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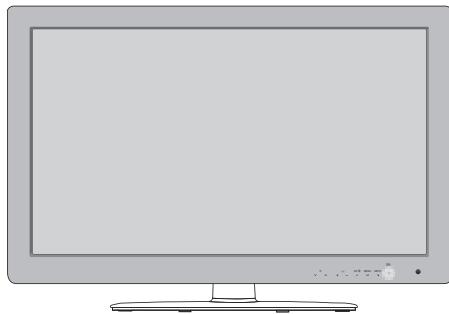
LED LCD TV SERVICE MANUAL

CHASSIS : LT03E

MODEL : 42LE5500 42LE5500-DA

CAUTION

BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL63283601 (1003-REV00)

Printed in Korea

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by \triangle in the Schematic Diagram and Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1 W), keep the resistor 10 mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between $1\text{ M}\Omega$ and $5.2\text{ M}\Omega$.

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

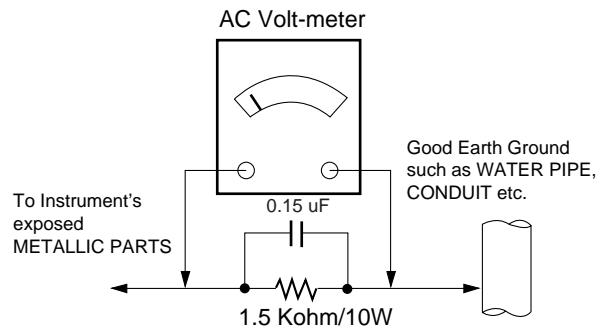
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5 mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than $0.1\text{ }\Omega$

*Base on Adjustment standard

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This specification is applied to the LCD TV used LT03B/D/E/N/T/S chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

- 1) Temperature: $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 9^{\circ}\text{F}$), CST: $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- 2) Relative Humidity : $65\% \pm 10\%$
- 3) Power Voltage
 - : Standard input voltage (AC 100-120 V~ 50 / 60 Hz)
 - * Standard Voltage of each products is marked by models.
- 4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
- 5) The receiver must be operated for about 20 minutes prior to the adjustment.

3. Test method

- 1) Performance: LGE TV test method followed
- 2) Demanded other specification
 - Safety : CE, IEC specification
 - EMC :CE, IEC

4. Module General Specification

| No. | Item | Specification | Remark |
|-----|--|---|----------------------------------|
| 1 | Display Screen Device | 105 cm(42 inch) wide color display module | |
| 2 | Aspect Ratio | 16:9 | |
| 3 | LCD Module | 105 cm(42 inch) TFT WUXGA LCD | |
| 4 | Operating Environment | Temp. : 0 deg ~ 40 deg | |
| | | Humidity : 0 % ~ 85 % | |
| 5 | Storage Environment | Temp. : -20 deg ~ 60 deg | |
| | | Humidity : 0 ~ 85 % | |
| 6 | Input Voltage | AC 100-240V~, 50 / 60Hz | |
| 7 | Power Consumption =LCD(Module)+Backlight(LED) | 98 FHD, 120Hz(Edge LED) | LC420EUH-SCA1/2 - LE5500, LE7500 |
| 8 | Module Size | 973.2(H) x 566.2(V) x 10.8 mm(D) | LC420EUH-SCA1/2 - LE5500, LE7500 |
| 8 | Pixel Pitch | 0.4845 (H) x 0.4845 (V) | LC420EUH-SCA1/2 - LE5500, LE7500 |
| 9 | Back Light | CCFL/Edge-LED/IOP-LED | |
| 10 | Display Colors | 1.06 B(true) colors (10-bit) | |
| 11 | Coating | 3H(Hard coating), Anti-glare | |

5. Chroma & Brightness

| No. | Item | Specification | | Min. | Typ. | Max. | Remark | |
|-----|-----------------------|--------------------------------|----|-------------|-------|-----------------|-----------------------|--|
| 1. | Viewing Angle<CR>10> | Right/Left/Up/Down | | 89/89/89/89 | | LC420EUH-SCA1/2 | | |
| 2. | Luminance | Luminance (cd/m ²) | | 360 | 450 | | LC420EUH-SCA1/2 | |
| | | Variation | | | | 1.3 | MAX /MIN | |
| 3. | Contrast Ratio | CR | | 1000 | 1400 | | | |
| 4. | CIE Color Coordinates | White | Wx | Typ. | 0.279 | Typ. | All white / All black | |
| | | | Wy | | 0.292 | | | |
| | | RED | Xr | | 0.647 | | | |
| | | | Yr | | 0.332 | | | |
| | | Green | Xg | | 0.309 | +0.03 | | |
| | | | Yg | | 0.601 | | | |
| | | Blue | Xb | -0.03 | 0.149 | | | |
| | | | Yb | | 0.059 | | | |

6. Component Video Input (Y, Cb/Pb, Cr/Pr)

| No. | Specification | | | | Proposed |
|-----|---------------|-------------|------------|------------------|---------------------------|
| | Resolution | H-freq(kHz) | V-freq(Hz) | Pixel clock(MHz) | |
| 1. | 720*480 | 15.73 | 59.94 | 13.500 | SDTV, DVD 480I(525I) |
| 2. | 720*480 | 15.75 | 60.00 | 13.514 | SDTV, DVD 480I(525I) |
| 3. | 3. 720*576 | 15.625 | 50.00 | 13.500 | SDTV, DVD 576I(625I) 50Hz |
| 4. | 720*480 | 31.47 | 59.94 | 27.000 | SDTV 480P |
| 5. | 720*480 | 31.50 | 60.00 | 27.027 | SDTV 480P |
| 6. | 720*576 | 31.25 | 50.00 | 27.000 | SDTV 576P 50Hz |
| 7. | 1280*720 | 44.96 | 59.94 | 74.176 | HDTV 720P |
| 8. | 1280*720 | 45.00 | 60.00 | 74.250 | HDTV 720P |
| 9. | 1280*720 | 37.50 | 50.00 | 74.25 | HDTV 720P 50Hz |
| 10. | 1920*1080 | 28.125 | 50.00 | 74.250 | HDTV 1080I 50Hz, |
| 11. | 1920*1080 | 33.72 | 59.94 | 74.176 | HDTV 1080I |
| 12. | 1920*1080 | 33.75 | 60.00 | 74.25 | HDTV 1080I |
| 13. | 1920*1080 | 56.25 | 50 | 148.5 | HDTV 1080P |
| 14. | 14 1920*1080 | 67.432 | 59.94 | 148.350 | HDTV 1080P |
| 15. | 1920*1080 | 67.5 | 60.00 | 148.5 | HDTV 1080P |

7. RGB (PC)

| No. | Specification | | | | Proposed | Remarks |
|-----|---------------|-------------|------------|------------------|--------------------------|----------------|
| | Resolution | H-freq(kHz) | V-freq(Hz) | Pixel Clock(MHz) | | |
| 1. | 640*350 | 31.468 | 70.09 | 25.17 | EGA | |
| 2. | 720*400 | 31.469 | 70.09 | 28.32 | DOS | |
| 3. | 640*480 | 31.469 | 59.94 | 25.17 | VESA(VGA) | |
| 4. | 800*600 | 37.879 | 60.317 | 40 | VESA(SVGA) | |
| 5. | 1024*768 | 48.363 | 60.004 | 65 | VESA(XGA) | |
| 6. | 1280*768 | 47.776 | 59.87 | 79.5 | VESA(WXGA) | |
| 7. | 1360*768 | 47.72 | 59.799 | 84.75 | VESA(WXGA) | |
| 8. | 1280*1024 | 63.668 | 59.895 | 109.00 | SXGA | Only FHD model |
| 9. | 1920*1080 | 66.587 | 59.934 | 138.50 | WUXGA (Reduced Blanking) | Only FHD model |

8. HDMI Input

(1) DTV Mode

| No. | Resolution | H-freq(kHz) | V-freq.(Hz) | Pixel clock(MHz) | Proposed | Remark |
|-----|------------|-------------|-------------|------------------|---------------------------|------------------------|
| 1. | 720*480 | 15.73 | 59.94 | 13.500 | SDTV, DVD 480I(525I) | Spec. out but display. |
| 2. | 720*480 | 15.75 | 60.00 | 13.514 | SDTV, DVD 480I(525I) | |
| 3. | 720*576 | 15.625 | 50.00 | 13.500 | SDTV, DVD 576I(625I) 50Hz | |
| 4. | 720*480 | 31.47 | 59.94 | 27 | SDTV 480P | |
| 5. | 720*480 | 31.5 | 60.00 | 27.027 | SDTV 480P | |
| 6. | 720*576 | 31.25 | 50.00 | 27 | SDTV 576P | |
| 7. | 1280*720 | 44.96 | 59.94 | 74.176 | HDTV 720P | |
| 8. | 1280*720 | 45 | 60.00 | 74.25 | HDTV 720P | |
| 9. | 1280*720 | 37.5 | 50.00 | 74.25 | HDTV 720P | |
| 10. | 1920*1080 | 28.125 | 50.00 | 74.25 | HDTV 1080I | |
| 11. | 1920*1080 | 33.72 | 59.94 | 74.176 | HDTV 1080I | |
| 12. | 1920*1080 | 33.75 | 60.00 | 74.25 | HDTV 1080I | |
| 13. | 1920*1080 | 56.25 | 50.00 | 148.5 | HDTV 1080P | |
| 14. | 1920*1080 | 67.432 | 59.94 | 148.350 | HDTV 1080P | |
| 15. | 1920*1080 | 67.5 | 60.00 | 148.5 | HDTV 1080P | |
| 16. | 1920*1080 | 27 | 24.00 | 74.25 | HDTV 1080P | |
| 17. | 1920*1080 | 33.75 | 30.00 | 74.25 | HDTV 1080P | |

(2) PC Mode

| No. | Resolution | H-freq(kHz) | V-freq.(Hz) | Pixel clock(MHz) | Proposed | Remark |
|-----|------------|-------------|-------------|------------------|------------|--------|
| 1. | 640 480 | 31.469 | 59.94 | 25.17 | VESA(VGA) | |
| 2. | 800 600 | 37.879 | 60.317 | 40.00 | VESA(SVGA) | |
| 3. | 1024 768 | 48.363 | 60.004 | 65.00 | VESA(XGA) | |
| 4. | 1280 768 | 47.776 | 59.87 | 79.5 | VESA(WXGA) | |
| 5. | 1360 768 | 47.72 | 59.799 | 84.62 | VESA(WXGA) | |
| 6. | 1280 1024 | 63.595 | 60.00 | 108.875 | SXGA | |
| 7. | 1920 1080 | 66.647 | 59.988 | 138.625 | WUXGA | |

ADJUSTMENT INSTRUCTION

1. Application Range

This specification sheet is applied to all of the LCD TV with LT03B/D/E/H/R/S chassis.

2. Designation

- (1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
- (2) Adjustment must be done in the correct order.
- (3) The adjustment must be performed in the circumstance of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ of temperature and $65\% \pm 10\%$ of relative humidity if there is no specific designation.
- (4) The input voltage of the receiver must keep AC 100-240 V~ 50 / 60Hz.
- (5) Before adjustment, execute Heat-Run for 5 minutes at RF no signal.

3. Adjustment items

3.1. PCB assembly adjustment items

- 1) Mac Address D/L & LAN Test
- 2) Main S/W program download : Using USB Memory stick
- 3) Input Tool - Option
- 4) Download EDID : EDID data are automatically downloaded when adjusting the Tool Option.
- 5) ADC Calibration – RGB & Component
- 6) Check SW Version

3.2. SET assembly adjustment items

- 1) Input Area option.
- 2) Adjustment of White Balance : Auto
- 3) Adjustment of White Balance : Manual
- 4) Intelligent Sensor Inspection Guide
- 5) Blue-Tooth Inspection Guide
- 6) Local Dimming Inspection Guide
- 7) Preset CH information
- 8) Internal Press Test
- 9) Motion Remote controller Inspection
- 10) 3D Function test
- 11) Outgoing Condition Configuration
- 12) Sound spec
- 13) Factoring Option Data input.

4. PCB assembly adjustment method

4.1. MAC Address Download & LAN test

4.1.1. MAC Address D/L

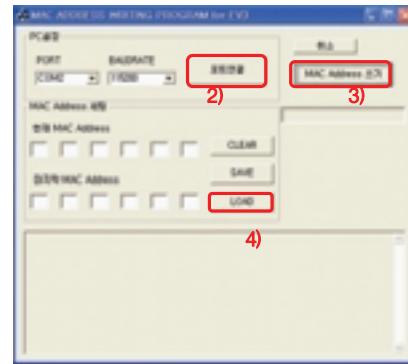
A D/L Program : Serial.exe

4.1.1.1. Method

- 1) Connect Jig to PCBA.



- 1) Execute "Serial.exe" on PC, MAC Address edit : Start / End MAC address input
- 2) Connect Com-port.(Port connection button click)
- 3) Load button click(3) for MAC Address write
- 4) MAC address Write.



- 5) Check the OK Or NG



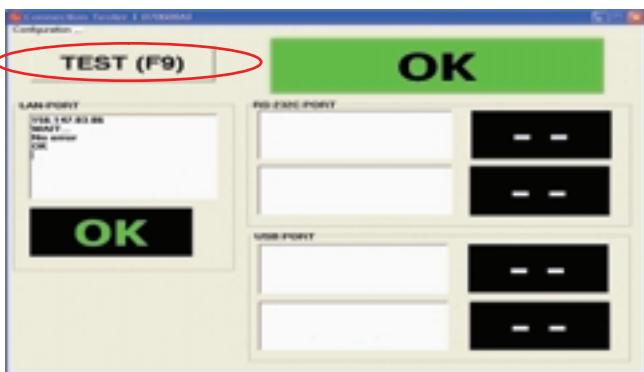
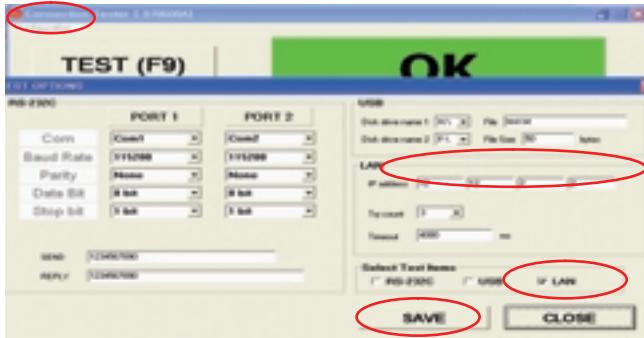
4.1.2. PING Test(LAN Operating Test)

4.1.2.1. Check PCBA

- 1) Connect LAN to PCBA& Power On.
- 2) Push ADJ key on Adjust remote-controller.
- 3) Enter "13. ACAP PING TEST" & check Network.

4.1.2.2. Check Set

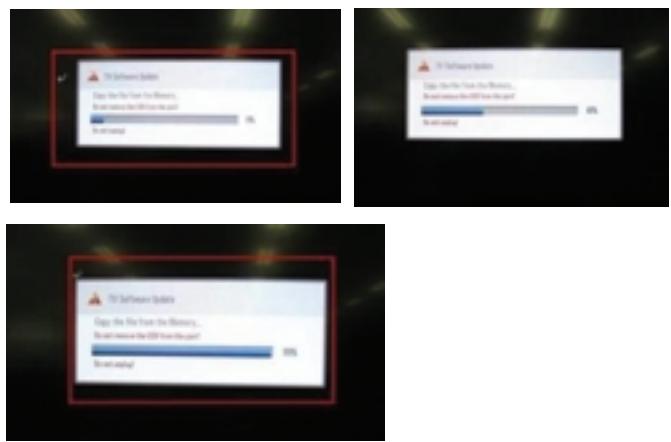
- 1) Connect TV-Set & PC with Cross LAN cable.(PC IP : 12.12.2.3)
- 2) Execute "PINT Test program", Check setting data of program. (TV-Set IP : 12.12.2.2)
- 3) Push Power Only key on Adjust remote-controlle.
- 4) Click "RUN", Check "OK" or "NG"



4.2. Main S/W program download

4.2.1. Using the Memory Stick

- ** USB DOWNLOAD : Service Mode
- 1) Insert the USB memory Stick to the USB port
- 2) Automatically detect the SW Version.
-> S/W download process is executed automatically.
- 3) Show the message "Copy the file from the Memory"



- 4) If the TV IS Turn On, Check the updated SW Version and Tool Option.

4.3. Input tool option.

Adjust tool option refer to the BOM.

- A Tool Option Input : PCBA Check Process
- A Area Option Input : Set Assembly Process

*** Tool Option table

| MODEL | 55LE5500 | 47LE5500 | 42LE5500 | 32LE5500 |
|--------------|----------|----------|----------|----------|
| Tool Option1 | 45312 | 33024 | 24832 | 16640 |
| Tool Option2 | 32279 | 32279 | 32279 | 32279 |
| Tool Option3 | 64556 | 64556 | 64556 | 64556 |
| Tool Option4 | 25004 | 25004 | 25004 | 24876 |
| Tool Option5 | 1851 | 1851 | 1851 | 1851 |
| MODEL | 55LE7500 | 47LE7500 | 42LE7500 | 32LE7500 |
| Tool Option1 | 45344 | 33056 | 24864 | 16672 |
| Tool Option2 | 32279 | 32279 | 32279 | 32279 |
| Tool Option3 | 64556 | 64556 | 64556 | 64556 |
| Tool Option4 | 25004 | 25004 | 25004 | 24876 |
| Tool Option5 | 1851 | 1851 | 1851 | 1851 |
| MODEL | 55LE8500 | 47LE8500 | 42LE8500 | 32LE8500 |
| Tool Option1 | 45376 | 33088 | 24896 | 16704 |
| Tool Option2 | 32279 | 32279 | 32279 | 32279 |
| Tool Option3 | 64572 | 64572 | 64572 | 64572 |
| Tool Option4 | 25004 | 25004 | 25004 | 24876 |
| Tool Option5 | 1851 | 1851 | 1851 | 1851 |
| MODEL | 55LX6500 | 47LX6500 | 42LX6500 | |
| Tool Option1 | | | | |
| Tool Option2 | 32279 | 32279 | 32279 | |
| Tool Option3 | 64572 | 64572 | 64572 | |
| Tool Option4 | 25004 | 25004 | 25004 | |
| Tool Option5 | 1979 | 1979 | 1979 | |

After Input Tool Option and AC off
Before PCBA check, you have to change the Tool option and
have to AC off/on (Plug out and in)
(If missing this process, set can operate abnormally)

4.3.1. Profile : Must be changed the option value because being different with some setting value depend on module maker, inch and market

4.3.2. Equipment : adjustment remote control.

4.3.3. Adjustment method

- The input methods are same as other chassis.(Use ADJ Key on the Adjust Remote.)
(If not changed the option, the input menu can differ the model spec.)

Refer to Job Expression of each main chassis ass'y (EBTxxxxxxxx) for Option value

Caution: Don't Press "IN-STOP" key after completing the function inspection.

4.4. EDID D/L method

Recommend that don't connect HDMI and RGB(D-SUB) cable when downloading the EDID. If not possible, recommend that connect the MSPG equipment.

There are two methods of downloading the edid data

4.4.1. 1st Method

EDID datas are automatically downloaded when adjusting the Tool Options. Automatically downloaded when pushing the enter key after adjusting the tool option5. It takes about 2seconds.

4.4.2. 2nd Method

Caution : Must be checked that the tool option is right or not.
If tool option is wrong, hdmi edid data could not be downloaded well.

- 1) Press the ADJ key
 - 2) Move to the 10. EDID D/L and Press the right direction key(G)
 - 3) Press the right direction key(G) at Start.
 - 4) After about a few seconds, appear "Waiting.." => "OK", then complete.

4.4.3. RS-232C command Method

- 1) Command : AE 00 10

Caution : Don't connect HDMI and RGB(D-SUB) cable when downloading the EDID.

If the cables are connected, Downloading of edid could be failed.

4.4.4. EDID data

4.4.4.1. LT03B/D/E MODEL

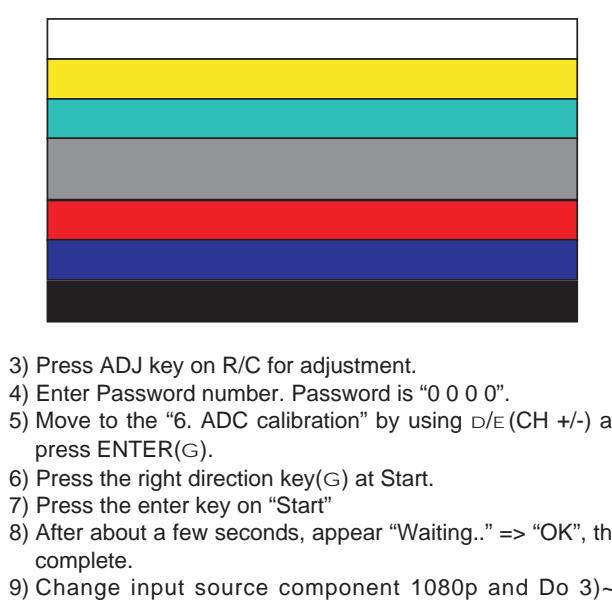
4.4.4.2. LT03R/S/N M0DEL(3D model)

| ** Analog(RGB): 128bytes | | | | | | | | | | | | | | | |
|--------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 6D | 01 | 00 | 01 | 01 | 01 |
| 10 | 01 | 14 | 01 | 03 | 68 | 10 | 09 | 78 | 0A | EE | 91 | A3 | 54 | 4C | 99 |
| 20 | 0F | 50 | 54 | A1 | 08 | 00 | 81 | 80 | 61 | 40 | 45 | 40 | 31 | 40 | 01 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 02 | 3A | 80 | 18 | 71 | 38 | 2D | 40 | 58 |
| 40 | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 01 | 1D | 00 | 72 | 51 | D0 | 1E |
| 50 | 6E | 28 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 | 00 | 00 | FD | 00 |
| 60 | 3E | 1E | 53 | 10 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 | FC |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 1D |
| ** HDMI 1 : 256Bytes | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 6D | 01 | 00 | 01 | 01 | 01 |
| 10 | 01 | 14 | 01 | 03 | 80 | 10 | 09 | 78 | 0A | EE | 91 | A3 | 54 | 4C | 99 |
| 20 | 0F | 50 | 54 | A1 | 08 | 00 | 71 | 4F | 81 | 80 | 01 | 01 | 01 | 01 | 01 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 02 | 3A | 80 | 18 | 71 | 38 | 2D | 40 | 58 |
| 40 | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 01 | 1D | 00 | 72 | 51 | D0 | 1E |
| 50 | 6E | 28 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 | 00 | 00 | FD | 00 |
| 60 | 3E | 1E | 53 | 10 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 | FC |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 1D |
| 80 | 02 | 03 | 26 | F1 | 4E | 10 | 1F | 84 | 13 | 05 | 14 | 03 | 02 | 12 | 20 |
| 90 | 22 | 15 | 01 | 26 | 15 | 07 | 50 | 09 | 57 | 07 | 67 | 03 | 0C | 00 | 20 |
| A0 | B8 | 2D | E3 | 05 | 03 | 01 | 01 | 1D | 80 | 18 | 71 | 1C | 16 | 20 | 58 |
| B0 | 25 | 00 | A0 | 5A | 00 | 00 | 00 | 9E | 01 | 1D | 00 | 80 | 51 | D0 | 1A |
| C0 | 6E | 88 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1A | 02 | 3A | 80 | 18 | 71 |
| D0 | 2D | 40 | 58 | 2C | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 66 | 21 | 50 |
| E0 | 51 | 00 | 1B | 30 | 40 | 70 | 36 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 |
| F0 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | CS |
| ** HDMI 2 : 256Bytes | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 6D | 01 | 00 | 01 | 01 | 01 |
| 10 | 01 | 14 | 01 | 03 | 80 | 10 | 09 | 78 | 0A | EE | 91 | A3 | 54 | 4C | 99 |
| 20 | 0F | 50 | 54 | A1 | 08 | 00 | 71 | 4F | 81 | 80 | 01 | 01 | 01 | 01 | 01 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 02 | 3A | 80 | 18 | 71 | 38 | 2D | 40 | 58 |
| 40 | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 01 | 1D | 00 | 72 | 51 | D0 | 1E |
| 50 | 6E | 28 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 | 00 | 00 | FD | 00 |
| 60 | 3E | 1E | 53 | 10 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 | FC |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 1D |
| 80 | 02 | 03 | 26 | F1 | 4E | 10 | 1F | 84 | 13 | 05 | 14 | 03 | 02 | 12 | 20 |
| 90 | 22 | 15 | 01 | 26 | 15 | 07 | 50 | 09 | 57 | 07 | 67 | 03 | 0C | 00 | 20 |
| A0 | B8 | 2D | E3 | 05 | 03 | 01 | 01 | 1D | 80 | 18 | 71 | 1C | 16 | 20 | 58 |
| B0 | 25 | 00 | A0 | 5A | 00 | 00 | 00 | 9E | 01 | 1D | 00 | 80 | 51 | D0 | 1A |
| C0 | 6E | 88 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1A | 02 | 3A | 80 | 18 | 71 |
| D0 | 2D | 40 | 58 | 2C | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 66 | 21 | 50 |
| E0 | 51 | 00 | 1B | 30 | 40 | 70 | 36 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 |
| F0 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | BS |
| ** HDMI 3 : 256Bytes | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 6D | 01 | 00 | 01 | 01 | 01 |
| 10 | 01 | 14 | 01 | 03 | 80 | 10 | 09 | 78 | 0A | EE | 91 | A3 | 54 | 4C | 99 |
| 20 | 0F | 50 | 54 | A1 | 08 | 00 | 71 | 4F | 81 | 80 | 01 | 01 | 01 | 01 | 01 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 02 | 3A | 80 | 18 | 71 | 38 | 2D | 40 | 58 |
| 40 | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 01 | 1D | 00 | 72 | 51 | D0 | 1E |
| 50 | 6E | 28 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 | 00 | 00 | FD | 00 |
| 60 | 3E | 1E | 53 | 10 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 | FC |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 1D |
| 80 | 02 | 03 | 26 | F1 | 4E | 10 | 1F | 84 | 13 | 05 | 14 | 03 | 02 | 12 | 20 |
| 90 | 22 | 15 | 01 | 26 | 15 | 07 | 50 | 09 | 57 | 07 | 67 | 03 | 0C | 00 | 20 |
| A0 | B8 | 2D | E3 | 05 | 03 | 01 | 01 | 1D | 80 | 18 | 71 | 1C | 16 | 20 | 58 |
| B0 | 25 | 00 | A0 | 5A | 00 | 00 | 00 | 9E | 01 | 1D | 00 | 80 | 51 | D0 | 1A |
| C0 | 6E | 88 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1A | 02 | 3A | 80 | 18 | 71 |
| D0 | 2D | 40 | 58 | 2C | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 66 | 21 | 50 |
| E0 | 51 | 00 | 1B | 30 | 40 | 70 | 36 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 |
| F0 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | BS |
| ** HDMI 4 : 256Bytes | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 6D | 01 | 00 | 01 | 01 | 01 |
| 10 | 01 | 14 | 01 | 03 | 80 | 73 | 41 | 78 | 0A | CF | 74 | A3 | 57 | 4C | B0 |
| 20 | 09 | 48 | 4C | A1 | 08 | 00 | 71 | 4F | 81 | 01 | 01 | 01 | 01 | 01 | 01 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 02 | 3A | 80 | 18 | 71 | 38 | 2D | 40 | 58 |
| 40 | 45 | 00 | 7E | 8A | 42 | 00 | 00 | 1E | 01 | 1D | 00 | 72 | 51 | D0 | 1E |
| 50 | 6E | 28 | 55 | 00 | 7E | 8A | 42 | 00 | 00 | 1E | 00 | 00 | 00 | FC | 00 |
| 60 | 3F | 1E | 53 | 10 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 | FC |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 1D |
| 80 | 02 | 03 | 26 | F1 | 4E | 10 | 1F | 84 | 13 | 05 | 14 | 03 | 02 | 12 | 20 |
| 90 | 22 | 15 | 01 | 26 | 15 | 07 | 50 | 09 | 57 | 07 | 67 | 03 | 0C | 00 | 20 |
| A0 | B8 | 2D | E3 | 05 | 03 | 01 | 01 | 1D | 80 | 18 | 71 | 1C | 16 | 20 | 58 |
| B0 | 25 | 00 | A0 | 5A | 00 | 00 | 00 | 9E | 01 | 1D | 00 | 80 | 51 | D0 | 1A |
| C0 | 6E | 88 | 55 | 00 | A0 | 5A | 00 | 00 | 00 | 1A | 02 | 3A | 80 | 18 | 71 |
| D0 | 2D | 40 | 58 | 2C | 45 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 66 | 21 | 50 |
| E0 | 51 | 00 | 1B | 30 | 40 | 70 | 36 | 00 | A0 | 5A | 00 | 00 | 00 | 1E | 00 |
| F0 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | A9 |

4.5. ADC Calibration : Comp 480i/Comp 1080p/RGB

4.5.1. ADC Calibration - Manual

- Required Equipments
 - Remote controller for adjustment
 - MSPG-925F/MSPG-1025/MSPG-3233 Pattern Generator



4.5.2. ADC Calibration – Using RS-232C

- Required Equipments
 - Jig (RS-232C protocol)
 - MSPG-925F/MSPG-1025/MSPG-3233 Pattern Generator
 - RS-232C cable

4.5.2.1. Process

- Connect Component/RGB, and RS-232C cable.
- Command : aa 00 00 [Enter ADC adj. mode](Automatically done)
 - aa 00 00 [Enter ADC adj. mode]
 - xb 00 04 [Change input source to Component1 (480i&1080p)]
 - ad 00 10 [Adjust 480i&1080p Comp1]
 - xb 00 06 [Change input source to RGB(1920x1080)]
 - ad 00 10 [Adjust 1920x1080 RGB]
 - aa 00 90 End adj.

