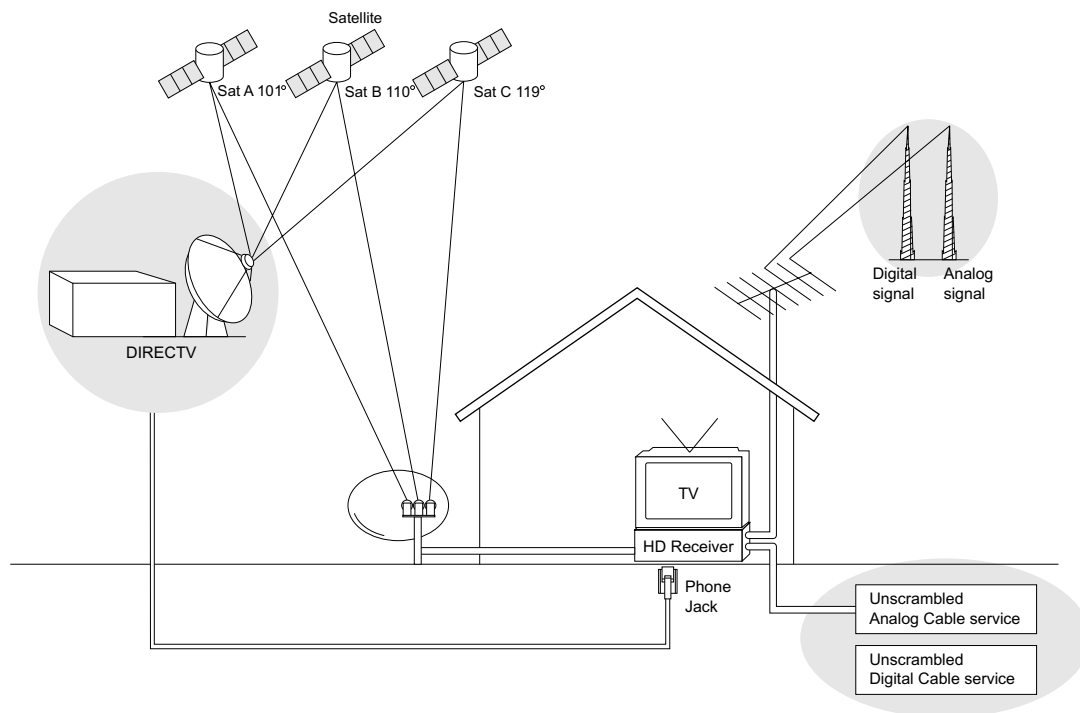


2. IMPORTANT OVERVIEW

2-1. Sending Signals



Digital broadcasting is a new way of sending programs over the airwaves with superior quality video and audio. The DIRECTV® HD Receiver enables you to take full advantage of digital broadcasting. To fully enjoy it, it is helpful to understand the ways that program signals are sent.

There are two types of TV signal formats; analog (often called NTSC format; National Television System Committee) and digital (ATSC format; Advanced Television System Committee). Digital formats are classified into three categories: High Definition (HD), Enhanced Definition (ED), and Standard Definition (SD) according to the resolution or digital picture quality.

There are also three ways that program signals can be received; over-the-air (NTSC, ATSC), cable (analog and digital), and satellite.

This receiver contains a QAM tuner which should allow you to receive unscrambled QAM digital television programming via subscription service to a cable service provider. This receiver will not be able to tune encrypted (scrambled) digital programming or advanced interactive digital cable services. Contact your local cable service provider for further information regarding the availability of unscrambled digital cable programming.

2-2. TV Signal Formats

Standard Comparison Table

Signal Format	Analog	Digital	
		SD/ED	HD
Active Lines	480	480	720 or 1080
Sound	Stereo (2 ch)	Dolby Digital® (5.1 ch) MPEG Audio (2 ch)	Dolby Digital (5.1 ch)
Aspect Ratio	4 : 3	4 : 3 or 16 : 9	16 : 9
Resolution	720 x 480	640 x 480 704 x 480	1280 x 720 1920 x 1080

The digital TV standards allow several different formats. Broadcasters can choose between four formats:

- 480p - The picture is 704 x 480 pixels, sent at 60 complete frames per second (480i is also possible, sent at 60 interlaced frames per second).
- 720p - The picture is 1280 x 720 pixels, sent at 60 complete frames per second.
- 1080i - The picture is 1920 x 1080 pixels, sent at 60 interlaced frames per second (30 complete frames per second).

