



SERVICE MANUAL

MODEL: SL7Y (SL7Y, SPL5B-W)

Wi-Fi SOUND BAR SERVICE MANUAL

MODEL: SL7Y
(SL7Y, SPL5B-W)

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



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LG

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SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES FOR AUDIO PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by LG Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

CAUTION : Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

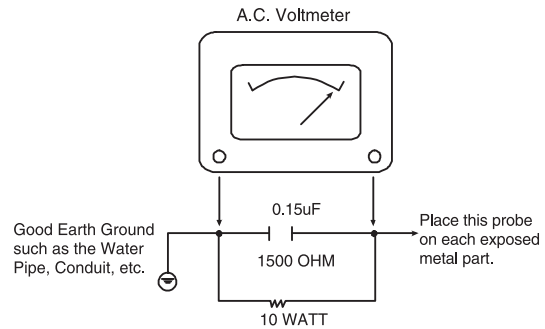
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST.** Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

SERVICING PRECAUTIONS

CAUTION: Before servicing the Audio products covered by this service data and its supplements and addends, read and follow the SAFETY PRECAUTIONS.

NOTE: if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

Remember Safety First :

General Servicing Precautions

1. Always unplug the Audio products AC power cord from the AC power source before:
 - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
 - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
 - (3) Connecting a test substitute in parallel with an electrolytic capacitor.
Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this Audio products or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this Audio products and / or any of its electrical assemblies unless all solid state device heat sinks are correctly installed.
6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1Mohm.

Note 1: Accessible Conductive Parts include Metal panels, Input terminals, Earphone jacks, etc.

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 electricity.

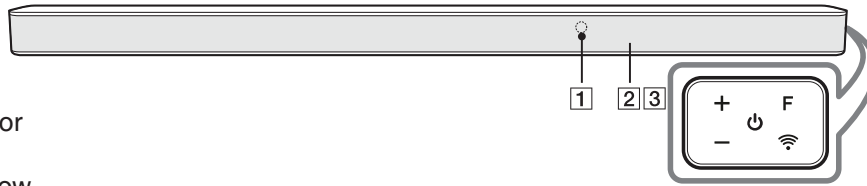
1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential 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 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 an electrical charge 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. (Normally 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.)

NAME OF EACH COMPONENT

● Front panel



1 Remote sensor

2 Display Window

- Display window will be darkened automatically if there is no key input for 15 seconds.
When you press any button, the display window will brighten.

3 (Standby)

- Switches the unit ON or OFF.

F (Function)

- Select the function and input source by pressing **F** repeatedly.

Input source / Function	Display
Wi-Fi	WI-FI
Optical, ARC, LG Sound Sync (Wired)	OPT/HDMI ARC
Bluetooth	BT
LG Sound Sync (Wireless)	LG TV
HDMI IN	HDMI
USB	USB

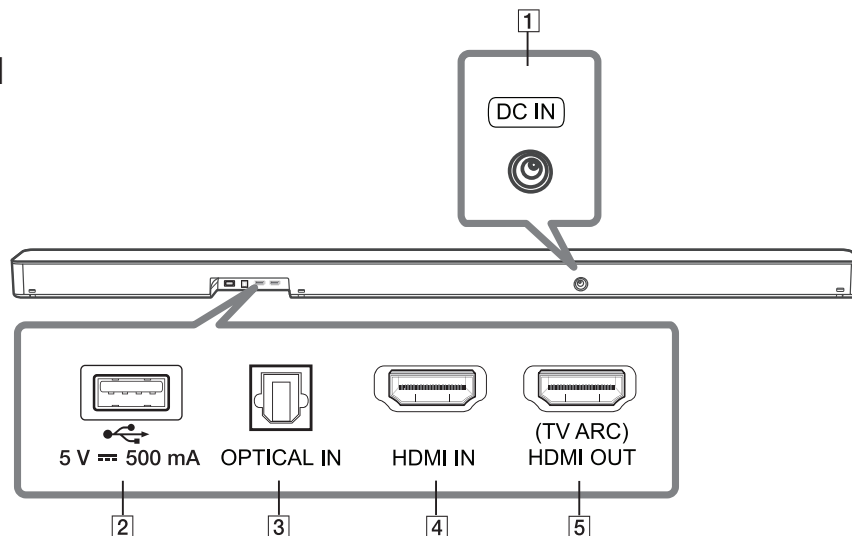
+/- (Volume)

- Adjusts volume level.

(Wi-Fi)

- Selects Wi-Fi function.

● Rear panel



1 **DC IN**

- Connect to the AC adapter.

2 **USB Port**

- Connect USB memory device to the USB port on the back of the unit.

3 **OPTICAL IN**

- Connect the OPTICAL IN jack on the back of the unit to OPTICAL OUT jack on the TV.

4 **HDMI IN**

- Connect HDMI IN jack on the back of the unit to HDMI OUT jack on the external device. You can enjoy the sound and picture from HDMI connection on an external device.

5 **(TV ARC) HDMI OUT**

- Connect the (TV ARC) HDMI OUT jack on the back of the unit to ARC jack on the TV.

WIRELESS SUBWOOFER CONNECTION

LED indicator of wireless subwoofer

LED Color	Status
Green (Blink)	The connection is trying.
Green	The connection is completed.
Red	The wireless subwoofer is in standby mode or the connection is failed.
Off (No display)	The power cord of wireless subwoofer is disconnected.

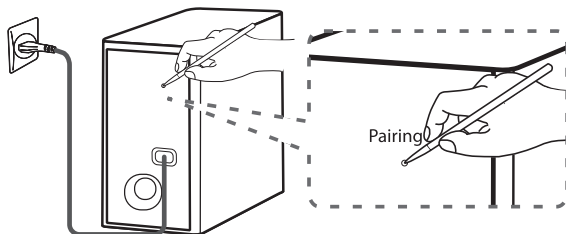
Setting up the wireless subwoofer for the first time

1. Connect the power cord to the subwoofer and plug the power cord into a power outlet.
2. Turn on the main unit : The sound bar and wireless subwoofer will be **automatically** connected.
 - Green LED on the rear of wireless subwoofer turns on.

Manually pairing wireless subwoofer

When your connection is not completed, you can check red LED on the wireless subwoofer and the wireless subwoofer does not make sound. To solve the problem, follow the steps below.

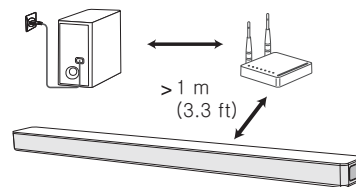
1. Press **Pairing** on the rear of the wireless subwoofer.



- The green LED on the rear of the wireless subwoofer blinks quickly. (If the green LED does not blink, press and hold the **Pairing**.)
2. Turn on the sound bar.
 - Pairing is completed. The green LED on the rear of the wireless subwoofer turns on.

Note:

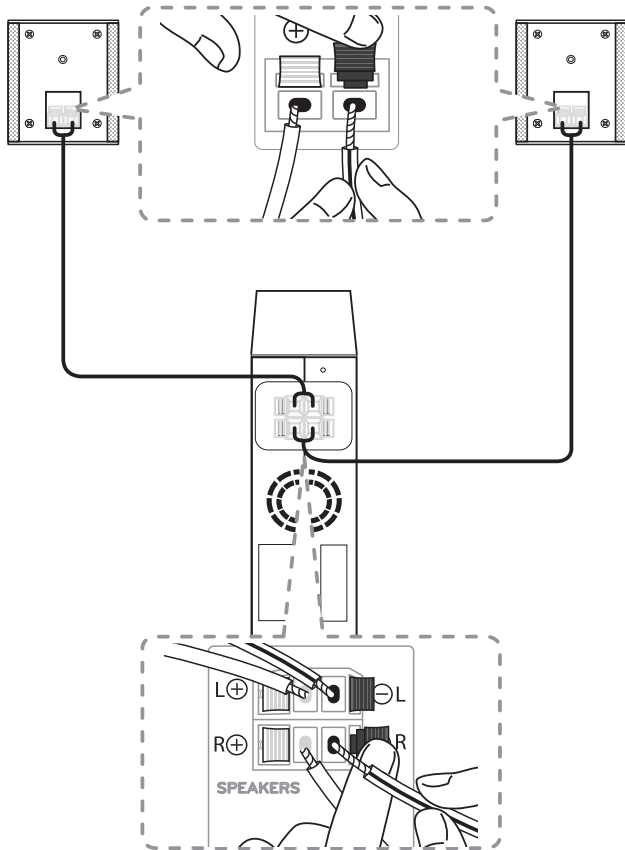
- It takes a few seconds (and may take longer) for the main unit and the subwoofer to communicate with each other and make sounds.
- The closer the main unit and the subwoofer, the better sound quality. It is recommended to install the main unit and the subwoofer as close as possible and avoid the cases below.
 - There is an obstacle between the main unit and the subwoofer.
 - There is a device using the same frequency as this wireless connection, such as medical equipment, a microwave, or a wireless LAN device.
 - Keep the sound bar and the subwoofer away from the device (ex. wireless router, microwave oven, etc.) over 1m (3.3 ft) to prevent wireless interference.



REAR SPEAKERS CONNECTION (SOLD SEPARATELY)

Connecting the rear speakers

1. Connect the black stripe wire to the terminal marked - (minus) and the other end to the terminal marked + (plus).



2. Connect the wireless receiver and the rear speakers (right, left) with the speaker cables.

Color	Position
Grey	Rear right
Blue	Rear left

Note :

You need to purchase the wireless rear speakers kit (SPK8-S) to enjoy surround sound.

Caution :

- Use the speaker supplied with this unit only. Using any other speaker may cause malfunction.
- Be sure to match the speaker cable to the appropriate terminal on the components: + to + and - to -. If the cables are reversed, the sound will be distorted and will lack bass.

LED indicator of wireless receiver

LED Color	Status
Yellow - green (Blink)	The connection is trying.
Yellow - green	The wireless receiver is receiving the signal from the sound bar.
Red	The wireless receiver is in standby mode.
Off (No display)	The power cord of wireless receiver is disconnected

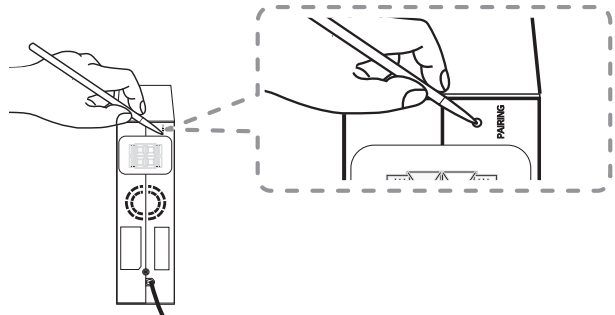
Setting up the wireless receiver for the first time

1. Connect the power cord to the wireless receiver to the outlet.
2. Turn on the main unit : The sound bar and wireless receiver will be **automatically** connected.
 - Yellow - green LED on the wireless receiver turns on.

Manually pairing wireless receiver

When your connection is not completed, you can see the red LED on the wireless receiver and rear speakers are not made sound. To solve the problem, follow the below steps.

1. Press **PAIRING** button on the rear of the wireless receiver.



- The yellow - green LED on the wireless receiver blinks quickly.

2. Turn on the main unit
 - Pairing is completed. The yellow - green LED on the wireless receiver turns on.

HIDDEN KEY MODE

1. FACTORY RESET

- Key : Press WiFi Button on the soundbar for 5 seconds.
- Result : Initialize EEPROM (MICOM) and MPEG (MAIN).
(But Wireless Woofer and Wireless Rear speakers are not)

2. SW Version Display

- Enter : Press Volume '-' on Soundbar with 'Play/Pause' on Remocon for 5 seconds.
- Change Display : Whenever press 'F.SKIP' on remocon, displaying SW program is changed.

M : MICOM
PQ : PEQ
B : MAIN
TX : WOOFER TX
RX : WOOFER RX
RT : REAR TX
RR : REAR RX
MQ : MEQ

- Result : Scroll SW Version on Soundbar VFD.
- EXIT : Press 'Play/Pause' on Remocon for 5 seconds.



< MICOM >



< PEQ >



< MAIN >

3. OPTION Edit

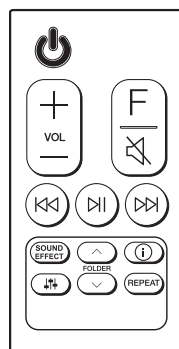
- Enter : Volume '-' on soundbar with 'Sound tuning' key on remocon for 5 seconds.
- Result : VFD display OPTION number and OPTION data like "00 00" "02 4A" ...
- How to Change Option data :
Change Option data by press 'PLAY/PAUSE' on remocon key,
change option number by press 'B.SKIP' on remocon, 'F.SKIP' on remocon after change option finish,
press 'INFO' key. System will save option and restart.

4. WIRELESS WOOFER & REAR SPEAKER TX RESET

- ENTER : Press Mute key for 3 seconds when Woofer and Wireless Rear speaker is off.
- RESULT : VFD displays 'WL RESET' and initialize TX module.
Pairing will be disconnected.



< MAIN Key >



< Remocon >

SOFTWARE UPDATE GUIDE

1. Using USB

1-1. USB UPDATE FILE NAME (yymmrrr is 7 digit version number)

	Model SL7Y	Model SL7YF
MAIN	MAIN_SL7_WSB_yymmrrr.BIN	MAIN_SL7F_WSB_yymmrrr.BIN
MICOM	MICOM_SL7_WSB_yymmrrr.HEX	MICOM_SL7F_WSB_yymmrrr.HEX
MEQ	MEQ_SL7_WSB_yymmrrr.BIN	MEQ_SL7F_WSB_yymmrrr.BIN
PEQ(pulsus)	PEQ_SL7_WSB_yymmrrr.BIN	PEQ_SL7F_WSB_yymmrrr.BIN
WOOFERRx	WOOFERRX_SL7_WSB_yymmrrr.BIN	WOOFERRX_SL7F_WSB_yymmrrr.BIN
WOOFERTx	WOOFERTX_SL7_WSB_yymmrrr.BIN	WOOFERTX_SL7F_WSB_yymmrrr.BIN
REARRx	REARRX_SL7_WSB_yymmrrr.BIN	REARRX_SL7F_WSB_yymmrrr.BIN
REARTx	REARRX_SL7_WSB_yymmrrr.BIN	REARRX_SL7F_WSB_yymmrrr.BIN

1-2. HOW TO UPDATE

- Copy Update file to USB Root Directory.
- Turn on soundbar and change function to 'WIFI'.
- Insert USB to USB Port at the back side of soundbar.
- VFD display 'UPGRADE'
- Play/Pause key on remocon or WIFI key on soundbar can start UPDATE.



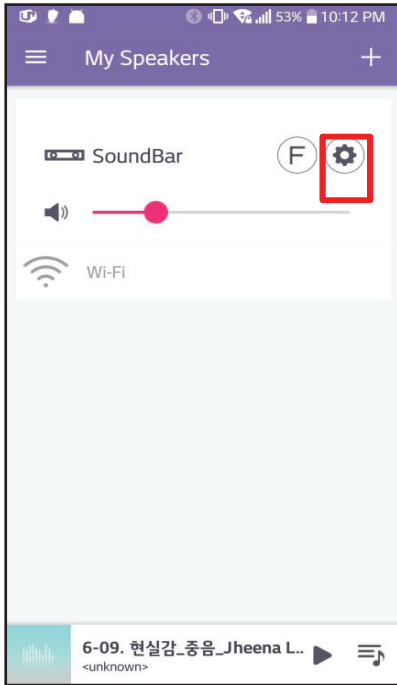
- After Update finish, system will restart automatically.
- If reboot is finish, VFD display 'WiFi'.
DO NOT turn off during displaying 'PLEASE WAIT' on VFD.

※ Before update Woofer RX or Rear Rx WOOFER RX, Woofer and Rear Speaker have to be paired with Main soundbar

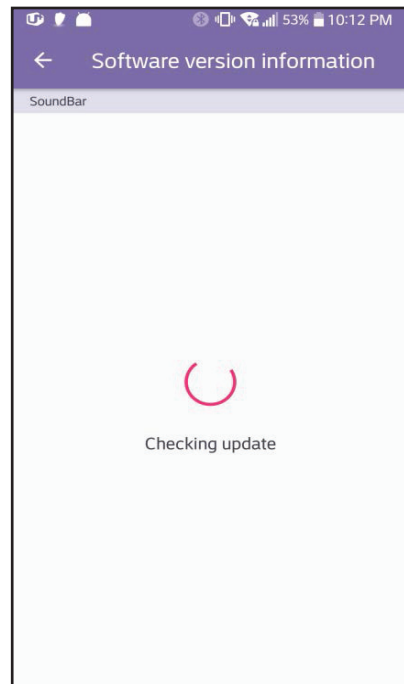
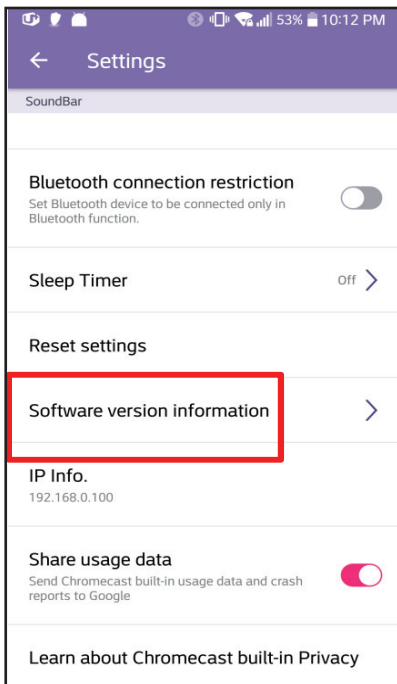
2. Using APP

Before Network update, soundbar has to be connected with 'LG Wifi Soundbar' Application.

Step 1. Select setting gui.

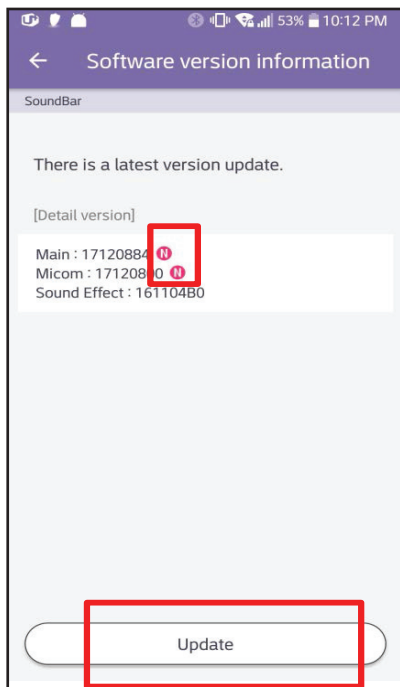


Step 2. Select software version display.

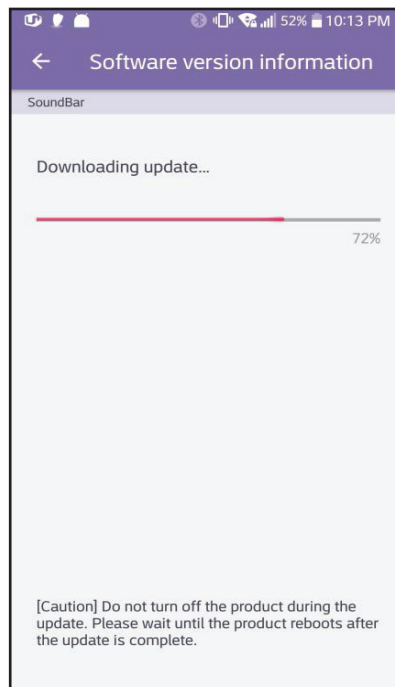


Using APP

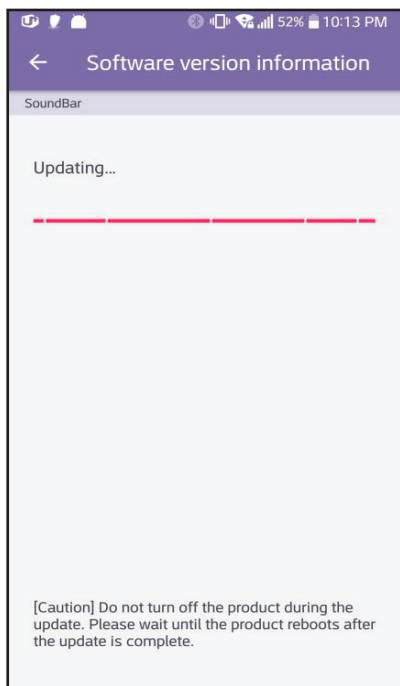
Step 3. System compare current version with the latest version at server.
Step 4. If there is new version on server, press Update.



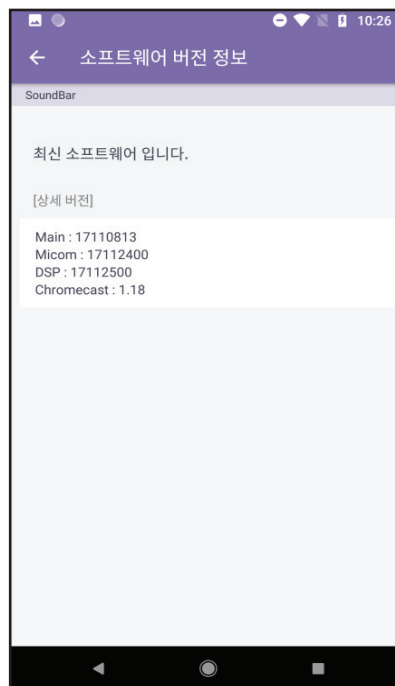
Step 5. Update file downloading.



Step 6. Updating



Step 7. After update finish, application show the result.



SPECIFICATIONS

• GENERAL

Power consumption AC adapter	Refer to the main label on the unit. Model : DA-50F25 Manufacturer : Asian Power Devices Inc. Input : 100 - 240 V ~ 50 - 60 Hz Output : 25 V \equiv 2 A
Dimensions (W x H x D)	Approx. 1060.0 mm x 57.0 mm x 85.0 mm With foot (41.7 inch x 2.2 inch x 3.3 inch)
Operating temperature	5 °C to 35 °C (41 °F to 95 °F)
Operating humidity	5 % to 90 %
Bus Power Supply (USB)	5 V \equiv 500 mA
Available Digital Input Audio	
Sampling Frequency	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 192 kHz
Available Digital Input Audio format	Dolby Audio, DTS Digital Surround, PCM

• INPUT/OUTPUT

OPTICAL IN	3 V (p-p), Optical jack x 1
HDMI IN	19 Pin (Type A, HDMI™ connector) x 1
HDMI OUT	19 Pin (Type A, HDMI™ connector) x 1

• AMPLIFIER (RMS Output)

Total	420 W RMS
Front	80 W RMS x 2 (4 Ω at 1 kHz, THD 10 %)
Center	40 W RMS (4 Ω at 1 kHz, THD 10 %)
Subwoofer	220 W RMS (3 Ω at 80 Hz, THD 10 %)

• WIRELESS SUBWOOFER

Power requirements	Refer to the main label on the subwoofer.
Power consumption	Refer to the main label on the subwoofer.
Type	1 Way 1 Speaker
Impedance	3 Ω
Rated Input Power	220 W RMS
Max. Input Power	440 W RMS
Dimensions (W x H x D)	Approx. 171.0 mm x 393.0 mm x 248.5 mm (6.7 inch x 15.4 inch x 9.7 inch)

• SYSTEM

Wireless LAN (Internal antenna)	802.11a/b/g/n Wi-Fi networks
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SPK8-S (SPK8-S, S78S1-S), Sold Separately

• WIRELESS RECEIVER

Power requirements	Refer to the main label on the wireless receiver.
Power consumption	Refer to the main label on the wireless receiver.
Rear	70 W RMS x 2 (3 Ω at 1 kHz, THD 10 %)
Dimensions (W x H x D)	Approx. 60 mm x 220 mm x 175 mm (2.4 inch x 8.7 inch x 6.9 inch)

• REAR SPEAKERS (Each)

Type	1 Way 1 Speaker
Impedance	3 Ω
Rated Input Power	70 W RMS
Max. Input Power	140 W RMS
Dimensions (W x H x D)	Approx. 100.0 mm x 140.0 mm x 100.0 mm (3.9 inch x 5.5 inch x 3.9 inch)

- Designs and specifications are subject to change without prior notice.

SECTION 2

CABINET & MAIN CHASSIS

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DISASSEMBLY INSTRUCTIONS

1. HOW TO DISASSEMBLE THE MAIN UNIT

1-1. Case Bottom Assembly

- 1) Remove the 22 Screws.
- 2) Remove the Case Bottom Assembly.



Figure 1-1

1-2. Main and AMP Frame Assembly

- 1) Disconnect the 5 cables from The AMP PCB Assembly.
- 2) Remove the 3 Screws.

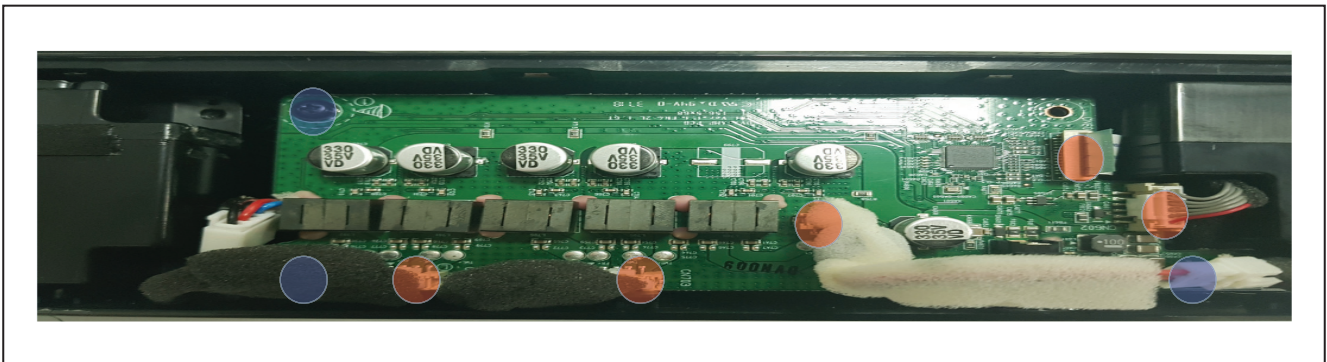


Figure 1-2 (1)

- 3) Remove the 2 Screws from The JACK PCB Chassis.

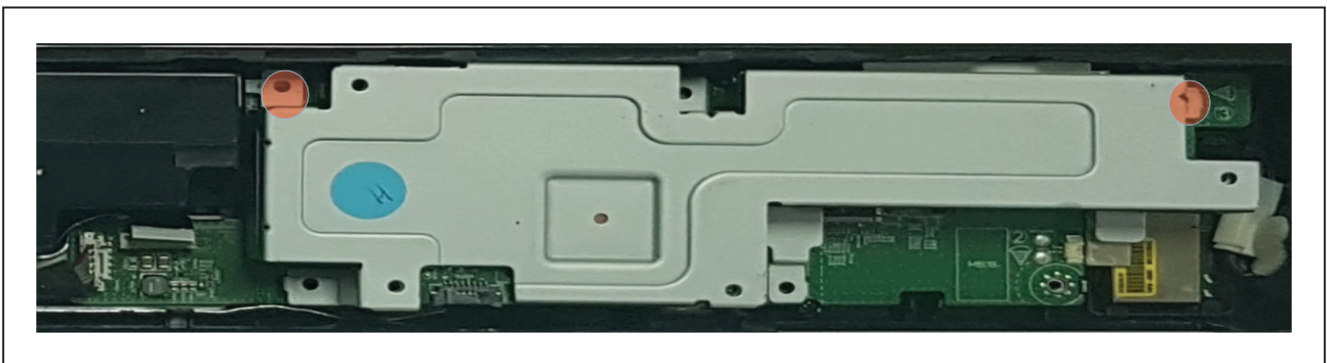


Figure 1-2 (2)

HOW TO DISASSEMBLE THE MAIN UNIT

1-2-1. Main PCB Assembly

- 1) Disconnect the 5 cables from The MAIN PCB Assembly.
- 2) Remove the 2 Screws.

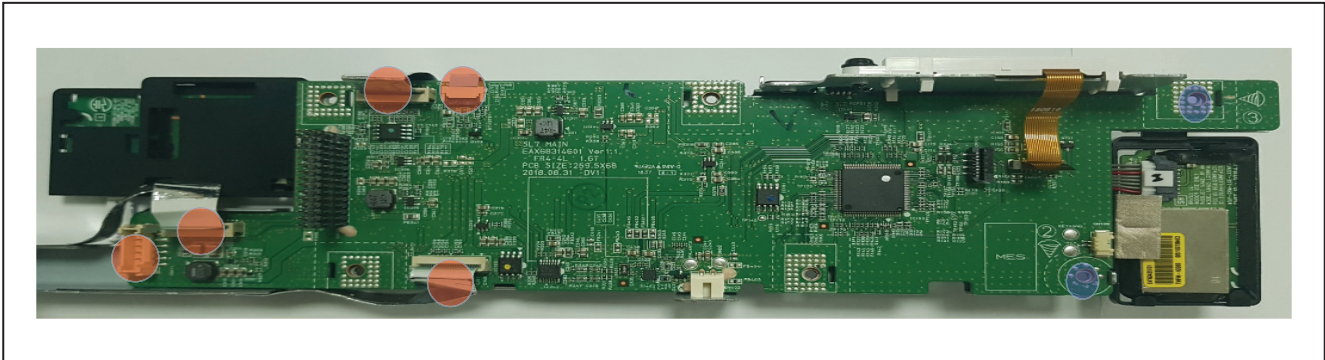


Figure 1-2-1

1-2-2. LCD Module Assembly

- 1) Disconnect the cable from The LCD Module Assembly.
- 2) Remove the Screw.

