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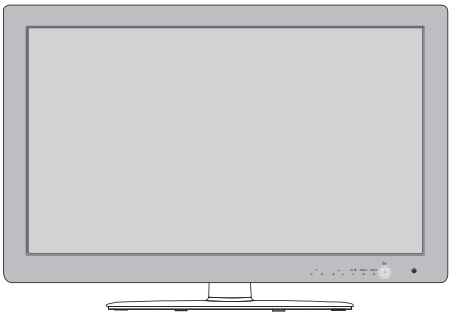
LED LCD TV
SERVICE MANUAL

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

CONTENTS

SAFETY PRECAUTIONS

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 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 it's 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,

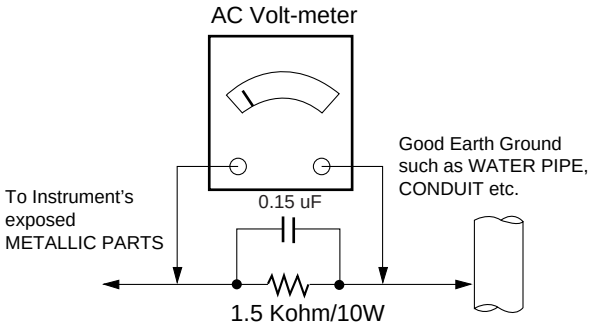
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

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 MΩ and 5.2 MΩ.
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 is 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 Ω
*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 ºC ± 5 ºC(77 ºF ± 9 ºF), CST: 40 ºC ± 5 ºC
2) Relative Humidity : 65 % ± 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	98 | FHD, 120Hz(Edge LED)	LC420EUH-SCA1/2 - LE5500, LE7500
	=LCD(Module)+Backlight(LED)		
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		0.279		All white / All black
			Wy		0.292		
		RED	Xr		0.647		
			Yr	Typ.	0.332	Typ.	
		Green	Xg	-0.03	0.309	+0.03	
			Yg		0.601		
		Blue	Xb		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 ºC ± 5 ºC of temperature and 65 % ±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.

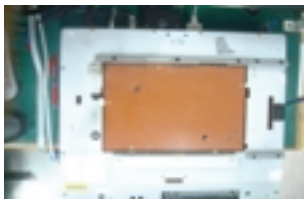
4. PCB assembly adjustment method

4.1. MAC Address Download & LAN test

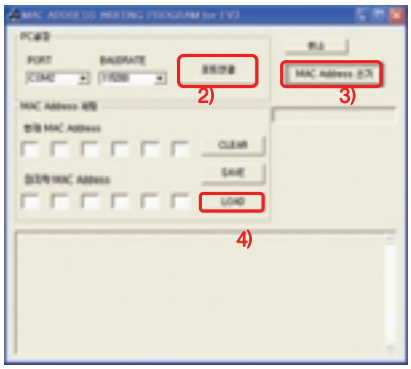
4.1.1. MAC Address D/L

A D/L Program : Serial.exe

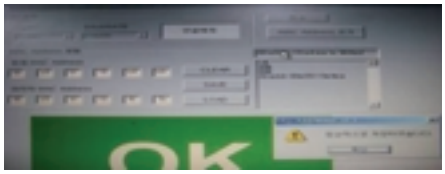
4.1.1.1. Method
1) Connect Jig to PCBA.



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.



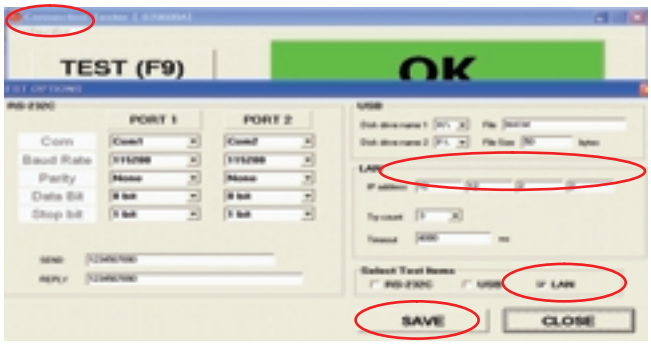
5) Check the OK Or NG



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.

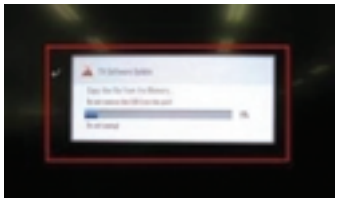
4.1.2.2. Check Set
1) Connect TV-Set & PC with Cross LAN cable.(PC IP : 12.12.2.3)
2) Execute “PINT Test program”, Check setting data of program. (TV-Set IP : 12.12.2.2)
3) Push Power Only key on Adjust remote-controlle.
4) Click “RUN”, Check “OK” or “NG”

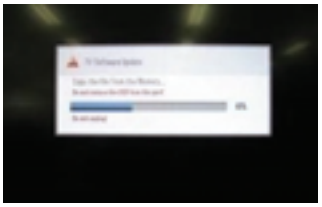


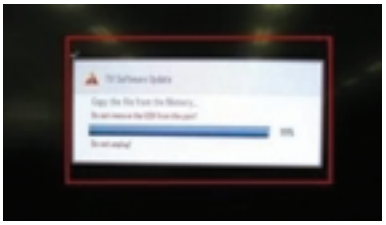
4.2. Main S/W program download

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.
- Tool Option Input : PCBA Check Process
- 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 Remocon.)

(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 compele.

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 M0DEL

** 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	01
10	01	14	01	03	68	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	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	01
10	01	14	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	71	4F	81	80	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	10	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	D9

** 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	01
10	01	14	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	71	4F	81	80	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	20	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	C9

** 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	01
10	01	14	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	71	4F	81	80	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	30	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	B9

** 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	01
10	01	14	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
20	09	48	4C	A1	08	00	71	4F	81	01	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FC	00	3A
60	3F	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	40	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	A9

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	01
10	01	14	01	03	68	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	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	01
10	01	14	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	71	4F	81	80	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	10	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	D9
** 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	01
10	01	14	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	71	4F	81	80	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	20	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	C9
** 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	01
10	01	14	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	71	4F	81	80	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	30	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	B9
** 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	01
10	01	14	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
20	09	48	4C	A1	08	00	71	4F	81	01	01	01	01	01	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FC	00	3A
60	3F	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	D7
80	02	03	26	F1	4E	10	1F	84	13	05	14	03	02	12	20	21
90	22	15	01	26	15	07	50	09	57	07	67	03	0C	00	40	00
A0	B8	2D	E3	05	03	01	01	1D	80	18	71	1C	16	20	58	2C
B0	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51	D0	1A	20
C0	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80	18	71	38
D0	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66	21	50	B0
E0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00	1E	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	A9

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

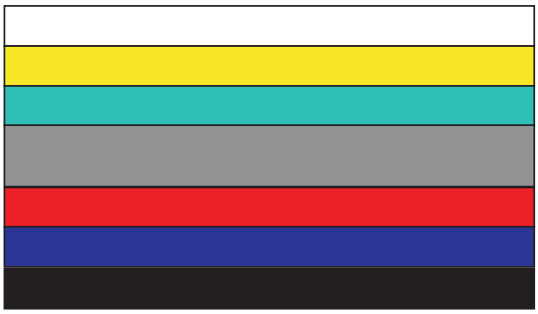
4.5.1. ADC Calibration - Manual

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

4.5.1.1. Process

1) Change the Input to Component1 or 2 mode..
2) Input the Component 480i@60Hz 100% Color Bar YPbPr signal into Component1 or 2.

(MSPG-925F Model: 209 / Pattern: 65)



3) Press ADJ key on R/C for adjustment.
4) Enter Password number. Password is “0 0 0 0”.
5) Move to the “6. ADC calibration” by using D/E(CH +/-) and press ENTER(G).
6) Press the right direction key(G) at Start.
7) Press the enter key on “Start”
8) After about a few seconds, appear “Waiting..” => “OK”, then complete.
9) Change input source component 1080p and Do 3)~8) steps.
10) Change input source RGB 1080p and Do 3)~8) steps.

4.5.2. ADC Calibration – Using RS-232C

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

4.5.2.1. Process

1) Connect Component/RGB, and RS-232C cable.
2) 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		
Serial Number : SKJY1107		2.ADC Date	1. Country Group (Press OK to Save)	
S/W Version	: 00.00.06.01	3.Power Off Status	Country Group Code	11
MICOM Version	: 2.00.2	4.System	Country Group	A-CAS
BOOT Version	: 1.01.01	5.Model Number D/L	Country	-
URSA Version	: 1.00	6.Test Option	2. Tool Option	
IR LED Version	: ff	7.External ADC	Tool Option1	16672
EDID Version(RGB)	: 0.01	8.Bluetooth Test	Tool Option2	
EDID Version(HDMI)	: 0.02	9.Bluetooth AV CODEC Config	Tool Option3	
Maker	: 99	10.Spread Spectrum	Tool Option4	
BT S/W Version	: 1.21	11.Sync Level	Tool Option5	
BT H/W Version	: 4384	12.Wireless Ready	3. Adjust White Balance :	OK
Wireless Host Version	: 0.00.0	13.Stable Count	4. Adjust ADC :	OK
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. : xxxxx			RGB	OK(0x1C)
			HDMI1	OK(0xD6,0xF9)
			HDMI2	OK(0xD6,0xF9)
			HDMI3	OK(0xD6,0xF9)
			HDMI4	OK(0xD6,0xF9)

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

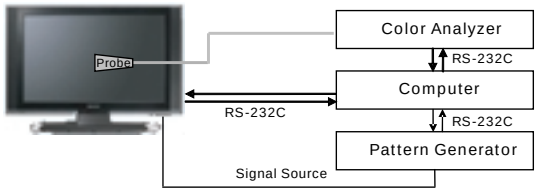
5.2. Adjustment of White Balance : (For Automatic Adjustment)

- Purpose : Adjust the color temperature to reduce the deviation of the module color temperature.
- 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.
- Adjustment mode : Three modes – Cool / Medium / Warm

* Required Equipment
- Remote controller for adjustment
- 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
- 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)



* If TV internal pattern is used, not needed

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)

- A Color analyzer(CA100+, CA210) should be used in the calibrated ch by CS-1000
- A Operate the zero-calibration of the CA100+ or CA-210, then stick sensor to the modul adjusting.
- A 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).

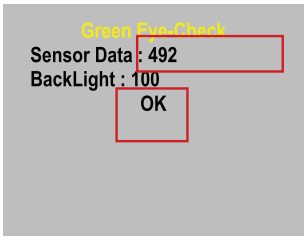
1. x, y > target
   i) Decrease the R, G.
2. x, y < target
   i) First decrease the B gain,
   ii) Decrease the one of the others.
3. x > target , y < target
   i) First decrease B, so make y a little more than the target.
   ii) Adjust x value by decreasing the R
4. x < target , y > target
   i) First 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	905
2		SECAM	DK	V/UHF	R34	C 34	575.25	11505
3		PAL	BG	V/UHF	EU05	C 05	175.25	3505
4		PAL	I	Cable	PI11	S 11	231.25	4625
5		NTSC		V/UHF	BR48		675.25	
6		PAL	BG	V/UHF	E04	C 04	62.25	1245
7		PAL	BG	V/UHF	EU07	C 07	189.25	3785
8	Initial CH	PAL	BG	V/UHF	EU50	C 50	703.25	14065
9	(Gumi)	PAL	BG	V/UHF	EU52	C 52	719.25	14385
10		PAL	I	V/UHF	PI41	C 41	631.25	12625
11		PAL	I	V/UHF	PI63	C 63	807.25	16145
12		PAL	BG	Cable	5	S 47	102.25	2045
13		PAL	BG	V/UHF	21	C 21	471.25	9425
14		SECAM	L	V/UHF	SLB	C 02	55.75	1115
15		SECAM	L	Cable	CATVE	S 07	152.75	3055
16		SECAM	L	V/UHF	SL36	C 36	591.25	11825
17								
18		PAL	B	V/UHF	E5	C 05	175.25	3505
19		PAL	G	V/UHF	E51	C 51	711.25	14225
20		PAL	I	V/UHF	I41	C 41	631.25	12625
21		SECAM	D	V/UHF	R5	C 05	93.25	1865
22		PAL	B	V/UHF	E4	C 04	62.25	1245
23		PAL	G	V/UHF	E31	C 31	551.25	11025
24	MA	PAL	I	V/UHF	I21	C 21	471.25	9425
25	(WR)	PAL	I	V/UHF	I69	C 69	855.25	17105
26		PAL	G	V/UHF	E48	C 48	687.25	13745
27		SECAM	L	V/UHF	L4	C 08	200.00	4000
28		SECAM	L	V/UHF	L45	C 45	663.25	13265
29		PAL	G	V/UHF	E25	C 25	503.25	10065
30		SECAM	D	V/UHF	R7	C 07	183.25	3665
31		SECAM	D	V/UHF	R7	C 07	189.25	
32								
33								
34		NTSC	M	V/UHF	US-4	C 04	67.25	1345
35		NTSC	M	V/UHF	J-01	C 01	91.25	1825
36		NTSC	M	V/UHF	US-13(J11)	C 13	211.25	4225
37		NTSC	M	V/UHF	US-14(J13)	C 14	471.25	9425
38		NTSC	M	V/UHF	US-63(J62)	C 63	765.25	15305
39		NTSC	M	Cable	CATV-15	S 15	127.25	2545
40	NT	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	995
42		PAL	D/K	V/UHF	D-10(China10)	C 10	200.25	4005
43		PAL	D/K	V/UHF	K-36	C 36	695.25	13905
44		PAL	B/G	V/UHF	E-5	C 05	175.25	3505
45		PAL	B/G	V/UHF	G-40	C 40	623.25	12465
46		PAL	I	V/UHF	I-28	C 28	527.25	10545
47								
48								
49		PAL	D/K	V/UHF	D-1	C 01	49.75	995
50		PAL	D/K	V/UHF	D-4	C 04	77.25	1545
51		PAL	D/K	V/UHF	D-10	C 10	200.25	4005
52		PAL	B/G	V/UHF	E-5	C 05	175.25	3505
53	NT_	SECAM	D/K	V/UHF	R-12	C 12	223.25	4465
54	PANDA	NTSC	M	V/UHF	US-14	C 14	471.25	9425
55		SECAM	D/K	V/UHF	R-34	C 34	575.25	11505
56		PAL	I	V/UHF	I-41	C 41	631.25	12625
57		NTSC	M	V/UHF	US-63	C 63	765.25	15305
58								
59		SECAM	B/G	V/UHF	E-04	C 04	62.25	1245
60		SECAM	D/K	V/UHF	R-05	C 05	93.25	1865
61		PAL	B/G	V/UHF	E-05	C 05	175.25	3505
62	RA	SECAM	D/K	V/UHF	R-12	C 12	223.25	4465
63		PAL	B/G	V/UHF	E-21	C 21	471.25	9425
64		SECAM	D/K	V/UHF	R-34	C 34	575.25	11505
65		SECAM	D/K	V/UHF	R-54	C 54	735.25	14705
66								
67								
68		PAL	B/G	V/UHF	E-2	C 02	48.25	965
69		PAL	B/G	V/UHF	E-5	C 05	175.25	3505
70		PAL	B/G	V/UHF	E-11	C 11	217.25	4345
71		PAL	B/G	V/UHF	E-25	C 25	503.25	10065
72		PAL	B/G	V/UHF	E-36	C 36	591.25	11825
73		PAL	I	V/UHF	I-30	C 30	543.25	10865
74		PAL	I	Cable	I-11	S 11	231.25	4625
75		SECAM	D/K	Cable	R-05	S 45	93.25	1865
76		SECAM	D/K	V/UHF	R-34	C 34	575.25	11505
77		SECAM	L	V/UHF	F-B	C 47	55.75	1115
78	IN	NTSC	M	V/UHF	US-04	C 4	67.25	1345
79		PAL	N	V/UHF	N-10	C 10	193.25	3865
80		NTSC	M	V/UHF	US-11	C 11	199.25	3985
81		NTSC	M	V/UHF	US-13	C 13	211.25	4225
82		NTSC	M	V/UHF	US-30	C 30	567.25	11345
83		SECAM	L	V/UHF	F-49	C 49	695.25	13905
84		PAL	M	V/UHF	M-69	C 69	801.25	16025
85		JAPAN	M	Cable	JA-01	S-95	91.25	1825
86		JAPAN	M	V/UHF	JA-04	J 4	171.25	3425
87		JAPAN	M	V/UHF	JA-36	37	609.3	12186
88		PAL	B/G	Cable	Au-5	S-47	102.25	2045
89								
90								
91	NP	PAL	B/G	V/UHF	E-05	C 05	175.25	3505
92		NTSC	M	V/UHF	US-13	C 13	211.25	4225
93		SECAM	D/K	V/UHF	R-12	C 12	223.25	4465
94		PAL	D/K	V/UHF	D-01	C 01	49.75	995
95		SECAM	D/K	V/UHF	R-34	C 34	575.25	11505
96		PAL	B/G	V/UHF	E-21	C 21	471.25	9425
97		PAL	D/K	V/UHF	D-04	C 04	77.25	1545

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 / Facotry 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	Vallue	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)

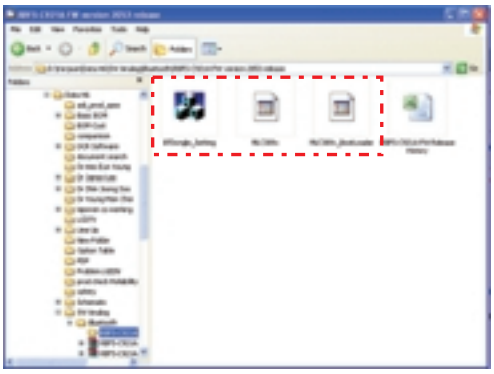
5) With 3Dright-glass, Like below figure.(Center is Blue)

** Appendix **

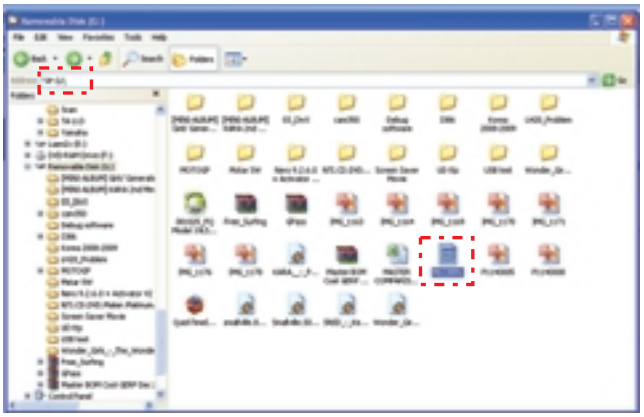
D. Bluetooth S/W Upgrade by using USB drive Input

1. Preparation Equipment
   a. USB Memory Stick

   b. New Bluetooth Software

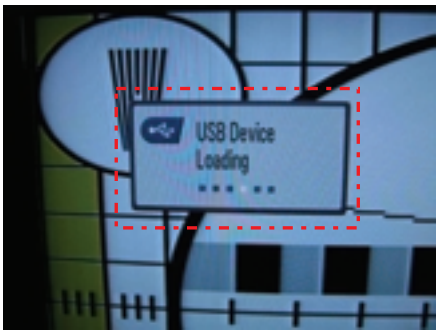


   c. Copy New File
      Copy Bluetooth software MCL389x.bin file to memory stick with out folder.
      *Caution : Do no t copy the file to the inside folder



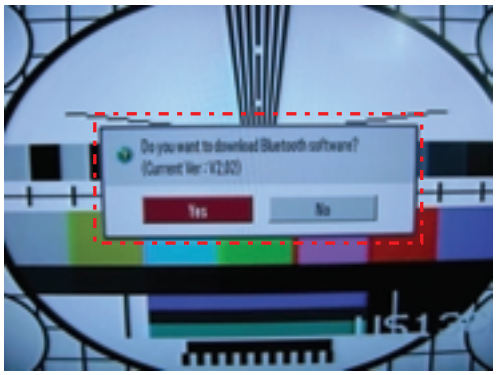
2. Connection
   Plug-in USB Memory stick to the USB input of the set.

3. USB input Automatically loading menu



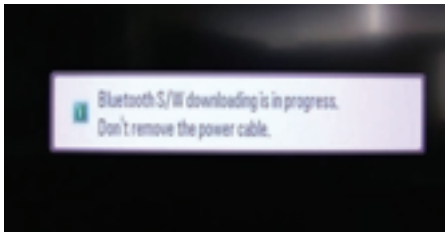
* The OSD "USB Device loading" is appealed by automatically….

4. Selecting Window for Bluetooth Software update



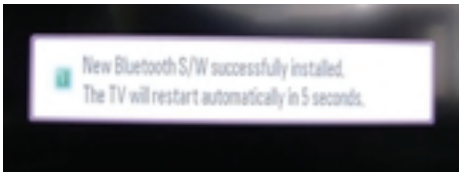
- The Pop-up window appears for selecting to update Bluetooth software and information about current Bluetooth software. (Ex : V2.02)
- Select "Yes"

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

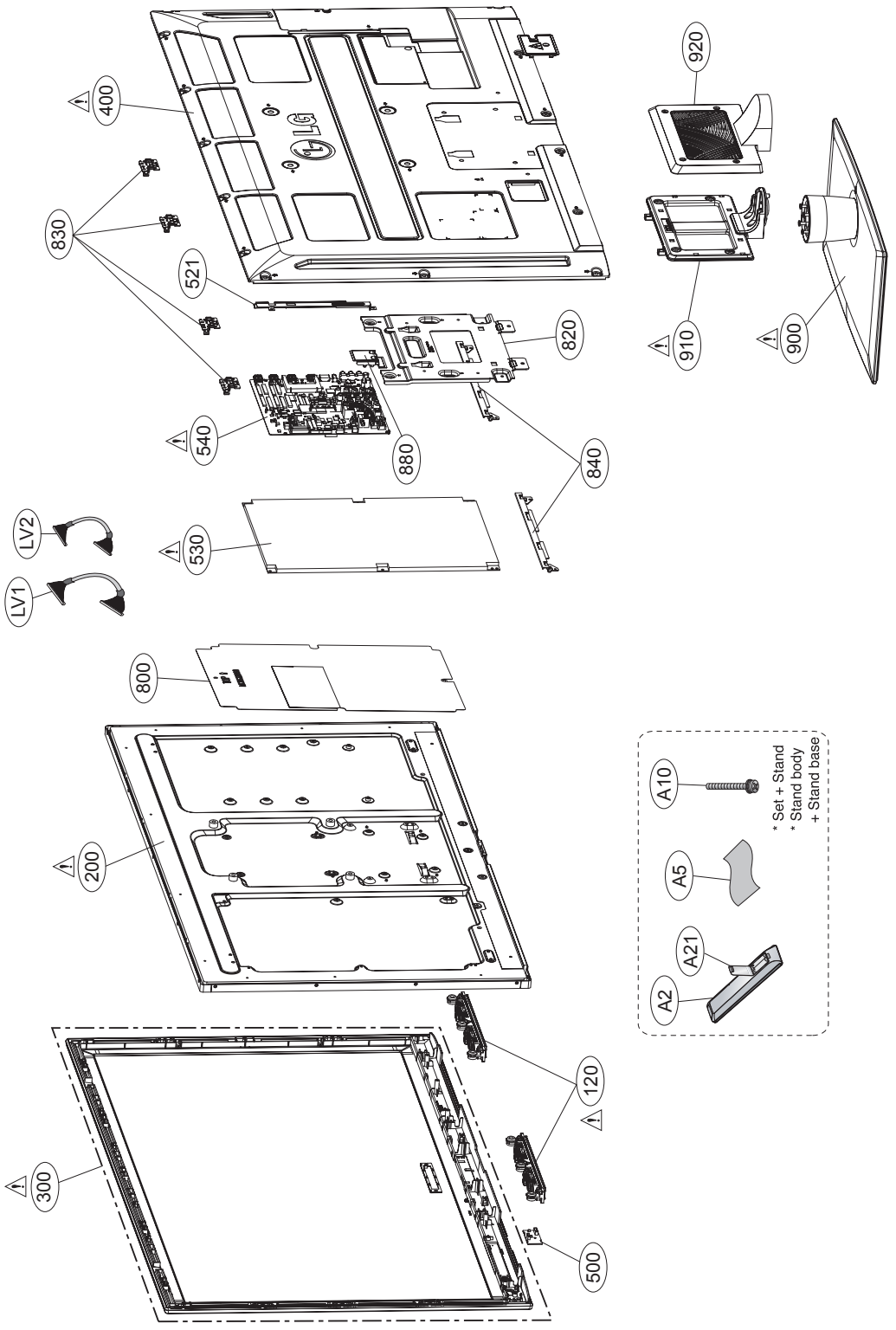
7. Check S/W Version

- 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

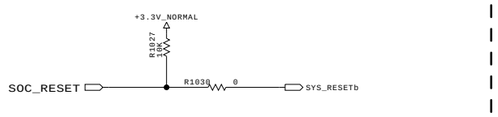
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

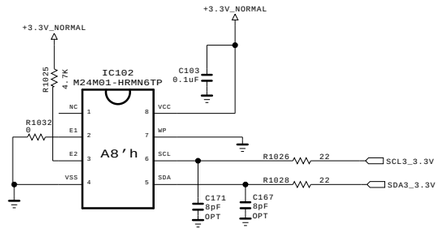
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent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



RESET

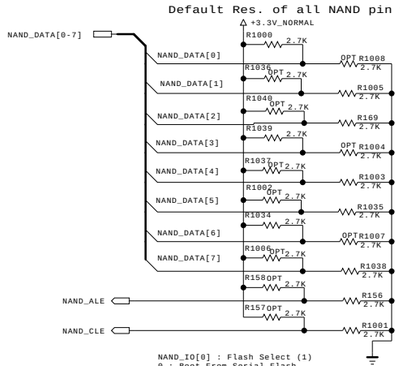


NVRAM



Boot Strap

Default Res. of all NAND pin is Pull-down



NAND_IO[0] : Flash Select (1)
0 : Boot From Serial Flash
1 : Boot From NAND Flash

NAND_IO[1] : NAND Block 0 Write (DNS)
0 : Enable Block 0 Write
1 : Disable Block 0 Write

NAND_IO[3:2] : NAND ECC (1, DNS)
00 : No ECC
01 : 1 ECC Bit
10 : 4 ECC Bit
11 : 8 ECC Bit

NAND_IO[4] : CPU Endian (0)
0 : Little Endian
1 : Big Endian

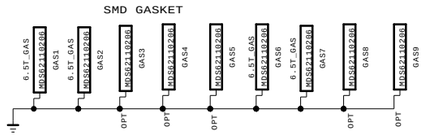
NAND_IO[6:5] : Xtal Bias Control (1, DNS)
00 : 1.2mA (Fundmental Recommand)
01 : 1.8mA
10 : 2.4mA (3rd over tune Recommand)
11 : 3.0mA

NAND_IO[7] : MIPS Frequency (DNS)
0 : 405MHz
1 : 378MHz

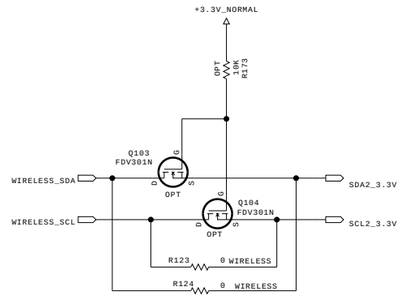
NAND_ALE : I2C Level (DNS)
0 : 3.3V Switching
1 : 5V Switching

NAND_CLE
0 : Enable D2CDIFF AC (DNS)
1 : Disabe D2CDIFF AC

SMD GASKET



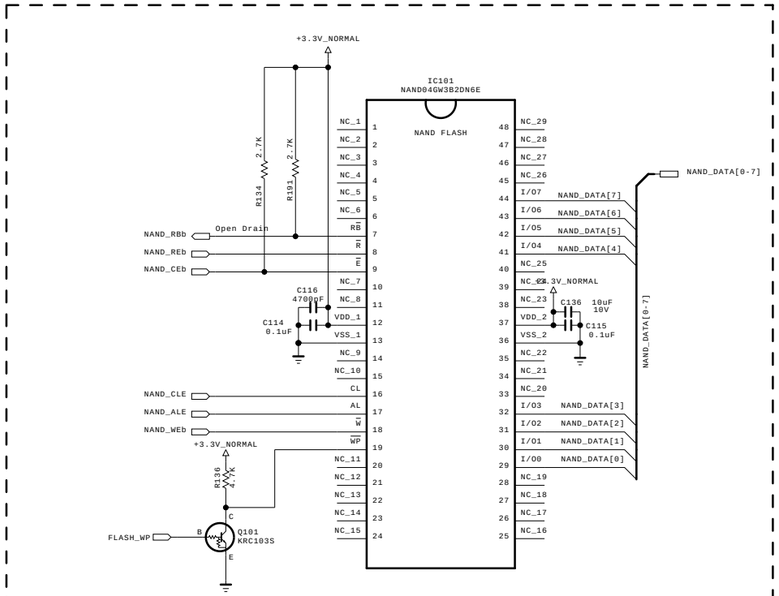
From wireless_I2C to micom I2C



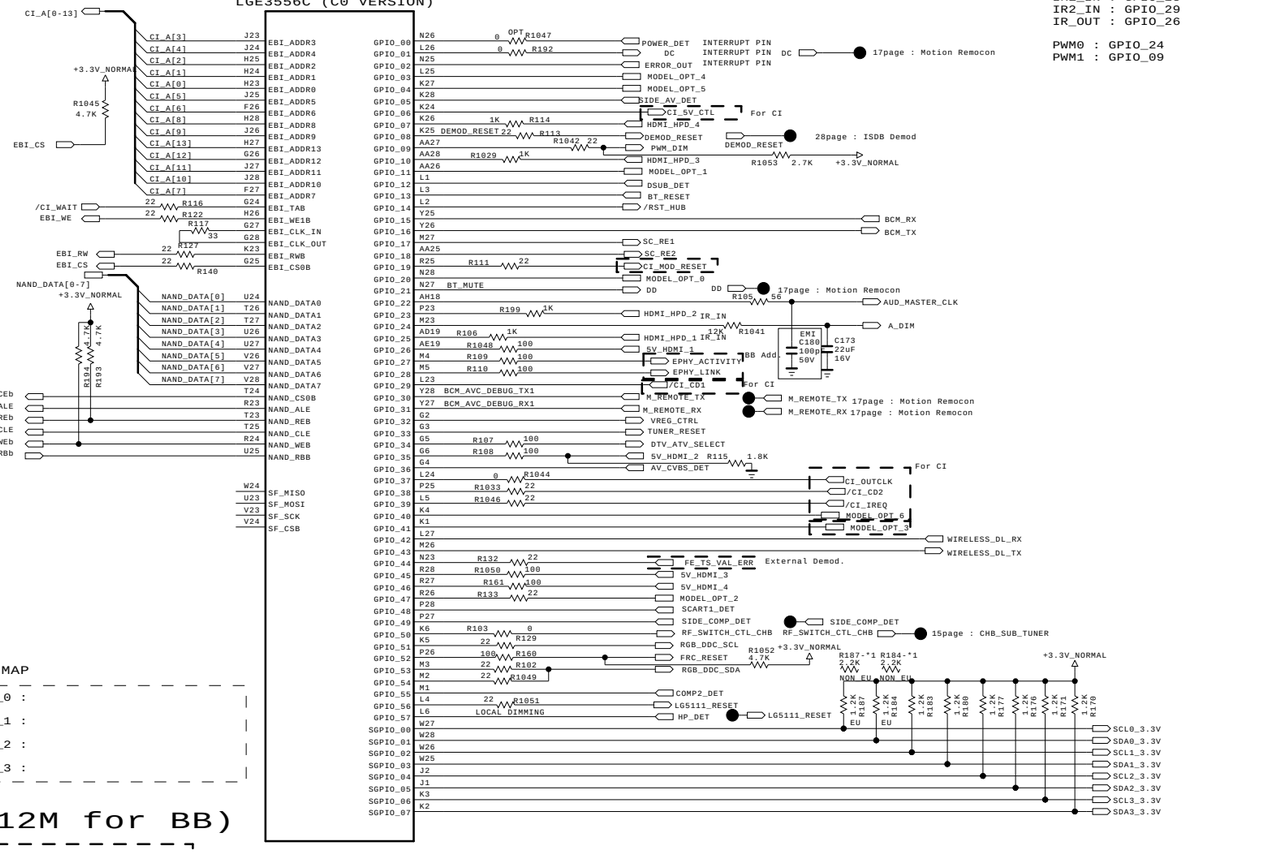
* I2C MAP

- * I2C_0 :
- * I2C_1 :
- * I2C_2 :
- * I2C_3 :

* NAND FLASH MEMORY 4Gbit (512M for BB)



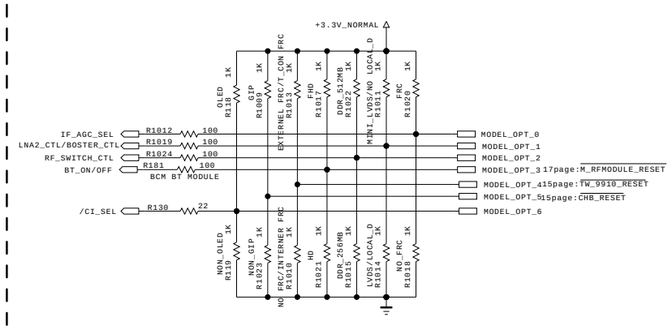
IC100
LGE3556C (C0 VERSION)



EXT IRQ
GPIO_00, GPIO_01, GPIO_02,
GPIO_11, GPIO_11, GPIO_39

IR_INT : GPIO_23
IR1_IN : GPIO_25
IR2_IN : GPIO_29
IR_OUT : GPIO_26

PWM0 : GPIO_24
PWM1 : GPIO_09



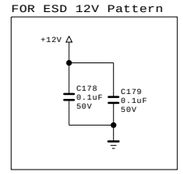
MODEL OPTION

PIN NAME	PIN NO.	HIGH	LOW
MODEL_OPT_0	N28	URSA3	NON_URSA3
MODEL_OPT_1	AA26	MAIN_MINI_LVDS	MAIN_LVDS
MODEL_OPT_2	R26	DDR-256M	DDR-512M
MODEL_OPT_3	K1	FHD	HD
MODEL_OPT_4	L25	FRC	NON_FRC
MODEL_OPT_5	K27	GIP	NON-GIP
MODEL_OPT_6	K4	OLED	NON_OLED

*MODEL_OPT_0 & MODEL_OPT_4
REFER TO THIS OPTION

MODEL_OPT_0	MODEL_OPT_4	
LOW	LOW	NO FRC
HIGH	LOW	URSA3 Internal
HIGH	HIGH	URSA3 External
LOW	HIGH	PWIZ Pannel T-con with LG FRC

FOR ESD 12V Pattern



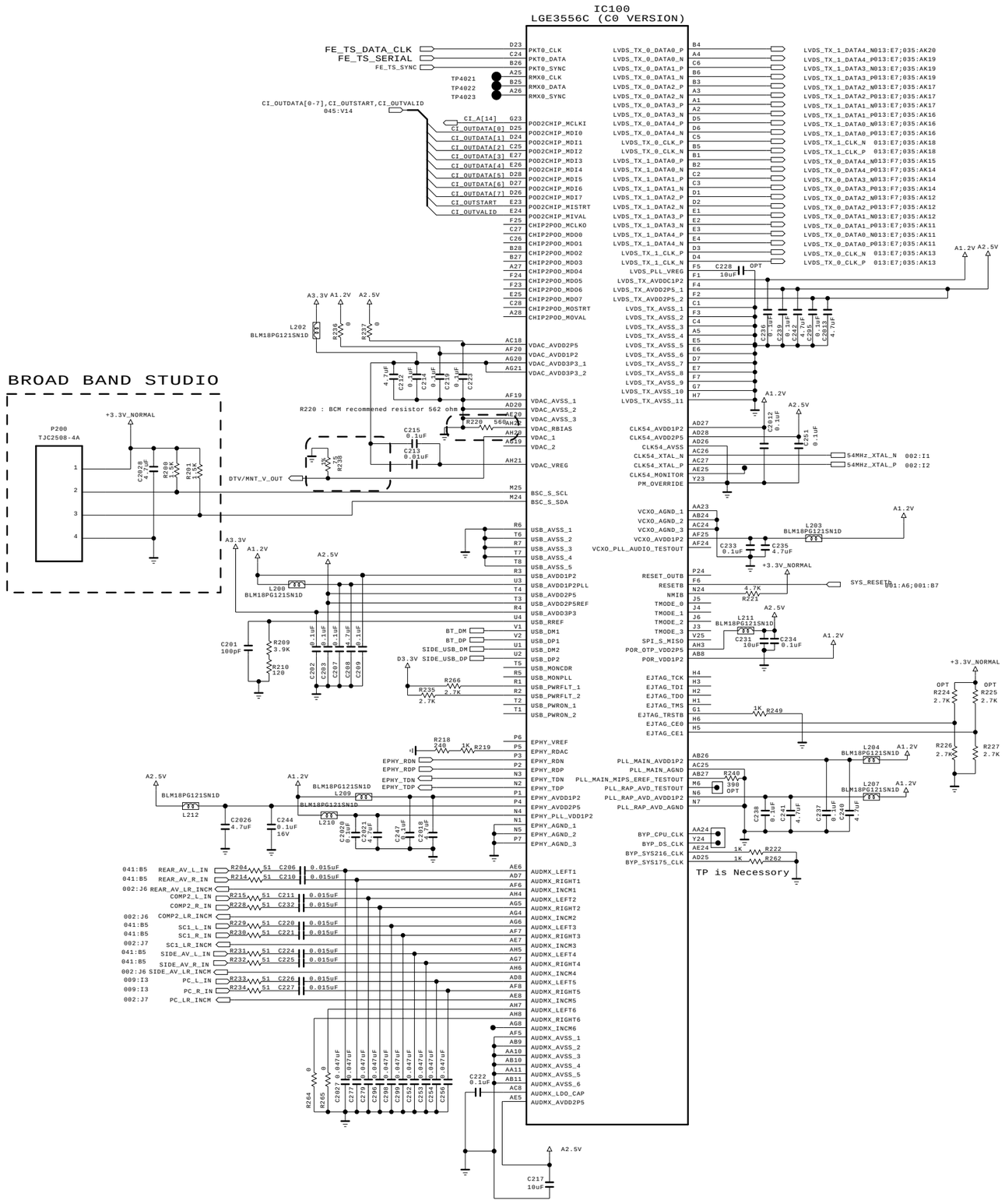
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	BCM (EUROBBTV)	DATE	2009.06.18
BLOCK	BCM3556 & NAND FLASH	SHEET	1

IC100
LGE3556C (C0 VERSION)



BROAD BAND STUDIO

Route INCM between associated left and right signals of same channel

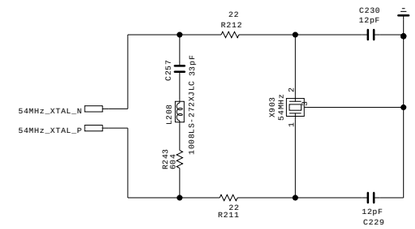
The INCM trace ends at the same point where the connector ground connects to the board ground (thru-hole connector pin).

Place test points, resistors near audio connector. Connect the other side of the resistor to GND as close as possible to the ground connection of the associated audio connector.

