

SAMSUNG

GSM TELEPHONE

SGH-D807

SERVICE *Manual*

GSM TELEPHONE



CONTENTS

1. Safety Precautions
2. General Introduction
3. Specification
4. Product Function
5. Circuit Description
6. Test Command & Test Procedure
7. Array course control
8. Exploded View and Parts List
9. Disassembly and Assembly instructions
10. MAIN Electrical Parts List
11. Flow Chart of Troubleshooting
12. PCB Diagrams
13. Block Diagrams
14. Reference data

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Contents

1. Safety Precautions

1-1. Repair Precaution	1-1
1-2. ESD(Electrostatically Sensitive Devices) Precaution	1-2

2. General Introduction

3. Specification

3-1. GSM General Specification	3-1
3-2. GSM TX power class	3-2
3-3. EDGE TX Power Level	3-3

4. Product Function

5. Circuit Description

6. Test Command & Test Procedure

6-1. Calibration Equipment	6-1
6-2. Calibration Program	6-1
6-3. Tx Power Tune up Procedure	6-2

7. Array course control

7-1. Downloading Binary Files	7-1
7-2. Pre-requisition for Downloading	7-1
7-3. S/W Downloader Program	7-2
7-4. How to Download	7-2

8. Exploded View and Parts List

8-1. Cellular phone Exploded View	8-1
8-2. Cellular phone Parts list	8-2

9. Disassembly and Assembly instructions

9-1. Disassembly	9-1
9-2. Assembly	9-7
9-3. KIT Assembly	9-10
9-4. Window Disassembly	9-13

Contents

10. MAIN Electrical Parts List

11. Flow Chart of Troubleshooting

11-1. Baseband	
11-1-1. Power ON	11-1
11-1-2. Initial	11-6
11-1-3. Sim Part	11-9
11-1-4. Microphone Part	11-10
11-1-5. Speaker Part_1(MP3, SPEAKER PHONE)	11-12
11-1-6. Speaker Part_2(RECEIVER)	11-16
11-1-7. Charging Part	11-18
11-2. RF	
11-2-1. GSM850/EGSM RX	11-21
11-2-2. DCS RX	11-23
11-2-3. PCS RX	11-25
11-2-4. GSM850/EGSM TX	11-26
11-2-5. DCS/PCS TX	11-28

12. PCB Diagrams

13. Block Diagrams

14. Reference data

1. Safety Precautions

1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.
Take specially care of tuning or test,
because specificity of cellular phone is sensitive for surrounding interference(RF noise).
- Be careful to use a kind of magnetic object or tool,
because performance of parts is damaged by the influence of magnetic force.
- Surely use a standard screwdriver when you disassemble this product,
otherwise screw will be worn away.
- Use a thick twisted wire when you measure level.
A thick twisted wire has low resistance, therefore error of measurement is few.
- Repair after separate Test Pack and Set because for short danger (for example an overcurrent and furious flames of parts etc) when you repair board in condition of connecting Test Pack and tuning on.
- Take specially care of soldering, because Land of PCB is small and weak in heat.
- Surely tune on/off while using AC power plug, because a repair of battery charger is dangerous when tuning ON/OFF PBA and Connector after disassembling charger.
- Don't use as you pleases after change other material than replacement registered on SEC System. Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductor may be damaged easily by static electricity. Such parts are called by ESD(Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below. You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.
- Use earthed soldering steel when you connect or disconnect ESD.
- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.
- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.
- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.

2. General Introduction

The SGH-D807 Quad Band phone functions as digital phone working in GSM (Global System for Mobile communications)850,EGSM900, DCS1800 and PCS(PersonalCommunication System)1900 modes.

<Specification>

- Dimension : 99.9x52.0x15.4 mm (with Standard Battery)
- LCD : QCIF(176×220) TFT, 2.12"
- R/F band : GSM850 / EGSM 900 / DCS1800 / PCS1900
- Vocoder : EFR + FR + HR + AMR
- Antenna : Intenna type
- SIM : 3 Voltage operation
- BLUETOOTH : VER 1.2

<GPRS/EGPRS Factor>

- MS Class : Class B
- GPRS Phase : GSM Phase II+
- Multi-slot : GPRS/EGPRS Class 10 (2 Up-link, 4 Down-link, 5 Sum)
- SMG : SMG #31
- Coding scheme : CS1 - CS4(GPRS), MCS5 - MCS9(EGPRS) support
- Power class : GSM850 - Class 4 (2W)
EGSM900 - Class 4 (2W)
DCS1800 - Class 1 (1W)
PCS1900 - Class 1 (1W)
- WAP 2.0 Browser
- SIM AT(Application Toolkit)
- 40 Polyphonic Ringtone

< Basic Package >

- Handset + Standard Battery + TA
+ User Guide

< Option Item >

- Battery : Li-Ion, 880mA
- Travel Adapter
- Ear Microphone
- Bluetooth Headset
- Bluetooth Hands Free Kit
- Car Charger/Adapter

3. Specification

3-1. GSM General Specification

		GSM850	EGSM900	DCS1800	PCS1900
Freq. Band[MHz] Uplink/Downlink		824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range		128~251	0~124& 975~1023	512~885	512~810
Tx/Rx spacing		45 MHz	45 MHz	95 MHz	80 MHz
Mod. Bit rate/ Bit Period	GRPS	270.833 Kbps 3.692 us	270.833 Kbps 3.692 us	270.833 Kbps 3.692 us	270.833 Kbps 3.692 us
	EDGE	812.5 Kbps 3.692 us	812.5 Kbps 3.692 us	812.5 Kbps 3.692 us	812.5 Kbps 3.692 us
Time Slot Period/Frame Period		576.9 us 4.615 ms	576.9 us 4.615 ms	576.9 us 4.615 ms	576.9 us 4.615 ms
Modulation	GRPS	0.3 GMSK	0.3 GMSK	0.3 GMSK	0.3 GMSK
	EDGE	8 PSK	8 PSK	8 PSK	8 PSK
MS Power	GRPS	33 dBm~5 dBm	33 dBm~5 dBm	30 dBm~0 dBm	30 dBm~0 dBm
	EDGE	27~5 dBm	27~5 dBm	26~0 dBm	26~0 dBm
Power Level	GRPS	5~19(class4)	5~19(class4)	0~15(class1)	0~15(class1)
	EDGE	8~19(class E2)	8~19(class E2)	2~15(class E2)	2~15(class E2)
Sensitivity		-102 dBm	-102 dBm	-100 dBm	-102 dBm
TDMA Mux		8	8	8	8
Cell Radius		35 Km	35 Km	2 Km	2 Km

3-2. GSM TX power class

TX Power control level	GSM850	TX Power control level	EGSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±2 dBm	5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±2 dBm	16	11±2 dBm	11	8±4 dBm	11	8±4 dBm
17	9±2 dBm	17	9±2 dBm	12	6±4 dBm	12	6±4 dBm
18	7±2 dBm	18	7±2 dBm	13	4±4 dBm	13	4±4 dBm
19	5±2 dBm	19	5±2 dBm	14	2±5 dBm	14	2±5 dBm
				15	0±5 dBm	15	0±5 dBm

3-3. EDGE TX Power Level

TX Power control level	GSM850	TX Power control level	EGSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
8	27±3 dBm	8	27±3 dBm	2	26±3 dBm	2	26±3 dBm
9	25±3 dBm	9	25±3 dBm	3	24±3dBm	3	24±3 dBm
10	23±3 dBm	10	23±3 dBm	4	22±3dBm	4	22±3 dBm
11	21±3 dBm	11	21±3 dBm	5	20±3dBm	5	20±3 dBm
12	19±3 dBm	12	19±3 dBm	6	18±3dBm	6	18±3 dBm
13	17±3 dBm	13	17±3 dBm	7	16±3dBm	7	16±3 dBm
14	15±3 dBm	14	15±3 dBm	8	14±3dBm	8	14±3 dBm
15	13±3 dBm	15	13±3 dBm	9	12±4dBm	9	12±4 dBm
16	11±5 dBm	16	11±5 dBm	10	10±4dBm	10	10±4 dBm
17	9±5 dBm	17	9±5 dBm	11	8±4dBm	11	8±4 dBm
18	7±5 dBm	18	7±5 dBm	12	6±4dBm	12	6±4 dBm
19	5±5 dBm	19	5±5 dBm	13	4±4dBm	13	4±4 dBm
				14	2±5dBm	14	2±5 dBm
				15	0±5dBm	15	0±5 dBm

4. Product Function

Main Function

- 1.3 Mega Pixel Camera**
- Instant Messaging Capability**
- Multimedia Capability**
- Bluetooth Wireless Technology**
- Voice Command Feature**
- Speakerphone Capability**
- Personal Assistant feature provides alarms, calendar, calculator, timer, stopwatch, record audio, world time, and converter.**

5. Circuit Description

< RF Circuit Description of SGH-D807 >

1. FEM (DUF400)

=> Switching Tx, Rx path for GSM850, EGSM900, DCS1800 and PCS1900 controlled by logic.

Integration of GSM850, EGSM900, DCS1800 and PCS1900 RX SAW Filters.

To convert Electromagnetic Field Wave to Acoustic Wave and the pass the specific frequency band.

- for filtering the frequency band 824 ~ 849 / 869 ~ 894 MHz
- for filtering the frequency band 880 ~ 915 / 925 ~ 960 MHz
- for filtering the frequency band 1710 ~ 1785 / 1805 ~ 1880 MHz
- for filtering the frequency band 1850 ~ 1910 / 1930 ~ 1990 MHz

2. FEM Control Logic

=> Truth Table

	VC1	VC2	VC3
GSM850 Rx Mode	L	L	H
EGSM900 Rx Mode	L	L	L
GSM850/EGSM900 Tx Mode	L	H	L
DCS/PCS Rx Mode	L	L	L
DCS/PCS Tx Mode	H	L	L

3. VC-TCXO(TCX400)

=> To generate the 26 MHz reference clock to drive the logic and RF.

After additional process, the reference clock applies to the U401 VCXOB pin to modulate TXIQ and demodulate RXIQ.

4. HD155154NP (U405)

=> The HD155154NP is a RF transceiver IC for GS850, EGSM900 DCS1800 and PCS1900 QUAD band cellular systems, and incorporates EDGE transceiver capability, and integrates most of the low power silicon functions of a transceiver. The HD155154NP incorporates triple RF LNAs, direct conversion mixers which are IQ demodulator, an auto offset calibrated programmable gain amplifier with baseband filter for both IQ chains, RF architecture for the transmitter. Moreover the HD155154NP includes power mode controller to optimize the power consumption. These functions can operate down to 2.7V and are housed in a 48-pin DPE QFN SMD package.

- RX Function
 - Differential Low Noise Amplifiers
 - Direct Conversion mixer and IQ demodulator with 90 degree phase splitter.
 - Auto offset calibrated programmable gain amplifier with baseband filter(PGA)
- TX Function
 - I/Q modulator with 90 degree phase splitter
 - Offset PLL
 - Phase comparator included fast lock system (Digital phase detector)
 - Polar loop
 - Lineariser
 - Voltage gain amplifier
 - Inverse voltage gain amplifier
 - Down converter
 - AM detector
 - PLL Synthesiser
 - RF Synthesiser for RX/TX RF local included fast lock system
 - 400kHz comparison frequency to achieve faster lock-up time

5. POWER AMP (PAM406)

==> The PF09025B is a high-power, high-efficiency power amplifier module with integrated power control

- Quad band Polar Loop Amplifier for GSM850 (824 to 849 MHz),
GSM900(880 to 915 MHz), DCS1800(1710 to 1785 MHz) and PCS1900
(1850 to 1910 MHz).
- For 3.5 V normal operation
- Built in LDO
- Superb output linearity
- High gain 3-stage amplifier : +5dBm input typical
- GPRS / EGPRS Operation Compatible
- Small package : 8.0 X 8.0 mm

< Baseband Circuit description of SGH-D807 >

1. CSP2750 (UCD101)

==> The CSP2750 has two major logical components power management and conversion signal processing.

The PSC component is responsible for all power-related functionality, including the following;

- Power management for RF, BB and ancillary devices within the GSM/GPRS
- Battery-charge management
- Reset control
- SIM card voltage-level shifting

The CSP component is responsible for the following ;

- Intraframe event scheduling
- Voice band processing, including voice band ADC and DAC
- Analog baseband processing, including baseband ADC and DAC
- Providing RF interface for Trident digital baseband device
- Transmitter Power control
- Automatic frequency control
- A5 ciphering
- Low-power sleep mode and wake-up control

The CSP2750 has the following major physical components;

- Timing and control unit
- RF serial interface
- Low-power sleep mode controller
- Baseband Transmitter / Receiver
- Voice input and output

2. WM8955L(UCD503)

=> The WM8955L is a low power, high quality stereo DAC with intergrated headphone and loudspwaker amplifiers, designed to reduce external component requirements in portable digital audio application.

The on-chip headphones amplifiers can deliver 40mW into a 16Ω load. Advanced on-chip digital signal processing performs bass and treble tone comtrol.

The WM8955L can operate as a master or a slave, and include an on-chip PLL. It can use most master clock frequencies commonly found in portable systems, including USB,GSM, CDMA or PDC clocks, or standard $256f_s$, clock rates. Different audio sample rates such as 48khz, 44.1khz, 8khz and many other are supported.

The WM8955L operates on supply voltages from 1.8V up to 3.6V, although the digital core can operates on a separate supply down to 1.42V, saving power. Different section of the chip can also be powered down under software control.

3. HPE(UCP201)

=> The Trident-HPE digital baseband processor is a complete system IC designed for wireless terminals that includes two digital signal processor(DSP) cores optimized for low-power communications applications and a powerful, highperformance,

industry-standard microcontroller core along with a rich set of peripherals.

The Trident-HPE digital baseband processor achieves best-in-class signal processing performance while maintaining the efficient software code density, low power consumption, and small physical size required for GSM/GPRS terminals ARM946E-S microcontroller core;

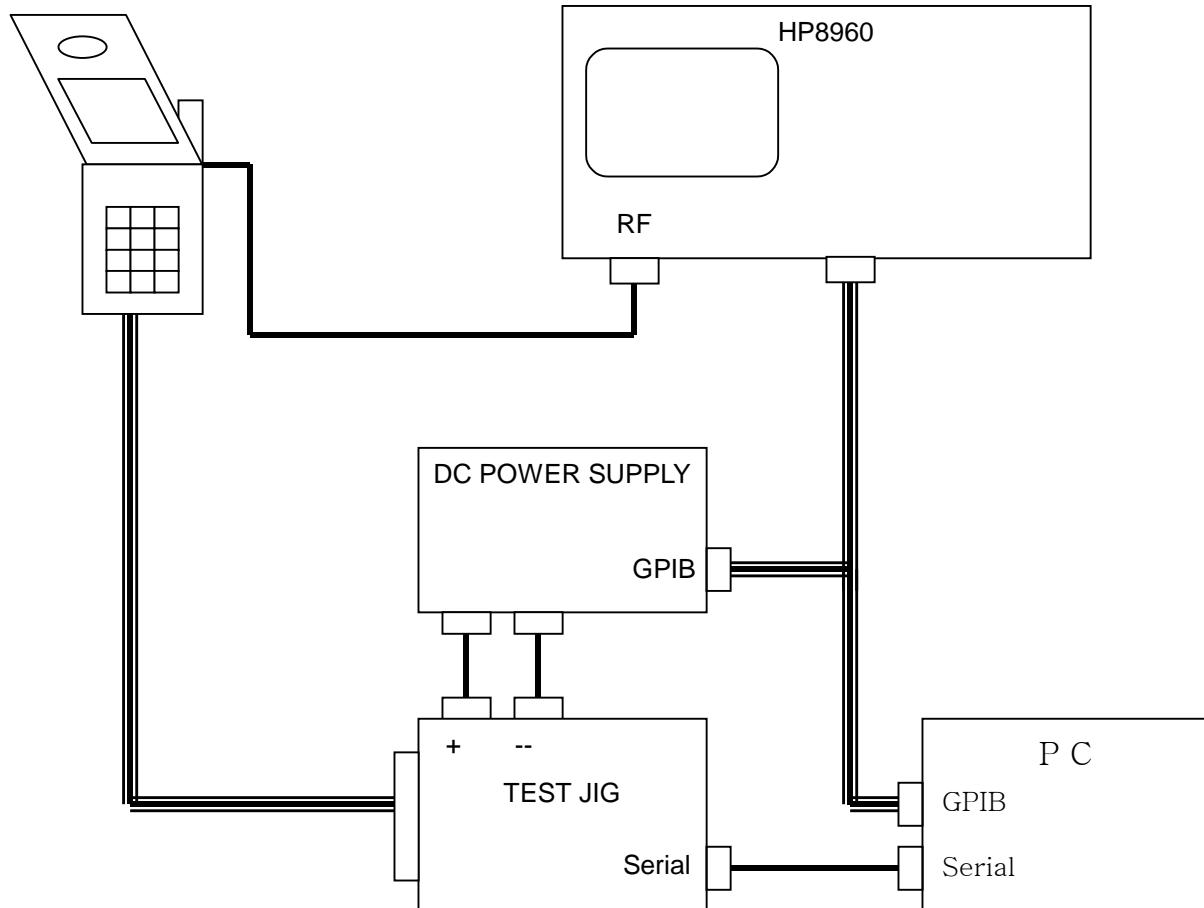
- 101 MHz system bus, 16 kbyte instruction and 16kbyte data caches.
- 8 kbyte tightly coupled zero wait-state instruction and 4kbyte tightly coupled zero wait-state data memory
- direct memory access controller for transparent transfer between memory and peripherals.
- External Memory interface with asynchronous burst mode support
- Synchronous serial port supporting
- Programmable 48-bit general-purpose IO unit, keyboard interface, programmable interval timer and real-time clock.

- SD/MMC controller that supports interfacing to secure digital/multimedia memory card.
- Two DSP16000 dual-MAC DSP cores;
- Up to 404 million MACs per second at 101 MHz.
- Memory complement:
 - DSP0 : 144K X 16-bit ROM, 40k X 16-bit RAM.
 - DSP1 : 96K X 16-bit ROM, 16k X 16-bit RAM.
- JTAG boundary scan and integrated H/W developement system Low power;
- Ultralow leakage process technology for best-in-class standby power
- Flexible power management modes to allow for maximum active power management
 - Interprocessor communication hardware support between ARM, DSP0 and DSP1.
- Supported by Trident-HPE digital baseband processor software and hardware developement tools as well as industry standard ARM software and hardware developement tools Two on-chip, programmable, PLL clock synthesizers:
 - one for ARM and DSP, the other one for USB.

6. Test Command & Test Procedure

6-1. Calibration Equipment

- HP 8960
- DC Power Supply
- Test Jig
- Configuration



6-2. Calibration Program

- Samsung internal software

6-3. Tx Power Tune up Procedure

- GMSK

1) Procedure:

- a. Calibraion equipment HP8960 and the cell phone are connected through RF cable.
- b. Target power (required power level according to the specification which should be set by calibration program) is set to equipment as power level (ex: GSM 5 level is 32.5 dBm).
- c. Activate phone in Tx_Mode_Only.
- d. HP8960 equipment measures transmitted power through rf test cable from the phone and reports measured level to calibration program.
- e. The program compares measured power with the target power.
- f. The calibration program decides power code which is defined in advance in the program and writes the codes to the flash memory in the phone.

