INPUT LABEL

You can set a label for each input source when it's not in use.

OPTION	◈ Move ◉ Enter
Menu Language	: English
Audio Language	: English
Input Label	◉
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

➡

OPTION	◈ Move ◉ Enter	
Menu Language	: English	
Audio Language	: English	
Input Label	AV1	◄ ►
SIMPLINK	AV2	
Key Lock	Component1	
Caption	Component2	
Demo Mode	RGB-PC	
ISM Method	HDMI1	
Set ID	HDMI2	
	HDMI3	
	HDMI4	
	Close	

Only 42/50PQ60, 42/50PS60
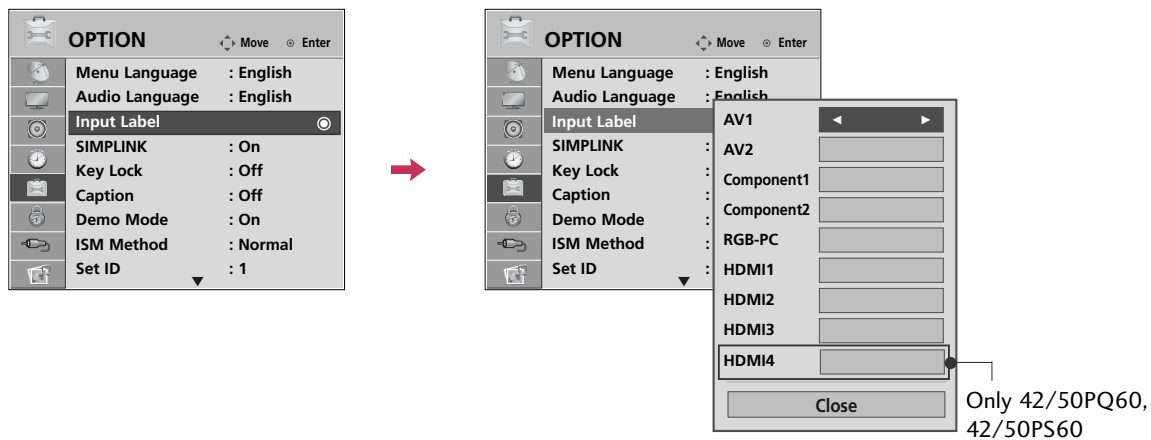
With using OPTION menu

1 MENU · Select **OPTION**.

2 ENTER · Select **Input Label**.

3 ENTER · Select the source.

4 · Select the label.

5 RETURN · Return to the previous menu.

MENU · Return to TV viewing.

With using INPUT button

1 INPUT · Select the source.

2 Q. MENU · Select the label.

3 RETURN · Return to the previous menu.

MENU · Return to TV viewing.

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AV MODE

You can select the optimal images and sounds.

Off	→	Cinema	or	THX Cinema

Game	←	Sport

(Off → Cinema / THX Cinema → Sport → Game → Off)

1 AV MODE

Press the **AV MODE** button repeatedly to select the desired source.

2 RETURN

Return to TV viewing.

■ If you select "**Cinema** / THX **Cinema**" in AV mode, **Cinema** will be selected both for "PICTURE menu - Picture Mode" and "AUDIO menu - Sound Mode" respectively.

■ If you select "**Off**" in AV mode, the "**Picture Mode**" and "**Sound Mode**" return to previous selected value.

SIMPLINK
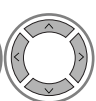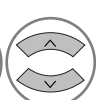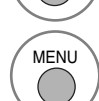
This function operates only with devices with the SIMPLINK logo.
The TV might not function properly when using it with other products with HDMI-CEC function.
This allows you to control and play other AV devices connected with HDMI cable without additional cables and settings.
To start using SIMPLINK, turn it on in the user menus.
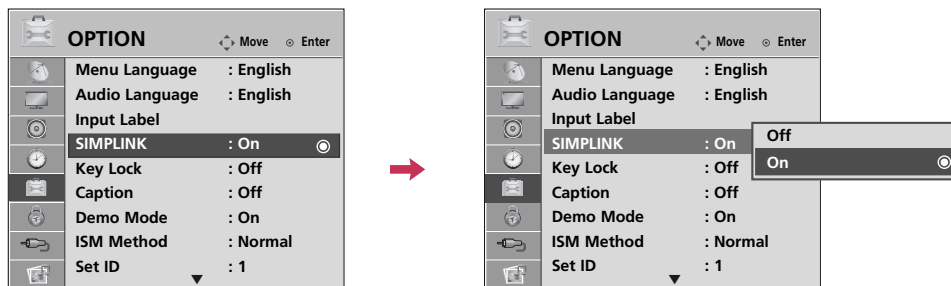
OPTION	◇ Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On ◉
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

OPTION	◇ Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On Off
Key Lock	: Off On ◉
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

1 MENU — Select **OPTION**.

2 ENTER — Select **SIMPLINK**.

3 ENTER — Select **On** or **Off**.

4 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

! NOTE

► Connect the HDMI/DVI IN or HDMI IN terminal of the TV to the rear terminal (HDMI terminal) of the SIM-PLINK device with the HDMI cable.
► When you switch the Input source with the INPUT button on the remote control, the SIMPLINK device will stop.
► When you select a device with home theater functionality, the sound output automatically switches to the home theater speakers.
► If a connected SIMPLINK home theater system doesn't play the audio from the TV, connect the DIGITAL AUDIO OUT terminal on the back of the TV to the DIGITAL AUDIO IN terminal on the back of the SIM-PLINK device with an OPTICAL cable.

SIMPLINK Functions

■ **Direct Play:** After connecting AV devices to the TV, you can directly control the devices and play media without additional settings.

■ **Select AV device:** Enables you to select one of the AV devices connected to TV.

■ **Disc playback:** Control connected AV devices by pressing the ∧ ∨ ‹ › , **ENTER, ▶, ■, ‖, ◄◄** and **▶▶** buttons.

■ **Power off all devices:** When you power off the TV, all connected devices are turned off.

■ **Switch audio-out:** Offers an easy way to switch audio-out.

■ **Sync Power on:** When you play the connected AV device, TV will automatically turn on.

(A device, which is connected to the TV through a HDMI cable but does not support SIMPLINK, does not provide this function)

Note: To operate SIMPLINK, an HDMI cable over Version 1.3 with *CEC function should be used. (*CEC: Consumer Electronics Control).

1 Display **SIMPLINK** menu.

2 Select the desired device.

3 Control connected AV devices.
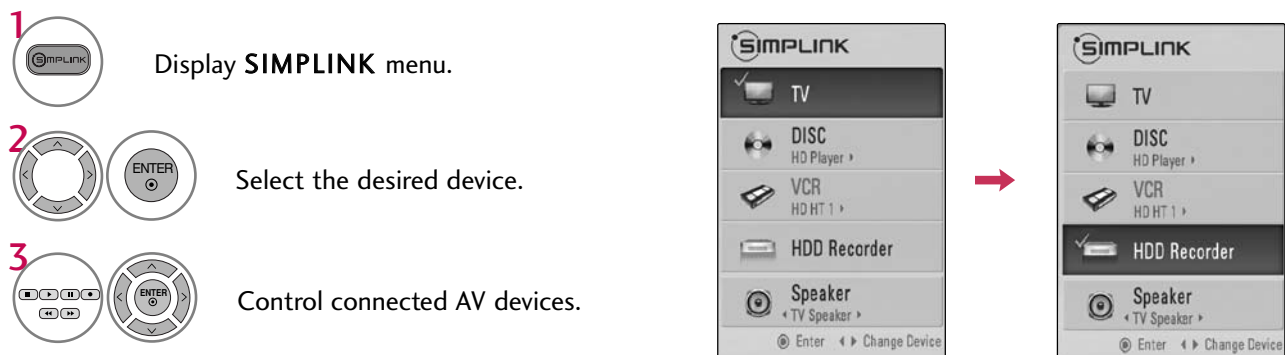
SIMPLINK Menu

① **TV viewing**: Switch to the previous TV channel regardless of the current mode.

② **DISC playback**: Select and play discs. When multiple discs are available, the titles of discs are conveniently displayed at the bottom of the screen.

③ **VCR playback**: Control the connected VCR.

④ **HDD Recordings playback**: Control recordings stored in HDD.

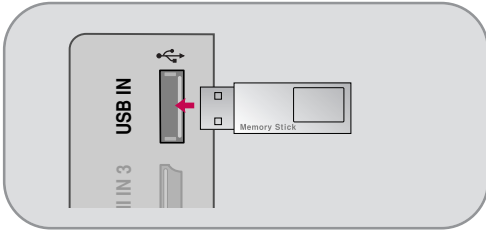⑤ **Audio Out to Home Theater speaker/Audio Out to TV**: Select Home Theater speaker or TV speaker for Audio Out.

▶ When no device is connected (displayed in gray)

▶ Selected Device

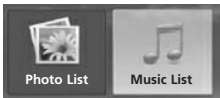▶ When a device is connected (displayed in bright color)

USB

ENTRY MODES

When you connect a USB device, this screen is displayed automatically.
In USB device, you can not add a new folder or delete the existing folder.

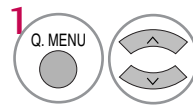**1** Connect the USB device to the **USB IN** jacks on the side of TV.

USB IN

IN 3

Memory Stick

- It doesn't support USB HDD
- This TV supports JPG and MP3.

2 Select **Photo List** or **Music List**.

Photo List   Music List

3 ENTER

When removing the USB device

Select the **Eject USB** menu before removing the USB device.

1 Q. MENU   Select **Eject USB**.

2 ENTER

Precautions when using the USB device

▶ Only a USB storage device is recognizable.
▶ If the USB storage device is connected through a USB hub, the device is not recognizable.
▶ A USB storage device using an automatic recognition program may not be recognized.
▶ A USB storage device which uses its own driver may not be recognized.
▶ In case of a card reader, up to four memory cards are concurrently recognizable.
▶ The recognition speed of a USB storage device may depend on each device.
▶ Please do not turn off the TV or unplug the USB device when the connected USB storage device is working. When such device is suddenly separated or unplugged, the stored files or the USB storage device may be damaged.
▶ Please do not connect the USB storage device which was artificially maneuvered on the PC. The device may cause the product to malfunction or fail to be played. Never forget to use only a USB storage device which has normal music files or image files.

▶ Please use only a USB storage device which was formatted as a FAT or NTFS file system provided with the Windows operating system. In case of a storage device formatted as a different utility program which is not supported by Windows, it may not be recognized.
▶ Please connect power to a USB storage device which requires an external power supply. If not, the device may not be recognized.
▶ Please connect a USB storage device with cable is offered by USB maker. If connected with cable is not offered by USB maker or an excessively long cable, the device may not be recognized.
▶ Some USB storage devices may not be supported or operated smoothly.
▶ File alignment method of USB storage device is similar to Window XP and filename can recognize up to 100 English characters.
▶ Please backup important files because data on USB device may be damaged. Data management is consumer's responsibility and as a result, the manufacturer does not cover data damage.

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PHOTO LIST

You can view .JPG files from USB storage devices.
The On Screen Display on your model may be slightly different.

Supported photo file: ∗.JPG

- You can play JPG files only.
- Only baseline scan is supported among JPG.

Screen Components

1 MENU ⌄⌃ Select **USB**.

2 ENTER ⌄⌃ ENTER Select **Photo List**.

① Moves to upper level file

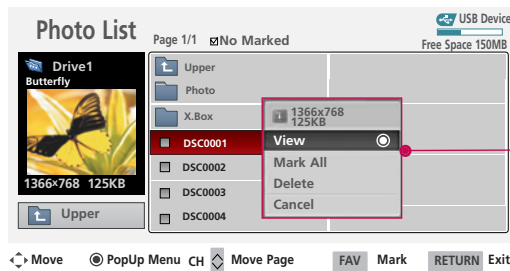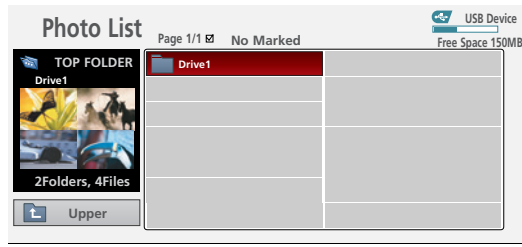② Preview: Display the thumbnail/folder name of the photo in the selected folder

③ Current page/Total pages

④ Total number of marked photos

⑤ Usable USB memory

⑥ Corresponding buttons on the remote control

Photo List

③ Page 1/1 ④ ☑ No Marked

⑤ USB Device
Free Space 150MB

Top Folder
Drive1

②
2Folders, 4Files

① Upper

Drive1

①

◇ Move   ◉ PopUp Menu   CH ◇ Move Page   FAV Mark   RETURN Exit

⑥

Photo Selection and Popup Menu

Photo List Page 1/1 ☑ No Marked

USB Device
Free Space 150MB

TOP FOLDER
Drive1

Drive1

2Folders, 4Files

Upper

◀ ⬩ ▶ Move   ◉ PopUp Menu   CH ⌄ Move Page   FAV Mark   RETURN Exit

Photo List Page 1/1 ☑No Marked

USB Device
Free Space 150MB

Drive1
Butterfly

Upper
Photo
X.Box
DSC0001
DSC0002
DSC0003
DSC0004

1366×768
125KB
View   ◉
Mark All
Delete
Cancel

1366×768 125KB

Upper

◀ ⬩ ▶ Move   ◉ PopUp Menu   CH ⌄ Move Page   FAV Mark   RETURN Exit

When you select a file (not folder), this PopUp menu is displayed.
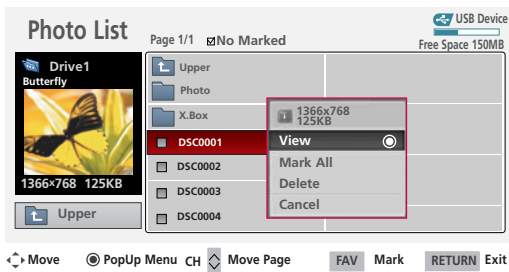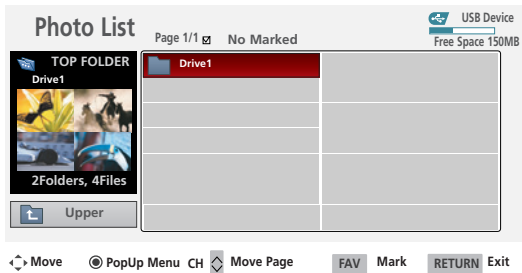▶ **View**: Display the selected item.
▶ **Mark All**: Mark all photos on the screen.
▶ **Unmark All**: Deselect all marked photos.
▶ **Delete**: Delete the selected photo item.
▶ **Cancel**: Close the pop-up menu.

1 Select the target folder or drive.

2 ENTER   Select the desired photos.

3 ENTER   Show the Popup menu.

4 ENTER   Select the desired Popup menu.

■ Use the **CH** ∧ ∨ button to navigation in the photo page.
■ Use the **FAV** button to mark or unmark a photo. When one or more photos are marked, you can view individual photos or a slide show of the marked photos. If no photos are marked, you can view all photos individually or all photos in the folder in a slide show.

Full Screen Menu

You can change the Photo List view so that it fills the screen. More operations are available in full screen mode.

Photo List

Page 1/1 ☑ No Marked

🔌 USB Device
Free Space 150MB

TOP FOLDER
Drive1

2Folders, 4Files

Upper

Drive1

Move · PopUp Menu · CH ◇ Move Page · FAV Mark · RETURN Exit

Photo List

Page 1/1 ☑No Marked

🔌 USB Device
Free Space 150MB

Drive1
Butterfly

1366×768 125KB

Upper

Upper
Photo
X.Box
1366x768 125KB
DSC0001   View ◎
DSC0002   Mark All
DSC0003   Delete
DSC0004   Cancel

Move · PopUp Menu · CH ◇ Move Page · FAV Mark · RETURN Exit

Sideshow · BGM · Delete Option Hide
1/17   45

The aspect ratio of a photo may change the size of the photo displayed on the screen in full size.

1   Select the target folder or drive.

2   ENTER   Select the desired photos.

3   ENTER   Show the Popup menu.

4   Select **View**.

5   ENTER   The selected photo is displayed in full size.

■ Use the **CH** ∧ ∨ button to navigation in the photo page.
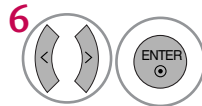
6 ◁ ▷ ⊙ENTER Select the **Sideshow**, **BGM**, ↺ **(Rotate)**, **Delete**, **Option**, or **Hide.**

■ Use ‹ › button to select the previous or next photo.
■ Use ∧ ∨ ‹ › button to select and control the menu on the full-sized screen.

1/17   ◀ 45
Sideshow ▫ BGM ▫ ↺ Delete Option Hide

▶ **Sideshow**: Selected photos are displayed during the slide show. If no photo is selected, all photos in the current folder are displayed during slide show.
   ■ Set the time interval of the slide show in **Option**.
   ■ A slide show continues for a maximum of 4 hours. After 4 hours, the slide show will end and go to TV mode or external input mode.
▶ **BGM**: Listen to music while viewing photos in full size.
   ■ Set the BGM device and album in **Option**.
▶ ↺ **(Rotate)**: Rotate photos.
   ■ Rotates the photo 90°, 180°, 270°, 360° clockwise.
▶ **Delete**: Delete photos.
▶ **Option**: Set values for **Slide Speed** and **Music Folder**.
   ■ Use ‹ › button and **ENTER** button to set values. Then go to ⊡Enter and press **ENTER** to save the settings.
   ■ You cannot change **Music Folder** while BGM is playing.
▶ **Hide** : Hide the menu on the full-sized screen.
   ■ To see the menu again on the full-sized screen, press **ENTER** button to display.

