Internal Use Only

OLED TV
SERVICE MANUAL

CHASSIS : EA62E

MODEL : OLED55E6P OLED55E6P-U
OLED65E6P OLED65E6P-U

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

P/NO : MFL69465803 (1601-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 Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

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

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

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

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

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

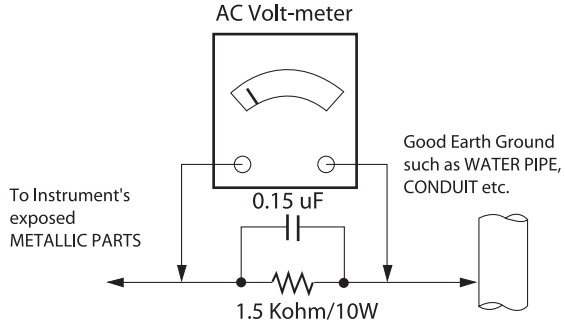
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 MΩ and 5.2 MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5 mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω
*Base on Adjustment standard

SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10 % (by volume) Acetone and 90 % (by volume) isopropyl alcohol (90 % - 99 % strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement
Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal
1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement
1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement
1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device
Removal/Replacement
1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement
1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor
Removal/Replacement
1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair
Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections
To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections
Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.
   Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

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

1. Application range

This spec sheet is applied OLED TV with EA62E chassis

2. Test condition

Each part is tested as below without special notice.

(1) Temperature : 25 ºC ± 5 ºC(77 ± 9 ºF) , CST : 40 ºC ± 5 ºC
(2) Relative Humidity : 65 % ± 10 %
(3) Power Voltage
Standard input voltage (100~240V@ 50/60Hz)
* Standard Voltage of each products is marked by models.
(4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM
(5) The receiver must be operated for about 20 minutes prior to the adjustment

3. Test method

(1) Performance: LGE TV test method followed
(2) Demanded other specification
Safety : UL, CSA, CE, IEC specification
EMC: FCC, ICES, CE, IEC specification
Wireless : Wireless HD Specification (Option)

4. General Specification

No	Item	Specification	Remark
1	Market	USA	
2	Receiving System	ATSC / NTSC-M / 64 QAM / 256 QAM	
3	Program coverage	(1) VHF : 02~13 (2) UHF : 14~69 (3) DTV : 02-69 (4) CATV : 01~135 (5) CADTV : 01~135	
4	Input Voltage	AC 120 ~ 240V 50/60Hz	USA (110~240V, 50/60Hz)

5. 2D Mode

5.1. Component input(Y, C_B/P_B, C_R/P_R)

No.	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed
1	720*480i	15.73	59.94	13.500	SDTV, DVD 480I(525I)
2	720*480i	15.75	60.00	13.514	SDTV, DVD 480I(525I)
3	720*576i	15.625	50.00	13.500	SDTV, DVD 576I(625I) 50Hz
4	720*480p	31.47	59.94	27.000	SDTV 480P
5	720*480p	31.50	60.00	27.027	SDTV 480P
6	720*576p	31.25	50.00	27.000	SDTV 576P 50Hz
7	1280*720	44.96	59.94	74.176	HDTV 720P
8	1280*720	45.00	60.00	74.250	HDTV 720P
9	1280*720	37.50	50.00	74.250	HDTV 720P 50Hz
10	1920*1080	28.125	50.00	74.250	HDTV 1080I 50Hz,
11	1920*1080	33.72	59.94	74.176	HDTV 1080I
12	1920*1080	33.75	60.00	74.25	HDTV 1080I
13	1920*1080	56.25	50	148.5	HDTV 1080P
14	1920*1080	67.43	59.94	148.5	HDTV 1080P
15	1920*1080	67.50	60.00	148.5	HDTV 1080P

5.2. HDMI Input (PC)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remarks
1	640*350	31.468	70.09	25.17	EGA	
2	720*400	31.469	70.08	28.32	DOS	
3	640*480	31.469	59.94	25.17	VESA(VGA)	
4	800*600	37.879	60.31	40	VESA(SVGA)	
5	1024*768	48.363	60.00	65	VESA(XGA)	
6	1360*768	47.712	60.015	84.75	VESA(WXGA)	
7	1152*864	54.348	60.053	80	VESA	
8	1280*1024	63.981	60.020	109.00	SXGA	Support to HDMI-PC
9	1920*1080	67.5	60	158.40	WUXGA(Reduced Blanking)	
10	3840*2160	54	24.00	297.00	UDTV 2160P	
11	3840*2160	56.25	25.00	297.00	UDTV 2160P	
12	3840*2160	67.5	30.00	297.00	UDTV 2160P	
13	4096*2160	53.95	23.97	296.703	UDTV 2160P	
14	4096*2160	54	24	297	UDTV 2160P	

5.3. HDMI Input (DTV)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	
1	640*480	31.469	59.94	25.125	SDTV 480P	
2	640*480	31.5	60.00	25.125	SDTV 480P	
3	720*480	15.73	59.94	13.500	SDTV, DVD 480I(525I)	Spec. out but display
4	720*480	15.75	60.00	13.514	SDTV, DVD 480I(525I)	
5	720*576	15.625	50.00	13.500	SDTV, DVD 576I(625I) 50Hz	
6	720*480	31.47	59.94	27	SDTV 480P	
7	720*480	31.5	60.00	27.027	SDTV 480P	
8	720*576	31.25	50.00	27	SDTV 576P	
9	1280*720	44.96	59.94	74.176	HDTV 720P	
10	1280*720	45	60.00	74.25	HDTV 720P	
11	1280*720	37.5	50.00	74.25	HDTV 720P	
12	1920*1080	28.125	50.00	74.25	HDTV 1080I	
13	1920*1080	33.72	59.94	74.176	HDTV 1080I	
14	1920*1080	33.75	60.00	74.25	HDTV 1080I	
15	1920*1080	26.97	23.976	63.296	HDTV 1080P	
16	1920*1080	27.00	24.000	63.36	HDTV 1080P	
17	1920*1080	33.71	29.97	79.120	HDTV 1080P	
18	1920*1080	33.75	30.00	79.20	HDTV 1080P	
19	1920*1080	56.25	50.00	148.5	HDTV 1080P	
20	1920*1080	67.432	59.94	148.350	HDTV 1080P	
21	1920*1080	67.5	60.00	148.50	HDTV 1080P	
22	3840*2160	53.95	23.98	296.703	UDTV 2160P	
23	3840*2160	54	24.00	297.00	UDTV 2160P	
24	3840*2160	56.25	25.00	297.00	UDTV 2160P	
25	3840*2160	61.43	29.97	296.703	UDTV 2160P	
26	3840*2160	67.5	30.00	297.00	UDTV 2160P	
27	3840*2160	112.5	50.00	594	UDTV 2160P	When HDMI1,2,3 UHD DEEP COLOUR ON
28	3840*2160	134.86	59.94	593.407	UDTV 2160P	When HDMI1,2,3 UHD DEEP COLOUR ON
29	3840*2160	135	60.00	594	UDTV 2160P	When HDMI1,2,3 UHD DEEP COLOUR ON
30	4096*2160	53.95	23.98	296.703	UDTV 2160P	
31	4096*2160	54	24.00	297	UDTV 2160P	
32	4096*2160	56.25	25.00	297	UDTV 2160P	
33	4096*2160	61.43	29.97	296.703	UDTV 2160P	
34	4096*2160	67.5	30.00	297	UDTV 2160P	
35	4096*2160	112.5	50.00	594	UDTV 2160P	When HDMI1,2,3 UHD DEEP COLOUR ON
36	4096*2160	134.86	59.94	593.407	UDTV 2160P	When HDMI1,2,3 UHD DEEP COLOUR ON
37	4096*2160	135	60.00	594	UDTV 2160P	When HDMI1,2,3 UHD DEEP COLOUR ON

6. 3D Mode(3D supported mode manually)

6.1. RF Input

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remarks
1	1280*720	37.500	50	74.25	HDTV 720P	2D to 3D, Side by Side, Top & Bottom
2	1920*1080	28.125	50	74.25	HDTV 1080I	2D to 3D, Side by Side, Top & Bottom

6.2. HDMI Input

6.2.1. HDMI1.4/2.0 (3D supported mode manually)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock (MHz)	Proposed	3D input proposed mode
1	720*480	31.5	60	27.03	SDTV 480P	2D to 3D, Side by Side(Half), Top & Bottom
2	720*576	31.25	50	27	SDTV 576P	
3	1280*720	45.00	60.00	74.25	HDTV 720P	
		37.500	50	74.25	HDTV 720P	
4	1920*1080	33.75	60.00	74.25	HDTV 1080I	
		28.125	50.00	74.25	HDTV 1080I	
5	1920*1080	27.00	24.00	74.25	HDTV 1080P	
		28.12	25	74.25	HDTV 1080P	
		33.75	30.00	74.25	HDTV 1080P	
		67.50	60.00	148.5	HDTV 1080P	
		56.250	50	148.5	HDTV 1080P	
6	3840*2160 4096*2160	53.95	23.976	296.703	HDTV 2160P	2D to 3D, Top & Bottom, Side by Side(half)
		54	24.00	297.00	HDTV 2160P	
		56.25	25.00	297.00	HDTV 2160P	
		61.43	29.970	296.703	HDTV 2160P	
		67.5	30.00	297.00	HDTV 2160P	
7	3840*2160	112.5	50	594	HDTV 2160P	2D to 3D, Top & Bottom(half), Side by Side(half), When HDMI1,2,3 UHD DEEP COLOUR ON
8	4096*2160	135	60	594	HDTV 2160P	

6.2.2. HDMI 1.4b (3D supported mode automatically)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	VIC	3D input proposed mode	Proposed
1	640*480	31.469 / 31.5	59.94/ 60	25.125/25.2	1	Top-and-Bottom Side-by-side(half)	Secondary(SDTV 480P) Secondary(SDTV 480P)
		62.938/63	59.94/ 60	50.35/50.4	1	Frame packing	Secondary(SDTV 480P)
2	720*480	31.469 / 31.5	59.94 / 60	27.00/27.03	2,3	Top-and-Bottom Side-by-side(half)	Secondary(SDTV 480P) Secondary(SDTV 480P)
		62.938/63	59.94 / 60	54/54.06	2,3	Frame packing	Secondary(SDTV 480P)
3	1280*720	31.25	50	27	17,18	Top-and-Bottom Side-by-side(half)	Secondary(SDTV 576P)
		62.5	50	54	17,18	Frame packing	Secondary(SDTV 576P)
4	1920*1080	15.625	50	27	21	TFrame packing Top-and-Bottom Side-by-side(half)	Secondary(SDTV 576I) Secondary(SDTV 576I) Secondary(SDTV 576I)
5	1920*1080	37.500	50	74.25	19	Top-and-Bottom Side-by-side(half)	Primary(HDTV 720P) Primary(HDTV 720P)
		44.96 / 45	59.94 / 60	74.17/74.25	4	Top-and-Bottom Side-by-side(half)	Primary(HDTV 720P) Primary(HDTV 720P)
		75	50	148.5	19	Frame packing	Primary(HDTV 720P)
		89.91/90	59.94 / 60	148.35/148.5	4	Side-by-side(Full)	Primary(HDTV 720P)
6	1920*1080	28.125	50.00	74.25	20	Top-and-Bottom Side-by-side(half)	Secondary(HDTV 1080I) Primary(HDTV 1080I)
		33.72 / 33.75	59.94 / 60	74.17/74.25	5	Top-and-Bottom Side-by-side(half)	Secondary(HDTV 1080I) Primary(HDTV 1080I)
		56.25	50.00	148.5	20	Frame packing	Primary(HDTV 1080I)
		67.432/67.50	59.94 / 60	148.35/148.5	5	Frame packing	Primary(HDTV 1080I)
7	1920*1080	26.97 / 27	23.97 / 24	74.17/74.25	32	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Primary(HDTV 1080P)
		28.125	25	74.25	33	Top-and-Bottom Side-by-side(half)	Secondary(HDTV 1080P) Secondary(HDTV 1080P)
		33.716 / 33.75	29.976 / 30.00	74.18/74.25	34	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Secondary(HDTV 1080P)
		43.94/54	23.97 / 24	148.35/148.5	32	Frame packing	Primary(HDTV 1080P)
		56.25	25	148.5	33	Frame packing	Secondary(HDTV 1080P)
		67.432 / 67.5	29.976 / 30	148.35/148.5	34	Frame packing	Primary(HDTV 1080P)
		56.250	50	148.5	31	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Secondary(HDTV 1080P)
		67.43 / 67.5	59.94 / 60	148.35/148.50	16	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Secondary(HDTV 1080P)

6.2.3. HDMI-PC Input (3D) (3D supported mode manually)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remarks
1	1024*768	48.36	60	65	HDTV 768P	2D to 3D, Side by Side(half), Top & Bottom
2	1920*1080	47.71	60	85.5	HDTV 1080P	2D to 3D, Side by Side(half), Top & Bottom
3	3840*2160	67.500	60	148.50	HDTV 2160P	2D to 3D, Side by Side(half), Top & Bottom
		54	24.00	297.00		
		56.25	25.00	297.00		
4	4096*2160	67.5	30.00	297.00	HDTV 2160P	2D to 3D, Side by Side(half), Top & Bottom
5	4096*2160	54	24	297.00		2D to 3D, Top & Bottom(half), Side by Side(half)
6	Others	-	-	-	640*350 720*400 640*480 800*600 1152*864	2D to 3D, Side by Side(half), Top & Bottom

6.2.4. Component Input (3D) (3D supported mode manually)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remarks
1	1280*720	37.5	50	74.25	HDTV 720P	2D to 3D, Side by Side(half), Top & Bottom
2	1280*720	45.00	60.00	74.25	HDTV 720P	
3	1280*720	44.96	59.94	74.176	HDTV 720P	
4	1920*1080	33.75	60.00	74.25	HDTV 1080I	
5	1920*1080	33.72	59.94	74.176	HDTV 1080I	
6	1920*1080	28.12	50	74.25	HDTV 1080I	
7	1920*1080	67.500	60	148.50	HDTV 1080P	
8	1920*1080	67.432	59.94	148.352	HDTV 1080P	
9	1920*1080	27.000	24.000	74.25	HDTV 1080P	
10	1920*1080	28.12	25	74.25	HDTV 1080P	
11	1920*1080	56.25	50	74.25	HDTV 1080P	
12	1920*1080	26.97	23.976	74.176	HDTV 1080P	
13	1920*1080	33.75	30.000	74.25	HDTV 1080P	
14	1920*1080	33.71	29.97	74.176	HDTV 1080P	

6.2.5. USB – Movie (3D) (3D supported mode manually)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	Under 704x480	-	-	-	2D to 3D
2	Over 704x480 Under 1080P interlaced	-	-	-	2D to 3D, Side by Side(Half), Top & Bottom
3	Over 704x480 Under 1080P progressive	-	50 / 60	-	2D to 3D, Side by Side(Half), Top & Bottom,
		-	others	-	
4	Over 2160P	-	24/25/30	-	2D to 3D, Side by Side(Half), Top & Bottom

6.2.6. USB, DLNA -Photo (3D) (3D supported mode manually)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	Under 320x240	-	-	-	2D to 3D
2	Over 320x240	-	-	-	2D to 3D, Side by Side(Half), Top & Bottom

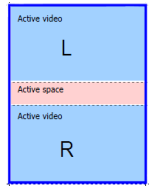
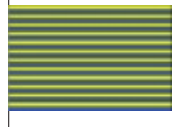
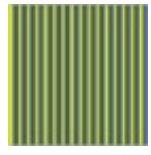
6.2.7. USB, DLNA (3D) (3D supported mode automatically)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	1080p	33.75	30	74.25	Side by Side(Half), Top & Bottom, Side by Side(Full), Frame Sequential, MPO(Photo), JPS(Photo)
2	2160p	67.5	30	297	

6.2.8. Miracast, Widi (3D supported mode manually)

No	Resolution	H-freq.(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	1024*768p	-	30/60	-	2D to 3D
2	1280*720p	-	30/60	-	
3	1920*1080p	-	30/60	-	
4	Others	-	-	-	2D to 3D

* Remark: 3D Input mode

No.	Side by Side	Top & Bottom	Checkerboard	Single Frame Sequential	Frame Packing	Row Interleaving	Column Interleaving
1							
	2D to 3D						
							

ADJUSTMENT INSTRUCTION

1. Application

This spec. sheet applies to EA62E Chassis applied OLED 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 ± 5 ºC of temperature and 65±10% of relative humidity if there is no specific designation
(4) The input voltage of the receiver must keep 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 ºC
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.

※ Caution
When still image is displayed for a period of 20 minutes or longer (especially where W/B scale is strong.
Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area

3. Adjustment items

3.1. Main PCBA Adjustments

- MAC Address Download
- ADC adjustment : 480i Comp1, 1920*1080 Comp1
- EDID/DDC download

- Above adjustment items can be also performed in Final Assembly if needed. Adjustment items in both PCBA and final assembly tages can be checked by using the INSTART Menu -> 1.ADJUST CHECK

3.2. Final assembly adjustment

- White Balance adjustment
- RS-232C functionality check
- PING Test
- Factory Option setting per destination
- Ship-out mode setting (In-Stop)
- GND and HI-POT test

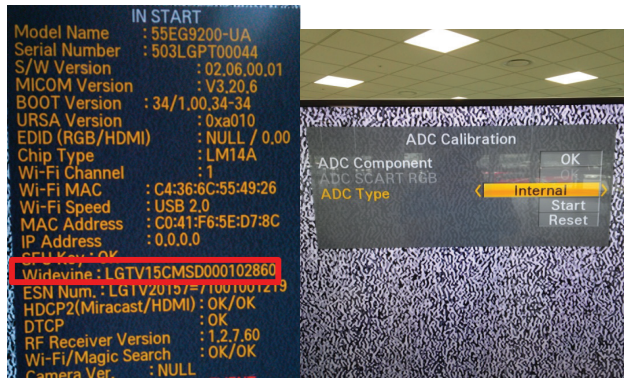
3.3. Etc

- Ship-out mode
- Service Option Default
- USB Download(S/W Update, Option, Service only)
- ISP Download(Option)

4. Automatic Adjustment

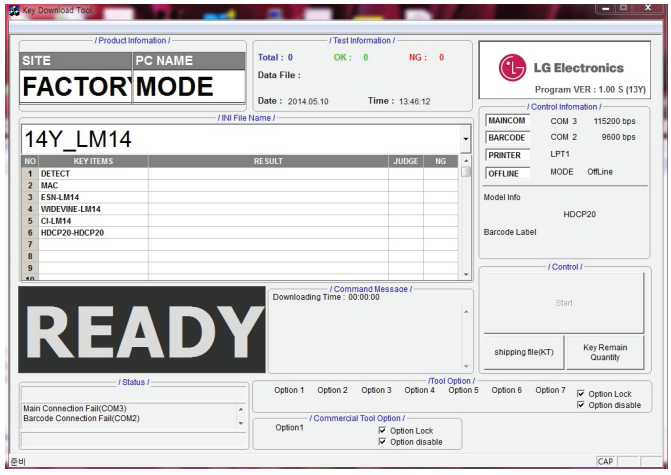
4.1. ADC Calibration

(1) Enter the ADC Calibration in ADJ Menu
(2) Check the 'Internal' at ADC Type and push Start button.
(3) Check ' OK '



4.2. MAC address D/L , CI+ key D/L , Widevine key D/L, ESN D/L, HDCP20 D/L

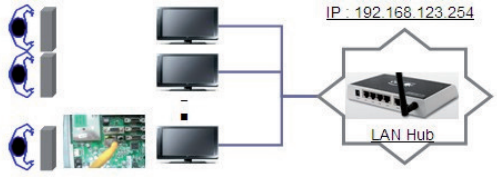
Connect: USB port
Communication Prot connection
- Com 1,2,3,4 and 115200(Baudrate)
  Mode check: Online Only
- check the test process
  DETECT -> MAC -> ESN -> Widevine -> CI -> HDCP20
- Play : Press Enter key
- Result: Ready, Test, OK or NG
- Printer Out (MAC Address Label)



4.3. LAN Inspection

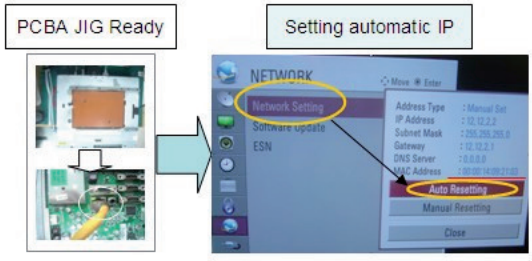
4.3.1. Equipment & Condition

▪ Each other connection to LAN Port of IP Hub and Jig



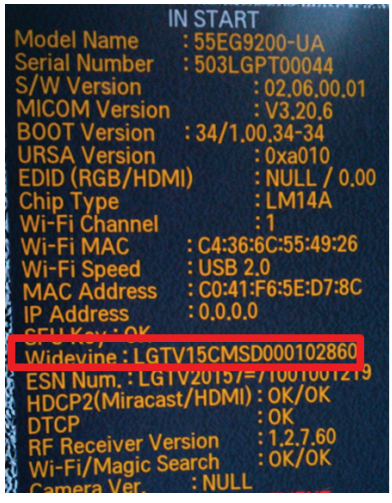
4.3.2. LAN inspection solution

▪ LAN Port connection with PCB
▪ Network setting at MENU Mode of TV
▪ setting automatic IP
▪ Setting state confirmation
- If automatic setting is finished, you confirm IP and MAC Address.



4.3.3. WIDEVINE Key Inspection

▪ WIDEVINE Key Inspection
- Confirm Key input Data at the “IN START” MENU Mode



4.4. LAN PORT INSPECTION(PING TEST)

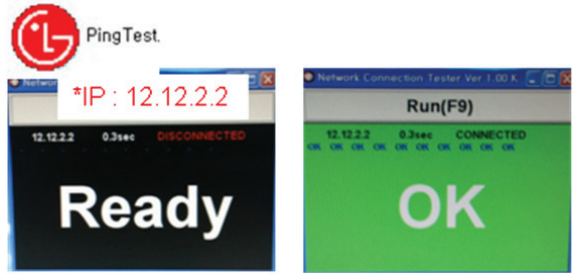
Connect SET -> LAN port == PC -> LAN Port

4.4.1 Equipment setting

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

4.4.2. LAN PORT inspection (PING TEST)

(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



4.5. Model name & Serial number Download

4.5.1. Model name & Serial number D/L

▪ Press “P-ONLY” key of service remocon.(Baud rate : 115200 bps)
▪ Connect RS-232C Signal to USB Cable to USB.
▪ Write Serial number by use USB port.
▪ Must check the serial number at Instart menu.

