LEADER

LV 58SER40A
LV 58SER40

DIGITAL AUDIO

INSTRUCTION MANUAL

LEADER
ELECTRONIC MEASURING INSTRUMENTS

Contents

1. INTRODUCTION

1.1 Maximum Allowable Input Voltage

CAUTION

Table 1-1 indicates the maximum allowable voltage that can be applied to the input connectors.
Do not apply excessive voltage, because doing so may damage the instrument.

Table 1-1 Maximum allowable input voltage

Input Connector	Maximum Input Voltage
AES/EBU IN/OUT	± 5 V

1.2 Conventions

In this manual, the LV 58SER01A (SDI INPUT) is used to represent both the LV 58SER01A (SDI INPUT) and the LV 58SER01 (SDI INPUT unit). The LV 5800 operates in the same manner regardless of whether which unit is installed.

In this manual, the LV 58SER40(A) (DIGITAL AUDIO) is used to represent both the LV 58SER40A (DIGITAL AUDIO) and the LV 58SER40 (DIGITAL AUDIO unit). The LV 5800 operates in the same manner regardless of whether which unit is installed.

The combination of an LV 58SER01A (SDI INPUT) and this unit operates in the same manner as the combination of an LV 58SER06 (3G-SDI INPUT) and this unit. If you have an LV 58SER06, read LV 58SER06 in this manual as LV 58SER01A.

1.3 Trademark Acknowledgments

Dolby is a trademark of Dolby Laboratories.

2. SPECIFICATIONS

2.1 General

The LV 58SER40(A) (DIGITAL AUDIO) operates as an AES/EBU I/O unit when installed in an LV 5800 input slot or the LV 7800 or as an AES/EBU output unit when installed in an LV 5800 output slot. It allows the LV 5800 to display Lissajous, surround, level meter, signal status, and loudness[1] displays[2] for data in 8 AES/EBU channel pairs (16 channels)[3] and 2 analog audio channels.[1]

If the LV 58SER01A (SDI INPUT) is installed in the LV 5800/7800, this unit can process AES/EBU signals that are embedded in SDI signals. If the LV 58SER04 (MPEG DECODER) is installed, this unit can process MPEG-1 Layer 2 signals, MPEG-2 AAC signals, and LPCM signals that are embedded in DVB-ASI signals.

*1   The LV 58SER40 does not support loudness displays and measurements of analog audio signals.

*2   All AES/EBU signals must be synchronized. This unit only supports 48-kHz sampling frequency.

*3   The standard LV 58SER40(A) provides 4 AES/EBU channel pairs (8 channels). Installing the optional I/O expansion unit expands the I/O connectors to 8 AES/EBU channel pairs (16 channels).

2.2 Features

● **8 AES/EBU I/O Pairs (16 Channels)**

The LV 58SER40(A) is equipped with 4 AES/EBU channel pairs (8 channels). Installing the optional I/O expansion unit expands the I/O connectors to 8 AES/EBU channel pairs (16 channels). This unit operates as an AES/EBU I/O unit when installed in an LV 5800 input slot or the LV 7800 or as an AES/EBU output unit when installed in an LV 5800 output slot.

● **Headphone Output**

When you install this unit into an LV 5800 input slot or the LV 7800, you can listen to the audio of the selected channel using headphones.

● **Various Display Features**

This unit enables the LV 5800 to display the following items on the AES/EBU input signals.
• Single Lissajous display between any two channels
• Multi Lissajous display that simultaneously shows four or eight single Lissajous displays of different channel pair combinations.
• Surround display
• Meter display
• Loudness display (LV 58SER40A only)

The unit also enables the LV 5800 to display the following AES/EBU signal status bits.
• Channel status bit
• User bit
• Validity bit
• Parity bit

*   You cannot assign the audio measurement display to multiple areas.

● **Analog Audio Input**

The LV 58SER40A can measure analog audio signals on two channels.

2.3 Specifications

2.3.1 Input and Output Signals

Supported Formats	IEC60958, Dolby E (option), Dolby Digital (option)
Sampling Frequency	48 kHz

2.3.2 Rear BNC Connectors

Maximum Input Voltage	± 5V (DC + ACpeak)
Output Voltage	1.0 Vp-p ± 10 % (into 75 Ω)
I/O Connectors	BNC connectors (eight channels in four-channel pairs)
Input/Output Impedance	75 Ω
Input and Output Switching	Whether to use the connectors as audio signal input connectors or as output connectors for audio signals that are embedded in SDI or DVB-ASI signals is selectable on the LV 5800/7800.

2.3.3 Analog Audio Input

Maximum Input Voltage	+18 dBm (6.2 Vrms)
Input Connector	D-Sub 25-pin connector on the LV 5800/7800 (DC-coupled balanced input)
Input Impedance	At least 5 kΩ

* The LV 58SER40 does not support analog audio input.

2.3.4 Waveform Displays

Lissajous Display	Single Lissajous display between any two channels Multi Lissajous display that simultaneously shows four or eight single Lissajous displays of different channel pair combinations.
Surround Display	
Channel Mapping	L, R, C, LFE, Ls, Rs, Lt, Rt
Surround Formats	NORMAL, PHANTOM C

2.3.5 Correlation Meter

Correlation Meter	Displays the correlation between two channels in the range of -1 to 1

2.3.6   Meter Display

Meter Display
   During Multi Lissajous Display

                             Displays the levels of 8 channels or 16 channels on a bar graph

   During Single Lissajous Display

                             Displays the levels of 2 selected channels on a bar graph

Response Mode Selection[1]	
LV 58SER40A	TRUE PEAK, PPM type I, PPM type II, VU
LV 58SER40	TRUE PEAK, PPM, VU
Peak Hold Mode Selection[1]	(when the meter response model is VU)
LV 58SER40A	TRUE PEAK, PPM type I, PPM type II
LV 58SER40	TRUE PEAK, PPM
Peak Hold Time	0.0 to 5.0 s (in 0.5-s steps), HOLD
Display dynamic range[2]	-60 dBFS, -90 dBFS
Reference Level Setting	-40.0 to 0.0 dBFS
Warning Level Setting	-40.0 to 0.0 dBFS
Over Level Setup	-40.0 to 0.0 dBFS

*1   The LV 58SER40 PPM (Peak Program Meter) and the LV 58SER40A PPM type I are equivalent.
*2   Fixed at -60 dBFS when measuring an analog audio signal.

2.3.7   Status Display

Channel Status Bit Display	Dump display, text display
User Data Bit Display	Dump display
Dolby E Metadata Display	Text display
Dolby Digital Metadata Display	Text display
Error Detection	Counts the number of errors for each channel
Level Over Detection	Counts the number of times the input signal level exceeds the specified level
Detection Setting	-40.0 to 0.0 dBFS
Clip Detection	Detects an error when the number of maximum signal values that are received consecutively exceeds the specified number of samples and counts the number of times this error occurs
Detection Setting	1 to 100 samples
Mute Detection	Detects an error when the length of a received mute signal exceeds the specified duration, and counts the number of times this error occurs
Detection Setting	1 to 5000 ms
Parity Error Detection	Counts the number of times the input signal parity bit differs from the parity bit value that the LV 58SER40(A) calculates
Validity Error Detection	Counts the number of times the input signal validity bit is 1

	CRC Error Detection	Counts the number of times the input signal CRC value differs from the CRC value that the LV 58SER40(A) calculates
	Code Violation Detection	Counts the number of times the input signal bi-phase modulation status is in error

2.3.8   Loudness Display

	Function	Displays total loudness values on a graph Values are displayed in red if they exceed the threshold
	Measurement time	2min, 10min, 30min, 1hour, 2hour

2.3.9   Headphone Output

	Headphone Output	You can transmit the audio of the selected channel through the LV 5800/7800 headphone jack.

2.3.10   General Specifications

	Environmental Conditions	The same as the LV 5800/7800
	Power Consumption	9 Wmax. supplied from the LV 5800/7800
	Weight	0.27 kg
	Accessories	Instruction manual 1
		Analog audio cable (LV 58SER40A only) 1

3.   COMPONENT NAMES AND FUNCTIONS

The following figures illustrate the front and rear panels of the LV 5800/7800.
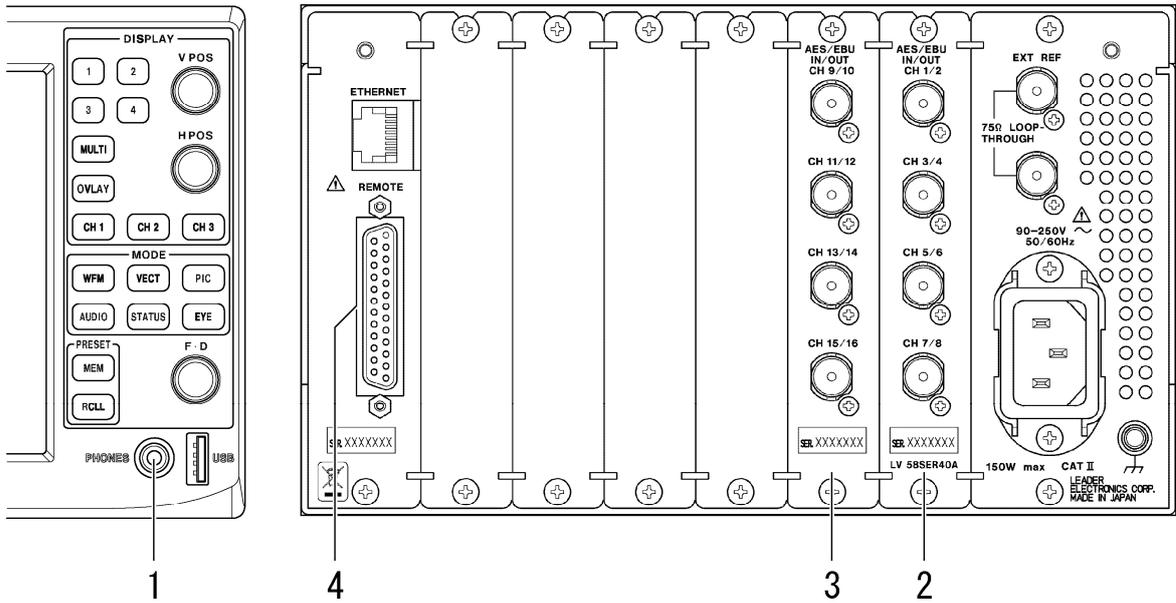

Figure 3-1   LV 5800 panel diagrams
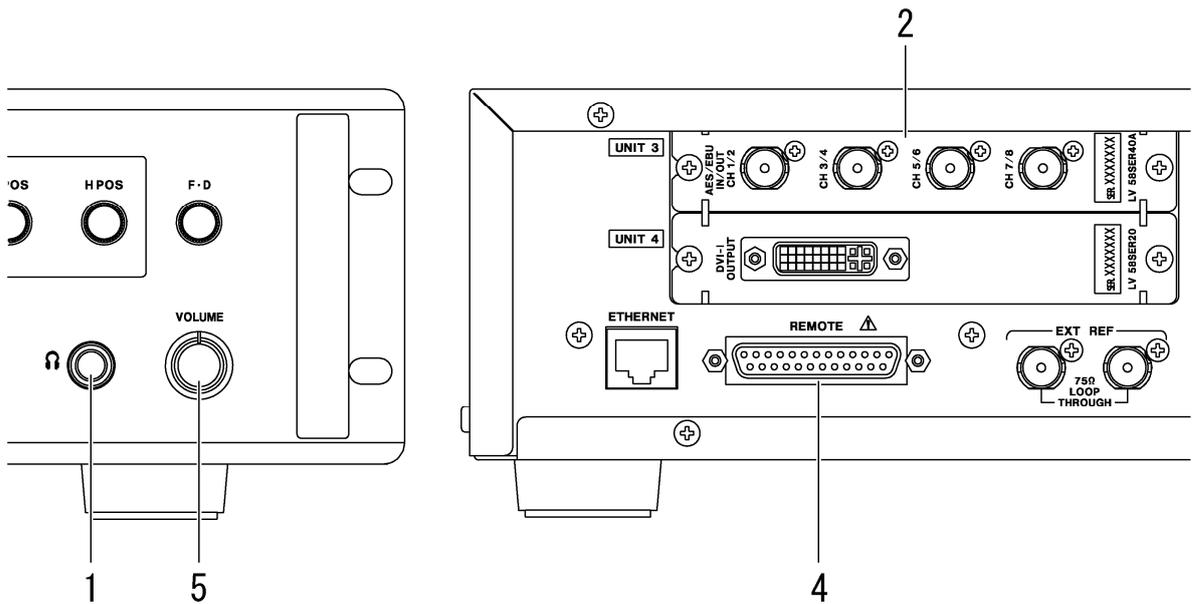
Figure 3-2   LV 7800 panel diagrams

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1   **Headphone connector (PHONES)**

The LV 5800 has a 3.5 mm stereo mini jack. The LV 7800 has a 6.5 mm standard stereo jack.
If the LV 58SER01A is installed in an LV 5800 input unit (UNIT 1 to 4) or the LV 7800, these connectors transmit the audio signals of the selected channels.
See section 5.4, "Headphone Output" and section 7.2, "Specifying the Headphone Settings"

2   **Audio Signal I/O Connectors (AES/EBU IN/OUT CH1/2 to CH7/8)**

I/O connectors for digital audio signals. Eight channels of audio signals received here can be measured. If the LV 58SER01A is installed, these connectors can transmit audio signals that are embedded in SDI signals. If the LV 58SER04 is installed, these connectors can transmit audio signals that are embedded in DVB-ASI signals.
You can change the functionality of the connectors between input and output in system setup.
See: Section 5.2.5, "To Measure Audio Signals That Are Received through the Rear Panel BNC Connectors"
Section 5.3.1, "To Transmit Audio Signals That Are Embedded in SDI Signals"
Section 5.3.3, "To Transmit Audio Signals That Are Embedded in DVB-ASI Signals"
Section 7.5, "System Setup"

3   **Optional Audio Signal I/O Connectors (AES/EBU IN/OUT CH9/10 to CH15/16)**

The optional I/O expansion unit. These optional connectors enable you to measure 16 channels of audio signals in combination with the LV 58SER40A. If the LV 58SER01A is installed, these connectors can transmit audio signals that are embedded in SDI signals. If the LV 58SER04 is installed, these connectors can transmit audio signals that are embedded in DVB-ASI signals.
You can change the functionality of the connectors between input and output in system setup.
See: Section 5.2.5, "To Measure Audio Signals That Are Received through the Rear Panel BNC Connectors"
Section 5.3.1, "To Transmit Audio Signals That Are Embedded in SDI Signals"
Section 5.3.3, "To Transmit Audio Signals That Are Embedded in DVB-ASI Signals"
Section 7.5, "System Setup"

4   **Remote Connector (REMOTE)**

The remote connector is used to receive analog audio signals and to start and stop loudness measurements. The LV 58SER40A is required in both situations.
See: Section 5.2.7, "To Measure Analog Audio Signals"
Section 6.5, "Loudness Display (LV 58SER40A only)"
Section 7.4, "Input Signal Setup"

5   **Volume Knob (VOLUME)**

Adjusts the headphone volume.
There is no volume knob on the LV 5800. You can adjust the headphone volume from a menu.

4. MENU STRUCTURE

The following figure shows the menu structure for the AUDIO key. Underlined values are default values.

The menus that are displayed and the available options vary depending on the current settings.

```
AUDIO ─┬─ F1 CHANNEL ─┬─ F1 No. of       ( 8ch / 16ch )
       │    SELECT     │      CHANNELS
       │               ├─ F2 DISPLAY      ( 1-8ch / 9-16ch )
       │               │      CHANNELS
       │               ├─ F3 MIX MODE     ( OFF / ON )
       │               └─ F7 up
       │                      menu
       │
       ├─ F2 DISPLAY      ( LISSAJOU / SURROUND / STATUS / METER / LOUDNESS )
       │    MODE
       │
       ├─ F3 METER ───┬─ F1 DYNAMIC      ( -60dBFS / -90dBFS / M A G )
       │    SETUP      │      RANGE
       │               ├─ F2 RESPONSE     ( TRUE PEAK / PPM(I) / PPM(II) / VU+TRUE / VU+PPM(I) /
       │               │                    VU+PPM(II) / PPM / VU+TRUE / VU+PPM )
       │               ├─ F3 PEAK         ( 0.0 - 0.5 - 5.0 / HOLD )
       │               │      HOLD
       │               ├─ F6 METER ──┬─ F1 COMPLETE
       │               │      SETTING │
       │               │             └─ F7 CANCEL
       │               └─ F7 up
       │                      menu
       │
       ├─ F4 LISSAJOU ─┬─ F1 LISSAJOU    ( -128 - 0 - 127 )
       │    SETUP       │      INTEN
       │                ├─ F2 SCALE      ( -8 - 4 - 7 )
       │                │      INTEN
       │                ├─ F3 DISPLAY    ( SINGLE / MULTI )
       │                ├─ F4 FORM       ( X-Y / MATRIX )
       │                ├─ F5 AUTO       ( ON / OFF )
       │                │      GAIN
       │                ├─ F6 CHANNEL ──┬─ F1 COMPLETE
       │                │      MAPPING   ├─ F2 PREV
       │                │                │      TAB
       │                │                ├─ F3 NEXT
       │                │                │      TAB
       │                │                └─ F7 CANCEL
       │                └─ F7 up
       │                       menu
       │
       └─ F4 SURROUND ─┬─ F1 SURROUND    ( -128 - 100 - 127 )
            SETUP       │      INTEN
                        ├─ F2 SCALE      ( -8 - 4 - 7 )
                        │      INTEN
                        ├─ F3 SURROUND   ( NORMAL / PHANTOM C )
                        │      5.1
                        ├─ F5 AUTO       ( ON / OFF )
                        │      GAIN
                        ├─ F6 CHANNEL ──┬─ F1 COMPLETE
                        │      MAPPING   └─ F7 CANCEL
                        └─ F7 up
                               menu
```

```
[F4] STATUS      [F1] DOLBY E      [F1] DOLBY      ( PRM1 / PRM2 / PRM3 / PRM4 /
     SETUP            METADATA          PROGRAM      PRM5 / PRM6 / PRM7 / PRM8 )

                                   [F7] up
                                        menu

                  [F1] DOLBY D      [F7] up
                       METADATA          menu

                  [F2] EBI          [F1] DISPLAY    ( PRM1 / PRM2 / PRM3 / PRM4 /
                       METADATA          PROGRAM      PRM5 / PRM6 / PRM7 / PRM8 )

                                   [F7] up
                                        menu

                  [F3] CHANNEL      [F1] DISPLAY    ( 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 /
                       STATUS            CHANNEL      9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 )

                                   [F2] ALIGN      ( LSB 1st / MSB 1st )

                                   [F7] up
                                        menu

                  [F4] USER         [F1] DISPLAY    ( 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 /
                       BIT              CHANNEL      9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 )

                                   [F2] ALIGN      ( LSB 1st / MSB 1st )

                                   [F7] up
                                        menu

                  [F5] EVENT        [F2] LOG        ( START / STOP )
                       LOG
                                   [F3] CLEAR

                                   [F4] LOG        ( OVER WR / STOP )
                                        MODE

                                   [F6] USB        [F1] NAME       [F1] CLEAR
                                        MEMORY          INPUT           ALL

                                                                   [F2] DELETE

                                                                   [F3] INSERT

                                                                   [F4] <=

                                                                   [F5] =>

                                                                   [F6] CHAR
                                                                        SET

                                                                   [F7] up
                                                                        menu

                                                   [F2] STORE      [F1] OVER WR
                                                                        YES

                                                                   [F3] OVER WR
                                                                        NO

                                                   [F4] FILE       [F1] DELETE
                                                        DELETE          YES

                                                                   [F3] DELETE
                                                                        NO

                                                   [F5] FILENAME   ( ON / OFF )
                                                        AUTO INC

                                                   [F7] up
                                                        menu

                                   [F7] up
                                        menu

                  [F6] ERROR
                       RESET

                  [F7] up
                       menu
```

F4	LOUDNESS SETUP

- F1 PERIOD (2min / 10min / 30min / 1hour / 2hour)
- F2 CHART CLEAR
- F3 MEASURE (STOP / START)
- F4 TARGET LV MAG (OFF / ON)
- F5 LOUDNESS SETTING
  - F1 COMPLETE
  - F2 PREV TAB
  - F3 NEXT TAB
  - F7 CANCEL
- F6 USB MEMORY
  - F1 NAME INPUT
    - F1 CLEAR ALL
    - F2 DELETE
    - F3 INSERT
    - F4 <=
    - F5 =>
    - F6 CHAR SET
    - F7 up menu
  - F2 STORE
    - F1 OVER WR YES
    - F3 OVER WR NO
  - F4 FILE DELETE
    - F1 DELETE YES
    - F3 DELETE NO
  - F5 FILENAME AUTO INC (ON / OFF)
  - F7 up menu
- F7 up menu

F5	PHONES SETUP

- F1 PHONES VOLUME (-128 – 64 – 127)
- F2 PHONES L/Rch (1/2 / 3/4 / 5/6 / 7/8 / 9/10 / 11/12 / 13/14 / 15/16 / Lt/Rt
  D1/D2 / D3/D4 / D5/D6 / D7/D8 / DAUX1/DAUX2 / L/R)
- F5 AUX CH (LtRt / LoRo / MONO / MUTE)
- F6 AUX CH DRC (LINE / RF)
- F7 up menu

```
                ┌──┐ DOLBY-E           ┌──┐ CHANNEL           ┌──┐ COMPLETE
          ┌─────│F6│ SETUP      ┌──────│F1│ SETTING   ┌───────│F1│
          │      └──┘           │       └──┘           │        └──┘
          │                     │                      │       ┌──┐ CANCEL
          │                     │                      └───────│F7│
          │                     │                               └──┘
          │                     │       ┌──┐ DOLBY E
          │                     ├───────│F2│ DIALNORM   ( OFF / ON )
          │                     │        └──┘
          │                     │       ┌──┐ DOLBY D
          │                     │       │F2│ LISTENING  ( FULL / EX / 3stereo / PHANTOM / STEREO / MONO )
          │                     │        └──┘
          │                     │       ┌──┐ DOLBY E
          │                     ├───────│F3│ PULLDOWN   ( OFF / ON )
          │                     │        └──┘
          │                     │       ┌──┐ DOLBY D
          │                     │       │F3│ PROLOGIC   ( OFF / ON )
          │                     │        └──┘
          │                     │       ┌──┐ DOLBY D
          │                     ├───────│F4│ DRC        ( BYPASS / LINE / RF )
          │                     │        └──┘
          │                     │       ┌──┐ up
          │                     └───────│F7│ menu
          │                              └──┘
          │      ┌──┐ INPUT
          └──────│F7│ SELECT    ( DIGITAL / ANALOG )
                  └──┘
```

Figure 4-1   Menu structure

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5. OPERATING PROCEDURE

5.1 Precautions

5.1.1 Installing the Unit

The following table indicates how you can install the unit in the LV 5800 and the corresponding features that will be available. For the installation procedure, see the LV 5800 Instruction Manual.