4.6. Check SW Version

4.6.1. Method

- 1) Push In-star key on Adjust remote-controller.
- 2) SW Version check

| IN START | | Adjust Check | |
|---------------------------------|------------|-----------------------------|--------------------|
| Model Name : Global-Plat | | 1.Adjust Check | 4# |
| Serial Number : SKJY1107 | | 2.ADC Date | |
| S/W Version | : 00.00.01 | 3.Power Off Status | Country Group Code |
| MICOM Version | : 2.00.2 | 4.System | 11 |
| BOOT Version | : 1.01.01 | 5.Model Number D/L | Country Group |
| URSA Version | : 1.00 | 6.Test Option | A-CAS |
| IR LED Version | : ff | 7.External ADC | Country |
| EDID Version(RGB) | : 0.01 | 8.Bluetooth Test | - |
| EDID Version(HDMI) | : 0.02 | 9.Bluetooth AV CODEC Config | Tool Option1 |
| Marker | : 99 | 10.Spread Spectrum | Tool Option2 |
| BT S/W Version | : 1.21 | 11.Sync Level | Tool Option3 |
| BT HW Version | : 4384 | 12.Wireless Ready | Tool Option4 |
| Wireless Host Version | : 0.00.0 | 13.Stable Count | Tool Option5 |
| Wireless B/B Version | : 0.00.0 | 480i Component | OK |
| MAC Address : FF:FF:FF:FF:FF:FF | | 1080p Component | OK |
| UTT : 9 | | RGB | OK |
| UI Res. Version : 1.06 | | 5.EDID : | OK |
| APP History Ver. : xxxx | | RGB | OK(0x1C) |
| | | HDMI1 | OK(0xD0,0xF9) |
| | | HDMI2 | OK(0xD0,0xF9) |
| | | HDMI3 | OK(0x00,0xF9) |
| | | HDMI4 | OK(0x00,0xF9) |

5. SET assembly adjustment method

5.1. Input Area-Option

5.1.1. Profile : Must be changed the Area option value because being different of each Country's Language and signal Condition.

5.1.2. Equipment : adjustment remote control.

5.1.3. Adjustment method

- The input methods are same as other chassis.(Use IN-START Key on the Adjust Remotecon.)
- Refer to Job Expression of each main chassis ass'y (EBTxxxxxxxx) for Option value.

5.2. Adjustment of White Balance : (For Automatic Adjustment)

A Purpose : Adjust the color temperature to reduce the deviation of the module color temperature.

A Principle : To adjust the white balance without the saturation,
Fix the one of R/G/B gain to 192 (default data) and decrease the others.

A Adjustment mode : Three modes – Cool / Medium / Warm

* Required Equipment

A Remote controller for adjustment

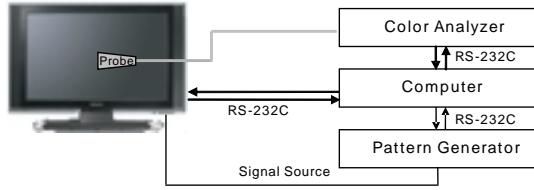
A Color Analyzer : CA100+ or CA-210 or same product (should be used in the calibrated ch by CS-1000)

- LCD TV : CH-9
- PDP TV : CH-10
- White LED TV : CH-14
- RGB LED(MNT) : CH-16

A Auto W/B adjustment instrument(only for Auto adjustment)

5.2.1. Adjustment of White Balance : (For Automatic Adjustment)

Connecting diagram of equipment for measuring (For Automatic Adjustment)



- 1) Set TV in adj. mode using POWER ON key
- 2) Zero calibrate probe then place it on the center of the Display
- 3) Connect Cable(RS-232C)
- 4) Select mode in adj. Program and begin adj.
- 5) When adj. is complete (OK Sing), check adj. status pre mode(Warm, Medium, Cool)
- 6) Remove probe and RS-232C cable to complete adj.

- W/B Adj. must begin as start command "wb 00 00" , and finish as end command "wb 00 ff", and Adj. offset if need

* Luminance min value is 150cd in the Cool/Medium/Warm mode(For LCD)

5.3. Adjustment of White Balance (for Manual adjustment)

- Ⓐ Color analyzer(CA100+, CA210) should be used in the calibrated ch by CS-1000
- Ⓐ Operate the zero-calibration of the CA100+ or CA-210, then stick sensor to the modul adjusting.
- Ⓐ For manual adjustment, it is also possible by the following sequence.
 - 1) Select white pattern of heat-run by pressing "POWER ON" key on remote control for adjustment then operate heat run longer than 15 minutes.
(If not executed this step, the condition for W/B may be different.)
 - 2) Push "Exit" key.
 - 3) Change to the AV mode by remote control.
 - 4) Input external pattern (85% white pattern)
 - 5) Push the ADJ key -> Enter "0000" (Password)
 - 6) Select "3. W/B ADJUST"
 - 7) Enter the W/B ADJUST Mode
 - 8) Stick the sensor to the center of the screen and select each items (Red/Green/Blue Gain and Offset) using D/E (CH +/-) key on R/C.
 - 9) Adjust R/ G/ B Gain using F /G(VOL +/-) key on R/C.
 - 10) Adjust three modes all (Cool / Medium / Warm) : Fix the one of R/G/B gain and change the others
 - 11) When adjustment is completed, Enter "COPY ALL"
 - 12) Exit adjustment mode using EXIT key on R/C.

1 CASE

First adjust the coordinate far away from the target value(x, y).

1. x, y > target
 - i) Decrease the R, G.
2. x, y < target
 - i) First decrease the B gain,
 - ii) Decrease the one of the others.
3. x > target , y < target
 - i) First decrease B, so make y a little more than the target.
 - ii) Adjust x value by decreasing the R
4. x < target , y > target
 - i) First decrease B, so make x a little more than the target.
 - ii) Adjust x value by decreasing the G

5.4. Intelligent Sensor Inspection Guide

Step 1. Turn on the TV set.

Step 2. Press "EYE" button on the Adjustment remote controller.

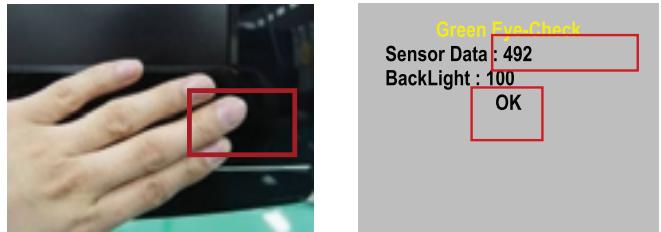


Step 3. Block the Intelligent Sensor module on the front C/A about 6 seconds.

When the "Sensor Data" is lower than 20, you can see the "OK" message

=> If it doesn't show "OK" message, the Sensor Module is defected one.

You have to replace that with a good one.



Step 4. After check the "OK" message come out, take out your hand from the Sensor module.

=> Check "Sensor Data" value change from "0" to "300" or not. If it doesn't change the value, the sensor is also defected one. You have to replace it.

5.5. Blue-Tooth Inspection Guide

5.5.1. Test Condition.

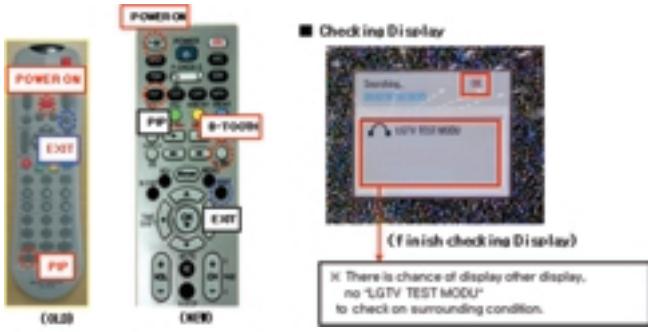
Must located another set in a state of DC ON (without checking set) in closer distance(5M).

-On total assembly step, S/W deal with connection (between Set and another Set, other device that be compatible with Bluetooth)

5.5.2. Need device : same set in closer distance, adjustment remote control

5.5.3. Method

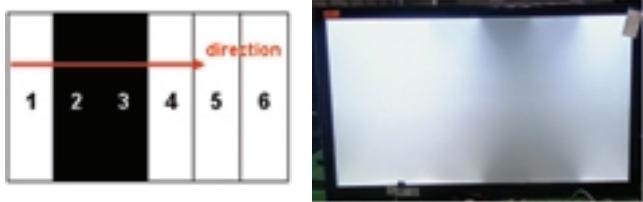
- 1) Push "Power on key" on adjustment remote control.
change "Bluetooth On" mode
- 2) Push "EXIT" KEY
- 3) Push "B-TOOTH"(NEW) or "PIP"(OLD) Key
- 4) Check "Searching OK" message
- 5) Push "Exit" key, finish check.



5.6. Local Dimming Inspection (Optional)

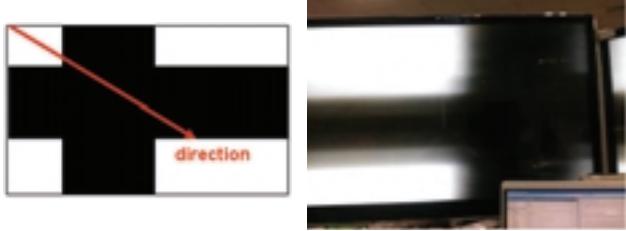
5.6.1. Edge LED models with local dimming

- 1) Press 'TILT' key of the Adj. R/C and check moving patterns.
The black bar patterns moves from left to right. If local dimming function does not work, a whole screen shows full white.



5.6.2. IOP LED models with local dimming

- 1) Press 'TILT' key of the Adj. R/C and check moving patterns.
The black cross-bar patterns moves from top-left to Bottom-right. If local dimming function does not work, a whole screen shows full white.



5.7. Preset CH information

5.7.1. Analog CH Table_Ver_1_0

| Storage | Factory | System | Band | CH | CH Name | Freq(Mhz) | Freq(50Khz) |
|---------|---------|--------|------|-------|----------------|-----------|------------------|
| 0 | | | | | | | |
| 1 | | PAL | BG | V/UHF | NZ01 | C 01 | 45.25 |
| 2 | | SECAM | DK | V/UHF | R34 | C 34 | 575.25 |
| 3 | | PAL | BG | V/UHF | EU05 | C 05 | 175.25 |
| 4 | | PAL | I | Cable | PI11 | S 11 | 231.25 |
| 5 | | NTSC | | V/UHF | BR48 | | 675.25 |
| 6 | | PAL | BG | V/UHF | E04 | C 04 | 62.25 |
| 7 | | PAL | BG | V/UHF | EU07 | C 07 | 189.25 |
| 8 | | PAL | BG | V/UHF | EU50 | C 50 | 703.25 |
| 9 | | PAL | BG | V/UHF | EU52 | C 52 | 719.25 |
| 10 | | PAL | I | V/UHF | PI41 | C 41 | 631.25 |
| 11 | | PAL | I | V/UHF | PI63 | C 63 | 807.25 |
| 12 | | PAL | BG | Cable | 5 | S 47 | 102.25 |
| 13 | | PAL | BG | V/UHF | 21 | C 21 | 471.25 |
| 14 | | SECAM | L | V/UHF | SLB | C 02 | 55.75 |
| 15 | | SECAM | L | Cable | CATVE | S 07 | 152.75 |
| 16 | | SECAM | L | V/UHF | SL36 | C 36 | 591.25 |
| 17 | | | | | | | |
| 18 | | PAL | B | V/UHF | E5 | C 05 | 175.25 |
| 19 | | PAL | G | V/UHF | E51 | C 51 | 711.25 |
| 20 | | PAL | I | V/UHF | I41 | C 41 | 631.25 |
| 21 | | SECAM | D | V/UHF | R5 | C 05 | 93.25 |
| 22 | | PAL | B | V/UHF | E4 | C 04 | 62.25 |
| 23 | | PAL | G | V/UHF | E31 | C 31 | 551.25 |
| 24 | | PAL | I | V/UHF | I21 | C 21 | 471.25 |
| 25 | | PAL | I | V/UHF | I69 | C 69 | 855.25 |
| 26 | | PAL | G | V/UHF | E48 | C 48 | 687.25 |
| 27 | | SECAM | L | V/UHF | L4 | C 08 | 200.00 |
| 28 | | SECAM | L | V/UHF | L45 | C 45 | 663.25 |
| 29 | | PAL | G | V/UHF | E25 | C 25 | 503.25 |
| 30 | | SECAM | D | V/UHF | R7 | C 07 | 183.25 |
| 31 | | SECAM | D | V/UHF | R7 | C 07 | 189.25 |
| 32 | | | | | | | |
| 33 | | | | | | | |
| 34 | | NTSC | M | V/UHF | US-4 | C 04 | 67.25 |
| 35 | | NTSC | M | V/UHF | J01 | C 01 | 91.25 |
| 36 | | NTSC | M | V/UHF | US-13(J11) | C 13 | 211.25 |
| 37 | | NTSC | M | V/UHF | US-14(J13) | C 14 | 471.25 |
| 38 | | NTSC | M | V/UHF | US-63(J62) | C 63 | 765.25 |
| 39 | | NTSC | M | Cable | CATV-15 | S 15 | 127.25 |
| 40 | | NTSC | M | V/UHF | US-18(Digital) | C 18 | 497(Center Freq) |
| 41 | | SECAM | D/K | V/UHF | R-1(CIS) | C 01 | 49.75 |
| 42 | | PAL | D/K | V/UHF | D-10(China10) | C 10 | 200.25 |
| 43 | | PAL | D/K | V/UHF | K-36 | C 36 | 695.25 |
| 44 | | PAL | B/G | V/UHF | E-5 | C 05 | 175.25 |
| 45 | | PAL | B/G | V/UHF | G-40 | C 40 | 623.25 |
| 46 | | PAL | I | V/UHF | I-28 | C 28 | 527.25 |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | PAL | D/K | V/UHF | D-1 | C 01 | 49.75 |
| 50 | | PAL | D/K | V/UHF | D-4 | C 04 | 77.25 |
| 51 | | PAL | D/K | V/UHF | D-10 | C 10 | 200.25 |
| 52 | | PAL | B/G | V/UHF | E-5 | C 05 | 175.25 |
| 53 | | SECAM | D/K | V/UHF | R-12 | C 12 | 223.25 |
| 54 | | NTSC | M | V/UHF | US-14 | C 14 | 471.25 |
| 55 | | SECAM | D/K | V/UHF | R-34 | C 34 | 575.25 |
| 56 | | PAL | I | V/UHF | I-41 | C 41 | 631.25 |
| 57 | | NTSC | M | V/UHF | US-63 | C 63 | 765.25 |
| 58 | | | | | | | |
| 59 | | SECAM | B/G | V/UHF | E-04 | C 04 | 62.25 |
| 60 | | SECAM | D/K | V/UHF | R-05 | C 05 | 93.25 |
| 61 | | PAL | B/G | V/UHF | E-05 | C 05 | 175.25 |
| 62 | | SECAM | D/K | V/UHF | R-12 | C 12 | 223.25 |
| 63 | | PAL | B/G | V/UHF | E-21 | C 21 | 471.25 |
| 64 | | SECAM | D/K | V/UHF | R-34 | C 34 | 575.25 |
| 65 | | SECAM | D/K | V/UHF | R-54 | C 54 | 735.25 |
| 66 | | | | | | | |
| 67 | | | | | | | |
| 68 | | PAL | B/G | V/UHF | E-2 | C 02 | 48.25 |
| 69 | | PAL | B/G | V/UHF | E-5 | C 05 | 175.25 |
| 70 | | PAL | B/G | V/UHF | E-11 | C 11 | 217.25 |
| 71 | | PAL | B/G | V/UHF | E-25 | C 25 | 503.25 |
| 72 | | PAL | B/G | V/UHF | E-36 | C 36 | 591.25 |
| 73 | | PAL | I | V/UHF | I-30 | C 30 | 543.25 |
| 74 | | PAL | I | Cable | I-11 | S 11 | 231.25 |
| 75 | | SECAM | D/K | Cable | R-05 | S 45 | 93.25 |
| 76 | | SECAM | D/K | V/UHF | R-34 | C 34 | 575.25 |
| 77 | | SECAM | L | V/UHF | F-B | C 47 | 55.75 |
| 78 | | NTSC | M | V/UHF | US-04 | C 4 | 67.25 |
| 79 | | PAL | N | V/UHF | N-10 | C 10 | 193.25 |
| 80 | | NTSC | M | V/UHF | US-11 | C 11 | 199.25 |
| 81 | | NTSC | M | V/UHF | US-13 | C 13 | 211.25 |
| 82 | | NTSC | M | V/UHF | US-30 | C 30 | 567.25 |
| 83 | | SECAM | L | V/UHF | F-49 | C 49 | 695.25 |
| 84 | | PAL | M | V/UHF | M-69 | C 69 | 801.25 |
| 85 | | JAPAN | M | Cable | JA-01 | S 95 | 91.25 |
| 86 | | JAPAN | M | V/UHF | JA-04 | J 4 | 171.25 |
| 87 | | JAPAN | M | V/UHF | JA-36 | 37 | 609.3 |
| 88 | | PAL | B/G | Cable | Au-5 | S-47 | 102.25 |
| 89 | | | | | | | |
| 90 | | | | | | | |
| 91 | | PAL | B/G | V/UHF | E-05 | C 05 | 175.25 |
| 92 | | NTSC | M | V/UHF | US-13 | C 13 | 211.25 |
| 93 | | SECAM | D/K | V/UHF | R-12 | C 12 | 223.25 |
| 94 | | PAL | D/K | V/UHF | D-01 | C 01 | 49.75 |
| 95 | | SECAM | D/K | V/UHF | R-34 | C 34 | 575.25 |
| 96 | | PAL | B/G | V/UHF | E-21 | C 21 | 471.25 |
| 97 | | PAL | D/K | V/UHF | D-04 | C 04 | 77.25 |

5.7.2. Preset CH write condition

- 1) AC on time on only one after assembled automatically
- 2) In case of PAL model, CH recover on SVC OSD manually
In case of NTSC model, default channel : -> After In-Stop / Factory reset
- TV : 2,3,4,5,6,7,8,9,10,11,12,13,14,30,51,55,63 CATV : 15,16,17,55,95

5.7.3. Preset CH erase condition

- 1) In-Stop key

5.8. Internal press test

| No | Item | Value | Unit | Remark |
|----|--------------------------------|-------|------|-------------------------|
| 1. | Dielectric Voltage(AC<->FG) | 1.5 | kV | At 100mA for 1sec(Line) |
| | | 1.5 | | At 100mA for 1min(OQC) |
| 2. | Dielectric Voltage(Without FG) | 3 | kV | At 100mA for 1sec(Line) |
| | | 3 | | At 100mA for 1min(OQC) |

5.9. Motion Remote controller Inspection

5.9.1. Equipment : Motion remote controller for test, IR-KEY-CODE remote controller for test Check battery before test. (Recommend : Change battery for every Lot.)

5.9.2. Process

- 1) Push "Mute" or " START" key for pairing between TV-set and motion remote controller.
- 2) Push "OK" or "Enter" key, you can see the Cursor on screen.
- 3) Push "Vol+" or "STOP" key, Disconnect Pairing.

5.10. 3D Function test

5.10.1. Equipment : Pattern Generator MSPG-3233, HDMI mode 37, pattern No. 81

5.9.2. Process

- 1) Connect HDMI (HDMI mode 371, Pattern No. 81)



- 2) Insert 3D Mode, Select side by side mode.
- 3) Without 3D-glasses, Like below figure.



- 4) With 3D left-glass, Like below figure. (Center is RED)



- 5) With 3Dright-glass, Like below figure.(Center is Blue)



** Appendix **

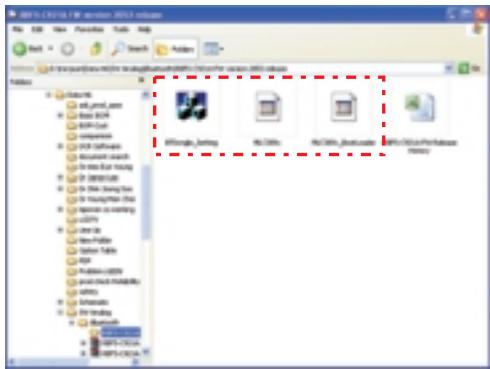
D. Bluetooth S/W Upgrade by using USB drive Input

1. Preparation Equipment

- a. USB Memory Stick



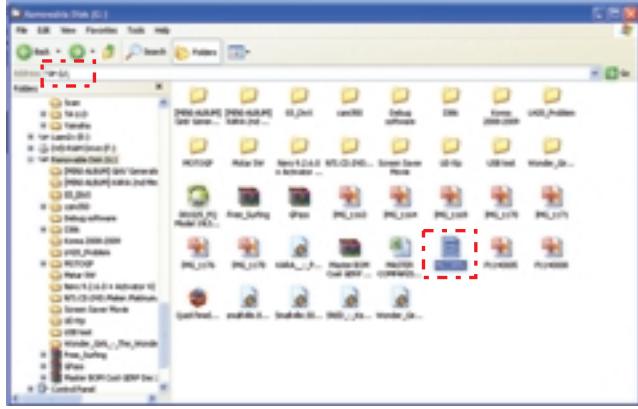
b. New Bluetooth Software



c. Copy New File

Copy Bluetooth software MCL389x.bin file to memory stick with out folder.

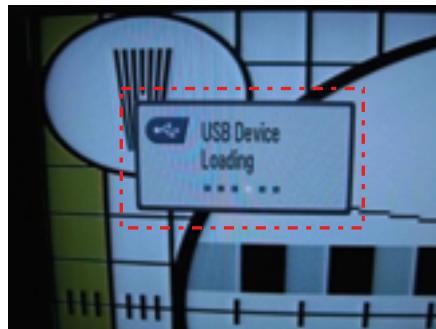
*Caution : Do not copy the file to the inside folder



2. Connection

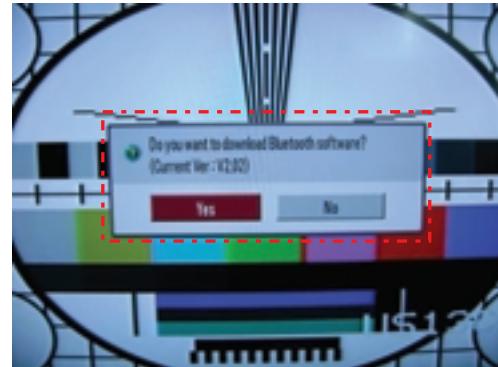
Plug-in USB Memory stick to the USB input of the set.

3. USB input Automatically loading menu



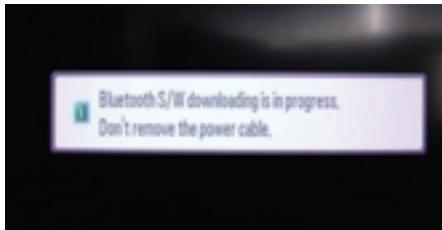
* The OSD "USB Device loading" is appealed by automatically....

4. Selecting Window for Bluetooth Software update



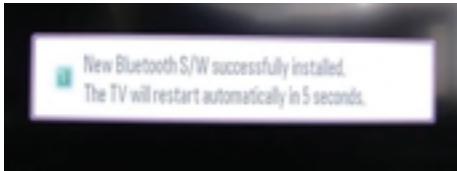
- The Pop-up window appears for selecting to update Bluetooth software and information about current Bluetooth software. (Ex : V2.02)
- Select "Yes"

5. Bluetooth S/W Downloading Process



- Time Process Downloading new Bluetooth software about 10seconds
- Please Wait until finish and do not un-plug power cable

6. OSD – Bluetooth software updated successfully



- OSD Information Bluetooth software update success
- LCDTV Set will restart by automatically...
- Time Process to restart about 5seconds

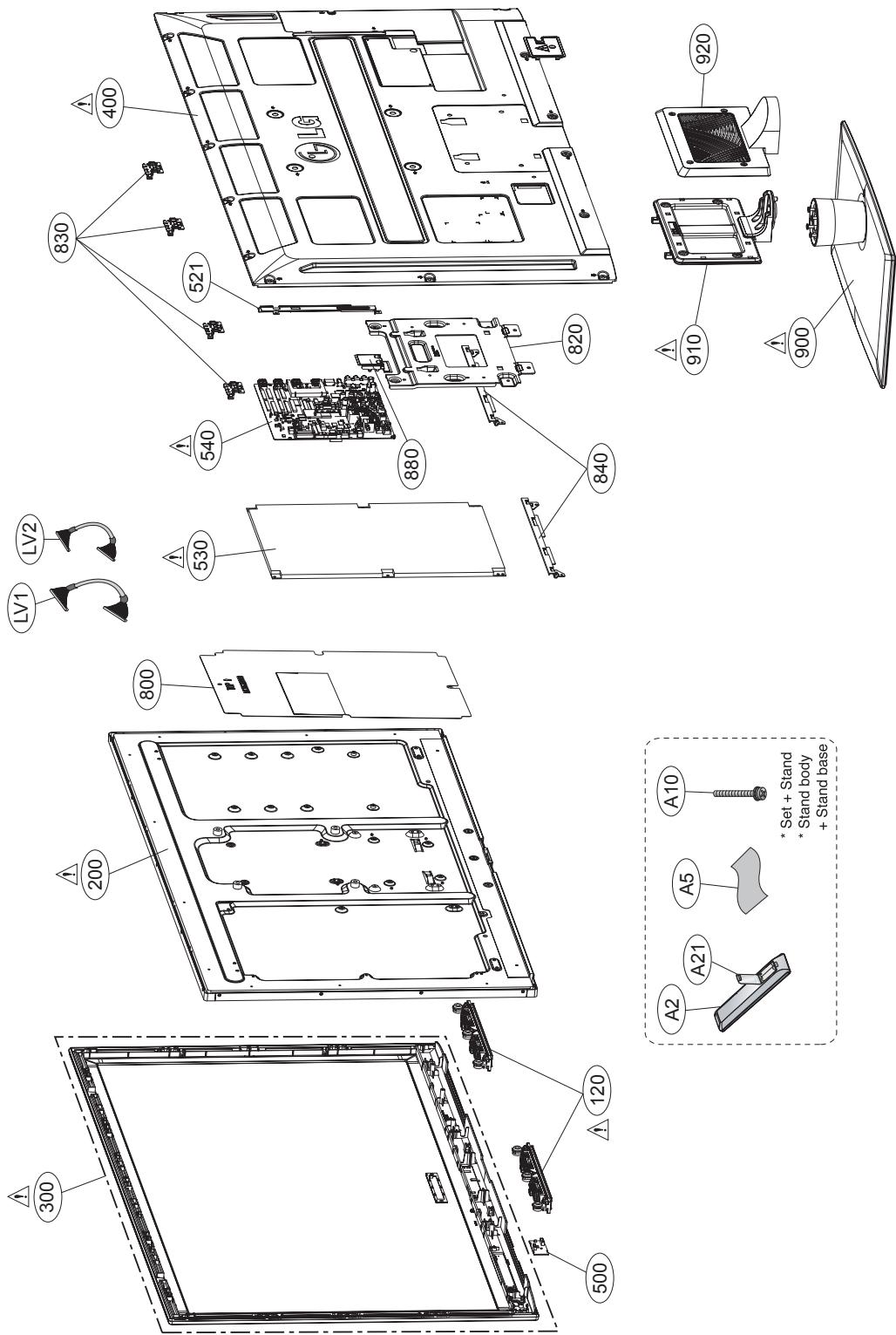
7. Check S/W Version

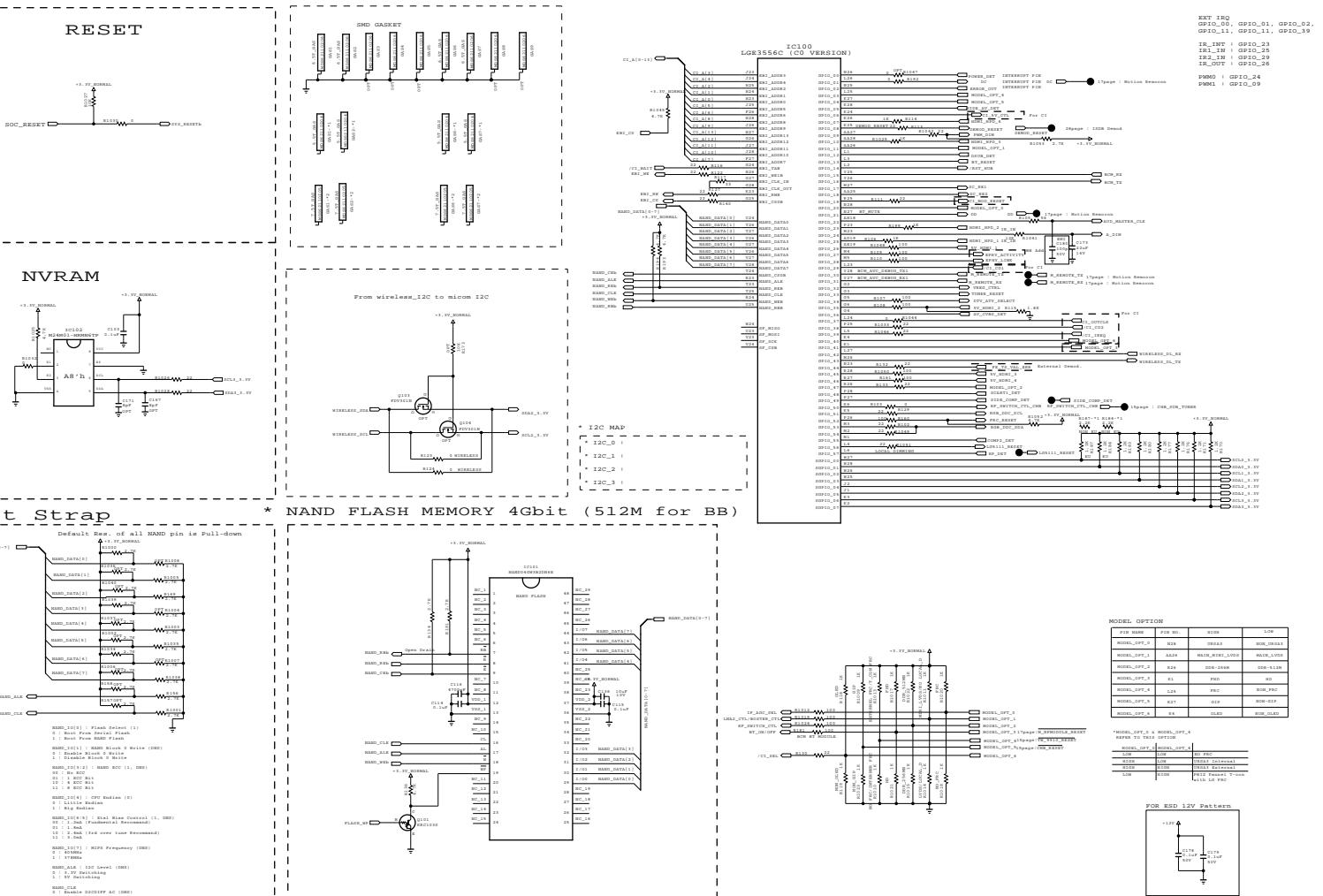
- Push “IN-START” button on service remote Controller
- Check Information Bluetooth S/W version will appear on OSD Service Menu.
Example : Bluetooth SW version 2.05

