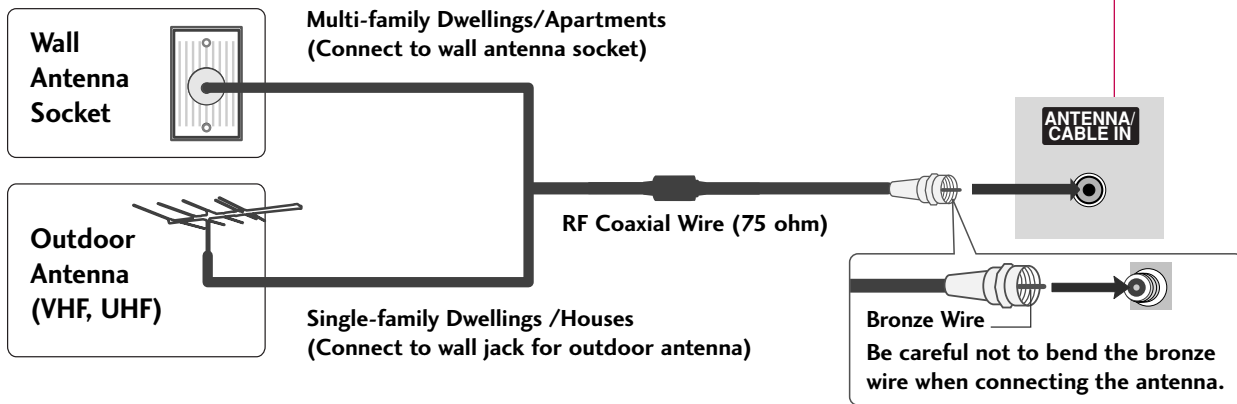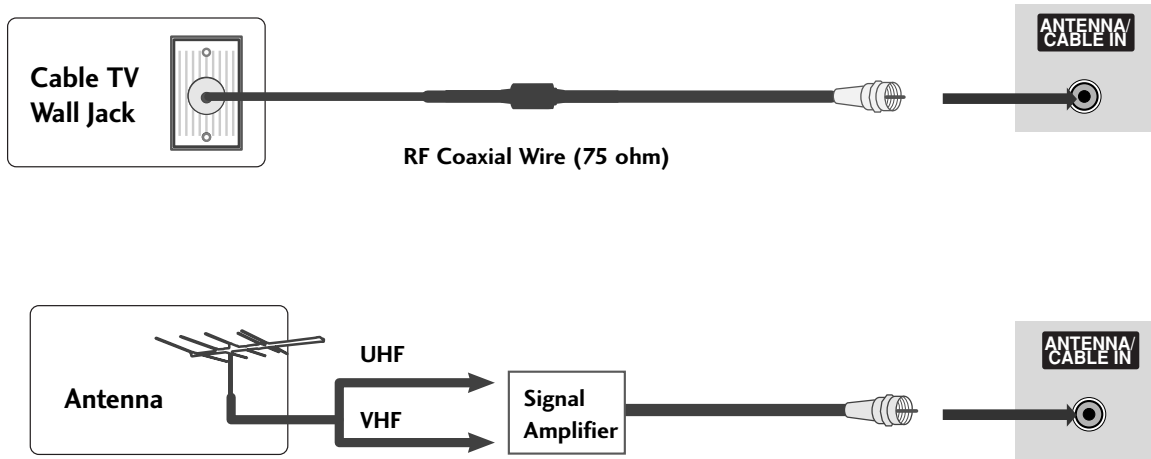# PREPARTION

■ To prevent the equipment damage, never plug in any power cords until you have finished connecting all equipment.

1. Antenna (Analog or Digital)

Wall Antenna Socket or Outdoor Antenna without a Cable Box Connections. For optimum picture quality, adjust antenna direction if needed.

Wall Antenna Socket

Multi-family Dwellings/Apartments (Connect to wall antenna socket)

Outdoor Antenna (VHF, UHF)

RF Coaxial Wire (75 ohm)

Single-family Dwellings /Houses (Connect to wall jack for outdoor antenna)

ANTENNA/ CABLE IN

Bronze Wire

Be careful not to bend the bronze wire when connecting the antenna.

2. Cable

Cable TV Wall Jack

RF Coaxial Wire (75 ohm)

ANTENNA/ CABLE IN

Antenna

UHF

VHF

Signal Amplifier

ANTENNA/ CABLE IN

■ To improve the picture quality in a poor signal area, please purchase a signal amplifier and install properly.
■ If the antenna needs to be split for two TV's, install a 2-Way Signal Splitter.
■ If the antenna is not installed properly, contact your dealer for assistance.

! NOTE

▶ The TV will let you know when the analog, cable, and digital channel scans are complete.