(The “p” and “i” designations stand for “progressive” and “interlaced.” In a progressive format, the full picture updates every sixtieth of a second. In an interlaced format, half of the picture updates every sixtieth of a second.)

The 480i format is called SD. 480p format is called the ED format. 480i is roughly equivalent to a normal analog TV picture. The 720p and 1080i formats are called the HD formats.

Some analog televisions can display a picture 720 pixels wide by 480 pixels high, that’s a total of 345,600 pixels. HD digital signals can have a maximum resolution of 1920 x 1080, that’s 2,073,600 pixels, or six times more pixels than the older resolution. Pictures will be crisper and cleaner, with more detail in every close-up and every panorama.

2. IMPORTANT OVERVIEW

2-3. Display Formats

The DIRECTV® HD Receiver provides several display formats. Pressing the **DISPLAY FORMAT** button repeatedly on the front panel changes the display formats following order: 1080i → 720p → 480p → 480i → native → variable 1 → variable 2 → variable 3 → EZ DVI. In **1080i, 720p, 480p, and 480i** modes, all input signal formats are converted to the chosen display format. In **native, variable 1, variable 2, and variable 3** modes, the output display format is automatically adapted depending on input signal format, as follows.

Display Format modes	Input Signal format	Output Signal format
1080i	all formats	1080i
720p	all formats	720p
480p	all formats	480p
480i	all formats	480i
native	1080i	1080i
	720p	720p
	480p	480p
	480i	480i(Component, DVI), 480p(RGB)
variable 1	1080i	1080i
	720p	720p
	480p/480i	480p
variable 2	1080i/720p	1080i
	480p/480i	480p
variable 3	1080i/720p	720p
	1080i	480p
EZ DVI	all formats	changes according to monitor type

In EZ DVI mode, the output display format is automatically adapted based on the preferred resolution format of the DVI-HDTV monitor. The format may be converted from the original broadcast format.

Note : Only one of the YPbPr, RGB or DVI-HDTV jacks is available at any one time, depending on the TYPE switch setting and DVI-HDTV connection status.

