

LV 5980

MULTI SDI MONITOR

INSTRUCTION MANUAL

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GENERAL SAFETY SUMMARY

■ Read This before Using the Instrument

This instrument should only be used by persons with sufficient knowledge of electronics who thoroughly understand the contents of this manual.

This instrument is not designed or manufactured for households or ordinary consumers.




If unqualified personnel are to use the instrument, be sure the instrument is handled under the supervision of qualified personnel (those who have electrical knowledge). This is to prevent the possibility of personal injury or damage to the instrument.

■ Note about Reading This Manual

The contents of this manual contain specialized terminology and may be difficult to understand. If you have any questions about the contents of this manual, please contact your local LEADER agent.

■ Symbols and Terms

The following symbols and terms are used in this instruction manual and on the instrument to indicate important warnings and notes.

<p><Symbol></p> 	<p>This symbol appears in this instruction manual and on the instrument to indicate an area where improper handling could result in personal injury, damage to the instrument, or malfunction of the instrument or devices connected to it.</p> <p>When you encounter this symbol on the instrument, be sure to refer to the information in this instruction manual that corresponds to the area that the symbol marks.</p>
<p><Term></p>  WARNING	<p>Ignoring the precautions that this term indicates could lead to death or serious injury.</p>
<p><Term></p>  CAUTION	<p>Ignoring the precautions that this term indicates could lead to personal injury or damage to the instrument.</p>

GENERAL SAFETY SUMMARY

Read the warnings and information below thoroughly to avoid death, personal injury, and damage and deterioration of the instrument.



■ Warnings Concerning the Case and Panels

Do not remove the instrument's case or panels for any reason. Touching the internal components of the instrument could lead to fire or electric shock.

Also, do not allow foreign materials, such as liquids, combustible matter, and metal, to enter the instrument. Turning the instrument on when such materials are inside it could lead to fire, electric shock, damage to the instrument, or some other accident.

■ Warnings Concerning the Power Source

Use the instrument with a 100 to 240 VAC power source. Using a power source with a higher voltage could lead to fire. Also, only use a power source whose frequency is 50/60 Hz.

Use a power cord that is appropriate for the voltage of the power source. Also, use a power cord that meets the safety standards of the country that you are using it in. Using a power cord that does not meet the standards could lead to fire.

If the power cord is damaged, stop using it, and contact your local LEADER agent. Using a damaged power cord could lead to electrical shock or fire. When removing the plug from the power outlet, do not pull on the cord. Pull from the plug.

■ Installation Environment

• Operating Temperature Range

Use this instrument in a 0 to 40 °C environment. Using the instrument with its vents blocked or in a high temperature environment could lead to fire.

Drastic changes in temperature, such as might be caused by moving the instrument between two rooms with different temperatures, can damage the instrument by causing condensation to form within it. If there is a possibility that the instrument has condensation within it, wait for approximately 30 minutes before turning on the power.

• Operating Humidity Range

Use this instrument in an environment whose relative humidity is 85 % or less where there is no threat of condensation forming.

Also, do not operate this instrument with wet hands. Doing so could lead to electric shock or fire.

• Do Not Operate in an Explosive Atmosphere

Using this instrument in an environment where flammable gasses, explosive gasses, or steam is emitted or stored could lead to an explosion or fire. Do not use the instrument in such an environment.

GENERAL SAFETY SUMMARY

Read the warnings and information below thoroughly to avoid death, personal injury, and damage and deterioration of the instrument.



- **Do Not Insert Foreign Materials**

If foreign materials, such as metal, flammable objects, or liquid are allowed into the instrument (through the vents for example), fire, electric shock, damage to the instrument, or some other accident may result.

- **If You Notice Something Wrong during Operation**

If you notice smoke, fire, a strange smell, or something else that is wrong with the instrument while you are operating it, stop operation immediately. Failing to do so could lead to fire. Turn off the power switch, and remove the power cord from the instrument. After making sure that fire has not spread anywhere, contact your local LEADER agent.

- **Warning Concerning the LCD Panel**

The LCD panel can cause injury if it is broken. Do not apply strong shock to the LCD panel, cut it with sharp metal, or damage it in any similar manner.



- **Cautions Concerning the Input and Output Connectors**

To avoid damaging the instrument, only apply signals to the input connectors that conform to the specifications in this instruction manual.

Also, do not apply signals to the output connectors. Doing so could damage the instrument.

- **Cautions Concerning the AC Adapter**

Only use the specified type of AC adapter.

Using a non-specified type of adapter could damage the instrument and lead to fire.

We recommend you replace the AC adapter at least once every five years.

- **If You Will Not Use the Instrument for an Extended Period of Time**

If you will not use the instrument for an extended period of time, remove the power plug from the outlet.

GENERAL SAFETY SUMMARY

■ Calibration and Repairs

This instrument has been carefully examined at the factory to ensure that its performance is in accordance with the standards. However, because of factors such as parts wearing out over time, the performance of the instrument may degrade. To ensure stable performance, we recommend that you have the instrument calibrated regularly. Also, if the instrument malfunctions, repairs are necessary. For repairs and calibration, contact your local LEADER agent.

■ Routine Maintenance

When you clean the instrument, remove the power plug.

Do not use thinner or benzene when you clean the instrument's case, panels, or knobs. Doing so could lead to paint chipping and the corrosion of plastic components. To clean the case, panels, and knobs, use a soft cloth with mild detergent, and wipe gently. While cleaning, make sure that foreign materials, such as water and detergent, do not enter the instrument. If liquid or a metal object enters into the instrument, fire or electric shock may result.

■ About the European WEEE Directive



This instrument and its accessories are subject to the European WEEE Directive. Follow the applicable regulations of your country or region when discarding this instrument or its accessories. (WEEE stands for Waste Electrical and Electronic Equipment.)

Follow the EU Battery Directive when discarding the batteries that you removed from this instrument.

Follow the warnings and precautions that have been listed in this section to use the instrument correctly and safely. Precautions are also contained in various other sections of this instruction manual. To use the instrument correctly, be sure to follow those precautions as well.

If you have any questions or comments about this instruction manual, please contact your local LEADER agent.

1. INTRODUCTION

Thank you for purchasing this LEADER instrument. To use this instrument safely, read this instruction manual thoroughly, and make sure that you know how to use the instrument properly.

If some point about the operation of this instrument is still unclear after you have read this instruction manual, refer to the contact information on the back cover of the manual to contact LEADER, or contact your local LEADER agent.

After you have finished reading this manual, keep it in a convenient place so that you can refer to it when necessary.

1.1 Scope of Warranty

This LEADER instrument has been manufactured under the strictest quality control guidelines.

LEADER shall not be obligated to furnish the following free services during the warranty period.

- 1 Repair of malfunction or damages resulting from fire, natural calamity, or improper voltage applied by the user.
- 2 Repair of an instrument that has been improperly repaired, adjusted, or modified by personnel other than a factory-trained LEADER representative.
- 3 Repair of malfunctions or damages resulting from improper use.
- 4 Repair of malfunctions caused by devices other than this instrument.
- 5 Repair of malfunctions or damages without the presentation of a proof of purchase or receipt bill for the instrument.

This Warranty is valid only in Japan.

1.2 Operating Precautions

1.2.1 Maximum Allowable Input Voltage



CAUTION

The maximum signal voltage that can be applied to the input connectors is indicated below. Do not apply excessive voltage to the connectors. Doing so may damage the device or lead to injury.

Table 1-1 Maximum allowable input voltage

Input Connector	Maximum Allowable Input Voltage
INPUT SDI A to D	± 2 V (DC + peak AC)
EXT REF	± 5 V (DC + peak AC)

1.2.2 Shorting and Applying External Input to the Output Connectors

Do not short the output connectors. Doing so may damage the instrument.

Do not apply an external signal to the output connectors. Doing so may damage the instrument or devices that are connected to it.

1.2.3 Mechanical Shock

This instrument contains sensitive components, so it may be damaged if it is dropped or otherwise exposed to a strong shock.

1.2.4 Electrostatic Damage

Electronic components can be damaged by static discharge. Static electricity can build up in the core wire of a coaxial cable. Before connecting a coaxial cable to the instrument, short the core wire of the cable with the external conductor.

1.2.5 Warming Up

To ensure more accurate measurements, turn on the instrument approximately 30 minutes before you intend to use it to allow its internal temperature to stabilize.

1.2.6 Backup Battery

If the backup battery runs out, the LV 5980 exhibits the following behavior. If this happens, contact your local LEADER agent.

- The last memory feature is disabled.
- The clock is initialized.
- The contents of all presets are deleted.

To continually use these features, we recommend that you replace the backup battery with a new one every five years after you purchase the LV 5980. Also, save the presets to USB memory.

You cannot replace the backup battery yourself. Contact your local LEADER agent.

1.3 About Trademarks

The company and product names in this document are trademarks or registered trademarks of their respective holders.

1.4 Notations Used in This Manual

In this manual, abbreviations are used for procedures as shown below.

Colons are followed by a list of options or a range of settings. The default setting is underlined.

Procedure

VEC → F•2 GAIN : X1 / X5 / IQ-MAG

2. SPECIFICATIONS

2.1 General

The LV 5980 is a waveform monitor that has high-resolution, high-quality video signal waveform and vector display features. It is also equipped with a 17-inch TFT LCD, which makes it possible to monitor up to four SDI signals simultaneously. It is optimized for the level adjustment of the outputs of multiple installed cameras. In the video signal waveform display, vector display, and picture display, multiple input signals can be displayed on top of each other or lined up next to each other. It is also full of useful features such as a level meter display for embedded audio, an error display that indicates transmission errors, and a 5-bar display that shows video signal peak levels using five bars. Furthermore, the LV 5980 can show different combinations of these displays in its multi-screen display.

2.2 Features

2.2.1 Standard Features

- **Simultaneous Monitoring of Four Inputs**

There are four SDI input connectors, which makes it possible to display up to four SDI input signals of the same format simultaneously.

- **Rich Assortment of Display Features**

Not only does the LV 5980 have essential displays for video signal quality monitoring, such as a video signal waveform display and a vector display, it also has a rich assortment of other display features such as a picture display, audio level meter display, 5-bar display, transmission error detection, and gamut error detection.

- **Wide Variety of Display Formats**

In the video signal waveform display, vector display, and picture display, the LV 5980 can display up to four input SDI signals on top of each other or side by side. This makes it suitable for adjusting the gain and black balance values of multiple cameras. In the video signal waveform and vector displays, the LV 5980 can make different waveforms easier to see by using a different waveform color for each input channel.

- **Extremely Flexible Display Layouts**

Each of the different displays can be shown on a single screen, or the multi-screen display feature can be used to divide the screen into four areas with a different display shown in each area. The video signal waveform display, picture display, and audio level meter display can be shown as a thumbnail display on the one-screen display.

In addition, the user layout can be used to display the measurement screen with a user-defined layout. For details on the user layout, contact your local LEADER agent.

- **Video Signal Waveform Display**

The input YCBCR signal can be converted to an RGB or pseudo-composite signal and shown on the video signal waveform display. The video signal waveform display has a rich assortment of features such as waveform magnification and line selection.

- **Picture Display**

The picture display has a wide variety of picture monitoring features, such as color temperature specification; brightness, contrast, and aperture adjustment; and the display of gamut error locations.

- **Standard-Equipped CINELITE II**

The CINELITE feature makes it easy to manage the levels of specific points on the picture display. This is useful for adjusting the gain of multiple cameras through the use of the same reference point. Furthermore, the CINELITE Advanced feature makes it possible to synchronize measurements with the video signal waveform display and vector display.

The CINEZONE feature makes it possible to check the luminance distribution of the whole picture display at a glance.

- **Audio Lissajous Display**

Lissajous curves and level values can be displayed for the audio that is embedded in an SDI signal.

- **Status Display**

The LV 5980 can show analysis displays such as the data dump, phase difference, and event log displays.

- **3D Assist Display**

The LV 5980 makes it possible to perform 3D video signal evaluation on the signals that it receives: the video signal for the left eye and the video signal for the right eye separately as well as side-by-side signals or top-and-bottom signals, which contain the video signals for both eyes. The available picture display formats are anaglyph, convergence, overlay, checker, wipe, and flicker.

- **External Sync Signal Input**

The LV 5980 can receive a tri-level sync signal or an NTSC or PAL black burst signal as its external sync signal and then display video signal waveforms with this sync signal as its reference.

- **Dual Link**

The LV 5980 can monitor a pair of dual link signals simultaneously.

- **Screen Capture Feature**

The display can be captured and stored as image data. The captured data can be displayed on the LV 5980. Additionally, it can be saved as bitmap files to USB memory, which makes it possible to view the data on a PC.

- **Preset Feature**

Up to 30 sets of panel settings can be registered as presets and loaded easily at a later time. Registration of settings that are used repeatedly can help you work more efficiently. In addition, the LV 5980 has a display mode preset feature that can be used to register the settings for each display—the video signal waveform display, vector display, and picture display. This makes it possible to use the displays according to different usage conditions.

2. SPECIFICATIONS

- **Key LEDs**

All the panel keys have LEDs. This makes it easy to find the keys even in dark environments.

- **Last Memory Feature**

The LV 5980 always keeps a backup of the current settings. When the LV 5980 is restarted, it can be used with the same settings that were in use before it was turned off.

- **ID Display**

IDs can be assigned to input channels. IDs are entered from the LV 5980 panel.

- **Stereo Headphone Output**

The LV 5980 can deliver the embedded audio of an SDI signal in stereo through the headphone output jacks.

- **75 mm and 100 mm VESA Compliant Mounting Holes**

There are 75 mm and 100 mm VESA compliant mounting holes on the back of the LV 5980, so it can be mounted on an arm or stand.

- * The LV 5980 is thin, and its bottom is not flat, so it cannot stand by itself. Use the LC 2160 tilt stand or LR 2755 rack mount adapter (both sold separately) with the LV 5980.

2.2.2 Optional Features and Products Sold Separately

- **Battery Mount (Option)(*1)**

A battery adapter can be attached to the back of the LV 5980, so the same battery that you use for a video camera or similar device—for example, V-mount type batteries or Anton/Bauer batteries—can be used to power the LV 5980.

If a V-mount type battery adapter has been attached to the LV 5980, the A-E241E battery adapter made by IDX Company, Ltd. can be used to attach two battery packs. This makes it possible to supply a large amount of power.

- **Protection Panel (LC 2132, Sold separately)**

This is an acrylic plate that is designed to protect the LCD panel surface. An anti-reflective coating that reduces the amount of reflected light has been applied to the acrylic plate.

Attaching the protection panel to the LV 5980 will protect the LCD.

- **Tilt Stand (LC 2160, Sold separately)**

This stand is designed to be used on a table. It has a vertical tilt feature.

By attaching the tilt stand to the LV 5980, the LV 5980 can stand by itself. (The LV 5980 is thin, and its bottom is not flat, so it cannot stand by itself without this stand.)

- **Rack Mount Adapter (LR 2755, Sold separately)**

This is a set of brackets for mounting the LV 5980 on an EIA 19-inch rack.

By attaching the rack mount adapter to the LV 5980, the LV 5980 can be mounted on a rack.

- *1 If a battery adapter is attached, the VESA-compliant mounting holes cannot be used.

2. SPECIFICATIONS

2.3 Specifications

2.3.1 Video Signal Formats and Standards

Supported Formats of Single Link System Video Signals and Corresponding Standards

Format	Quantization	Scanning	Frame (Field) Rates	Compliant Standards
YCBCR 4:2:2	10 bits	1080i	60/59.94/50	SMPTE ST 274
		1080p	30/29.97/25/24/23.98	SMPTE ST 292
		1080PsF	30/29.97/25/24/23.98	
		720p	60/59.94/50/ 30/29.97/25/24/23.98	SMPTE ST 296 SMPTE ST 292
		525i	59.94	SMPTE ST 259
		625i	50	

Supported Formats of Dual Link System Video Signals and Corresponding Standards

Format	Quantization	Scanning	Frame (Field) Rates	Compliant Standard
RGB 4:4:4	10 bits	1080p	30/29.97/25/24/23.98	SMPTE ST 372 (1920 × 1080)
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
	12 bits	1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
YCBCR 4:2:2	10 bits	1080p	60/59.94/50	
	12 bits	1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
RGB 4:4:4 (2K)	12 bits	1080p	24/23.98	(2048 × 1080)
		1080PsF	24/23.98	

When Set to Single Link

Format Switching Manual, automatic

When Set to Dual Link

Format Switching Manual (only the frame frequency can be switched automatically)

Permissible Phase Difference between Links A and B

Automatic correction up to 100 clocks (approx. 1.4 μs)

Synchronization between Links A and B

Synchronized

2.3.2 Audio Playback

Compliant Standards

HD-SDI SMPTE ST 299

SD-SDI SMPTE ST 272

Quantization

24 bits

Clock Generation

Generated from the video clock

Synchronization

All audio channels must be synchronized to the video clock.

2. SPECIFICATIONS

Input Signal Combination

Single Input Mode	Eight channels displayed
Simultaneous Input Mode	Two channels displayed per input (all inputs must be synchronized with each other)

- * When the link format is set to dual, the LV 5980 only supports the audio signal received through link A.

2.3.3 Input/Output Connectors

SDI Input

Input Connectors	Four BNC connectors (channels A, B, C, and D)
Input Impedance	75 Ω
Input Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency
Maximum Input Voltage	± 2 V (DC + peak AC)

SDI Output

Output Connectors	Two BNC connectors
Output Signal	SDI signal selected from channel A or B is reclocked and generated SDI signal selected from channel C or D is reclocked and generated
Output Impedance	75 Ω
Output Voltage	800 mVp-p ± 10 %
Output Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency

External Sync Input(*1)

Input Signal	Tri-level sync or NTSC/PAL black burst signal
Input Connectors	Two BNC connectors
Input Impedance	15 k Ω passive loop-through
Input Return Loss	≥ 30 dB for 50 kHz to 30 MHz into 75 Ω
Maximum Input Voltage	± 5 V (DC + peak AC)

Headphone Output

Output Signal	Extracts and transmits the audio signal embedded in an SDI signal.
Output Channel	Specified AES/EBU pair
Sampling Frequency	Only 48 kHz is supported.
Output Connector	One stereo miniature jack
Volume Adjustment	Configured from the menu
Power Output	50 mW max. (with 16 Ω load resistance)

- *1 If the video signal waveform is displayed using an external sync signal as the reference, inserting or removing an SDI signal or restarting the device may cause the waveform phase to be off by one clock. This feature does not function when the video format is 1080p/60, 59.94, or 50.

2. SPECIFICATIONS

2.3.4 Control Connectors

USB Port

Specification

USB 2.0

Media

Only USB memory devices are supported.

Function

Used to save screen captures, event logs, and preset data

2.3.5 LCD

LCD Panel Type

17-inch color TFT

Display Format

SXGA. The effective resolution is 1280 × 1024.

Backlight Brightness

32 levels

Auto Shutoff

LCD can be automatically turned off after a set period of time.

2.3.6 Screen Capture

Screen Capture

Captures the screen to an image file (only one screen capture is stored in internal memory)

Resolution

1024 × 819 dots

Media

Internal memory (RAM) and USB memory

Data Output

Screen captures can be saved as bitmap files to USB memory.

Data Input

Data saved to USB memory can be loaded and displayed on the LV 5980.

2.3.7 Preset Settings

Preset Mode

Comprehensive preset, display mode preset

Comprehensive Presets

Saves all panel settings to memory (excluding some settings, such as the date and time)

Display Mode Presets

Only saves the configuration of a particular display mode to memory

Target

Picture, video signal waveform, vector, audio, status

Number of Presets

Comprehensive Presets

30

Display Mode Presets

Five for each display mode

Recall Method

Front panel

Copying

Copies all preset configurations to or from USB memory

2. SPECIFICATIONS

2.3.8 Main Display Features

Input Mode	Single input mode, simultaneous input mode, 3D assist mode
Single Input Mode	Displays a single input signal
Simultaneous Input Mode	Displays up to four input signals of the same format simultaneously
3D Assist Mode	Displays two input signals of the same format simultaneously
Simultaneous Input Mode Display Format	Mixed, tiled, aligned (differs depending on the displayed contents)
Mixed Display	Displays simultaneous input signals in cascaded screens
Tiled Display	Displays simultaneous input signals in tiled screens
Aligned Display	Displays simultaneous input signals in horizontally aligned screens
Display Sizes	One-screen display, two-screen display, four-screen display, user layout
One-Screen Display	Displays a single, large screen (the thumbnail display can be turned on and off)
Two-Screen Display	Splits the display into two screens (left and right)
Four-Screen Display	Splits the display into four screens
User Layout	
User Layout	Displays the user-defined layout
Number of User Layouts	Four (two for single input mode and two for simultaneous input mode)

2.3.9 Video Signal Waveform Display

Simultaneous Input Mode Display Format	Mixed, tiled, aligned
Waveform Operations	
Display Modes	Overlay, parade
Overlay	Overlays component signals
Parade	Displays component signals side by side
Blanking Interval	H and V blanking periods can be displayed or hidden.
RGB Conversion	Converts a YCBCR signal into an RGB signal and displays the result
Pseudo-Composite Display	Artificially converts a component signal into a composite signal
Channel Assignment	Displayed in GBR or RGB order (selectable when RGB conversion is enabled)
Line Select	Displays the selected line
Sweep Modes	H (line), V (field/frame) (V cannot be selected in simultaneous input mode)
Line Display	×1, ×10, ×20, ACTIVE, BLANK
Frame or Field Display	×1, ×20, ×40
Gain	×1, ×5

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Variable Gain	×0.2 to ×2.0
Filter	Flat, low pass
Contrast	MONOTONE, LOW, MIDDLE, HIGH
Waveform Display Accuracy	
Amplitude Accuracy	±0.5 %
Frequency Response	
HD-SDI	
Y Signal	±0.5 % for 1 to 30 MHz
CBCR Signal	±0.5 % for 0.5 to 15 MHz
Low-Pass Attenuation	≥ 20 dB (at 20 MHz)
SD-SDI	
Y Signal	±0.5 % for 1 to 5.75 MHz
CBCR Signal	±0.5 % for 0.5 to 2.75 MHz
Low-Pass Attenuation	≥ 20 dB (at 3.8 MHz)
Cursor Measurement	
Composition	Two horizontal cursors (REF and DELTA) Two vertical cursors (REF and DELTA)
Amplitude Measurement	%, V, R%
Time Measurement	Displayed in usec or msec
Frequency Display	Computes and displays the frequency with the length of one period set to the time between two cursors
Scale	
Type	% scale, V scale, decimal scale, hexadecimal scale
Display Color	7 colors
User Marker Display	
Type	mV or %
Number of Markers	1 or 2
Thumbnail Display	Picture, audio level meter

2.3.10 Vector Display

Simultaneous Input Mode Display Format	Mixed, tiled
Blanking Interval	Masked
Contrast	MONOTONE, LOW, MIDDLE, HIGH
Pseudo-Composite Display	Artificially converts a component signal into a composite signal
Line Select	Displays the selected line
Gain	×1, ×5, IQ-MAG
Variable Gain	×0.2 to ×2.0
Amplitude Accuracy	±0.5 %
Scale	
Type	ITU-R BT.601, ITU-R BT.709, AUTO
Setting the Color Bar Saturation	75 %, 100 %
IQ Axis	Show, hide
Display Color	7 colors
Thumbnail Display	Picture, audio level meter

2. SPECIFICATIONS

2.3.11 5-Bar Display

Simultaneous Input Mode Display Format

	Tiled only
Function	Displays the peak levels of Y, R, G, B and composite
Channel Assignment	RGB, GBR
Scale	mV, %
Error Level	Based on the gamut error, composite gamut error, and luminance error thresholds
Low-Pass Filter	1 MHz, 2.8 MHz (only HD-SDI signals) (turning this on or off will do the same to the status display's low-pass filter)
Line Select	Displays the selected line
Thumbnail Display	Picture, audio level meter

2.3.12 Picture Display

Simultaneous Input Mode Display Format

	Mixed, tiled
Quantization	8 bits
Resolution	XGA (1024 x 768 dots)
Color Temperature	6500 K, 9300 K
Image Quality Adjustment	Brightness, contrast, chroma gain, RGB gain, RGB bias, aperture
Display Sizes	Fit, zoom, full frame, 4:3 full screen
Color Selection	R, G, B can be turned off separately. Chroma off
Frame Rate	The frame rate is converted and displayed using the internal sync signal
Aspect Marker	
HD-SDI	4:3, 13:9, 14:9, 2.39:1
SD-SDI	13:9, 14:9, 16:9
Aspect Marker Format	Line, shadow (99 levels), mask
Safety Marker Size	ARIB TR-B4, SMPTE RP 218, user-defined
Line Select	Marks the selected line
Gamut Error Display	Displays gamut error locations over the picture
Thumbnail Display	Video signal waveform, audio level meter, histogram
Histogram Display	Displays the Y, R, G, and B histograms
	When the 3D assist mode is in use, the video signal for the left eye and the video signal for the right eye are displayed on top of each other

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2.3.13 Embedded Audio Display

Display Type	Level meter, level values, lissajous
Level Meter Display	
Displayed Channels	Two, eight
Meter	60 dB peak level, 90 dB peak level, average (The peak level meter has a hold feature.)
Numeric Display	Displays volume levels as dB values
Lissajous Display	
Displayed Channels	Two (single), eight (multi)
Display Mode	X-Y, MATRIX
Channel Selection	
Single Input Mode	Any two groups from groups 1, 2, 3, and 4
Simultaneous Input Mode	One AES/EBU pair per input channel

2.3.14 Error Count Display

Function	Used to count the video, audio, and gamut errors
Video Error Display	Counts CRC (HD-SDI) and EDH (SD-SDI) errors
Audio Error Display	Counts embedded audio BCH (HD-SDI) and channel status bit CRC errors
Gamut Error Display	Counts gamut, composite gamut, and luminance errors
Low-Pass Filter	1 MHz, 2.8 MHz (only HD-SDI signals) (can be turned on and off)
Detection Range	
Gamut Error	
Upper Limit	90.8 to 109.4 %
Lower Limit	-7.2 to 6.1 %
Composite Gamut Error	
Upper Limit	90.0 to 135.0 %
Lower Limit	-40.0 to 20.0 %
Luminance Error	
Upper Limit	90.8 to 109.4 %
Lower Limit	-7.2 to 6.1 %
Error Count	Up to 999,999 errors can be counted separately for video, audio, and gamut.
Count Period	One count per field
Current Time Display	The time based on the internal clock
Elapsed Time Display	The elapsed time since the error count was cleared

2.3.15 Status Display

Error Detection

SDI	Detects the presence of an SDI signal
Video	
CRC Error	Detects HD-SDI signal transmission errors
EDH Error	Detects SD-SDI signal transmission errors
Phase Error	When the link format is set to dual, the LV 5980 detects phase errors between link A and link B (a difference greater than or equal to 100 clocks).
Audio	
CRC Error	Detects CRC errors in channel status bits
BCH Error	Detects transmission errors in the audio packets that are embedded in HD-SDI signals
Gamut	
Gamut Error	Detects gamut errors
Composite Gamut Error	Detects level errors that occur when component signals are converted to composite signals
Luminance Error	Detects level errors in the luminance component
Event Log	
Recorded Events	Errors, changes in input type, time stamps, etc.
Recording Capacity	Up to 1000 events
Operation	Records all events from start to finish
Data Output	Saved in text format to USB memory
Data Dump	
Operation Mode	Run, hold
Data Array	
Single Link Mode	Serial, component
Dual Link Mode	Link A, link B, link A and B combined
Move	EAV, SAV, line, sample
Phase Difference Display	
Function	Displays the phase difference between the external sync signal and the SDI signal (does not function when the video format is 1080p/60, 59.94, or 50) Displays the phase difference between channel A and channel B or channel C and channel D
Reference Phase	No phase difference when connected directly to a LEADER TSG
Reference Phase Correction	Sets the current state to the reference phase

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2.3.16 CINELITE Display

CINELITE Display

Features	f Stop display and percentage display
f Stop Display	The f Stop value relative to a reference point is displayed
f Stop Gamma Correction	
Fundamental Gamma	0.45 (ITU-R BT709)
User Correction Table	3 types
External Correction Table	5 types (loaded from USB memory)
% Display	
Y% Display	Luminance components are displayed as percentages
RGB% Display	RGB components are displayed as percentages
RGB 255 Display	RGB components are displayed using an 8-bit, 256-step gradient
Measured Points	3 points
Measurement Sizes	1 × 1 pixel, 3 × 3 pixels, and 9 × 9 pixels

CINELITE Advanced Display

Features	Synchronized marker display, vector marker display
Synchronized Marker Display	Synchronizes the markers on the vector display or waveform display to the measurement points of the CINELITE display's f Stop display or % display
Vector Marker Display	Displays numerically the specified position on the vector display
Number of Markers	
Synchronized Marker	Up to 4
Vector Marker	1
Vector Numeric Display	Displays numerically the active marker position
Cb	Displays the C _B position as a percentage
Cr	Displays the C _R position as a percentage
deg	Displays the hue in degrees
d	Displays the distance from the center as a percentage

CINEZONE Display

Feature	Colors are added to the display in accordance with luminance levels
Display Colors	
Gradation	1024 colors
Step	12 colors
Search	1024 colors
Gradation and Step Displays	
Upper Limit	-6.3 to 109.4 % (values equal to or greater than the upper limit are displayed in white)
Lower Limit	-7.3 to 108.4 % (values less than the lower limit are displayed in black)

2. SPECIFICATIONS

Search Display Mode

Feature	Colors are added to the display in accordance with luminance level ranges
Luminance Level	-7.3 to 109.4 %
Luminance Level Range Setting	0.5 to 100.0 % (values greater than or equal to the specified range are displayed in white; values less than or equal to the range are displayed in black)

2.3.17 3D Assist Display

Supported Format	HD-SDI (Single link)
Input Connectors	
L/R Dual (*1)	
Video Signal for the Left Eye	Channel A or channel B
Video Signal for the Right Eye	Channel C or channel D
Side-by-Side, Top-and-Bottom	Channel A, Channel B, Channel C, or channel D
Main Types of Display	
Picture Display Emphasis	The picture display is large. This makes 3D video evaluation easier.
Video Signal Waveform Display Emphasis	The video signal waveform display is large. This makes 3D video evaluation easier.
Picture Display	
Anaglyph Display (Color)	Green and blue are masked from the video signal for the left eye, and red is masked from the video signal for the right eye. These signals are then combined.
Anaglyph Display (Monochrome)	Green and blue are masked from the monochrome video signal for the left eye, and red is masked from the monochrome video signal for the right eye. These signals are then combined.
Convergence Display	A 50 % offset is added to the difference between the monochrome video signal for the left eye and the monochrome video signal for the right eye.
Overlay Display	The levels of the video signal for the left eye and the video signal for the right eye are halved. These signals are then combined.
Checker Display	Displays the video signal for the left eye and the video signal for the right eye in a checkerboard pattern.
Boundary Lines	Can be moved up, down, left, and right
Wipe Display	The video signal for the left eye and the video signal for the right eye are divided by boundary lines and displayed
Boundary Line	Movement The boundary lines can be moved up and down and left and right separately Show, hide
Left-Right Boundary Line	The part to the left of the boundary line is the video signal for the left eye. The part to the right of the boundary line is the video signal for the right eye

2. SPECIFICATIONS

Top-Bottom Boundary Line	The part above the boundary line is the video signal for the left eye. The part below the boundary line is the video signal for the right eye
Flicker Display	Displays the video signal for the left eye and the video signal for the right eye on a time sharing display
Inverted Display	
Horizontal Inversion	Inverts the picture and video signal waveform (*2)
Vertical Inversion	Inverts the picture
Inverted Channel	Inverts video signal for the left eye and video signal for the right eye separately
Grid Display	
Description	Displays grid lines on the picture
Grid Type	Disparity, horizontal, both
Disparity grid width	6 to 192 pix (0.3 to 10.0 %) (*3)
Horizontal grid width	6 to 108 line (0.6 to 10.0 %) (*3)
Grid Movement	The disparity and horizontal grid lines can be moved separately.
Video Signal Waveform Display	
Waveform Display Color	
Video Signal for the Left Eye	Red
Video Signal for the Right Eye	Syan
Display Format	Side by side, overlayed
Wipe Feature	L/R wipe
Disparity Measurement Feature	
Description	Position the cursor at a point in the picture to measure the disparity and luminance level at that point.
Alarm	If the upper limit is exceeded, "NG" (no good) is displayed.
Measurable Items	Screen disparity (dots, cm, %), perceived depth (m), angle of vergence (°)
Time Code	
Description	The time codes for the video signal for the left eye and the video signal for the right eye are displayed at the same time.

*1 Select a pairing of channel A and channel C or channel B and channel D.

*2 Horizontal inversion of the video signal waveform occurs only during the video period.
Inversion cannot be performed on side-by-side or top-and-bottom signals.

*3 The pixel and line ranges vary depending on the input signal. The values shown here are for a 1080i/59.94 input signal.

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2.3.18 Other Display Settings

Input Information Display	Input channel, ID, OFF
Input Channel Display	Displays the selected channel (A, B, C, or D)
ID Display	Up to 10 characters for each input channel
Time Code	LTC, VITC, OFF
Compliant Standard	SMPTE ST 12-2 (decoded from ANC-TC) (When the link format is set to dual, only link A is decoded.)
Format Display	The format can be displayed when an SDI signal is detected.

2.3.19 Front Panel

Key LEDs	All the keys are dimly back-lit, and the selected key is lit more brightly
Power Switch	Stores whether the instrument is on or off
LCD Backlight Key	Turns the LCD panel backlight on and off
Last Memory	Backs up the panel settings to memory

2.3.20 General Specifications

Environmental Conditions	
Operating Temperature Range	0 to 40 °C
Operating Humidity Range	85 %RH or less (no condensation)
Optimal Temperature	10 to 30 °C
Power Supply	
Voltage	10 to 18 VDC
Power Consumption	60 W max.
Dimensions	425 (W) × 352 (H) × 95 (D) mm (excluding protruding parts)
Weight	5.2 kg
Accessories	AC adapter (SPU100-105)..... 1 Instruction manual..... 1

3. NAMES AND FUNCTIONS OF PARTS

3.1 Front Panel

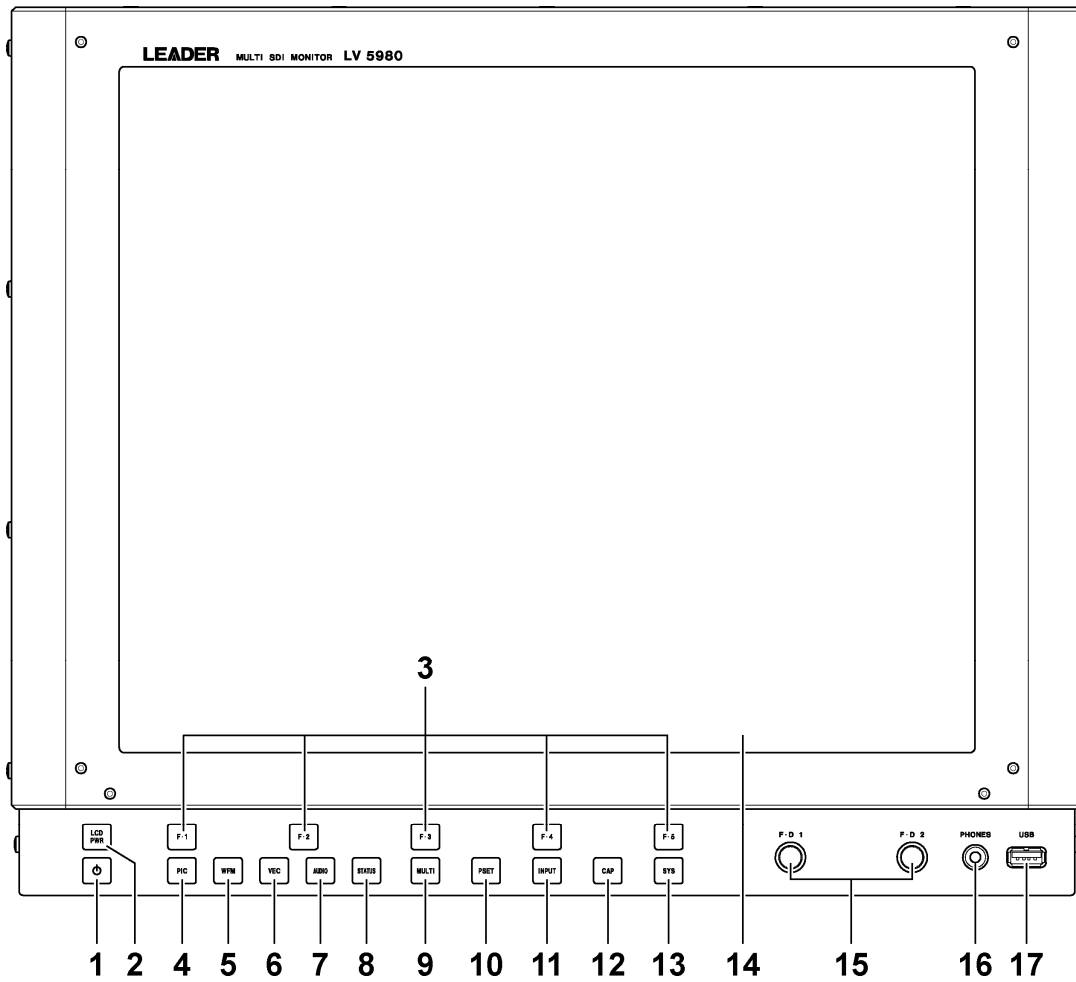


Figure 3-1 Front panel

3. NAMES AND FUNCTIONS OF PARTS

Table 3-1 Front panel items and functions

No.	Name	Function	See
1	Power switch	Press: Switches the power from off to on. Hold down: Switches the power from on to off.	4.1.2 4.1.3
2	LCD PWR key	Turns the LCD on and off.	4.6
3	F•1 to F•5 keys	Used to select menu items and pop-up commands.	4.9
4	PIC key	Press: Shows the picture display. Shows the display mode preset menu.(*1) Hold down: Shows the picture menu.	Chapter 9
5	WFM key	Press: Shows the video signal waveform display. Shows the display mode preset menu.(*1) Hold down: Shows the video signal waveform menu.	Chapter 11
6	VEC key	Press: Shows the vector display. Shows the display mode preset menu.(*1) Hold down: Shows the vector menu.	Chapter 12
7	AUDIO key	Press: Shows the audio display. Shows the display mode preset menu.(*1) Hold down: Shows the audio menu.	Chapter 13
8	STATUS key	Press: Shows the status display. Shows the display mode preset menu.(*1) Hold down: Shows the status menu.	Chapter 14
9	MULTI key	Press: Switches between the single- and multi-screen displays. Hold down: Shows the multi-screen display menu.	Chapter 6
10	PSET key	Press: Shows the preset menu. Hold down: Shows the preset registration menu.	Chapter 7
11	INPUT key	Switches the input channel.	4.3
12	CAP key	Captures the current display and shows the screen capture menu.	Chapter 8
13	SYS key	Press: Shows the system menu.	Chapter 5
		Hold down: Enables and disables the key lock.	4.6
14	F•D 1 F•D 2	Mostly used to set values. Generally, pressing one of these knobs will return the setting being adjusted to its default value.	4.9
15	PHONES	Used to connect headphones.	13.2.3 13.6
16	USB	Used to connect USB memory. USB memory is used to load and save various kinds of data. Use memory that has a FAT16 or FAT32 file system.	—
17	LCD	This shows the different measurement displays.	—

*1 This appears when display mode presets are enabled.

3.2 Rear Panel

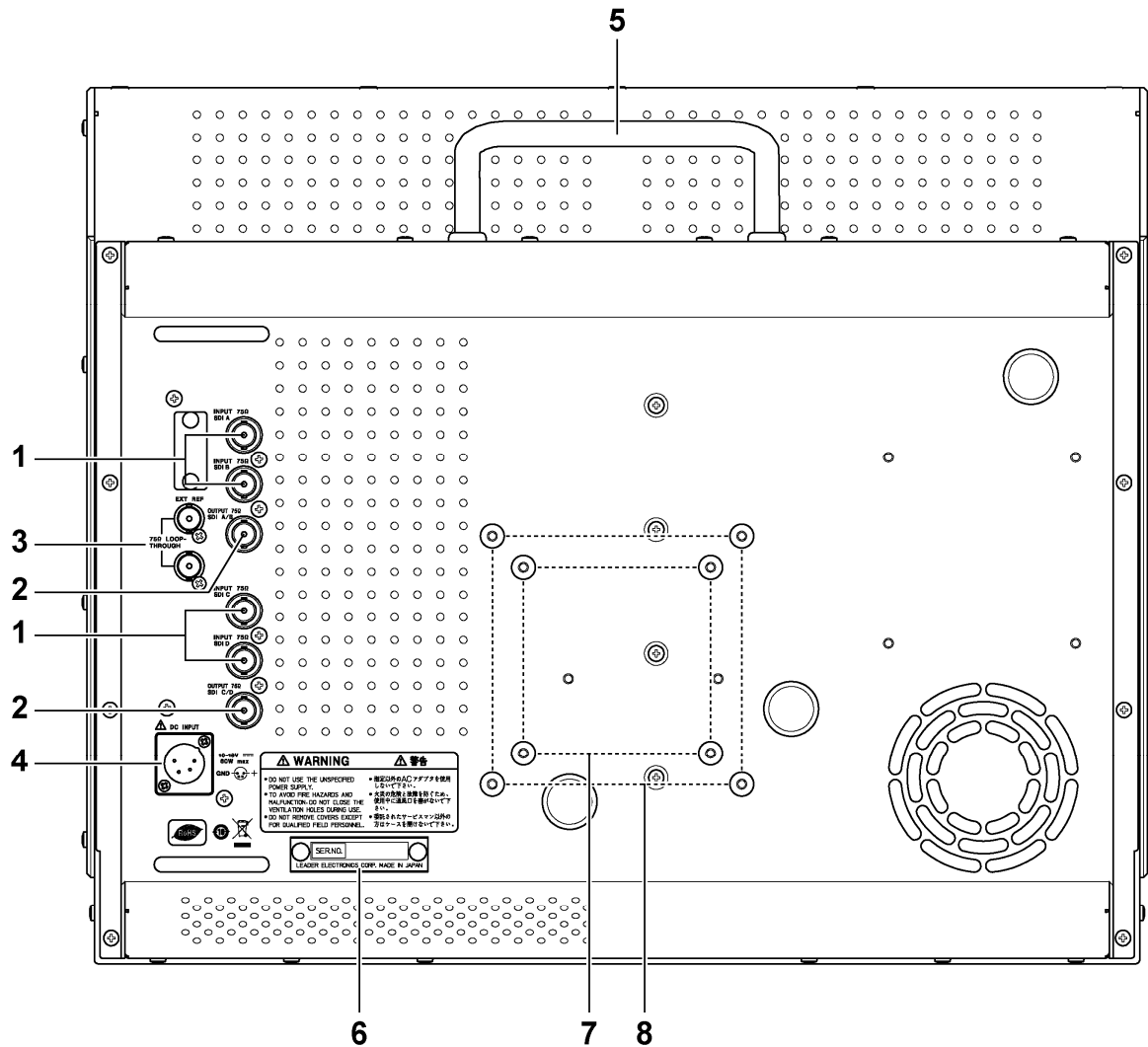


Figure 3-2 Rear panel

Table 3-2 Rear panel items and functions

No.	Name	Function	See
1	EXT REF	Loop-through external sync signal input connectors.	4.5
2	INPUT SDI A INPUT SDI B INPUT SDI C INPUT SDI D	SDI signal input connectors.	4.2
3	OUTPUT SDI A/B OUTPUT SDI C/D	Reclocked SDI signal output connectors.	4.4
4	DC INPUT	DC inlet.	4.2
5	Handle	Use this when you carry the LV 5980.	—
6	Serial number name plate	The serial number is printed here.	—
7	VESA mounting holes	These are 75 mm VESA compliant mounting holes. (M4 x 4)	—
8	VESA mounting holes	These are 100 mm VESA compliant mounting holes. (M4 x 4)	—

4. BEFORE YOU BEGIN MEASURING

4.1 Power Supply

4.1.1 Connecting the AC Adapter

Connect the included AC adapter to DC INPUT on the rear panel.

When the LV 5980 is connected to the AC adapter, the internal microcomputer is in standby mode, and some power is consumed even if the power switch is turned off. If you do not intend to use the LV 5980 for an extended period of time, disconnect the AC adapter.

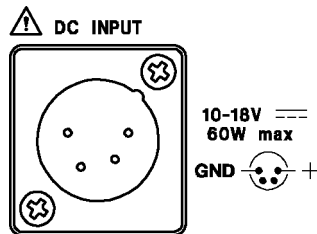


Figure 4-1 DC INPUT

4.1.2 Turning the Power On

To turn on the power, press the power switch on the front panel. The power switch's LED lights when the power is on.

When you turn on the power, the LV 5980 starts with the same panel settings that were being used when it was last turned off. However, the following items are cleared: the error counter, LAPSED, the status screen's error counts, the event log, and the capture data.

4.1.3 Turning the Power Off

To turn off the power, hold down the power switch on the front panel for one second or more. The power switch's LED turns off when you turn off the power.

4.2 SDI Signal Input

Apply an SDI signal to a connector from INPUT SDI A to INPUT SDI D.

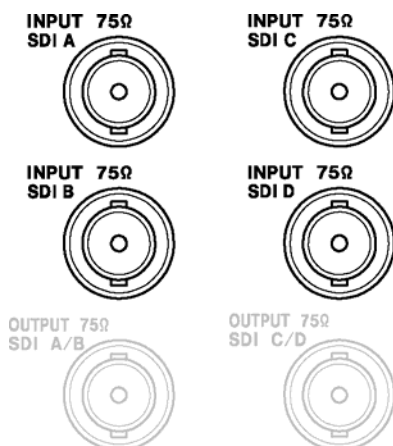


Figure 4-2 SDI input connectors

* These connectors are actually arranged in a vertical line.

- **Input Signals**

The LV 5980 only supports component SDI signals (serial digital video). Do not apply analog video signals, composite SDI signals, or any other kind of signal besides component SDI.

- **Terminators**

The SDI input connectors are terminated internally at 75 Ω , so there is no need to connect terminators to them. Connect cables with a characteristic impedance of 75 Ω to the input connectors.

- **Input Levels**

Make sure that the input level is 800 mVp-p \pm 10 % at the signal source's BNC output connector. An SDI signal that is outside of this range may not be received properly.

- **Input Formats**

The LV 5980 supports the formats listed in section 2.3.1, "Video Signal Formats and Standards." Apply signals that correspond to the supported formats. The input format is detected automatically by default. To set the input format manually, see section 5.1, "Setting the Input Format."

- **Input Modes**

The LV 5980 has three input modes: single input mode, in which the LV 5980 measures a single signal that is applied to one of its input connectors, and simultaneous input mode and 3D assist mode, in which the LV 5980 simultaneously measures multiple signals that are applied to its input connectors. To switch between the input modes, press INPUT on the front panel. When you are using simultaneous input mode or 3D assist mode (L/R DUAL), apply signals that are the same format.

- **Dual Link**

Apply dual link signals to INPUT SDI A (link A) and INPUT SDI B (link B) or to INPUT SDI C (link A) and INPUT SDI D (link B).

You have to configure the system settings to measure dual link signals. See section 5.1, "Setting the Input Format."

4.3 Setting the Signal to Measure

There are four SDI signal input connectors on the rear panel. Use the input menu to select which input signal will be measured out of the signals that are being applied to the input connectors. To display the input menu, press INPUT on the front panel.

The input menu will not automatically disappear after a certain amount of time has passed. To hide the input menu, press INPUT again.

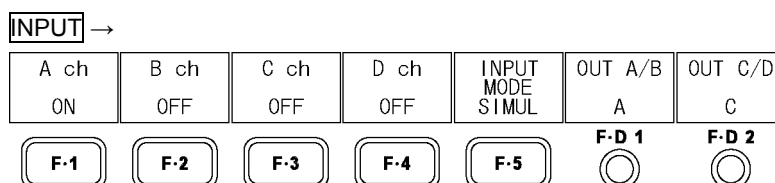


Figure 4-3 Input menu

4.3.1 Switching the Input Mode

To switch the input mode, press **F•5** INPUT MODE.

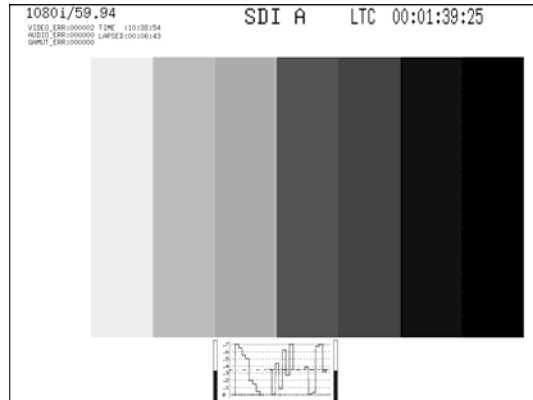
Procedure

INPUT → **F•5** INPUT MODE: SINGLE / SIMUL / 3D ASIST

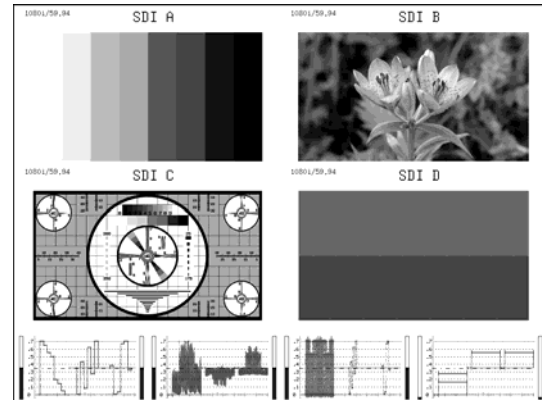
Settings

- SINGLE:** The input mode is set to simultaneous.
The LV 5980 measures the signals applied to multiple input connectors simultaneously.
- SIMUL:** The input mode is set to single.
The LV 5980 measures the signal applied to one of its input connectors.
- 3D ASIST:** The input mode is set to 3D assist mode.
The video signal for the left eye and the video signal for the right eye are displayed simultaneously.
This option cannot be selected when the link format is set to dual.

INPUT MODE = SINGLE



INPUT MODE = SIMUL



INPUT MODE = 3D ASIST

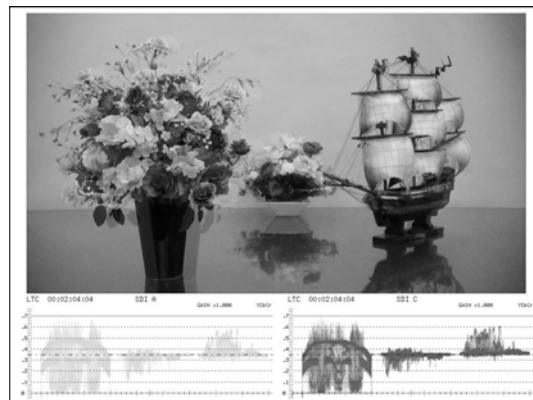


Figure 4-4 Switching the input mode

4.3.2 Selecting the Signal to Measure

To select the signal that you want to measure by toggling signals on and off, follow the procedure below.

You cannot set all channels to OFF. Also, in single input mode and 3D assist mode, you cannot set multiple items to ON.

Procedure (Single link mode or 3D assist mode (HF SbyS, TOP&BOTM))

INPUT → **F•1** A ch: ON / OFF
 → **F•2** B ch: ON / OFF
 → **F•3** C ch: ON / OFF
 → **F•4** D ch: ON / OFF

Procedure (Dual link mode)

INPUT → **F•1** DUALLINK A/B ch: ON / OFF
 → **F•3** DUALLINK C/D ch: ON / OFF

Procedure (3D assist mode (L/R DUAL))

INPUT → **F•1** 3D ASIST A/C ch: ON / OFF
 → **F•2** 3D ASIST B/D ch: ON / OFF

4.3.3 Selecting the 3D Format

When **F•5** INPUT MODE is set to 3D ASIST, to select the 3D format, follow the procedure below.

Procedure

INPUT → **F•D 1** 3D INPUT FORMAT : L/R DUAL / HF SbyS / TOP&BOTM

Procedure

L/R DUAL: The video signal for the left eye applied to channel A and the video signal for the right eye applied to channel C are combined and measured. (Likewise, the 3D signals of channels B and D can be measured.)
 Apply signals that are the same format to channels A and C or to channels B and D.

HF SbyS: The side-by-side signal applied to channel A, B, C, or D is measured.

TOP&BOTM: The top-and-bottom signal applied to channel A, B, C, or D is measured.

Video signal for the left eye
(channel A or channel B)



Video signal for the right eye
(channel C or channel D)



3D INPUT FORMAT = L/R DUAL



4. BEFORE YOU BEGIN MEASURING

Side-by-side signal



3D INPUT FORMAT = HF SbyS



Top-and-bottom signal



3D INPUT FORMAT = TOP&BOTM

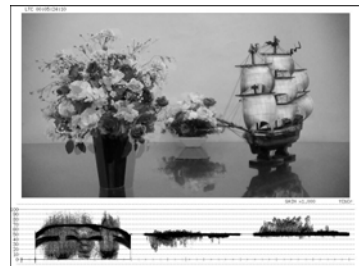


Figure 4-5 Selecting the 3D format

4.4 SDI Signal Output

The SDI output connectors transmit reclocked input signals. The output impedance of the connectors is 75 Ω . Terminate the other end at 75 Ω .

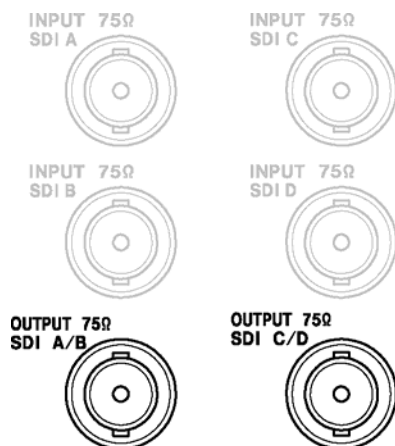


Figure 4-6 SDI output connectors

* These connectors are actually arranged in a vertical line.

The output signal specifications are shown below.

- **Single Input Mode (single link) or 3D Assist Mode (HF SbyS, TOP&BOTM)**

The currently selected input signal (channel A or B) is reclocked and transmitted from OUTPUT SDI A/B. If you select channel C or D, the state of the signal that has been output up to that point is maintained.

The currently selected input signal (channel C or D) is reclocked and transmitted from OUTPUT SDI C/D. If you select channel A or B, the state of the signal that has been output up to that point is maintained.

- **Single Input Mode (dual link) or Simultaneous Input Mode**

To select the output signal, follow the procedure below.

Procedure

INPUT	→	F•D 1	OUT A/B: A / B
	→	F•D 2	OUT C/D: C / D

Settings

A:	The signal applied to INPUT SDI A is reclocked and transmitted from OUTPUT SDI A/B.
B:	The signal applied to INPUT SDI B is reclocked and transmitted from OUTPUT SDI A/B.
C:	The signal applied to INPUT SDI C is reclocked and transmitted from OUTPUT SDI C/D.
D:	The signal applied to INPUT SDI D is reclocked and transmitted from OUTPUT SDI C/D.

- **3D Assist Mode (L/R DUAL)**

When **F•1** 3D ASIST A/C ch is set to ON, reclocked signals for INPUT SDI A and INPUT SDI C are output from OUTPUT SDI A/B and OUTPUT SDI C/D, respectively.

When **F•2** 3D ASIST B/D ch is set to ON, reclocked signals for INPUT SDI B and INPUT SDI D are output from OUTPUT SDI A/B and OUTPUT SDI C/D, respectively.

4.5 External Sync Signal Input

On the video signal waveform display, vector display, and phase difference display, you can apply an external sync signal to display waveforms (except when the video format is 1080p/60, 1080p/59.94, or 1080p/50). Apply a tri-level sync signal or an NTSC/PAL black burst signal to the external reference input connectors.

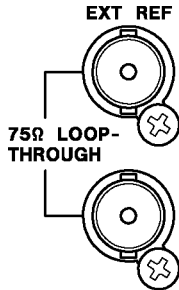


Figure 4-7 External sync signal input connectors

- **Loop-Through**

As shown in the figure below, the external sync signal input connectors are loop-through. Apply the input signal to one of the two connectors, and terminate the other connector at 75 Ω , or connect it to another 75 Ω device. If you connect to another device, be sure to terminate the other device's connector at 75 Ω .

Connect cables with a characteristic impedance of 75 Ω to the input connectors.

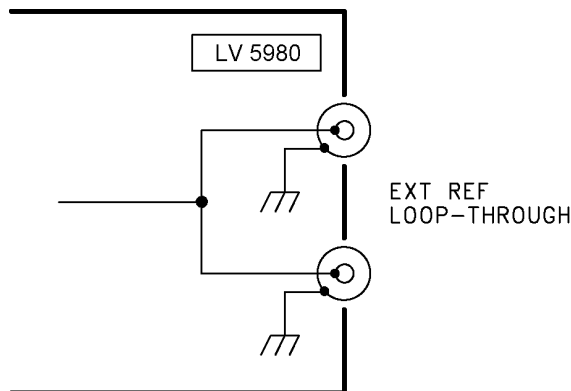


Figure 4-8 Loop-through

- **Setting External Synchronization**

When you are using an external sync signal, set EXT REF to ON on the video signal waveform display, vector display, or phase difference display. On other displays, waveforms are displayed in sync with the SDI signal regardless of the EXT REF setting.

4. BEFORE YOU BEGIN MEASURING

- **Precautions**

If the waveform or phase difference is displayed using an external sync signal as the reference, inserting or removing an SDI signal or restarting the device may cause the phase to be off by one clock.

- **Supported Formats**

The supported input signal and external sync signal pairs are indicated with a check mark in the following table.

Table 4-1 External sync signal formats

		Input Signal Format																							
		525i/59.94	625i/50	1080i/60	1080i/59.94	1080i/50	1080PsF/30	1080PsF/29.97	1080PsF/25	1080PsF/24	1080PsF/23.98	1080p/30	1080p/29.97	1080p/25	1080p/24	1080p/23.98	720p/60	720p/59.94	720p/50	720p/30	720p/29.97	720p/25	720p/24	720p/23.98	
External Sync Signal Format	NTSC with 10 Field IDs (59.94 Hz)	✓			✓			✓			✓		✓			✓		✓			✓				✓
	NTSC(59.94Hz)	✓			✓			✓				✓						✓			✓				
	PAL(50Hz)		✓			✓			✓					✓					✓				✓		
	1080i/60			✓			✓																		
	1080i/59.94				✓			✓																	
	1080i/50					✓			✓																
	1080PsF/30						✓																		
	1080PsF/29.97							✓																	
	1080PsF/25								✓																
	1080PsF/24									✓															
	1080PsF/23.98										✓														
	1080p/30											✓													
	1080p/29.97												✓												
	1080p/25													✓											
	1080p/24														✓										
	1080p/23.98															✓									
	720p/60																	✓							
	720p/59.94																		✓						
	720p/50																			✓					
	720p/30																				✓				
	720p/29.97																					✓			
	720p/25																						✓		
	720p/24																							✓	
	720p/23.98																								✓

4.6 Turning Off the LCD

To reduce the power consumption of the LV 5980, you can use the LCD PWR key to turn the LCD on and off. If you use the LCD PWR key to turn the LCD off, the LCD PWR key's LED lights brightly.

You can also configure the LV 5980 so that the LCD turns off automatically after a set period of time without any key operations. When the LCD has turned off automatically, pressing the LCD PWR key will cause the LCD PWR key's LED to turn on or off, but the LCD will not turn on. To turn the LCD on, press a key other than the power switch or the LCD PWR key.

See section 5.2.1, "Setting the Auto Shutoff Time."

4.7 Enabling the Key Lock

You can prevent accidental operations on the LV 5980 by enabling the key lock. The key lock disables all LV 5980 keys except for the power switch and the LCD PWR key.

- **Enabling the Key Lock**

Hold down **[SYS]** for 2 seconds or more. Release SYS after the message "Keylock Press 'SYS' for 2sec." appears in red in the bottom right of the screen.

While the key lock is enabled, a key symbol appears in the upper right of the screen.