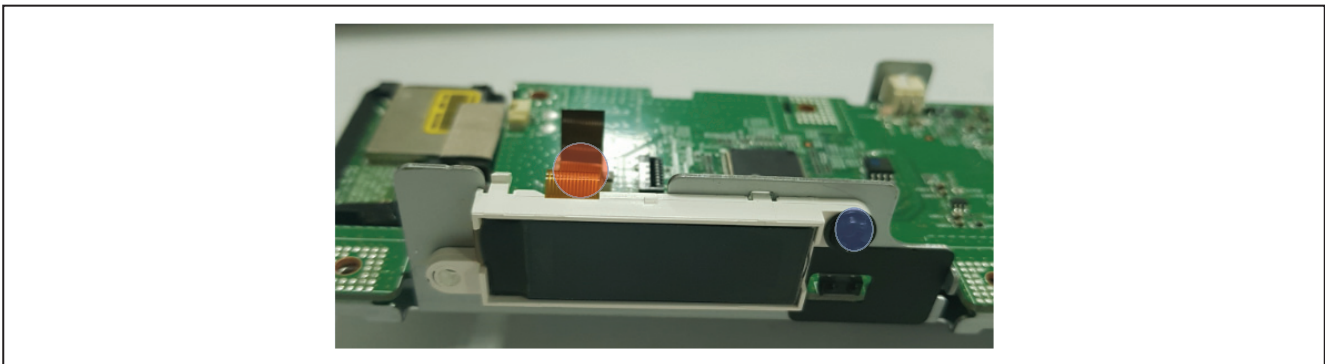


Figure 1-2-2

1-2-3. BT and WIRELESS Module

- 1) Disconnect the 2 cables from The BT and WIRELESS Module Assembly.
- 2) Remove the Screw.



Figure 1-2-3 (1)

HOW TO DISASSEMBLE THE MAIN UNIT

BT and WIRELESS Module

- 3) Disconnect the 5 hooks from The BT and WIRELESS Module Assembly.
- 4) Remove the BT and WIRELESS Module.

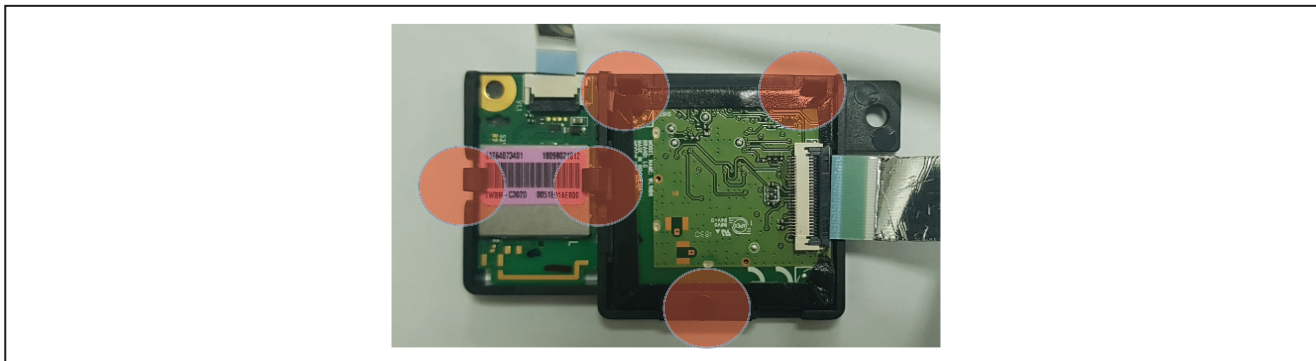


Figure 1-2-3 (2)

1-2-4. Wi-Fi Module Assembly

- 1) Remove the Screw.
- 2) Remove the Cable
- 3) Disconnect the 3 hooks.
- 4) Remove the Wi-Fi Module.

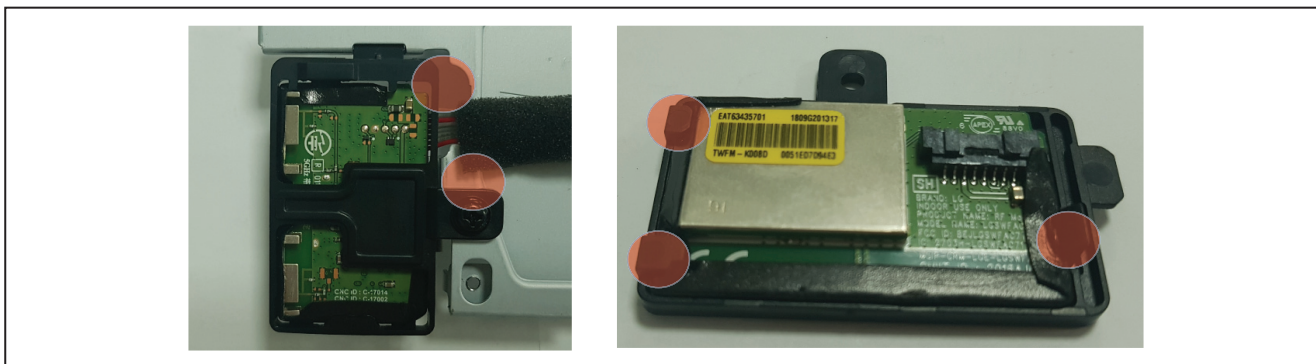


Figure 1-2-4

1-2-5. Button PCB Assembly

- 1) Disconnect the 2 hooks.
- 2) Remove the cable.
- 3) Push the Button PCB Assembly.

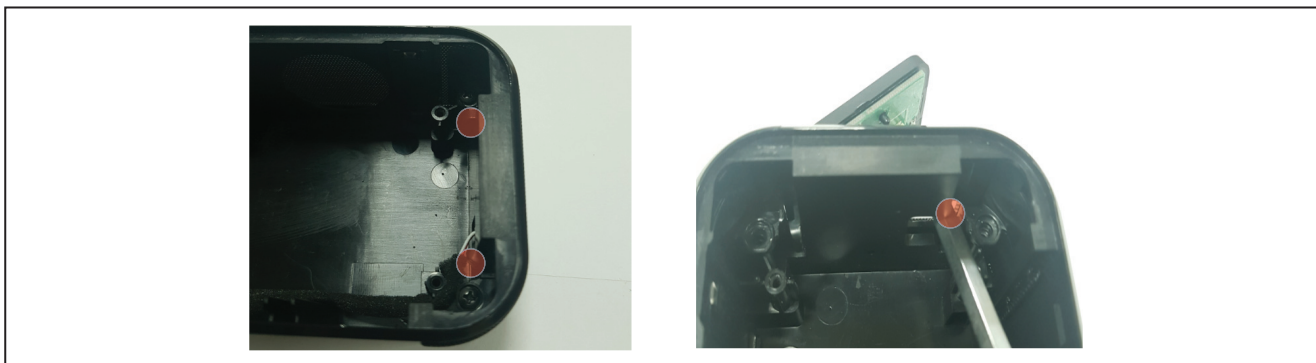


Figure 1-2-5

2. HOW TO DISASSEMBLE THE SUBWOOFER

2-1. Rear Panel Assembly

1) Remove the 8 screws.

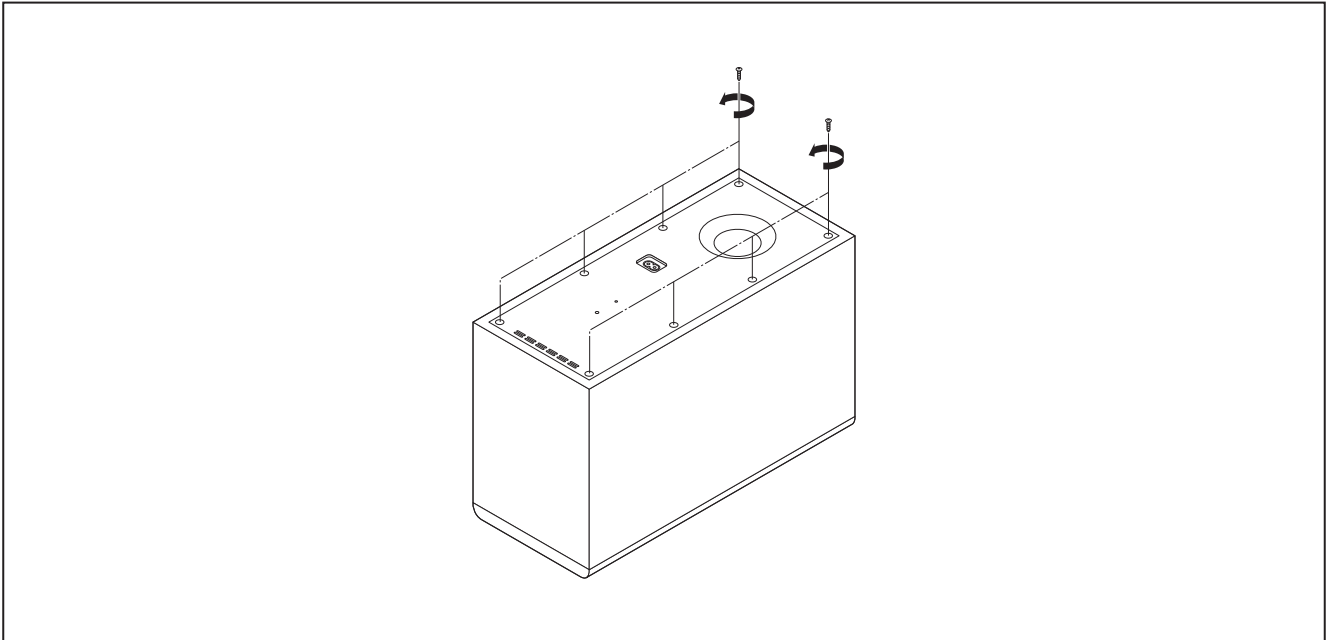


Figure 2-1 (1)

2) Pull out the Rear Panel Assembly and disconnect the SPK cable.

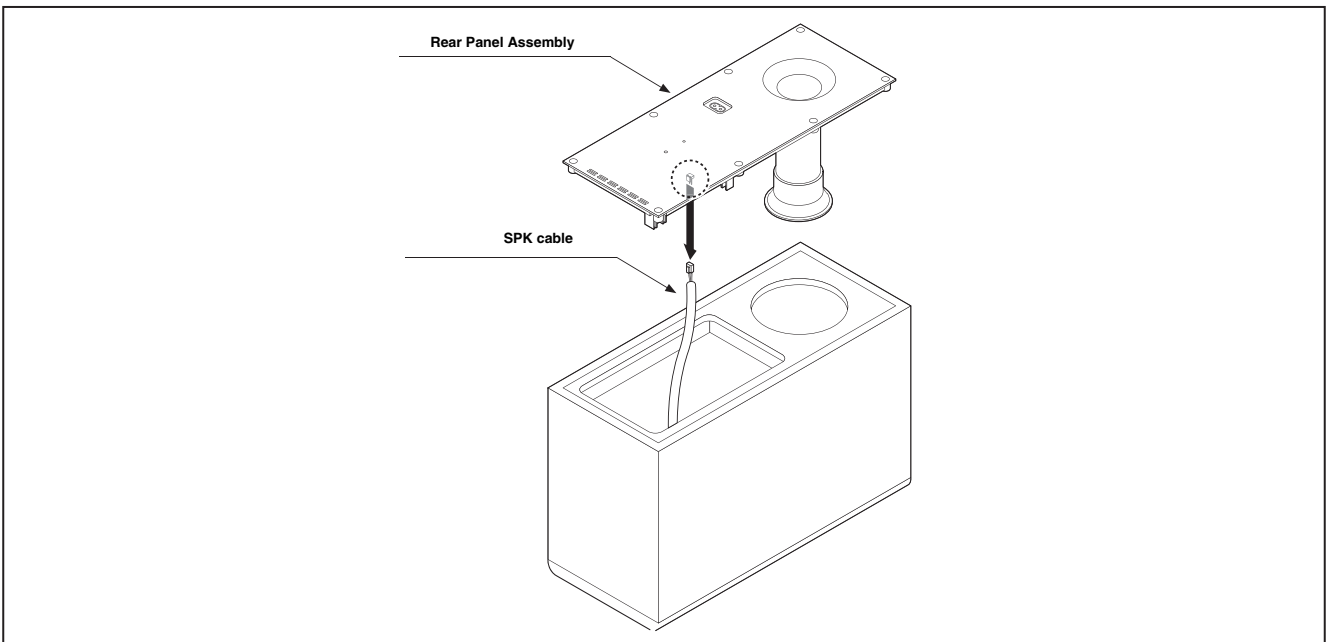


Figure 2-1 (2)

HOW TO DISASSEMBLE THE SUBWOOFER

2-2. WIRELESS Module

- 1) Disconnect the FFC cable.
- 2) Remove the EVA sheet (0.15T) covered the WIRELESS module.
- 3) Remove the WIRELESS module.
- 4) Remove the EVA gasket (1.0T) covered the WIRELESS module.

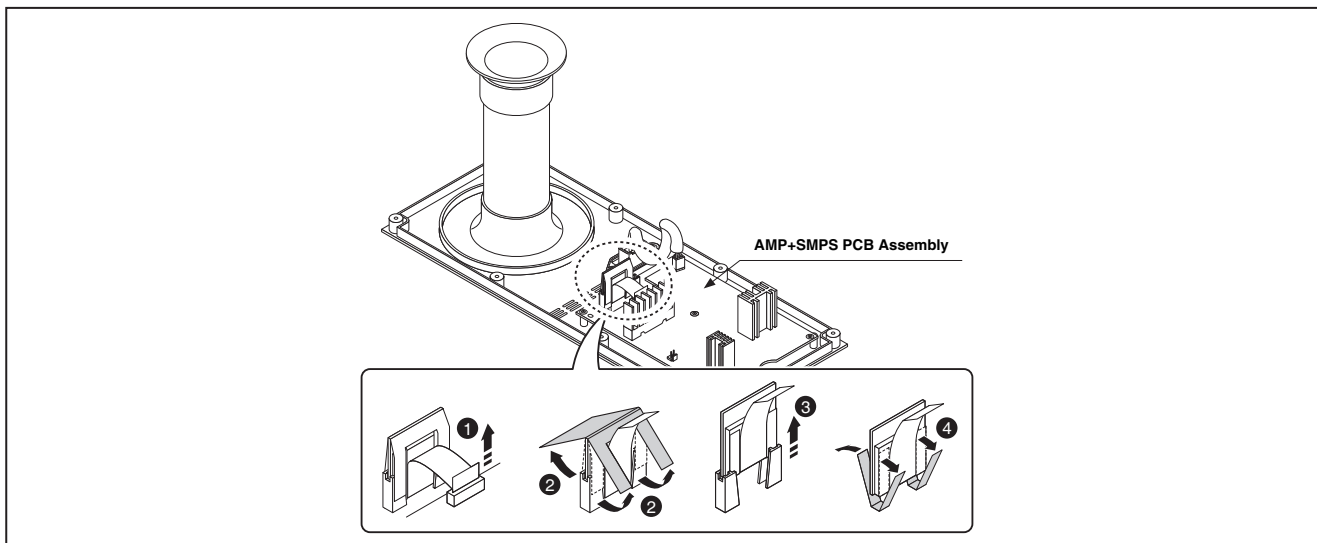


Figure 2-2 (1)

⚠ Caution when assembling the WIRELESS Module

- 1) Attach the EVA gaskets (1.0T) to both sides of the WIRELESS module.
- 2) Assemble the WIRELESS module into the wireless holder.
- 3) Attach the EVA sheet (0.15T) to the WIRELESS module.
- 4) Connect the FFC cable.

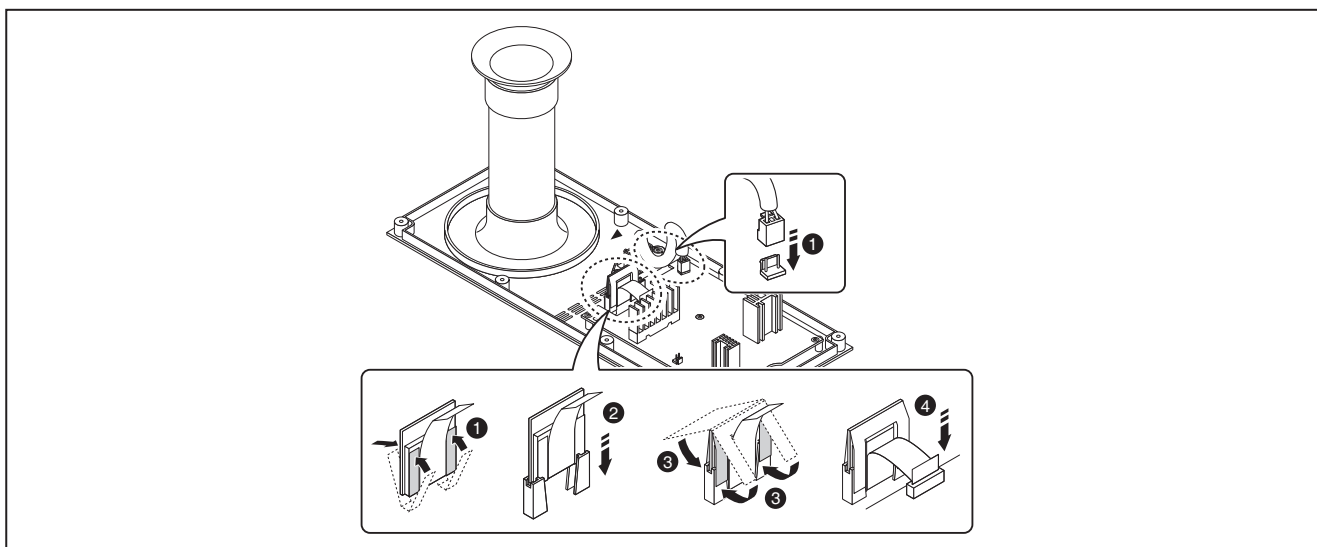


Figure 2-2 (2)

HOW TO DISASSEMBLE THE SUBWOOFER

2-3. AMP+SMPS PCB Assembly

- 1) Disconnect the Power inlet socket cable.

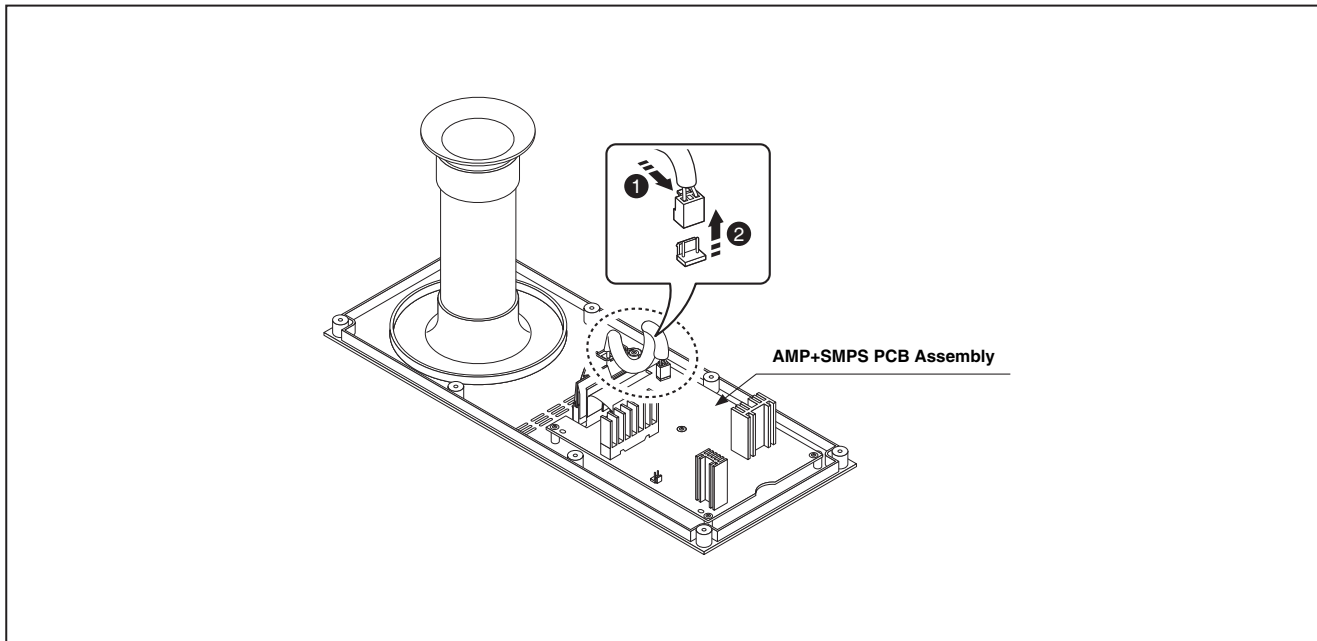


Figure 2-3 (1)

- 2) Remove the 5 screws.
- 3) Remove the AMP+SMPS PCB Assembly.

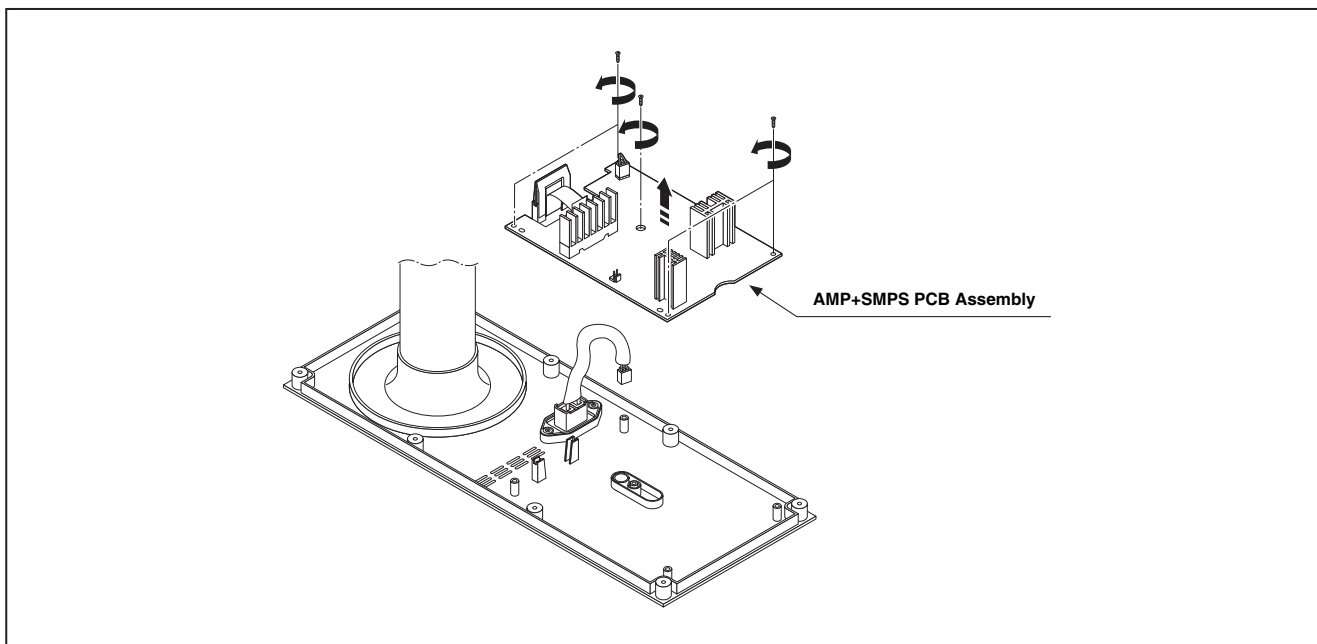


Figure 2-3 (2)

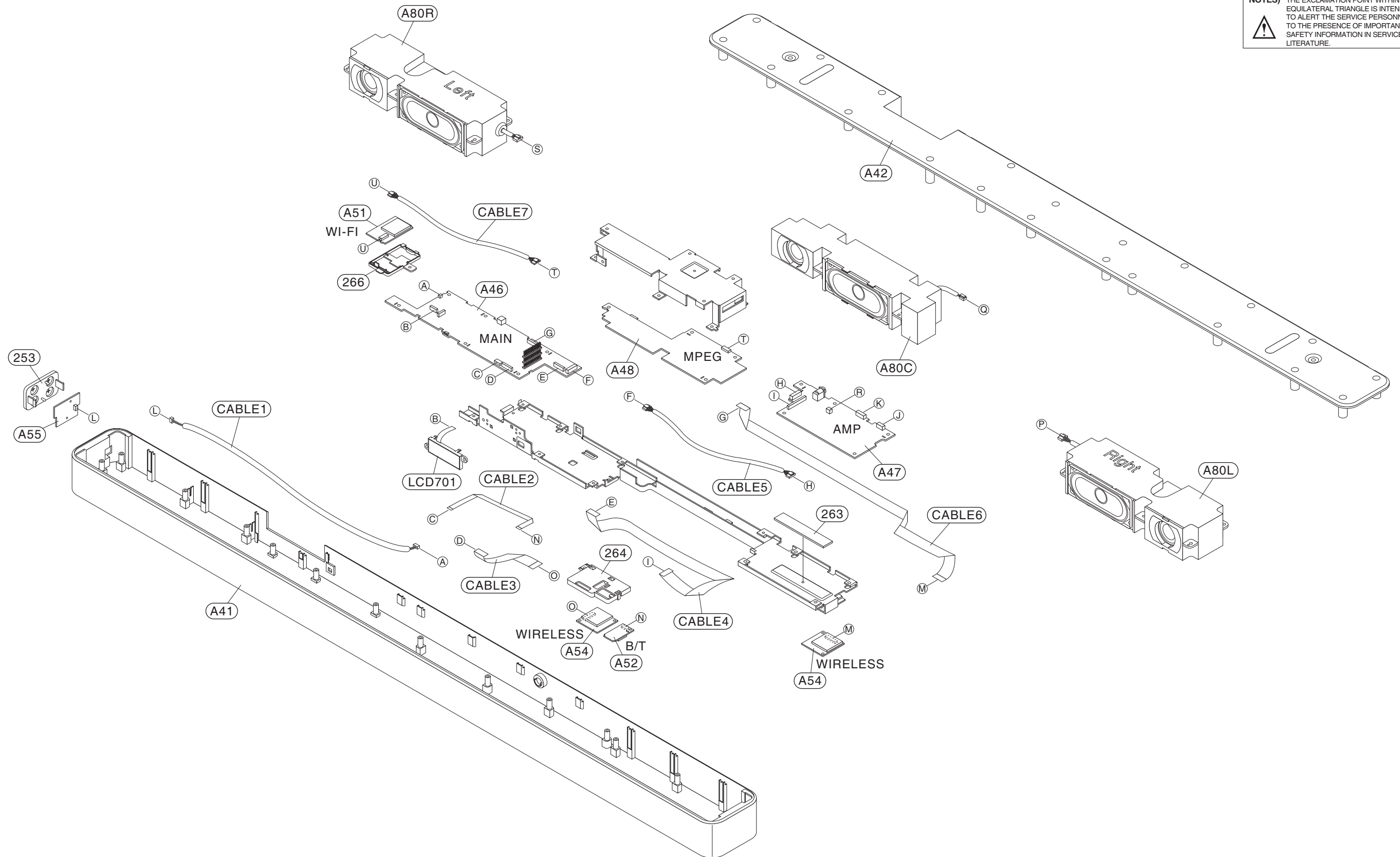
MEMO

A series of horizontal dotted lines for writing.

