Acer AT4220A/4220B/4220 LCD TV
Service Guide

Service guide files and updates are available on the ACER/CSD web. For more information, please refer to http://csd.acer.com.tw

Revision History

Please refer to the table below for the updates of LCD TV AT4220A service guide.

Date	Chapter	Updates

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Conventions

The following conventions are used in this manual.

SCREEN MESSAGES	Denotes actual messages that appear on screen.
NOTE	Gives bits and pieces of additional information related to the current topic.
WARNING	Alerts you to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Reminds you to do specific actions relevant to the accomplishment of procedures.

Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.

2. Please note WHEN ORDERING FRU PARTS, you should check the most up-to-date information available on your regional web or channel. For whatever reason, if a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

System Specification

Specification

LCD Panel

- Max. resolution: 1366 x 768
- Display color: 16.7 million colors
- Life time: 60,000 hours
- Input signal: one-channel LVDS
- Contrast ratio: 1000/1 (Min)
- Brightness: 4000 Cd/m² (Min)
- Response time: AUO typical gray to gray Tr=8ms (Max.)
- Viewing angle: 89º (L)/89º (R), 89º (U)/89º (D)

I/O Functions

- RCA jack (YUV and CVBS) for YPbPr, YCbCr, video and audio
- 15-pin D-sub for VGA
- 24-pin DVI/HDCP for DVI-D (optional)
- 19-pin HDMI connector (optional)
- DIN45325 (IEC169-2) terminal for TV/CATV input
- 3.5 mm earphone jack for audio line input

Video Functions

- PAL/NTSC/SECAM video format support
- 480i/576i, 480p/576p, 1080i and 720p format support
- Built-in dynamic adaptive smoothing filter
- Built-in dynamic temporal frame-filter noise reduction
- Built-in dynamic motion and edge adaptive de-interlacing
- Screen display model 16:9 / 4:3 / panorama / zoom / PIP / POP

Mechanical

- VESA mounting holes

Multi-Sound System

- MTS (NTSC), FM-FM

Power Source

- Input voltage: 90~264V, 47~63Hz

- Power consumption: 291W
- Stand-by: 5W Max.

Remote Control

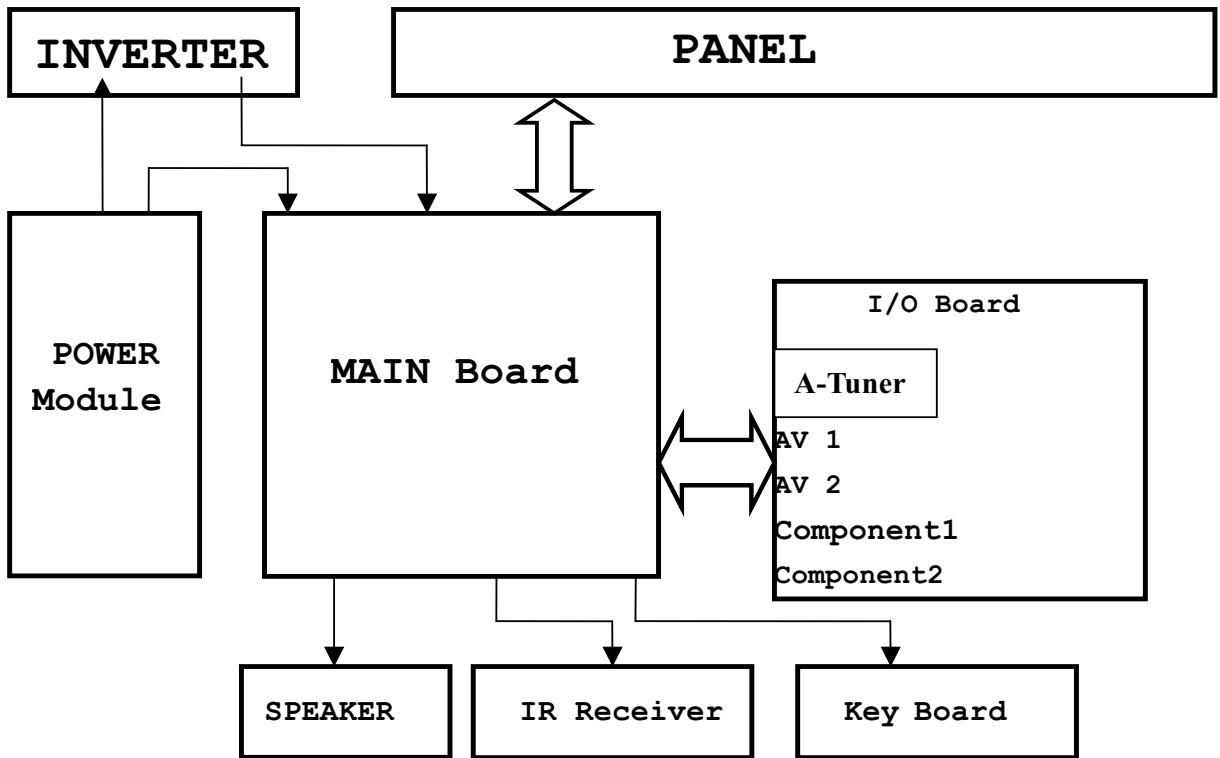- Multi-function remote control

Speaker

- Internal speaker: 10W x 2
- Amplifier: 10W x 2 stereo, adjustable volume

Others

- On-screen display adjustment function
- ISP (In System Programming) function available for revising driver easily

System Block and Wiring Diagram

```
┌──────────────┐      ┌────────────────────────────────────┐
│   INVERTER   │      │               PANEL                │
└──────────────┘      └────────────────────────────────────┘
                                    ⇕
┌──────────┐    ┌────────────────────┐    ┌──────────────────────┐
│          │    │                    │    │      I/O Board       │
│          │    │                    │    │  ┌─────────────┐     │
│  POWER   │    │    MAIN Board      │ ⇕  │  │  A-Tuner    │     │
│  Module  │    │                    │    │  └─────────────┘     │
│          │    │                    │    │   AV 1              │
│          │    │                    │    │   AV 2              │
│          │    │                    │    │   Component1        │
└──────────┘    └────────────────────┘    │   Component2        │
                                          └──────────────────────┘
         ┌────────────┐  ┌────────────┐  ┌────────────┐
         │  SPEAKER   │  │ IR Receiver│  │  Key Board │
         └────────────┘  └────────────┘  └────────────┘
```

LCD Main Board Block Diagram
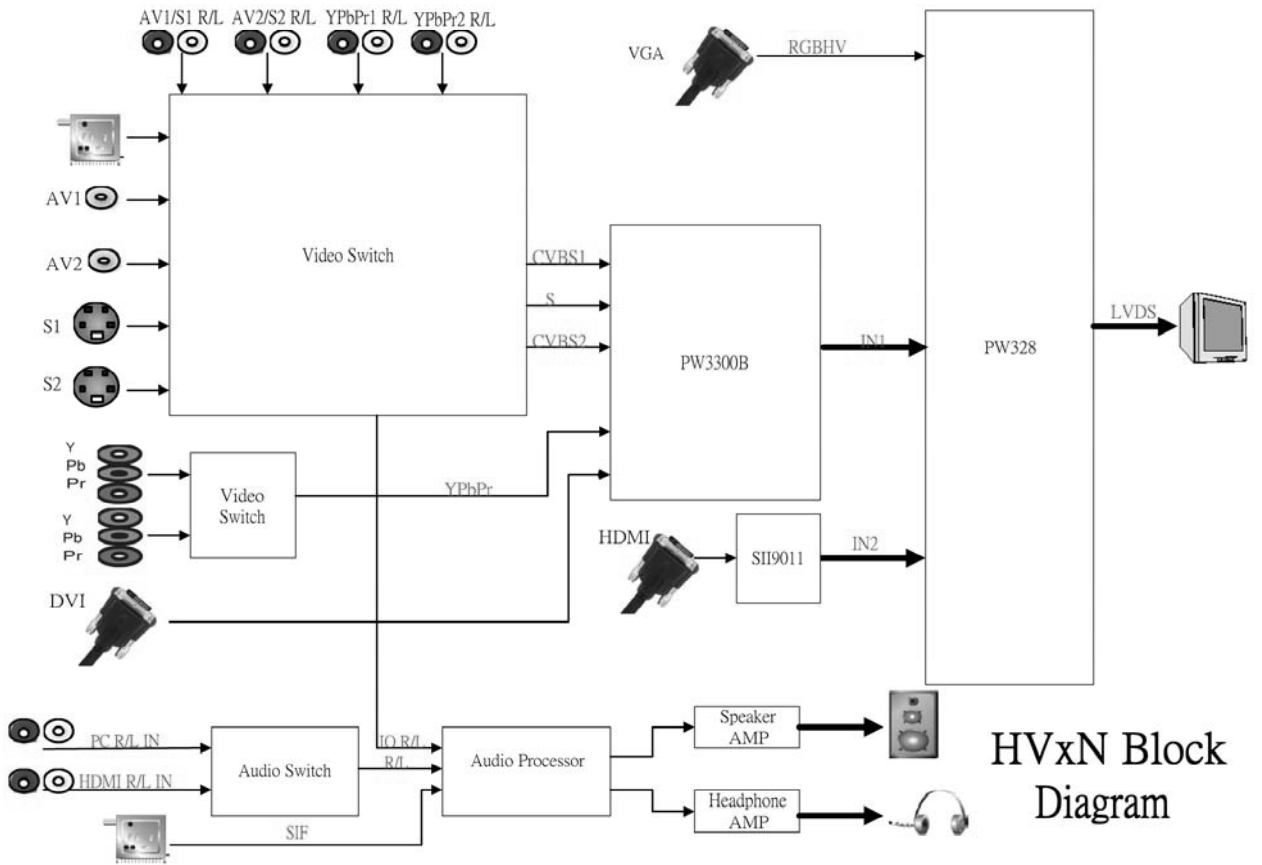
HVxN Block Diagram

LCD TV Overview

AT4220A/AT4220B/AT4220 Front Panel View

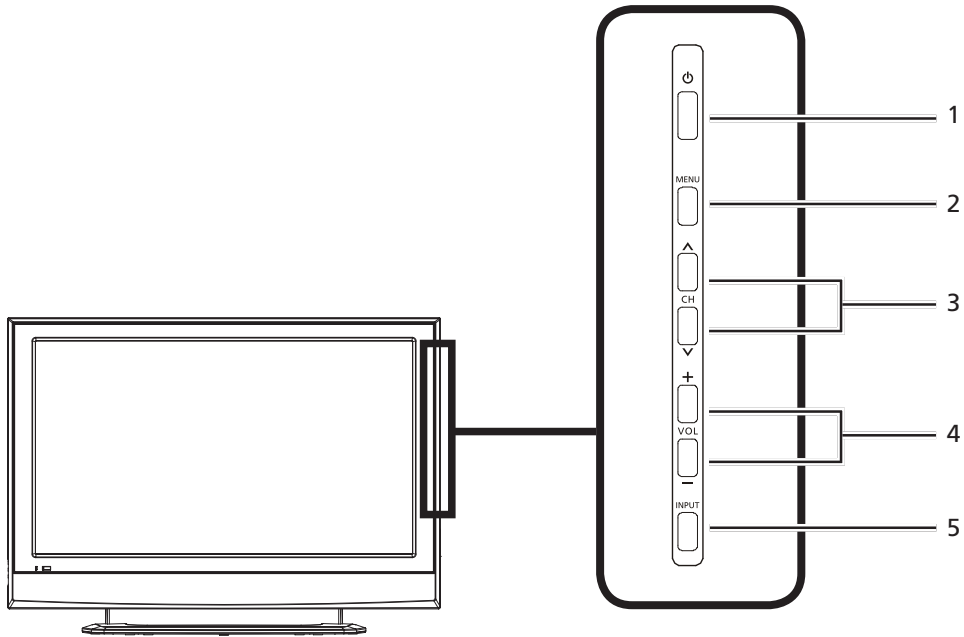| #	Item	Description
1	Power On/Off	Powers on or off the LCD TV.
2	Menu key	Turns the OSD menu on and off.
3	Channel up/down	Channel up: When the OSD is on, functions the same as the Up arrow. Channel down: When the OSD is on, functions the same as the Down arrow.
4	Volume +/-	Volume up: When the OSD is on, functions the same as the Right arrow. Volume down: When the OSD is on, functions the same as the Left arrow.
5	Input key	When is OSD is on, press this button to confirm selection.

AT4220A Rear Panel View
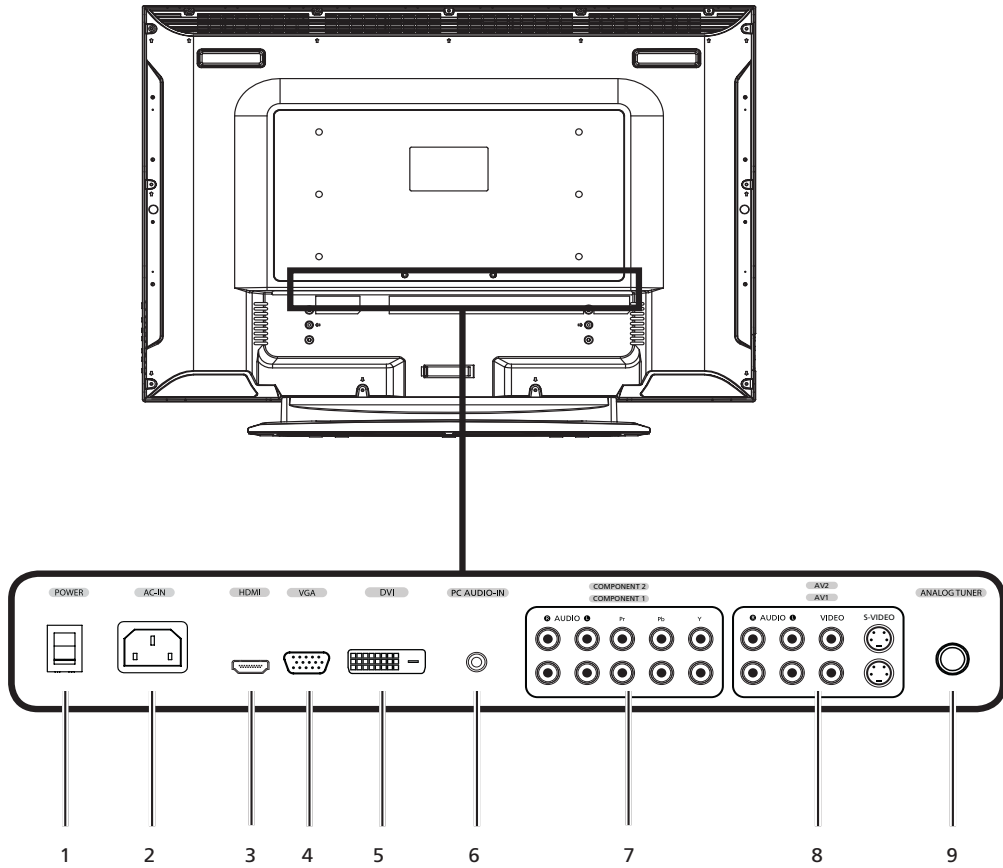
#	Item	#	Item
1	Power switch	6	PC Audio-in
2	AC-in	7	AV-Audio L/R + COMPONENT 1/2
3	HDMI	8	AV-Audio L/R + CVBS 1/2
4	VGA-in	9	Analog antenna
5	DVI-D		

