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PLASMA TV

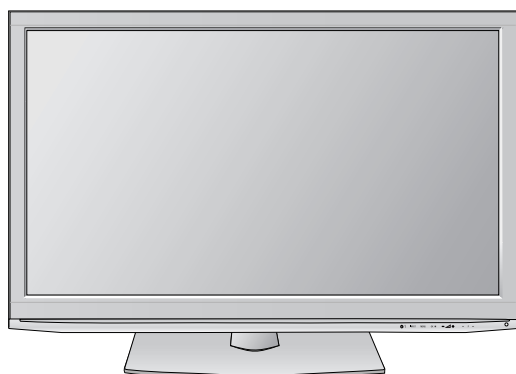
SERVICE MANUAL

CHASSIS : PU01A

MODEL : 42PJ350 42PJ350-UB

CAUTION

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



P/NO : MFL62881502 (1001-REV00)

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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 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 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 its 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 $1M\Omega$ and $5.2M\Omega$.

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

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

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

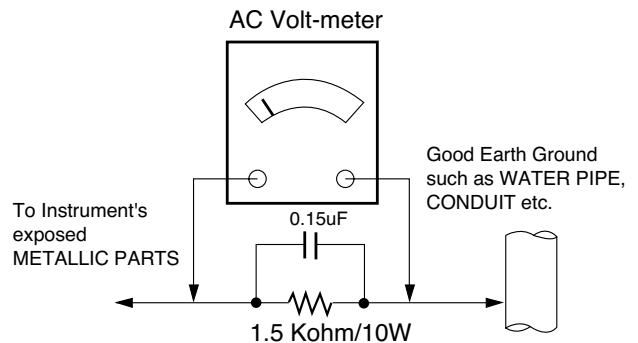
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

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 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



SPECIFICATIONS

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

1. Application Range

1.1 This spec sheet is applied all of PDP TV with PU01A chassis.

1.2 Not included spec and each product spec in this spec sheet apply correspondingly to the following each country

Model Name	Market	Brand	Remark
42PJ350-UB	NORTH AMERICA	LG	PDP 42T1

2. Specification

Each part is tested as below without special appointment.

A. Temperature : $20^{\circ}\pm 5^{\circ}$

B. Relative Humidity : $65^{\circ}\pm 10\%$

C. Power Voltage : Standard input voltage (100~240V@ 50/60Hz)

* Standard Voltage of each product is marked by models

D. Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.

E. The receiver must be operated for about 5 minutes prior to the adjustment.<-DQA Request

3. Test Method

1) Performance : LGE TV test method followed.

2) Demanded other specification

Safety : UL, CSA, IEC, CE specification

EMC : FCC, ICES, IEC, CE specification

Model Name	Market	Remark
42PJ350-UB	NORTH AMERICA	Safety : UL1492, CSA C22.2.No.1 EMC : FCC Class B, IC Class B

4. General Specification

No	Item	Specification	Remark
1.	Receiving System	1) ATSC/64 & 256 QAM/ NTSC-M	
2.	Available Channel	1) VHF : 02~13 2) UHF : 14~69 3) DTV : 02-69 4) CATV : 01~135 5) CADTV : 01~135	
3.	Input Voltage	1)AC 100 ~ 240V 50/60Hz	
		2)AC 100 ~ 120V 50/60Hz	
4.	Market	NORTH AMERICA	
5.	Screen Size	42 inch Wide(1024 × 768)	42T1
		50 inch Wide(1365 × 768)	50T1
		60 inch Wide(1365 × 768)	
		50 inch Wide(1920 × 1080)	50R1
		60 inch Wide(1920 × 1080)	60R1
6.	Aspect Ratio	16:9	
7.	Tuning System	FS	
8.	PDP Module	PDP42T1#### (1024 × 768)	
		PDP50T1#### (1365 × 768)	
		PDP50R1#### (1920 × 1080)	
		PDP60R1#### (1920 × 1080)	
9.	Operating Environment	1) Temp : 0 ~ 40 deg	
		2) Humidity : ~ 80 %	
10.	Storage Environment	1) Temp : -20 ~ 60 deg	
		2) Humidity : 0 ~ 90 %	

5. Chroma

1) 42T1, 50T1, 50R1, 60R1 Module

No	Item			Min	Typ	Max	Unit	Remark
1	Color coordinate	White	X	0.270	0.285	0.300	-	08.11.20 Xrange change +-0.015 09.10.13 blue Y Change 0.065~0.075 - White : 85IRE(216Gray) 100% 100% Window White Pattern R/G/B : 100IRE(255Gray) 100% Window White Pattern - Picture: Vivid(Medium) - 100% Window
			Y	0.283	0.293	0.303		
		Red	X	0.635	0.640	Unlimitedness		
			Y	0.318	0.330	0.345		
		Green	X	0.242	0.300	0.305		
			Y	0.595	0.600	Unlimitedness		
		Blue	X	Unlimitedness	0.150	0.158		
			Y	Unlimitedness	0.065	0.075		
2	Color coordinate uniformity			-0.020	average	+0.020		- 85IRE 100% Window White Pattern - Picture: Vivid(Medium)
3	Color Temperature	Cool		0.261	0.276	0.291	-	White : 85IRE(216Gray) 100% Window White Pattern - 100% Window 08.11.20 range change +-0.015 Warm : ColorGamut => WIDE Cool:Color temperature C30 Meduum:Color temperature 0 Warm:Color temperature W30
				0.268	0.283	0.298		
		Medium		0.270	0.285	0.300		
				0.278	0.293	0.308		
		Warm		0.298	0.313	0.328		
				0.314	0.329	0.344		
4	Brightness uniformity			-	0	+10	%	- 85IRE(216Gray) 100% Window White Pattern - Picture: Vivid(Medium)
				-10				

6. Component Input (Y, C_B/P_B, C_R/P_R)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Proposed
1.	720*480	15.73	60	SDTV ,DVD 480I
2.	720*480	15.73	59.94	SDTV ,DVD 480I
3.	720*480	31.47	60	SDTV 480P
4.	720*480	31.47	59.94	SDTV 480P
5.	1280*720	45.00	60.00	HDTV 720P
6.	1280*720	44.96	59.94	HDTV 720P
7.	920*1080	33.75	60.00	HDTV 1080I
8.	1920*1080	33.72	59.94	HDTV 1080I
9.	1920*1080	67.500	60	HDTV 1080P
10.	1920*1080	67.432	59.939	HDTV 1080P
11.	1920*1080	27.000	24.000	HDTV 1080P
12.	1920*1080	.97	23.94	HDTV 1080P
13.	1920*1080	33.75	30.000	HDTV 1080P
14.	1920*1080	33.71	29.97	HDTV 1080P

7. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	
	PC					DDC
1.	640*350	31.468	70.09	25.17	EGA	X
2.	720*400	31.469	70.08	28.32	DOS	0
3.	640*480	31.469	59.94	25.17	VESA(VGA)	0
4.	800*600	35.156	56.25	36.00	VESA(SVGA)	0
5.	800*600	37.879	60.31	40.00	VESA(SVGA)	0
6.	1024*768	48.363	60.00	65.00	VESA(XGA)	0
7.	1280*768	47.776	59.87	79.5	VESA(WXGA)	0
8.	1360*768	47.712	60.015	85.50	VESA (WXGA)	0
9.	1280*1024	63.981	60.020	108.00	VESA (SXGA)	0
10.	1600*1200	74.537	59.869	161.00	UXGA	Only FHD
11.	1920*1080	66.587	59.934	138.50	WUXGA (Reduced Blanking)	Only FHD

8. HDMI Input(PC/DTV)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	
	PC					DDC
1	640*350	31.468	70.09	25.17	EGA	X
2	720*400	31.469	70.08	28.32	DOS	0
3	640*480	31.469	59.94	25.17	VESA(VGA)	0
4	800*600	35.156	56.25	36.00	VESA(SVGA)	0
5	800*600	37.879	60.31	40.00	VESA(SVGA)	0
6	1024*768	48.363	60.00	65.00	VESA(XGA)	0
7	1280*768	47.776	59.87	79.5	VESA(WXGA)	0
8	1360*768	47.712	60.015	85.50	VESA (WXGA)	0
9	1280*1024	63.981	60.020	108.00	VESA (SXGA)	0
10	1600*1200	74.537	59.869	161.00	UXGA	Only FHD 0
11	1920*1080	66.587	59.934	138.50	WUXGA (Reduced Blanking)	Only FHD 0
	DTV					
1	720*480	31.47	60		SDTV 480P	
2	720*480	31.47	59.94		SDTV 480P	
3	1280*720	45.00	60.00		HDTV 720P	
4	1280*720	44.96	59.94		HDTV 720P	
5	1920*1080	33.75	60.00		HDTV 1080I	
6	1920*1080	33.72	59.94		HDTV 1080I	
7	1920*1080	67.500	60		HDTV 1080P	
8	1920*1080	67.432	59.939		HDTV 1080P	
9	1920*1080	27.000	24.000		HDTV 1080P	
10	1920*1080	26.97	23.94		HDTV 1080P	
11	1920*1080	33.75	30.000		HDTV 1080P	
12	1920*1080	33.71	29.97		HDTV 1080P	

ADJUSTMENT INSTRUCTION

1. Application Range

This spec sheet is applied to all of the PU01A Chassis.

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 $25\pm5^{\circ}\text{C}$ of temperature and $65\pm10\%$ 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.

- 1) Press the POWER ON KEY on R/C for adjustment.
- 2) Press the ADJ KEY on R/C and enter EZ ADJUST.
Select "4. WHITE PATTERN" by using $\blacktriangle/\blacktriangledown$ (CH +/-) and select "White" by using $\blacktriangleleft/\blacktriangleright$ (VOL +/-)

- Set is activated HEAT run without signal generator in this mode.
- Single color pattern (RED / BLUE / GREEN) of HEAT RUN MODE uses to check panel.

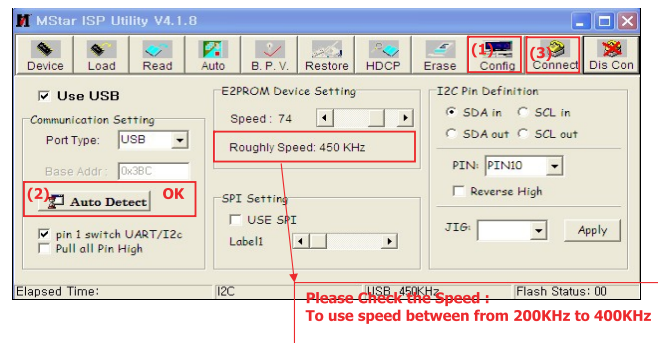
Caution: If you turn on a still screen more than 20 minutes (Especially digital pattern, cross hatch pattern), an after image may be occur in the black level part of the screen.

3. PCB assembly adjustment method

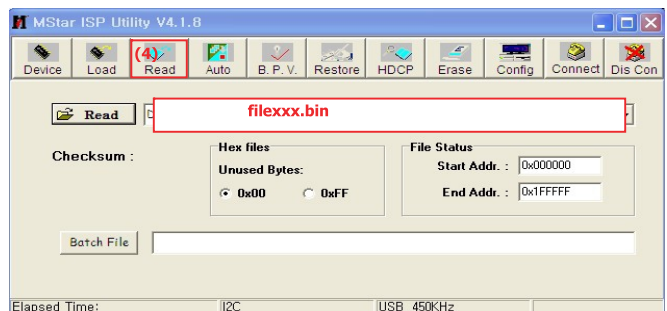
* Caution: Set up "RF mode(noise)" after PCB assembly adjustment.

*Download

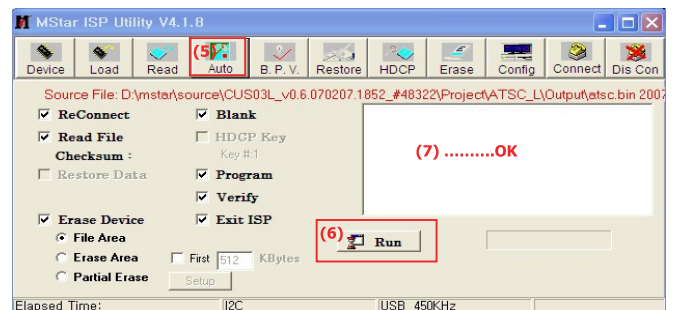
1. Execute ISP program "Mstar ISP Utility" and then click "Config" tab.
2. Set as below, and then click "Auto Detect" and check "OK" message
If display "Error", Check connect computer, jig, and set.
3. Click "Connect" tab. If display "Can't ", Check connect computer, jig, and set.



4. Click "Read" tab, and then load download file(XXXX.bin) by clicking "Read"



5. Click "Auto" tab and set as below
6. Click "Run".
7. After downloading, check "OK" message.



4. ADC Process

4-1. Auto ADC Process (using DFT)

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

Command : aa 00 00 (Start factory mode)

Command : ad 00 10 (working Auto ADC)

Command : aa 00 90 (End of Auto ADC Process)

4-2. Manual ADC Process using Service Remocon

After enter Service Mode by pushing "ADJ" key, execute "ADC Adjust" by pushing "▶" key at "0. ADC CALIBRATION".

```
EZ ADJUST
0. ADC CALIBRATION
1. ADC ADJUST
2. SUB B/C ADJUST
3. W/B ADJUST
4. EDID D/L
5. 2HOUR OFF           : ON
6. UART DOWNLOAD
7. MODULE CONTROL
8. DEBUG MODE          : OFF
9. 15Min Forced Off    : ON
10. Phase Noise Control : OFF
11. 1Min Timer Control : OFF
12. Lip Sync Adjust(ATV) : 20
13. DVI/HDMI Switch    : OFF
14. PLL Tracking Speed  : 0
15. Touch Sensitivity Setting
16. Over Modulation Control : 1
```

4-3. Confirmation

- (1) We confirm whether "0xBF(480i)/0xC8(1080i)" address of EEPROM "0xA2" is "0xAA" or not.
- (2) If "0xBF(480i)/0xC8(1080i)" address of EEPROM "0xA2" isn't "0xAA", we adjust once more
- (3) We can confirm the ADC values from "0xB9 ~ 0xBE(480i) / 0xC2 ~ (1080i)" addresses in a page "0xA2"

* Manual ADC Confirmation using Service Remocon. After enter Service Mode by pushing "INSTART" key,

```
MODEL : 50PK550-UD
S/W VER : V2.04.0    Sensor : V2.00(0x91)
UTT : 1
ADC CAL.
YPbPr(SD) : OK
YPbPr(HD) : OK
RGB : OK
```

5. DDC EDID Write Confirmation

```
MODEL : 50PK550-UD
S/W VER : V3.02.0    Sensor : V2.01(0x1c)
UTT : 1
ADC CAL.
YPbPr(SD) : OK
YPbPr(HD) : OK
RGB : OK
EDID : RGB(0) HDMI(1:0 2:0 3:0)
```

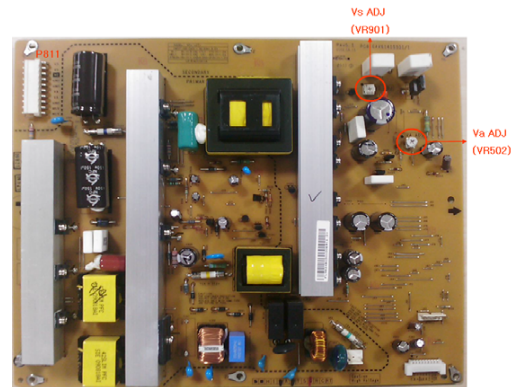
6. Total Assembly line process

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

* Caution: Set up "RF mode(noise)" before voltage adjustment.

6-1. POWER PCB Ass'y Voltage adjustment (Va, Vs voltage adjustment)

1. Test equipment : D.M.M 1EA
2. Connection Diagram for Measuring : refer to fig.1



<XPOWER4 42T1 PSU>

(fig.1 : Power PCB Assy Voltage adjustment)

6-2. Adjustment method

1. Vs adjustment (refer fig.1)
 - (1) Connect + terminal of D.M.M. to Vs pin of P812(42":P811), connect -terminal to GND pin of P812(42":P811)
 - (2) After turning VR901, voltage of D.M.M adjustment as same as Vs voltage which on label of panel left/top (deviation ; $\pm 0.5V$)
2. Va adjustment (refer fig.1)
 - (1) After receiving 100% Full White Pattern, HEAT RUN.
 - (2) Connect + terminal of D.M.M. to Va pin of P812(42":P811), connect -terminal to GND pin of P811(42":P812).
 - (3) After turning VR502,voltage of D.M.M adjustment as same as Va voltage which on label of panel left/top (deviation; $\pm 0.5V$)

7. DDC EDID Write

MODEL NAME: LG TV (Not necessary)

Caution: Please only check write status in Instart-menu

7-1. Manual Download(using DFT)

PC(for communication through RS-232C), UART baud rate: 115200 bps

Command : aa 00 00 (Start Factory mode)

Command : ae 00 10 (Download All EDID)

Command : aa 00 90 (End of Factory mode)

7-2. Manual EDID D/L using Service Remocon

(1) After enter Service Mode by pushing "ADJ" key, select "4. EDID D/L".

(2) Finally execute "START" by pushing "▶" or "○"key.

7-3 HD EDID DATA

RGB EDID DATA

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
0010	00	14	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
0020	09	48	4C	AF	CF	00	31	40	45	40	61	40	81	80	A9	40
0030	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
0040	36	00	C4	8E	21	00	00	1E	02	3A	80	18	71	38	2D	40
0050	58	2C	45	00	C4	8E	21	00	00	1E	00	00	00	FD	00	30
0060	4B	1F	64	11	00	0A	20	20	20	20	20	20	20	00	00	FC
0070	00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	1A	
0080	02	03	04	00	0E	1F	00	80	51	00	1E	30	40	80	37	00
0090	C4	8E	21	00	00	1C	F1	27	00	A0	51	00	25	30	50	80
00A0	37	00	C4	8E	21	00	00	1C	00	00	00	00	00	00	00	00
00B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	31

HDMI-1 EDID DATA

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
0010	00	14	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
0020	09	48	4C	AF	CF	00	31	40	45	40	61	40	81	80	A9	40
0030	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
0040	36	00	C4	8E	21	00	00	1E	02	3A	80	18	71	38	2D	40
0050	58	2C	45	00	C4	8E	21	00	00	1E	00	00	00	FD	00	30
0060	4B	1F	64	11	00	0A	20	20	20	20	20	20	20	00	00	FC
0070	00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	B2	
0080	02	03	18	F1	47	84	05	03	02	20	22	10	23	09	07	07
0090	67	03	0C	00	10	00	B8	2D	01	1D	00	72	51	D0	1E	20
00A0	6E	28	55	00	C4	8E	21	00	00	1E	01	1D	80	18	71	1C
00B0	16	20	58	2C	25	00	C4	8E	21	00	00	9E	8C	0A	D0	8A
00C0	20	E0	2D	10	10	3E	96	00	C4	8E	21	00	00	18	8C	0A
00D0	D0	8A	20	E0	2D	10	10	3E	96	00	13	8E	21	00	00	18
00E0	0E	1F	00	80	51	00	1E	30	40	80	37	00	C4	8E	21	00
00F0	00	1C	00	00	00	00	00	00	00	00	00	00	00	00	00	2F

HDMI-2 EDID DATA

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
0010	00	14	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
0020	09	48	4C	AF	CF	00	31	40	45	40	61	40	81	80	A9	40
0030	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
0040	36	00	C4	8E	21	00	00	1E	02	3A	80	18	71	38	2D	40
0050	58	2C	45	00	C4	8E	21	00	00	1E	00	00	00	FD	00	30
0060	4B	1F	64	11	00	0A	20	20	20	20	20	20	20	00	00	FC
0070	00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	B2	
0080	02	03	18	F1	47	84	05	03	02	20	22	10	23	09	07	07
0090	67	03	0C	00	20	00	B8	2D	01	1D	00	72	51	D0	1E	20
00A0	6E	28	55	00	C4	8E	21	00	00	1E	01	1D	80	18	71	1C
00B0	16	20	58	2C	25	00	C4	8E	21	00	00	9E	8C	0A	D0	8A
00C0	20	E0	2D	10	10	3E	96	00	C4	8E	21	00	00	18	8C	0A
00D0	D0	8A	20	E0	2D	10	10	3E	96	00	13	8E	21	00	00	18
00E0	0E	1F	00	80	51	00	1E	30	40	80	37	00	C4	8E	21	00
00F0	00	1C	00	00	00	00	00	00	00	00	00	00	00	00	00	1F

HDMI-3 EDID DATA

Addr	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
0010	00	14	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
0020	09	48	4C	AF	CF	00	31	40	45	40	61	40	81	80	A9	40
0030	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
0040	36	00	C4	8E	21	00	00	1E	02	3A	80	18	71	38	2D	40
0050	58	2C	45	00	C4	8E	21	00	00	1E	00	00	00	FD	00	30
0060	4B	1F	64	11	00	0A	20	20	20	20	20	20	20	00	00	FC
0070	00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	B2	
0080	02	03	18	F1	47	84	05	03	02	20	22	10	23	09	07	07
0090	67	03	0C	00	30	00	B8	2D	01	1D	00	72	51	D0	1E	20
00A0	6E	28	55	00	C4	8E	21	00	00	1E	01	1D	80	18	71	1C
00B0	16	20	58	2C	25	00	C4	8E	21	00	00	9E	8C	0A	D0	8A
00C0	20	E0	2D	10	10	3E	96	00	C4	8E	21	00	00	18	8C	0A
00D0	D0	8A	20	E0	2D	10	10	3E	96	00	13	8E	21	00	00	18
00E0	0E	1F	00	80	51	00	1E	30	40	80	37	00	C4	8E	21	00
00F0	00	1C	00	00	00	00	00	00	00	00	00	00	00	00	00	0F

8. Adjustment of White Balance

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

8-1. Test Equipment

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

* 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.

