SERVICE MANUAL

MODEL: NP8740

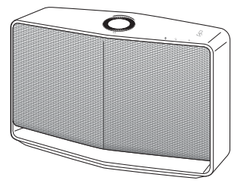
Wireless Multi-room Audio

SERVICE MANUAL

MODEL: NP8740

CAUTION

BEFORE SERVICING THE UNIT, READ THE “SAFETY PRECAUTIONS” IN THIS MANUAL.



P/NO : AFN76793357

SEPTEMBER, 2014

LG

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SECTION 1

SUMMARY

CONTENTS

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:

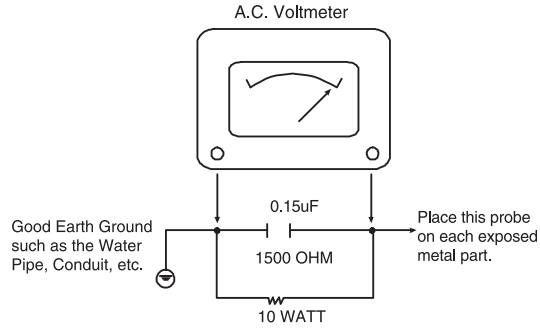
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

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 trans-ported 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.

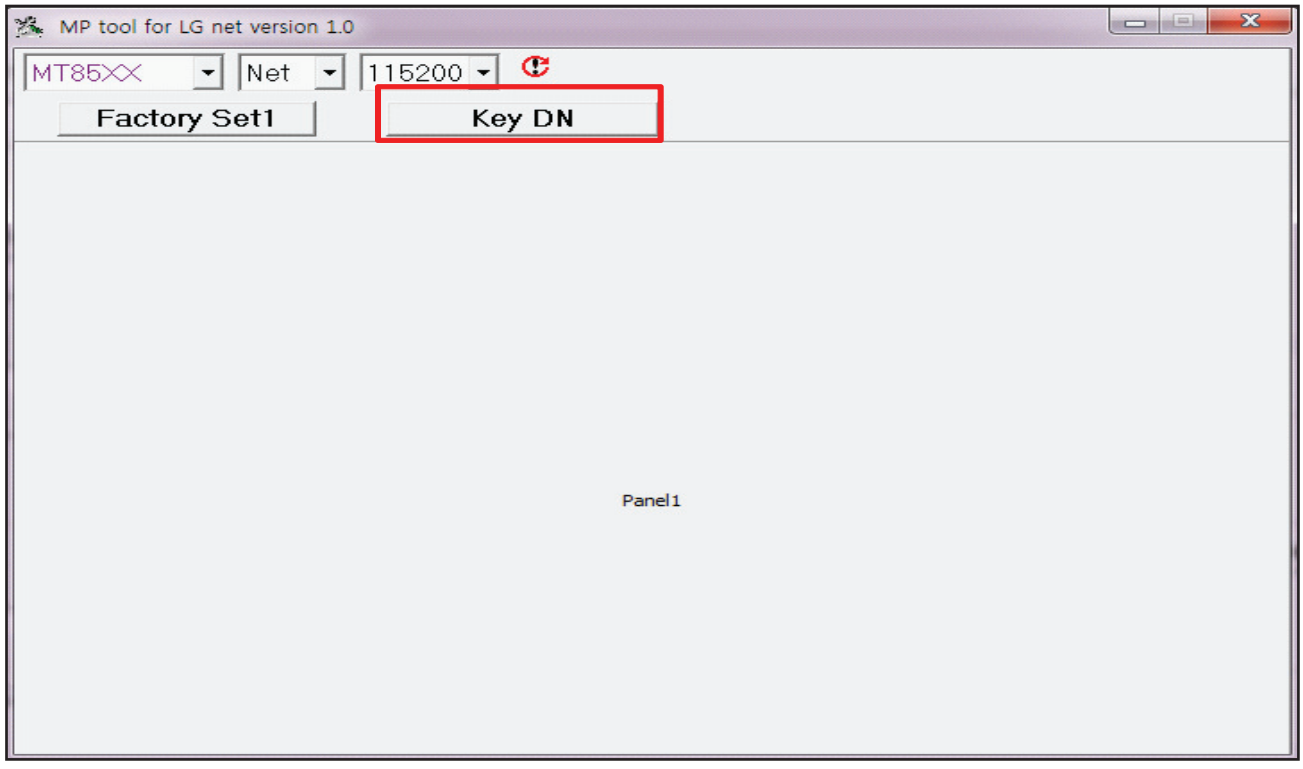
   Caution: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

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.)

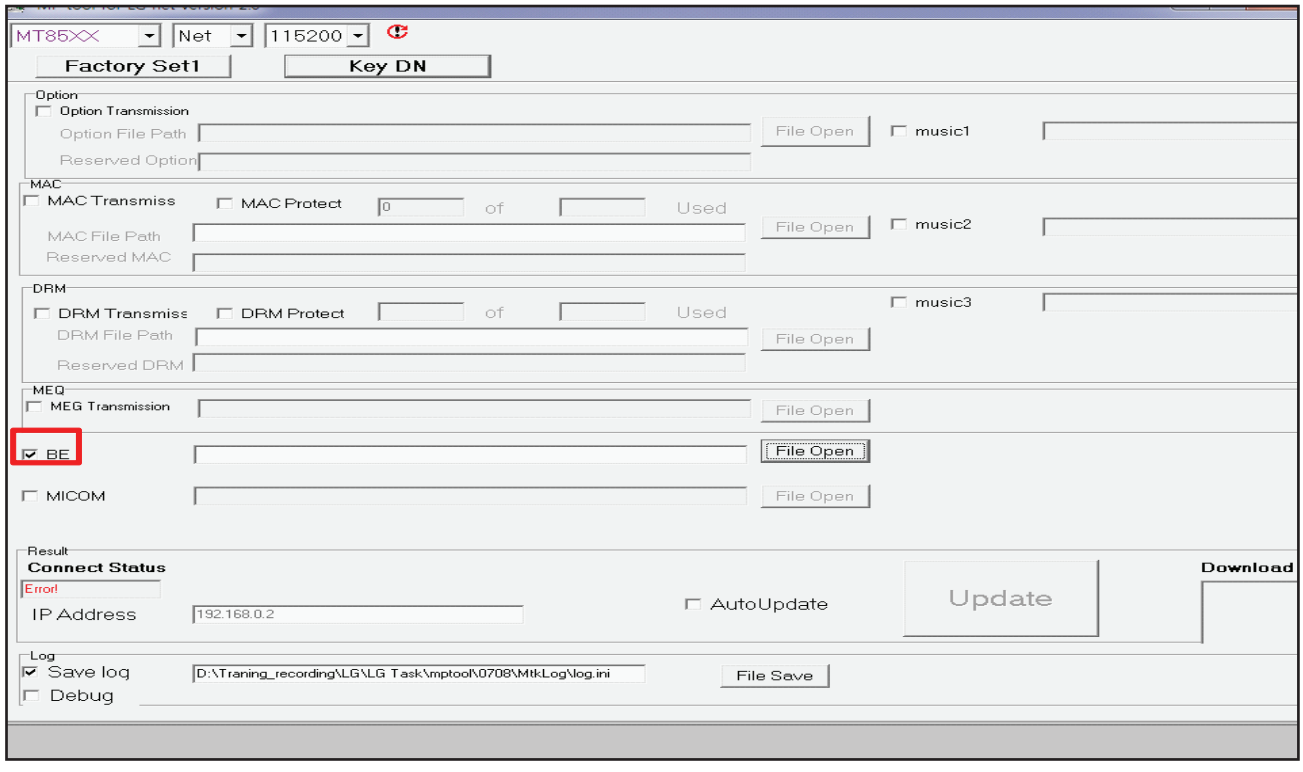
SOFTWARE UPDATE GUIDE

1. Using MP tool

1) Open MP tool and select “Key DN”.



2) Check the section for download and open download file.



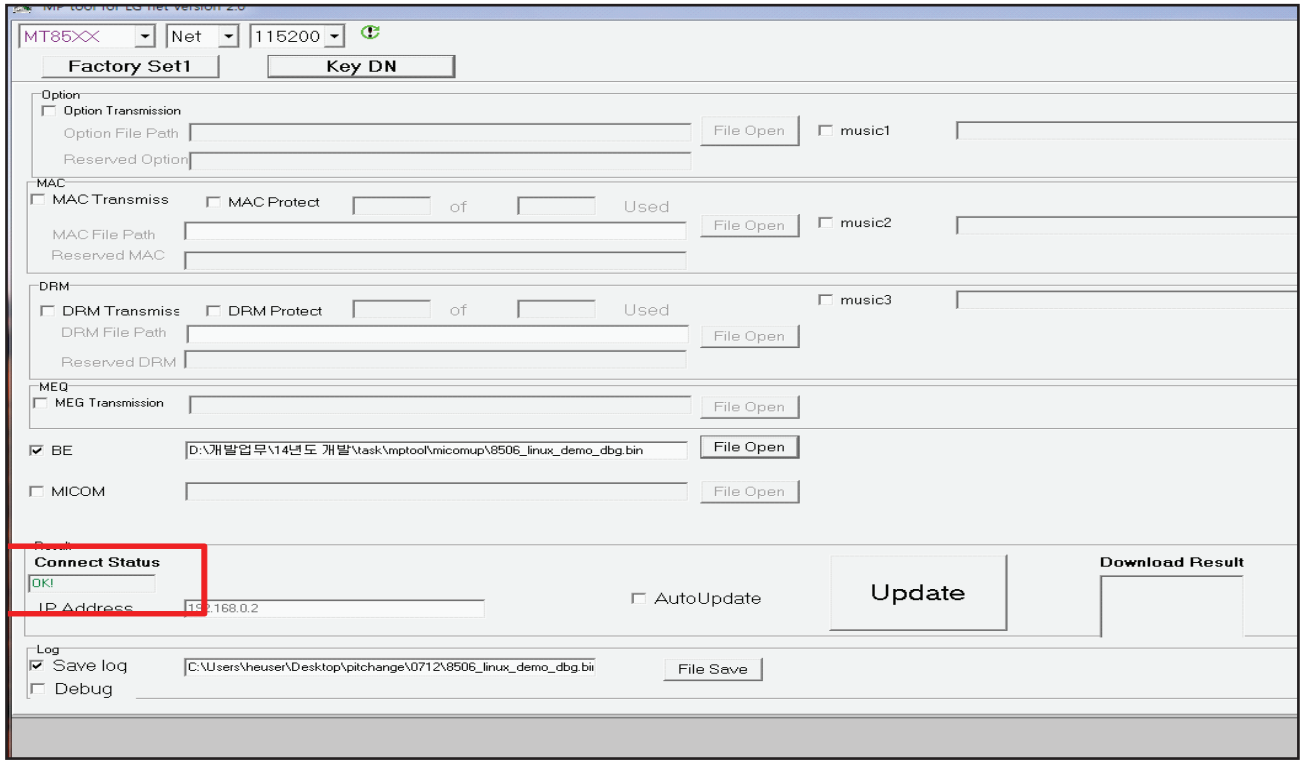
3) Connect PC and SET by cross LAN cable.
   Setting PC IP : 192.168.0.1
   255.255.255.0
   192.168.0.1

4) Set power on.

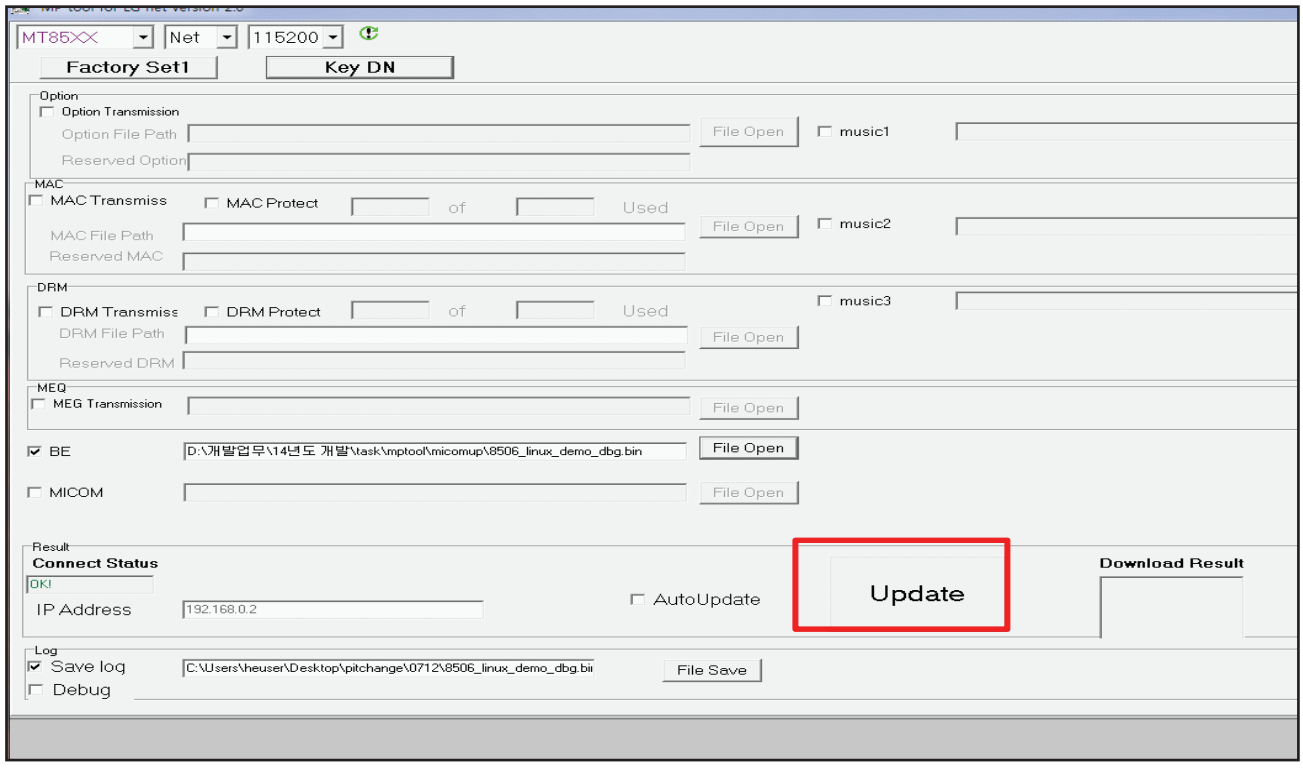
5) Connect LAN cable to Set and then Press “ADD” key within 3sec after connect the LAN.
   (Please connect the LAN when blinking WiFi-LED after booting)

   *Download file name
   BE : **LG_NS9000M06.ROM**
   MICOM : **MICOM_NP8540.HEX**

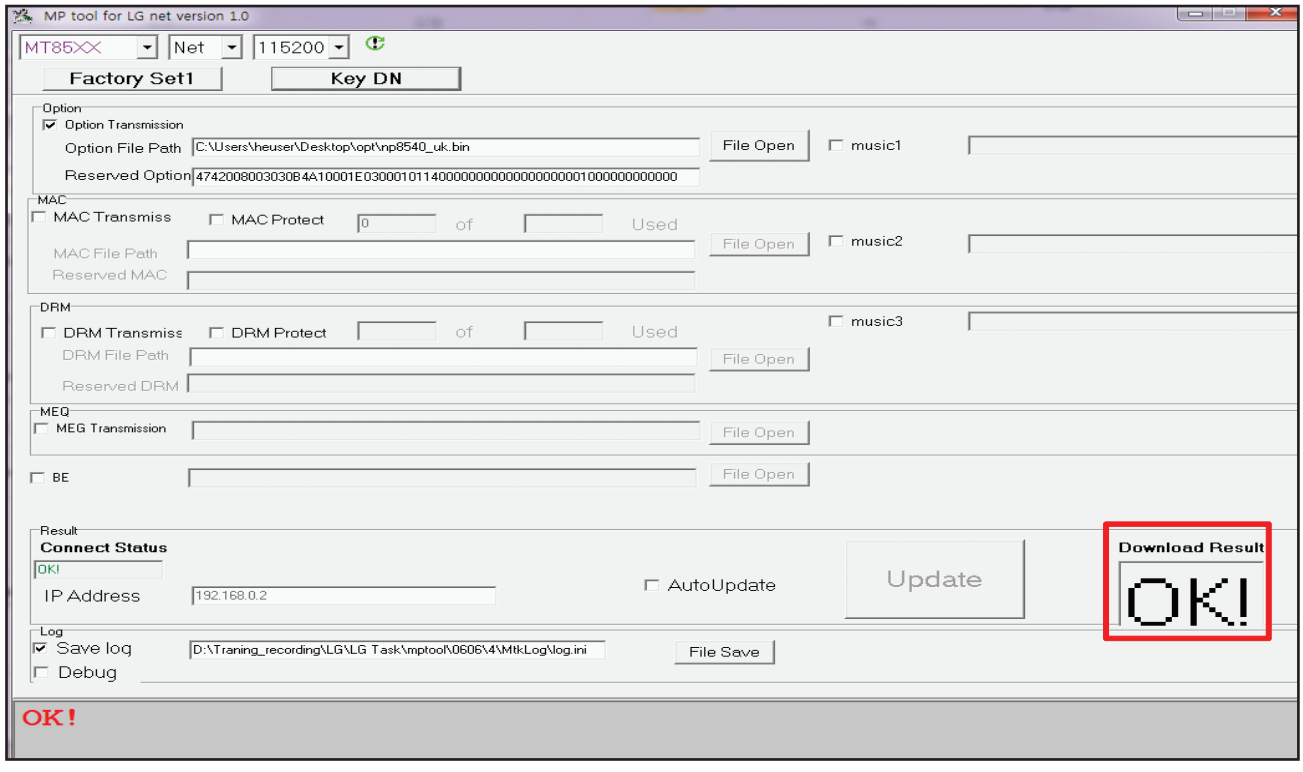
6) Connect Status change “OK!” if success connect MP tool.



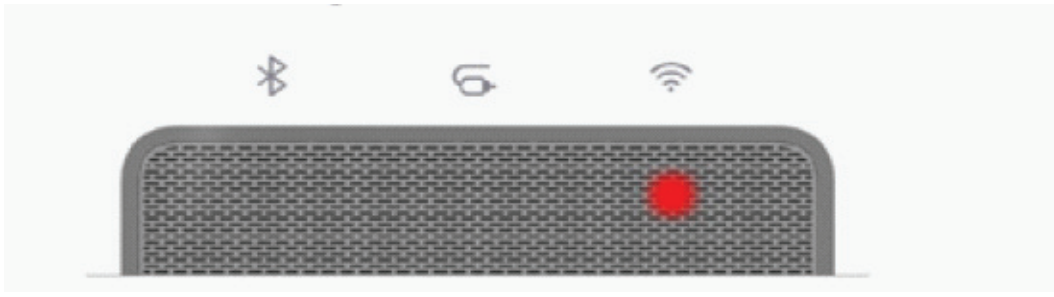
7) Press “Update” button.



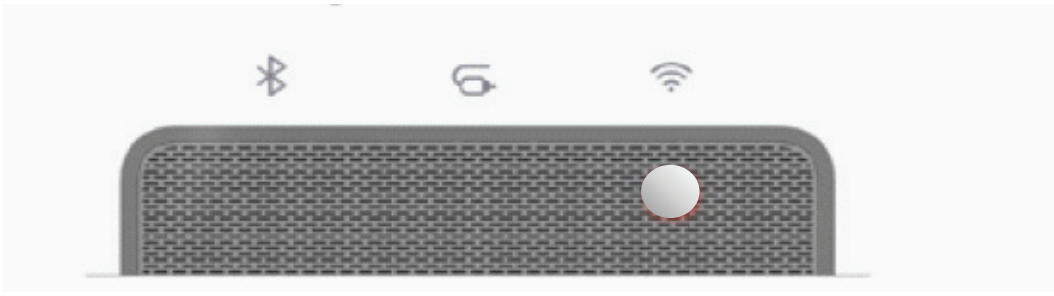
8) Download result display “OK!” if start download.



9) You can identify update status by network indicator lamp.



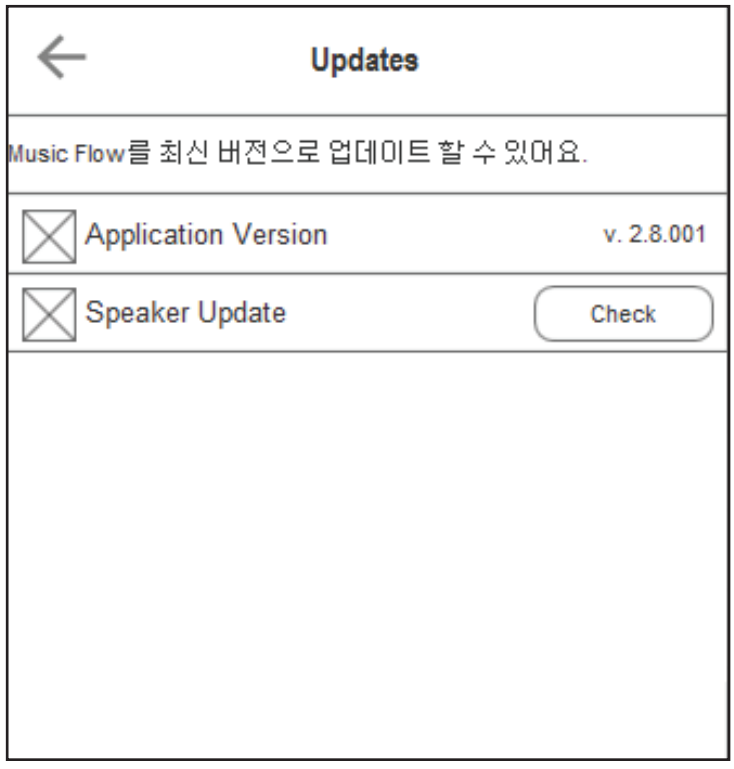
<Updating : blinking red LED>



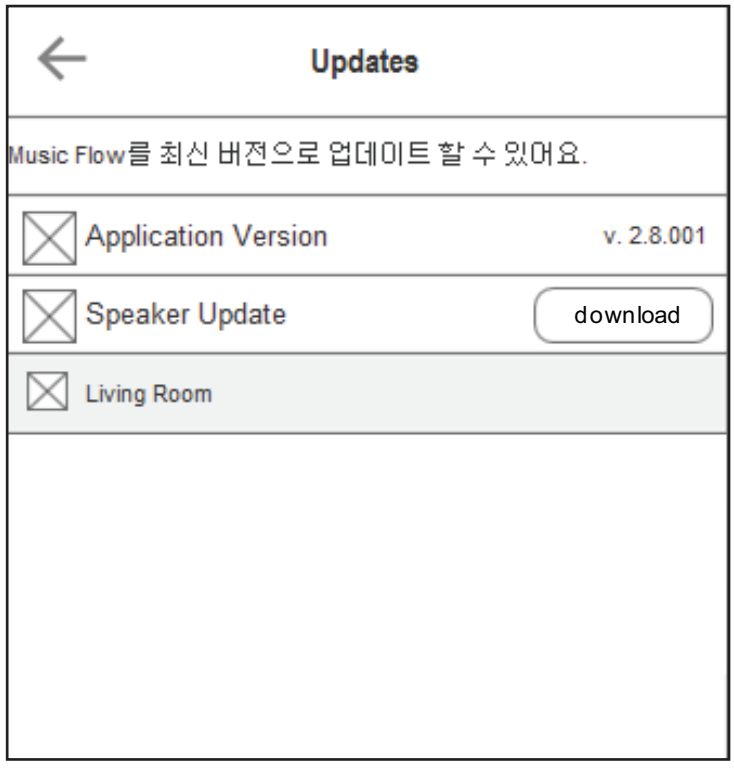
<Complete update : blinking white LED>

2. Using APP

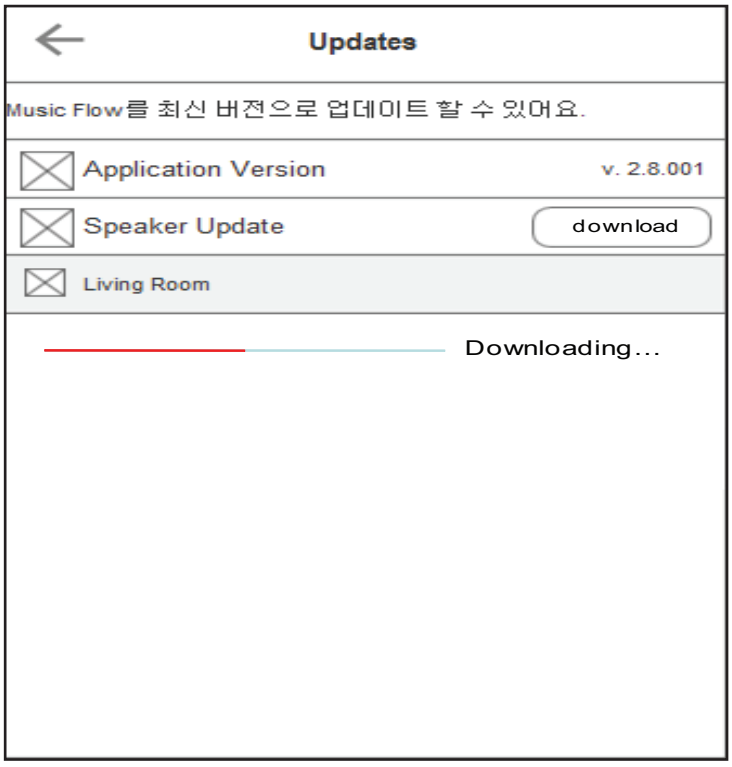
1) Connect set and music flow app.
2) Select “setup → update” menu then you can see below menu.



