



# **Dolby<sup>®</sup> Media Producer Broadcast Emulator Manual**

Issue 1

Part Number 9111080



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Part Number 9111080  
Issue 1  
S11/24983

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# Dolby Media Emulator Overview

Welcome to the Dolby® Media Emulator, a software tool for broadcast programming that emulates what the consumer will hear. It is useful during program creation, during quality control, and for verifying broadcast and disc media optimization. Dolby Media Emulator runs on Apple® OS X® as an Avid® Pro Tools® Real-Time AudioSuite (RTAS®) plug-in, or on Microsoft® Windows® as a Steinberg™ Nuendo® Virtual Studio Technology (VST®) plug-in.



Figure 1-1 Dolby Media Emulator Interface

Dolby Media Emulator is designed to be extremely flexible. You can show and hide interface sections to focus on particular program attributes. You can audition different downmixes. You can listen to each available type of Dolby Pro Logic® decoding. You can try out different dynamic range control and dialogue normalization settings. All of the options available to you are managed in the **Dolby Media Emulator Settings** dialog box, described in [Chapter 3](#). To open the settings window, click the **Settings** button, shown in [Figure 1-2](#), at the bottom of the logo panel of the interface.

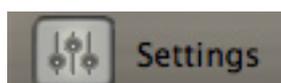


Figure 1-2 Settings Button

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## Questions or Feedback

If you have questions or comments about this document, please [contact technical publications](#).

If you have technical questions about this product/technology, please [contact technical support](#).



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# Installing Dolby Media Emulator

To begin using Dolby® Media Emulator, install the software and initialize the accompanying Pace iLok:

- [Installing Dolby Media Emulator on a Mac](#)
- [Installing Dolby Media Emulator on a PC](#)
- [Using the Dolby Media Emulator iLok](#)

## 2.1 Installing Dolby Media Emulator on a Mac

To install Dolby Media Emulator on an Apple® Mac®:

1. Browse to the location of the installer file and open it.
2. Read the introduction, then click **Continue**.
3. Read the license agreement. You may choose to print and save it for your records. Click **Continue** to proceed.
4. Click **Agree** to accept the license agreement and proceed with installation.
5. Select a destination drive. Click **Continue....**



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**Note:** Dolby Media Emulator automatically installs into the Applications/Dolby Media Producer folder on the Macintosh® hard drive. You may move it after installation.

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When the system has completed the installation, it automatically opens your Web browser to [dolbysupport.com](http://dolbysupport.com). The site allows you to open an account, if you have not already done so, and to register your product. Registering your product allows you to receive technical support and notice of future upgrades.

6. When you are ready, close the technical support window and click **Close** on the installer to complete the installation.

## 2.2 Installing Dolby Media Emulator on a PC

To install Dolby Media Emulator on a PC:

1. Browse to the location of the installer file and open it.
2. Read the introduction, then click **Next**.
3. Click **I accept the terms in the license agreement**. Click **Next** to proceed.

The system automatically installs Dolby Media Meter 2 in C:\Program Files\Dolby Media Emulator\Dolby Media Emulator, then places icons on the desktop and under the **Start** menu.



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**Note:** After installing Dolby Media Emulator, you must restart your PC before the program can be used.

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## 2.3 Using the Dolby Media Emulator iLok

One iLok USB smart key containing a unique license is packaged along with your Dolby Media Emulator CD.

The license stored on the iLok smart key authorizes your system to use the application. Insert the iLok into an available USB port before opening the application. The iLok key must remain in the USB port while the software is in use.



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**Caution:** Do not lose your iLok. Keep it as safe and secure as you would any other valuable piece of equipment. Losing the iLok is the same as losing the entire product.

