Top 10 Application-Based Presets

WFM7120, 7020 and 6120

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Introduction to Presets

Waveform monitors have become more sophisticated in order to meet the monitoring and measurement demands placed on production, post-production and engineering staff. The increasing demands are the result for the need to work with a multitude of formats in a variety of ways. Gone are the days when a typical waveform monitor had four or five push buttons and possibly three or four knobs. Today's challenges demand more sophisticated waveform monitors which means the configuration and operation of these instruments has become more complicated.

Tektronix' Presets: Bringing back the simplicity.

Once you've created that great high-definition content, how do you ensure the artistic efforts are not lost when it is converted to standard definition or even composite analog? How do you ensure the integrity of the Dolby® Surround Sound signal during transmission so it doesn't lose the dialog on a viewer's stereo or even mono receiver? What if you need to check system timing, compare the inputs and outputs on an HD to SD converter, or install a new editing suite and subsequently need to check system timing and verify that there are no AV Delay problems? Presets let you move between all these requirements, quickly and confidently.

Presets are simply a way of saving a set of custom conditions that can quickly and easily be recalled later. You determine the names, eliminating the need to keep a list describing the 32 presets. Presets go beyond simply saving the measurement conditions you established at the time the preset was created. They also save aspects like the intensity settings, sweep conditions and color selections. All of this makes it faster and easier for you to do what you need, as quickly as possible.

Imagine troubleshooting a loss of signal. Looking at the waveform monitor, the signal normally expected isn't there. Is the signal missing or have the settings been changed? If a favorite preset is stored, it can quickly be recalled to ensure the settings are correct, avoiding the need to laboriously go through all the configuration menus to get back to a previous setup.

Presets allow the instrument to be personalized the way you like to work. They can be saved to a USB memory stick and quickly copied to another equivalent waveform monitor, so moving from one instrument to another is easy and convenient. In just a few seconds, presets can be copied from a USB memory stick (or a PC) to the next instrument.

The Top 10 sample presets included are designed to serve as templates for creating customized presets based on preferred work flow. Note: included are 12 samples, including our Top Ten Favorites.

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What's Included In This Package.

The WFM7120, WFM7020, WFM7100, WFM6120 Series of Waveform monitors are capable of storing and recalling up to 32 presets, in 4 groups of 8 each. The **WFM7120-Presets.doc** contains screen shots and descriptions of each of these presets. Included are instructions on how to load these presets and how to create and save customized presets.

The **WFMTEK.zip** file contains the sample presets (TopTen.zip). These will need to be extracted and loaded to the waveform monitor.

Group	Preset	Comment
Operator		**Typical Operator Functions**
	Gamut	Keeping Signals legal in the production and post-production operations
	Tape_QA	Tape Operations
	Line_Up	Check of Video and Audio alignment from tape leader or distribution system
	Spare1	
	Spare2	
	Spare3	
	Spare4	
	Factory	Restores the unit to the factory default settings
TX_MON		**Typical Facilities Management Functions**
	SIM_AB	Simultaneous Input
	CC_Mon	Closed Caption Monitoring
	Loud	Loudness Monitoring
	Spare1	
	Spare2	
	Spare3	
	Spare4	
	Factory	Restores the unit to the factory default settings
QAContrl		**Quality Control**
	BFF_Det	Black & Frozen Frame Detection
	AVDelay	Audio Video Delay Measurement
	Two_Tile	Combines two tiles for greater resolution
	Spare1	
	Spare2	
	Spare3	
	Spare4	
	Factory Default	Restores the unit to the factory default settings
Engineer		**Engineering**
	EYE_PHY	Physical Layer Measurements
	ANC Data	Metadata Inspection
	Timing	System Timing
	Spare1	
	Spare2	
	Spare3	
	Spare4	
	Factory Default	Restores the unit to the factory default settings

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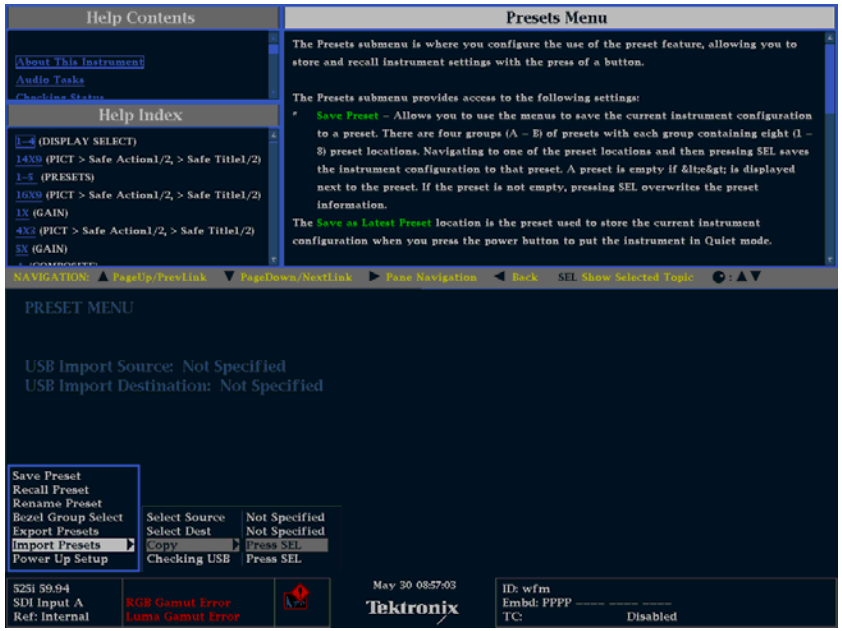
The Spare 1 – 4 locations (in each group) provide an excellent way to start creating customized presets. First load one of the sample presets, and then make any desired changes to the configuration and save the setup to one of the spare locations.

Note: When saving to the Spare Location the name will not automatically change from *Spare 1, 2, 3, 4*. Change the preset name to the new name. Instructions are also available by pressing the help button when the Preset Menu is displayed as shown below (push and hold the Preset button to enable this menu):



These sample presets and descriptions will enable users to gain the best possible results from the industry's leading waveform monitors. In the spirit of continued education and sharing, anytime new presets are developed that improve efficiency, Tektronix will make them available to our customers.