- **Disabling the Key Lock**

Hold down **[SYS]** for 2 seconds or more. Release SYS after the message "Keylock Canceled." appears in green in the bottom right of the screen.

4.8 General Display Explanation

This section explains the common items in all measurement displays by using the picture display as an example.

Depending on the measurement display, some of these items may not be displayed.

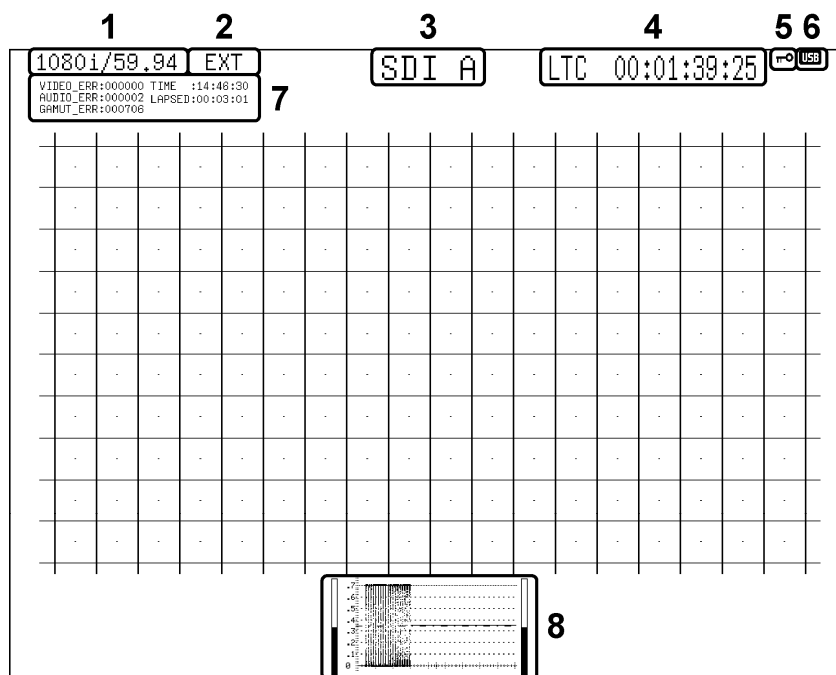


Figure 4-9 General display explanation

4. BEFORE YOU BEGIN MEASURING

1 Input Format

The input signal format appears here. You can also choose to hide this information.
See sections 5.1, “Setting the Input Format” and 5.4.3, “Displaying the Input Format.”

2 Sync Signal

EXT appears here when an external sync signal is being used.
You can switch between the internal sync signal and an external sync signal by changing the setting on the video signal waveform menu, vector menu, or status menu. Changing this setting on one of these menus changes it on the others as well.
See sections 11.5.4, “Switching the Sync Signal,” 12.4.4, “Switching the Sync Signal,” and 14.4.6, “Switching the Sync Signal.”

3 Input Channel

The input channel (channel name or ID) appears here. You can set an ID for each input channel. You can also choose to hide this information.
See sections 5.4.4, “Setting the Input Channel Display Format” and 5.3, “Setting IDs.”

4 Time Code and Alarms

The time code embedded in the input signal appears here. You can set the time code to LTC, VITC, or OFF.
See section 5.4.1, “Setting the Time Code Display Format.”

Additionally, the following alarms may appear here.

- **FAN ALARM**

This alarm appears when the fan is not functioning.
If “FAN ALARM” appears, immediately turn the power off, and then contact your local LEADER agent.

- **OVER HEAT**

This alarm appears when the internal temperature has exceeded the specified limits.
If “OVER HEAT” appears, immediately turn the power off, and then check for problems with the operating environment. If this alarm appears even though there are no problems with the operating environment, contact your local LEADER agent.

5 Key Lock Indication

This symbol appears when the key lock is enabled.
See section 4.6, “Enabling the Key Lock.”

6 USB Indication

This symbol appears when USB memory is connected to the LV 5980.

7 Error Counter

In single input mode, when the single-screen display is in use, the error counters, current time, and elapsed time appear here. You can also choose to hide this information.
The error counters increase by one for each field that has at least one error, and they can count up to 999,999 errors each. The text here is typically displayed in white, but it is displayed in red when errors are being counted.
To clear the error counts, press ERROR CLEAR on the status menu. You can also clear the error counts by initializing or restarting the LV 5980.

4. BEFORE YOU BEGIN MEASURING

See sections 5.4.2, “Displaying Error Counters and the Time,” 14.8, “Clearing Errors,” and 5.6, “Initialization.”

- **VIDEO_ERR**

When the input signal is HD, this displays the count of CRC (VIDEO) errors. When the input signal is SD, this displays the count of EDH errors.

- **AUDIO_ERR**

This displays the sum of the counts of BCH (only for HD signals) and CRC (AUDIO) errors.

- **GAMUT_ERR**

This displays the sum of the counts of GAMUT, COMP GAMUT, and LUMA errors.

- **TIME**

The time that you set using TIME in the system settings appears here.

- **LAPSED**

The amount of elapsed time appears here. The timer is reset to 00:00:00 when ERROR CLEAR is pressed on the status menu, the date and time are set, the settings are initialized, or the power is turned off. This indication is the same for all channels.

8 Thumbnail Display

A display other than the one that is currently being shown appears here. For example, on the picture display, the thumbnail display can show the audio meter display and the video signal waveform display. The contents of the thumbnail display vary, as shown below, depending on the selected display mode.

With some exceptions, you can also choose to hide this information.

Table 4-2 Thumbnail display

Display Mode	Thumbnail Display				Notes
	Audio Meter	Picture	Video Signal Waveform	Histogram	
PIC	✓ (*1)	—	✓	✓ (*2)	See section 9.6.5, “Setting the Thumbnail Display.”
WFM	✓	✓	—	X	See section 11.6.9, “Setting the Thumbnail Display.”
VEC	✓	✓	X	X	See section 12.5.3, “Setting the Thumbnail Display.”
AUDIO	—	✓ (*3)	X	X	See section 13.5, “Setting the Thumbnail Display.”
STATUS	X	✓ (*4)	X	X	

*1 Cannot be displayed in 3D assist mode.

*2 The histogram cannot be displayed at the same time as other thumbnails.

*3 Does not appear in simultaneous input mode or 3D assist mode (L/R DUAL).

*4 Does not appear in the event log screen, simultaneous input mode, or 3D assist mode (L/R DUAL).

4.9 Menu Display

You can configure various settings in the setup menus, but the setup menus are not displayed all of the time. To display a setup menu, you can either hold down the appropriate key for 0.5 seconds or more,(*1) or you can use the function keys or function dials on the appropriate display.(*2)

Setup menus automatically disappear after 10 seconds of user inactivity. To change this display time, follow the procedure in section 5.7, “Setting the Menu Display Time.”

Regardless of the display time setting, the input menu, system menu, preset registration menu, and preset menu do not disappear because of user inactivity.

*1 The top-level setup menu appears. You do not need to hold down the keys to display the input menu, system menu, screen capture menu, preset menu, or display mode preset menu.

*2 The level of the setup menu that was displayed most recently appears.

As an example, if you do not perform any operations for 10 seconds in the situation shown below, the picture menu will disappear.

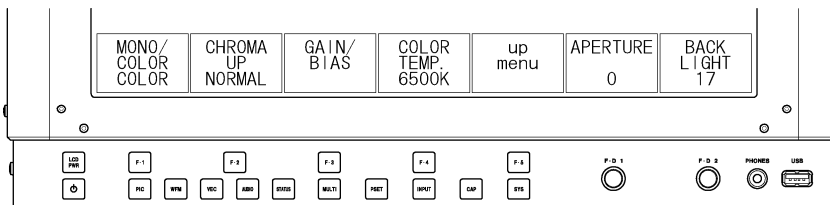


Figure 4-10 Displaying setup menus 1

- **Hold Down a Display Mode Key to Display Its Menu**

If you hold down **PIC** after the picture menu has disappeared, the top level of the picture menu appears.

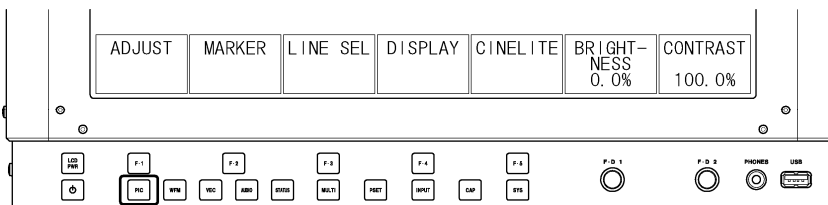


Figure 4-11 Displaying setup menus 2

- **Using the Function Keys to Display a Menu**

If you use the function keys or the function dials after the picture menu has disappeared, the picture menu will reappear at the level that it was at before.

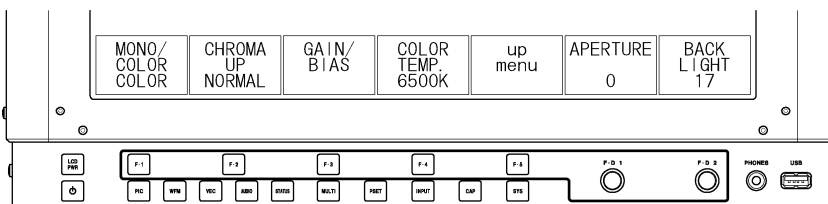


Figure 4-12 Displaying setup menus 3

4. BEFORE YOU BEGIN MEASURING

The following section explains how to configure settings on the setup menus.

- **Selecting Pop-Up Commands**

As an example, to set **F•4** COLOR TEMP in the figure below, press **F•4**. Pop-up commands appear. You can select a command by pressing **F•4**.

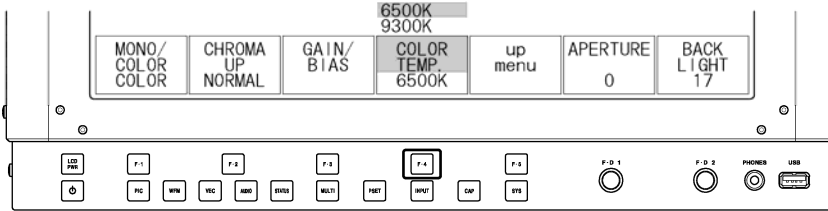


Figure 4-13 Selecting pop-up commands

- **Specifying Values**

As an example, to set **F•D 1** APERTURE in the figure below, turn **F•D 1**. If you press **F•D 1**, this setting is set to its default value of 0.

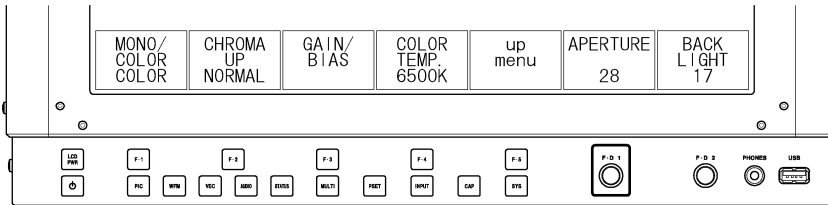


Figure 4-14 Specifying values

5. SYSTEM SETTINGS

You can configure general LV 5980 settings on the system menu.

To display the system menu, press SYS. No matter how much time elapses, the system menu will not automatically disappear. To hide the system menu, press SYS again.

SYS →

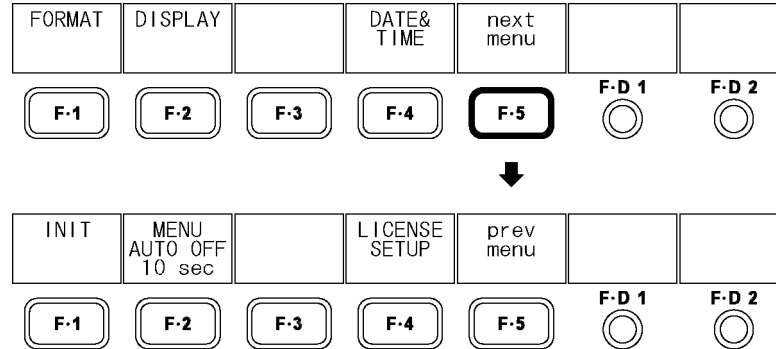


Figure 5-1 System menu

5.1 Setting the Input Format

To set the input format, press **F-1** FORMAT on the system menu.

SYS → **F-1** FORMAT →

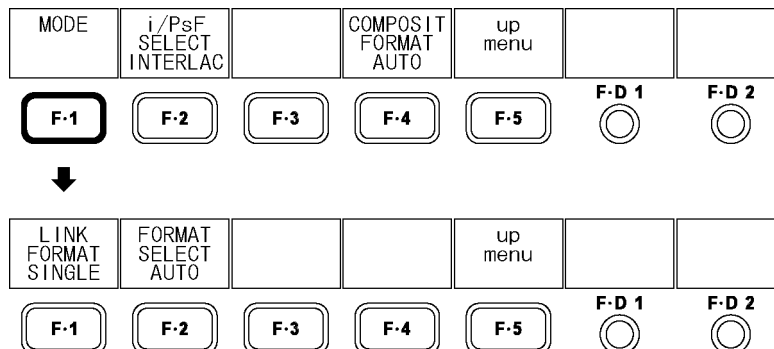


Figure 5-2 FORMAT menu

5.1.1 Selecting the Link Format

To select the link format, follow the procedure below.

It takes approximately 20 seconds to switch between the dual link and single link formats. While the LV 5980 is switching from one link format to the other, it displays the message, "System reconfiguration."

The LV 5980 cannot detect the input format when the link format is set to dual. To set the input format manually, see section 5.1.4, "Setting the Input Format."

Procedure

SYS → **F-1** FORMAT → **F-1** MODE → **F-1** LINK FORMAT: SINGLE / DUAL / 2K

Settings

SINGLE:	The LV 5980 receives single link signals.
DUAL:	The LV 5980 receives dual link 1920 × 1080 signals.
2K:	The LV 5980 receives dual link 2048 × 1080 signals.

5.1.2 Selecting the Detection Method

When the link format is set to single, to select whether to detect the input format automatically or to set it manually, follow the procedure below.

When the link format is set to dual, you have to manually set the input format. This setting does not appear.

Procedure

[SYS] → **[F•1]** FORMAT → **[F•1]** MODE → **[F•2]** FORMAT SELECT: AUTO / MANUAL

Settings

AUTO:	The input format is detected automatically.
MANUAL:	The input format must be set manually.

5.1.3 Selecting i or PsF

When the link format is set to single, even if you set **[F•2]** FORMAT SELECT to AUTO, the following input formats cannot be detected automatically.

- 1080i/60 and 1080PsF/30
- 1080i/59.94 and 1080PsF/29.97
- 1080i/50 and 1080PsF/25

To select whether to display the input format name as interlaced or segmented frame, follow the procedure below.

This setting is available when **[F•2]** FORMAT SELECT is set to AUTO.

Procedure

[SYS] → **[F•1]** FORMAT → **[F•2]** i/PsF SELECT: INTERLAC / SEG.FRM

Settings

INTERLAC:	The input format name is displayed as interlaced.
SEG.FRM:	The input format name is displayed as segmented frame.

5.1.4 Setting the Input Format

You must set the input format manually if the link format is set to dual or if the link format is set to single and **F•2** FORMAT SELECT has been set to MANUAL.

To select the input format, follow the procedure below.

These settings are available when **F•2** FORMAT SELECT has been set to MANUAL or when the link format is set to dual.

Procedure

1. **SYS** → **F•1** FORMAT → **F•2** SCANNING
2. **F•3** FIELD FREQ. (When the link format is set to single i.)
F•3 FRAME FREQ. (When the link format is set to single PsF or single p.)
F•3 D_LINK FORMAT (When the link format is set to dual.)

Table 5-1 Input formats

F•1 LINK FORMAT	F•2 SCANNING	F•3 FIELD FREQ. / FRAME FREQ. / D_LINK FORMAT
SINGLE	1080i (default value)	60, 59.94 (default value), 50
	1080PsF	30, 29.97 (default value), 25, 24, 23.98
	1080p	30, 29.97 (default value), 25, 24, 23.98
	720p	60, 59.94 (default value), 50, 30, 29.97, 25, 24, 23.98
	525i	59.94
	625i	50
DUAL	1080i (default value)	GBR10bit (default value), GBR12bit, YC12bit
	1080PsF	GBR10bit (default value), GBR12bit, YC12bit
	1080p	GBR10bit (default value), GBR12bit, YC10bit, YC12bit
2K	1080PsF	GBR12bit
	1080p (default value)	GBR12bit

* When the link format is set to dual, the field and frame frequencies are set automatically.

5.1.5 Selecting the Composite Display Format

To set the composite display format, follow the procedure below.

The composite display format affects how video signal waveforms and vectors are converted into pseudo-composite signals.

Procedure

SYS → **F•1** FORMAT → **F•4** COMPOSIT FORMAT: AUTO / NTSC / PAL

Settings

AUTO:	When the field frequency of a received signal is 50 Hz or the frame frequency is 25 or 50 Hz, the signal is converted into a PAL pseudo-composite signal. Otherwise, the signal is converted into an NTSC pseudo-composite signal.
NTSC:	All input signals are converted into NTSC pseudo-composite signals.
PAL:	All input signals are converted into PAL pseudo-composite signals.

5.2 Configuring LCD Settings

To configure the LCD, press **F•1** LCD on the system menu.

SYS → **F•2** DISPLAY →

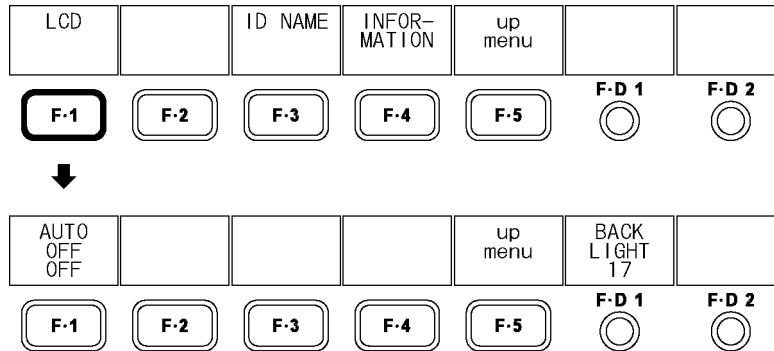


Figure 5-3 LCD menu

5.2.1 Setting the Auto Shutoff Time

To set the backlight auto shutoff time, follow the procedure below.

After the backlight has been automatically shut off, it will turn on again when any key other than the power switch or the LCD PWR key is pressed.

Procedure

SYS → **F•2** DISPLAY → **F•1** LCD → **F•1** AUTO OFF: OFF / 5sec / 5min / 30min

Settings

OFF:	The backlight is not shut off automatically.
5sec:	The backlight is shut off after 5 seconds of user inactivity.
5min:	The backlight is shut off after 5 minutes of user inactivity.
30min:	The backlight is shut off after 30 minutes of user inactivity.

5.2.2 Adjusting the Backlight

To adjust the backlight brightness, follow the procedure below. The larger the number, the brighter the backlight. Press **F•D 1** to set the brightness to the default value (17).

You can also adjust the backlight brightness on the picture display by following the procedure described in section 9.3.9, “Adjusting the Backlight.” Changing one of these values will also change the other value.

Procedure

SYS → **F•2** DISPLAY → **F•1** LCD → **F•D 1** BACK LIGHT: 1 - 17 - 32

5.3 Setting IDs

The LV 5980 can display user-defined IDs for the input channels. To display IDs, follow the procedure below.

1. Press **SYS**, **F•2** DISPLAY, and then **F•3** ID NAME.

The ID NAME menu appears.

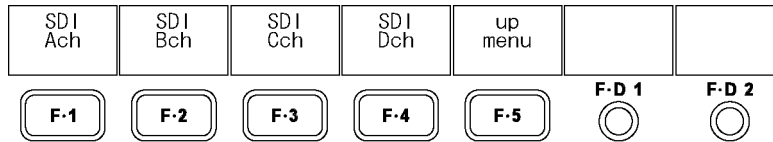


Figure 5-4 ID NAME menu

2. Press a key from **F•1** SDI Ach to **F•4** SDI Dch.

The following screen, for creating the ID, appears.

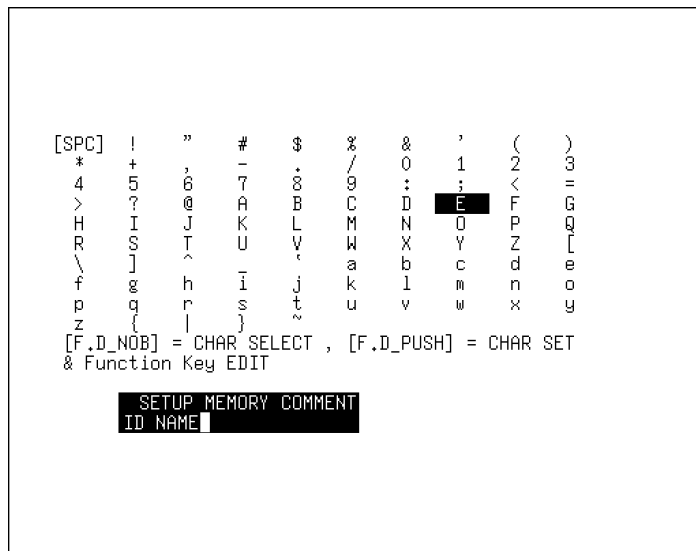


Figure 5-5 ID creation screen

3. Enter the ID.

IDs can be up to 10 characters long. The key operations that you can perform on the ID creation screen are as follows:

- F•1** DELETE: Deletes the character at the cursor
- F•2** <=: Moves the cursor to the left
- F•3** >=: Moves the cursor to the right
- F•4** CHAR SET: Enters the character
- F•D 1** CHAR SELECT: Turn to select a character, and press to enter the character.

4. Press **F•5** up menu, **F•5** up menu, and then **F•4** INFORMATION.

5. Set **F•4** INPUT INFO to ID.

The ID that you have created for the input channel is displayed.

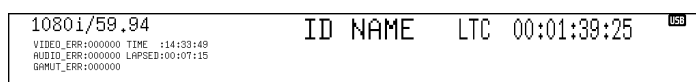


Figure 5-6 ID display

5.4 Configuring the Display

To configure the display, access **F•4** INFORMATION on the system menu.

SYS → **F•2** DISPLAY →

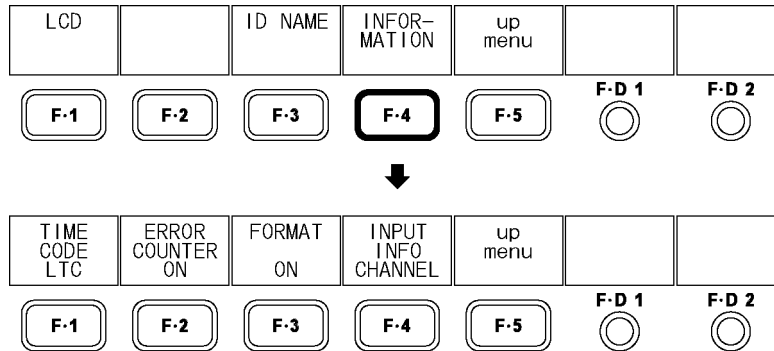


Figure 5-7 INFORMATION menu

5.4.1 Setting the Time Code Display Format

To select the display format for the time code that is embedded in the input signal, follow the procedure below.

When the link format is set to dual, only the time code that is embedded in link A is displayed.

The display format you select here also applies to the event log of the status display.

Procedure

SYS → **F•2** DISPLAY → **F•4** INFORMATION → **F•1** TIME CODE: LTC / VITC / OFF

Settings

LTC: The LTC time code embedded in the input signal is displayed.
 VITC: The VITC time code embedded in the input signal is displayed.
 OFF: No time codes are displayed.

5.4.2 Displaying Error Counters and the Time

To select whether to display the error counters (VIDEO_ERR, AUDIO_ERR, and GAMUT_ERR) and time (TIME and LAPSED), follow the procedure below.

Procedure

SYS → **F•2** DISPLAY → **F•4** INFORMATION → **F•2** ERROR COUNTER: ON / OFF

5.4.3 Displaying the Input Format

To select whether to display the input format, follow the procedure below.

Procedure

SYS → **F•2** DISPLAY → **F•4** INFORMATION → **F•3** FORMAT: ON / OFF

5.4.4 Setting the Input Channel Display Format

To select the input channel display format, follow the procedure below.

You can set a user-defined ID for each input channel by following the procedure in section 5.3, "Setting IDs."

Procedure

[SYS] → **[F•2]** DISPLAY → **[F•4]** INFORMATION → **[F•4]** INPUT INFO: ID / CHANNEL / OFF

Settings

ID: The ID for the input channel is displayed. When the link format is set to dual, the ID for channel A or C is displayed.

CHANNEL: The input channel is displayed as SDI A to SDI D (SDI AB or SDI CD when the link format is set to dual).

OFF: The input channel is not displayed.

5.5 Setting the Date and Time

To set the date and time, press **[F•4]** DATE&TIME on the system menu.

The date and time settings that you make here will not be reset to their default values even if you initialize the LV 5980.

[SYS] → **[F•4]** DATE&TIME →

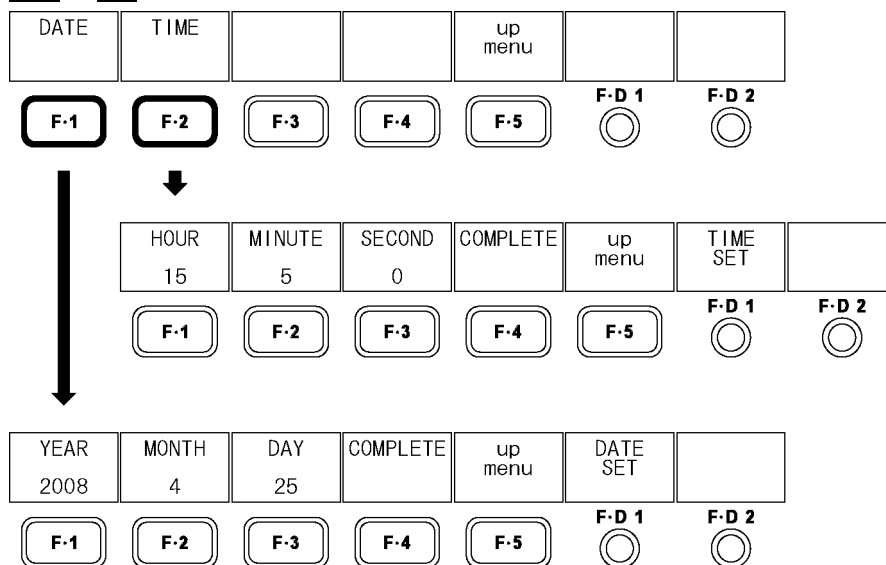


Figure 5-8 DATE&TIME menu

5.5.1 Setting the Date

To set the date, follow the procedure below.

The date that you set will be used when various kinds of data are saved to USB memory.

Procedure

-
1. **[SYS]** → **[F•4]** DATE&TIME → **[F•1]** DATE
 2. **[F•1]** YEAR → **[F•D 1]** DATE SET (To set the year)
 3. **[F•2]** MONTH → **[F•D 1]** DATE SET (To set the month)
 4. **[F•3]** DAY → **[F•D 1]** DATE SET (To set the day)
 5. **[F•4]** COMPLETE (To confirm the date setting)
-

5.5.2 Setting the Time

To set the time, follow the procedure below.

The time you set appears in the upper left of the screen next to TIME. It is also used when various kinds of data are saved to USB memory.

Procedure

-
1. **[SYS]** → **[F•4]** DATE&TIME → **[F•2]** TIME
 2. **[F•1]** HOUR → **[F•D 1]** DATE SET (To set the hour)
 3. **[F•2]** MINUTE → **[F•D 1]** DATE SET (To set the minute)
 4. **[F•3]** SECOND → **[F•D 1]** DATE SET (To set the second)
 5. **[F•4]** COMPLETE (To confirm the time setting)
-

5.6 Initialization

To initialize the settings to their default values, follow the procedure below. For information about the default values, see section 15.1, “Menu Tree.” The default values are underlined. To cancel the initialization of the settings, press **[F•3]** INIT CANCEL.

Even if you initialize the settings, the date, time, presets, display mode presets, CINELITE II gamma correction values, and user layouts are not initialized.

Procedure

[SYS] → **[F•5]** next menu → **[F•1]** INIT → **[F•1]** INIT YES

5.7 Setting the Menu Display Time

Menus automatically disappear after 10 seconds of user inactivity. To set this time in units of 5 seconds, follow the procedure below (menus do not automatically disappear if OFF is selected.) Press **[F•D 1]** to reset the setting to its default value (10 seconds).

Regardless of the display time setting, the input menu, system menu, preset registration menu, and preset menu do not disappear because of user inactivity.

Procedure

[SYS] → **[F•5]** next menu → **[F•2]** MENU AUTO OFF → **[F•D 1]** TIME SET: 5 sec - 10 sec - 60 sec / OFF

5.8 Configuring License Settings

To display the license screen, follow the procedure below.

You can use this screen to install options that require licenses and view the MAC address.

For details, see the option's instruction manual.

Procedure

[SYS] → **[F•5]** next menu → **[F•4]** LICENSE SETUP

MAC ADDRESS: 00:00:00:00:00:00									
LICENSE LIST: 1.									
2.									
3.									
4.									
5.									
0	1	2	3	4	5	6	7	8	9
[F.D_NOB] = CHAR SELECT , [F.D_PUSH] = CHAR SET & Function Key EDIT									
OPTION LICENSE KEY					-----				
[]									
CLEAR	CHAR SET	REGISTER	REMOVE	up menu	CHAR SELECT				

Figure 5-9 License display

6. MULTI-SCREEN DISPLAY FEATURE

The LV 5980 has five display modes: picture display, video signal waveform display, vector display, audio display, and status display. The display that only shows one mode at a time is referred to as the single-screen display. The display that shows combinations of different modes at the same time is referred to as the multi-screen display.

To switch between the multi- and single-screen displays, press **MULTI**.

To configure the multi-screen display, hold down **MULTI** for 0.5 seconds or more, or use the function keys and function dials on the multi-screen display.

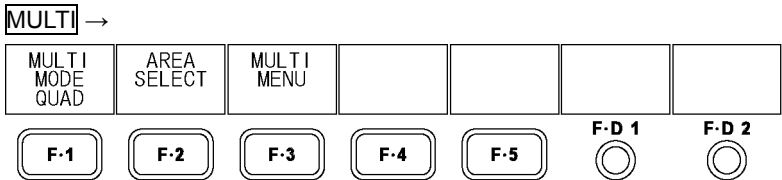


Figure 6-1 Multi-screen display menu

6.1 Switching between the Single- and Multi-Screen Displays

You can switch between the single- and multi-screen displays by pressing **MULTI**.

Settings

- ON (lit): The multi-screen display is shown.
Cursor measurement cannot be used in the video signal waveform display.
You cannot use display mode presets.
- OFF (not lit): The single-screen display is shown (this is the default value).

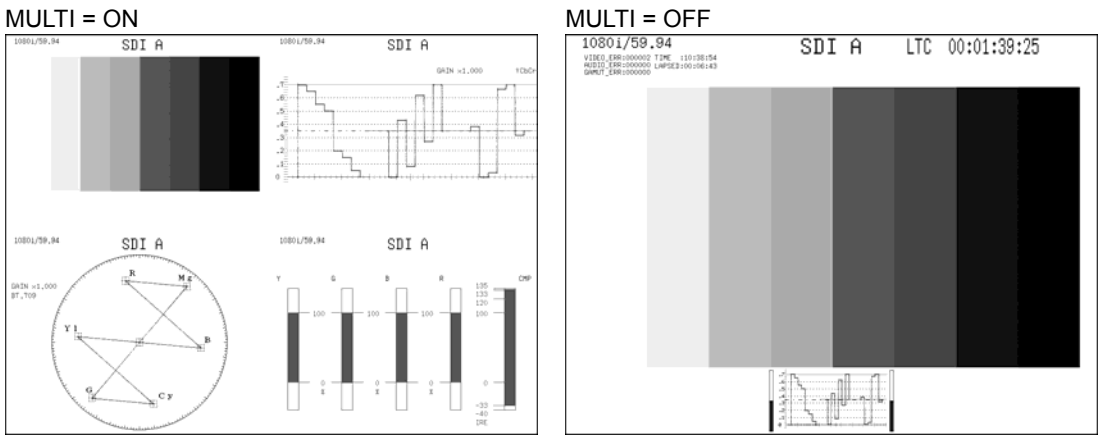


Figure 6-2 Switching between the single- and multi-screen displays

6.2 Selecting the Display Format

To select the multi-screen display mode, follow the procedure below.

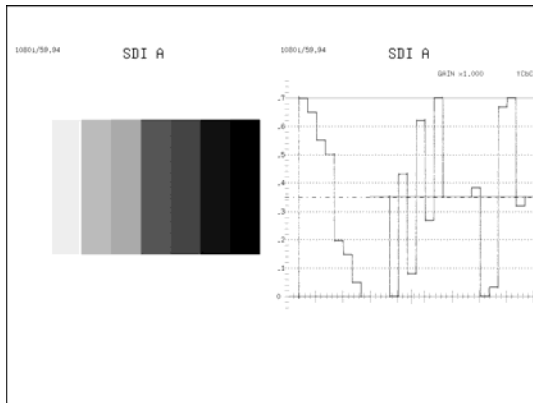
Procedure

[MULTI] → **[F•1]** MULTI MODE: DUAL / QUAD / CINEZONE / USER / COMPARE

Settings

- DUAL:** The screen is divided into two areas.
- QUAD:** The screen is divided into four areas. (this is the default setting for single input mode and simultaneous input mode)
- CINEZONE:** A combination of the CINEZONE screen and other screens is displayed. This display format can be selected in single input mode.
- USER:** The user-defined layout is displayed. This setting can be chosen in single input mode or simultaneous input mode when a user layout file is present on the LV 5980.
- COMPARE:** The picture is displayed in the top half of the screen and the video signal waveform or vector waveform is displayed in the bottom half of the screen. This display format can be selected in 3D assist mode.
(This is the default setting for 3D assist mode)

MULTI MODE = DUAL



MULTI MODE = QUAD

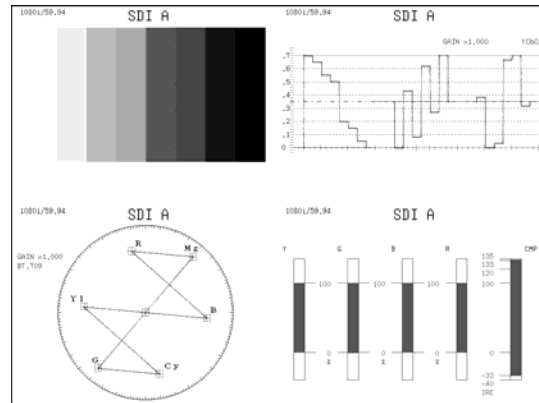


Figure 6-3 Selecting the display format

6.3 Selecting the Display Area

When **[F•1]** MULTI MODE is set to DUAL or QUAD, to assign display modes to the different areas of the screen, follow the procedure below.

You cannot assign the same display mode to multiple areas.

- * The location of each area is indicated on the function keys by an apostrophe or comma displayed around a "+" when MULTI MODE is set to QUAD, and around a "|" when MULTI MODE is set to DUAL.

Procedure (When MULTI MODE is set to QUAD)

[MULTI] → **[F•2]** AREA SELECT

- **[F•1]** AREA1 '+ : PIC / WFM / VECT / 5BAR / AUDIO / STATUS
- **[F•2]** AREA2 '+ : PIC / WFM / VECT / 5BAR / AUDIO / STATUS
- **[F•3]** AREA3 ,+ : PIC / WFM / VECT / 5BAR / AUDIO / STATUS
- **[F•4]** AREA4 +, : PIC / WFM / VECT / 5BAR / AUDIO / STATUS

Procedure (When MULTI MODE is set to DUAL)

MULTI → **F•2** AREA SELECT

→ **F•1** AREA1 | : PIC / WFM / VECT / 5BAR / AUDIO / STATUS

→ **F•2** AREA2 | : PIC / WFM / VECT / 5BAR / AUDIO / STATUS

6.4 Configuring CINEZONE Settings

When **F•1** MULTI MODE is set to CINEZONE, to select the layout, follow the procedure below.

For an explanation of the **F•4** CINEZONE DISPLAY function key and the CINEZONE display, see section 9.7.8, “Configuring CINEZONE Settings.”

Procedure

MULTI → **F•2** CINEZONE LAYOUT : W+P+CZ / V+P+CZ / W+V+P+CZ / V+W+P+CZ

Settings

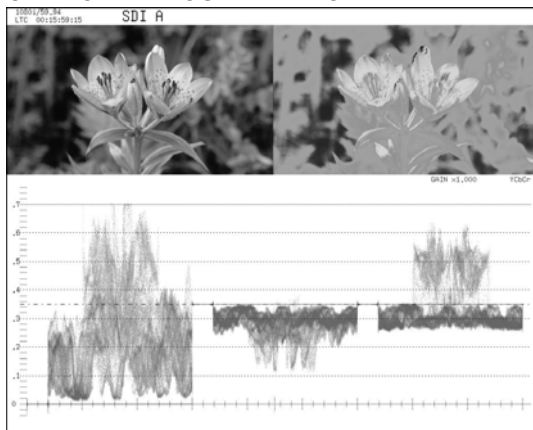
W+P+CZ: The picture and CINEZONE displays are shown next to each other, and the video signal waveform display is shown below them.

V+P+CZ: The picture and CINEZONE displays are shown next to each other, and the vector display is shown below them.

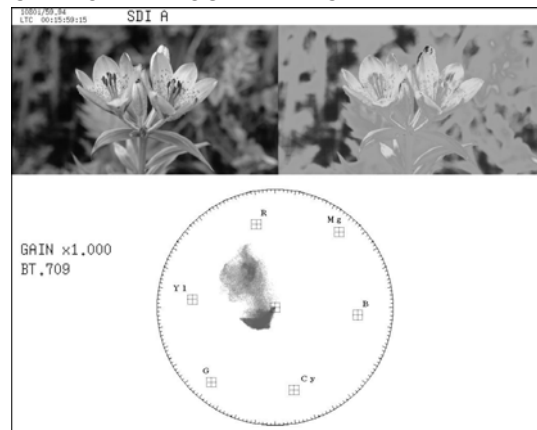
W+V+P+CZ: The CINEZONE and picture displays are shown one on top of the other. The video signal waveform display is shown in the upper right. The vector display is shown in the lower right.

V+W+P+CZ: The CINEZONE and picture displays are shown one on top of the other. The vector display is shown in the upper right. The video signal waveform display is shown in the lower right.

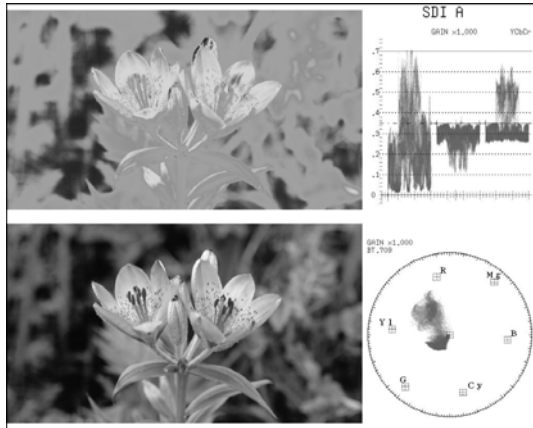
CINEZONE LAYOUT = W+P+CZ



CINEZONE LAYOUT = V+P+CZ



CINEZONE LAYOUT = W+V+P+CZ



CINEZONE LAYOUT = V+W+P+CZ

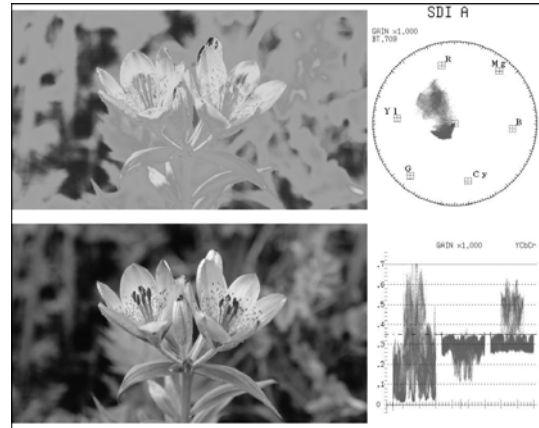


Figure 6-4 Configuring CINEZONE settings

6.5 Selecting the Layout

When **F•1** MULTI MODE is set to COMPARE, to select a layout, follow the procedure below.

Procedure

MULTI → **F•2** LAYOUT SELECT: WFM+PIC / VEC+PIC

Settings

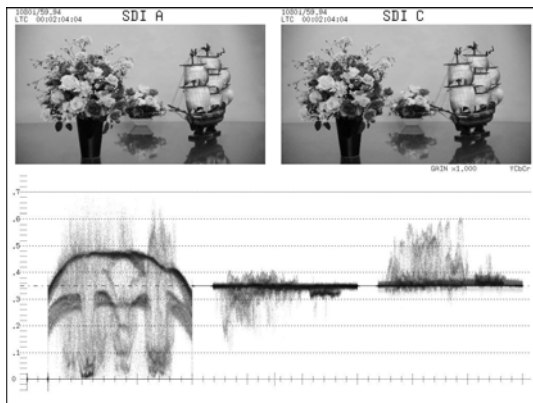
WFM+PIC: The pictures are shown side by side, and the video signal waveform display is shown below them.

If 3D INPUT FORMAT is set to L/R DUAL, video signal waveforms are displayed on top of each other. Channels A and B (the video signals for the left eye) are displayed in red, and channels C and D (the video signals for the right eye) are displayed in cyan. In addition, the video signals for the left and right eyes can be displayed separately.

VEC+PIC: The pictures are shown side by side, and the vector display is shown below them.

If 3D INPUT FORMAT is set to L/R DUAL, vectors are displayed on top of each other. Channels A and B (the video signals for the left eye) are displayed in red, and channels C and D (the video signals for the right eye) are displayed in cyan.

LAYOUT SELECT = WFM+PIC



LAYOUT SELECT = VEC+PIC

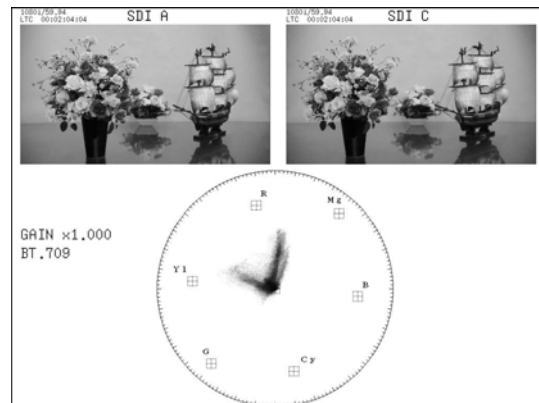


Figure 6-5 Selecting the layout

6.6 Configuring the Display Mode Settings

To set a display mode from the multi-screen display, follow the procedure below. For details about a particular display mode's menu, see the appropriate display mode explanation (the explanations start at chapter 9).

Generally, changing the settings here will also change the single-screen display settings.

Function keys (from **F•1** MULTI PIC to **F•5** MULTI STATUS) for menus of display modes that are currently hidden are not displayed.

Procedure

```

MULTI → F•3 MULTI MENU → F•1 MULTI PIC
                                → F•2 MULTI WFM
                                → F•3 MULTI VECT → F•1 VECT
                                                → F•2 5BAR
                                → F•4 MULTI AUDIO
                                → F•5 MULTI STATUS
  
```

6.7 Configuring Wipe Display Settings

When **F•2** LAYOUT SELECT is set to WFM+PIC and SIMUL MODE in the video signal waveform menu is set to MIX, to display the video signal waveforms to the left and right of each other, follow the procedure below.

You can use **F•D 1** WFM WIPE VARIABLE to move the boundary line. Press **F•D 1** to move the boundary line to the center of the screen.

For information on the SIMUL MODE setting,

see section 11.6.8, "Selecting the Display Format of Simultaneous Input Mode."

Procedure

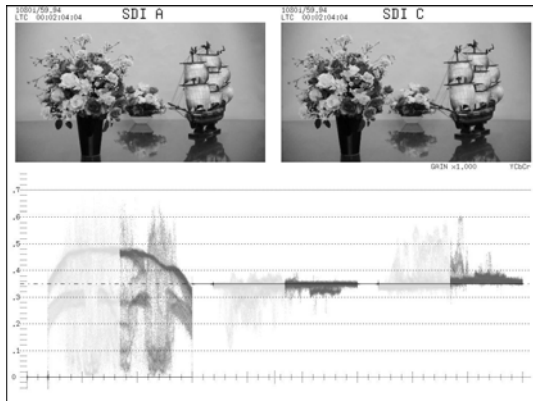
MULTI → **F•4** WFM WIPE: ON / OFF

Settings

ON: The displays of channel A or B (the video signal for the left eye) and channel C or D (the video signal for the right eye) are separated at the border. Channel A or B is displayed on the left side, and channel C or D is displayed on the right side.

OFF: Channel A or B (the video signal for the left eye) and channel C or D (the video signal for the right eye) are overlaid on top of each other.

WFM WIPE = ON



WFM WIPE = OFF

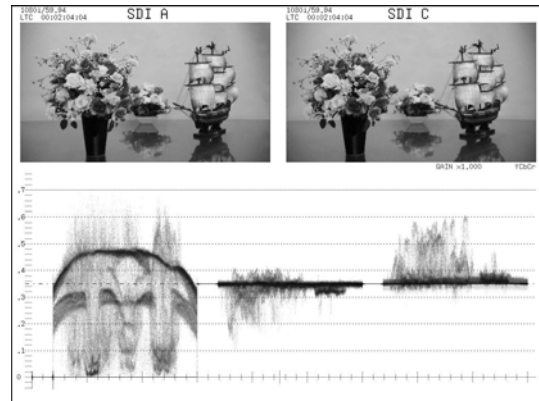


Figure 6-6 Configuring wipe display settings

6.8 User Layout

You can use the user layout feature to display the measurement screen with the layout that you want. (The layout must be set in advance.)

6.8.1 User Layout Display

To display user layouts, follow the procedure below.

1. **Connect a USB memory device that has user layout files to the LV 5980.**

Make sure that the folder structure on the USB memory device is as follows.

```

└─ USB memory
   └─ LV5980_USER
      └─ LAYOUT
         └─ layout.txt
  
```

2. Press **[MULTI]** and then **[F•5] LAYOUT FILE**.
3. Press **[F•1] ALL COPY USB -> INT** and then **[F•1] COPY YES**.

The user layout files are copied from the USB memory device to the LV 5980.

To cancel the copy operation, press **[F•3] COPY NO**.

4. Press **[INPUT]** and then set **[F•5] INPUT MODE** to **SINGLE** or **SIMUL**.
5. Press **[MULTI]** and then set **[F•1] MULTI MODE** to **USER**.
6. Press **[F•2] USER LAYOUT** to select the layout to display.

You can select the user layout from **SINGLE1**, **SINGLE2**, **SIMUL1**, and **SIMUL2**.

SINGLE represents the single input mode, and **SIMUL** represents the simultaneous input mode.

6.8.2 Copying All User Layouts

To copy all the user layouts from the LV 5980 to a USB memory device, follow the procedure below. To cancel the copy operation, press **[F•3] COPY NO**.

To copy all user layouts at once, you have to use a USB memory device that already has user layouts on it. Note that any existing user layouts on the USB memory device will be overwritten during the copy operation.

Procedure

[MULTI] → **[F•5] LAYOUT FILE** → **[F•2] ALL COPY INT -> USB** → **[F•1] COPY YES**

7. PRESET FEATURE

You can use the preset feature to register and load panel settings. Also, you can use the same settings on multiple LV 5980s by copying presets to USB memory.

There are two kinds of presets: comprehensive presets (usually just referred to as presets) and display mode presets.

The settings that you register are not deleted even if you initialize the LV 5980 by following the procedure in section 5.6, "Initialization."

- **Comprehensive Presets**

You can register up to 30 different sets of all the panel settings (some settings are not included).(*1)

- **Registering Presets**

Set the LV 5980 to the settings that you want to register, and then hold down **PSET**. Press **F•1** FULL PRESET on the preset registration menu to register the settings.

- **Loading Presets**

Press **PSET** to load the preset settings from the preset menu.

- **Display Mode Presets**

You can register up to five different sets of panel settings for each display mode.(*2) When you load a display mode preset, the settings of other display modes and the input channels are not affected. This feature cannot be used with the multi-screen display.

- **Registering Display Mode Presets**

Set the LV 5980 to the settings that you want to register, and then hold down **PSET**. Press **F•2** FUNCTION PRESET on the preset registration menu to register the settings.

- **Loading Display Mode Presets**

After setting FUNCTION PRESET to ON on the preset registration menu, press **PIC**, **WFM**, **VEC**, **AUDIO**, or **STATUS**. Load the preset settings from the display mode preset menu.

*1 The date and time settings.

*2 The picture, video signal waveform, vector, audio, and status displays.

* No matter how much time elapses, the preset registration menu and the preset menu will not automatically disappear. To hide these menus, press **PSET** again.

7.1 Presets

7.1.1 Registering Presets

1. Set the LV 5980 to the settings that you want to register.
2. Hold down **PSET**.

The preset registration menu appears.

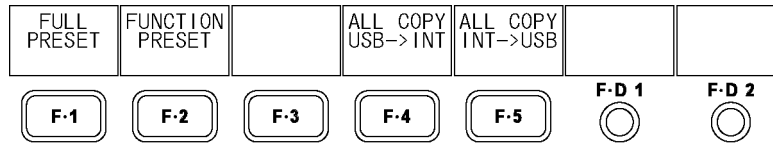


Figure 7-1 Preset registration menu

3. Press **F.1** FULL PRESET.

The file list screen appears.

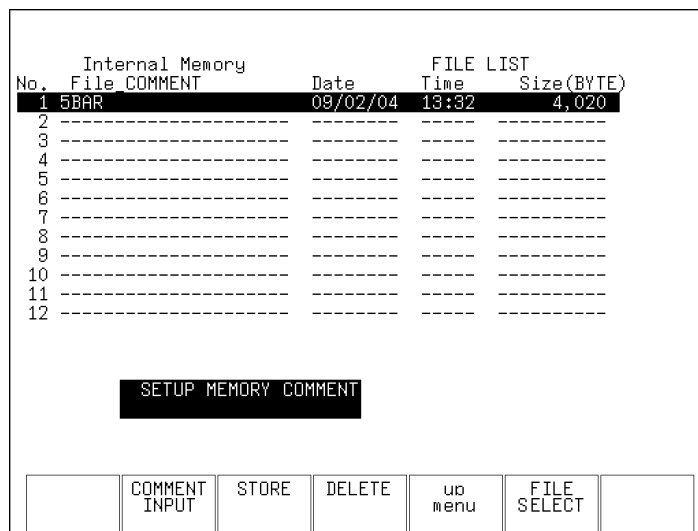


Figure 7-2 File list screen

4. Press **F.2** COMMENT INPUT.

The file name input screen appears.

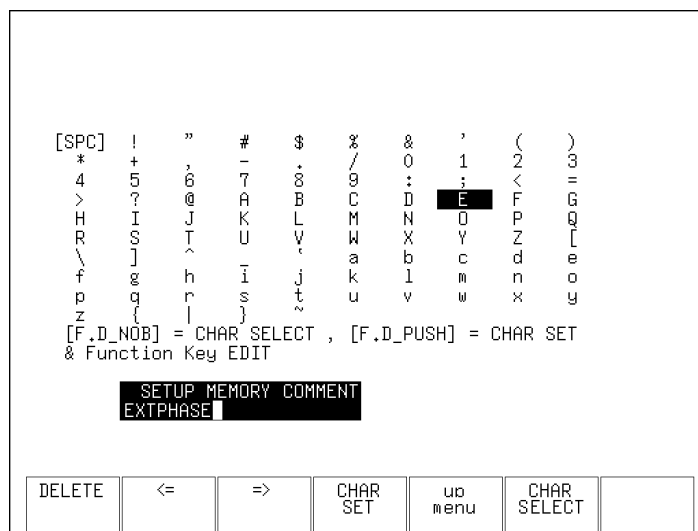


Figure 7-3 File name input screen

5. Enter a file name using up to 16 characters.

The key operations that you can perform on the file name input screen are as follows:

F•1 DELETE	Deletes the character at the cursor
F•2 <=	Moves the cursor to the left
F•3 =>	Moves the cursor to the right
F•4 CHAR SET	Enters the character
F•D 1 CHAR SELECT	Turn to select a character, and press to enter the character.

After you enter the file name, press **F•5** up menu.

You can also copy the file name of an already registered file. To copy a file name, move the cursor to the file in the file list whose name you want to copy, and then press **F•D 1** FILE SELECT.

6. Turn **F•D 1** FILE SELECT to select the file number of the file you want to register.

7. Press **F•3** STORE.

If a file has already been stored with the file number that you selected, an overwrite confirmation prompt appears. If you want to overwrite the current file, press **F•1** OVER WR YES. Otherwise, press **F•3** OVER WR NO.

7.1.2 Loading Presets

1. Press **PSET**.

The preset menu appears.

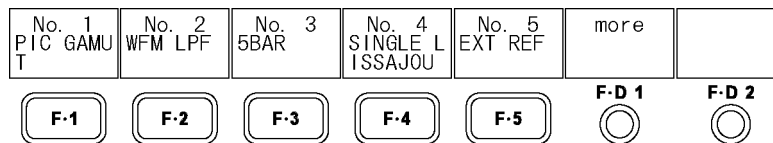


Figure 7-4 Preset menu

2. Press a function key from **F•1** No.1 to **F•5** No.5.

If the preset number that you want to load is greater than 5, turn **F•D 1** more.

7.1.3 Deleting Presets

1. Hold down **PSET**.

The preset registration menu appears.

2. Press **F•1** FULL PRESET.

The file list screen appears.

3. Turn **F•D 1** FILE SELECT to select the file number of the file you want to delete.

4. Press **F•4** DELETE.

This setting appears if a file exists that has the selected file number.

5. Press **F•1** DELETE YES.

To cancel the deletion of the selected preset, press **F•3** DELETE NO.

7.2 Display Mode Presets

7.2.1 Registering Display Mode Presets

1. Set the LV 5980 to the settings that you want to register.

2. Hold down **PSET**.

The preset registration menu appears.

3. Press **F•2** **FUNCTION PRESET**.

The file list screen appears. This setting does not appear when the multi-screen display is in use.

Internal Memory			FILE LIST	
No.	File COMMENT	Date	Time	Size(BYTE)
1	5BAR	09/02/04	13:32	4,020
2	-----	-----	-----	-----
3	-----	-----	-----	-----
4	-----	-----	-----	-----
5	-----	-----	-----	-----

SETUP MEMORY COMMENT

FUNCTION PRESET OFF	COMMENT INPUT	STORE	DELETE	up menu	FILE SELECT	
---------------------------	------------------	-------	--------	------------	----------------	--

Figure 7-5 File list screen

4. Press **F•2** **COMMENT INPUT**.

The file name input screen appears.

5. Enter a file name using up to 16 characters.

The key operations that you can perform on the file name input screen are as follows:

- | | |
|--------------------------|---|
| F•1 DELETE | Deletes the character at the cursor |
| F•2 <= | Moves the cursor to the left |
| F•3 => | Moves the cursor to the right |
| F•4 CHAR SET | Enters the character |
| F•D 1 CHAR SELECT | Turn to select a character, and press to enter the character. |

After you enter the file name, press **F•5** up menu.

You can also copy the file name of an already registered file. To copy a file name, move the cursor to the file in the file list whose name you want to copy, and then press **F•D 1** FILE SELECT.

6. Turn **F•D 1** FILE SELECT to select the file number of the file you want to register.

7. Press **F•3** STORE.

If a file has already been stored with the file number that you selected, an overwrite confirmation prompt appears. If you want to overwrite the current file, press **F•1** OVER WR YES. Otherwise, press **F•3** OVER WR NO.

7.2.2 Loading Display Mode Presets

1. Hold down **PSET**.

The preset registration menu appears.

2. Press **F•2** FUNCTION PRESET.

The file list screen appears. This setting does not appear when the multi-screen display is in use.

3. Set **F•1** FUNCTION PRESET to ON.

The default value is OFF.

4. Press the key of the display mode whose preset you want to load.

The display mode preset menu appears.

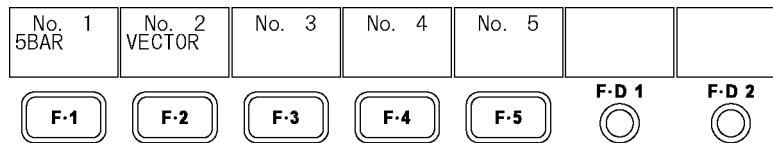


Figure 7-6 Display mode preset menu

5. Press a function key from **F•1** No.1 to **F•5** No.5.

7.2.3 Deleting Display Mode Presets

1. Press the key of the display mode whose preset you want to delete.

2. Hold down **PSET**.

The preset registration menu appears.

3. Press **F•2** FUNCTION PRESET.

The file list screen appears. This setting does not appear when the multi-screen display is in use.

4. Turn **F•D 1** FILE SELECT to select the file number of the file you want to delete.

5. Press **F•4** DELETE.

This setting appears if a file exists that has the selected file number.

6. Press **F•1** DELETE YES.

To cancel the deletion of the selected display mode preset, press **F•3** DELETE NO.

7.3 Copying Presets

You can copy all of the presets and display mode presets by pressing **F•4** ALL COPY USB->INT or **F•5** ALL COPY INT->USB.

These commands appear when USB memory is connected.

Hold down **PSET** →

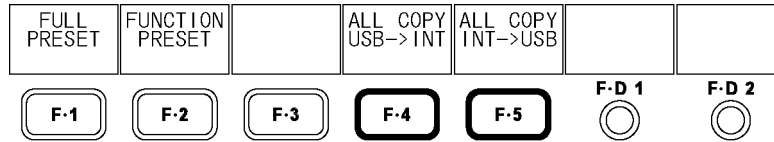


Figure 7-7 ALL COPY menu

7.3.1 Copying All Presets from USB Memory to the LV 5980

To copy all of the presets that have been saved to USB memory to the LV 5980, follow the procedure below.

If presets have already been saved to the LV 5980 memory, they will be overwritten.

To cancel the copy operation, press **F•3** COPY NO.

Procedure

Hold down **PSET** → **F•4** ALL COPY USB->INT → **F•1** COPY YES

7.3.2 Copying All Presets from the LV 5980 to USB Memory

To copy all of the presets that have been saved to the LV 5980 to USB memory, follow the procedure below.

If presets have already been saved to the USB memory, they will be overwritten.

To cancel the copy operation, press **F•3** COPY NO.

The file structure in the USB memory is shown below. Note that the file numbers in the USB memory are different from the LV 5980 file numbers by one.

If you change the file names on the USB memory device, you will not be able to copy the files from the USB memory to the LV 5980.

📁 USB memory

└ 📁 LV5980_USER

└ └ 📁 PRESET

└ └ └ 📁 PIC_00.PRE (to PIC_04.PRE) Display mode presets (PIC) No. 1 to 5

└ └ └ 📁 WFM_00.PRE (to WFM_04.PRE) Display mode presets (WFM) No. 1 to 5

└ └ └ 📁 VEC_00.PRE (to VEC_04.PRE)..... Display mode presets (VEC) No. 1 to 5

└ └ └ 📁 AUD_00.PRE (to AUD_04.PRE) Display mode presets (AUDIO) No. 1 to 5

└ └ └ 📁 STTS_00.PRE (to STTS_04.PRE) Display mode presets (STATUS) No. 1 to 5

└ └ └ 📁 PRESET_00.PRE (to PRESET_29.PRE)..... Presets No.1 to 30

Procedure

Hold down **PSET** → **F•5** ALL COPY INT->USB → **F•1** COPY YES

8. SCREEN CAPTURE FEATURE

You can use the screen capture feature to acquire still image data of the current display. You can save the acquired data to USB memory or overlay it on the input signal and display it using the LV 5980.