- Color temperature standards according to CSM and Module

CSM	PLASMA
Cool	11000K
Medium	9300K
Warm	6500K

- Change target luminance and range of the Auto adjustment W/B equipment.

Target luminance	65
Range	20

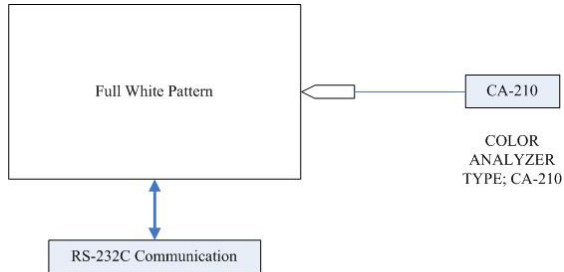
- White balance adjustment coordinate and color temperature

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
Δuv	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
Δuv	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
Δuv	0.003	0.003	0.003

* PC (for communication through RS-232C) ==> UART Baud rate : 115200 bps

8-2. Connecting Picture of the Measuring Instrument (On Automatic control)

Inside PATTERN is used when W/B is controlled. Connect to auto controller or push control R/C ADJ Key. Enter the mode of White-Balance, the pattern will come out.



[Fig.5] connecting picture (On Automatic Control)

8-3. 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) In case of PDP: Measure and adjust after sticking the Color Analyzer (CA-100+, CA210) to the side of the module.

In case of LCD: Adhere closely the Color Analyzer (CA210) to the module less than 10cm distance, keep it with the surface of the Module and Color Analyzer's Prove vertically.(80~100°).

- (3) Aging time
 - 1) After aging start, keep the power on (no suspension of power supply) and heat-run over 5 minutes.
 - 2) In case of PDP, keep white pattern using inside pattern.
 - 3) In case of LCD, using 'no signal' or 'full white pattern' or the others, check the back light on.

● Auto adjustment Map(RS-232C)

	RS-232C COMMAND				CENTER			
	[CMD ID DATA]				(DEFAULT)			
	Cool	Mid	Warm	MIN	Cool	Mid	Warm	MAX
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
R Cut					128	128	128	255
G Cut					128	128	128	255
B Cut					128	128	128	255

8-4. Manual white Balance

- (1) Press the POWER ON KEY on R/C for adjustment and heat run over 5 minutes.
- (2) Zero Calibrate CA-100+ / CA-210, and when controlling, stick the sensor to the center of PDP module surface.
- (3) Press the ADJ KEY on R/C and enter EZ ASJUST Select "3.W/B ADJUST" and press ENTER(■) Set test-pattern on and display inside pattern.
- (4) Control is carried out on three color temperatures, COOL, MEDIUM, WARM.(Control is carried out three times)

< Temperature: COOL >

- R-offset / G-offset / B-offset is set to 128
- Control R-Gain and G-Gain.
- Each gain is limited to 192

< Temperature: MEDIUM >

- R-offset / G-offset / B-offset is set to 128
- Control R-Gain and G-Gain.
- Each gain is limited to 192

< Temperature: WARM >

- R-offset / G-offset / B-offset is set to 128
- Control G-Gain and B-Gain.
- Each gain is limited to 192

9. HDCP SETTING(Not necessary)

Caution: Key is saved in external eeprom.

10. RS-232C

Press In-start key and select 4.Baud Rate menu. Check RS-232C after changing Baud Rate 115200.

11. TOOL OPTION

11-1. Using DFT(Auto)

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

Command : ab 00 00 DATA(Model Number(hexadecimal))

ITEM	DATA(Model Number)	M
TOOL OPTION	0	42PJ350
	1	50PJ350
	2	42PJ360
	3	50PJ360
	4	42PJ550
	5	50PJ550
	6	50PK360
	7	50PK550
	8	60PK550
	10	42PJ250
	11	50PJ250
	12	42PJ340
	13	50PJ340
	14	50PK250
	15	60PK250
	16	60PK280
	17	50PK350
	18	50PK540
	19	60PK540

11-2. Setting Manual

Press ADJ R/C In-start key and select 0.TOOL OPTION, Select Model Number by using R/C number(0~9) key or select Model Number by using ◀▶(VOL +/-) in accordance with destination.

Finally press ○ (enter) key.

12. AREA OPTION

12-1. Using DFT(Auto)

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

Command : ah 00 00 DATA(Area Number(hexadecimal))

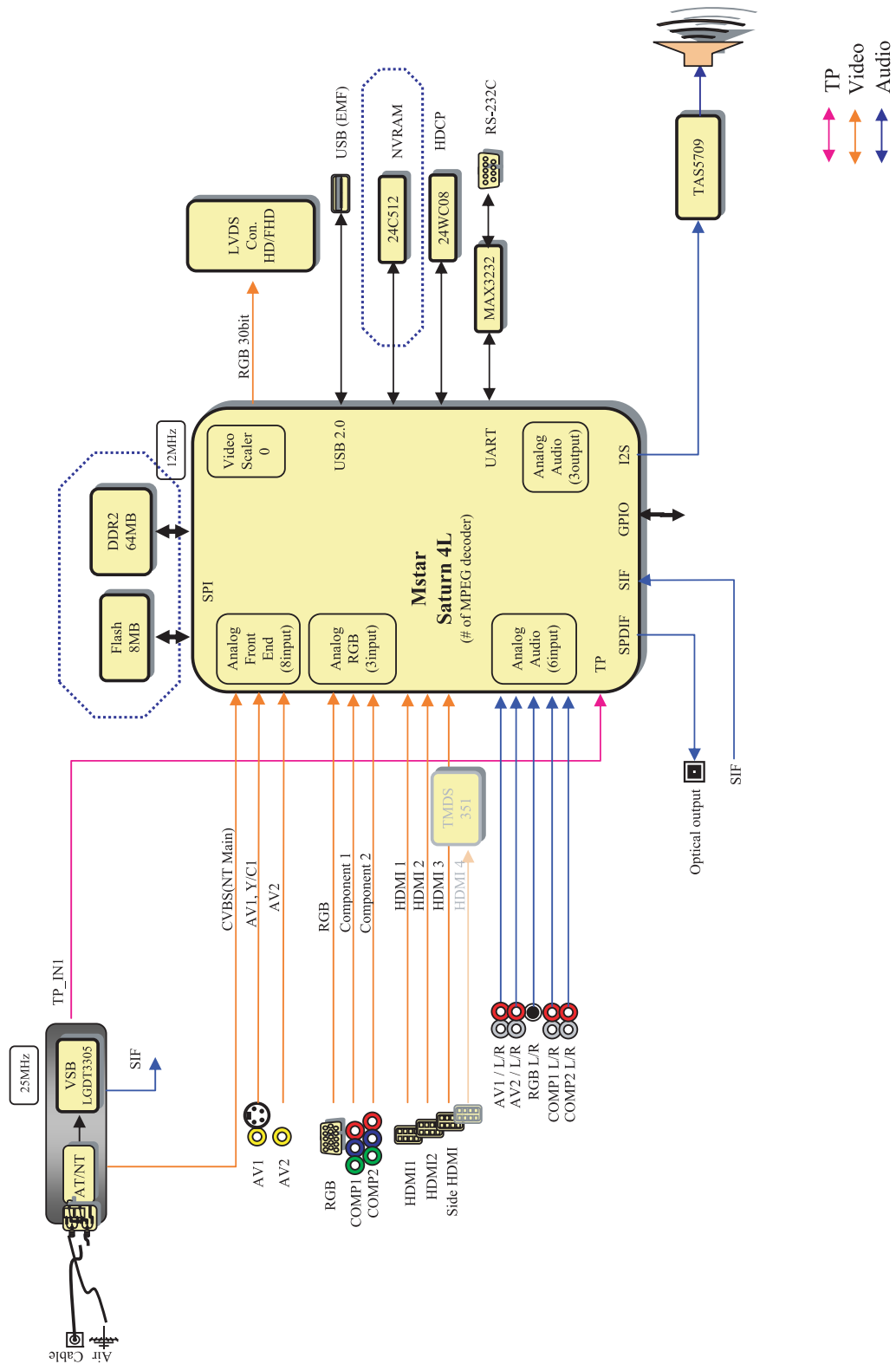
ITEM	DATA(Area Number)	AREA
AREA OPTION	0	USA
	1	CANADA
	2	MEXICO
	3	COMMERCIAL

12-2. Setting Manual

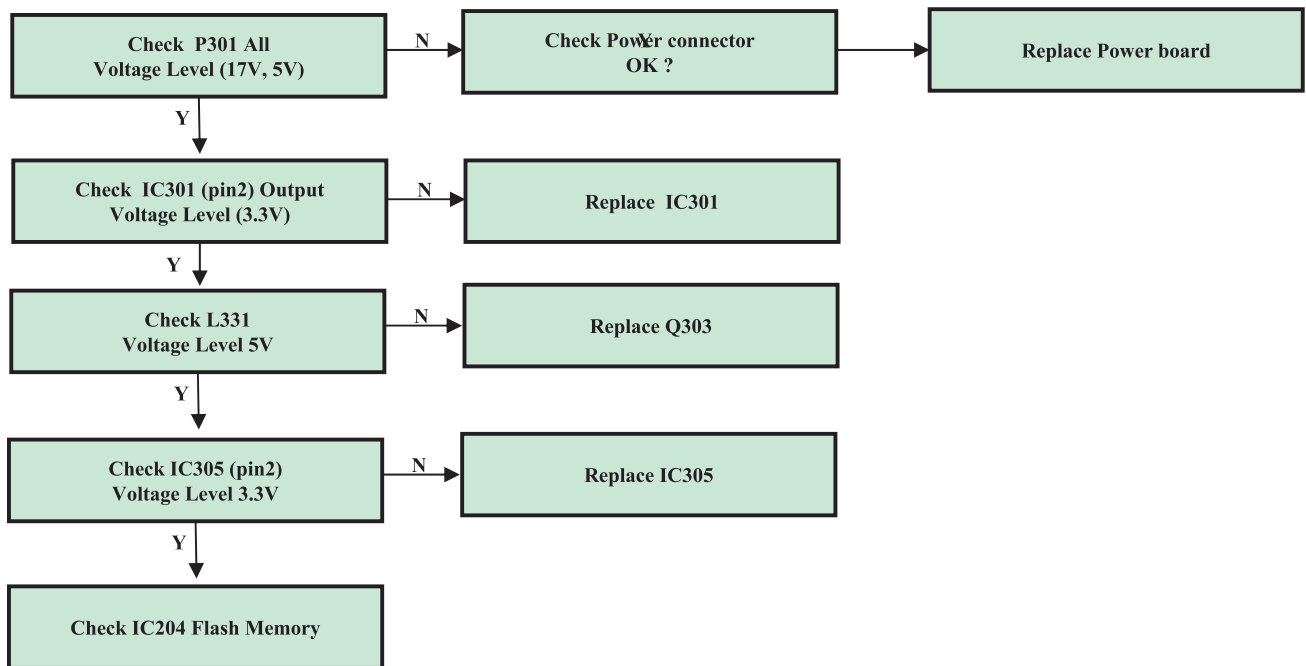
Press ADJ R/C In-start key and select 1.AREA OPTION, Select Model Number by using ◀▶(VOL +/-) in accordance with destination

TROUBLE SHOOTING GUIDE

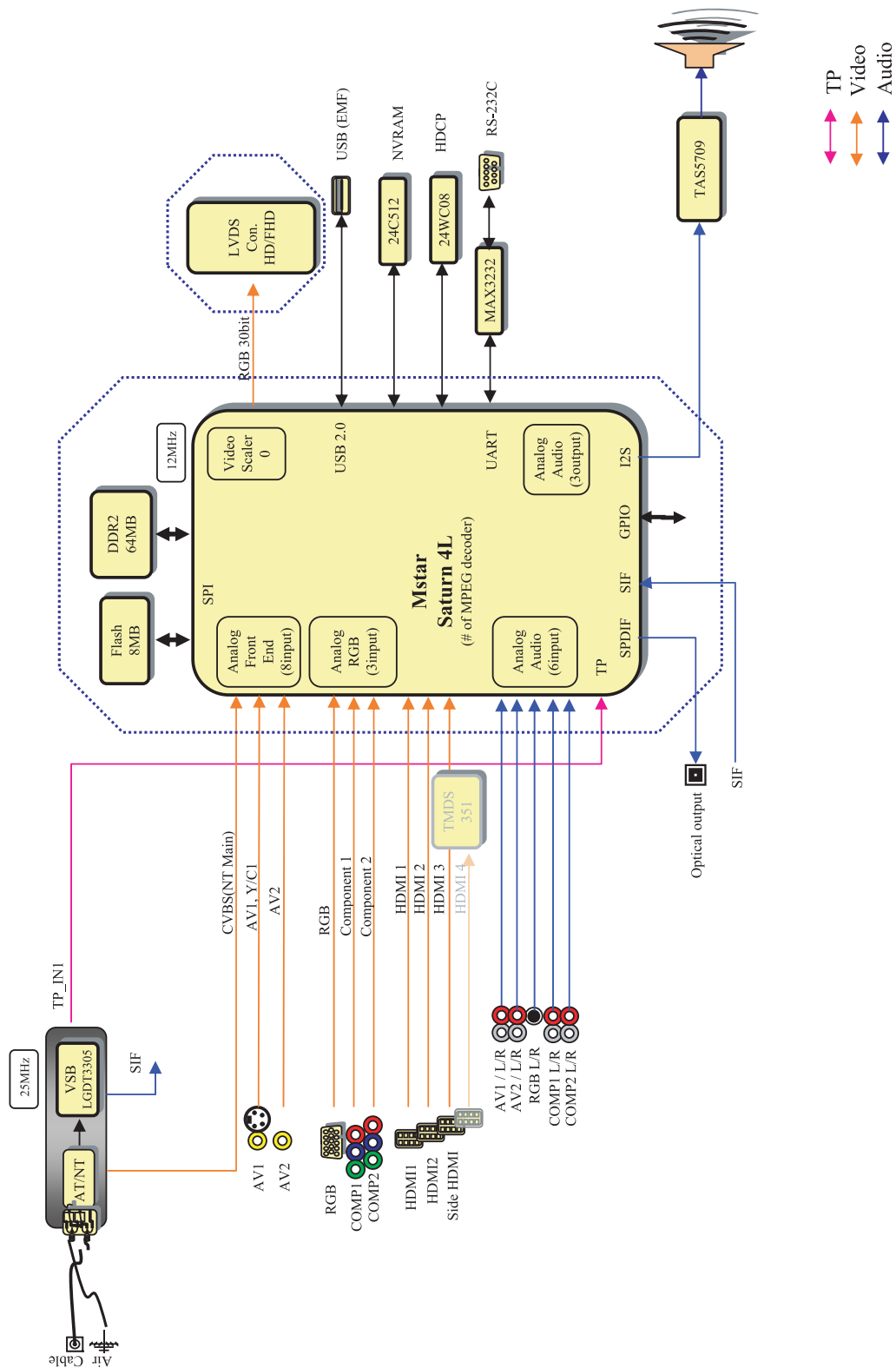
Power-Up Boot Fail Trouble Shooting



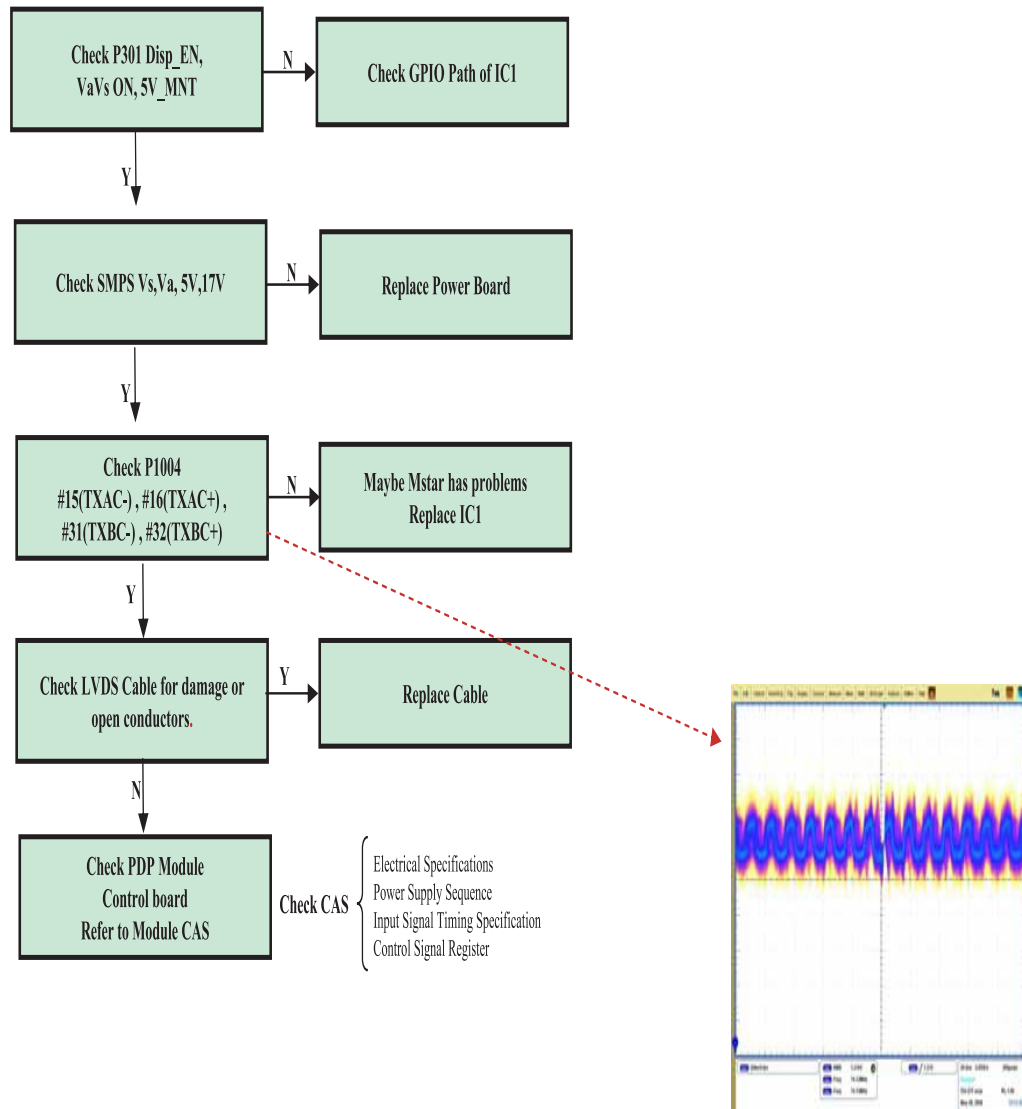
Power-Up Boot Fail Trouble Shooting



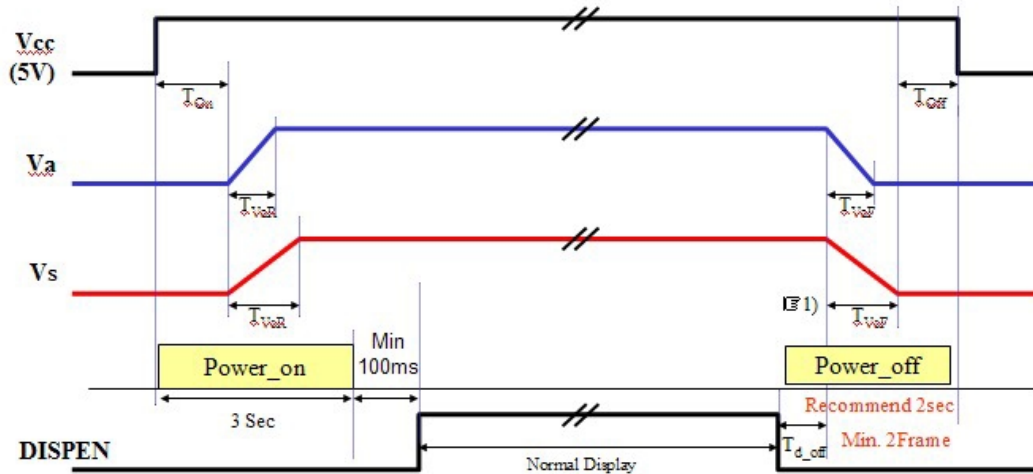
No OSD Trouble Shooting



No OSD Trouble Shooting



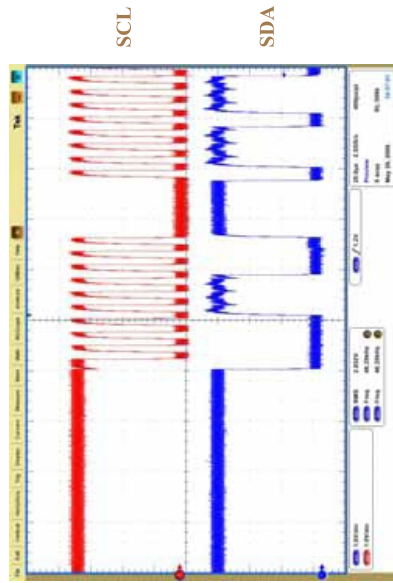
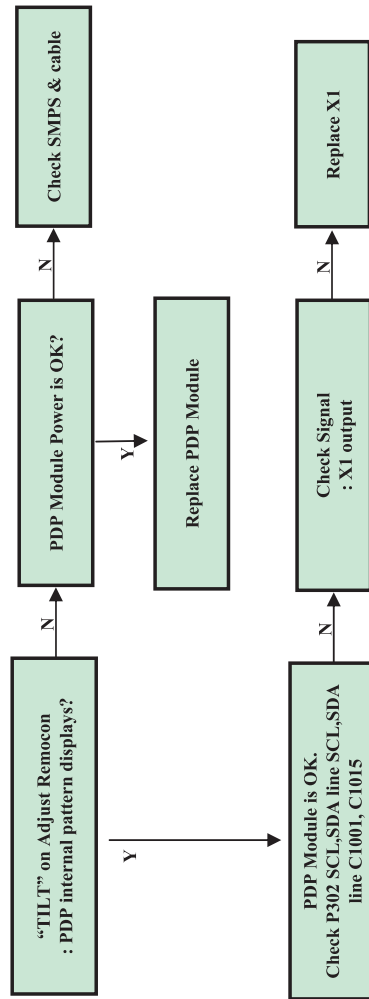
No OSD Trouble Shooting (Module Power Sequence)