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The iLok website allows you to manage the licenses for all your iLok-protected applications in one place. Registration is simple. To register your license:

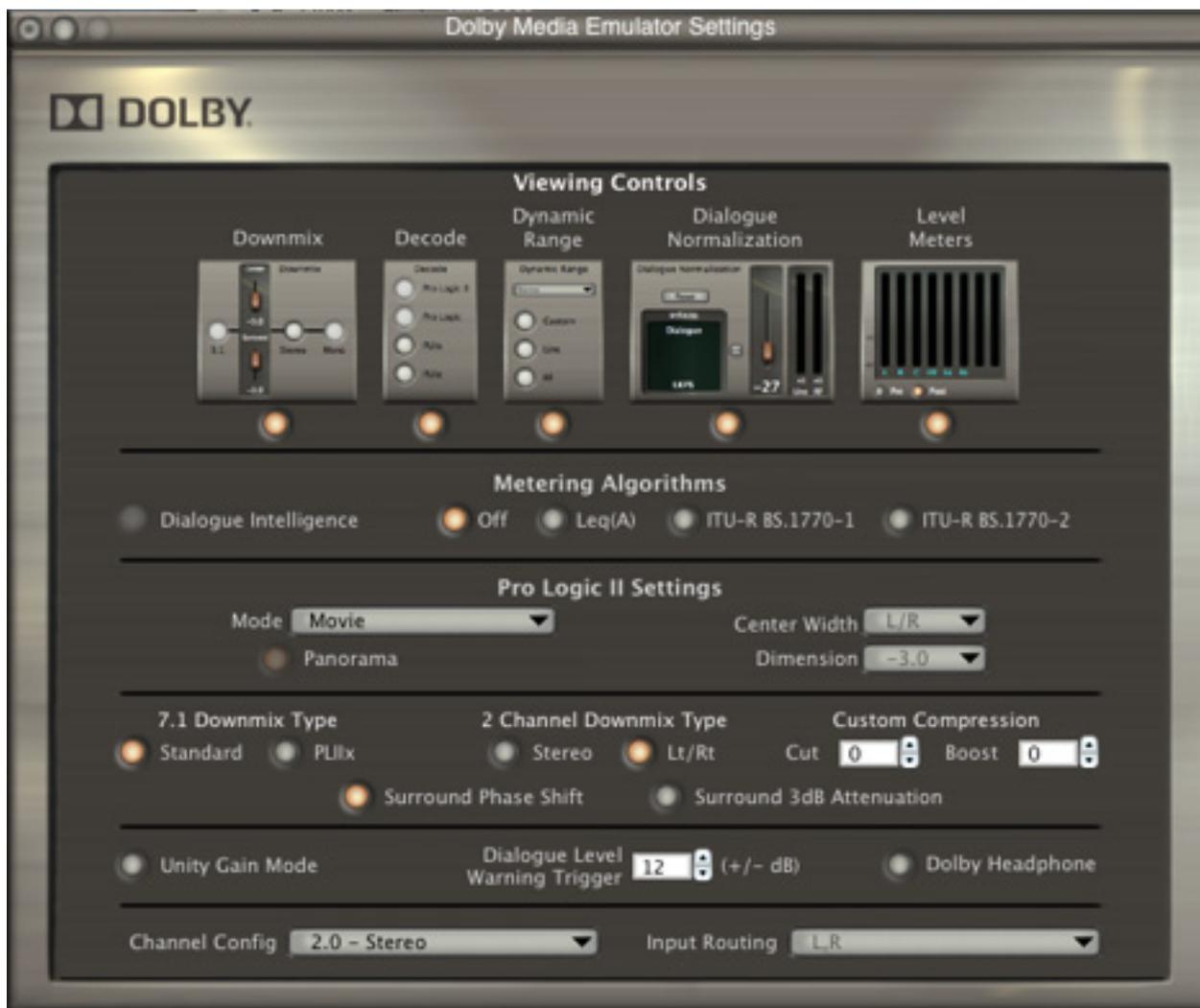
1. Go to [ilok.com](http://ilok.com).
2. Follow the directions to sign up for a free account.
3. Download and install the iLok client software.
4. Log in to your account.
5. Synchronize your iLok with your account.
6. View the licenses on your newly registered iLok.
7. Add and edit the name of the iLok for differentiation if you own multiple iLoks.

### Consider Subscribing to iLok Zero DownTime Coverage

The iLok Zero DownTime program enables iLok owners to immediately replace licenses in case an iLok is broken, lost, or stolen. Visit [ilok.com](http://ilok.com) for program details and restrictions.

## Configuring Dolby Media Emulator

The **Dolby Media Emulator Settings** dialog box, shown in [Figure 3-1](#), lets you configure many aspects of the interface and operation of Dolby® Media Emulator.



