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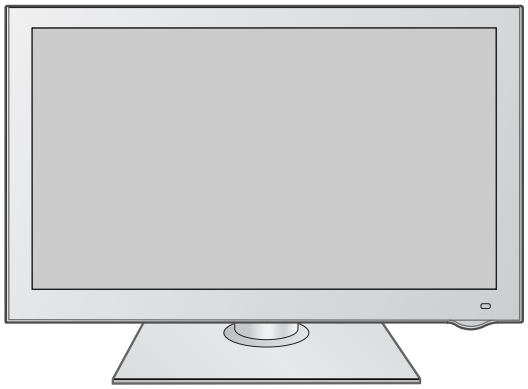
PLASMA TV
SERVICE MANUAL

CHASSIS : PD91A

MODEL : 50PS8000 50PS8000-ZA

CAUTION

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



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PRINTED CIRCUIT DIAGRAM .....

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ 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.

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 monitor is blown, replace it with the specified.

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

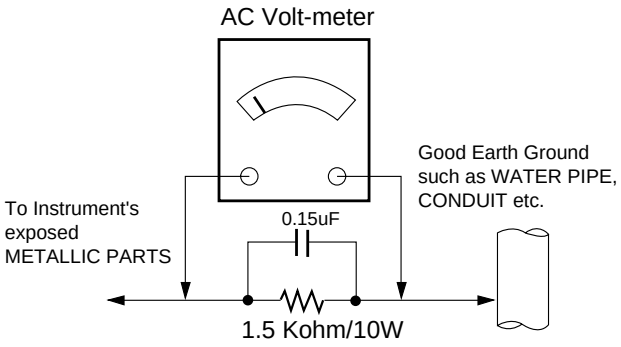
Keep wires away from high voltage or high temperature parts.

Due to high vacuum and large surface area of picture tube, extreme care should be used in **handling the Picture Tube.**
Do not lift the Picture tube by it's Neck.

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 1MΩ and 5.2MΩ.
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 1.5K/10watt resistor in parallel with a 0.15uF 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 0.5mA.
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



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SPECIFICATIONS

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

v Application Range

This spec is applied to the PLASMA TV used PD91A Chassis.

Chassis	Model Name	Market	Brand
PD91A	50PS7000/60PS7000 50PS8000/60PS8000	Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK	LG

v Specification

Each part is tested as below without special appointment.

1) Temperature : 25±5°C (77±9°F), CST : 40±5
2) Relative Humidity: 65±10%
3) Power Voltage: Standard Input voltage (100-240V~, 50/60Hz)
   * Standard Voltage of each product 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.

v Test Method

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

Model	Market	Appliance
50PS7000/60PS7000 50PS8000/60PS8000	Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK	Safety : IEC/EN60065 EMI : EN55013 EMS : EN55020

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v Module Specification

(1) 50” FHD

No	Item	Specification	Remark
1	Display Screen Device	50 inch Wide Color Display Module	PDP
2	Aspect Ratio	16:9	
3	PDP Module	PDP50H3####, RGB Closed(Well) Type, Glass Filter(38%) Pixel Format: 1920 horiz. By 1080 ver.	
4	Operating Environment	1) Temp. : 0 ~ 40deg 2) Humidity : 20 ~ 80%	LGE SPEC.
5	Storage Environment	3) Temp. : -20 ~ 60deg 4) Humidity : 10 ~ 90%	
6	Input Voltage	AC100-240V~, 50/60Hz	Maker LG

(2) 60” FHD

No	Item	Specification	Remark
1	Display Screen Device	60 inch Wide Color Display Module	PDP
2	Aspect Ratio	16:9	
3	PDP Module	PDP60H3####, RGB Closed(Well) Type, Glass Filter(38%) Pixel Format: 1920 horiz. By 1080 ver.	
4	Operating Environment	1) Temp. : 0 ~ 40deg 2) Humidity : 20 ~ 80%	LGE SPEC.
5	Storage Environment	3) Temp. : -20 ~ 60deg 4) Humidity : 10 ~ 90%	
6	Input Voltage	AC100-240V~, 50/60Hz	Maker LG

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v Model General Specification

No	Item	Specification	Remarks
1	Market	Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK	36 Country
2	Broadcasting system	1) PAL/SECAM BG 2) PAL/SECAM DK 3) PAL I/II 4) SECAM L/L' 5) DVB T 6) DVB C	EU(PAL Market) DVB C(only Sweden, Pinland)
3	Receiving system	Analog: Upper Heterodyne Digital: COFDM	
4	Scart Jack (2EA)	PAL, SECAM	Scart 1 Jack is Full scart and support RF-OUT(Analog) Scart 2 Jack is Half scart and support MNT-OUT
5	Video Input (1EA)	PAL, SECAM, NTSC	Side AV
6	S-Video Input (1EA)	PAL, SECAM, NTSC	Side AV
7	Component Input (1EA)	Y/Cb/Cr, Y/ Pb/Pr	
8	RGB Input	RGB-PC	Analog (D-Sub 15Pin)
9	HDMI Input (4EA)	HDMI-PC HDMI-DTV	HDMI1/DVI, HDMI2, HDMI3, HDMI4
10	Audio Input (3 EA)	RGB/DVI Audio, Component, AV	L/R Input
11	SPDIF Out(1 EA)	SPDIF Out	
12	USB	For SVC, S/W Download, X-Studio, DivX	
13	Bluetooth	Bluetooth Phone(JPEG, MP3), Bluetooth Headset(mono, stereo)	**Profile : A2DP, BIP, FTP, GAVDP, HSP, OPP**

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ADJUSTMENT INSTRUCTION

1. Application

This spec. sheet is applied to all of the PD91A chassis.

2. Specification

[Caution: The module keeping condition]

1. The module keeping condition: The normal temperature condition(more than 15°C)
   --> Immediately the line supply.
2. The module keeping condition: 0°C
   --> The module must be kept for more than 2 hours at the normal temperature.
3. The module keeping condition: -20°C
   --> The module must be kept for more than 3 hours at the normal temperature.
4. The case of Gu-mi factory at the winter season.
   --> The module must be kept for more than 5 minutes at the heating zone(40°C~45°C).

(1) The adjustment is according to the order which is designated and which must be followed, according to the plan which can be changed only on agreeing.
(2) If there is no specific designation, the adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity.
(3) The input voltage of the set must keep 100~240V, 50/60Hz.
(4) Input signal Unit: Product Specification Standard.
(5) The set must be operated for about 5 minutes prior to the adjustment.

o After turning on RGB Full Window pattern in HEAT-RUN Mode, the receiver must be operated.
o Enter into HEAT-RUN MODE
  1) Press the 'POWER ON' button on R/C for adjustment.
  2) Press the 'ADJ' button on R/C and enter EZ ADJUST
     Select "7. Test Pattern" by using D/E(CH +/-) and press ENTER(V)
     Select "White" by using F/G(VOL +/-) and press ENTER(V)

- Set heat run should be activated without a signal generator.
- Single color patterns (RED / BLUE / GREEN) of HEAT RUN MODE are used to check a plasma panel.

- Caution: If you turn on a still screen more than 20 minutes (Especially digital pattern, cross hatch pattern), an after image may be made in the black level part of the screen.

[Caution]
- Use 'power on' button of a service R/C to power on TV set.
- Do not connect any external input cable if there is no any specifics.

3. Update S/W using Auto Download through the USB

Caution: S/W version of USB file (xxx.epk) must be bigger than one which is downloaded previously.

(1) Insert the USB stick to the USB socket
(2) A downloaded file in USB stick will be detected automatically.
(3) If S/W version of USB file (xxx.epk) is bigger than one which is downloaded previously, the message, "Copying files from memory", will appear.
(4) If an update procedure was completed, TV set will be turned off and on automatically.
(5) If TV set is turned on, check an updated version.
  * If a downloaded version is more bigger than one of which TV set had, TV set can lost channel data. In this case, you have to scan channels again.

4. After Downloading S/W, Adjust TOOL OPTION

(1) Push "IN-START" button on a service R/C.
(2) Select "Tool Option 1" and Push "OK" button.
(3) Put the number of a below table in order of a suffix of the "Tool Option(X)".
  (Each model has a different number.)

Model	Tool Option1	Tool Option2	Tool Option3	Tool Option4
50PS7000-ZA	37184	3126	56816	3328
50PS8000-ZA	37248	3126	56816	11520
60PS7000-ZA	49472	3126	56816	3328
60PS8000-ZA	49536	3126	56816	11520

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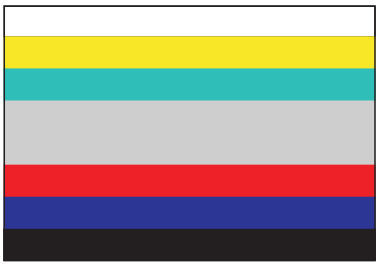
5. ADC Calibration Procedure

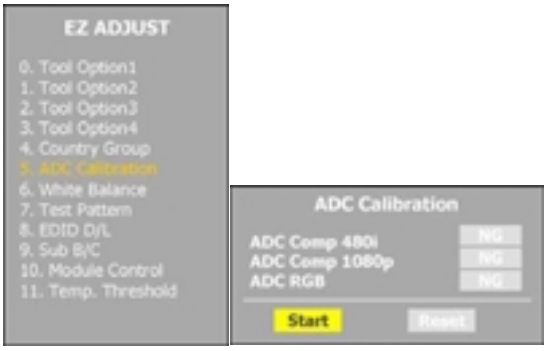
(1) Input the component (480i/Horizontal Color Bar) signal to a TV set.
  1) Input Signal Timing : Component 480i
     (Other external connection is unnecessary except the component before executing ADC calibration.)
  2) Input Signal Pattern



<Horizontal Color Bar pattern>

  @ MODEL: 209 in Pattern Generator(480i Mode)
  @ PATTERN : 65 in Pattern Generator(MSPG-925 SERISE)

(2) Push “ADJ” button on a service R/C.
(3) Enter internal ADC mode by selecting ‘5. ADC Calibration’.
(4) If you select ‘Start’ on a dialog box of the screen, ADC calibration will be begun.



Caution: Don’t connect any external input cable except the component input(480i/Horizontal_Color_Bar) to adjust ADC calibration

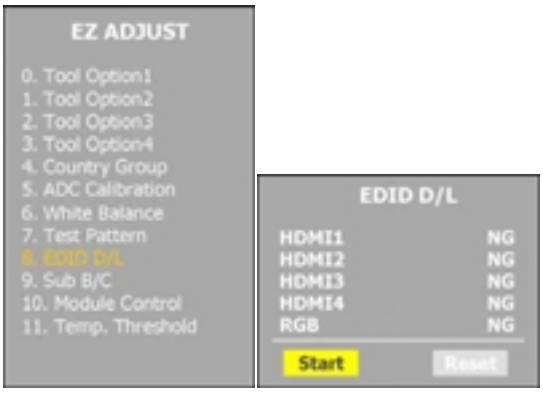
o Auto ADC Calibration Map(RS-232C)

NO	Item	CMD1	CMD2	Data0		
Enter Adjust MODE	Adjust ‘Mode In’	A	A	0	0	When transfer the ‘Made In’, Carry the command.
ADC Adjust	ADC Adjust	A	D	1	0	Automatically adjustment (The use of a internal pattern)

Adjust Sequence
- aa 00 00 [Enter Adjust Mode]
- xb 00 40 [Component1 Input (480i)]
- ad 00 10 [Adjust 480i Comp1]
- xb 00 60 [RGB Input (1024*768)]
- ad 00 10 [Adjust 1024*768 RGB]
- aa 00 90 End Adjust mode

6. EDID Download Procedure

(1) Push “ADJ” button on a service R/C.
(2) Enter EDID auto download mode by selecting ‘8. EDID D/L’.
(3) If you select ‘Start’ on a dialog box of the screen, EDID download will be begun automatically.



(4) Press ‘EXIT’ button on a service R/C.

(5) EDID Data
  1) HDMI (256 bytes)

  2) RGB (128 bytes)

o EDID Data detailing (ⓐ, ⓑ, ⓒ, ⓓ, ⓔ, ⓕ)

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ⓐ Product ID

MODEL	EDID MODEL	PRODUCT_ID	FUNCTION
50PS7000-ZA	LG TV	0001(0x10, 0x00)	Digital
50PS7000-ZA	LG TV	0001(0x10, 0x00)	Analog
50PS8000-ZA	LG TV	0001(0x10, 0x00)	Digital
50PS8000-ZA	LG TV	0001(0x10, 0x00)	Analog
60PS7000-ZA	LG TV	0001(0x10, 0x00)	Digital
60PS7000-ZA	LG TV	0001(0x10, 0x00)	Analog
60PS8000-ZA	LG TV	0001(0x10, 0x00)	Digital
60PS8000-ZA	LG TV	0001(0x10, 0x00)	Analog

ⓑ Serial No
=> Controlled on production line

ⓒ Month, Year
=> Controlled on production line:

ⓓ Model Name

MODEL NAME	MODEL NAME (HEX)
LG TV	0x4C, 0x47, 0x20, 0x54, 0x56

ⓔ Checksum
=> Changeable by total EDID data

ⓕ HDMI Port No.

o Auto EDID Download Map(RS-232C)

NO	Item	CMD1	CMD2	Data0		
Enter download MODE	Download 'Mode In'	A	A	0	0	When transfer the 'Made In', Carry the command.
EDID data and Model option download	Download	A	E	00	10	Automatically download (The use of a internal Data)

7. PCMCIA CARD Check

You must adjust DTV 29 Channel and insert PCMCIA CARD to socket.

- If PCMCIA CARD works normally, video signals will appear on screen.
  But it works abnormally, "No CA module" will appear on screen.

[Caution: Set up "RF mode" before launching products.

8. POWER Supply Unit PCB Ass'y Va/Vs Voltage Adjustment

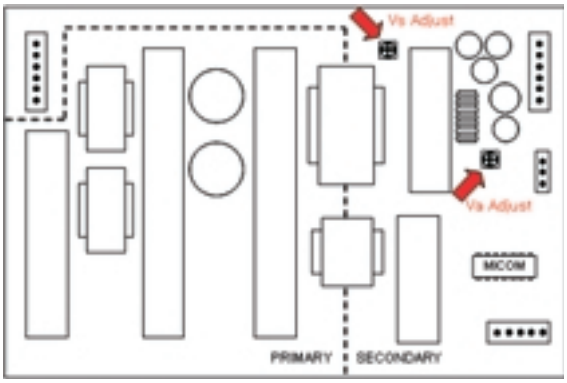
Caution: Both Vs and Va voltage adjustment are necessary.

8-1. Model name:

50PS7000-ZA, 60PS7000-ZA, 50PS8000-ZA, 60PS8000-ZA

8-2. Va/Vs Adjustment Procedure

(1) Connect positive(+) terminal of DMM to Vs/Va pin, connect negative(-) terminal to GND.
(2) Turning 'Vs/Va Adjust' and adjust Vs/Va voltages to a value which is written on a right/top label of a module. (deviation ; ±0.5V)



[Caution]
- Each Power Supply Unit PCB assembly must be checked by check JIG set. (Because power PCB Ass'y damages to PDP Module, especially be careful)
- Set up "RF mode(noise)" before a voltage adjustment.
- Test equipment: DMM 1EA

9. White Balance Adjustment

Caution: Press the POWER ON KEY on R/C before W/B adjustment.

o Test Equipment
Color Analyzer (CS-1000, CA-100+(CH.10), CA-210(CH.10))

o Please adjust CA-100+ / CA-210 by CS-1000 before measuring
You should use Channel 10 which is Matrix compensated (White, Red, Green, Blue revised) by CS-1000 and adjust in accordance with White balance adjustment coordinate.

9-1. Color Temperature Standards According to CSM and Module

CSM	PLASMA
Cool	11000K
Medium	9300K
Warm	6500K

oooo

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9-2. Change Target Luminance and Range of the Auto Adjustment W/B Equipment

- 50PS7000-ZA(50H3)
- 50PS8000-ZA(50H3)
- 60PS7000-ZA(60H3)
- 60PS8000-ZA(60H3)

Target luminance	50
Range	20

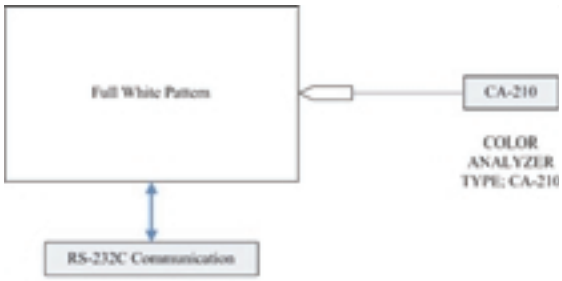
9-3. White Balance Adjustment Coordinate and Color Temperature

Cool	CS-1000	CA-100+ (CH.10)	CA-210 (CH.10)
x	0.276	0.276±0.002	0.276±0.002
y	0.283	0.283±0.002	0.283±0.002
△uv	0.000	0.000	0.000
Medium	**CS-1000**	**CA-100+ (CH.10)**	**CA-210 (CH.10)**
x	0.285	0.285±0.002	0.285±0.002
y	0.293	0.293±0.002	0.293±0.002
△uv	0.000	0.000	0.000
Warm	**CS-1000**	**CA-100+ (CH.10)**	**CA-210 (CH.10)**
x	0.313	0.313±0.002	0.313±0.002
y	0.329	0.329±0.002	0.329±0.002
△uv	0.003	0.003	0.003

[PC (for communication through RS-232C) ? UART Baud rate : 115200 bps

9-4. Automatic W/B Adjustment

(1) Internal PATTERN should be used when W/B is adjusted. Connect to auto controller like below.



(2) Start White-Balance adjustment, then the full white window pattern will appear on the screen.
(3) Adjust in the place where the influx of light like floodlight around is blocked.
(illumination is less than 10ux).
(4) Measure and adjust after sticking the Color Analyzer (CA-100+, CA210) to the side of the module.

o Auto W/B Adjustment Map(RS-232C)

RS-232C COMMAND

[CMD ID DATA]

Wb 00 00 White Balance Start

Wb 00 FF White Balance End

		RS-232C COMMAND [CMD ID DATA]			Min	CENTER (DEFAULT)			MAX
		Cool	Med	Warm		Cool	Med	Warm	
R Gain		jg	Ja	jd	00	192	192	192	255
G Gain		jh	Jb	je	00	192	192	192	255
B Gain		ji	Jc	jf	00	192	192	192	255
50H3 60H3	R Cut					64	64	64	128
	G Cut					64	64	64	128
	B Cut					64	64	64	128

9-5. Manual W/B Adjustment

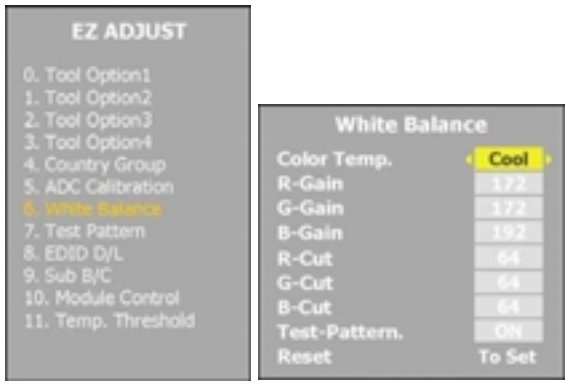
(1) Execute the zero calibration of CA-100+ / CA-210.
(2) Press the 'ADJ' button on a service R/C and enter EZ ASJUST by selecting '6. White Balance'.
(3) Then, 216 gray pattern will appear on the screen.
(4) Change the R/G/B-Gain as passing in 3 color coordinates and temperatures, COOL, MEDIUM and WARM.

< Temperature: COOL >
- R-Cut / G-Cut / B-Cut is set to 64
- Control R-Gain and G-Gain.
- Each gain is limited to 192

< Temperature: MEDIUM >
- R-Cut / G-Cut / B-Cut is set to 64
- Control R-Gain and G-Gain.
- Each gain is limited to 192

< Temperature: WARM >
- R-Cut / G-Cut / B-Cut is set to 64
- Control G-Gain and B-Gain.
- Each gain is limited to 192

(5) Press 'EXIT' button on a service R/C.



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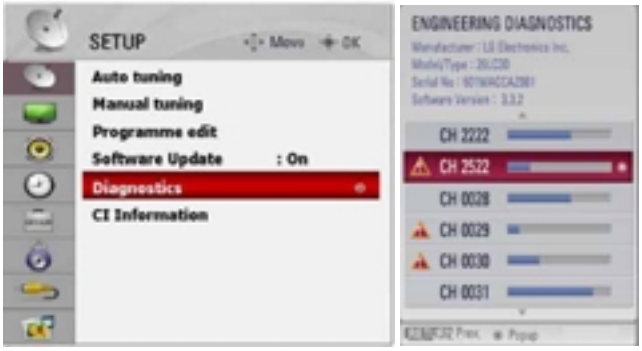
<Notice> Module Heat-Run Condition for W/B

1. The adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity if there is no any specifics.
2. Before an W/B adjustment, the module which will be used should be placed in the circumstance of 15°C~25°C for above 2 hours.
3. If a module was placed in the circumstance of below 15°C, it should be placed in the circumstance of 15°C~25°C for above 2 hours or be run for above 5 minutes in an aging environment of 60°C.
4. Before an W/B adjustment, TV set should be run for 5 minutes at least.

10. Serial Number Download

10-1. Download Procedure

(1) Press “Power on” button of a service R/C.(Baud rate : 115200 bps)
(2) Connect RS232-C Signal Cable.
(3) Write Serial number through RS-232C.
(4) Check the serial number at the Diagnostics of ‘SETUP’ menu. (Refer to below).



10-2. Signal TABLE

CMD	LENGTH	ADH	ADL	DATA_1	. . .	Data_n	CS	DELAY

CMD : A0h
LENGTH : 85~94h (1~16 bytes)
ADH : EEPROM Sub Address high (00~1F)
ADL : EEPROM Sub Address low (00~FF)
Data : Write data
CS : CMD + LENGTH + ADH + ADL + Data_1 + ... + Data_n
Delay : 20ms

10-3. Command Set

No.	Adjust mode	CMD(hex)	LENGTH(hex)	Description
1	EEPROM WRITE	A0h	84h+n	n-bytes Write (n = 1~16)

[Description]
FOS Default write : <7mode data> write
Vtotal, V_Frequency, Sync_Polarity, Htotal, Hstart, Vstart, 0, Phase
Data write : Model Name and Serial Number write in EEPROM,.

11. Check Information (Serial No. & Model name)

(1) Push the menu button in DTV mode.
(2) Select the SETUP -> Diagnostics -> To set
(3) Check the Serial Number

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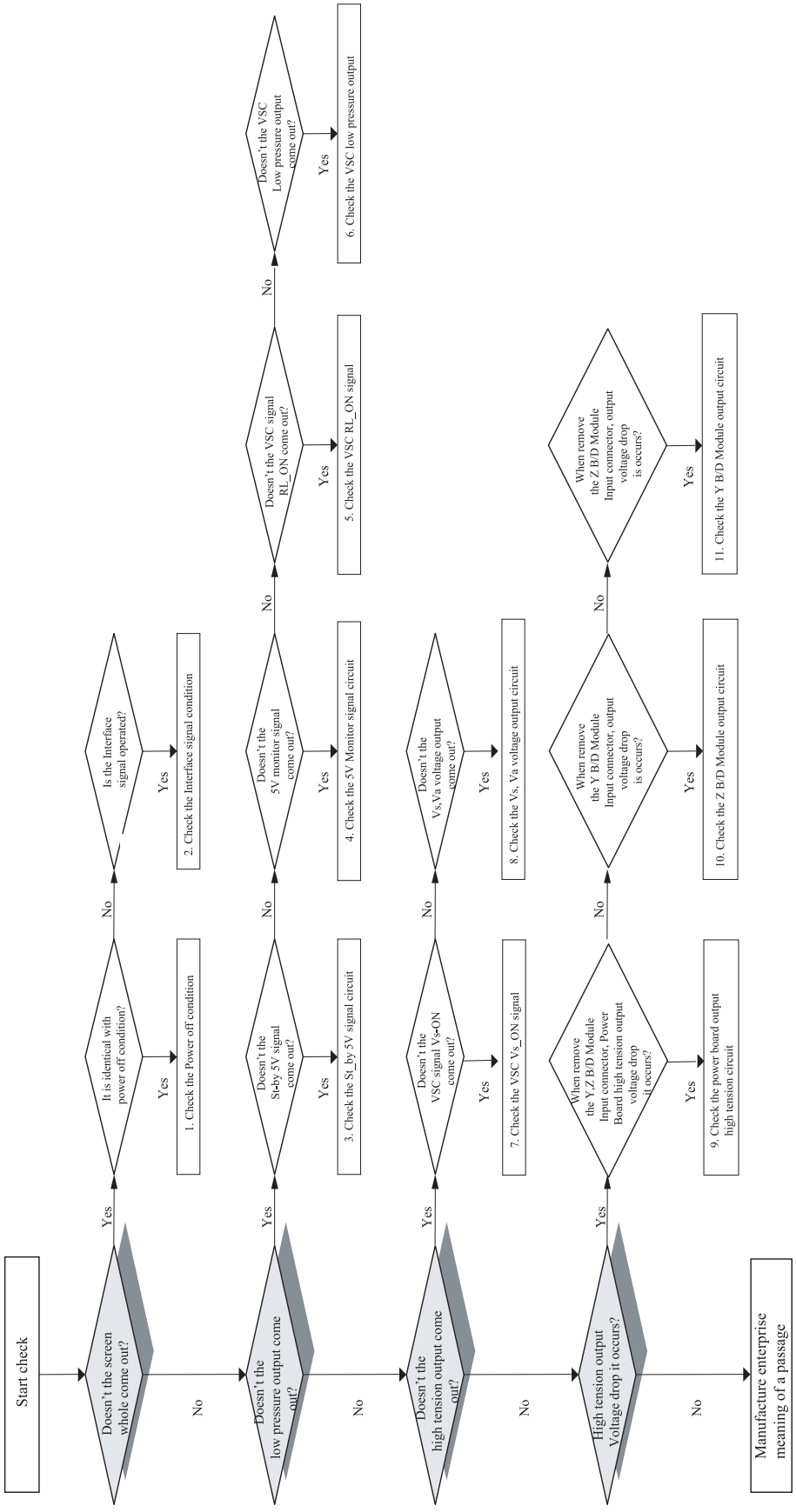
TROUBLESHOOTING GUIDE

1. Power Board

1-1. The whole flowchart which it follows in voltage output state



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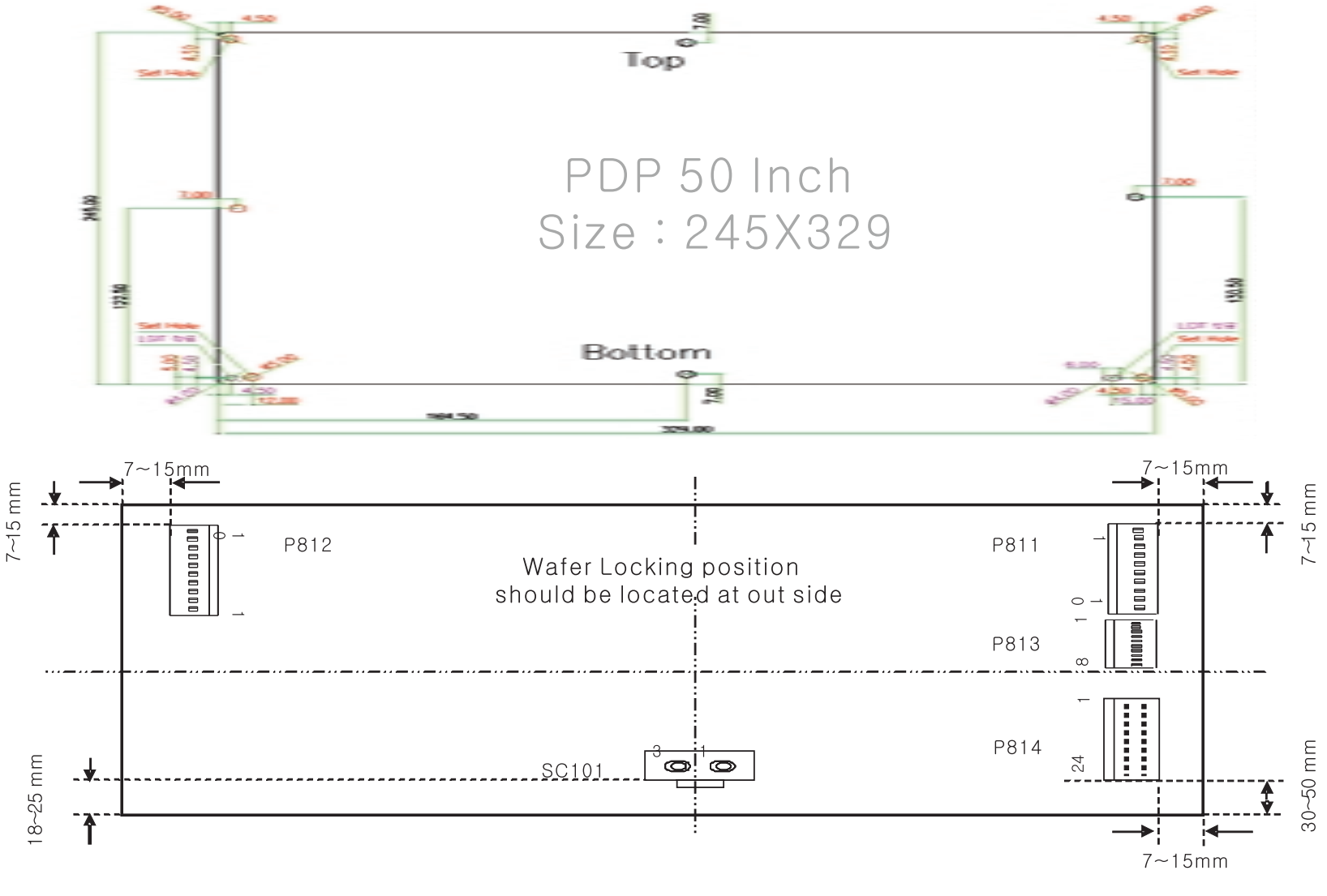
1-2. Power Board Structure

1). PCB Layout



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2). Input/Output pin assignment

AC Inlet

	SC101
1	AC(N)
2	NC
3	AC(L)
Wafer	SMW-600-03B1

PSU <==>PDP Module

Pin	50FHD		
	P811	P812	P813
1	Vs	Vs	M5V
2	Vs	Vs	M5V
3	NC	NC	M5V
4	GND	GND	M5V
5	GND	GND	GND
6	Va	Va	GND
7	Va	Va	GND
8	GND	GND	GND
9	M5V	M5V	
10	M5V	M5V	
Wafer	YW396-10V	YW396-10V	SMW250-08P

PSU<==>VSC Board

P814			
1	17V	2	17V
3	GND	4	GND
5	12V	6	12V
7	GND	8	GND
9	5V	10	5V
11	5Vst	12	5V
13	GND	14	GND
15	GND	16	GND
17	5V DET	18	AC DET
19	RL-ON	20	Vs-ON
21	M5V-ON	22	AUTO_GND
23	5Vst	24	KEY_ON
Wafer	SMW200-24C		

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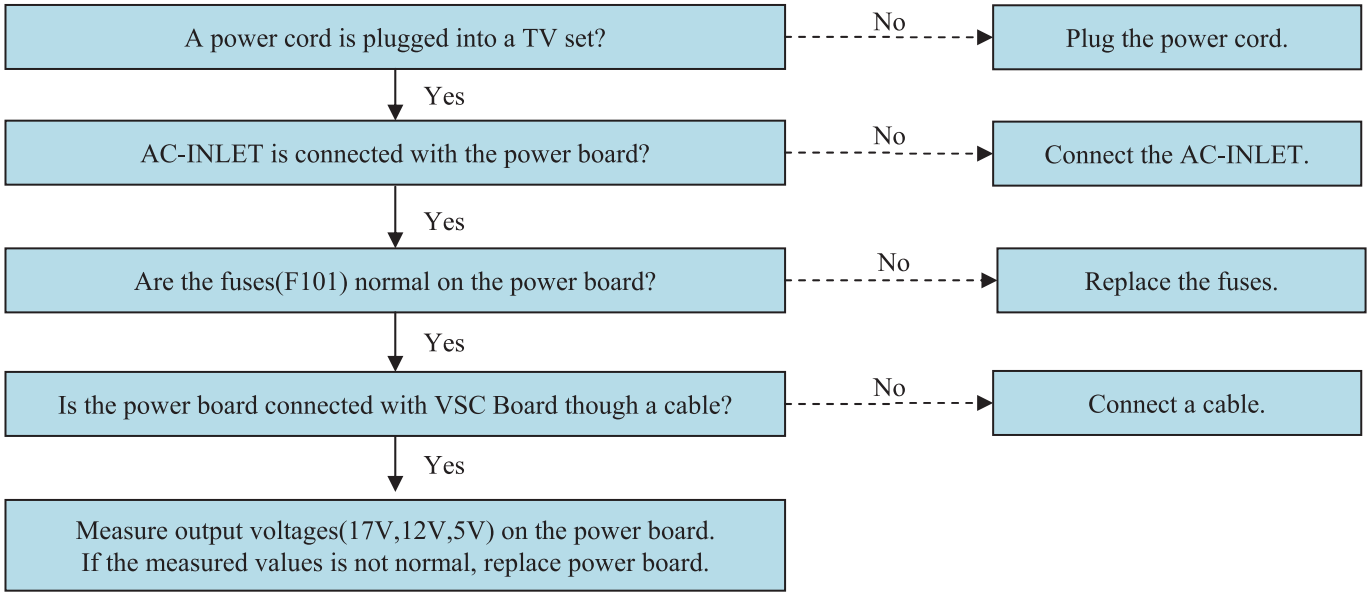
2. No Power

● Symptom

1) Doesn't minute discharge at module.