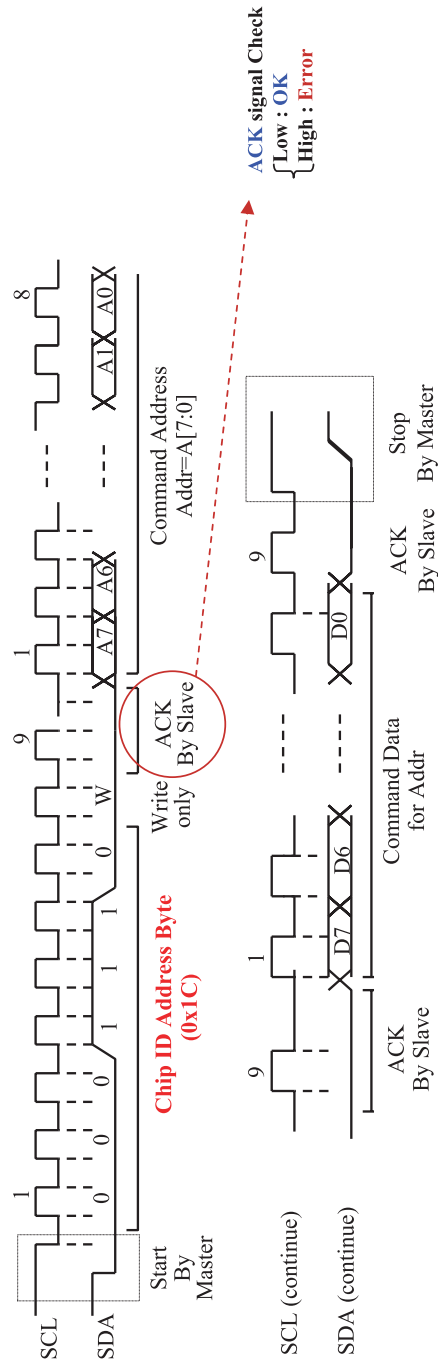
Symbol	Description	Min.	Max.	unit
T_{On}	Time interval between 90% of V_{cc} and 10% of V_s when Power On	500	-	msec
T_{Off}	Time interval between 10% of V_s and 90% of V_{cc} when Power Off	20	-	msec
T_{VaR}	Rising Time of V_a (10% to 90%)	10	300	msec
T_{VaF}	Falling Time of V_a (90% to 10%)	50	300	msec
T_{VsR}	Rising Time of V_s (10% to 90%)	100	800	msec
T_{VsF}	Falling Time of V_s (90% to 10%)	90	500	msec
T_{d_off}	Time interval between $DISPEN$ falling edge and 90% of V_s when Power Off	40	-	msec
				Recommended 2sec