**Figure 3-1** Dolby Media Emulator Settings Dialog Box

### 3.1 Changing the View

When you want to focus on a particular attribute of your tracks, you can hide the other sections of the main display. By default, all of the sections are displayed, as shown in [Figure 3-1](#). To hide a section of the main display, click the radio button underneath its image here.

## 3.2 Changing the Meter Algorithm

By default, Dolby Media Emulator uses ITU-R BS.1770-2 for its calculations. You can also choose:

- Leq(A)
- ITU-R BS.1770-1

Dialogue Intelligence™ is available for use with either Leq(A) or ITU-R BS.1770-1. It is not supported, and therefore automatically grayed out, when the chosen algorithm is ITU-R BS.1770-2.

**Off** defeats loudness measurement entirely, decreasing the load on the host CPU and increasing overall performance. If you experience occasional clicks and pops in your audio, click **Off** to mitigate them.

## 3.3 Determining Dolby Pro Logic II Operation

When the **Decode** option is chosen in the main window, Dolby Media Emulator applies the choices made in the **Pro Logic II Settings** section. These settings operate in exactly the same way as the options in the Dolby DP570 Multichannel Audio Tool.

### Mode

You can choose **Movie**, **Music**, or **Matrix** mode.

### Panorama

Click the radio button to turn the panorama attribute on.

### Center Width

For center width, you have eight options, **-3.0** to **+3.0** and **L/R**.

### Dimension

For dimension, you have seven options, from **-3.0** to **+3.0**.

## 3.4 Choosing a 7.1 Downmix Type

You can choose either **Standard** or **PLIIx**. **Standard** is the default value. Selecting **PLIIx** downmix provides compatibility with the Dolby Pro Logic® IIx decoding algorithm.

## 3.5 Choosing a Two-Channel Downmix Type

You can choose either **Stereo** or **Lt/Rt**. Lt/Rt downmixes include matrix-encoded multichannel information in the two channels. The default value is **Lt/Rt**.

## 3.6 Setting Custom Compression

You can set cut and boost values to be applied in the **Custom Compression** field. Use the dials to set a cut and a boost value between **0** and **1.0**.

## 3.7 Choosing the Surround Phase Shift

Click the radio button to turn this attribute off or back on. The default value is on. This phase shift is important for material that will be decoded using any type of Dolby Pro Logic processing.

## 3.8 Choosing the Surround 3 dB Attenuation

Click the radio button to turn this attribute off or back on. The default value is on. This value is typically on for cinema material, and off for video material.

## 3.9 Choosing Unity Gain Mode

When **Unity Gain Mode** is selected, the audible effect of dialogue normalization is defeated, but the `dialnorm` value is still used for dynamic range control settings. Click the radio button to turn this off or back on.

## 3.10 Setting the Dialogue Level Warning Trigger

You can set up Dolby Media Emulator to warn you when the dialogue level of your material changes. Use the dial to choose a single plus or minus value for the warning trigger between 1 and 12. For example, if the trigger value is set to 1, and the dialogue level is  $-27$ , Dolby Media Emulator will warn you by displaying the `dialnorm` in red when your material reaches either  $-28$  or  $-26$ .

## 3.11 Turning On Dolby Headphone

If you are producing a Dolby Headphone mix, click the radio button to turn this attribute on and process multichannel audio into a two-channel output. By default, it is off.

## 3.12 Setting a Channel Configuration

Dolby Media Emulator supports a wide variety of playback channel configurations. From the drop-down list, choose the desired channel configuration.



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**Note:** Pro Tools® version 9 or higher is required to insert the plug-in on 7.1 tracks.

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### 3.13 Choosing an Input Routing

Dolby Media Emulator support a variety of input routings. After choosing a channel configuration, choose the option that matches yours.

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# Using Dolby Media Emulator

The flexibility of the Dolby® Media Emulator fits it into a number of processes:

- [Measuring Dialogue Level](#)
- [Monitoring Downmixes](#)
- [Monitoring Surround Decoding](#)
- [Emulating Dynamic Range Control Options](#)
- [Watching the Meters](#)

## 4.1 Measuring Dialogue Level

As the mix is nearing completion, watch the dialogue level meter during a representative period of speech to determine the dialogue level (`dialnorm`) value for the program, and then set it using the slider control or the **Accept** button. This meter can use Leq(A), ITU-R BS.1770-1, and ITU-R BS.1770-2 to calculate the values it displays. Dialogue Intelligence™ can be invoked if you are using Leq(A) or ITU-R BS.1770-1. Set and change these options in the settings dialog box.