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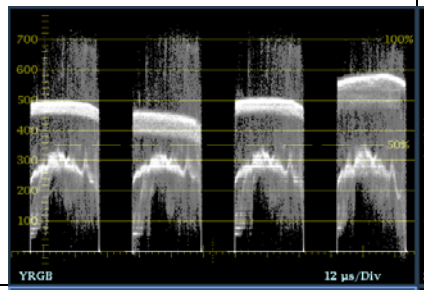
WFM7120, 7020 & 6120 Waveform Monitor
Gamut Monitoring

Preset Group - Operator
Preset Gamut

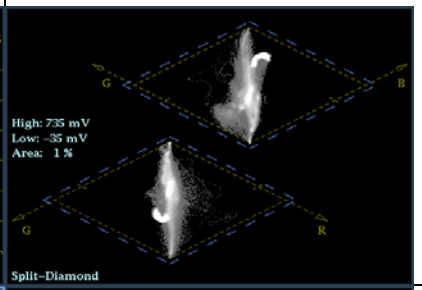
Tile 1
Waveform Monitor

In color correction or camera balancing of the RGB components, it is useful to be able to see the effect these adjustments have on the luma Y signal. The waveform display is configured in YRGB Display Mode and the waveforms are paraded so each trace of YRGB is displayed side-by-side. This allows the user to monitor the luma channel and simultaneously view the transcoded RGB traces of the input signal. Amplitude cursors have been added to correspond to the upper and lower limits of the EBU-R103 gamut recommendations.



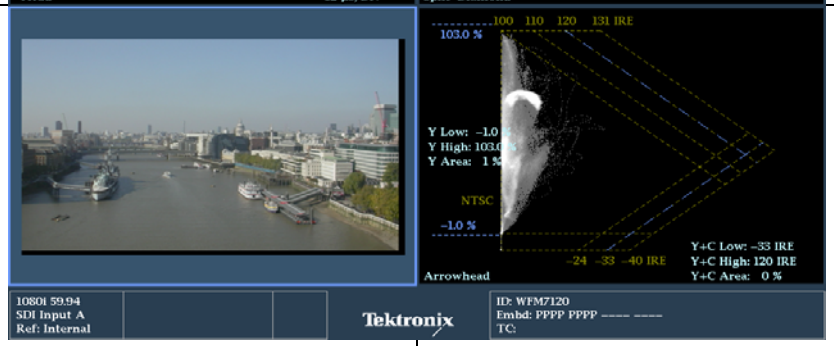
Tile 2
Split-Diamond

This display is a simple method to easily view RGB gamut compliance. When the signal falls within the blue graticule limits of the display, the signal is within RGB gamut compliance. If a portion of the signal falls outside the limits, the component in error can be quickly identified. Errors in green amplitude affect both diamonds equally, while blue errors affect only the top diamond and red errors affect only the bottom. The center of the display represents the lower black region of the signal and the upper and lower points of the Diamond represent the white limits. In this case the EBU-R103 limits were applied.



Tile 3
Picture Display

Picture mode renders the video display into a tile of the XGA output of the WFM Series. This allows the user to observe the currently applied video input program content. Additionally, the instrument can provide visual indication within the picture when gamut alarms are exceeded, or provide safe action and title graticules within the display.



Tile 4
Arrowhead

This display provides a simple method to view composite gamut compliance. If the signal elements fall within the graticule limits of the display, the signal is compliant. If a signal element falls outside the limits, it is quickly identified. Luma adjustments affect the vertical axis of the display. Chroma adjustments affect the horizontal axis. By using the proc-amp controls of the device, simple adjustments will keep the signal within the graticule limits. The luma graticule limits are shown on the left-hand side and luma+chroma limits are shown on the right-hand diagonals of the display.

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WFM7120, 7020 & 6120 Waveform Monitor
Quality Assurance

Preset Group - Operator
Preset – Tape_QA

Tile 1
Waveform Monitor

The YPbPr parade display allows the user to monitor the signal while it is being recorded and to visually observe any errors within the content. Indicators of gamut errors for RGB and Composite are shown in the lower status title bar as alarms.

Tile 2
Audio Display

The audio display shows the level bars of up to 8 channels of audio. In this case test level has been set to -18dBFS (indicated by the yellow diamond at the side of the bars) and the reference level at -8dBFS (indicated by the red diamond). The True Peak values are shown as tic marks within the audio bar displays. The yellow diamond beneath the channels indicates the correlation between the channels. In this case a value of 0 indicates there is little correlation. The lissajous display on the right-hand side shows an X-Y plot of the currently selected channel pair.

Tile 3
Video Session

The video session screen provides a current view of format parameters such as SAV Placement, Field Length, Line Length and Line Number Error. Statistics are gathered on CRC/EDH errors, RGB, Composite and Luma gamut. If a capitalized letter is shown, this indicates that the gamut limit has exceeded the upper threshold. If a non-capitalized letter is shown, this indicates that the lower gamut limit has been exceeded.

For example, R __g_ indicates that the upper Red component has exceeded the gamut threshold, and that the lower Green component has also exceeded its lower threshold limit.

Tile 4
Audio Session

This displayed provides information on the Clips, Over ranges, Mutes and Silence that occurred during the session. The overall peak- and high-audio level is also noted for each of the channels. The overall loudness the individual channels and channel pairs. The filter selection for the loudness measurement is configured in the audio display. By selecting the Error Log from the Status menu or by downloading the session from the Web user interface, the user can view the log and determine when these errors occurred relative to internal clock or timecode (if available).