AT4220B Rear Panel View
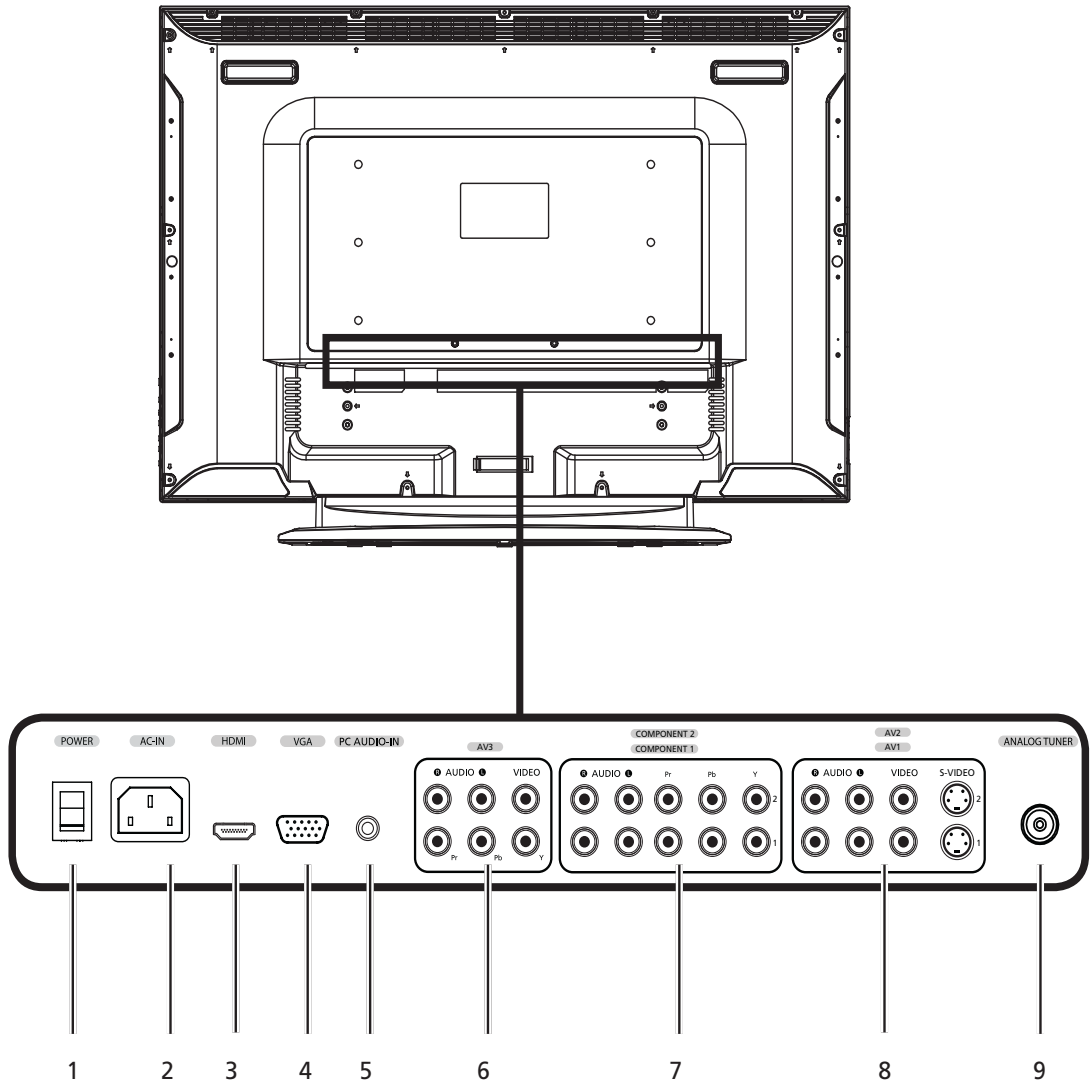
#	Item	#	Item
1	Power switch	6	Audio L/R + CVBS + COMPONENT 1/2
2	AC-in	7	Audio L/R + CVBS + COMPONENT 1/2
3	HDMI	8	Audio L/R + CVBS 1/2 + S-Video
4	VGA-in	9	Analog antenna
5	PC Audio-in		

AT4220 Rear Panel View
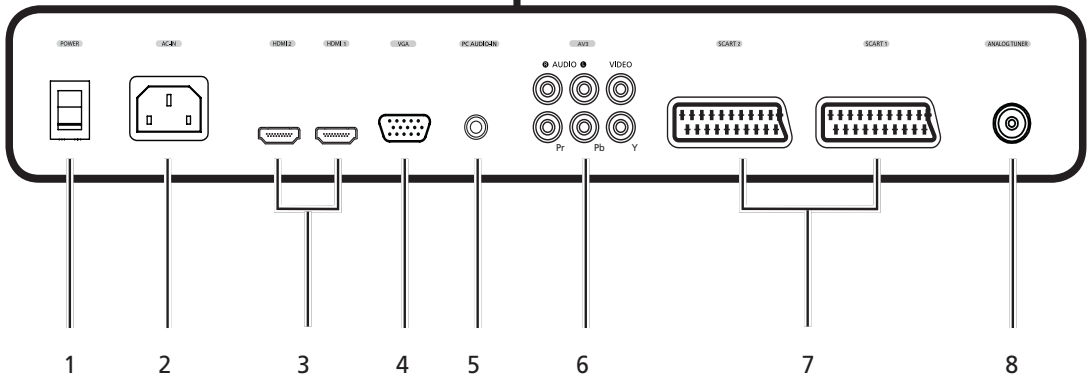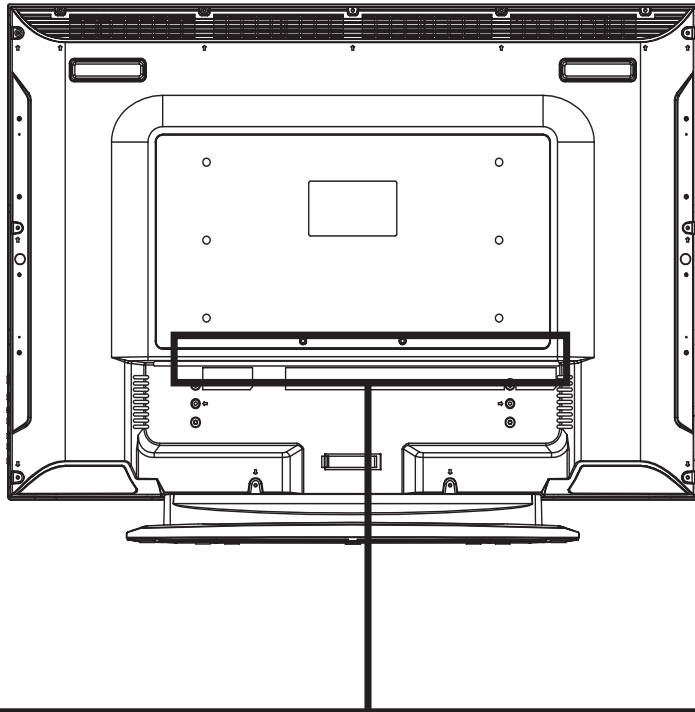
#	Item	#	Item
1	Power switch	5	PC Audio-in
2	AC-in	6	AV-Audio L/R + CVBS + COMPONENT
3	HDMI	7	SCART
4	VGA-in	8	Analog antenna

Remote Control

AT4220A

#	Item	Description
1	POWER	Press to turn your TV on/off.
2	DISPLAY	Press to display input/channel information (dependent on input/source type).
3	MUTE	Press to toggle audio on and off.
4	Input buttons (TV/AV/COMPONENT/PC)	Press to select correct input mode.
5	SLEEP	Press to set a time period after which the TV will switch itself to standby (15, 30, 45, 60, 90 or 120 minutes).
6	Number keys	Press to select the TV channel.

7	RECALL	Press to return to the previous channel.
8	ENTER	Press to confirm channel number selection.
9	MENU	Press to open or close the Menu.
10	CC	Press to select close caption and text service between CC1, CC2, CC3, CC4, Text1, Text2, Twxt3, Text4.
11	Directional keys/OK VOL (up/down) CH (up/down)	N/A
12	WIDE	Press to toggle scaling mode between 4:3, 16:9, Panorama and Letterbox 1, 2, 3 modes.
13	MTS	Press to switch the sound system between stereo, main and SAP. Information is displayed on the top right-hand corner.
14	e (Empowering Technology)	Press to activate Acer Empowering Technology.
15	VOL (+/-)	Press to increase or decrease the volume.
16	CH (up/down)	Press to sequentially select the TV channel.
17	PIP/PBP/POP	Switch between PIP/PBP/POP modes.
18	SWAP	For PIP/PBP mode: Toggle between the primary and sub-screens.
19	ACTIVE	Toggle between primary and sub-screens.
20	POSITION	When in PIP mode: Change sub-screen position.
21	SIZE/MODE	When in PIP mode: Change sub-screen size. When in POP mode: Switch POP mode from 1+5 to 1+12.

AT4220B

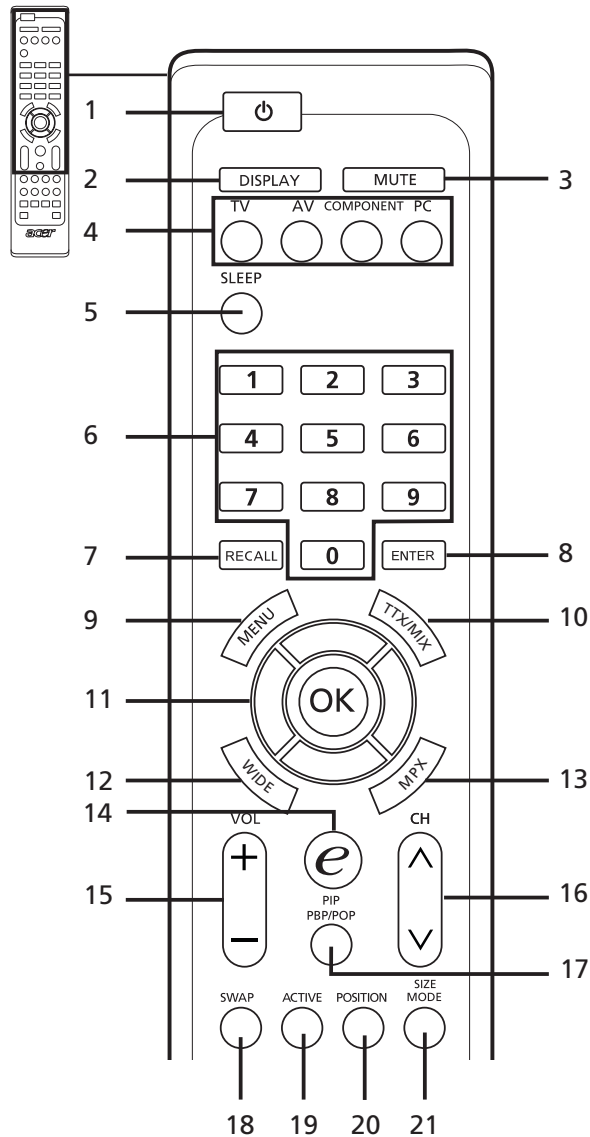| #	Item	Description
1	POWER	Press to turn your TV on/off.
2	DISPLAY	Press to display input/channel information (dependent on input/source type).
3	MUTE	Press to toggle audio on and off.
4	Input buttons (TV/AV/COMPONENT/PC)	Press to select correct input mode.
5	SLEEP	Press to set a time period after which the TV will switch itself to standby (15, 30, 45, 60, 90 or 120 minutes).
6	Number keys	Press to select the TV channel.
7	RECALL	Press to return to the previous channel.
8	ENTER	Press to confirm channel number selection.

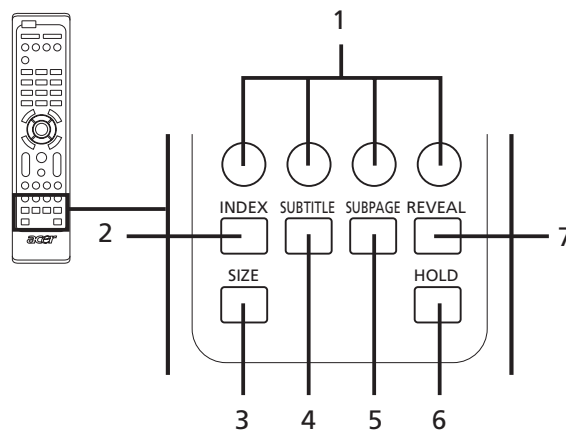| 9	MENU	Press to open or close the Menu.
10	TTX/MIX (TELETEXT/ MIX)	Press to return to the previous channel.
11	Directional keys/OK VOL (up/down) CH (up/down)	N/A
12	WIDE	Press to toggle scaling mode between 4:3, 16:9, Panorama and Letterbox 1, 2, 3 modes.
13	MPX	Press to select the sound input, displayed in the top right-hand corner (mono, stereo, bilingual).
14	e (Empowering Technology)	Press to activate Acer Empowering Technology.
15	VOL (+/-)	Press to increase or decrease the volume.
16	CH (up/down)	Press to sequentially select the TV channel.
17	PIP/PBP/POP	Switch between PIP/PBP/POP modes.
18	SWAP	For PIP/PBP mode: Toggle between the primary and sub-screens.
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20	POSITION	When in PIP mode: Change sub-screen position.
21	SIZE/MODE	When in PIP mode: Change sub-screen size. When in POP mode: Switch POP mode from 1+5 to 1+12.

Teletext

#	Item	Description
1	Color buttons (R/G/Y/B)	Operates corresponding button on the teletext page.
2	INDEX	Press to go to the index page.
3	SIZE	Press once to zoom teletext page to 2X. Press again to resume.
4	SUBTITLE	Press to view subtitles on the screen.
5	SUBPAGE	Press to access the teletext's sub-pages directly.
6	HOLD	Press to pause the current teletext page in multi-page viewing mode.
7	REVEAL	Press to reveal hidden teletext information.

AT4220

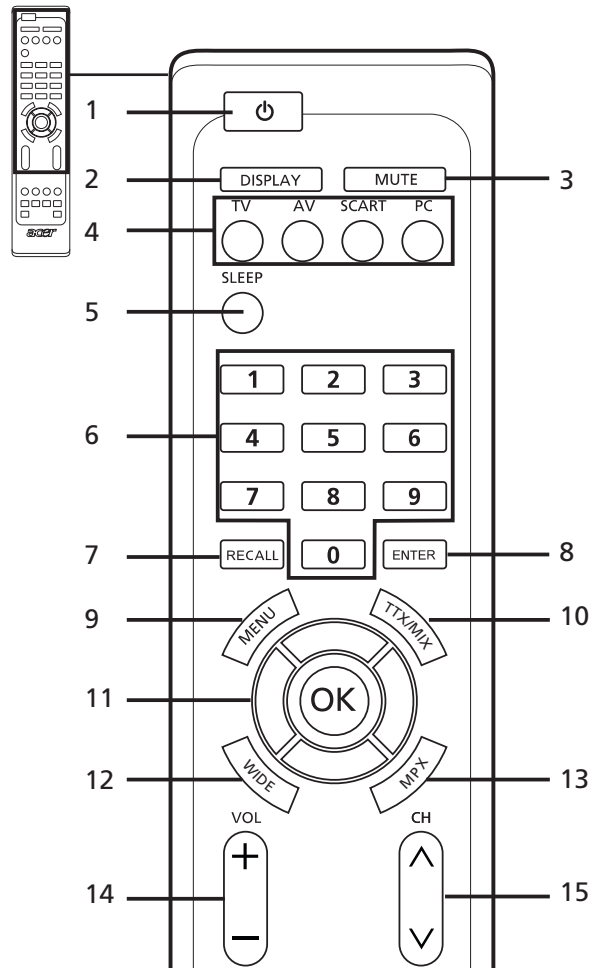| #	Item	Description
1	POWER	Press to turn your TV on/off.
2	DISPLAY	Press to display input/channel information (dependent on input/source type).
3	MUTE	Press to toggle audio on and off.
4	Input buttons (TV/AV/SCART/PC)	Press to select correct input mode.
5	SLEEP	Press to set a time period after which the TV will switch itself to standby (15, 30, 45, 60, 90 or 120 minutes).
6	Number keys	Press to select the TV channel.
7	RECALL	Press to return to the previous channel.
8	ENTER	Press to confirm channel number selection.
9	MENU	Press to open or close the Menu.
10	TTX/MIX (TELETEXT/MIX)	Press to return to the previous channel.

11	Directional keys/OK VOL (up/down) CH (up/down)	N/A
12	WIDE	Press to toggle scaling mode between 4:3, 16:9, Panorama and Letterbox 1, 2, 3 modes.
13	MPX	Press to select the sound input, displayed in the top right-hand corner (mono, stereo, bilingual).
14	VOL (+/-)	Press to increase or decrease the volume.
15	CH (up/down)	Press to sequentially select the TV channel.

Teletext

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6	HOLD	Press to pause the current teletext page in multi-page viewing mode.
7	REVEAL	Press to reveal hidden teletext information.