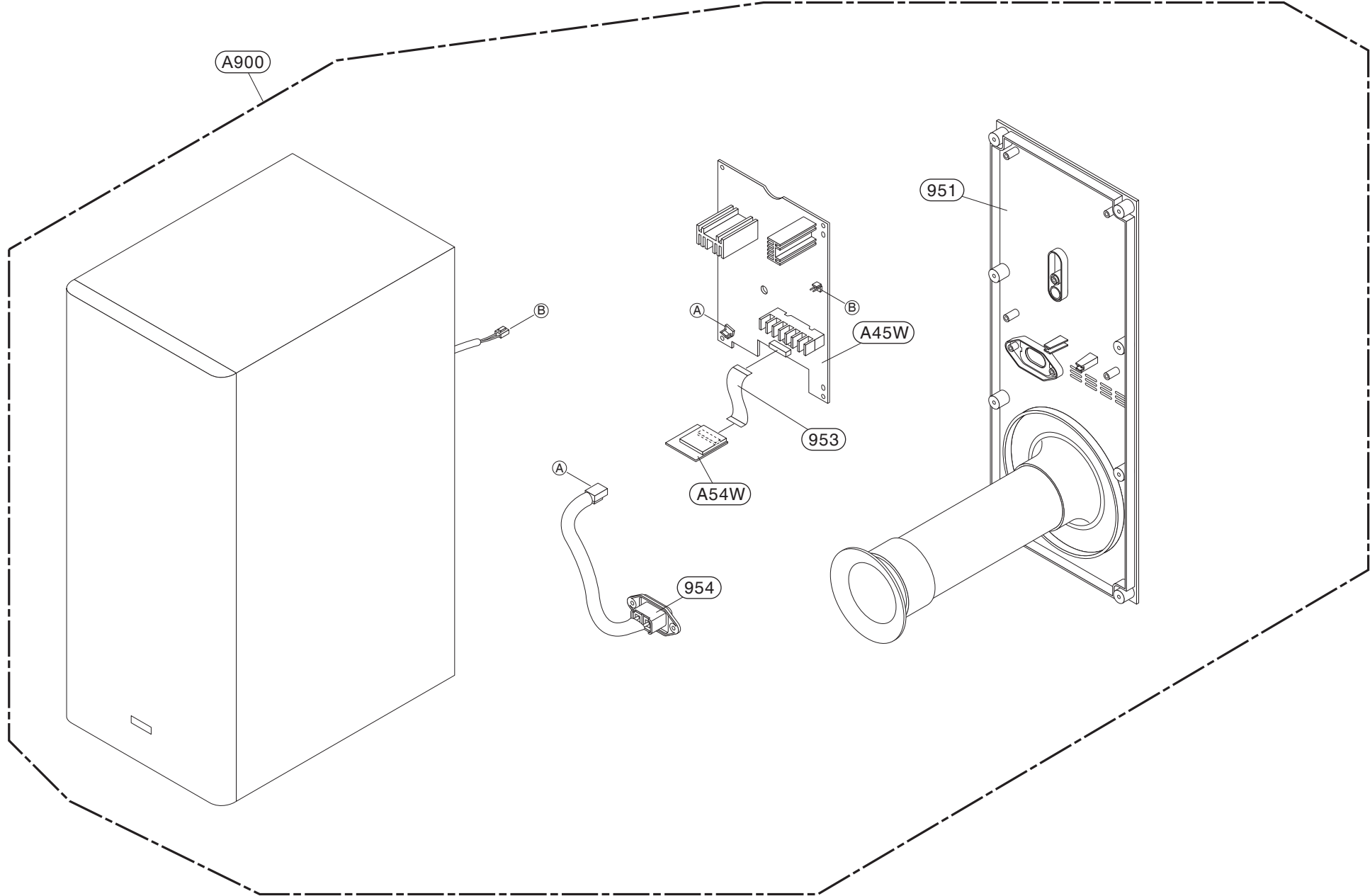
EXPLODED VIEWS

1. MAIN UNIT SECTION

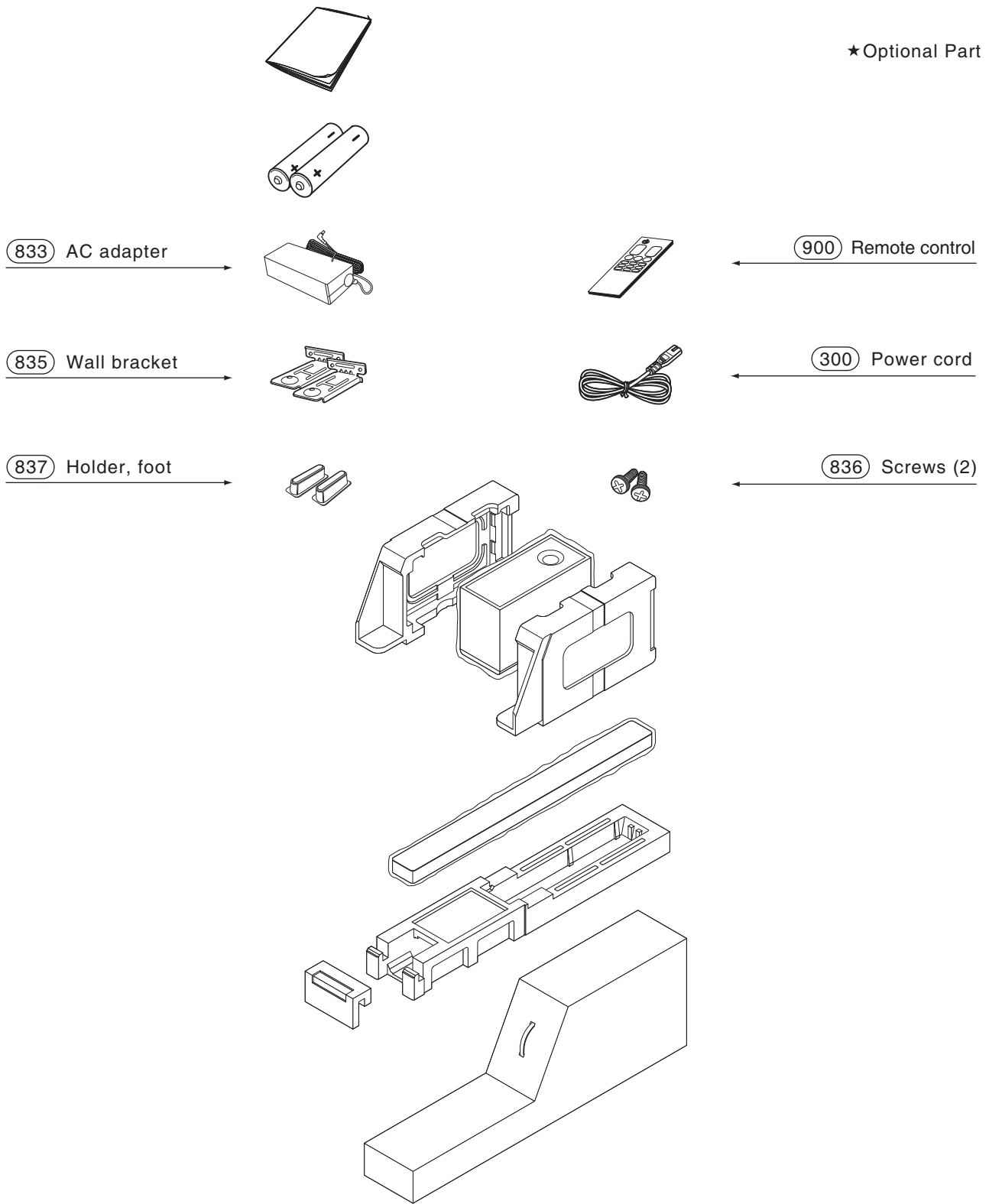
NOTES) THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.



2. WIRELESS SUBWOOFER SECTION



3. PACKING ACCESSORY SECTION



MEMO

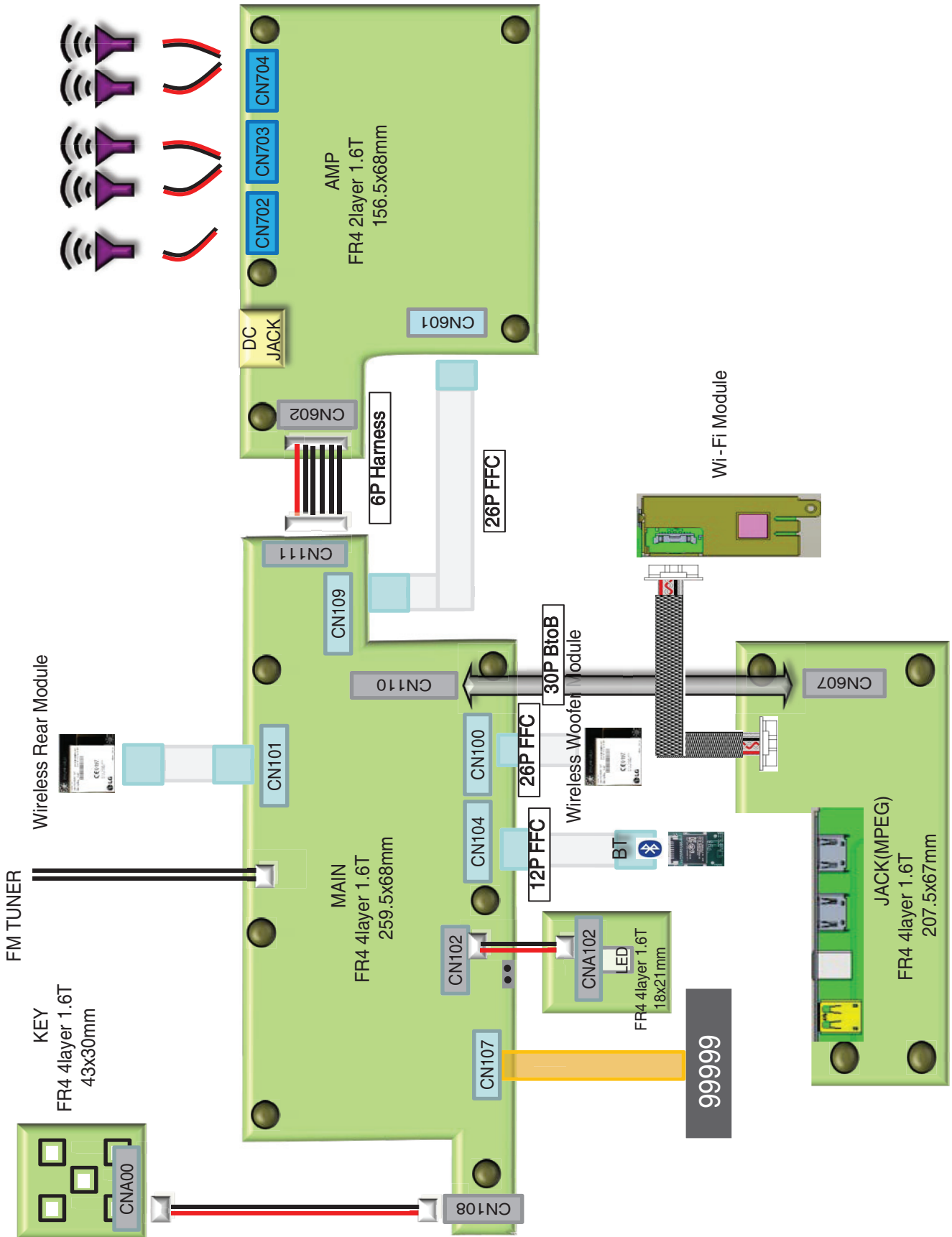
A series of horizontal dotted lines for writing.

SECTION 3 ELECTRICAL

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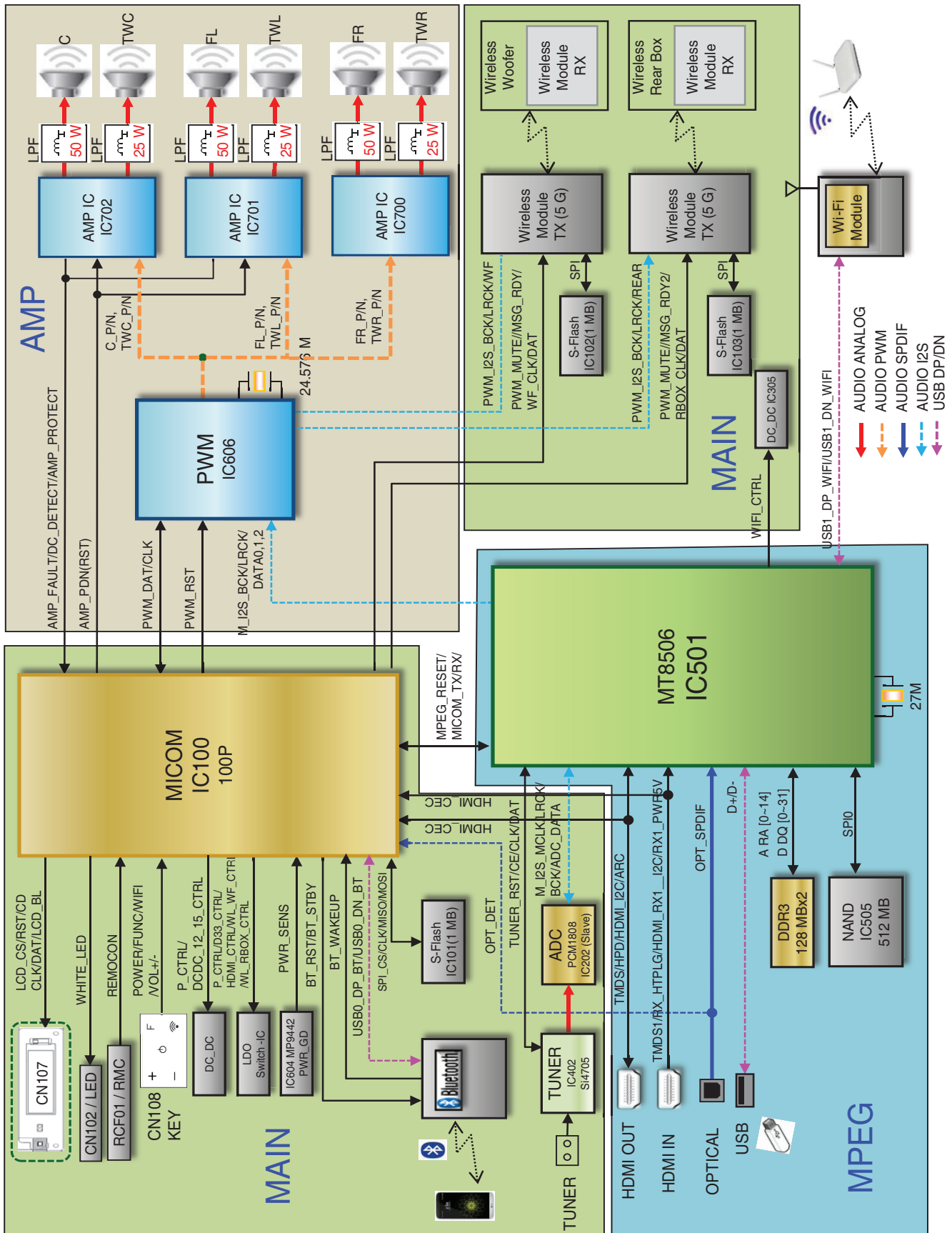
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WIRING DIAGRAM

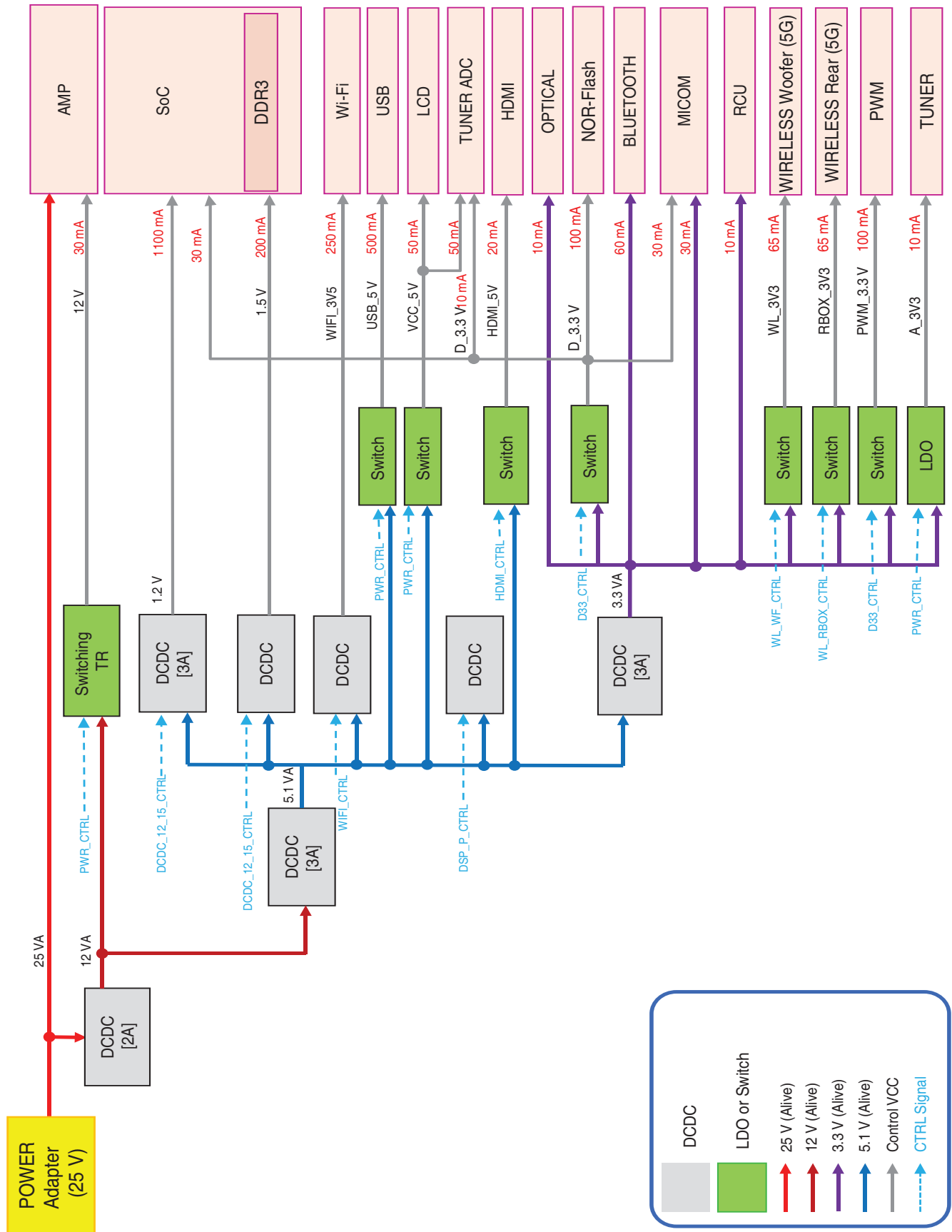


BLOCK DIAGRAMS

1. SYSTEM BLOCK DIAGRAM



2. POWER BLOCK DIAGRAM



ONE POINT REPAIR GUIDE

1. NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR “HELLO” ON FRONT PANEL

When you turn on your set, no message on the front panel, and stand-by LED doesn't work.

1-1. IC604 System 12 VA (No 12 VA)

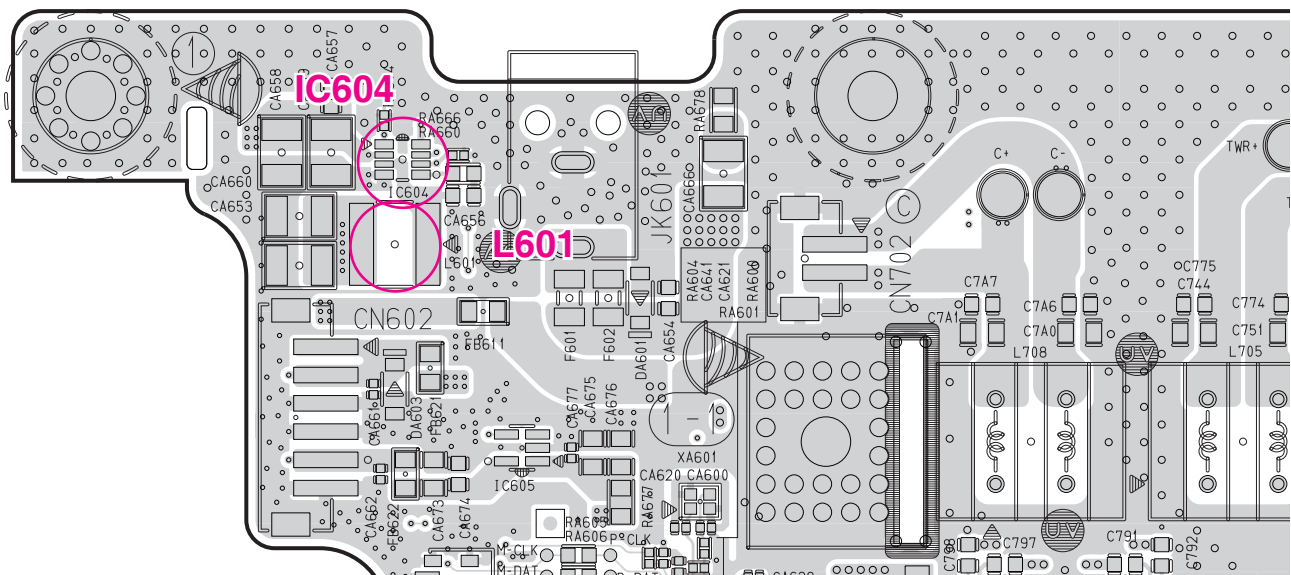
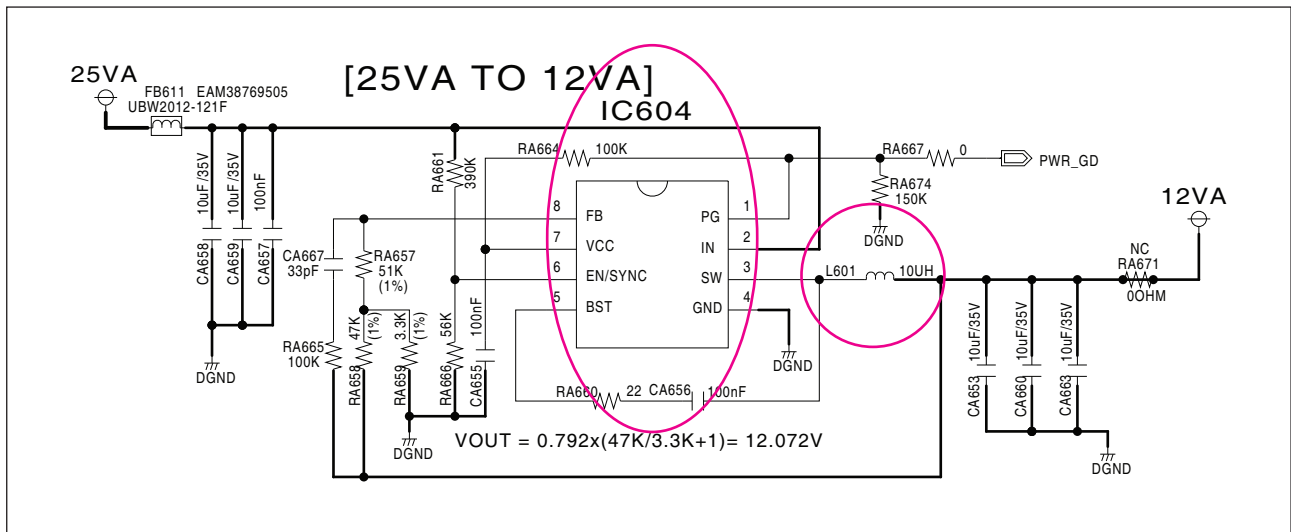
1-1-1. Solution

Replace AMP board.

1-1-2. How to troubleshoot (Countermeasure)

- 1) Please check 25 VA of IC604 pin2 (VIN).
- 2) If 25 VA is abnormal, please check adapter.
- 3) If 25 VA is OK, but 12 VA is abnormal pin3 of IC604 (VOUT), replace AMP board.

1-1-3. Service hint (Any picture / Remark)



< AMP board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR “HELLO” ON FRONT PANEL

When you turn on your set, it will blank / no message on front panel / doesn't work.

1-2. IC301 System 3.3 V (No 3.3 VA)

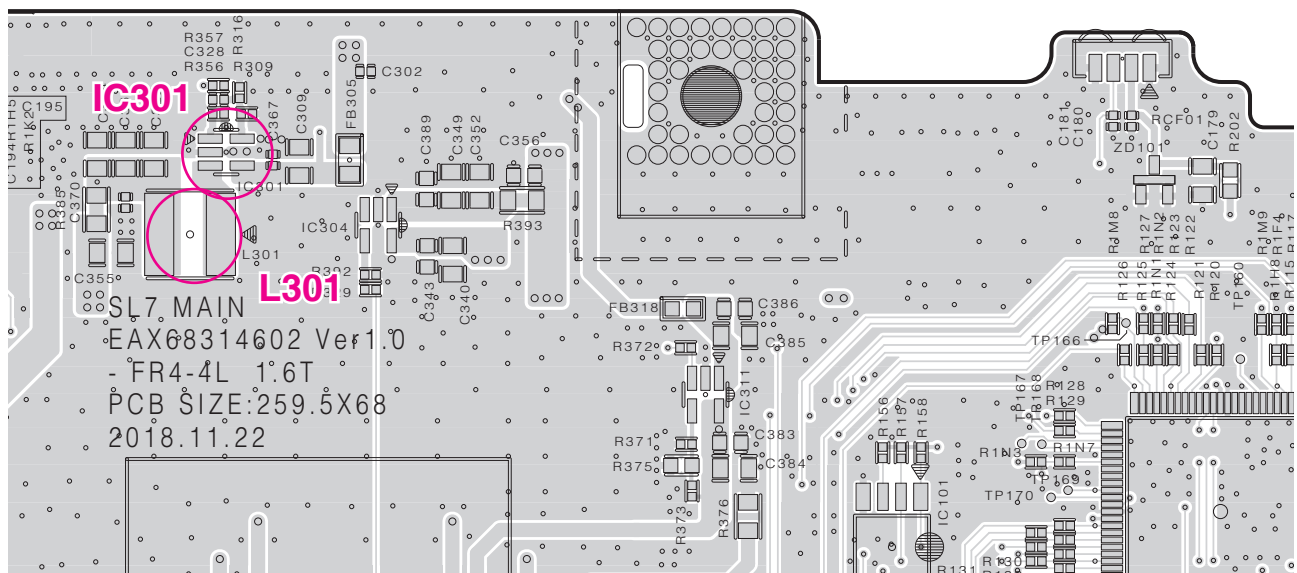
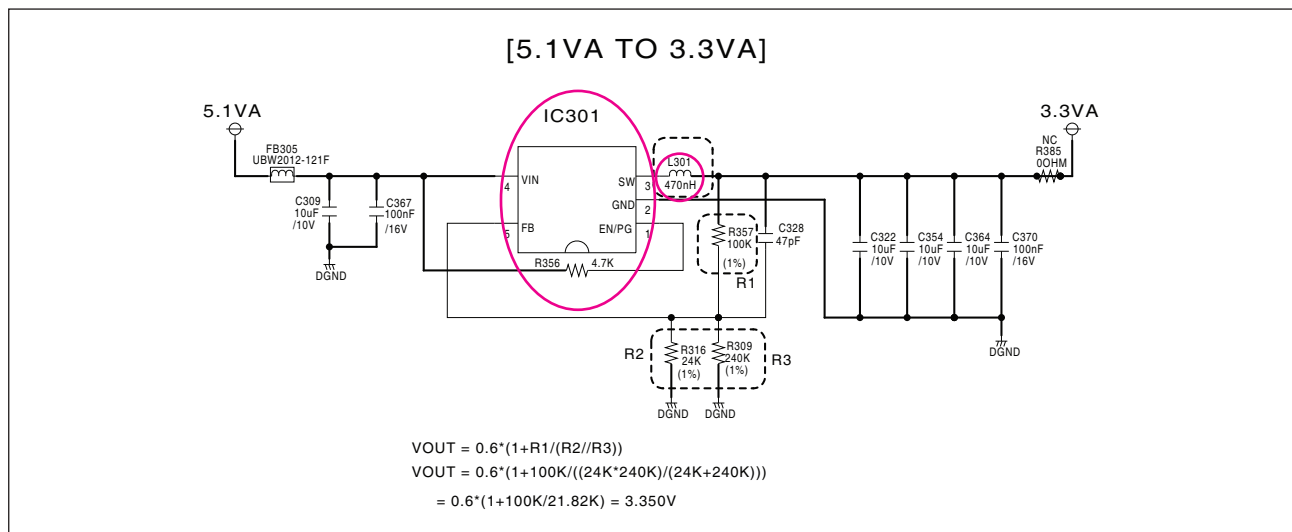
1-2-1. Solution

Replace MAIN board.

1-2-2. How to troubleshoot (Countermeasure)

- 1) Please check 3.3 VA of IC301 pin3.
- 2) If 3.3 VA is abnormal, replace MAIN board.
- 3) If 5.1 VA is OK, replace MAIN board.

1-2-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR “HELLO” ON FRONT PANEL

When you turn on your set, it will blank / no message on front panel, LCD doesn't work.

1-3. LCD System power VCC_5V

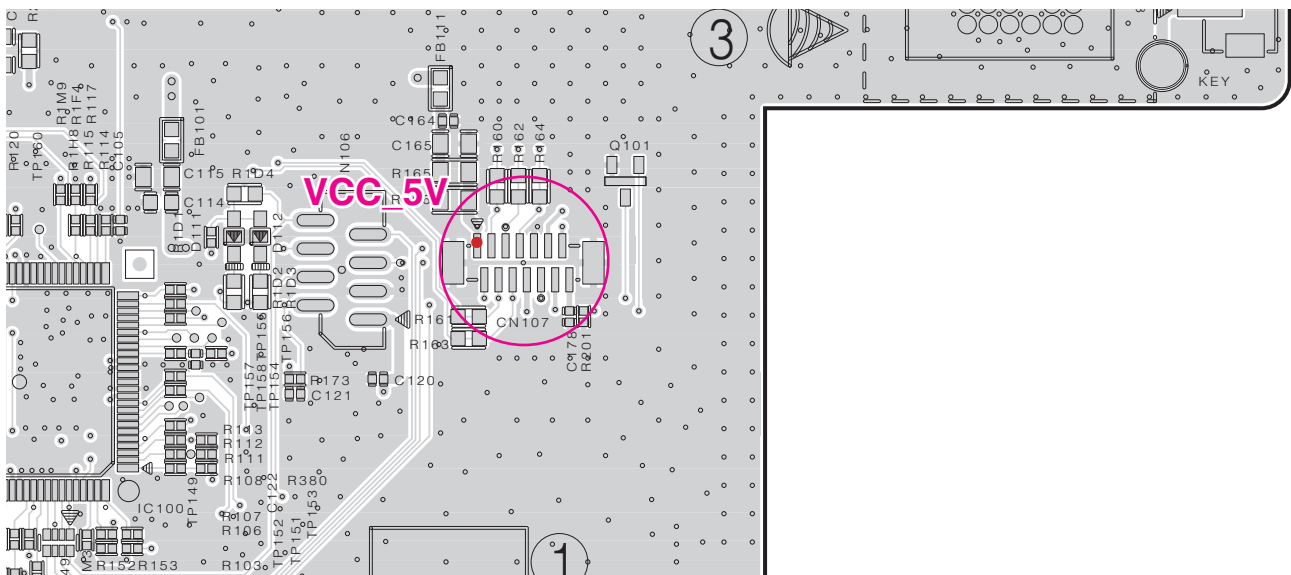
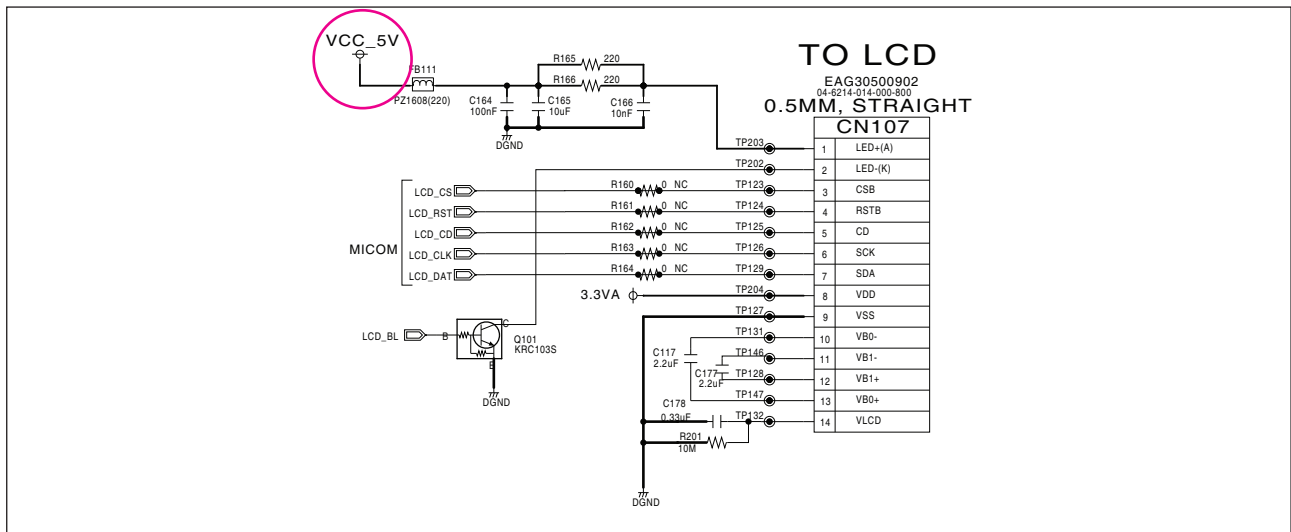
1-3-1. Solution

Replace MAIN/ FRONT board.