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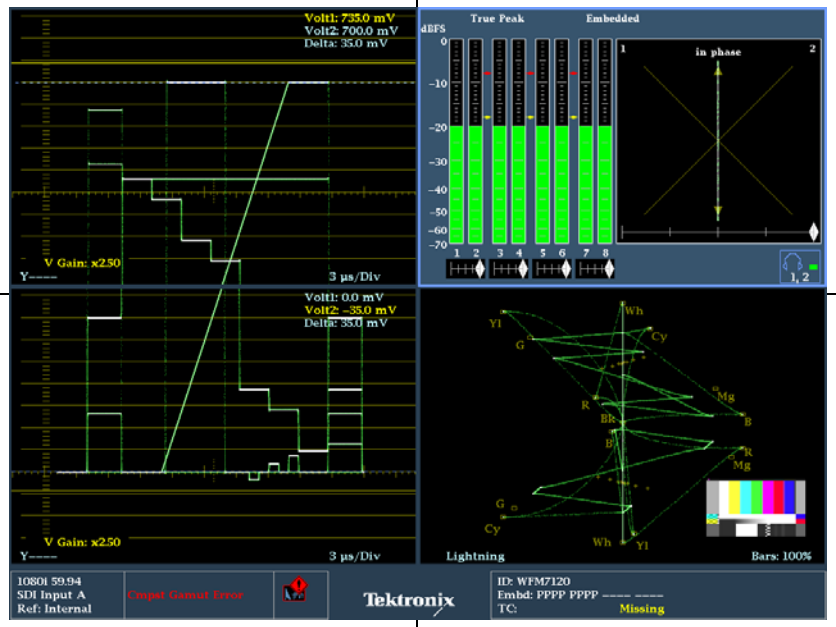
WFM7120, 7020 & 6120 Waveform Monitor
HD/SD Line-Up

Preset Group - Operator
Preset – Line_Up

Tile 1
WFM MAG Upper

When aligning video levels of the tape leader or test signal, it is important to ensure that the upper and lower amplitudes of the signal are correctly set up. To easily view the waveform with increased precision, the variable gain function of the instrument can be maximized to show the upper portion of the Y Luma waveform display in the upper half of the tile. This allows the operator to easily make adjustments to the proc-amp controls of the recording device and ensure the 700 mv level is obtained for the upper part of the signal. Cursors are placed on the screen to indicate the 700 mv amplitude of the signal and to allow accurate alignment of the color bar levels.



Tile 2
Audio Display

The audio display shows the level bars and lissajous display. Users can independently select each channel pair to be displayed on the lissajous display. The lissajous display is an X-Y plot of the selected channels. In the soundstage mode (as shown), when the audio channels have the same frequency and amplitude and are in-phase, they produce a vertical line on the lissajous display. A correlation meter below the lissajous display and each channel pair will show channel to channel correlation. In this example, the white diamonds within the display indicate that the correlation is at +1 and the signals are in-phase. In this case, the True Peak ballistic was selected, the test level has been set at -18 dBFS, and the peak level is set to -8 dBFS in the configuration menu.

Tile 3
WFM MAG Lower

By clever adjustment of the variable gain function, horizontal, and vertical position controls of the waveform monitor, the lower portion of the waveform Y luma waveform is displayed in Tile 3. Cursors are placed on the display to show the 0 mv amplitude of the signal. This allows the user to easily and accurately align the color bar black level using the proc-amp controls of the tape machine or other device.

Tile 4
Lightning

The Lightning display is similar to a vector display, except that it incorporates the luma channel. An X-Y plot of luma versus Pb is plotted in the upper part of the display and an X-Y plot of luma versus Pr is plotted in the lower portion. By ensuring that the color components fall with the graticule boxes, quick and easy adjustment of the proc-amp controls can be made. If this signal is stretched or compressed in the horizontal direction, adjustment of the chroma signal is required. If the signal is stretched or compressed in the vertical direction, then adjustment of the luma or setup controls is required. A thumbnail picture is shown for confidence monitoring of the source.

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WFM7120, 7020 & 6120 Waveform Monitor
HD/SD Transmission Monitoring

Preset Group – TX_MON
Preset – SIM_AB

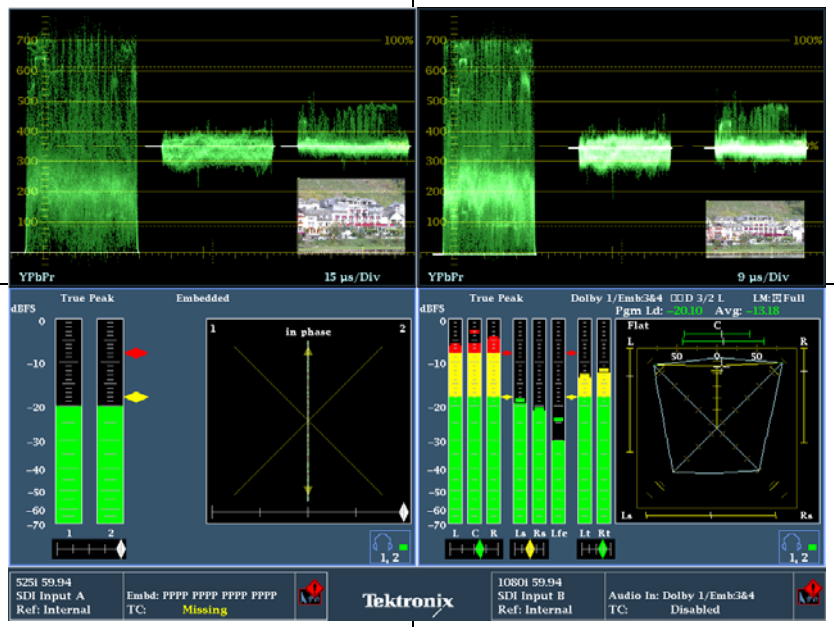
SIM Option required

Tile 1
Waveform Monitor
The waveform display shows a paraded YPbPr display mode allowing the user to view the levels of each components of the video signal. Thumbnail picture is enabled to allow the user to verify the source of the video input.

Note: The SD signal should be used for this input A of the preset.

Tile 2
Waveform Monitor
The waveform display shows a paraded YPbPr display mode allowing the user to view the levels of each components of the video signal. Thumbnail picture is enabled to allow the user to verify the source of the video input.