2) Target value is defined according to the value of GSM specification.

See the TX power level definition table below.

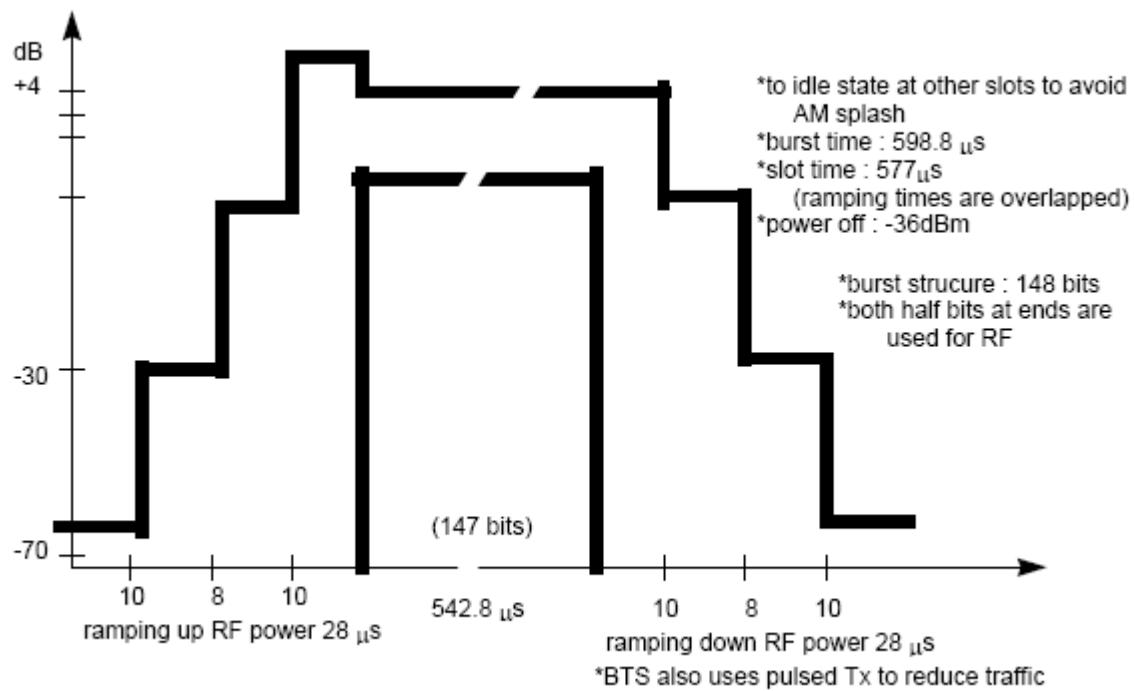
3) Target values of the peak level of the phone are set normally in conducted mode

- GSM850 5 level : 32.5 dBm
- EGSM900 5 level : 32.5 dBm
- DCS 0 level : 29.5 dBm
- PCS 0 level : 30.2 dBm (Tolerance : -2 dB ~ +1 dB)

4) Accuracy

All the TX level from the phone after tuned-up satisfy the GSM specification

5) TX ramp mask specification applied to the calibration program :

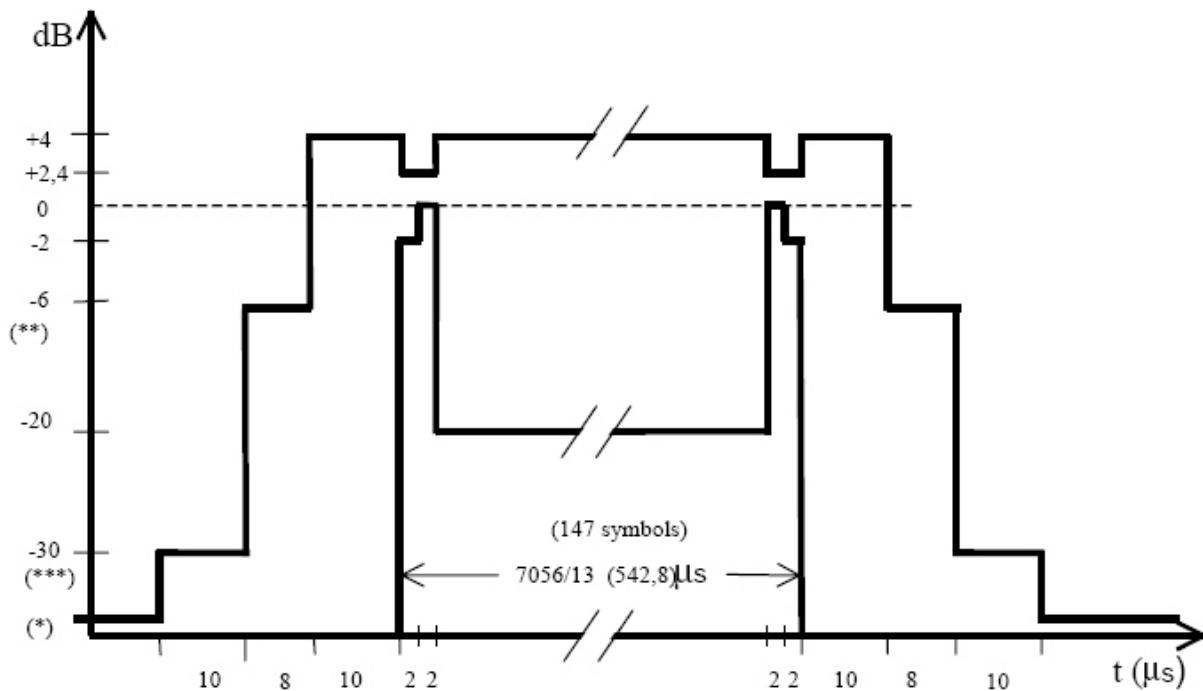


- 8PSK

1) Procedure:

- a. Calibration equipment HP8960 and the cell phone are connected through RF cable.
 - b. Target power (required power level according to the specification which should be set by calibration program) is set to equipment as power level (ex: GSM 8 level is 27 dBm).
 - c. Activate phone in Cont_8psk_Tx_Mode_Only.
 - d. HP8960 equipment measures transmitted power through rf test cable from the phone and reports measured level to calibration program.
 - e. The program compares measured power with the target power.
 - f. The calibration program decides power code which is defined in advance in the program and writes the codes to the flash memory in the phone.

- 2) Target value is defined according to the value of EGPRS specification.
See the TX power level definition table below.
 - 3) Target values of the peak level of the phone are set normally in conducted mode
 - GSM850 8 level : 27 dBm
 - EGSM900 8 level : 27 dBm
 - DCS 2 level : 26 dBm
 - PCS 2 level : 26 dBm (Tolerance : -2 dB ~ +1 dB)
 - 4) Accuracy
All the TX level from the phone after tuned-up satisfy the EGPRS specification
 - 5) TX ramp mask specification applied to the calibration program :



7. Array course control

- D807 DATA Cable and JTAG



Software Downloading

7-1. Downloading Binary Files

- A binary file for downloading D807.
 - gsmstack.s3

7-2. Pre-requisition for Downloading

- Downloader Program(Optiflash.exe) - Optiflash version 4.16 T1 S01
- D807 Mobile Phone
- Data Cable
- Binary file

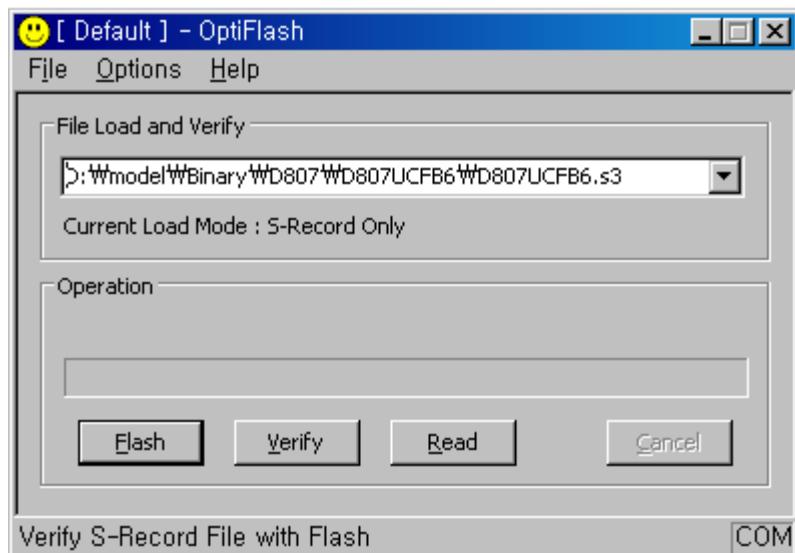
7-3. S/W Downloader Program

- **Optiflash application**
- Path: version(D807ucfb6)\utils\SIBLEY_OPTIFLASH\optiflash.exe

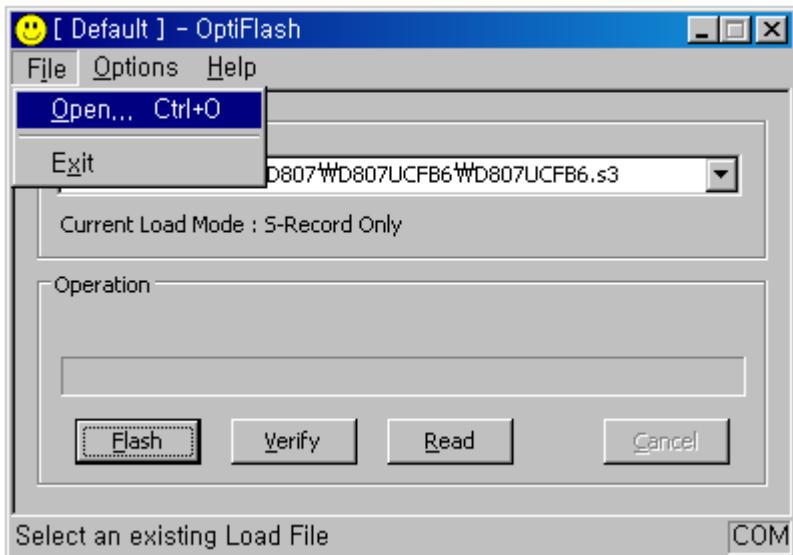


7-4. How to Download

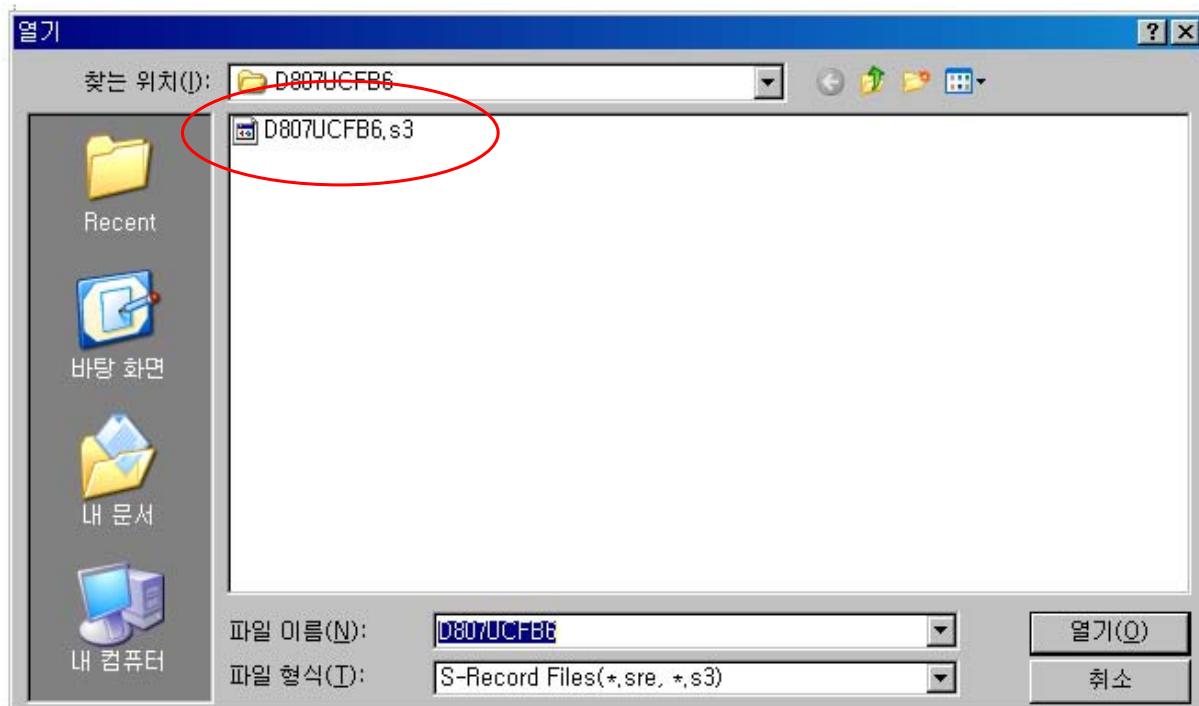
- ① **Connect the data cable and press '*(star)' key on the keypad simultaneously.**
- ② Run **Optiflash application** (Optiflash.exe)



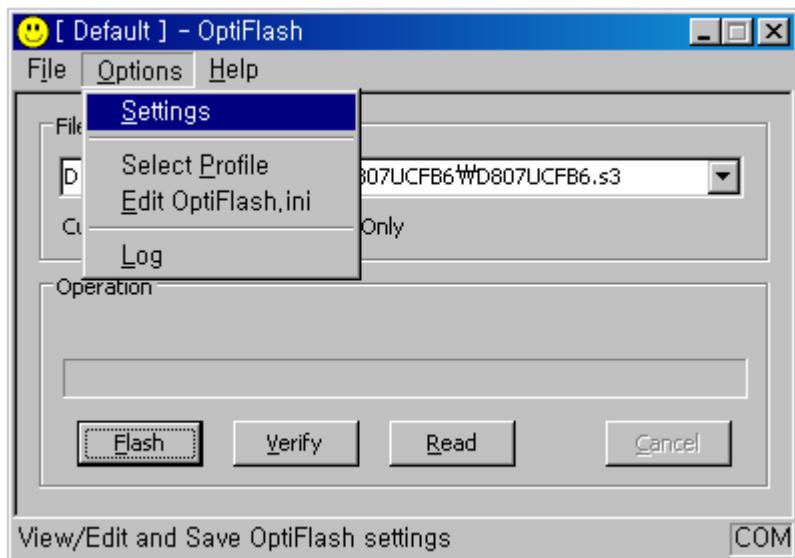
③ File open



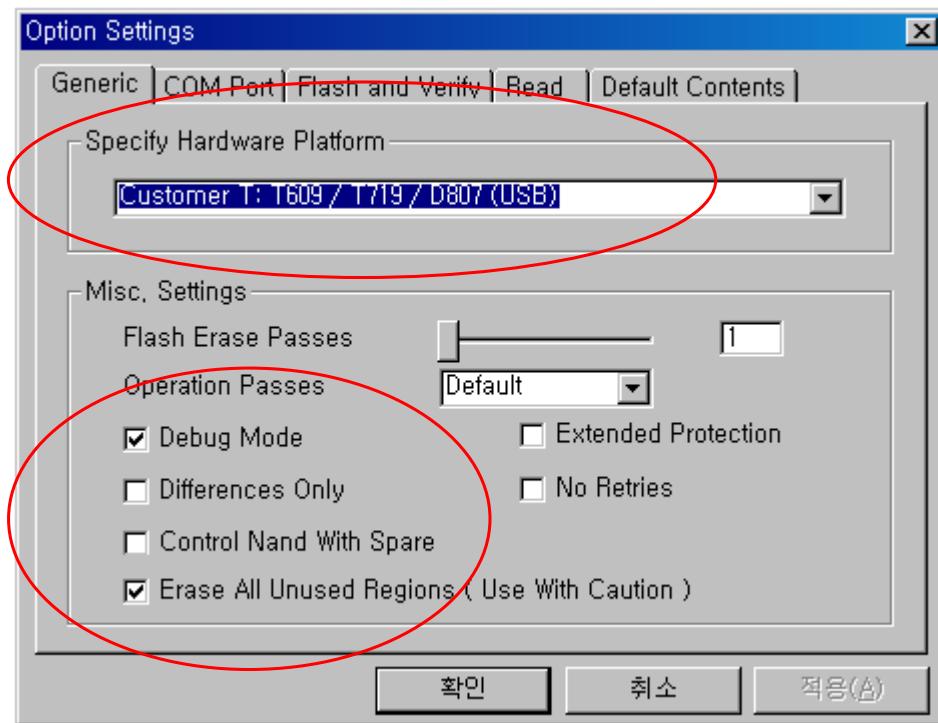
- Select an existing load file (usually, gsmstack.s3)



③ Option



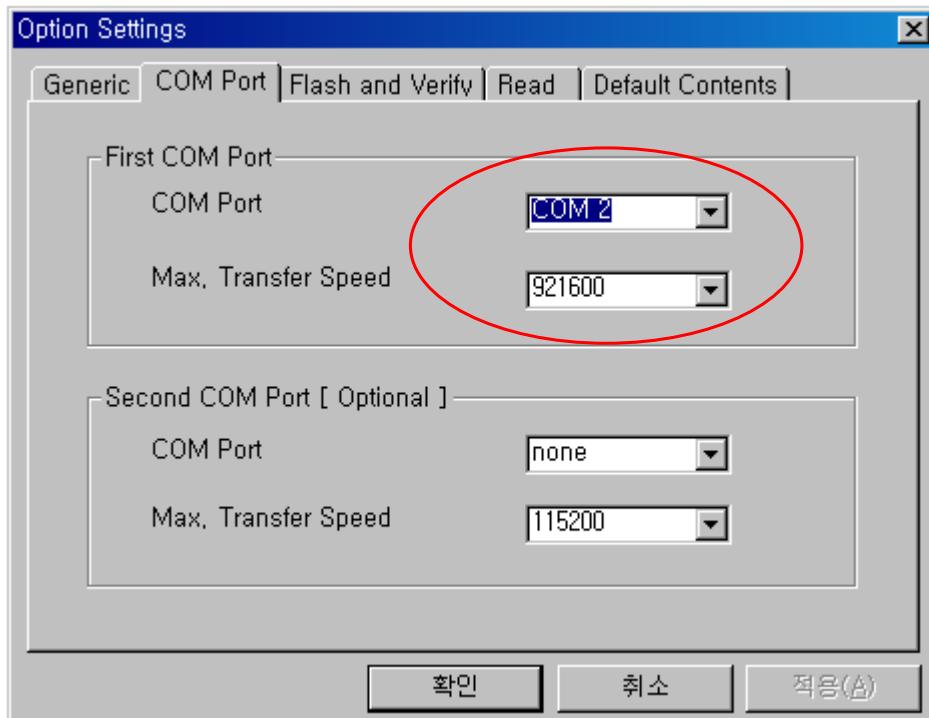
- Click '**Settings**' , Display as below.



