise, dropped frames will cause playback to pause.

ShowVITC Lines – show any vertical blank area in the applications video window

Skip Boards – the number of cards in the system to skip. This allows videoQC to use the second card in the system, and allow another software to use the first one

Superimpose – if set, then time code and user bits will be displayed/burned into the video

Superimpose Type – choose between **Film Style** or **VTR Style** time code display on the overlay.

In the image below, the VTR style time code is displayed on the left screen. It shows absolute, LTC, and VITC time codes simultaneously. On the right screen, Film style time code is displayed.



Time Code Overlay

Allow Aspect Ratio Changes – when set, the aspect ratio will change as new files are loaded

Allow Frequency Changes – when set, the frequency will change as new files are loaded

Allow Resolution Changes – when set, the resolution will change as new files are loaded

OP47 Default Character Set – OP-47 decoders have a setting which allows the user to specify the default alternate character set when it is not specified by the sender. This is normally the character set of the local language.

- 0 – (Latin) English, French, German, Swedish, Finnish, Hungarian, Italian, Portuguese, Spanish, Czech, Slovak
- 1 – (Latin) Polish
- 2 – (Latin) Turkish
- 3 – (Latin) Serbian, Croatian, Slovenian, Romanian
- 4 – (Latin) Estonian, Lettish, Lithuanian
- 4 – (Cryillic) Serbian, Croatian, Russian, Bulgarian, Ukrainian
- 6 – Greek
- 10 – Hebrew

De Interlace Type – When working with interlaced material, the display on the progressive VGA monitor:

- **Default** - use the default deinterlacing implied by the file type
- **Discard** - discard one field
- **Blend** - blend the two fields
- **Duplicate Invert** - duplicate the non dominant field
- **Split** - split the fields, upper and lower
- **Duplicate** - duplicate one field
- **Process** - process for motion detect deinterlaced

- **Disable** - disable processing, show interlace on progressive

Audio 12 Encoded – should be set if using Dolby encoded audio on the first pair of channels

Dither8 Bit – on AJA hardware, if set, 8 bit files will be up dithered to 10 bit on SDI output

Genlock Enabled – use the incoming genlock signal to lock the SDI output

Use Both Board Channels – if a board supports more than one channel, allow multiple channels to use the same board

Enable NDI Search – allow searching for NDI sources.

Ignore HTTP – disable HTTP control of videoQC

Ignore CTL – disable RS-422 serial control of videoQC

Ignore Net – disable network control of videoQC

SD Aspect Ratio 16by9 – if set, then all SD files will be treated as 16:9 instead of 4:3

HTTP Port – custom port value to use for the HTTP server

Port – custom port value to use for the Net server

Auto Select Proxy – when a high resolution and proxy resolution file reference pair are dropped from an Adobe web bin, automatically load the proxy file rather than the high res file. If not set, the high resolution file will be loaded.

Color Space – select 709 or 2020 as the default color space for 4K/QHD signals. The options in this pulldown menu allow the user to set the color space being used. Options may include:

- Rec 709 SMPTE
- Default/Auto
- CCIR 601 Full
- Rec 709 Full
- BT 2020 Full
- CCIR 601 SMPTE
- BT 2020 SMPTE

Color Transfer – select either HDR-10 PQ ST-2084 or HDR HLG, as transfer characteristics for 4K/QHD signals, or leave it set to the Default/Auto setting.

Check for Updates on Startup – allows the user to keep current with the latest build by checking the installed version against the version on the web each time videoQC is run.

3.3.5 Watch Folder

watch folder

Pressing the **Watch Folder** button opens a dialog to allow the user to set up a watch folder, to analyze files and create RTIndex files and Reference Movies.

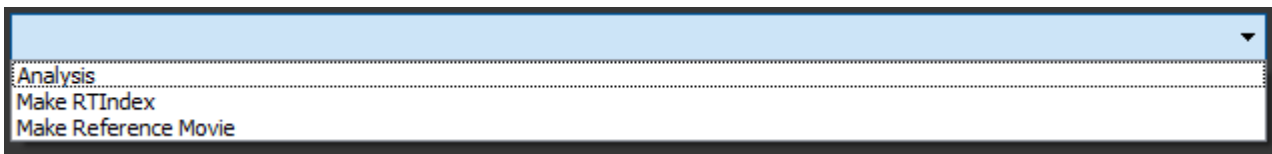


The **Watch Folder** window allows the user to select a source stream, and perform one of three actions. The following controls are available:

Source – press the Source button to set the folder you will watch. Opens a browser for you to select a source folder. When selected, the source folder will be displayed in the source field.

Target – press the Target button to set the folder where either the Analysis, Real Time Index file, or QuickTime Reference file will be created. Opens a browser for you to select a target folder. When selected, the target folder will be displayed in the target field.

The **Action** pulldown menu lets you choose what happens when a file arrives in the watch folder.



Analysis – analyze the loaded file.

Make RTIndex – make a real time index file for the source stream.

Make Reference Movie – make a QuickTime Reference Movie from the source stream.

Watch button – press to activate the watch folder functionality.

To use the **Watch** folder function, once the folders are set up and the Action has been selected, press the Watch button.

Storage (D:) > media > source				
Name	Date modified	Type	Size	
RoleModels.mp4	2009-07-09 11:16 AM	MP4 File	953,541 KB	
RoleModels.qc.db	2024-08-30 9:02 AM	Data Base File	662 KB	
RoleModels.qc.db-shm	2024-08-30 9:01 AM	DB-SHM File	32 KB	
RoleModels.qc.db-wal	2024-08-30 9:02 AM	DB-WAL File	1,026 KB	

In this example a file has been dropped into the source folder. Immediately 3 temp files are created in the source folder while the file is being analyzed.

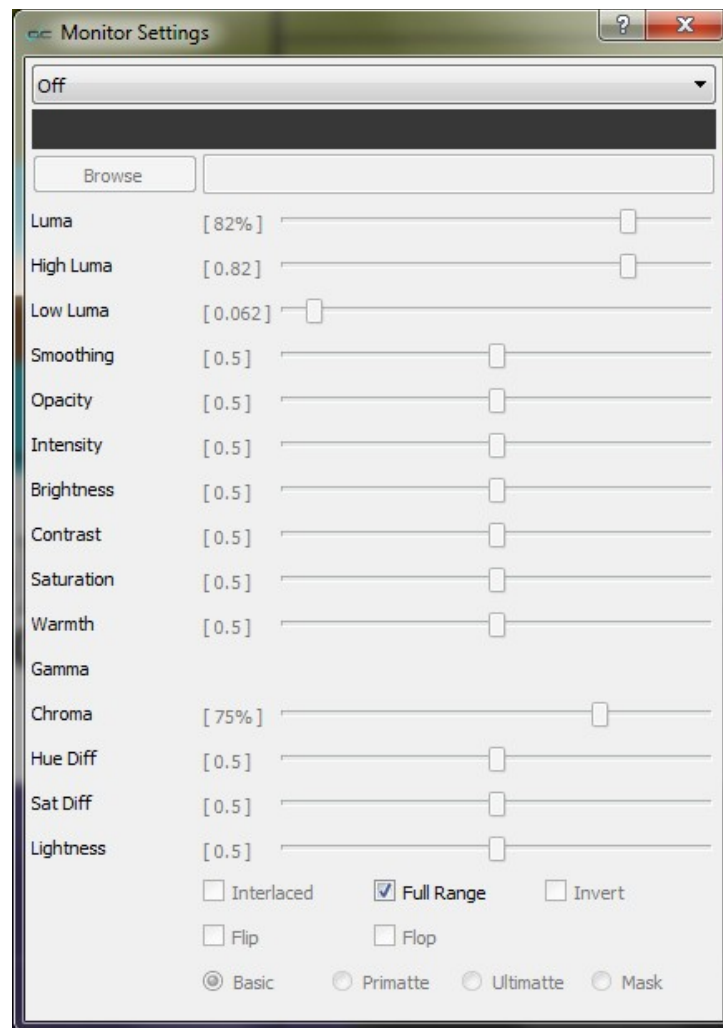
After the analysis has been completed, the target folder now has the analysis file along with the source file, and the source folder is empty.

Storage (D:) > media > target					Search
Name	Date	Type	Size	Length	
RoleModels.mp4	2009-04-25 3:54 PM	MP4 File	953,541 KB	01:41:09	
RoleModels.qc.db	2024-08-30 9:01 AM	Data Base File	9,892 KB		

3.3.6 Display Mode

display mode

Display Mode button – opens the Monitor Settings window, which allows the user to fine tune their display settings, and adjust chroma/luma keys, correct focus, view signal level excursions, etc.

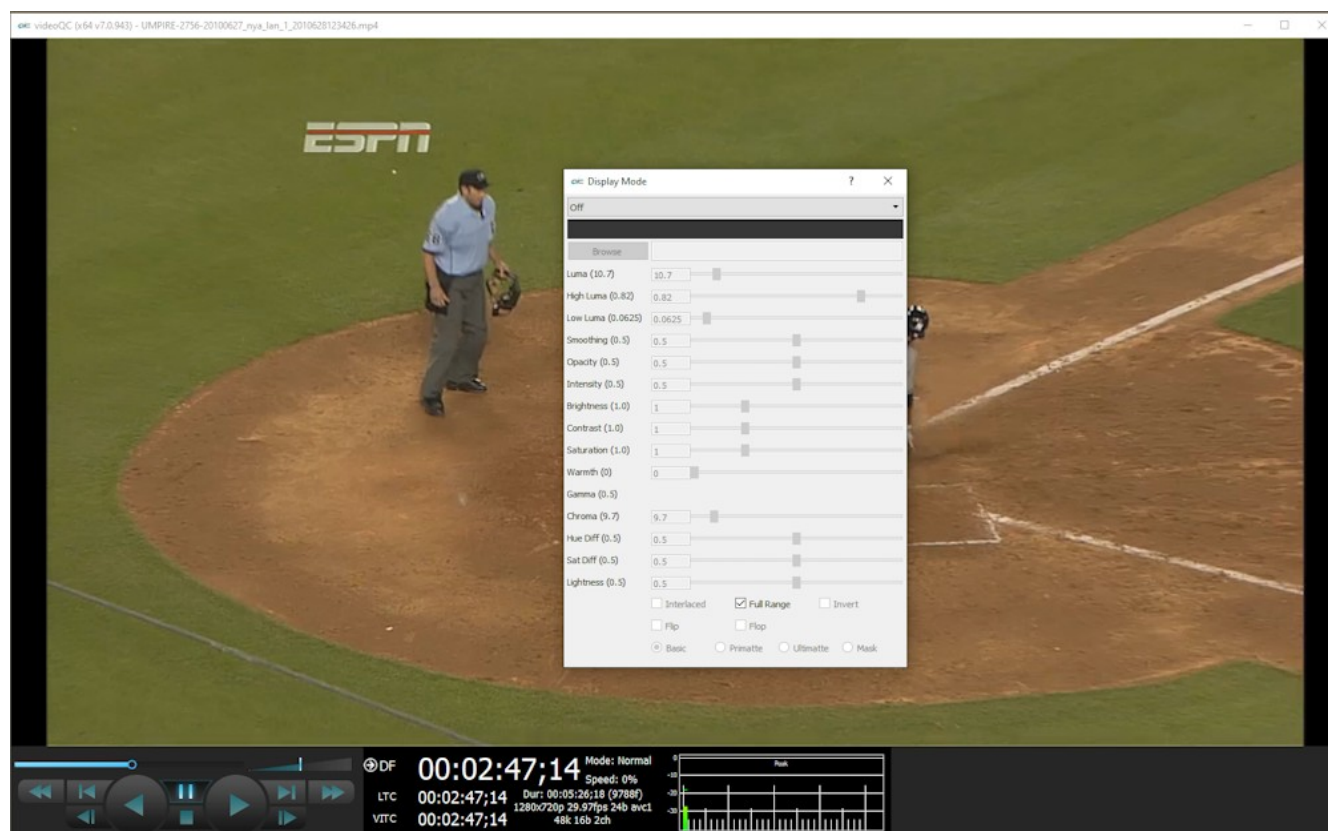


The pulldown menu at the top allows the user to select between various display modes.

Display Modes include:

3.3.6.1 Off

Display the signal normally

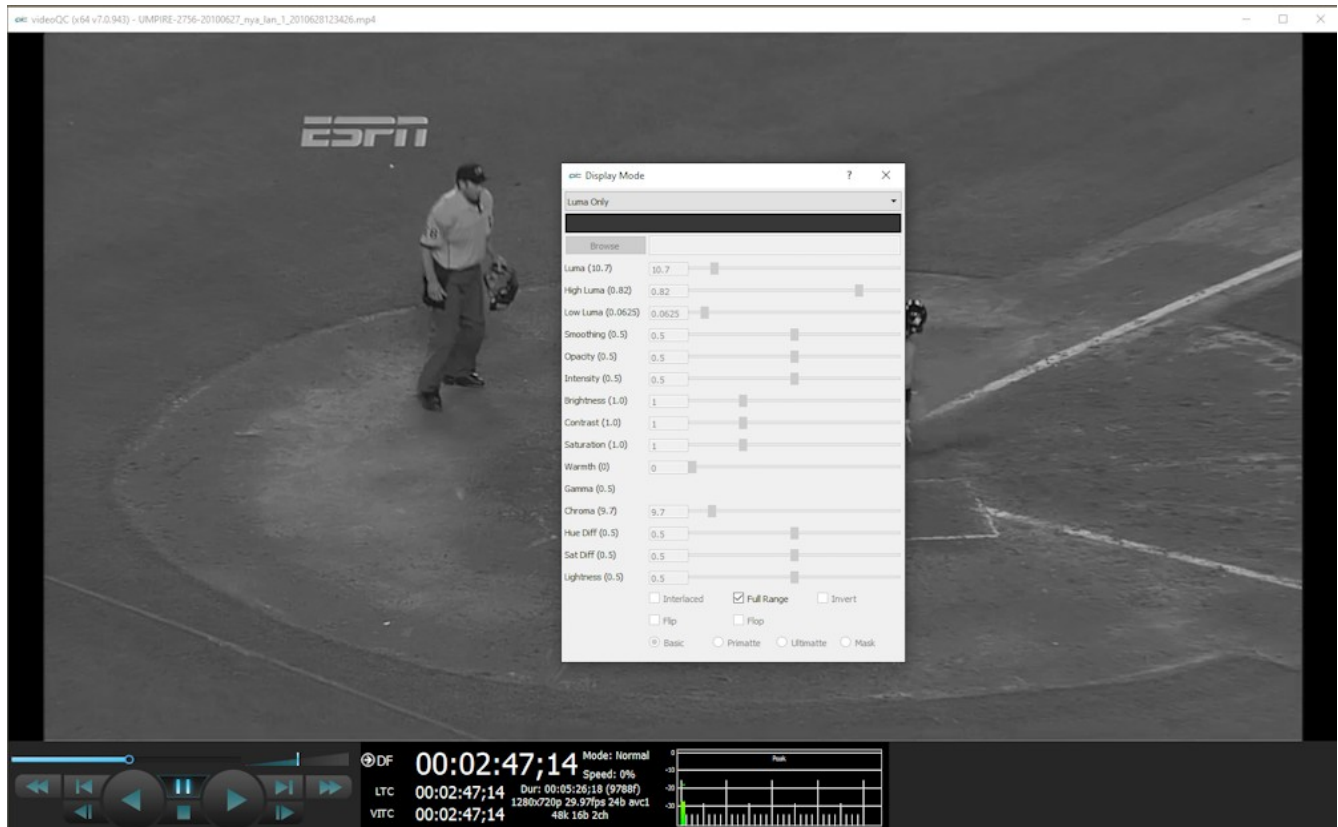


The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

This display mode provides no processing and is used to turn the display modes Off.

3.3.6.2 Luma Only

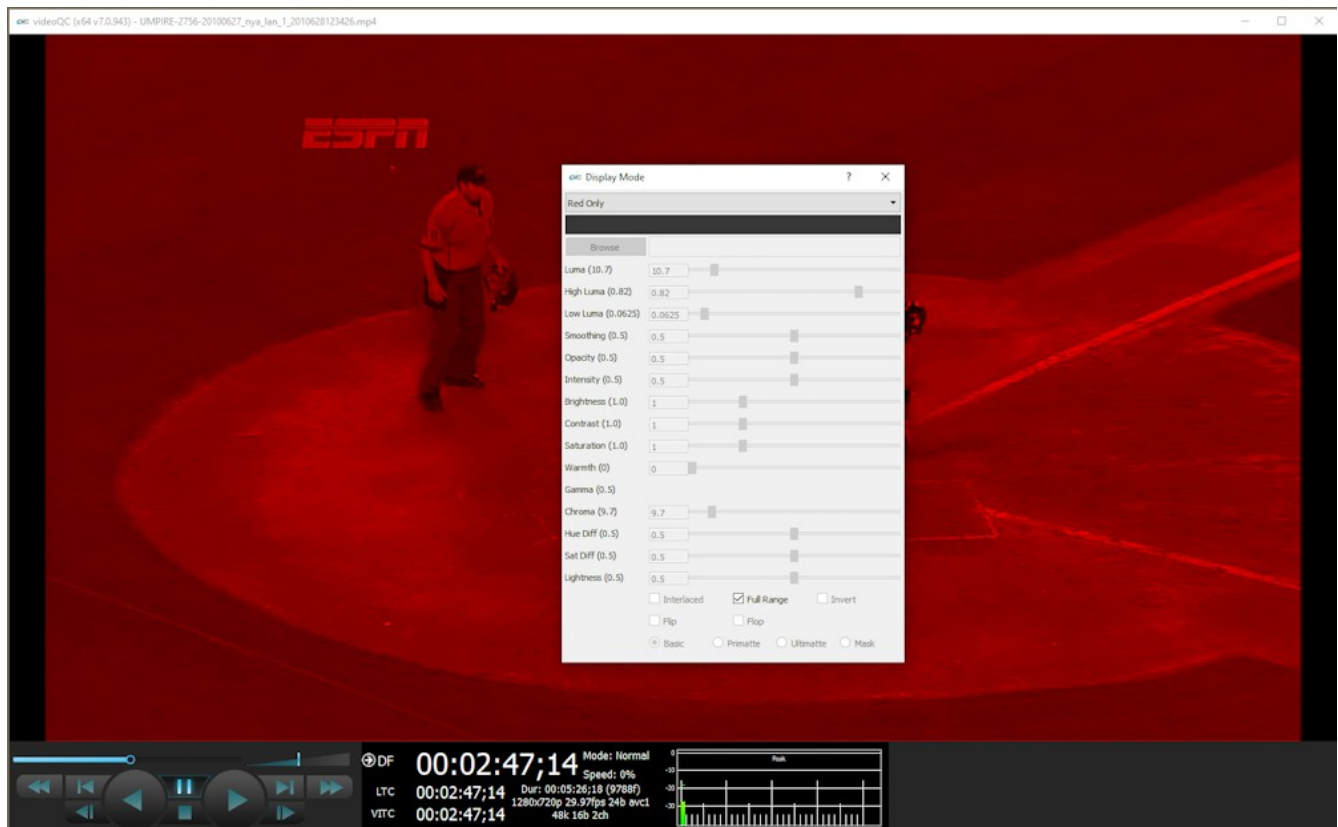
Show only the Y or brightness of the picture.



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.3 Red Only

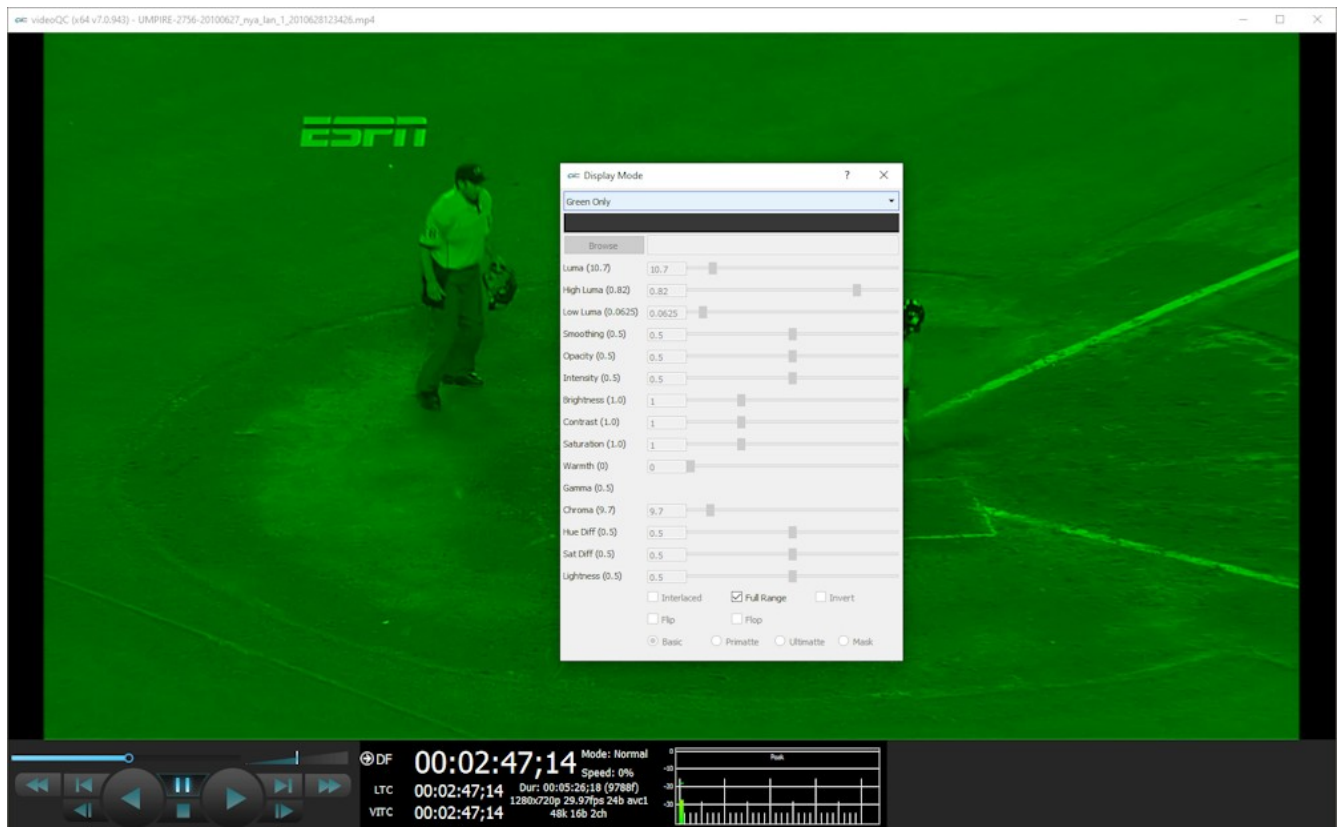
Show only the red channel



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.4 Green Only

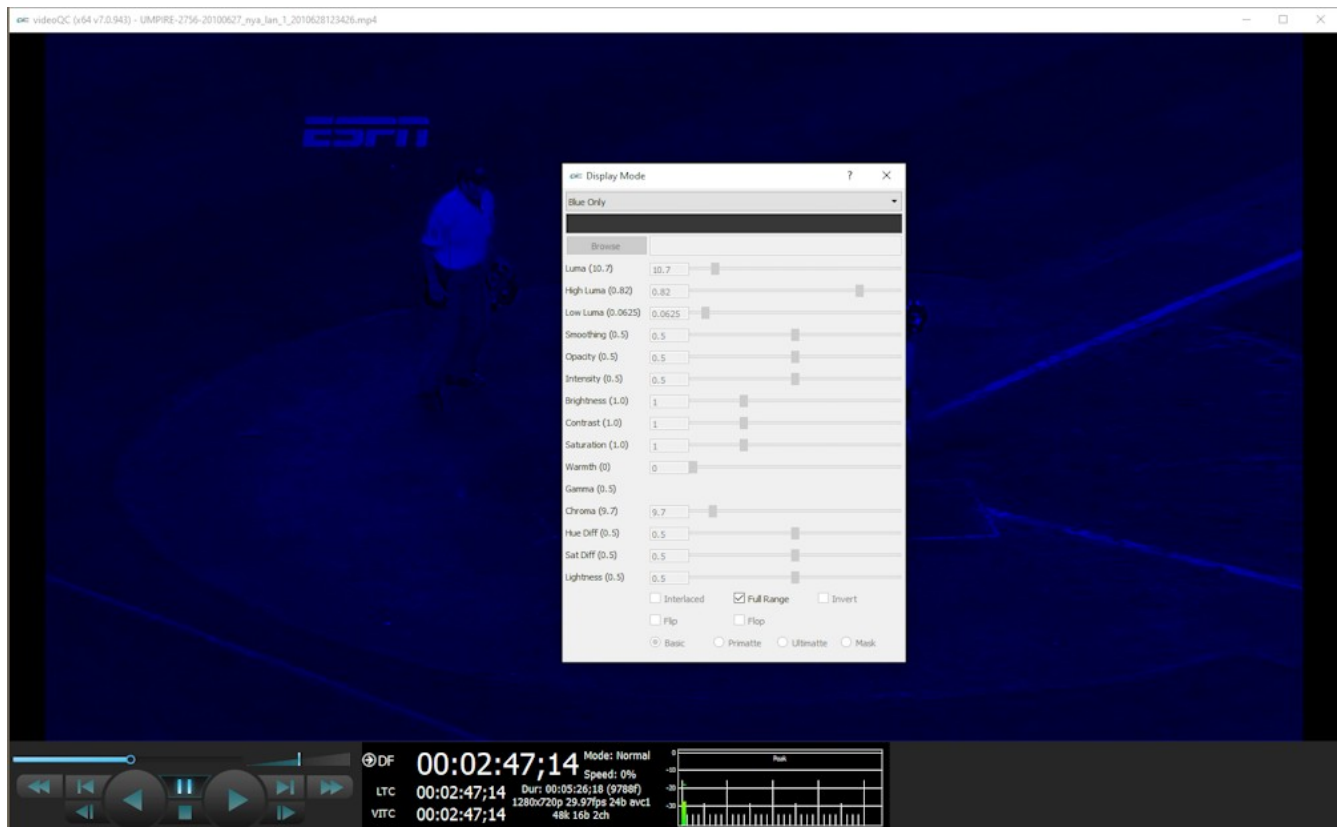
Show only the green channel



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.5 Blue Only

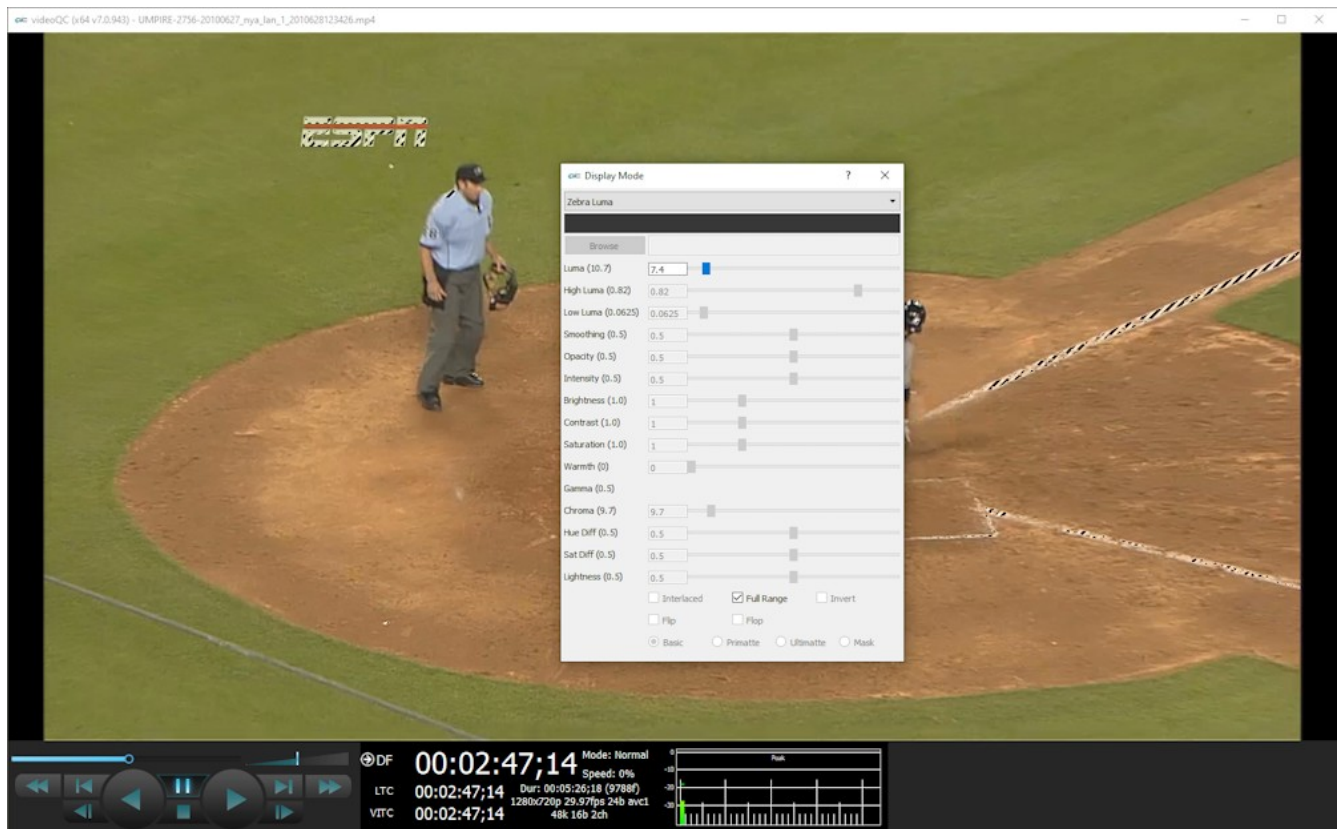
Show only the blue channel



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.6 Zebra Luma

Draw zebra bars where the luma is too high or too low.

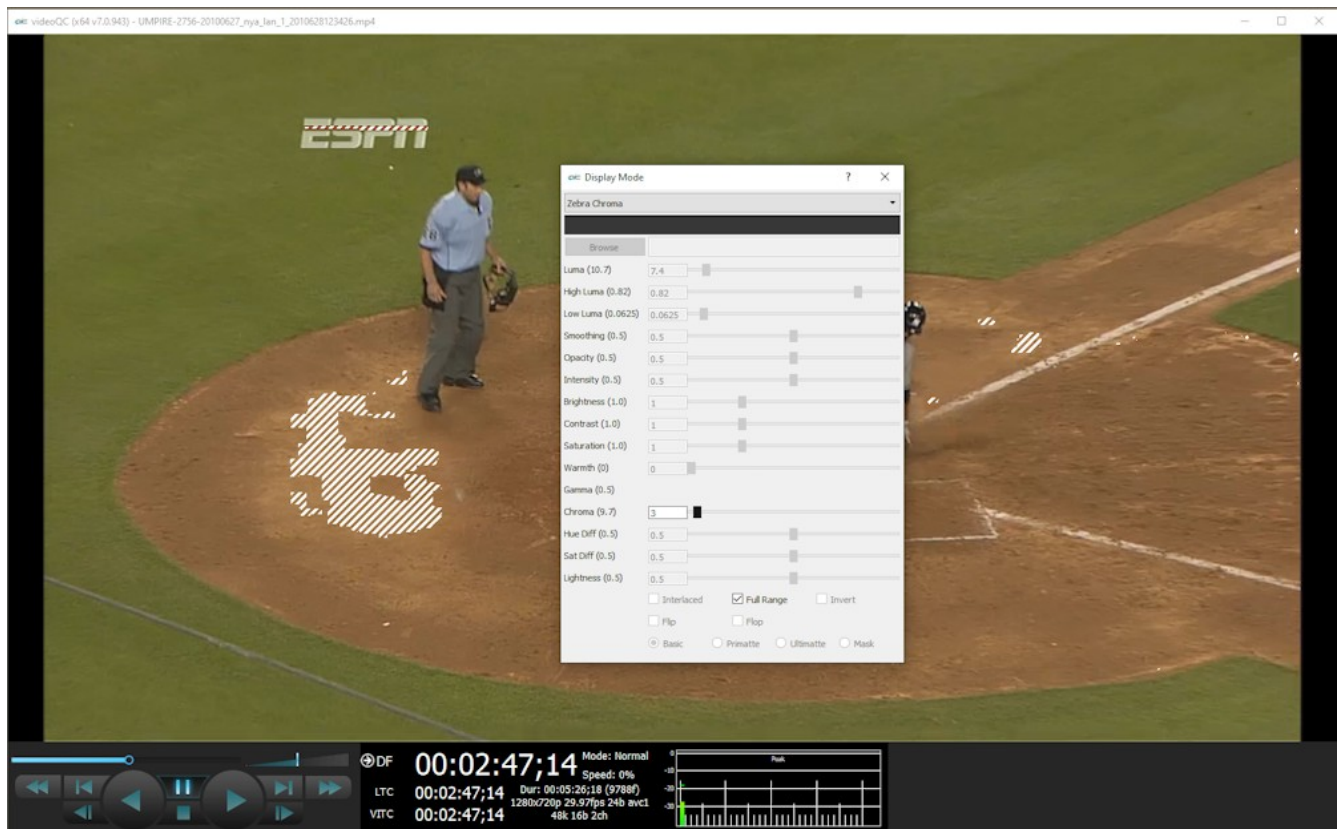


Activates the **Luma** slider, which allows the user to adjust the luma setting. When active, Luma can be adjusted by pulling the slider with the mouse, or using the left and right arrow buttons, in tenths. Click on the slider and use the < and > keys.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.7 Zebra Chroma

Draw zebra bars where the chroma is out of range.

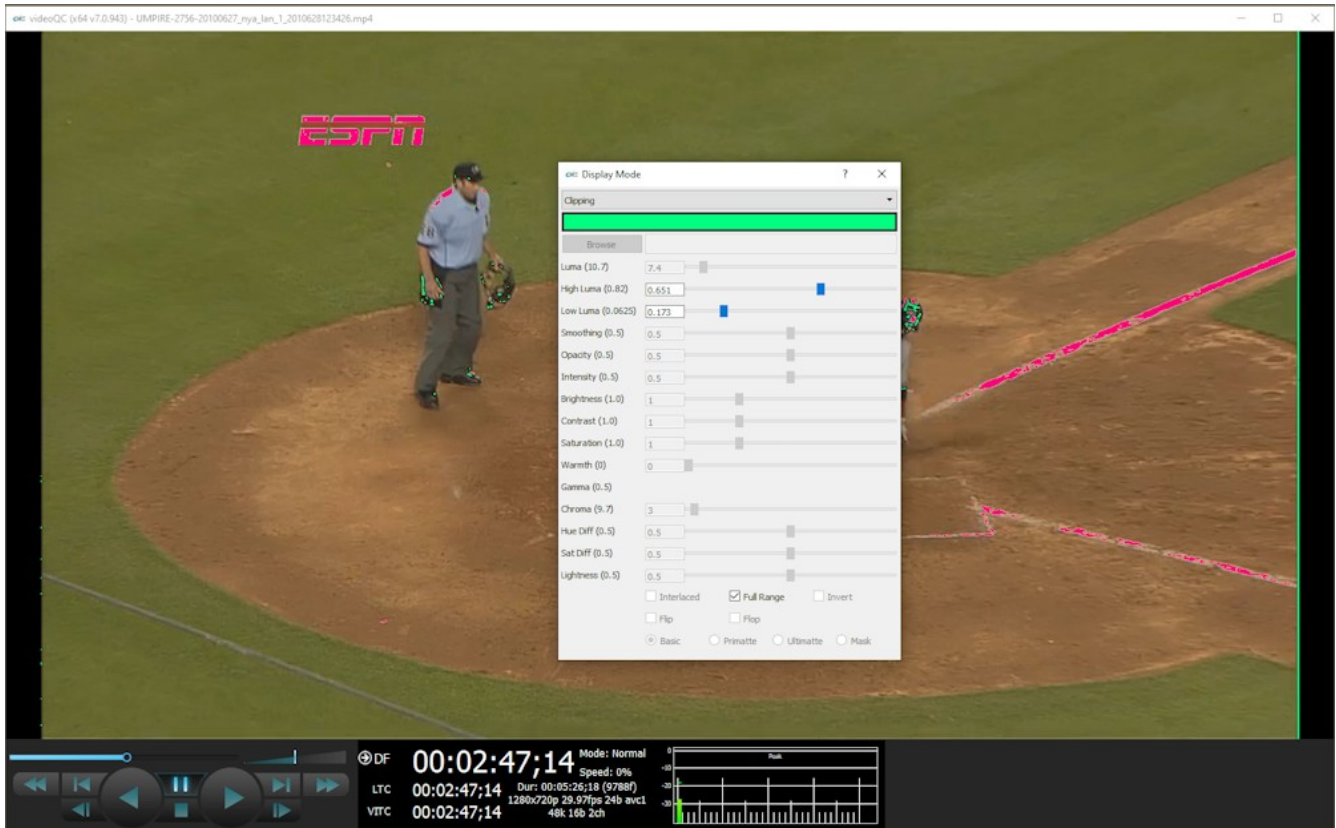


Activates the **Chroma** slider, which allows the user to adjust the chroma setting. When active, Chroma can be adjusted by pulling the slider with the mouse, or using the left and right arrow buttons, in tenths. Click on the slider and use the < and > keys.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.8 Clipping

Draw green anywhere the signal is too low, or red anywhere it is too high. If a signal is too low, the blacks will become muddy and lose detail. If it is too high, the whites will bleach out and lose detail.



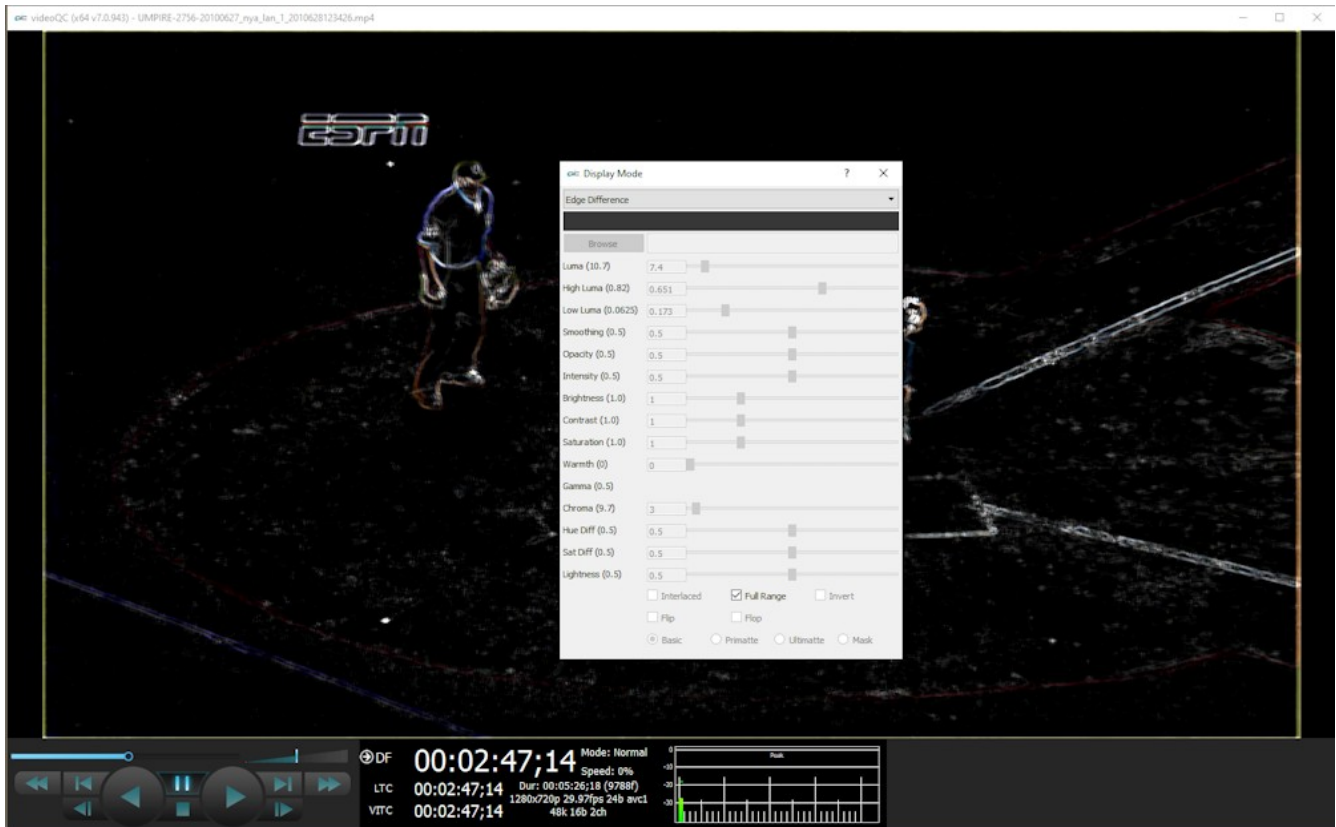
Activates the **Color Picker** (the bar just below the display mode pulldown menu), so the user can choose a primary (too low) color other than green. The secondary (too high) color is automatically generated to be a contrasting color to the primary color. To open the color picker, click on the bar, or press <ENTER>.

Activates the **High Luma** slider and the **Low Luma** slider, allowing the user to adjust these settings. When active, High Luma and Low Luma can be adjusted by pulling the slider with the mouse, or using the left and right arrow buttons, in thousandths. Click on the slider and use the < and > keys.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.9 Edge Difference

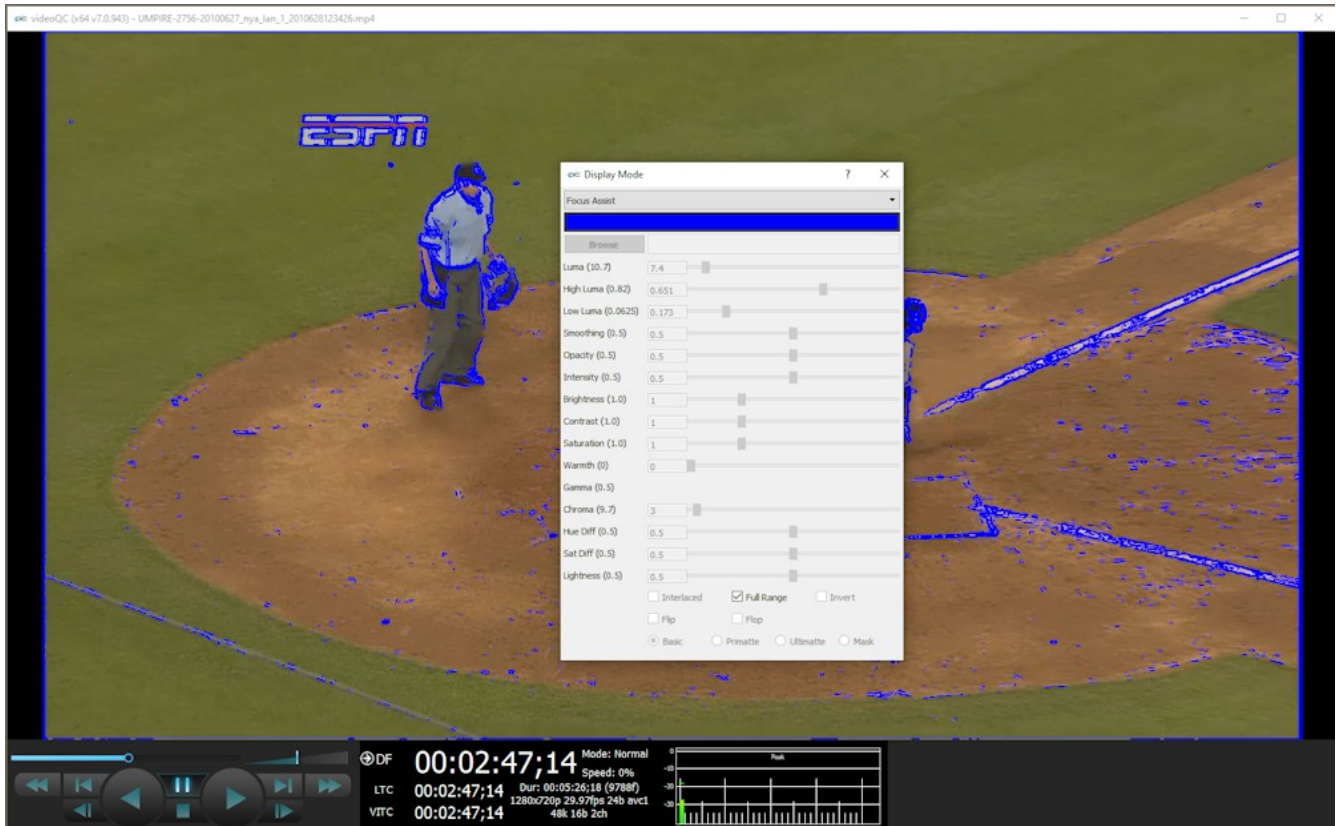
Highlight every edge in the picture, and turn the rest of the picture black.



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.10 Focus Assist

Paint areas of the image that are in focus with the selected color. This setting allows fine tuning of camera focus settings by making the in-focus areas obvious.

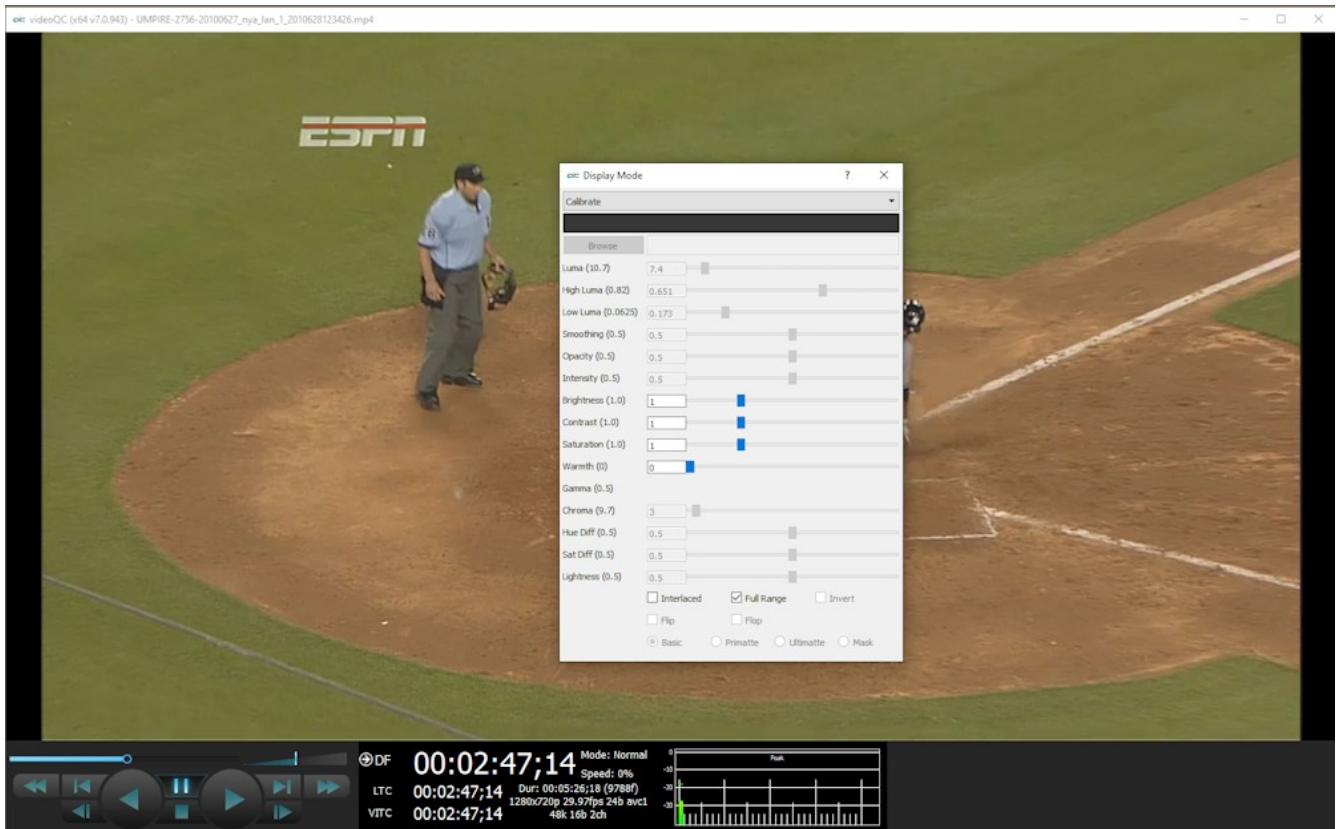


Activates the **Color Picker** (the bar just below the display mode pulldown menu), so the user can choose an appropriate color to contrast from the general hue of the picture. To open the color picker, click on the bar, or press <ENTER>.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.11 Calibrate

Allows the user to calibrate the display settings. Initially this will show the normal picture view. However, as you move the individual sliders, you can adjust the way the image is displayed to optimize the capabilities of your monitor setup.



Activates the **Brightness**, **Contrast**, **Saturation**, **Warmth**, and **Gamma** sliders, allowing the user to adjust these settings. When active, Brightness, Contrast, Saturation, Warmth, and Gamma can be adjusted by pulling the sliders with the mouse, or using the left and right arrow buttons, in thousandths. Click on the slider and use the < and > keys.

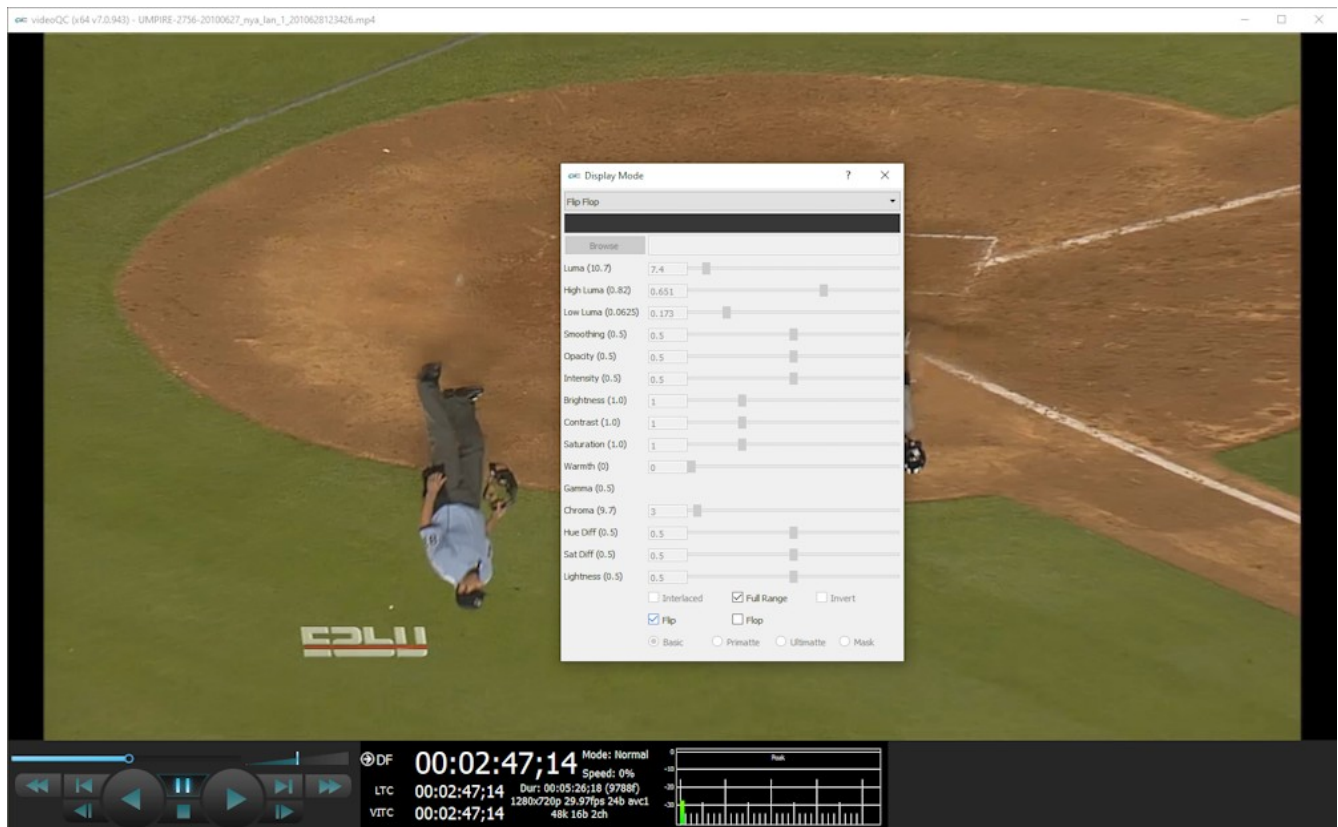
Activates the **Interlaced** checkbox, which allows the user to specify interlaced (checked) or progressive (unchecked) standards to display.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

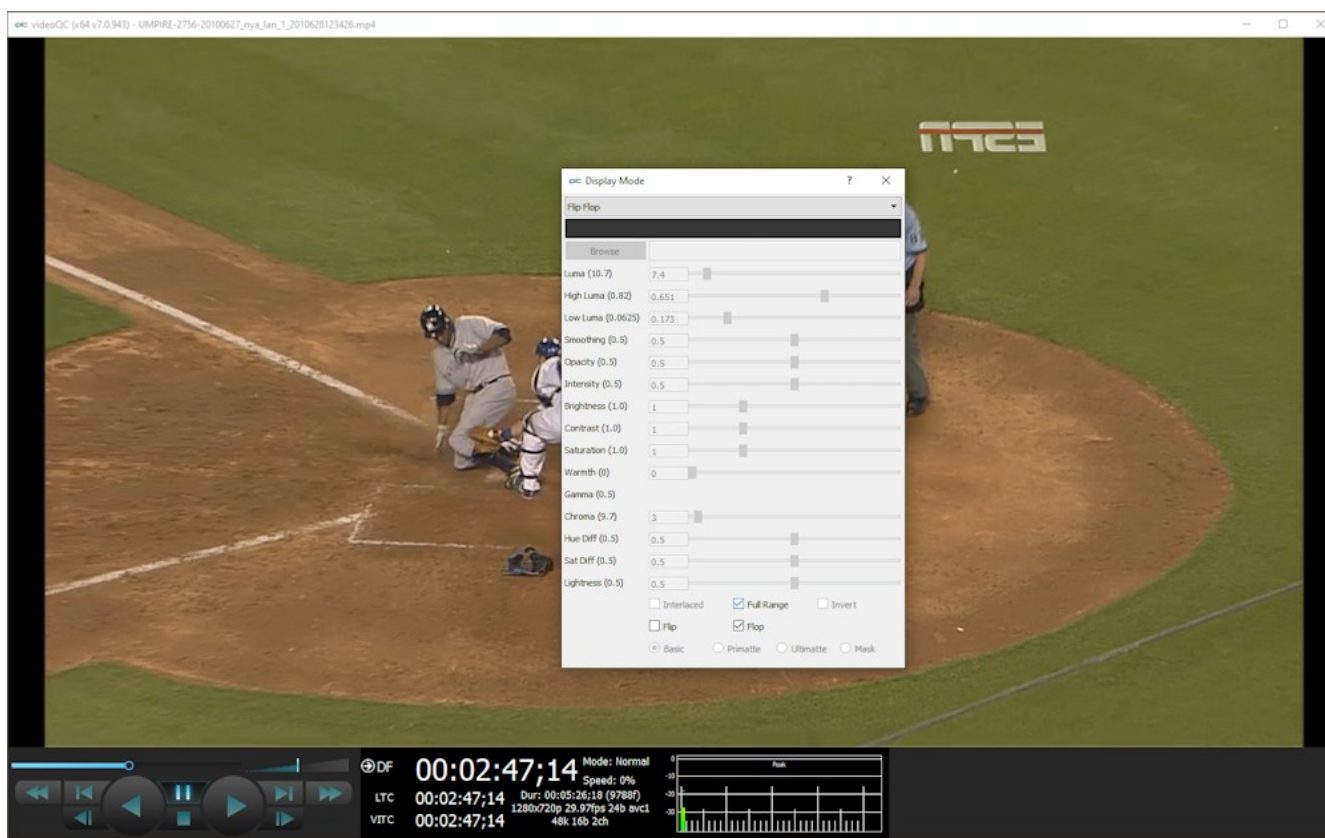
3.3.6.12 *Flip Flop*

Reverse the picture horizontally or vertically.

Activates the **Flip** checkbox, which allows the user to reverse the image top to bottom.



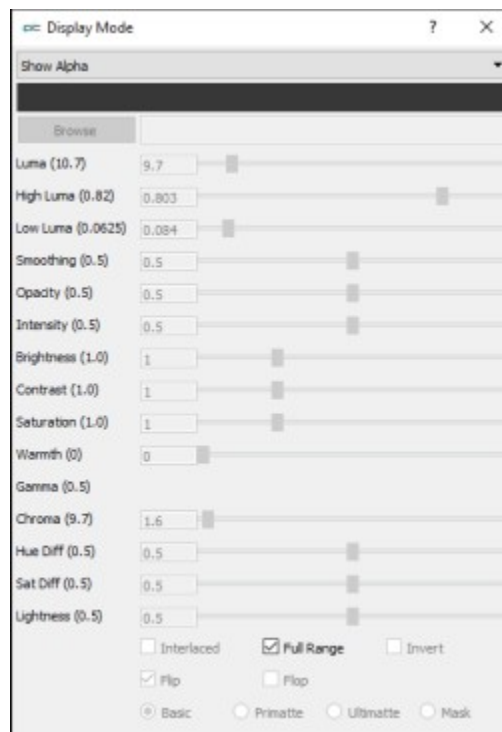
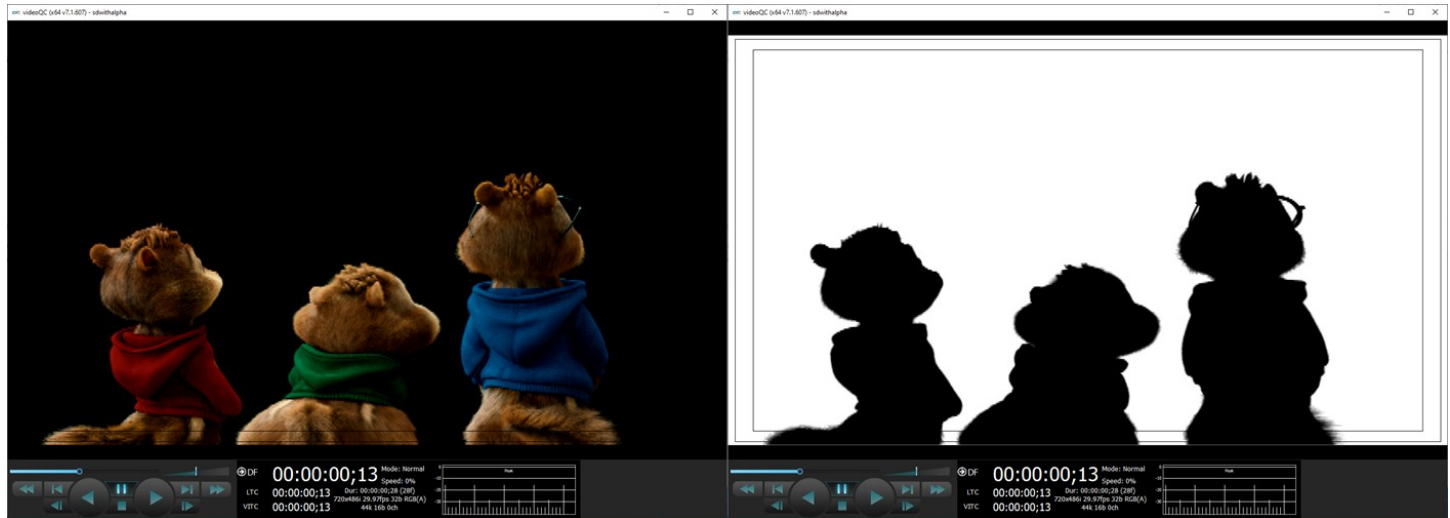
Activates the **Flop** checkbox, which allows the user to reverse the image left to right.



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.13 Show Alpha

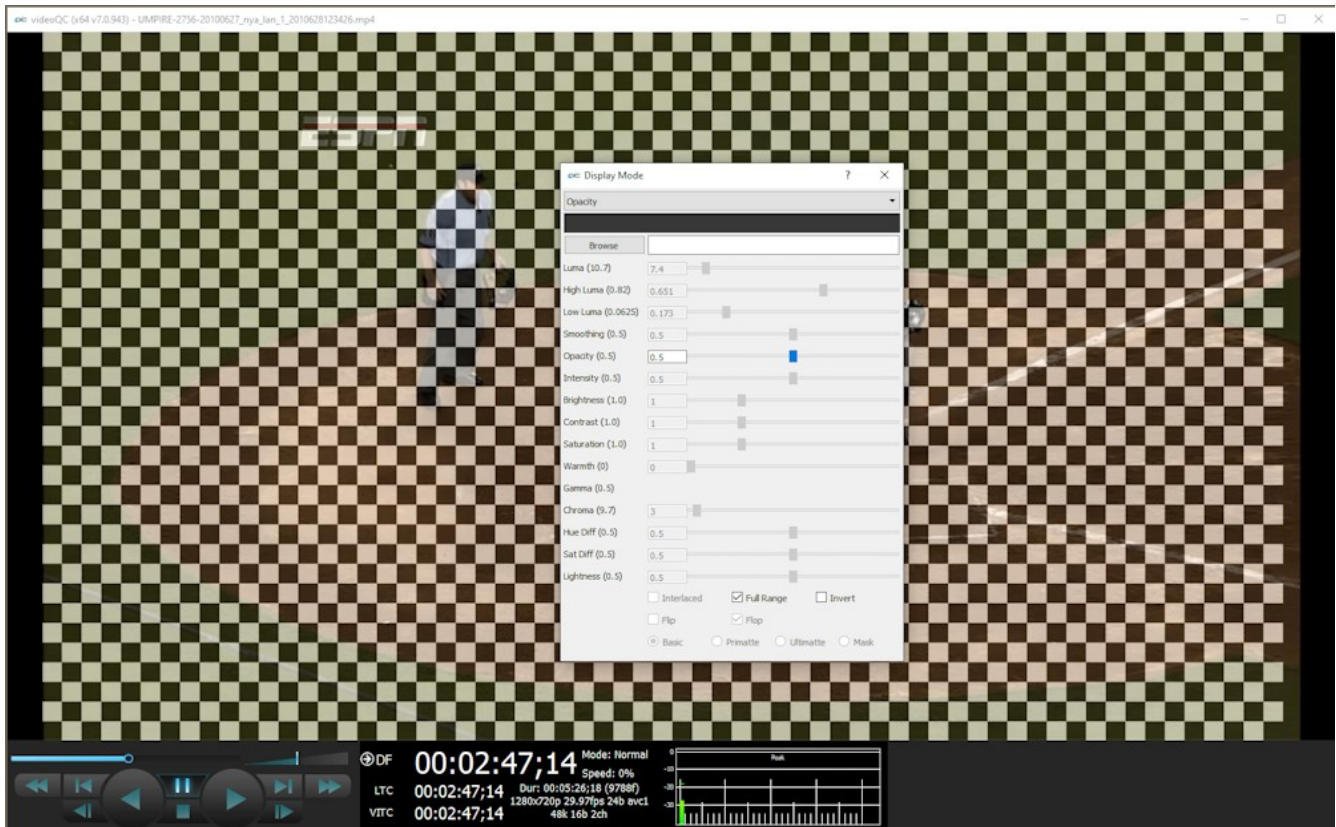
Show the alpha component of an RGBA or YCbCr+Alpha signal. The below example shows an RGBA file, with the scene on the left and the alpha channel display on the right.



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.14 Opacity

Mix the signal with a loaded still image for reference, using a checkerboard mix. This setting can be used to compare two images to match a camera position from an existing shot with a new camera, where additional shots are needed for a scene and a new camera needs to match its position.



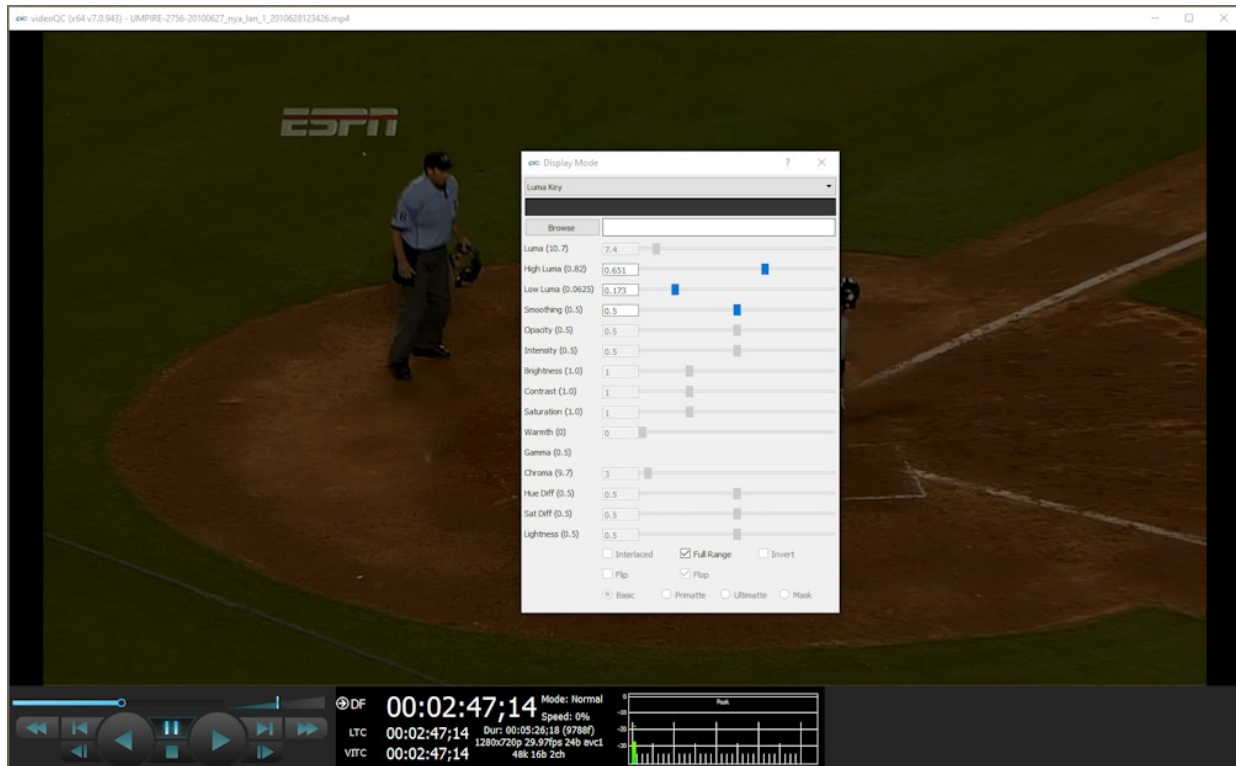
Activates the **Browse** button. This opens a standard browser, which allows the user to load a TGA/PNG/BMP/JPG/v210/YUV to use as the background to compare live video to the existing image.

Activates the **Opacity** slider, and the **Invert** checkbox, which allows the user to set the opacity level, and Invert the display.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.15 Luma Key

Show the video luma keyed over a checkerboard or image.