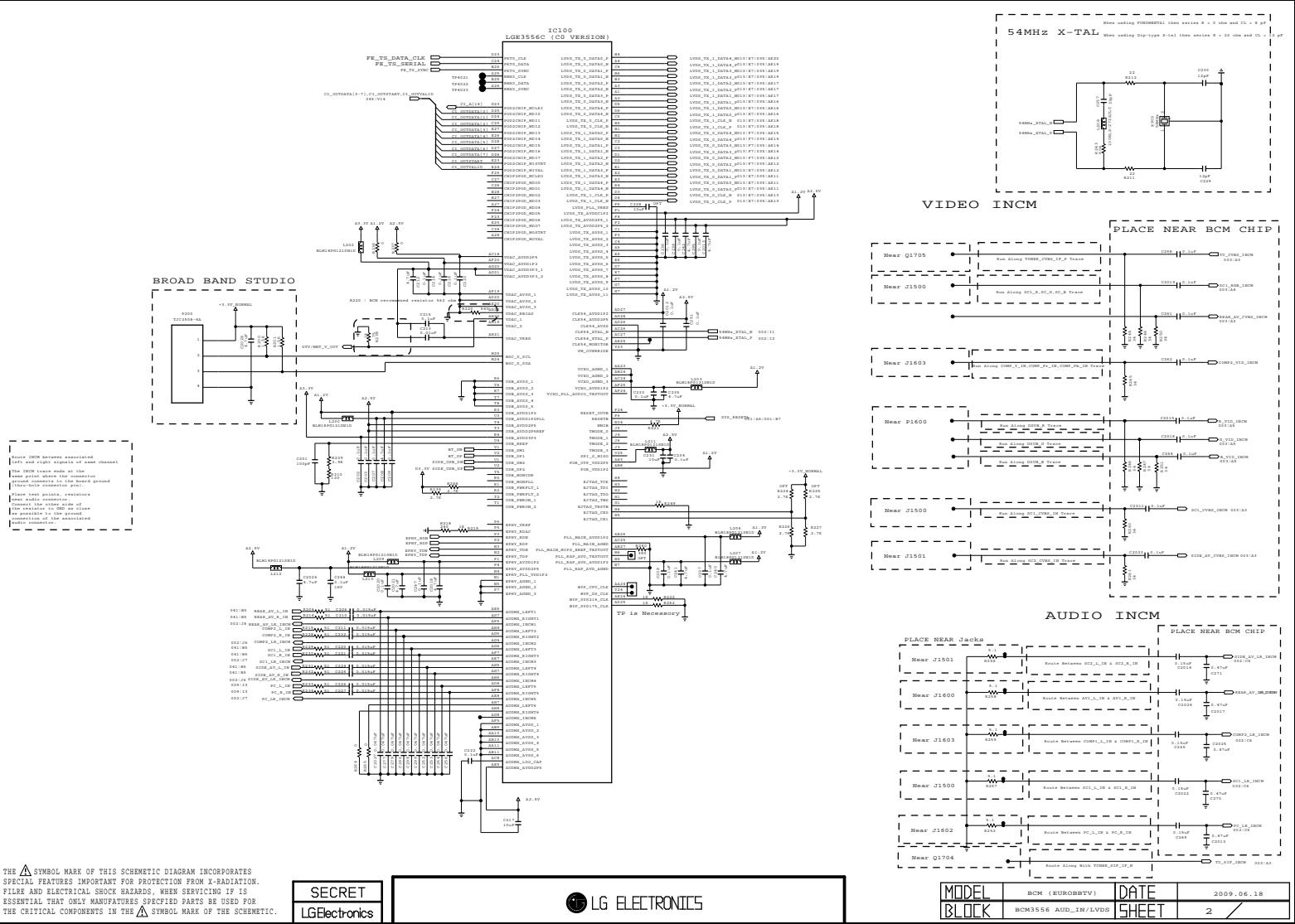
EXPLODED VIEW

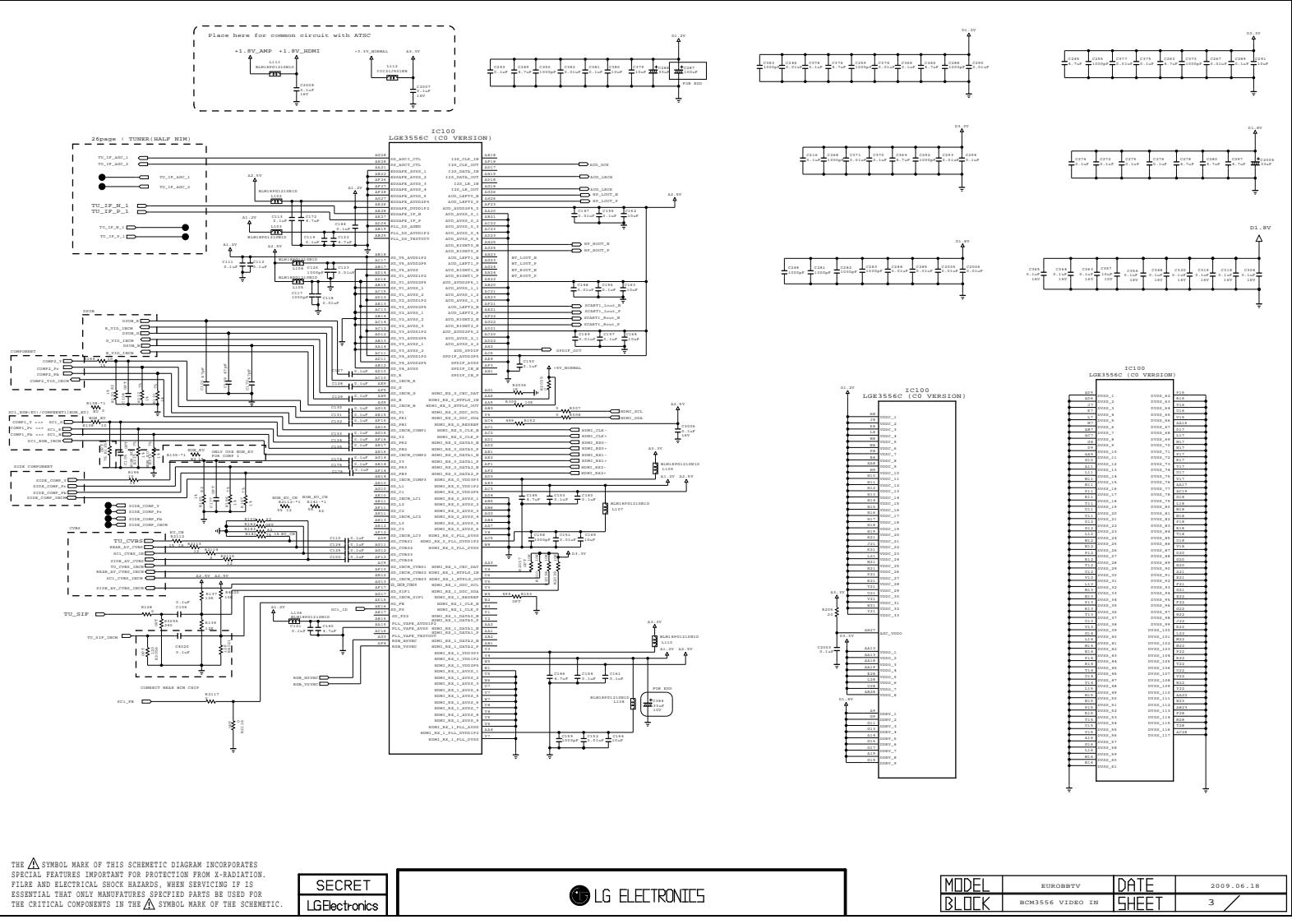
IMPORTANT SAFETY NOTICE

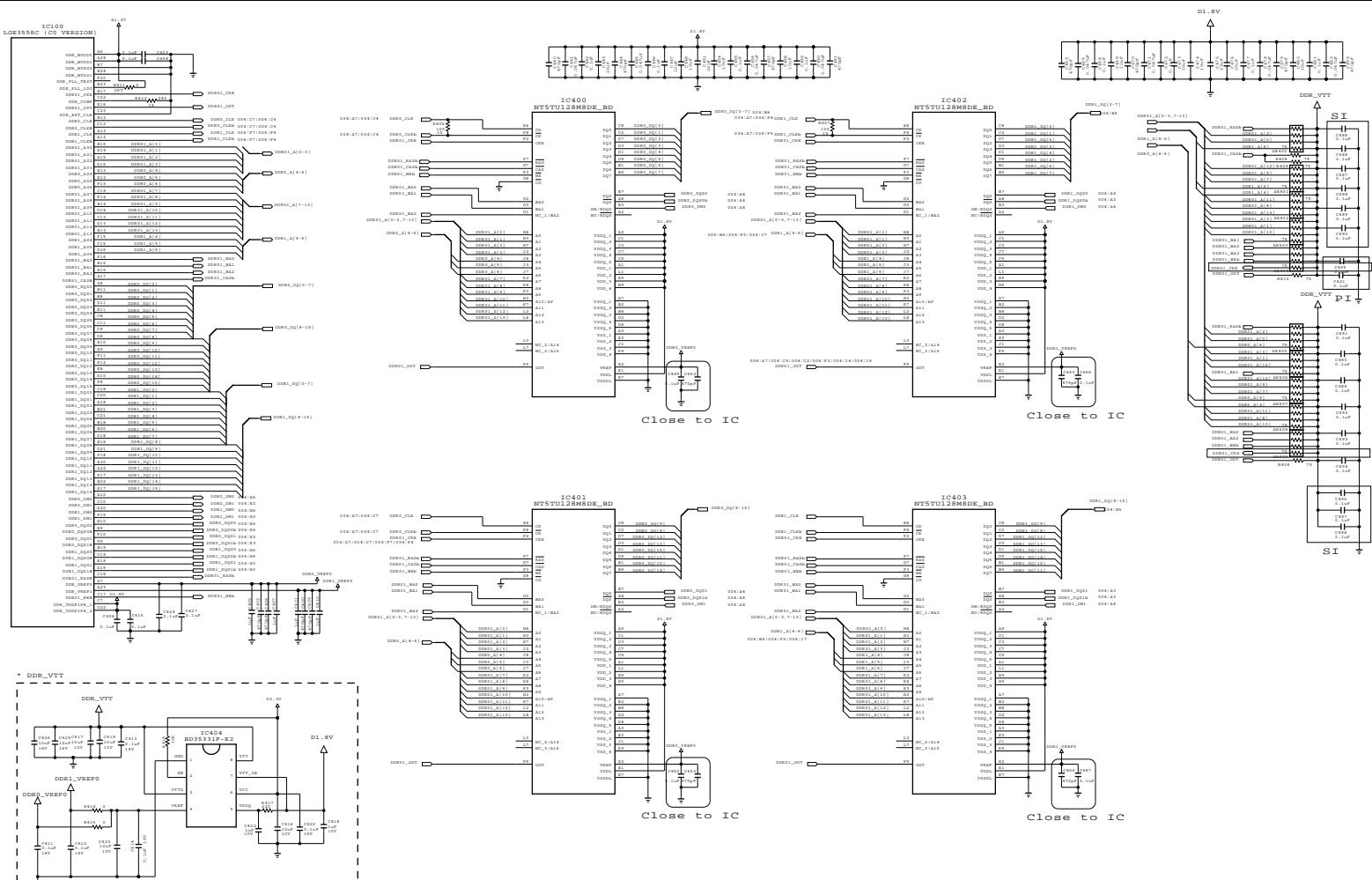
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by  in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.











THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. IT IS ESSENTIAL THAT ONLY MANUFACTURED SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

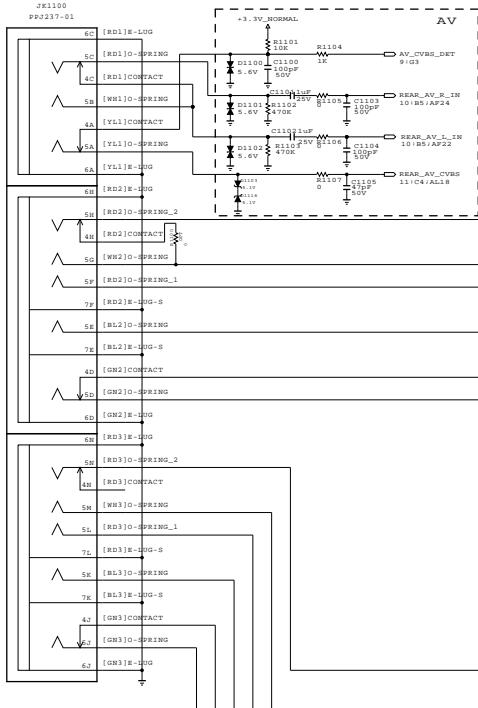
SECRET
LG Electronics

HONG YEON HYUK

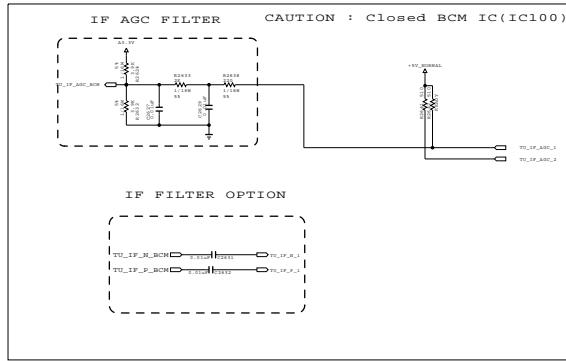
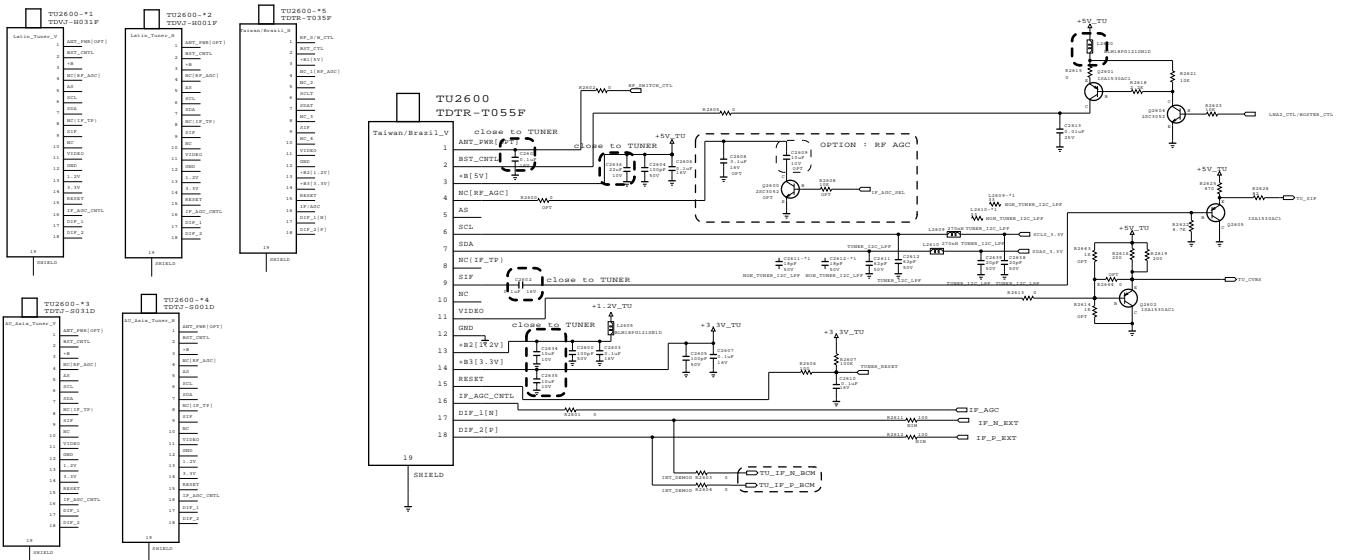
LG ELECTRONICS

| | | | |
|--------------|-----------------|--------------|------------|
| MODEL | BOM (EUROMBDTV) | DATE | 2009.06.18 |
| BLOCK | DDR Memory | SHEET | 4 |

**COMPONENT1
COMPONENT2
AV1**



CAN H-NIM/NIM TUNER for TAIWAN

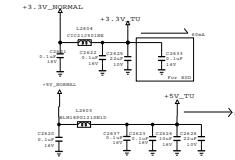
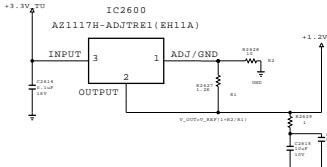


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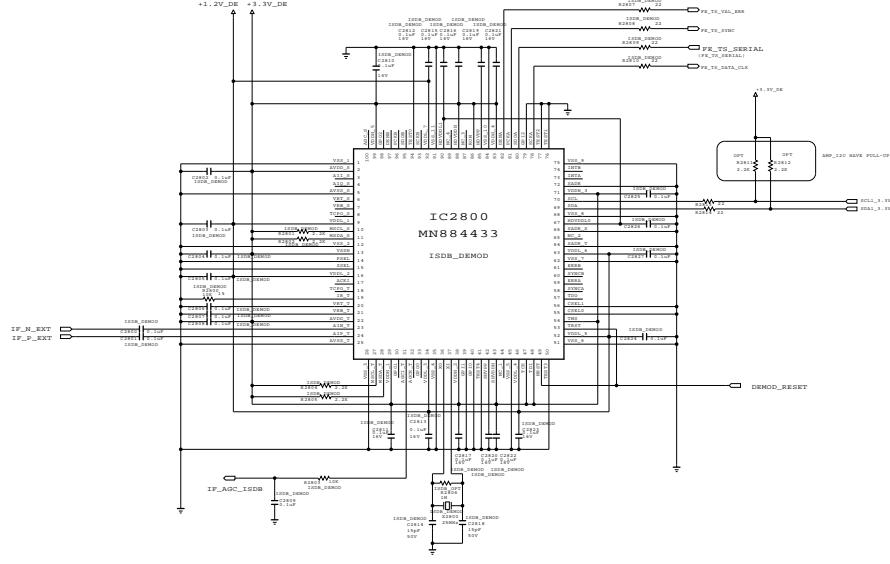
SECRET
LGElectronics

LG ELECTRONICS

| | | | |
|----------------|----------|--------------------------|----------------|
| MODEL BLOCK | GPI2_BCM | DATE Tuner (Half Nim) | Ver. 1.0 28 |
| | | | |



PANASONIC (ISDB-T)
MN884433



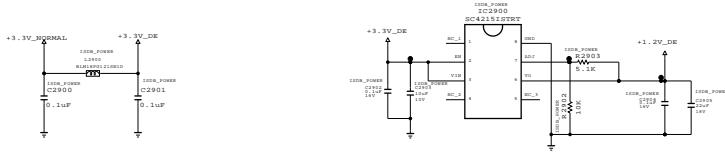
The  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. IT IS ESSENTIAL THAT ONLY MANUFACTURED SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

LG ELECTRONICS

| | | | |
|-------|--------------------|-------|----------|
| MODEL | GPI2_Saturn7M | DATE | Ver. 1.0 |
| BLOCK | ISDB-T Demodulator | SHEET | 28 / |

Panasonic Demodulator Power (3.3V, 1.2V)



IF AGC SELECTION



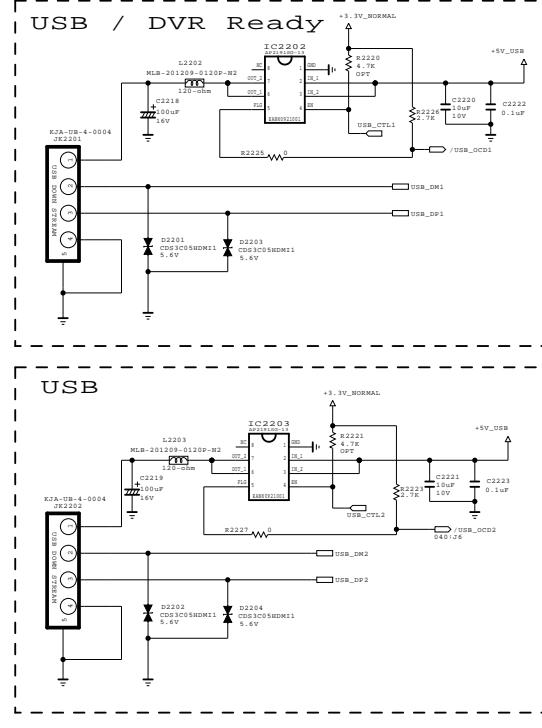
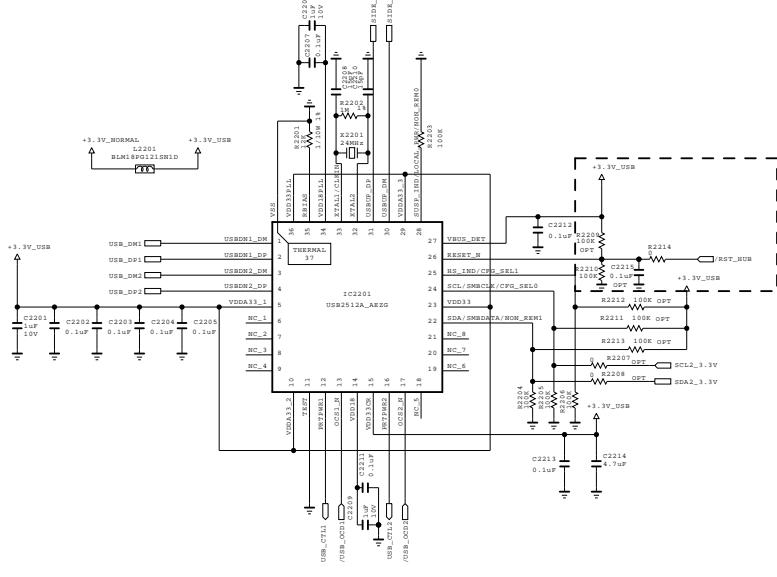
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. IT IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

LG ELECTRONICS

| | | | |
|-------|---------------|-------|----------|
| MODEL | GPI2_Saturn7M | DATE | Ver. 1.0 |
| BLOCK | Demodulator | SHEET | 29 / |

USB2 OPTION



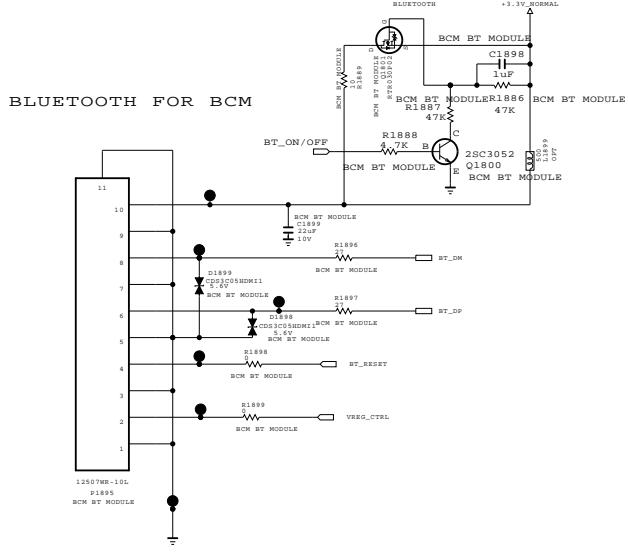
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

LG ELECTRONICS

| | |
|-------|-------|
| MODEL | DATE |
| BLOCK | SHEET |

40

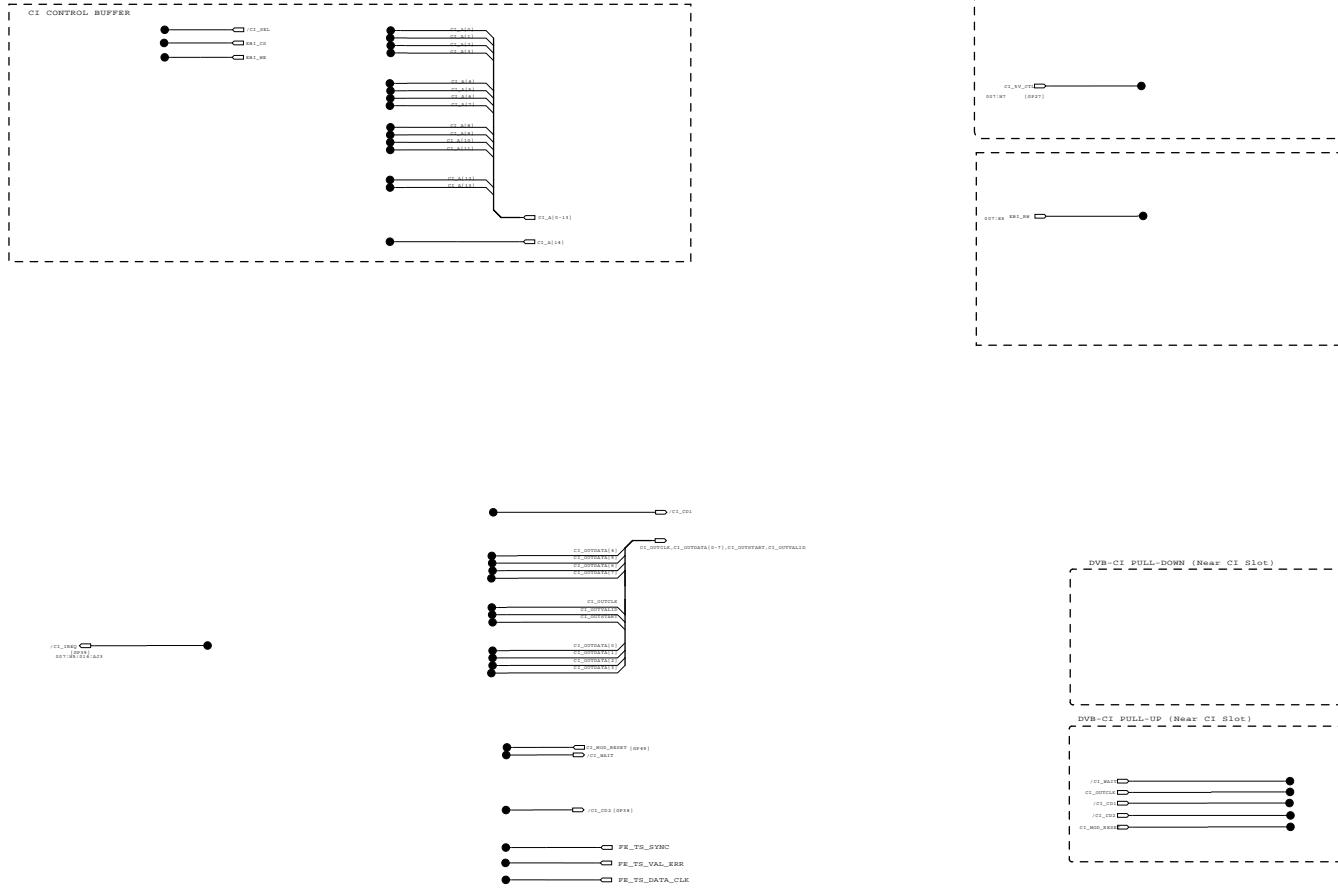


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SECRET
LG Electronics

LG ELECTRONICS

| MODEL | DATE |
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| | |
| BLOCK | SHEET |
| | 43 |

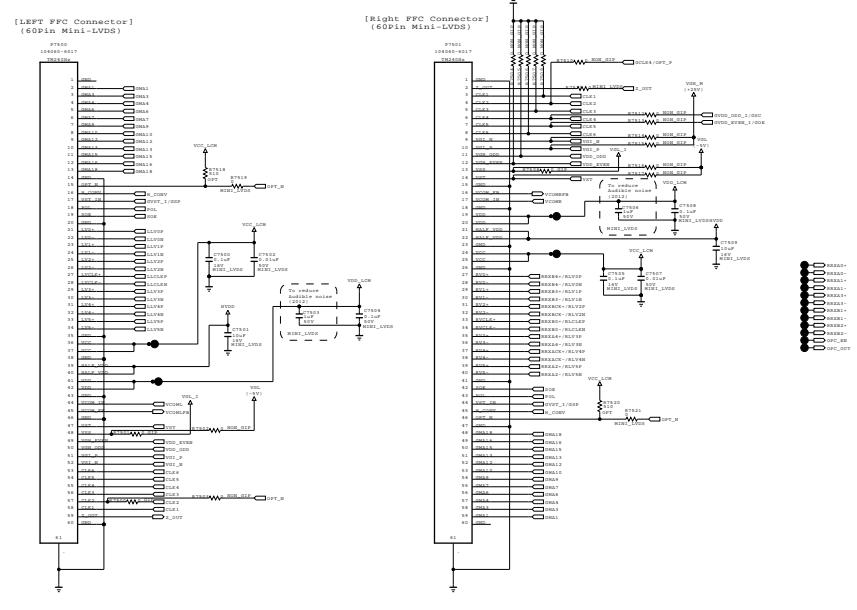


THE **△** SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE **△** SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

LG ELECTRONICS

| | | | |
|--------------|---------------------|--------------|------------|
| MODEL | High_Common(BCM556) | DATE | 2009.10.19 |
| BLOCK | Non_CI | SHEET | 46 |



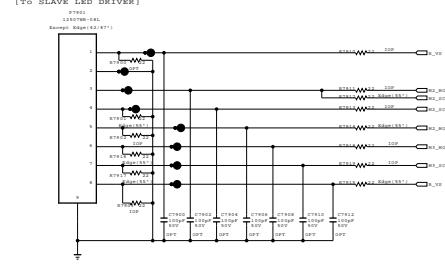
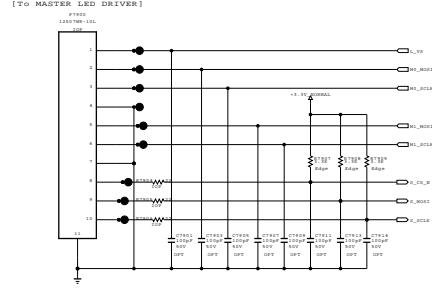
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SECRET
LG Electronics

LG ELECTRONICS

| | |
|-------|-------|
| MODEL | DATE |
| BLOCK | SHEET |

35



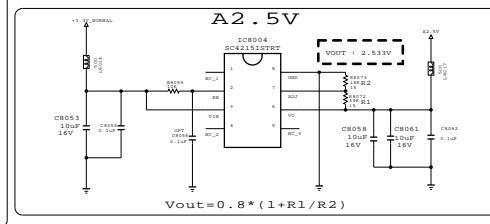
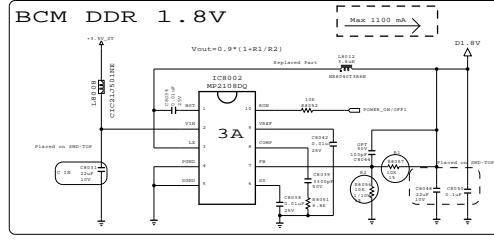
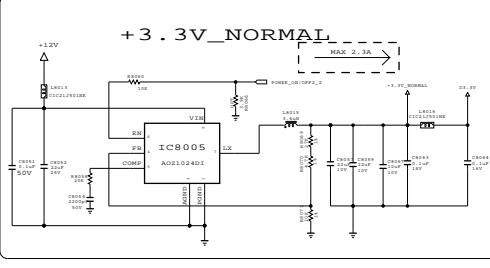
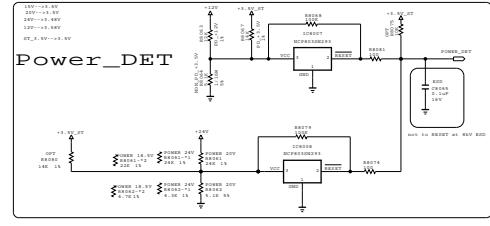
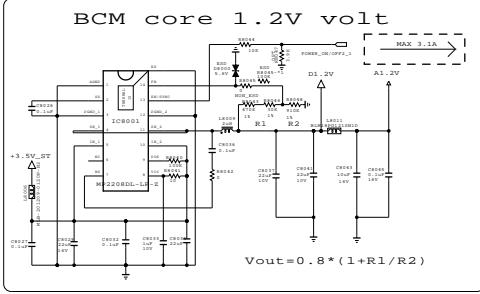
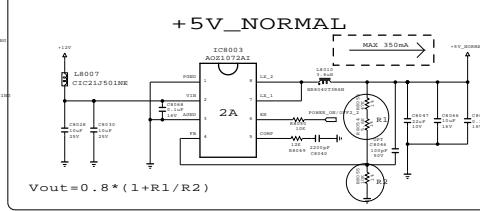
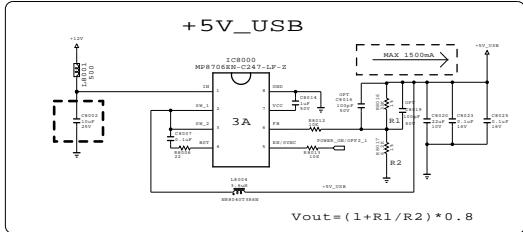
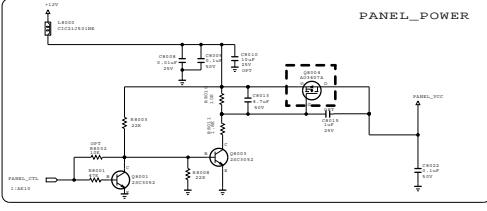
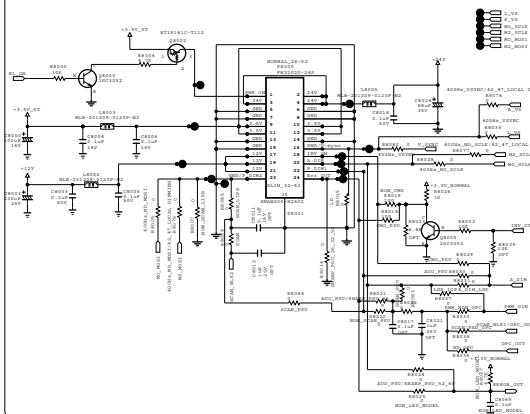
The  symbol mark of this schematic diagram incorporates special features important for protection from X-radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer specified parts be used for the critical components in the  symbol mark of the schematic.

