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PLASMA TV

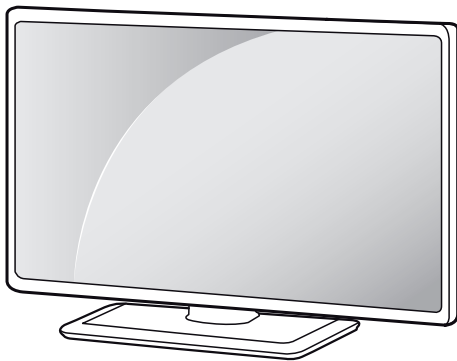
SERVICE MANUAL

CHASSIS : PD43A

MODEL : 50PB690V 50PB690V-ZC

CAUTION

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



P/NO : MFL68163301 (1403-REV00)

Printed in Korea

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

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

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

Do not modify the original design without permission of manufacturer.

General Guidance

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

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

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

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

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

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

Leakage Current Cold Check(Antenna Cold Check)

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

If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 M Ω and 5.2 M Ω .

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

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

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

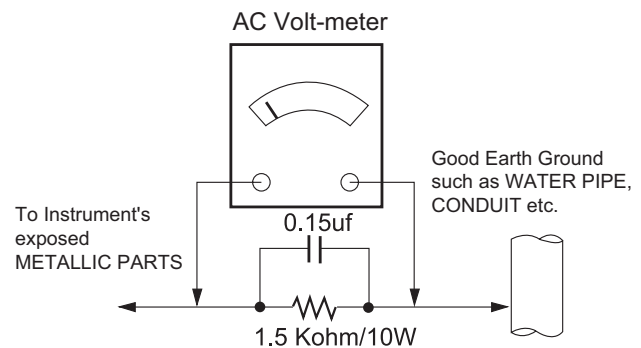
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

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

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

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

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1

*Base on Adjustment standard

SPECIFICATION

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

1. Application range

This spec sheet is applied all of the PDP TV with PD43A chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

(1) Temperature: $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 9^{\circ}\text{F}$), CST: $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$

(2) Relative Humidity: $65\% \pm 10\%$

(3) Power Voltage

: Standard input voltage (AC 100-240 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 5 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

- 50" FHD

No	Item	Specification	Remark
1	Display Screen Device	127 cm (50 inch) wide Color Display Module	PDP
2	Aspect Ratio	16:9	
3	PDP Module	PDP50R6####, RGB Closed (Well) Type, Glass Filter (43%) Pixel Format: 1920 horiz. By 1080 ver.	
4	Operating Environment	1) Temp. : $0 \sim 40^{\circ}\text{deg}$ 2) Humidity : $20 \sim 80\%$	LGE SPEC
5	Storage Environment	3) Temp. : $-20 \sim 60^{\circ}\text{deg}$ 4) Humidity : $10 \sim 90\%$	
6	Input Voltage	AC220 ~ 240V, 50/60Hz	Maker LG

5. Model General Specification

No	Item	Specification	Remark
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 / T2 6) DVB C 7) DVB S/S2	EU (PAL Market) Supporting T2/C/S is for **PB***V
3	Receiving system	Analog : Upper Heterodyne Digital : COFDM	► DVB-T (T2 Need Update) - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32 - Modulation : Code Rate QPSK : 1/2, 2/3, 3/4, 5/6, 7/8 16-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 64-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 ► DVB-C - Symbolrate : 4.0Msymbols/s to 7.2Msymbols/s - Modulation : 16QAM, 64-QAM, 128-QAM and 256-QAM ► DVB-S - symbolrate DVB-S2 (8PSK / QPSK) : 2 ~ 45Msymbol/s DVB-S (QPSK) : 2 ~ 45Msymbol/s - viterbi DVB-S mode : 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 mode : 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10
4	Scart Jack (1EA)	PAL, SECAM	Scart 1 Jack is Full scart and support RF-OUT(Analog), MNT-OUT
5	Video Input (1EA)	PAL, SECAM, NTSC	
6	Component Input (1EA)	Y/Cb/Cr, Y/ Pb/Pr	
7	HDMI Input (3EA)	HDMI-PC HDMI-DTV HDMI-MHL	HDMI1(ARC), HDMI2(DVI) , Side HDMI3(MHL)
8	Audio Input (1EA)	Component + AV(Hybrid)	L/R Input
9	SPDIF Out (1 EA)	SPDIF Out	
10	USB(3EA-FHD)	For SVC, S/W Download, X-Studio, DivX-HD	
11	Ethernet LAN(1EA)		
12	PCMCIA(1EA)	Common Interface	

ADJUSTMENT INSTRUCTION

1. Application Range

This spec. sheet applies to PD43A chassis applied PDP TV all models manufactured in TV factory.

2. Specification

- (1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
- (2) Adjustment must be done in the correct order.
- (3) The adjustment must be performed in the circumstance of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ of temperature and $65 \pm 10\%$ of relative humidity if there is no specific designation.
- (4) The input voltage of the receiver must keep 100~240V, 50/60Hz.
- (5) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15°C

- In case of keeping module is in the circumstance of 0°C , it should be placed in the circumstance of above 15°C for 2 hours
- In case of keeping module is in the circumstance of below -20°C , it should be placed in the circumstance of above 15°C for 3 hours.

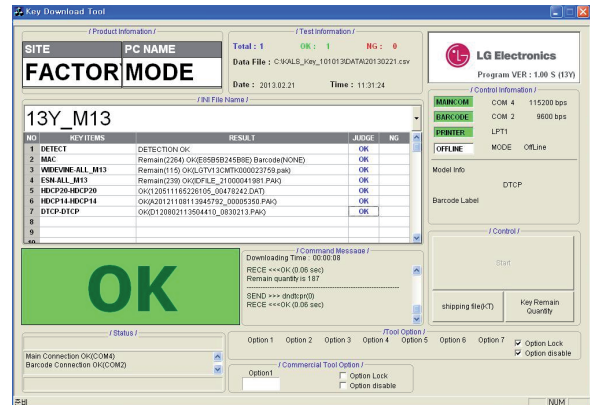
- After RGB Full White in HEAT-RUN Mode, the receiver must be operated prior to the adjustment.
- Enter into HEAT-RUN MODE
 - 1) Press the POWER ON KEY on R/C for adjustment.
 - 2) OSD display and screen display PATTERN MODE.
- Set is activated HEAT run without signal generator in this mode.
- Single color pattern (WHITE) of HEAT RUN MODE uses to check panel.
- Caution : If you turn on a still screen more than 20 minutes (Especially digital pattern, cross hatch pattern), an after image may be occur in the black level part of the screen.

3. PCB Assembly adjustment

* Caution : Using 'power on' button of the control R/C power on TV

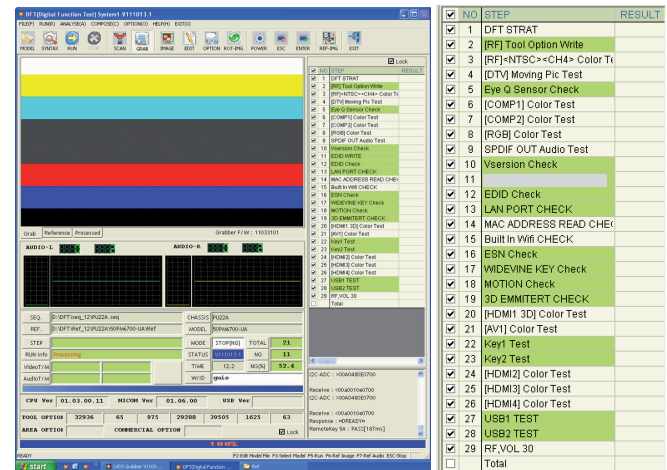
3.1. MAC address D/L , CI+ key D/L , Widevine key D/L, ESN D/L, HDCP14/20 D/L, DTCP(optional)

- Connect: USB port
Communication Prot connection
- Com 1,2,3,4 and 115200(Baudrate)
- Mode check: Online Only
- check the test process
- DETECT -> MAC -> CI -> Widevine -> ESN -> HDCP14 -> HDCP20 -> DTCP(Optional)
- Play : Press Enter key
 - Result: Ready, Test, OK or NG
 - Printer Out (MAC Address Label)



3.2. DFT Process

* Depend on situation, Step can be changed.



* Condition spec

Mode	Volume	Power Off
RF	0	DC On

3.3. Tool OPTION (MANUAL)

- (1) Insert Access USB Memory Stick
- (2) Press ADJ key on R/C to insert Tool OPTION
- (3) On the " Tool Option ", Insert Tool Option by a number key
- (4) Press the ENTER(■)
- (5) Press ENTER(■) again.
- (6) Select "OK to Download" by using ◀/▶(VOL +/-) and press ▶(VOL +)

Tool option 1	Tool option 2	Tool option 3	Tool option 4	Tool option 5	Tool option 6	Tool option 7
32886	12306	161	64093	6295	1609	13455

3.4. EDID (The Extended Display Identification Data)

■ HDMI [C/S: 96 71] : For 3D FHD (DTS) Models

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	18	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	81	80	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	80	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	96

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	02	03	36	F1	4E	10	9F	04	13	05	14	02	03	12	20	22
10	15	21	01	29	3D	06	C0	15	07	50	09	57	07	78	03	0C
20	00	10	00	B8	2D	20	C0	0E	01	4F	3F	FC	08	10	18	10
30	06	10	16	10	28	10	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	01	1D	80	18	71	1C	16	20
50	58	2C	25	00	40	84	63	00	00	9E	01	1D	00	72	51	00
60	1E	20	6E	28	55	00	40	84	63	00	00	1E	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	71

Physical Address

* CheckSum & Physical Address Table.

- Each HDMI Input has their own physical address(on Address:9E). So, each HDMI Input has different C/S value.

■ HDMI INPUT Physical Address Table

Address	HDMI1	HDMI2	HDMI3
A1	10	20	30

■ HDMI INPUT C/S Table.

- FHD 3D DTS

	HDMI1	HDMI2	HDMI3
Checksum	9671	9661	9651

4. SET assembly adjustment method

* Caution: Each PCB assembly must be checked by check JIG set. (Because power PCB Assembly damages to PDP Module, especially be careful)

4.1. POWER PCB Assembly Voltage adjustment

(Va, Vs voltage adjustment)

Test equipment : D.M.M 1EA

Connection Diagram for Measuring : refer to fig.4

Adjustment method

4.1.1. Va adjustment

- (1) Connect + terminal of D. M.M. to Va pin of P811, connect -terminal to GND pin of P811.
- (2) After turning VR502, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top (deviation; $\pm 0.5V$)

4.1.2. Vs adjustment

- (1) Connect + terminal of D. M.M. to Vs pin of P811, connect -terminal to GND pin of P811.
- (2) After turning VR901, voltage of D.M.M adjustment as same as Vs voltage which on label of panel right/top (deviation ; $\pm 0.5V$)

4.2. Adjustment of White Balance

- Required Equipment

- Remote controller for adjustment
- Color Analyzer (CS-1000, CA-210 or same product : CH 10 (PDP)
* Please adjust CA-210 by CS-1000 before measuring
- Auto W/B adjustment instrument(only for Auto adjustment)
- 9 Pin D-Sub Jack(RS232C) is connected to the AUTO W/B EQUIPMENT

Before Adjust of White Balance, Please press POWER ONLY key

- Adjust Process will start by execute RS232C Command.
- Color temperature standards according to CSM and Module

CSM	PLASMA
Cool	11000K
Medium	9300K
Warm	6500K

- CS-1000/CA-100+/CA-210(CH 10) White balance adjustment coordinates and color temperature.

CSM	Color Coordination		Temp	$\pm$ Color Coordination
	x	y		
COOL	0.276	0.283	11000K	0.002
MEDIUM	0.285	0.293	9300K	0.002
WARM	0.313	0.329	6500K	0.002

- Change target luminance and range of the Auto adjustment W/B equipment
- 50/60R5

Target luminance	50
Range	±23

- * Manual W/B process (using adjusts Remote control)
- Please Adjust in AV 1 MODE, Turn off Energy Saving Mode.
 - 1) Enter 'PICTURE RESET' on Picture Mode, and then turn off Fresh Contrast and Fresh colour in Advanced Control
 - 2) After enter Service Mode by pushing "ADJ" key,
 - 3) Enter White Pattern off of service mode, and change off -> on.
 - 4) Enter "W/B ADJUST" by pushing "►" key at "3. W/B ADJUST".

- * Gain Max Value is 192. So, Never make any Gain Value over 192 and please fix one Value on 192, between R, G and B.

	Min	Typ	Max
R-GAIN	0	192	192
G-GAIN	0	192	192
B-GAIN	0	192	192

- * Auto-control interface and directions
- (1) Adjust in the place where the influx of light like floodlight around is blocked. (Illumination is less than 10ux).
- (2) Measure and adjust after sticking the Color Analyzer (CA-100+, CA210) to the side of the module.
- (3) Aging time
- After aging start, keep the Power on (no suspension of power supply) and heat-run over 5 minutes

- * Auto adjustment Map (RS232C)

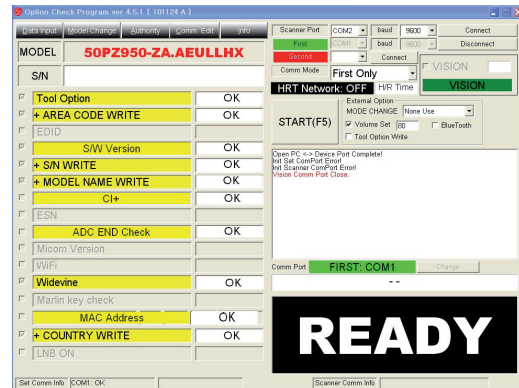
No	Index	CMD1	CMD2	Set ID	Data
1	Start	w	b	0	00
2	Gain Start	w	b	0	10
3	Gain End	w	b	0	1F
4	Offset Start	w	b	0	20
5	Offset End	w	b	0	2F
6	End	w	b	0	FF
7	Medium R	j	a	0	00~FF
8	Medium G	j	b	0	00~FF
9	Medium B	j	c	0	00~FF
10	Warm R	j	d	0	00~FF
11	Warm G	j	e	0	00~FF
12	Warm B	j	f	0	00~FF
13	Cool R	j	g	0	00~FF
14	Cool G	j	h	0	00~FF
15	Cool B	j	i	0	00~FF
16	Cool R,G,B	j	j	0	00~FF
17	Medium	j	k	0	00~FF
18	Warm	j	l	0	00~FF

4.3. Serial number download & Model name D/L.

- (1) Press "Power on" button of a service R/C.(Baud rate : 115200 bps)
- (2) Connect RS232-C Signal Cable and start 'Option Check Program Ver3.8'
- (3) Scan serial Number and press 'F5' button.
- (4) Check 'OK' on program 1) program.
- (5) Press 'In start' button on SVC R/C, check Serial Number and Model Name.

4.4. Check Tool Option and write Country Group & Area Code(Optional) D/L

- Refer to Table 3.3 insert tool option.



4.5. PING TEST

- * In this case Network setting is on Manual Setting.
Connect : SET->LAN Port == PC->LAN Port

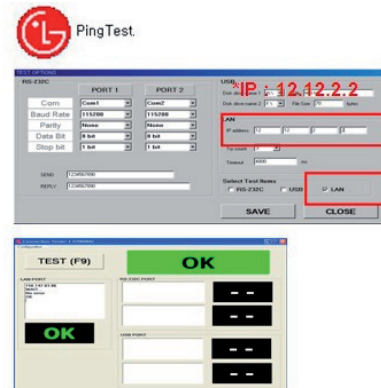


4.5.1. Equipment Setting

- (1) Play the LAN Port Test PROGRAM.
- (2) Input IP set up for an inspection to Test
* IP Number : 12.12.2.2

4.5.2. LAN PORT inspection (PING TEST)

- * In this case Network setting is on Manual Setting.
- (1) Play the LAN Port Test Program.
- (2) connect each other LAN Port Jack.
- (3) Play Test (F9) button and confirm OK Message.
- (4) remove LAN CABLE



4.6. Magic Motion Remote Controller test

- (1) Equipment: RF R/C for test,
- (2) You must confirm the battery power of RF-R/C before test (Recommend that change the battery per every lot)
- (3) Sequence (test)
 - 1) if you select the 'start key(Wheel Key)' on the controller, you can pairing with the TV SET.
 - 2) You can check the cursor on the TV Screen, when select the 'Wheel Key' on the controller
 - 3) You must remove the pairing with the TV Set by select 'Mute Key' on the controller.

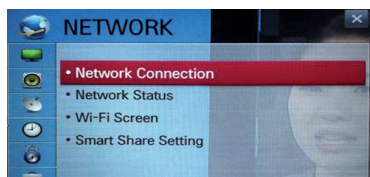
- (2) When 3D OSD appear automatically, then press OK button on ADJ Remote Controller.
- (3) Check the picture. The picture must be same as below. (Don't have to wear 3D glasses.)



4.7. Wi-Fi Test

Step 1) Turn on TV

Step 2) Select 'Network Connection' option in Network Menu.



Step 3) Select 'Start Connection' Button in 'Network Connection'.



Step 4) If the system finds any AP like blow PIC, it is working well.



4.9 LNB voltage and 22KHz tone check

(1) Test method

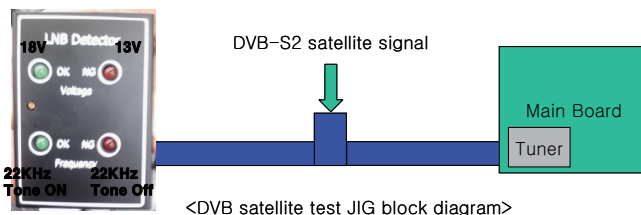
- 1) Press "Power on" button of a service R/C.(Baud rate : 115200 bps)
- 2) Connect cable between satellite ANT and test JIG.
- 3) Connect RS232-C Signal Cable.
- 4) Write LNB ON control command through RS-232-C.
- 5) check LED light 'ON' at 18V menu.
- 6) check LED light 'ON' at 22KHz tone menu.
- 7) Write LNB OFF control command through RS-232-C.
- 8) check LED light 'OFF' at 18V menu.
- 9) check LED light 'OFF' at 22KHz tone menu.

(2) RS-232 command for test LNB

	Command	Set ACK
LNB On	[A][I][][Set ID][][30][Cr]	[O][K][x] or NG : [N][G][x]
LNB Off	[A][I][][Set ID][][40][Cr]	[O][K][x] or NG : [N][G][x]

(3) Test result

- After send LNB On command, '18V LED' and '22KHz tone LED' should be ON.
- After send LNB Off command, '18V LED' and '22KHz tone LED' should be OFF.



<Remark>

After the measurement conditions witnessed in the last state.

4.8. 3D function test

- Required Equipment

- Pattern Generator :
MSHG-600, MSPG-6100 [SUPPORT HDMI1.4]
MODE : HDMI mode NO. 872
Pattern No.83

- (1) Please input 3D test pattern like below (HDMI mode NO. 872 , pattern No.83)



HDMI Mode No.872, Pattern No.83

5. Set Information (Serial No & Model name)

5.1. Check the serial number & Model Name

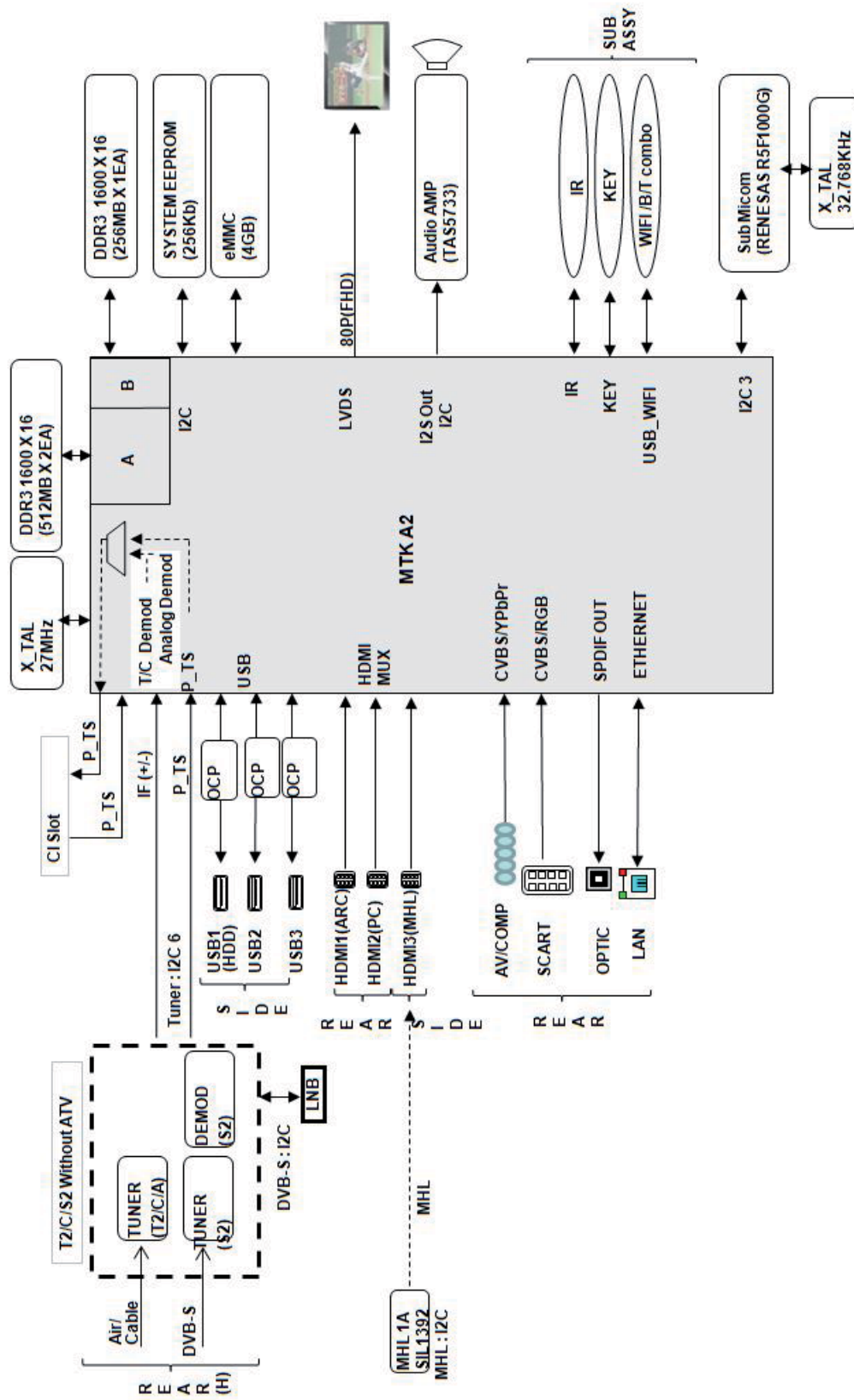
- (1) Push the menu button and press red button on R/C to enter 'Customer Support' menu.
- (2) Move to 'signal test' menu. And check Serial No & Model Name Select the STATION -> Diagnostics -> To set

6. SW Download Guide.

* Before put a *.epk to USB Stick make 'LG_DTV' folder in USB. Then, put *.epk file to 'LG_DTV' folder and Turn on TV

- (1) Put the USB Stick to the USB socket
- (2) Automatically detecting update file in USB Stick
 - * If your downloaded program version in USB Stick is Low, it didn't work.
But your downloaded version is High, USB data is automatically detecting.
- (3) Show the message "Copying files from memory"
- (4) Updating is starting.
- (5) Updating Completed, The TV will restart automatically.
After turn on TV, Please press 'IN-STOP' button on ADJ Remote-control.
 - * IF you don't have ADJ R/C, enter 'Factory Reset' in OPTION MENU.
- (6) When TV turns on, check the Updated version on Product/Service Info. MENU.
 - * After downloading, have to adjust TOOL OPTION again.