< 42G2 >

Module Control Trouble Shooting

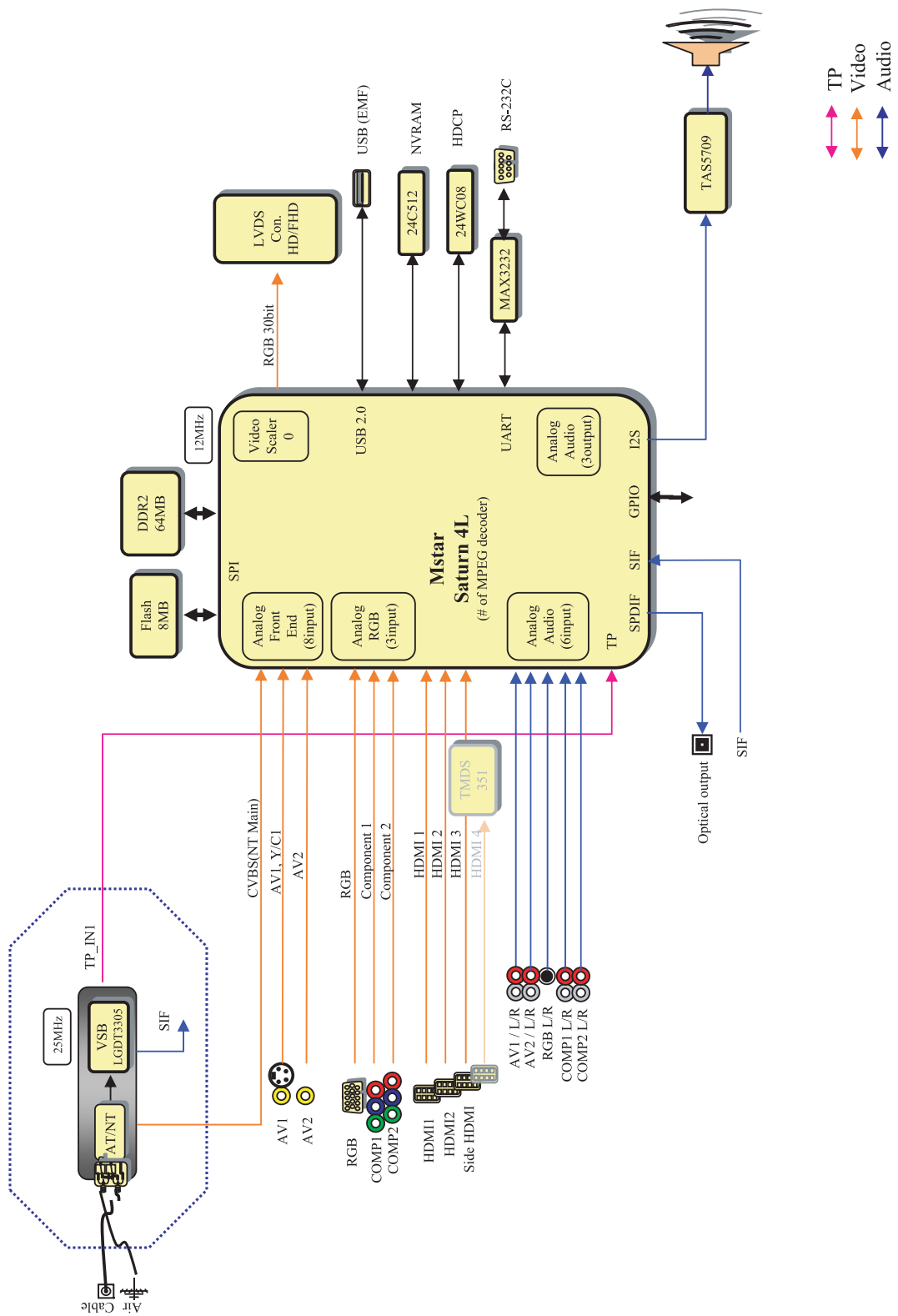


< Sample Signal on C1001, C1015 >

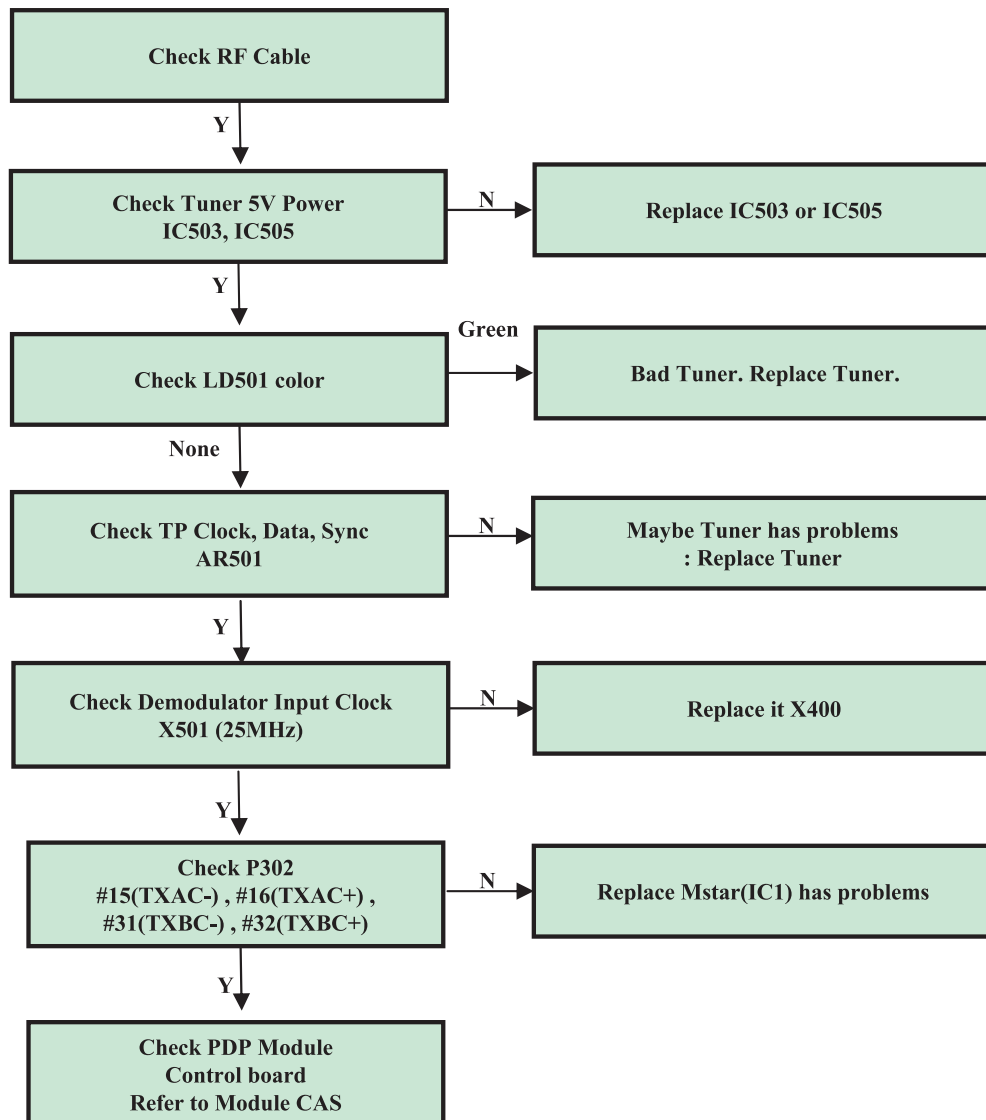


Master : Image Board
Slave : PDP Module

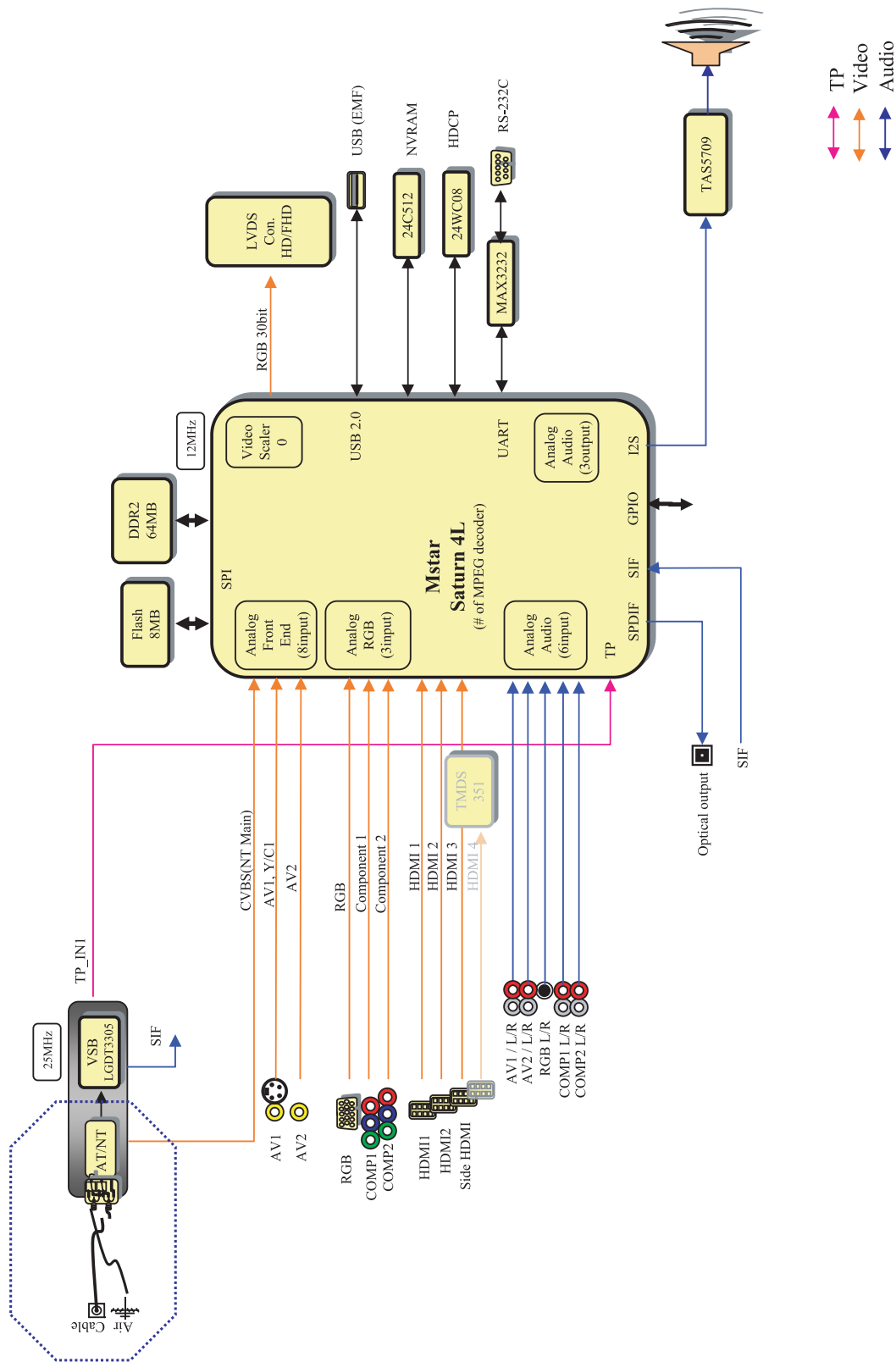
Digital TV Video Trouble Shooting



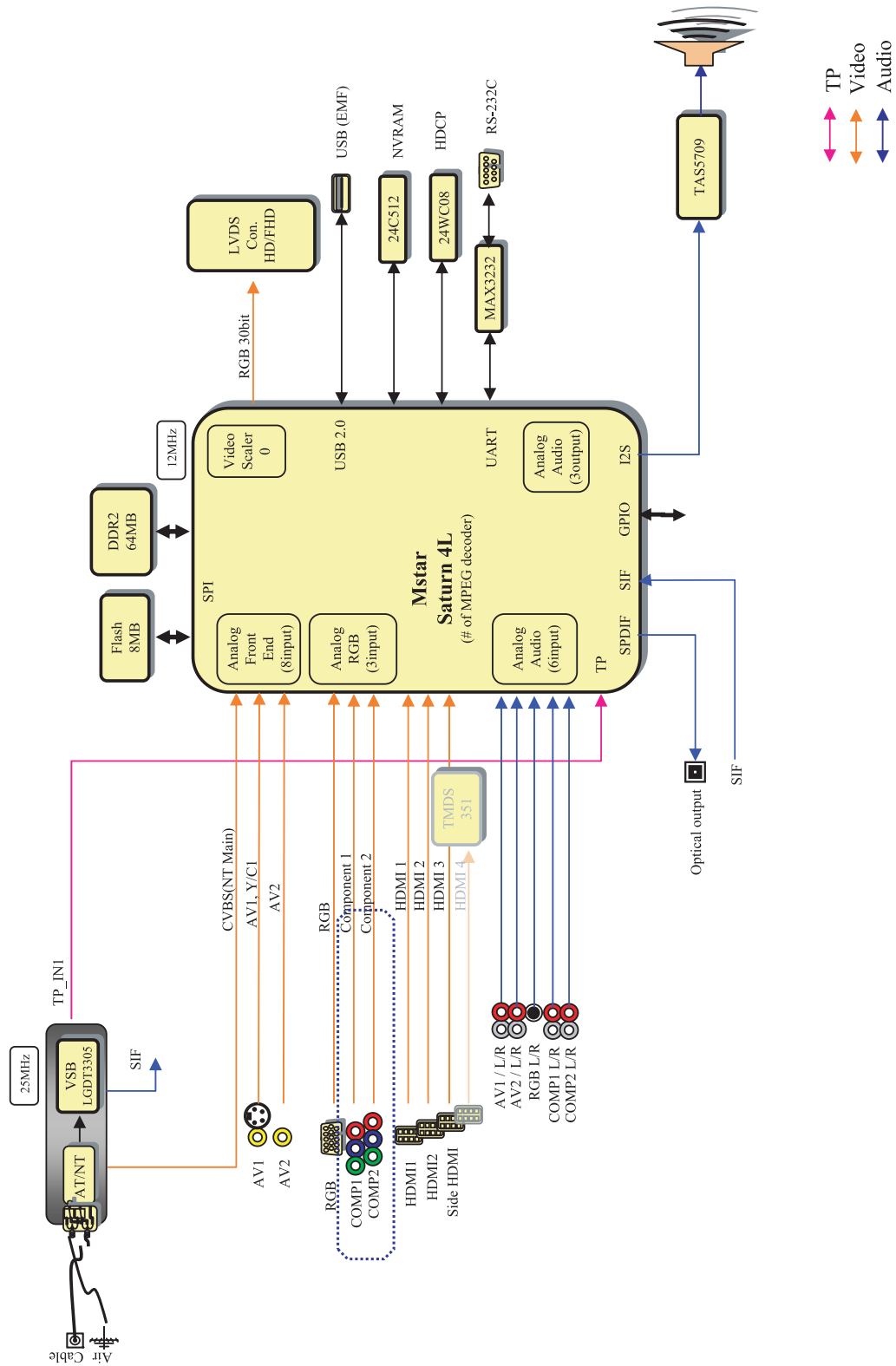
Digital TV Video Trouble Shooting



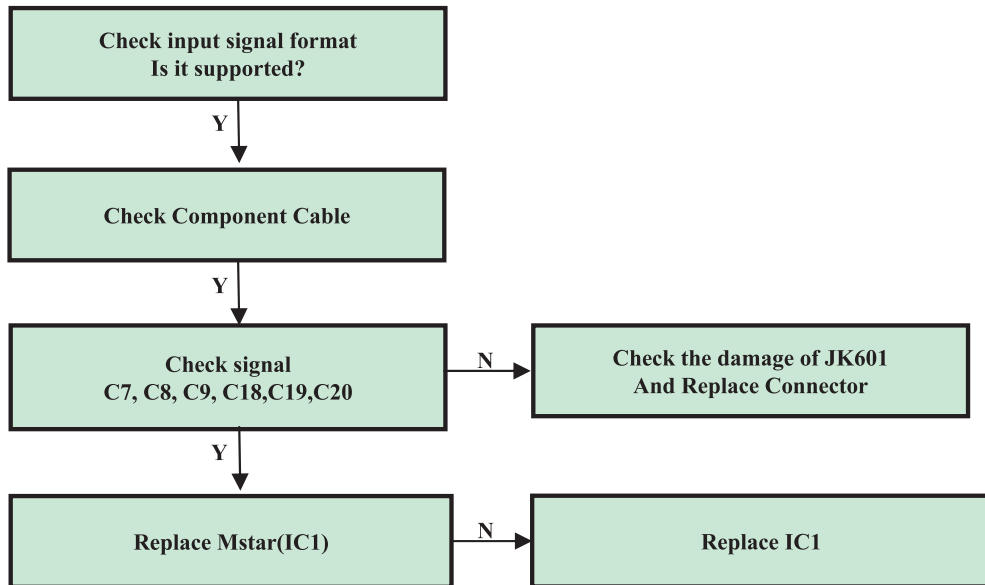
Analog TV Video Trouble Shooting



Component Video Trouble Shooting

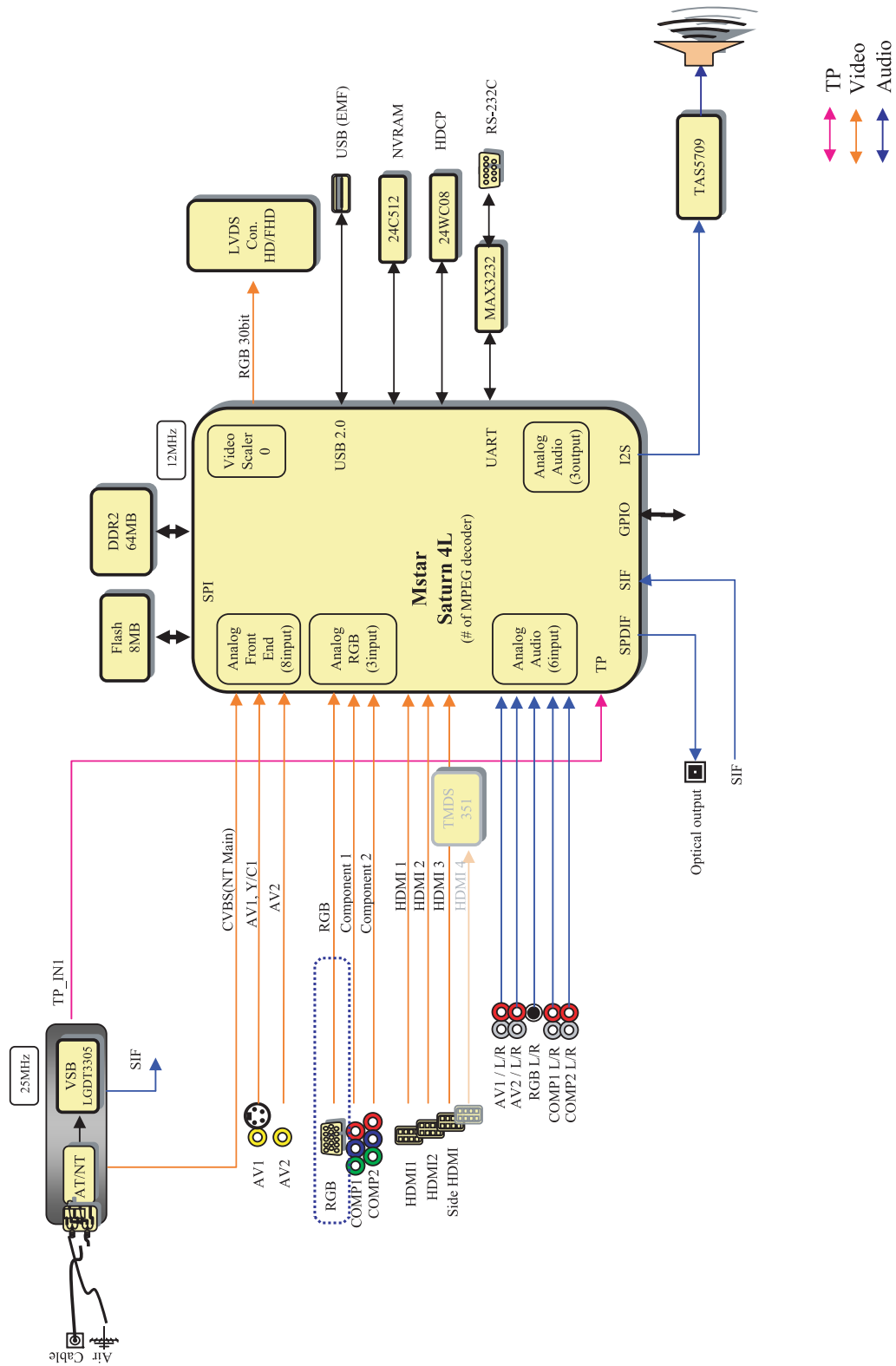


Component Video Trouble Shooting

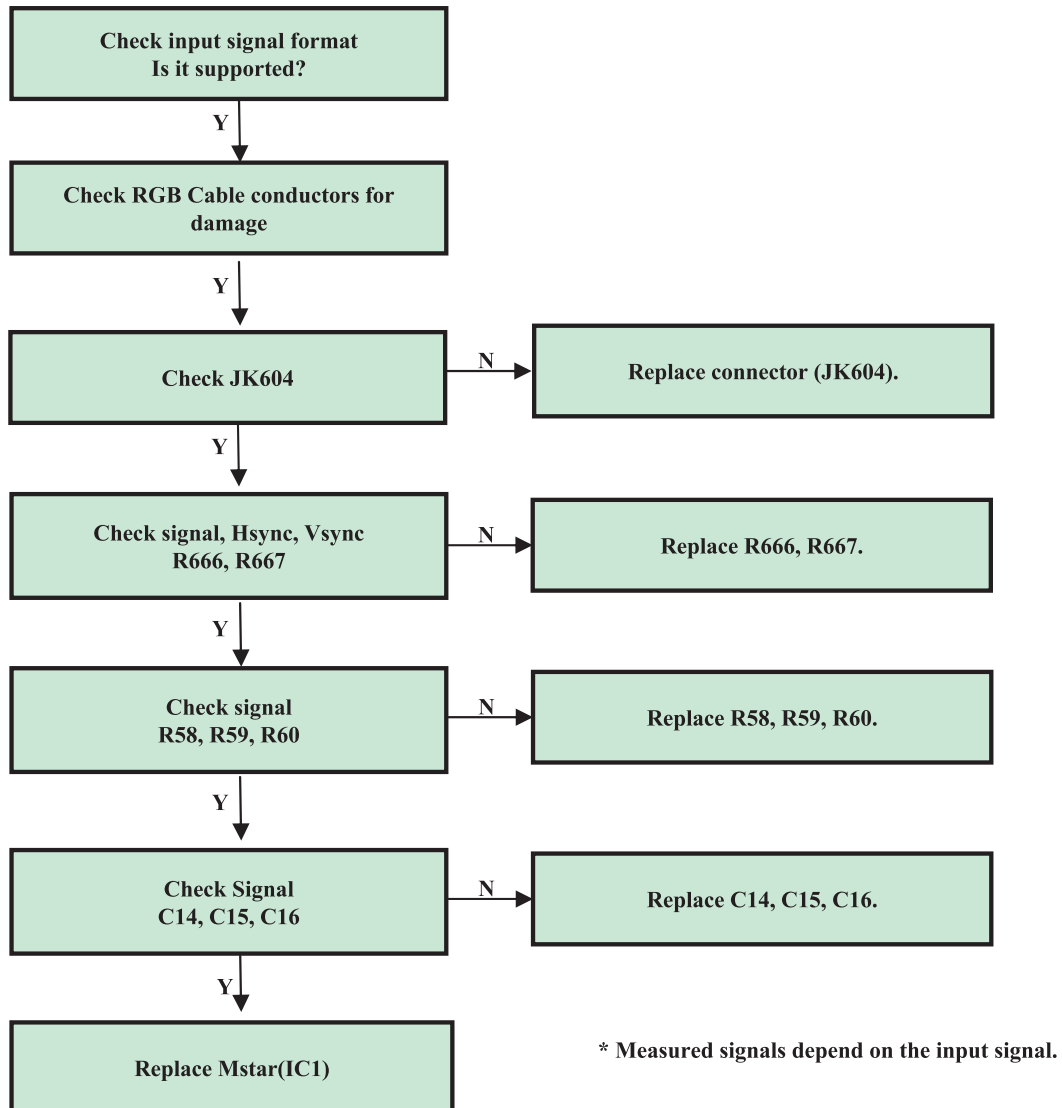


* Measured signals depend on the input signal.

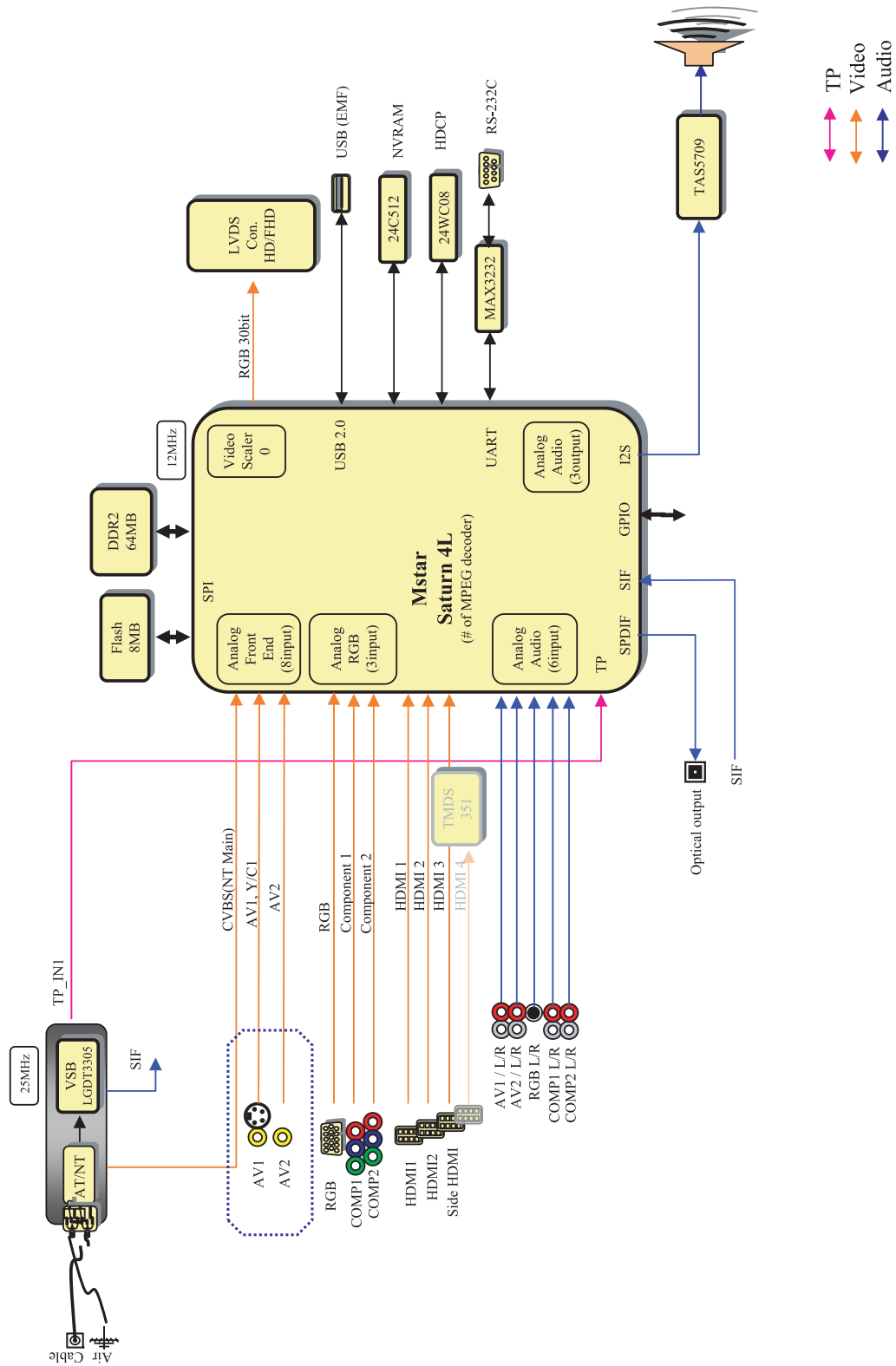
RGB Video Trouble Shooting



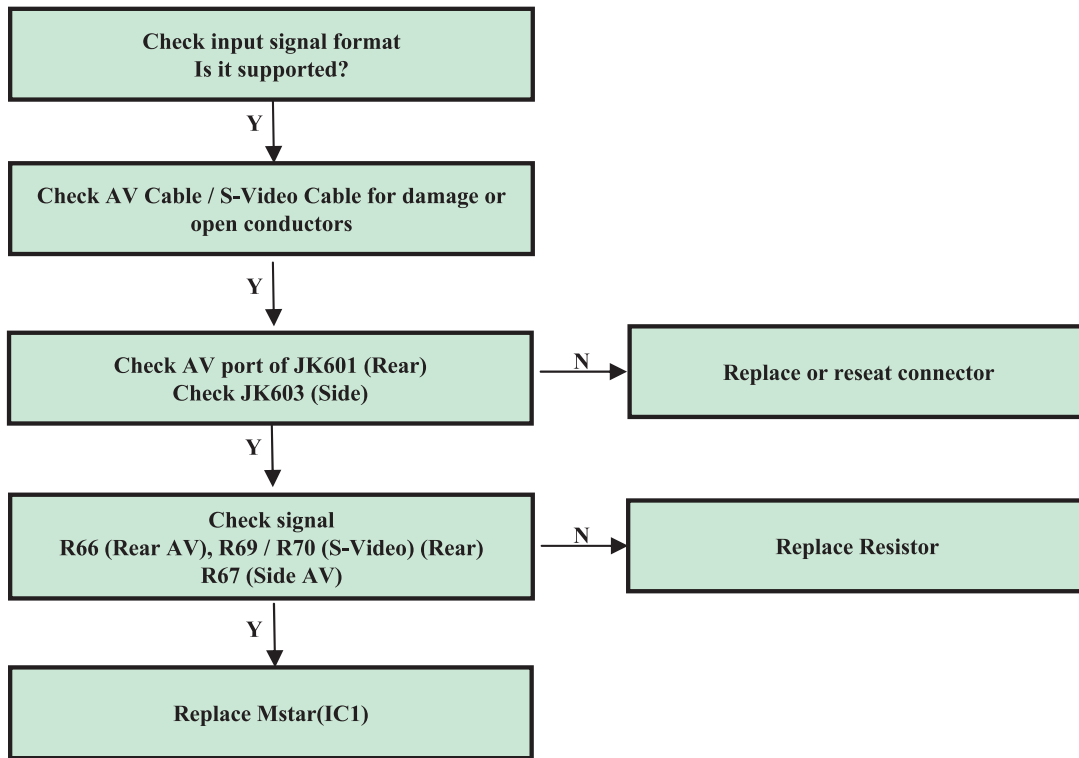
RGB Video Trouble Shooting



AV Video Trouble Shooting

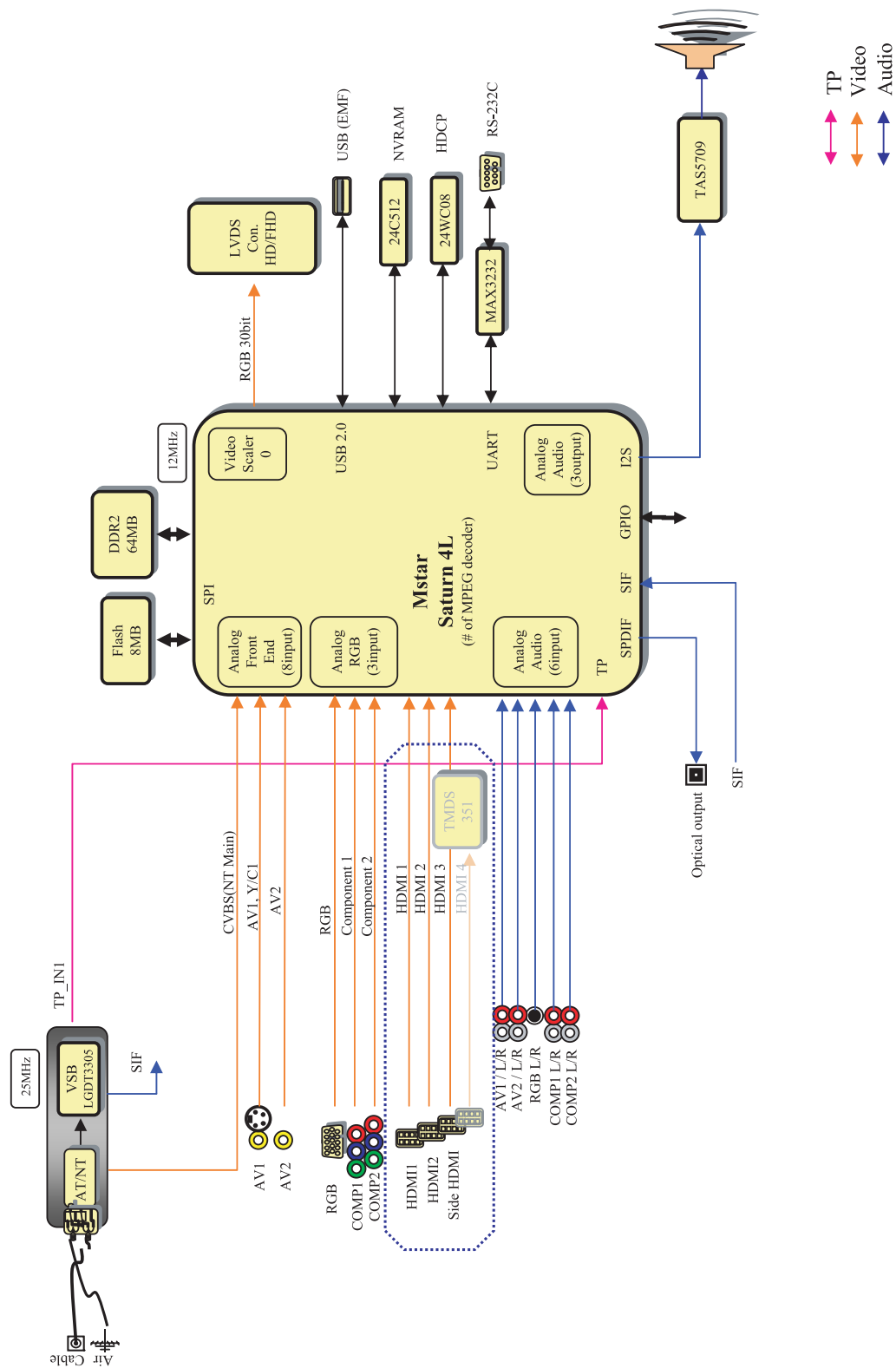


AV Video Trouble Shooting

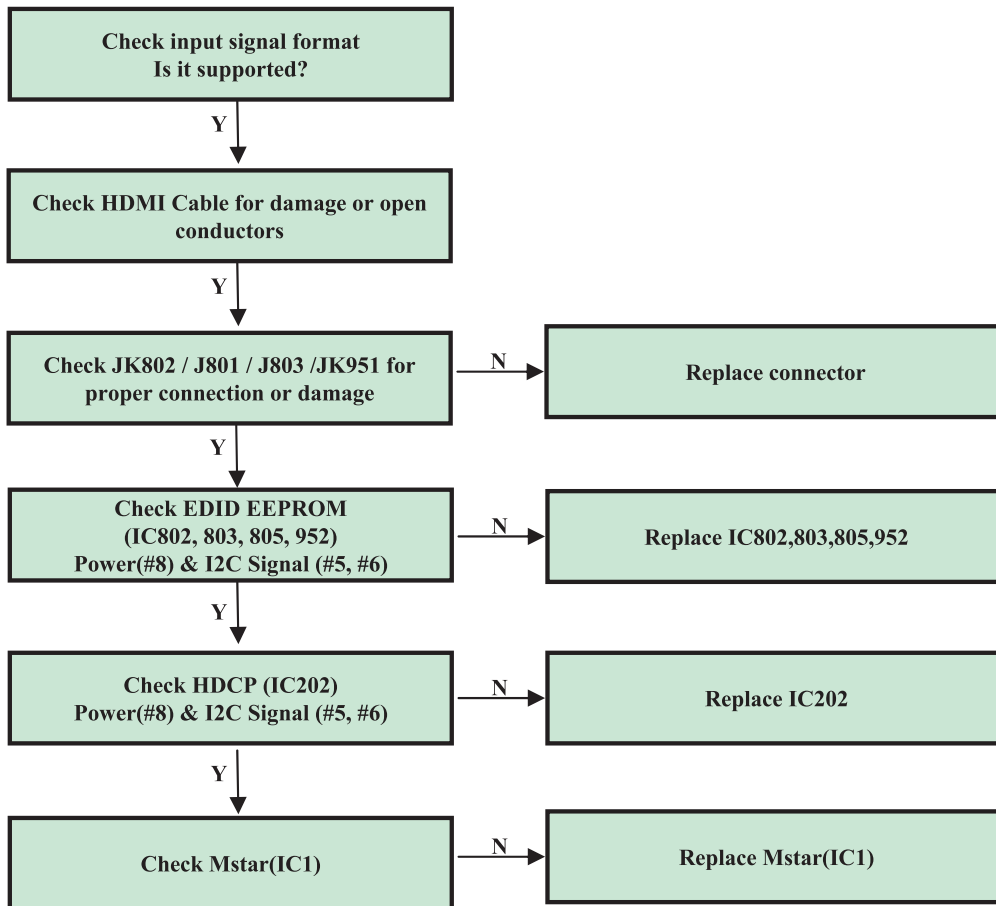


* Measured signals depend on the input signal.