54MHz X-TAL

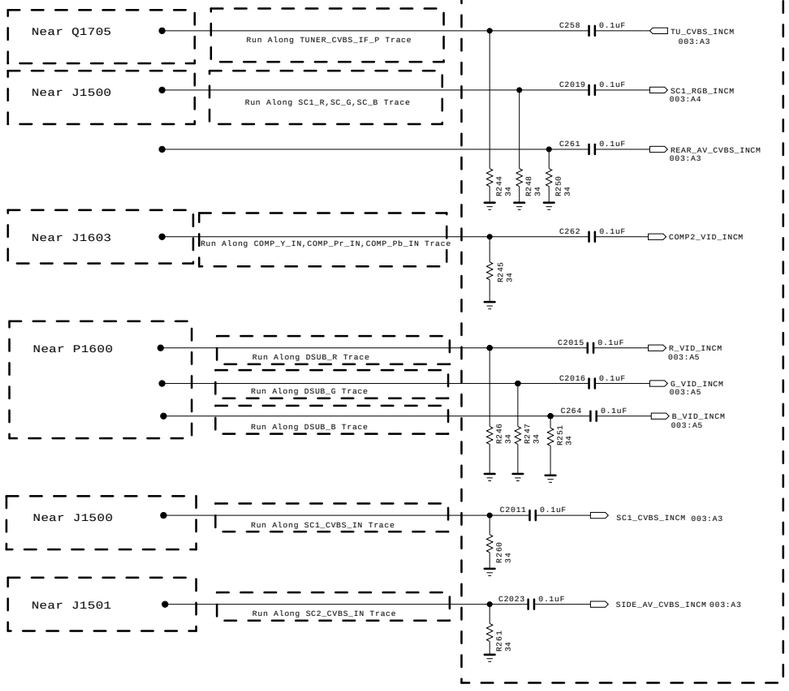
When usding FUNDMENTAL then series R = 0 ohm and CL = 8 pF

When usding Dip-type X-tal then series R = 22 ohm and CL = 12 pF

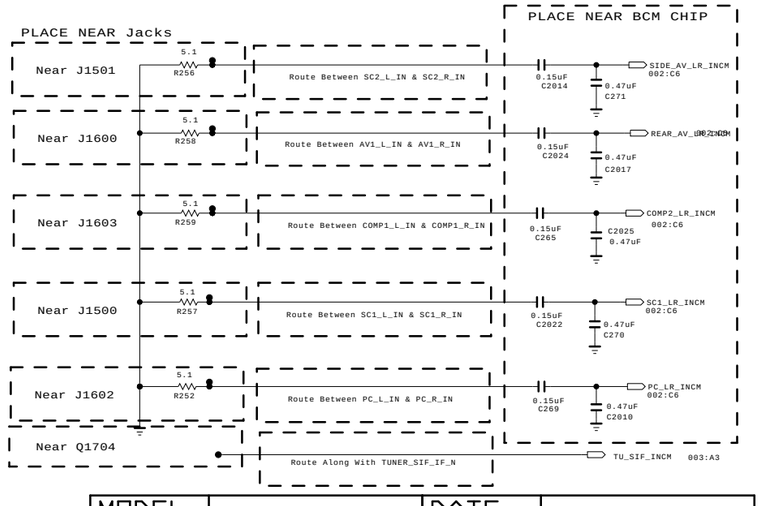


VIDEO INCM

PLACE NEAR BCM CHIP



AUDIO INCM



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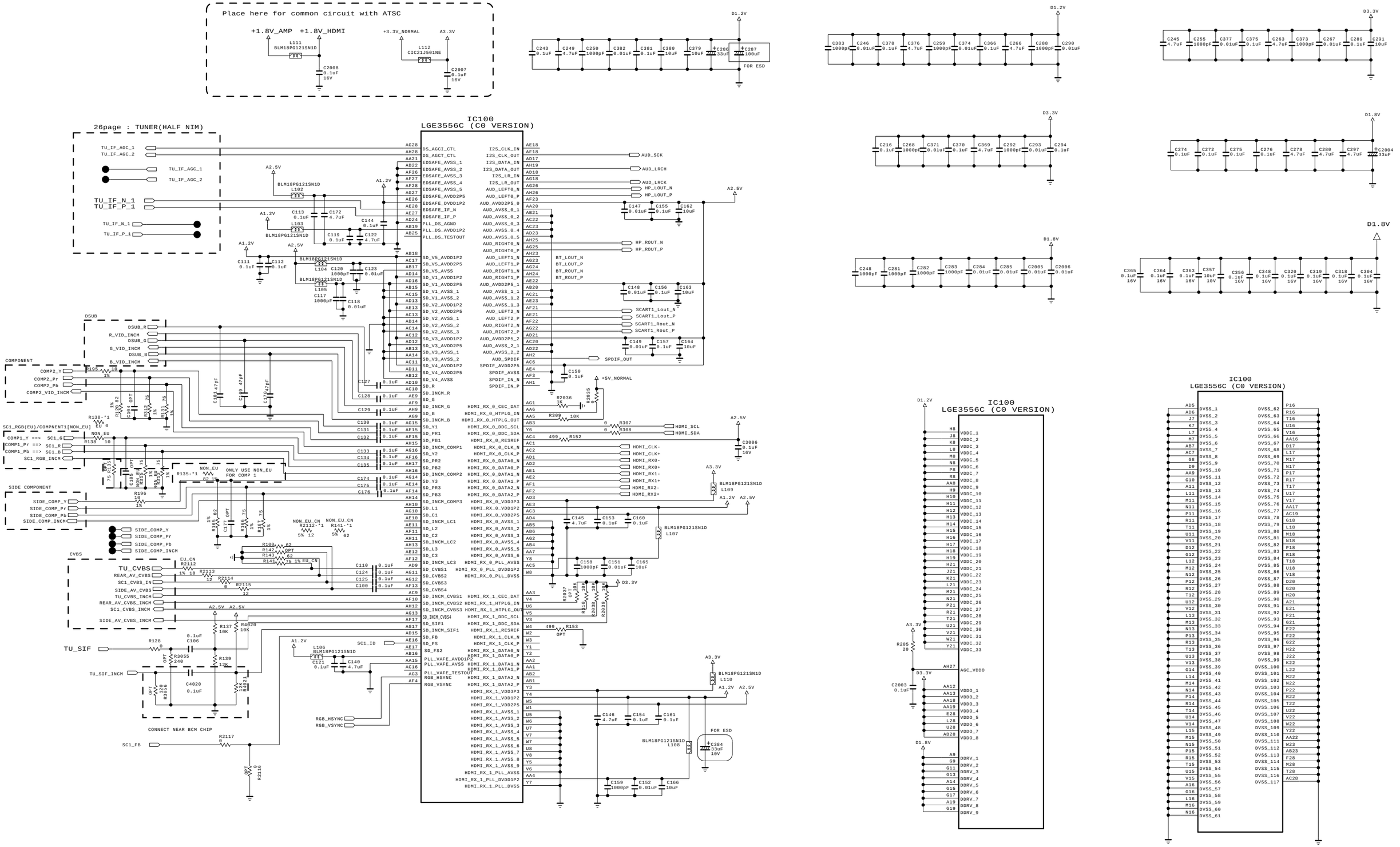
SECRET

LGElectronics

LG ELECTRONICS

MODEL	BCM (EUROBBTV)	DATE	2009.06.18
BLOCK	BCM3556 AUD_IN/LVDS	SHEET	2



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SECRET

LGElectronics

LG ELECTRONICS

MODEL	EUROBBTV	DATE	2009.06.18
BLOCK	BCM3556 VIDEO IN	SHEET	3

IC100
LGE3556C (C0 VERSION)

A1.2V

DDR_BVDD0 A6
DDR_BVDD1 A24
DDR_BVSS0 B7
DDR_BVSS1 B24
DDR_PLL_TEST F20
DDR_PLL_LDO B23
DDR01_CKE B17
DDR_COMP C22
DDR01_ODT E16
DDR_EXT_CLK C23
DDR0_CLK B12
DDR0_CLKB C12
DDR1_CLK A13
DDR1_CLKB A12

0.1uF C403
0.1uF C404
R411 0 OPT
R412 240 1%

DDR01_CKE
DDR01_ODT
DDR0_CLK 004:C7;004:C4
DDR0_CLKb 004:C7;004:C4
DDR1_CLK 004:F7;004:F4
DDR1_CLKb 004:F7;004:F4

DDR01_A[0] E14
DDR01_A[1] A15
DDR01_A[2] D15
DDR01_A[3] C12
DDR0_A[4] E13
DDR0_A[5] E12
DDR0_A[6] F13
DDR01_A[7] C14
DDR01_A[8] F14
DDR01_A[9] B14
DDR01_A[10] D14
DDR01_A[11] C13
DDR01_A[12] D13
DDR01_A[13] B13
DDR1_A[4] F15
DDR1_A[5] C15
DDR1_A[6] D16

DDR01_A[0-3]
DDR0_A[4-6]
DDR01_A[7-13]
DDR1_A[4-6]

DDR01_BA0 F16
DDR01_BA1 B16
DDR01_BA2 E15
DDR01_CASb A17

DDR01_WEb C7
DDR01_RASb A7

DDR0_DQ[0-7]
DDR0_DQ[8-15]
DDR1_DQ[0-7]
DDR1_DQ[8-15]

DDR0_DQ0 A8
DDR0_DQ1 B11
DDR0_DQ2 B8
DDR0_DQ3 D11
DDR0_DQ4 E11
DDR0_DQ5 C8
DDR0_DQ6 C11
DDR0_DQ7 C9
DDR0_DQ8 D8
DDR0_DQ9 E10
DDR0_DQ10 E9
DDR0_DQ11 F11
DDR0_DQ12 F12
DDR0_DQ13 E8
DDR0_DQ14 D10
DDR0_DQ15 F8
DDR1_DQ0 C18
DDR1_DQ1 C20
DDR1_DQ2 A18
DDR1_DQ3 B21
DDR1_DQ4 C21
DDR1_DQ5 B18
DDR1_DQ6 B20
DDR1_DQ7 D18
DDR1_DQ8 E18
DDR1_DQ9 D21
DDR1_DQ10 F18
DDR1_DQ11 E20
DDR1_DQ12 A22
DDR1_DQ13 F17
DDR1_DQ14 B22
DDR1_DQ15 E17

DDR0_DM0 A10
DDR0_DM1 C10
DDR1_DM0 A20
DDR1_DM1 F19
DDR0_DQS0 B10
DDR0_DQS0b B9
DDR0_DQS1 F10
DDR0_DQS1b F9
DDR1_DQS0 B19
DDR1_DQS0b C19
DDR1_DQS1 E19
DDR1_DQS1b D19

DDR0_DM0 004:E6
DDR0_DM1 004:E3
DDR1_DM0 004:H6
DDR1_DM1 004:H3
DDR0_DQS0 004:E6
DDR0_DQS0b 004:E6
DDR0_DQS1 004:E3
DDR0_DQS1b 004:E3
DDR1_DQS0 004:H6
DDR1_DQS0b 004:H6
DDR1_DQS1 004:H3
DDR1_DQS1b 004:H3

DDR0_VREF0
DDR1_VREF0
DDR_VREF0 A23
DDR_VREF1 A17
DDR_VDDP1P8_1 C7
DDR_VDDP1P8_2 D22

D1.8V

C406 0.1uF
C415 0.1uF
C424 0.1uF
C427 0.1uF

C405 1uF
C402 470pF
C408 470pF
C407 1uF
C401 1uF
C409 470pF
C410 470pF
C403 1uF

D1.8V

C440 470pF
C441 0.047uF
C442 0.1uF
C443 10uF
C444 470pF
C445 0.047uF
C446 0.1uF
C447 10uF
C448 10uF
C451 22uF
C454 10uF
C455 0.1uF
C456 0.047uF
C457 470pF
C458 10uF
C459 0.1uF
C460 0.047uF
C461 470pF

IC400
NT5TU128M8DE_BD

004:A7;004:C4 DDR0_CLK
004:A7;004:C4 DDR0_CLKb
DDR01_CKE
R406 100 1%
DDR01_RASb
DDR01_CASb
DDR01_WEb
DDR01_BA0
DDR01_BA1
DDR01_BA2
DDR01_A[0-3,7-13]
DDR0_A[4-6]
DDR01_ODT

CK E8
CK F8
CKE F2
RAS F7
CAS G7
WE F3
CS G8
BA0 G2
BA1 G3
NC_1/BA2 G1
A0 H8
A1 H3
A2 H7
A3 J2
A4 J8
A5 J3
A6 J7
A7 K2
A8 K8
A9 K3
A10/AP H2
A11 K7
A12 L2
A13 L8
NC_2/A14 L3
NC_3/A15 L7
ODT F9

DDR01_A[0] H8
DDR01_A[1] H3
DDR01_A[2] H7
DDR01_A[3] J2
DDR0_A[4] J8
DDR0_A[5] J3
DDR0_A[6] J7
DDR01_A[7] K2
DDR01_A[8] K8
DDR01_A[9] K3
DDR01_A[10] H2
DDR01_A[11] K7
DDR01_A[12] L2
DDR01_A[13] L8

DQ0 C8 DDR0_DQ[0]
DQ1 C2 DDR0_DQ[1]
DQ2 D7 DDR0_DQ[2]
DQ3 D3 DDR0_DQ[3]
DQ4 D1 DDR0_DQ[4]
DQ5 D9 DDR0_DQ[5]
DQ6 B1 DDR0_DQ[6]
DQ7 B9 DDR0_DQ[7]

DDR0_DQ[7-0] 004:B6

DQS B7 DDR0_DQS0
DQS A8 DDR0_DQS0b
DM/RDQS B3 DDR0_DM0
NU/RDQS A2

VDDQ_1 A9
VDDQ_2 C1
VDDQ_3 C3
VDDQ_4 C7
VDDQ_5 C9
VDD_1 A1
VDD_2 L1
VDD_3 E9
VDD_4 H9
VSSQ_1 A7
VSSQ_2 B2
VSSQ_3 B8
VSSQ_4 D2
VSSQ_5 D8
VSS_1 A3
VSS_2 E3
VSS_3 J1
VSS_4 K9
VREF E2
VDDL E1
VSSDL E7

D1.8V
DDR0_VREF0
C449 0.1uF
C452 470pF

Close to IC

IC402
NT5TU128M8DE_BD

DDR1_CLK
DDR1_CLKb
DDR01_CKE
R407 100 1%
DDR01_RASb
DDR01_CASb
DDR01_WEb
DDR01_BA0
DDR01_BA1
DDR01_BA2
DDR01_A[0-3,7-13]
DDR1_A[4-6]
DDR01_ODT

CK E8
CK F8
CKE F2
RAS F7
CAS G7
WE F3
CS G8
BA0 G2
BA1 G3
NC_1/BA2 G1
A0 H8
A1 H3
A2 H7
A3 J2
A4 J8
A5 J3
A6 J7
A7 K2
A8 K8
A9 K3
A10/AP H2
A11 K7
A12 L2
A13 L8
NC_2/A14 L3
NC_3/A15 L7
ODT F9

DDR01_A[0] H8
DDR01_A[1] H3
DDR01_A[2] H7
DDR01_A[3] J2
DDR1_A[4] J8
DDR1_A[5] J3
DDR1_A[6] J7
DDR01_A[7] K2
DDR01_A[8] K8
DDR01_A[9] K3
DDR01_A[10] H2
DDR01_A[11] K7
DDR01_A[12] L2
DDR01_A[13] L8

DQ0 C8 DDR1_DQ[0]
DQ1 C2 DDR1_DQ[1]
DQ2 D7 DDR1_DQ[5]
DQ3 D3 DDR1_DQ[3]
DQ4 D1 DDR1_DQ[4]
DQ5 D9 DDR1_DQ[2]
DQ6 B1 DDR1_DQ[6]
DQ7 B9 DDR1_DQ[7]

DDR1_DQ[7-0] 004:B5

DQS B7 DDR1_DQS0
DQS A8 DDR1_DQS0b
DM/RDQS B3 DDR1_DM0
NU/RDQS A2

VDDQ_1 A9
VDDQ_2 C1
VDDQ_3 C3
VDDQ_4 C7
VDDQ_5 C9
VDD_1 A1
VDD_2 L1
VDD_3 E9
VDD_4 H9
VSSQ_1 A7
VSSQ_2 B2
VSSQ_3 B8
VSSQ_4 D2
VSSQ_5 D8
VSS_1 A3
VSS_2 E3
VSS_3 J1
VSS_4 K9
VREF E2
VDDL E1
VSSDL E7

004:A4
004:A4
004:A4

004:B6;004:F3;004:I7
004:A7;004:C5;004:C2;004:F2;004:I4;004:I6

D1.8V
DDR1_VREF0
C463 470pF
C466 0.1uF

Close to IC

D1.8V

C462 470pF
C465 0.047uF
C468 0.1uF
C469 10uF
C470 470pF
C471 0.047uF
C472 0.1uF
C473 10uF
C474 10uF
C475 22uF
C476 10uF
C477 0.1uF
C478 0.047uF
C479 470pF
C480 10uF
C481 0.1uF
C482 0.047uF
C485 470pF

DDR_VTT

SI

DDR01_A[0-3,7-13]
DDR1_A[4-6]
DDR0_A[4-6]

DDR01_RASb
DDR01_A[2]
DDR01_A[0]
DDR1_A[6] 75
AR408
R408 75
DDR01_A[12] R409 75
DDR01_A[9]
DDR01_A[7]
DDR1_A[5] 75
DDR1_A[4] AR401
DDR01_A[11] 75
DDR01_A[8]
DDR01_A[13]
DDR01_A[3] AR402
DDR01_A[1]
DDR01_A[10]
DDR01_CASb
DDR01_BA1 75
DDR01_BA0 AR403
DDR01_BA2
DDR01_WEb
DDR01_CKE 75
DDR01_ODT AR404
R410 75

C485 0.1uF
C486 0.1uF
C487 0.1uF
C488 0.1uF
C489 0.1uF
C490 0.1uF
C499 0.1uF
C421 0.1uF

DDR_VTT

PI

DDR01_RASb
DDR01_A[2]
DDR01_A[0]
DDR0_A[6] 75
DDR01_A[3] AR405
DDR01_A[1]
DDR01_A[10]
DDR01_BA1 75
DDR01_A[12] AR406
DDR01_A[9]
DDR01_A[7]
DDR0_A[5] 75
DDR0_A[4] AR407
DDR01_A[11]
DDR01_A[8]
DDR01_A[13] 75
AR408
DDR01_BA0
DDR01_BA2
DDR01_WEb
DDR01_CKE 75
DDR01_ODT AR409
R404 75

C491 0.1uF
C483 0.1uF
C484 0.1uF
C492 0.1uF
C493 0.1uF
C494 0.1uF
C496 0.1uF
C497 0.1uF
C498 0.1uF

SI

IC401
NT5TU128M8DE_BD

004:A7;004:C7 DDR0_CLK
004:A7;004:C7 DDR0_CLKb
DDR01_CKE
004:A7;004:C7;004:F7;004:F4
DDR01_RASb
DDR01_CASb
DDR01_WEb
DDR01_BA0
DDR01_BA1
DDR01_BA2
DDR01_A[0-3,7-13]
DDR0_A[4-6]
DDR01_ODT

CK E8
CK F8
CKE F2
RAS F7
CAS G7
WE F3
CS G8
BA0 G2
BA1 G3
NC_1/BA2 G1
A0 H8
A1 H3
A2 H7
A3 J2
A4 J8
A5 J3
A6 J7
A7 K2
A8 K8
A9 K3
A10/AP H2
A11 K7
A12 L2
A13 L8
NC_2/A14 L3
NC_3/A15 L7
ODT F9

DDR01_A[0] H8
DDR01_A[1] H3
DDR01_A[2] H7
DDR01_A[3] J2
DDR0_A[4] J8
DDR0_A[5] J3
DDR0_A[6] J7
DDR01_A[7] K2
DDR01_A[8] K8
DDR01_A[9] K3
DDR01_A[10] H2
DDR01_A[11] K7
DDR01_A[12] L2
DDR01_A[13] L8

DQ0 C8 DDR0_DQ[9]
DQ1 C2 DDR0_DQ[8]
DQ2 D7 DDR0_DQ[12]
DQ3 D3 DDR0_DQ[13]
DQ4 D1 DDR0_DQ[15]
DQ5 D9 DDR0_DQ[11]
DQ6 B1 DDR0_DQ[10]
DQ7 B9 DDR0_DQ[14]

DDR0_DQ[15-8]

DQS B7 DDR0_DQS1
DQS A8 DDR0_DQS1b
DM/RDQS B3 DDR0_DM1
NU/RDQS A2

VDDQ_1 A9
VDDQ_2 C1
VDDQ_3 C3
VDDQ_4 C7
VDDQ_5 C9
VDD_1 A1
VDD_2 L1
VDD_3 E9
VDD_4 H9
VSSQ_1 A7
VSSQ_2 B2
VSSQ_3 B8
VSSQ_4 D2
VSSQ_5 D8
VSS_1 A3
VSS_2 E3
VSS_3 J1
VSS_4 K9
VREF E2
VDDL E1
VSSDL E7

004:A4
004:A4
004:A4

D1.8V
DDR0_VREF0
C450 0.1uF
C453 470pF

Close to IC

IC403
NT5TU128M8DE_BD

DDR1_CLK
DDR1_CLKb
DDR01_CKE
DDR01_RASb
DDR01_CASb
DDR01_WEb
DDR01_BA0
DDR01_BA1
DDR01_BA2
DDR01_A[0-3,7-13]
DDR1_A[4-6]
004:B6;004:F6;004:I7
DDR01_ODT

CK E8
CK F8
CKE F2
RAS F7
CAS G7
WE F3
CS G8
BA0 G2
BA1 G3
NC_1/BA2 G1
A0 H8
A1 H3
A2 H7
A3 J2
A4 J8
A5 J3
A6 J7
A7 K2
A8 K8
A9 K3
A10/AP H2
A11 K7
A12 L2
A13 L8
NC_2/A14 L3
NC_3/A15 L7
ODT F9

DDR01_A[0] H8
DDR01_A[1] H3
DDR01_A[2] H7
DDR01_A[3] J2
DDR1_A[4] J8
DDR1_A[5] J3
DDR1_A[6] J7
DDR01_A[7] K2
DDR01_A[8] K8
DDR01_A[9] K3
DDR01_A[10] H2
DDR01_A[11] K7
DDR01_A[12] L2
DDR01_A[13] L8

DQ0 C8 DDR1_DQ[9]
DQ1 C2 DDR1_DQ[8]
DQ2 D7 DDR1_DQ[12]
DQ3 D3 DDR1_DQ[13]
DQ4 D1 DDR1_DQ[15]
DQ5 D9 DDR1_DQ[14]
DQ6 B1 DDR1_DQ[10]
DQ7 B9 DDR1_DQ[11]

DDR1_DQ[15-8] 004:B5

DQS B7 DDR1_DQS1
DQS A8 DDR1_DQS1b
DM/RDQS B3 DDR1_DM1
NU/RDQS A2

VDDQ_1 A9
VDDQ_2 C1
VDDQ_3 C3
VDDQ_4 C7
VDDQ_5 C9
VDD_1 A1
VDD_2 L1
VDD_3 E9
VDD_4 H9
VSSQ_1 A7
VSSQ_2 B2
VSSQ_3 B8
VSSQ_4 D2
VSSQ_5 D8
VSS_1 A3
VSS_2 E3
VSS_3 J1
VSS_4 K9
VREF E2
VDDL E1
VSSDL E7

004:A4
004:A4
004:A4

D1.8V
DDR1_VREF0
C464 470pF
C467 0.1uF

Close to IC

* DDR_VTT

DDR_VTT
D3.3V
D1.8V

C426 10uF 16V
C425 10uF 16V
C417 10uF 10V
C419 10uF 10V
C413 0.1uF 16V

IC404
BD35331F-E2

R418 10K

GND 1
EN 2
VTTS 3
VREF 4
8 VTT
7 VTT_IN
6 VCC
5 VDDQ

DDR1_VREF0
DDR0_VREF0

R414 0
R415 0
R417 220

C422 1uF 10V
C416 10uF 10V
C420 0.1uF 16V
C418 1uF 10V

C411 0.1uF 16V
C412 0.1uF 16V
C423 10uF 10V
C414 0.1uF 16V

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

HONG YEON HYUK

LG ELECTRONICS

MODEL	BCM (EUROBBTV)	DATE	2009.06.18
BLOCK	DDR Memory	SHEET	4

COMPONENT1
COMPONENT2
AV1

JK1100
PPJ237-01

6C [RD1]E-LUG
5C [RD1]O-SPRING
4C [RD1]CONTACT
5B [WH1]O-SPRING
4A [YL1]CONTACT
5A [YL1]O-SPRING
6A [YL1]E-LUG
6H [RD2]E-LUG
5H [RD2]O-SPRING_2
4H [RD2]CONTACT
5G [WH2]O-SPRING
5F [RD2]O-SPRING_1
7F [RD2]E-LUG-S
5E [BL2]O-SPRING
7E [BL2]E-LUG-S
4D [GN2]CONTACT
5D [GN2]O-SPRING
6D [GN2]E-LUG
6N [RD3]E-LUG
5N [RD3]O-SPRING_2
4N [RD3]CONTACT
5M [WH3]O-SPRING
5L [RD3]O-SPRING_1
7L [RD3]E-LUG-S
5K [BL3]O-SPRING
7K [BL3]E-LUG-S
4J [GN3]CONTACT
5J [GN3]O-SPRING
6J [GN3]E-LUG

AV

+3.3V_NORMAL
R1101 10K
D1100 5.6V
C1100 100pF 50V
R1104 1K
AV_CVBS_DET 9:G3
C1101 1uF 25V
D1101 5.6V
R1102 470K
R1105 0
C1103 100pF 50V
REAR_AV_R_IN 10:B5;AF24
C1102 1uF 25V
D1102 5.6V
R1103 470K
R1106 0
C1104 100pF 50V
REAR_AV_L_IN 10:B5;AF22
D1103 5.1V
D1116 5.1V
R1107 0
C1105 47pF 50V
REAR_AV_CVBS 11:C4;AL18
R1108 OPT 0

COMPONENT1
<Practically COMP2>

+3.3V_NORMAL
R1112 10K
D1115 5.6V
C1112 100pF 50V
R1116 1K
SCART1_DET ==> COMP1_DET
C1114 25V 1uF
D1105 5.6V
R1109 470K
R1114 0
C1125 100pF
SC1_R_IN ==> COMP1_R_IN
C1113 25V 1uF
D1104 5.6V
R1108 470K
R1113 0
C1124 100pF
SC1_L_IN ==> COMP1_L_IN
L1102 270nH
D1106 5.5V
C1108 27pF 50V
C1120 27pF 50V
SC1_R ==> COMP1_Pr
L1100 270nH
D1107 5.5V
C1106 27pF 50V
C1118 27pF 50V
SC1_B ==> COMP1_Pb
L1101 270nH
D1108 5.1V
D1117 5.1V
C1107 27pF 50V
C1119 27pF 50V
SC1_G ==> COMP1_Y

COMPONENT2
<Practically COMP1>

+3.3V_NORMAL
R1115 10K
D1109 5.6V
C1115 100pF 50V
R1119 1K
COMP2_DET
C1117 25V 1uF
D1114 5.6V
R1111 470K
R1118 0
C1127 100pF
COMP2_R_IN
C1116 25V 1uF
D1110 5.6V
R1110 470K
R1117 0
C1126 100pF
COMP2_L_IN
L1103 270nH
D1111 5.5V
C1109 27pF 50V
C1121 27pF 50V
COMP2_Pr
L1104 270nH
D1112 5.5V
C1110 27pF 50V
C1122 27pF 50V
COMP2_Pb
L1105 270nH
D1113 5.1V
D1118 5.1V
C1111 27pF 50V
C1123 27pF 50V
COMP2_Y

NON_SCART

TP1100 DTV/MNT_V_OUT
TP1101 SC1_FB
TP1102 SC1_ID
TP1103 DTV_ATV_SELECT
TP1104 SCART1_Rout_P
TP1105 SCART1_Rout_N
TP1107 SC1_CVBS_IN
TP1108 SC_RE1
TP1109 SC_RE2
TP1110 SCART1_Lout_N
TP1111 SCART1_Lout_P

New Item Development
EARPHONE BLOCK

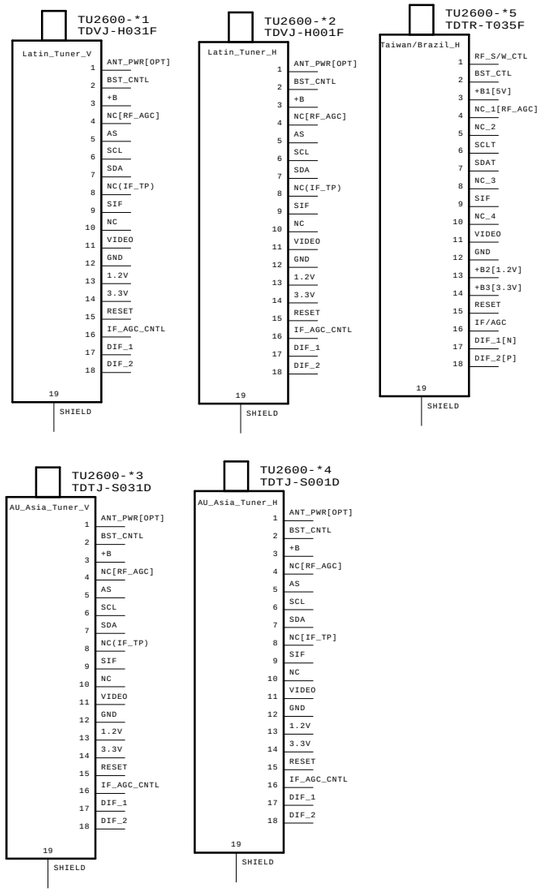
HP_LOUT
OPT C1130 1000pF 50V
OPT R1121 1K
OPT Q1100 MMBT3904-(F)
OPT Q1103 MMBT3904-(F)
+3.3V_NORMAL
R1125 4.7K
R1123 1K
HP_DET
JK1101 KJA-PH-0-0177
GND 5
L 4
DETECT 3
R 1
HP_ROUT
OPT C1131 1000pF 50V
OPT R1122 1K
OPT Q1101 MMBT3904-(F)
OPT Q1102 MMBT3904-(F)
+3.5V_ST
OPT R1124 10K
SIDE_HP_MUTE

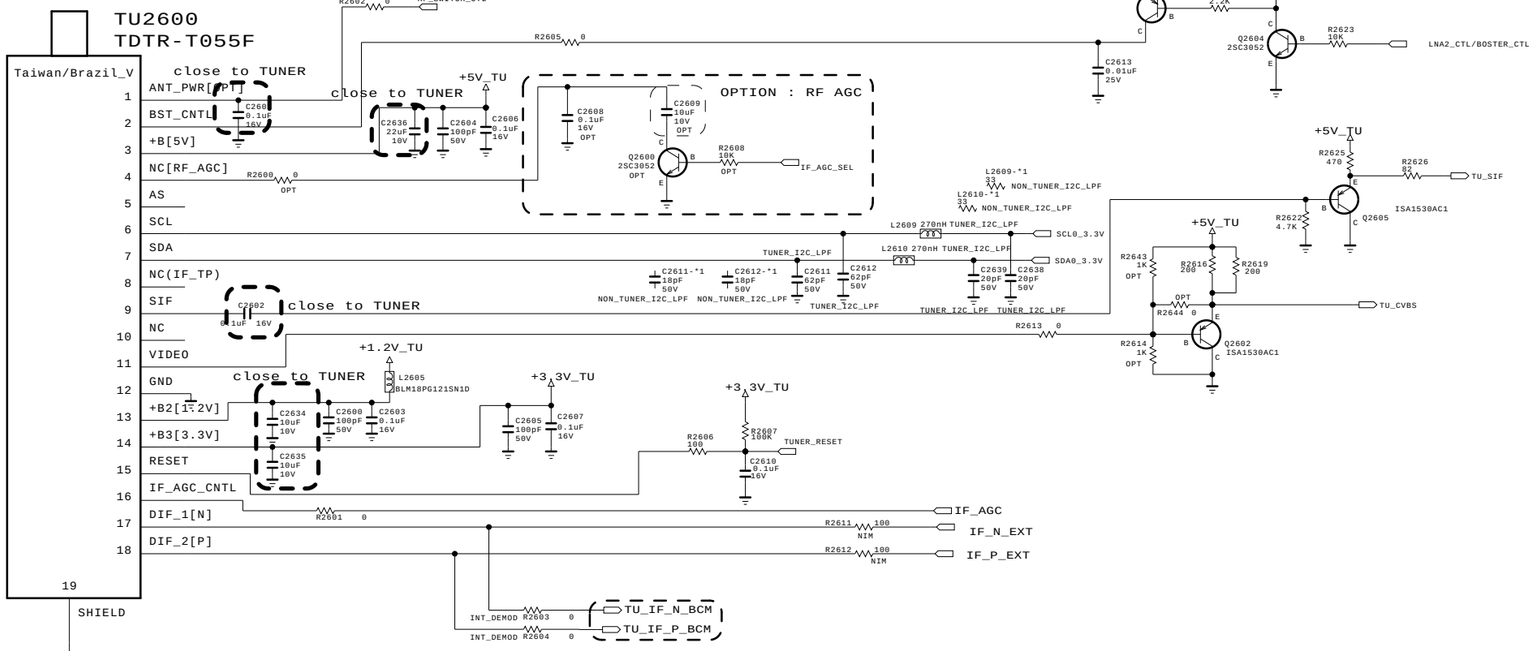
EARPHONE AMP

+3.3V_NORMAL
L1106 10uH
C1137 10uF 10V
C1139 0.1uF 16V
Close to the IC
C1136 1uF 10V
R1131 0 1/16W
L1107 BG2012B080TF
C1142 0.22uF 16V
HP_LOUT
R1129 100K OPT
+3.3V_NORMAL
R1132 4.7K
R1133 OPT 0
Q1104 2SC3052
R1134 1K
SIDE_HP_MUTE
HP_LOUT_N
HP_LOUT_P
HP_ROUT_N
HP_ROUT_P
C1132 1uF 10V
C1133 1uF 10V
C1134 1uF 10V
C1135 1uF 10V
IC1100 TPA6132A2
EAN60724701
OUTL SGND VDD EN
INL- INL+ INR+ INR-
HPVDD CPP PGND CPN
OUTR G0 G1 HPVSS
C1140 2.2uF 10V
C1141 2.2uF 10V
C1138 2.2uF 10V
R1120 4.7K
R1127 4.7K
R1126 OPT
R1128 OPT
R1130 0 1/16W
L1108 BG2012B080TF
C1143 0.22uF 16V
HP_ROUT

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

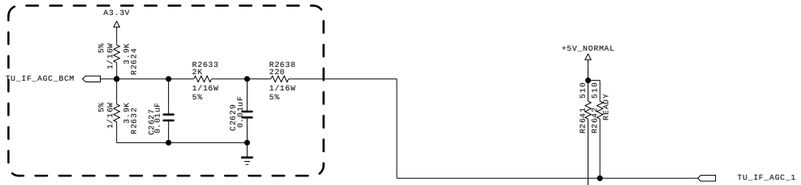
CAN H-NIM/NIM TUNER for TAIWAN



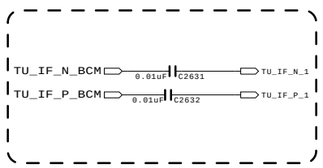


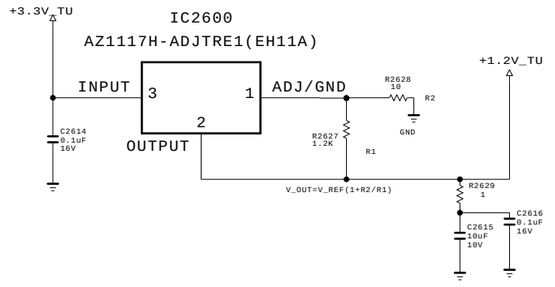
IF AGC FILTER

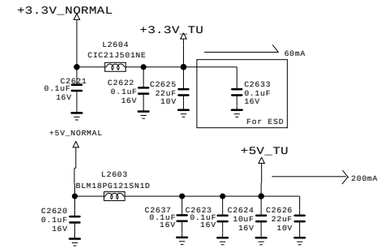
CAUTION : Closed BCM IC(IC100)



IF FILTER OPTION







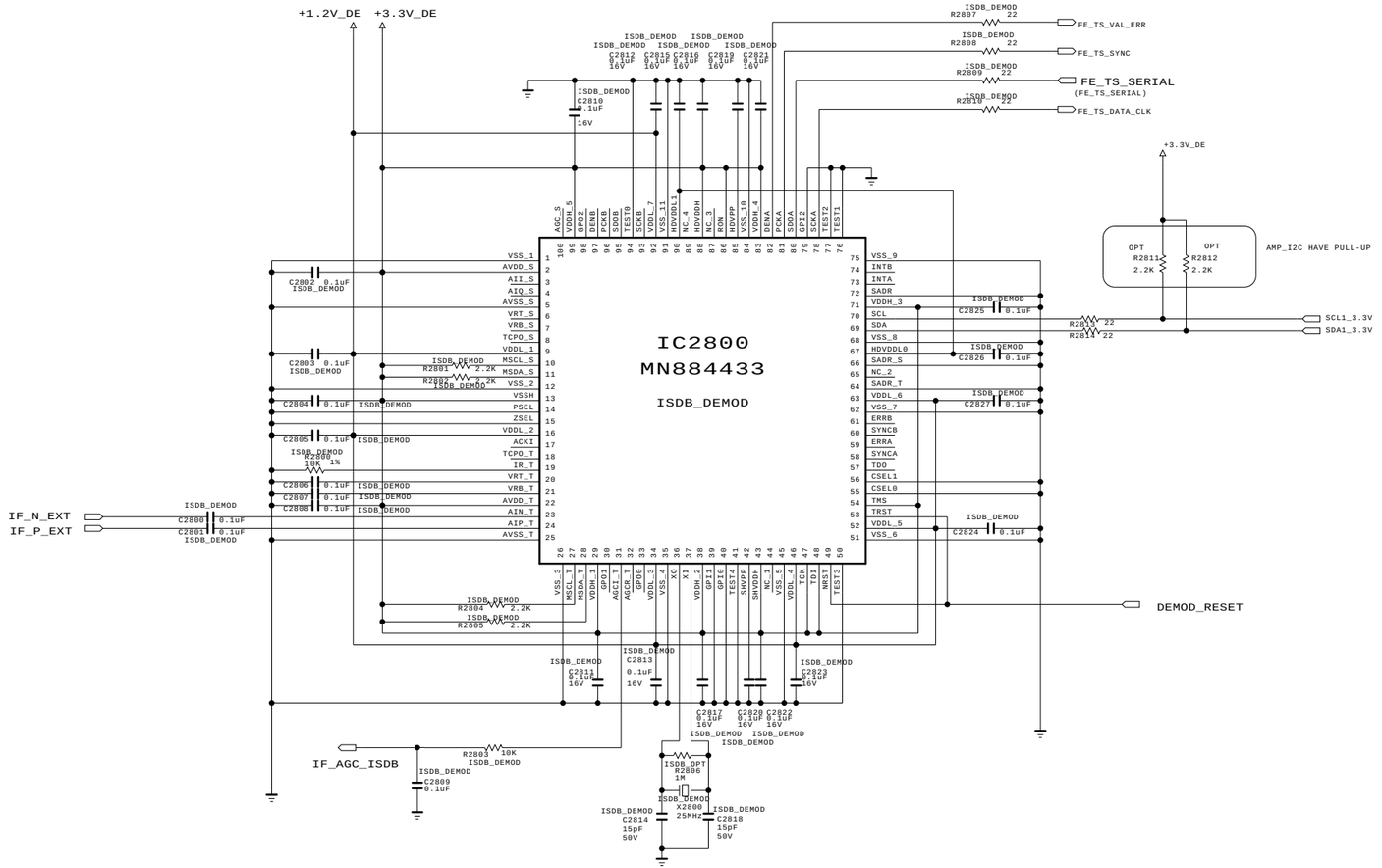
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP2_BCM	DATE	Ver. 1.0
BLOCK	Tuner (Half Nim)	SHEET	28

PANASONIC (ISDB-T)
MN884433



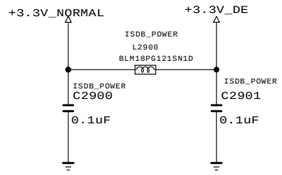
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