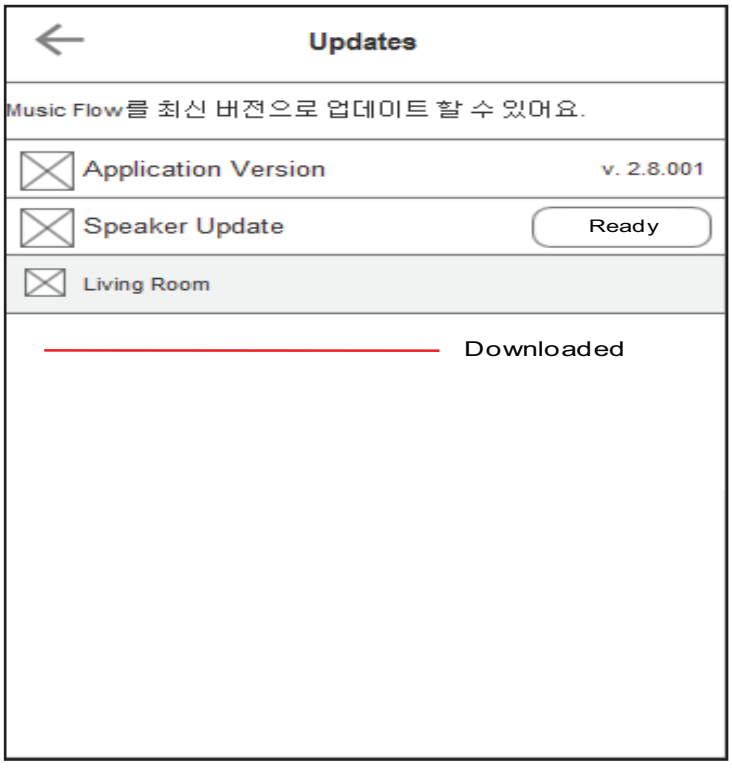
3) Enter “Check” button then display speaker list for update.



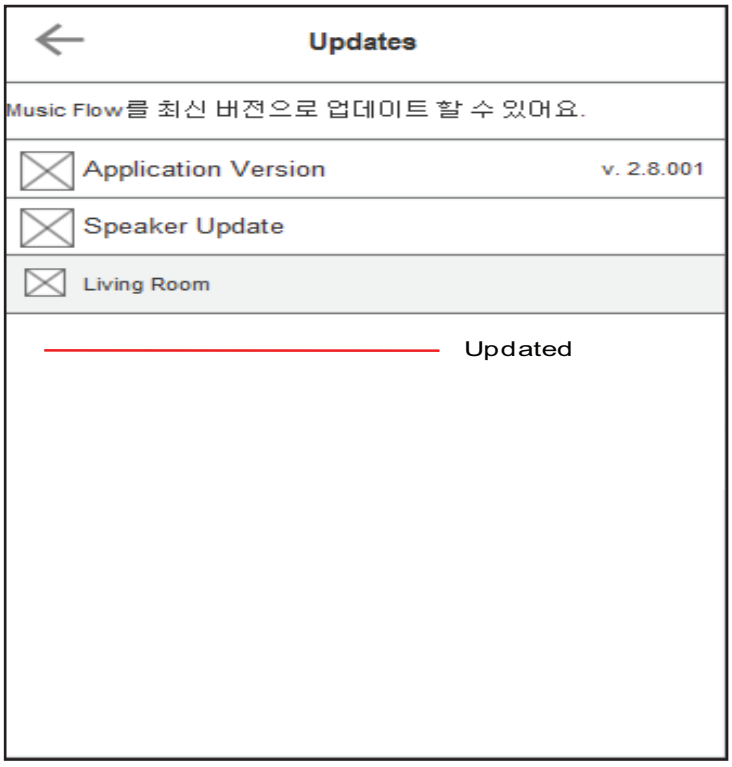
4) Enter “download” button then start download to speaker.



5) Display below menu after done download then enter “Ready” button for updating.



6) Display below menu after done update



7) Set rebooting. (Booting previous version if failed update.)

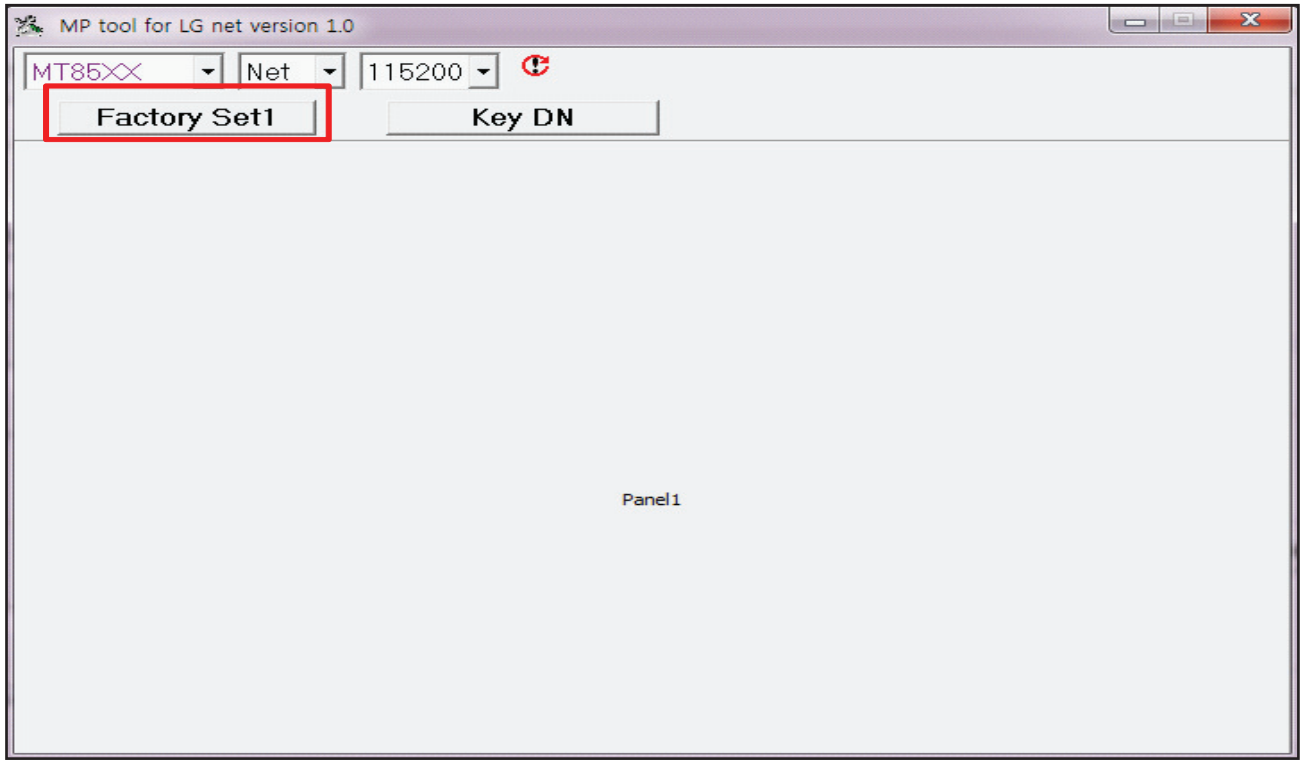
HIDDEN MODE

■ **Reset**
Press “ADD” button for 8 seconds.

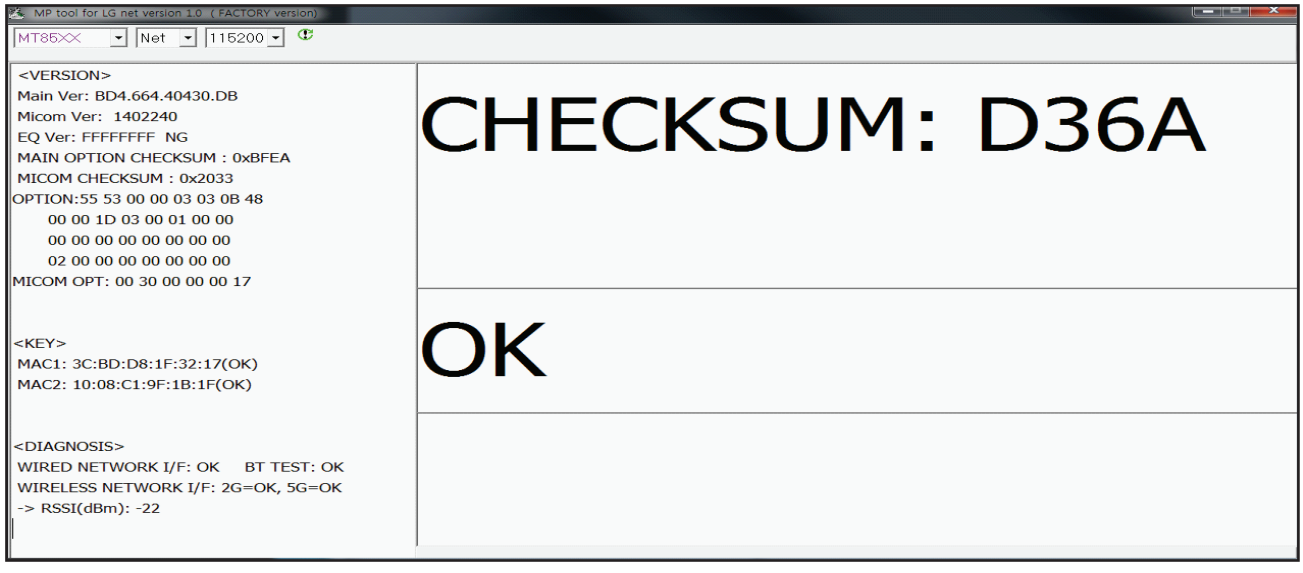
■ **Micom reset**
Remote control “play + “WIFI SETUP” key.

VERSION CHECK

1) Version Check : Select “Factory Set1”.



2) Connect PC and SET by cross LAN cable.
   Setting PC IP : 192.168.0.1
   255.255.255.0
   192.168.0.1
3) Set power on
4) Connect LAN cable to Set and then Press “ADD” key within 3sec after connect the LAN.
   (Please connect the LAN when blinking WiFi-LED after booting)
5) Display the version in the tool.



SPECIFICATIONS

• GENERAL

Power Supply	18 V ⎓ 2.67 A (AC adapter)
Power consumption	12 W Networked standby : 5.4 W
AC adapter	Model : DA-48A18 Manufacturer: Yang Ming Industrial Input: 100 - 240 V ~ 50/60 Hz Output: 18 V ⎓ 2.67 A
Dimensions (W x H x D)	Approx. 370 mm x 232 mm x 110 mm without foot
Net Weight (Approx.)	4.1 kg
Operating temperature	5 °C to 35 °C
Operating humidity	5 % to 90 %

• INPUTS

PORTABLE IN	400 mVrms (3.5 mm stereo jack)

• AMPLIFIER

Stereo mode	35 W + 35 W (4 Ω at 1 kHz)
T.H.D	10 %

• SPEAKERS

Type	Built-in
Impedance Rated	4 Ω
Rated Input Power	35 W
Max Input Power	70 W

• SYSTEM

ETHERNET (LAN) port	Ethernet jack x 1, 10 BASE-T/100 BASE-TX
Wireless LAN (internal antenna)	Integrated IEEE 802.11n (Draft 2.0) wireless networking access, compatible with 802.11a/b/g/n Wi-Fi networks.

• Design and specifications are subject to change without notice.

MEMO

SECTION 2

CABINET & MAIN CHASSIS

CONTENTS

DISASSEMBLY INSTRUCTIONS

1. Remove the Cover Rear Assembly.

Using Flat-blade tool, put one of both side hole.

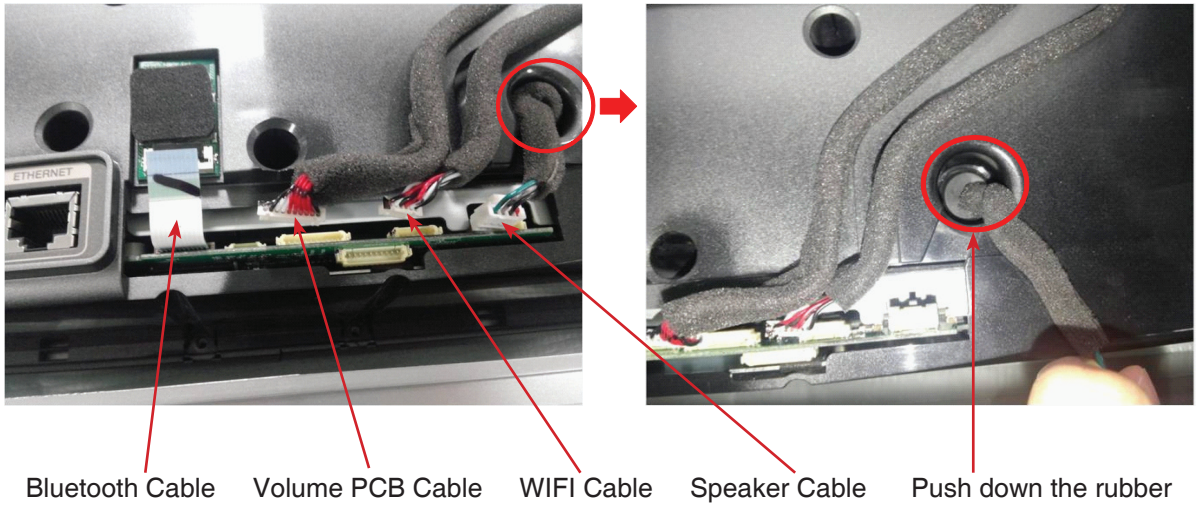
Place beneath a thick soft sheet.

Lift tool using the principle of leverage

2. Remove the Case Rear Assembly Screws (NP8540 : 15EA, NP8740 : 17EA).

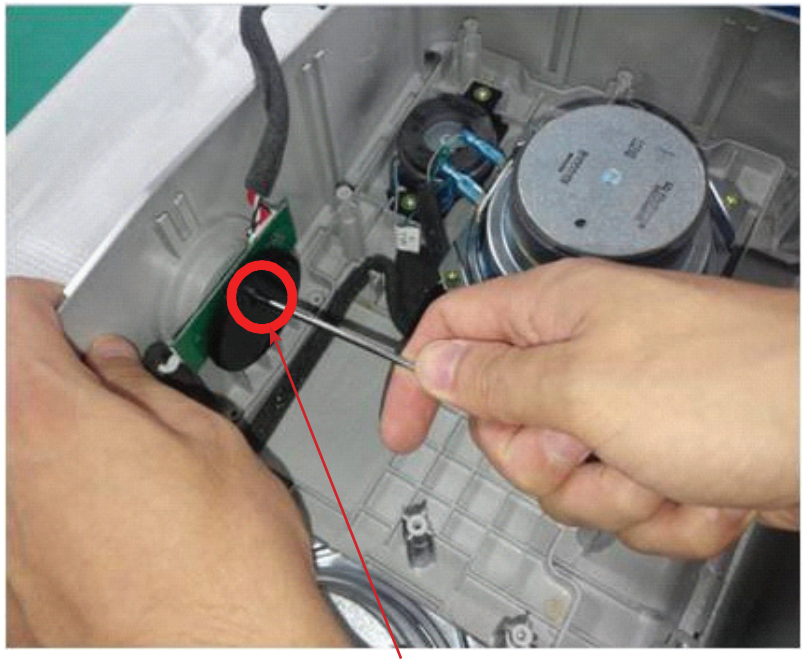
Exist only NP8740

3. Pull Out Cable.



4. Remove the Case Rear Assembly, Chassis PCB Assembly.

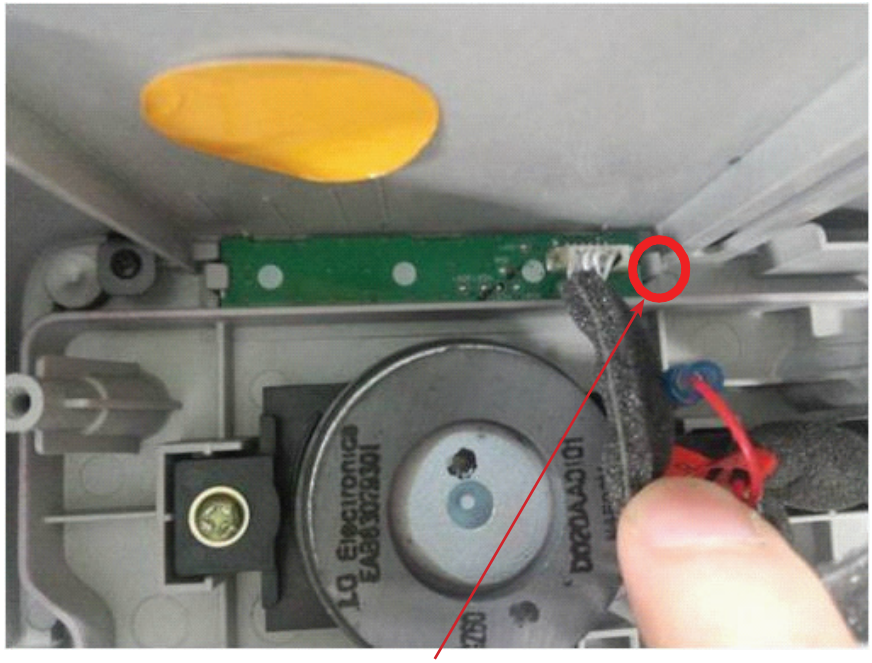
5. Remove the Knob Volume.



Using small and long tool, Put the Holder PCB volume hole.

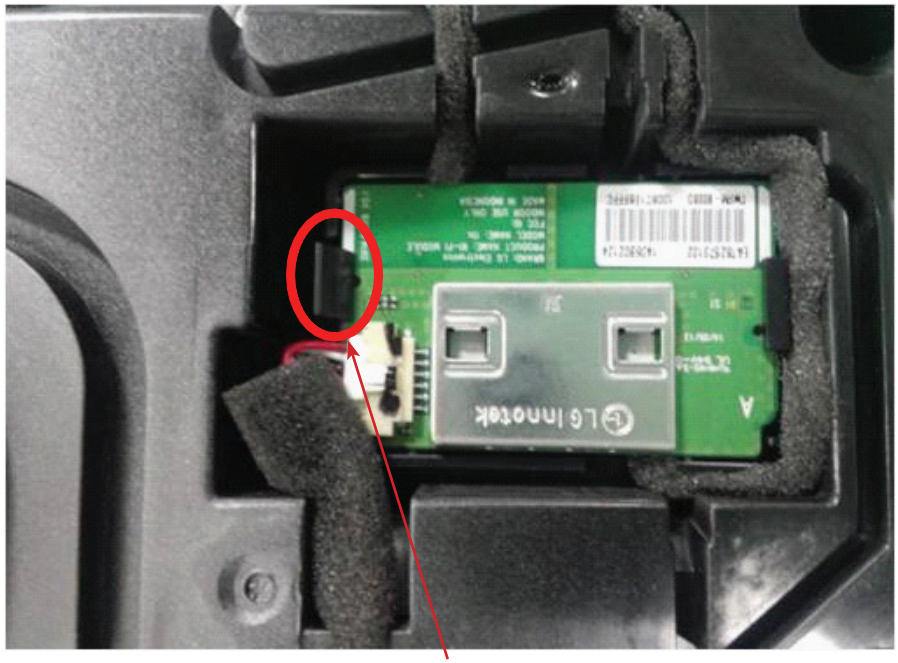
6. Remove the Screws 3EA of Case Main Assembly Top And Pull Out PCB Volume Assembly, Holder PCB Volume.

7. Pull Out PCB LED Assembly.



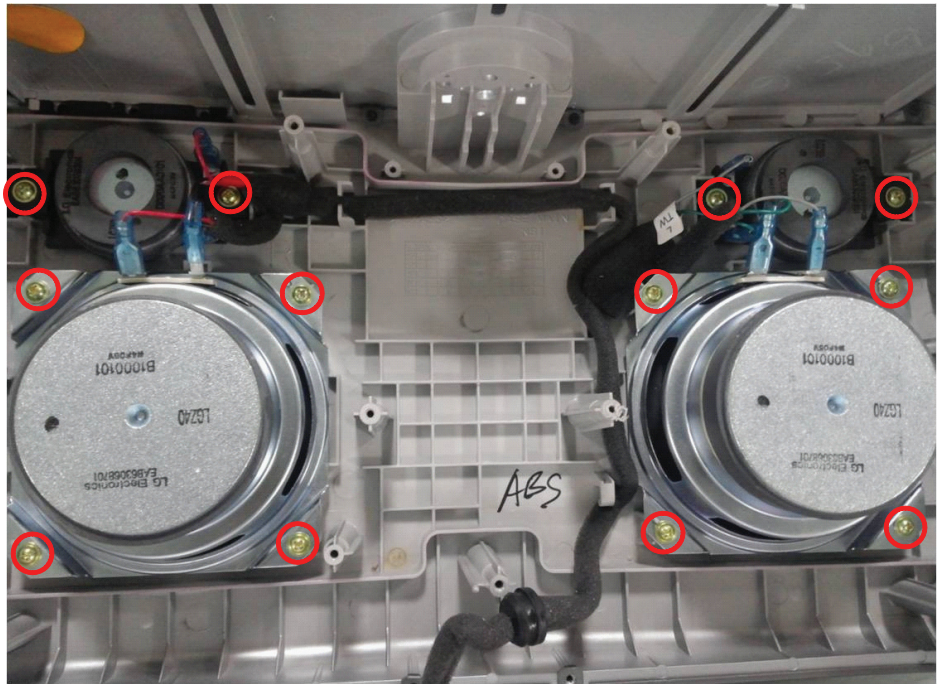
After Push the Guide hook, Pull out PCB LED Assembly.