2) Non does not come in into the front LED.

● Check the followings



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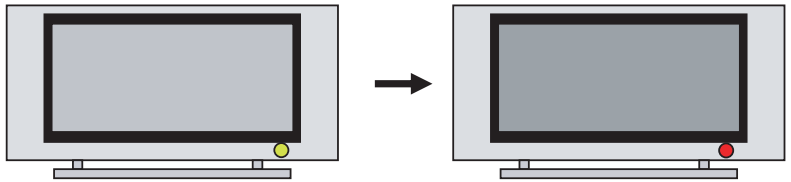
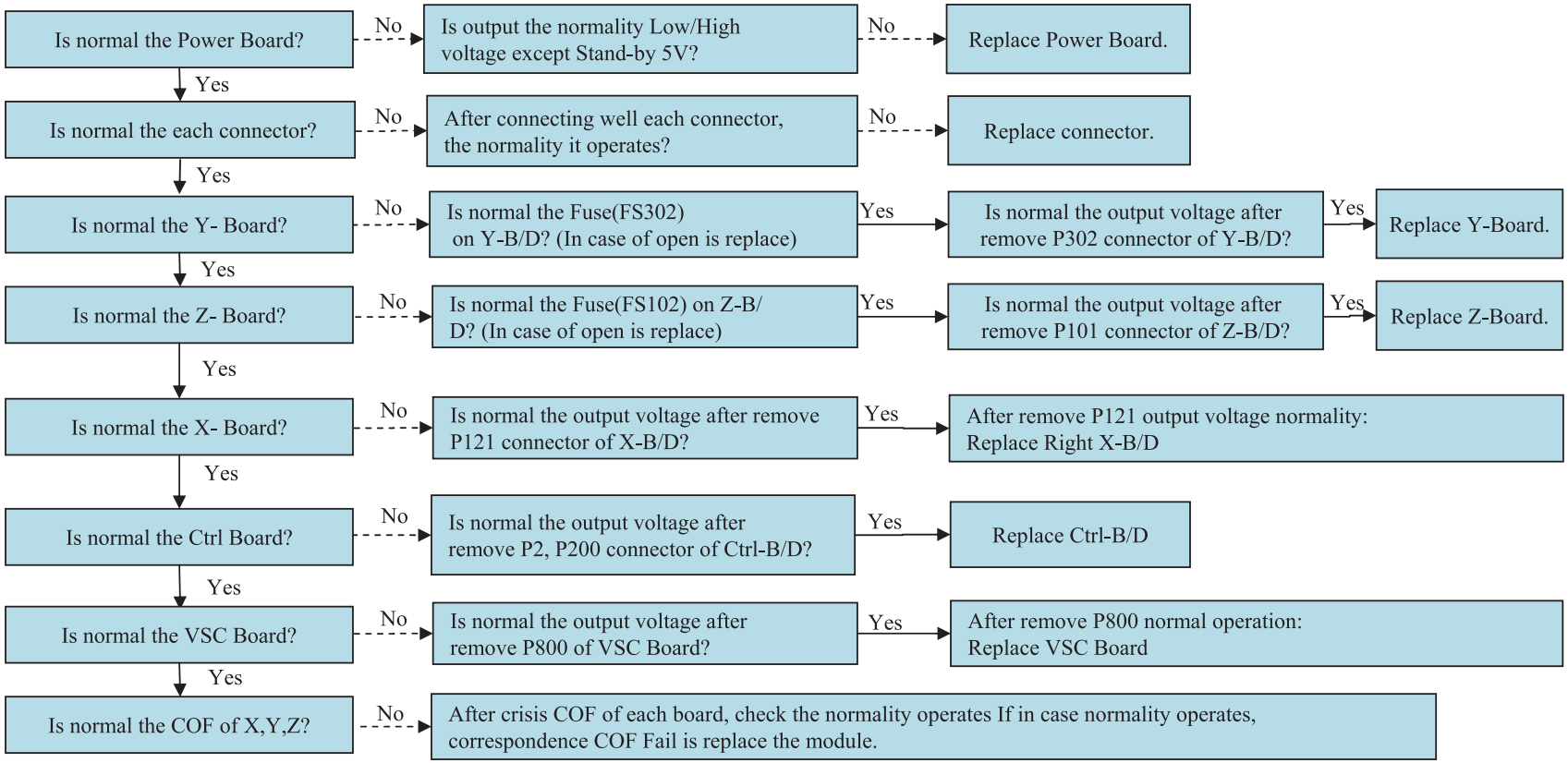
3. Protect Mode

● Symptom

1) After once shining, it does not discharge minutely from module.
2) The Rely falls(The sound is audible "click")
3) If you push key on remote controller or local key, the front LED is blinking with white.



● Check the followings



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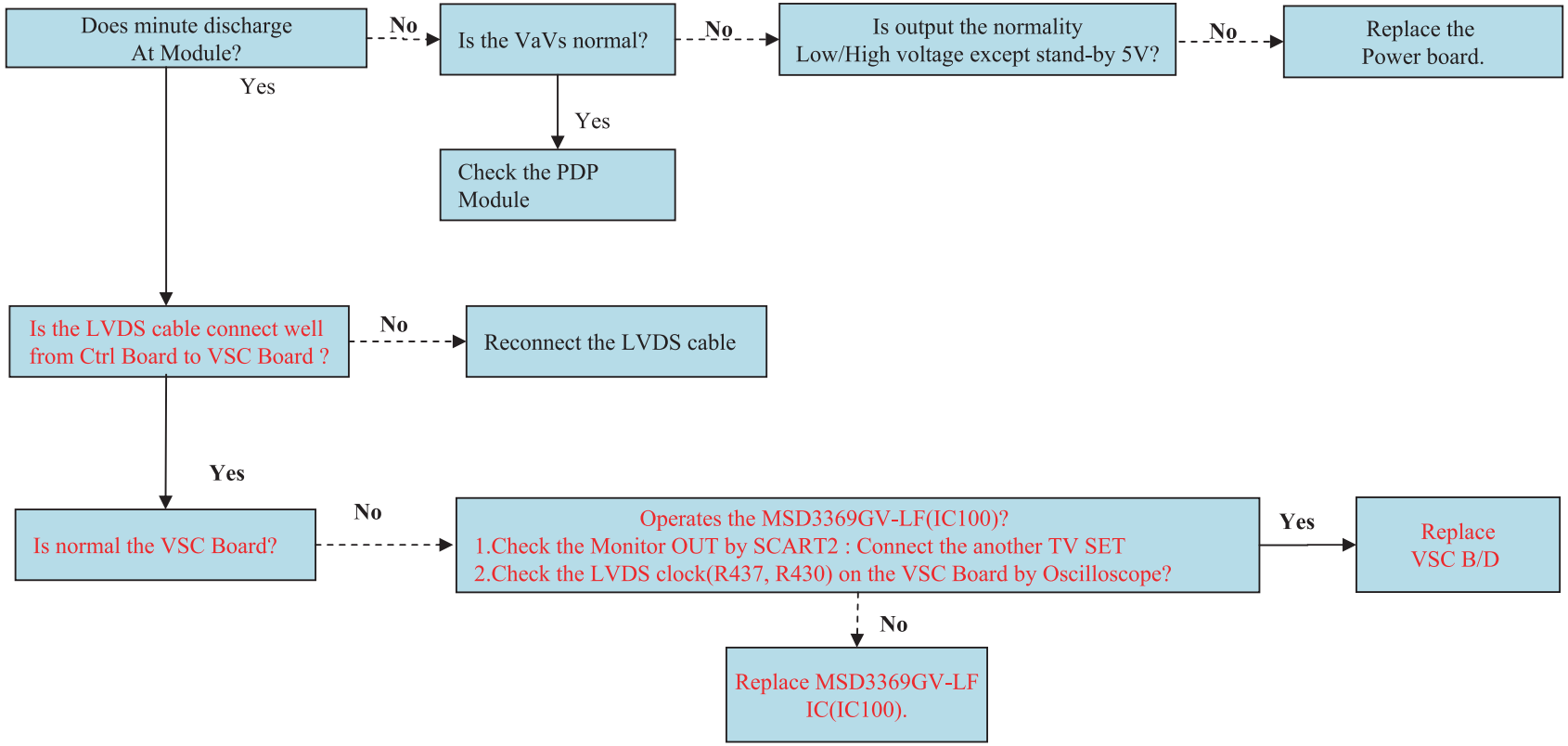
4. No Raster

● Symptom

1) No OSD and image occur at screen.

2) If you push key on remote controller or local key, the front LED is blinking with white.

● Check the followings



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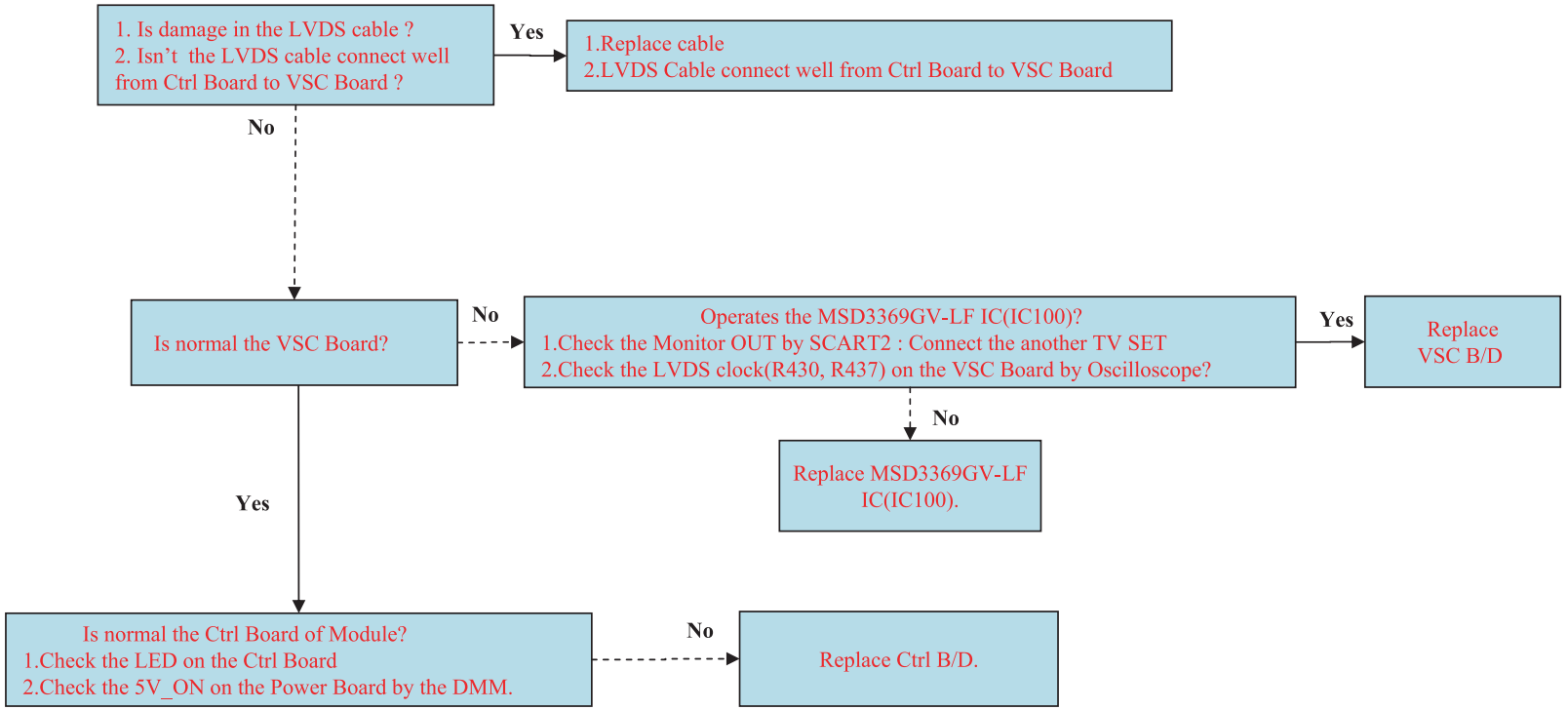
5. In case of occur strange screen into specific mode

1) In case of doest display the OSD

- Symptom
  1) If you push key on remote controller or local key, the front LED is blinking with white.
  2) The minute discharge continuously becomes accomplished from module

- Check the followings



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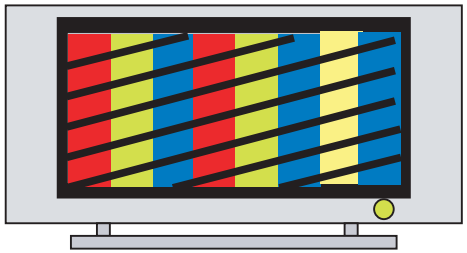
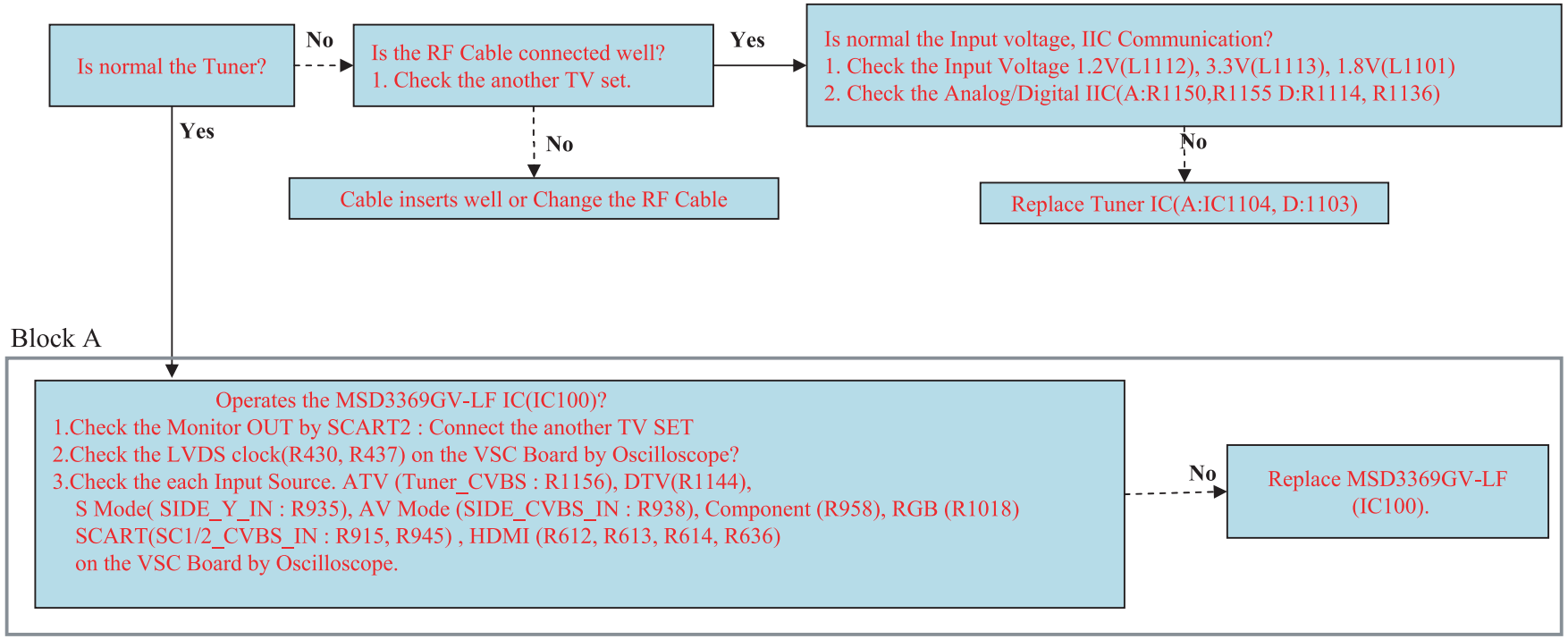
2) In case of does't display the screen into specific mode



- Symptom
  1) The screen does not become the display from specific input mode (RF, AV, Component, RGB, DVI/HDMI).
- Check the followings
  1) Check the all input mode should become normality display.
- In case of unusual display for **RF mode**.



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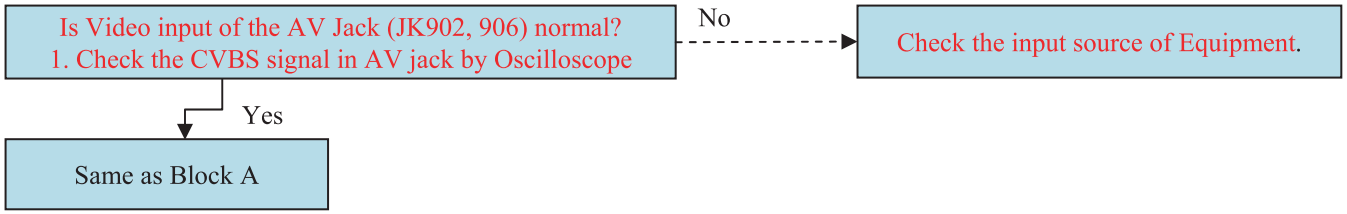
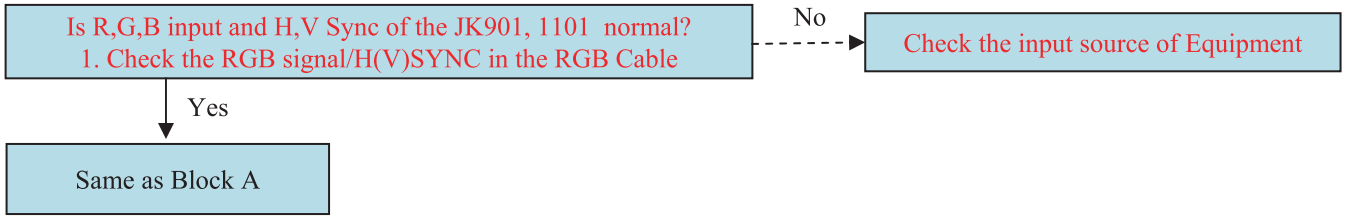
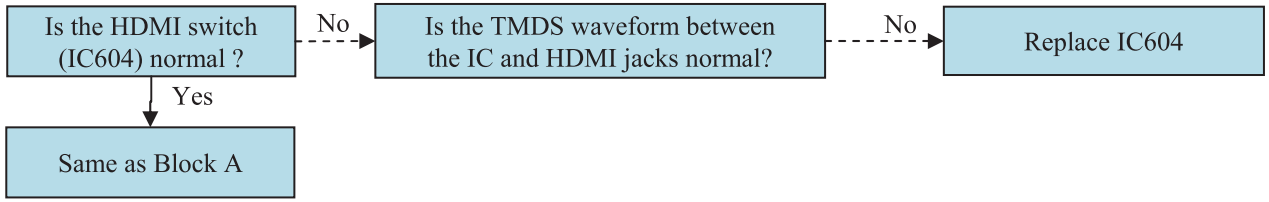
● In the case of unusual display for side **S-video / AV mode**.



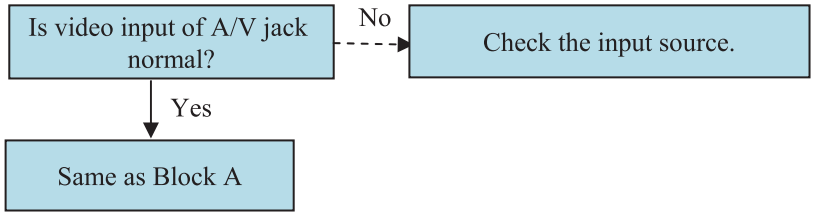
● In the case of unusual display for **Component, RGB mode**.



● In the case of unusual display for **HDMI mode**.



● In the case of unusual display for **SCART mode**.



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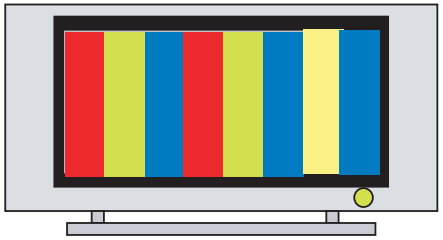
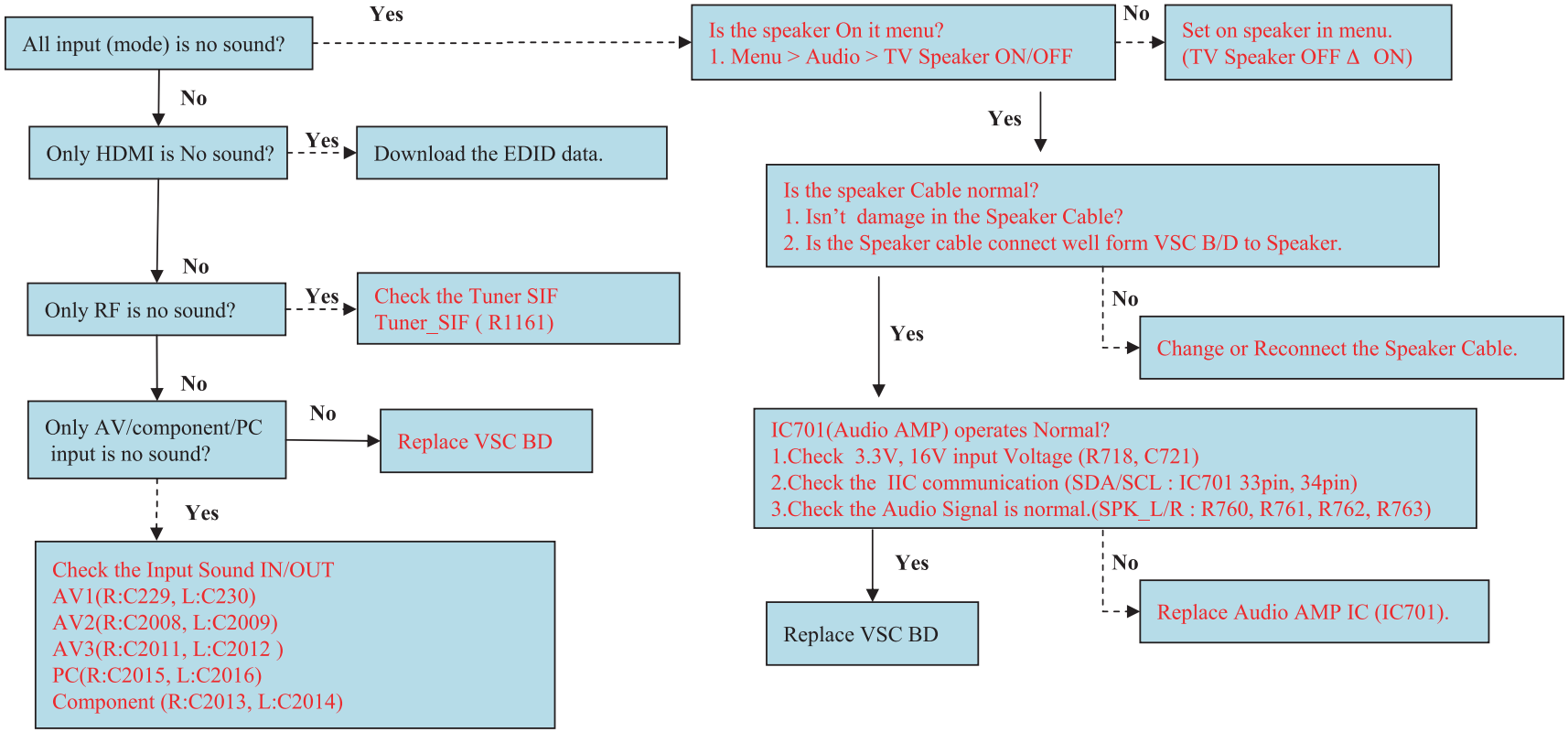
6. In case of no sound



● Symptom

1) Screen display but sound is not output

● Check follow



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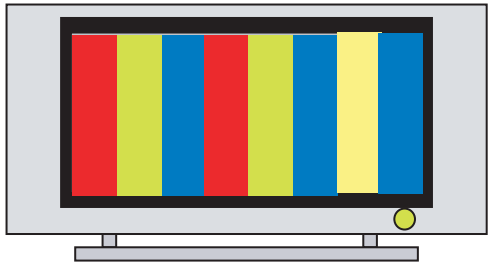
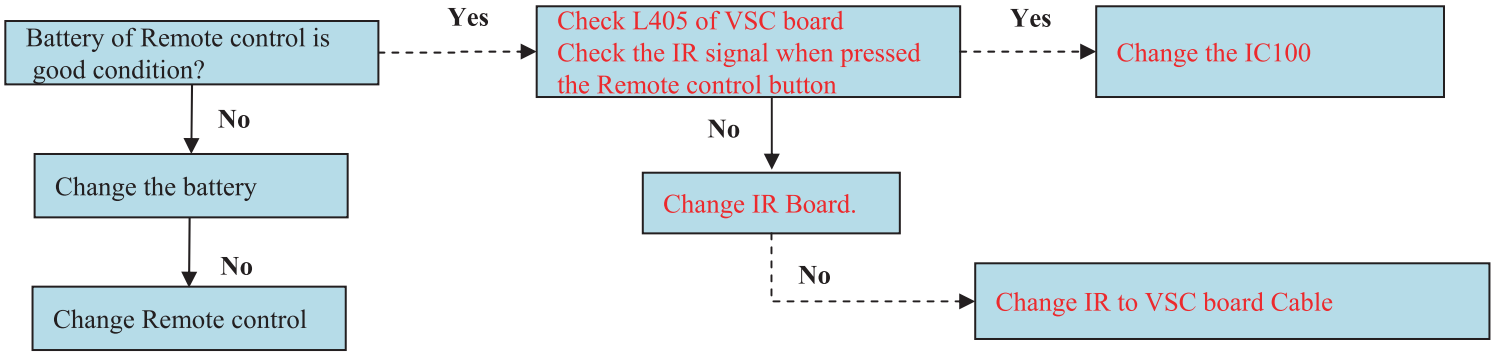
7. In case of no tuning



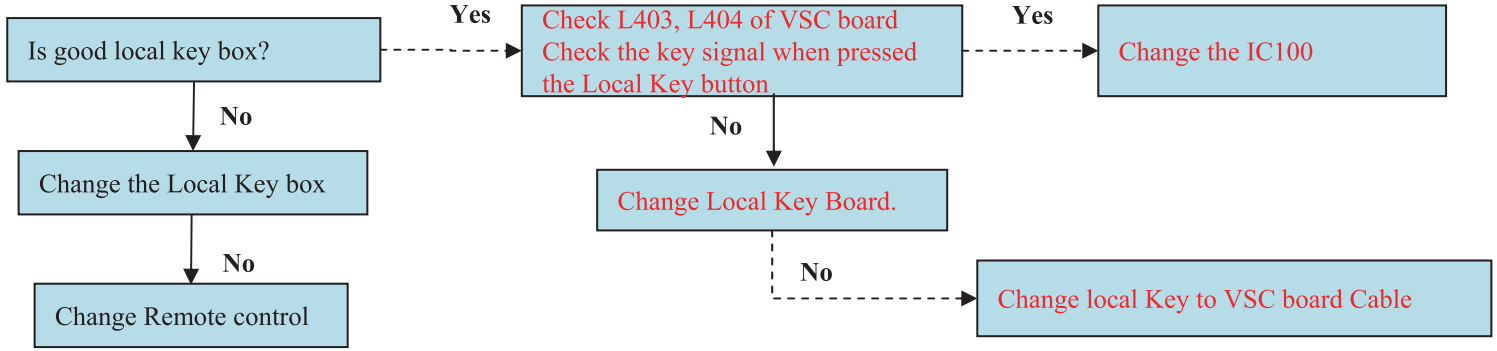
● Symptom

1) Not working remote control.
2) Not working local Key.