Activates the **Browse** button. This opens a standard browser, which allows the user to load a TGA/PNG/BMP/JPG/v210/YUV to use as the background for the luma key, instead of the checkerboard.

Activates the **High Luma** slider, so the user can adjust the high luma settings. When active, can be adjusted by pulling the slider, or using the left and right arrow buttons, in thousandths. Click on the slider and use the < and > keys.

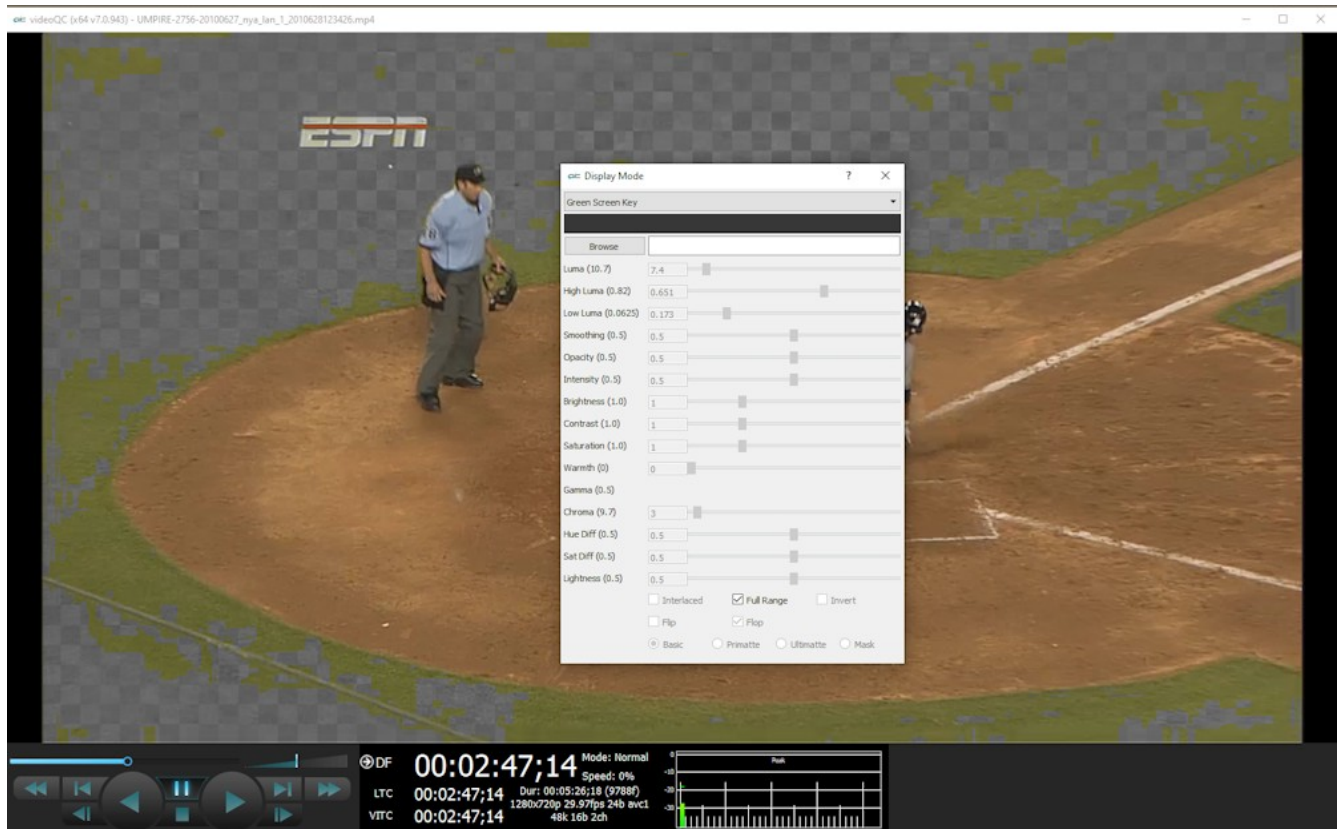
Activates the **Low Luma** slider, so the user can adjust the low luma settings. When active, can be adjusted by pulling the slider, or using the left and right arrow buttons, in thousandths. Click on the slider and use the < and > keys.

Activates the **Smoothing** slider, so the user can adjust the smoothing settings. When active, can be adjusted by pulling the slider, or using the left and right arrow buttons, in thousandths. Click on the slider and use the < and > keys.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.16 Green Screen Key

Show the image green screen keyed over a checkerboard.

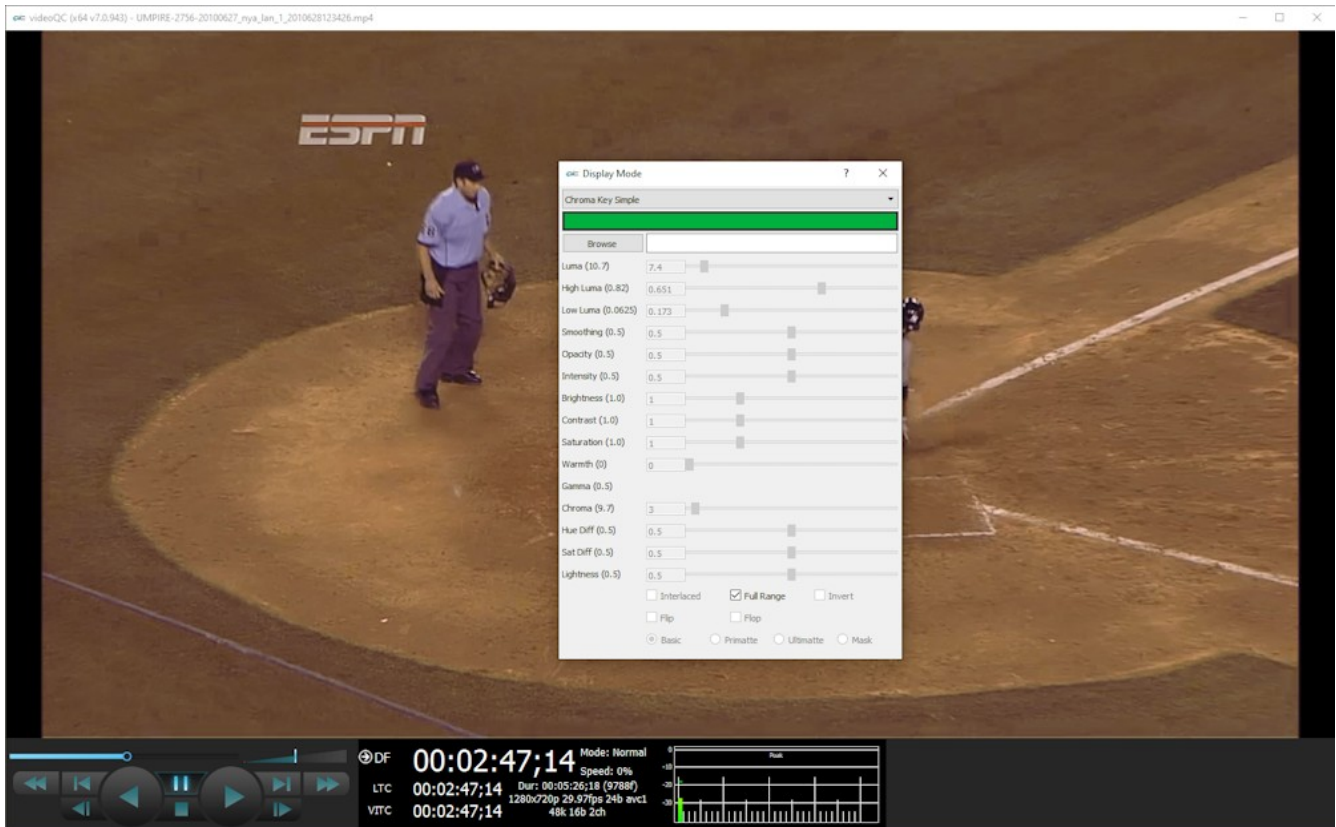


Activates the **Browse** button. This opens a standard browser, which allows the user to load a TGA/PNG/BMP/JPG/v210/YUV to use as the background for the green screen key, instead of the checkerboard.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.17 Chroma Key Despill

Chroma Keys are applied to pass through background for a particular color. Green screen and blue screen are specific chroma keys. The Despill applies a mix to the pixels at the edge of the color and any objects in the scene.



Activates the **Color Picker** (the bar just below the display mode pulldown menu), so the user can fine tune the green, or any color used for the chroma key. To open the color picker, click on the bar, or press <ENTER>.

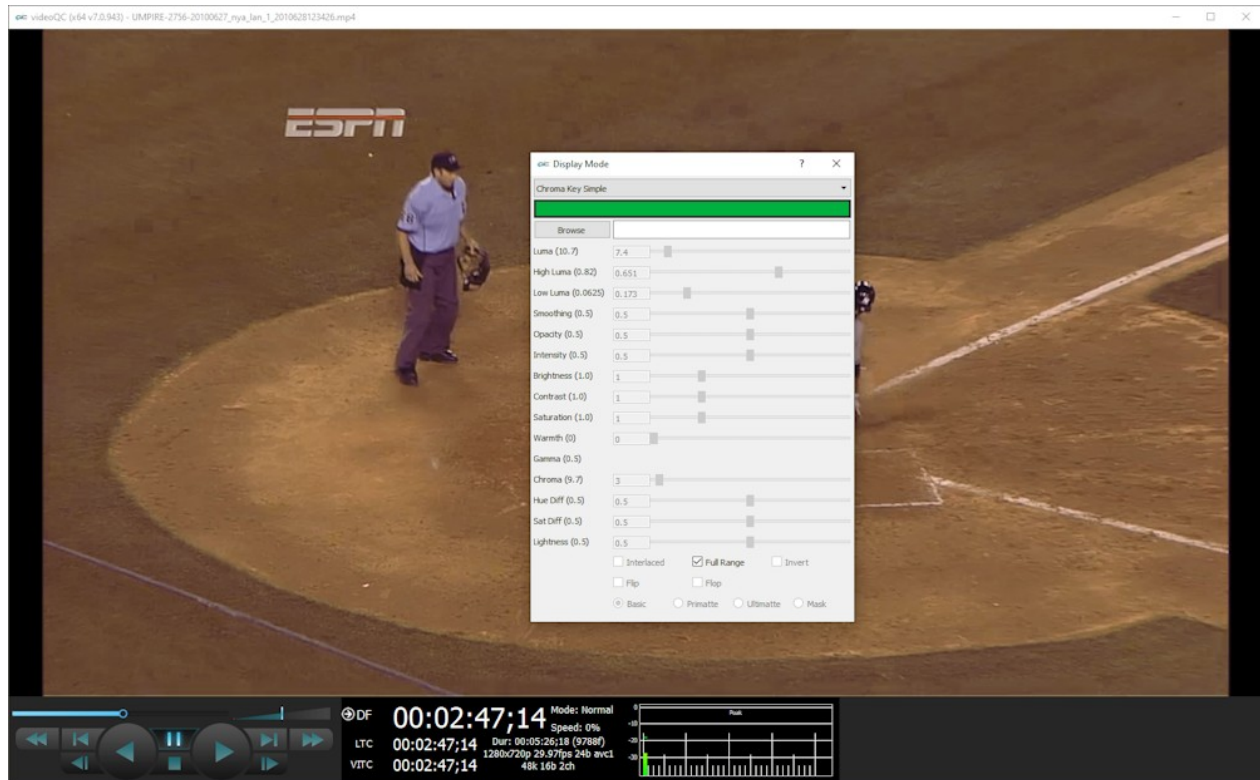
Activates the **Browse** button. This opens a standard browser, which allows the user to load a TGA/PNG/BMP/JPG/v210/YUV to use as the background for the chroma key despill, instead of the checkerboard.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

Activates the **Basic/Primatte/Ultimeatte/Mask** radio buttons, which are chroma key despill types/settings. The user may select between these 4 settings using the radio buttons – when one is selected, the rest are automatically deselected.

3.3.6.18 Chroma Key Simple

Show the image green screened over a checkerboard or image. Chroma Keys are applied to pass through background for a particular color. Green screen and blue screen are specific chroma keys. The Simple looks at each pixel.



Activates the **Color Picker** (the bar just below the display mode pulldown menu), so the user can choose a primary (too low) color other than green. The secondary (too high) color is automatically generated to be a contrasting color to the primary color. To open the color picker, click on the bar, or press <ENTER>.

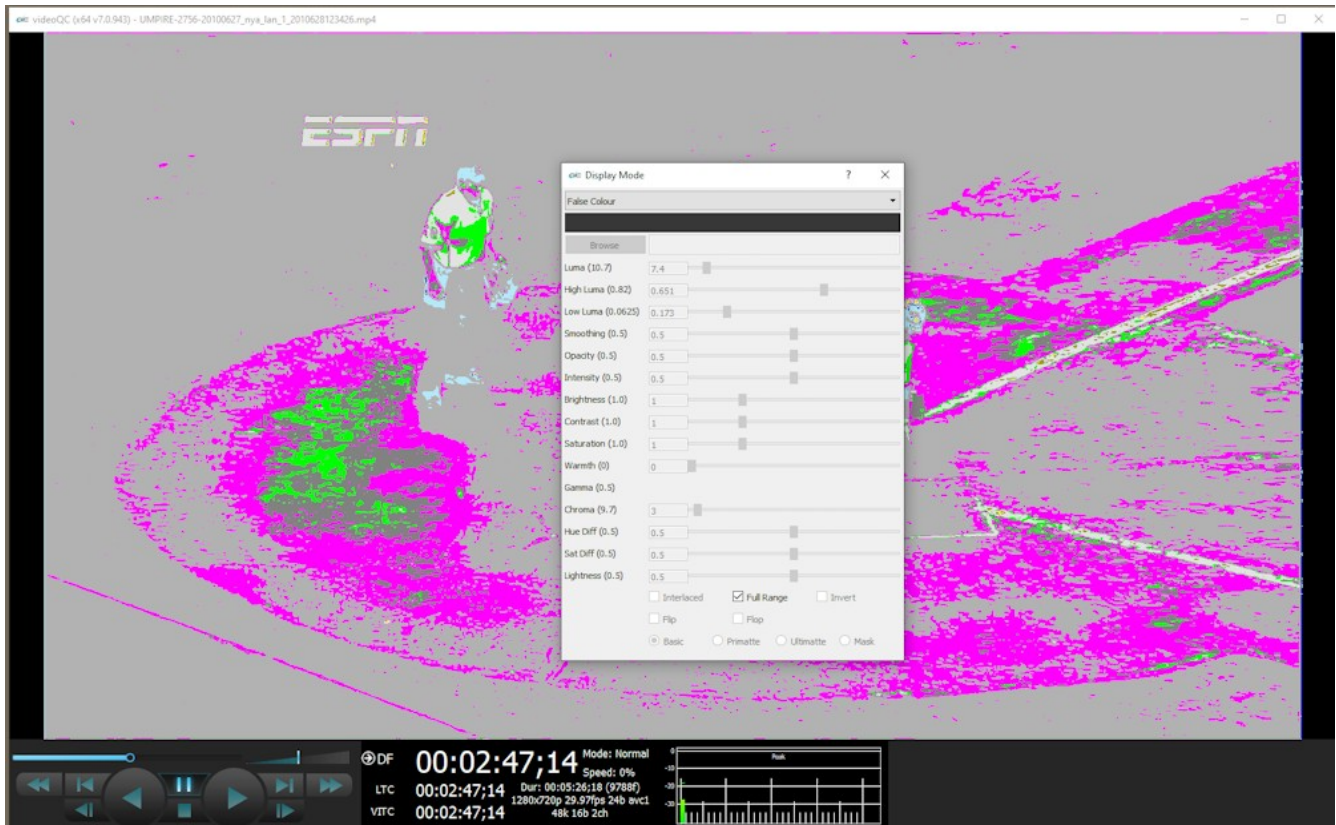
Activates the **Color Picker** (the bar just below the display mode pulldown menu), so the user can fine tune the green, or any color used for the chroma key.

Activates the **Browse** button. This opens a standard browser, which allows the user to navigate to a file/image to use for the key.

The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

3.3.6.19 False Colour

Show each exposure level as a color. Here is an example:



The **Full Range** checkbox may be checked (use Full video range) or unchecked (use the standard SMPTE range).

Here are the IRE Breakpoints in False Colour display mode:

0 to 2	Red		Too low
2 to 10	Blue		Underexposed
10 to 20	Light Blue		
20 to 42	60% Gray		
42 to 48	Magenta		
48 to 52	70% Gray		
52 to 58	Bright Green		
58 to 78	80% Gray		Skin Tones
78 to 84	Dark Yellow		
84 to 94	Bright Yellow		
94 to 99	Orange		Overexposed
>99	Red		Too high

The following controls on the **Monitor Settings** window are reserved for future development:

Intensity slider – reserved for future development.

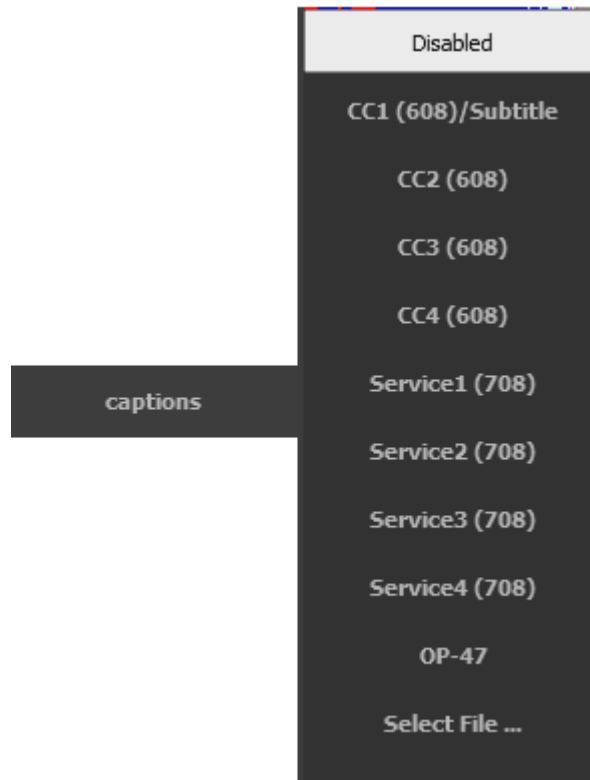
Hue Diff slider – reserved for future development.

Sat Diff slider – reserved for future development.

Lightness slider – reserved for future development.

3.3.7 Captions

Opens the Captions pullout menu, to select between the available types of closed captions, or to browse to a closed caption file to open. Whichever closed caption type is selected will be rendered on the VGA display, if it is available.



Disabled – select to turn off closed caption display

CC1 (608)/Subtitle – this is either the first cc channel in SD, the first compatibility byte channel in HD 708, or the subtitle file, if it has been loaded

CC2 (608) – either the second channel in SD or 708 compatibility bytes

CC3 (608) – either the third channel in SD or 708 compatibility bytes

CC4 (608) – either the fourth channel in SD or 708 compatibility bytes

Service1 (708) – the first service in 708

Service2 (708) – the second service in 708

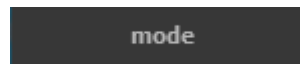
Service3 (708) – the third service in 708

Service4 (708) – the fourth service in 708

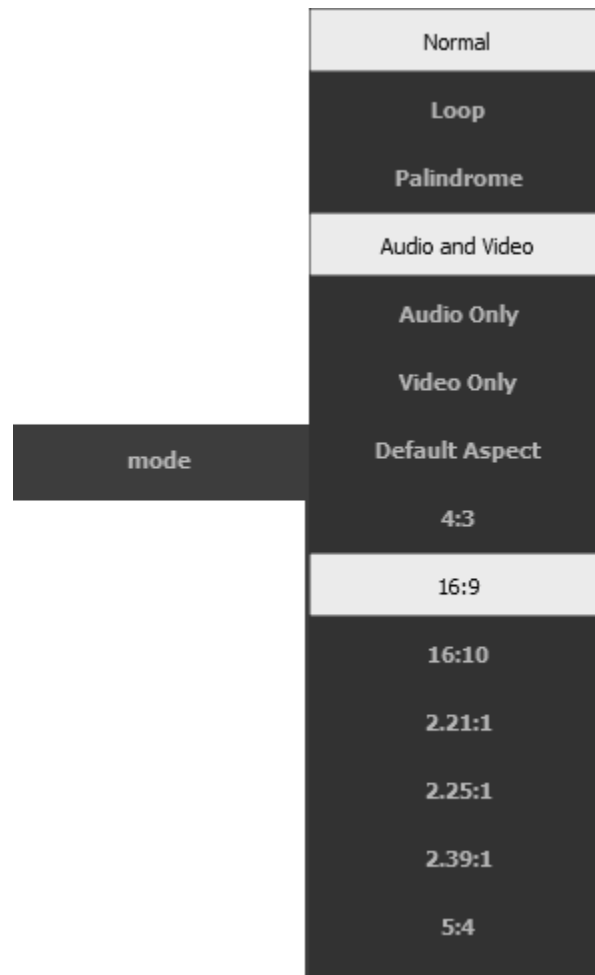
OP-47 – Display OP-47 teletext

Select File... - select a subtitle file to be displayed with the video playback

3.3.8 Mode



Opens the **Mode** pullout window, to select between the available types of playback mode. Choices include normal, loop, palindrome, audio and video, audio only, and video only. The aspect ratio can also be reset here.



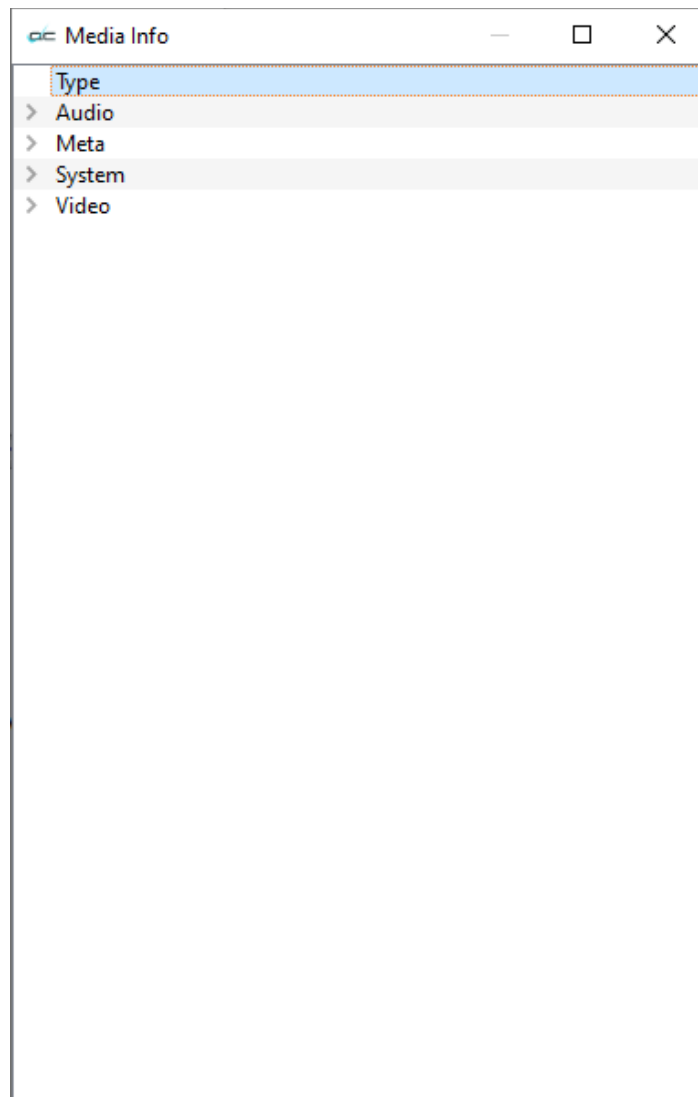
- **Normal** – standard playback
- **Loop** – continue playing from the beginning when the end is reached
- **Palindrome** – play forwards from the start and then backwards from the end
- **Audio and Video** – play both audio and video
- **Audio Only** – play the audio, but not the video
- **Video Only** – play the video, but not the audio
- **Default Aspect** – use the default aspect ratio

- **4:3** – display in 4:3 (1.33:1) SD aspect ratio
- **16:9** – display in 16:9 HDTV Full HD and SD TV aspect ratio
- **16:10** – display in 16:10 HDTV and widescreen SDTV aspect ratio
- **2.21:1** – display in 2.21:1 cinema aspect ratio
- **2.25:1** – display in 2.25:1 cinema aspect ratio
- **2.39:1** – display in 2.39:1 anamorphic aspect ratio
- **5:4** - display in 5:4 (large format computer display) aspect ratio

3.3.9 Media Info

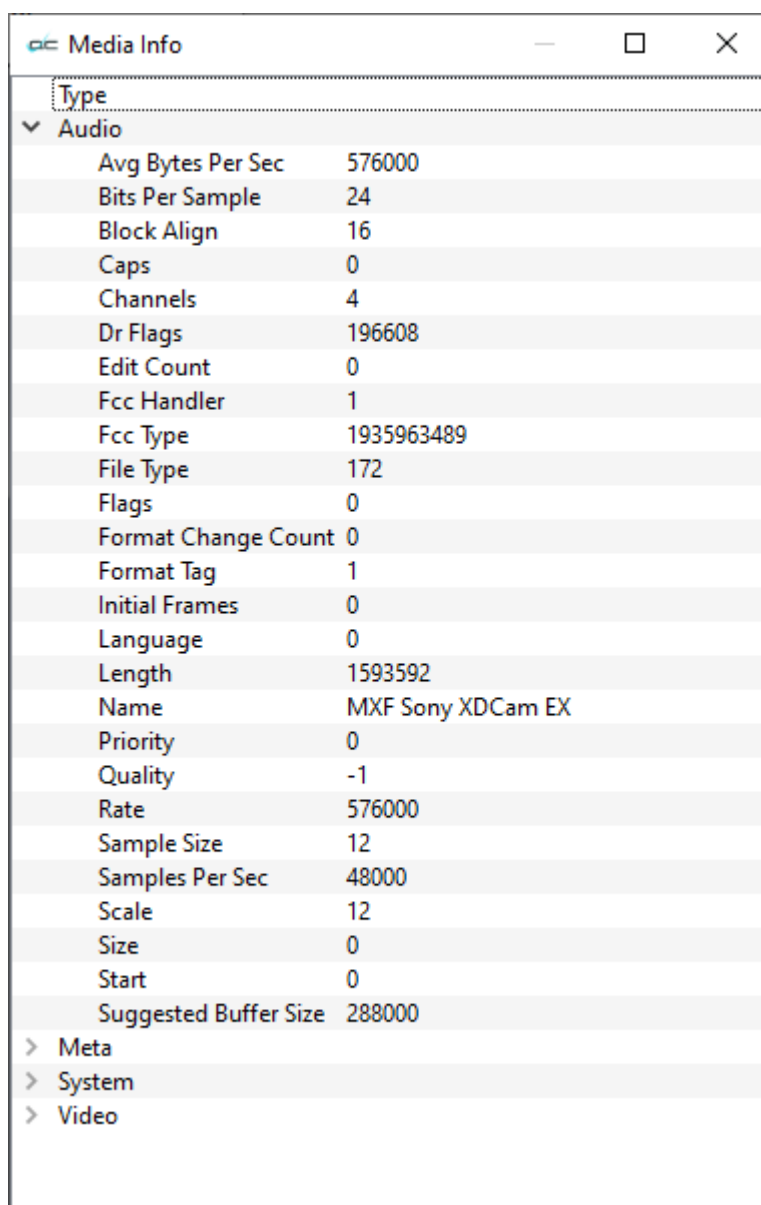
media info

Media Info button - opens the Track Info window, which displays information about the track's audio, metadata, system details, and video. Note: the metadata elements described below may not be present in all files, and there may be metadata elements that are not mentioned in the below list of metadata elements.



3.3.9.1 Media Info - Audio

Clicking on the Audio Tab reveals the information associated with the audio in the selected media file.



The screenshot shows a window titled "Media Info" with a standard Windows-style title bar (minimize, maximize, close buttons). The window contains a tree view on the left with "Audio" selected and expanded. The main area displays a list of audio properties and their values.

Type	
▼ Audio	
Avg Bytes Per Sec	576000
Bits Per Sample	24
Block Align	16
Caps	0
Channels	4
Dr Flags	196608
Edit Count	0
Fcc Handler	1
Fcc Type	1935963489
File Type	172
Flags	0
Format Change Count	0
Format Tag	1
Initial Frames	0
Language	0
Length	1593592
Name	MXF Sony XDCam EX
Priority	0
Quality	-1
Rate	576000
Sample Size	12
Samples Per Sec	48000
Scale	12
Size	0
Start	0
Suggested Buffer Size	288000
> Meta	
> System	
> Video	

Avg Bytes Per Sec - the average number of bytes per second

Bits Per Sample - number of bits per audio sample

Block Align - Size in bytes of a sample set (all channels in that stream) of audio

Caps - Capabilities

Channels - number of audio channels

Dr Flags - Internal Drastic flags

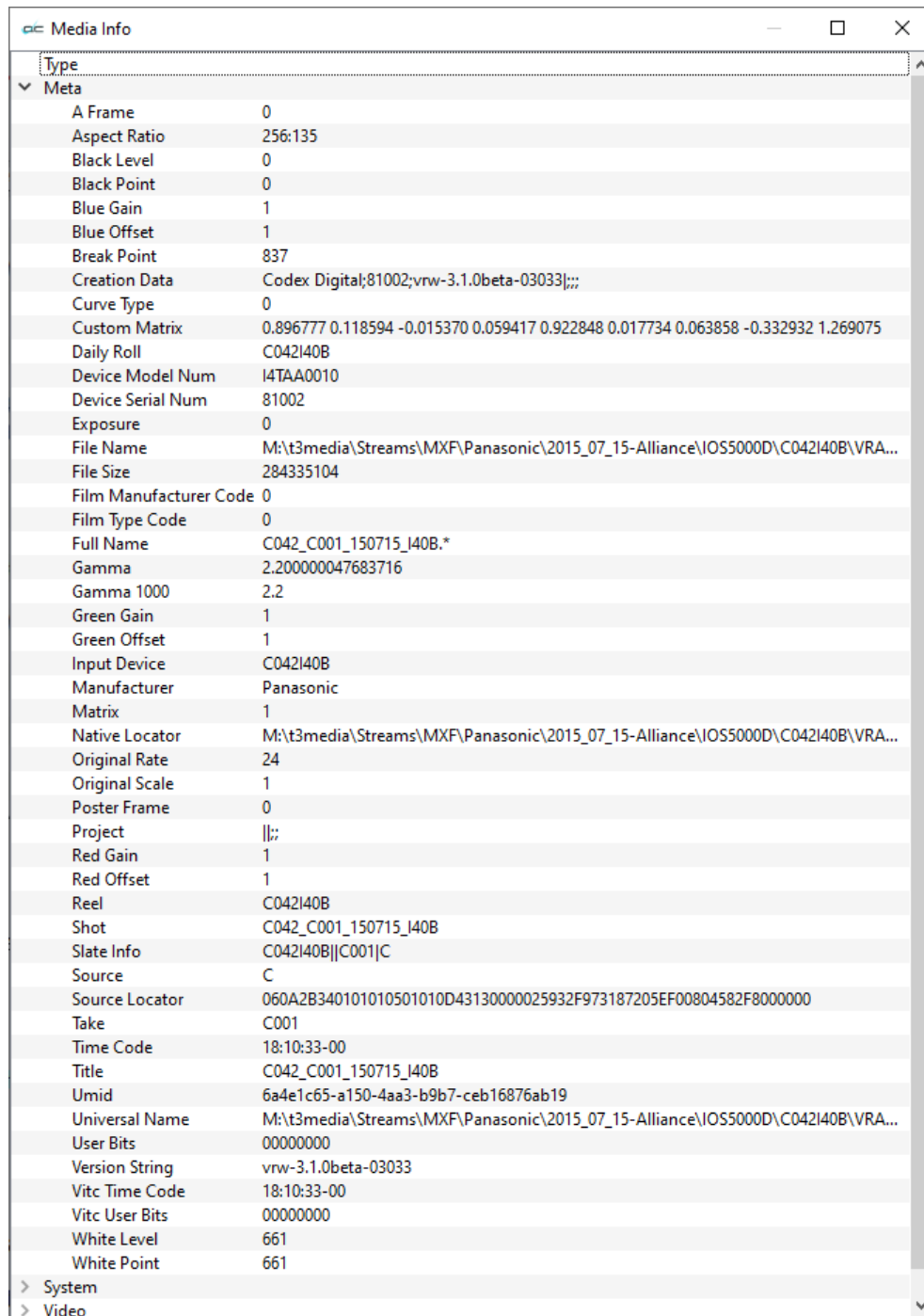
Edit Count - Number of edits that have been performed on the file

Fcc Handler - Handler used for the FCC type

Fcc Type - Type of Audio/Video FourCC Compression Code
File Type - Name for the Drastic file type
Flags - Flags setting
Format Change Count - Number of times the file's format has been changed
Format Tag – Number used to tag the type of audio format; 1 if PCM, other for various compressed formats
Initial Frames - Amount of audio in the file before video commences
Language - Language setting
Length – Number of audio samples in the file
Name - Name of the reader for this file type
Priority - Priority of the selected video or audio stream in relation to other streams in the file
Quality - Quality used by the compressor
Rate - Frame rate setting
Sample Size - Size, in unsigned chars, of a single data sample
Samples Per Sec - Samples per second in frequency (48000, 44100, etc.)
Scale - Scale of the frame
Size - Size of sample in bytes, but is not set generally
Start - Delay in units for this stream to start before video commences
Suggested Buffer Size - Recommended buffer size
Size - The size of any extra info on the audio compression
Format Tag - Windows format type (if applicable)
Start - Delay in units for this stream to start before video commences
Samples Per Sec - number of samples per second

3.3.9.2 Media Info - Meta

Clicking on the Meta Tab reveals the metadata information associated with the selected media file.



Type	
▼ Meta	
A Frame	0
Aspect Ratio	256:135
Black Level	0
Black Point	0
Blue Gain	1
Blue Offset	1
Break Point	837
Creation Data	Codex Digital;81002;vrw-3.1.0beta-03033 ;;
Curve Type	0
Custom Matrix	0.896777 0.118594 -0.015370 0.059417 0.922848 0.017734 0.063858 -0.332932 1.269075
Daily Roll	C042I40B
Device Model Num	I4TAA0010
Device Serial Num	81002
Exposure	0
File Name	M:\t3media\Streams\MXF\Panasonic\2015_07_15-Alliance\IOS5000D\C042I40B\VRA...
File Size	284335104
Film Manufacturer Code	0
Film Type Code	0
Full Name	C042_C001_150715_I40B.*
Gamma	2.200000047683716
Gamma 1000	2.2
Green Gain	1
Green Offset	1
Input Device	C042I40B
Manufacturer	Panasonic
Matrix	1
Native Locator	M:\t3media\Streams\MXF\Panasonic\2015_07_15-Alliance\IOS5000D\C042I40B\VRA...
Original Rate	24
Original Scale	1
Poster Frame	0
Project	;
Red Gain	1
Red Offset	1
Reel	C042I40B
Shot	C042_C001_150715_I40B
Slate Info	C042I40B C001 C
Source	C
Source Locator	060A2B340101010501010D43130000025932F973187205EF00804582F8000000
Take	C001
Time Code	18:10:33-00
Title	C042_C001_150715_I40B
Umid	6a4e1c65-a150-4aa3-b9b7-ceb16876ab19
Universal Name	M:\t3media\Streams\MXF\Panasonic\2015_07_15-Alliance\IOS5000D\C042I40B\VRA...
User Bits	00000000
Version String	vrw-3.1.0beta-03033
Vitc Time Code	18:10:33-00
Vitc User Bits	00000000
White Level	661
White Point	661
> System	
> Video	

A Frame - A frame indicator for 3/2 cadence

Aspect Ratio - Video aspect ratio

Black Level – recommended black level

Black Point – break point for black level
Blue Gain – recommended blue gain level
Blue Offset – recommended blue offset
Break Point – break point for curve
Conversions – number of times the file has been converted/transcoded
Creation Data – when the file was created
Curve Type – type of LUT applied
Custom Matrix – custom matrix value
Daily Roll - name of the Daily Roll (edited day's run) associated with the content
Device Model Num – input device model number
Device Serial Num – input device serial number
Exposure – recommended exposure level
File Name - Network path plus file name plus file extension
File Size – file size in bytes
Film Manufacturer Code -
Film Type Code – the code used to describe type of film or media used
Full Name - Content's full name
Gamma – the level of any gamma correction that has been applied
Gamma 1000 – gamma of media times 1000
Green Gain – recommended green gain level
Green Offset – recommended green offset
Input Device – for CIN/DPX, the Telecine name
Ltc Time Code Type - LTC time code type for the counter/ctl
Manufacturer – manufacturer name
Matrix – the video matrix setting, if required
Native Locator - Native path plus file name plus file extension
Original Rate - Original rate/scale
Original Scale - Original rate/scale
Poster Frame - Frame from which a thumbnail is created for the content
Project – name of the project
Red Gain – recommended red gain level
Red Offset – recommended red offset
Reel – reel name from the content's source reel/tape
Slate Info – slate information from the shot/take
Source - Source of the file, whether VTR, Betacam, Satellite etc.
Source Locator - System locator for file source, in UniversalLocator, NativeLocator, FileName order
Take – take number or identifier
Time Code - Starting time code of the file
Time Code Type - Time code type for the counter/ctl
Title - title of the content
Total Length – length of file in frames
Total Streams – total number of streams

Umid - SMPTE Universal Media Identifier

Unique ID – unique identifier

Universal Name - Network path plus file name plus file extension

User Bits - 32 bit DWORD of user bits stored in the file

Version String – content version in human readable form

Vitc Time Code - Vertical Interval Time Code

Vitc Time Code Type - VITC time code type for the counter/ctl

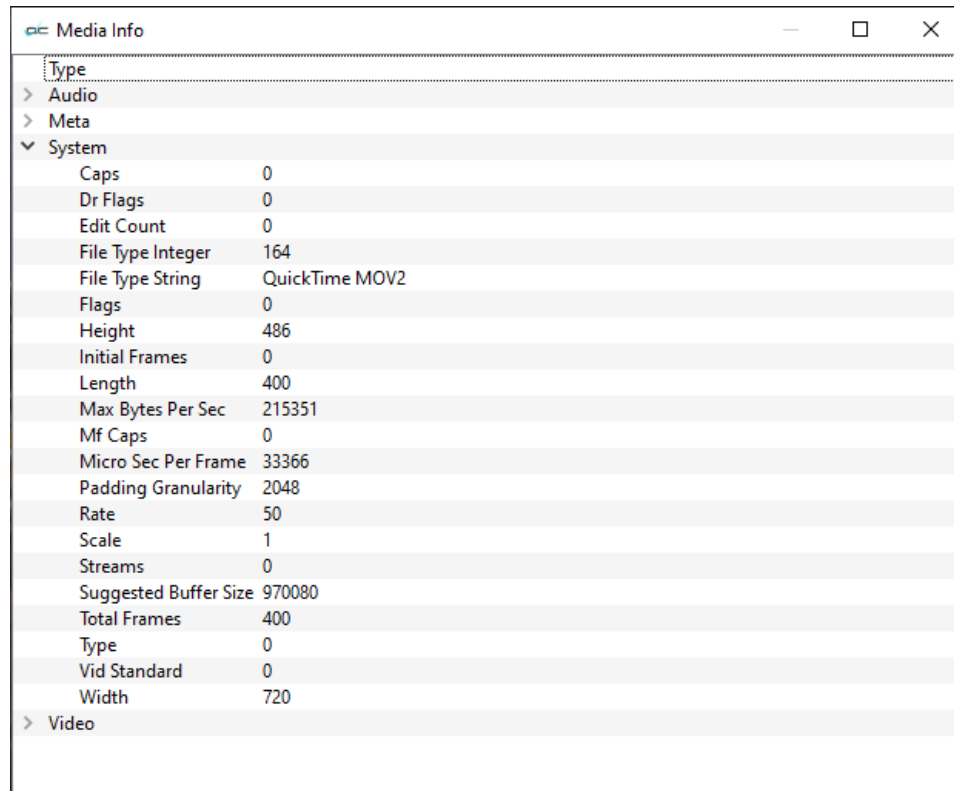
Vitc User Bits - Vertical Interval User Bits

White Level – recommended white level

White Point – white point level

3.3.9.3 Media Info - System

Clicking on the System Tab reveals the information associated with the system in the selected media file.



The screenshot shows a window titled "Media Info" with a tree view on the left and a list of system properties on the right. The tree view has "Type", "Audio", "Meta", and "System" (expanded). The list of properties includes Caps, Dr Flags, Edit Count, File Type Integer, File Type String, Flags, Height, Initial Frames, Length, Max Bytes Per Sec, Mf Caps, Micro Sec Per Frame, Padding Granularity, Rate, Scale, Streams, Suggested Buffer Size, Total Frames, Type, Vid Standard, and Width.

System	
Caps	0
Dr Flags	0
Edit Count	0
File Type Integer	164
File Type String	QuickTime MOV2
Flags	0
Height	486
Initial Frames	0
Length	400
Max Bytes Per Sec	215351
Mf Caps	0
Micro Sec Per Frame	33366
Padding Granularity	2048
Rate	50
Scale	1
Streams	0
Suggested Buffer Size	970080
Total Frames	400
Type	0
Vid Standard	0
Width	720

Caps - Capabilities

Dr Flags - Internal Drastic flags

Edit Count - Number of edits that have been performed on the file

File Type Integer - Numeric value of the file type reader

File Type String - Name of the file kind/type in human readable form

Flags - File flags – internal

Height - Height of video frame in pixels

Initial Frames - Amount of audio in the file before video commences

Length - Length of the video stream in frames

Max Bytes Per Sec - the maximum number of bytes per second

Mf Caps - MediaFile capabilities

Micro Sec Per Frame - number of microseconds per video frame

Padding Granularity - Minimum device block size - only important for tapes like LTO

Rate - Frame rate setting

Scale - Scale of the frame

Streams - Total number of streams

Suggested Buffer Size - Recommended buffer size

Total Frames - total number of video frames in the file

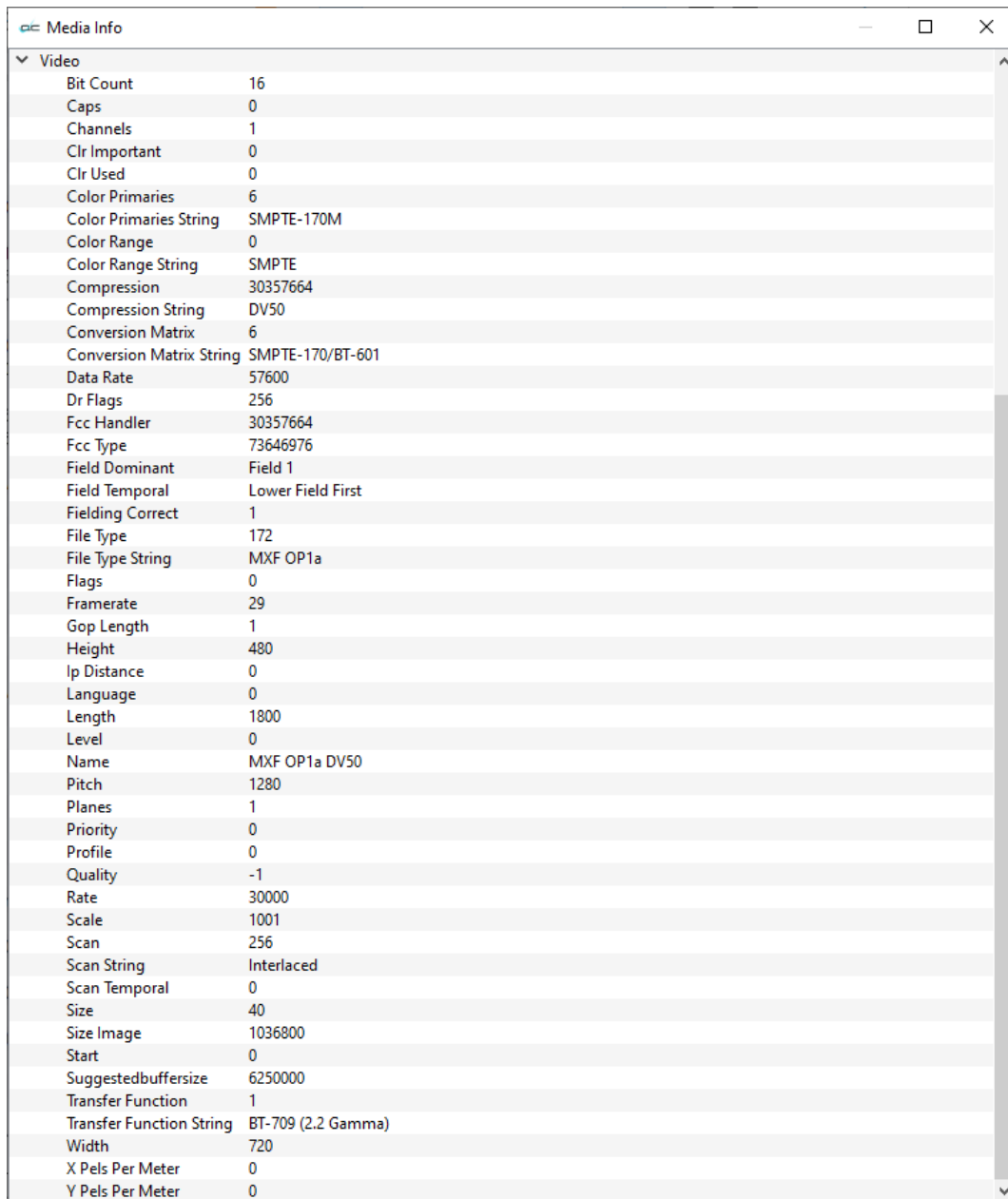
Type - Our internal numeric value for the file reader

Vid Standard - Video standard value (numeric representation of standards like 1080i29.97 for comparison)

Width - Width of video frame in pixels

3.3.9.4 Media Info - Video

Clicking on the Video Tab reveals the information associated with the video in the selected media file.



The screenshot shows a window titled "Media Info" with a "Video" tab selected. The window displays a list of video metadata fields and their values. The fields are listed in two columns, with the field name on the left and the value on the right. The values are as follows:

Bit Count	16
Caps	0
Channels	1
Clr Important	0
Clr Used	0
Color Primaries	6
Color Primaries String	SMPTE-170M
Color Range	0
Color Range String	SMPTE
Compression	30357664
Compression String	DV50
Conversion Matrix	6
Conversion Matrix String	SMPTE-170/BT-601
Data Rate	57600
Dr Flags	256
Fcc Handler	30357664
Fcc Type	73646976
Field Dominant	Field 1
Field Temporal	Lower Field First
Fielding Correct	1
File Type	172
File Type String	MXF OP1a
Flags	0
Framerate	29
Gop Length	1
Height	480
Ip Distance	0
Language	0
Length	1800
Level	0
Name	MXF OP1a DV50
Pitch	1280
Planes	1
Priority	0
Profile	0
Quality	-1
Rate	30000
Scale	1001
Scan	256
Scan String	Interlaced
Scan Temporal	0
Size	40
Size Image	1036800
Start	0
Suggestedbufferize	6250000
Transfer Function	1
Transfer Function String	BT-709 (2.2 Gamma)
Width	720
X Pels Per Meter	0
Y Pels Per Meter	0

Bit Count - (or, Bit Depth) – Number of bits per pixel reported in video

Caps - Capabilities

Channels - number of channels

Clr Important - Number of RGBQUAD elements that are critical to display

Clr Used - For color tables, the number of RGBQUAD elements used

Color Primaries - the color primaries and white point of the Mastering Monitor/Display used for the project

Color Primaries String - the color primaries and white point of the Mastering Monitor/Display used for the project displayed in human readable form

Color Range - the color range used. Some common color models include RGB, YUV 4:4:4, YUV 4:2:2, and YUV 4:2:0

Color Range String – the color range used, displayed in human readable form

Compression - Compression setting - a fourcc usually, but not always equal to fccHandler. Denotes compression type of frame

Compression String - Name of the compression type in human readable form

Conversion Matrix – the conversion matrix used to convert from RGB to YCbCr

Conversion Matrix String – the conversion matrix in human readable form

Data Rate - the data rate of the file in bits per second

Dr Flags - Internal Drastic flags

Fcc Handler - Handler used for the FCC type

Fcc Type - Type of Audio/Video FourCC Compression Code

Field Dominant - Which field of an interlaced signal is on top

Field Temporal - Which field of an interlaced signal comes first

Fielding Correct - Is the fielding for an interlaced standard correct, or inverted

File Type - Name for the Drastic file type

File Type String - Name of the file kind/type in human readable form

Flags - Flags setting

Framerate – frames per second

Gop Length – Group of Pictures length (MPEG-2, H.264, and H.265 formats)

Height - Height of video frame in pixels

Ip Distance - the distance between your system IP address and the IP address of a source stream

Language - Language setting

Length - Length of the video stream

Level - The MPEG-2 systems level defines two types of streams: the program stream and the transport stream

Name - Name of the reader for this file type

Pitch - Video line pitch, or image pitch, which is the length, in bytes, of one line of the video image

Planes - Number of RGB groups (like Photoshop layers)

Priority - Priority of the selected video or audio stream in relation to other streams in the file

Profile – (MPEG-2) Simple profile, Main profile, SNR scalable profile, Spatial scalable profile, 4:2:2 profile, Multiview profile

Quality - Quality used by the compressor

Rate - Frame rate setting

Scale - Scale of the frame

Scan - Interlaced, progressive or progressive segmented frames (PsF)

Scan String – scan type in human readable form

Scan Temporal - In an interlaced or Progressive Segmented Frame, a numerical signifier for the scanning method used

Size - the size of the video description structure. 40 and 68 are common. Other sizes indicate 'out of band' video codec configuration material.

Size Image - Size of the Image in unsigned chars

Start - Delay in units for this stream to start before video commences

Suggestedbuffersize - Recommended buffer size

Transfer Function - opto-electronic transfer function method used

Transfer Function String – opto-electronic transfer function in human readable form

Width - Width of video frame in pixels

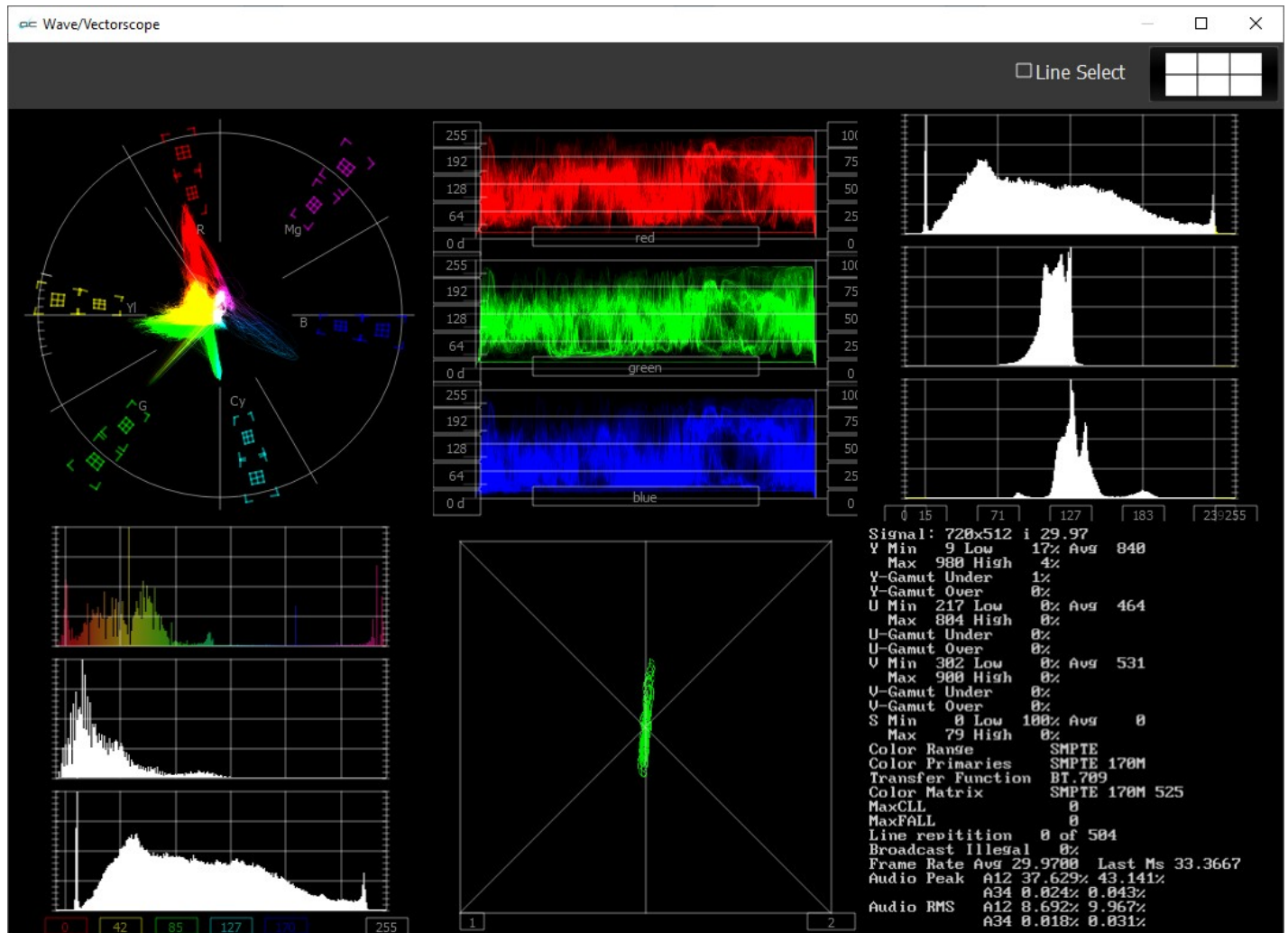
X Pels Per Meter - specifies the horizontal print resolution, in pixels per meter, of the target device for the bitmap.

Y Pels per Meter - specifies the vertical print resolution, in pixels per meter, of the target device for the bitmap.

3.3.10 Wave/Vector

wave/vector

Wave/Vector - press the Wave/Vector button to view the selected file through various scope tools.



There are various layout options, and a range of scope tools.

3.3.10.1 Layout Options



At the top of the scopes window at the very right is the **Setup** button. The button shows you the number of scopes that are set up. In the above example, a 6 up layout has been selected.

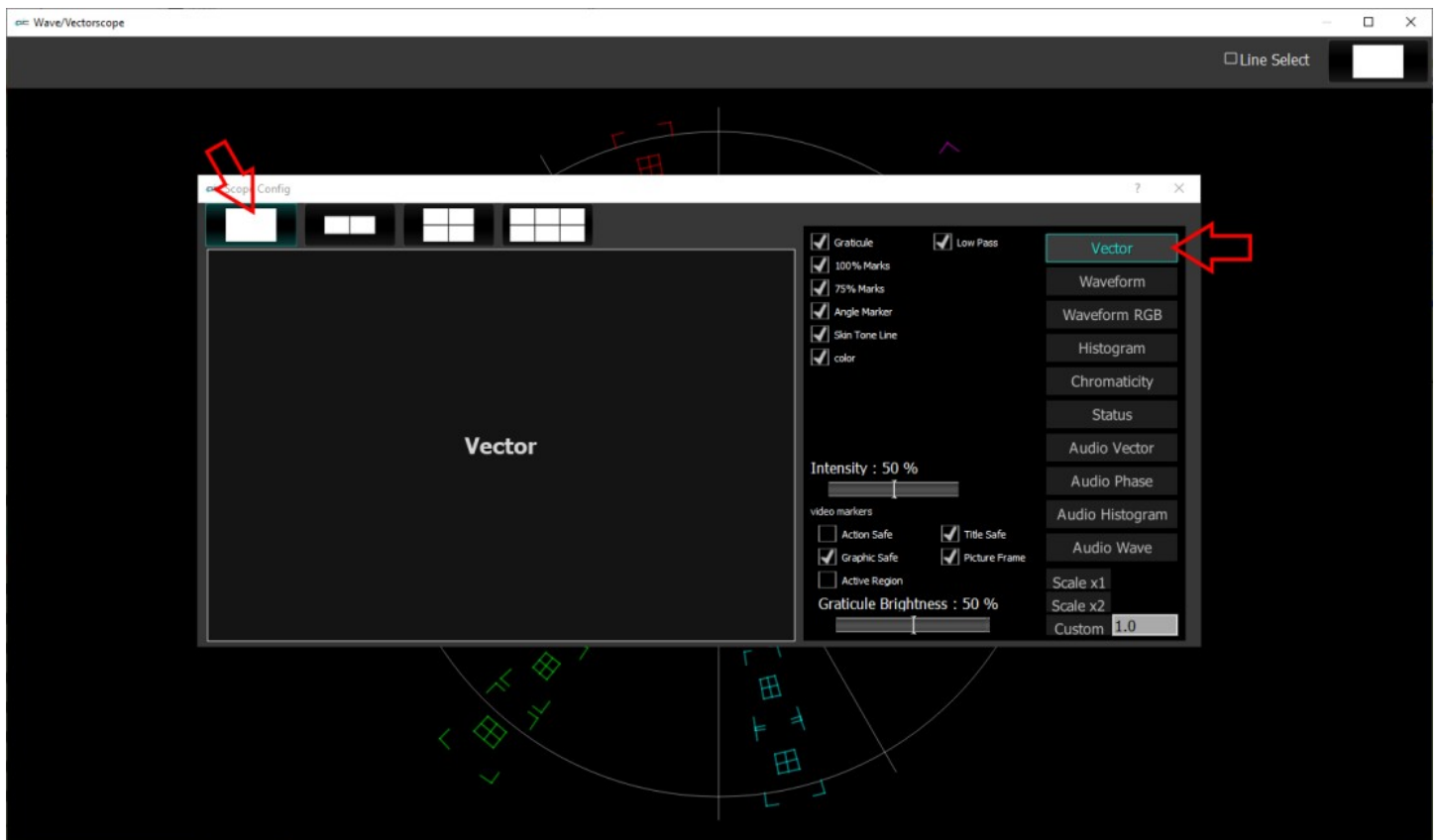
Press the **Setup** button, and use the four buttons at the top of the Setup window to select the layout that suits your workflow.



The choices are: 1 scope (single), 2 scopes (side by side), 4 scopes (2 x 2 grid), or 6 scopes (two rows of three scopes).

3.3.10.1.1 Single Scope Layout

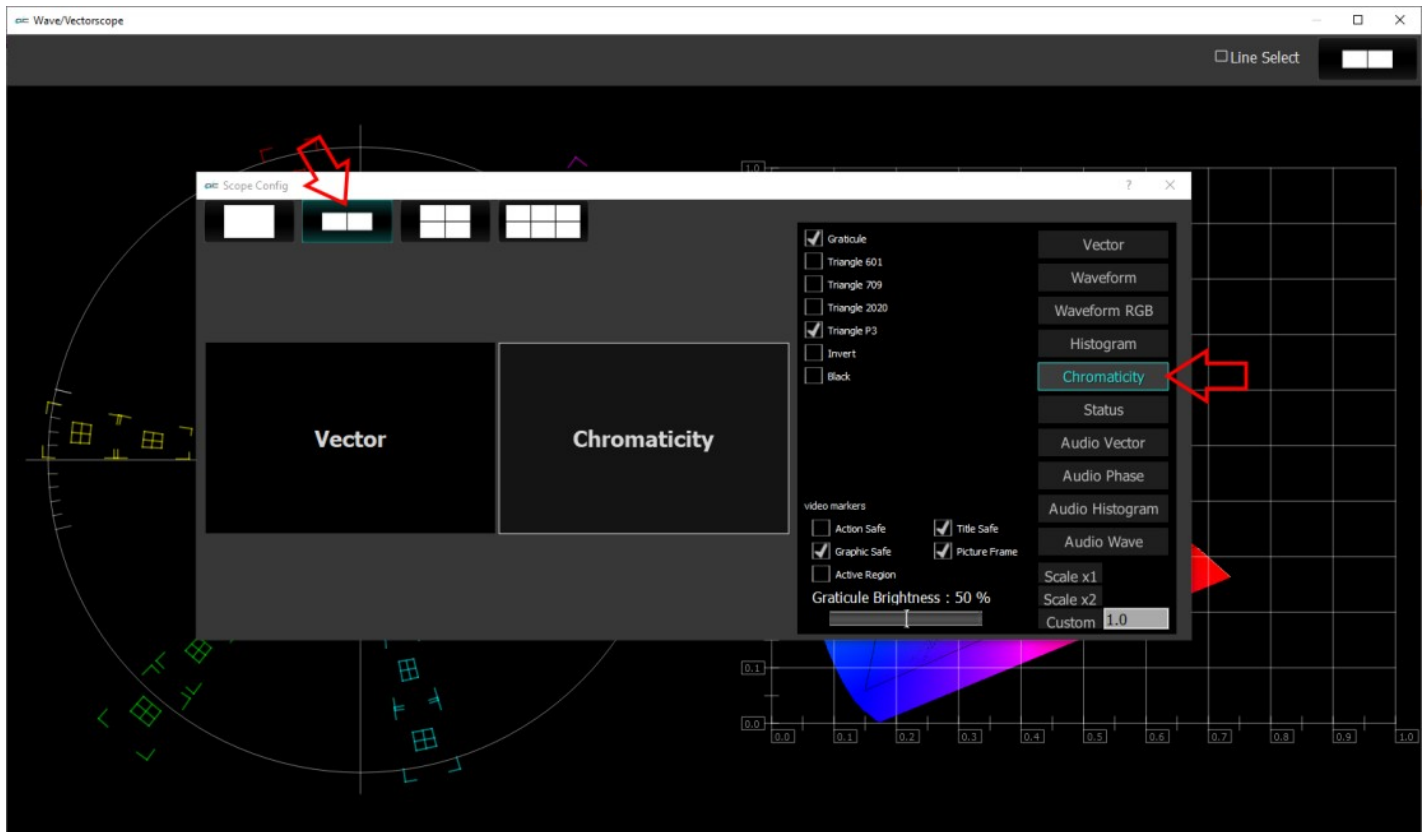
A single scope layout has been selected.



The arrow on the left shows the button used to select the single scope layout. The example shown displays the selection of a vectorscope. The arrow on the right shows the button used to select the vectorscope.

3.3.10.1.2 Two Scopes Layout

The two scopes layout has been selected.

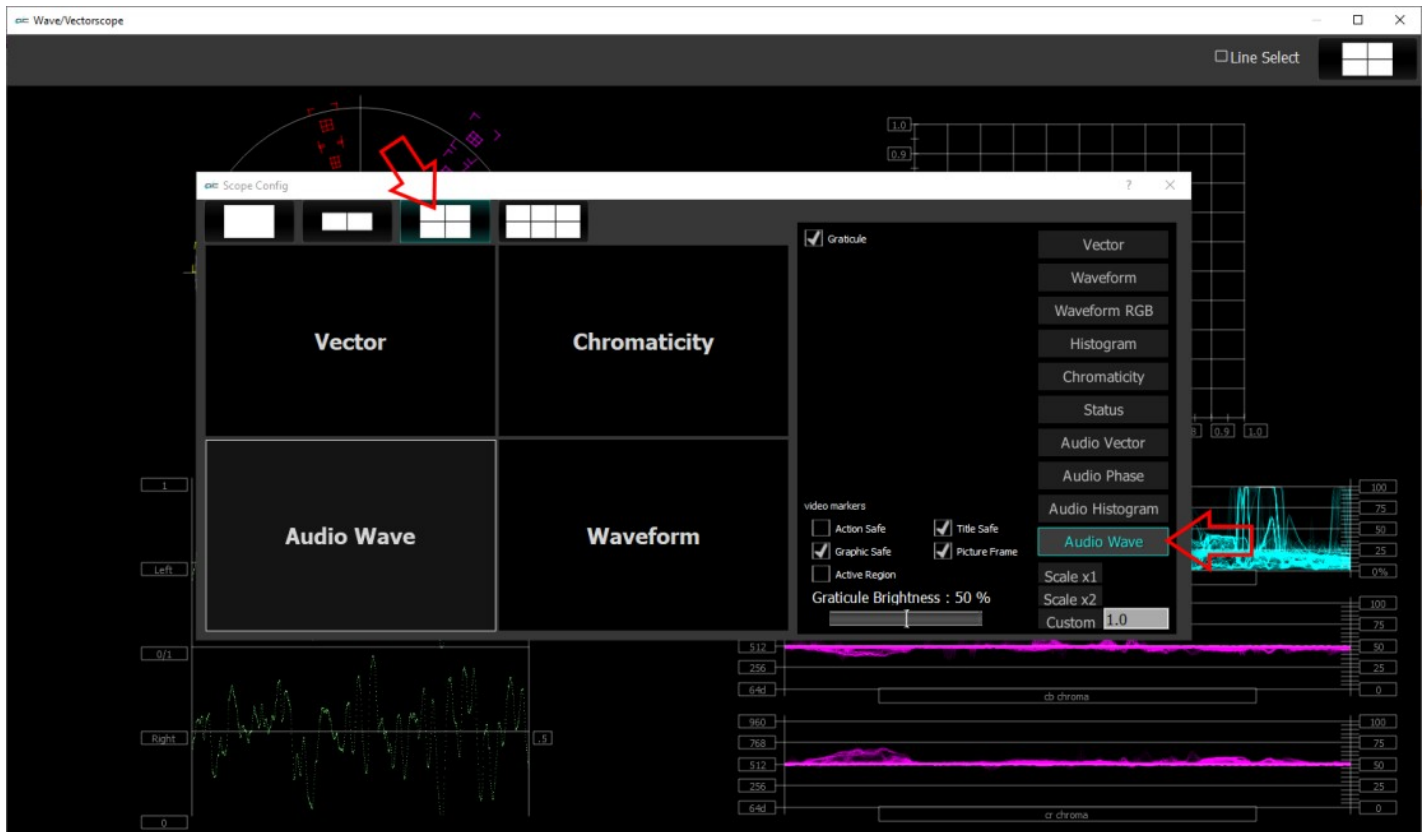


The arrow on the left shows the button used to select the two scopes layout. The example shown features the vectorscope and chromaticity scope. The arrow on the right shows the button used to select the chromaticity scope.

To change which scope appears in a panel, click on it and use the selection buttons on the right to choose the scope. For example if you would like a waveform monitor on the left panel, you would click on the left panel, and click on the appropriate waveform button.

3.3.10.1.3 Four Scopes Layout

The four scopes layout has been selected.