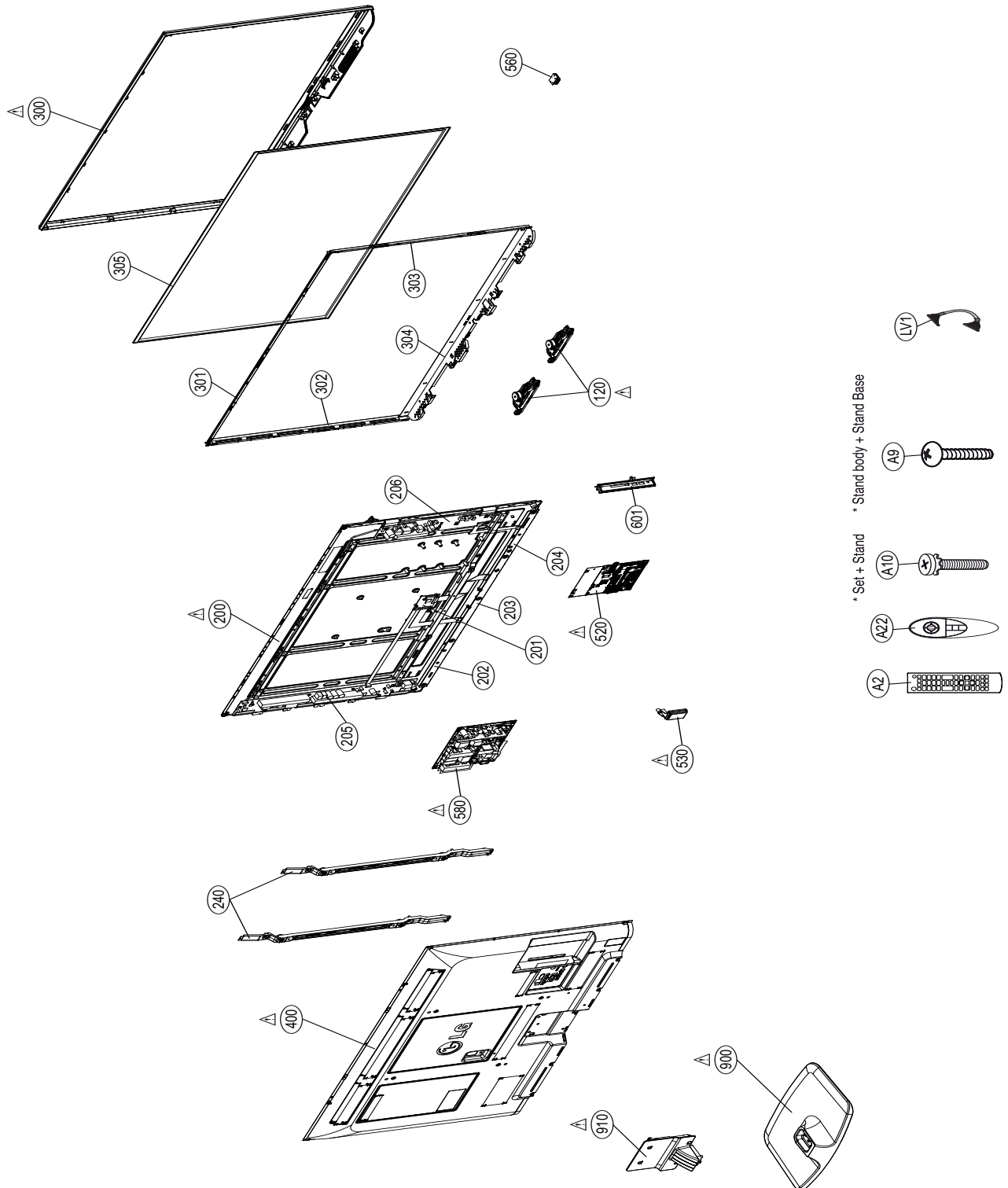
BLOCK DIAGRAM



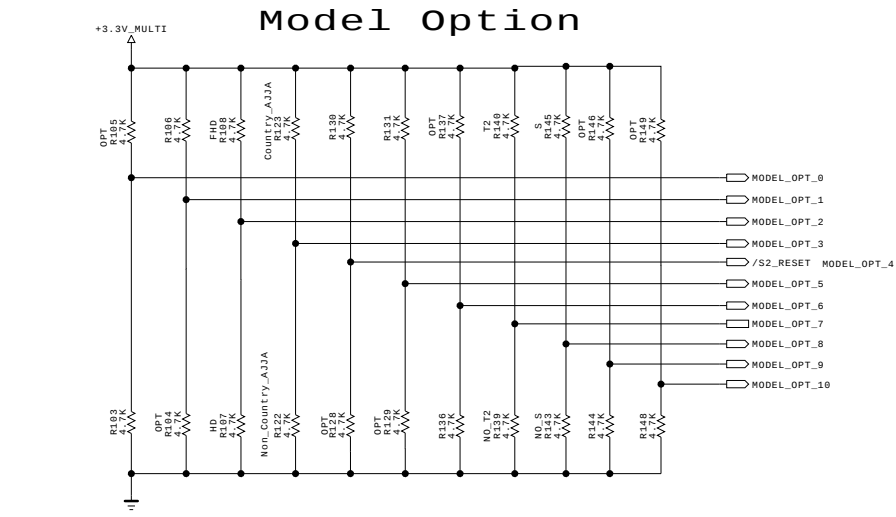
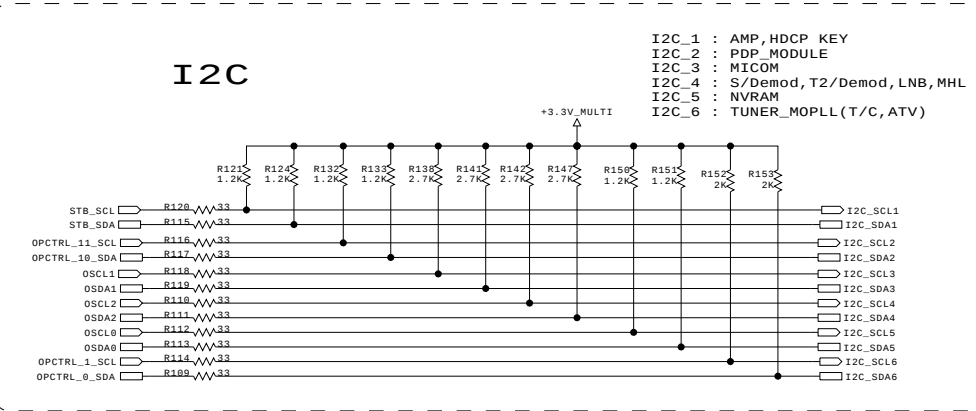
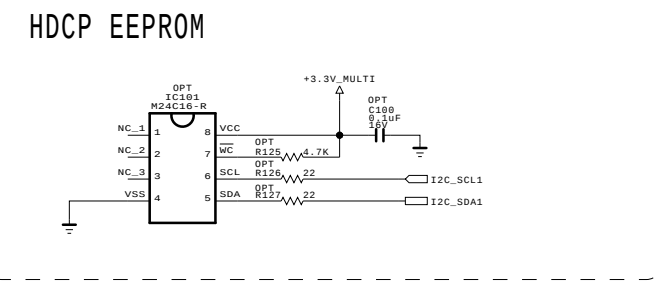
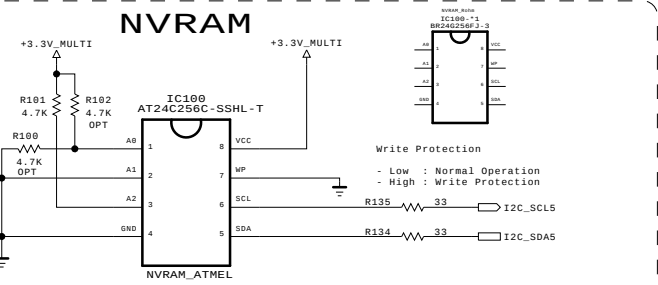
EXPLODED VIEW

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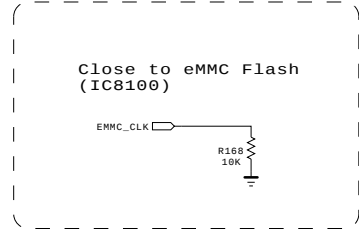
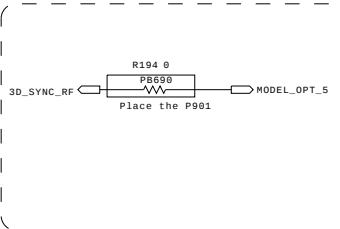
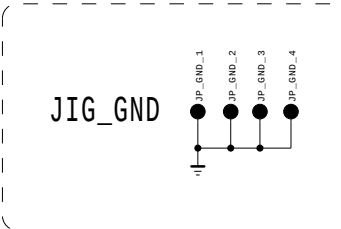


PDP ATSC/DVB:EAX65399301

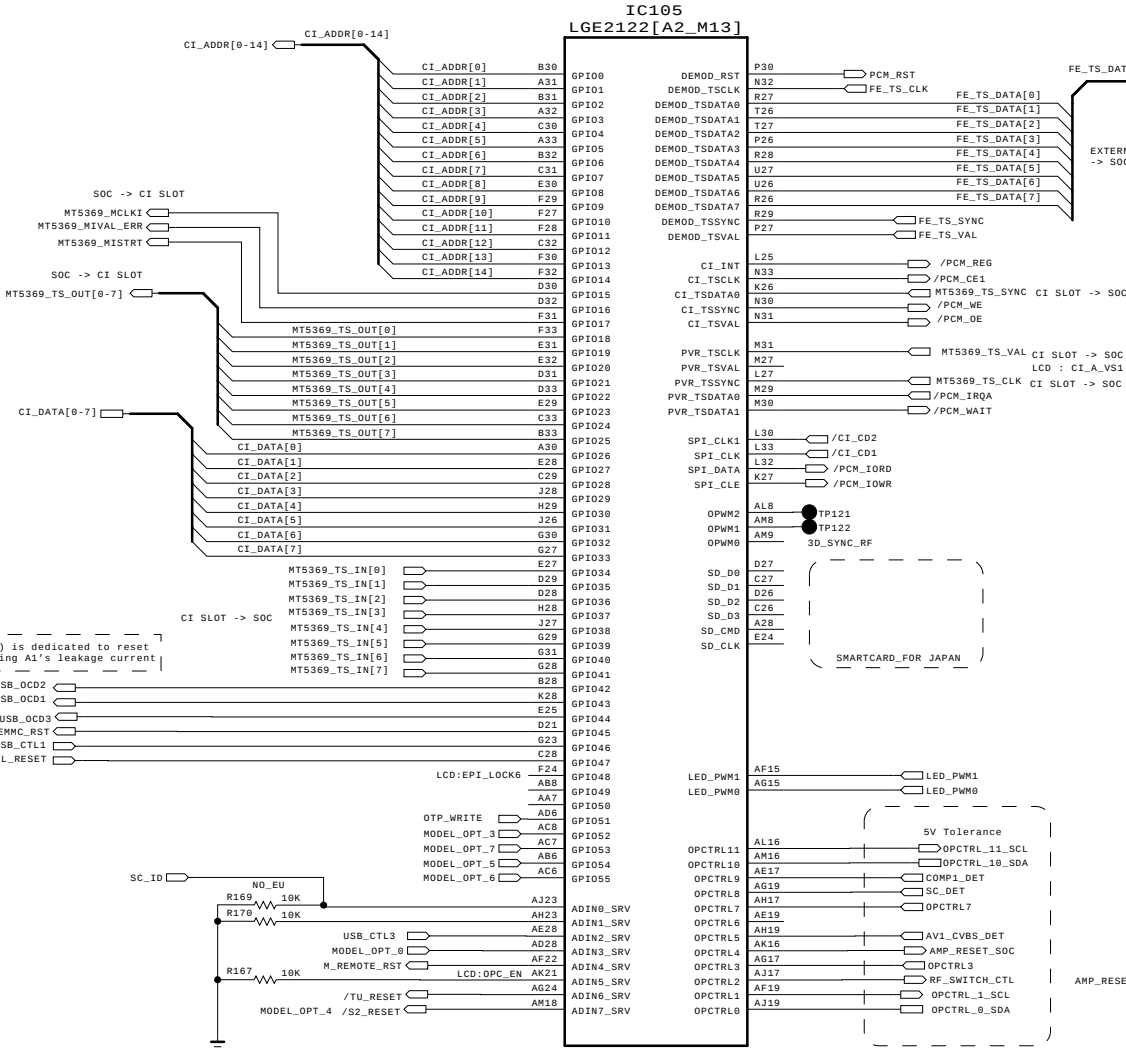
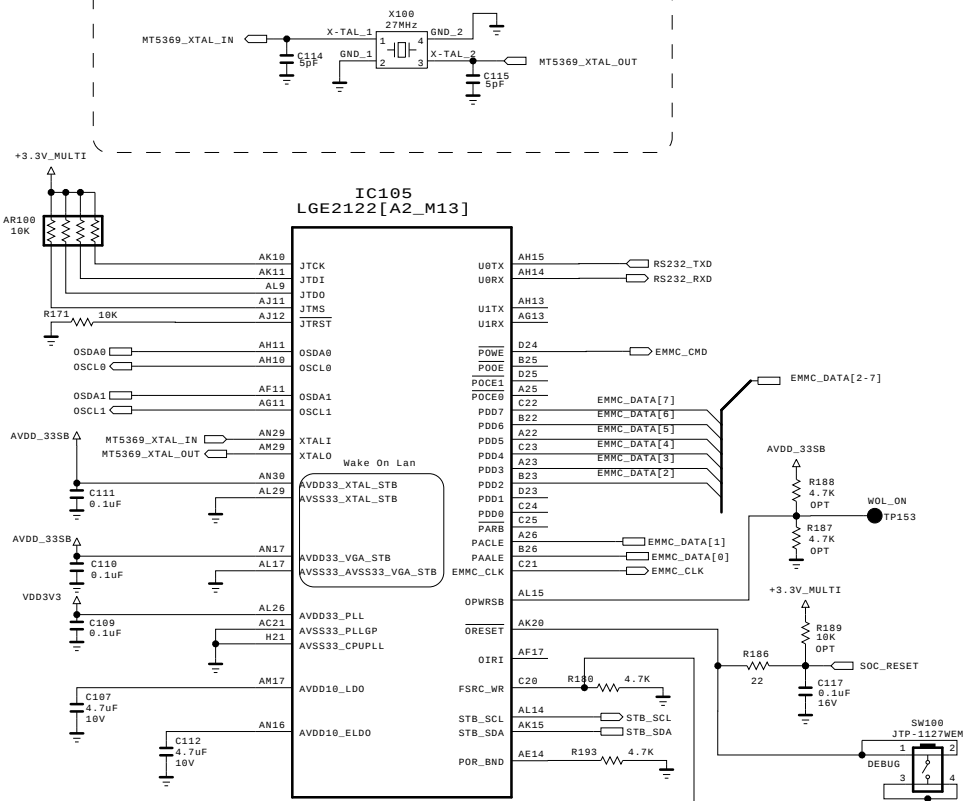


		HIGH	LOW
MODEL_OPT_0	Country_TW	TW	Non_TW
MODEL_OPT_1	FRC	FRC_120Hz	NO_FRC_60Hz
MODEL_OPT_2		FHD	HD
MODEL_OPT_3	Country_AJJA	AJJA	Non_AJJA
MODEL_OPT_4	Reserved	Module_V13	Module_V12
MODEL_OPT_5	DDR	DDR_1.25GB	DDR_1.5GB
MODEL_OPT_6	CP_BOX	Enable	Disable
MODEL_OPT_7	T2 Tuner	Support	Not Support
MODEL_OPT_8	S Tuner	Support	Not Support
MODEL_OPT_9	DDR	DDR_0.78G	NON_DDR_0.78G
MODEL_OPT_10	EPI	Support	Not Support