● Check follow(1)



● Check follow(2)



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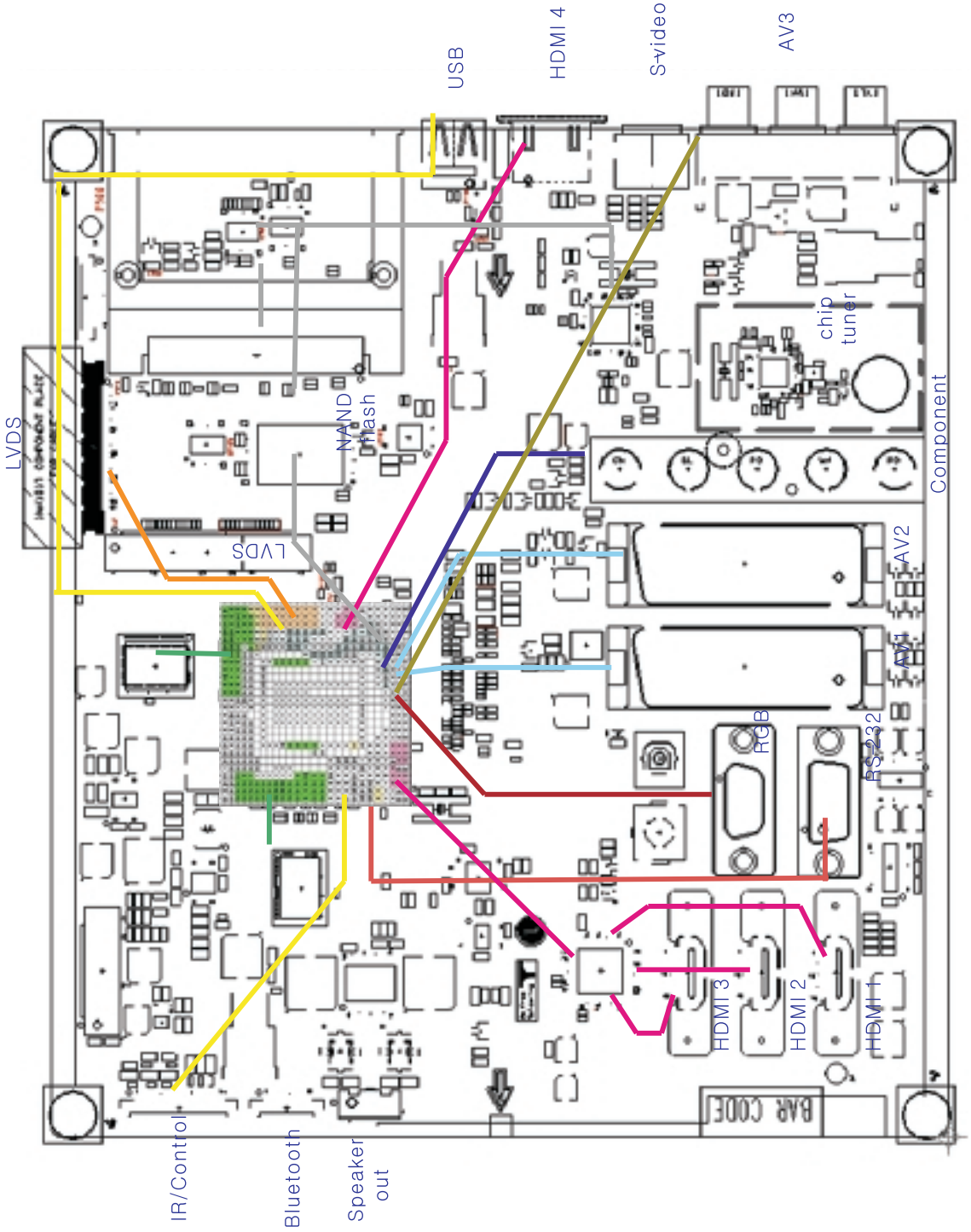
BLOCK DIAGRAM



EP5 Platform Layout

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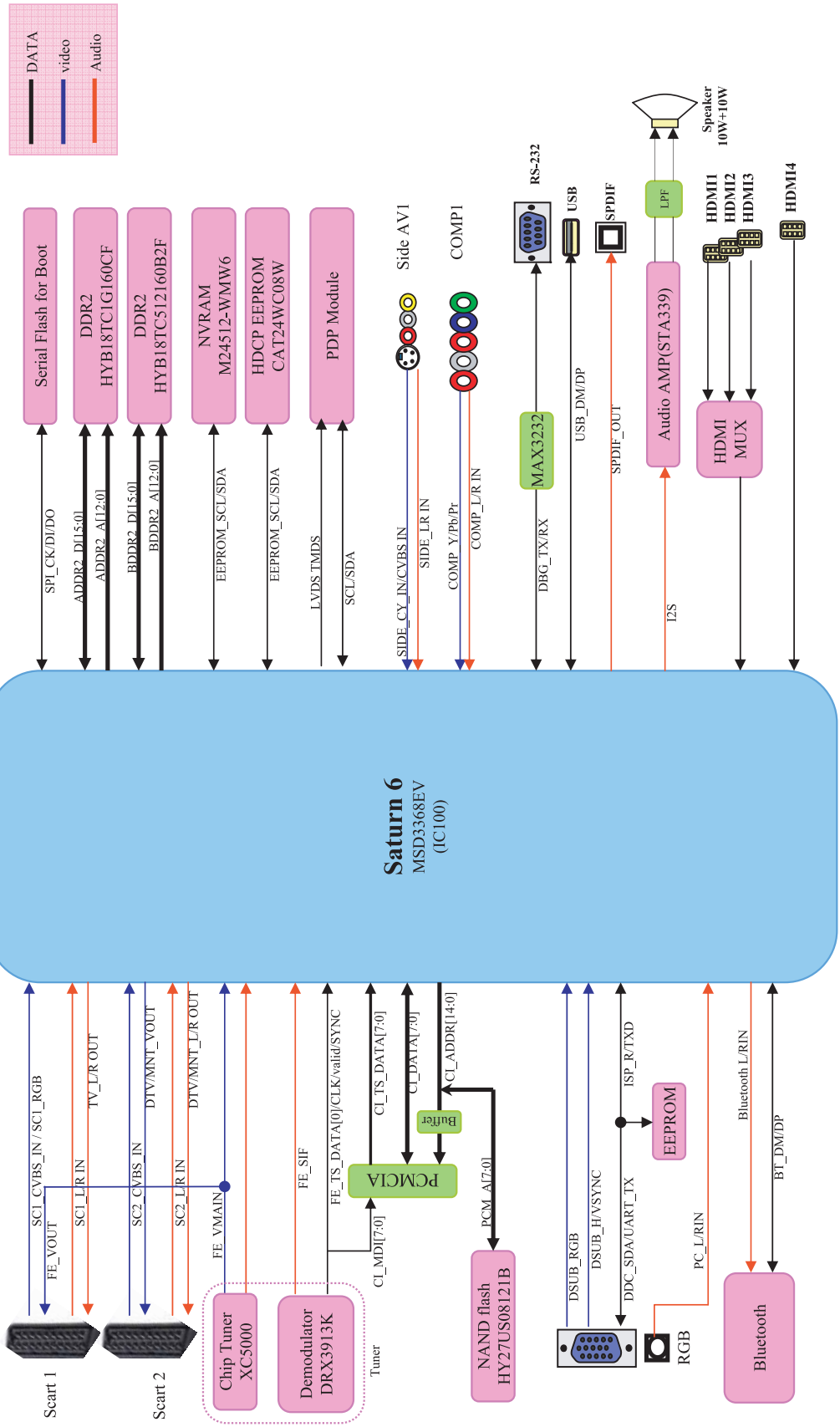
EP5 Platform Overview



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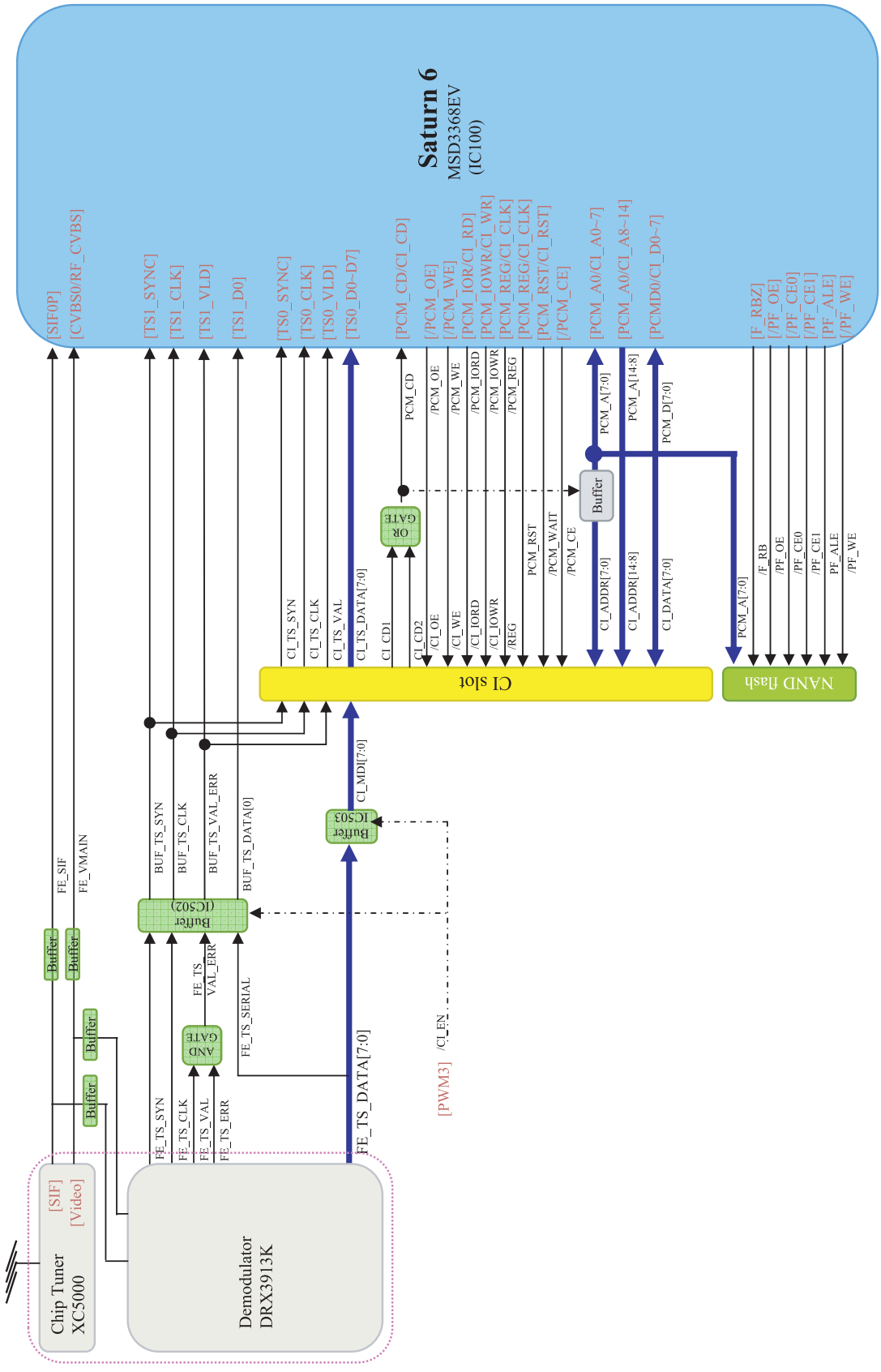
EP5 Tuner , CI slot and NAND flash



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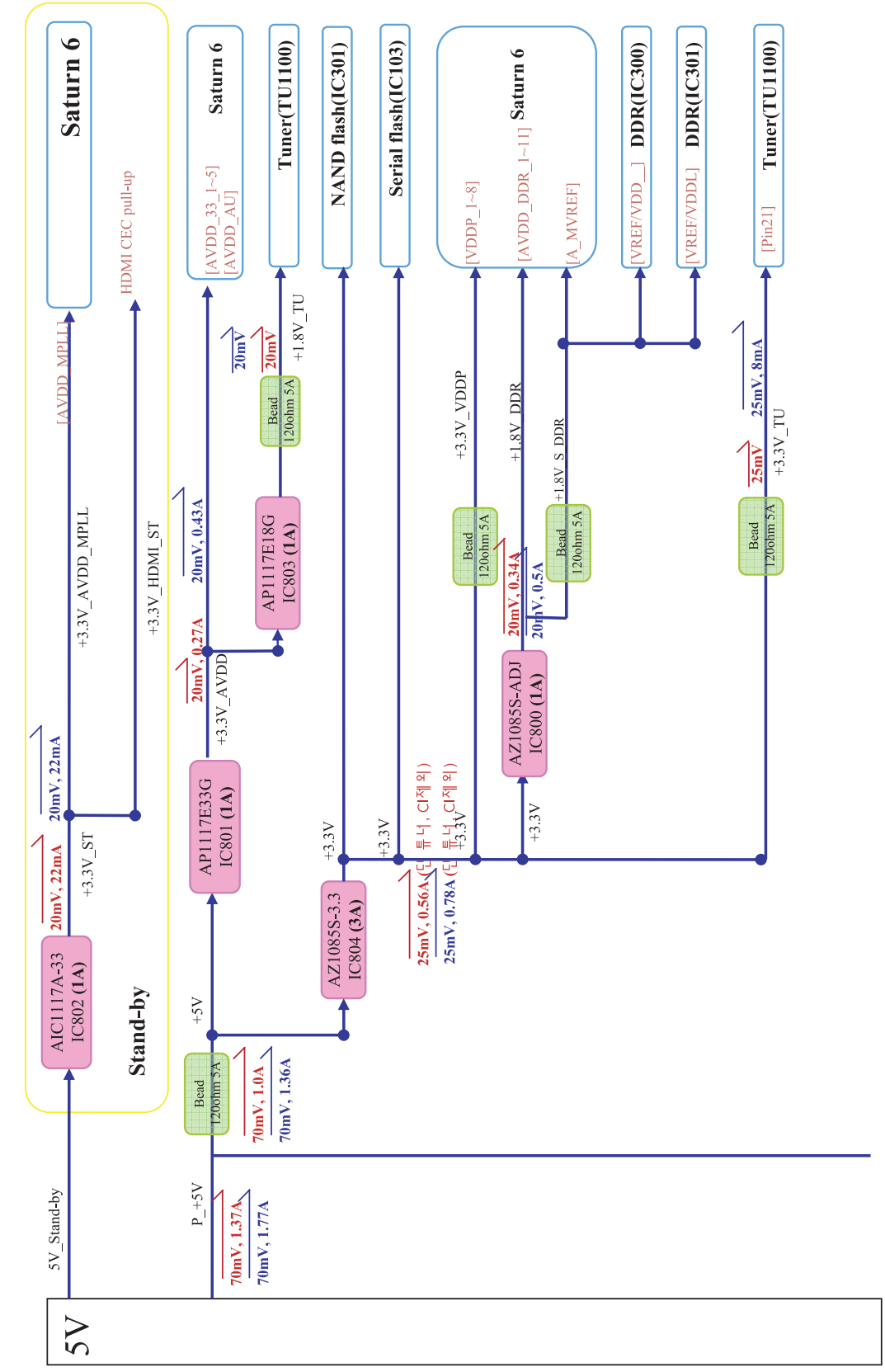
EP5 Power Block (1/4) 2차 보드 (Video, DTV HD)



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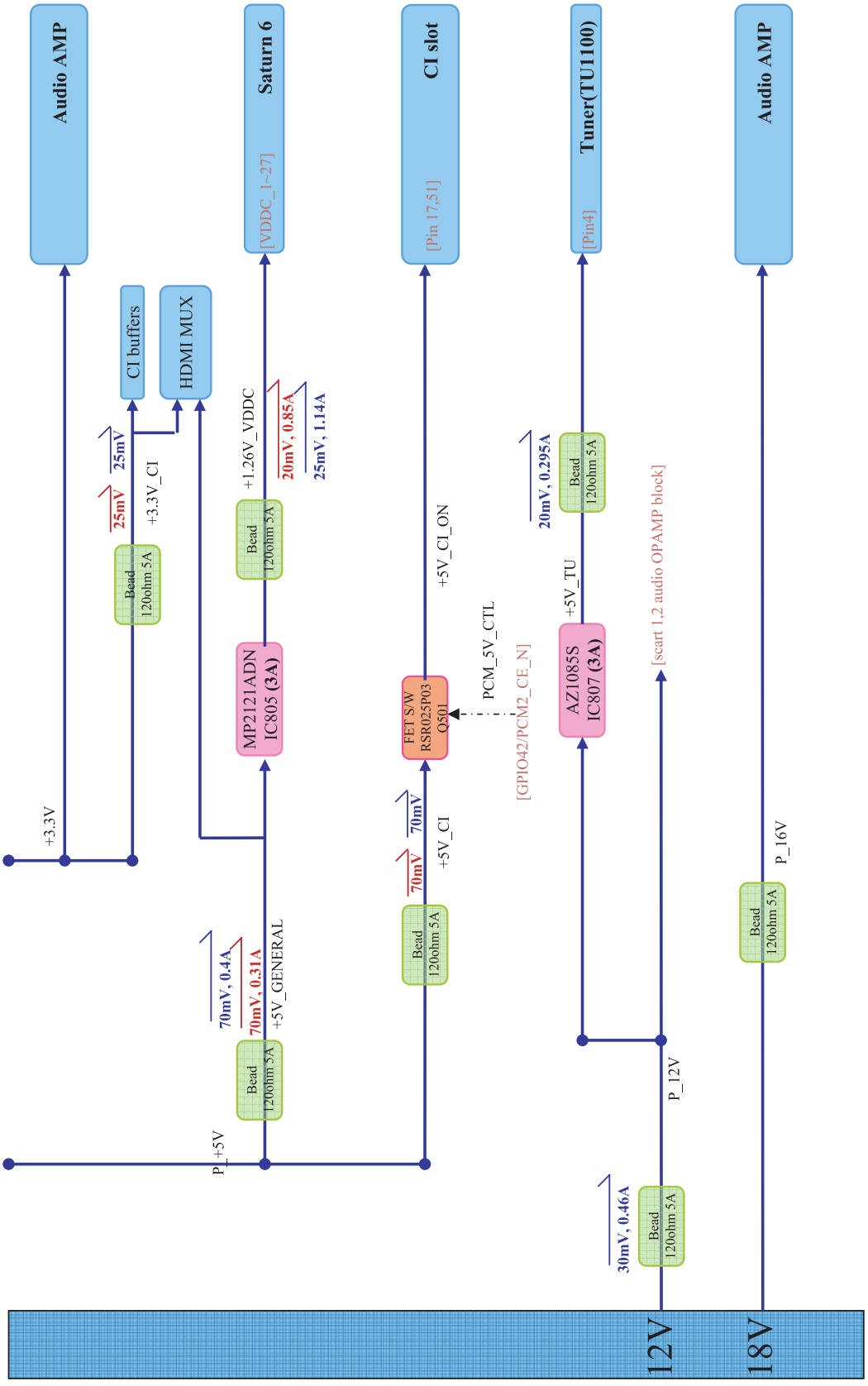
EP5 Power Block (2/4) - (Video, DTV HD)



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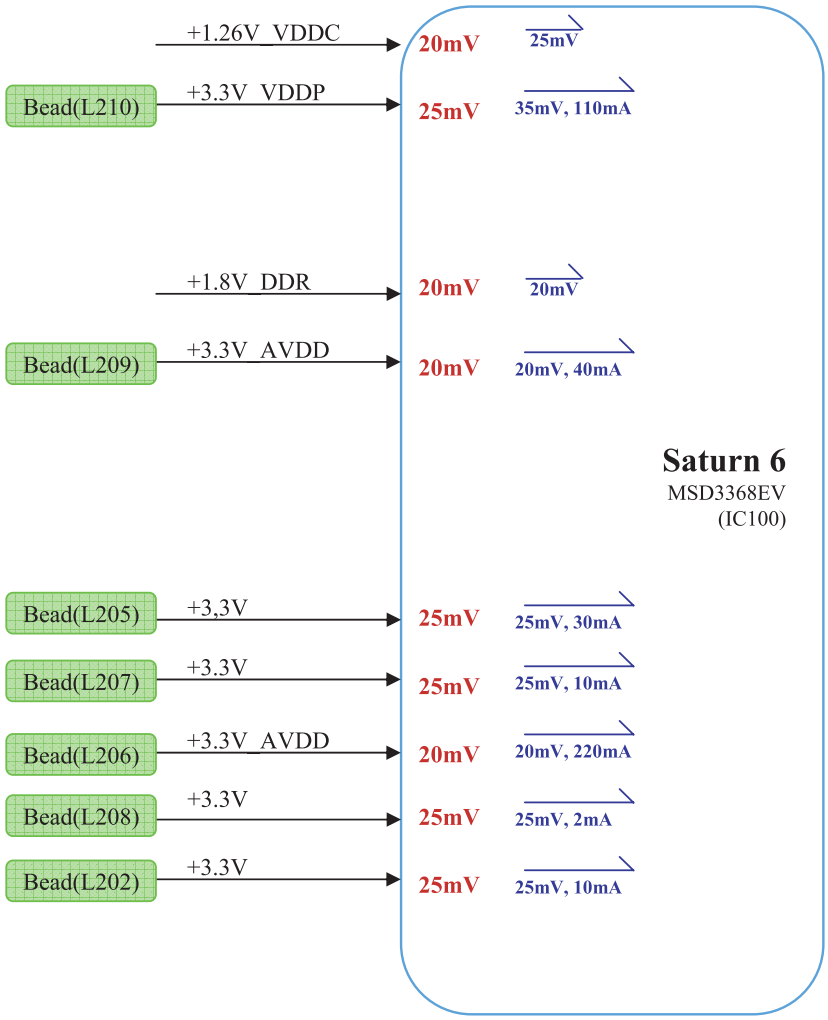
EP5 Power Block (3/4) - (Video, DTV HD)



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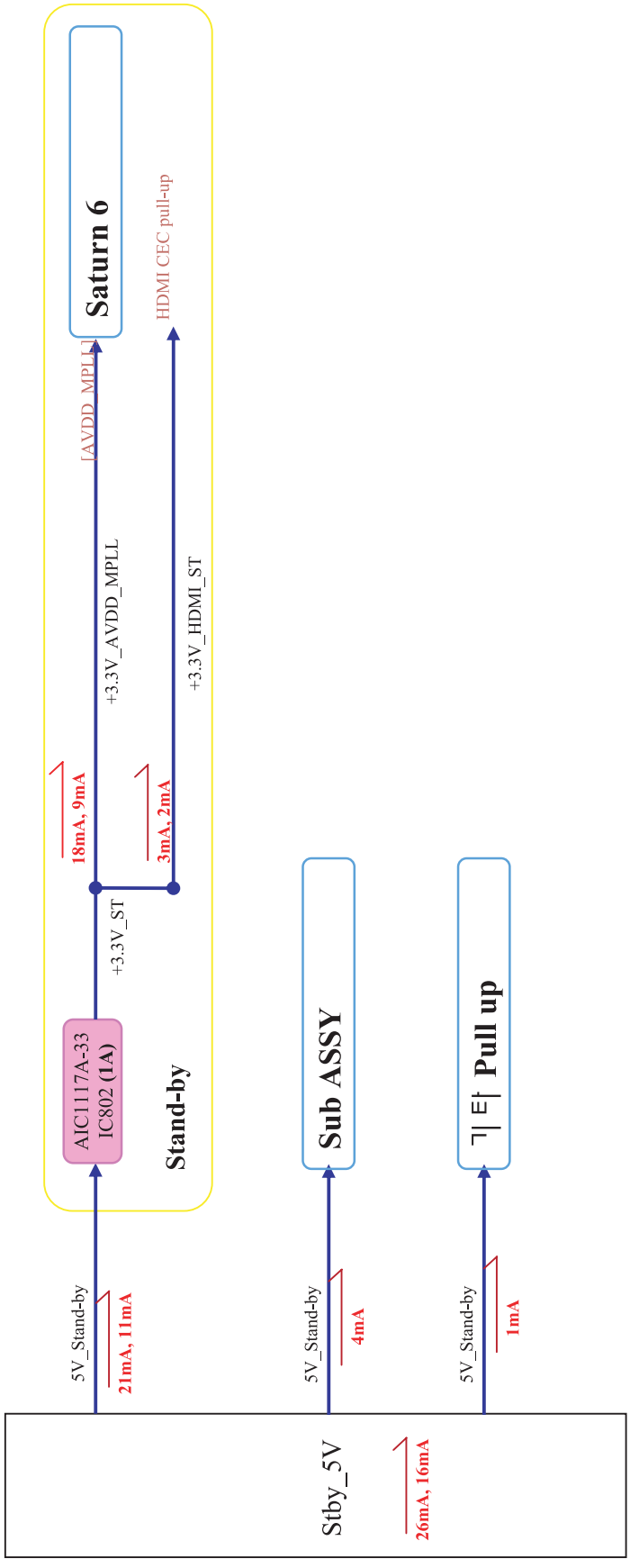
EP5 Power Block (4/4) - (standby mode)



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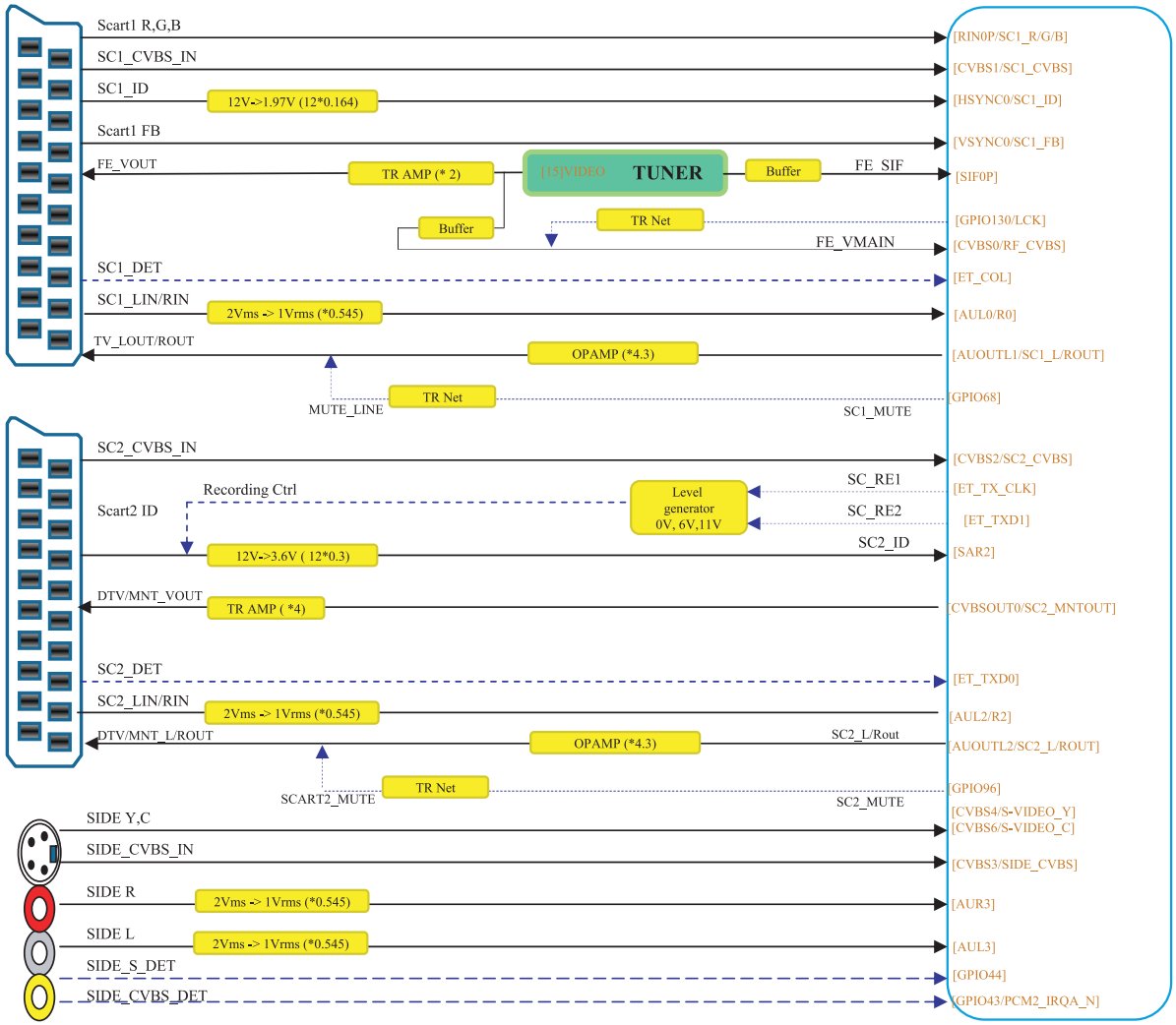
EP5 Scart1,2 & AV3



SCART 1	SCART 2
1:Audio R out (TV)	1:Audio R out (DTV)
2:audio R in	2:audio R in
3:audio L out (TV)	3:audio L out (DTV)
4:audio GND	4:audio GND
5:blue GND	5:GND
6:audio L in	6:audio L in
7:Blue	7:NC
8:SCART ID	8:function select
9:green GND	9: NC
10:data 2 (NC)	10:data 2 (NC)
11:Green	11:NC
12:data1 (NC)	12:data1 (NC)
13: red GND	13: Link
14:data GND (NC)	14:data GND (NC)
15:Red	15: NC
16:SCART FB	16: NC
17:video GND	17:video GND
18:RGB Control GND	18:GND
19:CVBS out (TV out)	19:CVBS out (DTV out)
20:CVBS in	20:CVBS in
21:safety GND	21:safety GND
22:auto link	22:auto link
23:Body GND	23:Body GND