4.5.2. Method & notice

(1) Serial number D/L is using of scan equipment.
(2) Setting of scan equipment operated by Manufacturing Technology Group.
(3) Serial number D/L must be conformed when it is produced in production line, because serial number D/L is mandatory by D-book 4.0

※ Manual Download (Model Name and Serial Number)
If the TV set is downloaded By OTA or Service man, Sometimes model name or serial number is initialized.(Not always)
There is impossible to download by bar code scan, so It need Manual download.
a. Press the ‘instart’ key of ADJ remote controller.
b. Go to the menu ‘7.Model Number D/L’ like below photo.
c. Input the Factory model name or Serial number like photo.

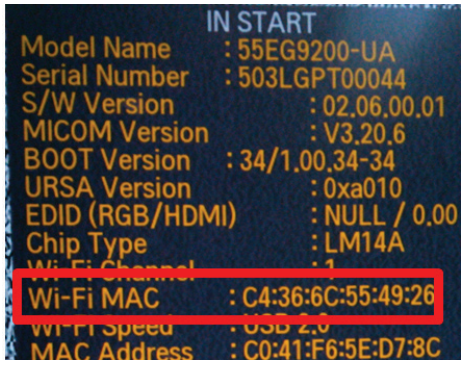
d. Check the model name Instart menu -> Factory name displayed
e. Check the Diagnostics (DTV country only) -> Buyer model displayed

4.6. WIFI MAC ADDRESS CHECK

■ Using RS232 Command

	Command	Set ACK
Transmission	[A][I][][Set ID][][20][Cr]	[O][K][x] or [N][G]

■ check the menu on in-start



5. Manual Adjustment

5.1. ADC adjustment is not needed because of OTP(Auto ADC adjustment)

5.2. EDID (The Extended Display Identification Data) / DDC (Display Data Channel) download

5.2.1. Overview

It is a VESA regulation. A PC or a MNT will display an optimal resolution through information sharing without any necessity of user input. It is a realization of “Plug and Play”.

5.2.2. Equipment

- Since embedded EDID data is used, EDID download JIG, HDMI cable and D-sub cable are not need.
- Adjust remocon

5.2.3. Download method

(1) Press Adj. key on the Adj. R/C, then select “12.EDID D/L”. By pressing Enter key, enter EDID D/L menu.

For HDMI EDID
DVI-D to HDMI or HDMI to HDMI
 

(2) Select [Start] button by pressing Enter key, HDMI1 / HDMI2 / HDMI3 are Writing and display OK or NG.

5.2.4. EDID DATA

- Reference
- HDMI1 ~ HDMI3
- In the data of EDID, bellows may be different by Input mode

	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	a		b			
01	c		01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
02	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
03	01	01	01	01	01	01	08	E8	00	30	F2	70	5A	80	B0	58
04	8A	00	40	84	63	00	00	1E	02	3A	80	18	71	38	2D	40
05	58	2C	45	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
06	3E	1E	88	3C	00	0A	20	20	20	20	20	20	d			
07	d														01	e1
00	02	03	4E	F1	58	61	60	10	1F	04	13	05	14	03	02	12
01	20	21	22	15	01	5D	5E	5F	65	66	f					
02	f															
03	f			02	03	04	01	40	FF	F0	28	10	38	10	26	36
04	E3	05	C0	00	E5	0E	60	61	65	66	E3	06	07	01	01	1D
05	80	18	71	1C	16	20	58	2C	25	00	40	84	63	00	00	9E
06	66	21	50	B0	51	00	1B	30	40	70	36	00	40	84	63	00
07	00	1E	00	00	00	00	00	00	00	00	00	00	00	00	00	e

ⓐ Product ID
ⓑ Serial No: Controlled on production line.
ⓒ Month, Year: Controlled on production line:
ex) Monthly : ‘01’ -> ‘01’
Year : ‘2015’ -> ‘19
ⓓ Model Name(Hex): LGTV
ⓔ Checksum(LG TV): Changeable by total EDID data.
ⓕ Vendor Specific(HDMI)

* DTS Checksum (HDMI 1/2/3/4)

Input	HDMI Deep Color On FFh (Checksum)		HDMI Deep Color Off FFh (Checksum)	
HDMI1	9F	65	9F	C0
HDMI2	9F	55	9F	B0
HDMI3	9F	45	9F	A0
HDMI4 (E6 only)	9F	35	9F	90

DTS

HDMI1 (C/S: 0x9F, 0x65) – HDMI UHD Deep On Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x49	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x10	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0x67	0xD8	0x5D	0xC4	0x01	0x78	0x80	0x03	0xE3	0x05	0xC0
0x04	0x00	0xE3	0x0F	0x01	0x10	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80	0x18	0x71	0x1C	0x16
0x05	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66	0x21	0x50	0xB0	0x51
0x06	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x65

HDMI2 (C/S: 0x9F, 0x55) – HDMI UHD Deep On Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x49	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x20	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0x67	0xD8	0x5D	0xC4	0x01	0x78	0x80	0x03	0xE3	0x05	0xC0
0x04	0x00	0xE3	0x0F	0x01	0x10	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80	0x18	0x71	0x1C	0x16
0x05	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66	0x21	0x50	0xB0	0x51
0x06	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x55

HDMI3 (C/S: 0x9F, 0x45) – HDMI UHD Deep On Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x49	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x30	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0x67	0xD8	0x5D	0xC4	0x01	0x78	0x80	0x03	0xE3	0x05	0xC0
0x04	0x00	0xE3	0x0F	0x01	0x10	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80	0x18	0x71	0x1C	0x16
0x05	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66	0x21	0x50	0xB0	0x51
0x06	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x45

HDMI4 (C/S: 0x9F, 0x35) – HDMI UHD Deep On Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x49	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x40	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0x67	0xD8	0x5D	0xC4	0x01	0x78	0x80	0x03	0xE3	0x05	0xC0
0x04	0x00	0xE3	0x0F	0x01	0x10	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80	0x18	0x71	0x1C	0x16
0x05	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66	0x21	0x50	0xB0	0x51
0x06	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x35

HDMI1 (C/S: 0x9F, 0xC0) – HDMI UHD Deep Off Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x3D	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x10	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0xE3	0x0E	0x61	0x66	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80
0x04	0x18	0x71	0x1C	0x16	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66
0x05	0x21	0x50	0xB0	0x51	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00
0x06	0x1E	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0xC0

HDMI2 (C/S: 0x9F, 0xB0) – HDMI UHD Deep Off Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x3D	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x20	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0xE3	0x0E	0x61	0x66	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80
0x04	0x18	0x71	0x1C	0x16	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66
0x05	0x21	0x50	0xB0	0x51	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00
0x06	0x1E	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0xB0

HDMI3 (C/S: 0x9F, 0xA0) – HDMI UHD Deep Off Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x3D	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x30	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0xE3	0x0E	0x61	0x66	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80
0x04	0x18	0x71	0x1C	0x16	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66
0x05	0x21	0x50	0xB0	0x51	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00
0x06	0x1E	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0xA0

HDMI4 (C/S: 0x9F, 0x90) – HDMI UHD Deep Off Case

EDID Block 0, Bytes 0-127																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x00	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0x00	0x1E	0x6D	0x01	0x00	0x01	0x01	0x01	0x01
0x01	0x01	0x1A	0x01	0x03	0x80	0xA0	0x5A	0x78	0x0A	0xEE	0x91	0xA3	0x54	0x4C	0x99	0x26
0x02	0x0F	0x50	0x54	0xA1	0x08	0x00	0x31	0x40	0x45	0x40	0x61	0x40	0x71	0x40	0x81	0x80
0x03	0x01	0x01	0x01	0x01	0x01	0x01	0x08	0xE8	0x00	0x30	0xF2	0x70	0x5A	0x80	0xB0	0x58
0x04	0x8A	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x02	0x3A	0x80	0x18	0x71	0x38	0x2D	0x40
0x05	0x58	0x2C	0x45	0x00	0x40	0x84	0x63	0x00	0x00	0x1E	0x00	0x00	0x00	0xFD	0x00	0x3A
0x06	0x3E	0x1E	0x88	0x3C	0x00	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x00	0x00	0x00	0xFC
0x07	0x00	0x4C	0x47	0x20	0x54	0x56	0x0A	0x20	0x20	0x20	0x20	0x20	0x20	0x20	0x01	0x9F

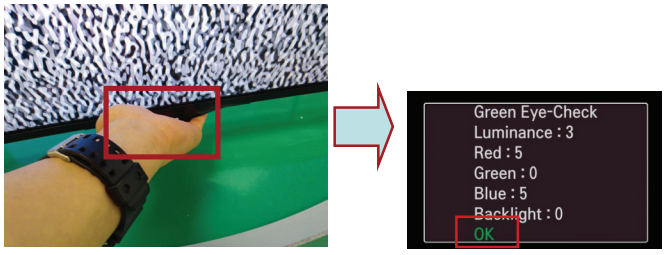
EDID Block 1, Bytes 128-255																
	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00	0x02	0x03	0x3D	0xF1	0x50	0x61	0x10	0x04	0x05	0x03	0x02	0x20	0x22	0x01	0x5D	0x5E
0x01	0x5F	0x66	0x62	0x63	0x64	0x29	0x3D	0x06	0xC0	0x15	0x07	0x50	0x09	0x57	0x07	0x75
0x02	0x03	0x0C	0x00	0x40	0x00	0xB8	0x3C	0x20	0xC0	0x87	0x01	0x02	0x03	0x04	0x01	0x40
0x03	0x01	0xFC	0x18	0x10	0x16	0xE3	0x0E	0x61	0x66	0xE3	0x06	0x07	0x01	0x01	0x1D	0x80
0x04	0x18	0x71	0x1C	0x16	0x20	0x58	0x2C	0x25	0x00	0x40	0x84	0x63	0x00	0x00	0x9E	0x66
0x05	0x21	0x50	0xB0	0x51	0x00	0x1B	0x30	0x40	0x70	0x36	0x00	0x40	0x84	0x63	0x00	0x00
0x06	0x1E	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x07	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x90

5.2.5. Green Eye Inspection Guide

(Step 1) Turn on the TV set.

(Step 2) Press “EYE” button on the Adjustment remote controller.

(Step 3) Block the Intelligent Sensor module on the front C/A about 6 seconds. When the “Sensor Data” is lower than 20, you can see the “OK” message => If it doesn’t show “OK” message, the Sensor Module is defected one. You have to replace that with a good one.



(Step 4) After check the “OK” message come out, take out your hand from the Sensor module. => Check “Backlight” value change from “0” to “100” or not. If it doesn’t change the value, the sensor is also defected one.

5.3. Manual White balance Adjustment

5.3.1. W/B adj. Objective & How-it-works

(1) Objective: To reduce each Panel’s W/B deviation

(2) How-it-works: When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.

(3) Adj. condition: normal temperature

1) Surrounding Temperature: 25 ± 5 ºC
2) Warm-up time: About 5 Min
3) Surrounding Humidity: 20% ~ 80%
4) Before White balance adjustment, Keep power on status, don’t power off

5.3.2. Adj. condition and cautionary items

(1) Lighting condition in surrounding area surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.

(2) Probe location: Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)

(3) Aging time

1) After Aging Start, Keep the Power ON status during 5 Minutes.
2) In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

5.3.3. Equipment

(1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12 / LED: CH14 / OLED : CH : 17)

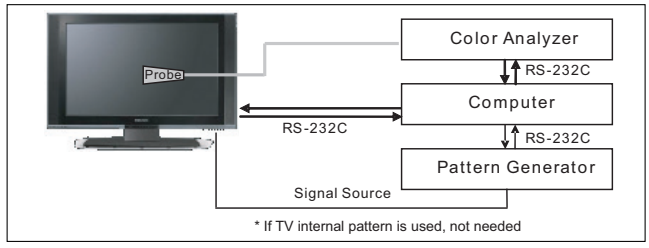
(2) Adj. Computer (During auto adj., RS-232C protocol is needed)

(3) Adjust Remocon

(4) Video Signal Generator MSPG-925F 720p/204-Gray (Model: 217, Pattern: 49)

※ Color Analyzer Matrix should be calibrated using CS-1000

5.3.4. Equipment connection



5.3.5. Adjustment Command (Protocol)

(1) RS-232C Command used during auto-adj

RS-232C COMMAND			Explanation
CMD	DATA	ID	
Wb	00	00	Begin White Balance adj.
Wb	00	ff	End White Balance adj. (internal pattern disappears)

(2) Adjustment Map

	Adj. item	Command (lower case ASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	172
	G Gain	j	h	00	C0	172
	B Gain	j	i	00	C0	192
	R Cut					
	G Cut					
	B Cut					
Medium	R Gain	j	a	00	C0	192
	G Gain	j	b	00	C0	192
	B Gain	j	c	00	C0	192
	R Cut					
	G Cut					
	B Cut					
Warm	R Gain	j	d	00	C0	192
	G Gain	j	e	00	C0	160
	B Gain	j	f	00	C0	128
	R Cut					
	G Cut					

5.3.6. Adjustment method

5.3.6.1. Auto WB calibration

(1) Set TV in ADJ mode using P-ONLY key (or POWER ON key)

(2) Place optical probe on the center of the display

- It need to check probe condition of zero calibration before adjustment.

(3) Connect RS-232C Cable

(4) Select mode in ADJ Program and begin a adjustment.

(5) When WB adjustment is completed with OK message, check adjustment status of pre-set mode (Cool, Medium, Warm)

(6) Remove probe and RS-232C cable.

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

5.3.6.2. OLED White balance table

(1) Cool Mode

- Purpose : Especially B-gain fix adjust leads to the luminance enhancement. Adjust the color temperature to reduce the deviation of the module color temperature.
- Principle : To adjust the white balance without the saturation, Adjust the B gain more than 192 (If R gain or G gain is more than 255 , G gain can adjust less than 192) and change the others (R/G Gain).
- Adjustment mode : mode – Cool

(2) Medium

- Purpose : Adjust the color temperature to reduce the deviation of the module color temperature
- Principle : To adjust the white balance without the saturation, Fix the B gain to 192 (default data) and decrease the others
- Adjustment mode : mode – Medium

(3) Warm

- Purpose : Adjust the color temperature to reduce the deviation of the module color temperature.
- Principle : To adjust the white balance without the saturation, Fix the W gain to 192 (default data) and decrease the others.
- Adjustment mode : mode – Warm

5.3.7. Reference (White Balance Adj. coordinate and color temperature)

(1) Luminance: 204 Gray, 80IRE

(2) Standard color coordinate and temperature using CS-1000 (over 26 inch)

5.3.8. Reference (White Balance Adj. coordinate and color temperature)

▪ Luminance: 204 Gray

▪ Standard color coordinate and temperature using CS-1000 (over 26 inch)

Mode	Coordinate		Temp	△uv
	X	Y		
Cool	0.277	0.278	11,000K	-0.0030
Medium	0.286	0.289	9300K	0.0000
Warm	0.313	0.329	6500K	+0.0030

▪ Standard color coordinate and temperature using CA-210(CH-17)

Mode	Coordinate		Temp	△uv
	X	Y		
Cool	0.277±0.002	0.278±0.002	11000K	-0.0030
Medium	0.286±0.002	0.289±0.002	9300K	0.0000
Warm	0.313±0.002	0.329±0.002	6500K	+0.0030

5.4. Tool Option setting & Inspection per countries

5.4.1. Overview

(1) Tool option selection is only done for models in Non-USA North America due to rating

5.4.2. Country Group selection

(1) Press ADJ key on the Adj. R/C, and then select Country Group Menu

(2) Depending on destination, select US, then on the lower Country option, select US, CA, MX.
Selection is done using +, - KEY

5.5. Magic Motion remote controller Check

- Equipment : RF Remocon for test, IR-KEY-Code Remocon for test
- You must confirm the battery power of RF-Remocon before test
(recommend that change the battery per every lot)
- Sequence (test)
  a) If you select the ‘start key(OK)’ on the controller, you can pairing with the TV SET.
  b) You can check the cursor on the TV Screen, when select the ‘OK Key’ on the controller
  c) You must remove the pairing with the TV Set by select ‘Mute + OK Key’ on the controller

*** Applied model**

Chassis	Model Name	Magic RF receiver
EA62E	OLED55/65E6-U	Built-in

5.6. 3D pattern test

(Pattern Generator MSHG-600, MSPG-6100 [SUPPORT HDMI1.4])

* HDMI mode NO. 872 , pattern No.83

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

Fig.1
<HDMI Mode 872번 , Pattern No. 83>

(2) When 3D OSD appear automatically , then select green button.

Fig.3
<OK Key>

(3) Don't wear a 3D Glasses, Check the picture like below

Fig.2

5.7. Option selection per country

5.7.1. Overview

▪ Option selection is only done for models in AJ/JA/IL

5.7.2. Method

(1) Press ADJ key on the Adj. R/C, then select Country Group Meun

(2) Depending on destination, select Country Group Code or Country Group then on the lower Country option, select US, CA, MX. Selection is done using +, - or ►◄KEY

5.8. HDMI ARC Function Inspection

5.8.1. Test equipment

- Optic Receiver Speaker
- MSHG-600 (SW: 1220 ↑)
- HDMI Cable (for 1.4 version)

5.8.2. Test method

(1) Insert the HDMI Cable to the HDMI ARC port from the master equipment (HDMI2)

(2) Check the sound from the TV Set

(3) Check the Sound from the Speaker or using AV & Optic TEST program (It's connected to MSHG-600)

5.9. Tool Option Inspection

(1) Press Adj. key on the Adj. R/C, and then check Tool option

5.10. Ship-out mode check (In-stop)

▪ After final inspection, press In-Stop key of the Adj. R/C and check that the unit goes to Stand-by mode

6. GND and Internal Pressure check

6.1. Method

(1) GND & Internal Pressure auto-check preparation
- Check that Power Cord is fully inserted to the SET. (If loose, re-insert)

(2) Perform GND & Internal Pressure auto-check
- Unit fully inserted Power cord, Antenna cable and A/V arrive to the auto-check process.
- Connect D-terminal to AV JACK TESTER
- Auto CONTROLLER(GWS103-4) ON
- Perform GND TEST
- If NG, Buzzer will sound to inform the operator.
- If OK, changeover to I/P check automatically. (Remove CORD, A/V form AV JACK BOX)
- Perform I/P test
- If NG, Buzzer will sound to inform the operator.
- If OK, Good lamp will lit up and the stopper will allow the pallet to move on to next process.

6.2. Checkpoint

(1) Test voltage
- GND: 1.5KV/min at 100mA
- SIGNAL: 3KV/min at 100mA

(2) TEST time: 1 second

(3) TEST POINT
- GND Test = POWER CORD GND and SIGNAL CABLE GND.
- Hi-pot Test = POWER CORD GND and LIVE & NEUTRAL.

(4) LEAKAGE CURRENT: At 0.5mArms

7. AUDIO output check

No	Item	Min	Typ	Max	Unit	Remark
1	Audio practical max Output, L/R (Distortion=10% max Output)	9	10	12	W	EQ Off AVL Off Clear Voice Off
		6.07	8.10	10.8	Vrms	
2	Speaker (8Ω Impedance)	9	10	12	W	EQ On AVL On Clear Voice On

*Measurement condition:
(1) RF input: Mono, 1KHz sine wave signal, 100% Modulation
(2) CVBS, Component: 1KHz sine wave signal (0.4Vrms)

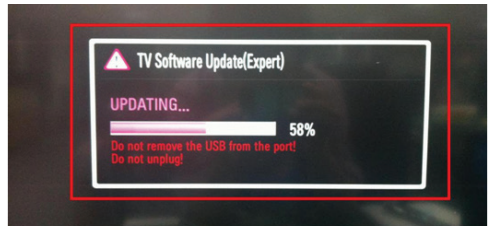
8. USB S/W Download (optional, Service only)

(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 lower than that of TV set, it didn't work. Otherwise USB data is automatically detected.

(3) Show the message "Copying files from memory"

(4) Updating is staring



(5) Updating Completed, The TV will restart automatically

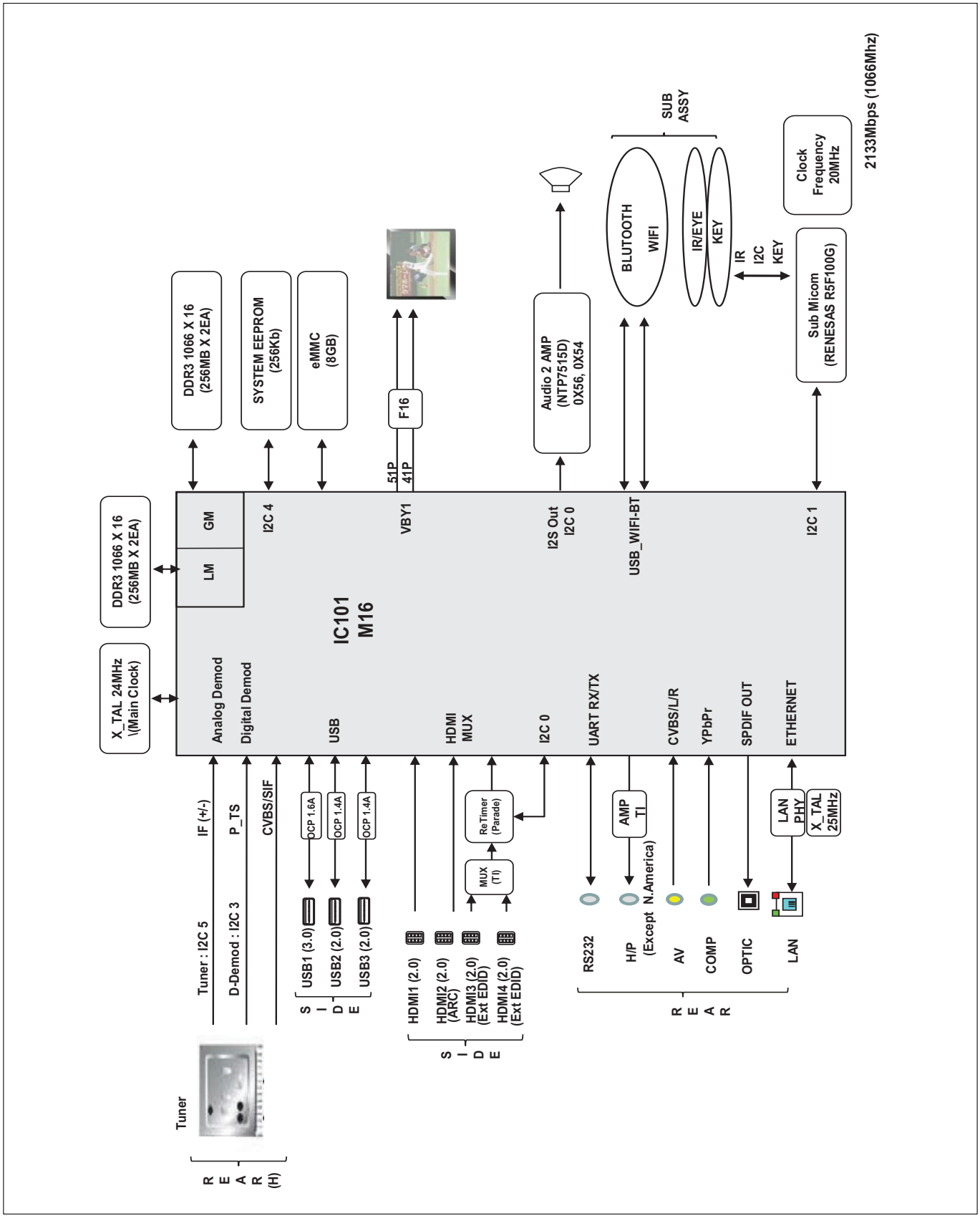
(6) If your TV is turned on, check your updated version and Tool option.