8. Pull Out Wi-Fi Module at Case Rear Assembly.



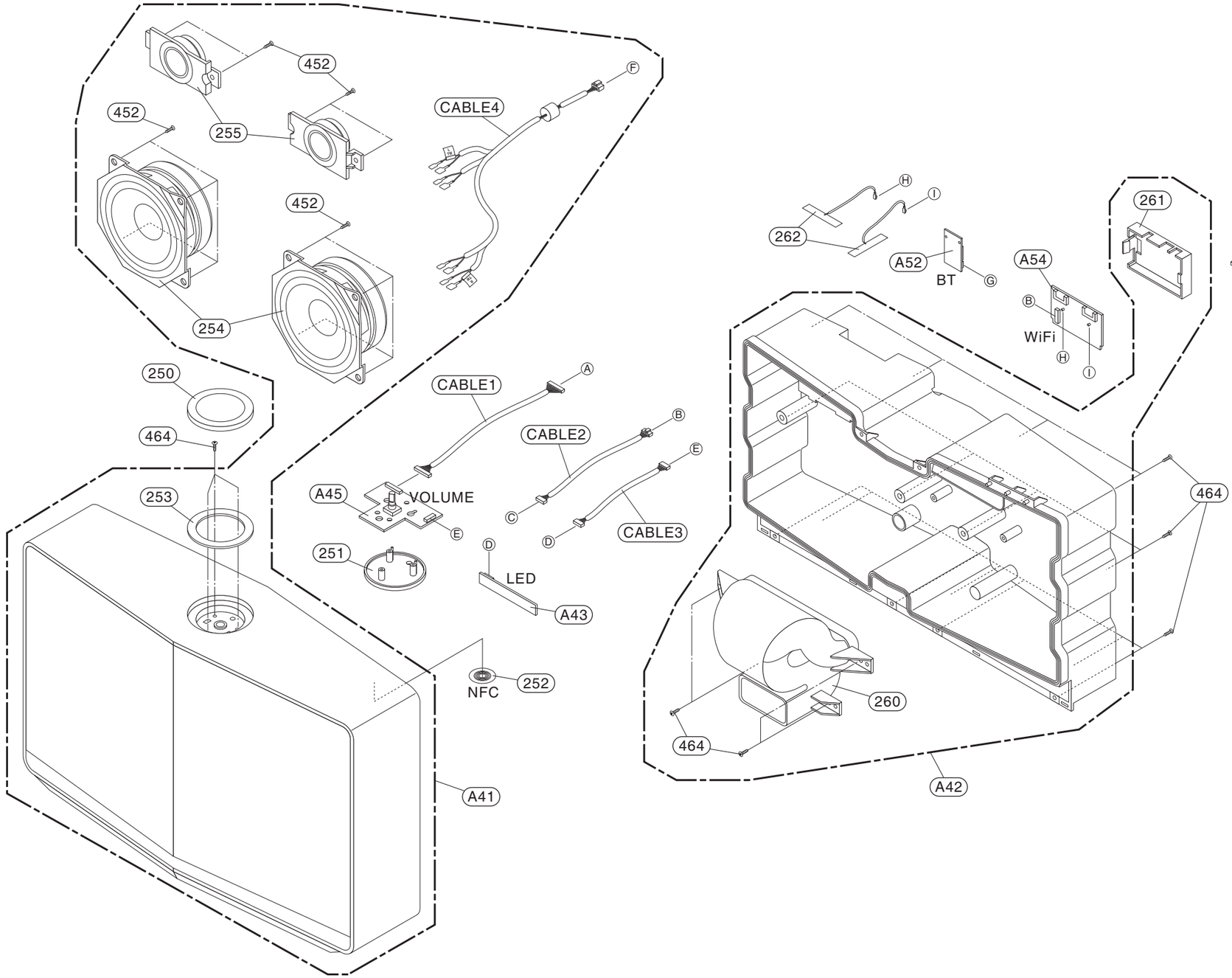
After Push the Guide hook, pull out Wi-Fi Module

9. Remove the Unit, Tweeter Screws 12EA.

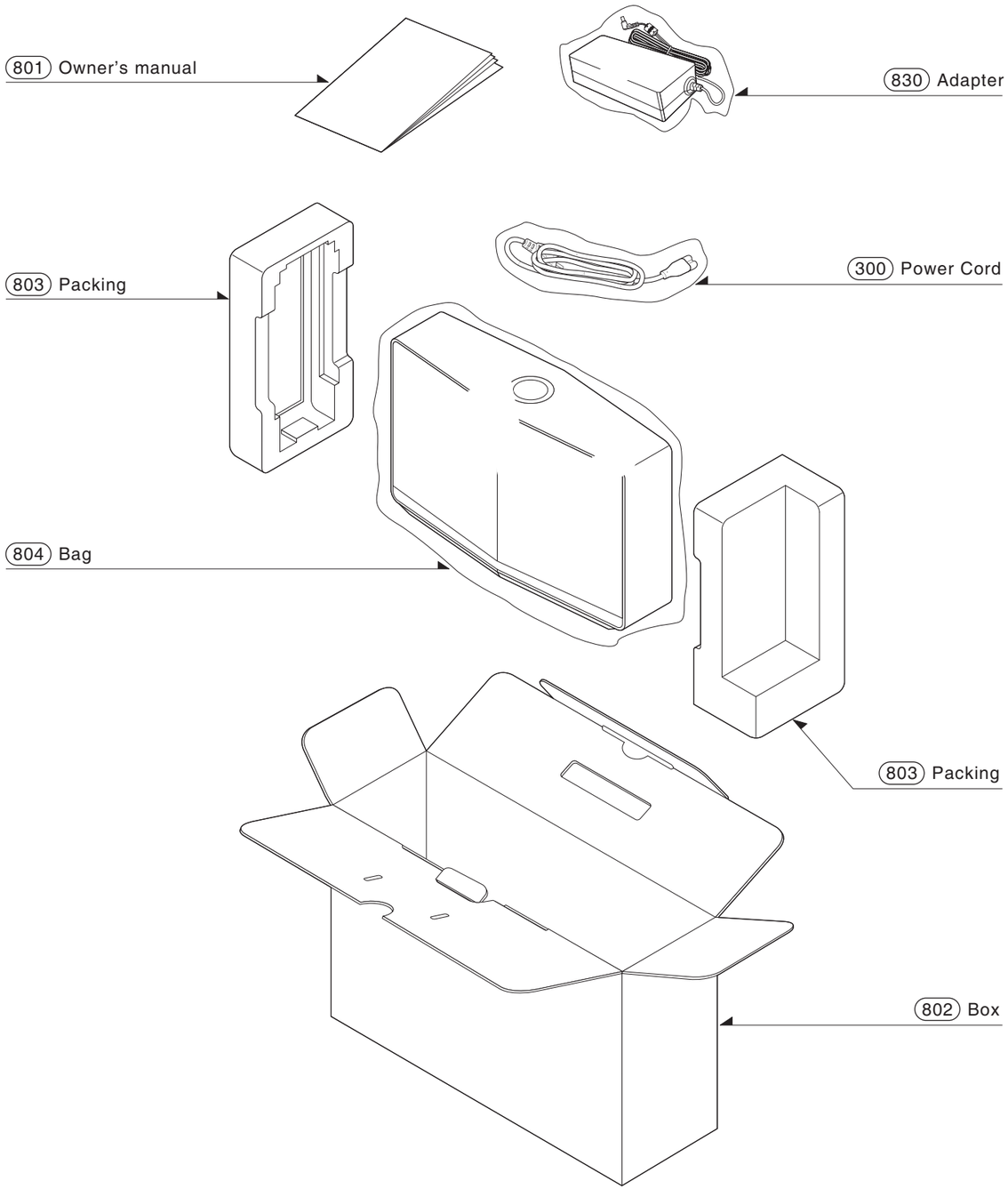


EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION



2. PACKING ACCESSORY SECTION



MEMO

SECTION 3

ELECTRICAL

CONTENTS

ONE POINT REPAIR GUIDE

1. IF NOT BOOTING WHEN YOU TURN ON THE SET. AND LED DOESN'T TURN ON.

1-1. IC903 (NO 5.2 VA)

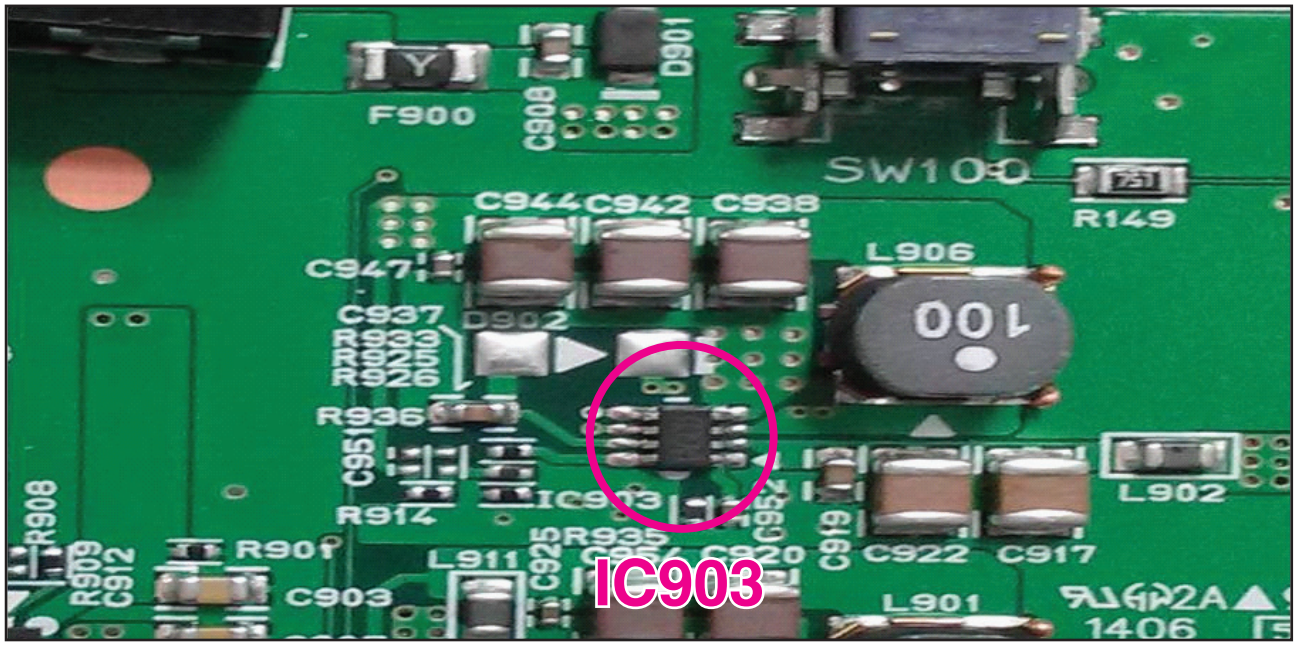
1-1-1. Solution

Replace IC903 on main board.

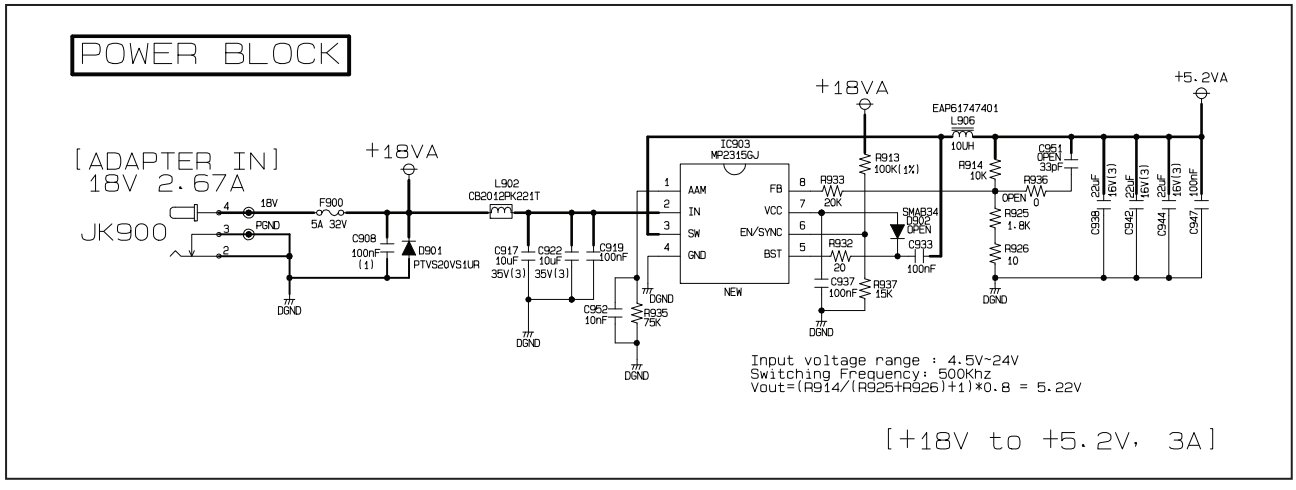
1-1-2. How to troubleshoot (Countermeasure)

1) Please Check 18 VA of IC903 Pin2(IN)
2) If 18 VA is abnormal, check the parts. (JK900, F900, C905, D901, L902, C917, C922, C919).
   And then change the weird one.
3) If 18 VA is OK, but 5.2 VA is abnormal at the L906 replace IC903.

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



< Main board top view >



ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET. AND LED DOESN'T TURN ON.

1-2. IC904 (NO 3.6 VA)

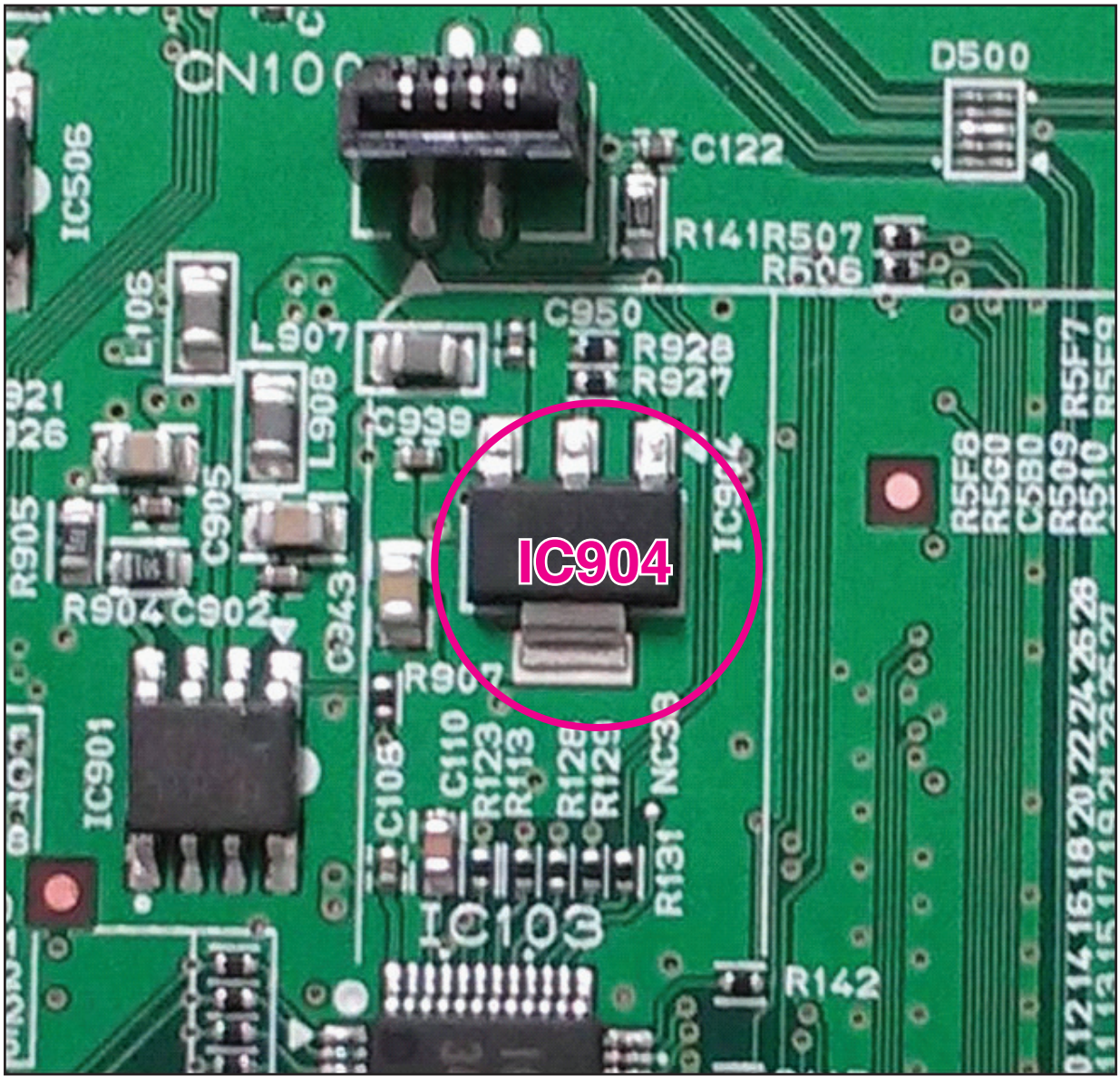
1-2-1. Solution

Replace IC904 on main board.

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

1) Please check 5.2 VA of IC904 Pin3(INPUT).
2) If 5.2 VA is abnormal, follow the stage 1-1 at the previous page.
3) If 5.2 VA is OK, but 3.6 VA is abnormal at the IC904(VOUT Pin4) replace IC904.
4) When you followed above step but It doesn't work, check the around parts. (R927, R928, L907)

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



< Main board top view >

ONE POINT REPAIR GUIDE

2. NO SOUND FROM THE SPEAKER

2-1. IC700 (NO 18 VA / 3.3 V)

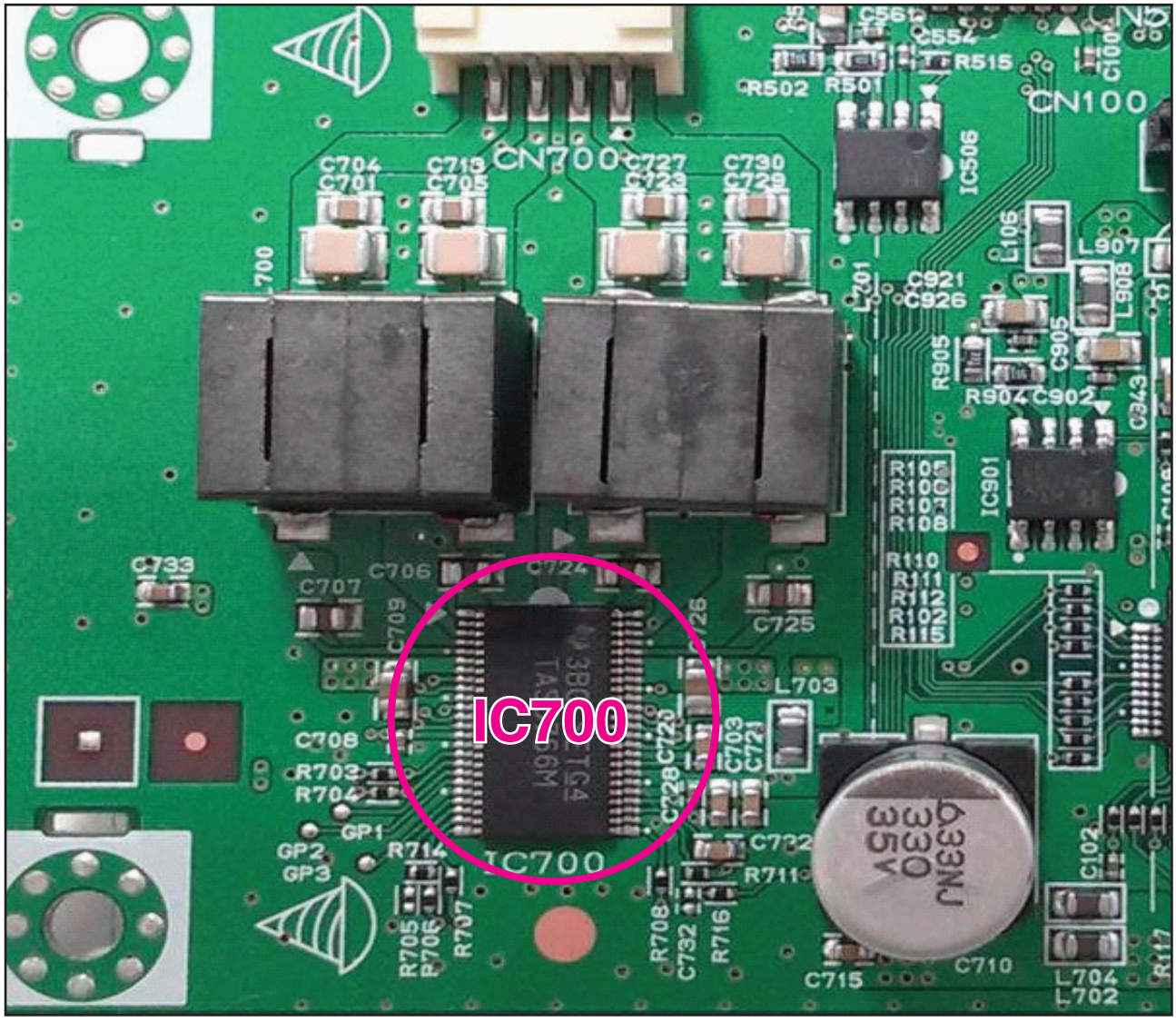
2-1-1. Solution

Replace IC700 on main board.

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

1) Please check 18 VA(PVDD) of C709, C726 and 3.3 V(DVDD) of L903.
2) If 18 VA is abnormal, follow the stage 1-1 at the previous page.
3) If 3.3 V is abnormal, follow the stage 3-2 at the next page.
4) If 18 VA, 3.3 V are OK but no sound from the speaker, replace IC700.
5) When you followed above step but it doesn't work, check the around parts. (RLC)

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



< Main board top view >

ONE POINT REPAIR GUIDE

3. IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-1. IC902 (NO 1.5 V / 1.2 V)

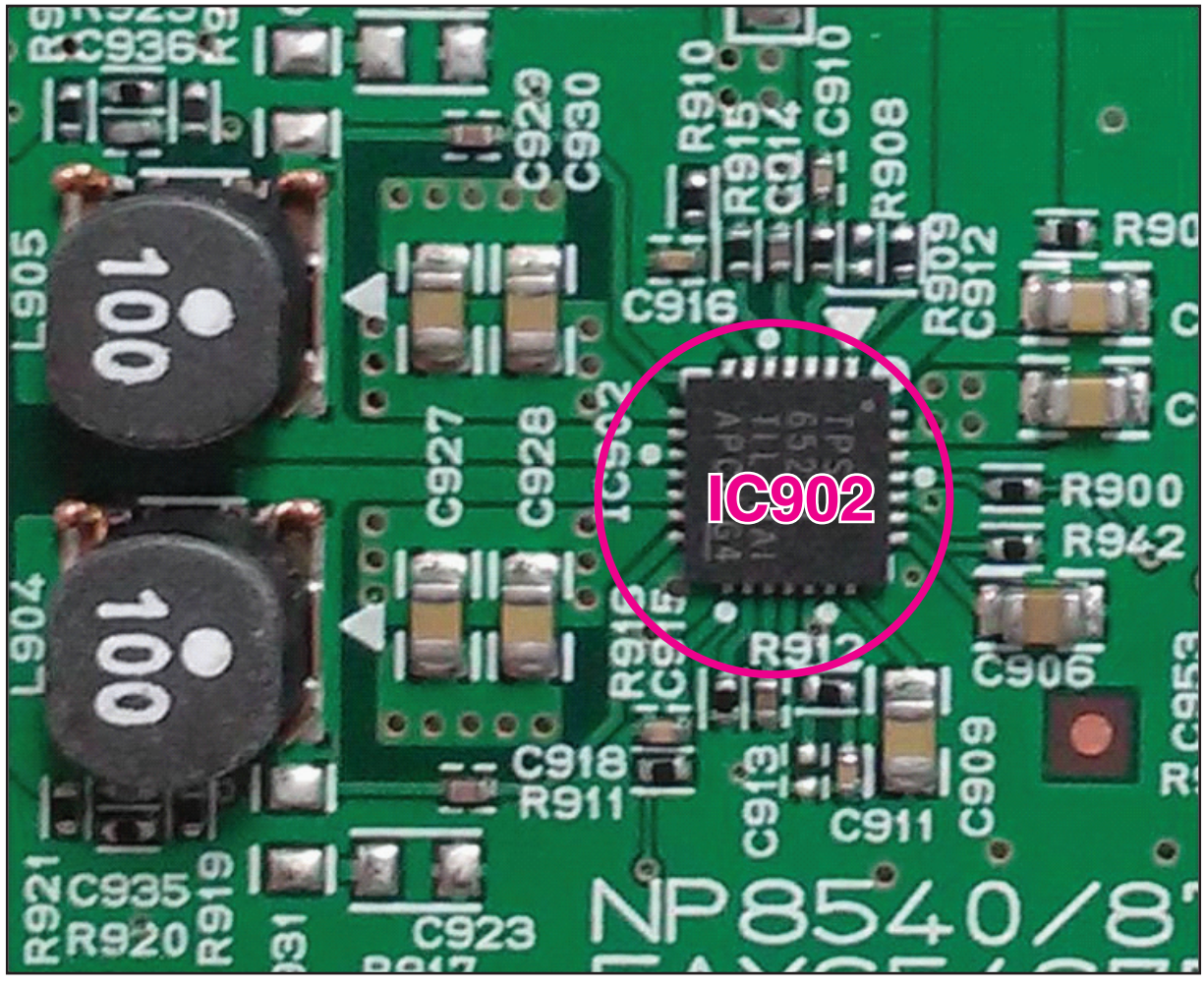
3-1-1. Solution

Replace IC902 on main board.