ⅈ Press ⊙ to edit the BGM album.

Slide Speed   ◀   Fast   ▶
Music Folder   ...

ENTER   Cancel
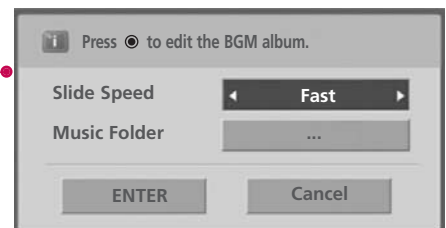
❗ **NOTE**
▶ This TV will not be able to decode most JPEG images saved using the Progressive option.

MUSIC LIST

You can use the Music List menu to play MP3 files form a USB storage device.

This TV cannot play back copy-protected files.

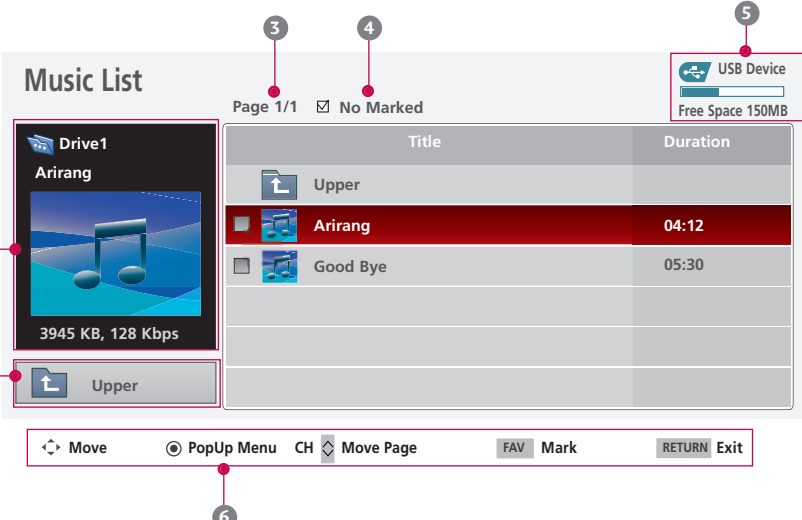The On Screen Display on your model may be slightly different.

Supported music file: *.MP3

Bit rate range 40Kbps ~ 320Kbps

• Sampling rate (Sampling Frequency)

MPEG1 : 32000, 44100, 48000Hz

MPEG2 : 16000, 24000, 22050Hz

MPEG2.5 : 16 ~ 48KHz

Screen Components

1 MENU — Select **USB**.

2 ENTER ∧∨ ENTER — Select **Music List**.

① Moves to upper level file

② Preview: If any album jacket for the file exists, this jacket is displayed.

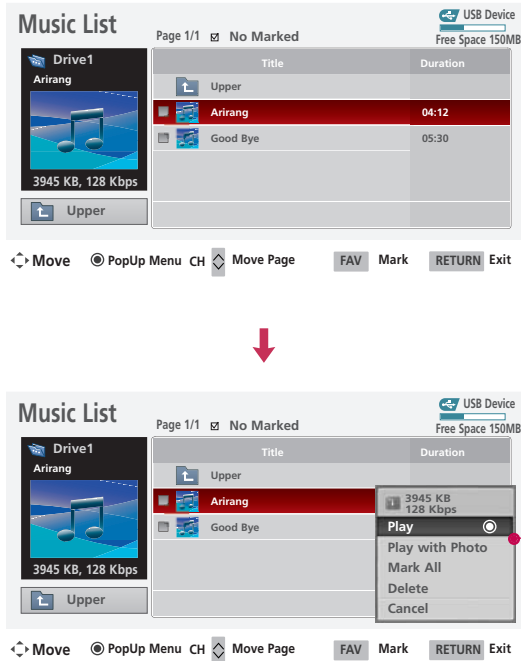③ Current page/Total pages

④ Total number of marked musics

⑤ Usable USB memory

⑥ Corresponding buttons on the remote control

Music List

Drive1
Arirang

3945 KB, 128 Kbps

Upper

③ Page 1/1   ④ ☑ No Marked   ⑤ USB Device / Free Space 150MB

Title	Duration
Upper	
Arirang	04:12
Good Bye	05:30

◇ Move   ◉ PopUp Menu   CH ◇ Move Page   FAV Mark   RETURN Exit

Music Selection and Popup Menu

Up to 6 music titles are listed per page.

Music List			USB Device Free Space 150MB
	Page 1/1 ☑ No Marked		
Drive1 Arirang	**Title**	**Duration**	
	Upper		
	Arirang	04:12	
3945 KB, 128 Kbps	Good Bye	05:30	
Upper			

Move PopUp Menu CH Move Page   FAV Mark   RETURN Exit

Music List			USB Device Free Space 150MB
	Page 1/1 ☑ No Marked		
Drive1 Arirang	**Title**	**Duration**	
	Upper		
	Arirang	3945 KB 128 Kbps	
3945 KB, 128 Kbps	Good Bye	Play ◉	
Upper		Play with Photo	
		Mark All	
		Delete	
		Cancel	

Move PopUp Menu CH Move Page   FAV Mark   RETURN Exit

▶ **Play** (During stop): Play the selected music. Once a song finishes playing, the next selected one will be played. When there are no selected musics to play, the next one in the current folder will be played. If you go to a different folder and press the **ENTER** button, the current music in playback will stop.

▶ **Play Marked**: Play the selected musics. Once a music finishes playing, the next selected one will be played automatically.

▶ **Stop Play** (During playback): Stop the playing musics.

▶ **Play with Photo**: Start playing the selected musics and then move to the Photo List.

▶ **Mark All**: Mark all musics in the folder.

▶ **Unmark All**: Deselect all marked music.

▶ **Delete**: Delete the selected music.

▶ **Cancel**: Close the pop-up menu.

---

1 Select the target folder or drive.

2 ENTER — Select the desired musics.

3 ENTER — Show the Popup menu.

4 ENTER — Select the desired Popup menu.

5 RETURN — Return to TV viewing

■ Use the **CH** ⌃ ⌄ button to navigation in the music page.

■ Use **FAV** button to mark or unmark a music file. If no music is marked, all the music in the folder will be played in sequence. When one or more music files are marked, the marked music files will be played in sequence. If you want to listen to only one song repeatedly, just mark that one file and play.

■ The play information box (as shown below) will automatically move across the screen when there is no user input to prevent a fixed image remaining on the screen for a extended period of time.
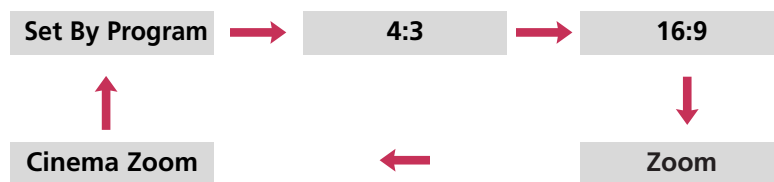

❶ NOTE

▶ When music is playing, ♪ is displayed in front of the music play time.

▶ A damaged or corrupted music file that does not play displays 00:00 as the play time.

▶ Music files with copy-protection will not play.

▶ Press **ENTER**, ■ , or **RETURN** button to stop the screen saver.

▶ This TV can not play music files less than 16 Kbytes.

PICTURE CONTROL

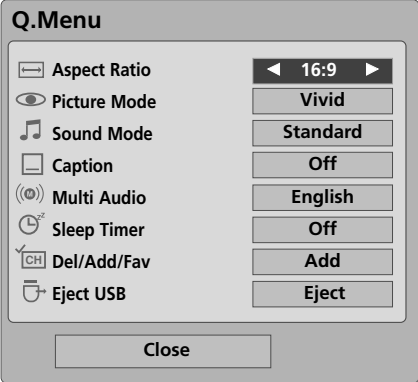## PICTURE SIZE (ASPECT RATIO) CONTROL

This feature lets you choose the way an analog picture with a 4:3 aspect ratio is displayed on your TV.
■ RGB-PC input source use 4:3 or 16:9 aspect ratio.

Set By Program	→	4:3	→	16:9

Cinema Zoom	←		Zoom

1
RATIO
Select the desired picture format.

2
RETURN
Return to TV viewing.

Q.Menu

⊏⊐ Aspect Ratio	◄ 16:9 ►
👁 Picture Mode	Vivid
🎵 Sound Mode	Standard
⊏⊐ Caption	Off
((◎)) Multi Audio	English
⏲ Sleep Timer	Off
CH Del/Add/Fav	Add
⎎ Eject USB	Eject

Close

■ You can also adjust **Aspect Ratio** in the **Q-Menu**.

Set by program

Selects the proper picture proportion to match the source's image.

(4:3 → 4:3)

(16:9 → 16:9)

4:3

Choose 4:3 when you want to view a picture with an original 4:3 aspect ratio.
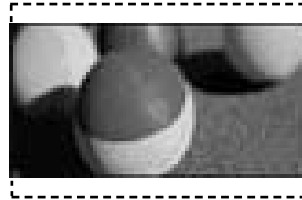
16:9

Adjust the picture horizontally, in a linear proportion to fill the entire screen.

Zoom

Choose Zoom when you want to view the picture without any alteration. However, the top and bottom portions of the picture will be cropped.

Cinema **Zoom**

Choose Cinema Zoom when you want the picture to be altered, both vertically extended and cropped. The picture taking a halfway trade off between alteration and screen coverage.
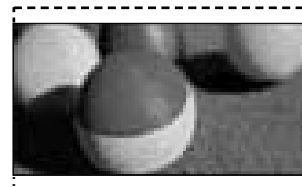
Just Scan

Normally the edges of video signals are cropped 1-2%. Just Scan turns off this cropping and shows the complete video.

Notes: If there is noise on the edges of the original signal, it will be visible when Just Scan is activated.

Just Scan operates only in DTV/CADTV/Component/HDMI-DTV/DVI-DTV (720p/1080i/1080p) input source.
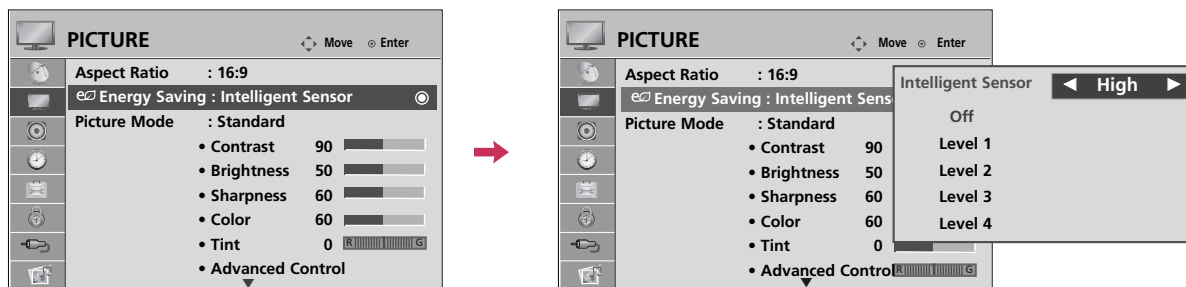
e⌀ ENERGY SAVING

It reduces the plasma display's power consumption.

The default factory setting complies with the Energy Star requirements and is adjusted to the comfortable level to be viewed at home.

You can increase the brightness of your screen by adjusting the Power Saving level or by setting the Picture Mode.

PICTURE	Move ⊙ Enter
Aspect Ratio	: 16:9
e⌀ Energy Saving : Intelligent Sensor	◉
Picture Mode	: Standard
• Contrast	90
• Brightness	50
• Sharpness	60
• Color	60
• Tint	0 R⬛⬛⬛⬛⬛⬛⬛G
• Advanced Control	▼

➡

| PICTURE	Move ⊙ Enter	Intelligent Sensor	◄ High ►
Aspect Ratio	: 16:9		Off
e⌀ Energy Saving : Intelligent Sens			Level 1
Picture Mode	: Standard		Level 2
• Contrast	90		Level 3
• Brightness	50		Level 4
• Sharpness	60		
• Color	60		
• Tint	0		
• Advanced Control R⬛⬛⬛⬛⬛⬛G			

1 MENU Select **PICTURE**.

2 ENTER Select **e⌀Energy Saving**.

3 ENTER Select **Intelligent Sensor** (‹ › Select **Low**, **Medium**, or **High**.), **Level 1**, **Level 2**, **Level 3** or **Level 4**.

4 RETURN Return to the previous menu.
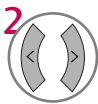
MENU Return to TV viewing.

PRESET PICTURE SETTINGS

Picture Mode - Preset

There are factory presets for picture settings available in the user menus. You can use a preset, change each setting manually.

Q.Menu

⊡ Aspect Ratio	16:9
⊙ Picture Mode	◄ Vivid ►
♫ Sound Mode	Standard
▭ Caption	Off
(⊙) Multi Audio	English
⊙ᶻ Sleep Timer	Off
CH Del/Add/Fav	Add
⊡ Eject USB	Eject

Close

THX **Cinema**

or

Vivid ➡ Standard ➡ Cinema

Expert2 ⬆ ⬇

Expert1 ⬅ Game ⬅ Sport
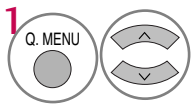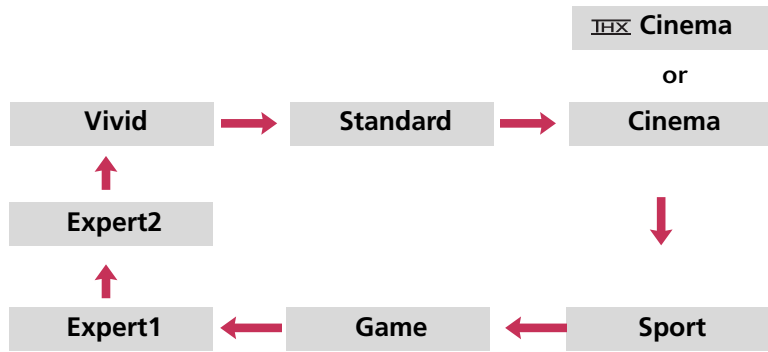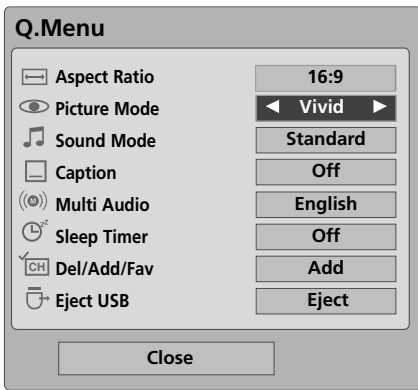
1 Q. MENU ⌃⌄ Select **Picture Mode**.

2 ⟨ ⟩ Select **Vivid**, **Standard**, **Cinema** (or THX **Cinema**), **Sport**, **Game**, **Expert1**, or **Expert2**.
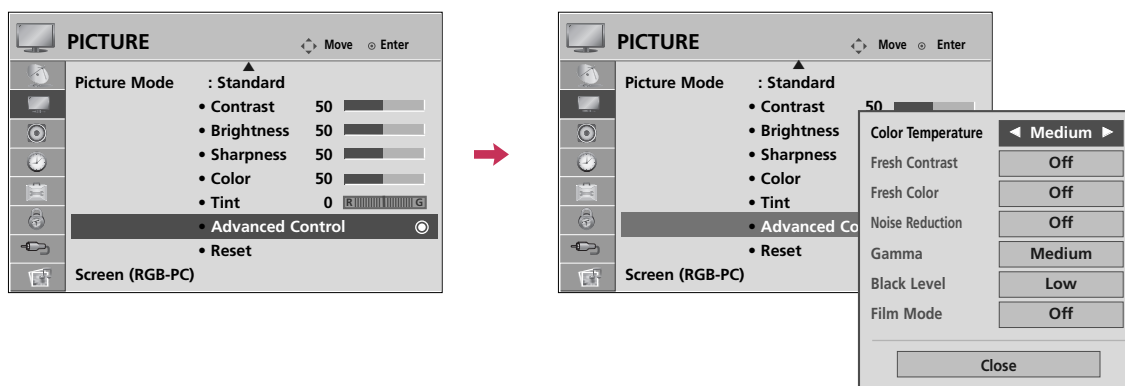
3 Q. MENU Return to TV viewing.

- **Vivid**, **Standard**, **Cinema**, **Sport**, **Game**, **Expert1**, or **Expert2** Settings are preset for the optimum picture quality at the factory and are not adjustable.
- You can also adjust **Picture Mode** in the **PICTURE** menu.
- THX Cinema (Only for 50PS30, 50/60PS60): This is cinema quality mode to provide you the experience of watching a movie at home. The user will be able enjoy the best level of satisfactory screen quality in any movie without any separate adjustments. THX Cinema expresses the optimal screen quality when it is darkest.
- When selecting THX **Cinema**, Aspect ratio changes to Just scan.

- THX (Thomlinson Holman's Experiment) is the audio and video certification standard of THX established by George Lucas, who directed the movie Star Wars, and Thomlinson.
  This is the product to be certified in THX display area and guarantees screen quality that exceeds the display standard specification in both hardware and software.