* If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. If all channel data is cleared, you didn't have a DTV/ATV test on production line.

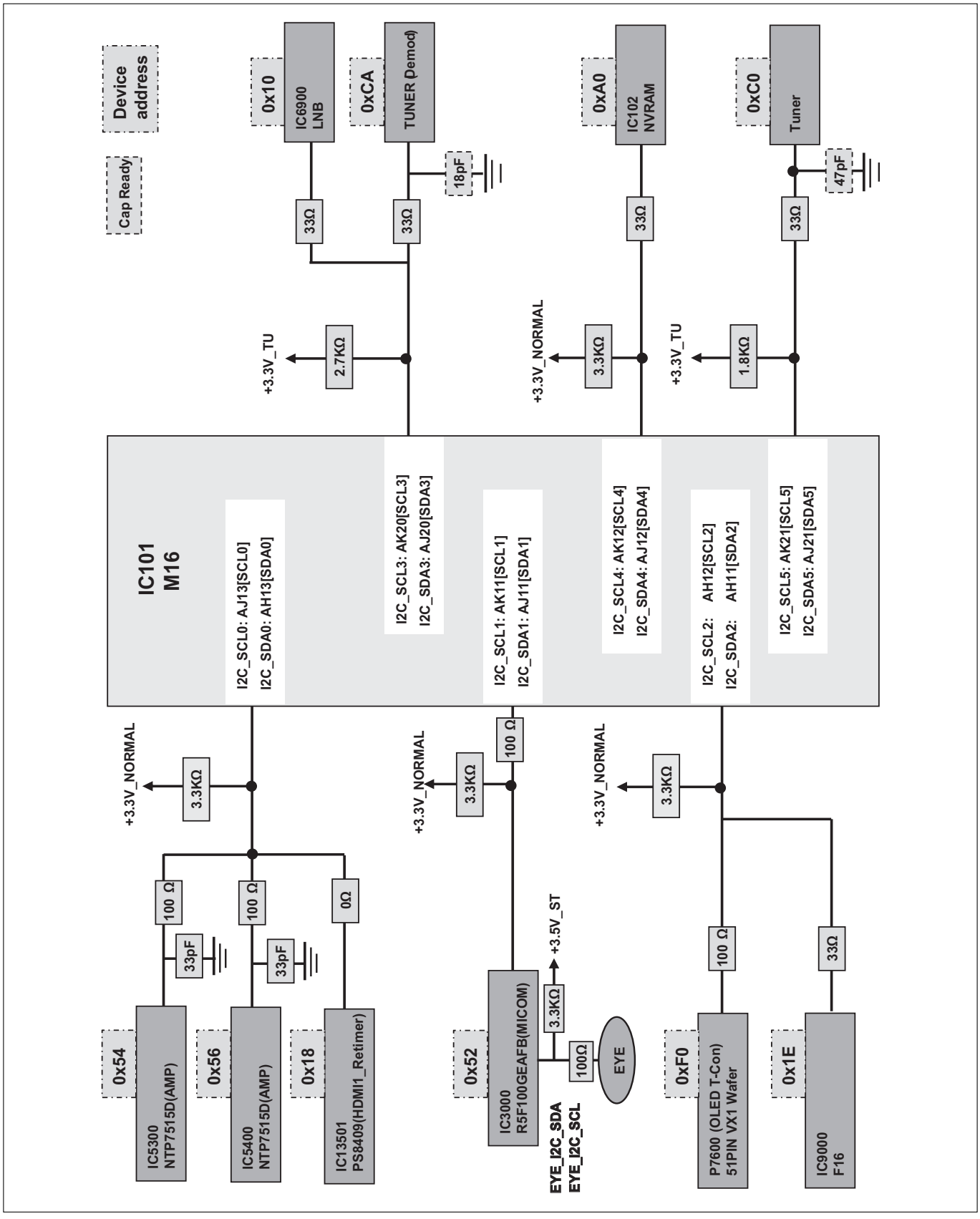
* After downloading, TOOL OPTION setting is needed again.
(1) Push "IN-START" key in service remote controller.
(2) Select "Tool Option 1" and Push "OK" button.
(3) Punch in the number. (Each model has their number.)

BLOCK DIAGRAM

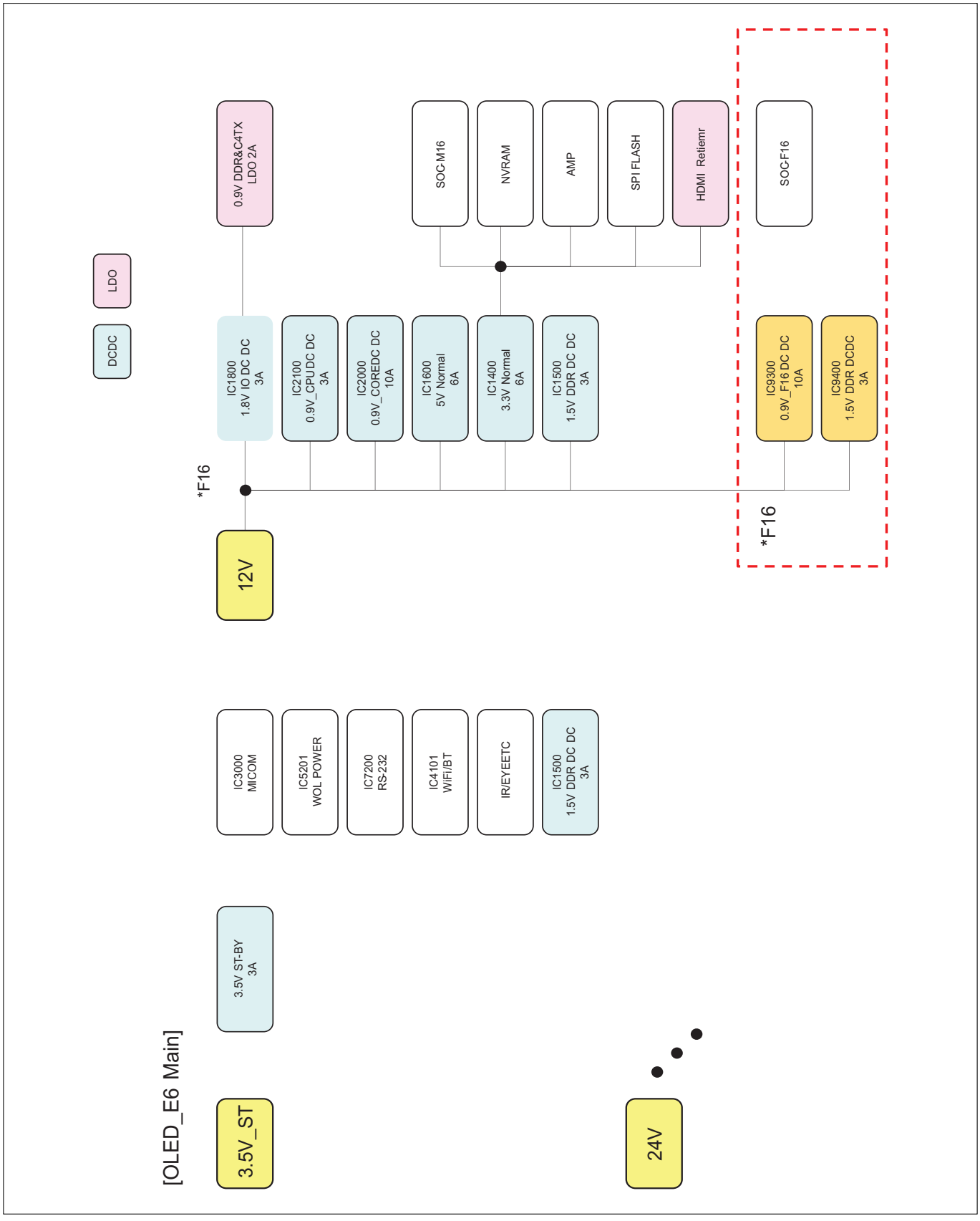
1. M16 Block Diagram



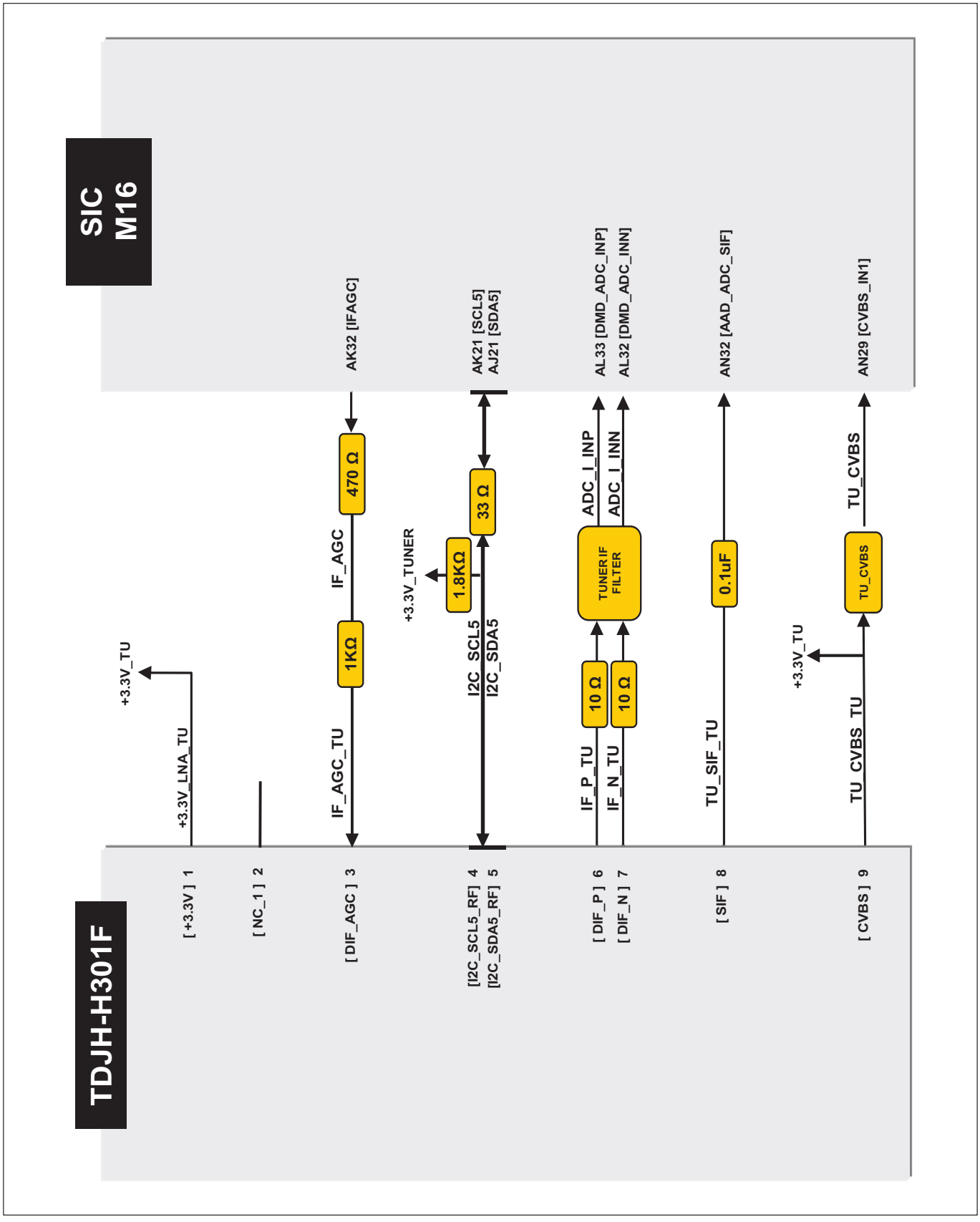
2. M16 I2C Map



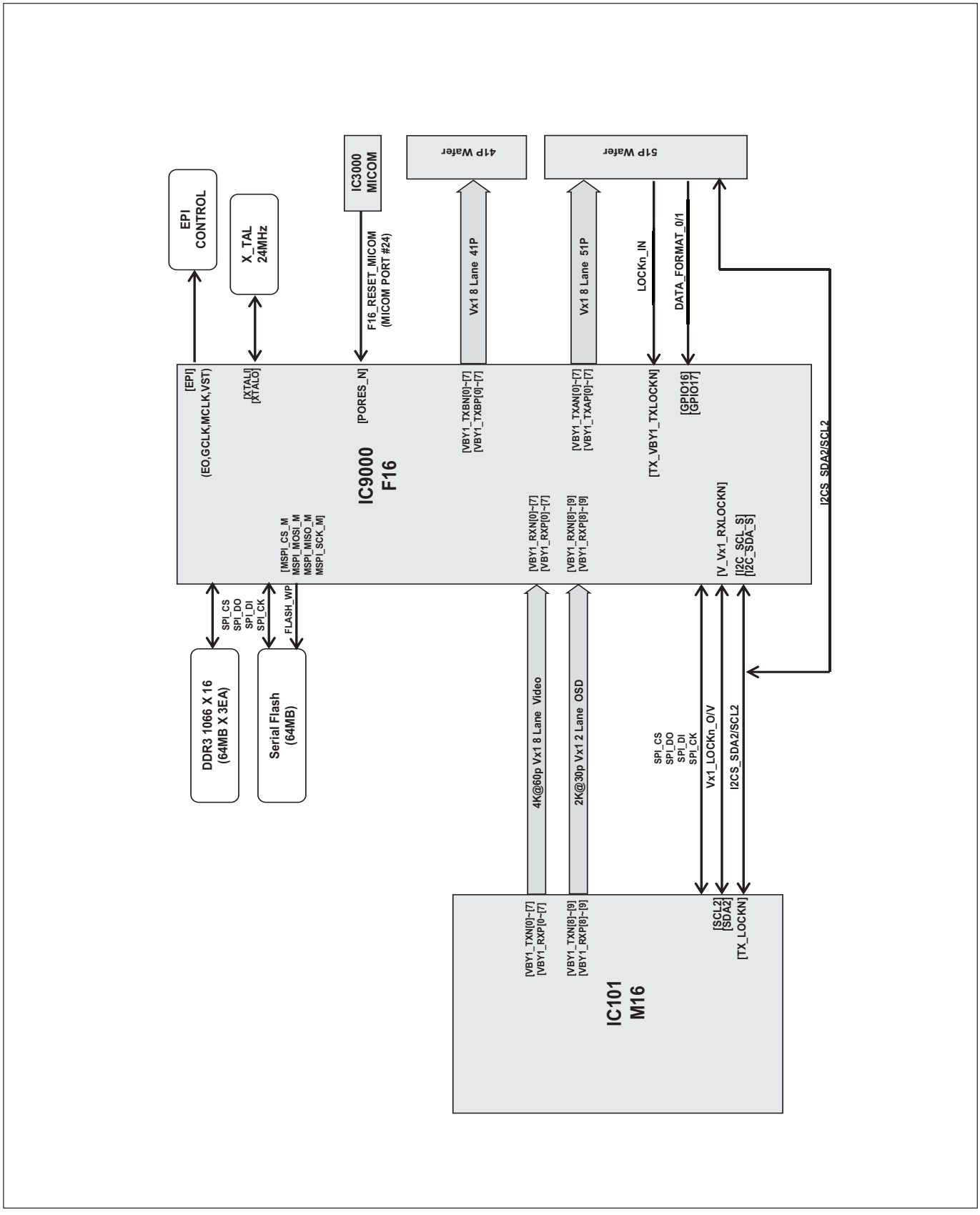
3. Power Block Diagram



4. Tuner Diagram



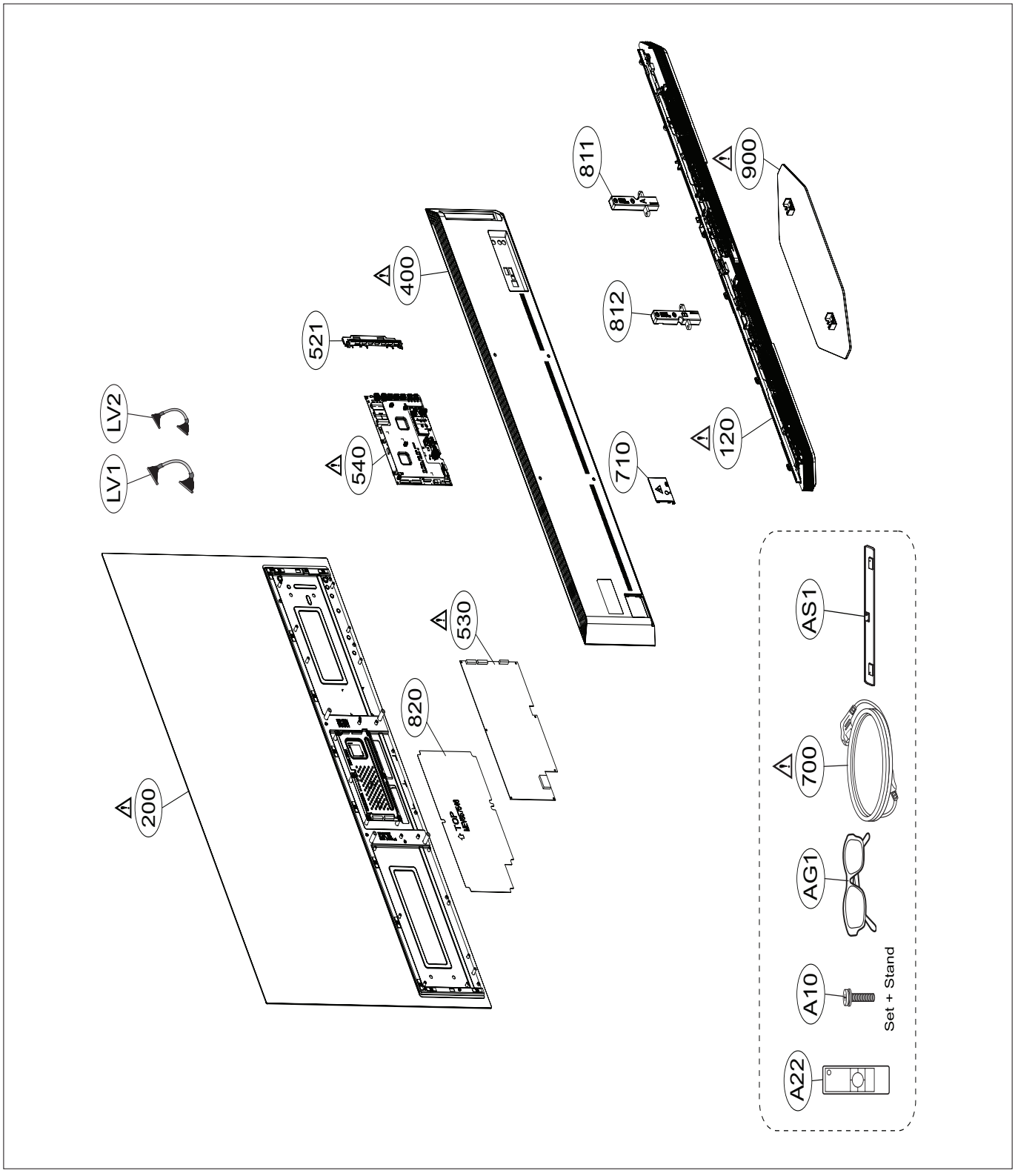
5. F16 Block Diagram



EXPLODED VIEW

IMPORTANT SAFETY NOTICE

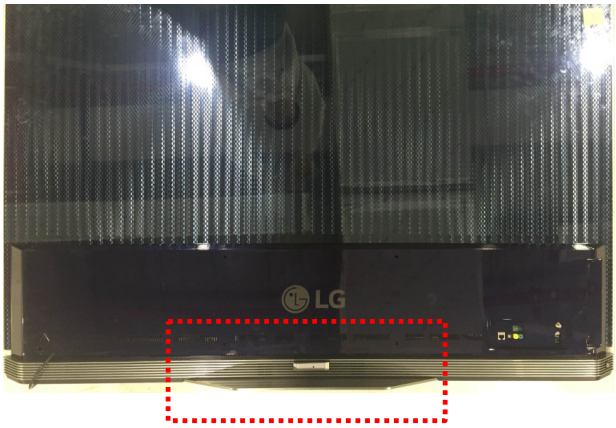
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent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