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

1) Please check 5.2 VA of L902(VIN).
2) If 5.2 VA is abnormal, follow the stage 1-1 at the previous page.
3) If 5.2 VA is OK, but 1.5 VA is abnormal at the IC902(Pin11, Pin12), check the PWR_CTRL1's level.
   If level ishigh, checkthe around parts (R911, R912, R916, R919, R920, R921, L904, L909, C911, C915 C918, C923, C927, C928, C935, C940, C945, C948) and if there's no defective component, replace IC902.
   If the PWR_CTRL1 level is Low, follow the stage 3-3.
4) If 5.2 VA is OK, but 1.2 VA is abnormal at the IC902(Pin9, Pin10), check the PWR_CTRL0's level.
   If level ishigh, checkthe around parts (R909, R910, R915, R922, R924, R923, L905, L910, C910, C912, C914, C916, C929, C930, C936, C941, C946, C949) and if there's no defective component, replace IC902.
   If the PWR_CTRL0 level is Low, follow the stage 3-3.

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



< Main board top view >

ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-2. IC900 (NO 3.3 V)

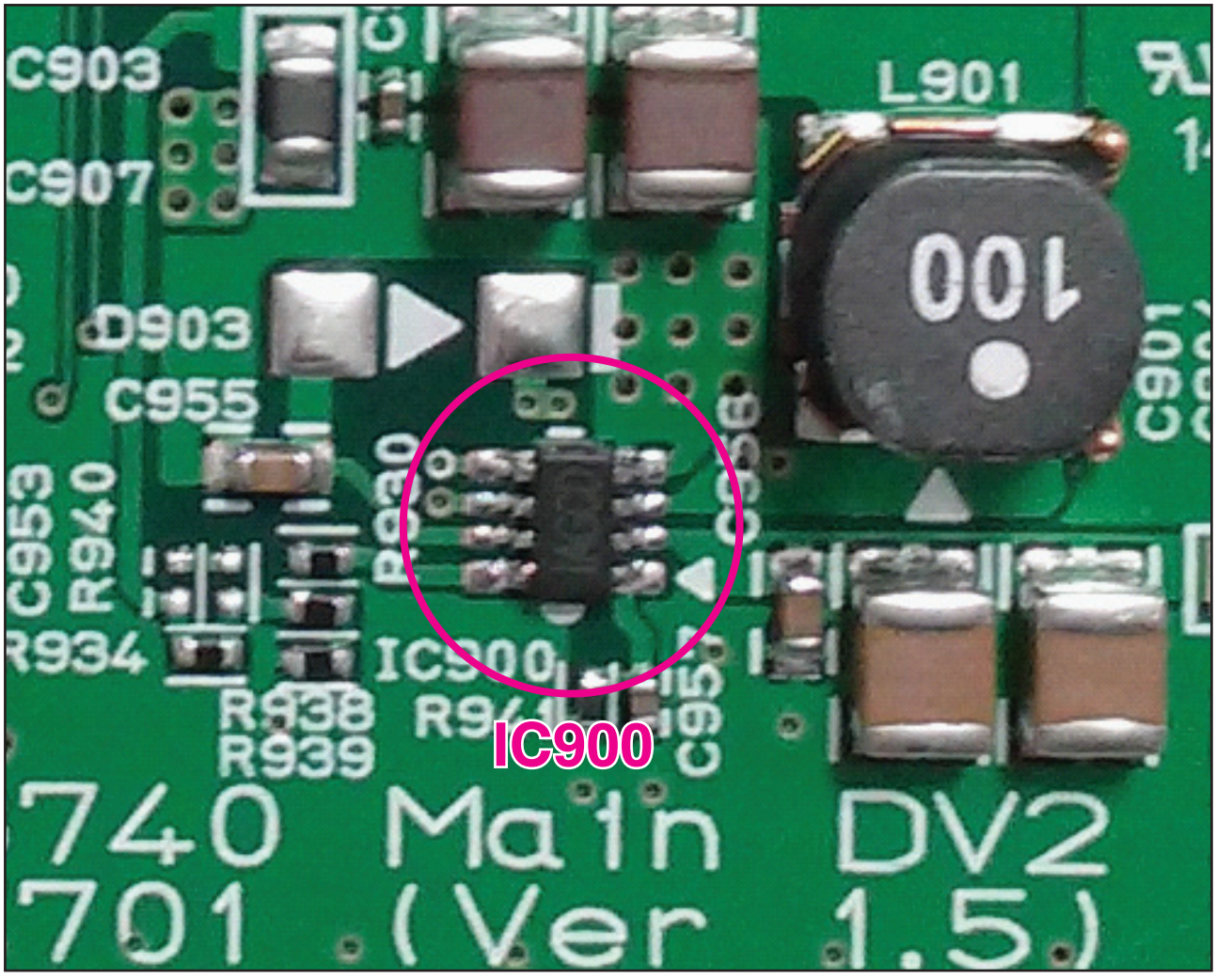
3-2-1. Solution

Replace IC900 on main board.

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

1) Please check 18 VA of IC900 Pin2(VIN).
2) If 18 VA is abnormal, follow the stage 1-1-2 at the previous page.
3) If 18 VA is OK, but 3.3 V is abnormal at the IC900(Pin7) replace IC900.
4) When you followed above step but it doesn't work, check the around parts. (L900, C901, C904, C955, C956, C957, R941, R906, R929, C934, R930, R934, R938, R939, C920, C954, C925)

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



< Main board top view >

ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-3. IC103 (NO 3.3 VA)

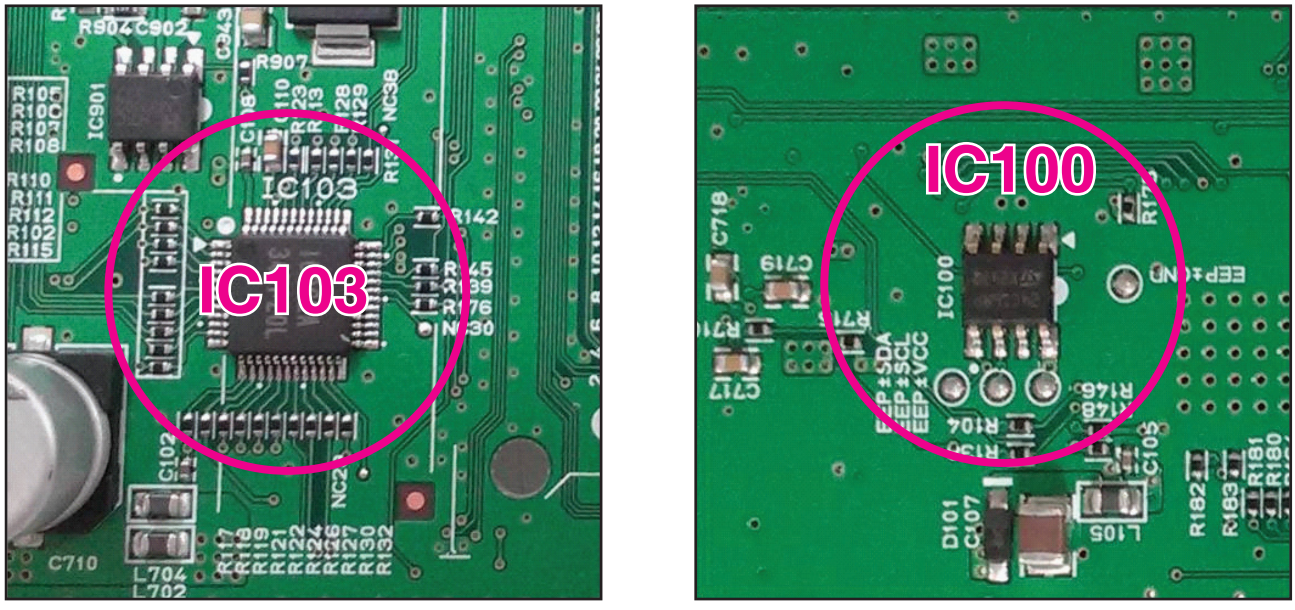
3-3-1. Solution

Replace IC103 on main board.

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

1) Check 3.3 VA of IC103 Pin48(VIN).
2) If 3.3 VA is abnormal, follow the stage 3-2 at the previous page.
3) If 3.3 VA of IC103 Pin48(VIN) is OK, check the EEP_CLK(Pin1), EEP_DAT(Pin2) signal.
   If signal is abnormal change the IC103.
4) If the EEP_CLK(Pin1), EEP_DAT(Pin2) signals are OK, check the IC100 Pin8(VCC / 3.3 VA).
   If Pin8(VCC / 3.3 VA) is OK, change the IC100.

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



< Main board top view >

ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-4. IC501 (MPEG IC)

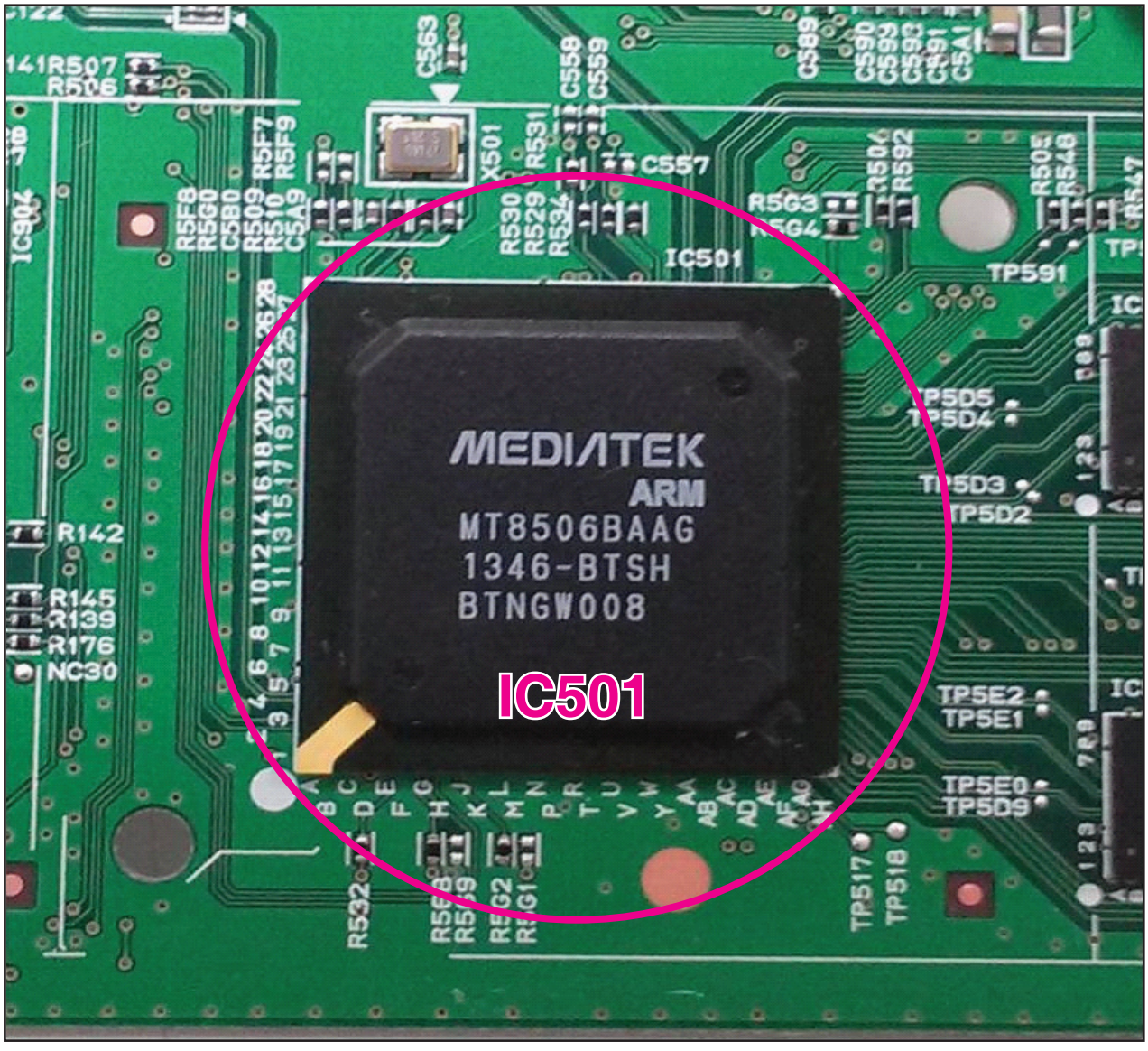
3-4-1. Solution

Replace IC501 on main board.

3-4-2. How to troubleshoot (Countermeasure)

1) Check physical status of IC501 on your eyes.
2) Check 1.2 V of L910, If 1.2 V is abnormal, follow the stage 3-1-2 at the previous page.
3) Check 1.5 V of L909, If 1.5 V is abnormal, follow the stage 3-1-2 at the previous page.
4) Check 3.3 V of L911, If 3.3 V is abnormal, follow the stage 3-2 at the previous page.
5) When you followed above step but it doesn't work, replace the IC501.

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



< Main board top view >

ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-5. IC503, IC504 (DDR IC)

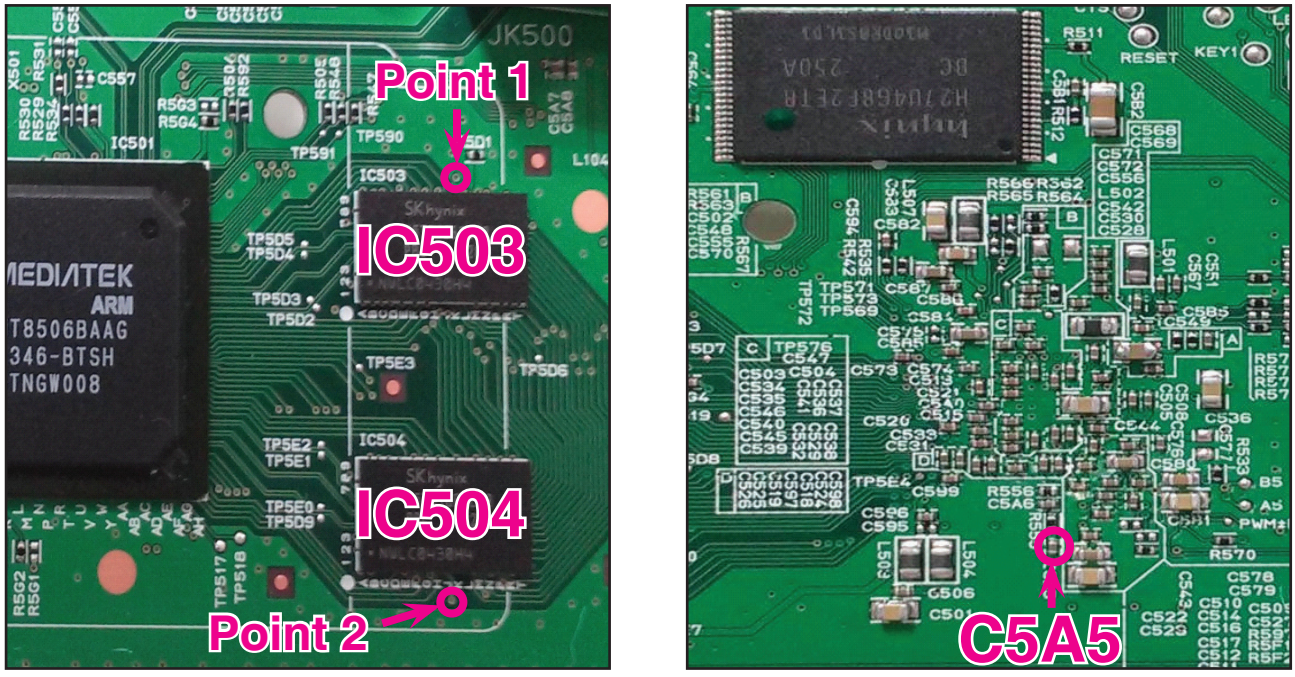
3-5-1. Solution

Replace IC503, IC504 on main board.

3-5-2. How to troubleshoot (Countermeasure)

1) Check 0.75 V of DDR3_VREF (Point 1).
   If voltage is abnormal follow the stage 3-1-2 at the previous page.
2) Check 0.75 V of DDR3_VREF (Point 2).
   If voltage is abnormal follow the stage 3-1-2 at the previous page.
3) Check 1.5 V of C5A5.
4) If 1.5 V and 0.75 V are abnormal, check the around parts. (C5A5, C5A6, R555, R556)
5) If there's no defective component, follow the stage 3-1-2 at the previous page.
6) When you followed above step but it doesn't work, replace the IC503, IC504.

3-5-3. Service hint (Any picture / Remark)



< Main board top view >

ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-6. IC505 (NAND Flash memory IC)

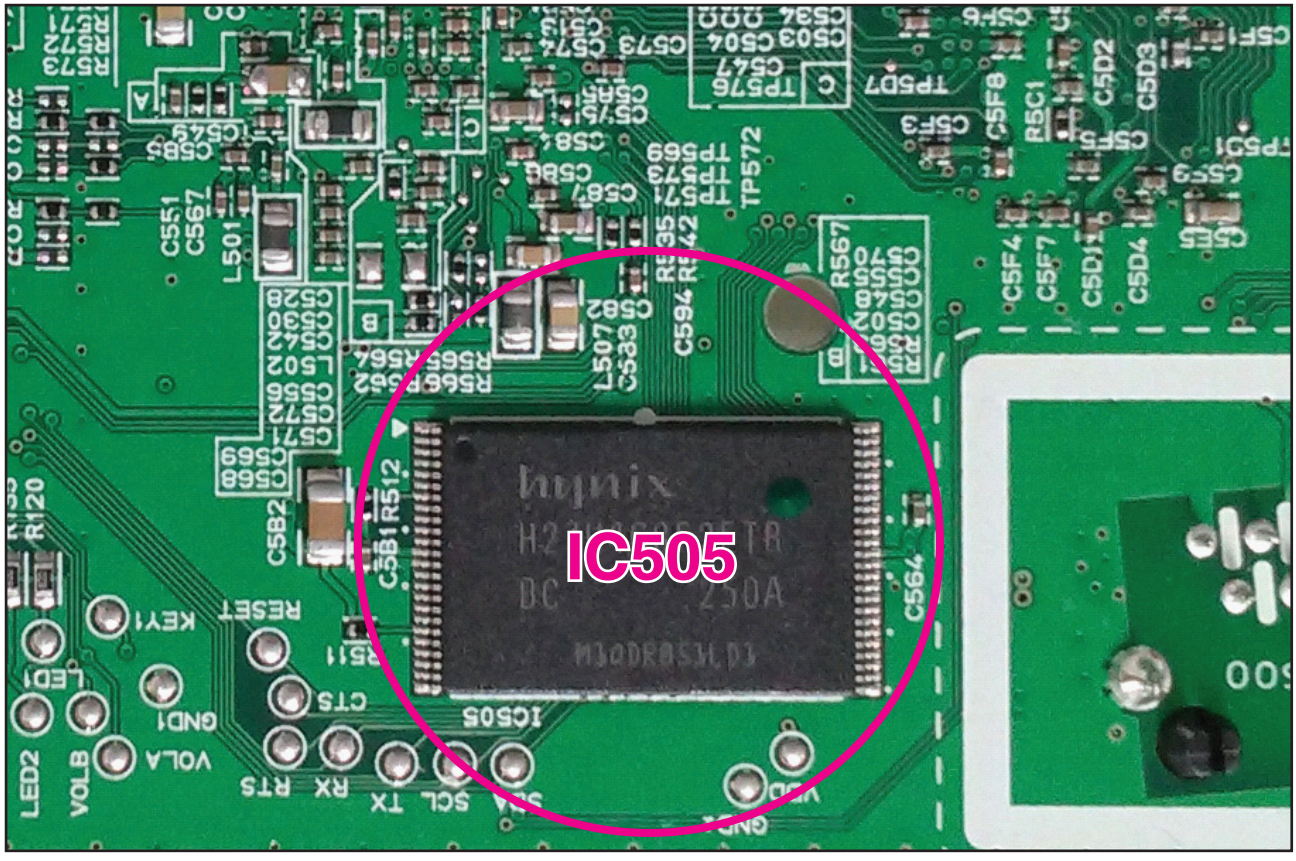
3-6-1. Solution

Replace IC505 on main board.

3-6-2. How to troubleshoot (Countermeasure)

1) Check 3.3 V of R512, R511, C5B1
2) If 3.3 V is abnormal, follow the stage 3-2-2 at the previous page.
3) When you followed above step but it doesn't work, replace the IC505.

3-6-3. Service hint (Any picture / Remark)



< Main board top view >

ONE POINT REPAIR GUIDE

IF NOT BOOTING WHEN YOU TURN ON THE SET.

