LEADER

LV 5770SER41 DIGITAL AUDIO

LV 5770SER42 ANALOG AUDIO

FUNCTION MENU EXPLANATIONS

LEADER
ELECTRONIC MEASURING INSTRUMENTS

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1. INTRODUCTION

1.1 About This Manual

This manual explains the audio menus that are available on an LV 5770A when the LV 5770SER41 (DIGITAL AUDIO), LV 5770SER42 (ANALOG AUDIO), or Dolby option is installed. For details on how to operate the LV 5770A, see the LV 5770A (MULTI MONITOR) Instruction Manual.

1.2 About Terminology Used in this Manual

- **Single Input Mode**

  This refers to the mode in which the SIM key is off. Press the A and B keys to switch between measuring the signal that is being applied to SDI INPUT A and the signal that is being applied to SDI INPUT B, respectively.

- **Simul mode**

  This refers to the mode in which the SIM key is on. The signals that are being applied to SDI INPUT A and SDI INPUT B are measured simultaneously.

- **About the Input Format**

  The input formats are written in this manual as shown below.

  Table 1-1 Input format

Name	Description
HD dual link	HD-SDI dual link
3G-B (2map)	3G-SDI level B 2mapping

- **Underline (_)**

  Underlined options indicate the default values.

2. AUDIO DISPLAY

To display audio waveforms, press AUDIO.
You can measure the audio signals that are embedded in SDI signals or the audio signals that are applied to the audio I/O connectors.
For HD dual link signals, only the audio signal embedded in link A is measured.

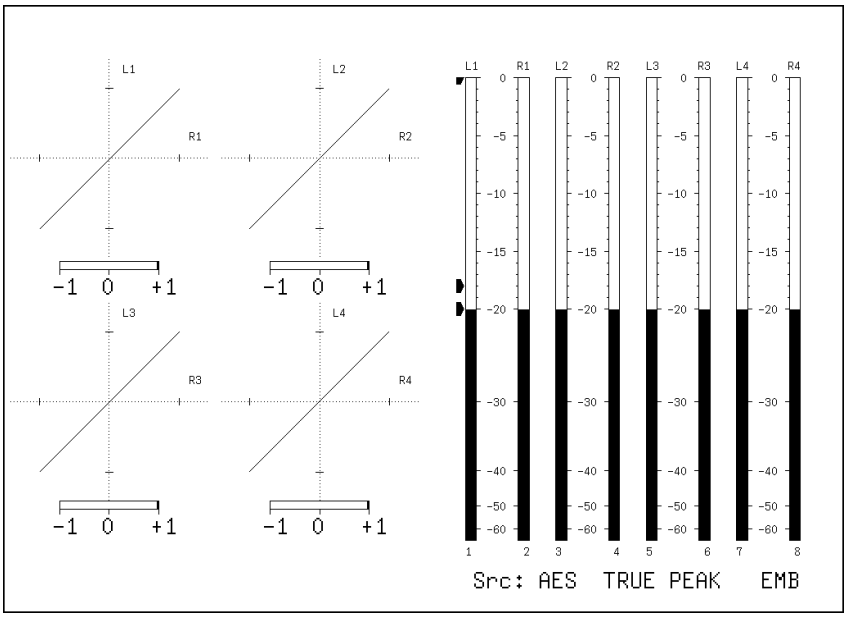


Figure 2-1 Audio display

- **Src**

"Src" (in the lower right of the screen) displays the following items in order from the left.

Table 2-1 Explanation of Src

	Display Indication	Explanation	See
1. Dolby	AES	Dolby off	2.3.1
	DE	Dolby E	
	DD	Dolby Digital	
2. Meter response model	TRUE PEAK, PPM(I), PPM(II), VU+PPM(I), VU+PPM(II)	-	3.2
3. Measured signal	EMB	Embedded audio	2.1.1
	AES	External digital audio	
	ANA	Analog audio	

- **Menu**

  Use the audio menu—which is displayed when you press the AUDIO key—to configure the audio display settings.

AUDIO →

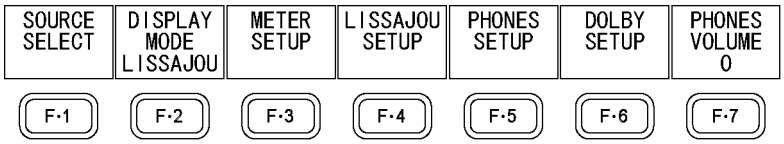


Figure 2-2 Audio menu

2.1 Configuring Measurement Signal Settings

To configure measurement signal settings, press F•1 SOURCE SELECT on the audio menu. You can use this menu to set the signal to measure and the channels to measure.

AUDIO → F•1 SOURCE SELECT →

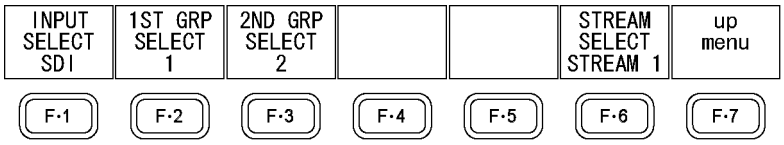


Figure 2-3 SOURCE SELECT menu

2.1.1 Selecting the Signal to Measure

To select the signal to measure, follow the procedure below.

Procedure

AUDIO → F•1 SOURCE SELECT → F•1 INPUT SELECT : SDI / EXT DIGI / EXT ANA

Settings

SDI: The audio signal embedded in the SDI signal is measured. “EMB” is displayed in the lower right of the screen.

EXT DIGI: The digital audio signal that is applied to a DIGITAL AUDIO IN/OUT connector on the rear panel is measured. “AES” is displayed in the lower right of the screen.
This option cannot be selected if GROUP A and GROUP B under REAR PANEL SETUP in the system settings have both been set to OUTPUT.
Simul mode is not supported. Perform this measurement with the SIM key LED turned off.

EXT ANA: The analog audio signal that is applied to an ANALOG AUDIO connector on the rear panel is measured. “ANA” is displayed in the lower right of the screen.
This option can be selected when an LV 5770SER42 is installed in the LV 5770A and ANALOG AUDIO under REAR PANEL SETUP in the system settings is set to INPUT.
Simul mode is not supported. Perform this measurement with the SIM key LED turned off.

2.1.2 Selecting the Channels to Measure

To select the channels to measure, follow the procedure below. The channels that you can select vary depending on the F•1 INPUT SELECT and input mode settings as shown in the following table.

Table 2-2 Selecting the channels to measure

INPUT SELECT	Input Mode	Measurement Channels	Notes
SDI	Single input mode	F•2 1ST GRP SELECT (1 / 2 / 3 / 4) F•3 2ND GRP SELECT (1 / 2 / 3 / 4)	1: Ch 1 to 4 2: Ch 5 to 8
	Simul mode	F•2 ACH GRP SELECT (1 / 2 / 3 / 4) F•3 BCH GRP SELECT (1 / 2 / 3 / 4)	3: Ch 9 to 12 4: Ch 13 to 16
SDI (Dolby)	-	Ch D1 to D8	-
EXT DIGI	-	F•2 CHANNEL SELECT (GROUP A / GROUP B)	GROUP A: Ch A1 to A8 GROUP B: Ch B1 to B8
EXT DIGI (Dolby)	-	Ch D1 to D8	-
EXT ANA	-	Ch 1 to 8	-

Procedure

AUDIO → F•1 SOURCE SELECT → F•2 1ST GRP SELECT / F•3 2ND GRP SELECT
→ F•2 ACH GRP SELECT / F•3 BCH GRP SELECT
→ F•2 CHANNEL SELECT

2.1.3 Selecting the Stream

When the input signal is 3G-B (2map), to select the stream to measure, follow the procedure below.

Procedure

AUDIO → F•1 SOURCE SELECT → F•6 STREAM SELECT : STREAM 1 / STREAM 2

2.2 Selecting the Display Mode

To select the display mode, follow the procedure below.
It takes approximately 7 seconds to switch between the loudness display and one of the other display modes.

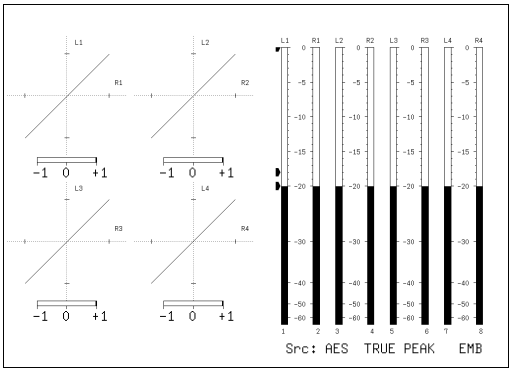
Procedure

AUDIO → F•2 DISPLAY MODE : LISSAJOU / SURROUND / STATUS / LOUDNESS

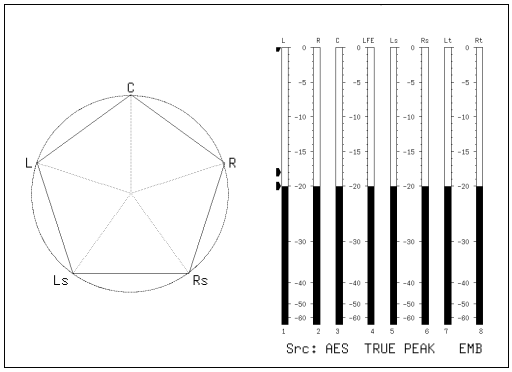
Settings

LISSAJOU:	The Lissajous curves are displayed on the left side of the screen, and the audio meter is displayed on the right side of the screen.
SURROUND:	The surround display is shown on the left side of the screen, and the audio meter is displayed on the right side of the screen. This option cannot be selected in simul mode.
STATUS:	The audio status is displayed on the left side of the screen, and the audio meter is displayed on the right side of the screen.
LOUDNESS:	The loudness values are displayed on a chart, on a meter, and as values. This option cannot be selected in simul mode.

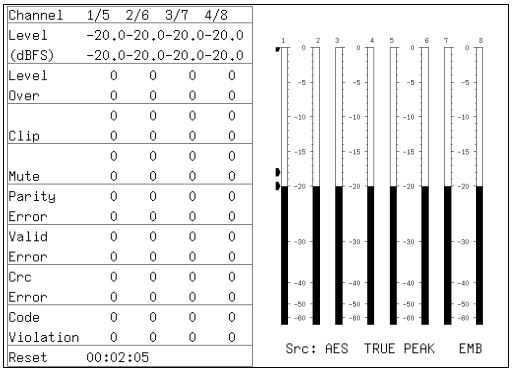
DISPLAY MODE = LISSAJOU



DISPLAY MODE = SURROUND



DISPLAY MODE = STATUS



Channel	1/5	2/6	3/7	4/8
Level	-20.0	-20.0	-20.0	-20.0
(dBFS)	-20.0	-20.0	-20.0	-20.0
Level	0	0	0	0
Over	0	0	0	0
	0	0	0	0
Clip	0	0	0	0
	0	0	0	0
Mute	0	0	0	0
Parity	0	0	0	0
Error	0	0	0	0
Valid	0	0	0	0
Error	0	0	0	0
Crc	0	0	0	0
Error	0	0	0	0
Code	0	0	0	0
Violation	0	0	0	0
Reset	00:02:05			

DISPLAY MODE = LOUDNESS

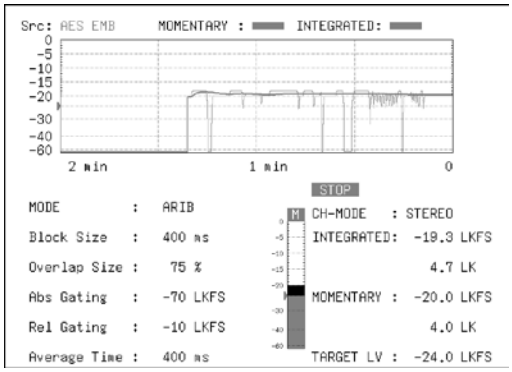


Figure 2-4 Selecting the display mode

2.3 Configuring the Dolby Settings (Option)

To configure Dolby settings, press F•6 DOLBY SETUP on the audio menu.
This menu is displayed when the Dolby option is installed in the LV 5770A and INPUT SELECT is set to SDI or EXT DIGI.

For information on the INPUT SELECT setting, see section 2.1.1, “Selecting the Signal to Measure.”

AUDIO → F•6 DOLBY SETUP →

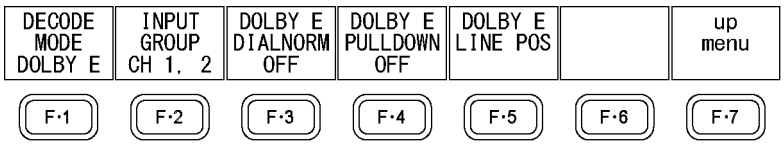


Figure 2-5 DOLBY SETUP menu

2.3.1 Selecting the Signal to Measure

To select the signal to measure, follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•1 DECODE MODE : OFF / DOLBY E / DOLBY D

Settings

OFF:	Dolby signals are not measured.
DOLBY E:	Dolby E signals are measured. This option cannot be selected in simul mode.
DOLBY D:	Dolby Digital signals are measured. This option cannot be selected in simul mode.

2.3.2 Selecting the Channel to Decode

When F•1 DECODE MODE is set to DOLBY E or DOLBY D, to select the channel to decode, follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•2 INPUT GROUP : CH 1, 2 / CH 3, 4 / CH 5, 6 / CH 7, 8

2.3.3 Turning Dialog Normalization On and Off

When F•1 DECODE MODE is set to DOLBY E, to turn the dialog normalization on and off, follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•3 DOLBY E DIALNORM : ON / OFF

2.3.4 Turning Pulldown On and Off

When F•1 DECODE MODE is set to DOLBY E, to turn the pulldown on and off, follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•4 DOLBY E PULLDOWN : ON / OFF

2.3.5 Frame Location Indicator Display

When INPUT SELECT is set to SDI and F•1 DECODE MODE is set to DOLBY E, the frame location value can be displayed with an indicator.
The indicator is shown in the lower left of the screen, and the value is indicated with a bar and ▲ mark. These are normally shown in cyan, but when the value exceeds the specified threshold, they turn red.

For information on the INPUT SELECT setting, see section 2.1.1, “Selecting the Signal to Measure.”

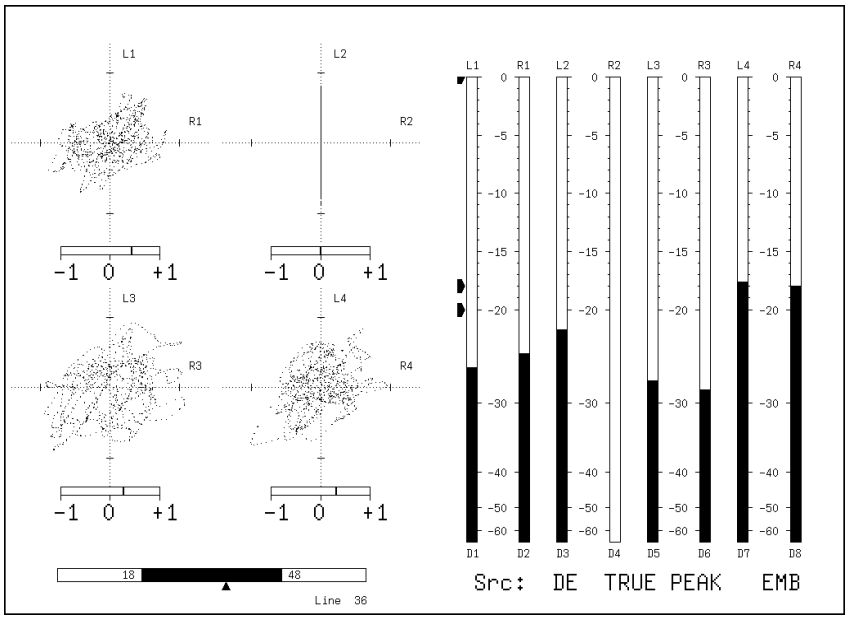


Figure 2-6 Frame location indicator display

To show the indicator, follow the procedure below to set INDICATE to ON.