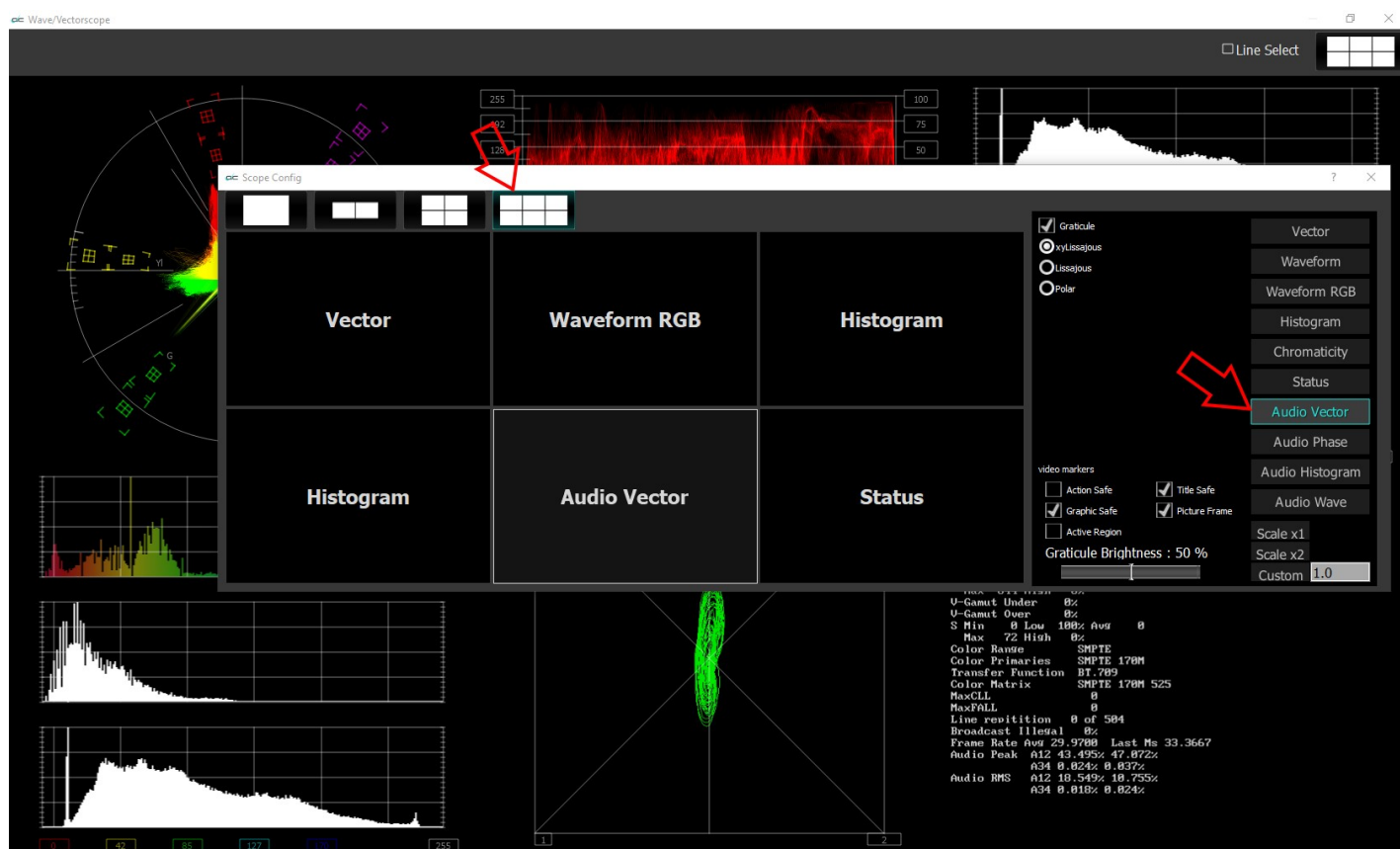


The arrow on the left shows the button used to select the four scopes layout. The example shown features the vectorscope, the chromaticity scope, the audio waveform, and the YCbCr waveform. The arrow on the right shows the button being used to select the audio waveform.

To change which scope appears in a panel, click on it and use the selection buttons on the right to choose the scope. For example if you would like a waveform monitor on the lower left panel, you would click on the left panel, and click on the appropriate waveform button.

3.3.10.1.4 Six Scopes Layout

The six scopes layout has been selected.

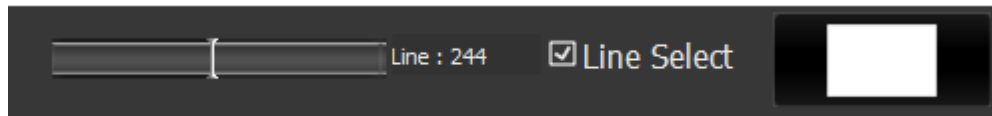


The arrow on the left shows the button used to select the six scopes layout. The example shown features the Vectorscope, RGB Waveform Monitor, YCbCr Histogram, HSV (hue/saturation/value) Histogram, Audio Vectorscope, and Status display. The arrow on the right shows that the Audio Vectorscope is selected (highlighted), and therefore its controls are displayed in the setup, and its settings can be changed.

To change which scope appears in a panel, click on it and use the selection buttons on the right to choose the scope. For example if you would like an audio waveform display on the lower left panel, you would click on the left panel, and click on the appropriate waveform button.

3.3.10.1.5 Line Select

Clicking the line select button produces a slider, which allows the user to select a single line of the video to view through the scopes. Deselecting the checkbox releases the line select, and hides the slider.



3.3.10.2 Vectorscope

To set up the Vectorscope, press the **Scope Config** button. This opens the Scope Config window. Click on the **Vector** button on the right. There are a number of options to set up the vectorscope:



Graticule checkbox – when selected, the graticule is laid over the Vectorscope. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

Low Pass checkbox - when selected, smooth the scope with a 1/3 filter to remove single pixel anomalies.

100% Marks checkbox – when selected, the 100% Marks are displayed over the Vectorscope

75% Marks checkbox - when selected, the 75% Marks are displayed over the Vectorscope

Angle Marker checkbox - when selected, the Angle Markers are displayed over the Vectorscope

Skin Tone Line checkbox - when selected, the Skin Tone Line is displayed over the Vectorscope

Color checkbox – when selected, the lines, regions, and points of the signal in the vectorscope are drawn in their respective colors.

Intensity slider – Moving the Intensity slider brightens or dims the display of the video signal th

rough the Vectorscope. The current setting is displayed above the slider, as a percentage, 0% providing no display and 100% being maximum intensity.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider - Moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

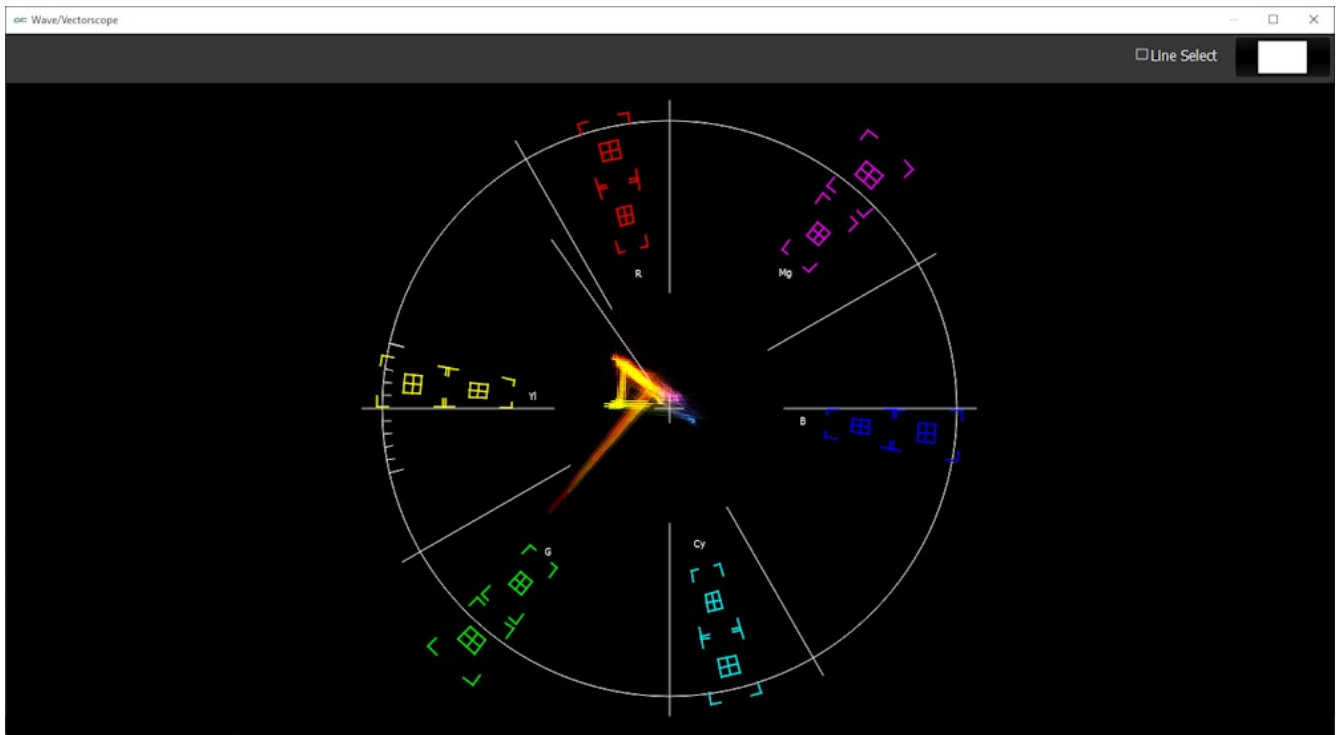
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.2.1 Vectorscope Display

Here is the Vectorscope.



The **Vectorscope** displays a traditional Cb by Cr X-Y display with overlaid reference graticule. Color accurate graticules automatically switch between SD and HD color spaces. The markers include color points (for standard bar checks) at 75% and 100% saturation. All the standard points are boxed; red, magenta, blue, cyan, green and yellow. A skin tone/flesh line is provided to allow for easy hue adjustment as well as standard diagonals. Angle markers can be overlaid to indicate the tertiary color regions.

At all times a minimum and maximum value for each of the channels (Y, Cr and Cb) is displayed in 10 bit mode (0-1023). The color of the text for each channel indicates the following: in range (green), out of range but legal (yellow) and illegal/sync values (red).

For single link 8 and 10 bit YCbCr files, there is no color processing involved. For dual link 4:4:4 RGB signals, the equivalent Cb and Cr are calculated to create the display.

3.3.10.3 Waveform YCbCr

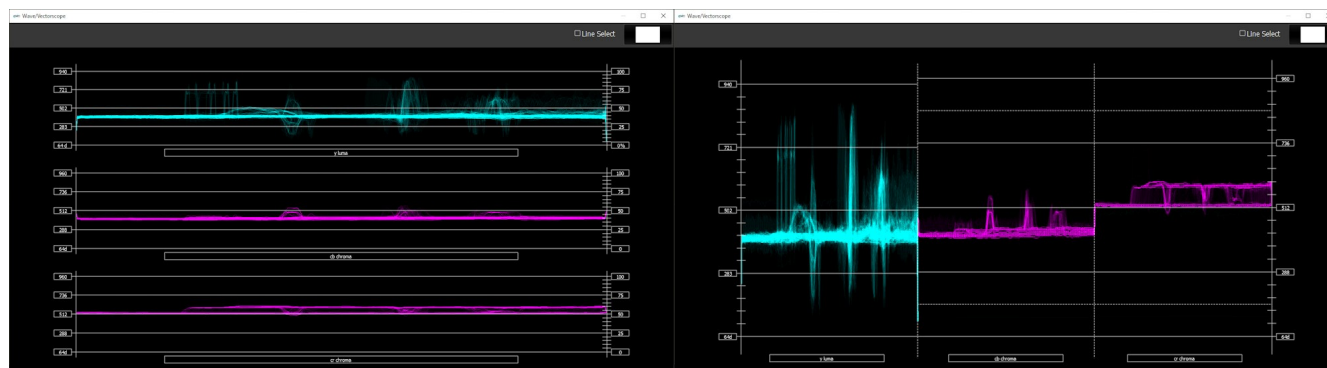
To set up the **Waveform YCbCr**, press the **Scope Config** button. This opens the Scope Config window. Click on the **Waveform** button on the right. There are a number of options to set up the Waveform YCbCr:



Graticule checkbox – when selected, the graticule is laid over the Waveform YCbCr display. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

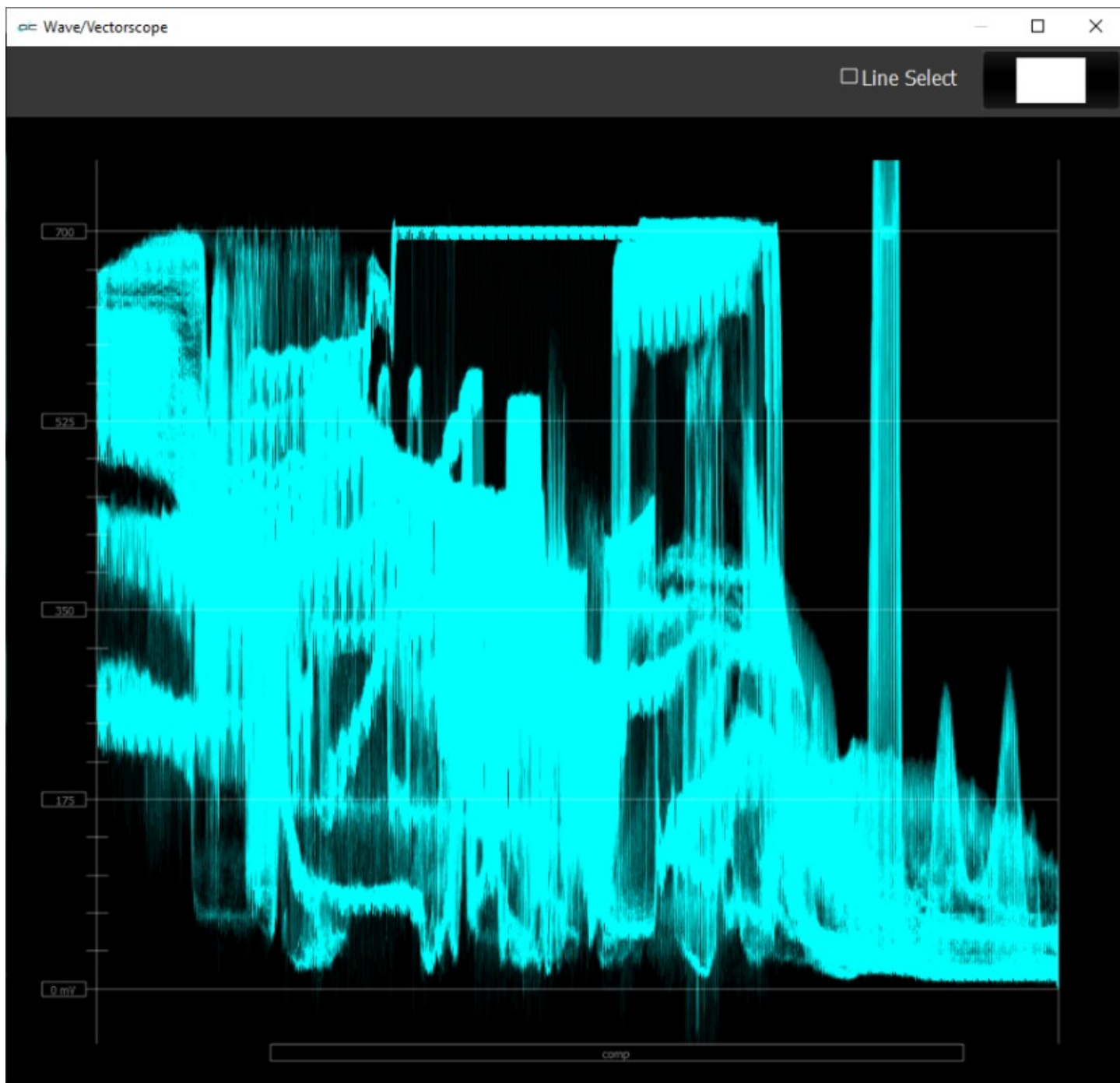
Low Pass checkbox – when selected, smooth the scope with a 1/3 filter to remove single pixel anomalies.

Show Parade checkbox – when selected, the display is from left to right. When not selected, the display is stacked top to bottom. In the image below, the parade view is on the left, and the stacked view is on the right.



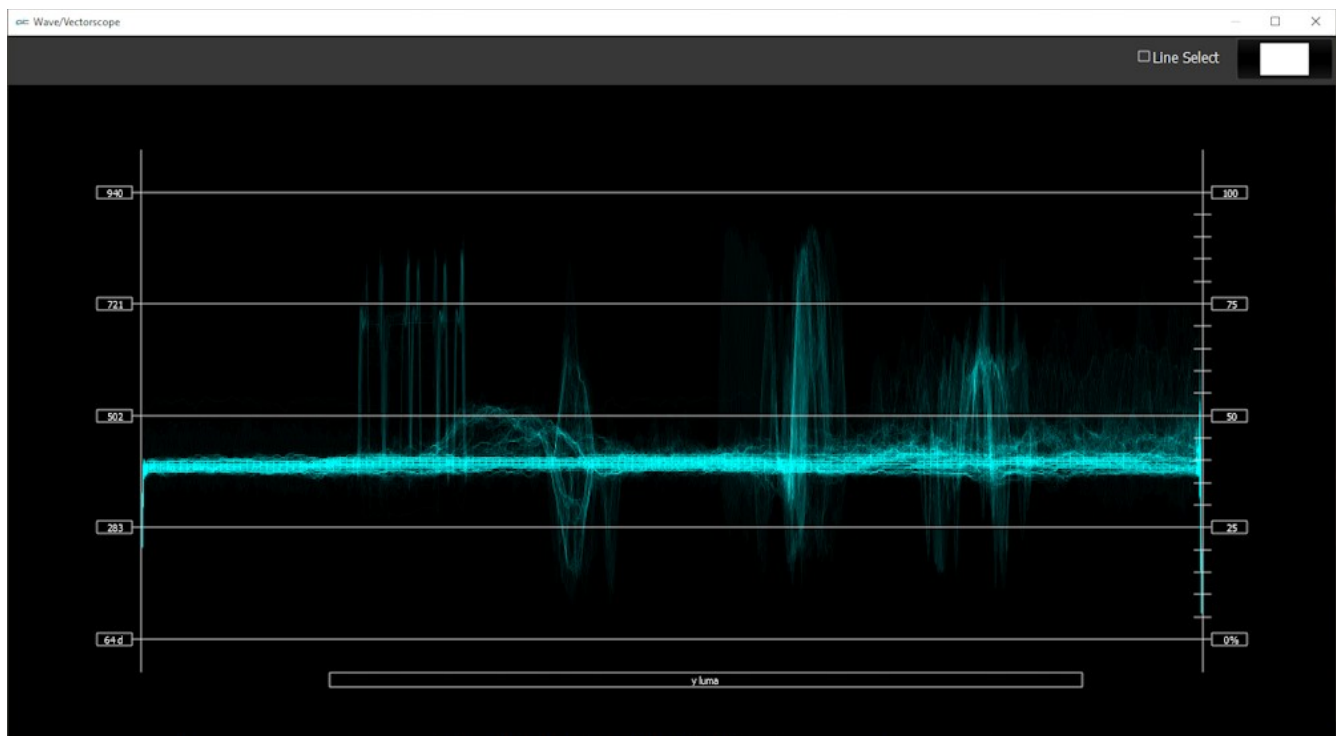
Parade View and Stacked View

Composite – display all three channels (Y, or luma, and the Cb and Cr color difference channels) overlaid on the same graticule.



YCbCr Waveform Composite View

Only Show Luma checkbox – when selected, displays only the luminance of the signal.



Luma Scope

Scope White checkbox – turns the display white.

Scale Type pulldown – set the type of scale used to draw the histogram. Choices include:

- **Digital** - the actual 0..255, 0..1023 or 0..4095 numeric values of the signal.
- **MV** - the equivalent millivolts value of the signal if it was converted to analog.
- **IRE** – Institute of Radio Engineers units, spanning 0..100.

Max HDR pulldown – set the maximum NITS level. One nit is equal to one candela (one candlepower) per square meter (1cd/m²). Available choices include:

- 10K NITS Max
- 5K NITS Max
- 4K NITS Max
- 3K NITS Max
- 2K NITS Max
- 1K NITS Max
- 200K NITS Max

High/Low pulldown – Show only the high and low portions of the signal, cutting out the middle. Choices include: Normal, 2x zoom, 3x zoom.

Intensity slider – Moving the Intensity slider brightens or dims the display of the trace through the Vectorscope. The current setting is displayed above the slider, as a percentage, 0% providing no display and 100% being maximum intensity.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider - Moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

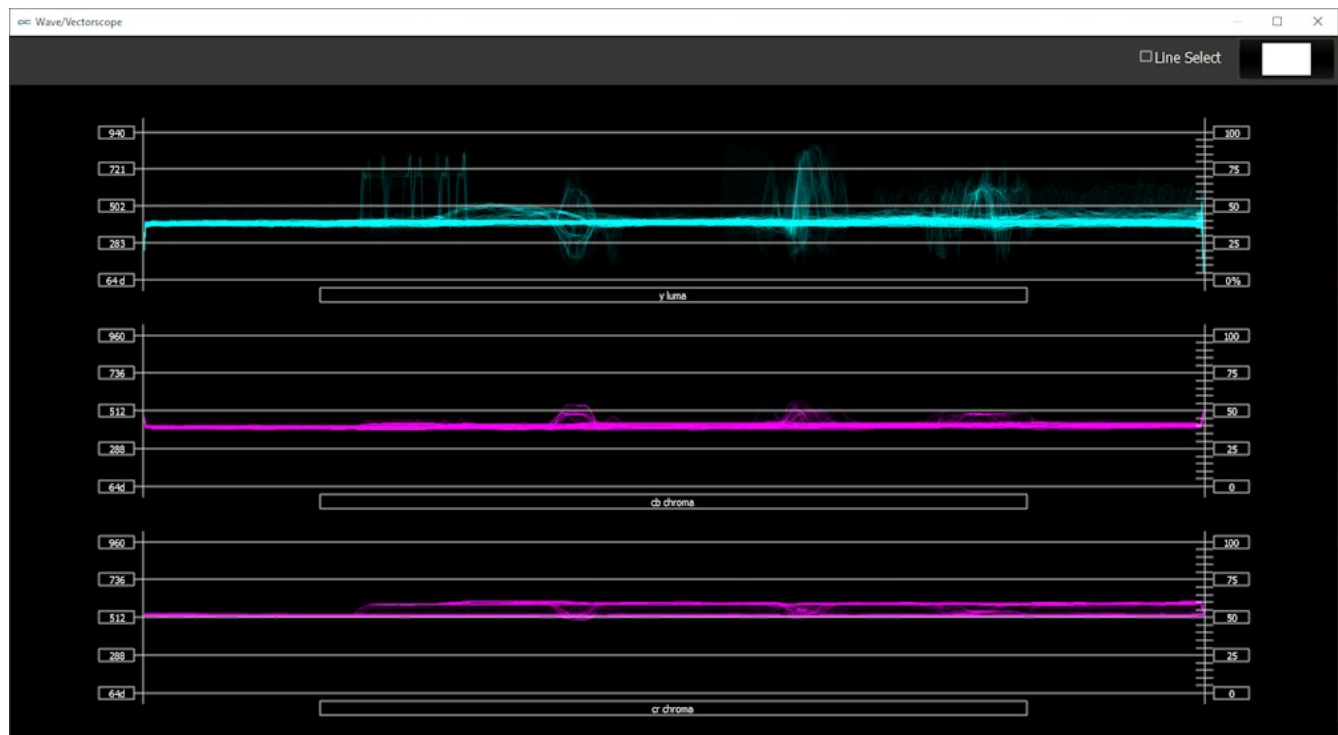
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.3.1 Waveform YCbCr Display

Here is the Waveform YCbCr.



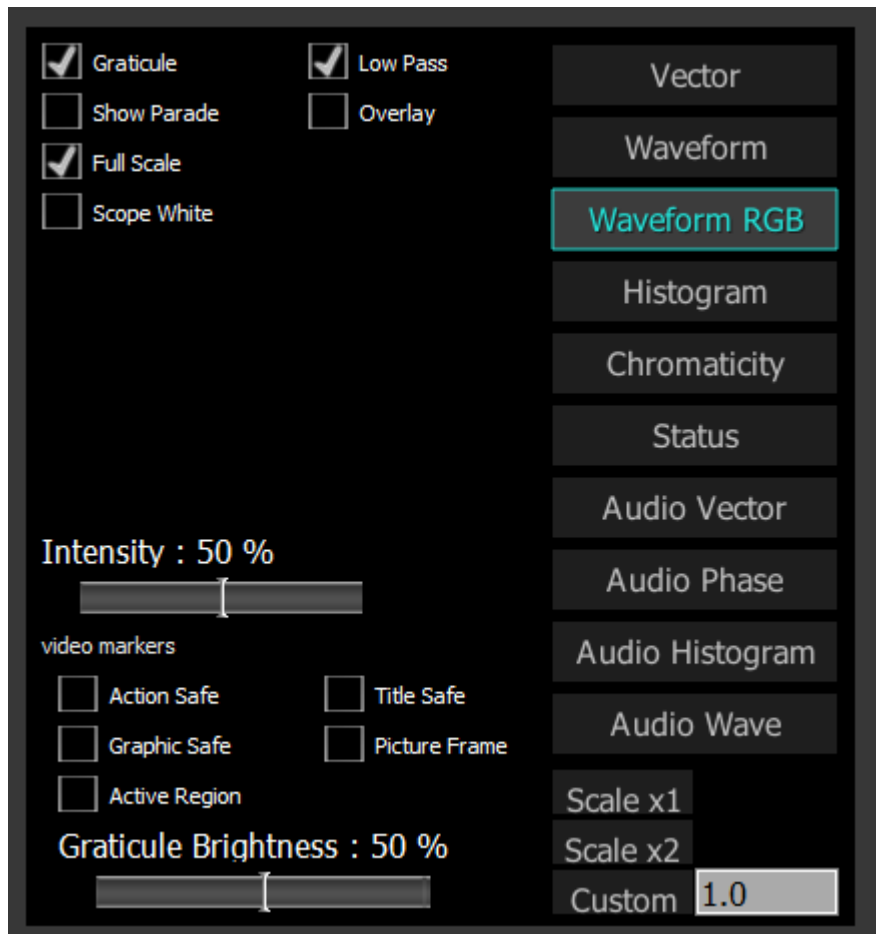
The YCbCr Waveform Monitor displays the levels of the Y, Cb and Cr from the left of the picture to the right of the picture with all the lines summed into one graph. The Y, or luma/luminance, graph provides accurate white and black level information, as well as the range in between. The Cb and Cr display the +/- 512 levels of chroma of both types. This provides a visual representation of the chroma range of the signal.

Critical for downstream color correction is the need to ensure proper luminance levels at the stage of initial capture, so any corrections will not muddy or wash out the signal information.

At all times a minimum and maximum value for each of the channels (Y, Cr and Cb) is displayed in 10 bit mode (0-1023). The color of the text for each channel indicates the following: in range (green), out of range but legal (yellow) and illegal/sync values (red).

3.3.10.4 Waveform RGB

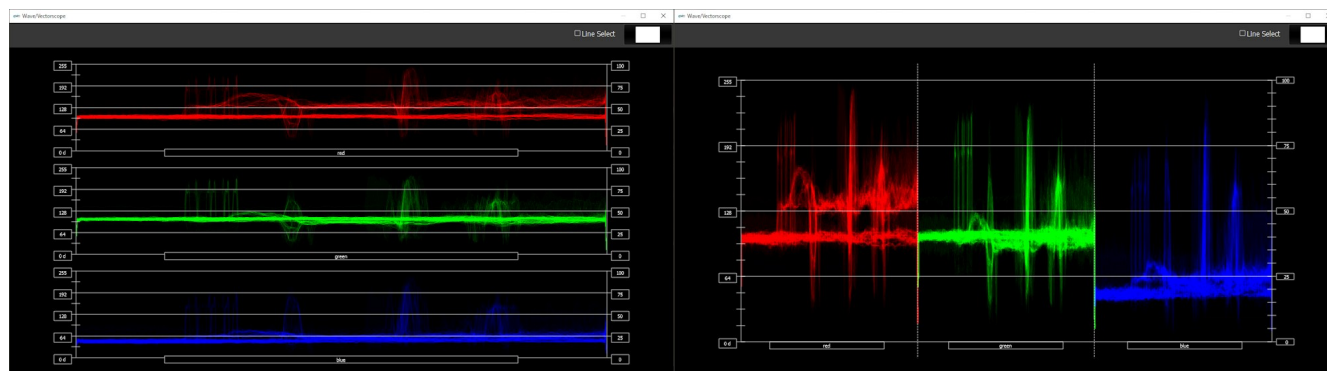
To set up the **Waveform RGB**, press the **Scope Config** button. This opens the Scope Config window. Click on the **Waveform RGB** button on the right. There are a number of options to set up the Waveform RGB:



Graticule checkbox – when selected, the graticule is laid over the Waveform RGB display. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

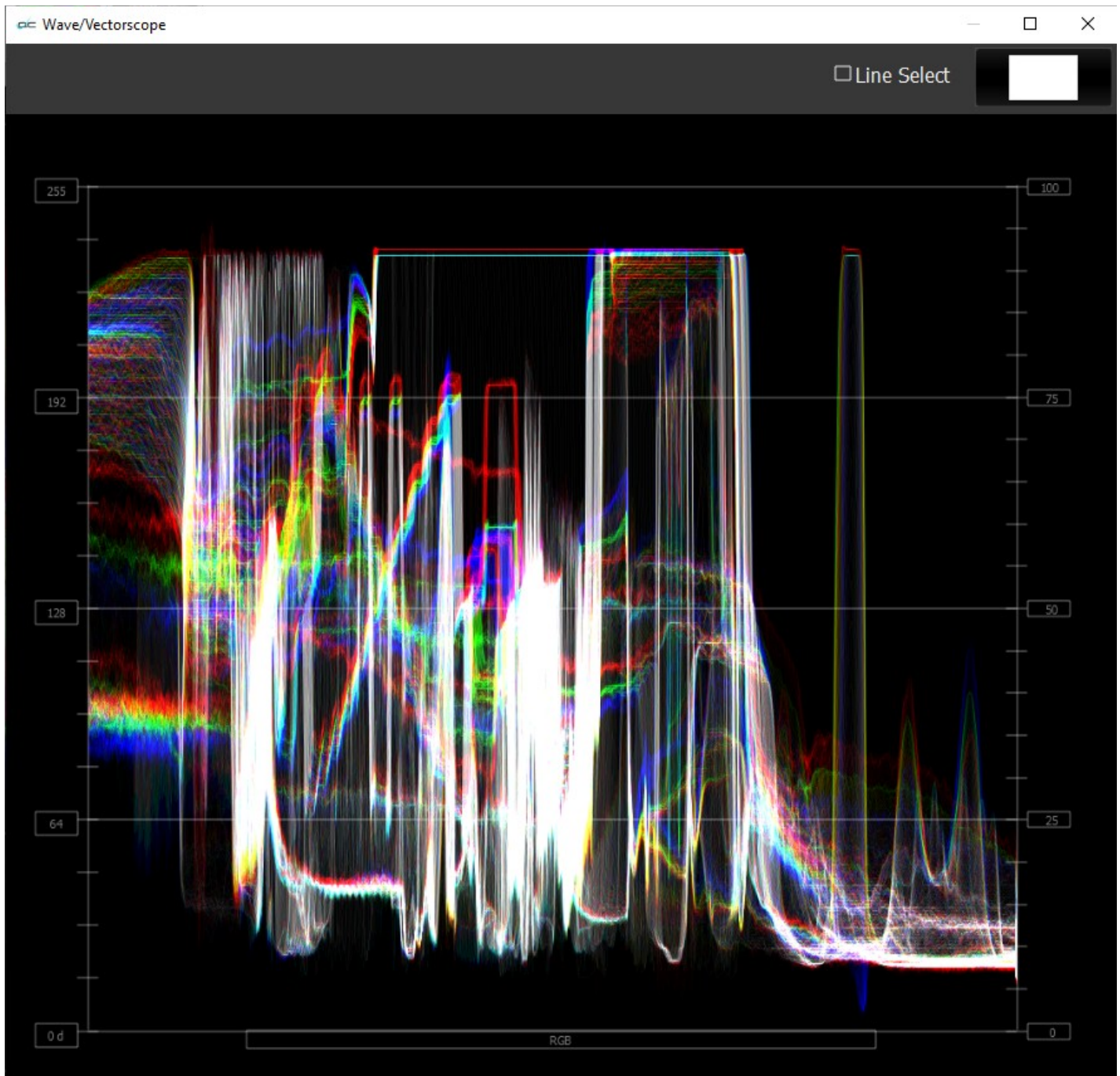
Low Pass checkbox – when selected, smooth the scope with a 1/3 filter to remove single pixel anomalies.

Show Parade checkbox – when selected, the display is from left to right. When not selected, the display is stacked top to bottom.



Stacked View and Parade View

Composite – show all three channels overlaid on the same graticule.



RGB Waveform Composite View

Full Scale checkbox – RGB, by default, will be sRGB. The range of each color will be from 16 to 240 (in 8 bit), so the scale will place white at 240 and black at 16 in normal scale. If in full scale, white will be placed at 255 and black at 0.

Scope White checkbox – turns the display white.

Intensity slider – Moving the Intensity slider brightens or dims the display of the video signal.

The current setting is displayed above the slider, as a percentage, 0% providing no display and 100% being maximum intensity.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider - Moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

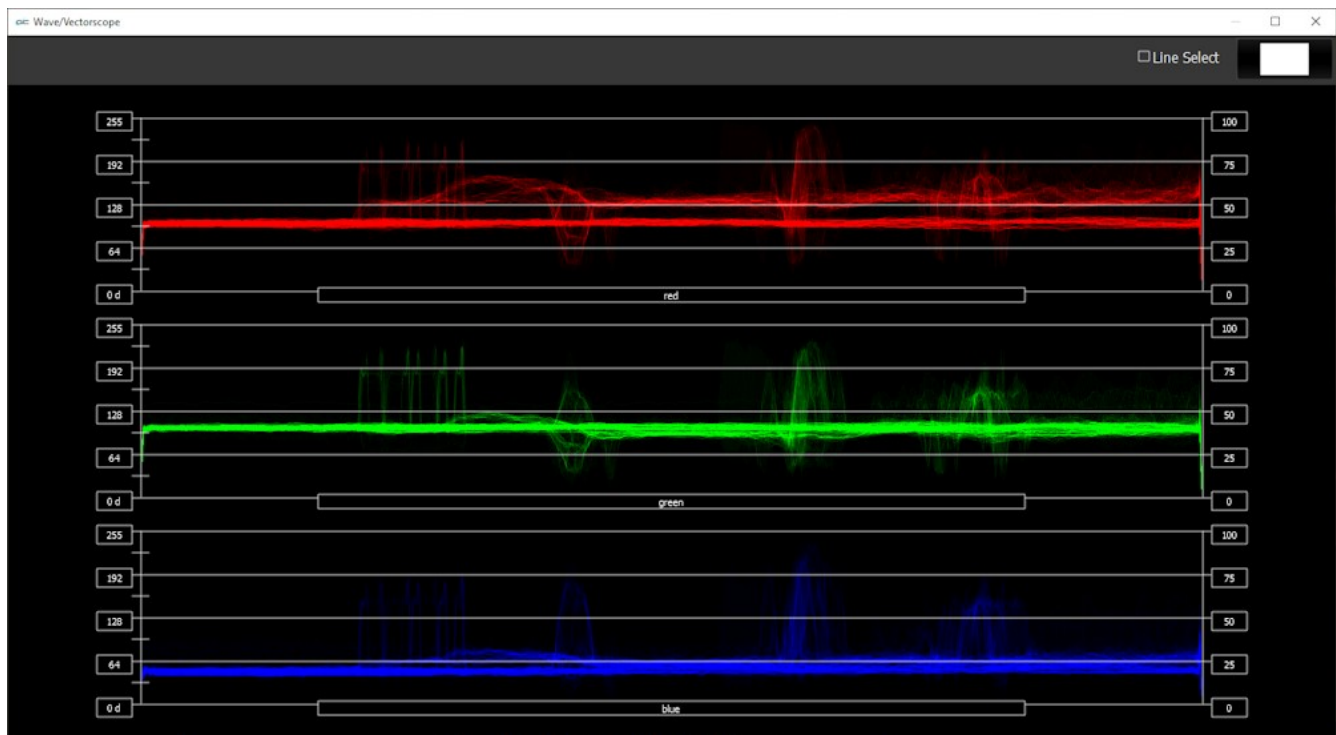
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.4.1 Waveform RGB Display

Here is the Waveform RGB.



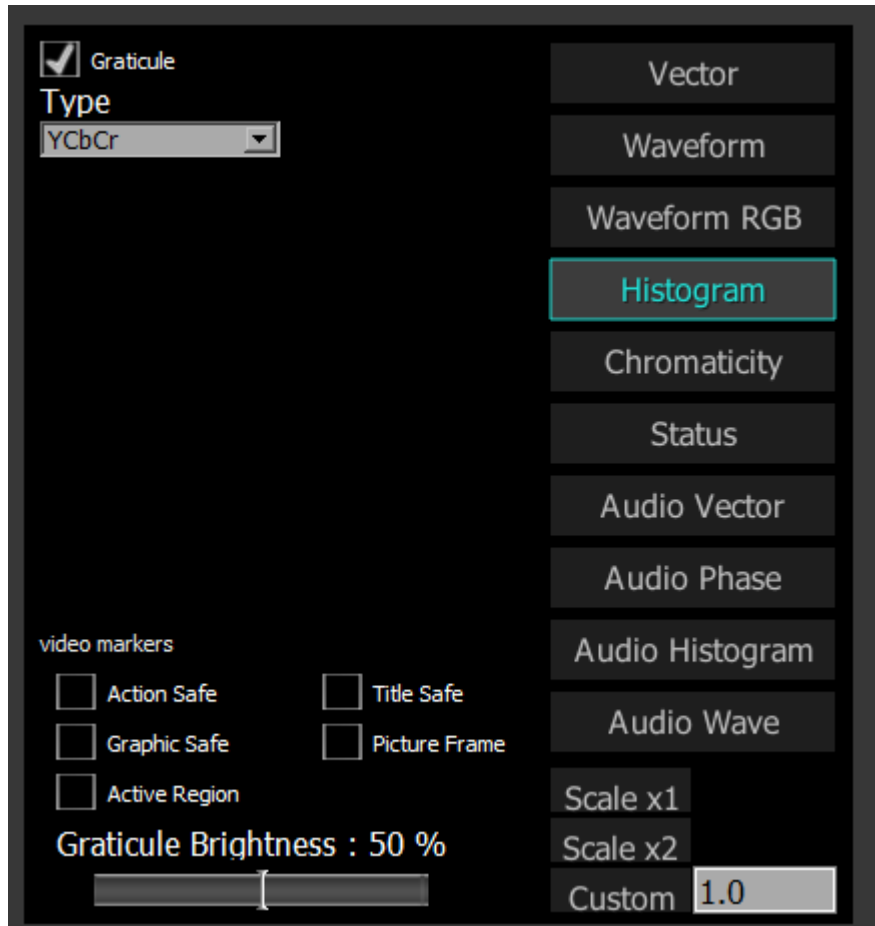
The RGB Waveform Monitor shows each of the red, green and blue signals as independent graphs, displaying the RGB, or chrominance/color values associated with the file.

At all times a minimum and maximum value for each of the channels (R, G and B and A) is displayed in 10 bit mode (0-1023).

For dual link RGB, the original RGB 10 bit values are used unprocessed. For single link YCbCr, they are first converted to RGB before being analyzed and displayed.

3.3.10.5 Histogram YCbCr

To set up the **Histogram YCbCr**, press the **Scope Config** button. This opens the Scope Config window. Click on the **Histogram** button on the right. Use the **Type** pulldown menu to select YCbCr. There are a number of options to set up the Histogram YCbCr:



Graticule checkbox – when selected, the graticule is laid over the Waveform RGB display. The brightness of the Graticule may be adjusted using the Graticule Brightness slider described below.

Type pulldown menu – use the Type pulldown menu to select between available histogram types.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the

video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

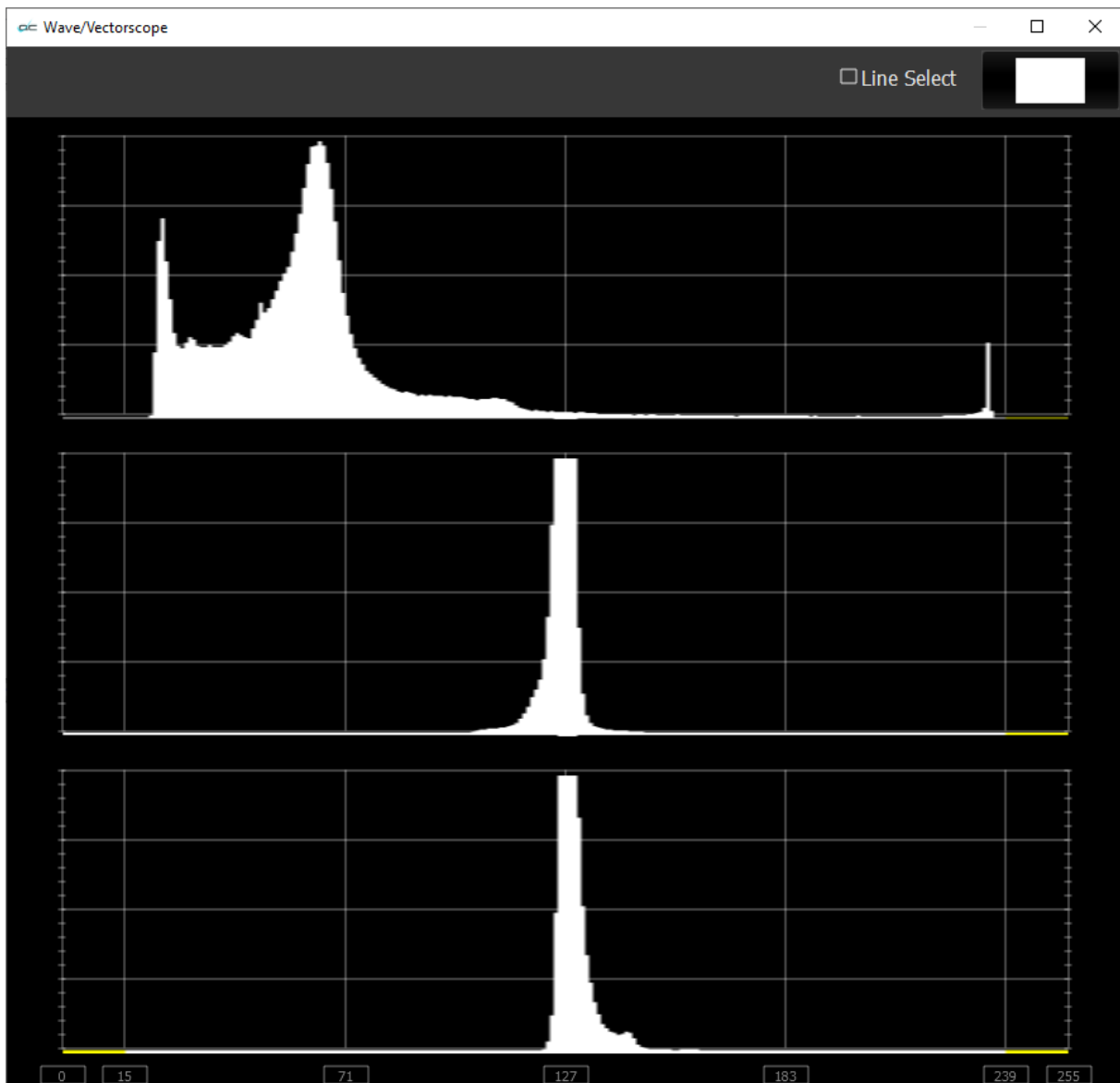
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.5.1 Histogram YCbCr Display

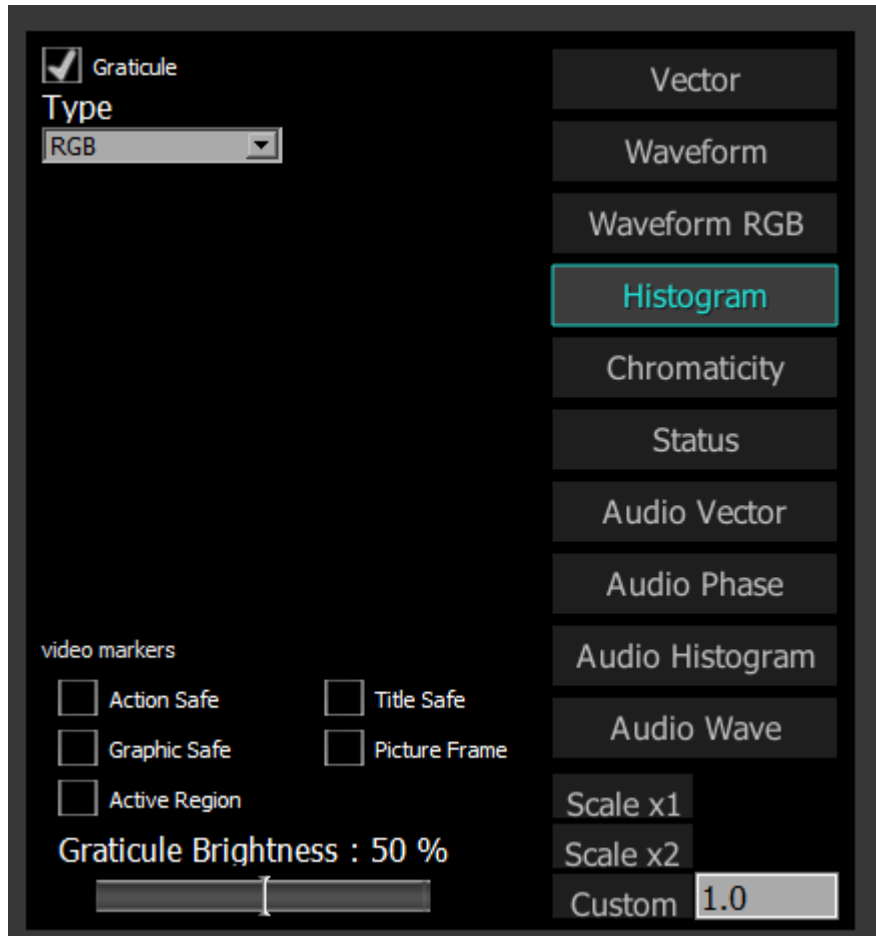
Here is the Histogram YCbCr.



YCbCr - display a YCbCr range. This histogram breaks up the signal in into luma and chroma components. The top histogram represents the luma power of the various levels in the signal. The Cb and Cr histograms that follow show the power distribution for those two components.

3.3.10.6 *Histogram RGB*

To set up the **Histogram RGB**, press the Scope Config button. This opens the Scope Config window. Click on the **Histogram** button on the right. Use the **Type** pulldown menu to select RGB. There are a number of options to set up the Histogram RGB:



Graticule checkbox – when selected, the graticule is laid over the Waveform RGB display. The brightness of the Graticule may be adjusted using the Graticule Brightness slider described below.

Type pulldown menu – use the Type pulldown menu to select between available histogram types.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

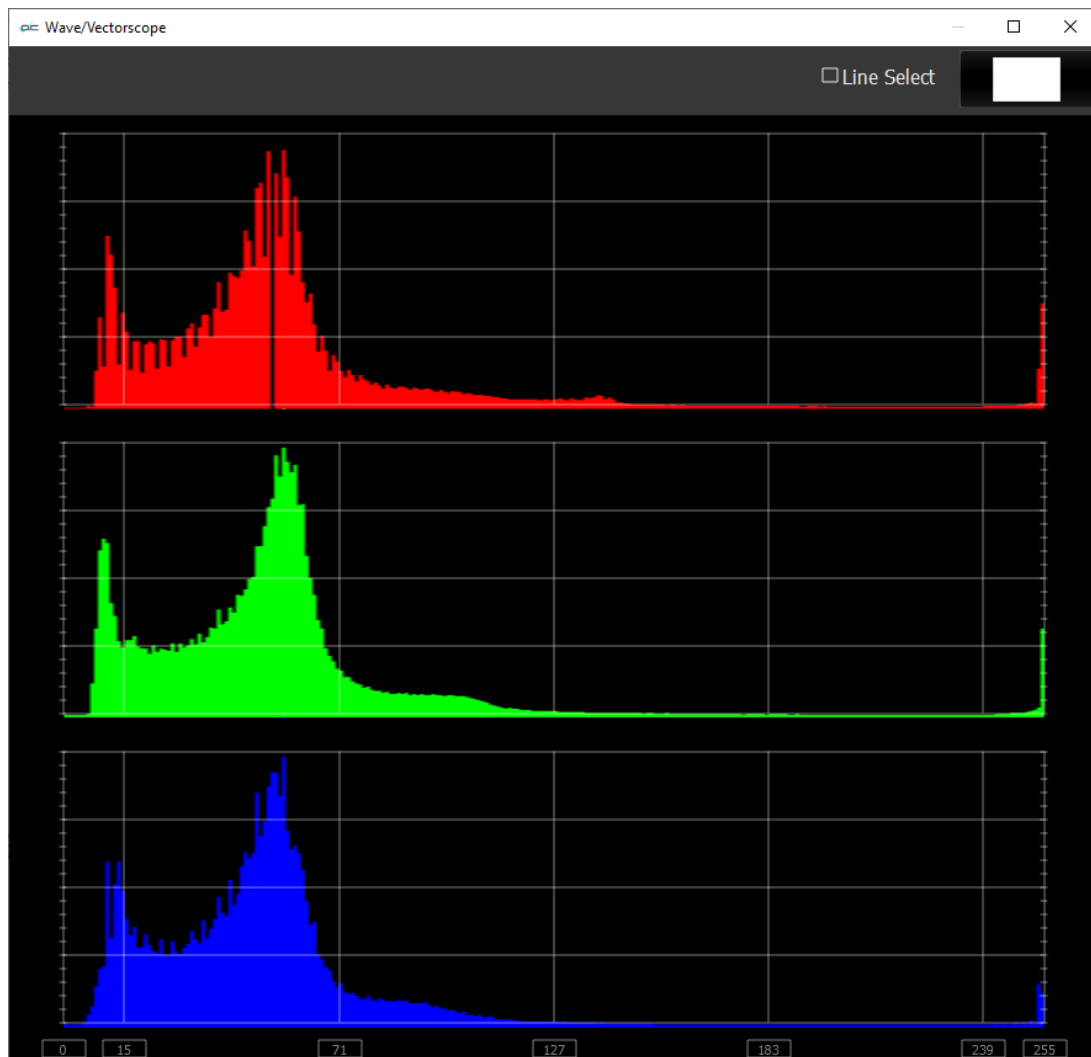
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.6.1 Histogram RGB Display

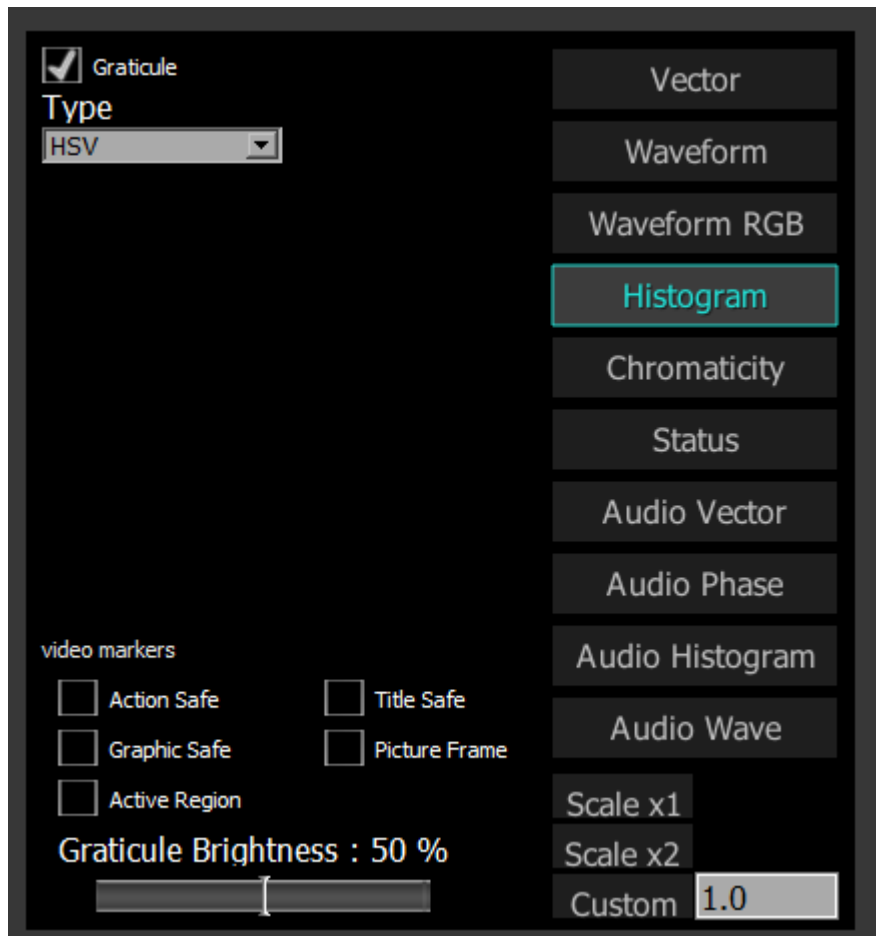
Here is the Histogram RGB



RGB – display an RGB range. Shows the distribution of red/green/blue within the signal as a series of discrete bars that make a continuous graph for each color. This display provides an overview of the tonal range of each color in the picture. Each bar is the count of the number of pixels for one of the 256/1024/4096 possible bins.

3.3.10.7 Histogram HSV

To set up the **Histogram HSV**, press the Scope Config button. This opens the Scope Config window. Click on the **Histogram** button on the right. Use the **Type** pulldown menu to select HSV. There are a number of options to set up the Histogram HSV:



Graticule checkbox – when selected, the graticule is laid over the Waveform RGB display. The brightness of the Graticule may be adjusted using the Graticule Brightness slider described below.

Type pulldown menu – use the Type pulldown menu to select between available histogram types.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

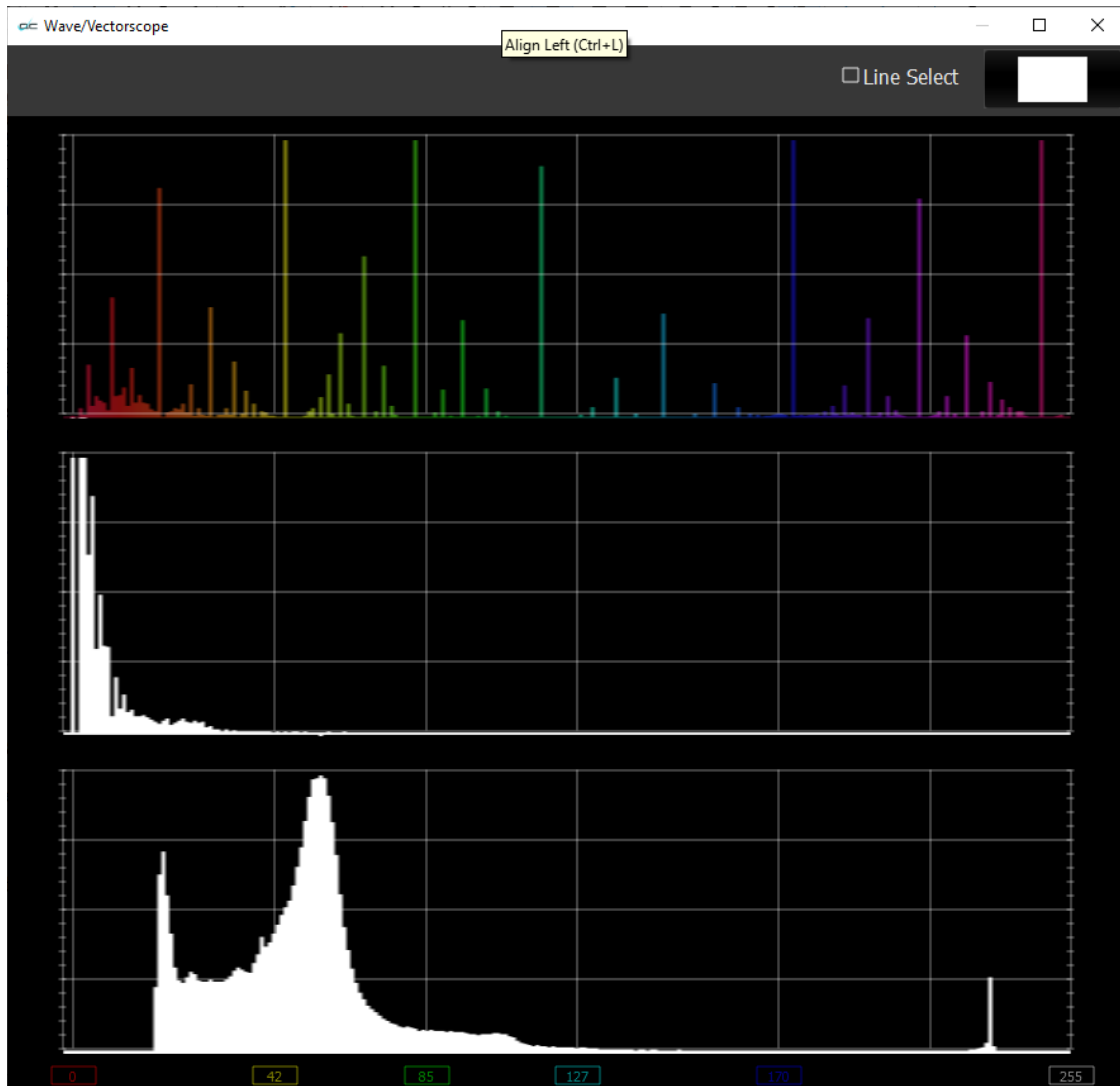
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.7.1 Histogram RGB Display

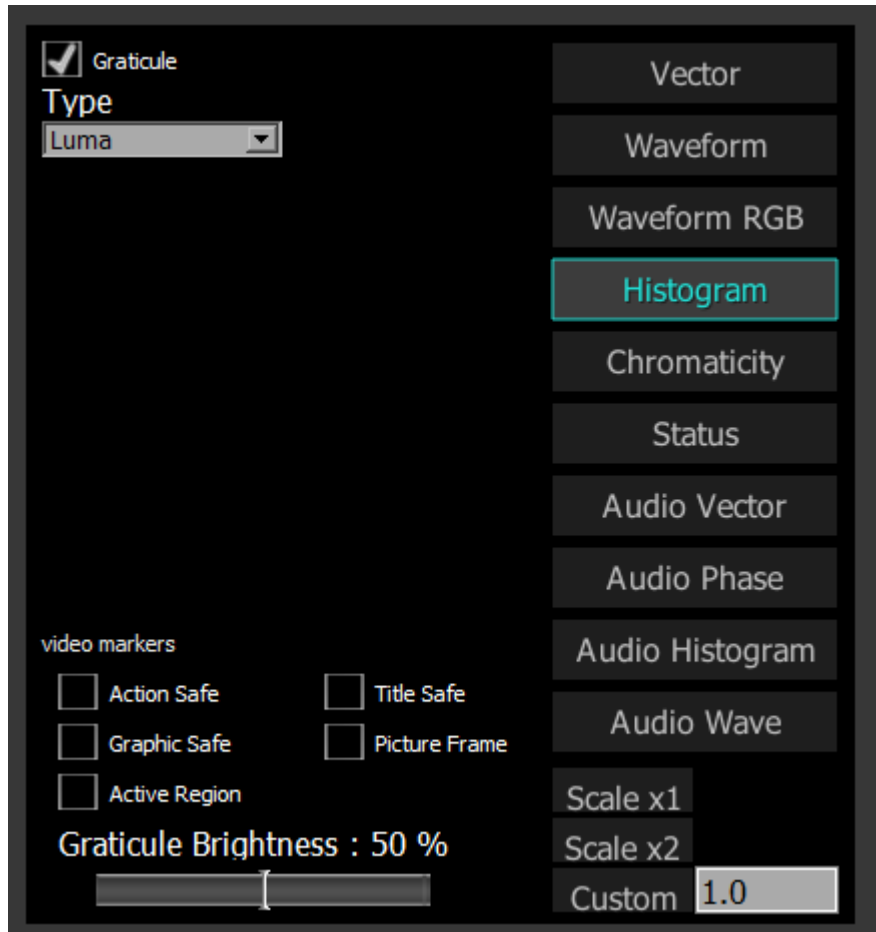
Here is the Histogram RGB



HSV – display Hue, Saturation, and Value levels. The top range shows the strength of each hue, the middle section displays the saturation levels of the hues, and the lower section displays the value, or darkness/lightness levels.

3.3.10.8 *Histogram Luma*

To set up the **Histogram Luma**, press the Scope Config button. This opens the Scope Config window. Click on the **Histogram** button on the right. Use the **Type** pulldown menu to select Luma. There are a number of options to set up the Histogram Luma:



Graticule checkbox – when selected, the graticule is laid over the Waveform RGB display. The brightness of the Graticule may be adjusted using the Graticule Brightness slider described below.

Type pulldown menu – use the Type pulldown menu to select between available histogram types.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

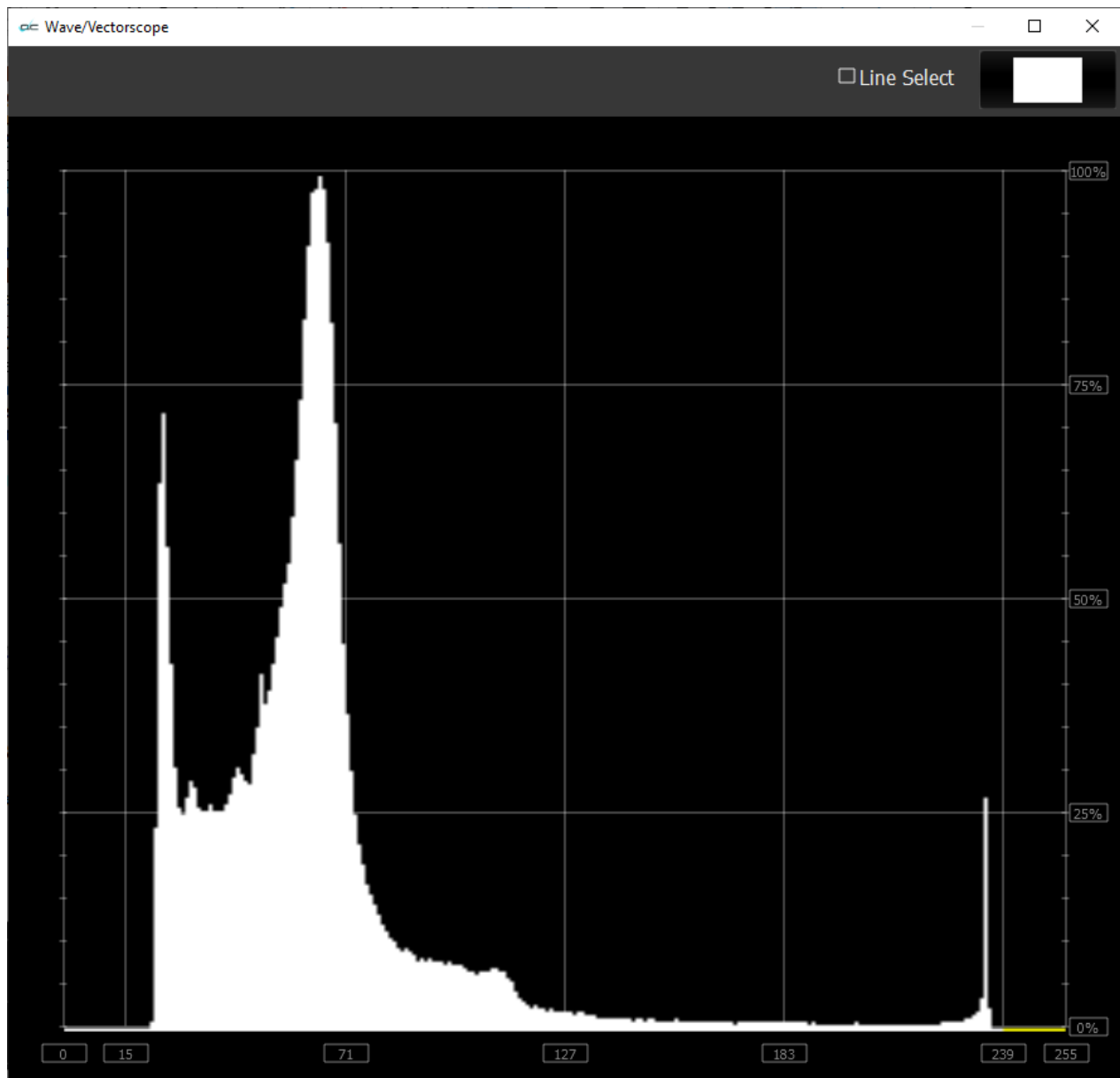
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.8.1 Histogram Luma Display

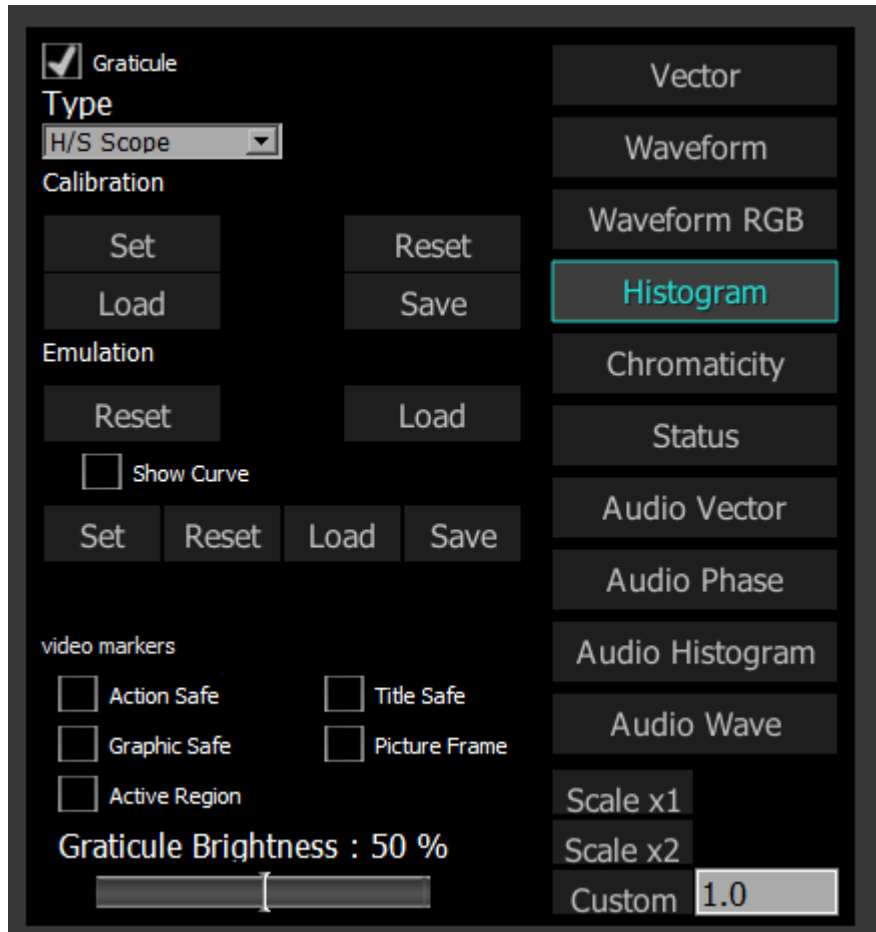
Here is the Histogram Luma



Luma – display only the luma in the signal

3.3.10.9 Histogram H/S Scope

To set up the **Histogram H/S Scope**, press the Scope Config button. This opens the Scope Config window. Click on the **Histogram** button on the right. Use the **Type** pulldown menu to select **H/S Scope**. There are a number of options to set up the **Histogram H/S Scope**:



Graticule checkbox – when selected, the graticule is laid over the Waveform RGB display. The brightness of the Graticule may be adjusted using the Graticule Brightness slider described below.