You can only install one LV 58SER40(A) in the LV 7800. The features that are available for the LV 7800 are those listed in the "1" row in the table below.

For the LV 7800, the LV 58SER40 is a factory option.

Table 5-1 Unit installation slots and corresponding features

Number of Units		Installation Slots	Audio Signal Measurement	Transmission of Audio Signals Embedded in SDI or DVB-ASI signals	Transmission of Audio Signals Received through a Rear BNC Connector[1]	Headphone Output
1[2]		Slots 1 to 4	Yes	Yes	-	Yes
2[3]	1	Slots 1 to 4	Yes	Yes	-	Yes
	2	Slot 5 or 6		Yes	Yes	
3[3]	1	Slots 1 to 4	Yes	Yes	-	Yes
	2	Slot 5		Yes	Yes	
	3	Slot 6		Yes	Yes	
4 or more		Not allowed				

1 A feature that transmits audio signals received from BNC connectors on an input slot (from UNIT 1 to UNIT 4) to BNC connectors on an output slot (UNIT 5 or UNIT 6).

2 Audio signals are not transmitted if this unit is installed only to an output slot (UNIT 5 or UNIT 6).

3 If both the LV 58SER40 and the LV 58SER40A are available, install the LV 58SER40A into an input slot (from UNIT 1 to UNIT 4). You cannot install two or more of this unit into input slots (from UNIT 1 to UNIT 4).

5.1.2 Multi Screen Display

You cannot assign the audio measurement screen to multiple areas when using the 2-screen or 4-screen multi display. If you specify the audio screen in another area when there is already an area displaying the audio measurement screen, the original screen displaying the audio measurement screen will automatically switch to the WFM screen or will display an error message.

Measurement of audio signals embedded in
SDI signals
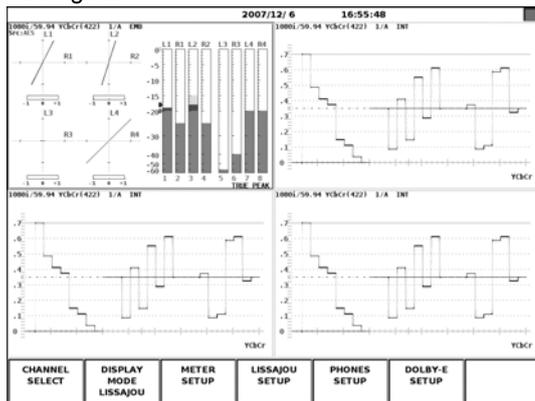
Measurement of audio signals received
through a rear BNC connector
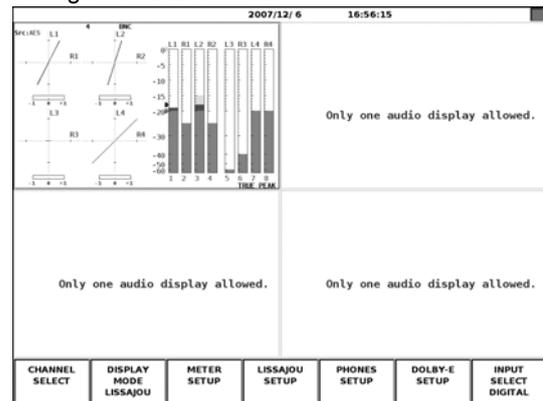
Figure 5-1   Multi display of the audio measurement screen

5.2   Audio Signal Measurement

The following signals can be measured when this unit is installed in an input slot (from UNIT 1 to UNIT 4).

a   Audio signals that are embedded in SDI signals   See section 5.2.1
b   Dolby signals that are embedded in SDI signals   See section 5.2.2
c   Audio signals that are embedded in DVB-ASI signals   See section 5.2.3
d   Dolby signals that are embedded in DVB-ASI signals   See section 5.2.4
e   Audio signals that are received through the rear panel BNC connectors
                                                                                    See section 5.2.5
f   Dolby signals that are received through the rear panel BNC connectors
                                                                                    See section 5.2.6
g   Analog audio signals (LV 58SER40A only)   See section 5.2.7

You must configure the LV 5800 appropriately to measure these input signals. This section explains the relevant settings and displays. For detailed setup procedures, see the subsequent chapters.
The setting explanations in this section are for the LV 5800, but the same settings can be performed on the LV 7800.
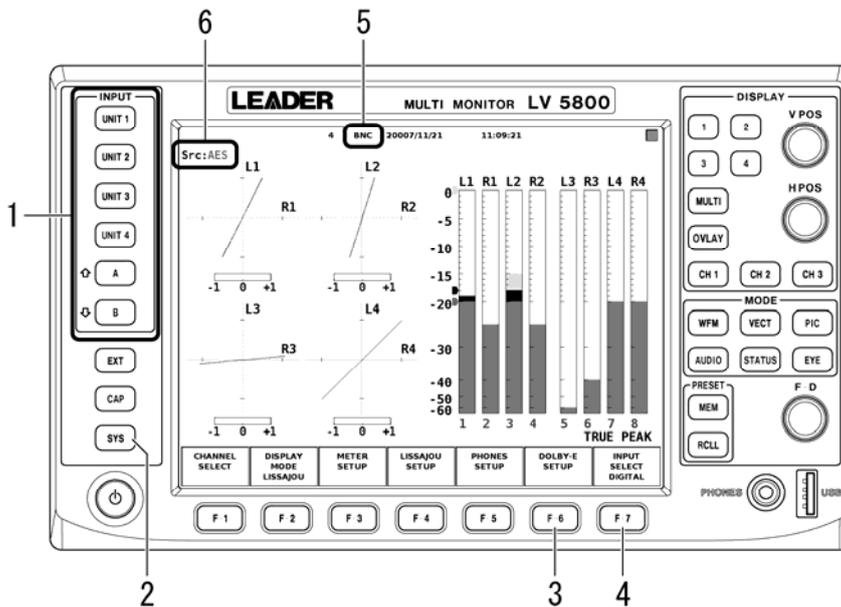
Figure 5-2   Audio signal measurement

1   INPUT

Select the slot (from UNIT 1 to UNIT 4) where the unit receiving the audio signal is installed and the channel receiving the SDI signal (LV 58SER01A only) or the PID that you want to decode (LV 58SER04 only). To measure analog audio signals, select the slot number in which the LV 58SER40A is installed.

2   SYS

If this unit is installed in an input slot (from UNIT 1 to UNIT 4), the functionality of its BNC connectors can be switched between input and output. To do so, press: SYS > F•1 UNIT SETUP > F•# UNIT#* SETUP. Then, set External BNC in the UNIT SETUP screen to INPUT or OUTPUT.

To measure audio signals that are received through the rear panel BNC connector, select INPUT. You can select either INPUT or OUTPUT to measure audio signals or analog audio signals that are embedded in SDI or DVB-ASI signals.

See section 7.5, "System Setup"

*   Select the unit number in which the LV 58SER40(A) is installed.

3   DOLBY-E SETUP

This menu appears when the Dolby E option is installed.
Press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING to display the DOLBY-E setup screen. Set DECODE MODE to OFF, DOLBY-E, DOLBY-DIGITAL according to the input signal.

See section 7.3, "Dolby Setup"

4   INPUT SELECT

This menu appears when you select a slot number in which the LV 58SER40A is installed in "1 INPUT." Select DIGITAL or ANALOG according to the input signal.

See section 7.4, "Input Signal Setup"

5   Input signal indication

The signal that is currently being measured is displayed at the top section of the screen as follows:

- EMB   If you select a slot number in which the LV 58SER01A or LV 58SER04 is installed in "1 INPUT."
- BNC   If you select a slot number in which the LV 58SER40(A) is installed in "1 INPUT."
- ANA   If you select ANALOG in "4 INPUT SELECT."

6   Src indication

The type of signal that is currently being measured is displayed at the top of the screen as follows (signal indications may be combined, as in "AES/DE"):

- AES   If you select OFF in "3 DOLBY-E SETUP" or if the Dolby E option is not installed.
- DE   If you select DOLBY-E in "3 DOLBY-E SETUP"
- DD   If you select DOLBY-DIGITAL in "3 DOLBY-E SETUP"
- Ana   If you select ANALOG in "4 INPUT SELECT."

Settings and displays related to the following measurements are given in the table below.

a   Audio signals that are embedded in SDI signals   See section 5.2.1
b   Dolby signal that are embedded in SDI signals   See section 5.2.2
c   Audio signals that are embedded in DVB-ASI signals   See section 5.2.3
d   Dolby signals that are embedded in DVB-ASI signals   See section 5.2.4
e   Audio signals that are received through the rear panel BNC connectors
         See section 5.2.5
f   Dolby signals that are received through the rear panel BNC connectors
         See section 5.2.6
g   Analog audio signals (LV 58SER40A only)   See section 5.2.7

Table 5-2   Settings and displays related to audio signal measurement

Setting	a	b	c	d
1 INPUT	Select the slot number in which the LV 58SER01A is installed and the channels receiving the SDI signal.	Select the slot number in which the LV 58SER01A is installed and the channels receiving the SDI signal.	Select the slot number in which the LV 58SER04 is installed and the PID that you want to decode.	Select the slot number in which the LV 58SER04 is installed and the PID that you want to decode.
2 SYS	INPUT/OUTPUT	INPUT/OUTPUT	INPUT/OUTPUT	INPUT/OUTPUT
3 DOLBY-E SETUP	OFF	DOLBY-E or DOBY-DIGITAL	OFF	DOLBY-E or DOBY-DIGITAL
4 INPUT SELECT	-	-	-	-
5 Input signal indication	EMB	EMB	EMB	EMB
6 Src indication	AES	DE or DD	AES	DE or DD
Audio signal input destination	LV 58SER01A BNC connector	LV 58SER01A BNC connector	LV 58SER04 BNC connector	LV 58SER04 BNC connector
Units required for measurement	LV 58SER40(A) LV 58SER01A	LV 58SER40(A) LV 58SER01A Dolby E(Op.)	LV 58SER40(A) LV 58SER04	LV 58SER40(A) LV 58SER04 Dolby E(Op.)

Setting	e	f	g
1 INPUT	Select the slot number in which the LV 58SER40(A) is installed.	Select the slot number in which the LV 58SER40(A) is installed.	Select the slot number in which the LV 58SER40A is installed.
2 SYS	INPUT	INPUT	INPUT/OUTPUT
3 DOLBY-E SETUP	OFF	DOLBY-E or DOLBY-DIGITAL	-
4 INPUT SELECT	DIGITAL	DIGITAL	ANALOG
5 Input signal indication	BNC	BNC	ANA
6 Src indication	AES	DE or DD	Ana
Audio signal input destination	LV 58SER40(A) BNC connector	LV 58SER40(A) BNC connector	Remote connector
Units required for measurement	LV 58SER40(A)	LV 58SER40(A) Dolby E(Op.)	LV 58SER40A

5.2.1   To Measure Audio Signals That Are Embedded in SDI Signals

This unit can measure 16 channels of audio signals that are embedded in SDI signals. To do so, configure the LV 5800 as described below.
This measurement requires the LV 58SER01A (SDI INPUT).
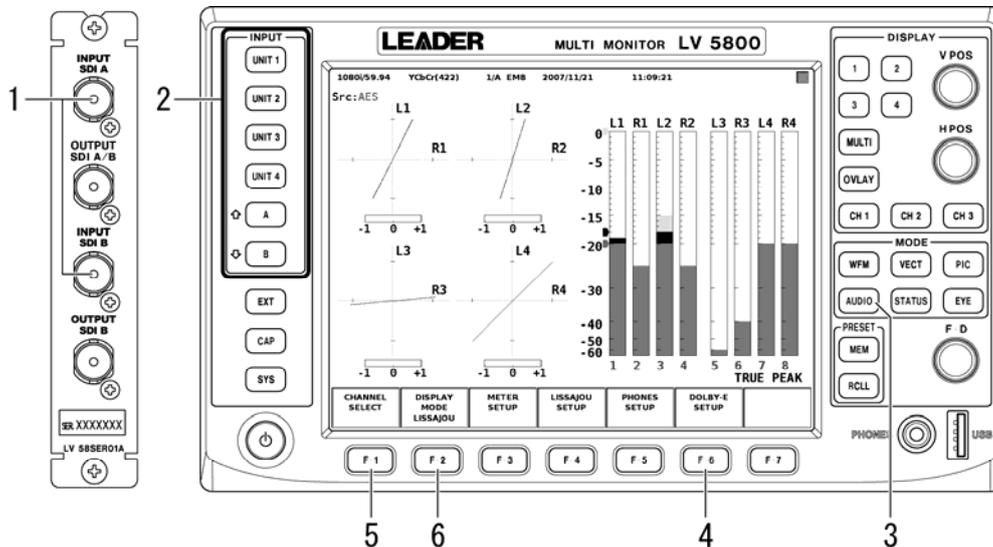
Figure 5-3   Measuring audio signals that are embedded in SDI signals

1. **Apply SDI signals to the LV 58SER01A BNC connectors.**

2. **Select the slot number in which the LV 58SER01A receiving the SDI signals is installed and the channels receiving the SDI signals.**

3. **Press AUDIO.**

4. **If the Dolby E option is installed, set DECODE MODE to OFF.**

    To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

5. **Press F•1 CHANNEL SELECT to select the measurement channels.**

    You can set the measurement channels to 1-8ch, 9-16ch, or 1-16ch. (You cannot select 1-16ch when the 2-screen display is enabled.)
    See section 7.1, "Selecting Measurement Channels"

6. **Press F•2 DISPLAY MODE to select the measurement display.**

    You can select the measurement display from Lissajous, surround, status, meter, and loudness (LV 58SER40A only). (If the measurement channels are set to 1-16ch, surround and loudness cannot be displayed.)
    To configure these measurement displays, press F•3 or F•4. The setup screens for F•3 and F•4 vary depending on the selected measurement display.
    See chapter 6, "Measurement Displays"

5.2.2   To Measure Dolby Signals That Are Embedded in SDI Signals

This unit can measure Dolby E and Dolby Digital signals that are embedded in SDI signals. To do so, configure the LV 5800 as described below.
This measurement requires the LV 58SER01A (SDI INPUT) and the Dolby E option.
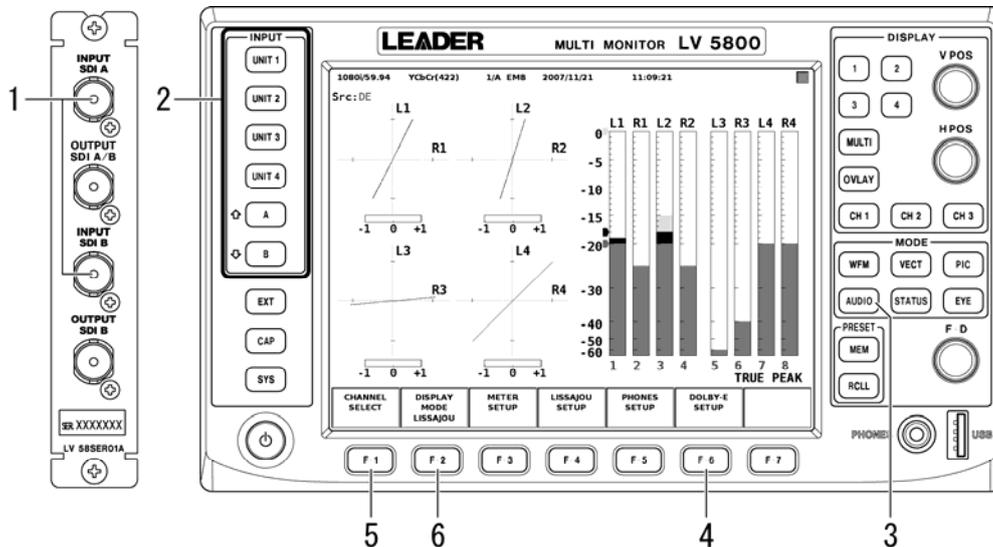
Figure 5-4   Measuring Dolby signals that are embedded in SDI signals

1.   **Apply SDI signals to the BNC connectors on the LV 58SER01A.**

2.   **Select the slot number in which the LV 58SER01A receiving the SDI signals is installed and the channels receiving the SDI signals.**

3.   **Press AUDIO.**

4.   **Set DECODE MODE to DOLBY-E or DOLBY-DIGITAL, and select the input channels.**

     To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
     See section 7.3, "Dolby Setup"

5.   **Press F • 1 CHANNEL SELECT to set the measurement channels.**

     The number of channels is automatically set to 8. If you set F•3 MIX MODE to ON, you can measure the Dolby signal and the audio signal at the same time. (You cannot select ON when the 2-screen display is enabled or when the LV 58SER40 is installed.)
     See section 7.1, "Selecting Measurement Channels"

6.   **Press F • 2 DISPLAY MODE to select the measurement screen.**

     You can select the measurement display from Lissajous, surround, status, meter and loudness (LV 58SER40A only).
     To configure these measurement displays, press F•3 or F•4. The setup screens for F•3 and F•4 vary depending on the selected measurement display.
     See chapter 6, "Measurement Displays"

5.2.3   To Measure Audio Signals That Are Embedded in DVB-ASI Signals

This unit can measure 8 channels of audio signals that are embedded in DVB-ASI signals.
To do so, configure the LV 5800 as described below.
This measurement requires the LV 58SER04 (MPEG DECODER).
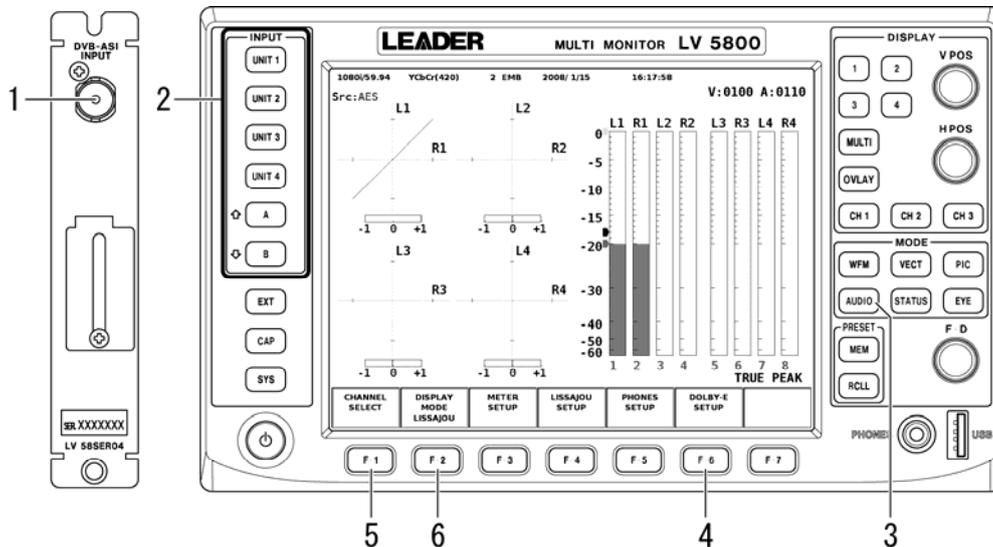
Figure 5-5   Measuring audio signals that are embedded in DVB-ASI signals

1.   **Apply DVB-ASI signals to the LV 58SER04 BNC connectors.**

2.   **Select the slot (from UNIT 1 to UNIT 4) where the LV 58SER04 receiving the audio signal is installed and the PID that you want to decode.**

     The PID that you select appears at the upper right of the screen.

3.   **Press AUDIO.**

4.   **If the Dolby E option is installed, set DECODE MODE to OFF.**

     To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
     See section 7.3, "Dolby Setup"

5.   **Press F•1 CHANNEL SELECT to set the measurement channels to 1-8ch.**

     See section 7.1, "Selecting Measurement Channels"

6.   **Press F•2 DISPLAY MODE to select the measurement screen.**

     You can select the measurement display from Lissajous, surround, status, meter, and loudness (LV 58SER40A only).
     To configure these measurement displays, press F•3 or F•4. The setup screens for F•3 and F•4 vary depending on the selected measurement display.
     See chapter 6, "Measurement Displays"

5.2.4   To Measure Dolby Signals That Are Embedded in DVB-ASI Signals

This unit can measure Dolby E and Dolby Digital signals that are embedded in DVB-ASI signals. To do so, configure the LV 5800 as described below.
This measurement requires the LV 58SER04 (MPEG DECODER) and the Dolby E option.
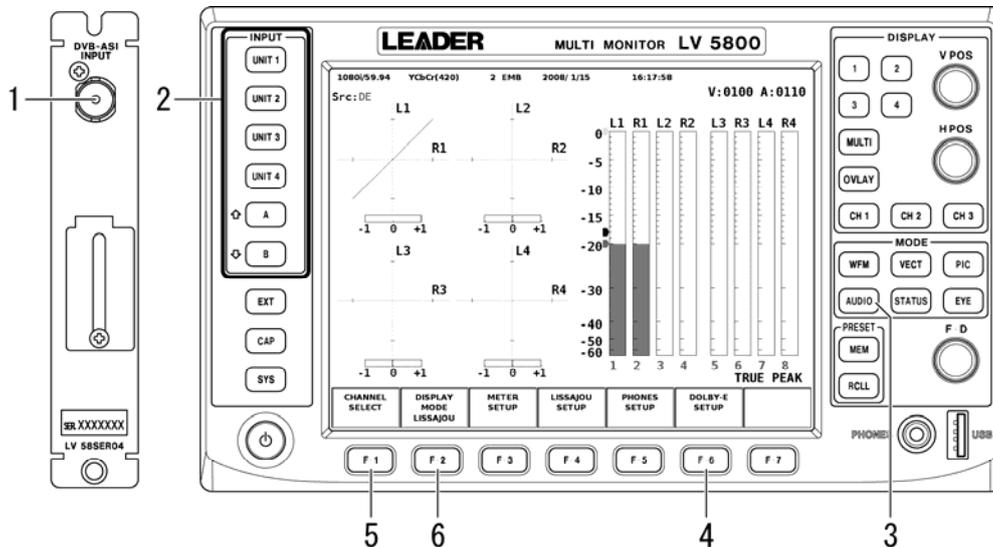
Figure 5-6   Measuring Dolby signals that are embedded in DVB-ASI signals

1. **Apply DVB-ASI signals to the LV 58SER04 BNC connectors.**

2. **Select the slot (from UNIT 1 to UNIT 4) where the LV 58SER04 receiving the audio signal is installed and the PID that you want to decode.**

    The PID that you select appears at the upper right of the screen.