1-3-2. How to troubleshoot (Countermeasure)

- 1) Please check CN107 VCC_5V of CN107 pin1.
- 2) If VCC_5 V is abnormal, replace MAIN board.
- 3) If VCC_5 V OK, replace LCD module.

1-3-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO SOUND

2-2. OPTICAL

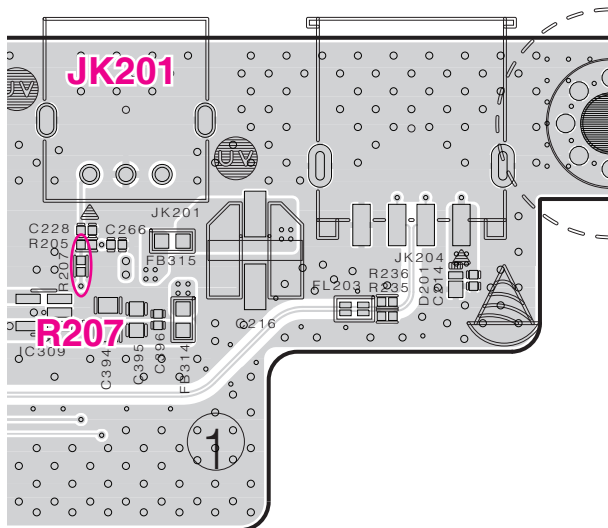
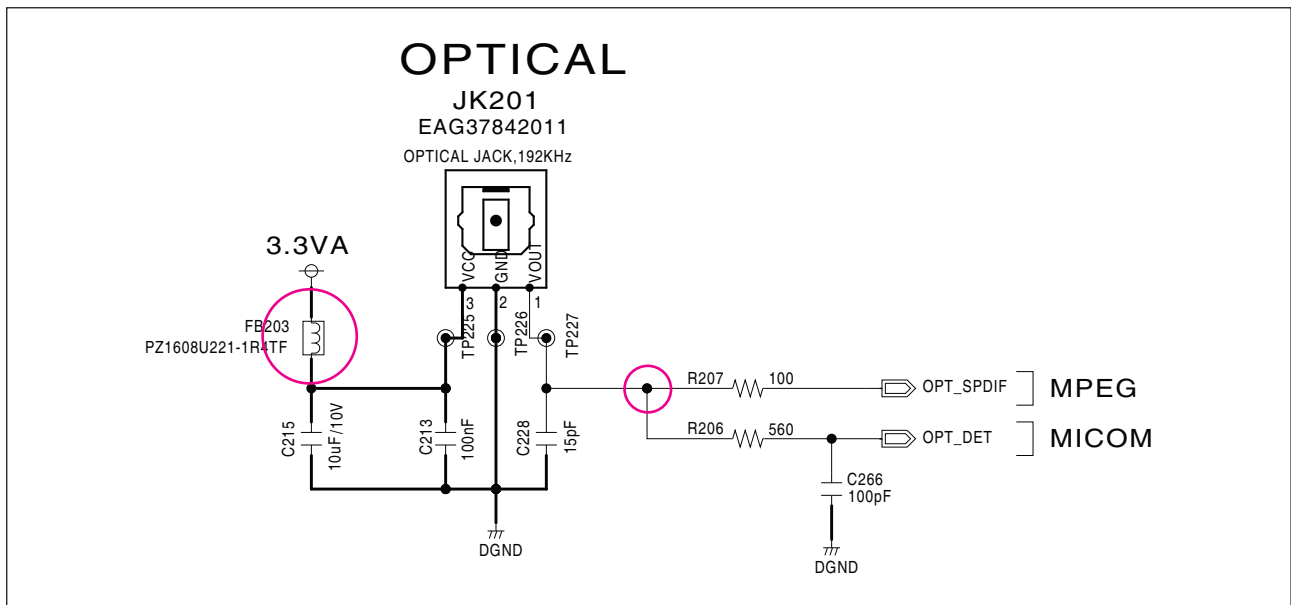
2-2-1. Solution

Replace MPEG/JACK board.

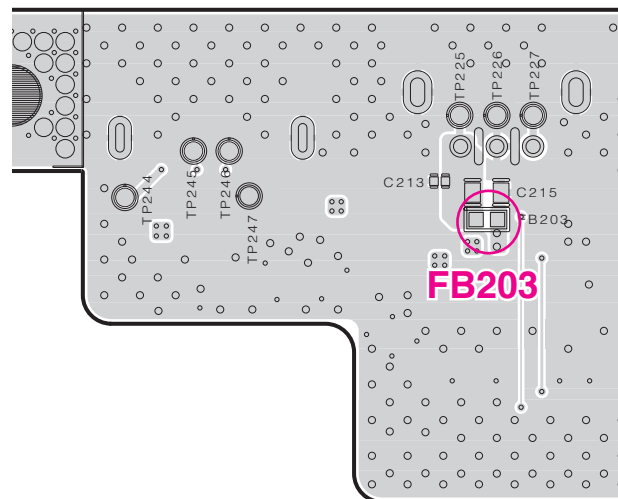
2-2-2. How to troubleshoot (Countermeasure)

- 1) Please check 3.3 VA at FB203.
- 2) If 3.3 VA is ok, please check OPT_IN signal (C228) when OPTICAL mode.
- 3) If signal is abnormal, replace MPEG/JACK board.

2-2-3. Service hint (Any picture / Remark)



< MPEG/JACK board top view >



< MPEG/JACK board bottom view >

ONE POINT REPAIR GUIDE

NO SOUND

2-3. HDMI

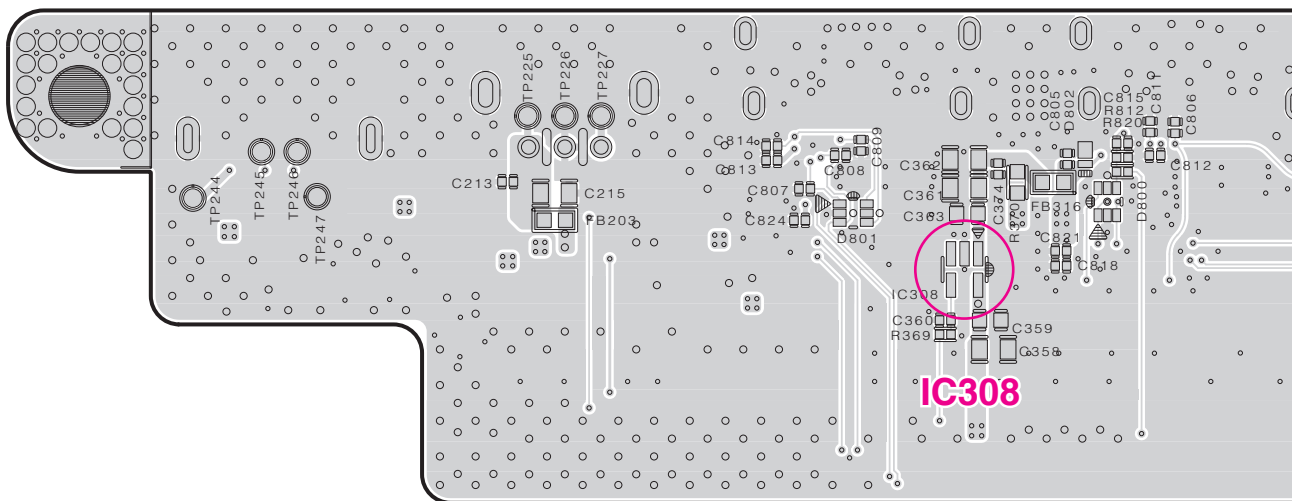
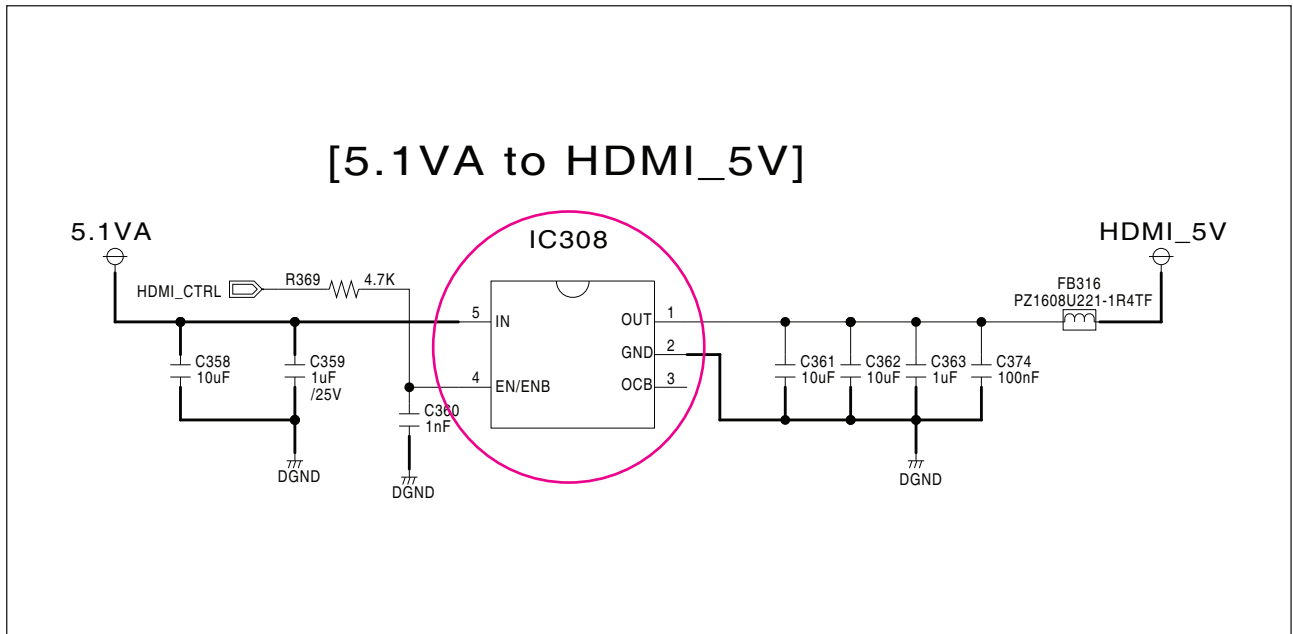
2-3-1. Solution

Replace MPEG/JACK board.

2-3-2. How to troubleshoot (Countermeasure)

- 1) Please check soldering status of HDMI jack and check HDMI_5V at IC308 pin1.
- 2) If soldering status and 5.1 VA are abnormal, replace MPEG/JACK board.

2-3-3. Service hint (Any picture / Remark)



< MPEG/JACK board bottom view >

ONE POINT REPAIR GUIDE

NO SOUND

2-4. USB

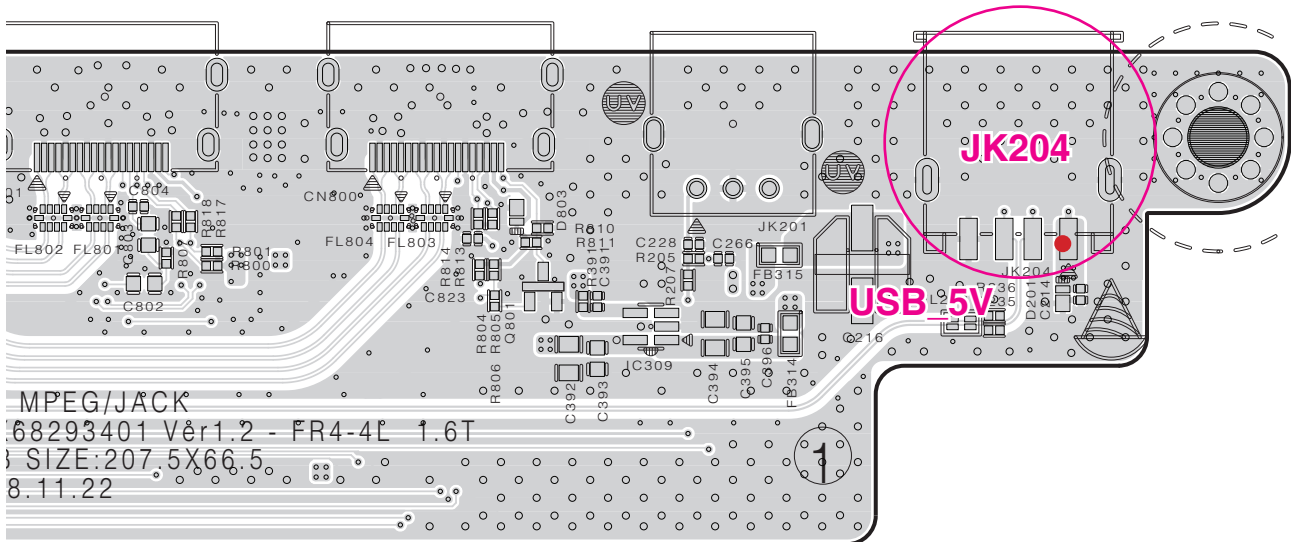
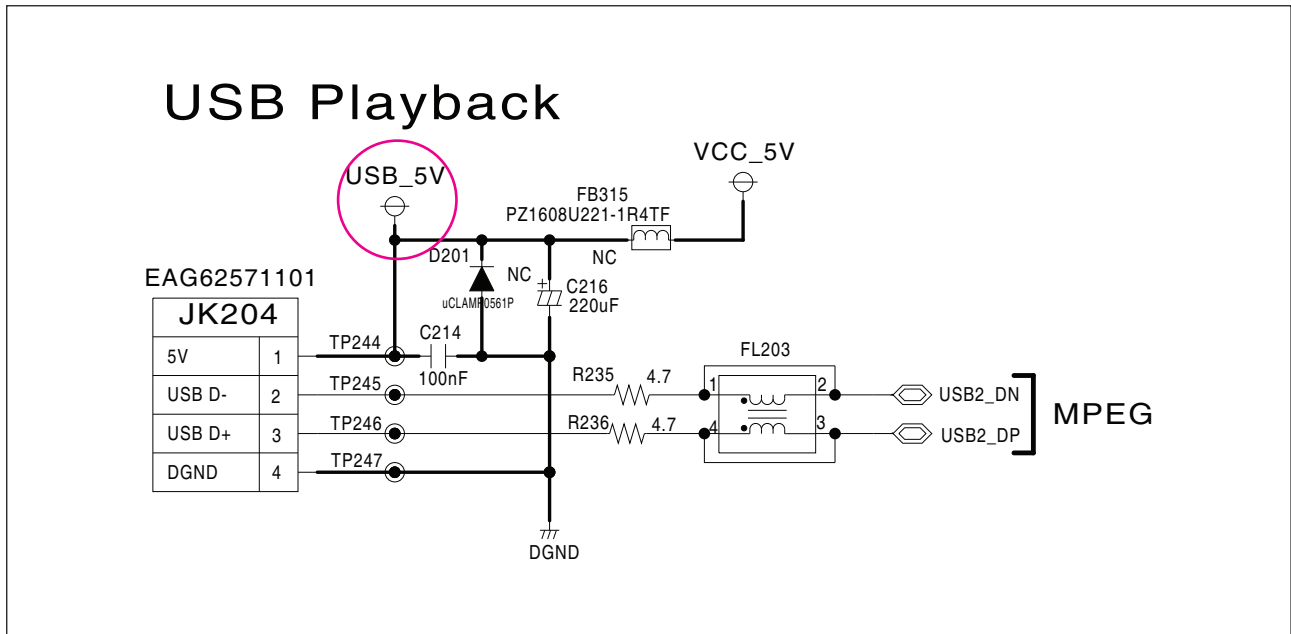
2-4-1. Solution

Replace MPEG/JACK board.

2-4-2. How to troubleshoot (Countermeasure)

- 1) Please check USB_5V at JK204 pin1.
- 2) If soldering status and voltage has abnormal status, replace MPEG/JACK board.

2-4-3. Service hint (Any picture / Remark)



< MPEG/JACK board top view >

ONE POINT REPAIR GUIDE

3. PROTECTION ERROR

No display or No Sound.

3-1. D(DC) PROTECTION

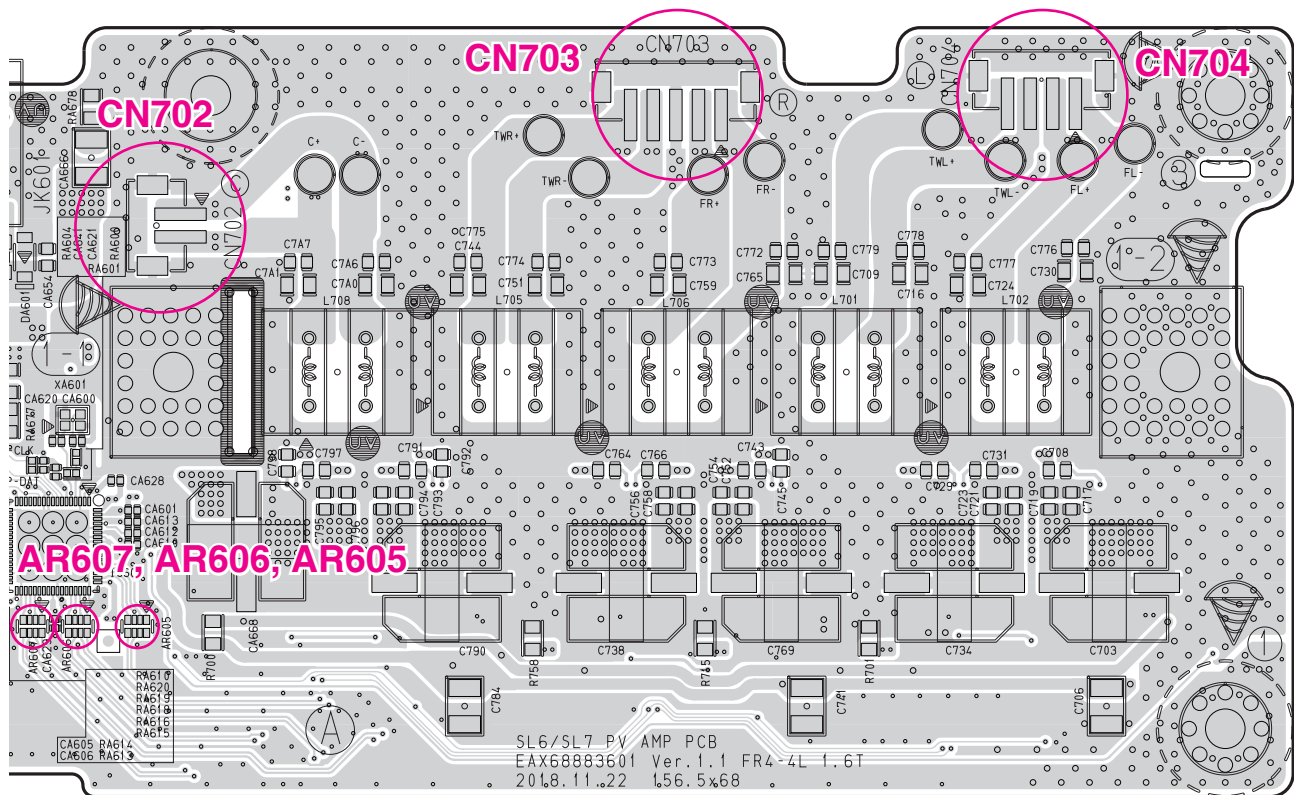
3-1-1. Solution

Replace AMP board.

3-1-2. How to troubleshoot (Countermeasure)

- 1) Check DC Voltage of speaker out FL+/-, TWL+/- (CN704 pin1, 2, 3, 4), FR +/-, TWR+/- (CN703 pin1, 2, 4, 5), and C+/- (CN702 pin1, 2).
- 2) Check resistor crack, cold solder of PWM IC out (AR606, AR607, AR605).
- 3) If PWM IC out is ok and speaker out (FL+/-, FR+/-, TWL+/-, TWR+/-, C+/-) has DC voltage, replace AMP board.

3-1-3. Service hint (Any picture / Remark)



< AMP board top view >

ONE POINT REPAIR GUIDE

PROTECTION ERROR

No display or No Sound.

3-2. B(BURNT) PROTECTION

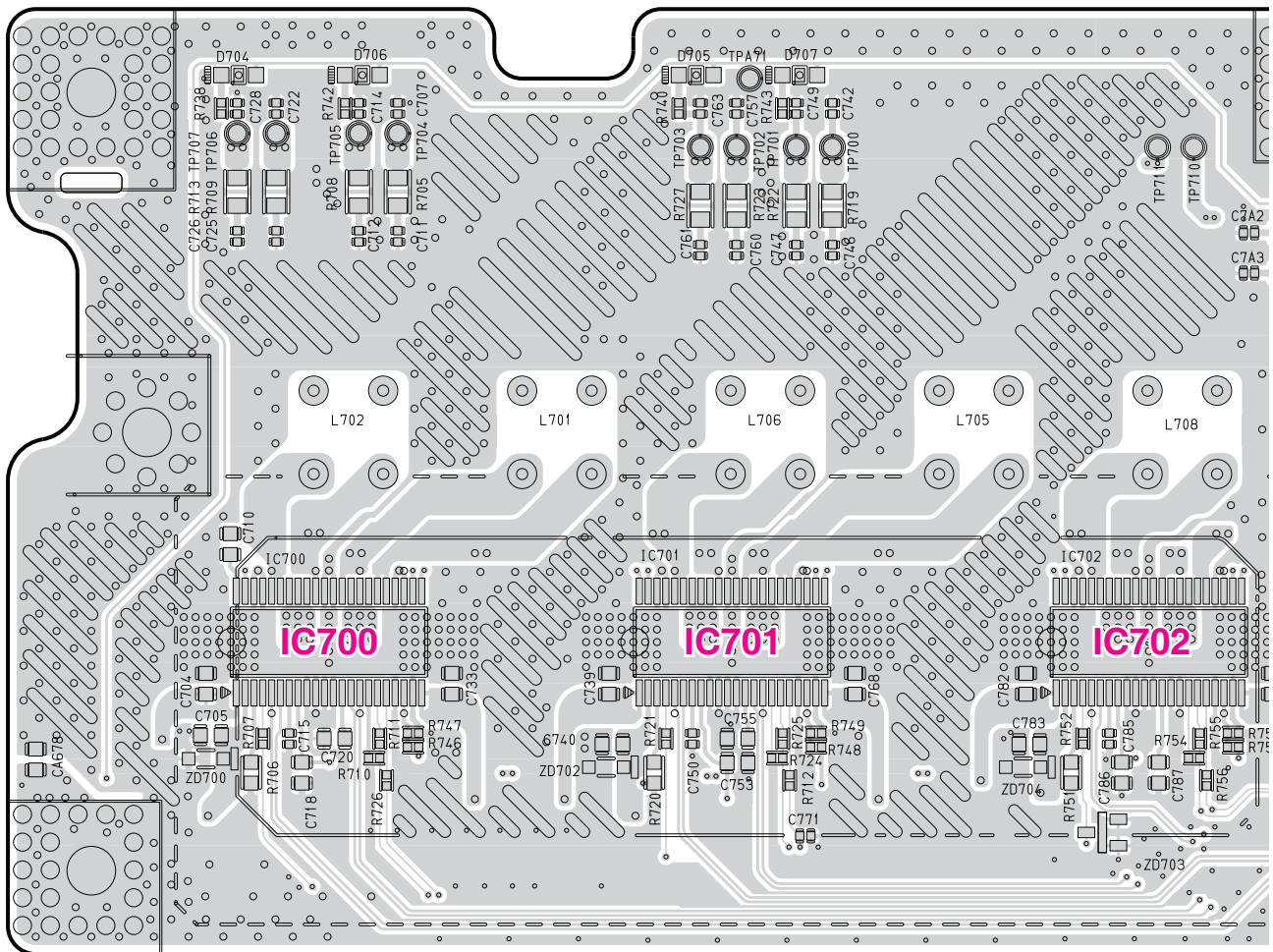
3-2-1. Solution

Replace AMP board.

3-2-2. How to troubleshoot (Countermeasure)

- 1) Check voltage 12 V of IC700, IC701, IC702 at pin1 ~ 2, if 12 V has problem refer to STEP 1-1.
- 2) If 12 V is OK, replace AMP board.

3-2-3. Service hint (Any picture / Remark)



< AMP board bottom view >

WAVEFORMS OF MAJOR CHECK POINT

1. CRYSTAL

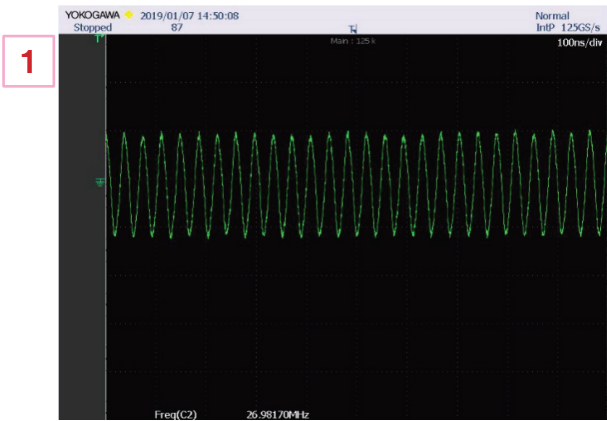


FIG 1-1. X501 (27 MHz)

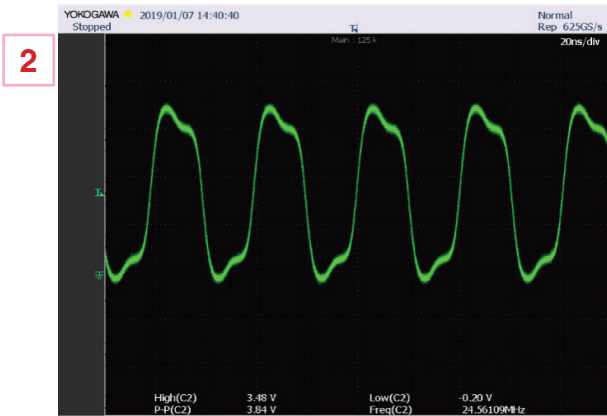
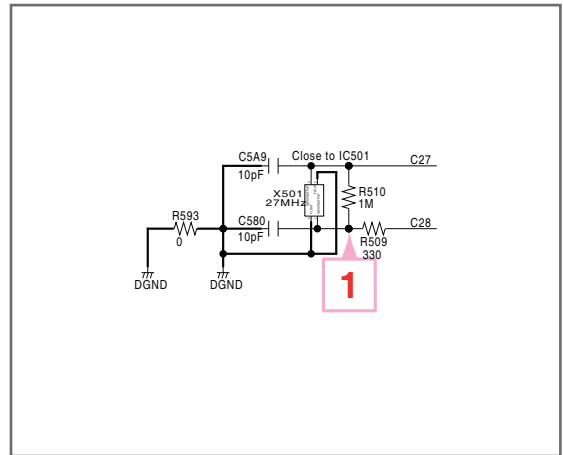
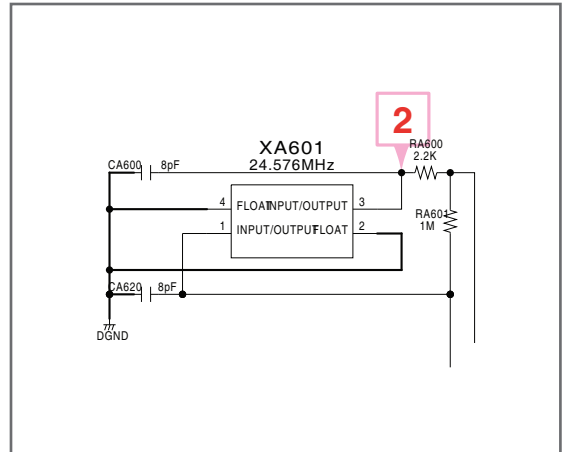


FIG 1-2. XA501 (24.576 MHz)



2. FLASH MEMORY

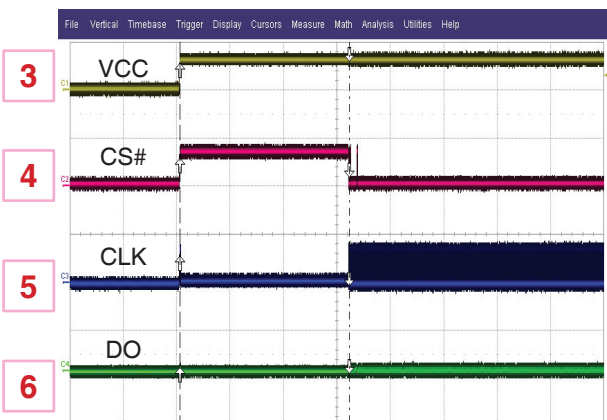
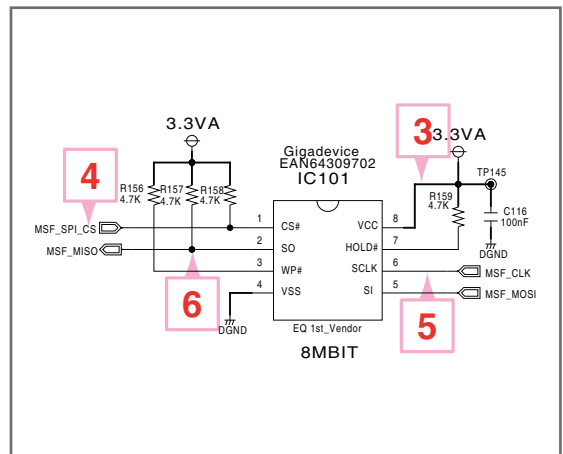