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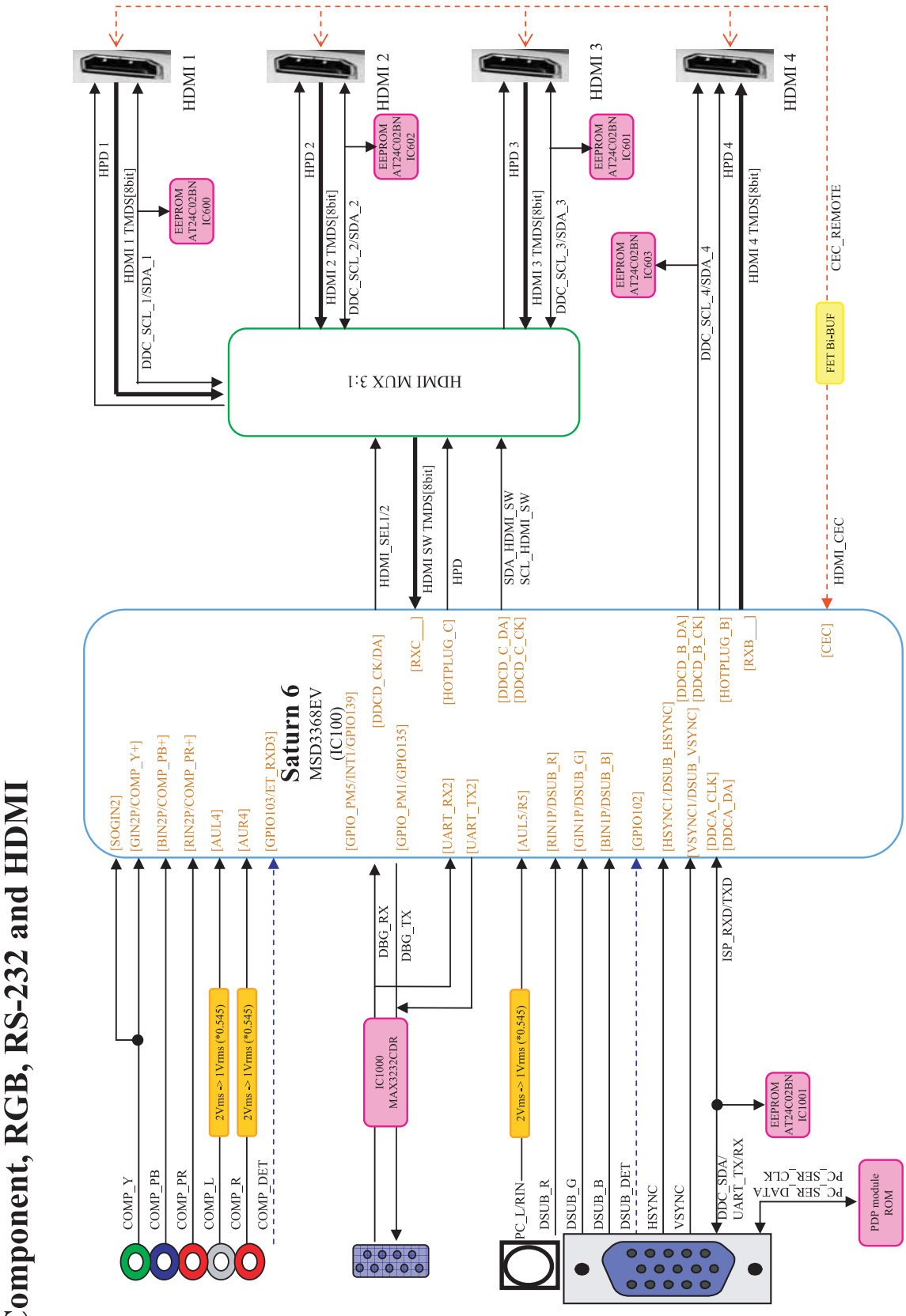
EP5 Component, RGB, RS-232 and HDMI



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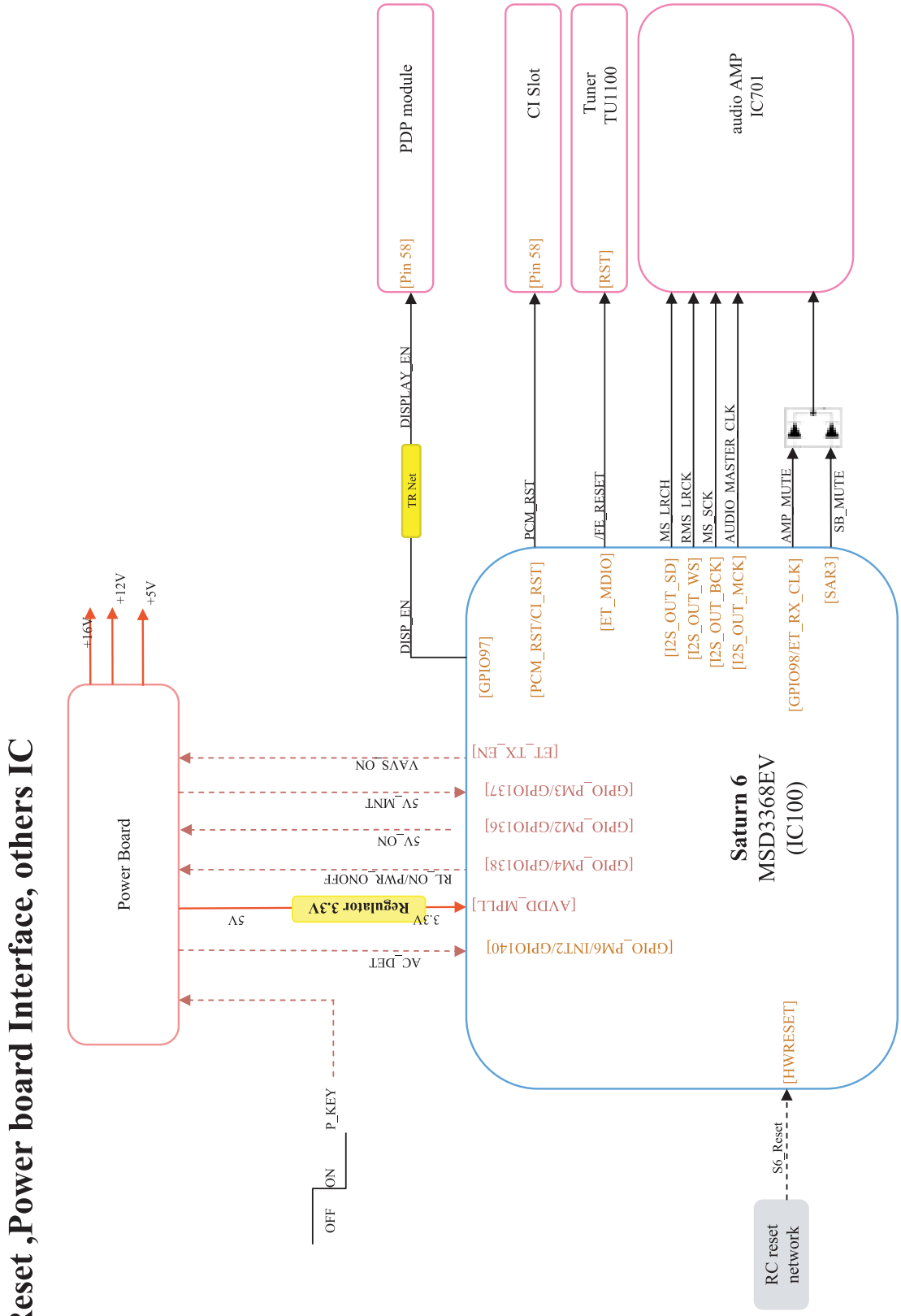
EP5 Reset ,Power board Interface, others IC



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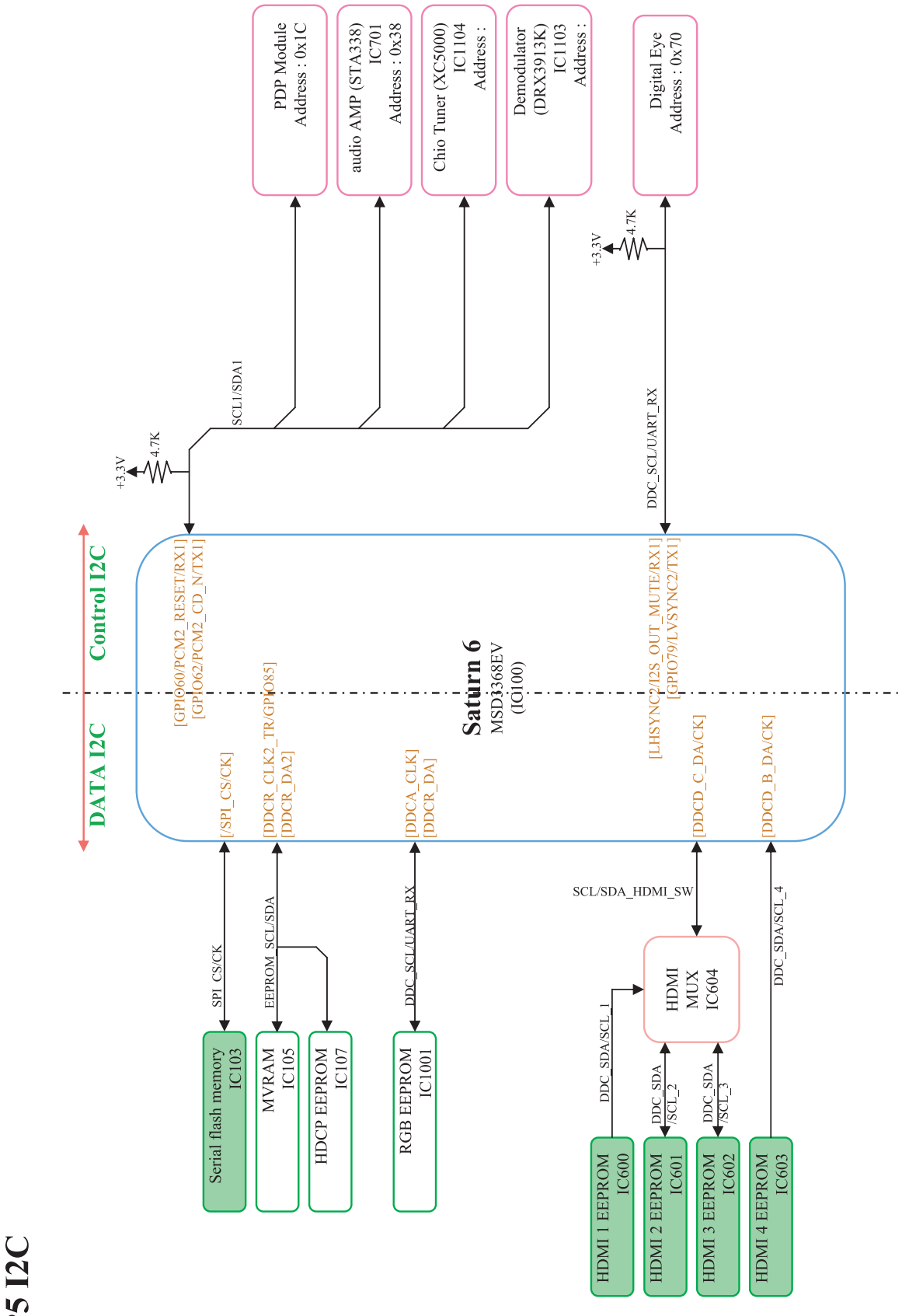
EP5 I2C



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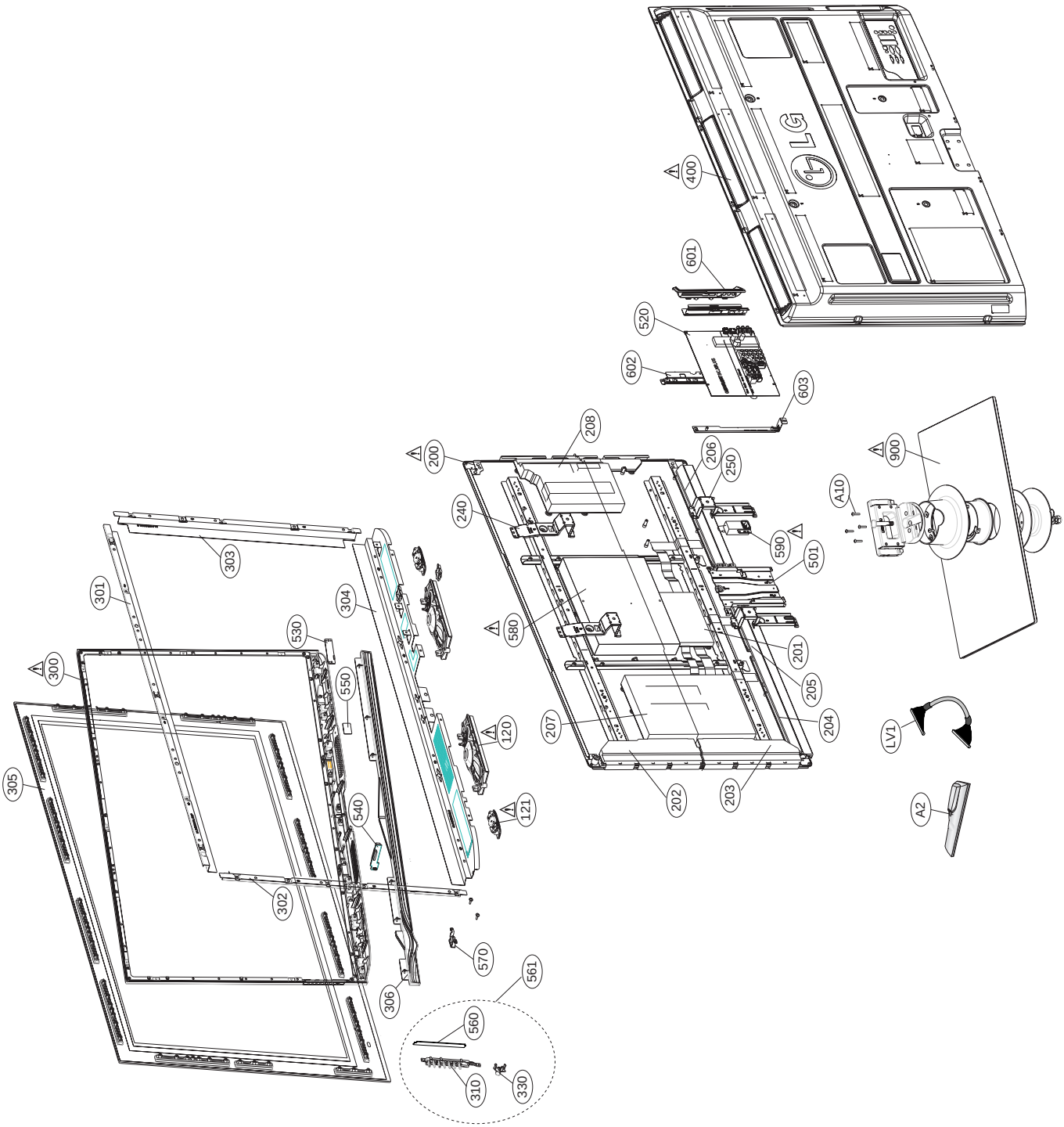
EXPLODED VIEW

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.



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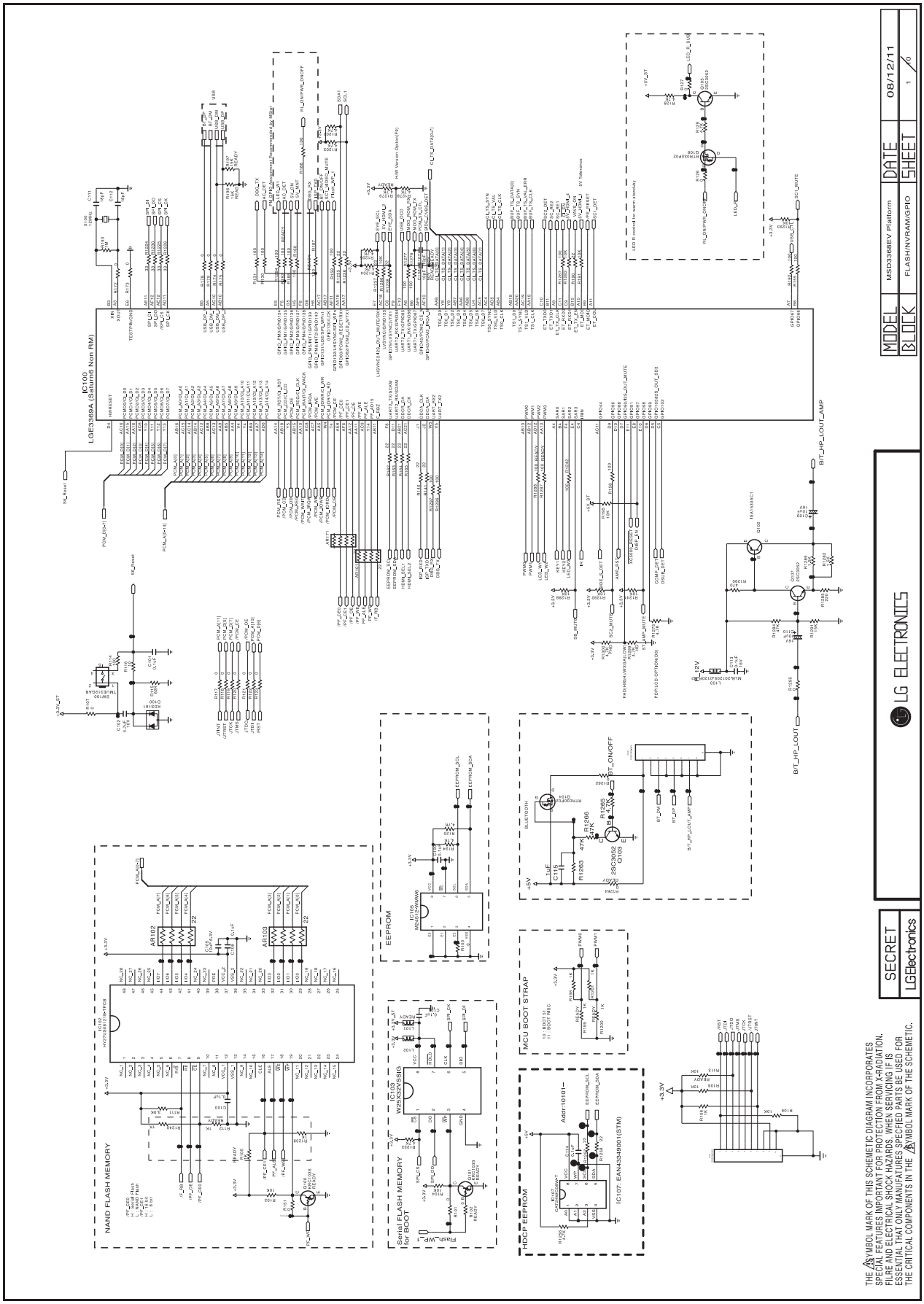

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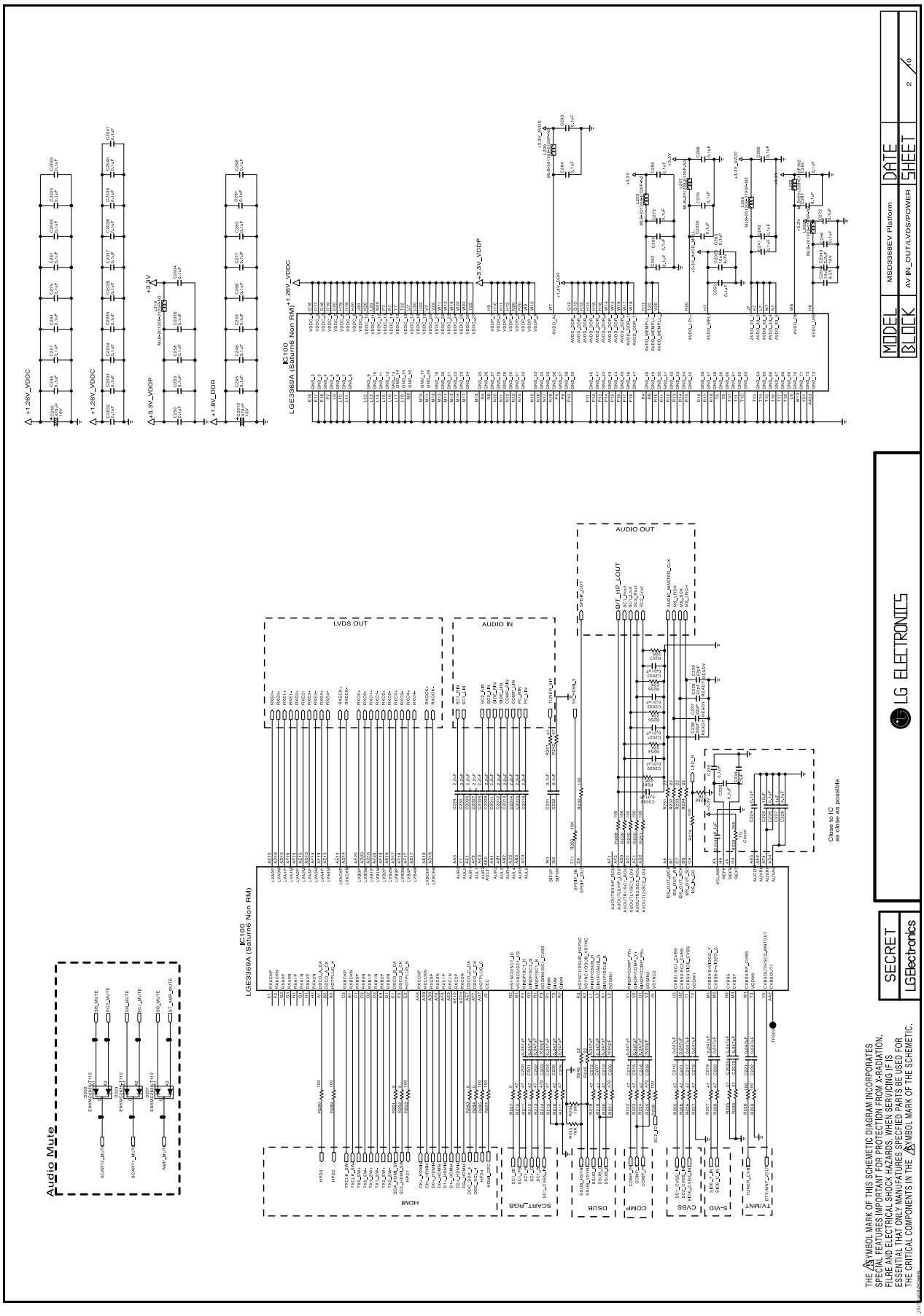

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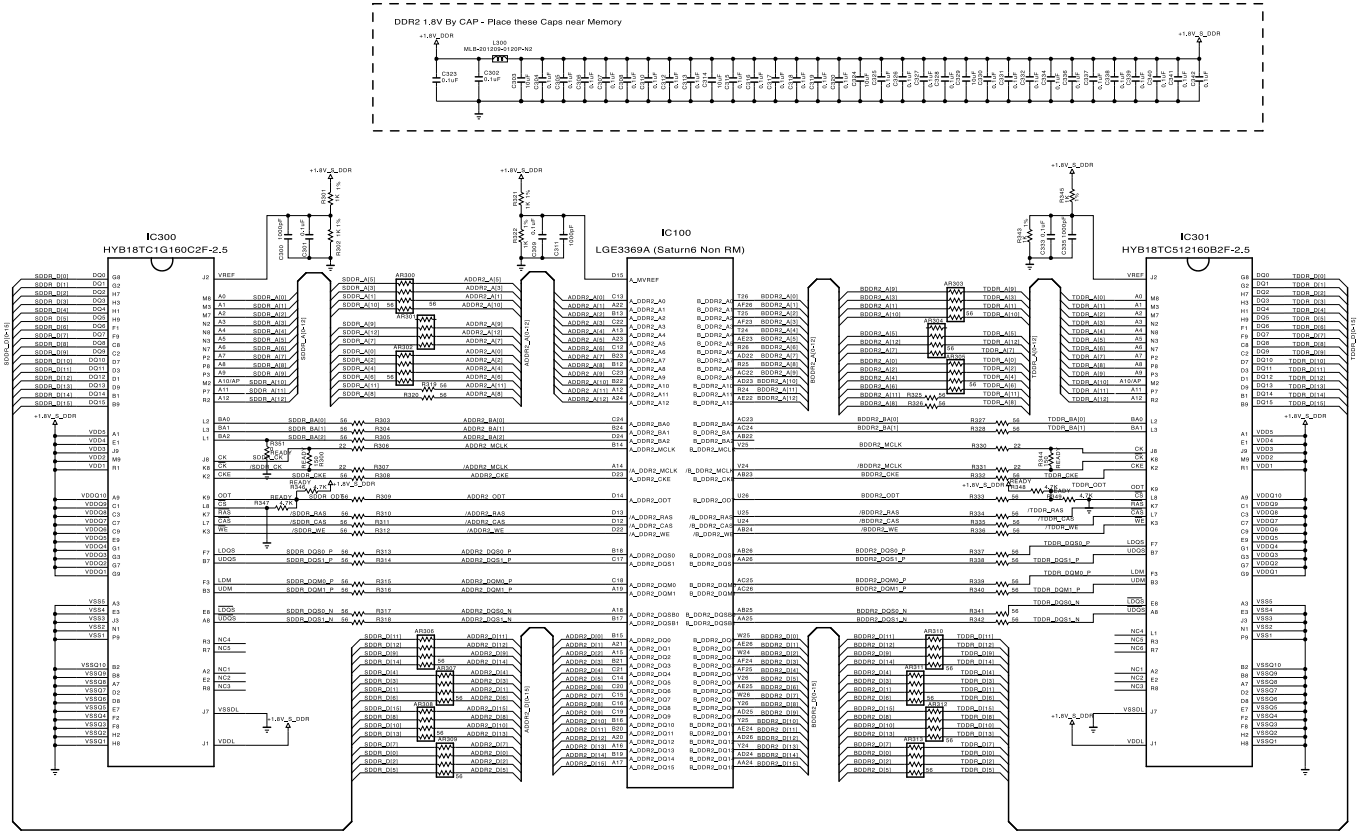

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

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MODEL	MSD3368EV Platform	DATE	
BLOCK	DDR2	SHEET	3 / 10

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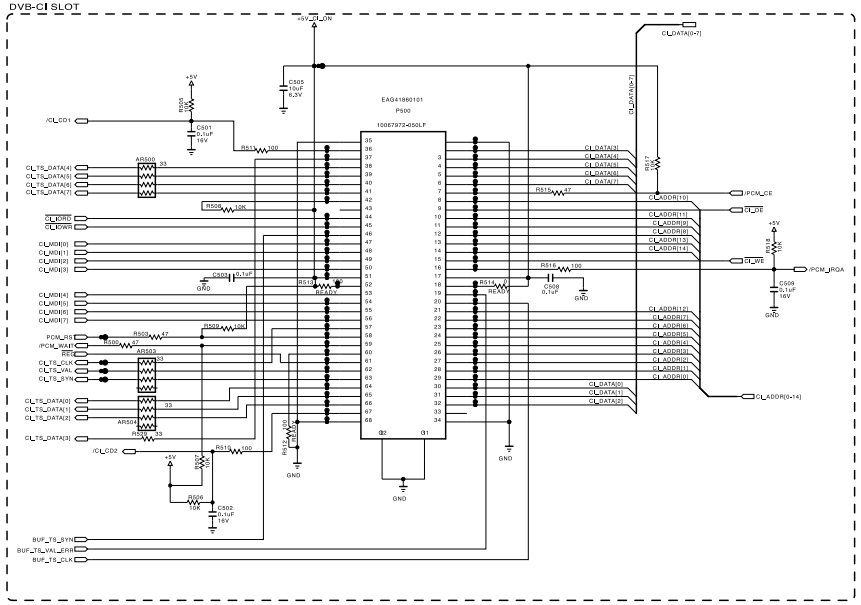