3. **Press** AUDIO **.**

4. **Set DECODE MODE to DOLBY-E or DOLBY-DIGITAL, and select the input channels.**

    To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

5. **Press** F•1 **CHANNEL SELECT to set the measurement channels.**

    The number of channels is automatically set to 8. If you set F•3 MIX MODE to ON, you can measure the Dolby signal and the audio signal at the same time. (You cannot select ON when the 2-screen display is enabled or when the LV 58SER40 is installed.)
    See section 7.1, "Selecting Measurement Channels"

6. **Press** F•2 **DISPLAY MODE to select the measurement screen.**

    You can select the measurement display from Lissajous, surround, status, meter, and loudness (LV 58SER40A only).
    To configure these measurement displays, press F•3 or F•4. The setup screens for F•3 and F•4 vary depending on the selected measurement display.
    See chapter 6, "Measurement Displays"

5.2.5   To Measure Audio Signals That Are Received through the Rear Panel BNC Connectors

The LV 5800 can measure eight channels of audio signals that are received through the unit's BNC connectors.[1] To do so, configure the LV 5800 as described below.
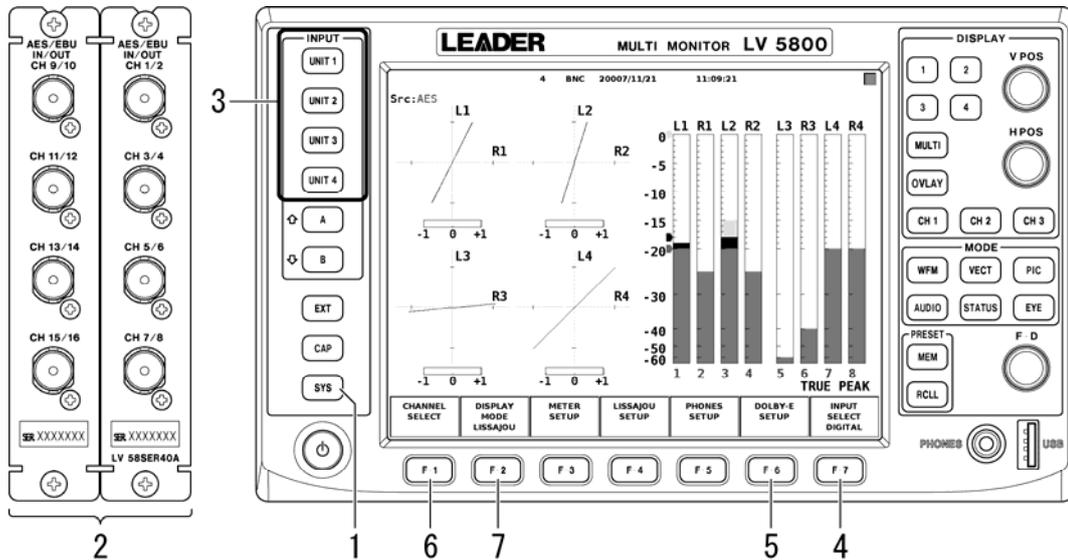
Figure 5-7   Measuring audio signals that are received through the rear panel BNC connectors

1. **Set External BNC to INPUT.**

    To do so, press $\boxed{\text{SYS}}$ > $\boxed{\text{F•1}}$ UNIT SETUP > $\boxed{\text{F•#}}$ UNIT#[2] SETUP.
    See section 7.5, "System Setup"

2. **Apply audio signals to the LV 58SER40(A) BNC connectors.**

3. **Select the unit number in which the LV 58SER40(A) receiving the signals is installed.**

    The display mode is automatically set to AUDIO.

4. **Press $\boxed{\text{F•7}}$ INPUT SELECT to select DIGITAL.**

5. **If the Dolby E option is installed, set DECODE MODE to OFF.**

    To do so, press $\boxed{\text{F•6}}$ DOLBY-E SETUP > $\boxed{\text{F•1}}$ CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

6. **Press $\boxed{\text{F•1}}$ CHANNEL SELECT to select the measurement channels.**

    You can set the measurement channels to 1-8ch, 9-16ch,[3] or 1-16ch.[3] (You cannot select 1-16ch when the 2-screen display is enabled.)
    See section 7.1, "Selecting Measurement Channels"

7. **Press $\boxed{\text{F•2}}$ DISPLAY MODE to select the measurement screen.**

    You can select the measurement display from Lissajous, surround, status, meter, and loudness (LV 58SER40A only). (If the measurement channels are set to 1-16ch, surround and loudness cannot be displayed.)
    To configure these measurement displays, press $\boxed{\text{F•3}}$ or $\boxed{\text{F•4}}$. The setup screens for $\boxed{\text{F•3}}$ and $\boxed{\text{F•4}}$ vary depending on the selected measurement display.
    See chapter 6, "Measurement Displays"

*1   The LV 5800 can measure 16 channels if the optional I/O expansion unit is installed.
*2   Select the unit number in which the LV 58SER40(A) is installed.
*3   If the optional I/O expansion unit is not installed, signals from channels 9 to 16 cannot be measured.

5.2.6   To Measure Dolby Signals That Are Received through the Rear Panel BNC Connectors

The LV 5800 can measure Dolby E or Dolby Digital signals that are received through the unit's BNC connectors. To do so, configure the LV 5800 as described below.
This measurement requires the Dolby E option.
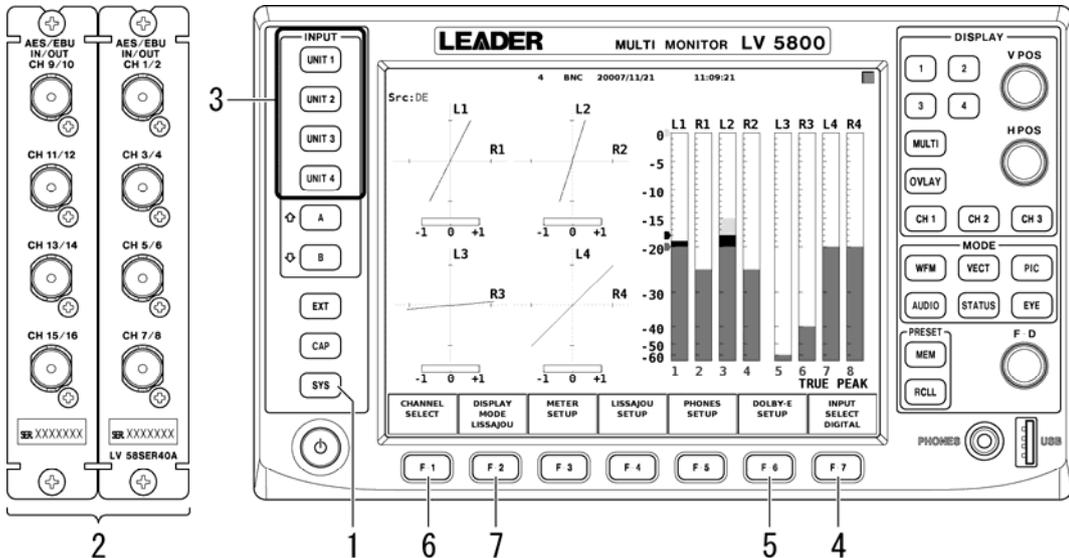
Figure 5-8   Measuring Dolby signals that are received through the rear panel BNC connectors

1.   **Set External BNC to INPUT.**

    To do so, press SYS > F•1 UNIT SETUP > F•# UNIT#* SETUP.
    See section 7.5, "System Setup"

2.   **Apply Dolby signals to the LV 58SER40(A) BNC connectors.**

3.   **Select the unit number in which the LV 58SER40(A) receiving the signals is installed.**

    The display mode is automatically set to AUDIO.

4.   **Press F•7 INPUT SELECT to select DIGITAL.**

5.   **Set DECODE MODE to DOLBY-E or DOLBY-DIGITAL, and select the input channels.**

    To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

6.   **Press F•1 CHANNEL SELECT to set the measurement channels.**

    The number of channels is automatically set to 8. If you set F•3 MIX MODE to ON, you can measure the Dolby signal and the audio signal at the same time. (You cannot select ON when the 2-screen display is enabled or when the LV 58SER40 is installed.)
    See section 7.1, "Selecting Measurement Channels"

7.   **Press F•2 DISPLAY MODE to select the measurement screen.**

    You can select the measurement display from Lissajous, surround, status, meter, and loudness (LV 58SER40A only).
    To configure these measurement displays, press F•3 or F•4. The setup screens for F•3 and F•4 vary depending on the selected measurement display.
    See chapter 6, "Measurement Displays"

*   Select the unit number in which the LV 58SER40(A) is installed.

5.2.7 To Measure Analog Audio Signals

This unit can measure two channels of analog audio signals. To do so, configure the LV 5800 as described below.
This measurement requires the LV 58SER40A. This feature is not available on the LV 58SER40.
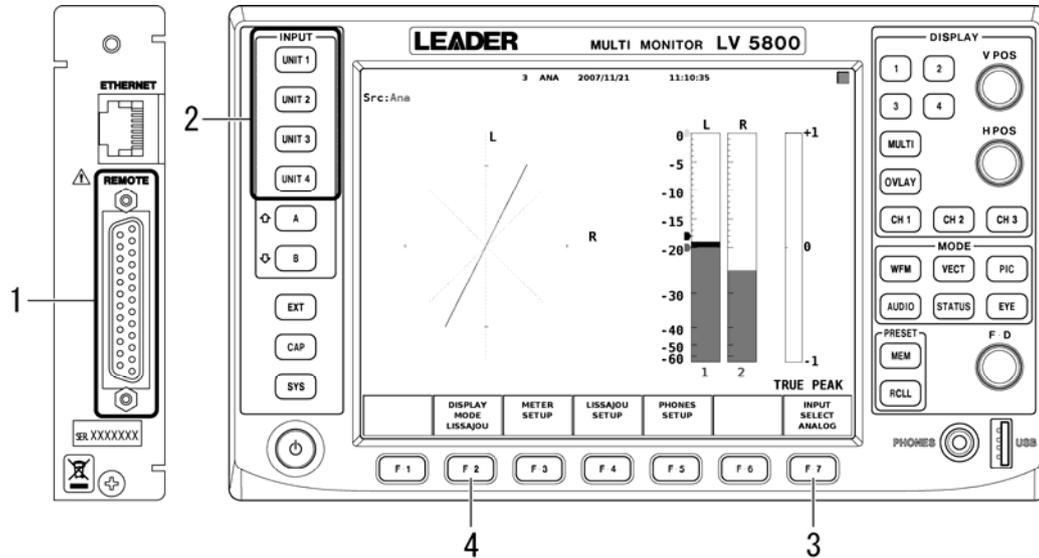
Figure 5-9   Measuring analog audio signals that are received through the remote connector

1. **Apply analog audio signals to the rear panel remote connector.**

   Apply the signals to the remote connector's pins 10 to 13. For details, see Figure 7-6, "Remote connector diagram" and Table 7-2, "Remote connector pin arrangement."
   See section 7.4, "Input Signal Setup"

2. **Select the unit number in which the LV 58SER40A is installed.**

   The display mode is automatically set to AUDIO.

3. **Press F•7 INPUT SELECT to select ANALOG.**

   The measurement channel is automatically set to LR (two channels).
   See section 7.4, "Input Signal Setup"

4. **If the 2-screen display is enabled, press F•2 DISPLAY MODE to select the measurement display.**

   If the 2-screen display is enabled, you can set the measurement display to Lissajous or meter. If the 1- or 4-screen display is enabled, the Lissajous and meter displays appear simultaneously.
   To configure these measurement displays, press F•3 or F•4. The setup screens for F•3 and F•4 vary depending on the selected measurement display.
   See chapter 6, "Measurement Displays"

5.3   Transmitting Audio Signals

The following signals can be transmitted from this unit's BNC connectors when this unit is installed in an LV 5800 input slot (from UNIT 1 to UNIT 4) or the LV 7800.

a   Audio signals that are embedded in SDI signals   See section 5.3.1
b   Dolby signals that are embedded in SDI signals (LV 58SER40A only)
                                                             See section 5.3.2
c   Audio signals that are embedded in DVB-ASI signals   See section 5.3.3
d   Dolby signals that are embedded in DVB-ASI signals (LV 58SER40A only)
                                                             See section 5.3.4

If this unit is installed in an input slot (from UNIT 1 to UNIT 4) and an output slot (UNIT 5 or UNIT 6), the following signals can be transmitted from BNC connectors of the output unit. The audio signal that is currently being measured is transmitted from the BNC connectors of the output unit (LV 5800 only).

a   Audio signals that are embedded in SDI signals
b   Dolby signals that are embedded in SDI signals*
c   Audio signals that are embedded in DVB-ASI signals
d   Dolby signals that are embedded in DVB-ASI signals*
e   Audio signals that are received through the rear panel BNC connectors*
f   Dolby signals that are received through the rear panel BNC connectors*

If this unit is installed only in an output slot (UNIT 5 or UNIT 6), audio signals cannot be transmitted from this unit's BNC connectors.

*   The LV 58SER40A must be installed in an input slot.

5.3.1   To Transmit Audio Signals That Are Embedded in SDI Signals

This unit's BNC connectors can transmit eight channels of audio signals[1] that are embedded in SDI signals. To do so, configure the LV 5800 as described below. This feature requires the LV 58SER01A (SDI INPUT).
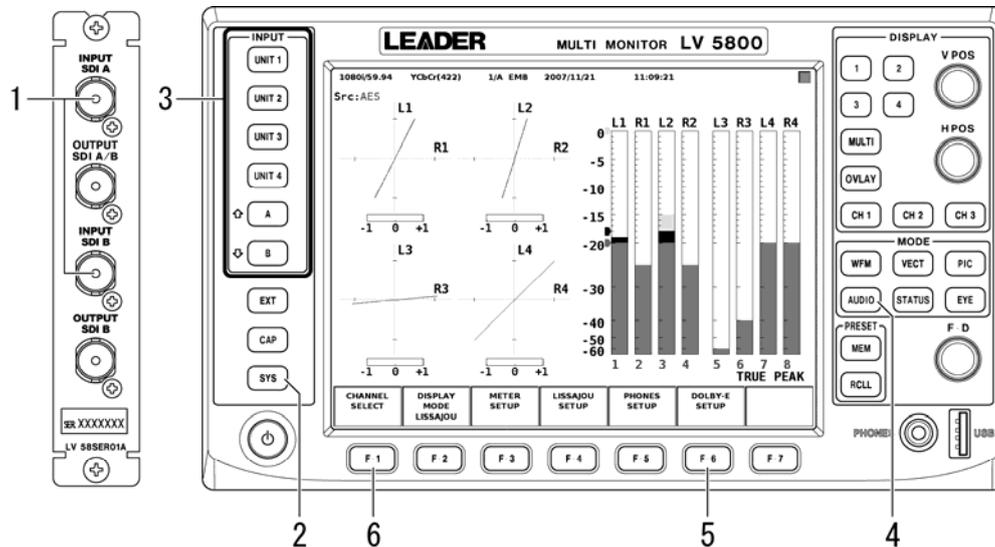
Figure 5-10   Transmitting audio signals that are embedded in SDI signals

1.   **Apply SDI signals to the BNC connectors on the LV 58SER01A.**

2.   **Set External BNC to OUTPUT.**

To do so, press SYS > F•1 UNIT SETUP > F•# UNIT#[2] SETUP. If there are signals being applied to the LV 58SER40(A) BNC connectors, remove the cables first.
See section 7.5, "System Setup"

3.   **Select the slot number in which the LV 58SER01A receiving the SDI signals is installed and the channels receiving the SDI signals.**

4.   **Press AUDIO.**

5.   **If the Dolby E option is installed, set DECODE MODE to OFF.**

To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
See section 7.3, "Dolby Setup"

6.   **Press F•1 CHANNEL SELECT to select the output channels.**

You can set the output channels to 1-8ch, 9-16ch,[3] or 1-16ch.[4] (You cannot select 1-16ch when the 2-screen display is enabled.)
See section 7.1, "Selecting Measurement Channels"

1   The LV 5800 can transmit 16 channels if the optional I/O expansion unit is installed.
2   Select the unit number in which the LV 58SER40(A) is installed.
3   If you select 9-16ch when the optional I/O expansion unit is not installed, the signals from CH9 to CH16 will be transmitted from AES/EBU CH1 to CH8.
4   If you select 1-16ch when the optional I/O expansion unit is not installed, the signals from CH9 to CH16 will not be transmitted.

5.3.2   To Transmit Dolby Signals That Are Embedded in SDI Signals

Dolby E and Dolby Digital signals that are embedded in SDI signals can be converted to PCM audio signals and transmitted from this unit's BNC connectors in AES/EBU format. To do so, configure the LV 5800 as described below.
This feature requires the LV 58SER01A (SDI INPUT), the LV 58SER40A, and the Dolby E option. The signals will not be converted to PCM audio signals if you are using the LV 58SER40.
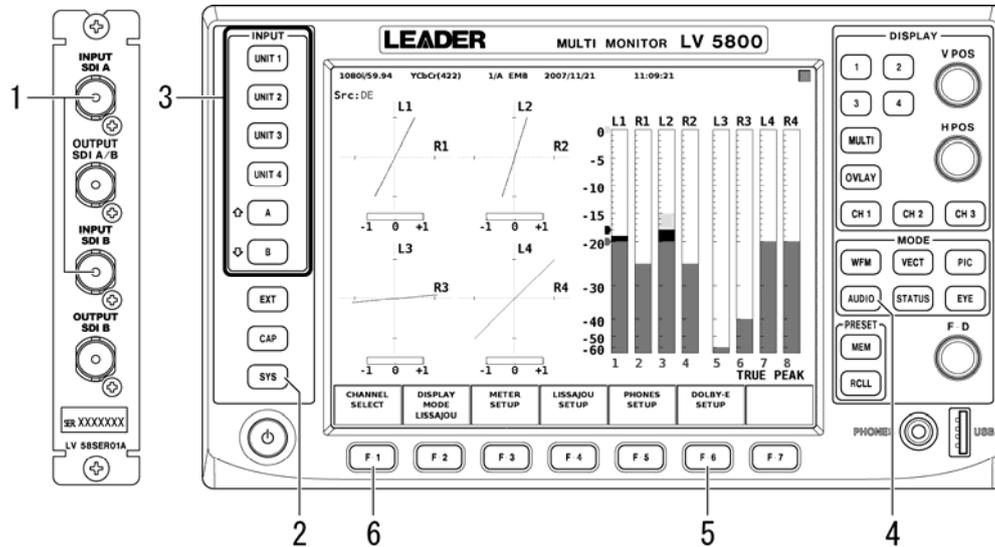
Figure 5-11   Transmitting Dolby signals that are embedded in SDI signals

1. **Apply SDI signals to the BNC connectors on the LV 58SER01A.**

2. **Set External BNC to OUTPUT.**

    To do so, press SYS > F•1 UNIT SETUP > F•# UNIT#* SETUP. If there are signals being applied to the LV 58SER40A BNC connectors, remove the cables first.
    See section 7.5, "System Setup"

3. **Select the slot number in which the LV 58SER01A receiving the SDI signals is installed and the channels receiving the SDI signals.**

4. **Press AUDIO.**

5. **Set DECODE MODE to DOLBY-E or DOLBY-DIGITAL, and select the input channels.**

    To do so, press F•6 DOLBY-E SETUP > F•1 CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

6. **Press F•1 CHANNEL SELECT to set the output channels.**

    When F•3 MIX MODE is set to ON, the audio signal is transmitted from AES/EBU CH1 to CH8 and the Dolby signal is transmitted from AES/EBU CH9 to CH16. (You cannot select ON when the 2-screen display is enabled.) The Dolby signal is only transmitted if the optional I/O expansion unit is installed.
    See section 7.1, "Selecting Measurement Channels"

*   Select the unit number in which the LV 58SER40A is installed.