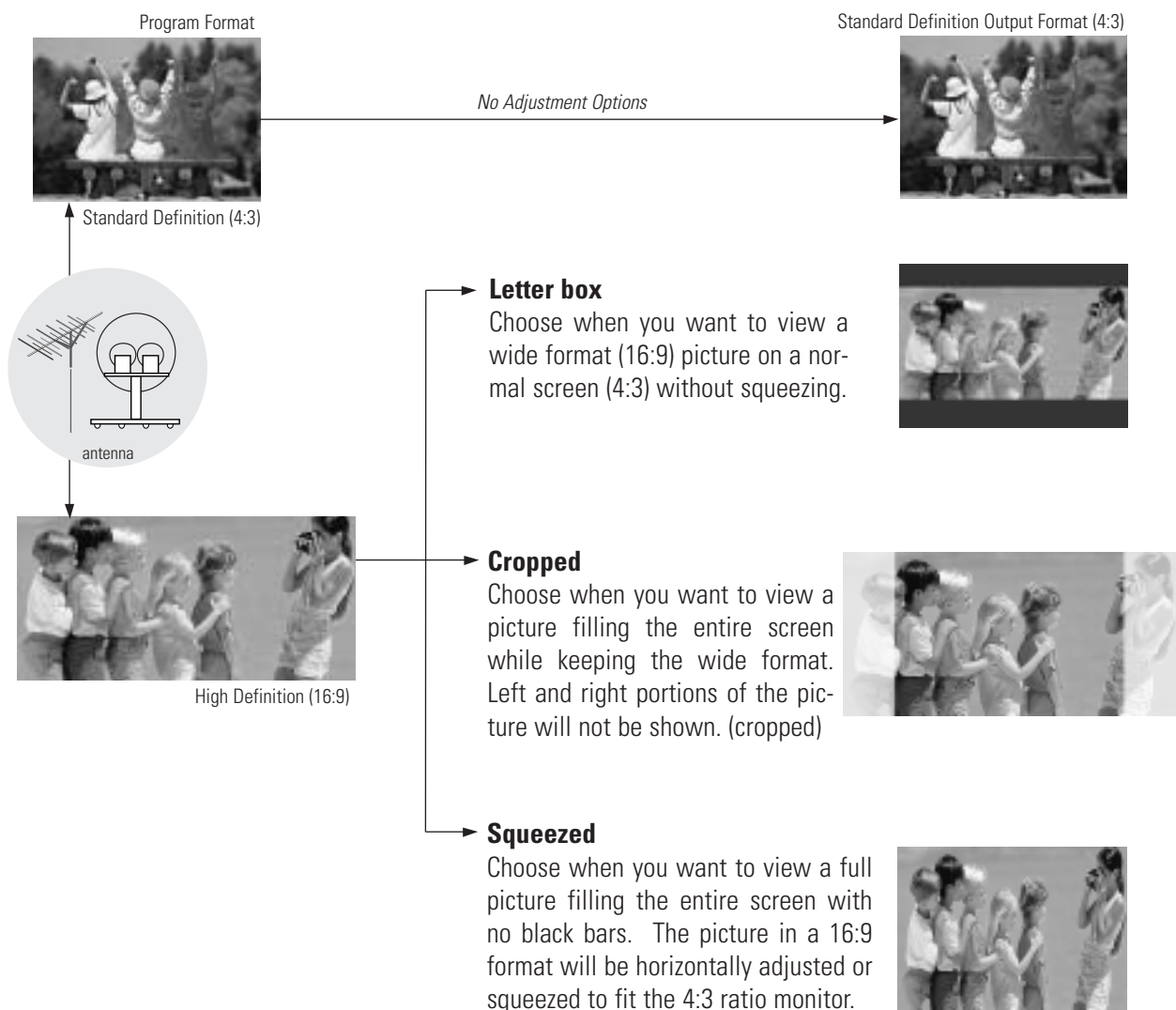
Note : The EZ DVI mode is only available when a DVI-HDTV compatible monitor is connected to the receiver.

2-4. Normal and Wide Format Signals

When you view a high definition picture(16:9) with 480i or 480p format setting, the **RATIO** button on the remote control changes the wide mode in the cycle of Letterbox → Cropped, → Squeezed.

When you view a standard definition picture (4:3) with 720p or 1080i format setting, the **RATIO** button on the remote control changes the wide mode in the cycle of Normal → Wide → Panorama → Zoom → CINE-Zoom. (Refer to section 8-13, ' Choosing the Aspect Ratio ')

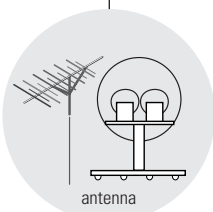
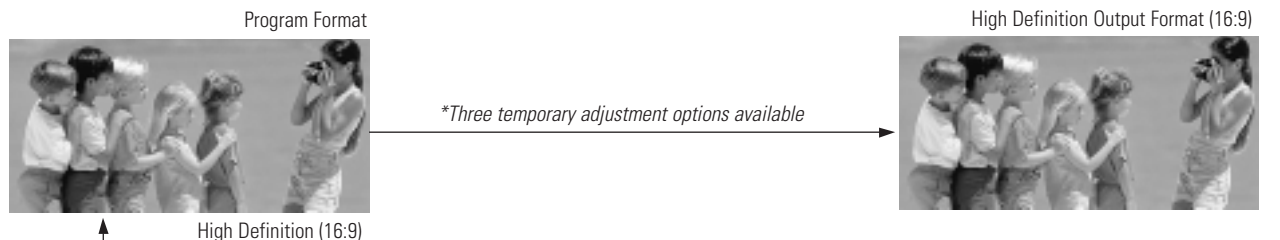
WHEN YOU SET THE DISPLAY FORMAT TO SDTV (480i/480p)



2. IMPORTANT OVERVIEW

2-4. Normal and Wide Format Signals

WHEN YOU SET THE DISPLAY FORMAT TO HDTV (1080i/720p)



Adjustment
Required

Normal

Choose when you want to view a picture with an original 4:3 aspect ratio on your 16:9 TV. Black or gray bars will show at the left and right sides.