Procedure

AUDIO → F•6 DOLBY SETUP → F•5 DOLBY E LINE POS

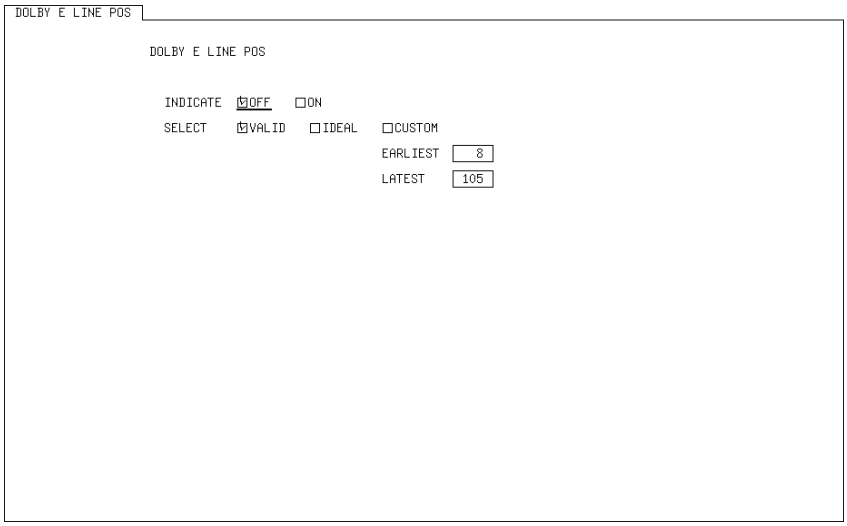


Figure 2-7 DOLBY E LINE POS tab

- **INDICATE**

  Turns the frame location indicator display on and off.

- **SELECT**

  Set the frame location threshold value.
  The threshold value when VALID or IDEAL is selected varies depending on the format as shown below.
  If you select CUSTOM, you can specify a value between 8 and 105.

Table 2-3 Frame location threshold value

Format	VALID		IDEAL	
	Lower limit	Upper limit	Lower limit	Upper limit
625i/50	8	30	11	13
525i/59.94	12	26	13	16
1080i/60	18	52	21	26
1080i/59.94	18	48	21	26
1080i/50	13	53	19	23
1080p/60	35	104	42	52
1080p/59.94	35	95	42	52
1080p/50	26	105	37	46
1080p/30	18	52	21	26
1080p/29.97	18	48	21	26
1080p/25	13	53	19	23
1080p/24	11	98	25	29
1080p/23.98	11	98	25	29
720p/60	23	69	28	35
720p/59.94	23	63	28	35

Format	VALID		IDEAL	
	Lower limit	Upper limit	Lower limit	Upper limit
720p/50	17	70	25	31
720p/30	12	35	14	18
720p/29.97	12	32	14	18
720p/25	9	35	13	16
720p/24	8	65	17	19
720p/23.98	8	65	17	19

2.3.6 Selecting the Listening Mode

When F•1 DECODE MODE is set to DOLBY D, to select the listening mode, follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•3 DOLBY D LISTENIN : FULL / EX / 3stereo / PHANTOM / STEREO / MONO

2.3.7 Turning Prologic On and Off

When F•1 DECODE MODE is set to DOLBY D, to turn the prologic on and off, follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•4 DOLBY D PROLOGIC : ON / OFF

2.3.8 Selecting the DRC

When F•1 DECODE MODE is set to DOLBY D, to select the DRC (Dynamic Range Control), follow the procedure below.

Procedure

AUDIO → F•6 DOLBY SETUP → F•5 DOLBY D DRC : BYPASS / LINE / RF

3. METER DISPLAY

To configure meter display settings, press F•3 METER SETUP on the audio menu.
You can set the meter's scale, the response model, and the reference level.

AUDIO → F•3 METER SETUP →

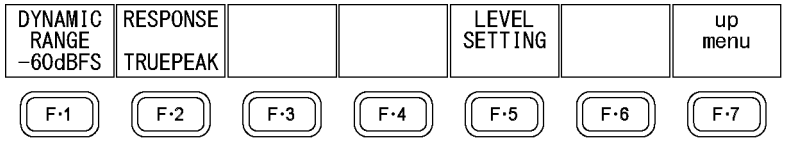


Figure 3-1 METER SETUP menu

3.1 Selecting the Scale

To select the meter's scale, follow the procedure below.

Procedure

AUDIO → F•3 METER SETUP → F•1 DYNAMIC RANGE : -60dBFS / -90dBFS

Settings

-60dBFS: The meter's scale is set to -60 to 0 dBFS.
-90dBFS: The meter's scale is set to -90 to 0 dBFS.

3.2 Setting the Response Model

To select the meter's response model, follow the procedure below. The selected response model is indicated in the lower right of the display.
This menu item does not appear when DISPLAY MODE is set to LOUDNESS.
For information on the DISPLAY MODE setting, see section 2.2, “Selecting the Display Mode.”

Procedure

AUDIO → F•3 METER SETUP
→ F•2 RESPONSE : TRUEPEAK / PPM / VU
→ F•3 PPM MODE : PPM(I) / PPM(II) (when RESPONSE is set to PPM)
→ F•3 PEAK METER : TRUE / PPM(I) / PPM(II) (when RESPONSE is set to VU)

The response model details are shown in the following table.

Table 3-1 Response model settings

F•2 RESPONSE	F•3	Display Indication	Delay Time(*1)	Return Time(*2)	Average Time
TRUEPEAK	-	TRUE PEAK	0 msec	1.7 sec	-
PPM	PPM(I)	PPM(I)	10 msec	1.7 sec	-
	PPM(II)	PPM(II)	10 msec	2.8 sec	-
VU	TRUE	VU+TRUE	-	-	300 msec
	PPM(I)	VU+PPM(I)	-	-	300 msec
	PPM(II)	VU+PPM(II)	-	-	300 msec

*1 The amount of time it takes for the meter to show -20 dBFS when a -20 dBFS/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 dBFS when a -20 dBFS/1 kHz sine-wave signal is removed from the input.

3.3 Setting the Peak Hold

When F•2 RESPONSE is set to VU, to set the peak hold time, follow the procedure below.
The unit is seconds. You can set the value in 0.5-second steps.
Press the function dial (F•D) to return the setting to its default value (0.5).

Procedure

AUDIO → F•3 METER SETUP → F•4 PEAK HOLD : 0.0 to 0.5 to 5.0 / HOLD

3.4 Setting the Reference Level

To set the meter reference level, follow the procedure below.
This menu item does not appear when DISPLAY MODE is set to LOUDNESS.
For information on the DISPLAY MODE setting, see section 2.2, “Selecting the Display Mode.”

- **OVER**

  The value that you set here is displayed as a red arrow at the corresponding level on the meter.
  If the audio level is greater than or equal to this value, a Level Over is counted on the audio status screen.

- **WARNING**

  The value that you set here is displayed as a yellow arrow at the corresponding level on the meter.
  The levels above the yellow arrow are displayed in red. The levels below the arrow are displayed in yellow.

- **REF**

  The value that you set here is displayed as a green arrow at the corresponding level on the meter.
  The levels above the green arrow are displayed in yellow. The levels below the arrow are displayed in green.

Procedure

AUDIO → F•3 METER SETUP → F•5 LEVEL SETTING
→ F•1 OVER dBFS : -40.0 to 0.0
→ F•2 WARNING dBFS : -40.0 to -18.0 to 0.0
→ F•3 REF dBFS : -40.0 to -20.0 to 0.0

4. LISSAJOUS DISPLAY

To configure Lissajous settings, press F•4 LISSAJOU SETUP on the audio menu.
You can configure Lissajous curve and scale settings.
This setting is available when F•2 DISPLAY MODE is set to LISSAJOU.

AUDIO → F•2 DISPLAY MODE to select LISSAJOU → F•4 LISSAJOU SETUP →

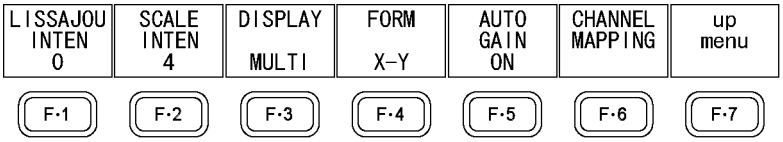


Figure 4-1 LISSAJOU SETUP menu

4.1 Adjusting the Lissajous Curve Intensity

To adjust the Lissajous curve intensity, follow the procedure below.
Press the function dial (F•D) to return the setting to its default value (0).

Procedure

AUDIO → F•4 LISSAJOU SETUP → F•1 LISSAJOU INTEN : -8 to 0 to 7

4.2 Adjusting the Scale Intensity

To adjust the intensity of the Lissajous and meter scales, follow the procedure below.
Press the function dial (F•D) to return the setting to its default value (4).

Procedure

AUDIO → F•4 LISSAJOU SETUP → F•2 SCALE INTEN : -8 to 4 to 7

4.3 Selecting the Lissajous Curve Display Format

To select the Lissajous curve display format, follow the procedure below.
Regardless of the display format that you select, the channels set with F•6 CHANNEL MAPPING are displayed.

The correlation meter shown below the Lissajous waveform 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.

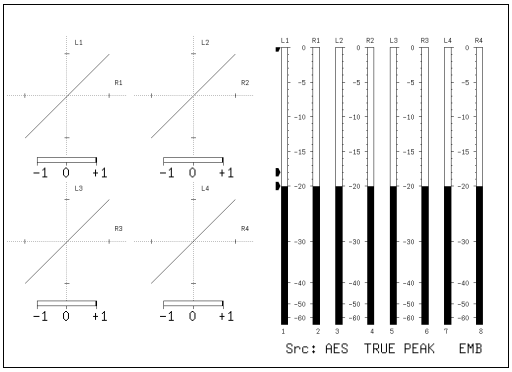
Procedure

AUDIO → F•4 LISSAJOU SETUP → F•3 DISPLAY : MULTI / SINGLE

Settings

MULTI:	Eight channels of Lissajous waveforms and eight channels of audio meters are displayed or 16 channels of Lissajous waveforms are displayed.
SINGLE:	Two channels of Lissajous waveforms and eight channels of audio meters are displayed. This option cannot be selected in simul mode.

DISPLAY = MULTI



DISPLAY = SINGLE

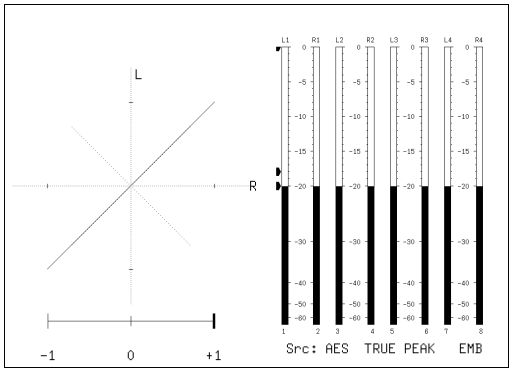


Figure 4-2 Selecting the Lissajous curve display format

4.4 Selecting the Scale Display Format

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

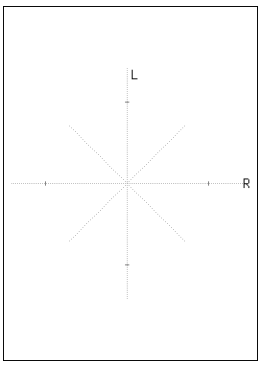
Procedure

AUDIO → F•4 LISSAJOU SETUP → F•4 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.

FORM = X-Y



FORM = MATRIX

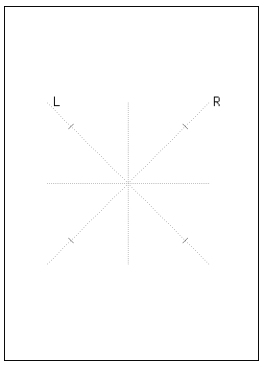


Figure 4-3 Selecting the scale display format

4.5 Setting the Lissajous Curve Gain

To select the Lissajous curve gain, follow the procedure below.

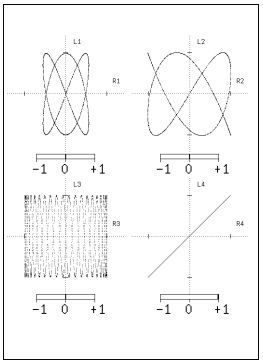
Procedure

AUDIO → F•5 LISSAJOU SETUP → F•5 AUTO GAIN : ON / OFF

Settings

ON:	The Lissajous curves are displayed with a gain that ensures that they appear within the limits of the scale.
OFF:	The Lissajous curves are displayed with a fixed gain.

AUTO GAIN = ON



AUTO GAIN = OFF

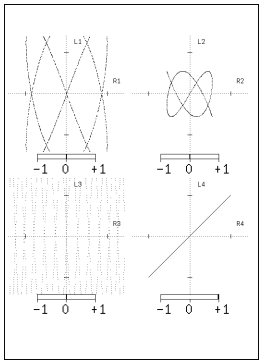


Figure 4-4 Setting the Lissajous curve gain

4.6 Mapping Channels

To select the channels that you want to map to the Lissajous display's L and R axes and to the audio meter, follow the procedure below.

Procedure

AUDIO → F•4 LISSAJOU SETUP → F•6 CHANNEL MAPPING

The channels that you can select vary depending on the input mode and SOURCE SELECT settings as shown in the following table. The Single Lissajou Lt and Rt are calculated from the channels that are mapped on the surround display.
The audio thumbnail that is displayed when an LV 5770SER08 or LV 5770SER09A is installed in the LV 5770A shows an audio meter that contains the channels that you select here.

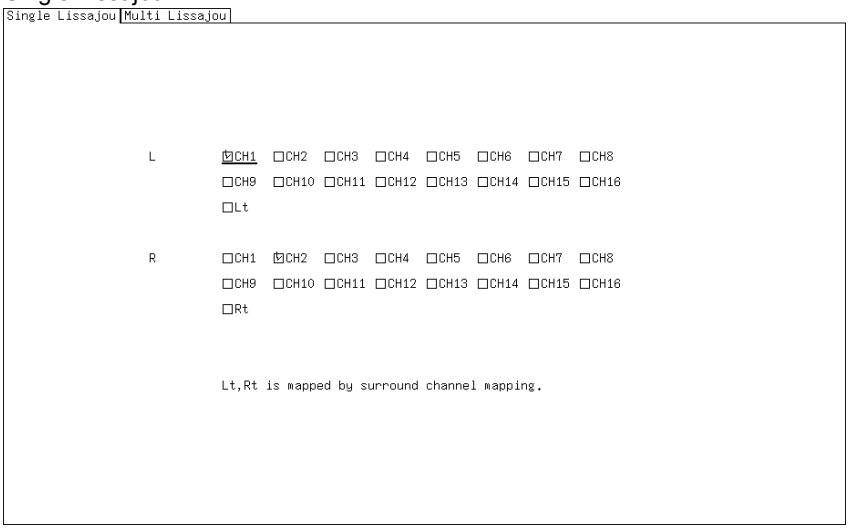
For information on the SOURCE SELECT setting, see section 2.1, “Configuring Measurement Signal Settings.”

For information on the channels that are mapped on the surround display, see section 5.5, “Mapping Channels.”