ASSEMBLY / DISASSEMBLY

■ OLED55/65E6 Disassembly Guide

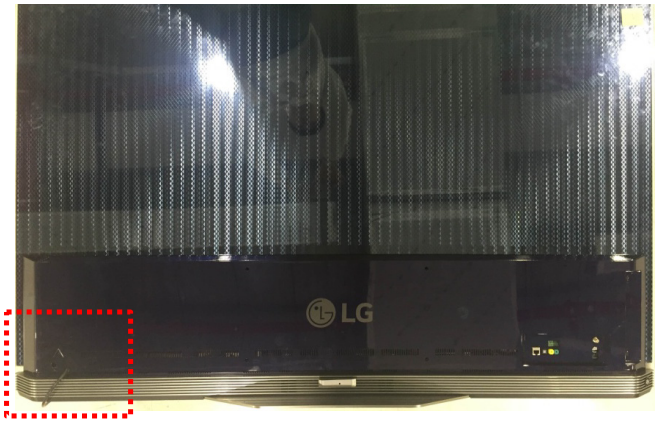
1. Disassemble Stand

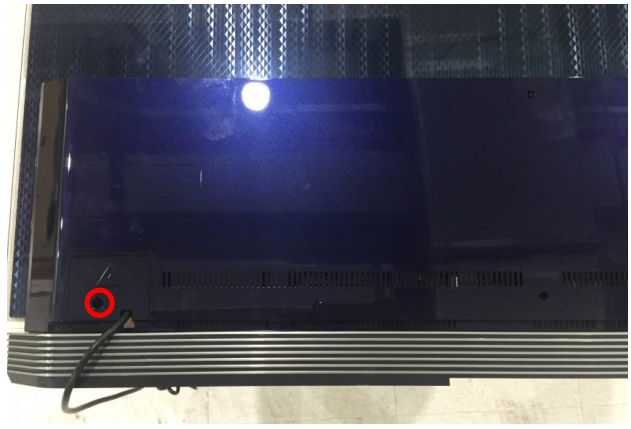


○ FAB30016131 (M4*20mm, Black) 4EA

(1) Remove the screws (4EA)
(2) Grasp the top&bottom side(⬭) and pull in the direction of arrow(⇩)
(3) Separate the stand

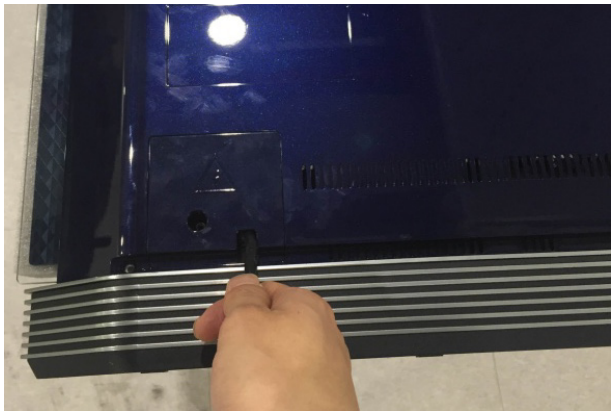
2. Disassemble Power Cord Bracket

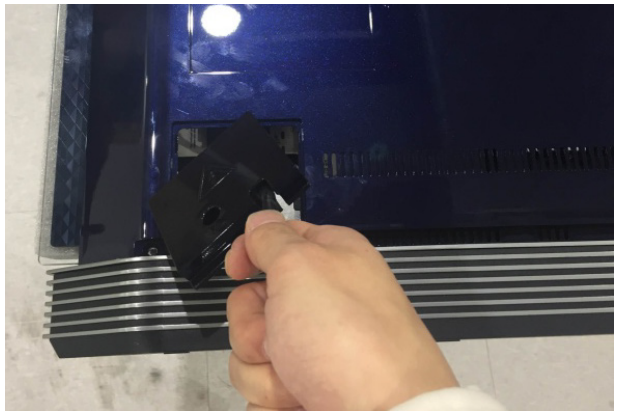




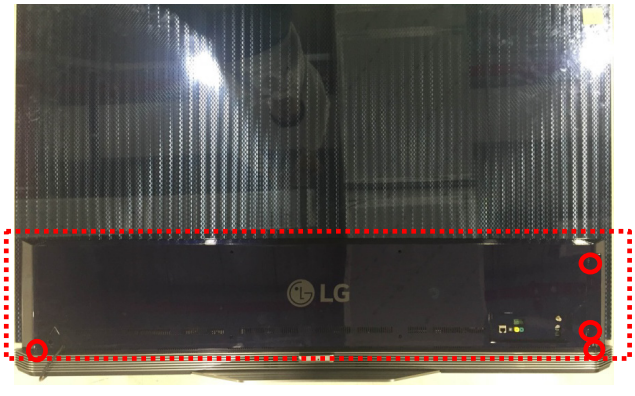
○ FAB30006104 (M4*10mm, Black) 1EA

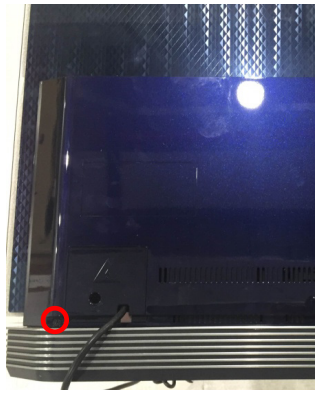
(1) Remove the screw (1EA)
(2) Lift the power cord and separate the power cord bracket
(3) Separate the power cord and board

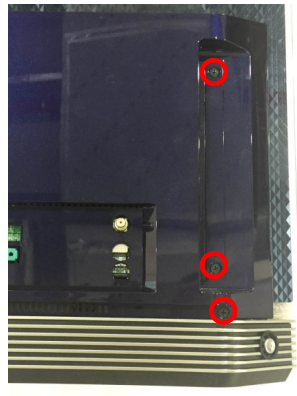




3. Disassemble Back Cover

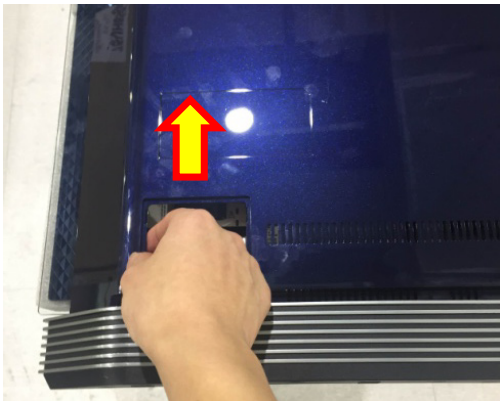




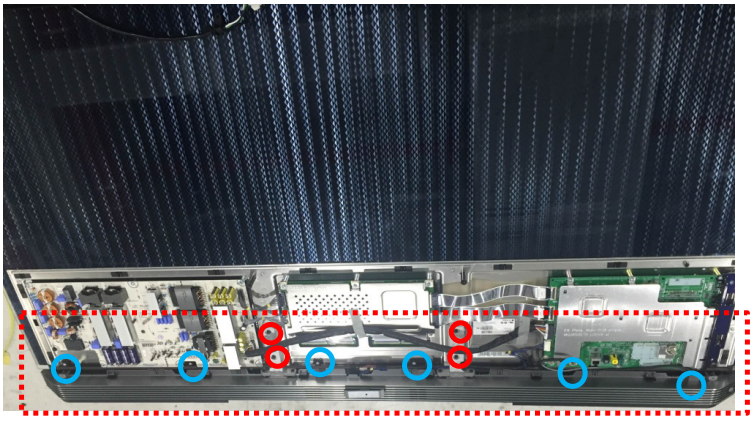


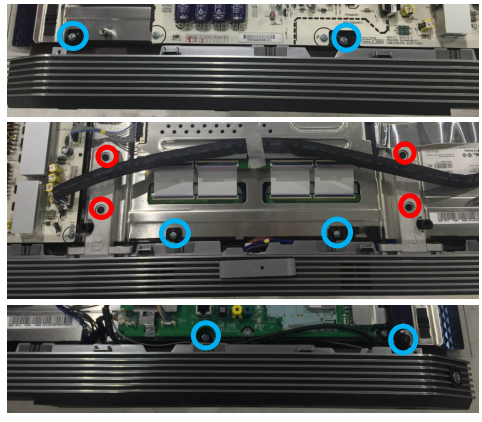
FAB30006104 (M4*10mm, Black) 4EA

(1) Remove the screws (4EA)
(2) Grasp the left side of back cover and lift the back cover
(3) Separate the back cover



4. Disassemble Back Cover

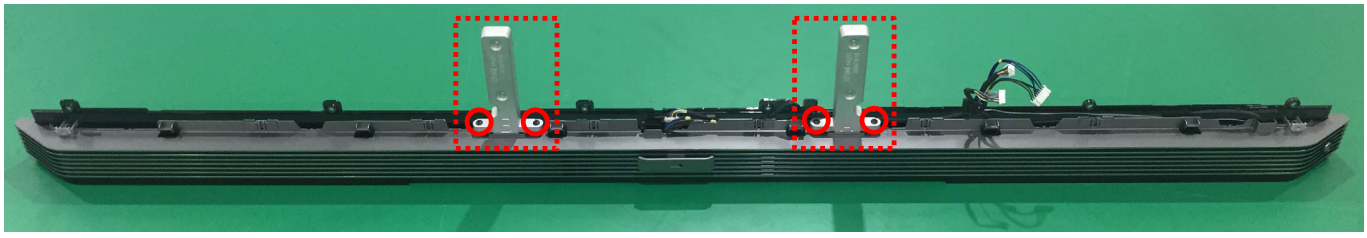




FAB30016103 (M4*12mm, Black) 4EA
FAB32418704 (M3*5.5mm, Gray) 6EA

(1) Remove the screws (10EA)
(2) Separate the speaker box assy

5. Disassemble Stand Supporter Bracket

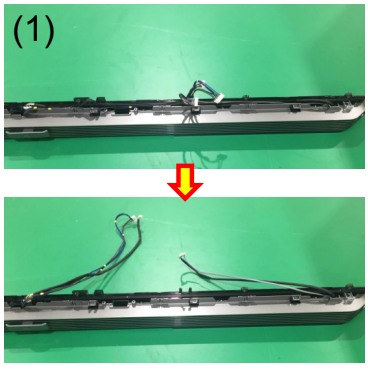


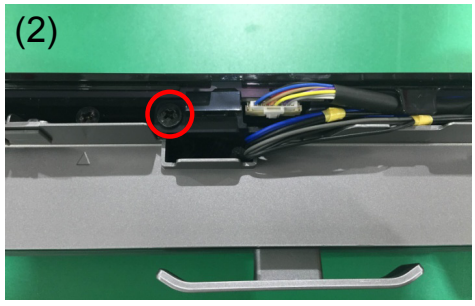
○ FAB31639801(M4*10mm, Black) 4EA

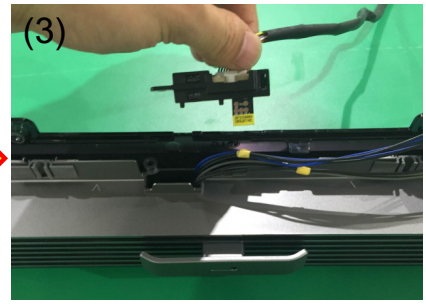
(1) Remove the screws (4EA)
(2) Separate the stand supporter bracket

6. Disassemble IR Bracket & Separate the Cable

(1) Separate the cable
(2) Remove the screw (1EA)
(3) Separate the IR bracket

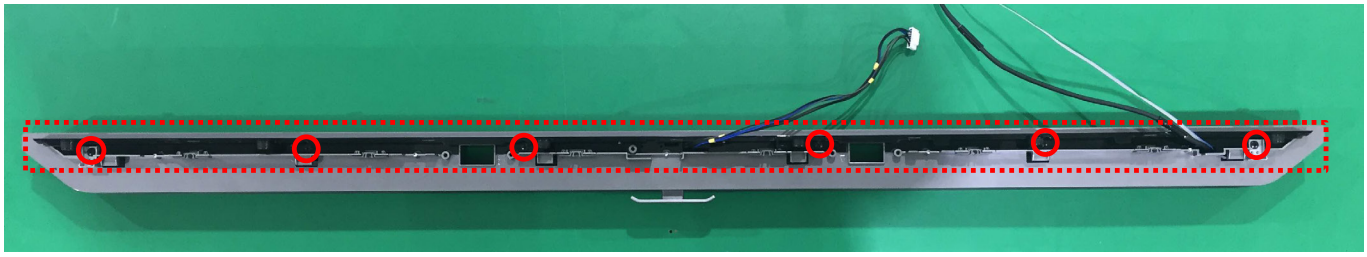






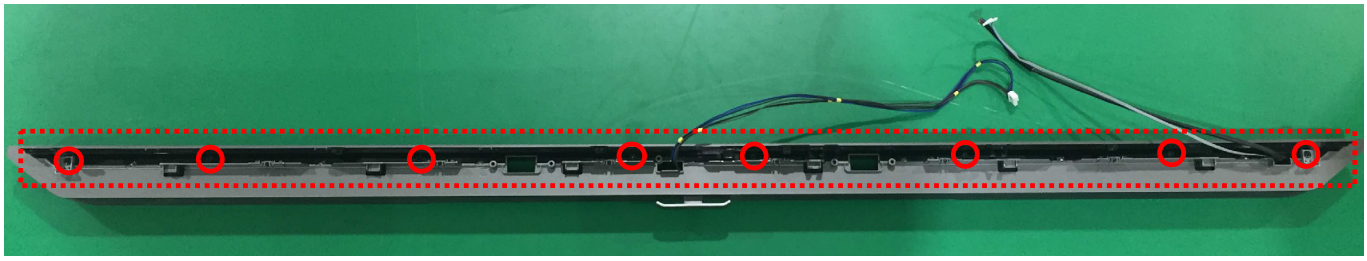
7. Disassemble Bottom Deco

- 55E6



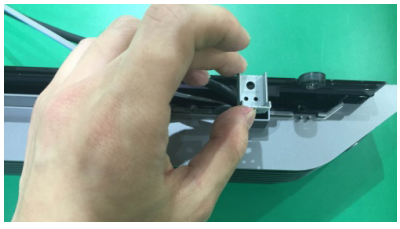
FAB31639801(M4*10mm, Black) 6EA

- 65E6

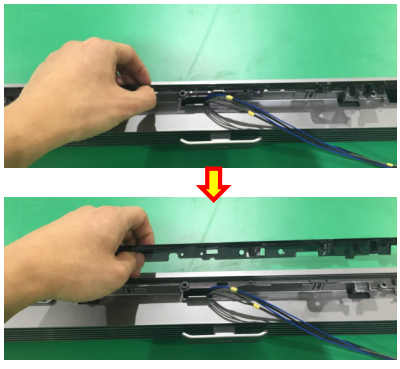


FAB31639801(M4*10mm, Black) 8EA

(1) Remove the screws
(2) Separate the fixer (End of left & right side)



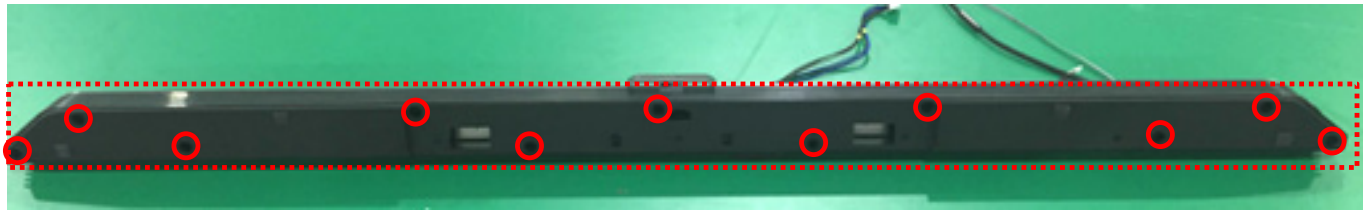
(3) Grasp the center of bottom deco and push in the direction of front



(4) Separate the bottom deco after lift it

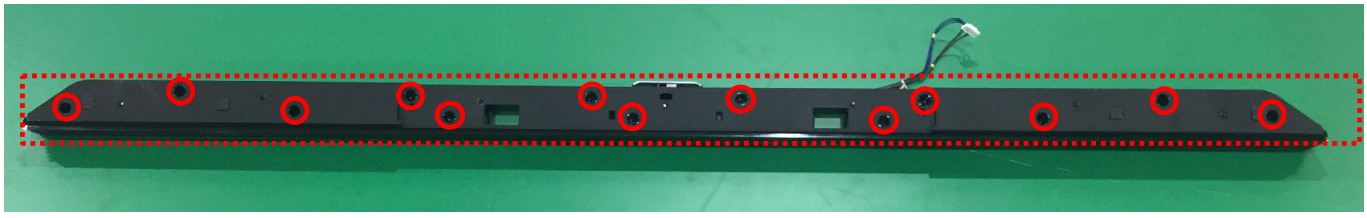
8. Disassemble Speaker Box Top

- 55E6



FAB31639801(M4*10mm, Black) 11EA

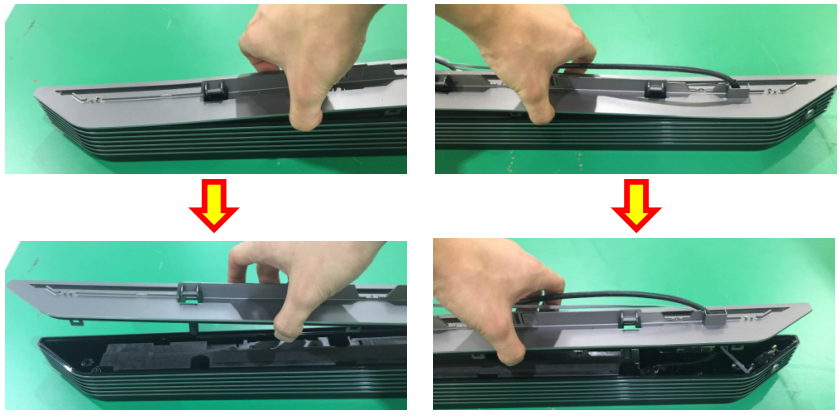
- 65E6



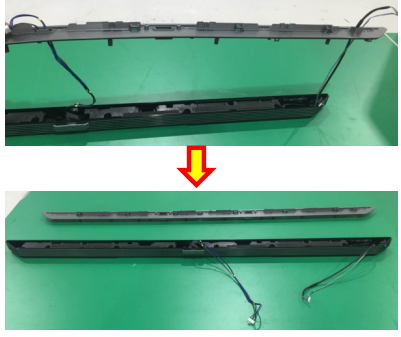
FAB31639801(M4*10mm, Black) 13EA

(1) Remove the screws

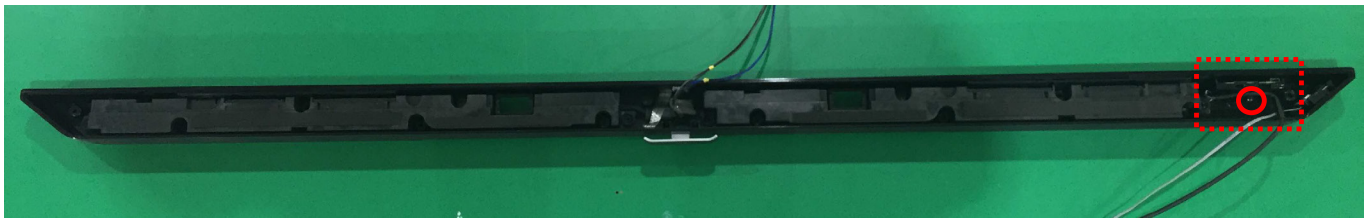
(2) Lift the speaker box top after grasp the center
(3) Lift the speaker box top after grasp the end side



(4) Separate speaker box top after remove the cable through the hole

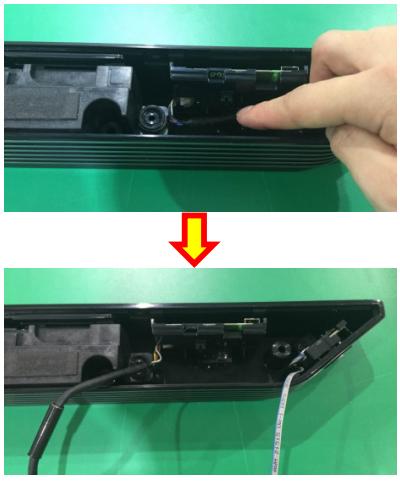


9. Disassemble Wifi Bracket

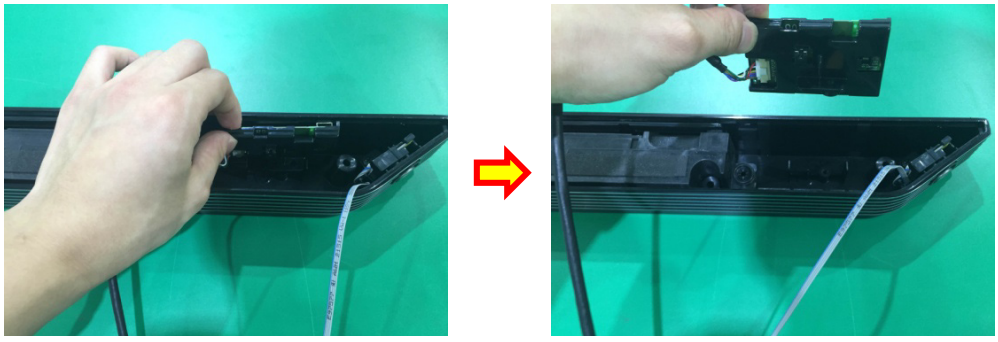


O FAB31639801(M4*10mm, Black) 1EA

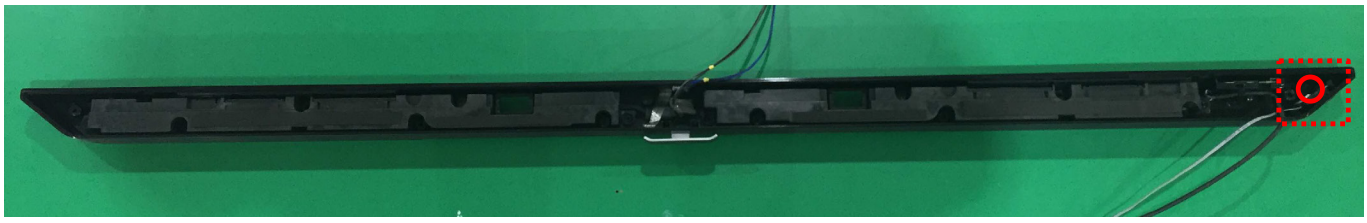
(1) Push the wifi cable in the direction of bottom side and disconnect it from the latch