EXTERNAL EQUIPMENT SETUP

HD RECEIVER SETUP

This TV can receive Digital Over-the-air/Cable signals without an external digital set-top box. However, if you do receive digital signals from a digital set-top box or other digital external device, refer to the figure as shown below.
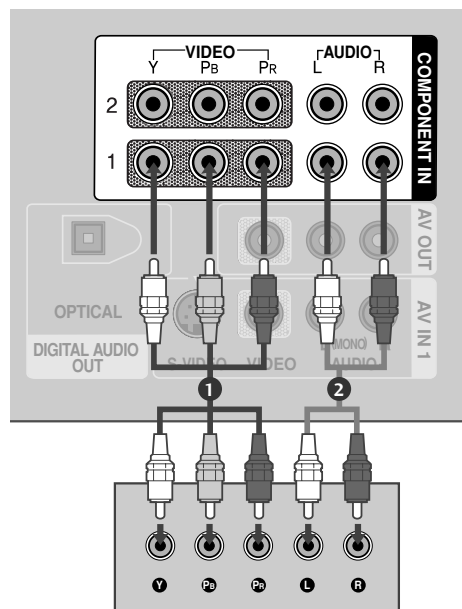
When connecting Component cable

1. How to connect

① Connect the video outputs (Y, P_B, P_R) of the digital set top box to the **COMPONENT IN VIDEO 1** jacks on the set. Match the jack colors (Y = green, P_B = blue, and P_R = red).

② Connect the audio output of the digital set-top box to the **COMPONENT IN AUDIO 1** jacks on the set.

2. How to use

■ Turn on the digital set-top box.
   (Refer to the owner's manual for the digital set-top box.)

■ Select **Component 1** input source with using the **INPUT** button on the remote control.

■ If connected to **COMPONENT IN2** input, select **Component 2** input source.

Signal	Component 1/2	HDMI1/DVI, HDMI2
480i	Yes	No
480p	Yes	Yes
720p	Yes	Yes
1080i	Yes	Yes

EXTERNAL EQUIPMENT SETUP

When connecting HDMI cable

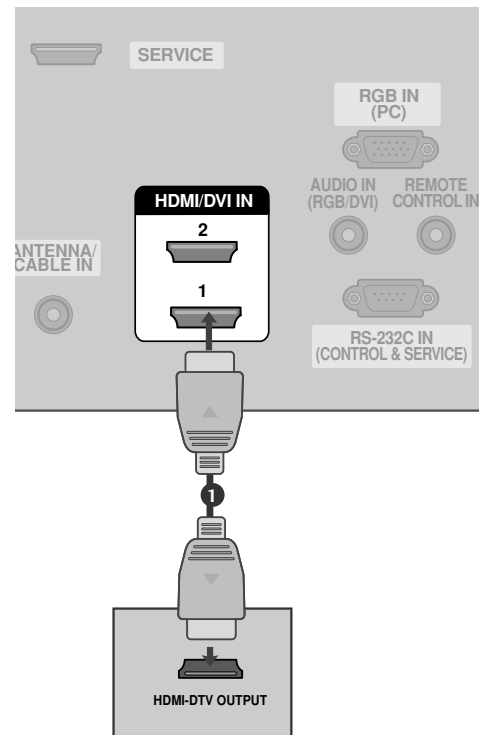### 1. How to connect

1 Connect the digital set-top box to **HDMI/DVI IN 1** or **2** jack on the set.

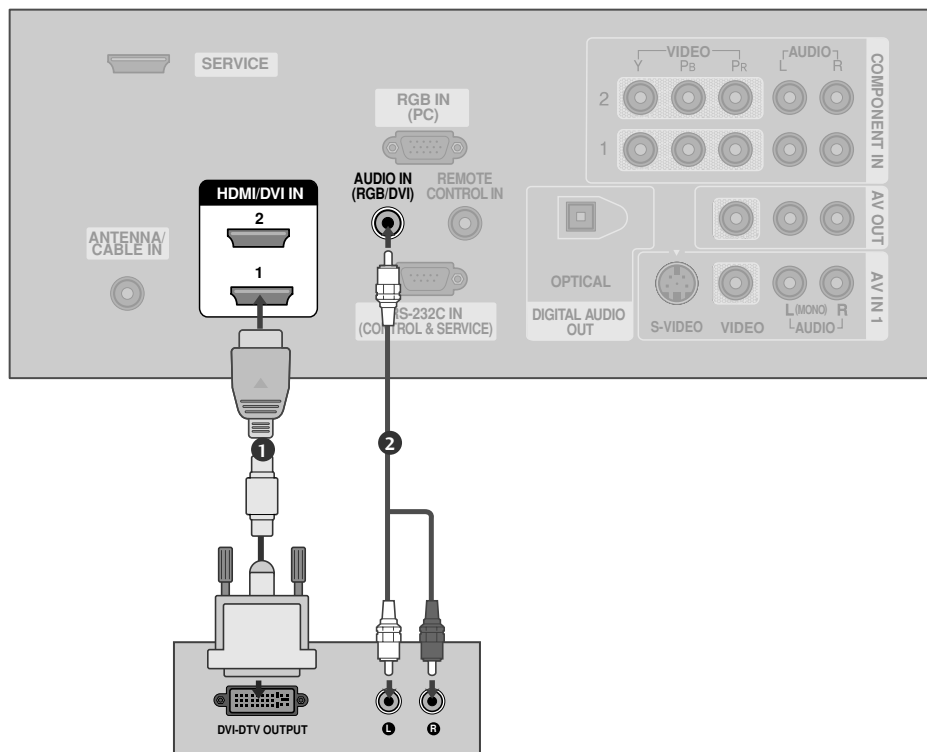**2** No separated audio connection is necessary.