5.3.3 To Transmit Audio Signals That Are Embedded in DVB-ASI Signals

This unit's BNC connectors can transmit eight channels of audio signals that are embedded in DVB-ASI signals. To do so, configure the LV 5800 as described below. This feature requires the LV 58SER04 (MPEG DECODER).
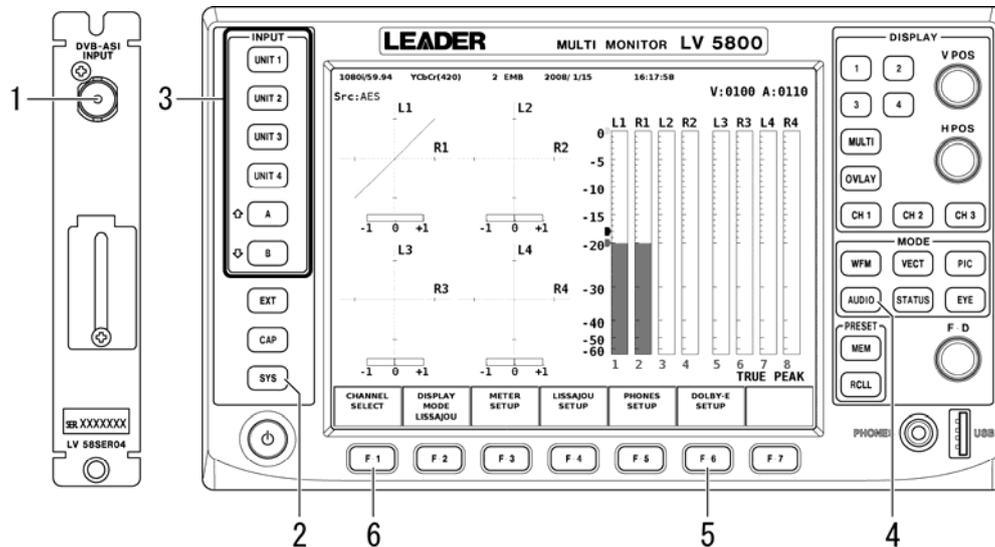
Figure 5-12 Transmitting audio signals that are embedded in DVB-ASI signals

1. **Apply DVB-ASI signals to the LV 58SER04 BNC connectors.**

2. **Set External BNC to OUTPUT.**

    To do so, press $\boxed{\text{SYS}}$ > $\boxed{\text{F•1}}$ UNIT SETUP > $\boxed{\text{F•\#}}$ UNIT#* SETUP. If there are signals being applied to the LV 58SER40(A) BNC connectors, remove the cables first.
    See section 7.5, "System Setup"

3. **Select the slot (from UNIT 1 to UNIT 4) where the LV 58SER04 receiving the audio signal is installed and the PID that you want to decode.**

    The PID that you select appears at the upper right of the screen.

4. **Press** $\boxed{\text{AUDIO}}$.

5. **If the Dolby E option is installed, set DECODE MODE to OFF.**

    To do so, press $\boxed{\text{F•6}}$ DOLBY-E SETUP > $\boxed{\text{F•1}}$ CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

6. **Press** $\boxed{\text{F•1}}$ **CHANNEL SELECT to set the output channels to 1-8ch.**

    See section 7.1, "Selecting Measurement Channels"

* Select the unit number in which the LV 58SER40(A) is installed.

5.3.4   To Transmit Dolby Signals That Are Embedded in DVB-ASI Signals

Dolby E and Dolby Digital signals that are embedded in DVB-ASI signals can be converted to PCM audio signals and transmitted from this unit's BNC connectors in AES/EBU format. To do so, configure the LV 5800 as described below.
This feature requires the LV 58SER04 (MPEG DECODER), the LV 58SER40A, and the Dolby E option. The signals will not be converted to PCM audio signals if you are using the LV 58SER40.
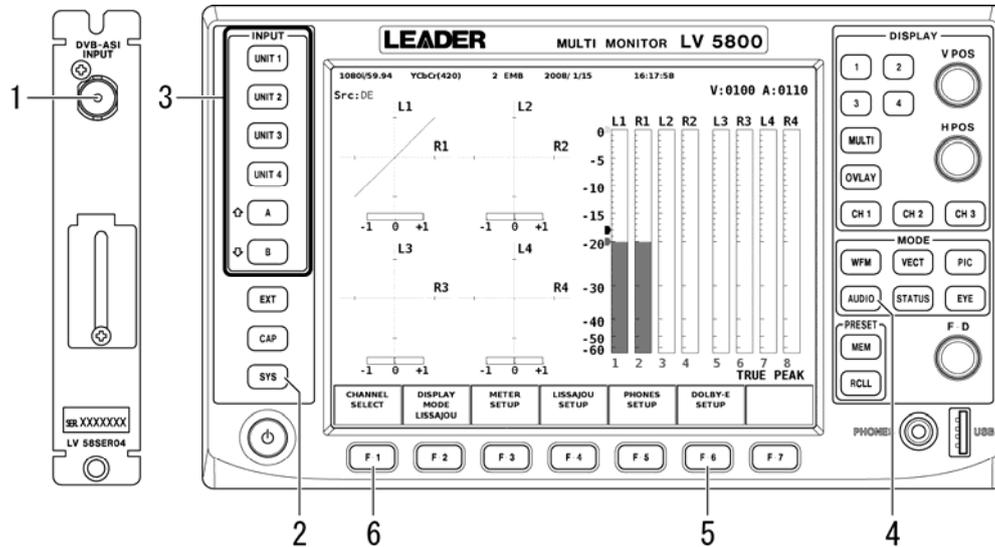
Figure 5-13   Transmitting Dolby signals that are embedded in DVB-ASI signals

1. **Apply DVB-ASI signals to the LV 58SER04 BNC connectors.**

2. **Set External BNC to OUTPUT.**

    To do so, press $\boxed{SYS}$ > $\boxed{F•1}$ UNIT SETUP > $\boxed{F•\#}$ UNIT#* SETUP. If there are signals being applied to the LV 58SER40A BNC connectors, remove the cables first.
    See section 7.5, "System Setup"

3. **Select the slot (from UNIT 1 to UNIT 4) where the LV 58SER04 receiving the audio signal is installed and the PID that you want to decode.**

    The PID that you select appears at the upper right of the screen.

4. **Press** $\boxed{AUDIO}$.

5. **Set DECODE MODE to DOLBY-E or DOLBY-DIGITAL, and select the input channels.**

    To do so, press $\boxed{F•6}$ DOLBY-E SETUP > $\boxed{F•1}$ CHANNEL SETTING.
    See section 7.3, "Dolby Setup"

6. **Press** $\boxed{F•1}$ **CHANNEL SELECT to set the output channels.**

    When $\boxed{F•3}$ MIX MODE is set to ON, the audio signal is transmitted from AES/EBU CH1 to CH8 and the Dolby signal is transmitted from AES/EBU CH9 to CH16. (You cannot select ON when the 2-screen display is enabled.) The Dolby signal is only transmitted if the optional I/O expansion unit is installed.
    See section 7.1, "Selecting Measurement Channels"

*   Select the unit number in which the LV 58SER40A is installed.

5.4 Headphone Output

The following signals can be transmitted from the PHONES jack on the front panel when this unit is installed in an LV 5800 input slot (from UNIT 1 to UNIT 4) or the LV 7800.

• Audio signals that are embedded in SDI signals
• Dolby signals that are embedded in SDI signals (LV 58SER40A only)
• Audio signals that are embedded in DVB-ASI signals
• Dolby signals that are embedded in DVB-ASI signals (LV 58SER40A only)
• Audio signals that are received through the rear panel BNC connectors (LV 58SER40A only)
• Dolby signals that are received through the rear panel BNC connectors (LV 58SER40A only)
• Analog audio signals that are received through the remote connector (LV 58SER40A only)

To do so, configure the LV 5800 as described below.
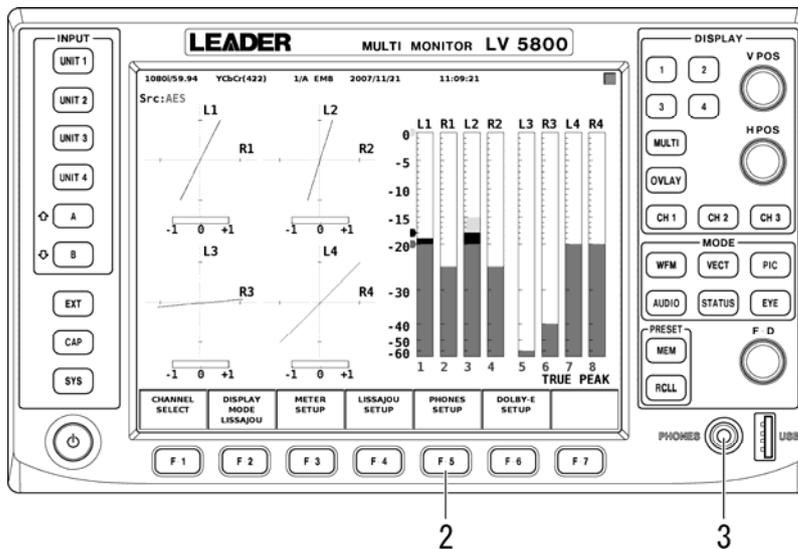
Figure 5-14   Audio signal output from the PHONE jack

1. **Configure the LV 5800 by referring to the steps for the appropriate input signal indicated below.**

    Audio Signals That Are Embedded in SDI Signals   Steps 1 to 4 in section 5.2.1
    Dolby Signals That Are Embedded in SDI Signals   Steps 1 to 4 in section 5.2.2
    Audio Signals That Are Embedded in DVB-ASI Signals   Steps 1 to 4 in section 5.2.3
    Dolby Signals That Are Embedded in DVB-ASI Signals   Steps 1 to 4 in section 5.2.4
    Audio Signals That Are Received through the Rear Panel BNC Connectors
                                                              Steps 1 to 5 in section 5.2.5
    Dolby Signals That Are Received through the Rear Panel BNC Connectors
                                                              Steps 1 to 5 in section 5.2.6
    Analog Audio Signals   Steps 1 to 3 in section 5.2.7

2. **Press F•5 PHONES SETUP to configure the headphone settings.**

    Press F•1 PHONES VOLUME to set the headphone volume. Press F•2 PHONES L/Rch to select the channel pair that you want to hear.
    F•1 PHONES VOLUME does not appear on the LV 7800. Use the VOLUME knob on the front panel to set the headphone volume.
    See section 7.2, "Configuring the Headphone Settings"

6. MEASUREMENT DISPLAYS

6.1 Lissajous Display

6.1.1 Lissajous Display Screen

The Lissajous display shows the Lissajous waveform between any two signals and the correlation meter. The correlation meter indicates the phase between two signals. A value of +1 indicates in-phase, -1 indicates reversed phase, and 0 indicates no correlation.

To display the Lissajous waveform, press AUDIO or UNIT #*, and then press F•2 DISPLAY MODE to select LISSAJOU.

*   Select the unit number in which the LV 58SER40(A) is installed.

Audio menu

CHANNEL SELECT	DISPLAY MODE LISSAJOU	METER SETUP	LISSAJOU SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

Figure 6-1   Audio menu

If the number of measurement channels is set to eight (and MIX MODE is not ON), the left half of the screen displays Lissajous waveforms, and the right half displays meters for the eight channels. (Meters are not displayed when the 2-screen display is enabled.)
See section 7.1, "Selecting Measurement Channels"
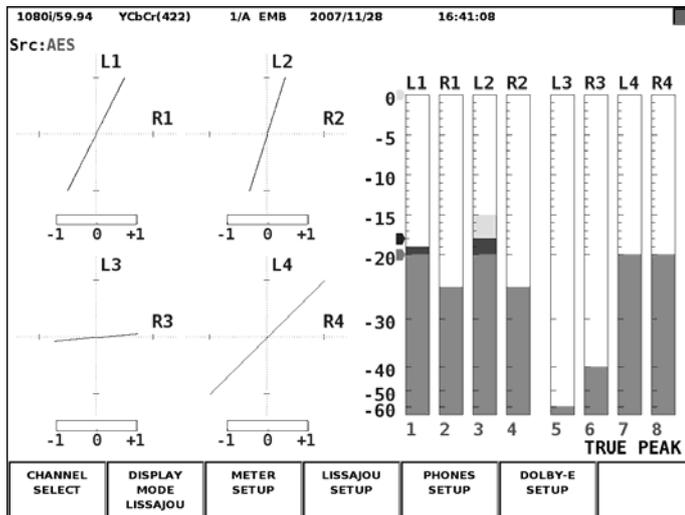
Figure 6-2   Lissajous display for eight channels

If the number of measurement channels is set to 16, 16 channels of Lissajous waveforms will be displayed.

See section 7.1, "Selecting Measurement Channels"
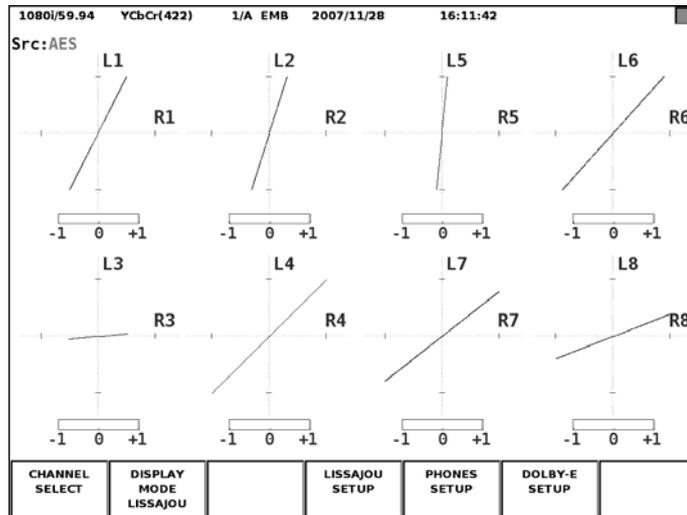
Figure 6-3   Lissajous display for 16 channels

If F•7 INPUT SELECT in the audio menu is set to ANALOG, the left half of the screen displays a Lissajous waveform, and the right half displays two channels of meters. (Meters are not displayed when the 2-screen display is enabled.)
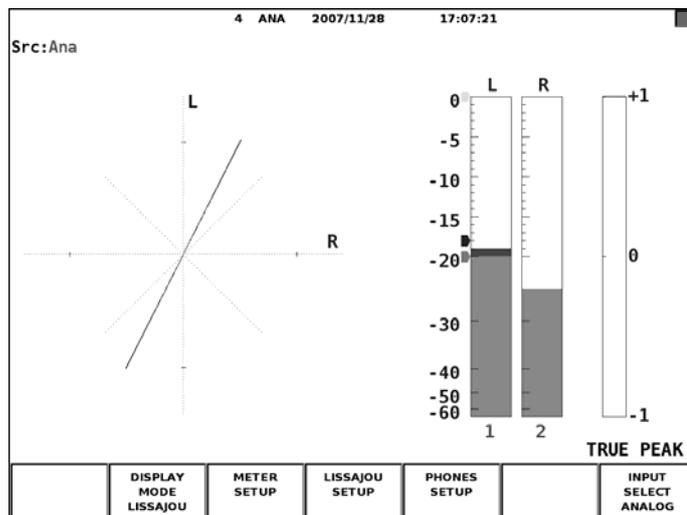
Figure 6-4   Lissajous display for 2 channels

When F•3 MIX MODE in the channel selection menu is set to ON, the Lissajous waveforms for eight audio signal channels and for eight Dolby signal channels are displayed on the left and right sides of the screen, respectively.

In the channel mapping screen, when INPUT GROUP is a channel group from CH1/2 to CH7/8, audio signal channels 1 to 8 are displayed; when INPUT GROUP is a channel group from CH9/10 to CH15/16, audio signal channels 9 to 16 are displayed.
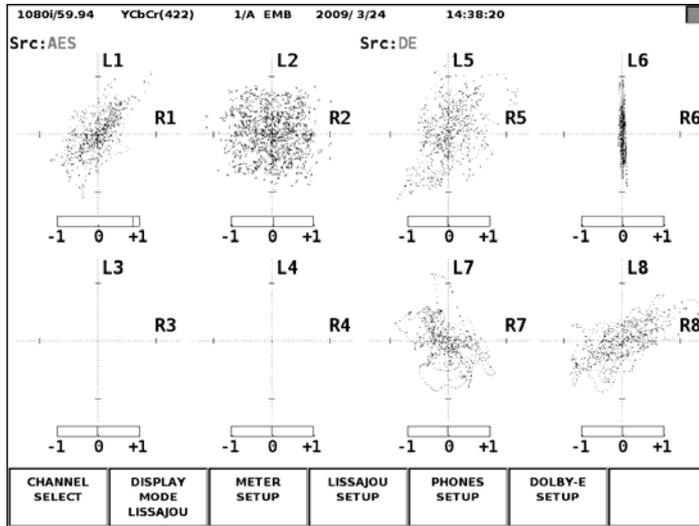
Figure 6-5   MIX MODE Lissajous display

6.1.2   Configuring the Lissajous Display

To configure the Lissajous display, press F•4 LISSAJOU SETUP in the audio menu. F•4 LISSAJOU SETUP appears when the Lissajous display is showing.

Audio menu

CHANNEL SELECT	DISPLAY MODE LISSAJOU	METER SETUP	LISSAJOU SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

⬇

Lissajous setup menu

LISSAJOU INTEN 0	SCALE INTEN 4	DISPLAY MULTI	FORM X-Y	AUTO GAIN ON	CHANNEL MAPPING	up menu

Figure 6-6   Lissajous setup menu

The items in the Lissajous setup menu are described below.

- $\boxed{\text{F•1}}$ **LISSAJOU INTEN**

    Turn F•D to set the Lissajous waveform intensity. The selectable range is from -128 to 127 (256 levels). Pressing F•D resets the intensity to the default value (0).

- $\boxed{\text{F•2}}$ **SCALE INTEN**

    Turn F•D to set the scale intensity. The selectable range is from -8 to 7 (16 levels). Pressing F•D resets the intensity to the default value of 4.

- $\boxed{\text{F•3}}$ **DISPLAY**

    Select the Lissajous waveform display format from the available settings below. If $\boxed{\text{F•7}}$ INPUT SELECT in the audio menu is set to ANALOG, the display format is fixed at SINGLE.

    SINGLE   Single Lissajous display that shows a Lissajous waveform for two channels.

    MULTI   Multi Lissajous display that shows Lissajous waveforms for 8 or 16 channels.

- $\boxed{\text{F•4}}$ **FORM**

    Select the scale display format from the available settings below.

    X-Y   Assigns the L and R axes to the vertical and horizontal axes, respectively.

    MATRIX   Tilts the L and R axes 45° with respect to X-Y.

X-Y   MATRIX
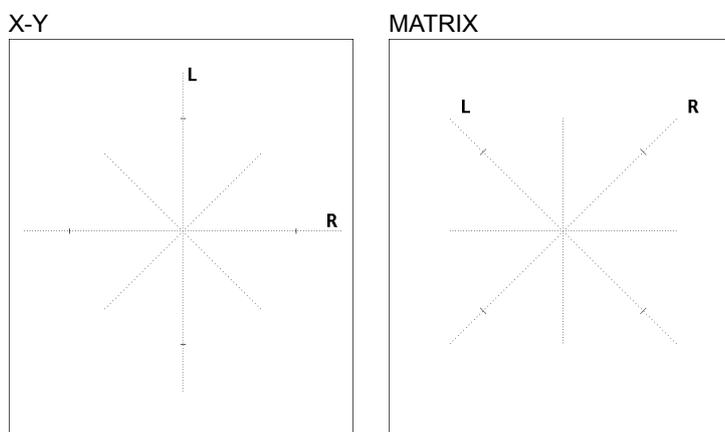
Figure 6-7   Scale display format

- $\boxed{\text{F•5}}$ **AUTO GAIN**

    Set the Lissajous waveform auto gain control (AGC).

    ON   Automatically adjusts the gain so that the amplitude of the Lissajous waveform fits within a given range when the input signal level is from 0 to -40 dBFS.

    OFF   Does not automatically adjust the amplitude of the Lissajous waveform.

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● $\boxed{\text{F•6}}$ **CHANNEL MAPPING**

Select the channels that you want to map to the L and R axes of the Lissajous waveform. Turn F•D to select the channel you want to map to the L and R axes separately, and press F•D to confirm the selection. The selected channels appear at the bottom of the meter.

There are separate channel mapping screens for single Lissajous and multi Lissajous. Set them accordingly.

The operations you can carry out on the channel mapping screen are as follows:

$\boxed{\text{F•1}}$ COMPLETE   Applies the settings and closes the channel mapping screen.
$\boxed{\text{F•2}}$ PREV TAB   Returns to the previous tab screen.
$\boxed{\text{F•3}}$ NEXT TAB   Proceeds to the next tab screen.
$\boxed{\text{F•7}}$ CANCEL   Closes the channel mapping screen without applying the settings.

The figure below shows the channel mapping screen for the single Lissajous waveform when the number of measurement channels is 16.

Figure 6-8   Channel mapping screen for the single Lissajous waveform

The down mixing calculations described below is performed on Lt and Rt according to the channels mapped using $\boxed{\text{F•6}}$ CHANNEL MAPPING in the surround setup menu.
See section 6.2.2, "Configuring the Surround Display"

$Lt = 1/\sqrt{2}\ (\ L + 1/\sqrt{2} * C + 1/\sqrt{2} * Ls\ )$
$Rt = 1/\sqrt{2}\ (\ R + 1/\sqrt{2} * C + 1/\sqrt{2} * Rs\ )$

The following figure shows the channel mapping screens for multiple Lissajous waveforms when the number of measurement channels is 16.

Figure 6-9   Channel mapping screens for multi Lissajous waveforms

6.2   Surround Display

6.2.1   Surround Display Screen

The surround display shows surround waveforms of channels mapped to the axes.

To display the surround waveform, press AUDIO or UNIT #*, and then press F•2 DISPLAY MODE to select SURROUND. (The surround waveform cannot be displayed if the number of measurement channels is 16, if the input signal is analog, or if MIX MODE is ON.)

*   Select the unit number in which the LV 58SER40(A) is installed.

Audio menu

CHANNEL SELECT	DISPLAY MODE SURROUND	METER SETUP	SURROUND SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

Figure 6-10   Audio menu

The left half of the surround display shows the surround waveform, and the right half shows meters. (Meters are not displayed when the 2-screen display is enabled.)
If adjacent channels (including Lch and Rch for PHANTOM C) are of opposite phases, the scale between the channels is displayed in red.
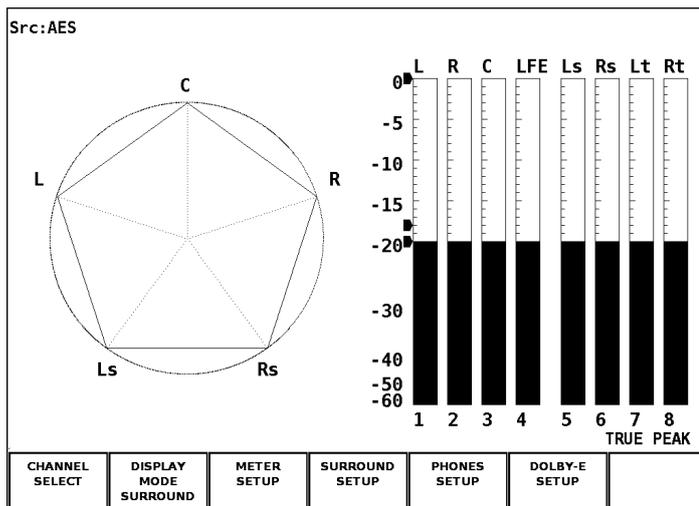
Figure 6-11   Surround display

6.2.2   Configuring the Surround Display

To configure the surround display, press F•4 SURROUND SETUP in the audio menu. F•4 SURROUND SETUP appears when the surround display is showing.