Note: The HD signal should be used for this input B of the preset.



Tile 3
Audio Display
Typically an SD broadcast provides a mono or stereo signal. This audio display has been configured in Dual Audio mode to a stereo pair of audio signals from the embedded pair 1-2 of the SDI signal. Different input can be customized by entering the audio input / output configuration menu and assigning a different embedded audio pair to this channel. A lissajous X-Y soundstage display has been configured for this audio inputs, so the interaction of the two audio channels can be seen.

Tile 4
Audio Display
In simultaneous input it is possible to configure a maximum of eight audio bars to be displayed, plus a stereo downmix pair if a Dolby® signal is used. In this case for an HD signal, a Dolby decode has been configured for Embedded 3-4 of the SDI signal. To customize the preset to use a different Dolby stream, enter the configuration menu for the audio input and select the Dolby 1, 2, 3 or 4 preset configuration. The user can select either an AES or embedded pair to be used to decode the Dolby data stream. The surround sound display is showing the interaction of the multiple audio channels.

Audio Surround Display licensed from RTW GmbH & Co KG of Cologne, Germany.

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WFM7120, 7020 & 6120 Waveform Monitor
Closed Caption Monitoring

Preset Group – TX_MON
Preset – CC_Mon

CEA 708 and CEA 608 within a HD-SDI signal

Tile 1
Waveform Monitor
The waveform display shows a paraded YPbPr display mode showing the levels of each components of the video signal. Pass EAV and SAV has been enabled and allows user to see the EAV and SAV data words along with ancillary data. This can be used to check for the presence of closed caption and other ANC data types within the waveform display.

Tile 2
Aux Data Status
The Aux data status display provides information on ancillary data present within the SDI signal. It provides status information on the presence of closed caption data. Information is provided on the various types of closed caption packets and the current services present within the signal. Information on the Caption Distribution packet (CDP), the frame rate and number of closed caption data bytes are also displayed. Along with the indication of XDS, RP207, CGMS-A and Broadcast Flag.

Tile 3
Picture Display
The picture display has been configured to decode CEA 708 closed captions from an HD-SDI signal within the picture display. Indication of the presence of CEA 708 closed caption data will be shown in the top part of the picture. If closed caption CEA 708 data is present within the signal the decoded information will be overlaid within the picture display. This allows verification of the correct decoding of the closed caption data stream. Safe area and safe title graticules have been enable to ensure the closed captions are displayed in the appropriate portion of the display.

Tile 4
Picture Display
This picture display has been configured to decode CEA 608 closed caption if present within the HD-SDI signal. When CEA 608 closed caption data is present it will be decoded and displayed within the picture display. This allows the verification of the presence and location of the closed caption CEA 608 data stream. Safe area and safe title graticules have been enable to ensure the closed captions are displayed in the appropriate part of the display.

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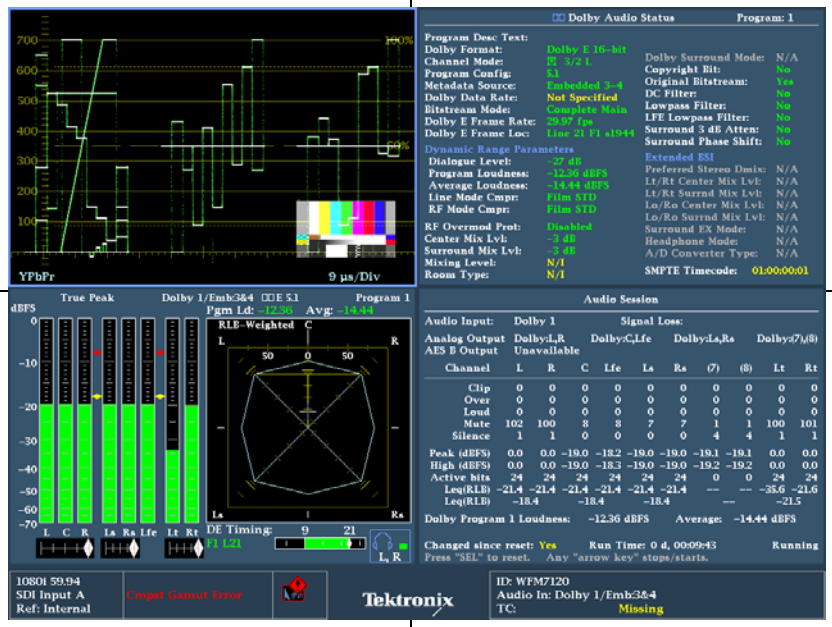
WFM7120, 7020 & 6120 Waveform Monitor
Audio Loudness Monitoring

Preset Group – TX_MON
Preset – Loud

DDE option required for Dolby decoding

Tile 1
Waveform Monitor

The waveform display is configured for a YPbPr display mode allowing the user to view the levels of each component of the signal. A thumbnail picture has been enabled to allow the user to verify the input source of the signal.



Tile 2
Dolby Status

The Dolby status display shows the various parameters extracted from the Dolby® metadata of the signal. Information is provided on the format and data rate of the signal along with Dialogue level, Dynamic Range and Down mix parameters. The overall calculated program loudness and average loudness are displayed from the audio levels of the signal. For Dolby® E signals the Dolby guard band position is indicated within this display.

Tile 3
Audio Display

The audio input is configured to Dolby 1 using the embedded audio channels 3-4. To select a different audio input, push and hold the audio display button and select audio input to choose. To change the input of the Dolby Preset this needs to be performed in the Audio Input / Output configuration. The surround sound display has been selected to show the interaction of the multiple audio channels. The RLB weighting filter has been selected to apply the filter characteristics as specified in standard ITU-R BS 1770. For Dolby E signals the guard band interval thermometer is displayed below the surround display. Users can define limits for the allowed range within the configuration menu.

Audio Surround Display licensed from RTW GmbH & Co KG of Cologne, Germany.