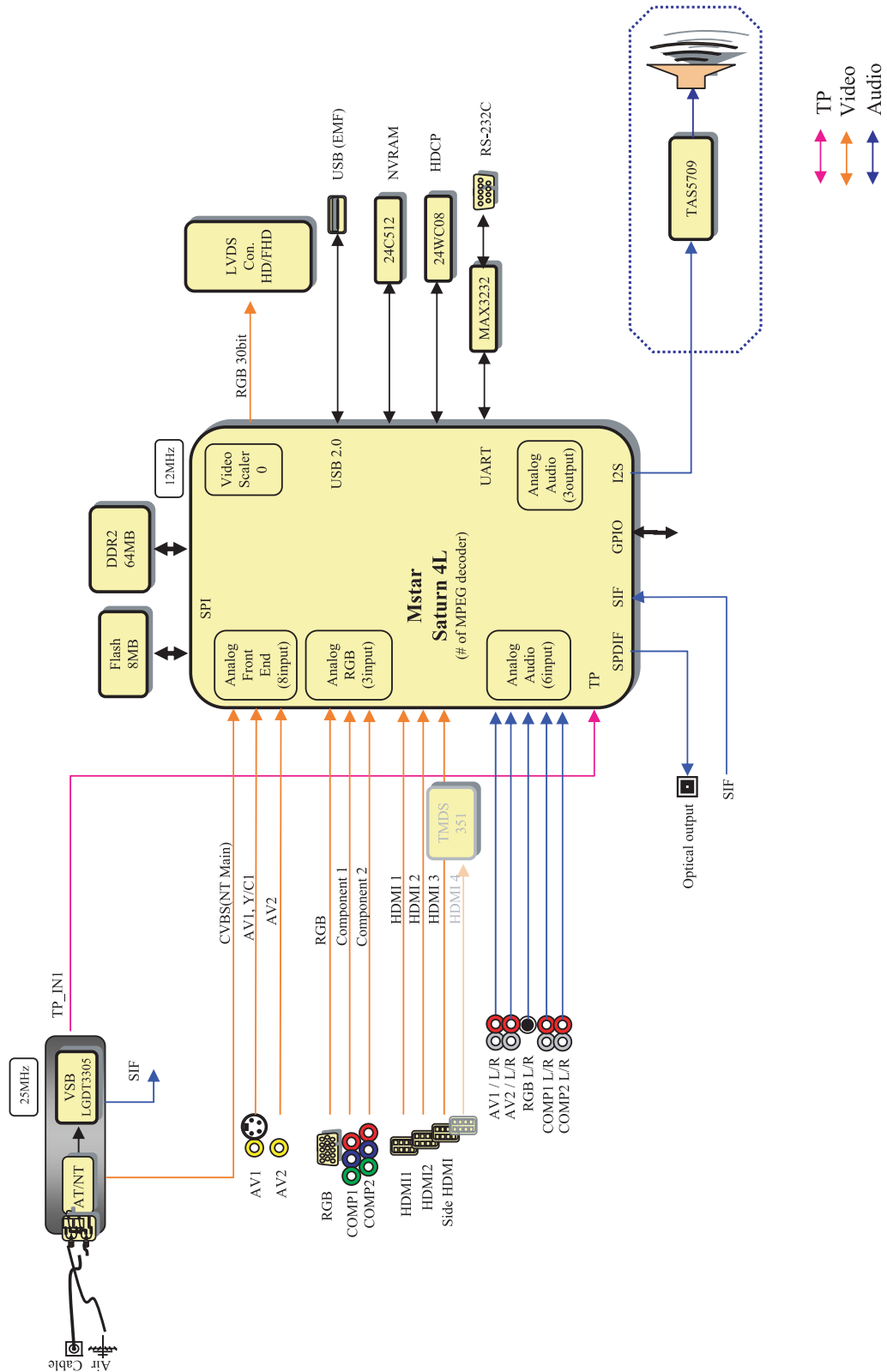
HDMI Video Trouble Shooting



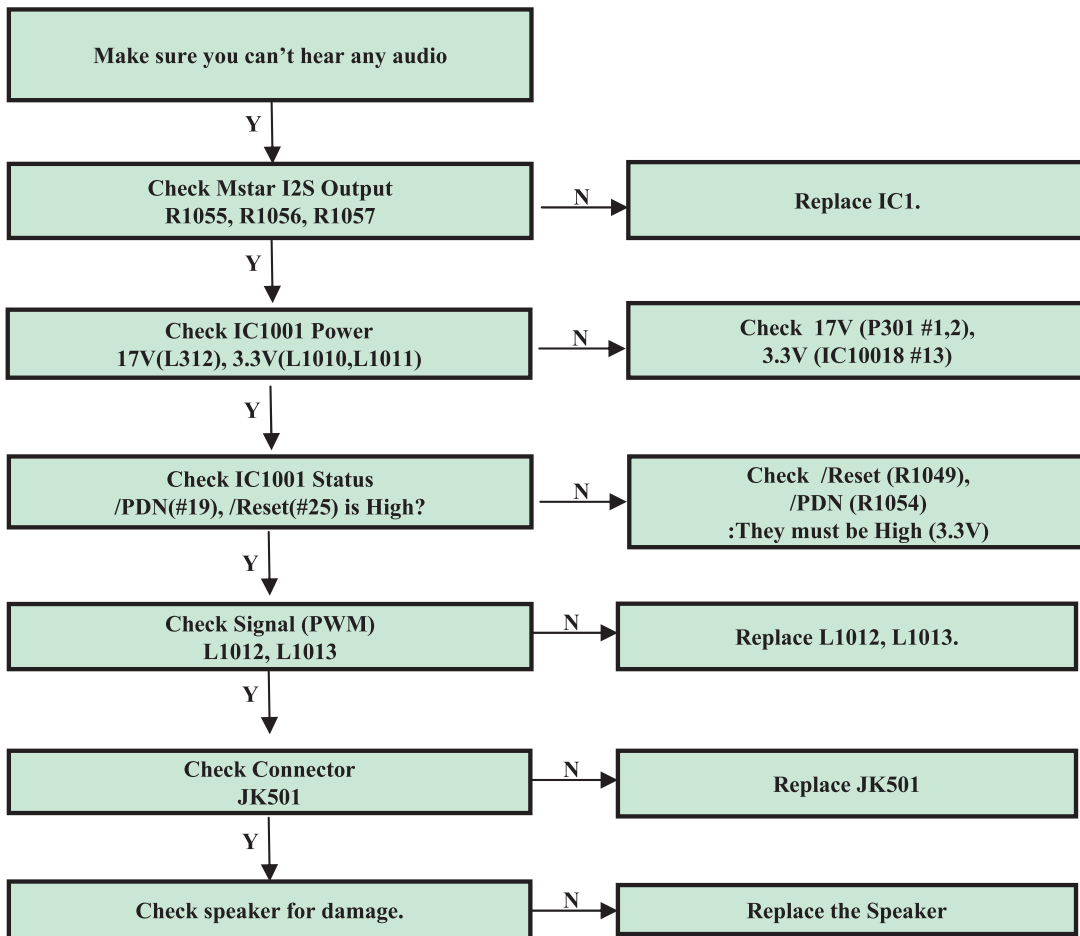
HDMI Video Trouble Shooting



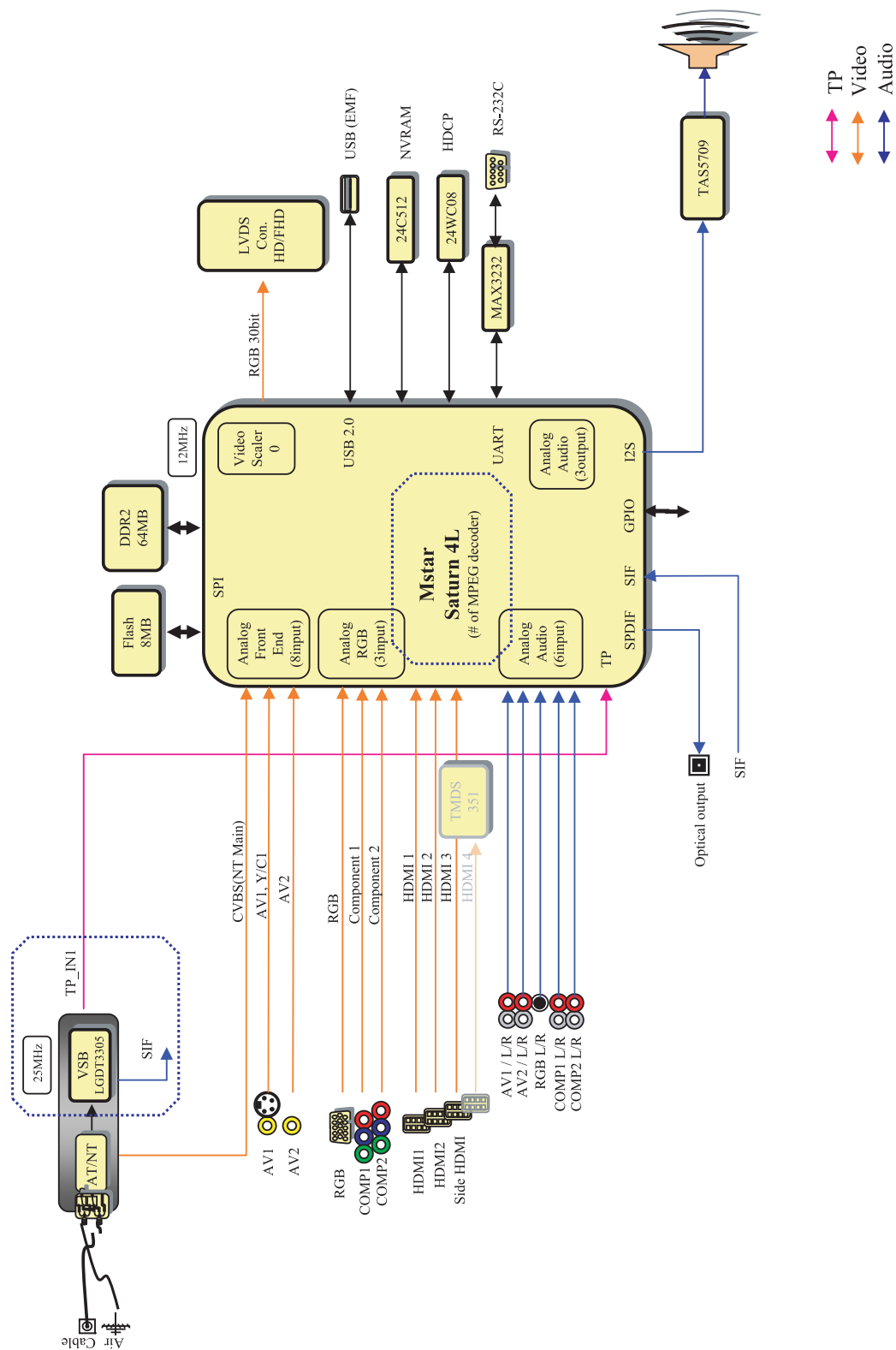
All Source Audio Trouble Shooting



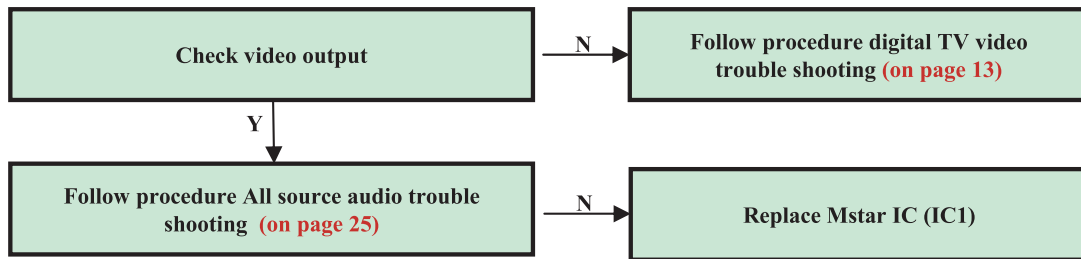
All Source Audio Trouble Shooting



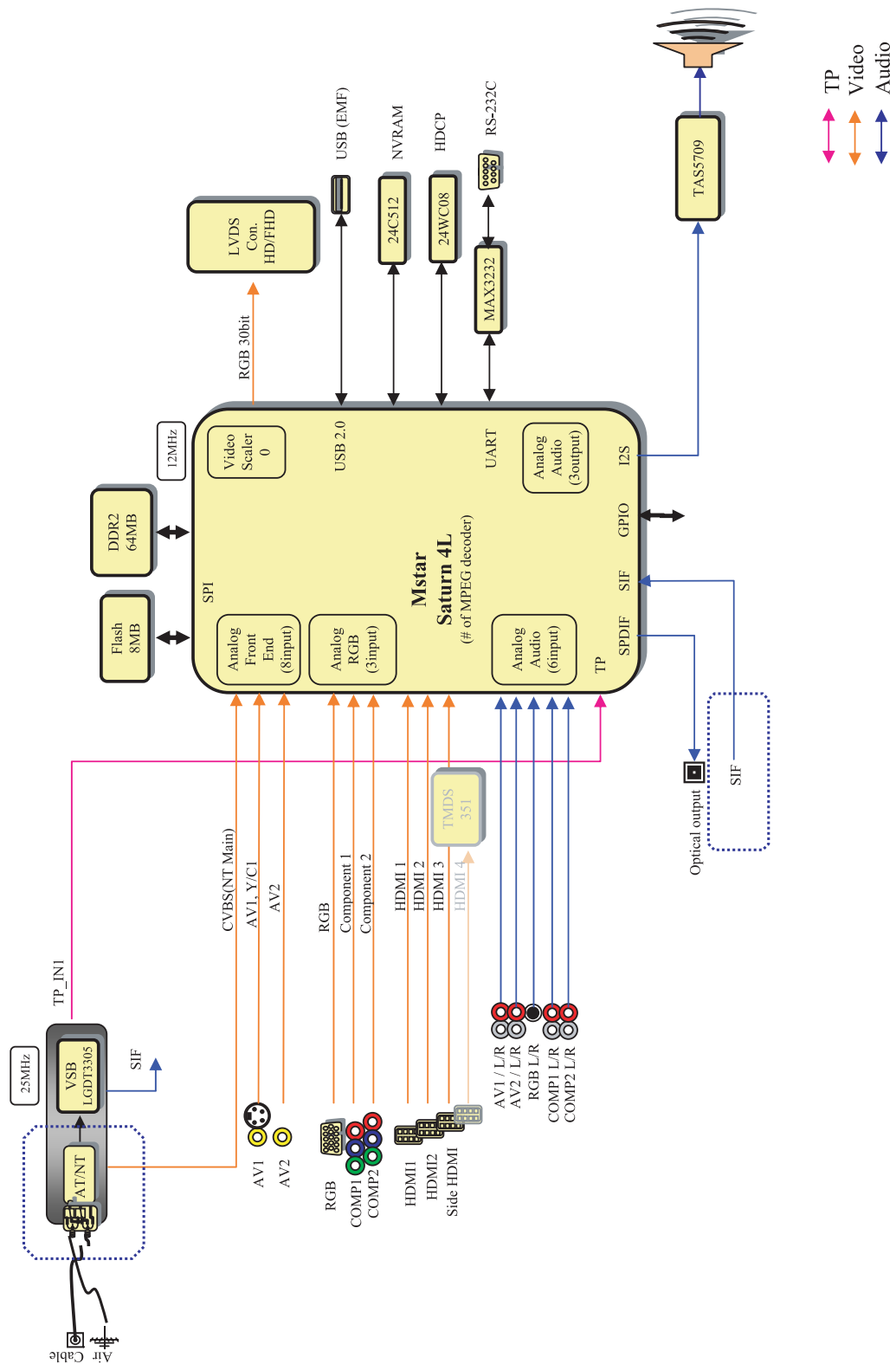
Digital TV Audio Trouble Shooting



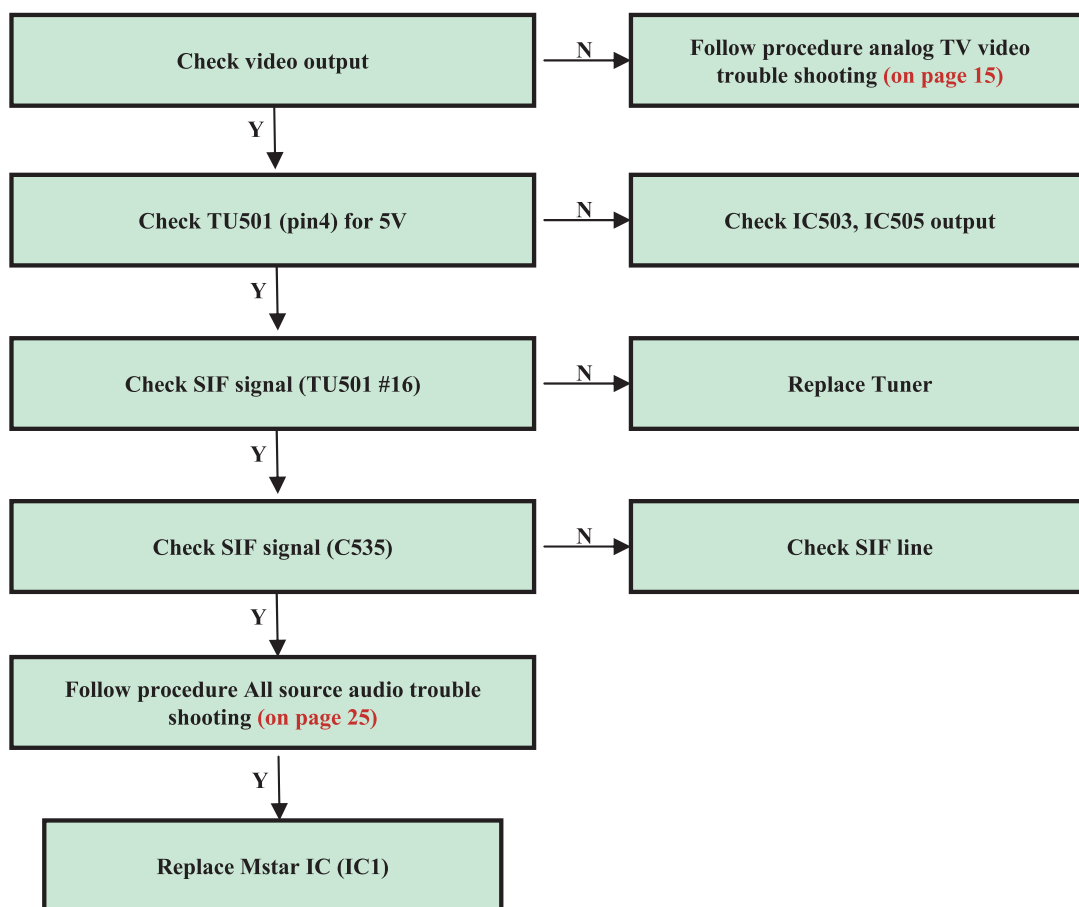
Digital TV Audio Trouble Shooting



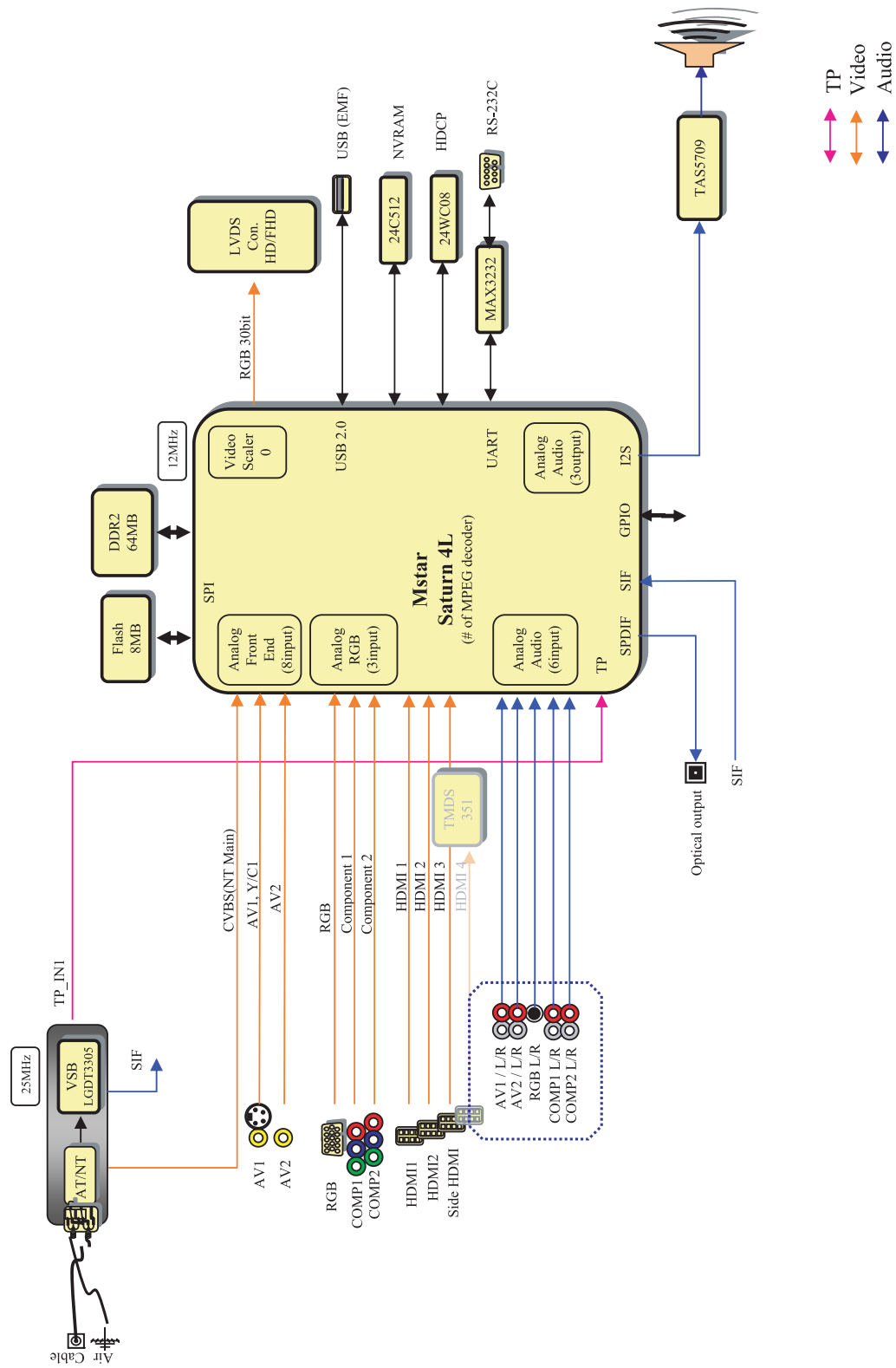
Analog TV Audio Trouble Shooting



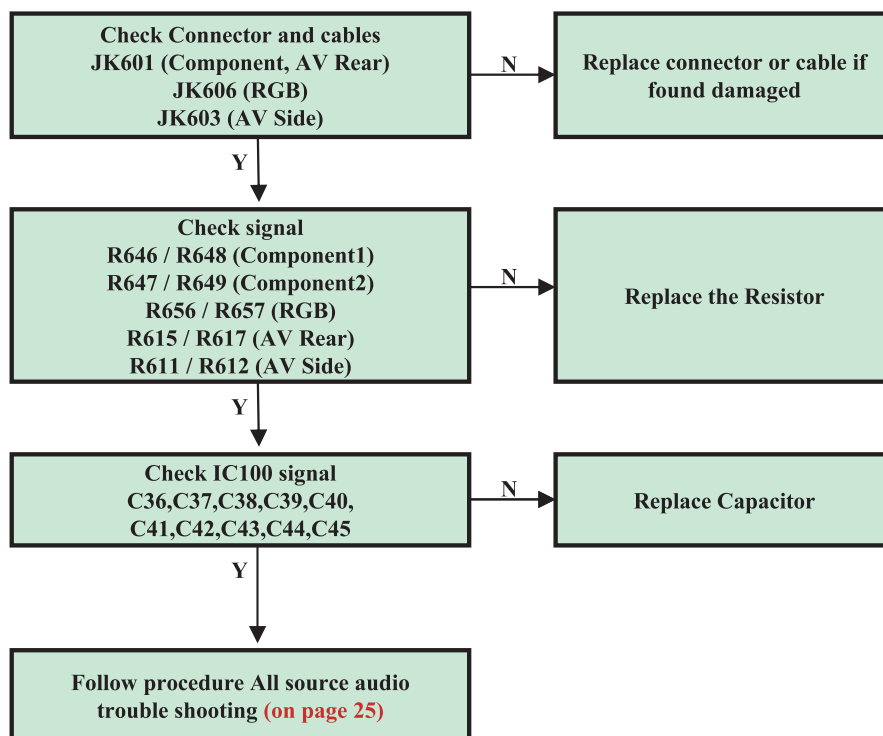
Analog TV Audio Trouble Shooting