Audio menu

CHANNEL SELECT	DISPLAY MODE SURROUND	METER SETUP	SURROUND SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

⬇

Surround setup menu

SURROUND INTEN 100	SCALE INTEN 4	SURROUND 5.1 NORMAL		AUTO GAIN ON	CHANNEL MAPPING	up menu

Figure 6-12   Surround setup menu

The items in the surround setup menu are described below.

● F•1 **SURROUND INTEN**

Turn F•D to set the surround waveform intensity. The selectable range is from -128 to 127 (256 levels). Pressing F•D resets the intensity to the default value (100).

● F•2 **SCALE INTEN**

Set the scale intensity by turning F•D. The selectable range is from -8 to 7 (16 levels). Pressing F•D resets the intensity to the default value (4).

● F•3 **SURROUND 5.1**

Select the surround waveform display format from the available settings below.

NORMAL   A waveform that combines Lch, Rch, Lsch, Rsch, and Cch (hard center) is displayed.

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

NORMAL   PHANTOM C
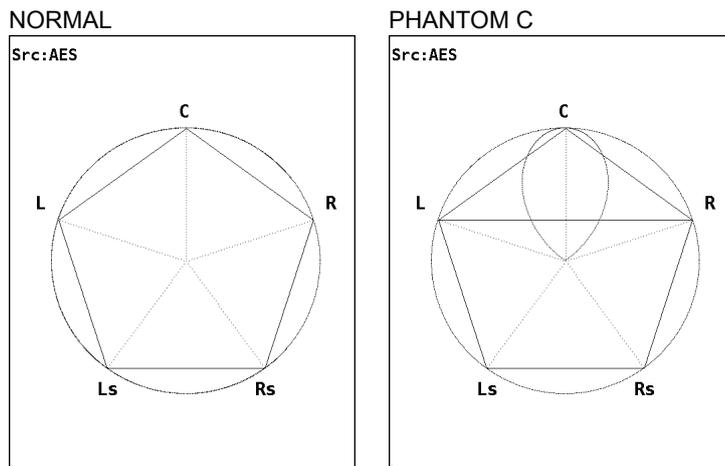
Figure 6-13   Surround formats of surround waveforms

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● F•5 **AUTO GAIN**

Set the surround waveform auto gain control (AGC).

ON   Automatically adjusts the gain so that the amplitude of the surround waveform fits within a given range when the input signal level is from -25 to 0 dBFS.

OFF   Does not automatically adjust the amplitude of the surround waveform.

● F•6 **CHANNEL MAPPING**

Map the channels to the L, R, C, LFE, Ls, Rs, Lt, and Rt axes of the surround waveform. Turn F•D to select the channel you want to map to each axis, and press F•D to confirm the selection. The selected channels appear at the bottom of the meter.

This setting affects the Lt and Rt calculations that are performed when using F•6 CHANNEL MAPPING in the Lissajous setup menu.

The operations you can carry out on the channel mapping screen are as follows:

F•1 COMPLETE   Applies the settings and closes the channel mapping screen.
F•7 CANCEL   Closes the channel mapping screen without applying the settings.

```
Surround
    Channel Mapping
    L        ☑ CH1  □ CH2  □ CH3  □ CH4  □ CH5  □ CH6  □ CH7  □ CH8
    R          □ CH1  ☑ CH2  □ CH3  □ CH4  □ CH5  □ CH6  □ CH7  □ CH8
    C          □ CH1  □ CH2  ☑ CH3  □ CH4  □ CH5  □ CH6  □ CH7  □ CH8
    LFE        □ CH1  □ CH2  □ CH3  ☑ CH4  □ CH5  □ CH6  □ CH7  □ CH8
    Ls         □ CH1  □ CH2  □ CH3  □ CH4  ☑ CH5  □ CH6  □ CH7  □ CH8
    Rs         □ CH1  □ CH2  □ CH3  □ CH4  □ CH5  ☑ CH6  □ CH7  □ CH8
Lt/Lo(LL) □ CH1  □ CH2  □ CH3  □ CH4  □ CH5  □ CH6  ☑ CH7  □ CH8
Rt/Ro(RR) □ CH1  □ CH2  □ CH3  □ CH4  □ CH5  □ CH6  □ CH7  ☑ CH8




   COMPLETE                                             CANCEL
```

Figure 6-14   Channel mapping screen for surround waveforms

6.3 Status Display

6.3.1 Status Display Screen

The status screen displays information such as the level, the error count, and the time from reset for each channel. The top and bottom lines of each status item correspond to the channel indicated to the left of the slash and that indicated to the right of the slash, respectively.

To display the status screen, press AUDIO or UNIT #*, and then press F•2 DISPLAY MODE to select STATUS. (The status screen cannot be displayed if the input signal is analog.)

* Select the unit number in which the LV 58SER40(A) is installed.

Audio menu

CHANNEL SELECT	DISPLAY MODE STATUS	METER SETUP	STATUS SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

Figure 6-15   Audio menu

If the number of measurement channels is set to eight (and MIX MODE is not ON), the left half of the screen displays the status, and the right half displays meters for the eight channels. (Meters are not displayed when the 2-screen display is enabled.)
See section 7.1, "Selecting Measurement Channels"
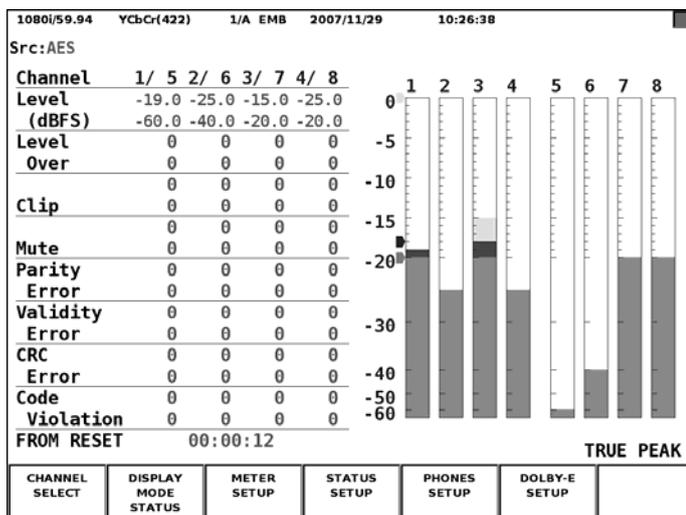
Figure 6-16   Status screen for eight channels

If the number of measurement channels is set to 16, the status for 16 channels will be displayed.

See section 7.1, "Selecting Measurement Channels"

Figure 6-17   16-channel status screen

When F•3 MIX MODE in the channel selection menu is set to ON, the statuses for eight audio signal channels and for eight Dolby signal channels are displayed on the left and right sides of the screen, respectively. When INPUT GROUP is a channel group from CH1/2 to CH7/8, audio signal channels 1 to 8 are displayed. When INPUT GROUP is a channel group from CH9/10 to CH15/16, audio signal channels 9 to 16 are displayed.
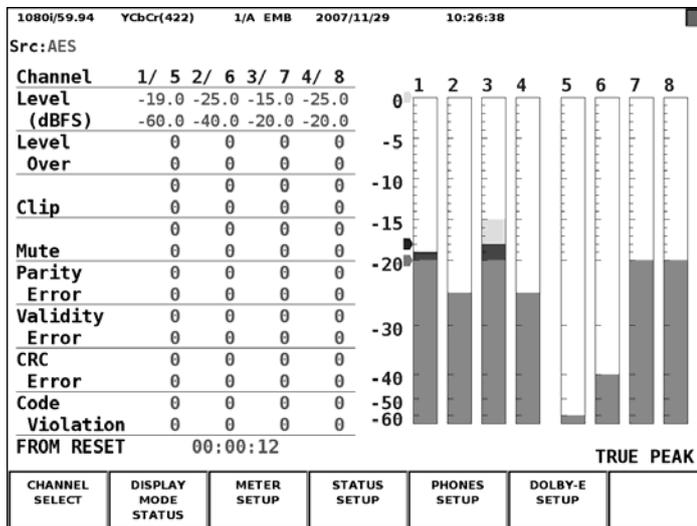
Figure 6-18   MIX MODE status screen

The items in the status display screen are described below.
The error count is not displayed for any of the following items whose error detection is set to OFF on the system configuration's unit setup screen.
See section 7.5, "System Configuration"

● **Channel**

Indicates the channels. For channels delimited by a slash, the channel to the left and the channel to the right of the slash correspond to the top and bottom lines of each status item, respectively.

● **Level(dBFS)**

Indicates the numerical input signal levels. The unit is dBFS. If there is no input, U.L will be displayed, and the subsequent items will be blank.

● **Level Over**

This counter is incremented each time the input signal level exceeds the OVER LEVEL value set using F•6 METER SETTING in the meter setup menu. The maximum error count is 9999. You can reset the counter back to zero.
See section 6.4.2, "Configuring the Meter Display"

● **Clip**

This counter is incremented if the maximum input signal occurs consecutively exceeding the sample count that is specified by the Clip setting in system setup. The maximum error count is 9999. You can reset the counter back to zero.
See section 7.5, "System Setup"

● **Mute**

This counter is incremented if the 0x0 input signal occurs continuously exceeding the time specified by the Mute setting in system setup. The maximum error count is 9999. You can reset the counter back to zero.
Audio signals that are extracted from DVB-ASI signals are not supported. The error count will not be displayed for these signals.
See section 7.5, "System Setup"

● **Parity Error**

This counter is incremented when the input signal parity bit differs from the parity bit that this unit calculates internally. This counter only handles HD-SDI signals when measuring audio signals that are embedded in SDI signals. The error count will be blank if you apply SD-SDI signals. The counter also does not handle audio signals that are embedded in DVB-ASI signals. The error count will be blank if you apply DVB-ASI signals. The maximum error count is 9999. You can reset the counter back to zero.
Audio signals that are extracted from SD-SDI or DVB-ASI signals are not supported. The error count will not be displayed for these signals.

● **Validity Error**

This counter is incremented when the input signal parity bit is 1. The maximum error count is 9999. You can reset the counter back to zero.

● **CRC Error**

This counter is incremented if the CRC value of the input signal's channel status bit is different from the CRC value that this unit calculates internally. The maximum error count is 9999. You can reset the counter back to zero.

● **Code Violation**

This counter is incremented when the bi-phase modulation status of the input signal is determined to be in error. The maximum error count is 9999. You can reset the counter back to zero.

● **FROM RESET**

Indicates the time since you pressed $\boxed{\text{F•6}}$ ERROR RESET in the status setup menu.

See section 6.3.2, "Configuring the Status Display"

The following items appear when DECODE MODE is DOLBY-E or DOLBY-DIGITAL.

● **Dolby CRC Error**

This counter is incremented if the CRC value of the Dolby signal is different from the CRC value that is calculated internally by the Dolby E option. The maximum error count is 9999. You can reset the counter back to zero.

● **Frame Location**

Indicates the location of the header embedded in the SDI input signal and the mode (16-, 20-, or 24-bit). Does not appear when a slot with the LV 58SER40(A) installed is selected.

● **ch**

The channel that INPUT GROUP has been set to appears.

6.3.2 Configuring the Status Display

To configure the status display, press F•4 STATUS SETUP in the audio menu. F•4 STATUS SETUP appears when the status display is showing.

Audio menu

CHANNEL SELECT	DISPLAY MODE STATUS	METER SETUP	STATUS SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

⬇

Status setup menu

		CHANNEL STATUS	USER BIT	EVENT LOG	ERROR RESET	up menu
DOLBY E METADATA	EBI METADATA					
DOLBY D METADATA	EBI METADATA					

Figure 6-19   Status setup menu

The items in the status setup menu are described below.

● **F•1 DOLBY E METADATA**

This menu appears when you set DECODE MODE to DOLBY-E using F•1 CHANNEL SETTING in the Dolby setup menu.
Press F•1 DISPLAY PROGRAM to view the metadata of the selected program number.

See section 7.3, "Dolby Setup"

```
              4    BNC  2007/11/29      14:42:59             ■
Src:DE
 Dolby E Common Metadata Status
  Prog Desc Text
  Bitstrm Format       DE 20bit  SMPTE Timecode    01:00:00:01
  Prog Config              8*1  Framerate            29.97fps
 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       Origianl
  DC Filter                off

 DISPLAY
 PROGRAM                                            up
  PRM1                                             menu
```

Figure 6-20   Dolby E signal metadata display

The Dolby E signal metadata display is described below.

• **Prog Desc Text**

Displays up to 32 characters of the text data corresponding to the program number that you select using $\boxed{\text{F•1}}$ DISPLAY PROGRAM in the status setup menu.

• **Bitstrm Format**

Displays the input signal format.

Table 6-1   Bitstrm Format display

Retrieved value	Displayed information
0	DD 32bit
1	DD 16bit Ch1
2	DD 16bit Ch2
3	DD 16bit Ch1/2
4	DE 24bit
5	DE 20bit
6	DE 16bit
7	PCM

• **Prog Config**

Displays the input signal program configuration.

Table 6-2   Prog Config display

Retrieved value	Displayed information
0	5.1+2
1	5.1+2*1
2	4+4
3	4+2*2
4	4+2+2*1
5	4+4*1
6	4*2
7	3*2+2*1
8	2*2+4*1
9	2+6*1
10	8*1
11	5.1
12	4+2
13	4+2*1
14	3*2
15	2*2+2*1
16	2+4*1
17	6*1
18	4
19	2+2
20	2+2*1
21	4*1

Retrieved value	Displayed information
22	7.1
23	7.1Screen
Other values	not define

• **SMPTE Timecode**

Displays the input signal SMPTE time code.

• **Framerate**

Displays the input signal frame rate.

Table 6-3 Framerate display

Retrieved value	Displayed information
0	reserved
1	23.98fps
2	24fps
3	25fps
4	29.97fps
5	30fps
6	50fps
7	59.94fps
8	60fps
9	unknown
Other values	not define

• **Datarate**

Displays the data rate information in the Dolby Digital metadata embedded in the input signal.

Table 6-4 Datarate display

Retrieved value	Displayed information
0	32kbps
1	40kbps
2	48kbps
3	56kbps
4	64kbps
5	80kbps
6	96kbps
7	112kbps
8	128kbps
9	160kbps
10	192kbps
11	224kbps
12	256kbps
13	320kbps
14	384kbps

Retrieved value	Displayed information
15	448kbps
16	512kbps
17	576kbps
18	640kbps
19 to 30	reserved
31	Not Specified
Other values	not define

• **Bitstrm Mode**

Displays the bitstream mode information in the Dolby Digital metadata embedded in the input signal.

Table 6-5   Bitstrm Mode display

Retrieved value	Displayed information
0	Main Complete
1	Music and Effects
2	Visually Inpaired
3	Hearing Impaired
4	Dialogue
5	Commentary
6	Emergency
7	reserved (when coding mode = 0)
	Voice Over (when coding mode = 1)
	Karaoke (when coding mode > 1)
Other values	not define

• **Coding Mode**

Displays the coding mode information in the Dolby Digital metadata embedded in the input signal.

Table 6-6   Coding Mode display

Retrieved value	Displayed information
0	reserved
1	1/0
2	2/0
3	3/0
4	2/1
5	3/1
6	2/2
7	3/2
Other values	not define

• **Center Mix Lvl**

Displays the center mix level information in the Dolby Digital metadata embedded in the input signal.

Table 6-7   Center Mix Lvl display

Retrieved value	Displayed information
0	-3.0dB
1	-4.5dB
2	-6.0dB
Other values	not define

• **Srnd Mix Lvl**

Displays the surround mix level information in the Dolby Digital metadata embedded in the input signal.

Table 6-8   Srnd Mix Lvl display

Retrieved value	Displayed information
0	-3.0dB
1	-6.0dB
2	-∞dB
Other values	not define

• **Dolby Srnd Mode**

Displays the Dolby surround mode information in the Dolby Digital metadata embedded in the input signal.

Table 6-9   Dolby Srnd Mode display

Retrieved value	Displayed information
0	not indicate
1	off
2	on
Other values	not define

• **LFE Channel**

Displays the LFE channel information in the Dolby Digital metadata embedded in the input signal.

Table 6-10   LFE Channel display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

• **Mix Lvl**

Displays the mix level information in the Dolby Digital metadata embedded in the input signal.

Table 6-11   Mix Lvl display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0 to 31	Level obtained by adding the retrieved value to 80 dB

*   AC-3 Audio Production Information Exists(0x0B)

• **Room Type**

Displays the room type information in the Dolby Digital metadata embedded in the input signal.

Table 6-12   Room Type display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	not indicate
	1	Large Room
	2	Small Room
	Other values	not define

*   AC-3 Audio Production Information Exists(0x0B)

• **Copyright Bit**

Displays the copyright bit in the Dolby Digital metadata embedded in the input signal.

Table 6-13   Copyright Bit display

Retrieved value	Displayed information
0	Not Protected
1	Protected
Other values	not define

• **Orig Bitstrm**

Displays the original bitstream information in the Dolby Digital metadata embedded in the input signal.

Table 6-14   Orig Bitstrm display

Retrieved value	Displayed information
0	Not Original
1	Original
Other values	not define

- **DC Filter**

  Displays the DC highpass filter enable information in the Dolby Digital metadata embedded in the input signal.

  Table 6-15   DC Filter display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

- **Lowpass Filter**

  Displays the bandwidth lowpass filter enable information in the Dolby Digital metadata embedded in the input signal.

  Table 6-16   Lowpass Filter display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

- **LFE Filter**

  Displays the LFE channel lowpass filter enable information in the Dolby Digital metadata embedded in the input signal.

  Table 6-17   LFE Filter display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

- **Srnd Phase Shift**

  Displays the surround 90degree phase shift filter enable information in the Dolby Digital metadata embedded in the input signal.

  Table 6-18   Srnd Phase Shift display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

• **Srnd Attenuator**

Displays the surround channel attenuator enable information in the Dolby Digital metadata embedded in the input signal.

Table 6-19   Srnd Attenuator display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

• **RF Ov Protect**

Displays the RF overmodulation protect enable information in the Dolby Digital metadata embedded in the input signal.

Table 6-20   RF Ov Protect display

Retrieved value	Displayed information
0	off
1	on
Other values	not define

• **Dialnorm Lvl**

Displays the dialog normalization level information in the Dolby Digital metadata embedded in the input signal.

Table 6-21   Dialnorm Lvl display

Retrieved value	Displayed information
1 to 31	Level obtained by adding a minus sign to the retrieved value

- F•1 **DOLBY D METADATA**

  This menu appears when you set DECODE MODE to DOLBY-DIGITAL using F•1
  CHANNEL SETTING in the Dolby setup menu.
  You can view the Dolby Digital signal metadata.
  See section 7.3, "Dolby Setup"
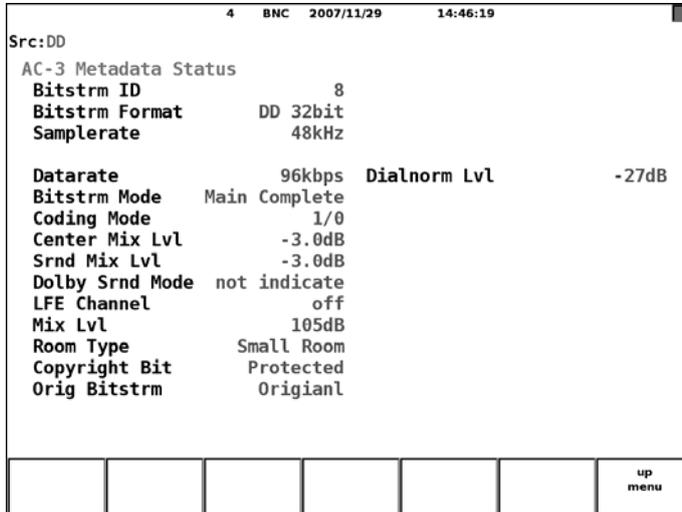
Figure 6-21   Dolby Digital signal metadata display

The Dolby Digital signal metadata display is described below.

- **Bitstrm ID**

  Displays the input signal ID.

- **Bitstrm Format**

  Displays the input signal format (see Table 6-1).

- **Samplerate**

  Displays the input signal sample rate.

Table 6-22   Samplerate display

Retrieved value	Displayed information
0	48kHz
1	44.1kHz
2	32kHz
Other values	not define

- **Datarate**

  Displays the input data rate (see Table 6-4).

- **Bitstrm Mode**

  Displays the input signal bitstream mode (see Table 6-5).

• **Coding Mode**

Displays the input signal coding mode.

Table 6-23　Coding Mode display

Retrieved value	Displayed information
0	1+1
1	1/0
2	2/0
3	3/0
4	2/1
5	3/1
6	2/2
7	3/2
Other values	not define

• **Center Mix Lvl**

Displays the input signal center mix level (see Table 6-7).

• **Srnd Mix Lvl**

Displays the input signal surround mix level (see Table 6-8).

• **Dolby Srnd Mode**

Displays the input signal Dolby surround mode (see Table 6-9).

• **LFE Channel**

Displays the input signal LFE channel (see Table 6-10).

• **Mix Lvl**

Displays the input signal mix level.

Table 6-24　Mix Lvl display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0 to 31	Level obtained by adding the retrieved value to 80 dB

*　Dolby Digital Audio Protection Information Exists (0x0C)

• **Room Type**

Displays the input signal room type (see Table 6-12).