FIG 2. VCC, CS#, CLK, DO



4. USB

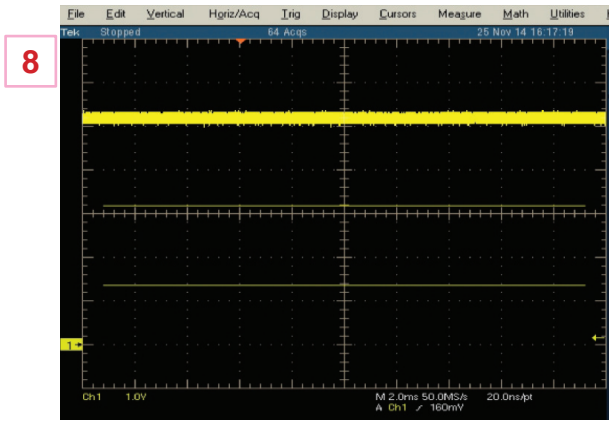


FIG 4-1. USB 5 V

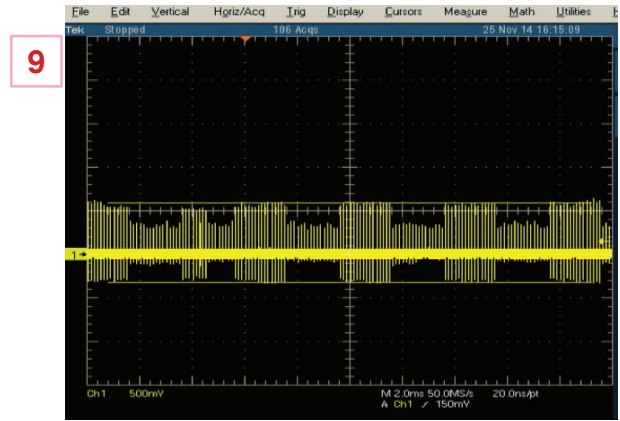
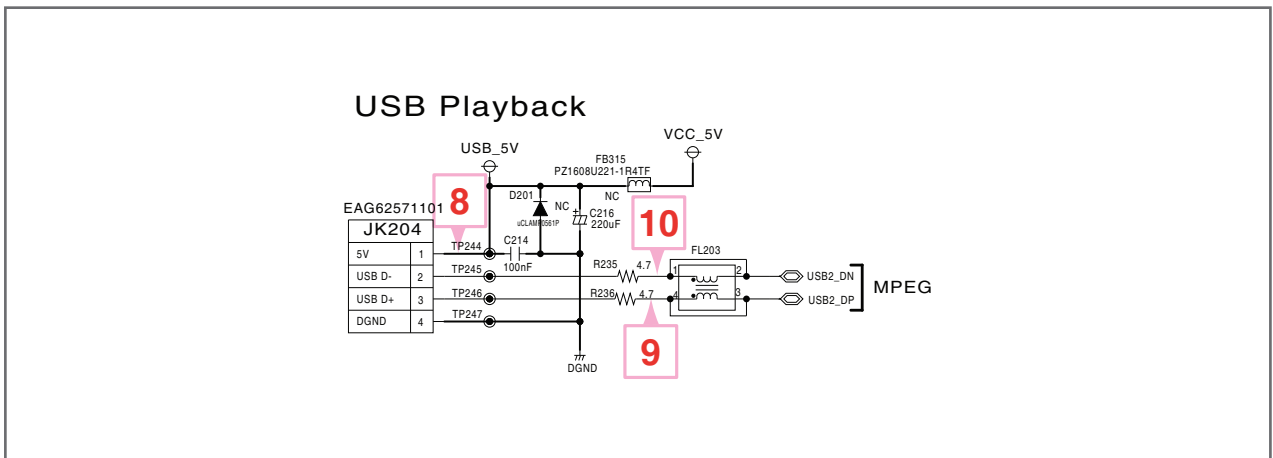


FIG 4-2. USB D+



FIG 4-3. USB D-



5. REMOTE CONTROL

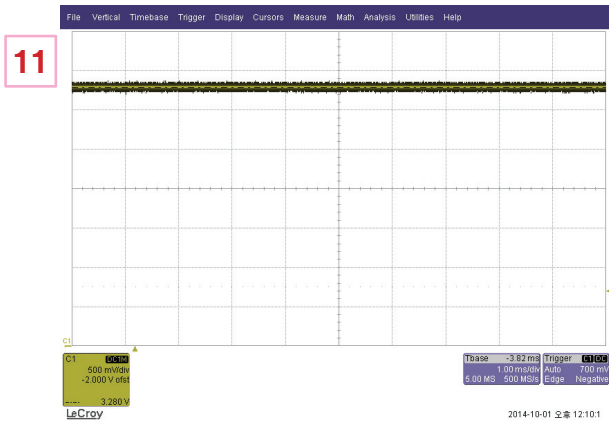


FIG 5-1. Input Voltage

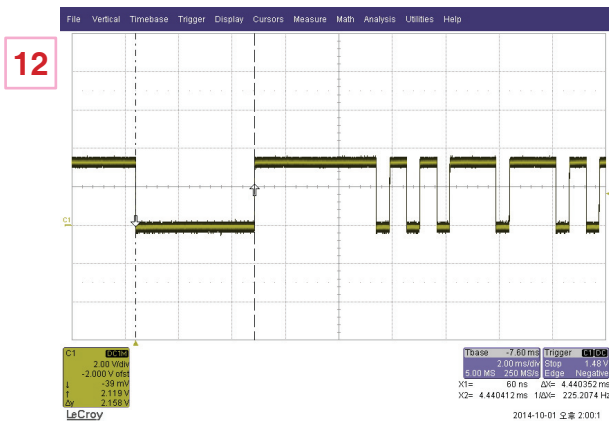


FIG 5-2. Low Timing

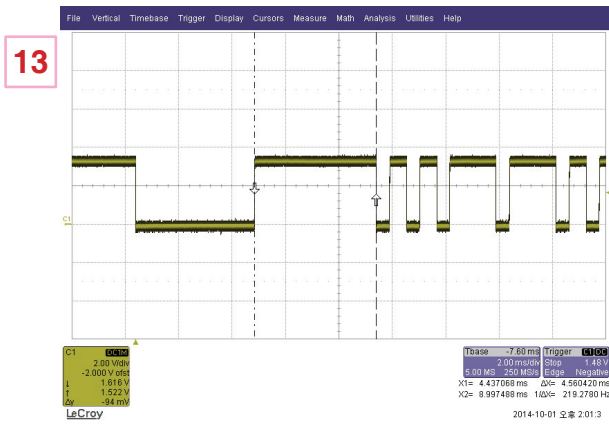
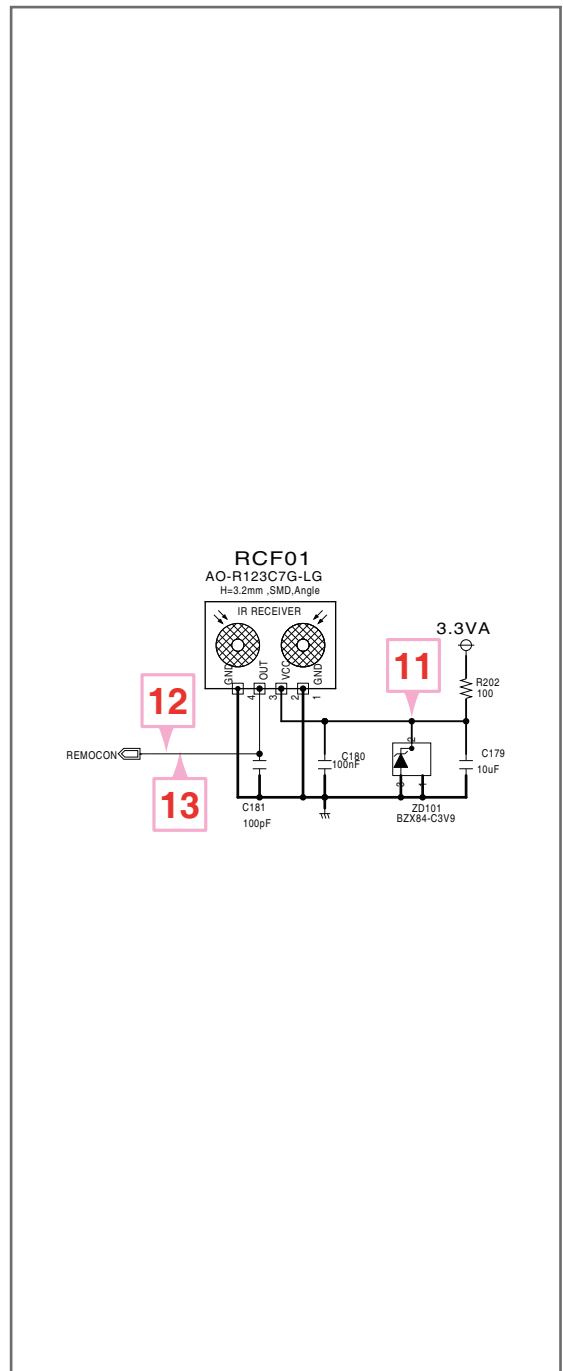


FIG 5-3. High Timing



Item	Measured	Spec.
Input Level	3.3 V	IR Receiver Spec: 2.7 ~ 5.5 V
“ Low” Timing	4.4 ms	3.6 ms ~ 5.04 ms
“ High” Timing	4.48 ms	4.08 ms ~ 5.04 ms

6. OPTICAL

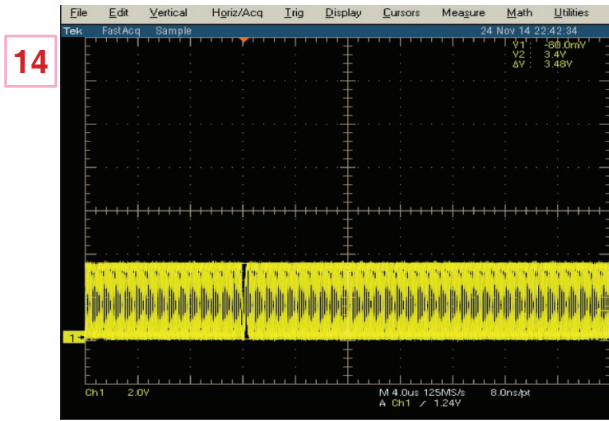


FIG 6-1. OPT IN

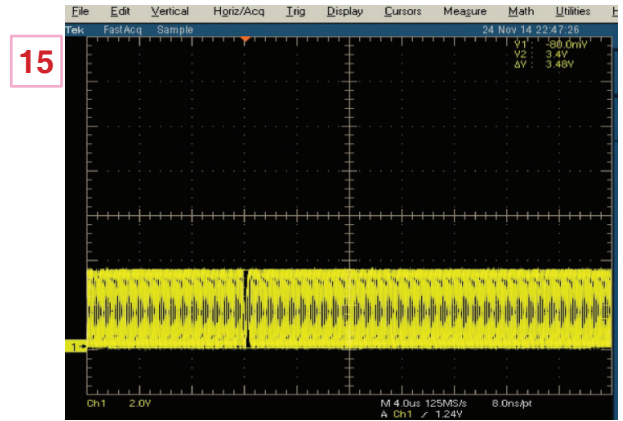
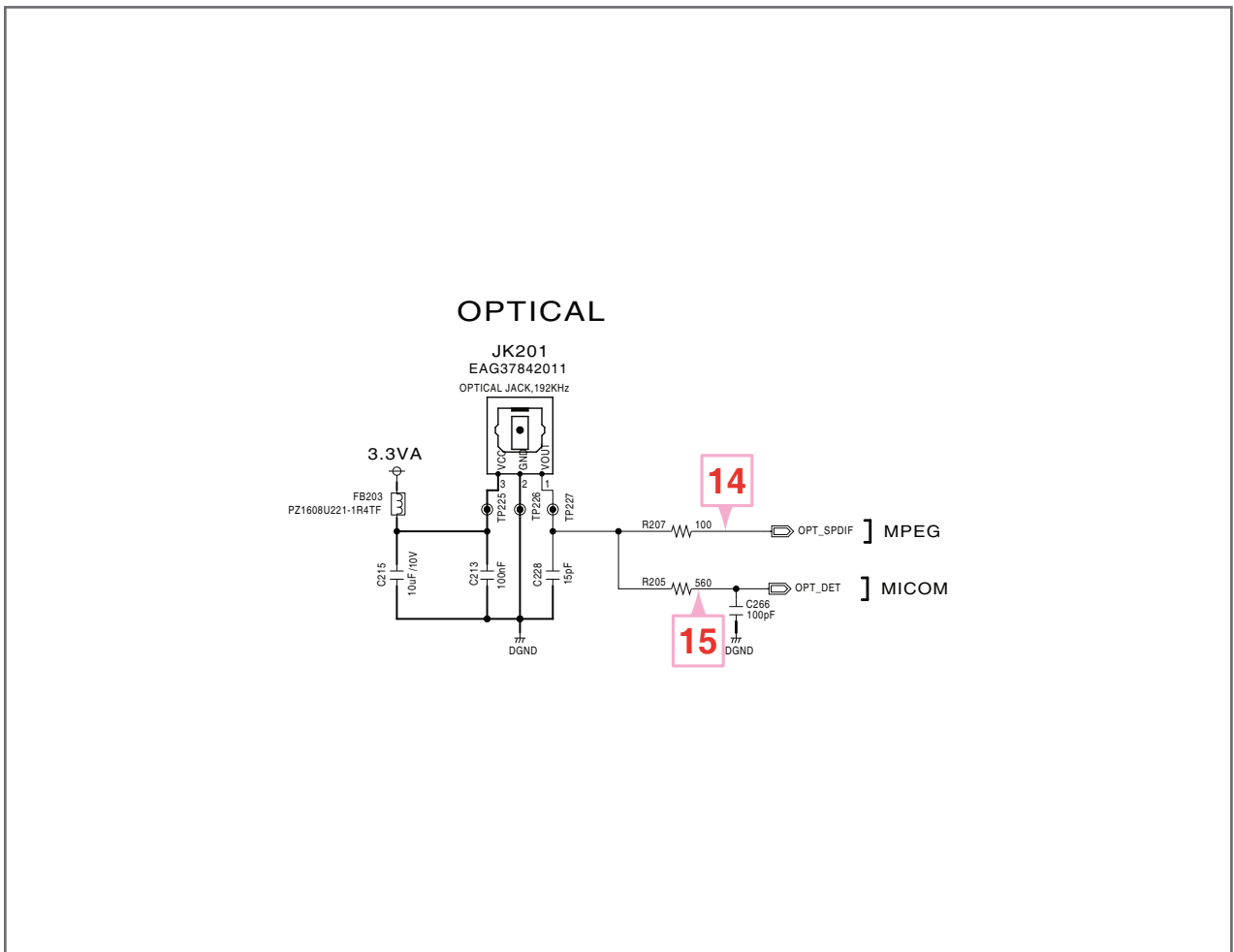


FIG 6-2. OPT DET



7. FM

16

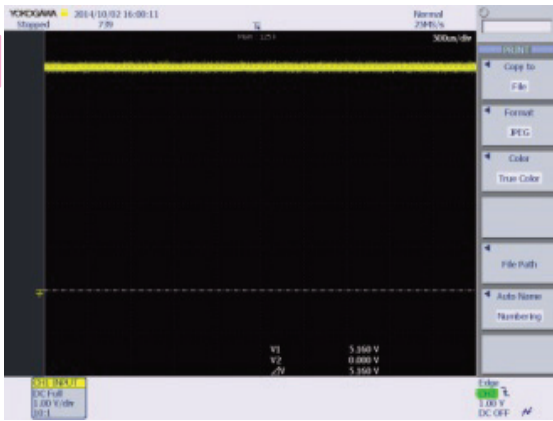


FIG 7-1. ADC IC 5 V

17

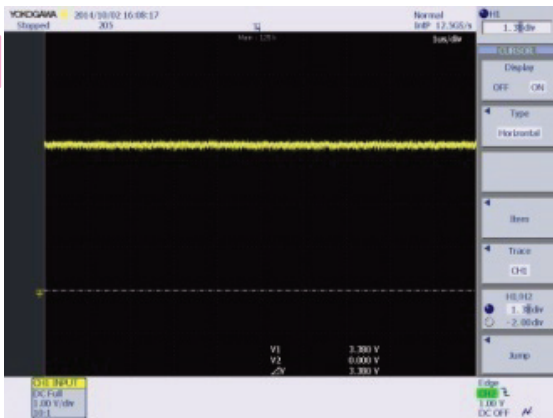


FIG 7-2. ADC IC 3.3 V

18

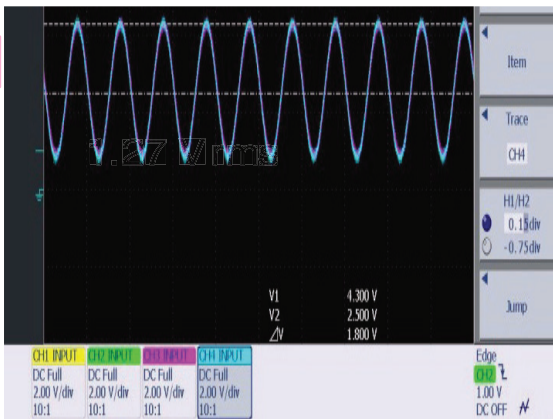
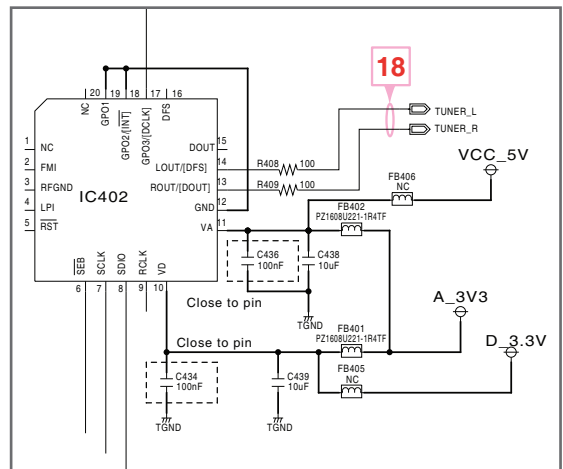
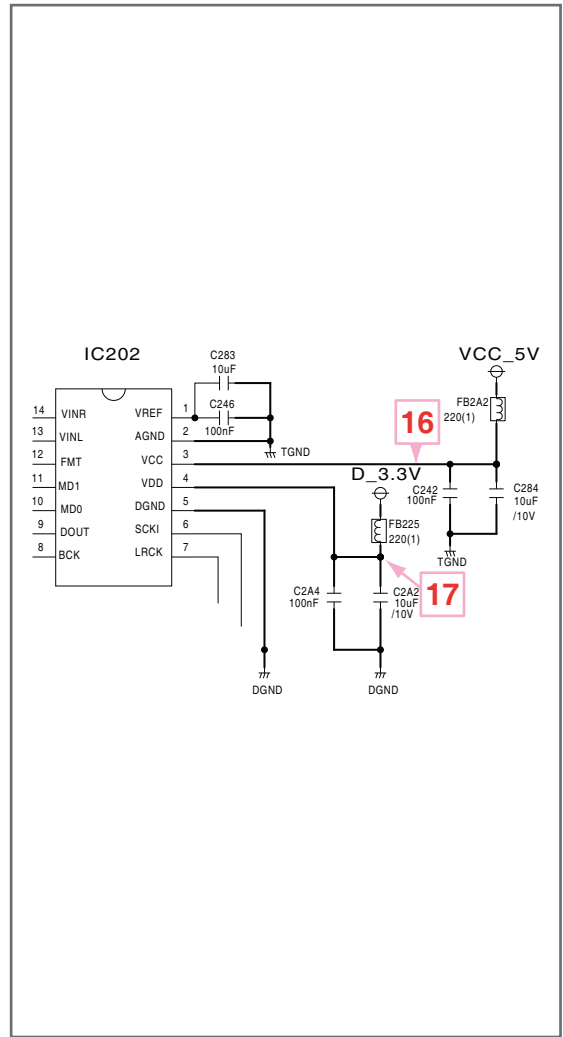


FIG 7-3. TUNER AUDIO



MEMO

A series of horizontal dotted lines for writing.

CIRCUIT VOLTAGE CHART

1. IC VOLTAGE

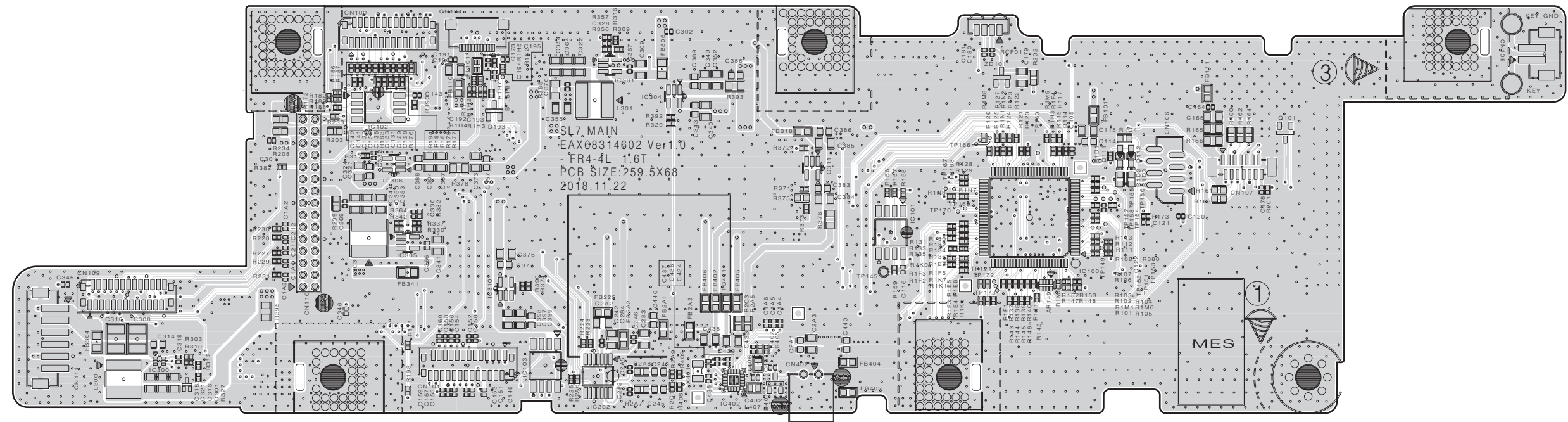
Designator	Description	Pin No.	Pin Name	Voltage Spec	Measured Voltage	Temperature Spec.
IC100	Microcontrollers	11	AVCC	1.8 V ~ 3.6 V	3.37 V	85 °C
		15, 38, 64, 87	DVCC	1.8 V ~ 3.6 V	3.37 V	
IC101	Serial Flash Memory	8	VCC	2.7 V ~ 3.6 V	3.39 V	85 °C
IC102	Serial Flash Memory	8	VCC	2.7 V ~ 3.6 V	3.38 V	85 °C
IC103	Serial Flash Memory	8	VCC	2.7 V ~ 3.6 V	3.38 V	85 °C
IC202	A/D Converter	3	VCC	4.5 V ~ 5.5 V	5.14 V	85 °C
		4	VDD	2.7 V ~ 3.6 V	3.39 V	
IC300	DC,DC Converter	1	VIN	4.2 V ~ 17 V	12.0 V	125 °C
		2	VOUT	0.8 V ~ 10 V	5.14 V	
IC301	DC,DC Converter	4	VIN	2.7 V ~ 5.5 V	5.10 V	125 °C
		5	VOUT	0.6 V ~ 5.225 V	3.38 V	
IC303	DC,DC Converter	4	VIN	2.5 V ~ 5.5 V	5.08 V	125 °C
		3	SW	0.6 V ~ 5.225 V	1.51 V	
IC304	Analog Switch	5	VIN	2.5 V ~ 5.5 V	3.39 V	125 °C
		1	VOUT	0 V ~ 5.5 V	3.39 V	
IC305	DC,DC Converter	4	VIN	2.7 V ~ 5.5 V	5.18 V	125 °C
		5	VOUT	0.6 V ~ 5.225 V	3.58 V	
IC306	Analog Switch	5	VIN	4.5 V ~ 5.5 V	5.14 V	125 °C
		1	VOUT	0 V ~ 5.5 V	5.13 V	
IC307	DC,DC Converter	1	VIN	4.2 V ~ 17 V	5.08 V	125 °C
		2	SW	0.8 V ~ 10 V	1.22 V	
IC308	Analog Switch	5	IN	2.5 V ~ 5.5 V	5.09 V	125 °C
		1	OUT		5.09 V	
IC309	Analog Switch	5	VIN	2.5 V ~ 5.5 V	5.09 V	125 °C
		1	VOUT	0 V ~ 5.5 V	5.09 V	
IC310	Analog Switch	5	VIN	2.5 V ~ 5.5 V	3.37 V	125 °C
		1	VOUT	0 V ~ 5.5 V	3.36 V	
IC311	LDO Voltage Regulator	1	VIN	2.3 V ~ 6.0 V	5.13 V	125 °C
		5	VOUT	0.8 V ~ 5.0 V	3.30 V	
IC312	Analog Switch	5	IN	2.5 V ~ 5.5 V	3.40 V	125 °C
		1	OUT		3.40 V	
IC402	IC,Tuner	10	VD	1.62 ~ 3.6 V	3.30 V	95 °C
		11	VA	2.7 ~ 5.5 V	3.30 V	
IC501	Video Processors	H8, H9, J8, K8 ...	DVCC12_K	1.14 V ~ 1.26 V	1.20 V	95 °C
		G6, G7, H7, J7, K6, L5 ...	DVCC33_IO	3.15 V ~ 3.45 V	3.31 V	
		P6, T4, T5, V2, V3, W2 ...	DDRVCCIO1	1.425 V~1.575V	1.50 V	
		H17	AVDD33	3.15 V ~ 3.45 V	3.34 V	
		K15	AVDD12	1.14 V ~ 1.26 V	1.21 V	
			AVDD12_LDO	1.14 V ~ 1.26 V	1.17	

Designator	Description	Pin No.	Pin Name	Voltage Spec	Measured Voltage	Temperature Spec.
IC503	DDR3 SDRAM	B2, D9, G7, K2, K8, N1, N9, R1, R9	VDD	1.425 V~1.575 V	1.51 V	85 °C
		A1, A8, C1, C9, D2, E9, F1, H2, H9	VDDQ	1.425 V~1.575 V	1.51 V	
IC504	DDR3 SDRAM	B2, D9, G7, K2, K8, N1, N9, R1, R9	VDD	1.425 V~1.575 V	1.51 V	85 °C
		A1, A8, C1, C9, D2, E9, F1, H2, H9	VDDQ	1.425 V~1.575 V	1.51 V	
IC505	NAND Flash Memory	12, 37	VCC	2.6 V ~ 3.7 V	3.38 V	85 °C
IC604	DC,DC Converter	2	VIN	4.0 V ~ 36 V	25.3 V	125 °C
		3	VOUT	0.8 V ~ 33 V	12.0 V	
IC605	Analog Switch	5	IN	2.5 V ~ 5.5 V	3.40 V	125 °C
		1	OUT		3.40 V	
IC606	Sound/Audio Processor	17, 52	VDD_IO	2.97 V~3.63 V	3.36 V	125 °C
		6, 25	VDD_CORE	1.08 V~1.32 V	1.24 V	
		34	VIN33_REG1	2.97 V~3.63 V	3.36 V	
		66	VIN33_REG2	2.97 V~3.63 V	3.36 V	
IC700	Audio Amplifier	1	GVDD_AB	-0.3 V ~ 13.2 V	11.26 V	125 °C
		22	GVDD_CD	-0.3 V ~ 13.2 V	11.26 V	
		36, 37, 38	PVDD_AB	-0.3 V ~ 50 V	25.3 V	
		29, 30, 31	PVDD_CD	-0.3 V ~ 50 V	25.3 V	
		2	VDD	-0.3 V ~ 13.2 V	11.5 V	
		8	DVDD	-0.3 V ~ 4.2 V	3.3 V	
IC701	Audio Amplifier	13	AVDD	-0.3 V ~ 8.5 V	7.7 V	125 °C
		1	GVDD_AB	-0.3 V ~ 13.2 V	11.26 V	
		22	GVDD_CD	-0.3 V ~ 13.2 V	11.26 V	
		36, 37, 38	PVDD_AB	-0.3 V ~ 50 V	25.3 V	
		29, 30, 31	PVDD_CD	-0.3 V ~ 50 V	25.3 V	
		2	VDD	-0.3 V ~ 13.2 V	11.5 V	
IC702	Audio Amplifier	8	DVDD	-0.3 V ~ 4.2 V	3.3 V	125 °C
		13	AVDD	-0.3 V ~ 8.5 V	7.7 V	
		1	GVDD_AB	-0.3 V ~ 13.2 V	11.26 V	
		22	GVDD_CD	-0.3 V ~ 13.2 V	11.26 V	
		36, 37, 38	PVDD_AB	-0.3 V ~ 50 V	25.3 V	
		29, 30, 31	PVDD_CD	-0.3 V ~ 50 V	25.3 V	

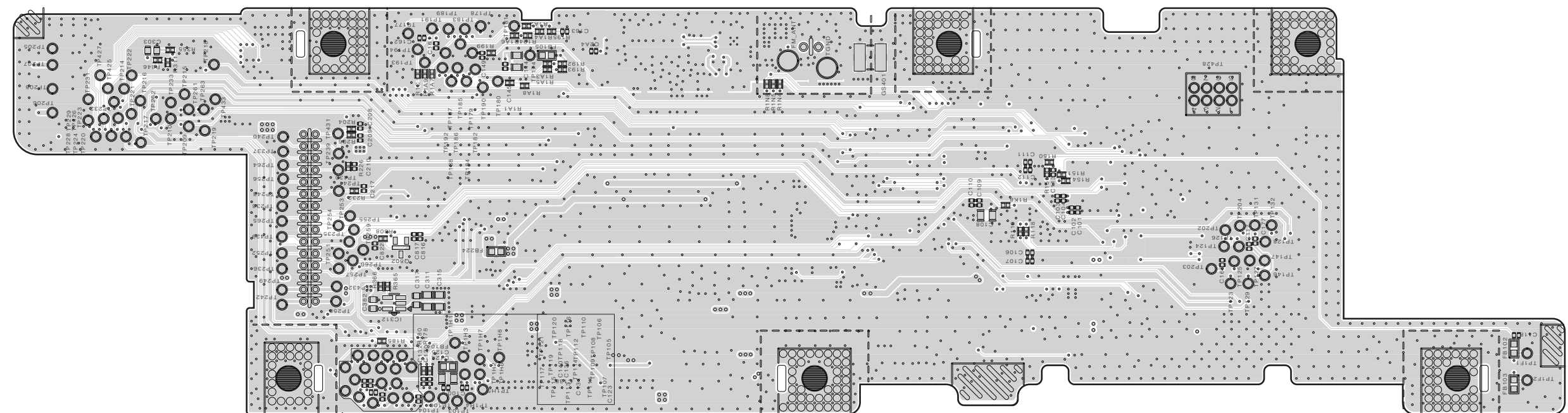
PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P. C. BOARD DIAGRAM