* **Generic**

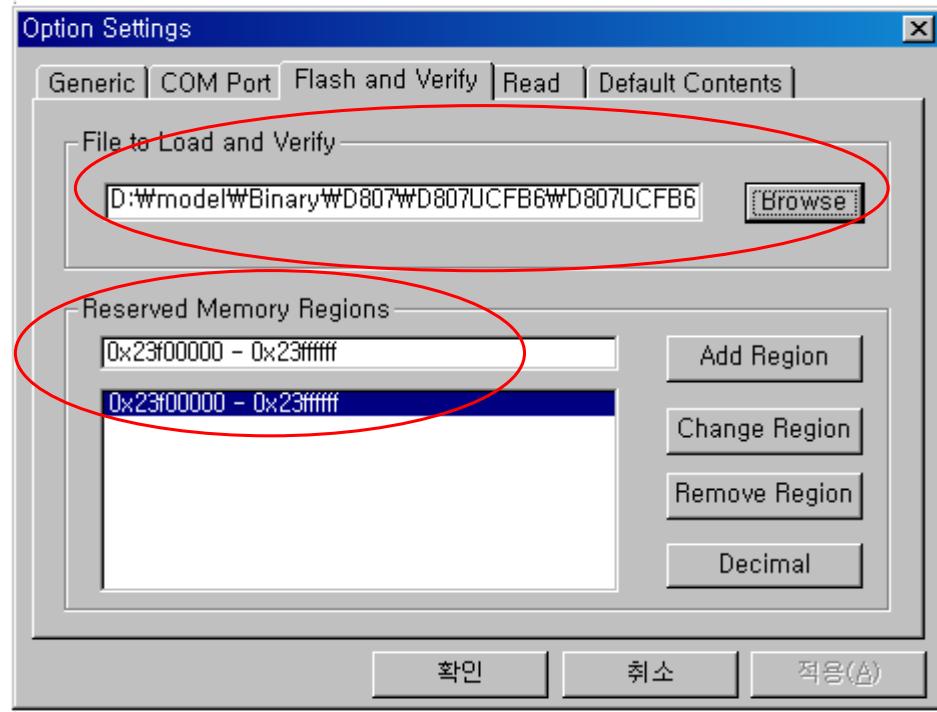
- Specify Hardware Platform: Select **a model and platform (USB)**
- Misc.Settings : Check the 'Debug Mode' and '**Erase All Unused Regions**'

* COM Port



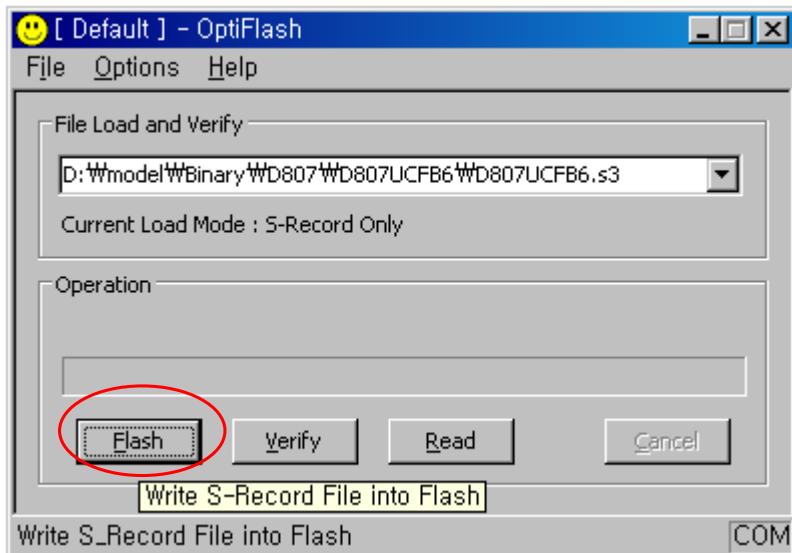
- **Select com port**
- if you don't know the usb port, please see the control pannel.
(Device Manager – Hardware – Port)

* Flash and Verify

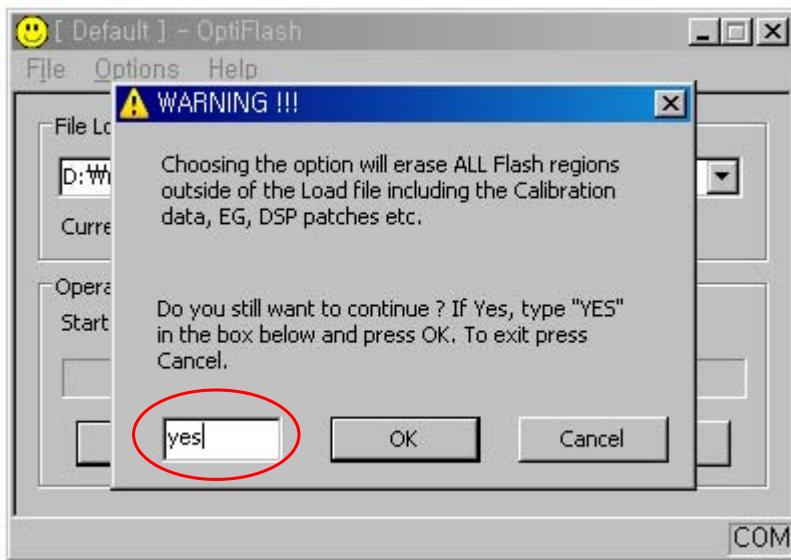


- Click 'Browse' button - **file to load and verify**
- **Check the reserved memory regions**

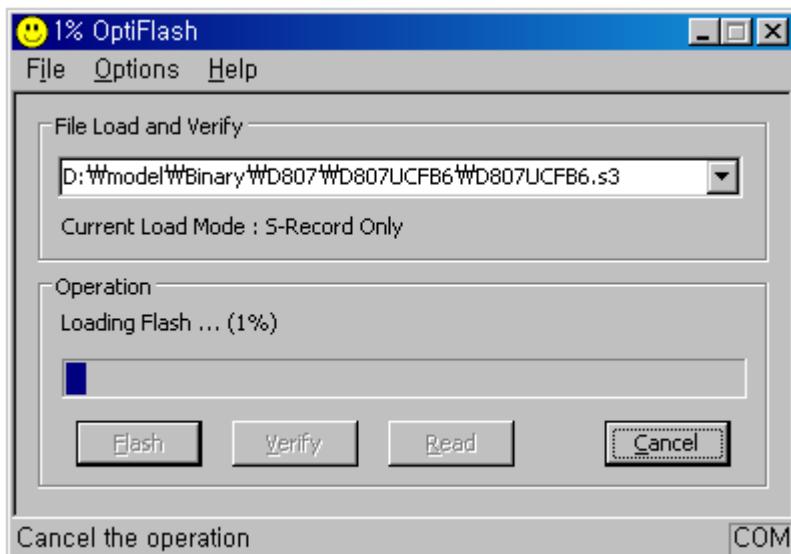
④ All procedures are done, Click '**Flash**' Button.



- ⑤ Pop up the window as below. Type the "yes" and Click 'OK'

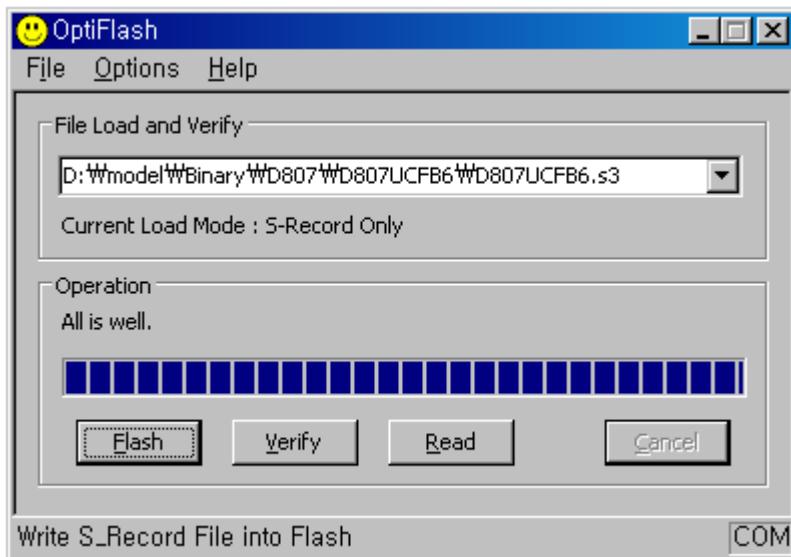


- ⑥ Start Download.



- Display status of downloading progress.

⑦ Display "All is well" and the D807 will reboot automatically.

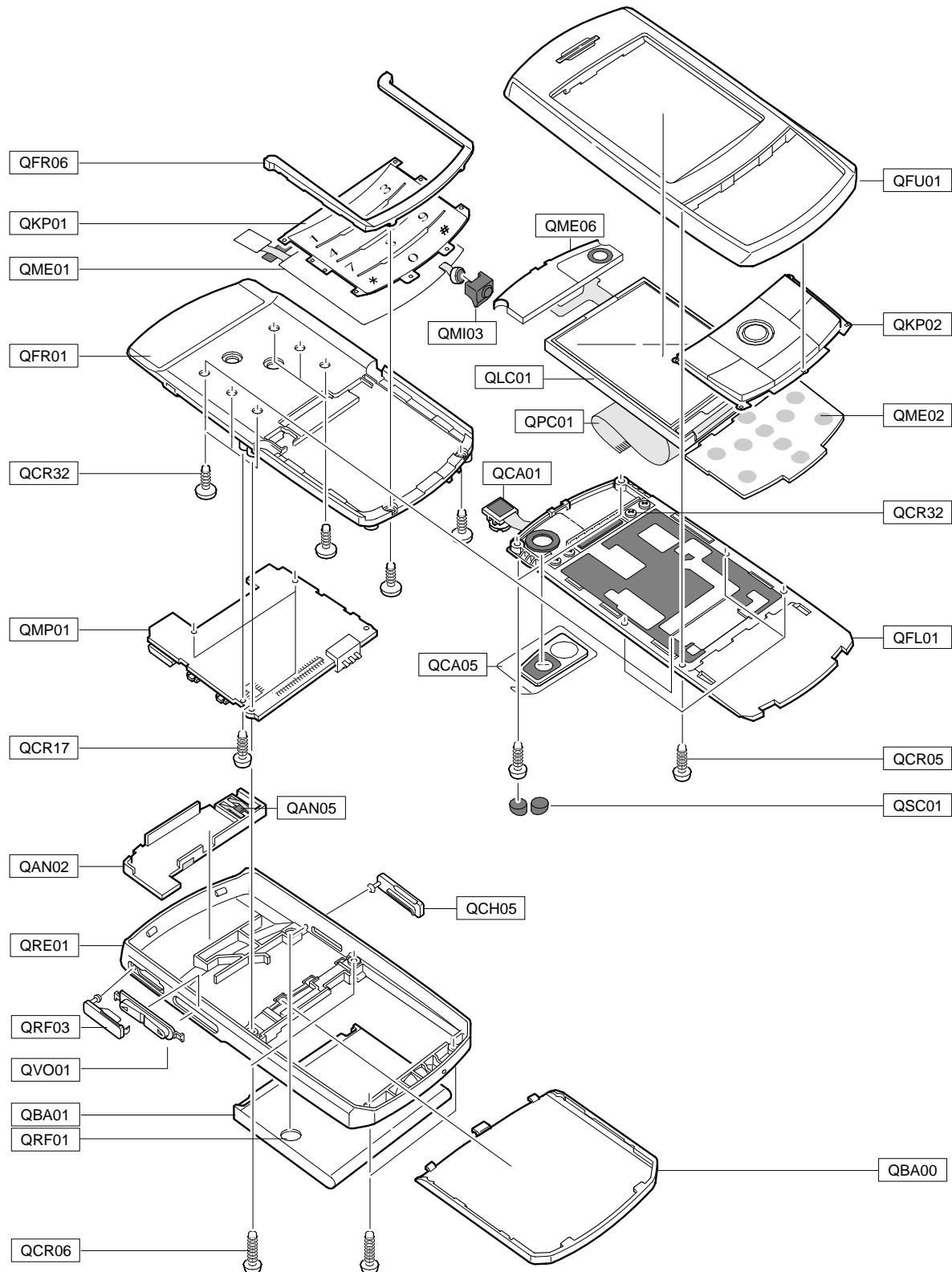


⑧ After download..

- You do "Full service reset" by pressing key button "*2767*3855#".
- You can see S/W version by pressing key button "*#9998*1234#".

8. Exploded View and Parts List

8-1. Cellular phone Exploded View



8-2. Cellular phone Parts list

QAN02	INTENNA-SGHD807	GH42-00749A
QAN05	ASSY MEC-RUBBER INTENNA CONTAC	GH75-09496A
QBA00	PMO-BATT COVER V1	GH72-28679A
QBA01	INNER BATTERY PACK-800MAH,BLK,	GH43-02389A
QCA01	UNIT-CAMERA	GH59-02729A
QCA05	ASSY MEC-CAMERA DECO	GH75-07777A
QCH05	PMO-MICRO SD COVER	GH72-27731A
QCR04	SCREW-MACHINE	6001-001479
QCR05	SCREW-MACHINE	6001-001478
QCR17	SCREW-MACHINE	6001-001460
QCR32	SCREW-MACHINE	6001-001700
QCR32	SCREW-MACHINE	6001-001700
QFL01	ASSY MEC-SLIDE LOWER HINGE	GH75-08808A
QFR01	ASSY MEC-CASE FRONT	GH75-08730A
QFR06	PMO-CASE FRONT U BUSH	GH72-27384A
QFU01	ASSY CASE-SLIDE UPPER	GH98-01668A
QKP01	ASSY MEC-KEYPAD(CIN/ZK)	GH75-08727A
QKP02	ASSY MEC-KEYPAD SUB	GH75-07758A
QLC01	MEA-LCD MODULE KIT	GH97-05871A
QME01	UNIT-3X4 KEY FPCB ASSY	GH59-02878A
QME02	UNIT-NAVY KEY FPCB	GH59-02866A
QME06	UNIT-MODULE SPEAKER	GH59-03051A
QMI03	ASSY MEC-MIC HOLDER	GH75-09497A
QMP01	PBA MAIN-SGHD807	GH92-02519A
QPC01	MEA-SLIDE FPCB KIT	GH97-05904A
QRE01	ASSY MEC-CASE REAR	GH75-08731A
QRF01	PMO-RF COVER 2	GH72-25716A
QRF03	PMO-EARJACK COVER	GH72-24043A
QSC01	RMO-LOWER SCREW CAP	GH73-05237A
QVO01	PMO-VOLUM KEY	GH72-24041A

CBF INTERFACE-SGHE900,DLC,B_TY	GH39-00654A
ADAPTOR-SGHE900,BLK,PHIL,B_TYP	GH44-01343A
S/W CD-SGH-D807 PC STUDIO 3.0	GH46-00274A
UNIT-EARPHONE,SGHE900,BLK,D-TY	GH59-03537A
LABEL(P)-INTENNA WARNING LABEL	GH68-09868A
MPR-BOHO VINYL MAIN WIN	GH74-15426A
MPR-TAPE MAIN CONN COVER	GH74-19552A
MPR-TAPE MAIN FPCB SHIELD	GH74-22333A
MPR-TAPE LCD CONN BASE	GH74-19553A
MPR-TAPE INS COVER MAIN	GH74-20753A
MPR-TAPE TEST POINT	GH74-20754A
LABEL(R)-WATER SOAK	GH68-09361A
AS-WINDOWS SVC	GH81-03625A
AS-SPK GASKET(T.0.5)	GH81-03355A
LABEL(R)-WATER SOAK T_MOBILE	GH68-05914A
MPR-BOHO VINYL FUNCTION	GH74-18027A
MPR-TAPE LCD CONN COVER	GH74-19561A
MPR-TAPE KEY FPCB CONN	GH74-19564A
MPR-TAPE FRONT SCREW	GH74-20758A
MPR-VINYL BOHO UPPER B	GH74-20768A
MPR-VINYL BOHO FRONT BUS	GH74-21091A
MPR-TAPE CONN COVER	GH74-21709A
MPR-TAPE SPRING ANCHOR	GH74-21711A
MPR-TAPE MAIN FPCB SHIELD	GH74-22333A
MPR-GASK TAPE	GH74-22658A
ASSY MEC-RUBBER KEY FPCB	GH75-09498A
MPR-TAPE UPPER LCD	GH74-27527A
MANUAL USERS-ROGERS ENGLISH	GH68-11340A
MANUAL USERS-ROGERS FRENCH	GH68-11341A
MANUAL USERS-ROGERS QRC	GH68-11342A
BAG PE	6902-000634
LABEL(R)-MAIN(RWC)	GH68-09538B
CUSHION-CASE(CIN)	GH69-03758A
BOX(P)-UNIT MAIN(CKD-CHINA)	GH69-03760A

9. Disassembly and Assembly instructions

9-1. Disassembly

1



2



Unscrew 4 places of the Rear

Open the Ear Cover.

3



4



Open the lower part of Rear's right side using stick for disassembly.

Pull stick for disassembly and opens Rear's right side Hook

5



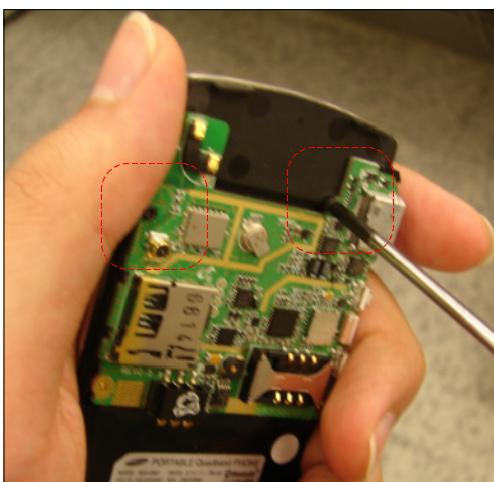
6



Open the Rear's left side Hook.

Push the Rear and unlock top portion Hook 2 places, disassemble the Rear.

7



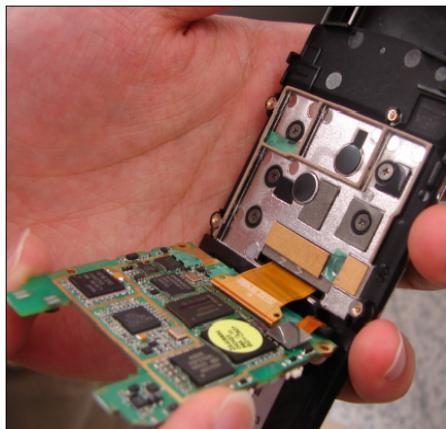
8



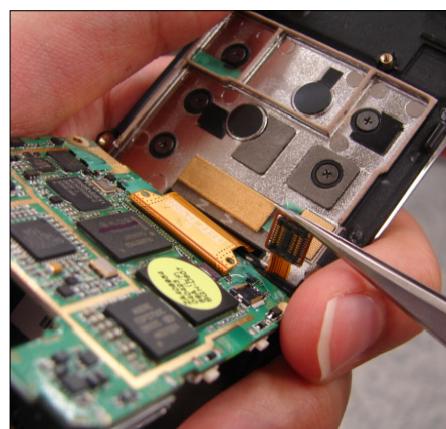
Unscrew 2 places of PBA.