Type pulldown menu – use the Type pulldown menu to select between available histogram types.

Calibration section – choices include:

- **Set** – set the current calibration.
- **Load** – opens a browser which allows the user to browse to and load a saved calibration file.
- **Reset** – reset the calibration back to default settings.
- **Save** – opens a save as window which allows the user to select a location and save the

current calibration settings as a file.

Emulation section – choices include:

- **Reset** – reset the emulation values back to default.
- **Load** – load an emulation file.

Show Curve section – choices include:

- **Set** – set the current curve.
- **Clear** – clear the current curve and return to default settings.
- **Load** – opens a browser which allows the user to browse to and load a saved curve file
- **Save** - opens a save as window which allows the user to select a location and save the current curve settings as a file.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output

Active Region checkbox - when selected, the Active region graticule is displayed over the video output

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

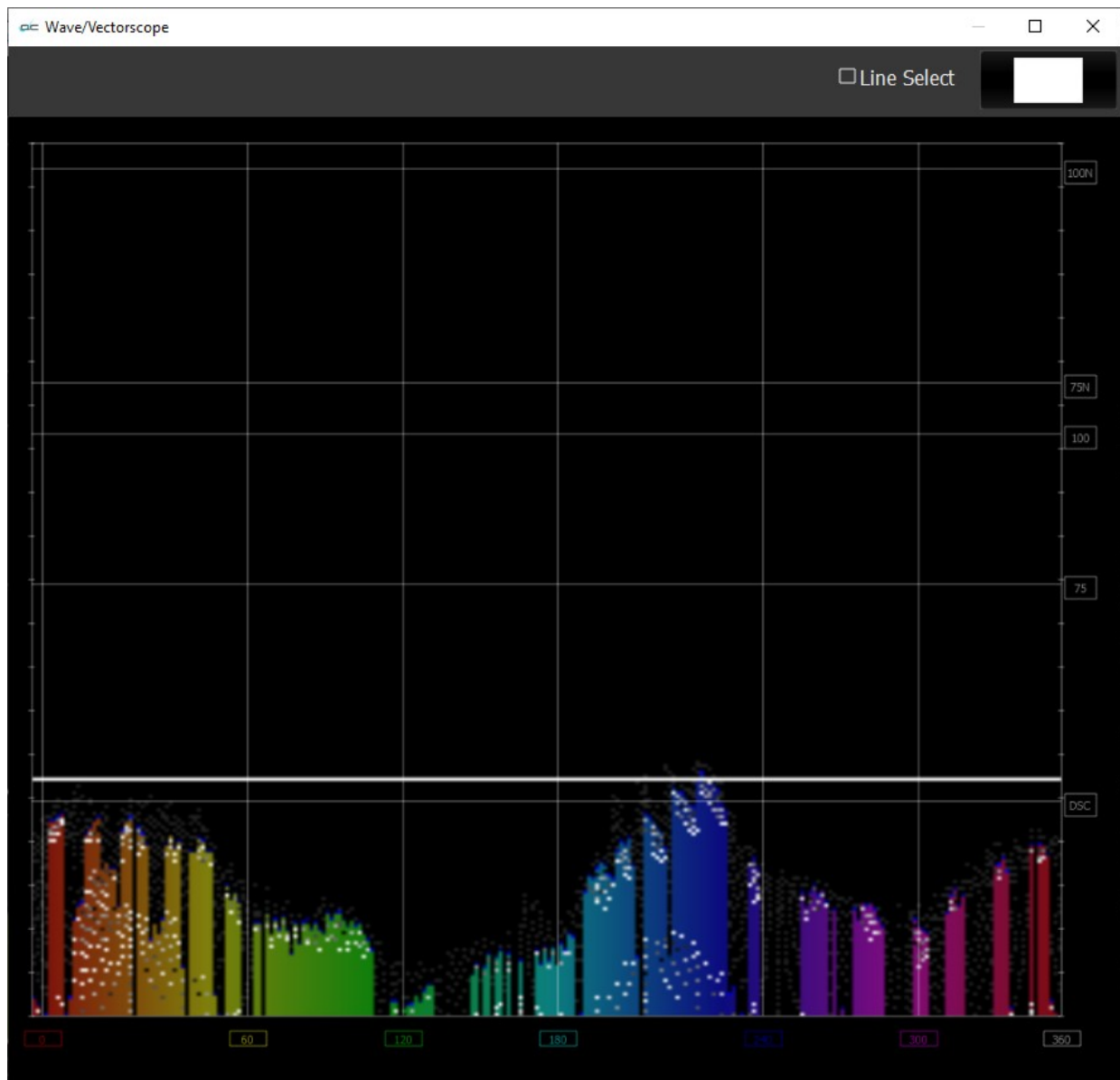
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.9.1 Histogram H/S Scope Display

Here is the Histogram H/S Scope.



The H/S (Hue/Saturation) Scope is designed to assist in calibrating lighting between cameras, or between different lighting setups. There is an instructional video located here:

<https://www.youtube.com/watch?v=or835LLqVU>

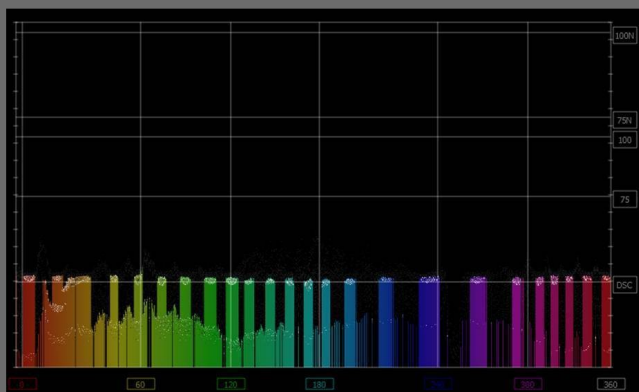
and a similar one here:

3.3.10.9.2 H/S Scope Example

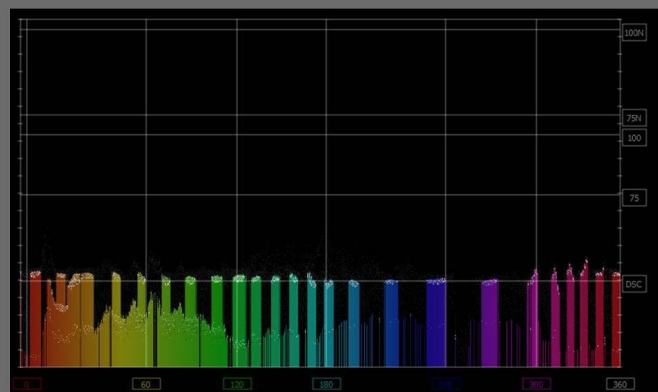
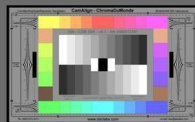
Here is an example where the H/S Scope reads the chroma signal response from a camera, to evaluate the Rosco DMG MIX LED fixture.

ARRI Alexa Mini preset to 3200K

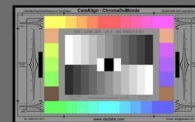
- Tungsten 3200K / DMG MIX 3200CCT / HS SCOPE readout



ARRI 3200K Preset / 3200K Light



ARRI 3200K Preset / 3200 CCT DMG MIX

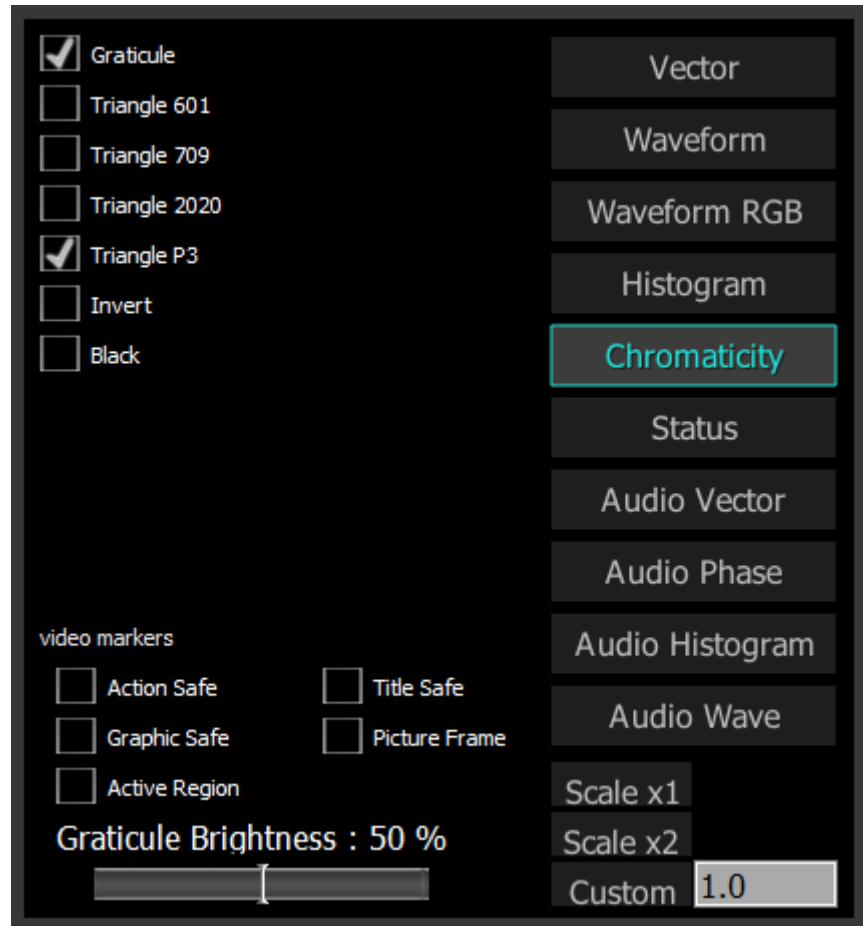


We used an ARRI and RED camera, preset to 3200K rec 709, for our tests, shooting a DSC ChromaDuMonde 24 + 4R chart. A Tungsten light source was the target reference for the Rosco DMG MIX to match on camera. This allowed the team to quantify their calibration work on the MIX. The results were encouraging as both on the RED and ARRI the on-camera chroma differences between the actual tungsten source and the MIX were very slight, based on the multiple points of the DSC chart. The H/S Scope is a good tool for evaluation and calibration for an LED source for on-camera use. Should adjustments to the spectrum be needed they can be adjusted in real time using the H/S Scope reference, thus getting camera accurate results.

Each color has its own graph. The color's levels are represented from left to right, with the absolute left being 0 and the absolute right being 1024. The scale is presented as a percentage to allow for extremely bright or dark pictures to be analyzed without truncating.

3.3.10.10 Chromaticity

To set up the **Chromaticity Scope**, press the Scope Config button. This opens the Scope Config window. Click on the **Chromaticity** button on the right. There are a number of options to set up the Chromaticity **Scope**:



Graticule checkbox – when selected, the graticule is laid over the Histogram display. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

Triangle 601 checkbox – when selected, displays the CCIR-601 triangle.

Triangle 709 checkbox – when selected, displays the Rec.709 triangle.

Triangle 2020 checkbox – when selected, displays the BT.2020 triangle.

Triangle P3 checkbox – when selected, displays the P3 triangle.

Invert checkbox – when selected, displays the video signal over a black background instead of the Chromaticity hues background.

Black checkbox – when selected, display the signal in black

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

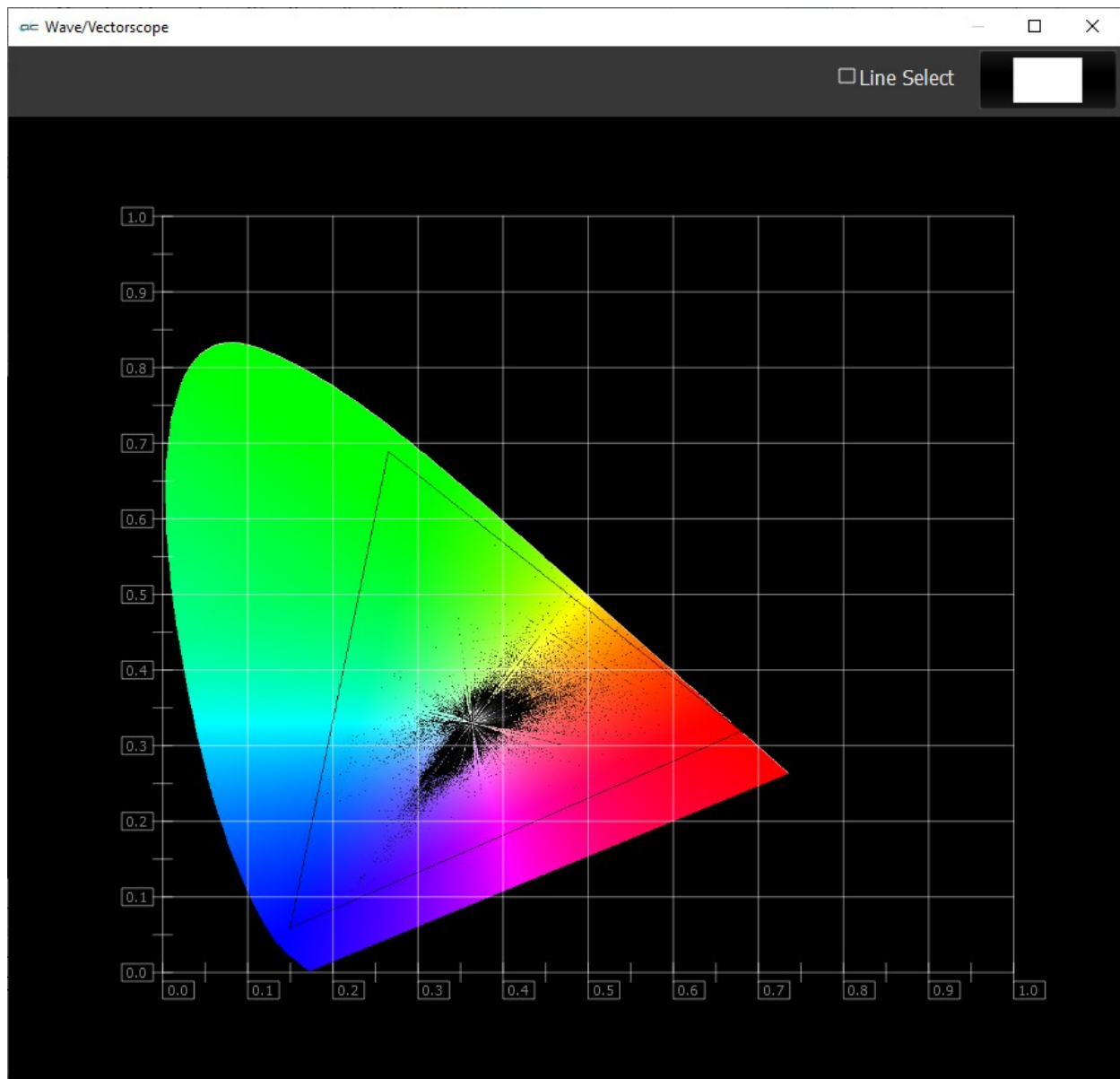
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

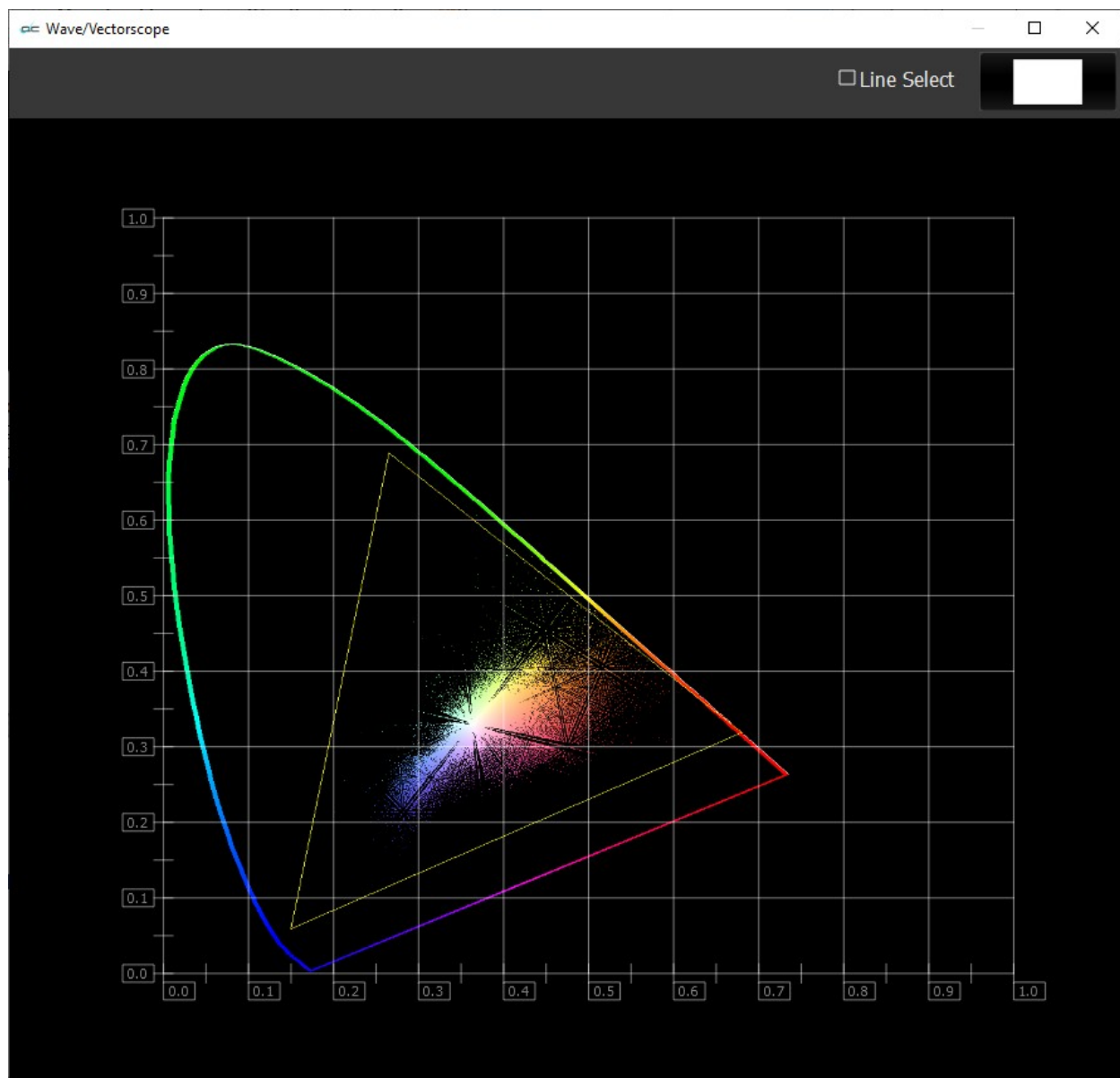
Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.10.1 Chromaticity Display

Here is the Chromaticity window.



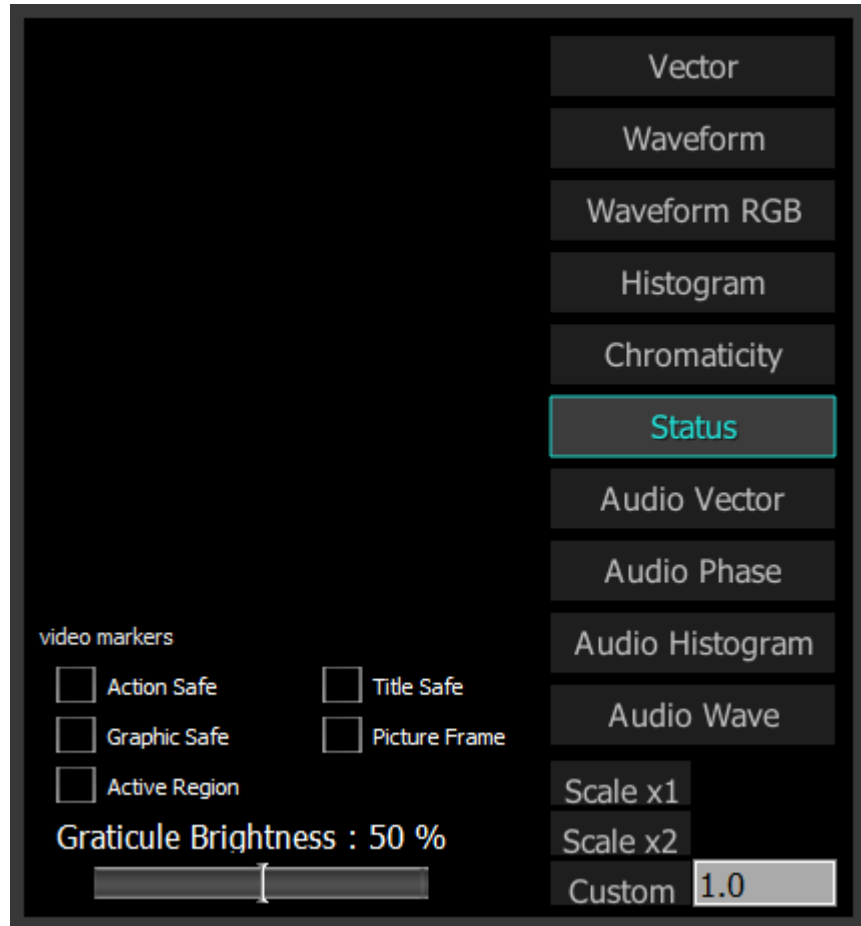
The Chromaticity scope provides a visual representation of the color in a video across all the colors of visible light. For a particular YCbCr range (BT.2020, P3, Rec.709, CCIR-601) a triangle can be superimposed. This will delineate the colors that fall within the acceptable range and those that are outside it. The color of the video within the CIE 1931 color display can be white, black, or the chromaticity hues background.



The display can also be inverted to use black as the background, and the colors (or white) to show the trace.

3.3.10.11 Status

To set up the **Status**, press the Scope Config button. This opens the Scope Config window. Click on the **Status** button on the right. There are a number of options to set up the **Status** display:



Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output.

Graticule Brightness slider – this slider is present in all of the scopes. In the Status window there is no graticule, so this slider has no effect.

Scale x1 button – clicking this button sets the display to standard size

Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display.

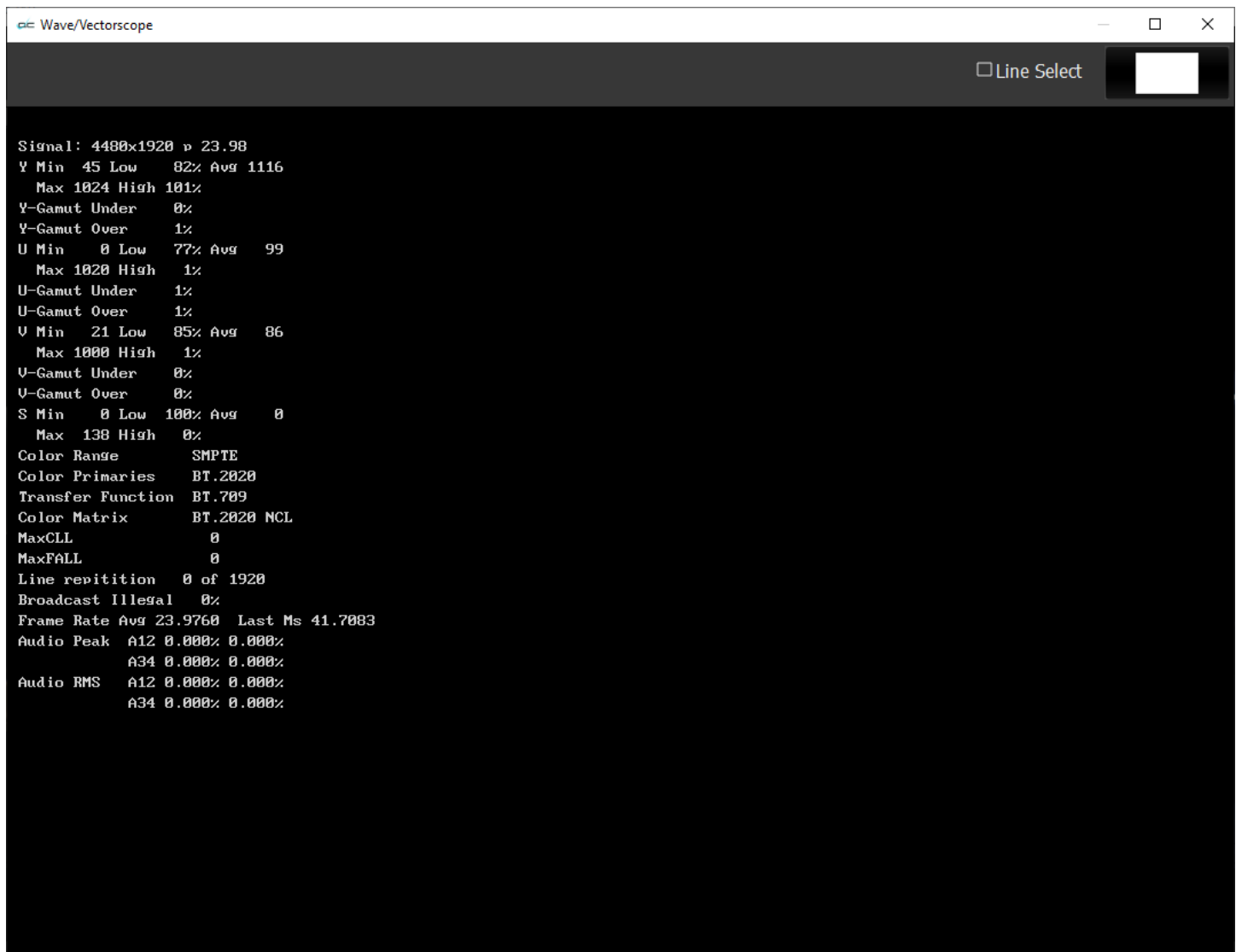
Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.11.1 Status Display

Here is the Status Window.



The Status window displays:

Signal: displays the current signal type

Y: The Y component. Displays Minimum and Maximum, Low and High, Average, Gamut Under, and Gamut Over values

U: The U component. Displays Minimum and Maximum, Low and High, Average, Gamut Under, and Gamut Over values

V: The V component. Displays Minimum and Maximum, Low and High, Average, Gamut Under, and Gamut Over values

S: Saturation. Displays Minimum and Maximum, Low and High, Average, Gamut Under, and Gamut Over values

Color Range: Full or SMPTE (Limited).

Color Primaries: BT 709 (HD), BT 470BG (PAL), SMPTE 170M (NTSC), BT 2020 (WCG). An index into a table specifying the CIE 1931 xy chromaticity coordinates of the white point and the red, green, and blue primaries. The table of primaries specifies the white point and the red, green, and blue primary color points for a video system.

Transfer Function: BT 709 (HD), SMPTE 170M (PAL/NTSC), SMPTE 2084 (HDR10/PQ), ARIB B67 (HLG). Defines an index into a table specifying the nonlinear transfer function coefficients that translate between RGB color space values and Y'CbCr values. The table of transfer function coefficients specifies the nonlinear function coefficients that translate between the stored Y'CbCr values and a video capture or display system.

Color Matrix: BT 709 (HD), BT 479BG (PAL), BT 601 (NTSC), BT 2020 (WCG). An index into a table specifying the transformation matrix coefficients that translate between RGB color space values and Y'CbCr values. The table of matrixes specifies the matrix for the translation.

MaxCLL: In HDR10 mode, Maximum Content Light Level

MaxFALL: In HDR10 mode, Maximum Frame – Average Light Level

Line repetition in number of lines over total possible lines

Broadcast illegal in percentage

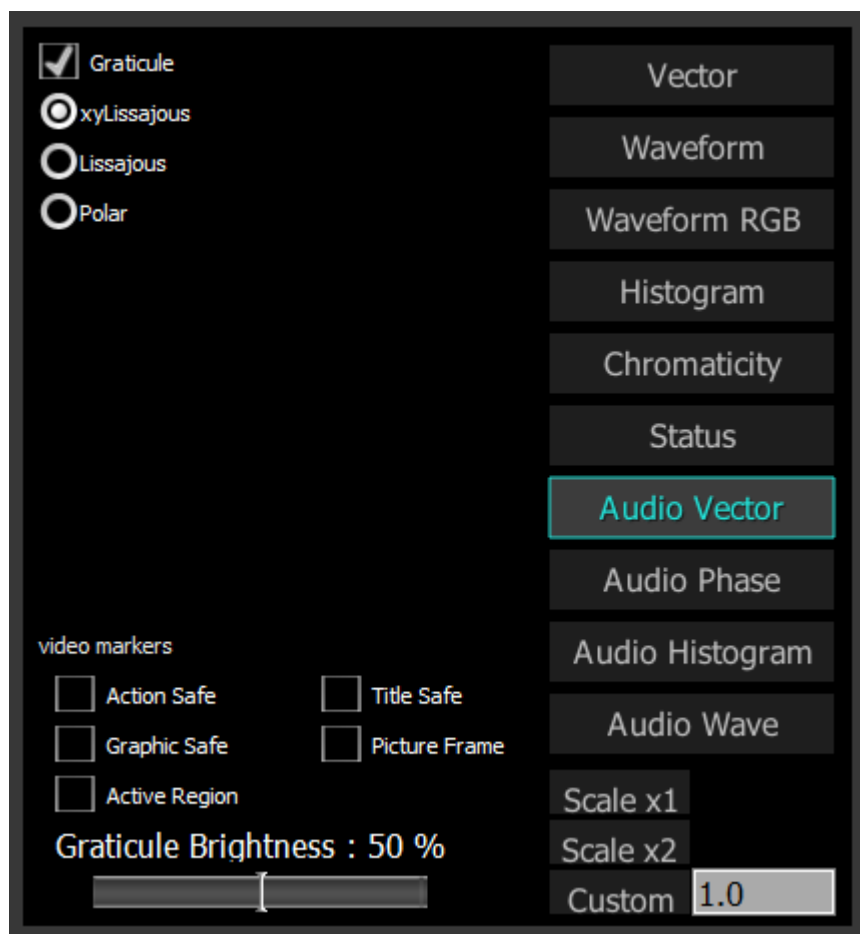
Frame Rate: Displays Average, and Last Ms.

Audio Peak per channel pair

Audio RMS per channel pair

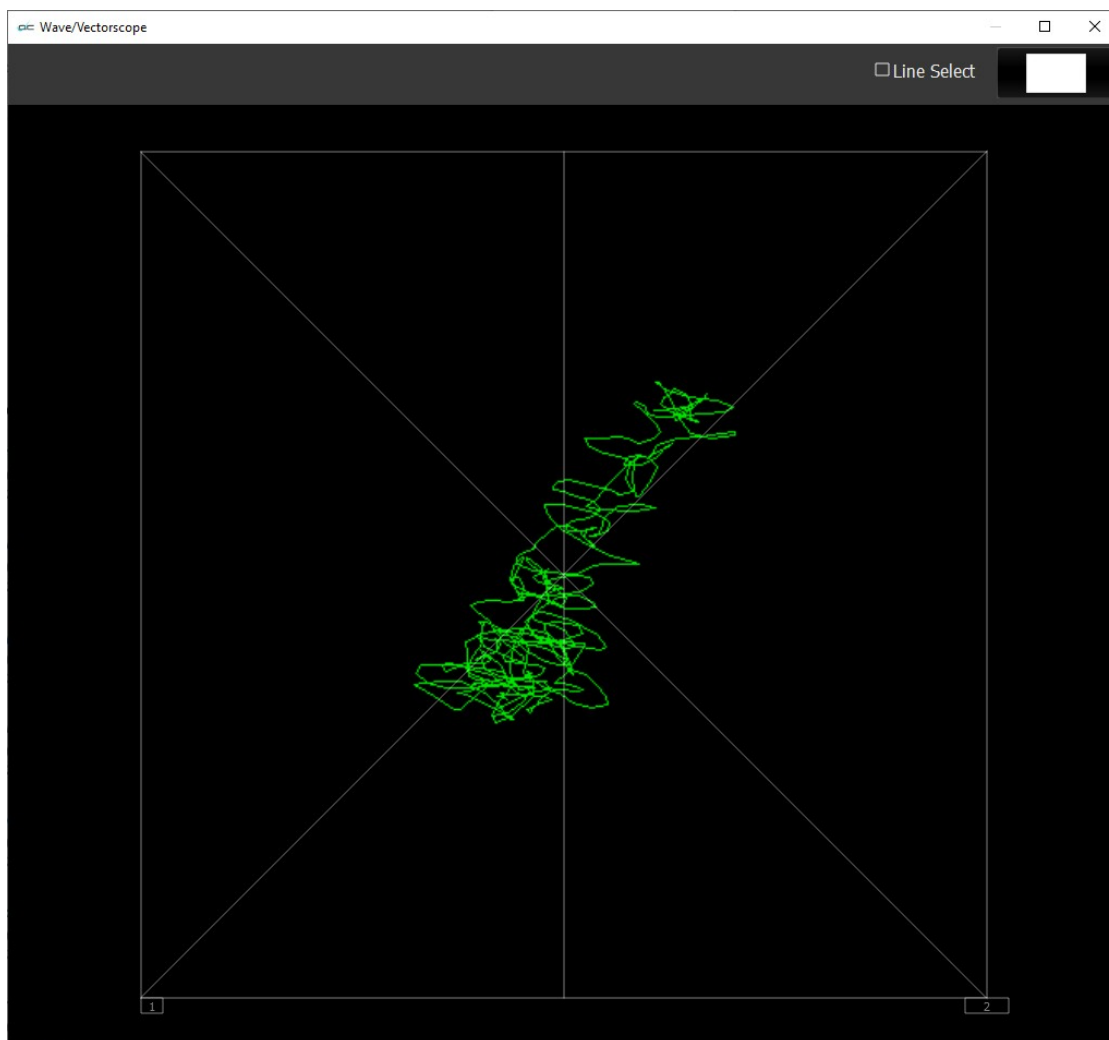
3.3.10.12 Audio Vector

To set up the **Audio Vectorscope**, press the Scope Config button. This opens the Scope Config window. Click on the **Audio Vector** button on the right. There are a number of options to set up the **Audio Vectorscope** display:

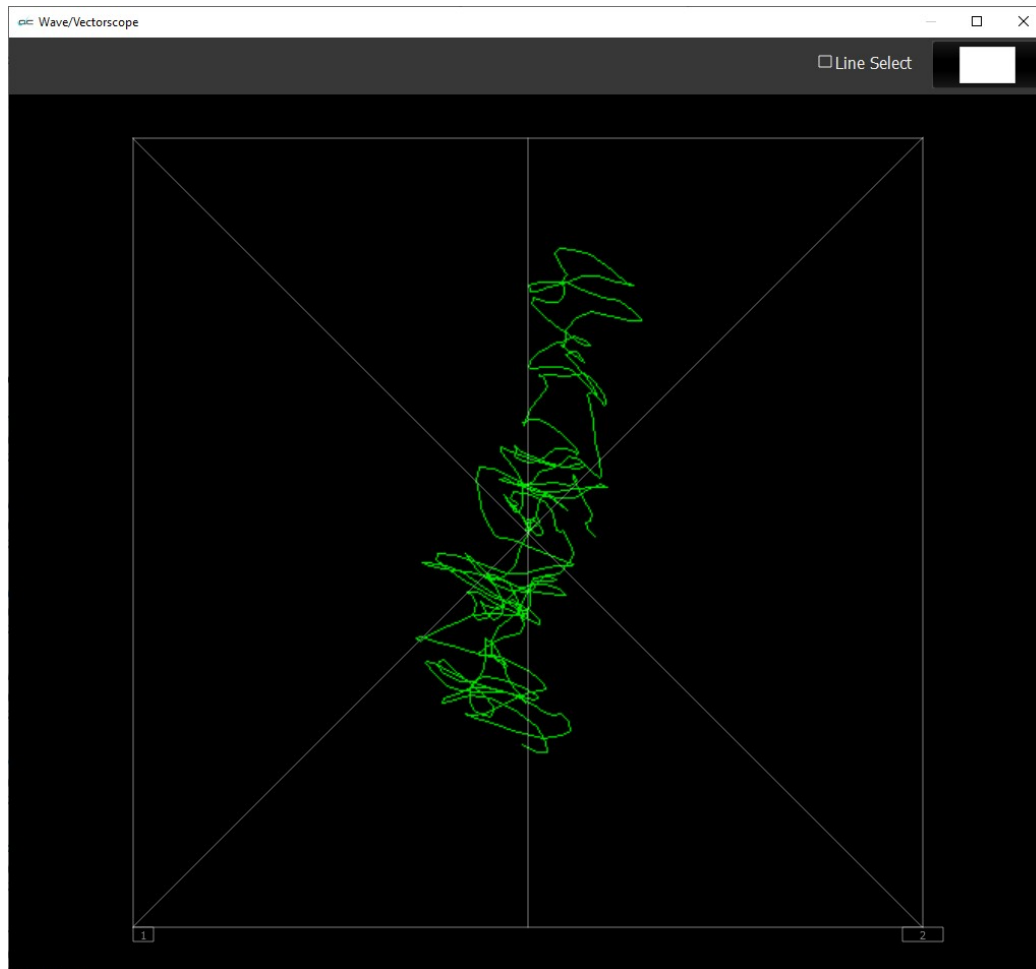


Graticule checkbox – when selected, the graticule is laid over the Histogram display. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

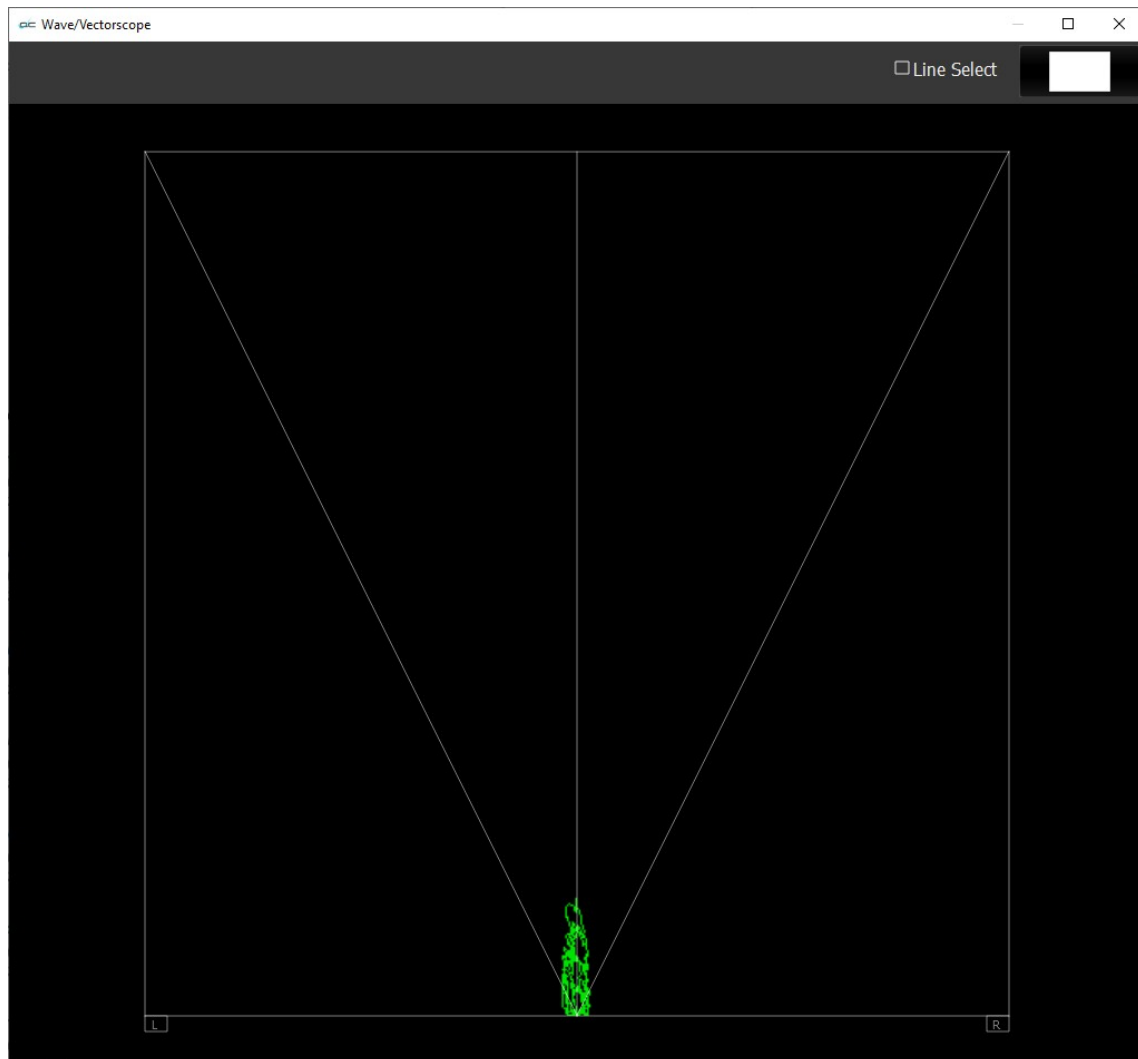
xyLissajous checkbox – when selected, displays the relative phase of the selected audio pair in Lissajous XY mode, oriented around the diagonal axis from lower left to upper right, with zero at the center. Higher levels expand outward from the center, and the left and right channels are distributed to the top and bottom of the diagonal axis.



Lissajous checkbox – when selected, displays the relative phase of the selected audio pair in Lissajous mode, oriented around the center axis, with zero at the center. Higher levels expand outward from the center, and the left and right channels are distributed to the right and left of the center line.



Polar checkbox – when selected, displays the relative phase of the selected audio pair in Polar mode, oriented around the vertical axis, with zero at the bottom center. Higher levels expand upward and the left and right channels are distributed to the right and left of the center line.



Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

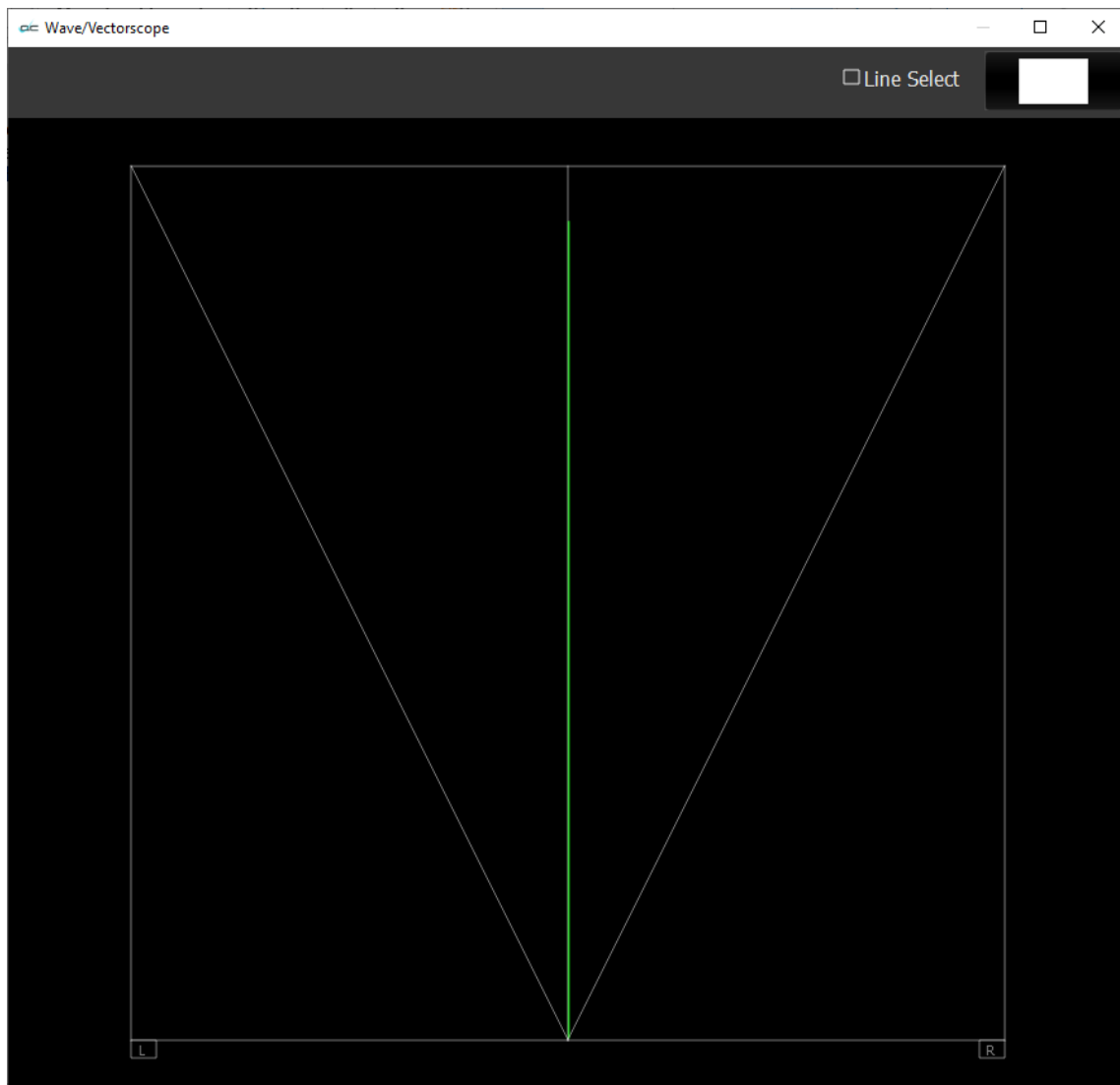
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display.
Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.12.1 Audio Vector Display

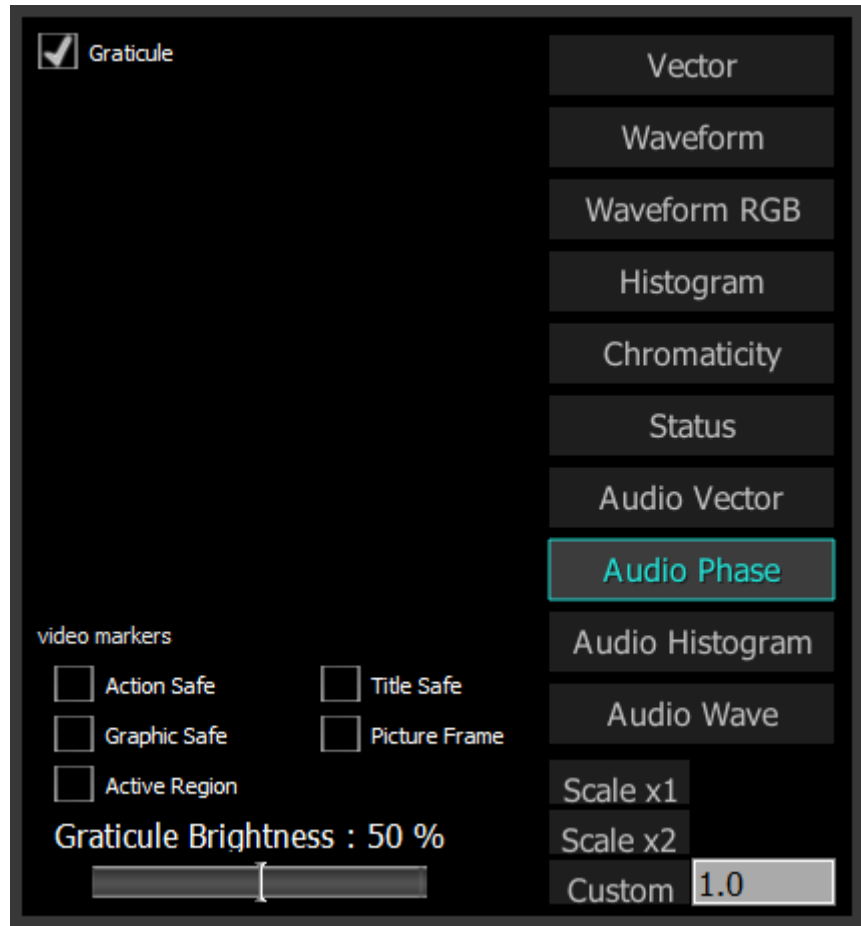
Here is the Audio Vector window.



The audio vectorscope measures the difference between channels of a stereo pair. One channel drives the horizontal and the other the vertical deflection. This will show the relative phase of the two channels. This can be shown in Lissajous XY, Lissajous or Polar modes. Any pair may be selected in the setup.

3.3.10.13 Audio Phase

To set up the **Audio Phase**, press the Scope Config button. This opens the Scope Config window. Click on the **Audio Phase** button on the right. There are a number of options to set up the **Audio Phase**:



Gaticule checkbox – when selected, the graticule is laid over the Histogram display. The brightness of the Graticule may be adjusted using the **Gaticule Brightness** slider described below.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

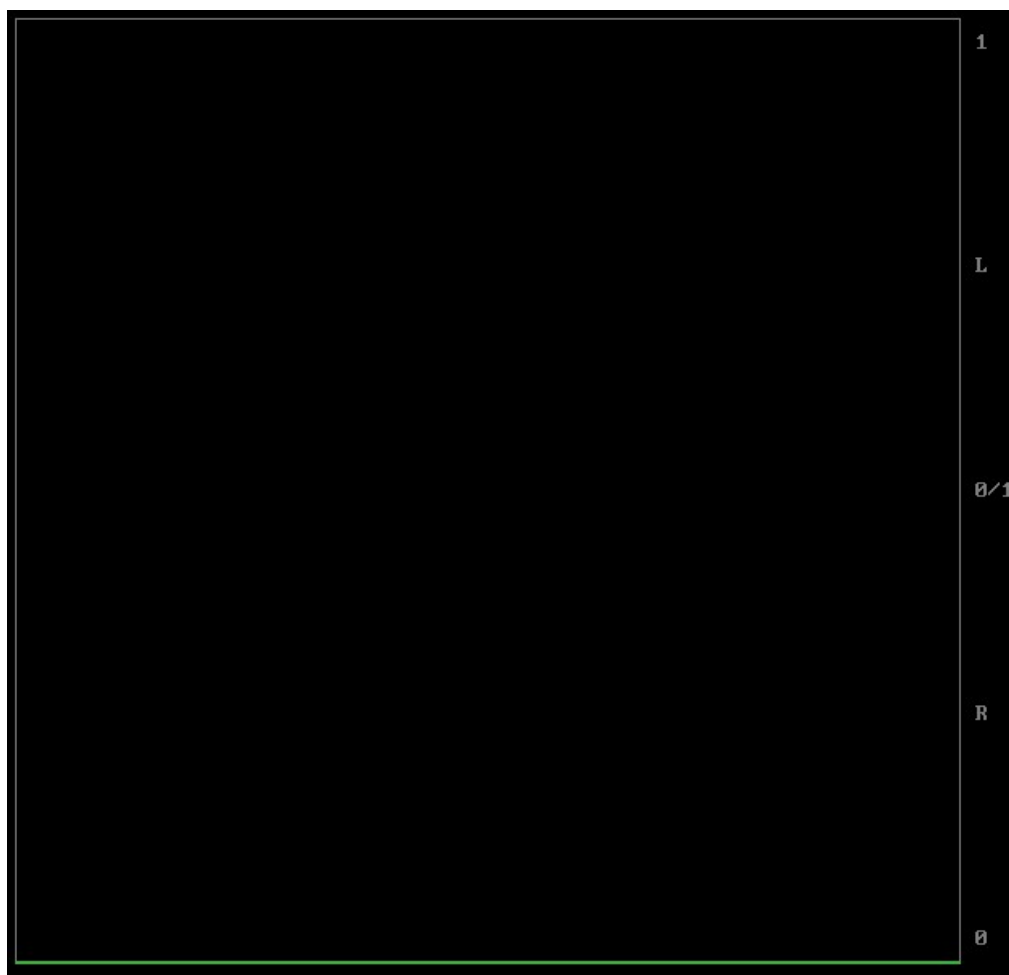
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.13.1 Audio Phase Display

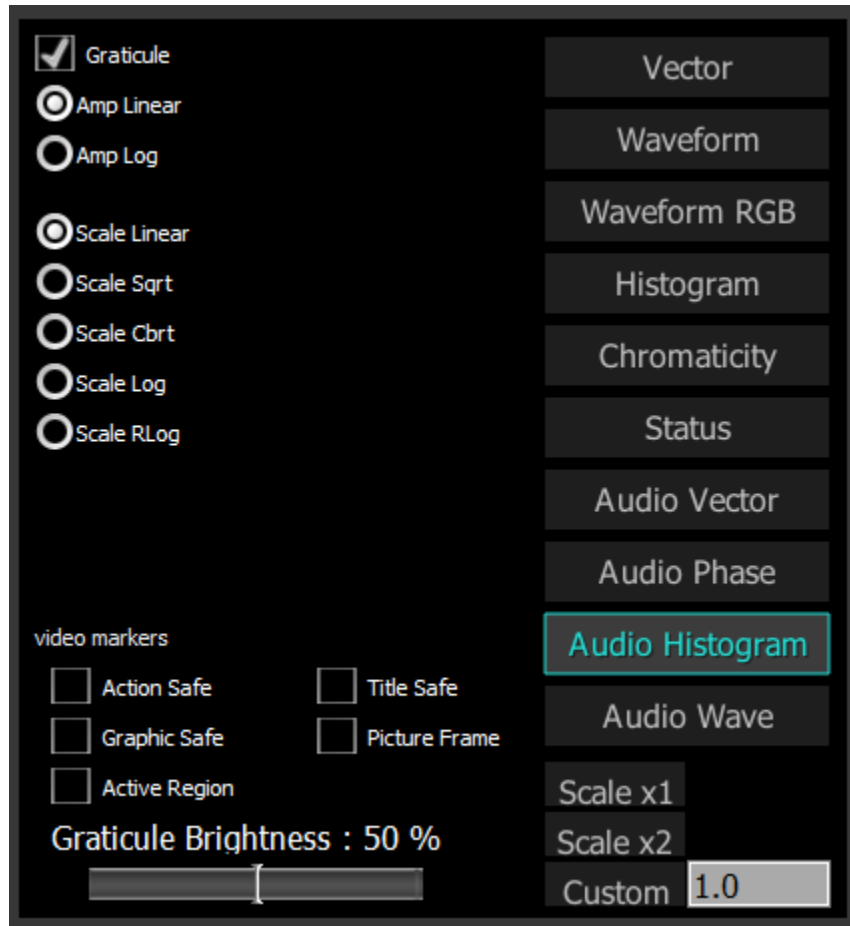
Here is the Audio Phase window.



The audio phase meter shows the relative density of two audio channels and the relative loudness as a line moving towards the louder channel.

3.3.10.14 Audio Histogram

To set up the **Audio Histogram**, press the Scope Config button. This opens the Scope Config window. Click on the **Audio Histogram** button on the right. There are a number of options to set up the **Audio Histogram**:



Graticule checkbox – when selected, the graticule is laid over the Histogram display. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

Amp Linear selector – clicking in the Amp Linear checkbox sets the Amp to linear

Amp Log selector – clicking in the Amp Log checkbox sets the Amp to logarithmic.

Scale Linear – clicking in the Scale Linear checkbox sets the scale to linear.

Scale Sqrt – clicking in the Scale Sqrt checkbox sets the scale to sqrt.

Scale Cbrt – clicking in the Scale Cbrt checkbox sets the scale to cbrt.

Scale Log – clicking in the Scale Log checkbox sets the scale to logarithmic.

Scale RLog – clicking in the Scale RLog checkbox sets the scale to R logarithmic.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

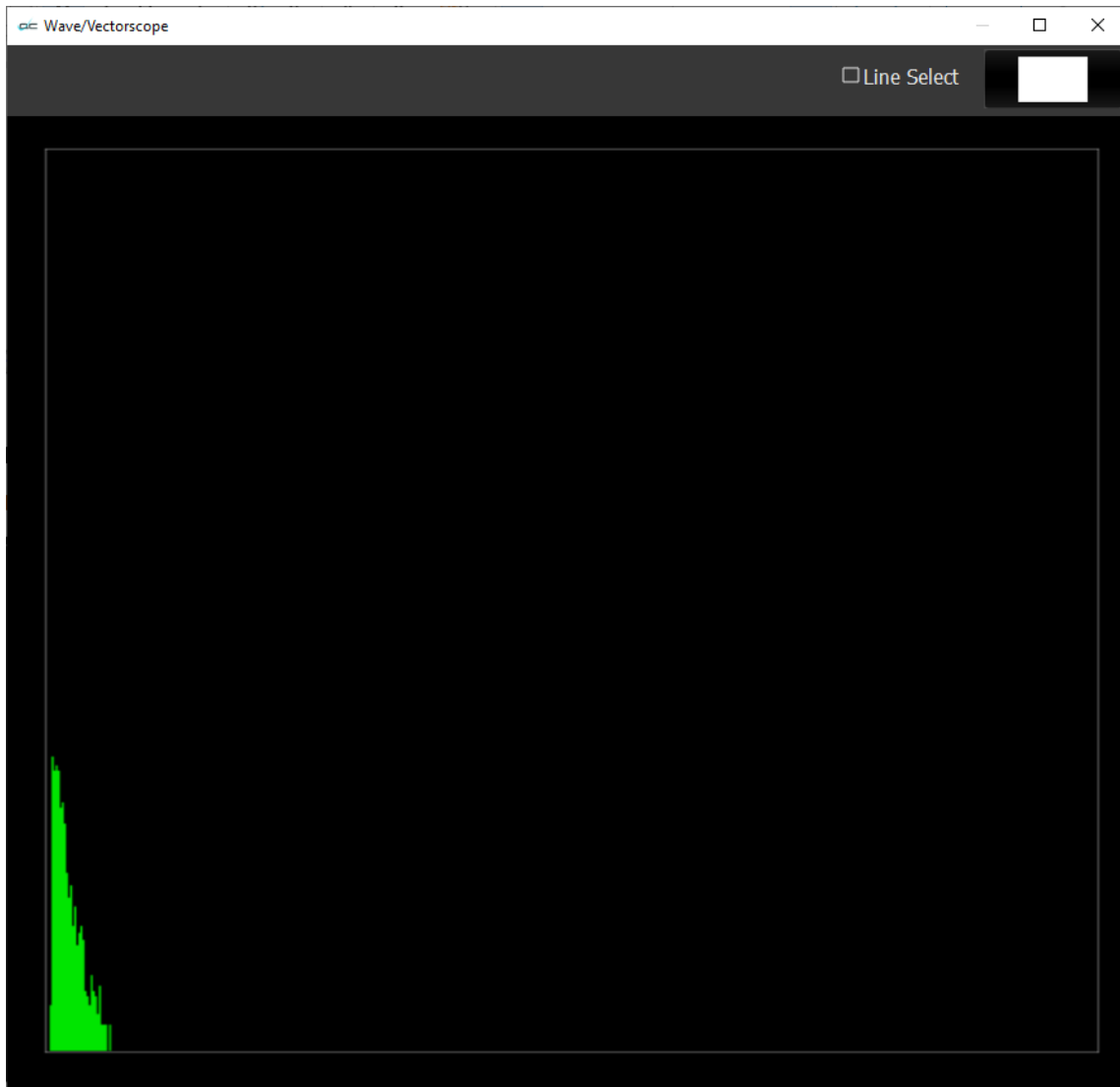
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.14.1 Audio Histogram Display

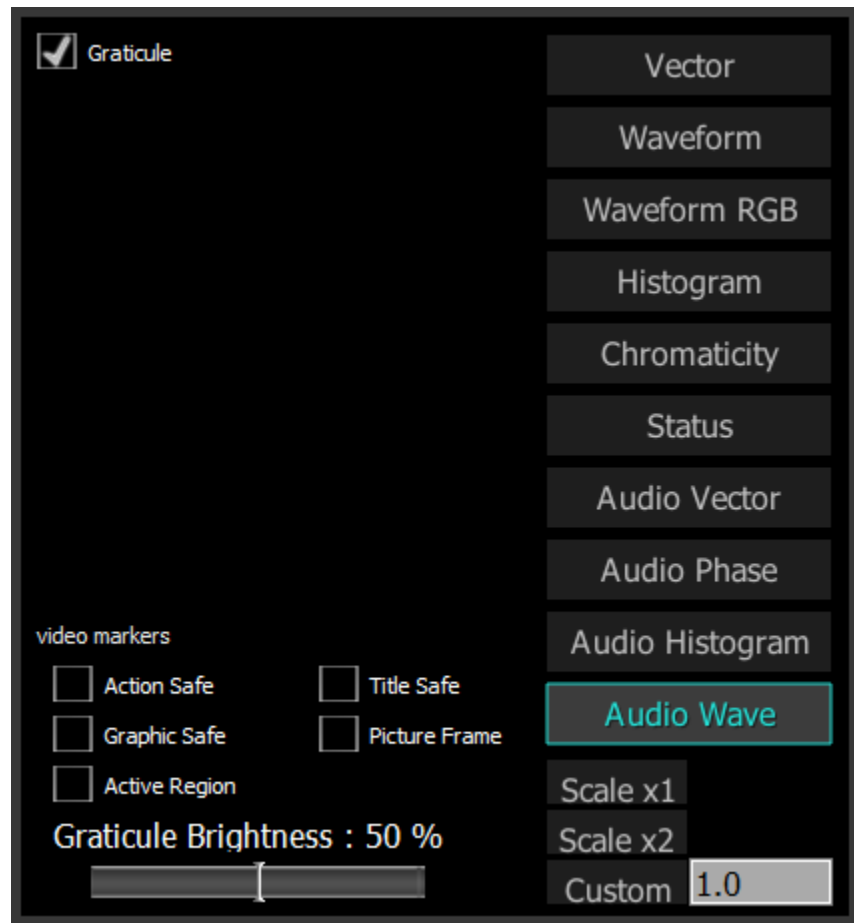
Here is the Audio Histogram window.



The audio histogram displays a bar chart of the levels of the components of an audio signal. This can be displayed as linear or logarithmic. The scale can be set as linear, square root, cubed root, log or reverse log.

3.3.10.15 Audio Wave

To set up the **Audio Waveform Monitor**, press the Scope Config button. This opens the Scope Config window. Click on the **Audio Histogram** button on the right. There are a number of options to set up the **Audio Histogram**:



Graticule checkbox – when selected, the graticule is laid over the Histogram display. The brightness of the Graticule may be adjusted using the **Graticule Brightness** slider described below.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output.

Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output.

Graticule Brightness slider – moving the Graticule Brightness slider adjusts the brightness of the graticule overlay, 0% providing no display and 100% being maximum brightness.

Scale x1 button – clicking this button sets the display to standard size

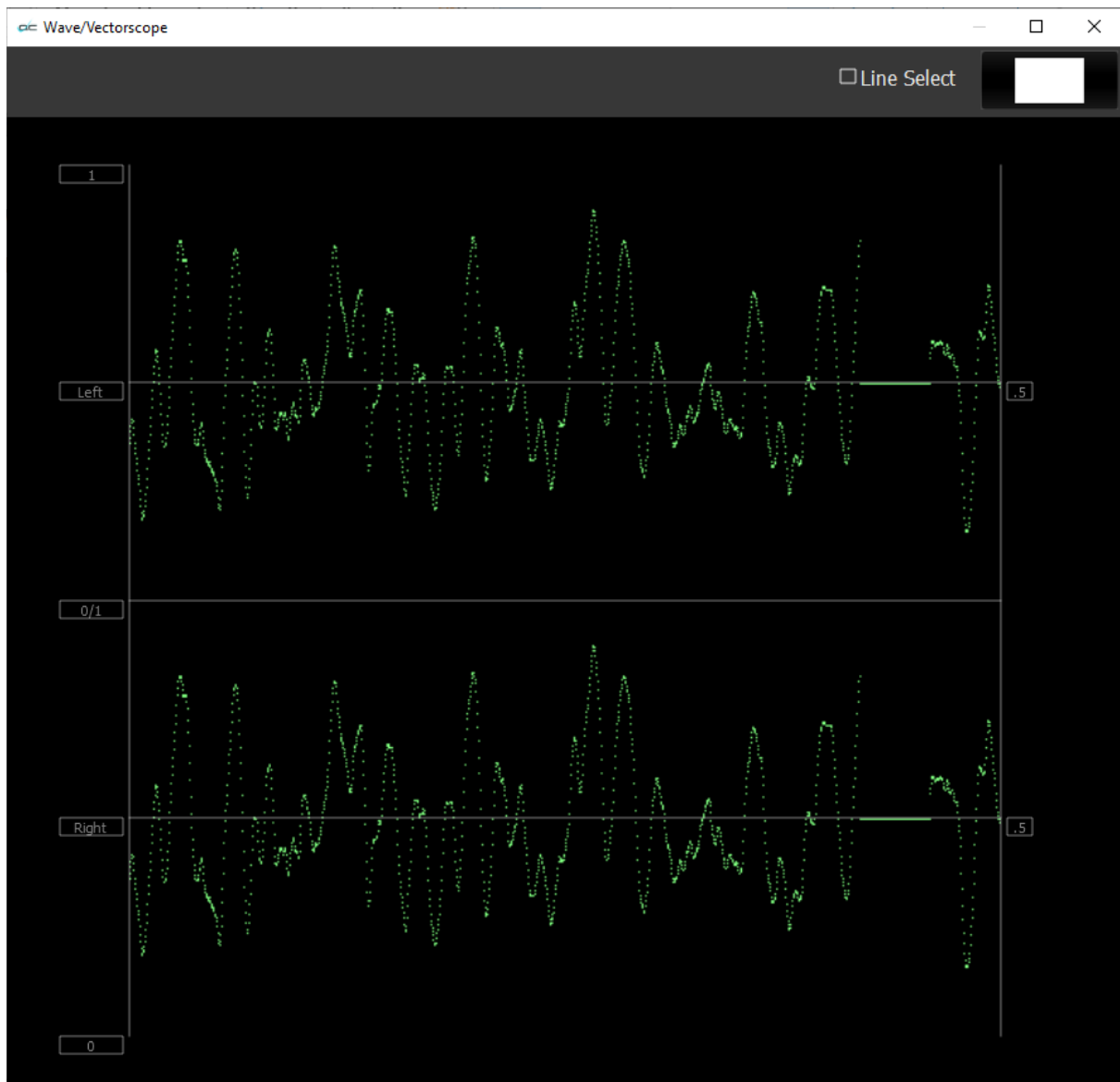
Scale x2 button – clicking this display zooms in to set the display at 200%, or 2x normal display. Pressing the x1 button sets the display back to normal.

Custom button and field – The user may enter a custom enlargement value in the field, and press the Custom button to zoom in and see details up close. Pressing the x1 button sets the display back to normal.

Pressing the x in the upper right corner will close the Scope Config window.

3.3.10.15.1 Audio Wave Display

Here is the Audio Wave window.



The audio waveform of any pair of channels can be displayed in real time.

3.3.11 Data View

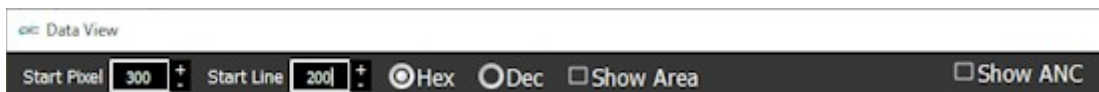
data view

The **Data** display may be selected by clicking on the **Data** button in the side menu. During playback, every time a pixel value changes, its value is displayed in red. So, a paused frame would display all the values in white.