PICTURE CONTROL

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Color Tone - Preset

Choose one of three automatic color adjustments. Set to warm to enhance hotter colors such as red, or set to cool to see less intense colors with more blue.

PICTURE	Move ◇ Enter
Picture Mode	: Standard
	• Contrast 50
	• Brightness 50
	• Sharpness 50
	• Color 50
	• Tint 0 R ‖‖‖‖‖ G
	• Advanced Control ◉
	• Reset
Screen (RGB-PC)	

| PICTURE	Move ◉ Enter
Picture Mode	: Standard
	• Contrast 50
	• Brightness
	• Sharpness
	• Color
	• Tint
	• Advanced Co
	• Reset
Screen (RGB-PC)	

Color Temperature	◄ Medium ►
Fresh Contrast	Off
Fresh Color	Off
Noise Reduction	Off
Gamma	Medium
Black Level	Low
Film Mode	Off
Close	

1 MENU — Select **PICTURE**.

2 ENTER — Select **Advanced Control**.

3 ENTER — Select **Color Temperature**.

4 — Select **Cool**, **Medium**, or **Warm**.

5 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

MANUAL PICTURE ADJUSTMENT

Picture Mode - User Mode

Adjust the picture appearance to suit your preference and viewing situations.
50PS30, 50/60PS60 only: This feature is disabled in "**Picture Mode-** THX **Cinema**".

PICTURE	◇ Move ◉ Enter
Aspect Ratio : 16:9	
ℯⱷ Energy Saving : Intelligent Sensor	
Picture Mode : Standard	◉
• Contrast 90	
• Brightness 50	
• Sharpness 60	
• Color 60	
• Tint 0 R ∥∥∥∥∥∥ G	
• Advanced Control	

▲
• Contrast   80   ◀ ▭ ▶
▼   ◉ Enter

1 MENU
Select **PICTURE**.

2 ENTER
Select **Picture Mode**.
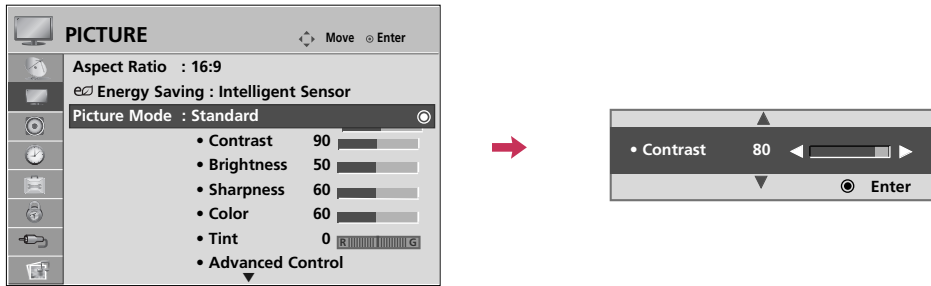
3 ENTER
Select **Vivid**, **Standard**, **Cinema**, **Sport**, or **Game**.

4 ENTER
Select **Contrast**, **Brightness**, **Sharpness**, **Color**, or **Tint**.

5 ENTER
Make appropriate adjustments.

6 RETURN
Return to the previous menu.

MENU
Return to TV viewing.

PICTURE CONTROL

Picture Mode - Expert Control

By segmenting categories, **Expert1** and **Expert2** provide more categories which users can set as they see fit, offering the optimal picture quality for users.

Menu diagrams

PICTURE Move Enter	**PICTURE** Move Enter
Aspect Ratio : 16:9	Picture Mode : Standard — Fresh Contrast ◄ Off ►
Energy Saving : Intelligent Sensor	• Contrast — Noise Reduction Off
Picture Mode : Standard	• Brightness — Gamma Medium
Vivid	• Sharpness — Black Level Low
• Contrast 90 Standard	• Color — Film Mode Off
• Brightness 50 Cinema	• Tint — Color Standard HD
• Sharpness 60 Sport	• Expert Cont —
• Color 60 Game	• Reset — White Balance Medium
• Tint 0 Expert1	Screen (RGB-PC) — Red Contrast 50
• Advanced Contr Expert2	Close

1 MENU — Select **PICTURE**.

2 ENTER — Select **Picture Mode**.

3 ENTER — Select **Expert1** or **Expert2**.

4 ENTER — Select **Expert Control**.

5 ENTER — Select your desired menu option.

6 — Make appropriate adjustments.

7 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

PICTURE CONTROL

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PICTURE IMPROVEMENT TECHNOLOGY

Fresh Contrast: Optimizes the contrast automatically according to the brightness of the reflection.
Fresh Color: Adjusts the color of the reflection automatically to reproduce as close as possible natural colors.
Noise Reduction: Removes interference up to the point where it does not damage the original picture.
Gamma: High gamma values display whitish images and low gamma values display high contrast images.

1 MENU
Select **PICTURE**.

2 ENTER
Select **Advanced Control**.
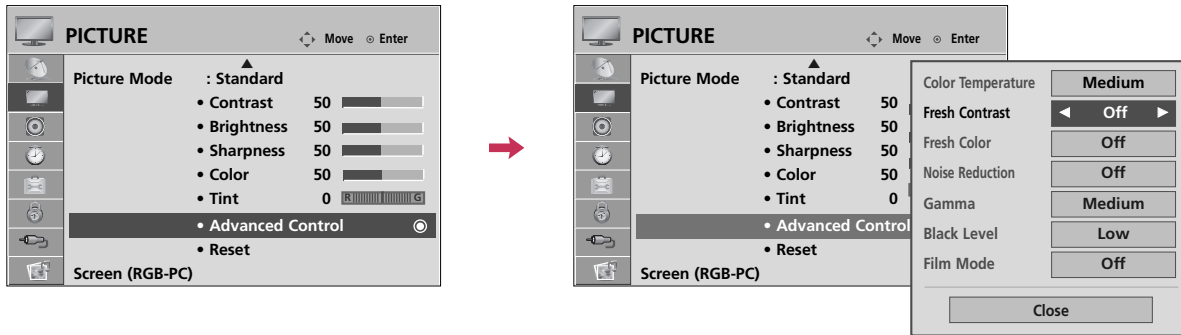
3 ENTER
Select **Fresh Contrast**, **Fresh Color**,
Noise Reduction, or **Gamma**.

4
Select your desired options.

5 RETURN
Return to the previous menu.

MENU
Return to TV viewing.

ADVANCED CONTROL - BLACK (DARKNESS) LEVEL

Adjusting the contrast and the brightness of the screen using the black level of the screen.
This feature is disable in DTV and RGB-PC mode.

PICTURE		Move ⊙ Enter
Picture Mode	**: Standard**	
	▲	
	• Contrast	**50**
	• Brightness	**50**
	• Sharpness	**50**
	• Color	**50**
	• Tint	**0** R‖‖‖‖‖‖G
	• Advanced Control	⊚
	• Reset	
Screen (RGB-PC)		

PICTURE	Move ⊙ Enter
Picture Mode : Standard	

Color Temperature	**Medium**
Fresh Contrast	**Off**
Fresh Color	**Off**
Noise Reduction	**Off**
Gamma	**Medium**
Black Level	◄ **Low** ►
Film Mode	**Off**
Close	
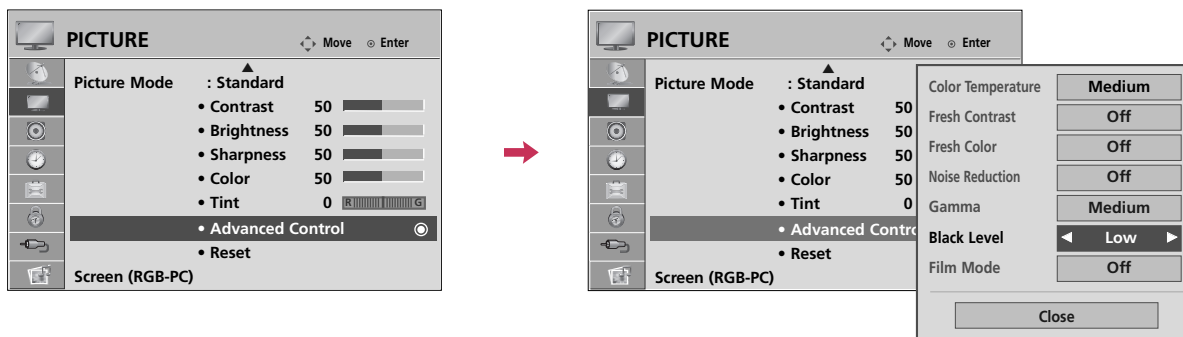
1	MENU	Select **PICTURE**.
2	ENTER	Select **Advanced Control**.
3	ENTER	Select **Black Level**.
4		Select **Low** or **High**.
5	RETURN	Return to the previous menu.
	MENU	Return to TV viewing.

- ■ **Low**: The reflection of the screen gets darker.
- ■ **High**: The reflection of the screen gets brighter.
- ■ **Auto**: Realizing the black level of the screen and set it to High or Low automatically.

ADVANCED CONTROL - FILM MODE

Set up the TV for the best picture appearance for viewing movies.

When you operate Film Mode (3:2 Pull-Down Mode or Cinema Correction Mode), the TV will adjust 24 fps video from movies to 30 fps video for display.

This feature operates only in TV (Analog TV/CATV, Digital DTV/CADTV), AV1, AV2, Component 480i/1080i, and HDMI 1080i mode.

PICTURE	Move ⊙ Enter
Picture Mode : Standard	
• **Contrast** 50	
• **Brightness** 50	
• **Sharpness** 50	
• **Color** 50	
• **Tint** 0	R⬛⬛⬛⬛ G
• **Advanced Control** ◉	
• **Reset**	
Screen (RGB-PC)	

PICTURE	Move ⊙ Enter		
Picture Mode : Standard		Color Temperature	Medium
• **Contrast** 50		Fresh Contrast	Off
• **Brightness** 50		Fresh Color	Off
• **Sharpness** 50		Noise Reduction	Off
• **Color** 50		Gamma	Medium
• **Tint** 0		Black Level	Low
• **Advanced Control**		Film Mode	◄ Off ►
• **Reset**			
Screen (RGB-PC)		Close	

1 MENU Select **PICTURE**.

2 ENTER Select **Advanced Control**.

3 ENTER Select **Film Mode**.

4 Select **On** or **Off**.

5 RETURN Return to the previous menu.

MENU Return to TV viewing.

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PICTURE CONTROL

PICTURE RESET

Settings of the selected picture modes return to the default factory settings.

<table>
<tr>
<td>
PICTURE   Move   Enter

Picture Mode   : Standard
       • Contrast   50
       • Brightness   50
       • Sharpness   50
       • Color   50
       • Tint   0   R | | | | | | | | | | | | G
       • Advanced Control
       • Reset
Screen (RGB-PC)
</td>
<td>➡</td>
<td>
PICTURE   Move   Enter

Picture Mode   : Standard
       • Contrast   50
       • Brightness   50
     [i]   Resetting video configuration...
       • Tint   0   R | | | | | | | | | | | | G
       • Advanced Control
       • Reset
Screen (RGB-PC)
</td>
</tr>
</table>

PICTURE CONTROL

1 MENU — Select **PICTURE**.

2 ENTER — Select **Reset**.
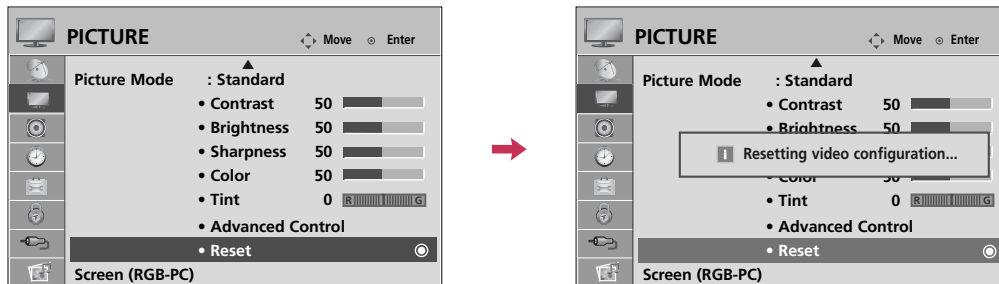
3 ENTER — Initialize the adjusted value.

4 MENU — Return to TV viewing.

IMAGE STICKING MINIMIZATION (ISM) METHOD

A frozen still picture displayed on the screen for prolonged periods can result in a ghost image. You can use Orbiter to help prevent image sticking. The other two functions are for removing a ghost image.

OPTION	◇ Move ◉ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	**: Normal** ◉
Set ID ▼	: 1

➡

OPTION	◇ Move ◉ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	**: Normal**
Set ID ▼	: 1

Normal ◉
Orbiter
Inversion
White Wash
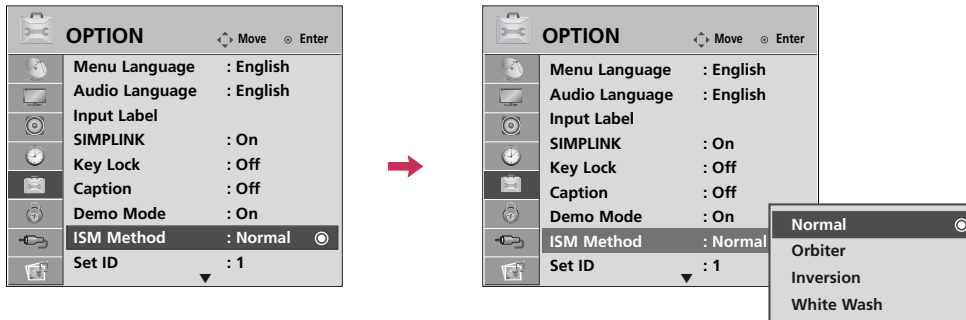
1 MENU · Select **OPTION**.

2 ENTER · Select **ISM Method**.

3 ENTER · Select **Normal, Orbiter, Inversion** or **White Wash.**

4 RETURN · Return to the previous menu.

MENU · Return to TV viewing.

- **Normal**: If image sticking is never a problem, ISM is not necessary - set to Normal.
- **Orbiter**: Orbiter may help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen. To avoid a ghost image on the screen, the image will move every 2 minutes.
- **Inversion**: Inversion will automatically invert the plasma display panel color every 30 minutes.
- **White Wash**: White Wash removes ghost images from the screen. Use sparingly. Watch the TV normally for a while before using this feature to see if the ghost image disappears on its own.

❗ NOTE
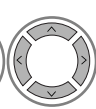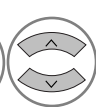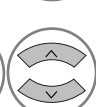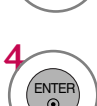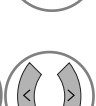
▶ An excessive ghosted image may be impossible to clear entirely with White Wash. To return to normal viewing, press the any button.
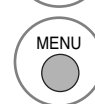
DEMO MODE

Display the E-Streamer to explain the main features of this TV.

OPTION ◀▷ Move ⊙ Enter

Menu Language   : English
Audio Language   : English
Input Label
SIMPLINK   : On
Key Lock   : Off
Caption   : Off
Demo Mode   : On   ◉
ISM Method   : Normal
Set ID   ▼ : 1

OPTION ◀▷ Move ⊙ Enter

Menu Language   : English
Audio Language   : English
Input Label
SIMPLINK   : On
Key Lock   : Off
Caption   : Off
Demo Mode   : On   Off
ISM Method   : Norm   On   ◉
Set ID   ▼ : 1

1,000,000:1 contrast ratio for a brighter picture and increased energy efficiency

1 MENU   Select **OPTION**.

2 ENTER   Select **Demo Mode**.

3 ENTER   Select **On.**

4 ENTER   Display the E-Streamer.
In the lower part, each function
is explained.

5 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

SOUND & LANGUAGE CONTROL

AUTO VOLUME LEVELER (AUTO VOLUME)

Auto Volume makes sure that the volume level remains consistent whether you are watching a commercial or a regular TV program.

	AUDIO	◇ Move ⊙ Enter
	Auto Volume : Off ◉	
	Clear Voice : On	
	• Level 0 - ▓▓▓▓▓ +	
	Balance 0 L▓▓▓▓R	
	Sound Mode : Standard	
	• SRS TruSurround XT: Off	
	• Treble 50 ▓▓	
	• Bass 50 ▓▓	
	• Reset ▼	

→

	AUDIO	◇ Move ⊙ Enter	
	Auto Volume : Off	**Off**
	Clear Voice : On	**On** ◉
	• Level 0 - ▓▓▓▓ +	
	Balance 0 L▓▓▓▓R	
	Sound Mode : Standard	
	• SRS TruSurround XT: Off	
	• Treble 50 ▓▓	
	• Bass 50 ▓▓	
	• Reset ▼	
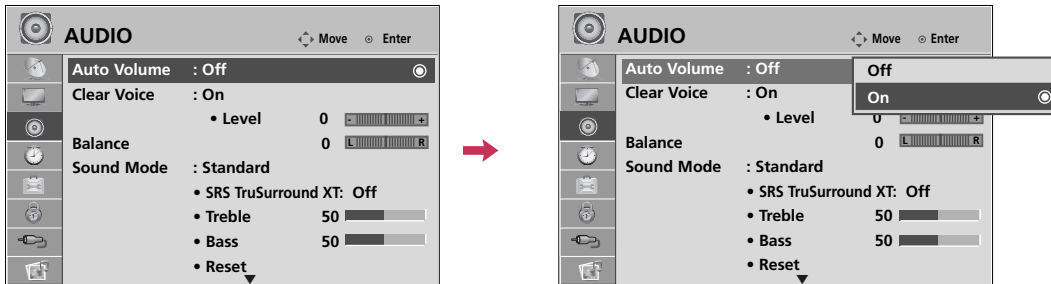
1 MENU   Select **AUDIO**.