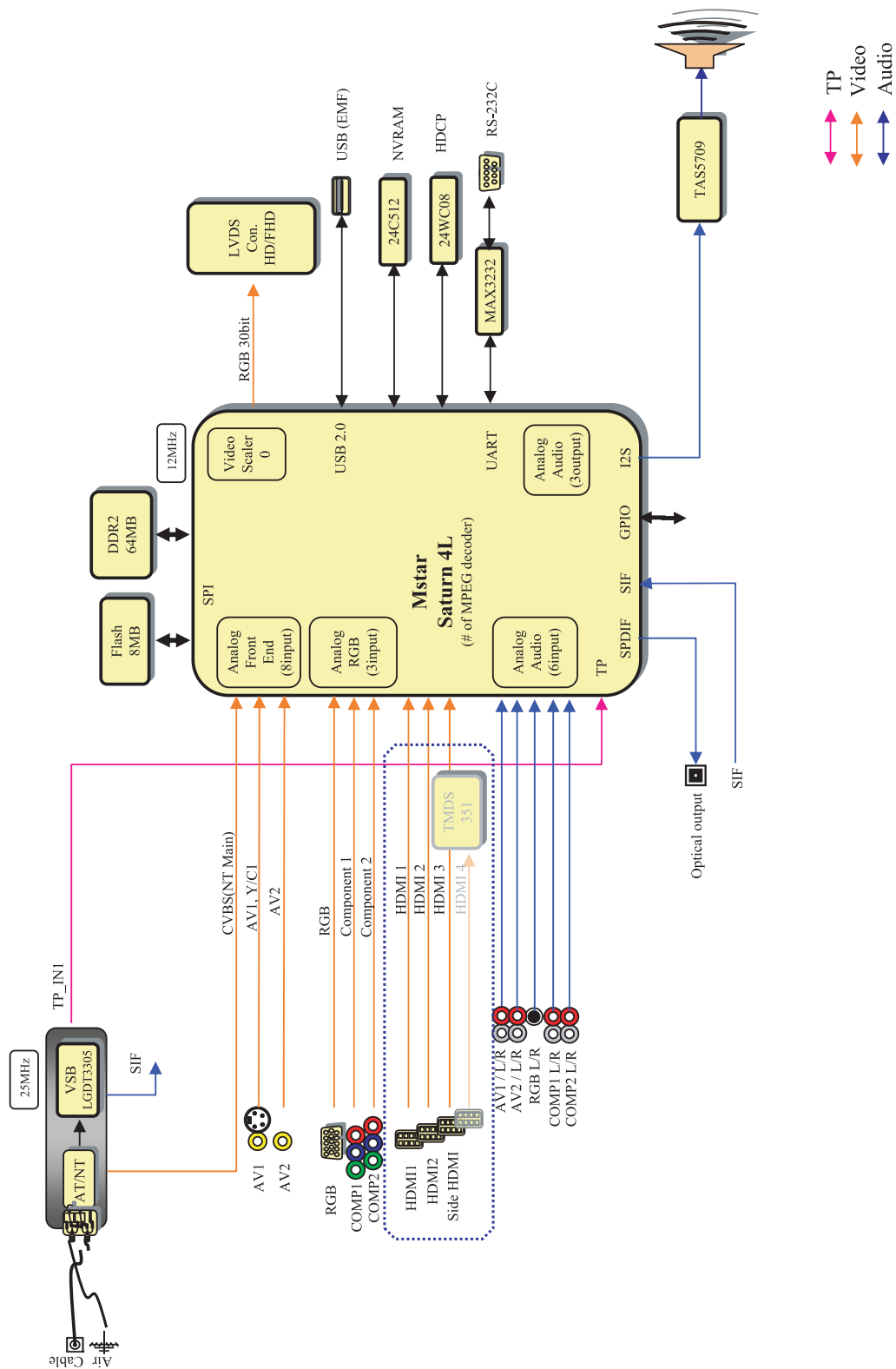
Component / RGB / AV Audio Trouble Shooting



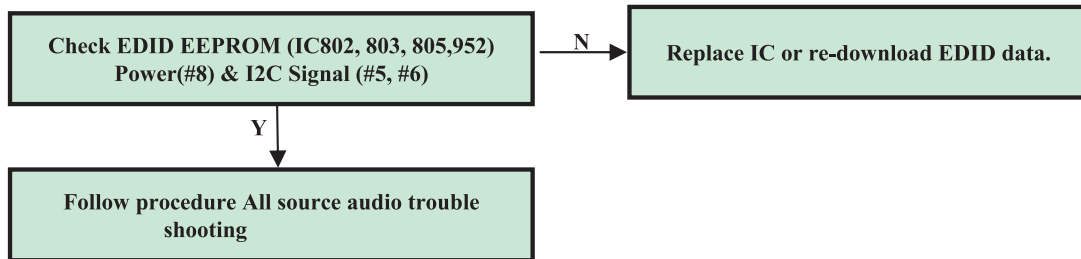
Component / RGB / AV Audio Trouble Shooting



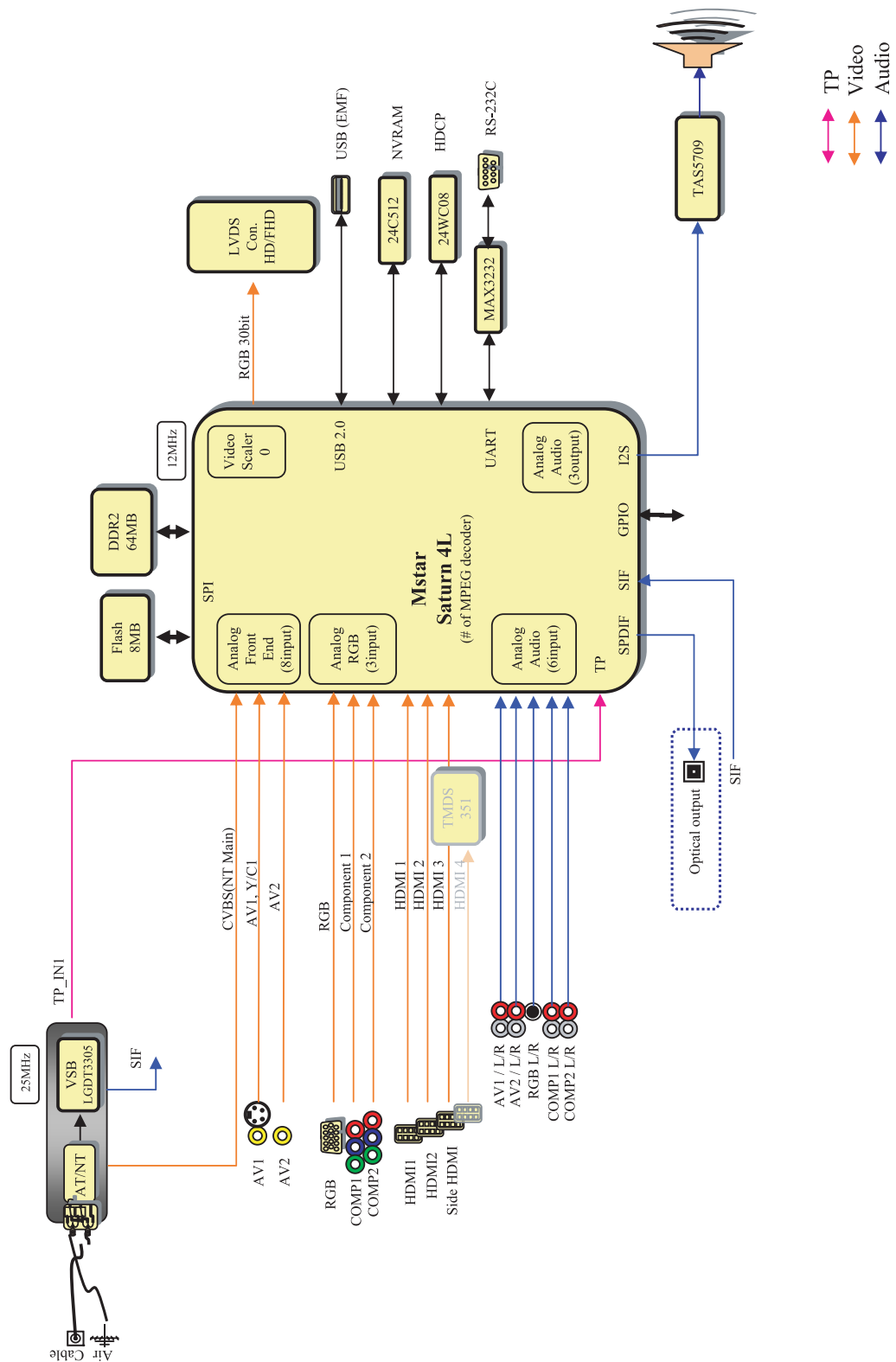
HDMI Audio Trouble Shooting



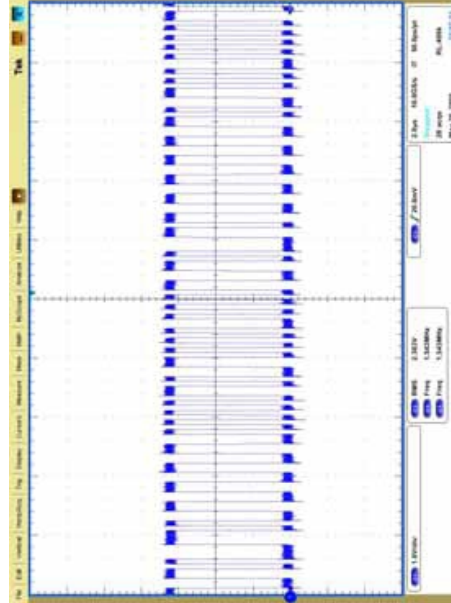
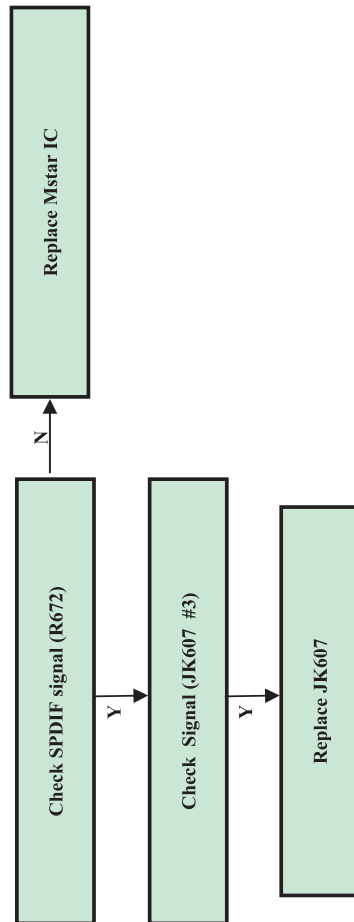
HDMI Audio Trouble Shooting



OPTIC Audio Out Trouble Shooting

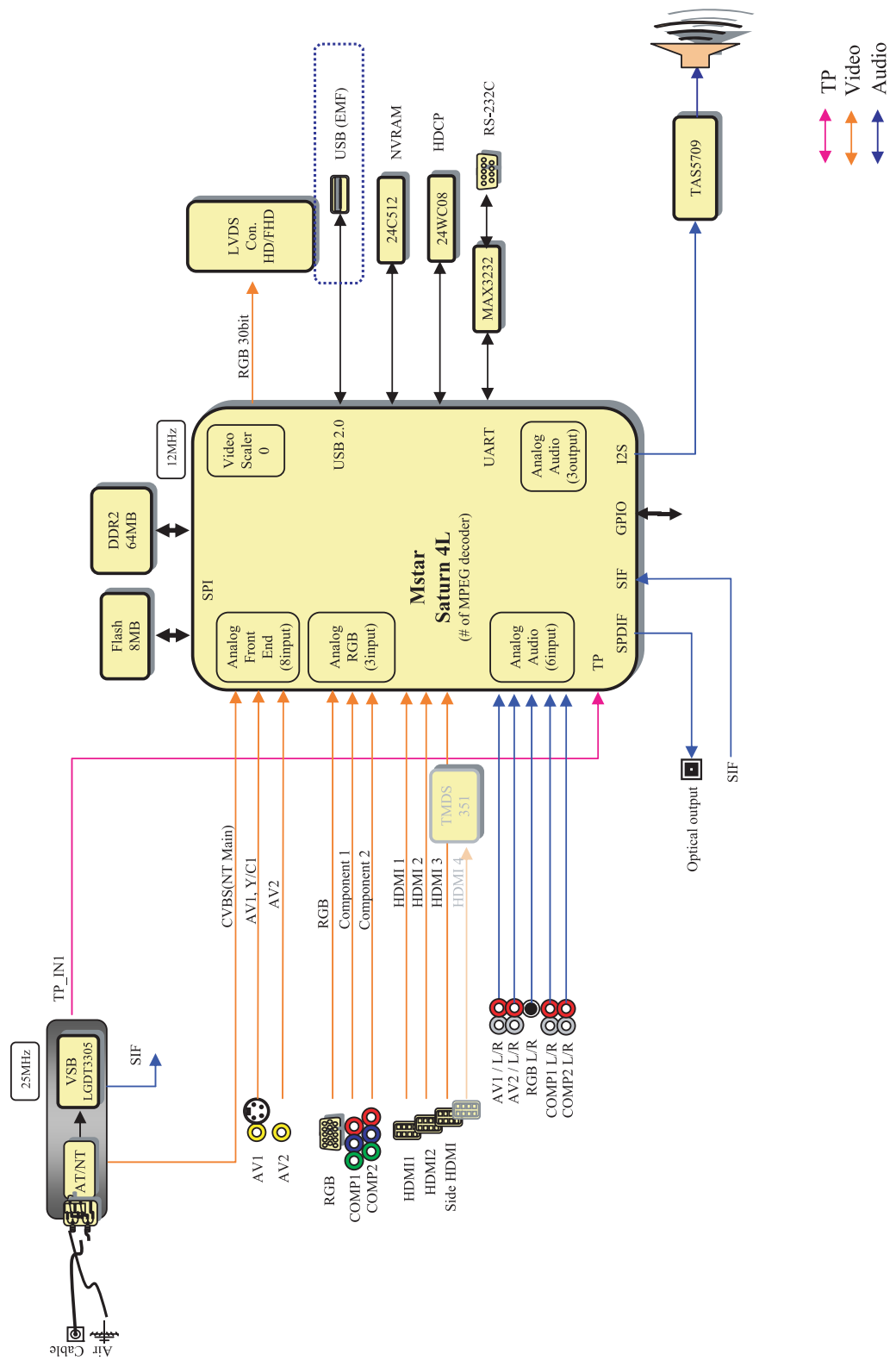


OPTIC Audio Out Trouble Shooting

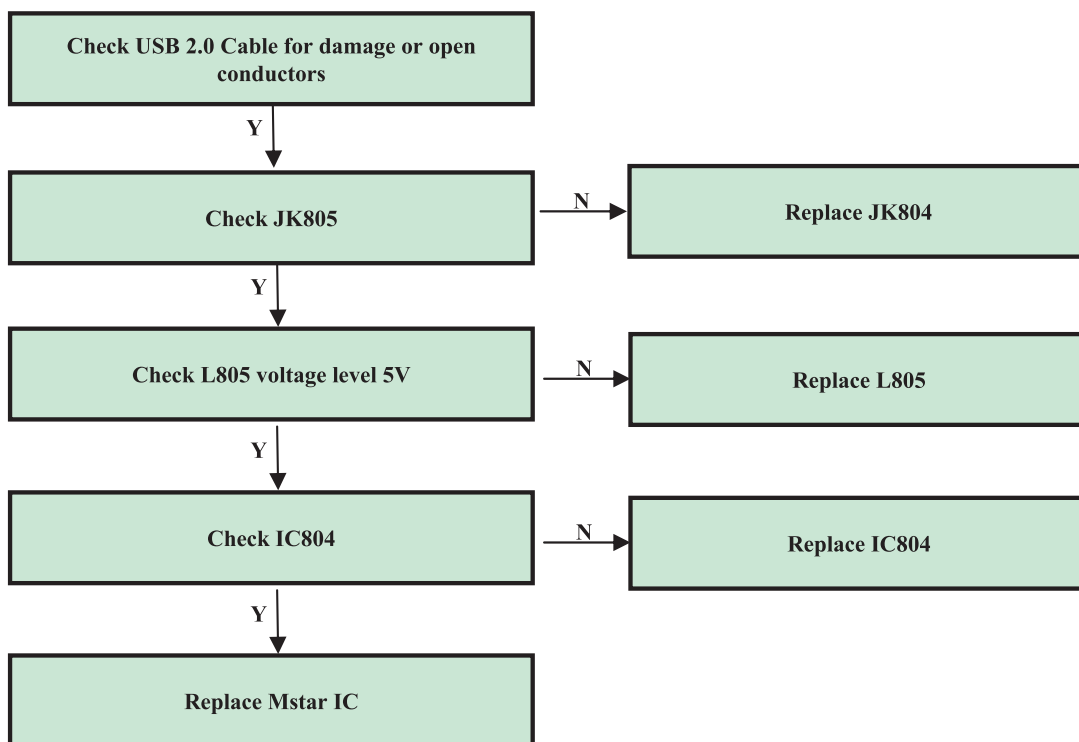


< SPDIF waveform – sample >
 - Depend on the input signal.