Data view

Across the top the following controls are available:



Start Pixel field and buttons – the field shows the current start pixel, or 0 if none has been set.

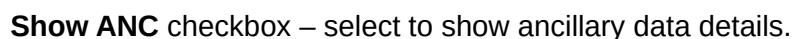
Pressing the + and - (plus and minus) buttons increments the start pixel up or down.

Start Line field and buttons – the field shows the current start line, or 0 if none has been set.

Pressing the + and - (plus and minus) buttons increments the start line up or down.

Hexadecimal/Decimal radio buttons – select between hexadecimal and decimal using these two buttons. Selecting one button deselects the other.

Show Area checkbox – select to draw a box around the selected area, if one has been set. The start pixel is displayed as a straight line across the screen. If **Show Area** is set, a box will be drawn to show the pixel area being analyzed in the Data View. This is also the section of the image whose pixels are displayed to the right of the Data View. The below image shows the box, and the line drawn across the screen.



Ancillary data packets are used to transmit non-video information (such as digital audio, closed captioning, teletext, etc.) during the blanking intervals. Clicking on one of the rows will display the data associated with the entry. The below details are provided for each entry, where they exist. If the category has no data, the field will be left blank.

Format – ancillary data format description

DID - Data Identifier

SDID - Secondary Data Identifier

Expected vs Actual checksum – displays the expected checksum (a data integrity benchmark) versus the actual checksum detected

Status – whether the data is OK, or has one or more errors

Activity – Active (current), Stale (has not been active for a little while), or Inactive (has not been for a longer time)

Type – ancillary data type (numeric)

Field – in interlaced content, which field is implicated by the row details

DC – Data count (numeric)

Line – in progressive content, which line is implicated by the row details

Sample - Sample indicates what sample contains the data; Y channel, or Cr/Cb channel, or both. It will probably almost always be 4 which means Y channel.

Last time code – the time code location at which the event being described by the row happened.

Detail:					
Format: Not SMPTE 436	DID: 2b5	SOID: 0	Exp/Act Checksum: c7/0	Status: Error	Activity: Active
Type: 1	Field:				
DC: 96	Line:	Sample:	Last Timecode:	01:10:30;39	

The Data view allows access to the raw pixel values being monitored on the HDMI or SDI input.

For YCbCr signals, the Y/Cb and Y/Cr pairs are displayed next to each other with no interpolation. For dual link RGB, the 0..1023 components are also displayed directly. This mode is perfect for checking vertical blank signaling and metadata, as well as picture issues like inner line sync markers or out of range colors.

videoQC v7 Software

3.3.11.1 Progressive files vs. Interlaced files in the Data View

Progressive files provide sequentially numbered scan lines, whereas interlaced files show both frames interlaced, where the first field goes from 0/1/2..562, and the second field goes from 564/565..1125.

In the example below, a progressive file is shown on the left, and an interlaced file is shown on the right.

Data View

Start Pixel

0

+

Start Line

0

+

Hex

Dec

Show Area

0 px	Cb-U	Y0	Cr-V	Y1	Cb-U	Y0	Cr-V	Y1	Cb-U	Y0	Cr-V	Y1	Cb-U	Y
0	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CF	0x0079	0x00CF	0x008F	0x0
1	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CF	0x0079	0x00CF	0x008F	0x0
2	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CF	0x0079	0x00CF	0x008F	0x0
3	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CF	0x0079	0x00CE	0x008F	0x0
4	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x0
5	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CE	0x0079	0x00CD	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x0
6	0x008F	0x00CE	0x0079	0x00CE	0x008F	0x00CD	0x0079	0x00CD	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x0
7	0x008F	0x00CD	0x0079	0x00CD	0x008F	0x00CD	0x0079	0x00CD	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x0
8	0x008E	0x00CC	0x007A	0x00CC	0x008E	0x00CC	0x007A	0x00CC	0x008E	0x00CC	0x007A	0x00CC	0x008E	0x0
9	0x008E	0x00CC	0x007A	0x00CC	0x008E	0x00CC	0x007A	0x00CC	0x008E	0x00CC	0x007A	0x00CC	0x008E	0x0
10	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x00CC	0x0079	0x00CC	0x008F	0x0

Data View

Start Pixel

0

+

Start Line

0

+

Hex

Dec

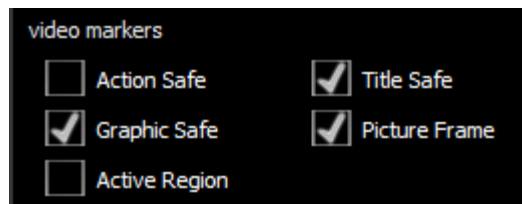
Show Area

0 px	Cb-U	Y0	Cr-V	Y1	Cb-U	Y0	Cr-V	Y1	Cb-U	Y0	Cr-V	Y1	Cb-U	Y
0	0x007E	0x003C	0x0084	0x007F	0x0081	0x0082	0x0084	0x007F	0x0082	0x0080	0x0084	0x007E	0x007D	0x0
564	0x007C	0x003E	0x0084	0x0081	0x007F	0x0082	0x0084	0x0080	0x007F	0x0082	0x0084	0x0080	0x007B	0x0
1	0x007B	0x0040	0x0083	0x0082	0x007E	0x0082	0x0083	0x0080	0x007C	0x0082	0x0083	0x0081	0x0079	0x0
565	0x007B	0x003E	0x0083	0x007F	0x007E	0x007E	0x0083	0x007C	0x007D	0x007E	0x0083	0x0080	0x007A	0x0
2	0x007C	0x003C	0x0083	0x007B	0x007C	0x007B	0x0082	0x0077	0x007B	0x0079	0x0083	0x0079	0x0079	0x0
566	0x007D	0x003A	0x0083	0x007A	0x007D	0x007B	0x0082	0x007A	0x007B	0x007A	0x0083	0x007B	0x007C	0x0
3	0x007B	0x0035	0x0084	0x0076	0x007A	0x007B	0x0084	0x0076	0x007B	0x007B	0x0083	0x0076	0x007A	0x0
567	0x007B	0x0033	0x0084	0x0072	0x007A	0x0074	0x0084	0x0072	0x0077	0x0076	0x0083	0x0074	0x007B	0x0
4	0x0074	0x0036	0x0080	0x0065	0x0074	0x006B	0x0081	0x0067	0x0073	0x0069	0x0081	0x006B	0x0073	0x0
568	0x0073	0x002D	0x0080	0x0057	0x0073	0x005D	0x0080	0x005B	0x0073	0x005B	0x0080	0x005A	0x0073	0x0
5	0x0076	0x0027	0x0080	0x0047	0x0075	0x0049	0x0080	0x0047	0x0077	0x0049	0x0080	0x0046	0x0077	0x0

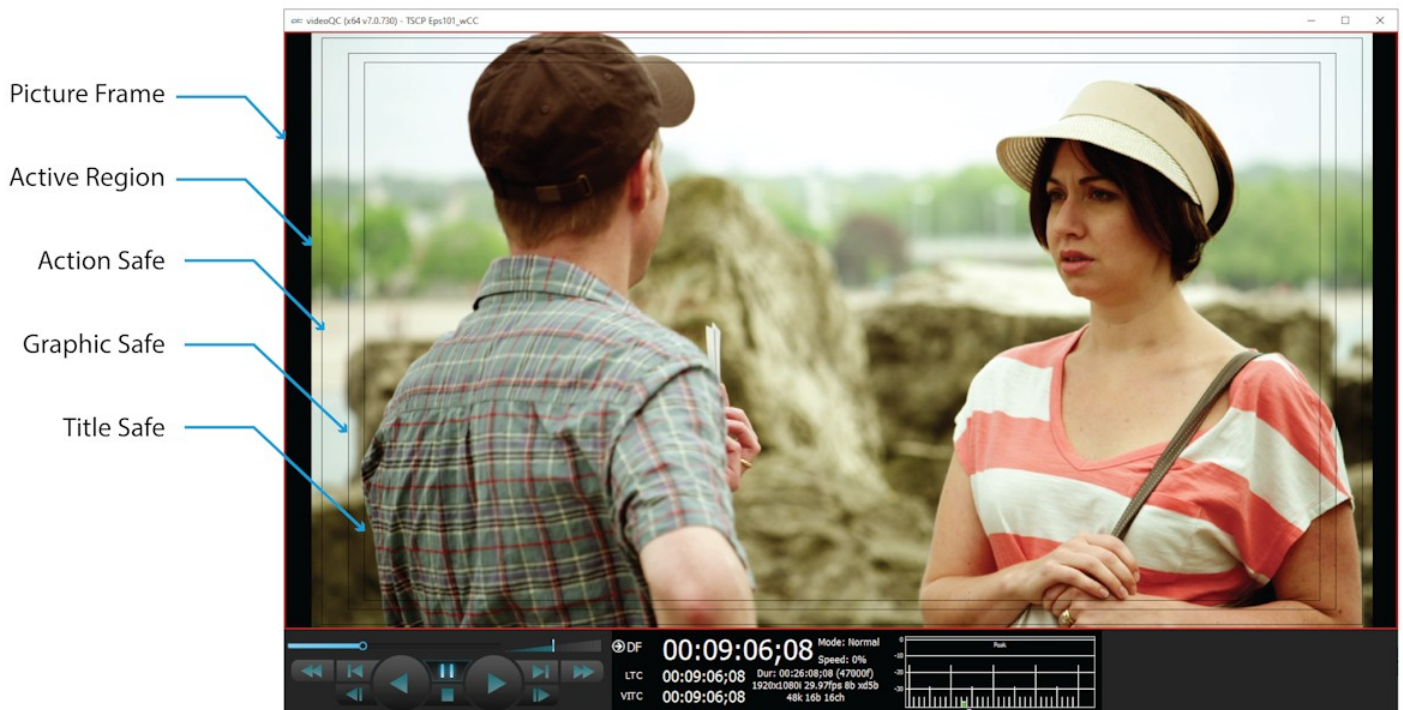
3.3.12 Video Markers

Here are the video markers displayed over the picture.

They can be enabled or disabled in the scopes setup window. To set up the video markers, click the **wave/vector** option in the main menu. This opens the Waveform/Vectorscopes. Press the setup icon in the upper right corner, and use the **video markers** section to set up the overlays.



Here are the available markers.



Picture Frame checkbox - when selected, the Picture Frame graticule is displayed over the video output. Shows the border of the frame.

Active Region checkbox - when selected, the Active region graticule is displayed over the video output. Shows the area that provides video signal.

Action Safe checkbox - when selected, the Action Safe graticule is displayed over the video output. Shows the area to which action in a frame should be constrained so that it can be

viewed from all angles on most displays.

Graphic Safe checkbox - when selected, the Graphic Safe graticule is displayed over the video output. In television broadcasting, a rectangular area which is far enough in from the borders, such that graphics display neatly, with a margin and without distortion.

Title Safe checkbox - when selected, the Title Safe graticule is displayed over the video output. In television broadcasting, a rectangular area which is far enough in from the borders, such that text shows neatly, with a margin and without distortion.

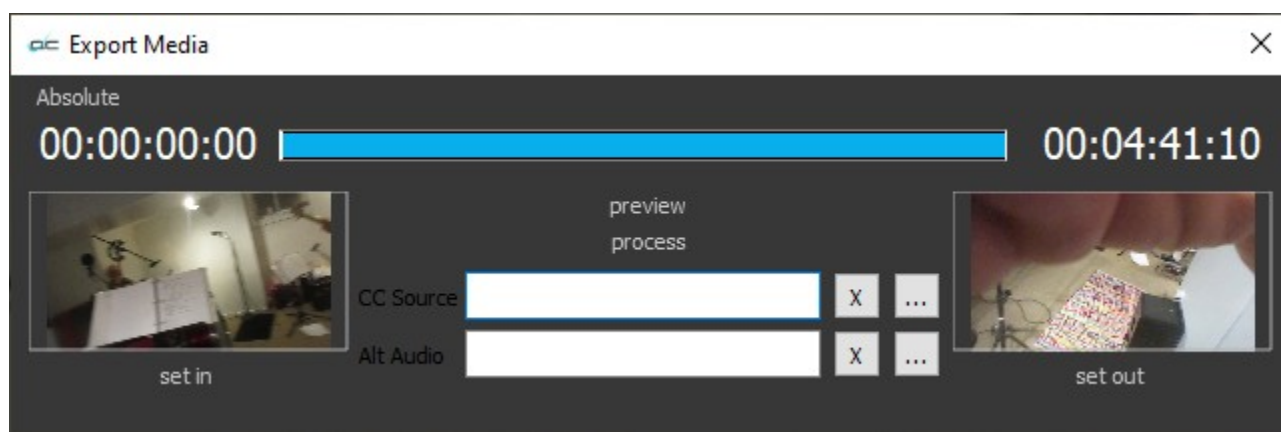
3.3.13 Export Media

export media

Export button - opens the export window, which allows the user to take the file they are viewing and export some or all of it. The position slider may be clicked on and repositioned to set in and out points.

This feature is added at the videoQC Workstation level.

Please note, IP stream sources are not supported for export.



The **Export** Window offers the following controls and displays:

Absolute

TC Type – displays the type of time code being used. Clicking on the time code type pulls up the following menu, where the user can select between available time code types.





In field – displays the current In frame.

Position Sliders – displays the entire clip as blue when the clip is first loaded. Hovering over the white line at the beginning and end of the blue bar in the position slider produces a left/right arrow, which allows the user to edit either the In or Out point. Once a new In or Out point has been set, displays the amount of the clip that will be exported in blue, and the portions that will not be included in the export will be displayed in black.

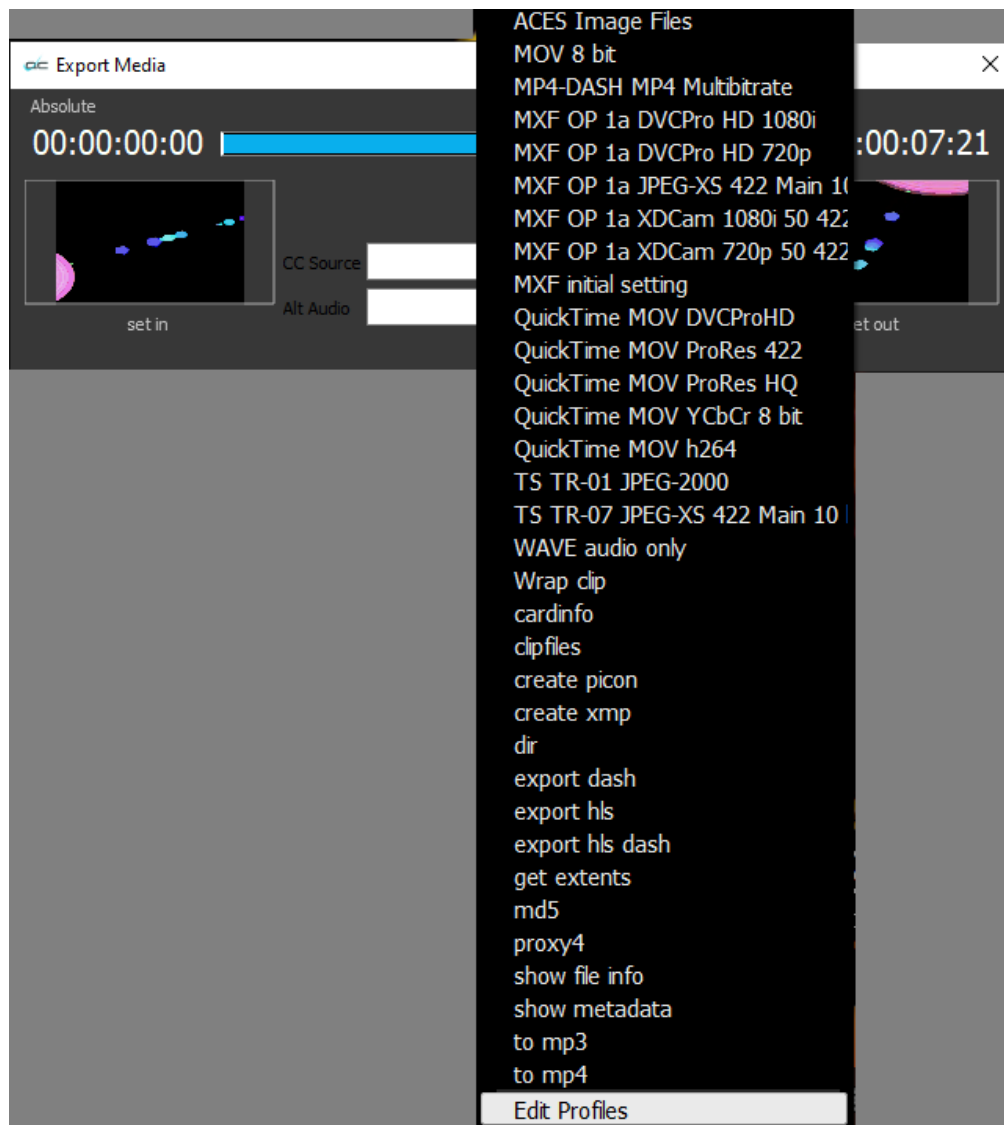
Out field – displays the current Out frame.

In picon and **Set In** button – a picon of the current In frame is displayed. Setting a new In frame will update the image. To set a new In frame, play or cue the file to a new in point, and press the **Set In** button.

Out picon and **Set Out** button – a picon of the current Out frame is displayed. Setting a new Out frame will update the image. To set a new Out frame, play or cue to a new out point, and press the **Set Out** button.

Preview – pressing this control will play the portion of the clip set to be exported.

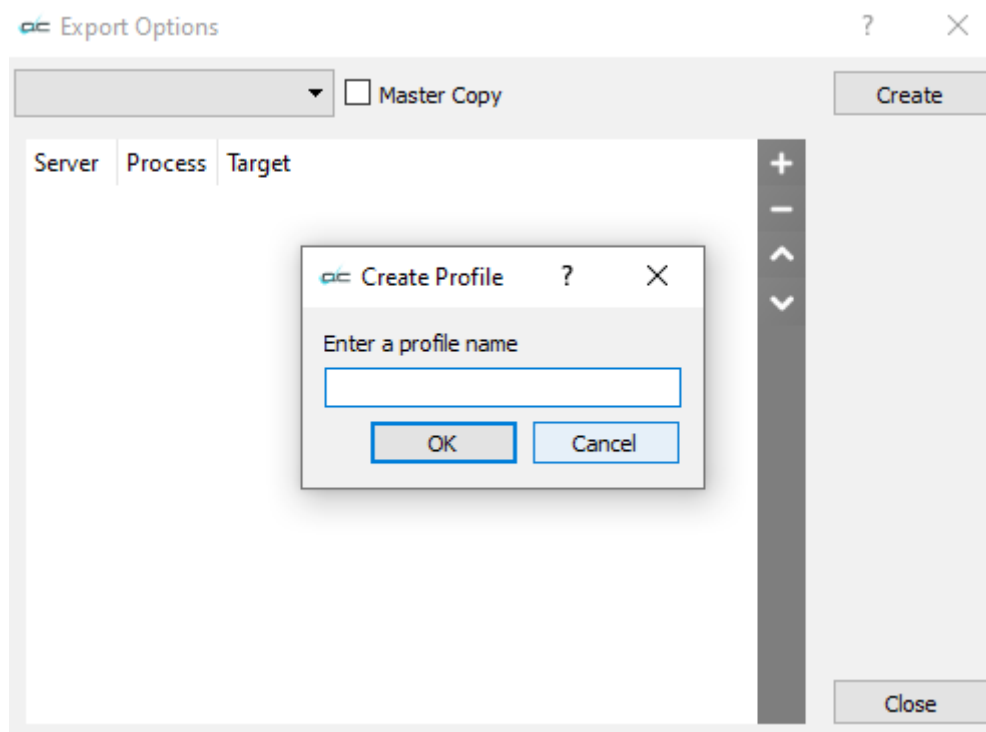
Process – pressing this control begins the export process by opening the **Create Profile** Window. If you have set up profiles, you would be able to select between them for the export:



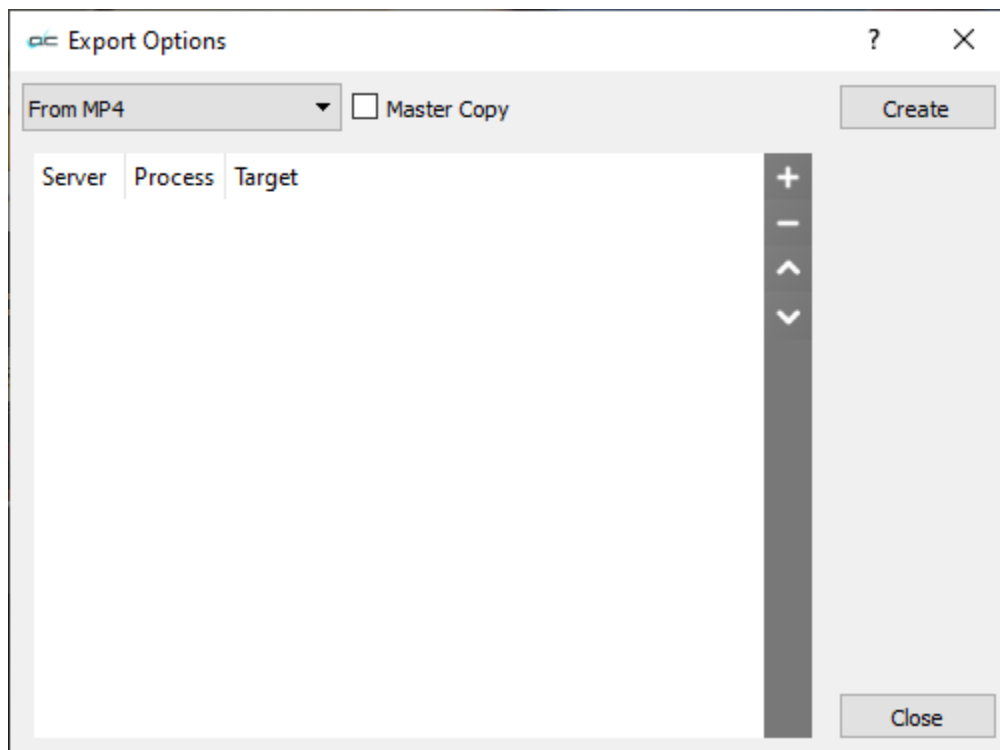
In all cases the **Edit Profiles** option will be available at the bottom of the list so the user can set up a new profile. Selecting **Edit Profiles** opens the Export Options window:

To create a new profile, press the **Create** button at the top right. This opens the **Create Profile** window. Enter a name for the profile and press the **OK** button.

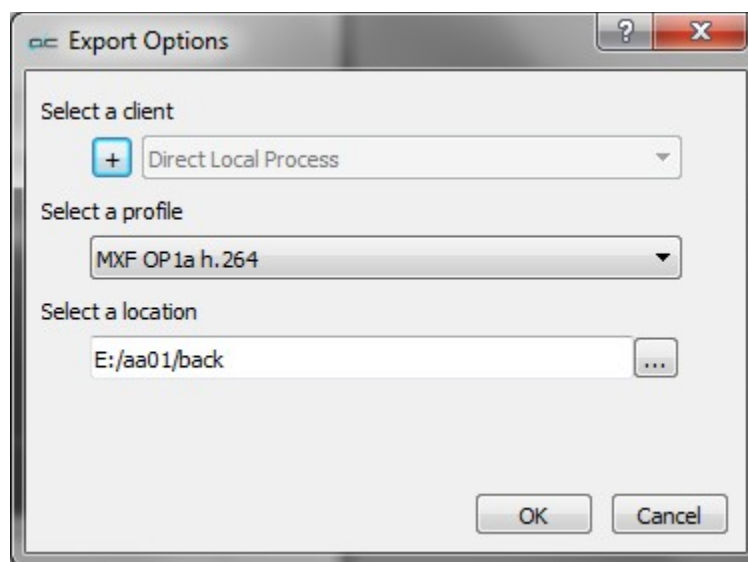
Note: it helps to name the profile after the type of file you intend to create, so you can find it easily when you need it next time.



This opens the **Export Options** window.

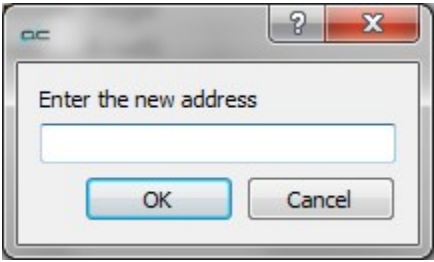


- The **Export Options** window offers a **Profile** pulldown menu which allows the user to select between profiles that have been created. The user can edit existing profiles this way.
- Clicking the **Master Copy** checkbox opens a **Select Target Window** browser which allows the user to set where the master copy of the export should be saved.
- Clicking on the + control opens a further **Export Options** window, which allows the user to set up a process for the export.



- Pressing the + by the **Select a Client** field opens the **Enter a New Address** window. This

allows the user to select a Net-X-Code Server client for the export. Where more than one client has been set up, the field becomes a pulldown menu, allowing the user to select between available clients.



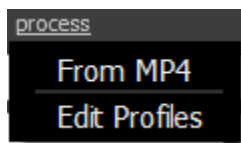
- Pressing the **Select a Profile** pulldown menu allows the user to select between available file format types for the export. Available types include:

ACES Image Files	this is an information request
cardinfo	this is an information request
clipfiles	this is an information request
dir	this is an information request
DNxHD	1080p 25, 29, 30
DNxHD	720p 50, 59, 60
DNxHD	1080i 25, 29, 30
DNxHR	10 Bit
DNxHR	HQ
DNxHR	SQ
examine	this is an information request
getCopyInOut	this is an information request
h264 transport stream	MOV ProRes LT
md5	this is an information request
metadata	this is an information request
MKV	FFV1 Lossless
MOV	MPEG-2 50 4:2:2
MP3	bit rate 128k
MP4	any resolution with a target bitrate of 10 mbs
MP4	any resolution with a target bitrate of 7.5 mbs
MP4	any resolution with a target bitrate of 5 mbs
MP4	HD360p with a target bitrate of 1.25 mbs
MP4	HEVC Any resolution...target bitrate of 10 mbs
MP4	Multiple MP4 Output
MP4	Scaledown to 480x2... target bitrate of 500kbits
MP4	Scaledown to 960x5... target bitrate of 2mbits
MP4	Sony XAVC-S 4:2:0
MP4	Sony XAVC-S 4:2:2
MP4-DASH	MP4 Multibitrate
MXF	AS-02 h.264 50 mbs

MXF	AS-11 HD DPP
MXF	Avid Media DNxHD 1080 Writer
MXF	Avid Media HQX 10 Writer
MXF	Avid Media Low Quality Writer
MXF	Avid Media Proxy Writer
MXF	Avid Media Standard Quality Writer
MXF	Avid Media Uncompressed Writer
MXF	Avid Media XDCam Writer
MXF	Avid Media High Quality Writer
MXF	OP1a DVCPro HD 1080i
MXF	OP1a DVCPro HD 720p
MXF	OP1a h.264
MXF	OP1a HBR 264 10 bit 50mbps
MXF	OP1a HDF 50 4:2:2
MXF	OP1a JPEG-2000 4:2:2
MXF	OP1a MPEG 50 4:2:2
MXF	OP1a XDCam 1080i 35 4:2:0
MXF	OP1a XDCam 1080i 50 4:2:2
MXF	OP1a XDCam 1080p 35 4:2:0
MXF	OP1a XDCam 720p 35 4:2:0
MXF	OP1a XDCam 720p 50 4:2:2
MXF	RDD-25 Proxy Writer
picon	creates a small jpg image
QuickTime	DVCProHD
QuickTime	MOV h264
QuickTime	MOV ProRes 4:4:4
QuickTime	MOV ProRes HQ
QuickTime	MOV ProRes LT
QuickTime	MOV ProRes Proxy
QuickTime	MOV ProRes XQ
QuickTime	MOV YCbCr 8 Bit
TS	TR-01 JPEG-2000 (special setup required)
TS-h264	h.264 4:2:0/passthrough transport stream (special setup required)
TS-HLS	Multibitrate (special setup required)
TS-MPEG2	MPEG-2 4:2:2:...rough transport stream
WAVE	audio only
Wrap clip	same as source
xmp	this is an information request

- Pressing the **Browse** button at the right of the **Select a Location** control opens a standard browser, which allows the user to set the location the exported file will be saved in.

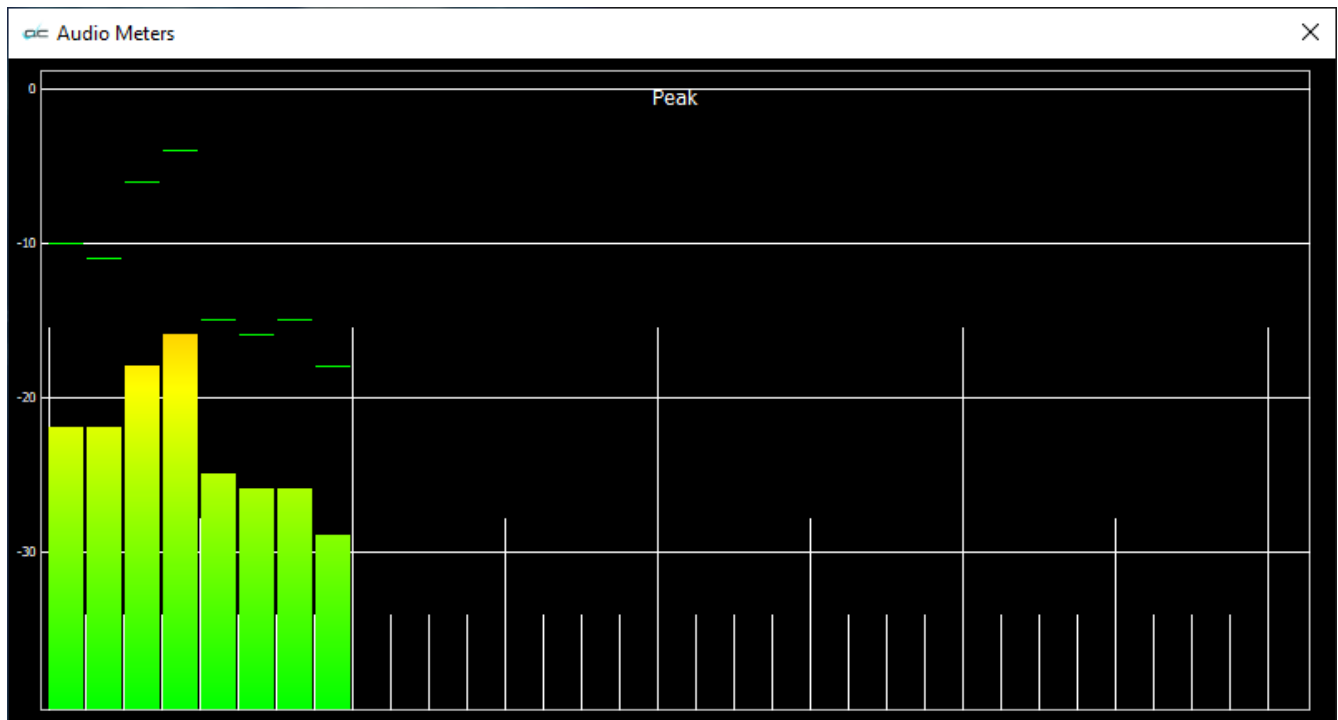
- Once all the parameters have been set, pressing **OK** closes the **Export Options** window. The user can then press the **Process** control to reveal the available profiles (see if Net-X-Base is present), and the **Edit Profile** (go back to the Export Options window).



3.3.14 Audio Meters

audio meters

Audio Meters button - Open the audio meters display. This display shows relative audio levels during source passthrough or file output. The line 0 corresponds to -24 decibels.

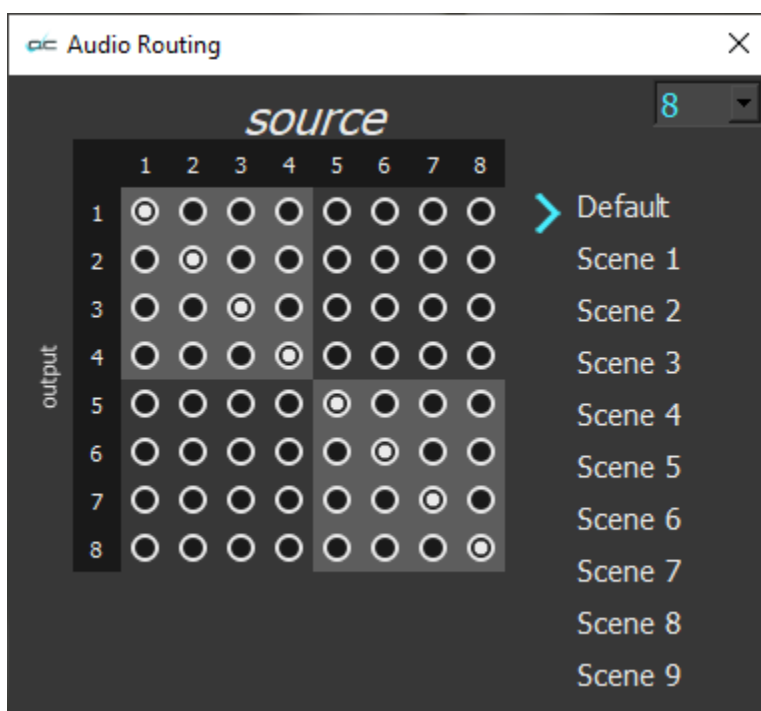


Audio Meters window

3.3.15 Audio Routing

audio routing

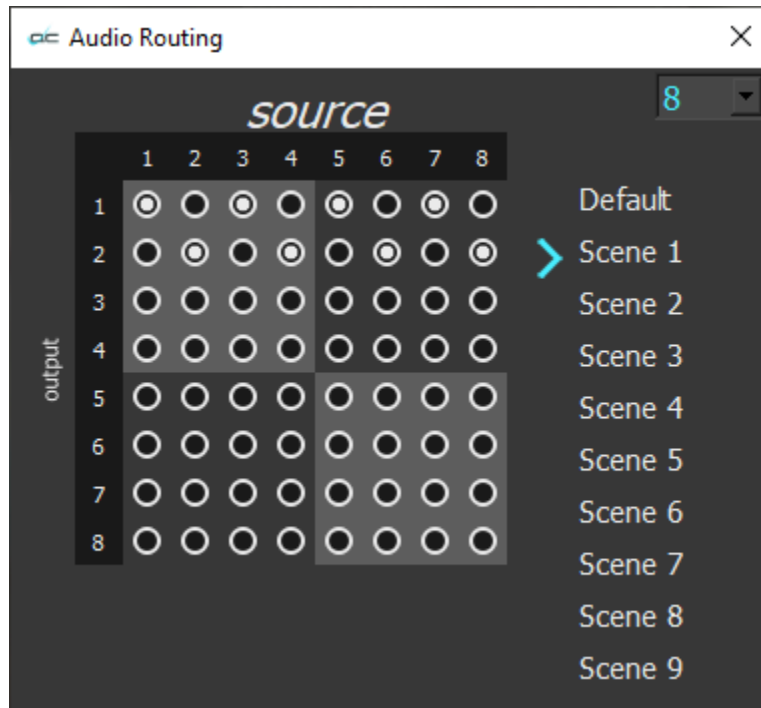
Audio Routing button - Opens the audio routing window. This window allows the user to reroute the output of up to 16 channels of audio. The source audio channels come in at the top. In the diagram below, the routing has not been changed from the default. With the setup below, audio channel 1 goes out on audio output 1, audio channel 2 goes out on audio output 2, etc. To change the routing, click on one of the “Scenes”, and set each channel to suit your monitoring requirements. Once that has been set up, clicking on the scene will load that setup. Clicking the Default control will reset everything back to the default (unrouted) setting.



Audio Routing window default

Example: In the following diagram, starting at audio output 3, the audio channels are routed as stereo pairs to the output of audio channels 1 and 2.

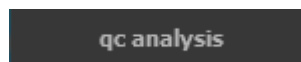
This method would allow a user to route the audio output of channels 3 and 4, channels 5 and 6, and channels 7 and 8, to audio output channels 1 and 2. The convenience here is that the user can confirm all their audio channels exist, and play acceptably, using their system speakers. Otherwise they would need hardware capable of breaking out 8 audio channels, plus a mixer/monitor setup.



Audio Routing window revised

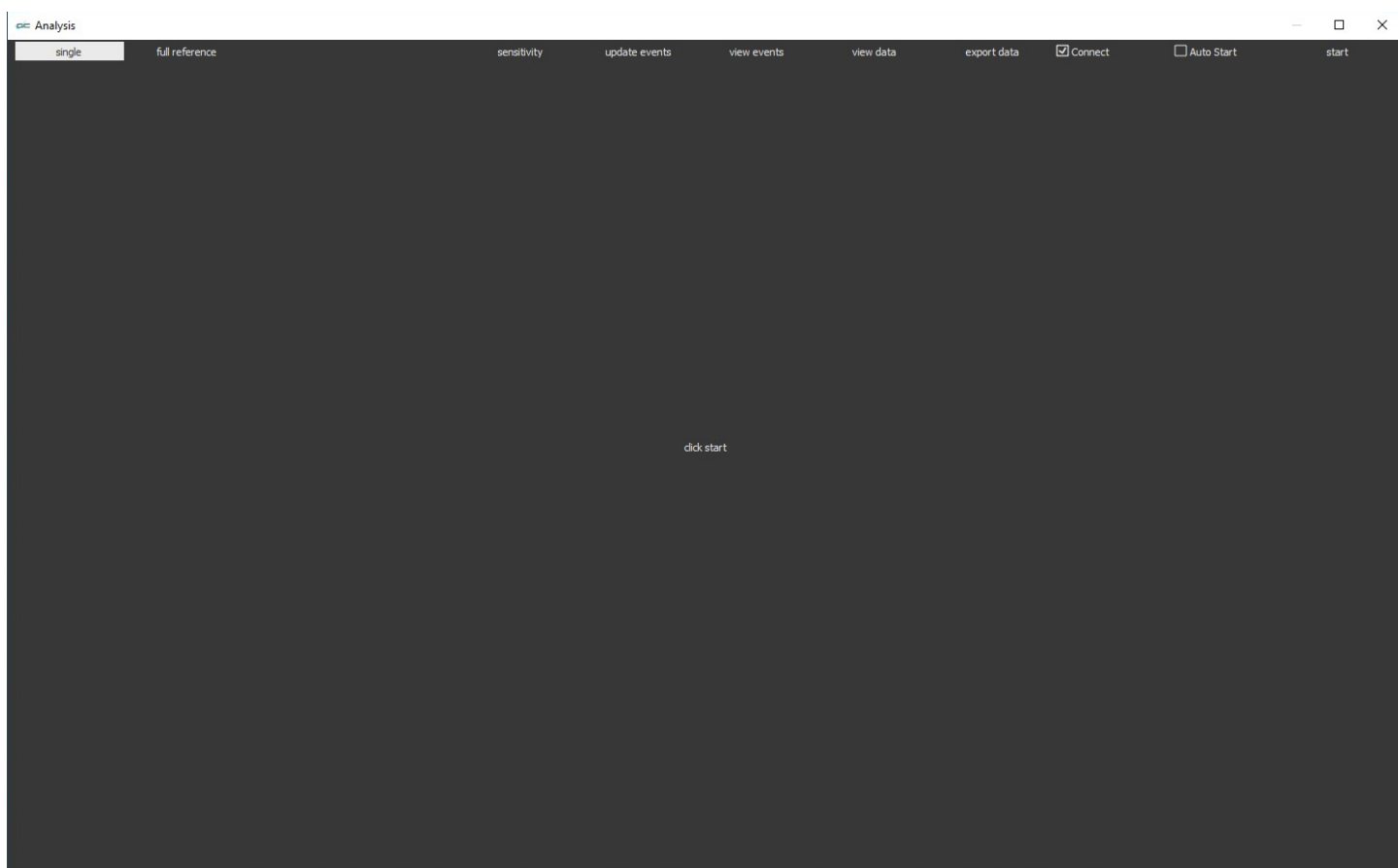
Note: during routing, the audio output may appear diminished, depending on what is on each channel. In order to avoid the potential distortion of summing the output of a number of channels, we divide the volume of each channel by the total volumes of the patches on that channel. If some patches are silent, the channel with signal will get quieter.

3.3.16 QC Analysis



QC Analysis button - Open the Analysis window, which allows the user to perform single sided or full reference analysis.

Load a file, and press the QC Analysis button. This opens the **Analysis** window.



3.3.16.1 *Single Sided Analysis*

To perform a single sided analysis, press the **Start** button in the upper right corner.

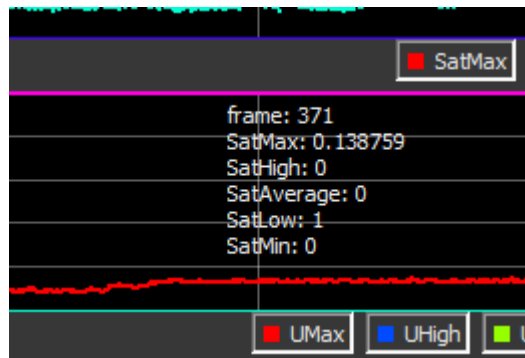
The Analysis process will then begin to analyze the current file.

Note, if the Auto-start checkbox has been checked, the process will start upon selecting the QC Analysis option.

The analysis is provided in an intuitive graphical layout, grouped by section.



During analysis, or after, the user can mouse over a portion of the analysis to see details regarding that particular frame of the video.



The following controls are available along the top of the Analysis window:



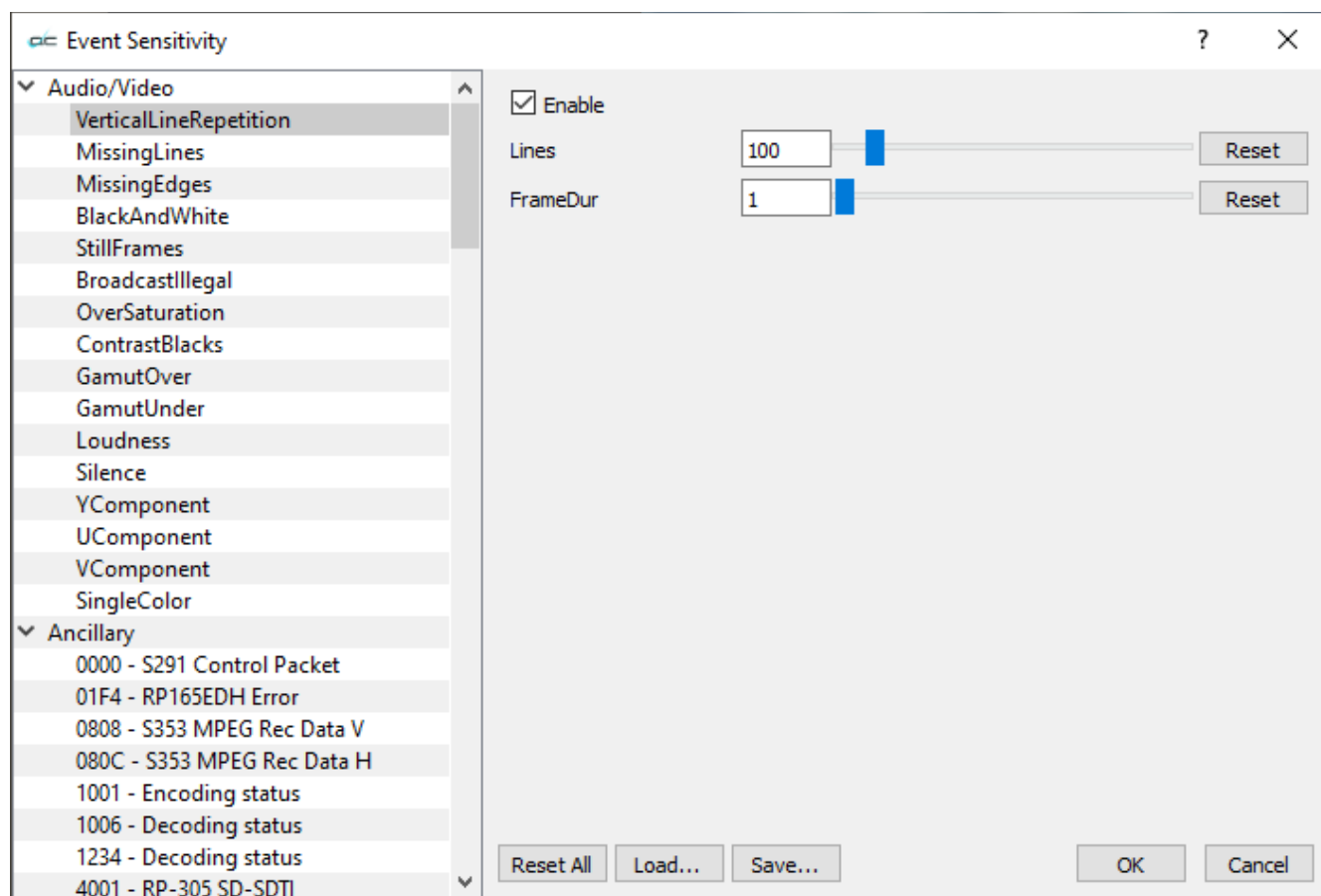
Type of Analysis – confirm **single** is selected and press the **Start** button to begin the analysis. The Full Reference analysis is set up through the **compare** option in the main menu.

3.3.16.2 Sensitivity Window

sensitivity

Sensitivity button – opens the Event sensitivity window, which displays current settings and allows the user to edit these values. Adjusting the Sensitivity allows the user to specify which type of events will produce an event message in the analysis process.

3.3.16.2.1 Vertical Line Repetition



Enable checkbox – click to enable checking for Vertical Line Repetition, and adjust any relevant settings.

Lines (number of lines) field, slider, and **Reset** button – default 100

FrameDur (frame duration) field, slider, and **Reset** button – default 1

Reset All button – clicking Reset All returns all values to their default settings.

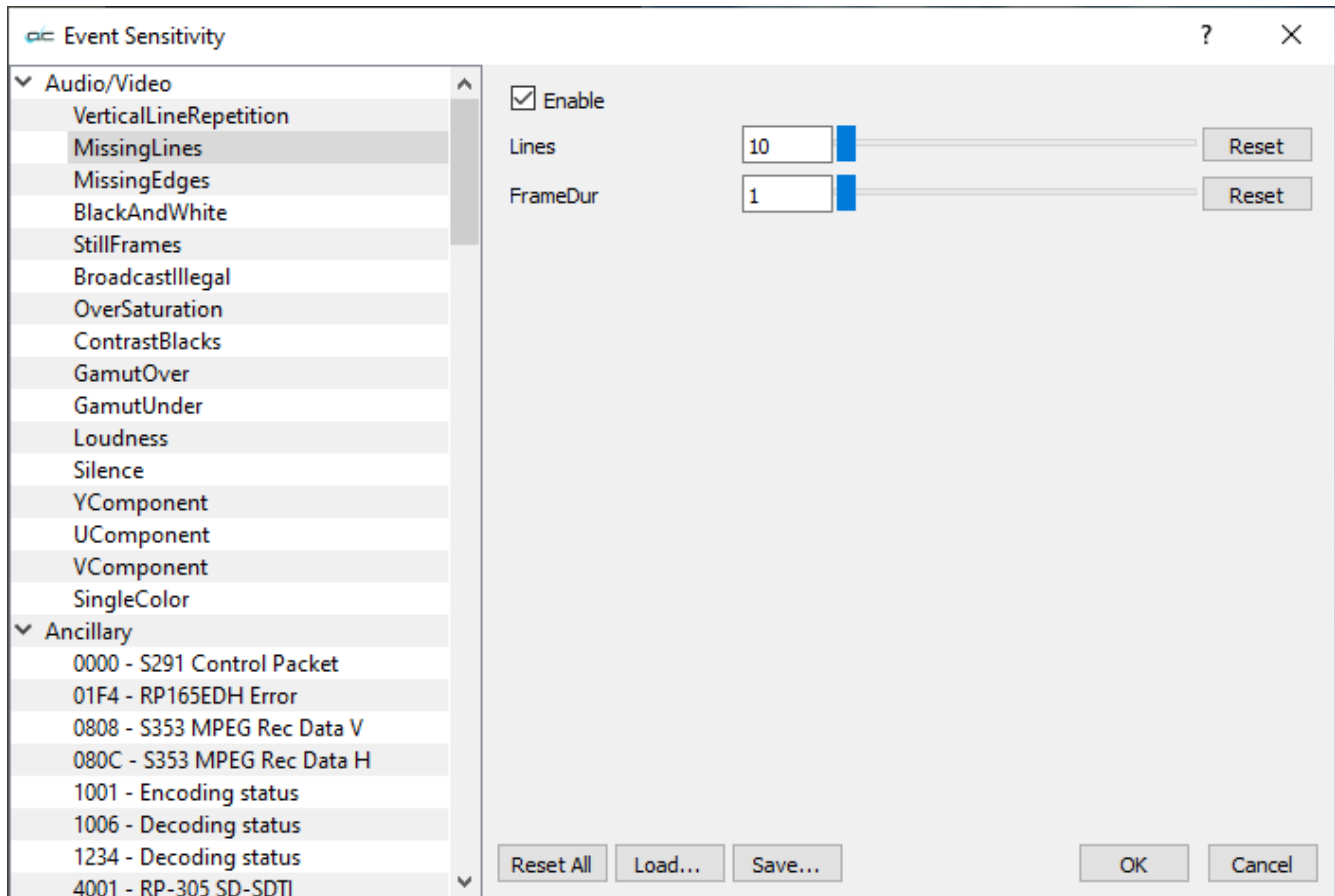
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.2 Missing Lines



Enable checkbox – click to enable checking for missing Lines, and adjust any relevant settings.

Lines (number of lines) field, slider, and **Reset** button – default 10

FrameDur (frame duration) field, slider, and **Reset** button – default 1

Reset All button – clicking Reset All returns all values to their default settings.

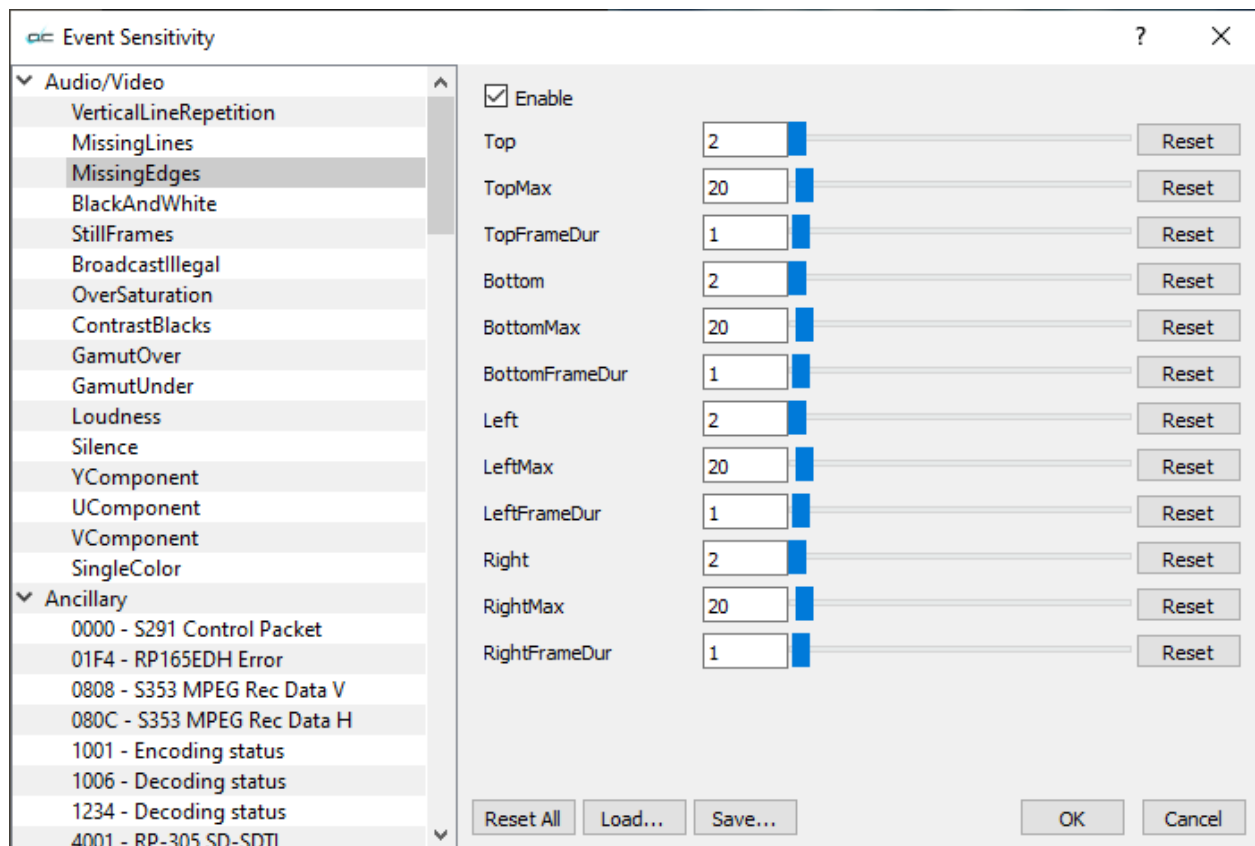
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.3 Missing Edges



Enable checkbox – click to enable checking for missing edges, and adjust any relevant settings.

Top field, slider, and **Reset** button - default 2

TopMax field, slider, and **Reset** button - default 20

TopFrameDur field, slider, and **Reset** button - default 1

Bottom field, slider, and **Reset** button - default 20

BottomMax field, slider, and **Reset** button - default 20

BottomFrameDur field, slider, and **Reset** button - default 1

Left field, slider, and **Reset** button - default 2

LeftMax field, slider, and **Reset** button - default 20

LeftFrameDur field, slider, and **Reset** button - default 1

Right field, slider, and **Reset** button - default 2

RightMax field, slider, and **Reset** button - default 20

RightFrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

Load button – opens a browser so you can load a saved event sensitivity file.

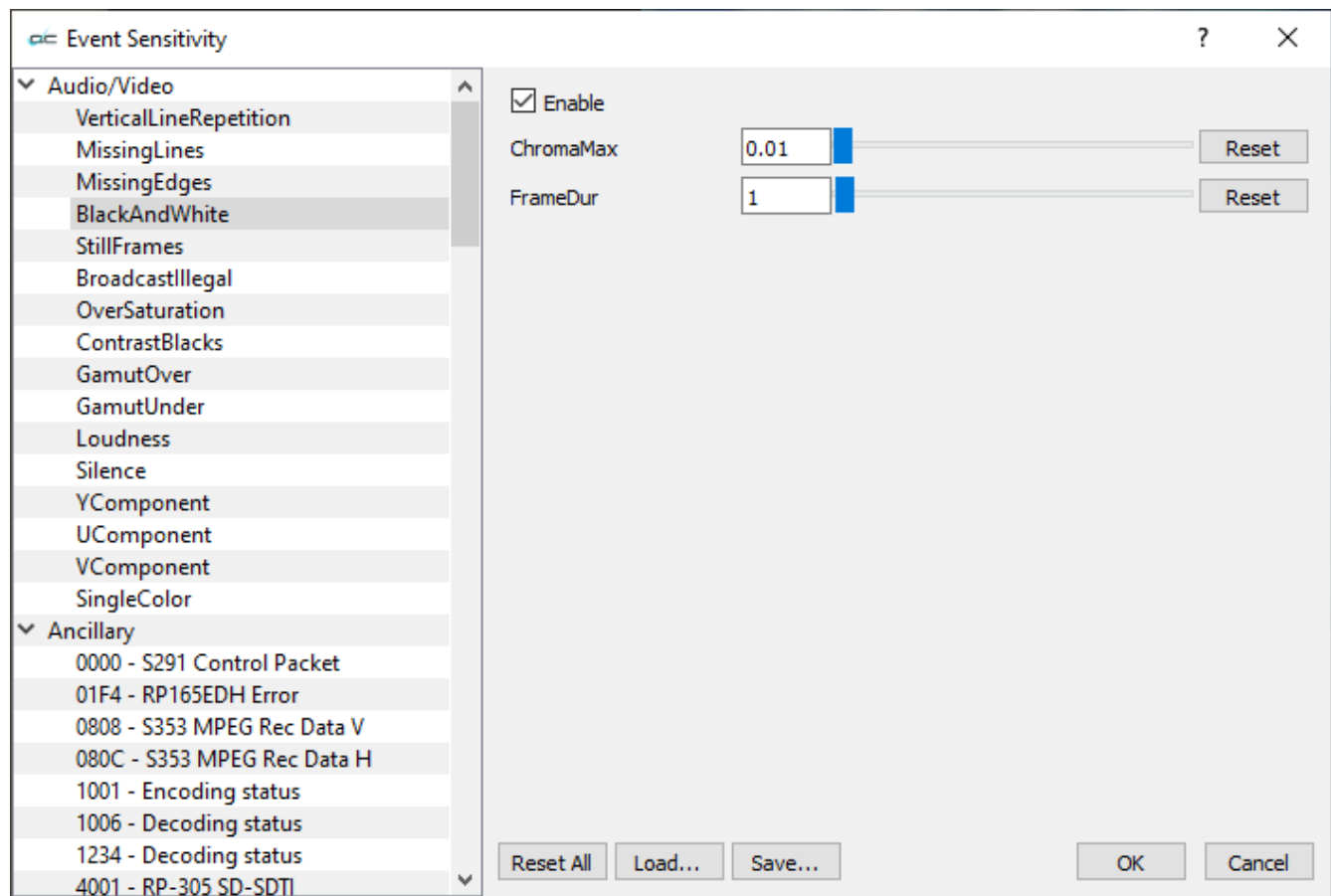
Save button – opens a standard Save As window, so you can save the event sensitivity values

to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.4 Black and White



Enable checkbox – click to enable checking the black and white levels, and adjust any relevant settings.

ChromaMax field, slider, and **Reset** button - default 0.01

FrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

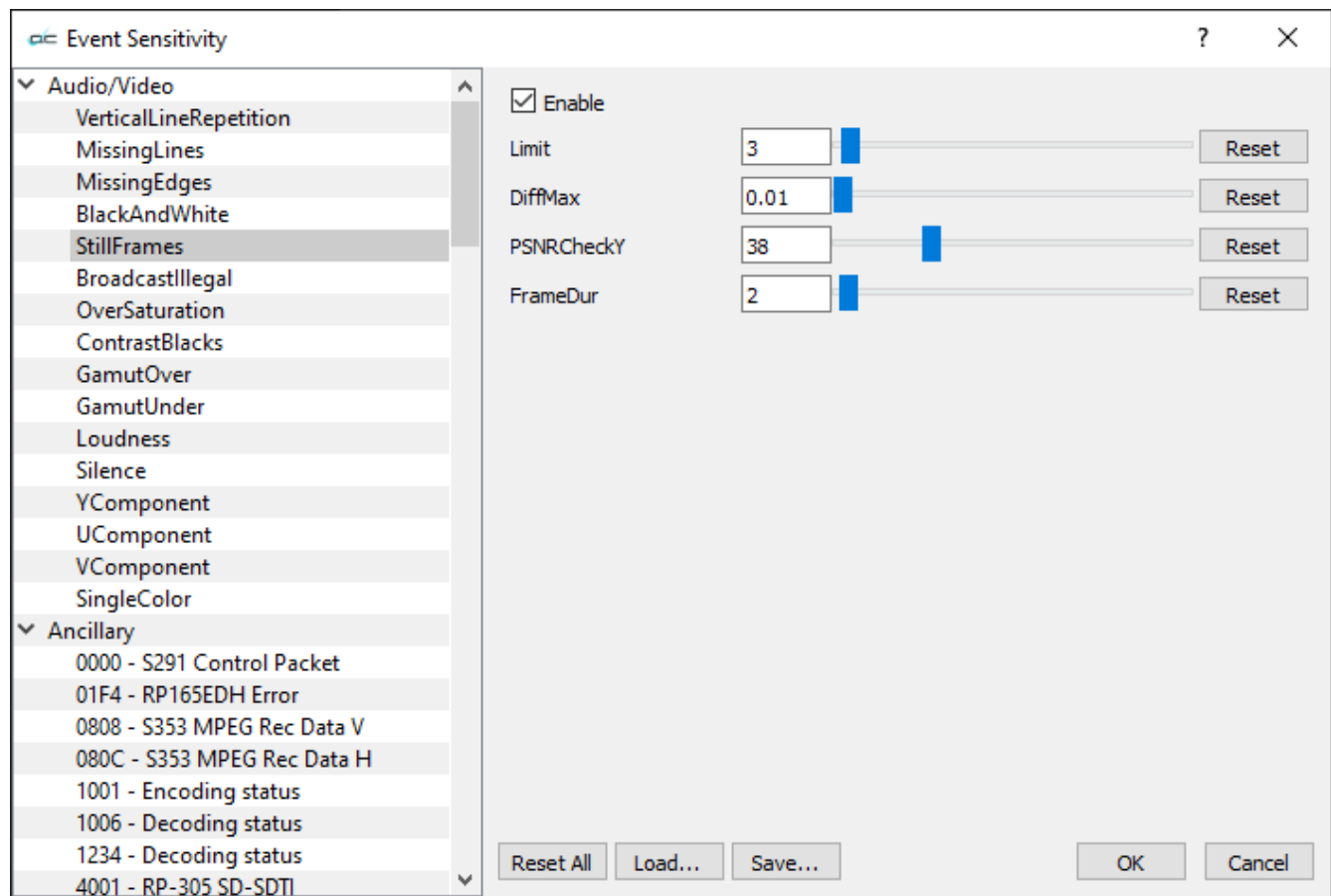
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.5 Still Frames



Enable checkbox – click to enable checking for still frames, and adjust any relevant settings.

Limit field, slider, and **Reset** button - default 3

DiffMax field, slider, and **Reset** button - default 0.01

PSNRCheckY field, slider, and **Reset** button - default 38

FrameDur field, slider, and **Reset** button - default 2

Reset All button – clicking Reset All returns all values to their default settings.

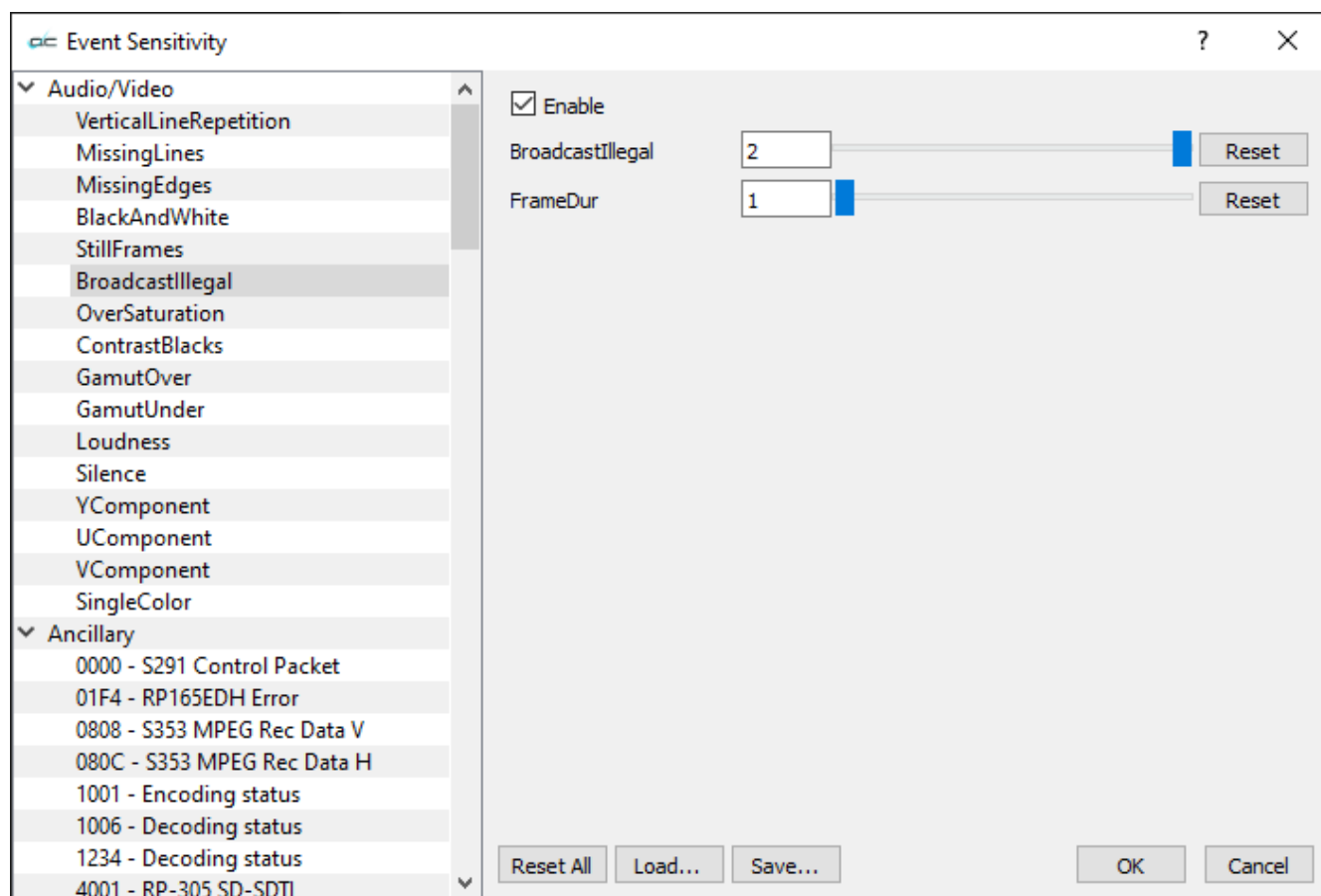
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.6 Broadcast Illegal



Enable checkbox – click to enable checking for broadcast illegal, and adjust any relevant settings.