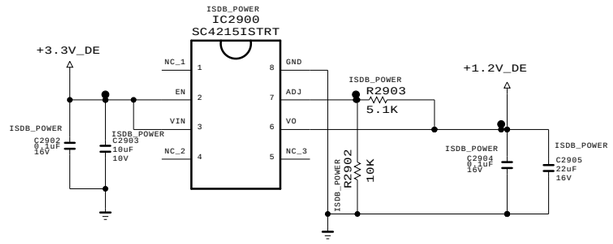
SECRET
LGElectronics

LG ELECTRONICS

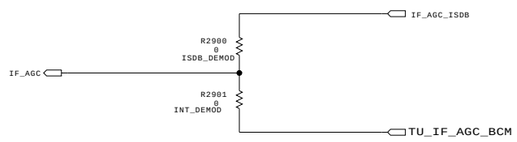
MODEL	GP2_Saturn7M	DATE	Ver. 1.0
BLOCK	ISDB-T Demodulator	SHEET	28

Panasonic Demodulator Power(3.3V,1.2V)



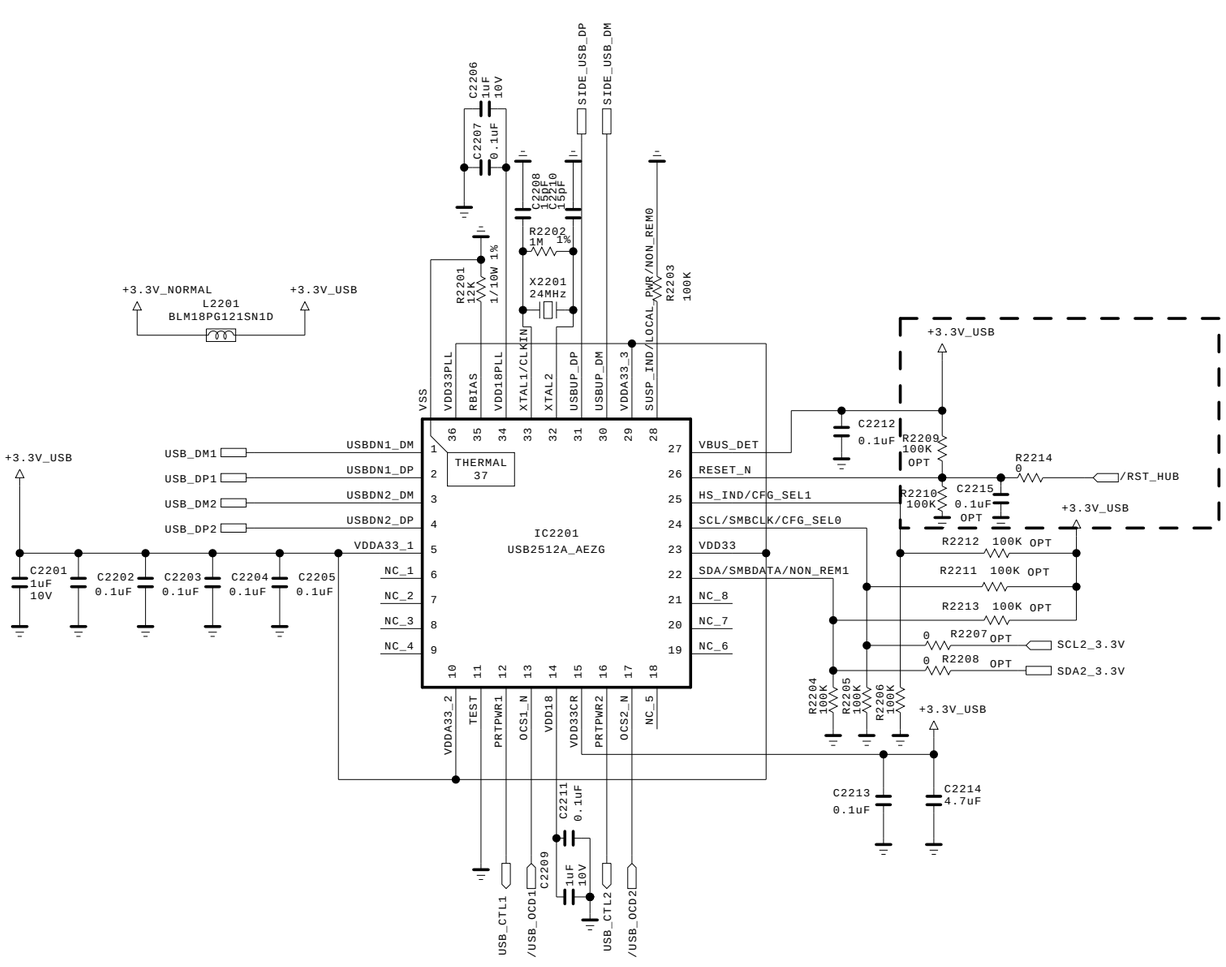


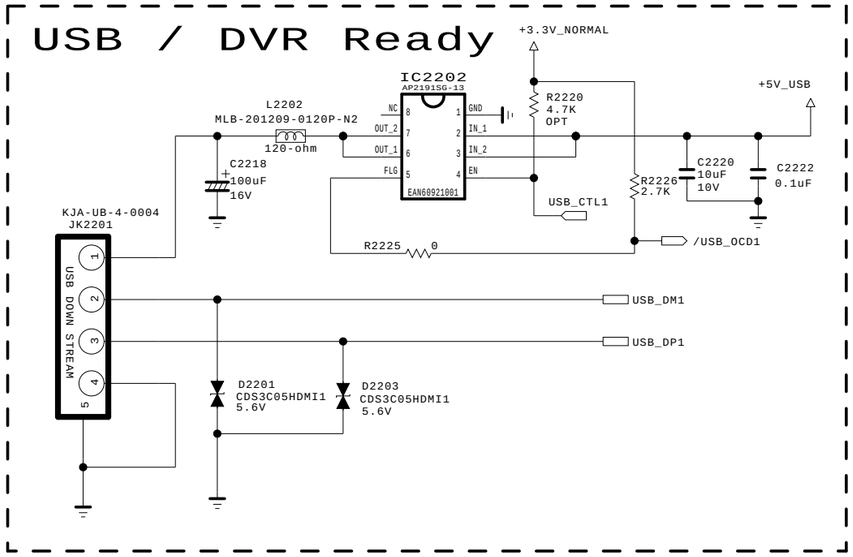
IF AGC SELECTION

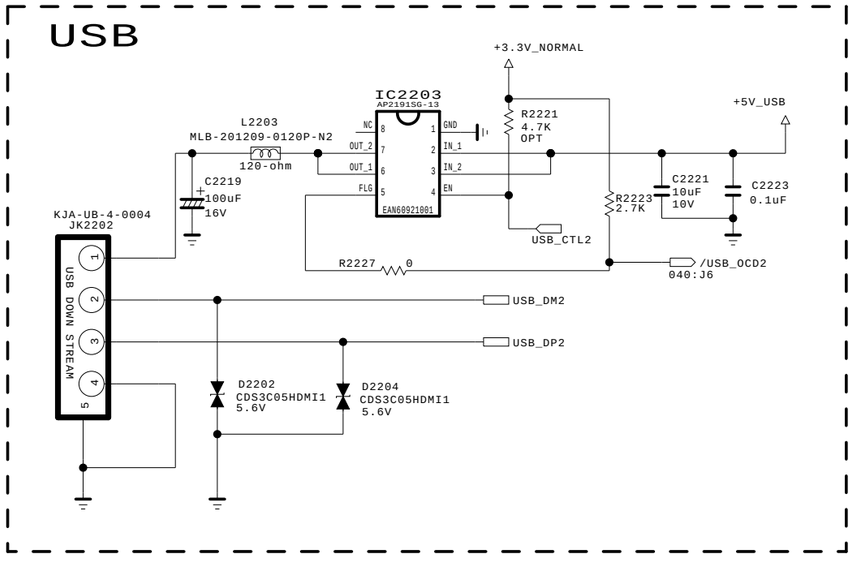


MODEL	GP2_Saturn7M	DATE	Ver. 1.0
BLOCK	Demodulator	SHEET	29

USB2 OPTION







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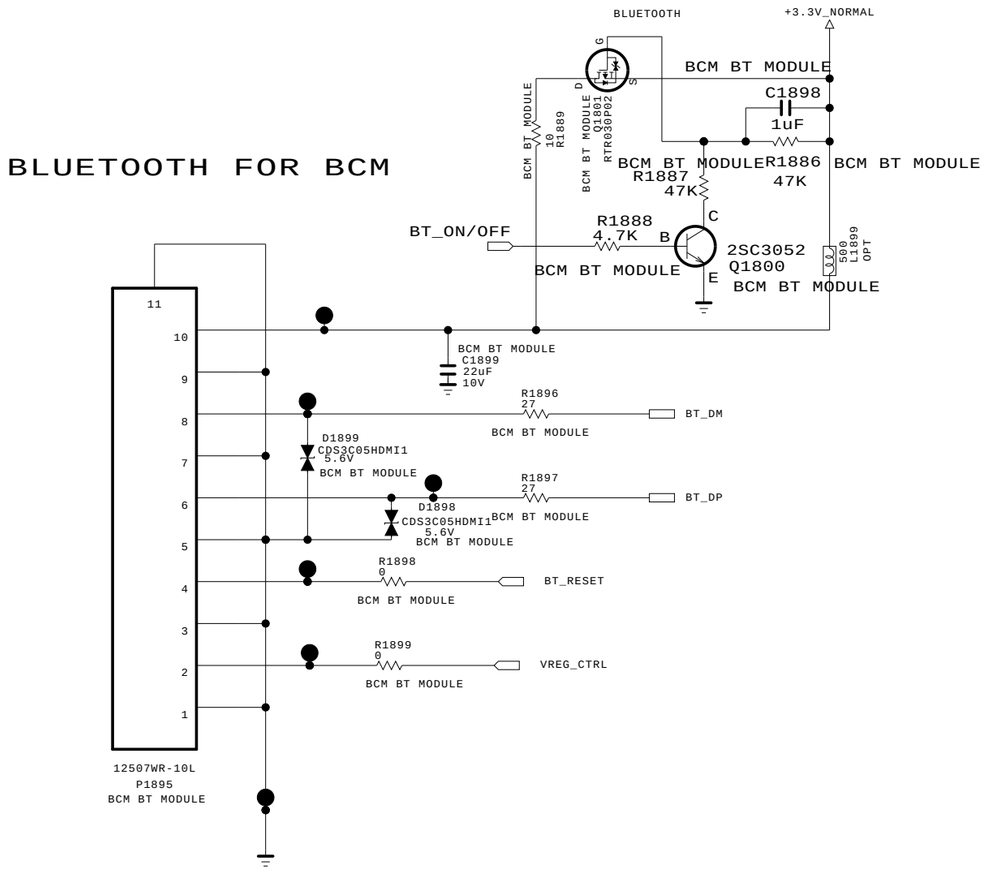
LG ELECTRONICS

MODEL		DATE	
BLOCK		SHEET	40

BLUETOOTH FOR BCM



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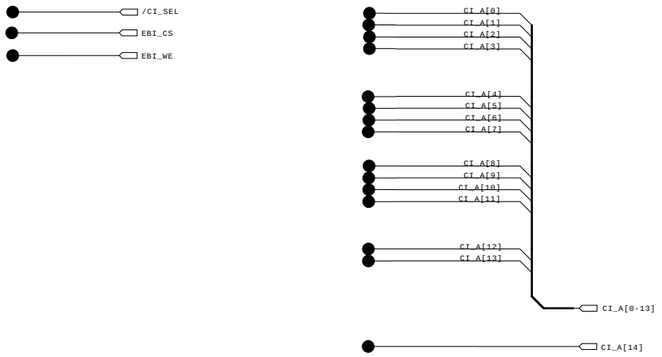
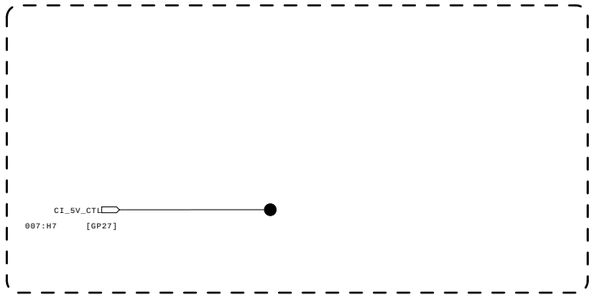
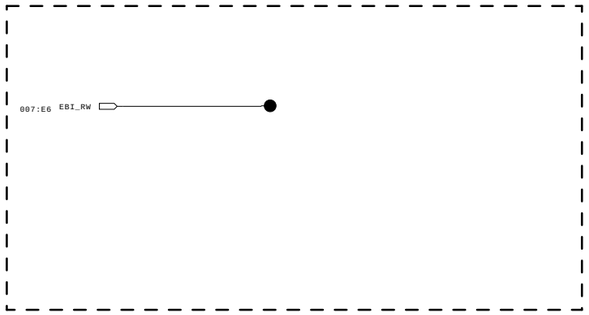
MODEL		DATE	
BLOCK		SHEET	43

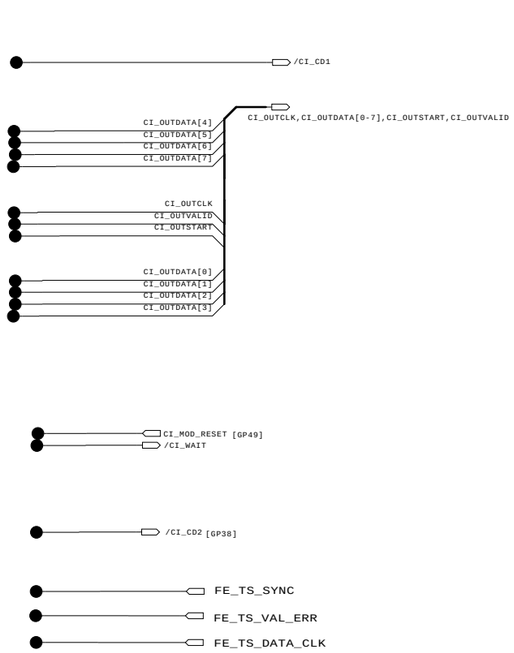
CI CONTROL BUFFER



CI POWER ENABLE CONTROL

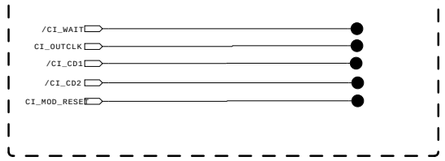






DVB-CI PULL-DOWN (Near CI Slot)

DVB-CI PULL-UP (Near CI Slot)



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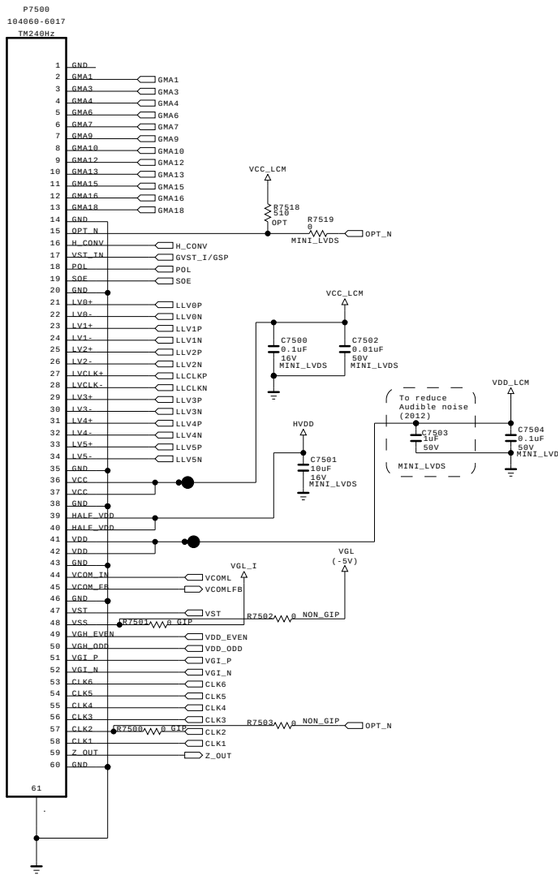
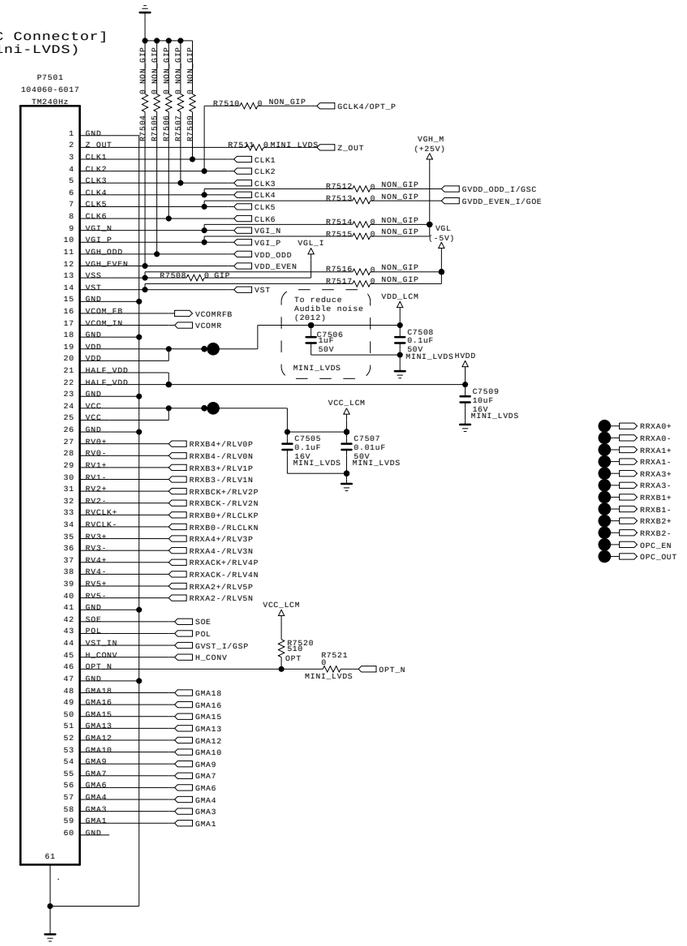
MODEL	High_Common(BCM3556)	DATE	2009.10.19
BLOCK	Non_CI	SHEET	46

[LEFT FFC Connector]
(60Pin Mini-LVDS)



[Right FFC Connector]
(60Pin Mini-LVDS)



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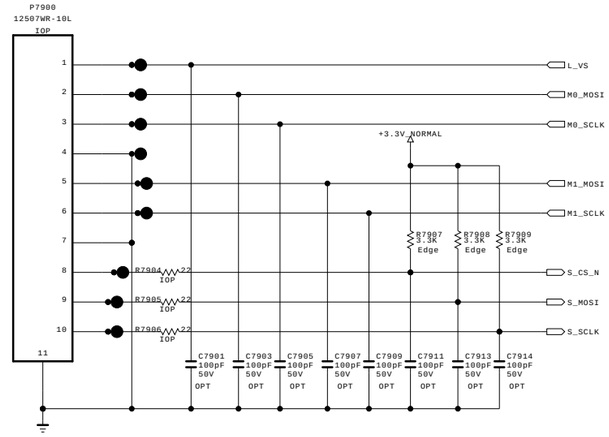
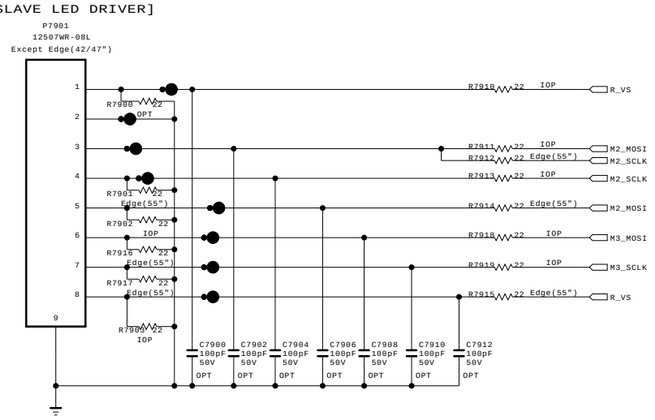
MODEL		DATE	
BLOCK		SHEET	35

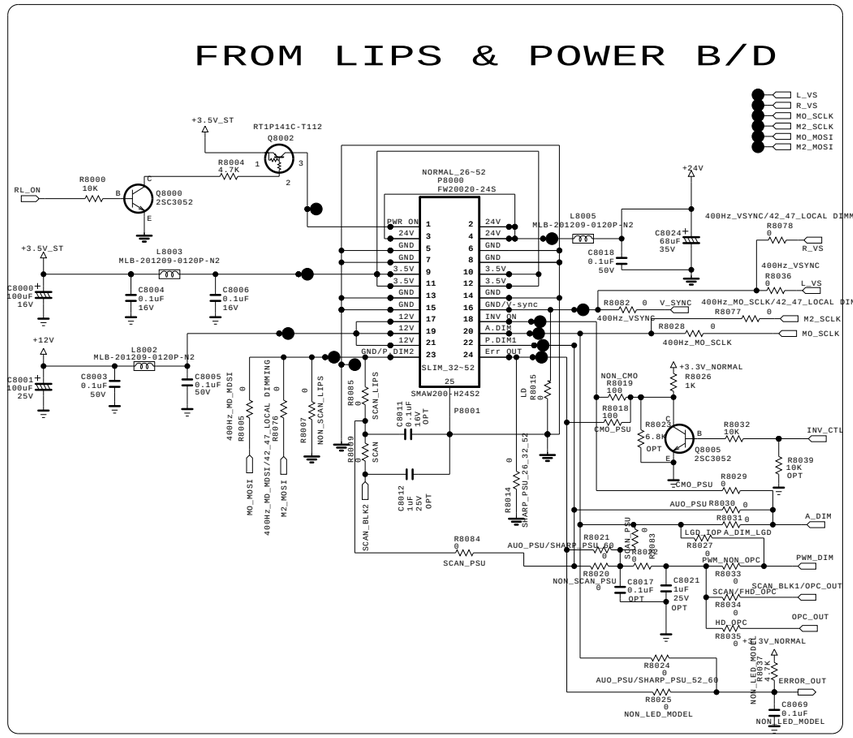
[To MASTER LED DRIVER]



[To SLAVE LED DRIVER]



MODEL	GP2_Saturn7M	DATE	Ver. 1.0
BLOCK	Interface for LG5111	SHEET	72



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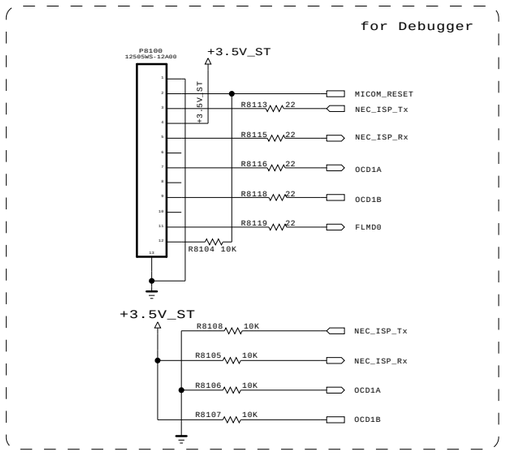
LG ELECTRONICS

MODEL	BCM (EUROBBTV)	DATE	
BLOCK	POWER	SHEET	15

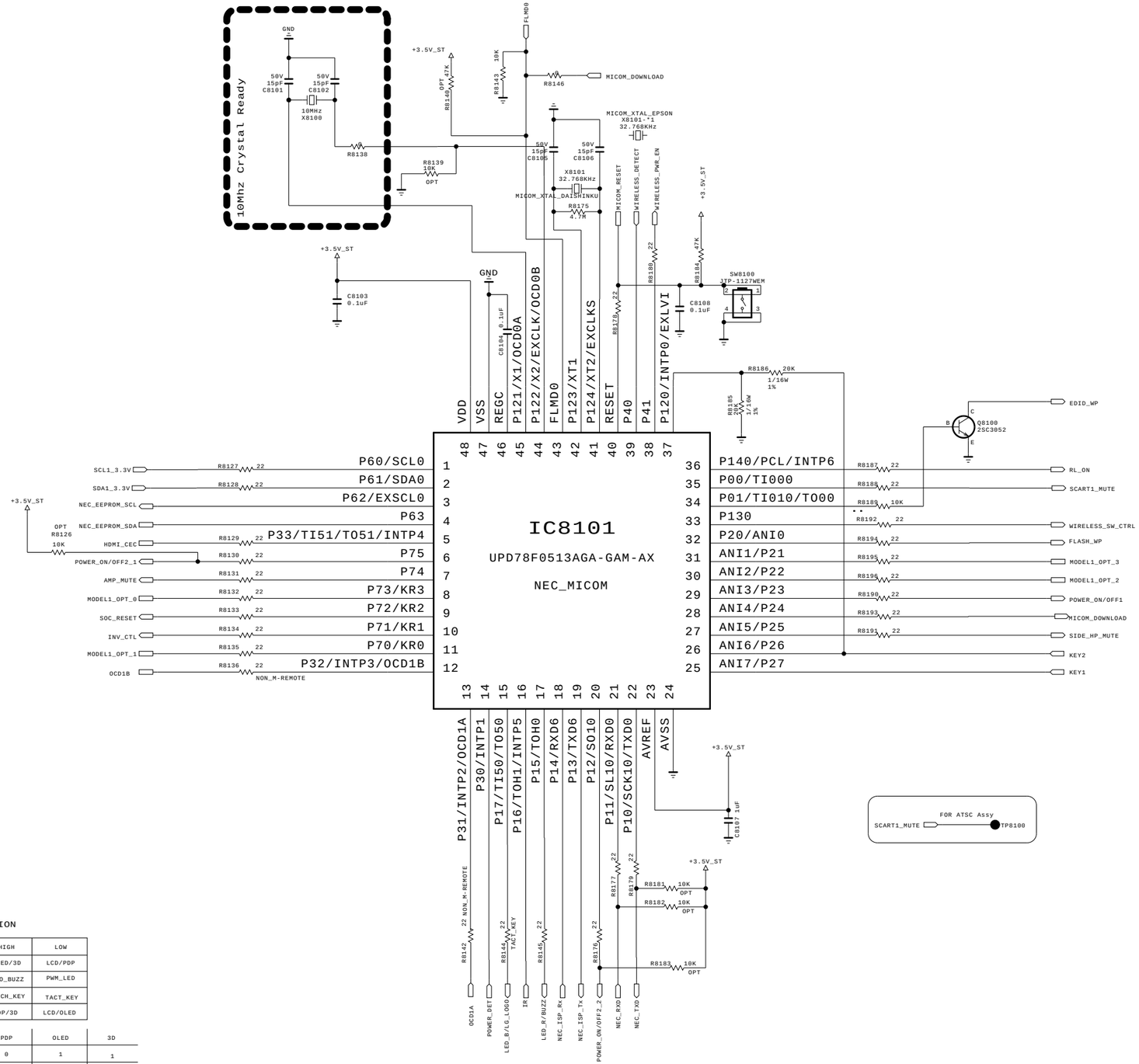


MODEL OPTION

PIN NAME	PIN NO.	HIGH	LOW
MODEL_OPT_0	8	OLED/3D	LCD/PDP
MODEL_OPT_1	11	LOGO_BUZZ	PWM_LED
MODEL_OPT_2	30	TOUCH_KEY	TACT_KEY
MODEL_OPT_3	31	PDP/3D	LCD/OLED

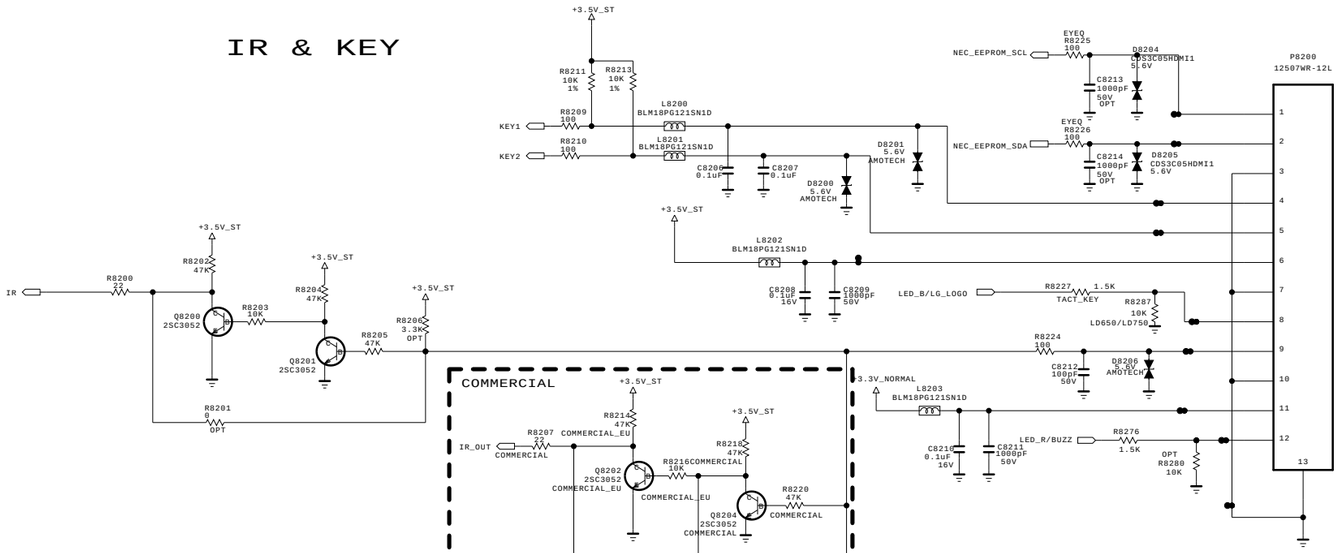
	LCD	PDP	OLED	3D
MODEL_OPT_0	0	0	1	1
MODEL_OPT_3	0	1	0	1

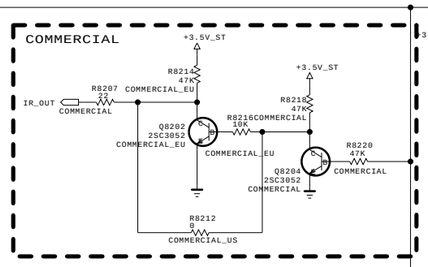
	LOW	LOW_SMALL	TBD	HIGH
MODEL_OPT_1	0	0	1	1
MODEL_OPT_2	0	1	0	1

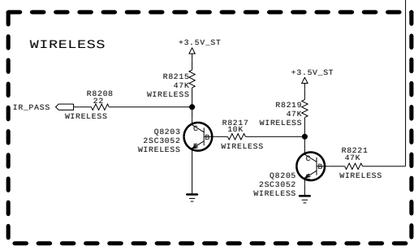


MODEL	GP2_Saturn7M	DATE	Ver. 1.4
BLOCK	MICOM	SHEET	5

IR & KEY

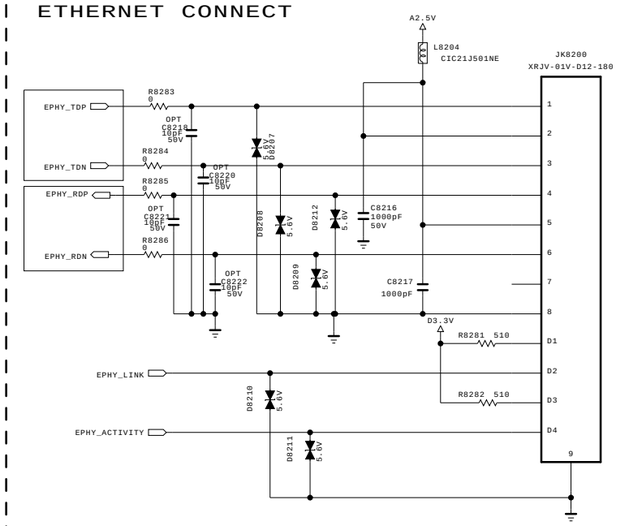






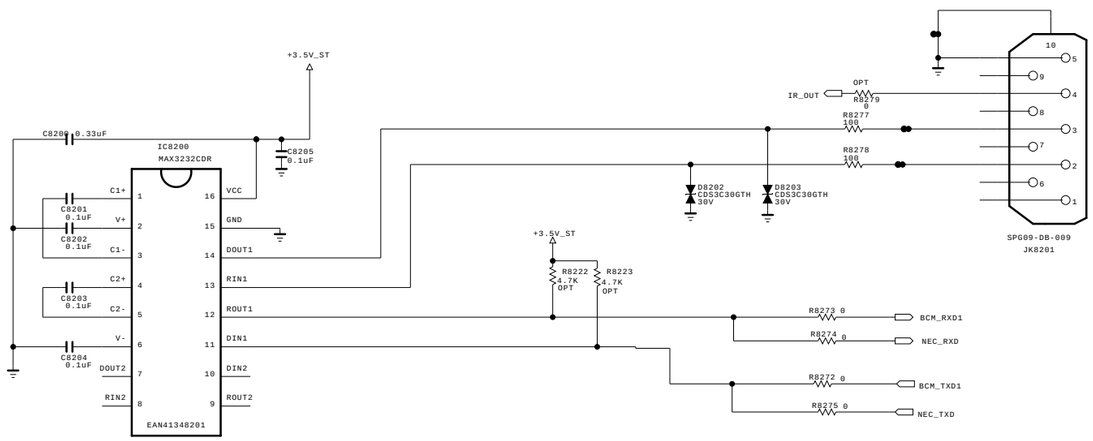
Zener Diode is close to wafer

ETHERNET CONNECT



Trace impedance : 100 ohm differenctial impedance to GND plane
5 mils trace width with 7 mils air gap on P/N pair.
Adjacent TX/RX differential pairs should be separated by more than
15 mils to each other

RS232C



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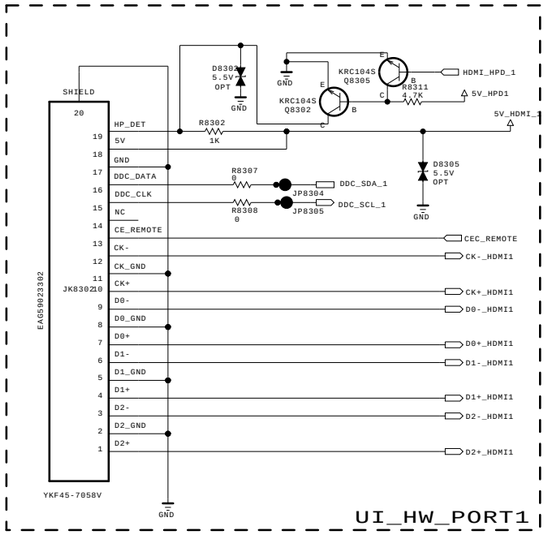
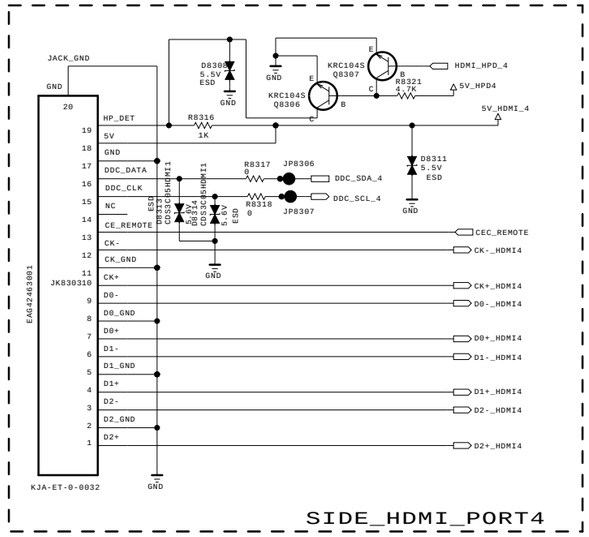
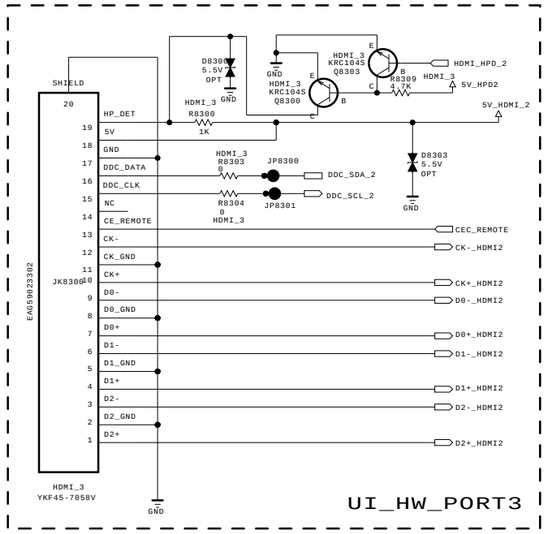
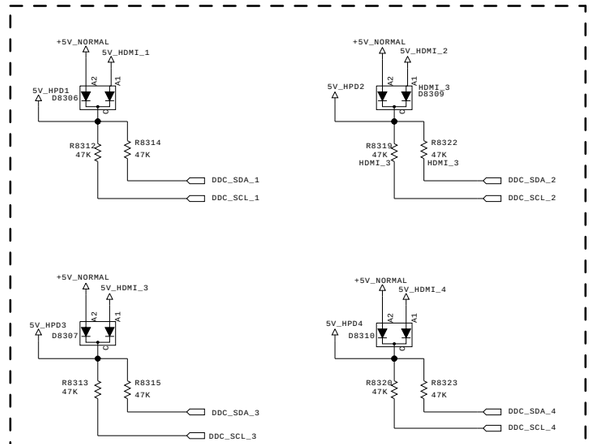
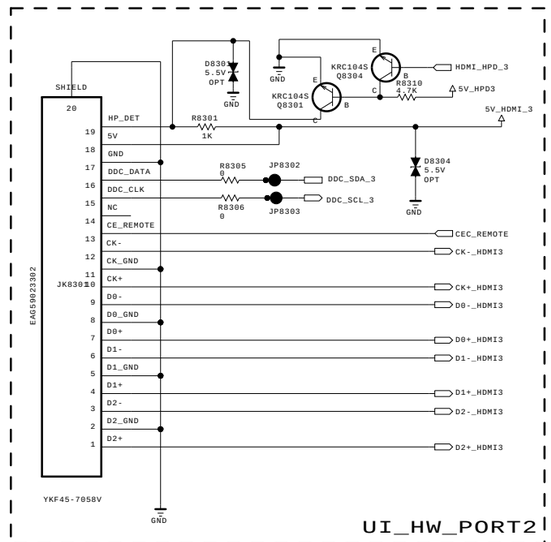
MODEL		DATE	
BLOCK		SHEET	/