2. How to use

■ Turn on the digital set-top box.
(Refer to the owner's manual for the digital set-top box.)

■ Select **HDMI1/DVI** or **HDMI2** input source with using the **INPUT** button on the remote control.

❗ NOTE

▶ If the digital set-top box supports Auto HDMI function, the output resolution of the source device will be automatically set to 1280x720p.

▶ If the digital set-top box player does not support Auto HDMI, you need to set the output resolution appropriately.
To get the best picture quality, adjust the output resolution of the source device to 1280x720p.

SERVICE

RGB IN
(PC)

HDMI/DVI IN

AUDIO IN
(RGB/DVI)

REMOTE
CONTROL IN

ANTENNA/
CABLE IN

2

1

RS-232C IN
(CONTROL & SERVICE)

1

HDMI-DTV OUTPUT

When connecting HDMI to DVI cable

1. How to connect

1 Connect the DVI output of the digital set-top box to the **HDMI/DVI IN 1** or **2** jack on the set.

2 Connect the audio output of the digital set-top box to the **AUDIO IN (RGB/DVI)** jack on the set.

2. How to use

- Turn on the digital set-top box. (Refer to the owner's manual for the digital set-top box.)

- Select **HDMI1/DVI** or **HDMI2** input source with using the **INPUT** button on the remote control.
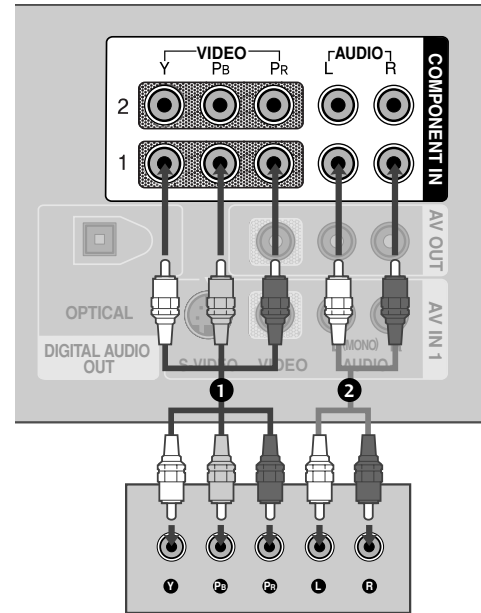
EXTERNAL EQUIPMENT SETUP

DVD SETUP

When connecting Component cable

1. How to connect

① Connect the video outputs (Y, P$_B$, P$_R$) of the DVD to the **COMPONENT IN VIDEO1** jacks on the set.
Match the jack colors
(Y = green, P$_B$ = blue, and P$_R$ = red).

② Connect the audio outputs of the DVD to the **COMPONENT IN AUDIO1** jacks on the set.

2. How to use

■ Turn on the DVD player, insert a DVD.

■ Select **Component 1** input source with using the **INPUT** button on the remote control.

■ If connected to **COMPONENT IN 2** input, select **Component 2** input source.

■ Refer to the DVD player's manual for operating instructions.

Component Input ports
To get better picture quality, connect a DVD player to the component input ports as shown below.

Component ports on the TV	Y	P$_B$	P$_R$

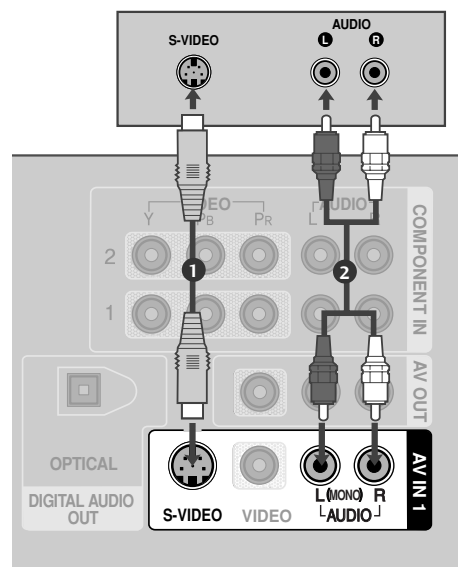|	Y	P$_B$	P$_R$
Video output ports on DVD player	Y	B-Y	R-Y
	Y	Cb	Cr
	Y	Pb	Pr

When connecting with an S-Video cable

1. How to connect

1 Connect the S-VIDEO output of the DVD to the **S-VIDEO** input on the set.

2 Connect the audio outputs of the DVD to the **AUDIO** input jacks on the set.

2. How to use

■ Turn on the DVD player, insert a DVD.