	DDR_1.25G	DDR_1.5G	DDR_0.78GB
MODEL_OPT_5	High	Low	High
MODEL_OPT_9	Low	Low	High



X-TAL Crystal Matching Test result : 3pF

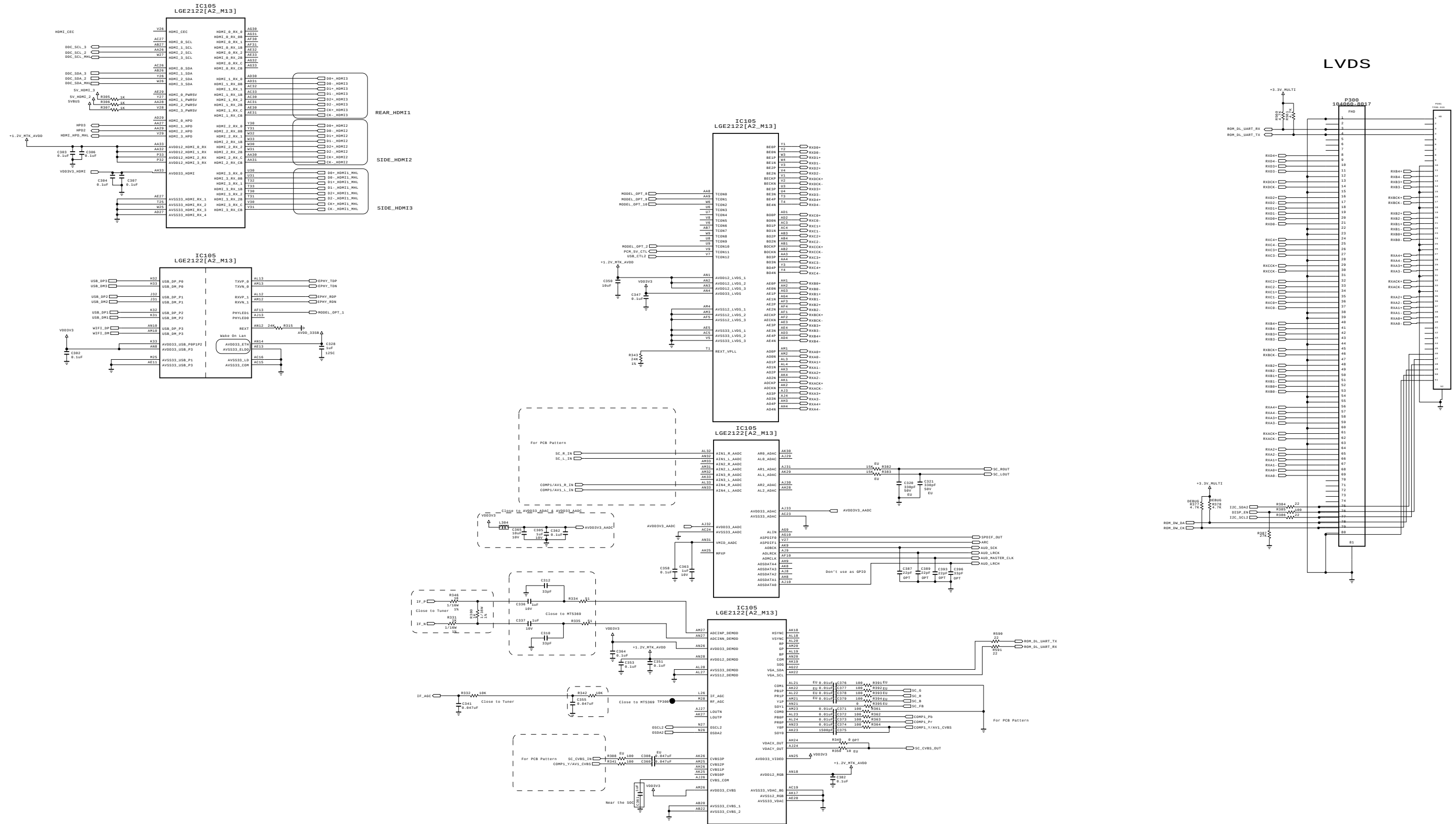


THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics



MODEL	MID_MAIN_1	DATE	2011.12.13
BLOCK		SHEET	8

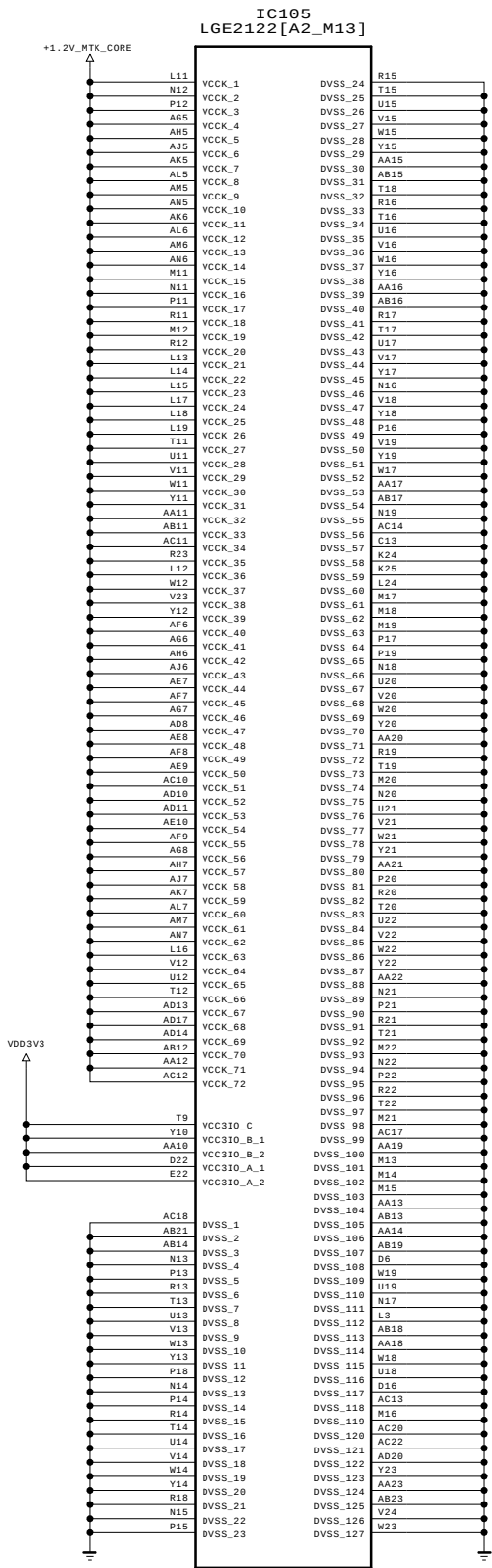
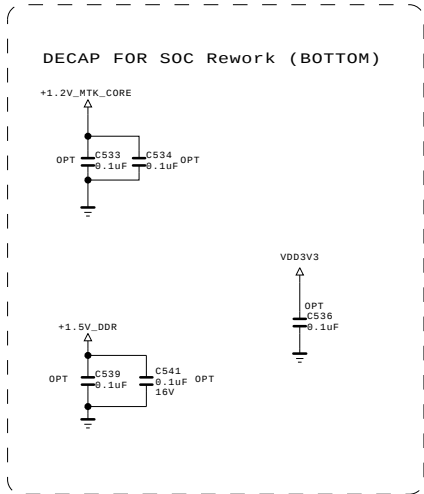
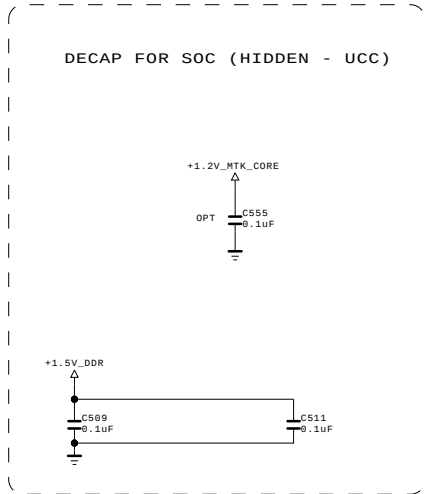
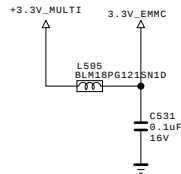
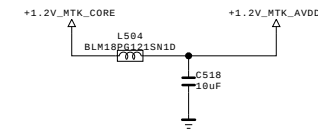
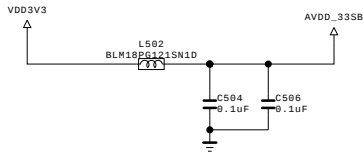
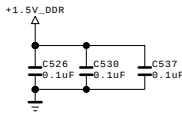
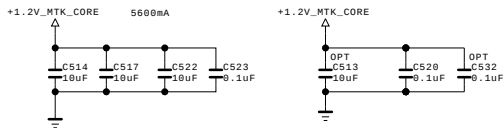
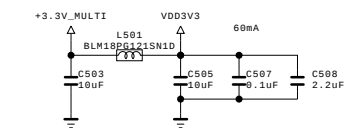


THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	MID_MAIN_2	DATE	2011.12.19
BLOCK		SHEET	9



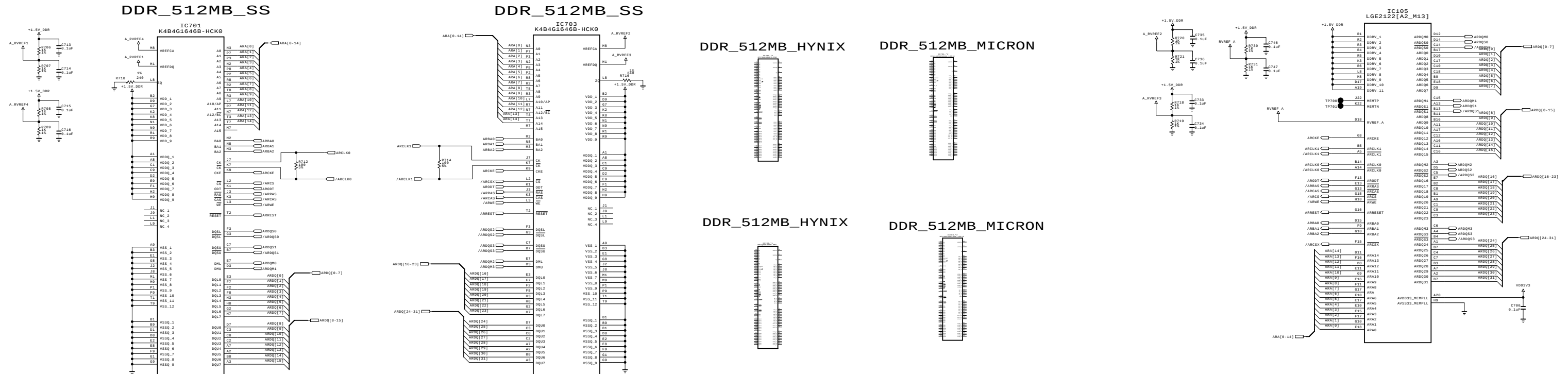
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

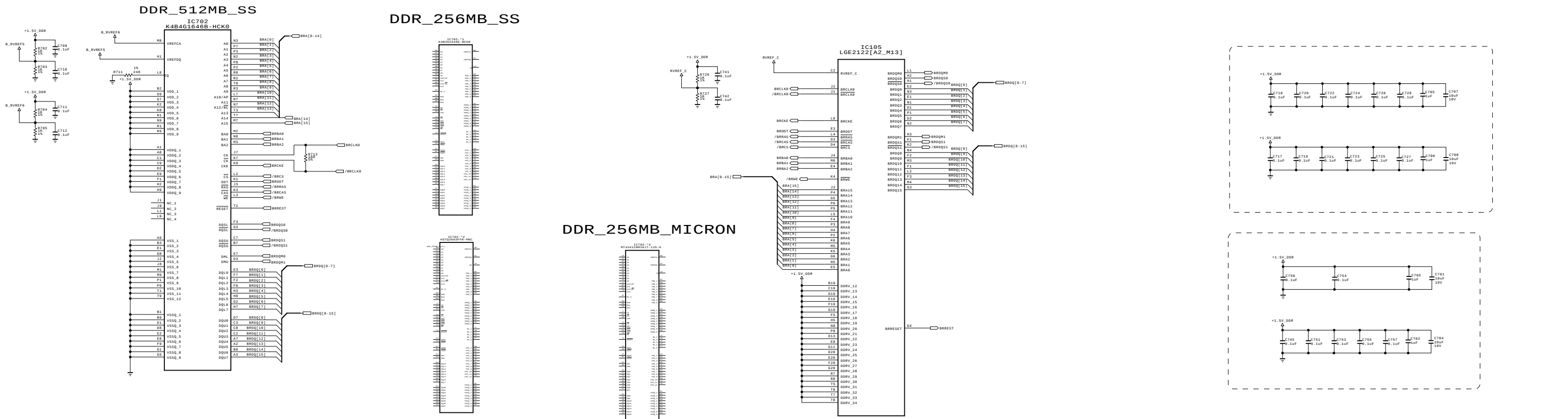


MODEL	MID_MAIN_3	DATE	2011.12.09
BLOCK		SHEET	10

CH : A , (512MB x16) x2



CH : B , 256MB x16

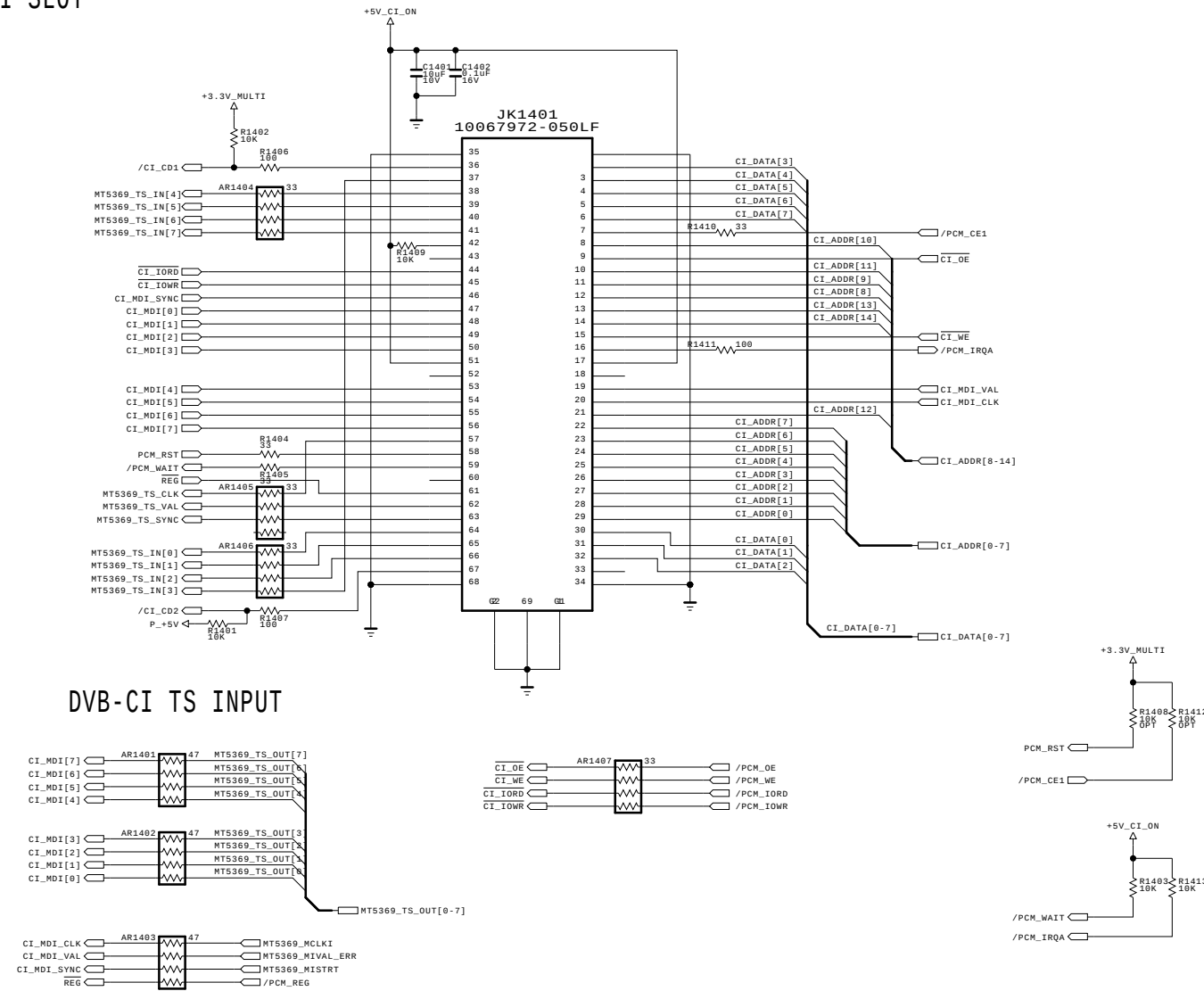


THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

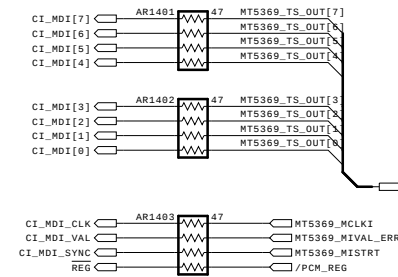
SECRET
LGElectronics

MODEL		DATE	
BLOCK	DDR ONE SIDE	SHEET	12 / 2011.12.09

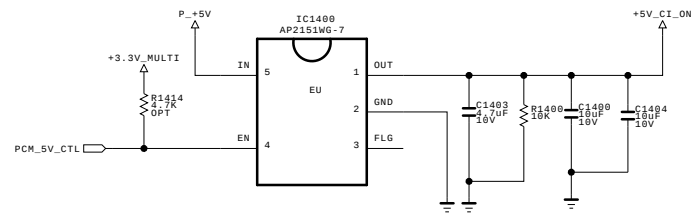
DVB-CI SLOT



DVB-CI TS INPUT



CI POWER ENABLE CONTROL

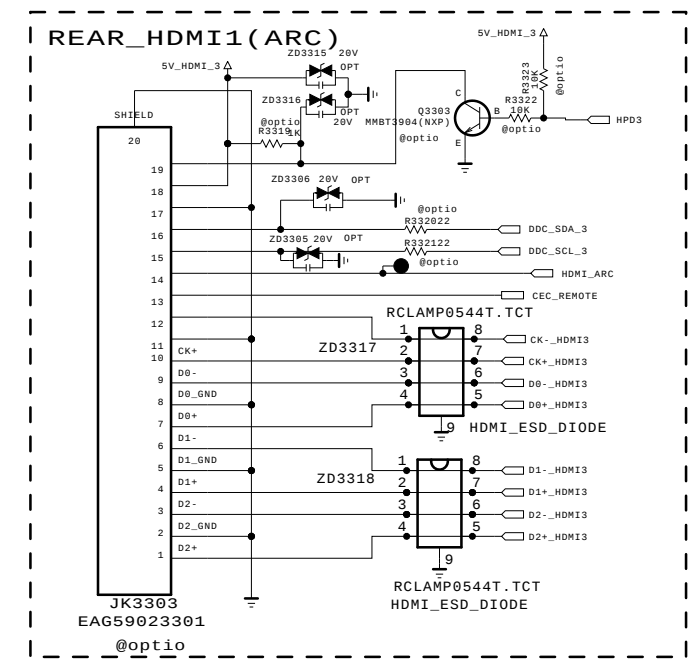
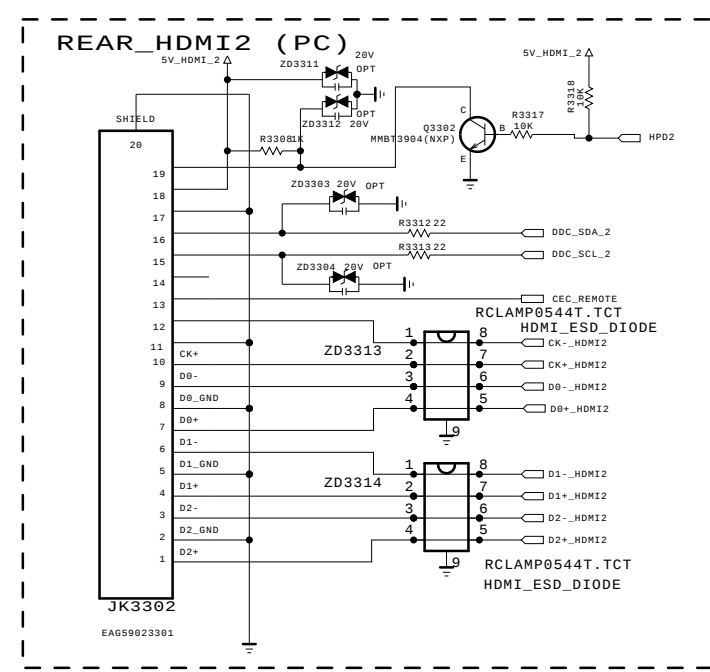


THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

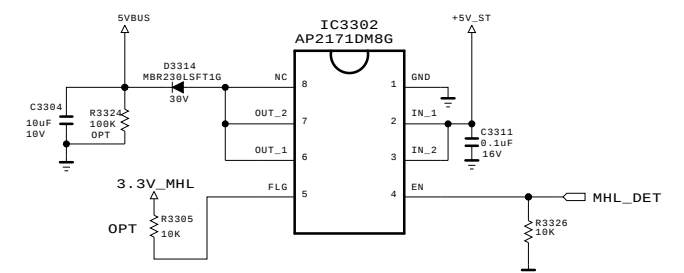
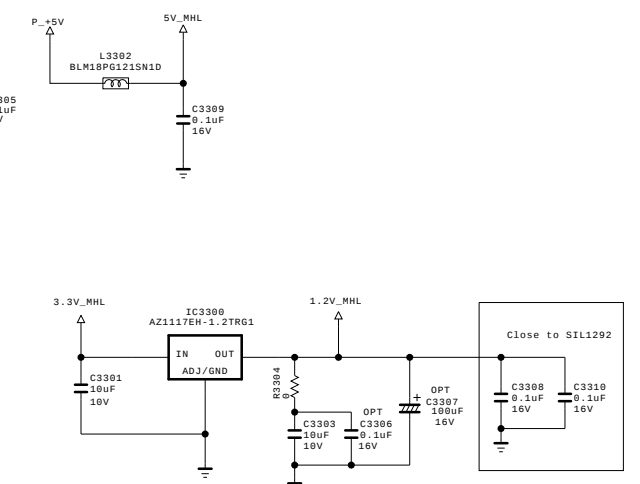
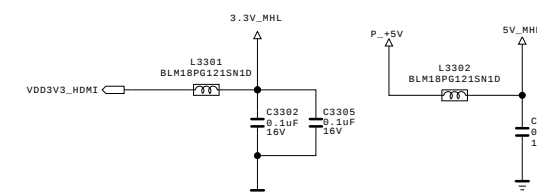
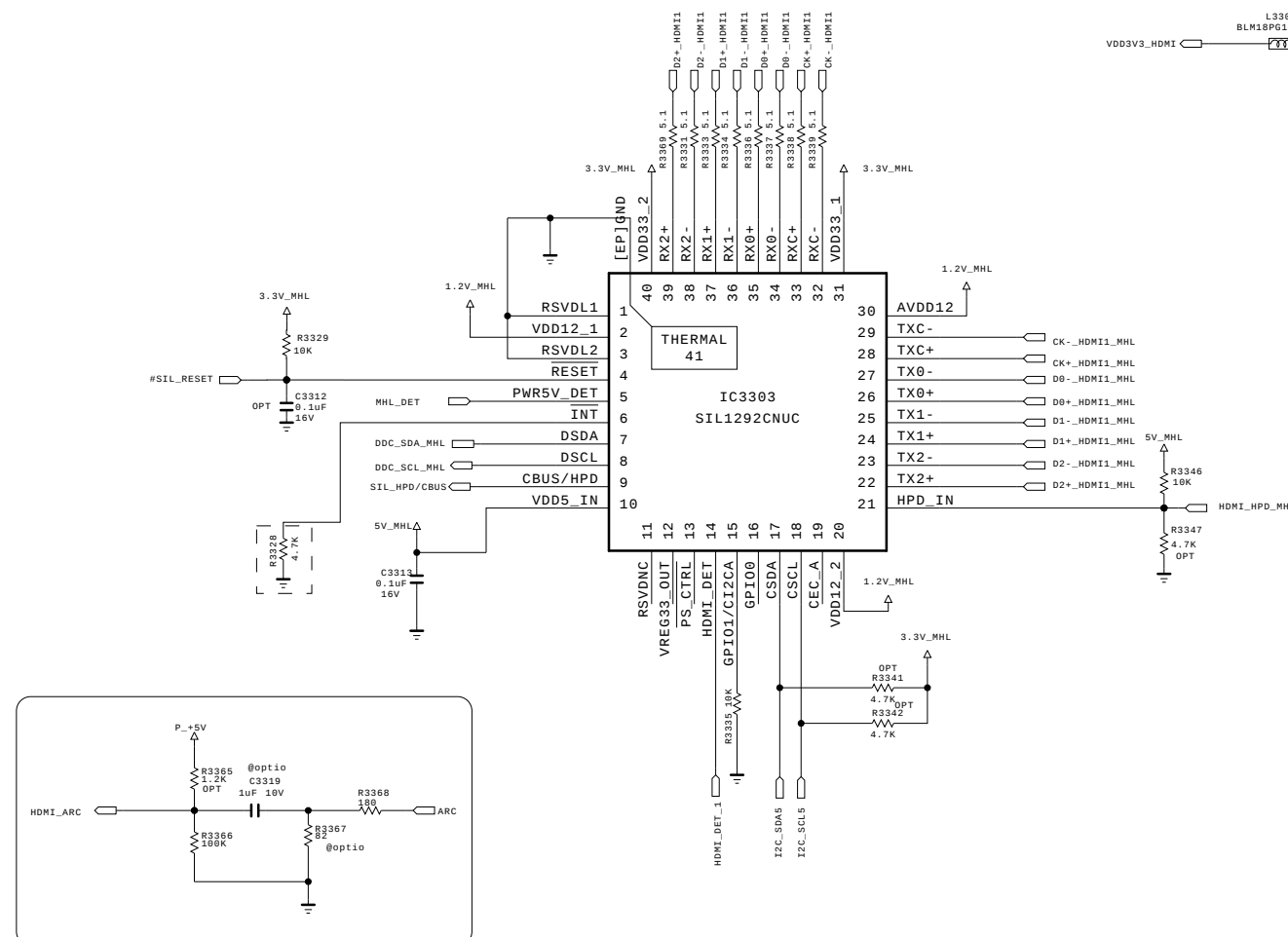
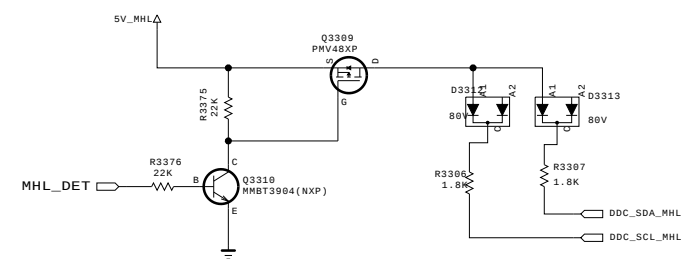
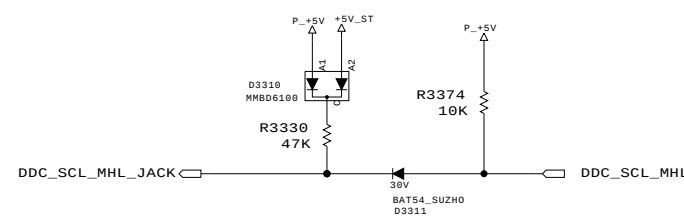
SECRET
LGElectronics



MODEL		DATE	
BLOCK		SHEET	/



SCREW Type: EAG59023301

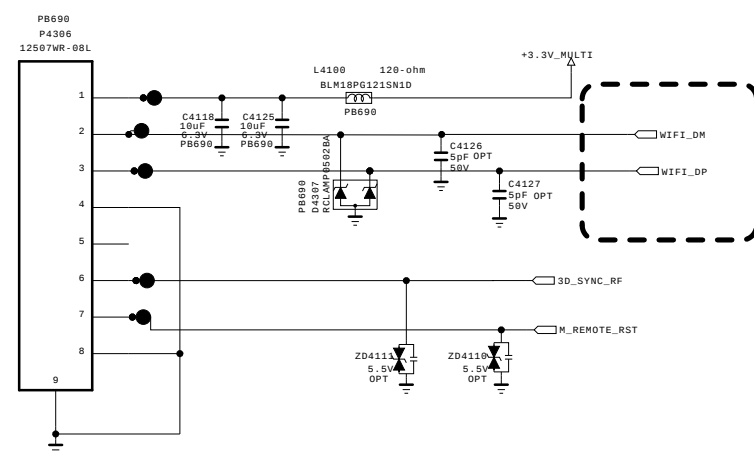


THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

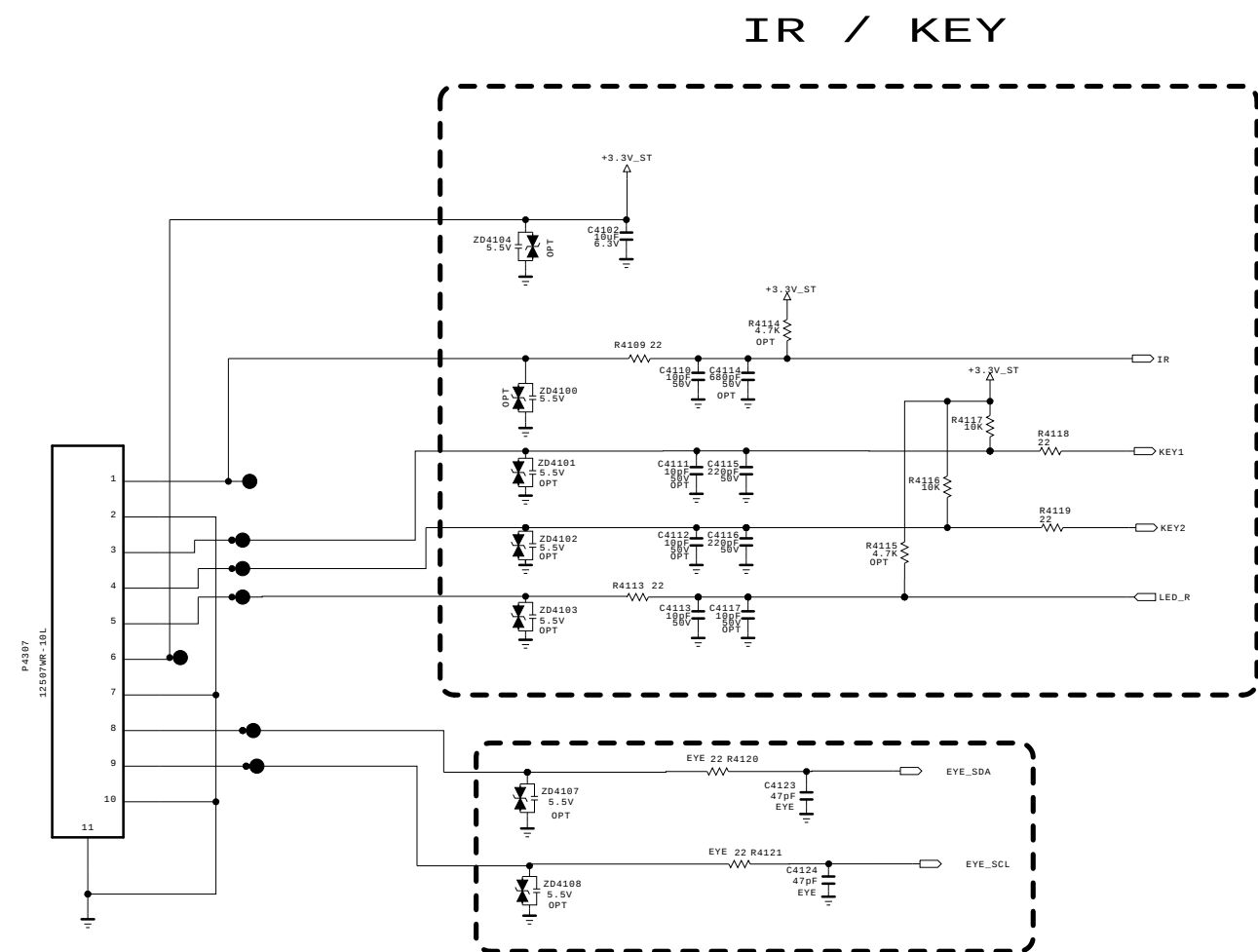
SECRET
LGElectronics



MODEL	HDMI 4	DATE	2011.10.29
BLOCK		SHEET	33 /



8PIN WIFI COMBO



EYE Sensor For US

10PIN IR/KEY Harness For 6600

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

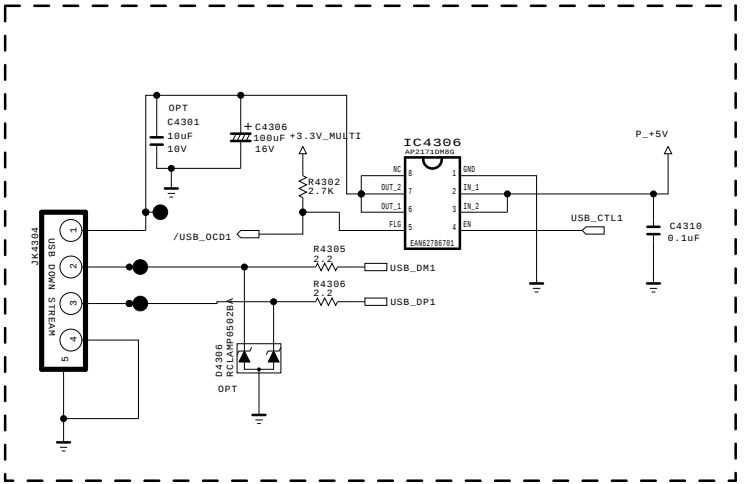
SECRET
LGElectronics



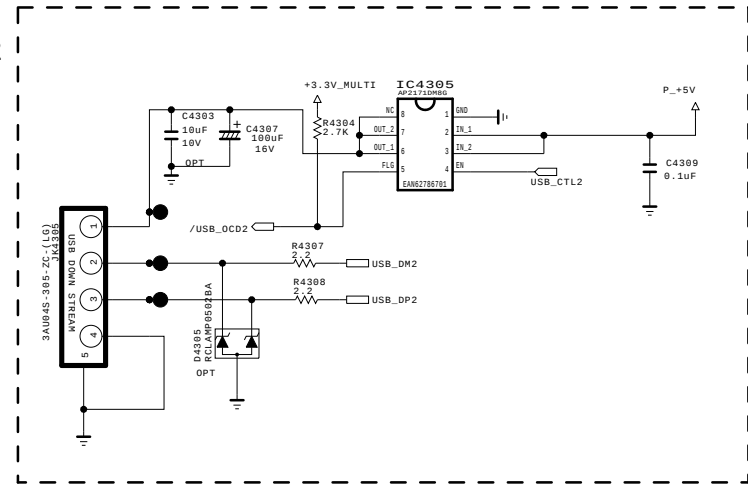
MODEL	IR / KEY	DATE	2011.11.21
BLOCK		SHEET	41 /

For Wire-Pentouch
USB Straight Type Jack

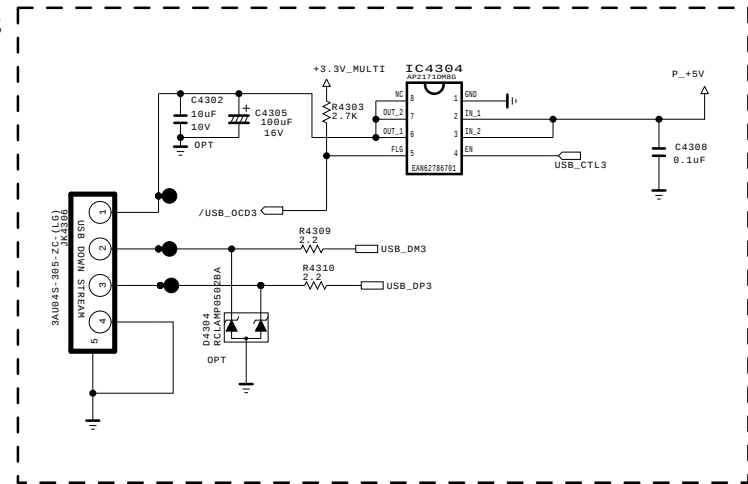
SIDE USB1



SIDE USB2



SIDE USB3



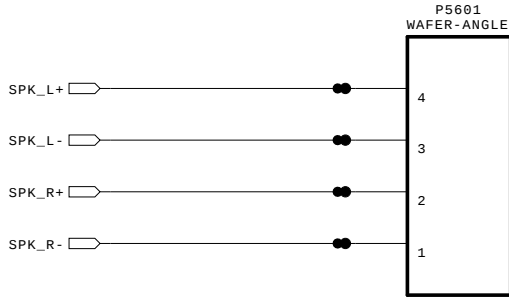
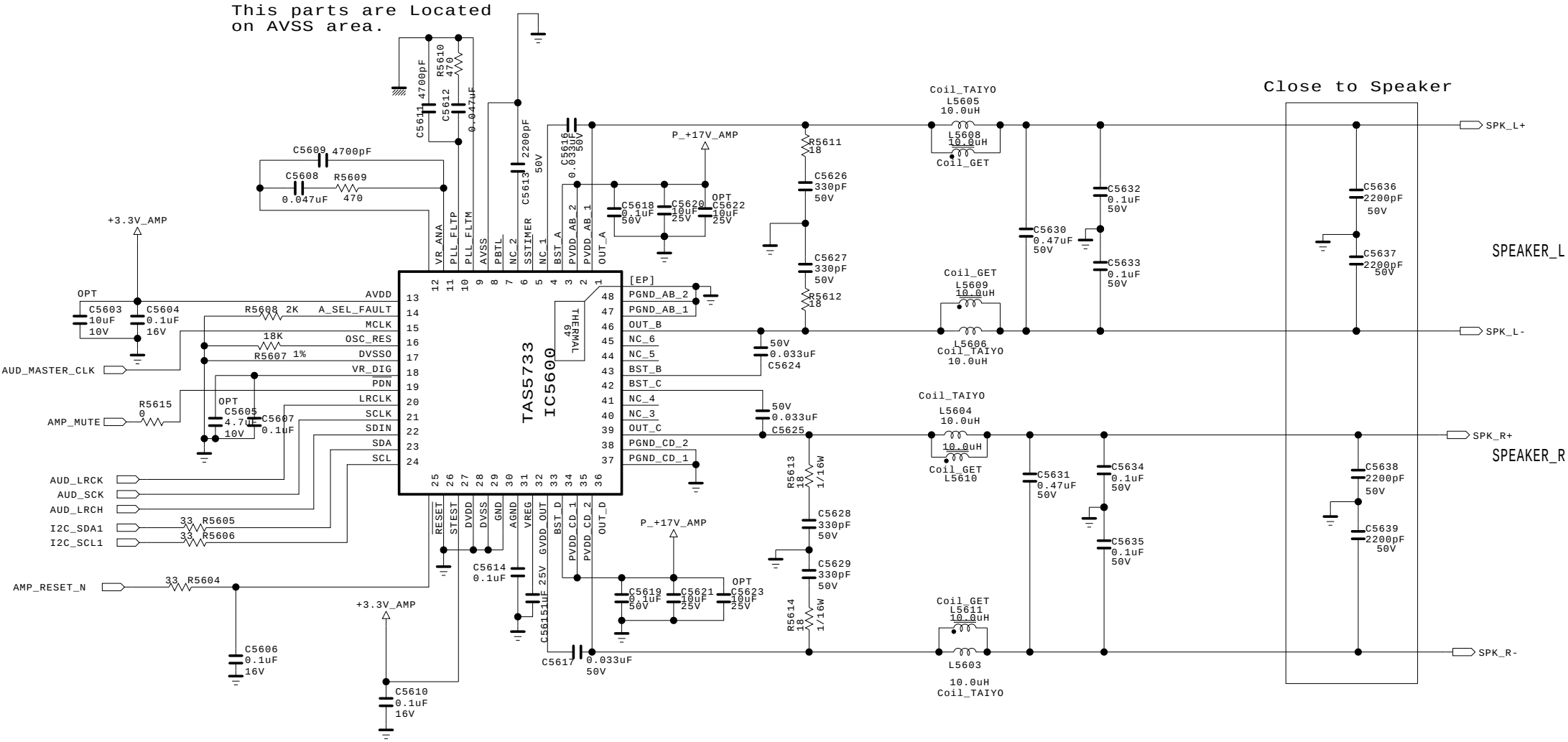
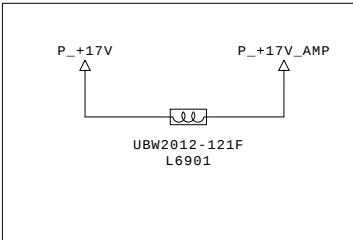
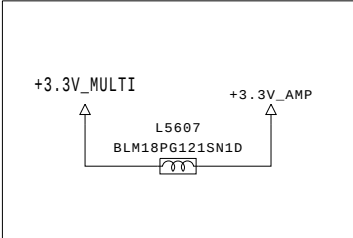
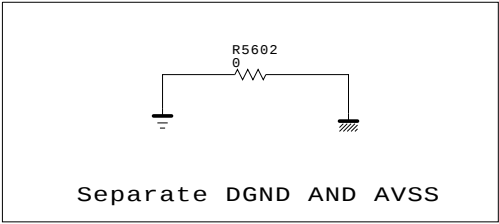
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
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MODEL	USB3_HUB_WiFi	DATE	2011.10.26
BLOCK		SHEET	43 /

TAS5733



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

SECRET

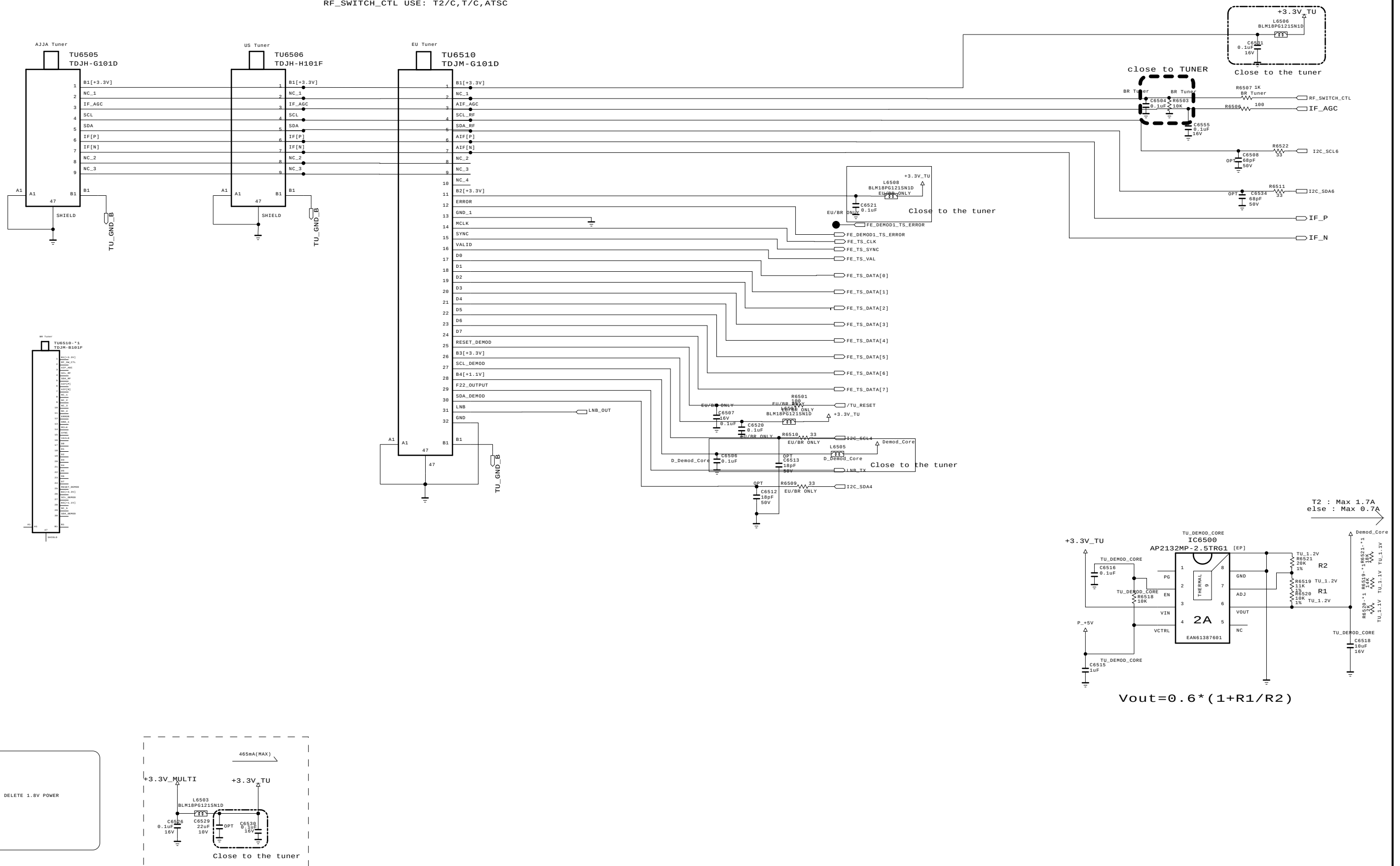
LG Electronics

LG ELECTRONICS

MODEL	GP4_MT5369	DATE	2011.11.21
BLOCK	AUDIO[ST]	SHEET	58 /

T/C/S & H/NIM & T2/C TUNER(EU & CHINA)