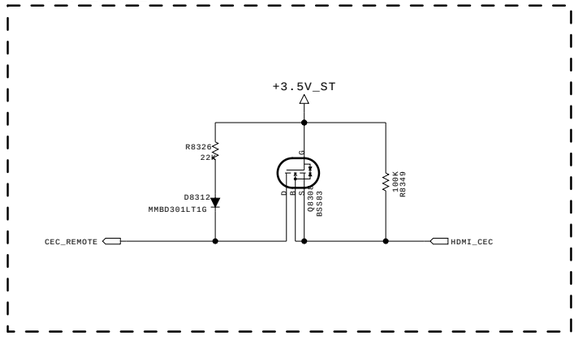


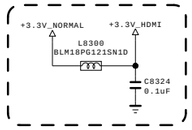


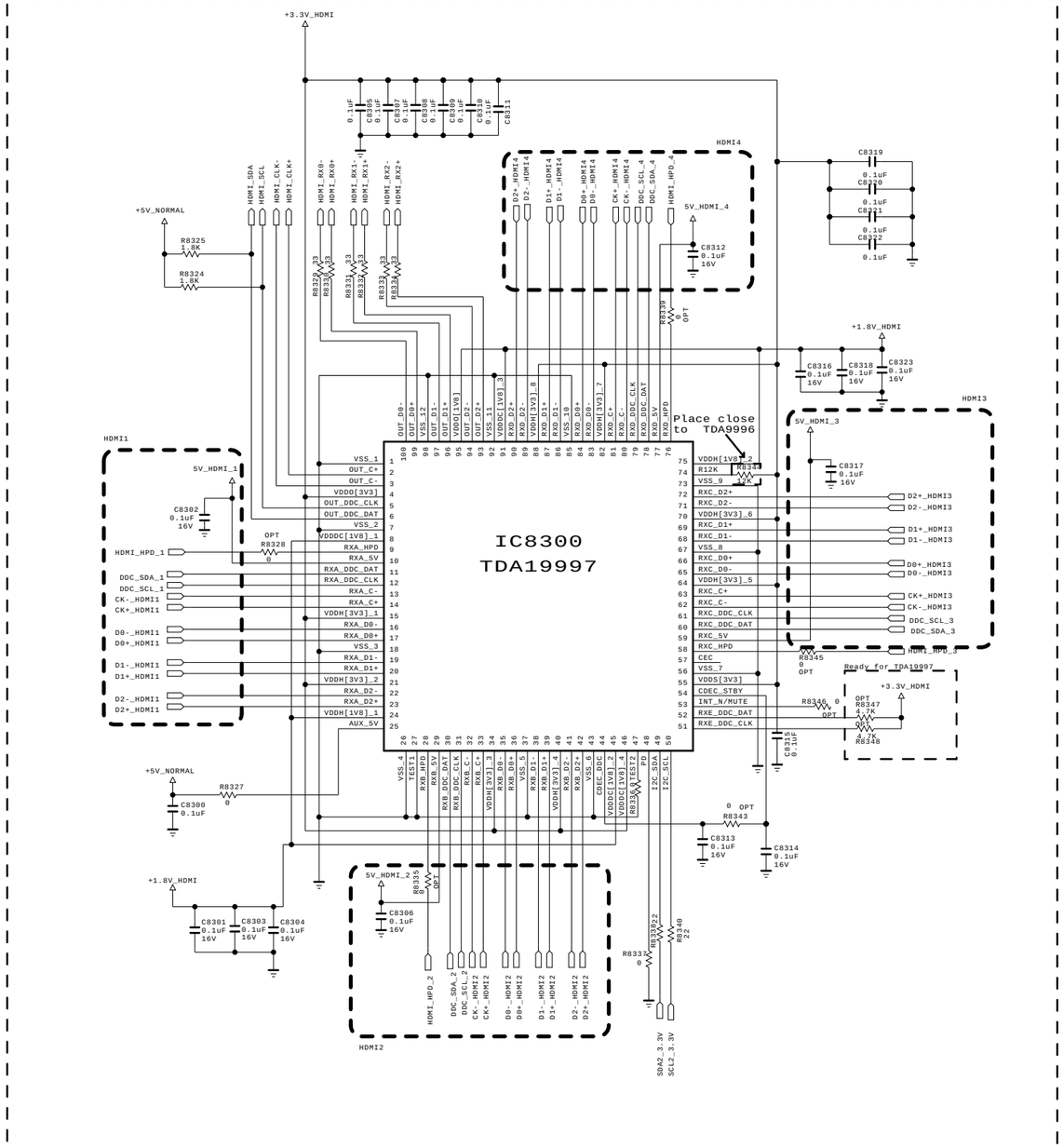




* HDMI_CEC







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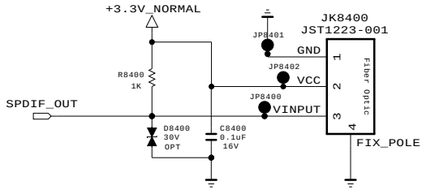
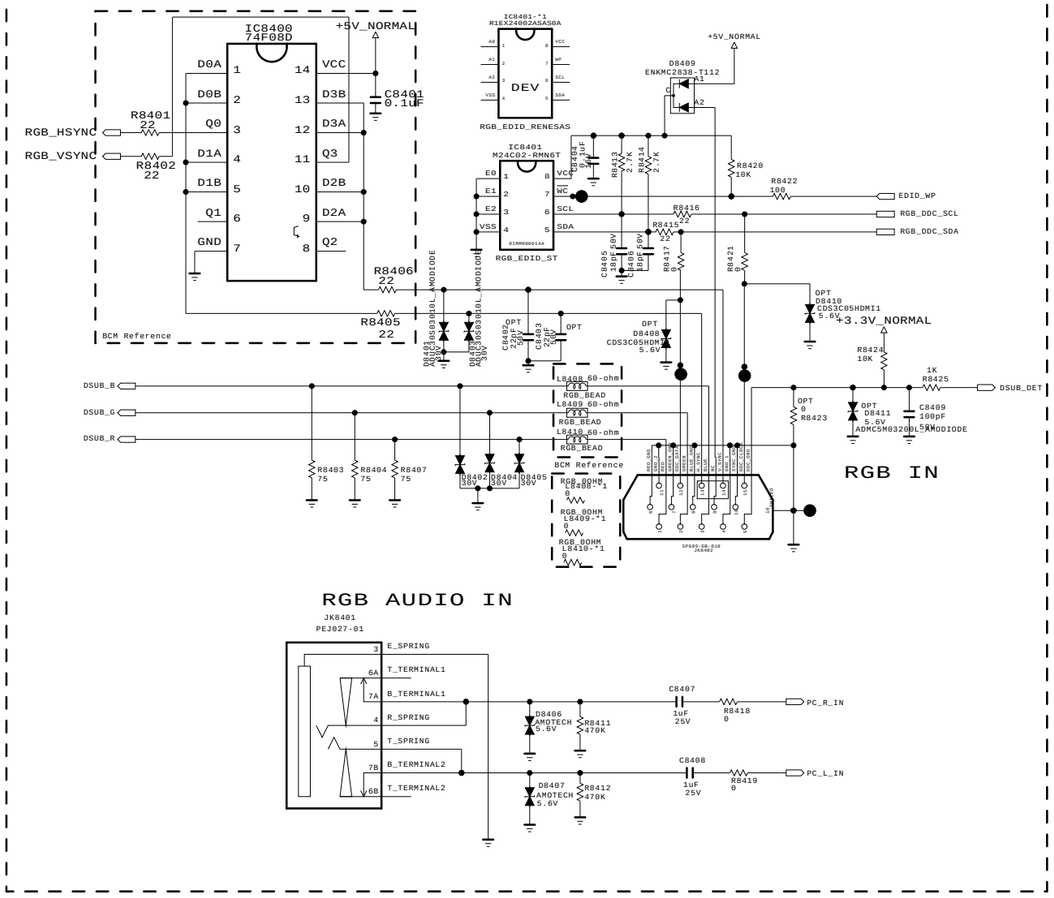
LG ELECTRONICS

MODEL	BCM (EUROBBTV)	DATE	2009.06.18
BLOCK	HDMI	SHEET	8



RGB_PC



RGB AUDIO IN

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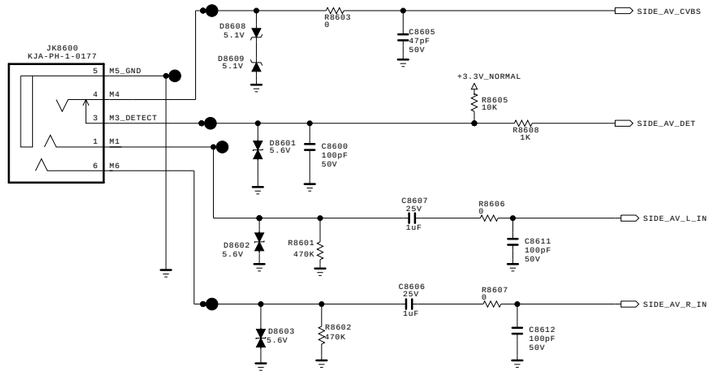
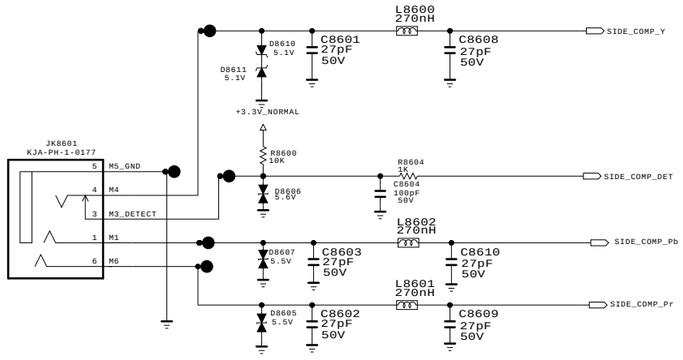
MODEL	EUROBBTV	DATE	2009.06.18
BLOCK	ETC SUB BOARD I/F	SHEET	9

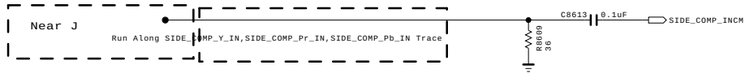
ALL for SIDE_GENDER option

SIDE CVBS PHONE JACK
(New Item Developmen)



SIDE COMPONENT PHONE JACK
(New Item Developmen)





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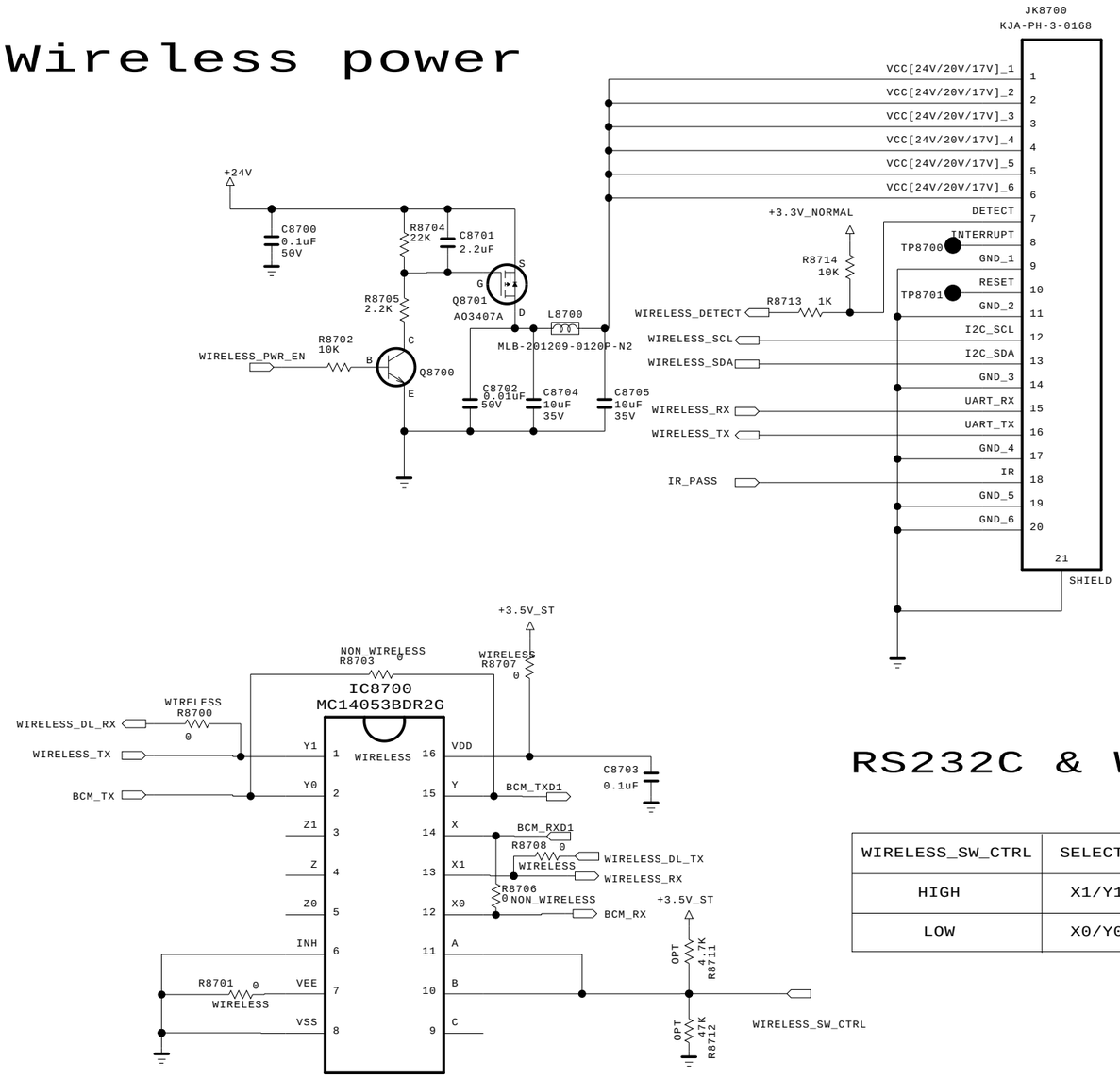
MODEL		DATE	
BLOCK		SHEET	11

SIDE_GENDER

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

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MODEL		DATE	
BLOCK		SHEET	12

WIRELESS

+24V
+24V_AMP
L8803
MLB-201209-0120P-N2
C8827
0.1uF
50V

+3.3V_NORMAL
IC8800
AP1117E18G-13
IN
Vd=1.4V
ADJ/GND
OUT
+1.8V_AMP
R8808
C8800
0.1uF
16V
C8802
10uF
10V
C8803
0.1uF
16V

120 mA

CCFL = 20V
Edge_LED 32~47 Inch = 20V
55 Inch & IOP Module = 24V

+24V_AMP
C8819
22000pF
50V
C8820
0.47uF
50V
C8824
0.1uF
50V
C8826
10uF
35V
EMI
R8809
3.3
EMI
C8832
0.01uF
50V
C8823
22000pF
50V
C8825
1uF
25V
D8800
1N4148W
100V
OPT
D8801
1N4148W
100V
OPT
R8812
12
R8819
12
C8835
100pF
50V
C8836
100pF
50V
R8813
12
R8817
12
L8805
AD-9060
2S
1S
2F
1F
15uH
C8839
0.47uF
50V
C8841
0.1uF
50V
R8820
4.7K
C8842
0.1uF
50V
R8821
4.7K
SPK_L+
SPK_L-
SPEAKER_L

+3.3V_NORMAL
L8802
BLM18PG121SN1D
AMP_RESET_N
AUD_MASTER_CLK
C8808
1000pF
50V
C8816
1uF
25V
C8811
0.1uF
+1.8V_AMP
L8801
BLM18PG121SN1D
C8806
100pF
50V
C8810
1000pF
50V
R8806
3.3K
+1.8V_AMP
L8800
BLM18PG121SN1D
OPT
C8801
10uF
10V
C8804
0.1uF
16V
OPT
C8805
10uF
10V
C8807
0.1uF
16V

IC8801
EAN60969601
NTP-7000
THERMAL
57
BST1A
VDR1A
/RESET
AD
DGND_1
GND_IO
CLK_I
VDD_IO
DGND_PLL
AGND_PLL
LF
AVDD_PLL
DVDD_PLL
GND
EP_PAD
PGND1A_2
PGND1A_1
OUT1A_2
OUT1A_1
PVDD1A_2
PVDD1A_1
PVDD1B_2
PVDD1B_1
OUT1B_2
OUT1B_1
PGND1B_2
PGND1B_1
BST1B
VDR1B
NC
VDR2A
BST2A
PGND2A_2
PGND2A_1
OUT2A_2
OUT2A_1
PVDD2A_2
PVDD2A_1
PVDD2B_2
PVDD2B_1
OUT2B_2
OUT2B_1
PGND2B_2
DGND_2
DVDD
SDATA
WCK
BCK
SDA
SCL
MONITOR0
MONITOR1
MONITOR2
/FAULT
VDR2B
VDR2B
PGND2B_1

C8828
1uF
25V
C8830
22000pF
50V
D8802
1N4148W
100V
OPT
D8803
1N4148W
100V
OPT
R8814
12
R8818
12
C8837
100pF
50V
C8838
100pF
50V
R8815
12
R8816
12
L8804
AD-9060
2S
1S
2F
1F
15uH
C8840
0.47uF
50V
C8843
0.1uF
50V
R8822
4.7K
C8844
0.1uF
50V
R8823
4.7K
SPK_R+
SPK_R-
SPEAKER_R

+24V_AMP
C8831
0.1uF
50V
C8833
0.1uF
50V
C8834
10uF
35V
C8822
1uF
25V
C8829
22000pF
50V
+1.8V_AMP
OPT
C8815
10uF
10V
C8818
0.1uF
16V
C8821
1000pF
50V
R8807
0
OPT
POWER_DET
+3.5V_ST
R8808
100
R8810
10K
Q8800
2SC3052
C
B
E
R8811
10K
AMP_MUTE

AUD_LRCH
AUD_LRCK
AUD_SCK
SDA1_3.3V
SCL1_3.3V
R8801
100
R8802
100
R8803
100
R8804
100
R8805
100
C8809
33pF
50V
C8812
33pF
50V
C8813
47pF
50V
EMI
C8814
47pF
50V
EMI
C8817
47pF
50V
EMI

WAFER-ANGLE
SPK_L+
SPK_L-
SPK_R+
SPK_R-
R8824
0
R8825
0
R8826
0
R8827
0
4
3
2
1
P8800

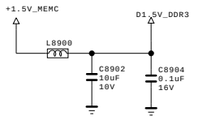
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

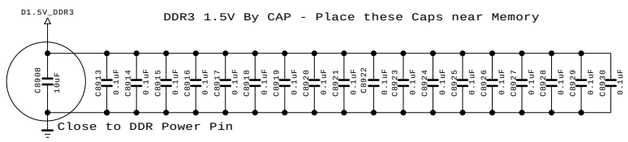
SECRET
LGElectronics

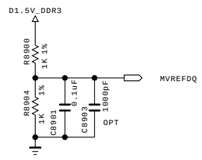
KIM JONG HYUN

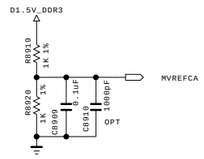
LG ELECTRONICS

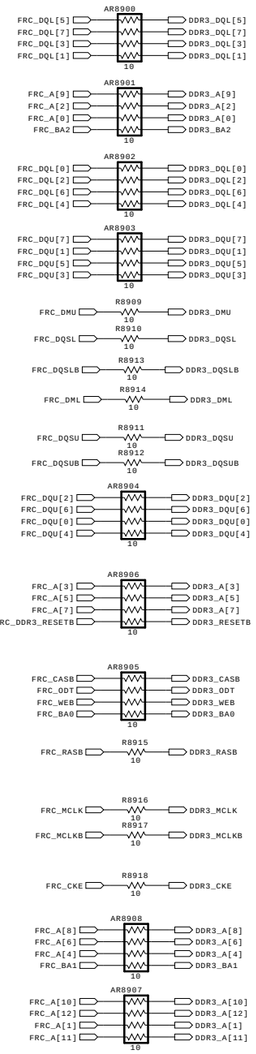
MODEL	BCM (EUROBBTV)	DATE	2009.06.18
BLOCK	NTP7000	SHEET	38

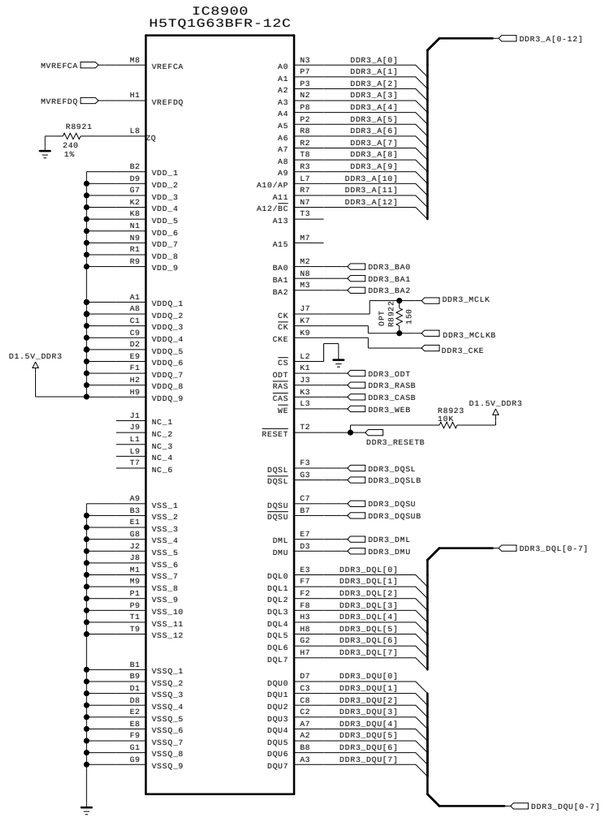


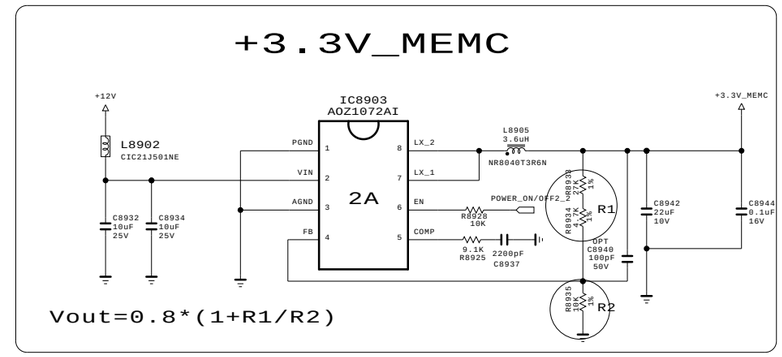


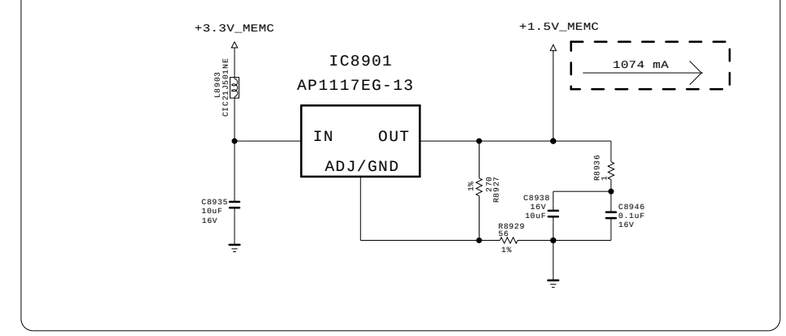


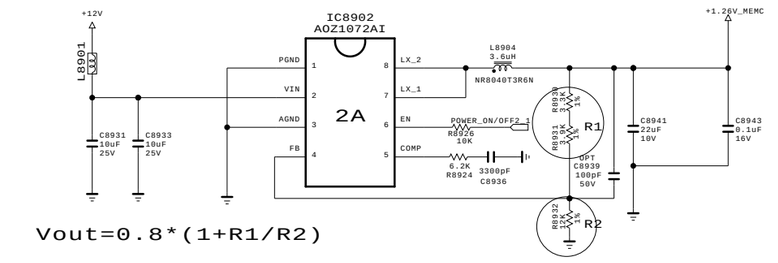












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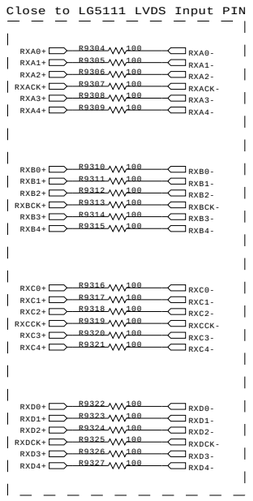
SECRET

LGElectronics

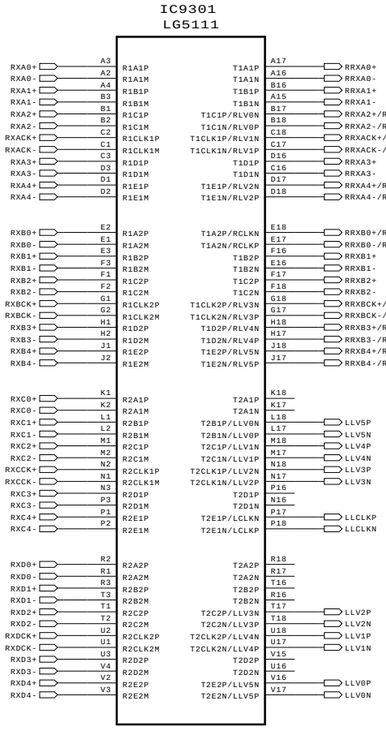
LG ELECTRONICS

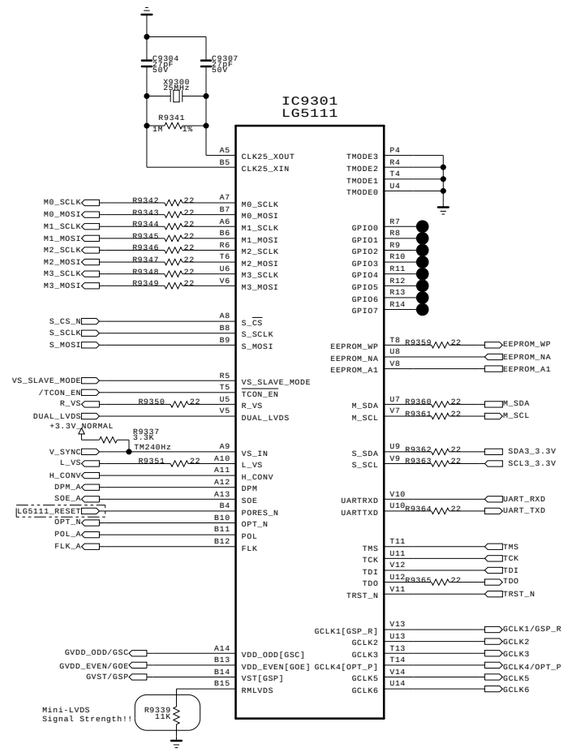
MODEL	COMMON	DATE	2009.09.11
BLOCK	URSA3 DDR & Power	SHEET	89

Close to LG5111 LVDS Input PIN

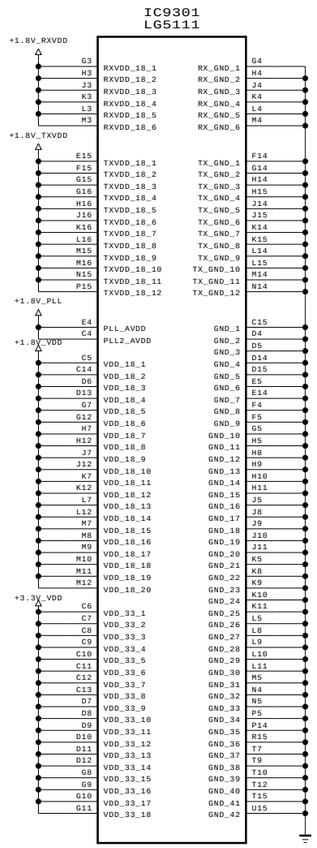


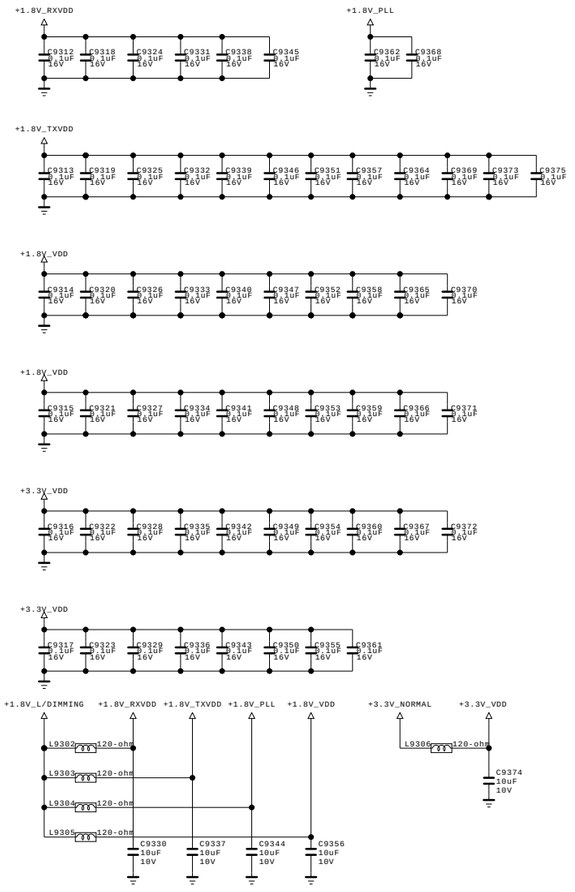
IC9301
LG5111



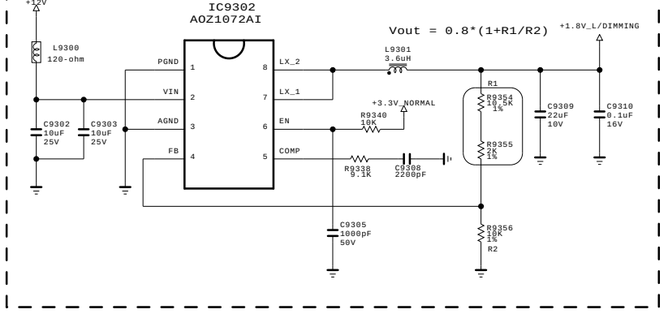


IC9301
LG5111

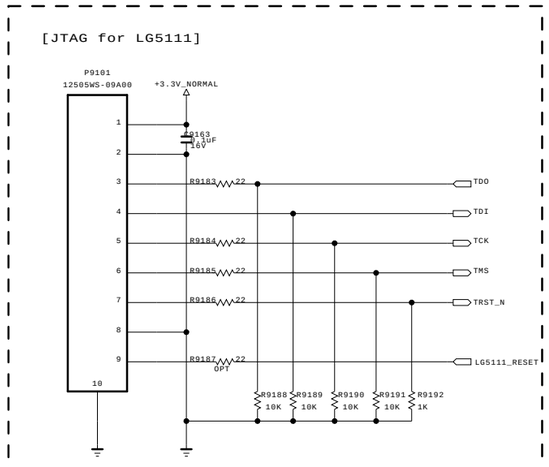




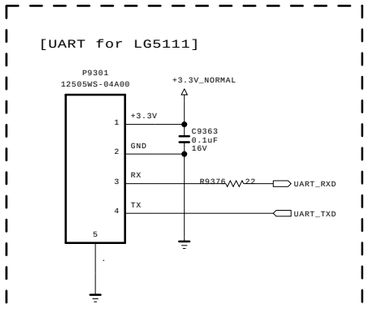
[+1.8V for LG5111]



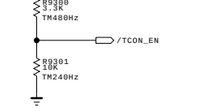
[JTAG for LG5111]



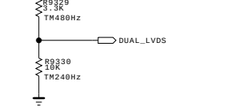
[UART for LG5111]



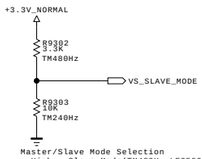
TX Output Mode Selection
- High : LVDS(TM480Hz, LE9500)
- LOW : Mini-LVDS
(TM240Hz, LE5500/7500/8500)



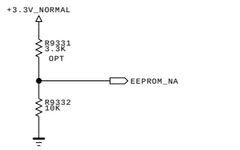
Dual/Quad-Link LVDS Input Selection
- High : Dual-Link LVDS(TM480Hz,LE9500)
- LOW : Quad-Link LVDS
(TM240Hz, LE5500/7500/8500)



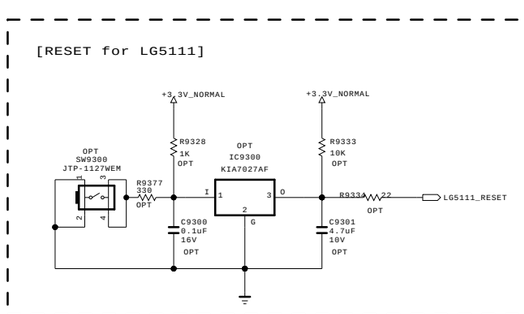
Master/Slave Mode Selection
- High : Slave Mode(TM480Hz,LE9500)
- LOW : Master Mode
(TM240Hz,LE5500/7500/8500)



External Serial EEPROM Avalibility
- High : Not Available
- LOW : Use EEPROM



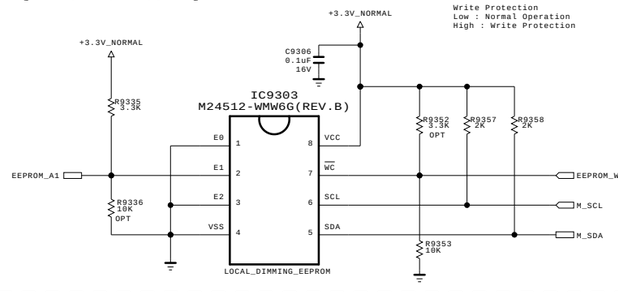
[RESET for LG5111]



[EEPROM for LG5111]

I2C Slave Address : 0xA4

Write Protection
Low : Normal Operation
High : Write Protection



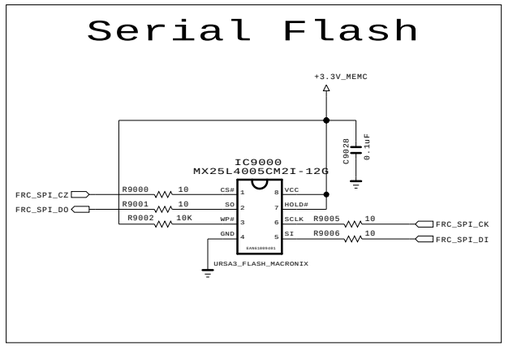
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

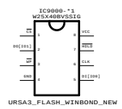
SECRET
LGElectronics

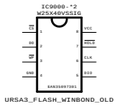
LG ELECTRONICS

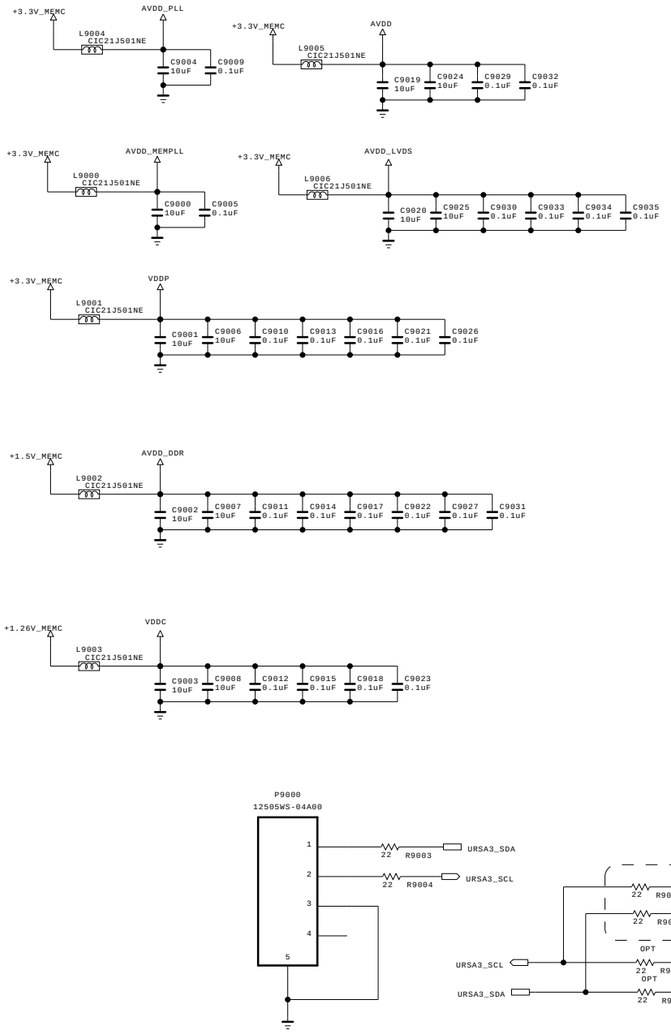
MODEL	COMMON	DATE	09/10/13
BLOCK	LG5111 (L.D.) from URSA3	SHEET	93

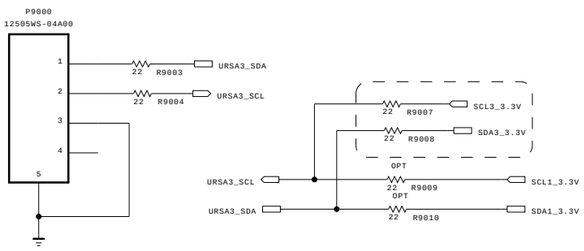
Serial Flash

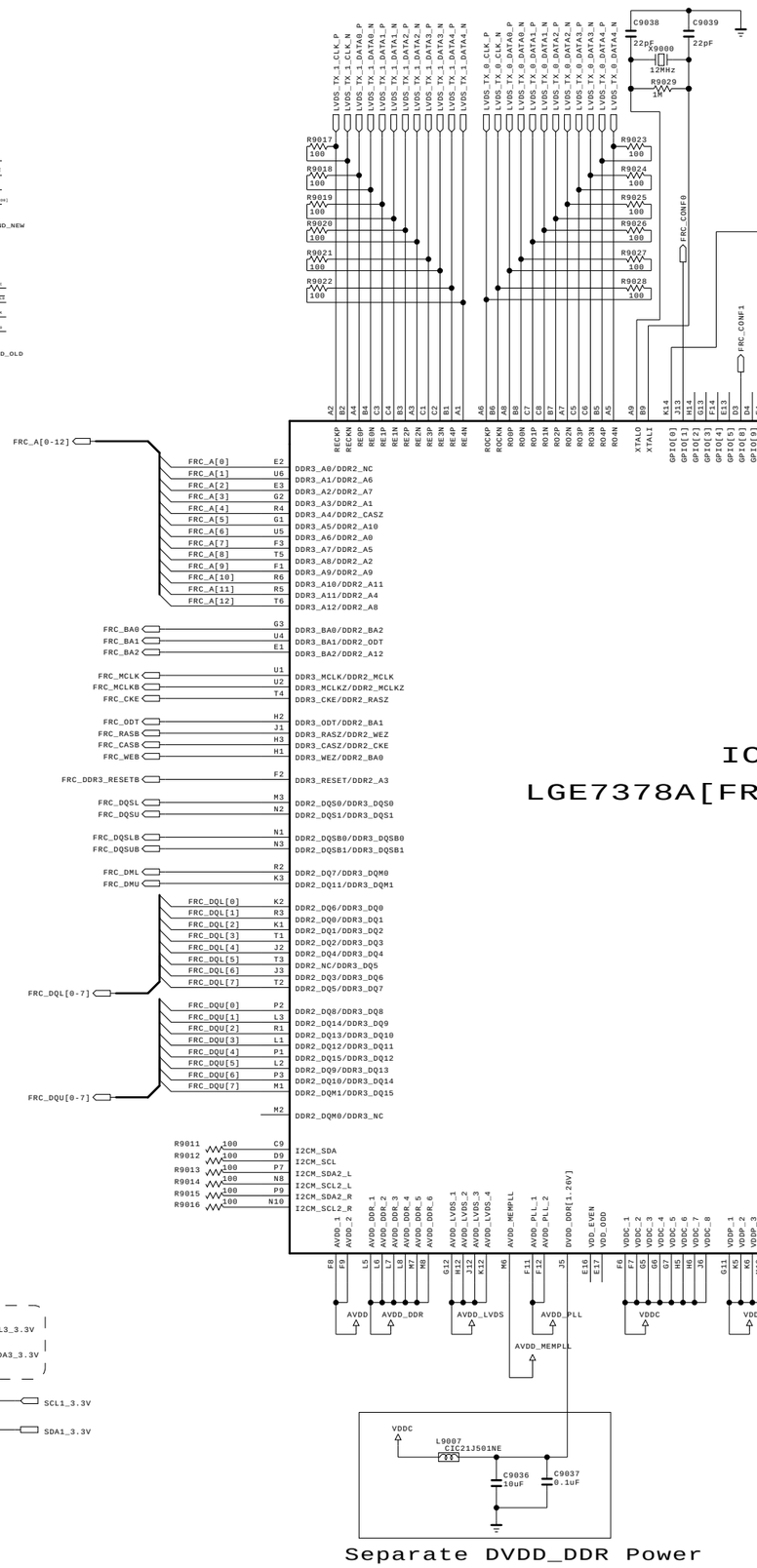




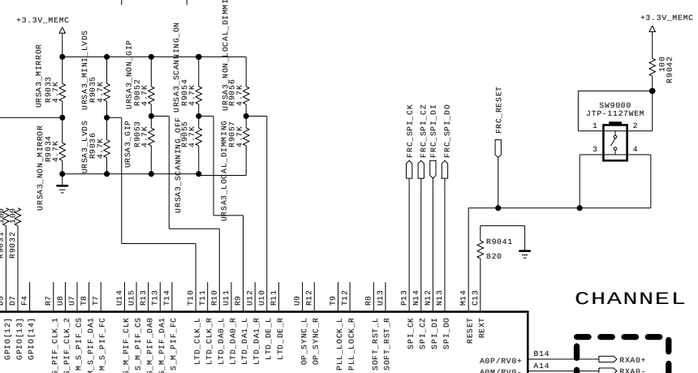






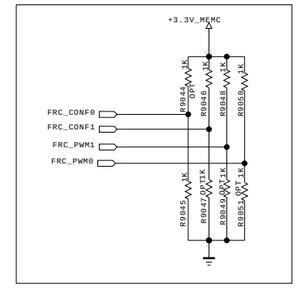


FRC OPTION	LOW	HIGH
K14	NON_MIRROR	MIRROR
T10	LVDS	MINI_LVDS
R10	GIP	NON_GIP
R9	SCAN_OFF	SCAN_ON
U10	LD	NON_LD



Separate DVDD_DDR Power

CHANNEL CHECK!