3-7. X501 (Crystal)

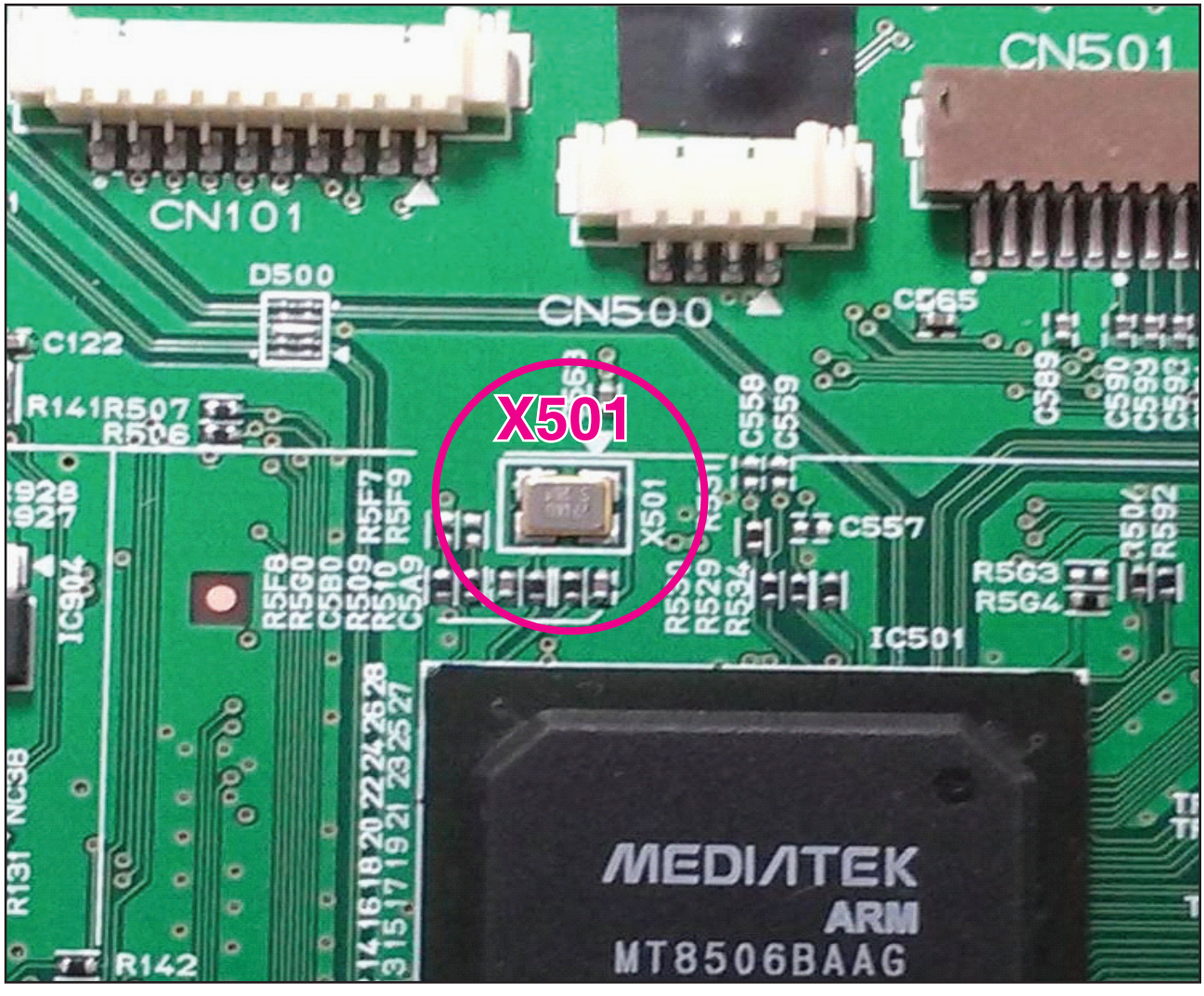
3-7-1. Solution

Replace X501 on main board.

3-7-2. How to troubleshoot (Countermeasure)

1) Check the frequency of 27 MHz crystal(X501).
2) If 3.3 V is abnormal, follow the stage 3-2-2 at the previous page.
3) If the crystal doesn't oscillate, replace X501.

3-7-3. Service hint (Any picture / Remark)



< Main board top view >

ONE POINT REPAIR GUIDE

4. WIRED NETWORK CONNECTION ERROR

When you connect AP through the wired LAN, connection failed.

4-1. JK500 (Ethernet Jack)

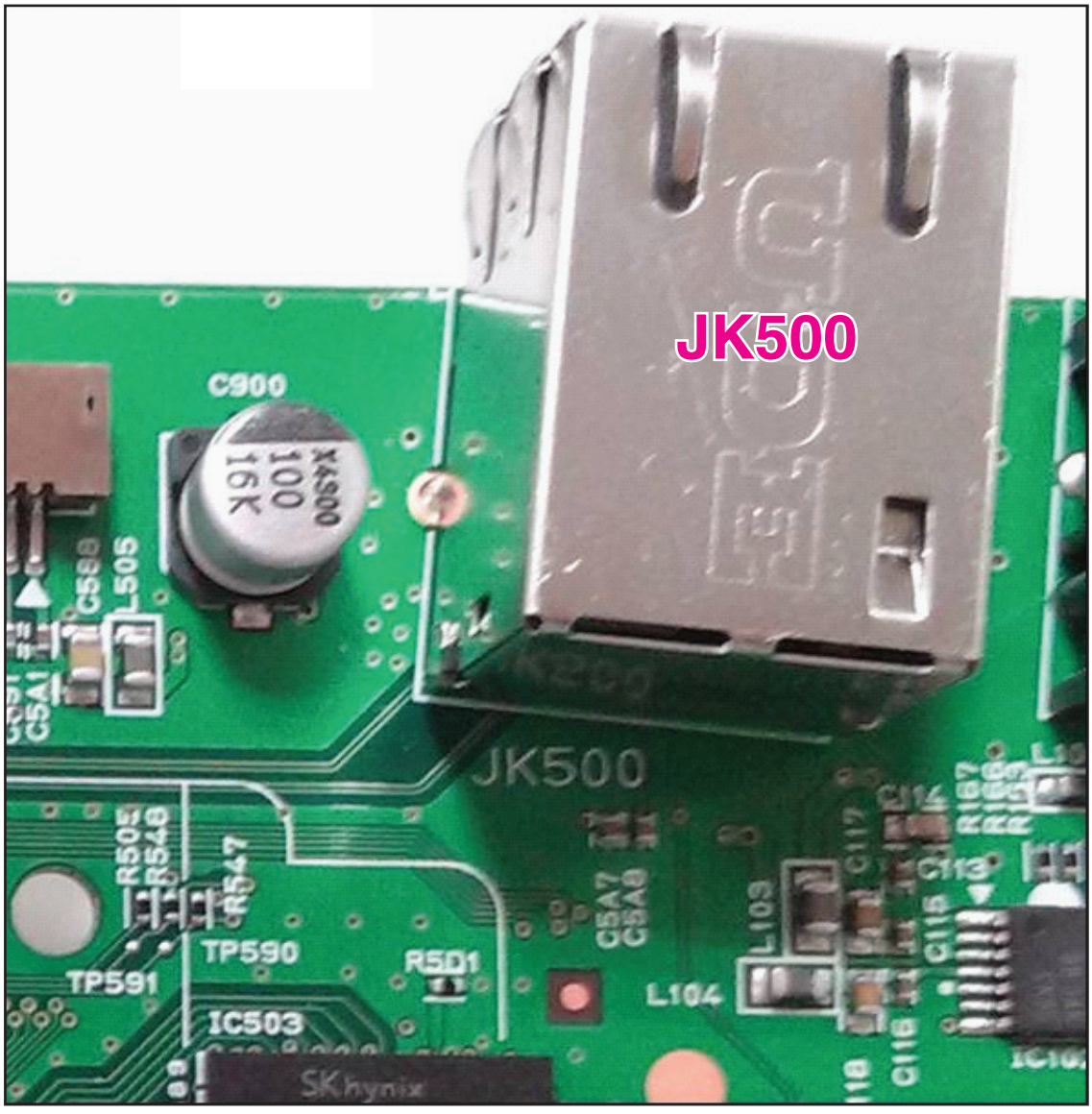
4-1-1. Solution

Replace JK500 on main board.

4-1-2. How to troubleshoot (Countermeasure)

1) If there is soldering problem, please re-soldering pin JK500.
2) If after re-soldering, problem still occurs, replace JK500.
3) If problem still occurs after change JK500, check MT8506 IC(IC501).
   Refer to the stage 3-2-2 at the previous page.

4-1-3. Service hint (Any picture / Remark)



< Main board top view >

ONE POINT REPAIR GUIDE

5. PORTABLE FUNCTION DOESN'T WORKING

5-1. IC102 (ADC)

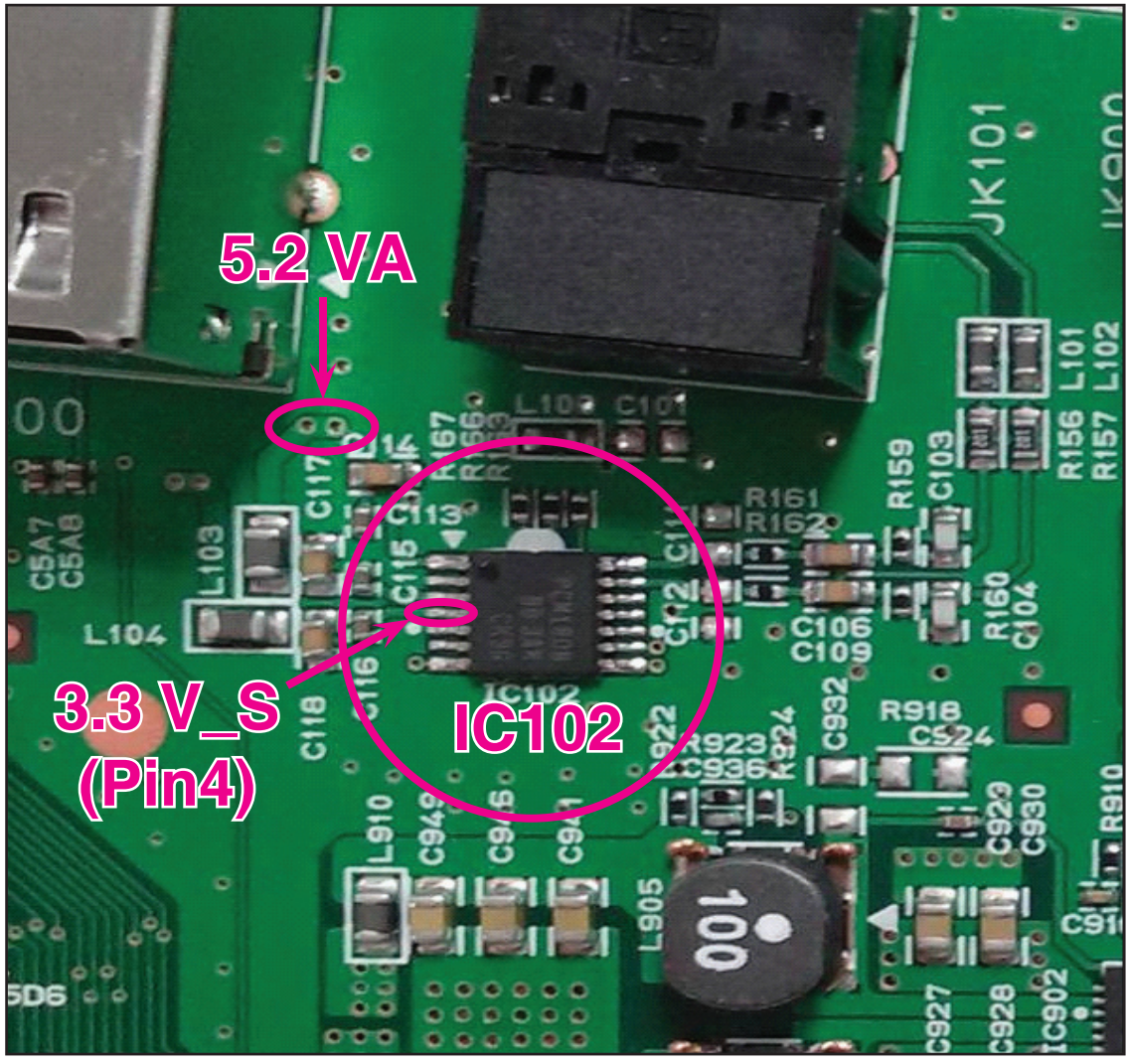
5-1-1. Solution

Replace IC102 on main board.

5-1-2. How to troubleshoot (Countermeasure)

1) Check 5.2 VA.
   If 5.2 VA is abnormal follow the stage 1-1.
2) Check 3.3 V_S of IC102(Pin4).
   If 3.3 V_S is abnormal follow the stage 3-2.
3) If 5.2 VA and 3.3 V_S are OK, check the PTB_DET is HIGH state when potable cable connected. (L100)
   If it's LOW, follow the stage 3-4. (Micom)
4) When you followed above step but It doesn't work. Check the around parts. (Resistor, Capacitor, Bead).
   If still not working, replace the IC102.

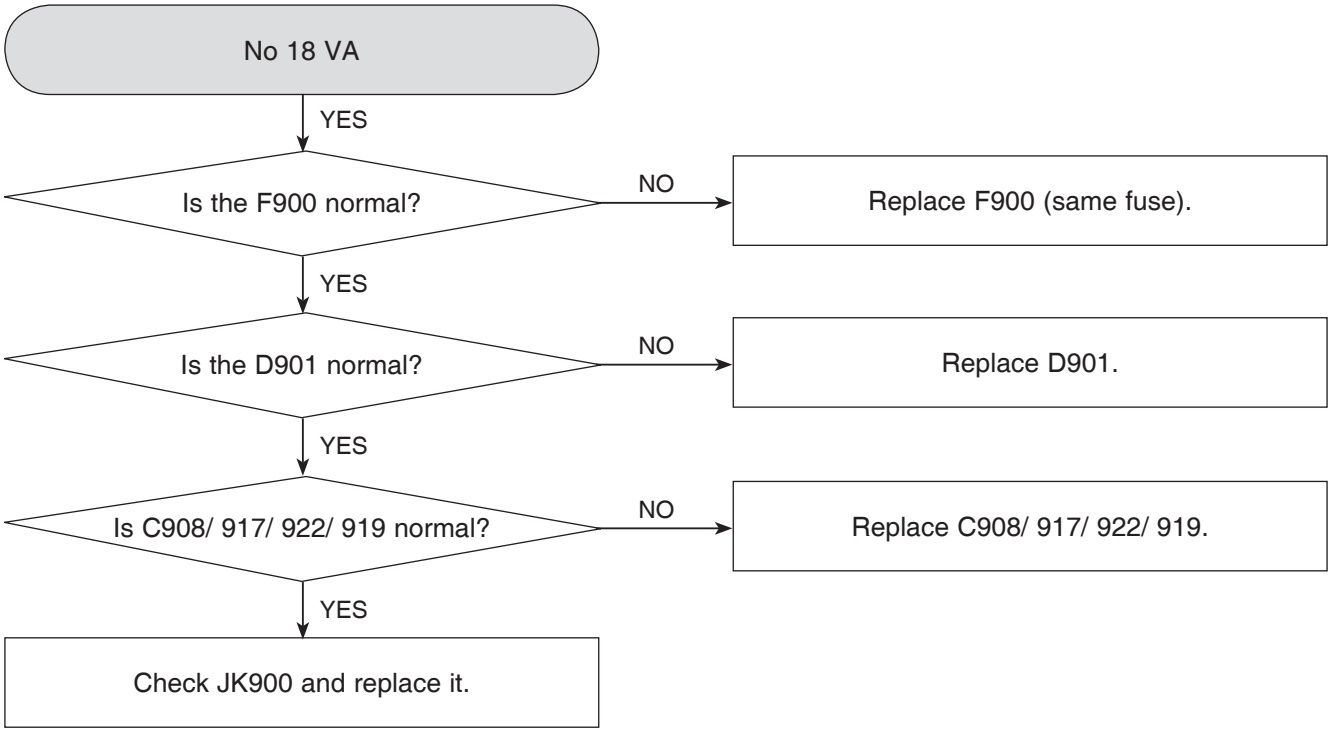
5-1-3. Service hint (Any picture / Remark)