USB Trouble Shooting



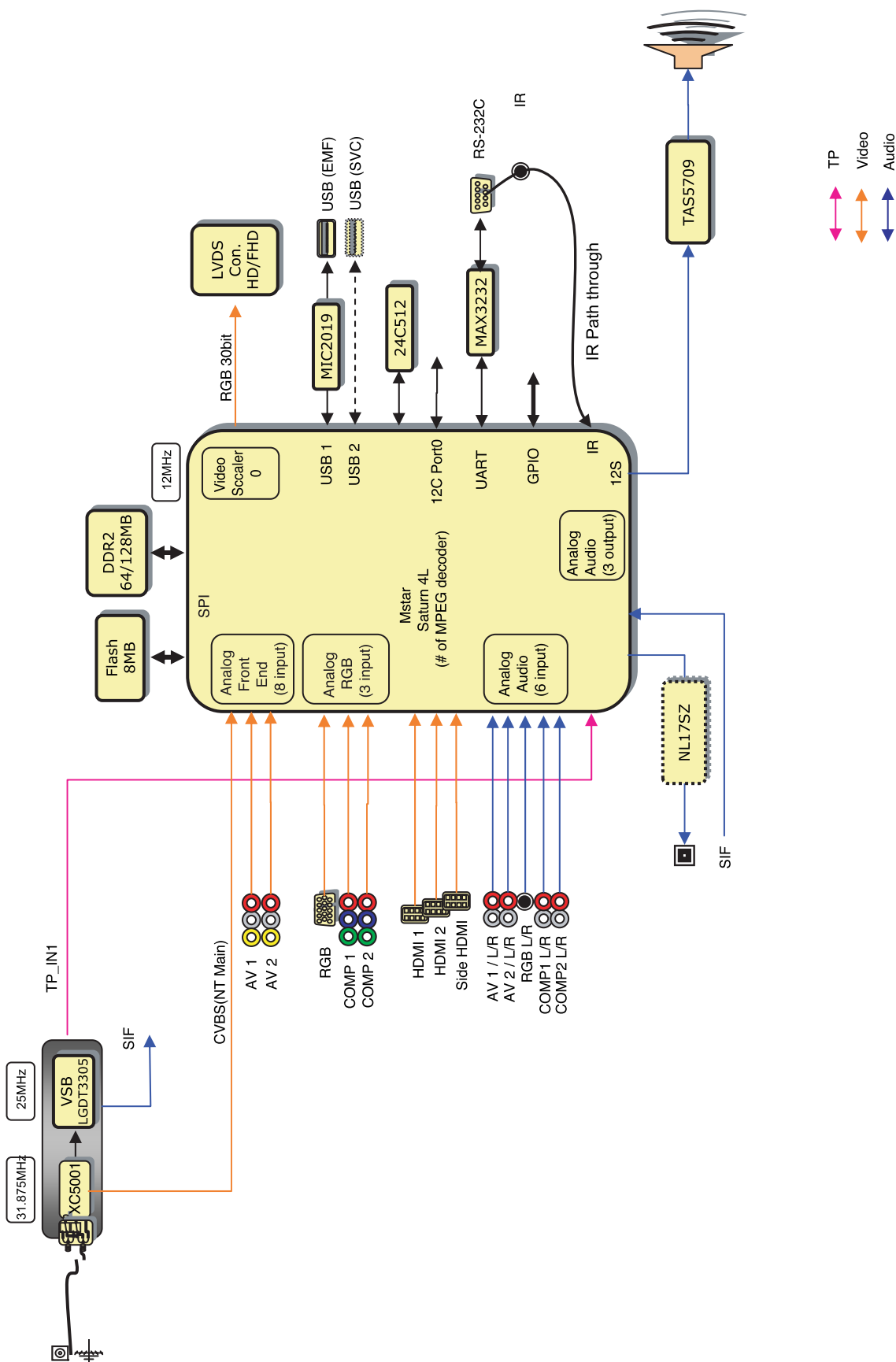
USB Trouble Shooting



- **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)

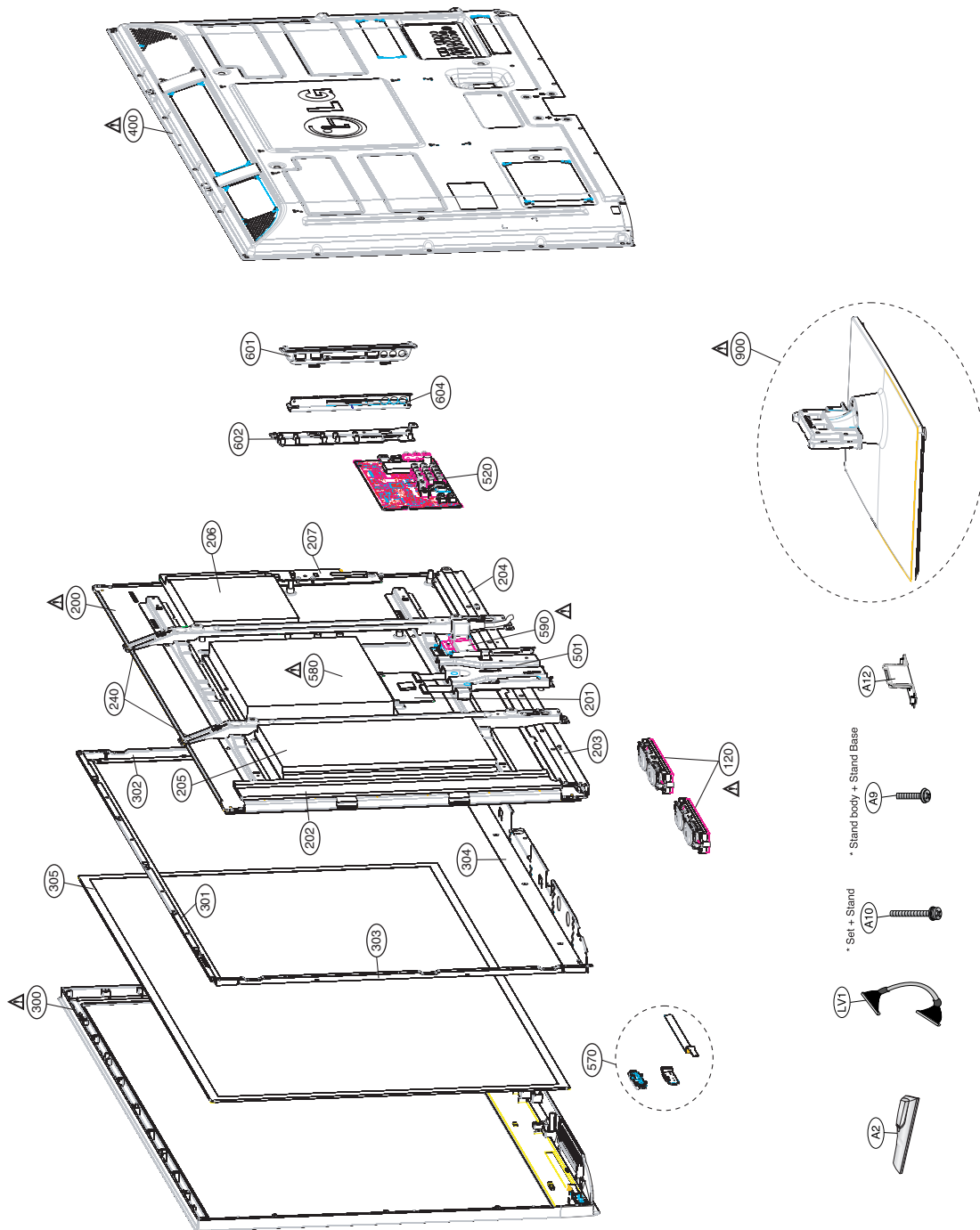
BLOCK DIAGRAM



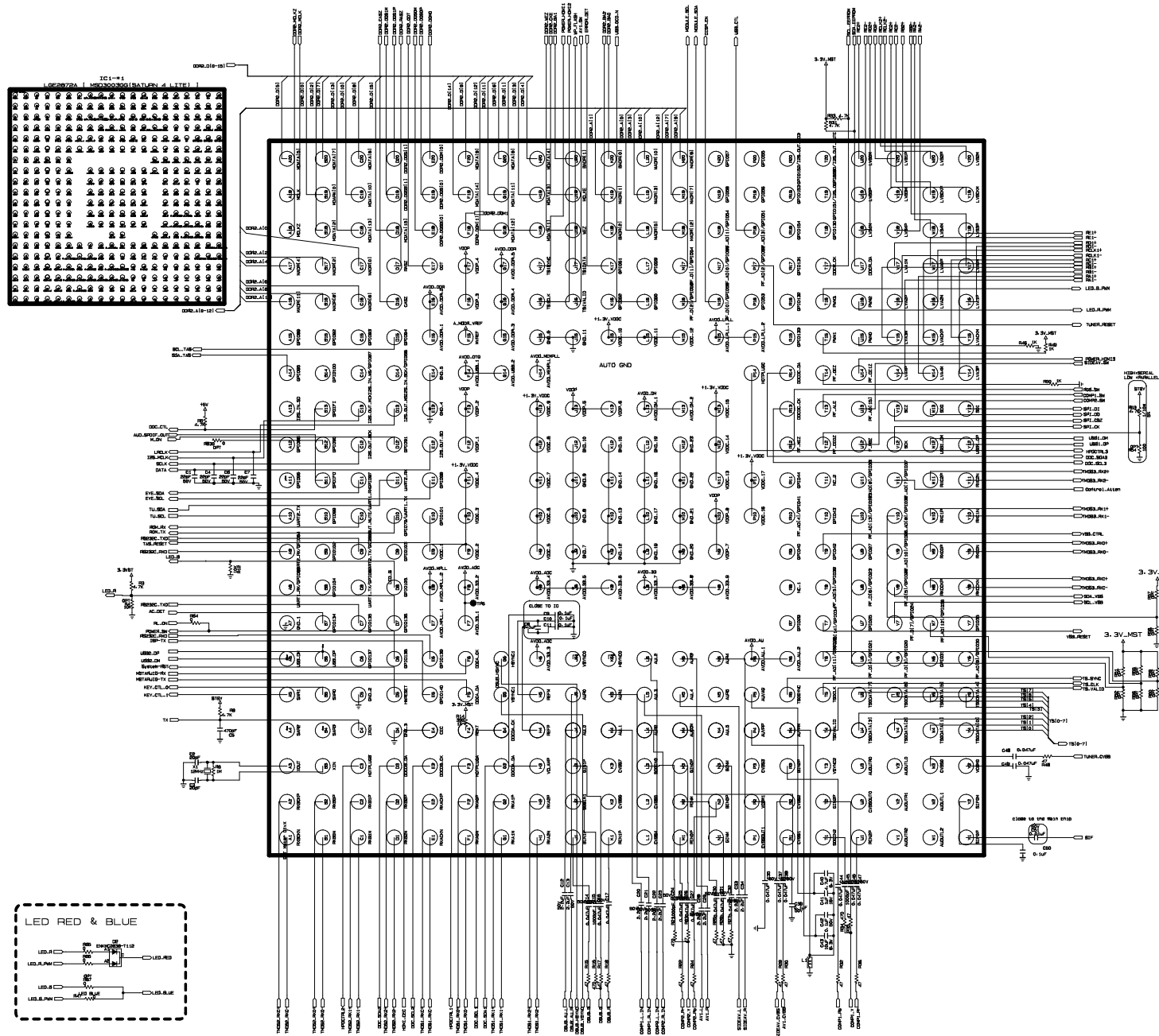
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

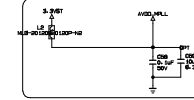
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by Δ in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent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



IC1
LGE2873A [MSD3003GG(SATURN 4 LITE PLUS)]

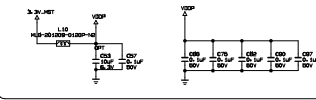


3.3VST TO AVDD_MPLL

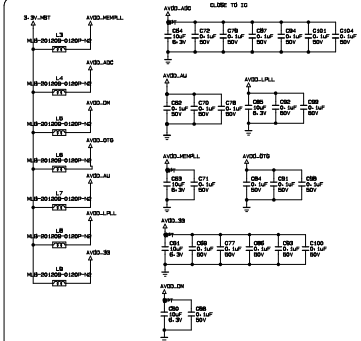


CLOSE TO IC

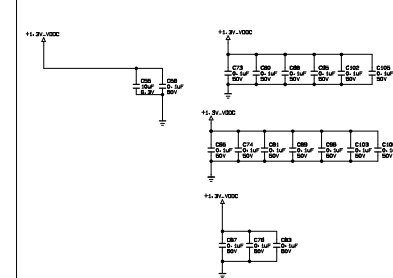
3.3V_MST TO VDDP 3.3V



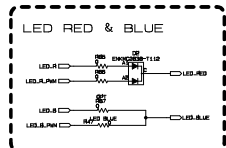
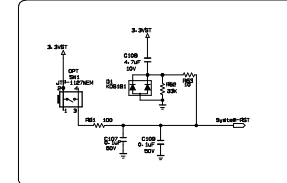
3.3V_MST TO AVDD 3.3V



+1.3V TO VDDC



Reset

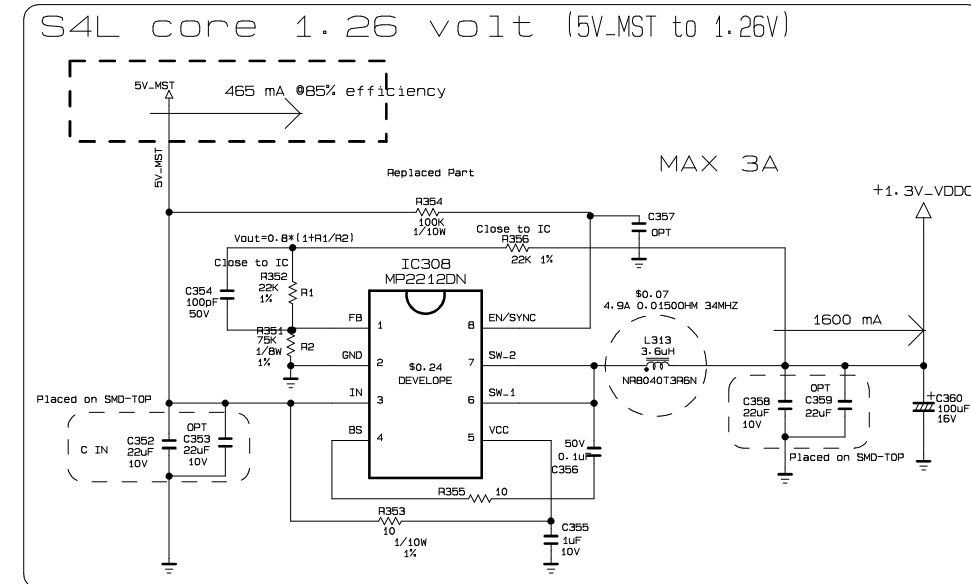
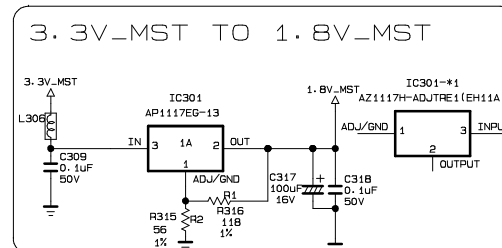
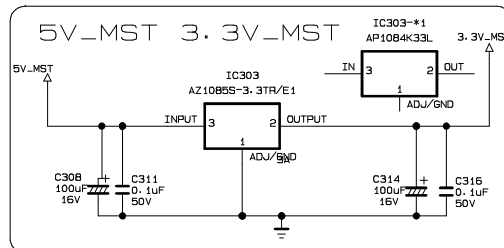
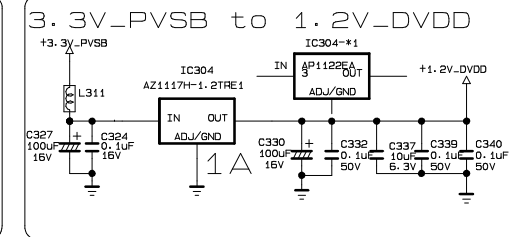
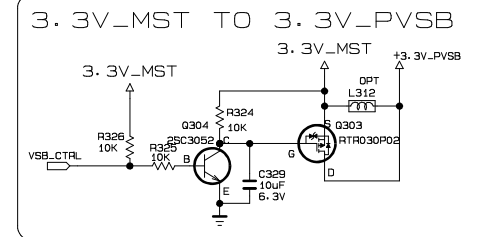
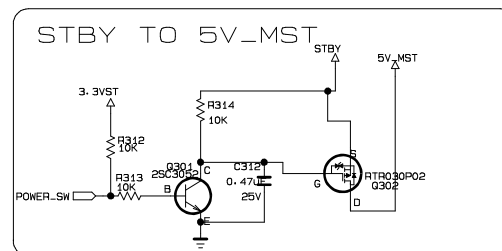
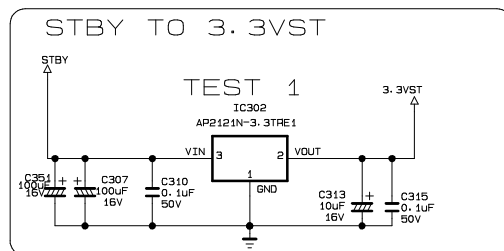
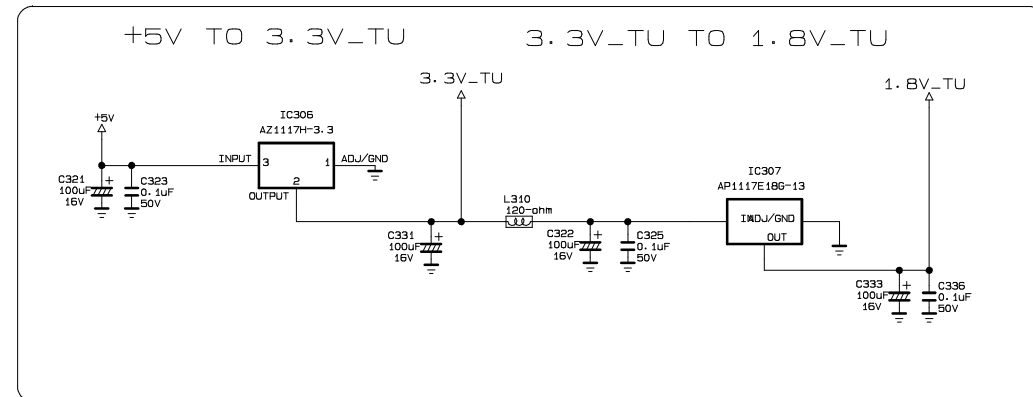
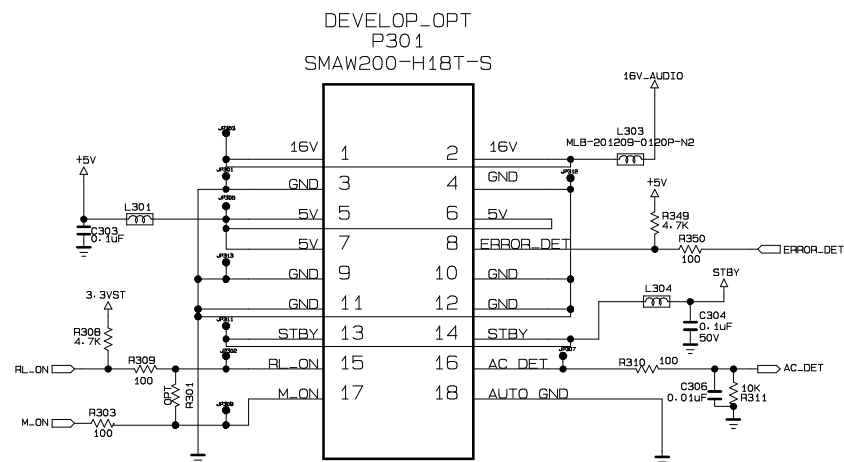


THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILTRATION AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

LG ELECTRONICS
SCHOOL OF

MODEL		DATE	
BLOCK		SHEET	



THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE 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