Wide

Choose when you want to evenly stretch the width of a normal picture to fill the entire screen.



Panorama

Choose when you want to evenly stretch the edges of a normal picture to fill a wide screen.



Zoom

Choose when you want to fill the entire screen with the picture. The image will be altered both horizontally (stretched) and vertically (cropped). The top and bottom portions of the picture will not be shown. Zoom1 shows you the picture with a trade-off between distortion and screen coverage.



CINE-Zoom

Choose when you want to adjust zooming.

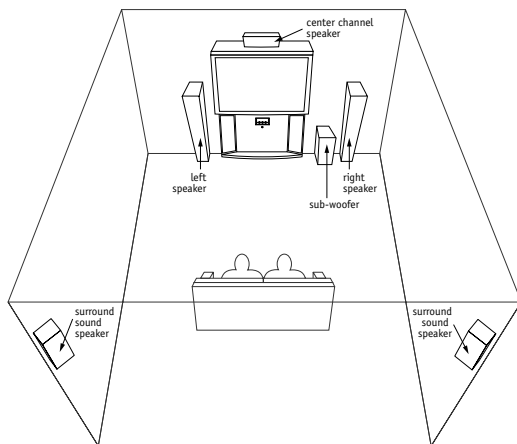


*Note.

The HDTV formats should always be broadcast in the 16:9 aspect ratio. However, you may choose one of three temporary options to select for your preference. The three options are **Standard**, **Expand** and **Shrink**.

2-5. Audio Signals

Digital Audio Signals



Dolby Digital Sound with 5.1 Channels

The DIRECTV® HD Receiver will be the focal center of your home entertainment system comprising a variety of components, such as TV, DVD, VCR, etc. and external audio systems. Since digital programs being broadcast contain digital-quality audio, you can create a home theater by sending audio signals from the DIRECTV HD Receiver to your audio system externally. HD digital signals use the Dolby Digital audio encoding system - the same digital sound used in many movie theaters, on DVDs, and in many home theater systems.

When you tune to a channel, the DIRECTV HD Receiver can send signals either to a Dolby Digital decoder/receiver or to a PCM (normal digital) decoder. (* Refer to Section 3-7 Connection for Audio for making the required external connections to your system.)