Table 6-25　Room Type display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	not indicate
	1	Large Room
	2	Small Room
	Other values	not define

*　Dolby Digital Audio Production Information Exists(0x0C)

- **Copyright Bit**

  Displays the input signal copyright bit (see Table 6-13).

- **Orig Bitstrm**

  Displays the input signal original bitstream (see Table 6-14).

- **Dialnorm Lvl**

  Displays the input signal dialog normalization level (see Table 6-21).

- F•2 **EBI METADATA (when the input signal is Dolby E)**

  This menu appears when you set DECODE MODE to DOLBY-E using F•1 CHANNEL SETTING in the Dolby setup menu.
  Press F•1 DISPLAY PROGRAM to view the extended bitstream info (EBI) metadata of the selected program number.
  See section 7.3, "Dolby Setup"
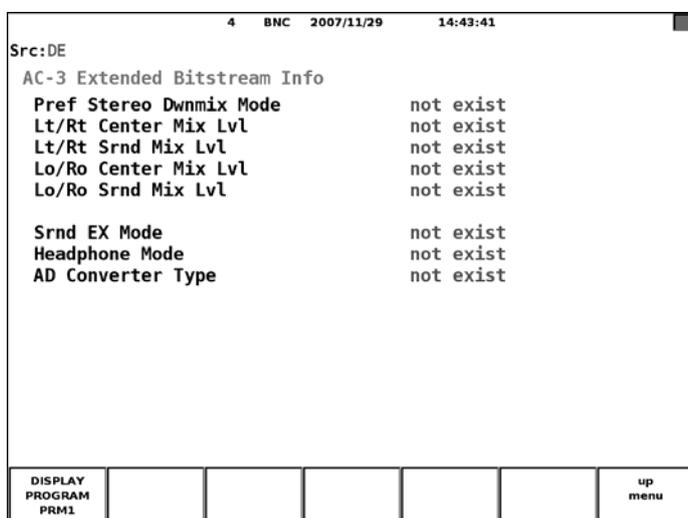
Figure 6-22   Dolby E signal EBI metadata display

The Dolby E signal EBI metadata display is described below.

- **Pref Stereo Dwnmix Mode**

  Displays the extended preferred stereo downmix mode information in the Dolby Digital metadata embedded in the input signal.

  Table 6-26   Pref Stereo Dwnmix Mode display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	not indicate
	1	Lt/Rt Preferred
	2	Lo/Ro Preferred
	Other values	not define

*   AC-3 Extended Bitstream Information1 Exsists(0x10)

• **Lt⁄Rt Center Mix Lvl**

Displays the Lt/Rt center mix level information in the Dolby Digital metadata embedded in the input signal.

Table 6-27   Lt/Rt Center Mix Lvl display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

*   AC-3 Extended Bitstream Information1 Exsists(0x10)

• **Lt⁄Rt Srnd Mix Lvl**

Displays the Lt/Rt surround mix level information in the Dolby Digital metadata embedded in the input signal.

Table 6-28   Lt/Rt Srnd Mix Lvl display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

*   AC-3 Extended Bitstream Information1 Exsists(0x10)

- **Lo∕Ro Center Mix Lvl**

  Displays the Lo/Ro center mix level information in the Dolby Digital metadata embedded in the input signal.

  Table 6-29   Lo/Ro Center Mix Lvl display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

  *   AC-3 Extended Bitstream Information1 Exsists(0x10)

- **Lo∕Ro Srnd Mix Lvl**

  Displays the Lo/Ro surround mix level information in the Dolby Digital metadata embedded in the input signal.

  Table 6-30   Lo/Ro Srnd Mix Lvl display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

  *   AC-3 Extended Bitstream Information1 Exsists(0x10)

- **Srnd EX Mode**

  Displays the Surround EX Mode information in the Dolby Digital metadata embedded in the input signal.

  Table 6-31   Srnd EX Mode display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	not indicate
	1	off
	2	on
	Other values	not define

  *   AC-3 Extended Bitstream Information2 Exsists(0x16)

- **Headphone Mode**

  Displays the Headphone Mode information in the Dolby Digital metadata embedded in the input signal.

  Table 6-32   Headphone Mode display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	-	not define

  *   AC-3 Extended Bitstream Information2 Exsists(0x16)

- **AD Converter Type**

  Displays the AD Converter Type information in the Dolby Digital metadata embedded in the input signal.

  Table 6-33   AD Converter Type display

AC-3*	Retrieved value	Displayed information
0	-	not exist
1	0	standard
	1	HDCD
	Other values	not define

  *   AC-3 Extended Bitstream Information2 Exsists(0x16)

● ⬛F•2⬛ **EBI METADATA (when the input signal is Dolby Digital)**

This menu appears when you set DECODE MODE to DOLBY-DIGITAL using F•1
CHANNEL SETTING in the Dolby setup menu.
You can view the Dolby Digital signal extended bitstream info (EBI) metadata.
See section 7.3, "Dolby Setup"

```
                    4    BNC   2007/11/29      14:46:51          ▮
Src:DD

 AC-3 Extended Bitstream Info
   Pref Stereo Dwnmix Mode                 not exist
   Lt/Rt Center Mix Lvl                    not exist
   Lt/Rt Srnd Mix Lvl                      not exist
   Lo/Ro Center Mix Lvl                    not exist
   Lo/Ro Srnd Mix Lvl                      not exist

   Srnd EX Mode                            not exist
   Headphone Mode                          not exist
   AD Converter Type                       not exist




                                                            up
                                                           menu
```
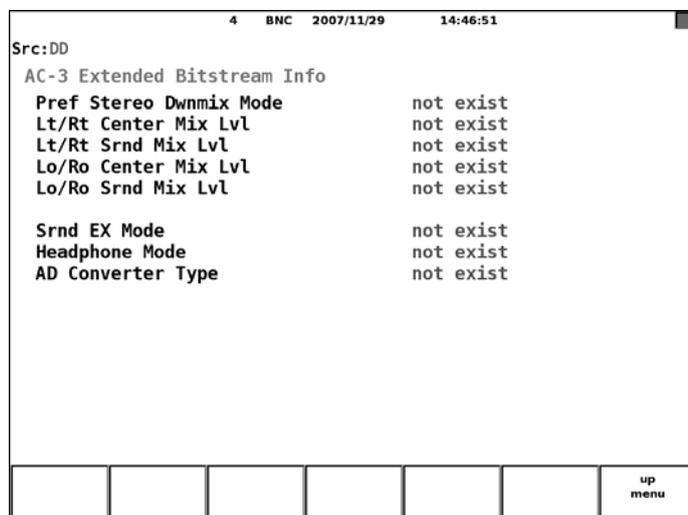
Figure 6-23   Dolby Digital signal EBI metadata display

The Dolby Digital signal EBI metadata display is described below.

• **Pref Stereo Dwnmix Mode**

Displays the input signal extended preferred stereo downmix mode.

Table 6-34   Pref Stereo Dwnmix Mode display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	not indicate
	1	Lt/Rt Preferred
	2	Lo/Ro Preferred
	Other values	not define

*   Dolby Digital Extended Bitstream Information1 Exists(0x11)

- **Lt⁄Rt Center Mix Lvl**

  Displays the input signal Lt/Rt center mix level.

  Table 6-35   Lt/Rt Center Mix Lvl display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

  *   Dolby Digital Extended Bitstream Information1 Exists(0x11)

- **Lt⁄Rt Srnd Mix Lvl**

  Displays the input signal Lt/Rt surround mix level.

  Table 6-36   Lt/Rt Srnd Mix Lvl display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

  *   Dolby Digital Extended Bitstream Information1 Exists(0x11)

• **Lo∕Ro Center Mix Lvl**

Displays the input signal Lo/Ro center mix level.

Table 6-37   Lo/Ro Center Mix Lvl display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

*   Dolby Digital Extended Bitstream Information1 Exists(0x11)

• **Lo∕Ro Srnd Mix Lvl**

Displays the input signal Lo/Ro surround mix level.

Table 6-38   Lo/Ro Srnd Mix Lvl display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	+3.0dB
	1	+1.5dB
	2	0.0dB
	3	-1.5dB
	4	-3.0dB
	5	-4.5dB
	6	-6.0dB
	7	-∞dB
	Other values	not define

*   Dolby Digital Extended Bitstream Information1 Exists(0x11)

- **Srnd EX Mode**

  Displays the input signal Surround EX Mode.

  Table 6-39　Srnd EX Mode display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	not indicate
	1	off
	2	on
	Other values	not define

  *　Dolby Digital Extended Bitstream Information2 Exists(0x17)

- **Headphone Mode**

  Displays the input signal Headphone Mode.

  Table 6-40　Headphone Mode display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	-	not define

  *　Dolby Digital Extended Bitstream Information2 Exists(0x17)

- **AD Converter Type**

  Displays the input AD Converter Type.

  Table 6-41　AD Converter Type display

Dolby D*	Retrieved value	Displayed information
0	-	not exist
1	0	standard
	1	HDCD
	Other values	not define

  *　Dolby Digital Extended Bitstream Information2 Exists(0x17)

- **F•3 CHANNEL STATUS**

   Press F•1 DISPLAY CHANNEL to view the metadata of the selected channel. Press F•2 ALIGN to select whether to display LSB first or MSB first.

```
1080i/59.94   YCbCr(422)     1/A EMB   2007/11/29        11:22:19

Src:AES
   AES/EBU CHANNEL STATUS DISPLAY  AES-3

FORMAT        : Professional     Byte : 01234567          01234567
AUDIO DATA    : PCM               00 : 10100001   12 : 00000000
EMPHASIS      : No emphasis       01 : 00010001   13 : 00000000
SIGNAL LOCK   : Locked            02 : 00010100   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    : 20bits            07 : 00000000   19 : 00000000
ALIGNMENT     : Not indicated     08 : 00000000   20 : 00000000
ORIGIN        :                   09 : 00000000   21 : 00000000
DESTINATION   :                   10 : 00000000   22 : 00001000
TIME-OF-DAY   : 00:00:00          11 : 00000000   23 : 10111111
CRC           : NORMAL


 DISPLAY    ALIGN                                          up
 CHANNEL                                                  menu
    1       LSB 1st
```

Figure 6-24   Channel status display

The items in the channel status display are described below.

- **FORMAT**

   Displays the input signal type.

   Table 6-42   FORMAT display

Byte	Bit	Retrieved value	Displayed information
00	0	0	Consumer
		1	Professional

- **AUDIO DATA**

   Displays the input signal receive mode.

   Table 6-43   AUDIO display

Byte	Bit	Retrieved value	Displayed information
00	1	0	PCM
		1	No-PCM

• **EMPHASIS**

Displays the input signal emphasis mode.

Table 6-44　EMPHASIS display

Byte	Bit	Retrieved value	Displayed information
00	4..2	000	Not indicated
		001	No emphasis
		011	50/15-us
		111	CCITT J.17
		Other values	Reserved

• **SIGNAL LOCK**

Displays the input signal lock status.

Table 6-45　SIGNAL LOCK display

Byte	Bit	Retrieved value	Displayed information
00	5	0	Locked
		1	unlocked

• **SAMPLING FREQ**

Displays the input signal sampling frequency.

Table 6-46　SAMPLING FREQ display 1

Byte	Bit	Retrieved value	Byte	Bit	Retrieved value	Displayed information
00	7..6	10	04	7	0	48kHz
					1	48kHz/1.001
		01	04	7	0	44.1kHz
					1	44.1kHz/1.001
		11	04	7	0	32kHz
					1	32kHz/1.001
		00	-	-	-	See Table 6-47.

Table 6-47   SAMPLING FREQ display 2

Byte	Bit	Retrieved value	Byte	Bit	Retrieved value	Displayed information
04	7..3	0000	-	-	-	Not indicated
		0001	04	7	0	24kHz
					1	24kHz/1.001
		0010	04	7	0	96kHz
					1	96kHz/1.001
		0011	04	7	0	192kHz
					1	192kHz/1.001
		0100 to 1000	-	-	-	Reserved
		1001	04	7	0	22.05kHz
					1	22.05kHz/1.001
		1010	04	7	0	88.2kHz
					1	88.2kHz/1.001
		1011	04	7	0	176.4kHz
					1	176.4kHz/1.001
		1100 to 1110	-	-	-	Reserved
		1111	-	-	-	User defined

• **REFERENCE**

Displays the input signal reference mode.

Table 6-48   REFERENCE display

Byte	Bit	Retrieved value	Displayed information
04	1..0	00	Not reference
		10	Grade1
		01	Grade2
		11	Reserved

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• **CH MODE**

Displays the input signal channel mode.

Table 6-49   CH MODE display

Byte	Bit	Retrieved value	Displayed information
01	3..0	0000	Not indicated
		1000	Two-channel
		0100	Single-channel
		1100	Primary/secondary
		0010	Stereophonic
		0110 to 1010	User defined
		1110	Double sampling
		0001	Double sampling - stereo left
		1001	Double sampling - stereo right
		1111	Multi-channel
		Other values	Reserved

• **RESOLUTION**

Displays the input signal bit resolution.

Table 6-50   RESOLUTION display 1

Byte	Bit	Retrieved value	Displayed information
02	2..0	000	See Table 6-51.
		010	
		100	See Table 6-52.
		Other values	User defined

Table 6-51   RESOLUTION display 2

Byte	Bit	Retrieved value	Displayed information
02	5..3	000	Not indicated
		100	19bits
		010	18bits
		110	17bits
		001	16bits
		101	20bits
		Other values	Reserved

Table 6-52   RESOLUTION display 3

Byte	Bit	Retrieved value	Displayed information
02	5..3	000	Not indicated
		100	23bits
		010	22bits
		110	21bits
		001	20bits
		101	24bits
		Other values	Reserved

• **ALIGNMENT**

Displays the input signal alignment level.

Table 6-53   ALIGNMENT display

Byte	Bit	Retrieved value	Displayed information
02	7..6	00	Not indicated
		10	SMPTE RP155
		01	EBU R68
		11	Reserved

• **ORIGIN**

Display bytes 06 to 09 in the input signal in ASCII code.

• **DESTINATION**

Display bytes 10 to 13 in the input signal in ASCII code.

• **TIME-OF-DAY**

Display bytes 18 to 21 in the input signal converted to time.

• **CRC**

Displays "NORMAL" when the input signal channel status bit's CRC value and the CRC value that the LV 58SER40 calculates match. Displays "ERROR" otherwise.

- **F•4 USER BIT**

  Press F•1 DISPLAY CHANNEL to view the metadata of the selected channel's user bits. Press F•2 ALIGN to select whether to display LSB first or MSB first.
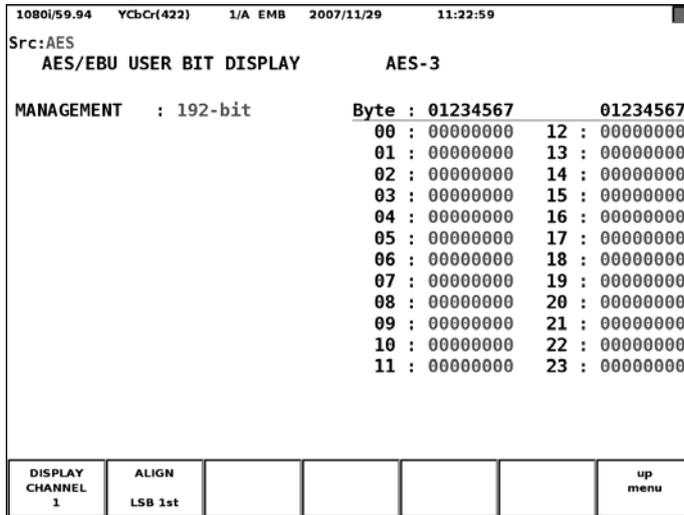
Figure 6-25   User bit display

The user bit display is described below.

• **MANAGEMENT**

Retrieves the input signal encoding information from the channel status and displays it.

Table 6-54   MANAGEMENT display

Byte*	Bit*	Retrieved value	Displayed information
01	7..4	0000	Not indicated
		1000	192-bit
		0100	AES18
		1100	User defined
		0010	IEC60958-3
		Other values	Reserved

*   The byte and bit in the channel status display.

● | F•5 | EVENT LOG (LV 58SER40A only)

You can display a list of the events that have occurred on the installed units.
As an example, the following figure shows the event log when an LV 58SER01A (SDI INPUT) is installed in slot 1, an LV 58SER06 (3G-SDI INPUT) is installed in slot 2, and an LV 58SER40A is installed in slot 3.

```
Src:AES
  ERROR LOG LIST  SAMPLE No.=   28   << NOW LOGGING >>

    28: 2010/06/09 13:45:49 3,- BNC          MUTE:F3,
    27: 2010/06/09 13:43:08 3,- BNC          MUTE:FFF3,
    26: 2010/06/09 13:43:08 3,- BNC          MUTE:FF00,
    25: 2010/06/09 13:43:08 3,- BNC          CRC:00F3,MUTE:FF00,
    24: 2010/06/09 13:43:08 3,- BNC          VAL:000C,CRC:FF00,MU
    23: 2010/06/09 13:43:08 3,- BNC          MUTE:FF00,
    22: 2010/06/09 13:43:01 3,- 1080i/59.94 MUTE:FF00,
    21: 2010/06/09 13:43:01 3,- 1080i/59.94 VAL:00FF,MUTE:FF00,F
    20: 2010/06/09 13:42:58 3,- 1080i/59.94 MUTE:FF00,
    19: 2010/06/09 13:42:58 3,- 1080i/59.94 VAL:0075,MUTE:FF00,F
    18: 2010/06/09 13:42:57 3,- 1080i/59.94 VAL:00FF,CRC:003F,MU
    17: 2010/06/09 13:42:54 3,- 1080i/59.94 MUTE:FF00,
    16: 2010/06/09 13:42:54 2,A 1080i/59.94
    15: 2010/06/09 13:42:54 2,A UnKnown
    14: 2010/06/09 13:42:54 3,- 1080i/59.94 MUTE:FFFF,
    13: 2010/06/09 13:42:54 1,A 1080i/59.94
```

	LOG START	CLEAR	LOG MODE OVER WR		USB MEMORY	up menu

Figure 6-26   Event log

• **Event log explanation**

Events are listed in the event log by the time of their occurrence.
By turning the F•D to the right, you can scroll the screen to view older events in the log.
Also, by pressing the F•D, you can display the latest events in the log.

This unit records events related to audio signals extracted from SDI or DVB-ASI signals and events related to audio signals received through the rear panel BNC connector. For the former, the format of the audio signal is displayed. For the latter, "BNC" is displayed.
Regardless of which signal is recorded, the event log displays the unit number that this unit is installed in.

• Display example of an event related to an audio signal extracted from an SDI or DVB-ASI signal

  22: 2010/06/09 13:43:01 3,- 1080i/59.94 MUTE:FF00,

  The audio signal format is displayed.

• Display example of an event related to an audio signal received through the rear panel BNC connector

  28: 2010/06/09 13:45:49 3,- BNC   MUTE:F3,

  "BNC" is displayed.

• **Event display**

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 on the system configuration's unit setup screen are displayed.

See section 7.5, "System Setup"

Table 6-55   Events

Event Name	Description
OVER	Level over error
CLIP	Clip error
MUTE	Mute error
PAR	Parity error
VAL	Validity error
CRC	CRC error
CODE	Code violation error

• **Channel display**

After the event name, the channels on which the event occurred are displayed using a hexadecimal number (for example: "MUTE:0C"). The channels are displayed in one byte (for 8 channels) or two bytes (for 16 channels) as necessary according to the number of measurement channels.

The channels that are displayed using a hexadecimal number vary as shown below depending on the F•2 DISPLAY MODE setting.

Table 6-56   Channel display

Measurement Channels	F•2 DISPLAY MODE Is Set to SURROUND, STATUS, METER (1- or 4-screen display), or LOUDNESS		F•2 DISPLAY MODE Is Set to LISSAJOU or METER (2-screen display)	
	LSB	MSB	LSB	MSB
1 to 8 ch	1ch	8ch	L1	R4
9 to 16 ch	9ch	16ch	L5	R8
1 to 16 ch	1ch	16ch	L1	R8

For example, if F•2 DISPLAY MODE is set to SURROUND and you are performing measurements on channels 1 to 8, the value 0C (00001100) indicates that events occurred on channels 3 and 4.

If F•2 DISPLAY MODE is set to LISSAJOU and you are performing measurements on channels 9 to 16, the value 0C (00001100) indicates that events occurred on the channels mapped to L6 and R6. Use the channel mapping screen to map channels to L1 to R8.

For details on the channel mapping screen, see section 6.1.2, "Configuring the Lissajous Display."

• **Precautions**

Even if multiple units are installed on the LV 5800, there is only one log file.

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 of the events on the screen. When this happens, you can view all of the events by saving them to USB memory.

The event display is cleared when you initialize the system settings or turn the power on and off.

Switching video formats or input channels may cause disturbances in the signal that will cause errors to be displayed.

• **Starting Event Logging**

Set F•2 LOG to START. "NOW LOGGING" is displayed in the upper right of the screen, and the event log starts. To stop the event log, set F•2 LOG to STOP.

• **Clearing the Event Log**

Press F•3 CLEAR to clear the event log.

• **Selecting the Overwrite Mode**

Press F•4 LOG MODE to select the action to perform when more than 5000 events occur.

OVER WR   When more than 5000 events occur, the LV 5800 writes over older
              events.
STOP   Events after the 5000th event are not logged.

• **Saving to USB Memory**

You can save the event log to USB memory as a text file.
To do so, follow the procedure shown below.