Basic Connection

Connecting the Power Cord

1. Connect the AC cord into the AC input on the back of the set.
2. Connect the male plug to the wall outlet as shown.

For AT4220A
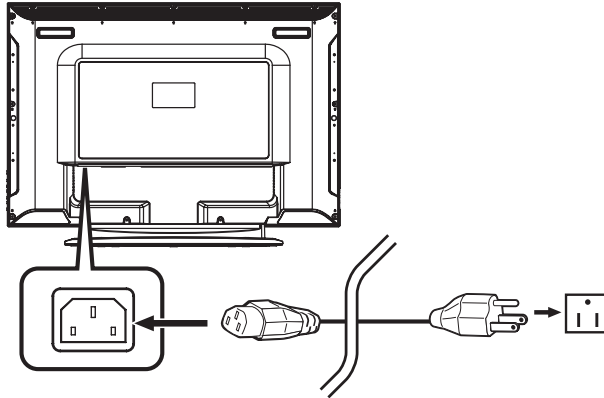
For AT4220B

For AT4220
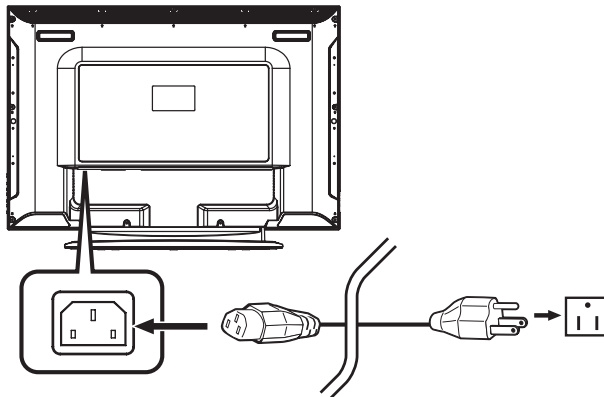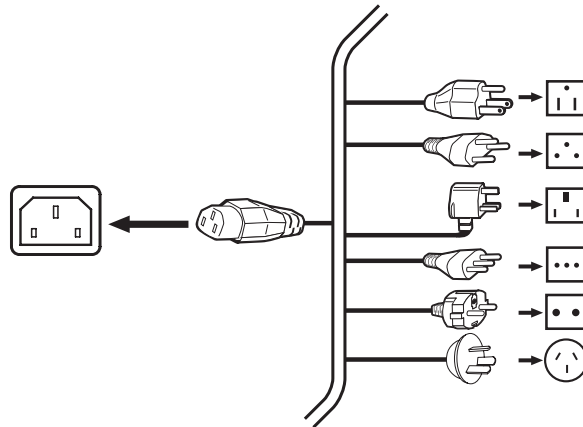
Connecting an Antenna/Cable

Connect the antenna cable to the appropriate antenna terminal on the back of the TV set as shown below.
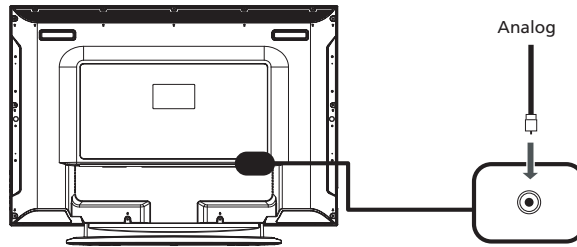
Getting Started Watching Your TV
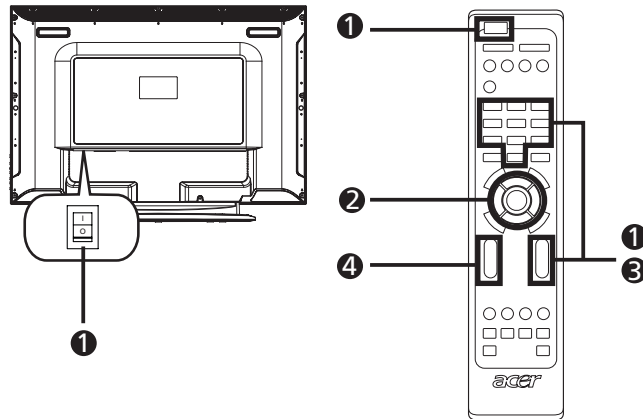
1. Select the setup language you prefer.

2. Please select country.

3. Ensure that your co-axial cables connected correctly before proceeding.

4. Scan for analog channels.

5. Setup is now complete. You are ready to begin watching TV.

If you leave the setup process before it is complete, you will be given a choice of options:

1. Resume setup.

2. Resume setup wizard at next startup.

3. Exit and do not remind me.

Select an option and press OK to exit.

#	Description
1	Power a. Turn on the power switch beneath the screen. b. Press the power button, number keys or channel up/down button on the remote control. good
2	Setup Wizard The first time you switch on the TV, the Setup Wizard will guide you to complete the language selection and channel scanning. Press OK key to begin the setup process.
3	Changing channels a. Press 0-9 on the remote control to select a channel. The channel changes after 2 seconds. Press ENTER to select the select the channel immediately. b. Pressing the channel (CH) up/ down button on the remote control will also change the channel.
4	Adjusting the volume Adjust the volume level using the (VOL) +/- button on the remote control.

Connecting External Audio/Video Device

Connecting a DVD, VCR, STB or Audio/Video Equipment

Connect your DVD player, VCR or audio/video equipment using the SCART port located at the rear of your LCD TV as shown below.

For AT4220A

Source-IN
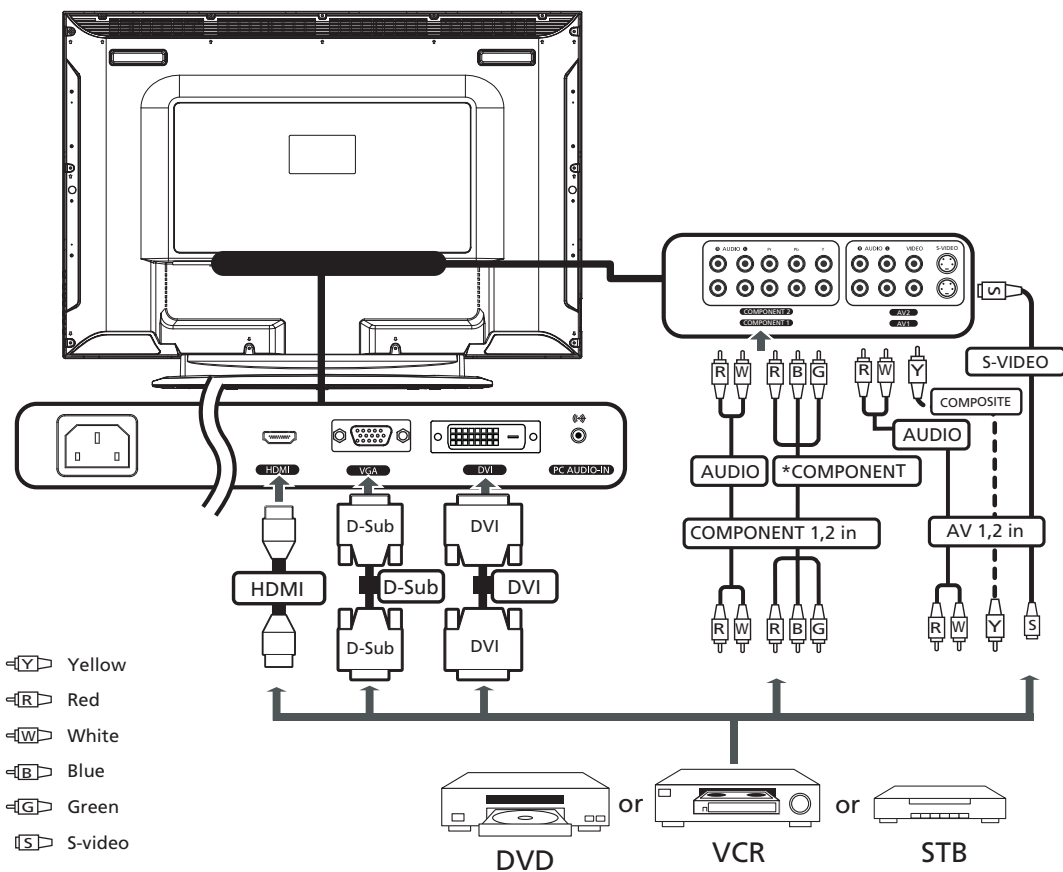
Note: Acer recommends the following priority for connection types: HDMI > D-sub > COMPONENT > S-Video > Composite.

For AT4220B

- ◁Y▷ Yellow
- ◁R▷ Red
- ◁W▷ White
- ◁B▷ Blue
- ◁G▷ Green
- ◁S▷ S-video

For AT4220

Source-IN

⊲Y▷	Yellow
⊲R▷	Red
⊲W▷	White
⊲B▷	Blue
⊲G▷	Green
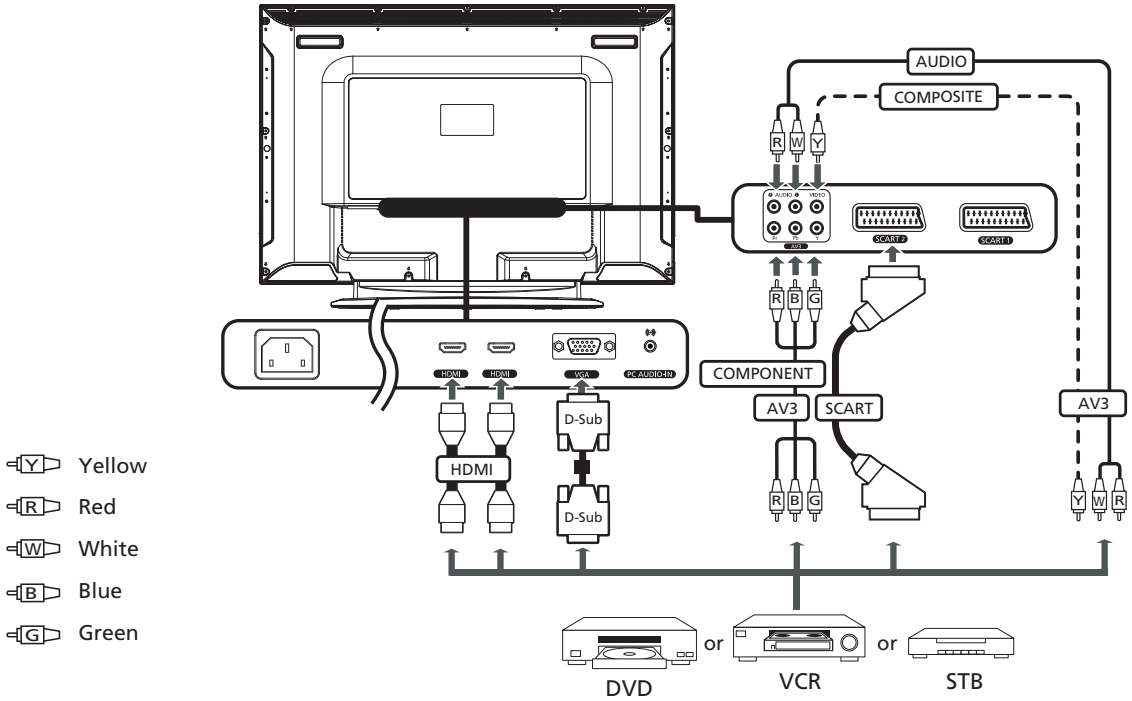
Note: Acer recommends the following priority for connection types: HDMI > COMPONENT > SCART > Composite.

TV-OUT
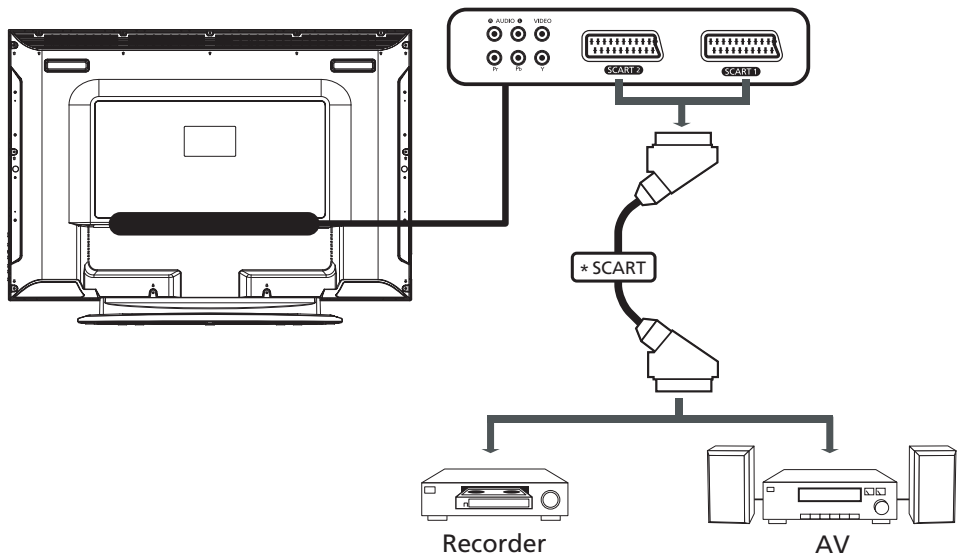
Note: SCART-out only works with analog broadcasts.

Connecting a Camera, Camcorder or Video Game

Connect your camera or camcorder to the video/audio ports on the rear of the TV set as shown below.
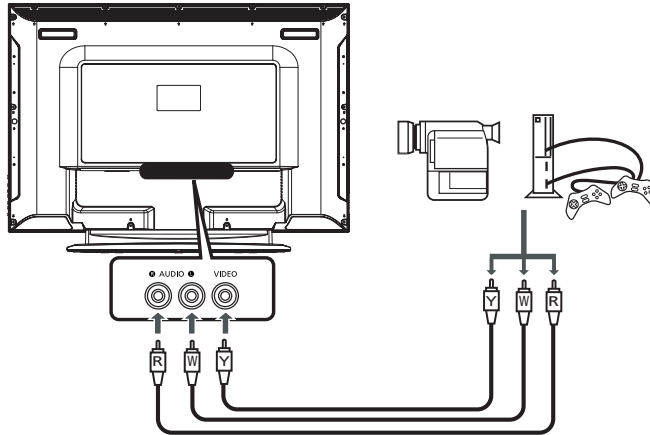
Connecting a PC or Notebook Computer

To display PC output on your TV, please connect your PC or notebook computer to the TV as shown below.

For AT4220A
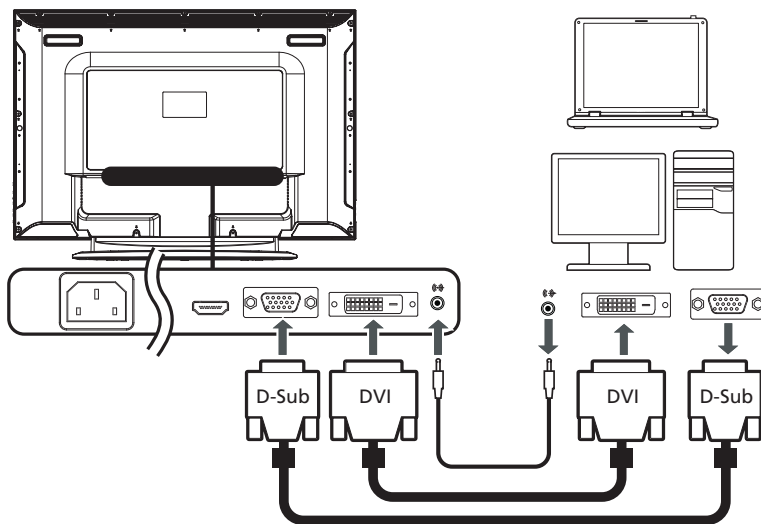
> **Note:** For VGA and DVI input, Acer recommends setting your PC's external monitor resolution to 1360 x 768 at 60Hz.

For AT4220B
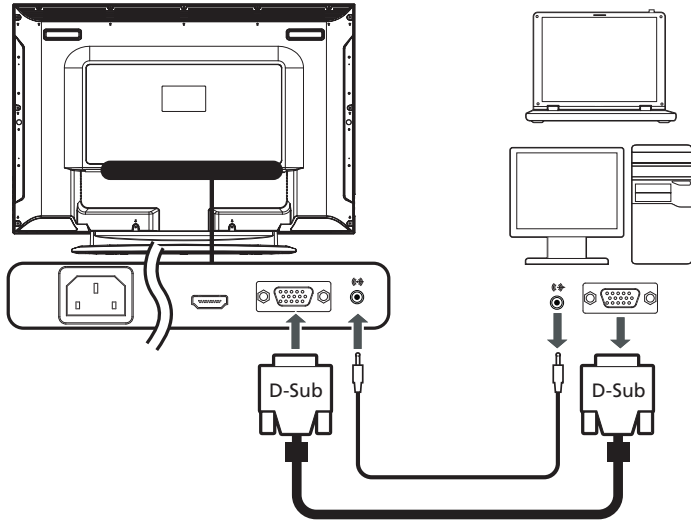
For AT4220
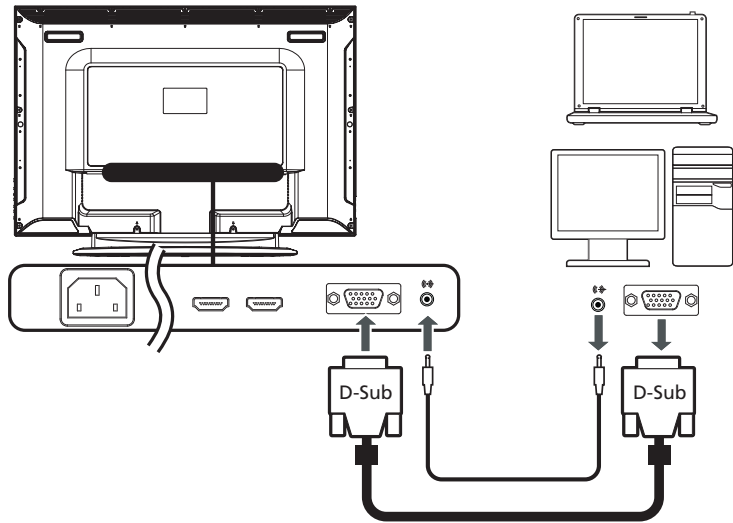
Selecting the Input Source

Once you have connected your antenna or external equipment to the TV, you need to select the correct input source. Press the corresponding button on the remote control to select the correct input source.

For AT4220A/AT4220B
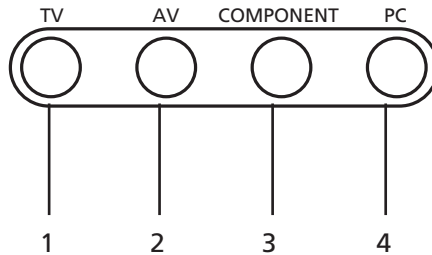
#	Item	Input Button Guide
1	TV key	Toggle Analog TV (ATV) between input sources.
2	AV key	Toggle AV1, AV2, AV3-CVBS* and HDMI between input sources.
3	COMPONENT key	Toggle COMPONENT 1, COMPONENT2 and AV3-COMPONENT* between input sources.
4	PC key	Toggle VGA between input sources.