I2C ADR: GPIO1: HI:B8 LOW:B4
CHIP_CONF: {GPIO8, PWM1, PWM0}
CHIP_CONF= 3'd5: boot from internal SRAM
CHIP_CONF= 3'd6: boot from EEPROM
CHIP_CONF= 3'd7: boot from SPI Flash

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

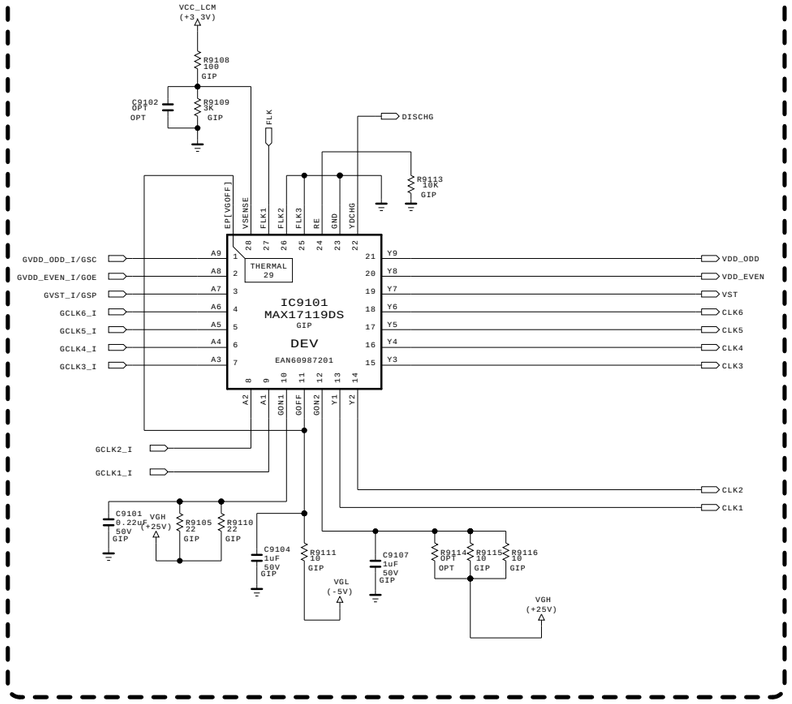
SECRET

LGElectronics

LG ELECTRONICS

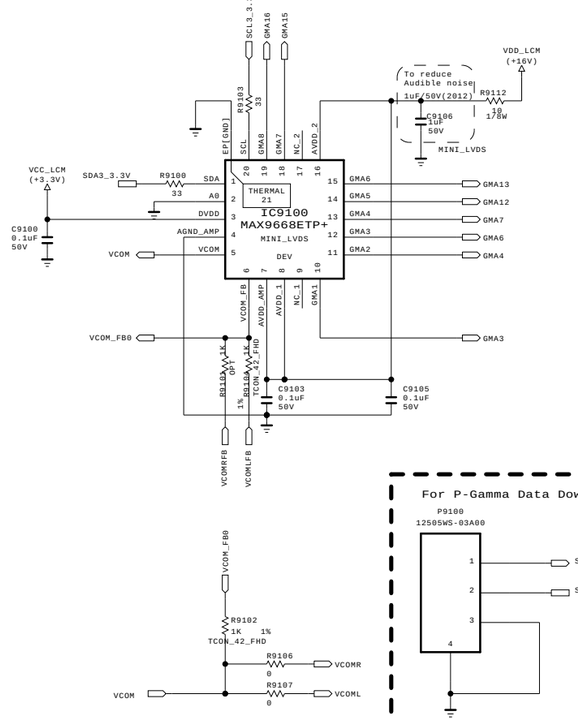
MODEL	COMMON	DATE	2009.09.11
BLOCK	URSA3 (L.D.)	SHEET	94

[LEVEL Shift Block]

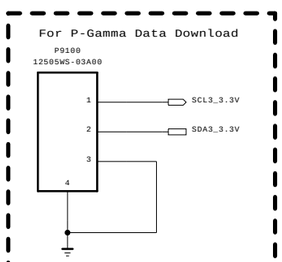


[P-GAMMA Block]

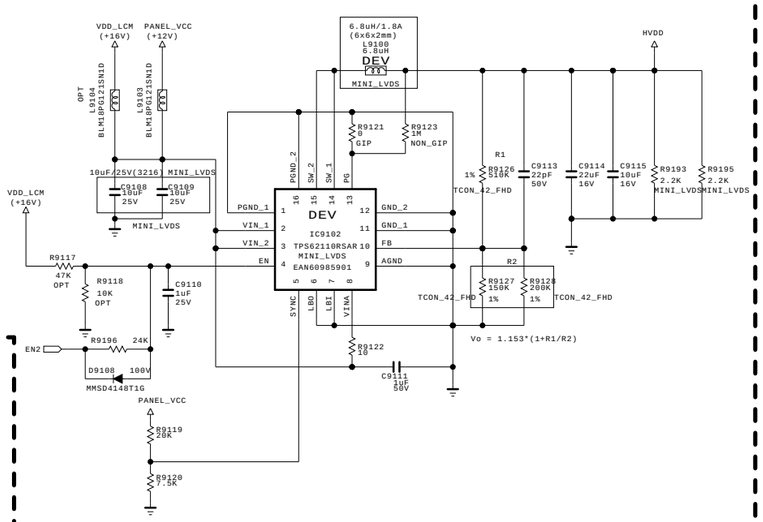
Slave Address : 0xE8h
(AO Pin - GND)



For P-Gamma Data Download

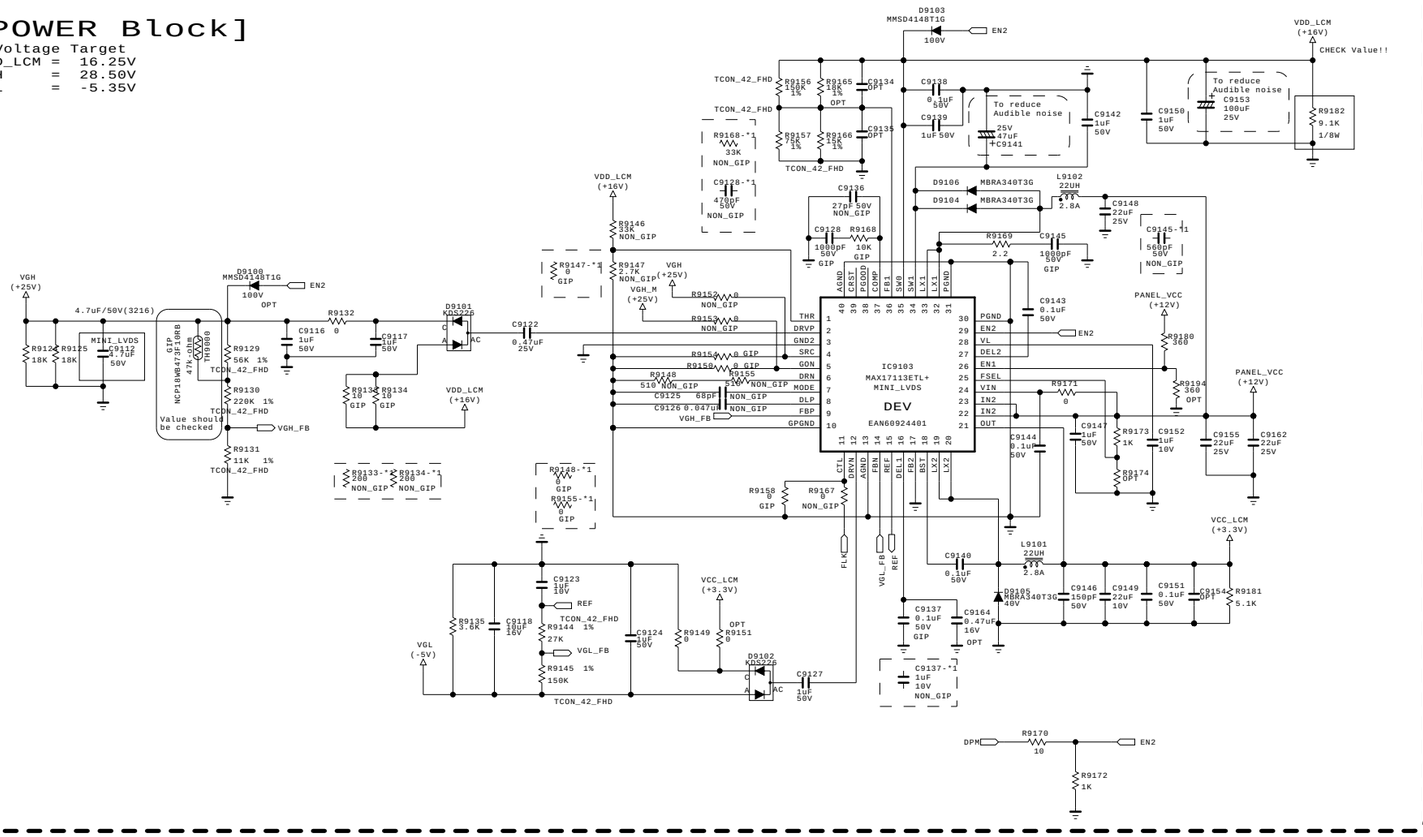


[HVDD Block]

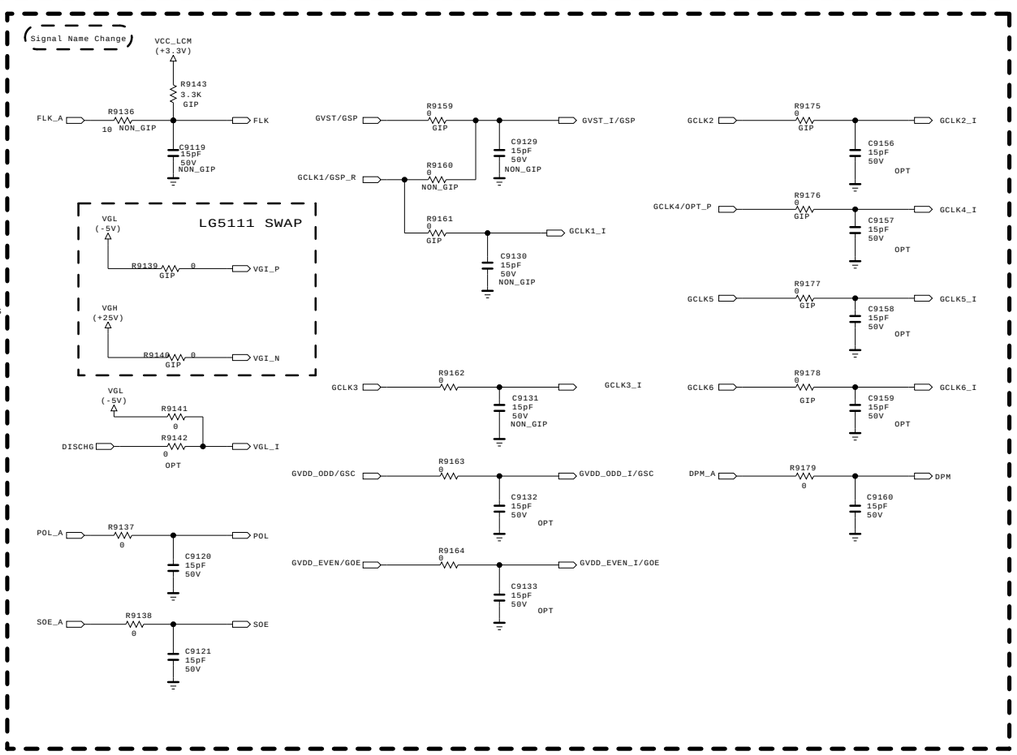


[POWER Block]

* Voltage Target
VDD_LCM = 16.25V
VGH = 28.50V
VGL = -5.35V



Signal Name Change



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

LGElectronics

LG ELECTRONICS

MODEL	COMMON	DATE	09/09/10
BLOCK	T-Con (L.D.)	SHEET	95

32_FHD

VGH

R9129-*1 22K 1% TCON_32_FHD

R9130-*1 220K 1% TCON_32_FHD

R9131-*1 11K 1% TCON_32_FHD

VGL

R9144-*1 51K 1% TCON_32_FHD

R9145-*1 270K 1% TCON_32_FHD

VDD

R9156-*1 160K 1% TCON_32_FHD

R9165 OPEN

R9157-*1 27K 1% TCON_32_FHD

R9166-*1 24K 1% TCON_32_FHD

HVDD

R9126-*1 510K 1% TCON_32_FHD

R9127-*1 150K 1% TCON_32_FHD

R9128-*1 200K 1% TCON_32_FHD

VCOM FEED BACK

R9101-*1 1K 1% TCON_32_FHD

R9104-*1 1K 1% TCON_32_FHD

R9102-*1 1K 1% TCON_32_FHD

37_FHD

VGH

R9129-*2 47K 1% TCON_37_FHD

R9130-*2 220K 1% TCON_37_FHD

R9131-*2 12K 1% TCON_37_FHD

VGL

R9144-*2 20K 1% TCON_37_FHD

R9145-*2 150K 1% TCON_37_FHD

VDD

R9156-*2 910K 1% TCON_37_FHD

R9165-*2 470K 1% TCON_37_FHD

R9157-*2 56K 1% TCON_37_FHD

R9166-*2 56K 1% TCON_37_FHD

HVDD

R9126-*2 470K 1% TCON_37_FHD

R9128 OPEN

R9127-*2 91K 1% TCON_37_FHD

VCOM FEED BACK

R9101-*2 1K 1% TCON_37_FHD

R9104-*2 1K 1% TCON_37_FHD

R9102-*2 1.5K 5% TCON_37_FHD

42_FHD

VGH

91 or 95 Sheet

VGL

91 or 95 Sheet

VDD

91 or 95 Sheet

HVDD

91 or 95 Sheet

VCOM FEED BACK

91 or 95 Sheet

47_FHD

VGH

R9129-*3 51K 1% TCON_47_FHD

R9130-*3 220K 1% TCON_47_FHD

R9131-*3 11K 1% TCON_47_FHD

VGL

R9144-*3 51K 1% TCON_47_FHD

R9145-*3 270K 1% TCON_47_FHD

VDD

R9156-*3 180K 1% TCON_47_FHD

R9165 OPEN

R9157-*3 75K 1% TCON_47_FHD

R9166-*3 28K 1% TCON_47_FHD

HVDD

R9126-*3 510K 1% TCON_47_FHD

R9127-*3 150K 1% TCON_47_FHD

R9128-*3 220K 1% TCON_47_FHD

VCOM FEED BACK

R9101-*3 1K 1% TCON_47_FHD

R9104-*3 1K 1% TCON_47_FHD

R9102-*3 1K 1% TCON_47_FHD

55_FHD

VGH

R9129-*4 510K 1% TCON_55_FHD

R9130-*4 68K 1% TCON_55_FHD

R9131-*4 27K 1% TCON_55_FHD

VGL

R9144-*4 27K 1% TCON_55_FHD

R9145-*4 150K 1% TCON_55_FHD

VDD

R9156-*4 150K 1% TCON_55_FHD

R9165 OPEN

R9157-*4 75K 1% TCON_55_FHD

R9166-*4 15K 1% TCON_55_FHD

HVDD

R9126-*4 180K 1% TCON_55_FHD

R9127-*4 68K 1% TCON_55_FHD

R9128-*4 16K 1% TCON_55_FHD

VCOM FEED BACK

R9101 OPEN

R9104 OPEN

R9102-*4 0 5% TCON_55_FHD

LG ELECTRONICS

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


LG Electronics Inc.

LCD TV Repair Guide

`10 years New Models

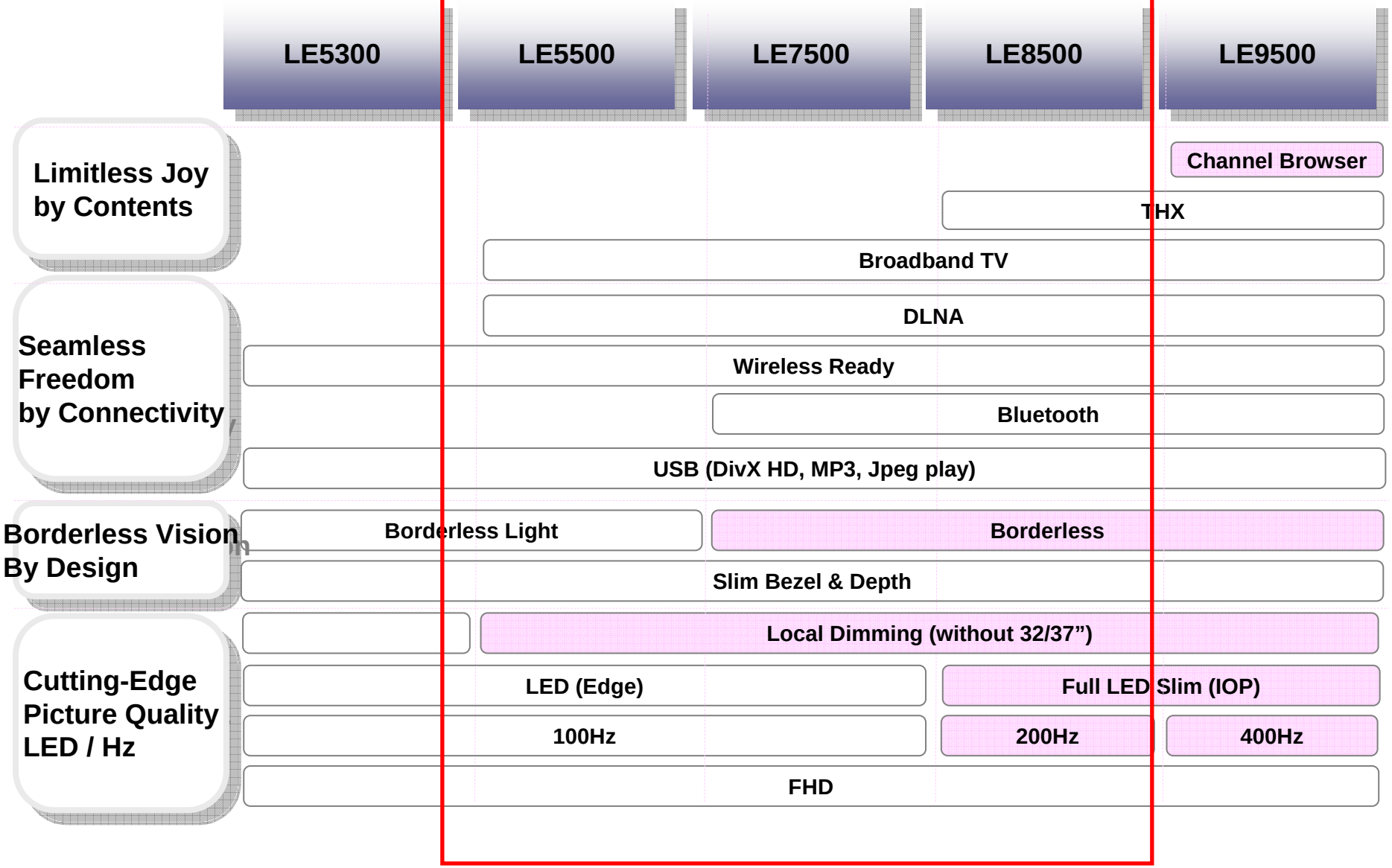
< Applicable Model >
xxLE5500,xxLE7500, xxLE8500

Overview for ’10 Broadband Model

(Hardware)

Features

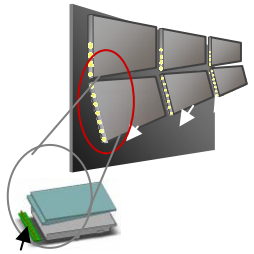
LED LCD TV Key Features



2 types of LED - IOP

Benefit: More Clear More Real

FULL LED Slim



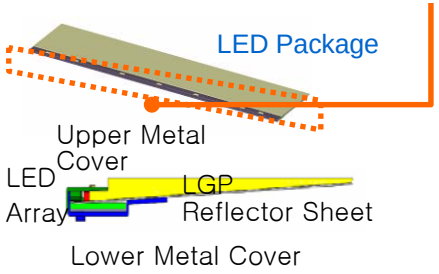
LED Chip

IOP Type

Model

LE8500

BLU Structure

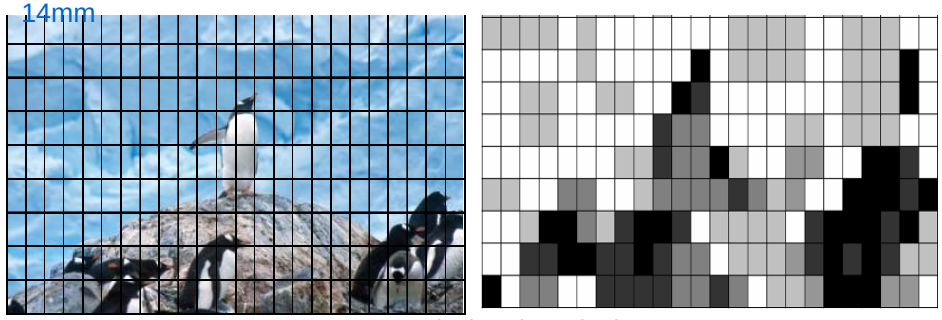


Module Bezel 폭: 47LE9500 7mm

47LE8500 14mm

27 BLU A'ssy
(864 LED Packages)

Local Dimming



216 Local Dimming Blocks

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

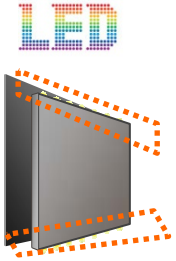
inch	*Local Dimming Block quantity*
42	*8 row * 24(3 ass'y*8) = 192EA*
47	*9 row * 24 = 216EA*
55	*10 row * 24 = 240EA*

LED Package

inch	*LED package quantity*
42	*192 * 4 packages/block = 768EA*
47	*216 * 4 packages/block = 864EA*
55	*240 * 5 packages/block = 1200EA*

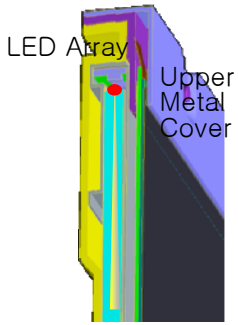
2 types of LED - Edge

Benefit: More Clear More Real



Edge Type w/ Local Dimming

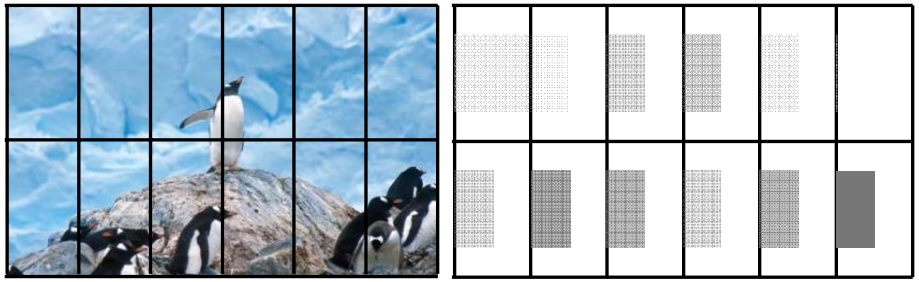
BLU structure



LED Packages
- 47” 264
- 42” 228

LED Array is on the Top & Bottom of Module

Local Dimming



12 Local Dimming Blocks

Feature

Edge LED	Best picture quality + thin TV
Local Dimming	Local dimming depicts more deep black.

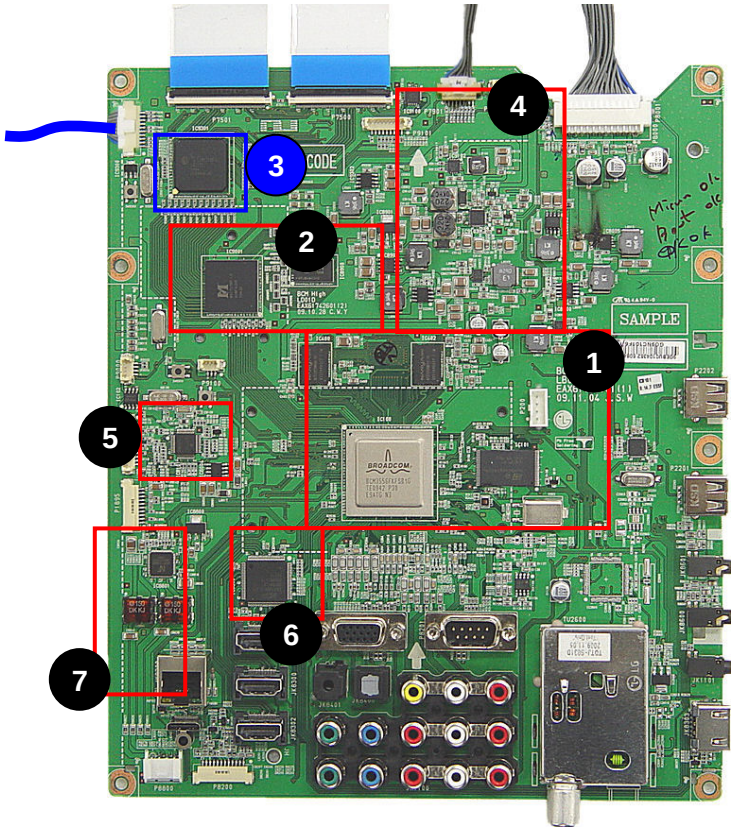
Model

LE7500, LE5500

Main PCB for Broadband

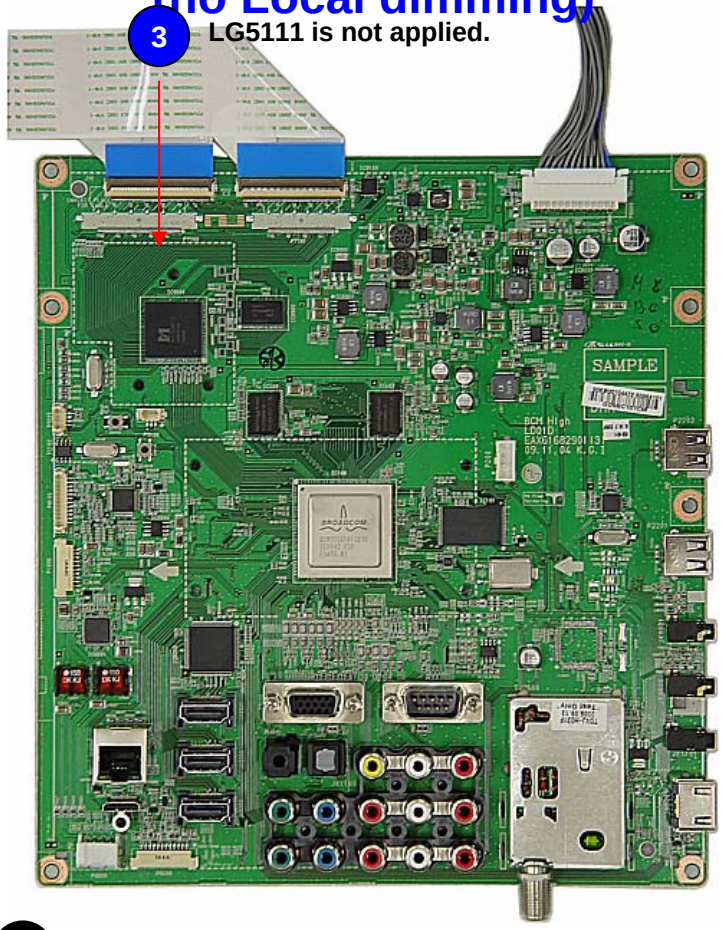
Main + TCON all in one

42”/47”/55”LE5500/7500, 42”/47LE8500 (with Local dimming)



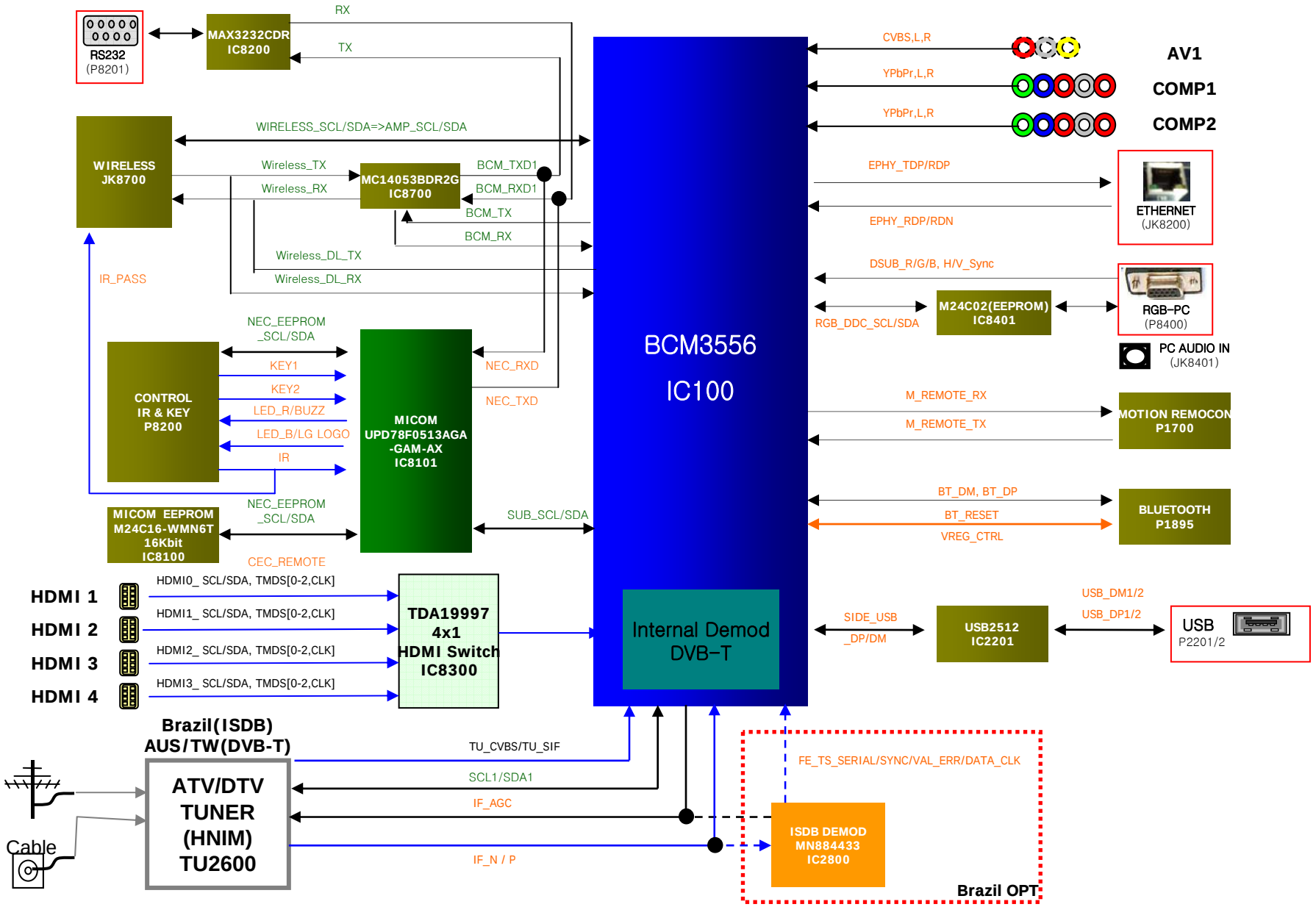
1. Main processor, DDR Memory Flash Memory
2. LGE7378, Frame rate Converter (FRC) for 100Hz
3. LG5111(Local Dimming Processor +LCD Timing Controller one Chip)
4. Gamma, Vcom, Voltage generater For LCD Module

32”LE5500/7500 (no Local dimming)

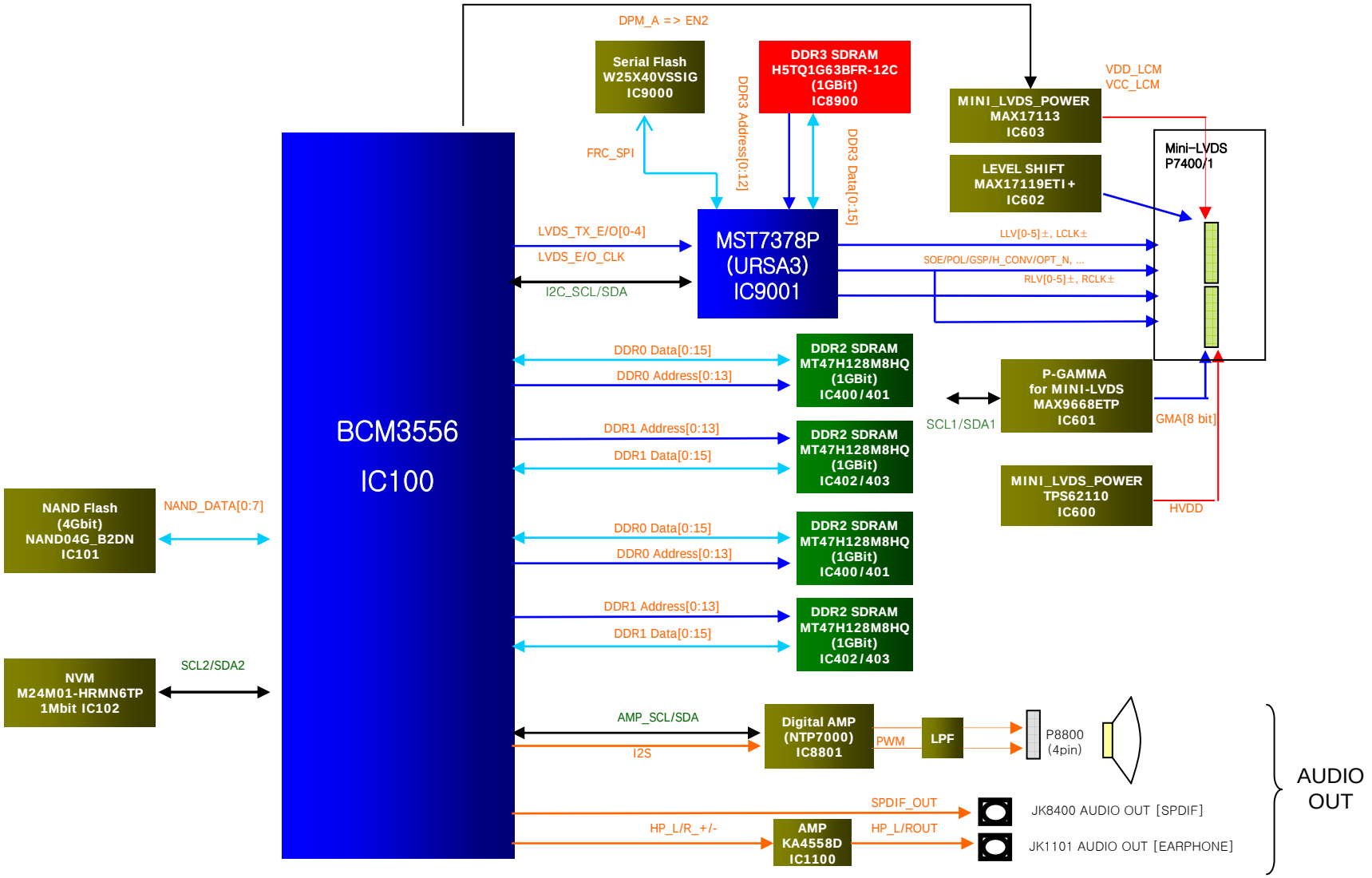


5. Micom for Key/IR sensing
6. HDMI switch (4:1)
7. Audio AMP (10W+10W)

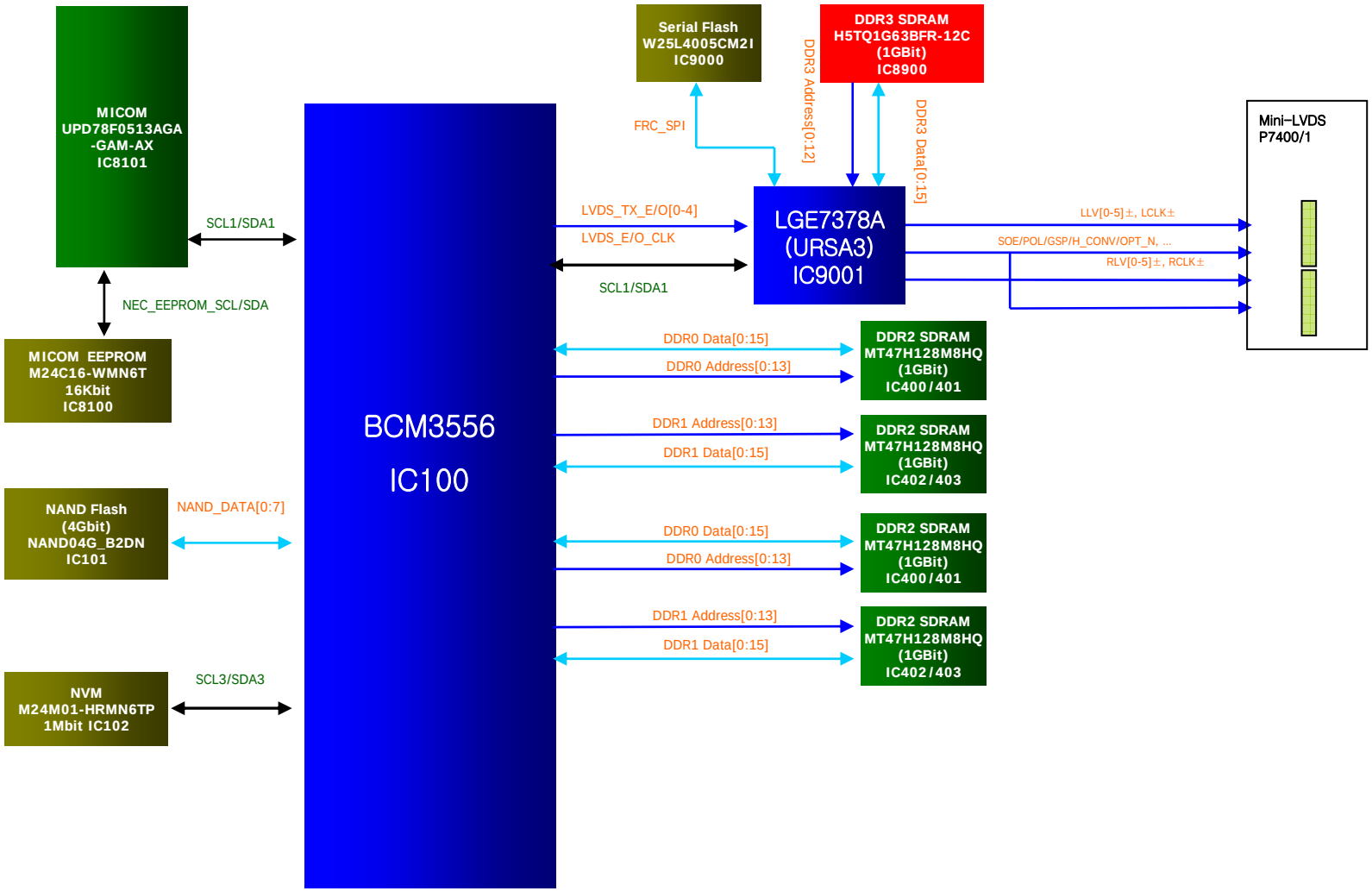
BCM High Block Diagram (Input/Interface)