Down Slide.

9



10



Remove the PBA carefully.

Remove the Key Connector.

11



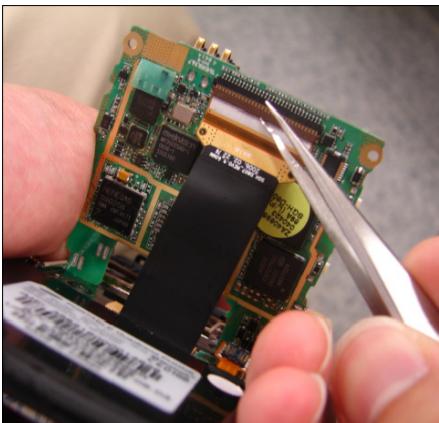
12



Control the Slide and makes the FPCB longest.

Remove a electric conduction Tape and a insulation Tape on the FPCB Connector using tweezers.

13



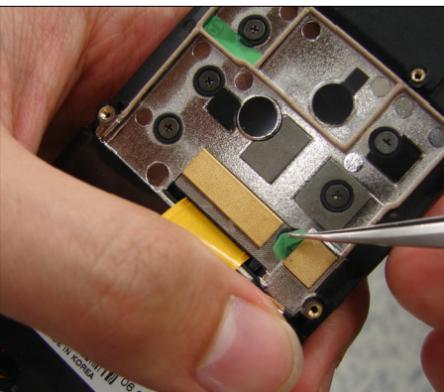
Open the cover of the Connector using wide surface of a tweezers.

14



Pull out the Slide FPCB carefully in the Connector.

15



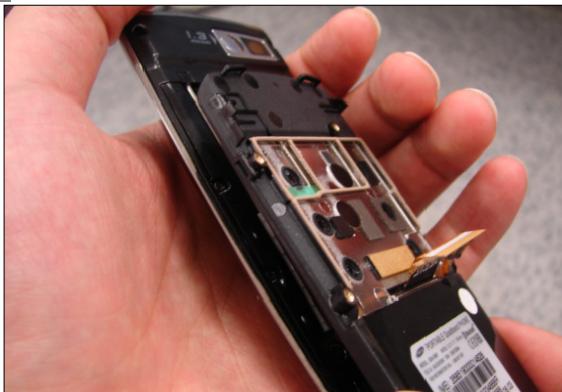
Remove a insulation Tape and a electric conduction Tape that is covering Screw.

16



Unscrew 6 places of Front.

17

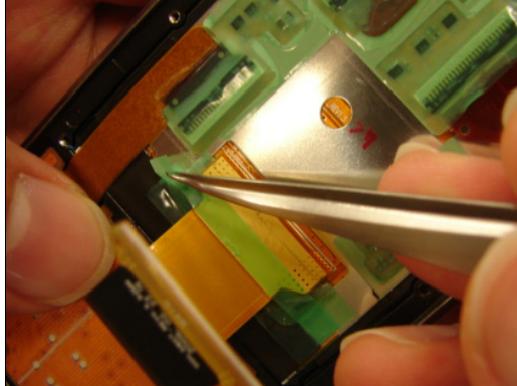
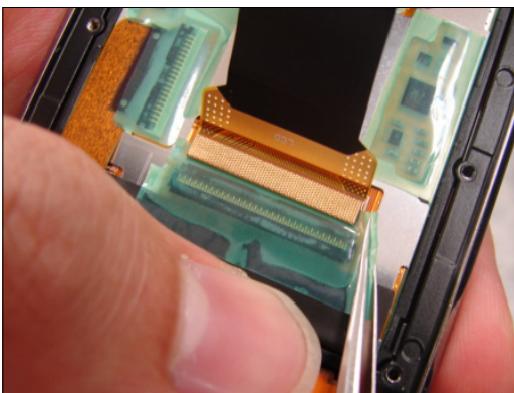
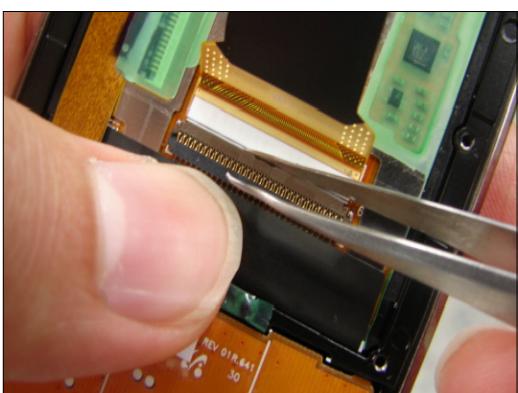


disassemble the Front.

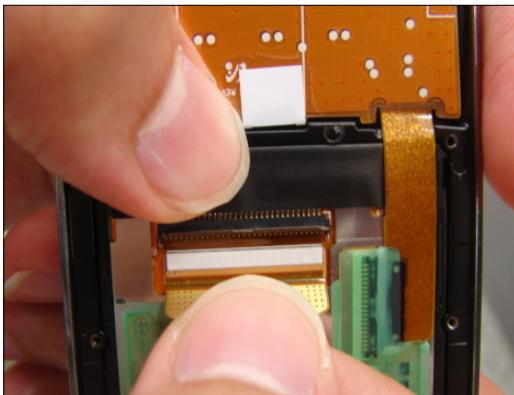
18



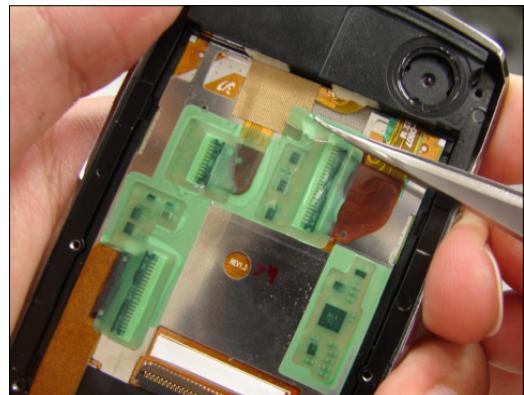
Remove the Screw Cap that is covering the Slide Lower.

19 	20 
Unscrew on the Slide Lower	Push stick for disassembly with the picture in the Slide's corner.
21 	22 
Pull out the Hook of the Lower's top portion and disassemble Slide Lower.	Remove the FPCB's fixing Tape.
23 	24 
Remove the Connector's fixing Tape.	Open the Connector cover.

25



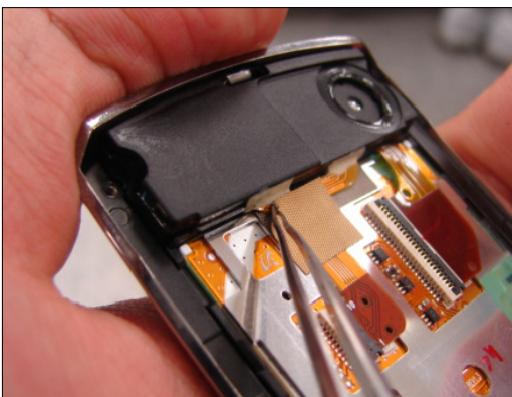
26



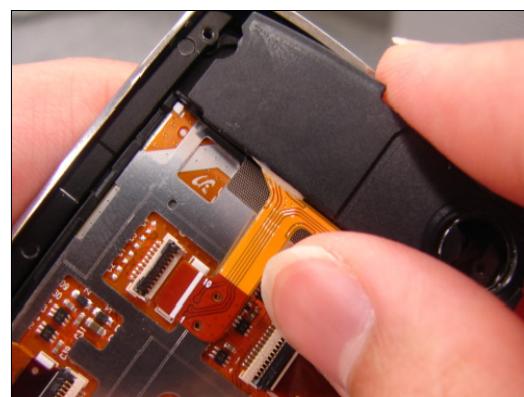
Pull out the Slide FPCB.

Remove the Connector insulation Tape.

27



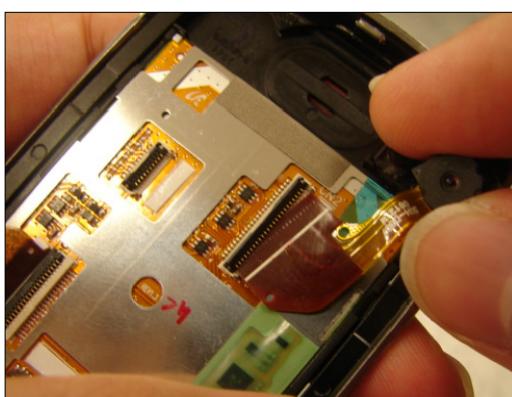
28



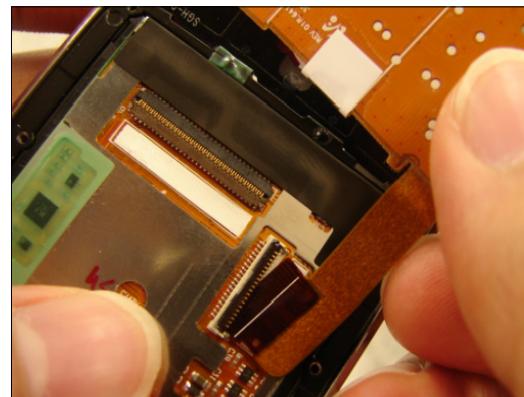
Remove the ESD electric conduction Tape.

disassemble the SPK Module.

29



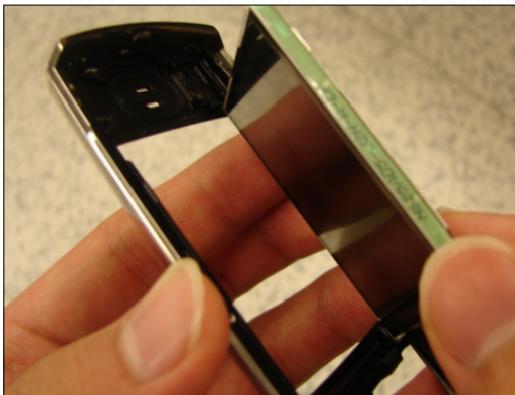
30



disassemble the Camera Module.

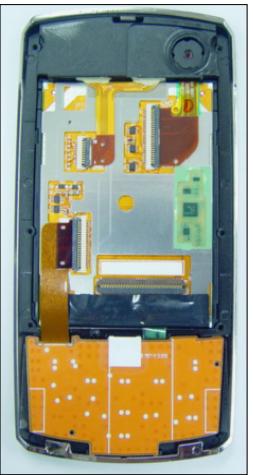
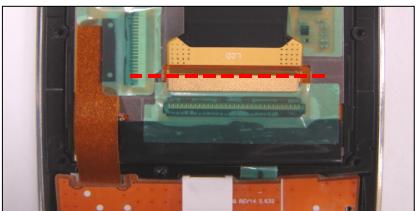
disassemble the Sub Key PBA.

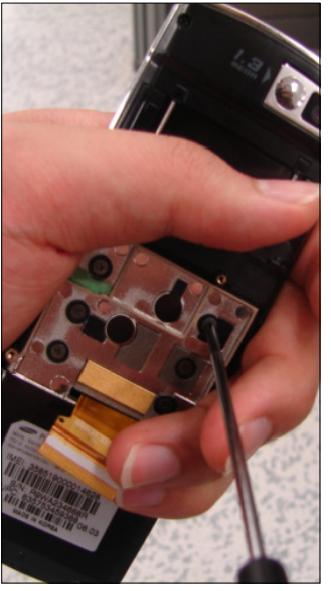
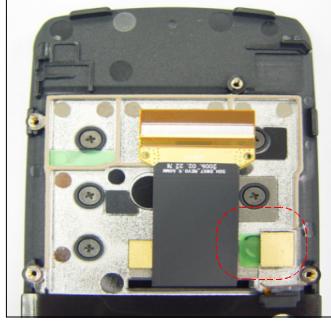
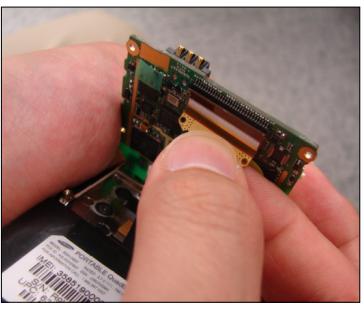
31



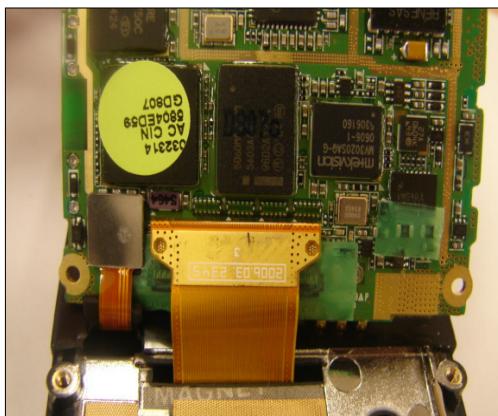
disassemble the LCD Module.

9-2. Assembly

		
<p>Assemble the LCD and Sub Keypad to Front.</p>	<p>Assemble the Sub Key PBA, Camera, SPK gradually.</p>	<p>After the ESD electric conduction Tape sticking, attach a insulation tape on Connector.</p>
		
<p>Assemble the LCD's FPCB.</p>	<p>Attach a insulation Tape according to Main FPCB's white surface. Attach a electric conduction Tape according to gilding end line.</p>	<p>Attach as do not pass over the FPCB's gilding part.</p>

 <p>7</p>	 <p>8</p>	 <p>9</p>
<p>Inserts two places of Hook's lower part and assembles Slide Lower.</p>	<p>Attach Screw Cap in 2 places of the top portion after screw on the Slide Lower's 6 places.</p>	<p>screw on the Front's 6 places .</p>
 <p>10</p>	 <p>11</p>	 <p>12</p>
<p>Attach a insulation Tape and a electric conduction Tape on a screw.</p>	<p>Combine the FPCB with the PBA.</p>	<p>Sets in white surface of FPCB on Connector, and set a insulation Tape in gilding surface. Then, a insulation Tape attaches electric conduction Tape .</p>

13



14



Connect the 3*4 Key Connector.

Combine fix Screw 2 places of the PBA.

15



16



Assemble the Rear Hook's top portion.

Assemble the Set's right side Hook.

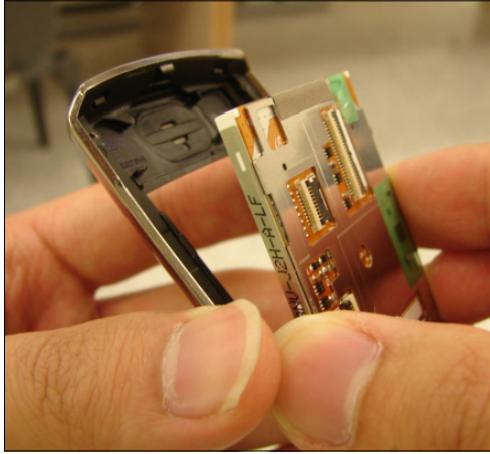
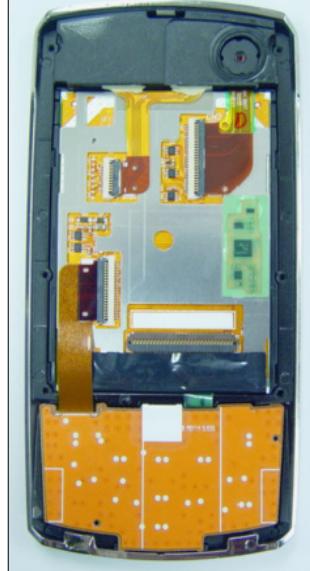
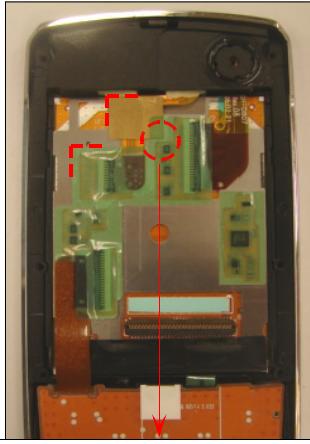
17



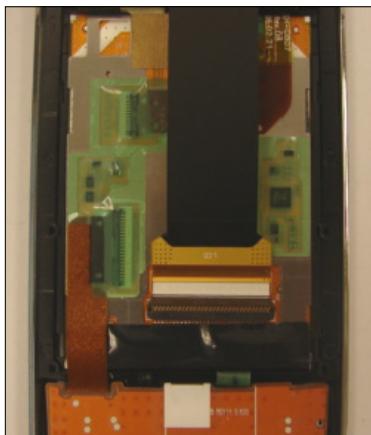
18

Assemble the Set's left side Hook.

9-3. KIT Assembly

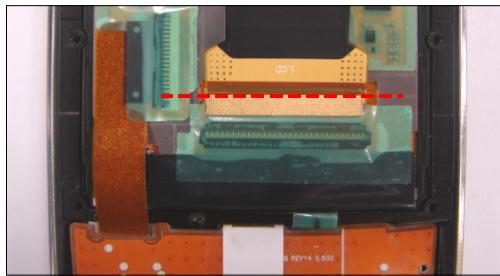
	
Attach LCD on Upper's inside.	State that LCD sticks on inside
	 <p>Take care so that ESD electric conduction Tape may not reach with surrounding Chip.</p>
Connect Sub Key PBA, Camera, Spk to sequential connector.	After attach ESD electric conduction Tapes, attach insulation tapes according to base line that is written to LCD. (All connectors should be covered.)

13



Assemble the SLIDE FPCB with the Connector.

14



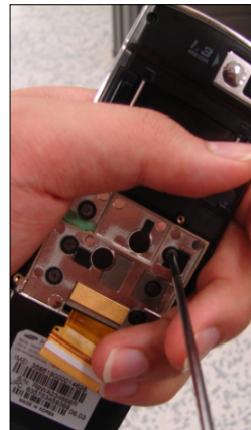
Attach a insulation Tape according to the Main FPCB's white surface. Then, attach a electric conduction Tape depending on end line which do gilding.

15



Must not pass over the FPCB's gilding part.

16



The Lower assembly and the Screw combine. Combine a Screw after assemble the Front.

17



Attach a insulation Tape and a electric conduction Tape on the base line .

18



Combine the FPCB with the PBA.