A reset button allows you to manually reset the loudness calculation.



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**Note:** A reset is not automatically performed at the start of playback.

---

When the measured value is displayed in red, the measurement is outside the dialogue level warning trigger range specified in the settings dialog box.

## 4.2 Monitoring Downmixes

After a `dialnorm` value is determined, monitor downmixes and dynamic range control. You may simply adjust your mix to work with a default value of downmix setting, or you can alter the downmix metadata to suit the program. Correct setting of the `dialnorm` value ensures accurate monitoring of the dynamic range control for both downmix overload protection and user-selectable dynamic range modes.

Stereo and Lt/Rt downmixes are rendered in real time. Downmixed audio can be bounced, or bused and recorded back into the digital audio workstation.

Dolby Media Emulator determines the downmix options it presents from the number of input channels chosen:

- If more than six channels are present in your input, you can choose to downmix them to 5.1. The settings dialog box lets you choose either **Standard** or **PLIIx**.
- Six channels may be downmixed to two. The type of downmix and the button label, stereo or Lt/Rt, is determined by the **2 Channel Downmix Type** selected in the settings dialog box. A stereo downmix is Lo/Ro.
- Two channels can be downmixed to one. Choosing **Mono** downmixes the channels to a single Center-channel output.



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**Note:** There must be a Center speaker for the output to be audible.

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### 4.3 Monitoring Surround Decoding

You can monitor the various surround decoding modes available in consumer decoders. Dolby Media Emulator can decode multichannel mixes with Dolby Pro Logic® IIx or Pro Logic IIz. Two-channel mixes can be monitored with Dolby Pro Logic or Pro Logic II.

You can instantiate variable stem-width versions of Dolby Media Emulator on stereo and 5.1 tracks to provide 5.1 and 7.1 Dolby Pro Logic upmixes of program material.

### 4.4 Emulating Dynamic Range Control Options

Dolby Media Emulator allows you to hear the various late-night listening modes. You can select any of the six standard profiles (Film Standard, Film Light, Music Standard, Music Light, Speech, and None) for Line mode and RF mode. Line and RF modes do not need to use the same profile.

Custom mode uses the profile selected for Line mode, but applies the cut and boost values specified in the settings dialog box.

### 4.5 Watching the Meters

The **Dialogue Normalization** section includes Line and RF mode compression meters to indicate the amount of compression that would be applied if Line or RF mode compression is selected. The meters display compression as a downward red bar, and expansion as an upward green bar.

Up to eight individual channel level meters are displayed.

Buttons let you switch the meters to display **Pre** or **Post** levels. When **Pre** meters are selected, the meters are labeled with the channels contained in the **Channel Config** selection in the settings dialog box. The order of the channels is determined by the **Input Routing** selection in the settings dialog box. When **Post** meters are selected, the meters will be labeled based on the output channels available from the host.

## 4.6 File-Naming Conventions that Ensure Automatic File Selection

Dolby Media Emulator automatically selects source file sets that follow these naming rules:

1. All the channel IDs used are standard. The channel IDs are not case sensitive.
2. The channel ID is separated before and after with either a period or underscore.
3. The file names for the channels are identical except for channel ID.
4. The number of files matches the number of channels selected in the client **Channels** tab.
5. The file channel IDs match the channel IDs selected in the client **Channels** tab.
6. File names do not contain the ampersand (&) character.



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**Caution:** File names including the ampersand (&) character cannot be processed by the Dolby Media Producer suite.

---

The following sections provide four examples of file sets that would be automatically selected.