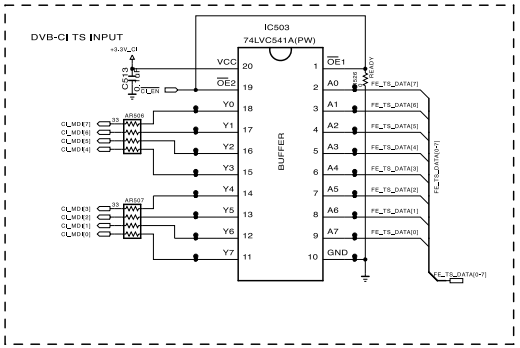

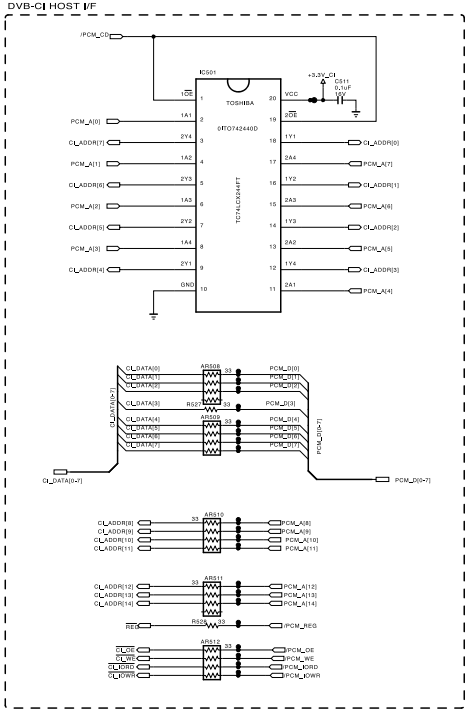

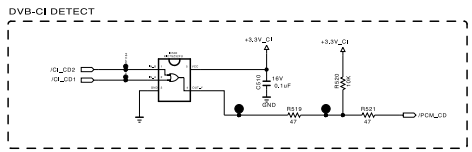

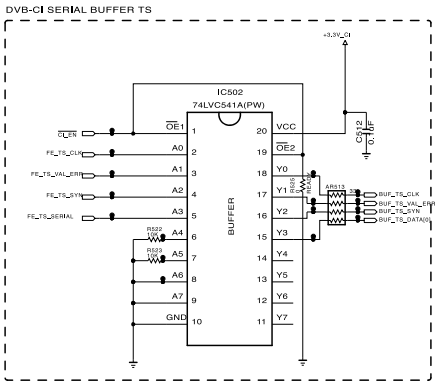

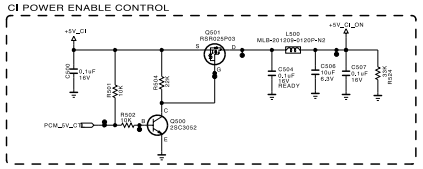

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LG ELECTRONICS

MODEL	MSD3368EV Platform	DATE	
BLOCK	CI	SHEET	4 / 10

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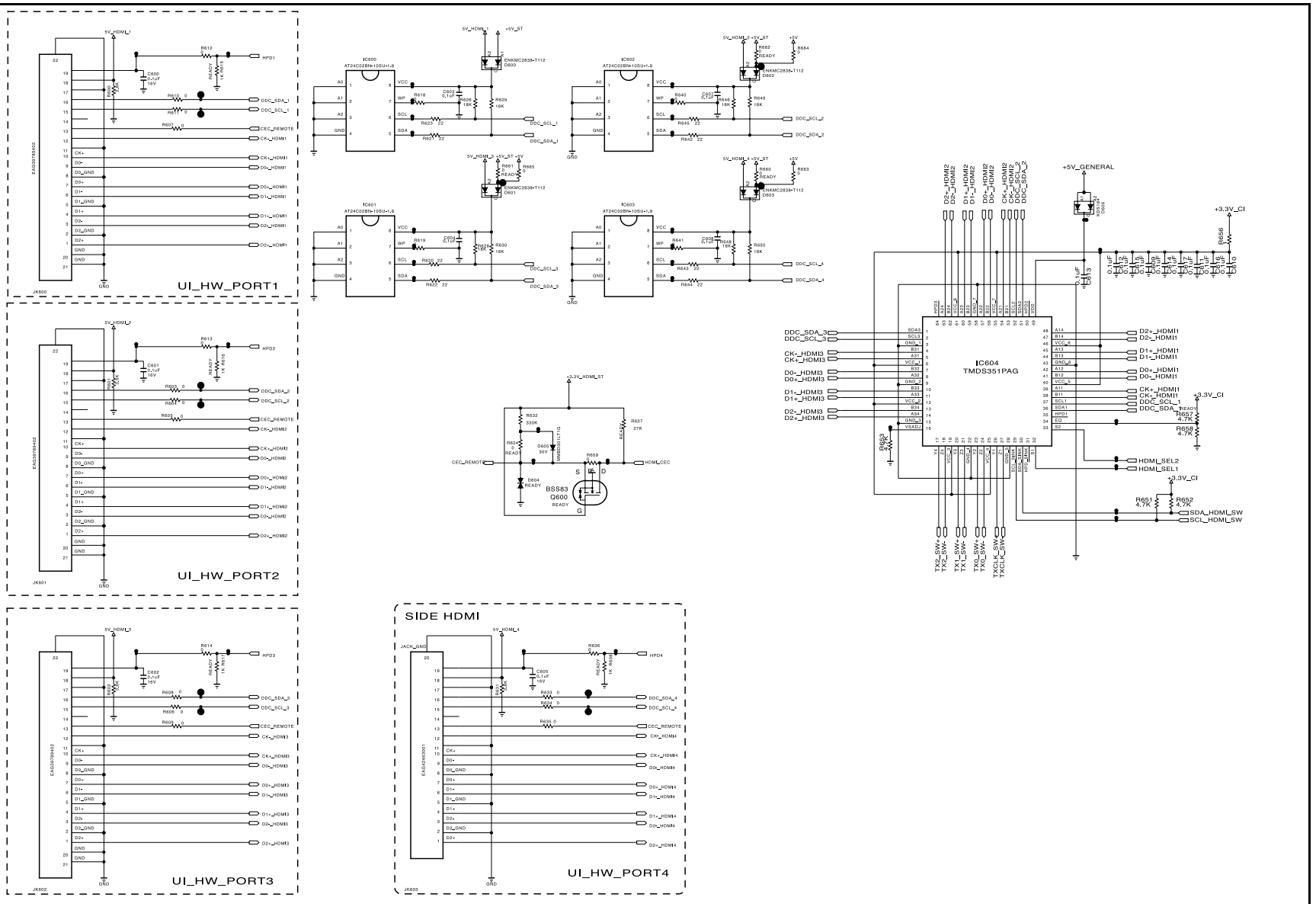

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MODEL	MSD3368EV Platform	DATE	
BLOCK	HDMI	SHEET	5 / 10

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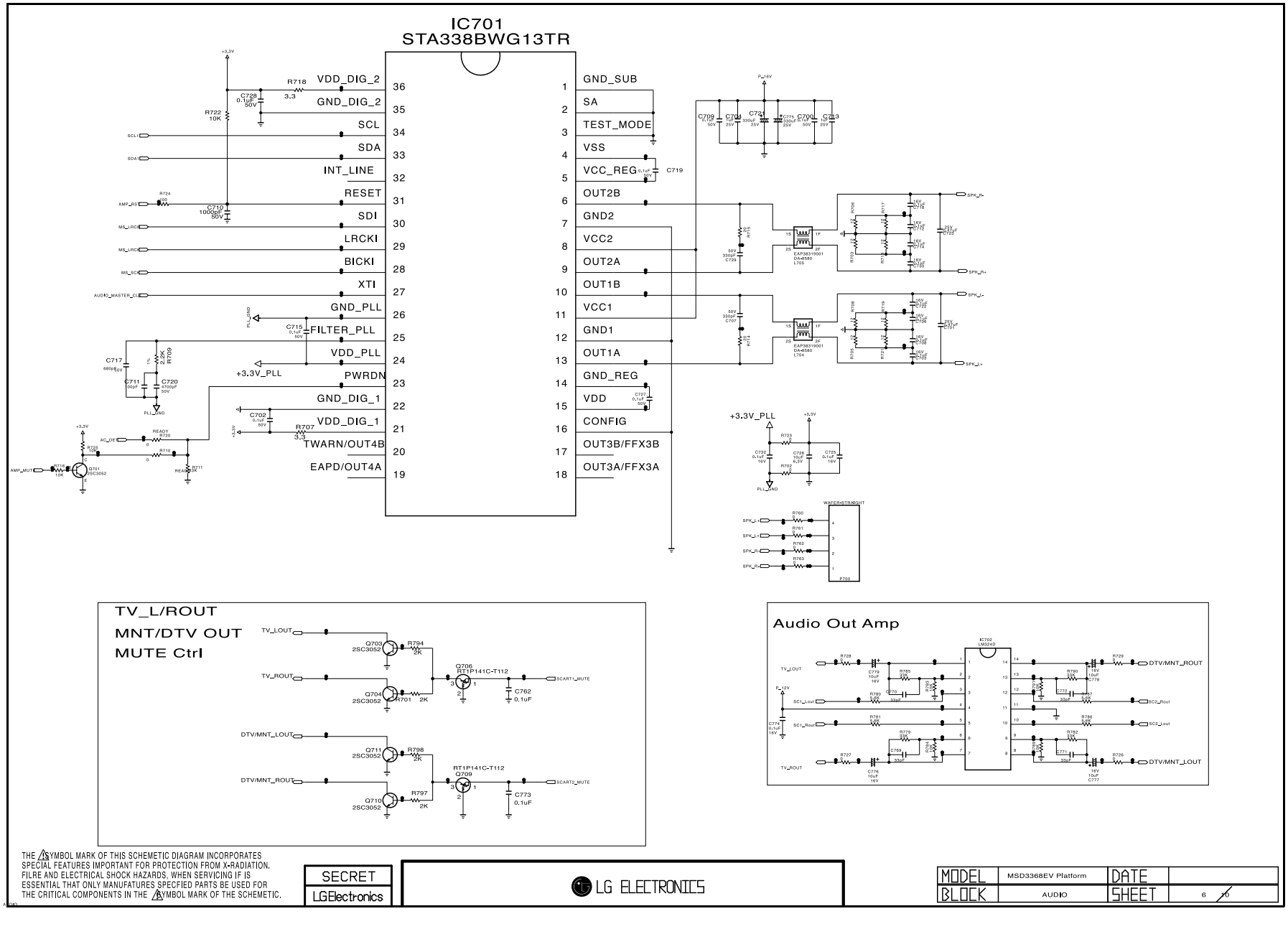

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SECRET
LGElectronics

LG ELECTRONICS

MODEL	MSD3368EV Platform	DATE	
BLOCK	AUDIO	SHEET	6 / 10

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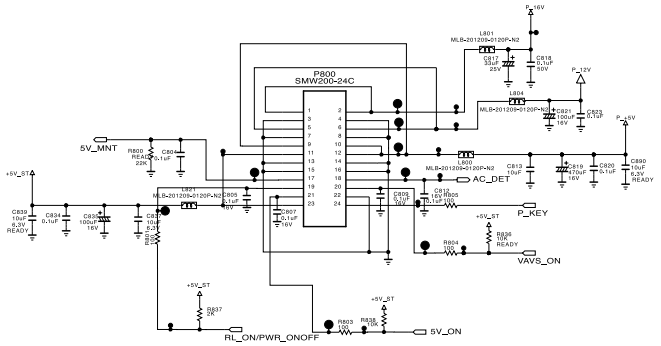
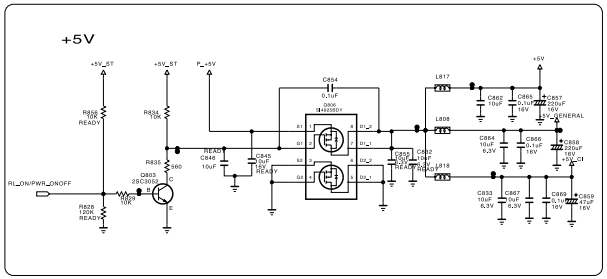
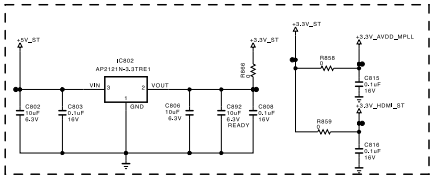
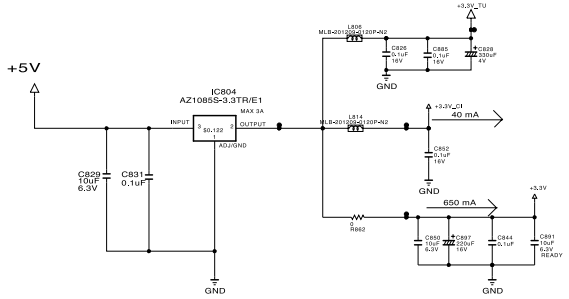
POWER B/D

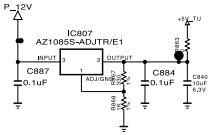




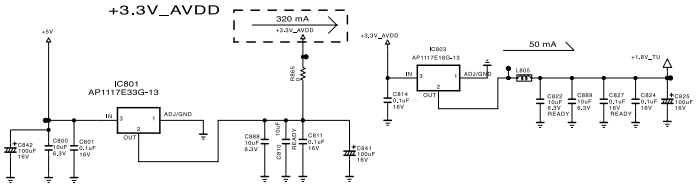
Stand-by +3.3V



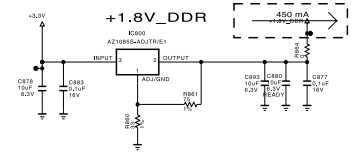




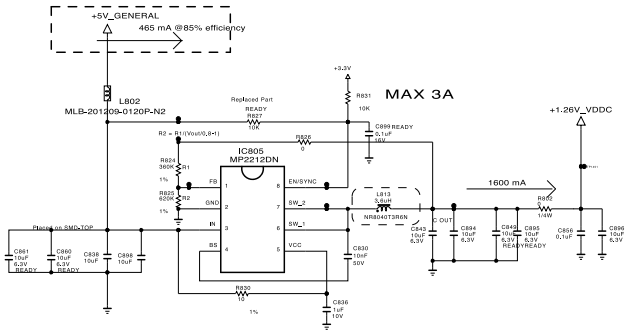
+3.3V_AVDD



+1.8V_DDR



S6 core 1.26 volt



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POWER

SECRET
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LG ELECTRONICS

MODEL	MSD3368EV Platform	DATE	
BLOCK	POWER	SHEET	7 /10

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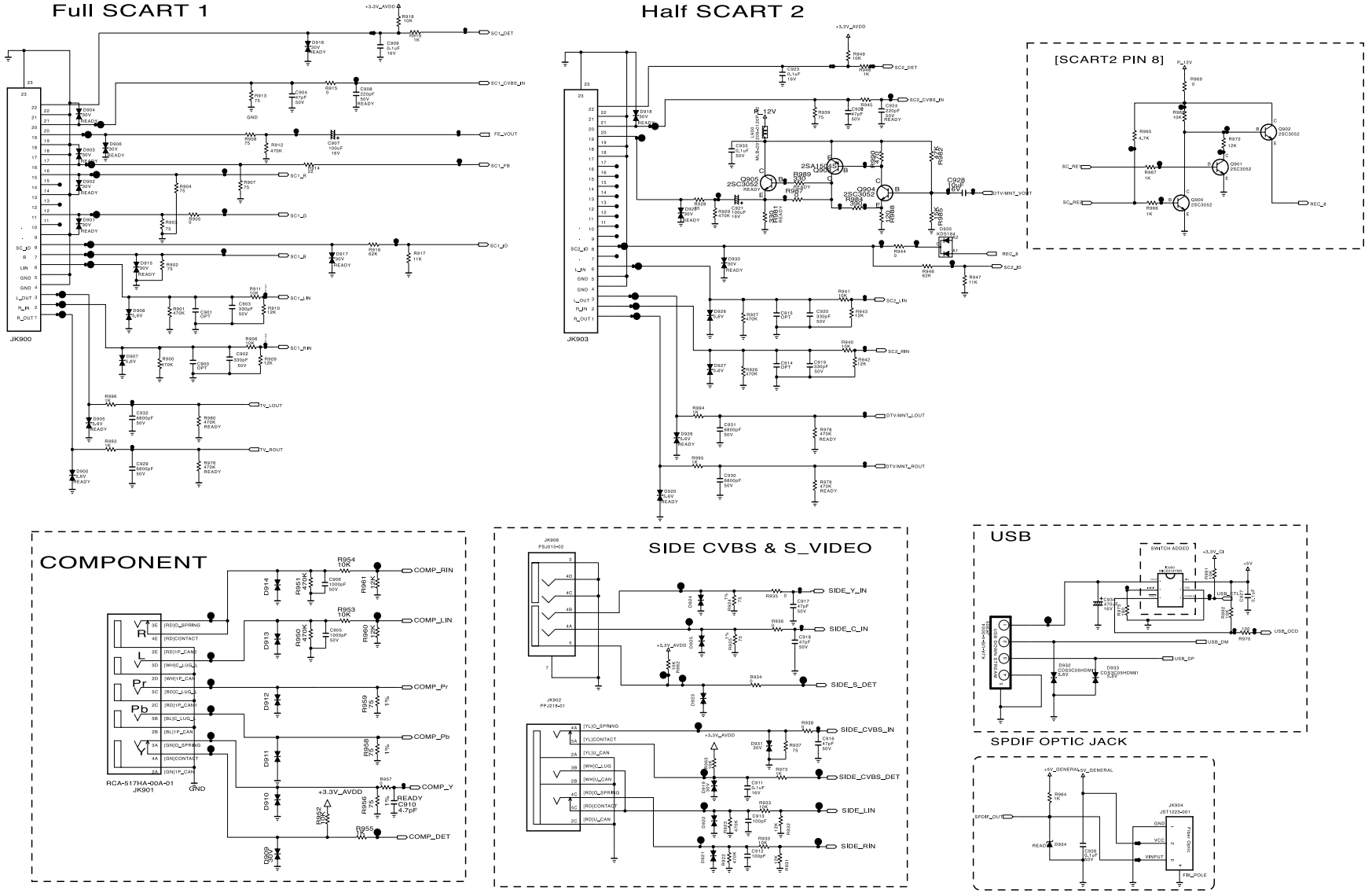

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	MSD3368EV Platform	DATE	
BLOCK	JACK	SHEET	8 / 10

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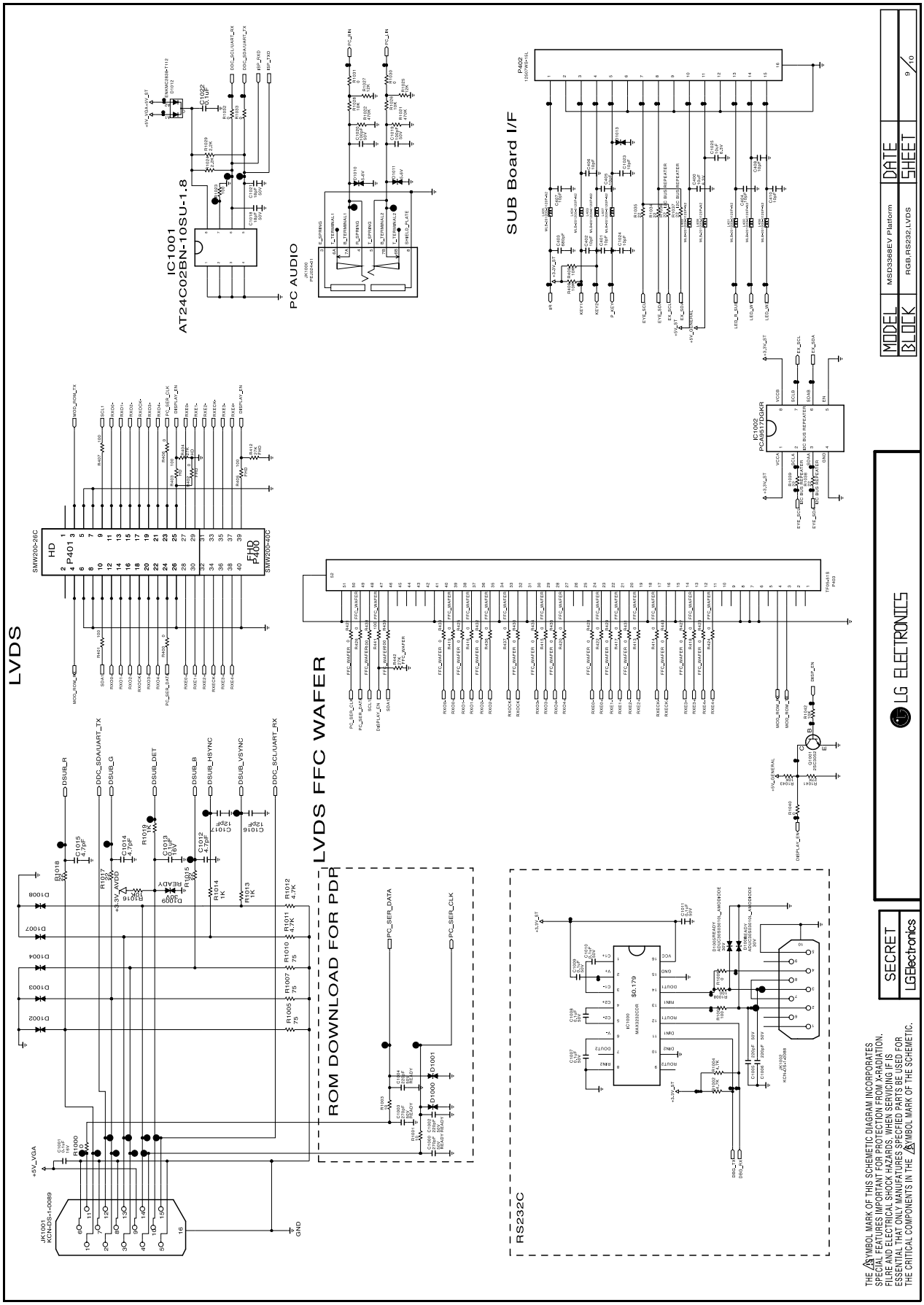

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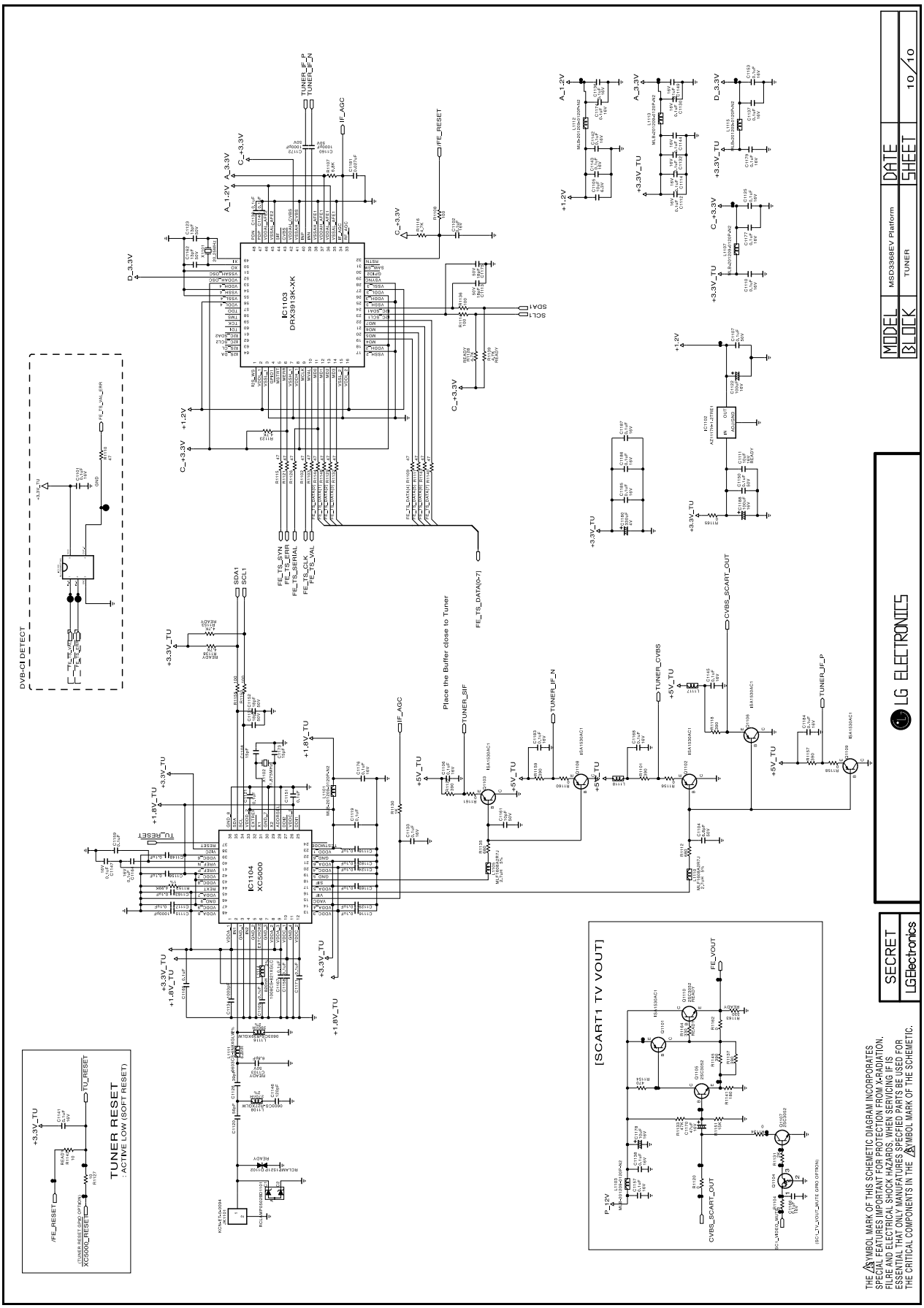

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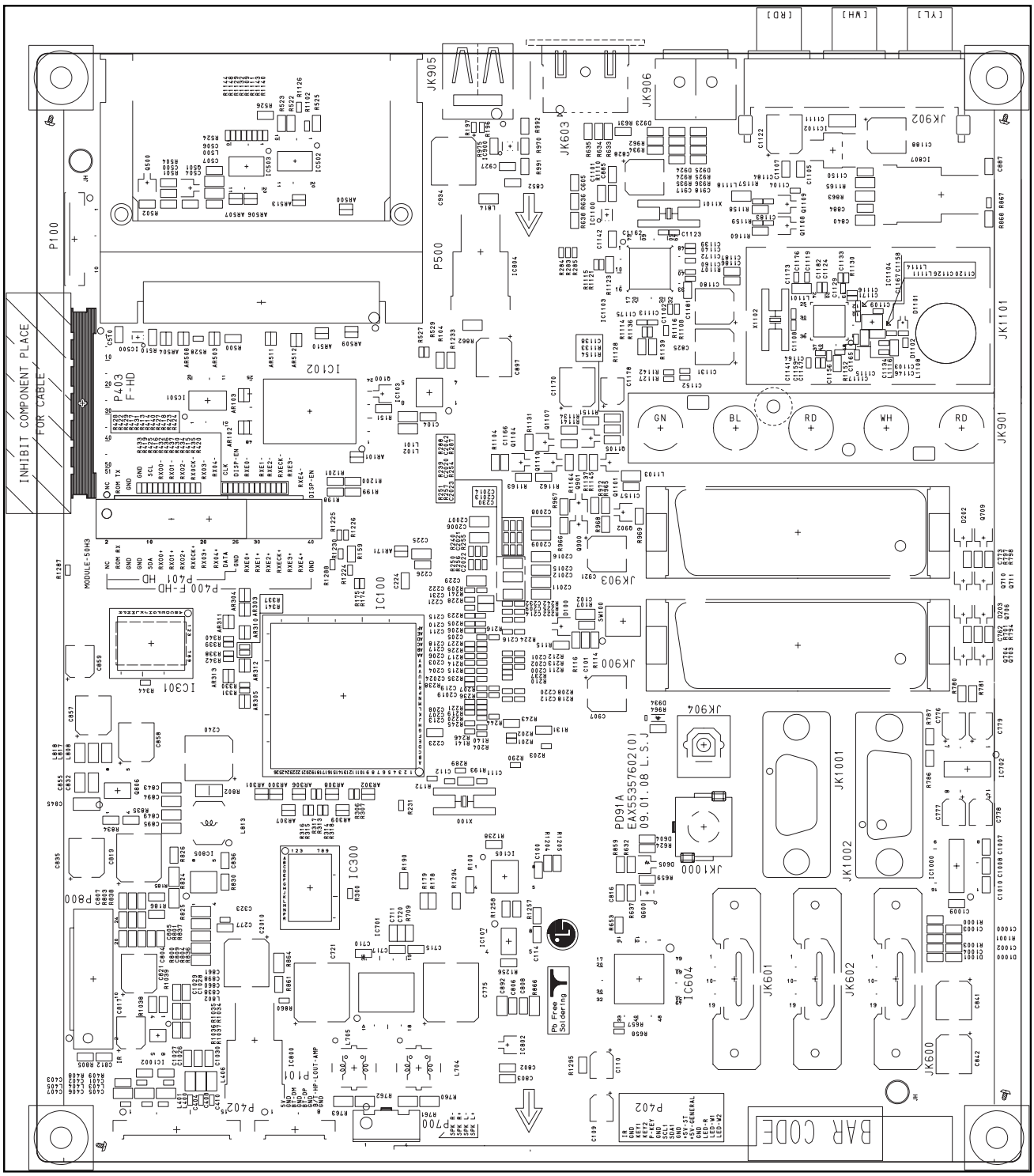
MAIN(TOP)



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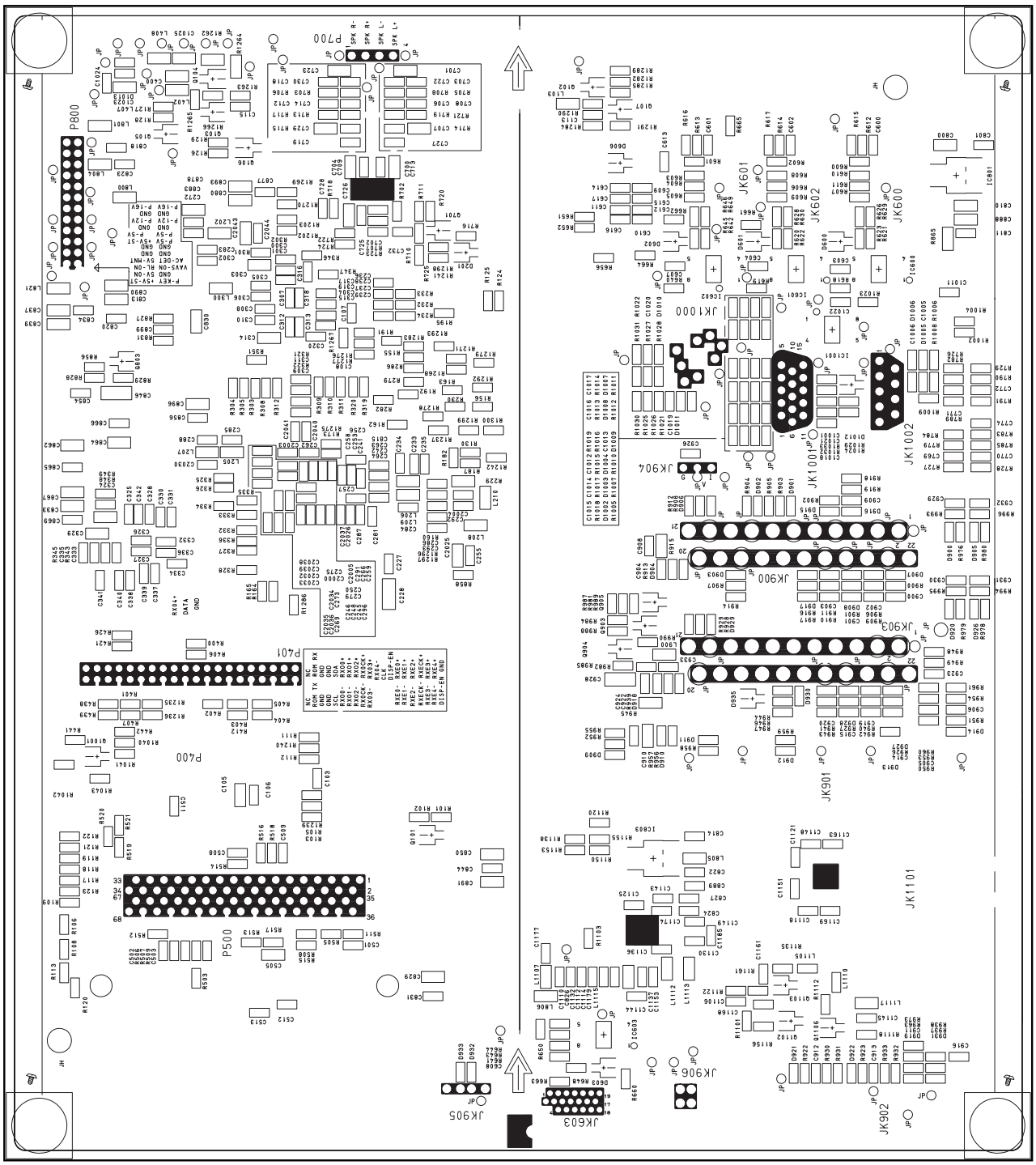
MAIN(BOTTOM)