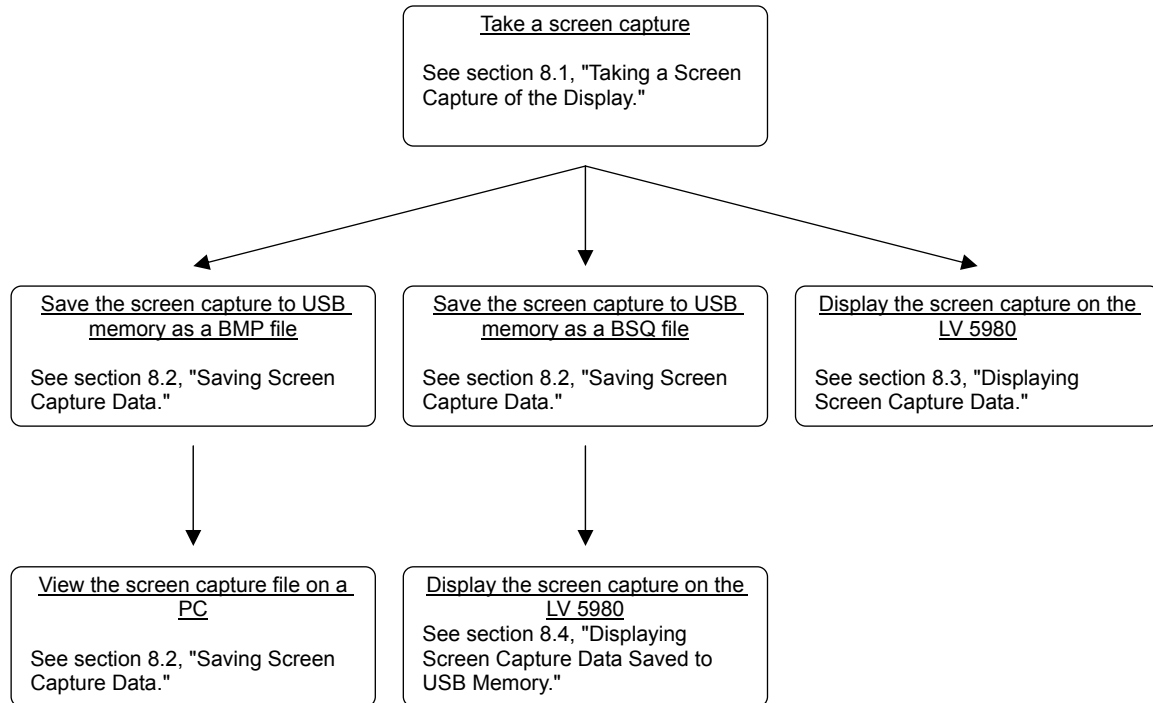


Figure 8-1 Screen capture feature

8.1 Taking a Screen Capture of the Display

1. Configure the LV 5980 so that the display that you want to capture appears on the screen.
Only measurement displays can be captured. Preset setup screens and file list screens cannot be captured.

2. Press **CAP**.

The currently displayed screen is captured, and the screen capture menu appears.

You can also capture a display by pressing **F•1** REFRESH on the screen capture menu.

The screen capture menu will disappear if a certain period of time passes with no user activity. To use the menu to make a setting, press one of the function keys from **F•1** to **F•5**. The screen capture menu appears again.

Note that the captured data will be cleared if, after capturing a display, you:

- Change the display mode.
- Press **MULTI**, **PSET**, or **SYS**.
- Turn off the power.

When the captured data is cleared, the **CAP** key LED will turn off.

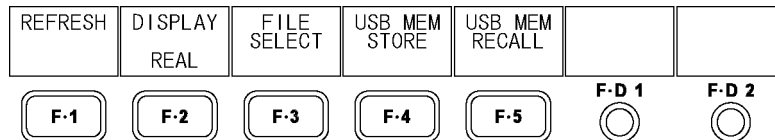


Figure 8-2 Screen capture menu

8.2 Saving Screen Capture Data

The data that you capture by following the procedure in section 8.1, “Taking a Screen Capture of the Display,” is cleared when operations such as changing the display mode are performed. You can display the captured data on the LV 5980 even after the power has been turned off by saving the captured data to USB memory (if you save the captured data in BSQ format). You can also view the screen capture data on a PC (if you save the screen capture data in BMP format).

1. Press **F•3** FILE SELECT.

The file format selection menu appears. This setting appears when USB memory is connected to the LV 5980.

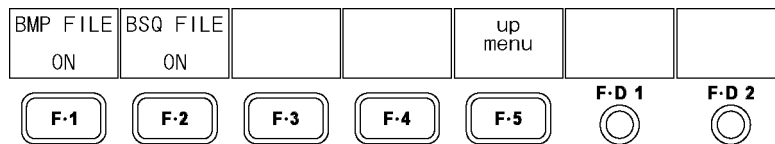


Figure 8-3 File format selection menu

2. Select the format that you want to save the file to.

The file formats that you can select are explained below. Set one of these formats to ON. Both of the formats are set to ON by default.

BMP FILE The captured data is saved to the USB memory as a bitmap file (1024 x 819).

You can view the saved files on a PC.

BSQ FILE The captured data is saved to the USB memory as a BSQ file.

You can view the saved data on the LV 5980.

After you have finished setting the file formats, press **F•5** up menu.

3. Press **F•4** USB MEM STORE.

The captured data is saved to the USB memory.

This setting appears when USB memory is connected to the LV 5980 and BMP FILE or BSQ FILE is set to ON.

The file name is automatically set to the date and time that you have set using the system settings according to the procedure in section 5.5, “Setting the Date and Time.” Example: 20080425150500.bmp (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

```

├─ USB memory
├─ LV5980_USER
│   └─ BMP
│       ├── yyyyymmddhhmmss.bmp
│       └─ yyyyymmddhhmmss.bsq

```

8.3 Displaying Screen Capture Data

The data that you capture by following the procedure in section 8.1, “Taking a Screen Capture of the Display,” can be displayed on the LV 5980, or it can be overlaid on the LV 5980's current input signal.

1. Press **F•2** **DISPLAY** to select the display format.

The display formats that you can select are explained below.

REAL	The input signal is displayed (this is the default value).
HOLD	The screen capture data is displayed. The video signal waveform display (*1), vector display (*1), and lissajous curve display are displayed in cyan.
BOTH	The input signal and the captured data are displayed on top of each other with their intensities halved. The video signal waveform display (*1), vector display (*1), and lissajous curve display are displayed in cyan.

You can display captured video signal waveform, vector, lissajous curve, picture, and histogram display data on the LV 5980. Other kinds of data (such as status, audio meter, and 5-bar data) cannot be displayed. However, these other kinds of data can be saved to USB memory as BMP files.

See section 8.2, "Saving Screen Capture Data."

- *1 In 3D assist mode the waveform color selected in the video signal waveform menu or vector waveform menu is used.

8.4 Displaying Screen Capture Data Saved to USB Memory

The data that you save in BSQ format by following the procedure in section 8.2, "Saving Screen Capture Data," can be displayed on the LV 5980, or it can be overlaid on the LV 5980's current input signal.

Screen capture data that has been saved in BMP format cannot be displayed on the LV 5980.

1. Press **CAP**.
2. Press **F•5** **USB MEM RECALL**.

The file list screen appears. This setting appears when USB memory is connected to the LV 5980.

3. Turn **F•D 1** **FILE SELECT** to select the file that you want to display.

Files are displayed in chronological order, with the oldest files first. Up to 999 files can be displayed. You can press **F•3** **DELETE** here to delete the selected file.

4. Press **F•1** **RECALL**.

This setting appears when the selected file is a BSQ file.

You can cancel the captured data display operation by pressing **F•5** up menu.

5. Press **F•2** **DISPLAY** to select the display format.

After you press **F•1** **RECALL**, the display format is BOTH. For details on the display format, see section 8.3, "Displaying Screen Capture Data."

- * Capture data in BSQ format that has been saved on a different model cannot be displayed on the LV 5980.

9. PICTURE DISPLAY

9.1 Picture Display Explanation

The picture display appears when you press **PIC**.

To display the picture menu, hold down **PIC** for 0.5 seconds or more, or use the function keys and function dials on the picture display. The picture menu will disappear when you press **PIC** again or after a certain period of time passes with no user activity.

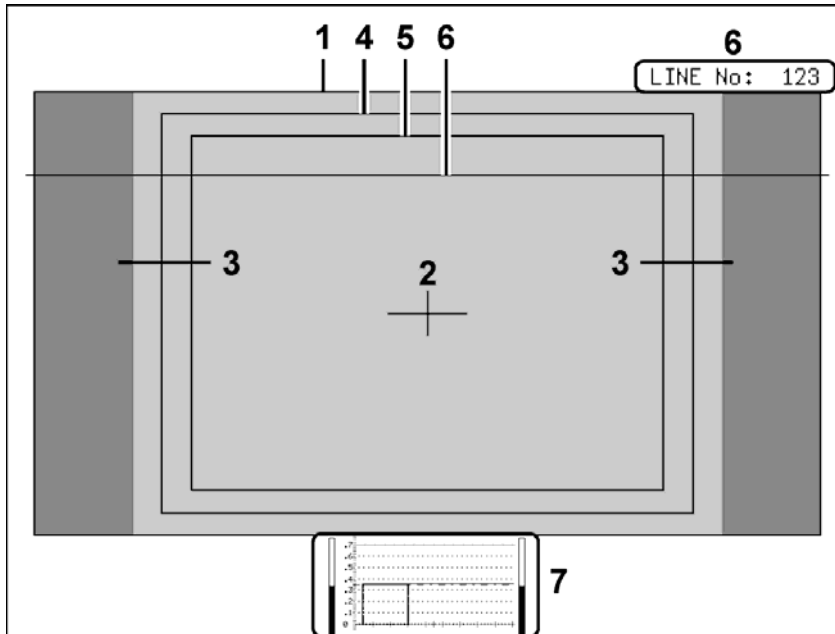


Figure 9-1 Picture display

1 Frame Marker

You can display a marker around the outer edge of the picture.

See section 9.4.1, "Turning the Display of the Frame Marker On and Off."

2 Center Marker

You can display a marker in the center of the picture that is 10 % its size.

See section 9.4.2, "Turning the Display of the Center Marker On and Off."

3 Aspect Marker

You can display a marker for the selected aspect ratio using a shadow, a black space, or a line.

See sections 9.4.3, "Displaying the Aspect Marker" and 9.4.4, "Setting the Aspect Marker."

4 Safe Action Marker

You can display a safe action marker according to the ARIB TR-B4 or SMPTE RP 218 specifications. You can also display a marker that you specify the size of.

See sections 9.4.5, "Displaying Safety Markers,"

9.4.6, "Turning the Display of the Safe Action Marker On and Off,"

9.4.8, "Turning the Display of User Markers On and Off," and

9.4.9, "Setting User Markers."

5 Safe Title Marker

You can display a safe title marker according to the ARIB TR-B4 or SMPTE RP 218 specifications. You can also display a marker that you specify the size of.

See sections 9.4.5, “Displaying Safety Markers,”

9.4.6, “Turning the Display of the Safe Action Marker On and Off,”

9.4.8, “Turning the Display of User Markers On and Off,” and

9.4.9, “Setting User Markers.”

6 Selected Line

You can display a marker on the selected line.

See section 9.5, “Configuring Line Selection Settings.”

7 Thumbnail

The thumbnail display shows the audio meter (fixed to channels 1 and 2) and the video signal waveform. You can also turn each of these displays off.

See section 9.6.5, “Setting the Thumbnail Display.”

9.2 Setting the Brightness and Contrast

You can set the picture brightness and contrast by using **F•D 1** BRIGHTNESS and **F•D 2** CONTRAST on the picture menu.

F•D 1 BRIGHTNESS and **F•D 2** CONTRAST appear in other levels of the picture menu as well and function in the same way.

PIC →

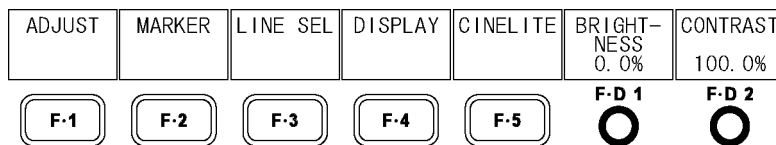


Figure 9-2 Picture menu

9.2.1 Setting the Brightness

To set the picture brightness, follow the procedure below.

If you press **F•D 1**, the setting will be set to its default value of 0.0 %.

Procedure

PIC → **F•D 1** BRIGHTNESS: -50.0% - 0.0% - 50.0%

9.2.2 Setting the Contrast

To set the picture contrast, follow the procedure below.

If you press **F•D 2**, the setting will be set to its default value of 100.0 %.

Procedure

PIC → **F•D 2** CONTRAST: 0.0% - 100.0% - 200.0%

9.3 Adjusting the Picture

To adjust the picture, press **F•1** ADJUST on the picture menu.

This setting does not appear when the CINEZONE display is in use.

PIC → **F•1** ADJUST →

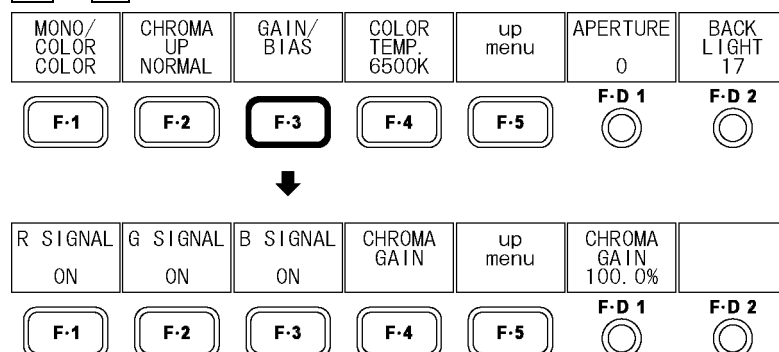


Figure 9-3 ADJUST menu

9.3.1 Switching between the Color and Monochrome Displays

To switch between the color and monochrome displays, follow the procedure below.
This setting does not appear in 3D assist mode.

Procedure

PIC → **F•1** ADJUST → **F•1** MONO/COLOR: COLOR / MONO

9.3.2 Amplifying the Chroma Gain

To switch between the two chroma gain settings, follow the procedure below.

Procedure

PIC → **F•1** ADJUST → **F•2** CHROMA UP: NORMAL / UP

Settings

NORMAL: The chroma gain is the value that has been set using **F•4** CHROMA GAIN.

UP: The chroma gain is set to 2 (200.0 %). **F•4** CHROMA GAIN is not displayed.

9.3.3 Turning the RGB Signals On and Off

To turn the display of the individual R, G, and B signals on or off, follow the procedure below.

You cannot turn all channels off.

Procedure

PIC → **F•1** ADJUST → **F•3** GAIN/BIAS → **F•1** R SIGNAL: ON / OFF
→ **F•2** G SIGNAL: ON / OFF
→ **F•3** B SIGNAL: ON / OFF

9.3.4 Setting the Gain

To set the RGB signal gain separately for each color, follow the procedure below.
If you press **F•D 1**, the setting will be set to its default value of 100.0 %.

Procedure

PIC → **F•1** ADJUST → **F•3** GAIN/BIAS
 → **F•1** R SIGNAL (When set to ON) → **F•D 1** R GAIN: 0.0% - 100.0% - 200.0%
 → **F•2** G SIGNAL (When set to ON) → **F•D 1** G GAIN: 0.0% - 100.0% - 200.0%
 → **F•3** B SIGNAL (When set to ON) → **F•D 1** B GAIN: 0.0% - 100.0% - 200.0%

9.3.5 Setting the Bias

To set the RGB signal bias separately for each color, follow the procedure below.
If you press **F•D 2**, the setting will be set to its default value of 0.0 %.

Procedure

PIC → **F•1** ADJUST → **F•3** GAIN/BIAS
 → **F•1** R SIGNAL (When set to ON) → **F•D 2** R BIAS: -50.0% - 0.0% - 50.0%
 → **F•2** G SIGNAL (When set to ON) → **F•D 2** G BIAS: -50.0% - 0.0% - 50.0%
 → **F•3** B SIGNAL (When set to ON) → **F•D 2** B BIAS: -50.0% - 0.0% - 50.0%

9.3.6 Setting the Chroma Gain

To set the chroma gain, follow the procedure below.

If you press **F•D 1**, the setting will be set to its default value of 100.0 %.

When **F•2** CHROMA UP is set to UP, **F•D 1** CHROMA GAIN does not appear, and the chroma gain is fixed at 200.0 %.

Procedure

PIC → **F•1** ADJUST → **F•3** GAIN/BIAS → **F•4** CHROMA GAIN → **F•D 1** CHROMA GAIN:
 0.0% - 100.0% - 200.0%

9.3.7 Selecting the Color Temperature

To set the monitor's color temperature, follow the procedure below.

Procedure

PIC → **F•1** ADJUST → **F•4** COLOR TEMP.: 6500K / 9300K

9.3.8 Setting the Aperture

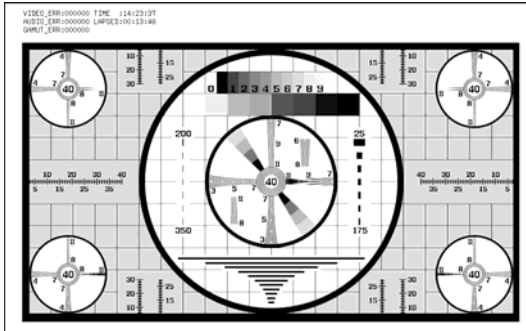
To set the aperture, follow the procedure below.

A larger number will result in more well-defined outlines. If you press **F•D 1**, the setting will be set to its default value of 0.

Procedure

PIC → **F•1** ADJUST → **F•D 1** APERTURE: 0 - 100

APERTURE = 0



APERTURE = 100

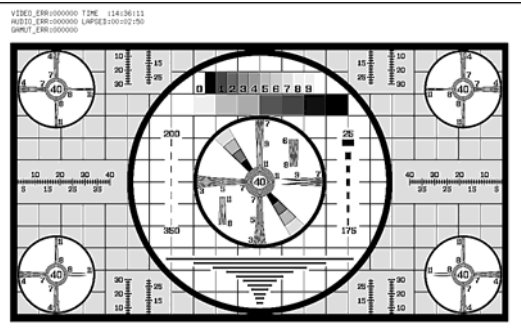


Figure 9-4 Setting the aperture

9.3.9 Adjusting the Backlight

To adjust the backlight brightness, follow the procedure below.

The larger the number, the brighter the backlight.

If you press **F•D 2**, the setting will be set to its default value of 17.

You can also adjust the backlight brightness in the system setup by following the procedure described in section 5.2.2, "Adjusting the Backlight." Changing one of these values will also change the other value.

This setting affects other displays in addition to the picture display.

Procedure

PIC → **F•1** ADJUST → **F•D 2** BACK LIGHT: 1 - 17 - 32

9.4 Configuring Marker Settings

To configure marker settings, press **F•2** MARKER on the picture menu. The markers that you set here do not appear in the thumbnail display.

F•2 MARKER appears when SIZE has been set to FIT.

For information on the SIZE setting, see section 9.6.1, “Selecting the Display Size.”

PIC → **F•2** MARKER →

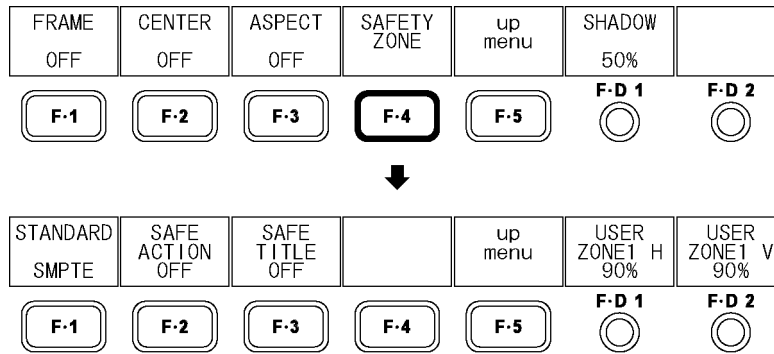


Figure 9-5 MARKER menu

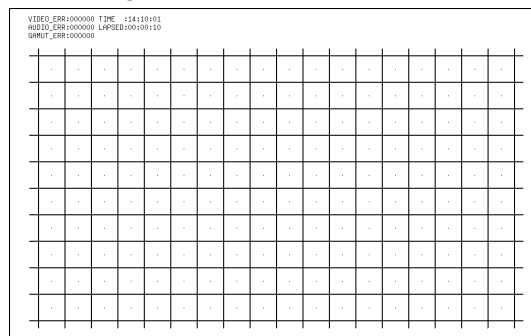
9.4.1 Turning the Display of the Frame Marker On and Off

To turn the display of the frame marker on and off, follow the procedure below. The frame marker is displayed around the outer edge of the picture.

Procedure

PIC → **F•2** MARKER → **F•1** FRAME: ON / OFF

FRAME = OFF



FRAME = ON

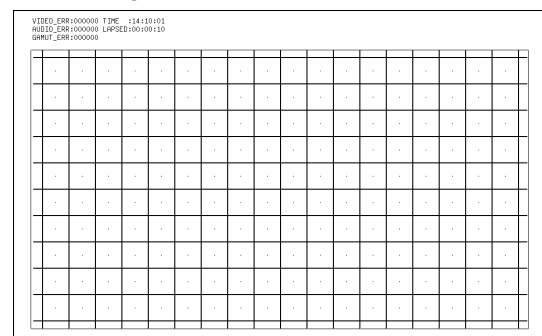


Figure 9-6 Turning the display of the frame marker on and off

9.4.2 Turning the Display of the Center Marker On and Off

To turn the display of the center marker on and off, follow the procedure below.
The center marker is displayed in the center of the picture at 10 % of the picture's size.

Procedure

PIC → **F•2** MARKER → **F•2** CENTER: ON / OFF

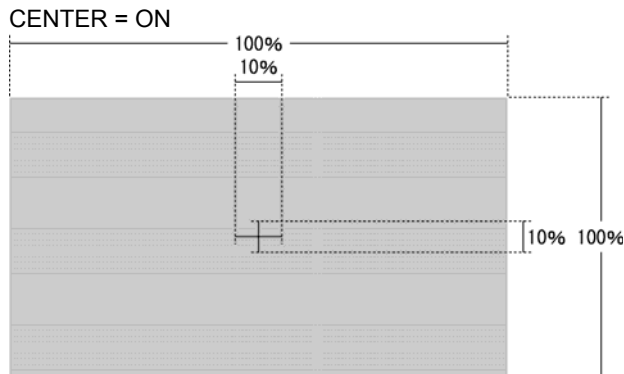


Figure 9-7 Turning the display of the center marker on and off

9.4.3 Displaying the Aspect Marker

To display the aspect marker, follow the procedure below.
There are three kinds of aspect markers: line, shadow, and black. The aspect marker type can be set using **F•D 1** SHADOW.

Procedure

PIC → **F•2** MARKER → **F•3** ASPECT: OFF / 16:9 / 14:9 / 13:9 / 4:3 / 2.39:1

Settings

OFF:	An aspect marker is not displayed.
16:9:	A 16:9 aspect marker is displayed. This option cannot be selected when the input signal is HD.
14:9:	A 14:9 aspect marker is displayed.
13:9:	A 13:9 aspect marker is displayed.
4:3:	A 4:3 aspect marker is displayed. This option cannot be selected when the input signal is SD.
2.39:1:	A 2.39:1 aspect marker is displayed. This option cannot be selected when the input signal is SD.

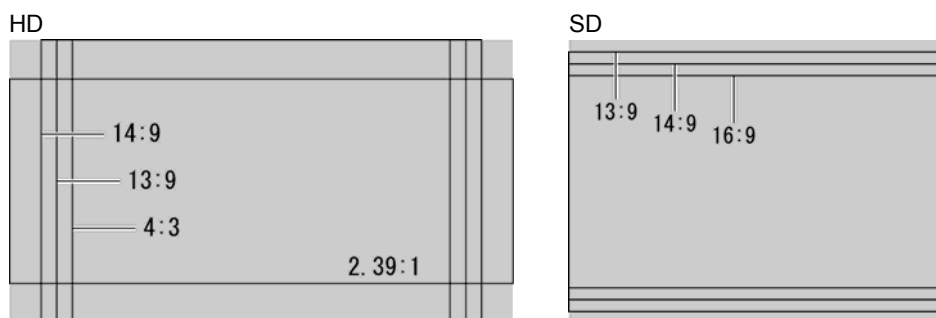


Figure 9-8 Aspect markers

9.4.4 Setting the Aspect Marker

To select the aspect marker type, follow the procedure below.

This setting is available when **F•3** ASPECT is set to any value other than OFF.

Procedure

PIC → **F•2** MARKER → **F•D 1** SHADOW: 0% - 50% - 100%

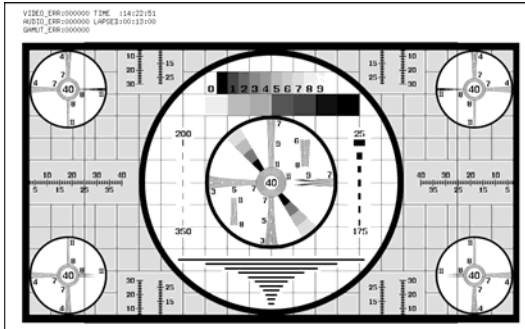
Settings

0%: The aspect marker is indicated with a line.

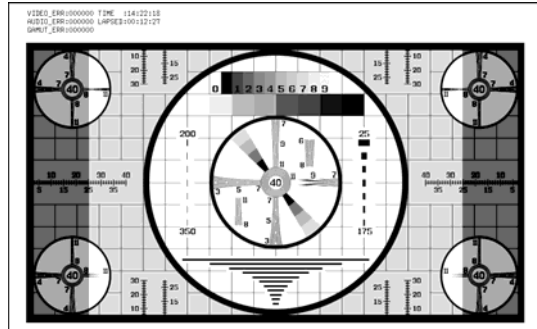
1 to 99%: The area around the aspect marker is indicated with a shadow.

100%: The area outside the aspect marker is indicated with black space.

SHADOW = 0%



SHADOW = 50%



SHADOW = 100%

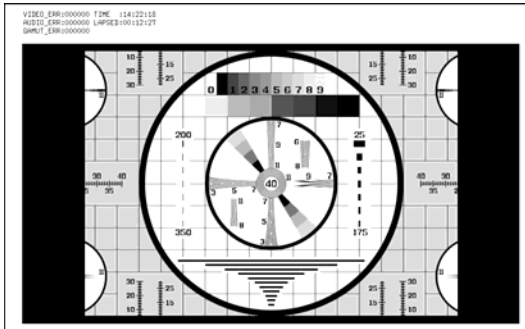


Figure 9-9 Setting the aspect marker

9.4.5 Displaying Safety Markers

To select the safety marker type, follow the procedure below.

The display of the safe action marker, safe title marker, and user markers (two types) can be turned on and off separately.

Procedure

PIC → **F•2** MARKER → **F•4** SAFETY ZONE → **F•1** STANDARD: ARIB / SMPTE / USER

Settings

ARIB: ARIB TR-B4 safe action and safe title markers are displayed.

SMPTE: SMPTE RP 218 safe action and safe title markers are displayed.

USER: Up to two user markers are displayed. You can set user markers to any size you like.

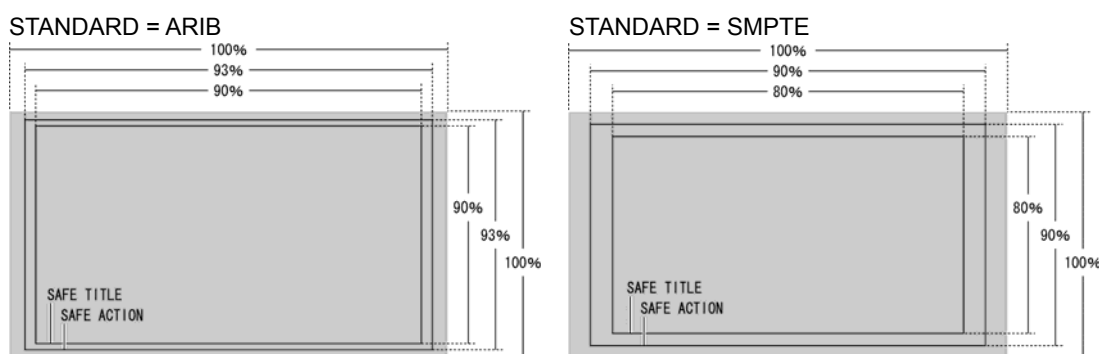


Figure 9-10 Safety markers

- * When an aspect marker is displayed, safe action and safe title markers are displayed inside the aspect marker, with the aspect marker assumed to be 100 %.

9.4.6 Turning the Display of the Safe Action Marker On and Off

To turn the display of the safe action marker on and off, follow the procedure below.

This setting is available when **F•1** STANDARD is set to ARIB or SMPTE.

Procedure

PIC → **F•2** MARKER → **F•4** SAFETY ZONE → **F•2** SAFE ACTION: ON / OFF

9.4.7 Turning the Display of the Safe Title Marker On and Off

To turn the display of the safe title marker on and off, follow the procedure below.

This setting is available when **F•1** STANDARD is set to ARIB or SMPTE.

Procedure

PIC → **F•2** MARKER → **F•4** SAFETY ZONE → **F•3** SAFE TITLE: ON / OFF

9.4.8 Turning the Display of User Markers On and Off

You can set up to two user markers, and turn them on and off separately.
This setting is available when **F•1** STANDARD is set to USER.

Procedure

PIC → **F•2** MARKER → **F•4** SAFETY ZONE → **F•2** USER ZONE1: ON / OFF
→ **F•3** USER ZONE2: ON / OFF

9.4.9 Setting User Markers

To set the size of a user marker, follow one of the procedures below.

The percentages used to specify the user marker sizes are based on the size of the picture (or the size of the aspect marker if the aspect marker is displayed). There are two types of user markers. You can set their horizontal (H) and vertical (V) sizes separately.

• Setting User Marker 1

Procedure

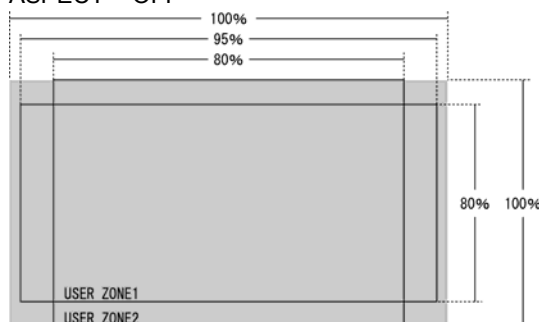
PIC → **F•2** MARKER → **F•4** SAFETY ZONE → **F•2** USER ZONE1 (When set to ON)
→ **F•D 1** USER ZONE1 H: 0% - 90% - 100%
→ **F•D 2** USER ZONE1 V: 0% - 90% - 100%

• Setting User Marker 2

Procedure

PIC → **F•2** MARKER → **F•4** SAFETY ZONE → **F•3** USER ZONE2 (When set to ON)
→ **F•D 1** USER ZONE2 H: 0% - 80% - 100%
→ **F•D 2** USER ZONE2 V: 0% - 80% - 100%

USER ZONE1 H = 95%
USER ZONE1 V = 80%
USER ZONE2 H = 80%
USER ZONE2 V = 100%
ASPECT = OFF



USER ZONE1 H = 95%
USER ZONE1 V = 80%
USER ZONE2 H = 80%
USER ZONE2 V = 100%
ASPECT = 4:3

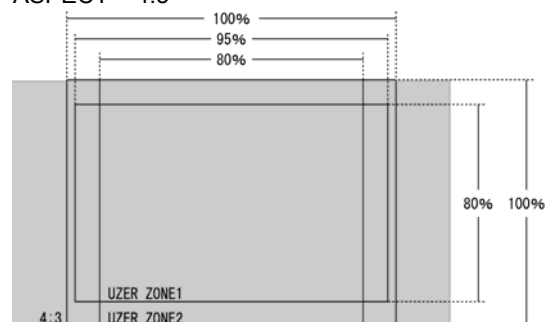


Figure 9-11 User marker setup examples

9.5 Configuring Line Selection Settings

To configure line selection settings, press **F•3** LINE SEL on the picture menu.

The markers that you set here do not appear in the thumbnail display.

F•3 LINE SEL appears when SIZE has been set to FIT. It will not appear in 3D assist mode when MEASURE SELECT has been set to DISPRTY.

For information on the SIZE setting, see section 9.6.1, “Selecting the Display Size.”

For information on the MEASURE SELECT setting, see section 10.5, “Selecting the Measurement Mode.”

PIC → **F•3** LINE SEL →

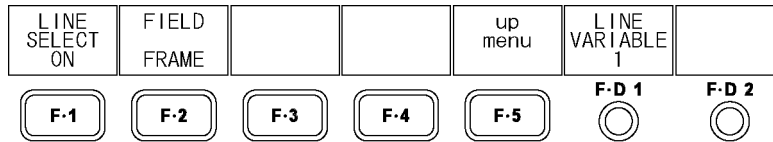


Figure 9-12 LINE SEL menu

9.5.1 Turning Line Selection On and Off

To display a marker on the selected line, follow the procedure below.

Changing this setting will also change the video signal waveform display and vector display line selection settings.

Procedure

PIC → **F•3** LINE SEL → **F•1** LINE SELECT: CINELITE / ON / OFF

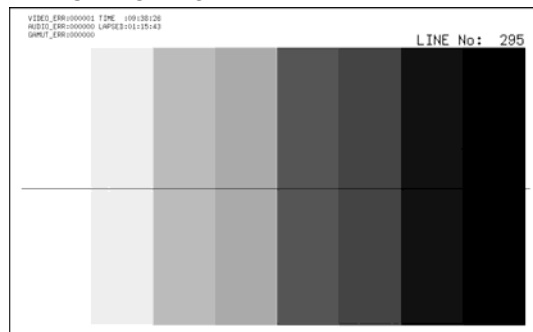
Settings

CINELITE: The selected line of the line select feature is set to the line that you specify on the CINELITE display. This setting is available when CINELITE DISPLAY is set to f Stop or %DISPLAY.

ON: A marker is displayed at the line you selected with **F•D 1** LINE VARIABLE.

OFF: The marker is not displayed.

LINE SELECT = ON



LINE SELECT = OFF

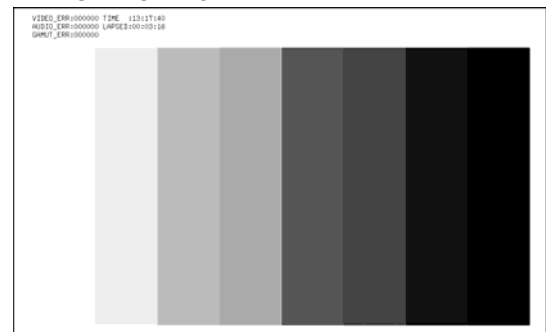


Figure 9-13 Turning line selection on and off

9.5.2 Selecting Lines

To select a line to display a marker on, follow the procedure below. The selected line appears on the screen. If you press **F•D 1**, the selected line changes to the first video line. In 3D assist mode, blanking interval lines cannot be selected.

This setting is available when **F•1** LINE SELECT is set to ON. Changing this setting will also change the selected line on the video signal waveform display, vector display, and data dump display.

Procedure

PIC → **F•3** LINE SEL → **F•D 1** LINE VARIABLE

9.5.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.

This setting is available when **F•1** LINE SELECT is set to ON and the input signal is interlaced or segmented frame. Changing this setting will also change the video signal waveform display and vector display line selection ranges.

Procedure

PIC → **F•3** LINE SEL → **F•2** FIELD: FIELD1 / FIELD2 / FRAME

Settings (the examples are for the selectable ranges when the input format is set to 1080i/59.94)

FIELD1:	A line from field 1 can be selected (example: 1 to 563).
FIELD2:	A line from field 2 can be selected (example: 564 to 1125).
FRAME:	All lines can be selected (example: 1 to 1125).

9.6 Configuring Display Settings

To configure the display settings, press **F•4** DISPLAY on the picture menu.

PIC → **F•4** DISPLAY →

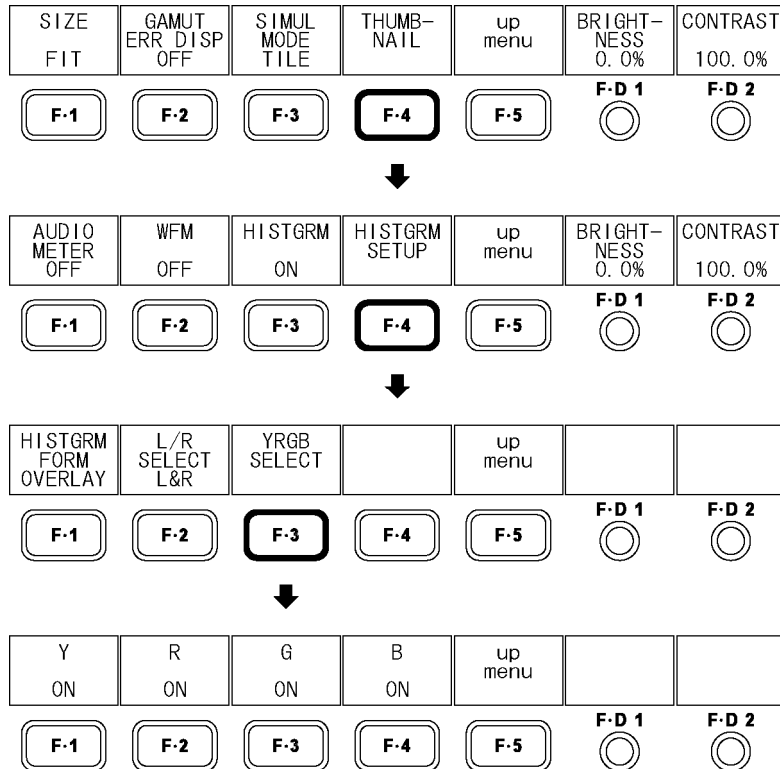


Figure 9-14 DISPLAY menu

9.6.1 Selecting the Display Size

To select the picture display size, follow the procedure shown below.

Regardless of the setting made here, the picture is displayed using the FIT option on the thumbnail display.

This setting does not appear when the multi-screen display or 3D assist mode. However, when PICTURE FORM is set to AGLPH CL, AGLPH MO, CNVRGNCE, OVERLAY, or FLICKER in 3D assist mode (L/R DUAL), you can only select FIT or X1.

For information on the PICTURE FORM setting, see section 10.1, "Selecting the Display Format."

Procedure

PIC → **F•4** DISPLAY → **F•1** SIZE: FIT / X1 / X2 / X4 / FULL FRM / FUL SCR�N

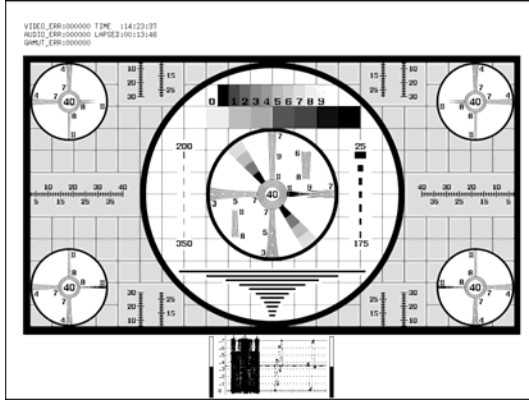
Settings

FIT:	The picture size is adjusted to the most suitable size for the screen.
X1:	<p>A single sample of the video signal is mapped to one pixel of the XGA (1024 × 768) picture resolution. This single sample of the video signal is then optimized and displayed. (*1)</p> <p>The marker and line select features cannot be used.</p> <p>You can adjust the picture position by using H POS and V POS.</p> <p>This setting cannot be chosen when D_LINK FORMAT is set to YC10bit.</p>
X2:	<p>A single sample of the video signal is mapped to four pixels (two horizontal and two vertical pixels) of the XGA (1024 × 768) picture resolution. This single sample of the video signal is then optimized and displayed. (*1)</p> <p>The marker and line select features cannot be used.</p> <p>You can adjust the picture position by using H POS and V POS.</p> <p>This setting cannot be selected when D_LINK FORMAT is set to YC10bit.</p>
X4:	<p>A single sample of the video signal is mapped to 16 pixels (4 horizontal and 4 vertical pixels) of the XGA (1024 × 768) picture resolution. This single sample of the video signal is then optimized and displayed. (*1)</p> <p>The marker and line select features cannot be used.</p> <p>You can adjust the picture position by using H POS and V POS. (See the next setting.)</p> <p>This setting cannot be selected when D_LINK FORMAT is set to YC10bit.</p>
FULL FRM:	<p>A single frame, including the blanking interval, is displayed.</p> <p>The marker and line select features cannot be used.</p>
FUL SCR�N:	<p>When the input signal is SD, the picture is displayed on the whole screen.</p> <p>When the signal is HD, the center of the picture is displayed on the entire screen.</p> <p>The marker and line select features cannot be used.</p> <p>This setting cannot be selected in simultaneous input mode.</p>

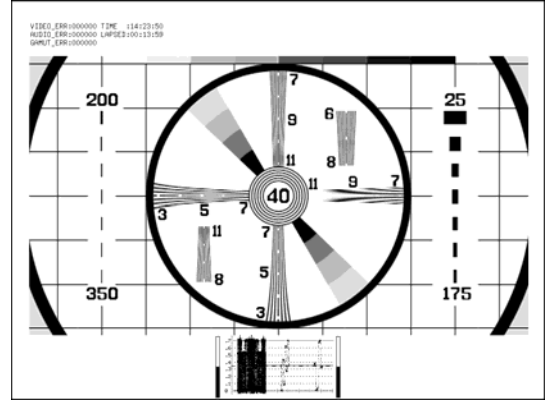
*1 Because the LCD panel resolution is SXGA (1280 × 1024), a single sample is not displayed with 1 pixel, 4 pixels, or 16 pixels on the screen.

9. PICTURE DISPLAY

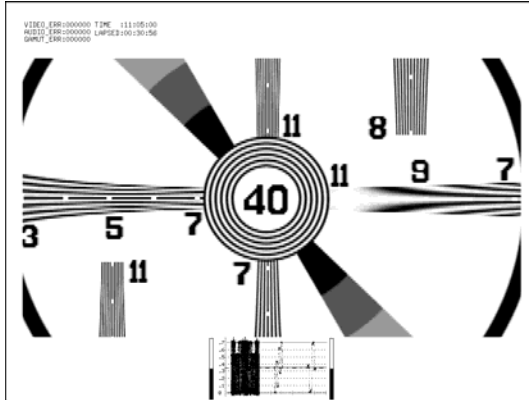
SIZE = FIT



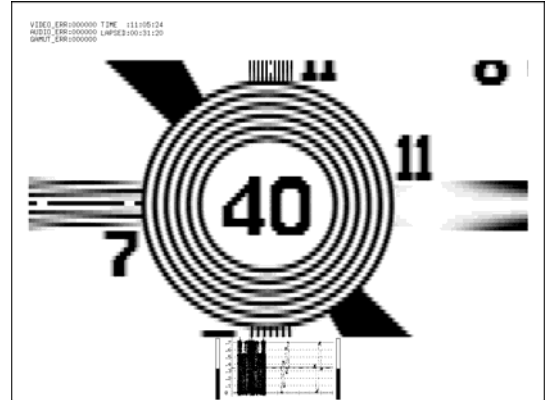
SIZE = X1



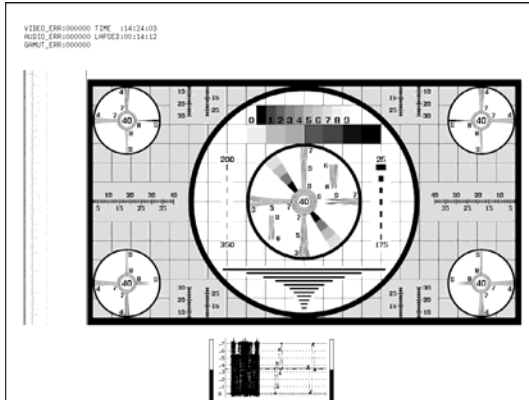
SIZE = X2



SIZE = X4



SIZE = FULL FRM



SIZE = FUL SCRNR

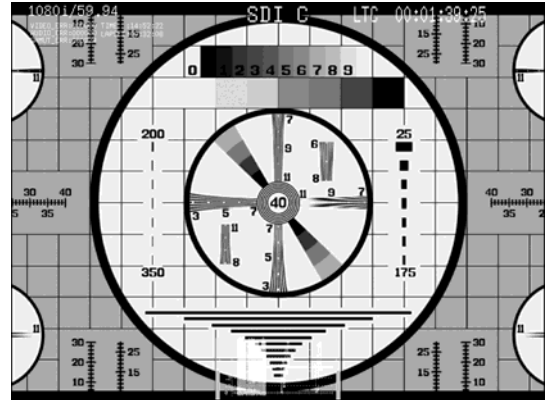


Figure 9-15 Selecting the display size

9.6.2 Adjusting the Display Position

To set the picture display position, follow the procedure below.
This setting is available when **F•1** SIZE is set to X1, X2, or X4.

Procedure

PIC → **F•4** DISPLAY → **F•D 1** H POS
→ **F•D 2** V POS

9.6.3 Displaying Gamut Errors

To display, on the picture, the locations where gamut errors, composite gamut errors, and luminance errors occur, follow the procedure below. The error level display ranges can be set separately on the status menu for each error type.

This setting is displayed when one of GAMUT ERROR, COMPOSIT GAMUT, and LUMA ERROR is set to a value other than OFF on the status menu.

See section 14.7, “Configuring Gamut Error Settings.”

Procedure

PIC → **F•4** DISPLAY → **F•2** GAMUT ERR DISP: OFF / WHITE / RED / MESH

Settings

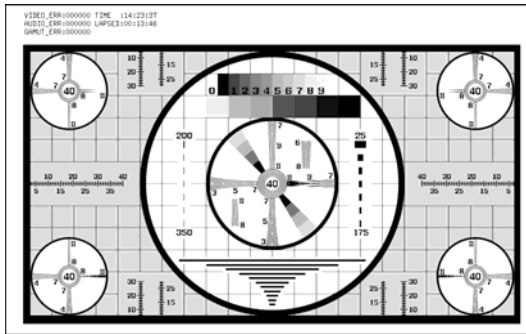
OFF: Gamut errors are not displayed.

WHITE: The picture intensity is halved, and gamut error locations are marked in white.

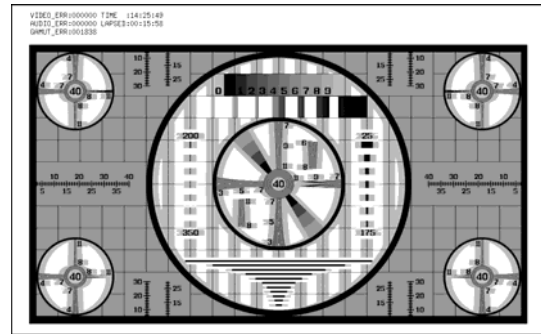
RED: The picture intensity is halved, and gamut error locations are marked in red.

MESH: Gamut error locations are filled with a mesh pattern.

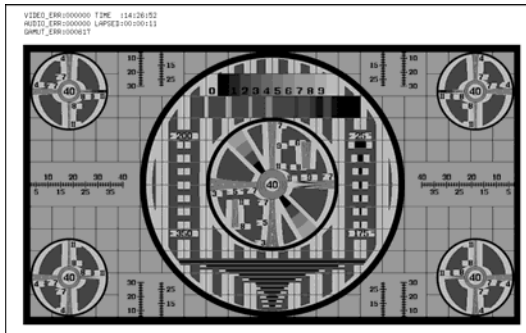
GAMUT ERR DISP = OFF



GAMUT ERR DISP = WHITE



GAMUT ERR DISP = RED



GAMUT ERR DISP = MESH

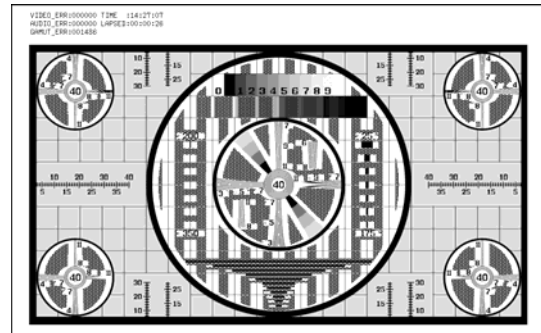


Figure 9-16 Displaying gamut errors

9.6.4 Selecting the Display Format of Simultaneous Input Mode

When in simultaneous input mode, follow the procedure below to select the display format.

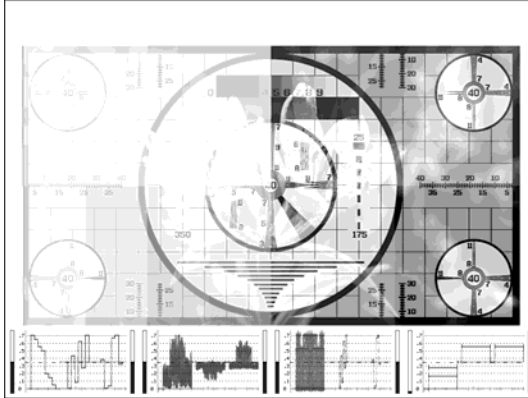
Procedure

PIC → **F•4** DISPLAY → **F•3** SIMUL MODE: MIX / TILE

Settings

MIX: The pictures are overlapped and displayed.
 TILE: The pictures are displayed separately.

SIMUL MODE = MIX



SIMUL MODE = TILE

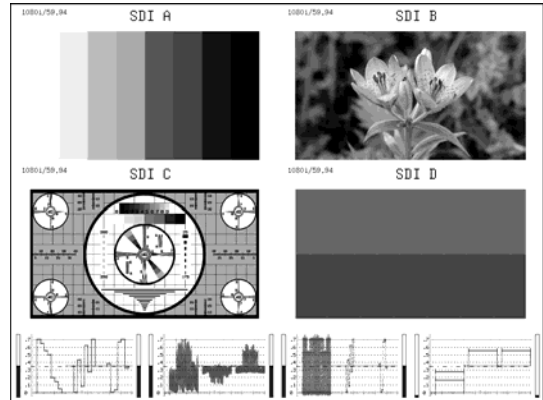


Figure 9-17 Selecting the display format of simultaneous input mode

9.6.5 Setting the Thumbnail Display

To turn the thumbnail displays of the audio meter, video signal waveform, and histogram on and off separately, follow the procedure below. This setting does not appear in the multi-screen display or during disparity measurement in 3D assist mode.

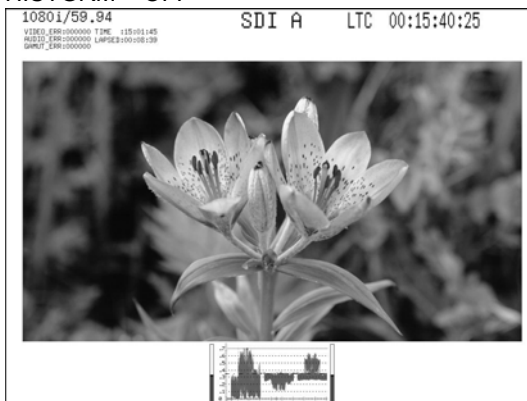
The thumbnail display of the audio meter cannot be shown in 3D assist mode. Also, the histogram cannot be displayed at the same time as other thumbnails.

Procedure

PIC → **F.4** DISPLAY → **F.4** THUMBNAIL → **F.1** AUDIO METER: ON / OFF
 → **F.2** WFM: ON / OFF
 → **F.3** HISTGRM: ON / OFF

AUDIO METER / WFM = ON

HISTGRM = OFF



AUDIO METER / WFM = OFF

HISTGRM = ON

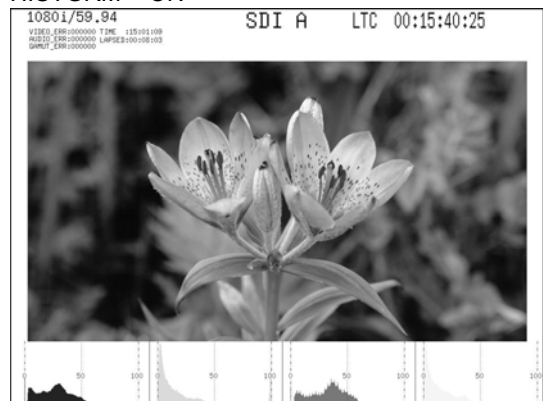


Figure 9-18 Setting the thumbnail display

9.6.6 Selecting the Video Signal Waveform Display Format

When **F•2** WFM is set to ON in 3D assist mode (L/R DUAL), to set the display format, follow the procedure below.

Procedure

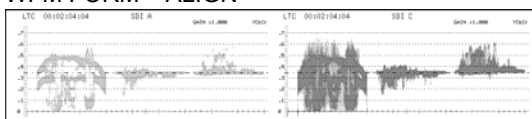
PIC → **F•4** DISPLAY → **F•4** THUMBNAIL → **F•4** WFM SETUP → **F•1** WFM FORM : ALIGN / MIX

Settings

ALIGN: The displays of channel A or B (the video signal for the left eye) and channel C or D (the video signal for the right eye) are shown next to each other.

MIX: Channel A or B (the video signal for the left eye) and channel C or D (the video signal for the right eye) are overlaid on top of each other.

WFM FORM = ALIGN



WFM FORM = MIX

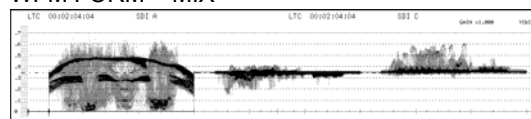


Figure 9-19 Selecting the video signal waveform display format

9.6.7 Selecting the Histogram Display Format

When **F•3** HISTGRM is set to ON, to select the display format, follow the procedure below.

Procedure

PIC → **F•4** DISPLAY → **F•4** THUMBNAIL → **F•4** HISTGRM SETUP → **F•1** HISTGRM FORM: LUMA / PARADE / OVERLAY

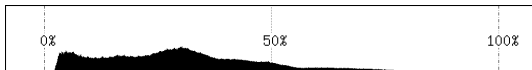
Settings

LUMA: The histogram of the Y (luminance) signal is displayed.

PARADE: The histograms of the Y, R, G, and B signals (in this order) are displayed side by side.

OVERLAY: The histograms of the Y, R, G, and B signals are displayed on top of each other as lines. Signals Y, R, G, and B can be turned on and off separately.

HISTGRM FORM = LUMA



HISTGRM FORM = PARADE



HISTGRM FORM = OVERLAY

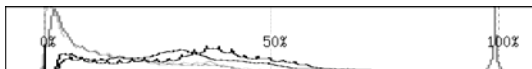


Figure 9-20 Selecting the histogram display format

9.6.8 Selecting Which Signals to Display in the Histogram

When **[F•3]** HISTOGRAM FORM is set to OVERLAY, to turn Y, R, G, and B on and off separately, follow the procedure below. You cannot turn all channels off.

Procedure

[PIC] → **[F•4]** DISPLAY → **[F•4]** THUMBNAIL → **[F•4]** HISTGRM SETUP → **[F•3]** YRGB SELECT

→ **[F•1]** Y: ON / OFF

→ **[F•2]** R: ON / OFF

→ **[F•3]** G: ON / OFF

→ **[F•4]** B: ON / OFF

9.6.9 Selecting Which Channels to Display in the Histogram

When **[F•3]** HISTGRM is set to ON in 3D assist mode (L/R DUAL), to set the channels that are displayed in the histogram, follow the procedure below.

Procedure

[PIC] → **[F•4]** DISPLAY → **[F•4]** THUMBNAIL → **[F•4]** HISTGRM SETUP → **[F•2]** L/R SELECT: LEFT / RIGHT / L&R

Settings

LEFT:	Channel A or B (the video signal for the left eye) is displayed.
RIGHT:	Channel C or D (the video signal for the right eye) is displayed.
L&R:	Channel A or B (the video signal for the left eye) and channel C or D (the video signal for the right eye) are overlaid on top of each other.

9.7 Configuring CINELITE Settings

CINELITE II consists of the CINELITE and CINEZONE features. This section will explain the CINELITE feature.

CINELITE displays luminance levels of video signals on pictures. You can configure it on the following menu.

- **[PIC]** → **[F•5]** CINELITE → **[F•1]** CINELITE DISPLAY to select f Stop or %DISPLAY (Single-screen display)
- **[MULTI]** → **[F•1]** MULTI MODE to select DUAL or QUAD → **[F•3]** MULTI MENU → **[F•1]** MULTI PIC → **[F•4]** DISPLAY → **[F•4]** CINELITE → **[F•1]** CINELITE DISPLAY to select f Stop or %DISPLAY (Multi-screen display)

This feature is not available in simultaneous input mode or 3D assist mode, or when SIZE is set to an option other than FIT.

For information on the SIZE setting, see section 9.6.1, "Selecting the Display Size."

9.7.1 f Stop Screen Explanation

To display the f Stop screen, follow the procedure below.

Procedure

PIC → **F•5** CINELITE → **F•1** CINELITE DISPLAY to select f Stop

On the f Stop screen, luminance levels are displayed using f-stop (exposure) values. The measured f Stop value for a group of measured points is typically displayed using white, but it will be displayed using yellow when it corresponds to a luminance level of 80 % or more. Additionally, f Stop values that correspond to luminance levels equal to or less than 0 % can not be measured. They are displayed in yellow as “****”.

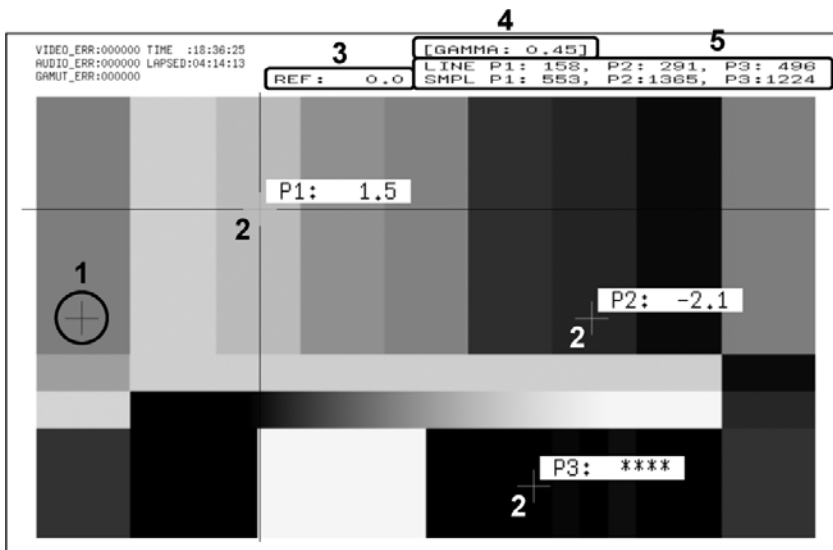


Figure 9-21 f Stop screen

1 Reference Position

The position where the cursors intersected when **F•3** 18% REF SET was pressed is displayed in red. This is the reference position for f-stop measurement.

2 Cursors

You can set up to three cursors. The f Stop value relative to the reference point is displayed at each cursor.

3 Reference Value

The f Stop value at the reference position appears here. The value immediately after you have pressed **F•3** 18% REF SET is zero, but it will change when the picture changes.

4 Gamma Correction Value

The gamma correction value that you selected using **F•1** GAMMA appears here.

5 Coordinates

The cursor coordinates are indicated here with both line and sample numbers.

9.7.2 Procedure for Displaying the f Stop Screen

The following example shows how to display luminance levels as f Stop numbers relative to the luminance level of 18 % gray chart. Include an 18 % gray chart with the objects that you are filming.

1. Press **PIC**.
2. Press **F•5** CINELITE.
3. Press **F•1** CINELITE DISPLAY, and select %DISPLAY.
4. Press **F•2** %DISPLAY SETUP.
5. Press **F•3** UNIT SELECT, and select Y%.

The luminance levels at the cursor are displayed as percentages. The measured values of cursors that are within the blanking interval are not displayed.

6. Place the cursors over the 18 % gray chart.

Adjust the lighting so that the displayed luminance level is 45.0 % (for example).

7. Press **F•5** up menu.
8. Press **F•1** CINELITE DISPLAY, and select f Stop.
9. Press **F•2** f Stop SETUP.
10. Press **F•4** next menu.
11. Press **F•1** GAMMA to select a gamma correction table.