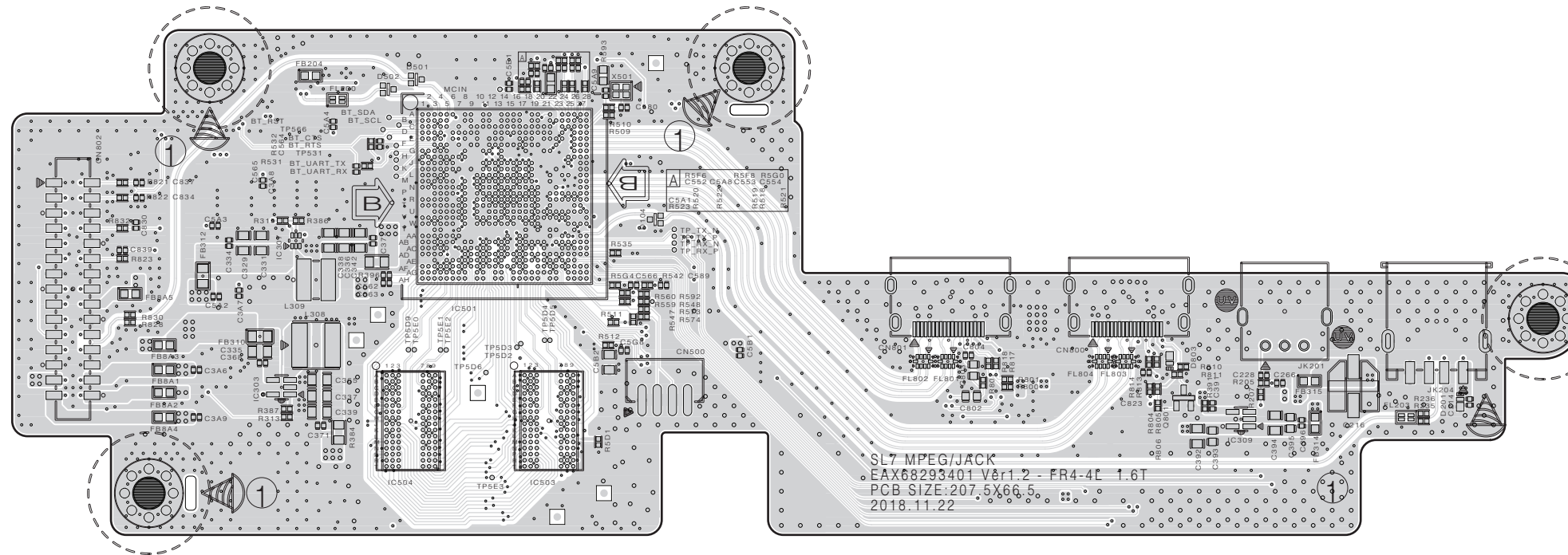
(TOP VIEW)



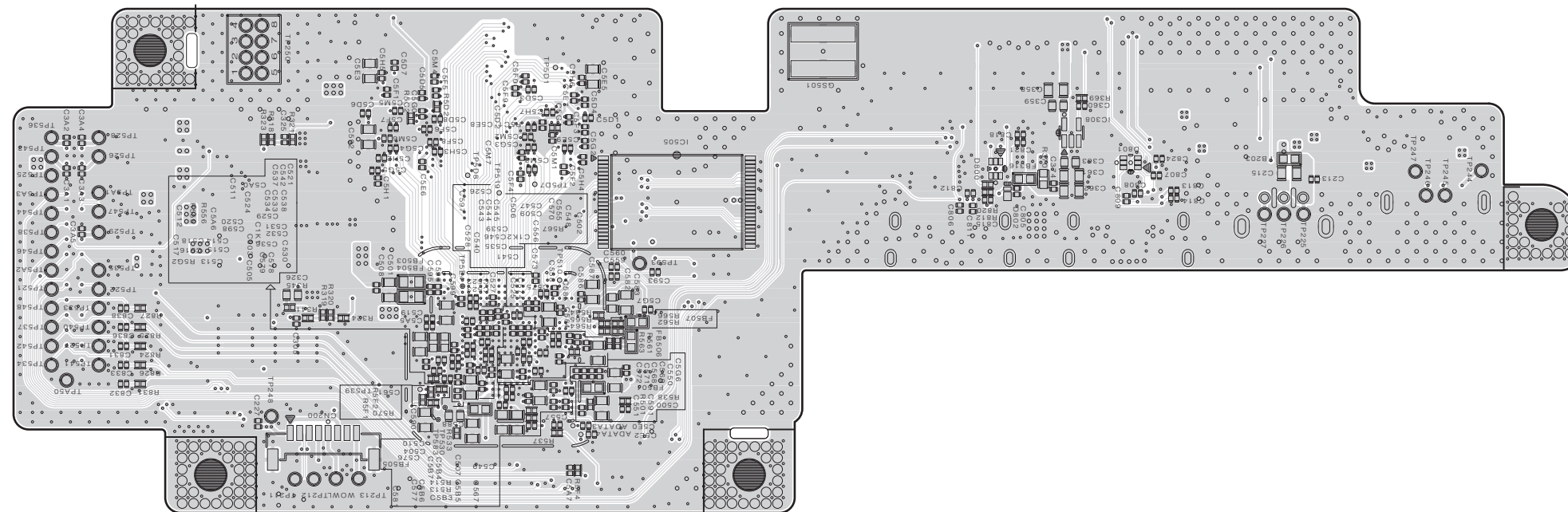
(BOTTOM VIEW)



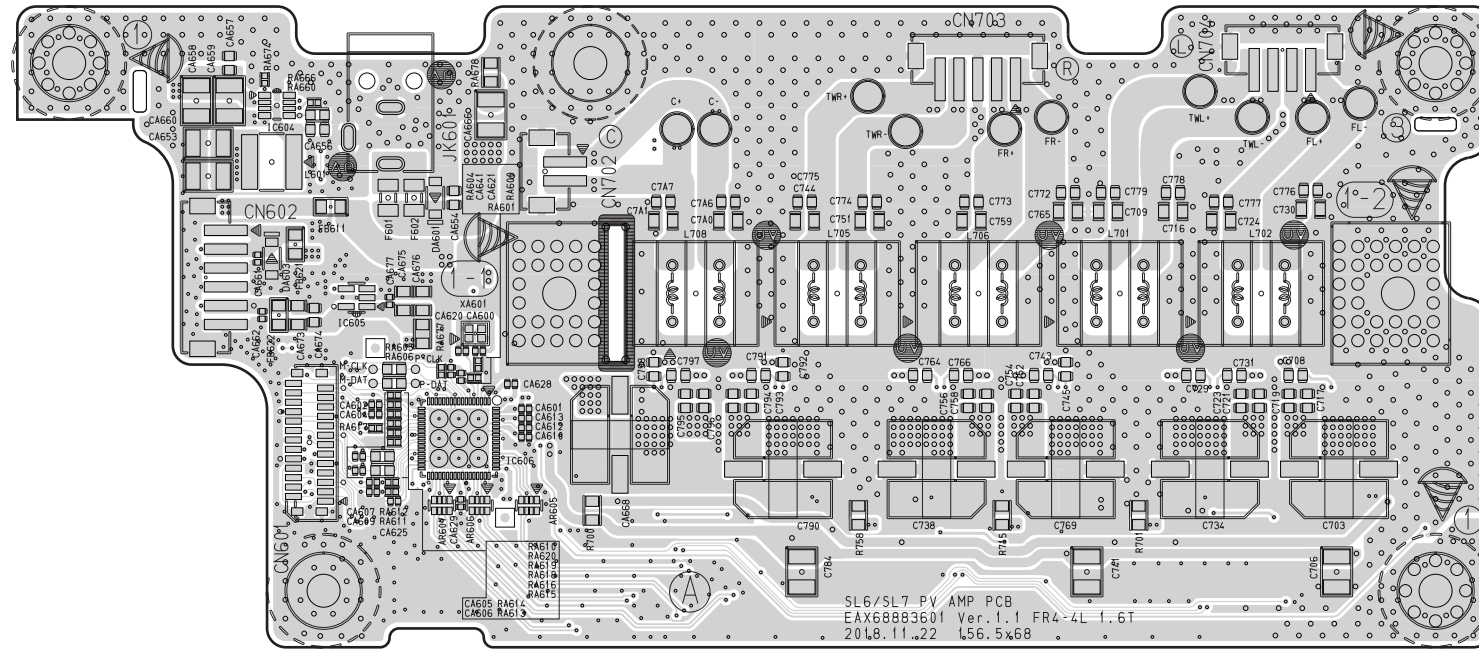
**2. MPEG / JACK P. C. BOARD DIAGRAM
(TOP VIEW)**



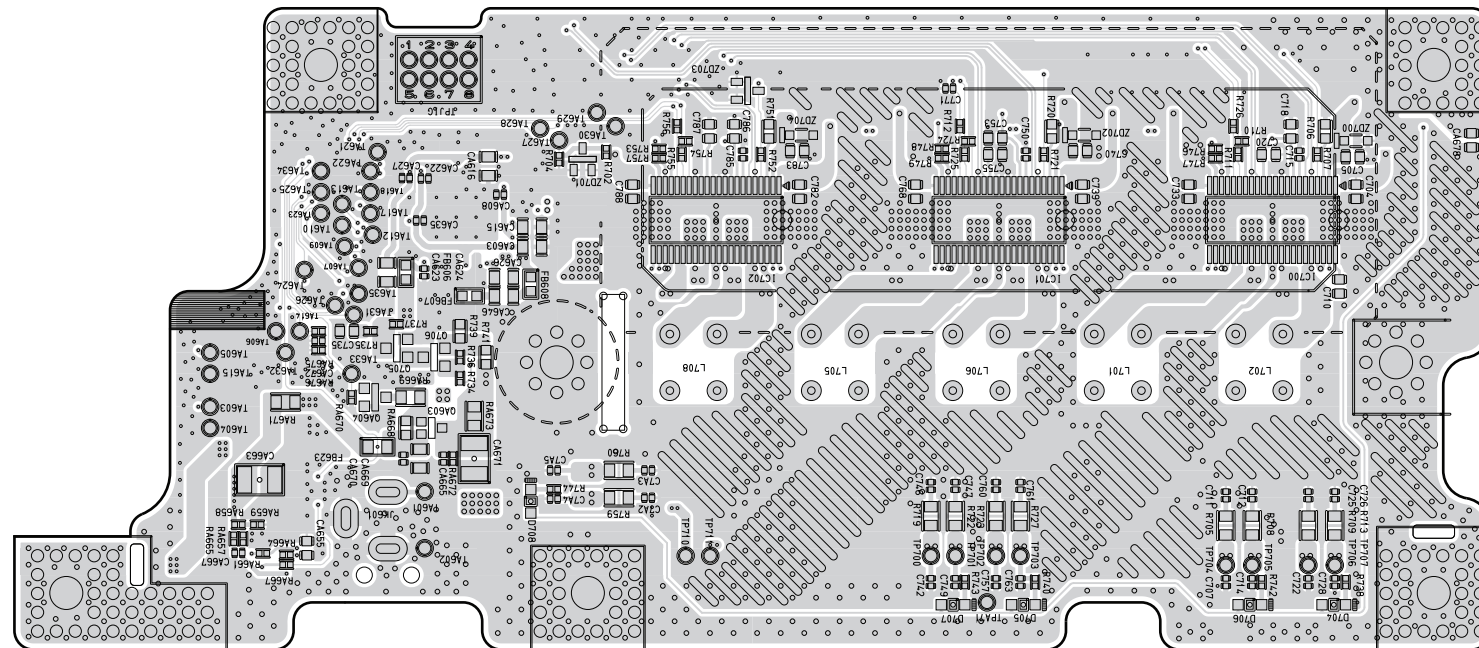
(BOTTOM VIEW)



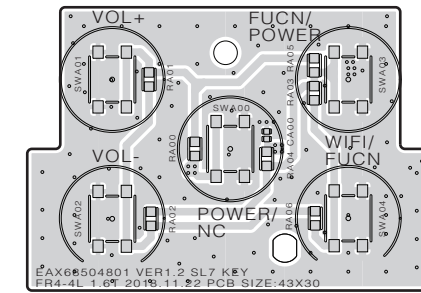
**3. AMP P. C. BOARD DIAGRAM
(TOP VIEW)**



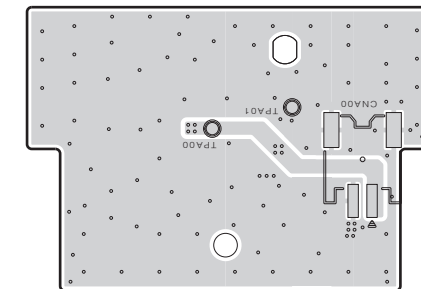
(BOTTOM VIEW)



**4. KEY P. C. BOARD DIAGRAM
(TOP VIEW)**



(BOTTOM VIEW)



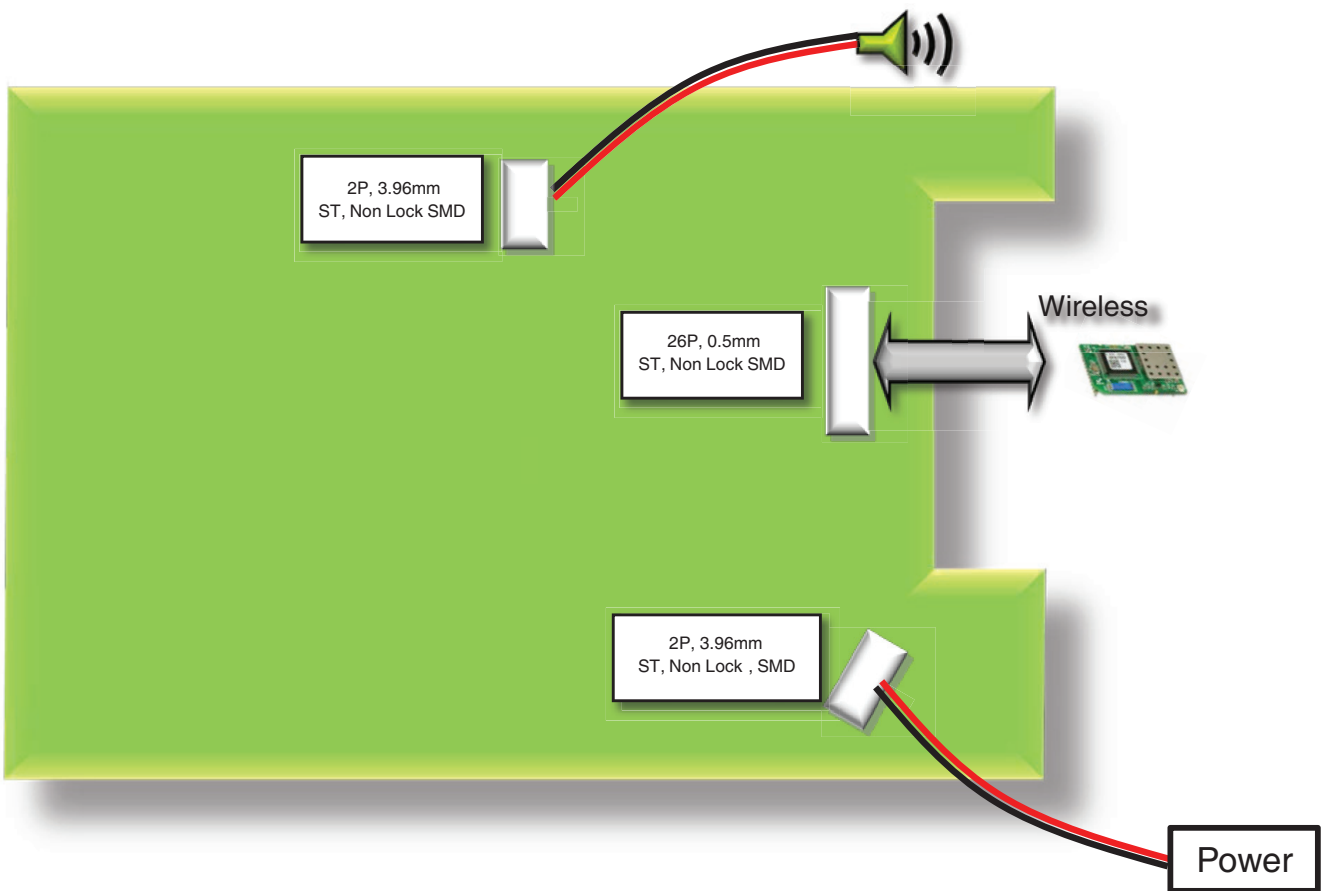
SECTION 4

WIRELESS SUBWOOFER PART

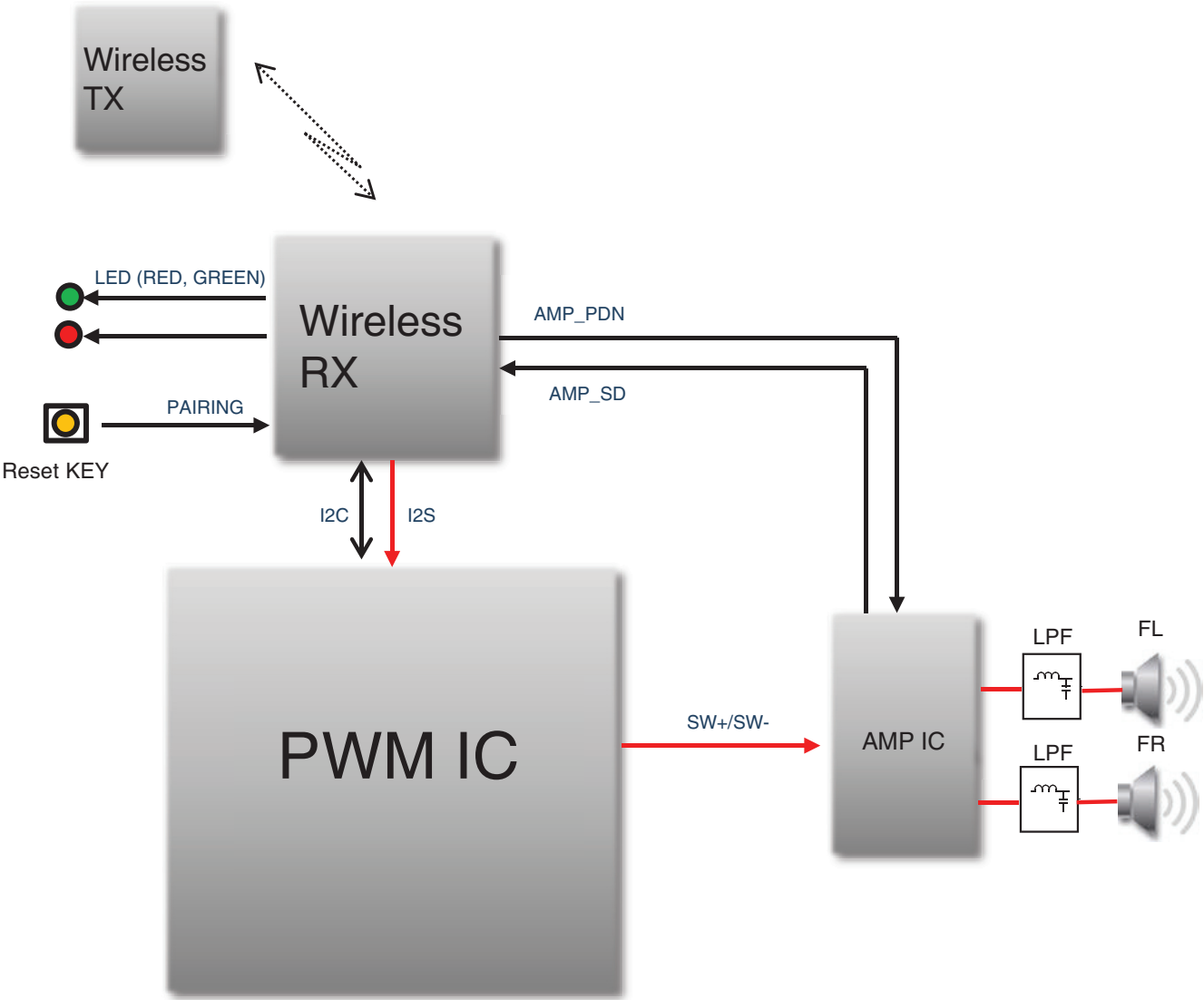
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WIRING DIAGRAM



BLOCK DIAGRAM



ONE POINT REPAIR GUIDE

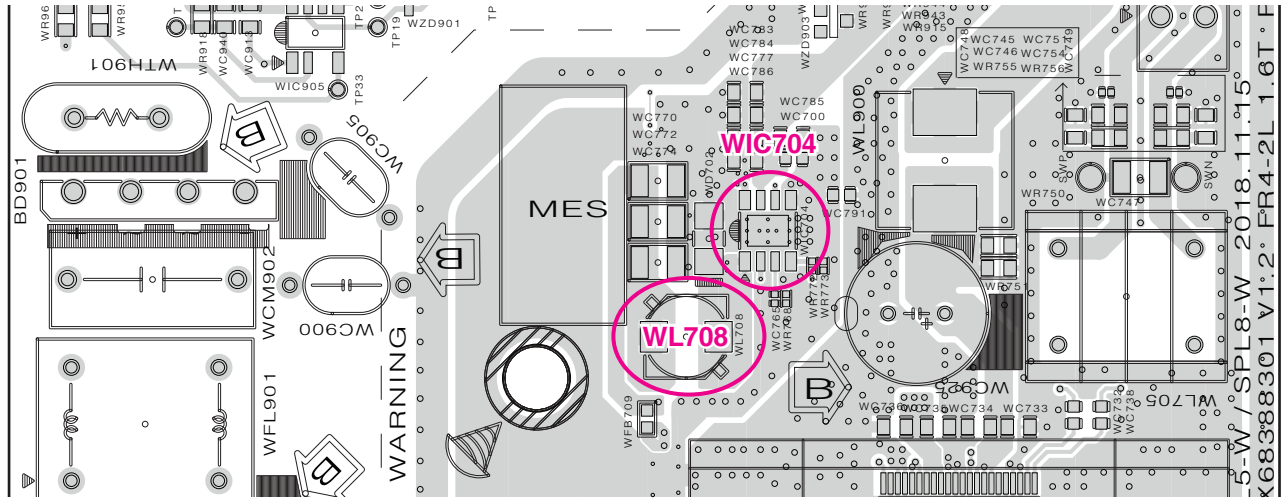
1. POWER ON ERROR

Fundamental power check points.

1-1. 12 V

- 1) Check 12 V at WL708.
- 2) If 12 V is not checked at the point, then find PVDD at pin7 of WIC704.
- 3) 1), 2) is NG → Replace WIC704.

If you can't check PVDD voltage, then replace the PCB board.

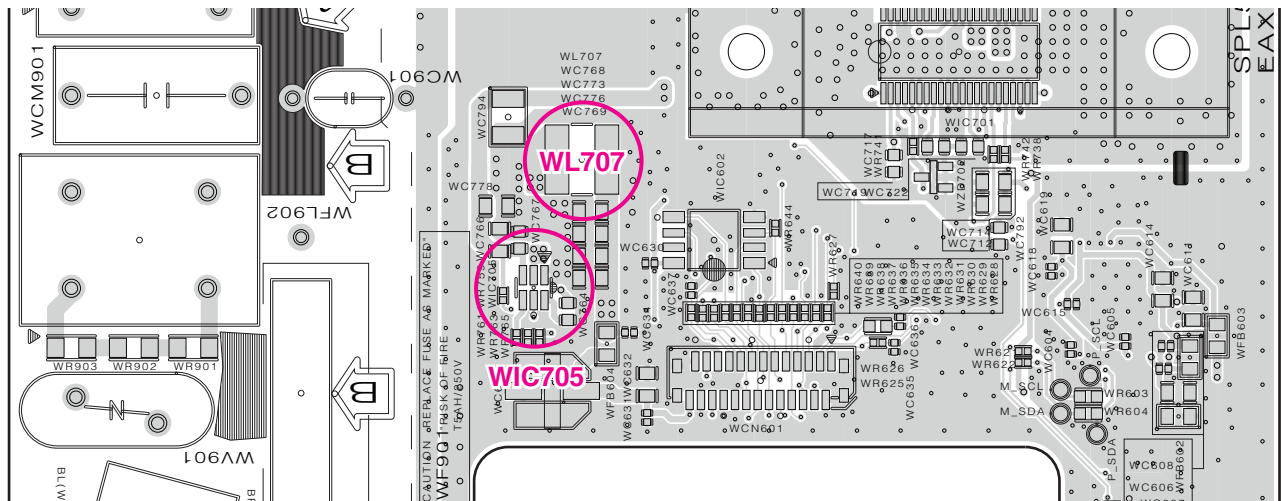


< Woofer SMPS & AMP board top view >

1-2. 3.3 VA

- 1) Check 3.3 VA at WL707 coil.
- 2) If 3.3 VA is not checked at the point, then find 12 VA at pin3 of WIC705.
- 3) 1), 2) is NG → Replace WIC705.

If you can't check 12 VA voltage, refer to the step 1-1.



< Woofer SMPS & AMP board top view >

ONE POINT REPAIR GUIDE

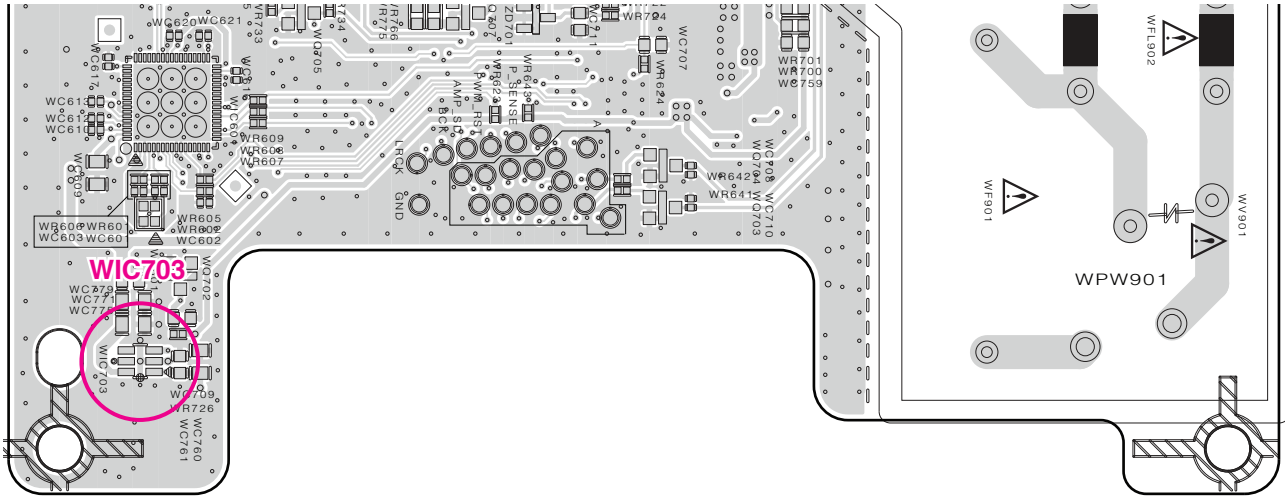
POWER ON ERROR

Fundamental power check points.

1-3. 3.3 VA

- 1) Check 3.3 VA at pin1 of WIC703.
- 2) Check 3.3V_PWM at pin6 of WIC703.
- 3) 1), 2) is NG → Replace WIC703.

If you can't check PVDD voltage, then replace the PCB board.