2 ENTER   Select **Auto Volume**.

3 ENTER   Select **On** or **Off**.

4 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

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CLEAR VOICE

By differentiating the human sound range from others, it improves the sound quality of voices.

AUDIO	◇ Move ⊙ Enter
Auto Volume	: Off
Clear Voice	: On ◎
• Level	0 - ‖‖‖‖‖‖‖‖ +
Balance	0 L‖‖‖‖‖R
Sound Mode	: Standard
• SRS TruSurround XT:	Off
• Treble	50
• Bass	50
• Reset	▼

➡

AUDIO	◇ Move ⊙ Enter
Auto Volume	: Off	
Clear Voice	: On	Off
• Level		On ◎
Balance	0 L‖‖‖‖‖R
Sound Mode	: Standard
• SRS TruSurround XT:	Off
• Treble	50
• Bass	50
• Reset	▼
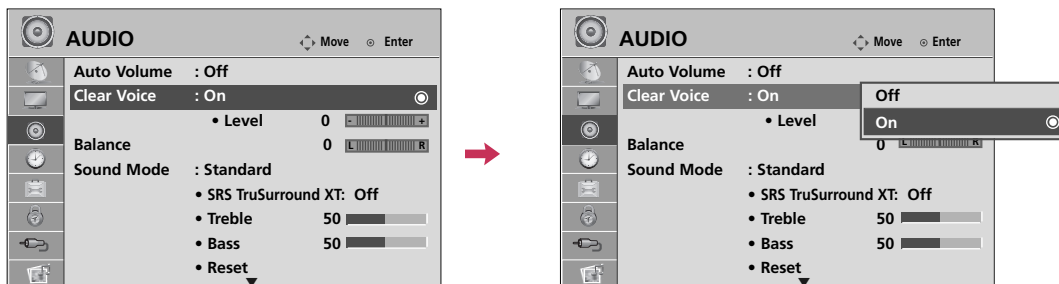
1 MENU — Select **AUDIO**.

2 ENTER — Select **Clear Voice**.

3 ENTER — Select **On** or **Off**.

4 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

■ If you select "**Clear Voice-On**", **SRS TruSurround XT** feature will not work.

ADJUSTMENT FOR LEVEL

If you select "**Clear Voice-On**", **Level** will be abled.
This feature is adjustment the voice level.

3 ENTER — Select **Clear Voice-On**.

4 ENTER — Select **Level**.

5 ENTER — Make appropriate adjustments.

6 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

Level	0	◄ ■‖‖‖‖‖‖+ ►
	Close	
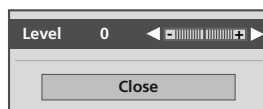
PRESET SOUND SETTINGS (SOUND MODE)

Sound Mode lets you enjoy the best sound without any special adjustment as the TV sets the appropriate sound options based on the program content.

Standard, **Music**, **Cinema**, **Sport**, and **Game** are preset for optimum sound quality at the factory and are not adjustable.

Q.Menu

⬌ Aspect Ratio	16:9
👁 Picture Mode	Vivid
🎵 Sound Mode	◄ Standard ►
▢ Caption	Off
((◎)) Multi Audio	English
🕐² Sleep Timer	Off
CH Del/Add/Fav	Add
🖥 Eject USB	Eject

Close

Standard → **Music** → **Cinema**

↑ **Game** ← **Sport** ↓
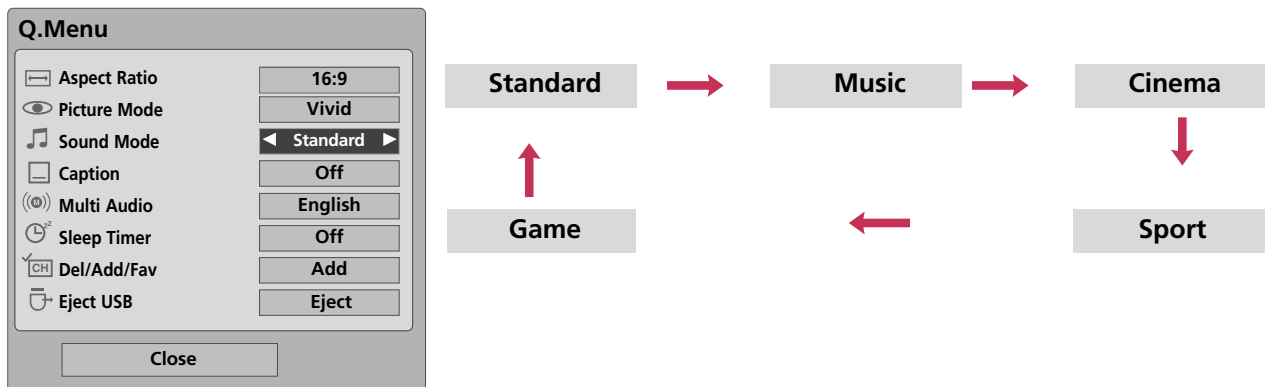
1
Q. MENU   Select **Sound Mode**.

2
Select **Standard**, **Music**, **Cinema**, **Sport**, or **Game**.
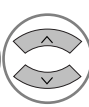
■ You can also adjust **Sound Mode** in the **AUDIO** menu.

3
Q. MENU   Return to TV viewing.

SOUND & LANGUAGE CONTROL

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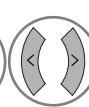
SOUND SETTING ADJUSTMENT - USER MODE
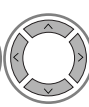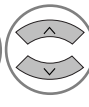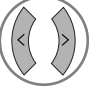
Adjust the sound to suit your taste and room situations.
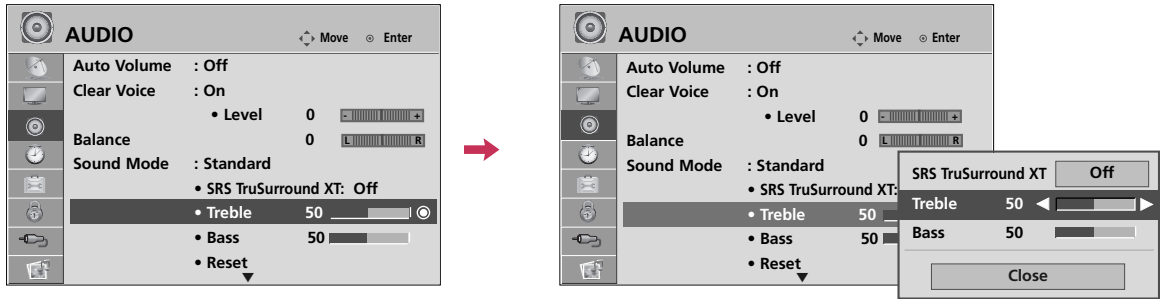
AUDIO	⬩ Move ⊙ Enter
Auto Volume	: Off
Clear Voice	: On
• Level	0
Balance	0
Sound Mode	: Standard
• SRS TruSurround XT:	Off
• Treble	50
• Bass	50
• Reset	

AUDIO	⬩ Move ⊙ Enter
Auto Volume	: Off
Clear Voice	: On
• Level	0
Balance	0
Sound Mode	: Standard
• SRS TruSurround XT:	
• Treble	50
• Bass	50
• Reset	

SRS TruSurround XT	Off
Treble	50 ◀ ▶
Bass	50
Close	

1 MENU — Select **AUDIO**.

2 ENTER — Select **Sound Mode**.

3 ENTER — Select **Standard**, **Music**, **Cinema**, **Sport**, or **Game**.

4 ENTER — Select **Treble** or **Bass**.

5 ENTER — Make appropriate adjustments.

6 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

SRS TRUSURROUND XT

1 MENU — Select **AUDIO**.

2 ENTER — Select **SRS TruSurround XT**.

3 ENTER — Select **On** or **Off**.

4 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

■ **SRS TruSurround XT**: Takes advantage of any multi-channel format without needing to add extra speakers or equipment. Dialog clarity, bass enrichment, and the addition of stereo audio enhancement produces an immersive sound experience from standard stereo material.

BALANCE

Adjust the left/right sound of speaker to suit your taste and room situations.
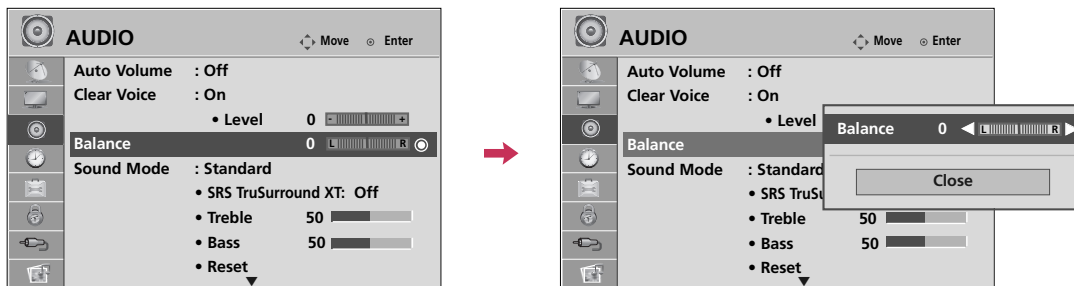
AUDIO ⟨◇⟩ Move ⊙ Enter

Auto Volume	: Off
Clear Voice	: On
• Level	0
Balance	0
Sound Mode	: Standard
• SRS TruSurround XT: Off	
• Treble	50
• Bass	50
• Reset	

AUDIO ⟨◇⟩ Move ⊙ Enter

Auto Volume	: Off
Clear Voice	: On
• Level	
Balance	
Sound Mode	: Standard
• SRS TruS	
• Treble	50
• Bass	50
• Reset	

Balance 0 ◀ L|||||||||||R ▶

Close

1 MENU Select **AUDIO**.

2 ENTER Select **Balance**.

3 ENTER Make appropriate adjustments.

4 RETURN Return to the previous menu.

MENU Return to TV viewing.

TV SPEAKERS ON/OFF SETUP

Turn the TV speakers off if using external audio equipment.
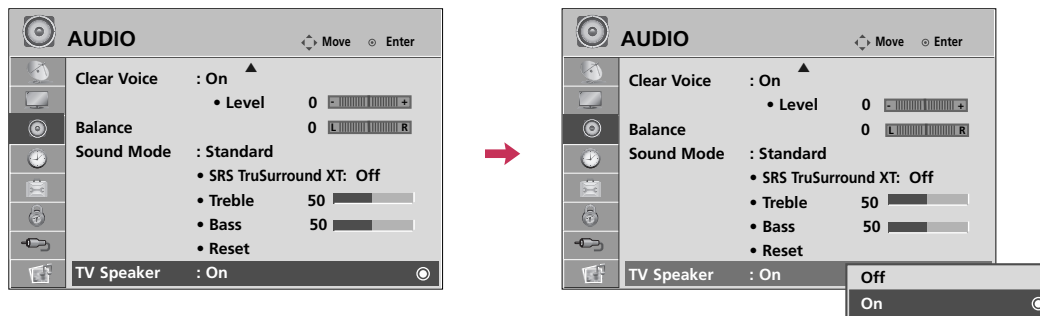
AUDIO	⬩ Move ⊙ Enter
Clear Voice	: On ▲
	• Level 0 - ‖‖‖‖‖‖ +
Balance	0 L ‖‖‖‖‖‖ R
Sound Mode	: Standard
	• SRS TruSurround XT: Off
	• Treble 50 ▮▮
	• Bass 50 ▮▮
	• Reset
TV Speaker	: On ◉

➡

AUDIO	⬩ Move ⊙ Enter
Clear Voice	: On ▲
	• Level 0 - ‖‖‖‖‖‖ +
Balance	0 L ‖‖‖‖‖‖ R
Sound Mode	: Standard
	• SRS TruSurround XT: Off
	• Treble 50 ▮▮
	• Bass 50 ▮▮
	• Reset
TV Speaker	: On Off
	On ◉

1 MENU Select **AUDIO**.

2 ENTER Select **TV Speaker**.

3 ENTER Select **On** or **Off**.

4 RETURN Return to the previous menu.

MENU Return to TV viewing.

AUDIO RESET

Settings of the selected Sound Mode return to the default factory settings.

	AUDIO	◈ Move ⊙ Enter
	Auto Volume	: Off
	Clear Voice	: On
		• Level 0
	Balance	0
	Sound Mode	: Standard
		• SRS TruSurround XT: Off
		• Treble 50
		• Bass 50
		• Reset

	AUDIO	◈ Move ⊙ Enter
	Auto Volume	: Off
	Clear Voice	: On
		• Level 0
	Balance	Resetting audio configuration...
	Sound Mode	
		• SRS TruSurround XT: Off
		• Treble 50
		• Bass 50
		• Reset
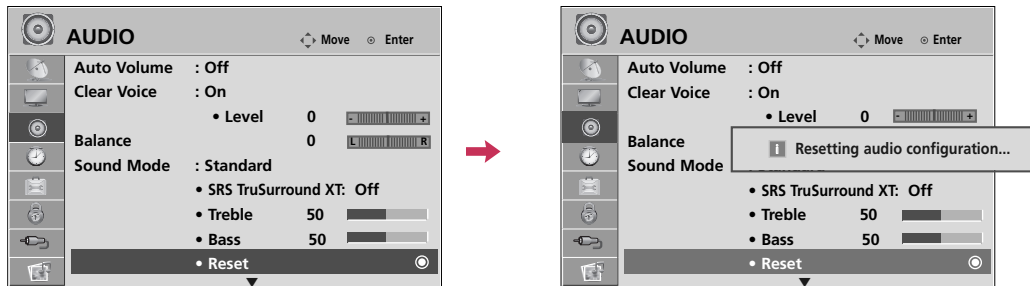
1 MENU ∧∨ Select **AUDIO**.

2 ENTER ∧∨ Select **Reset**.

3 ENTER Initialize the adjusted value.

4 MENU Return to TV viewing.

SOUND & LANGUAGE CONTROL

STEREO/SAP BROADCAST SETUP

For Analog only: This TV can receive MTS stereo programs and any SAP (Secondary Audio Program) that accompanies the stereo program if the station transmits an additional sound signal. Mono sound is automatically used if the broadcast is only in Mono.

Q.Menu

⊡ Aspect Ratio	**16:9**
◉ Picture Mode	**Vivid**
♪ Sound Mode	**Standard**
⊡ Caption	**Off**
((◎)) Multi Audio	◄ **English** ►
⊙ᶻ Sleep Timer	**Off**
CH Del/Add/Fav	**Add**
⊡ Eject USB	**Eject**
	Close
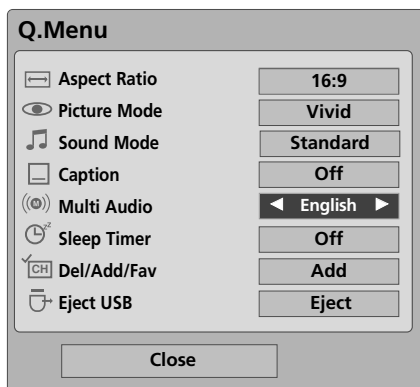
Analog TV

1 Q. MENU   Select **SAP**.

2   Select **Mono**, **Stereo**, or **SAP**.

3 Q. MENU   Return to TV viewing.

Digital TV

1 Q. MENU   Select **Multi Audio**.

2   Select other languages.

3 Q. MENU   Return to TV viewing.

AUDIO LANGUAGE

Other languages may be available if a digital signal is provided by the broadcasting station.
This feature operates only in DTV/CADTV mode.

OPTION	◇ Move ⊙ Enter
Menu Language	: English
Audio Language	**: English** ◉
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

➡

OPTION	◇ Move ⊙ Enter
Menu Language	: English
Audio Language	**: English**
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

English ◉
Spanish
French
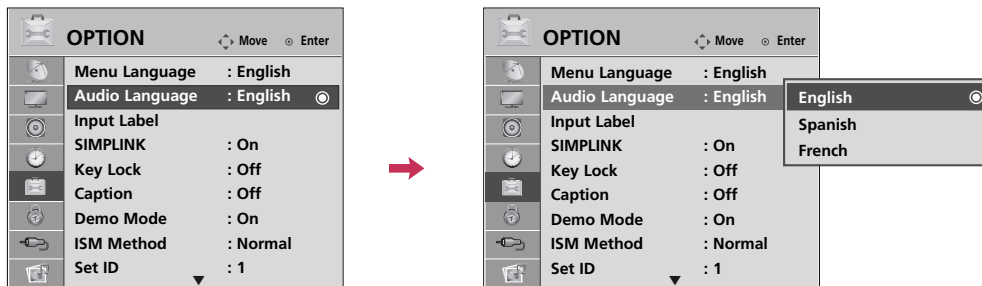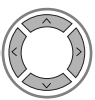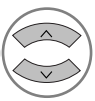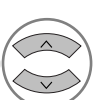
1 MENU Select **OPTION**.

2 ENTER Select **Audio Language**.

3 ENTER Select your desired language:
English, **Spanish**, or **French**

4 RETURN Return to the previous menu.

MENU Return to TV viewing.