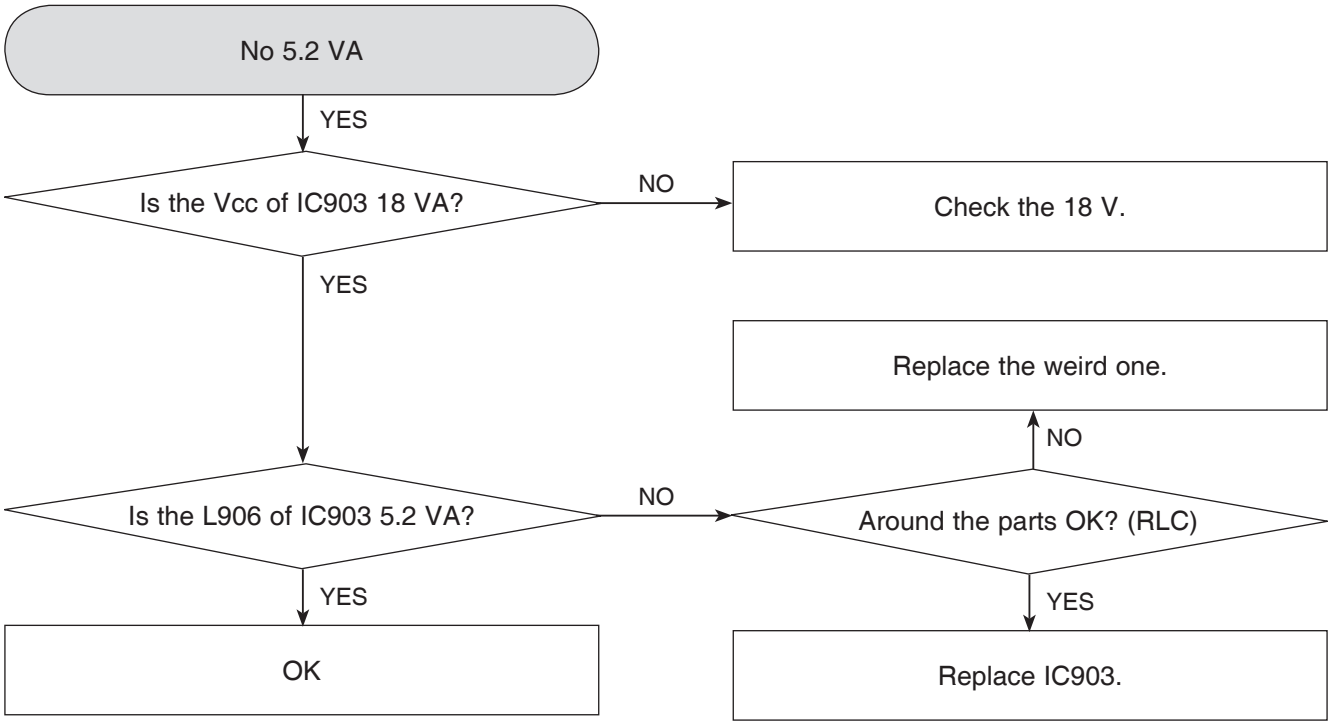


< Main board top view >

ELECTRICAL TROUBLESHOOTING GUIDE

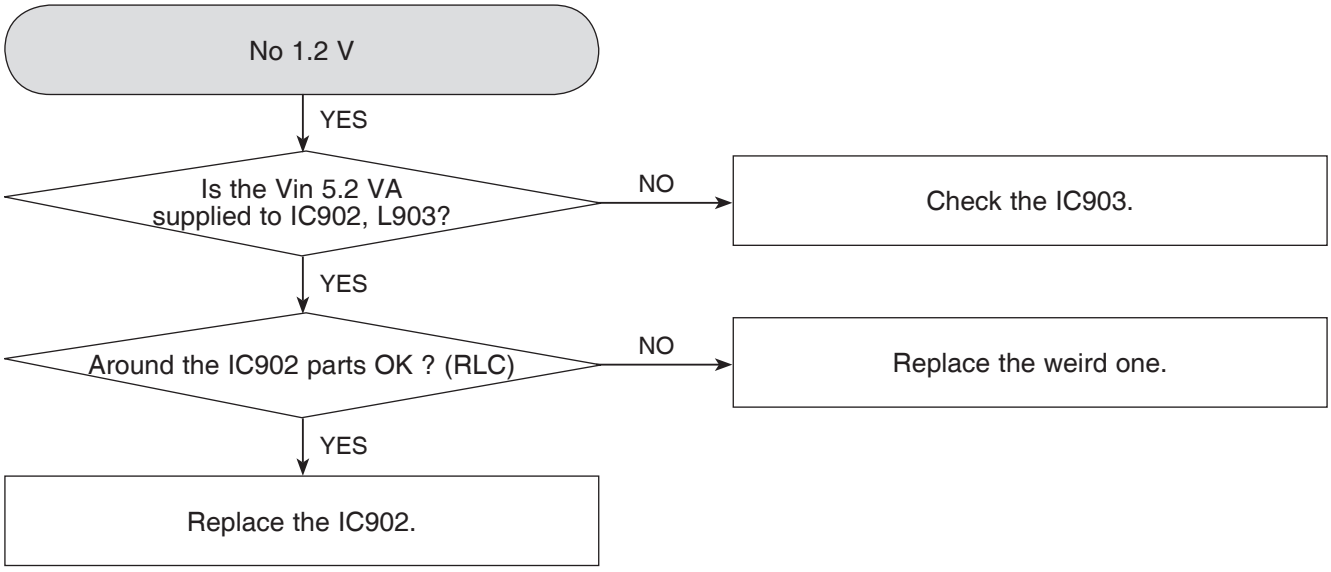
1. POWER SUPPLY ON MAIN BOARD

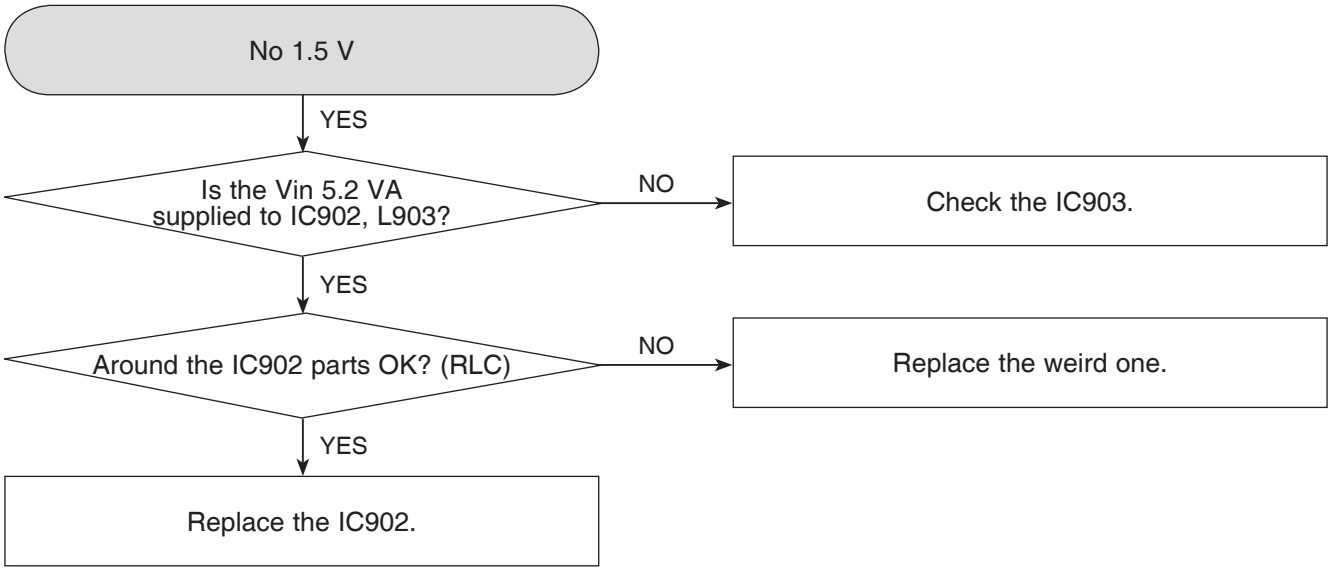




ELECTRICAL TROUBLESHOOTING GUIDE

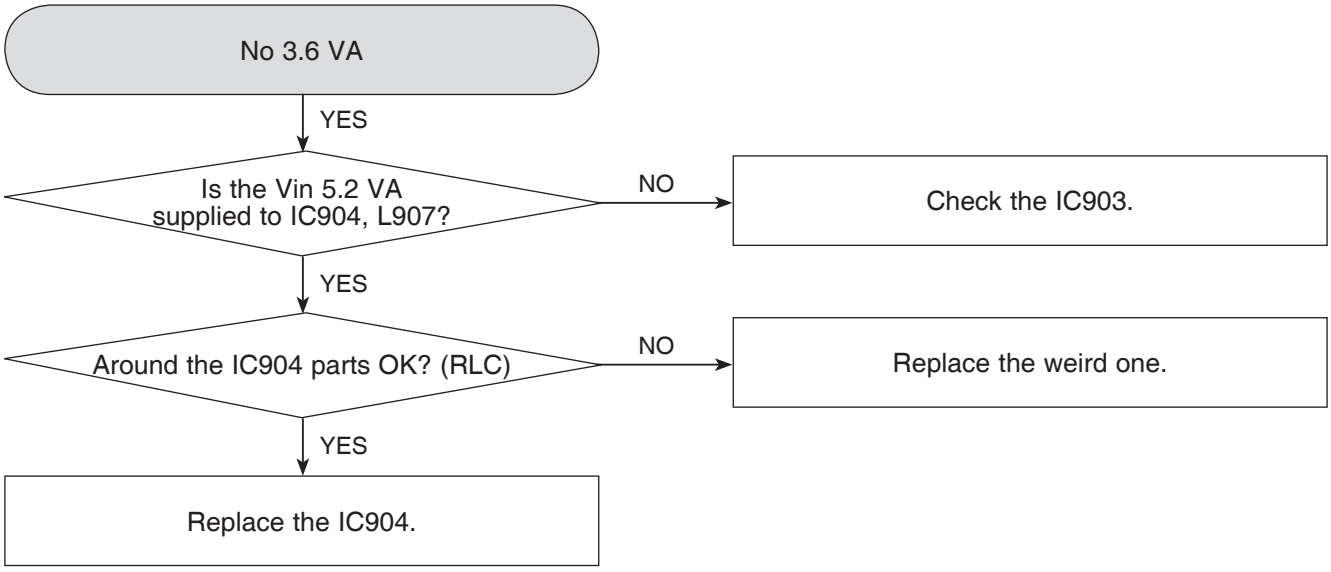
POWER SUPPLY ON MAIN BOARD

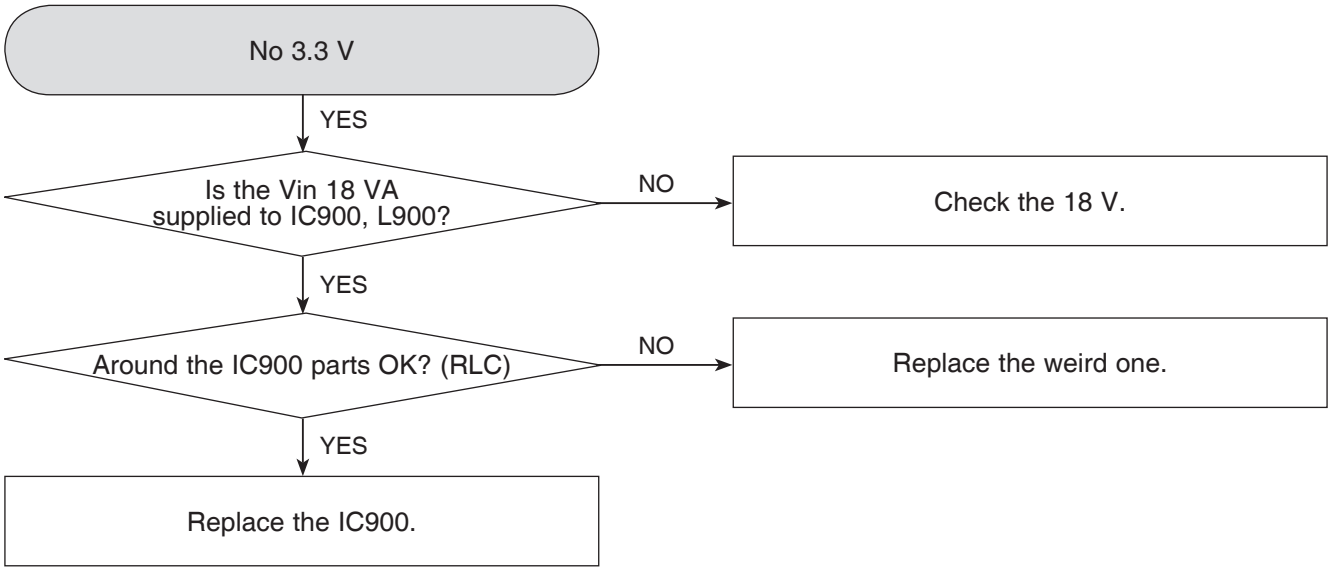




ELECTRICAL TROUBLESHOOTING GUIDE

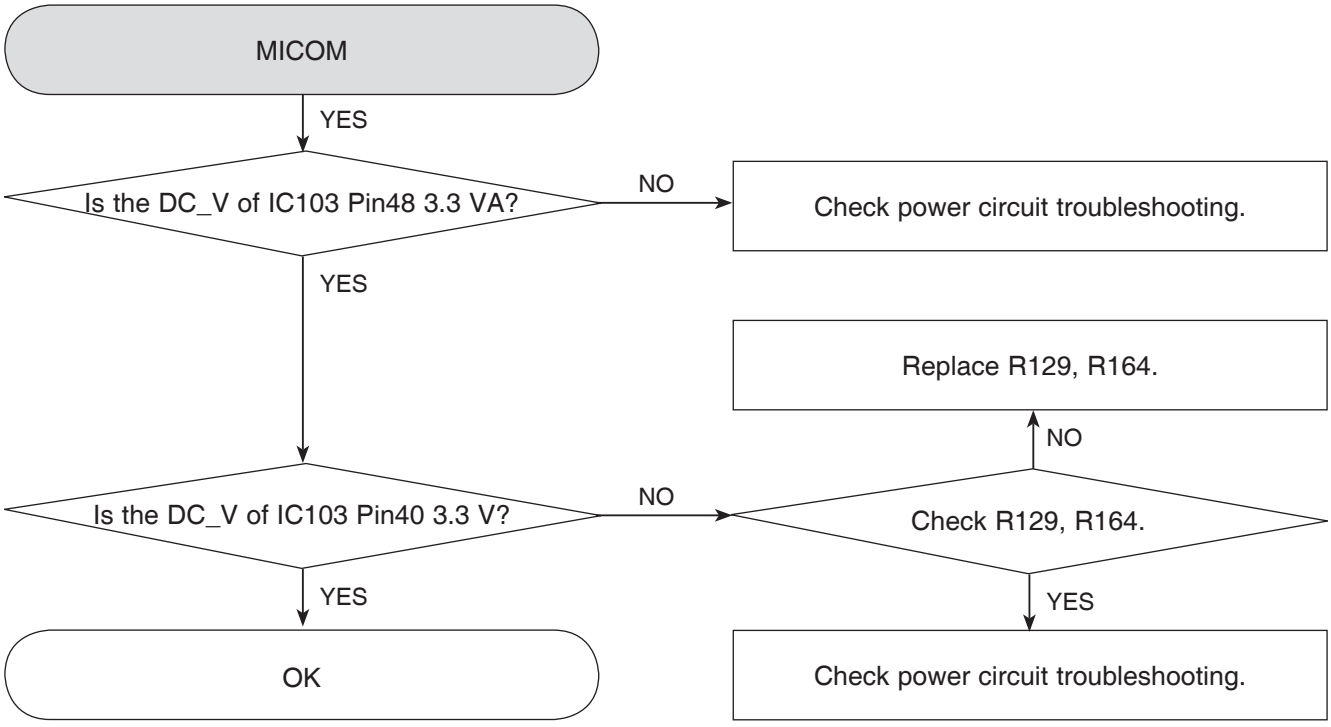
POWER SUPPLY ON MAIN BOARD





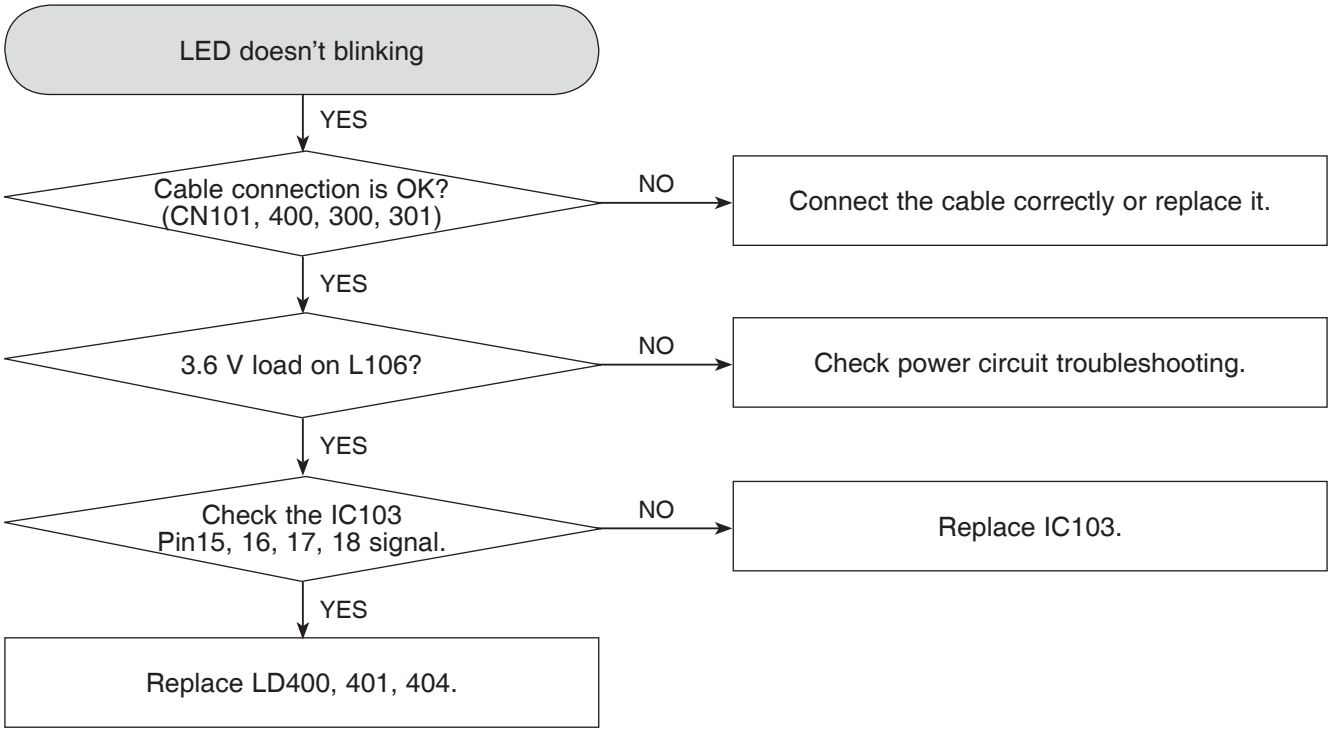
ELECTRICAL TROUBLESHOOTING GUIDE

2. MICOM



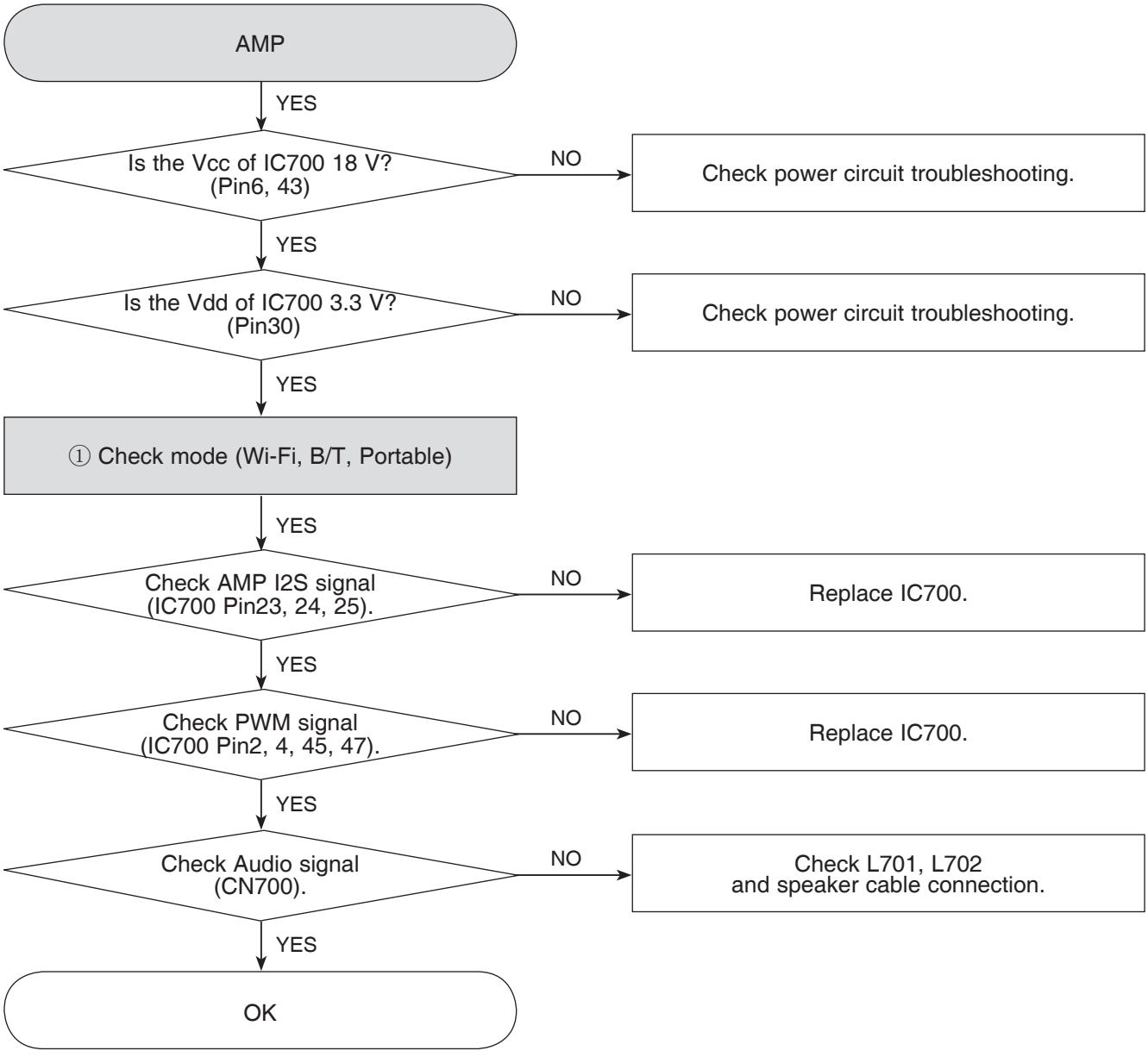
ELECTRICAL TROUBLESHOOTING GUIDE

3. LED



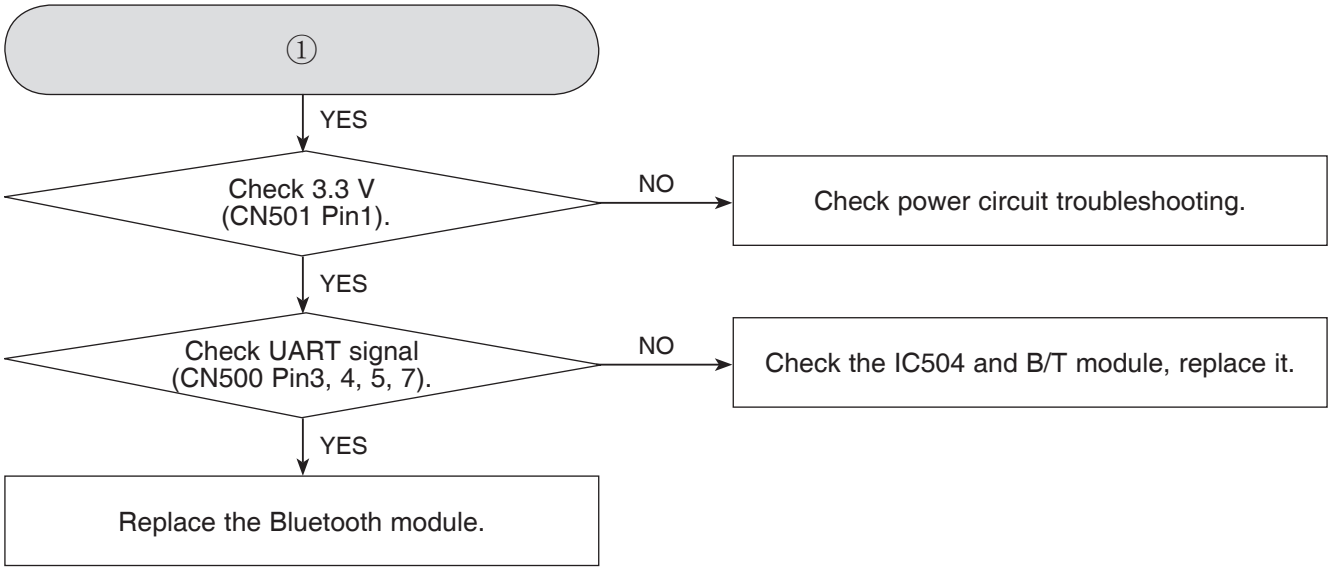
ELECTRICAL TROUBLESHOOTING GUIDE

4. AUDIO (Wi-Fi MODE)



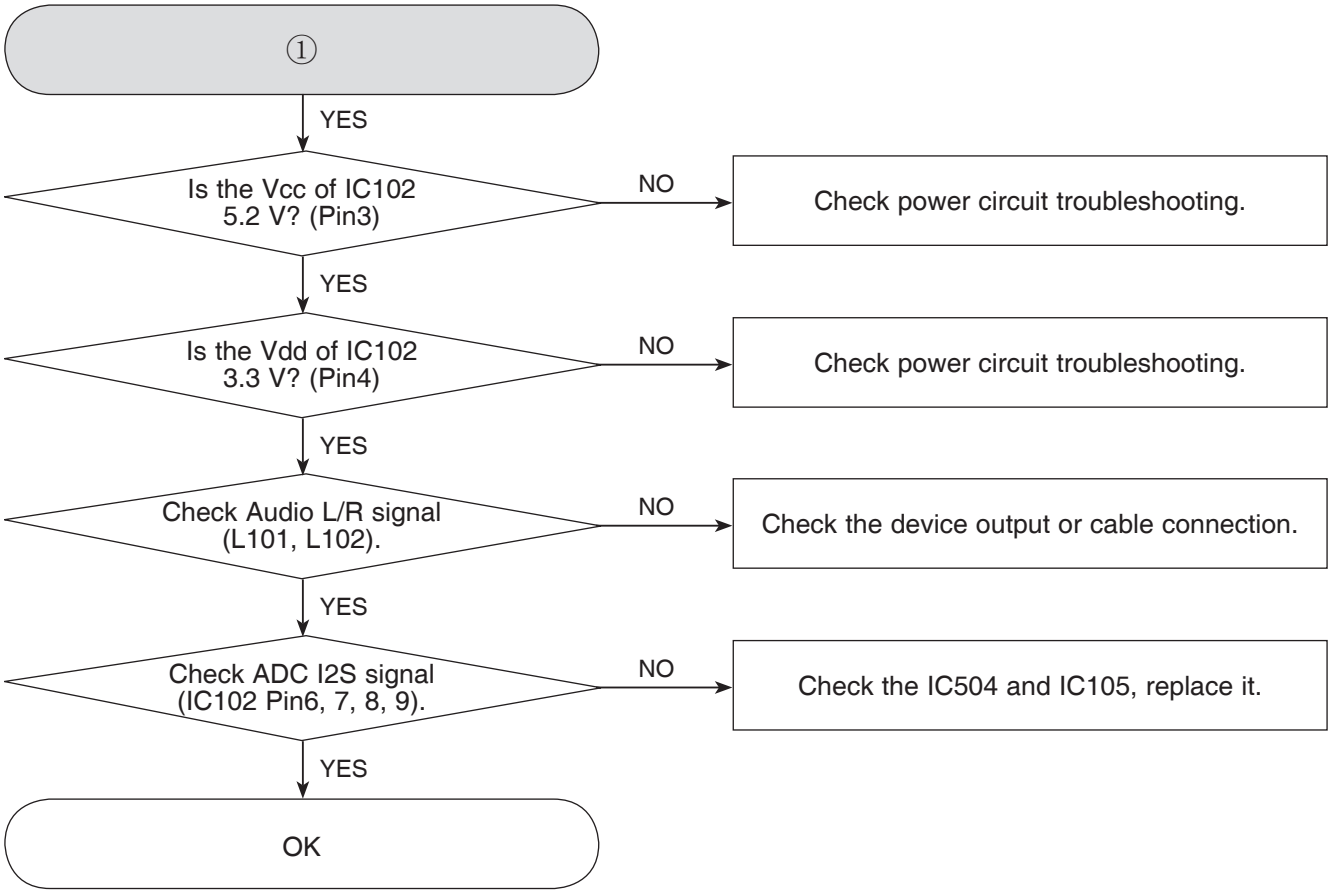
ELECTRICAL TROUBLESHOOTING GUIDE

4-1. AUDIO (BLUETOOTH MODE)



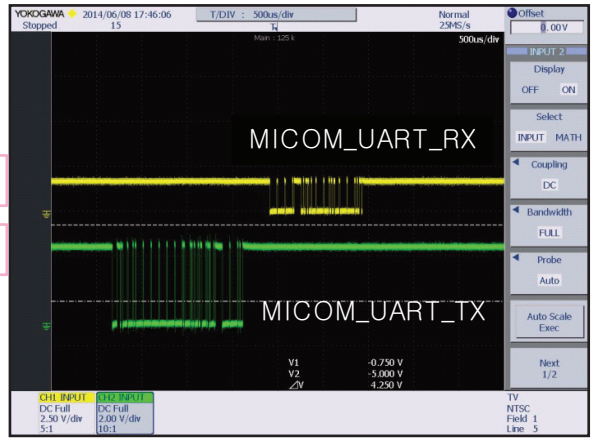
ELECTRICAL TROUBLESHOOTING GUIDE

4-2. AUDIO (PORTABLE MODE)