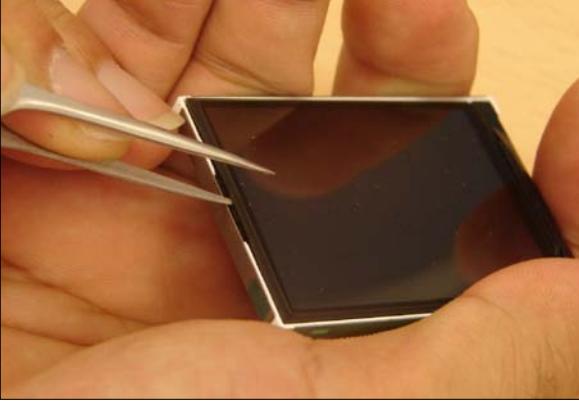
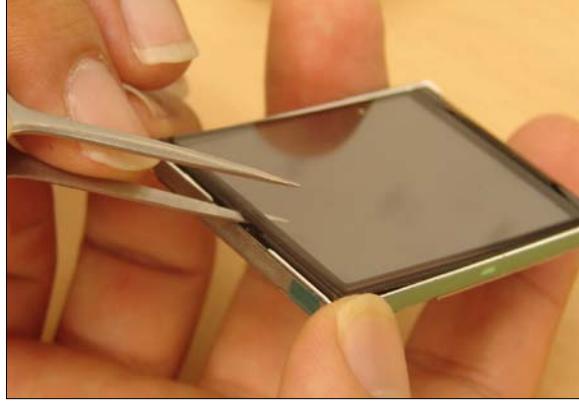
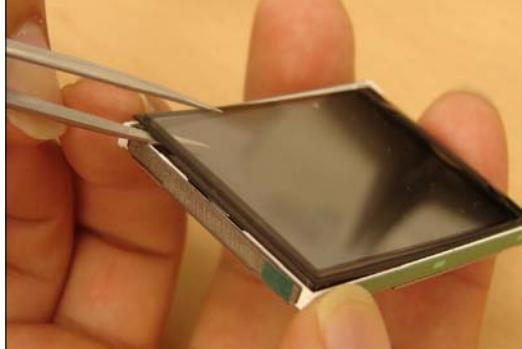
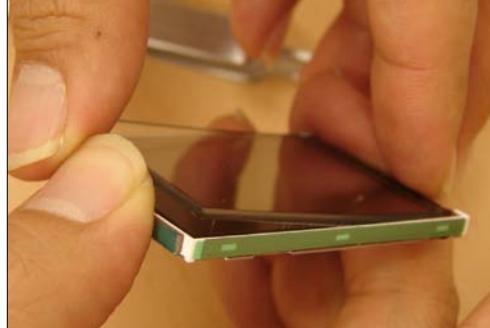
19



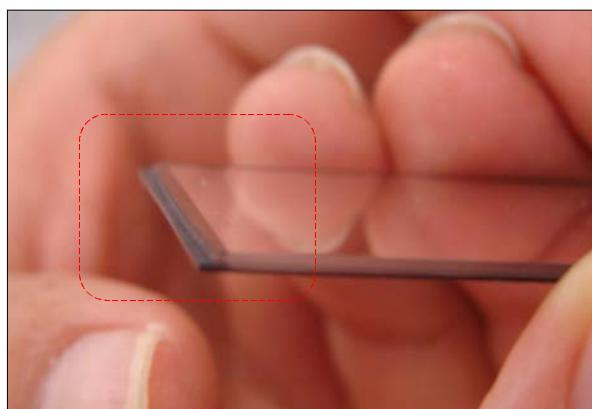
Place a insulation Tape according to the
FPCB's white surface on the Connector
correctly.

Attach electric conduction Tape on gilding
surface.

9-4. Window Disassembly

 <p>1</p>	 <p>2</p>
<p>Infix tweezers in middle groove of the LCD top portion.</p>	<p>Put end of tweezers at groove until the WINDOW goes up little bit.</p>
 <p>3</p>	 <p>4</p>
<p>Lift the window, at the same time put tweezers into the window's right side</p>	<p>Lift the window, at the same time puts tweezers into the window's left side.</p>
 <p>5</p>	 <p>6</p>
<p>Lift the WINDOW between the gab using a finger.</p>	<p>Lift WINDOW with two hands slightly.</p>

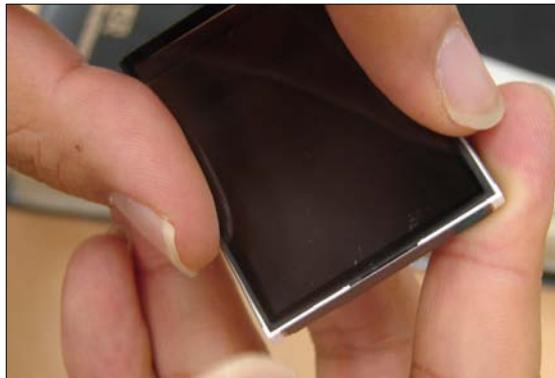
7



Check that the WINDOW's end segment has the step.

There is no step at the opposite, and assembles the Window with the step locating in the LCD top portion.

8



The Wide surface among steps sticks directly with the LCD, and assembles the WINDOW to under portion direction after set end of the LCD top portion with the WINDOW.

9



After assemble finally the LCD's under portion, confirm whether the GAB does not happen between the WINDOW and the LCD

10. MAIN Electrical Parts List

SEC CODE	Design LOC	Description	STATUS
0403-001411	AN400	DIODE-ZENER	SA
0403-001427	ANT401	DIODE-ZENER	SA
0403-001511	ANT402	DIODE-ZENER	SA
0403-001547	BAT100	DIODE-ZENER	SA
0406-001150	BTC502	DIODE-TVS	SA
0406-001150	C100	DIODE-TVS	SA
0406-001150	C101	DIODE-TVS	SA
0406-001150	C102	DIODE-TVS	SA
0406-001190	C103	DIODE-TVS	SA
0406-001190	C104	DIODE-TVS	SA
0406-001190	C105	DIODE-TVS	SA
0406-001210	C106	DIODE-TVS	SA
0406-001210	C107	DIODE-TVS	SA
0406-001210	C108	DIODE-TVS	SA
0406-001210	C109	DIODE-TVS	SA
0504-000168	C110	TR-DIGITAL	SA
0801-002958	C111	IC-CMOS LOGIC	SA
0801-002975	C112	IC-CMOS LOGIC	SA
0801-002993	C113	IC-CMOS LOGIC	SA
0801-002995	C114	IC-CMOS LOGIC	SA
0801-003022	C115	IC-CMOS LOGIC	SA
1001-001306	C116	IC-ANALOG MULTIPLEX	SA
1001-001400	C117	IC-ANALOG SWITCH	SA
1002-001441	C118	IC-D/A CONVERTER	SA
1003-001716	C119	IC-EL DRIVER	SA
1009-001018	C120	IC-HALL EFFECT S/W	SA
1108-000046	C121	IC-MCP	SA
1201-002240	C122	IC-AUDIO AMP	SA
1201-002267	C123	IC-POWER AMP	SA
1203-003340	C124	IC-POSI.FIXED REG.	SA
1203-003432	C125	IC-POSI.FIXED REG.	SA
1203-003432	C126	IC-POSI.FIXED REG.	SA
1203-003523	C127	IC-POSI.FIXED REG.	SA
1203-003523	C128	IC-POSI.FIXED REG.	SA
1203-003754	C129	IC-POSI.FIXED REG.	SA
1203-003789	C130	IC-POWER SUPERVISOR	SA
1203-004119	C133	IC-POWER SUPERVISOR	SA
1203-004151	C135	IC-BATTERY	SA
1203-004253	C136	IC-DC/DC CONVERTER	SA
1205-002272	C137	IC-TRANSCEIVER	SA
1205-002568	C138	IC-SWITCH	SA
1205-002652	C139	IC-TRANSCEIVER	SA

SEC CODE	Design LOC	Description	STATUS
1404-001165	C200	THERMISTOR-NTC	SA
1405-001082	C201	VARISTOR	SA
1405-001082	C202	VARISTOR	SA
1405-001082	C203	VARISTOR	SA
1405-001082	C204	VARISTOR	SA
1405-001082	C205	VARISTOR	SA
1405-001082	C206	VARISTOR	SA
2007-000137	C207	R-CHIP	SA
2007-000138	C208	R-CHIP	SA
2007-000138	C209	R-CHIP	SA
2007-000138	C210	R-CHIP	SA
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2007-008816	C454	R-CHIP	SA
2007-009158	C455	R-CHIP	SA
2007-009208	C456	R-CHIP	SA
2007-009208	C457	R-CHIP	SA

SEC CODE	Design LOC	Description	STATUS
2007-009208	C458	R-CHIP	SA
2007-009223	C459	R-CHIP	SA
2203-000233	C500	C-CER,CHIP	SA
2203-000254	C501	C-CER,CHIP	SA
2203-000254	C502	C-CER,CHIP	SA
2203-000254	C504	C-CER,CHIP	SA
2203-000254	C505	C-CER,CHIP	SA
2203-000254	C506	C-CER,CHIP	SA
2203-000254	C508	C-CER,CHIP	SA
2203-000254	C509	C-CER,CHIP	SA
2203-000254	C510	C-CER,CHIP	SA
2203-000254	C512	C-CER,CHIP	SA
2203-000278	C513	C-CER,CHIP	SA
2203-000359	C514	C-CER,CHIP	SA
2203-000438	C515	C-CER,CHIP	SA
2203-000438	C517	C-CER,CHIP	SA
2203-000438	C518	C-CER,CHIP	SA
2203-000438	C519	C-CER,CHIP	SA
2203-000489	C520	C-CER,CHIP	SA
2203-000550	C522	C-CER,CHIP	SA
2203-000550	C523	C-CER,CHIP	SA
2203-000627	C524	C-CER,CHIP	SNA
2203-000627	C525	C-CER,CHIP	SNA
2203-000627	C527	C-CER,CHIP	SNA
2203-000654	C529	C-CER,CHIP	SA
2203-000654	C530	C-CER,CHIP	SA
2203-000812	C531	C-CER,CHIP	SA
2203-000812	C532	C-CER,CHIP	SA
2203-000812	C533	C-CER,CHIP	SA
2203-000812	C534	C-CER,CHIP	SA
2203-000812	C535	C-CER,CHIP	SA
2203-000836	C536	C-CER,CHIP	SA
2203-000995	C537	C-CER,CHIP	SA
2203-000995	C538	C-CER,CHIP	SA
2203-001153	C539	C-CER,CHIP	SA
2203-001412	C540	C-CER,CHIP	SA
2203-001412	C541	C-CER,CHIP	SA
2203-001412	C542	C-CER,CHIP	SA
2203-002982	C545	C-CER,CHIP	SNA
2203-005056	C547	C-CER,CHIP	SA
2203-005056	C548	C-CER,CHIP	SA
2203-005138	C549	C-CER,CHIP	SA

SEC CODE	Design LOC	Description	STATUS
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2203-005344	CD200	C-CER,CHIP	SA
2203-005344	CN300	C-CER,CHIP	SA
2203-005395	D504	C-CER,CHIP	SA
2203-005395	DUF400	C-CER,CHIP	SA
2203-005446	F301	C-CER,CHIP	SA
2203-005446	F302	C-CER,CHIP	SA
2203-005514	F303	C-CER,CHIP	SA
2203-005514	F304	C-CER,CHIP	SA
2203-005514	HDC301	C-CER,CHIP	SA
2203-005514	IFC501	C-CER,CHIP	SA
2203-005682	L100	C-CER,CHIP	SA
2203-005682	L101	C-CER,CHIP	SA
2203-005682	L102	C-CER,CHIP	SA
2203-005682	L200	C-CER,CHIP	SA
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2203-005682	L407	C-CER,CHIP	SA
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2203-005682	OSC200	C-CER,CHIP	SA
2203-005682	OSC301	C-CER,CHIP	SA
2203-005682	PAM406	C-CER,CHIP	SA
2203-005682	Q100	C-CER,CHIP	SA
2203-005682	Q101	C-CER,CHIP	SA
2203-005682	R100	C-CER,CHIP	SA
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2203-005682	R102	C-CER,CHIP	SA
2203-005682	R103	C-CER,CHIP	SA
2203-005682	R104	C-CER,CHIP	SA
2203-005682	R105	C-CER,CHIP	SA

SEC CODE	Design LOC	Description	STATUS
2203-005682	R106	C-CER,CHIP	SA
2203-005683	R107	C-CER,CHIP	SA
2203-005725	R108	C-CER,CHIP	SA
2203-005725	R109	C-CER,CHIP	SA
2203-005736	R110	C-CER,CHIP	SA
2203-006048	R111	C-CER,CHIP	SA
2203-006048	R112	C-CER,CHIP	SA
2203-006048	R113	C-CER,CHIP	SA
2203-006048	R116	C-CER,CHIP	SA
2203-006048	R117	C-CER,CHIP	SA
2203-006048	R118	C-CER,CHIP	SA
2203-006048	R120	C-CER,CHIP	SA
2203-006048	R122	C-CER,CHIP	SA
2203-006048	R123	C-CER,CHIP	SA
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2203-006048	R201	C-CER,CHIP	SA
2203-006048	R202	C-CER,CHIP	SA
2203-006048	R203	C-CER,CHIP	SA
2203-006048	R204	C-CER,CHIP	SA
2203-006121	R205	C-CER,CHIP	SA
2203-006194	R206	C-CER,CHIP	SA
2203-006194	R207	C-CER,CHIP	SA
2203-006194	R209	C-CER,CHIP	SA
2203-006194	R210	C-CER,CHIP	SA
2203-006194	R211	C-CER,CHIP	SA
2203-006194	R212	C-CER,CHIP	SA
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2203-006194	R214	C-CER,CHIP	SA
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2203-006194	R216	C-CER,CHIP	SA
2203-006194	R218	C-CER,CHIP	SA
2203-006194	R219	C-CER,CHIP	SA
2203-006194	R220	C-CER,CHIP	SA
2203-006194	R301	C-CER,CHIP	SA
2203-006194	R302	C-CER,CHIP	SA
2203-006194	R303	C-CER,CHIP	SA
2203-006257	R304	C-CER,CHIP	SA
2203-006257	R305	C-CER,CHIP	SA
2203-006257	R306	C-CER,CHIP	SA
2203-006257	R307	C-CER,CHIP	SA
2203-006260	R308	C-CER,CHIP	SA
2203-006260	R309	C-CER,CHIP	SA

SEC CODE	Design LOC	Description	STATUS
2203-006324	R310	C-CER,CHIP	SA
2203-006348	R400	C-CER,CHIP	SA
2203-006348	R401	C-CER,CHIP	SA
2203-006423	R402	C-CER,CHIP	SA
2203-006423	R403	C-CER,CHIP	SA
2203-006423	R404	C-CER,CHIP	SA
2203-006423	R405	C-CER,CHIP	SA
2203-006423	R406	C-CER,CHIP	SA
2203-006423	R407	C-CER,CHIP	SA
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2203-006423	R411	C-CER,CHIP	SA
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2203-006423	R418	C-CER,CHIP	SA
2203-006423	R419	C-CER,CHIP	SA
2203-006423	R420	C-CER,CHIP	SA
2203-006423	R421	C-CER,CHIP	SA
2203-006556	R422	C-CER,CHIP	SA
2203-006556	R423	C-CER,CHIP	SA
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2203-006562	R433	C-CER,CHIP	SA
2203-006562	R434	C-CER,CHIP	SA
2203-006562	R437	C-CER,CHIP	SA
2203-006562	R500	C-CER,CHIP	SA
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2203-006562	R503	C-CER,CHIP	SA
2203-006562	R504	C-CER,CHIP	SA
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2203-006562	R508	C-CER,CHIP	SA
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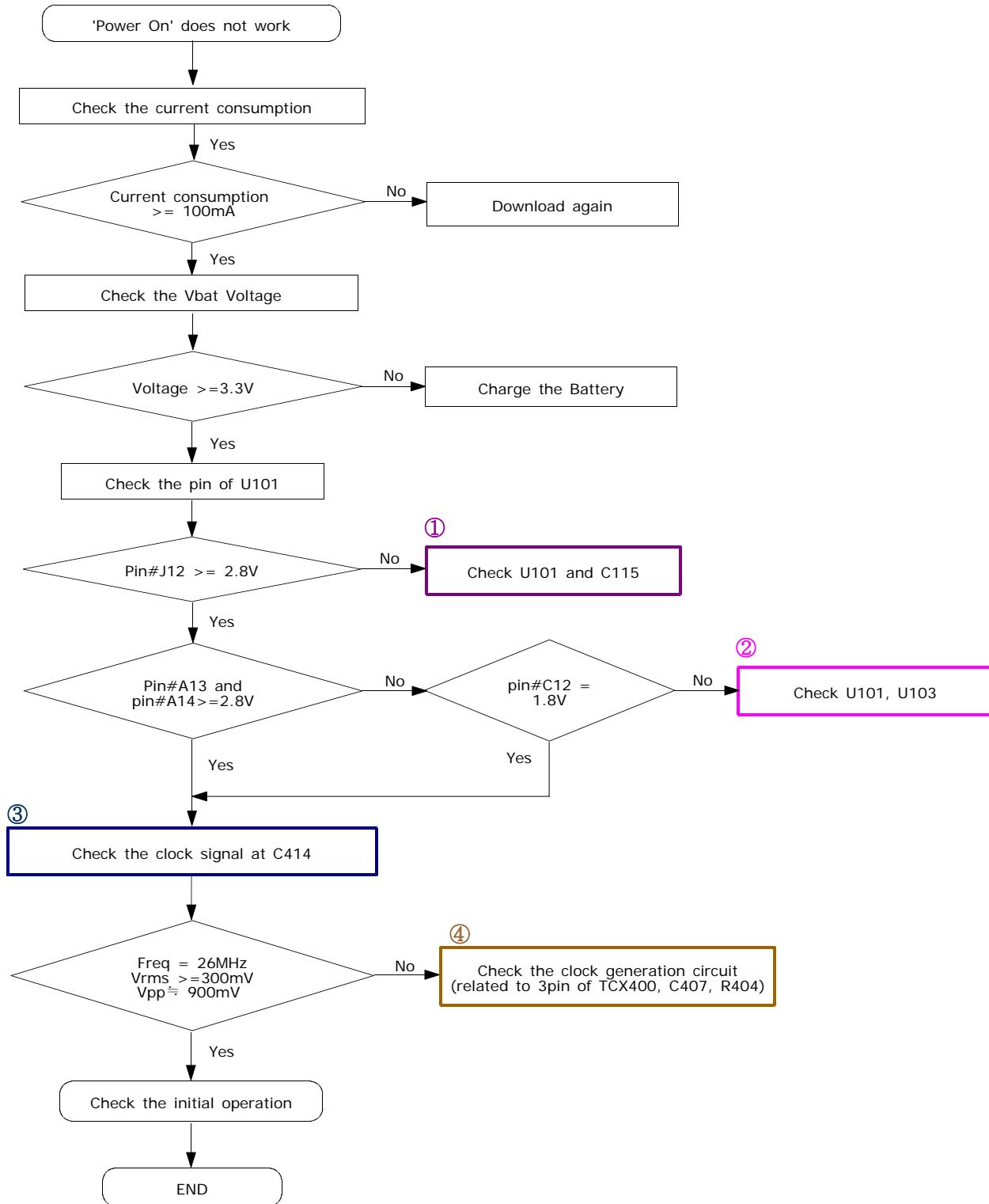
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2203-006562	R519	C-CER,CHIP	SA
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2203-006562	R521	C-CER,CHIP	SA
2203-006562	R522	C-CER,CHIP	SA
2203-006585	R523	C-CER,CHIP	SA
2203-006638	R524	C-CER,CHIP	SA
2203-006648	R525	C-CER,CHIP	SA
2203-006712	R527	C-CER,CHIP	SA
2203-006824	R529	C-CER,CHIP	SA
2203-006824	R530	C-CER,CHIP	SA
2203-006824	R531	C-CER,CHIP	SA
2203-006824	R532	C-CER,CHIP	SA
2203-006824	R533	C-CER,CHIP	SA
2203-006824	R536	C-CER,CHIP	SA
2203-006824	R537	C-CER,CHIP	SA
2203-006824	R538	C-CER,CHIP	SA
2203-006825	R539	C-CER,CHIP	SA
2203-006825	R540	C-CER,CHIP	SA
2404-001225	R541	C-TA,CHIP	SA
2404-001225	R542	C-TA,CHIP	SA
2404-001336	R543	C-TA,CHIP	SA
2404-001336	R544	C-TA,CHIP	SA
2404-001339	R546	C-TA,CHIP	SA
2404-001352	R547	C-TA,CHIP	SA
2404-001352	RFS400	C-TA,CHIP	SA
2404-001381	SIM100	C-TA,CHIP	SA
2404-001381	SW301	C-TA,CHIP	SA
2404-001381	SW302	C-TA,CHIP	SA
2404-001381	TCX400	C-TA,CHIP	SA
2404-001381	U100	C-TA,CHIP	SA
2404-001381	U102	C-TA,CHIP	SA
2404-001396	U103	C-TA,CHIP	SA
2404-001406	U107	C-TA,CHIP	SA
2404-001406	U108	C-TA,CHIP	SA
2703-001178	U202	INDUCTOR-SMD	SA