For AT4220
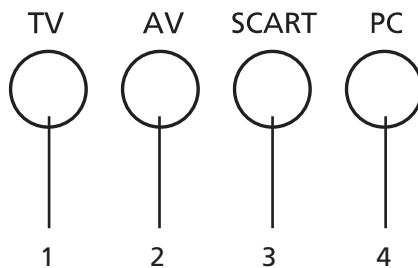
#	Item	Input Button Guide
1	TV key	Toggle Analog TV (ATV) between input sources.
2	AV key	Toggle AV1, AV2, AV3-CVBS* and HDMI between input sources.
3	COMPONENT key	Toggle COMPONENT 1, COMPONENT2 and AV3-COMPONENT* between input sources.
4	PC key	Toggle VGA between input sources.

OSD Navigation

Many of the advanced settings and adjustments are available through using the OSD (on-screen display) menus, as shown in the example screenshot below.

Basic operations required to navigate these menus (Picture, Audio, Channel management)

Navigating the OSD with the Remote Control
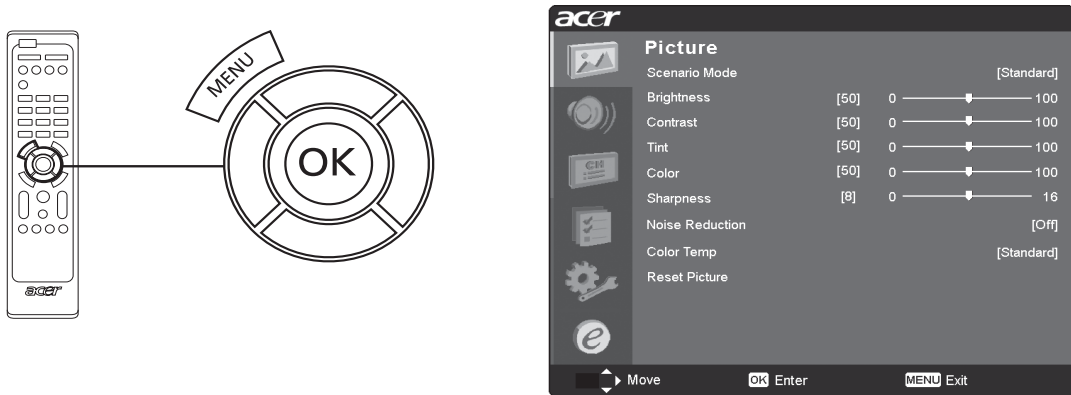
Note: You can also interact with these menus using the front panel controls. Please see "Front Panel View" section for details.

No.	Icon or Display	Description
There are six main OSD menus. These are: Picture, Audio, Channel management, Options, Settings and Empowering. Use the following method to navigate these menus.		
1		Press the **MENU** button on the remote control or the **MENU** button on the control panel.
2		Select your desired menu by using the up and down **directional keys** to switch between the six menus.
3		Use the directional keys to interact with the menu. The up / down directions will scroll through the menu options, while left / right will adjust the different settings (for example, in the Picture menus, settings such as brightness, contrast, etc.) Press **MENU** to exit.

Adjusting the OSD Settings

The OSD can be used for adjusting the settings of your LCD TV. Press the MENU key to open the OSD. You can use the OSD to adjust the picture quality, audio settings, channel settings, options,

general settings, and Empowering Technology. For advanced settings, please refer to following page.

Adjusting the Picture Quality	
	1. Press the **MENU** key to bring up the OSD. 2. Using the directional keys, select **Picture** from the OSD. Then navigate to the picture element you wish to adjust. 3. Use the left or right keys to adjust the sliding scales. 4. The **Picture** menu can be used to adjust the current Scenario mode, brightness, contrast, color, sharpness and other image-related qualities.
Adjusting the Audio Settings	
	1. Press the **MENU** key to bring up the OSD. 2. Using the directional keys, select **Audio** from the onscreen display. Then navigate to the feature you wish to adjust. 3. Use the left or right keys to adjust the sliding scale. Press **OK** to save. 4. The **Audio** menu can also be used to adjust the treble, balance, sound effects and other important sound-related settings.
Adjust the Channel Management	
	1. Press the **MENU** key to bring up the OSD. 2. Using the directional keys, select **Channel management** from the OSD. 3. Use the directional keys to navigate the menus. 4. The **Channel management** menu can be used to set channel skipped, select TV system and scan channels automatically.
Adjusting other Options	
	1. Press the **MENU** key to bring up the OSD. 2. Using the directional keys, select **Options** from the OSD. 3. Use the directional keys to navigate the menus. 4. The **Options** menu can be used to select the picture aspect-ratio mode, set the sleep timer and other important options.
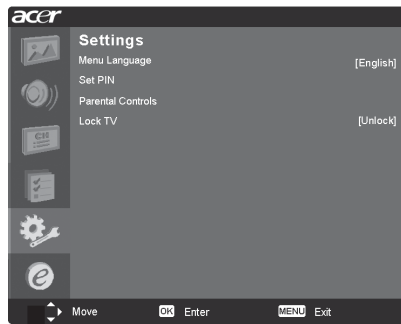
Adjusting the Settings	
	1. Press the **MENU** key to bring up the OSD. 2. Using the directional keys, select **Settings** from the OSD. Then navigate to the feature you wish to adjust. 3. The **Settings** menu can be used to adjust the menu language and other important settings.

Note: The options available on the OSD may vary depending on the TV signal source.
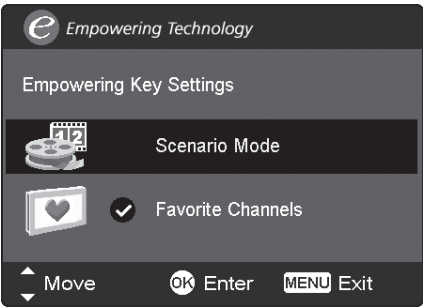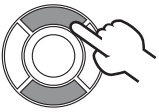
Empowering Technology
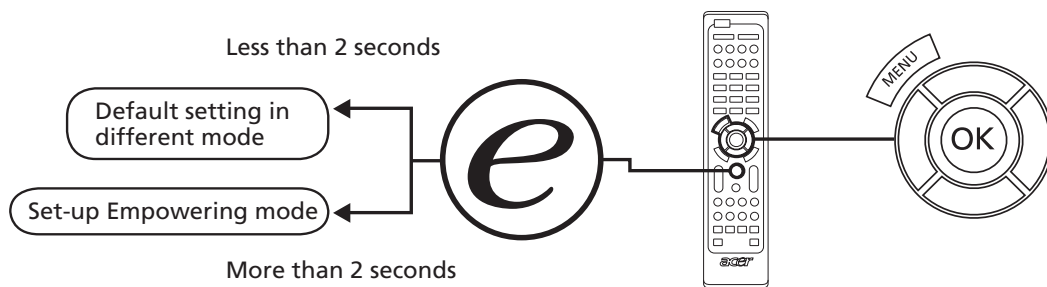
The Empowering Key brings up the Acer Empowering Technology functions. In TV mode, the choice is between Scenario mode and Favorite channel.

Set-up Empowering Mode

To change your Empowering Key's default setting:

1		Press and hold the **Empowering Key** for more than **two seconds** to open the menu.
2	*Empowering Technology* Empowering Key Settings Scenario Mode ✓ Favorite Channels ▲ Move OK Enter MENU Exit	**TV mode** Empowering Key settings menu will come out.
3		Use the **directional keys** to navigate the menu and select the Empowering Technology icon.
4		Press **MENU** to exit. Now, when you press the Empowering Key, your chosen selection will be accessed.

Default Setting in Different Empowering Mode

Scenario mode in TV (Default Setting)
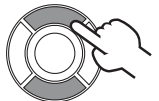
Scenario mode has five preset viewing modes designed to give you the best picture quality when watching a particular kind of program. There are five pre-defined audio and video setting for

optimal enjoyment of the following scenario: Standard TV, Movie, Sport, Concert, Game, and User.

	Pressing the **Empowering Key** for less than **two seconds** will toggle between the different modes.

Mode	Information
Standard	Standard mode allows you to watch your favorite channels with sharp, brilliant imagery via adaptive brightness and contrast adjustments, and listen to clear-sounding audio.
Movie	For comfortably enjoying movies at home, Move mode displays dim scenes in clear detail; compensates for color; and smoothly presents motion images. This is accomplished through optimal Gamma correction plus saturation, brightness and contrast adjustments. Movie mode makes the most of high-definition movie sound tracks.
Game	Game mode carefully details the exquisite graphics of modern video games, providing lifelike entertainment while protecting your eyesight by adjusting brightness and contrast. What's more, Game mode provides a heightened audio experience.
Sports	Sports mode us suited for outdoor sports program, with accurate background depth and clear gradation between the bright, outdoor playing field and darker auditoriums. Sports mode also brilliantly enhances colors and preset swiftly moving pictures without residual images. All of this is achieved via specific Gamma corrections and saturation adjustments. Precise audio can be heard.
Concert	Concert mode places you in a virtual concert hall, opera house or other dim environment by means of adaptive brightness and contrast adjustments. Concert mode accentuates symphonic harmonies and the tenor audio range.

Favorite Channel Mode in TV

Storing Favorite channels		
1		Select your desired channel, then press the **MENU** key on the remote control.
2		Use the directional keys to navigate the menu and select the Empowering Technology icon.
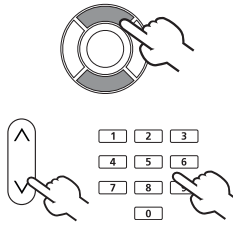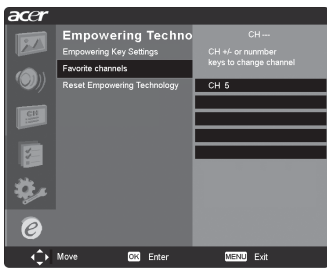
3	Navigate to a channel slot, use CH up/down button or number key to change channel. There are a total of five slots in which you can store TV programs.

Viewing Your Favorite Channels	
	On the remote control, if you press the **Empowering Key** for less than two seconds, the TV will toggle between the five stored TV channels sequentially according to your list of favorites.

Advanced Features

PIP/PBP/POP

- Press the PIP/PBP button once to display activate picture-in-picture (PIP).
- Press twice to activate picture-by-picture (PBP).
- Press three times to activate picture-on-picture (POP). Then, the POP screens will display the TV channel programs one by one.

PIP (Picture-in-Picture)   PBP (Picture-by-Picture)   POP (Picture-on-Picture)
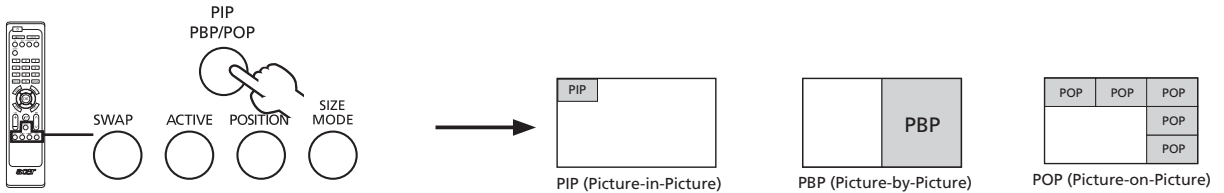
Note: The OSD menu is not available in PIP/POP/PBP modes.

PIP		1. Press the **ACTIVE** key to toggle between PIP screens. 2. Press the **TV**, **AV**, **COMPONENT** or **PC** keys, number keys or **CH** up or down to change the content of the active screen.
		3. Press the **SWAP** key to change the content between the primary and the subscreen.
		4. Press the **POSITION** key to select the location of the subscreens, from upper left > upper right > lower right> lower left, as shown in the image.
		5. Press the **SIZE/MODE** key to select the size of the subscreen, from 25% > 37.5% > 50%, as shown in the image.

PBP		1. Press the **ACTIVE** key to toggle between PIP screens. 2. Press the **TV**, **AV**, **COMPONENT** or **PC** keys, number keys or **CH** up or down to change the content of the active screen.
		3. Press the **SWAP** key to change the content between the primary and the PBP screen.
POP		1. Press the **ACTIVE** key to toggle between POP screens. 2. Press the number keys or **CH** up or down to change TV channel on the active screen.
		3. Press the **SIZE/MODE** key to access the 1+5 or 1+12 picture-on-picture mode as shown in the image.

Note: In PIP and PBP, the VGA and DVI sources only support input up to 1360 x 768 pixels at 60Hz. For resolution higher than this, "Out of Range" will be displayed. The POP can only support 1+12 when the main screen source is HD content in VGA mode.

Lock TV

Locking TV Content

Lock TV is a handy feature that can block all TV sources. Lock TV allows you to enter a password and effectively stop anyone without the password from watching TV.
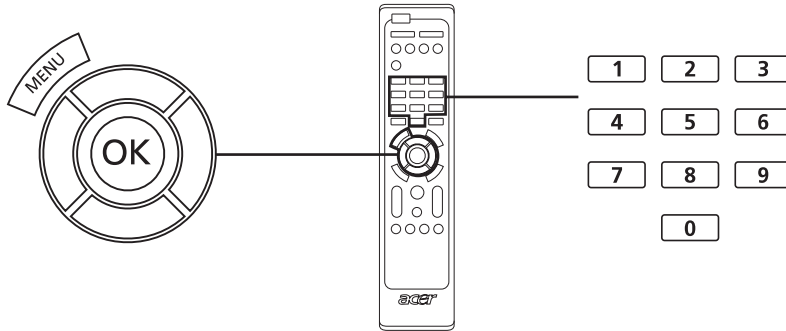
If you want to set a personal PIN, please follow the steps below.

1. Press the **MENU** key on the remote control to bring up the OSD.
2. Use the **directional keys** to navigate to the Settings menu. Then select **Set PIN**.
3. Enter a four-digit password. Type it again and press **OK** to reconfirm.
4. Press **MENU** to exit.

   Note: The default PIN for this TV is "0000." Enter "0000" when you want to change the PIN. If you forget your PIN, please enter 6163 to reset.

If you want to lock your TV, please follow the steps below.

1. Press the **MENU** key on the remote control to bring up the OSD.
2. Use the **directional key**s to navigate to the Settings menu. Then select **Lock TV**.
3. Enter your PIN. Type it again and press **OK** to reconfirm.

Hardware Specification and Configuration

Electro/Optical

Model	AT4220A
Resolution (pixels)	1366 x 768
Brightness (tpe.)	500 nits
Contrast ratio (tpe.)	1200/1
Display color	16.7 million
Viewing angle	H: 178 degrees V: 178 degrees
Response (tpe.)	8 ms (gray to gray)
Power supply	
Input	110V~240V 50~60Hz
Max. power consumption	291W
Power saving	5W
Mechanical	
Dimensions (W x H x D mm)	1071 x 794 x 311
Weight (Kg)	32.3
Weight (lbs)	71.15
Wall mounting	400 mm x 200 mm
Analog TV system	
TV color system	NTSC
Sound system	M
Stereo system	BTSC/A2
Closed caption	Yes
V-chip	US/Canada
Analog TV-tuner quantity	1
Terminal	
Analog tuner in	Yes
AV1	CVBS, S-Video, Audio R/L
AV2	CVBS, S-Video, Audio R/L
COMPONENT1	YPbPr/YCbCr, Audio R/L
COMPONENT2	YPbPr/YCbCr, Audio R/L
HDMI	Yes (HDCP)
DVI	Yes (HDCP)
VGA	Yes
PC audio-in	Yes
Audio system	
Speaker	10W + 10W

Firmware Specifications

Preset Mode for VGA Input

16 factory preset modes for VGA inputs are saved during the manufacturing process.

Preset mode	Pixel Format	Hor. Freq. (kHz)	Hor. Polarity	Vert. Freq. (Hz)	Vertical Polarity	Standard
1	720*400	31.47	-	70	+	VGA
2	640*480	31.47	-	60	-	VGA
3	640*480	37.861	-	72	-	VESA
4	640*480	37.50	-	75	-	VESA
5	640*480	43.4	-	85	-	VESA
6	800*600	35.156	-	56	+	VESA
7	800*600	37.879	+	60	+	VESA
8	800*600	48.077	+	72	+	VESA
9	800*600	46.875	+	75	+	VESA
10	800*600	53.7	+	85	+	VESA
11	1024*768	48.363	-	60	-	VESA
12	1024*768	56.476	-	70	-	VESA
13	1024*768	60.023	+	75	+	VESA
14	1366*768	47.7	+	60	+	VESA
15	832*624	49.7	-	75	-	MAC
16	1024*768	60.2	-	75	-	MAC

Power Saving

While VGA is selected to input, this LCD TV is equipped with a power management according to VESA DPMS. There is a delay of 30 seconds before the transition from on-state to power saving state to avoid unintentionally entering of a power saving state during display resolution and timing mode changes. During the period of delay, the LED shall indicate green color and OSD will show "No VGA connection". Transition from any power saving state to another can be instantaneous. The recovery from off-state requires no manual power on.