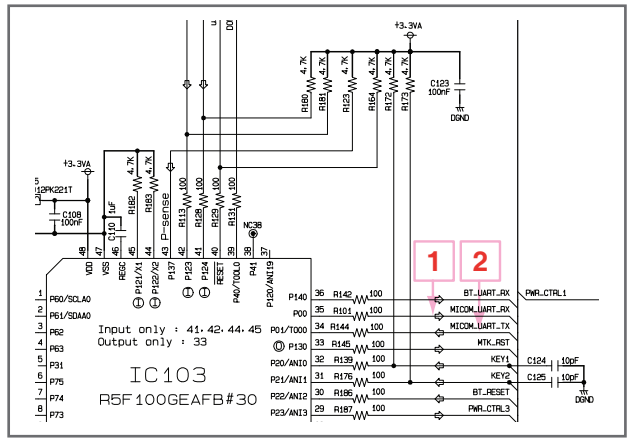


WAVEFORMS OF MAJOR CHECK POINT

1. MICOM

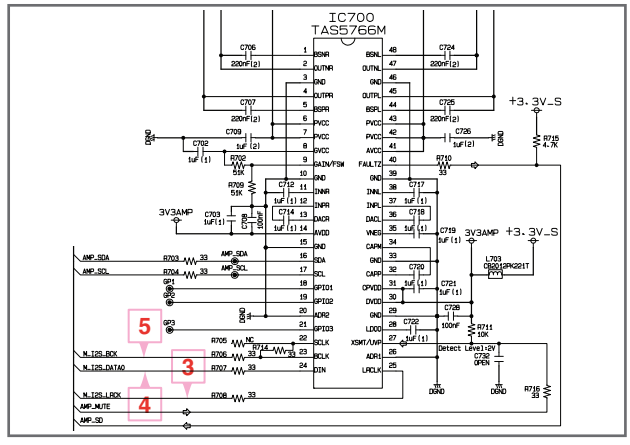


MICOM to MPEG IC103 PIN 34, 35



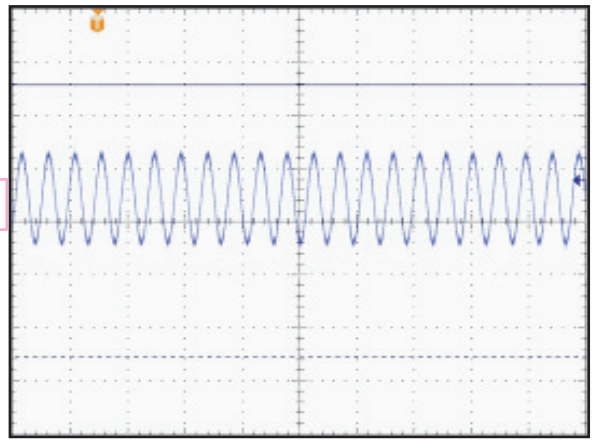
2. AMP

MICOM to AMP I2S IC700 PIN 23, 24, 25

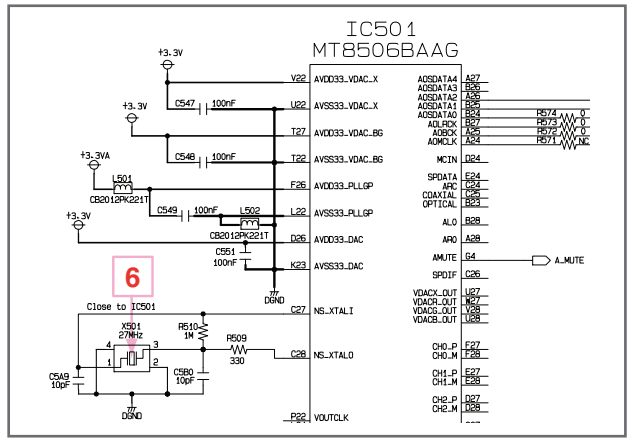


3. MPEG

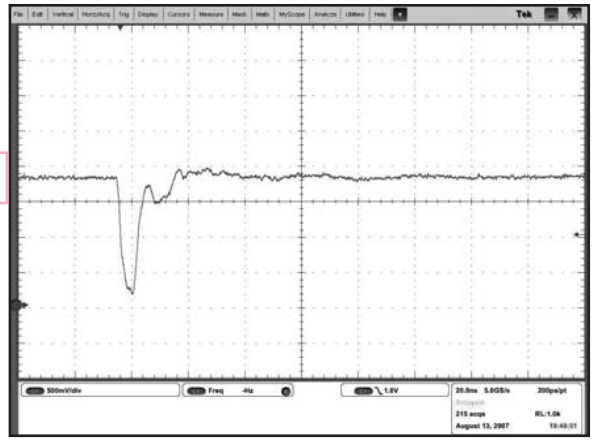
6



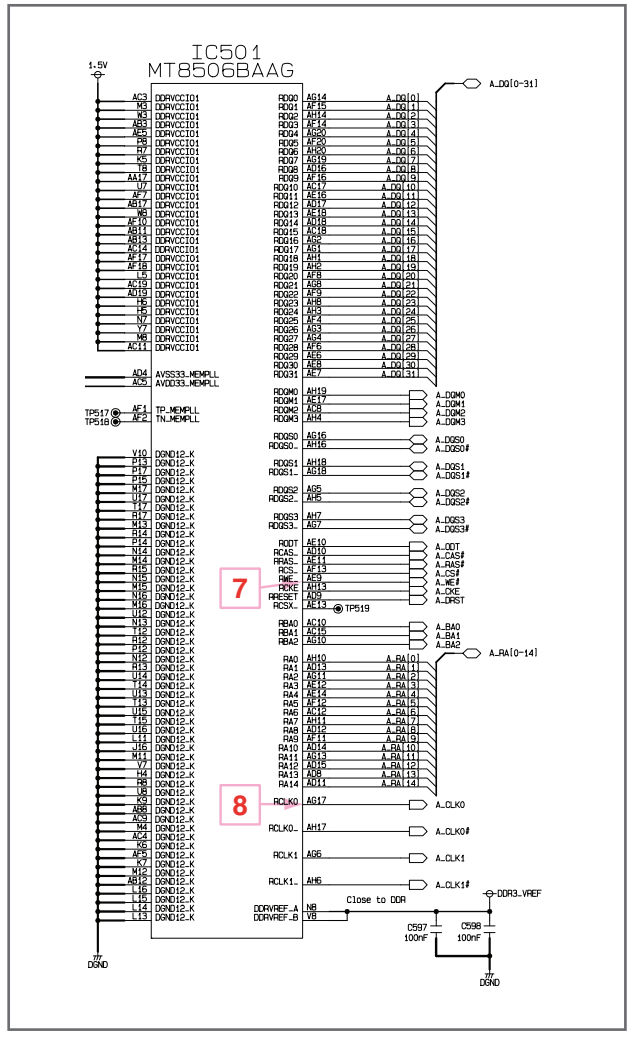
IC501 MT8506 XTAL 27 MHz



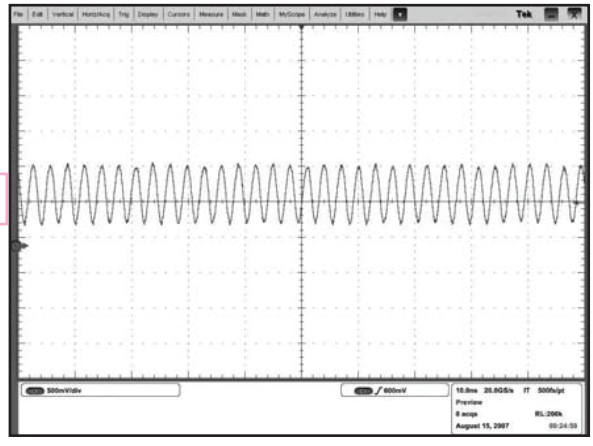
7



IC501 MT8506 WE#



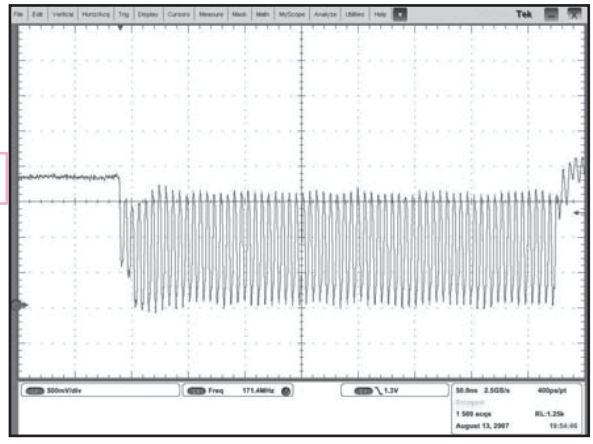
8



IC501 MT8506 CLK

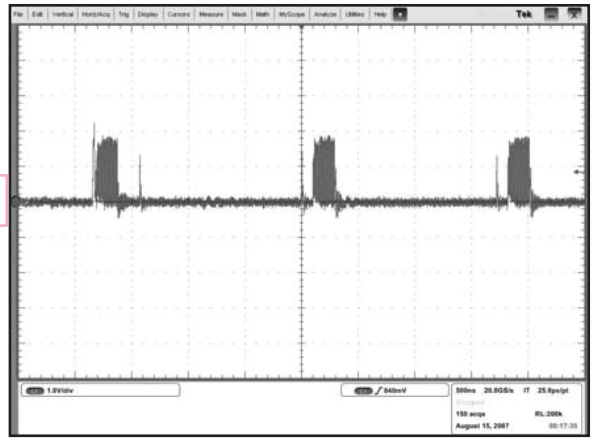
MPEG

9

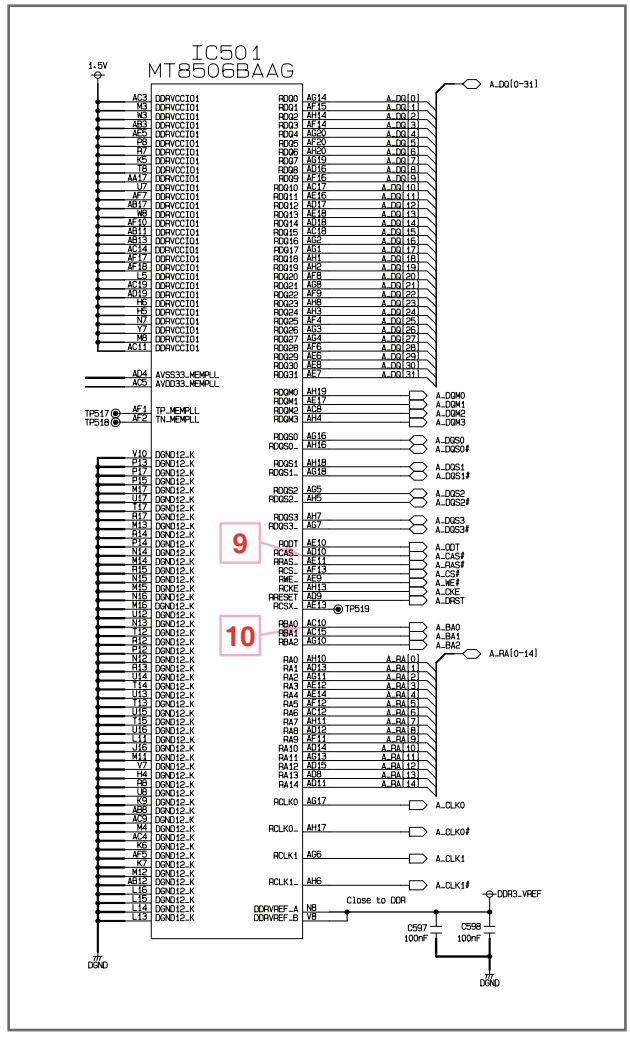


IC501 MT8506 CAS#

10

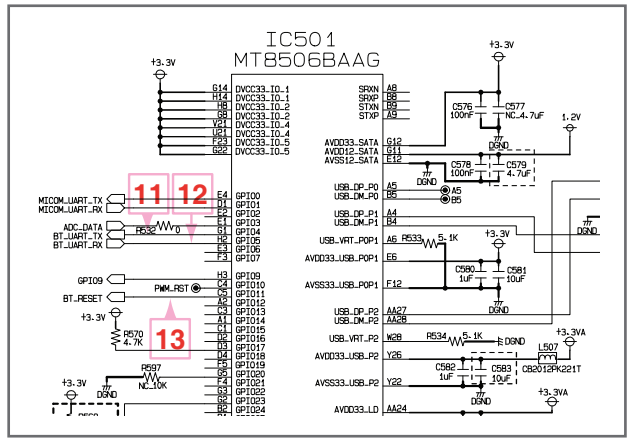


IC501 MT8506 BA0



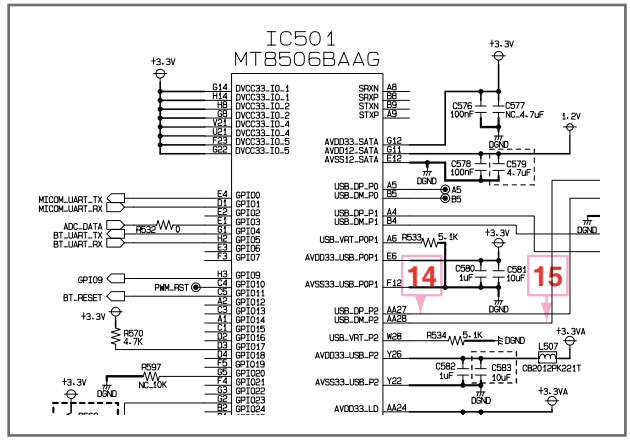
4. BLUETOOTH

BT_TX, BT_RX, BT_RT



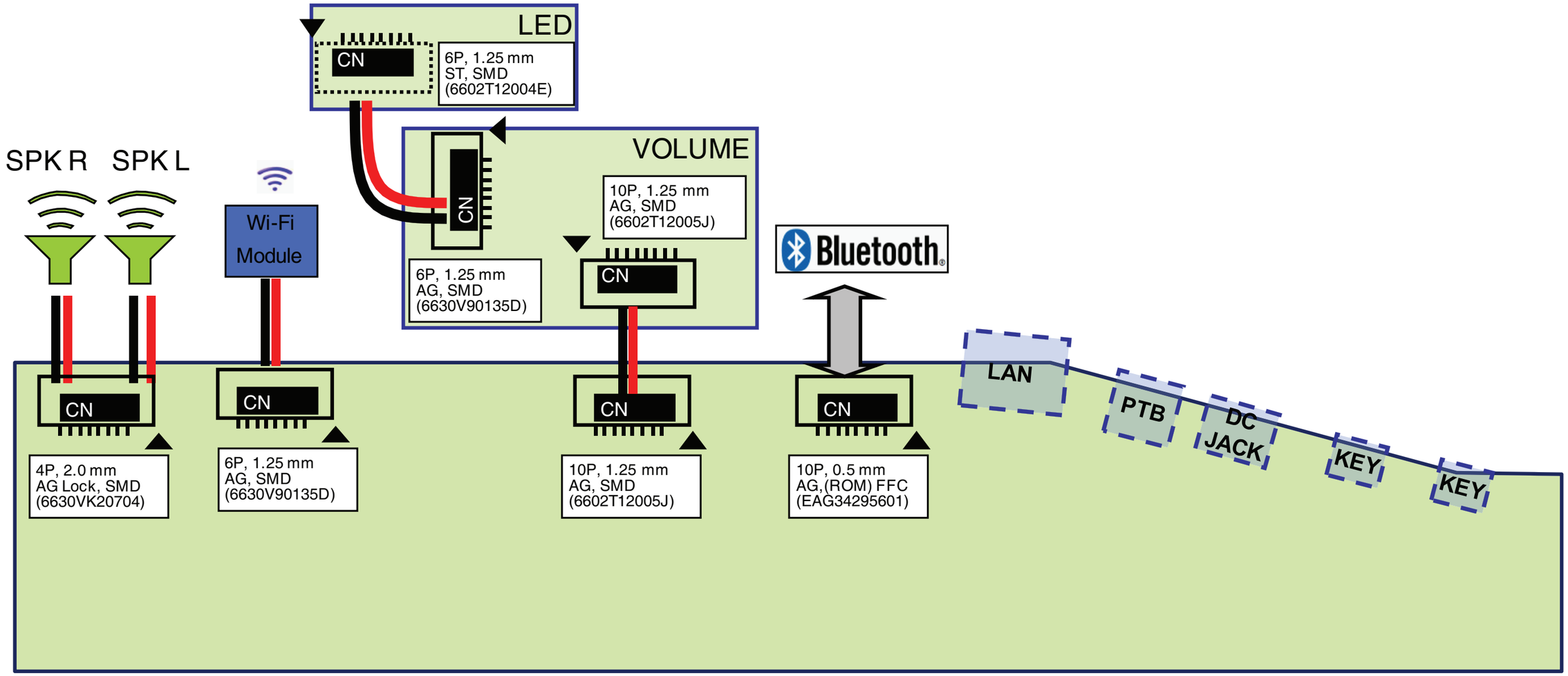
5. Wi-Fi

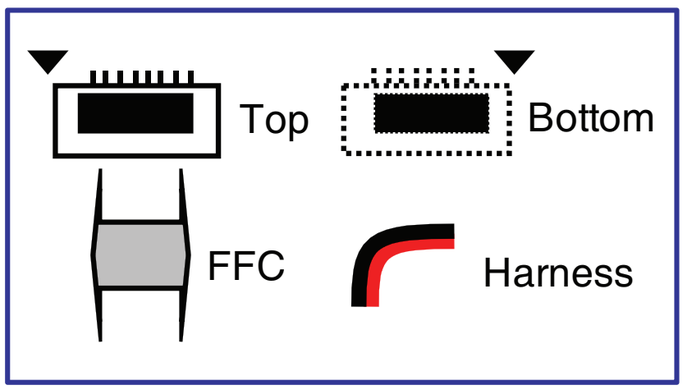
WIFI_N, WIFI_P



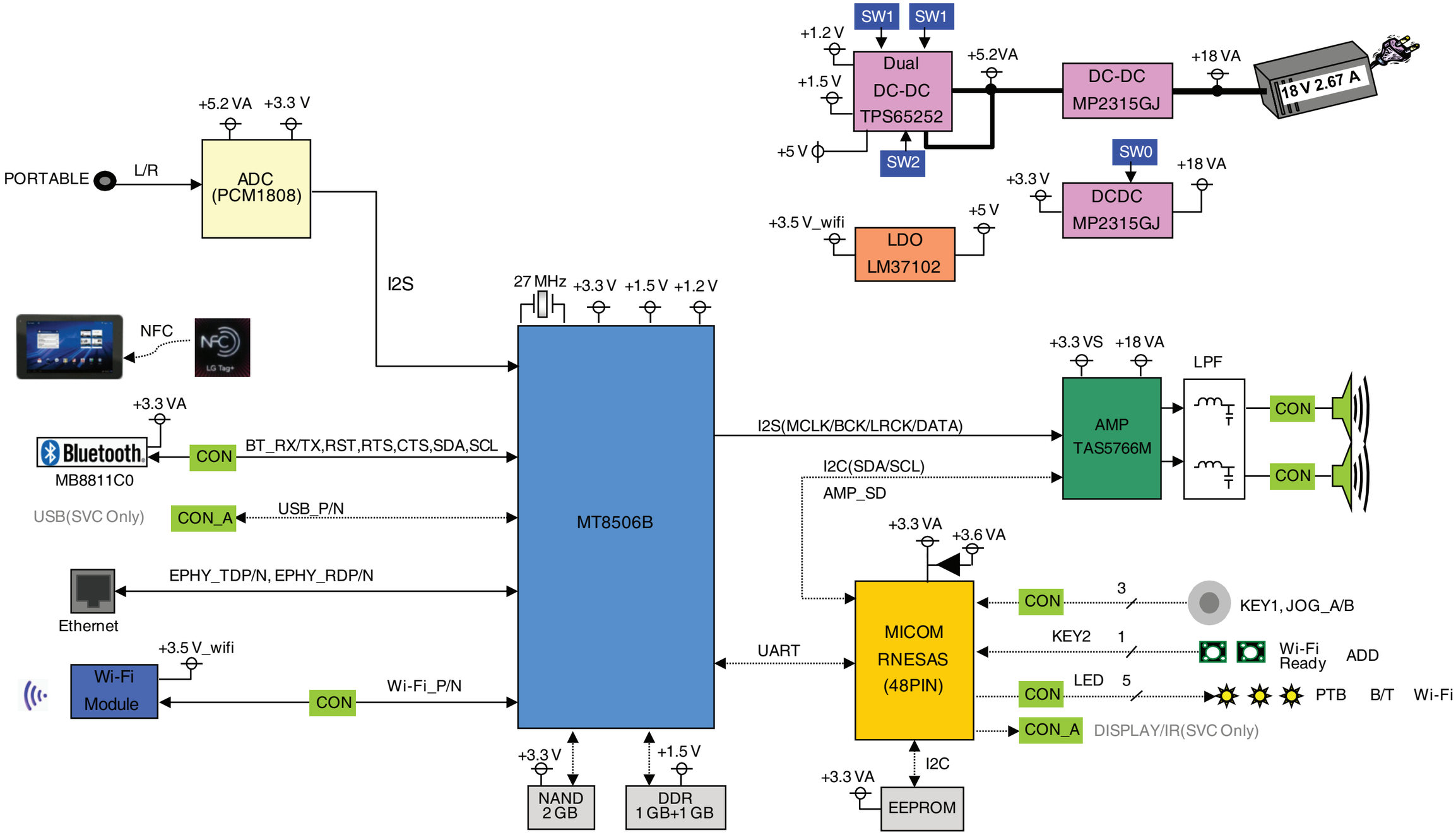
MEMO

WIRING DIAGRAM





BLOCK DIAGRAM

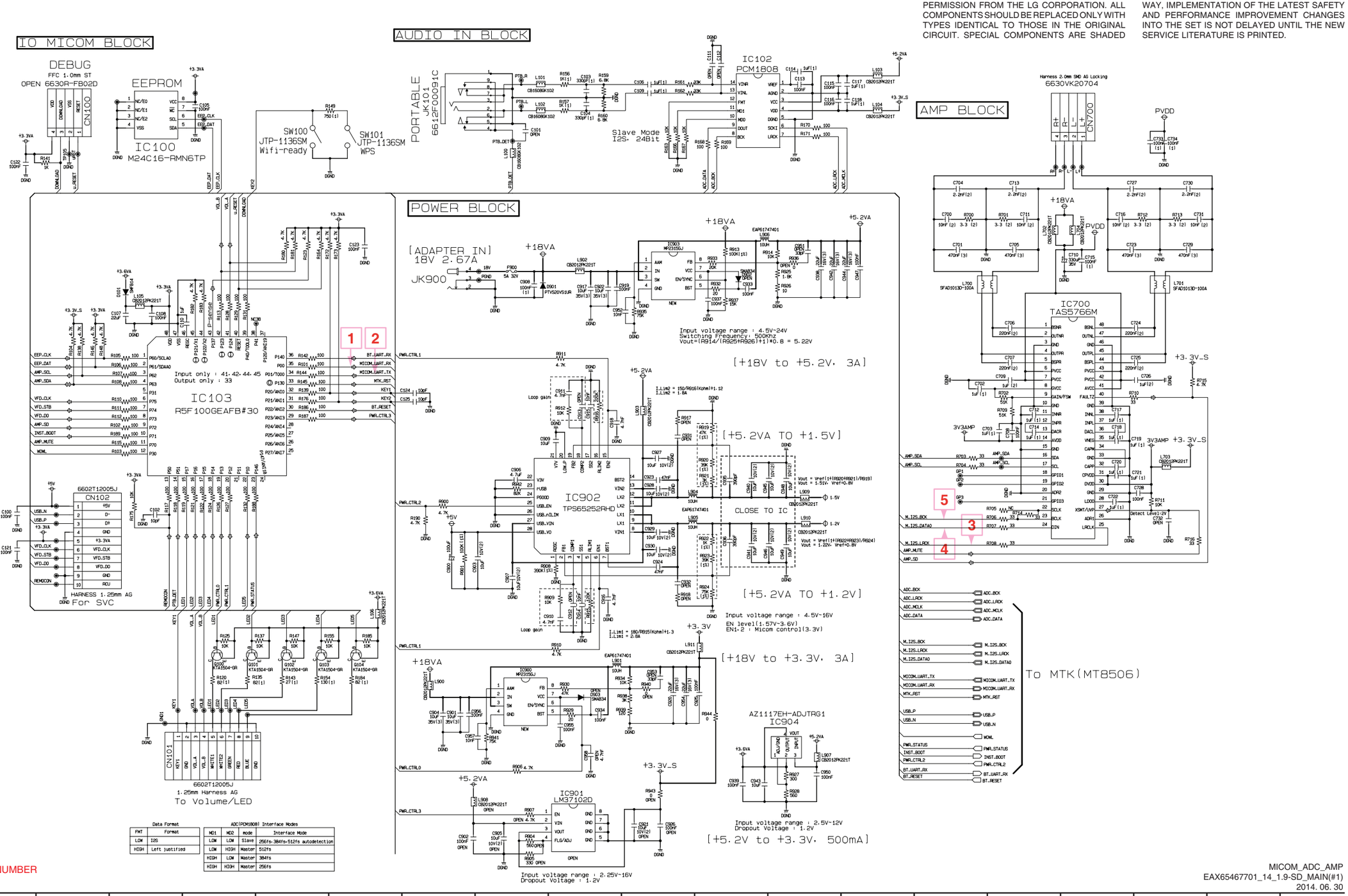


CIRCUIT DIAGRAMS

1. MAIN - MICOM/ ADC/ AMP CIRCUIT DIAGRAM

IMPORTANT SAFETY

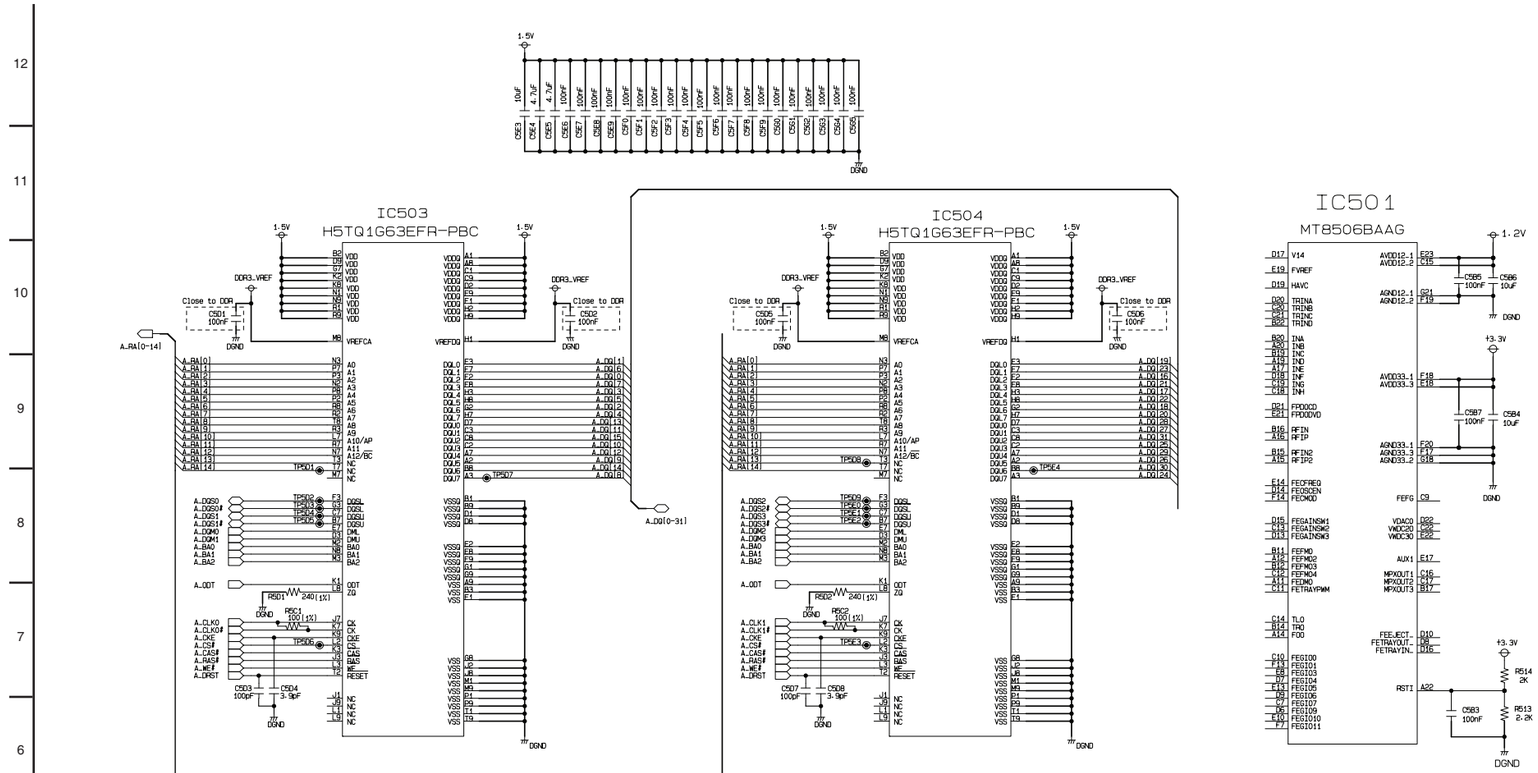
WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THIS CIRCUIT DIAGRAM 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.

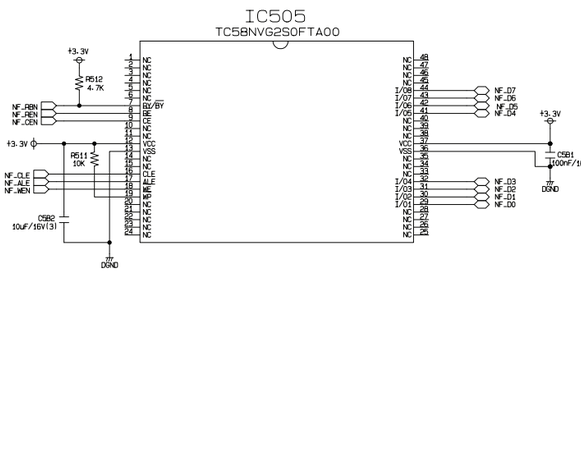


2. MAIN - MPEG CIRCUIT DIAGRAM

MPEG
EAX65467701_14_1.9-SD_MAIN(#2)
2014. 06. 30

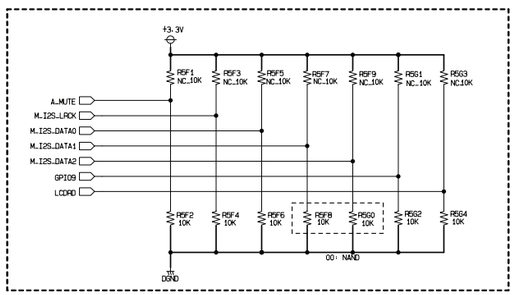
3. MAIN - MEMORY & HW TRAP CIRCUIT DIAGRAM





MEMORY MUTI OPTION

	NANYA DDR_NEW	
IC503	IC503-*1 NT5CB64M16FP-DH	
IC504	IC504-*1 NT5CB64M16FP-DH	
	NAND_2nd	
IC505	IC505-*1 H27U4G8F2ETR-BC	



H/W STRAP (MT8506)

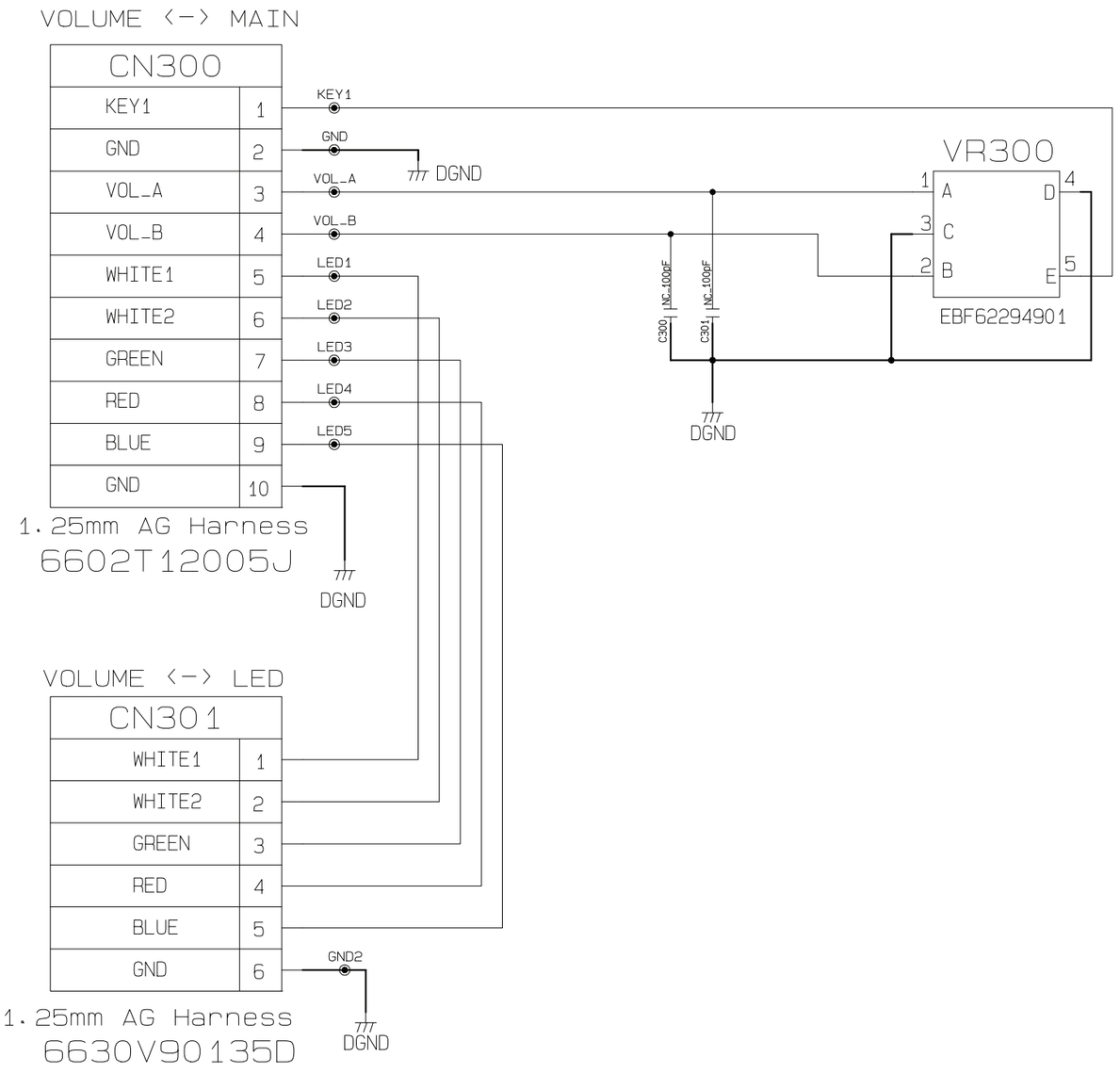
Signal name	Ball	HW trapping	note
A_MUTE	G4	0: Default(ICE disable) 1:Main ICE enable	
M_I2S_DATA0 M_I2S_LRCK	B24 B27	[M_I2S_DATA0, M_I2S_LRCK] 00 :NORMAL MODE 01 : TEST_CPUM 11 : SCAN MODE	