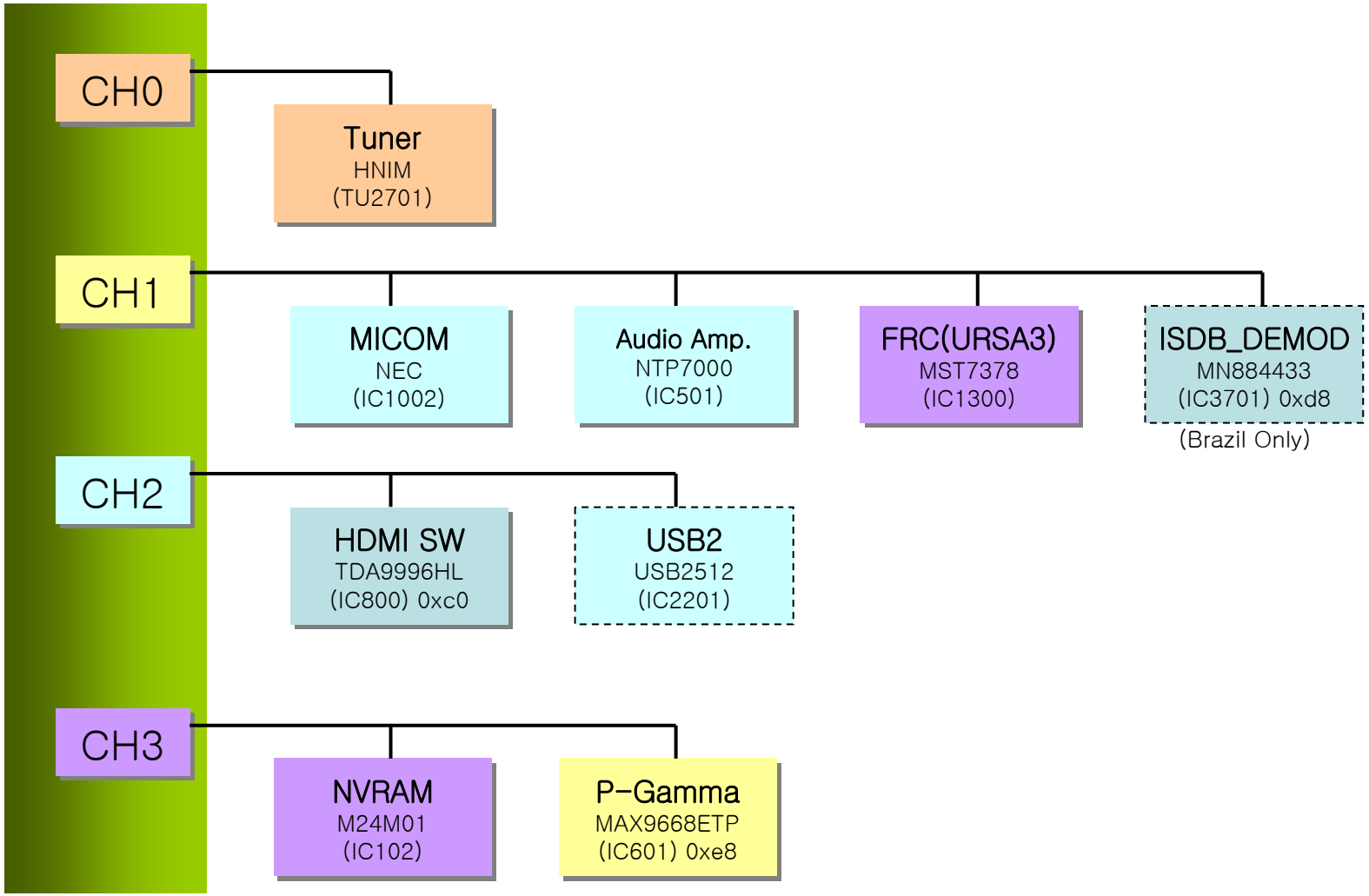
BCM High Block Diagram (Output/Audio)



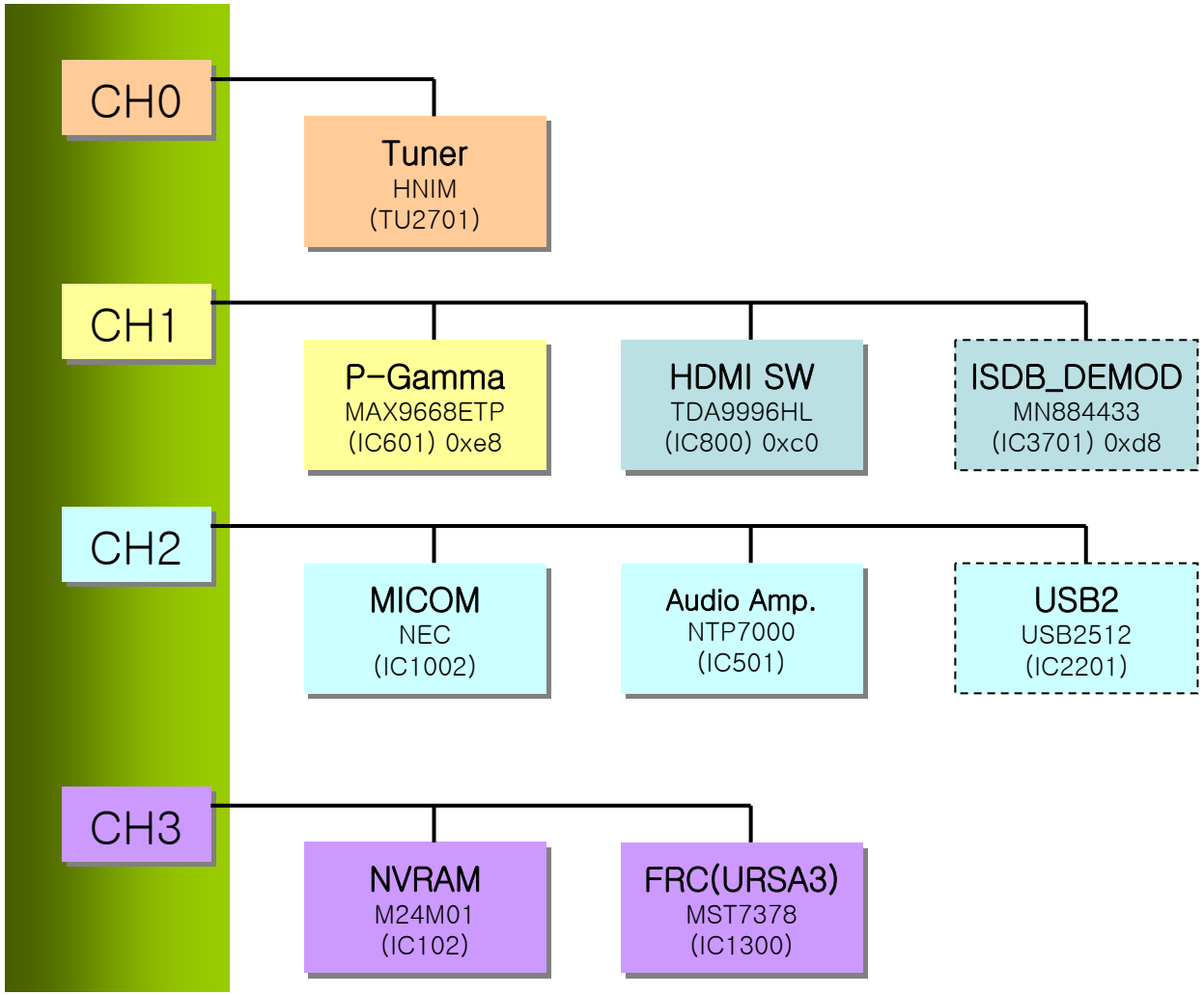
BCM High Block Diagram (Memory)



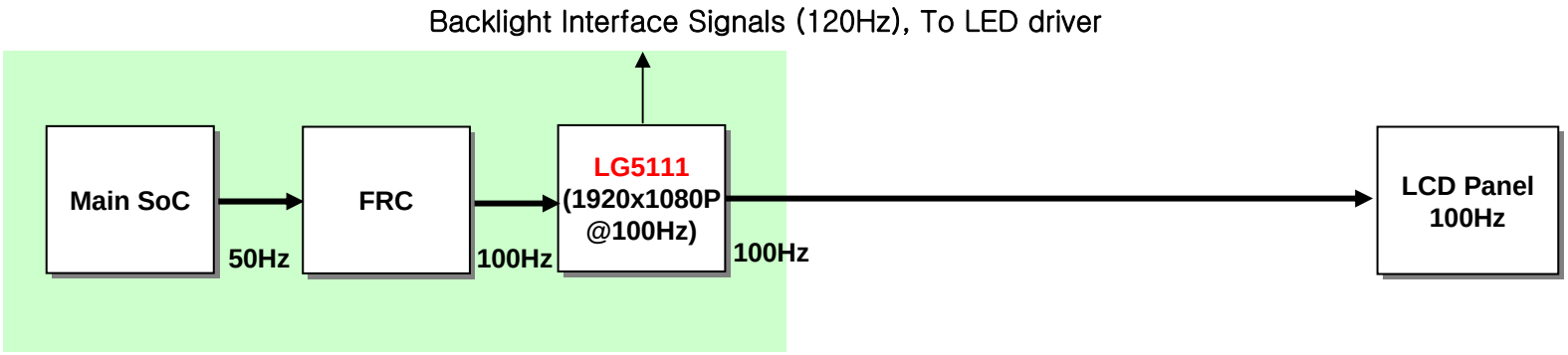
I2C Map



I2C Map



Appendix. Block Diagram for Edge/IOP Backlight

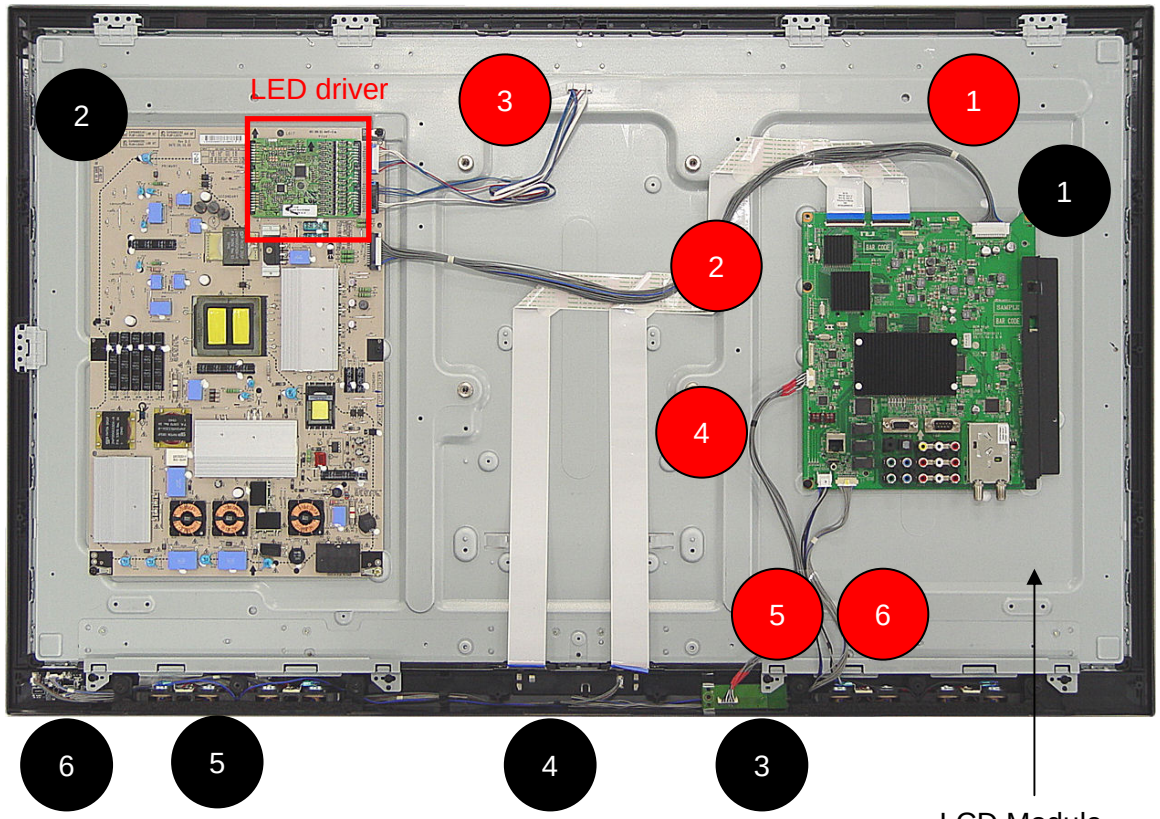


[All in one main PCB for LE55 & LE75 edge & LE85 IOP LED Backlight]

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

Interconnection - 1

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



[PCBs]

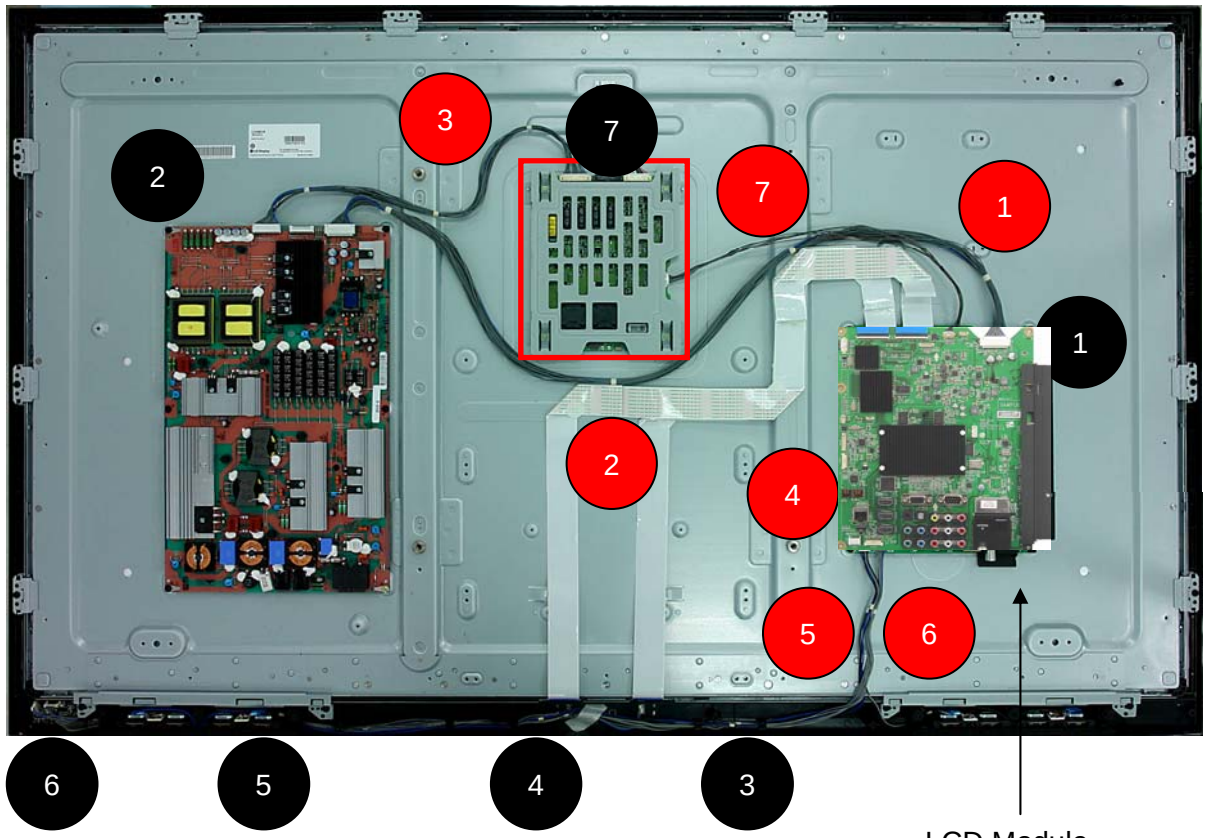
1. Main PCB
2. PSU + LED driver
3. Bluetooth PCB
4. LOGO PCB
5. Soft Touch Key PCB
6. IR/Sensor PCB

[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]

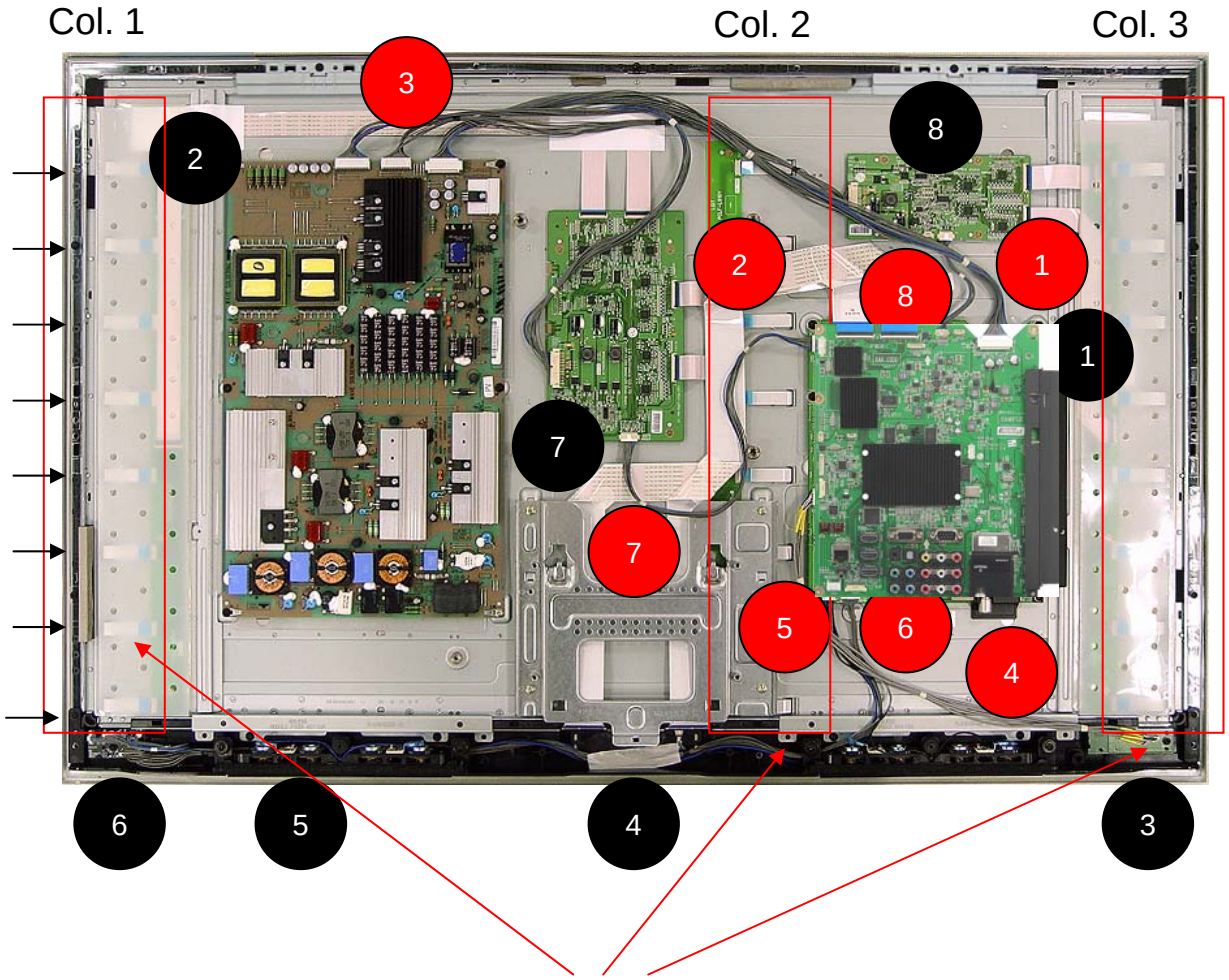
1. Main PCB
2. PSU
3. Bluetooth PCB
4. LOGO PCB
5. Soft Touch Key PCB
6. IR/Sensor PCB
7. LED driver

[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



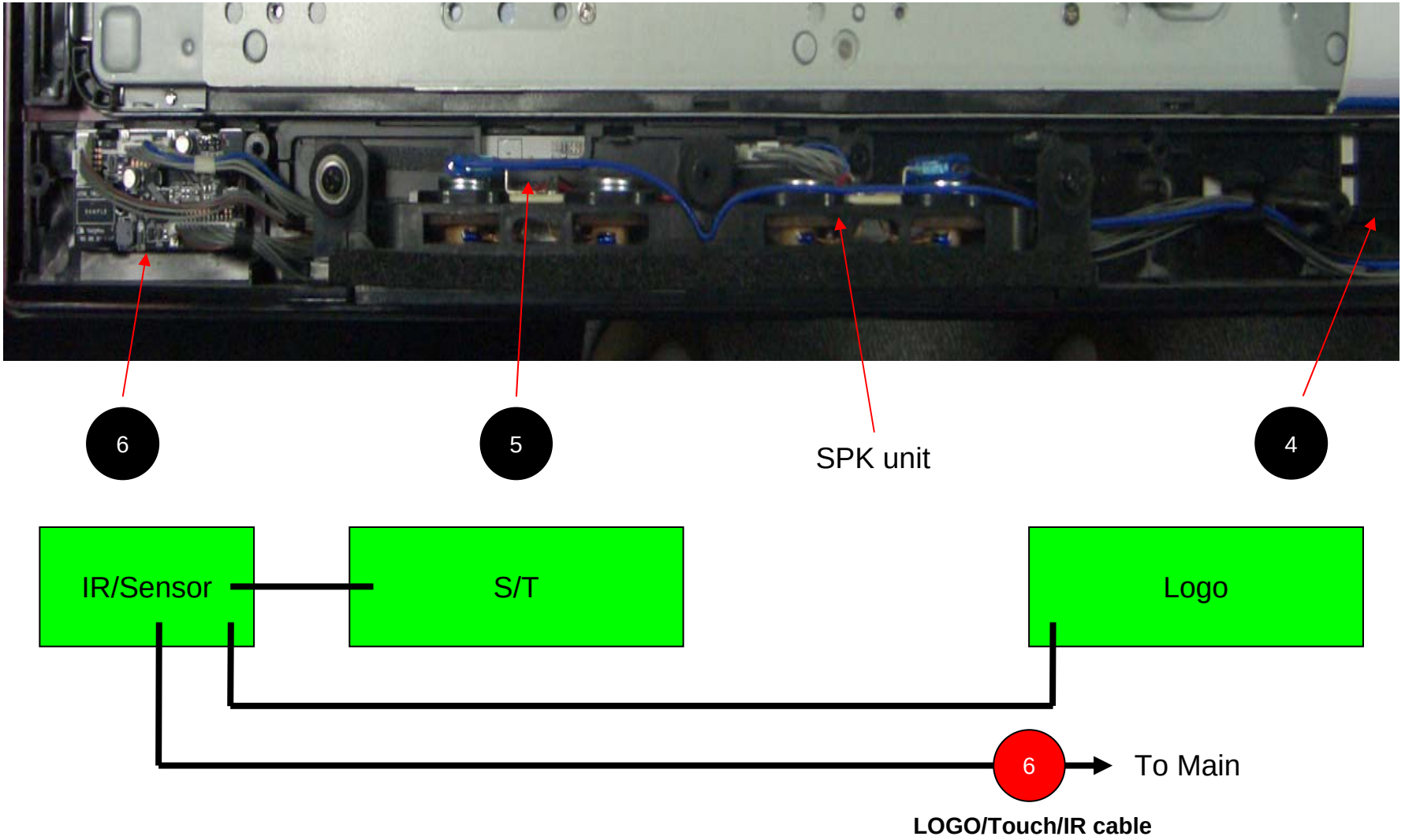
[PCBs]

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

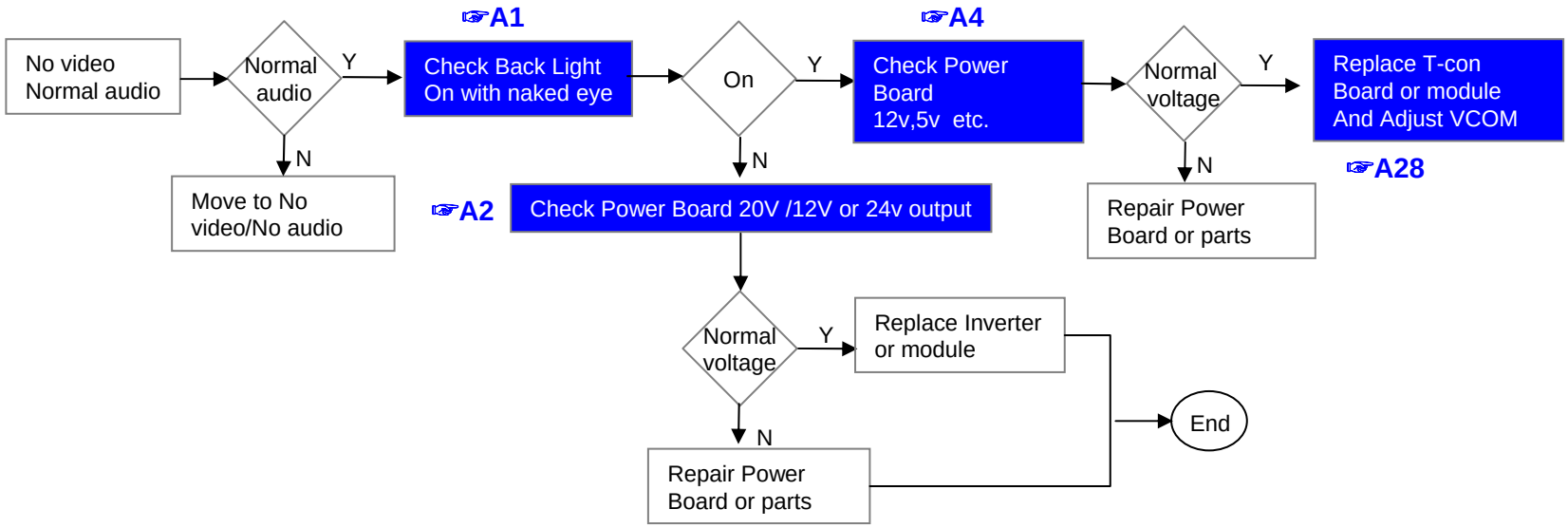


Contents of LCD TV Standard Repair Process

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

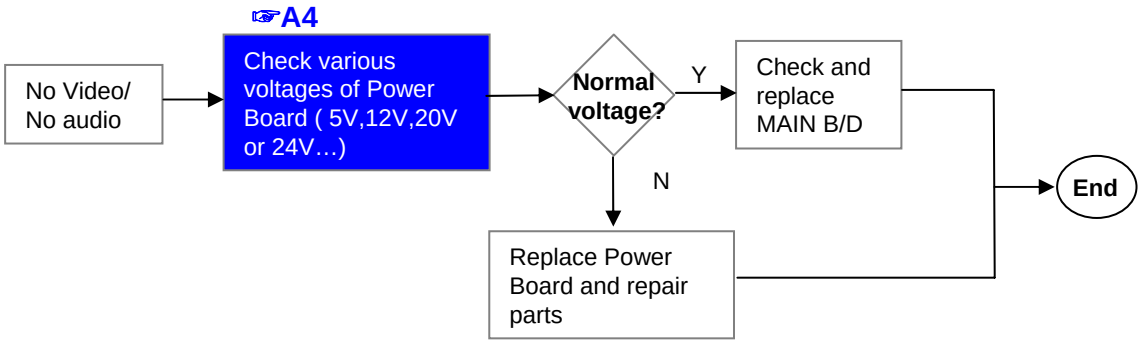
LCD TV	Error symptom	A. Video error	Established date	2010. 2 .19	
		No video/ Normal audio	Revised date		1/13

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,,,)

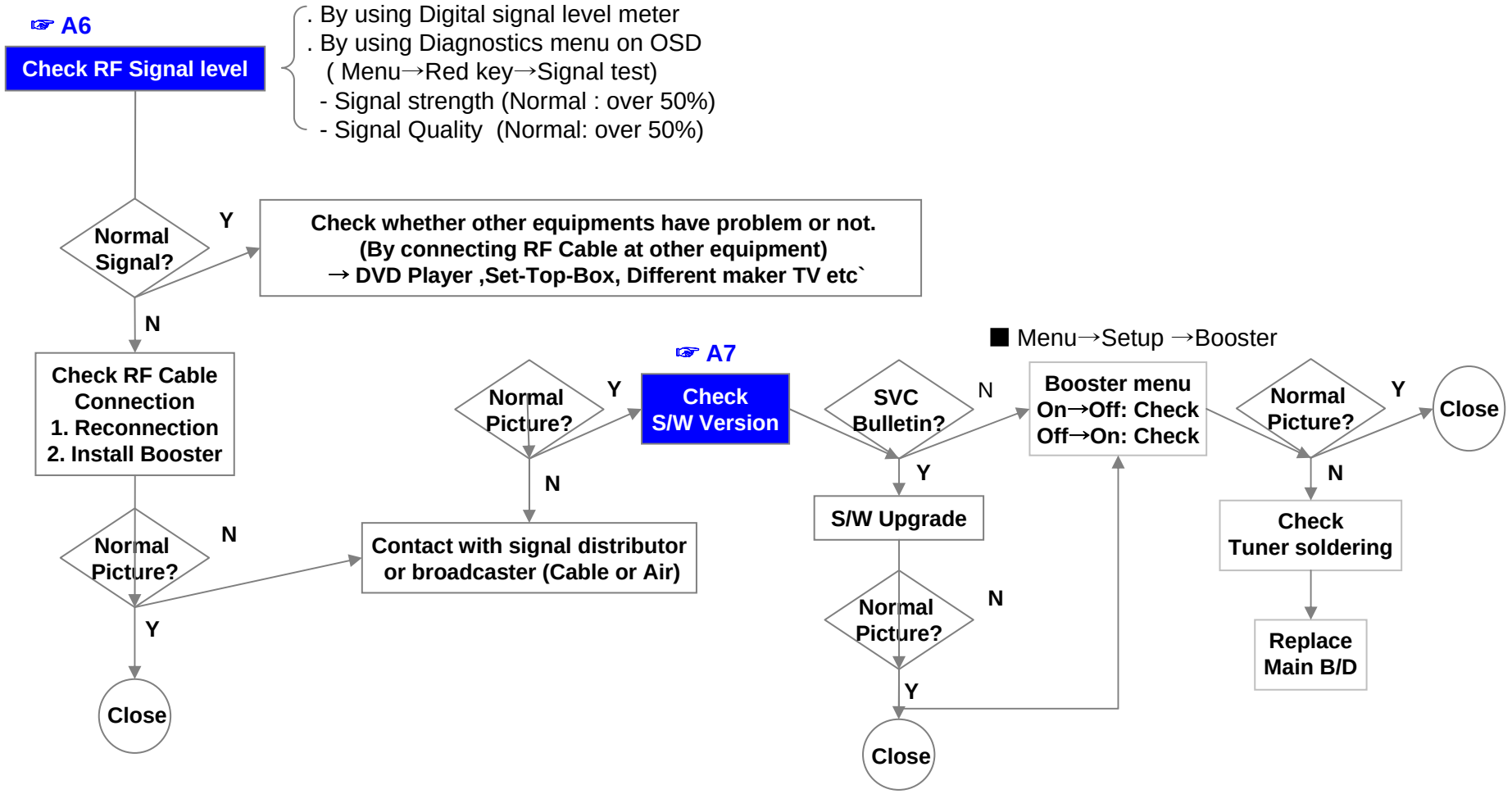


※Precaution ☞A7 & A3

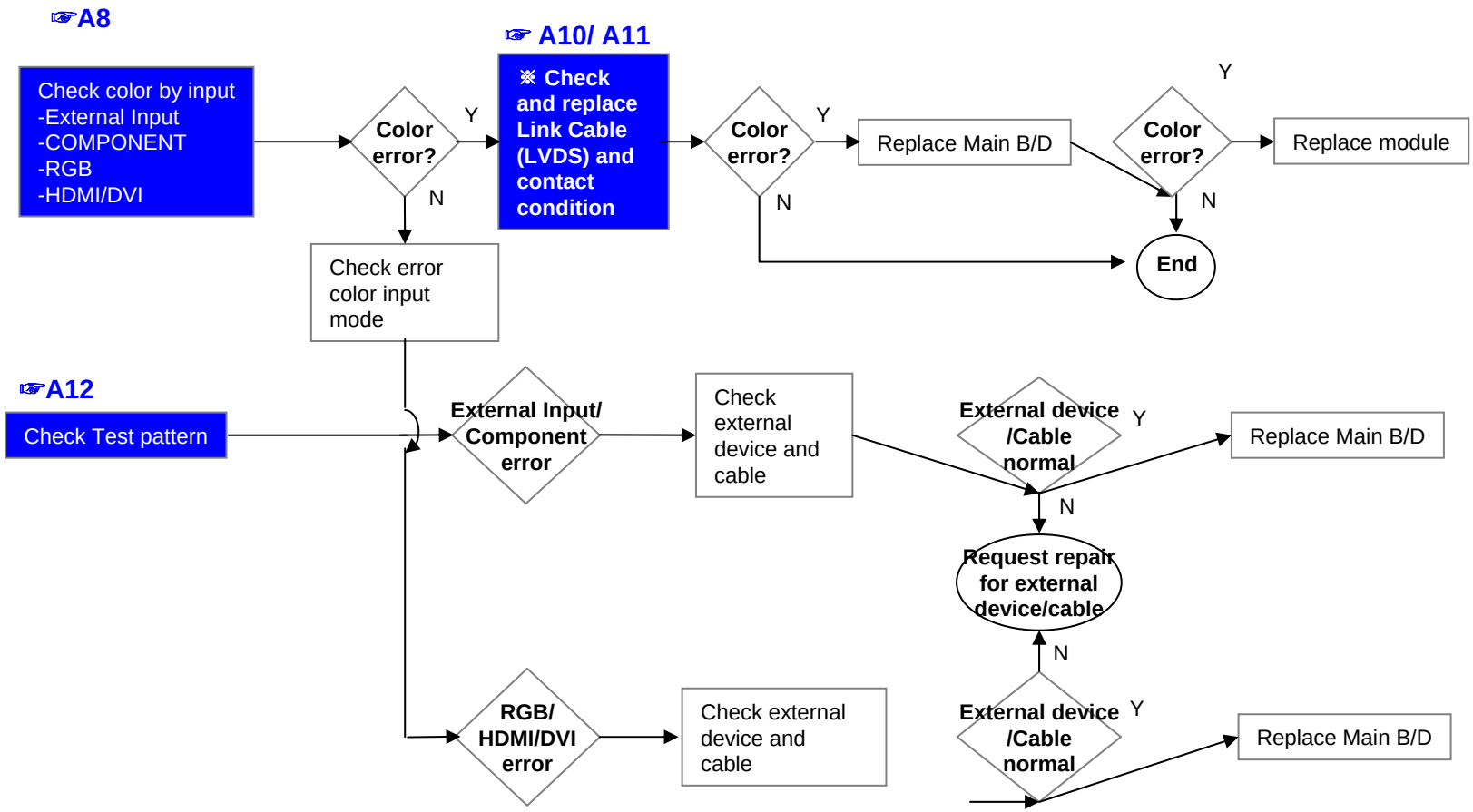
LCD TV	Error symptom	A. Video error	Established date	2010. 2 .19	
		No video/ No audio	Revised date		2/13



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

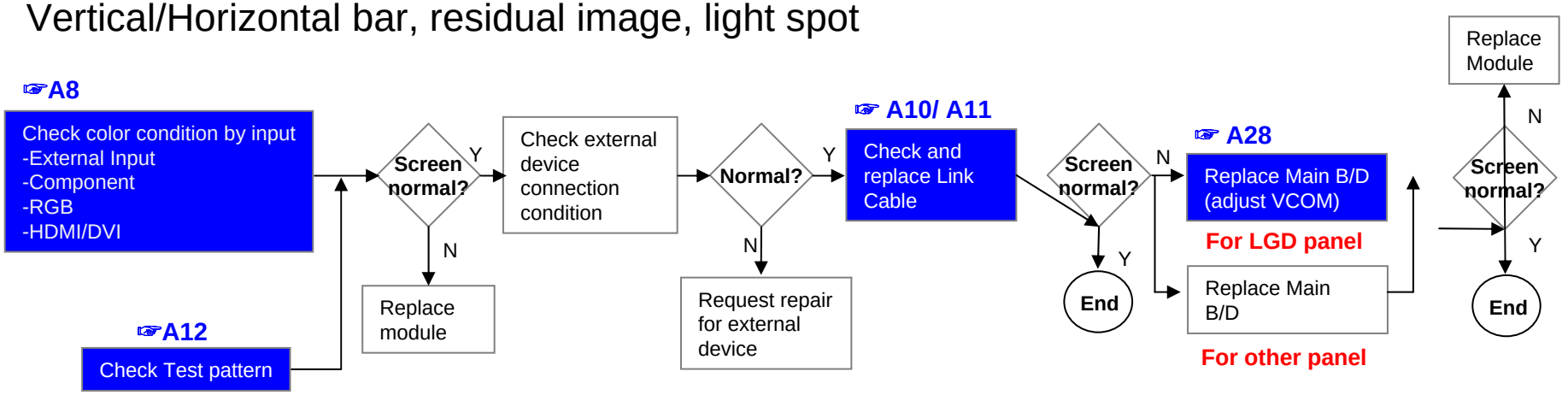


LCD TV	Error symptom	A. Video error	Established date	2010. 2 .19	
		Color error	Revised date		4/13