SECRET
LG Electronics

 LG ELECTRONICS

| | | | |
|-------|----------------------|-------|----------|
| MODEL | GPZ_Saturn7M | DATE | Ver. 1.0 |
| BLOCK | Interface for LGS111 | SHEET | 72 |

FROM LIPS & POWER B/D

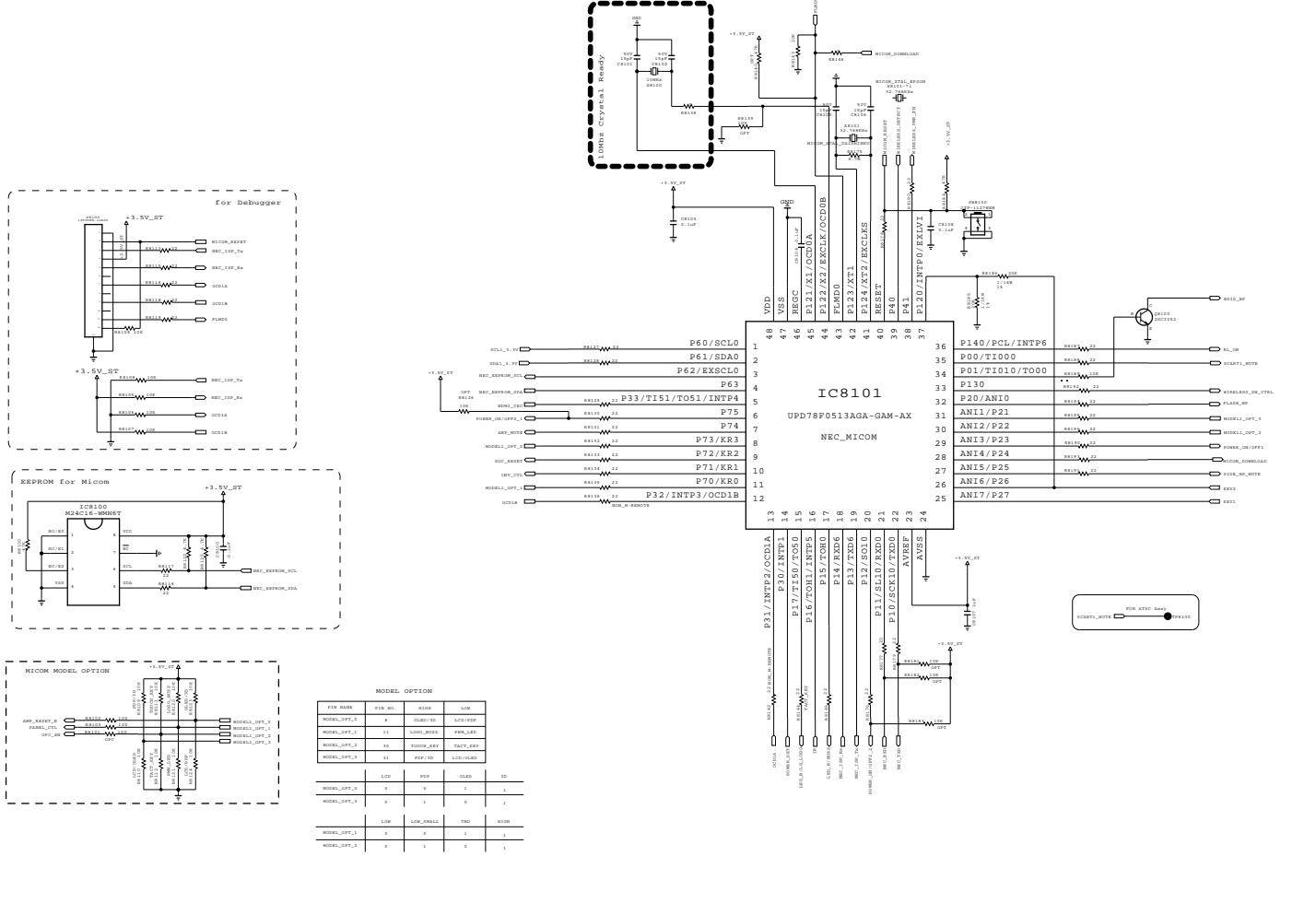


THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. IT IS ESSENTIAL THAT ONLY MANUFACTURED SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

LG ELECTRONICS

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| MODEL | BCM (EUROSBIV) | DATE |
| BLOCK | POWER | SHEET |



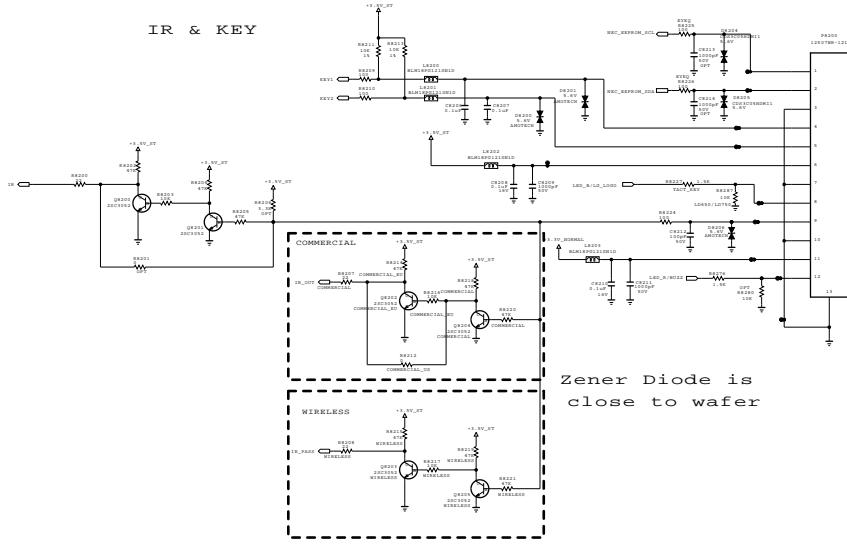
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

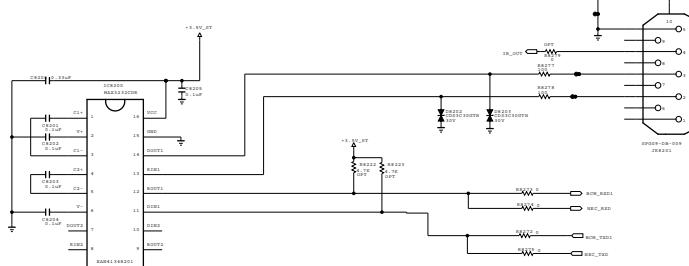
LG ELECTRONICS

| | | | |
|--------------|---------------|--------------|----------|
| MODEL | GPI2_Saturn7M | DATE | Ver. 1.4 |
| BLOCK | MICOM | SHEET | 5 |

IR & KEY



RS 232C

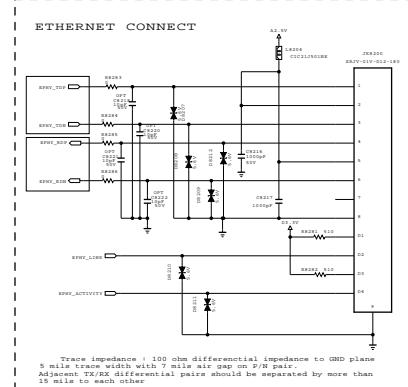


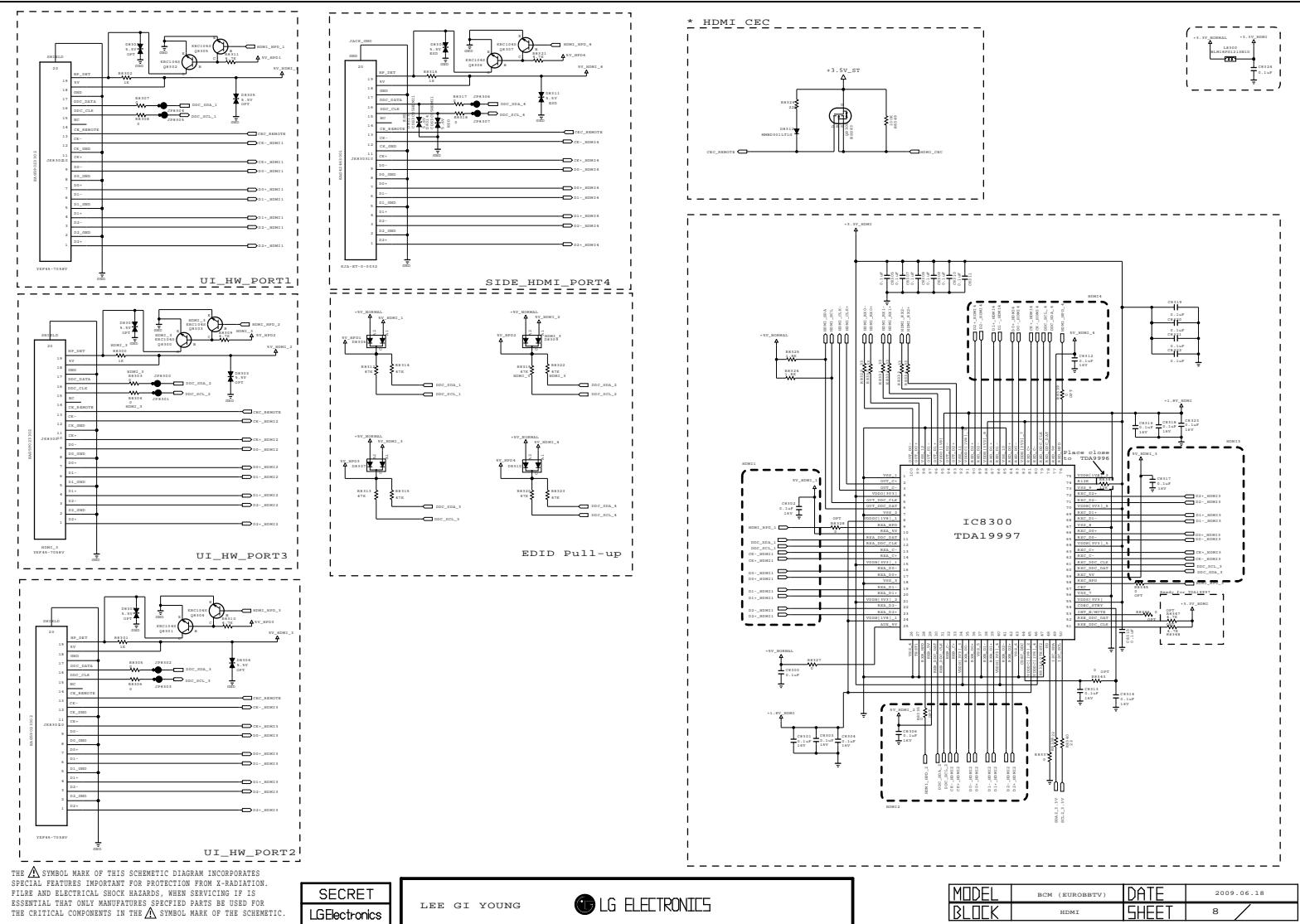
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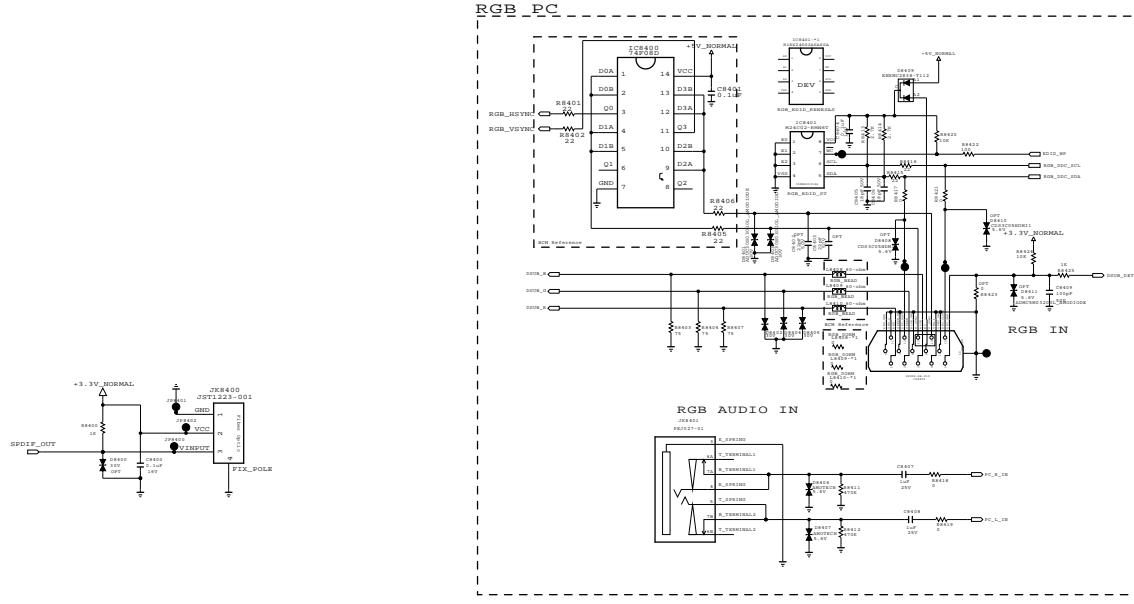
SECRET
LGElectronics

LG ELECTRONICS

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| MODEL | DATE |
| BLOCK | SHEET |







THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. IT IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

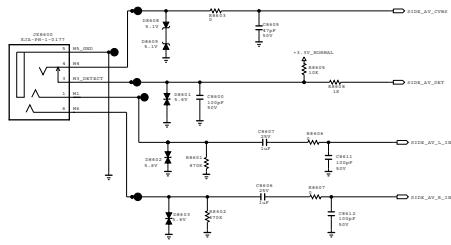
SECRET
LG Electronics

LG ELECTRONICS

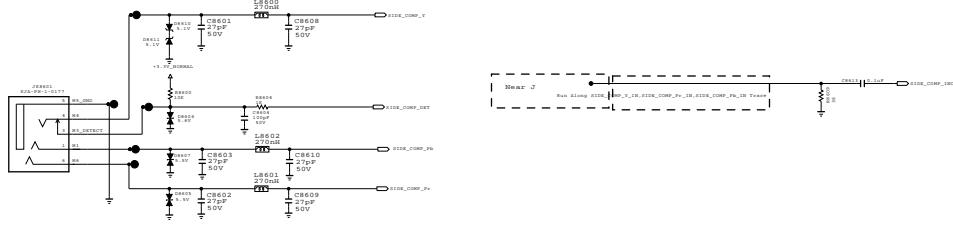
| | | | |
|--------------|-------------------|--------------|------------|
| MODEL | EUROBRTV | DATE | 2009.06.18 |
| BLOCK | ETC SUB BOARD 1/F | SHEET | 9 / |

ALL for SIDE_GENDER option

SIDE CVBS PHONE JACK
(New Item Developmen)



SIDE COMPONENT PHONE JACK
(New Item Developmen)



THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

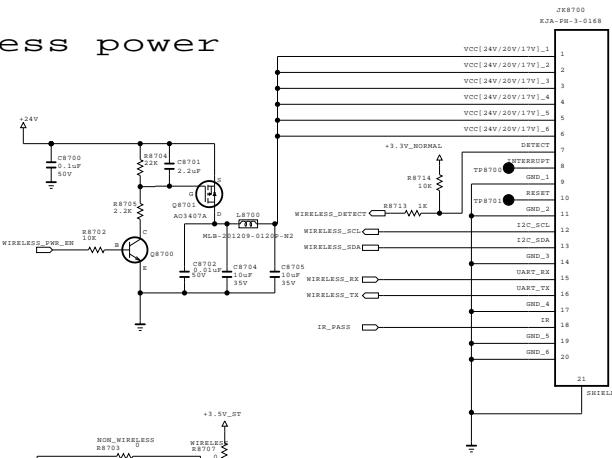
LG ELECTRONICS

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|-------|-------|
| MODEL | DATE |
| BLOCK | SHEET |

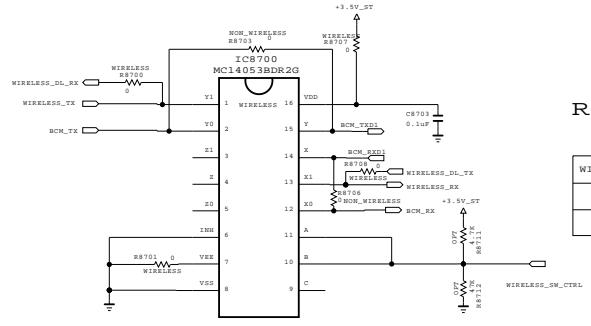
11 /

WIRELESS READY MODEL

Wireless power



RS232C & Wireless



| WIRELESS_SW_CTRL | SELECT PIN | STATUS |
|------------------|------------|--|
| HIGH | X1/Y1/Z1 | WIRELESS Dongle connect --> WIRELESS RS232 |
| LOW | X0/Y0/Z0 | WIRELESS Dongle Dis_con --> S7 RS232 |

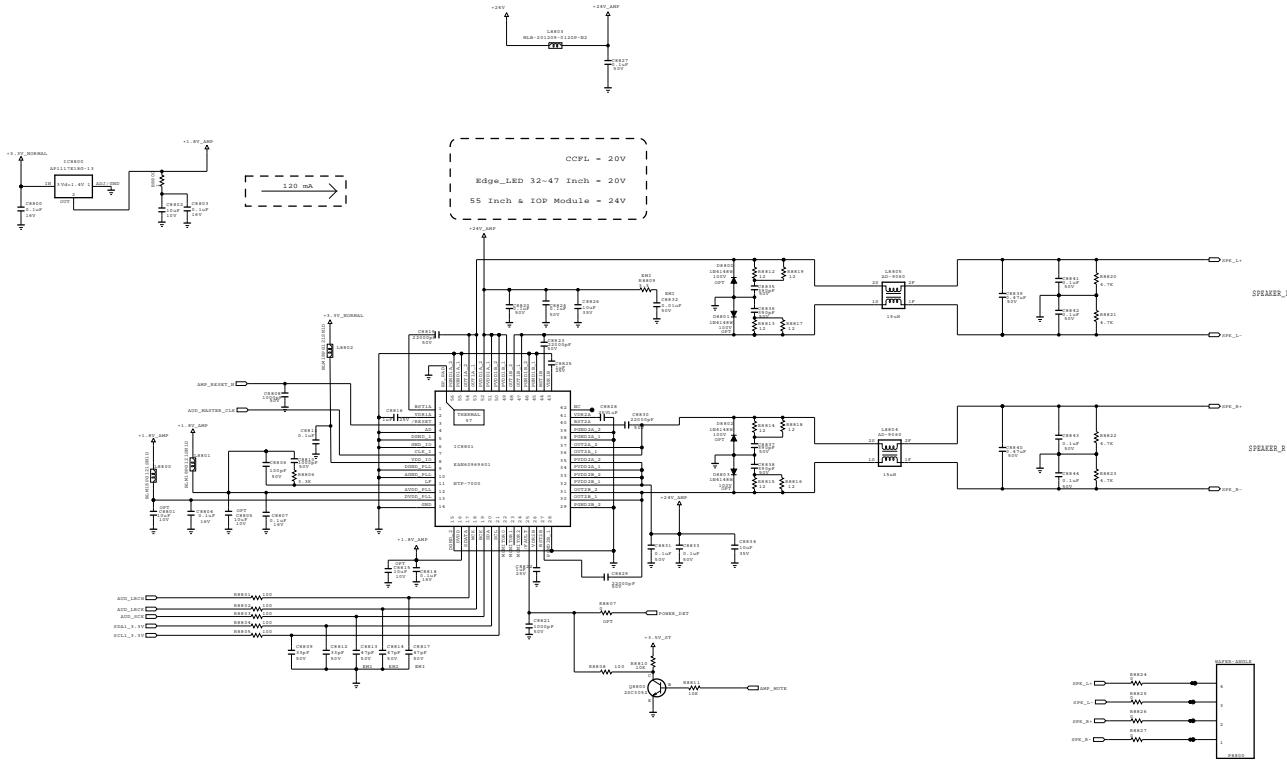
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

LG ELECTRONICS

| | |
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| MODEL | DATE |
| BLOCK | SHEET |

12



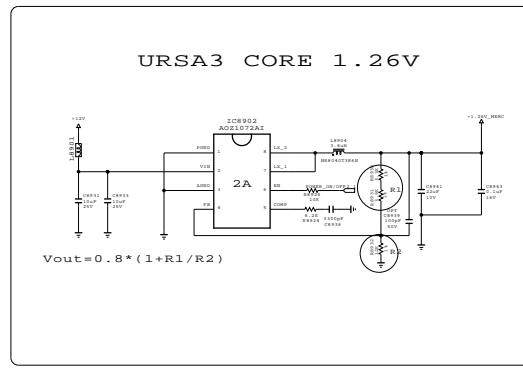
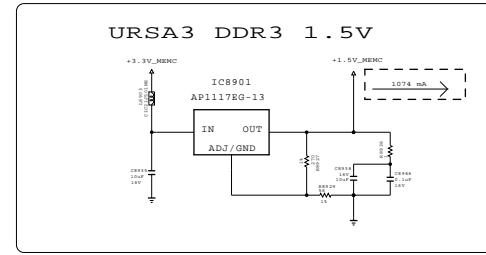
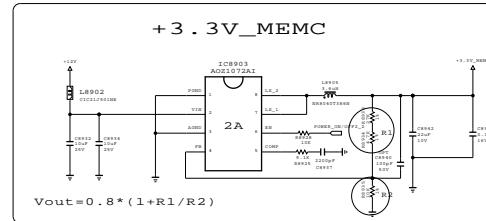
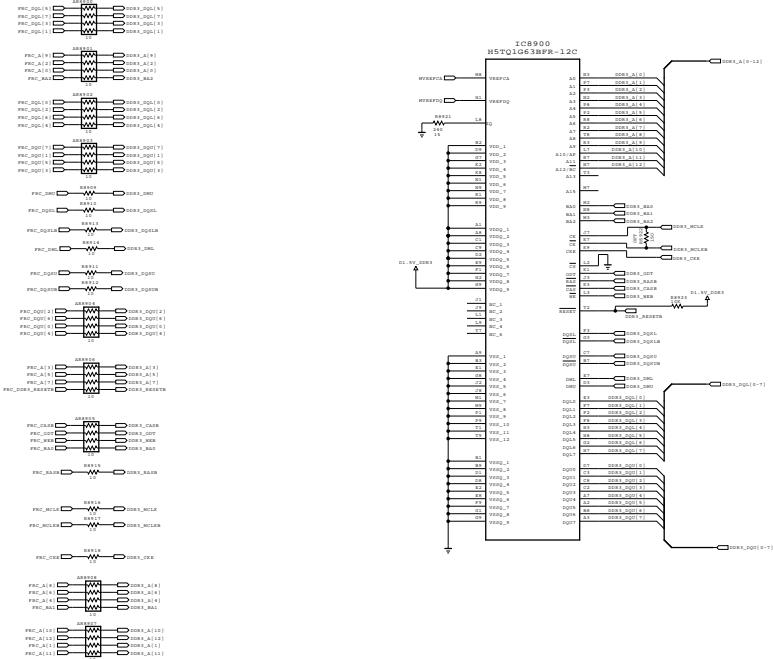
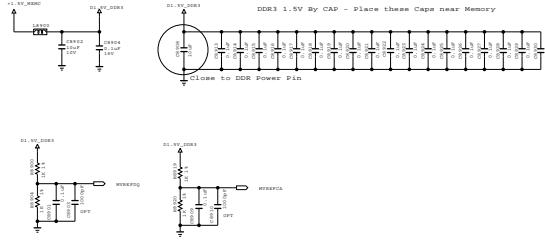
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SECRET
LG Electronics

KIM JONG HYUN

LG ELECTRONICS

| | | | |
|-----------------------|---------------------------|----------------------|------------------|
| MODEL BLOCK | BCM (EUROBEAM) NTP7000 | DATE SHEET | 2009.06.18 38 |
|-----------------------|---------------------------|----------------------|------------------|