■ Select **AV1** input source with using the **INPUT** button on the remote control.
■ If connected to **AV IN2**, select **AV2** input source.

■ Refer to the DVD player's manual for operating instructions.

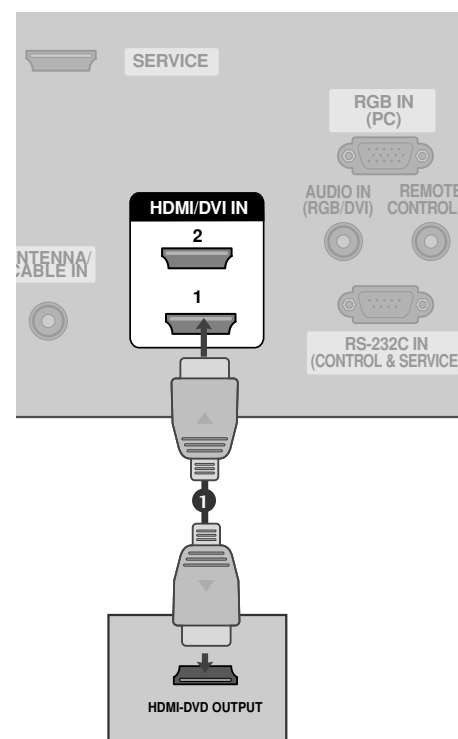## When connecting HDMI cable

1. How to connect

1 Connect the HDMI output of the DVD to the **HDMI/DVI IN 1** or **2** jack on the set.

2 No separated audio connection is necessary.

2. How to use

■ Select **HDMI1/DVI** or **HDMI2** input source with using the **INPUT** button on the remote control.

■ Refer to the DVD player's manual for operating instructions.

❗ NOTE

▶ If the DVD supports Auto HDMI function, the DVD output resolution will be automatically set to 1280x720p.

▶ If the DVD does not support Auto HDMI, you need to set the output resolution appropriately.
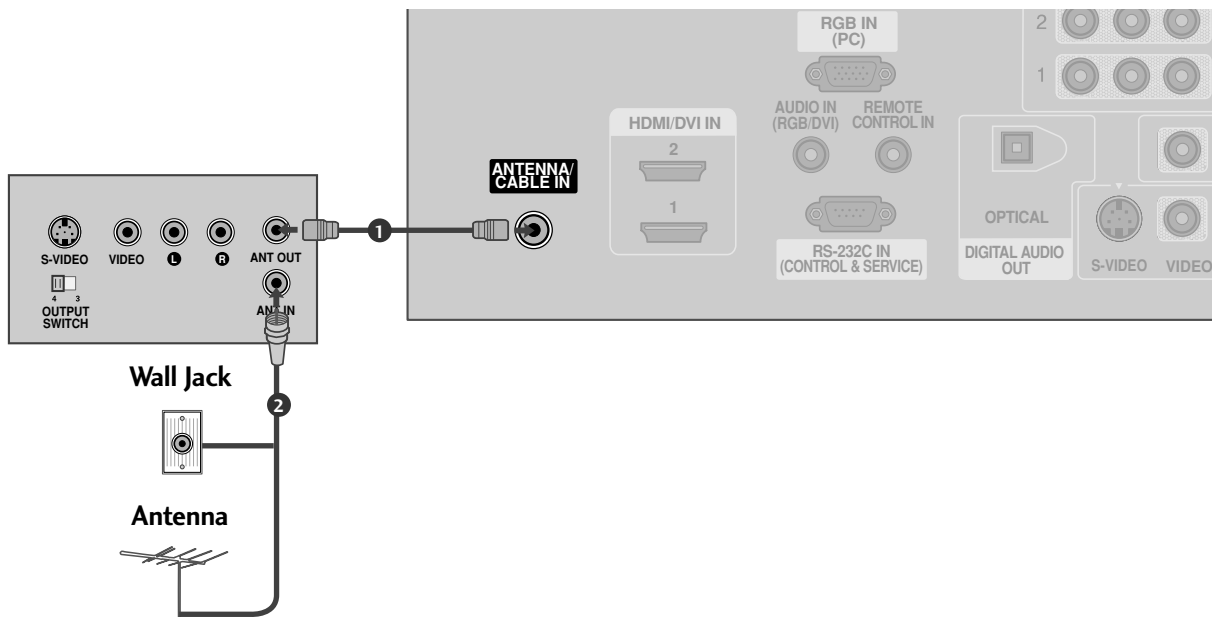To get the best picture quality, adjust the output resolution of the DVD to 1280x720p.