(2) Remove the screw (1EA)
(3) Grasp and Lift the wifi bracket and separate it

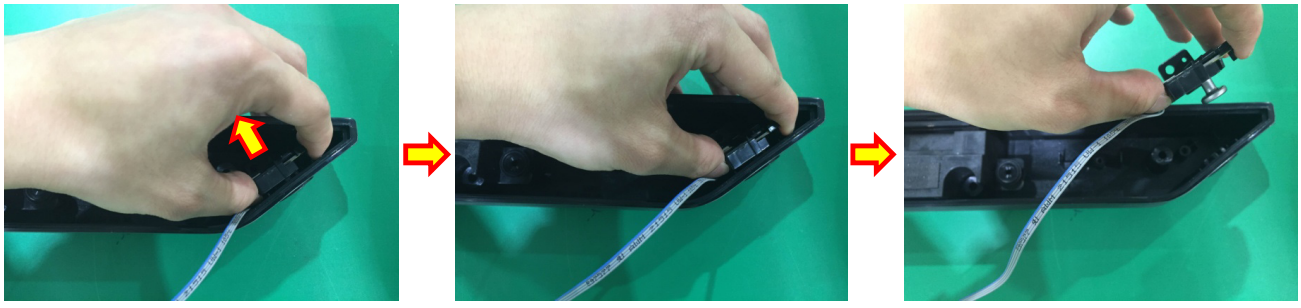


10. Disassemble Joystick Bracket



○ FAB31639801(M4*10mm, Black) 1EA

(1) Remove the screw (1EA)
(2) Pull the joystick bracket in direction of front



(3) Remove the jog from the hole
(4) Grasp and Lift the joystick bracket and separate it

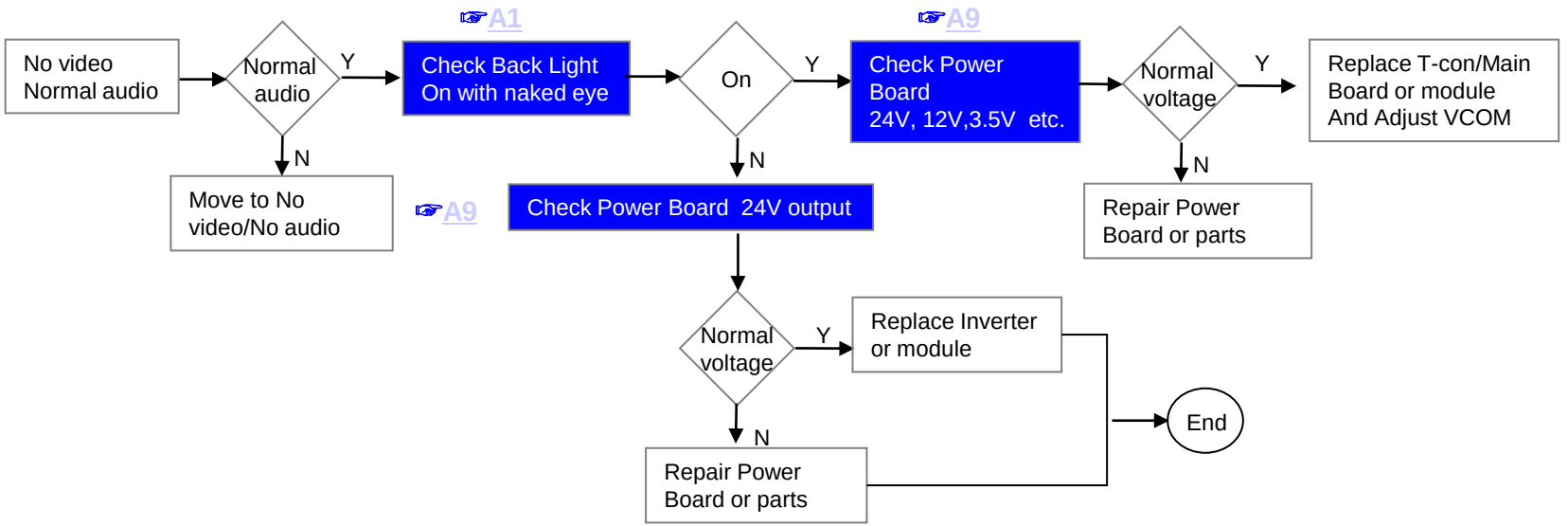
TROUBLE SHOOTING GUIDE

Contents of Standard Repair Process

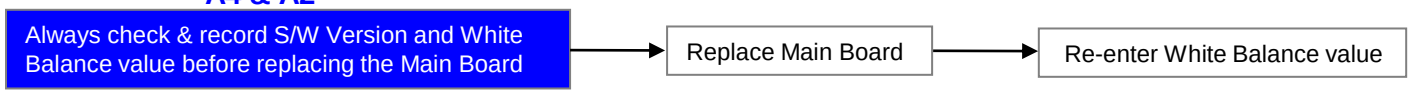
First of all, Check whether there is SVC Bulletin in GSCS System for these model.

OLED TV	Error symptom	A. Video error	Established date		
		No video/ Normal audio	Revised date		1/16

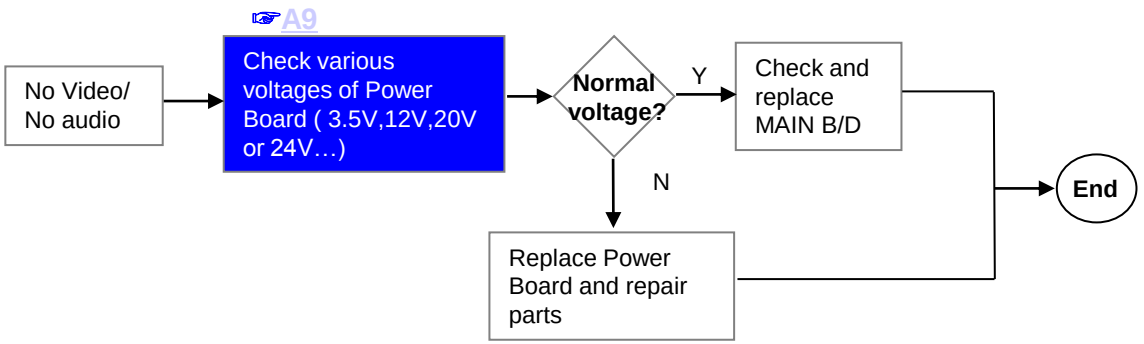
First of all, Check whether all of cables between board is inserted properly or not.
(Main B/D↔ Power B/D, LVDS Cable, Speaker Cable, IR B/D Cable,,,)



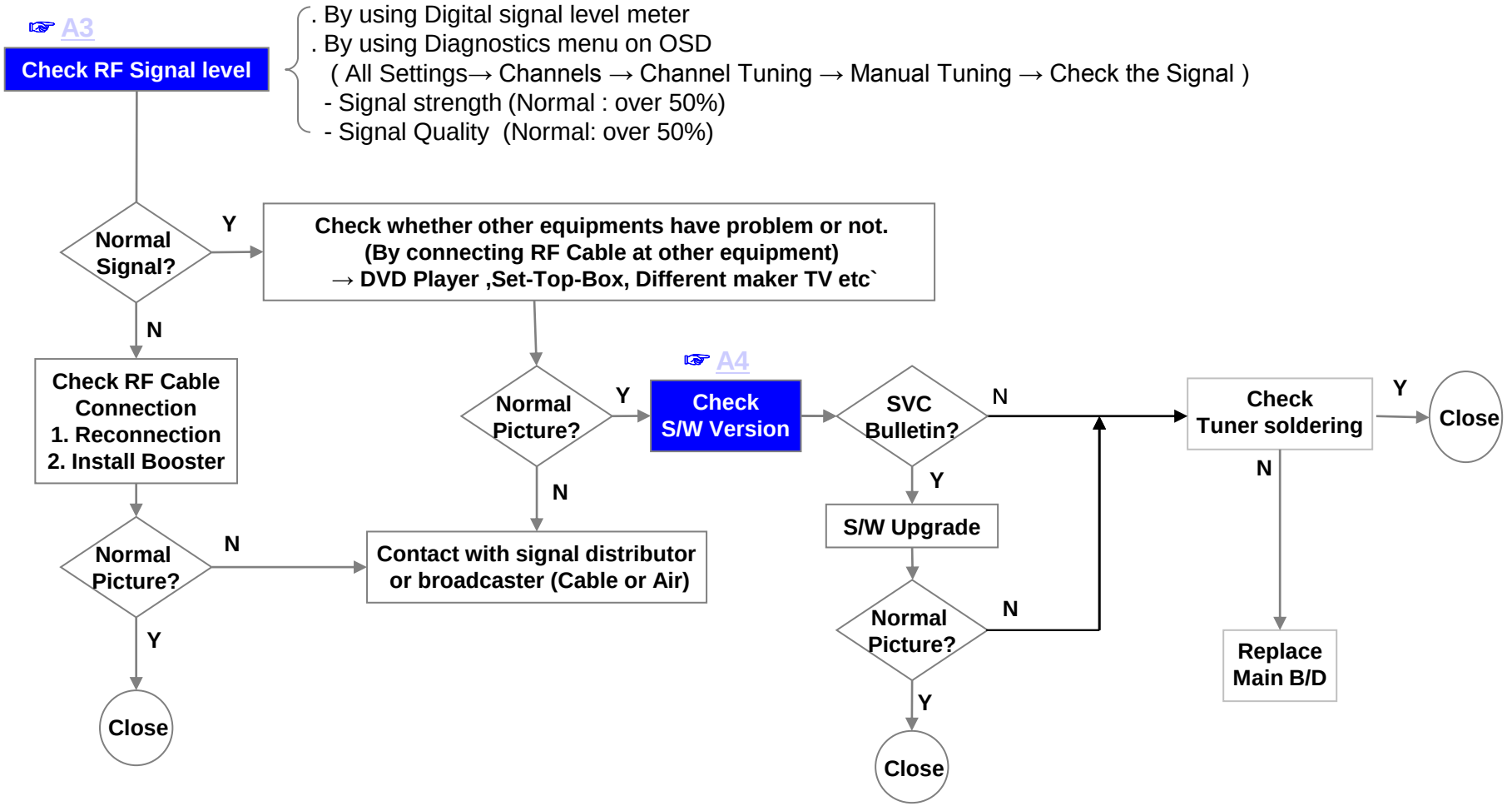
※Precaution ☞A4 & A2

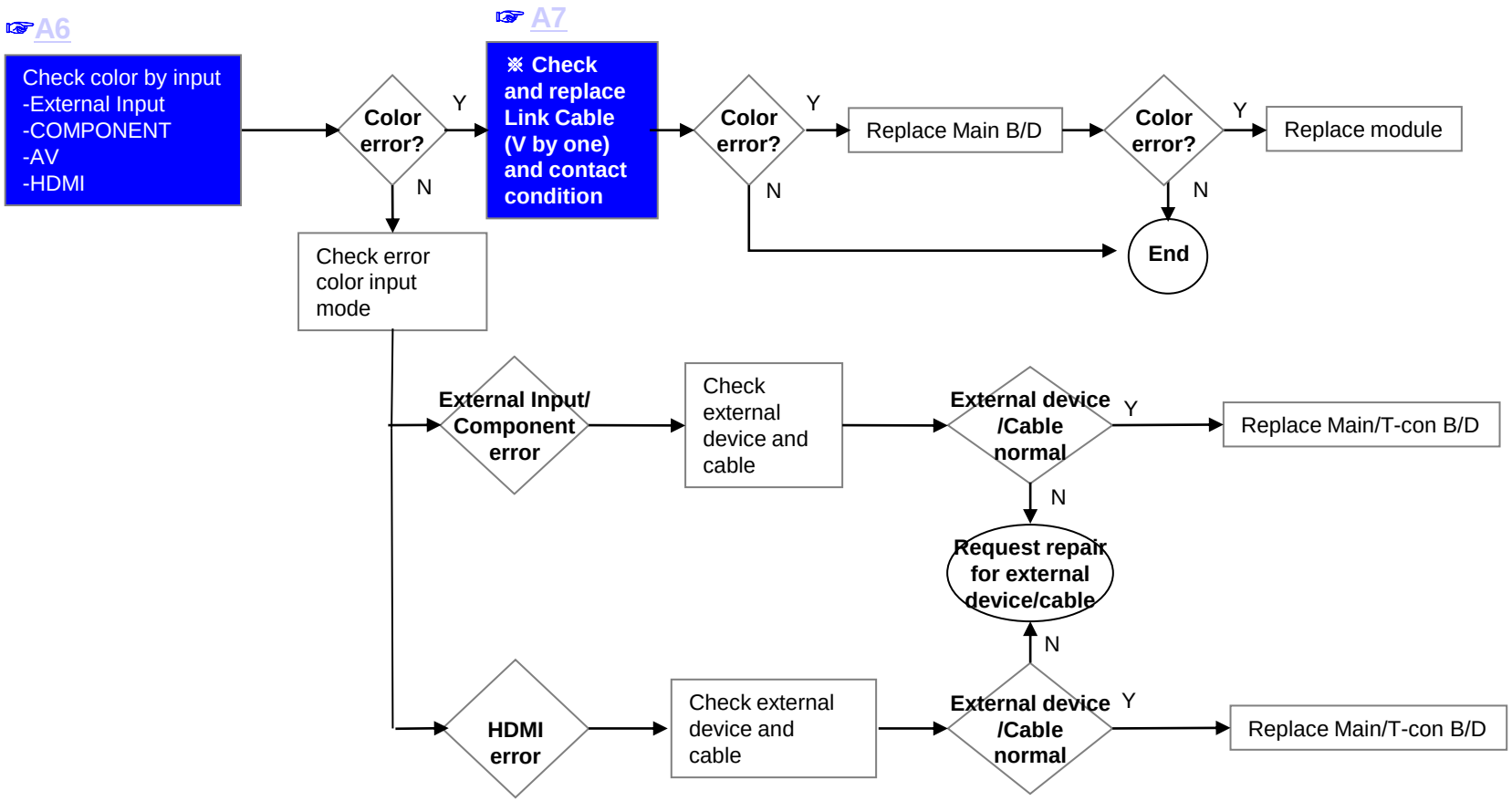


OLED TV	Error symptom	A. Video error	Established date		
		No video/ No audio	Revised date		2/16



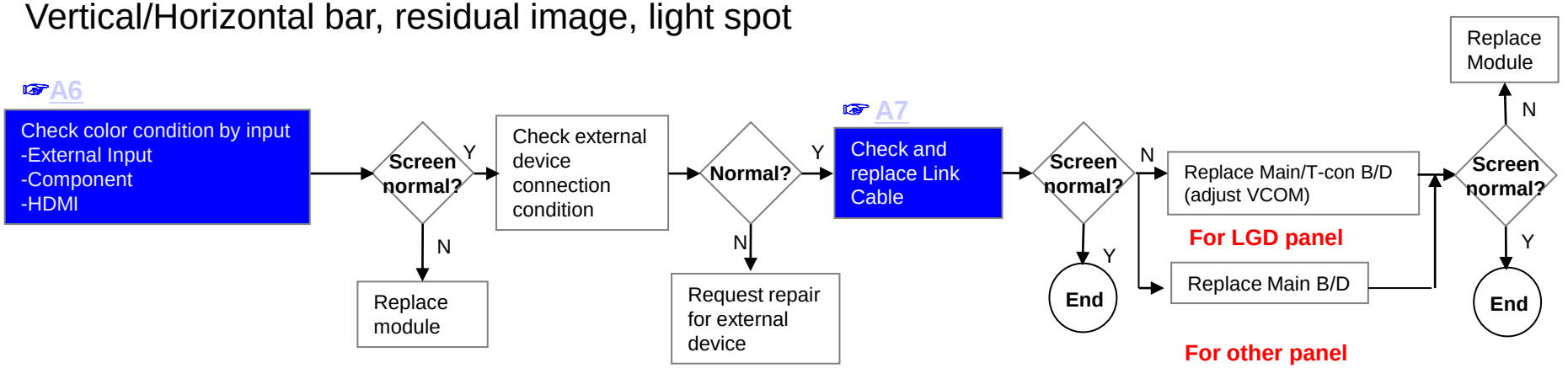
OLED TV	Error symptom	A. Video error	Established date		
		Picture broken/ Freezing	Revised date		3/16



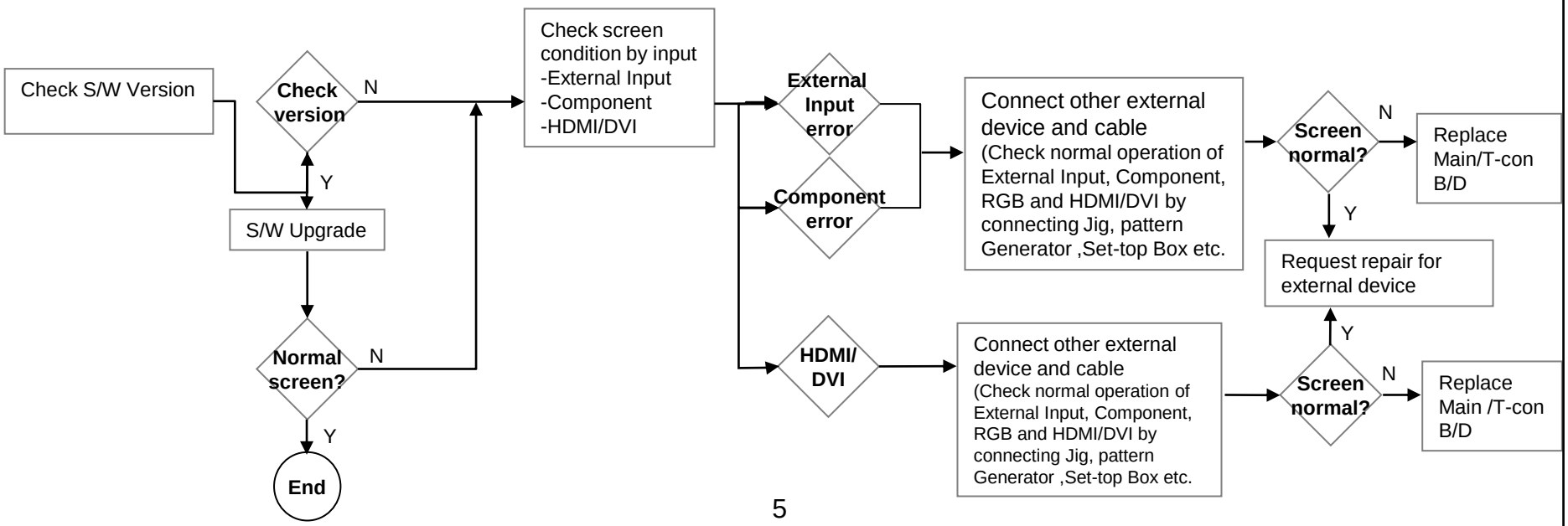


OLED TV	Error symptom	A. Video error	Established date		
		Vertical / Horizontal bar, residual image, light spot, external device color error	Revised date		5/16

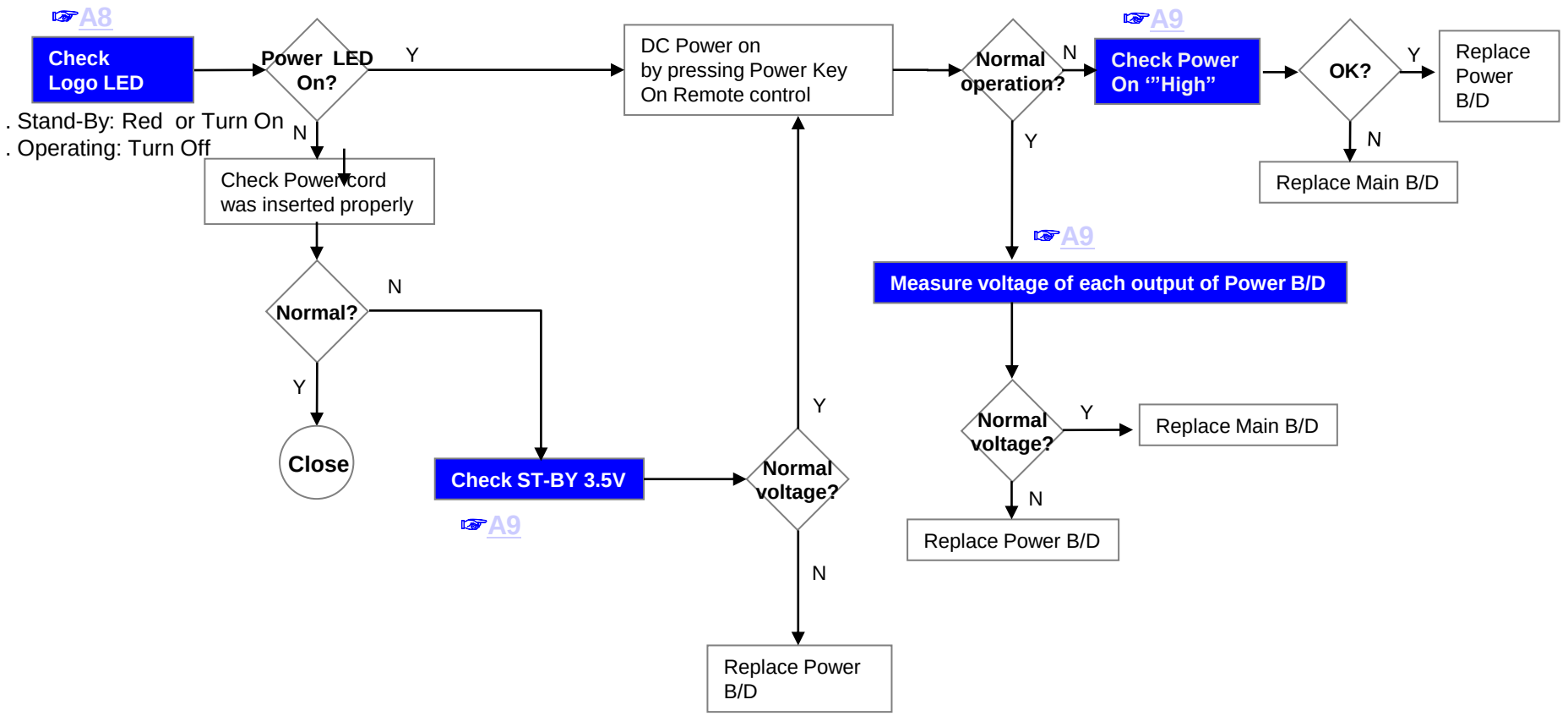
Vertical/Horizontal bar, residual image, light spot