1. **Connect a USB memory device to the USB port.**

2. **Press F•6 USB MEMORY.**

The file list display appears.
This menu item appears when USB memory is connected.

```
External USB DEVICE LOG FILE LIST

    No. FileName              Date        Time       Size(Byte)
     1  log01.txt             2009/ 9/ 8  11:11:13   1172
     2  log01.txt             2009/ 9/ 8  11:11:17   1172
     3  log02.txt             2009/ 9/ 8  11:11:20   1172
     4  log03.txt             2009/ 9/ 8  11:11:26   1172
```

```
     MAX SIZE:   251906 kB
     FREE SIZE:  28096 kB

    LOG.TXT
```

| NAME INPUT | STORE | | FILE DELETE | FILENAME AUTO INC OFF | | up menu |

Figure 6-27   File list display

3. **Press F•1 NAME INPUT.**

The file name input display appears.


```
  0  1  2  3  4  5  6  7  8  9

  A  B  C  D  E  F  G  H  I  J

  K  L  M  N  O  P  Q  R  S  T

  U  V  W  X  Y  Z  _

[F.D NOB] = CHAR SELECT , [F.D PUSH] = CHAR SET
& Function Key EDIT

LOG    STORE FILE NAME
LOG                    .TXT
```

| CLEAR ALL | DELETE | INSERT | <= | => | CHAR SET | up menu |

Figure 6-28   File name input display

4.   **Enter a file name using up to 20 characters.**

The key operations on the file name input display are explained below.
Spaces are invalid. The spaces that you enter are ignored.

F•1 CLEAR ALL	: Deletes all characters.
F•2 DELETE	: Deletes the character at the cursor position.
F•3 INSERT	: Inserts an underscore (_) at the cursor position.
F•4 <=	: Moves the cursor to the left.
F•5 =>	: Moves the cursor to the right.
F•6 CHAR SET	: Enters the selected 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 F•D. If F•5 FILENAME AUTO INC is set to ON, a two-digit number will automatically be added to the end of the copied file name.

5.   **Press F•7 up menu.**

6.   **Press F•2 STORE.**

When the message "Saving file - Please wait." disappears, the file has been successfully saved.
If there is more than one file with the same name in the USB memory, an overwrite confirmation menu appears. If you want to overwrite the current file, press F•1 OVER WR YES. Otherwise, press F•3 OVER WR NO.

Deleting an Event Log

To delete an event log that has been saved to USB memory, select the log file in 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.

Setting File Numbering

When you set F•5 FILENAME AUTO INC in the file list display to ON, a two-digit number is automatically added to the entered file name (starting with 00). The default setting is OFF.
This number returns to 00 if you initialize the settings or turn the power on and off.

USB Memory Folder Structure

Event logs are saved in the LOG folder. If there is no LOG folder in the USB memory, the LV 5800/7800 will create a folder automatically.

    🖴 USB memory
     └ 📁 LOG
         └ 📄 ****.TXT

●   F•6 **ERROR RESET**

Resets the error in the status display to zero.

6.4 Meter Display

6.4.1 Meter Display Screen

The meter screen displays the input signal level and peak hold.[1]

To display the meter screen, press AUDIO or UNIT #[2], and then press F•2 DISPLAY MODE to select METER.
If the number of measurement channels is set to eight (and MIX MODE is not ON) or the input signal is analog and the 1- or 4-screen display is enabled, the right half of the screen displays meters at all times.

1   Peak hold levels are only displayed when you set F•2 RESPONSE in the meter setup menu to VU+*.
2   Select the unit number in which the LV 58SER40(A) is installed.

Audio menu

CHANNEL SELECT	DISPLAY MODE METER	METER SETUP		PHONES SETUP	DOLBY-E SETUP	

Figure 6-29   Audio menu

If the number of measurement channels is eight (and MIX MODE is not ON) and F•2 DISPLAY MODE is set to LISSAJOU or SURROUND, the meters for the channels that were mapped on the channel mapping screen will appear. The mapped channels are displayed below the meter.
If F•2 DISPLAY MODE is set to METER on the 2-screen display, the meters for the channels that were mapped on the Lissajous display's channel mapping screen will appear.
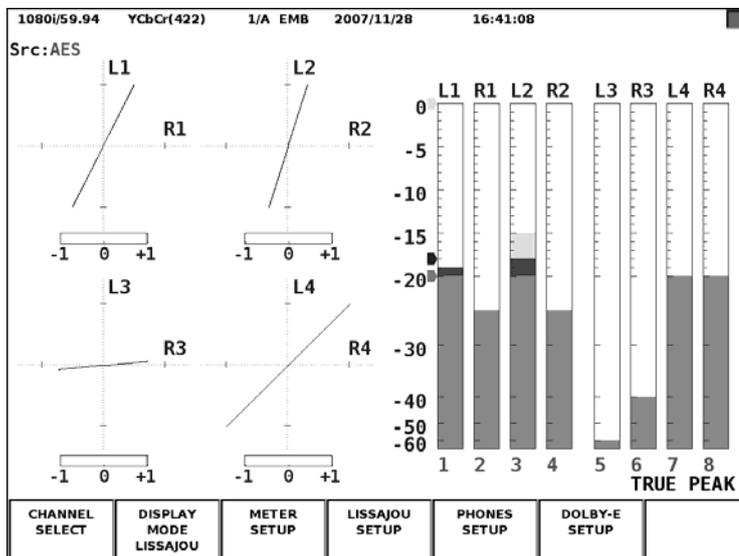

Figure 6-30   Lissajous display for eight channels

If the number of measurement channels is eight (and MIX MODE is not ON) and F•2 DISPLAY MODE is set to STATUS, the meters for the channels that are set using F•2 DISPLAY CHANNELS in the channel selection menu will appear.
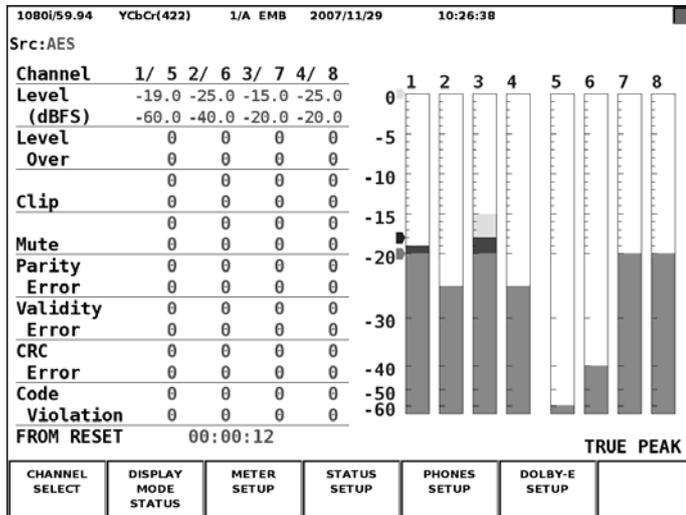

Figure 6-31   Status screen for eight channels

If the number of measurement channels is set to 16, the meters for 16 channels will be displayed.
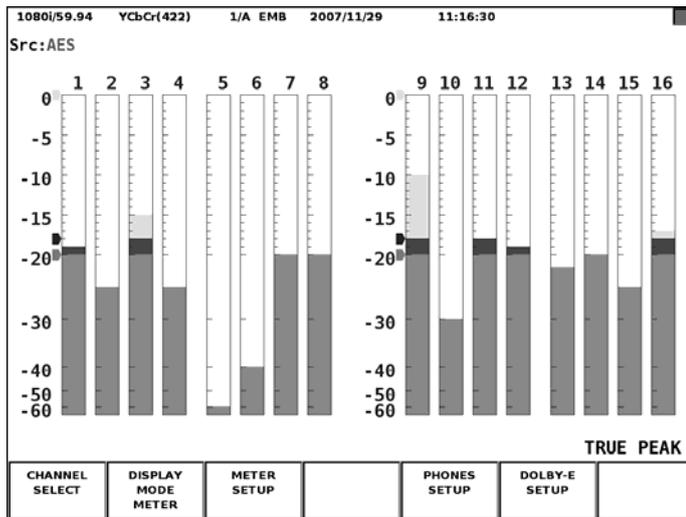

Figure 6-32   Meter display for 16 channels

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When F•3 MIX MODE in the channel selection menu is set to ON, the meters for eight audio signal channels and for eight Dolby signal channels are displayed on the left and right sides of the screen, respectively. When INPUT GROUP is a channel group from CH1/2 to CH7/8, audio signal channels 1 to 8 are displayed. When INPUT GROUP is a channel group from CH9/10 to CH15/16, audio signal channels 9 to 16 are displayed.
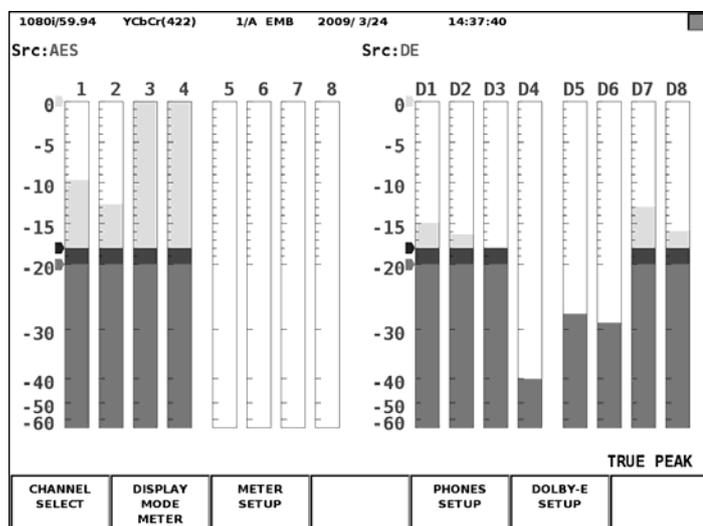

Figure 6-33　MIX MODE meter display

6.4.2　Configuring the Meter Display

To configure the meter display, press F•3 METER SETUP in the audio menu. F•3 METER SETUP appears when the meter display is showing.

Audio menu

CHANNEL SELECT	DISPLAY MODE METER	METER SETUP		PHONES SETUP	DOLBY-E SETUP	

Meter setup menu

DYNAMIC RANGE -60dBFS	RESPONSE TRUE PEAK	PEAK HOLD 0.5			METER SETTING	up menu

Figure 6-34　Meter setup menu

The items in the meter setup menu are described below.

● 　F•1 DYNAMIC RANGE

Select the scale of the meter from available settings below. If F•7 INPUT SELECT in the audio menu is set to ANALOG, the meter scale is fixed at -60dBFS.

-60dBFS　　　Sets the meter scale to 0 to -60 dBFS.
-90dBFS　　　Sets the meter scale to 0 to -90 dBFS.
M A G　　　The meter's scale is set to the meter setting screen's REF LEVEL ± 3 dB. However, this is not applied to the chart display or the loudness meter on the loudness display. The meter will be set to -60dBFS (LV 58SER40A only).

- F•2 RESPONSE

Select the meter response model. The response model that you select appears below the meter on the right.

TRUE PEAK   Sets the level meter response model to TRUE PEAK.

PPM   Sets the level meter response model to PPM (LV 58SER40 only).

PPM(I)   Sets the level meter response model to PPM(I) (LV 58SER40A only).

PPM(II)   Sets the level meter response model to PPM(II) (LV 58SER40A only).

VU+TRUE   Sets the level meter response model to VU.
Sets the peak hold meter response model to TRUE PEAK.

VU+PPM   Sets the level meter response model to VU.
Sets the peak hold meter response model to PPM (LV 58SER40 only).

VU+PPM(I)   Sets the level meter response model to VU.
Sets the peak hold meter response model to PPM(I) (LV 58SER40A only).

VU+PPM(II)   Sets the level meter response model to VU.
Sets the peak hold meter response model to PPM(II) (LV 58SER40A only).

The meter response models are indicated below.

Table 6-57   Meter response models

	Delay time[1]	Return time[2]	Average time
TRUE PEAK	0 msec	1.7 sec	-
PPM / PPM(I)	10 msec	1.7 sec	-
PPM(II)	10 msec	2.8 sec	-
VU	-	-	300 msec

1   The time needed for the level meter to indicate -20 dBFS when the input signal is switched from no input to -20-dBFS, 1-kHz sine wave.

2   The time needed for the level meter to indicate -40 dBFS when the input signal is switched from -20-dBFS, 1-kHz sine wave to no input.

- F•3 PEAK HOLD

Turn F•D to set the peak hold time of the peak hold meter. You can set a time from 0.0 to 5.0 s in 0.5-s steps or specify HOLD. Pressing F•D resets the time to the default value (0.5). This setting only takes effect when F•2 RESPONSE is set to VU+*.

- ● $\boxed{\text{F•6}}$ **METER SETTING**

  Set the meter reference level. Press F•D and turn it to set the value. Press F•D again to confirm the value.

  The function keys in the meter setting screen operate as follows:

  $\boxed{\text{F•1}}$ COMPLETE   Applies the settings and closes the meter setting screen.
  $\boxed{\text{F•7}}$ CANCEL   Closes the meter setting screen without applying the settings.

Figure 6-35　Meter setting screen

The items in the meter setting screen are described below.

- • **OVER LEVEL**

  The value specified here is indicated with a red arrow at the corresponding level in the meter screen.
  The Level Over counter in the status screen is incremented if the audio signal level exceeds this value.

- • **WARNING LEVEL**

  The value specified here is indicated with a yellow arrow at the corresponding level in the meter screen.
  The part above the yellow arrow appears in red, and the part below it appears in yellow.

- • **REF LEVEL**

  The value specified here is indicated with a green arrow at the corresponding level in the meter screen.
  The part above the green arrow appears in yellow, and the part below it appears in green.

6.5 Loudness Display (LV 58SER40A only)

6.5.1 Loudness Display Screen

On the loudness screen, loudness values are displayed on a chart, on a meter, and as values.

To display the loudness screen, press AUDIO or UNIT #*, and then press F•2 DISPLAY MODE to select LOUDNESS. This option cannot be selected when the input signal is analog or when MIX MODE is set to ON.

* Select the unit number in which the LV 58SER40A is installed.

Audio menu

CHANNEL SELECT	DISPLAY MODE LOUDNESS	METER SETUP	LOUDNESS SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

Figure 6-36   Audio menu

The loudness screen is shown below.

One input (MAIN) measurement
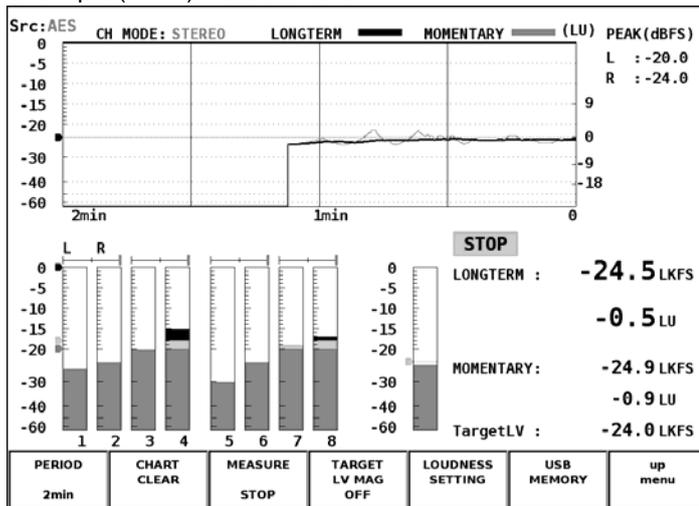
Two input (MAIN and SUB) measurement
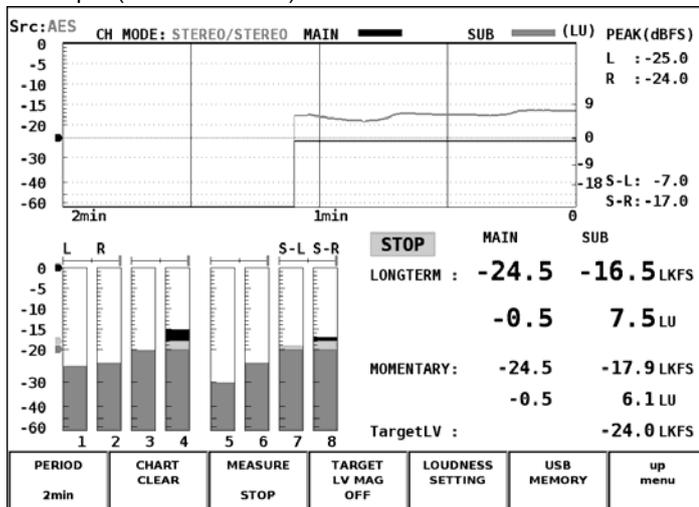
Figure 6-37   Loudness screen

● **Chart Display**

The long-term loudness and the momentary loudness (momentary can be switched to short-term) of one input (MAIN) or the long-term loudnesses of two inputs (MAIN and SUB) are displayed on a time-based chart.
To turn the sub loudness on and off, press F•5 LOUDNESS SETTING, and use the channel mapping display.

You can press F•1 PERIOD to change the measurement time. You can press F•4 TARGET LV MAG to expand the level scale.

To start measuring, set F•3 MEASURE to START. You can press F•2 CHART CLEAR to clear the chart.

● **Peak Level Display**

This displays the peak levels of the channels that have been assigned on the channel mapping screen that appears when you press F•5 LOUDNESS SETTING.

● **Meter Display**

Peak Meter (8 channels on the left)

The level of each channel is displayed on a meter.

The channels that have been assigned on the channel mapping screen and correlation meters are displayed at the top of the meter. To access the channel mapping screen, press F•5 LOUDNESS SETTING. The correlation meter indicates the phase difference between the two signals. The right edge indicates in-phase, the left edge indicates 180 ° out of phase, and the center indicates no correlation.

Loudness Meter (right; only for one input measurement)

This meter displays the level of the channels that have been assigned on the channel mapping screen. To access the channel setting screen, press F•5 LOUDNESS SETTING. The level is normally displayed in green, but it is displayed in red if it exceeds the target level.

● **Numeric Display**

LONGTERM

The long-term 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).

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.

TargetLV

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)

6.5.2   Configuring the Loudness Display

To configure the loudness display, press F•4 LOUDNESS SETUP in the audio menu. F•4 LOUDNESS SETUP appears when the loudness display is showing.

Audio menu

CHANNEL SELECT	DISPLAY MODE LOUDNESS	METER SETUP	LOUDNESS SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

Loudness setup menu

PERIOD 2min	CHART CLEAR	MEASURE STOP	TARGET LV MAG OFF	LOUDNESS SETTING	USB MEMORY	up menu

Figure 6-38   Loudness setup menu

The items in the loudness setup menu are described below.

- F•1 **PERIOD**

  Select the measurement time from the available settings below.
  2min, 10min, 30min, 1hour, 2hour

- F•2 **CHART CLEAR**

  Press this to clear the chart, peak level, and numeric displays.

- F•3 **MEASURE**

  Press this to start and stop measurements. When measurements are being performed, "MEAS" is displayed in the center of the screen. When measurements are stopped, "STOP" is displayed. When the LV 58SER40A is standing by, "WAIT" is displayed. This menu appears when Trigger has been set to OFF or Mute on the loudness setting screen.

- F•4 **TARGET LV MAG**

  If you set this to ON, the target level is displayed on a scale that has a full scale ranging from -18 to +9 (LK/LU). This is not applied to the meter at the bottom of the display.

TARGET LV MAG = OFF   TARGET LV MAG = ON
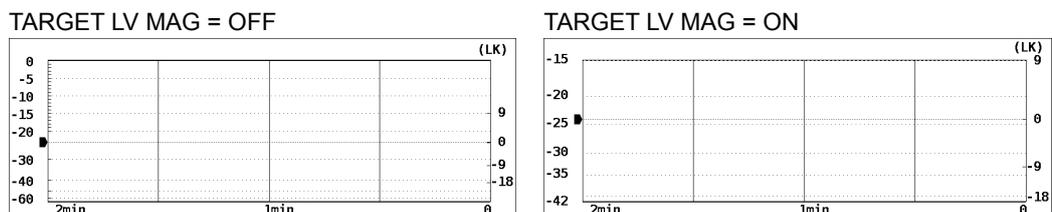
Figure 6-39   Setting the scale

● ⬛F•5 **LOUDNESS SETTING**

Press this to configure the loudness and channel settings.

The items on the loudness setting screen are described below.

```
┌────────────────────────────────────────────────────────────┐
│ LOUDNESS SETTING │ CHANNEL MAPPING │                        │
│                                                              │
│   LongTerm Loudness                                          │
│       Measure Mode        □ BS1770-2   ☑ ARIB    □ EBU    □ ATSC │
│         Target Level      -24.0  LKFS ( -25.0 ~ -23.0 )      │
│         Block Size         400  ms      Absolute Gating  -70.0  LKFS │
│         Overlap Size        75  %       Relative Gating  -10.0  LKFS │
│         LFE Gain          □ ON   ☑ OFF      0                 │
│                                                              │
│   ShortTerm Loudness                                         │
│       Average Time          3000   ms                        │
│   Momentary Loudness                                         │
│       Average Time          400    ms                        │
│                                                              │
│   Loudness Response       □ Short Term    ☑ Momentary        │
│                                                              │
│   Loudness Auto Measure                                      │
│       Trigger        □ OFF     □ Remote   ☑ Timecode □ Mute   │
│         Start Time     0  :  0  :  0    In SDI GENERAL SETUP, please │
│                                         confirm an item of Time Code │
│         End   Time     0  :  0  :  0    isn't Real Time.     │
└────────────────────────────────────────────────────────────┘
```

Figure 6-40   Loudness setting screen

• **Measure Mode**

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

Table 6-58   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	-70.0 (LKFS)	-70.0 (LKFS)	-70.0 (LUFS)	-
Relative Gating	-10.0 (LKFS)	-10.0 (LKFS)	-10.0 (LUFS)	-

• **LFE Gain**

When Main is set to 5.1 or CUSTOM on the channel mapping screen, 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.
To use the remote terminal, you have to press SYS > F•2 PLATFORM SETUP, and then set Remote Select to Recall and Loudness on the REMOTE tab. When you make this setting, pin 23 (/P7) is assigned to clearing measurements and pin 24 (/P8) is assigned to starting and stopping measurements.

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.
In the unit setup of the LV 58SER01(A) or LV 58SER06, you have to set Time Code to a value other than Real Time.

Mute: Measurement start, stop, and clear and storage to USB memory are executed through input signals as described below.