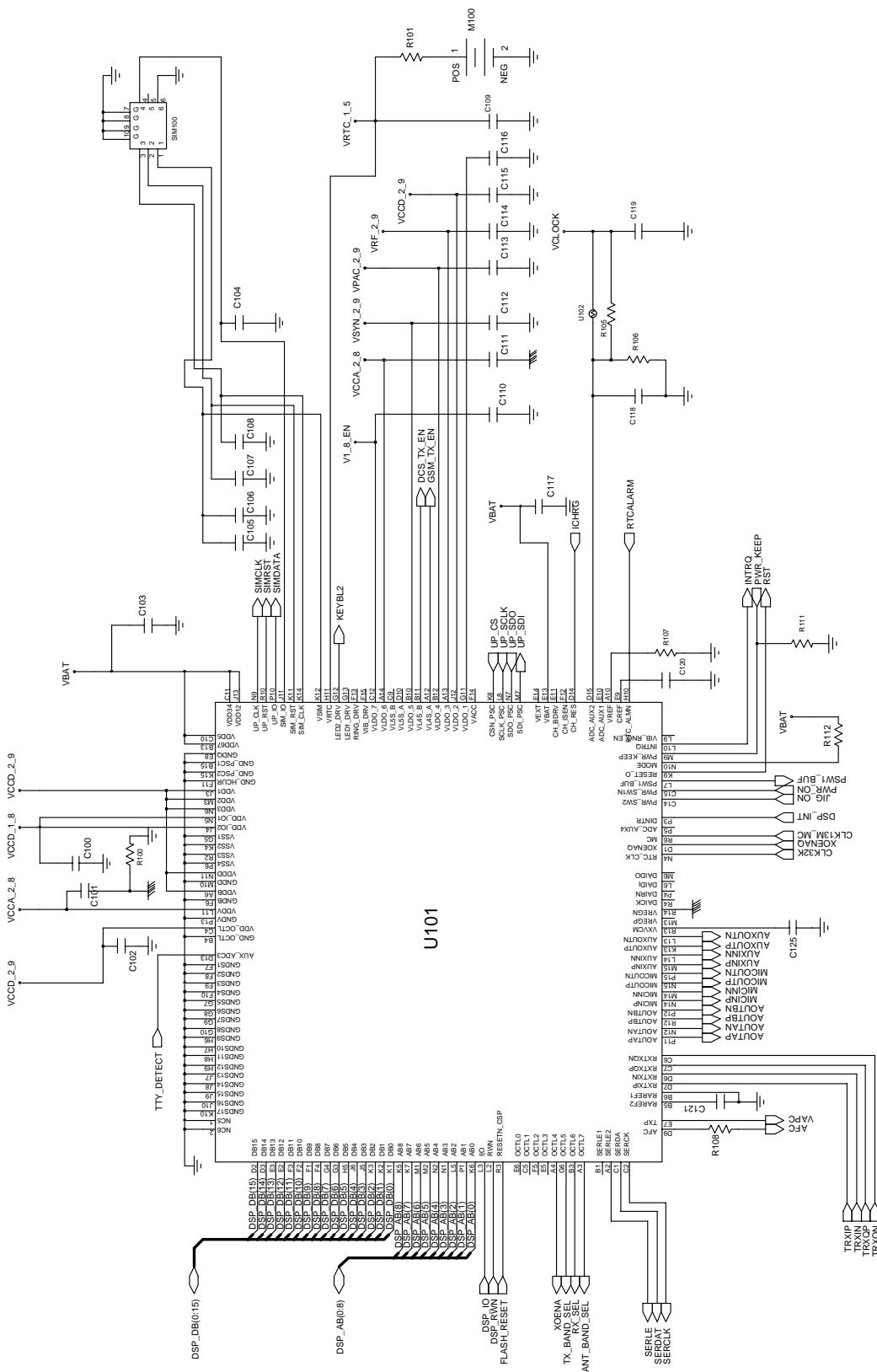
SEC CODE	Design LOC	Description	STATUS
2703-001178	U203	INDUCTOR-SMD	SA
2703-001180	U204	INDUCTOR-SMD	SA
2703-001737	U205	INDUCTOR-SMD	SA
2703-002203	U206	INDUCTOR-SMD	SA
2703-002205	U300	INDUCTOR-SMD	SA
2703-002206	U301	INDUCTOR-SMD	SA
2703-002268	U303	INDUCTOR-SMD	SA
2703-002368	U304	INDUCTOR-SMD	SA
2703-002734	U400	INDUCTOR-SMD	SA
2703-002734	U401	INDUCTOR-SMD	SA
2703-002966	U402	INDUCTOR-SMD	SA
2801-004285	U403	CRYSTAL-SMD	SA
2801-004373	U404	CRYSTAL-SMD	SA
2809-001293	U405	OSCILLATOR-VCTCXO	SA
2901-001389	U500	FILTER-EMI/ESD	SA
2901-001389	U501	FILTER-EMI/ESD	SA
2901-001389	U502	FILTER-EMI/ESD	SA
2901-001389	U504	FILTER-EMI/ESD	SA
2911-000017	UCD101	DUPLEXER-FEM	SA
3301-001158	UCD503	BEAD-SMD	SA
3301-001158	UCP201	BEAD-SMD	SA
3301-001729	UME200	BEAD-SMD	SA
3301-001729	V500	BEAD-SMD	SA
3301-001729	V501	BEAD-SMD	SA
3301-001729	V502	BEAD-SMD	SA
3301-001729	V503	BEAD-SMD	SA
3404-001152	V504	SWITCH-TACT	SA
3404-001152	V505	SWITCH-TACT	SA
3705-001358	ZD101	CONNECTOR-COAXIAL	SA
3708-002194	ZD201	CONNECTOR-FPC/FFC/PIC	SA
3709-001344	ZD202	CONNECTOR-CARD EDGE	SA
3709-001421	ZD203	CONNECTOR-CARD EDGE	SA
3710-002306	ZD204	SOCKET-INTERFACE	SA
3711-005976	ZD301	HEADER-BOARD TO BOARD	SA
3711-006220	ZD302	HEADER-BATTERY	SA
4202-001116	ZD303	ANTENNA-CHIP	SA
4302-001158	ZD304	BATTERY-LI(2ND)	SA
4709-001372	ZD305	BLUETOOTH MODULE	SA
GH09-00044A	ZD500	IC MICOM	SA
GH13-00032A	ZD501	IC ASIC	SA
GH71-05646A	ZD502	NPR-ANTENNA CONTACT	SA
GH71-05646A	ZD504	NPR-ANTENNA CONTACT	SA

11. Flow Chart of Troubleshooting

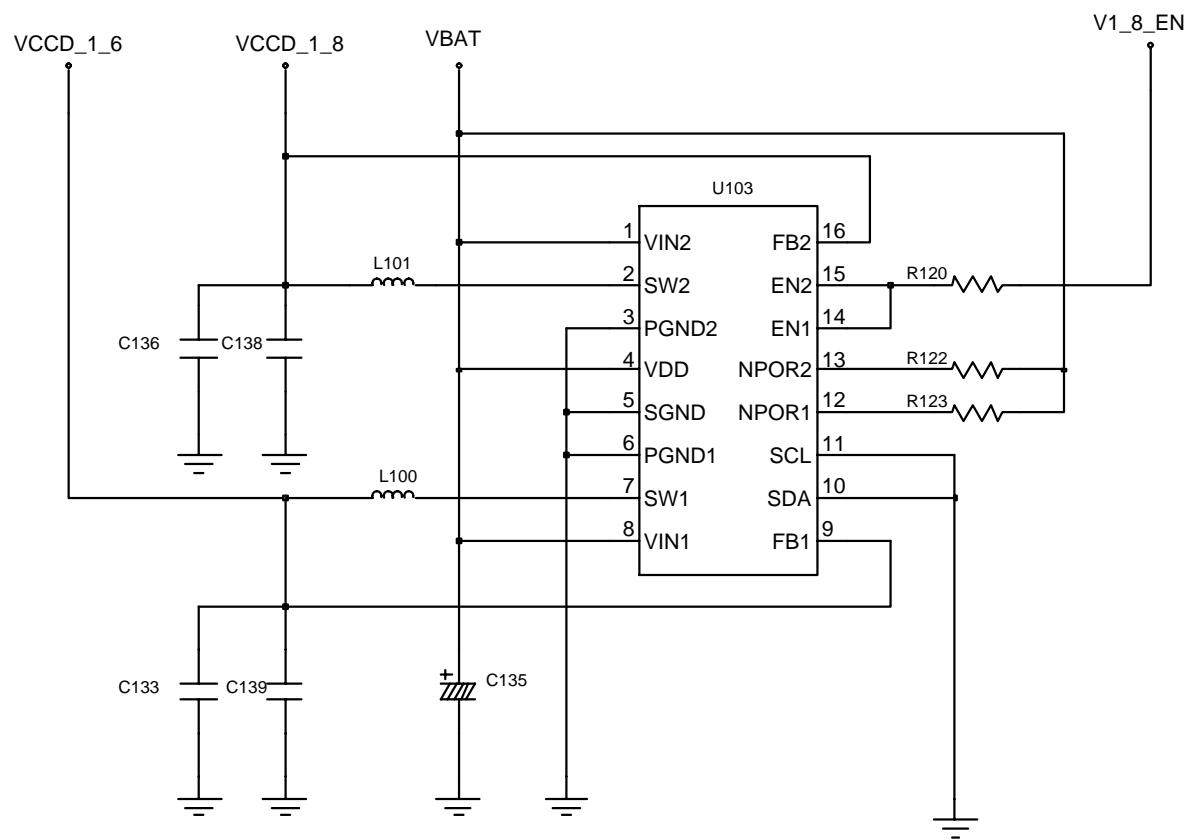
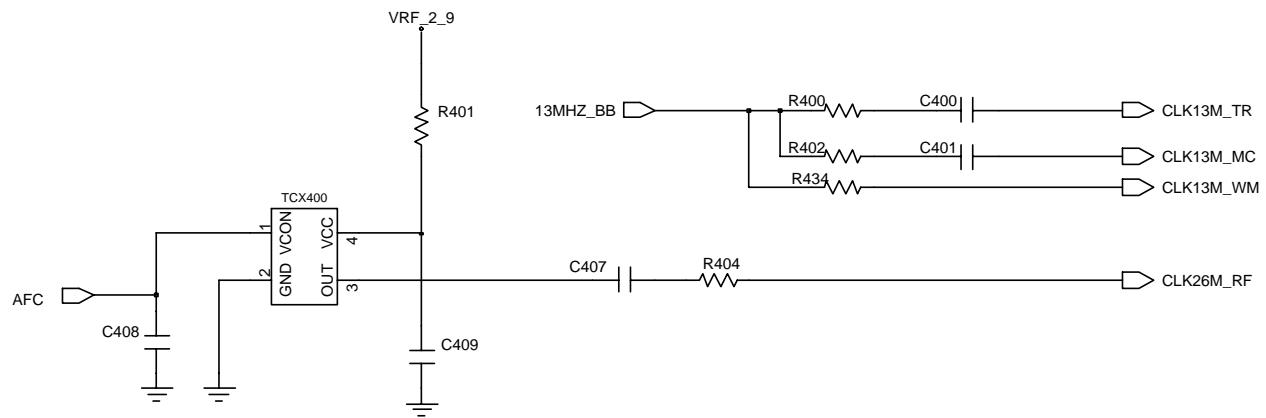
11-1. Baseband

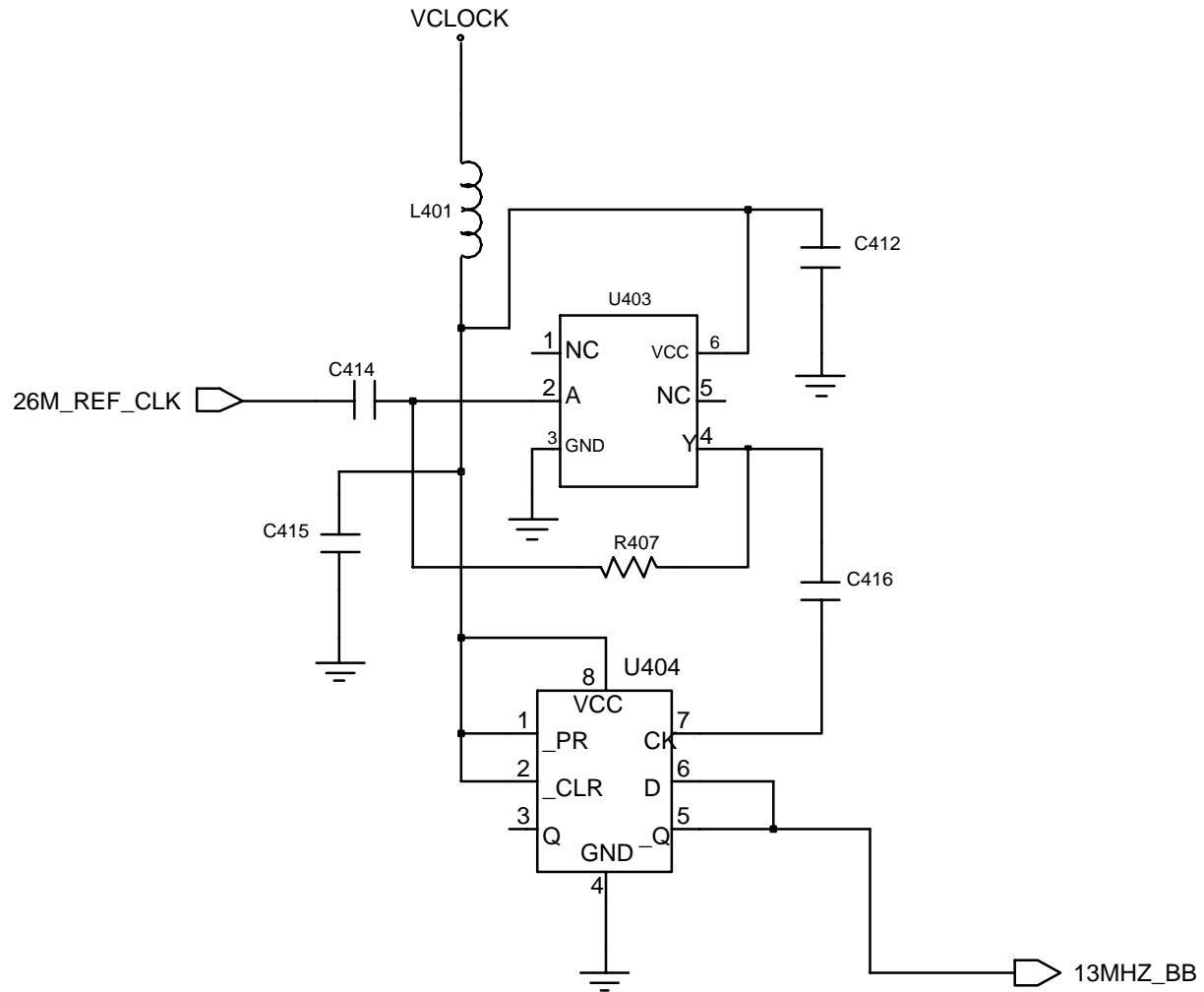
11-1-1. Power ON

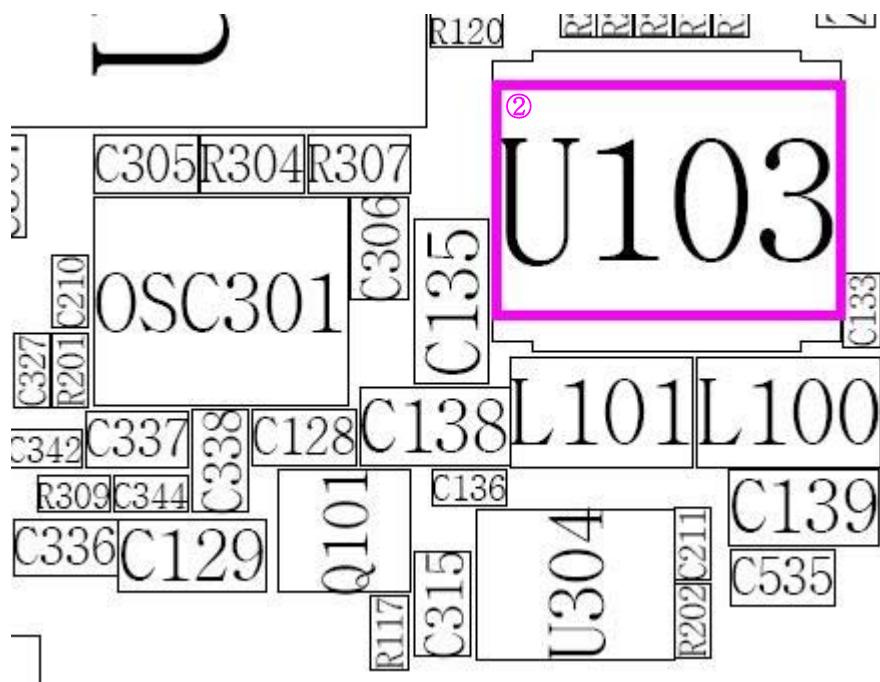
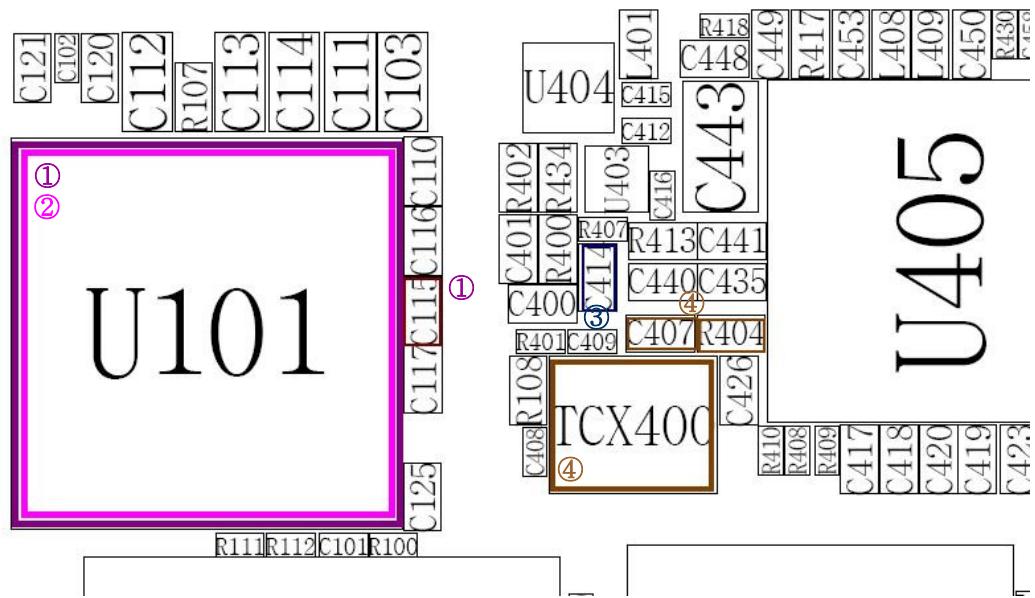