VCR SETUP

■ To avoid picture noise (interference), leave an adequate distance between the VCR and TV

■ Use the ISM feature in the Option menu to avoid having a fixed image remain on the screen for a long period of time. If the 4:3 picture format is used; the fixed images on the sides of the screen may remain visible on the screen. This phenomenon is common to all manufactures and in consequence the manufactures warranty does not cover the product bearing this phenomenon.

When connecting with an antenna

1. How to connect

❶ Connect the RF antenna out socket of the VCR to the **Antenna** socket on the set.

❷ Connect the antenna cable to the RF antenna in socket of the VCR.

2. How to use

■ Set VCR output switch to 3 or 4 and then tune TV to the same channel number.

■ Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner's manual.)
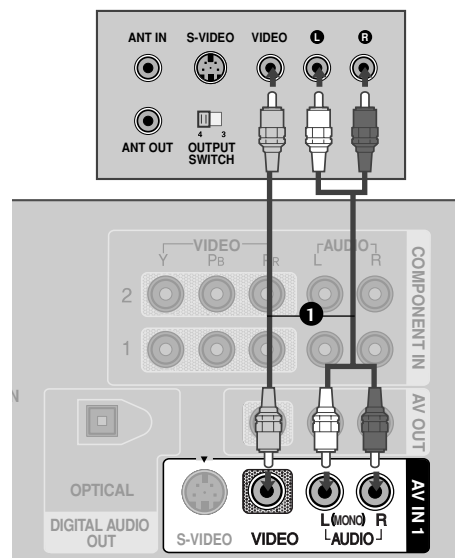
When connecting with a RCA cable

1. How to connect

1 Connect the **AUDIO/VIDEO** jacks between TV and VCR. Match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red)

2. How to use

- Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner's manual.)

- Select **AV1** input source with using the **INPUT** button on the remote control.
  - If connected to **AV IN2**, select **AV2** input source.

! NOTE

▶ If you have a mono VCR, connect the audio cable from the VCR to the **AUDIO L/MONO** jack of the set.

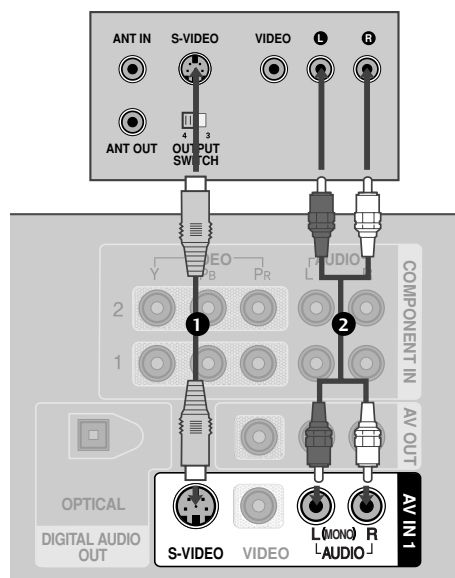# When connecting with an S-Video cable

1. How to connect

1 Connect the S-VIDEO output of the VCR to the **S-VIDEO** input on the set.

2 Connect the audio outputs of the VCR to the **AUDIO** input jacks on the set.

2. How to use

- Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner's manual.)

- Select **AV1** input source with using the **INPUT** button on the remote control.

- If connected to **AV IN2**, select **AV2** input source.

! NOTE

▶ The picture quality is improved: compared to normal composite (RCA cable) input.

⚠ CAUTION

▶ Do not connect to both Video and S-Video at the same time. In the event that you connect both Video and the S-Video cables, only the S-Video will work.
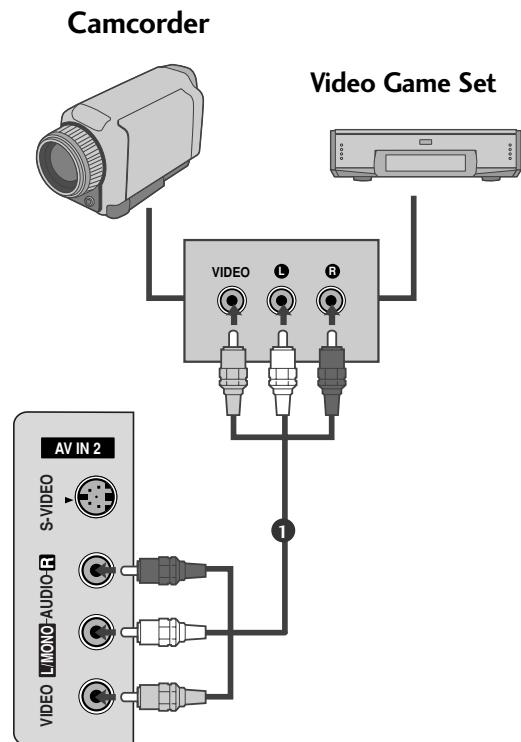
OTHER A/V SOURCE SETUP