The default gamma correction value is 0.45, but you can also use a user-defined gamma correction table that matches the gamma characteristics of the camera that you are using. For details, see section 9.7.6, “Configuring User-Defined Correction Tables.”

The selected gamma correction value is indicated in the upper right of the screen.

12. Press **F•4** prev menu.
13. Make sure that the cursors are over the 18 % gray chart, and press **F•3** 18% REF SET.

The f Stop value for 18 % gray chart becomes 0.0 and is displayed in the upper part of the screen next to “REF:.” The reference position is displayed with a red cursor.

14. Use the cursors to set the measurement points.

The f Stop value relative to 18 % gray chart appears next to each cursor. You can set up to three measurement points.

9.7.3 %DISPLAY Screen Explanation

To display the %DISPLAY screen, follow the procedure below.

Procedure

PIC → **F•5** CINELITE → **F•1** CINELITE DISPLAY to select %DISPLAY

On the %DISPLAY screen, you can display luminance levels as Y percentages, RGB percentages, or using 255 RGB levels. Use **F•3** UNIT SELECT to select the display format. The measured values are typically displayed using white, but they are displayed using yellow when the luminance level is 80 % or more or 0 % or less.

- **Y% Display**

Luminance levels are indicated as percentages.

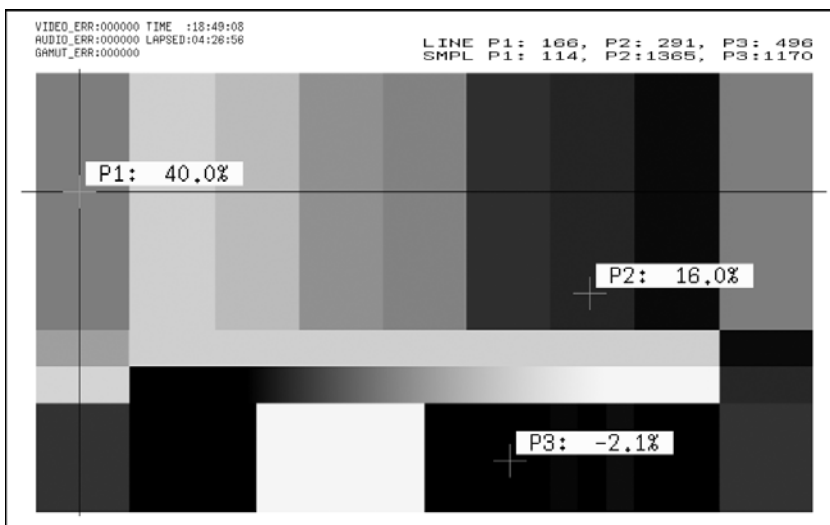


Figure 9-22 Y% display

9. PICTURE DISPLAY

• RGB% Display

Each R, G, and B level is indicated using a percentage. The levels are also indicated using bars on the left side of the display (the order is R, G, and then B).

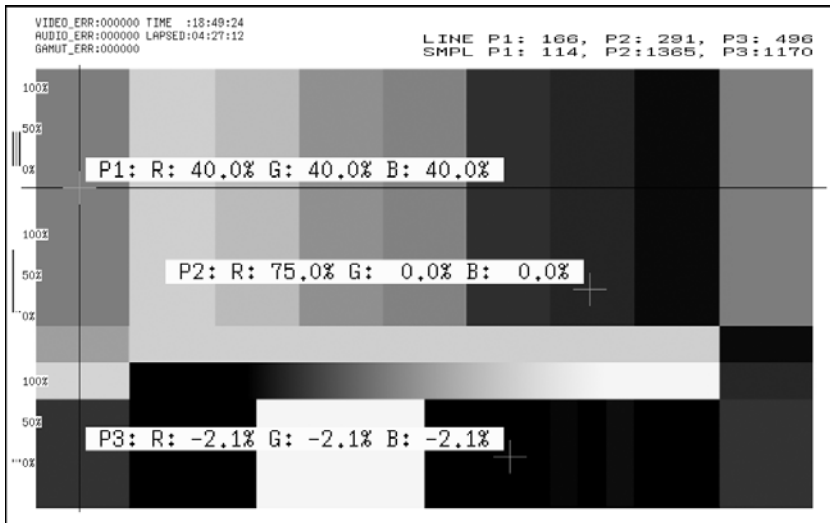


Figure 9-23 RGB% display

• RGB 255 Display

Each R, G, and B level is indicated using 256 steps from 0 to 255. The levels are also indicated using bars on the left side of the display (the order is R, G, and then B).

The value of an RGB level that is 100 % or greater is 255. The value of an RGB level that is 0 % or less is 0.

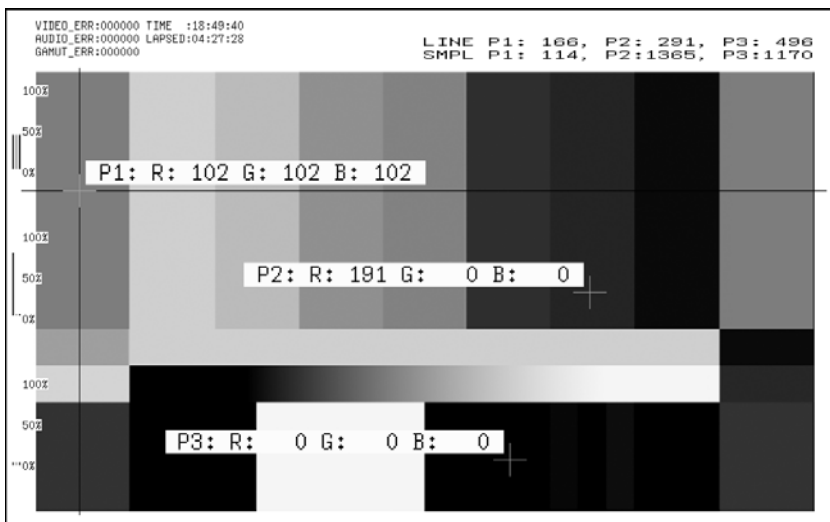


Figure 9-24 RGB 255 display

9.7.4 Setting Measurement Points

You can set up to three measurement points. Follow the procedure below to select which measurement point to set with the cursors, and then move the X and Y cursors by using **[F•D 1]** SAMPLE SELECT and **[F•D 2]** LINE SELECT, respectively. Press **[F•D 1]** and **[F•D 2]** at the same time to move the cursors to the center of the picture.

The cursors are not displayed if they are within the blanking interval. To display cursors that do not appear, move them within the screen.

You cannot turn off one of the points from P1 to P3. To hide a cursor, move it outside of the screen.

The measurement point settings made on the menus accessed by pressing **[F•2]** f Stop SETUP and **[F•2]** %DISPLAY SETUP are the same.

Procedure

[PIC] → **[F•5]** CINELITE → **[F•2]** f Stop SETUP → **[F•1]** MEAS POS: P1 / P2 / P3
 → **[F•2]** %DISPLAY SETUP → **[F•1]** MEAS POS: P1 / P2 / P3

9.7.5 Selecting the Measurement Size

To select the measurement size, follow the procedure below. This setting is applied to P1 to P3 and REF.

The measurement size settings made on the menus accessed by pressing **[F•2]** f Stop SETUP and **[F•2]** %DISPLAY SETUP are the same.

Procedure

[PIC] → **[F•5]** CINELITE → **[F•2]** f Stop SETUP → **[F•2]** MEAS SIZE: 1X1 / 3X3 / 9X9
 → **[F•2]** %DISPLAY SETUP → **[F•2]** MEAS SIZE: 1X1 / 3X3 / 9X9

9.7.6 Configuring User-Defined Correction Tables

The default gamma correction value when measuring f Stop levels is 0.45, but you can also use a user-defined gamma correction table that matches the gamma characteristics of the camera that you are using.

There are two types of user-defined correction tables. The first type consists of tables that are created using the LV 5980 and is made up of the USER1 to USER3 tables. The second type consists of tables that have been created externally using a device such as a PC and is made up of the USER-A to USER-E tables.

Neither type of user-defined correction table is deleted if you initialize the LV 5980.

• Creating User-Defined Correction Tables Using the LV 5980

You can create and store up to three user-defined correction tables on the LV 5980.

As an example, the following procedure shows how to create a user-defined correction table that matches a film camera's gamma characteristics.

Set the camera's f Stop value to 5.6 beforehand, and put an 18 % gray chart in the area that you will film.

1. Adjust the lighting so that the displayed luminance level of the 18 % gray chart is 45.0 % (for example) on a camera whose f Stop value is set to 5.6.

For details, see steps 1 through 6 in section 9.7.2, "Procedure for Displaying the f Stop Screen."

2. Press **F•5** up menu.
3. Press **F•1** CINELITE DISPLAY, and select f Stop.
4. Press **F•2** f Stop SETUP.
5. Press **F•4** next menu.
6. Press **F•1** GAMMA, and select USER1.

In this example, the table for USER1 is created, but the tables for USER2 and USER3 can also be created in the same way.

7. Press **F•2** GAMMA CAL.

When you press F•2 GAMMA CAL, a user-defined correction table appears in the bottom left of the screen, and the luminance level appears as a 10-bit value (0 % is displayed as 64, and 100 % is displayed as 940) close to the cursor.

This setting is available when **F•1** GAMMA is set to an option from USER1 to USER3.

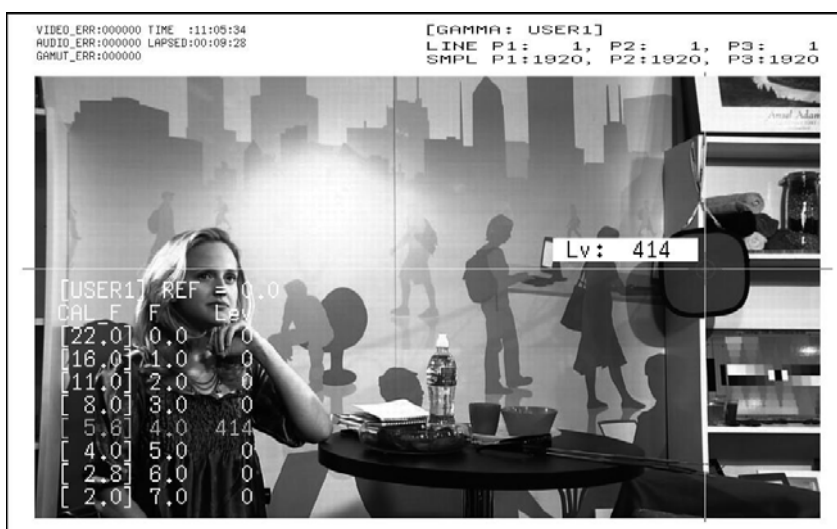


Figure 9-25 User-defined correction table creation screen

8. Press **F•1** TABLE CLEAR.

All the values in the user-defined correction table that is currently being edited are initialized. Be sure to initialize the values first when you create a new user-defined correction table.

9. Press **F•1** CLEAR YES.

To cancel the initialization of a user-defined correction table, press **F•3** CLEAR NO.

10. Place the cursors over the 18 % gray chart.

11. Press **F•4** CAL F, and select 5.6.

12. Press **F•3** CAL SET.

The luminance level when the camera f Stop value is 5.6 is entered into Lev in the user-defined correction table. To delete a line of data, press **F•2** 1 DATA CLEAR.

13. Change **F•4** CAL F and the camera f Stop value together in the following order: 4.0, 2.8, 2.0, 8.0, 11.0, 16.0, 22.0. Press **F•3** CAL SET each time you change the value to enter the luminance level for each value.

Do not change the lighting or the position of the 18 % gray chart.

Also, make sure that the Lev value for f Stop values 22.0 to 2.0 increases linearly.

The REF value in the user-defined correction table is entered when you press **F•3** 18% REF SET on the f Stop display.

For example, if you use the left-hand table shown below and press **F•3** 18% REF SET when the luminance value at the intersection of the cursors is 416 (10-bit value), the f Stop value at that point (3.0) is displayed as the REF value.

[USER1] REF=0.0				[USER1] REF=3.0		
CAL_F	F	Lev		CAL_F	F	Lev
[22.0]	0.0,	152	➔	[22.0]	0.0,	152
[16.0]	1.0,	240		[16.0]	1.0,	240
[11.0]	2.0,	328		[11.0]	2.0,	328
[8.0]	3.0,	416		[8.0]	3.0,	416
[5.6]	4.0,	504		[5.6]	4.0,	504
[4.0]	5.0,	592		[4.0]	5.0,	592
[2.8]	6.0,	680		[2.8]	6.0,	680
[2.0]	7.0,	768		[2.0]	7.0,	768

Figure 9-26 User-defined correction tables

When the above user-defined correction tables are used, f Stop values are indicated as shown below. The values between specified values are interpolated linearly.

When Lv = 152	f Stop = -3.0
When Lv = 240	f Stop = -2.0
When Lv = 328	f Stop = -1.0
When Lv = 416	f Stop = 0.0
When Lv = 504	f Stop = 1.0
When Lv = 592	f Stop = 2.0
When Lv = 680	f Stop = 3.0
When Lv = 768	f Stop = 4.0

- **Loading a User-Defined Correction Table into the LV 5980**

You can load up to five user-defined correction tables into the LV 5980.

To load a user-defined correction table into the LV 5980, follow the procedure below.

1. Create a user-defined correction table.

Example (TEST.CLT):

#####			Comment
NAME:SAMPLE_1			Keyword
TYPE:0			Keyword
#Input	-7%	0	Comment
#	109%	4095	Comment
#Output	0%	0	Comment
#	1000%	65535	Comment
#Input	Output		Comment
#####			Comment
0	0		Data
1	16		Data
2	32		Data
(Omitted)			
4093	65488		Data
4094	65504		Data
4095	65520		Data
# EOF			Comment

When you create a correction table, make sure that it conforms to the specifications listed below.

Overall File Specifications

File Type	ASCII text file
Extension	.CLT
End-of-Line Character	CR+LF
Number of Lines	5000 or less
Number of Characters per Line	255 or less (including CR+LF)
File Name Length	20 characters or less (excluding the extension)
Permitted File Name Characters	Letters of the alphabet (A to Z; uppercase and lowercase), numerals (0 to 9), and underscores (_).

Comments

If you start a line with the number sign (#), the line is treated as a comment and does not affect operations.

You can put comments anywhere.

Keywords

Be sure to put the keyword lines before the data lines and to enter a keyword without anything preceding it at the beginning of each keyword line.

NAME	The LV 5980 displays the eight characters that follow the separator (colon) as the name of the correction table. After the separator, enter the correction table name using letters of the alphabet (A to Z; uppercase and lowercase), numbers (0 to 9), and underscores (_). You can enter up to 10 characters.
TYPE	This is a code for identifying the file type. Enter a zero after the separator (colon).

Data

From the start of a line, enter the input value, a separator, and then the output value, in that order.

Input Value	Enter values from 0 to 4095 (12 bits), increasing the value by one for each line. A luminance level of 100 % is defined as $940 \text{ (10 bits)} \times 4 = 3760 \text{ (12 bits)}$. A luminance level of 0 % is defined as $64 \text{ (10 bits)} \times 4 = 256 \text{ (12 bits)}$.
Separator	Enter a single tab code.
Output Value	Enter a value from 0 to 65535 (16 bits).

2. **Save the user-defined correction table to USB memory, and connect the USB memory to the LV 5980.**

Save the correction table in the following directory.

```

└─ USB memory
   └─ LV5980_USER
      └─ TEST.CLT (example)

```

3. Press **PIC**.
4. Press **F•5** CINELITE.
5. Press **F•1** CINELITE DISPLAY, and select f Stop.
6. Press **F•2** f Stop SETUP.
7. Press **F•4** next menu.
8. Press **F•1** GAMMA, and select USER-A.

In this example, a user-defined correction table is copied to USER-A, but user-defined correction tables can be copied to USER-B through USER-E in the same way.

9. Press **F•2** GAMMA FILE.

This setting is available when **F•1** GAMMA is set to an option from USER-A to USER-E.

10. Press F•1 FILE LIST.

The file list screen appears. This setting appears when USB memory is connected.

To delete the table that has been copied to USER-A, press F•2 TABLE CLEAR.

11. Use F•D 1 FILE SELECT to select the file to copy from the USB memory.

This setting appears when you press F•1 FILE LIST.

12. Press F•3 FILE LOAD.

The user-defined correction table that you selected is copied from the USB memory to USER-A. The copy operation is complete when the file list screen disappears and the display returns to the measurement screen.

If a file has already been stored to USER-A, an overwrite confirmation prompt appears.

If you want to overwrite the current file, press F•1 OVER WR YES. Otherwise, press F•3 OVER WR NO.

After you have copied a user-defined correction table, you can select it by pressing F•1 GAMMA on the CINELITE menu. A loaded correction table is displayed using the name determined by its NAME keyword.

9.7.7 Displaying Synchronized Markers

To synchronize the markers on the vector display and video signal waveform display to measurement points P1 to P3 and REF that you specify on the CINELITE display, follow the procedure below.

Markers cannot be displayed on the video signal waveform display under the following conditions.

- When SWEEP in the video signal waveform menu is not H or H_1H
- When COLOR MATRIX in the video signal waveform menu is COMPOSIT

Marker display will not work properly when waveforms are being displayed using an external sync signal.

Procedure

PIC → F•5 CINELITE → F•3 CINELITE ADVANCE: OFF / P+V / P+W / P+V+W

Settings

OFF:	P1 to P3 and REF are displayed only on the picture display.
P+V:	P1 to P3 and REF are displayed on the picture and vector displays.
P+W:	P1 to P3 and REF are displayed on the picture and video signal waveform displays.
P+V+W:	P1 to P3 and REF are displayed on the picture, vector, and video signal waveform displays.

9. PICTURE DISPLAY

CINELITE ADVANCE = P+V+W

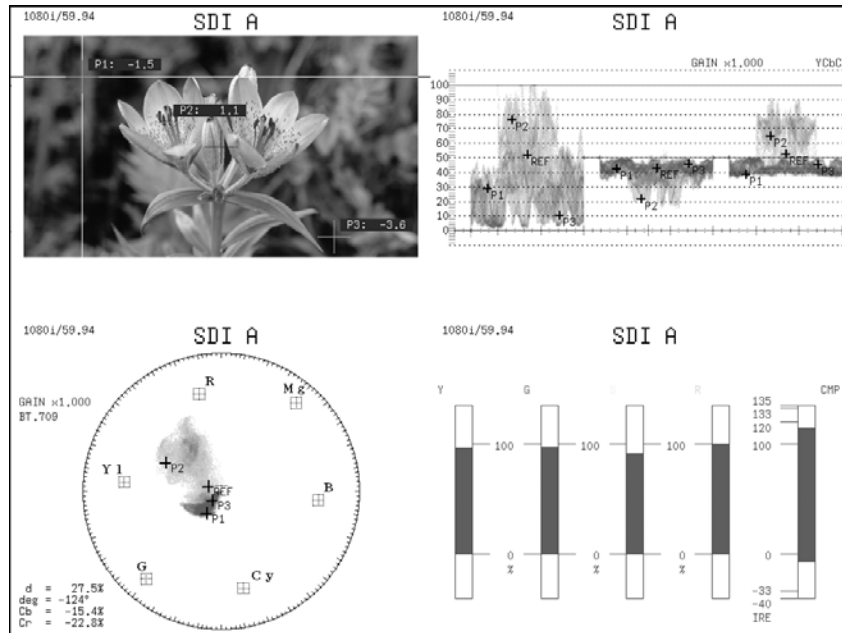


Figure 9-27 Displaying synchronized markers

If P+V or P+V+W is selected, the measured values of the selected measurement point are displayed in the lower left of the vector display.

Measured values are displayed using the following references: Cb at position B = 100.0% and Cr at position R = 100.0%. The distance from the center is expressed as “d,” and hue is expressed as “deg.”

Normally, markers P1 to P3 are displayed in light blue and REF in red. When they fall outside the display, they blink in red. If this occurs, “OVER” appears above the measured values.

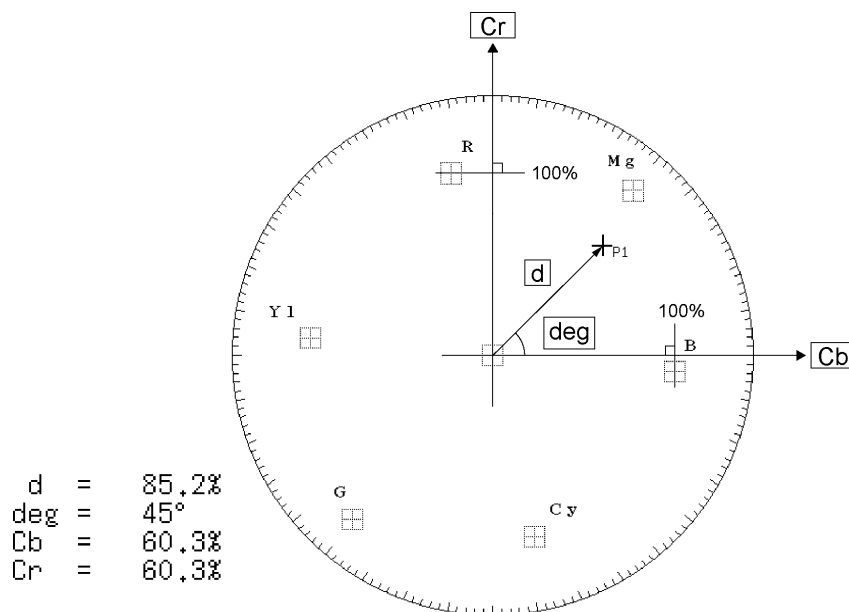


Figure 9-28 Marker description

9.7.8 Configuring Line and Sample Numbers

In the f Stop and %DISPLAY screens, you can use cursors to measure luminance levels. To specify how lines and samples are numbered, follow the procedure below.

Procedure

PIC → F.5 CINELITE → F.4 LINE & SMPL No.: TOTAL / ACTIVE

Settings

TOTAL: The first line in the picture is numbered 1, and the first sample is numbered 0.
 ACTIVE: The start of the active interval of the picture is numbered (1, 1).

9.8 Configuring CINEZONE Settings

CINELITE II consists of the CINELITE and CINEZONE features. This section will explain the CINEZONE feature.

The CINEZONE display has a gradation (step) display mode, in which the picture luminance levels are converted into RGB colors and displayed and a search display mode, in which the specified luminance level range is converted to into RGB colors and displayed.

Use the following menu to configure these features.

- PIC → F.5 CINELITE → F.1 CINELITE DISPLAY to select CINEZONE (Single-screen display)
- MULTI → F.1 MULTI MODE to select CINEZONE (Multi-screen display, single input mode)
- MULTI → F.1 MULTI MODE to select DUAL or QUAD → F.3 MULTI MENU → F.1 MULTI PIC → F.4 DISPLAY → F.4 CINELITE → F.1 CINELITE DISPLAY to select CINEZONE (Multi-screen display)

This feature is not supported by and does not appear in 3D assist mode.

9.8.1 Gradation Display

To display picture luminance levels through color gradation, follow the procedure below. On the gradation display, luminance levels are displayed using 1024 colors.

The picture is displayed so that luminance levels above F.D 1 UPPER are displayed using white, and levels below F.D 2 LOWER are displayed using black.

You can see what colors correspond to what luminance levels by looking at the scale on the right of the display.

If F.D 1 UPPER is 1 % greater than F.D 2 LOWER and you lower the value of F.D 1 UPPER, the value of F.D 2 LOWER is automatically lowered to maintain a difference of 1 % between the two values. In the same way, if you raise the value of F.D 2 LOWER, the value of F.D 1 UPPER is automatically raised to maintain a difference of 1 % between the two values.

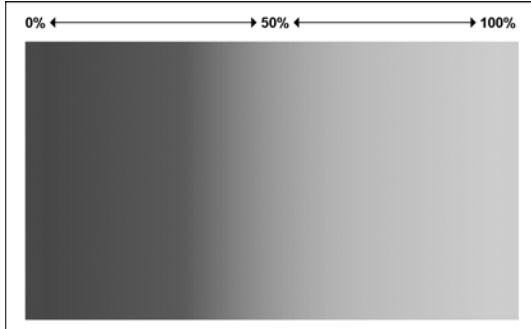
F.D 1 UPPER and F.D 2 LOWER appear when you set F.1 DISPLAY to GRADATE or STEP.

9. PICTURE DISPLAY

Procedure

PIC → **F•5** CINELITE → **F•2** CINEZONE SETUP → **F•1** DISPLAY to select GRADATE
→ **F•D 1** UPPER: -6.3% - 100.0% - 109.4%
→ **F•D 2** LOWER: -7.3% - 0.0% - 108.4%

Picture Display



Gradation Display

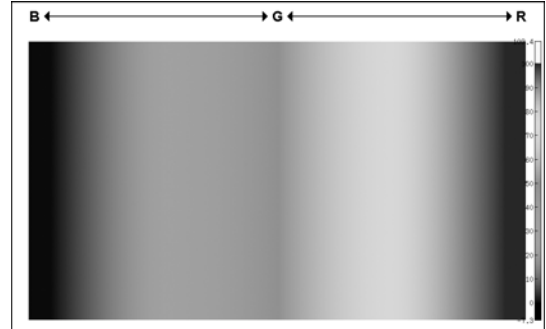


Figure 9-29 Gradation display

9.8.2 Step Display

To display picture luminance levels in steps, follow the procedure below.

On the step display, luminance levels are divided into 10 % steps and assigned to 12 different colors. For information about **F•D 1** UPPER and **F•D 2** LOWER, see section 9.8.1, "Gradation Display."

Procedure

PIC → **F•5** CINELITE → **F•2** CINEZONE SETUP → **F•1** DISPLAY to select STEP
→ **F•D 1** UPPER
→ **F•D 2** LOWER

DISPLAY = GRADATE



DISPLAY = STEP

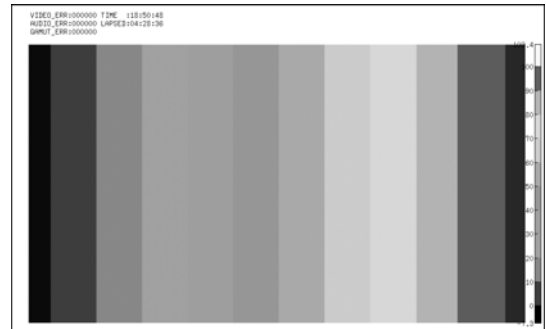


Figure 9-30 Step display

9.8.3 Search Display

In search display, the specified luminance level range is displayed with gradations. Also, luminance levels greater than or equal to the specified range are displayed using white, and levels less than or equal to the specified range are displayed using black.

To set the level that is displayed with gradation, follow the procedure below.

The range specified by **F•D 2** RANGE in reference to **F•D 1** LEVEL is displayed with gradation.

Procedure

PIC → **F•5** CINELITE → **F•2** CINEZONE SETUP → **F•1** DISPLAY to select SEARCH
 → **F•D 1** LEVEL: -7.3% - 50.0% - 109.4%
 → **F•D 2** RANGE: 0.5% - 12.0% - 100.0%

DISPLAY = SEARCH



Figure 9-31 Search display

10. 3D ASSIST DISPLAY

In the 3D assist display, you can evaluate 3D video signals by applying the video signal for the left eye and the video signal for the right eye.

The supported format is HD-SDI (single link).

Use **[F.5]** 3D FUNCTION on the picture menu to configure the 3D assist display settings. This setting is available when **[F.5]** INPUT MODE in the input menu is set to 3D ASIST.

See section 4.3, "Setting the Signal to Measure."

[PIC] → **[F.5]** 3D FUNCTION →

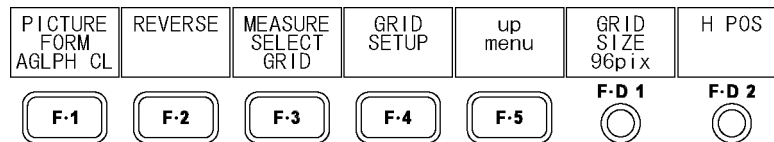


Figure 10-1 3D FUNCTION menu

10.1 Selecting the Display Format

To select the picture display format, follow the procedure below.

By using anaglyph glasses with the anaglyph displays (AGLPH CL and AGLPH MO), you can easily check 3D video signals.

This setting does not appear in the multi-screen display when MULTI MODE is set to COMPARE.

For information on the MULTI MODE setting, see section 6.2, "Selecting the Display Format."

Procedure

[PIC] → **[F.5]** 3D FUNCTION → **[F.1]** PICTURE FORM: AGLPH CL / AGLPH MO / CNVRGNCE / OVERLAY / CHECKER / WIPE

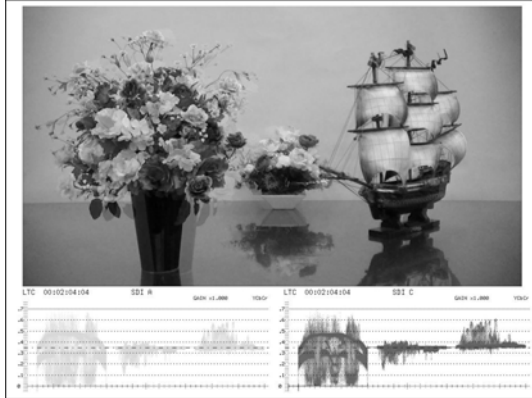
Settings

- | | |
|-----------|--|
| AGLPH CL: | Green and blue are masked from the video signal for the left eye, and red is masked from the video signal for the right eye. These signals are then combined and displayed. |
| AGLPH MO: | Green and blue are masked from the monochrome video signal for the left eye, and red is masked from the monochrome video signal for the right eye. These signals are then combined and displayed. This is useful when you are measuring the amount of disparity because only the parts of the video that have disparity are colored. |
| CNVRGNCE: | A 50 % offset is added to the difference between the monochrome video signal for the left eye and the monochrome video signal for the right eye. The signals are then displayed. This is useful when you are performing convergence adjustment of two cameras. |
| OVERLAY: | The levels of the video signal for the left eye and the video signal for the right eye are halved. These signals are then combined and displayed. |
| CHECKER: | The displays of the video signal for the left eye and the video signal for the right eye are displayed in a checkerboard pattern. You can set the positions of the boundary lines. This is useful when you are matching the video level of two cameras. |
| WIPE: | The displays of the video signal for the left eye and the video signal for the |

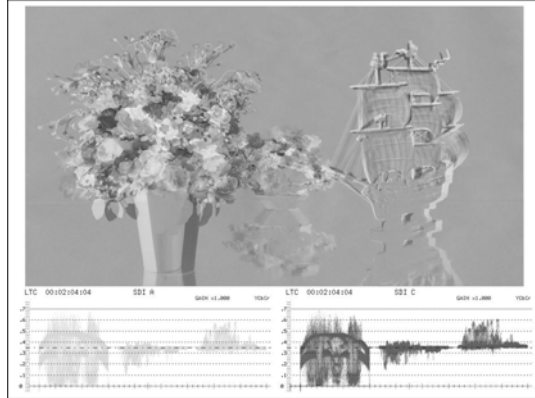
right eye are separated at the border. The video signal for the left eye appears to the upper left of the border and the video signal for the right eye appears to the lower right of the border. You can move the border freely. This is useful when you are matching the video level of two cameras.

FLICKER: The left eye video signal and the right eye video signal are displayed on a time sharing display.

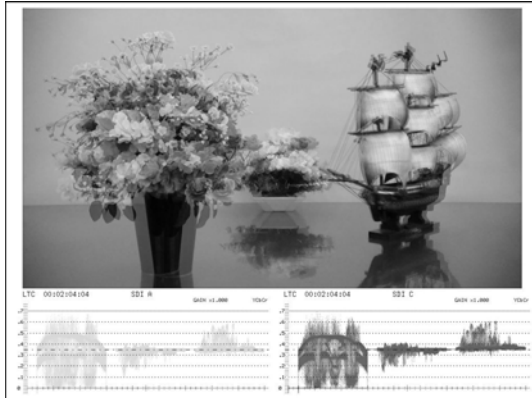
PICTURE FORM = AGLPH CL / AGLPH MO



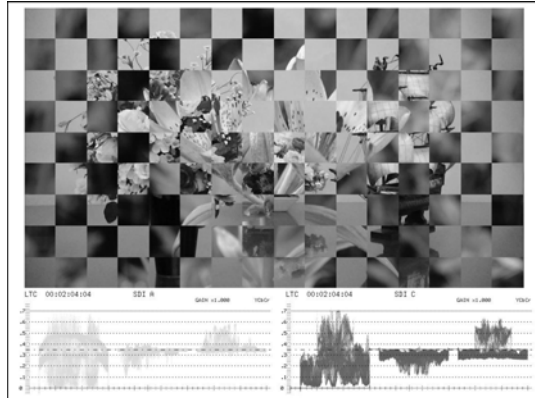
PICTURE FORM = CNVRGNCE



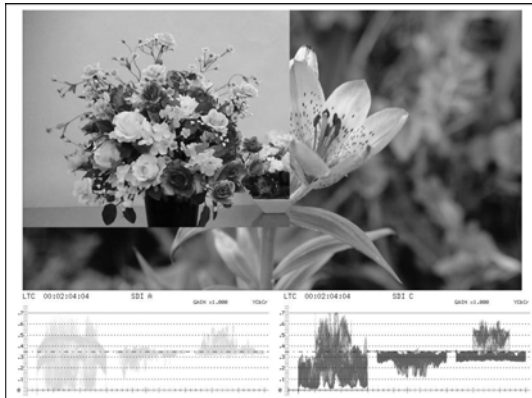
PICTURE FORM = OVERLAY



PICTURE FORM = CHECKER (*1)



PICTURE FORM = WIPE (*1)



PICTURE FORM = FLICKER

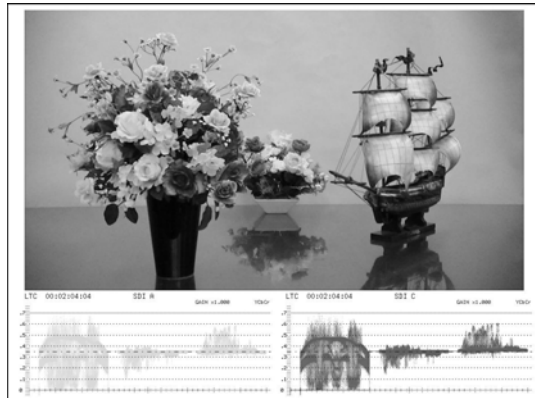


Figure 10-2 Selecting the display format

*1 To make this explanation clearer, the video signal for the right eye has been replaced with a different signal.

10.2 Configuring Checkerboard Display Settings

When **F•1** PICTURE FORM is set to CHECKER, use the 3D FUNCTION menu to move the boundary lines. Press **F•D 1** to move the left-right boundary lines and **F•D 2** to move the top-bottom boundary lines in a way that makes each square the same size in the checkerboard pattern.

PIC → **F•5** 3D FUNCTION →

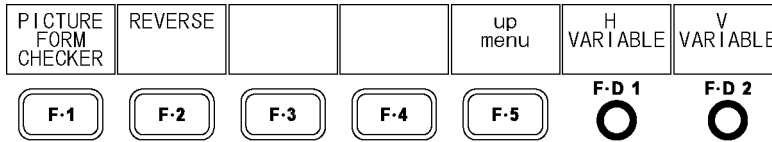


Figure 10-3 3D FUNCTION menu

Procedure

PIC → **F•5** 3D FUNCTION → **F•D 1** H VARIABLE (Left-right boundary line)
→ **F•D 2** V VARIABLE (Top-bottom boundary line)

10.3 Configuring Wipe Display Settings

When **F•1** PICTURE FORM is set to WIPE, use the 3D FUNCTION menu to configure the boundary line settings.

PIC → **F•5** 3D FUNCTION →

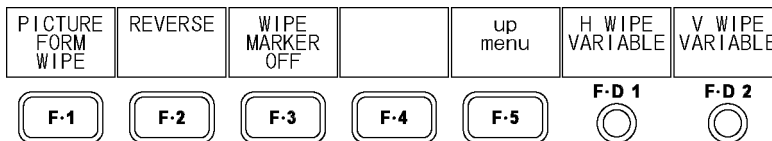


Figure 10-4 3D FUNCTION menu

10.3.1 Turning the Boundary Lines On and Off

To turn the boundary lines on and off, follow the procedure below.

Procedure

PIC → **F•5** 3D FUNCTION → **F•3** WIPE MARKER: OFF / ON

10.3.2 Moving Boundary Lines

To move the boundary lines, follow the procedure below. Press **F•D 1** to move the left-right boundary line to the middle of the screen. Press **F•D 2** to move the top-bottom boundary line to the bottom of the screen.

When WFM FORM is set to MIX, you can display the video signal waveforms separately on the left and right sides of the screen by turning **F•D 1**.

For information on the WFM FORM setting,

see section 9.6.6, "Selecting the Video Signal Waveform Display Format."

Procedure

PIC → **F•5** 3D FUNCTION → **F•D 1** H WIPE VARIABLE (Left-right boundary line)
→ **F•D 2** V WIPE VARIABLE (Top-bottom boundary line)

10.4 Setting the Inverted Display

To invert the display, press **[F•2]** REVERSE on the 3D FUNCTION menu.

PIC → **[F•5]** 3D FUNCTION → **[F•2]** REVERSE →

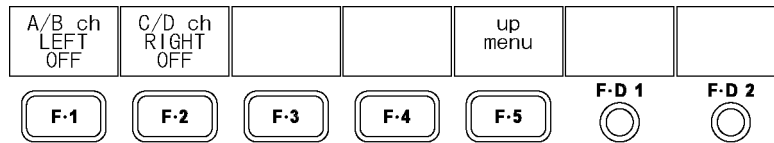


Figure 10-5 REVERSE menu

To invert the display of the picture and the video signal waveform for each input signal, follow the procedure below. Use this feature when you are measuring video that is projected using half mirrors.

Procedure

PIC → **[F•5]** 3D FUNCTION → **[F•2]** REVERSE

→ **[F•1]** A/B ch LEFT (*1): OFF / VERTICAL / HORIZONTAL / H&V

→ **[F•2]** C/D ch RIGHT (*1): OFF / VERTICAL / HORIZONTAL / H&V

Settings

OFF:	The display is not inverted.
VERTICAL:	Pictures are inverted vertically.
HORIZONTAL:	Pictures and video signal waveforms are inverted horizontally. (*2)
H&V:	Pictures are inverted vertically and video signal waveforms are inverted horizontally. (*2)

*1 When 3D INPUT FORMAT is set to HF SbyS or TOP&BOTM, the menu items change to **[F•1]** LEFT and **[F•2]** RIGHT.

*2 Horizontal inversion of the video signal waveform occurs only during the video period.
The video is not inverted in 3D assist mode (HF SbyS or TOP&BOTM).

10.5 Selecting the Measurement Mode

In the single-screen display, when **[F•1]** PICTURE FORM is set to AGLPH CL, AGLPH MO, CNVRGNCE, OVERLAY, or FLICKER, you can use the grid or the cursors to measure disparity.

To select the disparity measurement mode, follow the procedure below.

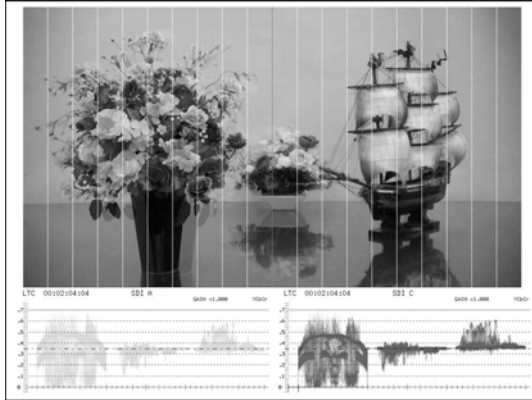
Procedure

PIC → **[F•5]** 3D FUNCTION → **[F•3]** MEASURE SELECT: OFF / GRID / DISPRTY

Settings

OFF:	No grid lines or cursors are displayed.
GRID:	Grid lines are displayed. You can use the grid to measure disparity.
DISPRTY:	Cursors are displayed. You can perform detailed disparity measurements by setting the viewing environment

MEASURE SELECT = GRID



MEASURE SELECT = DISPRTY



Figure 10-6 Selecting the measurement mode

10.6 Configuring Grid Display Settings

To configure the grid display settings, press **F•4** GRID SETUP on the 3D FUNCTION menu. These settings are available when **F•3** MEASURE SELECT is set to GRID.

10.6.1 Selecting the Displayed Grid

To select the type of grid that is displayed, follow the procedure below. The reference grid lines for both the disparity and horizontal grid lines are displayed in yellow.

Procedure

PIC → **F•5** 3D FUNCTION → **F•4** GRID SETUP → **F•1** GRID DISPLAY: DISPRTY / HORIZONTAL / BOTH

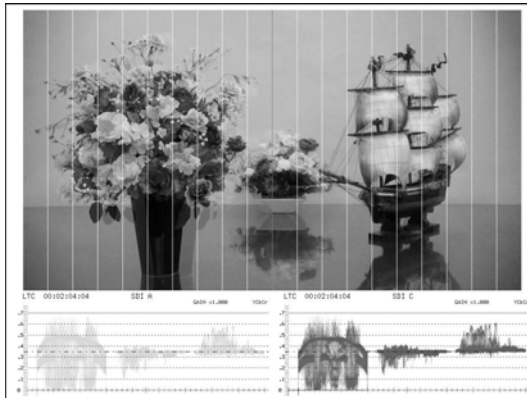
Settings

DISPRTY: Vertical grid lines are displayed. Use this option when you want to perform disparity measurements.

HORIZONTAL: Horizontal grid lines are displayed. Use this option when you want to match the horizontal position of one camera or multiple cameras.

BOTH: Both vertical and horizontal grid lines are displayed.

GRID DISPLAY = DISPRTY



GRID DISPLAY = HORIZONTAL

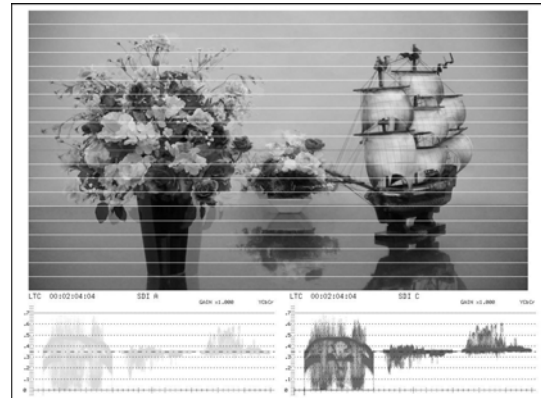


Figure 10-7 Selecting the displayed grid

10.6.2 Selecting the Grid to Configure

Configure the disparity grid and the horizontal grid separately. When **[F•1]** GRID DISPLAY is set to BOTH, to select the grid that you want to configure, follow the procedure below.

Procedure

[PIC] → **[F•5]** 3D FUNCTION → **[F•4]** GRID SETUP → **[F•2]** GRID VARIABLE: DISPRTY / HORIZONTAL

Settings

DISPRTY: The disparity grid is selected.

HORIZONTAL: The horizontal grid is selected.

10.6.3 Adjusting the Grid Line Spacing

To adjust the grid line spacing, follow the procedure below.

Press **[F•D 1]** to set the corresponding setting to its default value.

Procedure

[PIC] → **[F•5]** 3D FUNCTION → **[F•4]** GRID SETUP → **[F•D 1]** GRID SIZE
 : 6pix - 96pix - 192pix (*1) / 0.3% - 5.0% - 10.0%
 (When **[F•1]** GRID DISPLAY or **[F•2]** GRID VARIABLE is set to DISPRTY.)
 : 6line - 54line - 108line (*1) / 0.6% - 5.0% - 10.0%
 (When **[F•1]** GRID DISPLAY or **[F•2]** GRID VARIABLE is set to HORIZONTAL.)

*1 The selectable range varies depending on the input signal. The values shown here are for a 1080i/59.94 input signal.

10.6.4 Selecting the Grid Line Adjustment Unit

To select the grid adjustment unit, follow the procedure below.

Procedure

[PIC] → **[F•5]** 3D FUNCTION → **[F•4]** GRID SETUP → **[F•3]** GRID UNIT: PIX/LINE / %

Settings

PIX/LINE: The disparity grid lines are adjusted with pixels as the unit. The horizontal grid lines are adjusted with lines as the unit.

%: The disparity and horizontal grid lines are adjusted with percentage as the unit. Set the picture frame to 100 %.

10.6.5 Adjusting the Grid Line Positions

To adjust the grid line positions, follow the procedure below.

The reference grid lines (displayed in yellow) can be moved from one side of the picture to the other. Press **[F•D 2]** to center the respective reference grid lines.

Procedure

[PIC] → **[F•5]** 3D FUNCTION → **[F•4]** GRID SETUP
 → **[F•D 2]** H POS (When **[F•1]** GRID DISPLAY or **[F•2]** GRID VARIABLE is set to DISPRTY.)
 → **[F•D 2]** V POS (When **[F•1]** GRID DISPLAY or **[F•2]** GRID VARIABLE is set to HORIZONTAL.)

10.6.6 Selecting the Grid Line Color

To select the grid line color, follow the procedure below.

Procedure

PIC → **F•5** 3D FUNCTION → **F•4** GRID SETUP → **F•4** GRID BRIGHT: WHITE / BLACK / GRAY1 / GRAY2

Settings

WHITE: The grid lines are displayed in white.
 BLACK: The grid lines are displayed in black.
 GRAY1: The grid lines are displayed in dark gray.
 GRAY2: The grid lines are displayed in light gray.

10.7 Configuring Disparity Measurement Settings

When **F•3** MEASURE SELECT is set to DISPRTY, press **F•4** DISPRTY SETUP to measure disparity.

10.7.1 Disparity Measurement Display Explanation

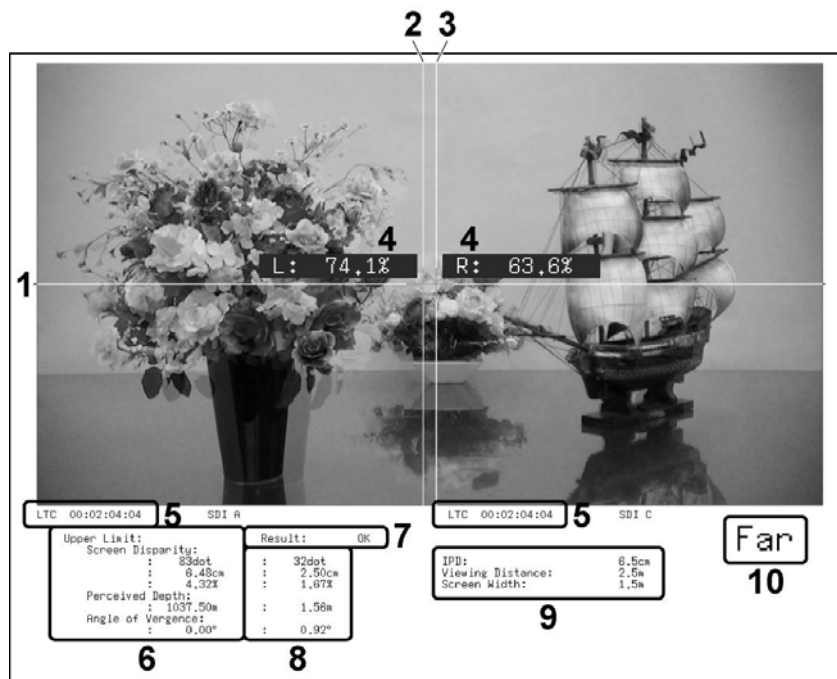


Figure 10-8 Disparity measurement display

1 V cursor

This is the vertical cursor.

2 L cursor

This is a disparity measurement cursor. Match this cursor with the video signal for the left eye.

3 R cursor

This is a disparity measurement cursor. Match this cursor with the video signal for the right eye.

4 Luminance level

If you set **F•3** %DISPLAY to ON, the luminance levels at the intersections of the cursors are displayed as percentages. When a luminance level is 0.0 % or less or 80.0 % or greater, the measured value is displayed in yellow.

5 Time code

The time codes for the video signal for the left eye and the video signal for the right eye are displayed.

6 Upper Limit

This displays the upper disparity limits that were set on the PARAMETER display. Depending on the cursor position, these switch automatically between the Far upper limits and the Near upper limits.

7 Result

When at least one measured value exceeds its upper limit, this displays “NG” in red. When all measured values are less than or equal to their upper limits, this displays “OK” in green.

8 Measured values

This displays the disparities that are measured by the cursors.

9 Far or Near

When the L cursor is on the left side, this displays “Far.” When the L cursor is on the right side, this displays “Near.”

10 Viewing environment

This displays the viewing environment that has been configured on the PARAMETER display.

- **About the Names of Settings and Measurement Items**

The names of the settings and measurement items that are used with the LV 5980 are shown below.

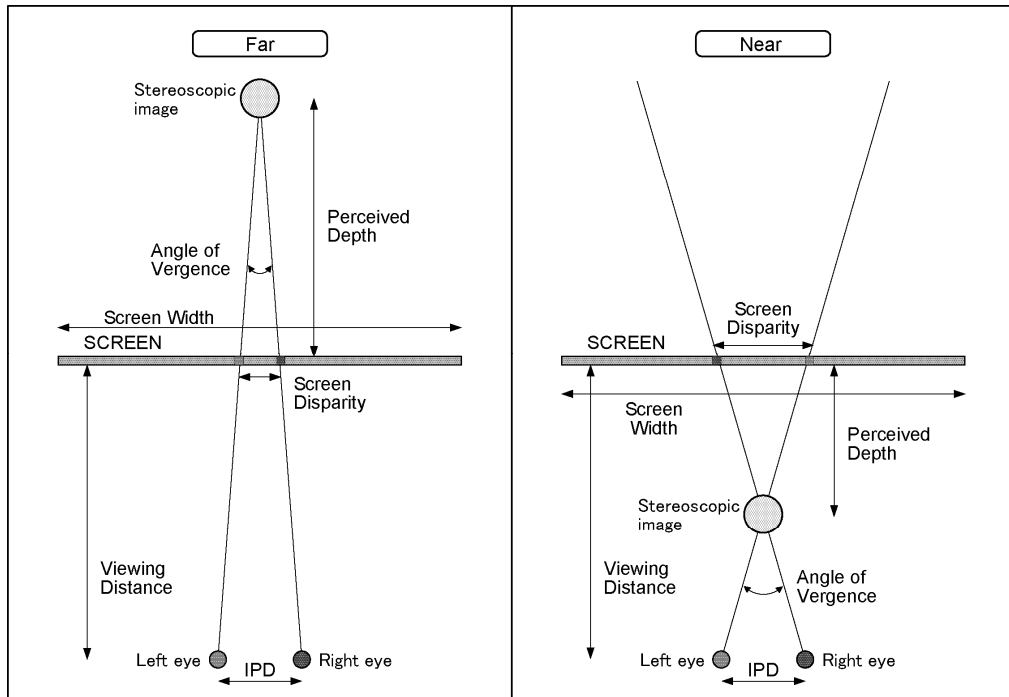


Figure 10-9 Setting and measurement item names

10.7.2 Disparity Measurement Procedure

To measure disparity, follow the procedure below. Before you begin this procedure, set **F•3** MEASURE SELECT to DISPRTY on the 3D FUNCTION menu.

1. Press **F•4** DISPRTY SETUP and then **F•1** SETUP.

The PARAMETER display appears.

PARAMETER		
Parameter		
IPD	<input type="text" value="6.5cm"/>	
Viewing Distance	<input type="text" value="2.5m"/>	
Screen Width	<input type="text" value="1.5m"/>	
Upper Limit	Far	Near
Screen Disparity	<input type="text" value="83dot"/>	<input type="text" value="-96dot"/>
	6.48cm	-7.50cm
	4.32%	5.00%
Perceived Depth	1037.50m	-1.34m
Angle of Vergence	0.00°	3.21°

Figure 10-10 PARAMETER display

2. Under Parameter, enter the assumed viewing environment.

Turn **F•D 1** SELECT to move the cursor, and press **F•D 1** to select the parameter that you want to specify. The cursor color changes from cyan to yellow. Turn **F•D 1** to set the value. When you have finished setting the value, press **F•D 1** again.

IPD	Enter the interpupillary distance. For adults, this is approximately 6.5 cm. For children, this is approximately 5.0 cm. (Setting range: 2.0 to 20.0 cm. The default setting is 6.5 cm.)
Viewing Distance	Enter the distance from the screen to the viewer. (Setting range: 0.1 to 99.9 m. The default setting is 2.5 m.)
Screen Width	Enter the screen width. (Setting range: 0.1 to 250.0 m. The default setting is 1.5 m.)

3. Under Upper Limit, enter the upper limits for the measured values.

If at least one measured value exceeds its limit that you enter here, "NG" is displayed on the disparity measurement display.

Screen Disparity	Screen Disparity: Enter the upper limit for the screen disparity. When you specify the value in units of dots, the cm, %, Perceived Depth, and Angle of Vergence values are set automatically. Enter a negative value under Near. (Setting range: ±1920 dots. The default Far setting is 83 dots. The default Near setting is -96 dots.)
Perceived Depth	This displays the near and far limits as distances from the screen.
Angle of Vergence	This displays the angle of vergence limit.

4. Press **F•1** COMPLETE.

The settings are confirmed, and the disparity measurement display appears. To cancel the settings, press **F•5** CANCEL.

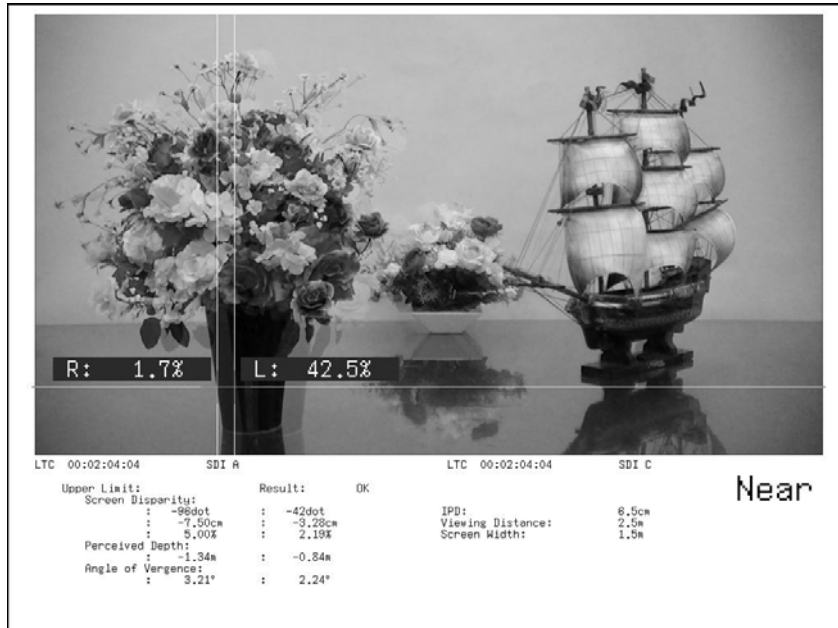


Figure 10-11 Disparity measurement display

5. Set **F•2** CURSOR SELECT to L/R.

6. Turn **F•D 1** LEFT POS to match the L cursor with the video signal for the left eye.

Press **F•D 1** to move the cursor to approximately the center of the screen.

7. Turn **F•D 2** RIGHT POS to match the R cursor with the video signal for the right eye.

The measured disparity is displayed at the bottom of the screen.

Press **F•D 2** to move the cursor to approximately the center of the screen.

- **To Move the V Cursor**

It is useful to use the V cursor when you match the positions of the L and R cursors.

To move the V cursor, set **F•2** CURSOR SELECT to V/TRACK, and then turn **F•D 1** VERT POS. Press **F•D 1** to move the cursor to the center of the screen.

- **To Move the L and R Cursors at the Same Time**

To move the L and R cursors at the same time, set **F•2** CURSOR SELECT to V/TRACK, and then turn **F•D 2** LR TRACK POS.

11. VIDEO SIGNAL WAVEFORM DISPLAY

11.1 Video Signal Waveform Display Explanation

To display video signal waveforms, press **WFM**.

To display the video signal waveform menu, hold down **WFM** for 0.5 seconds or more, or use the function keys and function dials on the video signal waveform display. The video signal waveform menu will disappear when you press **WFM** again or after a certain period of time passes with no user activity.

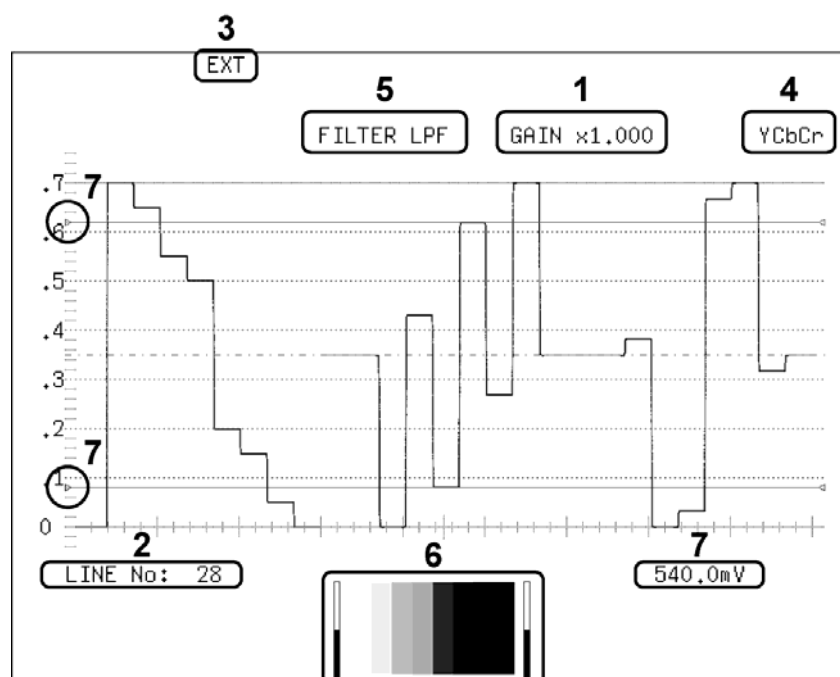


Figure 11-1 Video signal waveform display

1 Gain

The video signal waveform gain appears here. You can set the gain to a value between 0.2 and 10 by setting GAIN MAG and GAIN VARIABLE.

For information on the GAIN MAG setting, see section 11.4.4, "Selecting the Fixed Gain."

For information on the GAIN VARIABLE setting, see section 11.4.5, "Setting the Variable Gain."

2 Selected Line

The waveform of the selected line is displayed.

See sections 11.5.1, "Turning Line Selection On and Off" and 11.5.2, "Selecting Lines."

3 Sync Signal

EXT appears here when an external sync signal is being used.

See section 11.5.4, "Switching the Sync Signal."

4 Display Format

The video signal waveform display format (YCbCr, GBR, YGBR, RGB, YRGB, or COMPOSITE) appears here.

See sections 11.6.1, "Selecting the Display Format" and 11.6.2, "Displaying the Luminance and GBR Signals Simultaneously."

5 Filter

FILTER LPF appears here when FILTER has been set to LOW PASS.

For information on the FILTER setting, see section 11.6.5, "Selecting the Filter."

6 Thumbnail Display

The thumbnail display shows the audio meter (fixed to channels 1 and 2) and the picture.

You can also turn each of these displays off.

See section 11.6.9, "Setting the Thumbnail Display."

7 Cursors

You can measure the time or amplitude using cursors.

See section 11.7, "Configuring Cursor Settings."

11.2 Setting the Display Position

To set the display position, use **F•D 1** H POS and **F•D 2** V POS on the video signal waveform menu.

These settings appear on other levels of the video signal waveform menu as well and function in the same way.

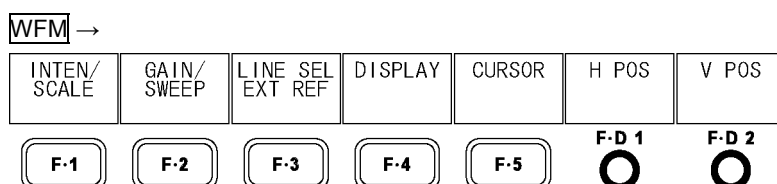


Figure 11-2 Video signal waveform menu

11.2.1 Setting the Horizontal Position

To set the video signal waveform horizontal position, follow the procedure below.

To return the position to its default location, press **F•D 1**.