Mode	Hsync	Vsync	Video	Power	Indication	Recovery time
Power-On	On	On	Active	< 180W	Green	--
Stand-by	Off	On	Off	< 5W	Red	<5s
Suspend	On	Off	Off	< 5W	Red	<5s
Off-state	Off	Off	Off	< 5W	Red	<5s
Power off	×	×	×	< 5W	Dark	Turn on < 5s

- Sync on: normal operation
- Sync off:

- Hsync: f < 1KHz, duty cycle > 25%
- Vsync: f < 10Hz, duty cycle > 25%

The power consumption is valid over the specified voltage and frequency range. Power consumption is measured from AC source. There are no power saving modes for TV, AV1, AV2, COMPONENT 1 and 2, DVI and HDMI inputs.

Performance Specifications

The performance is checked at 25°C environment.

White Balance and Uniformity

Set contrast and brightness at maximum.

- Standard: 10000 degree K (x=280, y=288) on x and y value.
- Warm: 6500 degree K (x=312, y=329) on x and y value.
- Cold: 14000 degree K (x=263, y=273) on x and y value.

Display Area, Phase Center and Tilt

- Display area: 42 inches diagonal
- H-phase: A-B less than 1.5 mm
- V-center: C-D less than 1.5mm
- Tilt: E-F less than 1 mm
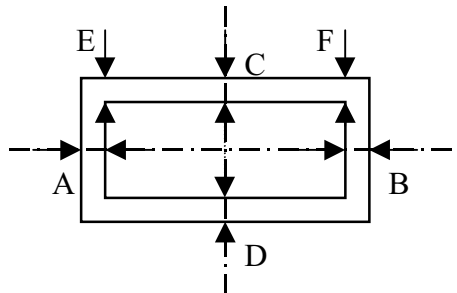
Max. Brightness

The brightness should exceed 350 Cd/m^2 while set both of contrast and brightness to max. and color temperature of Standard is selected. (Typical value would be at 400 Cd/m^2).

Acoustical Noise

With the display operation, the sound test is followed the ISO-7779 and shall be less than 35 dB/A in standard distance of 1 m. Also the display should not emit easily perceptible abnormal sounds.

Power Supply Electrical Specifications

Input Voltage and Frequency Range

- Operating range of line voltage: AC 90V to 264V, 47Hz to 63Hz
- Power consumption: under 291W

Line Fuse

The AC input shall be fused and become electrically open as a result of an unsafe current condition. This fuse is inside the power supply converter and is not user replaceable, and must be returned for replacement. This fuse shall be well-selected to handle inrush current for all combinations of line voltage and frequency.

Overall Dimension

Unit: mm
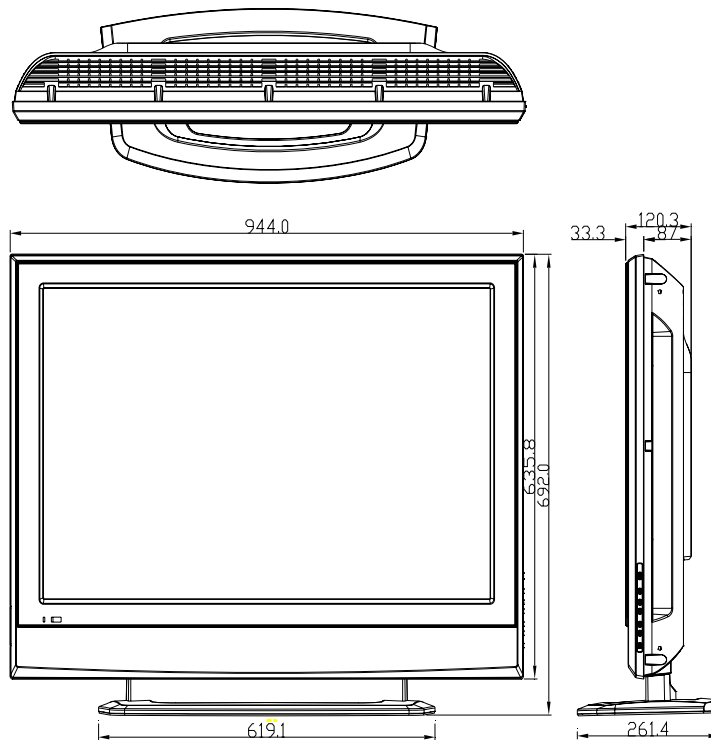
Environment Requirements

Operating	25° +/- 5° for purity, white point, mis-convergence, luminance measurements and white uniformity measurement	
	Operating temperature:	0°C to 35°C
	Operating humidity:	10% to 90% (non-condensing)
Storage and Shipping	Storage temperature:	-20°C to 60°C
	Shipping temperature:	-20°C to 60°C
	Storage humidity:	10% to 90% (non-condensing)
	Shipping temperature:	10% to 90% (non-condensing)
Altitude	Operating altitude:	0 to 12,000 feet
	Shipping altitude:	0 to 40,000 feet
	Storage altitude:	0 to 40,000 feet
	Units tested at an altitude up to 12,000 feet must operate at normal conditions without exhibiting abnormal behavior such as arcing or shutdown.	

Vibration Test

The packaged display shall be capable of passing sinusoidal vibration test below.

- Test conditions
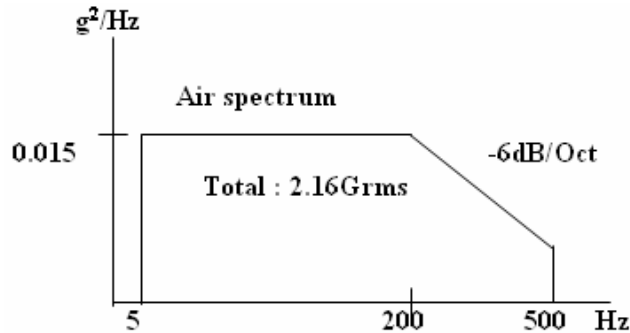
- A duration of 30 minutes in each orientation for the tested unit
  - Top and bottom side (z axis)
  - Left and right side (x axis)
  - Front and rear side (y axis)

Drop Test

The packaged display shall be capable of passing drop test as specified in following specification without any measurable degradation in performance or detectable mechanical or cosmetic damage.

Filter: 330 Hz

Dropping way: 1 corner, 3 edges, 6 flats

Dropping height: see the table below

Weight(kg)	Corner, edge, F,R,Btm(cm)	L,R,Up side(cm)
0~9	76	76
9~1	61	61
18~27	46	46
27~45	31	20
45~100	25	15

Multi Picture

We only support video on graphic (VGA) multi-picture function. The configuration for multi picture is listed and described as the tables below.

Main / Sub	TV	AV1	AV2	HDMI	Component 1	Component 2	VGA	DVI
TV	X	X	X	X	X	X	O	X
AV1	X	X	X	X	X	X	O	X
AV2	X	X	X	X	X	X	O	X
HDMI	X	X	X	X	X	X	O	X
Component 1	X	X	X	X	X	X	O	X
Component 2	X	X	X	X	X	X	O	X
VGA	O	O	O	O	O	O	X	O
DVI	X	X	X	X	X	X	O	X

O : support X: not support

POP(1+5,1+12) Main & Sub Screen Combination

Main / Sub	TV	AV1	AV2	HDMI	Component 1	Component 2	VGA	DVI
TV	X	X	X	X	X	X	O	X
AV1	X	X	X	X	X	X	X	X
AV2	X	X	X	X	X	X	X	X
HDMI	X	X	X	X	X	X	X	X
Component 1	X	X	X	X	X	X	X	X
Component 2	X	X	X	X	X	X	X	X
VGA	X	X	X	X	X	X	X	X
DVI	X	X	X	X	X	X	X	X

O : support X: not support

Machine Disassembly and Replacement

General Information

This chapter contains step-by-step procedures on how to disassemble the AT4220 series for maintenance and troubleshooting. To disassemble the TV, you need the following tools:

- Wrist grounding strap and conductive mat for preventing electrostatic discharge
- Small Philips screwdriver
- Philips screwdriver
- Hexagonal screwdriver
- Tweezers

   Note: The screws for the different components vary in size. During the disassembly process, please group the screws with the corresponding components to avoid mismatch when doing assembly. When you remove the boards, please be careful not to scrape them.

   Warning!The module is drived by high voltage. If you need to handle the module during operation or just after powered off, you must take proper precautions against electric shock and must not touch the drive circuit portion and metallic part of module within 10 minutes. The capacitors in the drive circuit portion remain temporarily charged even after the unit is powered off. If the residual voltage is strong enough, it could result in electric shock. Thus, we strongly suggest that you put on the wrist ground strap and put the component on the conductive mat or bag. Besides, please keep the unit grounded during the whole process of disassembly and assembly.

Before You Begin

Before you proceed with the disassembly procedure, make sure that you do the following steps:

1. Turn off the power to the TV and all peripherals.
2. Unplug the AC adaptor and all power and signal cables from the TV.

Disassembly Procedures

1. Release the four screws securing the TV Stand.
2. Then remove the TV Stand as the arrows indicate.
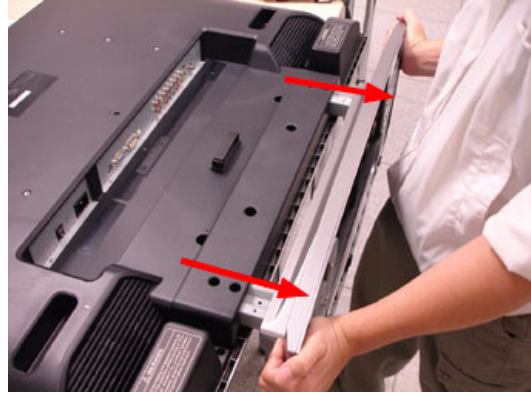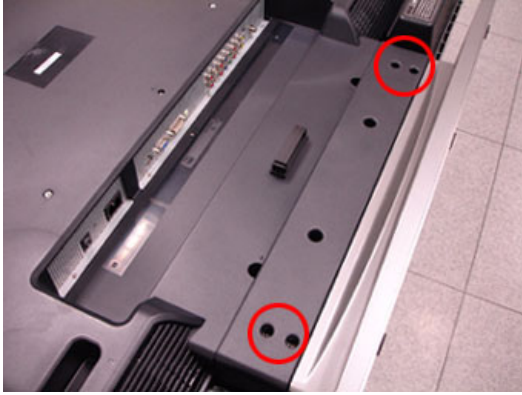
3. Release the two screws holding the TV Stand cover.
4. Then remove the TV Stand cover.

5. Release the four screws fastening the right speaker.
6. Push the latch as the arrow indicates and disconnect the right speaker cable then remove the right speaker.
7. Repeat step 5 and step 6 to remove the left speaker.
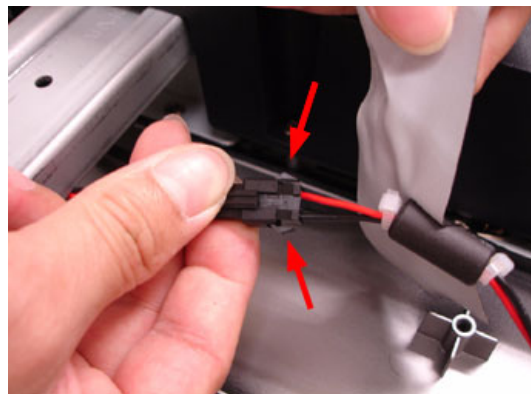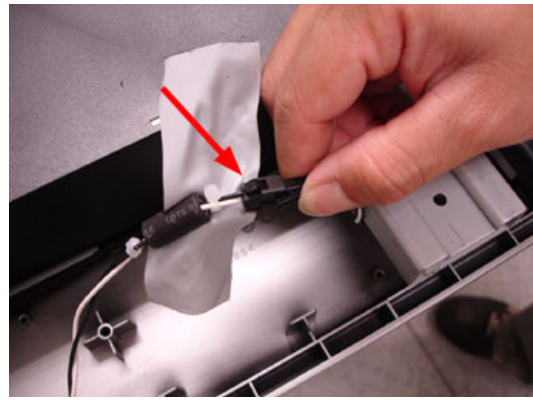
8. Release all the screws marked in red. Then lift the TV back cover as shown.
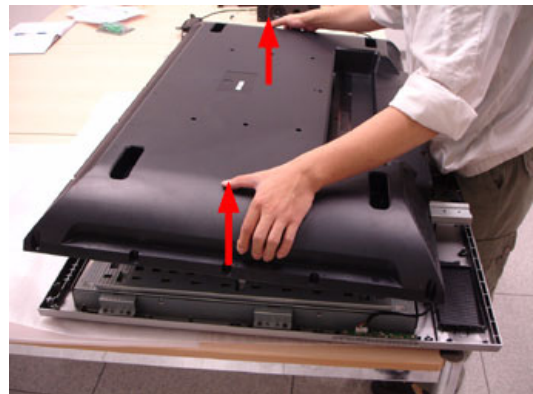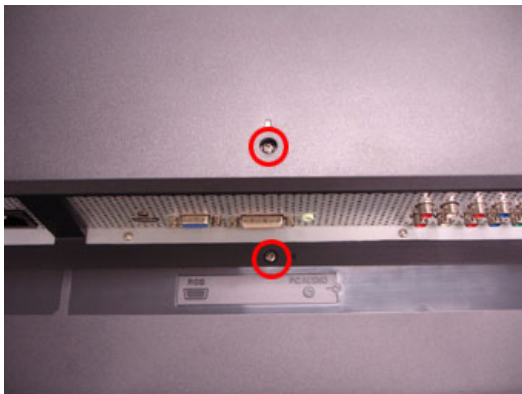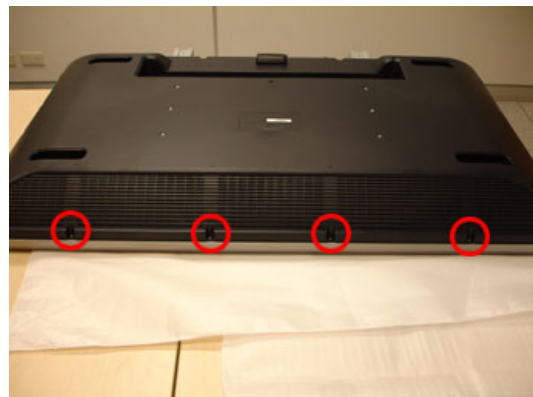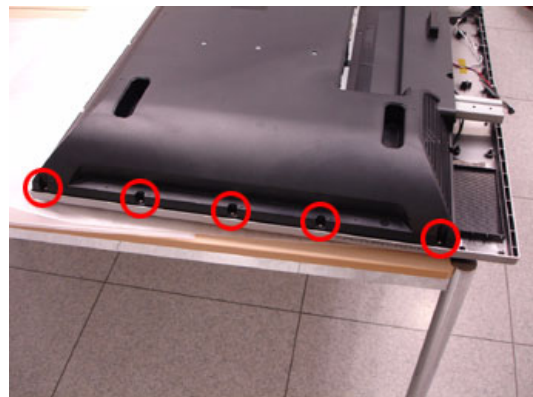
9. Release all screws securing the PCB holder.

10. Then remove the PCB holder as the arrows indicate.
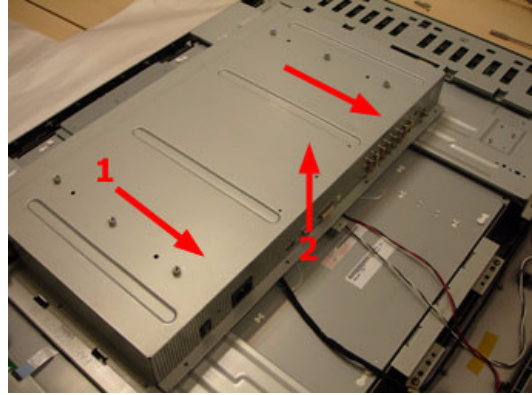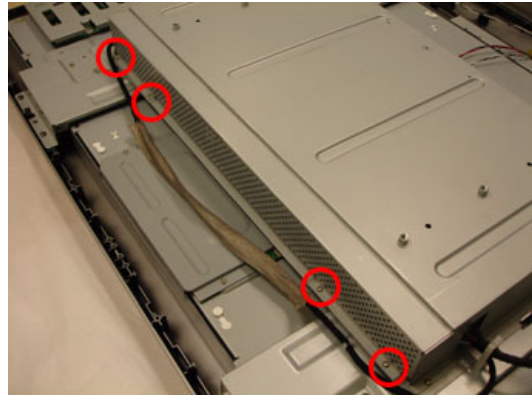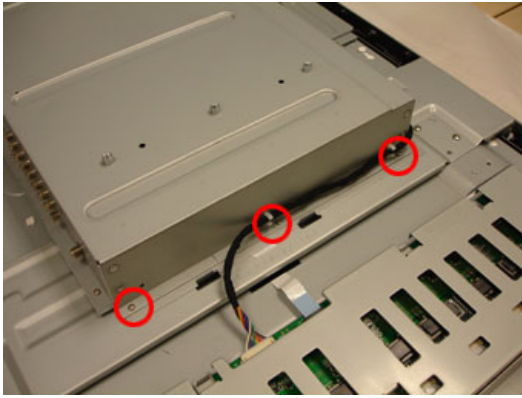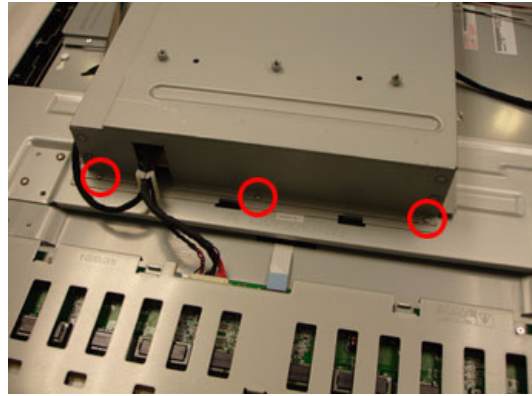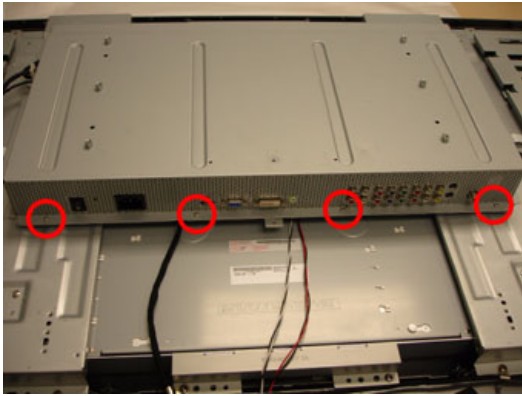
11. Release the four screws holding the I/O board.