BroadcastIllegal field, slider, and **Reset** button - default 2

FrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

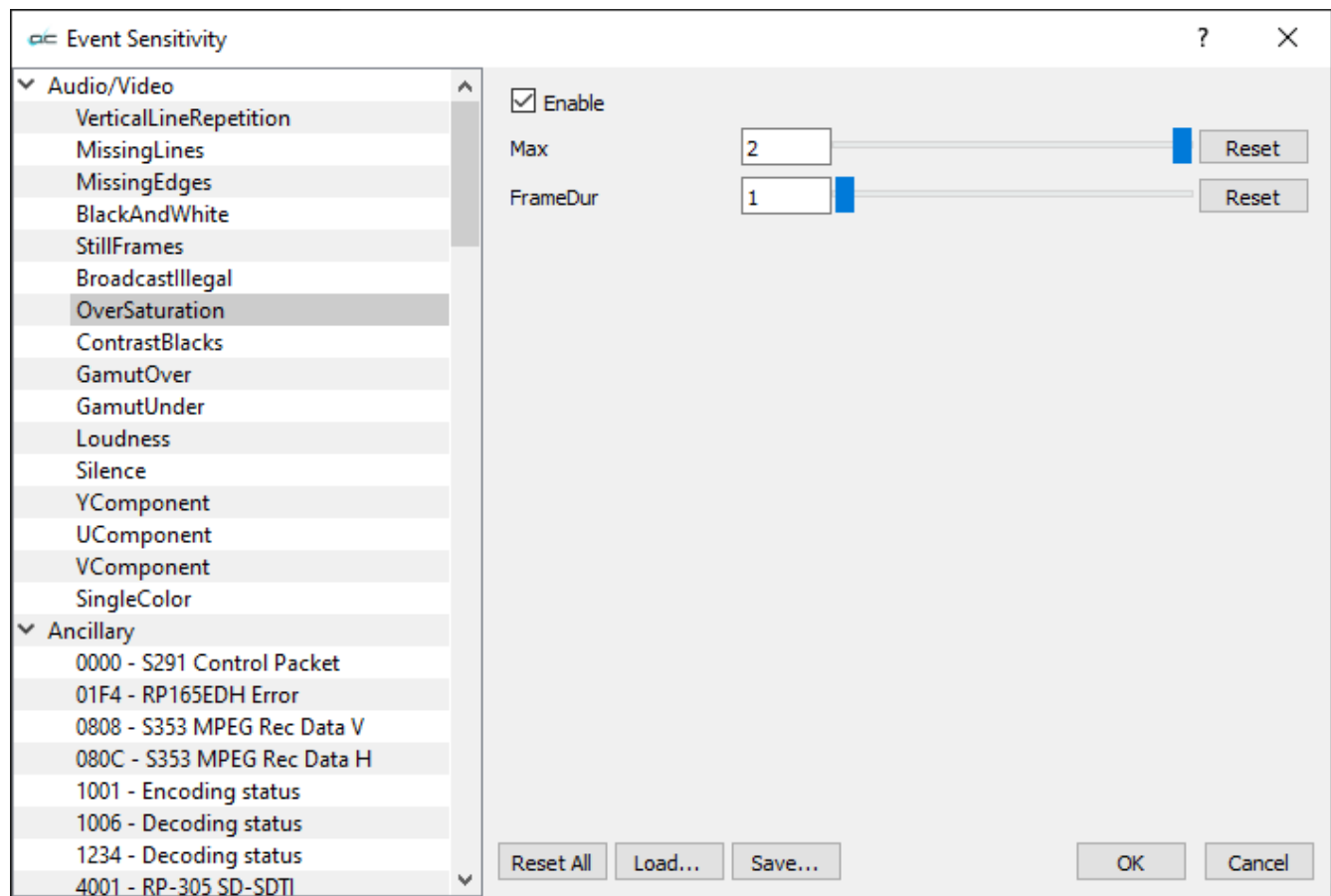
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.7 Over Saturation



Enable checkbox – click to enable checking for oversaturation, and adjust any relevant settings.

Max field, slider, and **Reset** button - default 2

FrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

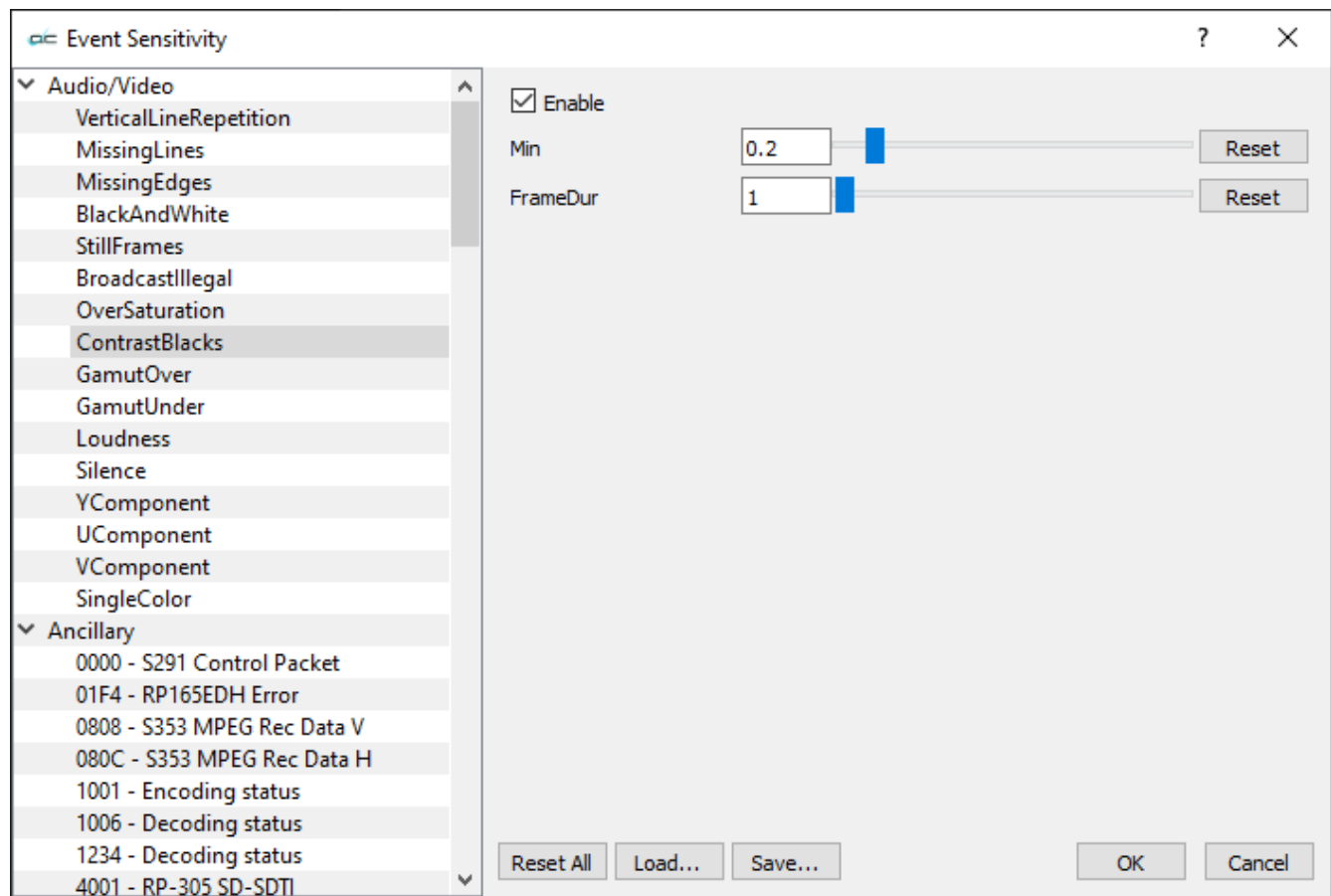
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.8 Contrast Blacks



Enable checkbox – click to enable checking for contrast blacks, and adjust any relevant settings.

Min field, slider, and **Reset** button - default 0.22

FrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

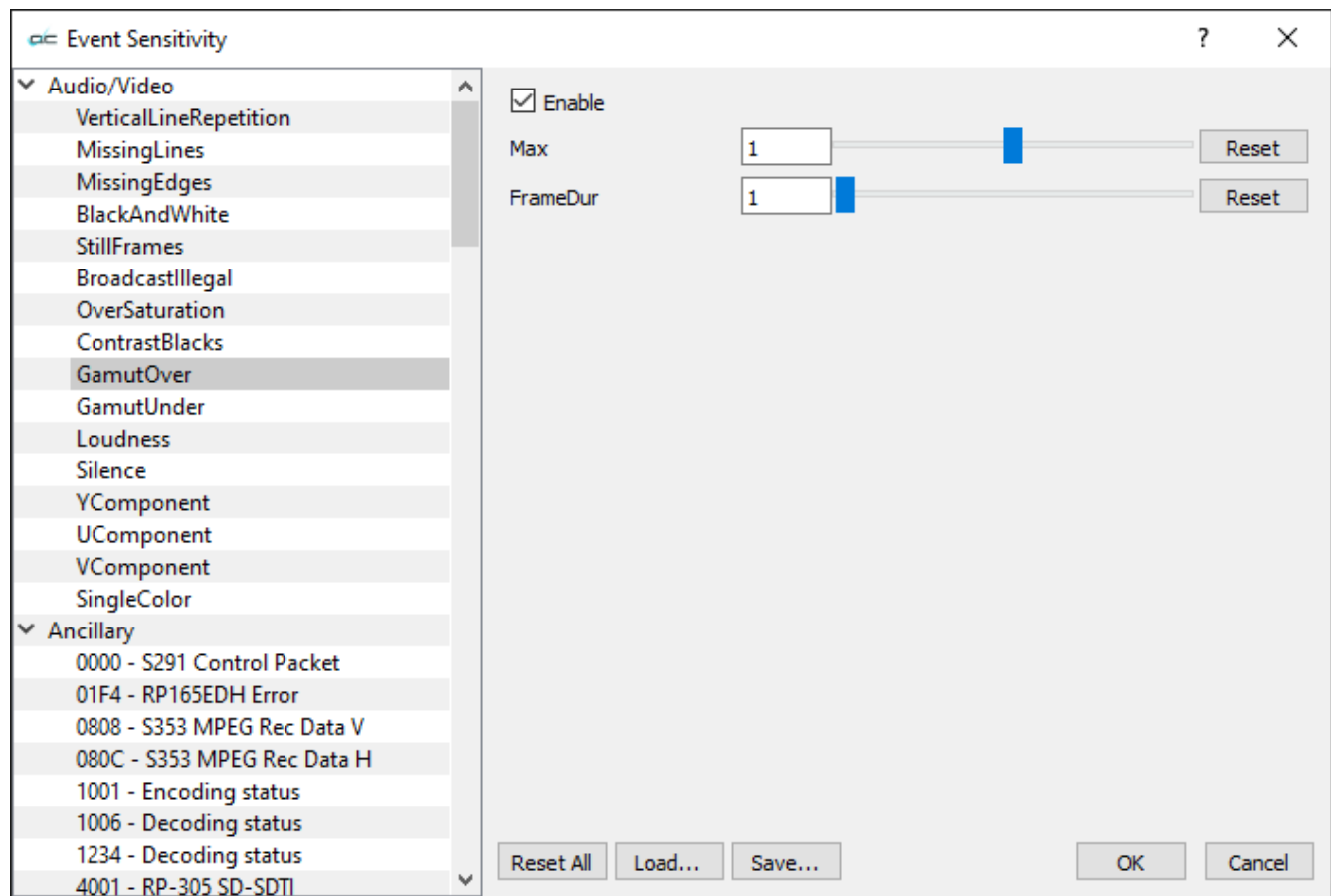
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.9 Gamut Over



Enable checkbox – click to enable checking for gamut over, and adjust any relevant settings.

Min field, slider, and **Reset** button - default 1

FrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

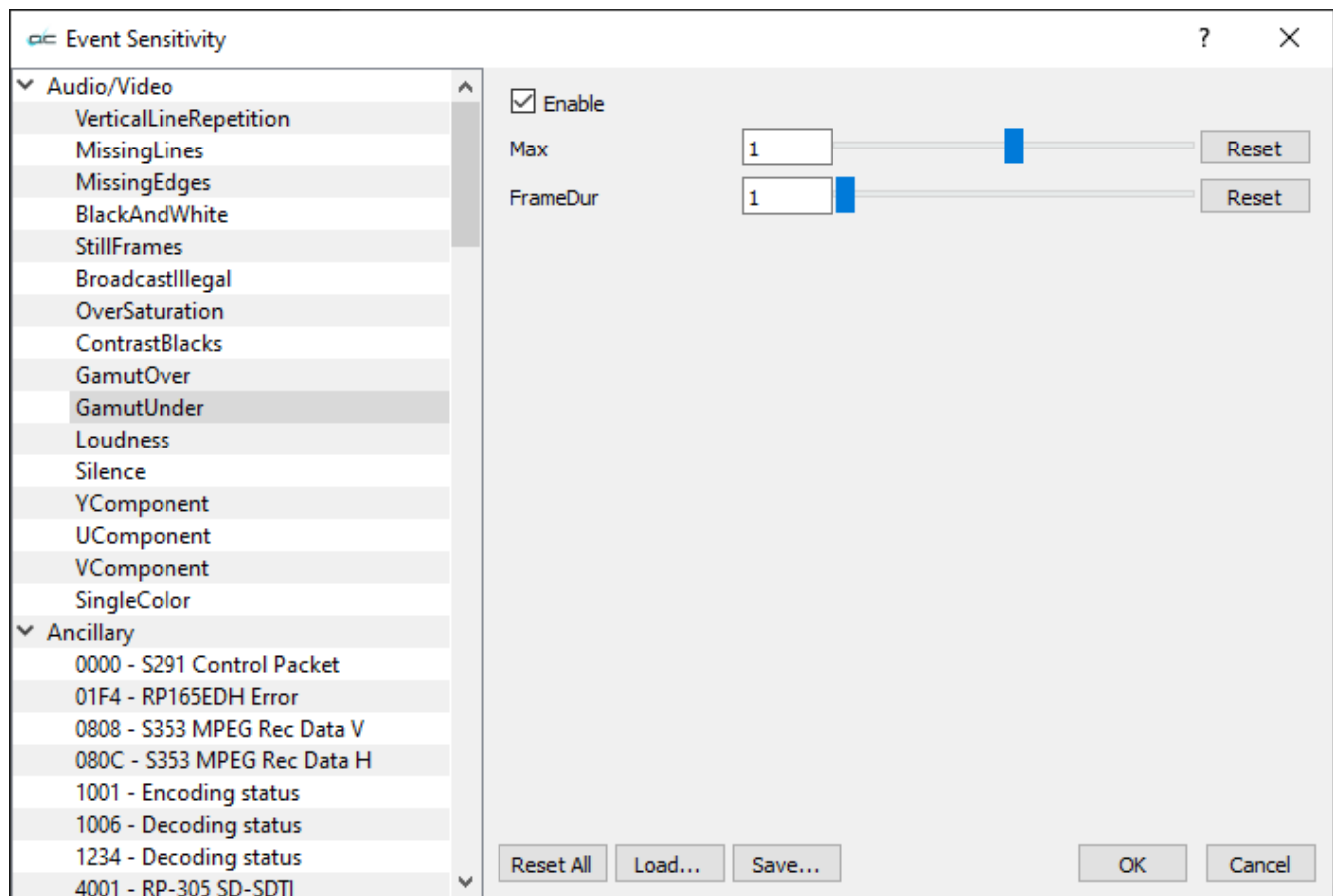
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.10 Gamut Under



Enable checkbox – click to enable checking for gamut under, and adjust any relevant settings.

Max field, slider, and **Reset** button - default 1.0

FrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

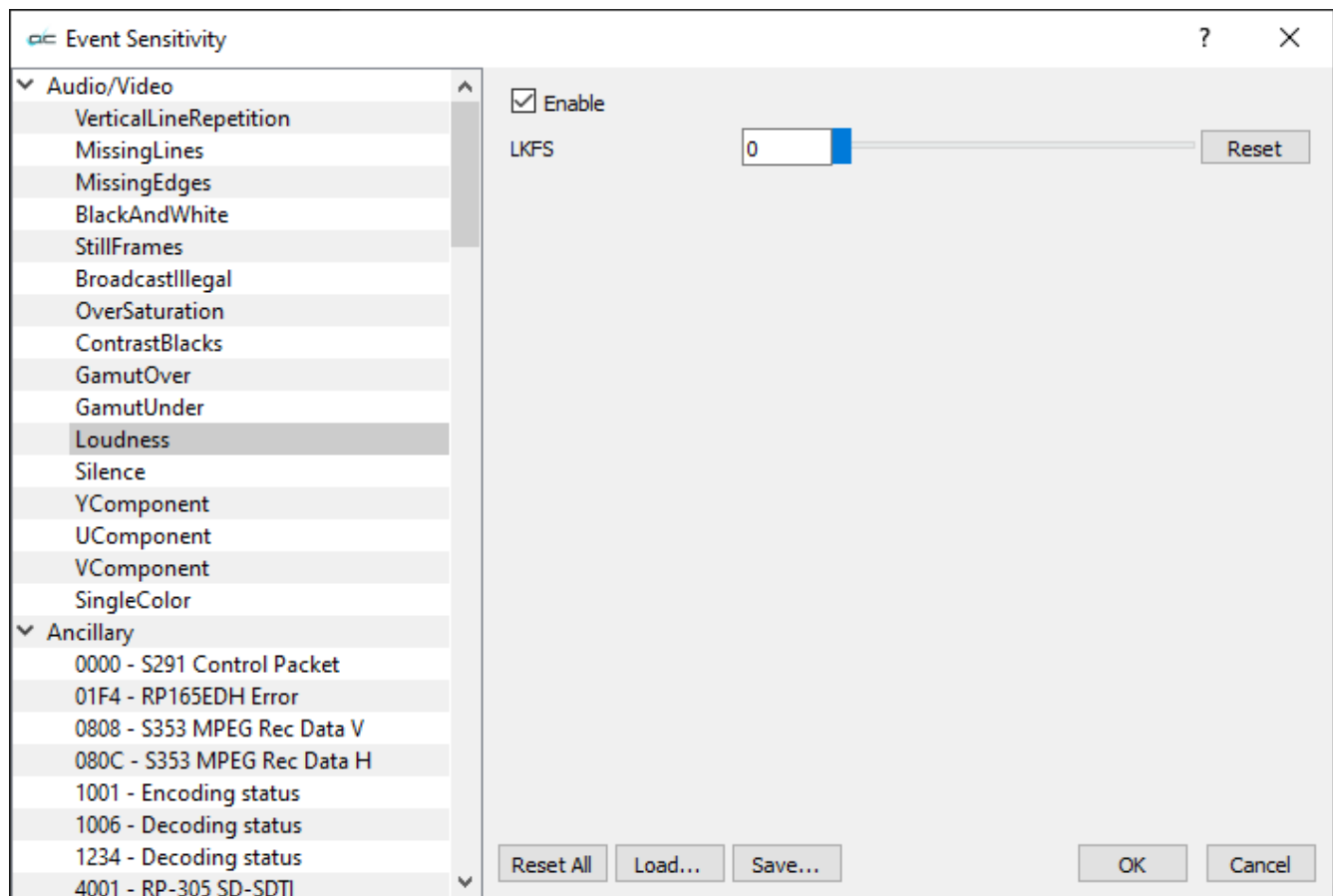
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.11 Loudness



Enable checkbox – click to enable checking for loudness, and adjust any relevant settings.

LKFS field, slider, and **Reset** button - default 0

Reset All button – clicking Reset All returns all values to their default settings.

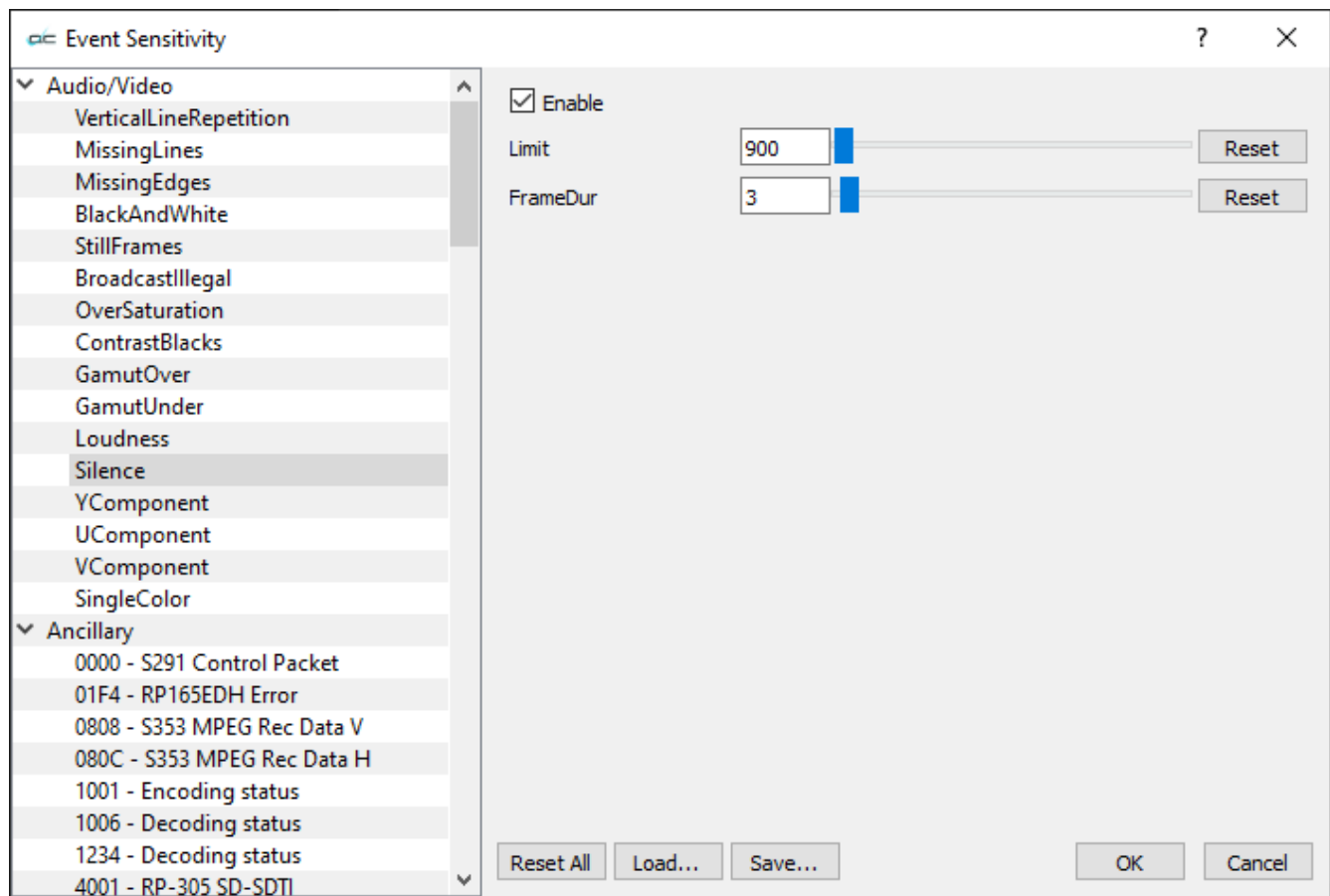
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.12 Silence



Enable checkbox – click to enable checking for silence and adjust any relevant settings.

Limit field, slider, and **Reset** button - default 900

FrameDur field, slider, and **Reset** button – default 3

Reset All button – clicking Reset All returns all values to their default settings.

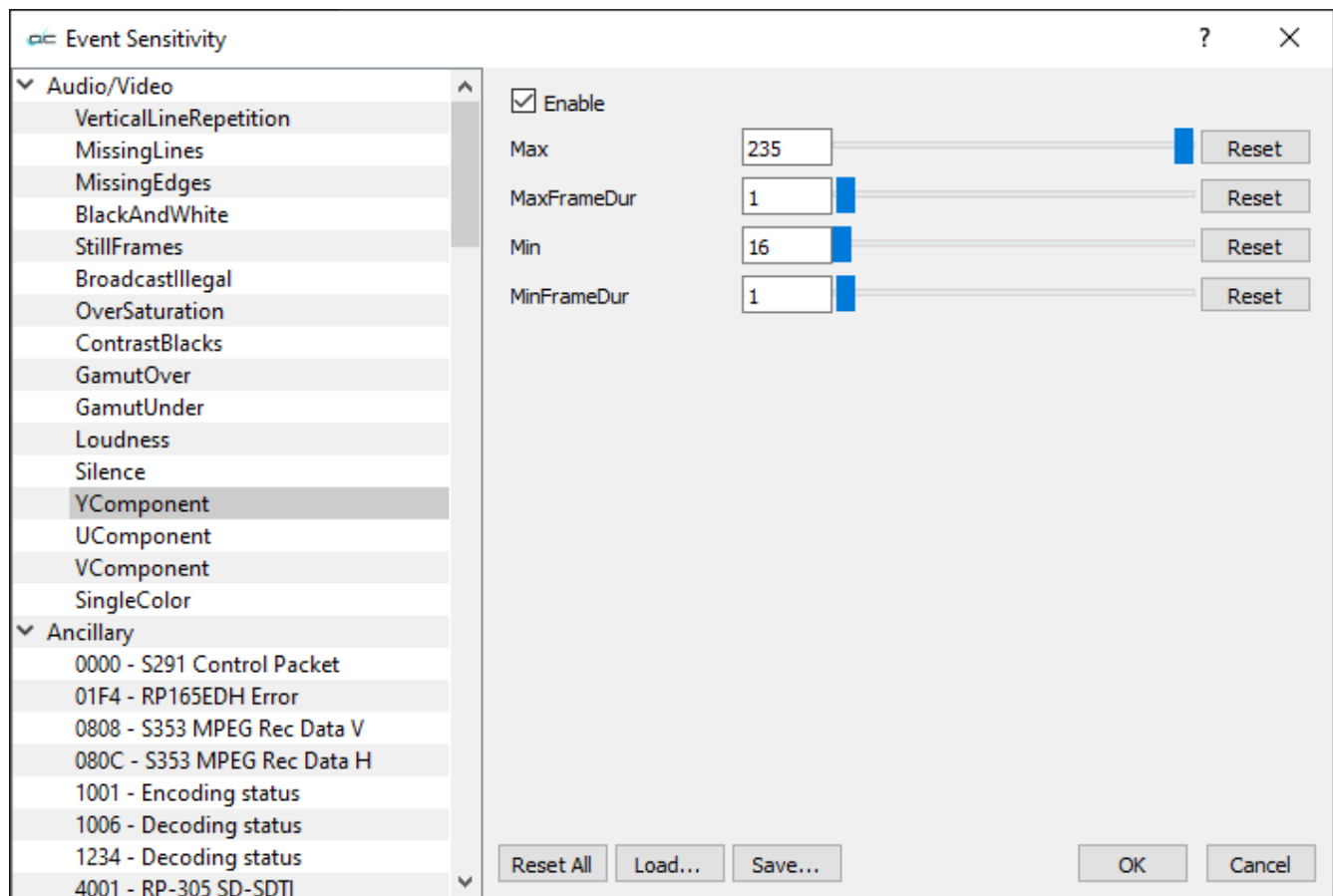
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.13 Y Component



Enable checkbox – click to enable checking the Y component and adjust any relevant settings.

Max field, slider, and **Reset** button - default 235

MaxFrameDur field, slider, and **Reset** button - default 1

Min field, slider, and **Reset** button - default 16

MinFrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

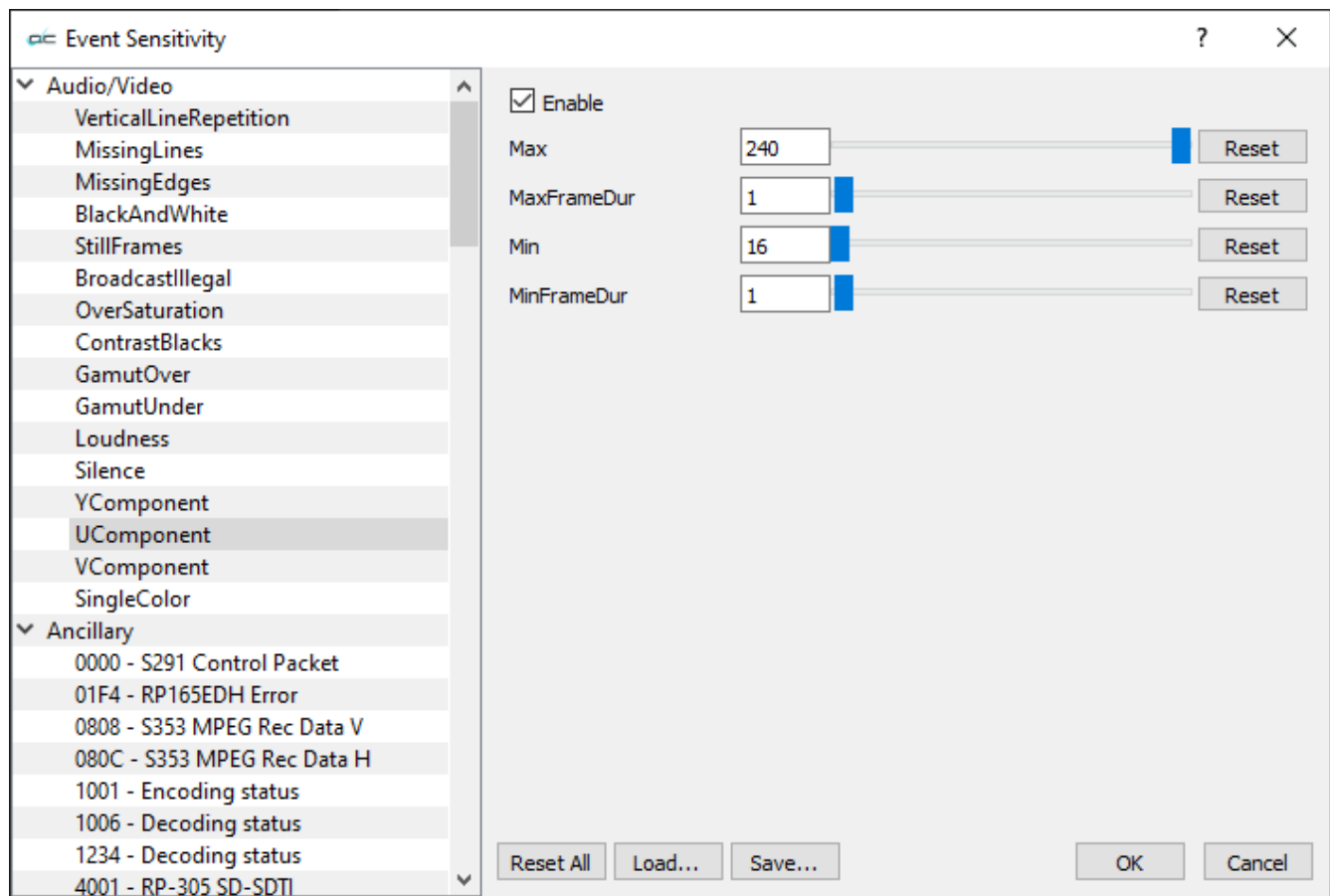
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.14 U Component



Enable checkbox – click to enable checking the U component and adjust any relevant settings.

Max field, slider, and **Reset** button - default 240

MaxFrameDur field, slider, and **Reset** button - default 1

Min field, slider, and **Reset** button - default 16

MinFrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

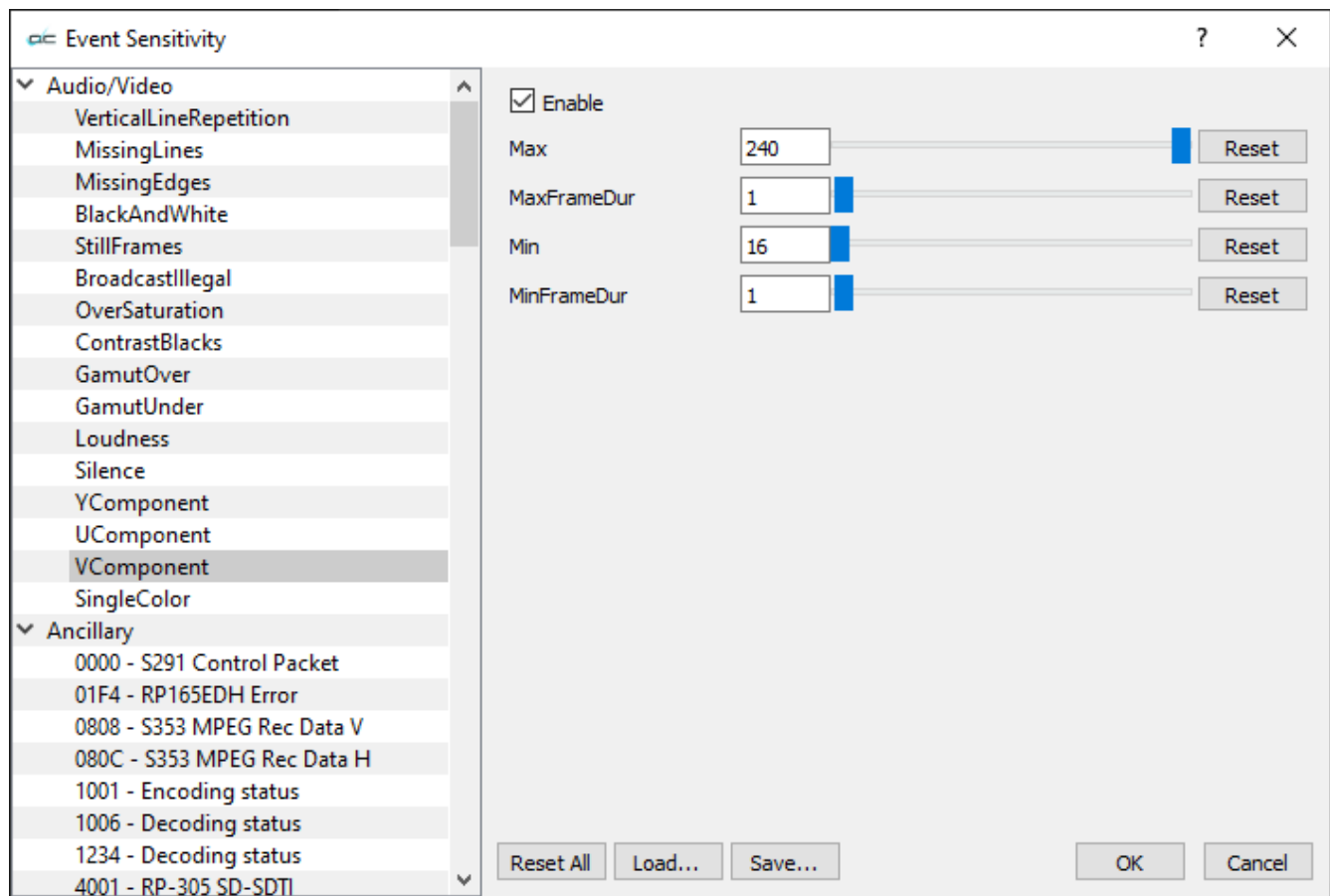
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.15 V Component



Enable checkbox – click to enable checking the V component and adjust any relevant settings.

Max field, slider, and **Reset** button - default 240

MaxFrameDur field, slider, and **Reset** button - default 1

Min field, slider, and **Reset** button - default 16

MinFrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

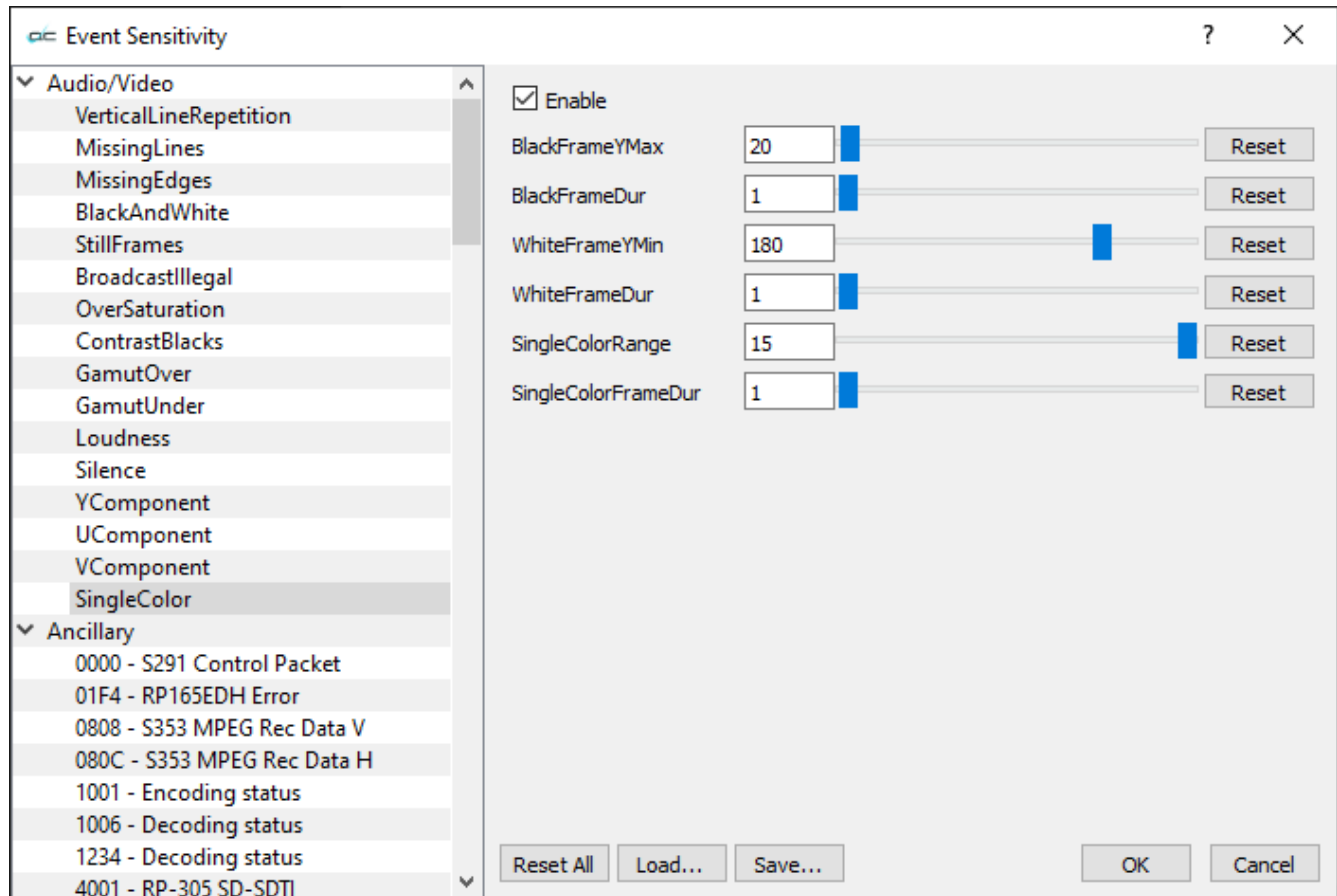
Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the changes you have made.

3.3.16.2.16 Single Color



Enable checkbox – click to enable checking for single color and adjust any relevant settings.

Max field, slider, and **Reset** button - default

BlackFrameYMax field, slider, and **Reset** button - default 20

BlackFrameDur field, slider, and **Reset** button - default 1

WhiteFrameYMin field, slider, and **Reset** button - default 180

WhiteFrameDur field, slider, and **Reset** button - default 1

SingleColorRange field, slider, and **Reset** button - default 15

SingleColorFrameDur field, slider, and **Reset** button - default 1

Reset All button – clicking Reset All returns all values to their default settings.

Load button – opens a browser so you can load a saved event sensitivity file.

Save button – opens a standard Save As window, so you can save the event sensitivity values to a file for later retrieval.

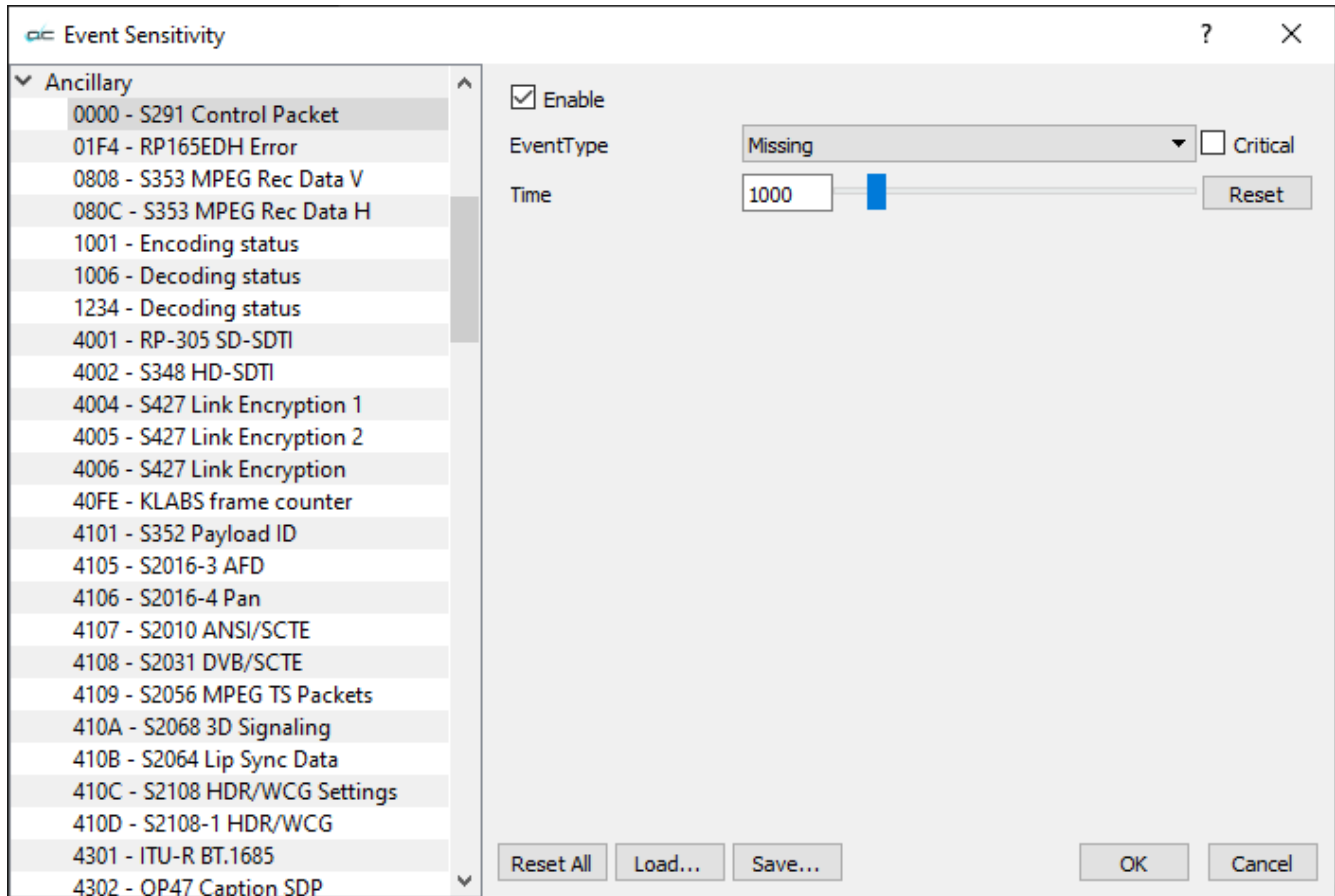
OK button – press OK to enable any changes you have made, and close the Event Sensitivity window.

Cancel button – press Cancel to exit the Event Sensitivity window without enabling any of the

changes you have made.

3.3.17 Ancillary Data Streams Sensitivity

Each type of ancillary data stream can be set to produce an entry in the error log based on a number of settings. The default value is displayed, and the user can adjust a parameter by using the sliders provided. A reset button is available for each individual setting.



For each data type, the following controls are available:

Enable checkbox – click to enable checking for ancillary data and adjust any relevant settings.

EventType pulldown menu – specifies the condition which will trigger an event in the event log for the selected ancillary data type. Conditions include:

Missing – the expected data is not present

Present – the data is present

Appeared – the data is in this frame and was not in the previous frame

Disappeared – the data was present in the previous frame and is not in the current frame

Changed – the data has undergone a change

Occurred – the data occurred in this frame

Critical checkbox – check to indicate that any events in the data stream that trigger a warning are critical.

Time – default 1000

Reset – resets the values to the default settings.

3.3.17.1.1 Ancillary Data Types

- 0000 – **S291 Control Packet** [RTP Payload format for SMPTE Ancillary data, as defined by SMPTE ST 291-1]
- 01F4 – **RP165EDH Error** [Error checking using the RP 165 EDH packets in SD-SDI mode] the SMPTE RP165-EDH packet containing EDH (error data handling) and CRC (cyclic redundancy counts). This only appears on SD-SDI signals.
- 0808 – **S353 MPEG Rec Data V** [SMPTE 291M defined MPEG recoding data in VANC]
- 080C – **S353 MPEG Rec Data H** [SMPTE 291M defined MPEG recoding data in HANC]
- 1001 – **Encoding status** [current encoding status]
- 1006 – **Decoding status** [current decoding status]
- 1234 – **Decoding status** [current decoding status]
- 4001 – **RP-305 SD-SDTI** [Standard Definition Serial Data Transport Interface] SDTI transport in active frame space.
- 4002 – **S348 HD-SDTI** [SMPTE 291M defined HD-SDTI Transport in active frame space] HD-SDTI Transport in active frame space.
- 4004 – **S427 Link Encryption 1** [Link Encryption for 1.5Gb/s1 Serial Digital Interface type 1]
- 4005 – **S427 Link Encryption 2** [Link Encryption for 1.5Gb/s1 Serial Digital Interface type 2]
- 4006 – **S427 Link Encryption** [Link Encryption for 1.5Gb/s1 Serial Digital Interface type 0]
- 40FE – **KLABS frame counter** [KLABS frame counter packets]
- 4101 – **S352 Payload ID** [SMPTE ST 352 Video Payload Identification Codes for Serial Digital Interfaces] Payload identification, HANC space.
- 4105 – **S2016-3 AFD** [AFD for baseband SDI carriage as standard SMPTE 2016-1-2007, "Format for Active Format Description and Bar Data"] Vertical Ancillary Data Mapping of Active Format Description and Bar Data.
- 4106 – **S2016-4 Pan** [SMPTE 2016-4 Vertical Ancillary Data Mapping of Pan-Scan Information]
- 4107 – **S2010 ANSI/SCTE** [ANSI/SCTE 104 messages, a mechanism for signaling advertising avails, program splice points, and DRM signals]
- 4108 – **S2031 DVB/SCTE** [SMPTE S2031 DVB/SCTE vertical blanking interval data]
- 4109 – **S2056 MPEG TS Packets** [per SMPTE ST 2056, a standardized wrapper for the carriage of low bit rate MPEG-2 TS packets, in the 10-bit VANC space of a standard definition or high definition serial digital link in accordance with SMPTE ST 291]
- 410A – **S2068 3D Signaling** [per SMPTE 2068, Stereoscopic 3D frame compatible packing and signaling for HDTV]
- 410B – **S2064 Lip Sync Data** [the real-time transport of audio and video fingerprints used for audio to video timing measurement. These fingerprints and their containerization are defined in SMPTE ST 2064-1]

- 410C – **S2108 HDR/WCG Settings** [per SMPTE ST 2108-1:2018, Settings for HDR/WCG Metadata Ancillary Data Packet]
- 410D – **S2108-1 HDR/WCG** [per SMPTE ST 2108-1:2018, HDR/WCG Metadata Ancillary Data Packets]
- 4301 – **ITU-R BT.1685** [Structure of inter-station control data conveyed by ancillary data packets]
- 4302 – **OP47 Caption SDP** [OP-47 Subtitling Distribution Packet - storage and distribution of Teletext data such as closed captions/subtitles in the vertical ancillary data space of the 10 bit serial HD-SDI signal complying with Recommendation ITU-R BT.1120-7]
- 4303 – **OP47 VBI/WST MP** [OP-47 vertical blanking interval World System Teletext subtitling for HD]
- 4304 – **ARIB-TR-B29 AV Mon** [Association of Radio Industries and Businesses - Metadata to monitor Errors of Video and Audio Signals on a Broadcasting Chain]
- 4305 – **RDD18 Camera Params** [SMPTE RDD 18:2021 - Acquisition Metadata Sets for Video Camera Parameters]
- 4313 – **SMPTE 346M** [time division multiplexing of various standard-definition digital video and generic 8-bit data signals over high-definition serial digital interfaces]
- 4404 – **RP214V KLV Metadata** [Packing KLV Encoded Metadata and Data Essence into SMPTE 291M VANC Ancillary Data Packets] the SMPTE defined KLV Metadata transport in VANC space.
- 4414 – **RP214H KLV Metadata** [Packing KLV Encoded Metadata and Data Essence into SMPTE 291M HANC Ancillary Data Packets] the SMPTE defined KLV Metadata transport in HANC space.
- 4444 – **RP223 UMID/ID** [per SMPTE RP 223, Packing UMID and Program Identification Label Data into SMPTE 291M Ancillary Data Packets]
- 4501 – **S2020 Audio-1** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 1]
- 4502 – **S2020 Audio-2** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 2]
- 4503 – **S2020 Audio-3** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 3]
- 4504 – **S2020 Audio-4** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 4]
- 4505 – **S2020 Audio-5** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 5]
- 4506 – **S2020 Audio-6** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 6]
- 4507 – **S2020 Audio-7** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 7]
- 4508 – **S2020 Audio-8** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 8]
- 4509 – **S2020 Audio-9** [structure and timing requirements of an asynchronous serial audio metadata stream with respect to an associated video signal – channel 9]

- 4601 – **S2051 Two Frame** [SMPTE ST 2015:2014 Two-Frame Marker for progressive HDTV video formats at 48/1.001(47.95)-Hz, 48-Hz, 50-Hz, 60/1.001(59.94)-Hz, and 60-Hz frame rates]
- 5001 – **RDD8 WSS** [SMPTE RDD8 wide screen signaling for storage and distribution of subtitles] this is the SMPTE defined wide screen switching data packing in the VANC space.
- 5051 – **CineLink-2 MetaD** [CineLink-2 metadata].
- 5101 – **RP215 Film Codes** [Vertical Ancillary Data Mapping of Film Transfer and Video Production Information] the SMPTE defined recommended practice data packing for film codes in VANC space.
- 5102 – **RDD18 Metadata** [per SMPTE RDD 18:2021, Acquisition Metadata Sets for Video Camera Parameters]
- 5152 – **Tally Control** [tally control]
- 5153 – **BMD Dev Control** [Blackmagic SDI PTZ camera control protocol]
- 524D – **Rec start/stop** [record start or record stop]
- 5701 – **CBS ID Info** [Cell Broadcast Service to relay messages related to public warning]
- 5FCF – **TR-B18 Color** [Association of Radio Industries and Businesses - per ARIB technical report TR-B18, Color Frame Information for Component Interface of 525/60 and 1125/60 Television Systems]
- 5FDC – **B37 Mob Captions** [Association of Radio Industries and Businesses - per ARIB STD-B37, structure and operation of closed caption conveyed by ancillary data packets]
- 5FDD – **B37 Ana Captions** [Association of Radio Industries and Businesses - per ARIB STD-B37, structure and operation of closed caption conveyed by ancillary data packets]
- 5FDE – **B37 SD Captions** [Association of Radio Industries and Businesses - per ARIB STD-B37, structure and operation of closed caption conveyed by ancillary data packets]
- 5FDF – **B37 HD Captions** [Association of Radio Industries and Businesses - per ARIB STD-B37, structure and operation of closed caption conveyed by ancillary data packets]
- 5FE0 – **ARIB TR-B.22 ANC** [Association of Radio Industries and Businesses - per ARIB TR-B.22, Operational Guidelines for Transport of the Ancillary Data for Television Program Contribution] the ARIB defined Sub information data packet in the VANC space.
- 5FFA – **ARIB TR-B.23(1)** [Association of Radio Industries and Businesses - per ARIB TR-B.23, Operational Guidelines for Ancillary Data Used to Convey Inter-Stationary Data]
- 5FFB – **ARIB TR-B.23(2)** [Association of Radio Industries and Businesses - per ARIB TR-B.23, Operational Guidelines for Ancillary Data Used to Convey Inter-Stationary Data] the ARIB defined user data 2 packet in the VANC space
- 5FFC – **ARIB TR-B.23(1)** [Association of Radio Industries and Businesses - per ARIB TR-B.23, Operational Guidelines for Ancillary Data Used to Convey Inter-Stationary Data] the ARIB defined user data 1 packet in the VANC space.
- 5FFD – **ARIB B.35ProgEx** [Association of Radio Industries and Businesses - per ARIB STD-B35, Data Program Exchange Specification for Digital Broadcasting] the ARIB defined trigger signal data packet for data broadcasting.
- 5FFE – **ARIB B.39** [Association of Radio Industries and Businesses - per ARIB STD-B39, Structure of Inter-Stationary Control Data Conveyed by Ancillary Data Packets]

- 5FFF – **ARIB B.15** [Association of Radio Industries and Businesses - per ARIB TR-B15, specifies the function of receivers and the operational guidelines in the broadcasting station of the BS and CS digital broadcasting]
- 6060 – **S12M-2 Anc TCode** [per SMPTE 12M-2, standards to label individual frames of video or film with a timecode]
- 6061 – **S12M-3 HFR-TCode** [per SMPTE 12M-3, standards to label individual frames of high frame rate video or film with a timecode]
- 6062 – **Generic Time Label** [generic time of day stamp]
- 6101 – **EIA-708 Caption** [HD captioning] the EIA standard defined closed caption data for HD-SDI in VANC space.
- 6102 – **EIA-608 Caption** [SD captioning] the EIA standard defined closed caption data for SD SDI 525i (NTSC) in VANC space.
- 6103 – **SMPTE334 WST Packet** [per SMPTE ST 334-1:2015, Vertical Ancillary Data Mapping of Caption Data and Other Related Data]
- 6104 – **SMPTE334 SDE** [per SMPTE ST 334-1:2015, Vertical Ancillary Data Mapping of Caption Data and Other Related Data]
- 6105 – **SMPTE334 ARIB Caption HD** [per SMPTE ST 334-1:2015, Vertical Ancillary Data Mapping of Caption Data and Other Related Data]
- 6106 – **SMPTE334 ARIB Caption SD** [per SMPTE ST 334-1:2015, Vertical Ancillary Data Mapping of Caption Data and Other Related Data]
- 6107 – **SMPTE334 ARIB Caption Ana** [per SMPTE ST 334-1:2015, Vertical Ancillary Data Mapping of Caption Data and Other Related Data]
- 6201 – **RP207 Program** [per SMPTE RP 207, Transport of Program Description Data in Ancillary Data Packets] the SMPTE RP207 defined program description data packet in VANC space.
- 6202 – **S334-1 Data BCast** [per SMPTE 334-1-2007, closed caption data from Ancillary data packets]
- 6203 – **RP208 VBI Data** [per SMPTE RP 208-2002, Transport of VBI Packet Data in Ancillary Data Packets] the SMPTE defined recommended practice VBI Data (vertical blanking interval data) in VANC space.
- 6464 – **RP196 LTC Timecode** [per SMPTE RP 196, Transmission of LTC Data as HANC Packets in Serial Digital Television Interfaces] the SMPTE defined recommended practice Time Code data packet in HANC space.
- 647F – **RP196 VITC Timecode** [per SMPTE RP 196, Transmission of VITC Data as VANC Packets in Serial Digital Television Interfaces] the SMPTE defined recommended practice Time Code data packet in VANC space.
- 8000 – **Mark Deleted** [when a mark has been deleted]
- 8400 – **End Packet** [signals the end of a packet]
- 8800 – **Start Packet** [signals the start of a packet]
- A000 – **HD Aud Ctrl 8** [HD audio control 8]
- A100 – **HD Aud Ctrl 7** [HD audio control 7]
- A200 – **HD Aud Ctrl 6** [HD audio control 6]
- A300 – **HD Aud Ctrl 5** [HD audio control 5]

A400 – **HD Aud Data 8** [HD audio data 8]
A500 – **HD Aud Data 7** [HD audio data 7]
A600 – **HD Aud Data 6** [HD audio data 6]
A700 – **HD Aud Data 5** [HD audio data 5]
D200 – **QA F1 Test** [F1 quality assurance metric]
D300 – **QA F2 Test** [F2 quality assurance metric]
E000 – **HD Aud Ctrl 4** [HD audio control 4]
E100 – **HD Aud Ctrl 3** [HD audio control 3]
E200 – **HD Aud Ctrl 2** [HD audio control 2]
E300 – **HD Aud Ctrl 1** [HD audio control 1]
E400 – **HD Aud Data 4** [HD audio data 4]
E500 – **HD Aud Data 3** [HD audio data 3]
E600 – **HD Aud Data 2** [HD audio data 2]
E700 – **HD Aud Data 1** [HD audio data 1]
EC00 – **SD Aud Ctrl 4** [SD audio control 4]
ED00 – **SD Aud Ctrl 3** [SD audio control 3]
EE00 – **SD Aud Ctrl 2** [SD audio control 2]
EF00 – **Aud Ctrl 1** [SD audio control 1]
F400 – **Error Detect** [an error has been detected]
F800 – **SD Aud Ext Data 4** [SD audio external data 4]
F900 – **SD Aud Data 4** [SD audio data 4]
FA00 – **SD Aud Ext Data 3** [SD audio external data 3]
FB00 – **SD Aud Data 3** [SD audio data 3]
FC00 – **SD Aud Ext Data 2** [SD audio external data 2]
FD00 – **SD Aud Data 2** [SD audio data 2]
FE00 – **SD Aud Ext Data 1** [SD audio external data 1]
FF00 – **SD Aud Data 1** [SD audio data 1]

update events

Update Events button – refresh the Events window

view events

View Events button – opens the Events window. This window displays information about any parameters that merit a notice, and its location on the timeline.

Export	Event	Start TC	TC String	Start	End	I Value	F Value	Severity	Type	Location	Details
<input checked="" type="checkbox"/>	Silence	8	00:00:00:08	8	11	678	0	3	2		
<input checked="" type="checkbox"/>	Silence	46	00:00:01:16	46	49	840	0	3	2		
<input checked="" type="checkbox"/>	Silence	96	00:00:03:06	96	107	786	0	3	2		
<input checked="" type="checkbox"/>	Silence	217	00:00:07:07	217	221	288	0	3	2		
<input checked="" type="checkbox"/>	Silence	226	00:00:07:16	226	235	824	0	3	2		
<input checked="" type="checkbox"/>	Silence	244	00:00:08:04	244	247	646	0	3	2		
<input checked="" type="checkbox"/>	LeftMissing	315	00:00:10:15	315	316	16	0	3	1		
<input checked="" type="checkbox"/>	Silence	310	00:00:10:10	310	319	686	0	3	2		
<input checked="" type="checkbox"/>	Silence	323	00:00:10:23	323	327	814	0	3	2		
<input checked="" type="checkbox"/>	Silence	340	00:00:11:10	340	343	208	0	3	2		
<input checked="" type="checkbox"/>	Silence	363	00:00:12:03	363	369	836	0	3	2		
<input checked="" type="checkbox"/>	Silence	386	00:00:12:26	386	390	428	0	3	2		
<input checked="" type="checkbox"/>	Silence	402	00:00:13:12	402	410	838	0	3	2		
<input checked="" type="checkbox"/>	Silence	413	00:00:13:23	413	419	898	0	3	2		
<input checked="" type="checkbox"/>	Silence	450	00:00:15:00	450	459	846	0	3	2		
<input checked="" type="checkbox"/>	Silence	476	00:00:15:26	476	481	742	0	3	2		
<input checked="" type="checkbox"/>	Silence	524	00:00:17:14	524	528	554	0	3	2		
<input checked="" type="checkbox"/>	Silence	531	00:00:17:21	531	534	736	0	3	2		
<input checked="" type="checkbox"/>	Silence	535	00:00:17:25	535	541	812	0	3	2		
<input checked="" type="checkbox"/>	Silence	556	00:00:18:16	556	563	638	0	3	2		
<input checked="" type="checkbox"/>	Silence	564	00:00:18:24	564	574	554	0	3	2		
<input checked="" type="checkbox"/>	Silence	597	00:00:19:27	597	607	782	0	3	2		
<input checked="" type="checkbox"/>	Silence	611	00:00:20:11	611	615	136	0	3	2		
<input checked="" type="checkbox"/>	Silence	696	00:00:23:06	696	701	834	0	3	2		
<input checked="" type="checkbox"/>	Silence	703	00:00:23:13	703	708	606	0	3	2		
<input checked="" type="checkbox"/>	Silence	814	00:00:27:04	814	818	660	0	3	2		
<input checked="" type="checkbox"/>	Silence	843	00:00:28:03	843	851	740	0	3	2		
<input checked="" type="checkbox"/>	Silence	961	00:00:32:01	961	965	248	0	3	2		
<input checked="" type="checkbox"/>	Silence	1038	00:00:34:18	1038	1045	700	0	3	2		
<input checked="" type="checkbox"/>	Silence	1049	00:00:34:29	1049	1074	868	0	3	2		
<input checked="" type="checkbox"/>	Silence	1121	00:00:37:11	1121	1124	892	0	3	2		

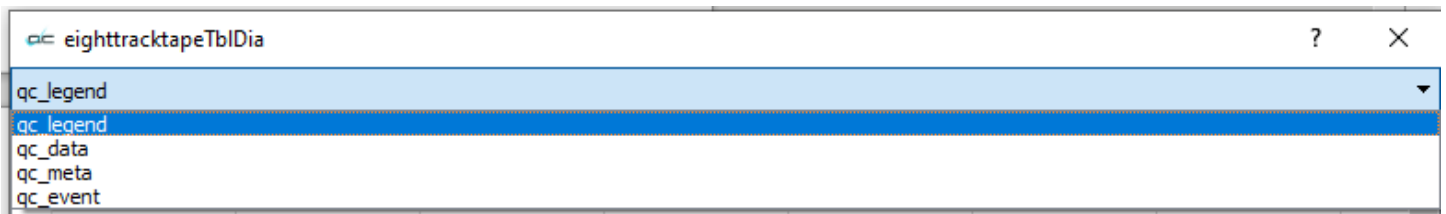
Events are noted each time a parameter falls outside of its acceptable values. The Starting time code of the event is noted, by frame number.

3.3.17.2 View Data window

View Data option – opens the View Data window.

This window details all the parameters measured by the Analysis process, and displays the values in an easy to read window.

For viewing data, the analyses are divided into four areas: **Legend**, **Data**, **Meta**, and **Event**. These are accessed using the pulldown menu at the top of the **View Data** window.