Procedure

WFM → **F•D 1** H POS

11.2.2 Setting the Vertical Position

To set the video signal waveform vertical position, follow the procedure below.

To return the position to its default location, press **F•D 2**.

Procedure

WFM → **F•D 2** V POS

11.3 Configuring the Video Signal Waveform and Scale Settings

To configure video signal waveform and scale settings, press **F•1** INTEN/SCALE on the video signal waveform menu.

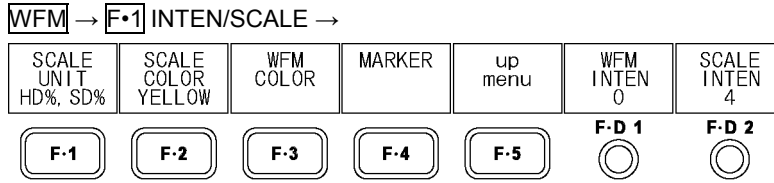


Figure 11-3 INTEN/SCALE menu

11.3.1 Selecting the Scale Unit

To select the scale unit, follow the procedure below.

This setting does not appear when COLOR MATRIX is set to COMPOSIT. When the composite display format is NTSC, the scale unit is %. When the composite display format is PAL, the scale unit is V.

For information on the COLOR MATRIX setting, see section 11.6.1, "Selecting the Display Format."

For information on the composite display format,

see section 5.1.5, "Selecting the Composite Display Format."

Procedure

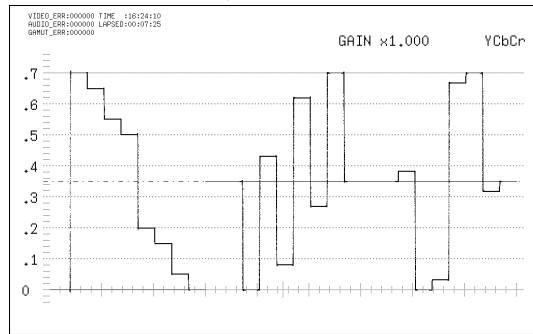
WFM → **F•1** INTEN/SCALE → **F•1** SCALE UNIT:
HDV,SD% / HDV,SDV / HD%,SD% / 150% / 1023 / 3FF

Settings

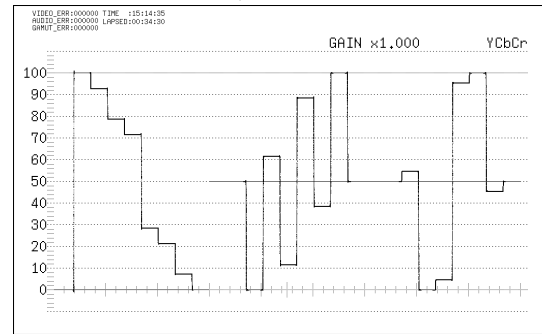
- | | |
|----------|--|
| HDV,SD%: | The scale unit is set to V for HD signals and % for SD signals.
This value cannot be selected when SIMUL MODE is set to ALIGN or MIX. |
| HDV,SDV: | The scale unit is set to V. |
| HD%,SD%: | The scale unit is set to %. |
| 150%: | The scale unit is set to %, and the display starts at -50 %.
This value cannot be selected when COLOR MATRIX is set to YCbCr. |
| 1023: | 0 to 100 % is displayed as 64 to 940 (YGBR) or 64 to 960 (CbCr). |
| 3FF: | 0 to 100 % is displayed as 040 to 3AC (YGBR) or 040 to 3C0 (CbCr). |

11. VIDEO SIGNAL WAVEFORM DISPLAY

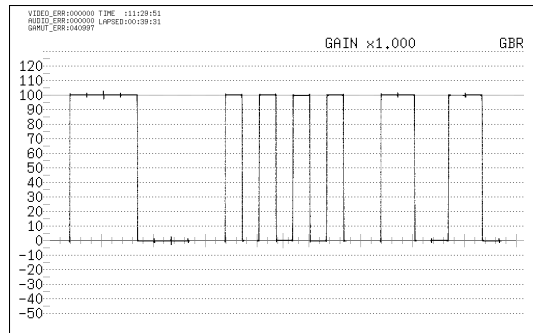
SCALE UNIT = HDV,SDV



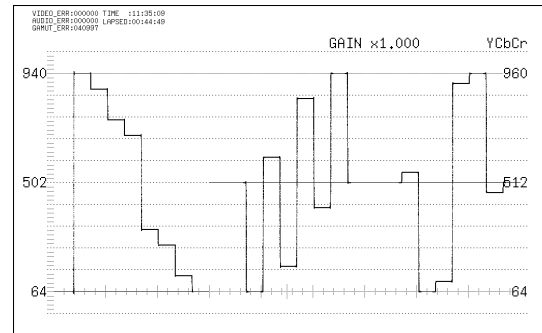
SCALE UNIT = HD%,SD%



SCALE UNIT = 150%



SCALE UNIT = 1023



SCALE UNIT = 3FF

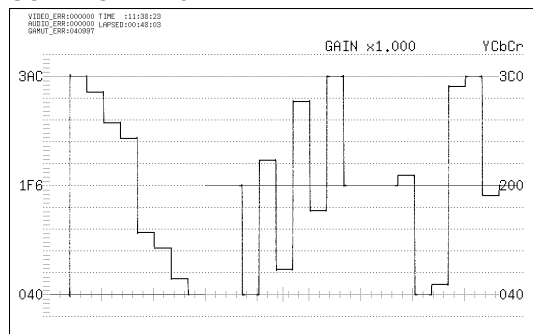


Figure 11-4 Selecting the scale unit

11.3.2 Selecting the Scale Color

To select the scale color, follow the procedure below.

Procedure

WFM → **F•1** INTEN/SCALE → **F•2** SCALE COLOR: WHITE / YELLOW / CYAN / GREEN /
 MAGENTA / RED / BLUE

11.3.3 Selecting the Waveform Color

To configure waveform color settings, press **F•3** WFM COLOR on the video signal waveform menu.

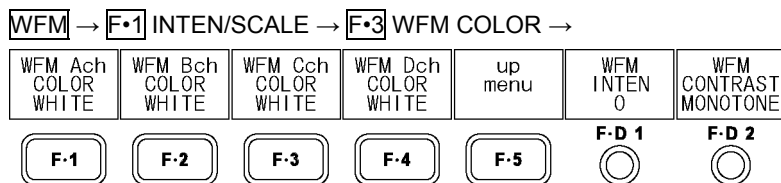


Figure 11-5 WFM COLOR menu

To select the video signal waveform color for each channel, follow the procedure shown below.

When the multi-screen display is in use, vectors are displayed in the same colors as the waveforms. Also, in the dual link mode, the function keys change depending on the display mode. For example, **F•1** WFM ABch COLOR is displayed on the single-screen display, and **F•1** WFM/VECT ABchCOLOR is displayed on the multi-screen display.

Procedure (Single-screen display)

WFM → **F•1** INTEN/SCALE → **F•3** WFM COLOR

→ **F•1** WFM Ach COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

→ **F•2** WFM Bch COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

→ **F•3** WFM Cch COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

→ **F•4** WFM Dch COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

Procedure (Multi-screen display)

F•2 MULTI WFM → **F•1** INTEN/SCALE → **F•3** WFM/VECT COLOR

→ **F•1** WFM/VECT AchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

→ **F•2** WFM/VECT BchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

→ **F•3** WFM/VECT CchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

→ **F•4** WFM/VECT DchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

* In 3D assist mode (L/R DUAL), the default setting for channels A and B is RED, and the default setting for channels C and D is CYAN.

11.3.4 Selecting the Contrast

To select the video signal waveform contrast, follow the procedure below. Waveforms are usually displayed with gradations, but you can display waveforms using single colors by selecting MONOTONE. This is useful for comparing overlapping waveforms.

When the multi-screen display is in use, vectors are displayed with the same contrast as the waveforms.

If you press **F•D 2**, the contrast will be set to its default value of MONOTONE.

Procedure (Single-screen display)

WFM → **F•1** INTEN/SCALE → **F•3** WFM COLOR → **F•D 2** WFM CONTRAST:
MONOTONE / LOW / MIDDLE / HIGH

Procedure (Multi-screen display)

F•2 MULTI WFM → **F•1** INTEN/SCALE → **F•3** WFM/VECT COLOR → **F•D 2** WFM/VECT
CONTRAST: MONOTONE / LOW / MIDDLE / HIGH

11.3.5 Displaying Markers for 75 % Intensity Color Bars

To configure marker settings, press **F•3** MARKER on the video signal waveform menu.

WFM → **F•1** INTEN/SCALE → **F•4** MARKER →

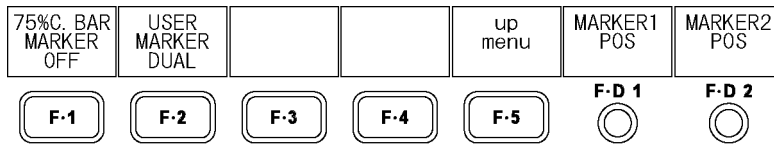


Figure 11-6 MARKER menu

When a 75% color bar signal is being input, to display markers that correspond to the chrominance signal peak levels, follow the procedure below.

Procedure

WFM → **F•1** INTEN/SCALE → **F•4** MARKER → **F•1** 75%C.BAR MARKER: ON / OFF

75%C.BAR MARKER = ON

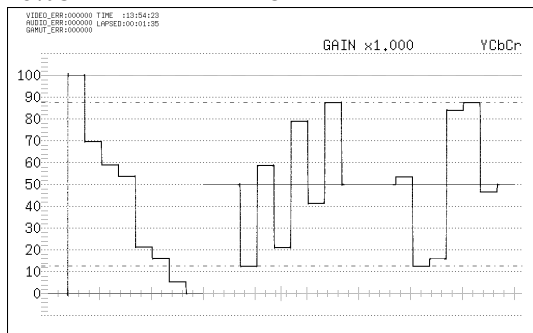


Figure 11-7 Displaying markers for 75 % intensity color bars

11.3.6 Displaying User Markers

To display up to two user markers, follow the procedure below.

Use **F•D 1** MARKER1 POS to move marker 1 (violet) and **F•D 2** MARKER2 POS to move marker 2 (green). The marker values are displayed in the lower right of the screen in units of mV or as a percentage. Press **F•D 1** to move marker 1 to the 0.0% position. Press **F•D 2** to move marker 2 to the 100.0% position.

When CURSOR is set to X or Y, you cannot display the user markers.

For information on the CURSOR setting, see section 11.7.1, "Displaying Cursors."

Procedure

WFM → **F•1** INTEN/SCALE → **F•4** MARKER → **F•2** USER MARKER: OFF / SINGLE / DUAL

Settings

SINGLE: Marker 1 is displayed.
 DUAL: Marker 1 and Marker 2 are displayed.
 OFF: Markers are not displayed.

USER MARKER = DUAL

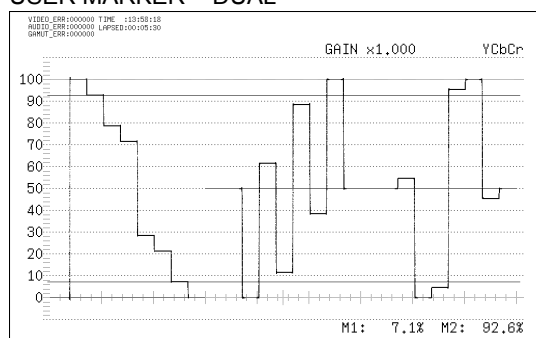


Figure 11-8 Displaying user markers

11.3.7 Adjusting the Waveform Intensity

To adjust the video signal waveform intensity, follow the procedure below.

When the multi-screen display is in use, vectors are displayed with the same intensity as the waveforms. If you press **F•D 1**, the setting will be set to its default value of 0.

Procedure (Single-screen display)

WFM → **F•1** INTEN/SCALE → **F•D 1** WFM INTEN: -128 - 0 - 127

Procedure (Multi-screen display)

F•2 MULTI WFM → **F•1** INTEN/SCALE → **F•D 1** WFM/VECT INTEN: -128 - 0 - 127

11.3.8 Adjusting the Scale Intensity

To adjust the scale intensity, follow the procedure below.

If you press **F•D 2**, the setting will be set to its default value of 4.

Procedure

WFM → **F•1** INTEN/SCALE → **F•D 2** SCALE INTEN: -8 - 4 - 7

11.4 Configuring Gain and Sweep Settings

To configure gain and sweep settings, press **F•2** GAIN/SWEEP on the video signal waveform menu.

WFM → **F•2** GAIN/SWEEP →

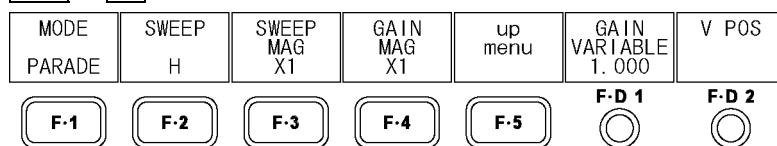


Figure 11-9 GAIN/SWEEP menu

11.4.1 Switching between the Overlay and Parade Displays

To switch between the overlay and parade displays, follow the procedure below.

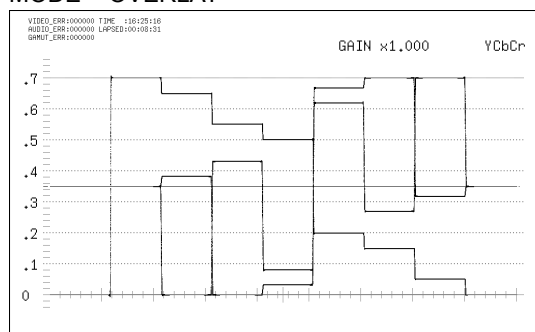
This setting is invalid when COLOR MATRIX is set to COMPOSIT.

For information on the COLOR MATRIX setting, see section 11.6.1, "Selecting the Display Format."

Procedure

WFM → **F•2** GAIN/SWEEP → **F•1** MODE: OVERLAY / PARADE

MODE = OVERLAY



MODE = PARADE

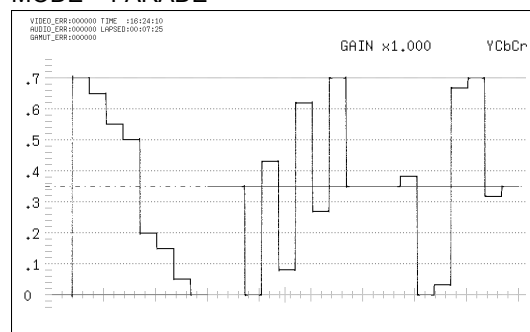


Figure 11-10 Overlay and parade displays

11.4.2 Selecting the Sweep Method

To select the video signal waveform sweep method, follow the procedure below.

The sweep methods that you can select vary depending on the **F•1** MODE setting and the input format.

The field and frame displays are not available in simultaneous input mode and 3D assist mode (L/R DUAL).

For information on simultaneous input mode and 3D assist mode,
see section 4.3.1, "Switching the Input Mode."

Procedure

WFM → **F•2** GAIN/SWEEP → **F•2** SWEEP:

H / V_F1 / V_F2 (When the input signal is i/sF and the parade display mode is being used.)

H_1H / H_2H / V_F1 / V_F2 / V_2V (When the input signal is i/sF and the overlay display mode is being used.)

H / V (When the input signal is p and the parade display mode is being used.)

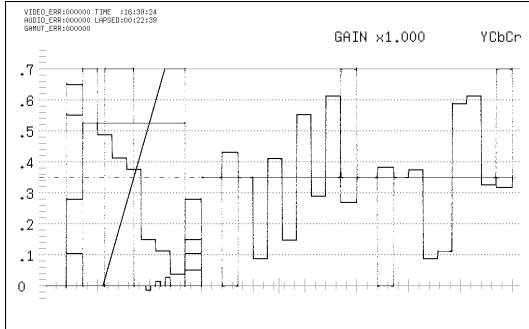
H_1H / H_2H / V (When the input signal is p and the overlay display mode is being used.)

- When the input signal is interlaced or segmented frame and **MODE** is set to **PARADE**

Settings

H: Single lines are displayed.
V_F1: Field 1 is displayed.
V_F2: Field 2 is displayed.

SWEEP = H (single-line display)



SWEEP = V_F1 (field 1 display)

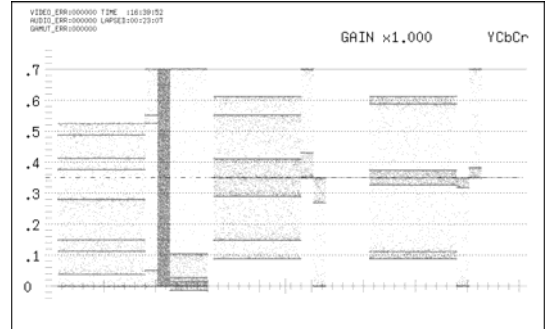


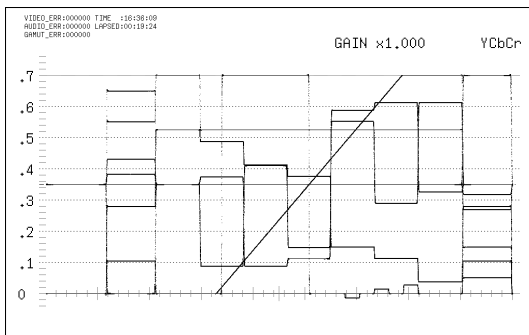
Figure 11-11 When the input signal is i/sF and the parade display mode is being used

- When the input signal is interlaced or segmented frame and **MODE** is set to **OVERLAY**

Settings

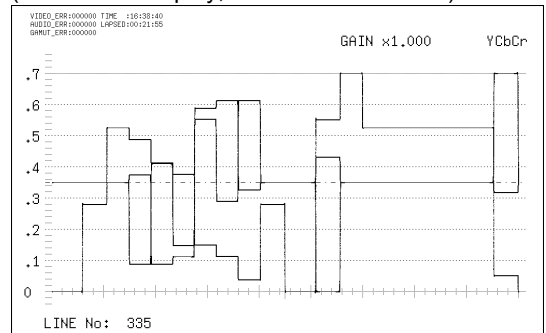
H_1H: Single lines are displayed.
H_2H: Two lines are displayed at a time.
V_F1: Field 1 is displayed.
V_F2: Field 2 is displayed.
V_2V: Single frames are displayed.

SWEEP = H_1H (single-line display)

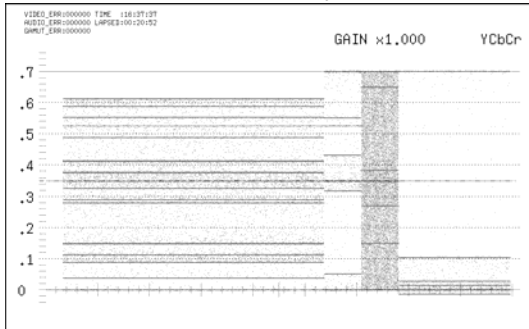


SWEEP = H_2H

(double-line display; LINE SELECT = ON)



SWEEP = V_F1 (field 1 display)



SWEEP = V_2V (single-frame display)

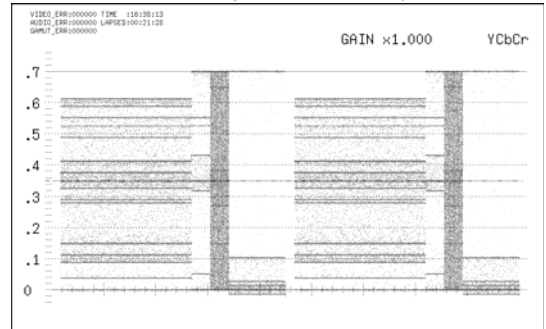


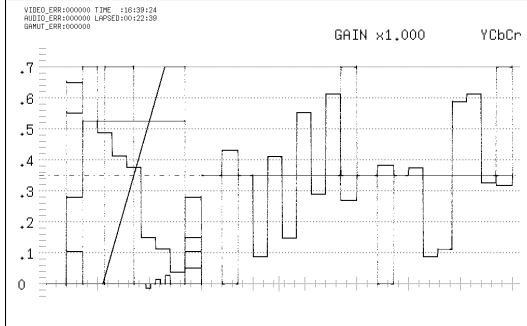
Figure 11-12 When the input signal is i/sF and the overlay display mode is being used

- When the input signal is progressive and **MODE** is set to **PARADE**

Settings

H: Single lines are displayed.
V: Single frames are displayed.

SWEEP = H (single-line display)



SWEEP = V (single-frame display)

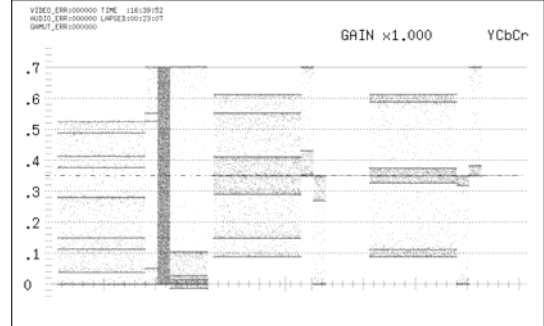


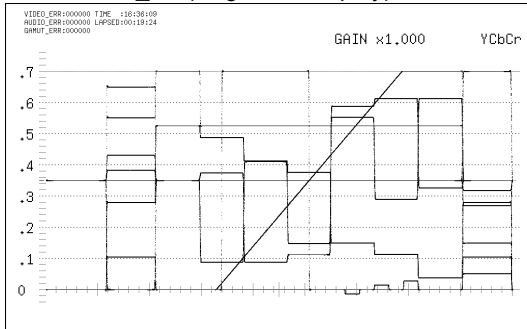
Figure 11-13 When the input signal is p and the parade display mode is being used

- When the input signal is progressive and **MODE** is set to **OVERLAY**

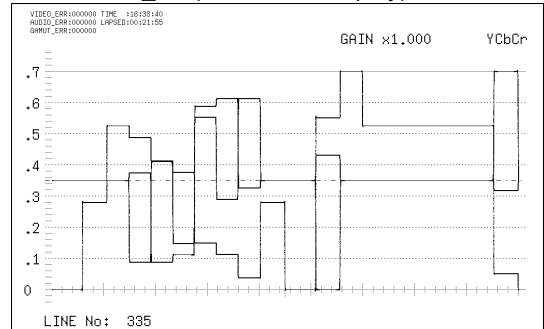
Settings

H_1H: Single lines are displayed.
H_2H: Two lines are displayed at a time.
V: Single frames are displayed.

SWEEP = H_1H (single-line display)



SWEEP = H_2H (double-line display)



SWEEP = V (single-frame display)

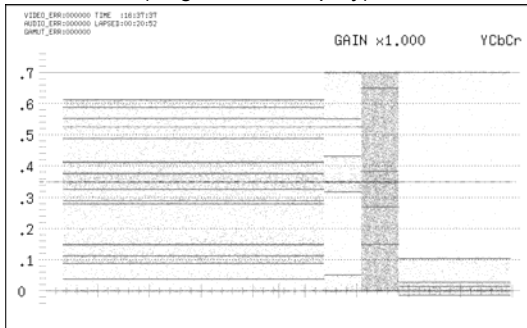


Figure 11-14 When the input signal is p and the overlay display mode is being used

11.4.3 Selecting the Horizontal Magnification

To select the horizontal magnification, follow the procedure below. The magnifications that you can choose vary, as shown below, depending on the SWEEP setting. (The table cells marked with “Yes” represent settings that can be selected.)

For information on the SWEEP setting, see section 11.4.2, “Selecting the Sweep Method.”

Table 11-1 Horizontal magnifications

SWEEP	×1	×10	×20	×40	ACTIVE	BLANK
H_1H, H	Yes	Yes	Yes	No	Yes	Yes
H_2H	Yes	Yes	Yes	No	No	Yes
V_F1, V_F2, V, V_2V	Yes	No	Yes	Yes	No	No

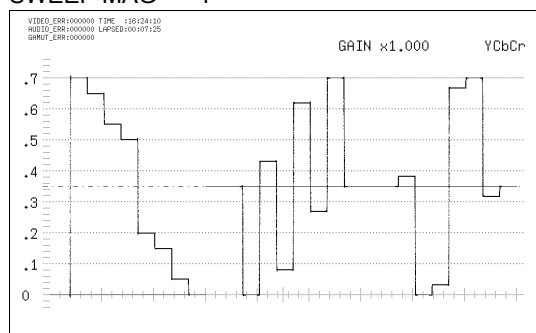
Procedure

WFM → **F•2** GAIN/SWEEP → **F•3** SWEEP MAG: X1 / X10 / X20 / X40 / ACTIVE / BLANK

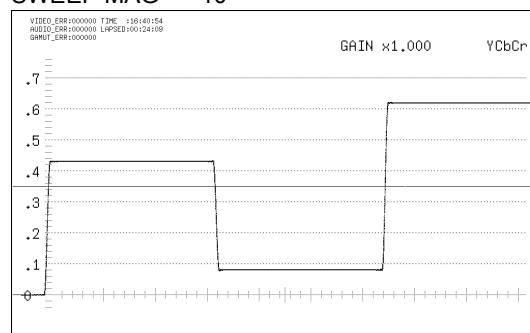
Settings

- ×1: The video signal waveforms are displayed so that they fit on the screen.
- ×10: The video signal waveforms are magnified from the center of the display to 10 times the size of ×1.
- ×20: The video signal waveforms are magnified from the center of the display to 20 times the size of ×1.
- ×40: The video signal waveforms are magnified from the center of the display to 40 times the size of ×1.
- ACTIVE: Everything but the video signal waveform blanking interval is magnified.
This is not supported on the thumbnail display.
- BLANK: The video signal waveform blanking interval is magnified.
This is not supported on the thumbnail display.

SWEEP MAG = ×1

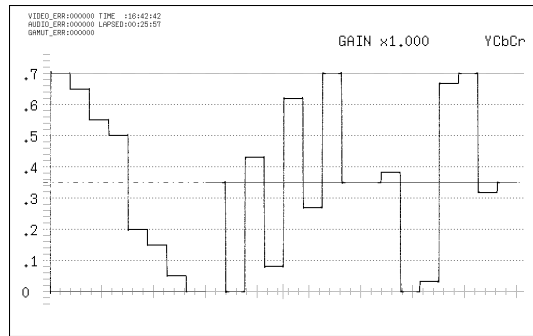


SWEEP MAG = ×10



11. VIDEO SIGNAL WAVEFORM DISPLAY

SWEEP MAG = ACTIVE



SWEEP MAG = BLANK

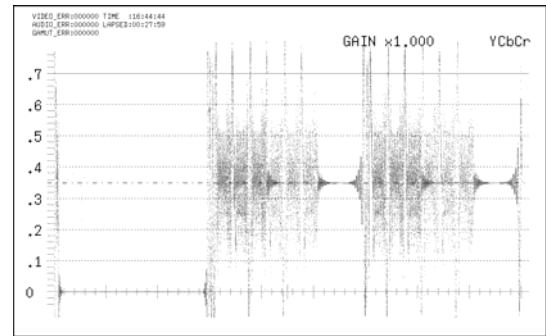


Figure 11-15 Selecting the horizontal magnification

11.4.4 Selecting the Fixed Gain

To select the fixed video signal waveform gain, follow the procedure below.

Procedure

WFM → **F•2** GAIN/SWEEP → **F•4** GAIN MAG: X1 / X5

11.4.5 Setting the Variable Gain

To set the variable video signal waveform gain, follow the procedure below.

You can set the video signal waveform gain to a value between 0.2 and 10 by setting **F•4** GAIN MAG and **F•D 1** GAIN VARIABLE. The gain value appears in the upper right of the screen.

Procedure

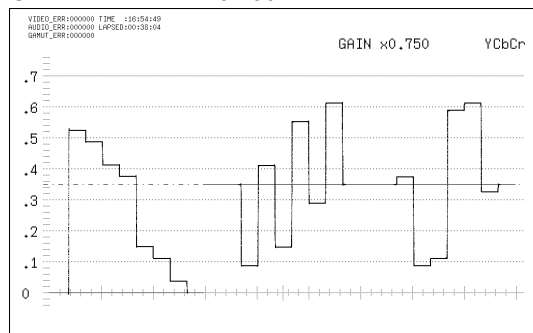
WFM → **F•2** GAIN/SWEEP → **F•D 1** GAIN VARIABLE:

0.200 - 1.000 - 2.000 (When GAIN MAG is set to X1.)

1.000 - 5.000 - 10.000 (When GAIN MAG is set to X5.)

GAIN MAG = x1

GAIN VARIABLE = 0.750



GAIN MAG = x5

GAIN VARIABLE = 2.500

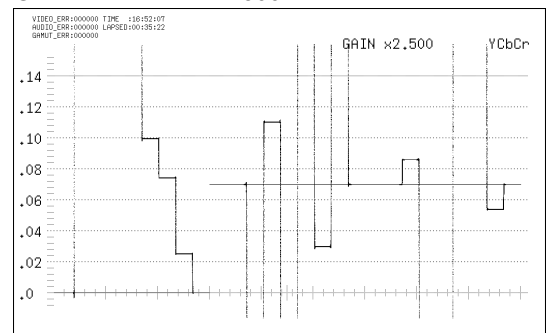


Figure 11-16 Setting the gain

11.5 Configuring Line Selection and Sync Signal Settings

To configure line selection and sync signal settings, press **F•3** LINE SEL EXT REF on the video signal waveform menu.

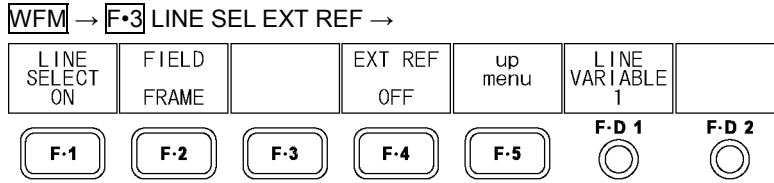


Figure 11-17 LINE SEL EXT REF menu

11.5.1 Turning Line Selection On and Off

To display the waveforms of the selected line (when lines are displayed), follow the procedure below. Changing this setting will also change the picture display and vector display line selection settings.

Procedure

WFM → **F•3** LINE SEL EXT REF → **F•1** LINE SELECT: CINELITE / ON / OFF

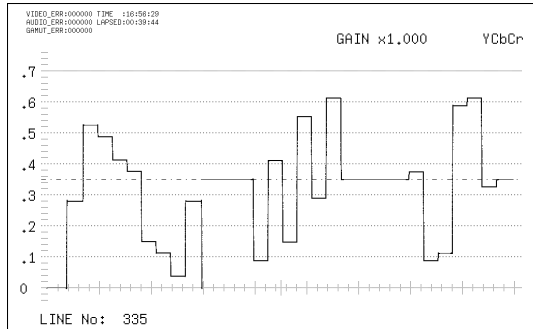
Settings

CINELITE: The waveform of the line selected on the CINELITE display is displayed. You can select this option when CINELITE DISPLAY in the picture menu is set to f Stop or %DISPLAY.

ON: The waveform of the line you select with **F•D 1** LINE VARIABLE is displayed.

OFF: The waveforms of all lines are displayed on top of each other.

LINE SELECT = ON



LINE SELECT = OFF

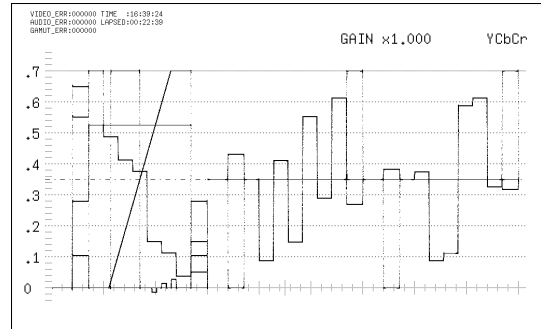


Figure 11-18 Turning line selection on and off

11.5.2 Selecting Lines

To select a line to display the waveform of, follow the procedure below. The selected line is indicated in the lower left of the screen. If you press **F•D 1**, the selected line changes to the first video line.

In 3D assist mode, blanking interval lines cannot be selected.

This setting is available when **F•1** LINE SELECT is set to ON. Changing this setting will also change the selected line on the picture display, vector display, and data dump display.

Procedure

WFM → **F•3** LINE SEL EXT REF → **F•D 1** LINE VARIABLE

11.5.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.

This setting is available when **F•1** LINE SELECT is set to ON and the input signal is interlaced or segmented frame.

Changing this setting will also change the picture display and vector display line selection ranges.

Procedure

WFM → **F•3** LINE SEL EXT REF → **F•2** FIELD: FIELD1 / FIELD2 / FRAME

Settings (the examples are for the selectable ranges when the input format is set to 1080i/59.94)

FIELD1: A line from field 1 can be selected (example: 1 to 563).

FIELD2: A line from field 2 can be selected (example: 564 to 1125).

FRAME: All lines can be selected (example: 1 to 1125).

11.5.4 Switching the Sync Signal

To switch to an external sync signal, follow the procedure below.

Changing this setting will also change the vector display and status display sync signal settings.

When D_LINK FORMAT is set to YC10bit, you cannot use an external sync signal, and this setting is not available.

For information on the D_LINK FORMAT setting, see section 5.1.4, "Setting the Input Format."

Procedure

WFM → **F•3** LINE SEL EXT REF → **F•4** EXT REF: ON / OFF

Settings

ON: An external sync signal is used.

OFF: The internal sync signal is used.

11.6 Configuring Display Settings

To configure the display settings, press **F·4** DISPLAY on the video signal waveform menu.

WFM → **F·4** DISPLAY →

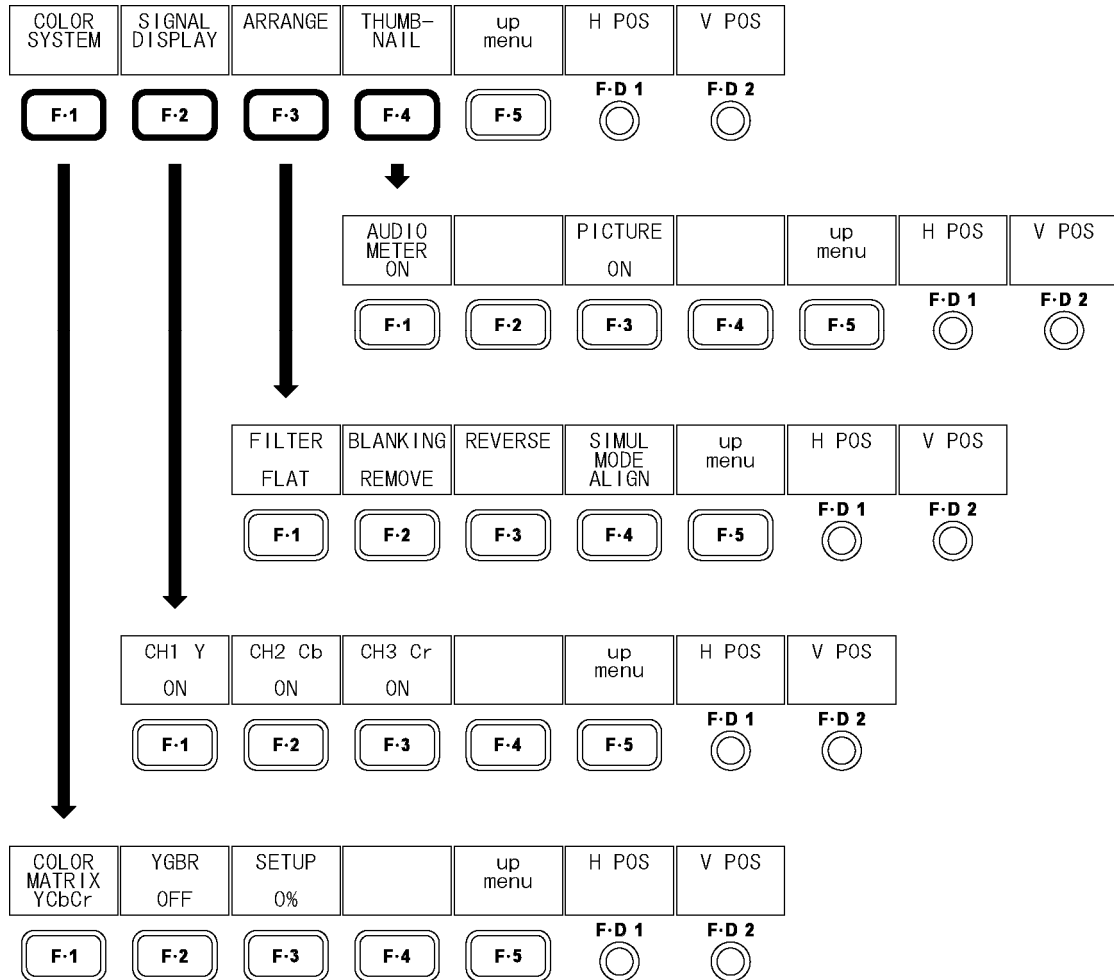


Figure 11-19 DISPLAY menu

11.6.1 Selecting the Display Format

To select the video signal waveform display format, follow the procedure below.

The selected display format is indicated in the upper right of the display.

If you select COMPOSIT, choose the composite display format (NTSC or PAL) by setting COMPOSIT FORMAT in the system settings.

For information on the COMPOSIT FORMAT setting,

see section 5.1.5, "Selecting the Composite Display Format."

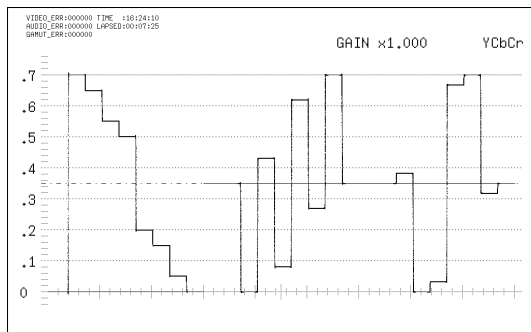
Procedure

WFM → **F•4** DISPLAY → **F•1** COLOR SYSTEM → **F•1** COLOR MATRIX: YCbCr / GBR / RGB / COMPOSIT

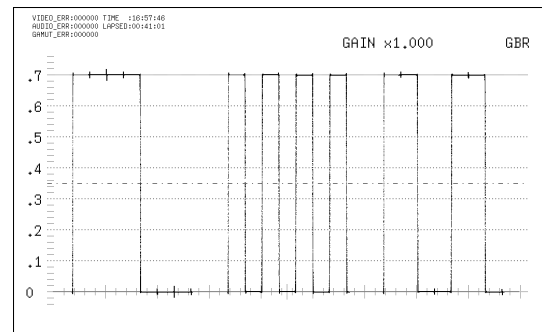
Settings

- YCbCr:** Luminance and chrominance signals are displayed.
This setting cannot be chosen when D_LINK FORMAT is set to GBR.
- GBR:** The YCBCR signal is converted into a GBR signal and displayed.
- RGB:** The YCBCR signal is converted into an RGB signal and displayed.
- COMPOSIT:** The YCBCR signal is converted into a pseudo-composite signal and displayed.

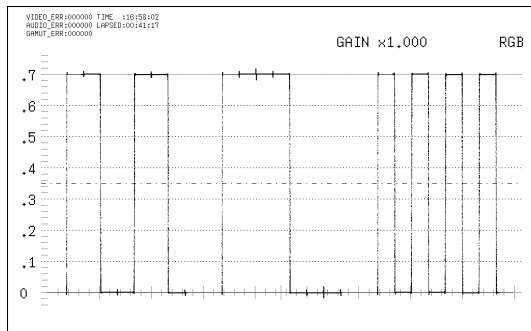
COLOR MATRIX = YCbCr



COLOR MATRIX = GBR



COLOR MATRIX = RGB



COLOR MATRIX = COMPOSIT

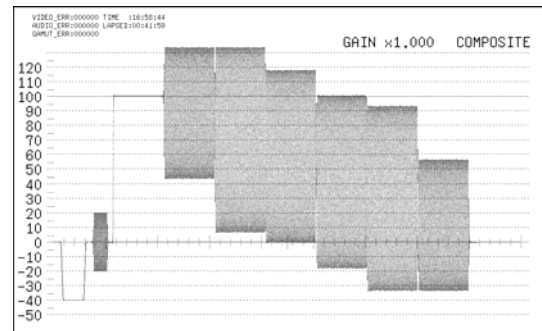


Figure 11-20 Selecting the display format

11.6.2 Displaying the Luminance and GBR Signals Simultaneously

To display the GBR or RGB signal simultaneously with the luminance signal, follow the procedure below.

The selected display format is indicated in the upper right of the display.

This setting is available when **F.1** COLOR MATRIX is set to GBR or RGB.

Procedure

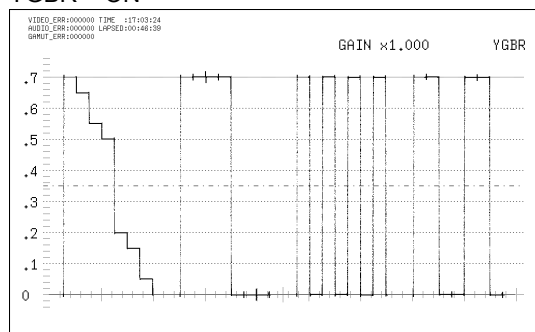
WFM → **F.4** DISPLAY → **F.1** COLOR SYSTEM → **F.2** YGBR: ON / OFF
→ **F.2** YRGB: ON / OFF

Settings

ON: The GBR or RGB signal is displayed simultaneously with the luminance signal.

OFF: The GBR or RGB signal is displayed by itself.

YGBR = ON



YGBR = OFF

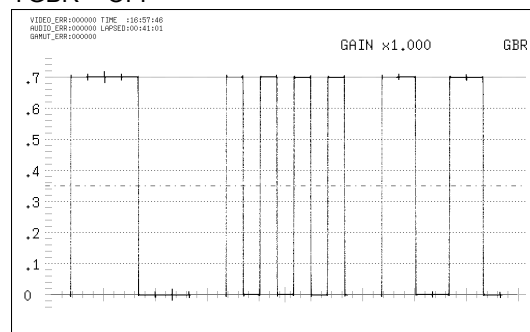


Figure 11-21 Displaying the luminance and GBR signals simultaneously

11.6.3 Selecting the Setup Level

To select the setup level for the pseudo-composite display, follow the procedure shown below. This setting is available when **F.1** COLOR MATRIX is set to COMPOSIT and the composite display format is set to NTSC.

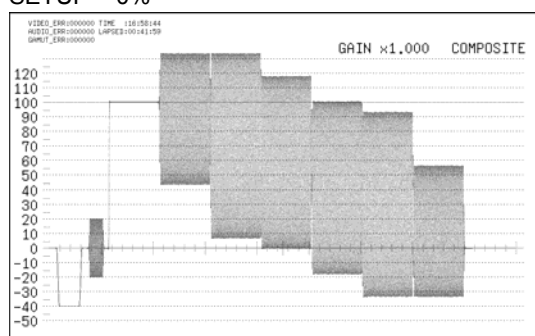
For information on the composite display format,

see section 5.1.5, "Selecting the Composite Display Format."

Procedure

WFM → **F.4** DISPLAY → **F.1** COLOR SYSTEM → **F.3** SETUP: 0% / 7.5%

SETUP = 0%



SETUP = 7.5%

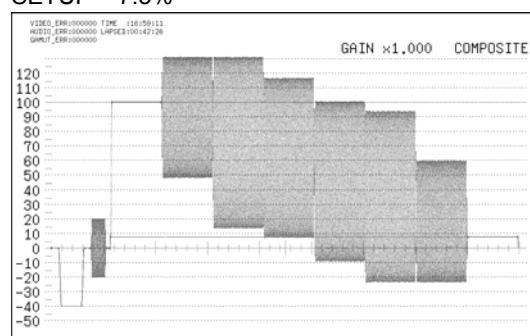


Figure 11-22 Selecting the setup level

11.6.4 Setting Which Channels to Display

To turn individual channels in a YCBCR, GBR, or RGB signal on and off, follow the procedure below.

You cannot set every channel to OFF.

This setting is available when **[F•1]** COLOR MATRIX is set to YCbCr, GBR, or RGB.

However, it is not available when **[F•2]** YGBR or **[F•2]** YRGB is set to ON.

Procedure

[WFM] → **[F•4]** DISPLAY → **[F•2]** SIGNAL DISPLAY

→ **[F•1]** CH1 Y / **[F•2]** CH2 Cb / **[F•3]** CH3 Cr

→ **[F•1]** CH1 G / **[F•2]** CH2 B / **[F•3]** CH3 R

→ **[F•1]** CH1 R / **[F•2]** CH2 G / **[F•3]** CH3 B

Settings

ON: The specified channel in the YCBCR, GBR, or RGB signal is displayed (this is the default value).

OFF: The specified channel in the YCBCR, GBR, or RGB signal is not displayed.

11.6.5 Selecting the Filter

To select the filter, follow the procedure below.

The filters that you can select vary depending on the **[F•1]** COLOR MATRIX setting.

Procedure

[WFM] → **[F•4]** DISPLAY → **[F•3]** ARRANGE → **[F•1]** FILTER:

FLAT / LOW PASS (When COLOR MATRIX is set to YCbCr, GBR, or RGB.)

FLAT / LUM / FLAT+LUM / LUM+CRMA (When COLOR MATRIX is set to COMPOSIT.)

• When COLOR MATRIX Is Set to YCbCr, GBR, or RGB

Settings

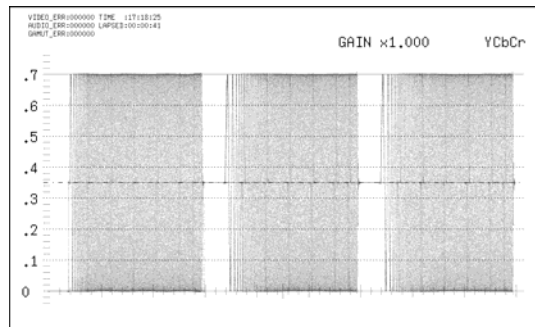
FLAT: A filter that has a flat frequency response over the entire bandwidth of the input signal is used.

LOW PASS: A low-pass filter with the following frequency responses is used.

Attenuation of 20 dB or more at 20 MHz when the input signal is HD

Attenuation of 20 dB or more at 3.8 MHz when the input signal is SD

FILTER = FLAT



FILTER = LOW PASS

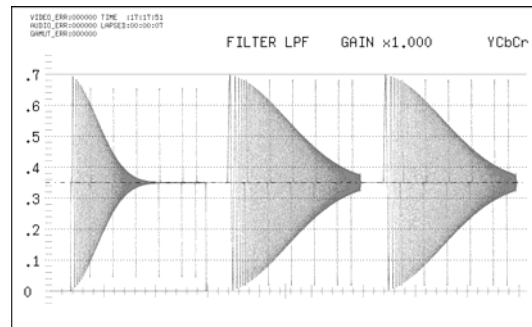


Figure 11-23 Selecting the component signal filter

• When **COLOR MATRIX** Is Set to **COMPOSIT**

Settings

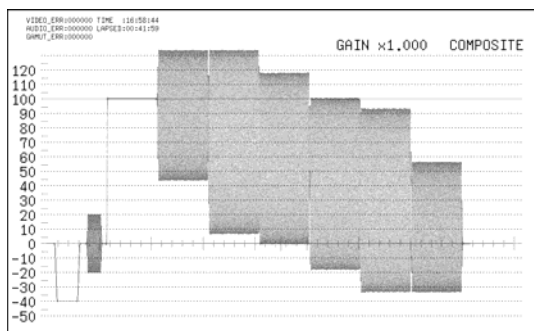
FLAT: Only the pseudo-composite signal is displayed.

LUM: Only the luminance signal of the pseudo-composite signal is displayed.

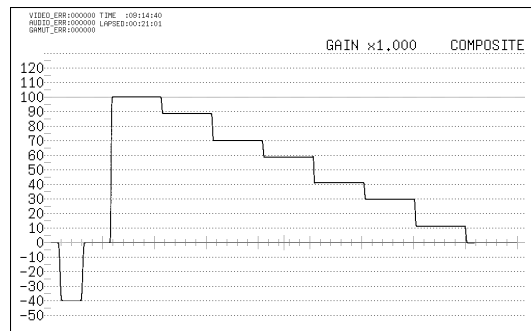
FLAT+LUM: The pseudo-composite and luminance signals are displayed side by side.

LUM+CRMA: The luminance and chrominance signals are displayed side by side.

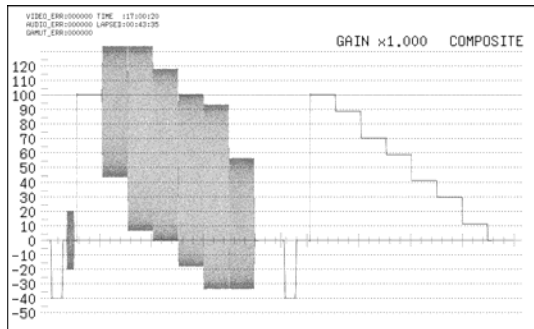
FILTER = FLAT



FILTER = LUM



FILTER = FLAT+LUM



FILTER = LUM+CRMA

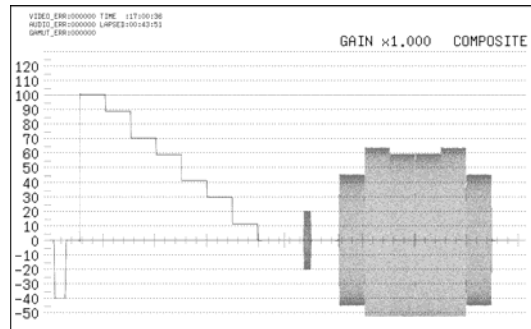


Figure 11-24 Selecting the pseudo-composite signal filter

11.6.6 Displaying the Blanking Interval

To select the blanking interval display format, follow the procedure below.

The blanking interval is normally not shown on the vector display, but on the multi-screen display, the blanking interval is shown according to the setting that you make here.

The blanking interval display is not supported on the thumbnail display.

Procedure

WFM → **F•4** **DISPLAY** → **F•3** **ARRANGE** → **F•2** **BLANKING:** REMOVE / H VIEW / V VIEW / ALL VIEW

Settings

REMOVE: Only the active interval of the input signal is displayed.

H VIEW: The active interval and the horizontal blanking interval of the input signal are displayed.

This option cannot be selected when **COLOR MATRIX** is set to **COMPOSIT**.

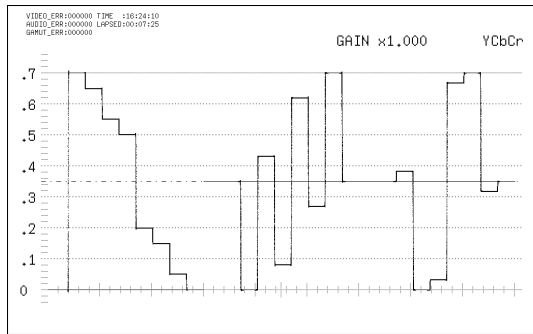
V VIEW: The active interval and the vertical blanking interval of the input signal are displayed.

ALL VIEW: The entire input signal is displayed.

This option cannot be selected when **COLOR MATRIX** is set to **COMPOSIT**.

11. VIDEO SIGNAL WAVEFORM DISPLAY

BLANKING = REMOVE



BLANKING = ALL VIEW

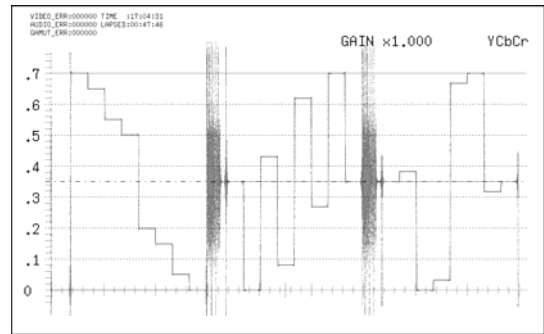


Figure 11-25 Displaying blanking intervals

11.6.7 Setting the Inverted Display

In 3D assist mode (L/R DUAL), to invert the display of the video signal waveform and the picture, follow the procedure below. This setting is the same as the REVERSE setting in the 3D FUNCTION menu. See section 10.4, "Setting the Inverted Display."

Procedure

WFM → F.4 DISPLAY → F.3 ARRANGE → F.3 REVERSE
 → F.1 A/Bch LEFT: OFF / VERTICAL / HORIZONTAL / H&V
 → F.2 C/Dch RIGHT: OFF / VERTICAL / HORIZONTAL / H&V

11.6.8 Selecting the Display Format of Simultaneous Input Mode

When in simultaneous input mode or 3D assist mode (L/R DUAL), to select the display format, follow the procedure below.

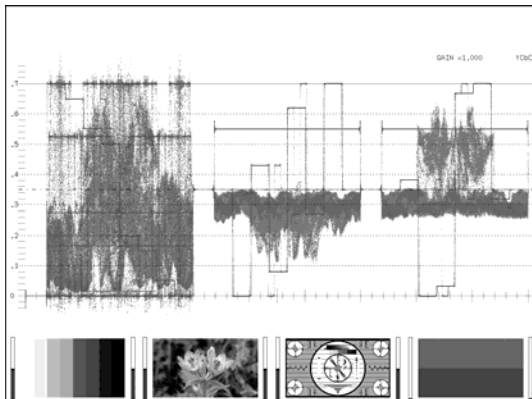
Procedure

WFM → F.4 DISPLAY → F.3 ARRANGE → F.4 SIMUL MODE: MIX / ALIGN / TILE

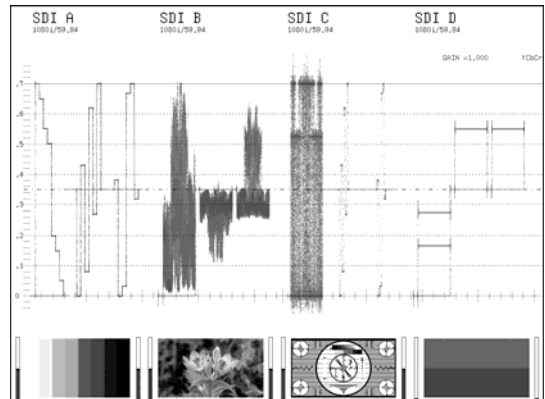
Settings

MIX: The video signal waveforms are overlapped and displayed. (3D assist mode default setting)
ALIGN: The video signal waveforms are displayed side by side. (Simultaneous input mode default setting)
TILE: The video signal waveforms are arranged separately and displayed.

SIMUL MODE = MIX



SIMUL MODE = ALIGN



SIMUL MODE = TILE

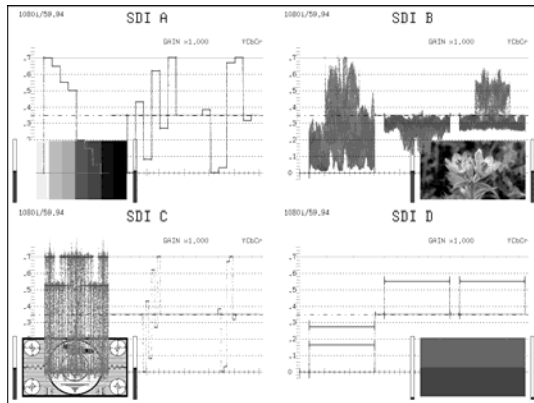


Figure 11-26 Selecting the display format of simultaneous input mode

11.6.9 Setting the Thumbnail Display

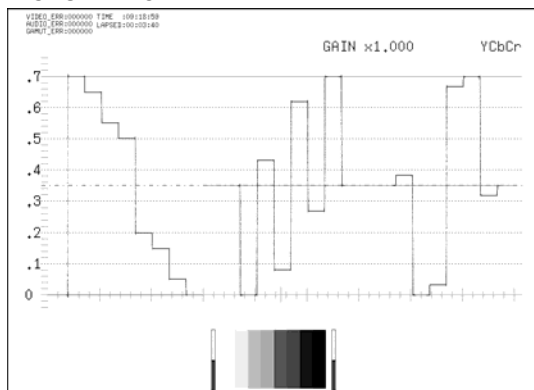
To turn the thumbnail displays of the audio meter and picture on and off separately, follow the procedure below. This setting does not appear when the multi-screen display is in use.

Procedure

WFM → F•4 DISPLAY → F•4 THUMBNAIL → F•1 AUDIO METER: ON / OFF
→ F•3 PICTURE: ON / OFF

AUDIO METER = ON

PICTURE = ON



AUDIO METER = OFF

PICTURE = OFF

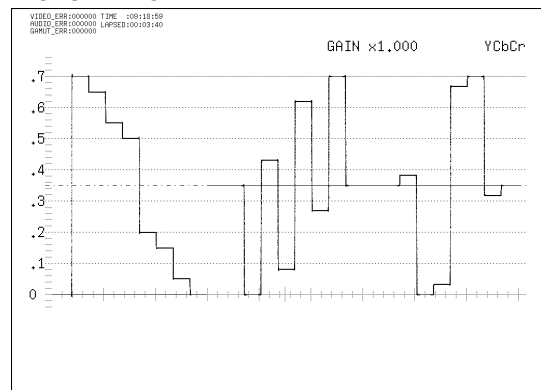


Figure 11-27 Setting the thumbnail display

11.7 Configuring Cursor Settings

To configure cursor settings, press F•5 CURSOR on the video signal waveform menu. This setting does not appear in the multi-screen display or when USER MARKER is set to SINGLE or DUAL.

For information on the USER MARKER setting, see section 11.3.6, “Displaying User Markers.”

WFM → F•5 CURSOR →

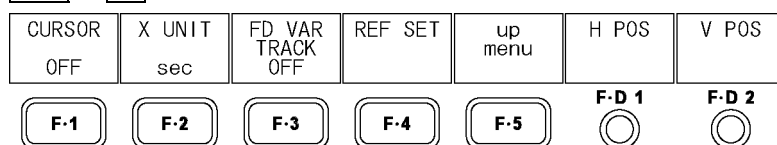


Figure 11-28 CURSOR menu

11.7.1 Displaying Cursors

To display cursors, follow the procedure shown below.

The REF cursor is displayed in blue, and the DELTA cursor is displayed in green. The measured value of DELTA-REF is displayed in the bottom right of the screen. You can switch the positions of the REF and DELTA cursors by pressing **F•D 2** DELTA.

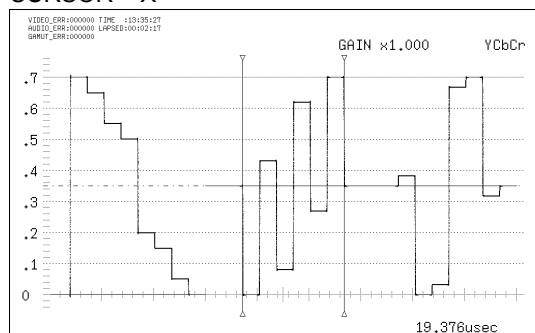
Procedure

WFM → **F•5** CURSOR → **F•1** CURSOR: X / Y / OFF

Settings

- X:** X cursors (time measurement) are displayed. You cannot select this setting in simultaneous input mode or 3D assist mode when the display format is set to ALIGN.
- Y:** Y cursors (amplitude measurement) are displayed.
- OFF:** Cursors are not displayed.

CURSOR = X



CURSOR = Y

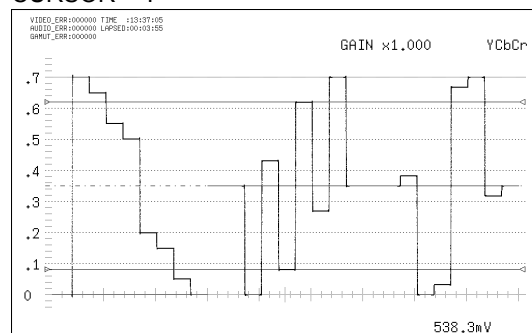


Figure 11-29 Displaying cursors

11.7.2 Moving Cursors

To move cursors, follow the procedure shown below.

You can also change the value of the **F•3** FD VAR TRACK setting by pressing **F•D 1**.

- To Move Each Cursor Separately

1. Set **F•3** FD VAR TRACK to OFF.

F•D 1 is set to REF.

2. Move the REF (blue) cursor with **F•D 1** REF, and move the DELTA (green) cursor with **F•D 2** DELTA.

You can switch the positions of the REF and DELTA cursors by pressing **F•D 2**.