12. Then detach the I/O board as the arrow indicates.
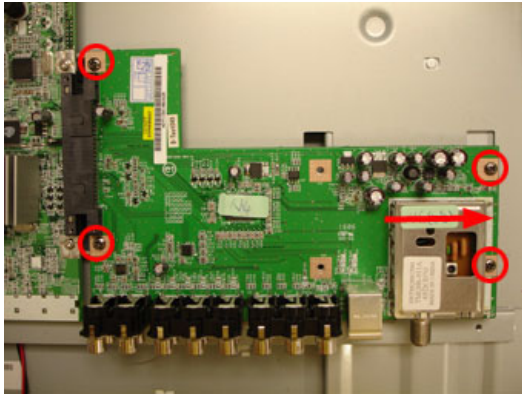
13. At first disconnect all the cables that connect to the main board.

14. Release the four screws fastening the main board then detach the main board.
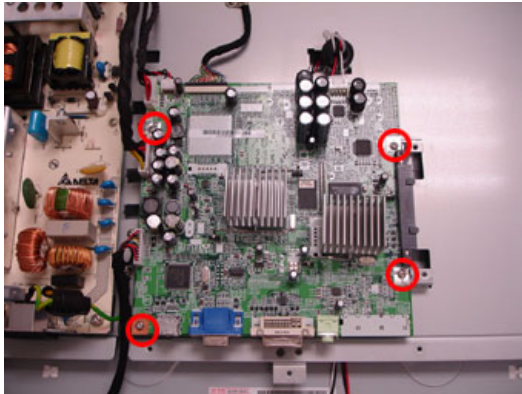
15. Release the eight screws fastening the power board and the grounded wire.

16. Then remove the power board.
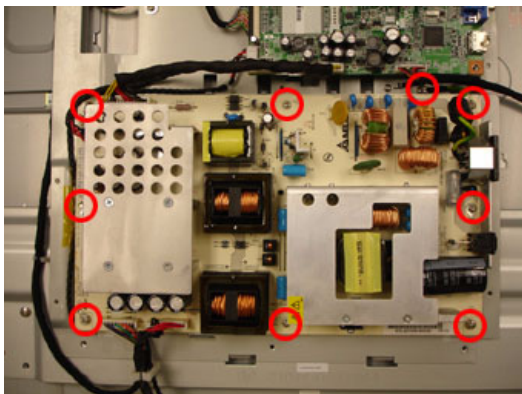
17. Release the two screws holding the IR board then detach the IR board.
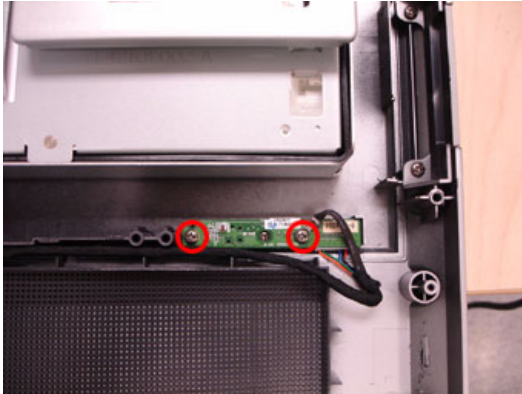
18. Release the three screws holding the button board then detach the function board.
19. Detach function key.
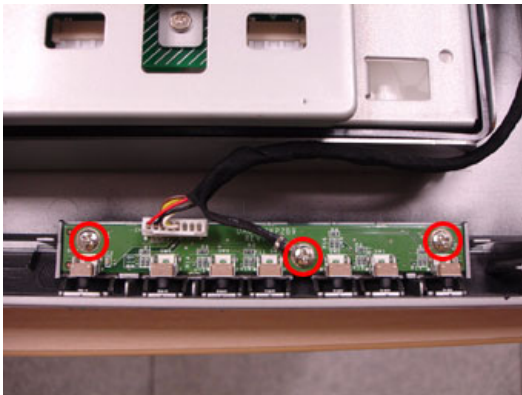
20. Disconnect the LVDS cable and release the four screws holding the PCB tray.
21. Then remove the PCB tray with LVDS cable.
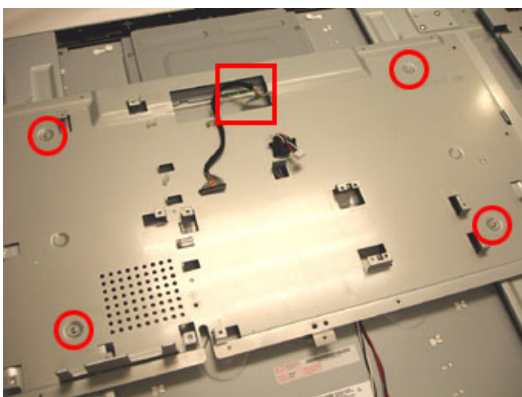
22. Release the five screws securing the right inverter bracket and the inverter board.
23. Carefully disconnect the ten inverter backlight cables and the inverter board FFC.
24. Then detach the right inverter board.
25. Repeat these steps to detach the left inverter bracket and the left inverter board.
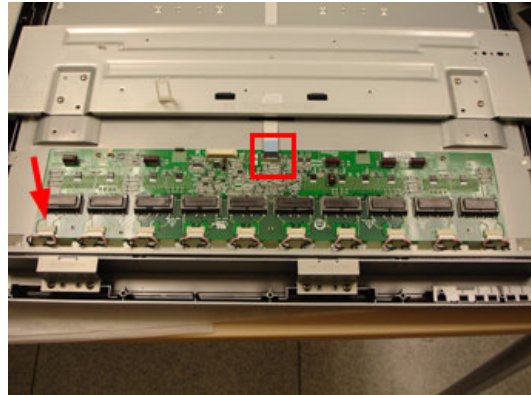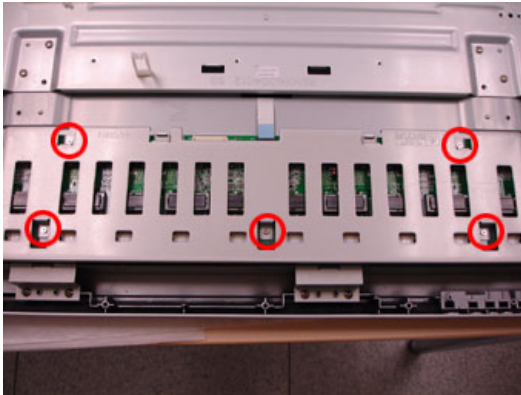
26. Release the screws marked in red then remove the right and the left LCD brackets.
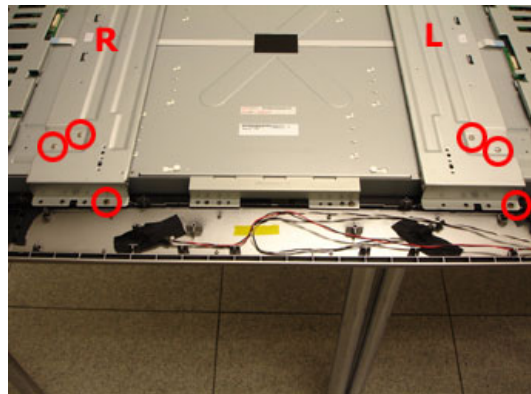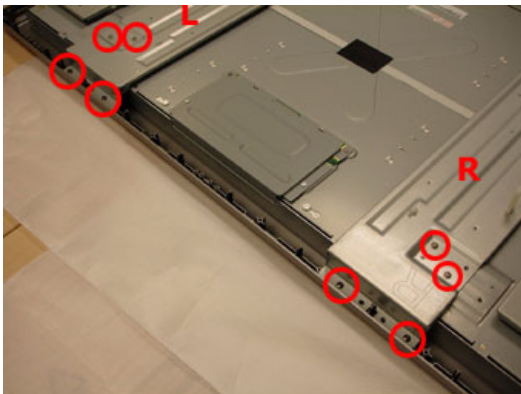
27. Release the eight screws holding the LCD then you can remove the LCD.
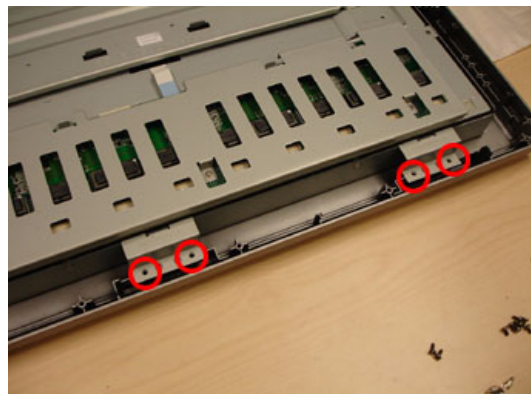
Board Placement

Please refer to this section to reconnect all cables when you do the assembly.
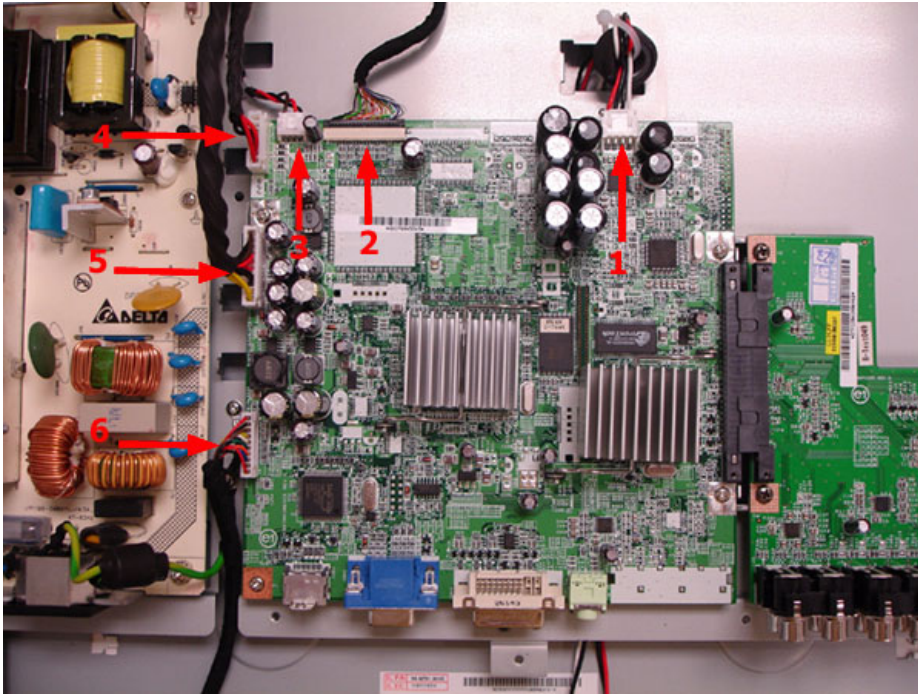
1. Speaker cable connector: The other ends of this cable link to the two speakers.
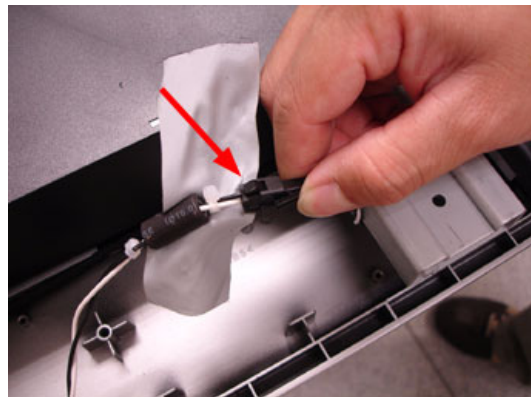
2. LVDS cable connector: The other end of this cable links to the LVDS board.
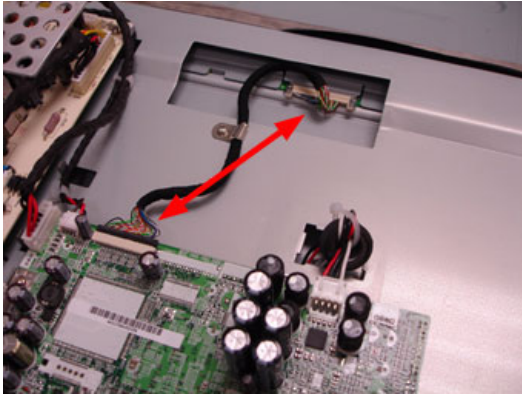
3. Inverter cable connector: This is a three-end cable. The other two ends link the right inverter and the power board. We define this cable as Inverter R to Power Board to Main Board. Please refer to the photos below.
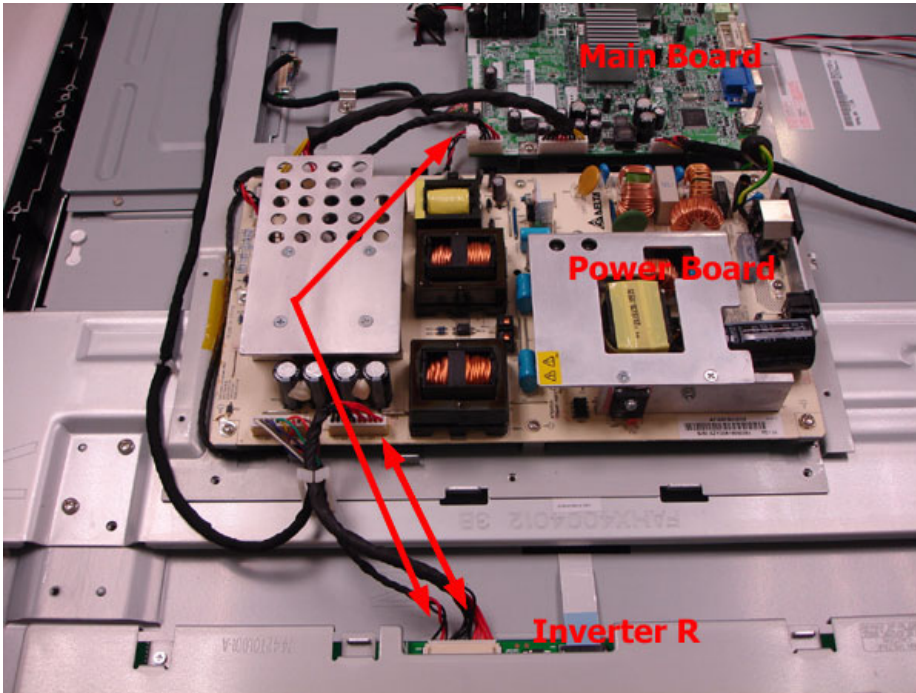
4. Main board to power board cable (eight pins and seven pins): The other end of this cable links to the power board.