1. How to connect

1 Connect the **AUDIO/VIDEO** jacks between TV and external equipment. Match the jack colors.

(Video = yellow, Audio Left = white, and Audio Right = red)

2. How to use

■ Select **AV2** input source with using the **INPUT** button on the remote control.

■ If connected to **AV IN1** input, select **AV1** input source.

■ Operate the corresponding external equipment.

Camcorder

Video Game Set

VIDEO L R

AV IN 2

S-VIDEO

VIDEO L/MONO-AUDIO-R

ⓘ **NOTE**

► This TV finds the connected input sources automatically for AV1, AV2, Component 1-2, RGB, HDMI1/DVI and HDMI2 sources are connected.

PC SETUP

This TV provides Plug and Play capability, meaning that the PC adjusts automatically to the TV's settings.

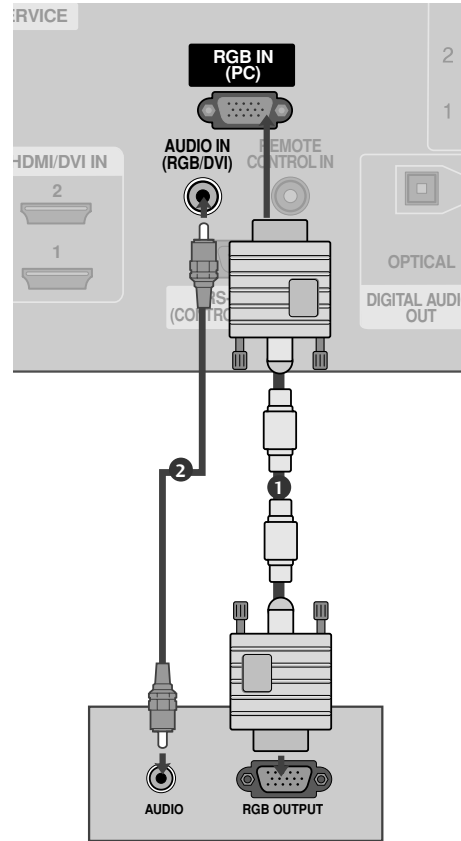## When connecting D-sub 15pin cable

1. How to connect

1 Connect the RGB output of the PC to the **RGB IN (PC)** jack on the set.

2 Connect the PC audio output to the **AUDIO IN (RGB/DVI)** jack on the set.

2. How to use

■ Turn on the PC and the set.

■ Select **RGB-PC** input source in main input option of SETUP menu. **(▶ p.67)**

!**NOTE**

▶ Check the image on your TV. There may be noise associated with the resolution, vertical pattern, contrast or brightness in PC mode. If noise is present, change the PC output to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the VIDEO menu until the picture is clear. If the refresh rate of the PC graphic card can not be changed, change the PC graphic card or consult the manufacturer of the PC graphic card.

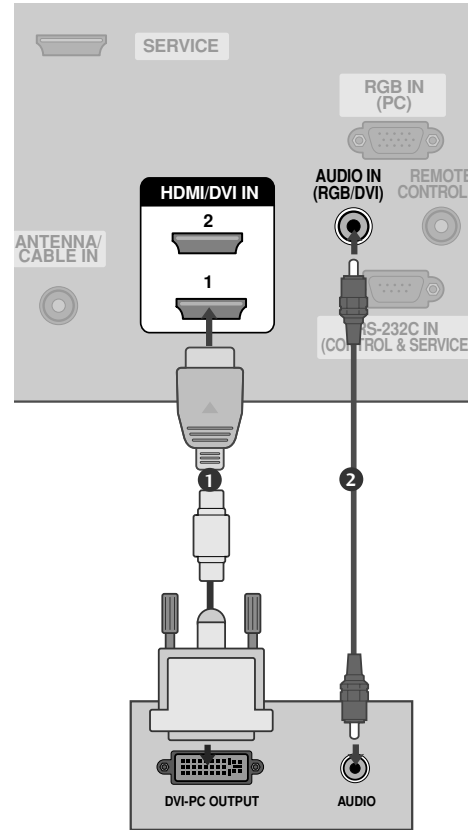## When connecting HDMI to DVI cable

1. How to connect

1 Connect the DVI output of the PC to the **HDMI/DVI IN 1** or **2** jack on the set.

2 Connect the PC audio output to the **AUDIO IN (RGB/DVI)** jack on the set.

2. How to use

■ Turn on the PC and the set

■ Select **HDMI1/DVI** or **HDMI2** input source with using the **INPUT** button on the remote control.