- To Move Both Cursors Simultaneously

1. Set **F•3** FD VAR TRACK to ON.

F•D 1 is set to TRACK.

2. Move both cursors simultaneously with **F•D 1** TRACK.

You can move the DELTA (green) cursor individually by turning **F•D 2** DELTA. You can switch the positions of the REF and DELTA cursors by pressing **F•D 2**.

11.7.3 Selecting the Measurement Unit

To select the units used in cursor measurement, follow the procedure below.

- When **CURSOR** Is Set to **Y**

Procedure

WFM → **F•5** **CURSOR** → **F•2** **Y UNIT: mV / % / R%**

Settings

mV: Measurements are made in units of voltage.

%: Measurements are made as percentages.

When **COLOR MATRIX** is set to **YCbCr**, **GBR**, or **RGB** 700 mV = 100 %

When **COLOR MATRIX** is set to **COMPOSIT (NTSC)** 714 mV = 100 %

When **COLOR MATRIX** is set to **COMPOSIT (PAL)** 700 mV = 100 %

R%: Measurements are made as percentages, with the amplitude when **REF SET** was pressed set to 100 %.

- When **CURSOR** is set to **X**

Procedure

WFM → **F•5** **CURSOR** → **F•2** **X UNIT: sec / Hz**

Settings

sec: Measurements are made in units of seconds.

Hz: Measurements are made in units of frequency, with the length of one period set to the distance between the two cursors.

11.7.4 Setting the Reference Value

When **F•2** **Y UNIT** is set to **R%**, follow the procedure below to set the amplitude at the location of your choice to 100 %.

Procedure

WFM → **F•5** **CURSOR** → **F•4** **REF SET**

12. VECTOR DISPLAY

12.1 Vector Display Explanation

To display vectors, press **VEC**.

To display the vector menu, hold down **VEC** for 0.5 seconds or more, or use the function keys and function dials on the vector display. The vector menu will disappear when you press **VEC** again or after a certain period of time passes with no user activity.

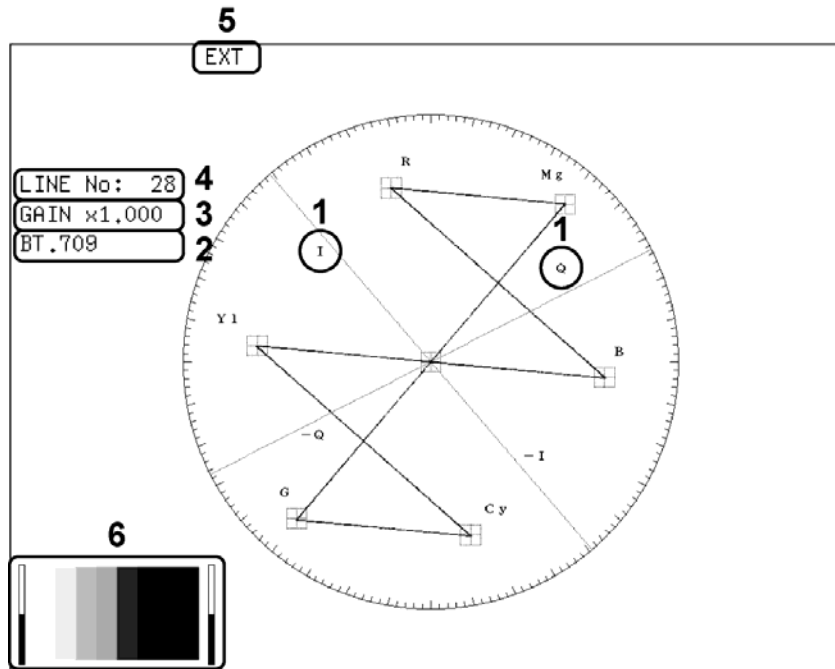


Figure 12-1 Vector display

1 I and Q Axes

The I and Q axes can be displayed.

See section 12.2.1, "Turning the Display of the I and Q Axes On and Off."

2 Display Format

The vector display format is indicated here as BT.601, BT.709, or COMPOSITE.

See sections 12.2.4, "Selecting the Scale Type" and 12.6.1, "Selecting the Display Format."

3 Gain

The vector gain appears here. You can set the gain to a value between 0.2 and 10 by setting GAIN and GAIN VARIABLE.

For information on the GAIN setting, see section 12.3.1, "Selecting the Fixed Gain."

For information on the GAIN VARIABLE setting, see section 12.3.2, "Setting the Variable Gain."

4 Selected Line

The vector of the selected line is displayed.

See sections 12.4.1, "Turning Line Selection On and Off" and 12.4.2, "Selecting Lines."

5 Sync Signal

EXT appears here when an external sync signal is being used.

See section 12.4.4, "Switching the Sync Signal."

6 Thumbnail Display

The thumbnail display shows the audio meter (fixed to channels 1 and 2) and the picture. You can also turn each of these displays off.

See section 12.5.3, “Setting the Thumbnail Display.”

12.2 Configuring Vector and Scale Settings

To configure vector and scale settings, press **F.1** INTEN/SCALE on the vector menu.

F.1 INTEN/SCALE appears when MODE is set to VECTOR.

For information on the MODE setting, see section 12.5.1, “Switching between the Vector and 5-Bar Displays.”

VEC → **F.1** INTEN/SCALE →

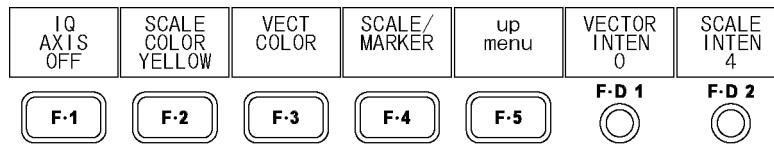


Figure 12-2 INTEN/SCALE menu

12.2.1 Turning the Display of the I and Q Axes On and Off

To turn the display of the I and Q axes on and off, follow the procedure below. When the input format is 625i/50, the I and Q axes will not be displayed even if you select ON.

Procedure

VEC → **F.1** INTEN/SCALE → **F.1** IQ AXIS: ON / OFF

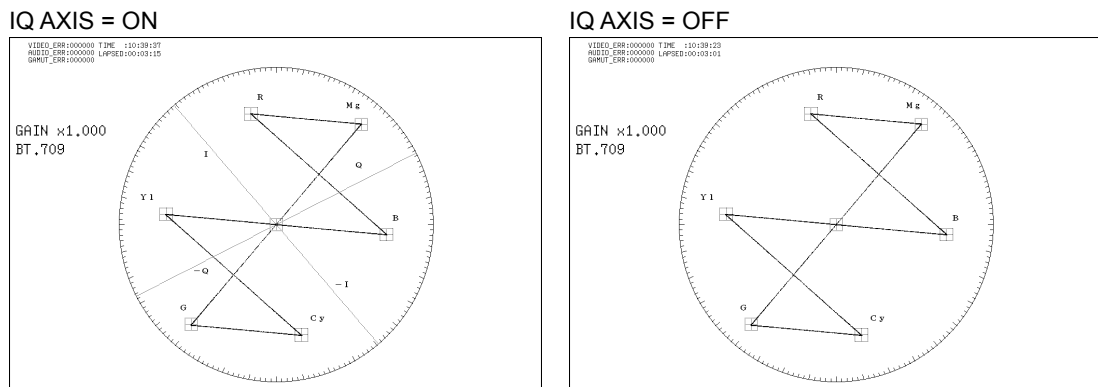


Figure 12-3 Turning the display of the I and Q axes on and off

12.2.2 Selecting the Scale Color

To select the scale color, follow the procedure below.

Procedure

VEC → **F.1** INTEN/SCALE → **F.2** SCALE COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

12.2.3 Selecting the Vector Color

To configure vector color settings, press **F•3** VECT COLOR on the vector menu.

VEC → **F•1** INTEN/SCALE → **F•3** VECT COLOR →

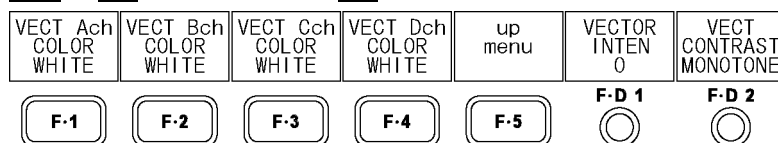


Figure 12-4 VECT COLOR menu

To select the vector color for each channel, follow the procedure shown below.

When the multi-screen display is in use, video signal waveforms are displayed in the same colors as the vectors. Also, in the dual link mode, the function keys change depending on the display mode. For example, **F•1** VECT ABch COLOR is displayed on the single-screen display, and **F•1** VECT/WFM ABchCOLOR is displayed on the multi-screen display.

Procedure (Single-screen display)

VEC → **F•1** INTEN/SCALE → **F•3** VECT COLOR

- **F•1** VECT Ach COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE
- **F•2** VECT Bch COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE
- **F•3** VECT Cch COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE
- **F•4** VECT Dch COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

Procedure (Multi-screen display)

F•3 MULTI VECT → **F•1** VECT → **F•1** INTEN/SCALE → **F•3** VECT/WFM COLOR

- **F•1** VECT/WFM AchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE
- **F•2** VECT/WFM BchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE
- **F•3** VECT/WFM CchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE
- **F•4** VECT/WFM DchCOLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

* In 3D assist mode (L/R DUAL), the default setting for channels A and B is RED, and the default setting for channels C and D is CYAN.

12.2.4 Selecting the Contrast

To select the vector contrast, follow the procedure below. Vectors are usually displayed with gradations, but you can display vectors using single colors by selecting MONOTONE. This is useful for comparing overlapping vectors.

When the multi-screen display is in use, video signal waveforms are displayed with the same contrast as the waveforms.

If you press **F•D 2**, the contrast will be set to its default value of MONOTONE.

Procedure (Single-screen display)

VEC → **F•1** INTEN/SCALE → **F•3** VECT COLOR → **F•D 2** VECT CONTRAST:
MONOTONE / LOW / MIDDLE / HIGH

Procedure (Multi-screen display)

F•3 MULTI VECT → **F•1** VECT → **F•1** INTEN/SCALE → **F•3** VECT/WFM COLOR → **F•D**
2 VECT/WFM CONTRAST: MONOTONE / LOW / MIDDLE / HIGH

12.2.5 Selecting the Scale Type

To configure scale and marker settings, press **F•4** SCALE/MARKER on the vector menu.

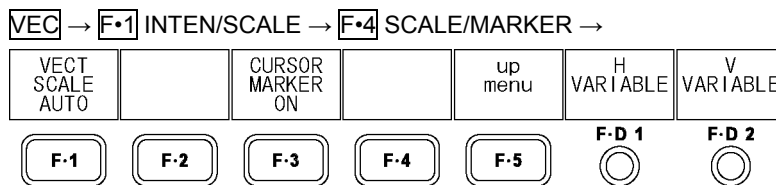


Figure 12-5 SCALE/MARKER menu

When COLOR MATRIX is set to COMPONENT, follow the procedure below to select the scale type.

For information on the COLOR MATRIX setting, see section 12.6.1, "Selecting the Display Format."

Procedure

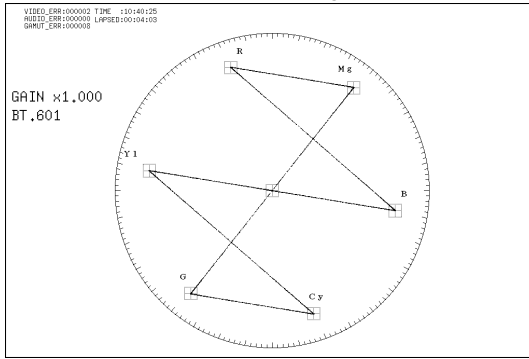
VEC → **F•1** INTEN/SCALE → **F•4** SCALE/MARKER → **F•1** VECT SCALE: AUTO / BT.601 / BT.709

Settings

-
- | | |
|---------|---|
| AUTO: | When the input signal is SD, a BT.601 scale is displayed. When the input signal is HD, a BT.709 scale is displayed. |
| BT.601: | A scale defined in ITU-R BT.601 is displayed. When the input signal is SD and a 100 % color bar signal is being applied, the peak levels match the ends of the scale. |
| BT.709: | A scale defined in ITU-R BT.709 is displayed. When the input signal is HD and a 100 % color bar signal is being applied, the peak levels match the ends of the scale. |
-

12. VECTOR DISPLAY

VECT SCALE = BT.601 (SD signal)



VECT SCALE = BT.709 (HD signal)

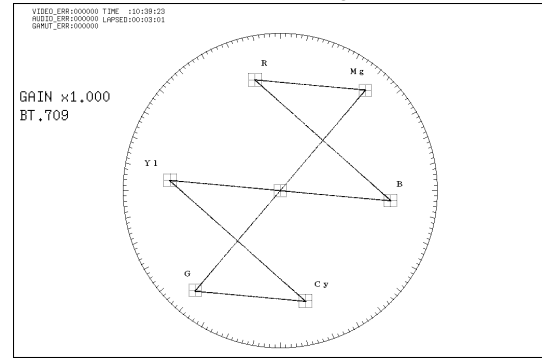


Figure 12-6 Selecting the scale type

12.2.6 Displaying the Vector Marker

In single input mode, to display the vector marker (green) on the vector display, follow the procedure below.

You can move the marker horizontally using **[F•D 1]** H VARIABLE and vertically using **[F•D 2]** V VARIABLE. The measured values are displayed in the lower right of the display. Press **[F•D 1]** to move the marker to the Cb = 0.0% position. Press **[F•D 2]** to move the marker to the Cr = 0.0% position. For details on the measured values, see section 9.7.7, "Displaying Synchronized Markers."

Procedure

[VEC] → **[F•1]** INTEN/SCALE → **[F•4]** SCALE/MARKER → **[F•3]** CURSOR MARKER: ON / OFF

CURSOR MARKER = ON

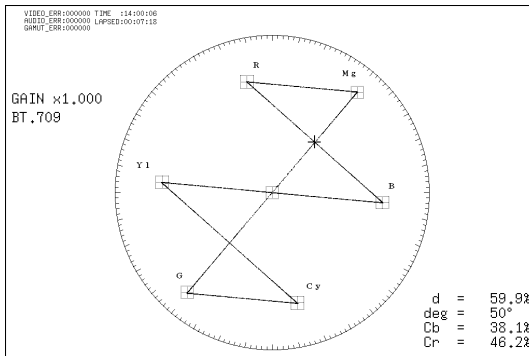


Figure 12-7 Displaying the vector marker

12.2.7 Adjusting the Vector Intensity

To adjust the vector intensity, follow the procedure below.

When the multi-screen display is in use, video signal waveforms are displayed with the same intensity as the vectors. If you press **F•D 1**, the setting will be set to its default value of 0.

Procedure (Single-screen display)

VEC → **F•1** INTEN/SCALE → **F•D 1** VECTOR INTEN: -128 - 0 - 127

Procedure (Multi-screen display)

F•3 MULTI VECT → **F•1** VECT → **F•1** INTEN/SCALE → **F•D 1** VECT/WFM INTEN: -128 - 0 - 127

12.2.8 Adjusting the Scale Intensity

To adjust the scale intensity, follow the procedure below.

If you press **F•D 2**, the setting will be set to its default value of 4.

Procedure

VEC → **F•1** INTEN/SCALE → **F•D 2** SCALE INTEN: -8 - 4 - 7

12.3 Configuring Gain Settings

To configure the gain settings, press **F•2** GAIN and **F•D 1** GAIN VARIABLE on the vector menu.

These settings are available when MODE is set to VECTOR.

For information on the MODE setting, see section 12.5.1, "Switching between the Vector and 5-Bar Displays."

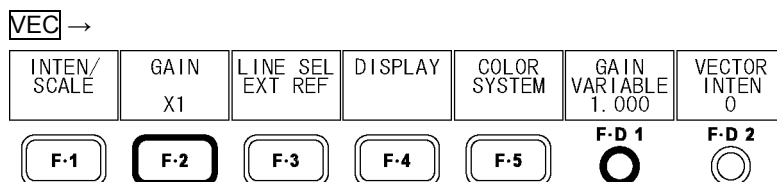


Figure 12-8 Vector menu

12.3.1 Selecting the Fixed Gain

To select the fixed vector gain, follow the procedure below.

Procedure

VEC → **F•2** GAIN: X1 / X5 / IQ-MAG

Settings

- ×1: Vectors are displayed with a gain of ×1.
- ×5: Vectors are displayed with a gain of ×5.
- IQ-MAG: Vectors are displayed using the following magnifications.
 - ×3.12 (for HD signals during component display; magnification that causes the I signal of a multiformat colorbar to lie on the circumference of the scale)
 - ×2.845 (for HD signals during pseudo-composite display; magnification that

causes the I signal of a multiformat colorbar that has gone through pseudo-composite conversion, to lie on the circumference of the scale)
 $\times 2.92$ (for SD signals during component display; magnification that causes the amplitude to lie on the circumference of the scale when the burst signal of the composite vector display is converted into a component signal)
 $\times 2.63$ (for SD signals during pseudo-composite display; magnification that causes SMPTE colorbar -I and Q signals that have gone through pseudo-composite conversion to lie on the circumference of the scale)

12.3.2 Setting the Variable Gain

To set the variable vector gain, follow the procedure below.

You can set the vector gain to a value between 0.2 and 10 by setting **F•2** GAIN and **F•D 1** GAIN VARIABLE. The gain value appears in the upper left of the screen.

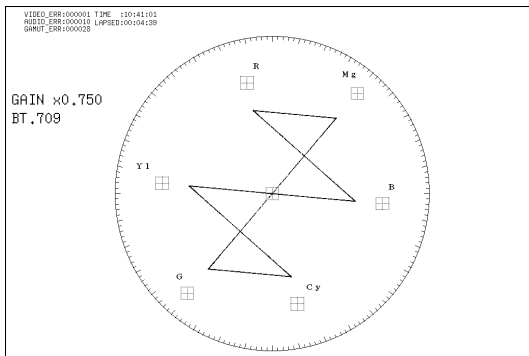
Procedure

VEC → **F•D 1** GAIN VARIABLE:

- 0.200 - 1.000 - 2.000 (When GAIN is set to X1.)
- 1.000 - 5.000 - 10.000 (When GAIN is set to X5.)
- 1.000 - 3.120 - 10.000 (During component display when GAIN MAG is set to IQ-MAG and the signal format is HD)
- 1.000 - 2.845 - 10.000 (During pseudo-composite display when GAIN MAG is set to IQ-MAG and the signal format is HD)
- 1.000 - 2.920 - 10.000 (During component display when GAIN MAG is set to IQ-MAG and the signal format is SD)
- 1.000 - 2.630 - 10.000 (During pseudo-composite display when GAIN MAG is set to IQ-MAG and the signal format is SD)

GAIN MAG = $\times 1$

GAIN VARIABLE = 0.75



GAIN MAG = IQ-MAG

GAIN VARIABLE = 3.120

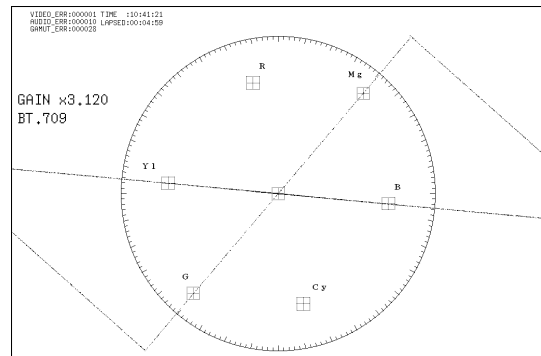


Figure 12-9 Setting the gain

12.4 Configuring Line Selection and Sync Signal Settings

To configure line selection and sync signal settings, press **F•3** LINE SEL EXT REF on the vector menu.

VEC → **F•3** LINE SEL EXT REF →

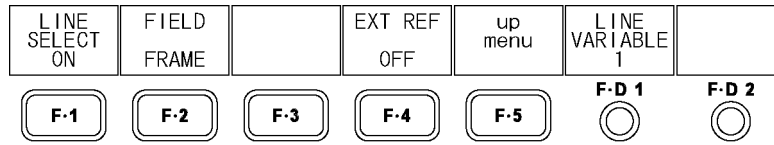


Figure 12-10 LINE SEL EXT REF menu

12.4.1 Turning Line Selection On and Off

To display the vector of the selected line, follow the procedure below.

Changing this setting will also change the picture display and video signal waveform display line selection settings.

Procedure

VEC → **F•3** LINE SEL EXT REF → **F•1** LINE SELECT: CINELITE / ON / OFF

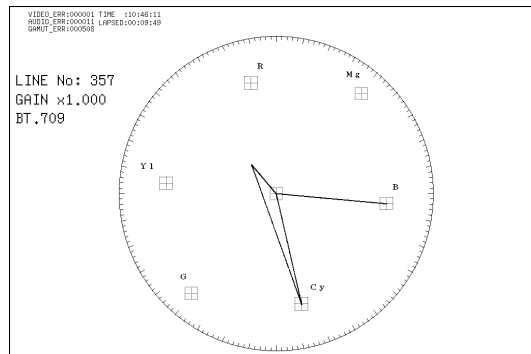
Settings

CINELITE: The vector of the line selected on the CINELITE display is displayed. You can select this option when CINELITE DISPLAY in the picture menu is set to f Stop or %DISPLAY.

ON: The vector of the line you select with **F•D 1** LINE VARIABLE is displayed.

OFF: The vectors of all lines are displayed on top of each other.

LINE SELECT = ON



LINE SELECT = OFF

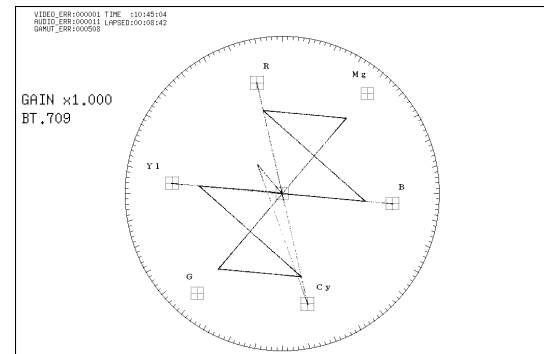


Figure 12-11 Turning line selection on and off

12.4.2 Selecting Lines

To select a line, follow the procedure below. The selected line is indicated in the upper left of the display. If you press **F•D 1**, the selected line changes to the first video line.

In 3D assist mode, blanking interval lines cannot be selected.

This setting is available when **F•1** LINE SELECT is set to ON. Changing this setting will also change the selected line on the picture display, video signal waveform display, and data dump display.

Procedure

VEC → **F•3** LINE SEL EXT REF → **F•D 1** LINE VARIABLE

12.4.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.

This setting is available when **F•1** LINE SELECT is set to ON and the input signal is interlaced or segmented frame. Changing this setting will also change the picture display and video signal waveform display line selection ranges.

Procedure

VEC → **F•3** LINE SEL EXT REF → **F•2** FIELD: FIELD1 / FIELD2 / FRAME

Settings (the examples are for the selectable ranges when the input format is set to 1080i/59.94)

FIELD1: A line from field 1 can be selected (example: 1 to 563).

FIELD2: A line from field 2 can be selected (example: 564 to 1125).

FRAME: All lines can be selected (example: 1 to 1125).

12.4.4 Switching the Sync Signal

To switch to an external sync signal, follow the procedure below.

Changing this setting will also change the video signal waveform display and status display sync signal settings.

When D_LINK FORMAT is set to YC10bit, you cannot use an external sync signal, and this setting is not available.

For information on the D_LINK FORMAT setting, see section 5.1.4, "Setting the Input Format."

Procedure

VEC → **F•3** LINE SEL EXT REF → **F•4** EXT REF: ON / OFF

Settings

ON: An external sync signal is used.

OFF: The internal sync signal is used.

12.5 Configuring Display Settings

To configure display settings, press **F•4** DISPLAY on the vector menu.

This setting does not appear in single input mode or 3D assist mode (HF SbyS or TOP&BOTM) on the multi-screen display.

See section 4.3.1, “Switching the Input Mode.”

VEC → **F•4** DISPLAY →

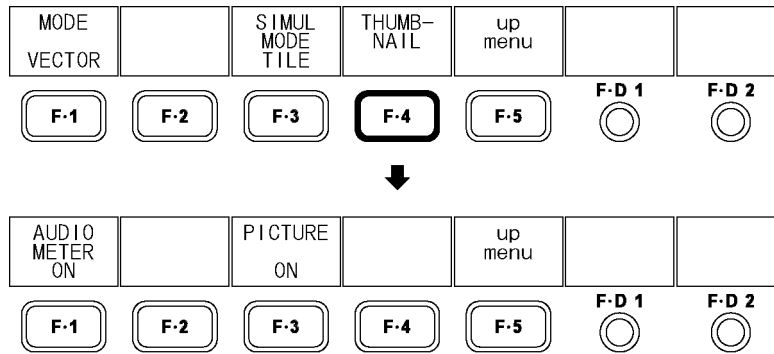


Figure 12-12 DISPLAY menu

12.5.1 Switching between the Vector and 5-Bar Displays

To switch between the vector and 5-bar displays, follow the procedure below.

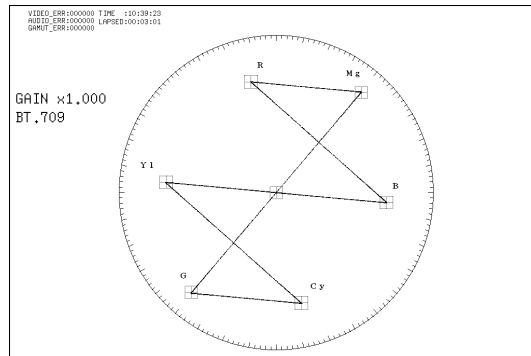
This setting does not appear when the multi-screen display is in use.

For information on the 5-bar display, see section 12.7, “Configuring the 5-Bar Display.”

Procedure

VEC → **F•4** DISPLAY → **F•1** MODE: VECTOR / 5BAR

MODE = VECTOR



MODE = 5BAR

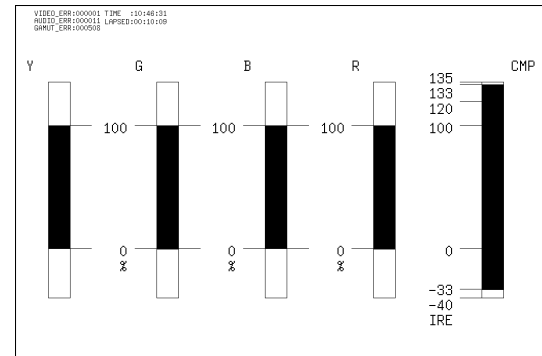


Figure 12-13 Vector and 5-bar displays

12.5.2 Selecting the Display Format of Simultaneous Input Mode

When in simultaneous input mode or 3D assist mode (L/R DUAL), to select the display format, follow the procedure below.

When **[F•1]** MODE is set to 5BAR, this setting does not appear (it is fixed to TILE).

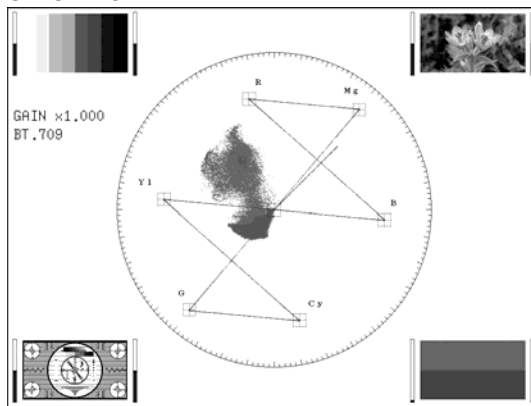
Procedure

[VEC] → **[F•4]** DISPLAY → **[F•3]** SIMUL MODE: MIX / TILE

Settings

MIX: The vectors are overlapped and displayed. (3D assist mode default setting)
 TILE: The vectors are arranged separately and displayed. (Simultaneous input mode default setting)

SIMUL MODE = MIX



SIMUL MODE = TILE

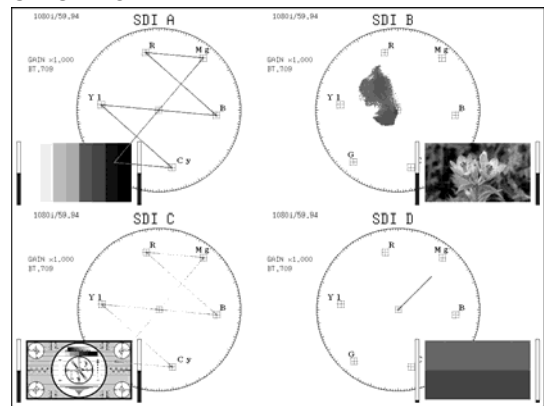


Figure 12-14 Selecting the display format of simultaneous input mode

12.5.3 Setting the Thumbnail Display

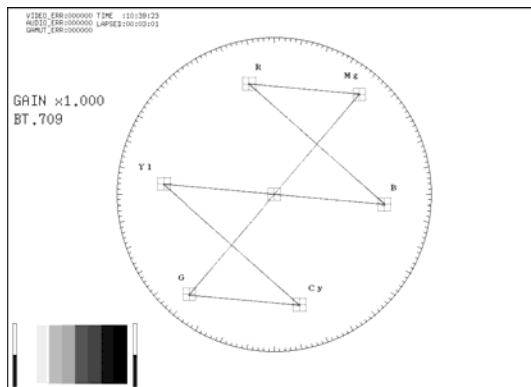
To turn the thumbnail displays of the audio meter and picture on and off separately, follow the procedure below. This setting does not appear when the multi-screen display is in use.

Procedure

[VEC] → **[F•4]** DISPLAY → **[F•4]** THUMBNAIL → **[F•1]** AUDIO METER: ON / OFF
 → **[F•3]** PICTURE: ON / OFF

AUDIO METER = ON

PICTURE = ON



AUDIO METER = OFF

PICTURE = OFF

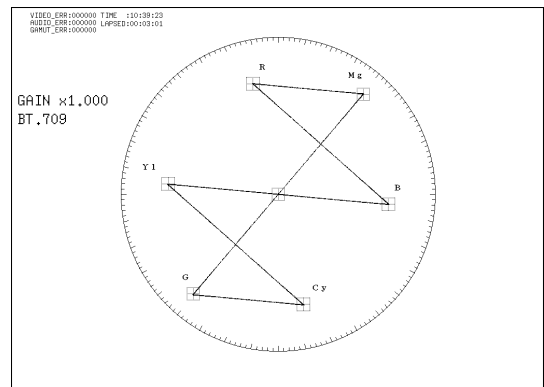


Figure 12-15 Setting the thumbnail display

12.6 Configuring Display Format Settings

To configure display format settings, press **F•5** COLOR SYSTEM on the vector menu.
F•5 COLOR SYSTEM appears when MODE is set to VECTOR.

For information on the MODE setting, see section 12.5.1, "Switching between the Vector and 5-Bar Displays."

VEC → **F•5** COLOR SYSTEM →

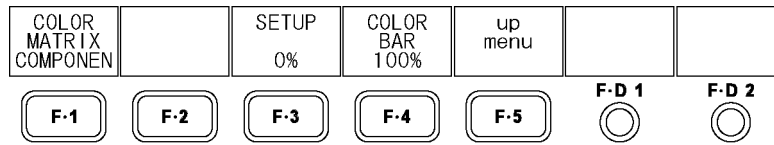


Figure 12-16 COLOR SYSTEM menu

12.6.1 Selecting the Display Format

To select the vector display format, follow the procedure below.

If you select COMPOSIT, choose the composite display format (NTSC or PAL) by setting COMPOSIT FORMAT in the system settings.

For information on the COMPOSIT FORMAT setting,
 see section 5.1.5, "Selecting the Composite Display Format."

Procedure

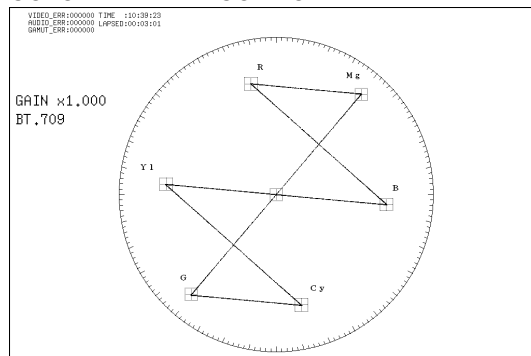
VEC → **F•5** COLOR SYSTEM → **F•1** COLOR MATRIX: COMPONEN / COMPOSIT

Settings

COMPONEN: The component chrominance signal is displayed on the X and Y axes.

COMPOSIT: The component signal is converted into a composite signal, and the composite signal's chrominance signal is displayed on the X and Y axes.

COLOR MATRIX = COMPONEN



COLOR MATRIX = COMPOSIT

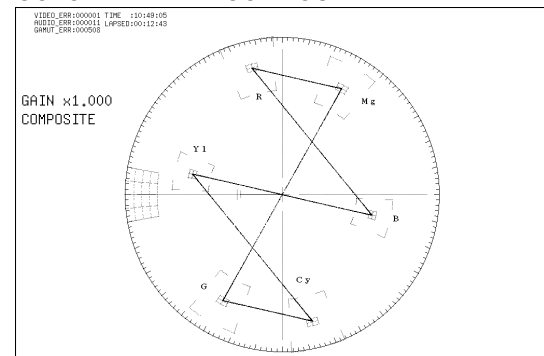


Figure 12-17 Selecting the display format

12.6.2 Selecting the Setup Level

To select the setup level for the pseudo-composite display, follow the procedure shown below. Regardless of this setting, in the multi-screen display, vectors are displayed using the setup level that you specify in the video signal waveform menu.

This setting is available when **F•1** COLOR MATRIX is set to COMPOSIT and the composite display format is set to NTSC.

For information on the SETUP setting, see section 11.6.3, "Selecting the Setup Level."

For information on the composite display format,

see section 5.1.5, "Selecting the Composite Display Format."

Procedure

VEC → **F•5** COLOR SYSTEM → **F•3** SETUP: 0% / 7.5%

12.6.3 Displaying a Scale for 75 % Intensity Color Bars

To display a scale for 75 % intensity color bars, follow the procedure below.

Procedure

VEC → **F•5** COLOR SYSTEM → **F•4** COLOR BAR: 100% / 75%

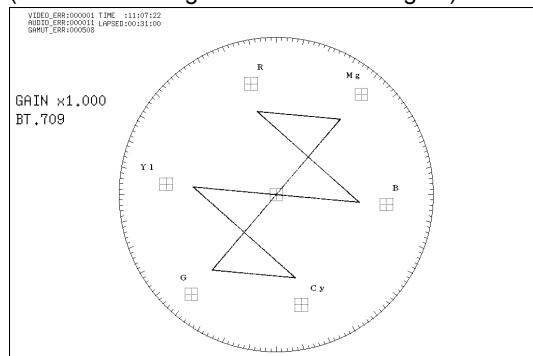
Settings

100%: A scale that matches the peak levels of 100 % intensity color bars is displayed.

75%: A scale that matches the peak levels of 75 % intensity color bars is displayed.

COLOR BAR = 100%

(When measuring a 75 % color bar signal)



COLOR BAR = 75%

(When measuring a 75 % color bar signal)

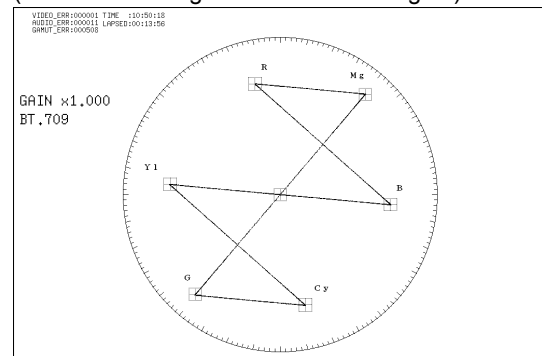


Figure 12-18 Displaying a scale for 75 % intensity color bars

12.7 Configuring the 5-Bar Display

To configure the 5-bar display, press **F•5** 5BAR SETUP on the vector menu.

F•5 5BAR SETUP appears when MODE is set to 5BAR.

For information on the MODE setting, see section 12.5.1, “Switching between the Vector and 5-Bar Displays.”

VEC → **F•5** 5BAR SETUP →

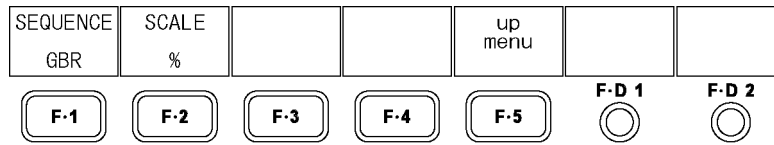


Figure 12-19 5BAR SETUP menu

12.7.1 5-Bar Display Explanation

The 5-bar display appears when you set **F•1** MODE to 5BAR.

On the 5-bar display, the positive and negative peak levels are displayed simultaneously. The levels are typically displayed in cyan, but portions that exceed their limits are displayed in red.

Also, a low-pass filter is set to remove transient errors. Use the status menu to configure this filter.

See sections 14.7.1, “Turning the Filter On and Off,” 14.7.2, “Selecting the Filter Characteristics.”

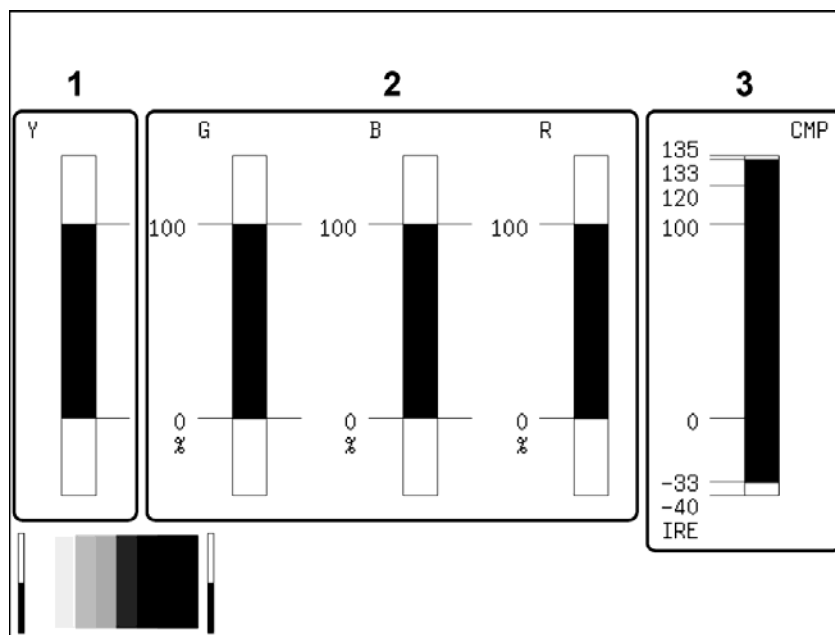


Figure 12-20 5-bar display

1 Y

The luminance signal level appears here.

The levels that fall outside of the range you set using LUMA ERROR on the status menu are displayed in red.

For information on the LUMA ERROR setting,

see section 14.7.8, “Setting the Luminance Error Levels.”

2 G, B, R

The levels after converting the YCBCR signal into a GBR signal appear here.

You can use **F•1** SEQUENCE to change the signal order to RGB. The levels that fall outside of the range that you set using GAMUT ERROR on the status menu are displayed in red.

For information on the GAMUT ERROR setting, see section 14.7.4, “Setting the Gamut Error Levels.”

3 CMP

The level after converting the YCBCR signal into a pseudo-composite signal appears here. (The blanking interval levels are not displayed.)

The levels that fall outside of the range you set using COMPOSIT GAMUT on the status menu are displayed in red.

For information on the COMPOSIT GAMUT setting,

see section 14.7.6, “Setting the Composite Gamut Error Levels.”

12.7.2 Setting the Display Order

To select the order of the signals on the 5-bar display, follow the procedure below.

Procedure

VEC → **F•5** 5BAR SETUP → **F•1** SEQUENCE: GBR / RGB

Settings

GBR: From the left, the signals are displayed in this order: Y, G, B, R, CMP.

RGB: From the left, the signals are displayed in this order: Y, R, G, B, CMP.

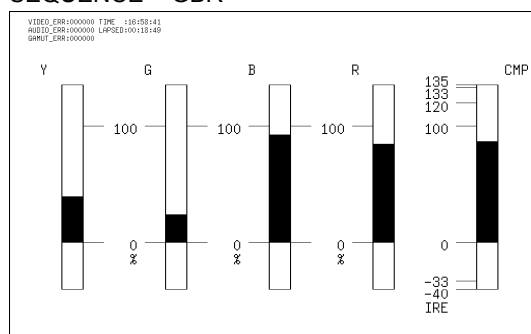
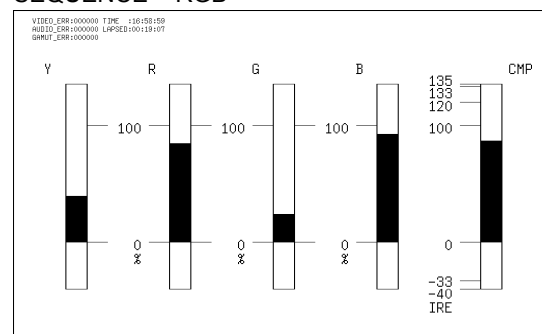
SEQUENCE = GBR**SEQUENCE = RGB**

Figure 12-21 Setting the display order

12.7.3 Selecting the Scale Unit

To select the scale units on the 5-bar display, follow the procedure below.

To set the composite display format, set COMPOSIT FORMAT in the system settings.

For information on the COMPOSIT FORMAT setting,

see section 5.1.5, "Selecting the Composite Display Format."

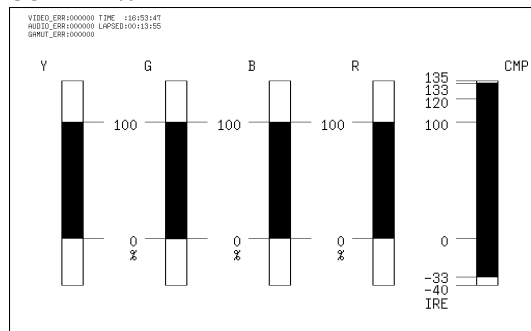
Procedure

VEC → **F•5** 5BAR SETUP → **F•2** SCALE: % / mV

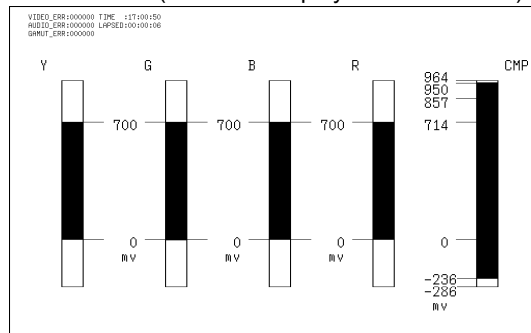
Settings

%: The scale shows % and IRE.
mV: The scale shows mV. The scale values change as follows depending on the composite display format:
 100% = 700 mV, 100IRE = 714 mV (when the display format is NTSC)
 100% = 700 mV, 100IRE = 700 mV (when the display format is PAL)

SCALE = %



SCALE = mV (when the display format is NTSC)



SCALE = mV (when the display format is PAL)

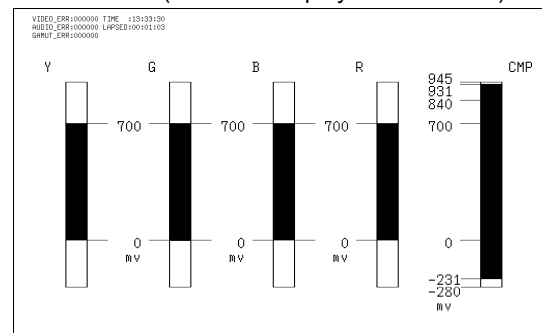


Figure 12-22 Selecting the scale unit

13. AUDIO DISPLAY

When the link format is set to dual, only the audio signal embedded in link A is measured.

13.1 Audio Display Explanation

The audio display appears when you press **AUDIO**.

To display the audio menu, hold down **AUDIO** for 0.5 seconds or more, or use the function keys and function dials on the audio display. The audio menu will disappear when you press **AUDIO** again or after a certain period of time passes with no user activity.

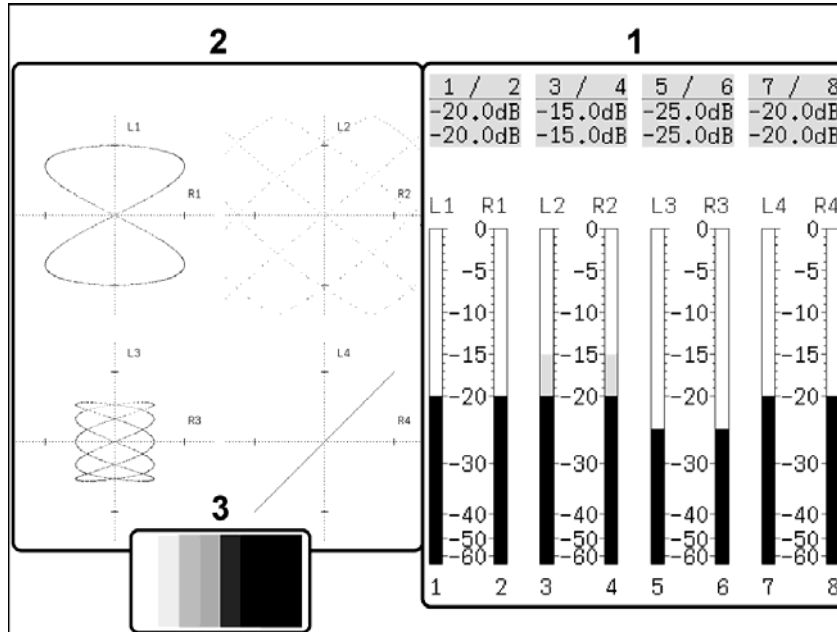


Figure 13-1 Audio display

1 Audio Levels

The audio levels of the channels selected using DECODE GROUP (in the multi-Lissajous display) or SINGLE LISSAJOU (in the single-Lissajous display) are displayed using meters and values.

On the meter display, levels that exceed the reference level are displayed in red, and levels that are less than the reference level are displayed in gray.

On the numerical display, the left channel levels are displayed on the top, and the right channel levels are displayed on the bottom.

See section 13.3, "Configuring Meter Settings."

2 Lissajous Display

The audio signals of the channels selected using DECODE GROUP (on the multi-Lissajous display) or SINGLE LISSAJOU (on the single-Lissajous display) are displayed using Lissajous curves. The lines on the scale indicate the reference level. You can change the reference level by setting REF LEVEL.

See section 13.4, "Configuring Lissajous Settings."

3 Thumbnail Display

The picture appears here as a thumbnail. It can also be turned off.

It does not appear in simultaneous input mode or 3D assist mode (L/R DUAL).

See section 13.5, "Setting the Thumbnail Display."

13.2 Setting the Input Channels

To set the input channels, press **F·1** CHANNEL SELECT on the audio menu.

AUDIO → **F·1** CHANNEL SELECT →

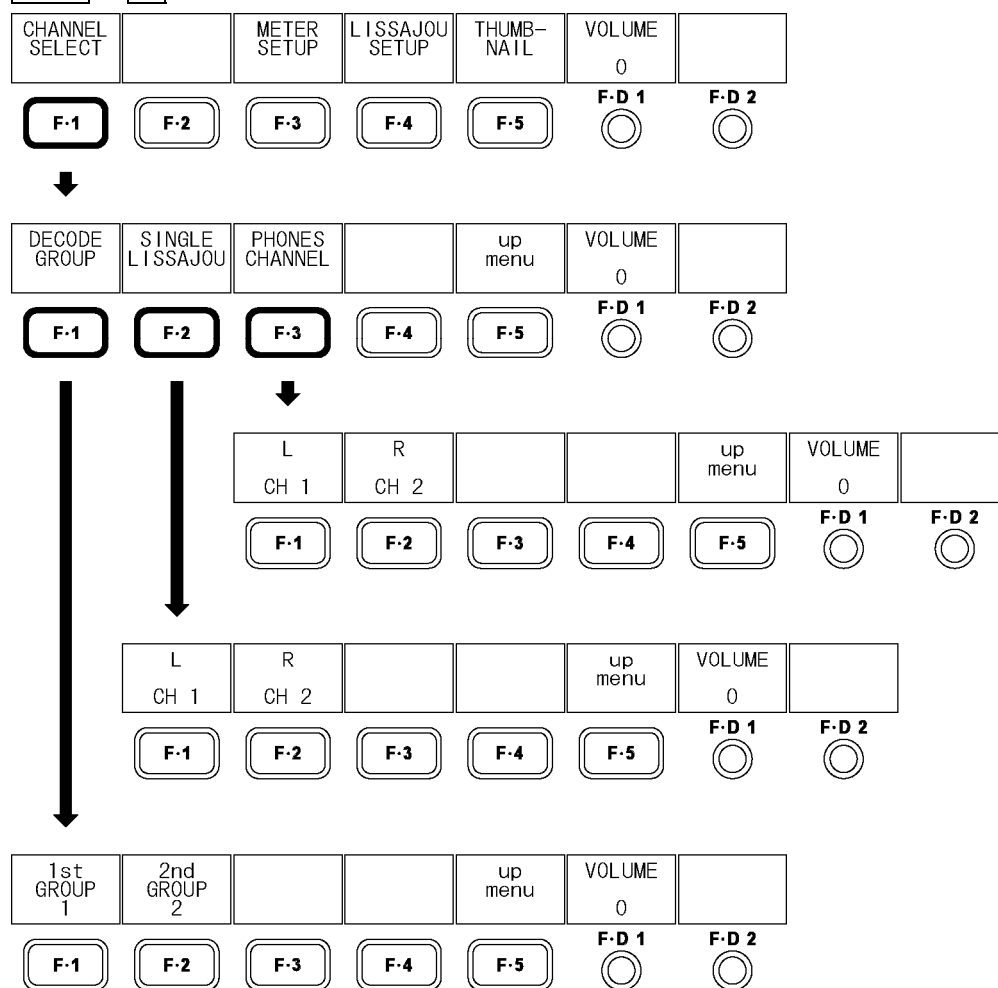


Figure 13-2 CHANNEL SELECT menu

13.2.1 Selecting the Audio Display Channels

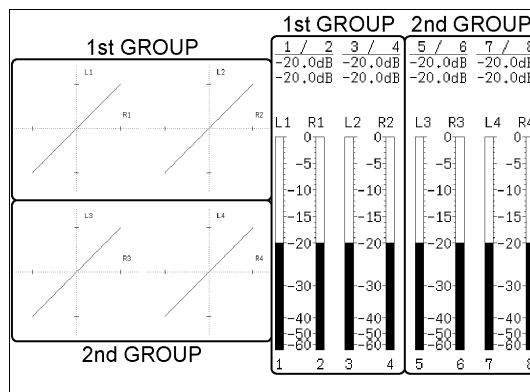
The channels that you can measure on the audio display vary depending on the input mode.

In single input mode or 3D assist mode (HF SbyS, TOP&BOTM), the channels that you select with **[F•1]** 1st GROUP and **[F•2]** 2nd GROUP (for a total of eight channels) are displayed.

In simultaneous input mode or 3D assist mode (L/R DUAL), the channels that you select with **[F•1]** DECODE CHANNEL (two channels per input for a maximum of eight channels) are displayed.

See section 4.3.1, "Switching the Input Mode."

In single input mode



In simultaneous input mode

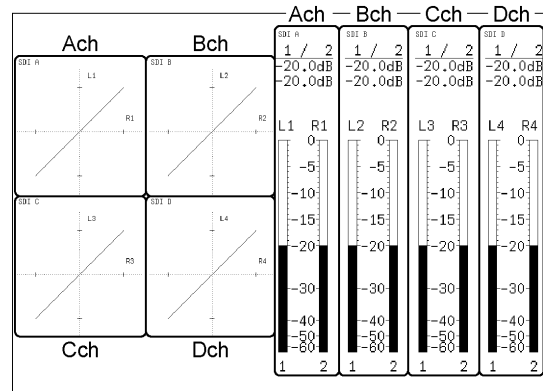


Figure 13-3 Selecting the audio display channels

- **In Single Input Mode or 3D assist mode (HF SbyS, TOP&BOTM)**

To select the channels to measure, follow the procedure below.

You can select two single Lissajous measurement channels and two headphone jack output channels from the channels that you select here.

Procedure

AUDIO → **[F•1]** CHANNEL SELECT → **[F•1]** DECODE GROUP
 → **[F•1]** 1st GROUP: 1 / 2 / 3 / 4
 → **[F•2]** 2nd GROUP: 1 / 2 / 3 / 4

Settings

- 1: Channels 1 to 4 are displayed.
- 2: Channels 5 to 8 are displayed.
- 3: Channels 9 to 12 are displayed.
- 4: Channels 13 to 16 are displayed.

- **In Simultaneous Input Mode or 3D Assist Mode (L/R DUAL)**

To select the channels to measure, follow the procedure below.

The single Lissajous measurement channels and the headphone jack output channels are the channels that you select here.

Procedure

AUDIO → **F•1** CHANNEL SELECT → **F•1** DECODE CHANNEL
 → **F•1** Ach: CH1/2 / CH3/4 / CH5/6 / CH7/8 / CH9/10 / CH11/12 / CH13/14 / CH15/16
 → **F•2** Bch: CH1/2 / CH3/4 / CH5/6 / CH7/8 / CH9/10 / CH11/12 / CH13/14 / CH15/16
 → **F•3** Cch: CH1/2 / CH3/4 / CH5/6 / CH7/8 / CH9/10 / CH11/12 / CH13/14 / CH15/16
 → **F•4** Dch: CH1/2 / CH3/4 / CH5/6 / CH7/8 / CH9/10 / CH11/12 / CH13/14 / CH15/16

13.2.2 Selecting the Single-Lissajous Display Channels

The channels that you can measure on the single-Lissajous display vary depending on the input mode.

In single input mode or 3D assist mode (HF SbyS, TOP&BOTM), the channels that you select with **F•1** L and **F•2** R are displayed.

In simultaneous input mode or 3D assist mode (L/R DUAL), the input signal channels that you select with **F•2** SINGLE LISSAJOU (from the channels that you selected with **F•1** DECODE CHANNEL) are displayed.

See section 4.3.1, "Switching the Input Mode."

- In Single Input Mode or 3D assist mode (HF SbyS, TOP&BOTM)

To select the channels to measure, follow the procedure below.

You can choose the channels from the eight channels assigned to **F•1** 1st GROUP and **F•2** 2nd GROUP.

Procedure

AUDIO → **F•1** CHANNEL SELECT → **F•2** SINGLE LISSAJOU → **F•1** L
 → **F•2** R

Settings

Range: The channels assigned to 1st GROUP (four channels) and the channels assigned to 2nd GROUP (four channels).
 (The default values are CH1 for L and CH2 for R.)

- In Simultaneous Input Mode or 3D Assist Mode (L/R DUAL)

On the single-Lissajous display, even if you are using simultaneous input mode, you can only measure two channels. To select the signal to measure, follow the procedure below. The channels that can be measured are those that were selected with **F•1** DECODE CHANNEL.

Procedure

AUDIO → **F•1** CHANNEL SELECT → **F•2** SINGLE LISSAJOU: Ach / Bch / Cch / Dch

13.2.3 Selecting the Headphone Output Channels

The channels that you can transmit from the headphone jack vary depending on the input mode.

In single input mode or 3D assist mode (HF SbyS, TOP&BOTM), the channels that you select with **F.1** L and **F.2** R are transmitted.

In simultaneous input mode or 3D assist mode (L/R DUAL), the input signal channels that you select with **[F•3]** PHONES CHANNEL (from the channels that you selected with **[F•1]** DECODE CHANNEL) are transmitted.

See section 4.3.1, “Switching the Input Mode.”

- In Single Input Mode or 3D assist mode (HF SbyS, TOP&BOTM)

To select the channels to transmit, follow the procedure below.

You can choose the channels from the eight channels assigned to **F.1** 1st GROUP and **F.2** 2nd GROUP.

Procedure

AUDIO → F•1 CHANNEL SELECT → F•3 PHONES CHANNEL → F•1 L
→ F•2 R

Settings

Range: The channels assigned to 1st GROUP (four channels) and the channels assigned to 2nd GROUP (four channels).
(The default values are CH1 for L and CH2 for R.)

- In Simultaneous Input Mode or 3D Assist Mode (L/R DUAL)

To select the output signal, follow the procedure below.

The channels that can be transmitted are those that were selected with **F•1** DECODE CHANNEL.

Procedure

AUDIO → F.1 CHANNEL SELECT → F.3 PHONES CHANNEL: Ach / Bch / Cch / Dch

13.3 Configuring Meter Settings

To configure meter settings, press **F•3** METER SETUP on the audio menu.

AUDIO → **F•3** METER SETUP →

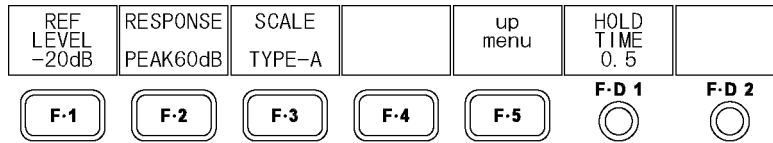


Figure 13-4 METER SETUP menu

13.3.1 Selecting the Reference Level

To select the meter reference level, follow the procedure below.

Levels that exceed the reference level are displayed in red, and levels that are less than the reference level are displayed in gray.

The reference level that you set here is also used on the Lissajous display. The lines on the scale indicate the reference level.

Procedure

AUDIO → **F•3** METER SETUP → **F•1** REF LEVEL: -20dB / -18dB / -12dB

13.3.2 Selecting the Range

To select the meter's range, follow the procedure below.

The following table shows meter response models.

Figure 13-1 Meter response models

RESPONSE	Delay Time(*1)	Return Time(*2)
PEAK60dB	Instantaneous	1.7 seconds
PEAK90dB	Instantaneous	1.7 seconds
AVERAGE	0.3 seconds	0.3 seconds

Procedure

AUDIO → **F•3** METER SETUP → **F•2** RESPONSE: PEAK60dB / PEAK90dB / AVERAGE

Settings

PEAK60dB: The range is set to -60 to 0 dB.

PEAK90dB: The range is set to -90 to 0 dB.

AVERAGE: The reference level is set to 0 dB, and the range is set to -20 to 3 dB.

*1 The amount of time it takes for the meter to show -20 dB when a -20 dB/1 kHz sine-wave signal is applied with no input preceding it.

*2 The amount of time it takes for the meter to show -40 dB when the application of a -20 dB/1 kHz sine-wave signal is stopped.

13.3.3 Selecting the Scale

To select the type of meter scale to use, follow the procedure below.

This setting is available when **[F•2]** RESPONSE is set to PEAK60dB or PEAK90dB.

Procedure

[AUDIO] → **[F•3]** METER SETUP → **[F•3]** SCALE: TYPE-A / TYPE-B

Settings

TYPE-A: A scale that covers the range determined by the RESPONSE setting is displayed.

TYPE-B: A scale in which the reference level specified by REF LEVEL is set to 0 dB is displayed.

13.3.4 Setting the Peak Value Hold Time

To set the meter's peak value hold time (in 0.5-second steps), follow the procedure below.

This setting is valid when **[F•2]** RESPONSE is set to PEAK60dB or PEAK90dB.



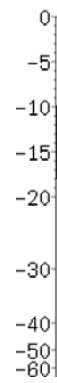
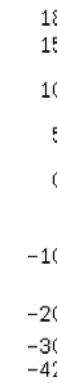
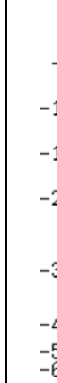
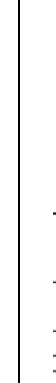

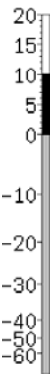
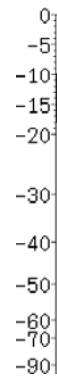
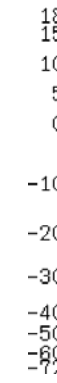
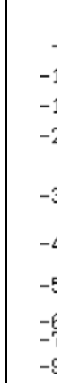
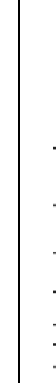

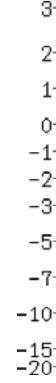
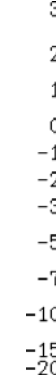
Procedure

[AUDIO] → **[F•3]** METER SETUP → **[F•D 1]** HOLD TIME: 0.5 - 5.0 / HOLD

13.3.5 Meter Settings Overview

The scales for a -10 dB audio signal are shown below.