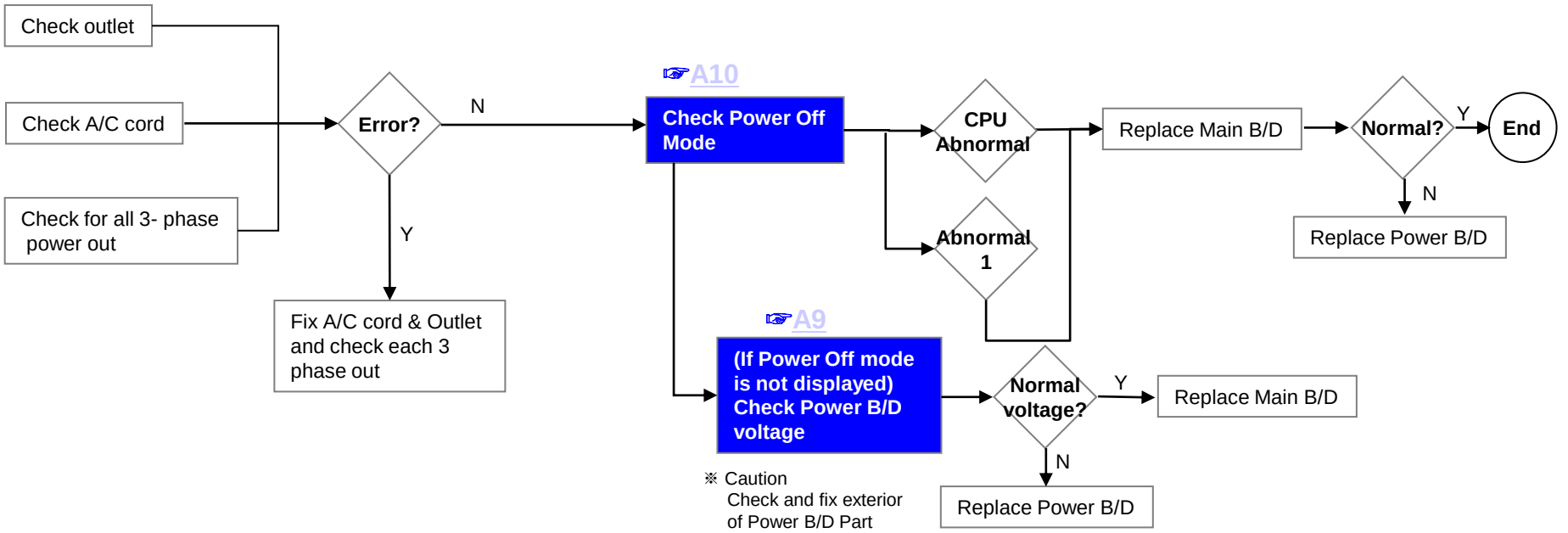
External device screen error-Color error



OLED TV	Error symptom	B. Power error	Established date		
		No power	Revised date		6/16



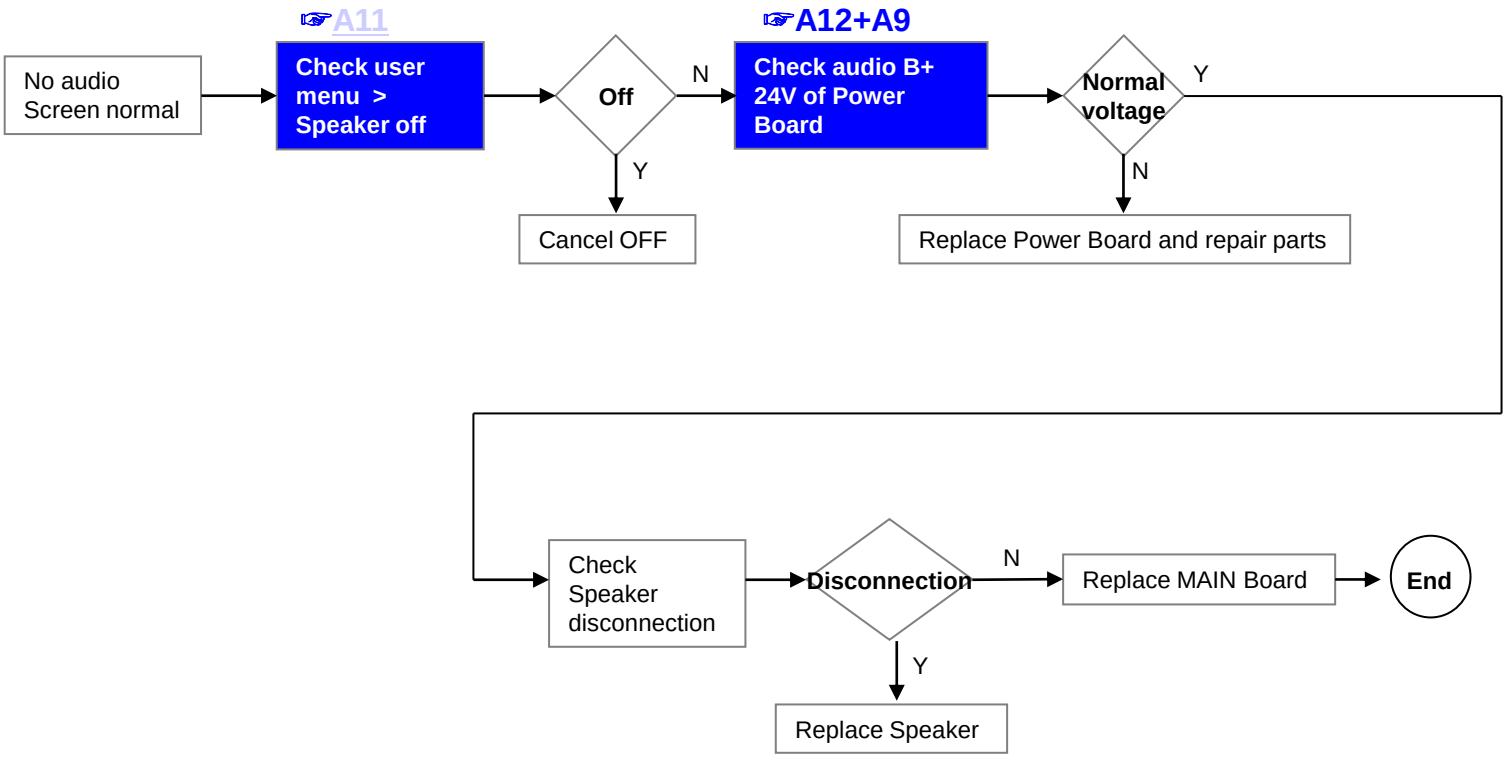
OLED TV	Error symptom	B. Power error	Established date		
		Off when on, off while viewing, power auto on/off	Revised date		7/16



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

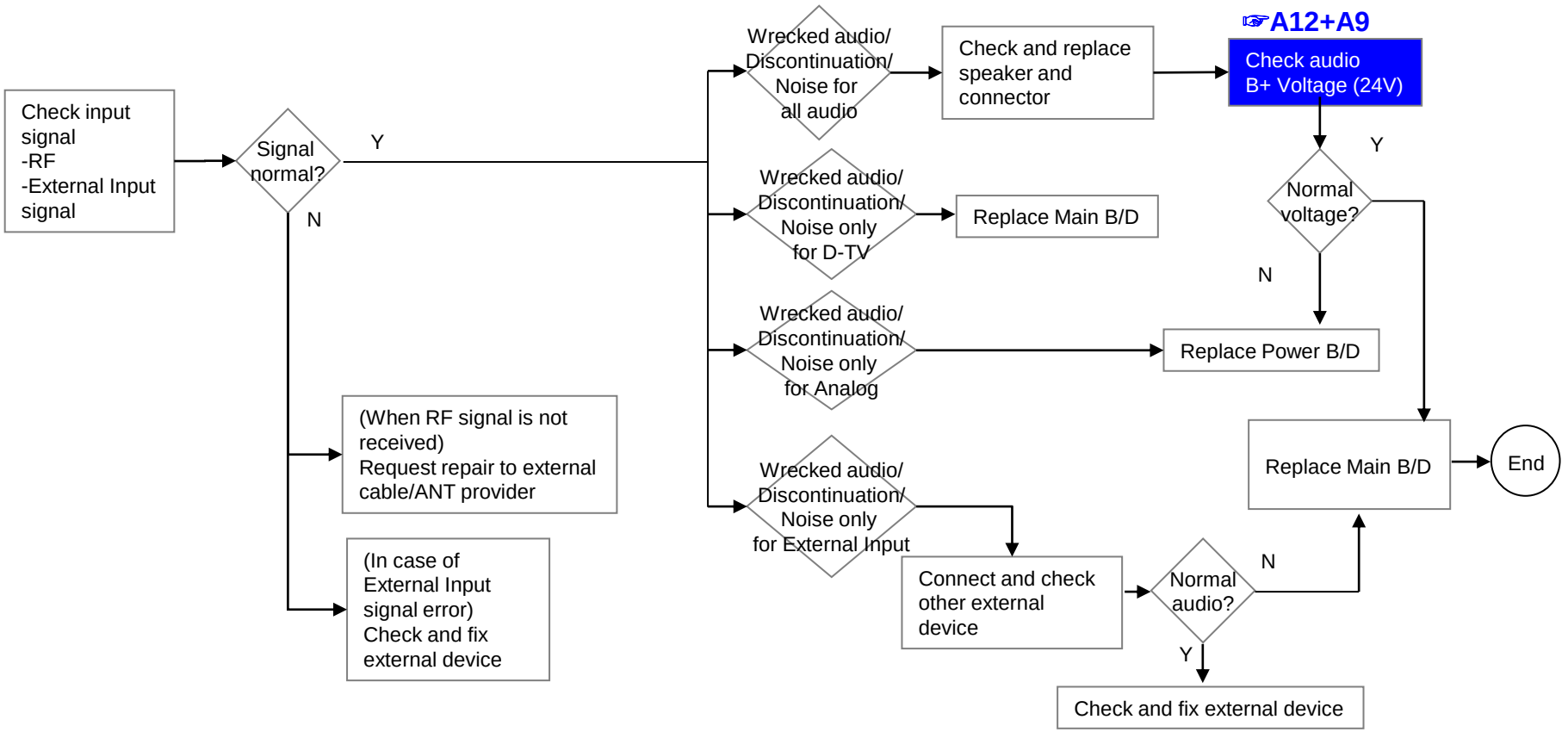
Status	Power off List	Explanation
Normal	"POWER_OFF_BY_REMOTE_KEY"	Power off by REMOTE CONTROL
	"POWER_OFF_BY_OFF_TIMER"	Power off by OFF TIMER
	"POWER_OFF_BY_SLEEP_TIMER"	Power off by SLEEP TIMER
	"POWER_OFF_BY_INSTOP"	Power off by INSTOP KEY
	"POWER_OFF_BY_AUTO_OFF"	Power off by AUTO OFF
	"POWER_OFF_BY_ON_TIMER"	Power off by ON TIMER
	"POWER_OFF_BY_RS232C"	Power off by RS232C
	"POWER_OFF_BY_RESREC"	Power off by Reservated Record
	"POWER_OFF_BY_RECEND"	Power off by End of Recording
	"POWER_OFF_BY_SW_DW"	Power off by S/W Download
	"POWER_OFF_BY_UNKNOWN"	Power off by unknown status except listed case
Abnormal	"POWER_OFF_BY_CPU_ABN"	Power off by CPU Abnormal

OLED TV	Error symptom	C. Audio error	Established date		
		No audio/ Normal video	Revised date		8/16



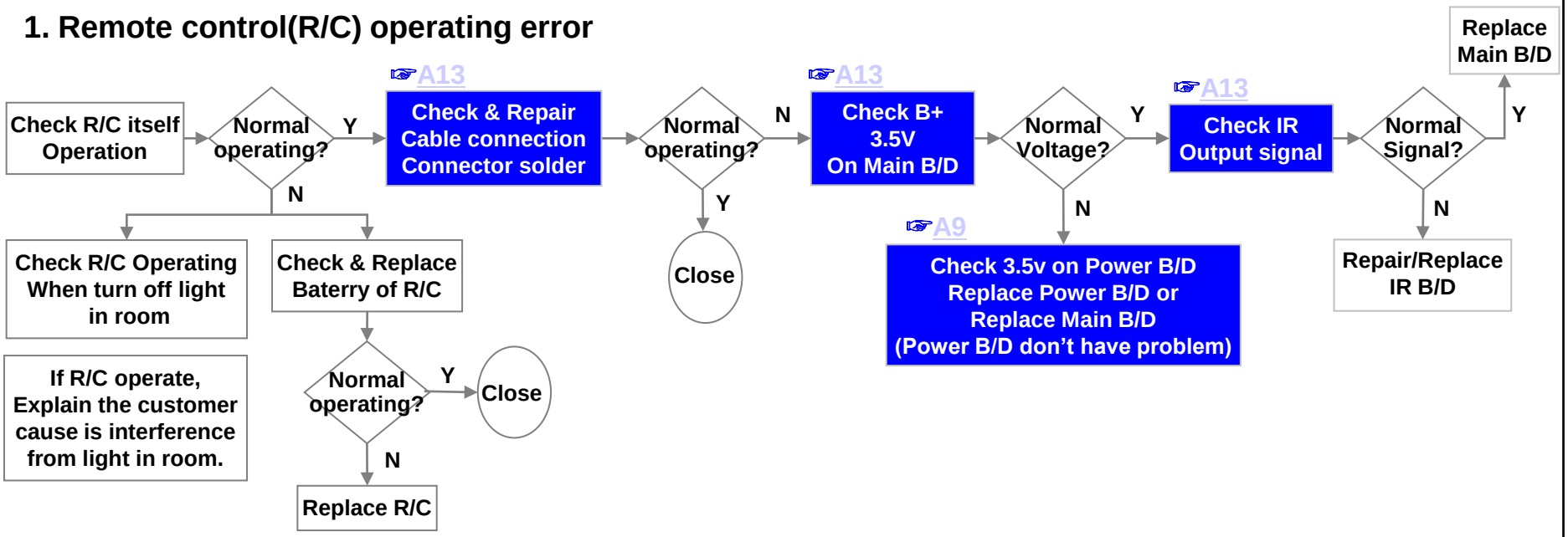
OLED TV	Error symptom	C. Audio error	Established date		
		Wrecked audio/ discontinuation/noise	Revised date		9/16

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

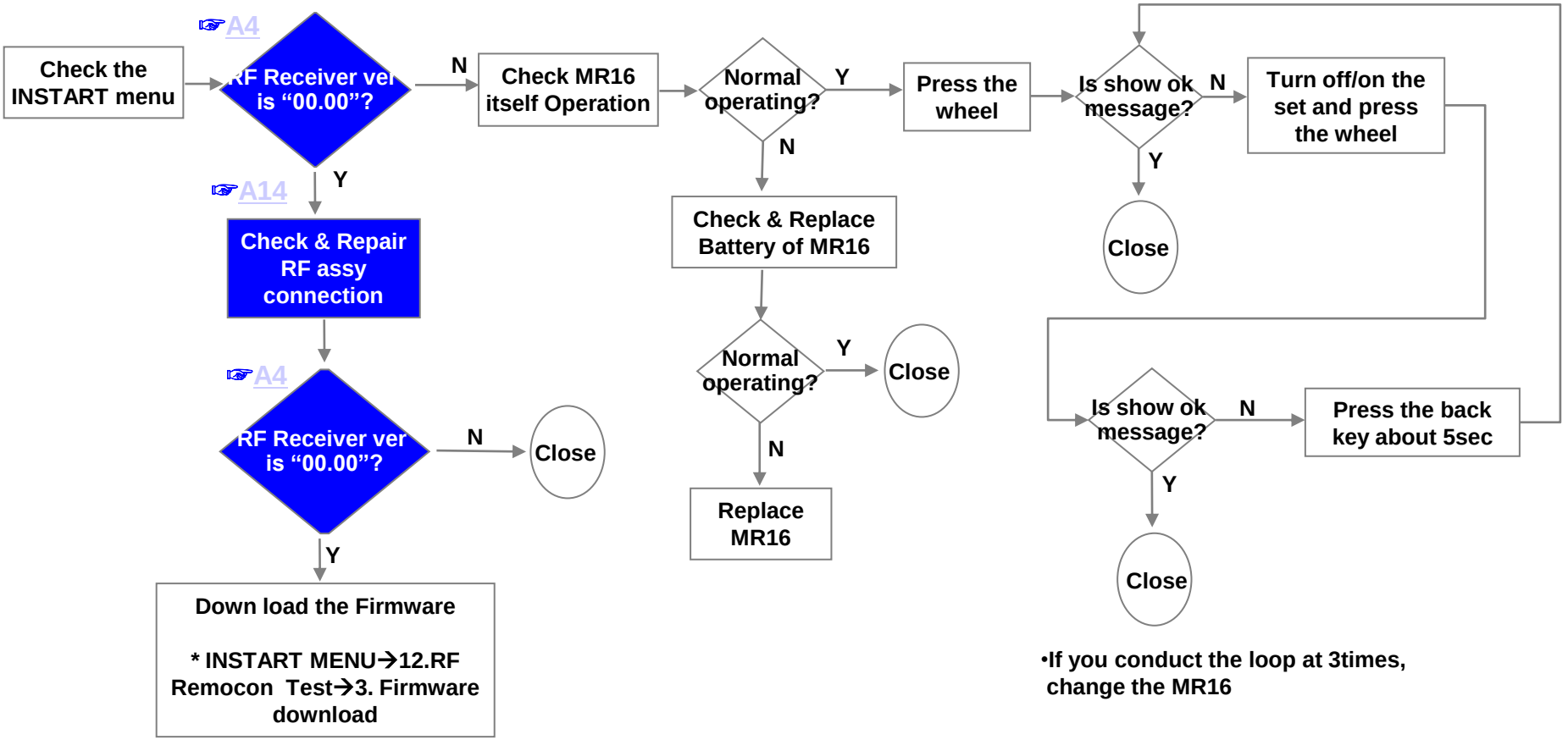


OLED TV	Error symptom	D. Function error	Established date		
		Remote control & Local switch checking	Revised date		10/16