< Woofer SMPS & AMP board bottom view >

WAVEFORMS OF MAJOR CHECK POINT

1. CRYSTAL

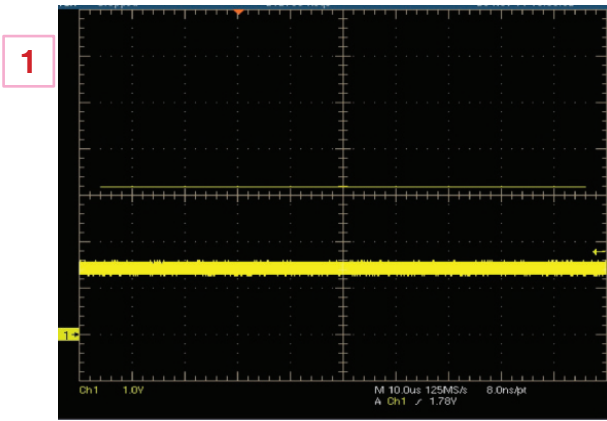
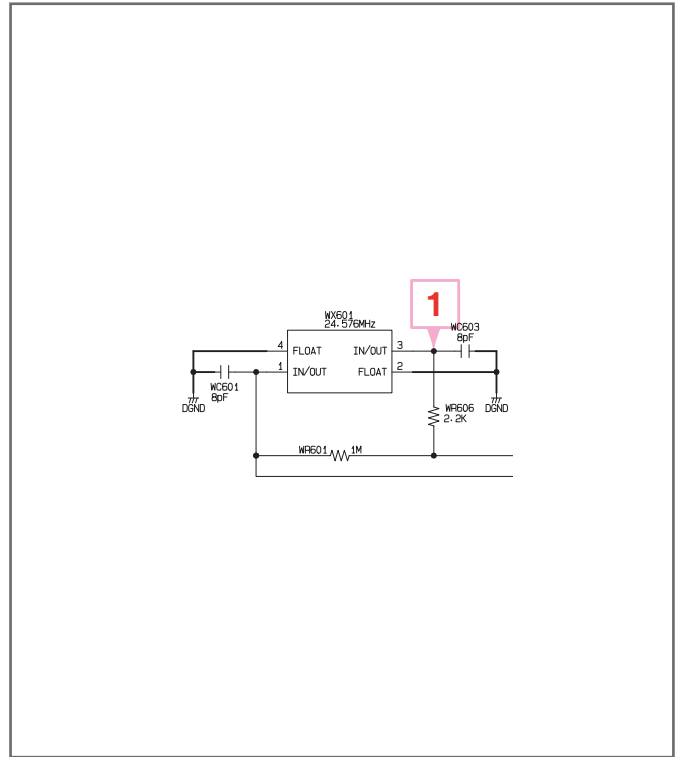


FIG 1. WX601 (24.576 MHz)



2. FLASH MEMORY

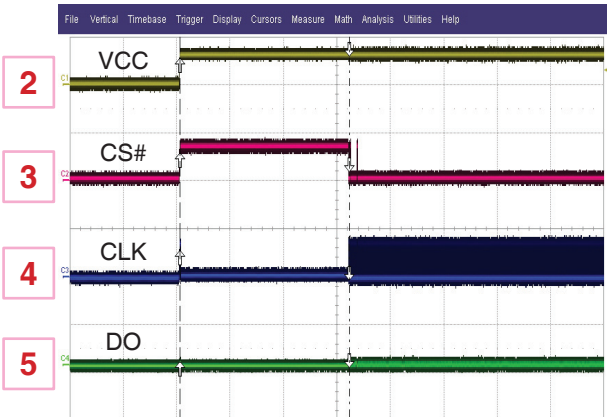
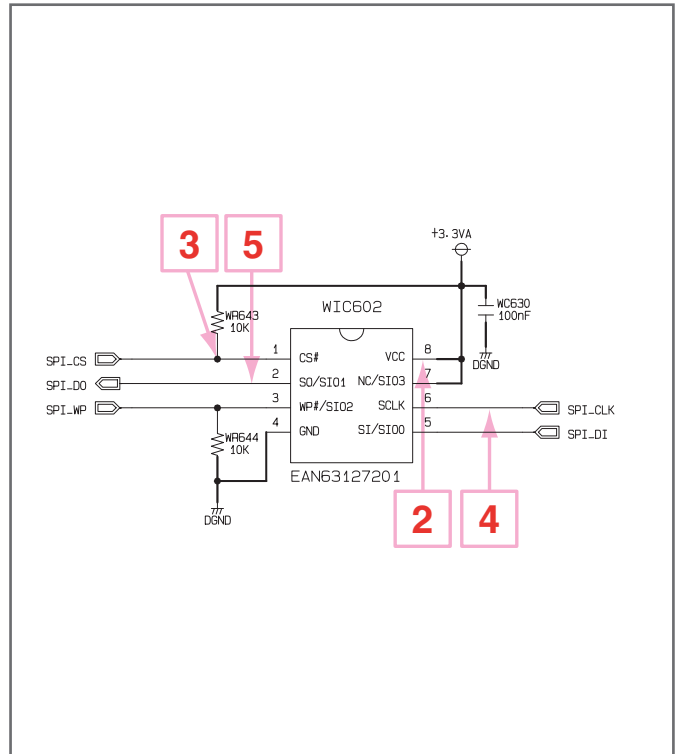


FIG 2. VCC, CS#, CLK, DO



3. VOLTAGE

6



FIG 3-1. Woofer PVDD

7



FIG 3-2. Woofer 12 VA

8

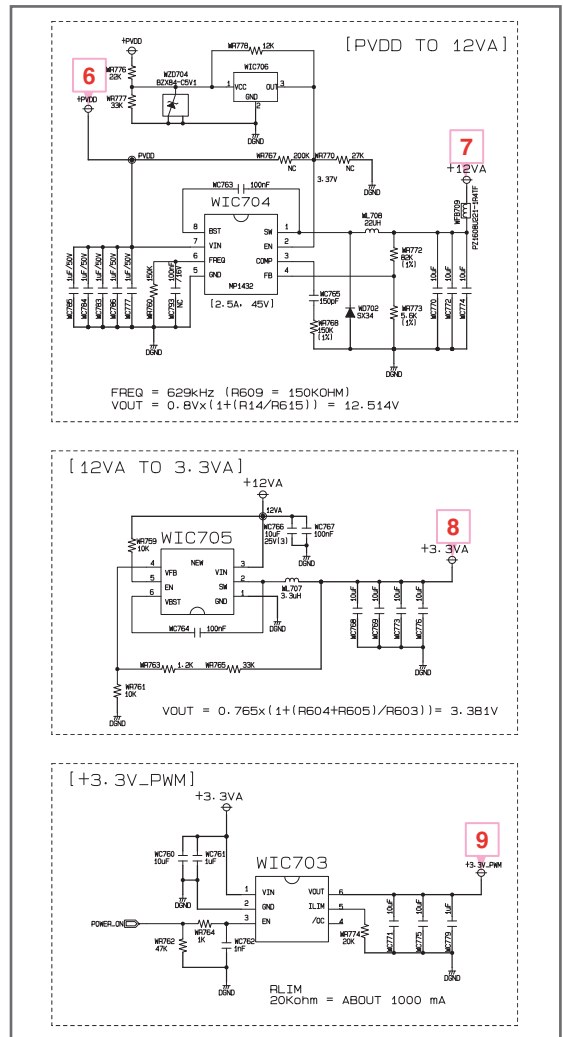


FIG 3-3. Woofer 3.3 VA

9



FIG 3-4. Woofer 3.3V_PWM



4. AMP VOLTAGE

10

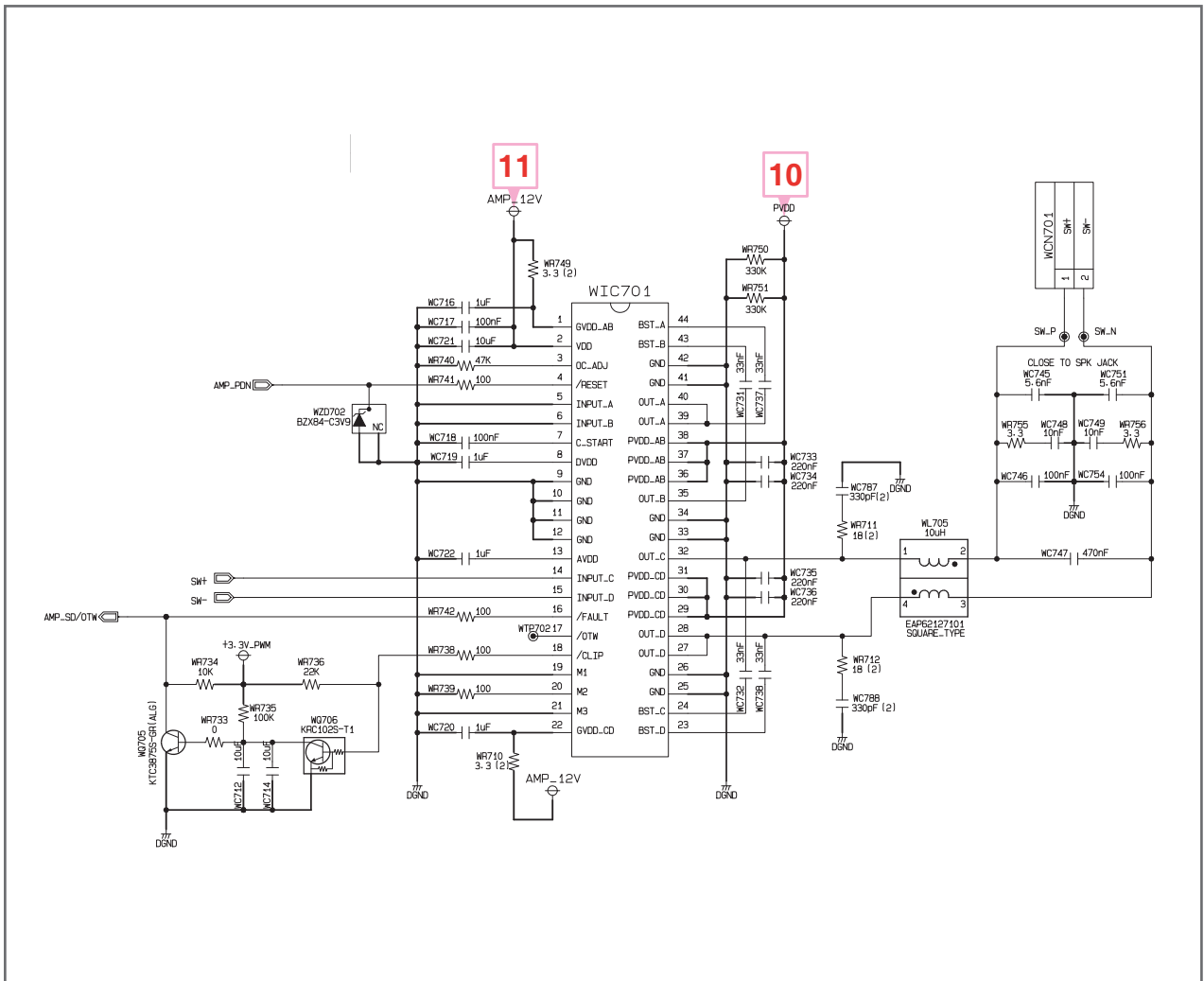


FIG 4-1. AMP PVDD

11



FIG 4-2. AMP_12V



5. PWM

12

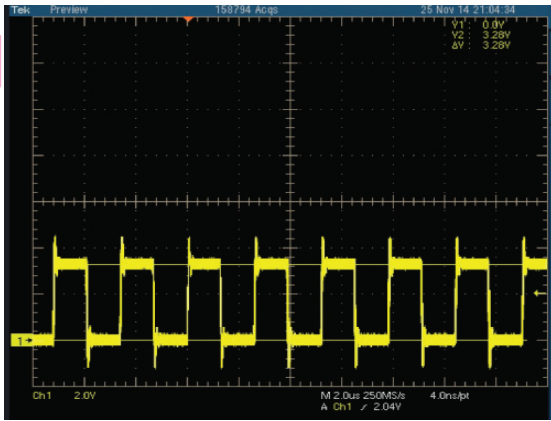


FIG 5-1. Woofer PWM SW+ Signal

13

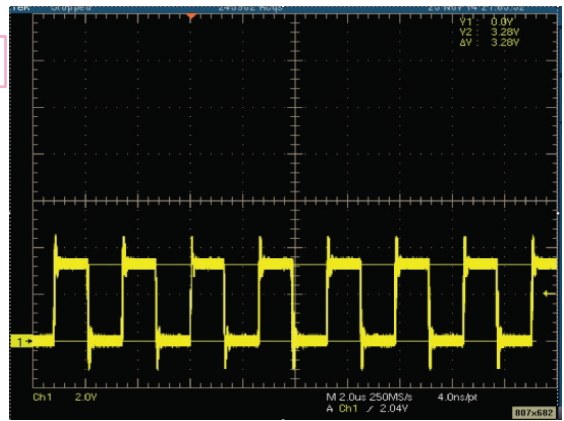
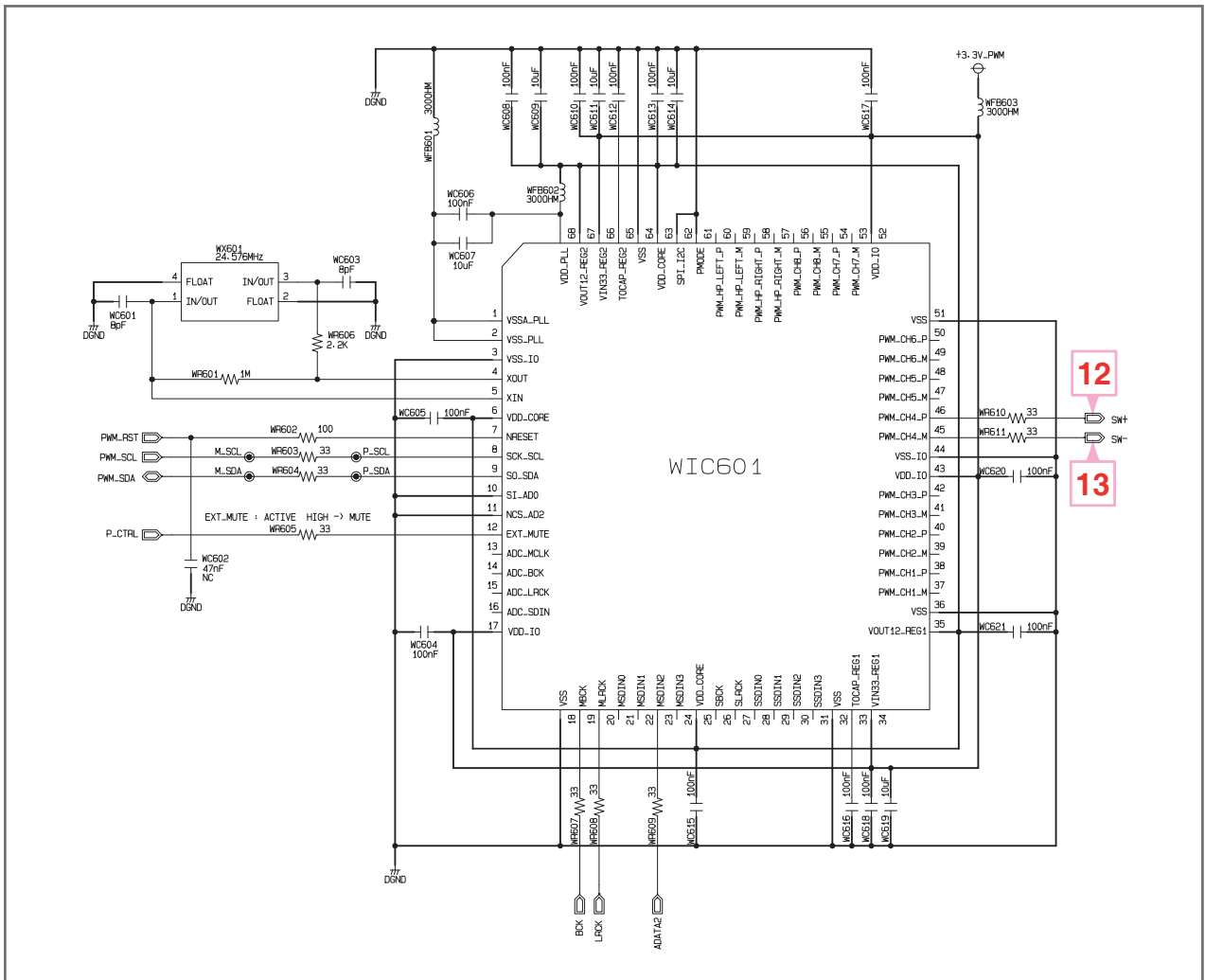


FIG 5-2. Woofer PWM SW- Signal



12

13

6. LED

14

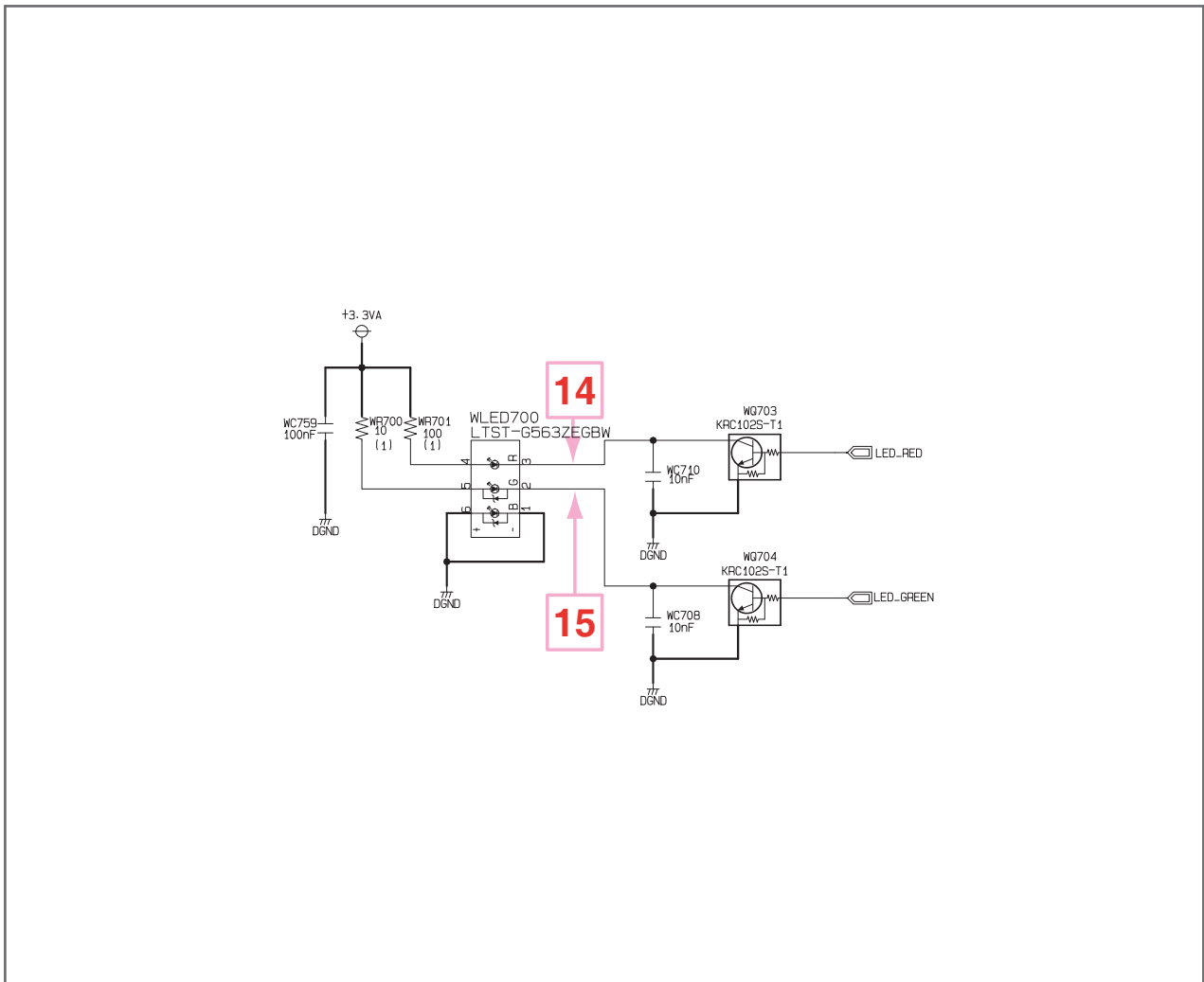


FIG 6-1. Pairing Off Status → Red LED

15



FIG 6-2. Pairing On Status → Green LED



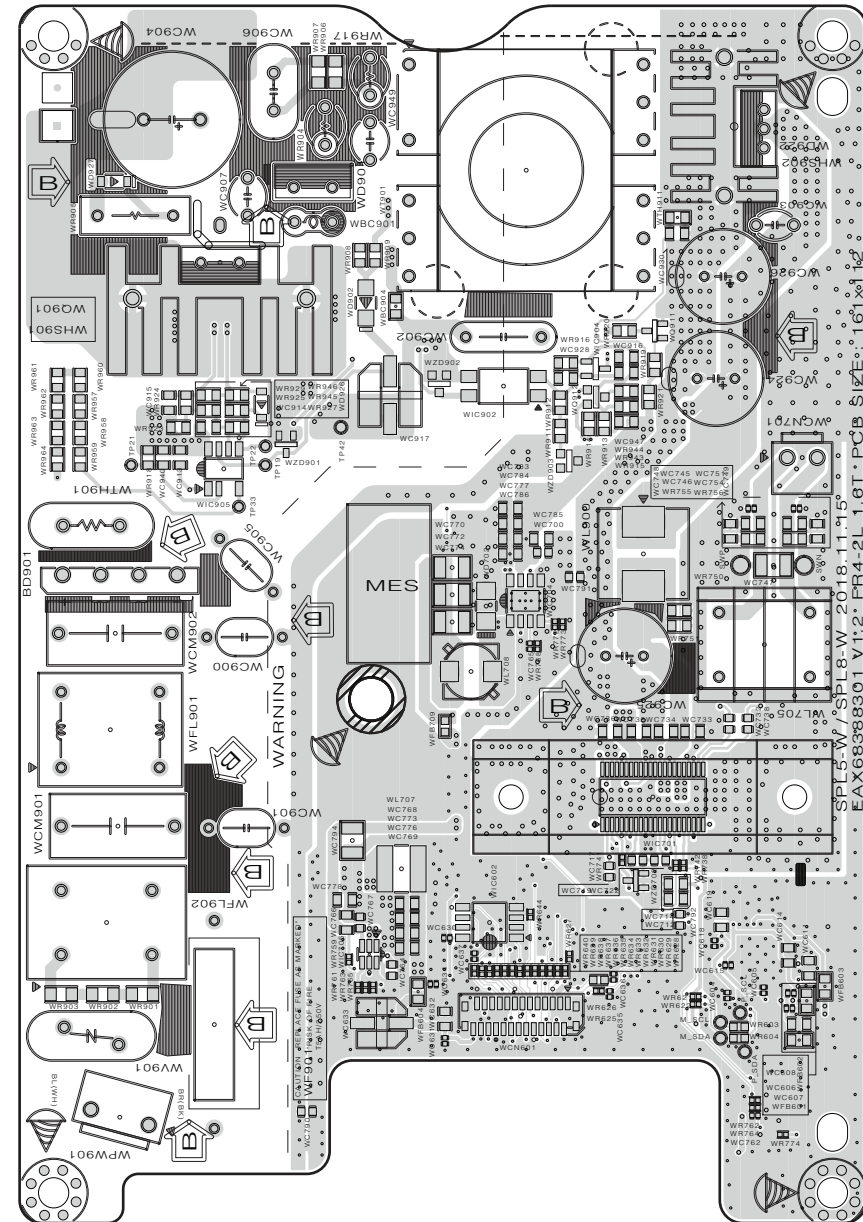
MEMO

A series of horizontal dotted lines for writing.

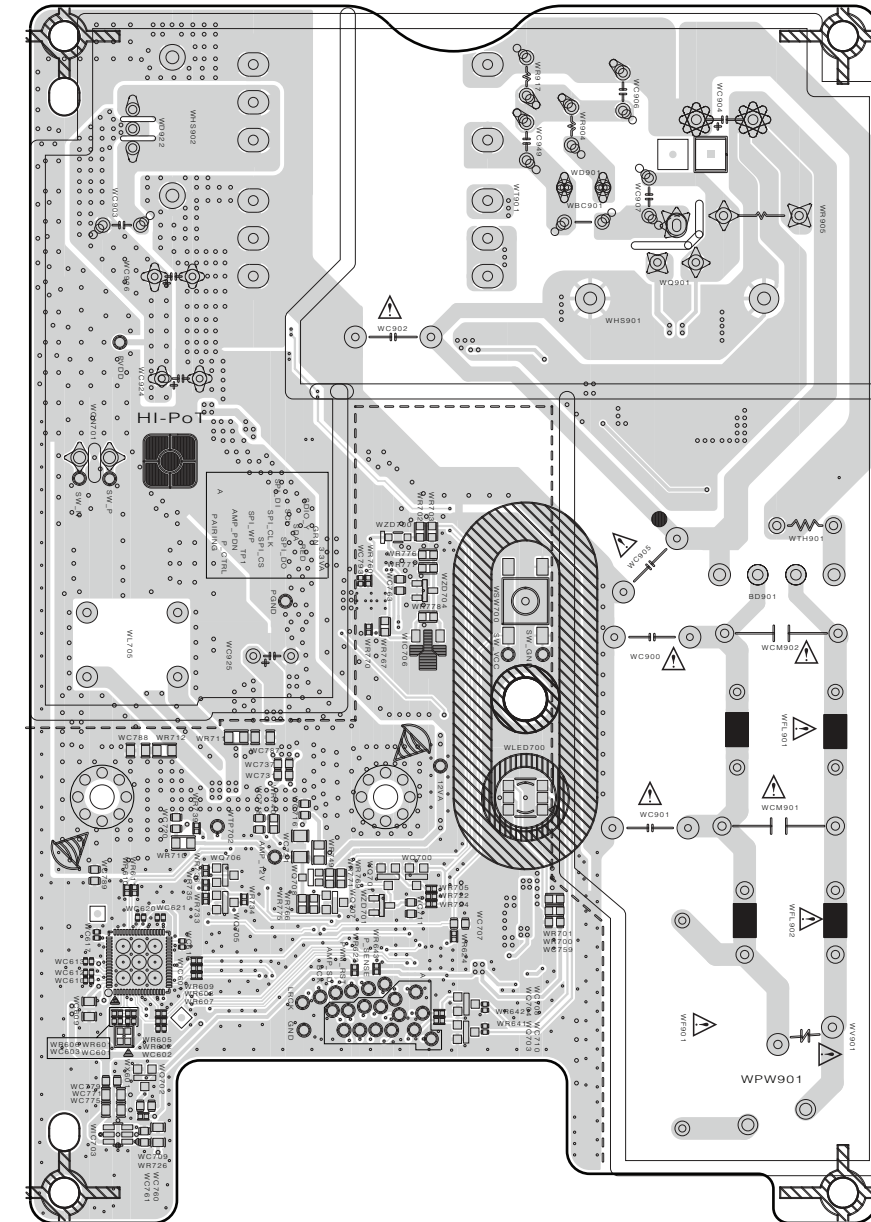
PRINTED CIRCUIT BOARD DIAGRAMS

1. WOOFER SMPS & AMP P. C. BOARD

(TOP VIEW)



(BOTTOM VIEW)



NOTE) Warning
⚠ Parts that are critical with respect to risk of fire or electrical shock.

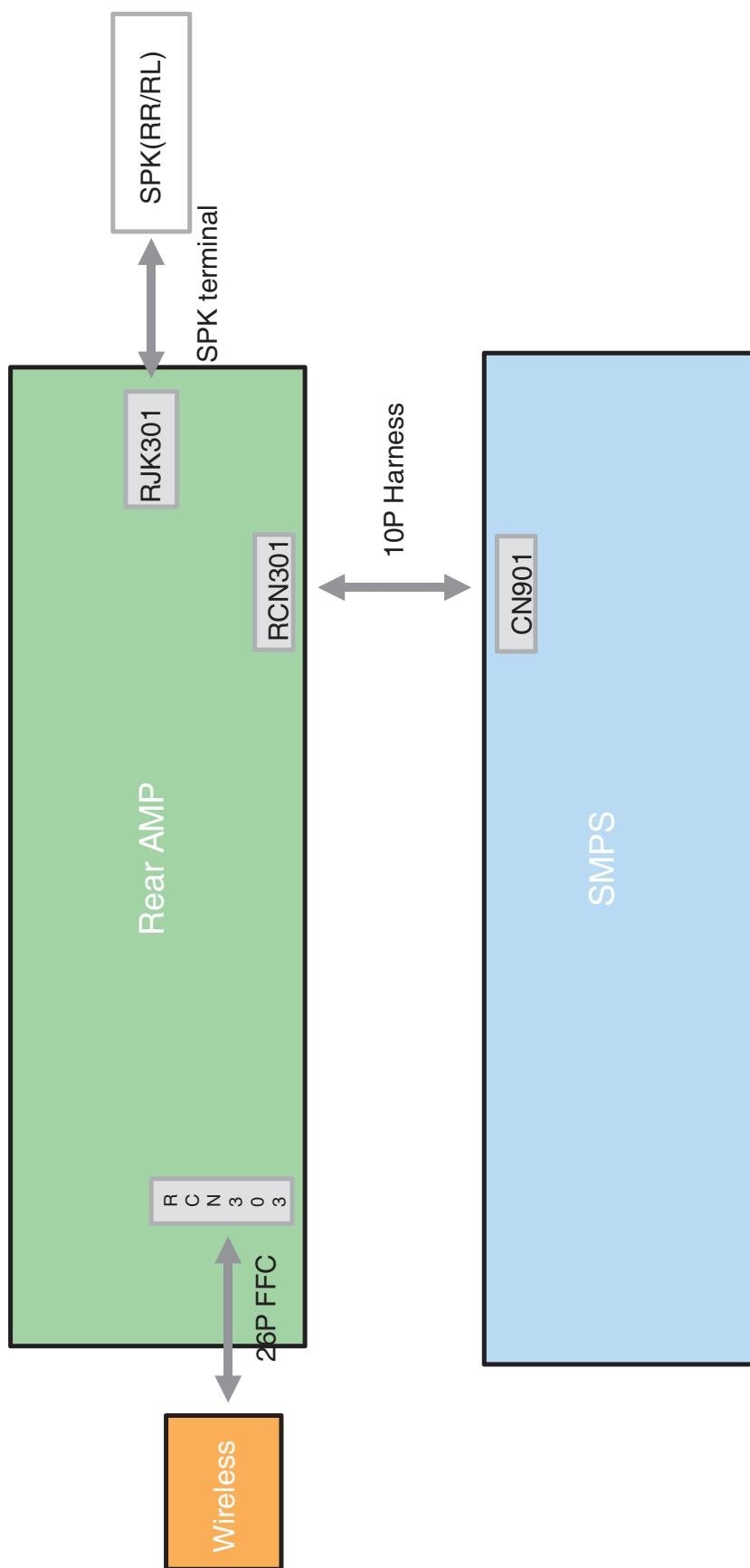
SECTION 5

WIRELESS RECEIVER PART (OPTION)

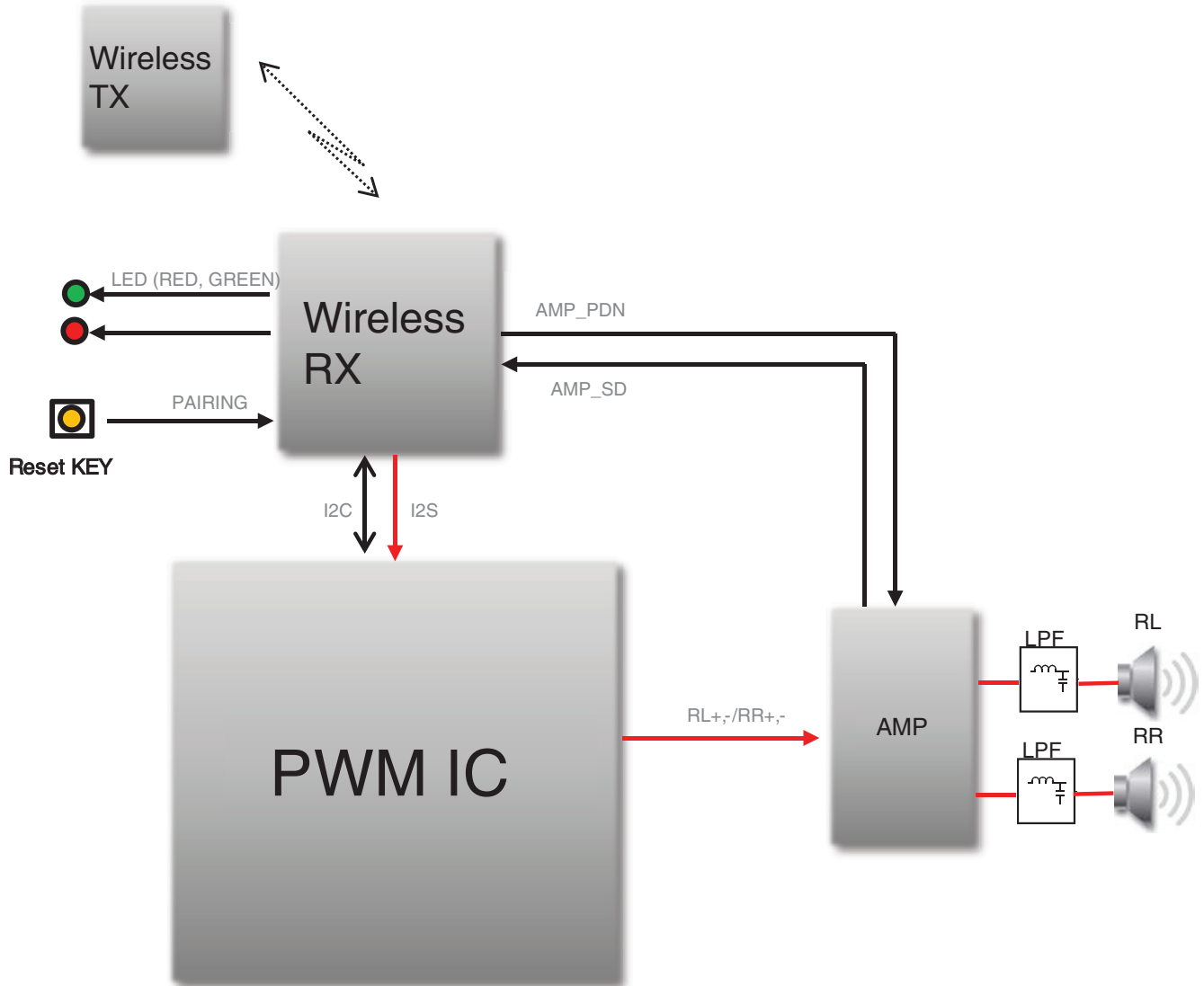
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2. WIRELESS RECEIVER AMP P. C. BOARD	5-11

WIRING DIAGRAM



BLOCK DIAGRAM



ONE POINT REPAIR GUIDE

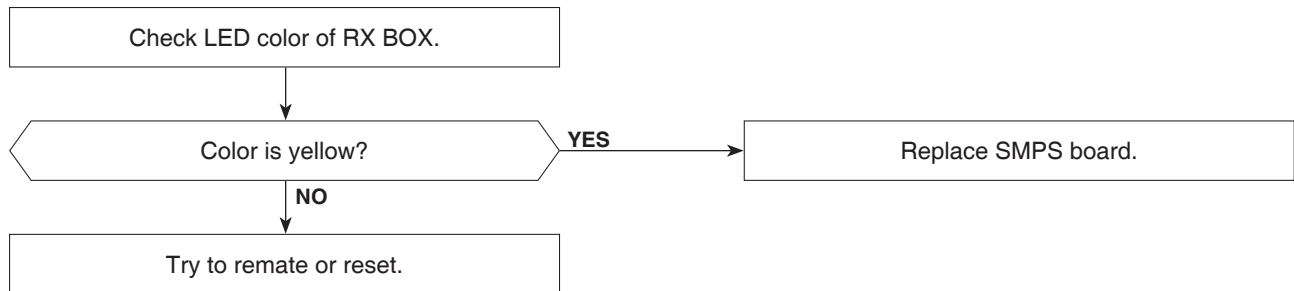
1. How to Duplicate Problem

Wireless rear speaker doesn't output a sound.