Figure 13-2 List of meter settings

F•1 REF LEVEL		-20dB		-18dB		-12dB		F•D 1
F•3 SCALE		TYPE-A	TYPE-B	TYPE-A	TYPE-B	TYPE-A	TYPE-B	HOLD TIME
F•2 RESPONSE	PEAK60dB							0.5 to 5.0 or HOLD
	PEAK90dB							0.5 to 5.0 or HOLD
	AVERAGE							Not valid

13.4 Configuring Lissajous Settings

To configure Lissajous settings, press **F•4** LISSAJOU SETUP on the audio menu.

AUDIO → **F•4** LISSAJOU SETUP →

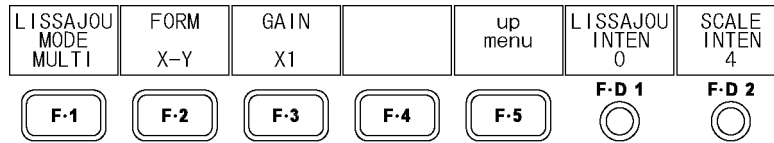


Figure 13-5 LISSAJOU SETUP menu

13.4.1 Selecting the Display Format

To select the Lissajous curve display format, follow the procedure below.

The correlation meter in single Lissajous mode indicates the phase difference between the two signals. A reading of +1 indicates that the signals are in-phase, a reading of -1 indicates that the signals are 180° out of phase, and a reading of 0 indicates that the signals are not correlated.

See section 13.2.2, “Selecting the Single-Lissajous Display Channels.”

Procedure

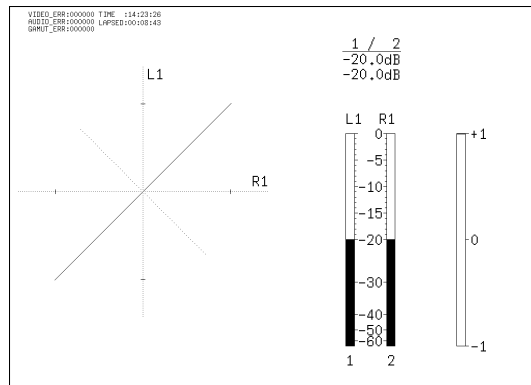
AUDIO → **F•4** LISSAJOU SETUP → **F•1** LISSAJOU MODE: SINGLE / MULTI

Settings

SINGLE: The Lissajous curves, meters, and correlation meter of two channels are displayed.

MULTI: The Lissajous curves and meters of eight channels are displayed.

LISSAJOU MODE = SINGLE



LISSAJOU MODE = MULTI

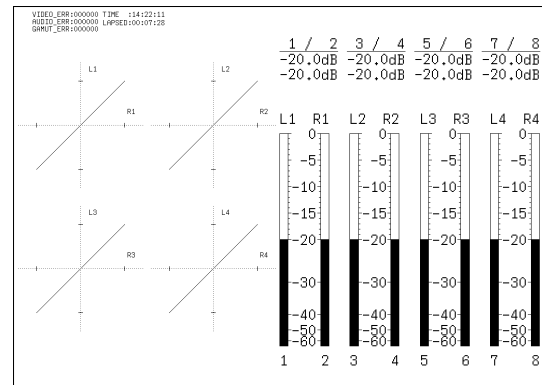


Figure 13-6 Selecting the display format

13.4.2 Selecting the Scale Display Format

To select the scale display format, follow the procedure below.

Procedure

AUDIO → **F•4** LISSAJOU SETUP → **F•2** FORM: X-Y / MATRIX

Settings

X-Y: R is assigned to the X-axis (horizontal), and L is assigned to the Y-axis (vertical).

MATRIX: The R and L axes are positioned at 45 ° angles to the X and Y axes.

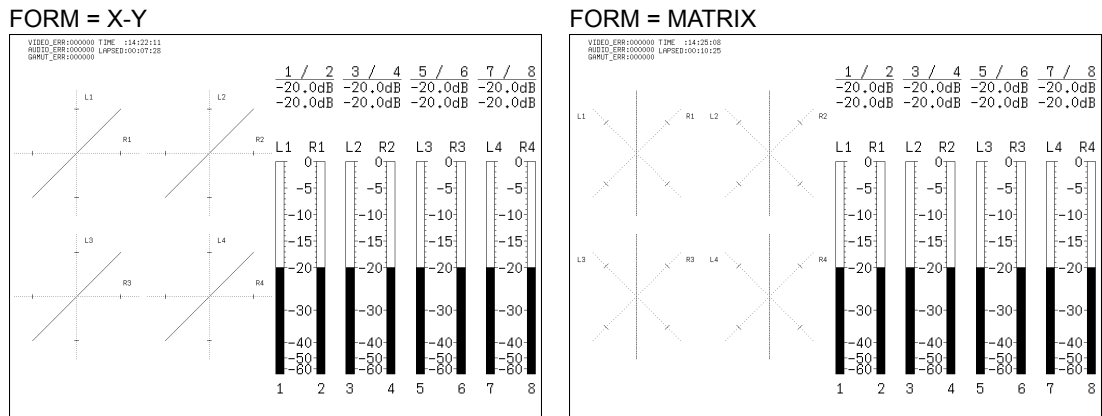


Figure 13-7 Selecting the scale display format

13.4.3 Selecting the Gain

To set the Lissajous curve gain, follow the procedure below.

Procedure

AUDIO → **F•4** LISSAJOU SETUP → **F•3** GAIN: X1 / AUTO

Settings

X1: Lissajous curves are displayed with a gain of $\times 1$.

AUTO: The gain is set so that the Lissajous curves fit within the scale.
All levels are adjusted so that the maximum level fits within the scale.

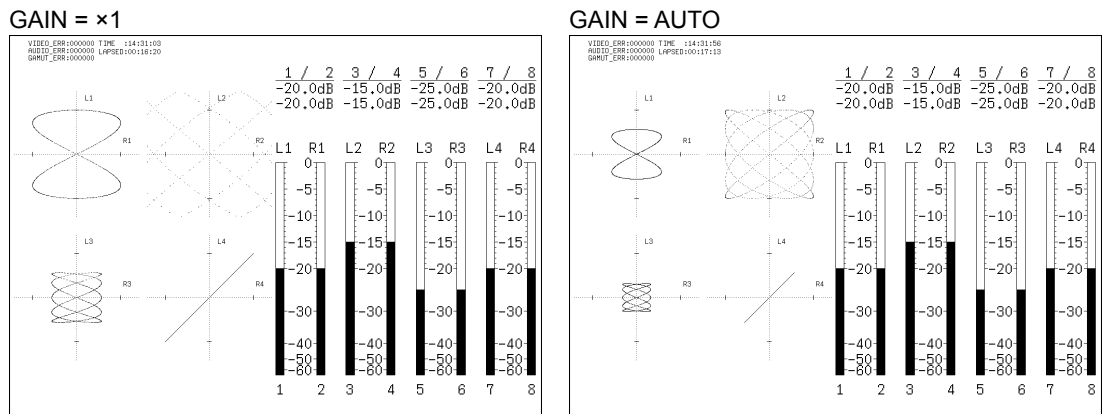


Figure 13-8 Lissajous curve gain

13.4.4 Adjusting the Lissajous Curve Intensity

To set the Lissajous curve intensity, follow the procedure below.

Procedure

AUDIO → **F•4** LISSAJOU SETUP → **F•D 1** LISSAJOU INTEN: -8 - 0 - 7

13.4.5 Adjusting the Scale Intensity

To simultaneously adjust the intensity of the scale and audio meter, follow the procedure below.

Procedure

AUDIO → **F•4** LISSAJOU SETUP → **F•D 2** SCALE INTEN: -8 - 4 - 7

13.5 Setting the Thumbnail Display

To set the thumbnail display, press **F•5** THUMBNAIL on the audio menu.

AUDIO → **F•5** THUMBNAIL →

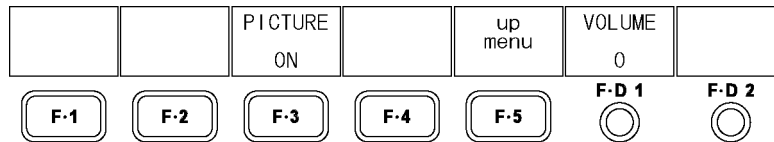


Figure 13-9 THUMBNAIL menu

To turn the thumbnail display of the picture on and off, follow the procedure below. This setting does not appear in the multi-screen display, simultaneous input mode, or 3D assist mode (L/R DUAL).

Procedure

AUDIO → **F•5** THUMBNAIL → **F•3** PICTURE: ON / OFF

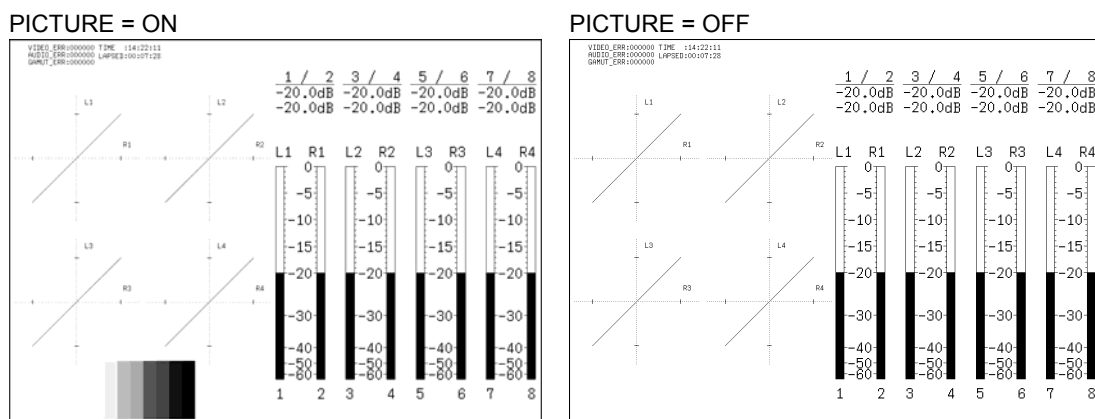


Figure 13-10 Setting the thumbnail display

13.6 Adjusting the Headphone Volume

To adjust the headphone volume, follow the procedure below. **F•D 1** VOLUME appears on other levels of the audio menu and functions in the same way.

If you press **F•D 1**, the setting will be set to its default value of 0.

Procedure

AUDIO → **F•D 1** VOLUME: -128 - 0 - 127

The table below shows what decibel levels correspond to the headphone volume levels.

Table 13-3 Headphone volumes

VOLUME	dB
127	0.0
126	-0.5
0	-63.5
-127	-127.0
-128	Mute

14. STATUS DISPLAY

14.1 Status Screen Explanation

The status screen appears when you press **STATUS**.

Error count values are displayed beneath VIDEO, AUDIO, and GAMUT. Errors are counted by field. Only one error can be counted for a single field, no matter how many errors occur within that field. The maximum error count is 999999. Once a count of 999999 is reached, the display will continue to show 999999 even if more errors occur.

To display the status menu, hold down **STATUS** for 0.5 seconds or more, or use the function keys and function dials on the status screen. The status menu will disappear when you press **STATUS** again or after a certain period of time passes with no user activity.

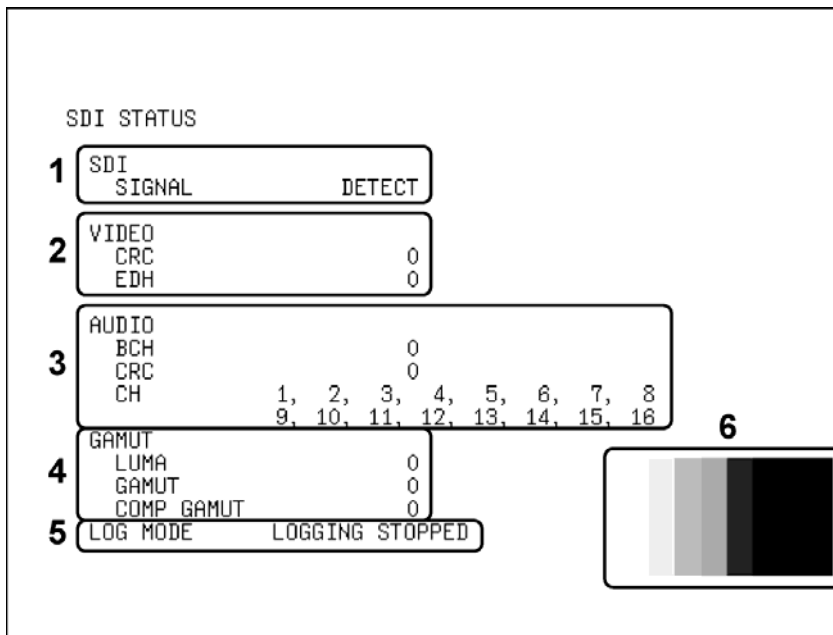


Figure 14-1 Status screen

1 SDI SIGNAL

If an SDI signal is detected at the input connector, "DETECT" appears here. Otherwise, "NO SIGNAL" appears. If "NO SIGNAL" appears, the error count information below will be blank. The input format indication in the upper left of the screen will also show "NO SIGNAL."

"NO SIGNAL" may appear even when an SDI signal is being applied if the signal amplitude is small or if there is a lot of jitter.

2 VIDEO

- **CRC**

Appears when the input signal is HD.

An error is counted when the CRC embedded in the input signal is different from the CRC that the LV 5980 calculates.

This will not appear if CRC is set to OFF or if the input signal is SD.

See section 14.5.1, "Detecting CRC Errors."

- **EDH**

Appears when the input signal is SD.

An error is counted when there is an error flag in an EDH packet in the input signal or when the CRC computed from the input signal is different from an EDH packet's CRC data.

EDH packets contain ancillary data error flags, active picture error flags, full-field error flags, full-field CRC data, and active-field CRC data.

This will not appear if EDH is set to OFF or if the input signal is HD.

See section 14.5.2, "Detecting EDH Errors."

- **A/B Delay or C/D Delay**

This appears when the link format is set to dual.

An error is counted when the phase difference between links A and B exceeds 100 clocks.

3 AUDIO

When the link format is set to dual, only the audio signal embedded in link A is detected.

- **BCH**

Appears when the input signal is HD.

An error is counted when the input signal's embedded audio BCH code causes an error. Errors may be counted at the instant when audio is embedded into an input signal or at the instant when the audio is removed.

This will not appear if BCH is set to OFF or if the input signal is SD.

See section 14.6.1, "Detecting BCH Errors."

- **CRC**

An error is counted when the channel status bit of the input signal's embedded audio has a CRC error. However, an error is not counted if the channel status bit is consumer.

Errors may be counted at the instant when audio is embedded into an input signal or at the instant when the audio is removed.

Errors are not displayed when CRC is set to OFF.

See section 14.6.2, “Detecting CRC Errors.”

- **CH**

The LV 5980 detects the input signal's embedded audio channels and displays them here. A hyphen appears for channels that are not detected.

If audio control packets are embedded in the input signal, the channels are detected from the audio control packet ACT bit. Otherwise, the channels are detected from the audio data packet.

4 GAMUT

- **LUMA**

An error is counted when a luminance error occurs.

You can set the detection levels and the detection area by pressing ERROR CONFIG and then LUMA ERROR.

Errors are not displayed when LUMA ERROR is set to OFF.

See sections 14.7.7, “Detecting Luminance Errors” and 14.7.8, “Setting the Luminance Error Levels.”

- **GAMUT**

An error is counted when a gamut error occurs.

You can set the detection levels and the detection area by pressing ERROR CONFIG and then GAMUT ERROR.

Errors are not displayed when GAMUT ERROR is set to OFF.

See sections 14.7.3, “Detecting Gamut Errors” and 14.7.4, “Setting the Gamut Error Levels.”

- **COMP GAMUT**

An error is counted when a gamut error is detected during the conversion of the component signal to a pseudo-composite signal.

Even if the component signal is within its set levels, it may be outside of its levels when it is converted to a pseudo-composite signal.

You can set the detection levels and the detection area by pressing ERROR CONFIG and then COMPOSIT GAMUT. Errors are not displayed when COMPOSIT GAMUT is set to OFF.

See sections 14.7.5, “Detecting Composite Gamut Errors” and 14.7.6, “Setting the Composite Gamut Error Levels.”

5 LOG MODE

“NOW LOGGING” appears here when events are being logged. “LOGGING STOPPED” appears when logging is stopped.

You can log events by pressing EVENT LOG and setting LOG to START.

For information on the LOG setting, see section 14.2.3, “Starting the Event Log.”

6 Thumbnail Display

The picture appears here as a thumbnail. It does not appear in the event log screen, simultaneous input mode, or 3D assist mode (L/R DUAL).

14.2 Configuring Event Log Settings

The LV 5980 can log various events. Logged events can also be saved in text format to USB memory. To configure event log settings, press **F•1** EVENT LOG on the status menu. The event log contains events from channels A to D regardless of the INPUT setting.

STATUS → **F•1** EVENT LOG →

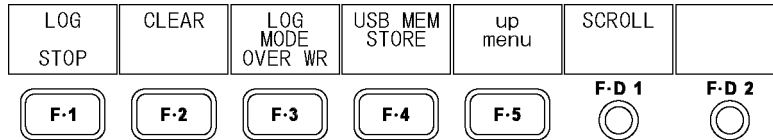


Figure 14-2 EVENT LOG menu

14.2.1 Event Log Screen Explanation

To display the event log, press **F•1** EVENT LOG on the status menu. Events include signal reception, error occurrence, and error recovery.

1			2		
EVENT LOG LIST			SAMPLE No.,= 19 << NOW LOGGING >>		
19:	2010/07/13	11:32:31	A	625i/50	EDH, GMUT, CGMUT, GMUT, CGMUT, A_CRC, GMUT,
18:	2010/07/13	11:32:31	A	625i/50	
17:	2010/07/13	11:32:31	A	Unknown	
16:	2010/07/13	11:32:30	A	625i/50	
15:	2010/07/13	11:32:30	A	625i/50	
14:	2010/07/13	11:32:30	A	625i/50	
13:	2010/07/13	11:32:30	A	1080i/59.94	
12:	2010/07/13	11:32:30	A	NO SIGNAL	
11:	2010/07/13	11:32:09	B	1080i/59.94	
10:	2010/07/13	11:32:01	D	1080i/50	
9:	2010/07/13	11:32:01	D	1080i/50	
8:	2010/07/13	11:32:01	D	1080i/50	
7:	2010/07/13	11:32:01	D	Unknown	
6:	2010/07/13	11:31:48	C	1080i/59.94	
5:	2010/07/13	11:31:45	C	1080i/59.94	
4:	2010/07/13	11:31:29	D	1080i/59.94	
3:	2010/07/13	11:31:29	C	1080i/59.94	
2:	2010/07/13	11:31:29	B	1080i/59.94	
1:	2010/07/13	11:31:29	A	1080i/59.94	

Figure 14-3 Event log screen

1 SAMPLE No.

The total number of events (a number from 0 to 1000) is displayed.

2 Logging Status

“NOW LOGGING” appears here when events are being logged. “LOGGING STOPPED” appears when logging is stopped. You can start and stop event logging by pressing **F•1** LOG.

For information on the LOG setting, see section 14.2.3, “Starting the Event Log.”

3 Event Numbers

Events are assigned numbers in order of their occurrence. The most recent event appears at the top of the list. To view earlier events, turn **F•D 1** SCROLL to the right. You can display a maximum of 1000 events. To set whether or not events after the 1000th event are written over earlier events, press **F•3** LOG MODE.

For information on the SCROLL setting, see section 14.2.2, "Scrolling through the Event Log."

For information on the LOG MODE setting, see section 14.2.5, "Selecting the Overwrite Mode."

4 Time Codes

Time codes for when events occurred are displayed here.

You can select the display format by following the procedure in section 5.4.1, "Setting the Time Code Display Format." If you select OFF, the current date and time are displayed.

5 Event Channels

The channels that events occurred on (A, B, C, or D) are displayed here.

6 Input Formats

The input formats when events occurred are displayed here. If no signal was being received, "NO SIGNAL" appears. If the input format cannot be determined, "Unknown" appears.

7 Event Type

The types of events that occurred are displayed here.

When the same kind of event occurs successively or when multiple events occur at the same time, they are treated as a single event in the event log. You can view all of the events by saving the event log to USB memory. This is especially useful when multiple events occur at the same time and you cannot view all of them on the LV 5980 screen. The displayed event types are listed below. If the detection of a particular error has been disabled, the event that corresponds to that error will not be recorded.

See section 14.2.6, "Saving the Event Log."

Table 14-1 Event types

Display Indication	Description
CRC_Y	Transmission error in the HD Y signal
CRC_C	Transmission error in the HD CB,CR signal
EDH	Transmission error in the SD signal
SDI_DELAY	Phase difference error between links A and B
A_BCH	BCH error in the embedded audio
A_CRC	CRC error in the embedded audio
GMUT	Gamut error
CGMUT	Composite gamut error
LUMA	Luminance error

14.2.2 Scrolling through the Event Log

To scroll through the event log and view parts of the list that are outside of the display, follow the procedure below. The event log entries are listed in order with the most recent events listed first. To view earlier events, turn **F•D 1** to the right. To view later events, turn it to the left. If you press **F•D 1**, the most recent events appear.

Procedure

STATUS → **F•1** EVENT LOG → **F•D 1** SCROLL

14.2.3 Starting the Event Log

To start the event log, follow the procedure below.

Procedure

STATUS → **F•1** EVENT LOG → **F•1** LOG: START / STOP

Settings

START: The event log is started.
 "NOW LOGGING" appears on the event log screen and the status screen.

STOP: The event log is stopped.
 "LOGGING STOPPED" appears on the event log screen and the status screen.

14.2.4 Deleting the Event Log

To delete the event log that is displayed on the screen, follow the procedure below. The log is also deleted when you turn the power off.

Procedure

STATUS → **F•1** EVENT LOG → **F•2** CLEAR

14.2.5 Selecting the Overwrite Mode

To select the event log overwrite mode, follow the procedure below. The event log can record up to 1000 events. When the same error occurs successively, it is treated as a single event in the event log.

Procedure

STATUS → **F•1** EVENT LOG → **F•3** LOG MODE: OVER WR / STOP

Settings

OVER WR: Events after the 1000th event are written over the oldest logged events.

STOP: Events after the 1000th event are not logged.

14.2.6 Saving the Event Log

To save the event log in text format to USB memory, follow the procedure below.

You can view the saved event log on a PC.

This setting appears when USB memory is connected.

14. STATUS DISPLAY

The file name is automatically set to the date and time that you have set using the system settings according to the procedure in section 5.5, “Setting the Date and Time.”

Example: 20080425150500.txt (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

```
└─ USB memory
   └─ LV5980_USER
      └─ LOG
         └─ yyyyymmddhhmmss.txt
```

Procedure

STATUS → **F•1** EVENT LOG → **F•4** USB MEM STORE

14.3 Configuring Data Dump Settings

To configure data dump settings, press **F•1** DATA DUMP on the status menu.

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP →

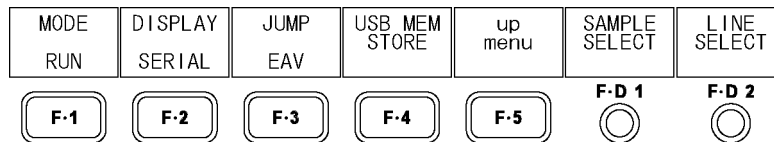


Figure 14-4 DATA DUMP menu

14.3.1 Data Dump Screen Explanation

To display the data dump screen, press **F•2** SDI ANALYSIS and then **F•1** DATA DUMP on the status menu.

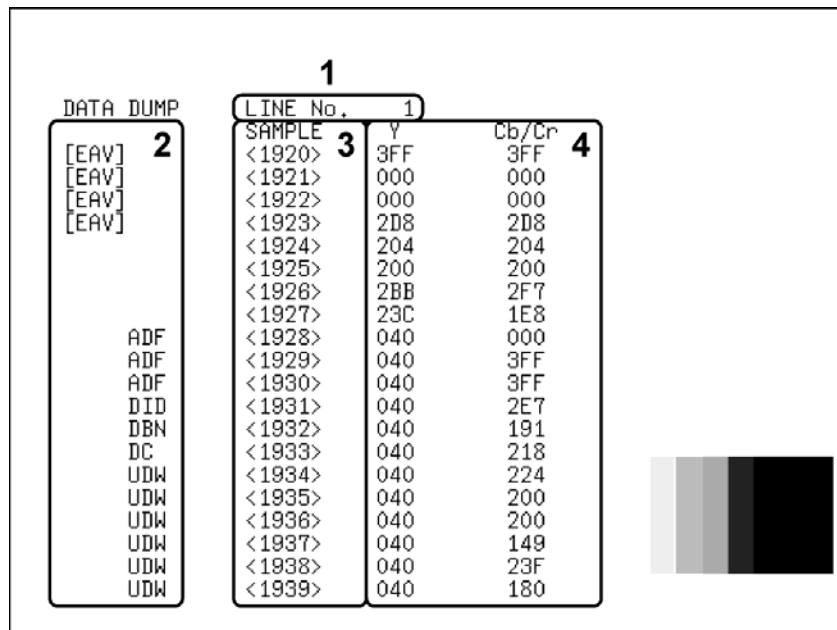


Figure 14-5 Data dump screen

1 LINE No.

The data dump screen shows the data for a particular line. The line that you select using **F•D 2** LINE SELECT appears next to LINE No.

For information on the LINE SELECT setting, see section 14.3.2, "Selecting the Line Number."

2 Ancillary Data

The ancillary data embedded in the SDI signal is indicated as shown in the table below.

Figure 14-2 Ancillary data types

Display	Display Color	Description
ADF	Cyan	Ancillary data header word
DID	Cyan	Ancillary data ID word
SDID	Cyan	Secondary format data in which DID is smaller than 80H
DBN	Cyan	Primary format data in which DID is 80H or larger
DC	Cyan	Ancillary data count word
UDW	Cyan	Ancillary data user data word
CS	Magenta	Ancillary data checksum word
AP	Yellow	The active picture from after the SAV (start of active video) to just before the EAV (end of active video) when the selected line is within the active video area

3 SAMPLE

The sample numbers of the selected line are displayed here. You can use **F•D 1** SAMPLE SELECT to scroll through the samples.

For information on the SAMPLE SELECT setting,
see section 14.3.3, "Scrolling through the Data Dump."

4 Data

The data contained in the selected line's samples is displayed here. You can select the data display format by pressing **F•2** DISPLAY.

For information on the DISPLAY setting, see section 14.3.5, "Selecting the Display Format."

14.3.2 Selecting the Line Number

To select a line on the data dump display, follow the procedure below.

If you press **F•D 2**, the selected line changes to the first video line.

In 3D assist mode, blanking interval lines cannot be selected.

Changing this setting will also change the selected line on the picture display, video signal waveform display, and vector display.

Procedure

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP → **F•D 2** LINE SELECT

14.3.3 Scrolling through the Data Dump

To scroll through the data dump, follow the procedure below.

Procedure

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP → **F•D 1** SAMPLE SELECT

14.3.4 Selecting the Display Mode

To select the data dump display mode, follow the procedure below.

Procedure

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP → **F•1** MODE: RUN / HOLD

Settings

RUN: The input signal data is automatically updated and displayed.

HOLD: The input signal data is retained and displayed.

14.3.5 Selecting the Display Format

To select the data dump display format, follow the procedure below.

The types of display formats that you can select vary depending on the link format.

Procedure

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP → **F•2** DISPLAY:
SERIAL / COMPO (Single link)
LINK A / LINK B / LINK AB (Dual link)

Settings (when the link format is set to single)

SERIAL: The data is converted from parallel to serial data and displayed.

COMPO: The data is converted from parallel to serial data, split into Y, Cb, and Cr, and then displayed.

Settings (when the link format is set to dual)

LINK A: The parallel converted data sequences of link A are displayed.

LINK B: The parallel converted data sequences of link B are displayed.

LINK A/B: Links A and B are combined, and their parallel data sequences are displayed.

14.3.6 Selecting the Display Start Position

To select the data dump display start position, follow the procedure below.

Procedure

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP → **F•3** JUMP: EAV / SAV

JUMP = EAV

VIDEO_ERR:000002 TIME: 18:18:18 AUDIO_ERR:000000 LAPSER:00:01:07 GMMT_ERR:000000			
DATA DUMP	LINE No.	1	
	SAMPLE	Y	Cb/Cr
[EAV]	<1920>	3FF	3FF
[EAV]	<1921>	000	000
[EAV]	<1922>	000	000
[EAV]	<1923>	2D8	2D8
	<1924>	204	204
	<1925>	200	200
	<1926>	2BB	2F7
	<1927>	23C	1E8
ADF	<1928>	040	000
ADF	<1929>	040	3FF
ADF	<1930>	040	3FF
DID	<1931>	040	2E7
DBN	<1932>	040	191
DC	<1933>	040	218
UDW	<1934>	040	224
UDW	<1935>	040	200
UDW	<1936>	040	200
UDW	<1937>	040	149
UDW	<1938>	040	23F
UDW	<1939>	040	180

JUMP = SAV

VIDEO_ERR:000002 TIME: 18:18:17 AUDIO_ERR:000000 LAPSER:00:01:05 GMMT_ERR:000000			
DATA DUMP	LINE No.	1	
	SAMPLE	Y	Cb/Cr
[SAV]	<2196>	3FF	3FF
[SAV]	<2197>	000	000
[SAV]	<2198>	000	000
[SAV]	<2199>	2AC	2AC
	< 0>	040	200
	< 1>	040	200
	< 2>	040	200
	< 3>	040	200
	< 4>	040	200
	< 5>	040	200
	< 6>	040	200
	< 7>	040	200
	< 8>	040	200
	< 9>	040	200
	< 10>	040	200
	< 11>	040	200
	< 12>	040	200
	< 13>	040	200
	< 14>	040	200
	< 15>	040	200

Figure 14-6 Selecting the display start position

14.3.7 Saving Data Dumps

To save the data of the selected line in text format to USB memory, follow the procedure below. You can view the saved data dump on a PC.

This setting appears when USB memory is connected.

In simultaneous input mode or 3D assist mode (L/R DUAL), the data for all displayed channels is saved.

Regardless of the display and **F•D 1** SAMPLE SELECT settings, the data is saved starting with the EAV sample.

The file name is automatically set to the date and time and the channel name. The date and time are set using the system settings according to the procedure in section 5.5, "Setting the Date and Time."

Example: 20080425150500_A.txt (the order is: year, month, day, hour, minute, second, channel)

The file structure in the USB memory is shown below (channel A is being saved in this example).

```

└─ USB memory
  └─ LV5980_USER
    └─ DAT
      └─ yyyyymmddhhmmss_A.txt
  
```

Procedure

STATUS → **F•2** SDI ANALYSIS → **F•1** DATA DUMP → **F•4** USB MEM STORE

14.4 Configuring Phase Difference Measurement Settings

To configure phase difference measurement settings, press **F•2** EXT REF PHASE on the status menu.

You can use this menu to measure the phase difference between the SDI signal and the external sync signal and between channels. You can also measure the phase difference between links A and B when the link format is set to dual.

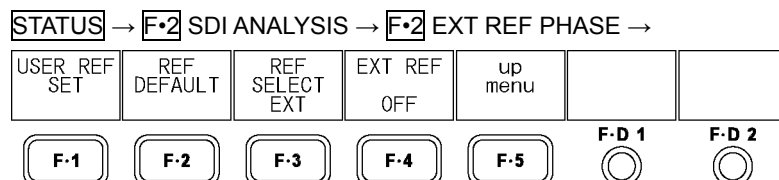


Figure 14-7 EXT REF PHASE menu

To measure the phase difference with an external sync signal, set **F•4** EXT REF to ON, and apply an external sync signal. The supported external sync signal formats are listed below.

- 1080i/60, 1080i/59.94, 1080i/50
- 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, 1080p/23.98
- 1080PsF/30, 1080PsF/29.97, 1080PsF/25, 1080PsF/24, 1080PsF/23.98
- 720p/60, 720p/59.94, 720p/50, 720p/30, 720p/29.97, 720p/25, 720p/24, 720p/23.98
- NTSC and NTSC with a 10-field ID
- PAL

For information on the EXT REF setting, see section 14.4.6, “Switching the Sync Signal.”

To measure the phase difference between channels A and B, select Bch in single input mode using INPUT, and then set **F•3** REF SELECT to Ach. You can also measure the phase difference between channels C and D in the same way.

For information on the EXT SELECT setting,

see section 14.4.4, “Measuring Phase Differences between Channels.”

To measure the phase difference between links A and B, set the link format to dual, and then set **F•3** REF SELECT to LINK A.

For information on dual link, see section 5.1.1, “Selecting the Link Format.”

For information on the REF SELECT setting,

see section 14.4.4, “Measuring the Phase Difference between Links A and B.”

14.4.1 Phase Difference Measurement Screen Explanation

To display the phase difference measurement screen, press **F•2** SDI ANALYSIS and then **F•2** EXT REF PHASE on the status menu.

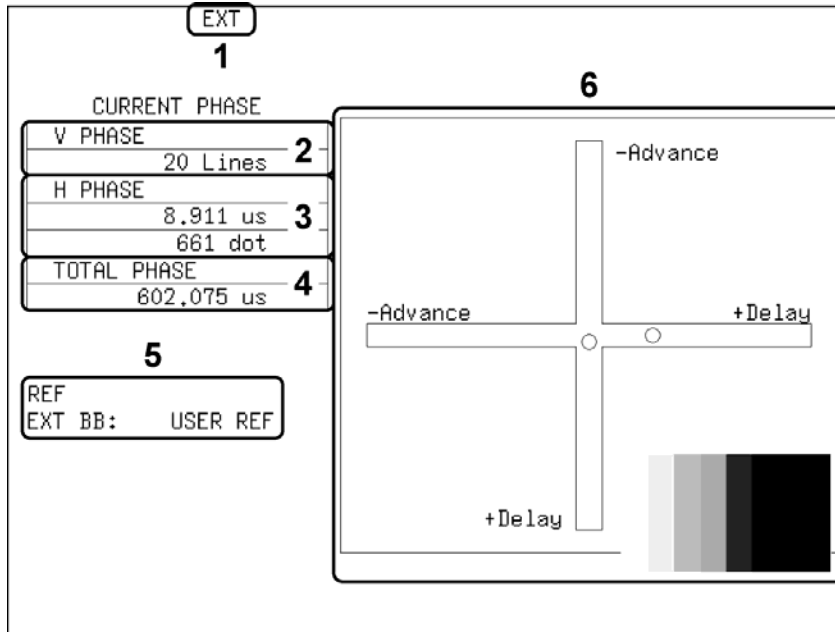


Figure 14-8 Phase difference measurement screen

1 Sync Signal

EXT appears here when an external sync signal is being used. Set the LV 5980 to external sync to measure the phase difference between the input signal and an external sync signal.

See section 14.4.6, "Switching the Sync Signal."

2 V PHASE

The phase difference in lines is displayed here.

3 H PHASE

The phase difference is displayed here in microseconds (us) and sample numbers (dot).

4 TOTAL PHASE

The total of the V PHASE and H PHASE differences is displayed here in microseconds (us).

5 REF

The reference signal setting is indicated using one of the following messages:

INT:	Indicates that the internal sync signal is being used. The phase difference cannot be measured.
EXT HD: DEFAULT:	Indicates that a tri-level sync signal is being used with the default phase difference setting.
EXT HD: USER REF:	Indicates that a tri-level sync signal is being used with a user-defined phase difference setting.
EXT BB: DEFAULT:	Indicates that a BB sync signal is being used with the default phase difference setting.
EXT BB: USER REF:	Indicates that a BB sync signal is being used with the user-defined phase difference setting.
SDI A:	Channel A is used as the reference for measuring the phase difference between channels A and B.
SDI C:	Channel C is used as the reference for measuring the phase difference between channels C and D.
LINK A:	Link A is used as the reference for measuring the phase difference between links A and B.
NO SIGNAL:	Indicates that no reference signal is being applied.

See sections 14.4.2, "Setting the User Reference of the Phase Difference,"

14.4.3, "Setting the Phase Difference to the Default Value,"

14.4.4, "Measuring Phase Differences between Channels,"

14.4.5, "Measuring the Phase Difference between Links A and B," and

14.4.6, "Switching the Sync Signal."

6 Graphical Representation of the Phase Differences

The vertical axis indicates the V phase difference in lines. The horizontal axis represents the H phase difference in time. When the circles that represent V and H overlap with each other in the center, there is no phase difference.

The H circle turns green when it is within ± 3 clocks of the center.

The V circle turns green when it is in the center.

Circles do not appear when the internal sync signal is used.

For both the V and H axes, differences of up to approximately $+1/2$ frames from the center are displayed on the Delay axis and differences of up to approximately $-1/2$ frames from the center are displayed on the Advance axis. The H axis phase difference display may fluctuate within the range of ± 1 clock in cases such as when the signal is switched.

Table 14-3 Delay and Advance axis display ranges

Format	Displayed on the Advance Axis							
				Displayed on the Delay Axis				
	V PHASE (Lines)	H PHASE (us)		V PHASE (Lines)	H PHASE (us)		V PHASE (Lines)	H PHASE (us)
1080i/59.94, 1080p/29.97, 1080PsF/29.97	-562	-29.645	to	0	0	to	562	0
1080i/60, 1080p/30, 1080PsF/30	-562	-29.616	to	0	0	to	562	0
1080i/50, 1080p/25, 1080PsF/25	-562	-35.542	to	0	0	to	562	0
1080p/23.98, 1080PsF/23.98	-562	-37.060	to	0	0	to	562	0
1080p/24, 1080PsF/24	-562	-37.023	to	0	0	to	562	0
720p/59.94	-375	0	to	0	0	to	374	22.230
720p/60	-375	0	to	0	0	to	374	22.208
720p/50	-375	0	to	0	0	to	374	26.653
720p/29.97	-375	0	to	0	0	to	374	44.475
720p/30	-375	0	to	0	0	to	374	44.430
720p/25	-375	0	to	0	0	to	374	53.319
720p/23.98	-375	0	to	0	0	to	374	55.597
720p/24	-375	0	to	0	0	to	374	55.542
525i/59.94	-262	-63.518	to	0	0	to	262	0
625i/50	-312	-63.962	to	0	0	to	312	0

14.4.2 Setting the User Reference of the Phase Difference

When measuring the phase difference from the external sync signal, to set the SDI signal and external sync signal phase difference to 0, follow the procedure below.

Procedure

STATUS → **F•3** EXT REF PHASE → **F•1** USER REF SET

14.4.3 Setting the Phase Difference to the Default Value

When measuring the phase difference from the external sync signal, to set the SDI signal and external sync signal phase difference to the default, follow the procedure below.

The default setting is the setting that makes a phase difference of 0 between the SDI output signal and the BB signal of a LEADER signal generator without a timing offset when both signals are connected through cables of equal length. Because of phase fluctuations when the SDI signal is switched and device inconsistencies, a display error within the range of ± 3 clocks may occur.

Procedure

STATUS → **F•3** EXT REF PHASE → **F•2** REF DEFAULT

14.4.4 Measuring Phase Differences between Channels

In single input mode or 3D assist mode (HF SbyS, TOP&BOTM), to display the phase difference between channels A and B or C and D, follow the procedure below.

This setting is not displayed when channel A or C is selected.

Procedure

STATUS → **F•3** EXT REF PHASE → **F•3** REF SELECT: EXT / Ach / Cch

Settings

EXT:	The phase difference between an SDI signal and an external sync signal is displayed.
Ach:	The phase difference between channels A and B is displayed. You can select this setting when channel B is displayed.
Cch:	The phase difference between channels C and D is displayed. You can select this setting when channel D is displayed.

14.4.5 Measuring the Phase Difference between Links A and B

To display the phase difference between links A and B when the link format is set to dual, follow the procedure below.

Procedure

STATUS → **F•3** EXT REF PHASE → **F•3** REF SELECT: EXT / LINK A

Settings

EXT:	The phase difference between an SDI signal and an external sync signal is displayed.
LINK A:	The phase difference between links A and B is displayed.

14.4.6 Switching the Sync Signal

To switch to an external sync signal, follow the procedure below.

To measure the phase difference from the external sync signal, set this setting to ON. If you set this setting to OFF, the circles that represent the phase differences will not appear.

Changing this setting will also change the sync signal setting on the video signal waveform display and vector display.

When D_LINK FORMAT is set to YC10bit, you cannot use an external sync signal, and this setting is not available.

For information on the D_LINK FORMAT setting, see section 5.1.4, "Setting the Input Format."

Procedure

STATUS → **F•3** EXT REF PHASE → **F•4** EXT REF: ON / OFF

Settings

ON:	An external sync signal is used.
OFF:	The internal sync signal is used.

14.5 Configuring Video Error Settings

To configure video error settings, press **F•1** VIDEO ERROR on the status menu. You can turn error detection on and off for each item. For items whose error detection is turned on, you can:

- Count errors using the error counters.
- Display error counts on the status screen.

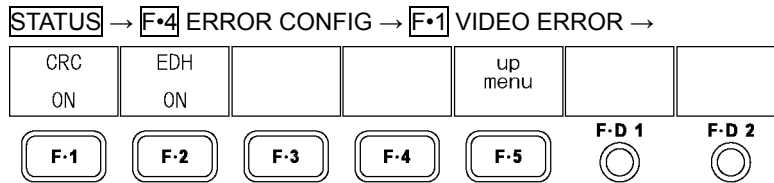


Figure 14-9 VIDEO ERROR menu

14.5.1 Detecting CRC Errors

To turn CRC error detection on and off, follow the procedure below. This setting is valid when the input signal is HD.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•1** VIDEO ERROR → **F•1** CRC: ON / OFF

14.5.2 Detecting EDH Errors

To turn EDH error detection on and off, follow the procedure below. This setting is valid when the input signal is SD.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•1** VIDEO ERROR → **F•2** EDH: ON / OFF

14.6 Configuring Audio Error Settings

To configure audio error settings, press **F•2** AUDIO ERROR on the status menu. You can turn error detection on and off for each item. For items whose error detection is turned on, you can:

- Count errors using the error counters.
- Display error counts on the status screen.

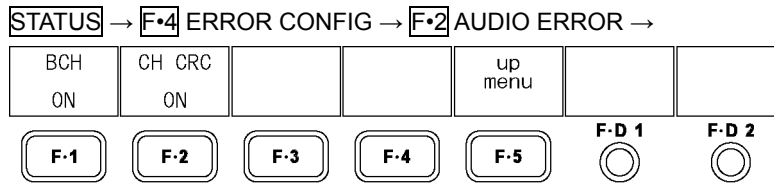


Figure 14-10 AUDIO ERROR menu

14.6.1 Detecting BCH Errors

To turn BCH error detection on and off, follow the procedure below. This setting is valid when the input signal is HD.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•2** AUDIO ERROR → **F•1** BCH: ON / OFF

14.6.2 Detecting CRC Errors

To turn CRC error detection on and off, follow the procedure below.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•2** AUDIO ERROR → **F•2** CH CRC: ON / OFF

14.7 Configuring Gamut Error Settings

To configure gamut error settings, press **F•3** GAMUT ERROR on the status menu.

You can turn error detection on and off for each item. For items whose error detection is turned on, you can:

- Display gamut errors on the picture display.
- Count errors using the error counters.
- Display error counts on the status screen.

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR →

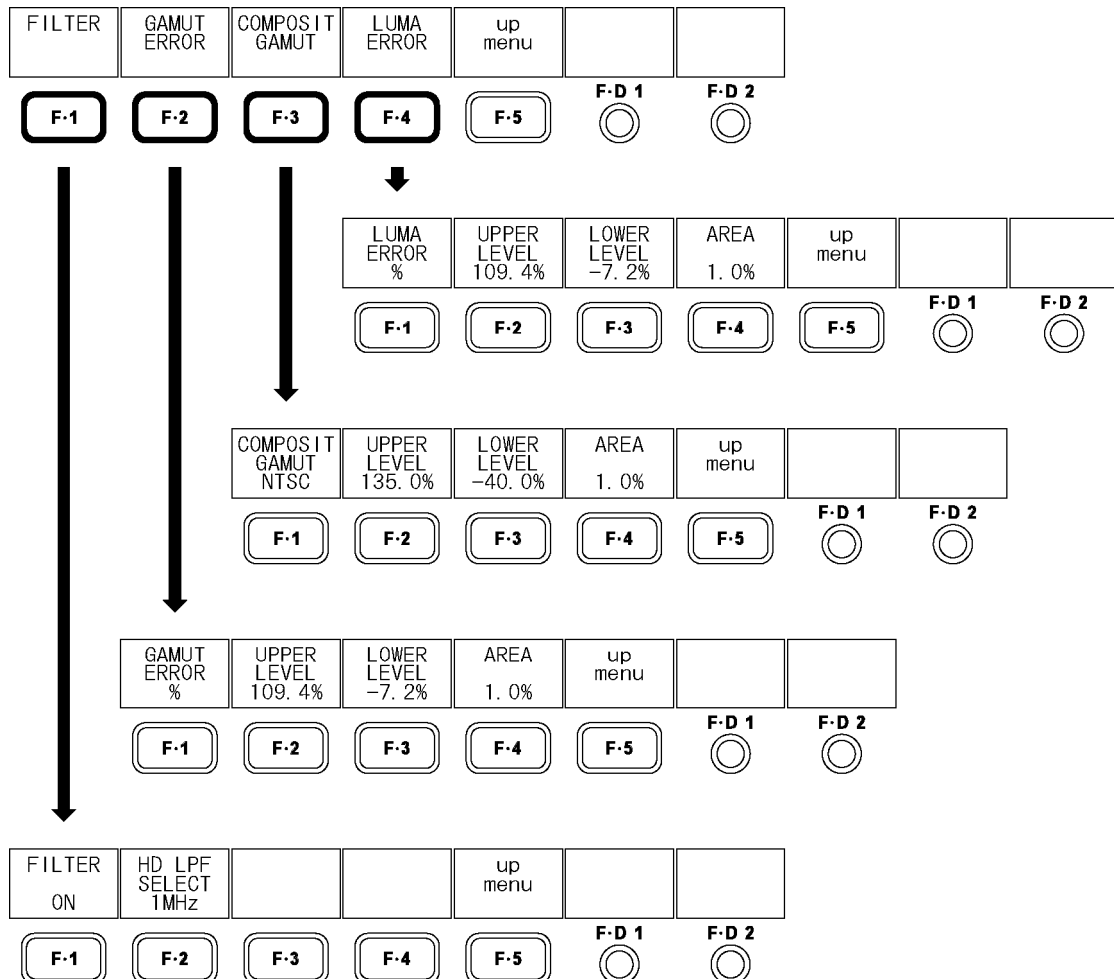


Figure 14-11 GAMUT ERROR menu

14.7.1 Turning the Filter On and Off

During the detection of gamut, composite gamut, or luminance errors, a low-pass filter is set to remove transient errors. To turn this filter on and off, follow the procedure below. The setting that you make here is also applied to the filter setting for the 5-bar display. See section 12.7.1, "5-Bar Display Explanation"

Procedure

STATUS → F.4 ERROR CONFIG → F.3 GAMUT ERROR → F.1 FILTER → F.1 FILTER: ON / OFF

14.7.2 Selecting the Filter Characteristics

When F.1 FILTER is set to ON, follow the procedure below to set the low-pass filter characteristics for gamut error detection.

This setting is valid when the input signal is HD. When the input signal is SD, a 1 MHz LPF is used, regardless of how you configure this setting.

The setting that you make here is also applied to the filter setting for the 5 bar display.

See section 12.7.1, "5-Bar Display Explanation"

Procedure

STATUS → F.4 ERROR CONFIG → F.3 GAMUT ERROR → F.1 FILTER → F.2 HD LPF SELECT: 1MHz / 2.8MHz

14.7.3 Detecting Gamut Errors

To turn gamut error detection on and off, follow the procedure below.

Procedure

STATUS → F.4 ERROR CONFIG → F.3 GAMUT ERROR → F.2 GAMUT ERROR → F.1 GAMUT ERROR: % / mV / OFF

Settings

%:	Gamut errors are detected. You can set the detection levels as percentages.
mV:	Gamut errors are detected. You can set the detection levels in units of mV.
OFF:	Gamut errors are not detected.

14.7.4 Setting the Gamut Error Levels

To set the gamut error detection levels and the detection area, follow the procedures below. These settings are available when F.1 GAMUT ERROR is set to % or mV.

The settings that you make here also apply to the R, G, and B bars on the 5-bar display.

• Setting the Upper Error Detection Level

An error is detected when the input signal level exceeds the specified value.

If you press **F•D 1**, the setting will be set to its default value of 109.4 % or 765.8 mV.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•2** UPPER LEVEL → **F•D 1** VARIABLE:

90.8% - 109.4% (When GAMUT ERROR is set to %)

635.6mV - 765.8mV (When GAMUT ERROR is set to mV)

• Setting the Lower Error Detection Level

An error is detected when the input signal level goes below the specified value.

If you press **F•D 1**, the setting will be set to its default value of -7.2 % or -50.4 mV.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•3** LOWER LEVEL → **F•D 1** VARIABLE:

-7.2% - 6.1% (When GAMUT ERROR is set to %)

-50.4mV - 42.7mV (When GAMUT ERROR is set to mV)

• Setting the Error Detection Area

An error is detected when an error greater than or equal to the specified value occurs in the active picture. If you press **F•D 1**, the setting will be set to its default value of 1.0 %.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•4** AREA → **F•D 1** VARIABLE: 0.0% - 1.0% - 5.0%

14.7.5 Detecting Composite Gamut Errors

To turn the detection of gamut errors in a pseudo-composite signal converted from the component signal on and off, follow the procedure below.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•1** COMPOSIT GAMUT: NTSC / PAL / OFF

Settings

NTSC:	Composite gamut errors are detected. Select this option when the composite display format is NTSC.
PAL:	Composite gamut errors are detected. Select this option when the composite display format is PAL.
OFF:	Composite gamut errors are not detected.

14.7.6 Setting the Composite Gamut Error Levels

To set the composite gamut error detection levels and the detection area, follow the procedures below.

These settings are available when **F•1** COMPOSIT GAMUT is set to NTSC or PAL. The settings that you make here also apply to the CMP bar in the 5-bar display.

- **Setting the Upper Error Detection Level**

An error is detected when the input signal level exceeds the specified value.

If you press **F•D 1**, the setting will be set to its default value of 135.0 % or 945.0 mV.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•2** UPPER LEVEL → **F•D 1** VARIABLE:
 90.0% - 135.0% (When COMPOSIT GAMUT is set to NTSC)
 630.0mV - 945.0mV (When COMPOSIT GAMUT is set to PAL)

- **Setting the Lower Error Detection Level**

An error is detected when the input signal level goes below the specified value.

If you press **F•D 1**, the setting will be set to its default value of -40.0 % or -280.0 mV.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•3** LOWER LEVEL → **F•D 1** VARIABLE:
-40.0% - 20.0% (When COMPOSIT GAMUT is set to NTSC)
-280.0mV - 140.0mV (When COMPOSIT GAMUT is set to PAL)

- **Setting the Error Detection Area**

An error is detected when an error greater than or equal to the specified value occurs in the active picture. If you press **F•D 1**, the setting will be set to its default value of 1.0 %.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•4** AREA → **F•D 1** VARIABLE: 0.0% - 1.0% - 5.0%

14.7.7 Detecting Luminance Errors

To turn luminance error detection on and off, follow the procedure below.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•1** LUMA ERROR: % / mV / OFF

Settings

%:	Luminance errors are detected. You can set the detection levels as percentages.
mV:	Luminance errors are detected. You can set the detection levels in units of mV.
OFF:	Luminance errors are not detected.

14.7.8 Setting the Luminance Error Levels

To set the luminance error detection levels and the detection area, follow the procedures below.

These settings are available when **F•1** LUMA ERROR is set to % or mV.

The settings that you make here also apply to the Y bar in the 5-bar display.

- **Setting the Upper Error Detection Level**

An error is detected when the input signal level exceeds the specified value.

If you press **F•D 1**, the setting will be set to its default value of 109.4 % or 765.8 mV.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•2** UPPER LEVEL → **F•D 1** VARIABLE:
 90.8% - 109.4% (When LUMA ERROR is set to %)
 635.6mV - 765.8mV (When LUMA ERROR is set to mV)

- **Setting the Lower Error Detection Level**

An error is detected when the input signal level goes below the specified value.

If you press **F•D 1**, the setting will be set to its default value of -7.2 % or -50.4 mV.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•3** LOWER LEVEL → **F•D 1** VARIABLE:
-7.2% - 6.1% (When LUMA ERROR is set to %)
-50.4mV - 42.7mV (When LUMA ERROR is set to mV)

- **Setting the Error Detection Area**

An error is detected when an error greater than or equal to the specified value occurs in the active picture. If you press **F•D 1**, the setting will be set to its default value of 1.0 %.

Procedure

STATUS → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•4** AREA → **F•D 1** VARIABLE: 0.0% - 1.0% - 5.0%

14.8 Clearing Errors

To reset the error counts on the status display and on the error counters to zero, follow the procedure below.

Also, the LAPSED indication at the upper left of the screen is reset to 00:00:00.

Procedure

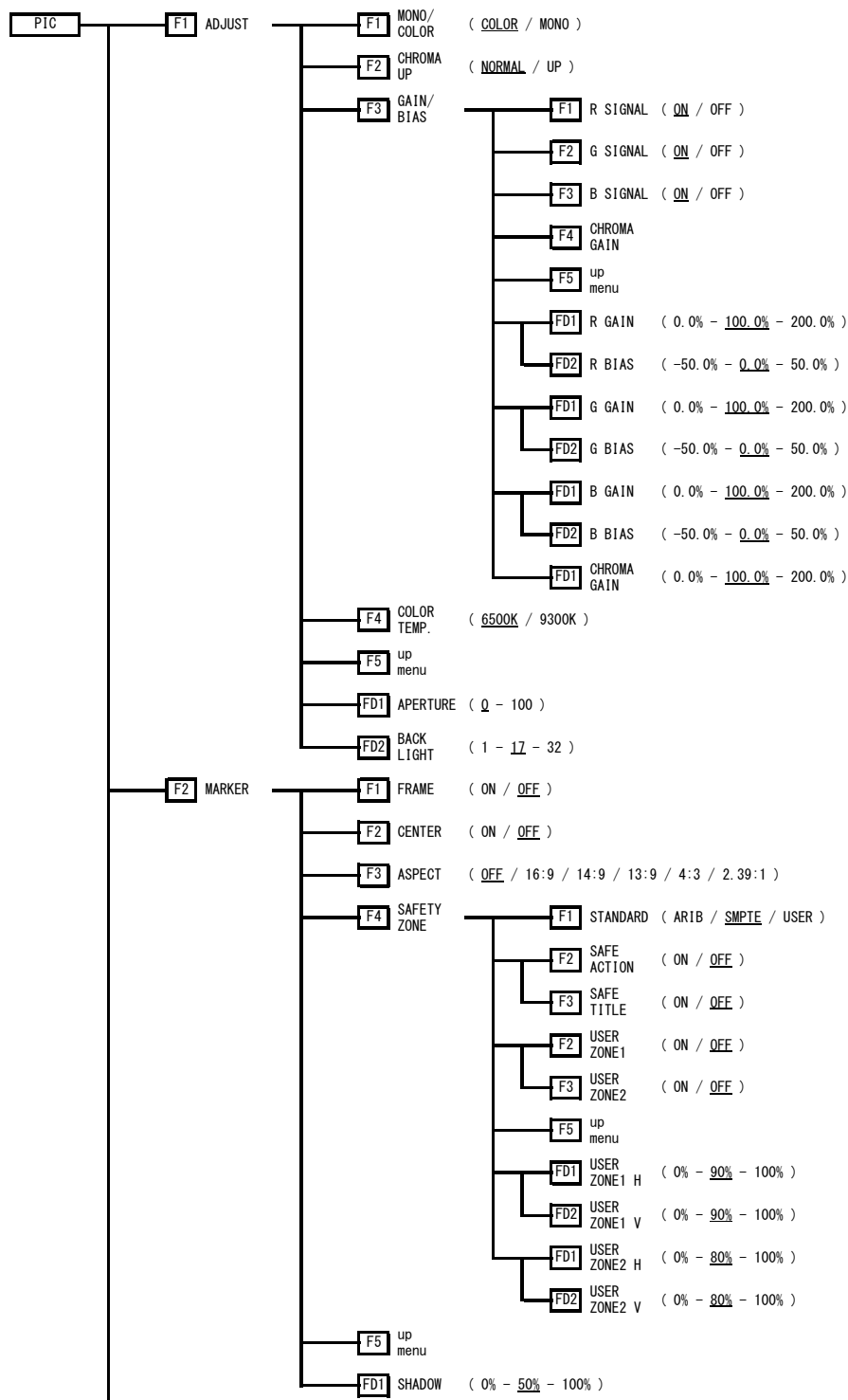
STATUS → **F•5** ERROR CLEAR

15. APPENDIX

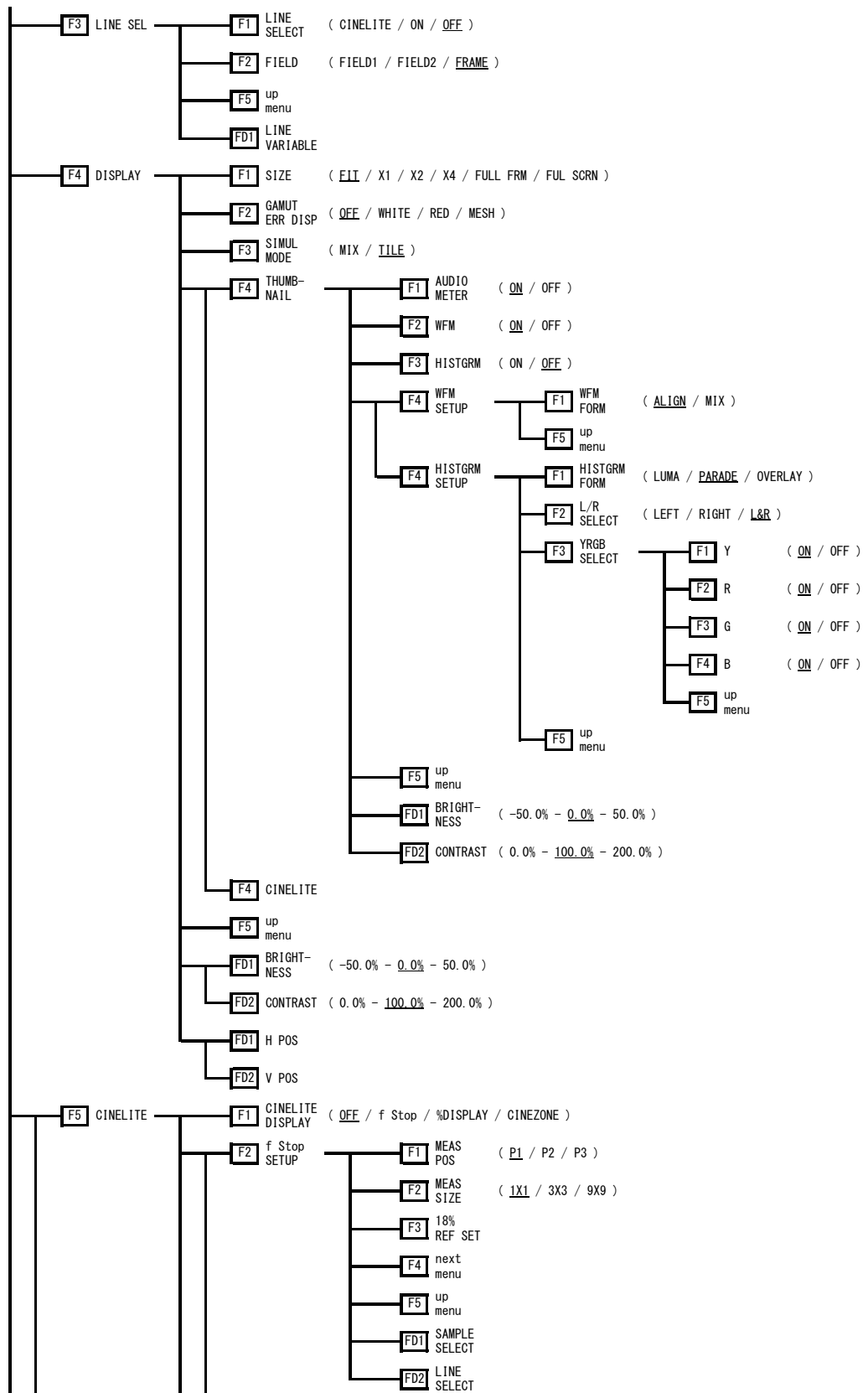
15.1 Menu Trees

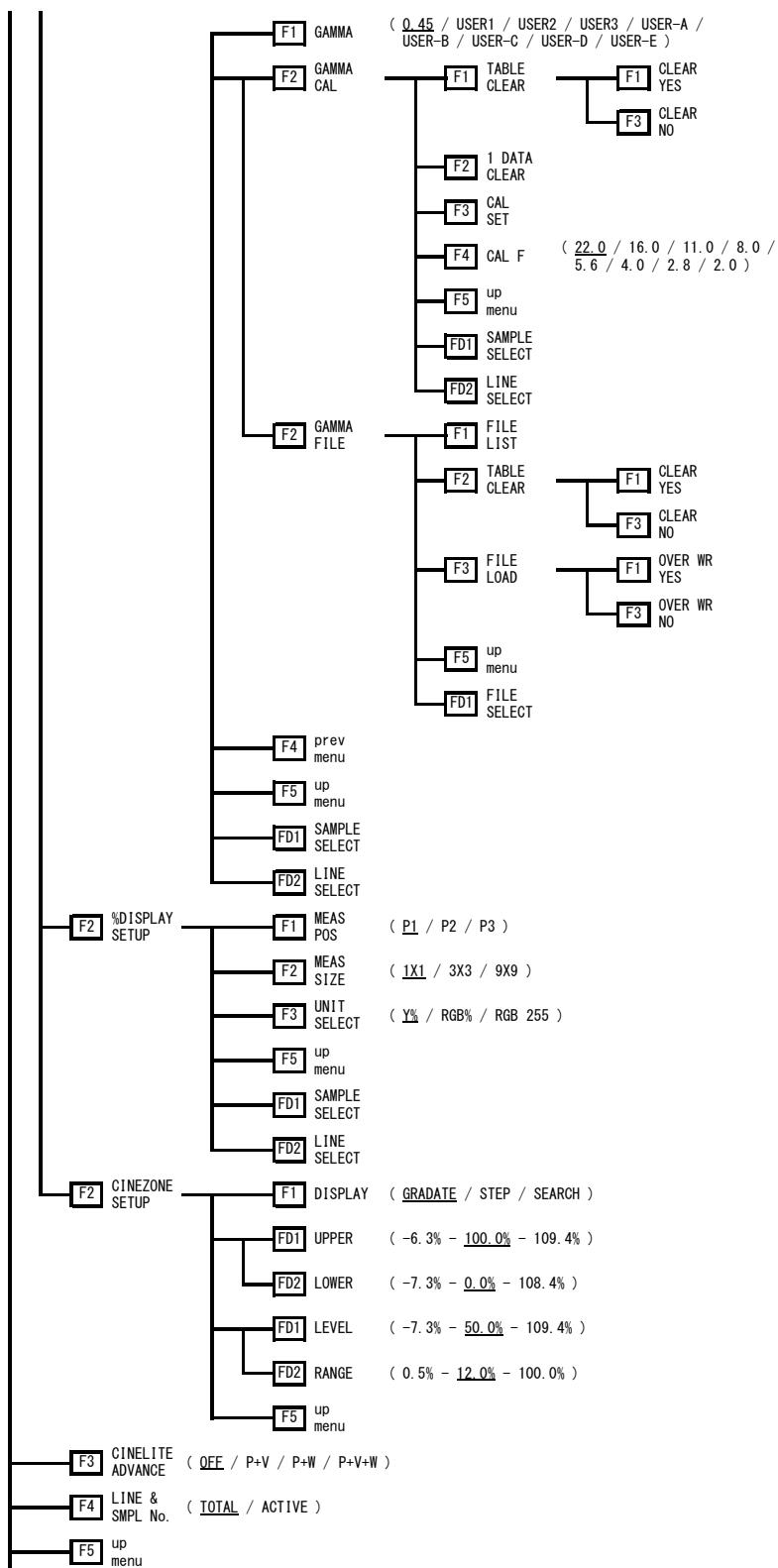
The menu structures are indicated below. The default values are underlined.