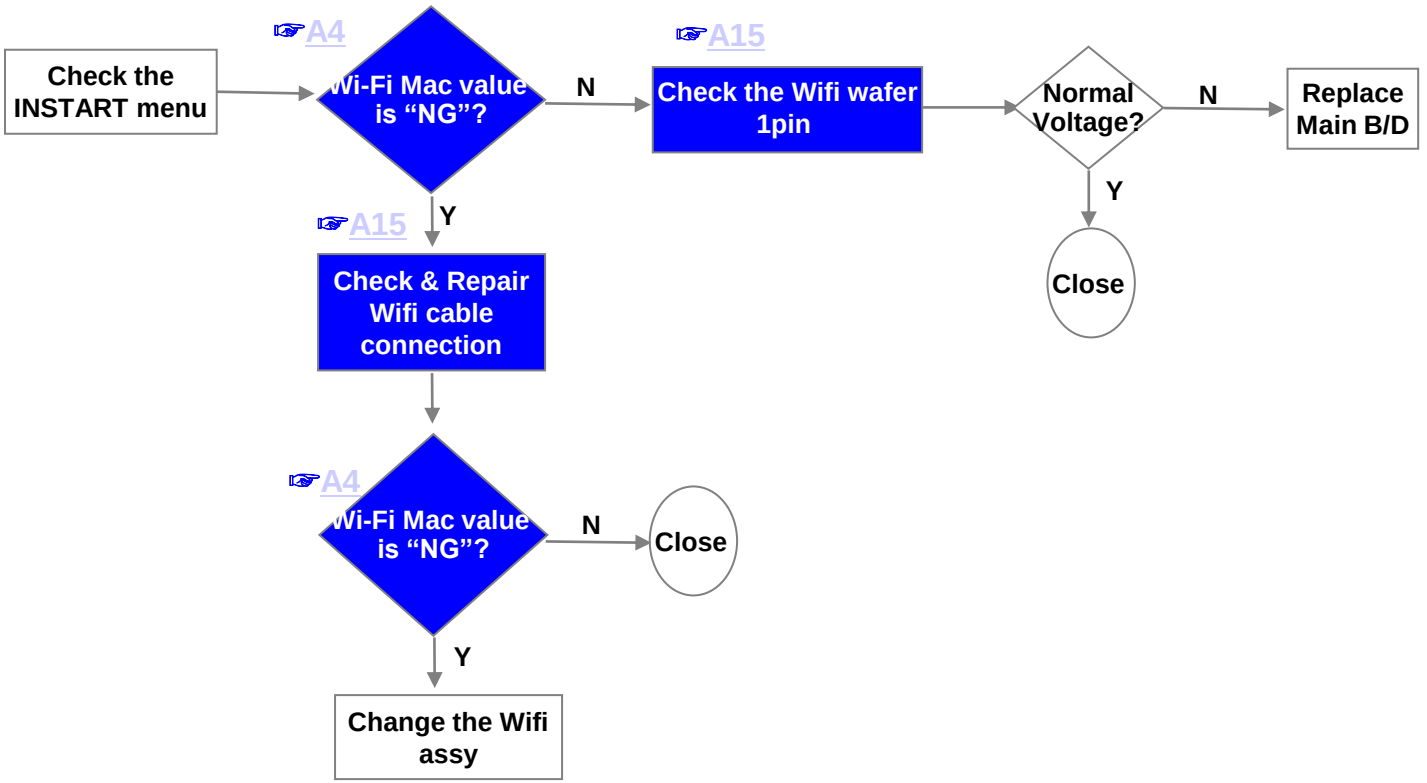
1. Remote control(R/C) operating error



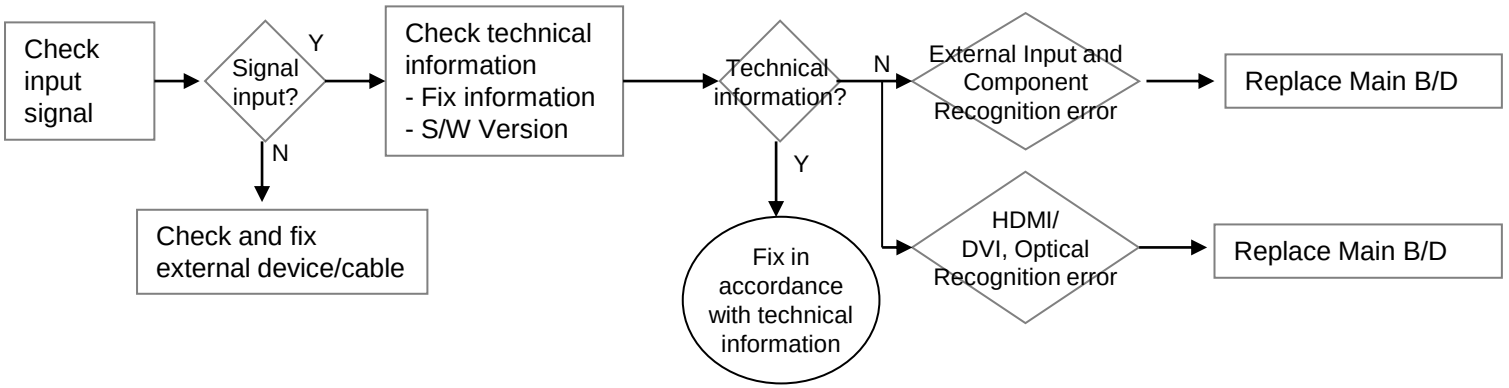
2. MR16 (Magic Remocon) operating error



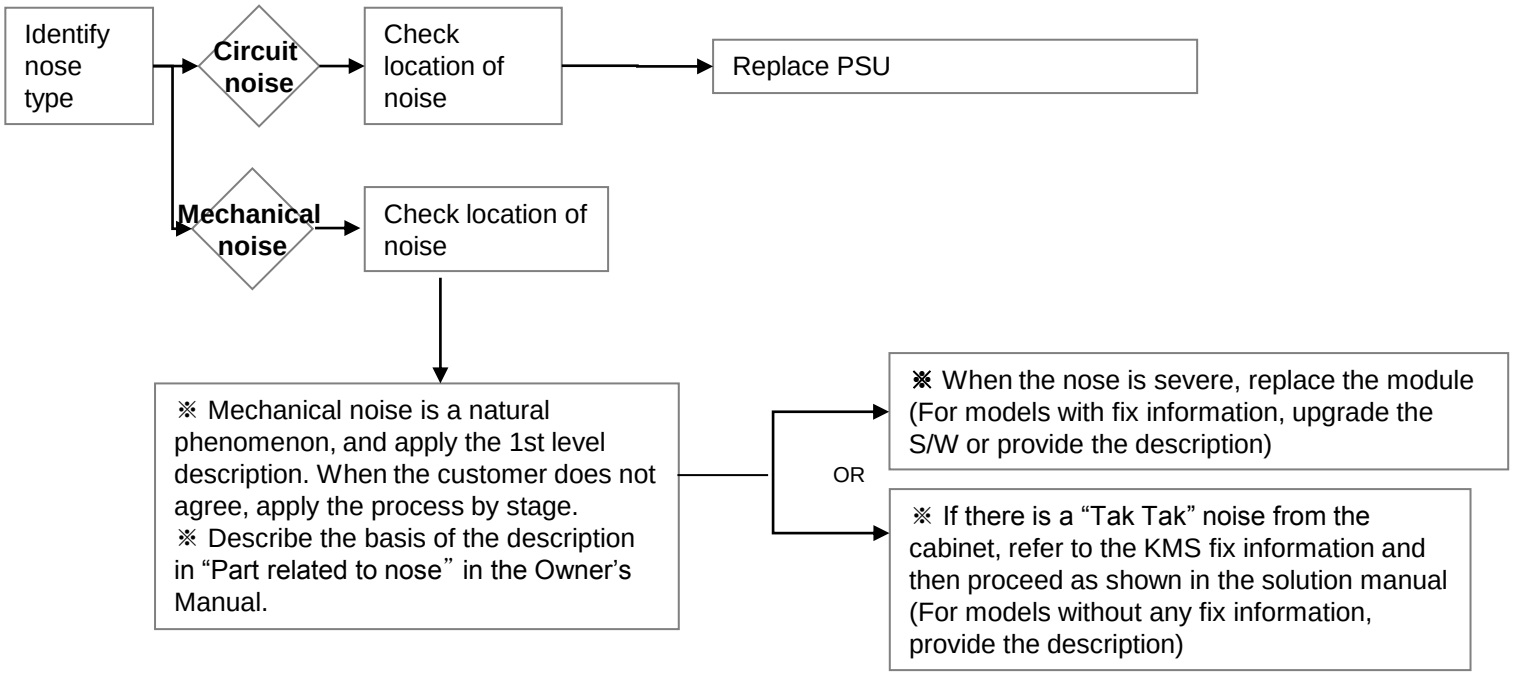
3.Wifi operating error



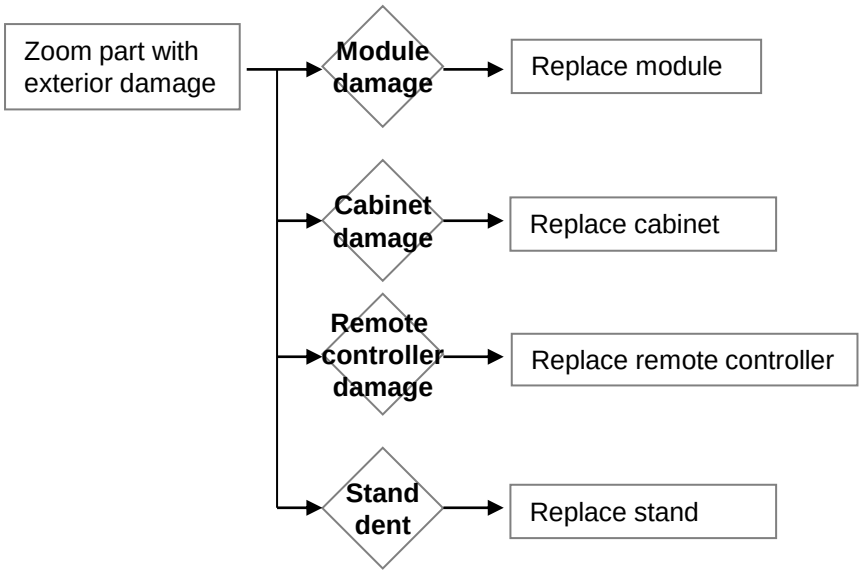
OLED TV	Error symptom	D. Function error	Established date		
		External device recognition error	Revised date		14/16



OLED TV	Error symptom	E. Noise	Established date		
		Circuit noise, mechanical noise	Revised date		15/16



OLED TV	Error symptom	F. Exterior defect	Established date		
		Exterior defect	Revised date		16/16



Contents of Standard Repair Process Detail Technical Manual

Contents of Standard Repair Process Detail Technical Manual

Standard Repair Process Detail Technical Manual

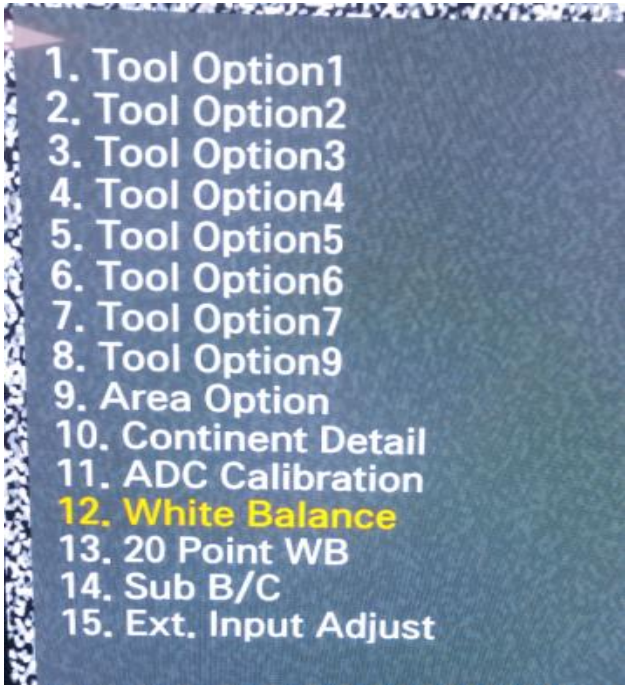
LCD TV	Error symptom	A. Video error_No video/Normal audio	Established date	2014.12.31	
	Content	Check Vx1 lock LED light with naked eye	Revised date		A1

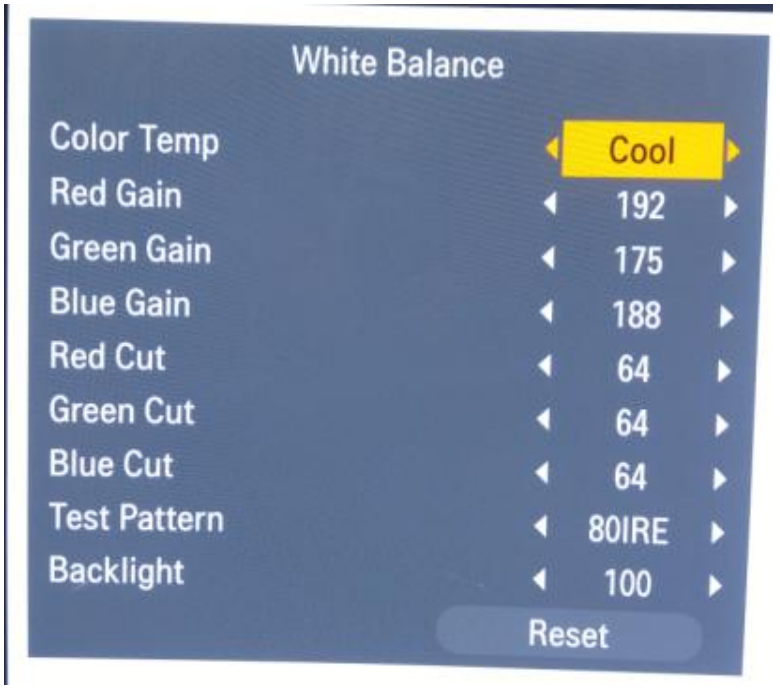
After Remove the Rear Cover, turning on the power and check with the naked eye, Whetheryou can see light from locations.

A1

Standard Repair Process Detail Technical Manual

OLED TV	Error symptom	A. Video error_No video/Normal audio	Established date		
	Content	Check White Balance value	Revised date		A2



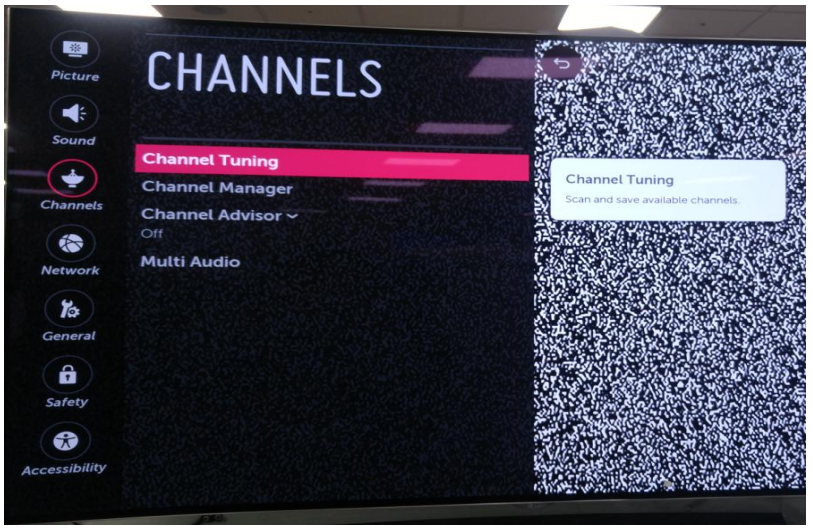


Entry method

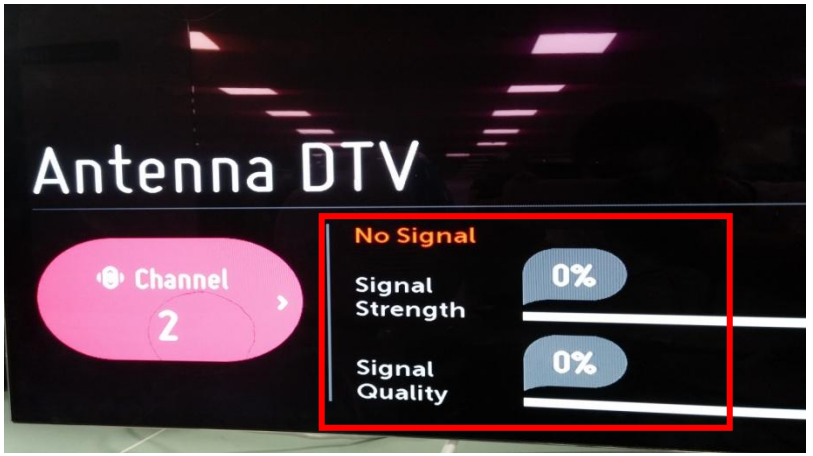
1. Press the ADJ button on the remote controller for adjustment.

2. Enter into White Balance of item 12.

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



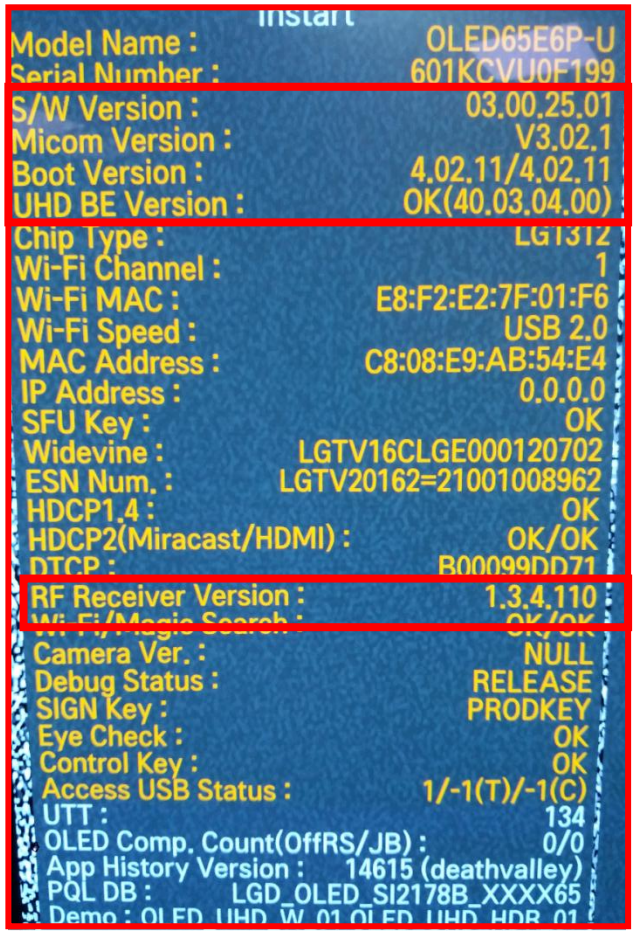
All Settings → Channels→ Channel Tuning



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

1. Checking method for remote controller for adjustment

Version

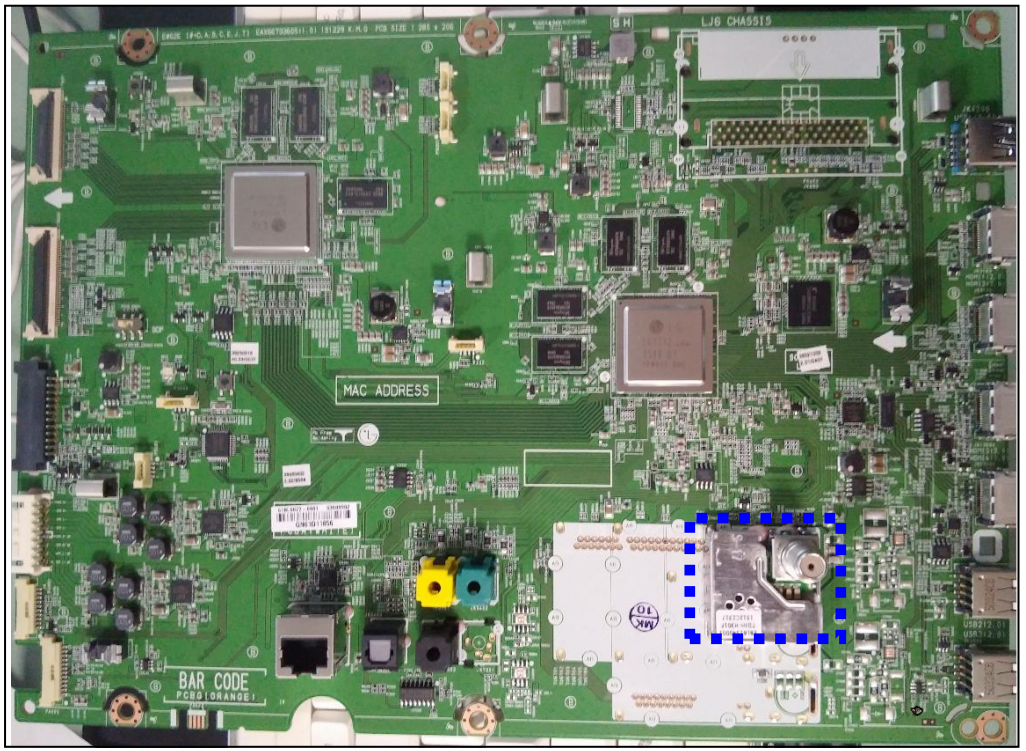


Press the IN-START with the remote controller for adjustment

A4

Standard Repair Process Detail Technical Manual

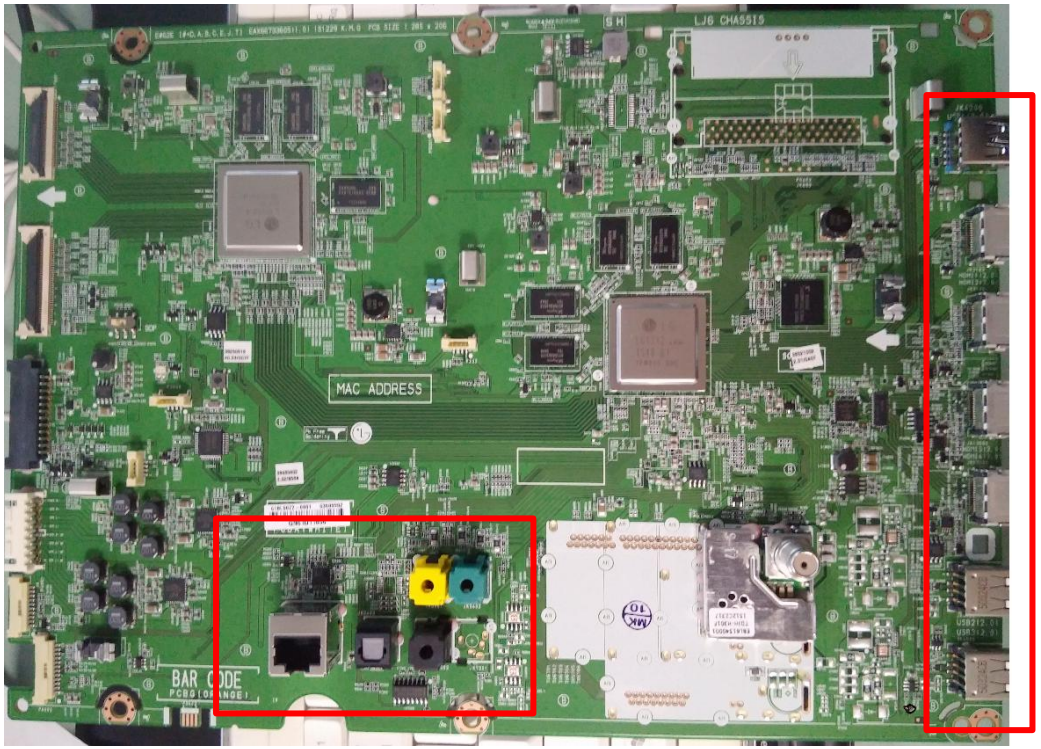
OLED TV	Error symptom	A. Video error_Video error, video lag/stop	Established date		
	Content	TUNER checking part	Revised date		A5



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

Standard Repair Process Detail Technical Manual

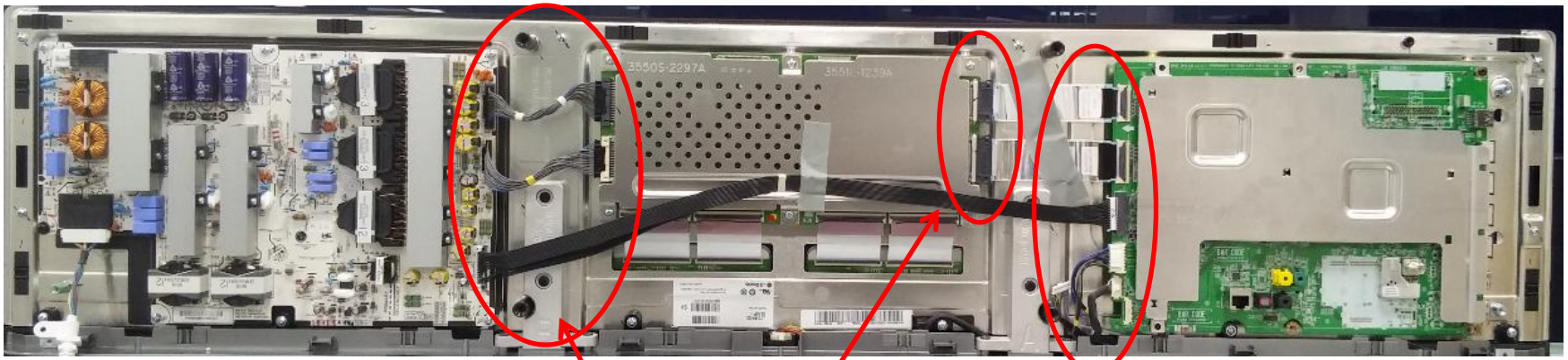
OLED TV	Error symptom	A. Video error _Vertical/Horizontal bar, residual image, light spot	Established date		
	Content	Connection diagram	Revised date		A6



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

Standard Repair Process Detail Technical Manual

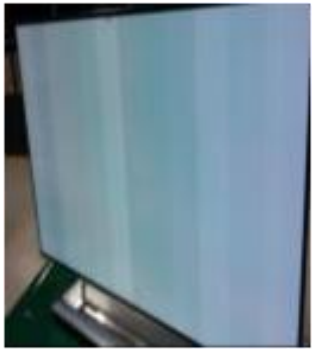
OLED TV	Error symptom	A. Video error_Color error	Established date		
	Content	Check Link Cable (EPI) reconnection condition	Revised date		A7



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

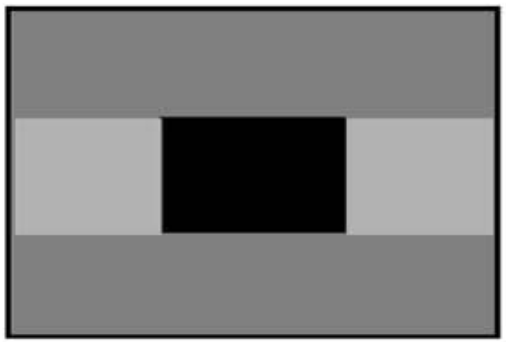
Appendix : Exchange the Module (1)

Vertical abnormal display



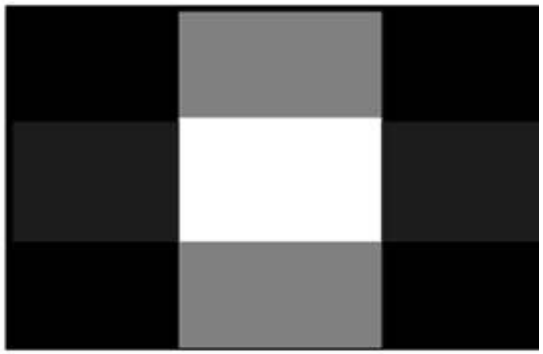
Brightness difference

Line Dim



Crosstalk

Press damage



Crosstalk

Burnt

Un-repairable Cases

In this case please exchange the module.