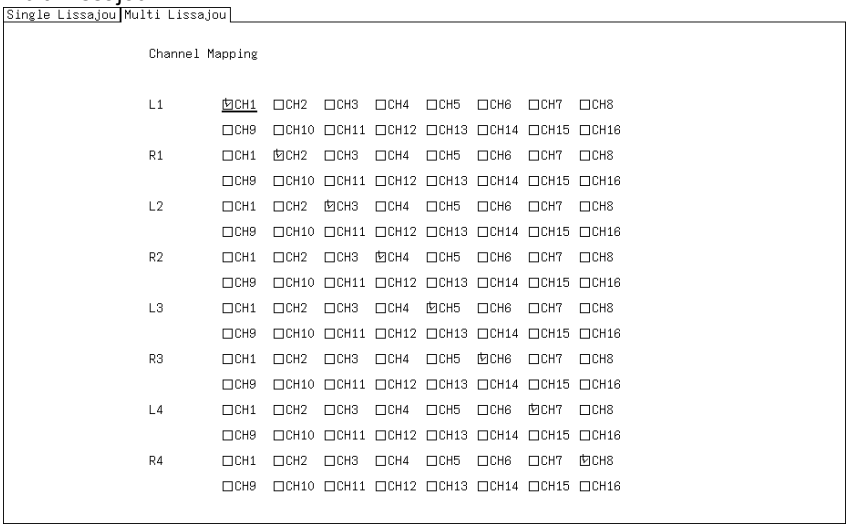
Table 4-1 Mapping channels

INPUT SELECT	Input Mode	Multi Lissajou		Single Lissajou
		L1, R1, L2, R2	L3, R3, L4, R4	L, R
SDI	Single input mode	1ST GRP SELECT	2ND GRP SELECT	1ST GRP SELECT + 2ND GRP SELECT + Lt + Rt
	Simul mode	ACH GRP SELECT	BCH GRP SELECT	-
SDI (Dolby)	-	D1 to D8	D1 to D8	D1 to D8 + Lt + Rt
EXT DIGI	-	CH1 to CH8	CH1 to CH8	CH1 to CH8 + Lt + Rt
EXT DIGI (Dolby)	-	D1 to D8	D1 to D8	D1 to D8 + Lt + Rt
EXT ANA	-	CH1 to CH8	CH1 to CH8	CH1 to CH8 + Lt + Rt

Single Lissajou



Multi Lissajou



Siml Lissajou

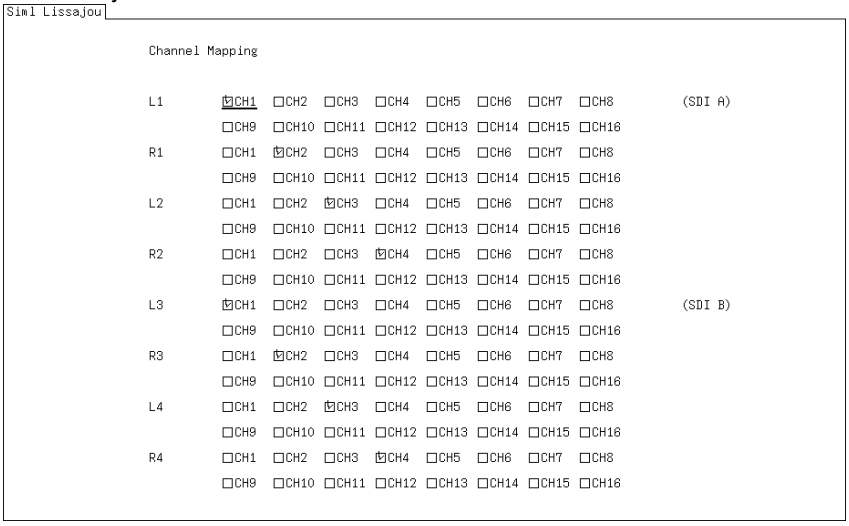


Figure 4-5 Mapping channels

5. SURROUND DISPLAY

To configure surround display settings, press F•4 SURROUND SETUP on the audio menu.
You can configure surround waveform and scale settings.
This setting is available when F•2 DISPLAY MODE is set to SURROUND.

AUDIO → F•2 DISPLAY MODE to select SURROUND → F•4 SURROUND SETUP →

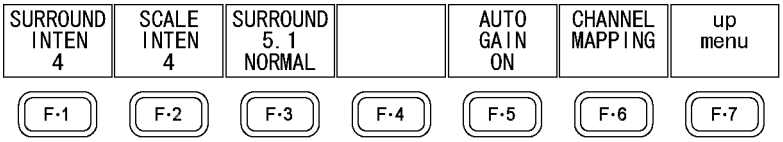


Figure 5-1 SURROUND SETUP menu

5.1 Adjusting the Surround Waveform Intensity

To adjust the surround waveform intensity, follow the procedure below.
Press the function dial (F•D) to return the setting to its default value (4).

Procedure

AUDIO → F•4 SURROUND SETUP → F•1 SURROUND INTEN : -8 to 4 to 7

5.2 Adjusting the Scale Intensity

To adjust the intensity of the surround and meter scales, follow the procedure below.
Press the function dial (F•D) to return the setting to its default value (4).

Procedure

AUDIO → F•4 SURROUND SETUP → F•2 SCALE INTEN : -8 to 4 to 7

5.3 Selecting the Surround Display Format

To select the surround display format, follow the procedure below.
If adjacent channels (including Lch and Rch for PHANTOM) are of opposite phases, the scale between the channels is displayed in red.

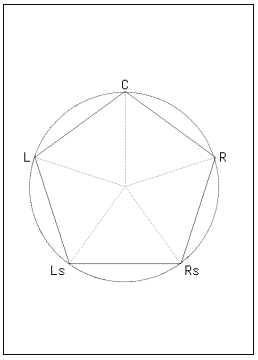
Procedure

AUDIO → F•4 SURROUND SETUP → F•3 SURROUND 5.1 : NORMAL / PHANTOM

Settings

NORMAL:	A waveform that combines Lch, Rch, Lsch, Rsch, and Cch (hard center) is displayed.
PHANTOM:	A waveform that combines Lch, Rch, Lsch, Rsch, and phantom center and a Cch (hard center) waveform are displayed separately.

SURROUND 5.1 = NORMAL



SURROUND 5.1 = PHANTOM

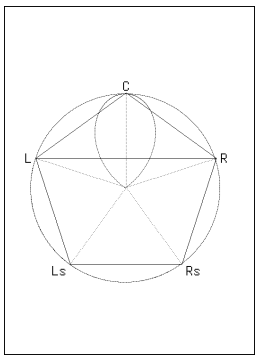


Figure 5-2 Selecting the surround display format

5.4 Setting the Surround Waveform Gain

To select the surround waveform gain, follow the procedure below.

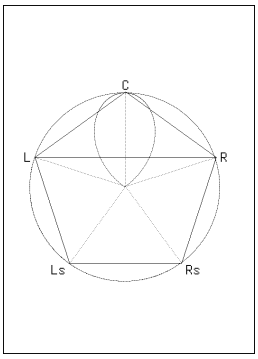
Procedure

AUDIO → F•4 SURROUND SETUP → F•5 AUTO GAIN : ON / OFF

Settings

ON:	The surround waveform is displayed with a gain that ensures that the waveform appears within the limits of the scale.
OFF:	The surround waveform is displayed with a fixed gain.

AUTO GAIN = ON



AUTO GAIN = OFF

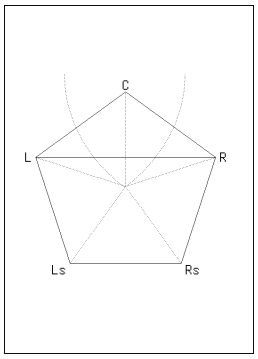


Figure 5-3 Setting the surround waveform gain

5.5 Mapping Channels

To select the channels that you want to map to the axes of the surround display and to the audio meter, follow the procedure below. The channels that you can select vary depending on the INPUT SELECT setting as shown in the following table.

For information on the INPUT SELECT setting, see section 2.1.1, “Selecting the Signal to Measure.”

Table 5-1 Mapping channels

INPUT SELECT	L, R, C, LFE	Ls, Rs, Lt/Lo (LL), Rt/Ro (RR)
SDI	1ST GRP SELECT	2ND GRP SELECT
SDI (Dolby)	D1 to D8	D1 to D8
EXT DIGI	CH1 to CH8	CH1 to CH8
EXT DIGI (Dolby)	D1 to D8	D1 to D8
EXT ANA	CH1 to CH8	CH1 to CH8

Procedure

AUDIO → F•4 SURROUND SETUP → F•6 CHANNEL MAPPING

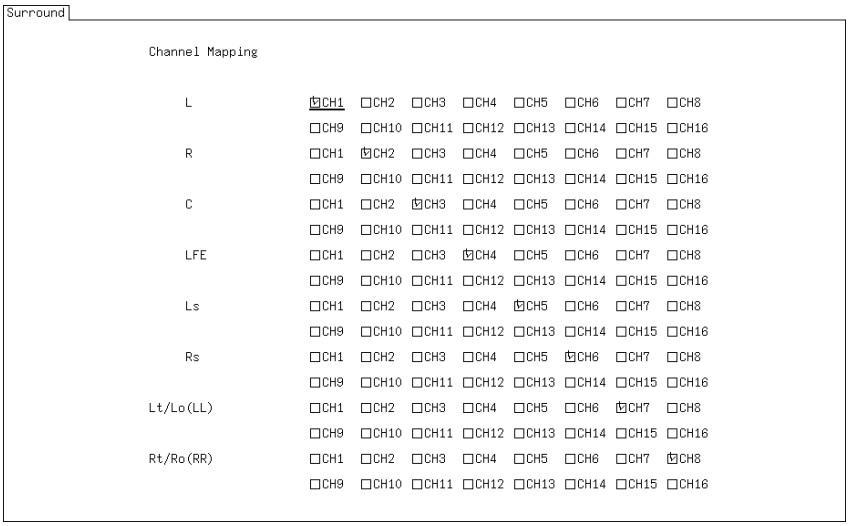


Figure 5-4 Mapping channels

6. AUDIO STATUS DISPLAY

To configure audio status display settings, press F•4 STATUS SETUP on the audio menu. You can view the event log, metadata (option), channel status, and user data and configure error detection settings.
This setting is available when F•2 DISPLAY MODE is set to STATUS.

AUDIO → F•2 DISPLAY MODE to select STATUS → F•4 STATUS SETUP →

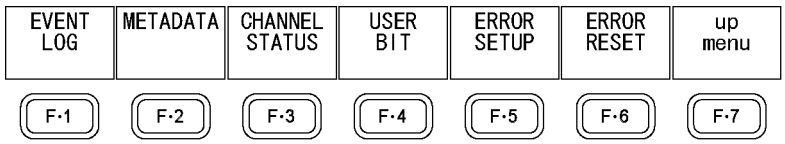


Figure 6-1 STATUS SETUP menu

6.1 Audio Status Display Explanation

On the audio status display, the levels and the number of detected errors are displayed for the channels that you selected in section 2.1.2, “Selecting the Channels to Measure.” Errors are only detected for the items that have been set to ON with F•5 ERROR SETUP.

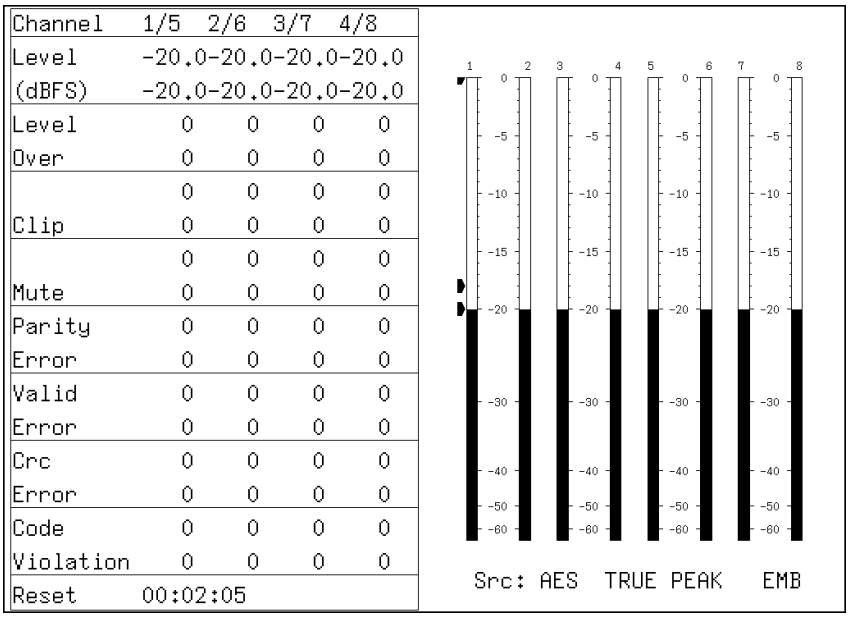


Figure 6-2 Audio status display

- **Channel**

  Displays audio channels.
  Each item below this item is displayed in two lines. The top line corresponds to the channel to the left of the slash, and the bottom line corresponds to the channel to the right of the slash.

- **Level**

  Display audio levels numerically.

- **Level Over**

  Counts the number of times that the level of the input signal is greater than or equal to the set value.

- **Clip**

  Counts the number of times that a received signal exceeds the maximum signal value specified by F•5 ERROR SETUP for the specified number of consecutive samples.

- **Mute**

  Counts the number of times that the length of a received mute signal exceeds the period specified by F•5 ERROR SETUP.

- **Parity Error**

  Counts the number of times that the input signal's parity bit and the recalculated parity bit differ.

- **Valid Error**

  Counts the number of times that the input signal's validity bit is 1.

- **Crc Error**

  Counts the number of times that the CRC of the channel status bits and the calculated CRC are different.

- **Code Violation**

  Counts the number of times that the state of the input signal's biphase modulation is abnormal.

- **Reset**

  The time that has elapsed since F•6 ERROR RESET was pressed is displayed here.

In Dolby signal measurements, Frame Location (header position and mode) is displayed in addition to the number of detected errors. During external digital audio measurements, H and mode are not displayed.

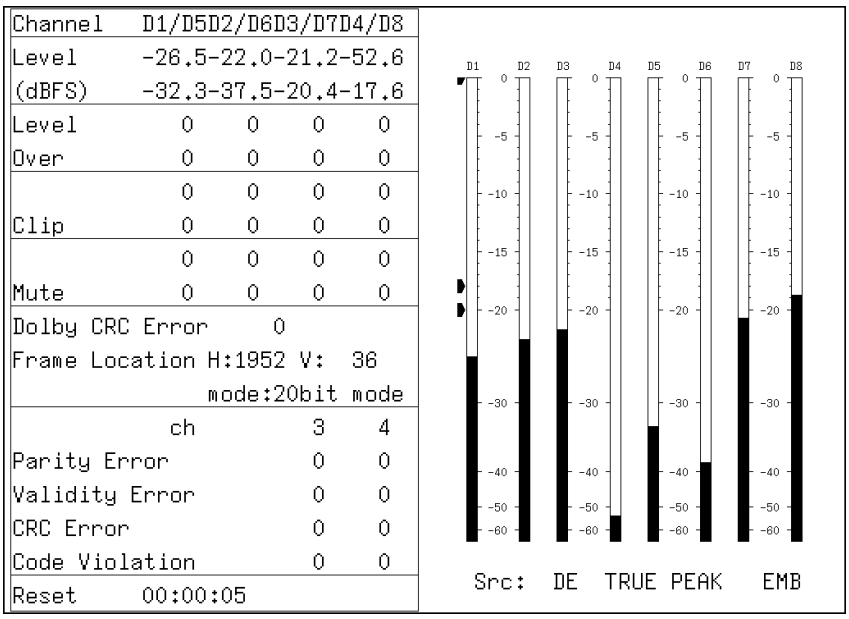


Figure 6-3 Audio status display (Dolby E)

6.2 Event Log Display

To view the event log, follow the procedure below.
The event log displays a list of the events that have occurred.

Procedure

AUDIO → F•4 STATUS SETUP → F•1 EVENT LOG

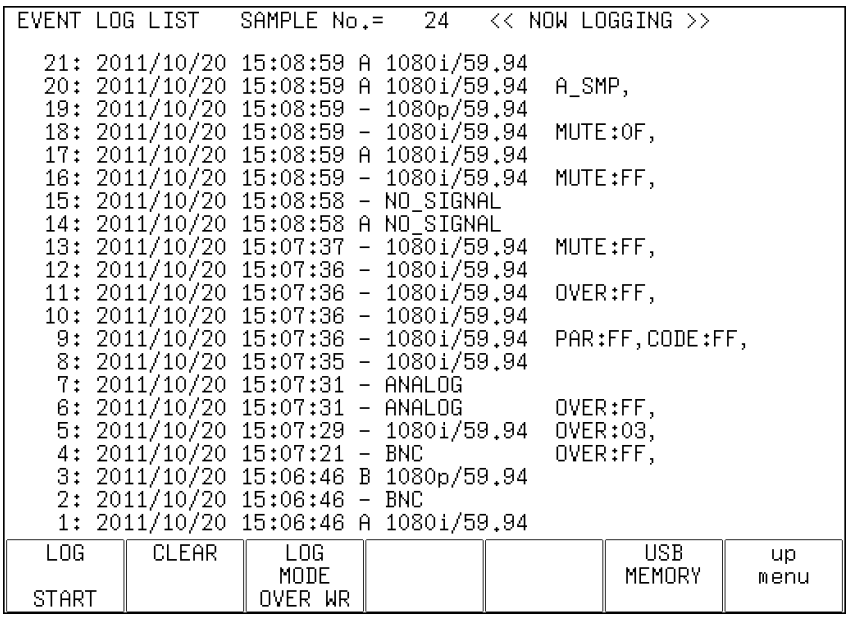


Figure 6-4 Event log

6.2.1 Event Log Explanation

Events are listed in the event log in the order that they occur.
By turning the function dial (F•D) to the right, you can scroll the screen to view older events in the log. Also, by pressing the function dial (F•D), you can display the latest events.