RF_SWITCH_CTL USE: T2/C,T/C,ATSC



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

SECRET
G Electronics



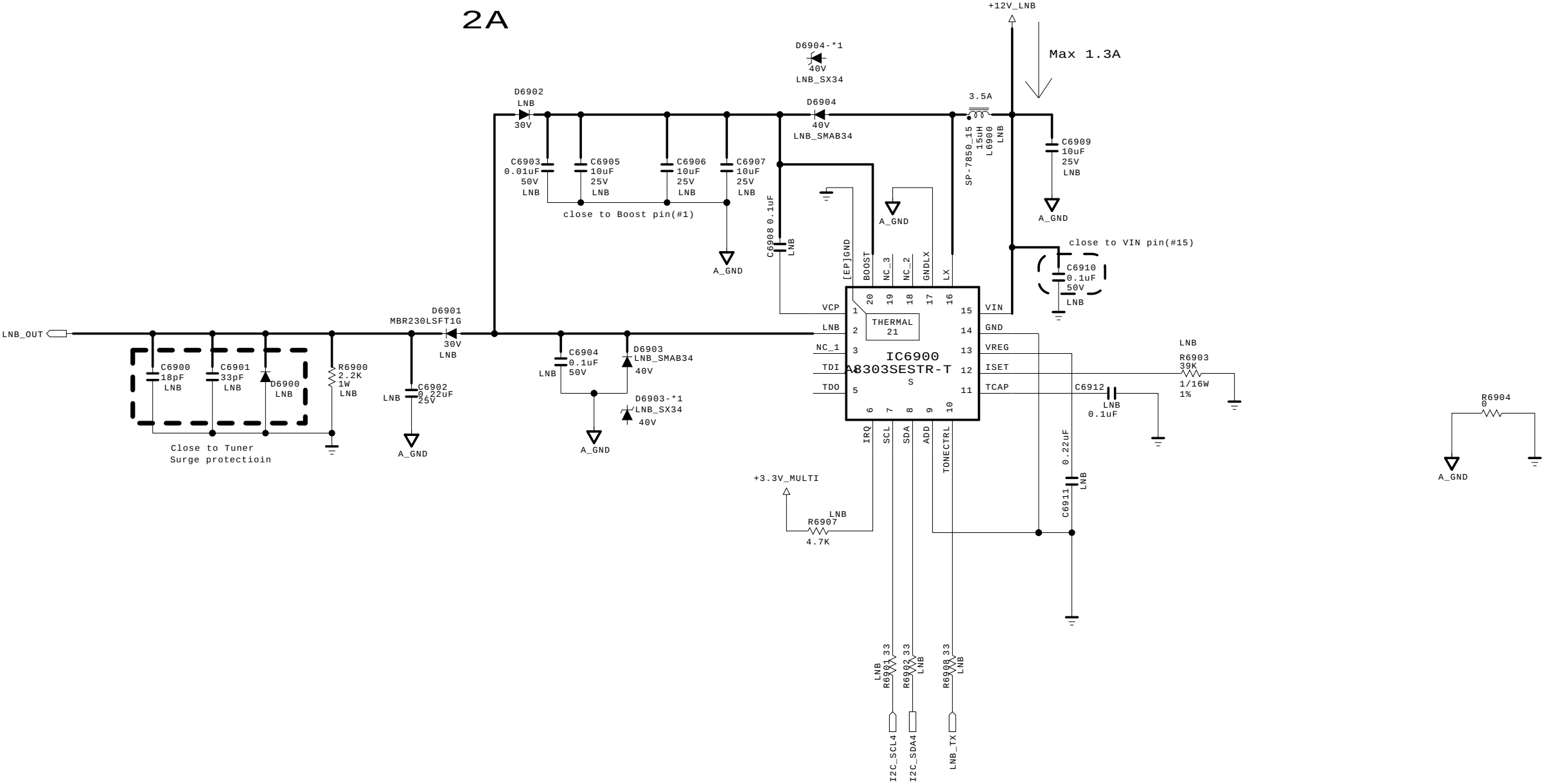
MODEL	TUNER	DATE	2012.03.08
BOOK		SHEET	65 /

DVB-S2 LNB Part Allegro

(Option:LNB)

DCDC_GND and A_GND are connected
DCDC_GND and A_GND are connected in pin#27
PCB_GND and A_GND are connected

Input trace widths should be sized to conduct at least 3A
Output trace widths should be sized to conduct at least 2A



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

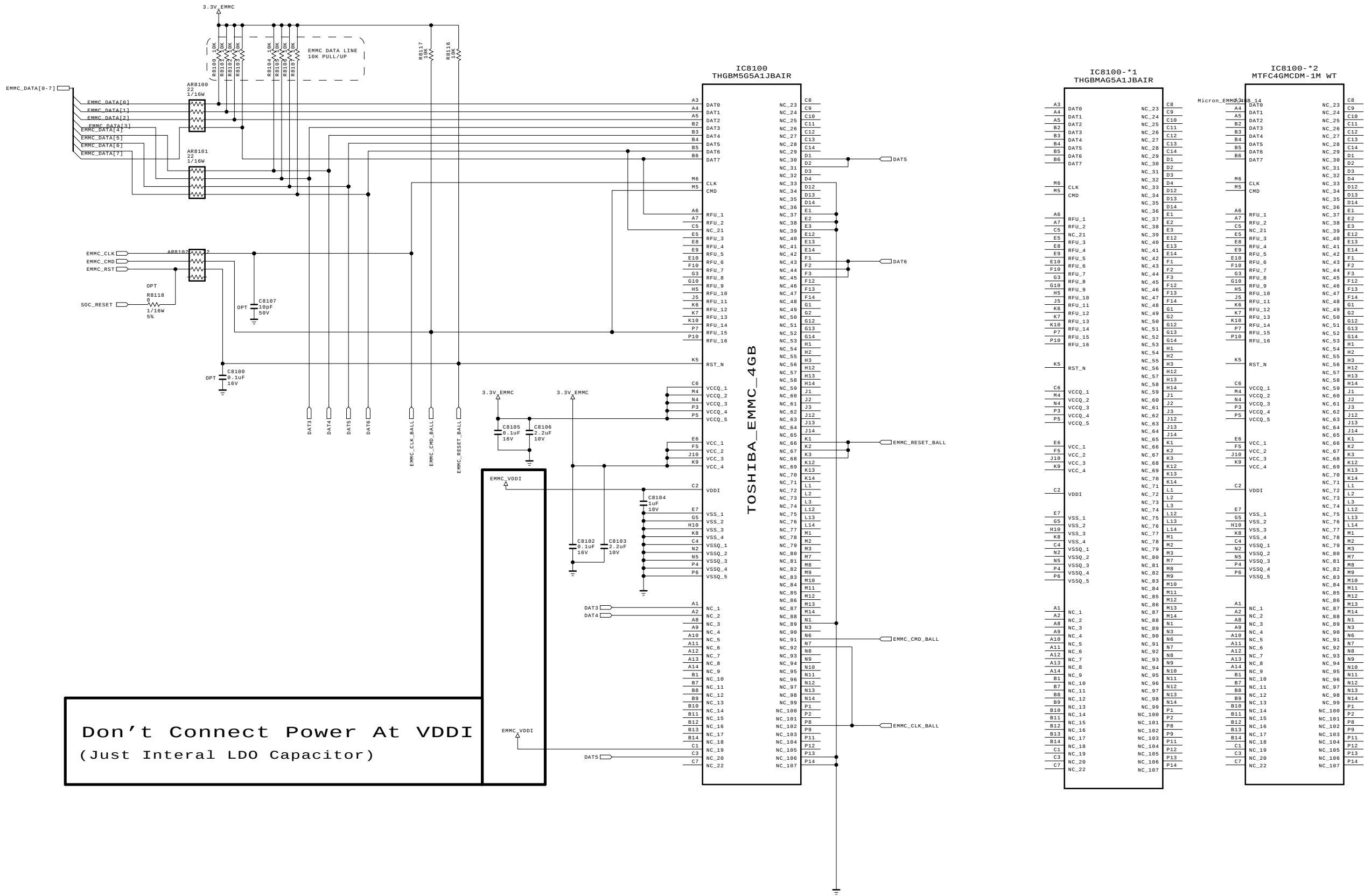
SECRET

LG Electronics

 LG ELECTRONICS

MODEL	LNB	DATE	2012.03.08
BLOCK		SHEET	69 /

eMMC I/F



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

SECRET
LGElectronics



MODEL	eMMC	DATE	11.09.29
BLOCK		SHEET	81



NetCast4.5 Service Guide

Contents

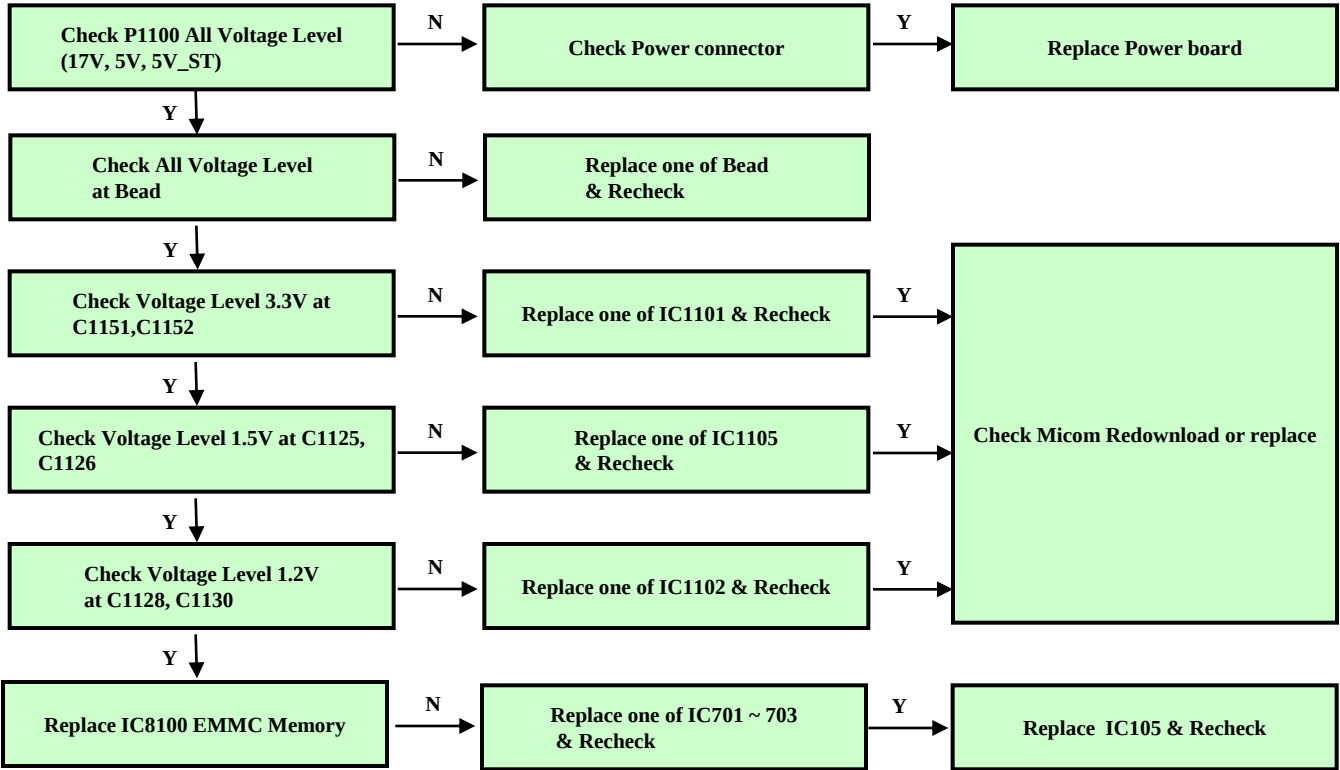
1. Service Guide

Trouble Shooting Guide for LG Service Man

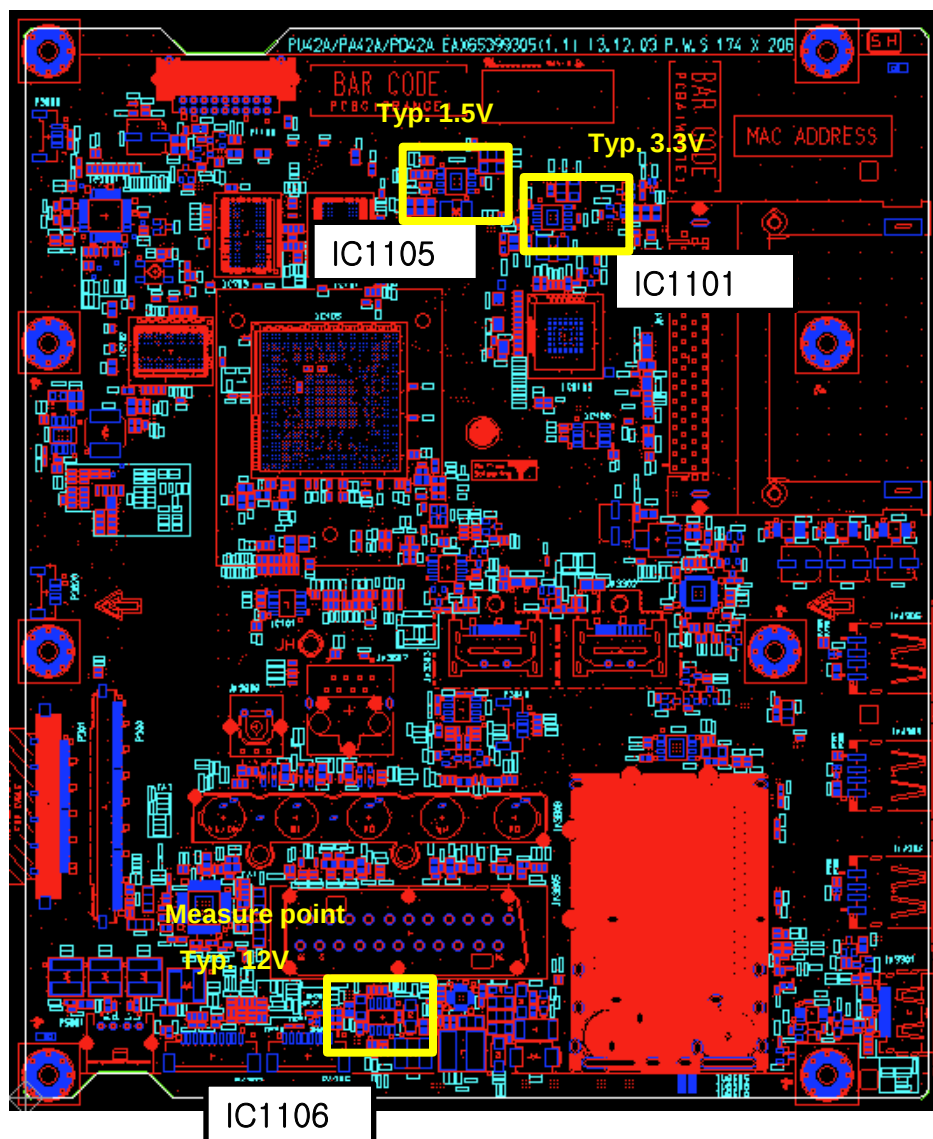
Please check system, after power Off/On one time

1. Power-Up Boot Fail Trouble Shooting
2. No OSD Trouble Shooting
3. TV Video Trouble Shooting
4. AV/Component Video Trouble Shooting
5. HDMI Video Trouble Shooting
6. All Source Audio Trouble Shooting
7. Tuner Audio Trouble Shooting
8. Component / RGB / AV Audio Trouble Shooting
9. HDMI Audio Trouble Shooting
10. USB Trouble Shooting
11. DVR Recording Fail Trouble Shooting
12. OPTIC Audio Out Trouble Shooting
13. WIFI/BT COMBO Trouble shooting