Tile 4
Audio Session Display

This display shows a summary of the various parameters of the audio signal for the duration of the session. Information is provided on the number of clips, mutes, over and silence conditions that occurred for each channel during the session. The loudness measurements are calculated for each channel and channel pair. When a Dolby signal is present, the user-selected numbers of channels are summed to provide the program and average loudness measurements. The user can select Short or Long Duration. When long is selected, the loudness average is calculated on the interval of time since the last session reset. When short is selected, the loudness average is calculated on the most recent 10-second interval. Note the session can be started and stopped by pressing the right arrow key and SEL will reset the duration of the session.

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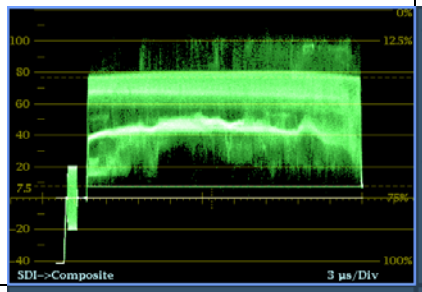
WFM7120, 7020 & 6120 Waveform Monitor
Black and Frozen Detection

Preset Group – QAContrl
Preset – BFF_Det

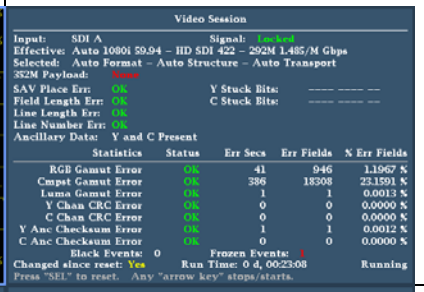
Tile 1
Waveform Monitor

The waveform display is configured for a SDI-Composite mode that produces a pseudo-composite display from the actual component SDI signal. This allows the user to visual the signal as if it was a composite signal with the luma and modulated chroma signals. Users who are more familiar with composite signals may be used to seeing signals in this way, versus viewing the individual components of the signal.



Tile 2
Video Session

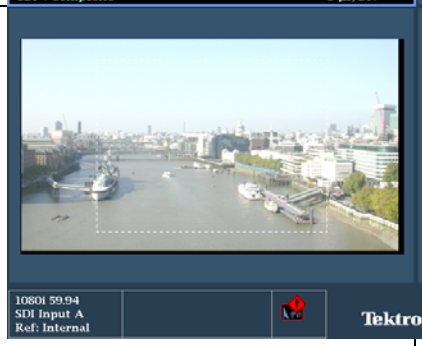
When the instrument is configured to the Single Black/ Frozen mode in the configuration menu (under input mode selection), the video session display will show two additional pieces of information. First, the number of Black Frames detected and the number of Frozen Frames detected during the video session To simplify the counting process only the trigger of the event is recorded. This is based on the threshold settings configured in the Measurement settings of the CONFIG menu.



Tile 3
Picture Display

The picture display has been configured to show the active region of the Black detection algorithm. The configuration for this setting can be performed within the CONFIG of the Measurement settings. Users can defined the active region for monitoring when the picture goes to black. This can be particularly useful if a bug or logo is present within the picture and the user wishes to ignore this part of the image.

Note: Pressing the Status button for this tile will show the Error Log for all the error events which have occurred during the session that the instrument has monitored. The log is time stamped with the internal time of the instrument and timecode if present. The log can be printed via the network and added to a report or transmission log.



Tile 4
Alarm Status

The alarm status display shows the various alarms for the current state of the video input. Items that are grayed out are not configured to be an active alarm; however their status will still be displayed. A value in green indicates no error; yellow indicates a warning and red indicates an error for the alarm. Using the up- and down-arrow allows the user to page up or down through the various pages. The alarm settings can be configured by the user within the CONFIG menu.

Note: Pressing picture display for this tile will show the active region for the frozen graticule that can be configured within the CONFIG menu of Measurements settings.

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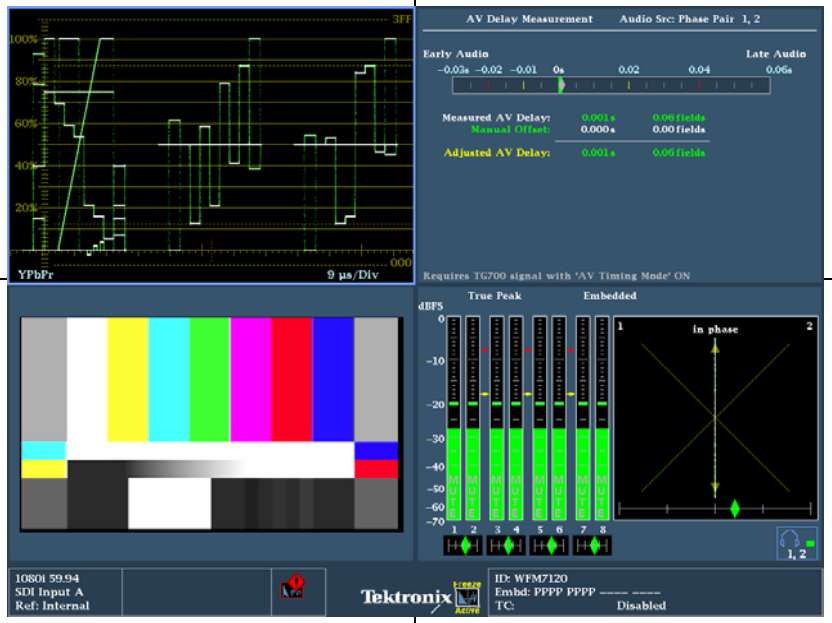
WFM7120, 7020 & 6120 Waveform Monitor
Audio to Video Delay Measurement

Preset Group – QAContrl
Preset – AVDelay

Tile 1
Waveform Monitor
The waveform display is configured to show a YPbPr paraded display. Users can visualize the presence of the video signal and see the changes of the video level when using the TG700 AV Timing sequence.

Note: The TG700 AV Timing sequence can be enabled within the VIDEO menu of the HDVG7 or DVG7 modules.