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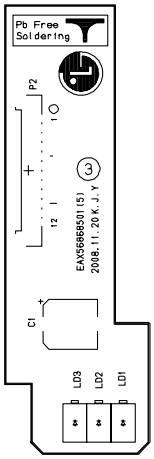
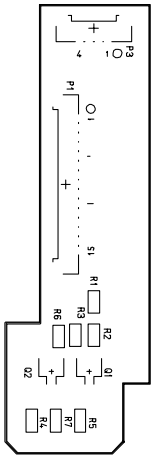
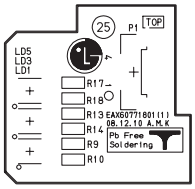
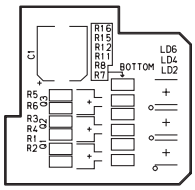
Right LED(TOP) **Right LED(BOTTOM)** **Center LED(TOP)** **Center LED(BOTTOM)**

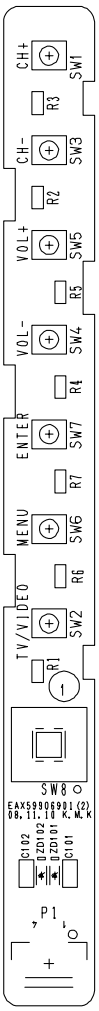


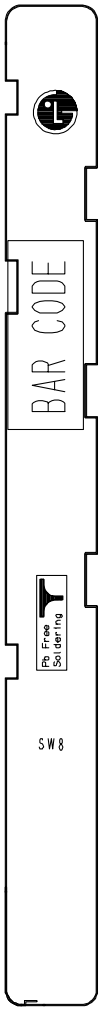


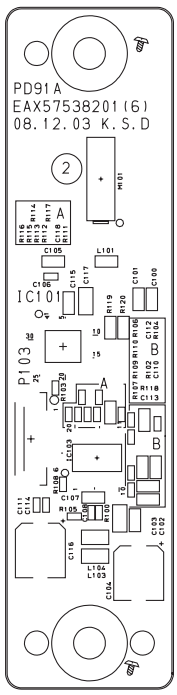


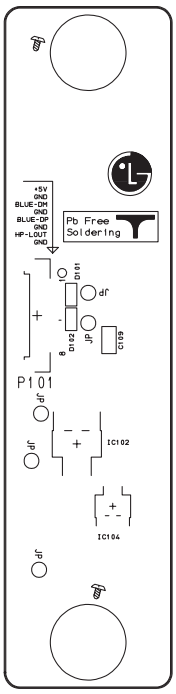


CONTROL(TOP) **CONTROL(BOTTOM)** **BLUETOOTH(TOP)** **BLUETOOTH(BOTTOM)**









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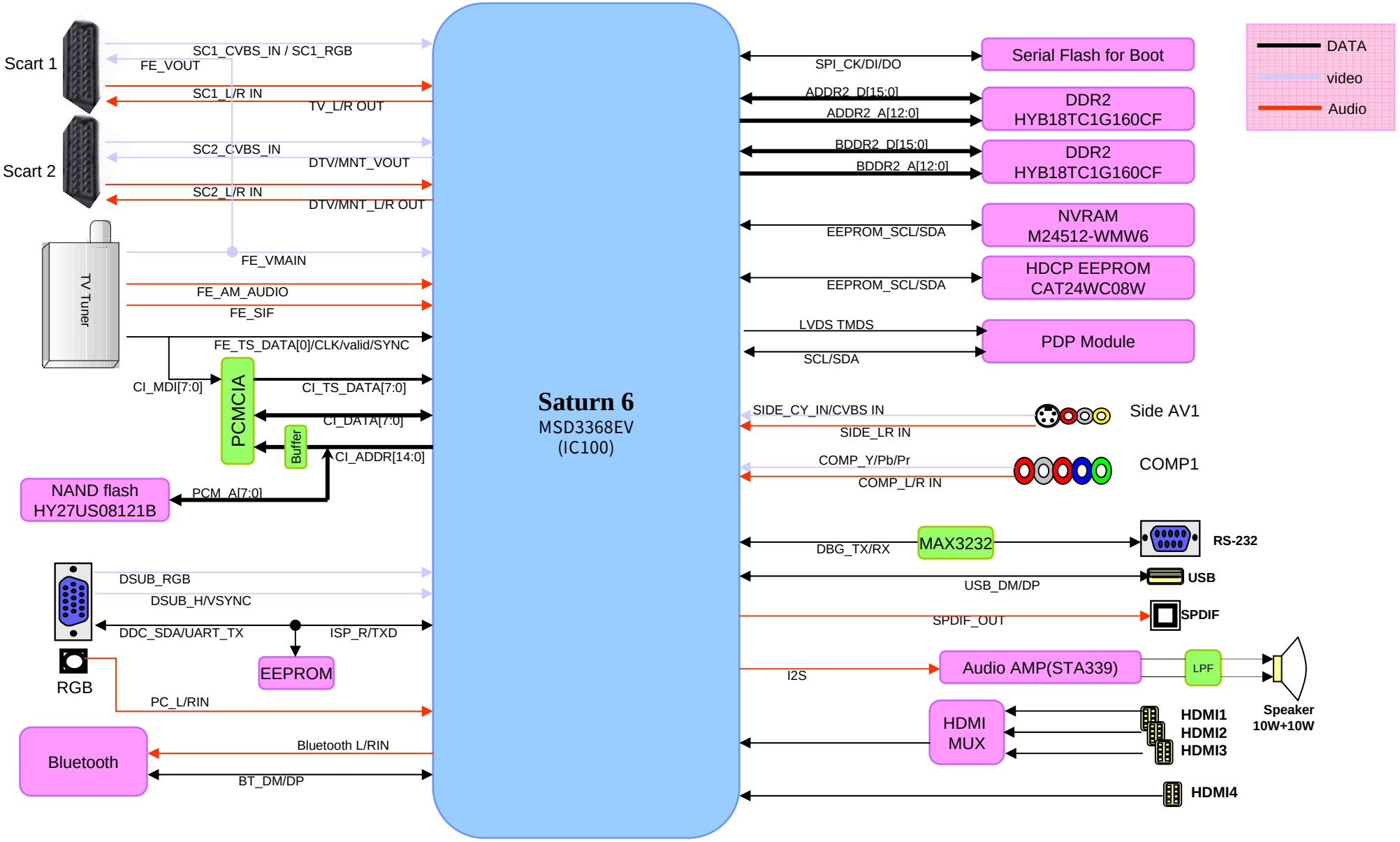
Block Diagram



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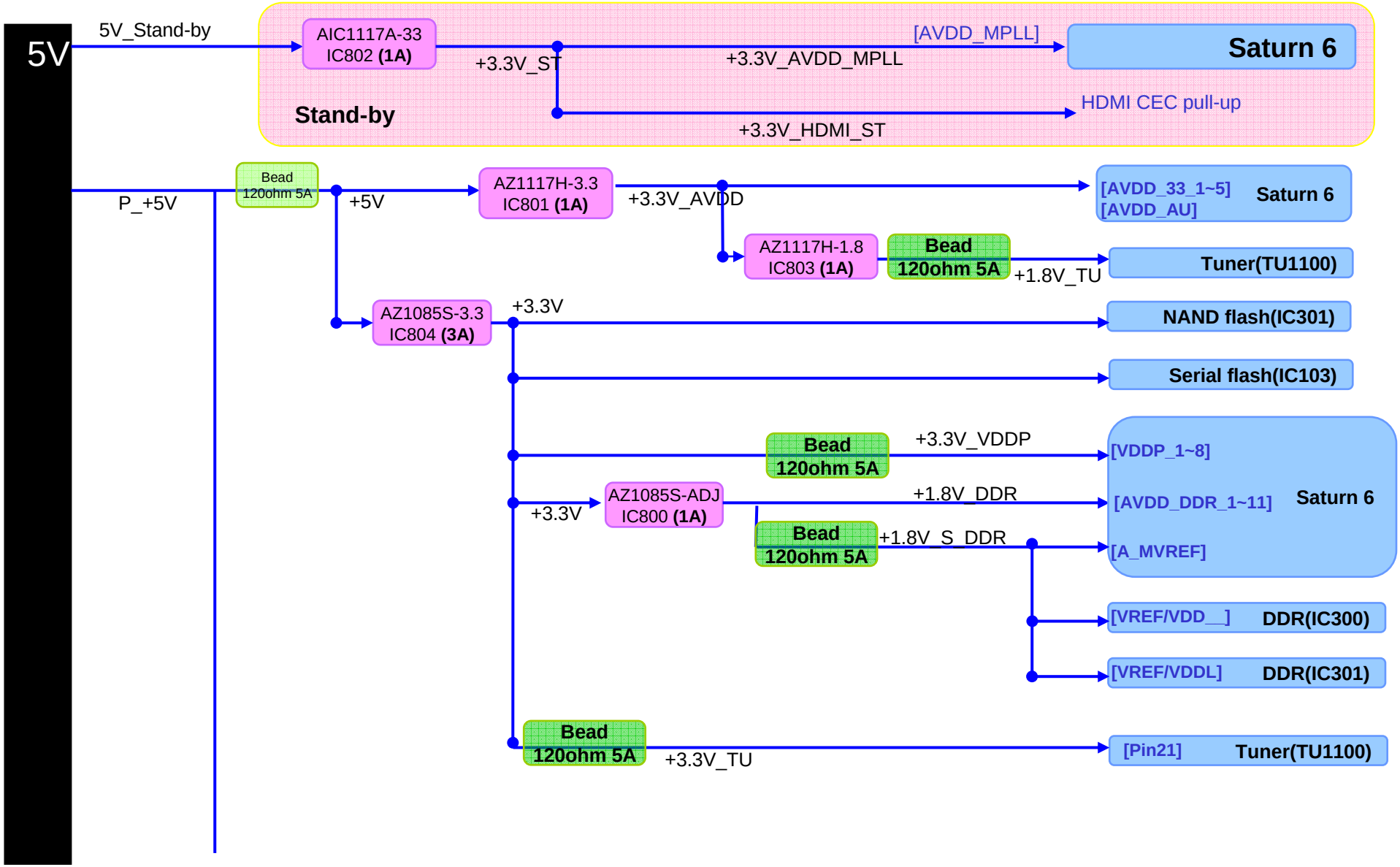
Power Flow Diagram



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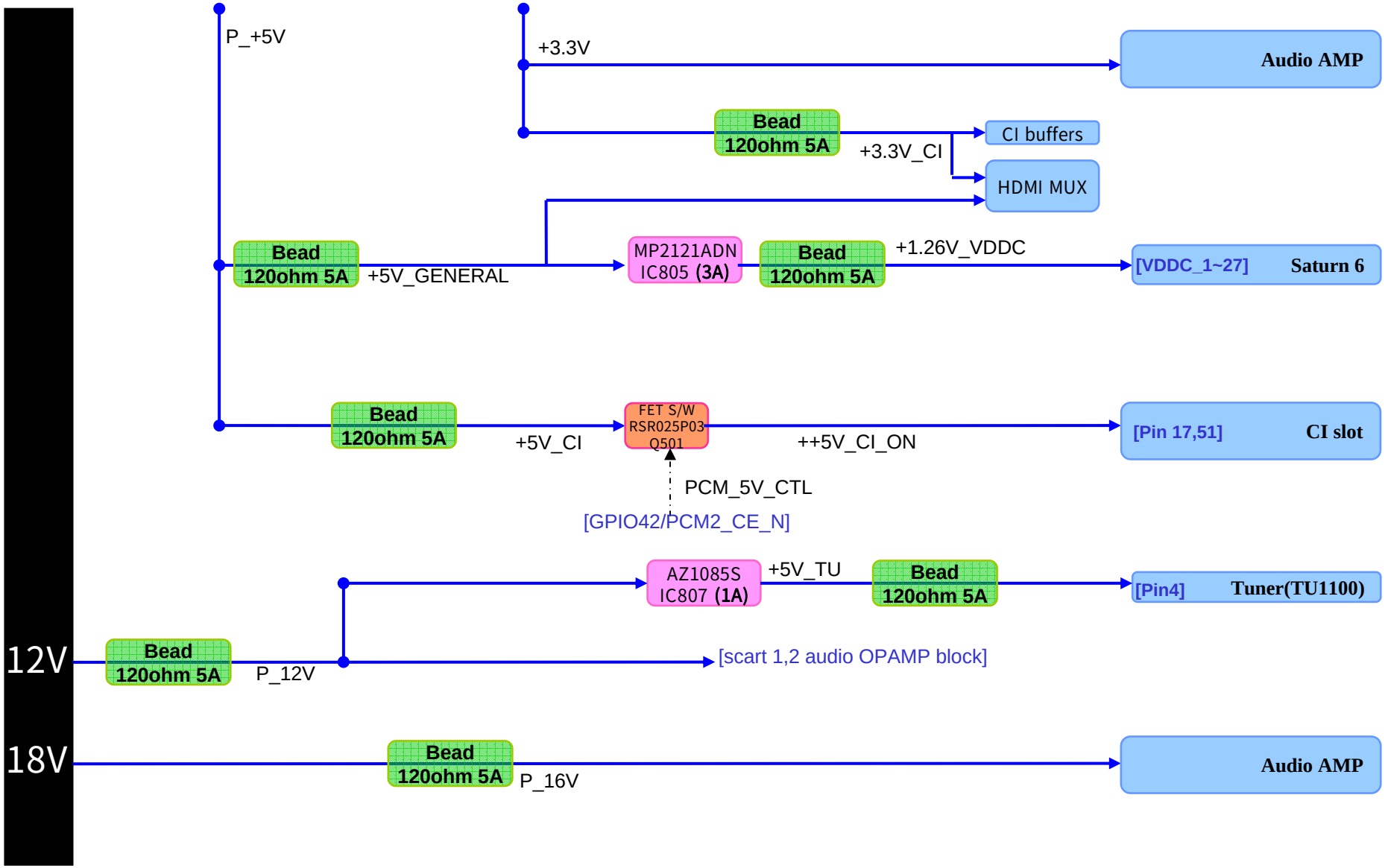
Power Flow Diagram



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HW Power On Sequence (LGE3369A)

1. HWRESET: Chip Reset; High Reset (Level)
   This pin is suggested to connect to AVDD_MPLL as in Figure-1.
   The VIH is 2V (Typ) +/- 10% (2.2V~1.8V); the VIL is 1.2V (Typ) +/- 10% (1.08V~1.32V).
   The power sequence is as shown in Figure-2.

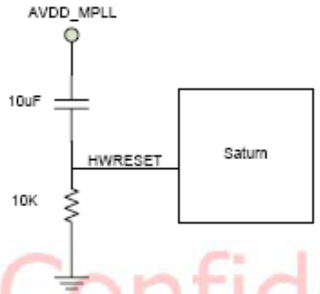

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Figure-1 Reset Application Circuit

   i. External 3.3V LDO + external 1.8V LDO, the timing is as Figure-2.
   ii. The RST waveform must satisfy Figure-2 with parameter as Table1.

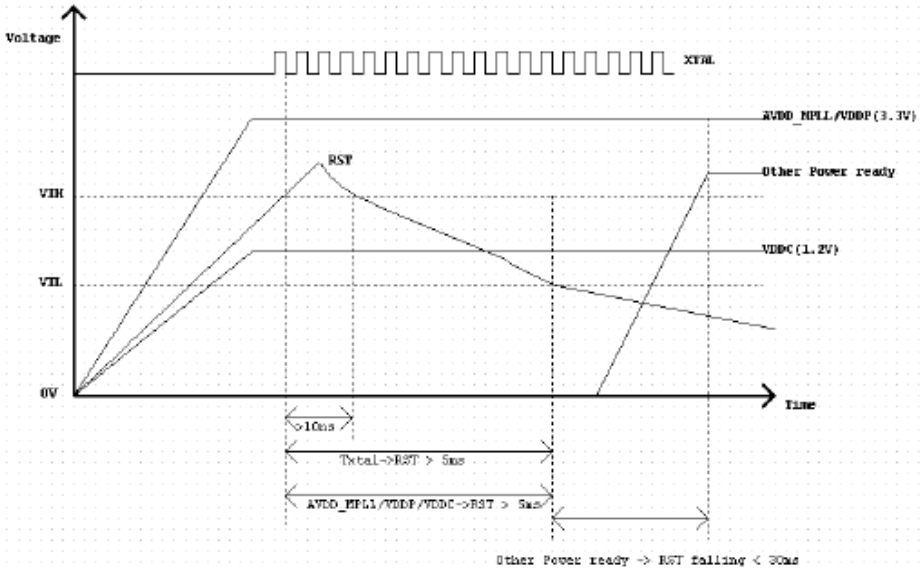

Figure-2 Correct Power Sequence for External 3.3V LDO + External 1.2V LDO

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PDP TV Repair Process Index

- Trouble shooting by worst symptom

No.	Symptom (L)	Symptom (M)	Page	Remark
1	A. Picture Problem	No Picture/Sound OK	1	
2		No Picture/No sound	2	
3		Mal-discharge/Noise/dark picture	3	
4		Picture broken/Freezing	4	
5		Vertical bar/ Horizontal Bar	5	
6	B. Power Problem	No Power (Not turn on)	6	
7		Turn off (Instant, under watching)	7	
8	C. Sound Problem	No sound/ Sound distortion	8	
9	E. General function Problem	Remote control & Local switch checking	9	

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

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Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2009. 2 . 1	
		No Picture/Sound OK	Revision		1/9

First of all, Check whether all of cable between board was inserted properly or not.
(Main B/D↔ Power B/D, Power B/D↔ Y-sus B/D,Y-Sus B/D ↔Z-Sus B/D,LVDS Cable,Speaker Cable,IR B/D Cable,,,)

Check Module pattern by using “TILT” key on SVC R/C

Normal → Y → Check Sound → **Sound OK** → Y → Check LVDS Cable → **Normal** → Y → Close

Sound OK → N → Move No Picture/No sound Section

Normal → N → Replace Main B/D

Normal → N → Check Vs, Va → **Normal** → Y → Check voltage . -VY . VSC . VZB → **Normal** → Y → Check B+ Voltage on Power Board / Control Board .Check B+(5V) → **Normal** → Y → 1.Check Control Board . LED on . Crystal(X101) . 1.8V, 3V, 5V FET . Rom update 2.Replace Control B/D

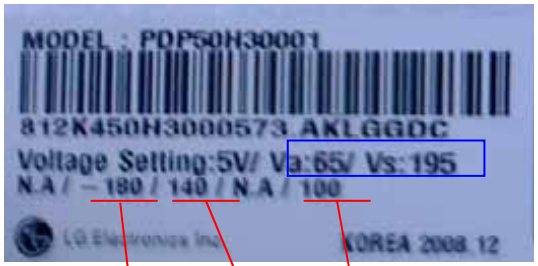
Normal → N → Move Power problem Section

Normal → N → 1. Check Y-Sus/ Z-Sus Board 2. Replace defective B/D

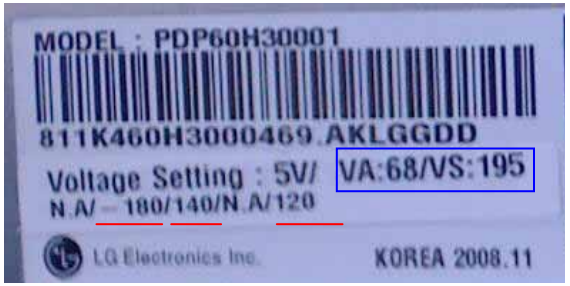
Normal → N → Move Power problem Section

<SVC R/C & Pattern>

※Refer to the Module label for each voltage



-VY VSC VZB



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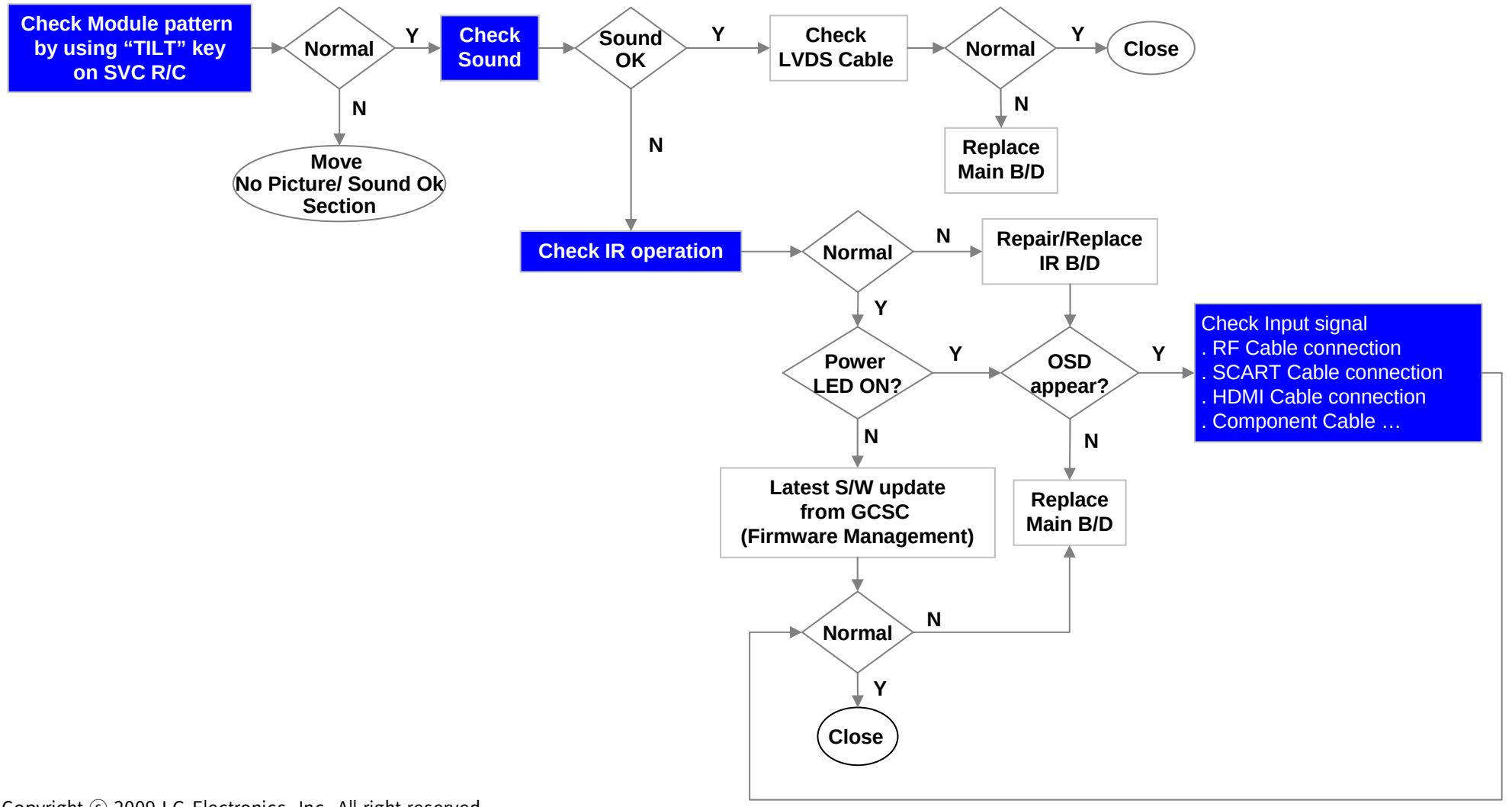

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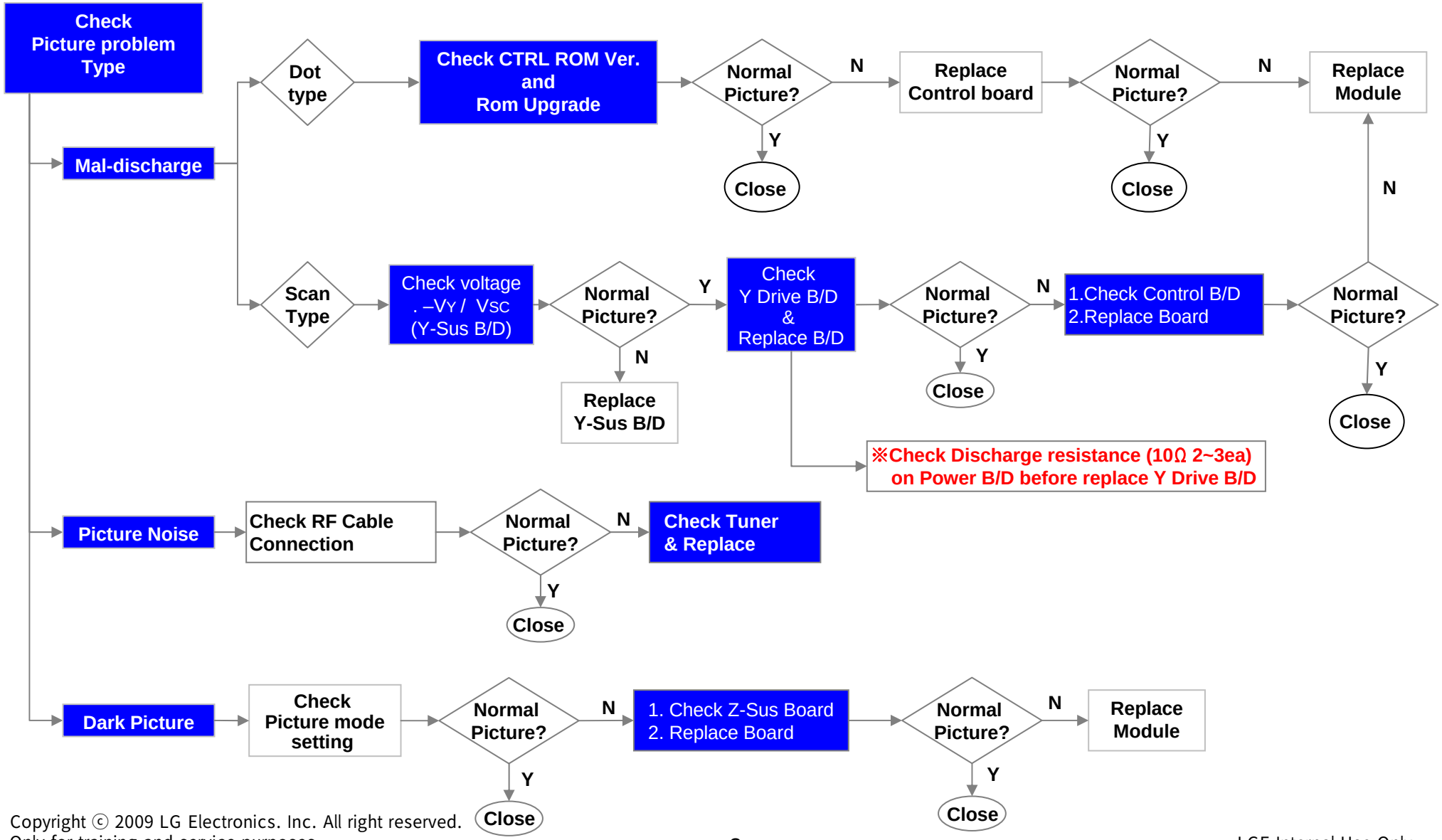
Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2009. 2 . 1	
		Mal-discharge/Noise/dark picture	Revision		3/9



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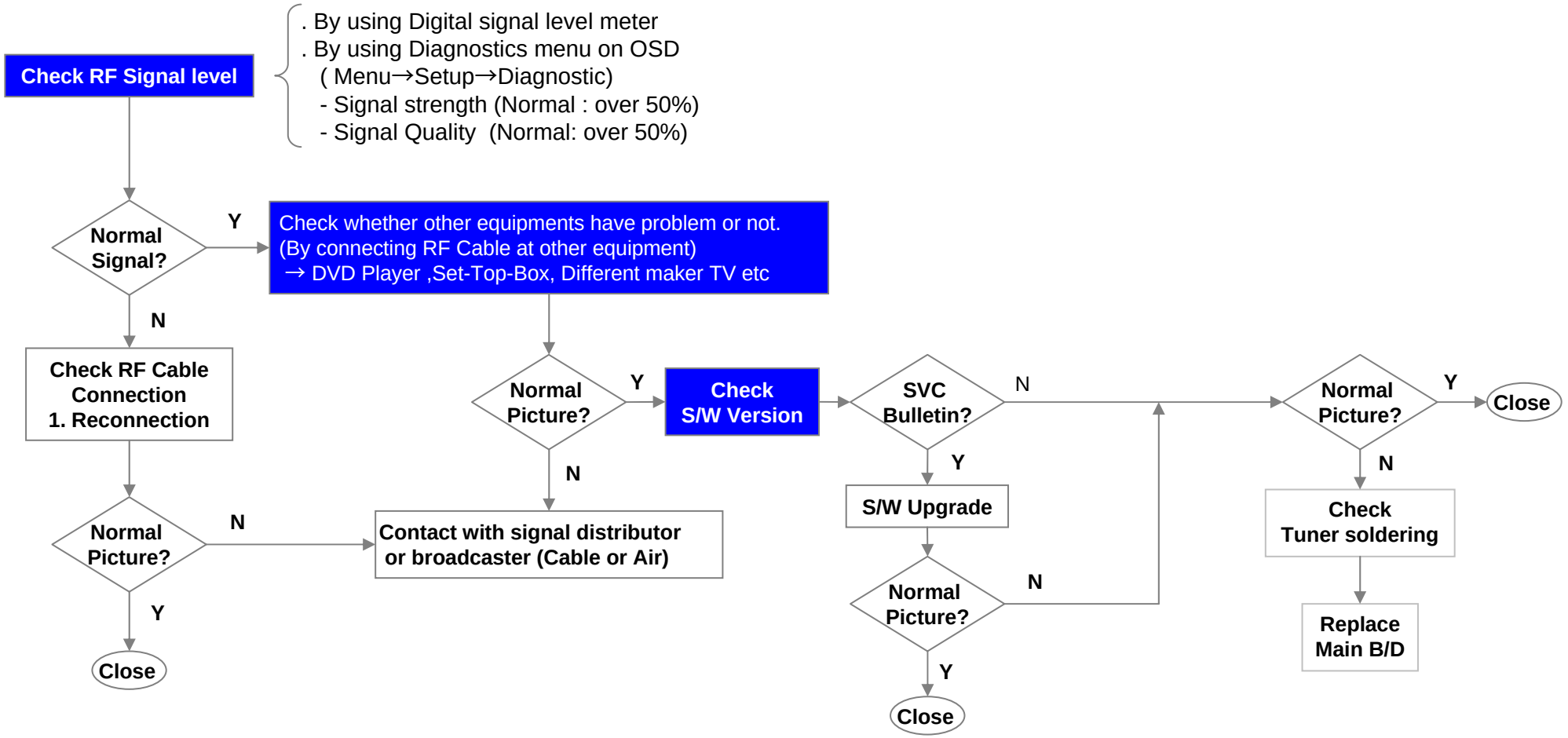
Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2009. 2 . 1	
		Picture broken/Freezing	Revision		4/9