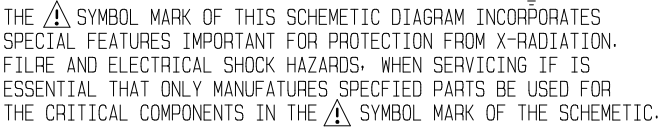
MODEL
BLOCK

DATE
SHEET

```

Analog Supply Max Current(+3.3V/Operating ) : 250mA
                                     (+1.8V/Operating ) : 75mA
Digital Supply Max Current ( +1.8V/Operating ) : 75mA

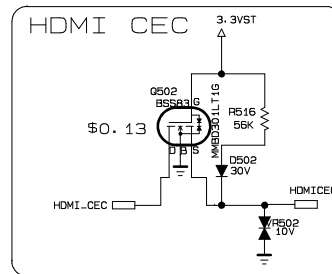
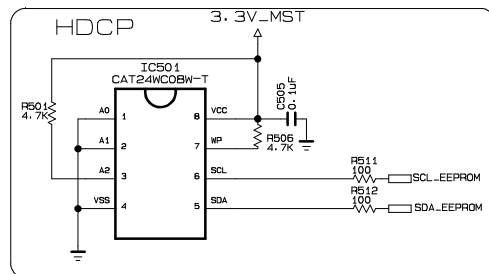
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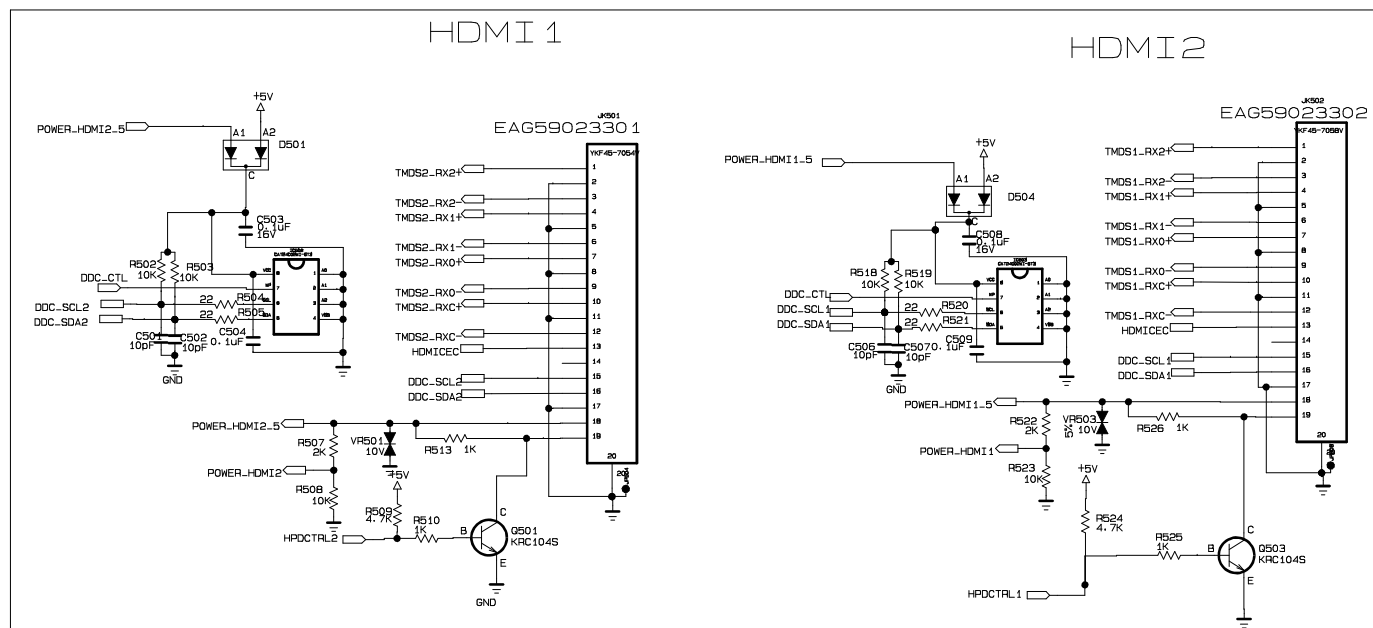
SECRET
LGElectronics



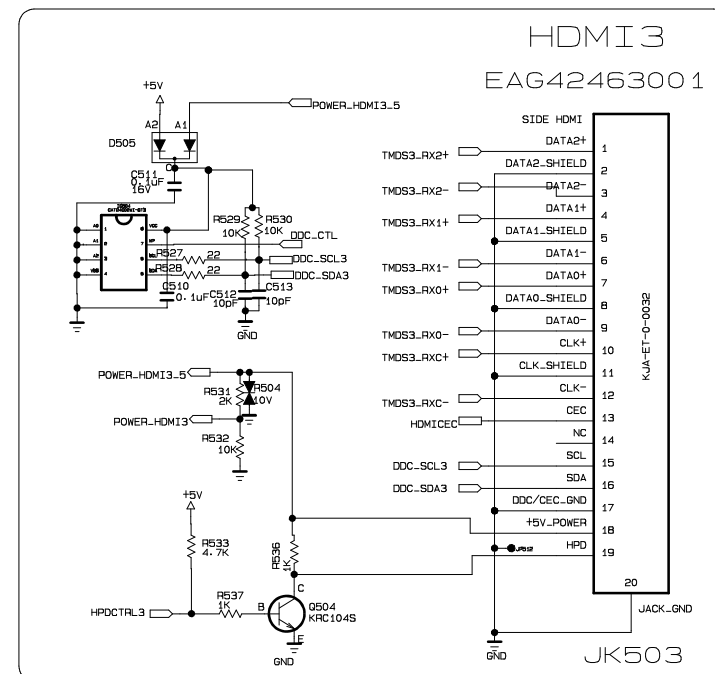
MODEL		DATE	
BLOCK		SHEET	/





REAR HDMI



SIDE HDMI



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

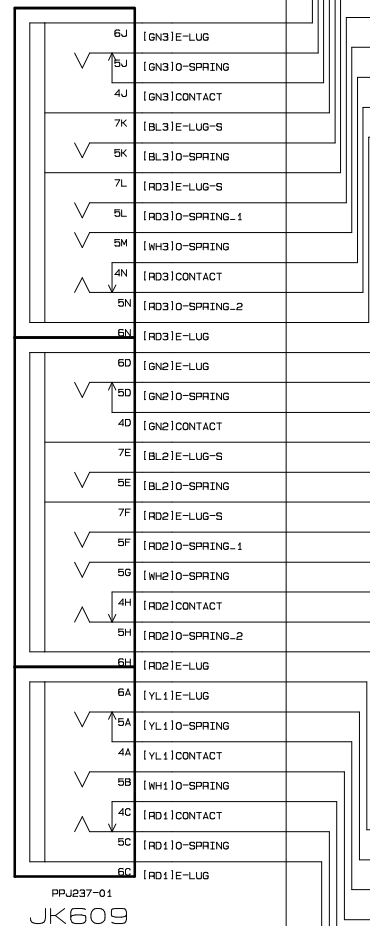
SECRET
LGElectronics

 LG ELECTRONICS

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BLOCK		SHEET	

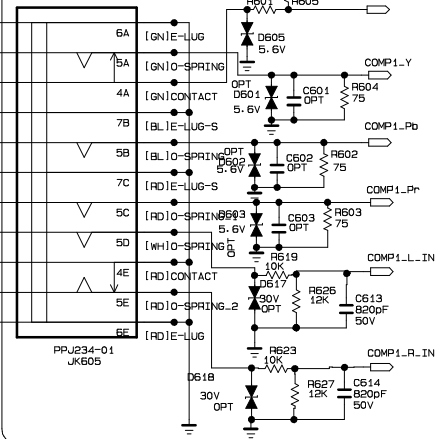
COMPLEX

COMPLEX JACK
EAG6100780 1



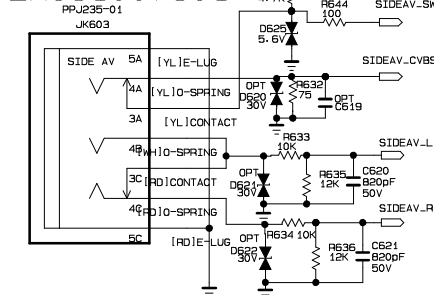
COMPONENT 1

Seperated Jack
EAG6096820 1



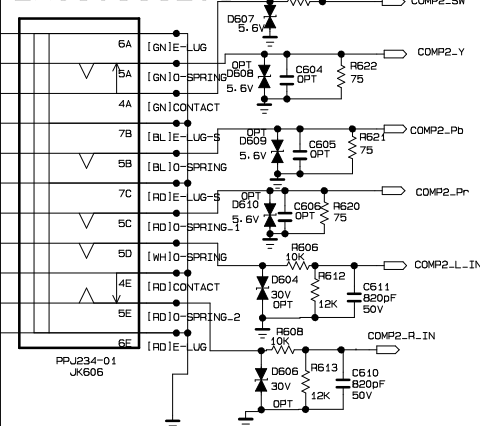
SIDE AV

EAG6100760 1



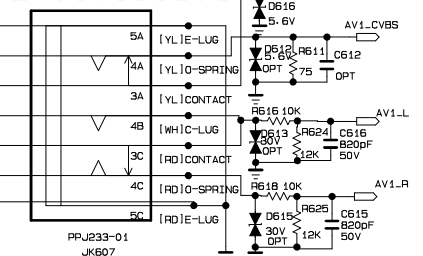
COMPONENT 2

Seperated Jack
EAG6096820 1

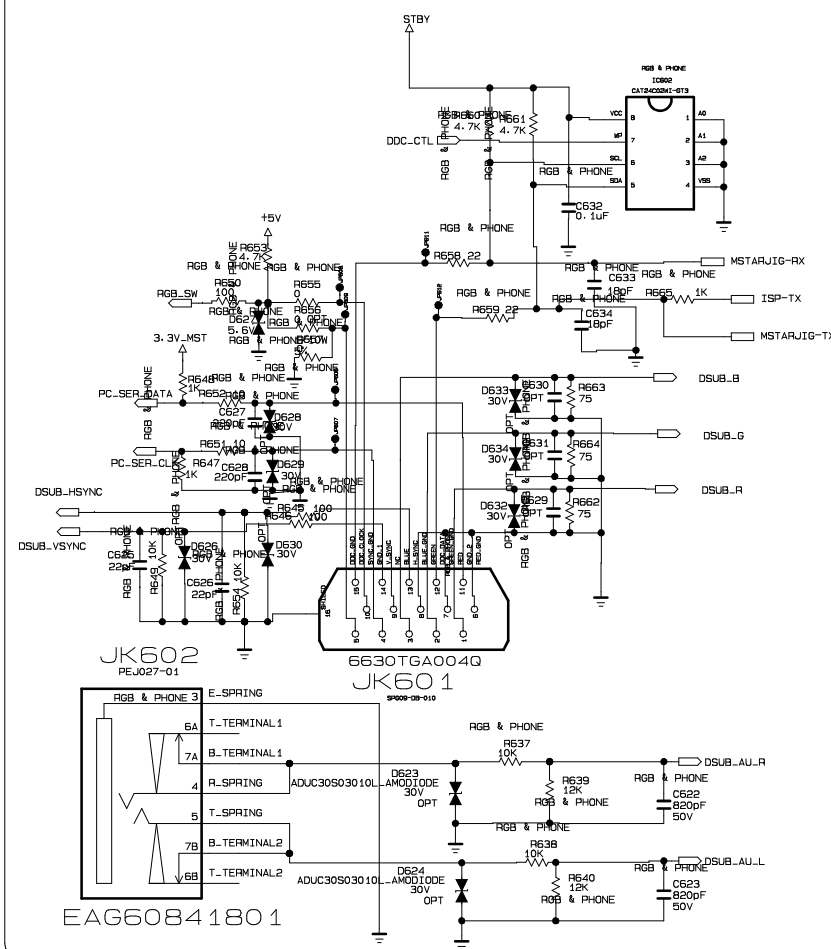


REAR AV

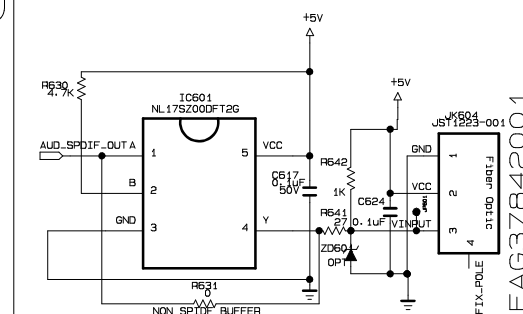
Seperated Jack
EAG6096810 1



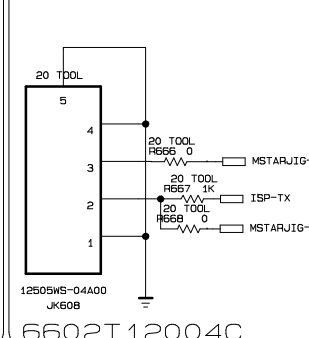
RGB & PHONE



SPDIF OPTIC JACK



I2C JIG [4P]



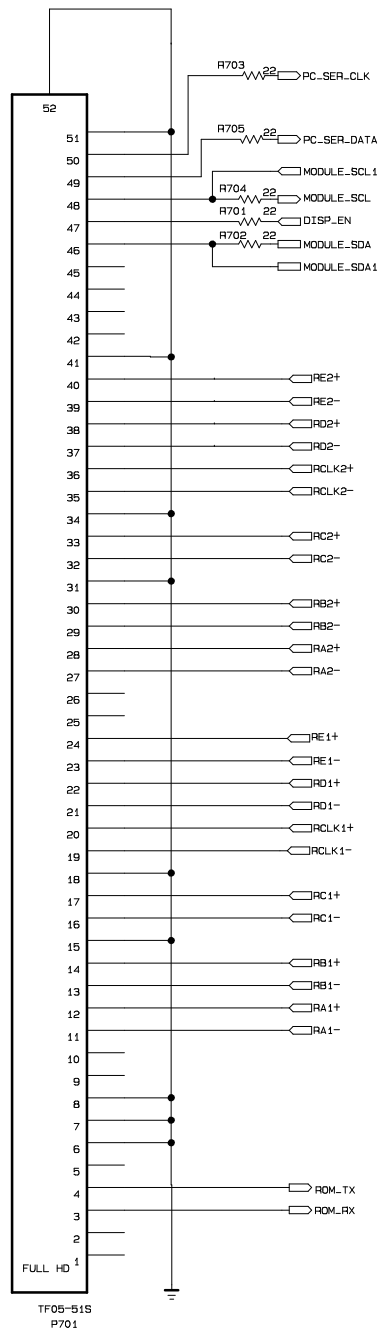
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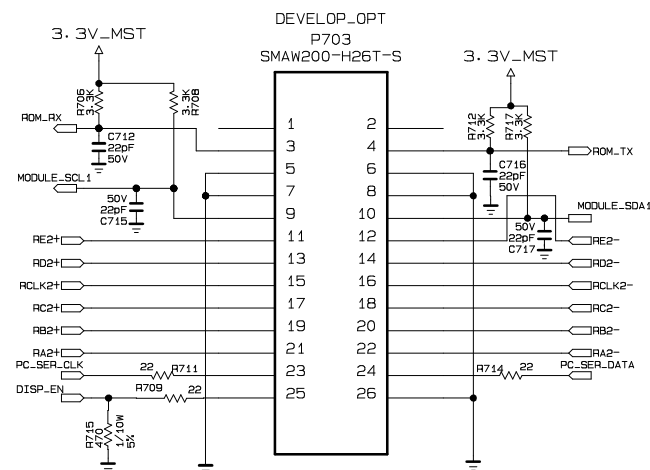


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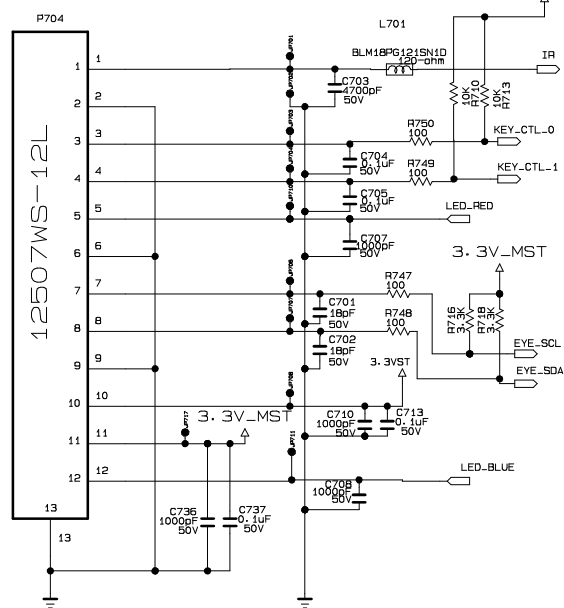
FHD LVDS



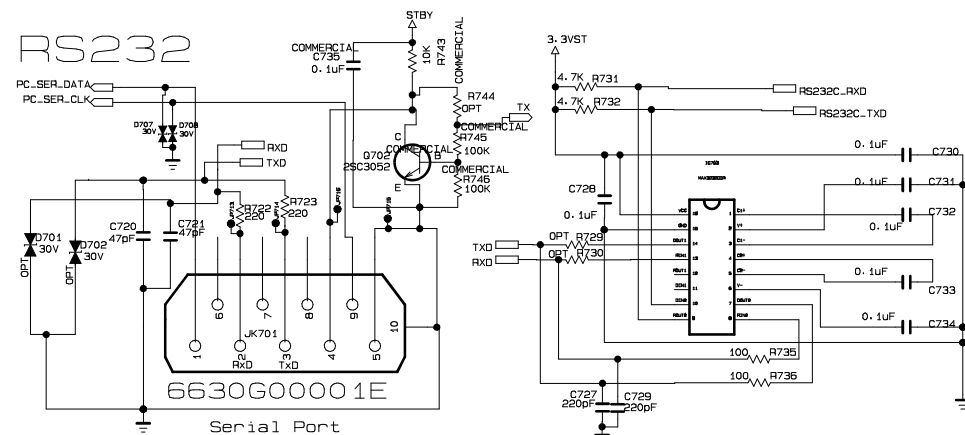
HD LVDS



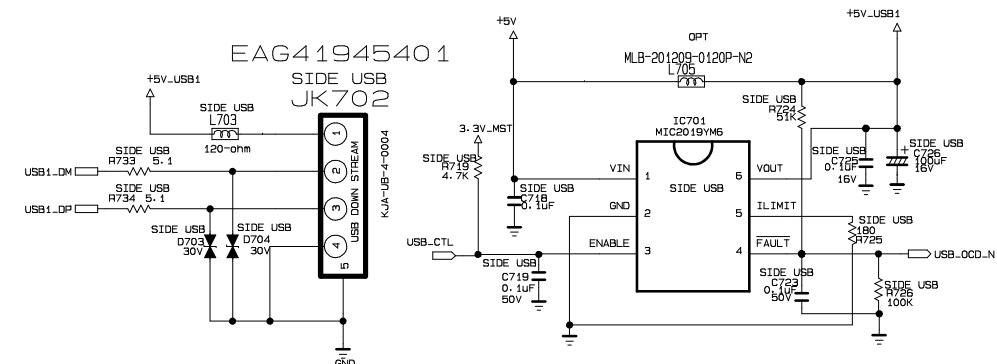
IR & CTRL



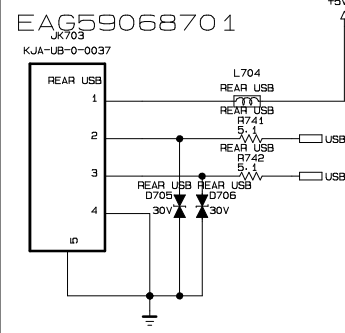
RS232



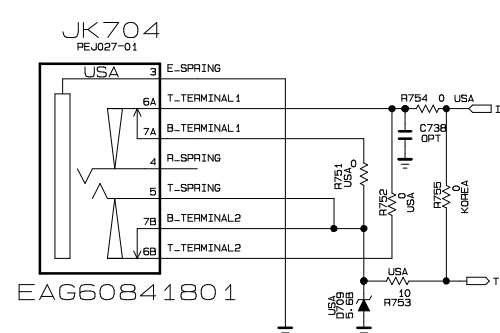
SIDE USB





REAR USB



USA IR JACK



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SECRET
LGElectronics

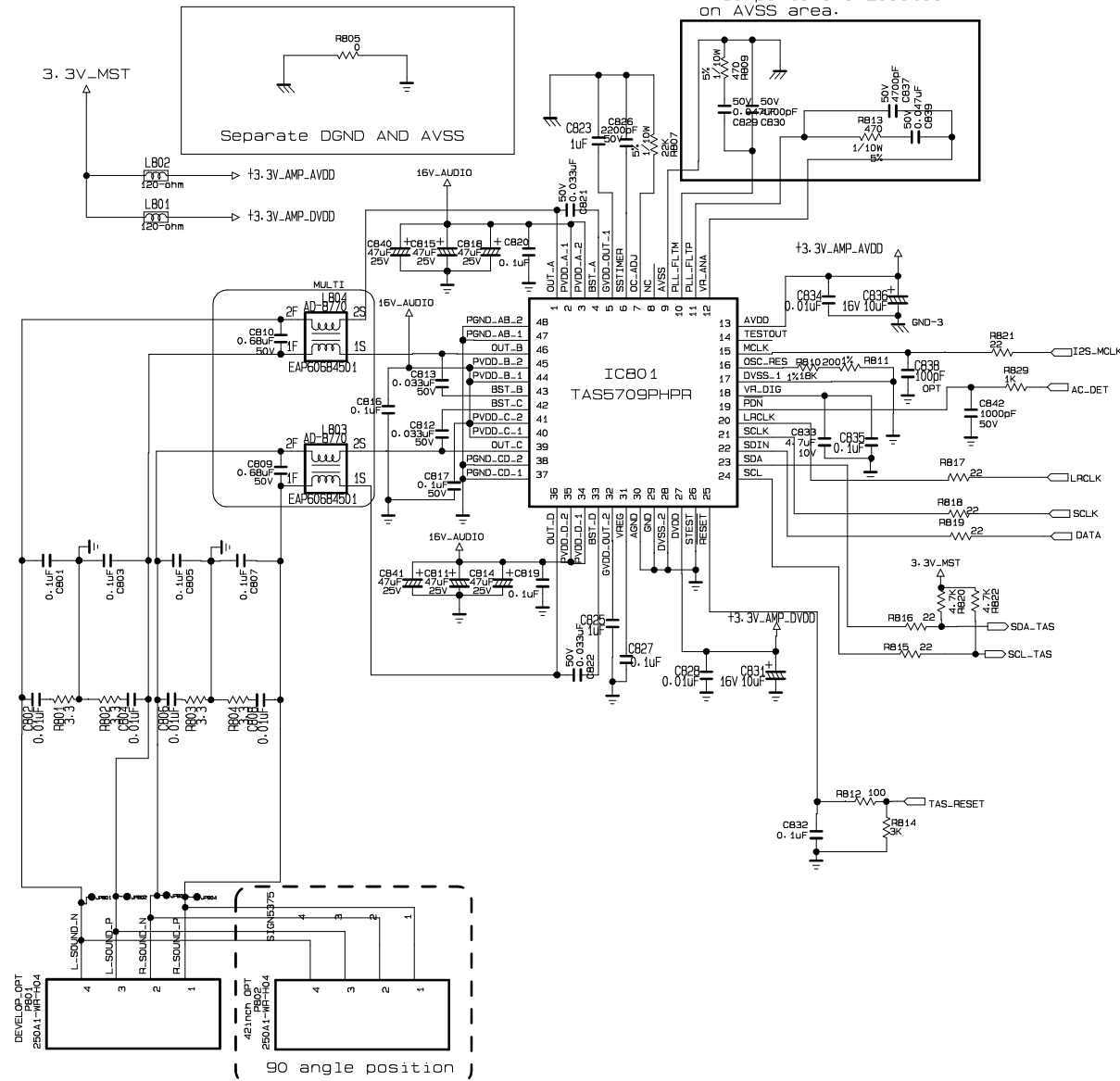
 LG ELECTRONICS



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Digital Audio AMP

This parts are Located on AVSS area.



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SECRET

LG Electronics

 LG ELECTRONICS

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BLOCK		SHEET	/