Tile 2
AV Delay
AV Delay can be an annoying problem within the facility and is important to ensure the video and audio processing delays through the systems are consistent. Using the AV Timing mode from a HDVG7 or DVG7 of a TG700, a sequence of active video and embedded audio are generated for one second and then followed by four seconds of black and silence. The WFM7120 then measures the difference between the audio and video delay and display the timing offset within the AV Delay display.

Note: The active audio channel pair used for the measurement is the currently selected lissajous channels from the current audio input.

Tile 3
Picture Display
The picture display is selected so the user can visualize the TG700 AV timing sequence and identify the source as it is distributed throughout the system.

Tile 4
Audio Display
The audio input has been configured for embedded audio, as this is how the TG700 AV timing sequence is generated. However, various processing equipment within the facility may extract this signal as separate AES or encode into a Dolby® data stream. In these cases, users should select the appropriate audio input for the signal being monitored. The audio signal for the AV Delay measurement uses the channel pair that is configured for the lissajous display. Users can cycle through the various channel pairs by changing the active channels for the lissajous display. Push and hold the Audio button to display the menu and navigate to the Phase Pair. Push SEL to enter the sub menu and select the appropriate channel pair to monitor (for the lissajous display and AV Delay measurement).

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WFM7120, 7020 & 6120 Waveform Monitor
Magnified Waveform and Vector Displays

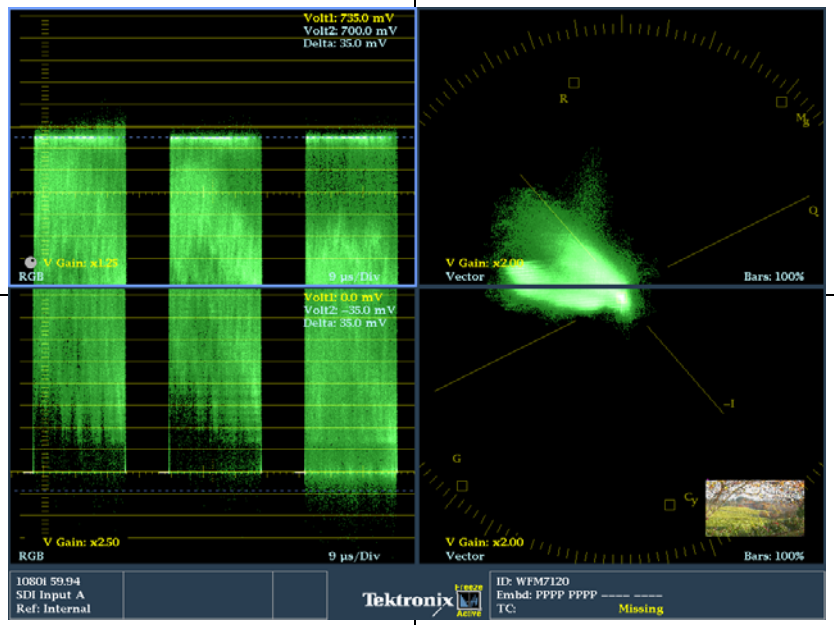
Preset Group – QAContrl
Preset – Two_Tile

Tile 1
Waveform Monitor
The waveform display has been configured to show a variable magnified view of the upper limits of the video signal for an RGB parade. Amplitude cursors have been placed at the upper limits of 700mv and 735mv that correspond to the upper gamut limits for EBU-R103 thresholds. In this mode the upper RGB limits for the signal are not being exceeded.

Note: When the Gamut button is selected for this tile a Split Diamond display will be shown for this signal.

Tile 2
Vector Display
The vector display has been configured to show a magnified view of the upper part of the compass rose. Users can make fine adjustment for the color components of the signal. To magnify a specific color component and view within the display, push and hold the VECTOR button in to display the menu. Navigate to the Center On menu item and press SEL to enter the sub menu. Then select the specific color component of interest to view in more detail.

Note: When the Gamut button is selected for this tile an Arrowhead display will be shown for this signal.



Tile 3
Waveform Monitor
The waveform display has been configured to show a variable magnified view of the lower limits of the video signal for an RGB parade. Amplitude cursors have been placed at the lower limits of 0mv and -35mv that correspond to the lower gamut limits for the EBU-R103 thresholds. In this mode the lower RGB limits for the video signal have not been exceeded.

Note: When the Gamut button is selected for this tile a Diamond display will be shown for this signal.

Tile 4
Vector Display
The vector display has been configured to show a magnified view of the lower part of the compass rose. In this way the user can fine tune adjustments for the color components of the signal.

Note: When the Gamut button is selected for this tile an Arrowhead display will be shown for this signal.

Note: When the Waveform button is selected for this tile a SDI–Pseudo composite display will be shown for this signal.

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WFM7120, 7020 & 6120 Waveform Monitor
Physical Layer Measurement

Preset Group – Engineer
Preset – SDI_PHY

Tile 1
Eye Display

The eye display provides information on the health of the physical layer of the signal. The amplitude, rise / fall time, overshoot / undershoot and jitter can be measured for the signal using cursors. Why options PHY, automated measurements can be made. These measurements can be viewed when the eye display is in full screen mode or in the SDI Status display. A jitter thermometer on the upper-left side of the display provides a direct readout of the jitter within the signal based on the bandwidth filter in this case selected to be the Timing filter (10Hz) for tiles 1 & 2.
Pseudo color was selected for the trace to help visualize the more frequently occurring amplitude levels within the signal.

Tile 2
Jitter Display - Timing

The jitter display provides a phase demodulated display of the jitter within the signal related to line and field of the video signal. In this case, the 2 Field sweep mode has been selected and the gain of the signal has been magnified five times. The display can be used to identify the jitter component present within the signal typically at line and field rates. This display shows the total jitter with the signal and can be compared to the alignment jitter. In the lower frequency range jitter in the signal will be tracked by the phase lock loop and passed through the system. Infinite persistence can be enabled for any tile under the DISPLAY button to show the maximum variation in the signal over time. Moving the H or V knobs will reset the infinite persistence mode.