### Example 1

This file set uses a period as the separator:

- ExampleOne.L.wav
- ExampleOne.R.wav
- ExampleOne.C.wav
- ExampleOne.LFE.wav
- ExampleOne.Ls.wav
- ExampleOne.Rs.wav

### Example 2

This file set uses an underscore as the separator:

- ExampleTwo\_L.wav
- ExampleTwo\_R.wav
- ExampleTwo\_C.wav
- ExampleTwo\_LFE.wav
- ExampleTwo\_Ls.wav
- ExampleTwo\_Rs.wav

### Example 3

In this file set, the channel ID is not the last element in the file name. The file set uses a period as the separator:

- ExampleThree.L.ENG.wav
- ExampleThree.R.ENG.wav
- ExampleThree.C.ENG.wav
- ExampleThree.LF.ENG.wav

- ExampleThree.LS.ENG.wav
- ExampleThree.RS.ENG.wav

#### Example 4

In this file set, the channel ID again is not the last element in the file name. The file set uses an underscore as the separator:

- ExampleFour\_L\_ENG.wav
- ExampleFour\_R\_ENG.wav
- ExampleFour\_C\_ENG.wav
- ExampleFour\_SW\_ENG.wav
- ExampleFour\_LS\_ENG.wav
- ExampleFour\_RS\_ENG.wav

## 4.7 Unsupported Use Cases

The Dolby Media Emulator *software* is designed to make the essential features of the Dolby DP570 Multichannel Audio Tool *hardware* available to you, entirely within your own digital audio workstation. Dolby Media Emulator does not duplicate hardware-related features of the DP570, such as monitor routing, that are already present in your digital audio workstation.

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# Elements of the Interface

This chapter describes the operation of each element in the Dolby® Media Emulator graphical user interface (GUI), first in the main GUI, and then in the settings dialog box.

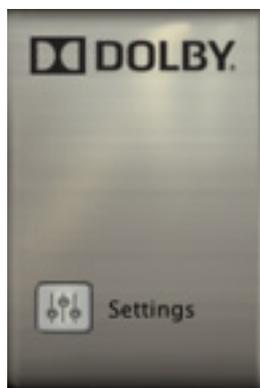
## 5.1 Main GUI

The interface contains six sections:

- [Logo](#)
- [Downmix](#)
- [Decode](#)
- [Dynamic Range](#)
- [Dialogue Normalization](#)
- [Level Meters](#)

All of these sections (except the logo) can be hidden in the settings dialog box.

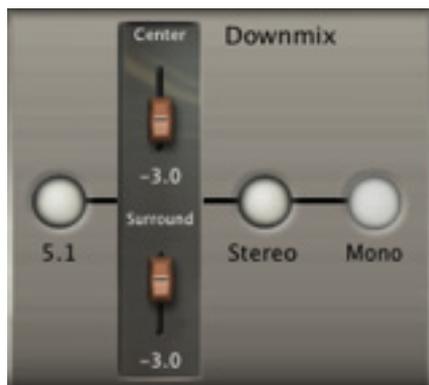
### 5.1.1 Logo



**Figure 5-1** The Logo Section

This section contains the **Settings** button, and room for future features.

## 5.1.2 Downmix



**Figure 5-2** The Downmix Section

The fixed-size **Downmix** section includes controls that specify how a larger number of source channels will be combined into a smaller number of channels. Downmix selections of 5.1, Lt/Rt, stereo, and mono are displayed. If no downmix button is selected, all source channels are passed on to their assigned outputs.

The listening controls in this section are buttons that have enabled and disabled states. In the enabled state, you can press the button to select and again to deselect the associated feature. In the disabled state, the button cannot be pressed.

If more than six source channels are present, the 5.1 downmix button is enabled. In the enabled state, if the user presses the 5.1 downmix button, the button will change to the selected state, and source channels will be downmixed from seven or eight channels to 5.1 channels. The downmix algorithm is the same as used in the Dolby Media Encoder, and includes the use of the Dolby limiter. The settings dialog includes **Standard** and **PLIIX** selections to set the coefficients used for the downmix to 5.1 channels.

Selection of a two-channel downmix type: either **Stereo** (Lo/Ro) or **Surround** (Lt/Rt) is made in the settings dialog box. Only one button appears in the GUI. Its text label reflects the choice made in the settings dialog box.

If more than two source channels are present, the two-channel downmix button is enabled. In the enabled state, if you click it, the button changes to the selected state, and the source channels will be downmixed using parameters specified in the program metadata.