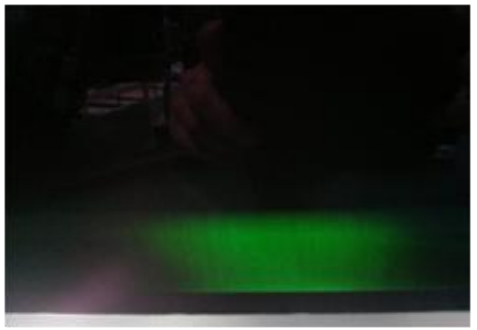
Appendix : Exchange the Module (2)

Angle view Color difference

Brightness dot noise

Half dead

Brightness difference



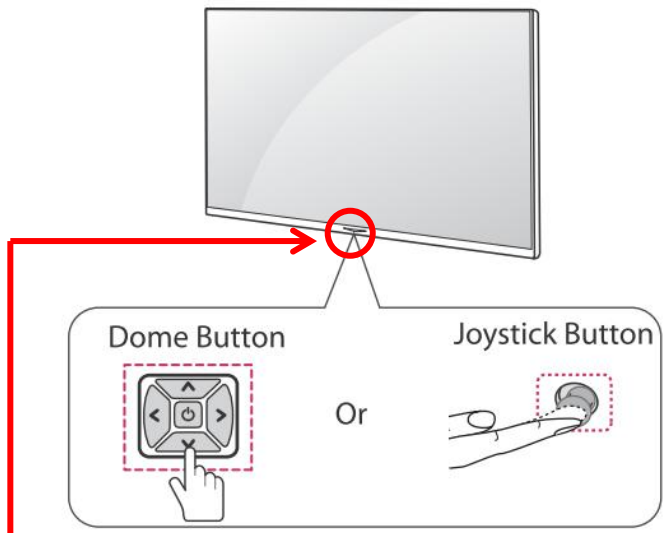
Green Noise on power on/off time

Line Defect

Mura

Un-repairable Cases

In this case please exchange the module.



NOTE

- You can set the LG Logo Light or power indicator light to on or off by selecting **GENERAL** in the main menus.

ST-BY condition: On or Off
Power ON condition: Turn Off

Basic Functions

		Power On (Press) Power Off (Press and Hold)
		Volume Control
		Channels Control

NOTE

- When the TV is turned on, place your finger on the power button, press it once for a few seconds, and release it. All running apps will close.

Adjusting the Menu

When the TV is turned on, press ⏻ button one time. You can adjust the Menu items pressing or moving the buttons.

⏻	Turns the power off.
⚙	Accesses the setting menu.
✕	Clears on-screen displays and returns to TV viewing.
⇄	Changes the input source.

Standard Repair Process Detail Technical Manual

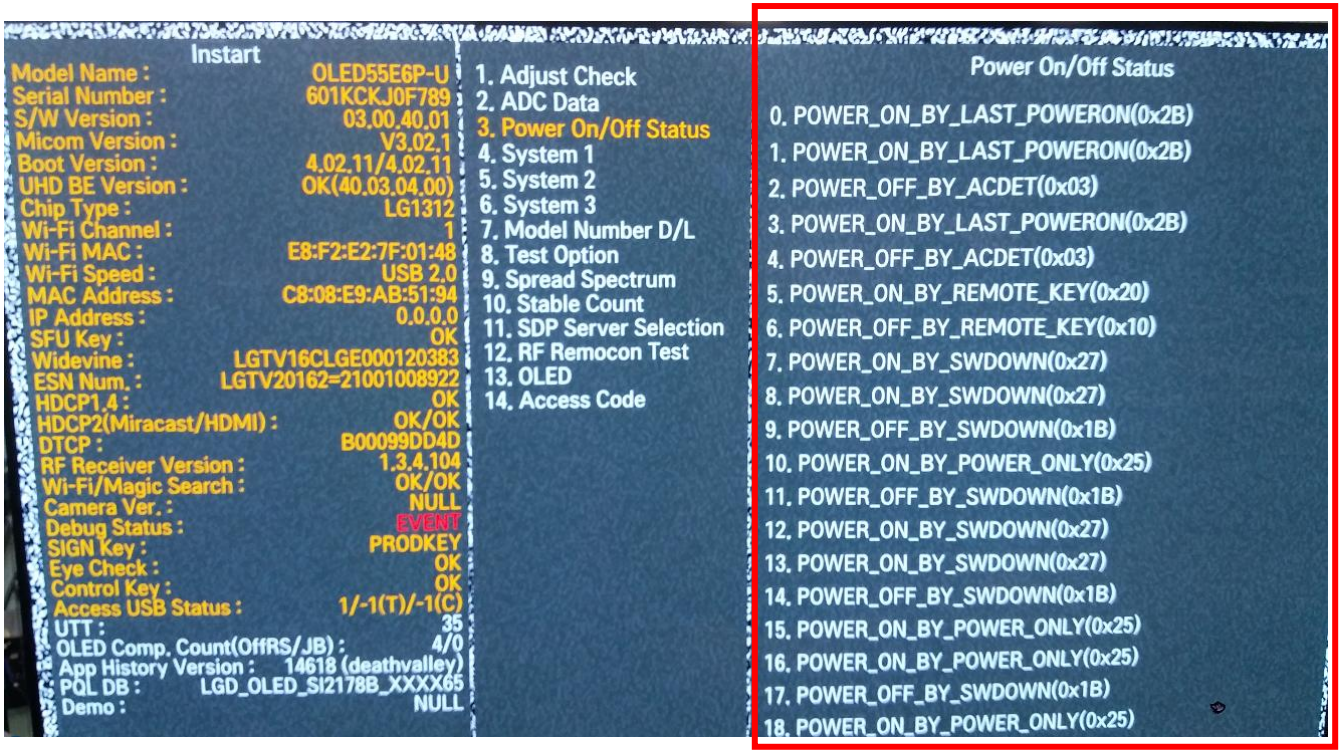
OLED TV	Error symptom	B. Power error _No power	Established date		
	Content	Check power input voltage and ST-BY 3.5V	Revised date		A9

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

24Pin(Power Board ↔ Main Board)			
1	PWR ON	2	INV CTL
3	DPC	4	PDIM#2
5	3.5V	6	GND
7	3.5V	8	3.5V
9	GND	10	GND
11	12V	12	12V
13	12V	14	12V
15	12V	16	GND
17	GND	18	12V_ON
19	24V	20	24V
21	24V	22	24V
23	GND	24	GND

Standard Repair Process Detail Technical Manual

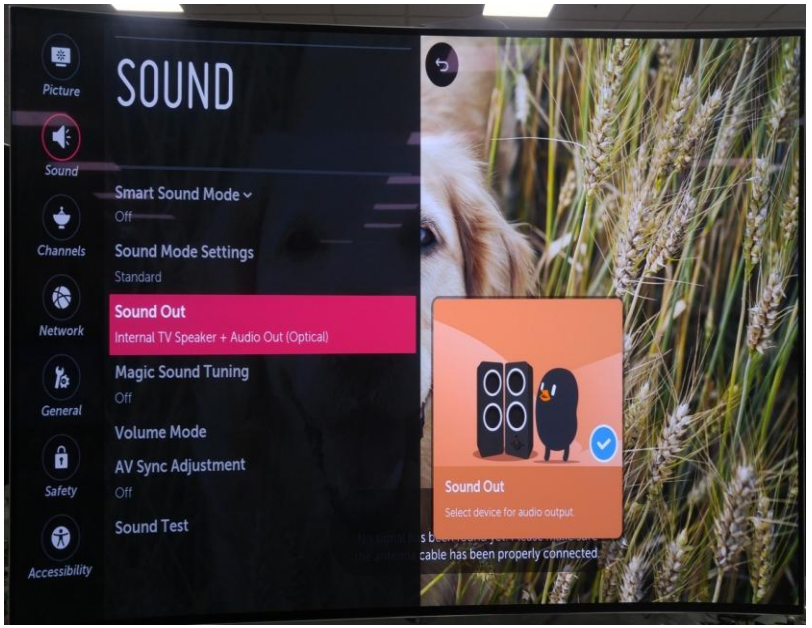
OLED TV	Error symptom	B. Power error _Off when on, off whiling viewing	Established date		
	Content	POWER OFF MODE checking method	Revised date		A10



Entry method

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

2. Check the entry into adjustment item 3(power On/Off Status)



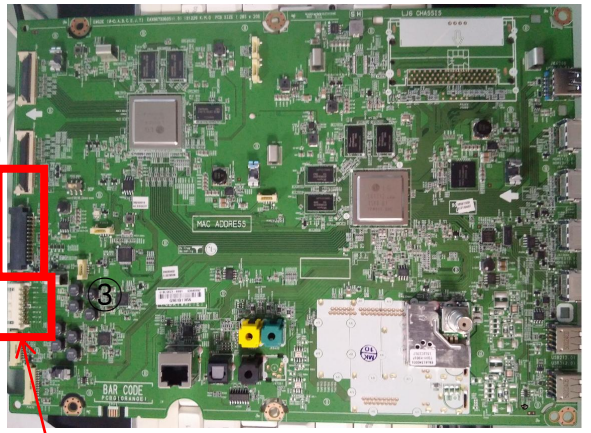
Checking method

1. Press the Setting button on the remote controller
2. Select the Sound function of the Menu
3. Select the Sound Out
4. Select TV Speaker

Standard Repair Process Detail Technical Manual

OLED TV	Error symptom	C. Audio error_No audio/Normal video	Established date		
	Content	Voltage and speaker checking method when there is no audio	Revised date		A12

24Pin(Power Board ↔ Main Board)			
1	GND	2	GND
3	24V	4	24V
5	24V	6	24V
7	GND	8	12V_ON
9	12V	10	GND
11	12V	12	12V
13	12V	14	12V
15	GND	16	GND
17	3.5V	18	3.5V
19	3.5V	20	GND
21	PDIM#1	22	PDIM#2
23	PWR ON	24	INV CTL



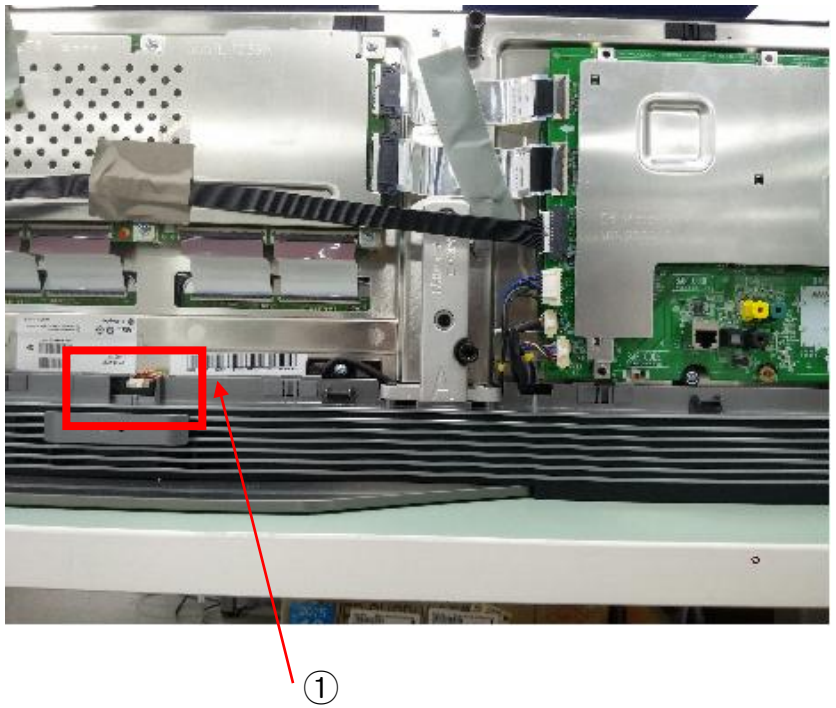
1	SPK_R-	2	SPK_R+_
3	SPK_L-	4	SPK_L+
5	SPK_R-WF	6	SPK_R+_WF
7	SPK_L-_WF	8	SPK_L+_WF

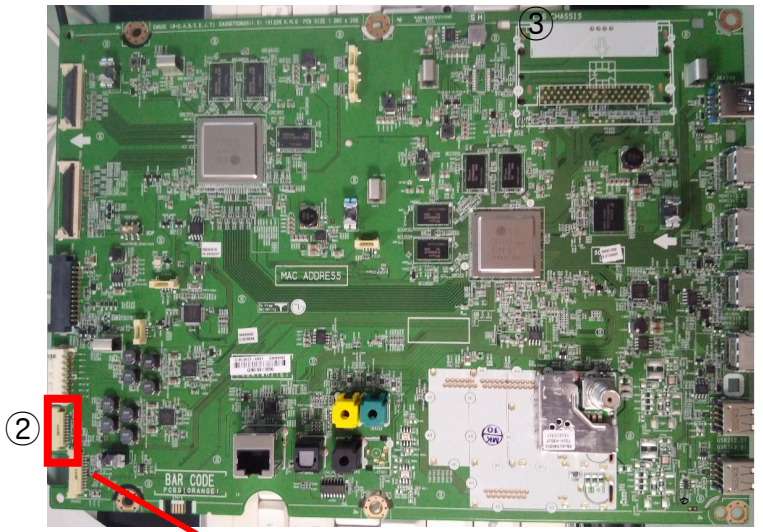
Checking order when there is no audio

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

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

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





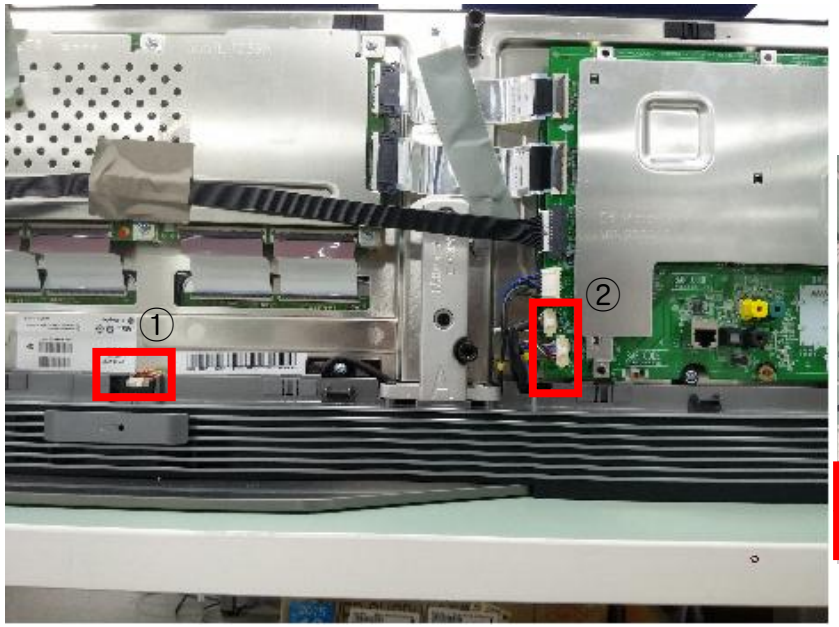
P4001	
1	GND
2	N.C.
3	N.C.
4	3.5V_ST
5	GND
6	LED_R
7	IR
8	GND
9	EYE_SCL
10	EYE_SDA

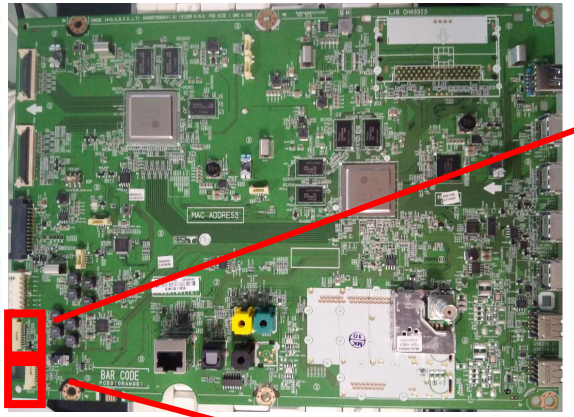
Checking order

1, 2. Check IR cable condition between IR & Main board.
3. Check the st-by 3.5V on the terminal 4

Standard Repair Process Detail Technical Manual

OLED TV	Error symptom	D. Function error	Established date		
	Content	Motion Remote operation checking method	Revised date		A14





P4001	
1	GND
2	N.C.
3	N.C.
4	3.5V_ST
5	GND
6	LED_R
7	IR
8	GND
9	EYE_SCL
10	EYE_SDA

P4002	
1	3.5V_WIFI
2	WIFI_DP
3	WIFI_DM
4	GND
5	WOL/WIFI_POWER_ON
6	3D_SYNC_RF
7	BT_RESET
8	GND
9	GND
10	KEY1
11	KEY2
12	GND

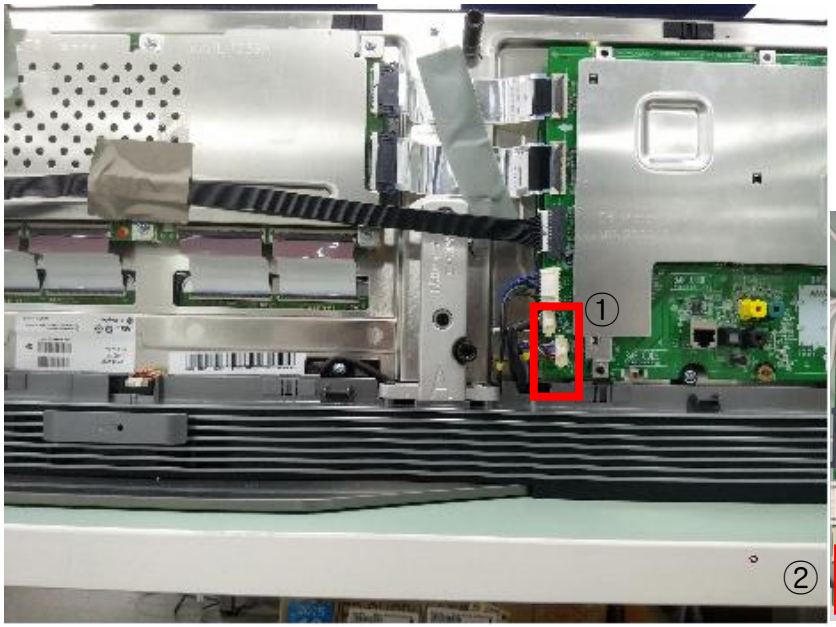
③

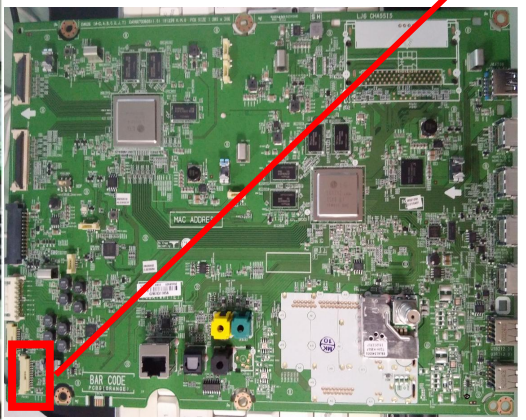
Checking order

1. Check IR cable condition between IR & Main board.
2. Check WIFI Combo cable condition between WIFI Combo Assy & Main board.
3. Check the st-by 3.5V P4001 on the terminal 4
4. Check the 3.5V_WIFI P4002 on the terminal 1

Standard Repair Process Detail Technical Manual

OLED TV	Error symptom	D. Function error	Established date		
	Content	Wifi operation checking method	Revised date		A15





P4002	
1	3.5V_WIFI
2	WIFI_DP
3	WIFI_DM
4	GND
5	WOL/WIFI_POWER_ON
6	3D_SYNC_RF
7	BT_RESET
8	GND
9	GND
10	KEY1
11	KEY2
12	GND

Checking order

1, 2. Check Wifi cable condition between Wifi assy & Main board.
3. Check the 3.3V_WIFI on the terminal 1.