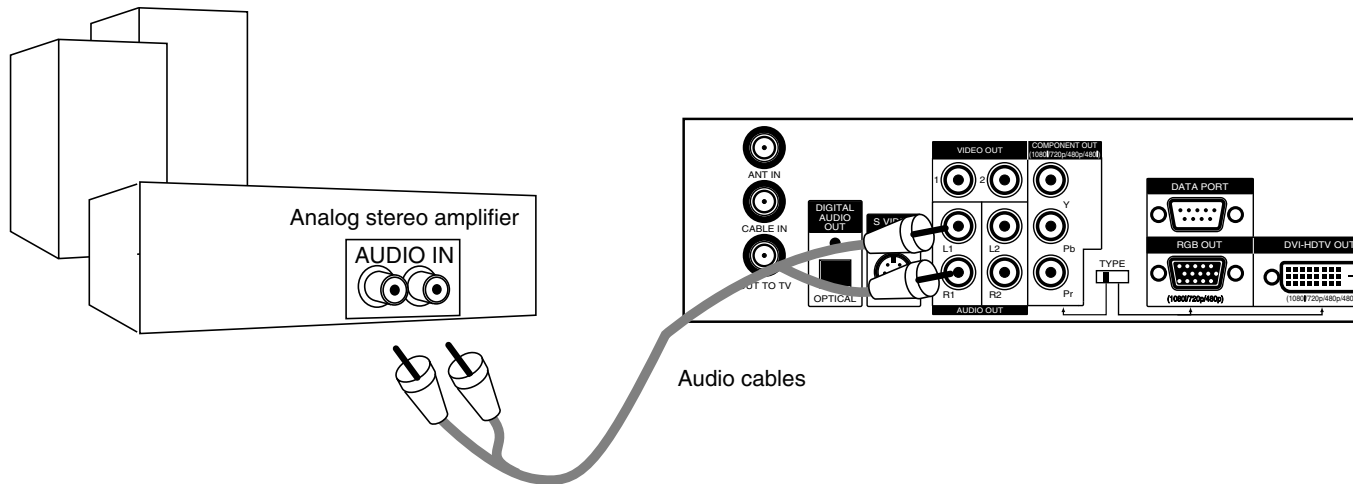
GLOSSARY

Dolby Digital® audio, formally known as Audio Coding 3rd Generation is a coding technique that can provide up to five independent, full frequency response audio channels (three in left, center, and right, two in rear left and right,) and one low frequency effect for a sound you can feel.

2. IMPORTANT OVERVIEW

2-5. Audio Signals

Analog Audio Signals



The analog audio outputs may be used to drive an external Hi-Fi audio system instead of the TV speakers. These stereo outputs are activated by setting the Analog Mode in the Audio menu to Stereo.

If you set the Analog Mode to SAP (Second Audio Program), you can hear the program's dialog in another language such as French or Spanish, if provided on the analog broadcast.

2-6. On-Screen Display

Main Menu

You can adjust the setup through a user-friendly on-screen menu using the remote control. While viewing a program, the on-screen menu will appear on your TV screen if you press the **MENU** button on your remote control. The on-screen menu is operated using a simple, straight-forward 'Highlight and Select' process. You just highlight a menu item by using "▲▼◀▶" on your remote control, and select it by pressing "⊙". The on-screen menu also offers visual cues for easy guidance.



Advanced Program Guide™

The DIRECTV Advanced Program Guide is an on-screen listing of current and future programs that are available from DIRECTV. The DIRECTV® HD Receiver offers you a comprehensive program list that contains information about programs with hundreds of channels, including analog Antenna and digital (ATSC). If you do not subscribe to DIRECTV® programming, you will not be able to see the Advanced Program Guide™.

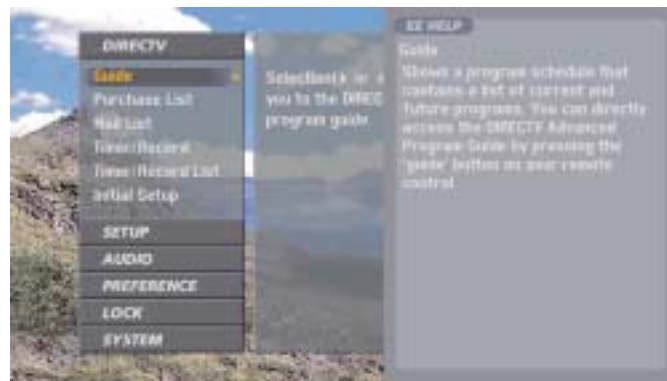


2. IMPORTANT OVERVIEW

2-6. On-Screen Display

EZ Help

First, certain features and terminologies used in the on-screen menus require your basic understanding to fully utilize their capabilities. The DIRECTV® HD Receiver provides a powerful feature called “EZ Help” that describes highlighted menu item to help you understand the features. Press and hold the **“HELP (?)”** button to display the “EZ Help”. Once you release the button, the EZ Help menu disappears from the screen.



Second, if you press the **“HELP (?)”** button while you are viewing a program with no menus on -screen, the DIRECTV HD Receiver provides a comprehensive on-screen user’s guide. It describes how to use your receiver.

This is, in fact, an on-line version of this Operating Guide.