Precautions

- When the same event occurs successively and when multiple events occur at the same time, they are treated as a single event.
- When multiple events occur at the same time, you may not be able to check all the events on the screen. When this happens, you can view all the events by saving them to a USB memory device.
- The event display is cleared when turn the power off.
- Switching video formats or input channels may cause disturbances in the signal that will cause errors to be displayed.
- Events that have occurred on other units are also displayed on the same screen.

Time

The time is displayed in the format specified by Time that you select by pressing SYS and then F•2 SYSTEM SETUP. (The LV 5770SER08 or LV 5770SER09A is required to display timecodes.)

Channel

For events that may be generated by this unit, the channel is displayed as “-.”
In single input mode, events that occur on channels A and B cannot be recorded at the same time. Only the events that occur on the currently selected channel are recorded.

Format

During embedded audio measurements, the format is displayed. During external digital audio measurements, “BNC” is displayed. During analog audio measurements, “ANALOG” is displayed.

Event

The events that are displayed in the event log are listed below.
Of the events listed below, only the events whose detection has been set to ON as described in section 6.6, “Configuring Error Detection Settings,” are displayed.

Table 6-1 Events

Event Name	Description
OVER	Level Over
CLIP	Clip
MUTE	Mute
PAR	Parity Error
VAL	Validity Error
CRC	Crc Error
CODE	Code Violation

Event Channels

After the event name, the channels on which the event occurred are displayed using a hexadecimal number (for example: “PAR:48”).

The 8 bits expressed by the hexadecimal number correspond to the following input channels.

INPUT SELECT	b8	b7	b6	b5	b4	b3	b2	b1
SDI (*1) (Single input mode)	2ND 4	2ND 3	2ND 2	2ND 1	1ST 4	1ST 3	1ST 2	1ST 1
SDI (*2) (Simul mode)	BCH 4	BCH 3	BCH 2	BCH 1	ACH 4	ACH 3	ACH 2	ACH 1
EXT DIGI (*3)	A/B 8	A/B 7	A/B 6	A/B 5	A/B 4	A/B 3	A/B 2	A/B 1

*1 Corresponds to the channels selected using 1ST GRP SELECT (1 to 4) and 2ND GRP SELECT (1 to 4)

*2 Corresponds to the channels selected using ACH GRP SELECT (1 to 4) and BCH GRP SELECT (1 to 4)

*3 Corresponds to the channels selected using CHANNEL SELECT (A/B)

For example, in single input mode when INPUT SELECT is set to SDI, 1ST GRP SELECT is set to 1, and 2ND GRP SELECT is set to 2, “48” indicates that events have occurred on channels 4 and 7.

4				8			
0	1	0	0	1	0	0	0
8ch	7ch	6ch	5ch	4ch	3ch	2ch	1ch

6.2.2 Starting Event Logging

To start the event log, follow the procedure below.

Procedure

AUDIO → F•4 STATUS SETUP → F•1 EVENT LOG → F•1 LOG : START / STOP

Settings

START: Event logging is started. “NOW LOGGING” appears in the upper right of the event log.

STOP: Event logging is stopped. “LOGGING STOPPED” appears in the upper right of the event log.

6.2.3 Deleting the Event Log

To delete the event log, follow the procedure below.

Procedure

AUDIO → F•4 STATUS SETUP → F•1 EVENT LOG → F•2 CLEAR

6.2.4 Selecting the Overwrite Mode

Up to 1000 events can be displayed. To select the action to perform when more than 1000 events occur, follow the procedure below.

Procedure

AUDIO → F•4 STATUS SETUP → F•1 EVENT LOG → F•3 LOG MODE : OVER WR / STOP

Settings

OVER WR:	When more than 1000 events occur, the LV 5770SER41 writes over older events.
STOP:	When more than 1000 events occur, the LV 5770SER41 stops logging events.

6.2.5 Saving to a USB Memory Device

You can save the event log to a USB memory device as a text file.
To save a file with a name that you specify, follow the procedure below.

1. **Connect a USB memory device to the instrument.**
2. **Press F•6 USB MEMORY.**

   The file list display appears.
   This setting appears when a USB memory device is connected to the LV 5770A.

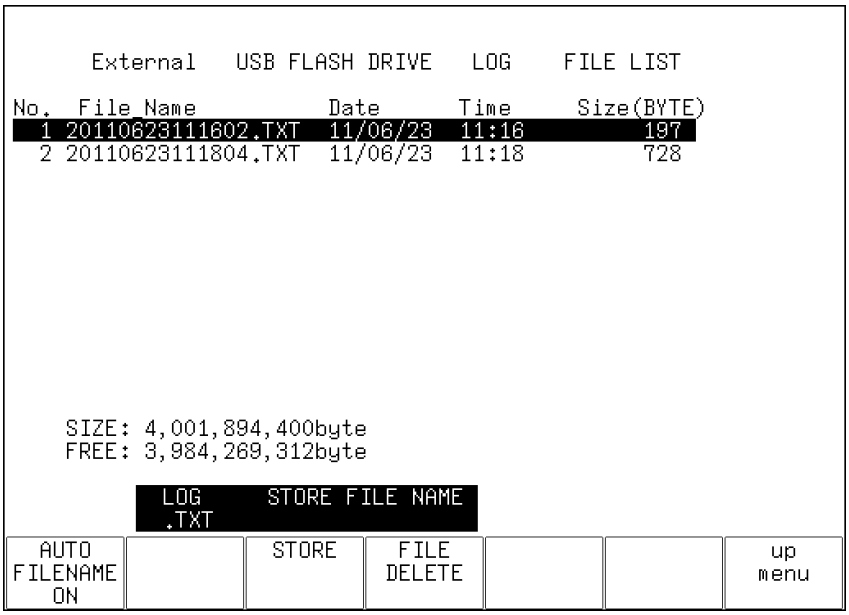


Figure 6-5 File list display

3. **Set F•1 AUTO FILENAME to OFF.**

4. **Press F•2 NAME INPUT.**

   The file name input display appears.

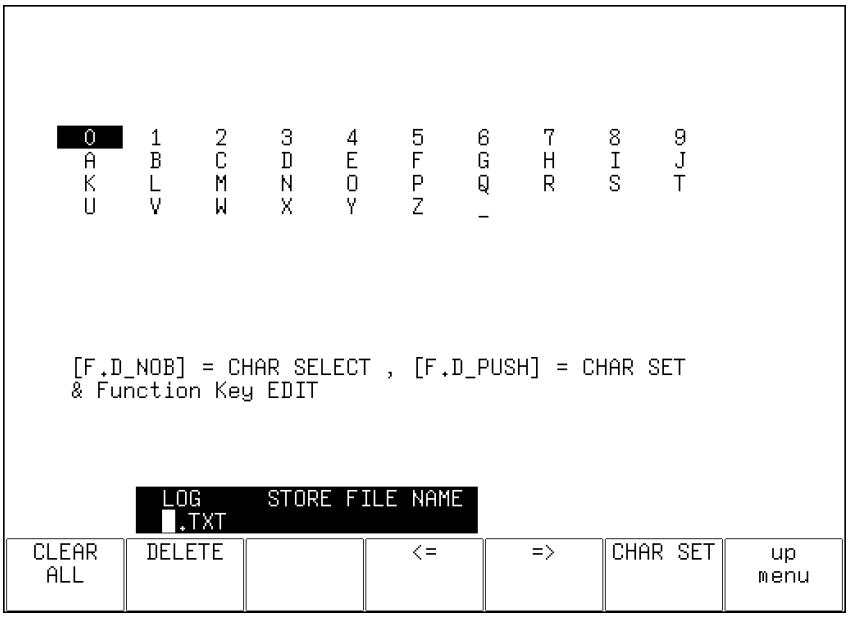


Figure 6-6 File name input display

5. **Enter a file name using up to 14 characters.**

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

   F•1 CLEAR ALL: Deletes all characters
   F•2 DELETE: Deletes the character at the cursor
   F•4 <=: Moves the cursor to the left
   F•5 =>: Moves the cursor to the right
   F•6 CHAR SET: Enters the character
   F•D: Turn to select a character, and press to enter the character.

   You can copy the file name of an already saved 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 the function dial (F•D).

6. **Press F•7 up menu.**

7. **Press F•3 STORE.**

   When the message “Saving file - Please wait.” disappears, the file has been successfully saved.
   If a file with the same name already exists on the USB memory device, an overwrite confirmation menu appears. To overwrite the current file, press F•1 OVER WR YES. To cancel the save operation, press F•3 OVER WR NO.

- **Deleting an Event Log**

  To delete an event log that has been saved to the USB memory device, select the log file on the file list display, and then press F•4 FILE DELETE. To delete the file, press F•1 DELETE YES. To cancel the delete operation, press F•3 DELETE NO.

- **Automatic File Name Generation**

  If you set F•1 AUTO FILENAME to ON, the file name will be generated automatically in the format “YYYYMMDDHHMMSS” when you save the file. In this situation, F•2 NAME INPUT is not displayed.

- **USB Memory Device Folder Structure**

  Event logs are saved in the LOG folder.

  USB memory device
  └ LV5770A_USER (For the LV 5770, the directory is LV5770_USER)
  　└ LOG
  　　└ **********.txt

6.3 Metadata Display (Option)

6.3.1 Dolby E Metadata Display

When DECODE MODE is DOLBY E, to view the metadata of the selected program number, follow the procedure below. To select the program number, press F•1 DOLBY PROGRAM.
For information on the DECODE MODE setting, see section 2.3.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•2 METADATA → F•1 DOLBY E METADATA

```
Dolby E Common Metadata Status
 Prog Desc Text
 Bitstrm Format  DE 20bit       SMPTE Timecode   01:00:00:01
 Prog Config     8x1            Framerate        25fps
AC-3 Metadata Status
 Datarate        Not Specified  Lowpass Filter   off
 Bitstrm Mode    Main Complete  LFE Filter       off
 Coding Mode     1/0            Srnd Phase Shift off
                                Srnd Attenuator  off
 Center Mix Lvl  -3.0dB         RF Ov Protect    off
 Srnd Mix Lvl    -3.0dB
 Dolby Srnd Mode not indicate   Dialnorm Lvl     -27dB
 LFE Channel     off
 Mix Lvl         not exist
 Room Type       not exist
 Copyright Bit   Not Protected
 Orig Bitstrm    Original
 DC Filter       off              Src:  DE  TRUE PEAK   AES
```

Figure 6-7　Dolby E metadata display

6.3.2 Dolby E EBI Metadata Display

When DECODE MODE is DOLBY E, to view the EBI (Extended Bitstream Info) metadata of the selected program number, follow the procedure below. To select the program number, press F•1 DOLBY PROGRAM.

For information on the DECODE MODE setting, see section 2.3.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•2 METADATA → F•2 EBI METADATA

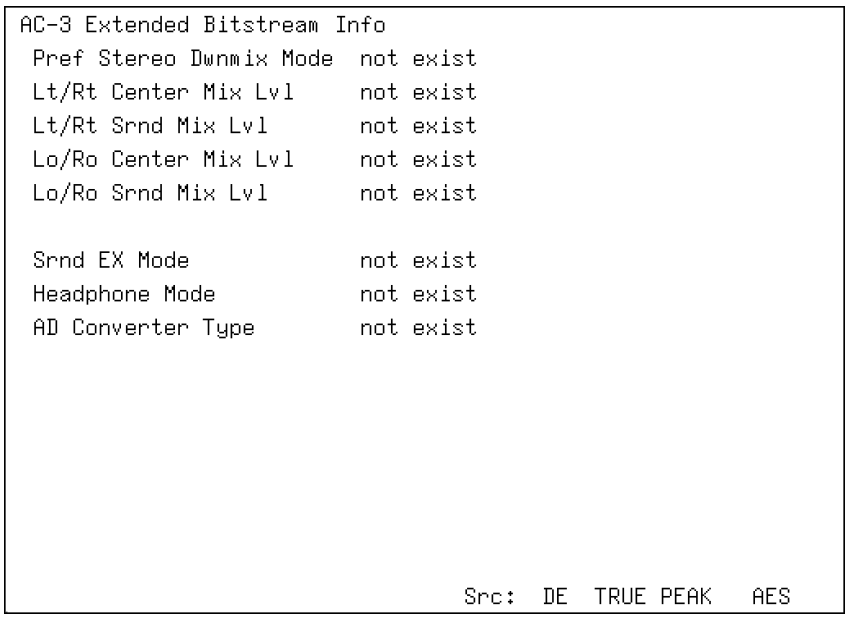


Figure 6-8 EBI metadata display

6.3.3 Dolby Digital Metadata Display

When DECODE MODE is DOLBY D, to view the metadata, follow the procedure below.

For information on the DECODE MODE setting, see section 2.3.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•2 METADATA → F•1 DOLBY D METADATA

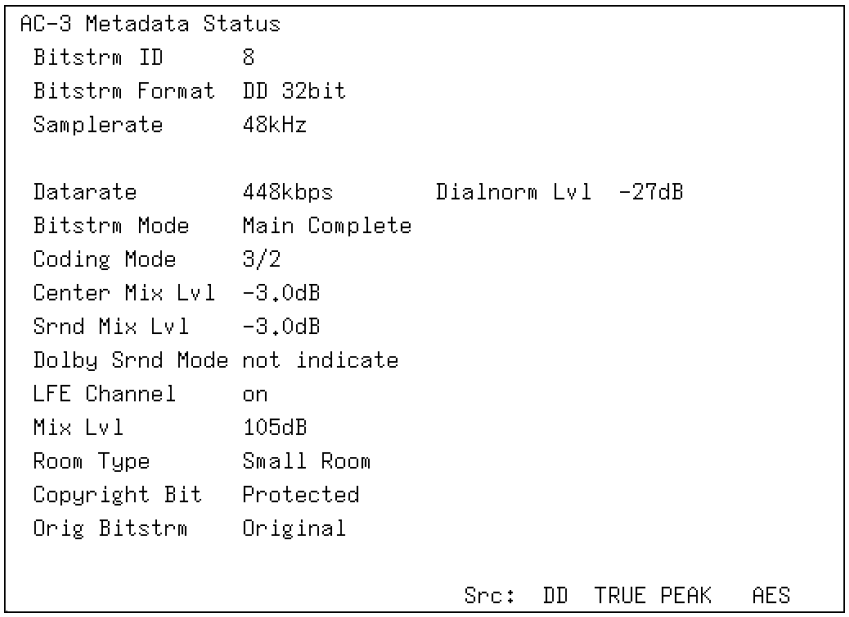


Figure 6-9 Dolby Digital metadata display

6.3.4 Dolby Digital EBI Metadata Display

When DECODE MODE is DOLBY D, to view the EBI (Extended Bitstream Info) metadata, follow the procedure below.

For information on the DECODE MODE setting, see section 2.3.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•2 METADATA → F•2 EBI METADATA

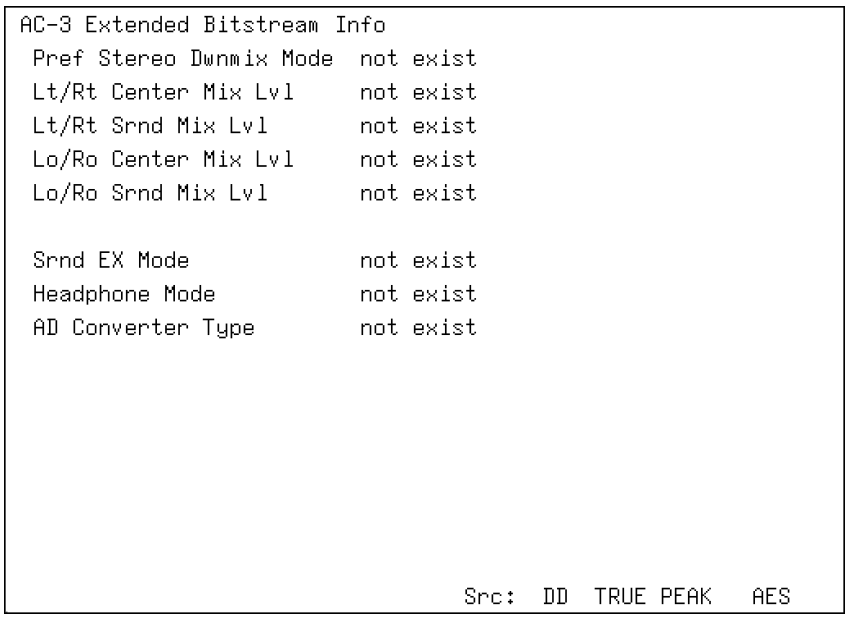


Figure 6-10 EBI metadata display

6.4 Displaying the Channel Status

When INPUT SELECT is set to SDI or EXT DIGI, to display the status of the selected channel, follow the procedure below.
Use F•1 DISPLAY CHANNEL to select the channel. You can also use F•2 ALIGN to select the bit order.