If exactly two channels are available (either as original source channels, or due to downmixing), the **Mono** button is enabled. In the enabled state, if you click the button, the button changes to the selected state, and the two channels will be downmixed to mono by mixing together the Left and Right channels after 3 dB attenuation is applied.

The mono button can be selected only if the maximum channel number is two, or if more than 2.0 channels are first downmixed to two.

The **Downmix** section also includes sliders to select the surround and Center channel downmix coefficients to be used when more than two-channel soundtracks are downmixed to two. These sliders reflect the associated values in the program metadata. The sliders are disabled when no two-channel downmix is selected, or when there are too few channels available to perform a Center or surround downmix.

## List of Downmix GUI Components

This section contains four components:

- **5.1 Downmix** button, available when instantiated on an input with more than six channels
- Center and surround sliders for two-channel downmix coefficients
- **Stereo** or **Surround** button, available when instantiated on an input with more than two channels according to the choice made in the settings dialog box
- **Mono** button, available when the **Stereo** button is pressed, or when instantiated on an input with exactly two channels available

### 5.1.3 Decode

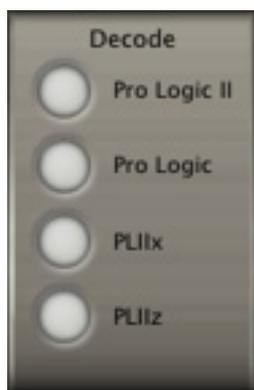


Figure 5-3 The Decode Section

The fixed-size **Decode** section contains controls that enable matrix decoding using Dolby Pro Logic®, Pro Logic II, Pro Logic IIx, and Pro Logic IIz algorithms. A maximum of one decoding option can be selected; any selection automatically deselects any previous choice. The options that Dolby Media Emulator makes available depends on both the number of source channels and the number of output channels available on the digital audio workstation.

The **Pro Logic** and **Pro Logic II** decode buttons are enabled when two source channels are available; either after downmixing, or from a two-channel input. Mono input does not allow Dolby Pro Logic or Pro Logic II decoding. The Dolby **PLIIx** and **PLIIz** decode buttons are available when 5.1 source channels with two-channel surrounds are available.

Dolby Pro Logic and Pro Logic II processing decodes two channels into a 5.0-channel program. Dolby Pro Logic IIx processing decodes 5.1 channels into a 7.1-channel program, depending on the number of output channels available. Dolby Pro Logic IIz processing decodes 5.1 channels into a 7.1-channel program.

If the number of output channels is less than the number required for a specific type of decoding (for example, 7.1 for Dolby Pro Logic IIz), the decode button for that type will be disabled.

## List of Decode GUI Components:

This section contains four components:

- **Pro Logic II** selection button
- **Pro Logic** selection button
- **PLIIx** selection button
- **PLIIz** selection button

### 5.1.4 Dynamic Range

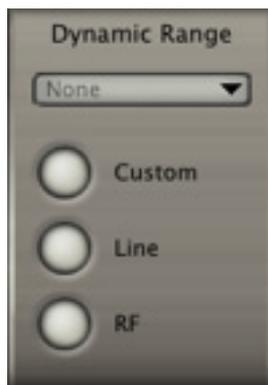


Figure 5-4 The Dynamic Range Section

The **Dynamic Range** fixed-size section contains controls to enable the application of dynamic range control. It contains selections for three profile options: **Line**, **RF**, and **Custom**.

Dolby Media Emulator displays the compression profile associated with **Line** and **RF** selections, and allows you to change them. Compression profiles for **Line** and **RF** modes are stored independently, and are restored when you switch between the two. The profile selections are also available in the settings dialog box. The profile list is disabled when no dynamic range control type is selected.

The custom profile uses the same compression profile as chosen by the user for **Line** mode, and applies up 1 dB of additional cut or boost using the settings dialog box.

### 5.1.5 Dialogue Normalization



Figure 5-5 The Dialogue Normalization Section

The **Dialogue Normalization** fixed-size section contains a rectangular measurement box that displays the infinite dialogue loudness, infinite nonspeech measurement, or EBU R128 measurement, depending on the selection made in the settings dialog box. The speech percentage value is displayed when infinite dialogue loudness is shown. The measurement algorithm may be selected between Leq(A), ITU-R BS.1770-1, and ITU-R BS.1770-2 in the settings dialog box.