※ '09 years new model apply chip tuner
so, chip tuner is soldered on main PCB
[Chip Tuner: IC1104(XC5000)]

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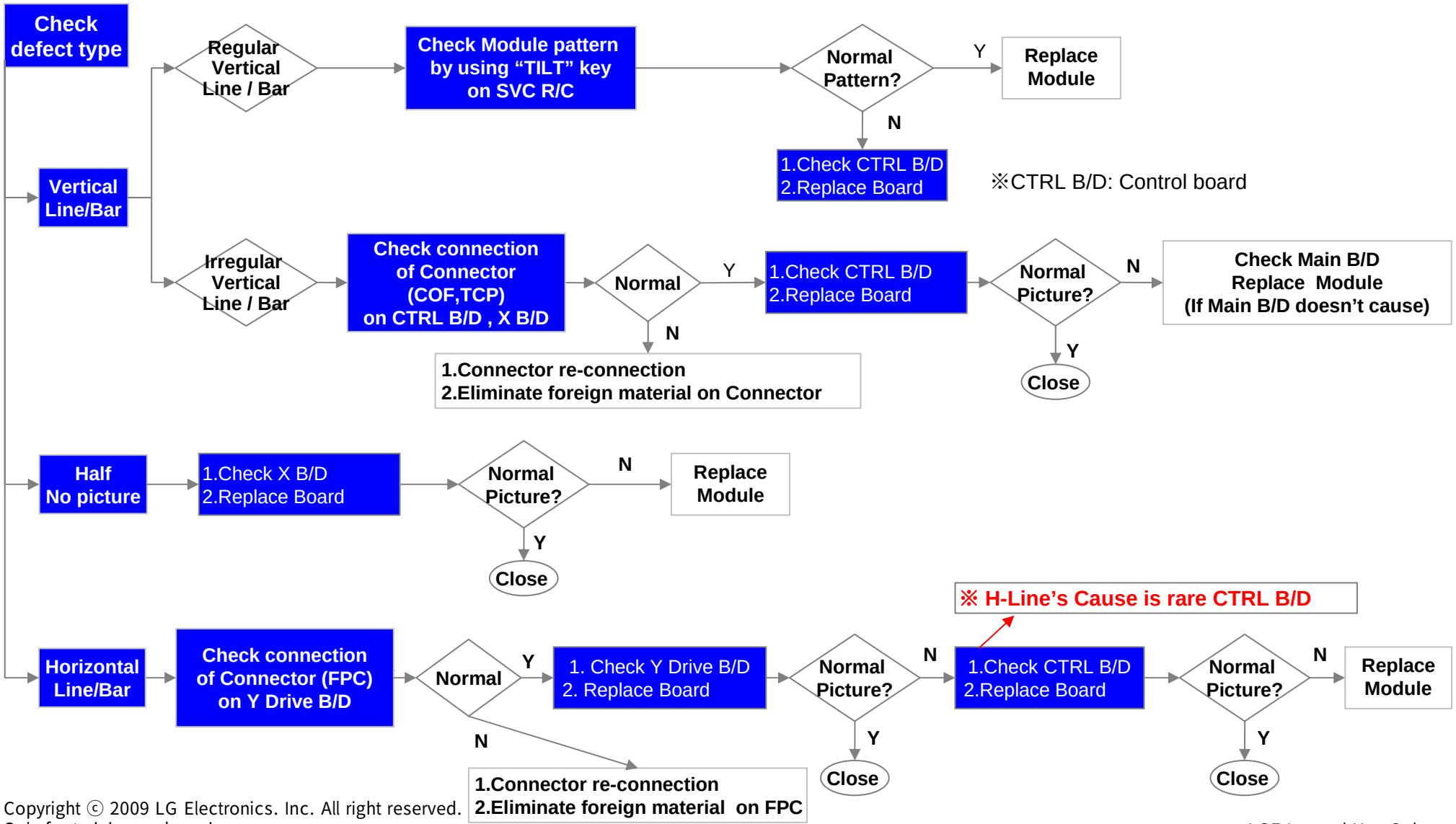
Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2009. 2 . 1	
		Vertical bar/ Horizontal Bar	Revision		5/9



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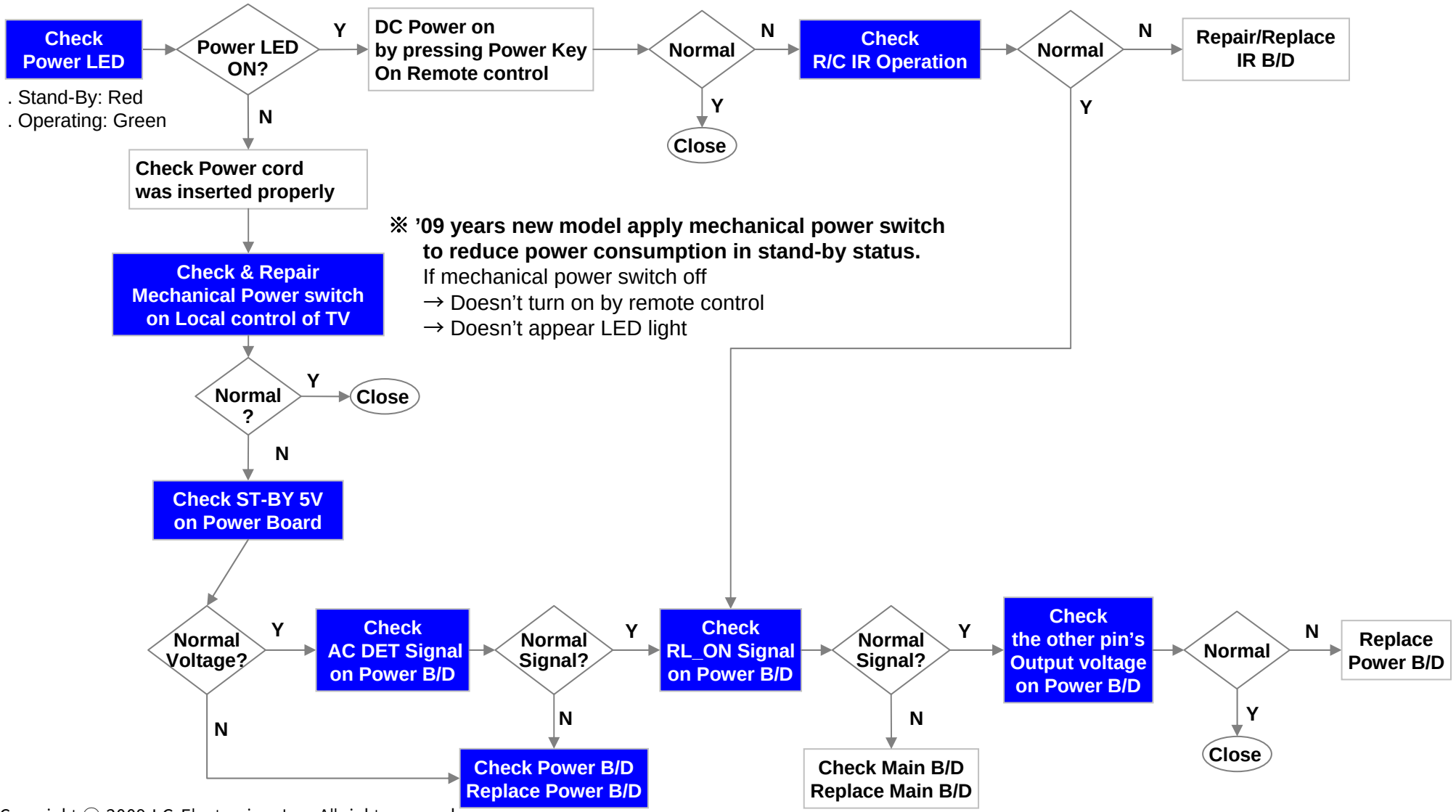
Repair Process

PDP TV	Symptom	B. Power Problem	Making	2009. 2 . 1	
		No Power (Not turn on)	Revision		6/9



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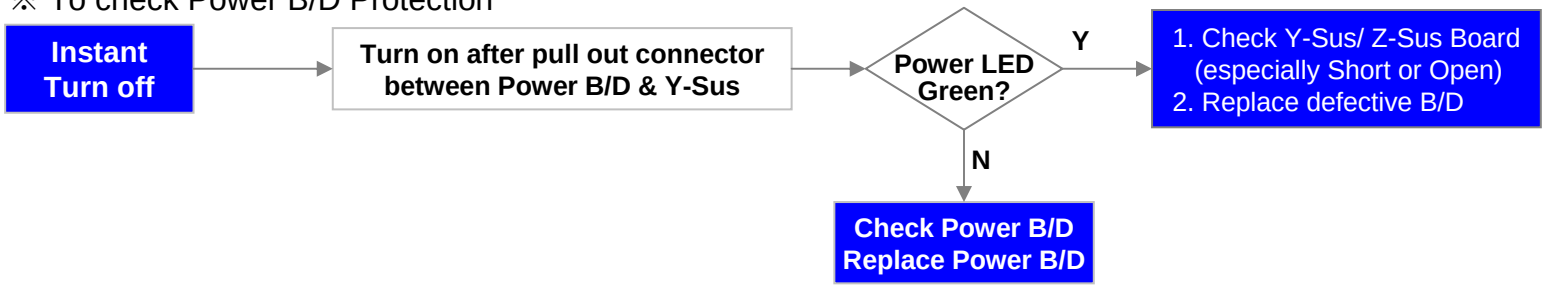
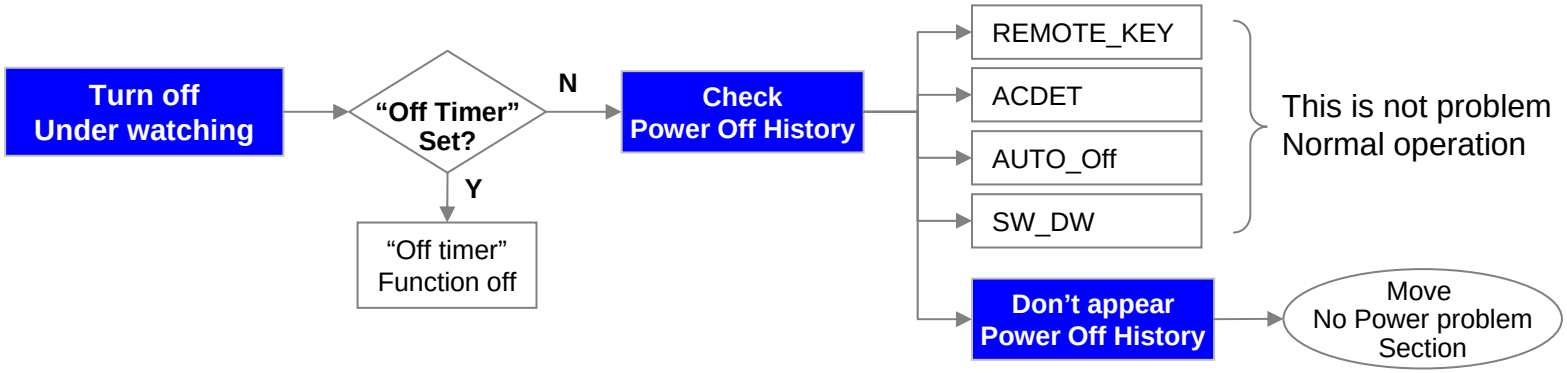
※ To check Power B/D Protection





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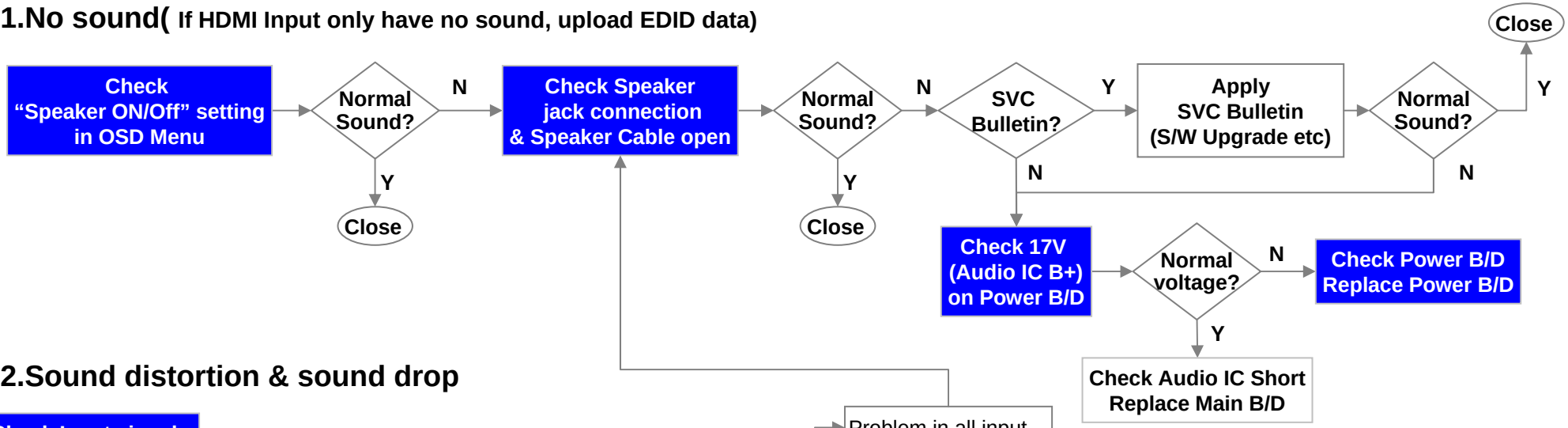
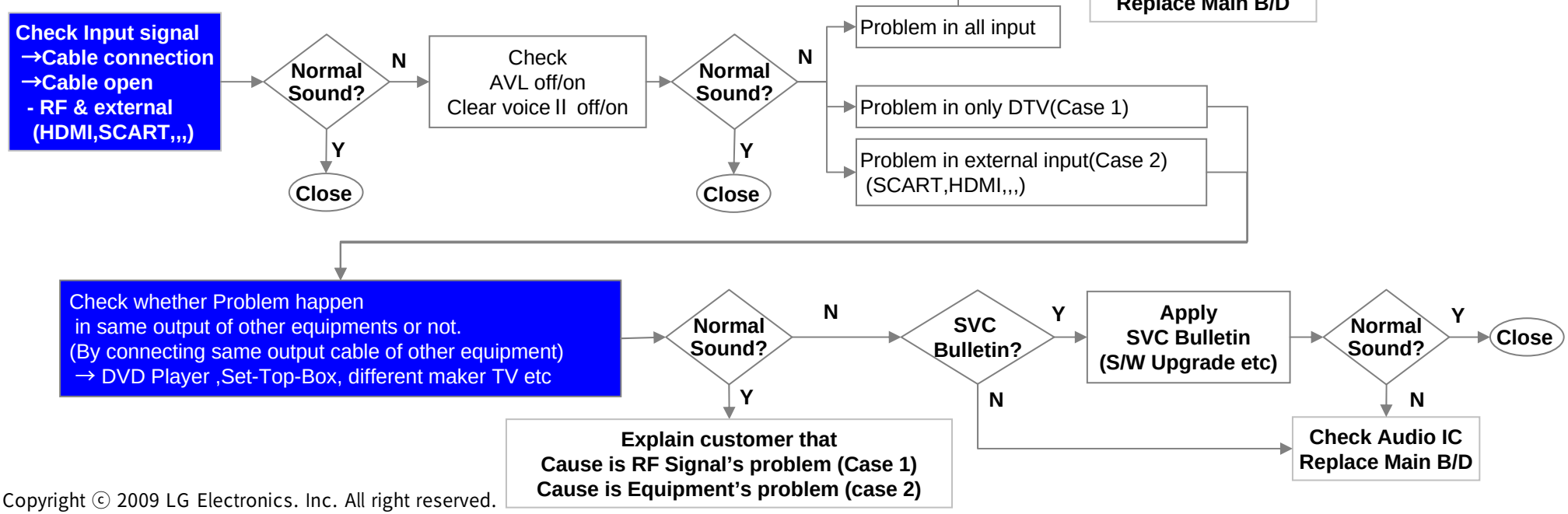
1.No sound(If HDMI Input only have no sound, upload EDID data)



2.Sound distortion & sound drop



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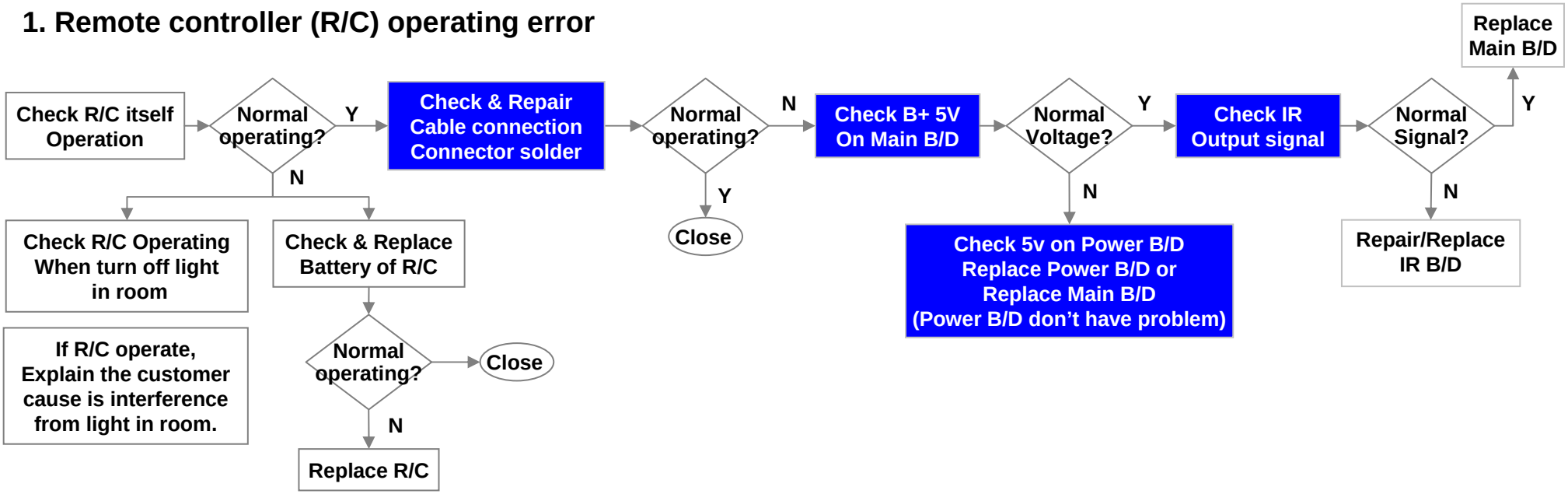
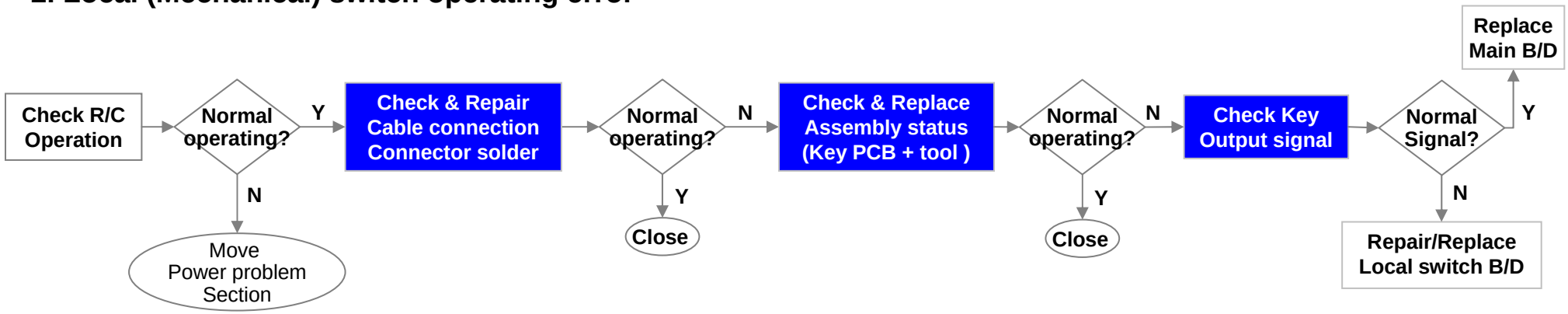
1. Remote controller (R/C) operating error



2. Local (Mechanical) switch operating error



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PDP TV Repair Process Index

- Trouble shooting by input block (Component level check)

No.	Symptom (L)	Input Block	Page	Remark
1	Power Problem	Power-up Boot fail	1	
2	Video Probelm	Digital TV	2	
3		Analog TV	3	
4		Component	4	
5		RGB(D-SUB)	5	
6		AV(Scart / CVBS/ S-Video)	6	
7		HDMI	7	
8	Audio Problem	All Input	8	
9		Digital TV / HDMI	9	
10		Analog TV	10	
11		Component / AV / RGB	11	
12		Optical Audio	12	
13	USB Problem	USB Problem	13	
14	No OSD	All Input	14	

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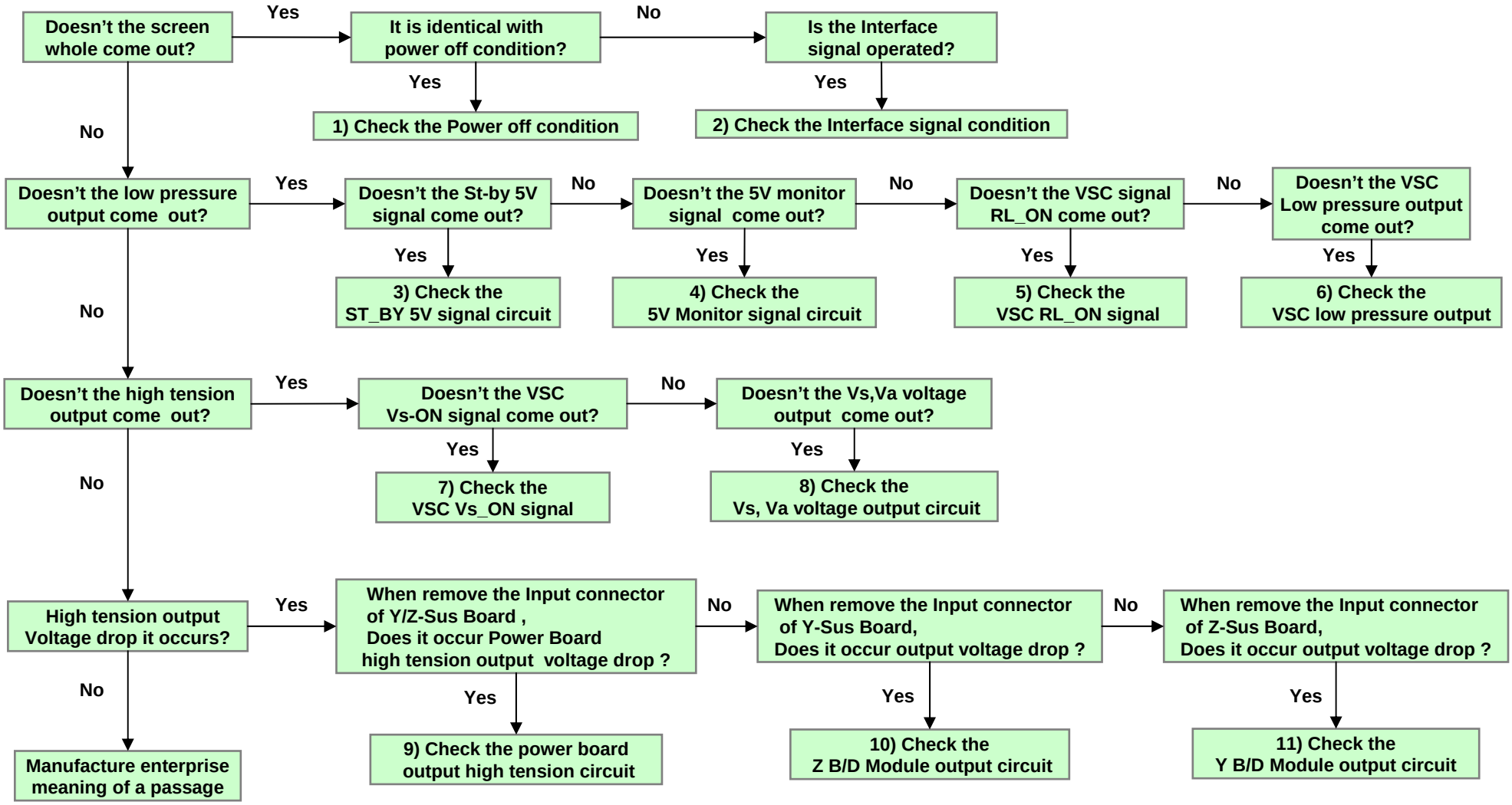
PDP TV	Symptom	Power-Up Boot Fail	Making	2009. 2 . 1	
			Revision		1/14



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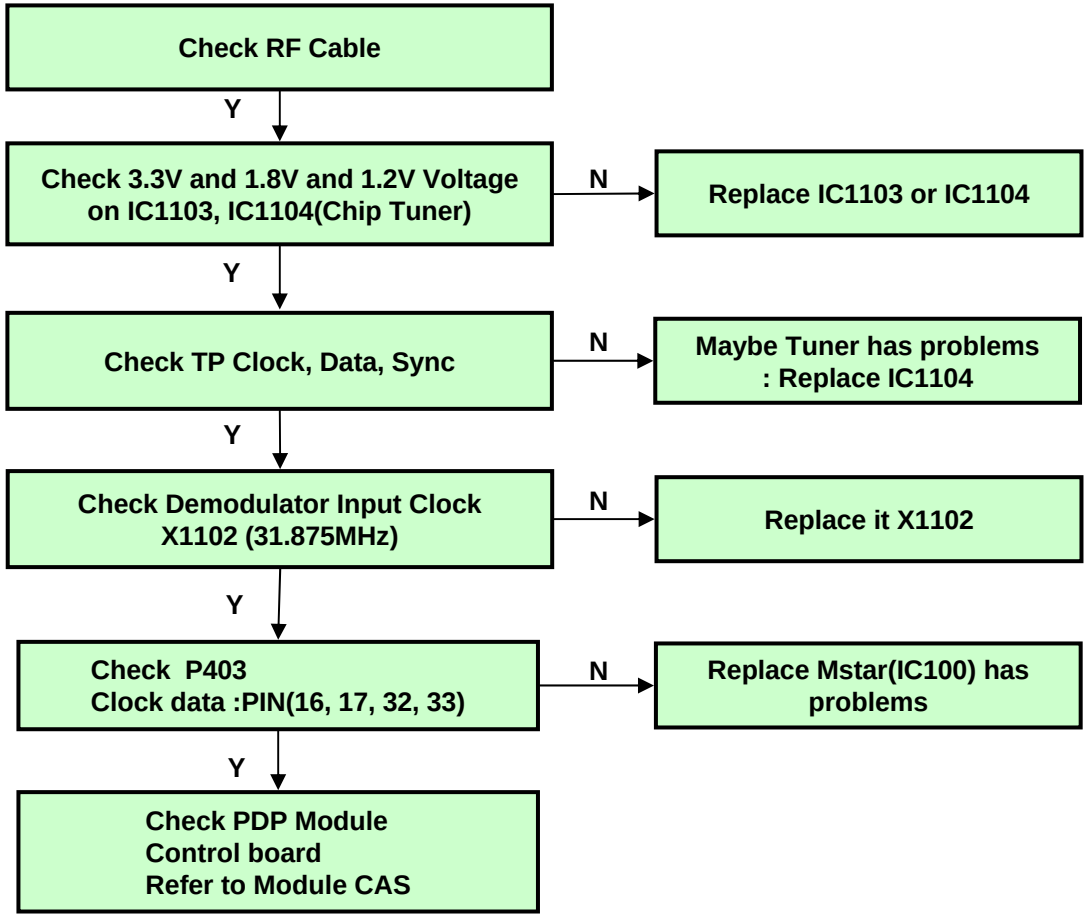

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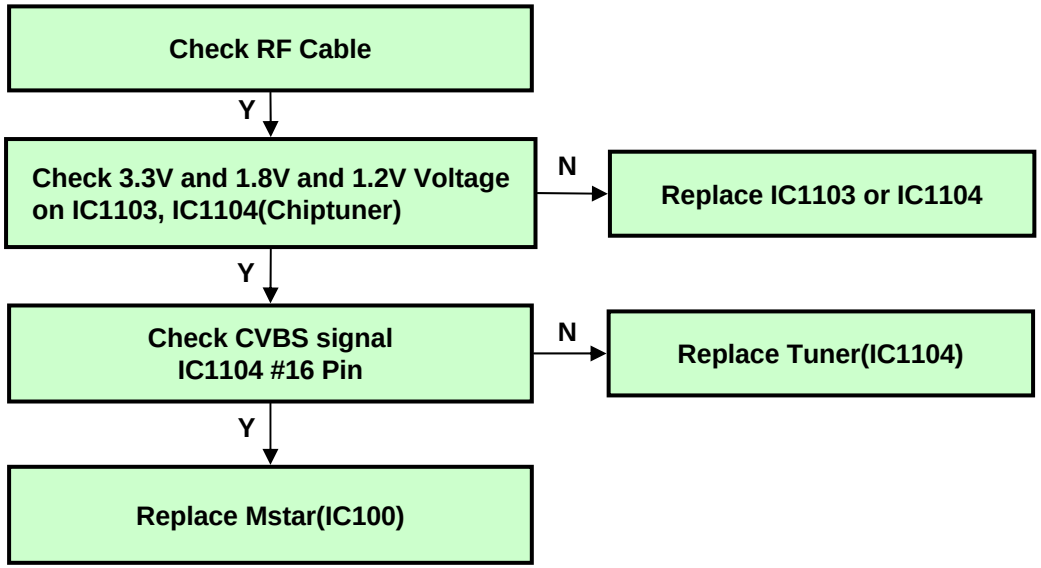

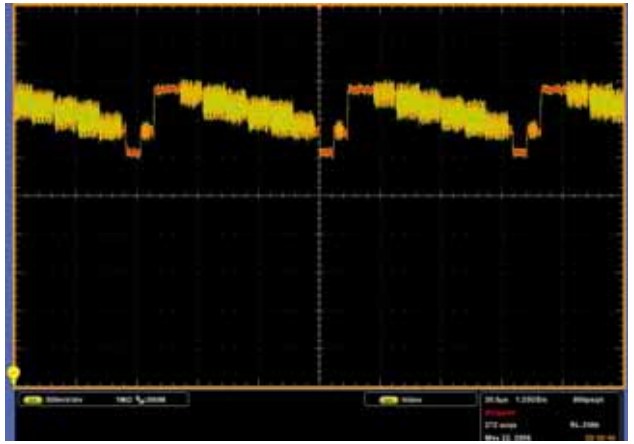

< CVBS waveform – sample >
- Defend on the input signal.