For information on the INPUT SELECT setting, see section 2.1.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•3 CHANNEL STATUS

```
AES/EBU CHANNEL STATUS DISPLAY

FORMAT       : Professional     Byte : 01234567        01234567
AUDIO DATA   : PCM                00 : 10100001   12 : 00000000
EMPHASIS     : No emphasis        01 : 00010000   13 : 00000000
SIGNAL LOCK  : Locked             02 : 00100000   14 : 00000000
SAMPLING FREQ: 48kHz              03 : 00000000   15 : 00000000
REFERENCE    : Not reference      04 : 00000000   16 : 00000000
CH MODE      : Two-channel        05 : 00000000   17 : 00000000
                                  06 : 00000000   18 : 00000000
RESOLUTION   : Not indicated      07 : 00000000   19 : 00000000
ALIGNMENT    : Not indicated      08 : 00000000   20 : 00000000
ORIGIN       :                    09 : 00000000   21 : 00000000
DESTINATION  :                    10 : 00000000   22 : 00000000
TIME-OF-DAY  : 00:00:00           11 : 00000000   23 : 11101110
CRC          : NORMAL
```

Figure 6-11 Channel status display

6.5 Displaying User Bits

When INPUT SELECT is set to SDI or EXT DIGI, to display the user bits of the selected channel, follow the procedure below.
Use F•1 DISPLAY CHANNEL to select the channel. You can also use F•2 ALIGN to select the bit order.

For information on the INPUT SELECT setting, see section 2.1.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•4 USER BIT

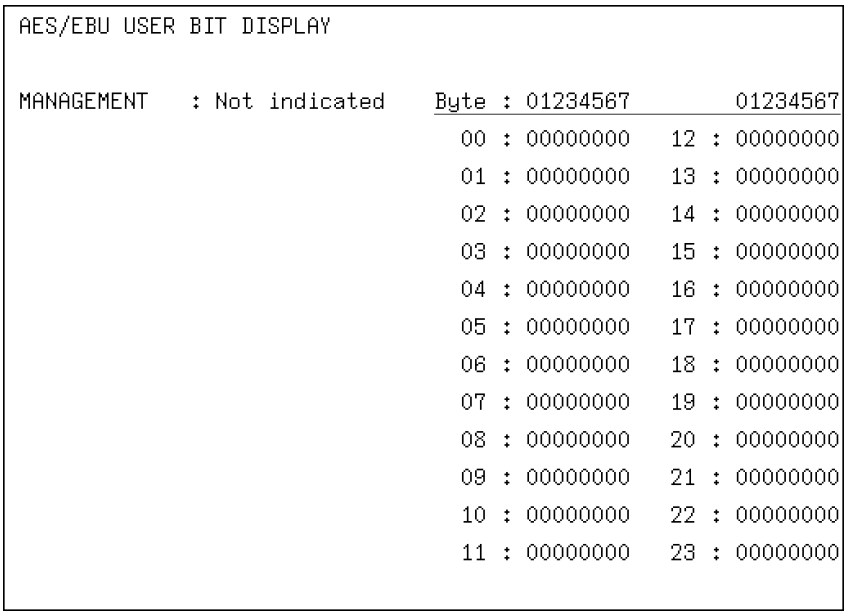


Figure 6-12 User bit display

6.6 Configuring Error Detection Settings

To configure the error detection settings, follow the procedure below.
On the audio status display, error detection will be performed for the items that you set to ON.
When INPUT SELECT is set to EXT ANA, only Level Over can be specified.
For information on the INPUT SELECT setting, see section 2.1.1, “Selecting the Signal to Measure.”

Procedure

AUDIO → F•4 STATUS SETUP → F•5 ERROR SETUP

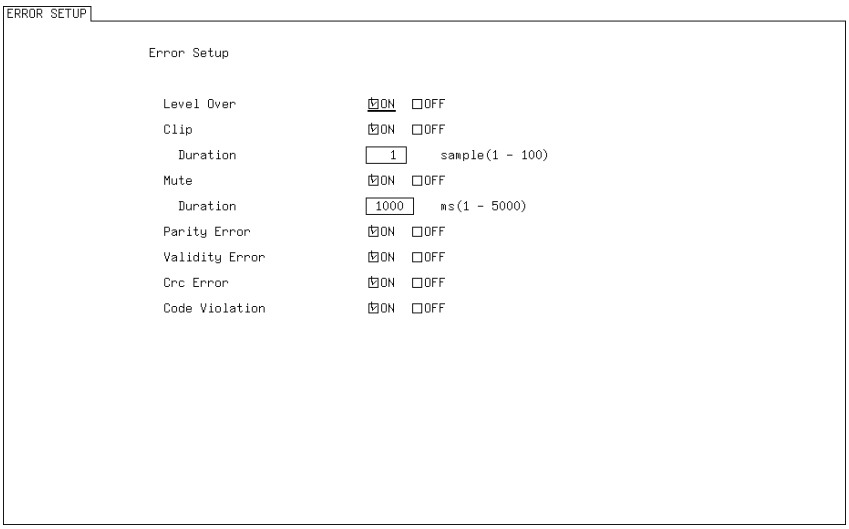


Figure 6-13 Configuring error detection settings

6.7 Resetting Errors

To reset the error counts that appear on the audio status display to 0, follow the procedure below. Also, the Reset indication at the lower left of the screen will be reset to 00:00:00.

Procedure

AUDIO → F•4 STATUS SETUP → F•6 ERROR RESET

7. LOUDNESS DISPLAY

To configure loudness display settings, press F•4 LOUDNESS SETUP on the audio menu. This setting is available when F•2 DISPLAY MODE is set to LOUDNESS.

AUDIO → F•2 DISPLAY MODE to select LOUDNESS → F•4 LOUDNESS SETUP →

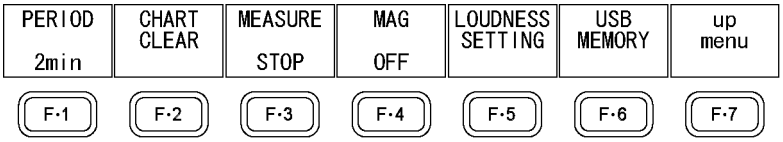


Figure 7-1 LOUDNESS SETUP menu

7.1 Loudness Display Explanation

The loudness screen is shown below.

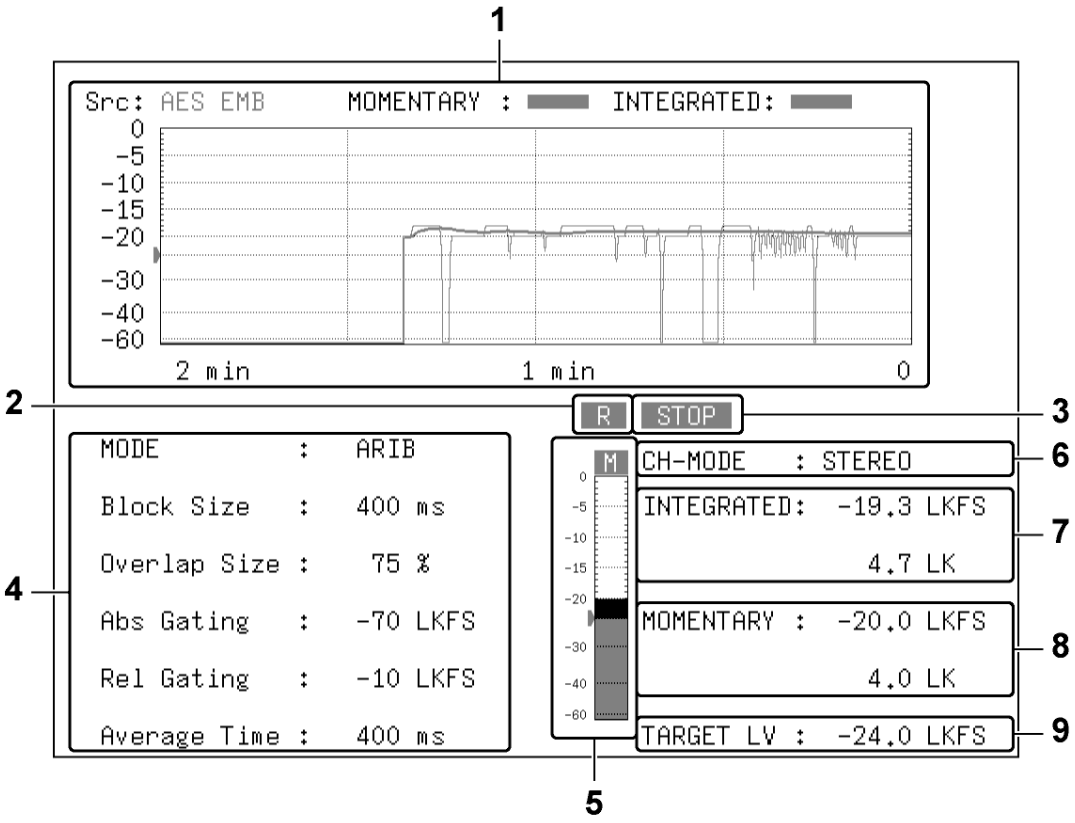


Figure 7-2 Loudness screen

1 Chart Display

The integrated loudness and the short-term loudness or the momentary loudness are displayed on the chart. Press F•5 LOUDNESS SETTING to switch between short-term loudness and momentary loudness.
You can press F•1 PERIOD to change the measurement time. You can press F•4 MAG to expand the level scale.

To start measuring, set F•3 MEASURE to START. You can also use pin 9 (/P8) of the remote connector or a time code.

To clear the chart, press F•2 CHART CLEAR. You can also use pin 8 (/P7) of the remote connector.
See section 7.6, “Configuring Loudness Settings” and section 7.8, " Remote Control."

2 R

This indication appears when the input signal is applicable for relative gating. This is displayed when Relative Gating Lamp is set to ON on the LOUDNESS SETTING tab that appears when you press F•5 LOUDNESS SETTING.

3 MEAS / STOP

“MEAS” is displayed during loudness measurement, and “STOP” is displayed when measurement is stopped.

4 Loudness Setting Display

The settings specified on the LOUDNESS SETTING tab that appears when you press F•5 LOUDNESS SETTING are displayed.

5 Meter Display

The short-term loudness or the momentary loudness is displayed using meters. Press F•5 LOUDNESS SETTING and use the LOUDNESS SETTING tab to switch between short-term loudness and momentary loudness. The level is normally displayed in green, but it is displayed in red if it exceeds the target level.

6 CH-MODE

This displays the channel mode that was selected on the CHANNEL tab that appears when you press F•5 LOUDNESS SETTING.

7 INTEGRATED

The integrated loudness is displayed as values. The top value is an absolute value. The bottom value is a relative value with the target level as the reference. These values are normally displayed in white, but they are displayed in red when:

- The measurement mode is ARIB or EBU and the loudness level is outside the range defined by the target level ± 1 (LU).
- The measurement mode is ATSC and the loudness level is outside the range defined by the target level ± 2 (LK).

8 SHORTTERM / MOMENTARY

The short-term loudness or the momentary loudness is displayed as values. Press F•5 LOUDNESS SETTING to switch between short-term loudness and momentary loudness. The top value is an absolute value. The bottom value is a relative value with the target level as the reference. These values are normally displayed in white, but they are displayed in red when they exceed the target level.

9 TARGET LV

This displays the target level. The target level varies according to the measurement mode as shown below.

- When the measurement mode is not EBU : -24.0 (LKFS)
- When the measurement mode is EBU : -23.0 (LUFS)

7.2 Selecting the Measurement Time

To select the measurement time, follow the procedure below.

Procedure

AUDIO → F•4 LOUDNESS SETUP → F•1 PERIOD:
2min / 10min / 30min / 1hour / 2hour (standard model)
6hour / 12hour / 24hour / 32hour (option)(*1)

*1 Available on an option that can be purchased. For details, contact your nearest LEADER agent. These values cannot be selected when Memory Store Mode is set to Loudness 2h on the GENERAL SETUP tab in the system settings.

7.3 Clearing the Chart Display

To clear the chart and numeric displays, follow the procedure below.

Procedure

AUDIO → F•4 LOUDNESS SETUP → F•2 CHART CLEAR

7.4 Starting and Stopping Measurements

To start and stop measurements, follow the procedure below. When measurements are being performed, “MEAS” is displayed in the center of the screen. Otherwise, “STOP” is displayed. This menu appears when Trigger has been set to OFF on the LOUDNESS SETTING tab.

Procedure

AUDIO → F•4 LOUDNESS SETUP → F•3 MEASURE : STOP / START

7.5 Selecting the Scale

To select the chart display scale, follow the procedure below.

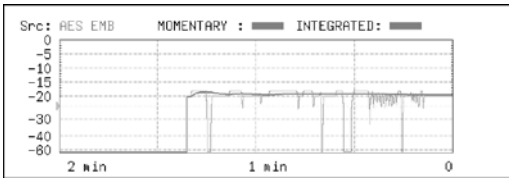
Procedure

AUDIO → F•4 LOUDNESS SETUP → F•4 MAG : OFF / ON

Settings

OFF:	The target level is displayed on the scale that you selected with DYNAMIC RANGE on the meter setup menu.
ON:	The target level is displayed on a scale that has a full scale ranging from -18 to +9 (LK/LU).

MAG = OFF



MAG = ON

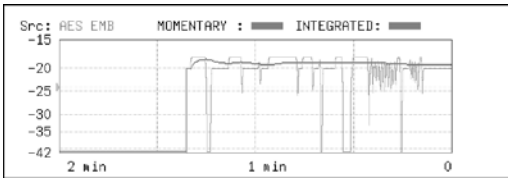


Figure 7-3 Selecting the scale

7.6 Configuring Loudness Settings

To configure loudness settings, follow the procedure below.

Procedure

AUDIO → F•4 LOUDNESS SETUP → F•5 LOUDNESS SETTING

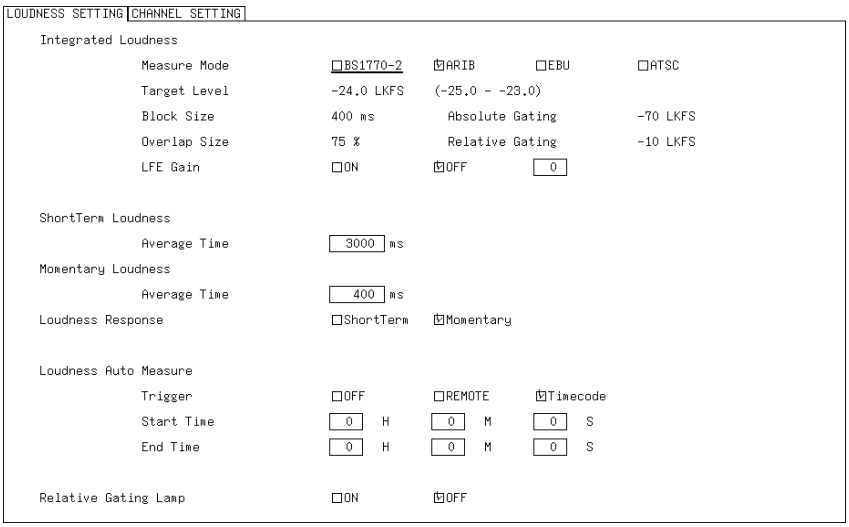


Figure 7-4 LOUDNESS SETTING tab

- **Measure Mode**

  Select the measurement mode. Depending on the measurement mode, the parameters vary as shown below.