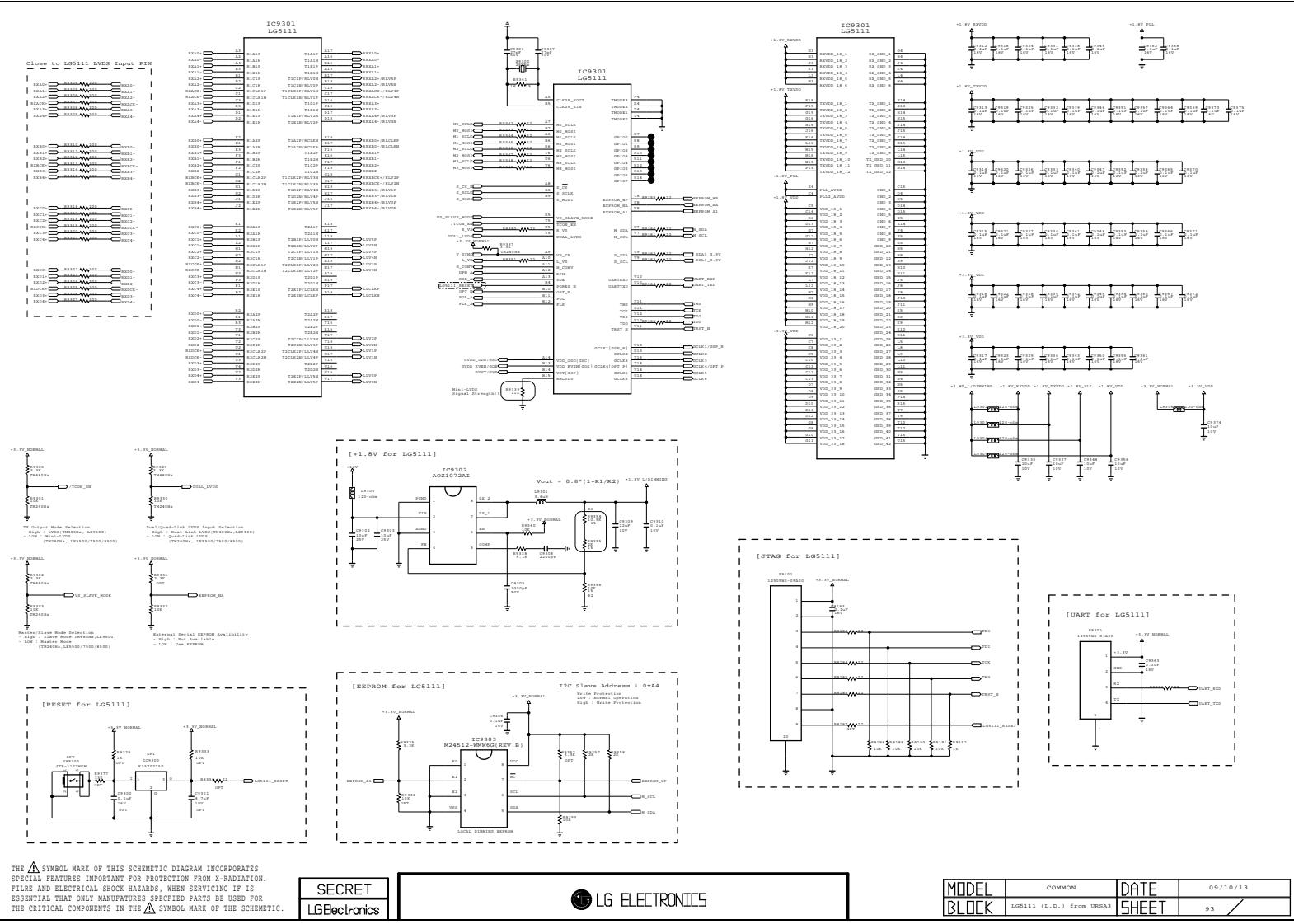


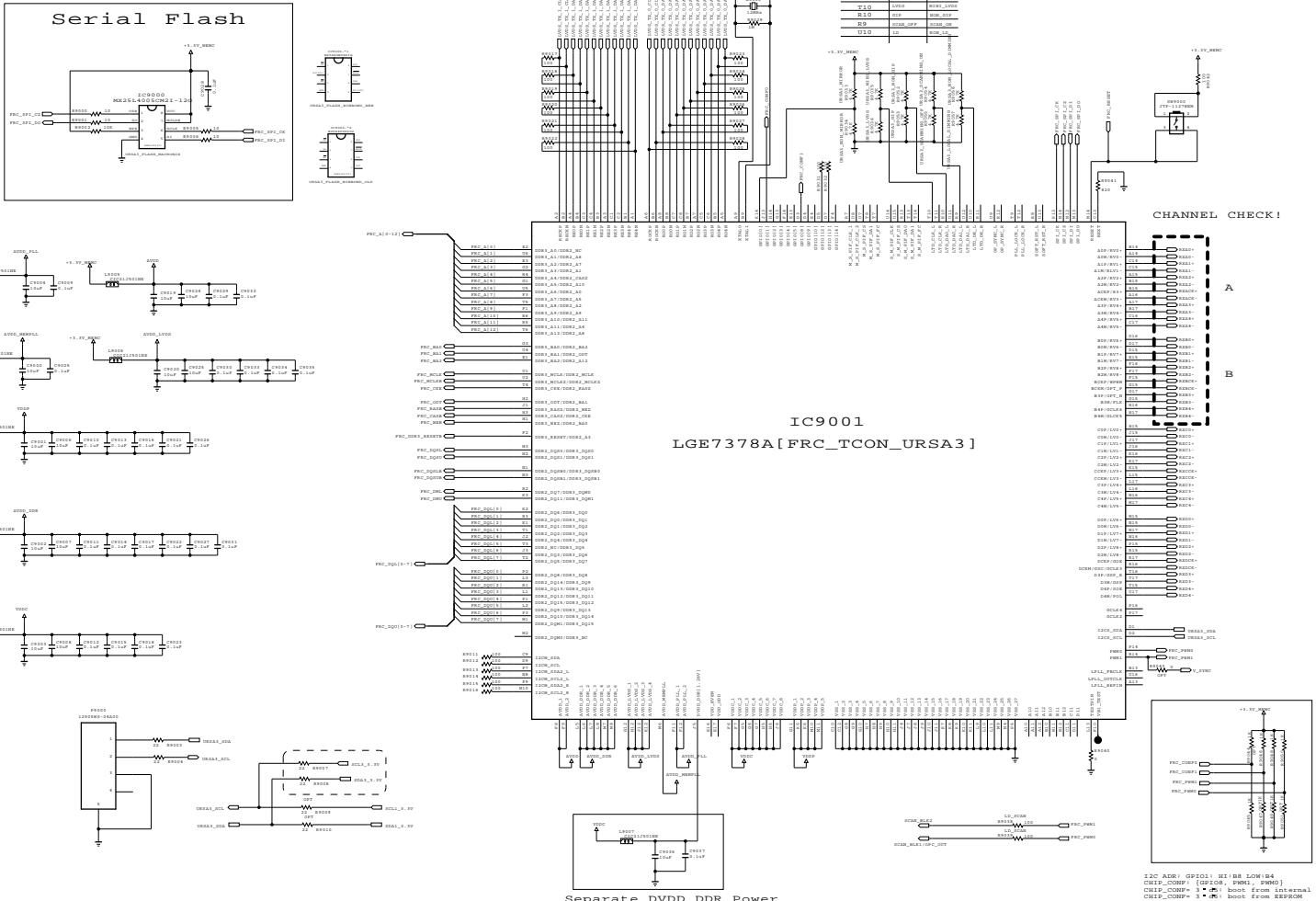
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SECRET
LGElectronics

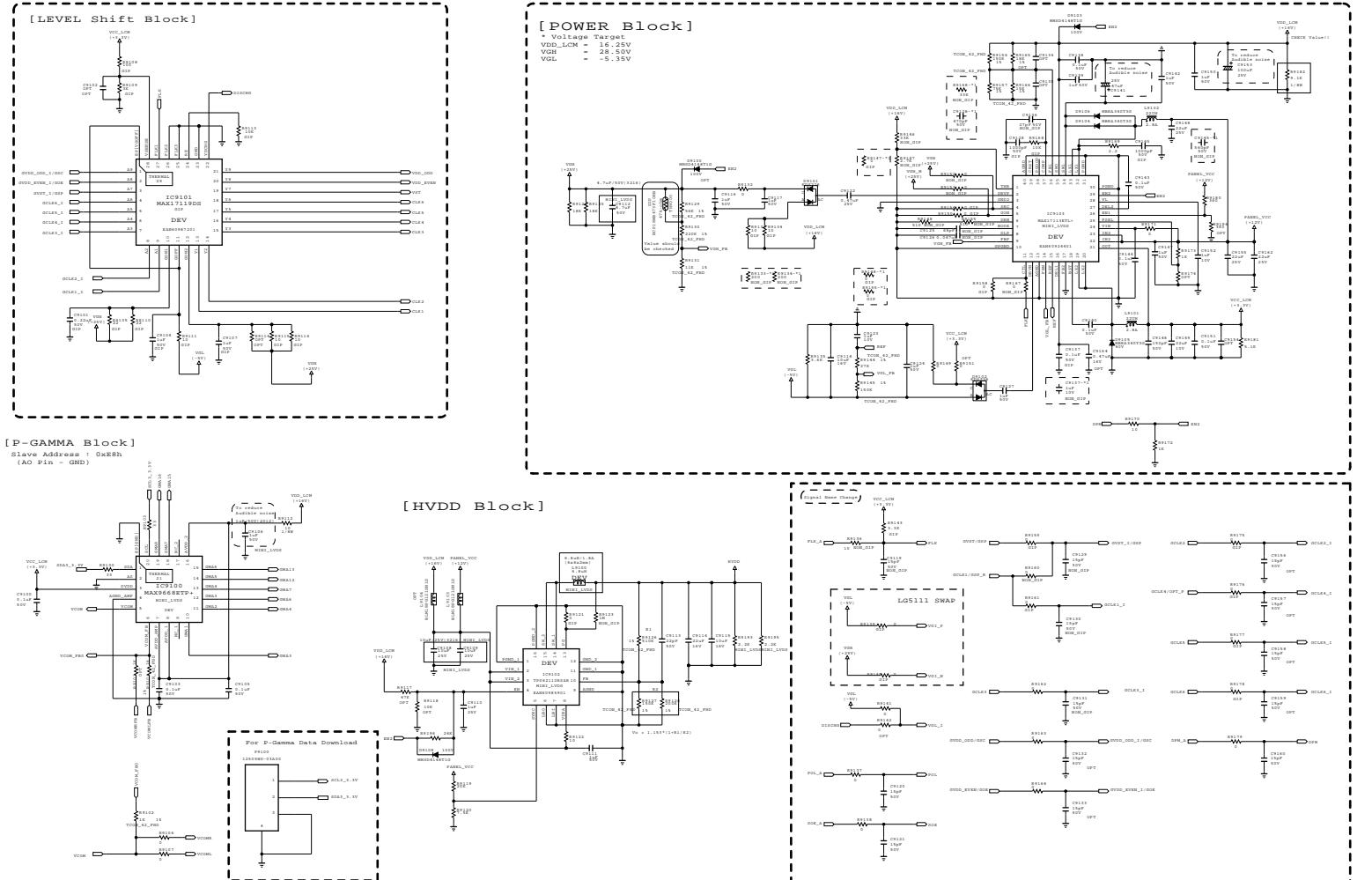
LG ELECTRONICS

| | | |
|-----------------------|-------------------|--------------------|
| MODEL URSA3 | COMMON | DATE 2009.09.11 |
| BLOCK | URSA3 DDR & Power | SHEET 89 |





| MODEL | COMMON | DATE |
|-------|--------------|------------|
| BLOCK | URSA3 (L.D.) | 2009-09-11 |

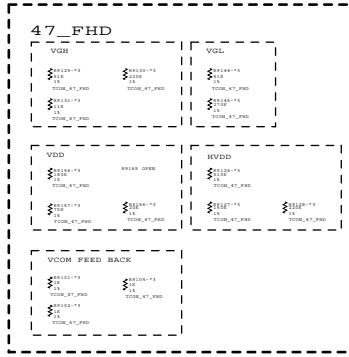
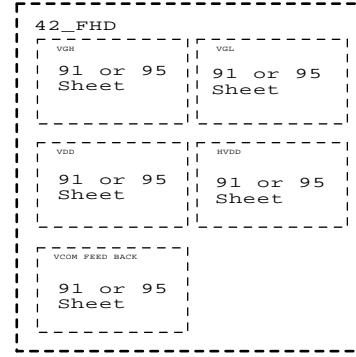
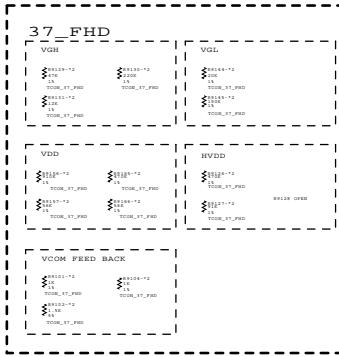
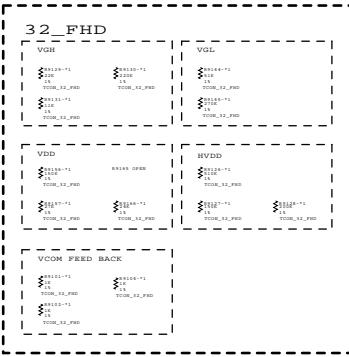


THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILTER AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

LG ELECTRONICS

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|----------------|------------------------|------------------|
| MODEL BLOCK | COMMON T-Con (L.D.) | DATE 09/09/10 |
|----------------|------------------------|------------------|



THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURE SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LG Electronics

LG ELECTRONICS

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|--------------|--------------------|--------------|----------|
| MODEL | Common | DATE | 09/12/15 |
| BLOCK | T-Con Power Option | SHEET | 98 |



LCD TV Repair Guide

`10 years New Models

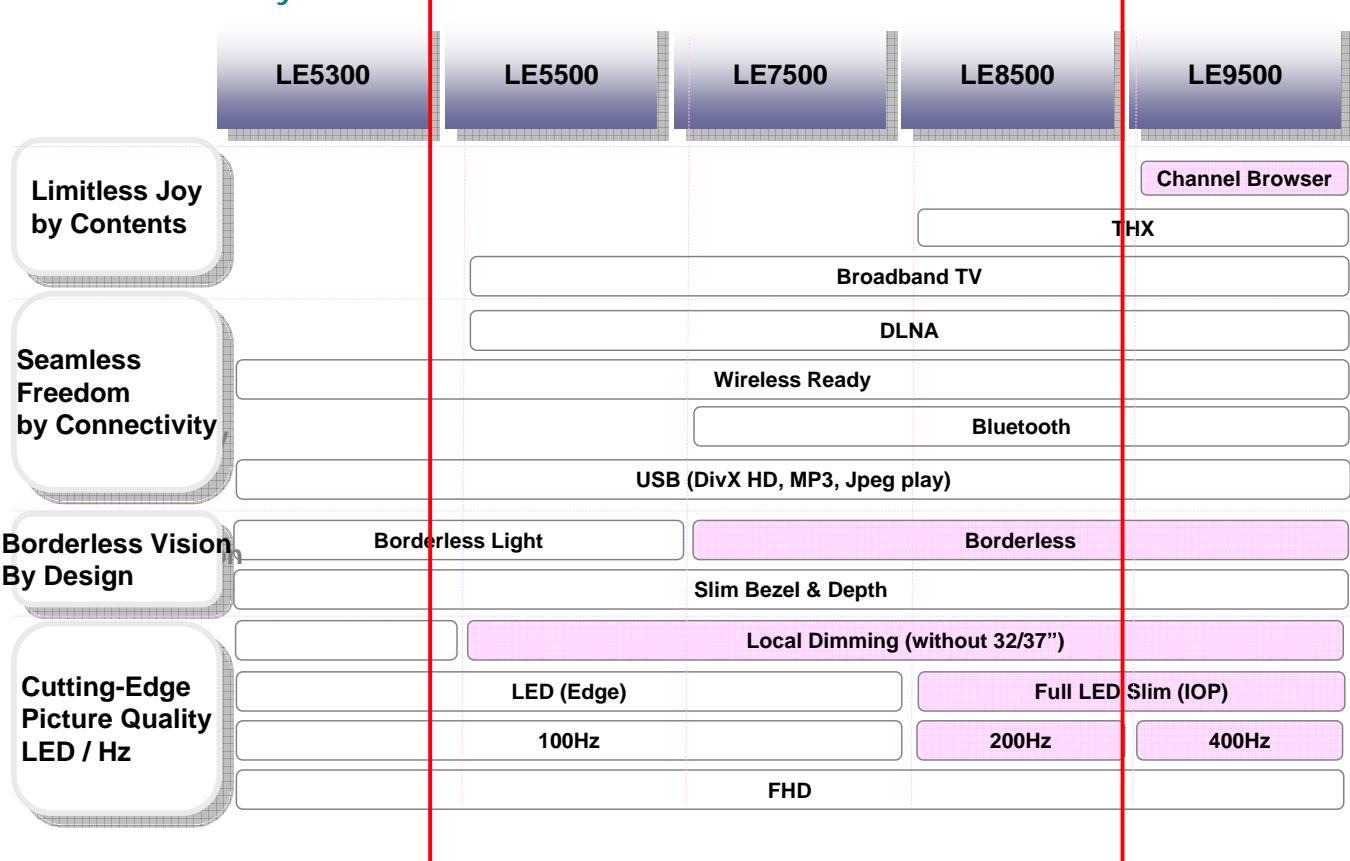
< Applicable Model >
xxLE5500,xxLE7500, xxLE8500

Overview for '10 Broadband Model

(Hardware)

Features

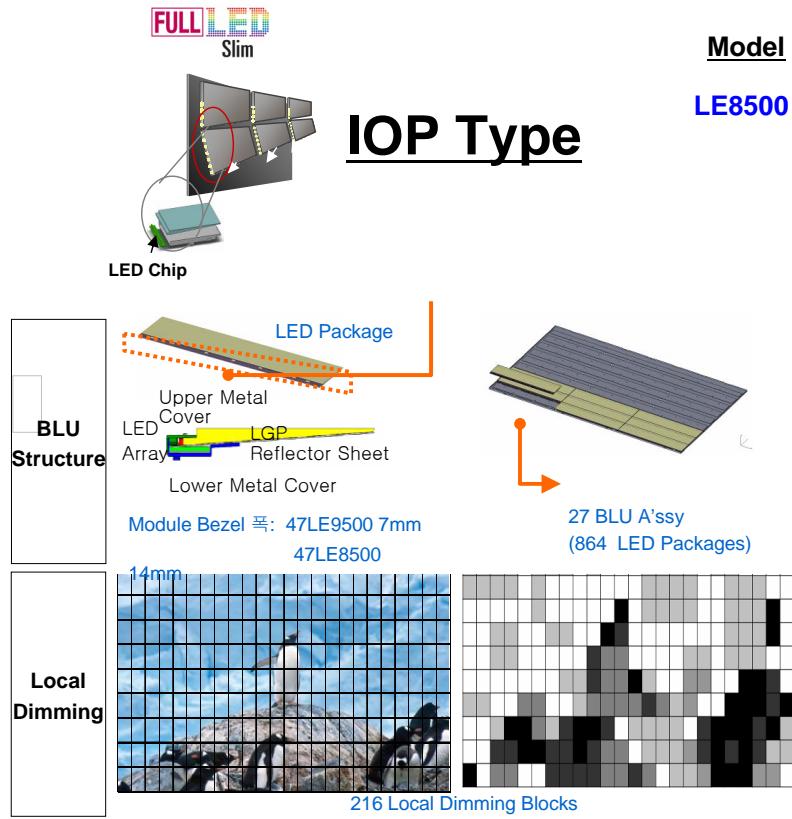
LED LCD TV Key Features



2 types of LED - IOP



Benefit: More Clear More Real



Model
LE8500

Feature

| | |
|----------------------|--|
| Slim Full LED | Not only Direct LED's Picture quality, but Edge LED's thin thickness |
| Local Dimming | Local Dimming depicts more deep Black color |

Local Dimming

| inch | Local Dimming Block quantity |
|-------------|--|
| 42 | $8 \text{ row} * 24(3 \text{ ass'y} * 8) = 192\text{EA}$ |
| 47 | $9 \text{ row} * 24 = 216\text{EA}$ |
| 55 | $10 \text{ row} * 24 = 240\text{EA}$ |

LED Package

| inch | LED package quantity |
|-------------|--|
| 42 | $192 * 4 \text{ packages/block} = 768\text{EA}$ |
| 47 | $216 * 4 \text{ packages/block} = 864\text{EA}$ |
| 55 | $240 * 5 \text{ packages/block} = 1200\text{EA}$ |

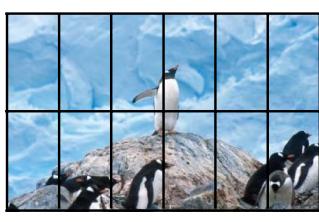
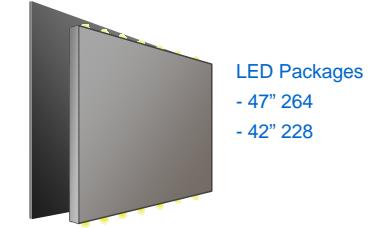
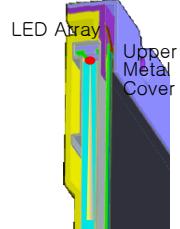
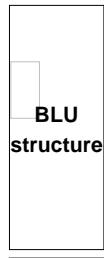
2 types of LED - Edge



Benefit: More Clear More Real



Edge Type w/ Local Dimming



12 Local Dimming Blocks

Edge LED Best picture quality + thin TV

Local Dimming Local dimming depicts more deep black.

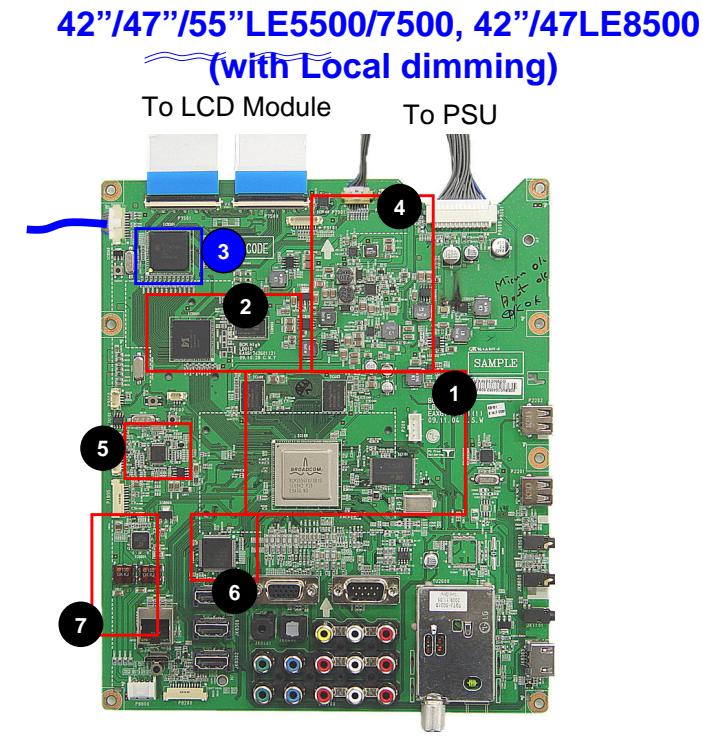
Feature

Model

LE7500, LE5500

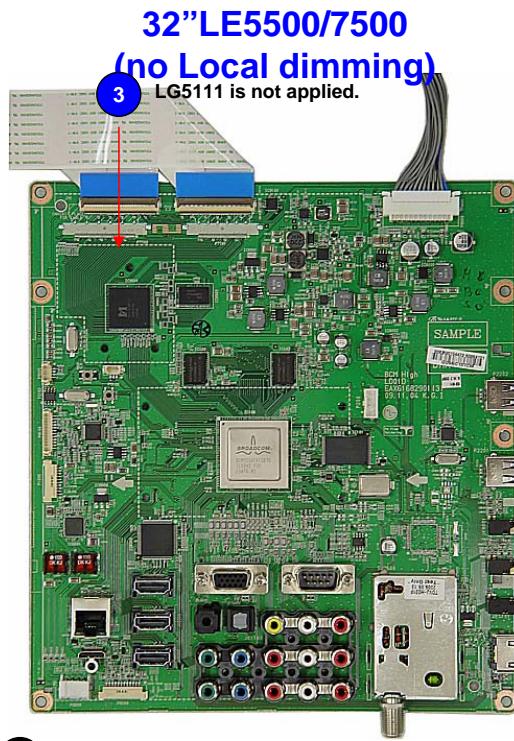
LGE Internal Use Only

Main PCB for Broadband



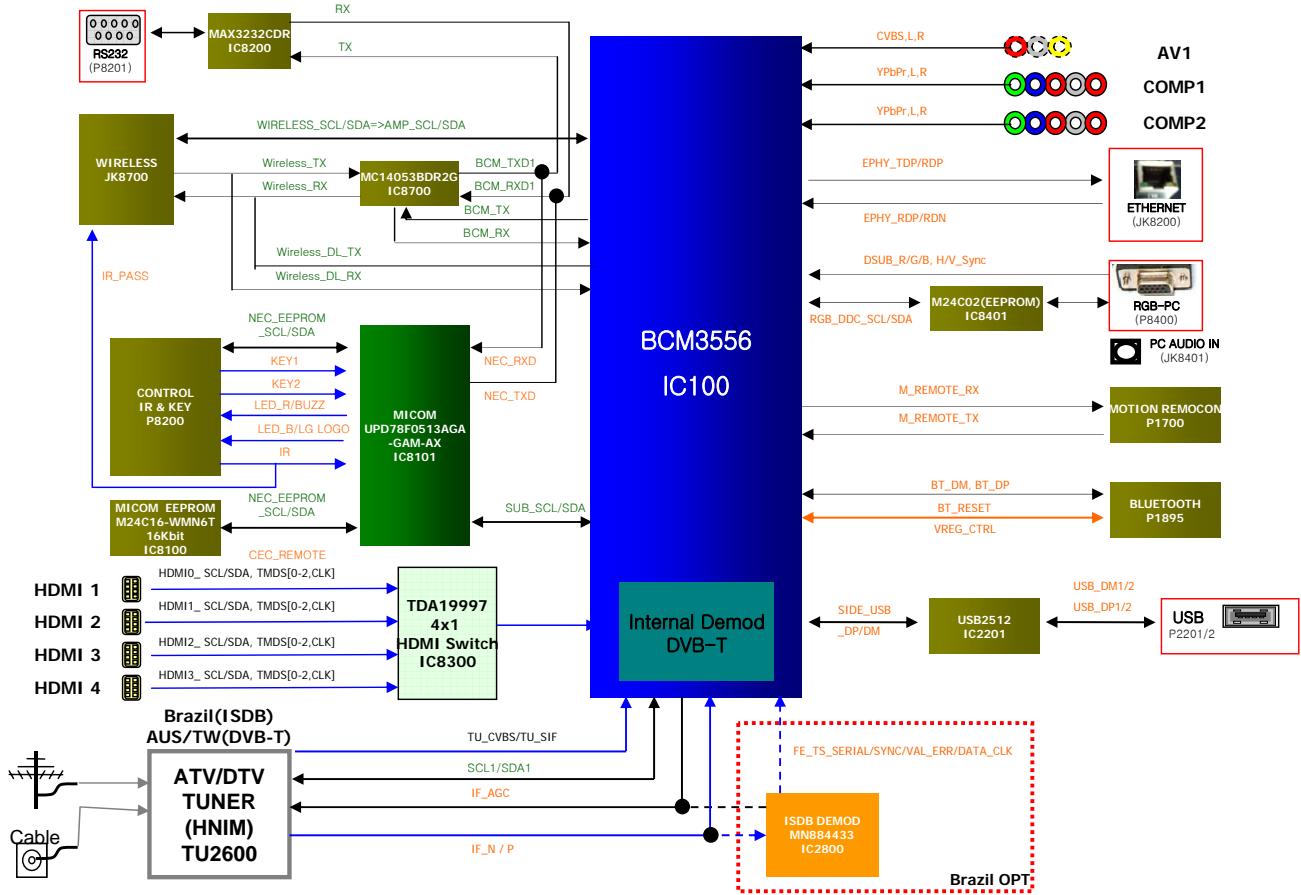
- 1 Main processor, DDR Memory
Flash Memory
- 2 LGE7378, Frame rate Converter (FRC) for
100Hz
- 3 LG5111(Local Dimming Processor +LCD
Timing Controller one Chip)
Gamma, Vcom, Voltage generator
For LCD Module
- 4 To LCD Module
- 5 To PSU
- 6 HDMI switch (4:1)
- 7 Audio AMP (10W+10W)

Main + TCON all in one

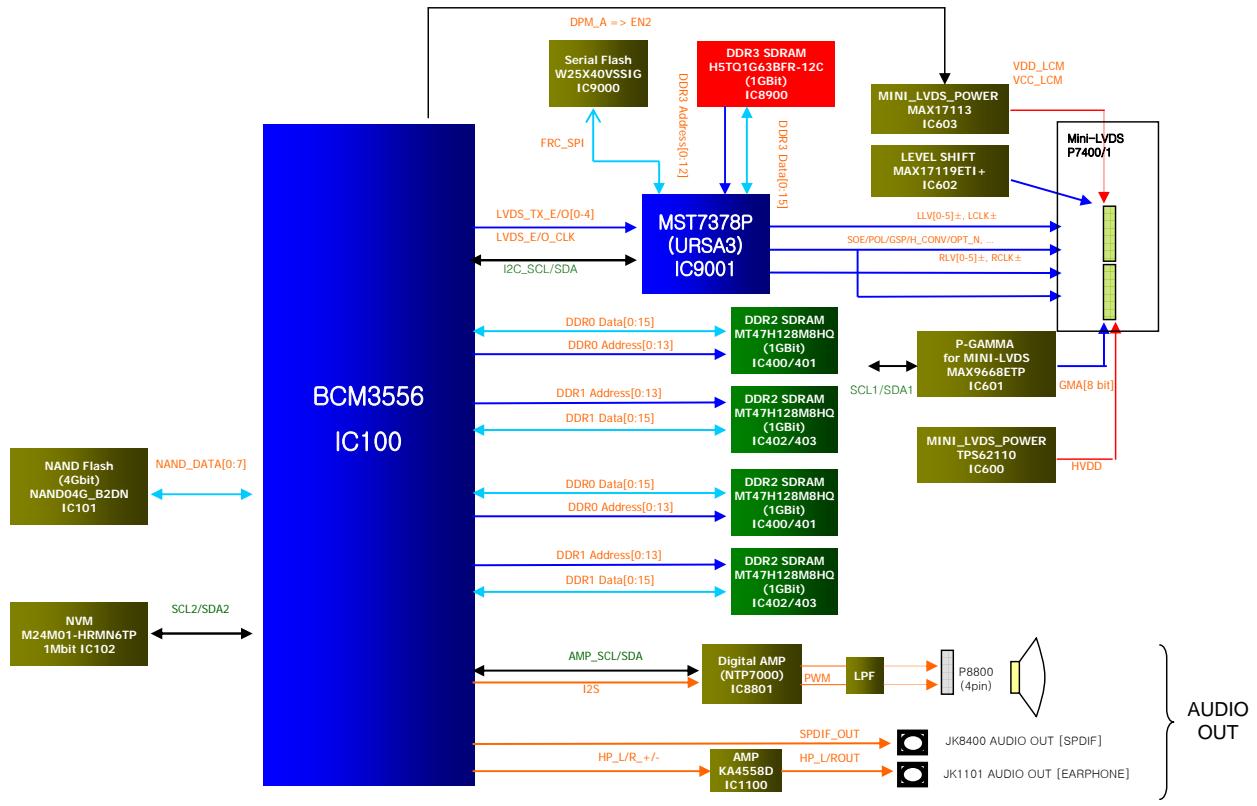


- 1 Main processor, DDR Memory
Flash Memory
- 2 LGE7378, Frame rate Converter (FRC) for
100Hz
- 3 LG5111(Local Dimming Processor +LCD
Timing Controller one Chip)
Gamma, Vcom, Voltage generator
For LCD Module
- 4 To LCD Module
- 5 To PSU
- 6 HDMI switch (4:1)
- 7 Audio AMP (10W+10W)