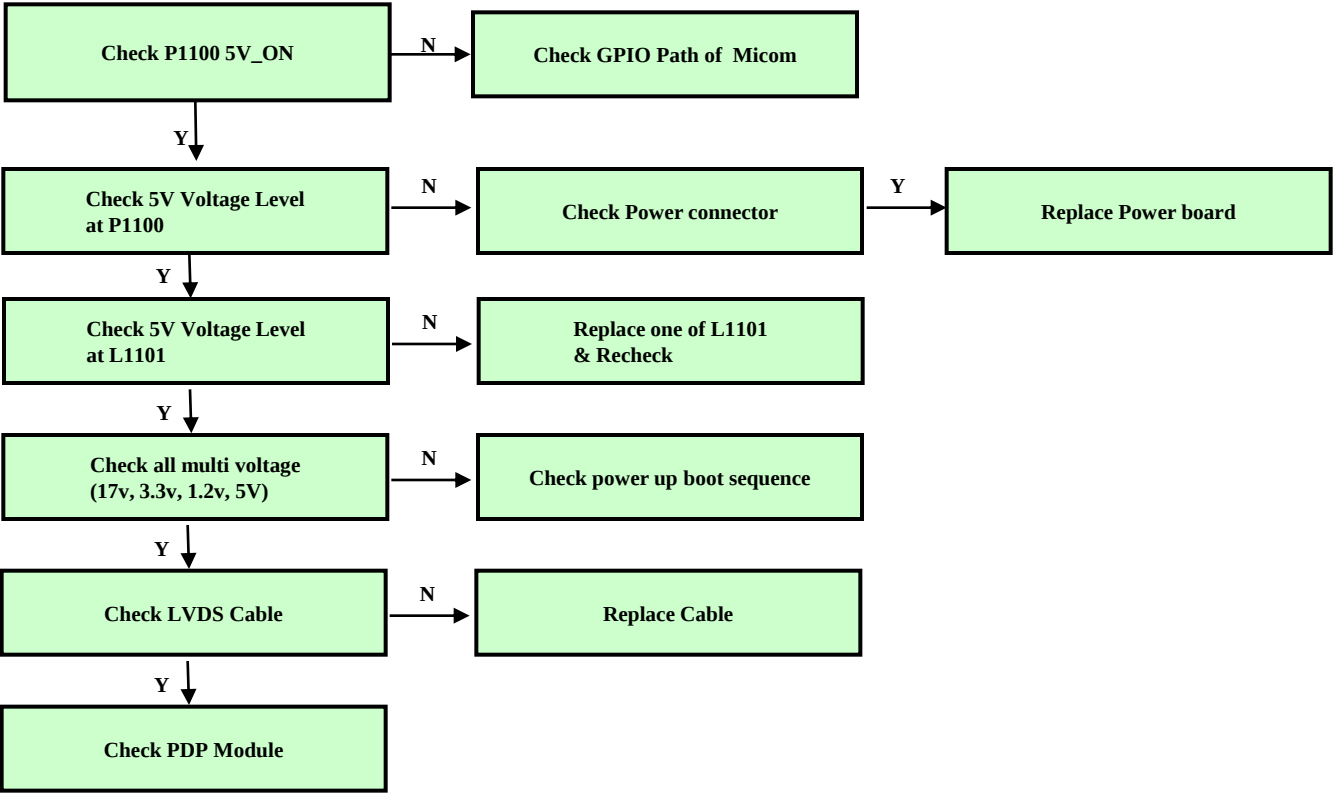
1. Power-Up Boot Fail Trouble Shooting



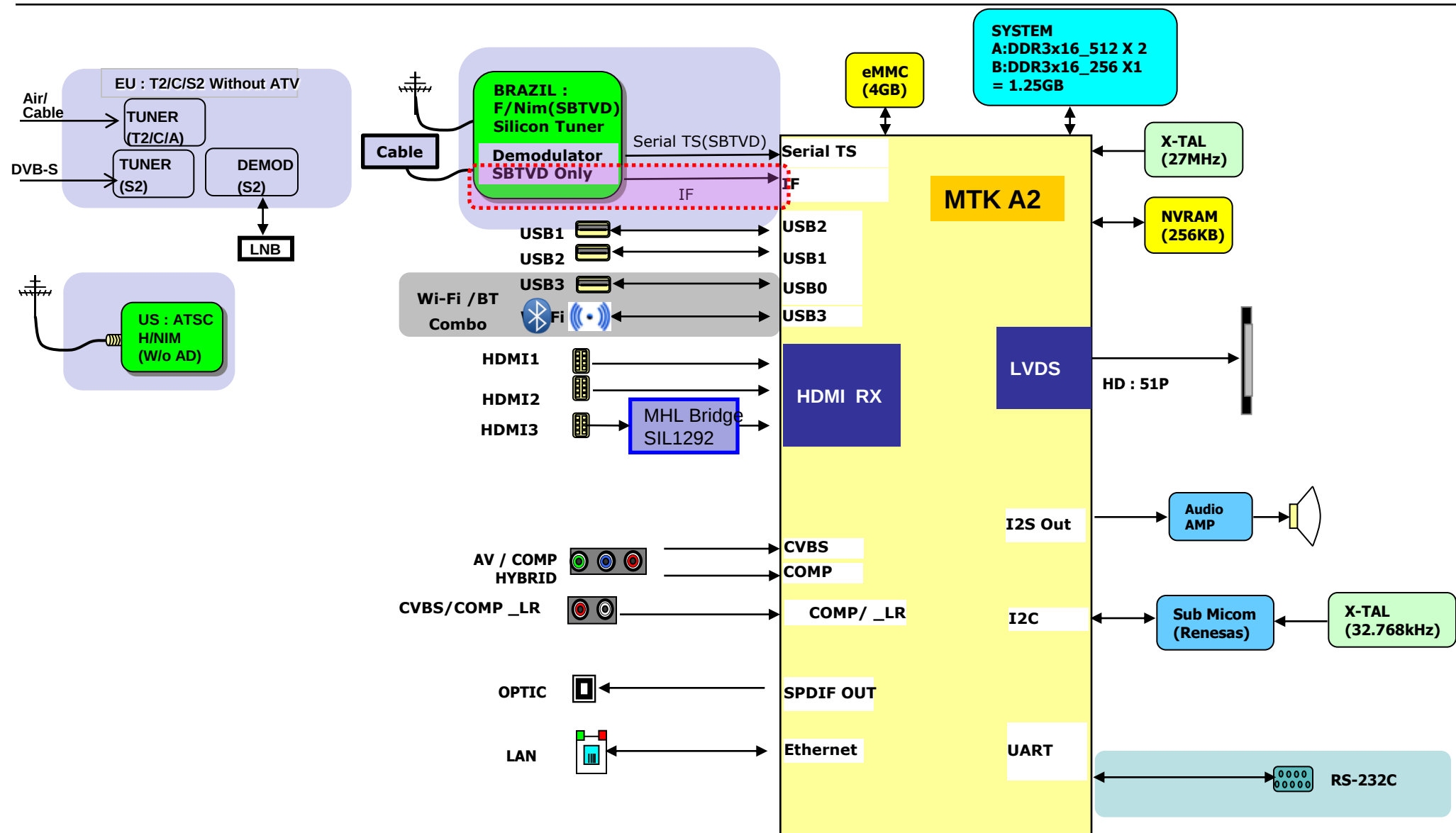
■ DC-DC Check



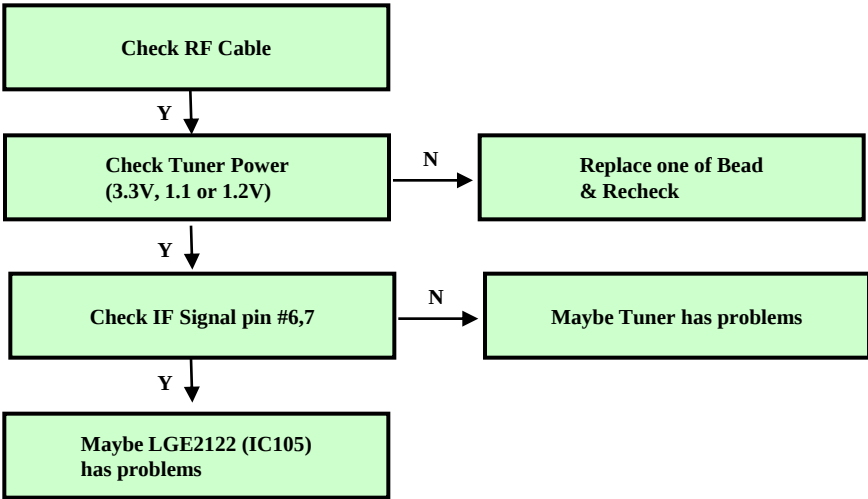
2. No OSD Trouble Shooting



3. TV Video Trouble shooting



3-1. TV Video Trouble Shooting

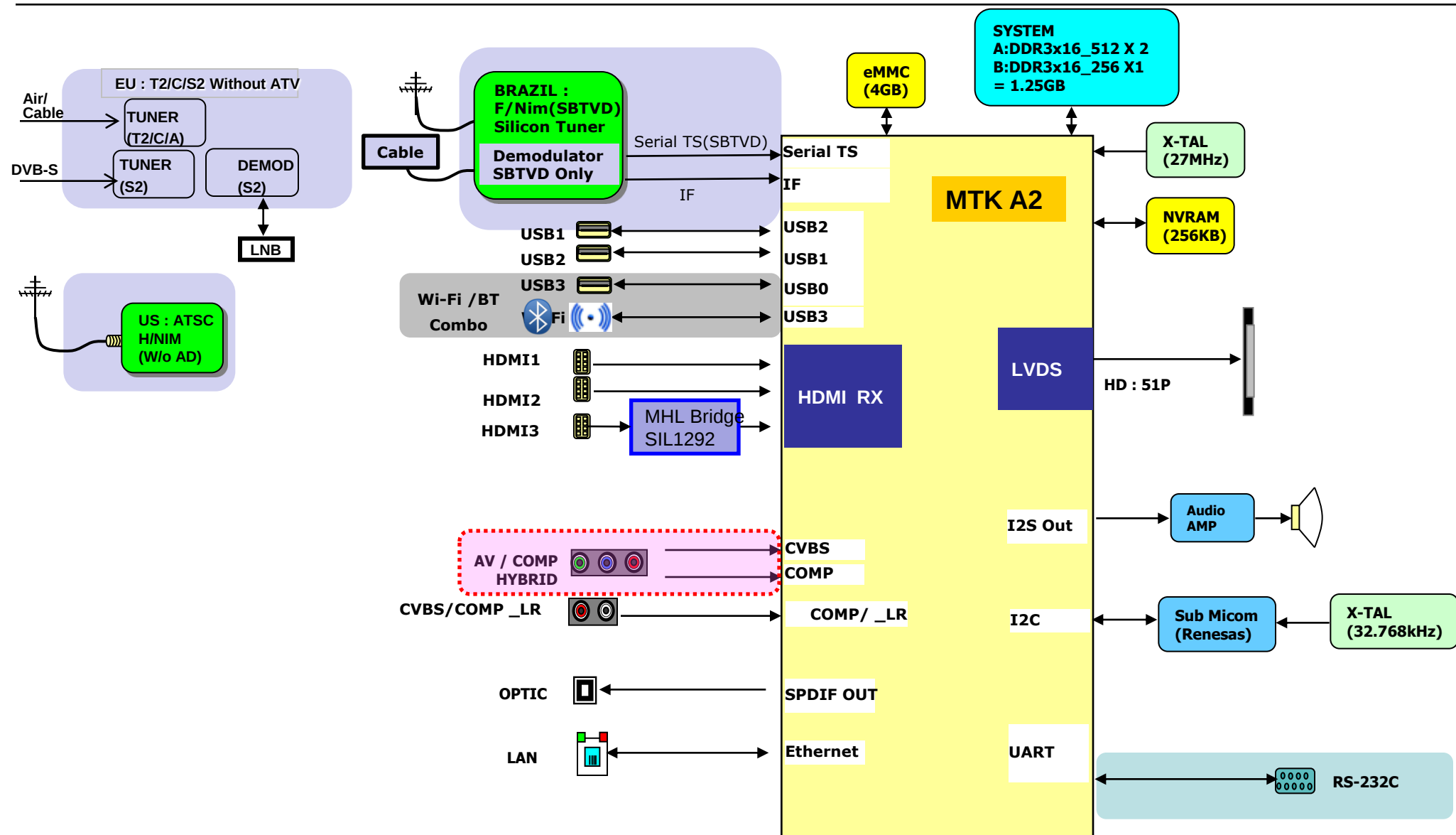


Checking order

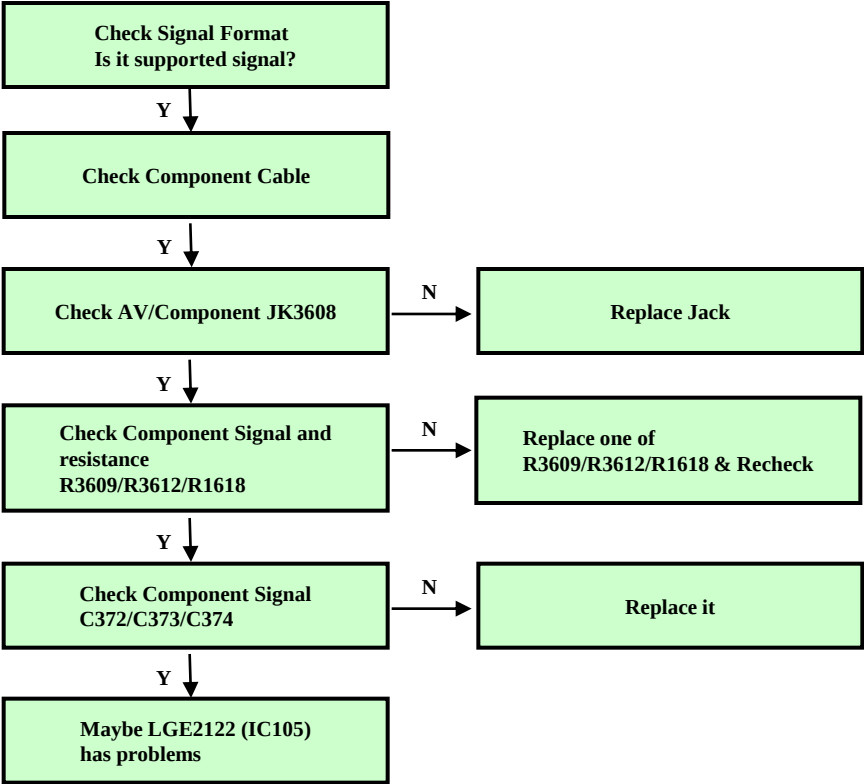
1. Check Tuner power (Pin #1, #11, #26)
2. Check Tuner I2C level (Pin #4, #5, #27, #30)
3. Check IF_AGC level (Pin #3)
4. Check IF Signal(Pin #6, #7)

Pin No.	Description
1	3.3V
2	RF_SWITCH_CTL
3	IF_AGC
4	I2C_SCL6
5	I2C_SDA6
6	IF_P
7	IF_N
8	NC
9	NC
10	NC
11	3.3V
12	DEMOM1_TS_ERROR
13	GND
14	FE_TS_CLK
15	FE_TS_SYNC
16	FE_TS_VAL
17	FE_TS_DATA[0]
18	FE_TS_DATA[1]
19	FE_TS_DATA[2]
20	FE_TS_DATA[3]
21	FE_TS_DATA[4]
22	FE_TS_DATA[5]
23	FE_TS_DATA[6]
24	FE_TS_DATA[7]
25	RESET
26	3.3V
27	I2C_SCL4
28	Demod_Core
29	LNB_TX
30	I2C_SDA4
57	LNA_CTRL_1
58	LNA_CTRL_2

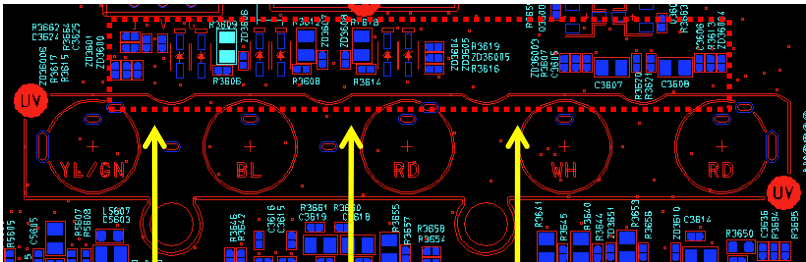
4. AV/COMPONENT VideoTrouble shooting



4-1. AV/Component Video Trouble Shooting



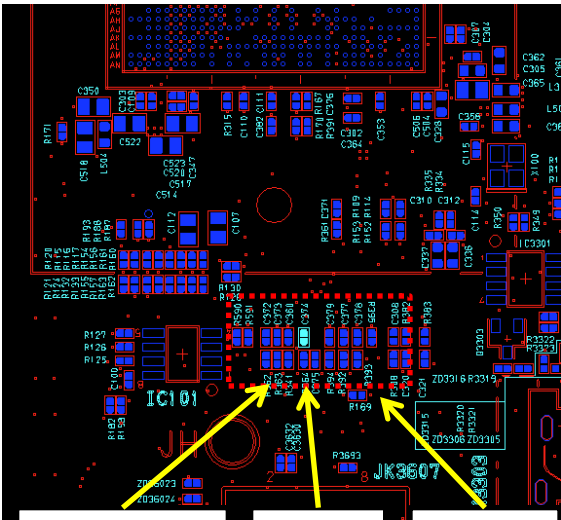
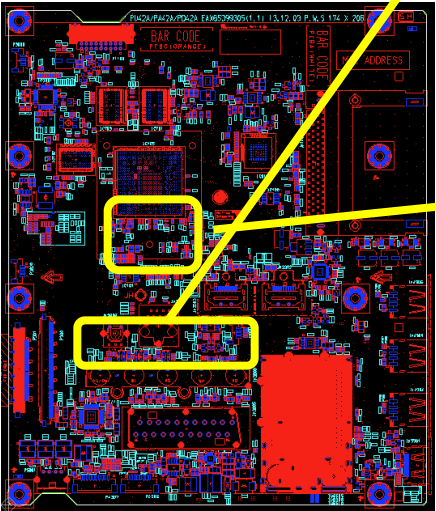
4-2. AV/Component Video Trouble Shooting



Comp Y/CVBS
R3609

Comp Pb
R3612

Comp Pr
R1618



Comp Y/CVBS
C374

Comp Pb
C372

Comp Pr
C373

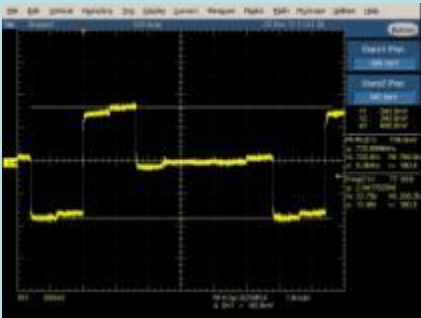
Comp (Y)



Comp (Pb)

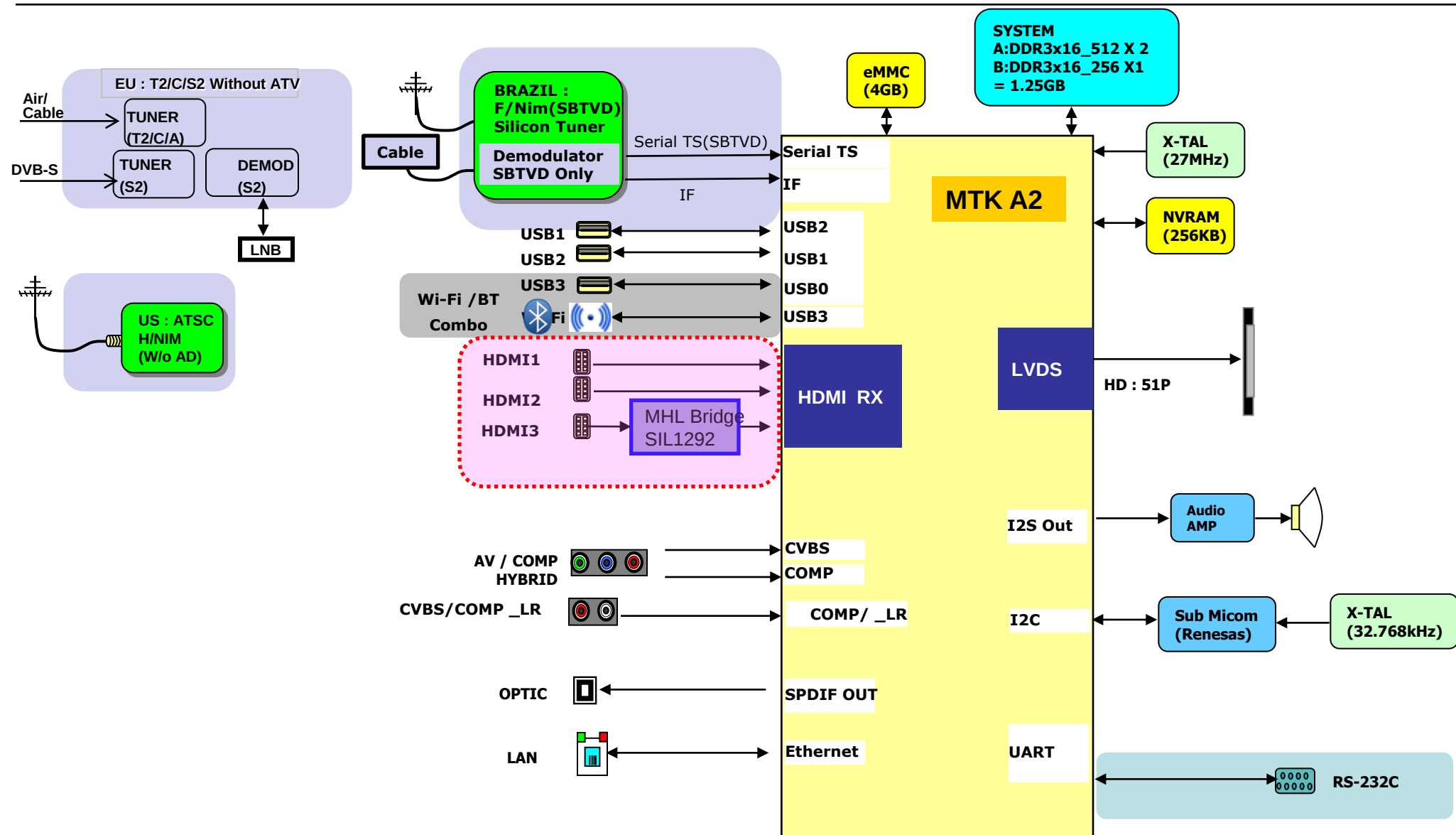


Comp (Pr)