  Table 7-1 Selecting the measurement mode

	Measure Mode			
	BS1770-2	ARIB	EBU	ATSC
Corresponding Standard	ITU-R BS.1770-2	ARIB TR-B32	EBU R128	ATSC A/85
Target Level	-24.0 (LKFS)	-24.0 (LKFS)	-23.0 (LUFS)	-24.0 (LKFS)
Block Size (ms)	400	400	400	400
Overlap Size (%)	75	75	75	0
Absolute Gating	-70 (LKFS)	-70 (LKFS)	-70 (LUFS)	-
Relative Gating	-10 (LKFS)	-10 (LKFS)	-10 (LUFS)	-

- **LFE Gain**

  When MODE is set to 5.1 or CUSTOM on the CHANNEL SETTING tab, select whether to measure LFEch. When this is set to ON, you can set the LFEch gain to a value from 0 to 10.

- **ShortTerm Loudness**

  Set the time that is used to calculate the short-term loudness to a value from 200 to 10000 (ms).

- **Momentary Loudness**

  Set the time that is used to calculate the momentary loudness to a value from 200 to 10000 (ms).

- **Loudness Response**

  Set the response model to Short Term or Momentary.

- **Loudness Auto Measure**

  Select the automatic loudness measurement mode from the available settings below.

  OFF: Automatic measurement is disabled. You must set the loudness measurement on the loudness setup menu.

  REMOTE: Measurement start, stop, and clear are executed through the remote control connector.
  You have to press SYS > F•2 SYSTEM SETUP, and then set Remote Select to Recall and Loudness on the REMOTE SETUP tab.

  Timecode: Measurement start and stop are executed on the basis of the time codes embedded in the SDI signals. Set the Start Time and End Time values.
  An LV 5770SER08 or LV 5770SER09A must be installed, and you must select the time code by pressing SYS, F•2 SYSTEM SETUP, and then Time.

- **Relative Gating Lamp**

  Select whether to display “R” when the input signal is applicable for relative gating.

The items on the CHANNEL SETTING tab are described below.

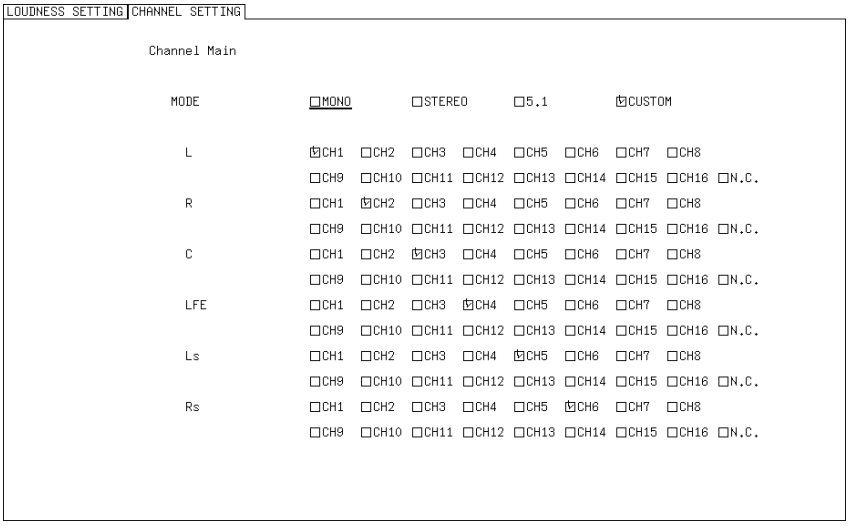


Figure 7-5 CHANNEL SETTING tab

- **MODE**

  Select the mode that is used to select the measurement channels from the available settings below.

  MONO: The channel that you select for L-Rch is measured.
  STEREO: The channels that you select for Lch and Rch are measured.
  5.1: The channels that you select for Lch, Rch, Cch, LFEch, Lsch, and Rsch are measured.
  CUSTOM: The channels that you select for Lch, Rch, Cch, LFEch, Lsch, and Rsch are measured.
  Channels set to N.C. will not be measured.

7.7 Saving to a USB Memory Device

You can save the loudness data to a USB memory device as a .csv file and as a text file. To save a file with a name that you specify, follow the procedure below.

1. **Connect a USB memory device to the instrument.**
2. **Press F•6 USB MEMORY.**

   The file list display appears.
   This setting appears when a USB memory device is connected to the LV 5770A.

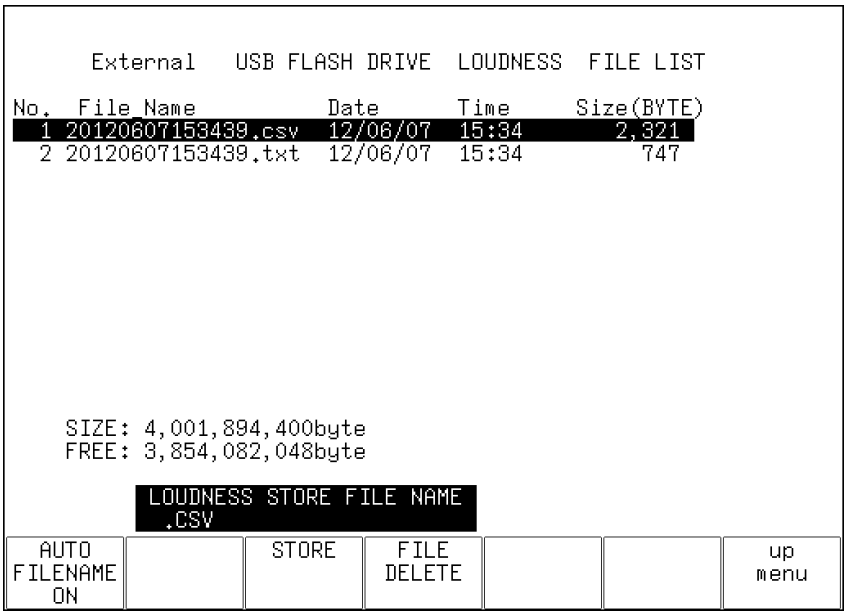


Figure 7-6 File list display

3. **Set F•1 AUTO FILENAME to OFF.**
4. **Press F•2 NAME INPUT.**

   The file name input display appears.

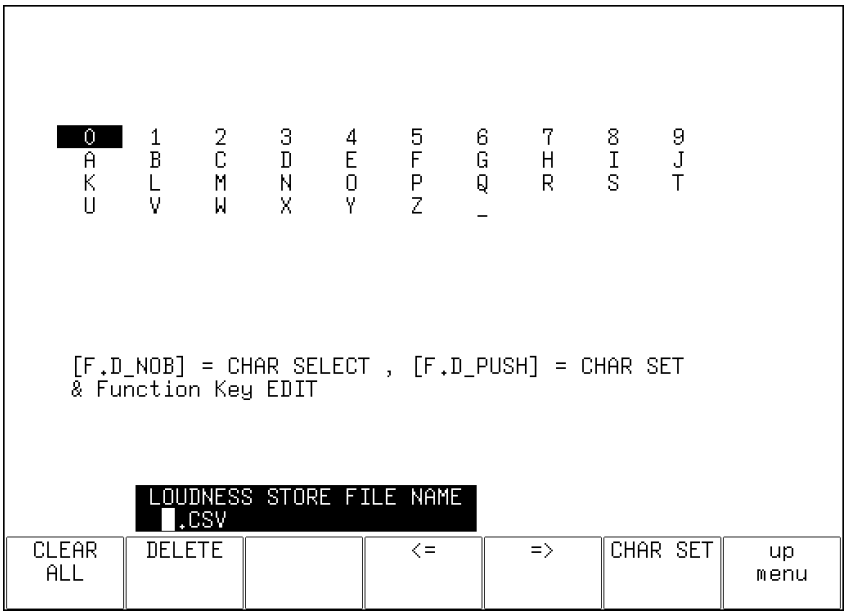


Figure 7-7 File name input display

5. **Enter a file name using up to 14 characters.**

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

F•1 CLEAR ALL:	Deletes all characters
F•2 DELETE:	Deletes the character at the cursor
F•4 <=:	Moves the cursor to the left
F•5 =>:	Moves the cursor to the right
F•6 CHAR SET:	Enters the character
F•D:	Turn to select a character, and press to enter the character.

   You can copy the file name of an already saved 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 the function dial (F•D).

6. **Press F•7 up menu.**

7. **Press F•3 STORE.**

   When the message “Saving file - Please wait.” disappears, the file has been successfully saved.
   If a file with the same name already exists on the USB memory device, an overwrite confirmation menu appears. To overwrite the current file, press F•1 OVER WR YES. To cancel the save operation, press F•3 OVER WR NO.

- **Deleting a Loudness Data**

  To delete a loudness data that has been saved to the USB memory device, select the log file on the file list display, and then press F•4 FILE DELETE. To delete the file, press F•1 DELETE YES. To cancel the delete operation, press F•3 DELETE NO.

- **Automatic File Name Generation**

  If you set F•1 AUTO FILENAME to ON, the file name will be generated automatically in the format “YYYYMMDDHHMMSS” when you save the file. In this situation, F•2 NAME INPUT is not displayed.

- **USB Memory Device Folder Structure**

  Loudness data is saved in the LOUDNESS folder.

  USB memory device
  └ LV5770A_USER (For the LV 5770, the directory is LV5770_USER)
  　└ LOUDNESS
  　　└ **********.txt

- Loudness Data Explanation

  In txt data, the contents set using F•5 LOUDNESS SETTING and integrated loudness values are stored. Judgment ([OK] or [NG]) on the basis of THRESHOLD is also stored. In csv data, the current time, timecodes, and loudness values are stored. Data values of about 10 points are stored per second.

txt data example

```
2012/06/11 11:11:14
<< SETTING DATA and RESULT >>

 ------------------
  LOUDNESS SETTING
 ------------------

    MEASURE MODE     :   ARIB

    TARGET LEVEL     :   -24.0 LKFS
    THRESHOLD        :   -25.0 ~ -23.0 LKFS

    BLOCK     SIZE   :    400 msec
    OVERLAP SIZE     :     75 %
    ABS GATING LV    :   -70.0 LKFS
    REL GATING LV    :   -10.0 LKFS

    LFE   GAIN       :   OFF


 ------------------
  LOUDNESS RESPONSE
 ------------------

    RESPONSE         :   MOMENTARY
    AVERAGE TIME     :     400 (msec)


 -----------------
  CHANNEL SETTING
 -----------------

     MAIN    MODE    :   STEREO

           L         :   CH   1
           R         :   CH   2

 ---------
  RESULT
 ---------

     MAIN   LOUDNESS    :   -20.5 (LKFS)   /    3.5 (LU)   [NG]
```

csv data example

```
2012/6/11 11:11
11:10:35  0:09:34   -20
11:10:35  0:09:34   -20
11:10:35  0:09:34   -20
11:10:35  0:09:35   -20
11:10:35  0:09:35   -20
11:10:35  0:09:35   -20
11:10:35  0:09:35   -20
11:10:35  0:09:35   -20
11:10:35  0:09:35   -20
11:10:36  0:09:35   -20
11:10:36  0:09:35   -20
11:10:36  0:09:35   -20
11:10:36  0:09:36   -20
11:10:36  0:09:36   -19.6
11:10:36  0:09:36   -19.1
11:10:36  0:09:36   -18.6
11:10:36  0:09:36   -18.9
11:10:36  0:09:36   -20.2
11:10:36  0:09:36   -22.6
11:10:37  0:09:36   -27.4
11:10:37  0:09:36   -25.5
11:10:37  0:09:36   -22.7
11:10:37  0:09:37   -20.6
11:10:37  0:09:37   -19.1
11:10:37  0:09:37   -18.6
11:10:37  0:09:37   -18.9
11:10:37  0:09:37   -20.2
11:10:37  0:09:37   -22.6
11:10:37  0:09:37   -25.1
11:10:37  0:09:37   -23.9
11:10:38  0:09:37   -21.7
11:10:38  0:09:37   -19.7
11:10:38  0:09:37   -18.8
11:10:38  0:09:38   -19.2
11:10:38  0:09:38   -20.2
11:10:38  0:09:38   -22.4
11:10:38  0:09:38   -23.6
11:10:38  0:09:38   -22.7
11:10:38  0:09:38   -20.6
11:10:38  0:09:38   -19.1
11:10:39  0:09:38   -18.7
```

7.8 Remote Control

This section explains how to use the remote control connector on the rear panel to start, stop, and clear loudness measurements. Refer to the LV 5770A instruction manual as you read this chapter.

1. **On the REMOTE SETUP tab in the system settings, set Remote Select to “Recall and Loudness.”**

SYS → F•2 SYSTEM SETUP → F•3 NEXT TAB → F•3 NEXT TAB →

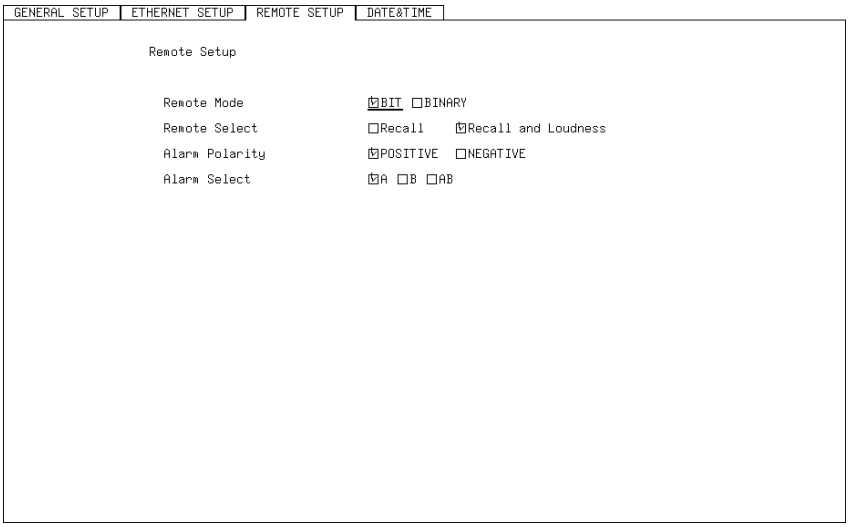


Figure 7-8 REMOTE SETUP tab

2. **Press F • 1 COMPLETE.**
3. **On the LOUDNESS SETTING tab of the loudness display, set Trigger to REMOTE.**

AUDIO → F•4 LOUDNESS SETUP → F•5 LOUDNESS SETTING →

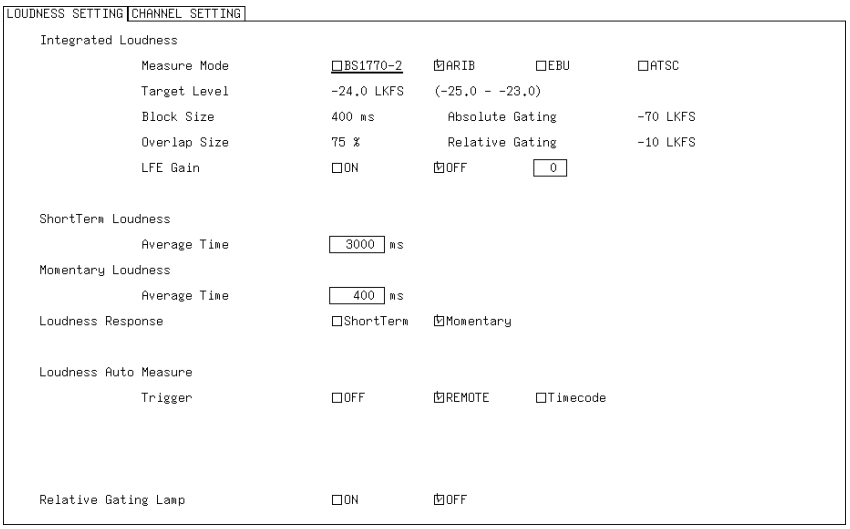


Figure 7-9 LOUDNESS SETTING tab

4. **Press F • 1 COMPLETE.**

5. **You can use pin 8 (/P7) and pin 9 (/P8) of the remote control connector to control loudness measurements.**

   To start loudness measurements

   Set pin 9 (/P8) of the remote connector to low (GND).

   To stop loudness measurements

   Set pin 9 (/P8) of the remote connector to high (open).

   To clear loudness measurements

   Set pin 8 (/P7) of the remote connector to low (GND).