Tile 3
SDI Status

The SDI status provides a summary of the physical parameters of the signal. The two jitter filters measurement are provided. A set of cable measurements for cable loss, approximate cable length and source level are measured. The user can configure these measurements for a variety of different cable types. If the PHY option is installed the automatic measurements are made of the SDI signal parameters for Eye amplitude, Risetime, Falltime, Difference between rise-fall and overshoot /undershoot.

Tile 4
Jitter Display - Alignment

Alignment jitter uses a bandpass filter of 1kHz for SD and 100kHz for HD and 3G signals. The waveform monitor will automatically choose the appropriate filter for the video format when the alignment filter is selected. In this case, the 2 Field sweep mode has been selected and the gain of the signal has been magnified five times. Both the alignment and timing jitters of the signal can be viewed simultaneously, allowing the engineer to compare the difference in the physical layer of the signal. Typically there should be minimal jitter within this bandpass as the phase lock loop will have difficulty tracking high frequency components of jitter and can cause problems in locking to the signal and recovering the data.

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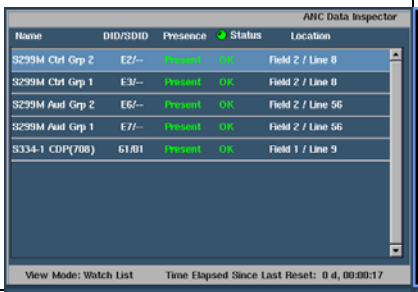
WFM7120, 7020 & 6120 Waveform Monitor
ANC Data Monitoring (requires DAT option)

Preset Group – Engineer
Preset – ANC_Data

Tile 1
ANC Data Display

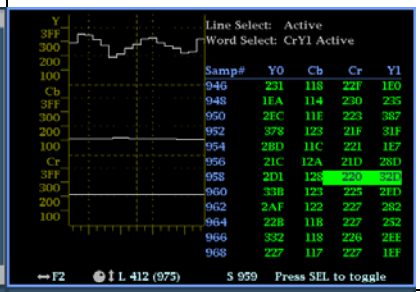
The ANC data Inspector provides a summary of all of the present ANC data within the signal. This allows verification that a specific ANC data type is present in the signal. The line and field location of the ANC data is provided within the display. If the value shows present in green then the type of ANC data is available within the signal. If the value shows present in yellow this indicates the ANC packet was present within the data stream but is no longer present in the signal. Viewing this tile in full screen allows the user to use the up and down arrow to move through the various ANC data types.

Pressing the MAG button will magnify the present user data words. In the configuration menu the user can create a Watch List to check for the presence of certain ANC data types or create their own user defined ANC Data type.



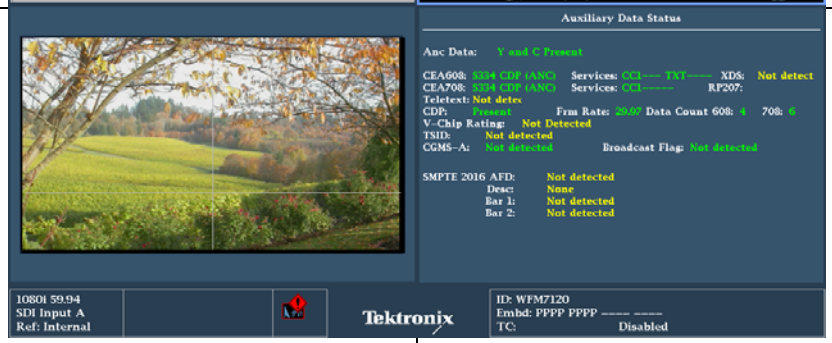
Tile 2
Data List

The Datalist display allows the user to view the data samples by field and line location. Pressing SEL toggles between line and sample selections. Using the general knob allows the user to scroll to specific line or sample value. The user can select to display the data in video or data mode and view the values in Hex, Decimal or Binary. Using the left and right arrow keys will toggle between fields or between links if a dual link signal is applied.



Tile 3
Picture Display

The picture display can show a cursor that provides an indication of the current location of the line and sample selection used within the Datalist display. This allows the user to visualize the current location within the data stream. With the picture frame set to "Off" as shown in this example, and the display viewed in the Full screen mode, the blanking of the video signal can be see along with the active picture.



Tile 4
Aux Data Status

The Aux Data Status display provides a summary of the presence of some of the key types of ANC data present within the signal. For instance, a summary of the presence of Closed Caption or Teletext data is provided. Syntax information on timecode is displayed if present within the signal. Aspects ratio information is shown if present within the signals such as AFD (Active Format Descriptor), SMPTE 2106, WSS and Video Index SMPTE RP186, depending on the format of the signal.

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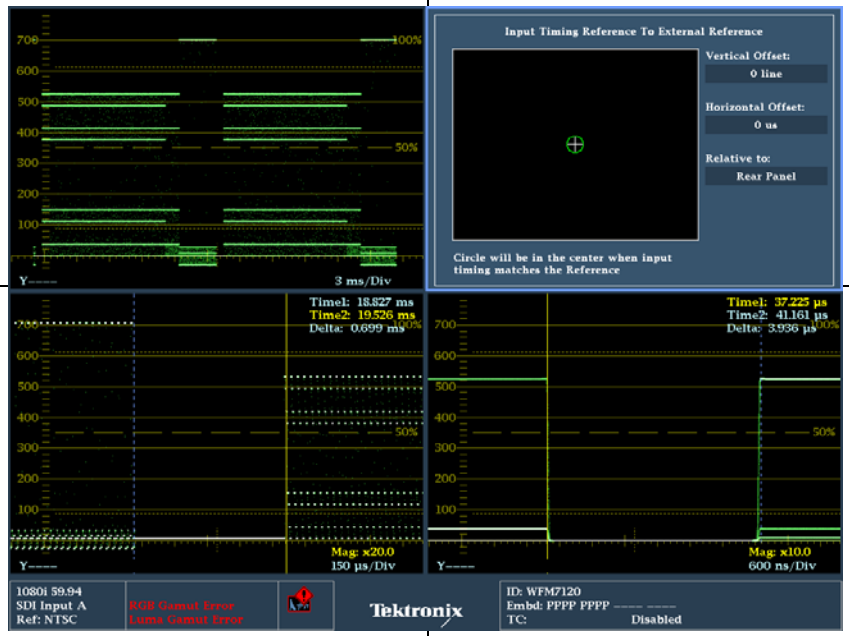
WFM7120, 7020 & 6120 Waveform Monitor
Video Timing Measurement

Preset Group – Engineer
Preset - Timing

Tile 1
Two Field WFM Display
This waveform display shows the Y signal in a two-field display mode. This shows the relative position of the fields related to the reference signal. If line select is enabled in one of the other tiles, the line location will be display by a cursor within the display.