5. Main board to power board cable (14 pins and 10 pins): The other end of this cable links to the power board too.
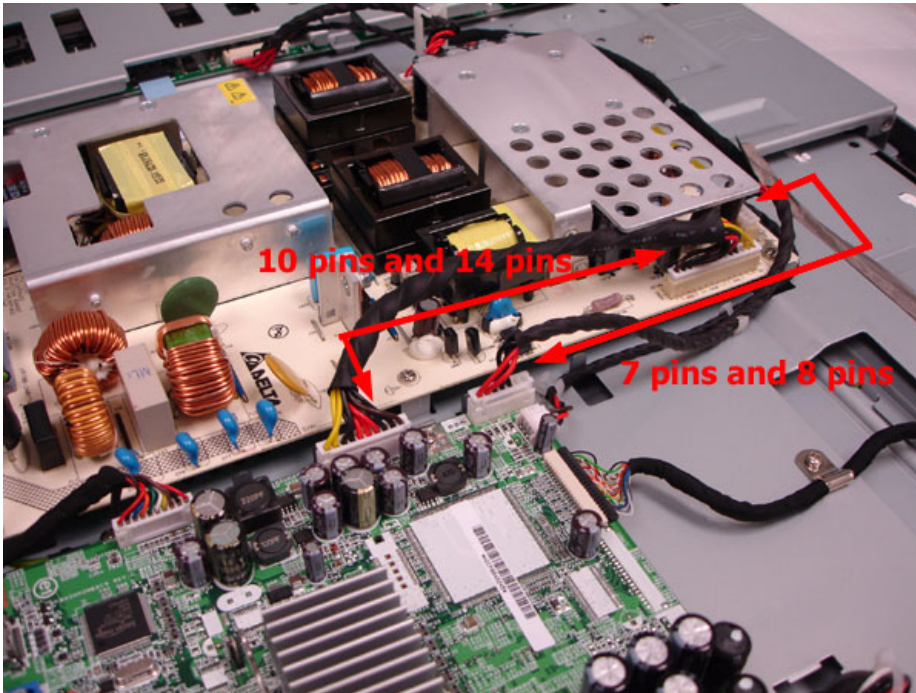
6. Main board to function board to IR board cable: The other two ends of this cable link to function board and IR board.
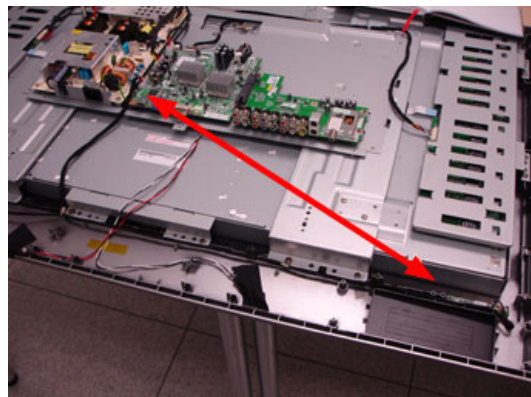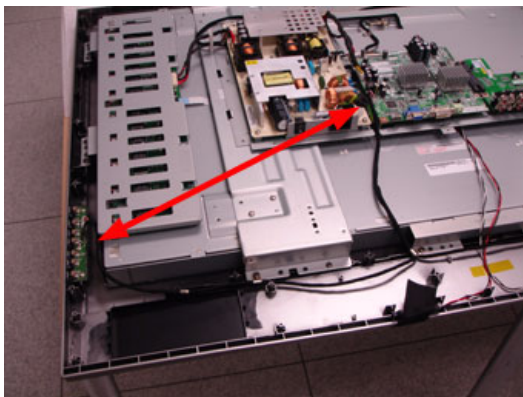
7. Power board to left inverter board cable: The other end of this cable links to the left inverter board. Please refer to the photos below.
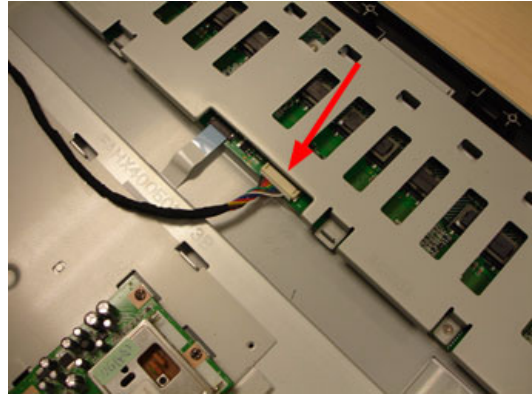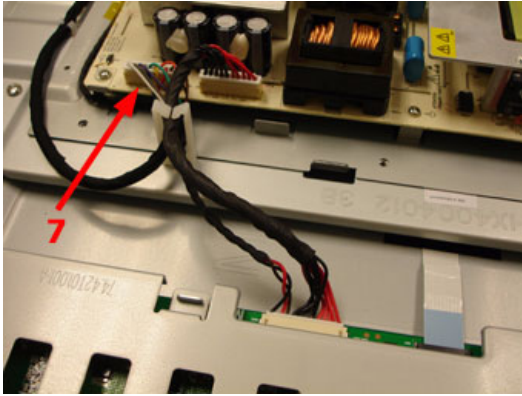
Troubleshooting

Use the following procedure as a guide for Acer LCD TV AT4220 series problems.

> **Note:** The diagnostic tests are intended to test this model. Non-Acer products, prototype cards, or modified options could occur false errors and invalid system responses.

1. Duplicate symptom and obtain the failing symptoms in as much detail as possible.
2. Distinguish symptom. Verify the symptoms by attempting to re-create the failure by running the diagnostic test or by repeating the same operation.
3. Disassemble and assemble the unit without any power sources.
4. If any problem occurs, you can perform visual inspection before you follow this chapter's instructions. You can check the following:
    - Power cords are properly connected and secured;
    - There are no obvious shorts or opens;
    - There are no obviously burned or heated components;
    - All components appear normal.
5. Use the following flow chart determine which part to be replaced.

Symptoms

Can Not Power on

```
        ┌─────┐
        (  A  )
        └──┬──┘
           │
           ▼
    ┌──────────────┐       no
   ◇  Power code    ◇───────────────►  ┌──────────────────────┐
   ◇   Plug in?     ◇                   │  Check Power code     │
    └──────┬───────┘                    └──────────────────────┘
           │
           ▼
    ┌──────────────┐       no          ┌───────────────────────────────────┐
   ◇   LED Bright?  ◇───────────────►  │ Replace Power board or Main board   │
    └──────┬───────┘                    │ Or IO board or All cable            │
           │                            └───────────────────────────────────┘
           ▼
    ┌──────────────┐   no      ◇ Check Remote control ◇   OK    ┌──────────────────┐
   ◇  LED Bright    ◇────────► ◇    and keypad ?       ◇──────► │ Replacement M/B  │
   ◇  Green color ? ◇          └──────────┬───────────┘         └──────────────────┘
    └──────┬───────┘                      │ NG
           │                              ▼
           │                   ┌─────────────────────────────┐
           │                   │ Replacement Remote control or│
           │                   │ IR board or Keypad board     │
           │                   └─────────────────────────────┘
           ▼
    ┌──────────────┐  no   ◇ Check panel's ◇  no  ◇ Check M/B ◇   ┌────────────────────┐
   ◇  LCD Panel     ◇─────►◇   all cable    ◇────►◇            ◇─►│ Replacement Panel   │
   ◇  can Display ? ◇      └───────┬────────┘      └─────┬─────┘   └────────────────────┘
    └──────┬───────┘               │                     │
           │                       ▼                     ▼
           ▼              ┌──────────────────┐  ┌──────────────────┐
    ┌──────────────┐      │ Replacement Cable │  │ Replacement M/B  │
    │     END       │     └──────────────────┘  └──────────────────┘
    └──────────────┘
```

LCD No Backlight

```
                    ( B )
                      │
                      ▼
        ┌─────────────────────┐      no    ┌──────────────────┐
        │  Inverter power     │ ─────────> │ Change Inverter  │
        │  Cable had Plug in  │            │ Power Cable      │
        └─────────────────────┘            └──────────────────┘
                      │
                      ▼
        ┌─────────────────────┐      no    ┌──────────────────────┐
        │ LCD Panel Backlight │ ─────────> │ Replacement Power/B  │
        │      Bright ?       │            └──────────────────────┘
        └─────────────────────┘                      │
                      │                               ▼
                      │              ┌─────────────────────┐   no   ┌──────────────────────┐
                      │              │ LCD Panel Backlight │ ─────> │ Replacement LCD      │
                      │              │      Bright ?       │        │ Panel Inverter /B    │
                      │              └─────────────────────┘        └──────────────────────┘
                      │                       │                               │
                      │                       │                               ▼
                      │                       │              ┌─────────────────────┐  no   ┌──────────────────────┐
                      │                       │              │ LCD Panel Backlight │ ────> │ Replacement Main/B   │
                      │                       │              │       Bight         │       └──────────────────────┘
                      │                       │              └─────────────────────┘
                      │                       │                       │
                      ▼                       ▼                       ▼
                   ─────────────────────( )────────────────────────────
                                          │
                                          ▼
                                    ┌──────────┐
                                    │   END    │
                                    └──────────┘
```

Remote Control No Function

```
                    ( C )
                      │
                      ▼
        ┌──────────────────────────┐
        │   Remote Control have     │──────────►  ┌──────────────────┐
        │        battery?           │             │  Change Battery  │
        └──────────────────────────┘             └──────────────────┘
                      │
                      ▼
        ┌──────────────────────────┐             ┌──────────────────┐
        │   IR Board Cable plug in  │──────────►  │ Check IR/B cable or │
        │                           │             │ Replacement IR/B   │
        └──────────────────────────┘             │      Cable        │
                      │                           └──────────────────┘
                      ▼
        ┌──────────────────────────┐             ┌──────────────────┐
        │  Press Remote Menu Key    │──────────►  │ Replacement IR/B │
        │     OSD can Display?      │             └──────────────────┘
        └──────────────────────────┘                      │
                      │                                    ▼
                      │                    ┌──────────────────────────┐    ┌──────────────────┐
                      │                    │  Press Remote Menu Key    │──► │ Replacement M/B  │
                      │                    │     OSD can Display?      │    └──────────────────┘
                      │                    └──────────────────────────┘
                      ▼                                    │
        ┌──────────────────────────┐                      │
        │           END            │◄─────────────────────┘
        └──────────────────────────┘
```

Button Keys No Function

```
            ┌───────┐
            │   D   │
            └───┬───┘
                │
                ▼
        ╱───────────────╲
       ╱  Key Board Cable ╲ ──────▶  ┌─────────────────────┐
       ╲     plug in       ╱         │  Check K/B cable or  │
        ╲─────────────────╱          │ Replacement K/B Cable│
                │                    └─────────────────────┘
                ▼
        ╱────────────────────╲
       ╱ Press Menu Key check  ╲ ───▶  ┌─────────────────────┐
       ╲   have Function?       ╱       │ Replacement K/B Cable│
        ╲──────────────────────╱        └──────────┬──────────┘
                │                                   │
                │                                   ▼
                │                        ╱────────────────────╲
                │                       ╱ Press Menu Key check  ╲ ──▶ ┌─────────────────────┐
                │                       ╲   have Function?       ╱     │ Replacement K/B Cable│
                │                        ╲──────────────────────╱      └─────────────────────┘
                │                                   │
                ▼                                   ▼
        ┌─────────────┐                    ┌─────────────┐
        │     End     │                    │     End     │
        └─────────────┘                    └─────────────┘
```

RF No Display

```
                    ( E )
                      |
                      v
              +-----------------+
             /    RF Cable       \          no        +-----------------------+
            <                     >--------------->    |  Check RF cable or    |
             \    plug in        /                     |  Replacement RF Cable |
              +-----------------+                      +-----------------------+
                      |
                      v
          +-------------------------+
          |  Replacement I/O board  |
          +-------------------------+
                      |
                      v
              +-----------------+
             /                   \          no        +---------------------+
            <   RF Can Display    >--------------->    |   Replacement M/B   |
             \                   /                     +---------------------+
              +-----------------+
                      |
                      v
                 +---------+
                 |  END    |
                 +---------+
```

COMPONENT1 and COMPONENT2 No Display

```
                              ┌─────┐
                              │  F  │
                              └──┬──┘
                                 │
                                 ▼
                            ◇─────────◇                    ┌──────────────────────┐
                          Component Cable    ─────────────▶│ Check Component cable │
                            plug in?                        │   or Replacement      │
                            ◇─────────◇                     │   Component Cable     │
                                 │                          └──────────────────────┘
                                 │
                                 ▼
                    ┌───────────────────────┐
                    │  Replacement I/O Board │
                    └───────────┬───────────┘
                                │
                                │
                                ▼
                           ◇──────────◇                    ┌──────────────────────┐
                       Component cat display ─────────────▶│ Replacement M/B Board │
                           ◇──────────◇                    └──────────────────────┘
                                │
                                │
                                ▼
                    ┌───────────────────────┐
                    │          END          │
                    └───────────────────────┘
```

AV1 and AV2 No Display

```
                        ( H )
                          |
                          v
               /\
              /  \
             / CVBS \            Check CVBS cable or
            / Cable  \ --------> Replacement CVBS
            \ plug in?/          Cable
             \      /
              \    /
               \  /
                |
                v
        +------------------+
        | Replacement I/O Board |
        +------------------+
                |
                v
               /\
              /  \
             /    \              +-------------------+
            / CVBS \ ----------> | Replacement M/B Board |
            \ cat display/       +-------------------+
             \    /
              \  /
                |
                v
        +------------------+
        |       END        |
        +------------------+
```

Speaker No Sound

```
                         ( H )
                           │
                           ▼
        ┌───────────────────────────────┐      no      ┌─────────────────────┐
        ◇  Audio R/L source             ◇ ───────────▶ │  Check Audio R/L     │
        ◇  had plug IN?                 ◇              │  source cable        │
        └───────────────────────────────┘              └─────────────────────┘
                           │
                           ▼
        ┌───────────────────────────────┐      no      ┌──────────────────────────┐
        ◇  Video can Display ?           ◇ ───────────▶ │  Check Video cable or     │
        ◇                               ◇              │  Replacement Video Cable  │
        └───────────────────────────────┘              └──────────────────────────┘
                           │
                           ▼
        ┌───────────────────────────────┐
        │  Mute turn off                 │
        │  Volume set 50                 │
        └───────────────────────────────┘
                           │
                           ▼
        ┌───────────────────────────────┐      no      ┌──────────────────────────────┐
        ◇  Speaker R/L cable            ◇ ───────────▶ │  Check Speaker  cable or      │
        ◇  plug IN?                     ◇              │  Replacement Speaker cable    │
        └───────────────────────────────┘              └──────────────────────────────┘
                           │
                           ▼
        ┌───────────────────────────────┐      no      ┌──────────────────────────────┐
        ◇  Speaker have Sound           ◇ ───────────▶ │  Replacement IO/B or Speaker  │
        ◇  Output                       ◇              └──────────────────────────────┘
        └───────────────────────────────┘                          │
                           │                                        ▼
                           │              ┌───────────────────────────────┐   no   ┌──────────────────┐
                           │              ◇  Speaker have Sound           ◇ ─────▶ │ Replacement M/B  │
                           │              ◇  Output ?                     ◇        └──────────────────┘
                           │              └───────────────────────────────┘
                           ▼                              │
        ┌───────────────────────────────┐                │
        │           END                  │ ◀──────────────┘
        └───────────────────────────────┘
```

VGA No Display

```
                              ( P )
                                |
                                v
                          /            \
                         /   VGA Cable   \  ------->  ┌──────────────────┐
                         \   plug in?     /           │ Check VGA cable or│
                          \              /            │ Replacement VGA   │
                                |                     │ Cable             │
                                v                     └──────────────────┘
                    ┌──────────────────┐
                    │ Read EDID DATA   │
                    └──────────────────┘
                                |
                                v
                         /            \
                        / EDID Data     \ ------->   ┌──────────────────┐
                        \ Normal?       /            │ Write EDID data  │
                         \             /             └──────────────────┘
                                |
                                v
                         /            \
                        / VGA can       \ ------->   ┌──────────────────┐
                        \ display?      /            │ Replacement M/B  │
                         \             /             └──────────────────┘
                                |
                                v
                    ┌──────────────────┐
                    │      END         │
                    └──────────────────┘
```

DVI No Display

```
                    ( Q )
                      |
                      v
              /‾‾‾‾‾‾‾‾‾‾\
             /  DVI Cable  \ ──────────>  ┌─────────────────────┐
             \   plug in?  /              │  Check DVI cable or  │
              _____/                │ Replacement DVI Cable│
                   |                      └─────────────────────┘
                   v
          ┌────────────────┐
          │ Read EDID DATA │
          └────────────────┘
                   |
                   v
              /‾‾‾‾‾‾‾‾‾‾\
             / EDID Data   \ ──────────>  ┌─────────────────────┐
             \  Normal?    /              │   Write EDID data   │
              _____/                └─────────────────────┘
                   |
                   v
              /‾‾‾‾‾‾‾‾‾‾\
             / DVI can     \ ──────────>  ┌─────────────────────┐
             \  display?   /              │   Replacement M/B   │
              _____/                └─────────────────────┘
                   |
                   v
          ┌────────────────┐
          │      END       │
          └────────────────┘
```

HDMI No Display

```
                    ┌─────┐
                    │  R  │
                    └──┬──┘
                       │
                       ▼
              ◇ HDMI Cable ◇ ──────────────▶ ┌──────────────────────┐
              ◇  plug in?  ◇                  │ Check HDMI cable or  │
                    │                         │ Replacement HDMI     │
                    │                         │ Cable                │
                    ▼                         └──────────────────────┘
            ┌────────────────┐
            │ Read EDID DATA │
            └────────┬───────┘
                     │
                     ▼
            ◇ EDID Data Normal? ◇ ──────────▶ ┌──────────────────┐
                     │                         │ Write EDID data  │
                     │                         └──────────────────┘
                     ▼
            ◇ HDMI can display? ◇ ──────────▶ ┌──────────────────┐
                     │                         │ Replacement M/B  │
                     │                         └──────────────────┘
                     ▼
            ┌──────────────┐
            │     END      │
            └──────────────┘
```

HDMI No Sound

```
                    ( L )
                      │
                      ▼
            ┌─────────────────┐            ┌──────────────────────────┐
            │  HDMI Cable      │    no      │  Check HDMI cable or     │
            │  plug in ?       │──────────▶ │  Replacement HDMI CABLE  │
            └─────────────────┘            └──────────────────────────┘
                      │
                      ▼
            ┌─────────────────┐
            │ Read EDID DATA  │
            └─────────────────┘
                      │
                      ▼
            ┌─────────────────┐            ┌──────────────────┐
            │  EDID Data       │    no      │  Write EDID data │
            │  Normal ?        │──────────▶ │                  │
            └─────────────────┘            └──────────────────┘
                      │
                      ▼
            ┌─────────────────┐            ┌──────────────────┐
            │  Sound  output?  │    no      │ Replacement Main/B│
            │                  │──────────▶ │                  │
            └─────────────────┘            └──────────────────┘
                      │                             │
                      │                             ▼
                      └──────────────────────▶  (      )
                                                    │
                                                    ▼
                                              ┌──────────┐
                                              │   END    │
                                              └──────────┘
```