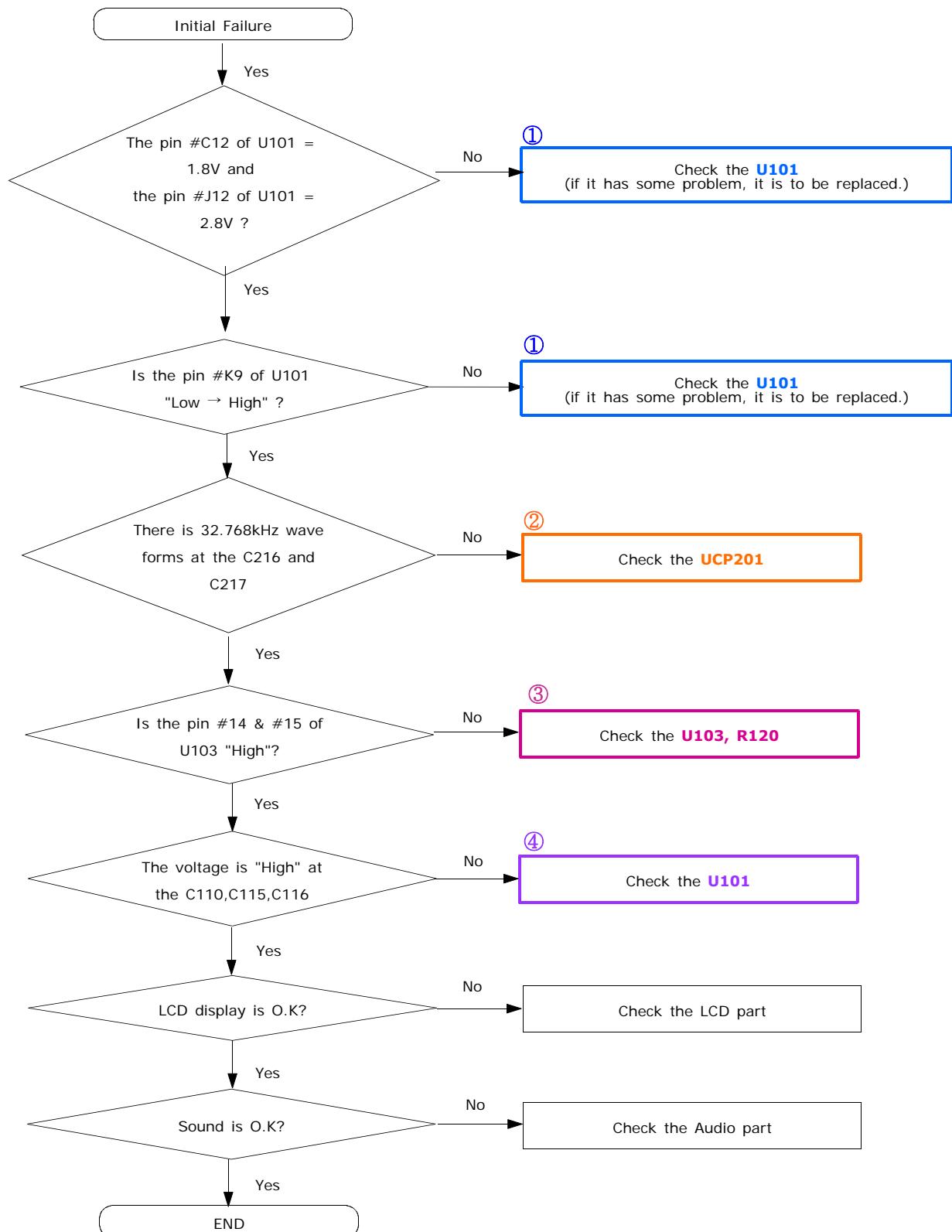
Flow Chart of Troubleshooting



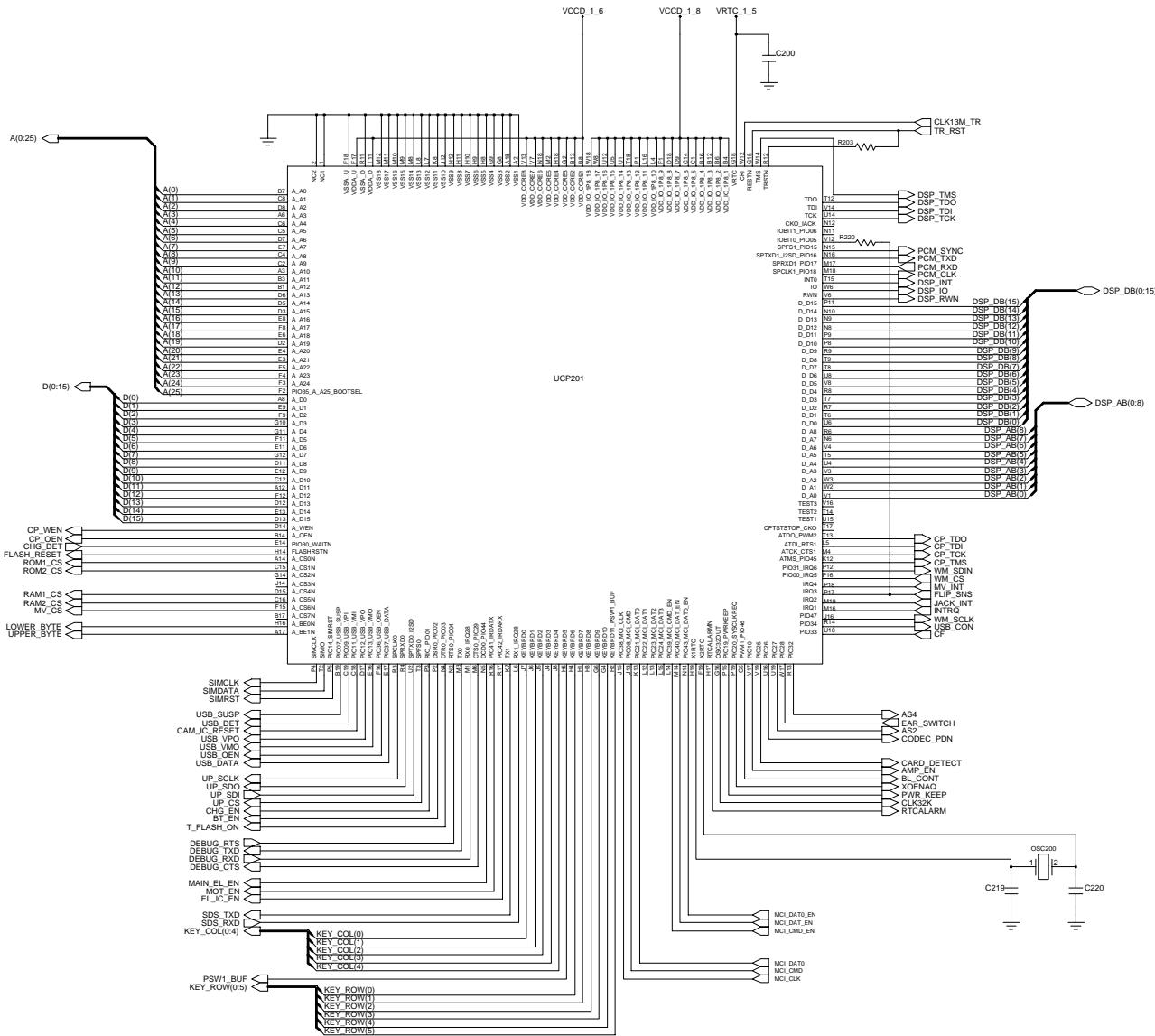


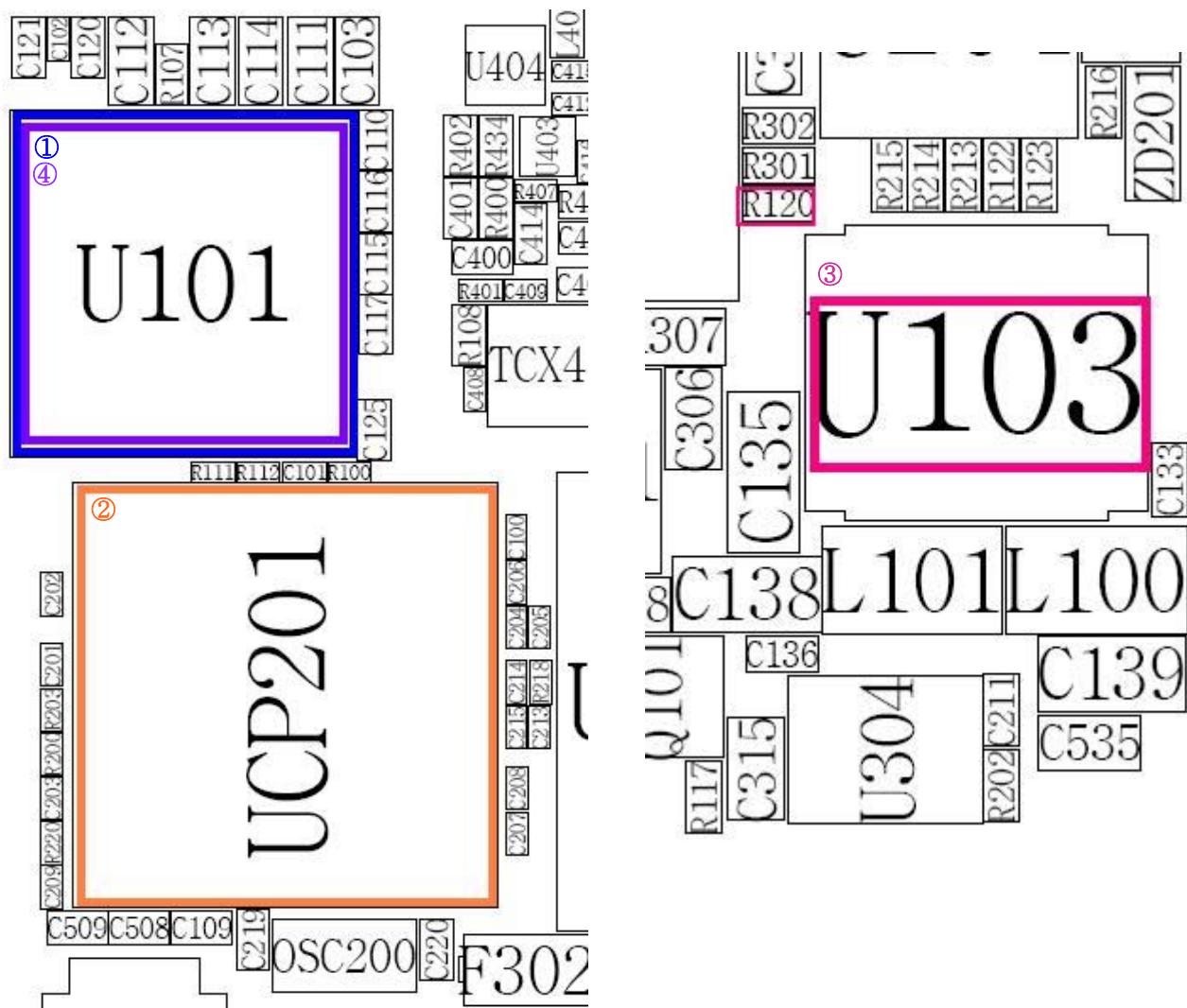


11-1-2. Initial

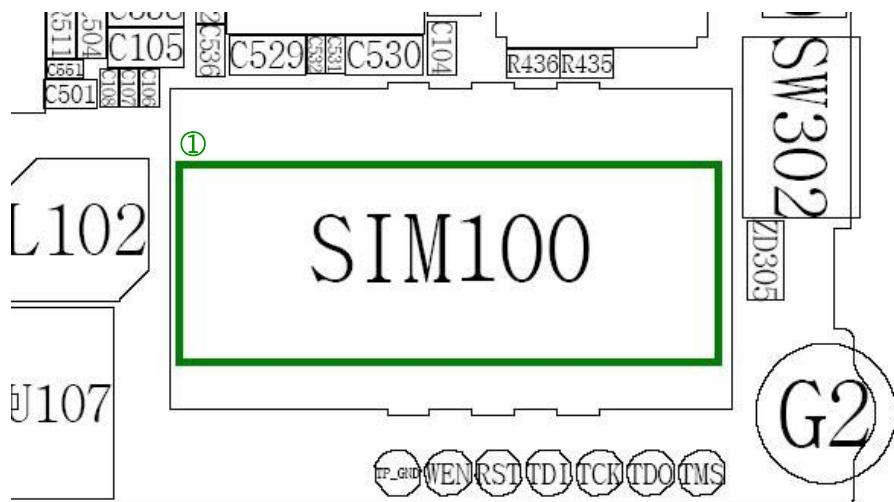
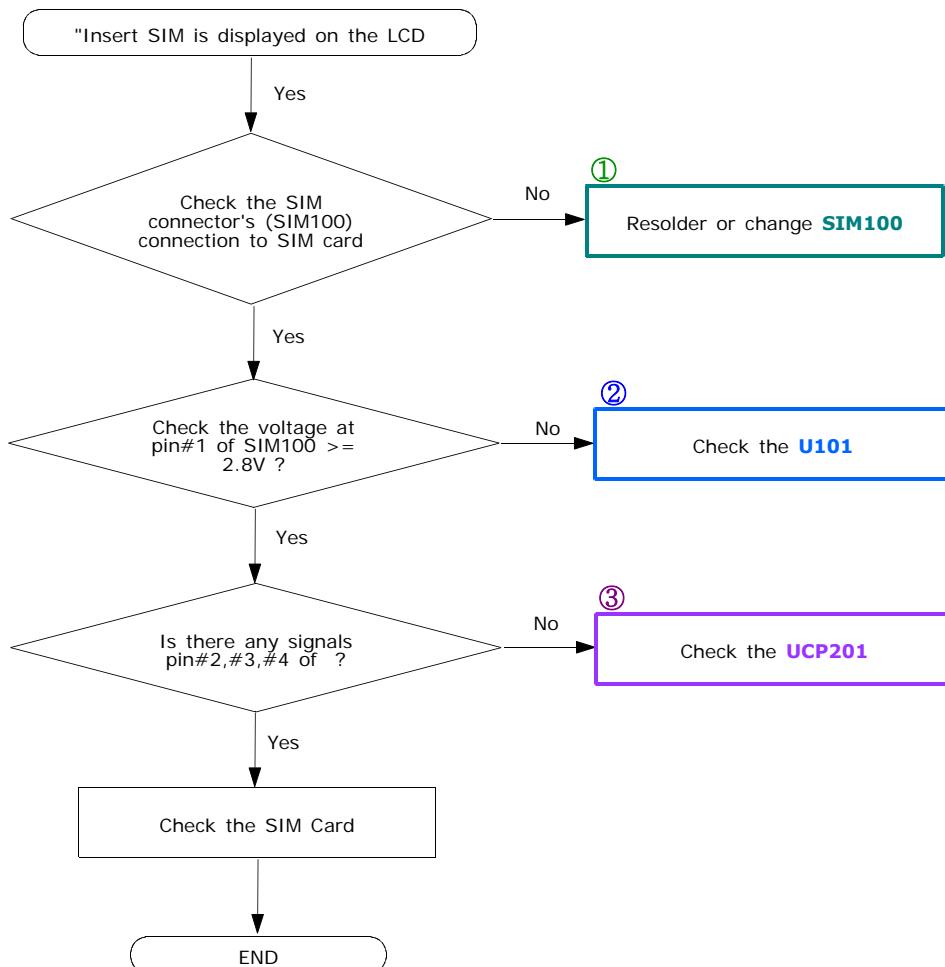