ON-SCREEN MENUS LANGUAGE SELECTION

The menus can be shown on the screen in the selected language.

OPTION	◁▷ Move ⊙ Enter
Menu Language	: English ◉
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID ▼	: 1

➡

OPTION	◁▷ Move ⊙ Enter	
Menu Language	: English ◉	
Audio Language	: English	English ◉
Input Label		Spanish
SIMPLINK	: On	French
Key Lock	: Off	
Caption	: Off	
Demo Mode	: On	
ISM Method	: Normal	
Set ID ▼	: 1	
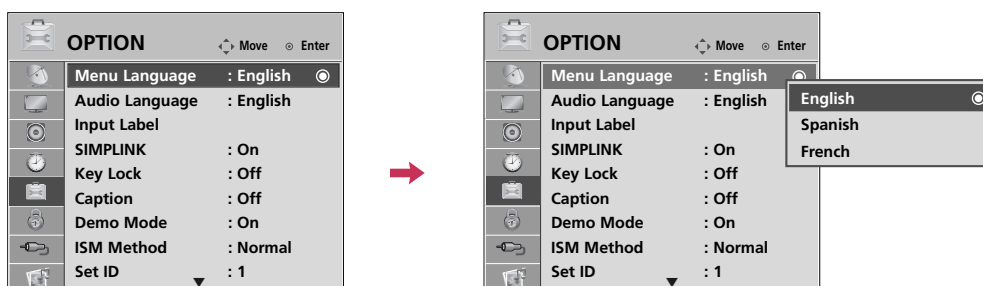
1 MENU ⌃⌄‹› Select **OPTION**.

2 ENTER ⌃⌄ Select **Menu Language**.

3 ENTER ⌃⌄ Select your desired language. From this point on, the on-screen menus will be shown in the selected language.

4 RETURN Return to the previous menu.

MENU Return to TV viewing.

CAPTION MODE

Analog Broadcasting System Captions

Caption must be provided to help people with hearing loss watch TV. Select a caption mode for displaying captioning information if provided on a program. Analog caption displays information at any position on the screen and is usually the program's dialog. Caption/Text, if provided by the broadcaster, would be available for both digital and analog channels on the Antenna/Cable. This TV is programmed to memorize the caption/text mode which was last set when you turned the power off. This function is only available when **Caption** Mode is set **On**.

OPTION	⬩ Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off ◉
Demo Mode	: On
ISM Method	: Normal
Set ID ▾	: 1

➡

OPTION	⬩ Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Norma
Set ID ▾	: 1

◄ **On** ►
Mode | **CC1**
Digital Option
Close

1 MENU — Select **OPTION**.

2 ENTER — Select **Caption**.

3 ENTER — Select **On**.

4 — Select **CC1-4** or **Text1-4**.

5 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

■ When selecting **Off**, Sub-menus for Analog, DTV, and Digital Option become disabled.

■ **CAPTION**
The term for the words that scroll across the bottom of the TV screen; usually the audio portion of the program provided for the hearing impaired.

■ **TEXT**
The term for the words that appear in a large black frame and almost cover the entire screen; usually messages provided by the broadcaster.
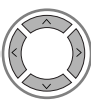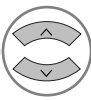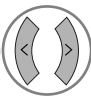
Digital Broadcasting System Captions

Choose the language you want the DTV/CADTV Captions to appear in.
Other Languages can be chosen for digital sources only if they are included on the program.
This function in only available when **Caption** Mode is set **On.**

```
┌─────────────────────────────────────────┐
│  OPTION          ◀╎▶ Move   ⊙ Enter       │
│  Menu Language      : English            │
│  Audio Language     : English            │
│  Input Label                             │
│  SIMPLINK           : On                 │
│  Key Lock           : Off                │
│  Caption            : Off      ◉         │
│  Demo Mode          : On                 │
│  ISM Method         : Normal             │
│  Set ID          ▼  : 1                  │
└─────────────────────────────────────────┘
```

➡

```
┌─────────────────────────────────────────┐
│  OPTION          ◀╎▶ Move   ⊙ Enter       │
│  Menu Language      : English            │
│  Audio Language     : English            │
│  Input Label                             │
│  SIMPLINK           : On                 │
│  Key Lock           : Off          ┌──────────────────┐
│  Caption            : Off          │ ◀      On      ▶  │
│  Demo Mode          : On           │ Mode    CC1       │
│  ISM Method         : Norm         │  Digital Option   │
│  Set ID          ▼  : 1            │     Close         │
└────────────────────────────────────└──────────────────┘
```

| 1 | MENU | Select **OPTION**. |

| 2 | ENTER | Select **Caption**. |

| 3 | ENTER | Select **On**. |

| 4 | | Select **CC1-4**, **Text1-4**, or **Service1 - 6**. |

| 5 | RETURN | Return to the previous menu. |

| | MENU | Return to TV viewing. |

Caption Option

Customize the DTV/CADTV captions that appear on your screen.
This function in only available when **Caption** Mode is set **On.**

OPTION	⬍ Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	**: Off** ⦿
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

➡

OPTION	⬍ Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	
Demo Mode	
ISM Method	
Set ID	

◄ On ►
Mode   Service1
Digital Option
Close

➡

◄ Custom ►
Size   Ⓐ Standard
Font   Font 1
Text Color   ☐ White
Text Opacity   Solid
Bg Color   ■ Black
Bg Opacity   Solid
Close

1 MENU   Select **OPTION**.

2 ENTER   Select **Caption**

3 ENTER   Select **On**.

4   Select **Digital Option**.

5 ENTER   Select **Custom**.

6   Customize the **Style**, **Font**, etc., to your preference. A preview icon is provided at the bottom of the screen, use it to see the caption language.

7 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

- **Size**: Set the word size.
- **Font**: Select a typeface for the text.
- **Text Color**: Choose a color for the text.
- **Text Opacity**: Specify the opacity for the text color.
- **Bg (Background) Color**: Select a background color.
- **Bg (Background) Opacity**: Select the opacity for the background color.

SOUND & LANGUAGE CONTROL

CLOCK SETTING

Auto Clock Setup

The time is set automatically from a digital channel signal.
The digital channel signal includes information for the current time provided by the broadcasting station.
Set the clock manually if the current time is set incorrectly by the auto clock function.

TIME	◄► Move ⊚ Enter
Clock	⊚
Off Time	**: Off**
On Time	**: Off**
Sleep Timer	**: Off**

➡️

TIME	◄► Move ⊚ Enter
Clock	
Off Time	**: Off**
On Time	**: Off**
Sleep Timer	**: Off**

◄	**Auto**	►
Year	2008	
Month	2	
Date	21	
Hour	2 AM	
Minute	10	
Time Zone	**Eastern**	
Daylight Saving	**Auto**	
	Close	

1 `MENU` Select **TIME**.

2 `ENTER` Select **Clock**.
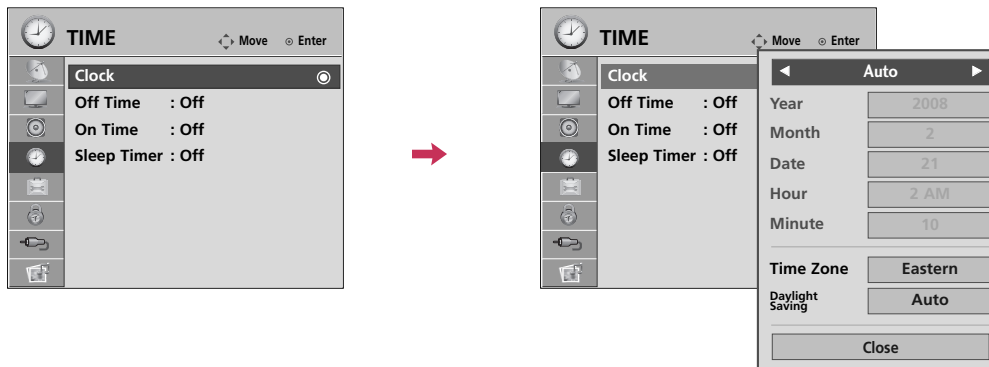
3 `ENTER` Select **Auto**.

4 Select your viewing area time zone.
- U.S.A: **Eastern**, **Central**, **Mountain**, **Pacific**, **Alaska**, or **Hawaii**.
- Canada: **Eastern**, **Central**, **Mountain**, **Pacific**, **New F.land**, or **Atlantic**.

5 Select **Auto**, **On**, or **Off** (depending on whether or not your viewing area observes Daylight Saving time).

6 `RETURN` Return to the previous menu.

`MENU` Return to TV viewing.

TIME SETTING

Manual Clock Setup

If the current time setting is wrong, set the clock manually.

	TIME	◌ Move ⊙ Enter
🕐		
	Clock	◉
	Off Time : Off	
◎	On Time : Off	
🕐	Sleep Timer : Off	
🔒		
🖼		

➡

	TIME	◌ Move ⊙ Enter
🕐	**Clock**	
	Off Time : Off	
◎	On Time : Off	
🕐	Sleep Timer : Off	
🔒		
🖼		

◄	**Manual**	►
Year		2008
Month		2
Date		21
Hour		2 AM
Minute		10
Time Zone		Eastern
Daylight Saving		Auto
	Close	

1 MENU — Select **TIME**.

2 ENTER — Select **Clock**.
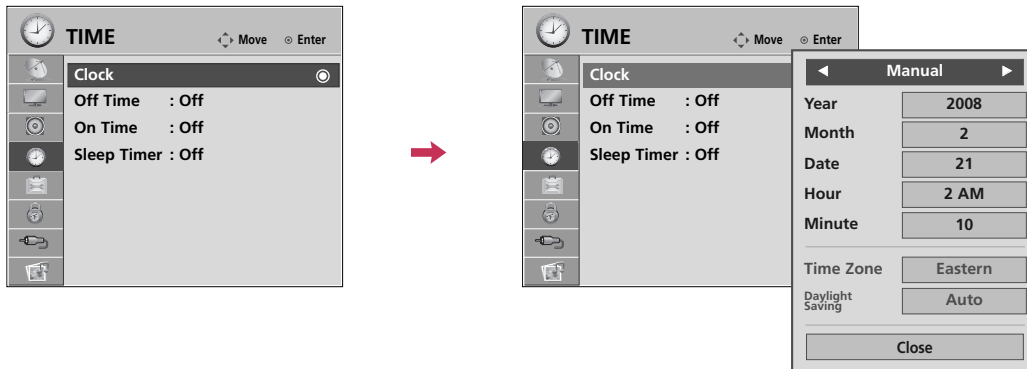
3 ENTER — Select **Manual**.

4 Select the Year, Month, Date, Hour, or Minutes option.

5 Set the Year, Month, Date, Hour, or Minutes option.

6 RETURN — Return to the previous menu.

MENU — Return to TV viewing.

AUTO ON/OFF TIME SETTING

This function operates only if the current time has been set.
The **Off Time** function overrides the **On Time** function if they are both set to the same time.
The TV must be in standby mode for the **On Time** to work.
If you do not press any button within 2 hours after the TV turns on with the **On Time** function, the TV will automatically revert to standby mode.

TIME	◇ Move ⊙ Enter
⏱	Clock
🖥	Off Time : Off
⊙	On Time : Off ◉
🕐	Sleep Timer : Off

➡

TIME	◇ Move ⊙ Enter
⏱	Clock
🖥	Off Time : Off
⊙	On Time : Off
🕐	Sleep Timer : Off

Repeat	◄ Once ►
Hour	6 AM
Minute	30
Input	TV
Channel	TV 2-0
Volume	30
Close	
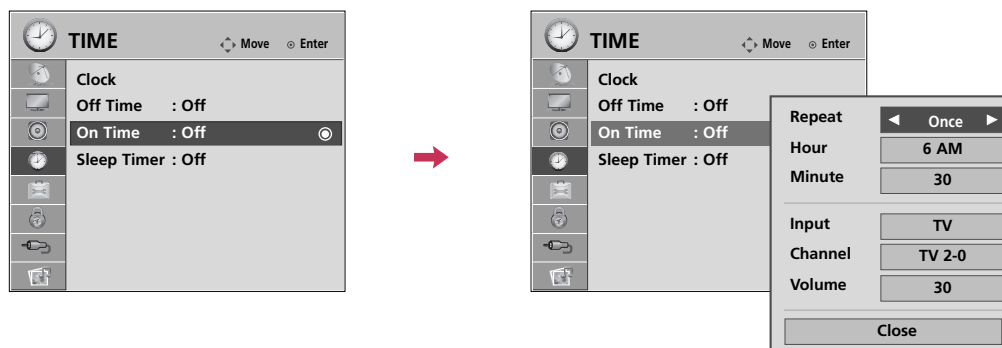
1 MENU   Select **TIME**.

2 ENTER   Select **Off time** or **On time**.

3 ENTER   Select **Repeat**.

4   Select **Off**, **Once**, **Everyday**, **Mon~Fri**, **Mon~Sat**, **Weekend**, or **Sunday**.

5   Select and set **Hour** or **Minute**.

6 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

■ To cancel **On/Off Time** function, select **Off**.
■ Only for On Time function

1 ENTER   Select **Input**.

2   Select **TV**, **AV1-2**, **Component1-2**, **RGB-PC**, or **HDMI1-3**.

3   When Selecting **TV**: set the channel at turn-on.

4   Adjust to sound level at turn-on.

SLEEP TIMER SETTING

The Sleep Time turns the TV off at the preset time.
Note that this setting is cleared when the TV is turned off.

Q.Menu

⊟ **Aspect Ratio**	**16:9**
◉ **Picture Mode**	**Vivid**
♫ **Sound Mode**	**Standard**
⊟ **Caption**	**Off**
((◉)) **Multi Audio**	**English**
⊙ᶻ **Sleep Timer**	◄ **Off** ►
CH **Del/Add/Fav**	**Add**
⟨⫶ **Eject USB**	**Eject**

Close

---
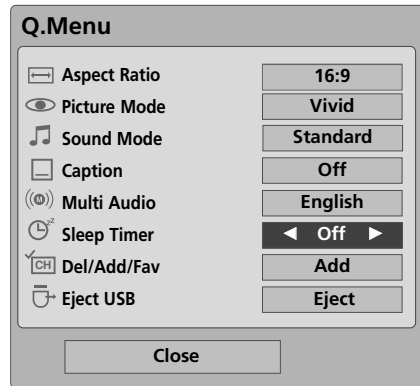
1 Q. MENU   Select **Sleep Timer**.

2 Select **Off**, **1 0**, **2 0**, **3 0**, **6 0**, **9 0**, **1 2 0**, **1 8 0**, or **2 4 0** minutes.

3 Q. MENU   Return to TV viewing.

■ You can also adjust **Sleep Timer** in the **TIME** menu.

PARENTAL CONTROL / RATINGS

Parental Control can be used to block specific channels, ratings and other viewing sources.

The Parental Control Function (V-Chip) is used to block program viewing based on the ratings sent by the broadcasting station. The default setting is to allow all programs to be viewed. Viewing can be blocked by choosing the type of the program and the categories. It is also possible to block all program viewing for a time period. To use this function, the following must be done :

1. Set ratings and categories to be blocked.
2. Specify a password
3. Enable the lock

V-Chip rating and categories

Rating guidelines are provided by broadcasting stations. Most television programs and television movies can be blocked by TV Rating and/or Individual Categories. Movies that have been shown at the theaters or direct-to-video movies use the Movie Rating System (MPAA) only.

Ratings for Television programs including made-for-TV movies :

- TV-G   (General audience)
- TV-PG (Parental guidance suggested)
- TV-14 (Parents strongly cautioned)
- TV-MA (Mature audience only)
- TV-Y   (All children)
- TV-Y7 (Children 7 years older)

SET PASSWORD & LOCK SYSTEM

Setting up Your Password

Set up blocking schemes to block specific channels, ratings, and external viewing sources.
A password is required to gain access to this menu.

For USA

🔒 LOCK	◇ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	
TV Rating-General	
Downloadable Rating	
Input Block	

For Canada

🔒 LOCK	◇ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
TV Rating-English	
TV Rating-French	
Downloadable Rating	
Input Block	

Enter Password

| * | * | * | * |

Close

1 MENU ⌃⌄⟨⟩ ENTER   Select **LOCK**.

2 Input the password.

- Enter the password as requested.
- The TV is set up with the initial password "0-0-0-0".

Lock System

Enables or disables the blocking scheme you set up previously.

LOCK	◁◇▷ Move ⊙ Enter
Lock System	**: Off** ◉
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	
TV Rating-General	
Downloadable Rating	
Input Block	

➡

LOCK	◁◇▷ Move ⊙ Enter		
Lock System	**: On**	**Off**	
Set Password		On	◉
Block Channel			
Movie Rating			
TV Rating-Children			
TV Rating-General			
Downloadable Rating			
Input Block			

1 MENU ENTER Select **LOCK**.
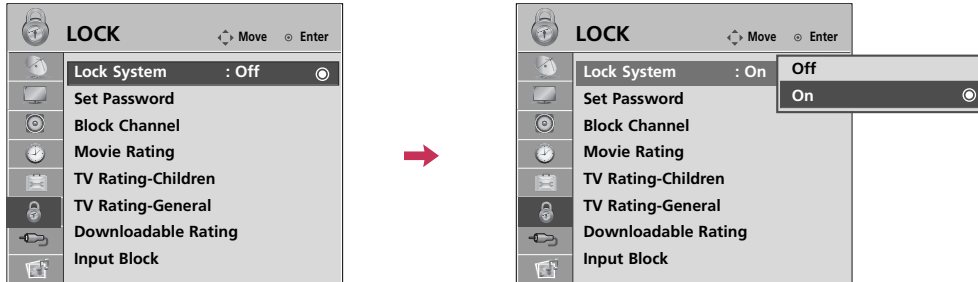
2 Input the password.

3 Select **Lock System**.

4 ENTER Select **On** or **Off**.

■ When you select **On**, the Lock System is enable.