Tile 2
Timing Display
This display shows a full color frame within the black rectangle. The center crosshair is the reference point. When the circle is in the same location as the crosshair, the input signal and the external reference are correctly timed together. The circle's vertical position represents a number of lines offset from the reference. Advance time conditions are represented in the upper part of the display, and delayed time conditions are represented in the lower half of the display. The horizontal position of the circle provides information about the µs offset from reference. When the circle cursor moves toward the left-hand side, this indicates an advanced time condition. When the circle moves toward the right-hand side, this indicates a delayed time condition. Fine timing adjustments can be made by referring to the numerical readout in the display on the right hand side.



Tile 3
Two Field MAG of V Blanking
This waveform display is a magnification of the two-field display centered about the vertical blanking interval. Cursors have been placed at the beginning and end of blanking to measure the duration of field blanking. In some video formats the V blanking position may not be centered appropriately. To re-adjust the blanking interval deselect MAG and center the blanking around the major tick mark in the center of the display. Press MAG again to magnify to the blanking interval and adjust using the H and V position knobs.

Tile 4
Two Line MAG of H Blanking
This waveform display is a magnification of the two line display of the Y signal, centered around the horizontal blanking interval. Cursors have been placed at the beginning and end of blanking to measure the duration of the line blanking interval. In some cases of video format or external reference, the H blanking interval may not be centered. To re-adjust the blanking interval, deselect MAG and center the blanking around the major tick mark in the center of the display. Press MAG again to magnify to the blanking interval and adjust using the H and V position knobs.

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Reconfiguring the Instrument and Renaming Presets

Reconfiguring Presets

Users may wish to reconfigure these presets in order to customize specific configuration. The process to modify a preset is simple to implement.

Load the preset you wish to modify:

1. Press the **Preset** button to display the current group of eight presets.
2. Press one of the illuminated measurement buttons which are defined as Presets 1-8.
3. The preset will start to load and the Status bar will indicate the loading process of the preset.

Once complete the new preset state of the instrument will be configured.

Make the selected changes to the various menus to suit your particular configuration.

Save the new configuration as a Preset:

1. Press the **Preset** button to display the current group of eight presets.
2. Press and hold one of the illuminated measurement buttons which are defined as Presets 1-8.
3. The preset will be saved to that location and a pop-up menu will be displayed once the save operation is complete.

Renaming Presets

To rename a preset or group perform the following steps:

1. Press and hold the **Preset** button to display the preset configuration menu.
2. Navigate to the **Rename Preset** menu using the up or down arrow keys.
3. Press **SEL** to enter the sub menu and the current group and preset names will be displayed.
4. Press **SEL** again to select one of the group or presets to rename from within the menu.
5. Press **SEL** to edit the preset name, use the left and right arrows keys to move between the highlighted boxes and the up or down arrow keys or general knob to change the alphanumeric display.
6. Once complete use the left or right arrow keys to move to the Accept box and press SEL to complete the renaming process.

NOTE: There are 32 presets available within the instruments, which are divided in to four groups of eight. Pressing the preset button shows the currently selected group of eight presets. Pressing and holding the preset button accesses the preset configuration menu. Using the general knob or up and down arrow keys, navigate to the **Bezel Group Select** menu. Press **SEL** of the right arrow key to enter the submenu and select one of the four Groups that you wish to use as the current active 8 presets. Dismiss the preset configuration menu by pressing the **Preset** button. By pressing the **Preset** button again, it will show the selected group of 8 presets.

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Loading Preset to the Instrument from USB

The preset files are within a zip file that contains the directory structure and preset file which can be copied to a USB memory stick. Extract the zip files to a folder on your computer or memory stick. This will create a **WfmPrst** folder on your device. Contained within the directory is a folder with the name of the preset group **WFMTEK**. Within this folder are a set of ***.TPF** preset files and a **Names.Txt** file containing the labels for each preset and group.

Load the **WfmPrst** Folder to a USB memory stick and safely eject the memory stick from the computer. Insert the USB memory stick into the front of the WFM series monitor.

1. Press and hold the **Preset** button to display the preset configuration menu.
2. Navigate to the **Import Presets** menu using the up or down arrow keys or general knob.
3. Press **SEL** or use the right arrow key to enter the sub menu.

The following process will load all presets to the instrument and overwrite current presets. If you wish to keep a back up copy of the current preset please export these preset to the USB stick first.

4. Navigate to **Select Source** and press **SEL** to enter menu.
5. Navigate up and down to **Select USB Folder** and sub menu should be displayed if USB device is mounted.
6. Select the WFMTEK preset folder that should be preset within the menu.

Information on the USB device can be viewed in the upper part of the preset configuration. If no USB device is mounted the **Import Preset** sub menu will show **Checking USB** or **Mount USB.** Navigate to this menu item and press **SEL** to mount the device.

7. **Select All** to load all the presets to the instrument.
8. Press the left arrow to navigate back to **Select Dest**.
9. Press **SEL** to enter sub menu and **Select All**.
10. Press the left arrow to navigate back to **Copy**. A pop-up menu will be displayed **Preset Import Complete** when all the presets are loaded into the instrument.
11. Press the **Preset** button to dismiss the preset configuration menu.
12. Press the **Preset** button to display the current group of eight selected presets.