In the settings dialog box, you set a  $\pm$  value that is applied to the current `dialnorm` metadata setting to specify an acceptable loudness range. When the measured loudness is in the acceptable range, it is displayed in white. Outside the range, the display changes to red. For example, if the `dialnorm` value is set to  $-24$  and the warning range is set to  $2$ , the measured value will change to red whenever it is above  $-22$  or below  $-26$ .

A dialogue level slider, with an associated text value, is also displayed, which indicates the dialogue level of the currently selected program, and can be manually adjusted by the user.

This section contains Line and RF mode compression meters to indicate the amount of compression that would be applied if Line or RF mode compression is selected. These meters display cut as a downward red bar, and boost as an upward green bar.




---

**Note:** This section contains **Reset** and **Accept** buttons. When the **Accept** button is clicked, it causes the measured dialogue level to be copied to the `dialnorm` of the current program. A reset is not automatically performed at the start of playback. When the **Reset** button is clicked, it resets the infinite dialogue and speech percentage measurement values, and clears the display.

---

### List of Dialogue Normalization GUI Components

This section contains six components:

- **Reset** button
- Loudness measurement display showing the dialogue level and speech percentage in white text, unless the measured value is outside the user-set warning range, causing the display to turn red
- **Accept** button, which copies current loudness measurement to the dialogue level slider value
- Dialogue level slider
- Compression meters, which indicate the real-time amounts of compression that would be added by user's selected compression choice

## 5.1.6 Level Meters



**Figure 5-6** The Meters Section

The meters will display from one to eight meters, depending on the number of channels of the track or bus that is feeding the plug-in and the selected program. The horizontal size of the meters section adjusts depending on the number of meters displayed.

The meters display the input or output channel levels, depending on whether **Pre** or **Post** is chosen. When **Pre** is chosen, the meters are labeled with the channels in the order defined by the selected program. When **Post** is chosen, the meters are labeled with the output channels defined by the host.

Meters that are not needed for the selected program and listening selections will appear in a disabled state. Meters have the same characteristics as the Dolby Media Meter application, including peak indicator line (automatically reset).

### List of Level Meter GUI Components

This section contains three components:

- One to eight meters, automatically labeled and ordered
- **Pre** and **Post** selector buttons that are mutually exclusive

## 5.2 Settings Dialog

The **Dolby Media Emulator Settings** dialog box, shown in [Figure 3-1](#), allows you to select options for the current instance of the plug-in; these options are saved in the workstation project settings. The settings will also be saved as per-user preferences, which are used as the default values when you create a new instance.

The settings are divided into several sections:

- [Viewing Controls](#)
- [Metering Algorithms](#)
- [Dolby Pro Logic II Settings](#)
- [Downmix Type Selection](#)

### 5.2.1 Viewing Controls

The viewing controls allow most sections of the main plug-in window to be set as visible or hidden. The sections that can be controlled are **Downmix**, **Decode**, **Dynamic Range**, **Dialogue Normalization**, and **Level Meters**.

### 5.2.2 Metering Algorithms

The meter settings control the operation of the Loudness measurement meter. Dialogue Intelligence may be selected and the algorithm may be selected between LeqA, ITU-R BS.1770-1, and ITU-R BS.1770-2. Dialogue Intelligence is not available when ITU-R BS.1770-2 is selected. **Off** turns off all loudness measurement.

### 5.2.3 Dolby Pro Logic II Settings

For Dolby Pro Logic II and Pro Logic IIX decoding, settings are included for **Mode**, **Center Width**, **Dimension**, and **Panorama**. The possible values of these selections is defined by the parameters available in the DP570.

### 5.2.4 Downmix Type Selection

**7.1 Downmix Type** allows selection of how 7.1 will downmix to 5.1. The options are **Standard**, which directs Left Rear Surround to Left Surround, and **PLIIX**, in which Left Rear Surround is mixed to Left Surround and Right Surround (using Dolby Pro Logic IIX coefficients).

**2 Channel Downmix Type** allows selection of how more than two channels will downmix to two. The options are **Standard**, in which Left Surround goes to the Left channel, and **Lt/Rt**, in which Left Surround is mixed to Left Surround and Right Surround (using Dolby Pro Logic IIX coefficients).