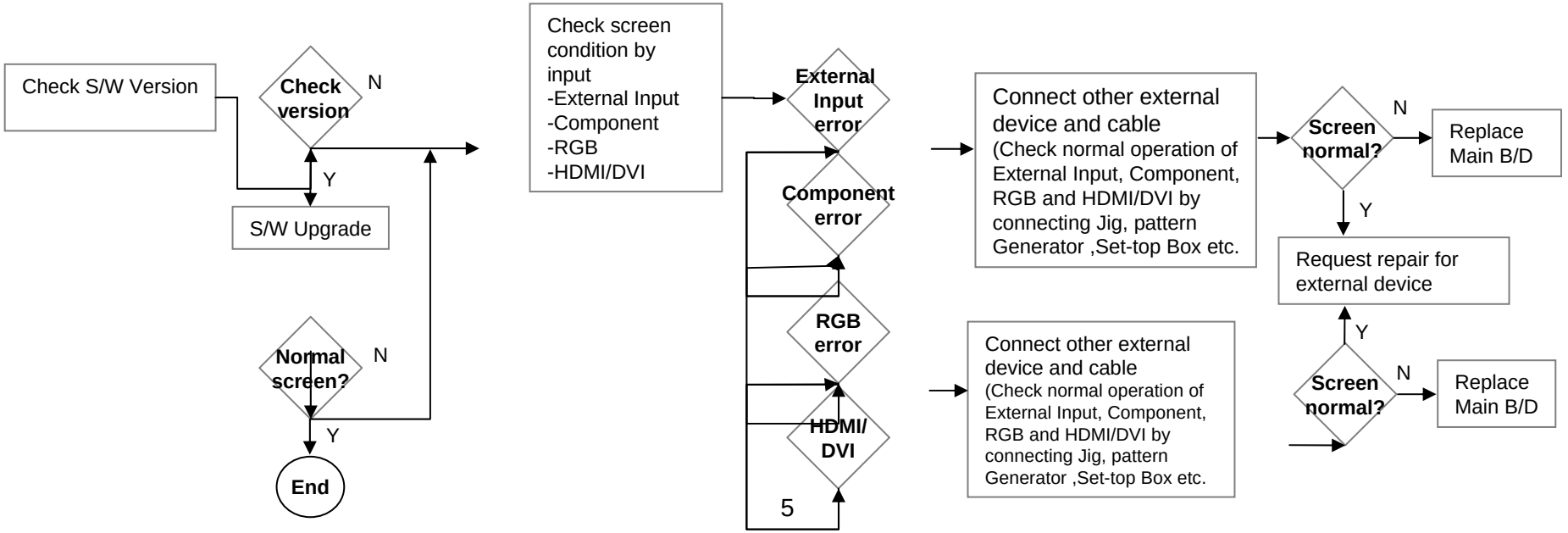


LCD TV	Error symptom	A. Video error	Established date	2010. 2 .19	
		Vertical / Horizontal bar, residual image, light spot, external device color error	Revised date		5/13

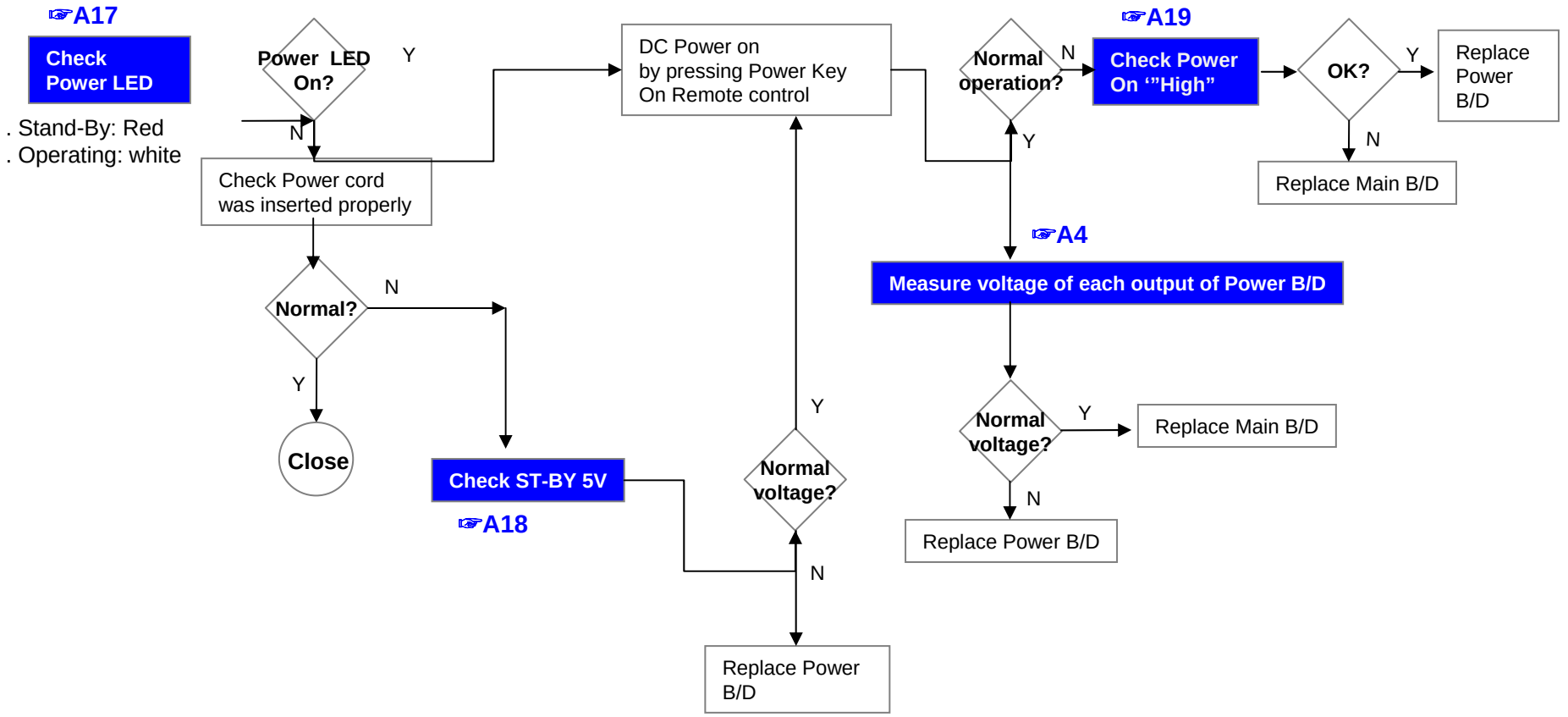
Vertical/Horizontal bar, residual image, light spot



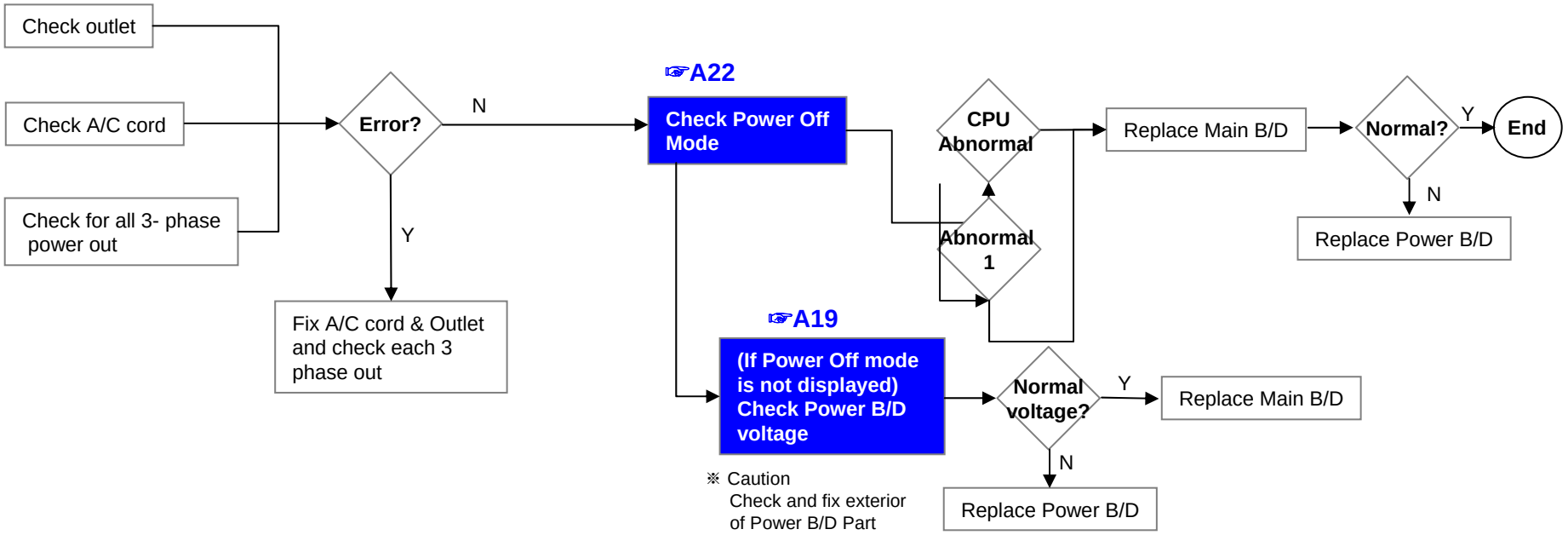
External device screen error-Color error



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



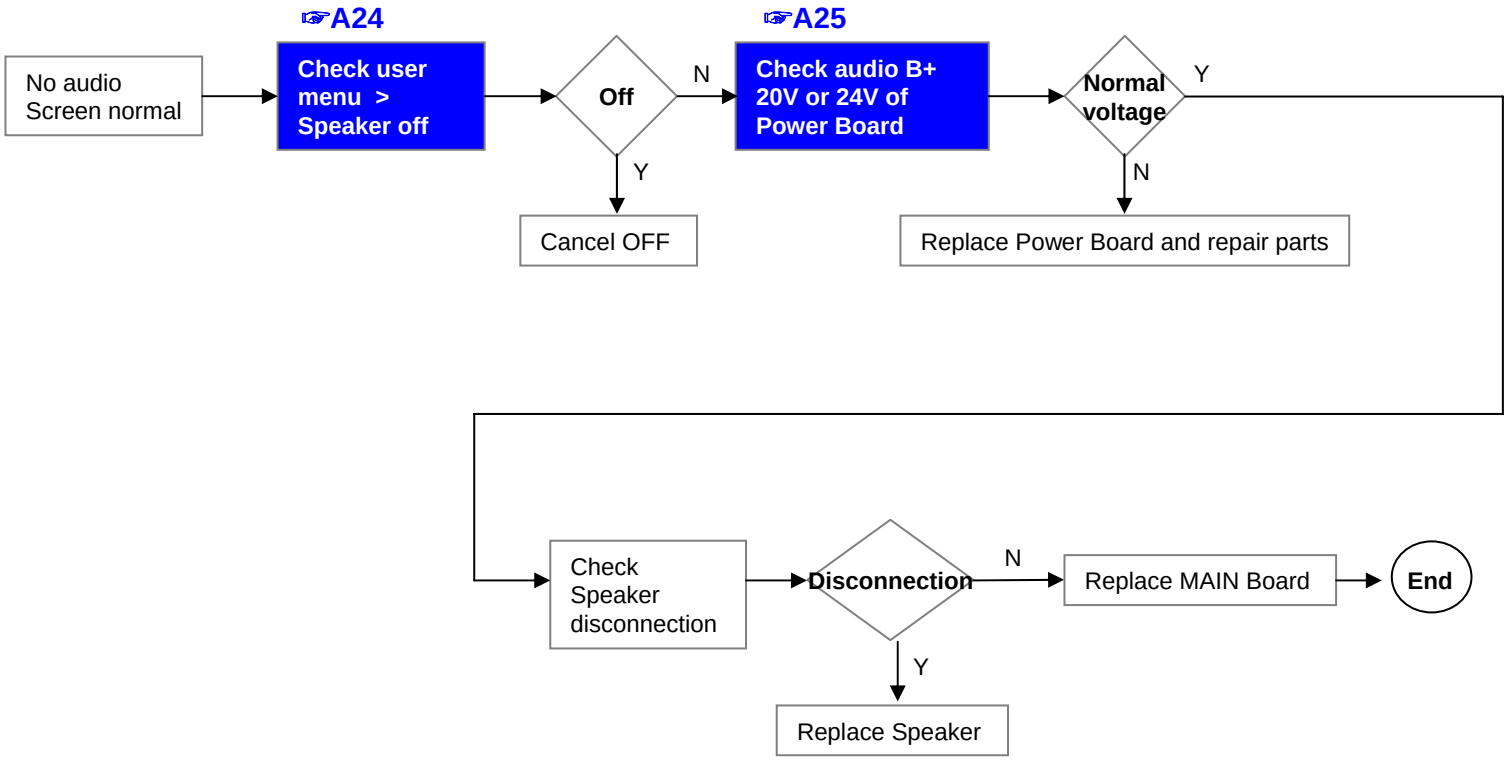
LCD TV	Error symptom	B. Power error	Established date	2010. 2 .19	
		Off when on, off while viewing, power auto on/off	Revised date		7/13



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

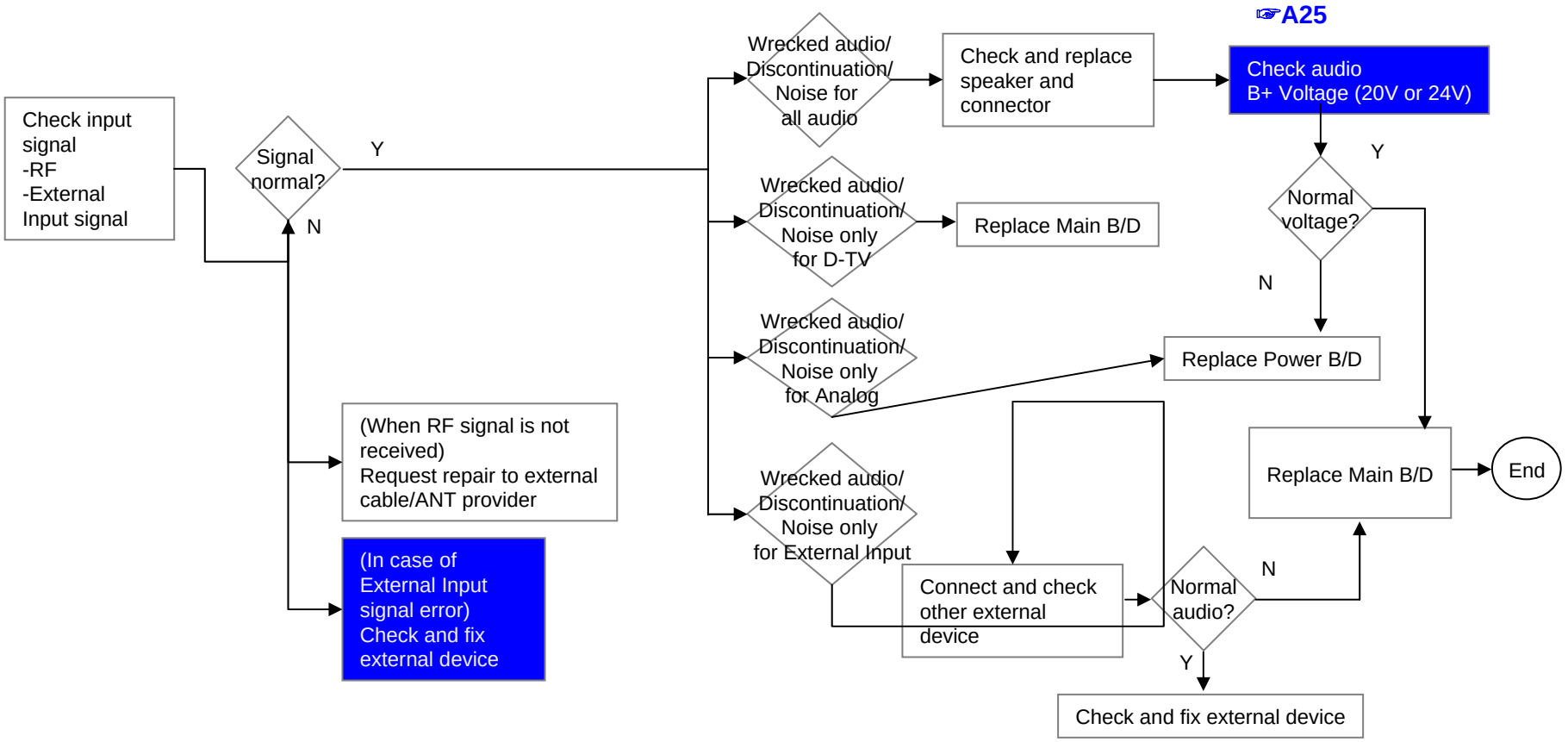
Status	Power off List	Explanation
Normal	"POWEROFF_REMOTEKEY"	Power off by REMOTE CONTROL
	"POWEROFF_OFFTIMER"	Power off by OFF TIMER
	"POWEROFF_SLEEPTIMER"	Power off by SLEEP TIMER
	"POWEROFF_INSTOP"	Power off by INSTOP KEY
	"POWEROFF_AUTOOFF"	Power off by AUTO OFF
	"POWEROFF_ONTIMER"	Power off by ON TIMER
	"POWEROFF_RS232C"	Power off by RS232C
	"POWEROFF_RESREC"	Power off by Reservated Record
	"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
Abnormal	"POWEROFF_ABNORMAL1"	Power off by abnormal status except CPU trouble
	"POWEROFF_CPUABNORMAL"	Power off by CPU Abnormal

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



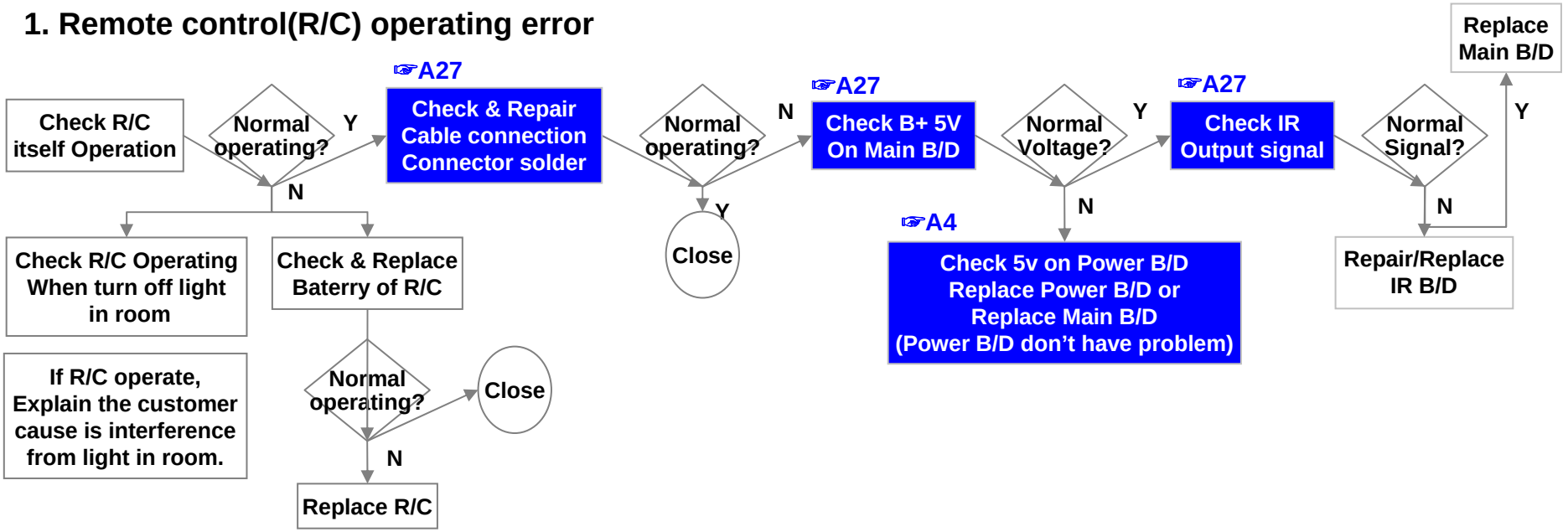
LCD TV	Error symptom	C. Audio error	Established date	2010. 2 .19	
		Wrecked audio/ discontinuation/noise	Revised date		9/13

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

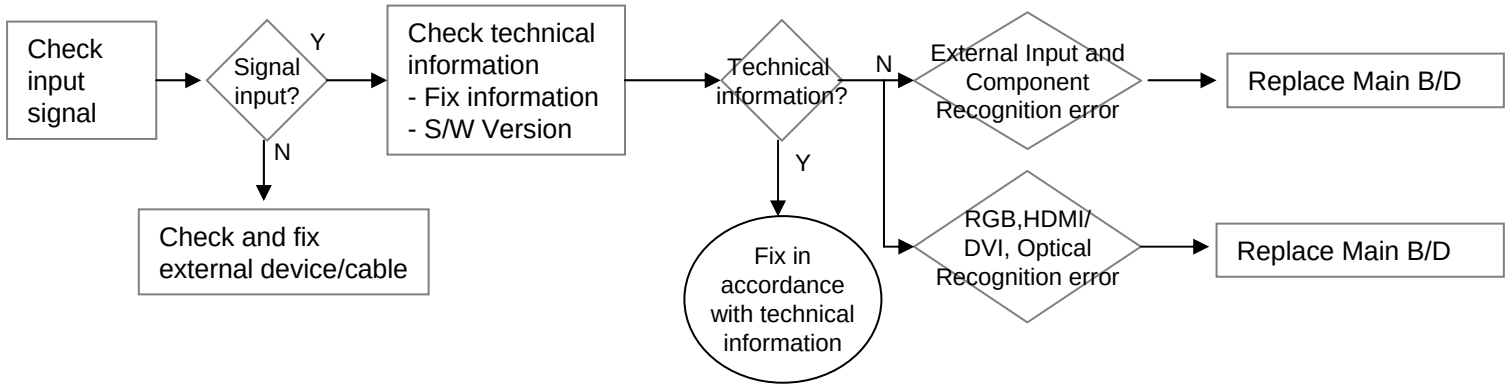


LCD TV	Error symptom	D. General Function Problem	Established date	2010. 2 .19	
		Remote control & Local switch checking	Revised date		10/13

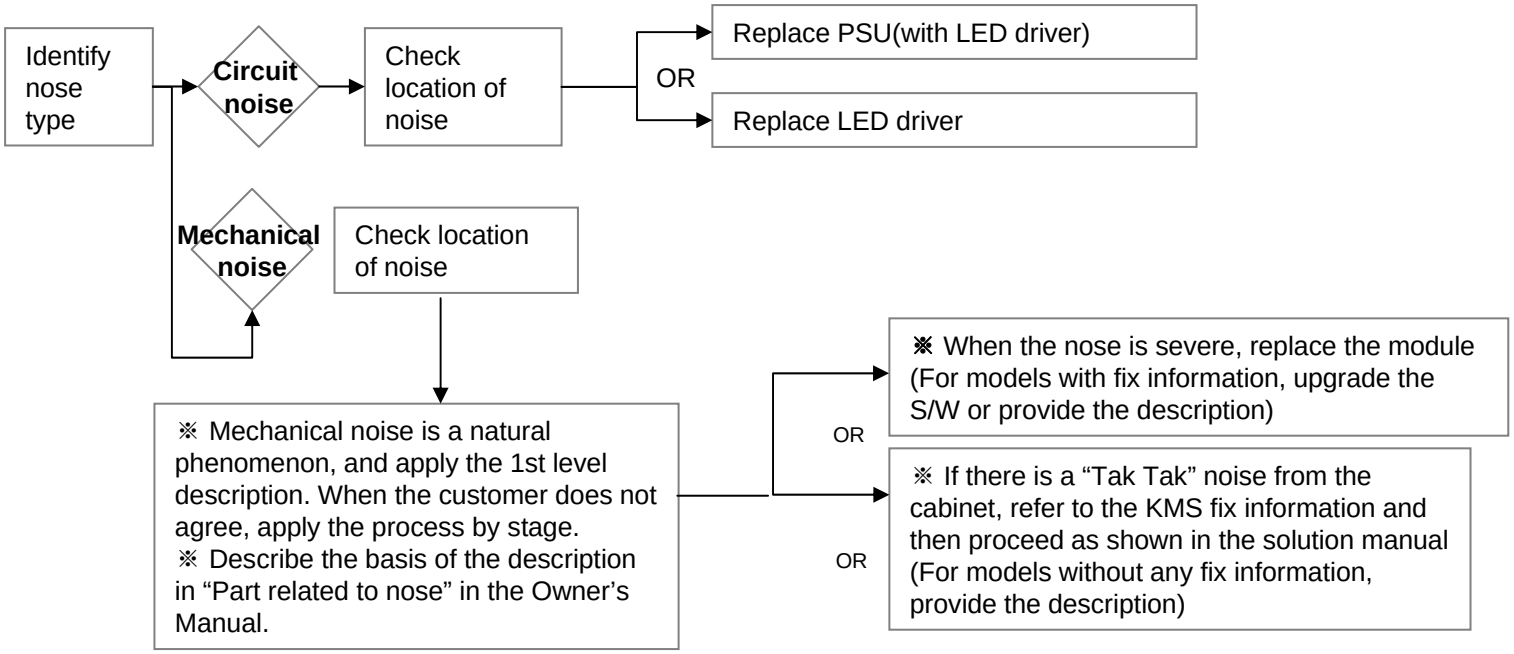
1. Remote control(R/C) operating error



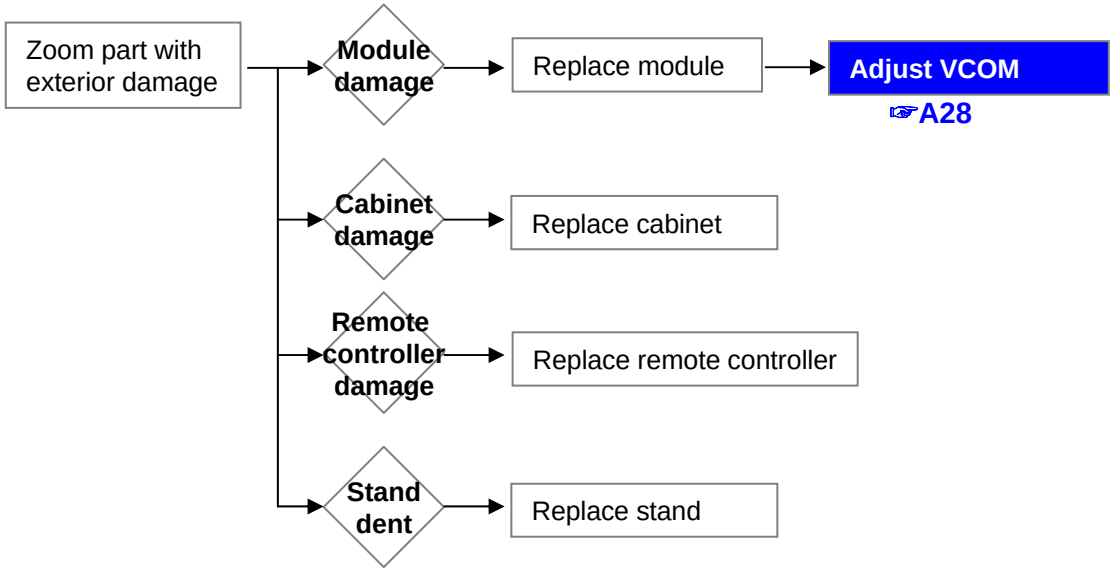
LCD TV	Error symptom	D. Function error	Established date	2010. 2 .19	
		External device recognition error	Revised date		11/13



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



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

Continue to the next page

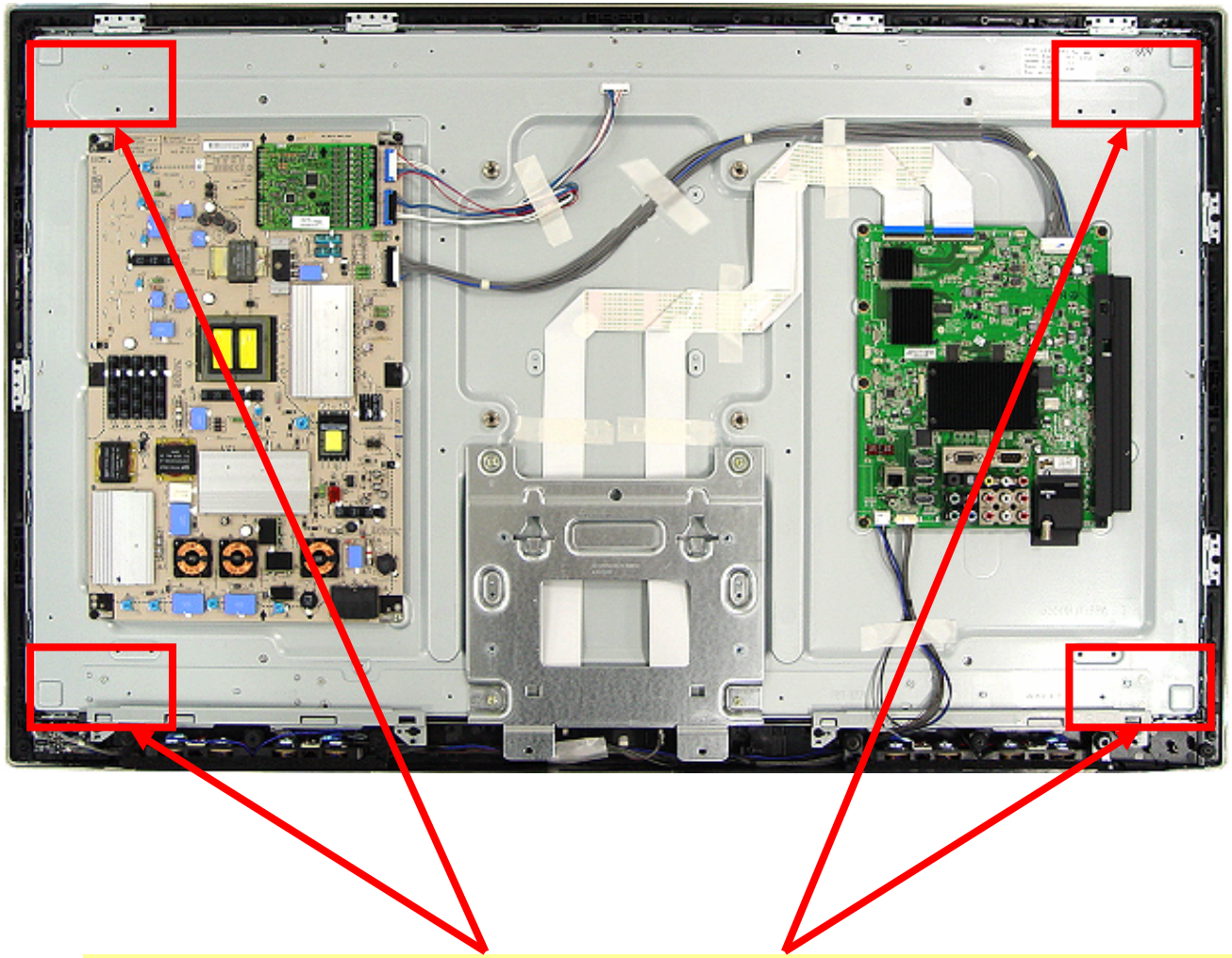
Contents of LCD TV Standard Repair Process Detail Technical Manual

Continued from previous page

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>

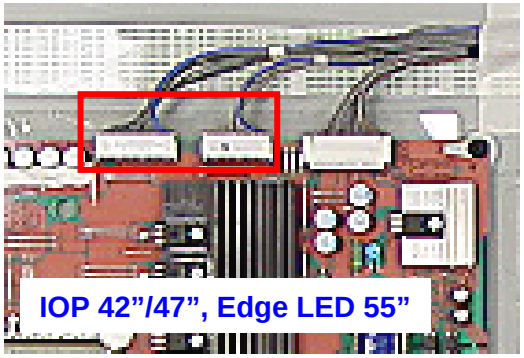


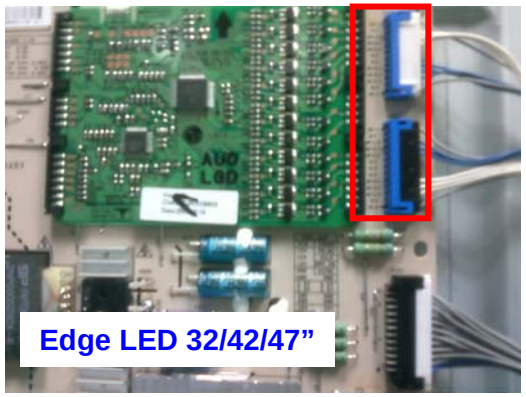
After turning on the power and disassembling the case, check with the naked eye, whether you can see light from 4 locations.

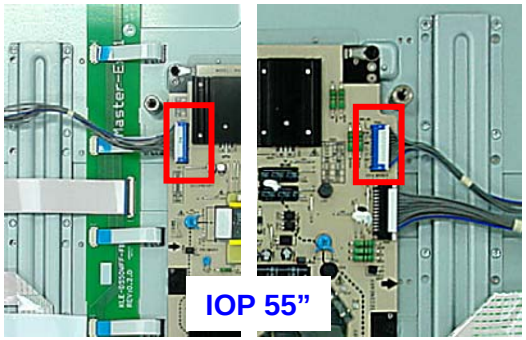
A1

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
12	Inverter ON

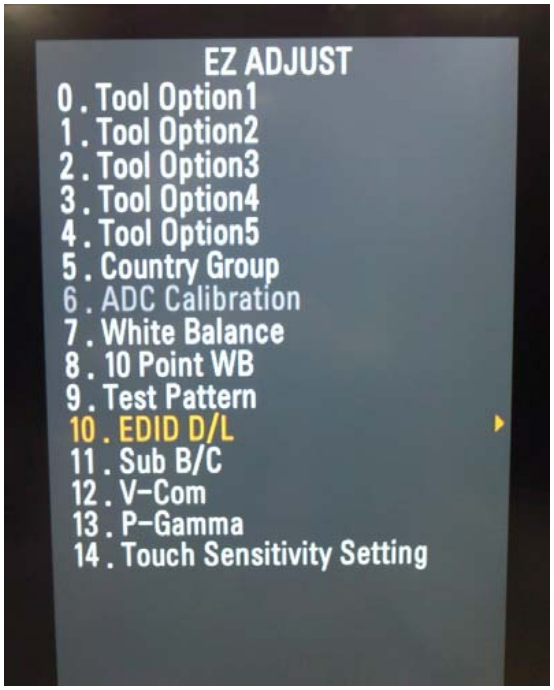
P204	
1~5	24V
6~10	GND
11	PWM Dim #1 (Edge LED : NC)
12	Inverter ON
13	NC (Edge LED:PWM Dim#1)
14	Error

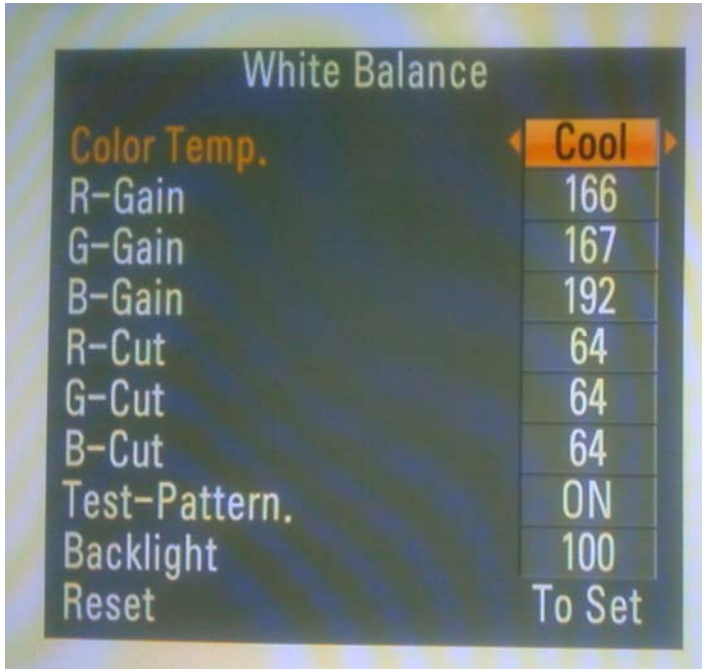
* 14 : For LE85 GND

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

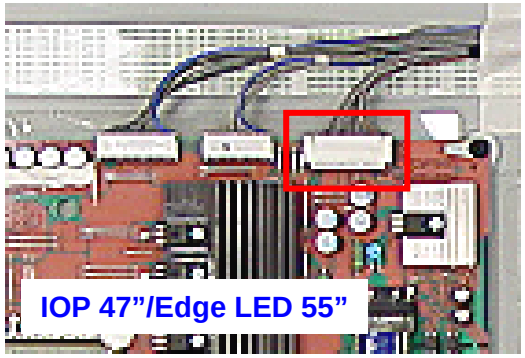
1. Press the ADJ button on the remote controller for adjustment.

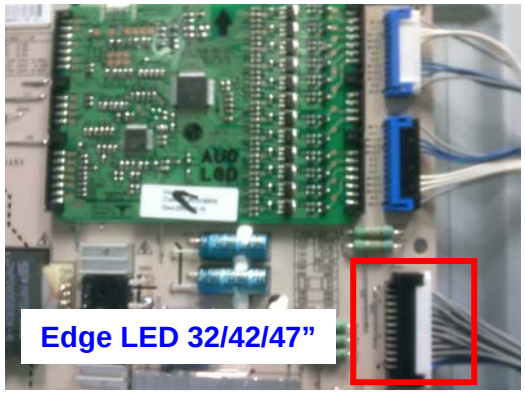
2. Enter into White Balance of item 7.

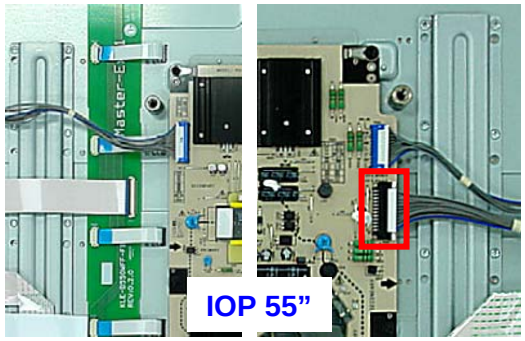
3. After recording the R, G, B (GAIN, Cut) value of Color Temp (Cool/Medium/Warm), re-enter the value after replacing the MAIN BOARD.

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







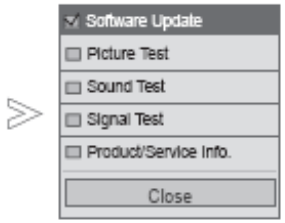
Check the DC 20V/24V, 12V, 3.5V.

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

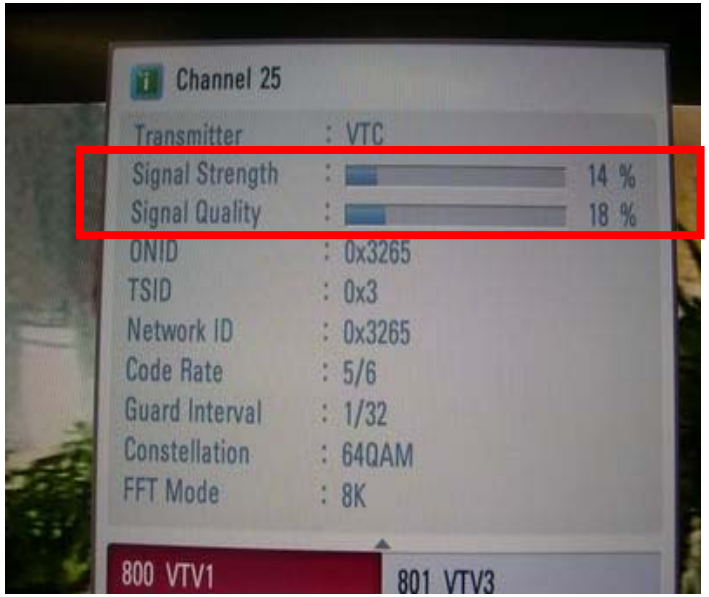
Standard Repair Process Detail Technical Manual

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.)