1-1. Solution

Replace SMPS board (No PVDD).

1-2. How to troubleshoot (Countermeasure)



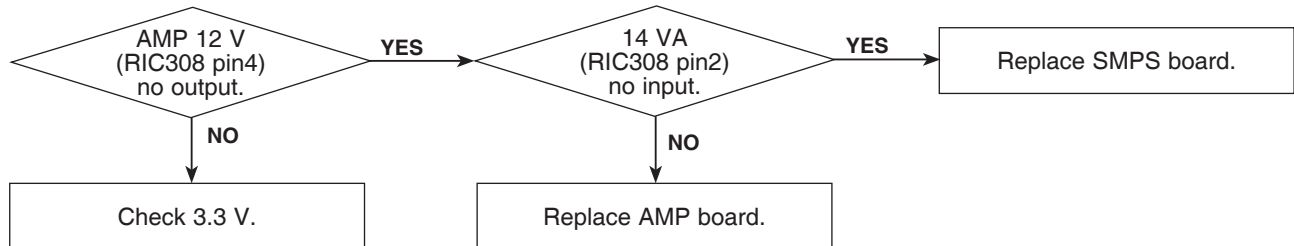
2. How to Duplicate Problem

Wireless rear speaker doesn't output a sound.

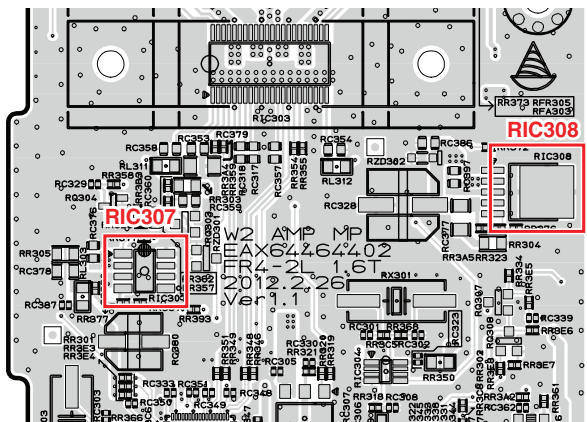
2-1. Solution

Replace AMP board (No 12 V).

2-2. How to troubleshoot (Countermeasure)



2-3. Service hint (Any picture / Remark)



< AMP board top view >

ONE POINT REPAIR GUIDE

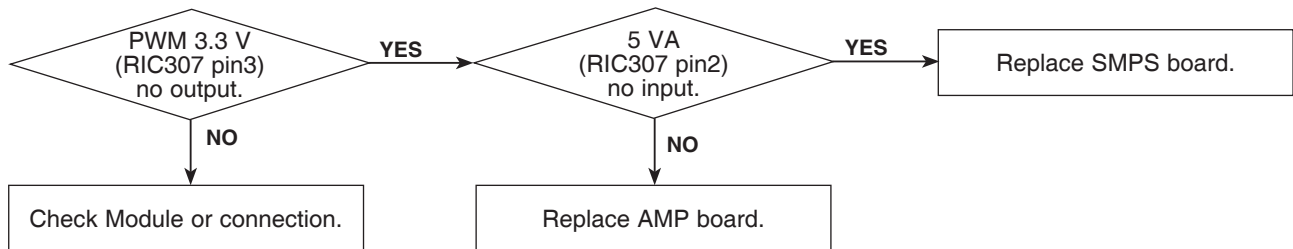
3. How to Duplicate Problem

Wireless rear speaker doesn't output a sound.

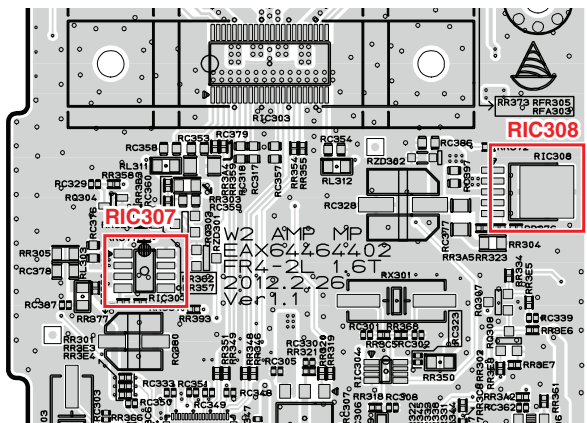
3-1. Solution

Replace AMP board (No 3.3 V).

3-2. How to troubleshoot (Countermeasure)

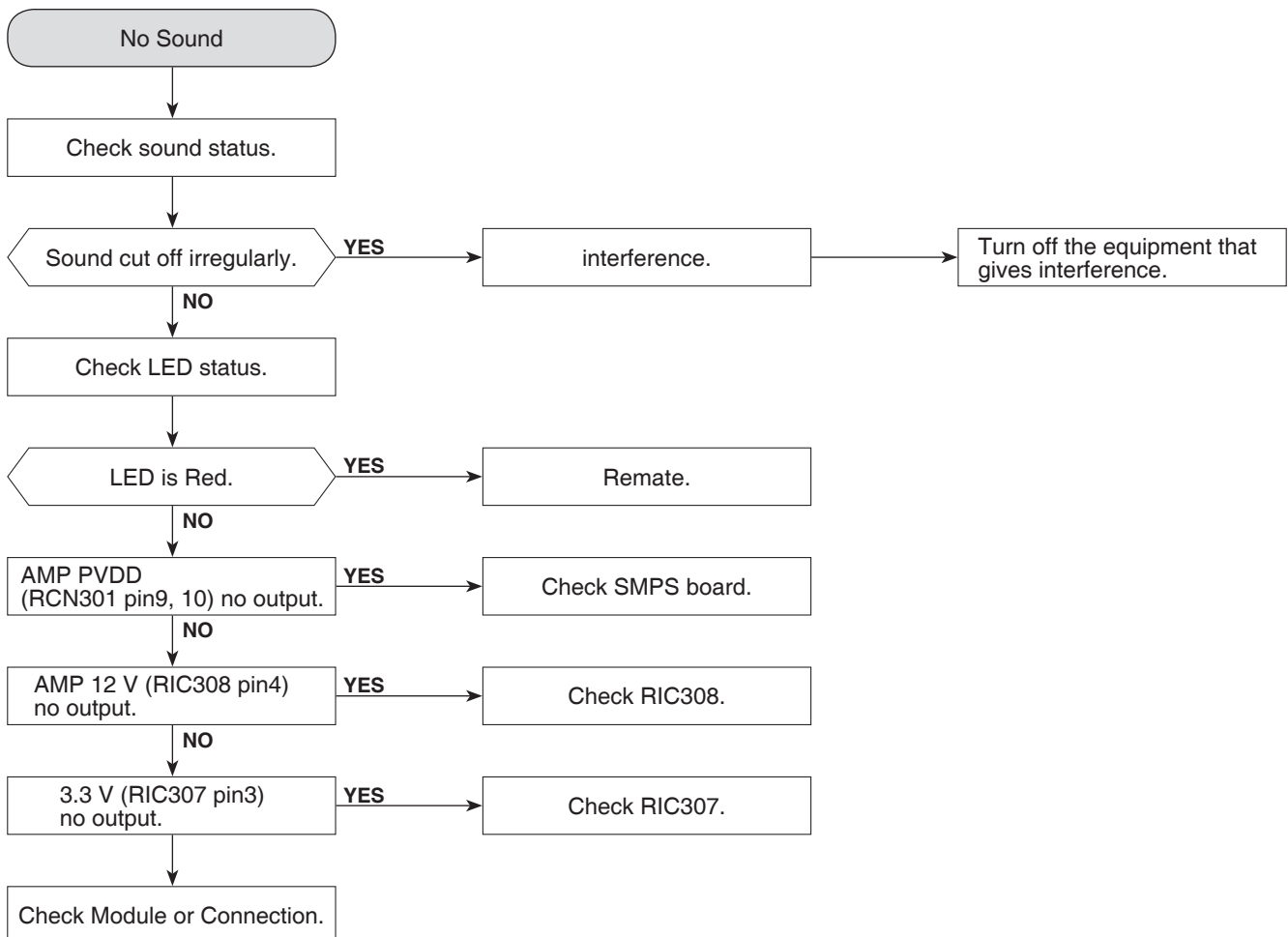
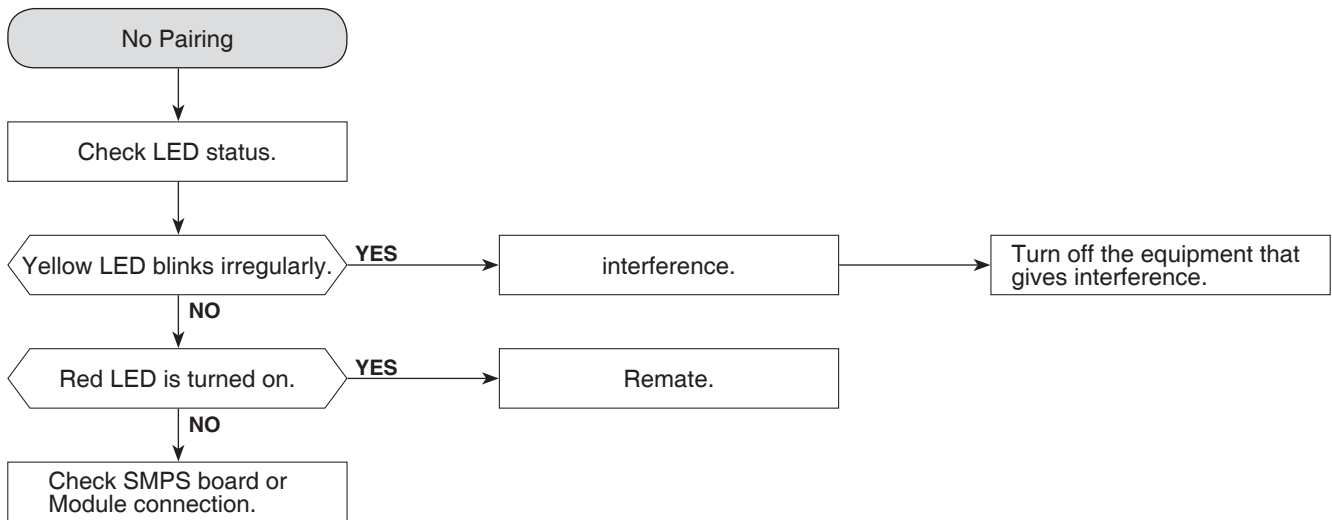


3-3. Service hint (Any picture / Remark)



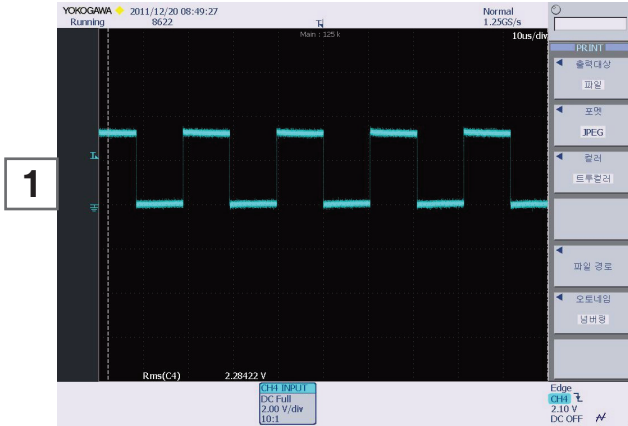
< AMP board top view >

ELECTRICAL TROUBLESHOOTING GUIDE

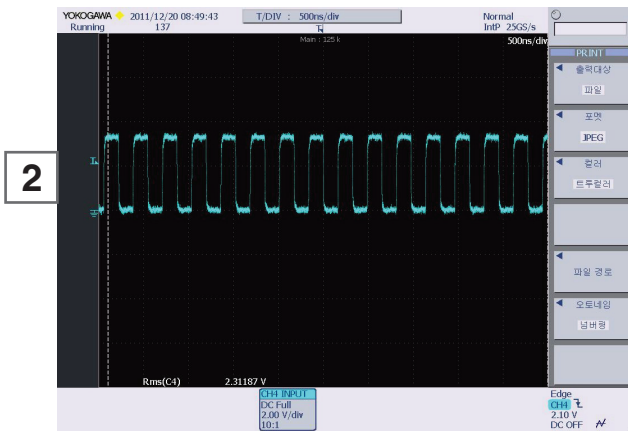


WAVEFORMS

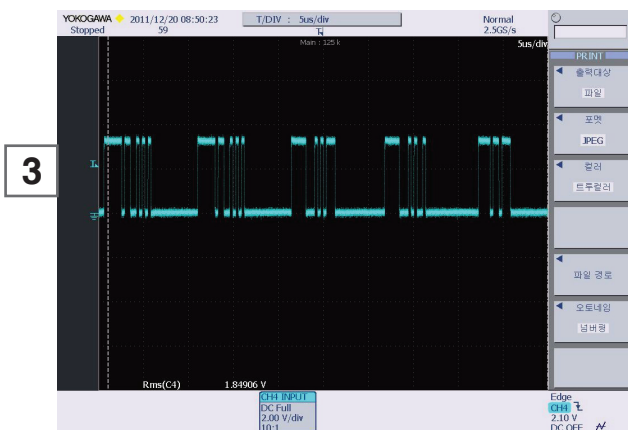
1. AUDIO PART (I2S)



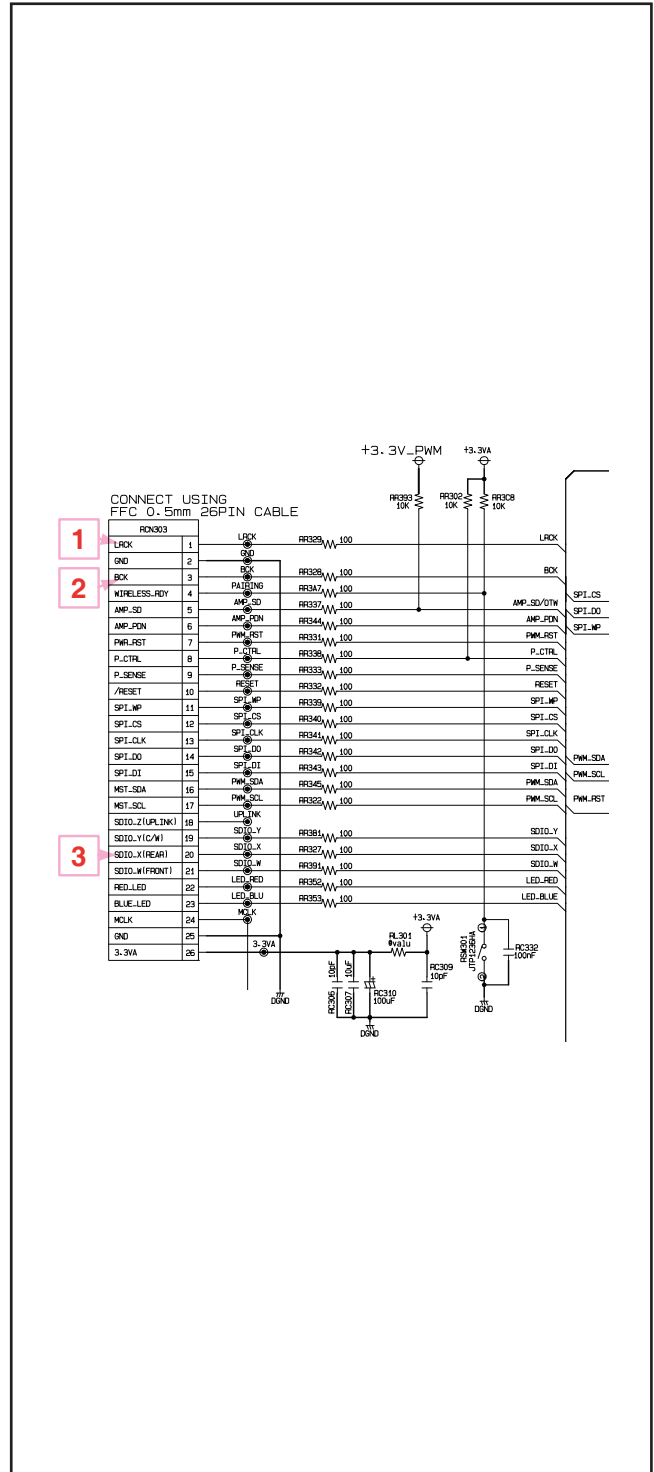
RCN303 pin1 : I2S LRCK



RCN303 pin3 : I2S BCK



RCN303 pin20 : I2S Audio Data



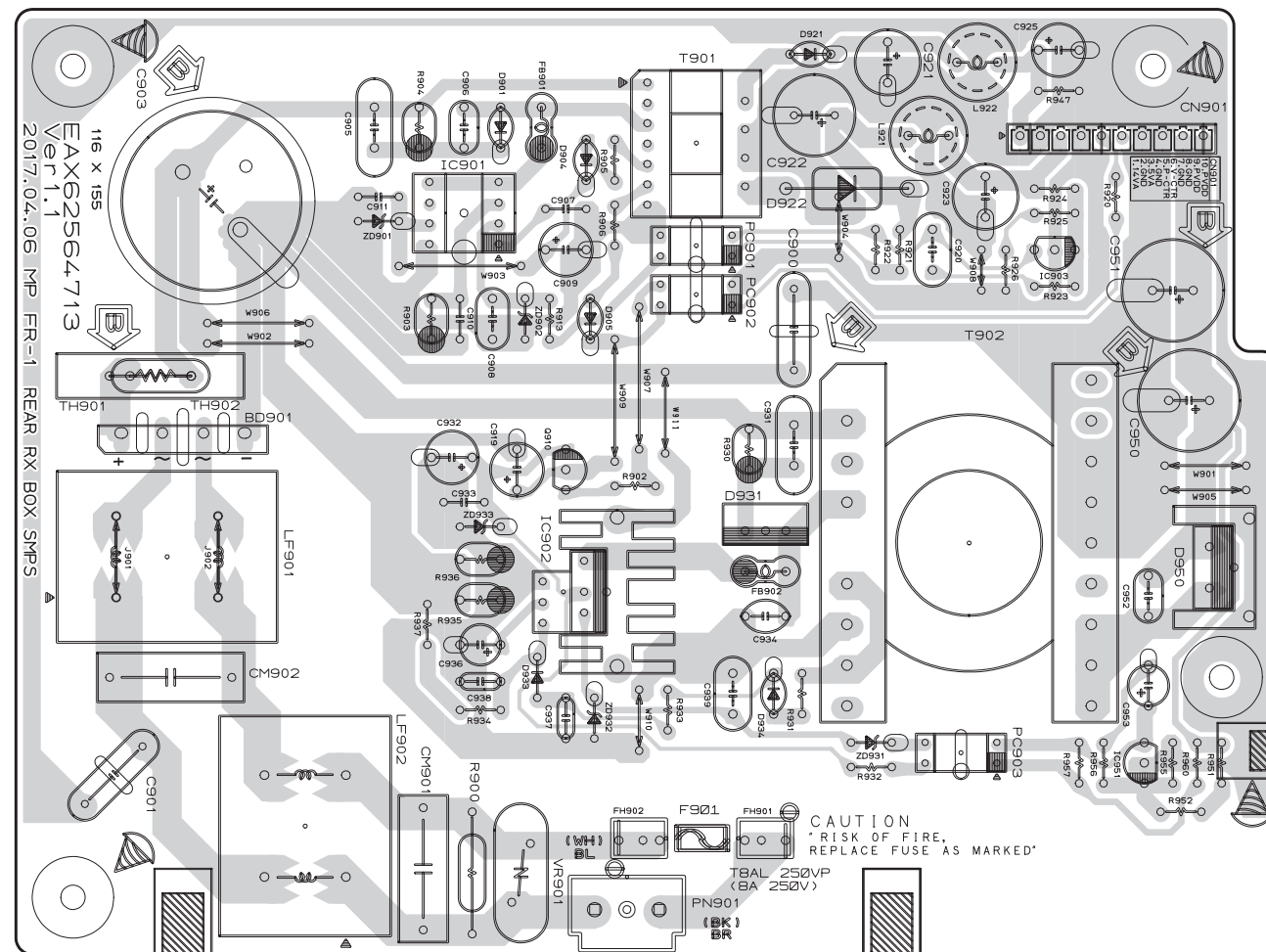
MEMO

A series of horizontal dotted lines for writing.

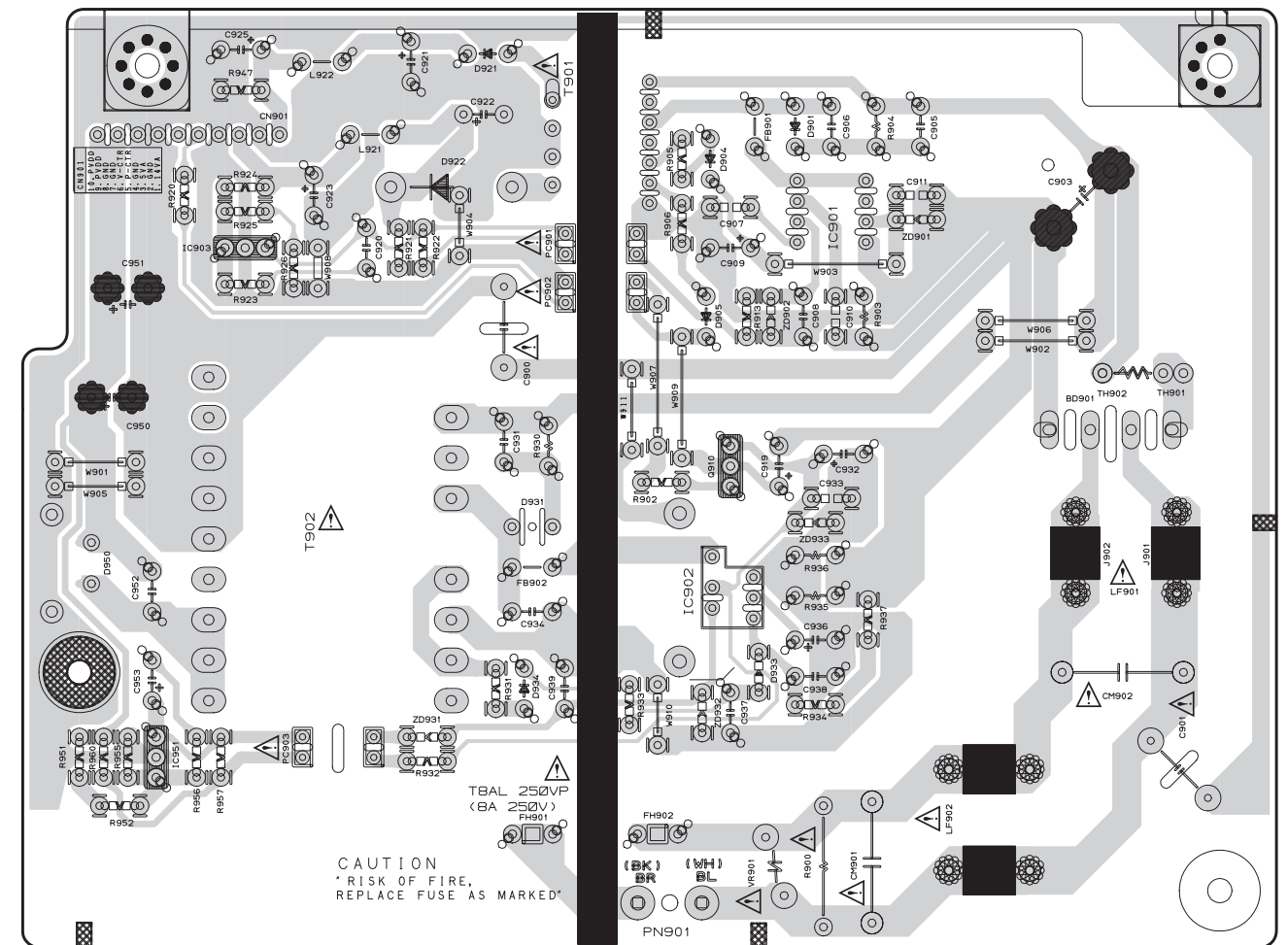
PRINTED CIRCUIT BOARD DIAGRAMS

1. WIRELESS RECEIVER SMPS P. C. BOARD

(TOP VIEW)

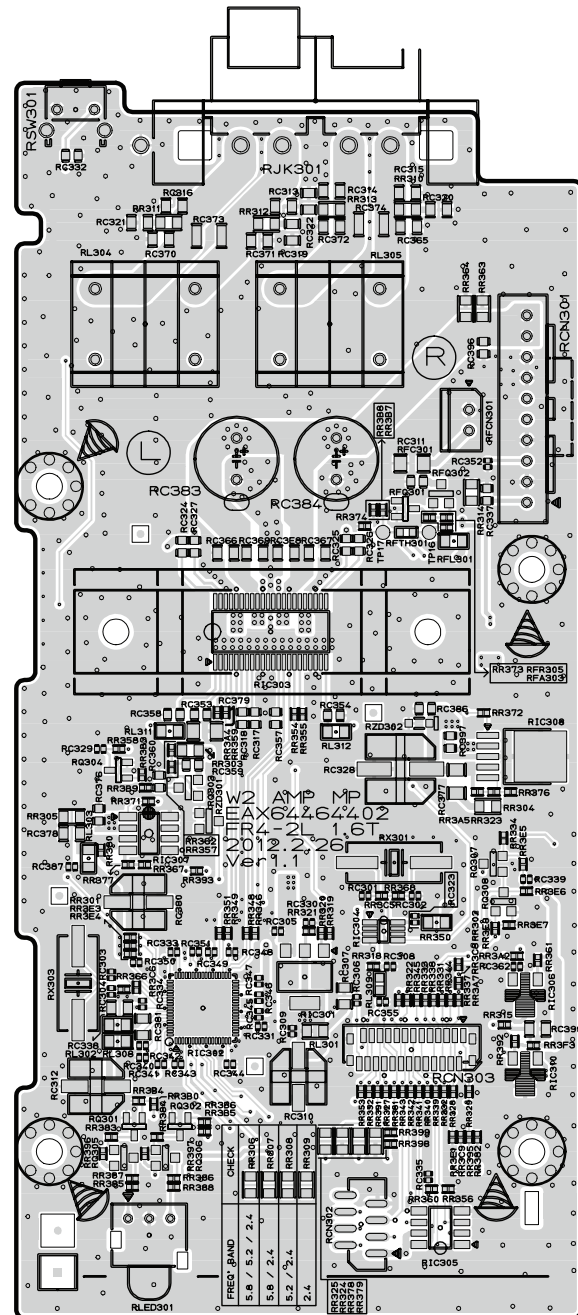


(BOTTOM VIEW)



NOTE) Warning
Parts that are critical with respect to risk of fire or electrical shock.

**2. WIRELESS RECEIVER AMP P. C. BOARD
(TOP VIEW)**



(BOTTOM VIEW)