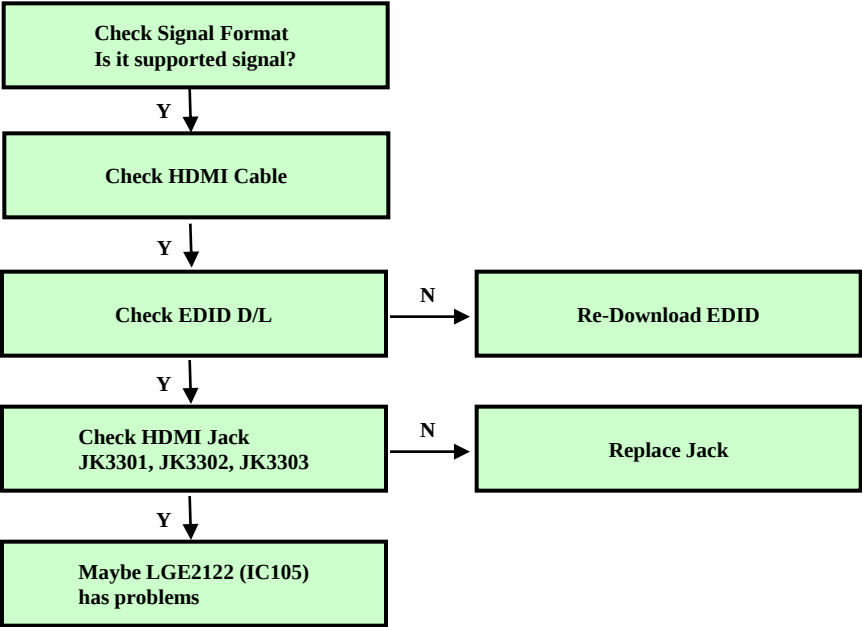


1920 X 1080 (i) Dot Freq : 74.25 MHz
H - Freq : 33.75 kHz
V - Freq : 60 Hz

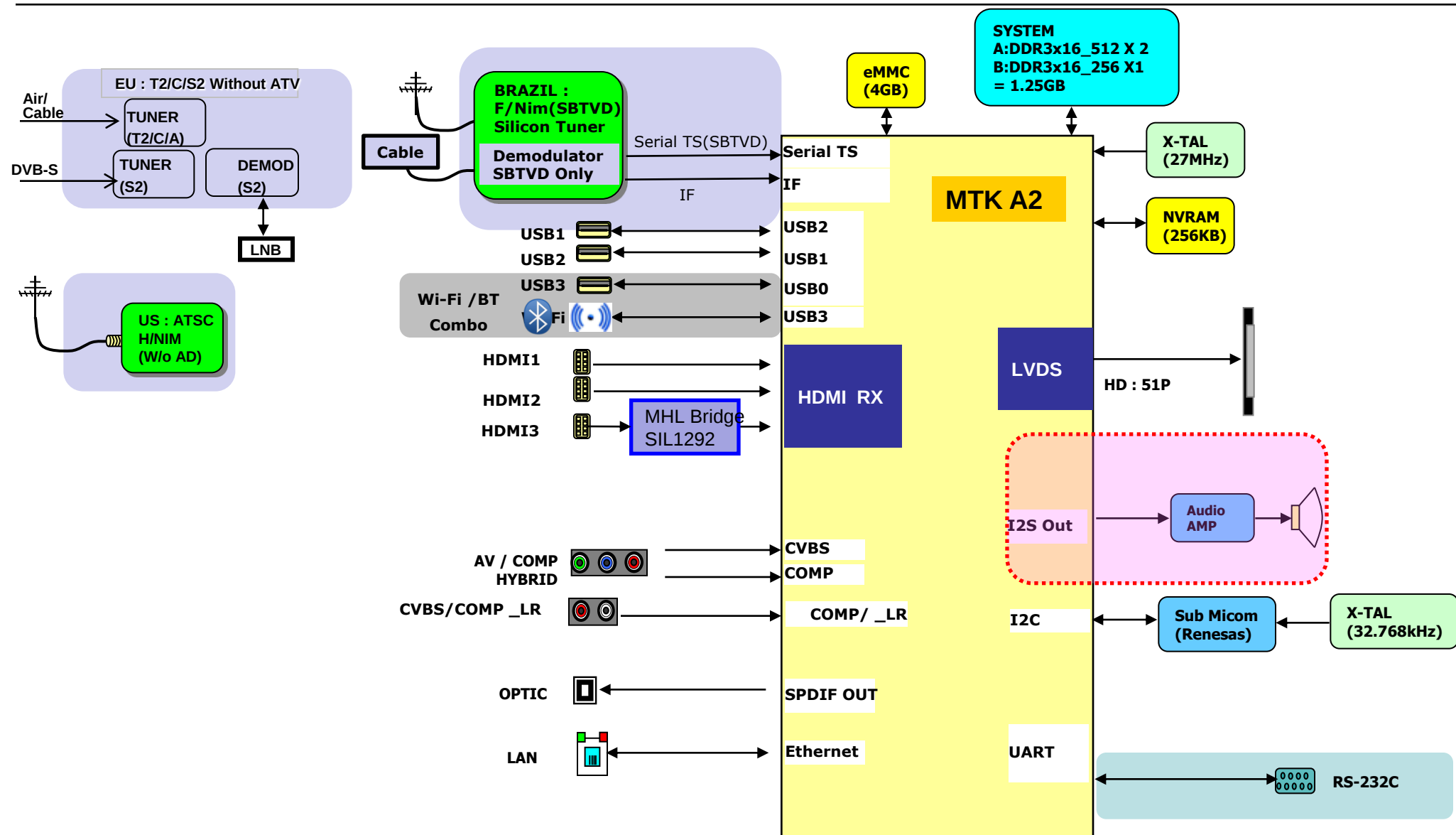
5. HDMI Video Trouble shooting



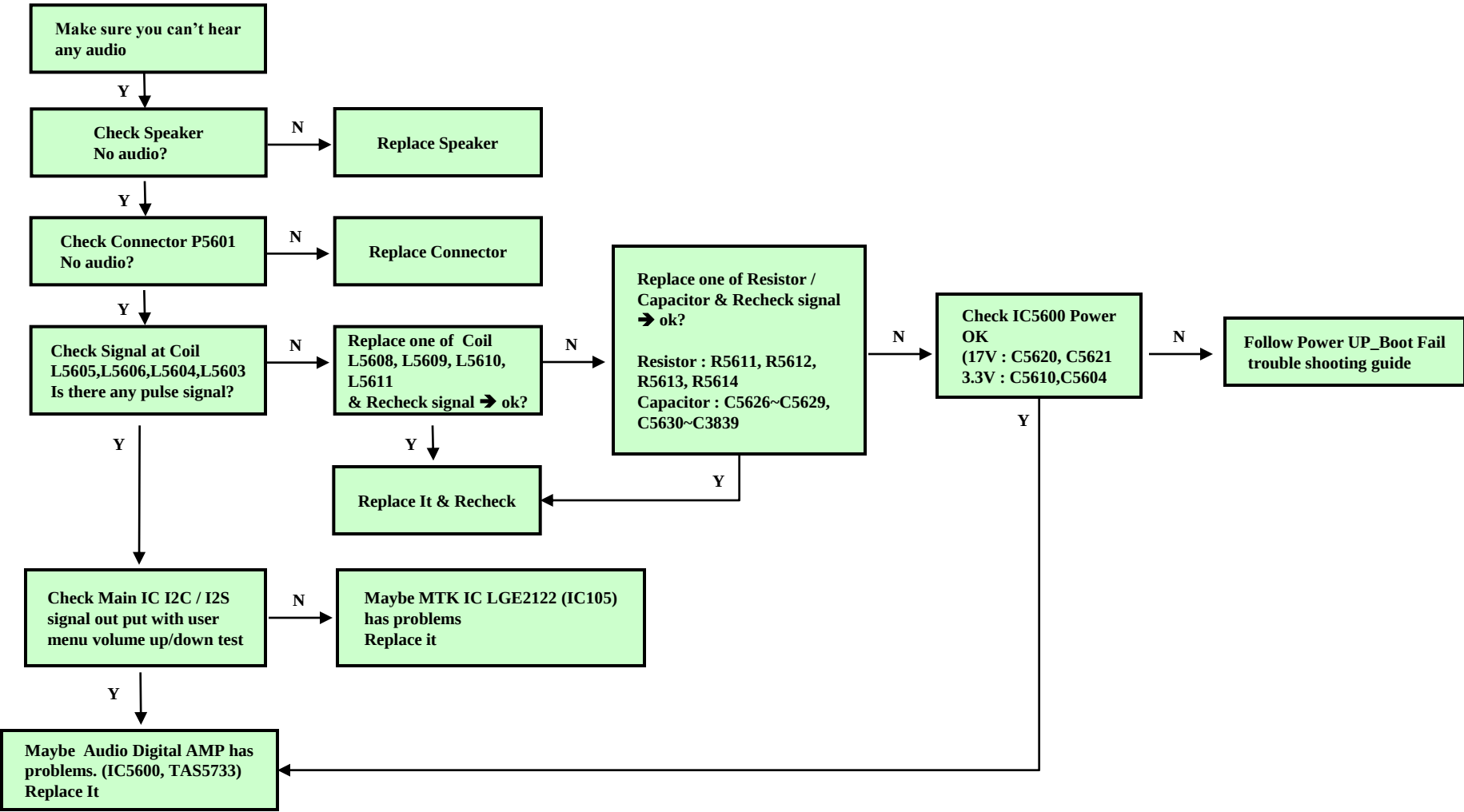
5-1. HDMI Video Trouble Shooting



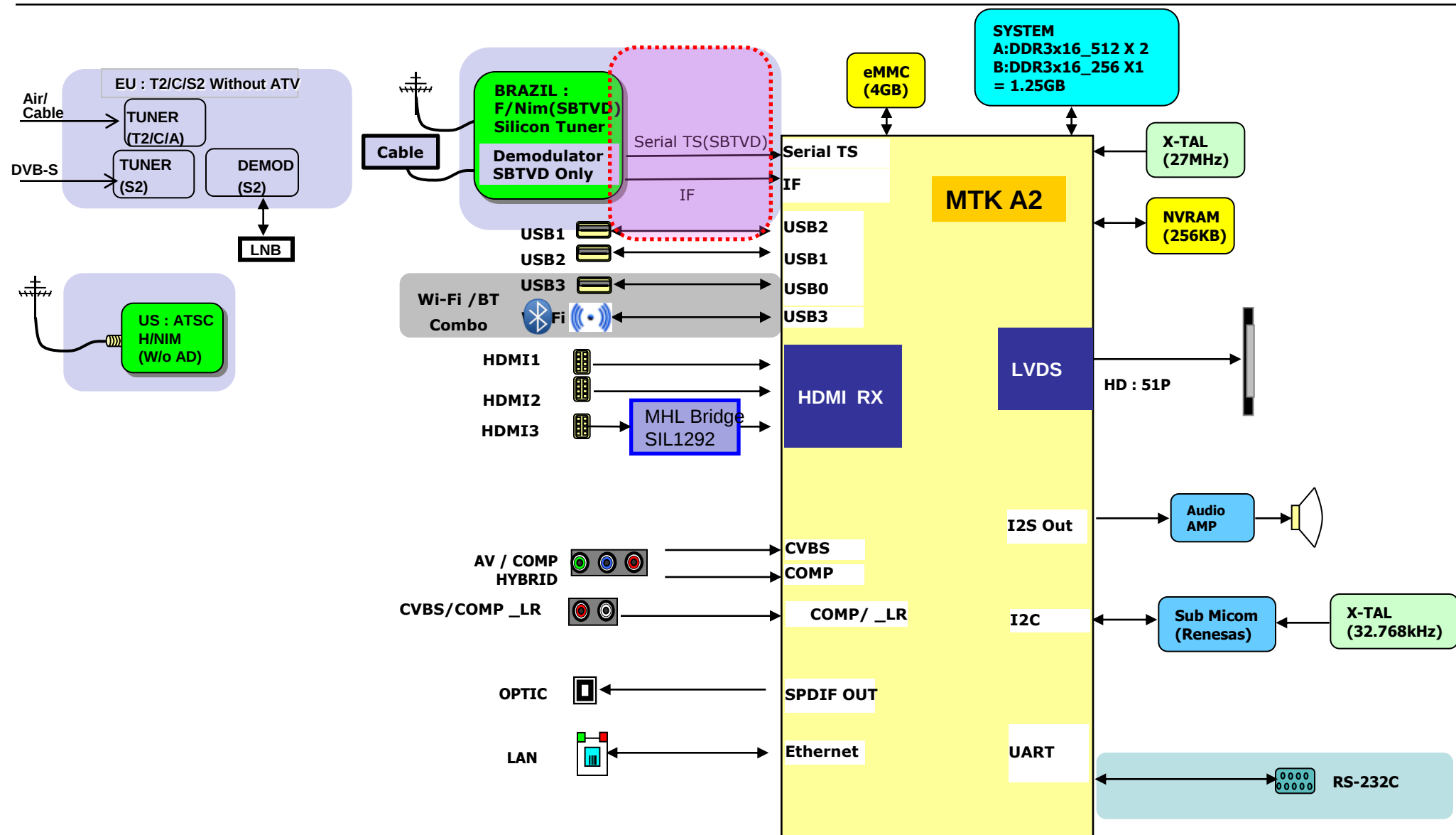
6. Audio AMP Trouble shooting



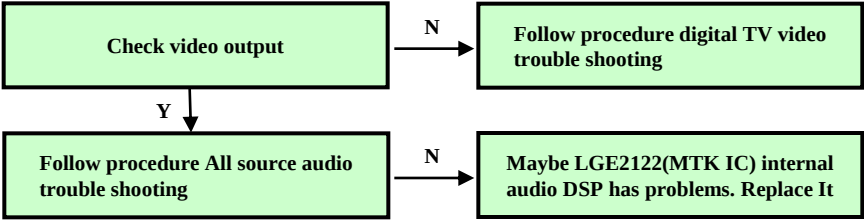
6-1. All Source Audio Trouble Shooting



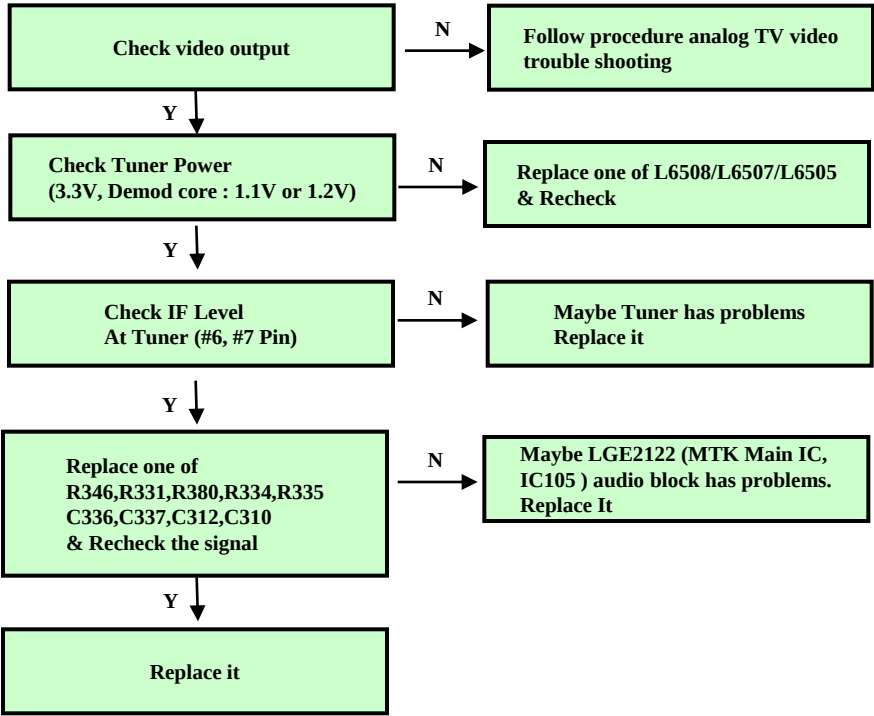
7. Tuner Audio Trouble shooting



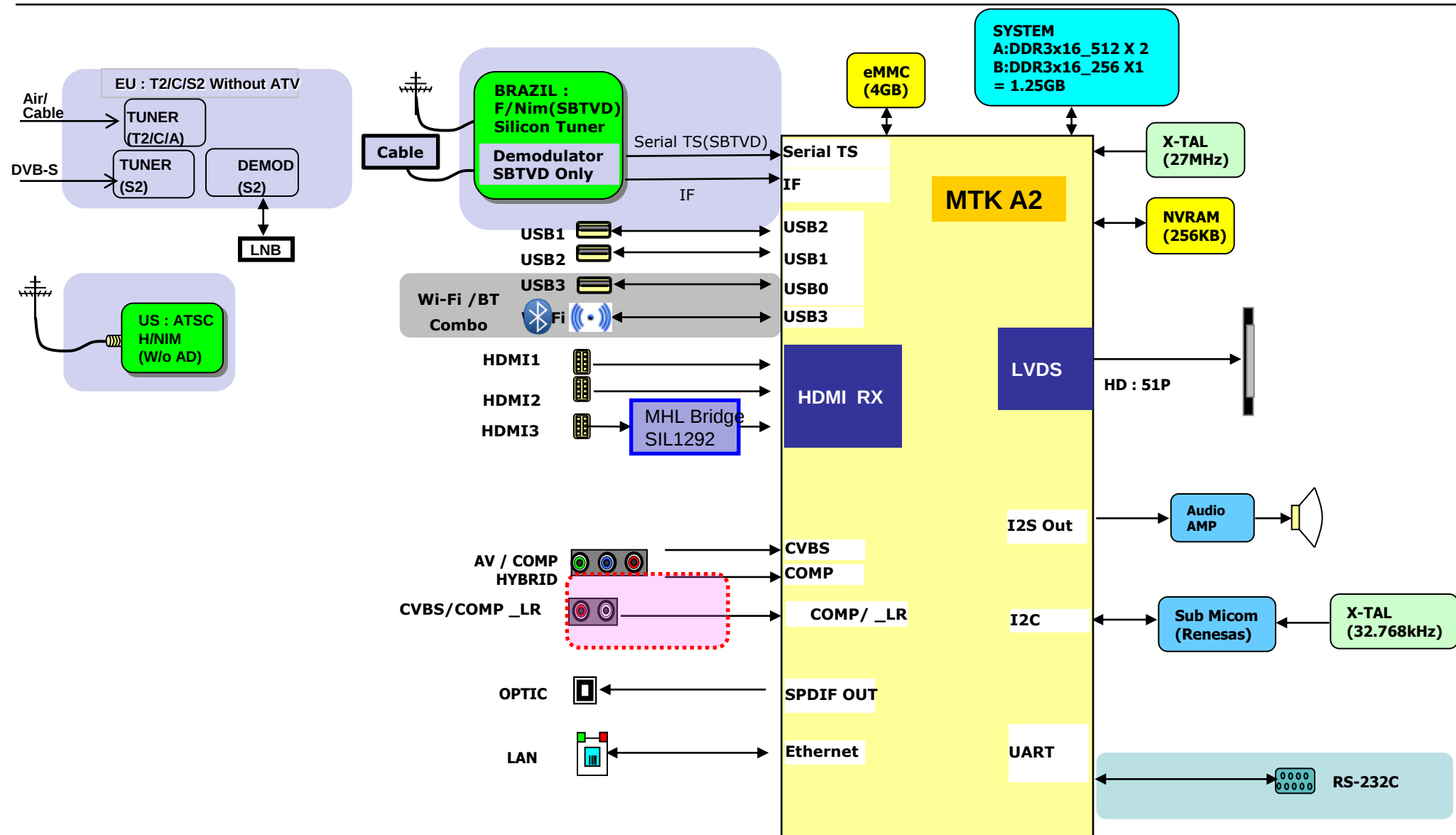
7-1. Tuner Audio Trouble Shooting



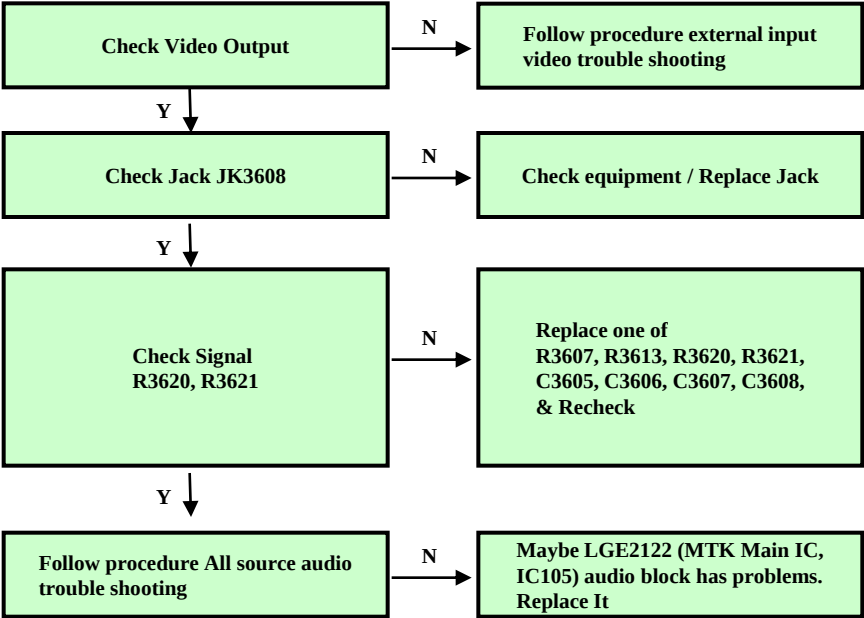
7-2. Tuner Audio Trouble Shooting



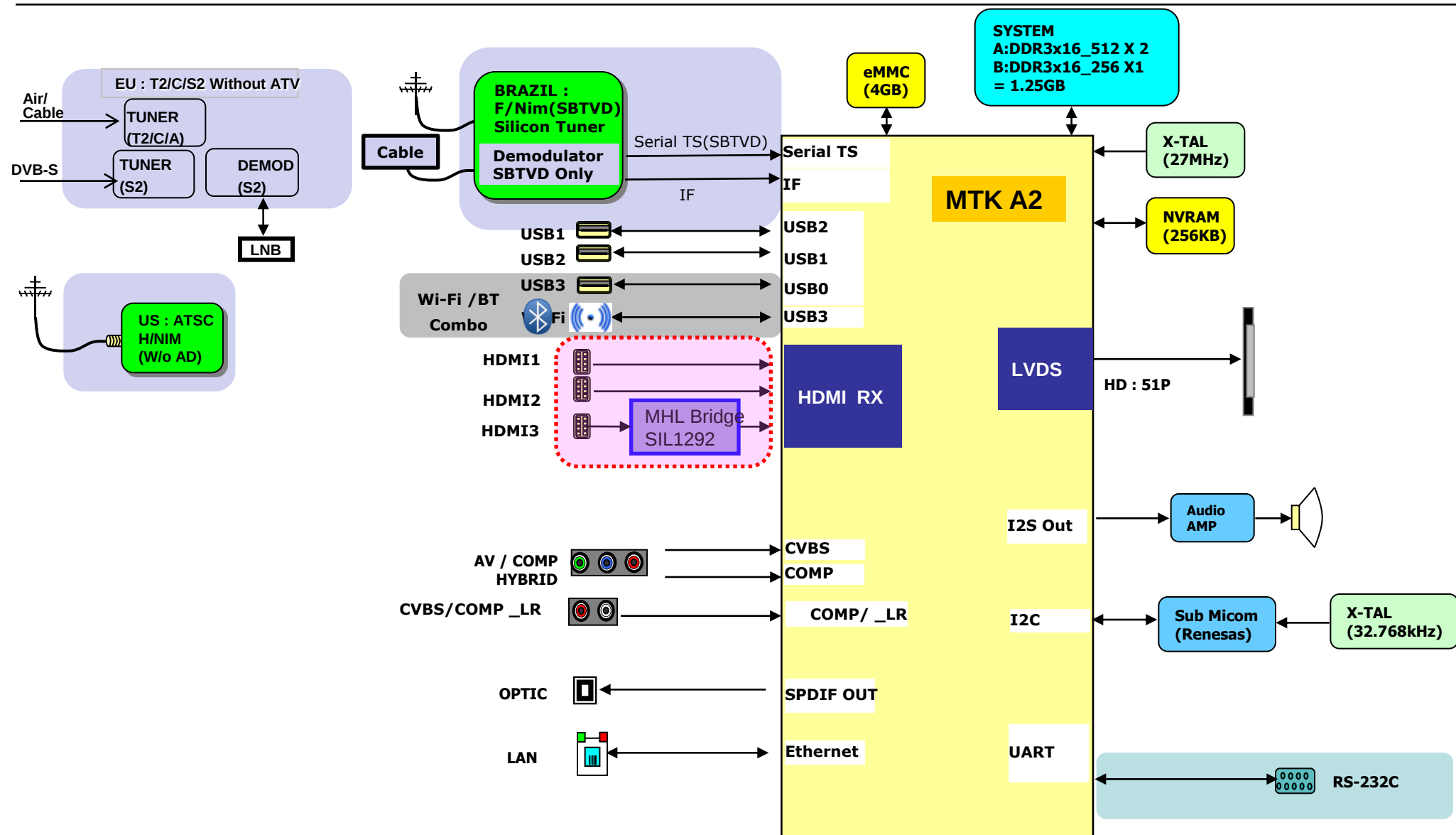
8. COMP/AV Audio Trouble shooting



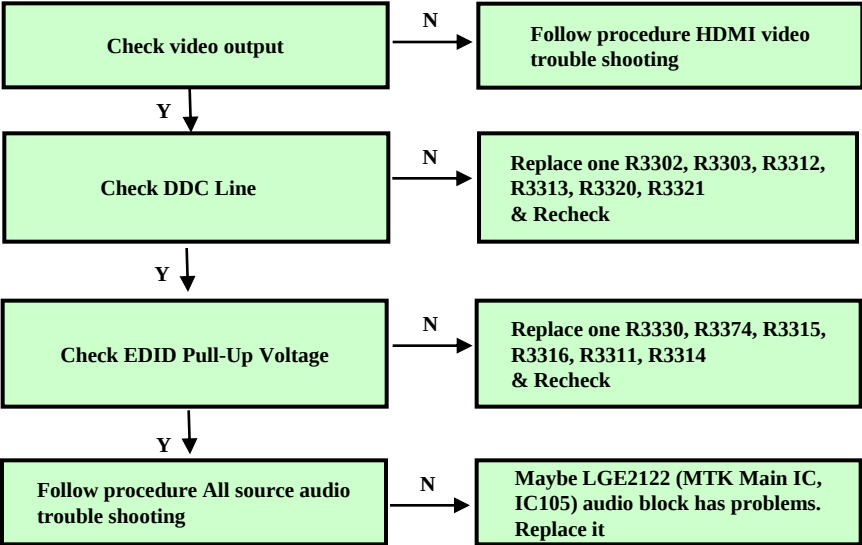
8-1. Component / AV Audio Trouble Shooting