5 RETURN Return to the previous menu.

MENU Return to TV viewing.

PARENTAL CONTROL / RATINGS

Set Password
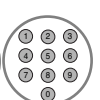
Change the password by inputting a new password twice.

	LOCK	◁▷ Move ⊙ Enter
	Lock System	**: Off**
	Set Password	⊙
	Block Channel	
	Movie Rating	
	TV Rating-Children	
	TV Rating-General	
	Downloadable Rating	
	Input Block	

➡

	LOCK	◁▷ Move ⊙ Enter
	Lock System	**: Off**
	Set Password	
	Block Channel	
	Movie Rating	
	TV Rating-Children	
	TV Rating-General	
	Downloadable Rating	
	Input Block	

New   * * * *
Confirm   * * * *

Close

1 MENU   ENTER   Select **LOCK**.
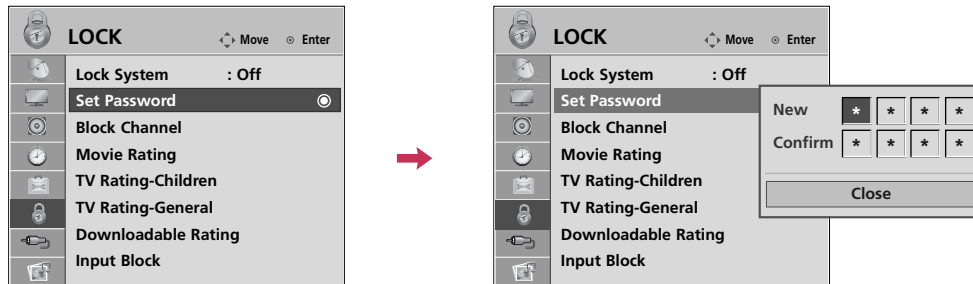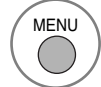
2 Input the password.

3 Select **Set password**.

4 ENTER   Choose any 4 digits for your new password.
As soon as the 4 digits are entered, re-enter the same 4 digits on the **Confirm**.

5 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

PARENTAL CONTROL / RATING

CHANNEL BLOCKING

Blocks any channels that you do not want to watch or that you do not want your children to watch.

	LOCK	◄► Move ◉ Enter
	Lock System	: Off
	Set Password	
◎	Block Channel	◎
	Movie Rating	
	TV Rating-Children	
	TV Rating-General	
	Downloadable Rating	
	Input Block	

7-1	DTV	TV	CADTV	CATV
	7-1	9-1	9-5	11-1
	13-1	13-2	13-3	13-4
	13-5	15-1	15-2	15-3
	15-4			

◉ Block/Unblock   ◄► Move   CH ◇ Move Page   MENU Previous   RETURN Exit

1 MENU ⌃⌄ ENTER   Select **LOCK**.

2   Input the password.

3 ⌃⌄   Select **Block Channel**.

4 ENTER ⌃⌄   Select a channel to block or unblock.

5 ENTER   Block or unblock a channel.

6 MENU   Return to the previous menu.

RETURN   Return to TV viewing.

MOVIE & TV RATING

Movie Rating (MPAA) *- For USA only*

Blocks movies according to the movie ratings limits specified, so children cannot view certain movies. You can set the ratings limit by blocking out all the movies with the ratings above a specified level. Keep in mind that the movie ratings limit only applies to movies shown on TV, not TV programs, such as soap operas.

LOCK	⟷ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
Movie Rating	◎
TV Rating-Children	
TV Rating-General	
Downloadable Rating	
Input Block	

➡

LOCK	⟷ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	
TV Rating-General	
Downloadable Rating	
Input Block	

Blocking off : Permits all programs
- G
- PG
- PG-13
- R
- NC-17
- X
- Blocking Off 🔓
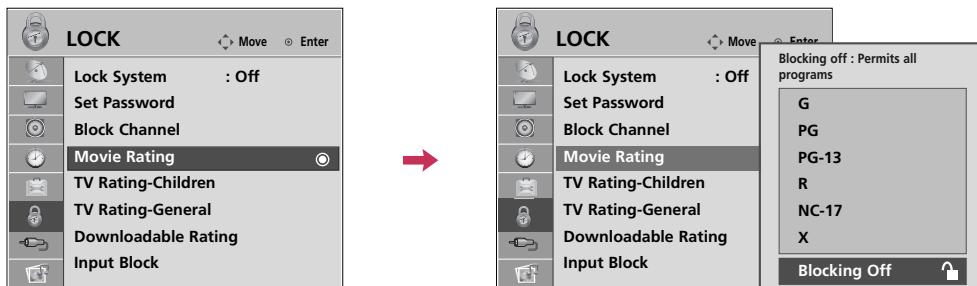
1	MENU ⟷ ENTER ⊙	Select **LOCK**.
2	1 2 3 / 4 5 6 / 7 8 9 / 0	Input the password.
3	∧∨	Select **Movie Rating**.
4	ENTER ⊙ ∧∨	Select **G**, **PG**, **PG-13**, **R**, **NC-17**, **X**, or **Blocking Off**.
5	RETURN ↩	Return to the previous menu.
	MENU	Return to TV viewing.

- G (General audience)
- PG (Parental guidance suggested)
- PG-13 (Parents strongly cautioned)
- R (Restricted)
- NC-17 (No one 17 and under admitted)
- X (Adult only)
- Blocking Off (Permits all programs)
► If you set PG-13: G and PG movies will be available, PG-13, R, NC-17 and X will be blocked.

PARENTAL CONTROL / RATING

TV Rating Children - *For USA only*

Prevents children from watching certain children's TV programs, according to the ratings limit set. The children rating does not apply to other TV programs. Unless you block certain TV programs intended for mature audiences in the TV Rating - sub menu, your children can view those programs.

LOCK	◀▷ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	◉
TV Rating-General	
Downloadable Rating	
Input Block	

➡

LOCK	◀▷ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	⊙
TV Rating-General	
Downloadable Rating	
Input Block	

Age	▶
Fantasy Violence	
Close	

1 MENU ⌃⌄⟨⟩ ENTER ⊙   Select **LOCK**.

2 (number keypad)   Input the password.

3 ⌃⌄   Select **TV Rating-Children**.

4 ENTER ⊙ ⌃⌄   Select **Age** or **Fantasy Violence**.

■ Age (applies to TV-Y, TV-Y7)
■ Fantasy Violence (applies to TV-Y7)

5 ENTER ⊙ ⌃⌄   Select block options.

6 RETURN ⤺   Return to the previous menu.

MENU   Return to TV viewing.

PARENTAL CONTROL / RATINGS

TV Rating General *- For USA only*

Based on the ratings, blocks certain TV programs that you and your family do not want to view.

	LOCK	⬍ Move ⊙ Enter
	Lock System	: Off
	Set Password	
	Block Channel	
	Movie Rating	
	TV Rating-Children	
	TV Rating-General	◎
	Downloadable Rating	
	Input Block	

	LOCK	⬍ Move ⊙ Enter
	Lock System	: Off
	Set Password	
	Block Channel	
	Movie Rating	
	TV Rating-Children	
	TV Rating-General	
	Downloadable Rating	
	Input Block	

Age ▶
Dialogue
Language
Sex
Violence

Close

1 MENU ENTER Select **LOCK**.

2 Input the password.

3 Select **TV Rating-General**.

4 ENTER Select **Age**, **Dialogue**, **Language**, **Sex** or **Violence**.

5 ENTER Select block options.

6 RETURN Return to the previous menu.

MENU Return to TV viewing.

- Age (applies to TV-G,TV-PG,TV-14,TV-MA).
- Dialogue-sexual dialogue (applies to TV-PG,TV-14).
- Language-adult language (applies to TV-PG, TV-14, TV-MA).
- Sex-sexual situations (applies to TV-PG, TV-14, TV-MA).
- Violence (applies to TV-PG, TV-14, TV-MA).

TV Rating English - *For CANADA only*

Selecting canadian english language rating system.

LOCK	◇ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
TV Rating-English	◉
TV Rating-French	
Downloadable Rating	
Input Block	

➡

LOCK	◇ Move ⊙ Enter
Lock System	: O
Set Password	
Block Channel	
TV Rating-English	
TV Rating-French	
Downloadable Rating	
Input Block	

Blocking off : Permits all programs

E
C
C8+
G
PG
14+
18+

Blocking Off 🔓

1

MENU · ENTER   Select **LOCK**.

2
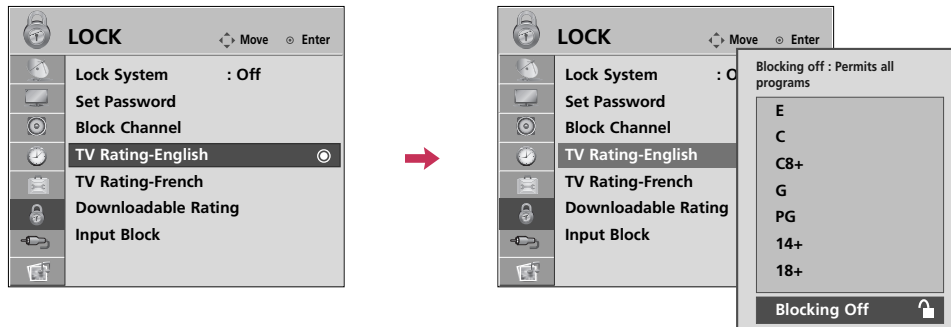
Input the password.

3

Select **TV Rating-English**.

4

ENTER   Select **E**, **C**, **C8+**, **G**, **PG**, **14+**, **18+**, or **Blocking Off**.

5

RETURN   Return to the previous menu.

MENU   Return to TV viewing.

- ■ E (Exempt)
- ■ C (Children)
- ■ C8+ (Children eight years and older)
- ■ G (General programming, suitable for all audiences)
- ■ PG (Parental Guidance)
- ■ 14+ (Viewers 14 years and older)
- ■ 18+ (Adult programming)
- ■ Blocking Off (Permits all programs)

TV Rating French *- For CANADA only*

Selecting canadian french language rating system.

	LOCK	◁▷ Move ⊙ Enter
	Lock System	**: Off**
	Set Password	
	Block Channel	
	TV Rating-English	
	TV Rating-French	◉
	Downloadable Rating	
	Input Block	

➡

	LOCK	◁▷ Move ⊙ Enter
	Lock System	**: Off**
	Set Password	
	Block Channel	
	TV Rating-English	
	TV Rating-French	
	Downloadable Rating	
	Input Block	

Blocking off : Permits all programs

E
G
8ans+
13ans+
16ans+
18ans+

Blocking Off 🔓

1 MENU ⟨⟩ ENTER   Select **LOCK**.

2 ①②③ ④⑤⑥ ⑦⑧⑨ ⓪   Input the password.

3 ⌄^   Select **TV Rating-French**.

4 ENTER ⌄^   Select **E**, **G**, **8ans+**, **13ans+**, **16ans+**, **18ans+**, or **Blocking off**.

5 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

- E (Exempt)
- G (General)
- 8ans+ (General-Not convenient for little children)
- 13ans+ (Not convenient for children of 13 years and younger)
- 16ans+ (Not convenient for children of 16 years and younger)
- 18ans+ (This programs is only for adults)
- Blocking off (Permits all programs)

DOWNLOADABLE RATING

This function may become available in the future and will be available only for digital channels.
This function operates only when TV has received Region5 Rating data.

🔒 LOCK	↔ Move ⊙ Enter
Lock System	: Off
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	
TV Rating-General	
Downloadable Rating	◉
Input Block	

➡

🔒 LOCK	↔ Move ⊙ Enter	
Lock System	: Off	▲
Set Password		Humor
Block Channel		Sport
Movie Rating		Cruelty
TV Rating-Children		Language
TV Rating-General		Sadness
Downloadable Rating		Genre
Input Block		Age
		▼
		Close
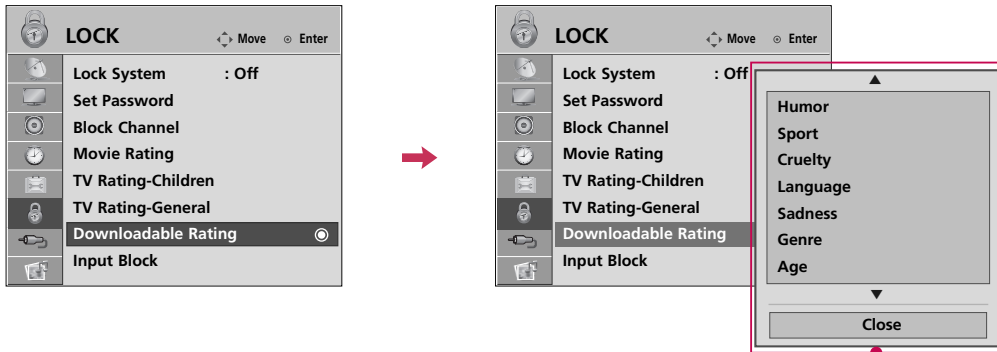
■ Based on rating table, your TV's OSD (On Screen Display) may differ slightly from what is shown in this manual.

1 MENU ⌃⌄⟨⟩ ENTER Select **LOCK**.

2 [keypad] Input the password.

3 ⌃⌄ Select **Downloadable Rating**.

4 ENTER ⌃⌄ Select desired **Downloadable Rating** option.

5 ENTER ⌃⌄ Select desired option and block it.

6 RETURN Return to the previous menu.

MENU Return to TV viewing.

EXTERNAL INPUT BLOCKING

Enables you to block an input.

LOCK	⬍ Move	⊙ Enter
🔒 Lock System	: Off	
Set Password		
Block Channel		
Movie Rating		
TV Rating-Children		
TV Rating-General		
Downloadable Rating		
Input Block		◉

➡

LOCK	⬍ Move	⊙ Enter
Lock System	: Of
Set Password	
Block Channel	
Movie Rating	
TV Rating-Children	
TV Rating-General	
Downloadable Rating	
Input Block	

AV1	◄ Off ►
AV2	Off
Component1	Off
Component2	Off
RGB-PC	Off
HDMI1	Off
HDMI2	Off
HDMI3	Off
	Close
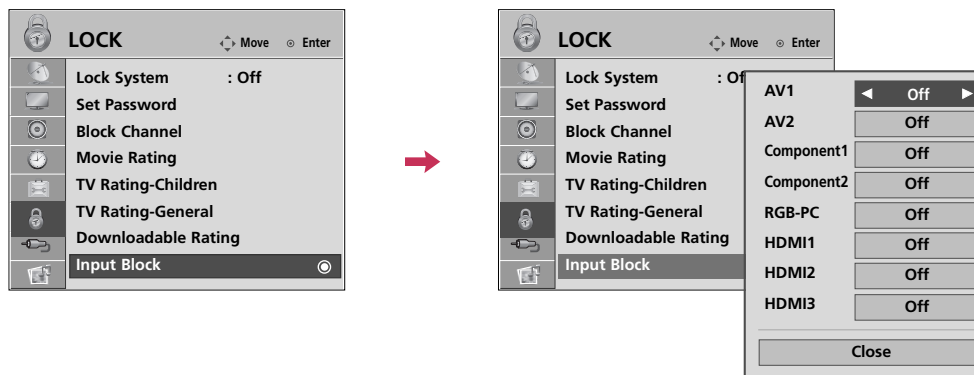
1 MENU / ENTER   Select **LOCK**.

2   Input the password.

3   Select **Input Block**.

4 ENTER   Select input source.

5   Select **On** or **Off**.

6 RETURN   Return to the previous menu.

MENU   Return to TV viewing.

KEY LOCK

The TV can be set up so that it can only be used with the remote control.
This feature can be used to prevent unauthorized viewing by locking out the front panel controls.
This TV is programmed to remember which option it was last set to even if you turn the TV off.
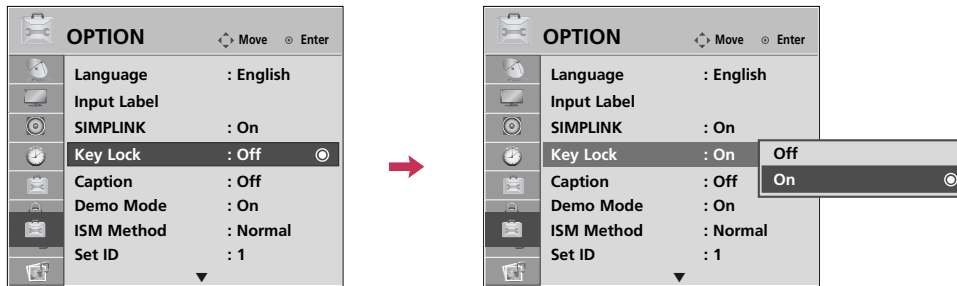
OPTION	◁▷ Move ◉ Enter
Language	: English
Input Label	
SIMPLINK	: On
Key Lock	**: Off** ◉
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	: 1

➡

OPTION	◁▷ Move ◉ Enter	
Language	: English	
Input Label		
SIMPLINK	: On	
Key Lock	: On	**Off**
Caption	: Off	**On** ◉
Demo Mode	: On	
ISM Method	: Normal	
Set ID	: 1	

1 MENU ⌄^⌄ Select **OPTION**.

2 ENTER ⌄^⌄ Select **Key Lock**.
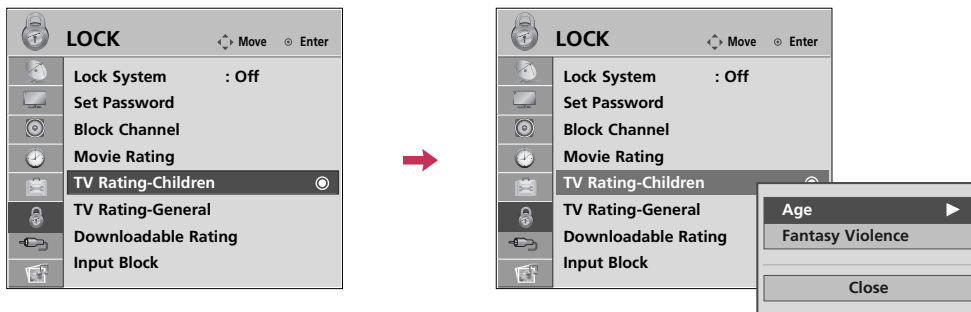
3 ENTER ⌄^⌄ Select **On** or **Off**.

4 RETURN Return to the previous menu.

MENU Return to TV viewing.