15.1.1 Picture Menu

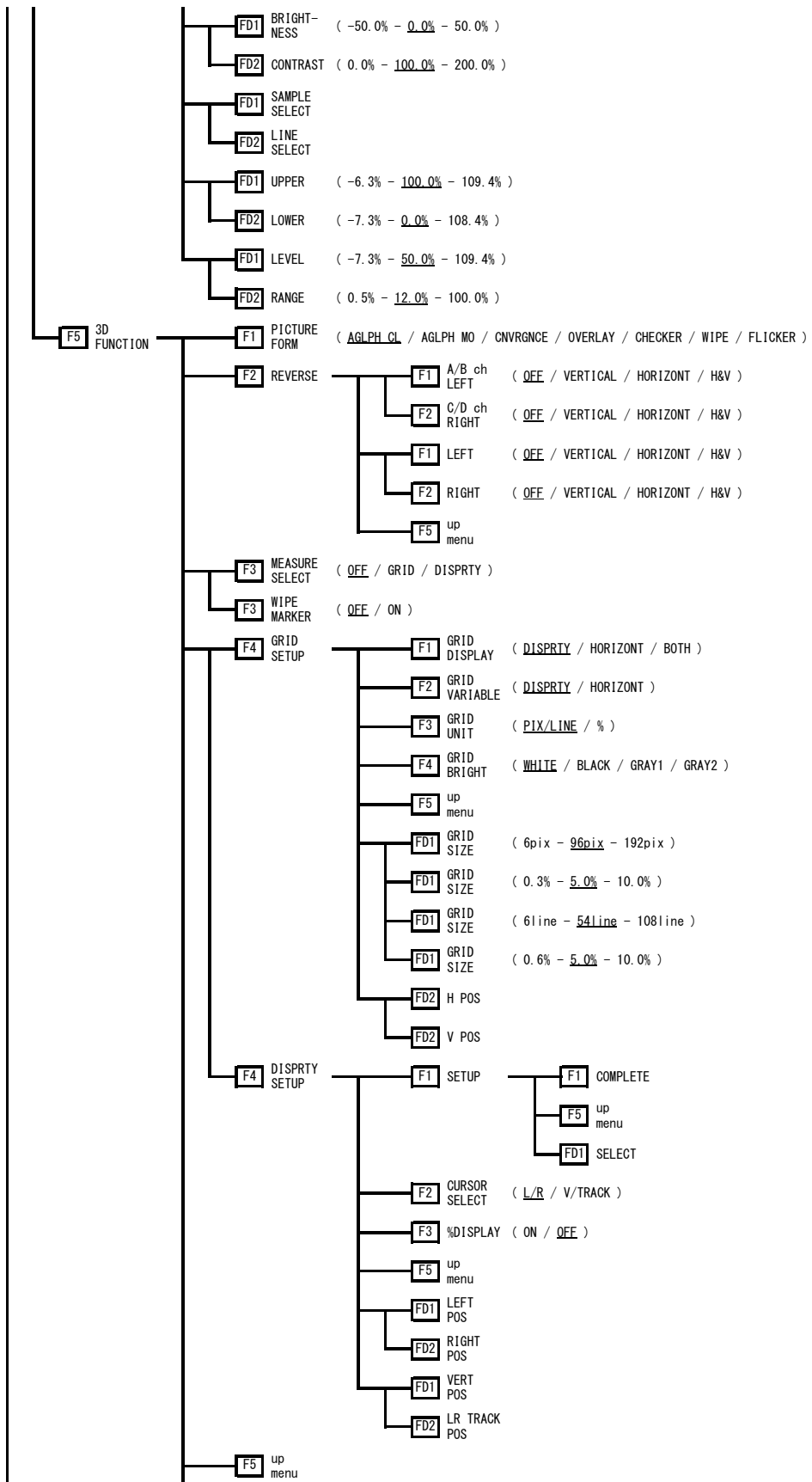


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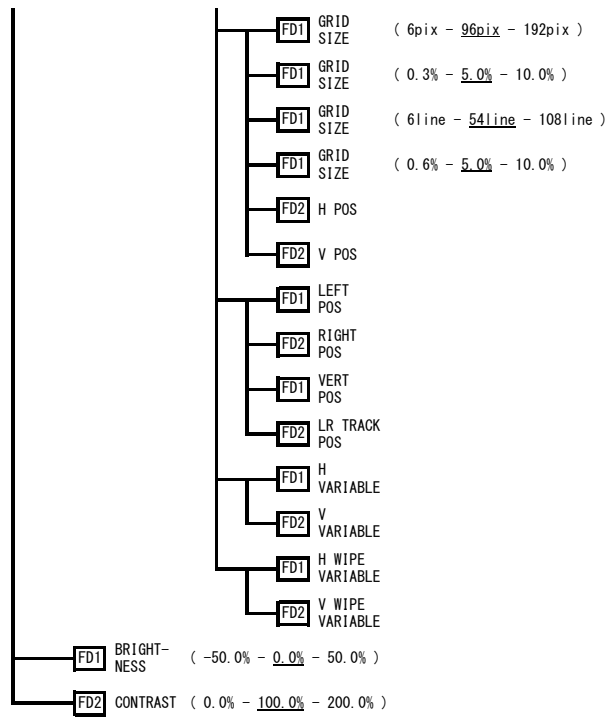




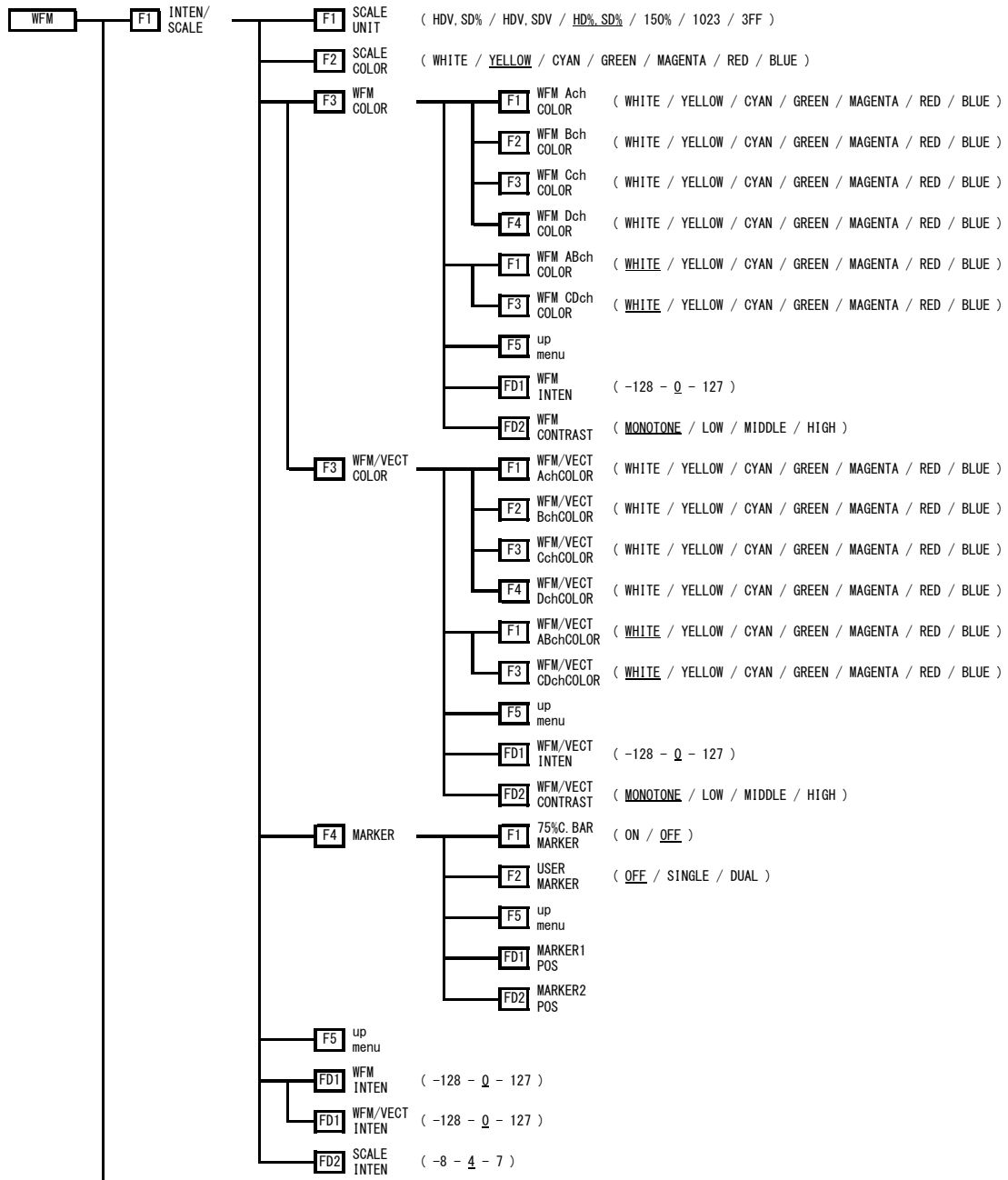
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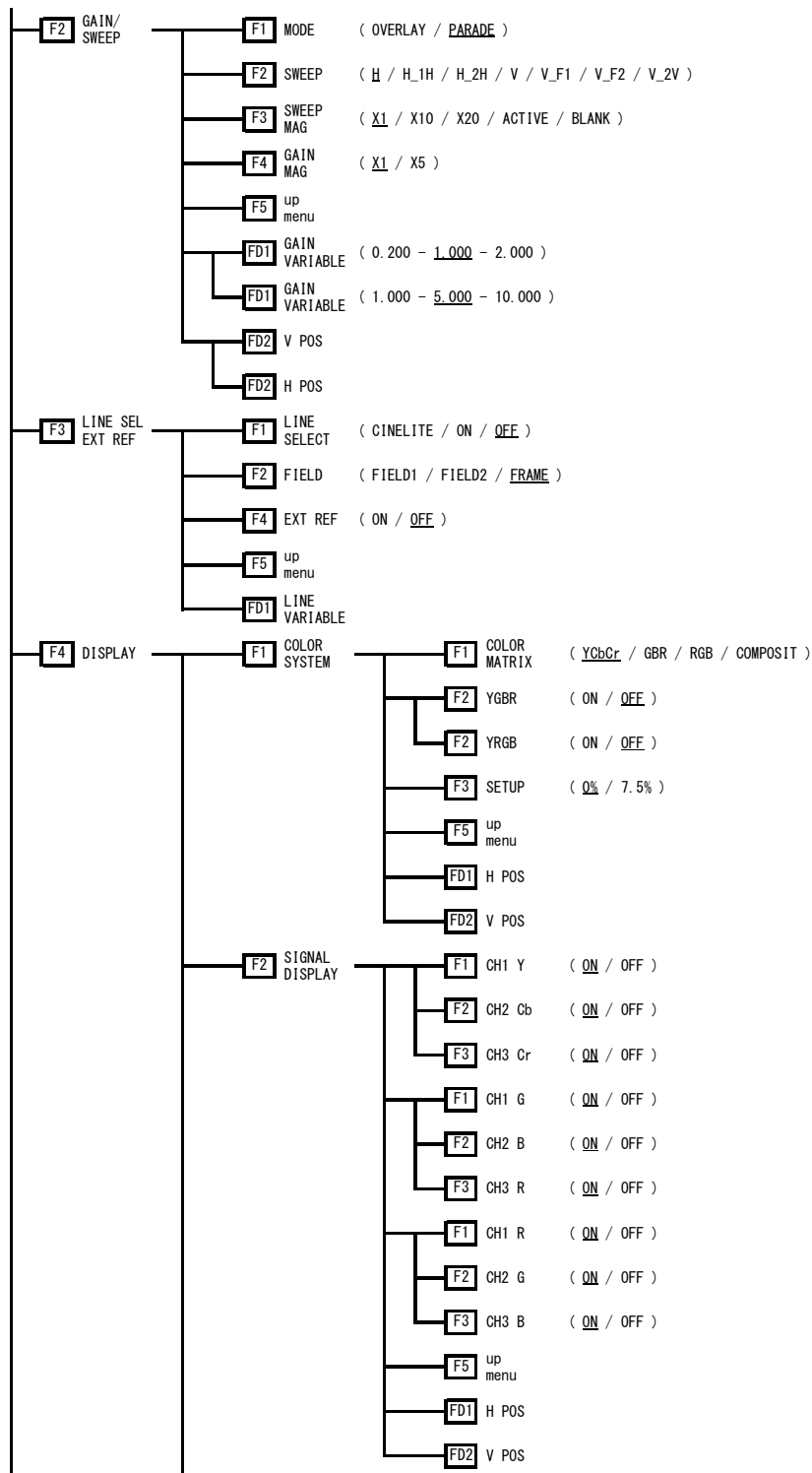
15. APPENDIX



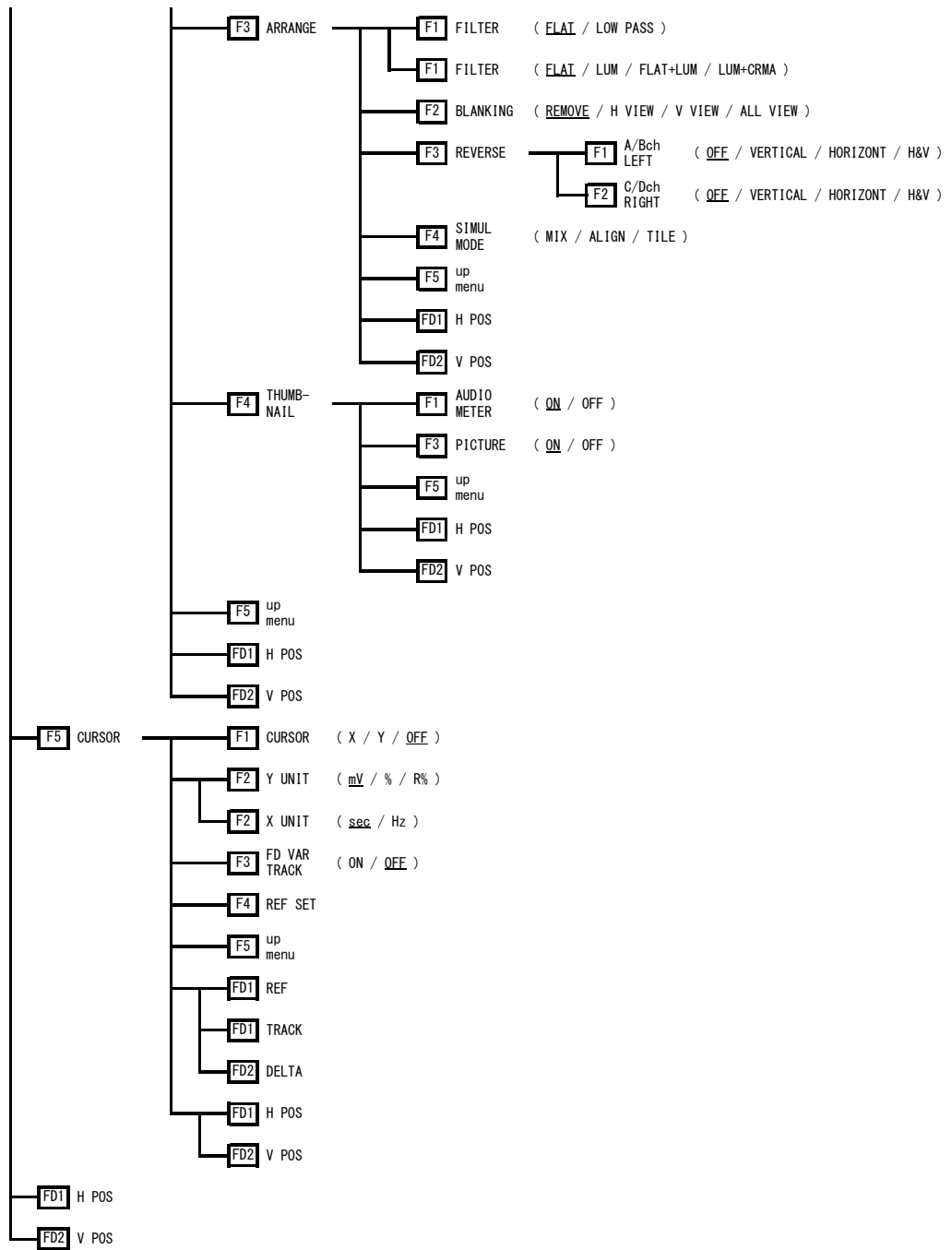
15.1.2 Video Signal Waveform Menu



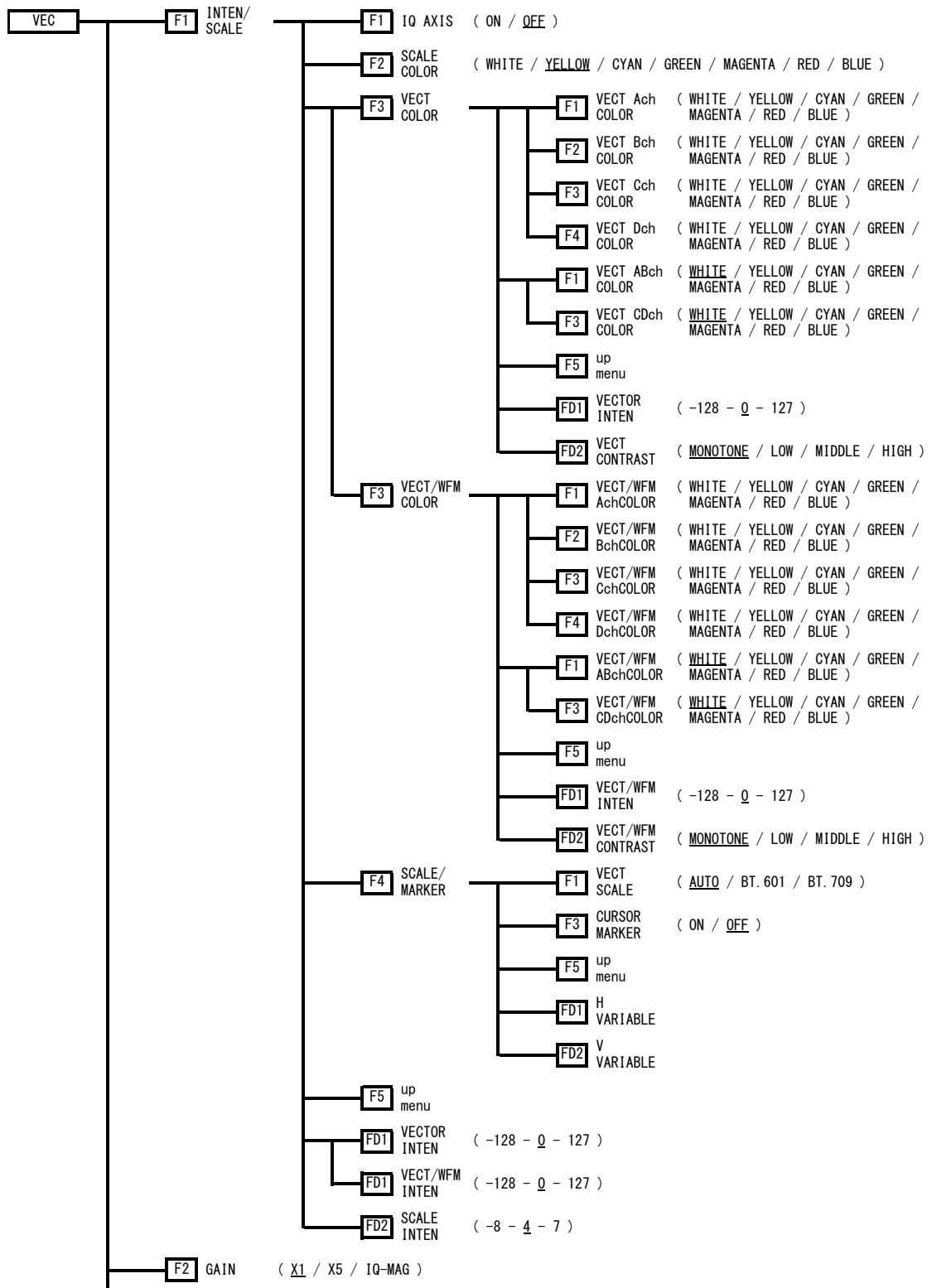
15. APPENDIX



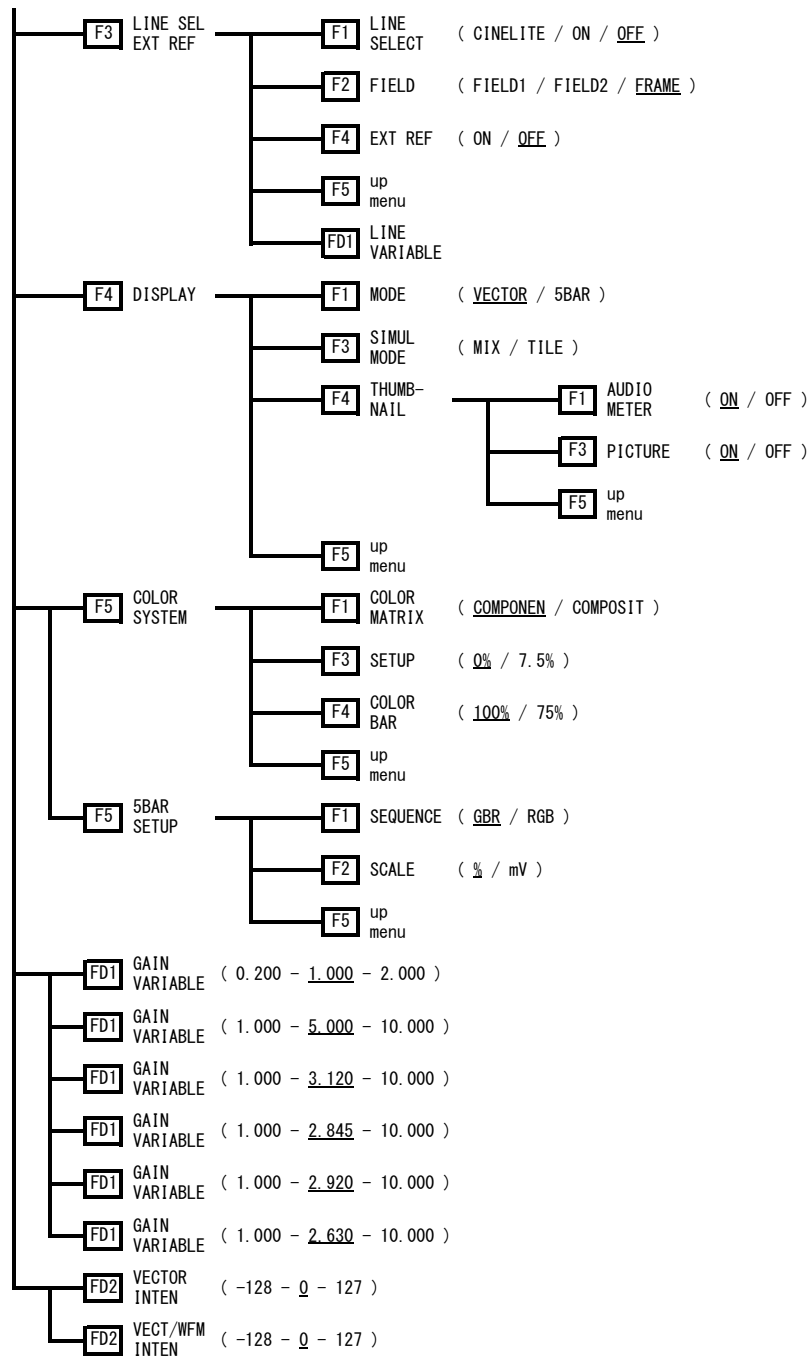
15. APPENDIX



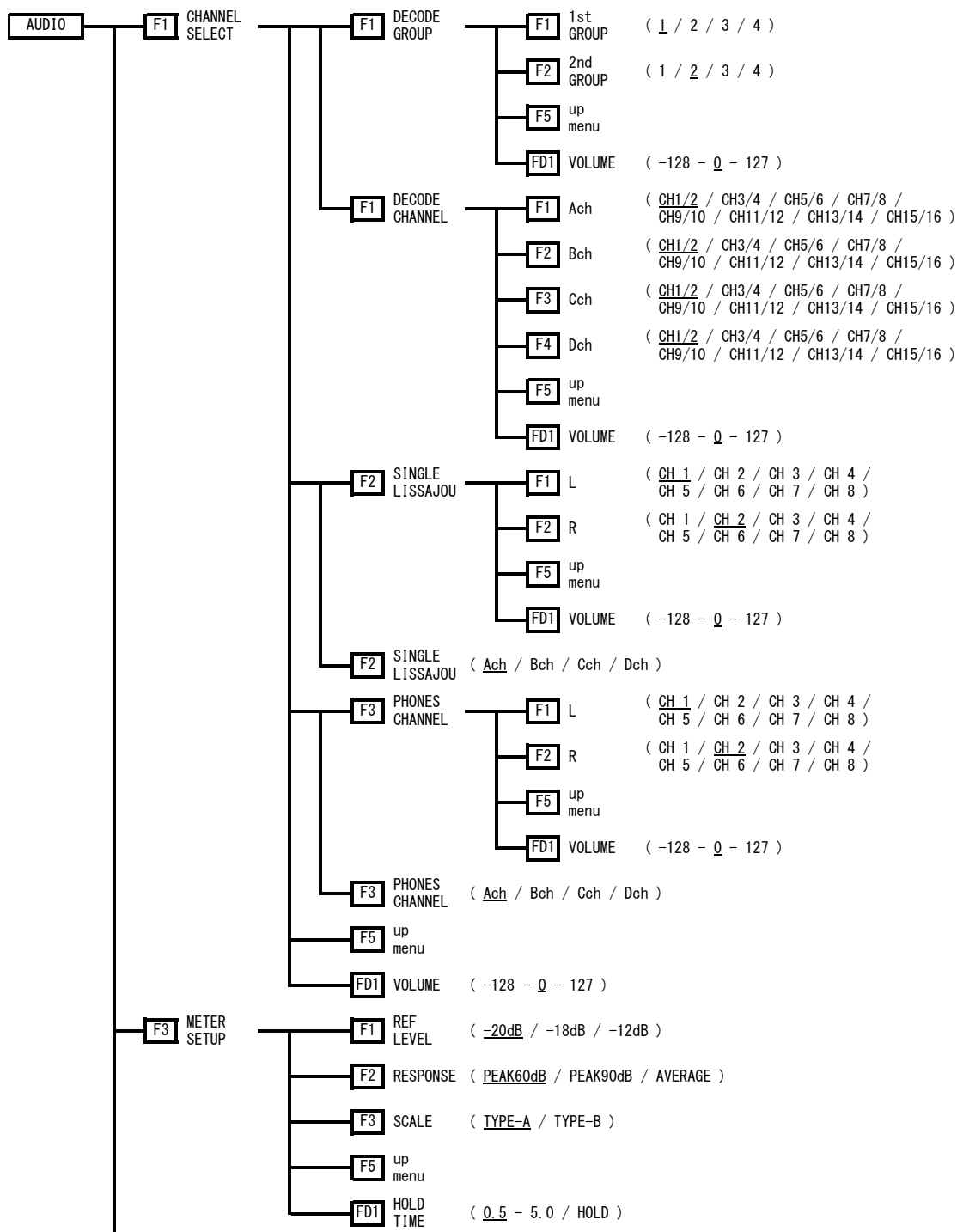
15.1.3 Vector Menu



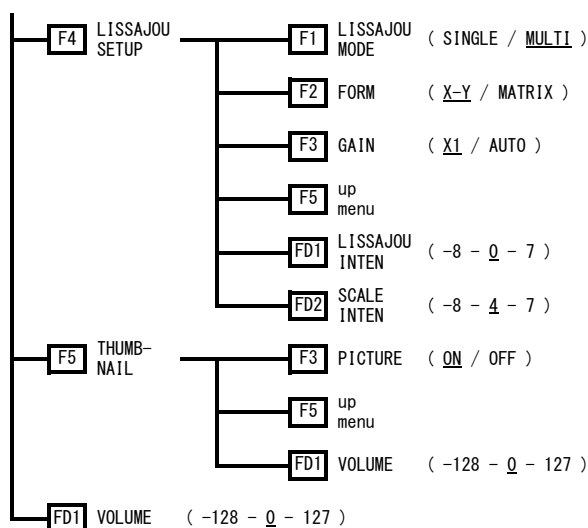
15. APPENDIX



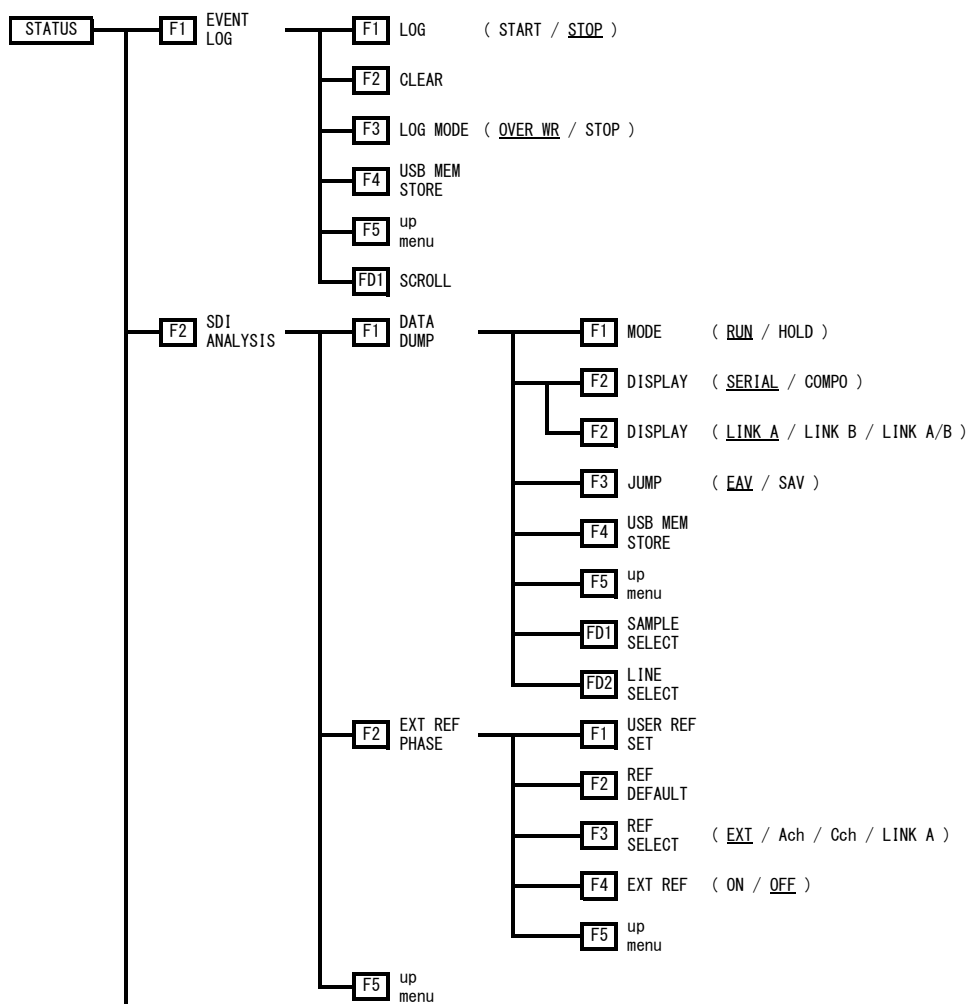
15.1.4 Audio Menu



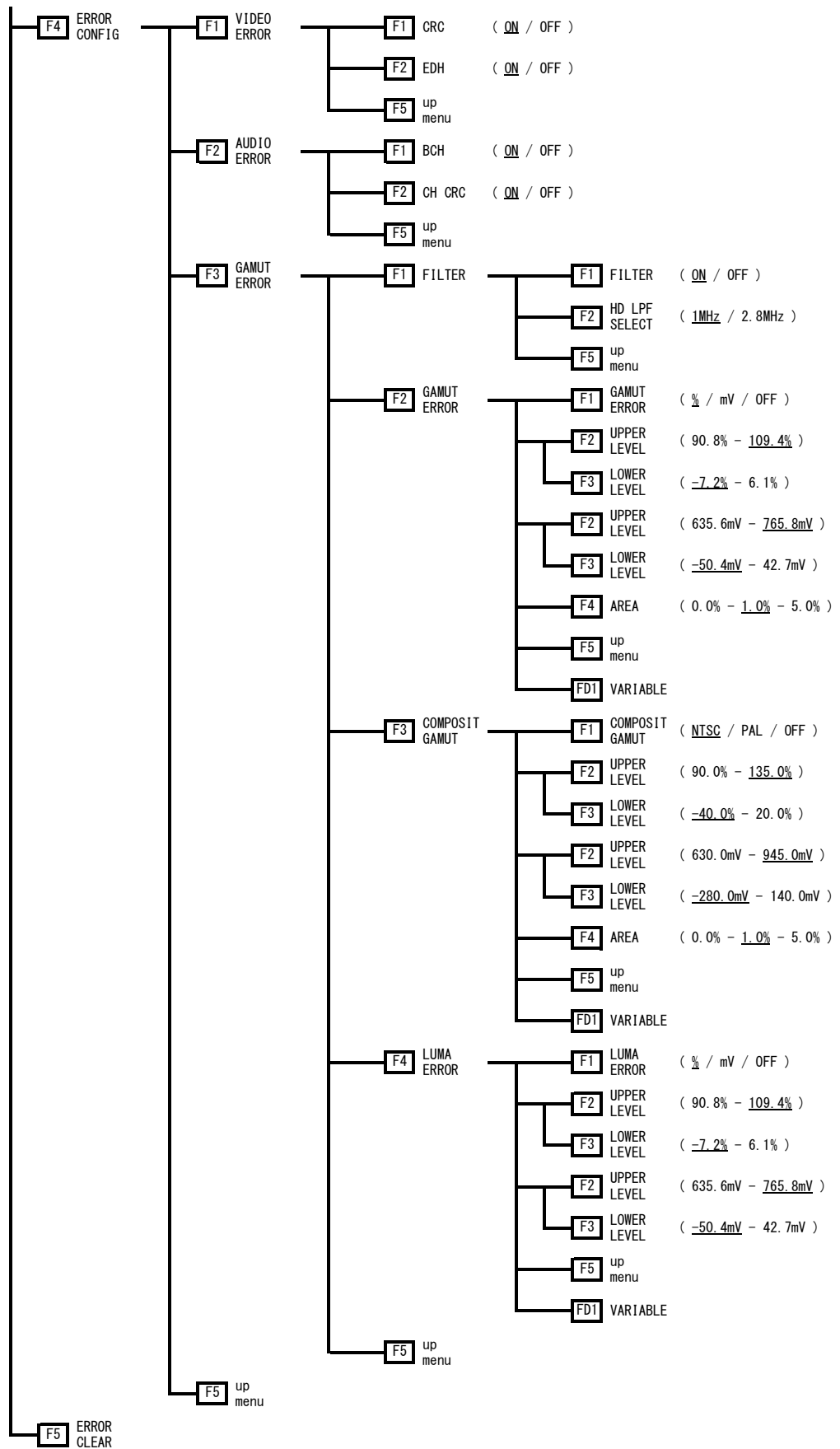
15. APPENDIX



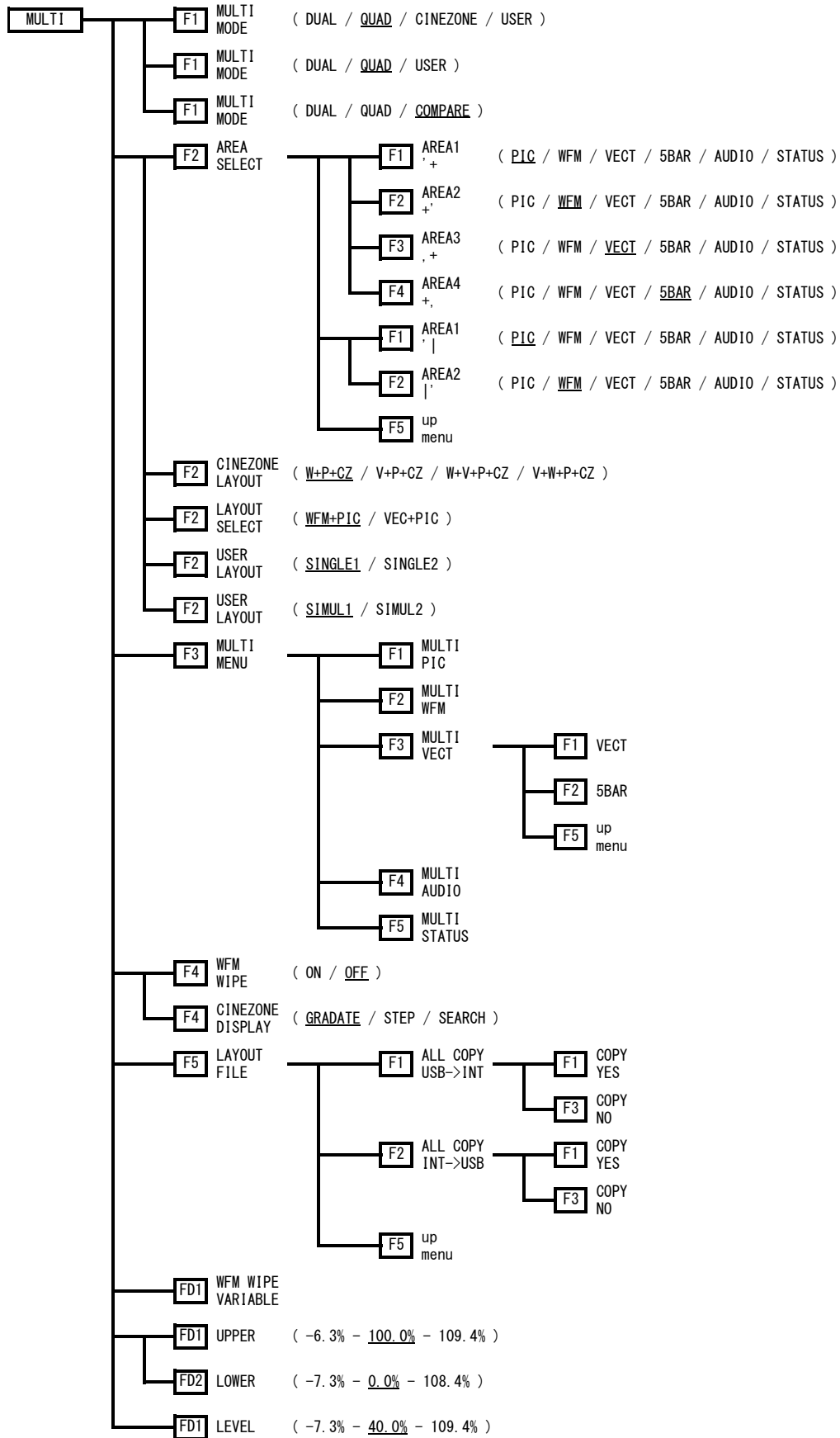
15.1.5 Status Menu



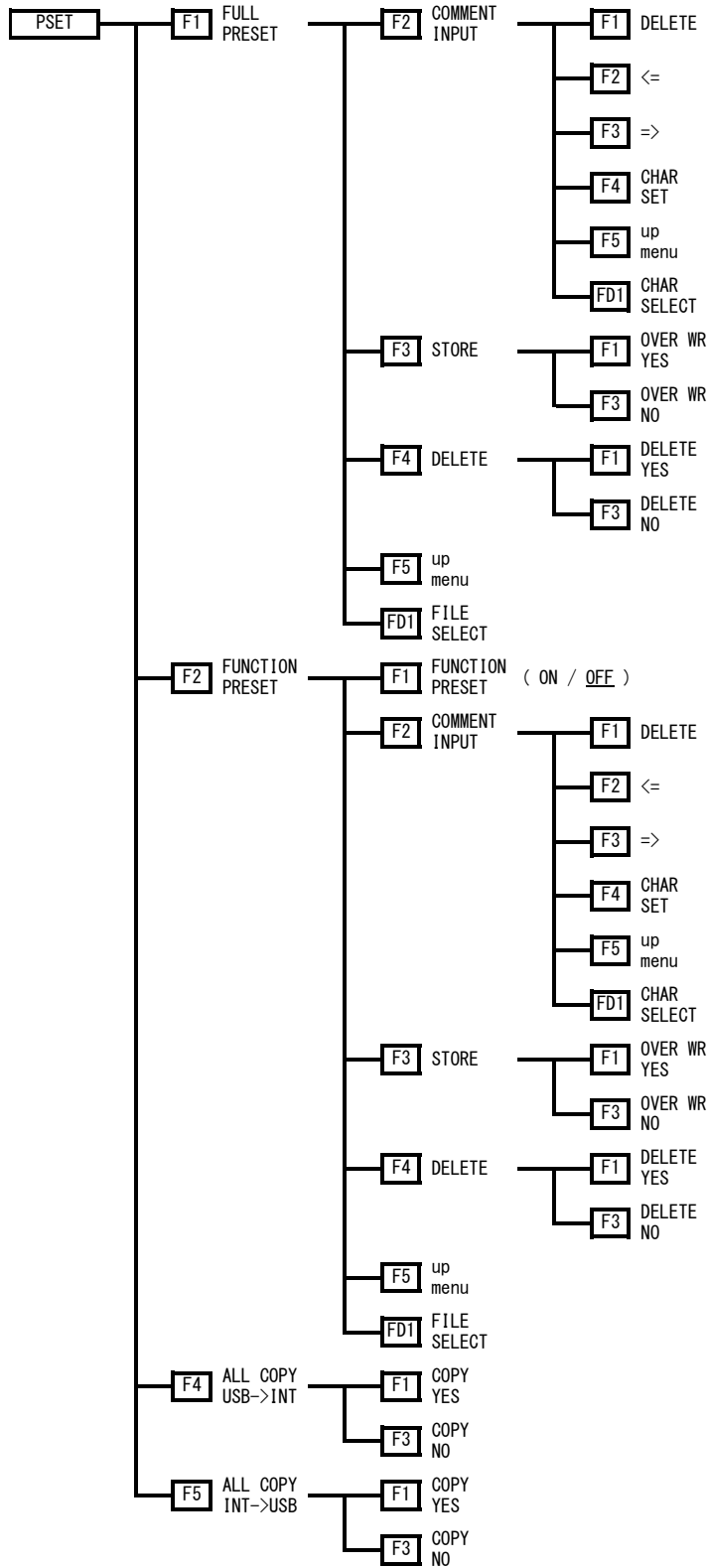
15. APPENDIX



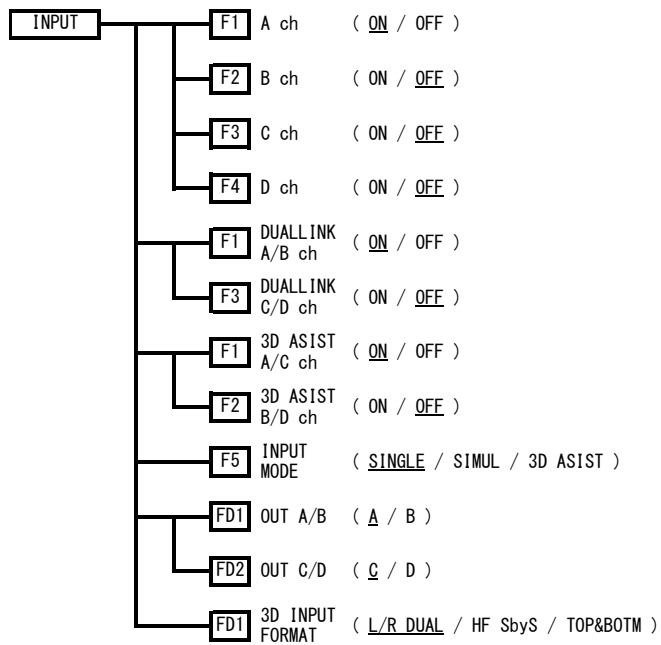
15.1.6 Multi-Screen Display Menu



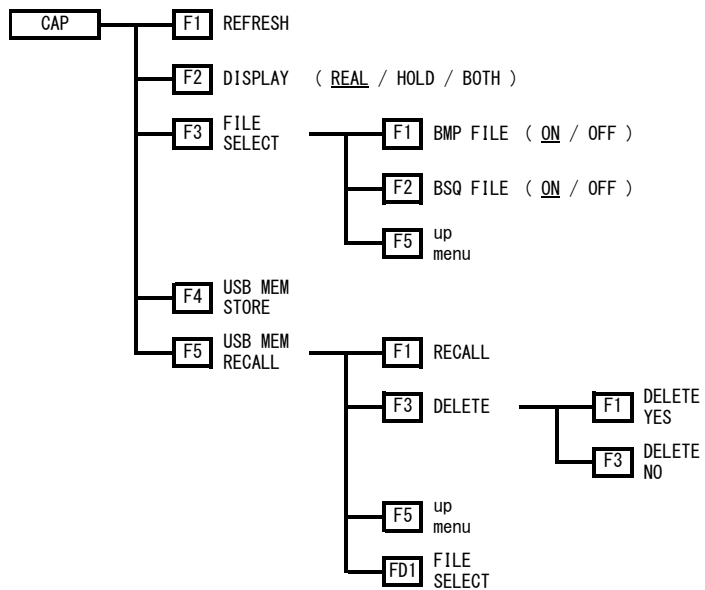
15.1.7 Preset Registration Menu



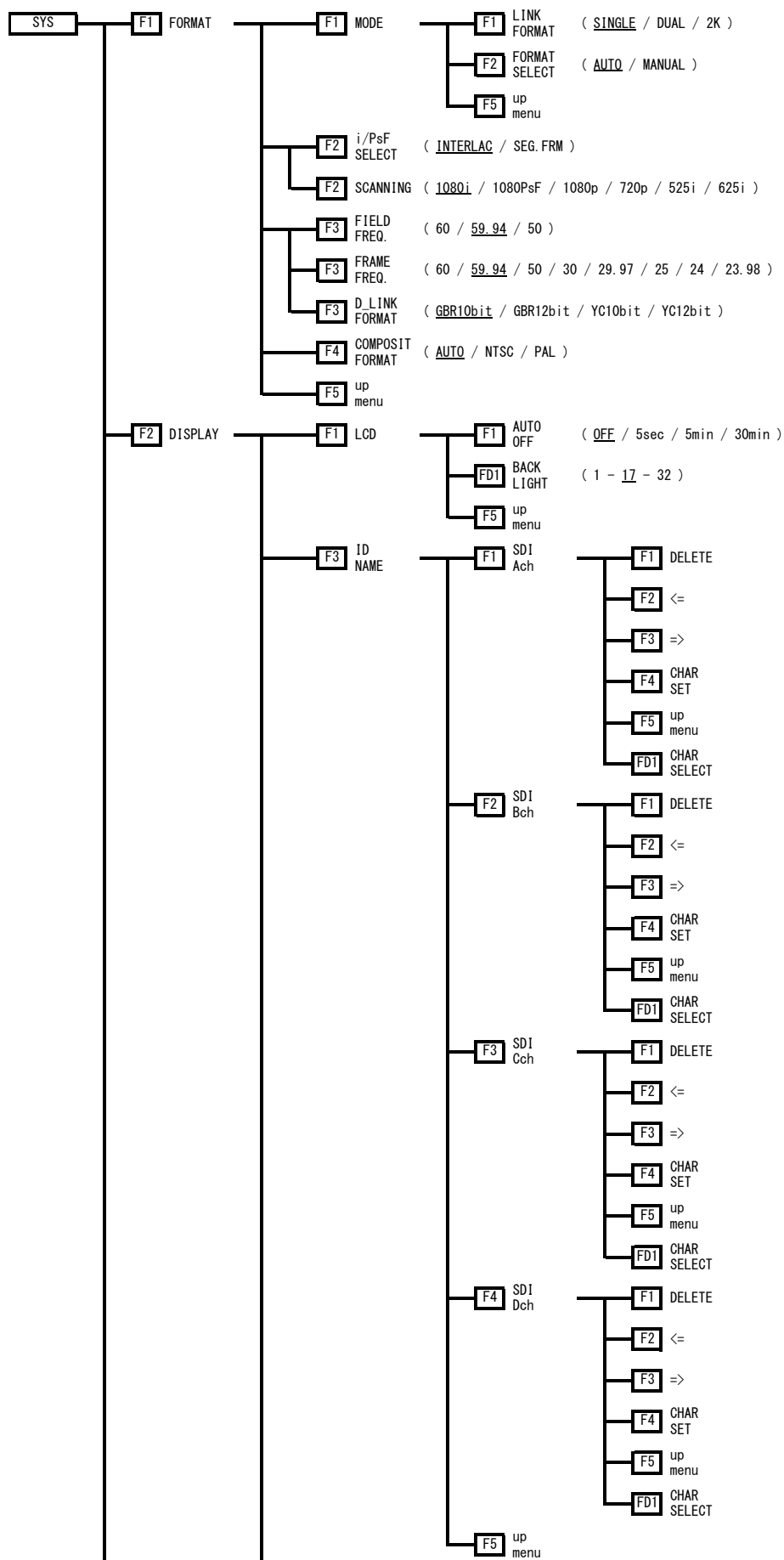
15.1.8 Input Menu



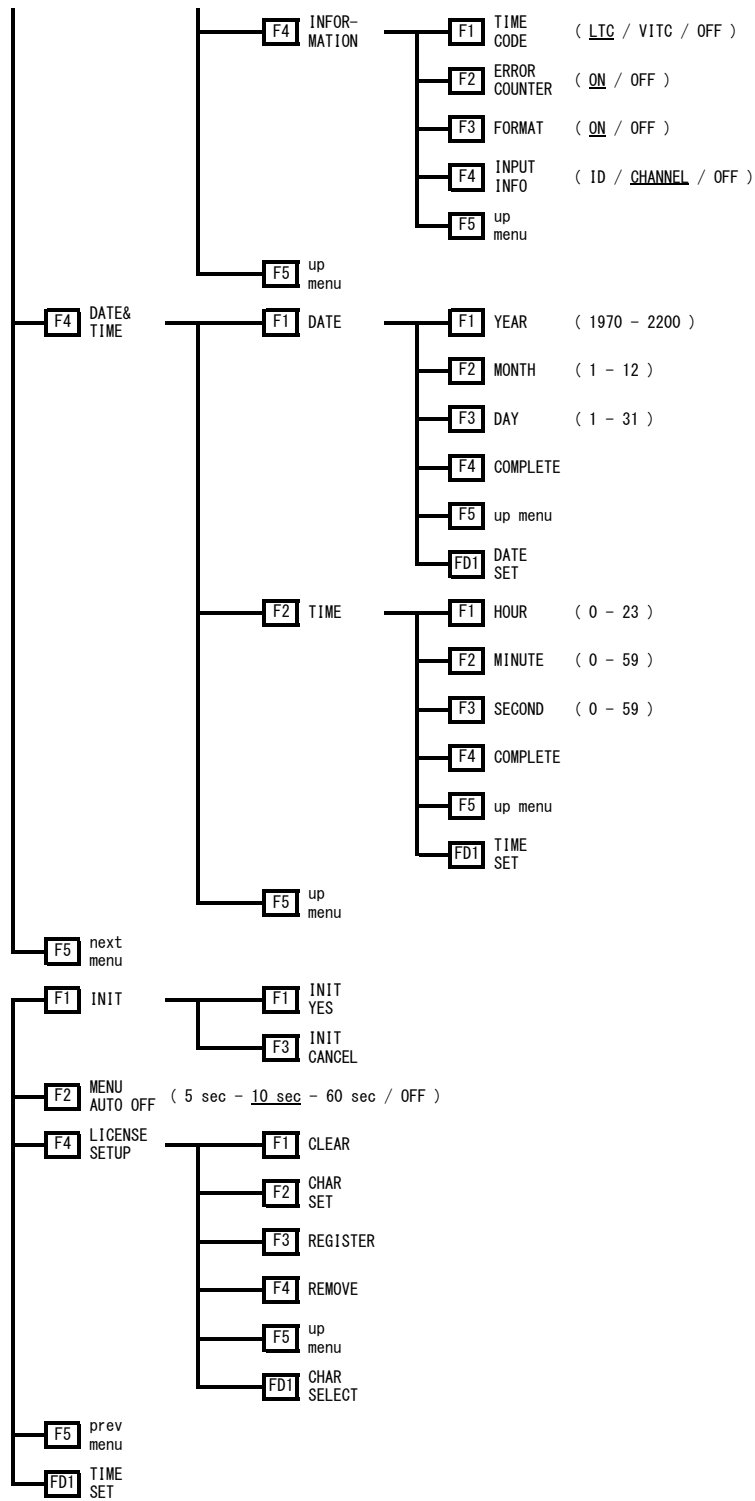
15.1.9 Screen Capture Menu



15.1.10 System Menu



15. APPENDIX



15.2 Change History of the Software

This manual was written for firmware version 1.4.

You can view the firmware version on the display that appears when you turn on the power.

• Ver. 1.4

- A feature that does not automatically clear the function menu has been added.
- A feature that considers the upper left of the picture to be line number 1 and sample number 1 has been added to the CINELITE display.
- In the search feature of CINEZONE display, the range to assign colors has been made variable, and the colors are now displayed with gradation.
- Markers in the video signal waveform display are now also displayed in the thumbnails.

• Ver. 1.3

- The CINELITE Advanced feature has been added to the CINELITE display.
- The CINELITE display can now be used on the multi-screen display.
- Side-by-side input and top-and-bottom input features have been added to the 3D assist display.
- A flicker display function has been added to the 3D assist display.
- A feature that turns the level display on and off has been added to the disparity measurement of the 3D assist display.
- The menu structure for moving the grid lines of the grid display feature and the cursors of the disparity measurement feature on the 3D assist display has been improved.
- A user-defined level marker display feature and 75 % color bar marker display feature have been added to the video signal waveform display.
- A contrast adjustment function has been added to the video signal waveform display.
- The default SCALE UNIT settings have been changed to HD% and SD% on the video signal waveform display.
- The **F•D 2** functionality has been improved so that H POS is selected when SWEEP MAG is pressed and V POS is selected when GAIN MAG is pressed on the GAIN/SWEEP menu of the video signal waveform display.
- A user-defined marker and position numeric display features have been added to the vector display.
- A contrast adjustment function has been added to the vector display.
- A feature that uses SDI timecodes for timestamps has been added to the event log function of the status display.
- A feature has been added that moves the selected line to the first active line when **F•D 1** is pressed during line selection.
- A feature has been added that synchronizes the selected line with the line numbers of CINELITE during line selection.
- The number of files that captured data can be saved to and recalled from has been increased to 999.

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Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码: LV 5980



此标志适用于在中国销售的电子信息产品, 依据2006年2月28日公布的

《电子信息产品污染控制管理办法》以及SJ/T11364-2006《电子信息产品污染控制标识要求》, 表示该产品在使用完结后可再利用。数字表示的是环境保护使用期限, 只要遵守与本产品有关的安全和使用上的注意事项, 从制造日算起在数字所表示的年限内, 产品不会产生环境污染和对人体、财产的影响。

产品适当使用后报废的方法请遵从电子信息产品的回收、再利用相关法令。

详细请咨询各级政府主管部门。

产品中有毒有害物质或元素的名称及含量

部件名称 Parts	有毒有害物质或元素 Hazardous Substances in each Part					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
实装基板	×	○	○	○	○	○
主体部	×	○	○	○	○	○
液晶显示模组	×	○	○	○	○	○
风扇	×	○	○	○	○	○
外筐	×	○	○	○	○	○
线材料一套	×	○	○	○	○	○
附件	○	○	○	○	○	○
包装材	×	○	○	○	○	○
电池	○	○	○	○	○	○

备注)

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 规定的限量要求以下。

×: 表示该有毒有害物质或元素至少在该部件的某一均质材料中的含量超出SJ/T11363-2006
标准规定的限量要求。

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