M_I2S_DATA2 M_I2S_DATA1	A26 B25	[M_I2S_DATA2, M_I2S_DATA1] 01: OLT MODE 10: ABIST MODE 11: EMC BOOT OR NFI BOOT	
GPIO9	H3	0: DATA PAGE 1: BOOT PAGE	
LCDRD	AG28	0:Normal Mode 1: TEST MODE	

〈COMPONENT SIZE〉
1608 SIZE : S
2012 SIZE : M
3216 SIZE : L

〈CAPACITOR CHARACTERISTIC〉
COG > X7R > X5R > Y5V

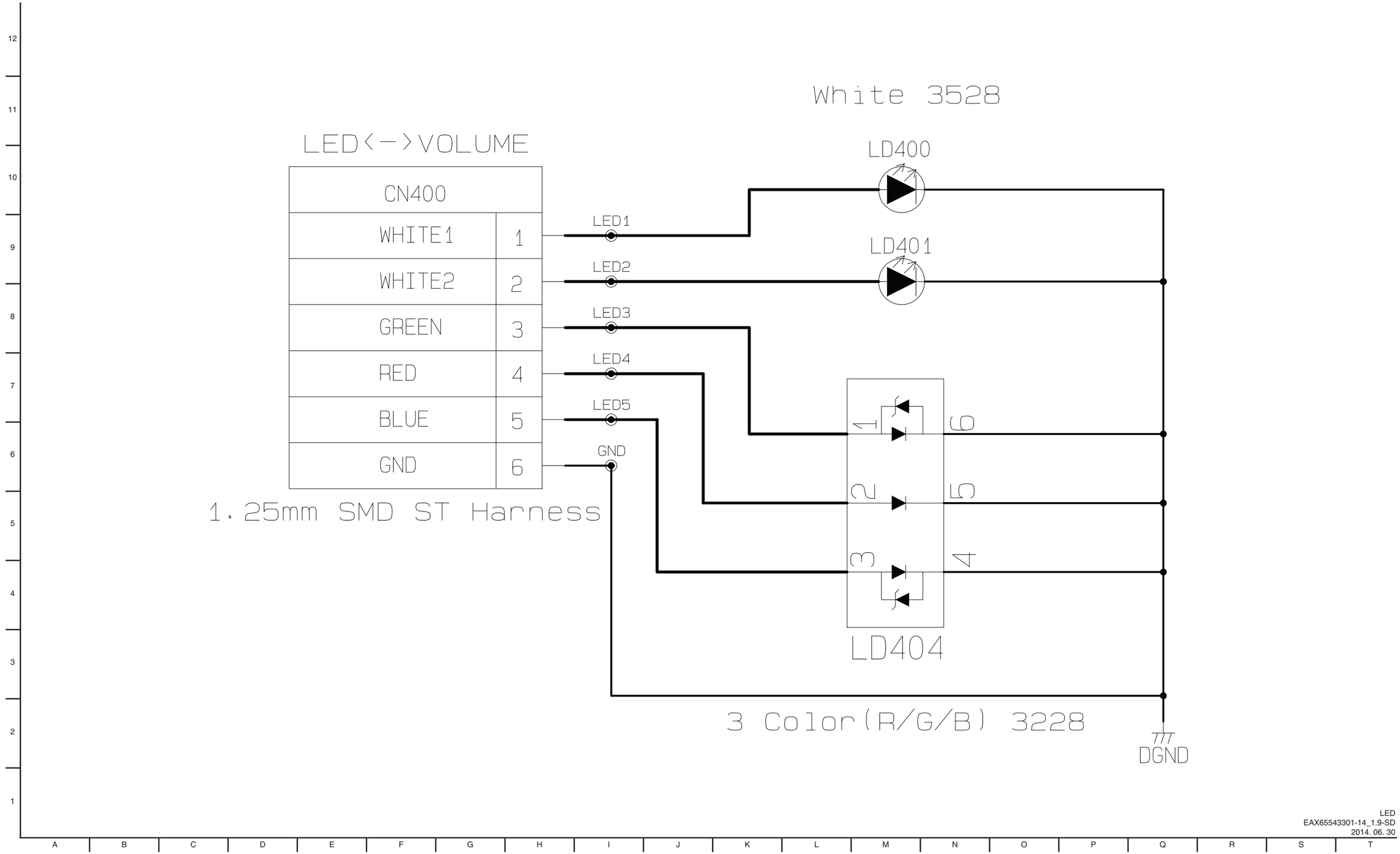
MEMORY
EAX65467701_14_1.9-SD_MAIN(#3)
2014. 06. 30

4. VOLUME CIRCUIT DIAGRAM



VOLUME
EAX65563801_14_1.9-SD
2014. 06. 30

5. LED CIRCUIT DIAGRAM



LED
EAX65543301-14_1.9-SD
2014. 06. 30

CIRCUIT VOLTAGE CHART

1. ICs

IC Sym	Vcc/Vdd
IC100 **EEPROM**	• Spec : 1.8 to 5.5 V • Measured Voltage : Vdd : 3.33
IC102 **ADC**	• Spec : 2.7 ~ 3.6 V • Measured Voltage : Vdd : +3.3
IC103 **Micom**	• Spec : –0.5 to +6.5 V • Measured Voltage : Vdd : 3.33
IC501 **MPEG**	• Spec : Vcc33 : 3.15~3.45, DDRVcc : 1.425~1.575, Vcc12 : 1.14 ~ 1.26 • Measured Voltage : Vcc33 : 3.3 V, DDRVcc : 1.5 V, Vcc12 : 1.2 V
IC503, 504 **DDR3**	• Spec : 1.425 ~ 1.575 • Measured Voltage : Vdd : 1.5
IC505 **Nand Flash**	• Spec : 2.7 ~ 3.6 • Measured Voltage : Vdd : 3.26
IC700 **AMP**	• Spec : Vcc : 4.5 ~ 26 V, Vdd : 3 ~ 3.6 V • Measured Voltage : Vcc : 18 V, Vdd : 3.3 V

2. Capacitors

Location	Spec	Voltage [V]
C710	330 uF / 35 V (105 / 5000 HR)	+18.6
C900	100 uF / 16 V (105 / 2000 HR)	+5.2

3. Connectors

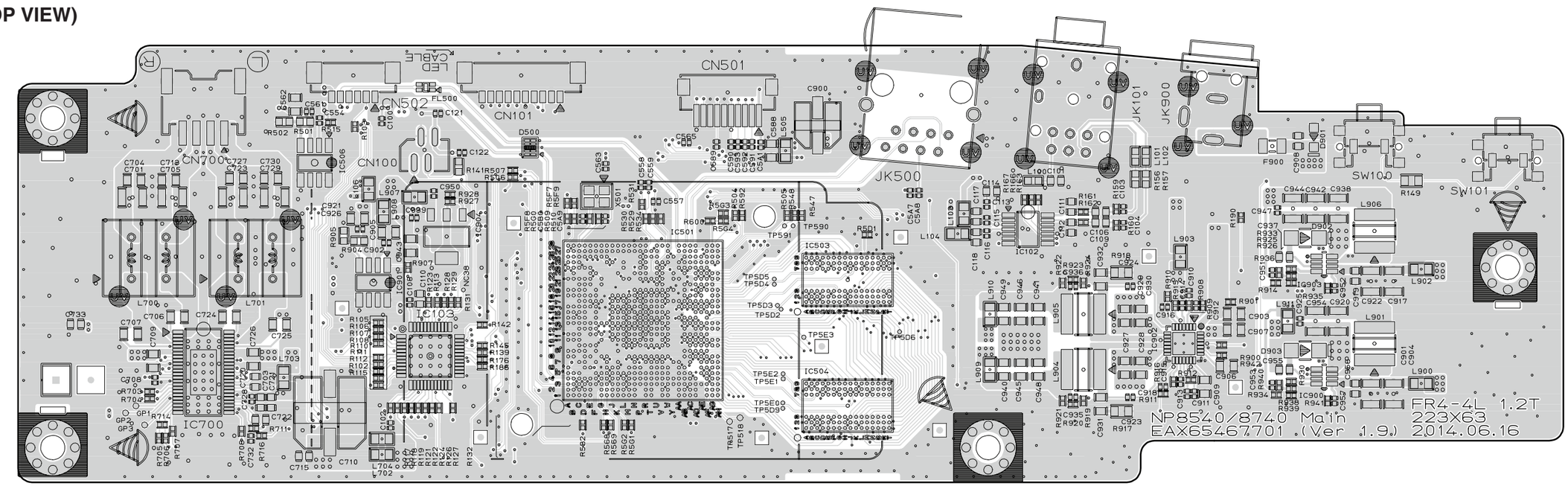
Test	Connector	Spec	Voltage IN	Voltage Out
JIG USB	**CN102** **(Pin1)**	4.75 ~ 5.25 V	5.17 V	5.17 V
JIG VFD	**CN102** **(Pin5)**	3.3 VA	3.3 VA	3.3 VA
Blutooth	**CN501** **(Pin1)**	3.0 ~ 3.6 V	3.3 V	3.3 V

MEMO

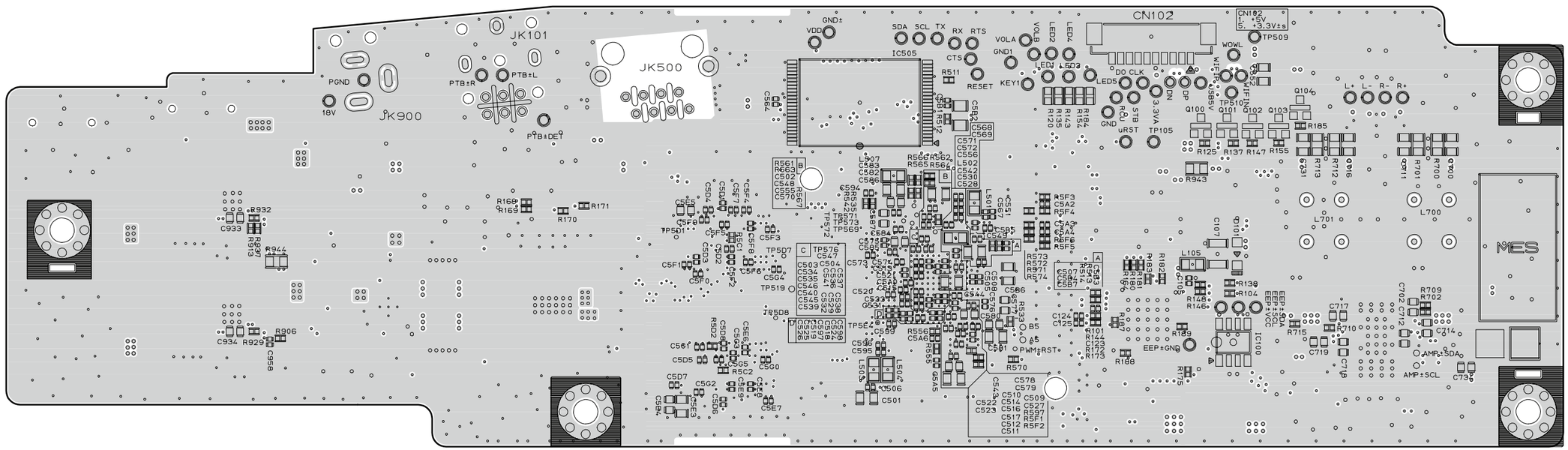
PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P.C.BOARD

(TOP VIEW)

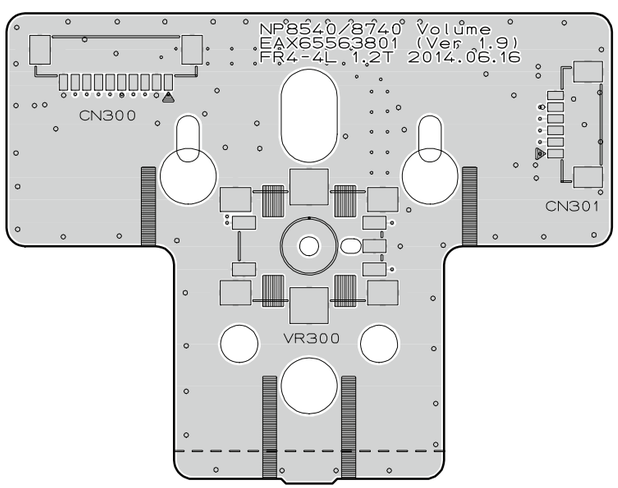


(BOTTOM VIEW)

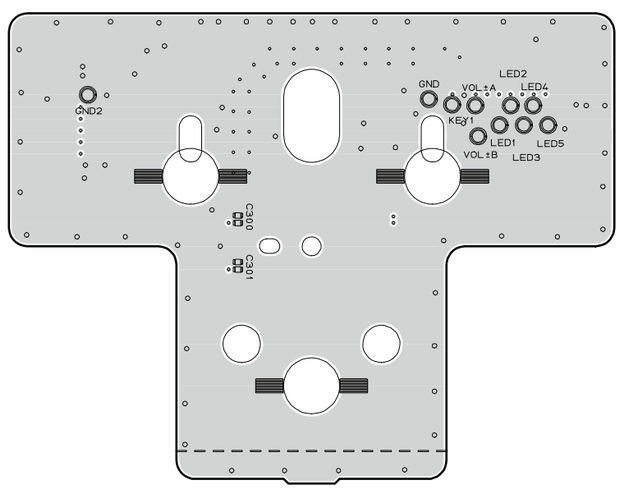


2. VOLUME P.C.BOARD

(TOP VIEW)

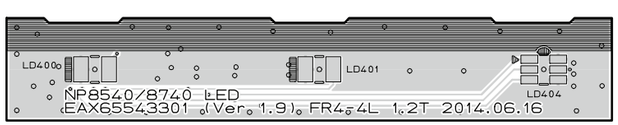


(BOTTOM VIEW)



3. LED P.C.BOARD

(TOP VIEW)



(BOTTOM VIEW)