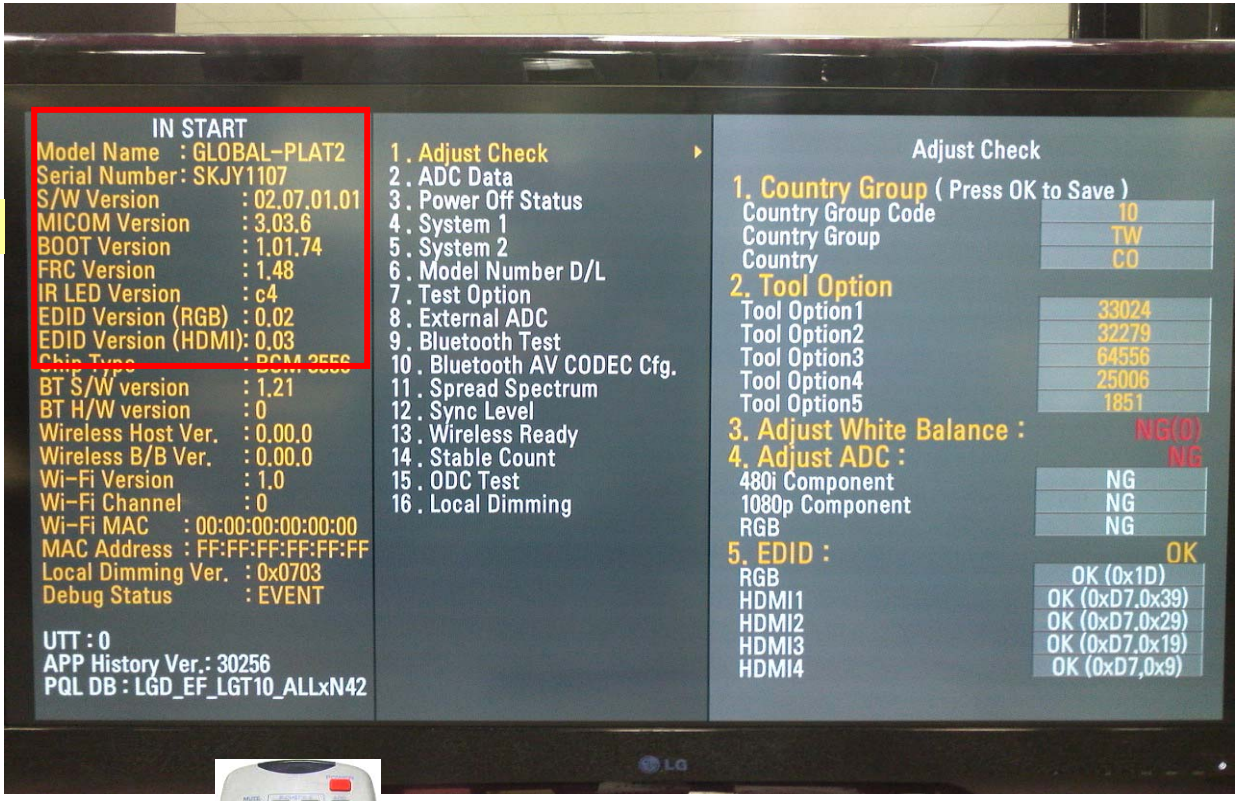
Standard Repair Process Detail Technical Manual

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

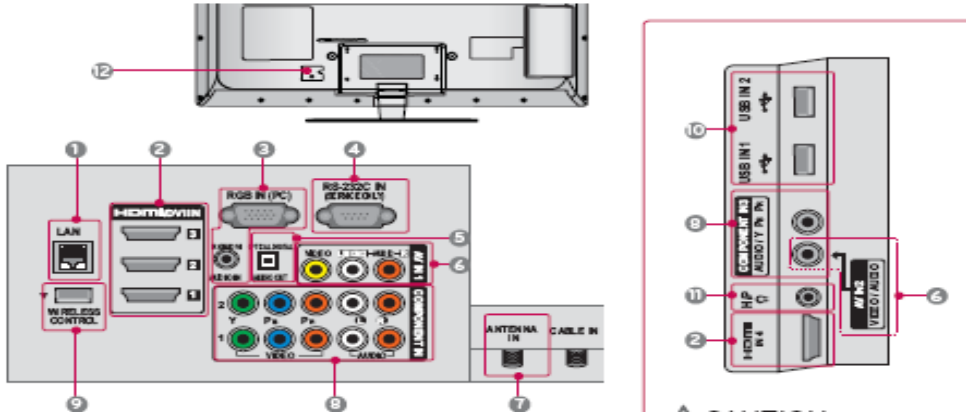
Version



Press the IN-START with the remote controller for adjustment

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



⑫ **Power Cord Socket**
This TV operates on an AC power. The voltage is indicated on the Specifications page. (► p.184 to 200) Never attempt to operate the TV on DC power.

① **LAN**
Network connection for AccuWeather, Picasa, YouTube, etc.
Also used for video, photo and music files on a local network.

⑨ **WIRELESS Control**
Connect the Wireless Rea
TV to control the external i
nected to Wireless Media B

③ **RGB/DVI Audio Input**
Connect the audio from a PC or DTV.

⑤ **OPTICAL DIGITAL AUDIO OUT**
Connect digital audio to various types of equipment.
Connect to a Digital Audio Component.
Use an Optical audio cable.

⑧ **Component Input**
Connect a component video/audio device to these jacks.

② **HDMI/DVI IN Input**
Connect an HDMI signal to HDMI IN. Or DVI (VIDEO) signal to HDMI/DVI port with DVI to HDMI cable.

③ **RGB IN Input**
Connect the output from a PC.

④ **RS-232C IN (CONTROL & SERVICE) PORT**

As the part connecting to the external input, check the screen condition by signal

⑦ **Antenna Input**
Connect antenna or cable to this jack.

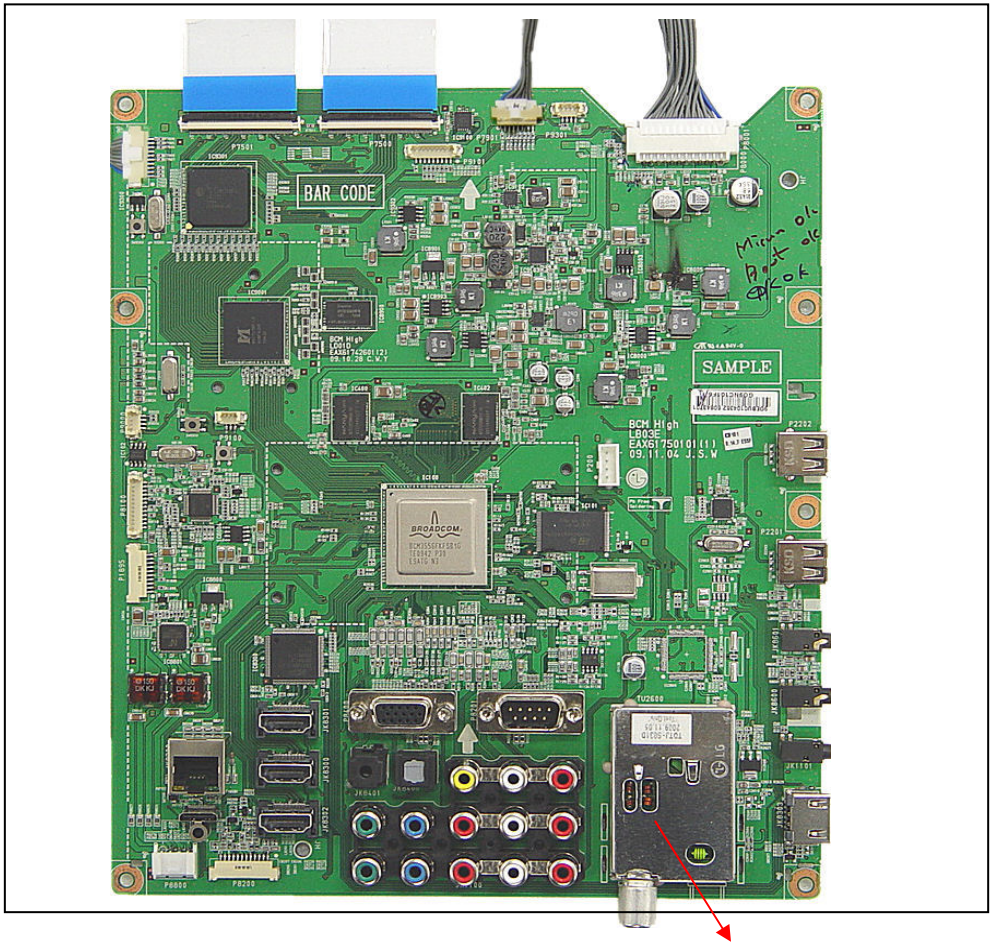
USB Input
Connect USB storage device to this jack.

⑥ **Audio/Video Input**
Connect audio/video output from an external device to these jacks.

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>

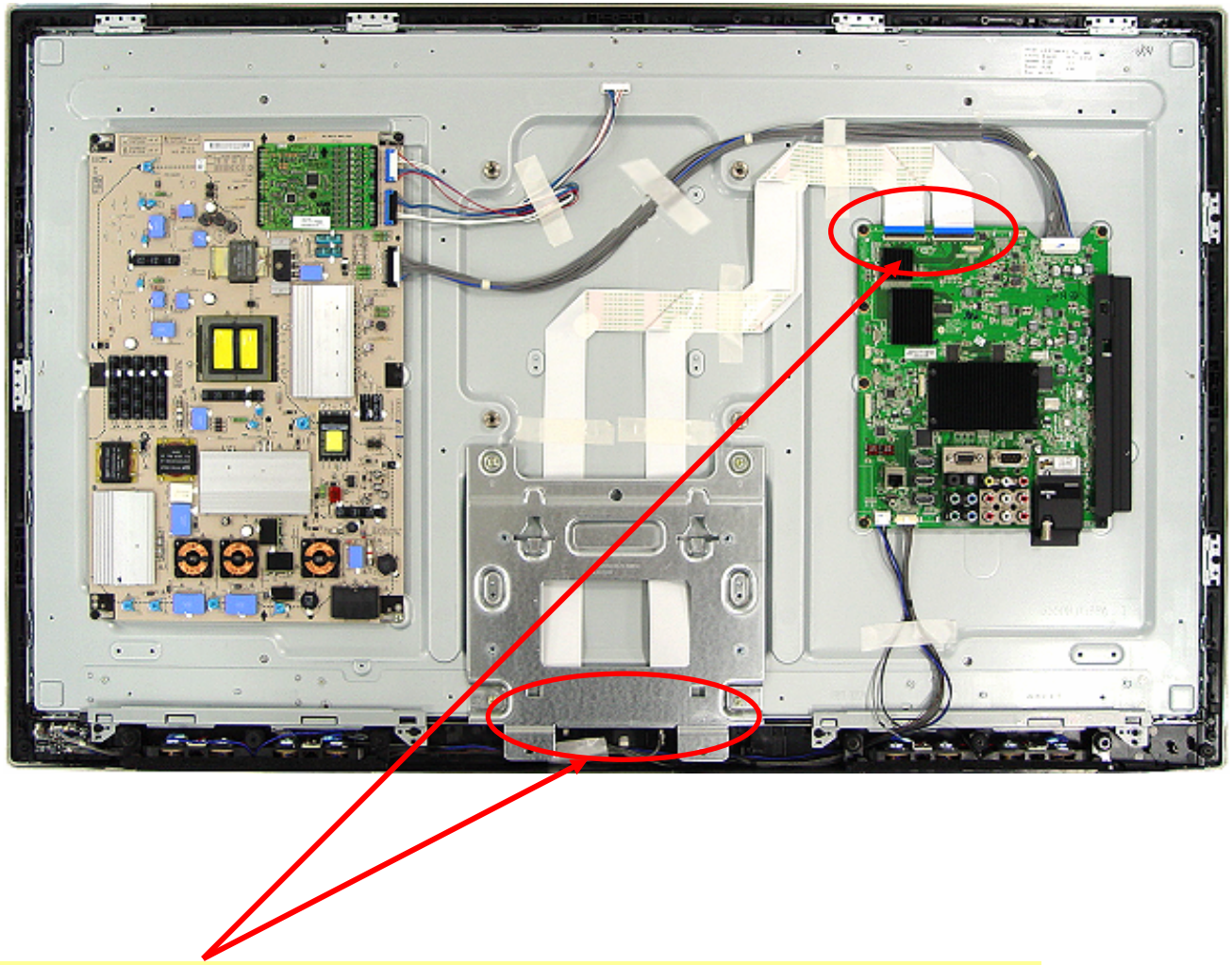


Checking method:
1. Check the signal strength or check whether the screen is normal when the external device is connected.
2. After measuring each voltage from power supply, finally replace the MAIN BOARD.

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

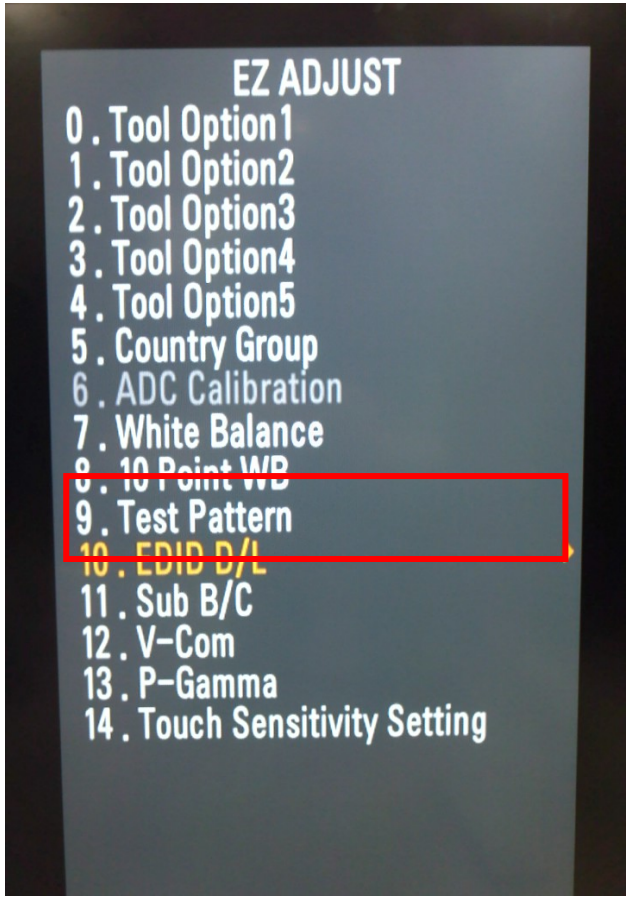
<32/42/47/55LE7500_LE5500>



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

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



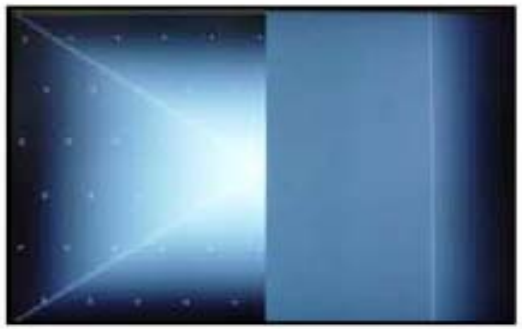
You can view 6 types of patterns using the ADJ Key

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!)

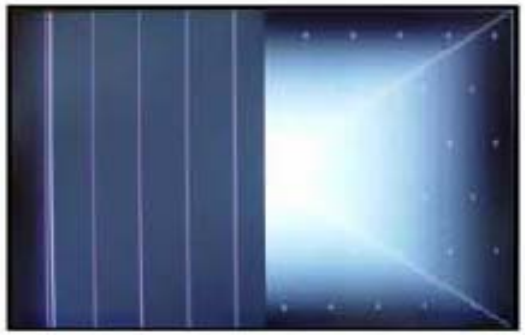
A12

Appendix : Exchange T-Con Board (1)

Solder defect, CNT Broken

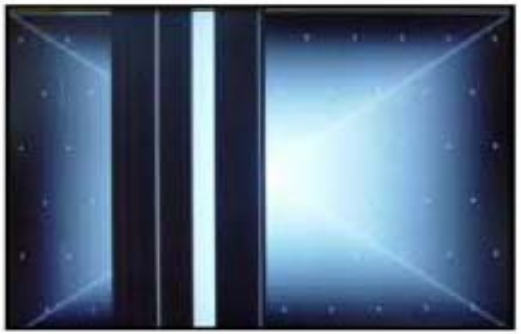


Solder defect, CNT Broken

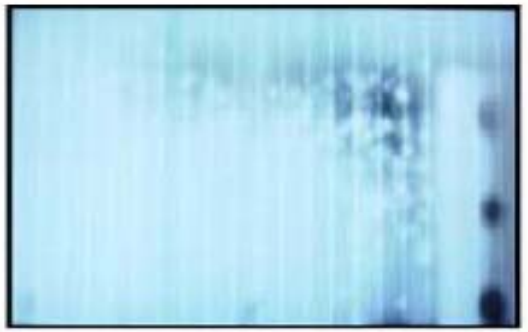


Solder defect, CNT Broken

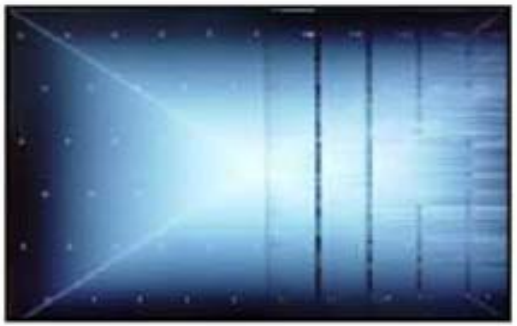
Solder defect, CNT Broken



Solder defect, CNT Broken



Abnormal Power Section

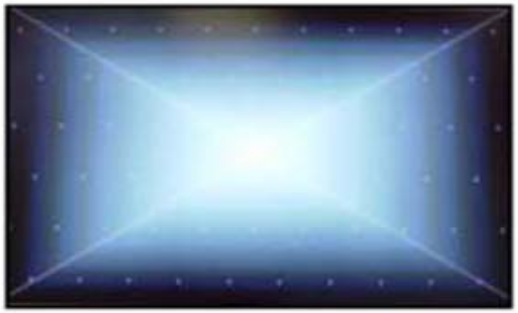


Solder defect, Short/Crack

Abnormal Power Section

Solder defect, Short/Crack

Appendix : Exchange T-Con Board (2)



Abnormal Power Section

Abnormal Power Section

Solder defect, Short/Crack

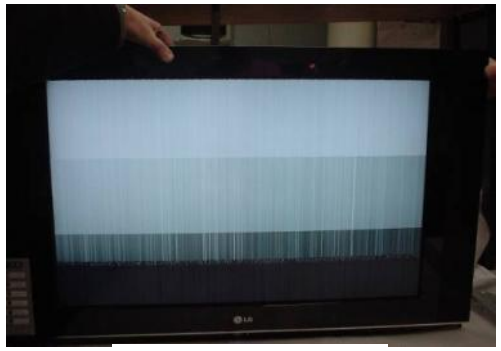
Solder defect, Short/Crack

Fuse Open, Abnormal power section

Abnormal Display

GRADATION

Noise



GRADATION

Appendix : Exchange PSU(LED driver)

No Light

Dim Light

Dim Light

Dim Light

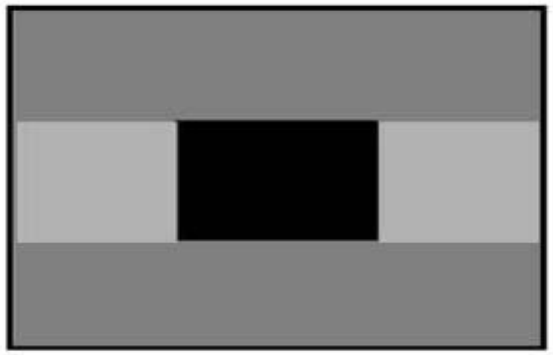
No picture/Sound Ok

Appendix : Exchange the Module (1)

Panel Mura, Light leakage

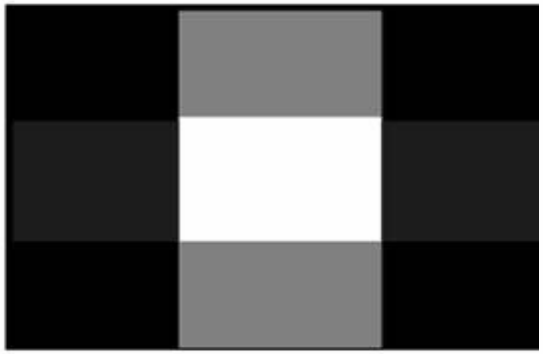
Panel Mura, Light leakage

Press damage



Crosstalk

Press damage



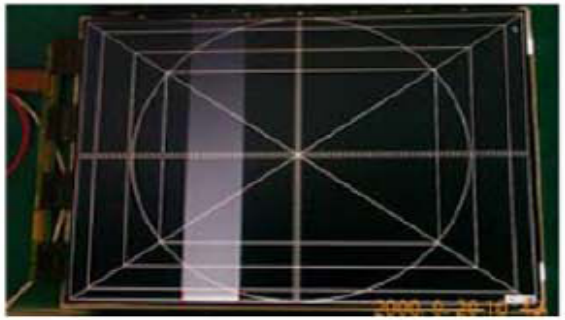
Crosstalk

Press damage

Un-repairable Cases

In this case please exchange the module.

Appendix : Exchange the Module (2)



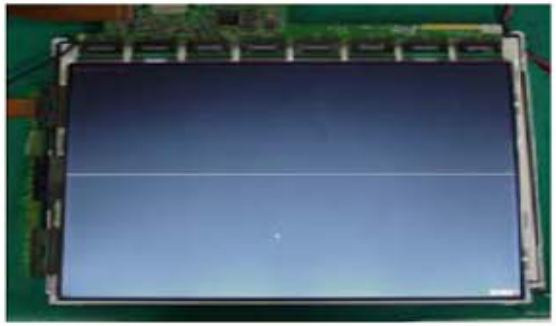
Vertical Block
Source TAB IC Defect

Vertical Line
Source TAB IC Defect

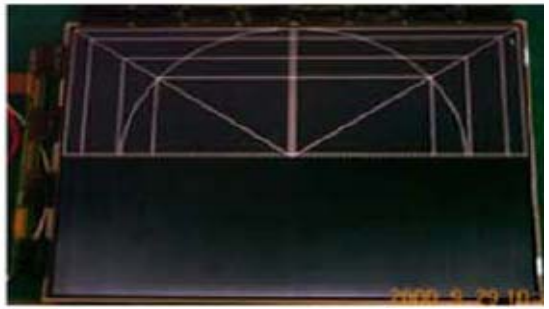
Vertical Block
Source TAB IC Defect

Horizontal Block
Gate TAB IC Defect

Horizontal Block
Gate TAB IC Defect



Horizontal line
Gate TAB IC Defect



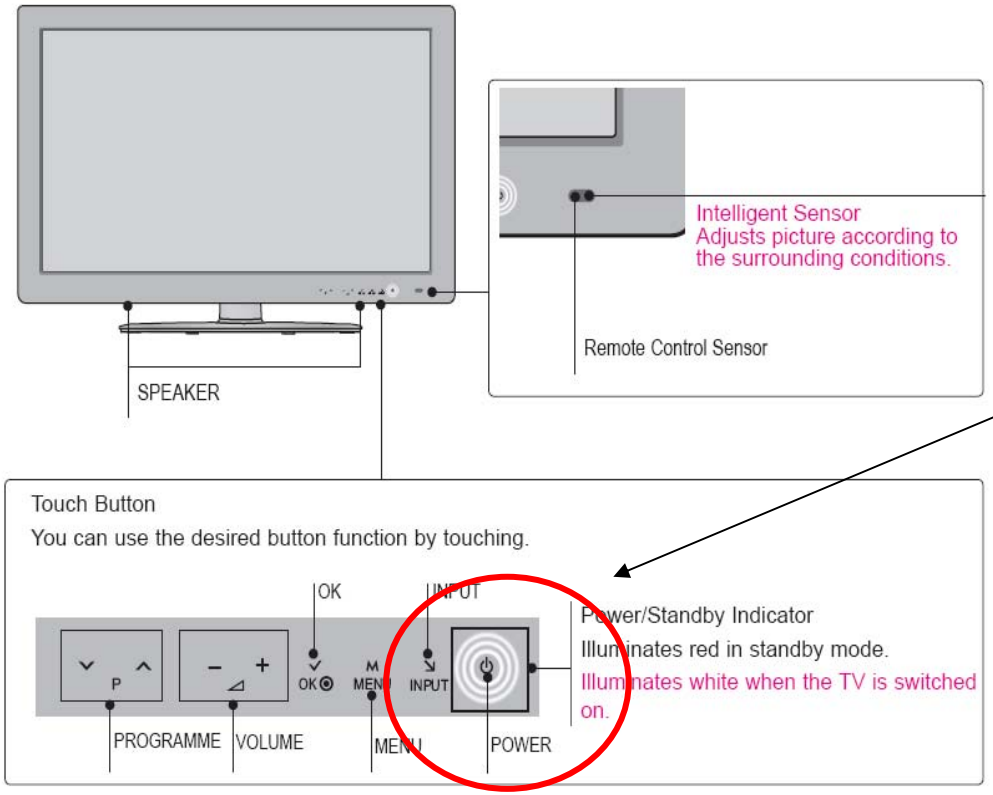
Horizontal Block
Gate TAB IC Defect

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



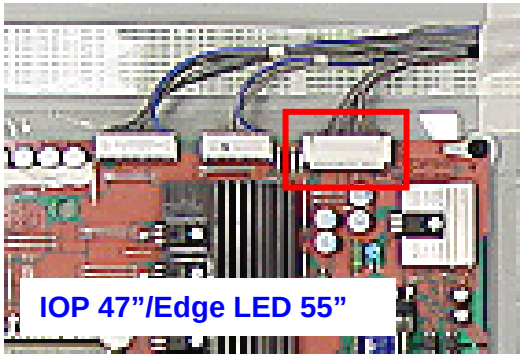
Front LED control :
Menu → Option → Power Indicator → Standby light ON

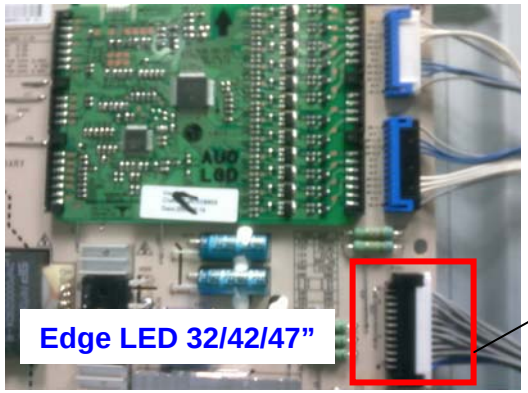
ST-BY condition: Red
Power ON condition: white

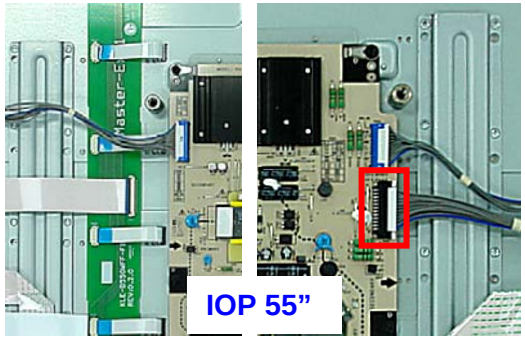
Standard Repair Process Detail Technical Manual

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.





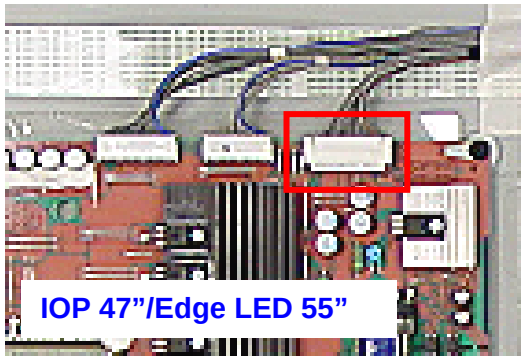


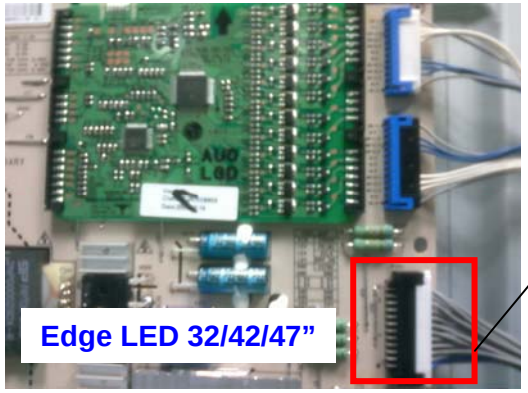
Check the 3.5V when st-by

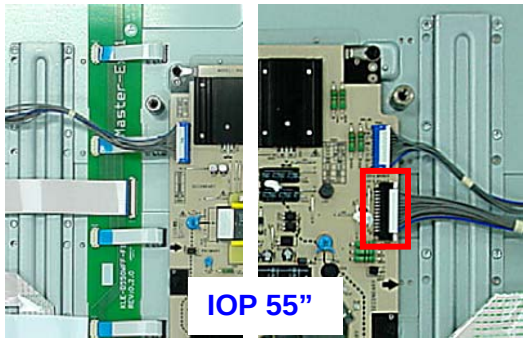
Pin layout (24P)			
1	Power on	2	24V (IOP & Edge 55”) 20V (Edge 42/47)
3	24V	4	24V
5	GND	6	GND
7	GND	8	GND
9	3.5V	10	3.5V
11	3.5V	12	3.5V
13	GND	14	GND
15	GND	16	NC
17	12V	18	Inverter ON
19	12V	20	LE : NC IOP : PWM Dim #1
21	12V	22	LE : PWM Dim #1 IOP : NC
23	NC	24	Error-out

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







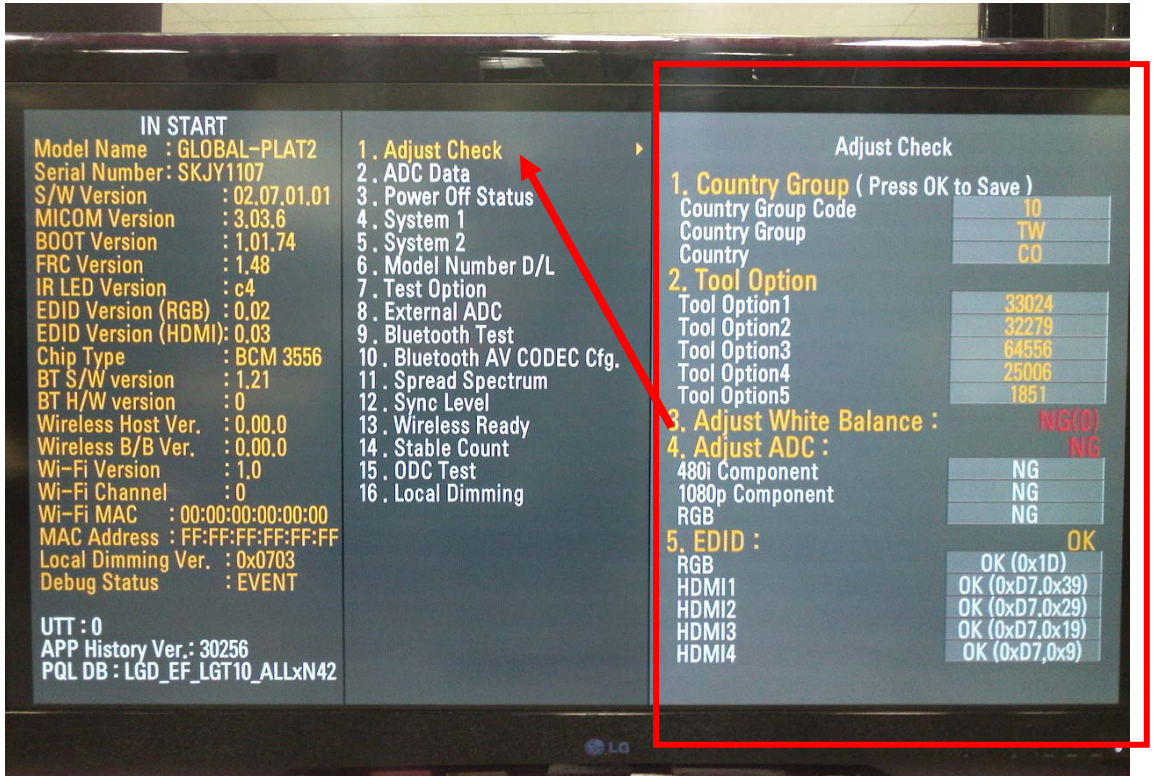
Check “power on” pin is high

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

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

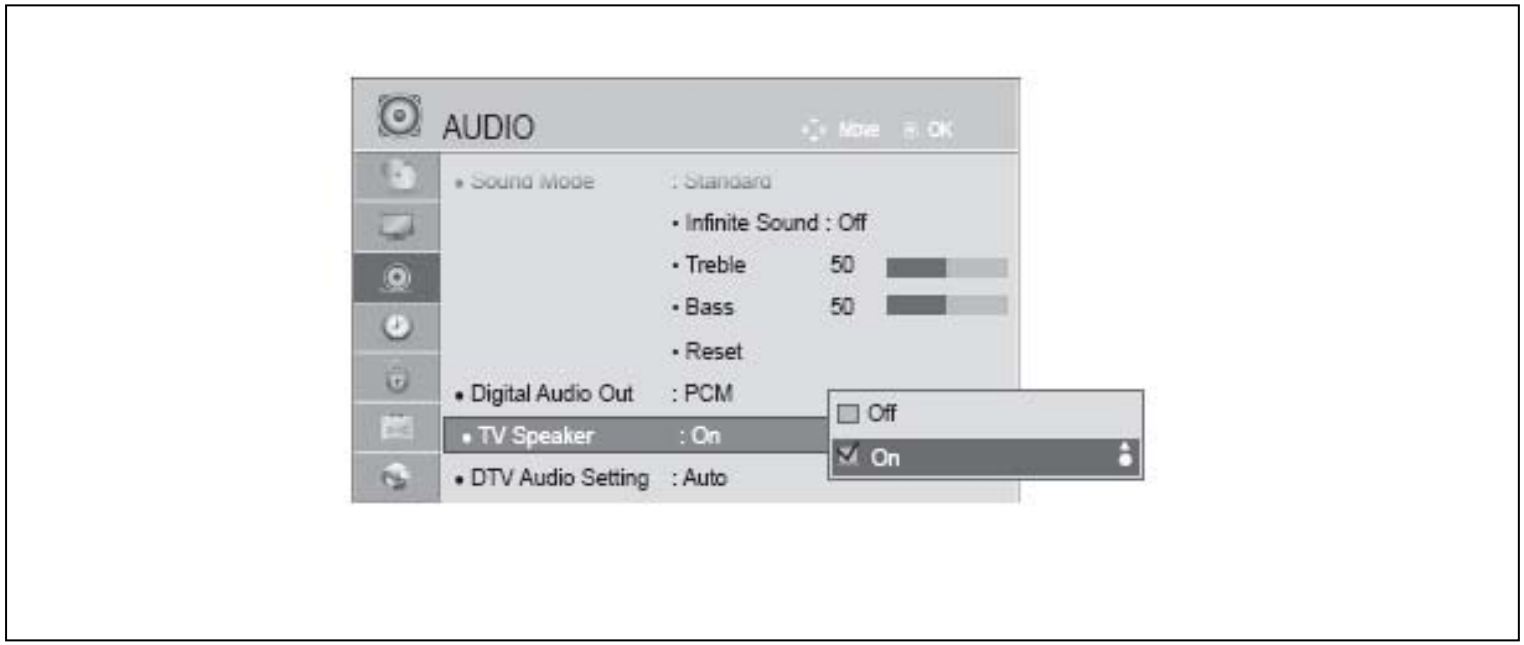
1. Press the IN-START button of the remote controller for adjustment

2. Check the entry into adjustment item 3

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>



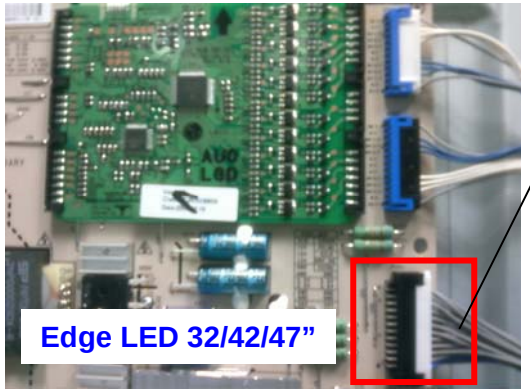
Checking method

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

Standard Repair Process Detail Technical Manual

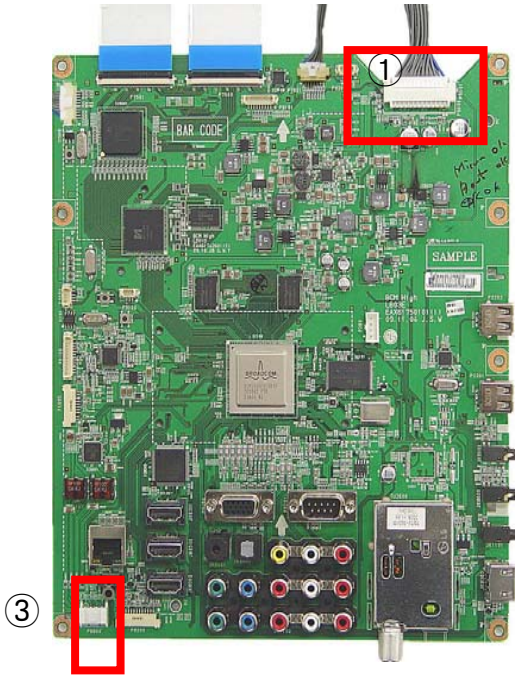
LCD TV	Error symptom	C. Audio error_No audio/Normal video	Established date	2010. 2 .19	
	Content	Voltage and speaker checking method when there is no audio	Revised date		A25

<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



Checking order when there is no audio

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

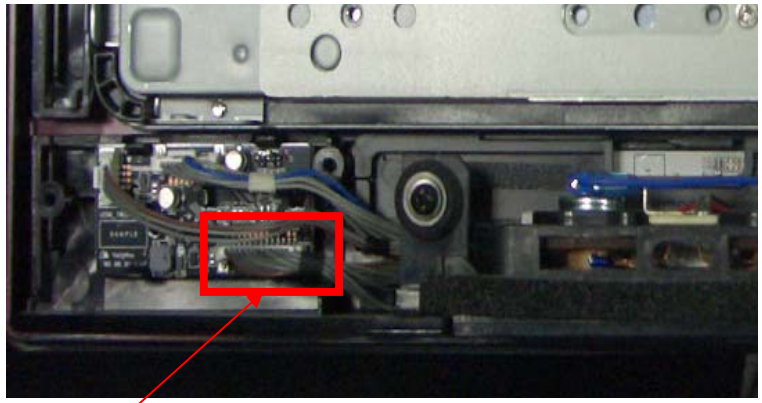
② Measure the 24V input voltage supplied from Power Board
(If there is no input voltage, remove and check the connector)

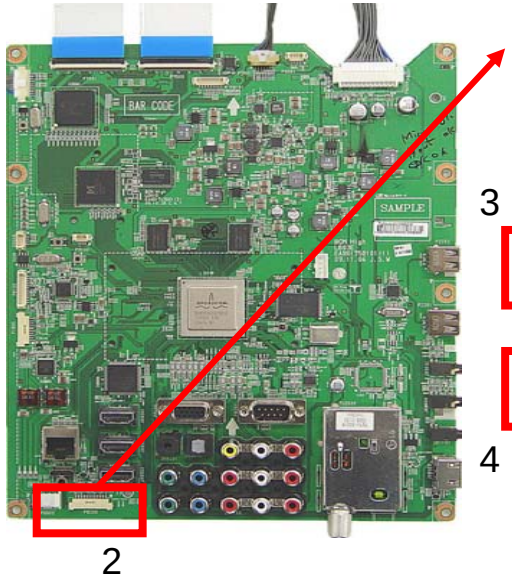
③ Connect the tester RX1 to the speaker terminal and if you hear the Chik Chik sound when you touch the GND and output terminal, the speaker is normal.

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>





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.

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.