If you select Mute, on the loudness setup menu, press F•3 MEASURE to select START, and then apply the material to measure. "WAIT" appears in the center of the display.
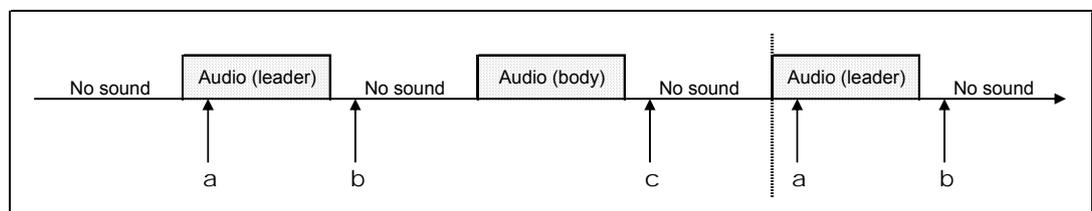

Figure 6-41   Mute explanation

a) When and audio (leader) is received, loudness measurement is cleared.

b) Loudness measurement starts 1 second after the detection of no sound. "MEAS" appears in the center of the display.

c) Loudness measurement stops 3 seconds after the detection of no sound. If a USB memory device is connected, the loudness data is automatically saved to the device. "WAIT" appears in the center of the display.

You can measure multiple materials in succession by applying subsequent materials.

The items on the channel mapping screen are described below.

```
┌─────────────┬───────────────┐
│LOUDNESS SETTING│ CHANNEL MAPPING │
├─────────────┴───────────────┴──────────────────────────────────────────┐
│ Mode  Main    □ MONO        □ STEREO      □ 5.1         ☑ CUSTOM          │
│       Sub     □ MONO        ☑ STEREO      □ OFF                          │
│ ─────────────────────────────────────────────────────────────────────── │
│ Lch    ☑ CH1 □ CH2 □ CH3 □ CH4 □ CH5 □ CH6 □ CH7 □ CH8  □ Non_Connection │
│                                                                          │
│ Rch    □ CH1 ☑ CH2 □ CH3 □ CH4 □ CH5 □ CH6 □ CH7 □ CH8  □ Non_Connection │
│                                                                          │
│ Cch    □ CH1 □ CH2 ☑ CH3 □ CH4 □ CH5 □ CH6 □ CH7 □ CH8  □ Non_Connection │
│                                                                          │
│ LFEch  □ CH1 □ CH2 □ CH3 ☑ CH4 □ CH5 □ CH6 □ CH7 □ CH8  □ Non_Connection │
│                                                                          │
│ Lsch   □ CH1 □ CH2 □ CH3 □ CH4 ☑ CH5 □ CH6 □ CH7 □ CH8  □ Non_Connection │
│                                                                          │
│ Rsch   □ CH1 □ CH2 □ CH3 □ CH4 □ CH5 ☑ CH6 □ CH7 □ CH8  □ Non_Connection │
│ ─────────────────────────────────────────────────────────────────────── │
│ Sub Lch    □ CH1 □ CH2 □ CH3 □ CH4 □ CH5 □ CH6 ☑ CH7 □ CH8               │
│ ─────────────────────────────────────────────────────────────────────── │
│ Sub Rch    □ CH1 □ CH2 □ CH3 □ CH4 □ CH5 □ CH6 □ CH7 ☑ CH8               │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 6-42   Channel mapping screen

• **Main**

Select the main loudness measurement channel 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. You can also turn LFEch off.
CUSTOM: The channels that you select for Lch, Rch, Cch, LFEch, Lsch, and Rsch are measured. You can also turn LFEch off. Channels set to Non_Connection will not be measured.

• **Sub**

Select the sub loudness measurement channel 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.
OFF: Sub loudness is not measured.

- F•6 USB MEMORY

  You can save the loudness data to a USB memory device as a .csv file or as a text file. To do so, follow the procedure below.

  1. **Connect a USB memory device to the USB port.**

  2. **Press F•6 USB MEMORY.**

  The file list display appears.
  This menu item appears when USB memory is connected.

```
External USB DEVICE LOUDNESS FILE LIST

      No. FileName          Date        Time      Size(Byte)
      1  loudness.csv       2011/11/ 8  17:01:51  8
      2  loudness.txt       2011/11/ 8  17:01:51  699










         MAX SIZE:    251906 kB
         FREE SIZE:  28096 kB

         LOUDNESS.CSV

 NAME      STORE               FILE      FILENAME            up
 INPUT                         DELETE    AUTO INC            menu
                                         OFF
```

<p align="center">Figure 6-43   File list display</p>

  3. **Press F•1 NAME INPUT.**

  The file name input display appears.

```
      0  1  2  3  4  5  6  7  8  9

      A  B  C  D  E  F  G  H  I  J

      K  L  M  N  O  P  Q  R  S  T

      U  V  W  X  Y  Z  _

      [F.D NOB] = CHAR SELECT , [F.D PUSH] = CHAR SET
      & Function Key EDIT

      LOUDNESS    STORE FILE NAME
      LOUDNESS              .CSV


 CLEAR     DELETE    INSERT    <=       =>       CHAR      up
 ALL                                             SET       menu
```

<p align="center">Figure 6-44   File name input display</p>

<p align="center">83</p>

4. **Enter a file name using up to 20 characters.**

The key operations on the file name input display are explained below.
Spaces are invalid. The spaces that you enter are ignored.

F•1	CLEAR ALL	: Deletes all characters.
F•2	DELETE	: Deletes the character at the cursor position.
F•3	INSERT	: Inserts an underscore (_) at the cursor position.
F•4	<=	: Moves the cursor to the left.
F•5	=>	: Moves the cursor to the right.
F•6	CHAR SET	: Enters the selected 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 F•D. If F•5 FILENAME AUTO INC is set to ON, a two-digit number will automatically be added to the end of the copied file name.

5. **Press F•7 up menu.**

6. **Press F•2 STORE.**

When the message "Saving file - Please wait." disappears, the file has been successfully saved.
If there is more than one file with the same name in the USB memory, an overwrite confirmation menu appears. If you want to overwrite the current file, press F•1 OVER WR YES. Otherwise, press F•3 OVER WR NO.

Deleting a Loudness Data

To delete a loudness data that has been saved to USB memory, select the loudness file in 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.

Setting File Numbering

When you set F•5 FILENAME AUTO INC in the file list display to ON, a two-digit number is automatically added to the entered file name (starting with 00). The default setting is OFF.
This number returns to 00 if you initialize the settings or turn the power on and off.

USB Memory Folder Structure

Loudness data is saved in the LOUDNESS folder. If there is no LOUDNESS folder in the USB memory, the LV 5800/7800 will create a folder automatically.

```
⬚ USB memory
  └ ▭ LOUDNESS
      ├ ▭ ****.CSV
      └ ▭ ****.TXT
```

7. CONFIGURATION

7.1 Selecting Measurement Channels

Press F•1 CHANNEL SELECT in the audio menu to select the measurement channels. If you set F•7 INPUT SELECT in the audio menu to ANALOG or set DECODE MODE to DOLBY-E or DOLBY-DIGITAL when the 2-screen display is enabled, this menu will not appear.

Audio menu

CHANNEL SELECT	DISPLAY MODE LISSAJOU	METER SETUP	LISSAJOU SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

⬇

Channel selection menu

No. of CHANNELS 8ch	DISPLAY CHANNELS 1-8ch					up menu

Figure 7-1   Channel selection menu

The channel selection menu is described below.

● F•1 No.of CHANNELS

Select the number of channels you want to measure from the available settings below. When the 2-screen display is enabled, DECODE MODE is set to DOLBY-E or DOLBY-DIGITAL, or the loudness display is enabled, the number of channels is fixed to eight, and this menu does not appear.
It takes approximately 15 seconds to switch the number of channels.

8ch   Measures the audio signals from channels 1 to 8 or from channels 9 to 16.
16ch   Measures the audio signals from channels 1 to 16.

● F•2 DISPLAY CHANNELS

This menu appears if you set F•1 No.of CHANNELS to 8ch or enable the 2-screen display. Select the channels you want to measure from the available settings below.

1-8ch   Measures the audio signals from channels 1 to 8.
9-16ch   Measures the audio signals from channels 9 to 16.

● F•3 MIX MODE (LV 58SER40A only)

When DECODE MODE is set to DOLBY-E or DOLBY-DIGITAL, select the channels you want to measure from the available settings below. When using the 2-screen display, the number of channels is fixed at OFF, and this menu does not appear.
It takes approximately 15 seconds to switch the number of measurement channels.

OFF   Eight Dolby signal channels are measured.
ON   Eight audio signal channels and eight Dolby signal channels are measured at the same time.
                  When INPUT GROUP is a channel group from CH1/2 to CH7/8, audio signal channels 1 to 8 are displayed. When INPUT GROUP is a channel group from CH9/10 to CH15/16, audio signal channels 9 to 16 are displayed.

7.2   Configuring the Headphone Settings

Press F•5 PHONES SETUP in the audio menu to configure the headphone settings.

Audio menu

CHANNEL SELECT	DISPLAY MODE LISSAJOU	METER SETUP	LISSAJOU SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

⬇

Headphone setup menu

PHONES VOLUME 64	PHONES L/Rch 1/2					up menu
				AUX CH LtRt	AUX CH DRC LINE	

Figure 7-2   Headphone setup menu

The headphone setup menu is described below.

● F•1 PHONES VOLUME (LV 5800 only)

Turn F•D to set the headphone volume. The selectable range is from -128 to 127 (256 levels). Pressing F•D resets the intensity to the default value (64). You can set the PHONES VOLUME value in 0.5-db steps. The level-to-dB conversion is given below.

Table 7-1   PHONES VOLUME dB conversion table

PHONES VOLUME	dB
127	0.0
126	-0.5
• • •	• • •
64	-31.5
• • •	• • •
-127	-127.0
-128	-∞(=MUTE)

This menu does not appear when the LV58SER40(A) is installed in the LV 7800. Use the VOLUME knob on the front panel to set the headphone volume.

- $\boxed{\text{F·2}}$ **PHONES L∕Rch**

  Select the channel pair that you want to output through the headphone jack. If you set $\boxed{\text{F·7}}$ INPUT SELECT in the audio menu to ANALOG, the channel pairs will be fixed at L/R.

1/2	Assigns channel 1 and 2 to the left and right channels, respectively.
3/4	Assigns channel 3 and 4 to the left and right channels, respectively.
5/6	Assigns channel 5 and 6 to the left and right channels, respectively.
7/8	Assigns channel 7 and 8 to the left and right channels, respectively.
9/10	Assigns channel 9 and 10 to the left and right channels, respectively.
11/12	Assigns channel 11 and 12 to the left and right channels, respectively.
13/14	Assigns channel 13 and 14 to the left and right channels, respectively.
15/16	Assigns channel 15 and 16 to the left and right channels, respectively.
Lt/Rt	Assigns Lt and Rt to the left and right channels, respectively. For information about Lt and Rt, see section 6.1.2, "Configuring the Lissajous Display." (Available only on the LV 58SER40A)
D1/D2	Assigns Dolby channel 1 and 2 to the left and right channels, respectively.
D3/D4	Assigns Dolby channel 3 and 4 to the left and right channels, respectively.
D5/D6	Assigns Dolby channel 5 and 6 to the left and right channels, respectively.
D7/D8	Assigns Dolby channel 7 and 8 to the left and right channels, respectively.
DAUX1/DAUX2	Assigns AUX1 and AUX2 to the left and right channels, respectively. You can select these settings when you set DECODE MODE to DOLBY-E or DOLBY-DIGITAL using $\boxed{\text{F·1}}$ CHANNEL SETTING in the Dolby setup menu. (Available only on the LV 58SER40A)

- $\boxed{\text{F·5}}$ **AUX CH (LV 58SER40A only)**

  This menu appears if you set $\boxed{\text{F·2}}$ PHONES L/Rch to DAUX1/DAUX2. Select the AUX CH function from below.

  LtRt, LoRo, MONO, MUTE

- $\boxed{\text{F·6}}$ **AUX CH DRC (LV 58SER40A only)**

  This menu appears if you set $\boxed{\text{F·2}}$ PHONES L/Rch to DAUX1/DAUX2. Select the AUX CH dynamic range control (DRC) from below.

  LINE, RF

7.3   Dolby Setup

Press F•6 DOLBY-E SETUP in the audio menu to configure the Dolby settings. This menu appears when the Dolby E option is installed. However, if you set F•7 INPUT SELECT in the audio menu to ANALOG, this menu will not appear.

Audio menu

CHANNEL SELECT	DISPLAY MODE LISSAJOU	METER SETUP	LISSAJOU SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

⬇

Dolby setup menu

CHANNEL SETTING						up menu
	DOLBY E DIALNORM OFF	DOLBY E PULLDOWN OFF				
	DOLBY D LISTENING FULL	DOLBY D PROLOGIC OFF	DOLBY D DRC BYPASS			

Figure 7-3   Dolby setup menu

The Dolby setup menu is described below.

● **F•1 CHANNEL SETTING**

Set the Dolby signal decode mode and the input channel group. The function keys in the channel setting screen operate as follows:

F•1 COMPLETE   Applies the settings and closes the channel setting screen.
F•7 CANCEL   Closes the channel setting screen without applying the settings.

```
DOLBY-E

   DECODE MODE    ☑ OFF  □ DOLBY-E  □ DOLBY-DIGITAL
   INPUT GROUP    ☑ CH1/2   □ CH3/4    □ CH5/6    □ CH7/8
                  □ CH9/10  □ CH11/12  □ CH13/14  □ CH15/16




 COMPLETE                                              CANCEL
```

Figure 7-4   Channel setting screen

The items in the channel setting screen are described below.

DECODE MODE

OFF	Select this to not measure Dolby signals.
DOLBY-E	Select this to measure Dolby E signals.
DOLBY-DIGITAL	Select this to measure Dolby Digital signals.

INPUT GROUP

Select the channel group that Dolby signals will be applied to. If DECODE MODE is set to OFF, you will not be able to set the channel group.

● $\boxed{F \cdot 2}$ **DOLBY E DIALNORM**

This menu appears when you set DECODE MODE to DOLBY-E using $\boxed{F \cdot 1}$ CHANNEL SETTING. Set the Dolby E signal dialog normalization to on or off.

● $\boxed{F \cdot 3}$ **DOLBY E PULLDOWN**

This menu appears when you set DECODE MODE to DOLBY-E using $\boxed{F \cdot 1}$ CHANNEL SETTING. Set the Dolby E signal pulldown to on or off.

● $\boxed{F \cdot 2}$ **DOLBY D LISTENING**

This menu appears when you set DECODE MODE to DOLBY-DIGITAL using $\boxed{F \cdot 1}$ CHANNEL SETTING. Select the Dolby Digital signal listening mode from below.

FULL, EX, 3stereo, PHANTOM, STEREO, MONO

● $\boxed{F \cdot 3}$ **DOLBY D PROLOGIC**

This menu appears when you set DECODE MODE to DOLBY-DIGITAL using $\boxed{F \cdot 1}$ CHANNEL SETTING. Set the Dolby Digital Pro Logic to on or off.

● $\boxed{F \cdot 4}$ **DOLBY D DRC**

This menu appears when you set DECODE MODE to DOLBY-DIGITAL using $\boxed{F \cdot 1}$ CHANNEL SETTING. Select the Dolby Digital dynamic range control (DRC) from below.

BYPASS, LINE, RF

7.4 Configuring the Input Signal Settings

Press $\boxed{\text{F•7}}$ INPUT SELECT in the audio menu to set the measurement signal to DIGITAL or ANALOG (LV 58SER40A only). This menu appears when you select the unit number in which the LV 58SER40A is installed.

DIGITAL   Measures the digital audio signals that are received through this unit's BNC connectors.

ANALOG   Measures the analog audio signals that are received through the rear panel remote connector. When you select ANALOG, the measurement channels are automatically set to L and R channels, and the single Lissajous display appears. (When using the 2-screen display, select LISSAJOU or METER.) You cannot configure Dolby settings.

Audio menu

CHANNEL SELECT	DISPLAY MODE LISSAJOU	METER SETUP	LISSAJOU SETUP	PHONES SETUP	DOLBY-E SETUP	INPUT SELECT DIGITAL

Figure 7-5   Input signal selection

To measure analog audio signals, set INPUT SELECT to ANALOG, and then apply the signals to the remote connector pins 10 to 13. The remote connector diagram and pin arrangement are given below. For a description of other pins, see the LV 5800 Instruction Manual.
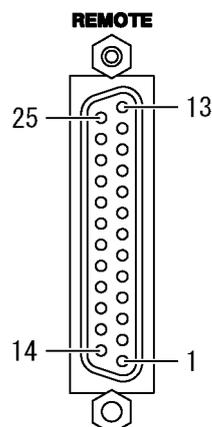

Figure 7-6   Remote connector diagram

Table 7-2   Remote connector pin arrangement

Pin #	Name	I/O	Pin #	Name	I/O	Pin #	Name	I/O
1	ALARM1	OUT	10	LCH+	IN	18	/P2	IN
2	GND	GND	11	LCH-	IN	19	/P3	IN
3	/CH_A	IN	12	RCH+	IN	20	/P4	IN
4	/CH_B	IN	13	RCH-	IN	21	/P5	IN
5	NC	-	14	GND	GND	22	/P6	IN
6	NC	-	15	ALARM2	OUT	23	/P7	IN
7	NC	-	16	ALARM3	OUT	24	/P8	IN
8	NC	-	17	/P1	IN	25	ALARM4	OUT
9	NC	-						

7.5   System Configuration

Press SYS > F•1 UNIT SETUP > F•# UNIT# SETUP* to display the unit setup screen. You can use this setup screen to configure rear panel BNC I/O settings and error detection settings.

The function keys in the unit setup screen operate as follows:

F•1 COMPLETE   Applies the settings and closes the unit setup screen.
F•7 CANCEL   Closes the unit setup screen without applying the settings.

*   Select the unit number in which the LV 58SER40(A) is installed.

```
UNIT SETUP
┌──────────────────────────────────────────────────────────┐
│     UNIT2 : LV58SER40A DIGITAL AUDIO UNIT                  │
│     External BNC Select                                    │
│                                                            │
│         External BNC    ☑ INPUT □ OUTPUT                   │
│     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                         │
│         Varidity Error  ☑ ON □ OFF                         │
│         CRC Error       ☑ ON □ OFF                         │
│         Code Violation  ☑ ON □ OFF                         │
│                                                            │
├────────┬──────┬──────┬──────┬──────┬──────┬────────┬──────┤
│COMPLETE│      │      │      │      │      │ CANCEL │      │
└────────┴──────┴──────┴──────┴──────┴──────┴────────┴──────┘
```

Figure 7-7   Unit setup screen

The items in the unit setup screen are described below.

● **External BNC Select**

• **External BNC**

Configure this unit's BNC connector I/O settings. The BNC connector settings apply to all BNC connectors including those on the optional I/O expansion unit.
These settings are not initialized even if you initialize the system settings by pressing SYS > F•7 INITIALIZE. They are also not stored even if you store settings to a preset memory location by pressing MEM > F•2 STORE. The factory default setting is INPUT.

INPUT   All BNC connectors on this unit are set to input.
OUTPUT   All BNC connectors on this unit are set to output.

● **Error Setup**

Set whether or not to display errors in the status screen.

ON   Displays errors in the status screen.
OFF   Does not display errors in the status screen.

• **Level Over**

  Turn the input signal level over error on or off.

• **Clip**

  Turn the input signal clip error on or off.
  If you select ON, you can select the duration. Use F•D to set the conditions for
  counting clip errors. The error is incremented in the status screen if the number of
  times clipped signals are detected consecutively exceeds this setting.

• **Mute**

  Turn the input signal mute error on or off.
  If you select ON, you can select the duration. Use F•D to set the conditions for
  counting mute errors. The error is incremented in the status screen if the number of
  times mute signals are detected consecutively exceeds this setting.

• **Parity Error**

  Turn the input signal parity error on or off.

• **Validity Error**

  Turn the input signal validity error on or off.

• **CRC Error**

  Turn the input signal CRC error on or off.

• **Code Violation**

  Turn the input signal code violation error on or off.

8. FIRMWARE REVISION HISTORY

This manual was written for the following firmware versions:
  • Ver. 9.6 on the LV 5800
  • Ver. 4.3 on the LV 7800
To confirm the version, press a key in order of $\boxed{\text{SYS}} \rightarrow \boxed{\text{F•5}}$ SYSTEM INFORMATION.

● **Ver 9.6 on the LV 5800 ∕ Ver 4.2 on the LV 7800**

  • An automatic mute detection measurement feature has been added to loudness display of the LV 58SER40A.

● **Ver 9.3 on the LV 5800 ∕ Ver 3.9 on the LV 7800**

  • The single Lissajous level meter on the LV 58SER40A now displays eight channels (two channels previously).
  • A function for zooming in on the range of 3 dB below the reference to 3 dB above the reference level was added to the LV 58SER40A sound level meter display.
  • A function for simultaneously displaying two sound sources was added to the LV 58SER40A loudness display.
  • Peak value display was added to the LV 58SER40A loudness display.
  • Audio mode display was added to the LV 58SER40A loudness display.
  • Inter-channel correlation meter display was added to the LV 58SER40A loudness display.

● **Ver 7.9 on the LV 5800 ∕ Ver 2.6 on the LV 7800**

  • A loudness display feature that complies with the ITU, ARIB, and EBU standards has been added to the LV 58SER40A.

● **Ver 6.8 on the LV 5800 ∕ Ver 1.4 on the LV 7800**

  • The sound image display feature has been changed to a surround display feature on the LV 58SER40(A).
  • A long-term loudness graph display feature has been added to the LV 58SER40A.

● **Ver 6.5 on the LV 5800 ∕ Ver 1.4 on the LV 7800**

  • An event log feature has been added to the LV 58SER40(A).

● **Ver 5.4 on the LV 5800**

  • On the LV 58SER40A, MIX MODE was added to CHANNEL SELECT.

● **Ver 5.1 on the LV 5800**

  • Loudness was added to the response characteristics in the LV 58SER40A audio level meter.

● **Ver. 3.5 on the LV 5800**

  • The LV 58SER40A can be used.

● **Ver. 3.3 on the LV 5800**

  • On the LV 58SER40, the audio level meter drawing speed was increased.

Index

Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码：LV 58SER40A

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	×	○	○	○	○	○
附件	×	○	○	○	○	○
包装材	○	○	○	○	○	○

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。

Ver.3

LEADER