VGA/DVI No Sound

```
                    ┌─────────┐
                    │    M    │
                    └────┬────┘
                         │
                         ▼
        ◇ PC/DVI can Display ? ◇ ──no──▶ ┌──────────────────────────┐
                         │                │ Check Video cable or PC or│
                         │                │ Replacement VGA/DVI cable │
                         ▼                └──────────────────────────┘
        ┌──────────────────────┐
        │ Mute turn off        │
        │ Volume set to 50     │
        └──────────┬───────────┘
                   ▼
        ◇ Audio Line in        ◇ ──no──▶ ┌──────────────────────────┐
          Cable Plug IN?                  │ Check Line in cable or   │
                   │                       │ Replacement Line in Cable│
                   ▼                       └──────────────────────────┘
        ◇ Sound Normal ?       ◇ ──no──▶ ┌──────────────────────────┐
                   │                       │ Replacement Main/B       │
                   │                       └──────────────────────────┘
                   ▼
        ┌──────────────────────┐
        │        END           │
        └──────────────────────┘
```

COMPONENT No Sound

```
                    ( Z )
                      |
                      v
              /Component Cable\          Check Component cable
              \  plug in?    /  <----->  or Replacement
               \            /            Component Cable
                      |
                      v
          +------------------+
          |  Mute turn-off   |
          |   Volume =30     |
          | Earphone remove  |
          +------------------+
                      |
                      v
              /Component Source\         Check Component cable
              \ can Display?   /  <---->  or   Replacement
               \              /           Component Cable
                      |
                      v
              /Component Sound\          +----------------+
              \   Normal?     /  ----->  | Replacement IO/B |
               \            /            +----------------+
                      |                          |
                      |                          v
                      |                  /Component Sound\         ( L1 )
                      |                  \   Normal?     /  ----->
                      |                   \            /
                      |                          |
                      |                          v
                      +----------->  (  )
                                       |
                                       v
                                  +--------+
                                  |  END   |
                                  +--------+
```

AV1/S-Video No Sound

```
                        ( 1 )
                          │
                          ▼
            ┌─────────────────────────┐        ┌─────────────────────────┐
            │  AV1/S-Video/R-L         │◄──────►│  Check Video and R-L     │
            │  Cable plug in?          │        │  cable or Replacement    │
            └─────────────────────────┘        │  Video or R-L Cable      │
                          │                     └─────────────────────────┘
                          ▼
            ┌─────────────────────────┐
            │  Mute turn-off           │
            │  Volume =30              │
            │  Earphone remove         │
            └─────────────────────────┘
                          │
                          ▼
            ┌─────────────────────────┐        ┌─────────────────────────┐
            │  AV1/S-Video Source      │◄──────►│  Check Video and R-L     │
            │  can Display?            │        │  cable or Replacement    │
            └─────────────────────────┘        │  Video or R-L Cable      │
                          │                     └─────────────────────────┘
                          ▼
            ┌─────────────────────────┐        ┌─────────────────────────┐
            │  AV1/S-Video Sound       │───────►│  Replacement IO/B        │
            │  Normal?                 │        └─────────────────────────┘
            └─────────────────────────┘                     │
                          │                                  ▼
                          │                     ┌─────────────────────────┐
                          │                     │  AV1/S-Video Sound       │──────►( L1 )
                          │                     │  Normal?                 │
                          │                     └─────────────────────────┘
                          │                                  │
                          │                                  ▼
                          └──────────────────────►(        )
                                                        │
                                                        ▼
                                             ┌─────────────────────┐
                                             │        END          │
                                             └─────────────────────┘
```

FRU (Field Replaceable Unit) List

This section gives you the FRU (Field Replaceable Unit) list in global configurations of AT4220 series. Please refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization). Please note that WHEN ORDERING FRU PARTS, you should check the most up-to-date information available on your regional web or channel. For whatever reasons a part number change is made, it will NOT be noted on the service guide. For Acer authorized service providers, your Acer office may have a different part number code from those given in the FRU list of this printed service guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

> **Note:** To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by your regional Acer office on how to return it.

Parts

Partname	Description	Acer Part No.
Accessory		
REMOTE CONTROLLER - EU	REMOTE CONTROL EURT54BEACQT1	25.M25V7.001
REMOTE CONTROLLER - USA	REMOTE CONTROLLER (EURT54BCACQT1)	25.M28V7.001
REMOTE CONTROLLER - AUS	REMOTE CONTROLLER (EURT54BAACQT1)	25.M38V7.001
Board		
POWER BOARD	"PWR 291W,DPS-291AP A(90~264VAC)"	55.M34V7.001
IR BOARD	JL7 IR/B ASSY(FOR HV7)	55.M25V7.003
FUNCTION BOARD	JL7 KEYPAD/B ASSY	55.M25V7.002
IO/TURNER BOARD - PAL EU	HH6 IO/B ASSY(EU)	55.M12V7.004
IO/TURNER BOARD - NTSC NA	HH6N IO/B ASSY(US)(FOR HV2N)	55.M28V7.001
IO/TURNER BOARD - PAL AU	HH6A IO/B ASSY(PAL-AUSTRALIA)	55.M12V7.005
MAIN BOARD - PAL EU FOR AU	HV7 M/B ASSY(EU)(FOR HV4E) AU	55.M34V7.002
MAIN BOARD - NTSC NA FOR AU	HH2 M/B ASSY(US)(FOR HV4N)AU	55.M36V7.001
MAIN BOARD - PAL AUS FOR AU	HH2 M/B ASSY(AUS)(FOR HV4A)AU	55.M40V7.001
Cable		
LVDS CABLE - PANEL TO MB FOR AU	CABLE ASSY HX4E LVDS AUO(20P/30P REV1A)	50.M34V7.001
INVERTER CABLE - INVERTER L TO POWER	"CABLE ASSY HX4E INV-PANEL AUO 12P/10P,2A"	50.M34V7.002
INVERTER CABLE - INVERTER R TO POWER TO MB	"CABLE ASSY HX4E INV AU(14P/10P/4P,2A)"	50.M34V7.003
CABLE - MB TO POWER BOARD 10P/14P	CABLE ASSY HH7 MB-POW LG(10P/14P 1A)	50.M24V7.005
CABLE - MB TO KEY TO IR	"CABLE ASSY HV4 MB/IR/BTN(10/9/8,REV1A)"	50.M34V7.004
SPEAKER CABLE	"CABLE ASSY HH2 SPEAKER 2P/3P,4P,1A "	50.M12V7.005
CABLE - AUDIO TO POWER BOARD 8P/7P	CABLE ASSY HX4 AUDIO/POWER(8P/7P REV1A)	50.M34V7.005
GROUND CABLE	"CABLE ASSY HV9 GND(1P/1P,2A)"	50.M34V7.006
CABLE - SCART TO SCART	"CABLE ASSY SCART-SCART VA1(20P/20P,R3A)"	50.M03V7.019
POWER CODE - AUSTRALIA	POWCORD(AUST)3P V54AB300012180Q1 1.8M	27.M12V7.001
POWER CODE - US	POWER CORD SP-305+IS-14SVT 3P 1.8M US	27.M03V7.004
POWER CORD EU 3 PIN	POWER CORD SP-023+IS-14H05VV-F3P 1.8M EU	27.M03V7.002
POWER CORD UK 3 PIN	POWER CORD SP-60+IS-14H05VV 3P 1.8M UKLF	27.M03V7.003
POWER CORD SWISS 3 PIN	POWER CORD(SWISS) 3P 1.8M(BLACK)	27.M11V7.001
POWER CORD ITALY 3 PIN	POWER CORD SP-028+IS-14H05VV 3P1.8M ITLF	27.M03V7.001
Case/Cover/Bracket Assembly		
FRONT BEZEL ASSY	HV4 LCD-BEZEL ASSY	60.M34V7.001
BACK COVER ASSY	AH4T BACK COVER ASSY	60.M34V7.002

STAND ASSY	HV4 STAND ASSY	60.M34V7.003
STAND COVER	"STAND COVER HX4(EAHX4004,REV3B)"	42.M34V7.001
STAND BRACKET	"STAND BKT HX4(FAHX4008,REV3A)"	33.M34V7.001
LCD BRACKET - L	"PANEL BKT AUO L HX4(FAHX4005,REV3C)"	33.M34V7.002
LCD BRACKET - R	"PANEL BKT AUO R HX4(FAHX4004,REV3C)"	33.M34V7.003
MAIN PCB TRAY	"CHASSIS HX4(FAHX4001,REV3B)"	33.M34V7.004
PCB HOLDER - PAL EU	"SHIELDING (EU) HV4E(FAHV4002,REV3A)"	33.M34V7.005
PCB HOLDER - NTSC NA	"SHIELDING (NA) HV4N(FAHV4001,REV3A)"	33.M36V7.001
PCB HOLDER - PAL AUS	"SHIELDING AU HX4(FAHX4013,REV3C)"	33.M40V7.001
WIRE SADDLE CHA-4	"WIRE SADDLE CHA-4 VV3(EBVV3006,REV3A)"	42.M03V7.012
WIRE SADDLE MWS-7	"WIRE SADDLE MWS-7 VV3(EBVV3010,REV3A)"	42.M03V7.013
FUNCTION KEY	"FUNCTION KEY HV7E(EBHV7001,REV3A)"	42.M25V7.001
LCD		
LCD TFT 42.0 IN. AU T420XW01 VER0	"LCD(TFT)42"" T420XW01 VER0"	56.M34V7.001
Speaker		
SPEAKER ASSY L	SPEAKER ASSY HX4E (FS-0000085AB)	23.M34V7.001
SPEAKER ASSY R	SPEAKER ASSY HX4E (FS-0000085AA)	23.M34V7.002
Label		
POWER LABEL	"LABEL (POWER) HV4(HCHV4001,REV3A)"	40.M34V7.001
I/O TURNER LABEL -PAL EU	"LABEL I/O TUNER EU HV9(HCHV9003,REV3A)"	40.M25V7.002
I/O TURNER LABEL - NTSC US	"LABEL I/O TUNER NA HV9(HCHV9004,REV3A)"	40.M28V7.002
I/O TURNER LABEL - PAL AUS	"LABEL I/O TUNER AU HV9(HCHV9005,REV3A)"	40.M38V7.001
Miscellaneous		
"CLAMP AUO-R/L HX4(FBHX4002,REV3A)"	"CLAMP AUO-R/L HX4(FBHX4002,REV3A)"	47.M34V7.001
"CLAMP AUO-D HX4(FBHX4003,REV3A)"	"CLAMP AUO-D HX4(FBHX4003,REV3A)"	47.M34V7.002
"EMI CONTACT PAD HX4(JXHX4001,3A)"	"EMI CONTACT PAD HX4(JXHX4001,3A)"	47.M34V7.003
"EMI GASKET LVDS HX4(GBHX4002,3A)"	"EMI GASKET LVDS HX4(GBHX4002,3A)"	47.M34V7.004
"EMI GASKET UP HX4(GBHX4003,3A)"	"EMI GASKET UP HX4(GBHX4003,3A)"	47.M34V7.005
"EMI GASKET DOWN HX4(GBHX4004,3A)"	"EMI GASKET DOWN HX4(GBHX4004,3A)"	47.M34V7.006
"EMI GASKET POWER HX4(GBHX4005,3A)"	"EMI GASKET POWER HX4(GBHX4005,3A)"	47.M34V7.007
Screw		
SCREW M4.0*6.0-B(NI)	SCREW M4.0*6.0-B(NI)	86.M08V7.005
SCREW T4*12-B(BNI)	SCREW T4*12-B(BNI)	86.M25V7.003
SCREW M3*6-B(BNI)	SCREW M3*6-B(BNI)	86.M08V7.003
SCREW T3*12-P (BNI)	SCREW T3*12-P (BNI)	86.M34V7.001

SCREW M4*6 P (NI)	SCREW M4*6 P (NI)	86.M01V7.002
SCREW M4*22-B(BNI+WASHER+SPRING)	SCREW M4*22-B(BNI+WASHER+SPRING)	86.M34V7.002
SCREW T4*12-B(BNI)	SCREW T4*12-B(BNI)	86.M25V7.003
"NUT IO EA1(MBEA1001,REV3D)"	"NUT IO EA1(MBEA1001,REV3D)"	86.M25V7.001
SCREW T3*8-B(BNI)	SCREW T3*8-B(BNI)	86.M08V7.007
SCREW M3*6-B(BNI)	SCREW M3*6-B(BNI)	86.M08V7.003
SCREW F3.0*6-B(NI)	SCREW F3.0*6-B(NI)	86.M25V7.002

Exploded Diagram of AT4220 Series

Please refer to the following table and exploded diagram.

#	Partname	Description	Acer Part No.	Q'TY
1	FRONT BEZEL ASSY	HV4 LCD-BEZEL ASSY	60.M34V7.001	1
2	LCD TFT 42.0 IN. AU T420XW01 VER0	"LCD(TFT)42""" T420XW01 VER0"	56.M34V7.001	1
3	"CLAMP AUO-R/L HX4(FBHX4002,REV3A)"	"CLAMP AUO-R/L HX4(FBHX4002,REV3A)"	47.M34V7.001	4
4	PANEL BKT AUO L HX4	PANEL BKT AUO L HX4	N/A	1
5	PANEL BKT AUO R HX4	PANEL BKT AUO R HX4	N/A	1
6	MAIN PCB TRAY	"CHASSIS HX4(FAHX4001,REV3B)"	33.M34V7.004	1
7	POWER BOARD	"PWR 291W,DPS-291AP A(90~264VAC)"	55.M34V7.001	1
8	MAIN BOARD - NTSC NA FOR AU	HH2 M/B ASSY(US)(FOR HV4N)AU	55.M36V7.001	1
9	IO/TURNER BOARD - NTSC NA	HH6N IO/B ASSY(US)(FOR HV2N)	55.M28V7.001	1
10	SCREW M3*6-B(BNI)	SCREW M3*6-B(BNI)	86.M08V7.003	38
11	PCB HOLDER - NTSC NA	"SHIELDING (NA) HV4N(FAHV4001,REV3A)"	33.M36V7.001	1
12	BACK COVER ASSY	AH4T BACK COVER ASSY	60.M34V7.002	1
13	SCREW T4*12-B(BNI)	SCREW T4*12-B(BNI)	86.M25V7.003	38
14	RATING LABEL HV4	RATING LABEL HV4	N/A	1
15	I/O TURNER LABEL -PAL EU	"LABEL I/O TUNER EU HV9(HCHV9003,REV3A)"	40.M25V7.002	1
16	POWER LABEL	"LABEL (POWER) HV4(HCHV4001,REV3A)"	40.M34V7.001	1
17	SCREW T3*8-B(BNI)	SCREW T3*8-B(BNI)	86.M08V7.007	7
18	"NUT IO EA1(MBEA1001,REV3D)"	"NUT IO EA1(MBEA1001,REV3D)"	86.M25V7.001	2
19	SCREW M4*22-B(BNI+WASHER+SPRING)	SCREW M4*22-B(BNI+WASHER+SPRING)	86.M34V7.002	10
20	STAND BRACKET	"STAND BKT HX4(FAHX4008,REV3A)"	33.M34V7.001	2
21	STAND COVER	"STAND COVER HX4(EAHX4004,REV3B)"	42.M34V7.001	1
22	STAND ASSY	HV4 STAND ASSY	60.M34V7.003	1
23	"CLAMP AUO-D HX4(FBHX4003,REV3A)"	"CLAMP AUO-D HX4(FBHX4003,REV3A)"	47.M34V7.002	1
24	SCREW M4.0*6.0-B(NI)	SCREW M4.0*6.0-B(NI)	86.M08V7.005	8
25	SPEAKER ASSY L	SPEAKER ASSY HX4E (FS-0000085AB)	23.M34V7.001	1
26	SPEAKER ASSY R	SPEAKER ASSY HX4E (FS-0000085AA)	23.M34V7.002	1
27	SCREW M3*6-B(BNI)	SCREW M3*6-B(BNI)	86.M08V7.003	5
28	IR BOARD	JL7 IR/B ASSY(FOR HV7)	55.M25V7.003	1
29	FUNCTION BOARD	JL7 KEYPAD/B ASSY	55.M25V7.002	1

30	FUNCTION KEY	"FUNCTION KEY HV7E(EBHV7001,REV3A)"	42.M25V7.001	1
31	WIRE SADDLE CHA-4	"WIRE SADDLE CHA-4 VV3(EBVV3006,REV3A)"	42.M03V7.012	1
32	WIRE SADDLE MWS-7	"WIRE SADDLE MWS-7 VV3(EBVV3010,REV3A)"	42.M03V7.013	6
33	SCREW T3*12-P (BNI)	SCREW T3*12-P (BNI)	86.M34V7.001	8