! NOTE

▶ If the PC has a DVI output and no HDMI output, a sepa-rated audio connection is necessary.

▶ If the PC does not support Auto DVI, you need to set the output resolution appropriately. To get the best picture quality, adjust the output resolution of PC graphics card's output resolution to 1024x768, 60Hz.

SERVICE

RGB IN
(PC)

HDMI/DVI IN

AUDIO IN
(RGB/DVI)

REMOTE
CONTROL

ANTENNA/
CABLE IN

2

1

RS-232C IN
(CONTROL & SERVICE

1   2

DVI-PC OUTPUT   AUDIO

NOTES

▶ To get the the best picture quality, adjust the PC graphics card to 1024x768, 60Hz.

▶ Depending on the graphics card, DOS mode may not work if a HDMI to DVI Cable is in use.

▶ When Source Devices are connected with HDMI/DVI Input, the output PC Resolution (VGA, SVGA, XGA, WXGA), Position and Size may not fit on the Screen. Press the ADJUST button to adjust the screen Position of the TV SET and contact a PC graphics card service center.

▶ When Source Devices connected with HDMI/DVI Input, output TV SET Resolution (480p, 720p, 1080i, 1080p) and TV SET Display fit EIA/CEA-861-B Specification to Screen. If not, refer to the Manual of HDMI/DVI Source Devices or contact your service center.

▶ If the HDMI/DVI Source Device is not connected to the Cable or if there is a poor cable connection, "No signal" is displayed in the HDMI/DVI Input. In this case, that Video Resolution is not supported. If "Invalid Format" is displayed, refer to the Source Device manual or contact your service center.

▶ Avoid keeping a fixed image on the screen for a long period of time. The fixed image may become permanently imprinted on the screen.

▶ The synchronization input form for Horizontal and Vertical frequencies is separate.

Supported Display Specifications

RGB-PC, HDMI1/DVI-PC mode

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)
640x350	31.469	70.08
720x400	31.469	70.08
640x480	31.469	59.94
800x600	37.879	60.31
1024x768	48.363	60.00
1280x768	47.776	59.87
1360x768	47.720	59.799
1366x768	47.130	59.65

* RGB-PC mode only: 640x350, 720X400

HDMI1/DVI-DTV, HDMI2-DTV mode

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)
720x480	31.469 31.500	59.94 60.00
1280x720	44.960 45.000	59.94 60.00
1920x1080i	33.720 33.750	59.94 60.00
1920x1080p	27.000 33.750	24.00 30.00

EXTERNAL EQUIPMENT SETUP
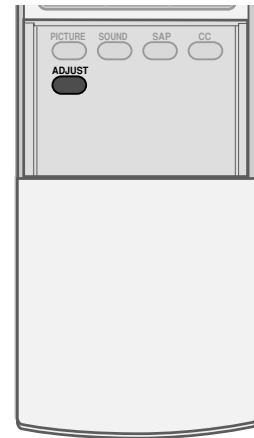
Screen Setup for PC mode

Overview

When RGB connect to PC output and select the RGB-PC in Input source, this function is used.

When HDM/DVI connect to PC output and select HDMI/DVI input, this function is used.

After connecting RGB-PC or HDMI/DVI to PC input and checking the screen quality.

When you change the resolution, select the proper resolution in present input to see the best picture appearance.

Adjustment for screen Resolution, Position, Size, and Phase

❶ Press the **ADJUST** button and then use ▲ or ▼ button to select **Resolution**, **Position**, **Size**, or **Phase**.

❷ Press the **ENTER** button and then use ▲ ▼ ◄ ► button to make appropriate adjustments.
  ■ The **Phase** adjustment range is **-16 ~ +16**.
    In HDMI/DVI-PC mode, **Phase** is not available.
  ■ The **Size** adjustment range is **-30 ~ +30**.
    In HDMI/DVI-PC mode, **Size** is not available.

❸ Press the **ENTER** button.

Initializing (Reset to original factory values)

To initialize the adjusted values

❶ Press the **ADJUST** button and then use ▲ or ▼ button to select **Reset**.

❷ Press the **ENTER** button and then use ◄ or ► button to select **Yes**.

❸ Press the **ENTER** button.