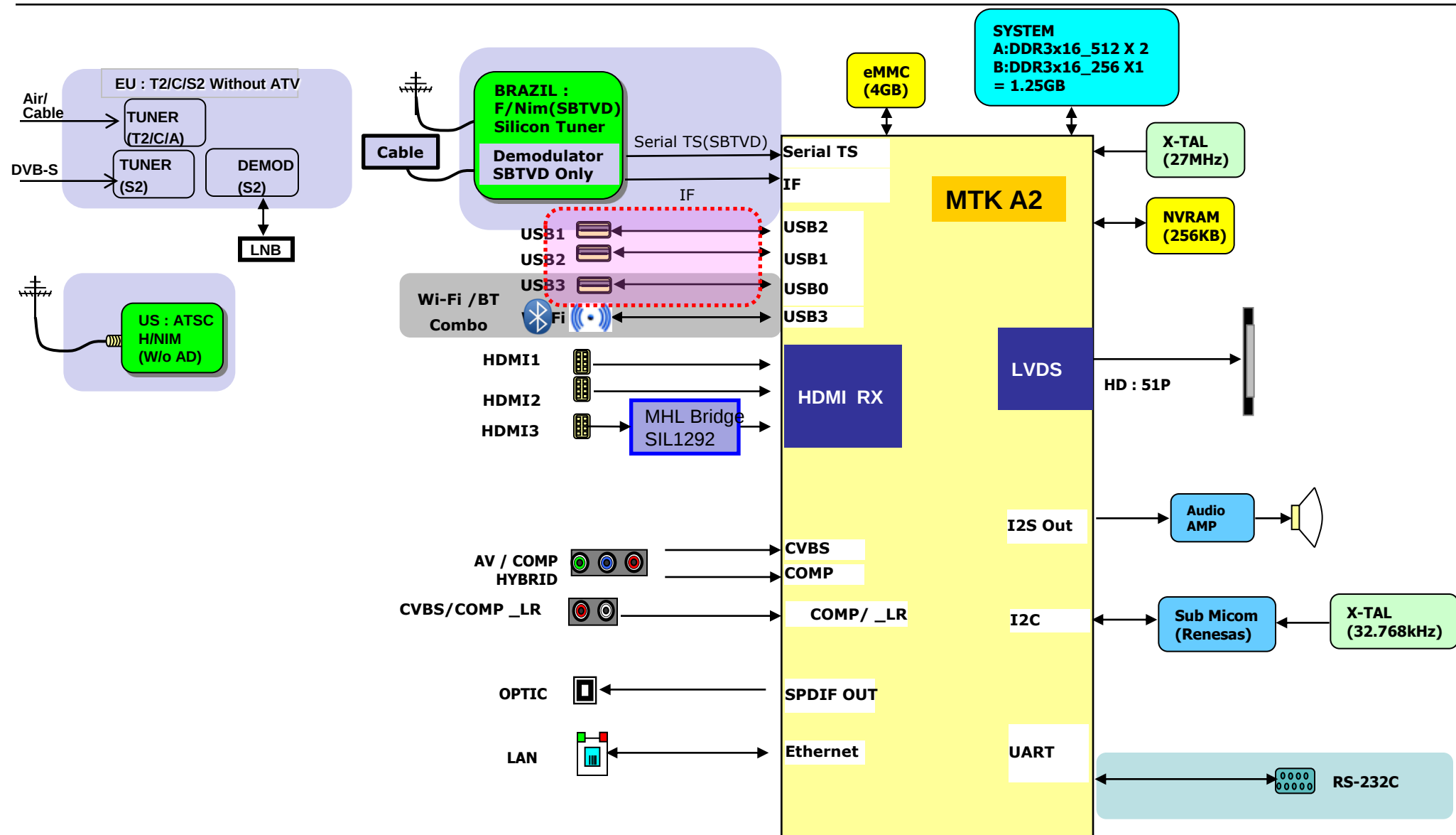
9. HDMI Audio Trouble shooting



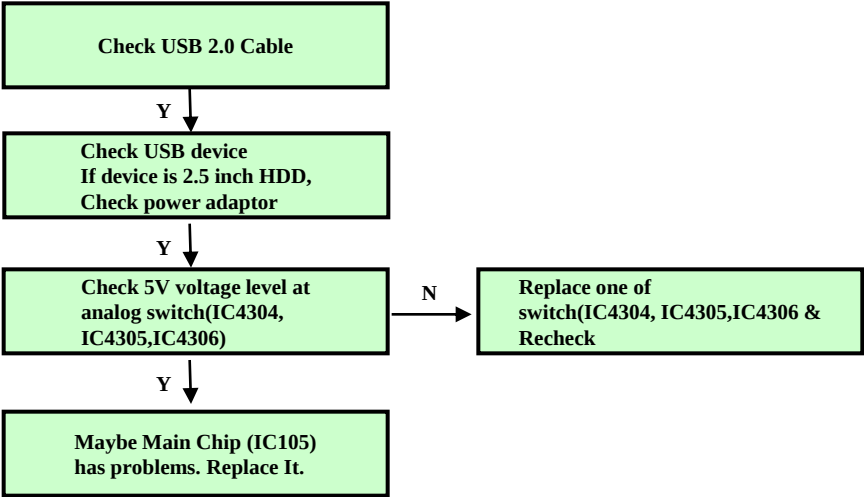
9-1. HDMI Audio Trouble Shooting



10. USB Trouble shooting

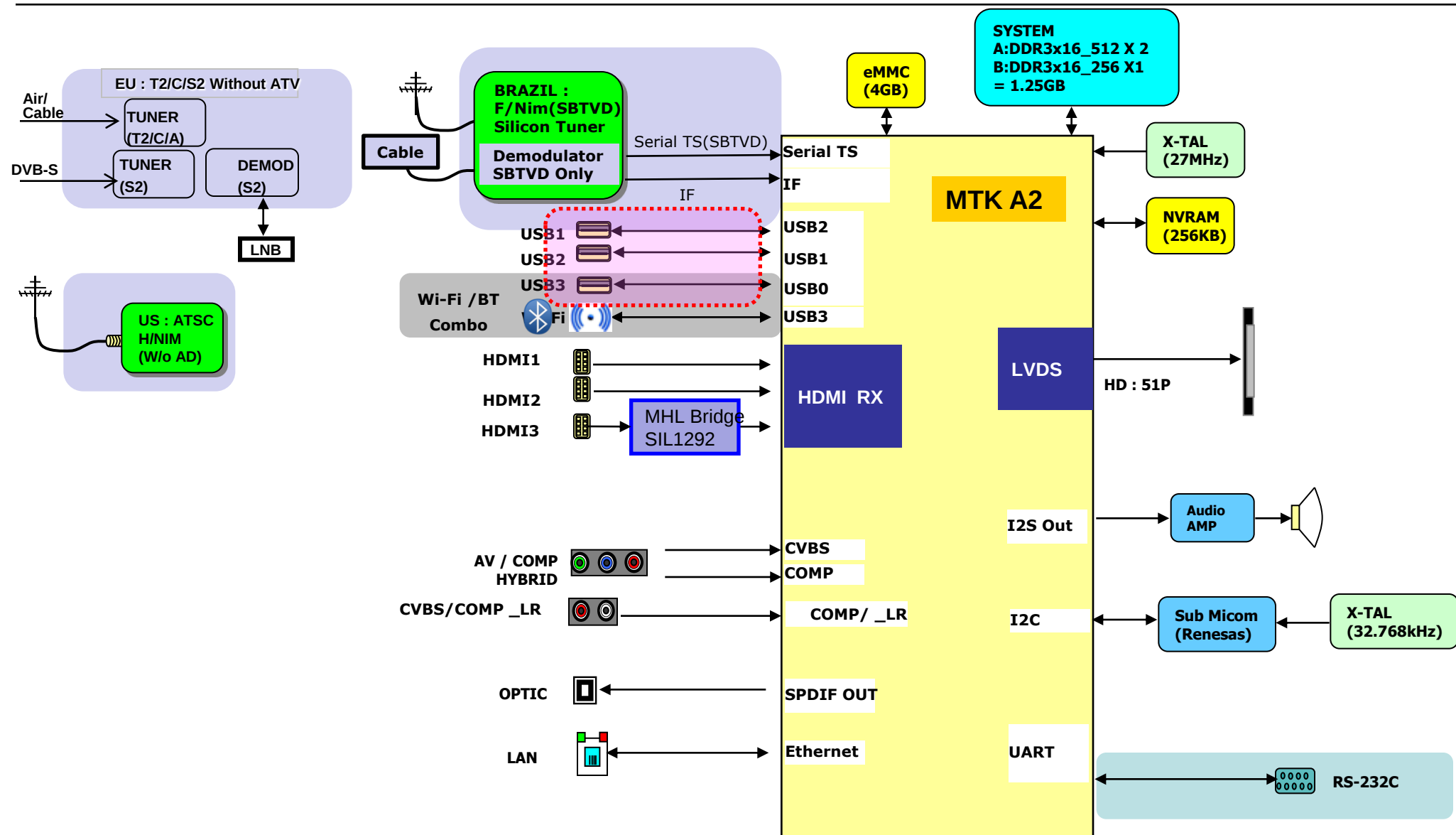


10-1. USB Trouble Shooting

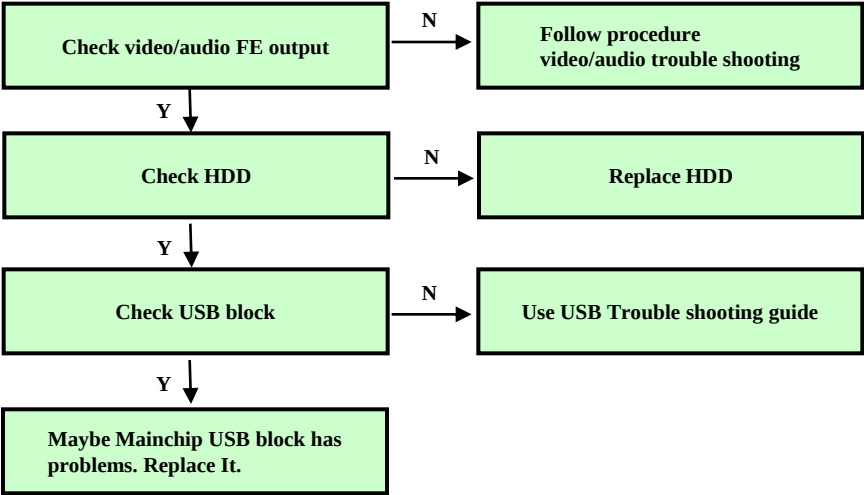


- **Exception**
 - USB power could be disabled by inrushing current
 - In this case, remove the device and try to reboot the TV (AC power off/on)

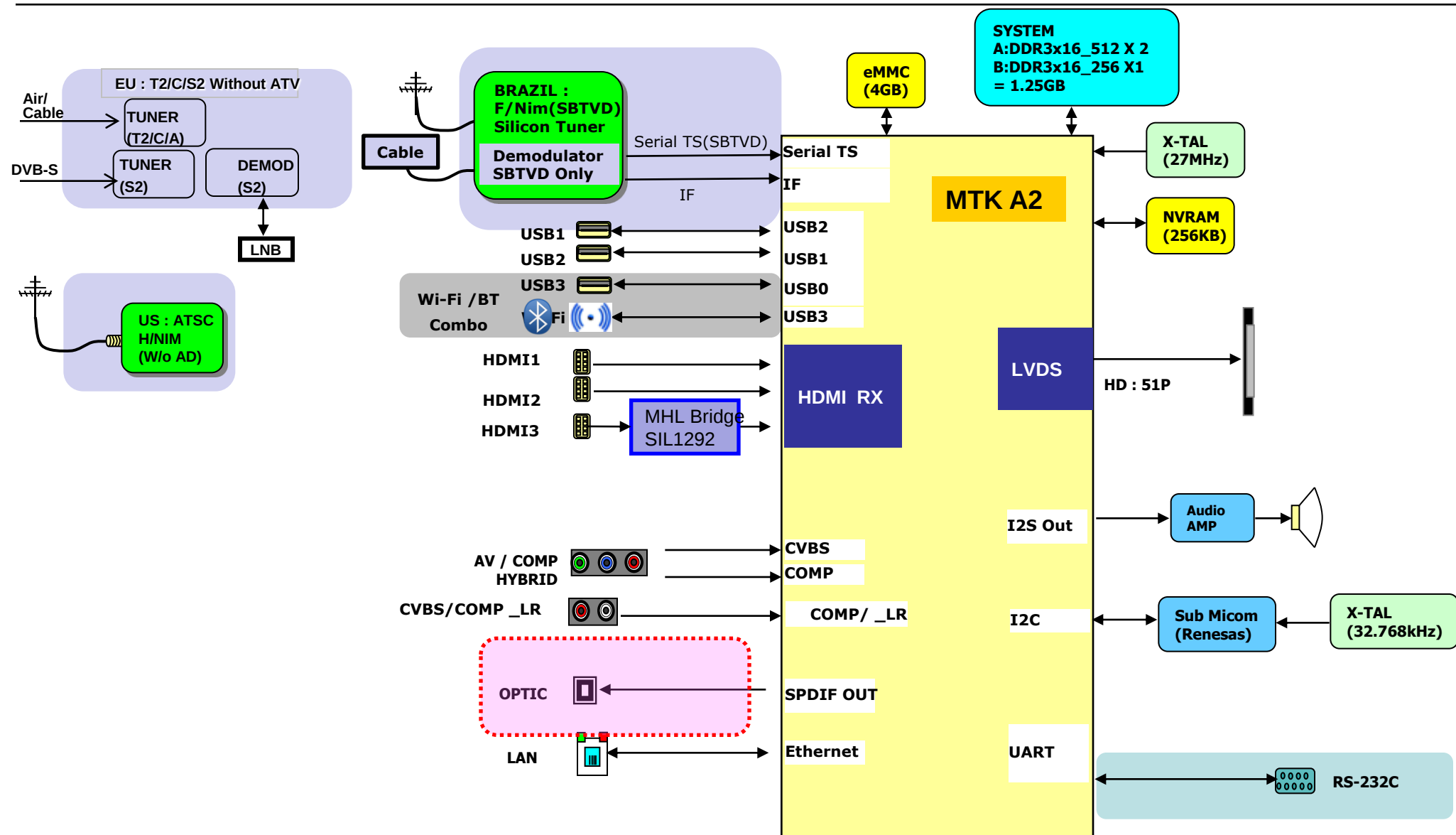
11. USB HDD Trouble shooting



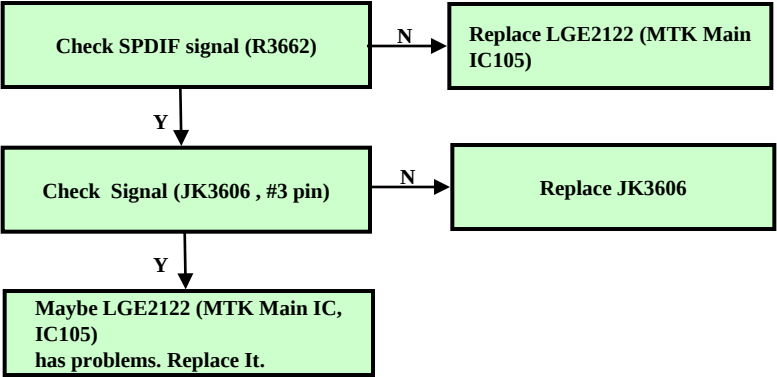
11-1. Recording Fail Trouble Shooting



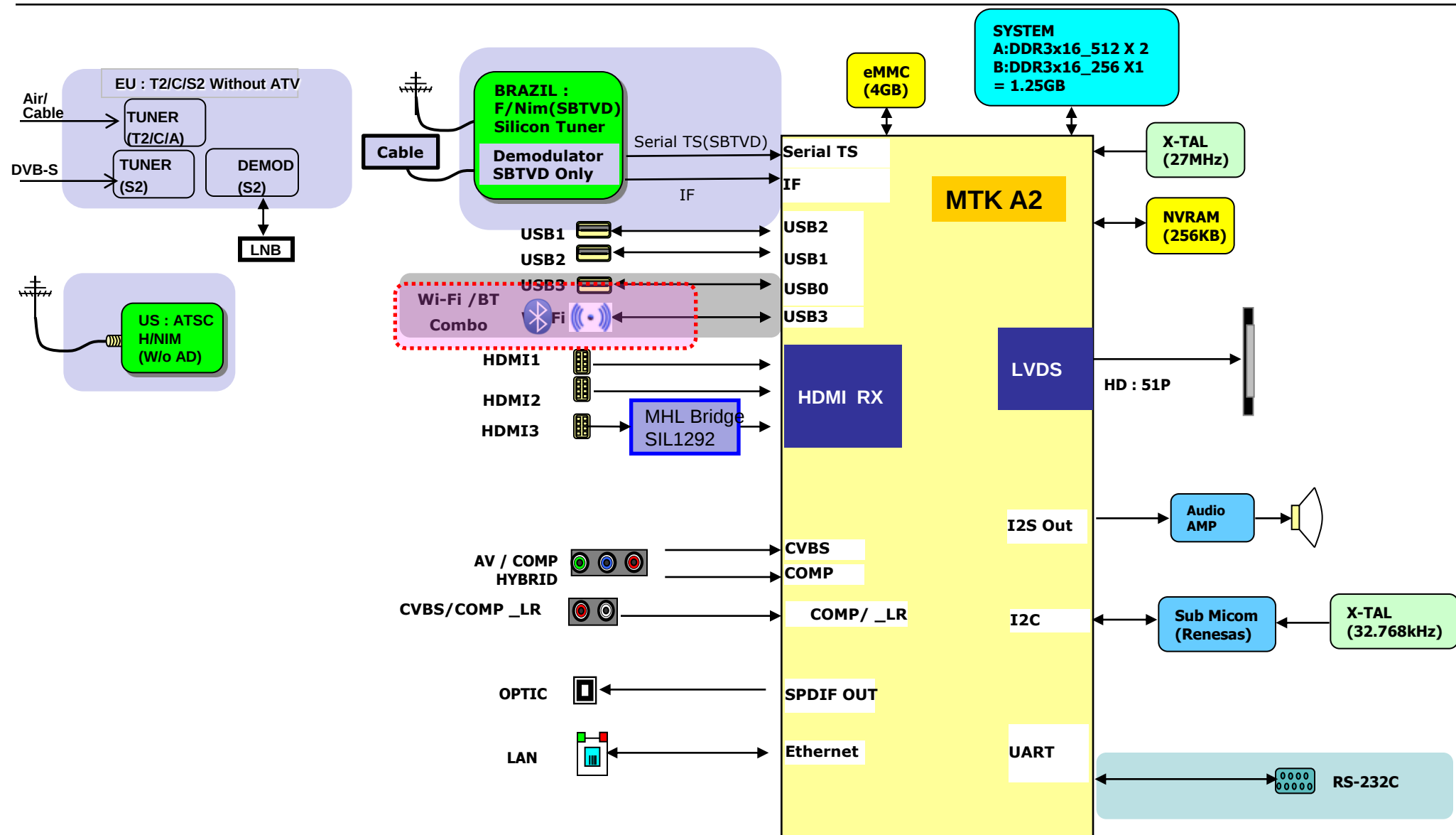
12. Optic Audio Out Trouble shooting



12-1. OPTIC Audio Out Trouble Shooting



13. WIFI/BT COMBO Trouble shooting



13-1. WiFi/Bluetooth Combo