- In **Key Lock** '**On**', if the TV is turned off, press the ⏻/| , **INPUT**, **CH ▲ ▼** button on the TV or **POWER**, **INPUT**, **CH ⌄ ⌃** or NUMBER buttons on the remote control.
- With the **Key Lock On**, the display '⚠ **Key Lock**' appears on the screen if any button on the front panel is pressed while viewing the TV.

APPENDIX

TROUBLESHOOTING

| The operation does not work normally.	
The remote control doesn't work	■ Check to see if there is any object between the product and the remote control causing obstruction. Ensure you are pointing the remote control directly at the TV. ■ Ensure that the batteries are installed with correct polarity (+ to +, - to -). ■ Ensure that the correct remote operating mode is set: TV, VCR etc. ■ Install new batteries.
Power is suddenly turned off	■ Is the sleep timer set? ■ Check the power control settings. Power interrupted.

The video function does not work.	
No picture &No sound	■ Check whether the product is turned on. ■ Try another channel. The problem may be with the broadcast. ■ Is the power cord inserted into wall power outlet? ■ Check your antenna direction and/or location. ■ Test the wall power outlet, plug another product's power cord into the outlet where the product's power cord was plugged in.
Picture appears slowly after switching on	■ This is normal, the image is muted during the product startup process. Please contact your service center, if the picture has not appeared after a few minutes.
No or poor color or poor picture	■ Adjust Color in menu option. ■ Try unplugging any others electronics that are near by to see if interference is causing the problem. ■ Try another channel. The problem may be with the broadcast. ■ Are the video cables installed properly? ■ Activate any function to restore the brightness of the picture.
Horizontal/vertical bars or picture shaking	■ Check for local interference such as an electrical appliance or power tool.
Poor reception on some channels	■ Station or cable product experiencing problems, tune to another station. ■ Station signal is weak, reorient antenna. ■ Check for sources of possible interference.
Lines or streaks in pictures	■ Check antenna (Change the direction of the antenna).
No picture when connecting HDMI	■ Check HDMI cable over version 1.3. If the HDMI cables don't support HDMI version 1.3, it can cause flickers or no screen display. In this case use the latest cables that support HDMI version 1.3.

The audio function does not work.

Picture OK but No sound	■ Press the VOL or VOLUME button. ■ Sound muted? Press MUTE button. ■ Try another channel. The problem may be with the broadcast. ■ Are the audio cables installed properly?
No output from one of the speakers	■ Adjust Balance in menu option.
Unusual sound from inside the product	■ A change in ambient humidity or temperature may result in an unusual noise when the product is turned on or off and does not indicate a fault with the product.
No sound when connecting HDMI or USB	■ Check HDMI cable over version 1.3. ■ Check USB cable over version 2.0. ■ Use normal MP3 file. *This feature is not available for all models.

There is a problem in PC mode. (Only PC mode applied)

The signal is out of range	■ Adjust resolution, horizontal frequency, or vertical frequency. ■ Check the input source.
Vertical bar or stripe on background & Horizontal Noise & Incorrect position	■ Run the Auto configure or adjust clock, phase, or H/V position. (Option)
Screen color is unstable or single color	■ Check the signal cable. ■ Update video card drivers.

APPENDIX

MAINTENANCE

Early malfunctions can be prevented. Careful and regular cleaning can extend the amount of time you can enjoy your new TV.

Caution: Be sure to turn the power off and unplug the power cord before you begin any cleaning.

Cleaning the Screen

1 Here's a great way to keep the dust off your screen for a while. Wet a soft cloth in a mixture of lukewarm water and a little fabric softener or dish washing detergent. Wring the cloth until it's almost dry, and then use it to wipe the screen.

2 Make sure the excess water is off the screen, and then let it air-dry before you turn on your TV.

Cleaning the Cabinet

- To remove dirt or dust, wipe the cabinet with a soft, dry, lint-free cloth.
- Please be sure not to use a wet cloth.

Extended Absence

⚠ CAUTION

▶ If you expect to leave your TV dormant for a long time (such as a vacation), it's a good idea to unplug the power cord to protect against possible damage from lightning or power surges.

PRODUCT SPECIFICATIONS

	MODEL	42PQ20 (42PQ20-UA)	50PQ20 (50PQ20-UA)
Dimensions (Width x Height x Depth)	With stand	40.5 x 28.3 x 12.1 inches 1031.2 x 720.9 x 308.0 mm	47.9 x 32.2 x 13.8 inches 1216.7 x 818.1 x 353.0 mm
	Without stand	40.5 x 25.8 x 3.1 inches 1031.2 x 656.7 x 80.8 mm	47.9 x 29.8 x 3.2 inches 1216.7 x 759.0 x 83.0 mm
Weight	With stand Without stand	53.1 pounds / 24.1 kg 48.5 pounds / 22.0 kg	86.8 pounds / 39.4 kg 81.3 pounds / 36.9 kg
Power requirement Television System Program Coverage External Antenna Impedance		AC100-120V ~ 50/60Hz NTSC-M, ATSC, 64 & 256 QAM VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135 75 ohm	
Environment condition	Operating Temperature Operating Humidity	32 ~ 104˚F (0 ~ 40˚C) Less than 80%	
	Storage Temperature Storage Humidity	-4 ~ 140˚F (-20 ~ 60˚C) Less than 85%	

- The specifications shown above may be changed without prior notice for quality improvement.

APPENDIX

MODELS		42PQ30 (42PQ30-UA)	50PQ30 (50PQ30-UA)
Dimensions (Width x Height x Depth)	With stand	40.5 x 28.3 x 12.1 inches 1031.2 x 720.9 x 308.0 mm	47.9 x 32.2 x 13.8 inches 1216.7 x 818.1 x 353.0 mm
	Without stand	40.5 x 25.8 x 3.1 inches 1031.2 x 656.7 x 80.8 mm	47.9 x 29.8 x 3.2 inches 1216.7 x 759.0 x 83.0 mm
Weight	With stand Without stand	53.1 pounds / 24.1 kg 48.5 pounds / 22.0 kg	86.8 pounds / 39.4 kg 81.3 pounds / 36.9 kg

MODELS		42PQ60 (42PQ60-UA)	50PQ60 (50PQ60-UA)
Dimensions (Width x Height x Depth)	With stand	48.5 x 33.4 x 14.3 inches 1232.0 x 850.0 x 363.6 mm	57.7 x 39.7 x 16.2 inches 1468.0 x 1009.1 x 413.9 mm
	Without stand	48.5 x 31.2 x 3.3 inches 1232.0 x 793.0 x 84.0 mm	57.7 x 37.3 x 3.4 inches 1468.0 x 949.5 x 88.5 mm
Weight	With stand Without stand	93.2 pounds / 42.3 kg 84.4 pounds / 38.3 kg	177.6 pounds / 80.6 kg 160.0 pounds / 72.6 kg

MODELS		42PS30 (42PS30-UA)	50PS30 (50PS30-UA)
Dimensions (Width x Height x Depth)	With stand	48.5 x 33.4 x 14.3 inches 1232.0 x 850.0 x 363.6 mm	57.7 x 39.7 x 16.2 inches 1468.0 x 1009.1 x 413.9 mm
	Without stand	48.5 x 31.2 x 3.3 inches 1232.0 x 793.0 x 84.0 mm	57.7 x 37.3 x 3.4 inches 1468.0 x 949.5 x 88.5 mm
Weight	With stand Without stand	93.2 pounds / 42.3 kg 84.4 pounds / 38.3 kg	177.6 pounds / 80.6 kg 160.0 pounds / 72.6 kg

MODELS		50PS60 (50PS60-UA)	60PS60 (60PS60-UA)
Dimensions (Width x Height x Depth)	With stand	48.5 x 33.4 x 14.3 inches 1232.0 x 850.0 x 363.6 mm	57.7 x 39.7 x 16.2 inches 1468.0 x 1009.1 x 413.9 mm
	Without stand	48.5 x 31.2 x 3.3 inches 1232.0 x 793.0 x 84.0 mm	57.7 x 37.3 x 3.4 inches 1468.0 x 949.5 x 88.5 mm
Weight	With stand Without stand	93.2 pounds / 42.3 kg 84.4 pounds / 38.3 kg	177.6 pounds / 80.6 kg 160.0 pounds / 72.6 kg
Power requirement Television System Program Coverage External Antenna Impedance		AC100-240V ~ 50/60Hz NTSC-M, ATSC, 64 & 256 QAM VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135 75 ohm	
Environment condition	Operating Temperature Operating Humidity	32 ~ 104°F (0 ~ 40°C) Less than 80%	
	Storage Temperature Storage Humidity	-4 ~ 140°F (-20 ~ 60°C) Less than 85%	

■ The specifications shown above may be changed without prior notice for quality improvement.

APPENDIX

IR CODES

1. How to Connect

■ Connect your wired remote control to the Remote Control port on the TV.

2. Remote Control IR Codes

■ **Output waveform**

Single pulse, modulated with 37.917KHz signal at 455KHz
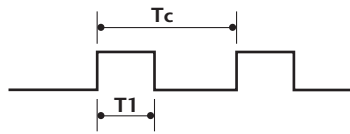
Carrier frequency

$FCAR = 1/TC = fOSC/12$
Duty ratio = $T1/TC = 1/3$

■ **Configuration of frame**

1st frame

Lead code	Low custom code	High custom code	Data code	Data code
	C0 C1 C2 C3 C4 C5 C6 C7	C0 C1 C2 C3 C4 C5 C6 C7	D0 D1 D2 D3 D4 D5 D6 D7	D0 D1 D2 D3 D4 D5 D6 D7

Repeat frame

Repeat code

Tf

■ **Lead code**

9 ms

4.5 ms

■ **Repeat code**

0.55 ms

9 ms

2.25 ms

■ **Bit description**

Bit "0"

0.56 ms

1.12 ms

Bit "1"

0.56 ms

2.24 ms
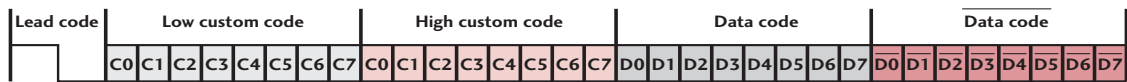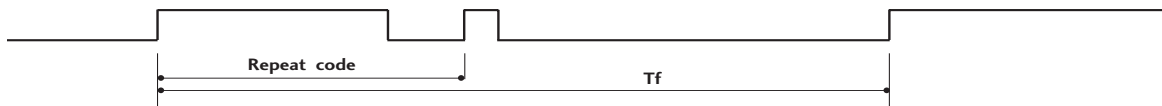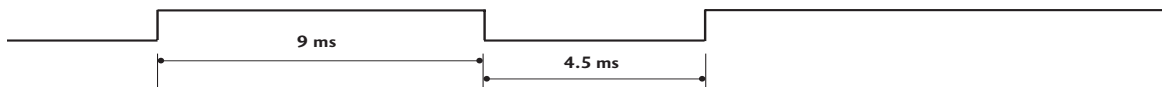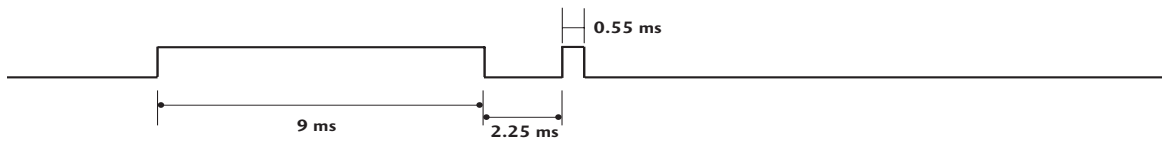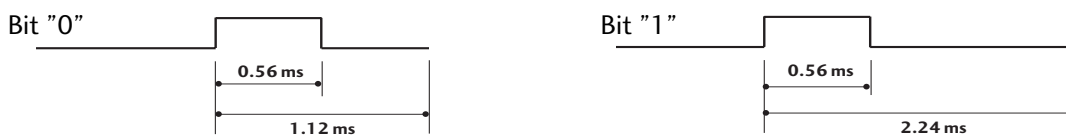
■ **Frame interval: Tf**

The waveform is transmitted as long as a key is depressed.

Tf

Tf

Tf=108ms @455KHz
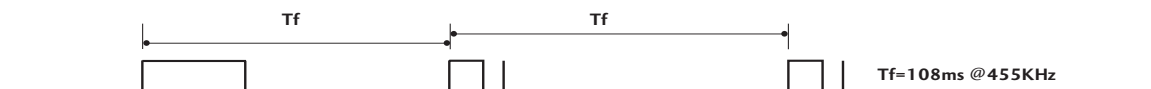
Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
08	POWER	Remote control Button (Power On/Off)	D6	TV	Discrete IR Code (TV Input Selection)
45	Q.MENU	Remote control Button			
43	MENU	Remote control Button	C4	POWER ON	Discrete IR Code (Only Power On)
0B	INPUT	Remote control Button			
10-19	Number Key 0-9	Remote control Button	C5	POWER OFF	Discrete IR Code (Only Power Off)
4C	- (Dash)	Remote control Button			
1A	FLASHBK	Remote control Button	5A	AV1	Discrete IR Code (AV1 Input Selection)
09	MUTE	Remote control Button			
02	VOL +	Remote control Button	D0	AV2	Discrete IR Code (AV2 Input Selection)
03	VOL -	Remote control Button			
00	CH ∧	Remote control Button	BF	COMPONENT1	Discrete IR Code (Component1 Input Selection)
01	CH ∨	Remote control Button			
1E	FAV	Remote control Button	D4	COMPONENT2	Discrete IR Code (Component2 Input Selection)
40	∧	Remote control Button			
41	∨	Remote control Button	D5	RGB-PC	Discrete IR Code (RGB-PC Input Selection)
07	<	Remote control Button			
06	>	Remote control Button	CE	HDMI1	Discrete IR Code (HDMI1 Input Selection)
44	ENTER	Remote control Button			
5B	RETURN	Remote control Button	CC	HDMI2	Discrete IR Code (HDMI2 Input Selection)
7E	SIMPLINK	Remote control Button			
30	AV MODE	Remote control Button	E9	HDMI3	Discrete IR Code (HDMI3 Input Selection)
79	RATIO	Remote control Button			
			76	Ratio 4:3	Discrete IR Code (Only 4:3 Mode)
			77	Ratio 16:9	Discrete IR Code (Only 16:9 Mode)
			AF	Ratio Zoom	Discrete IR Code (Only Zoom1 Mode)

EXTERNAL CONTROL THROUGH RS-232C

The RS-232C port allows you connect the RS-232C input jack to an external control device (such as a computer or an A/V control system) to control the TV's functions externally.

■ Note: RS-232C on this unit is intended to be used with third party RS-232C control hardware and software. The instructions below are provided to help with programming software or to test functionality using telenet software.

RS-232C Setup

PC
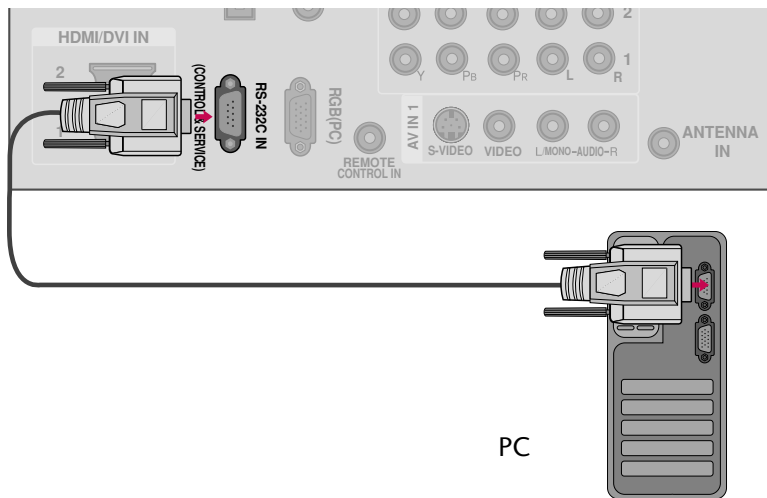
Type of Connector; D-Sub 9-Pin Male

No.	Pin Name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection
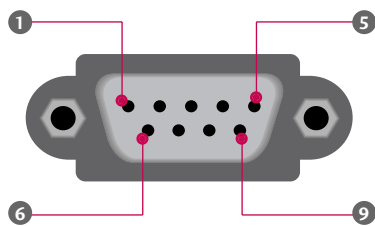
Communication Parameters

■ Baud rate : 9600 bps (UART)
■ Data length : 8 bits
■ Parity : None
■ Stop bit : 1 bit
■ Communication code : ASCII code
■ Use a crossed (reverse) cable.