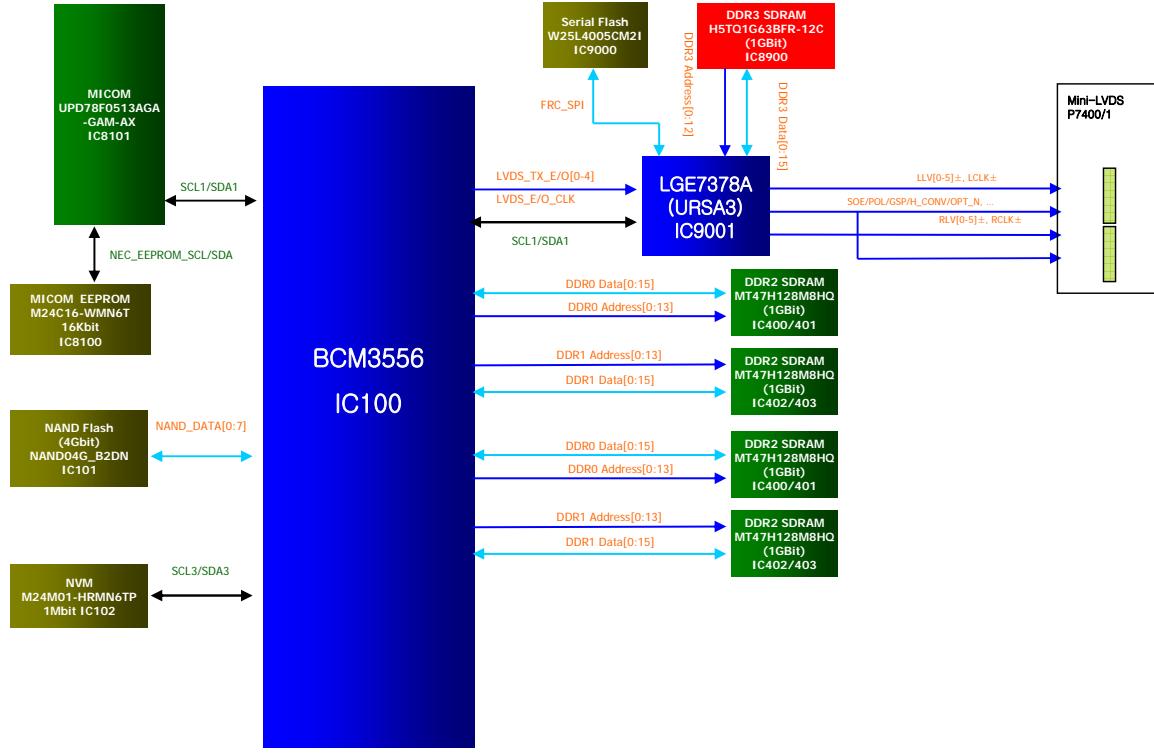
BCM High Block Diagram (Input/Interface)



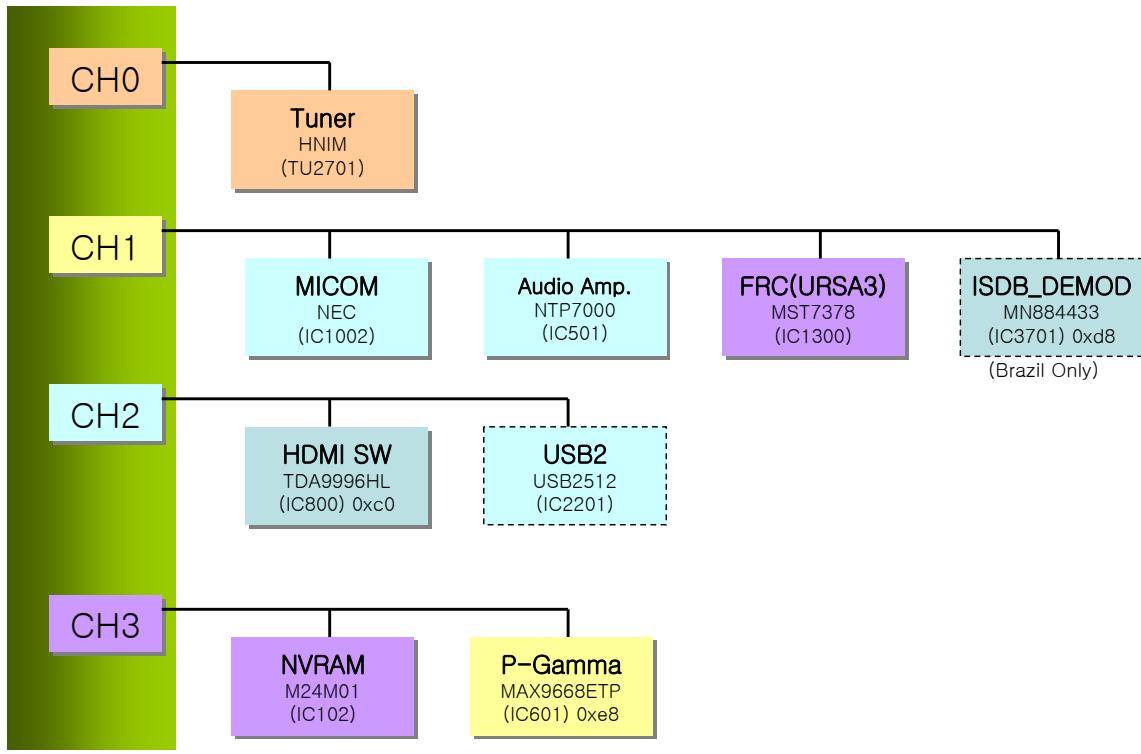
BCM High Block Diagram (Output/Audio)



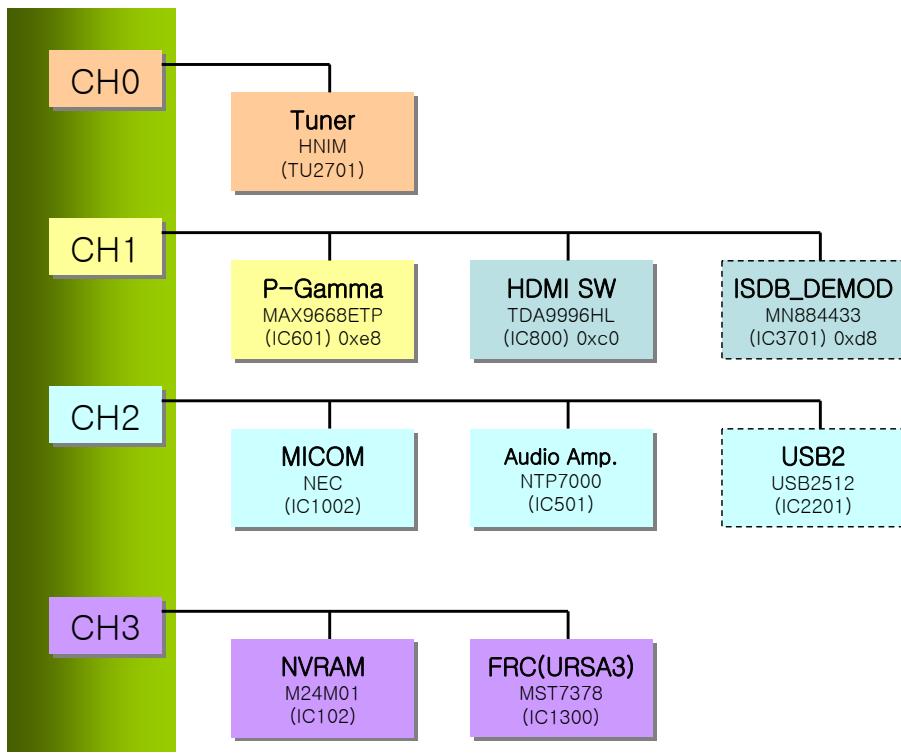
BCM High Block Diagram (Memory)



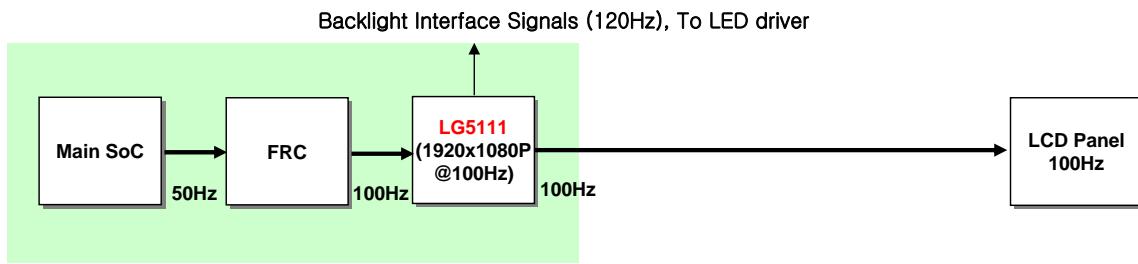
I2C Map



I2C Map



Appendix. Block Diagram for Edge/IOP Backlight

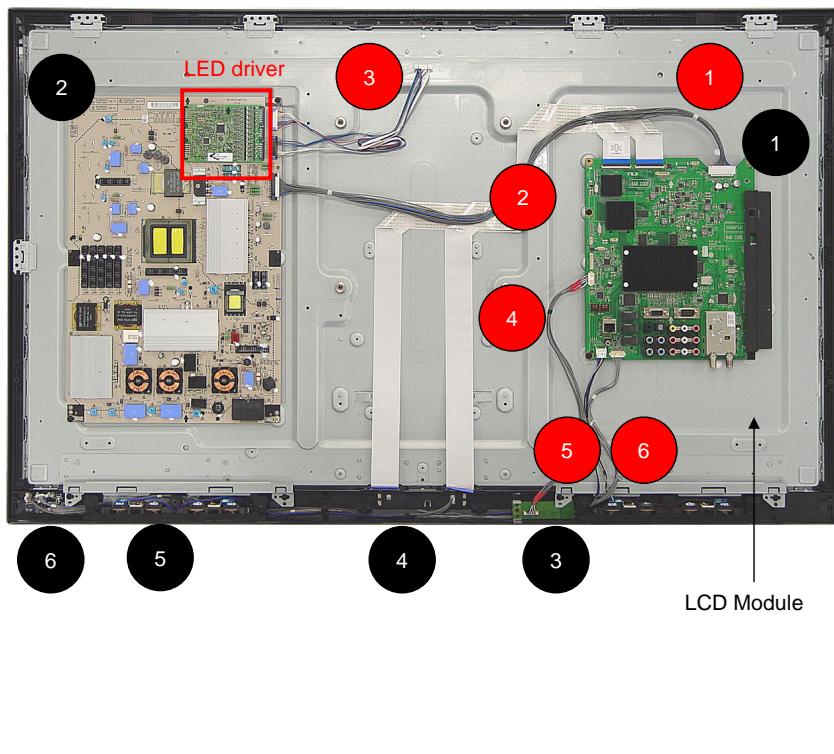


[All in one main PCB for LE55 & LE75 edge & LE85 IOP LED Backlight]

* LE85 series have TM240Hz function in LED Driver board of module.

Interconnection - 1

32/42/47/55LE7500, 32/42/47/55LE5500



[PCBs]

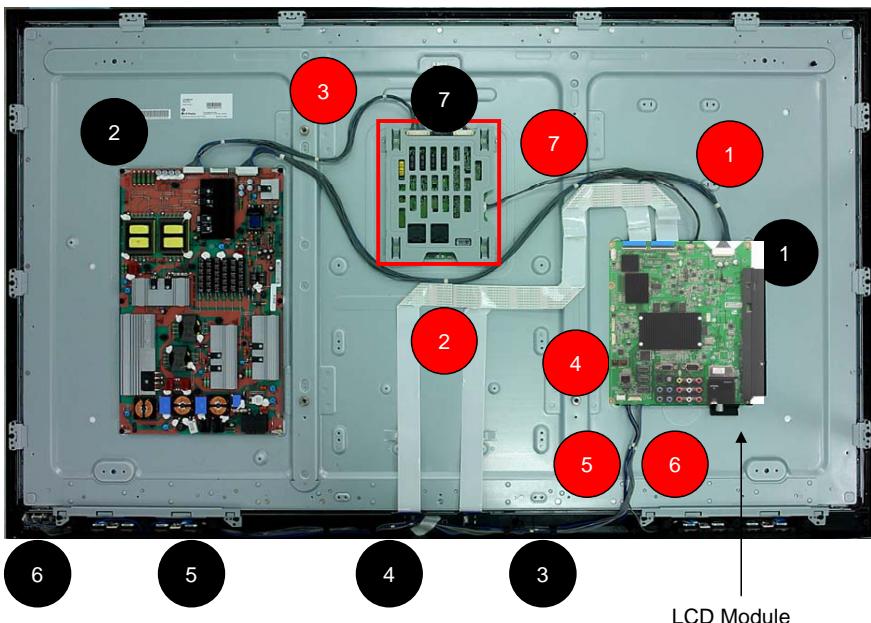
- 1 Main PCB
- 2 PSU + LED driver
- 3 Bluetooth PCB
- 4 LOGO PCB
- 5 Soft Touch Key PCB
- 6 IR/Sensor PCB

[Cables]

- 1 Main / PSU cable
- 2 Main / Module LVDS cable
- 3 LED driver / Module cable
- 4 BT shield cable
- 5 SPK cable
- 6 LOGO/Touch/IR cable

Interconnection - 2

55LE7500, 55LE5500



[PCBs]

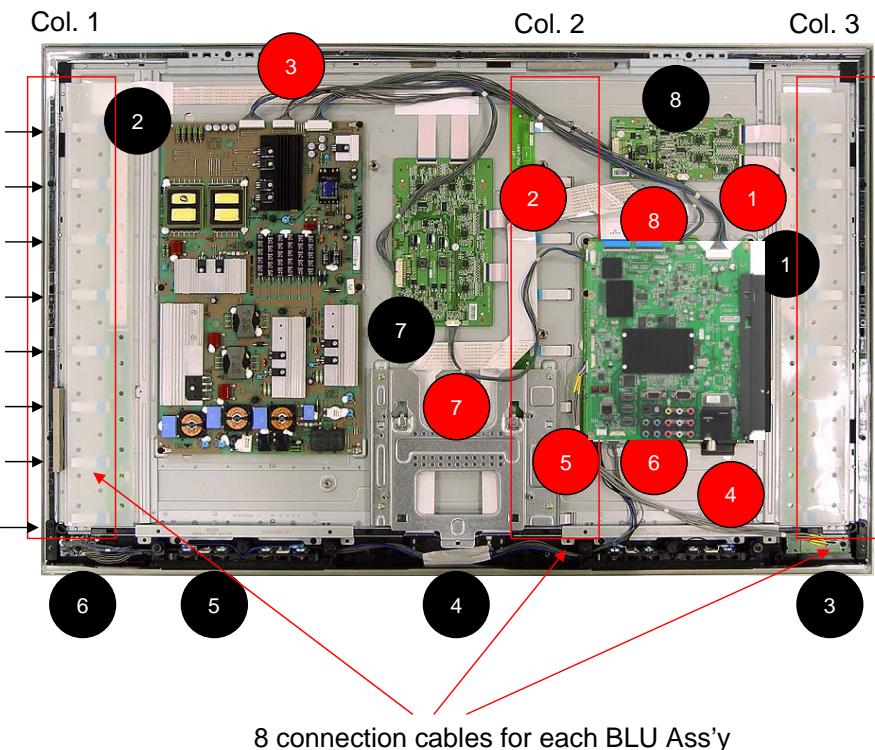
- 1 Main PCB
- 2 PSU
- 3 Bluetooth PCB
- 4 LOGO PCB
- 5 Soft Touch Key PCB
- 6 IR/Sensor PCB
- 7 LED driver

[Cables]

- 1 Main / PSU cable
- 2 Main / Module LVDS cable
- 3 LED driver / PSU cable
- 4 BT shield cable(not in picture)
- 5 SPK cable
- 6 LOGO/Touch/IR cable
- 7 Local dimming signal cable

Interconnection - 4

42/47LE8500



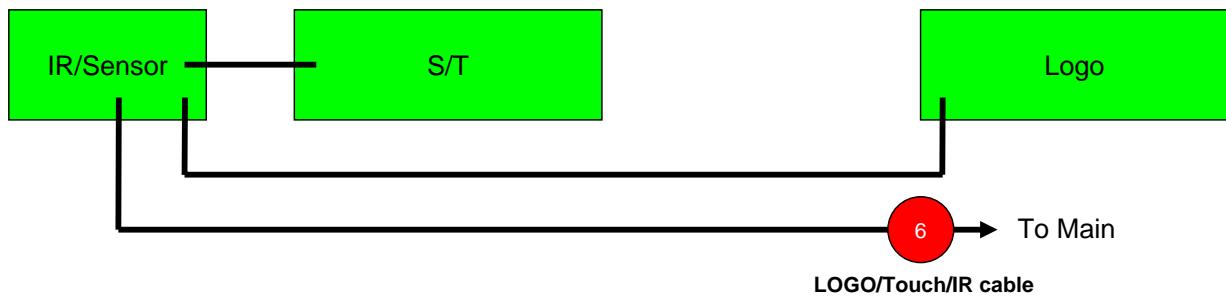
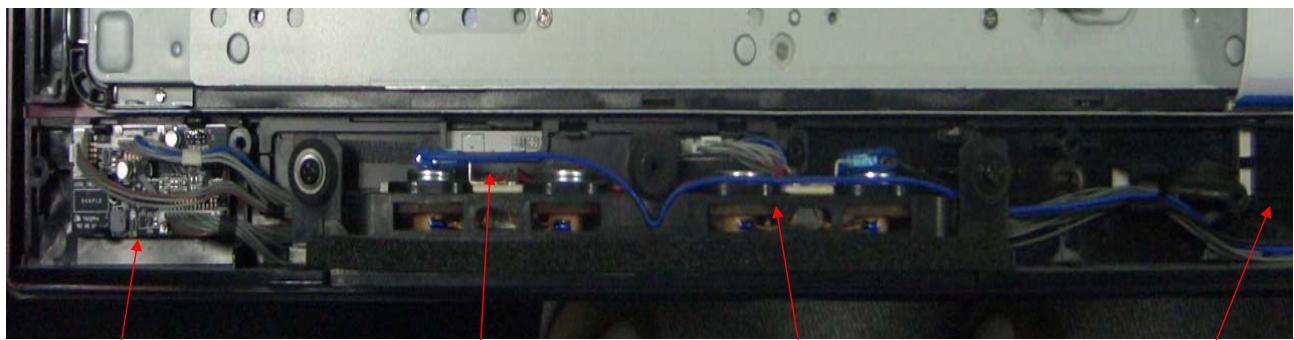
[PCBs]

- 1 Main PCB
- 2 PSU
- 3 Bluetooth PCB
- 4 LOGO PCB
- 5 Soft Touch Key PCB
- 6 IR/Sensor PCB
- 7 LED driver master
- 8 LED driver slave

[Cables]

- 1 Main / PSU cable
- 2 Main / Module LVDS cable
- 3 LED driver / PSU cable
Master 14P, slave 12P
- 4 BT shield cable
- 5 SPK cable
- 6 LOGO/Touch/IR cable
- 7 Local dimming signal cable
(Main / LED driver master)
- 8 Local dimming signal cable
(Main / LED driver slave)

Interconnection – sub PCB



Contents of LCD TV Standard Repair Process

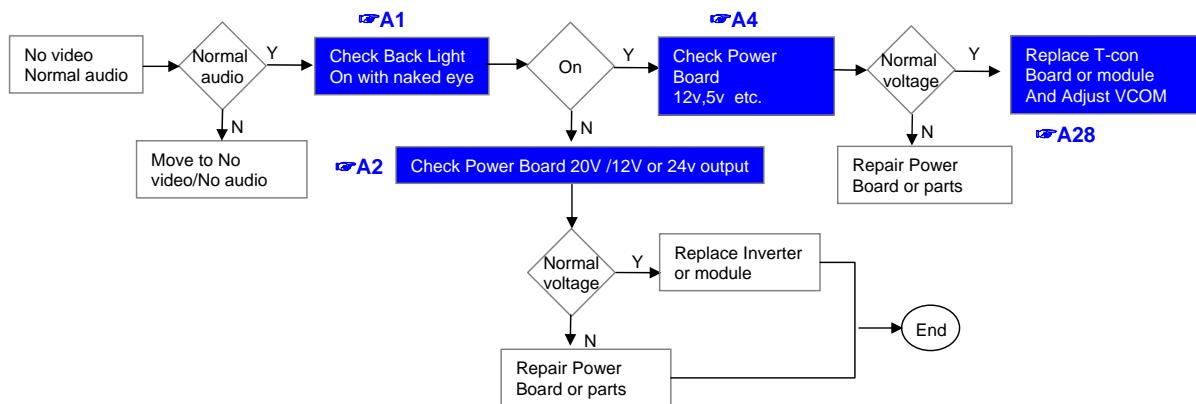
| No. | Error symptom (High category) | Error symptom (Mid category) | Page | Remarks |
|-----|-------------------------------|--|------|---------|
| 1 | A. Video error | No video/Normal audio | 1 | |
| 2 | | No video/No audio | 2 | |
| 3 | | Video error, video lag/stop | 3 | |
| 4 | | Color error | 4 | |
| 5 | | Vertical/Horizontal bar, residual image, light spot, external device color error | 5 | |
| 6 | B. Power error | No power | 6 | |
| 7 | | Off when on, off while viewing, power auto on/off | 7 | |
| 8 | C. Audio error | No audio/Normal video | 8 | |
| 9 | | Wrecked audio/discontinuation/noise | 9 | |
| 10 | D. Function error | No response in remote controller, key error, recording error, memory error | 10 | |
| 11 | | External device recognition error | 11 | |
| 12 | E. Noise | Circuit noise, mechanical noise | 12 | |
| 13 | F. Exterior error | Exterior defect | 13 | |

First of all, Check whether there is SVC Bulletin in GCSC System for these model.

Standard Repair Process

| | | | | | |
|--------|---------------|------------------------|------------------|-------------|------|
| LCD TV | Error symptom | A. Video error | Established date | 2010. 2 .19 | |
| | | No video/ Normal audio | Revised date | | 1/13 |

First of all, Check whether all of cables between board is inserted properly or not.
 (Main B/D↔ Power B/D, LVDS Cable, Speaker Cable, IR B/D Cable,,,)



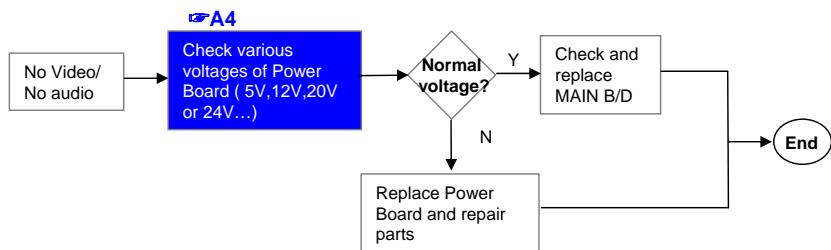
***Precaution ↪A7 & A3**

Always check & record S/W Version and White Balance value before replacing the Main Board



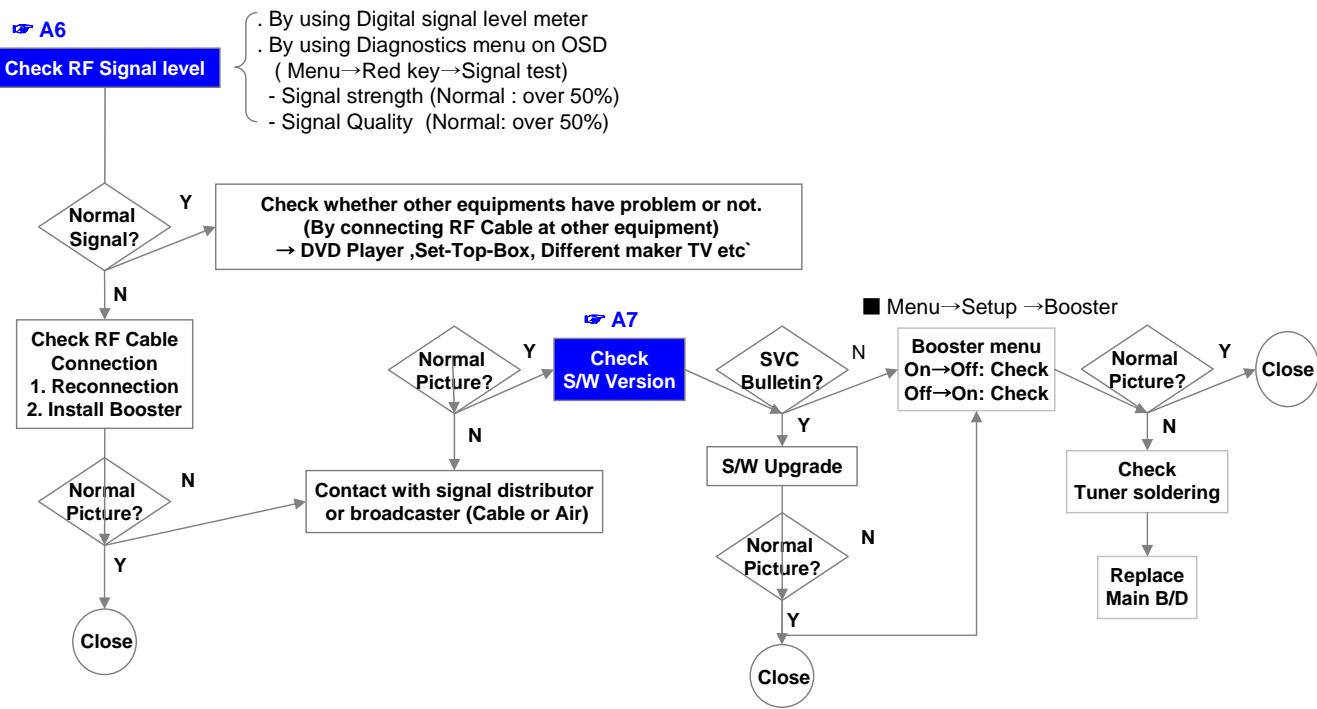
Standard Repair Process

| | | | | | |
|---------------|----------------------|-----------------------|-------------------------|--------------------|-------------|
| LCD TV | Error symptom | A. Video error | Established date | 2010. 2 .19 | |
| | | No video/ No audio | Revised date | | 2/13 |



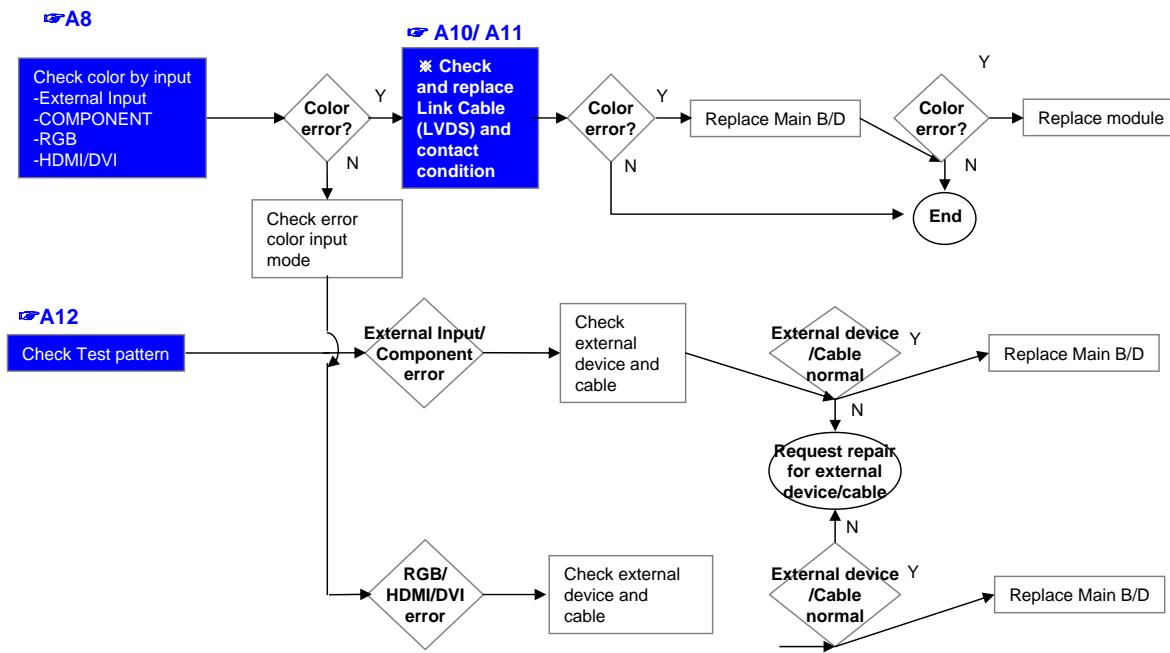
Standard Repair Process

| LCD TV | Error symptom | A. Picture Problem | Established date | 2010. 2 .19 | |
|--------|---------------|--------------------------|------------------|-------------|------|
| | | Picture broken/ Freezing | Revised date | | 3/13 |



Standard Repair Process

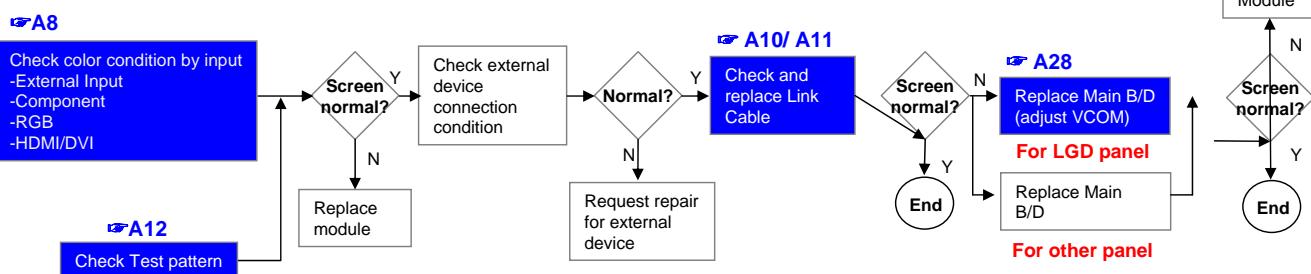
| | | | | | |
|---------------|----------------------|-----------------------|-------------------------|-------------|------|
| LCD TV | Error symptom | A. Video error | Established date | 2010. 2 .19 | |
| | | Color error | Revised date | | 4/13 |