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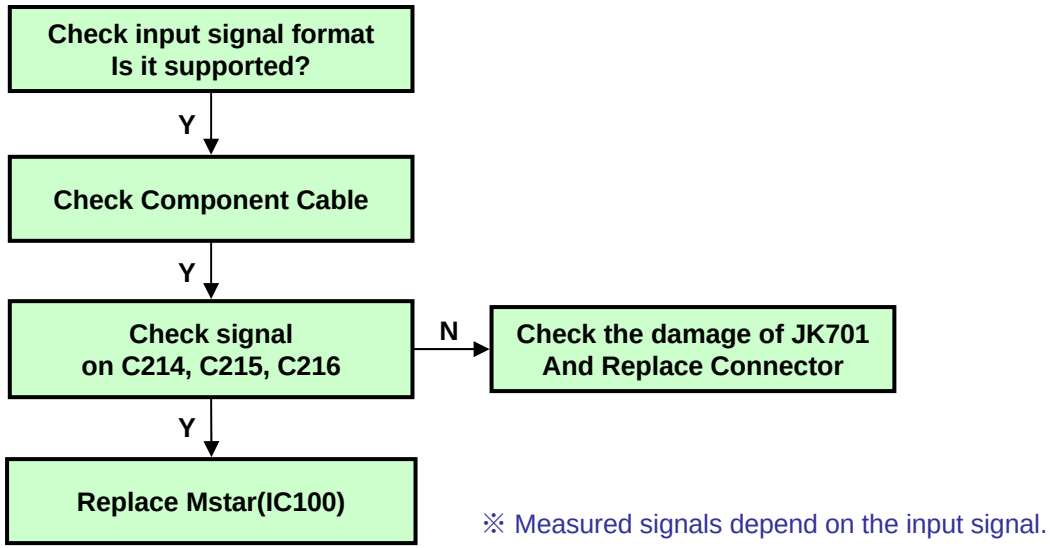

※ Measured signals depend on the input signal.

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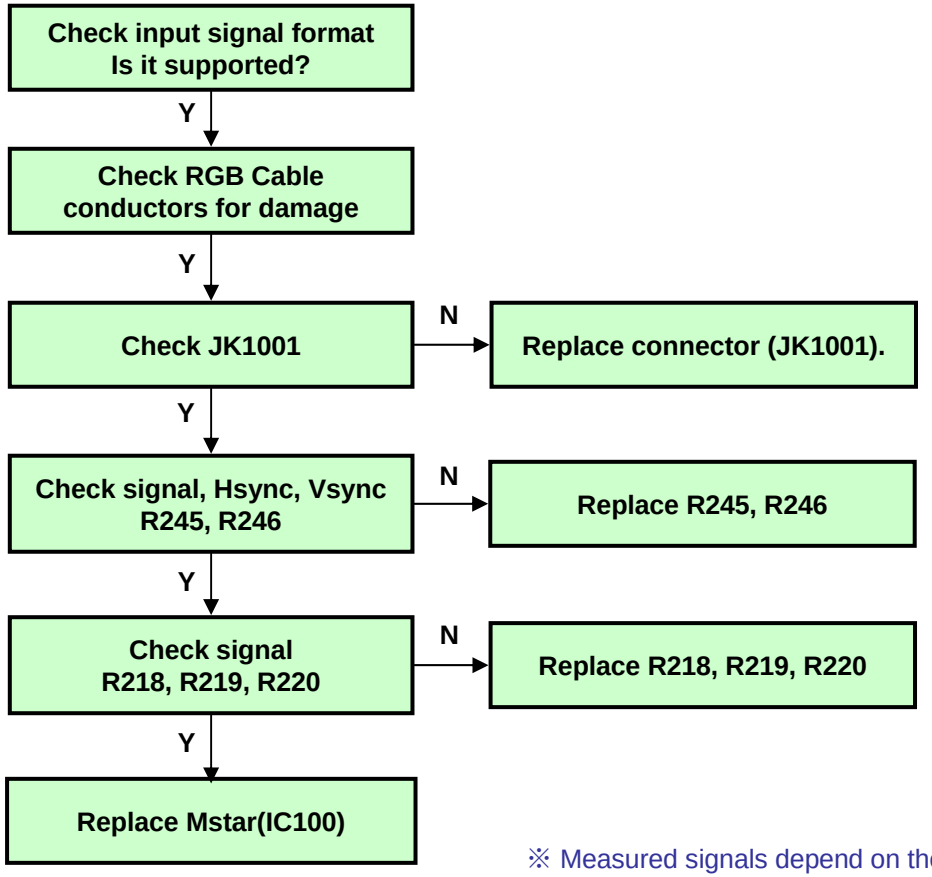

※ Measured signals depend on the input signal.

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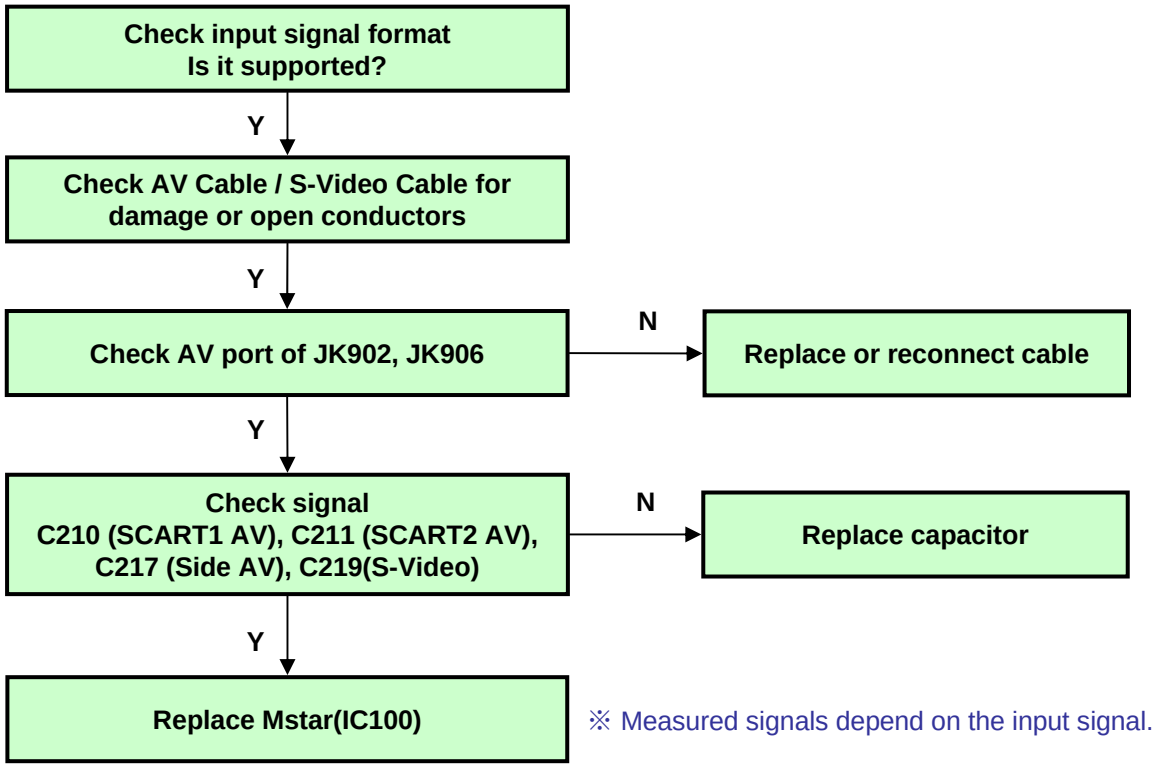

※ Measured signals depend on the input signal.

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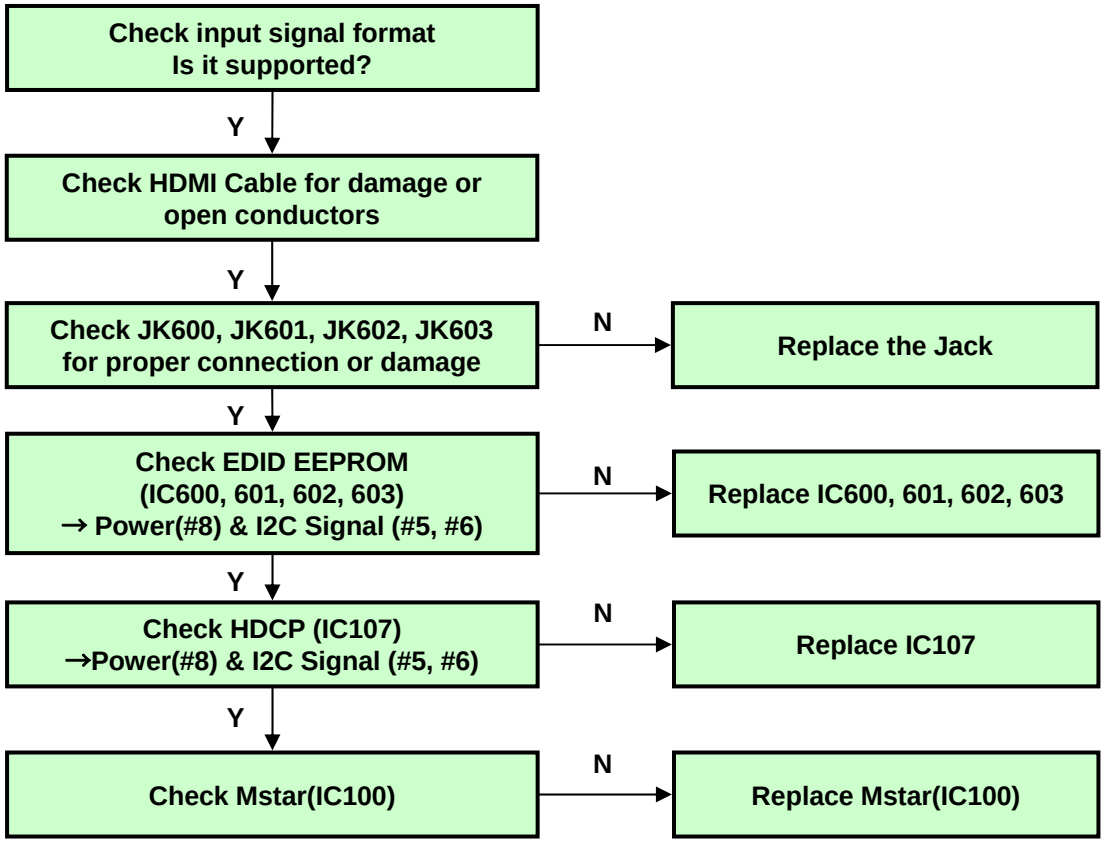

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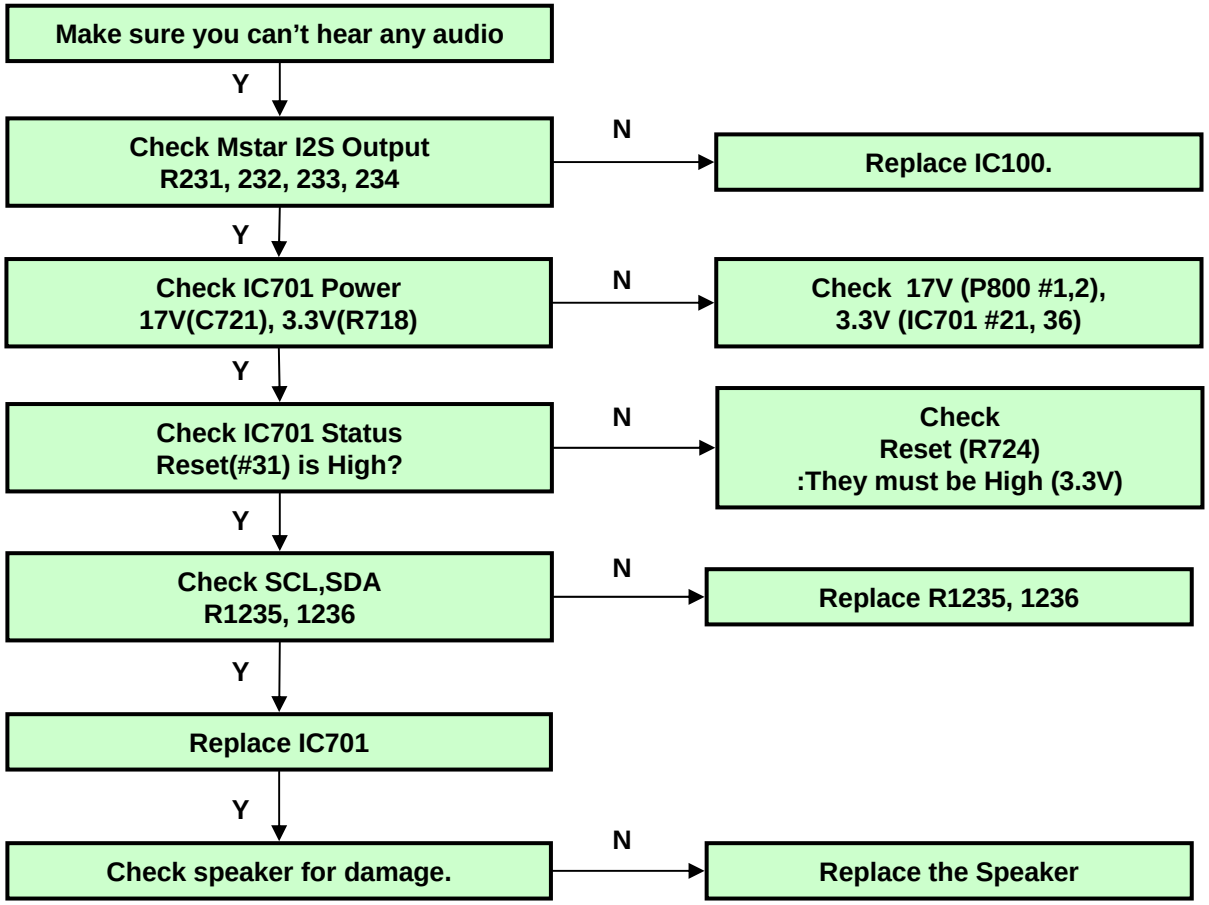

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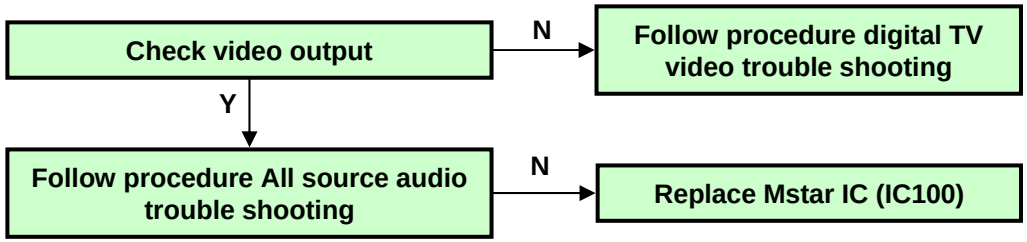
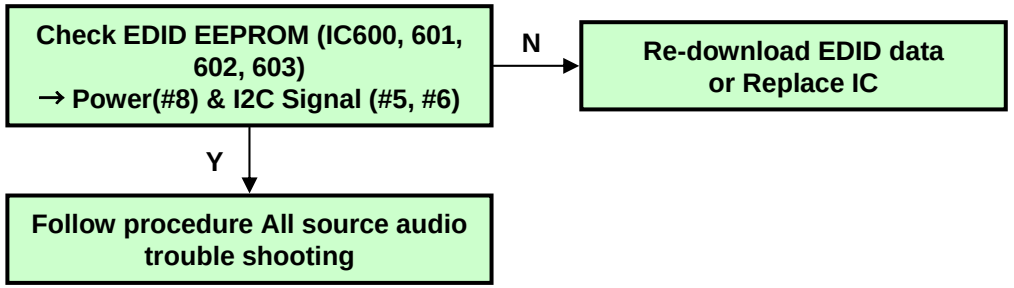
◆ Digital TV



◆ HDMI



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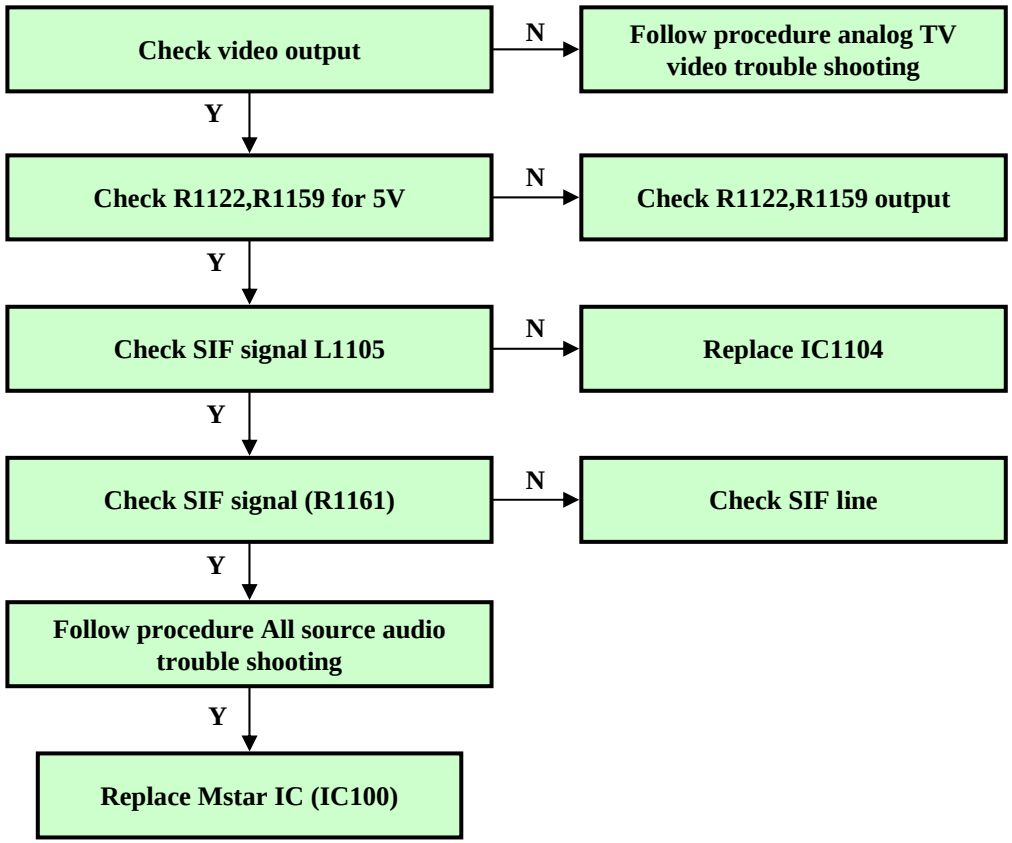

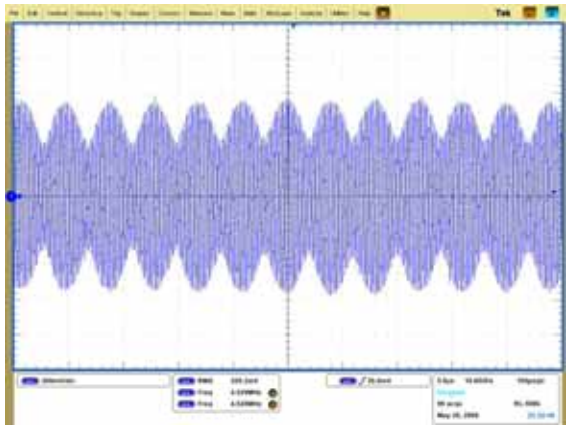

< SIF waveform – sample >
- Defend on the input signal.

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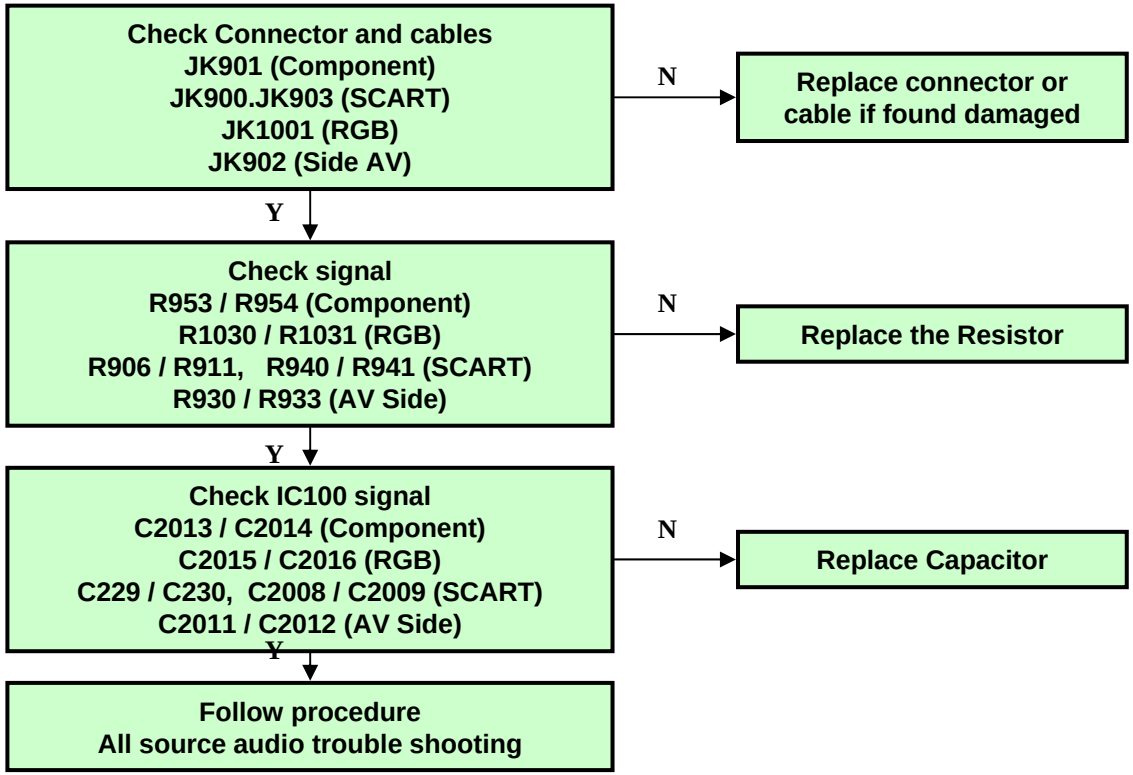

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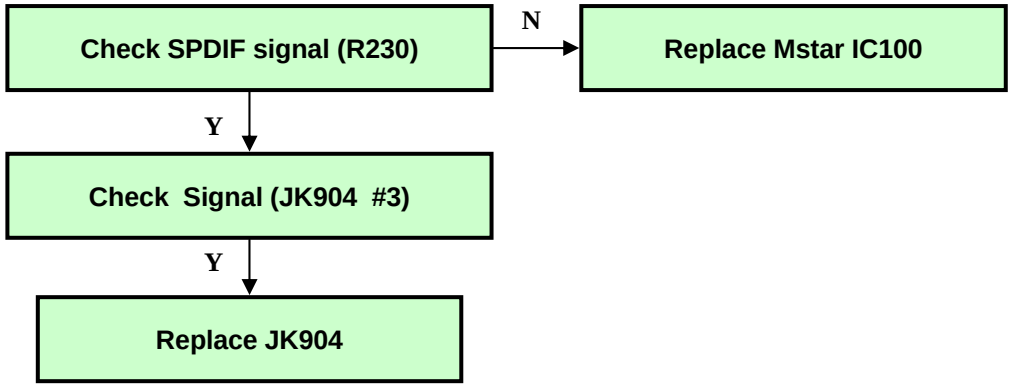

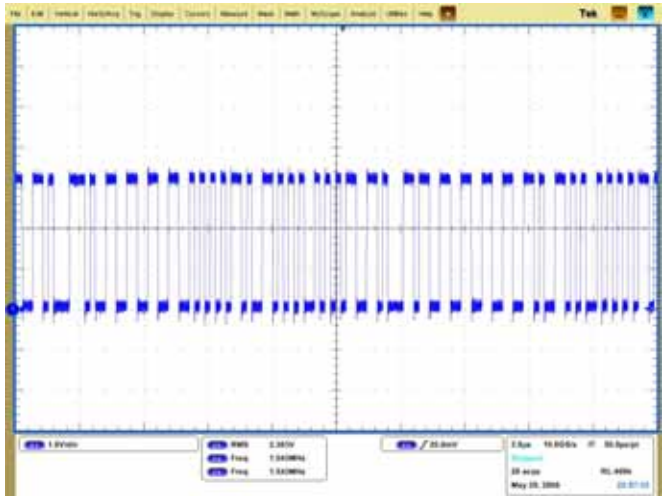

< SPDIF waveform – sample >
- Defend on the input signal.

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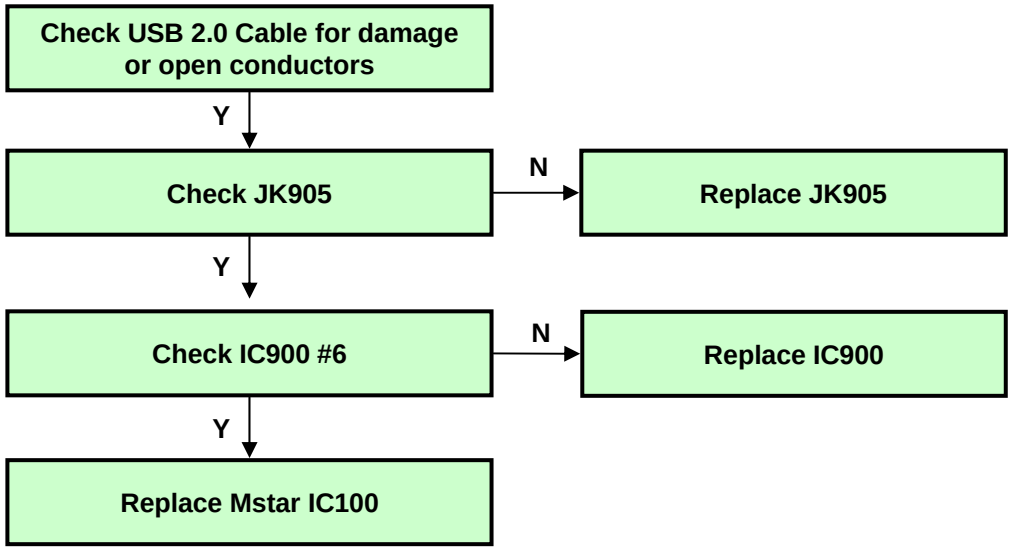

- **Exception**
  - **USB power could be disabled by inrushing current**
  - **In this case, remove the device and try to reboot the TV (AC power off/on)**

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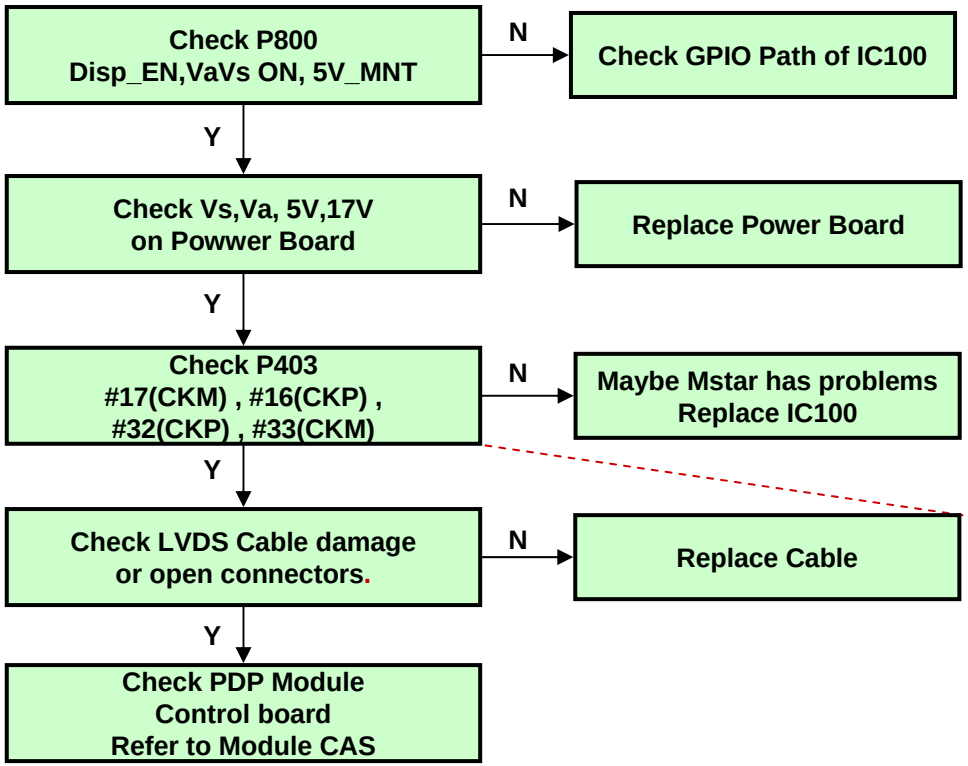

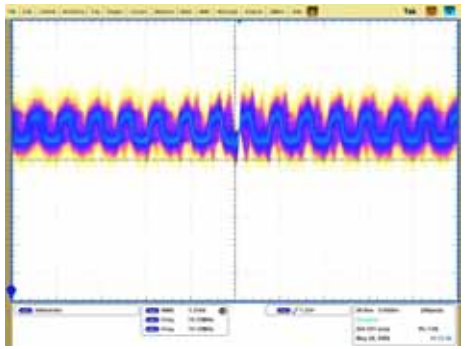

It should satisfy the Pixel Clock on CAS.

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