RS-232C Configurations

Either cable below can be used.

7-Wire Configuration (Serial female-female NULL modem cable)			
	PC	TV	
RXD	2 •———• 3		TXD
TXD	3 •———• 2		RXD
GND	5 •———• 5		GND
DTR	4 •———• 6		DSR
DSR	6 •———• 4		DTR
RTS	7 •———• 8		CTS
CTS	8 •———• 7		RTS
	D-Sub 9	D-Sub 9	

3-Wire Configurations (Not standard)			
	PC	TV	
RXD	2 •———• 3		TXD
TXD	3 •———• 2		RXD
GND	5 •———• 5		GND
DTR	4	6	DTR
DSR	6	4	DSR
RTS	7	7	RTS
CTS	8	8	CTS
	D-Sub 9	D-Sub 9	
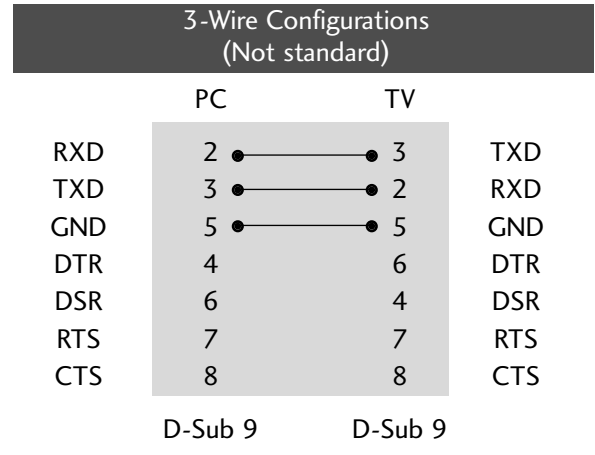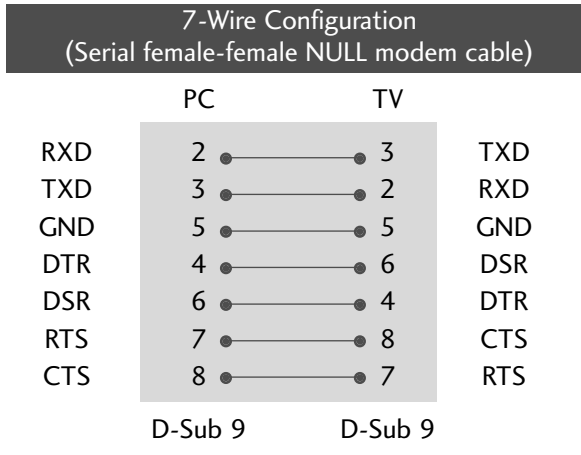
Set ID

Use this function to specify a TV ID number.
Refer to 'Real Data Mapping'. ▶ p.97.

OPTION	◄◊► Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: Normal
Set ID	**: 1** ◉

➡

OPTION	◄◊► Move ⊙ Enter
Menu Language	: English
Audio Language	: English
Input Label	
SIMPLINK	: On
Key Lock	: Off
Caption	: Off
Demo Mode	: On
ISM Method	: N
Set ID	: 1

◄   **1**   ►

Close

1 MENU Select **OPTION**.

2 ENTER Select **Set ID**.
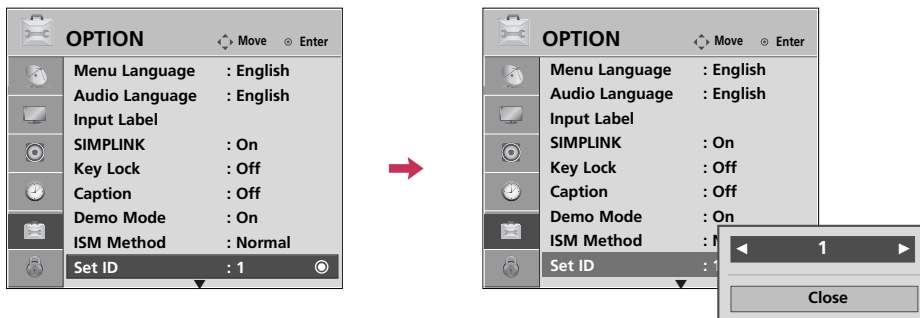
3 ENTER Choose the desired TV ID number.
The adjustment range of Set ID is 1~99.

4 RETURN Return to the previous menu.

MENU Return to TV viewing.

Command Reference List

	COMMAND1	COMMAND2	DATA (Hexadecimal)		COMMAND1	COMMAND2	DATA (Hexadecimal)
01. Power	k	a	00 ~ 01	14. Treble	k	r	00 ~ 64
02. Input Select	x	b	(▶ p.105)	15. Bass	k	s	00 ~ 64
03. Aspect Ratio	k	c	(▶ p.105)	16. Balance	k	t	00 ~ 64
04. Screen Mute	k	d	00 ~ 01	17. Color Temperature	k	u	00 ~ 02
05. Volume Mute	k	e	00 ~ 01	18. ISM Method	j	p	(▶ p.106)
06. Volume Control	k	f	00 ~ 64	19. Power Saving	j	q	00 ~ 01
07. Contrast	k	g	00 ~ 64	20. Auto Configuration	j	u	(▶ p.106)
08. Brightness	k	h	00 ~ 64	22. Channel Add/Del	m	b	00 ~ 01
09. Color	k	i	00 ~ 64	23. Key	m	c	(▶ p.107)
10. Tint	k	j	00 ~ 64				
11. Sharpness	k	k	00 ~ 64				
12. OSD Select	k	l	00 ~ 01				
13. Remote Control Lock Mode	k	m	00 ~ 01				

	COMMAND1	COMMAND2	DATA00 (Hexadecimal)	DATA01 (Hexadecimal)	DATA02 (Hexadecimal)	DATA03 (Hexadecimal)	DATA04 (Hexadecimal)	DATA05 (Hexadecimal)
21. Channel Tuning	m	a	physical program high	major program low	major low	minor high	minor low	attribute

Transmission / Receiving Protocol

Transmission

[Command1][Command2][ ][Set ID][ ][Data][Cr]

[Command 1] : First command to control the set.(j, k, m or x)

[Command 2] : Second command to control the set.

[Set ID] : You can adjust the set ID to choose desired TV ID number in Setup menu. Adjustment range is 1~ 99. When selecting Set ID '0', every connected the TV is controlled. Set ID is indicated as decimal (1~ 99) on menu and as Hexa decimal (0x0~0x63) on transmission /receiving protocol.

[DATA] : To transmit the command data. Transmit the 'FF' data to read status of command.

[Cr] : Carriage Return ASCII code '0x0D'

[ ] : ASCII code 'space (0x20)'

* In this model, TV will not send the status during the standby mode.

OK Acknowledgement

[Command2][ ][Set ID][ ][OK][Data][x]

The TV transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

* In this model, TV will not send the status during the standby mode.
* Data Format
[Command 2] : Use as command.
[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.
[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.
[OK] : Use the large character.

Error Acknowledgement

[Command2][ ][Set ID][ ][NG][Data][x]

The TV transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.
  Data1: Illegal Code
  Data2: Not supported function
  Data3: Wait more time

* In this model, TV will not send the status during the standby mode.
* Data Format
[Command 2] : Use as command.
[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.
[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.
[NG] : Use the large character

01. Power (Command: k a)

To control Power On/Off of the TV.

Transmission [k][a][ ][Set ID][ ][Data][Cr]

Data 00: Power Off   Data 01: Power On

Acknowledgement [a][ ][Set ID][ ][OK/NG][Data][x]

* In a like manner, if other functions transmit 'FF' data based on this format, Acknowledgement data feedback presents status about each function.

* Note: In this model, TV will send the Acknowledge after power on processing completion.

There might be a time delay between command and acknowledge.

02. Input Select (Command: x b)

To select input source for TV.

Transmission [x][b][ ][Set ID][ ][Data][Cr]

Data 10: TV

Data 20: AV1   Data 21: AV2

Data 40: Component 1   Data 41: Component 2

Data 60: RGB-PC   Data 90: HDMI1

Data 91: HDMI2   Data 92: HDMI3

Acknowledgement [b][ ][Set ID][ ][OK/NG][Data][x]

03. Aspect Ratio (Command: k c)

To adjust the screen format.

Transmission [k][c][ ][Set ID][ ][Data][Cr]

Data 01: 4:3   05: Zoom 2

     02: 16:9   06: Set by program

     04: Zoom 1   09: Just scan

                      ⋮

                   Reserved

Acknowledgement [c][ ][Set ID][ ][OK/NG][Data][x]

04. Screen Mute (Command: k d)

To select screen mute on/off.

Transmission [k][d][ ][Set ID][ ][Data][Cr]

Data 00: Screen mute off (Picture on)

Data 01: Screen mute on (Picture off)

Acknowledgement [d][ ][Set ID][ ][OK/NG][Data][x]

05. Volume Mute (Command: k e)

To control volume mute on/off.

You can also adjust mute using the MUTE button on remote control.

Transmission [k][e][ ][Set ID][ ][Data][Cr]

Data 00: Volume mute on (Volume off)

Data 01: Volume mute off (Volume on)

Acknowledgement [e][ ][Set ID][ ][OK/NG][Data][x]

06. Volume Control (Command: k f)

To adjust volume.

You can also adjust volume with the volume buttons on remote control.

Transmission [k][f][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [f][ ][Set ID][ ][OK/NG][Data][x]

07. Contrast (Command: k g)

To adjust screen contrast.

You can also adjust contrast in the PICTURE menu.

Transmission [k][g][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [g][ ][Set ID][ ][OK/NG][Data][x]

08. Brightness (Command: k h)

To adjust screen brightness.

You can also adjust brightness in the PICTURE menu.

Transmission [k][h][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [h][ ][Set ID][ ][OK/NG][Data][x]

09. Color (Command: k i)

To adjust screen color.

You can also adjust color in the PICTURE menu.

Transmission [k][i][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [i][ ][Set ID][ ][OK/NG][Data][x]

10. Tint (Command: k j)

To adjust screen tint.

You can also adjust tint in the PICTURE menu.

Transmission [k][j][ ][Set ID][ ][Data][Cr]

Data Red: 00 ~ Green: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [j][ ][Set ID][ ][OK/NG][Data][x]

11. Sharpness (Command: k k)

To adjust screen sharpness.

You can also adjust sharpness in the PICTURE menu.

Transmission [k][k][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [k][ ][Set ID][ ][OK/NG][Data][x]

APPENDIX

12. OSD Select (Command: k l)

To select OSD (On Screen Display) on/off.

Transmission [k][l][ ][Set ID][ ][Data][Cr]

Data 00: OSD off   Data 01: OSD on

Acknowledgement [l][ ][Set ID][ ][OK/NG][Data][x]

13. Remote Control Lock Mode (Command: k m)

To lock the remote control and the front panel controls on the TV.

Transmission [k][m][ ][Set ID][ ][Data][Cr]

Data 00: Lock off   Data 01: Lock on

Acknowledgement [m][ ][Set ID][ ][OK/NG][Data][x]

If you're not using the remote control and front panel controls on the TV, use this mode. When main power is on/off, remote control lock is released.

14. Treble (Command: k r)

To adjust treble.

You can also adjust treble in the AUDIO menu.

Transmission [k][r][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [r][ ][Set ID][ ][OK/NG][Data][x]

15. Bass (Command: k s)

To adjust bass.

You can also adjust bass in the AUDIO menu.

Transmission [k][s][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [s][ ][Set ID][ ][OK/NG][Data][x]

16. Balance (Command: k t)

To adjust balance.

You can also adjust balance in the AUDIO menu.

Transmission [k][t][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 107.

Acknowledgement [t][ ][Set ID][ ][OK/NG][Data][x]

17. Color Temperature (Command: k u)

To adjust color temperature.

You can also adjust color temperature in the PICTURE menu.

Transmission [k][u][ ][Set ID][ ][Data][Cr]

Data 00: Medium   01: Cool   02: Warm

Acknowledgement [u][ ][Set ID][ ][OK/NG][Data][x]

18. ISM Method (Command: j p)

To avoid having a fixed image remain on screen.

Transmission [j][p][ ][Set ID][ ][Data][Cr]

Data 01: Inversion   02: Orbiter

      04: White Wash   08: Normal

Acknowledgement [p][ ][Set ID][ ][OK/NG][Data][x]

19. Power saving (Command: j q)

To control the low power function on/off.

Transmission [j][q][ ][Set ID][ ][Data][Cr]

Data 00: Power saving off (Power Saving Level 0)

      01: Power saving on (Power Saving Level 4)

Acknowledgement [q][ ][Set ID][ ][OK/NG][Data][x]

20. Auto Configuration (Command: j u)

To adjust picture position and minimize image shaking automatically. Auto configuration only works in RGB-PC mode.

Transmission [j][u][ ][Set ID][ ][Data][Cr]

Data 1: To set

Acknowledgement [u][ ][Set ID][ ][OK/NG][Data][x]

21. Channel Tuning (Command: m a)

To tune channel to following physical/major/minor number.

Transmission [m][a][ ][Set ID][ ][Data00][ ][Data01][ ][Data02][ ][Data03][ ][Data04][ ][Data05][Cr]

Digital channels have a Physical, Major, and Minor channel number. The Physical number is the actual digital channel number, the Major is the number that the channel should be mapped to, and the Minor is the sub-channel. Since the ATSC tuner automatically maps the channel to the Major number, the Physical number is not required when sending a command.

Data 00: Physical Channel Number

      NTSC air: 02~45, NTSC cable: 01, 0E~7D

      ATSC air: 01~45, ATSC cable: 01~87

Data 01 & 02: Major Channel Number

   Data 01: High byte   Data 02: Low byte

   Two bytes are available for the Major and Minor, normally only the second byte is used.

Data 03 & 04: Minor Channel Number

    Not needed for NTSC.

Data 05:

7 Main/Sub Picture	6 Two/One Part Channel	5 Using Physical Channel	4 Reserved	3	2	1	0	Step
0 Main	0 Two	0 Use	x	0	0	0	0	NTSC Air
1 Sub	1 One	1 No Use	x	0	0	0	1	NTSC Cable
			x	0	0	1	0	ATSC Air
			x	0	0	1	1	ATSC Cable_std
			x	0	1	0	0	ATSC Cable_hrc
			x	0	1	0	1	ATSC Cable_irc
			x	0	1	1	0	ATSC cable_auto
			x	0	1	1	1	Reserved
			x	x	x	x	x	...
			x	1	1	1	1	Reserved

The table above lists the binary code which must be converted to Hexadecimal before sending. For example: The binary code to tune the sub source to an NTSC cable channel is "1000 0001", which translates to "81" in Hex.

* 7th bit : For which source do you want to change the channel.
* 6th bit: Use a two part or one part channel. Most cases just use 0 since it's ignored when using NTSC.
* 5th bit: Use 0 with NTSC since it can only use the physical channel number. Normally use 1 for ATSC since most times it doesn't matter what the physical number is.
* 4th bit: Set to 0.
* 3-0 bits: Choose signal type.

* Tune Command Examples:
  1. Tune to the analog (NTSC) cable channel 35.
     Data 00 = Physical of 35 = 23
     Data 01 & 02 = No Major = 00 00
     Data 03 & 04 = No Minor = 00 00
     Data 05 = 0000 0001 in binary = 01
     Total = ma 00 23 00 00 00 00 01
  2. Tune to the digital (ATSC) local channel 30-3.
     Data 00 = Don't know Physical = 00
     Data 01 & 02 = Major is 30 = 00 1E
     Data 03 & 04 = Minor is 3 = 00 03
     Data 05 = 0010 0010 in binary = 22
     Total = ma 00 00 00 1E 00 03 22

Acknowledgement [a] [ ] [Set ID] [ ] [OK] [Data00] [Data01] [Data02] [Data03] [Data04] [x] [a] [ ] [Set ID] [ ] [NG] [Data00] [x]

22. Channel Add/Del (Command: m b)

To add and delete the channels.

Transmission [m] [b] [ ] [Set ID] [ ] [Data] [Cr]

Data 00: Channel Delete   Data 01: Channel Add

Acknowledgement [b] [ ] [Set ID] [ ] [OK/NG] [Data] [x]

23. Key (Command: m c)

To send IR remote key code.

Transmission [m] [c] [ ] [Set ID] [ ] [Data] [Cr]

Data Key code: Refer to page 101.

Acknowledgement [c] [ ] [Set ID] [ ] [OK/NG] [Data] [x]

*Real data mapping
  0 : Step 0
  ⋮
  A : Step 10 (SET ID 10)
  ⋮
  F : Step 15 (SET ID 15)
  10 : Step 16 (SET ID 16)
  ⋮
  63 : Step 99 (SET ID 99)
  64 : Step 100

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