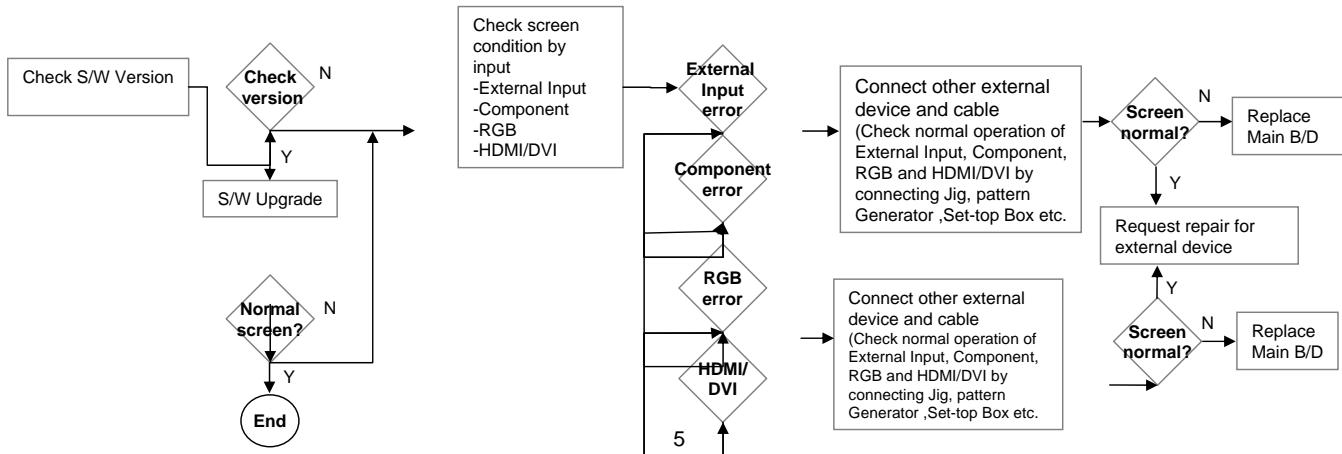
Standard Repair Process

| LCD TV | Error symptom | A. Video error | Established date | 2010. 2 .19 | |
|--------|---------------|--|------------------|-------------|------|
| | | Vertical / Horizontal bar, residual image, light spot, external device color error | Revised date | | 5/13 |

Vertical/Horizontal bar, residual image, light spot

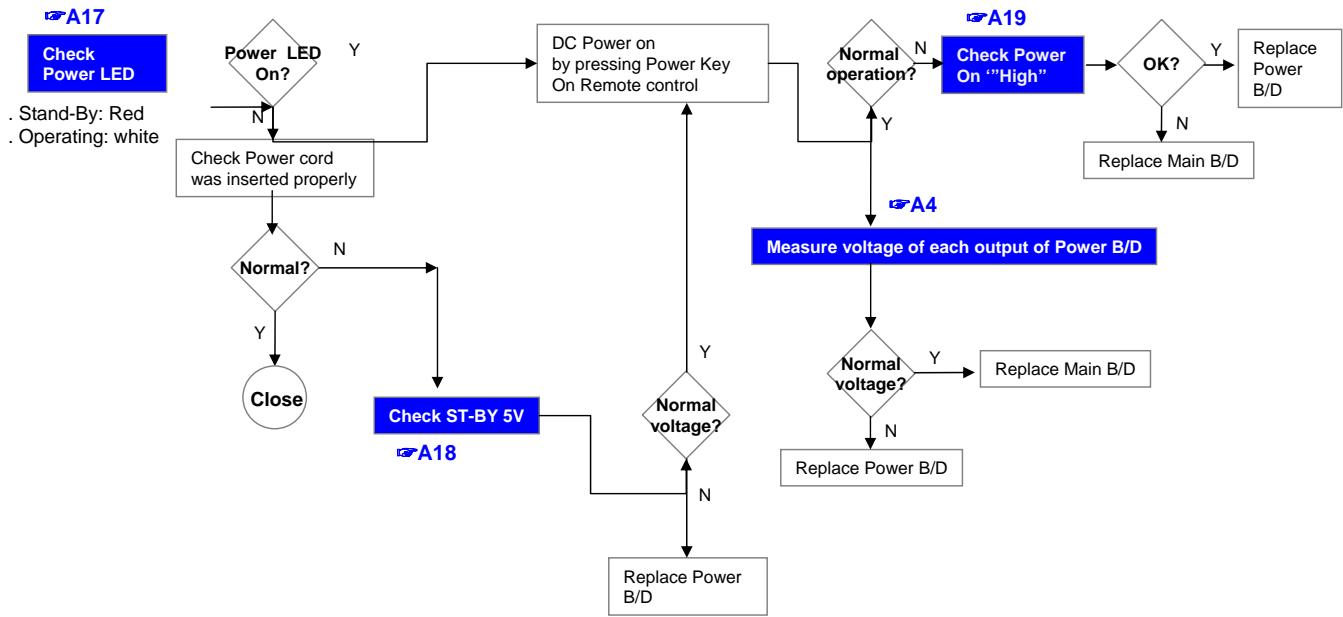


External device screen error-Color error



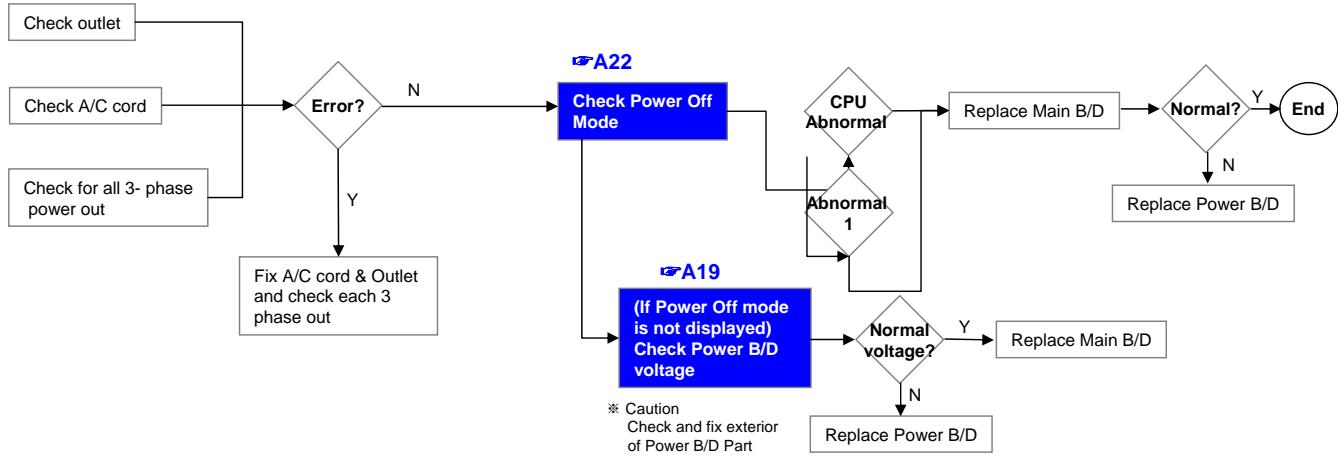
Standard Repair Process

| | | | | | |
|--------|---------------|----------------|------------------|-------------|------|
| LCD TV | Error symptom | B. Power error | Established date | 2010. 2 .19 | |
| | | No power | Revised date | | 6/13 |



Standard Repair Process

| LCD TV | Error symptom | B. Power error | Established date | 2010. 2 .19 | |
|--------|---------------|---|------------------|-------------|------|
| | | Off when on, off while viewing, power auto on/off | Revised date | | 7/13 |

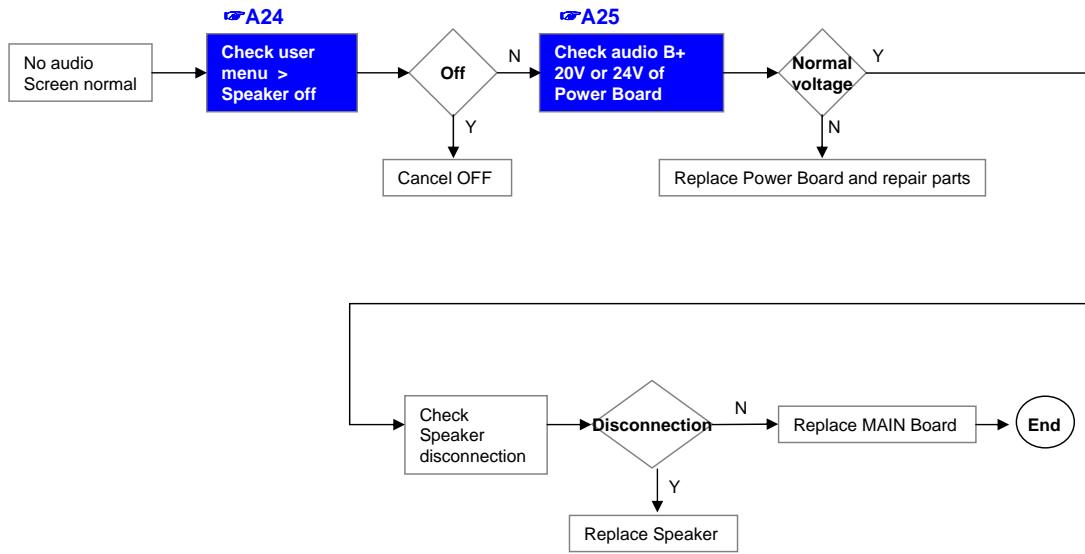


* Please refer to the all cases which can be displayed on power off mode.

| Status | Power off List | Explanation |
|----------|-------------------------|---|
| Normal | "POWEROFF_REMOTEKEY" | Power off by REMOTE CONTROL |
| | "POWEROFF_OFFTIMER" | Power off by OFF TIMER |
| | "POWEROFF_SLEEPSHUTTER" | Power off by SLEEP TIMER |
| | "POWEROFF_INSTOP" | Power off by INSTOP KEY |
| | "POWEROFF_AUTOOFF" | Power off by AUTO OFF |
| | "POWEROFF_ONTIMER" | Power off by ON TIMER |
| | "POWEROFF_RS232C" | Power off by RS232C |
| | "POWEROFF_RESREC" | Power off by Reserved Record |
| Abnormal | "POWEROFF_RECEND" | Power off by End of Recording |
| | "POWEROFF_SWDOWN" | Power off by S/W Download |
| | "POWEROFF_UNKNOWN" | Power off by unknown status except listed case |
| | "POWEROFF_ABNORMAL1" | Power off by abnormal status except CPU trouble |
| | "POWEROFF_CPUABNORMAL" | Power off by CPU Abnormal |

Standard Repair Process

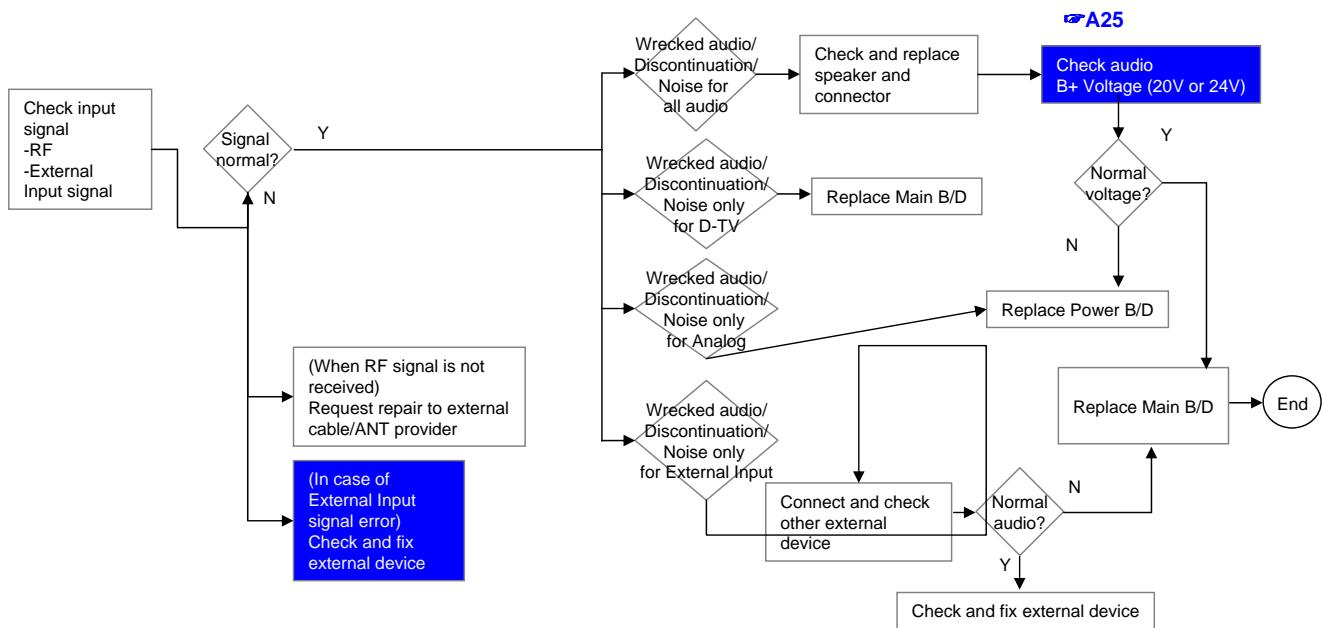
| | | | | | |
|---------------|----------------------|------------------------|-------------------------|-------------|------|
| LCD TV | Error symptom | C. Audio error | Established date | 2010. 2 .19 | |
| | | No audio/ Normal video | Revised date | | 8/13 |



Standard Repair Process

| LCD TV | Error symptom | C. Audio error | Established date | 2010. 2 .19 | |
|--------|---------------|--------------------------------------|------------------|-------------|------|
| | | Wrecked audio/ discontinuation/noise | Revised date | | 9/13 |

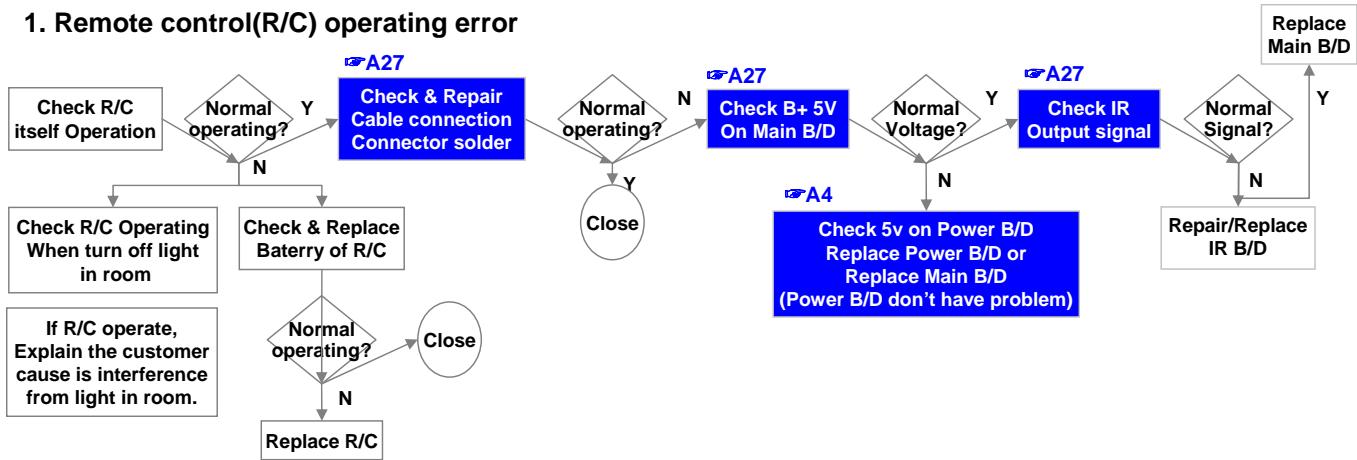
→ abnormal audio/discontinuation/noise is same after “Check input signal” compared to No audio



Standard Repair Process

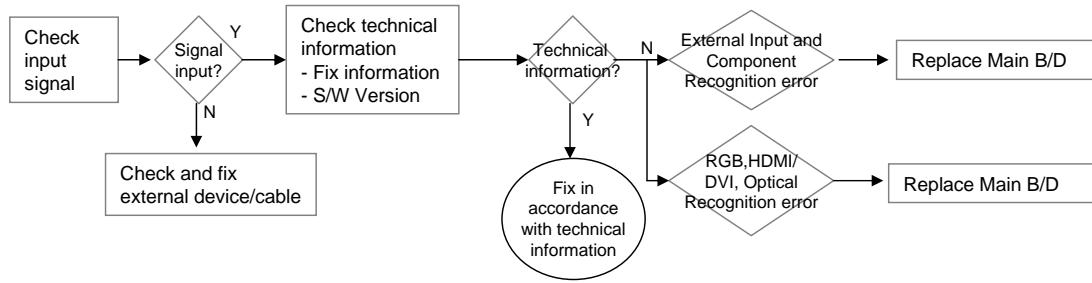
| | | | | | |
|--------|---------------|--|------------------|-------------|-------|
| LCD TV | Error symptom | D. General Function Problem | Established date | 2010. 2 .19 | |
| | | Remote control & Local switch checking | Revised date | | 10/13 |

1. Remote control(R/C) operating error



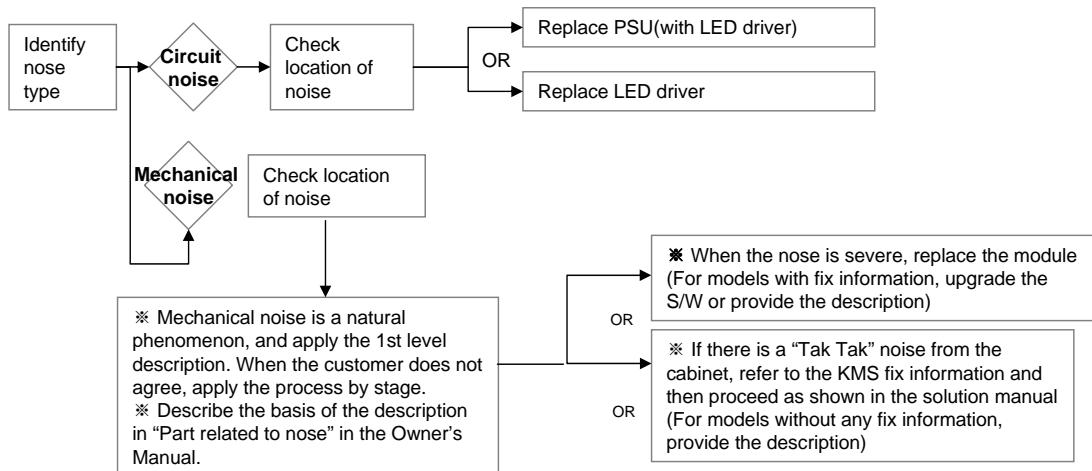
Standard Repair Process

| LCD TV | Error symptom | D. Function error | Established date | 2010. 2 .19 | |
|--------|---------------|-----------------------------------|------------------|-------------|--|
| | | External device recognition error | Revised date | | |



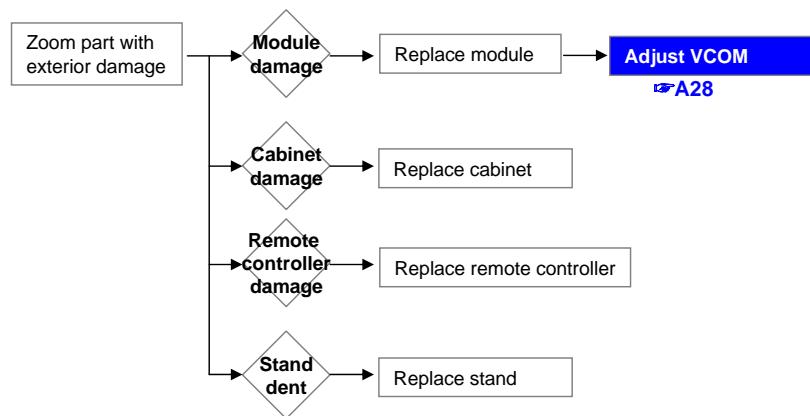
Standard Repair Process

| | | | | | |
|---------------|----------------------|---------------------------------|-------------------------|--------------------|-------|
| LCD TV | Error symptom | E. Noise | Established date | 2010. 2 .19 | |
| | | Circuit noise, mechanical noise | Revised date | | 12/13 |



Standard Repair Process

| LCD TV | Error symptom | F. Exterior defect | Established date | 2010. 2 .19 | |
|---------------|----------------------|---------------------------|-------------------------|--------------------|-------|
| | | Exterior defect | Revised date | | 13/13 |



Contents of LCD TV Standard Repair Process Detail Technical Manual

| No. | Error symptom | Content | Page | Remarks |
|-----|--|--|-------|-----------------------------------|
| 1 | A. Video error_ No video/Normal audio | Check LCD back light with naked eye | A1 | |
| 2 | | LED driver B+ 24V measuring method | A2 | |
| 3 | | Check White Balance value | A3 | |
| 4 | | Power Board voltage measuring method | A4 | |
| 6 | A. Video error_ No video/Video lag/stop | TUNER input signal strength checking method | A6 | |
| 7 | | LCD-TV Version checking method | A7 | |
| 9 | A. Video error_Color error | LCD TV connection diagram | A8 | |
| 10 | | Tuner Checking Part | A9 | |
| 11 | | Check Link Cable (LVDS) reconnection condition | A10 | A10 : 32/42/47/55 |
| 12 | | Adjustment Test pattern - ADJ Key | A12 | |
| 13 | A. Video error_Vertical/Horizontal bar, residual image, light spot | LCD TV connection diagram | A8 | |
| 14 | | Check Link Cable (LVDS) reconnection condition | A10 | A10 : 32/42/47/55 |
| 15 | | Adjustment Test pattern - ADJ Key | A12 | |
| 16 | <Appendix> Defected Type caused by T-Con/ Inverter/ Module | Exchange T-Con Board (1) | A-1/5 | |
| 17 | | Exchange T-Con Board (2) | A-2/5 | |
| 18 | | Exchange LED driver Board (PSU) | A-3/5 | 55" : driver board Other : PSU |
| 19 | | Exchange Module itself (1) | A-4/5 | |
| 20 | | Exchange Module itself (2) | A-5/5 | |

Continue to the next page

Contents of LCD TV Standard Repair Process Detail Technical Manual

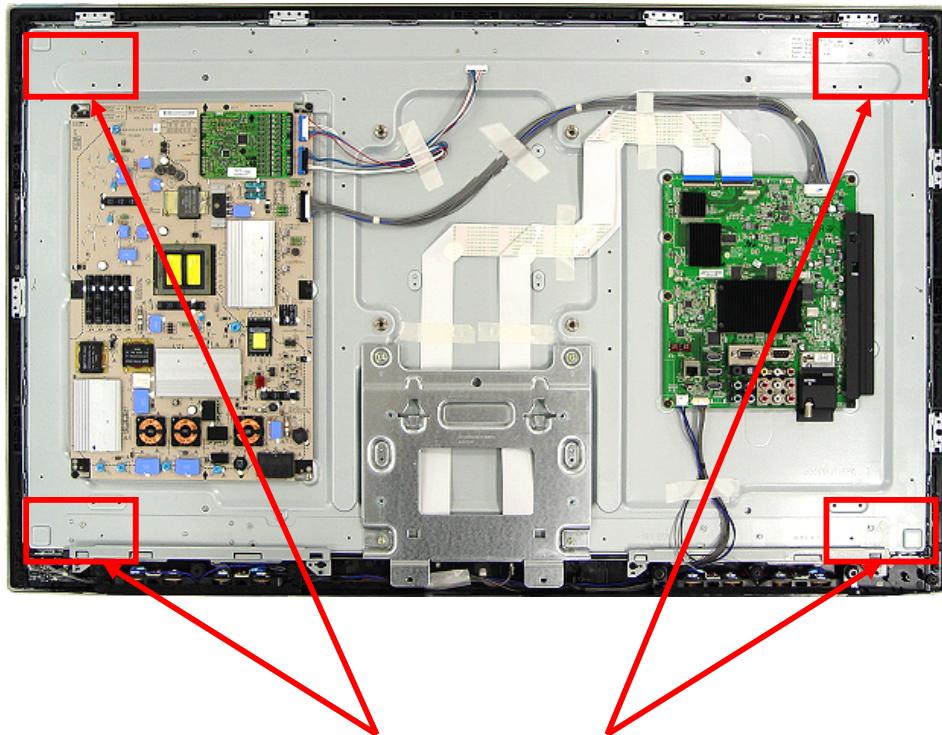
Continued from previous page

| No. | Error symptom | Content | Page | Remarks |
|-----|---|--|------|---------|
| 21 | B. Power error_No power | Check front display LED | A17 | |
| 22 | | Check power input Voltage & ST-BY 5V | A18 | |
| 23 | | Checking method when power is ON | A19 | |
| 24 | | POWER BOARD voltage measuring method | A4 | |
| 25 | | | | |
| 26 | B. Power error_Off when on, off while viewing | POWER OFF MODE checking method | A22 | |
| 27 | B. Power error_Off when on, off while viewing | POWER BOARD PIN voltage checking method | A19 | |
| 28 | C. Audio error_No audio/Normal video | Checking method in menu when there is no audio | A24 | |
| 29 | | Voltage and speaker checking method when there is no audio | A25 | |
| 30 | C. Audio error_Wrecked audio/discontinuation | Voltage and speaker checking method in case of audio error | A25 | |
| 31 | D. Function error_No response in remote controller, key error | Remote controller operation checking method | A27 | |
| 32 | D. VCOM Adjustment | Sequence of the Vcom adjustment | A28 | |
| | | | | |
| | | | | |
| | | | | |

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--------------------------------------|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_No video/Normal audio | Established date | 2010. 2 .19 | |
| | Content | Check LCD back light with naked eye | Revised date | | A1 |

<ALL MODELS>

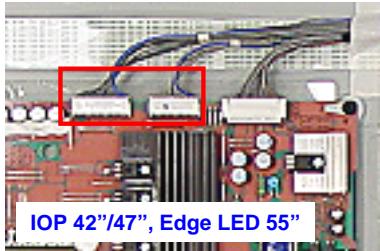


After turning on the power and disassembling the case, check with the naked eye, whether you can see light from 4 locations.

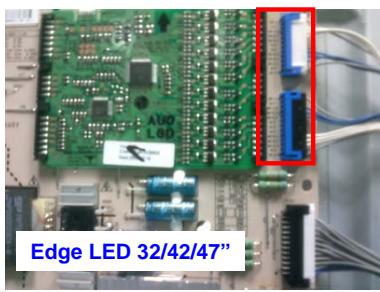
A1

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--------------------------------------|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_No video/Normal audio | Established date | 2010. 2 .19 | |
| | Content | LED driver B+ 24V measuring method | Revised date | | A2 |



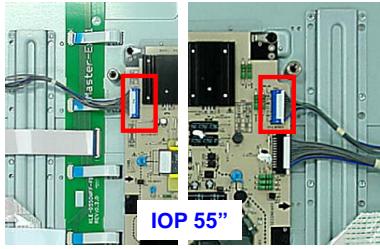
Check the DC 20V/24V, 12V, 3.5V and Inverter on



| P205 | |
|------|-------------------------------|
| 1~5 | 24V |
| 6~10 | GND |
| 11 | PWM Dim #1 (Edge LED : NC) |
| 12 | Inverter ON |
| 13 | NC (Edge LED:PWM Dim#1) |
| 14 | Error |

| P204 | |
|------|-------------------------------|
| 1~5 | 24V |
| 6~10 | GND |
| 11 | PWM Dim #1 (Edge LED : NC) |
| 12 | Inverter ON |
| 13 | NC (Edge LED:PWM Dim#1) |
| 14 | Error |

* 14 : For LE85 GND

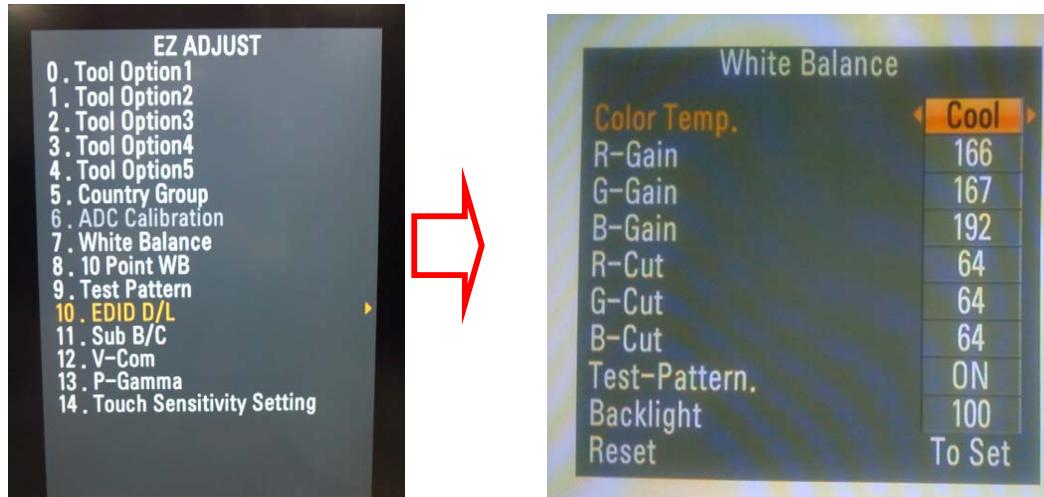


A2

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--------------------------------------|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_No video/Normal audio | Established date | 2010. 2 .19 | |
| | Content | Check White Balance value | Revised date | | A4 |

<ALL MODELS>



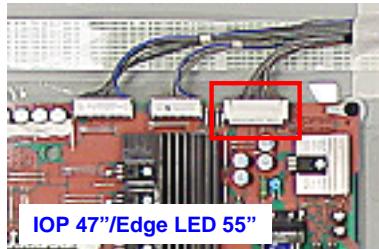
Entry method

1. Press the ADJ button on the remote controller for adjustment.
2. Enter into White Balance of item 7.
3. After recording the R, G, B (GAIN, Cut) value of Color Temp (Cool/Medium/Warm), re-enter the value after replacing the MAIN BOARD.