QC Legend Parameters

eighttracktapeTblDia									
qc_legend									
	id	name	type	min	max	minlegal	maxlegal	center	displayrule
2	1	VideoType	int	0	340377	0	340377		0
3	2	YMax	double	0	1	0	1		0
4	3	YHigh	double	0	1	0	1		0
5	4	YAverage	double	0	1	0	1		0
6	5	YLow	double	0	1	0	1		0
7	6	YMin	double	0	1	0	1		0
8	7	YGamutOver	double	0	1	0	1		0
9	8	YGamutUnder	double	0	1	0	1		0
10	9	SatMax	double	0	1	0	1		0
11	10	SatHigh	double	0	1	0	1		0
12	11	SatAverage	double	0	1	0	1		0
13	12	SatLow	double	0	1	0	1		0
14	13	SatMin	double	0	1	0	1		0
15	14	UMax	double	0	1	0	1		0
16	15	UHigh	double	0	1	0	1		0
17	16	UAverage	double	0	1	0	1		0
18	17	ULow	double	0	1	0	1		0
19	18	UMin	double	0	1	0	1		0
20	19	UGamutOver	double	0	1	0	1		0

Each legend parameter is displayed in its own row. For every measurement, the entry is provided with the following:

- ID** – an under the hood ID number associated with the name
- Name** – a plain text description of the parameter being measured
- Type** – a description of the type of measurement being used
- Minimum** – the minimum value, or zero if none
- Maximum** – the maximum value, or one if none
- Minimum Legal** – the minimum legal value, or zero if none
- Maximum Legal** – the maximum legal value, or 1 if none
- Center** – nominal value where applicable
- Display Rule** – whether to display the parameter

QC Data Parameters

qc_data									
	id	VideoSize	VideoType	YMax	YHigh	YAverage	YLow	YMin	YGamutOver
2	1	33280	21273	0.835294	0	0.825557	0	0.164706	0
3	2	33792	21273	0.827451	0	0.8255	0	0.164706	0
4	3	165376	42546	0.827451	0	0.825384	0	0.164706	0
5	4	161792	21273	0.827451	0	0.825593	0	0.164706	0
6	5	152064	21273	0.827451	0	0.825367	0	0.168627	0
7	6	239104	42546	0.827451	0	0.825546	0	0.14902	0
8	7	195072	21273	0.827451	0	0.825425	0	0.156863	0
9	8	185856	21273	0.831373	0	0.825405	0	0.160784	0
10	9	250368	42546	0.827451	0	0.825521	0	0.137255	0
11	10	165376	21273	0.831373	0	0.82559	0	0.152941	0
12	11	195072	21273	0.831373	0	0.825311	0	0.152941	0
13	12	277504	42546	0.827451	0	0.825568	0	0.152941	0
14	13	200704	21273	0.827451	0	0.825485	0	0.156863	0
15	14	191488	21273	0.827451	0	0.825378	0	0.141176	0
16	15	246784	63819	0.827451	0	0.825723	0	0.137255	0
17	16	182784	21273	0.827451	0	0.825623	0	0.145098	0
18	17	174080	21273	0.827451	0	0.82572	0	0.164706	0
19	18	191488	42546	0.827451	0	0.825746	0	0.152941	0

Each data parameter is displayed in its own row. For each per-frame measurement, an entry is provided for the followings:

- ID
- Video Size
- Video Type
- Y Maximum
- Y High
- Y Average
- Y Low
- Y Minimum
- Y Gamut Over
- Y Gamut Under
- Saturation Maximum
- Saturation High

Saturation Average
Saturation Low
Saturation Minimum
U Maximum
U High
U Average
U Low
U Minimum
U Gamut Over
U Gamut Under
V Maximum
V High
V Average
V Low
V Minimum
V Gamut Over
V Gamut Under
Vertical Line Repitition
Broadcast Illegal
Top Missing
Left Missing
Bottom Missing
Right Missing
Loudness Ch0
RMS Ch0
RMS Ch1
RMS Ch2
RMS Ch3
RMS Ch4
RMS Ch5
RMS Ch6
RMS Ch7
Peak Ch0
Peak Ch1
Peak Ch2
Peak Ch3
Peak Ch4
Peak Ch5
Peak Ch6
Peak Ch7
Still Frame

QC Meta Parameters

eighttracktapeTblDia			?	×
qc_meta				
	name	value		
1	updated	267727475		
2	Video Channels	1		
3	Video Size	40		
4	Video Width	1920		
5	Video Height	1080		
6	Video Planes	1		
7	Video Bit Count	8		
8	Video Compres...	78643566		
9	Video Compres...	MPEG XDCam ...		
10	Video Size Image	1036800		
11	Video X Pels Pe...	0		
12	Video Y Pels Pe...	0		
13	Video Clr Used	0		
14	Video Clr Impor...	0		
15	Video Fcc Type	73646976		
16	Video Fcc Hand...	78643566		
17	Video Flags	0		
18	Video Caps	0		
19	Video Priority	0		

Each metadata parameter is displayed in its own row. For each metadata element, an entry is provided for the following:

- Updated
- Video Channels
- Video Size
- Video Width
- Video Height
- Video Planes
- Video Bit Count
- Video Compression
- Video Compression String
- Video Size Image
- Video X Pels Per Meter
- Video Y Pels Per Meter

Video Clr Used
Video Clr Important
Video Fcc Type
Video Fcc Handler
Video Flags
Video Caps
Video Priority
Video Language
Video Scale
Video Frame Rate
Video Rate
Video Start
Video Length
Video Color Range
Video Color Primaries
Video Color Primaries String
Video Transfer Function
Video Transfer Function String
Video Conversion Matrix
Video Conversion Matrix String
Video IP Distance
Video Suggested Buffer Size
Video Quality
Video Data Rate
Video GOP Length
Video Profile
Video Level
Video Name
Video File Type
Video File Type String
Video Scan
Video Scan String
Audio Channels
Audio Format Tag
Audio Samples Per Sec
Audio Average Bytes Per Sec
Audio Block Align
Audio Bits Per Sample
Audio Size
Audio Fcc Type
Audio Fcc Handler
Audio Flags
Audio Caps

Audio Priority
Audio Language
Audio Scale
Audio Rate
Audio Start
Audio Length
Audio Initial Frames
Audio Suggested Buffer Size
Audio Quality
Audio Sample Size
Audio Edit Count
Audio Format Change Count
Audio Name
Audio Dr Flags
Audio File Type
System Micro Sec Per Frame
System Max Bytes Per Sec
System Padding Granularity
System Flags
System Total Frames
System Initial Frames
System Streams
System Suggested Buffer Size
System Width
System Height
System Caps
System Scale
System Rate
System Length
System Edit Count
System File Type String
System Type
System Mf Caps
System Vid Standard
System Dr Flags
System File Type Integer
Meta File Name
Meta Native Locator
Meta Universal Name
Meta Full Name
Meta Version String
Meta Time Code
Meta User Bits

Meta VITC Time Code
Meta VITC User Bits
Meta Poster Frame
Meta A Frame
Meta Aspect Ratio
Meta File Size
Meta Time Code Type
Meta LTC Time Code Type
Meta VITC Time Code Type
Audio Channel Groups
Count

QC Event Parameters

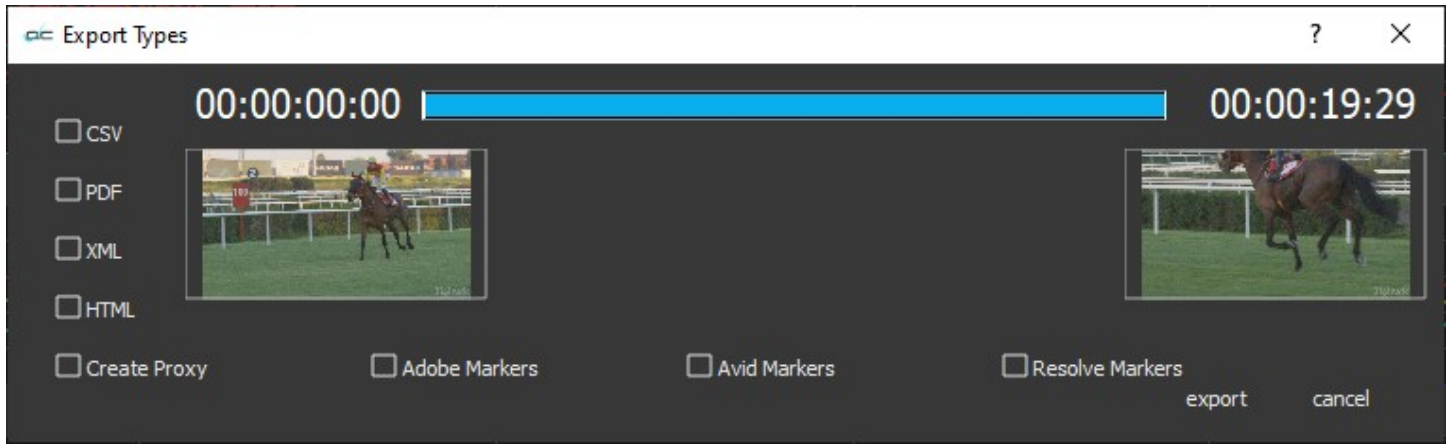
eighttracktapeTblDia												
qc_event												
	export	name	starttc	tcstring	startframe	endframe	ivalue	fvalue	severity	type	location	details
1	1	Silence	8	00:00:00;08	8	11	678	0	3	2		
2	1	Silence	12	00:00:00;12	12	16	750	0	3	2		
3	1	Silence	46	00:00:01;16	46	49	840	0	3	2		
4	1	Silence	69	00:00:02;09	69	72	842	0	3	2		
5	1	Silence	96	00:00:03;06	96	107	786	0	3	2		
6	1	Silence	167	00:00:05;17	167	175	814	0	3	2		
7	1	Silence	217	00:00:07;07	217	221	288	0	3	2		
8	1	Silence	222	00:00:07;12	222	225	836	0	3	2		
9	1	Silence	226	00:00:07;16	226	235	824	0	3	2		
10	1	Silence	244	00:00:08;04	244	247	646	0	3	2		
11	1	LeftMissing	315	00:00:10;15	315	316	16	0	3	1		
12	1	Silence	310	00:00:10;10	310	319	686	0	3	2		
13	1	Silence	323	00:00:10;23	323	327	814	0	3	2		
14	1	Silence	336	00:00:11;06	336	339	840	0	3	2		
15	1	Silence	340	00:00:11;10	340	343	208	0	3	2		
16	1	Silence	344	00:00:11;14	344	347	790	0	3	2		
17	1	Silence	363	00:00:12;03	363	369	836	0	3	2		
18	1	Silence	386	00:00:12;26	386	390	428	0	3	2		
19	1	Silence	402	00:00:13;12	402	410	838	0	3	2		

Each event parameter is displayed in its own row. For each time a parameter has an illegal value, an entry is provided for the following:

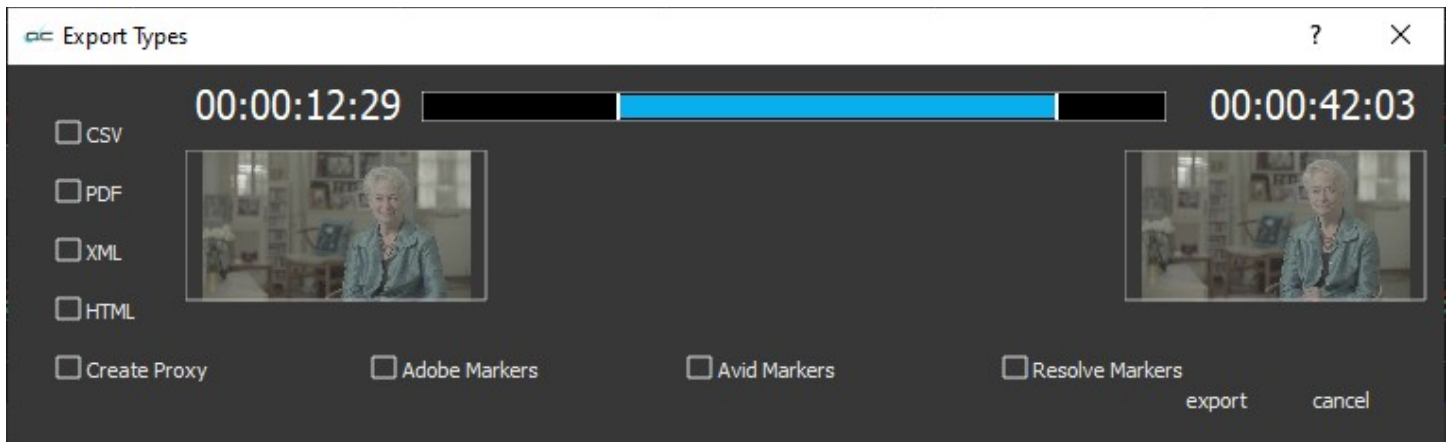
Export
 Name
 Start TC
 TC String
 Start Frame
 End Frame
 I Value
 F Value
 Severity
 Type
 Location
 Details

3.3.17.3 Export Data

Pressing the Export Data control opens the Export Types window.



Across the top of the Export Types window, there is a position slider with the In and Out points of the frame displayed. The In and Out points can be edited to produce a report for only a section of the file.



Reports and Markers

CSV – produce a CSV (comma separated values) report

PDF – produce a PDF (personal document format) report

XML – produce an XML (expended markup language) report

HTML – produce an HTML (hypertext markup language) report

Create Proxy – generate a proxy MP4 from the file

Adobe Markers – export markers that Adobe creative software can import onto the timeline

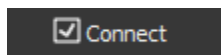
Avid Markers – export markers that Avid creative software can import onto the timeline

Resolve Markers – export markers that DaVinci Resolve creative software can import onto the timeline

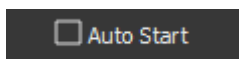
Export button – export any specified reports, markers, and proxies.

Cancel button – exit the Export dialog without performing an export.

The **Connect** checkbox in the analysis window (shown below) causes the lines in the graphs to be connected. Otherwise, they are just the actual data dots.



The **Auto Start** checkbox in the analysis window (shown below) causes the analysis to start as soon as a file is loaded. If it is not set, then the analysis needs to be started by the user once a file is loaded.



3.3.17.4 *The Types of File That Can Be Created in the Export*

Database files generated by pressing the analysis button

filename.qc.db - Database file
filename.qc.db-shm - [temp file]
filename.qc.db-wal - [temp file]

CSV docs for MAM integration

filename.csv - CSV spreadsheet of per event analysis results
filename_frames.csv - CSV spreadsheet of per frame analysis results

PDF

filename.pdf - PDF of analysis results

XML docs for MAM integration

filename.xml - XML document of per event analysis results
filename_frames.xml - XML document of per frame analysis results

HTML

filename.html - html file (web page) of analysis results
[subfolder] css - stylesheets
[subfolder] images - images for the page
[subfolder] js - javascript file player

Create Proxy generates the following files:

filename.mp4 [Note: if the source file is an mp4, a proxy will not be created since videoQC thinks it already exists]
filename.ack - acknowledgment file
filename.mp4.ack - acknowledgment file of the proxy mp4
filename.rtin
filenameA.rtin

Adobe Markers

filename_Adobe.csv - CSV spreadsheet of Adobe markers

Avid Markers

filename_Avid - text file of Avid markers

Resolve Markers

filename_Resolve.edl - Resolve markers file

Source file

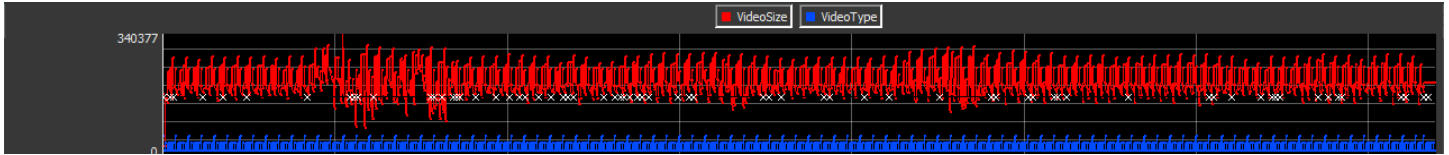
filename.mxf (If the source file is not an mp4, a proxy can be generated in the export dialog)

For every export:

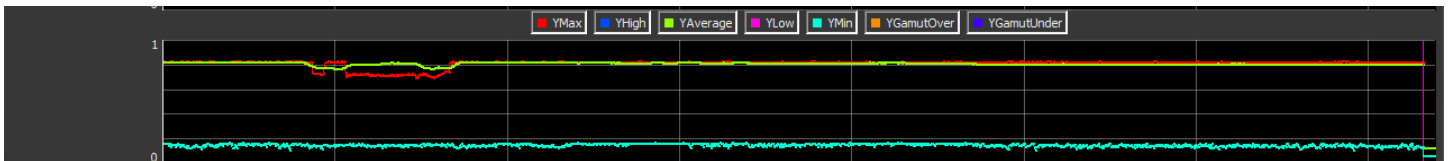
filename.ack - acknowledgment file

3.3.17.5 The Analysis window

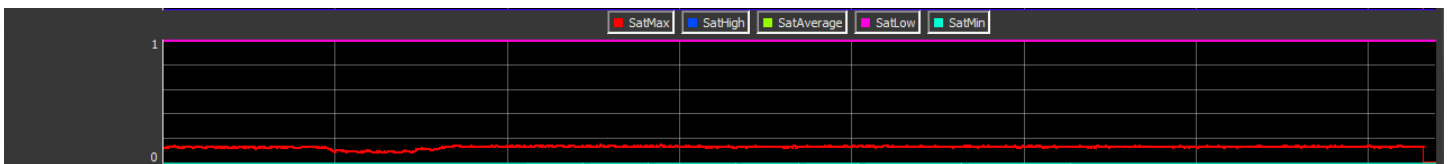
Several components of the file are displayed in the analysis window. At the top is the Video Size and Video Type details.



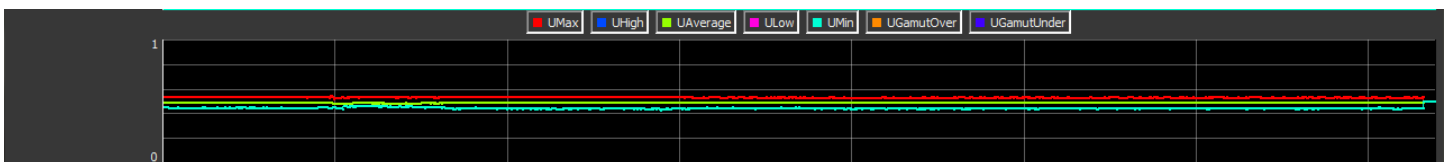
The top row details the video size and the video type. The **VideoSize** and **VideoType** buttons can be used to turn the display of each of these analyses off and on.



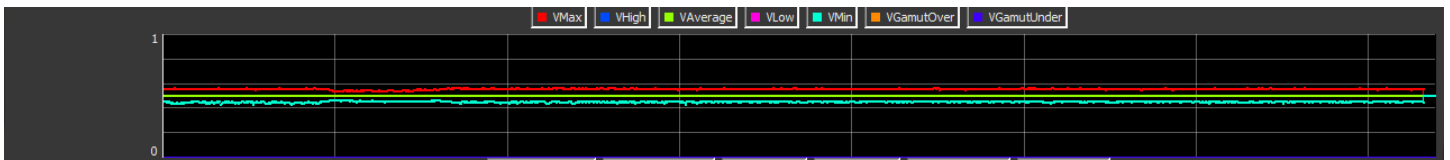
The next row shows the **Maximum**, the **High**, the **Average**, the **Low**, the **Minimum**, the **Gamut Over**, and the **Gamut Under** for the **Y** component of the video. The **YMax**, **YHigh**, **YAverage**, **YLow**, **YMin**, **YGamutOver**, and **YGamutUnder** buttons can be used to turn the display of each of these analyses off and on.



The next row details the **Maximum**, the **High**, the **Average**, the **Low** and the **Minimum** for the **Saturation** level of the video. The **SatMax**, **SatHigh**, **SatAverage**, **SatLow**, and **SatMin** buttons can be used to turn the display of each of these analyses off and on.



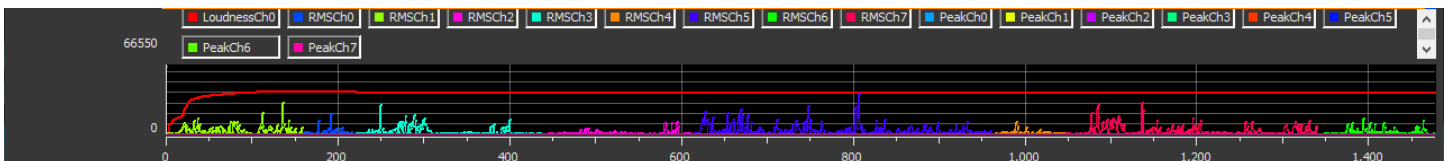
The next row details the **Maximum**, the **Minimum**, the **Average**, the **Low**, the **Minimum**, the **Gamut Over**, and the **Gamut Under** for the **U** component of the video. The **UMax**, **UHigh**, **UAverage**, **ULow**, **UMin**, **UGamutOver**, and **UGamutUnder** buttons can be used to turn the display of each of these analyses off and on.



The next row details the **Maximum**, the **High**, the **Average**, the **Low**, the **Minimum**, the **Gamut Over**, and the **Gamut Under** for the **V** component of the video. The **VMax**, **VHigh**, **VAverage**, **VLow**, **VMin**, **VGamutOver**, and **VGamutUnder** buttons can be used to turn the display of each of these analyses off and on.



The next row looks for **Vertical Line Repetition**, **Broadcast Illegal**, and checks for Top Missing, Left Missing, Bottom Missing, and Right Missing edge of frame issues. The **VerticalLineRep**, **BroadcastIllegal**, **TopMissing**, **LeftMissing**, **BottomMissing**, and **RightMissing** buttons can be used to turn the display of each of these analyses off and on.



The eighth row looks at the audio in the file, and details the Loudness Left, Loudness Right, RMS Left, RMS Right, Peak Left, and Peak Right. The **LoudnessLeft**, **LoudnessRight**, **RMSLeft**, **RMSRight**, **PeakLeft**, and **PeakRight** buttons can be used to turn the display of each of these analyses off and on.

Along the bottom there are markers for frame locations.

3.3.18 Compare Files

compare files

Compare Files button - Opens the file compare window, which allows the user to compare a file with another file. This is designed to compare a compressed file to its source file, to check the quality of the compression scheme.

Enable	<input checked="" type="checkbox"/> Enabled
Comp File	F:/Music/Mine/_The Hit Cats/videos/MVI_2799.MP4
Comp Offset	0
Orig File	...
Orig Offset	0
Mode	Left eye only
Wipe Type	Horizontal
Mix Value	32768
Threshold	0
Split Vertical	540
Split Horizontal	960
Split Vert/Horiz	<input type="checkbox"/> Disabled
Invert	<input type="checkbox"/> Disabled
Add Guide	<input type="checkbox"/> Disabled
Flip Horz Left	<input type="checkbox"/> Disabled
Flip Horz Right	<input type="checkbox"/> Disabled
Flip Vert Left	<input type="checkbox"/> Disabled
Flip Vert Right	<input type="checkbox"/> Disabled
Grid Type	Off
Grid Percent	2
Grid Pixel X	40
Grid Pixel Y	20
PSNR	<input type="checkbox"/> Disabled
SSIM	<input type="checkbox"/> Disabled
MS-SSIM	<input type="checkbox"/> Disabled
Launch Analysis	

- **Enable** – enable the visual compare mode. Unless this checkbox is checked, comparison mode will be disabled.
- **Comp File** – the file that is loaded should be the compressed file. The original file will then need to be selected.

- **Comp Offset** – the frame offset into the compressed file to match the original file
- **Orig File** – the original file that the compressed file came from. The '...' brings up the file browser to select the original file.
- **Orig Offset** – the frame offset into the original file to match the compressed version
- **Mode** – see the Basic Compare Settings below
- **Wipe Type** – see the Wipe Settings below
- **Mix Value** – some of the compare settings (like dissolve) allow for a percentage mix value that is set by this slider
- **Threshold** – some of the compare settings (like A-B and difference) require a threshold value that is set by this slider
- **Split Vertical** – for seamless split, vertical, this sets the location of the split
- **Split Horizontal** – for seamless split, horizontal, this sets the location of the split
- **Split Vert/Horiz** – for compare modes like seamless splits and mirror, this sets the split either vertical or horizontally
- **Invert** – this inverts the compressed and original video in the compare display
- **Add Guide** – for compressed/original sets that are very close, it can be difficult to find the split between them. This setting puts a single pixel line at the split point
- **Flip Horz Left** – flip the left/compressed video horizontally
- **Flip Horz Right** – flip the right/original video horizontally
- **Flip Vert Left** – flip the left/compressed video vertically
- **Flip Vert Right** – flip the right/original video vertically
- **Grid Type** – set the grid overlay to percent, pixel of off
- **Grid Percent** – the percent size for the grid
- **Grid Pixel X** – the number of pixels horizontally between grid lines
- **Grid Pixel Y** – the number of pixels vertically between grid lines
- **PSNR** checkbox – select to enable PSNR (peak signal to noise ratio) analysis
- **SSIM** checkbox - select to enable SSIM (Structural Similarity Index Measure) analysis
- **MS-SSIM** checkbox - select to enable MS-SSIM (Multi Scale Structural Similarity Index Measure) analysis
- **Launch Analysis** button – if you have selected a PSNR, SSIM, or MS-SSIM analysis, pressing this button will begin the specified analysis.

3.3.19 Basic Compare Settings:

3.3.19.1 *Left Eye Only:*



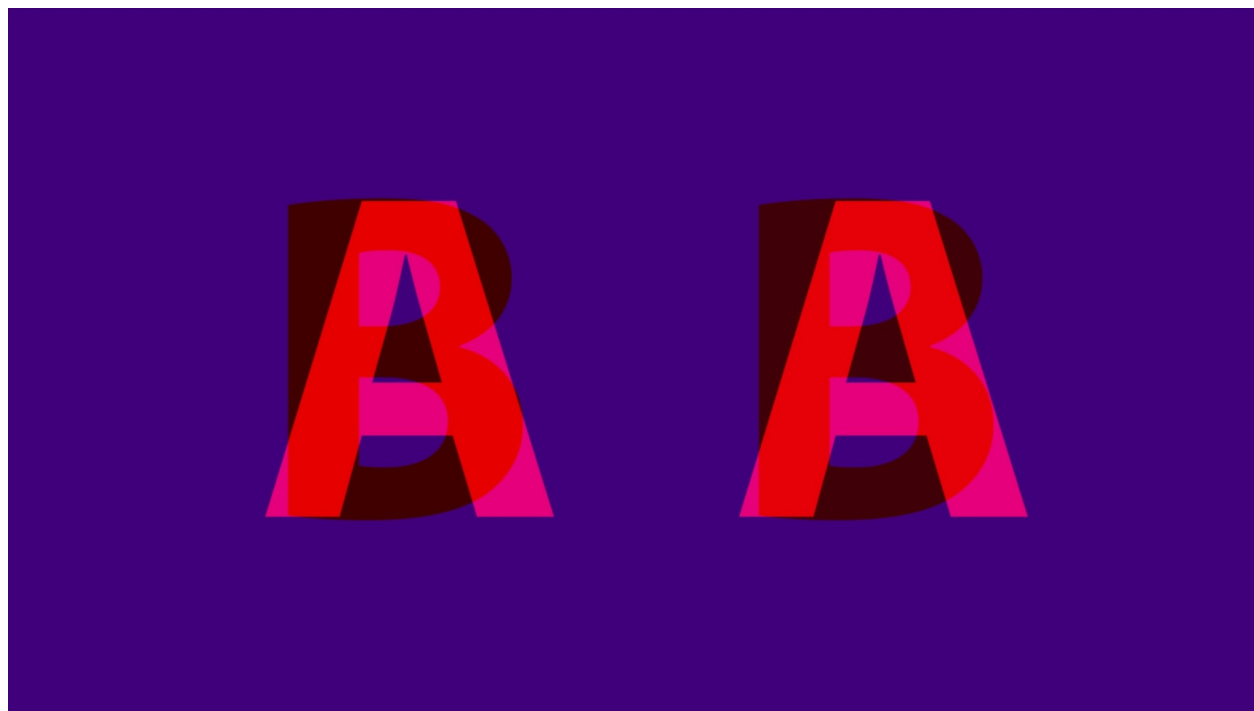
This shows only the left, or the compressed, video signal.

3.3.19.2 *Right Eye Only:*



This shows only the right, or original, video signal.

3.3.19.3 *Anaglyph Red-Blue:*



For 3D glasses.

3.3.19.4 *Anaglyph Red-Cyan:*



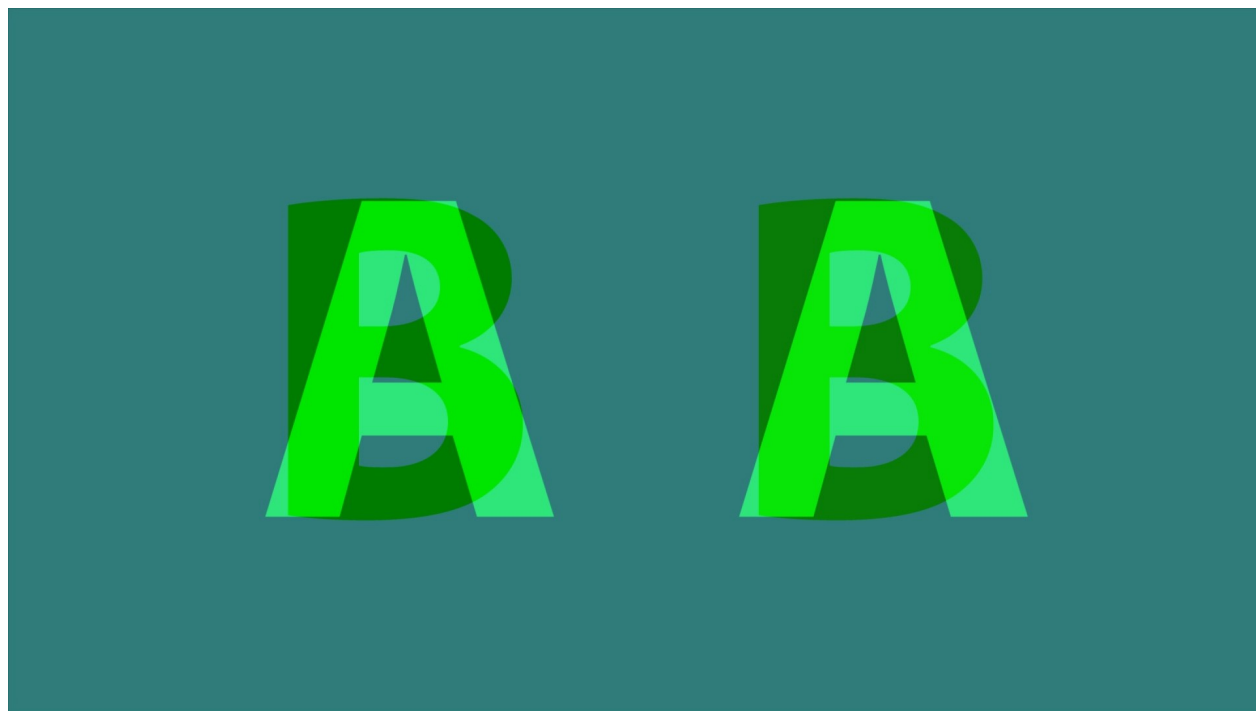
For 3D glasses.

3.3.19.5 *Anaglyph Amber-Blue:*



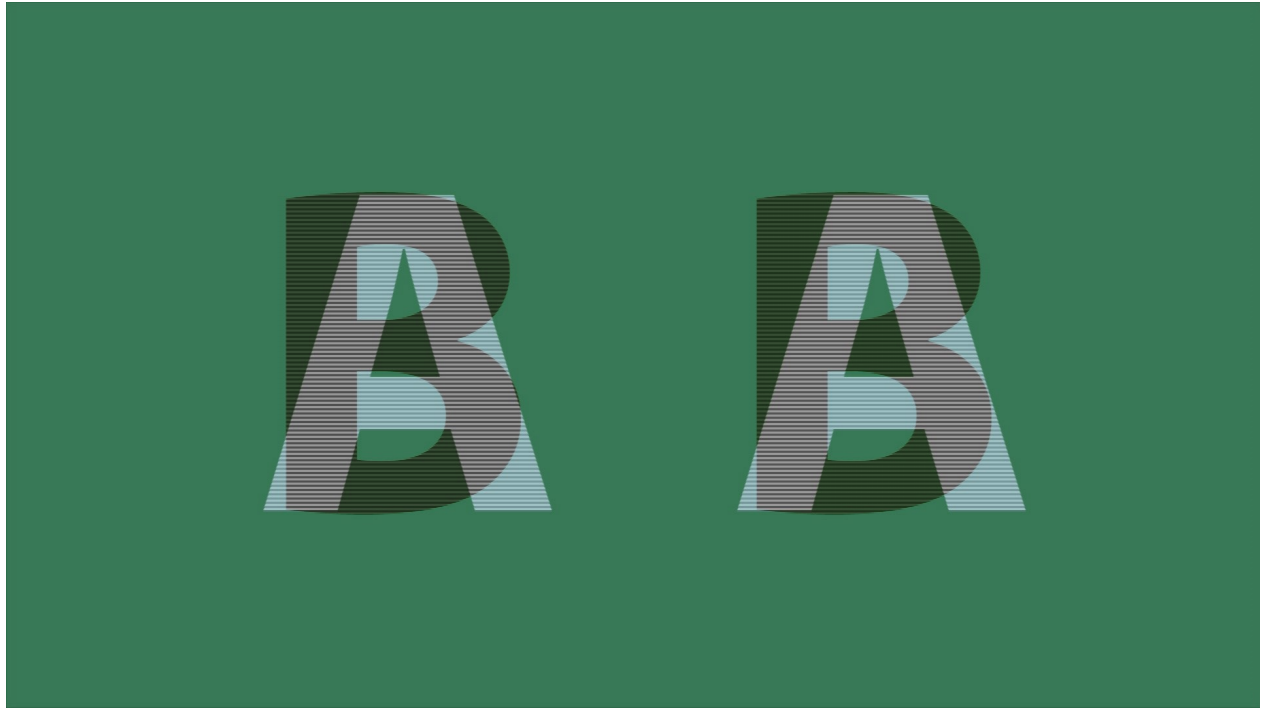
For 3D glasses.

3.3.19.6 *Anaglyph Green-Magenta:*



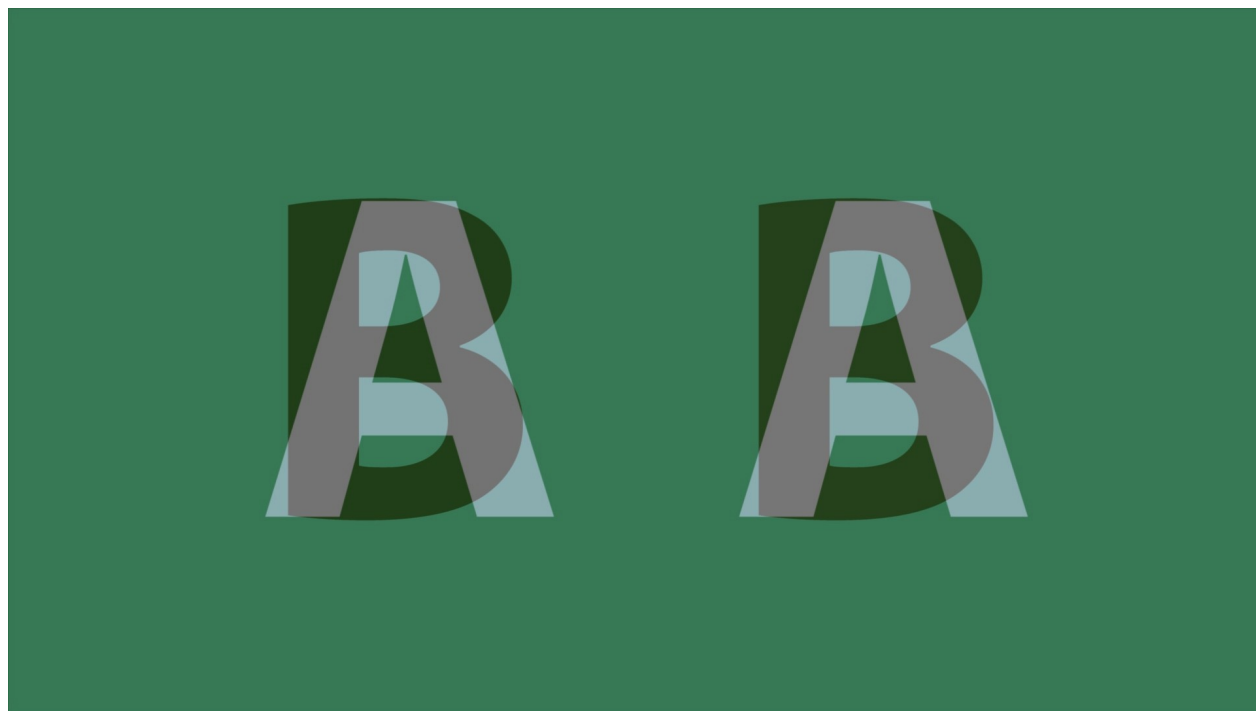
For 3D glasses.

3.3.19.7 *Interlaced Eyes:*



Show both signals on alternate lines, good for some 3D monitors.

3.3.19.8 *Onion Skin:*



Show 50% of each signal.

3.3.19.9 *Difference with Threshold Multiplier:*



Analyze each pixel and show 50% gray where the two pixels are the same, and bright/dark where different. Threshold can be set by the threshold slider.

3.3.19.10 *Over Under:*



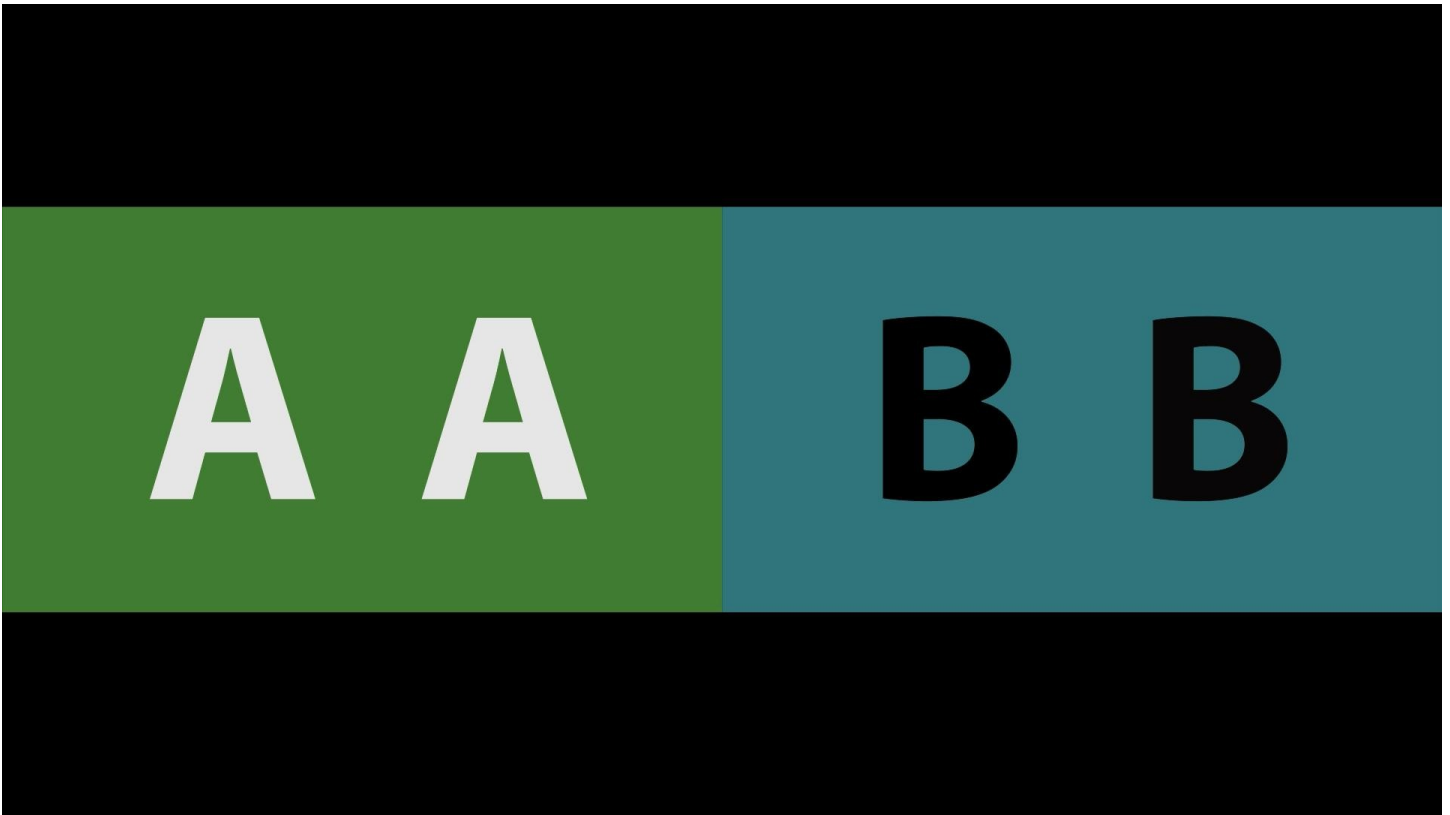
Show the compressed video and original scaled vertically.

3.3.19.11 *Side by Side:*



Show the compressed video and original scaled horizontally.

3.3.19.12 Side by Side – Full Picture:



Show both compressed and original video full image scaled to fit.

3.3.19.13 *Side by Side – Same Side:*



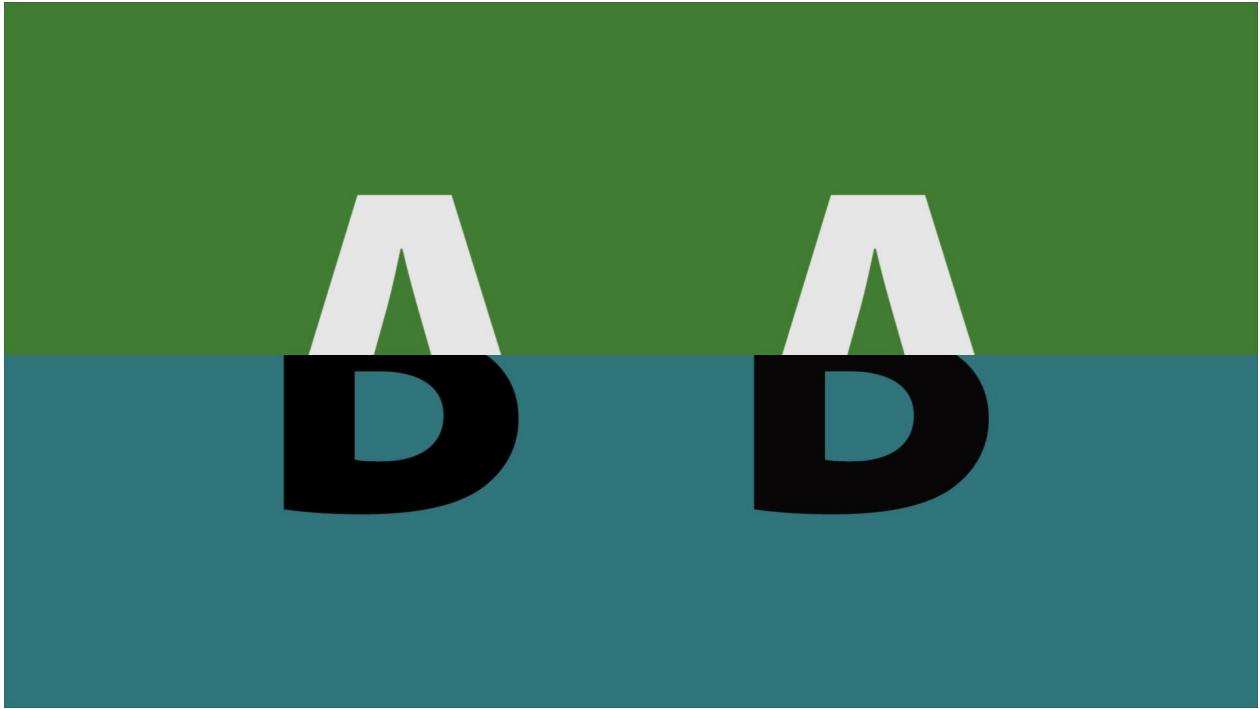
Show the same side of the compressed and original signal, movable.

3.3.19.14 *Seamless Split – Vertical:*



Show one half of the compressed and the other half of the original video.

3.3.19.15 *Seamless Split – Horizontal:*



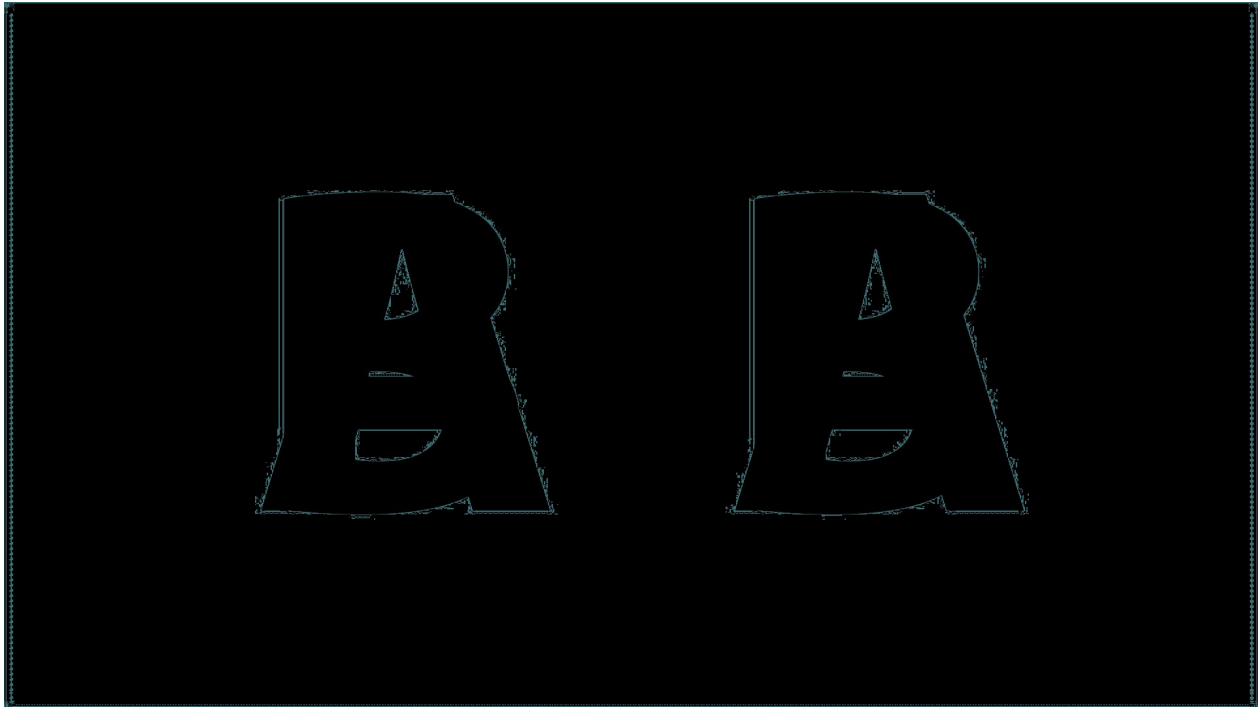
Show one half of the compressed and the other half of the original video.

3.3.19.16 *Mirror:*



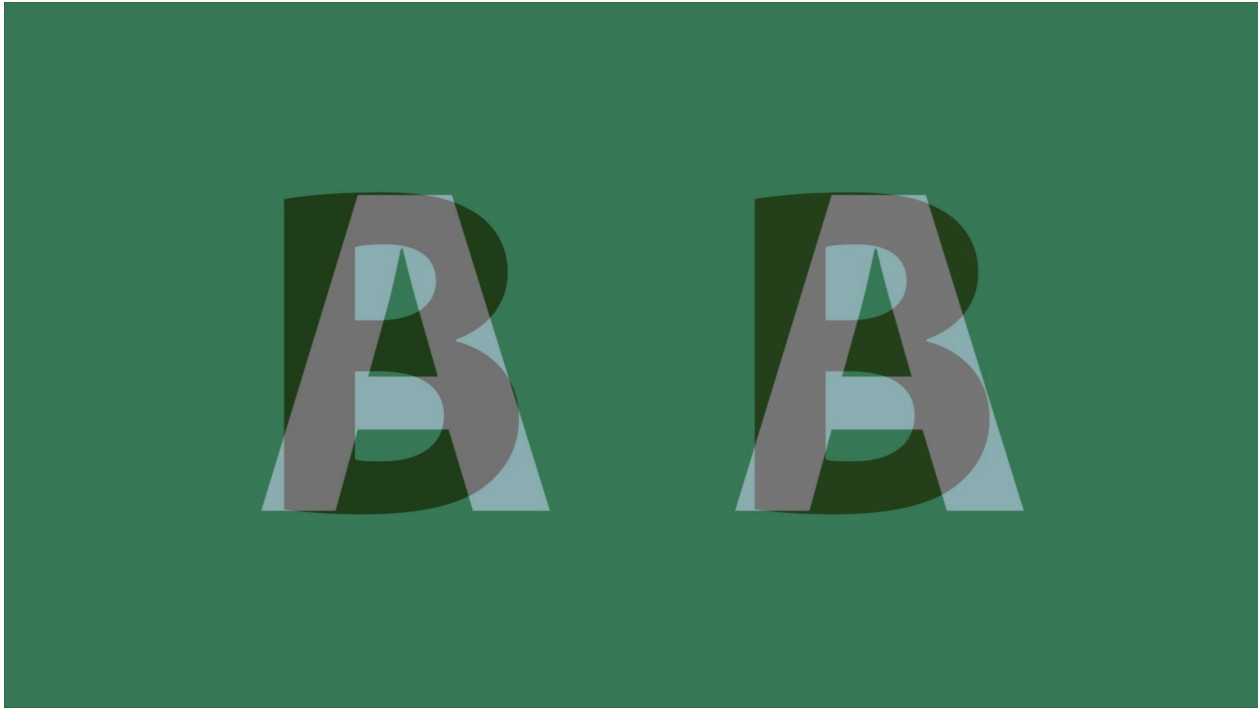
Mirror the compressed and original so they meet in the middle (vert or horiz)

3.3.19.17 *A-B with Threshold:*



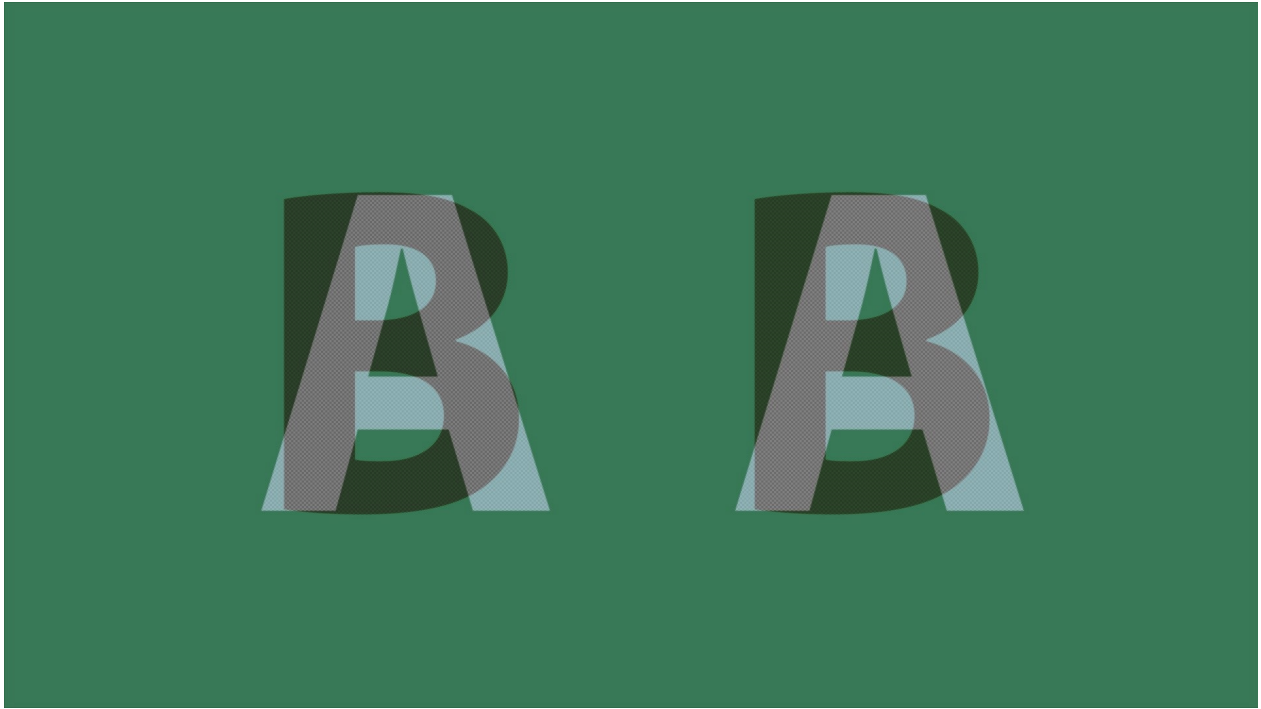
Subtract the two videos and show only the differences within a threshold.

3.3.19.18 *Dissolve with Mix:*



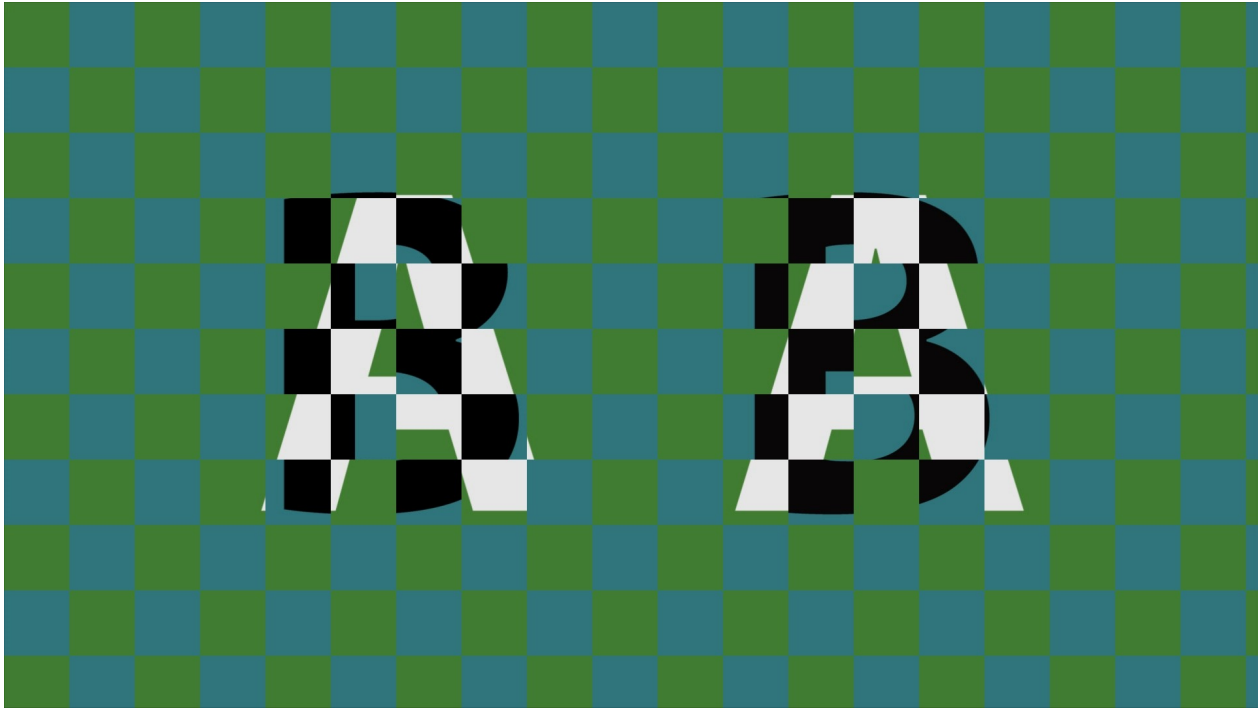
Dissolve back and forth between the compressed and original video.

3.3.19.19 *Checkerboard 3D:*



Show every other pixel from each video, useful for some 3D displays.

3.3.19.20 *Boxes Sized by Mix:*

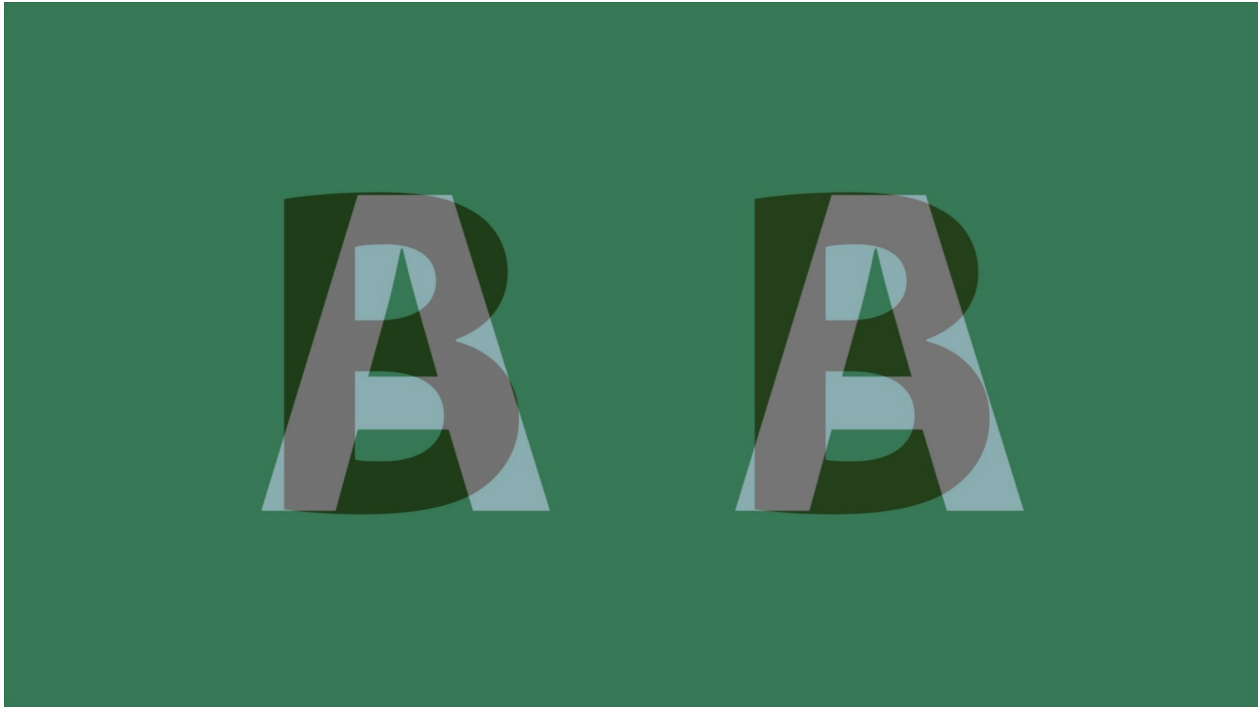


Create sizable, interleaving boxes with both videos.

3.3.20 Wipe with Mix Settings

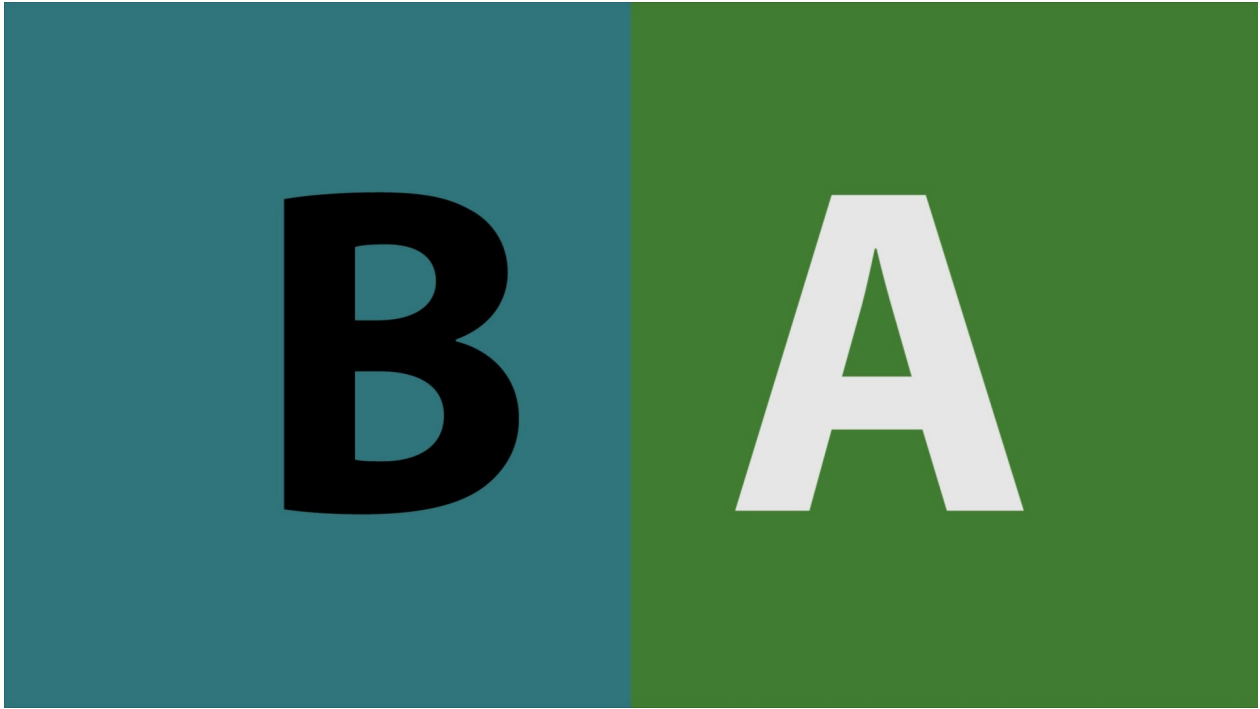
The wipes provide less common ways of showing both video signals that may be useful under special circumstances.

3.3.20.1 *Dissolve Wipe:*



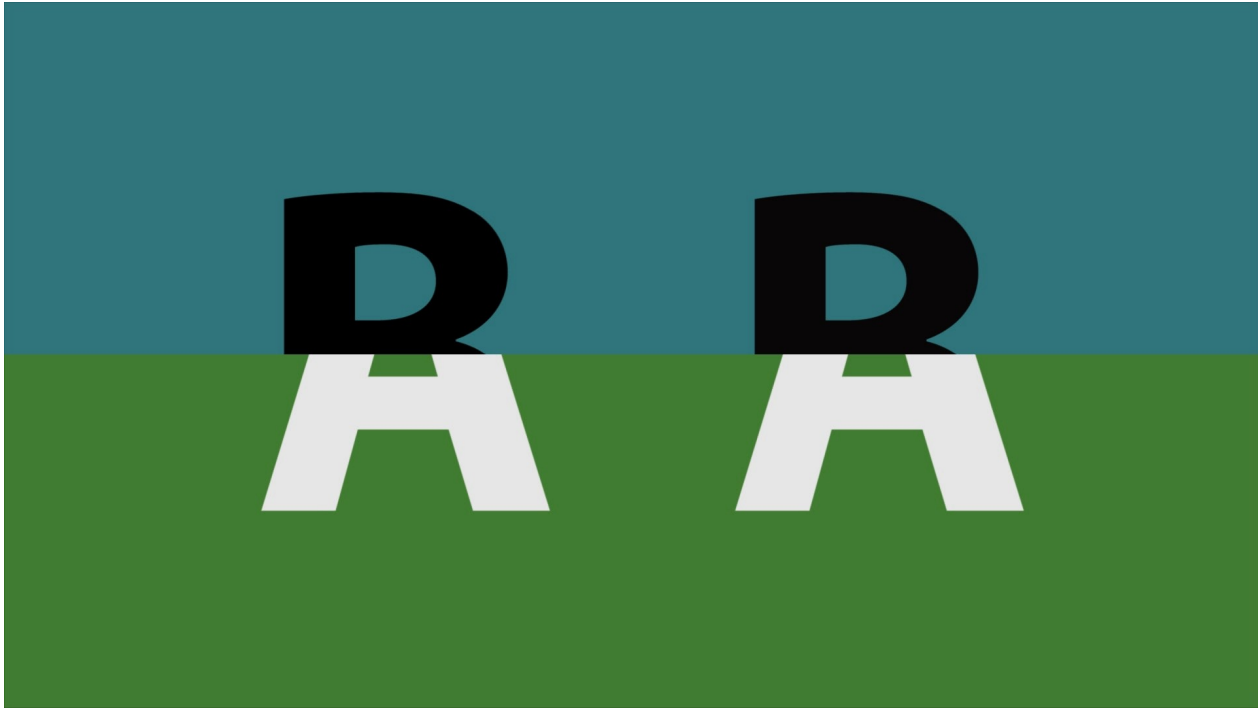
Dissolve between the two video signals depending on the mix slider.

3.3.20.2 *Horizontal Wipe:*



Horizontal wipe between the two video sources based on the mix slider position.

3.3.20.3 *Vertical Wipe:*



Vertical wipe between the two video sources based on the mix slider position.

3.3.20.4 *Upper Left Wipe:*



Upper left wipe between the two video sources based on the mix slider position.

3.3.20.5 *Upper Right Wipe:*



Upper right wipe between the two video sources based on the mix slider position.

3.3.20.6 *Lower Right Wipe:*



Lower right wipe between the two video sources based on the mix slider position.

3.3.20.7 *Lower Left Wipe:*



Lower left wipe between the two video sources based on the mix slider position.

3.3.20.8 *Four Corners Wipe:*



Four corners wipe between the two video sources based on the mix slider position.

3.3.20.9 *Four Square Wipe:*



Center square wipe between the two video sources based on the mix slider position.

3.3.20.10 *Barn Doors Vertical Wipe:*



Barn doors vertical wipe between the two video sources based on the mix slider position.

3.3.20.11 *Barn Door Horizontal Wipe:*



Barn doors horizontal wipe between the two video sources based on the mix slider position.

3.3.20.12 *Top Center Wipe:*



Top center wipe between the two video sources based on the mix slider position.

3.3.20.13 *Right Center Wipe:*



Right center wipe between the two video sources based on the mix slider position.

3.3.20.14 *Bottom Center Wipe:*



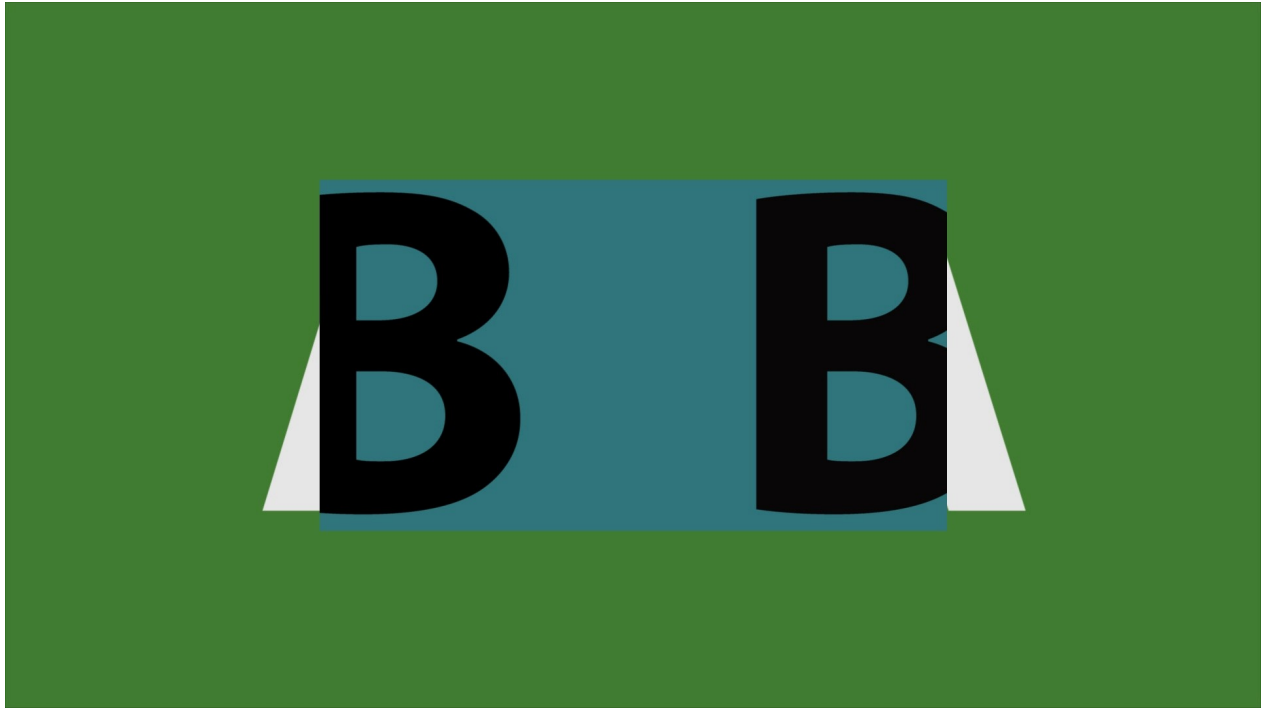
Bottom center wipe between the two video sources based on the mix slider position.

3.3.20.15 *Left Center Wipe:*



Left center wipe between the two video sources based on the mix slider position.

3.3.20.16 *Box Wipe:*



Box wipe between the two video sources based on the mix slider position.

3.3.20.17 *Slide Up Wipe:*



Slide up wipe between the two video sources based on the mix slider position.

3.3.20.18 *Slide Left Wipe:*



Slide left wipe between the two video sources based on the mix slider position.

3.3.20.19 *Slide Down Wipe:*



Slide down wipe between the two video sources based on the mix slider position.

3.3.20.20 *Slide Right Wipe:*

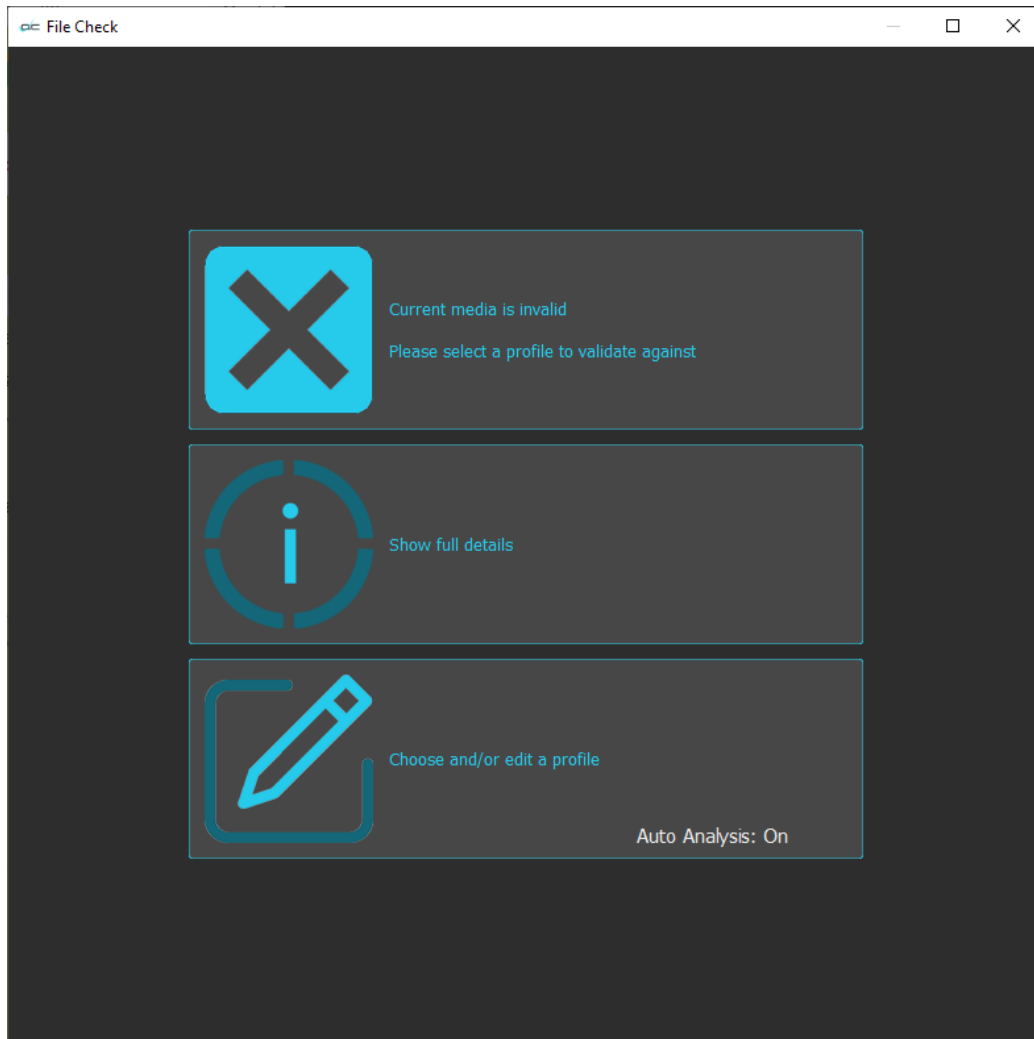


Slide right wipe between the two video sources based on the mix slider position.