8. CONFIGURING THE HEADPHONE SETTING

To configure the headphone settings, press F•5 PHONES SETUP in the audio menu.
You can set the headphone volume and the output channels.

AUDIO → F•5 PHONES SETUP →

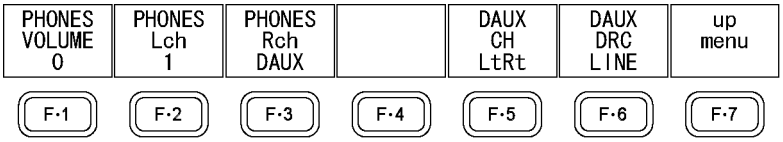


Figure 8-1 PHONES SETUP menu

8.1 Adjusting the Volume

To adjust the headphone volume, follow the procedure below. Press the function dial (F•D) to return the setting to its default value (0).
If you assign the adjustment of the volume to the SHORT key in the system settings, you can adjust the volume even when a display mode other than the audio mode is in use.

Procedure

AUDIO → F•5 PHONES SETUP → F•1 PHONES VOLUME : 0 to 63
or
AUDIO → F•7 PHONES VOLUME : 0 to 63

8.2 Selecting the Channels to Output

To select the left and right headphone jack output channels separately, follow the procedure below. The channels that you can select vary depending on the input mode and SOURCE SELECT settings as shown in the following table.
For information on the SOURCE SELECT setting, see section 2.1, “Configuring Measurement Signal Settings.”

Table 8-1 Selecting the channels to output

INPUT SELECT	Input Mode	F•2 PHONES Lch	F•3 PHONES Rch
SDI	Single input mode	1ST GRP SELECT + 2ND GRP SELECT + Lt	1ST GRP SELECT + 2ND GRP SELECT + Rt
	Simul mode	ACH GRP SELECT + BCH GRP SELECT	ACH GRP SELECT + BCH GRP SELECT
SDI (Dolby)	-	D1 to D8 + DAUX	D1 to D8 + DAUX
EXT DIGI	-	1 to 8 + Lt	1 to 8 + Rt
EXT DIGI (Dolby)	-	D1 to D8 + DAUX	D1 to D8 + DAUX
EXT ANA	-	1 to 8 + Lt	1 to 8 + Rt

Procedure

AUDIO → F•5 PHONES SETUP → F•2 PHONES Lch
→ F•3 PHONES Rch

8.3 Setting the AUX Channel (Option)

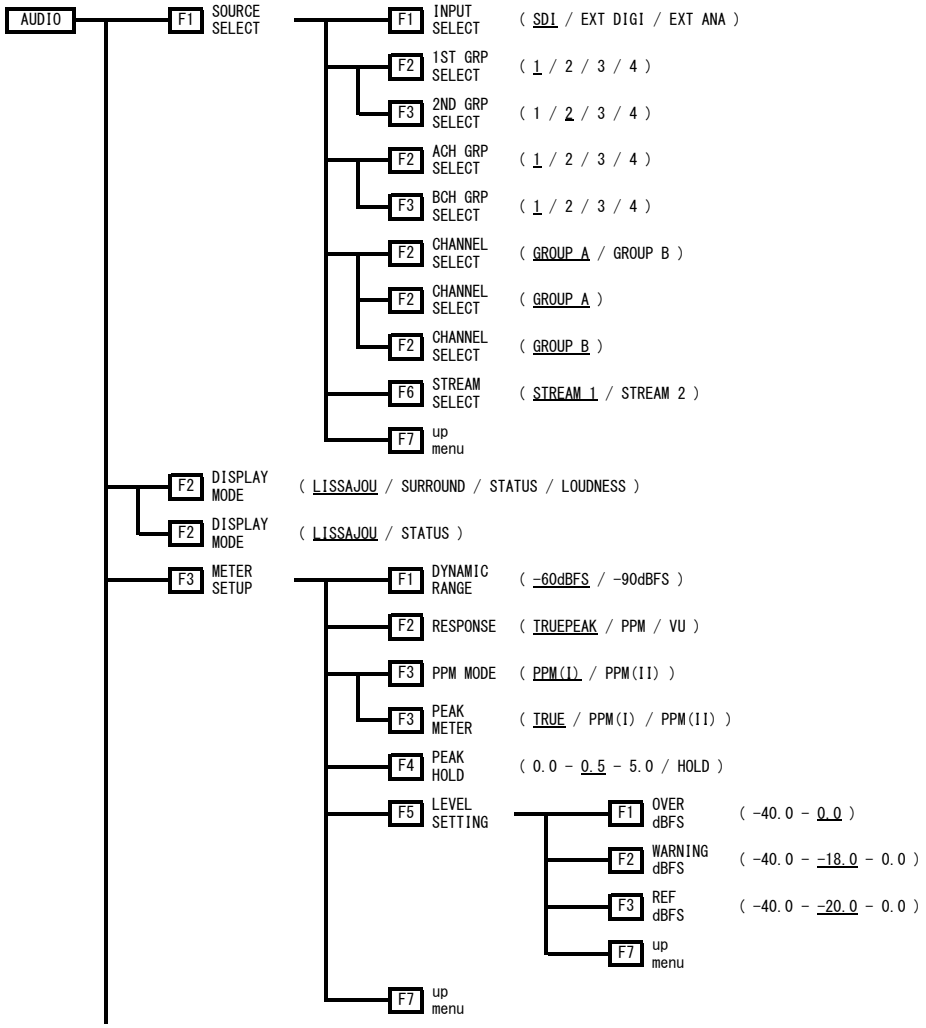
When F•2 PHONES Lch or F•3 PHONES Rch is set to DAUX, to set the AUX channel, follow the procedure below.

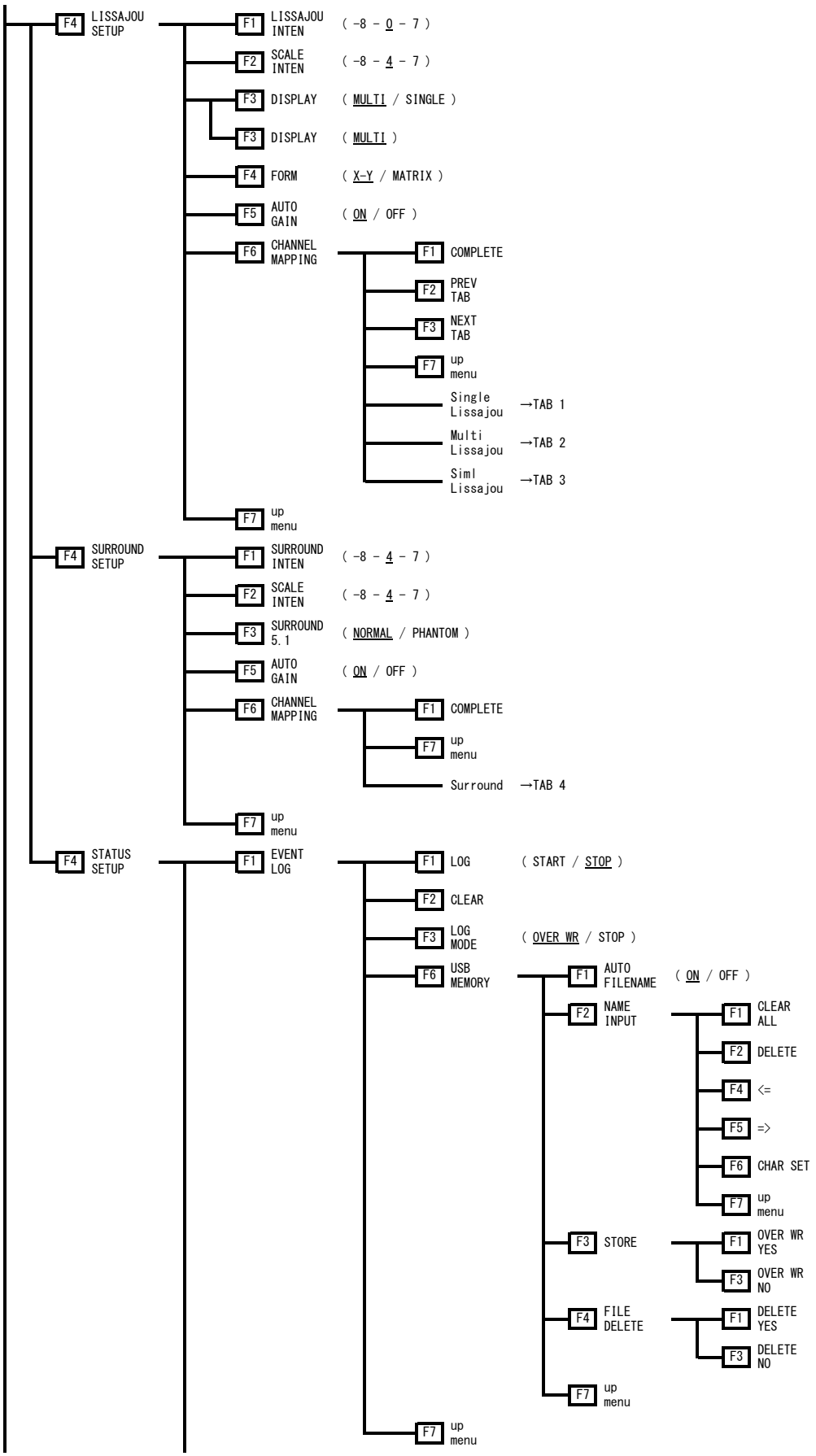
Procedure

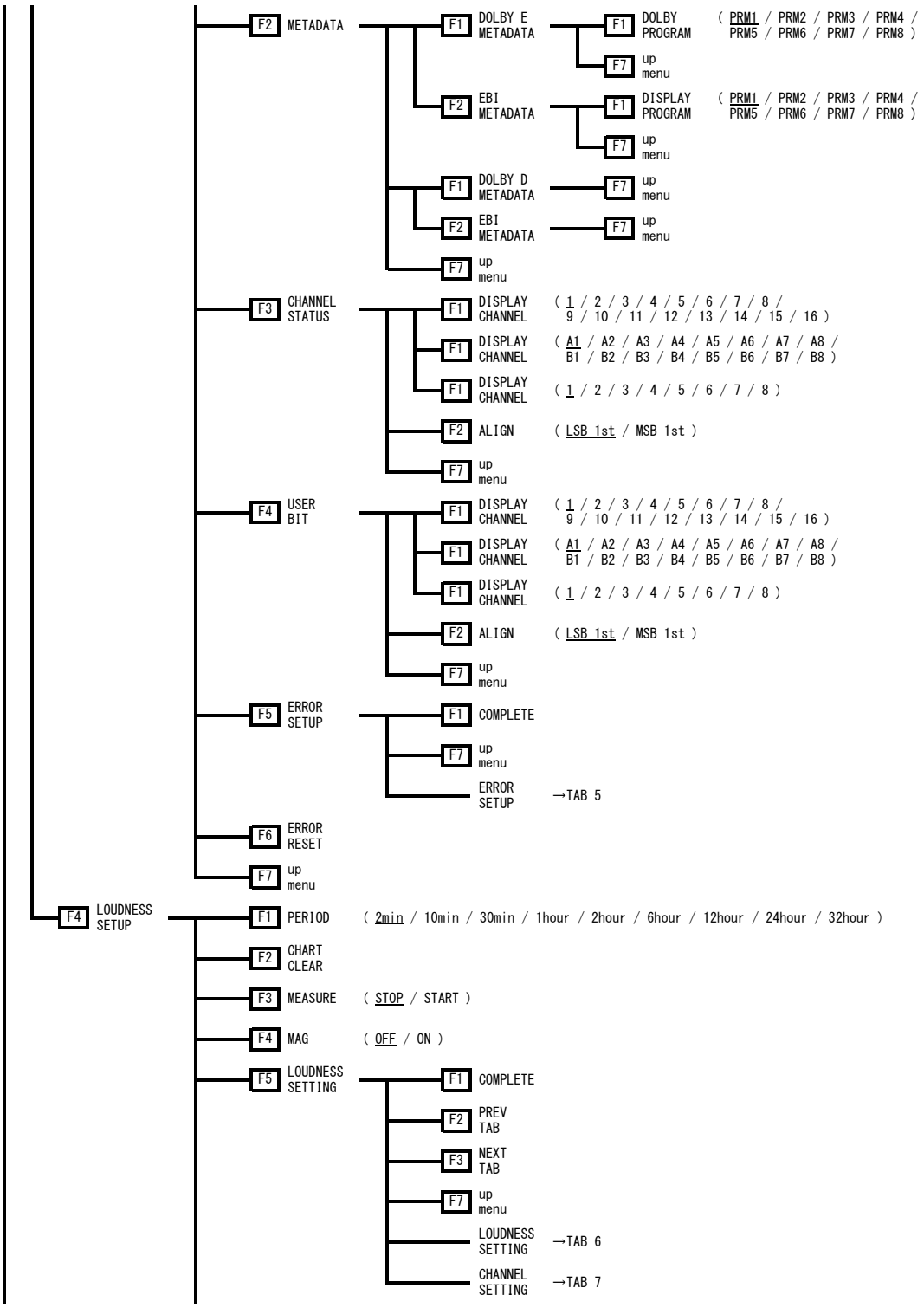
AUDIO → F•5 PHONES SETUP → F•5 DAUX CH : LtRt / LoRo / MONO / MUTE
→ F•6 DAUX DRC : LINE / RF

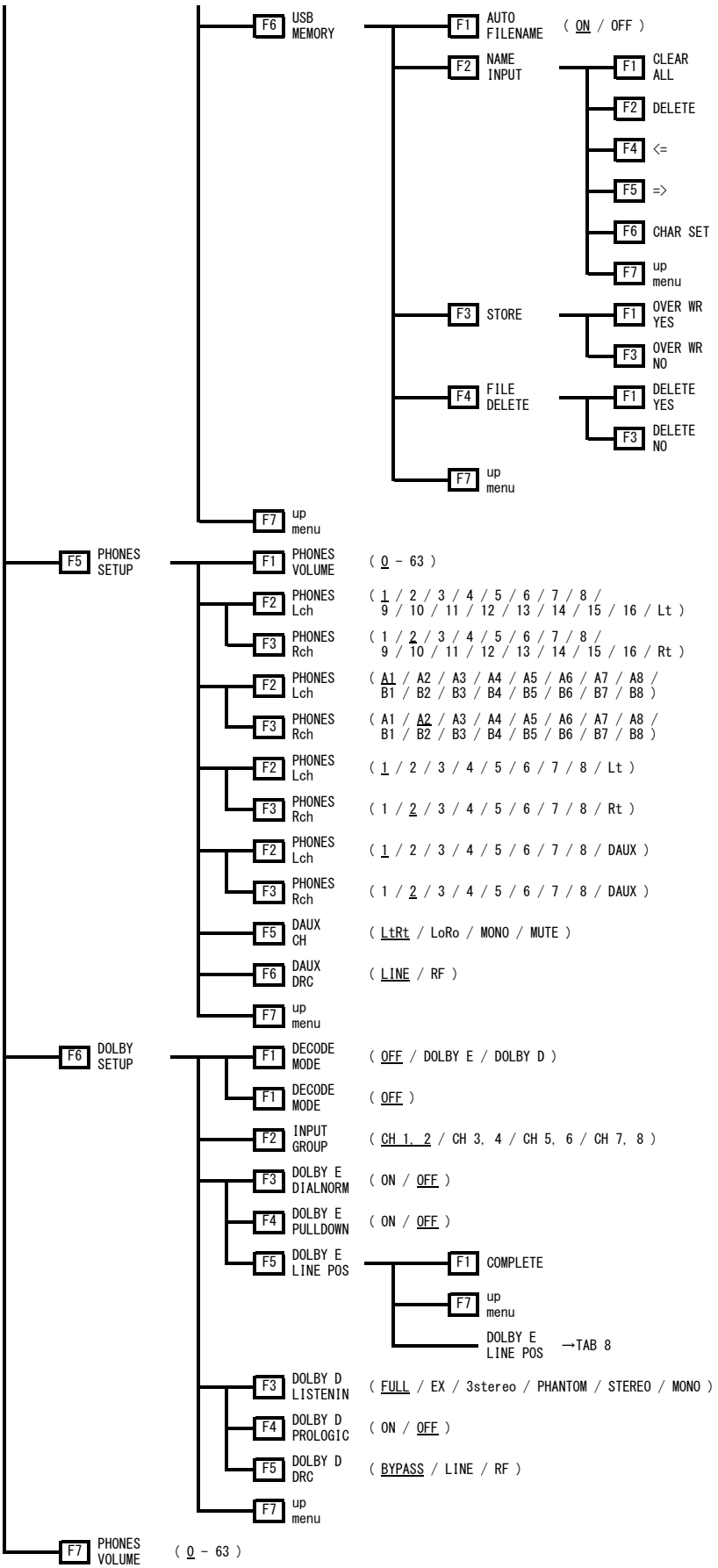
9. MENU TREE

This chapter shows the menu tree that corresponds to the AUDIO key.
The default settings are underlined. The settings selected in the tab menu displays are also default settings.
The menus that are displayed vary depending on the LV 5770A settings and whether a USB memory device is connected to the LV 5770A.