A3

Standard Repair Process Detail Technical Manual

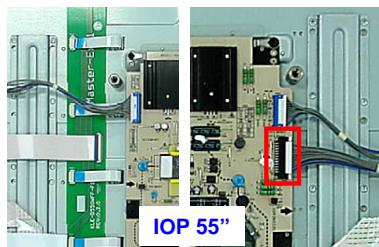
| | | | | | |
|--------|---------------|--------------------------------------|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_No video/ Audio | Established date | 2010. 2 .19 | |
| | Content | Power Board voltage measuring method | Revised date | | A5 |



Check the DC 20V/24V, 12V, 3.5V.



| Pin layout (24P) | | | |
|------------------|----------|----|--|
| 1 | Power on | 2 | 24V (IOP & Edge 55") 20V (Edge 42/47) |
| 3 | 24V | 4 | 24V |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | 3.5V | 10 | 3.5V |
| 11 | 3.5V | 12 | 3.5V |
| 13 | GND | 14 | GND |
| 15 | GND | 16 | NC |
| 17 | 12V | 18 | Inverter ON |
| 19 | 12V | 20 | LE : NC IOP : PWM Dim #1 |
| 21 | 12V | 22 | LE : PWM Dim #1 IOP : NC |
| 23 | NC | 24 | Error-out |



A4

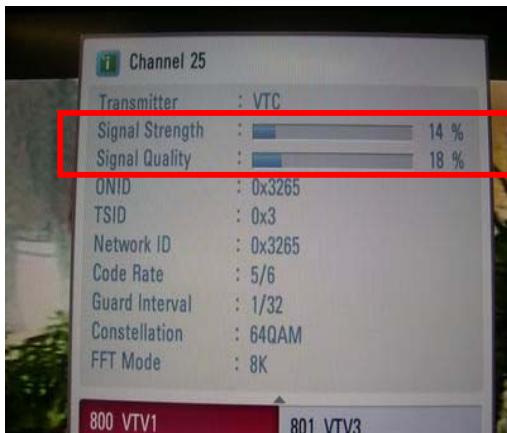
Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|---|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_Video error, video lag/stop | Established date | 2010. 2 .19 | |
| | Content | TUNER input signal strength checking method | Revised date | | A6 |

<ALL MODELS>



MENU -> red key(customer support -> signal test
-> select channel



When the signal is strong, use the
attenuator (-10dB, -15dB, -20dB etc.)



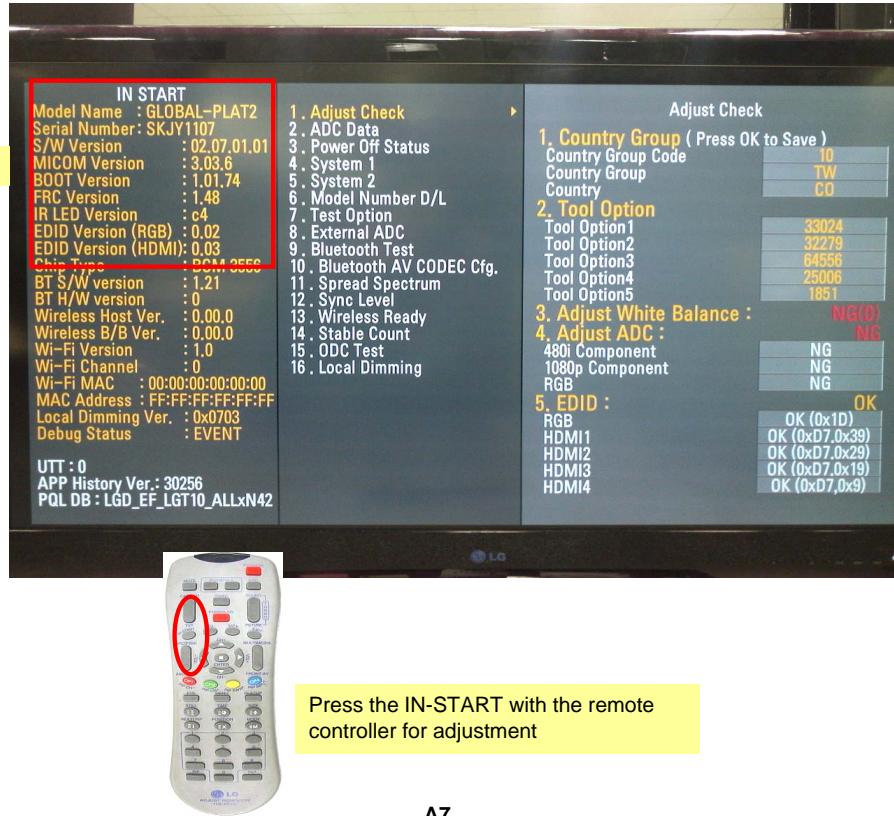
A6

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_Video error, video lag/stop | Established date | 2010. 2 .19 | |
| | Content | LCD-TV Version checking method | Revised date | | A7 |

<ALL MODELS>

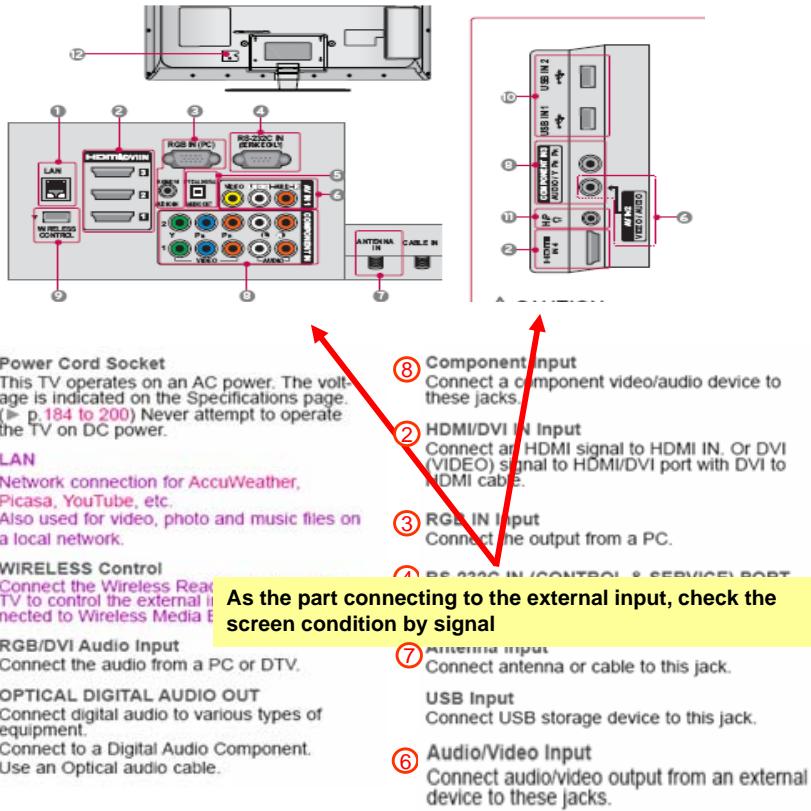
1. Checking method for remote controller for adjustment



A7

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|---|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error _Vertical/Horizontal bar, residual image, light spot | Established date | 2010. 2 .19 | |
| | Content | LCD TV connection diagram (1) | Revised date | | A8 |

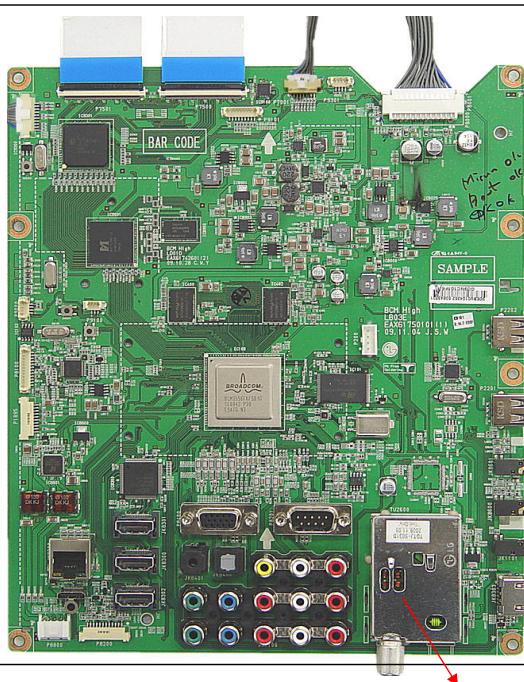


A8

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|----|
| LCD TV | Error symptom | A. Video error_Video error, video lag/stop | Established date | 2010. 2 .19 | |
| | Content | TUNER checking part | Revised date | | A9 |

<ALL MODELS>



Checking method:

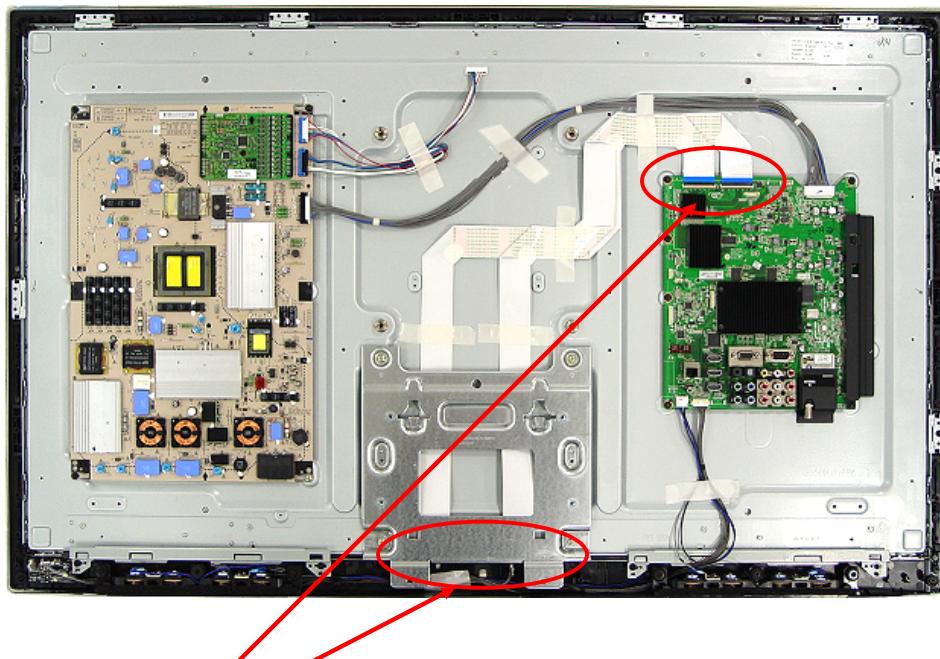
1. Check the signal strength or check whether the screen is normal when the external device is connected.
2. After measuring each voltage from power supply, finally replace the MAIN BOARD.

A9

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|-----|
| LCD TV | Error symptom | A. Video error_Color error | Established date | 2010. 2 .19 | |
| | Content | Check Link Cable (LVDS) reconnection condition | Revised date | | A10 |

<32/42/47/55LE7500 _ LE5500>

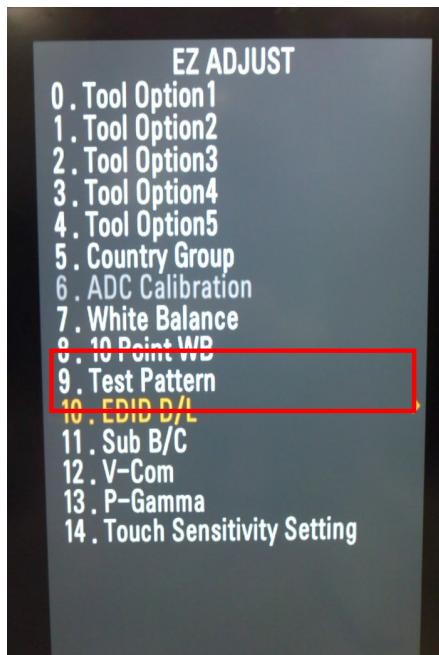


Check the contact condition of the Link Cable, especially dust or mis insertion.

A10

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|-----------------------------------|------------------|-------------|-----|
| LCD TV | Error symptom | A. Video error_Color error | Established date | 2010. 2 .19 | |
| | Content | Adjustment Test pattern - ADJ Key | Revised date | | A12 |



You can view 6 types of patterns using the ADJ Key

Checking item : 1. Defective pixel 2. Residual image 3. MODULE error (ADD-BAR,SCAN BAR..)
4.Video error (Classification of MODULE or Main-B/D!)

A12

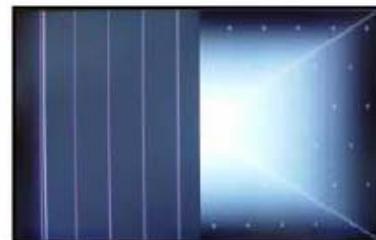
Appendix : Exchange T-Con Board (1)



Solder defect, CNT Broken



Solder defect, CNT Broken



Solder defect, CNT Broken



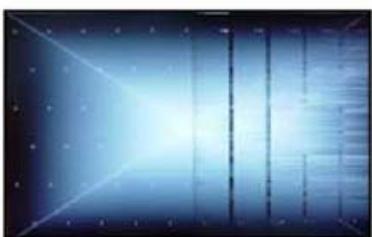
Solder defect, CNT Broken



Solder defect, CNT Broken



Abnormal Power Section



Solder defect, Short/Crack



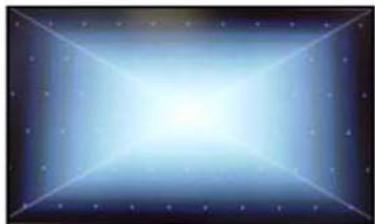
Abnormal Power Section



Solder defect, Short/Crack

A - 1/5

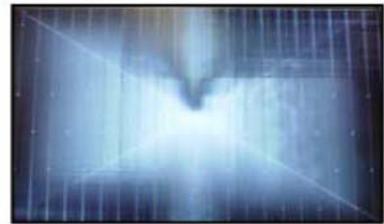
Appendix : Exchange T-Con Board (2)



Abnormal Power Section



Abnormal Power Section



Solder defect, Short/Crack



Solder defect, Short/Crack



Fuse Open, Abnormal power section



Abnormal Display



GRADATION



Noise



GRADATION

A - 2/5

Appendix : Exchange PSU(LED driver)



No Light



Dim Light



Dim Light



Dim Light



No picture/Sound Ok

A - 3/5

Appendix : Exchange the Module (1)



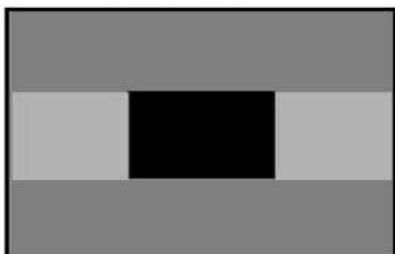
Panel Mura, Light leakage



Panel Mura, Light leakage



Press damage



Crosstalk



Press damage



Crosstalk



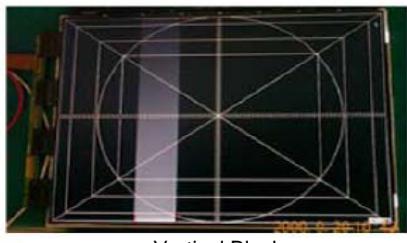
Press damage

Un-repairable Cases

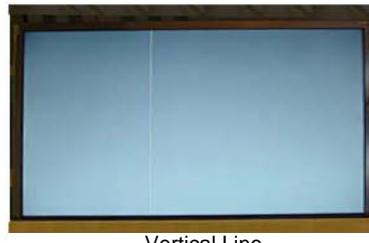
In this case please exchange the module.

A - 4/5

Appendix : Exchange the Module (2)



Vertical Block
Source TAB IC Defect



Vertical Line
Source TAB IC Defect



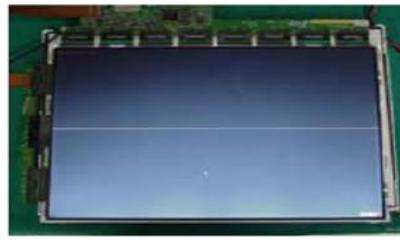
Vertical Block
Source TAB IC Defect



Horizontal Block
Gate TAB IC Defect



Horizontal Block
Gate TAB IC Defect



Horizontal line
Gate TAB IC Defect



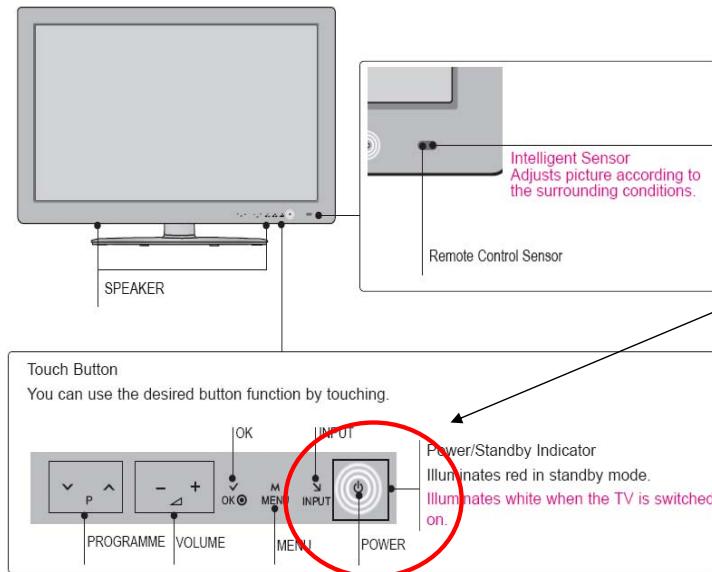
Horizontal Block
Gate TAB IC Defect

Un-repairable Cases

In this case please exchange the module.

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--------------------------|------------------|-------------|-----|
| LCD TV | Error symptom | B. Power error _No power | Established date | 2010. 2 .19 | |
| | Content | Check front display LED | Revised date | | A17 |



Front LED control :
Menu → Option → Power Indicator
→ Standby light ON

ST-BY condition: Red
Power ON condition: white

A17

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|-----|
| LCD TV | Error symptom | B. Power error _ No power | Established date | 2010. 2 .19 | |
| | Content | Check power input voltage and ST-BY 5V | Revised date | | A18 |

For '10 models, there is no voltage out for st-by purpose.

When st-by, only 3.5V is normally on.



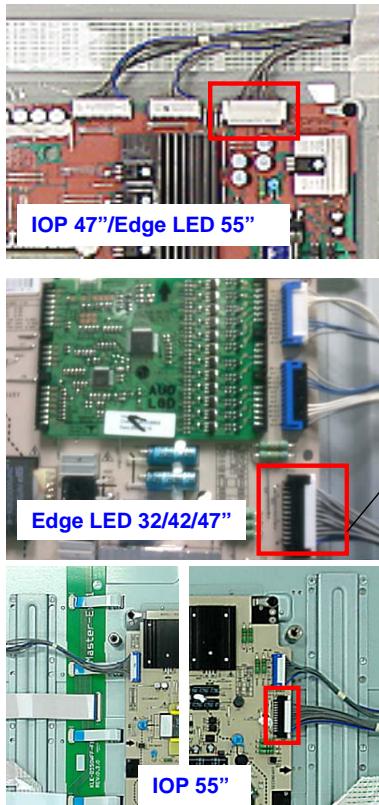
Check the 3.5V when st-by

| Pin layout (24P) | | | |
|------------------|----------|----|--|
| 1 | Power on | 2 | 24V (IOP & Edge 55') 20V (Edge 42/47) |
| 3 | 24V | 4 | 24V |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | 3.5V | 10 | 3.5V |
| 11 | 3.5V | 12 | 3.5V |
| 13 | GND | 14 | GND |
| 15 | GND | 16 | NC |
| 17 | 12V | 18 | Inverter ON |
| 19 | 12V | 20 | LE : NC IOP : PWM Dim #1 |
| 21 | 12V | 22 | LE : PWM Dim #1 IOP : NC |
| 23 | NC | 24 | Error-out |

A18

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|----------------------------------|------------------|-------------|-----|
| LCD TV | Error symptom | B. Power error _No power | Established date | 2010. 2 .19 | |
| | Content | Checking method when power is ON | Revised date | | A19 |



Check "power on" pin is high

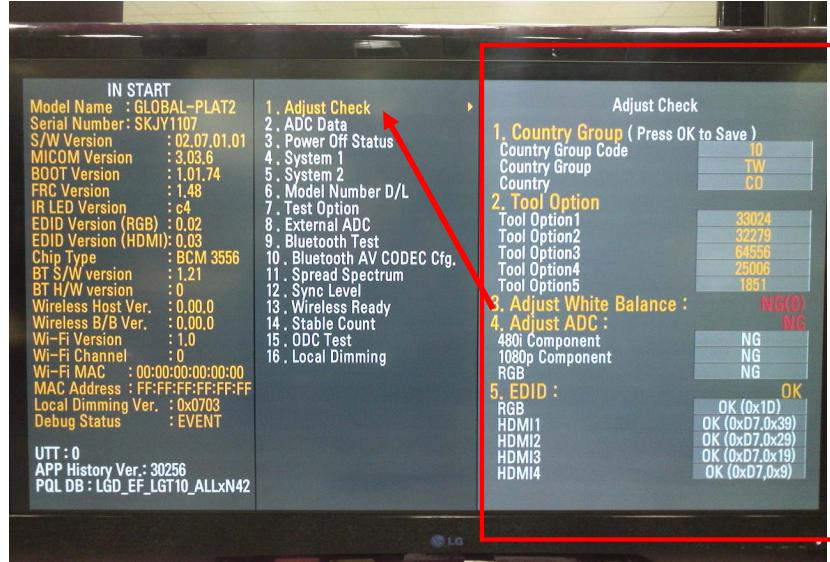
| Pin layout (24P) | | | |
|------------------|----------|----|--|
| 1 | Power on | 2 | 24V (IOP & Edge 55') 20V (Edge 42/47) |
| 3 | 24V | 4 | 24V |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | 3.5V | 10 | 3.5V |
| 11 | 3.5V | 12 | 3.5V |
| 13 | GND | 14 | GND |
| 15 | GND | 16 | NC |
| 17 | 12V | 18 | Inverter ON |
| 19 | 12V | 20 | LE : NC IOP : PWM Dim #1 |
| 21 | 12V | 22 | LE : PWM Dim #1 IOP : NC |
| 23 | NC | 24 | Error-out |

A19

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|-----|
| LCD TV | Error symptom | B. Power error _Off when on, off whiling viewing | Established date | 2010. 2 .19 | |
| | Content | POWER OFF MODE checking method | Revised date | | A22 |

<ALL MODELS>



Entry method

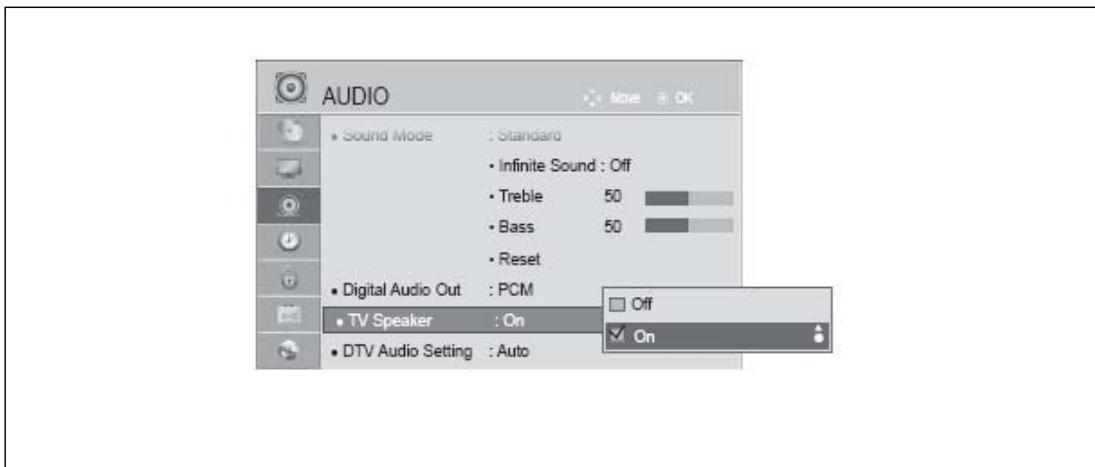
1. Press the IN-START button of the remote controller for adjustment
2. Check the entry into adjustment item 3

A22

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|-----|
| LCD TV | Error symptom | C. Audio error_No audio/Normal video | Established date | 2010. 2 .19 | |
| | Content | Checking method in menu when there is no audio | Revised date | | A24 |

<ALL MODELS>



Checking method

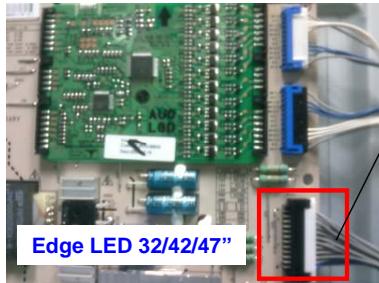
1. Press the MENU button on the remote controller
2. Select the AUDIO function of the Menu
3. Select TV Speaker from Off to On

A24

Standard Repair Process Detail Technical Manual

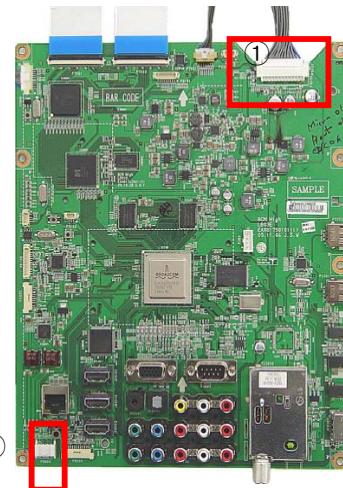
| | | | | | |
|--------|---------------|--|------------------|-------------|-----|
| LCD TV | Error symptom | C. Audio error_No audio/Normal video | Established date | 2010. 2 .19 | |
| | Content | Voltage and speaker checking method when there is no audio | Revised date | | A25 |

<ALL MODELS>



②

| Pin layout (24P) | | | |
|------------------|----------|----|--|
| 1 | Power on | 2 | 24V (IOP & Edge 55") 20V (Edge 42/47) |
| 3 | 24V | 4 | 24V |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | 3.5V | 10 | 3.5V |
| 11 | 3.5V | 12 | 3.5V |
| 13 | GND | 14 | GND |
| 15 | GND | 16 | NC |
| 17 | 12V | 18 | Inverter ON |
| 19 | 12V | 20 | LE : NC IOP : PWM Dim #1 |
| 21 | 12V | 22 | LE : PWM Dim #1 IOP : NC |
| 23 | NC | 24 | Error-out |



③

Checking order when there is no audio

① Check the contact condition of 20V or 24V connector of Main Board

② Measure the 24V input voltage supplied from Power Board
(If there is no input voltage, remove and check the connector)

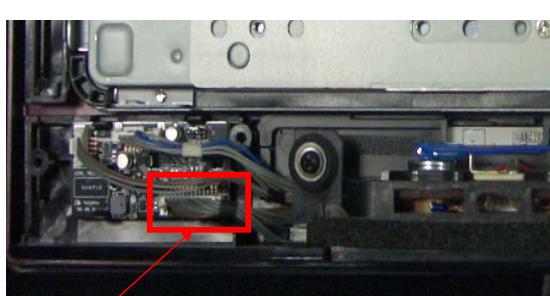
③ Connect the tester RX1 to the speaker terminal and if you hear the Chik Chik sound when you touch the GND and output terminal, the speaker is normal.

A25

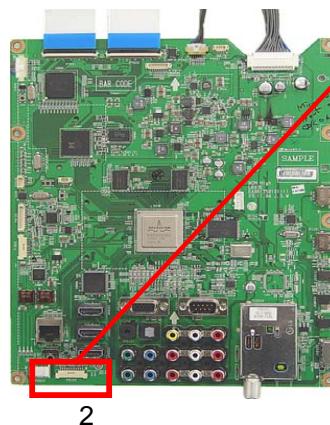
Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|--|------------------|-------------|-----|
| LCD TV | Error symptom | D. Function error_ No response in remote controller, key error | Established date | 2010. 2 .19 | |
| | Content | Remote controller operation checking method | Revised date | | A27 |

<ALL MODELS>



1



2

| P8200 | |
|-------|-------------|
| 1 | SCL |
| 2 | SDA |
| 3 | GND |
| 4 | KEY1 |
| 5 | KEY2 |
| 6 | St 3.3V |
| 7 | GND |
| 8 | LED_B |
| 9 | IR |
| 10 | GND |
| 11 | Normal 3.3V |
| 12 | LED_R |

Checking order

- 1, 2. Check IR cable condition between IR & Main board.
3. Check the st-by 3.3V on the terminal 6.
4. When checking the Pre-Amp when the power is in ON condition, it is normal when the Analog Tester needle moves slowly, and defective when it does not move at all.

A27

Standard Repair Process Detail Technical Manual

| | | | | | |
|--------|---------------|---------------------------------|------------------|-------------|-----|
| LCD TV | Error symptom | D. VCOM Adjustment | Established date | 2010. 2 .19 | |
| | Content | Sequence of the Vcom adjustment | Revised date | | A28 |

1. Case

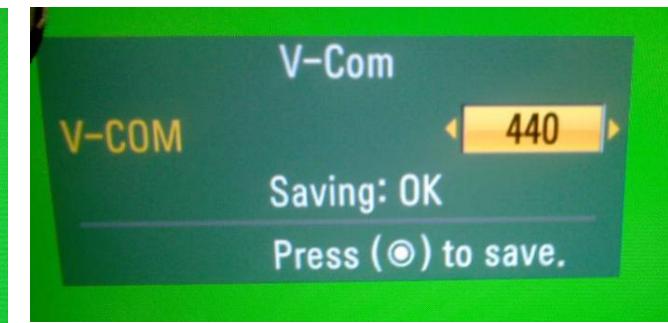
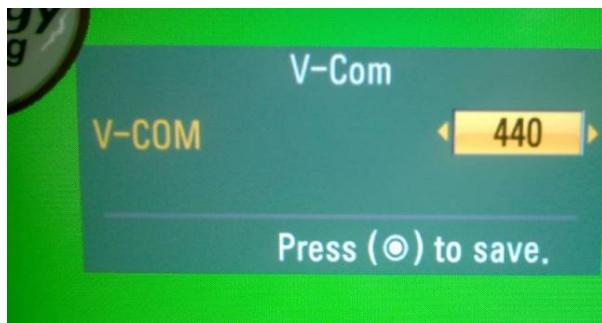
- LCD module change
- T-Con board change

2. Equipment

- Service Remote controller

3. Adjust sequence

- Press the 'adj' key
- select V-COM
- As pushing the right or the left button on the remote controller, And find the V-COM value Which is no or minimized the Flicker.
(If there is no flicker at default value, Press the exit key and finish the VCOM adjustment.)
- Push the OK key to store the value. Then the message "Saving OK" is pop.
- Press the exit key to finish V-COM adjustment.



A28