3.3.21 QC File Check

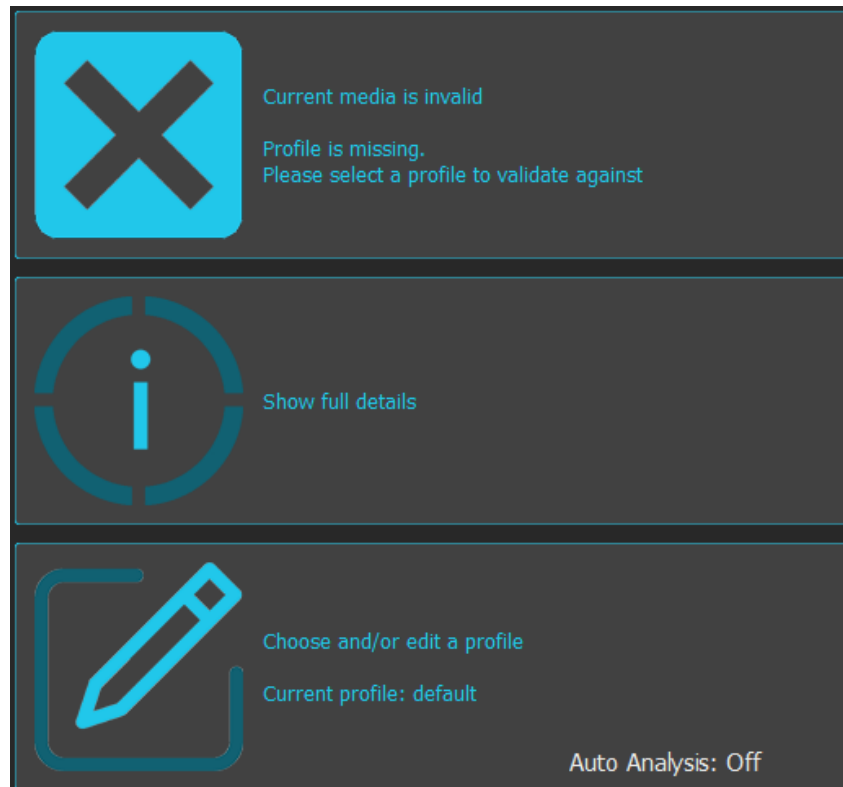
qc file check

QC File Check button - Opens the file check window, which allows the user to load a file and compare it to a profile or to another file, with track info being highlighted when a difference is detected.

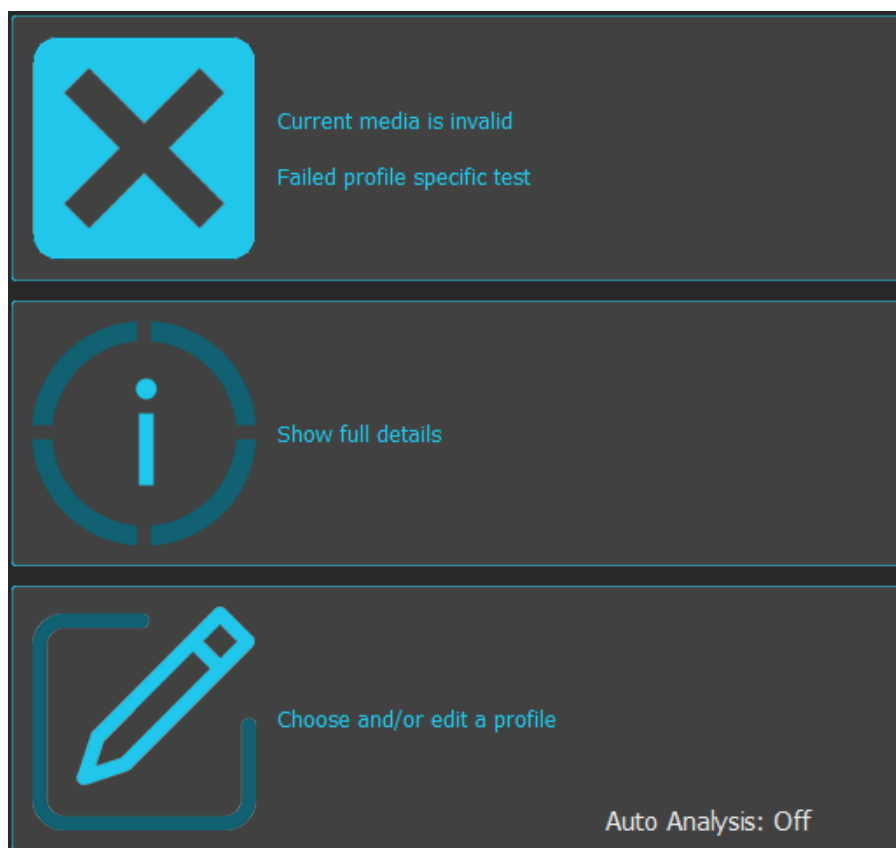


3.3.21.1 *Select a Profile*

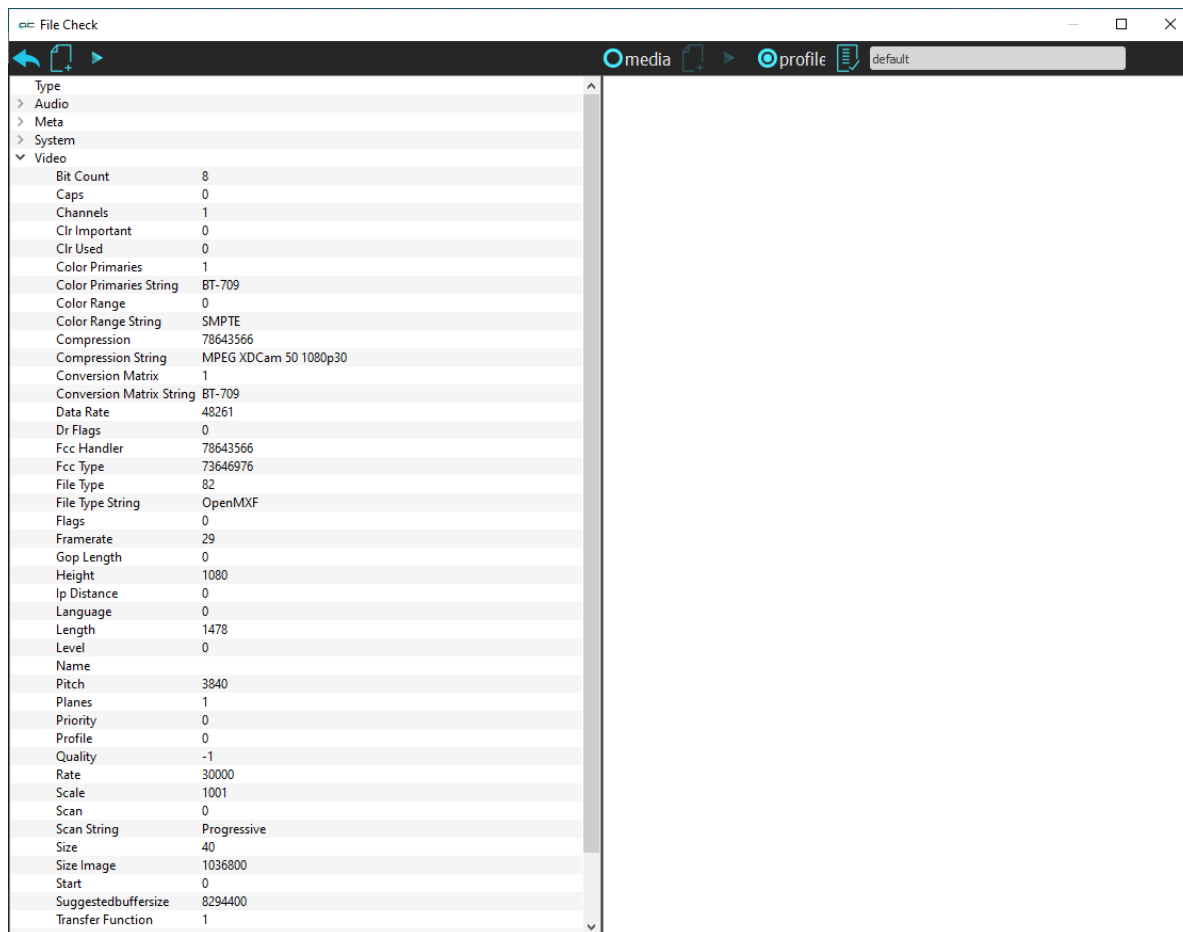
Initially the top section will not have a profile to validate the media against. You will need to create a profile if you want to compare your source file against it.



Where a profile has been set, the top section will show whether there is a match to the profile.

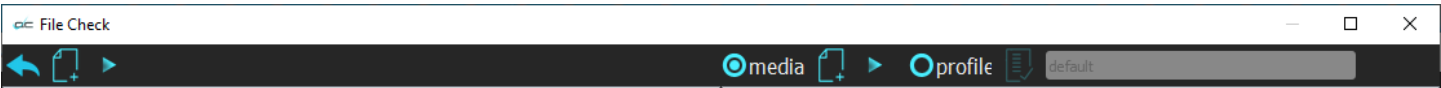


When there is no profile/media loaded, the details will have a blank page to compare against. Clicking the Show Details panel will open the **File Check** window.



To compare the selected file to a set of known good parameters, you can either specify a file, or set up/select a profile.

3.3.21.2 Specify Media



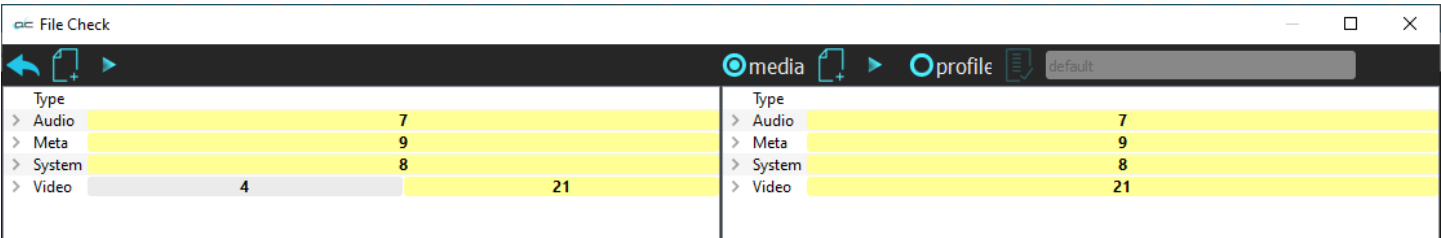
In the File Check window, confirm that Media is selected. Press the document icon to the right of the word “Media”. This opens a browser so you can select a media file.

3.3.21.3 Specify Profiles



In the File Check window, confirm that Profile is selected. Press the document icon to the right of the word “Profile”.

Once the user has selected either a known good file, or specified a profile, File Check will compare the parameters of the two, and highlight any differences.



The information is divided into tabs, with a tab for Audio, Metadata, System Info, and Video. In the above image, a compressed file has been compared to its source file.

3.3.21.3.1 File Check Results - Audio Tab

Type		
▼ Audio		7
Avg Bytes Per Sec	192000	
Bits Per Sample	16	
Block Align	4	
Caps	0	
Channels	2	
Dr Flags	131073	
Edit Count	0	
Fcc Handler	1836069985	
Fcc Type	1935963489	
File Type	197	
Flags	0	
Format Change Count	0	
Format Tag	1	
Initial Frames	0	
Language	0	
Length	8933724	
Name	MPEG 4	
Priority	0	
Quality	-1	
Rate	192000	
Sample Size	4	
Samples Per Sec	48000	
Scale	4	
Size	2	
Start	0	
Suggested Buffer Size	96000	
> Meta	9	
> System	8	
> Video	4	21

Type		
▼ Audio		7
Avg Bytes Per Sec	192000	
Bits Per Sample	16	
Block Align	4	
Caps	0	
Channels	2	
Dr Flags	131072	
Edit Count	0	
Fcc Handler	1936684916	
Fcc Type	1935963489	
File Type	164	
Flags	0	
Format Change Count	0	
Format Tag	1	
Initial Frames	0	
Language	9	
Length	8935326	
Name	QuickTime MOV2	
Priority	0	
Quality	-1	
Rate	192000	
Sample Size	4	
Samples Per Sec	48000	
Scale	4	
Size	0	
Start	0	
Suggested Buffer Size	96000	
> Meta	9	
> System	8	
> Video		21

In the above image, the audio tab is open. When collapsed, you could see there were 7 differences noted between the files. When open, you can view each parameter that is different, and what the details are.

3.3.21.3.2 File Check Results - Metadata Tab

File Check			media profile default		
Type			Type		
> Audio		7	> Audio		7
▼ Meta		9	▼ Meta		9
A Frame	0		A Frame	0	
Aspect Ratio	16:9		Aspect Ratio	4:3	
File Name	D:\media\source\DrNBA2MinSource480.mp4		File Name	D:\media\source\DrNBA2MinSource480.mov	
File Size	86087720		File Size	1511985292	
Full Name	DrNBA2MinSource480		Full Name	DrNBA2MinSource480	
Ltc Time Code Type	DF		Ltc Time Code Type	DF	
Native Locator	D:\media\source\DrNBA2MinSource480.mp4		Native Locator	D:\media\source\DrNBA2MinSource480.mov	
Original Rate	30000		Original Rate	30000	
Original Scale	1001		Original Scale	1001	
Poster Frame	0		Poster Frame	0	
Time Code	00:00:00;02		Time Code	00:00:00;00	
Time Code Type	DF		Time Code Type	DF	
Universal Name	D:\media\source\DrNBA2MinSource480.mp4		Universal Name	D:\media\source\DrNBA2MinSource480.mov	
User Bits	00000000		User Bits	FFFFFFFF	
Vitc Time Code	00:00:00;02		Vitc Time Code	00:00:00;00	
Vitc Time Code Type	DF		Vitc Time Code Type	DF	
Vitc User Bits	00000000		Vitc User Bits	FFFFFFFF	
> System		8	> System		8
> Video	4	21	> Video		21

The metadata tab displays the differences between the two files' metadata.

3.3.21.3.3 File Check Results - System Details Tab

File Check				media			
Type				Type			
> Audio		7		> Audio		7	
> Meta		9		> Meta		9	
▼ System		8		▼ System		8	
Caps	0			Caps	0		
Dr Flags	0			Dr Flags	0		
Edit Count	0			Edit Count	0		
File Type Integer	197			File Type Integer	164		
File Type String	MPEG 4			File Type String	QuickTime MOV2		
Flags	0			Flags	0		
Height	1080			Height	480		
Initial Frames	0			Initial Frames	0		
Length	5578			Length	5579		
Max Bytes Per Sec	465339			Max Bytes Per Sec	8172893		
Mf Caps	0			Mf Caps	0		
Micro Sec Per Frame	33366			Micro Sec Per Frame	33366		
Padding Granularity	2048			Padding Granularity	2048		
Rate	30000			Rate	30000		
Scale	1001			Scale	1001		
Streams	3			Streams	3		
Suggested Buffer Size	970080			Suggested Buffer Size	970080		
Total Frames	5578			Total Frames	5579		
Type	0			Type	0		
Vid Standard	595636765			Vid Standard	287326749		
Width	1920			Width	720		
> Video		4	21	> Video			21

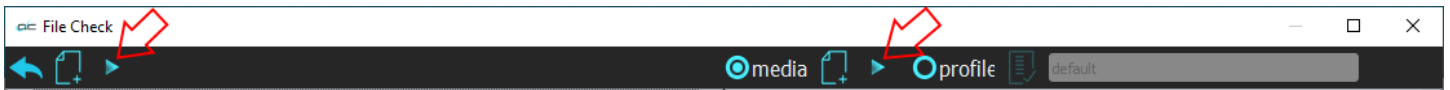
The system details tab displays the differences between the two files' systems.

3.3.21.3.4 File Check Results - Video Tab

File Check			media			profile			default		
Type			Type			Type			Type		
> Audio		7	> Audio		7	> Audio		7	> Audio		7
> Meta		9	> Meta		9	> Meta		9	> Meta		9
> System		8	> System		8	> System		8	> System		8
▼ Video		4	▼ Video		21	▼ Video		21	▼ Video		21
Bit Count	24		Bit Count	24		Bit Count	24		Bit Count	24	
Caps	0		Caps	0		Caps	0		Caps	0	
Channels	1		Channels	1		Channels	1		Channels	1	
Clr Important	0		Clr Important	0		Clr Important	0		Clr Important	0	
Clr Used	0		Clr Used	0		Clr Used	0		Clr Used	0	
Color Primaries	1		Color Primaries	6		Color Primaries	6		Color Primaries	6	
Color Primaries String	BT-709		Color Primaries String	SMPTE-170M		Color Primaries String	SMPTE-170M		Color Primaries String	SMPTE-170M	
Color Range	0		Color Range	0		Color Range	0		Color Range	0	
Color Range String	SMPTE		Color Range String	SMPTE		Color Range String	SMPTE		Color Range String	SMPTE	
Compression	61766331		Compression	61706368		Compression	61706368		Compression	61706368	
Compression String	h.264 AVC1		Compression String	ProRes HQ		Compression String	ProRes HQ		Compression String	ProRes HQ	
Conversion Matrix	1		Conversion Matrix	6		Conversion Matrix	6		Conversion Matrix	6	
Conversion Matrix String	BT-709		Conversion Matrix String	SMPTE-170/BT-601		Conversion Matrix String	SMPTE-170/BT-601		Conversion Matrix String	SMPTE-170/BT-601	
Data Rate	3179		Data Rate	63397		Data Rate	63397		Data Rate	63397	
Dr Flags	33554432		Dr Flags	260		Dr Flags	260		Dr Flags	260	
Fcc Handler	61766331		Fcc Handler	61706368		Fcc Handler	61706368		Fcc Handler	61706368	
Fcc Type	73646976		Fcc Type	73646976		Fcc Type	73646976		Fcc Type	73646976	
Field Dominant			Field Dominant	Field 1		Field Dominant	Field 1		Field Dominant	Field 1	
Field Temporal			Field Temporal	Upper Field First		Field Temporal	Upper Field First		Field Temporal	Upper Field First	
Fielding Correct			Fielding Correct	0		Fielding Correct	0		Fielding Correct	0	
File Type	197		File Type	164		File Type	164		File Type	164	
File Type String	MPEG-4		File Type String	MOV QuickTime		File Type String	MOV QuickTime		File Type String	MOV QuickTime	
Flags	0		Flags	0		Flags	0		Flags	0	
Framerate	29		Framerate	29		Framerate	29		Framerate	29	
Gop Length	0		Gop Length	0		Gop Length	0		Gop Length	0	
Height	1080		Height	480		Height	480		Height	480	
Ip Distance	0		Ip Distance	0		Ip Distance	0		Ip Distance	0	
Language	0		Language	0		Language	0		Language	0	
Length	5578		Length	5579		Length	5579		Length	5579	
Level	0		Level	0		Level	0		Level	0	
Name	MPEG 4		Name	QuickTime MOV2		Name	QuickTime MOV2		Name	QuickTime MOV2	
Pitch	0		Pitch	0		Pitch	0		Pitch	0	
Planes	1		Planes	1		Planes	1		Planes	1	
Priority	1		Priority	1		Priority	1		Priority	1	
Profile	0		Profile	0		Profile	0		Profile	0	
Quality	0		Quality	-1		Quality	-1		Quality	-1	
Rate	30000		Rate	30000		Rate	30000		Rate	30000	
Scale	1001		Scale	1001		Scale	1001		Scale	1001	
Scan	0		Scan	256		Scan	256		Scan	256	
Scan String	Progressive		Scan String	Interlaced		Scan String	Interlaced		Scan String	Interlaced	
Scan Temporal			Scan Temporal	4		Scan Temporal	4		Scan Temporal	4	
Size	141		Size	40		Size	40		Size	40	
Size Image	31334		Size Image	263120		Size Image	263120		Size Image	263120	
Start	0		Start	0		Start	0		Start	0	
Suggestedbuffer size	8487424		Suggestedbuffer size	1460224		Suggestedbuffer size	1460224		Suggestedbuffer size	1460224	
Transfer Function	1		Transfer Function	1		Transfer Function	1		Transfer Function	1	
Transfer Function String	BT-709 (2.2 Gamma)		Transfer Function String	BT-709 (2.2 Gamma)		Transfer Function String	BT-709 (2.2 Gamma)		Transfer Function String	BT-709 (2.2 Gamma)	
Width	1920		Width	720		Width	720		Width	720	
X Pels Per Meter	72		X Pels Per Meter	72		X Pels Per Meter	72		X Pels Per Meter	72	
Y Pels Per Meter	72		Y Pels Per Meter	72		Y Pels Per Meter	72		Y Pels Per Meter	72	

The video tab displays the differences between the two files' video types.

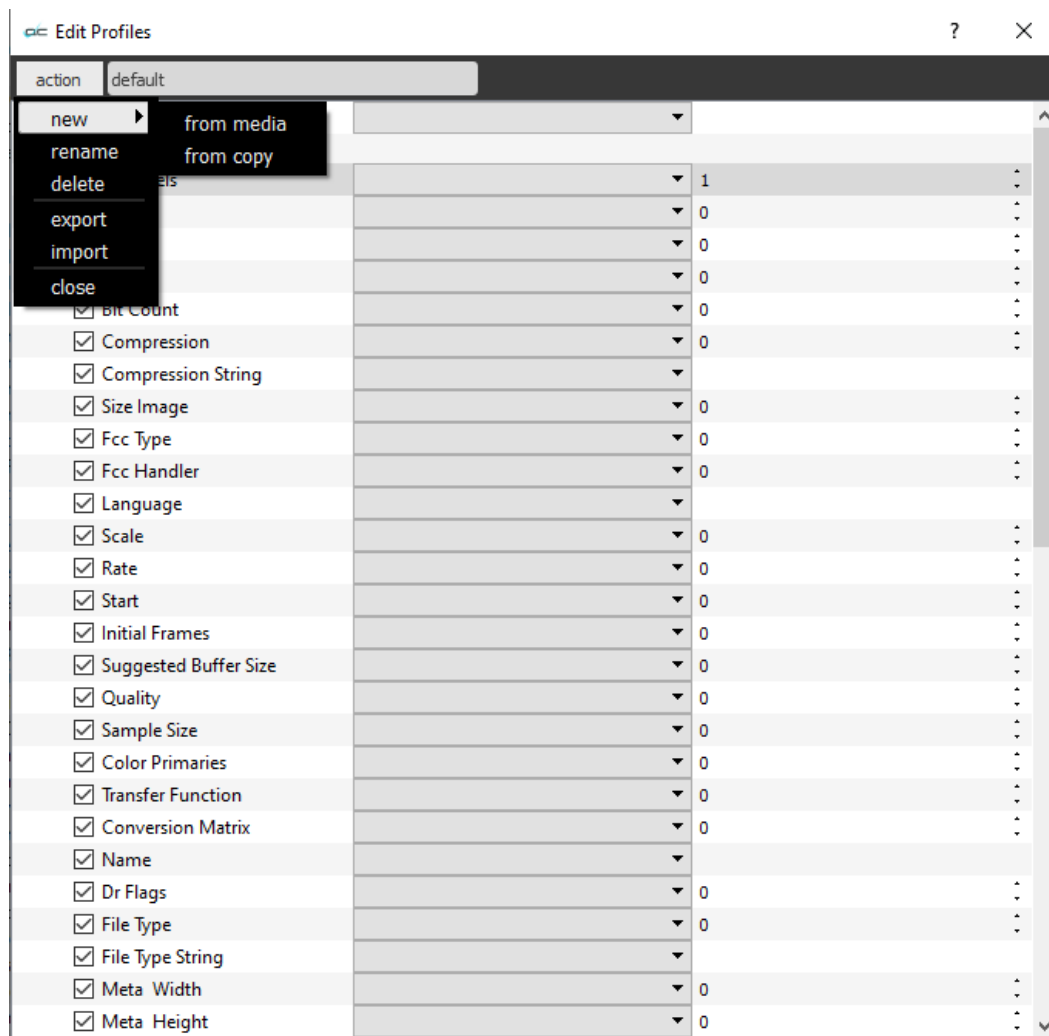
3.3.21.4 *Play the File*



The arrow next to the file load icon allows the user to play each of the files. On the left, it plays the loaded file. With the arrow to the right it plays the comparison file.

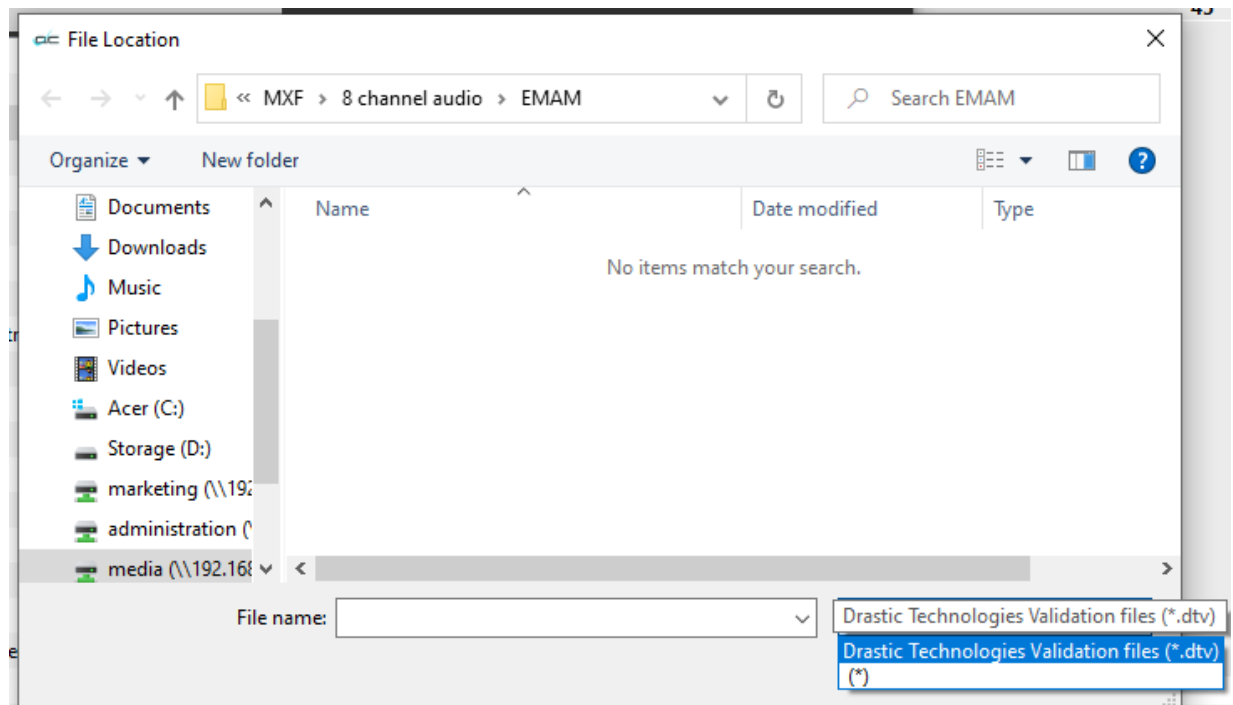
3.3.21.5 *Edit Profiles window*

The Edit Profiles window lets you set up a profile, element by element, or by using a known good media file. Each profile may be saved as a Drastic Validation file, in a location specified by the user.



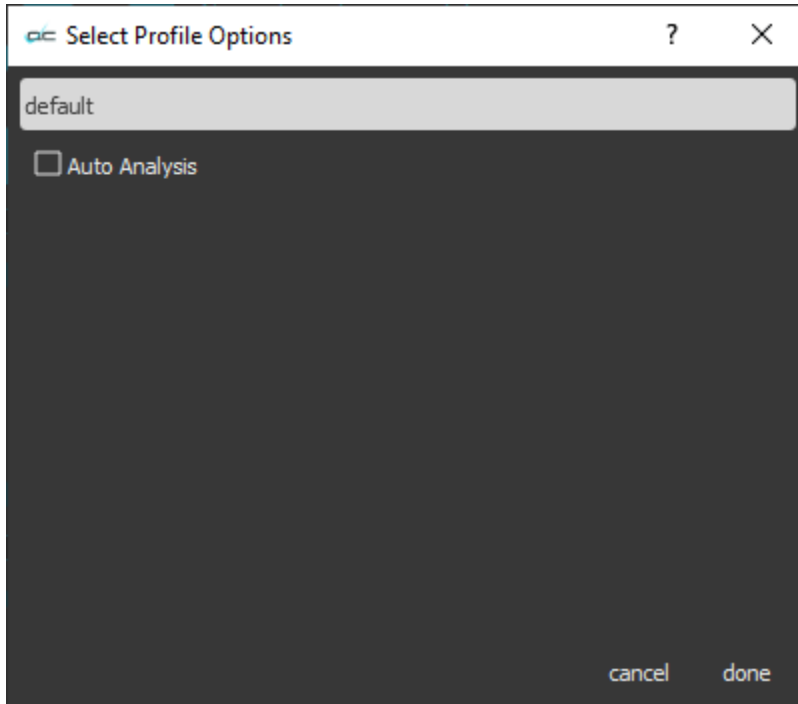
3.3.21.5.1 Validation files

The profiles are saved as Drastic Technologies Validation Files (*.dtv).

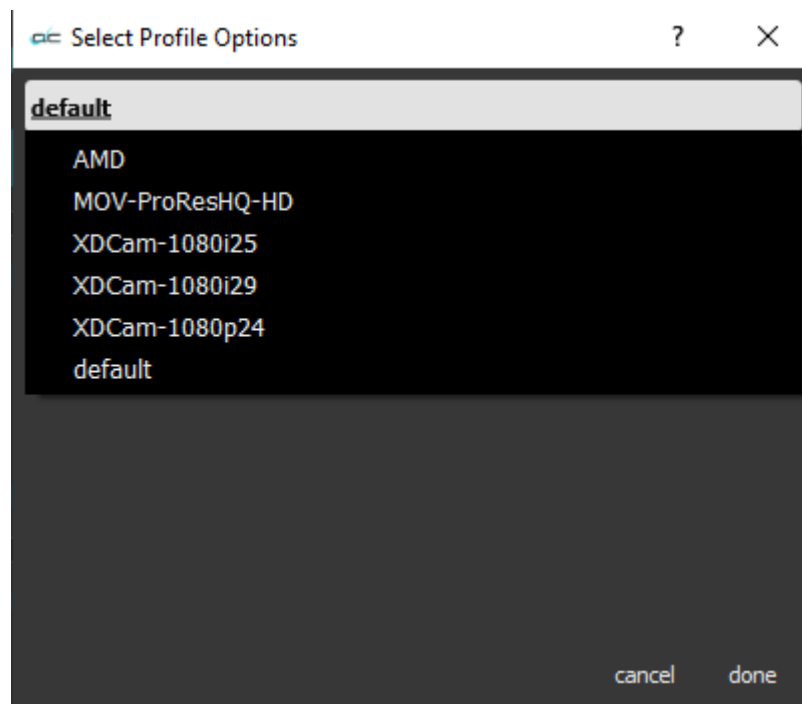


3.3.21.6 *Select Existing Profiles*

Pressing the **Choose and/or Edit a profile** button to select an existing profile. This opens the **Select Profile Options** window.



If there are existing profiles, they would appear in the pulldown menu available for selection.



3.3.22 View Tips

Here is a list of handy playback and display shortcuts:

Zoom - Use the **Scroll** button on the mouse to zoom in and out.

Move Image - **Left Click** on the mouse and drag the pointer to move the image around the screen.

Reset Image - **Right Click** on the mouse to reset the picture to fit the application.

1 to 1 Size - **Middle Click** on the mouse to set the picture to a 1:1 pixel size.

Keyboard Commands - videoQC supports a full set of **keyboard commands**. Visit www.drastic.tv for more information.

Add Files - **Drag and Drop** - Files can be added to videoQC by dragging them from a file explorer and dropping them on videoQC.

Cue Location - **Enter time code to cue** - Clicking on the main time code allows you to paste a time code location in to cue its location.

Copy Time Code Location - Pressing <CTRL>-C will copy the current time code to the system clipboard.

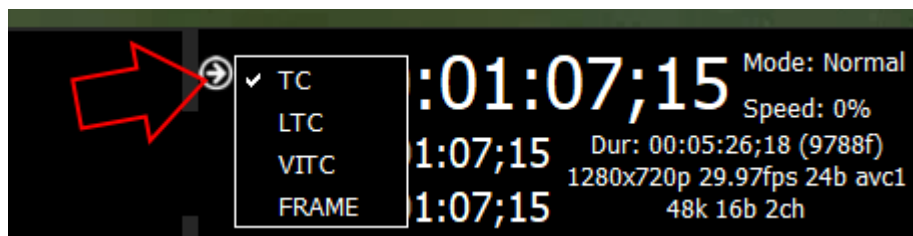
Full Screen mode - Pressing **F** will set videoQC to full screen

Full Screen Mode Image Only - Going full screen (F) and unlocking the transport will show only the image, so long as the mouse is not moved. Double Click the video display to toggle full screen to hide the controls.

Full Screen Mode Time Code Display - To enable/disable the time code overlay in full screen press <SHIFT> + <T>.

Basic Keyboard Transport Control - videoQC supports the J-K-L keys for basic transport control.

Time Code Sources - **TC, LTC, VITC, and FRAME time code sources** - Clicking on the arrow to the left of the time code (below example, just to the left of 59.94) opens the time code source window. The user can click the displayed time code to select another time code source.



Toggle Play/Pause - The <SPACE BAR> will toggle between pause and play.

3.4 videoQC How To

3.4.1 How to Play Video

The video can be loaded by using the File | Open menu or by dragging and dropping the file on the interface. Once loaded, it can be controlled by the transport controls, the keyboard commands or by the optional http, serial or network interface.

3.4.2 Controlling videoQC

videoQC can be called by external applications with command line parameters, keyboard/mouse, cut/paste, and via a full REST/HTML command set. If there is already an instance of the application running, the parameters will be transferred to the running instance, and the called one will exit. This is especially useful where the workflow requires the system to display particular aspects of a clip in an automated fashion.

3.4.2.1 Command Line Parameters

videoQC -t <timecode> -c <framestart> -f -o -h -m -a -x -v -d -p -g -b -s [filename] [compare-filename]

- t 01:00:00:00 - Seek point in time code, based on the time code track in the file
- c 1800 - Seek point in frames, based on the absolute position in the file
- f - Start in full screen mode
- o - Disable time code overlay in full screen mode
- h - Disable hardware (AJA/Bluefish444/Blackmagic) output
- m - Do a file comparison
- a - Do a file analysis
- x - Reserved for running under Net-X-Code Server
- v - Enable validation - validate a file against a profile
- d - Type to check for plugin validation - IMF, DCP, XDCam, iTunes, etc.
- p - User validation profile name - "videoQC Demo"
- g - Target directory for files that pass validation - "E:\good files"
- b - Target directory for files that fail validation - "E:\bad files"
- s - Source file for validation - "E:\Record\Media\qc\bars1080\

3.4.2.2 Configuration Files

For selected time code source, display page (metadata, time code, etc.), audio meter type and other settings, they will be remembered between runs from the last selection. To modify these settings programmatically, the registry (Windows) or prefs (macOS) must be changed. The basic settings are:

Windows (registry)

HKEY_CURRENT_USER\Software\Drastic\videoQC

macOS (~\Library\Preferences\)

com.drastic.videoQC.plist

Linux (~\.config\)

videoQC.conf

3.4.2.3 Settings

actionsafe - what overlays, if any, are shown on the video

filter - the default file filter

filtercc - the default closed caption file filter

fullscreen - set for full screen mode

loadpath - last path a file was loaded from

loadpathcc - last path a closed caption file was loaded from

metertype - which audio meter type is displayed

scopemode - what video scope is displayed, if any

sdoutersafe - show the SD action safe

sdsafe - show the SD title safe

show_mini - show the mini transport controls, instead of the full set

titlesafe - show HD title safe

viewmode - information panel to display

SDAspectRatio16by9 - if 0 then 4:3

last_altpath - last alternate loaded audio path

last_ccpath - last alternate loaded closed caption path

net_source - list of recent network a/v sources (RTP, HTTP, RTSP, SMPTE2110, TR-01)

settings/Color Space - color space to use for 4K and greater playback (Rec 709, BT2020)

settings/Color Transfer - color transfer to use for 4K and greater playback (HD, 2084/HDR, HLG)

3.4.2.4 Keyboard/Clipboard Commands

videoQC has a full set of keyboard commands available. Key press events can be sent to control playback like:

c = play
v = pause
b = reverse play
z = fast reverse
x = fast forward

A full set of keyboard commands is available here:

<http://www.drastic.tv/images/software/drastickeyboard.pdf>

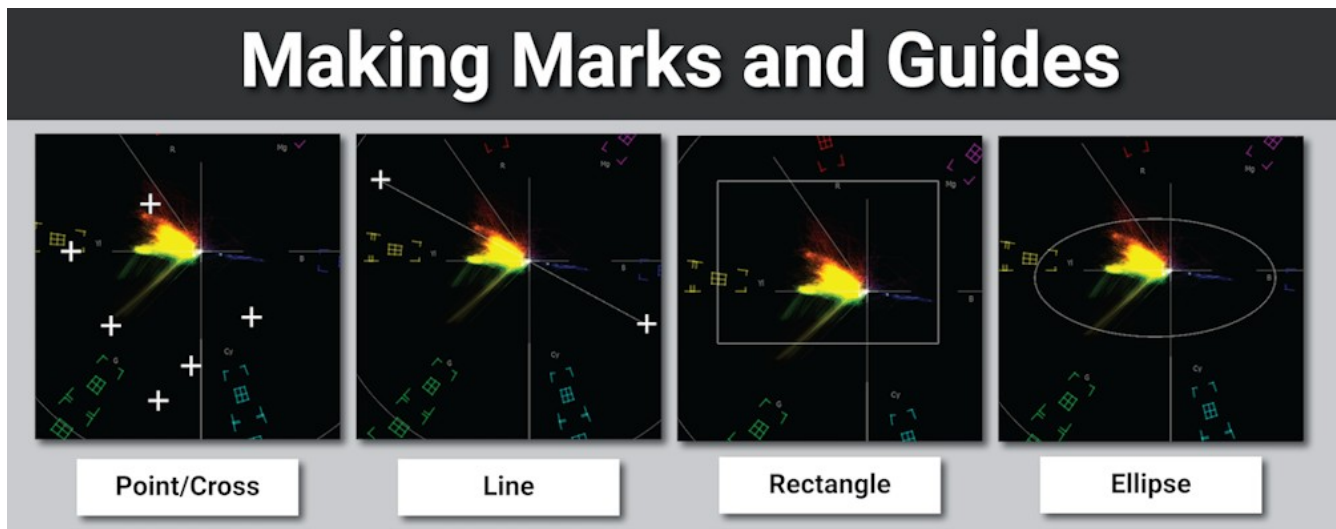
videoQC also supports using the system clipboard. A cut/copy on the application (via keyboard or programmatically) will pull the current time code in a `##:##:##:##` format. Pasting a time code into the application will cause it to seek to that absolute (0 based) point in the file. If the pasted buffer contains a file URL, then that file will be loaded into that application.

3.4.2.5 Mouse Control

videoQC also features extended mouse controls. These include:

- <MouseWheel>** - zoom in and out
- <CTRL><MouseWheel>** - volume up and down (0..200%)
- <CTRL><LeftClick>** - volume to 100% (unity)
- <CTRL><SHIFT><MouseWheel>** - change background luminance
- <LeftClick>Drag** - pan and scan the video image in the app
- <ALT><LeftClick>** - view magnifying window
- <LeftClick>** - bring up color selector with color under cursor
- <RightClick>** - exit magnify mode

3.4.2.6 Making Marks



Making Marks/Guides (cross, line, box, ellipse)

Marks, or guides, can be drawn over the screen, or specific waveform/vectorscopes, to compare measurements at various points within a file.

- <SHIFT><LeftClick>** - Make a point/cross
- <SHIFT><ALT><LeftClick>** - Undo last
- <SHIFT><CTRL><LeftClick>** - Drag to make a line
- <SHIFT><CTRL><ALT><LeftClick>** - Drag to make a box
- <CTRL><ALT><LeftClick>** - Drag to make an ellipse
- <SHIFT><RightClick>** - Clear all markers/guides

3.4.2.7 RESTful HTML AJAX API

videoQC (Workstation level and above) supports a full set of control and status requests via a built in HTML REST/AJAX command set. This powerful API allows full control over a videoQC instance from anywhere on your network. Commands include: transport control, time code and play status, audio metering, video preview retrieval and an optional full set of disk contents display and loading commands. There is an HTML page sample included in the install that uses the most common commands and can be used as a base for custom UIs.

The documentation for the REST API is available here:

[VVW REST Command API](#)

3.4.3 How to Play Video

The video can be loaded by using the **File | Open** menu or by dragging and dropping the file on the interface. Once loaded, it can be controlled by the transport controls, the keyboard commands or by the optional http, serial or network interface.

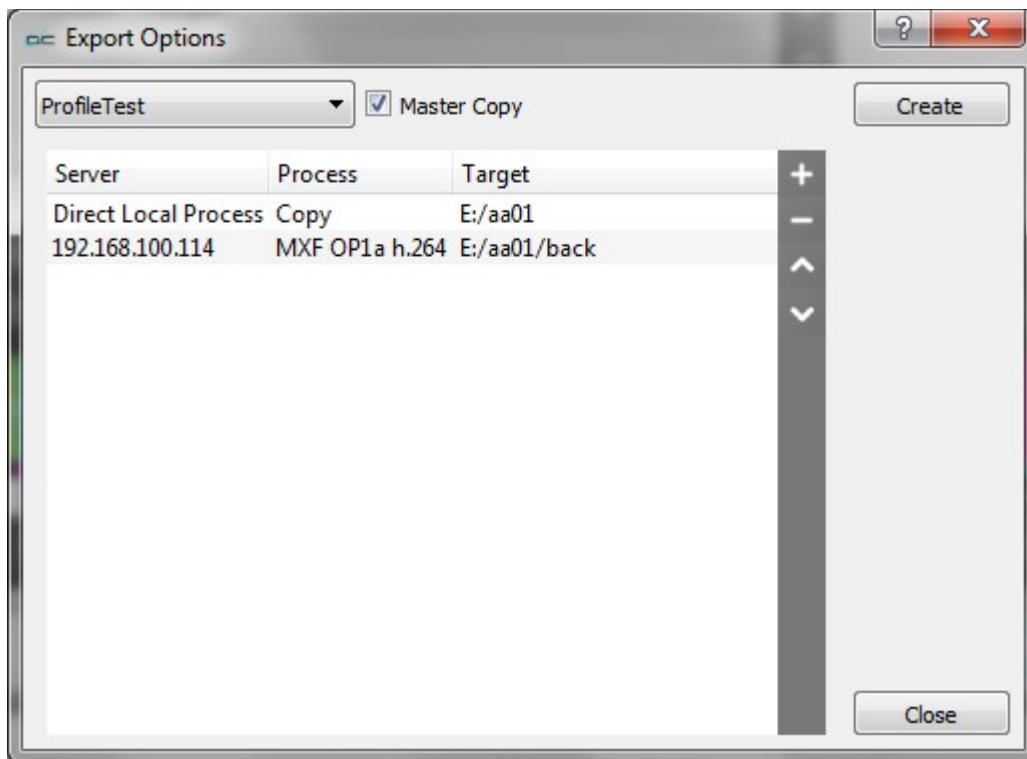
3.4.4 How to Export a File

videoQC (Inspect level and above) provides file export capabilities.

Press the Export control. This opens the **Export** window.

The In and Out points can be edited by cueing, and pressing the Set In and Set Out controls.

The profile can be selected or a new profile can be set up by pressing the **Process** control and selecting the **Edit Process** control. This opens the **Export Options** window. If the profile has already been set up, the user should be able to select it using the **Profile** pulldown menu.



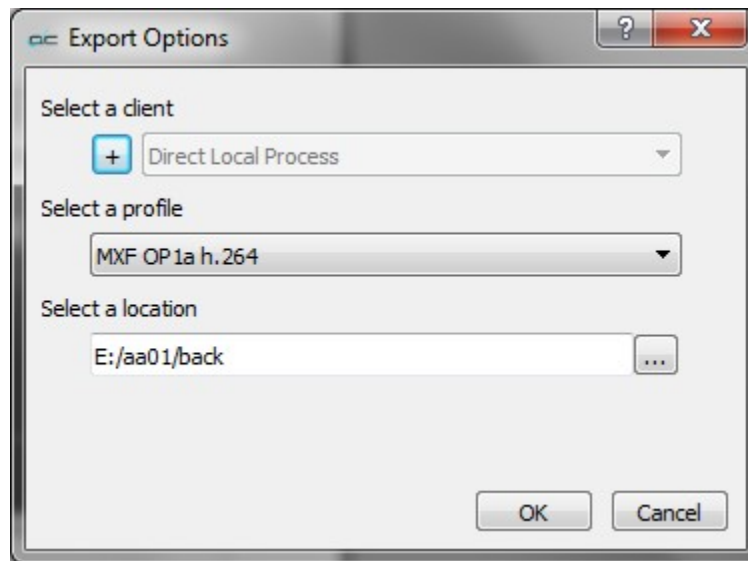
To set up the current profile, press the + on the **Export Options** window. This opens up a further **Export Options** window.

To send the export job to a Net-X-Code Server, press the **+** button under **Select a Client**, and enter the Net-X-Code Server's IP address into the field. If you leave this field blank, videoQC will perform the transcode/export.

To set the type of file that is being created in the export, press the pulldown menu under **Select a profile**.

To set the location in which the export will be saved, press the browse button to the right of the field under **Select a location**.

Press OK to accept these choices and return to the original **Export Options** window.



The edit can be previewed by pressing the **Preview** control.

To add a closed caption file to the exported file, press the browse button to the right of the **CC Source** field, and browse to the file then select it. If a closed caption file has been added erroneously, the user can reset by pressing the X to the right of the **CC Source** field, and this will empty the field. To add a separate audio file to the exported file, press the browse button to the right of the **Alt Audio** field, and browse to the file then select it. If an audio file has been added erroneously, the user can reset by pressing the X to the right of the **Alt Audio** field, and this will empty the field.

Once the settings are correct, the user may review the edit by pressing the **Preview** button. To export the selected media, press the **Process** button.

3.4.5 How to Use Video IP Stream Sources

Drastic software supports a number of IP video standards in videoQC (Pro level and above) , Net-X-Code Server, FlowCaster and other products. To access these streams, a URL style string is used to describe them. For some sources, like RTSP, this string is fairly standard. For others, like NDI, a URL style has been developed to allow those streams to be specified. Currently, udp://, rtp://, srt://, rist://, rtsp://, rtmp://, webrtc://, whip://, bls://, ndi://, cdi://, s2022:// and s2110:// are supported. This

document describes the URLs' format in more detail. We have also added some application specific notes for connecting our software to other applications.

3.4.5.1 Basic IP Video URLs

An IP video URL will always start with the type of stream you are expecting. Some of the types include `udp://`, `rtp://`, `rtsp://`, `ndi://`, `s2022://` and `s2110://`. This will be followed by an IP address or resolvable name for the address of the stream. For some streams there will be a port value, and then a description of the stream on that device. For videoQC, there is also a special form that can be used to launch videoQC, FlowCaster iOS Player or FlowCaster Android Player automatically from a browser link. For these, simply preface the link you want with `videoqc://` and remove the extra colon from your link.

3.4.5.2 UDP and RTP

UDP and RTP streams can be elementary video or audio streams, or more commonly a transport stream with PMT/PAT and a number of streams within it. For UDP and RTP, you can specify a TCP (direct) address, but normally it will be a multicast group address, and also a port is normally specified. Here are a few examples:

```
udp://239.254.40.40:5004
rtp://239.100.20.20:50004
rtp://239.100.30.31:1234
```

3.4.5.3 SRT

SRT [Secure Reliable Transport] streams contain a transport stream with PMT/PAT and a number of streams within it. For SRT you can specify an address and a port. There are three modes for SRT: listener, caller and rendezvous. If you are a listener, you can only connect with a caller and vice versa. For Rendezvous, both the sender and receiver must be in rendezvous mode. A password for encrypted service can also be set. Here is some information on the modes:

listener - this has to be one of your local IP addresses, and acts as a server waiting for a connection, so it must be directly visible to the caller (not behind a firewall)

caller - this calls out to a remote IP that is running as a listener. You must be able to reach the IP directly (e.g. no firewall)

rendezvous - this connects bi directionally, allowing it to connect through firewalls without extra configuration. Each side of the rendezvous uses the external (internet facing) IP address of their internet connection. This allows the signals to connect and pass through the firewall

Here are a few examples:

```
srt://239.254.40.40:5004?mode=listener
```

```
srt://172.12.25.20:5006?mode=caller
```

```
srt://239.100.30.31:1234?mode=caller&password=thisisapassword&user=thisisauser
```

Possible parameters include

mode=

caller

listener

rendezvous

password=<string>

keylen=16|24|32

username=<string>

streamid=#

latency=#

buffering=#

maxbw=#

3.4.5.4 RIST

RIST [Reliable Internet Stream Transport] streams are UDP based self correcting connections. RIST supports three profiles: Simple, Main, and Advanced. Both the sender and the receiver must be in the same mode. The receiver will be the server and listen for a connection. The sender will be the client and connect to the receiver to send the data. The protocol will use two ports, the lower of which is specified in the URL and the higher which is the lower plus one. The lower port must be even.

Here are a few examples:

- rist://10.0.0.123:5000?mode=listener&profile=main
- rist://192.168.1.22?mode=caller&profile=simple

Possible parameters include:

- mode: listener (for server/receiver), caller (for client/sender) - Required
- profile: simple, main or advanced
- password: encryption key
- buffering: amount of buffer in milliseconds

3.4.5.5 RTSP

RTSP streams require not only the device address, but also the description of the source of the stream you are accessing on that device. RTSP are also often user/password protected, so you may have to send a user/password in the form "<user>:<pass>@" just before the device identifier. Here are a few examples, and their sources:

```
rtsp://192.168.100.10/axis-media/media.amp (an Axis camera)
rtsp://192.168.199.11/user:pass@/video1+audio1 (a Marshall camera, with password)
rtsp://192.168.160.20:/onvif/media.amp (an OnVIF source)
rtsp://192.168.150.11/video1?videocodec=h264 (a Marshall camera, video only, force h.264)
```

3.4.5.6 RTMP

RTMP [Real-Time Messaging Protocol] is normally used to stream one video and one stereo audio channel to a website for distribution to multiple watchers. In modern sites, the RTMP is actually re-wrapped into HLS, which is then viewed by the end user. To connect to an RTMP site, like flowcaster.live, youtube.com, and twitch.com, you will need the URL/Link and the key/secret. For youtube, they are available after you 'go live' as the Stream URL and the Stream Key. Once you have them, you simply add a slash and the Stream Key to the Stream URL. For example:

```
Stream URL: rtmp://a.rtmp.youtube.com/live2
Stream Key: j2bg-a6ck-8t48-w2y2-aaaa
Final URL: rtmp://a.rtmp.youtube.com/live2/j2bg-a6ck-8t48-w2y2-aaaa
```

3.4.5.7 WebRTC

WebRTC [Web Real-Time Communication] is a browser native method of sharing video, audio and data. It is primarily used in chat programs, like Google Meet. When sending via WebRTC, FlowCaster appears as a person in the chat, with whatever video and audio it is receiving being sent to the chat.

Here is an example:

```
webrtc://flowcaster.live?meetingid=asre-dsec-asds-seff&name=flowcaster
```

3.4.5.8 WHIP

WHIP [WebRTC-HTTP ingestion protocol] is a simpler negotiation system for WebRTC. Currently in

use by Millicast to receive streams for worldwide, low latency transmission, FlowCaster and Net-X-Code Server support sending video signals via WHIP. WHIP requires an auth code (available from the Millicast config pages) and a stream name. The stream name is added to the end of `whip://director.millicast.com/api/whip/` and the auth token is a parameter that starts with `auth=`.

Here is an example

```
whip://director.millicast.com/api/whip/kwky3g6g?  
auth=48ce3daa09cd8355f80fc0d37005f9422a62bebf9b6411b61cfb1cfb2fa
```

3.4.5.9 BLS (Bliss Protocol)

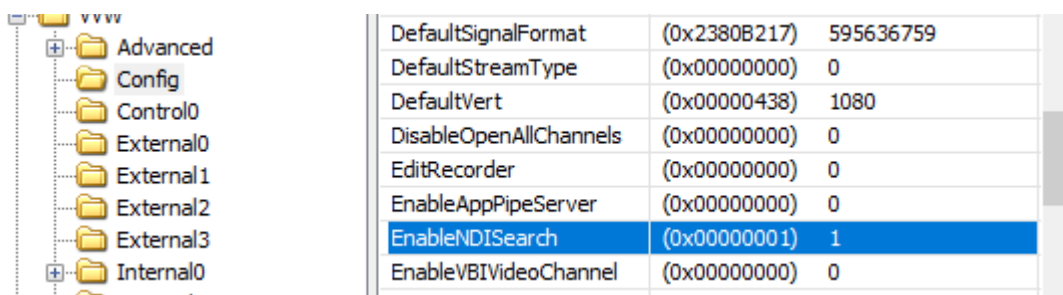
BLS [Browser Live Stream] is a protocol developed by Drastic to send live video via an encrypted channel directly to a user's browser. It allows for much higher quality video than WebRTC, while still not requiring any plugins or special setup to present audio and video directly in a modern, HTML5 browser.

Here are a couple examples:

```
bls://10.0.0.234:5000  
blss://192.168.202.200:3000?password=kfiwgt84jsd&remoteip=120.32.54.6
```

3.4.5.10 NDI

NDI is a video over IP protocol originally developed by Newtek. It requires a device name and a source name to access NDI sources. NDI source may also be searched on the local network. To enable the search, run DDRConfig and select the Advanced tab. Go to /VW/Config and change `EnableNDISearch = 1`. If it does not exist, then create a new Numeric value for it.



To specify an NDI stream, use the device name, followed by a space, and then the source name within brackets.

```
ndi://USER-PC (Desktop [2])  
ndi://TestCameraSource (ISO_1)  
ndi://PC2 (Google Chrome [1])
```

If you are creating an NDI stream, with FlowCaster or Net-X-Code Server, for instance, only the stream name is specified. The Computer name is added automatically by NDI, and you cannot use brackets in the name

```
ndi://FlowCasterOut  
ndi://SDI1Out  
ndi://SMPTE2110_Group1
```

3.4.5.11 **CDI**

CDI [Cloud Digital Interface] is an advanced, fully uncompressed, protocol for use within Amazon VMs. It transports video in a number of formats, as well as audio, time code and other metadata. While it is possible to use CDI with Amazon's enhanced network backbone, it is safest and most efficient, within their network stacks. The URL will include a local IP and port, with an optional remote IP, adapter and ID.

Here are some examples:

```
cdi://10.0.0.2:6000  
cdi://10.0.0.1:6000?remoteip=10.0.0.200&adapter=EFA&id=2
```

Possible parameters include:

remoteip: a remote computer to connect to exclusively
adapter: the transport, EFA (Elastic Fabric Adapter) or socket. EFA is the default.
id: a numeric value to specify the stream

3.4.5.12 *ST-2022 and ST-2110*

videoQC requires one of the following hardware environments to enable ST-2110:

- [Matrox](#): ST 2110 Network Adapters
- [AJA](#): Kona IP
- [Mellanox NVIDIA Bluefield-2](#): (requires Rivermax license)

The SMPTE 2022-6 and SMPTE 2110 protocols can be accessed via SDP or manual setup. To access an SDP source:

s2202://192.168.101.200/channel1.sdp

s2110://mainsources.drastic.ca/crosspoint10.sdp

For some Drastic software, the source can be set up manually. For S2022, this is a single set of Source IP, Source Port, Destination IP, Destination Port and Interface address. One or any combination of these can be used to describe the source of the SMPTE 2022-6 stream, which contains all the video, audio and HANC/VANC channels. For SMPTE 2110, up to three sets of the same information are required to describe the video, audio and anc streams, which are all separate. A PTP grandmaster may also be specified.

Here are the configuration dialogs:

The image displays three screenshots of the 'IP Video Setup' dialog box, specifically for SMPTE-2110. Each dialog has a 'Channel' dropdown set to 'channel-0' and a 'Channel Log to file' checkbox. The 'Override NMOS Settings' checkbox is checked in all three.

- Left Dialog (Video Setup):** The 'Type' is 'SMPTE-2110'. 'Video Format' is '1080 59.94fps (1920)'. 'Audio Channels / us' is '0'. 'Receive' is set to 'IPv4' with 'lock all' checked. 'Send / us' is 'IPv4' with 'lock all' checked. 'Clock Source' is 'S/W SMPTE 2059/PTP'. 'Clock Info' is 'PTPv0 D:0 00-00-00-00-00-00-00-00.000000'. 'Clock Time' is '2024-09-26 T13:11:34.170049000 (0)'. 'Clock Mac Address / ID' is '1'. Buttons: 'Load File', 'Save File', 'Accept', 'Cancel'.
- Middle Dialog (Audio Setup):** The 'Type' is 'SMPTE-2110'. 'Video Format' is '1080 59.94fps (1920)'. 'Audio Channels / us' is '8'. 'Receive' is set to 'IPv4' with 'lock all' checked. 'Send / us' is 'IPv4' with 'lock all' checked. 'Clock Source' is 'Internal'. 'Clock Info' is 'GMT Time'. 'Clock Time' is '2024-09-26 T13:12:25.046'. 'Clock Mac Address / ID' is '127'. Buttons: 'Load File', 'Save File', 'Accept', 'Cancel'.
- Right Dialog (Ancillary Setup):** The 'Type' is 'SMPTE-2110'. 'Video Format' is '1080 59.94fps (1920)'. 'Audio Channels / us' is '8'. 'Receive' is set to 'IPv4' with 'lock all' checked. 'Send / us' is 'IPv4' with 'lock all' checked. 'Clock Source' is 'Internal'. 'Clock Info' is 'GMT Time'. 'Clock Time' is '2024-09-26 T13:12:46.757'. 'Clock Mac Address / ID' is '127'. Buttons: 'Load File', 'Save File', 'Accept', 'Cancel'.

Separate settings are maintained for video, audio, and ancillary components of the file.

3.5 videoQC URL/URI From Browser

videoQC supports being run from a browser, if installed on a Windows or macOS computer, with the special videoqc:// URL/URI. This will also work on Apple and Android devices with our FlowCaster Player apps (available free from the app store). In the case of videoqc://, it is not a protocol itself, but rather it loads the player and passes the rest of the protocol to it. So if you wanted an automatic link to bring up the srt stream: srt://239.100.30:31:1234?mode=caller&password=thisisapassword&user=thisisauser, you would add this to the videoqc:// start and remove its colon, as below:

videoqc://srt://239.100.30:31:1234?mode=caller&password=thisisapassword&user=thisisauser

3.6 Application Specific Notes

3.6.1 VLC (version 3.0.8 and greater)

VLC supports a number of streaming formats from the menu Media | Open Network Stream.

Here you can read UDP://, RTP:// and SRT://. If you are using multicast IP addresses (e.g. 239.###.##), VLC prefers that you add an at sign (@) before the ip, like:

rtp://@239.240.30.30:5004

You can also use the @ sign to receive on any address using just the port:

udp://@:5004

For SRT, VLC only supports the being a 'caller', so our software needs to be set up as a listener.

A typical setup would be

SMPTE2NET: srt://172.16.12.25:5000?mode=listener

VLC: srt://172.16.12.25:5000

Assuming the IP 172.16.12.25 was the IP of the machine SMPTE2NET is running on.

3.6.2 OBS - Open Broadcast System

OBS supports UDP, RTP and SRT using its FFMPEG media reader. It will support both listener and caller modes in the latest versions (26.0.2 or greater). The reconnect is not 100%

reliable, so if connection is lost, then you may have to open the source again to have it set up. To add a UDP, RTP or SRT source, click the + button in the Source panel and select MediaSource. In the Properties, unclick Local File, add the standard srt string, for listener or caller:

```
srt://172.16.12.25:5000?mode=listener
```

Set the input format to "mpegts" without the quotes, and set up the buffering and reconnect to taste.

3.6.3 Marshall and other Cameras

Most cameras we have tested operate as callers, so our software will have to be set up as a listener on the local IP the SRT stream is coming in on. Alternately, you can use the all addresses mode by using the 0.0.0.0 IP

```
srt://0.0.0.0:5000?mode=listener
```

4 Full Reference Analysis

A full reference analysis is when you analyze both the original video material and the compressed video material. The original video provides the full reference for the compressed material.

4.1 Load the Compressed File

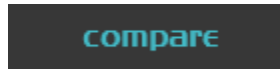
To get the analysis started, load the compressed version of the video into videoQC normally, either by the **File Open** menu, or by dragging and dropping the file on the interface.



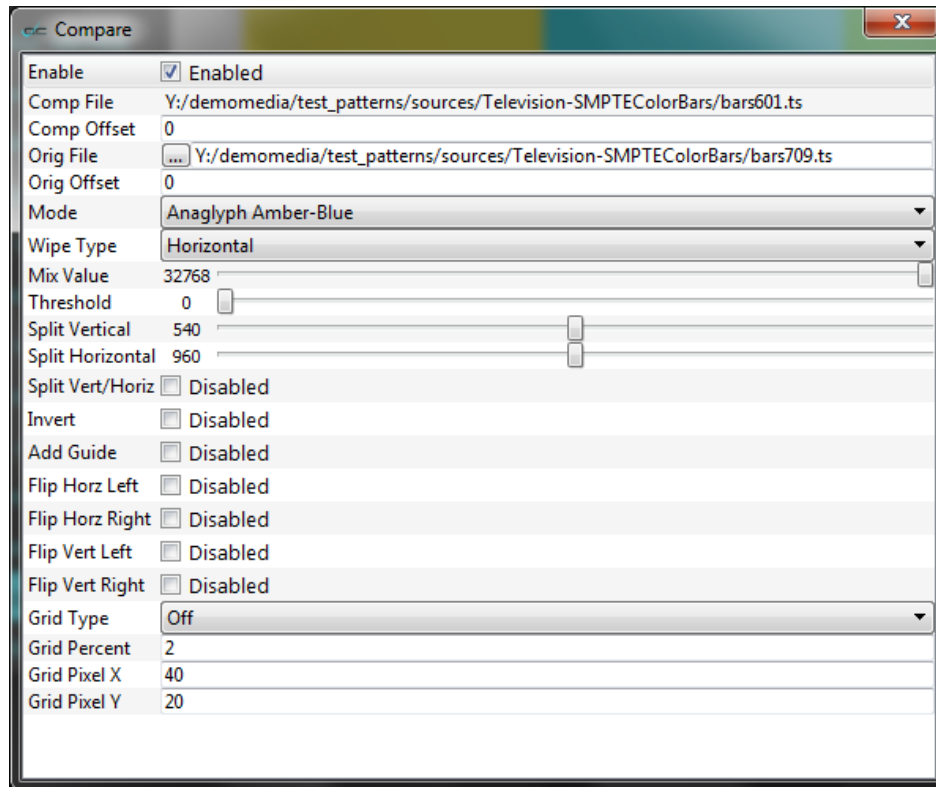
open file

4.1.1 Enable Compare Mode

Once it is loaded, bring up the view **Compare** dialog from the menu.



This opens the **Compare** dialog.

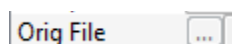


Click on the **Enable** checkbox at the top of the dialog to enable full reference mode.



4.2 Load the Original Reference File

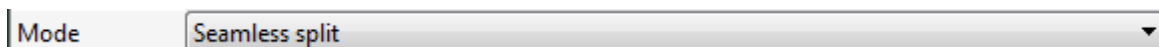
To load the original, or reference video, click on the ... button next to the **Orig File** label.



This opens a standard browser, which allows you to navigate to your file, and load it.

4.2.1 Synchronize the Files

Once it is loaded, click the **Mode** pulldown menu and select one of the modes. Like maybe **Seamless Split**.



You can drag the position bar on the transport controls to check that the two files are in sync. If they are not, either file can be adjusted by dragging the slider next to its **Offset** label.

Comp File	Y:/drasticmedia/Drastic 1
Comp Offset	0
Orig File	... Y:/drasticmedia/Dras
Orig Offset	0

4.2.1.1 The DT3D File

Once both files are in videoQC, it will save a ***dt3d** file so that it can remember the file pair and its offsets. This file will be saved with the same name as the compressed file, in the same directory. This file can be loaded in the future for quick access to the file pair.

4.3 Analysis

Normally the next step would be to run an analysis. However if you are only doing visual comparison, this is not necessary. To run an analysis, select the analysis types you are interested in (PSNY, SSIM, MS-SSIM checkboxes), and click the **Launch Analysis** button. This will launch the MRAnalyse process to create a database of the analysis.

4.3.1 View the Full Reference Graph

Once it is complete, bringing up the Analysis dialog via the menus will display a graph of the results under the **Full Reference** tab. Clicking on the graph will cause videoQC to seek to that position for visual inspection.

4.4 Comparison Modes

To view both the original and compressed video at the same time, a large number of modes are available in the compare dialog. There are a number of 3D modes for 3D file viewing, including anaglyph, interlaced, over/under, side by side, and checkerboard 3D. There are also a group of wipe modes that are useful in special cases. The remaining modes are designed for comparison. These include:

- **Side by side** which scales both images horizontally by half
- **Side by side Same Side** which shows half of each image either vertically or horizontally. The half can be moved with the split vertical or split horizontal slider to show any part of the picture
- **Side by Side Full Picture** does a scale of both images fully, scaled down by half horizontally and vertically
- **Seamless Split** combines both images vertically or horizontally with a positional split point between them. To make the split easier to see, the **Add Guide** checkbox can be clicked to make a one pixel line at the split point. To change the split between horizontal and vertical, click the **Split Vert/Horiz** checkbox. To move the split, use the **Split Vertical** or **Split Horizontal** slider bars. To change which image is on which side of the split, click the **Invert** checkbox.
- The **Mirror Mode** inverts one of the images and joins them at the center of the frame. This is also known as **Butterfly Mode**.
- **Dissolve with Mix** can cross-dissolve between the two images based on the Mix Value slider. This allows you to go back and forth between the two images or do an **Onion Skin View** by setting the slider at 50%.
- **Difference with Threshold Multiplier** creates a difference value for each pixel that can then be multiplied to accentuate small differences when the two files are very similar.
- **A Minus B with Threshold** subtracts the inverse of the second image, and shows you only the points of difference. Here too a threshold can be applied to look for smaller errors.

The visual modes also support inverting, flipping, and overlaying a grid on any of the comparison modes.

4.5 Save Analysis

The analysis can be saved as a CSV, XML, or PDF file, as well as being usable from our standard SQLite database. There's also an HTML export that supports making a proxy of the original and compressed files for demonstration, and display on the internet, where videoQC may not be available.

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This manual has been compiled to assist the user in their experience using **DrasticScope** software. It is believed to be correct at the time of writing, and every effort has been made to provide accurate and useful information. Any errors that may have crept in are unintentional and will hopefully be purged in a future revision of this document. We welcome your feedback.

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