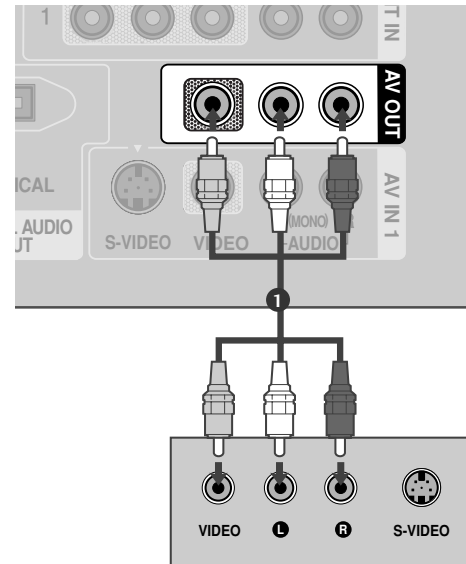|	
Resolution	This function allows you select resolution of XGA/WXGA.
Position	This function is to adjust picture to left/right and up/down as you prefer.
Size	This function is to minimize any vertical bars or stripes visible on the screen background. And the horizontal screen size will also change.
Phase	This function allows you to remove any horizontal noise and clear or sharpen the image of characters.

26

AV OUT SETUP

The TV has a special signal output capability which allows you to hook up the second TV or monitor.

1. How to connect

1 Connect the second TV or monitor to the TV's **AV OUT** jacks.

2 See the Operating Manual of the second TV or monitor for further details regarding that device's input settings.

❗ NOTE

► Component1-2, RGB-PC, HDMI1/DVI, HDMI2, DTV input sources cannot be used for AV out.

► We recommend to use the AV OUT jacks for VCR recording.

DIGITAL AUDIO OUTPUT

Send the TV's audio to external audio equipment via the Digital Audio Output (Optical) port.
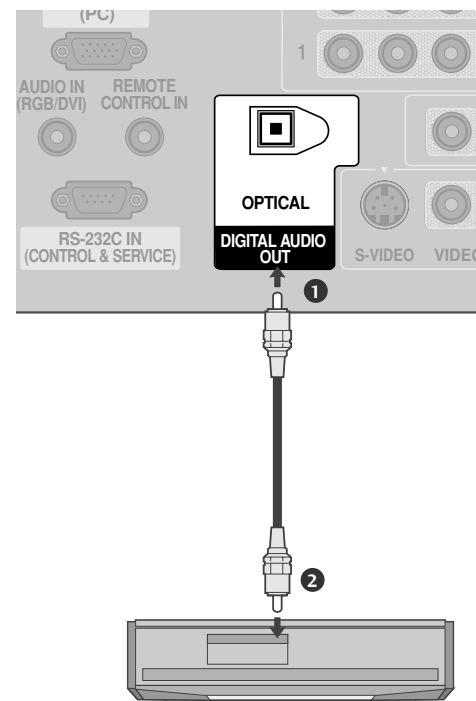
1. How to connect

1 Connect one end of an optical cable to the TV Digital Audio (Optical) Output port.

2 Connect the other end of the optical cable to the digital audio (optical) input on the audio equipment.

3 Set the "TV Speaker option - Off" in the AUDIO menu. (► p.84). See the external audio equipment instruction manual for operation.

❗ NOTE

► When connecting with external audio equipments, such as amplifiers or speakers, please turn the TV speakers off. (► p.84)

⚠ CAUTION

► Do not look into the optical output port. Looking at the laser beam may damage your vision.

WATCHING TV / CHANNEL CONTROL

REMOTE CONTROL FUNCTIONS

When using the remote control, aim it at the remote control sensor on the TV.

MODE	Select the remote operating mode: TV, DVD, VCR, AUDIO, CABLE or STB.
VCR/DVD control buttons	Control video cassette recorders or DVD players.
MENU	Displays the main menu.
BRIGHT -/ +	● Adjust the brightness on screen. ● It turns to the default settings brightness by changing mode source.
THUMBSTICK (Up/Down/Left Right/ENTER)	Navigate the on-screen menus and adjust the system settings to your preference.
EXIT	Clear all on-screen displays and return to TV viewing from any menu.
TIMER	Select the amount of time before your TV turns off automatically. ▶ **p.90**
RATIO	Change the aspect ratio. ▶ **p.92-93**
SIMPLINK	C? ▶ **p.92-93**
VOLUME UP /DOWN	Increase/decrease the sound level.
MUTE	Switch the sound on or off. ▶ **p.38**
FAV	Scroll through the programmed Favorite channels.
CHANNEL UP/DOWN	Select available channels.
NUMBER button	
— (DASH)	Used to enter a program number for multiple program channels such as 2-1, 2-2, etc.
BACK	Tune to the last channel viewed.
LIGHT	Illuminates the remote control buttons of selected mode.

TV INPUT   POWER   INPUT

TV   DVD   VCR
MODE
AUDIO   CABLE   STB

BRIGHT -   MENU   BRIGHT +

ENTER

EXIT   TIMER   RATIO   SIMPLINK

VOL   MUTE   FAV   CH

1	2	3
4	5	6
7	8	9
-	0	BACK

LIGHT

28