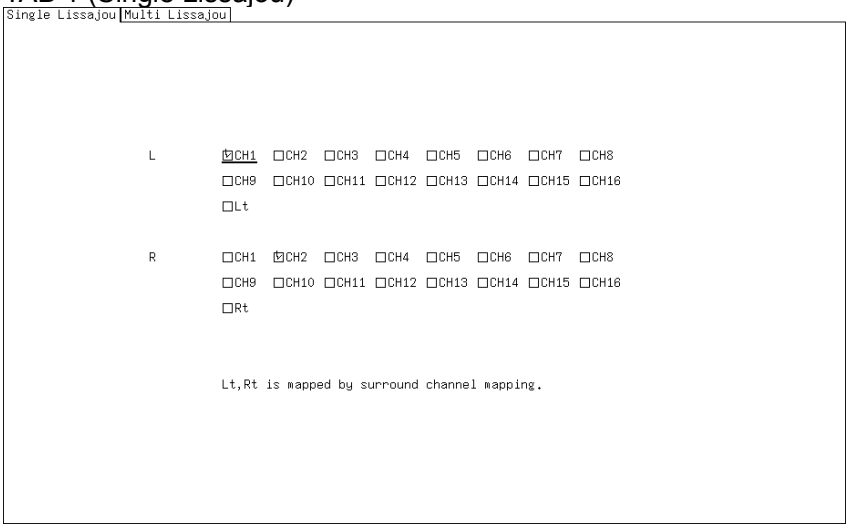



F4 LISSAJOU SETUP
F1 LISSAJOU INTEN (-8 - 0 - 7)
F2 SCALE INTEN (-8 - 4 - 7)
F3 DISPLAY (MULTI / SINGLE)
F3 DISPLAY (MULTI)
F4 FORM (X-Y / MATRIX)
F5 AUTO GAIN (ON / OFF)
F6 CHANNEL MAPPING
F1 COMPLETE
F2 PREV TAB
F3 NEXT TAB
F7 up menu
Single Lissajou →TAB 1
Multi Lissajou →TAB 2
Siml Lissajou →TAB 3
F7 up menu
F4 SURROUND SETUP
F1 SURROUND INTEN (-8 - 4 - 7)
F2 SCALE INTEN (-8 - 4 - 7)
F3 SURROUND 5.1 (NORMAL / PHANTOM)
F5 AUTO GAIN (ON / OFF)
F6 CHANNEL MAPPING
F1 COMPLETE
F7 up menu
Surround →TAB 4
F7 up menu
F4 STATUS SETUP
F1 EVENT LOG
F1 LOG (START / STOP)
F2 CLEAR
F3 LOG MODE (OVER WR / STOP)
F6 USB MEMORY
F1 AUTO FILENAME (ON / OFF)
F2 NAME INPUT
F1 CLEAR ALL
F2 DELETE
F4 <=
F5 =>
F6 CHAR SET
F7 up menu
F3 STORE
F1 OVER WR YES
F3 OVER WR NO
F4 FILE DELETE
F1 DELETE YES
F3 DELETE NO
F7 up menu
F7 up menu

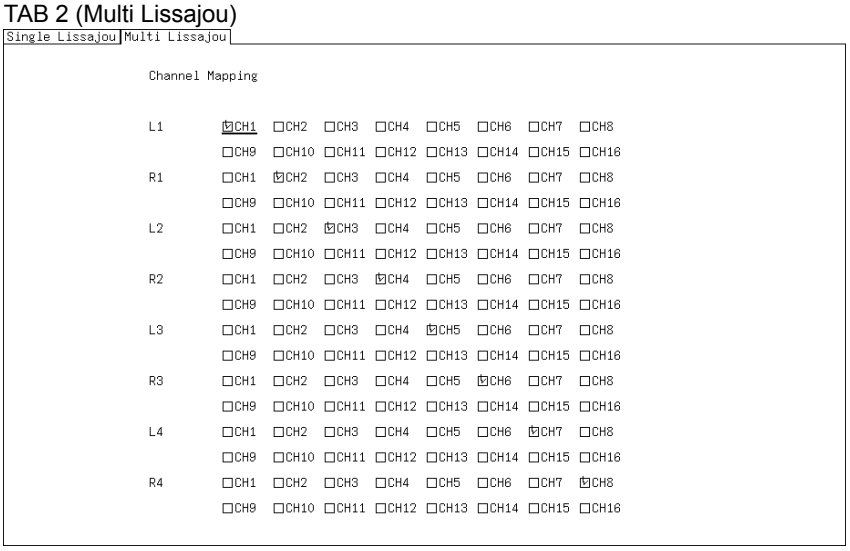

F2 METADATA
F1 DOLBY E METADATA
F1 DOLBY PROGRAM (PRM1 / PRM2 / PRM3 / PRM4 / PRM5 / PRM6 / PRM7 / PRM8)
F7 up menu
F2 EBI METADATA
F1 DISPLAY PROGRAM (PRM1 / PRM2 / PRM3 / PRM4 / PRM5 / PRM6 / PRM7 / PRM8)
F7 up menu
F1 DOLBY D METADATA
F7 up menu
F2 EBI METADATA
F7 up menu
F7 up menu
F3 CHANNEL STATUS
F1 DISPLAY CHANNEL (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16)
F1 DISPLAY CHANNEL (A1 / A2 / A3 / A4 / A5 / A6 / A7 / A8 / B1 / B2 / B3 / B4 / B5 / B6 / B7 / B8)
F1 DISPLAY CHANNEL (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8)
F2 ALIGN (LSB 1st / MSB 1st)
F7 up menu
F4 USER BIT
F1 DISPLAY CHANNEL (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16)
F1 DISPLAY CHANNEL (A1 / A2 / A3 / A4 / A5 / A6 / A7 / A8 / B1 / B2 / B3 / B4 / B5 / B6 / B7 / B8)
F1 DISPLAY CHANNEL (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8)
F2 ALIGN (LSB 1st / MSB 1st)
F7 up menu
F5 ERROR SETUP
F1 COMPLETE
F7 up menu
ERROR SETUP →TAB 5
F6 ERROR RESET
F7 up menu
F4 LOUDNESS SETUP
F1 PERIOD (2min / 10min / 30min / 1hour / 2hour / 6hour / 12hour / 24hour / 32hour)
F2 CHART CLEAR
F3 MEASURE (STOP / START)
F4 MAG (OFF / ON)
F5 LOUDNESS SETTING
F1 COMPLETE
F2 PREV TAB
F3 NEXT TAB
F7 up menu
LOUDNESS SETTING →TAB 6
CHANNEL SETTING →TAB 7


F6 USB MEMORY
F1 AUTO FILENAME (ON / OFF)
F2 NAME INPUT
F1 CLEAR ALL
F2 DELETE
F4 <=
F5 =>
F6 CHAR SET
F7 up menu
F3 STORE
F1 OVER WR YES
F3 OVER WR NO
F4 FILE DELETE
F1 DELETE YES
F3 DELETE NO
F7 up menu
F7 up menu
F5 PHONES SETUP
F1 PHONES VOLUME (0 - 63)
F2 PHONES Lch (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 / Lt)
F3 PHONES Rch (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 / Rt)
F2 PHONES Lch (A1 / A2 / A3 / A4 / A5 / A6 / A7 / A8 / B1 / B2 / B3 / B4 / B5 / B6 / B7 / B8)
F3 PHONES Rch (A1 / A2 / A3 / A4 / A5 / A6 / A7 / A8 / B1 / B2 / B3 / B4 / B5 / B6 / B7 / B8)
F2 PHONES Lch (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / Lt)
F3 PHONES Rch (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / Rt)
F2 PHONES Lch (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / DAUX)
F3 PHONES Rch (1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / DAUX)
F5 DAUX CH (LtRt / LoRo / MONO / MUTE)
F6 DAUX DRC (LINE / RF)
F7 up menu
F6 DOLBY SETUP
F1 DECODE MODE (OFF / DOLBY E / DOLBY D)
F1 DECODE MODE (OFF)
F2 INPUT GROUP (CH 1, 2 / CH 3, 4 / CH 5, 6 / CH 7, 8)
F3 DOLBY E DIALNORM (ON / OFF)
F4 DOLBY E PULLDOWN (ON / OFF)
F5 DOLBY E LINE POS
F1 COMPLETE
F7 up menu
DOLBY E LINE POS →TAB 8
F3 DOLBY D LISTENIN (FULL / EX / 3stereo / PHANTOM / STEREO / MONO)
F4 DOLBY D PROLOGIC (ON / OFF)
F5 DOLBY D DRC (BYPASS / LINE / RF)
F7 up menu
F7 PHONES VOLUME (0 - 63)

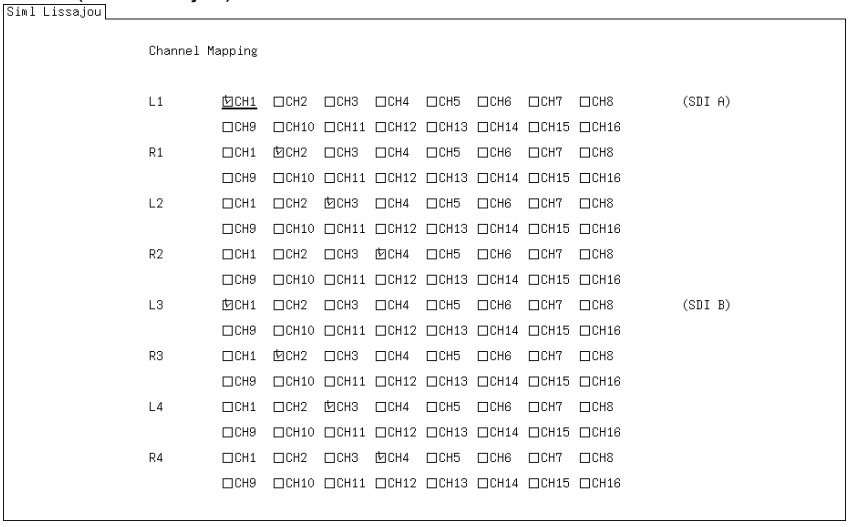
TAB 1 (Single Lissajou)



TAB 2 (Multi Lissajou)



TAB 3 (Siml Lissajou)



TAB 4 (Surround)

Surround

Channel Mapping

L	☑CH1	☐CH2	☐CH3	☐CH4	☐CH5	☐CH6	☐CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
R	☐CH1	☑CH2	☐CH3	☐CH4	☐CH5	☐CH6	☐CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
C	☐CH1	☐CH2	☑CH3	☐CH4	☐CH5	☐CH6	☐CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
LFE	☐CH1	☐CH2	☐CH3	☑CH4	☐CH5	☐CH6	☐CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
Ls	☐CH1	☐CH2	☐CH3	☐CH4	☑CH5	☐CH6	☐CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
Rs	☐CH1	☐CH2	☐CH3	☐CH4	☐CH5	☑CH6	☐CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
Lt/Lo(LL)	☐CH1	☐CH2	☐CH3	☐CH4	☐CH5	☐CH6	☑CH7	☐CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16
Rt/Ro(RR)	☐CH1	☐CH2	☐CH3	☐CH4	☐CH5	☐CH6	☐CH7	☑CH8
	☐CH9	☐CH10	☐CH11	☐CH12	☐CH13	☐CH14	☐CH15	☐CH16

TAB 5 (ERROR SETUP)

ERROR SETUP

Error Setup

Level Over	☑ON	☐OFF
Clip	☑ON	☐OFF
Duration	1	sample(1 - 100)
Mute	☑ON	☐OFF
Duration	1000	ms(1 - 5000)
Parity Error	☑ON	☐OFF
Validity Error	☑ON	☐OFF
Crc Error	☑ON	☐OFF
Code Violation	☑ON	☐OFF

TAB 6 (LOUDNESS SETTING)

LOUDNESS SETTING | CHANNEL SETTING

Integrated Loudness

Measure Mode	☐BS1770-2	☑ARIB	☐EBU	☐ATSC
Target Level	-24.0 LKFS	(-25.0 - -23.0)		
Block Size	400 ms	Absolute Gating		-70 LKFS
Overlap Size	75 %	Relative Gating		-10 LKFS
LFE Gain	☐ON	☑OFF	0	

ShortTerm Loudness

Average Time	3000	ms

Momentary Loudness

Average Time	400	ms

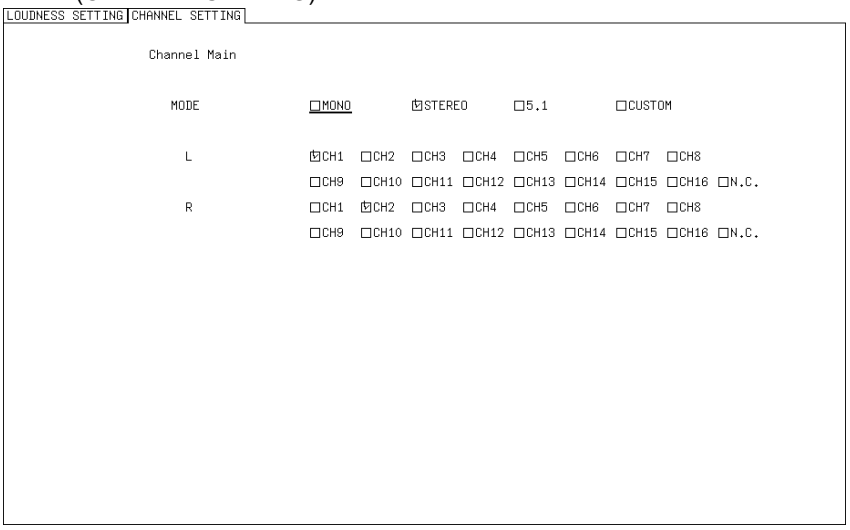
Loudness Response	☐ShortTerm	☑Momentary

Loudness Auto Measure

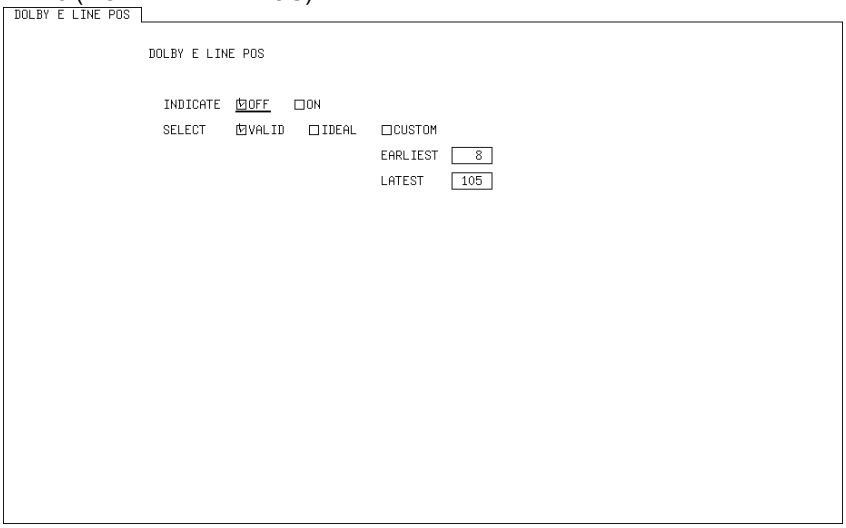
Trigger	☑OFF	☐REMOTE	☐Timecode

Relative Gating Lamp	☐ON	☑OFF

TAB 7 (CHANNEL SETTING)



TAB 8 (DOLBY E LINE POS)



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