Flow Chart of Troubleshooting

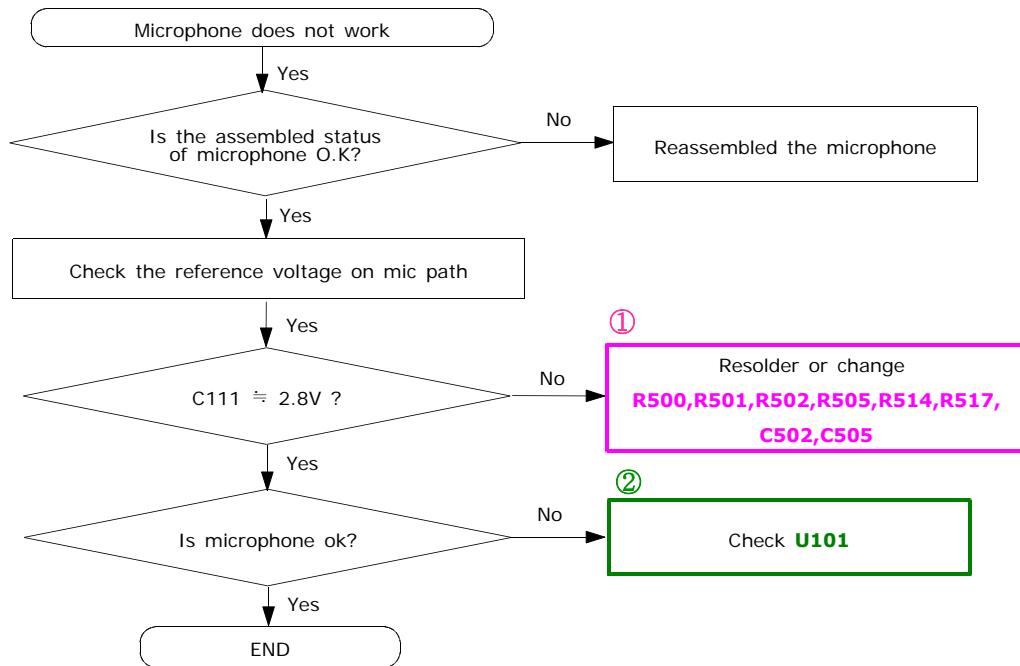


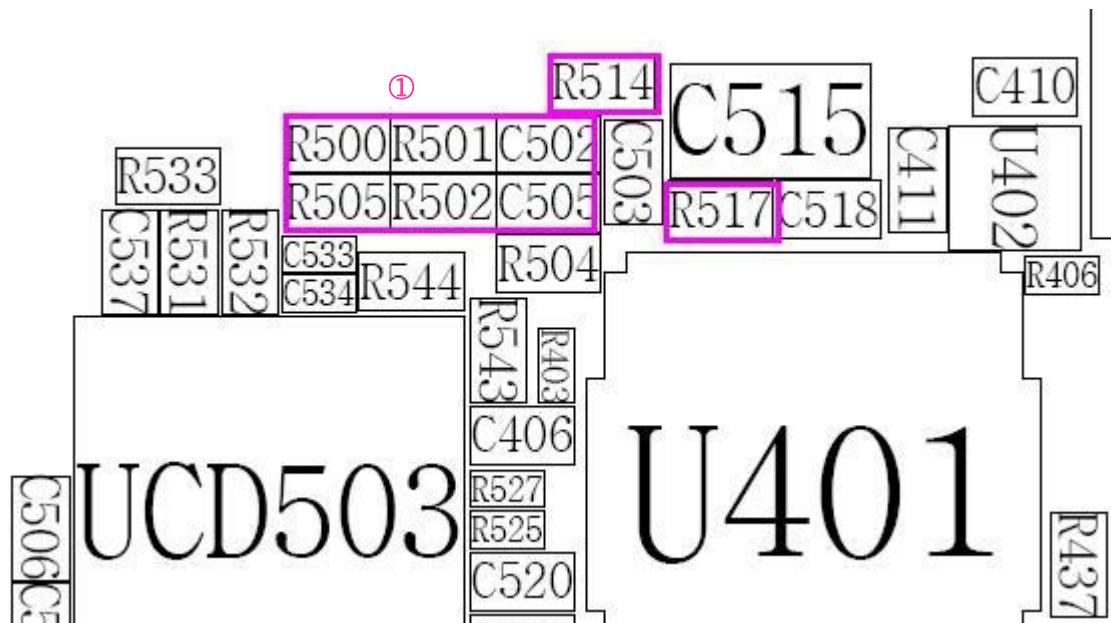
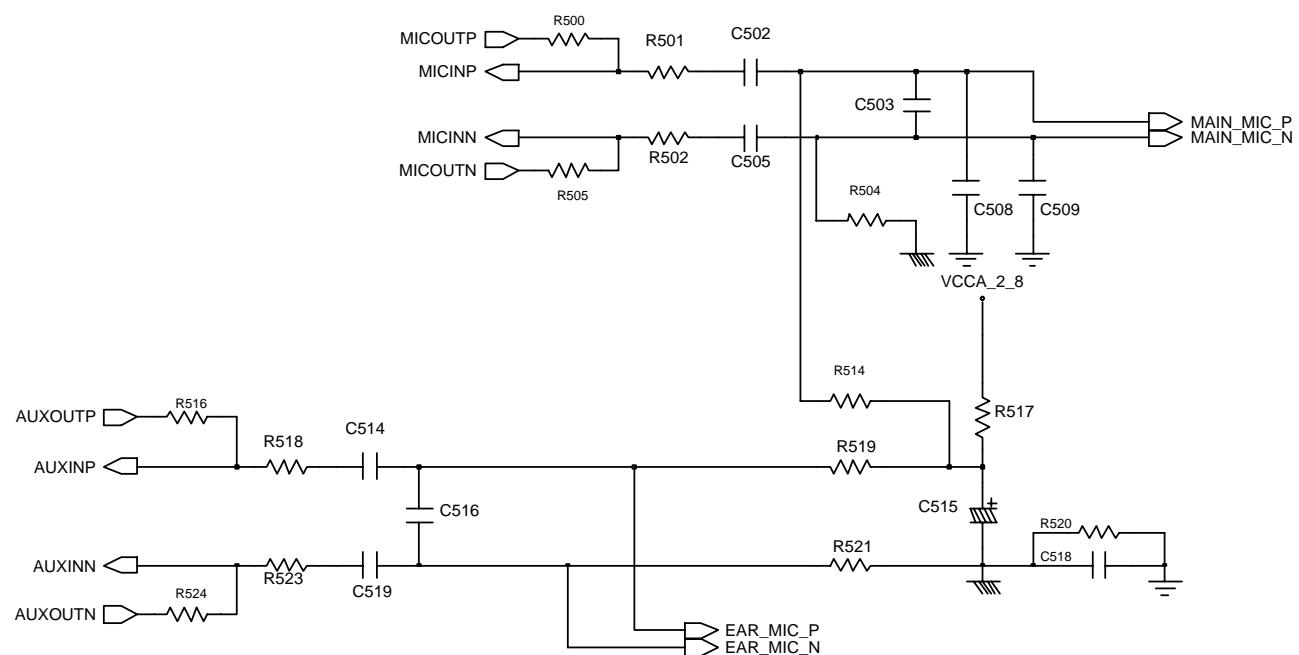


11-1-3. Sim Part

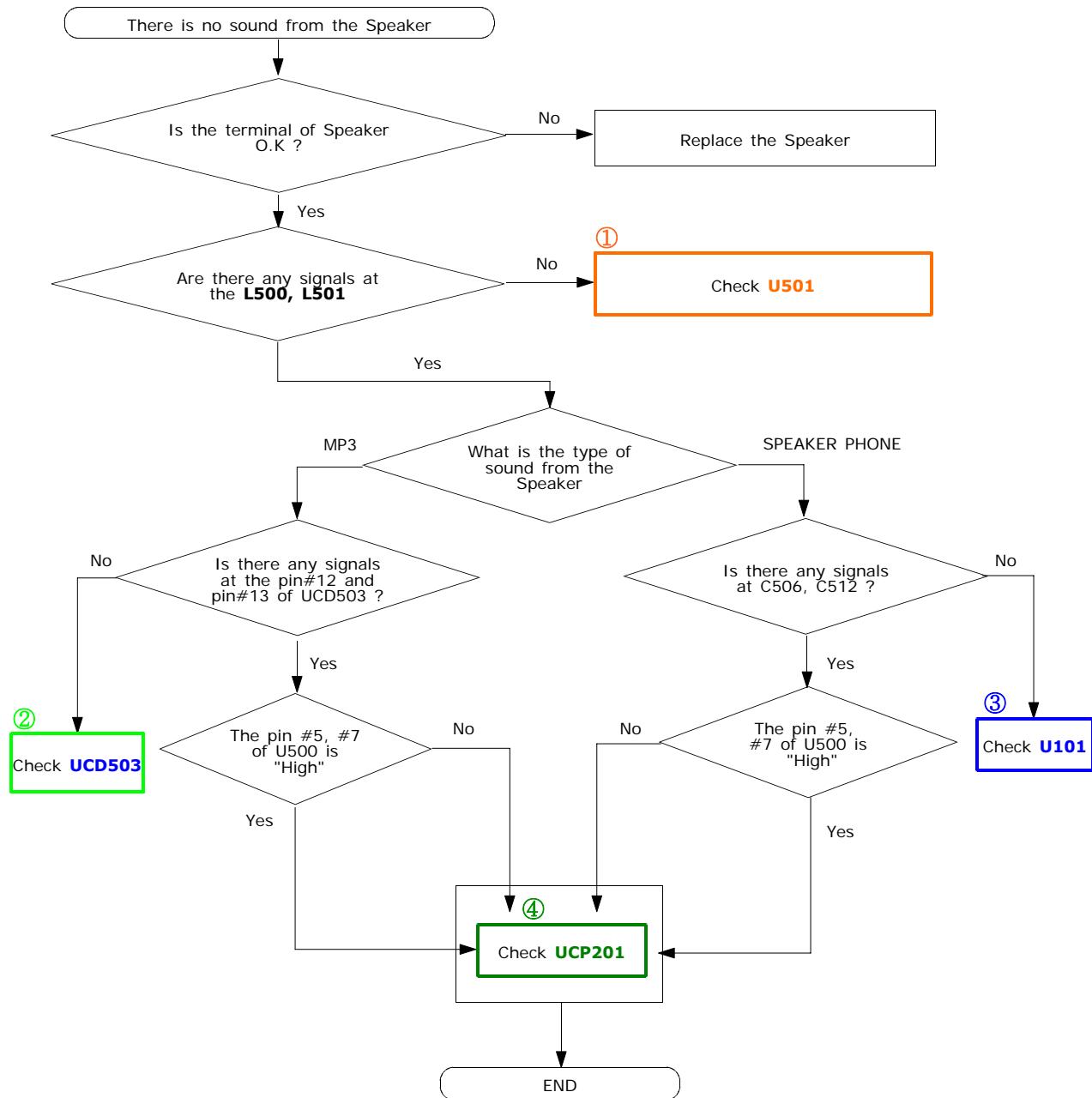


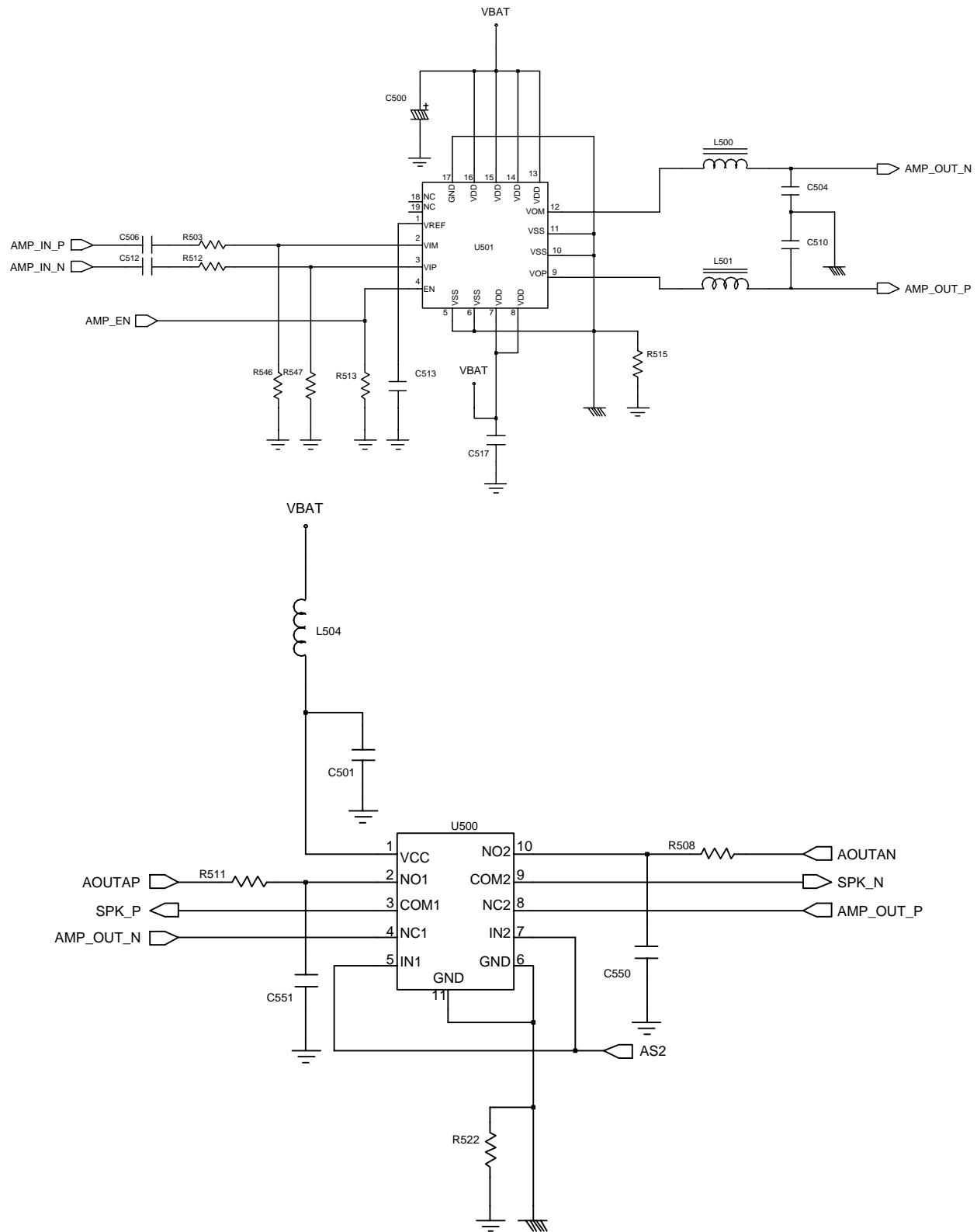
11-1-4. Microphone Part



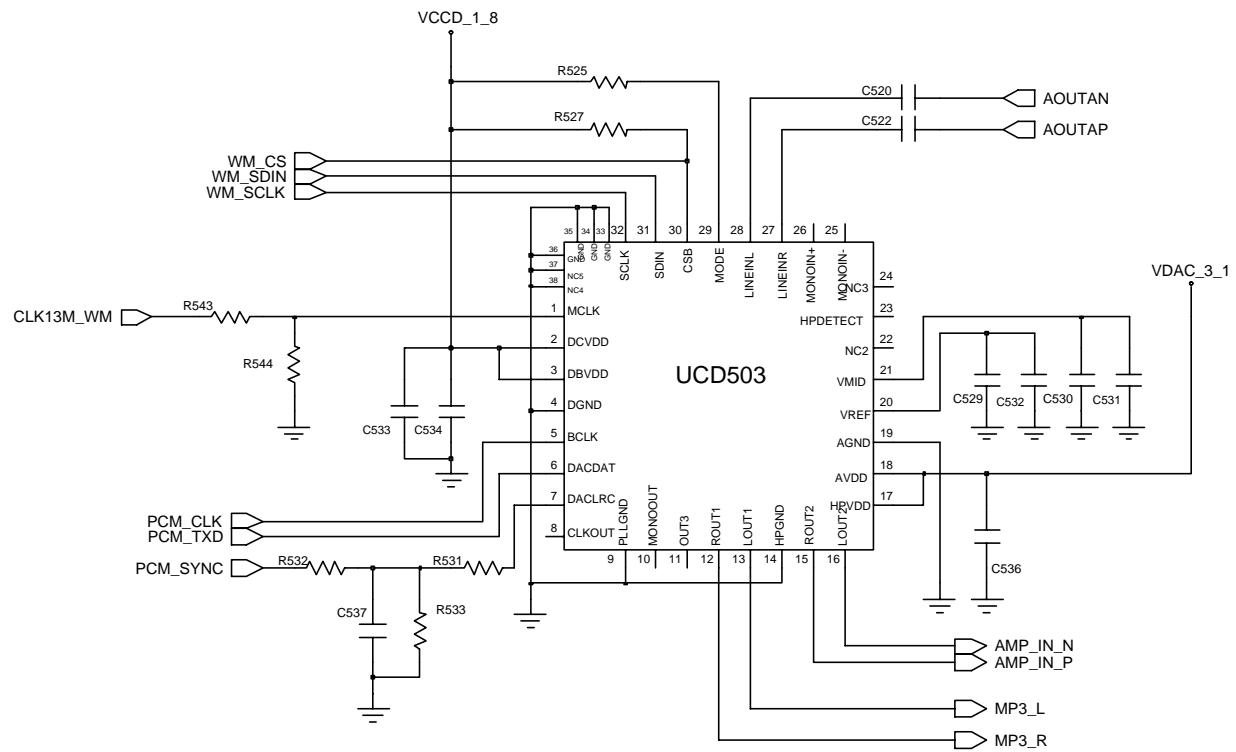


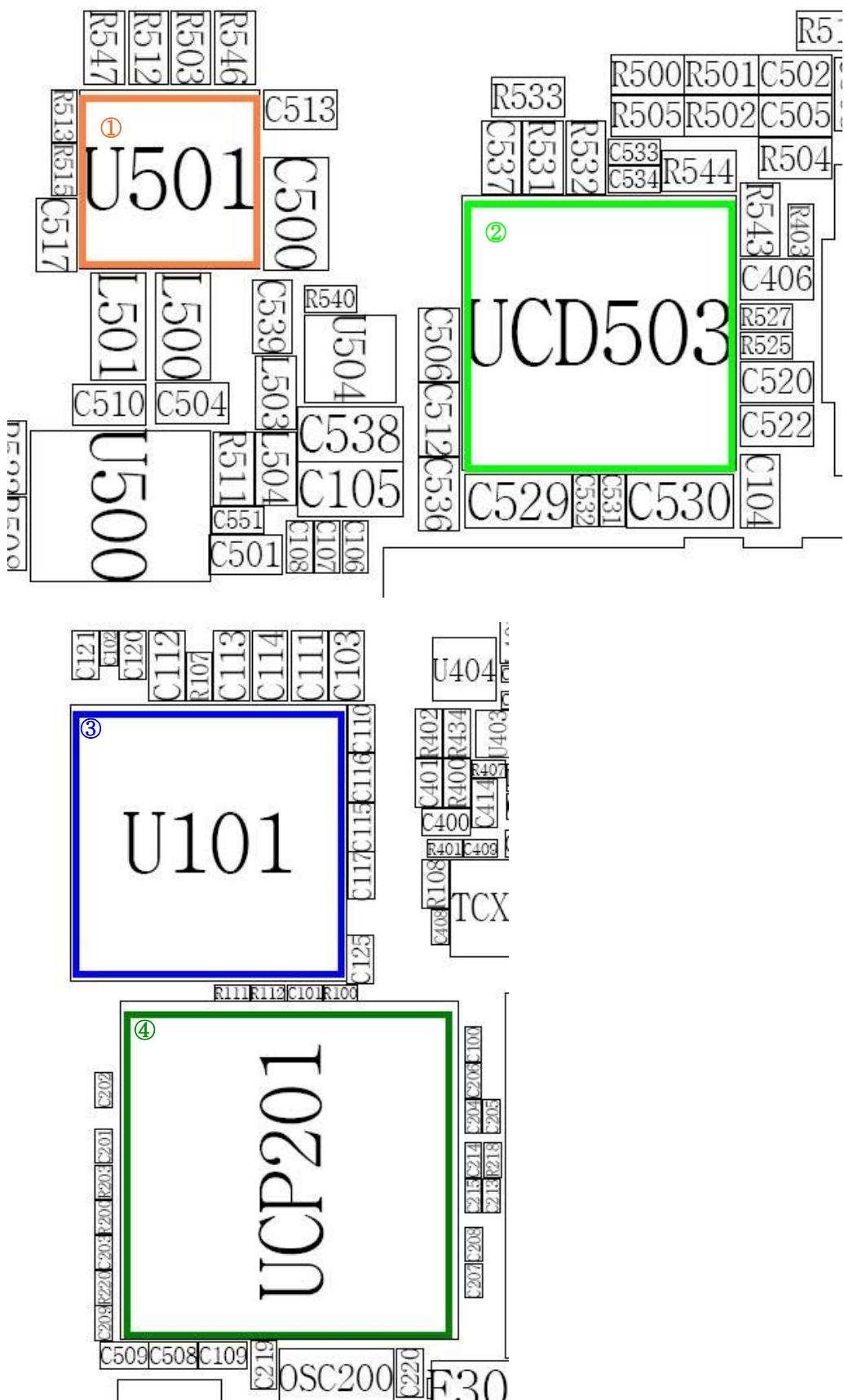
11-1-5. Speaker Part_1(MP3, SPEAKER PHONE)



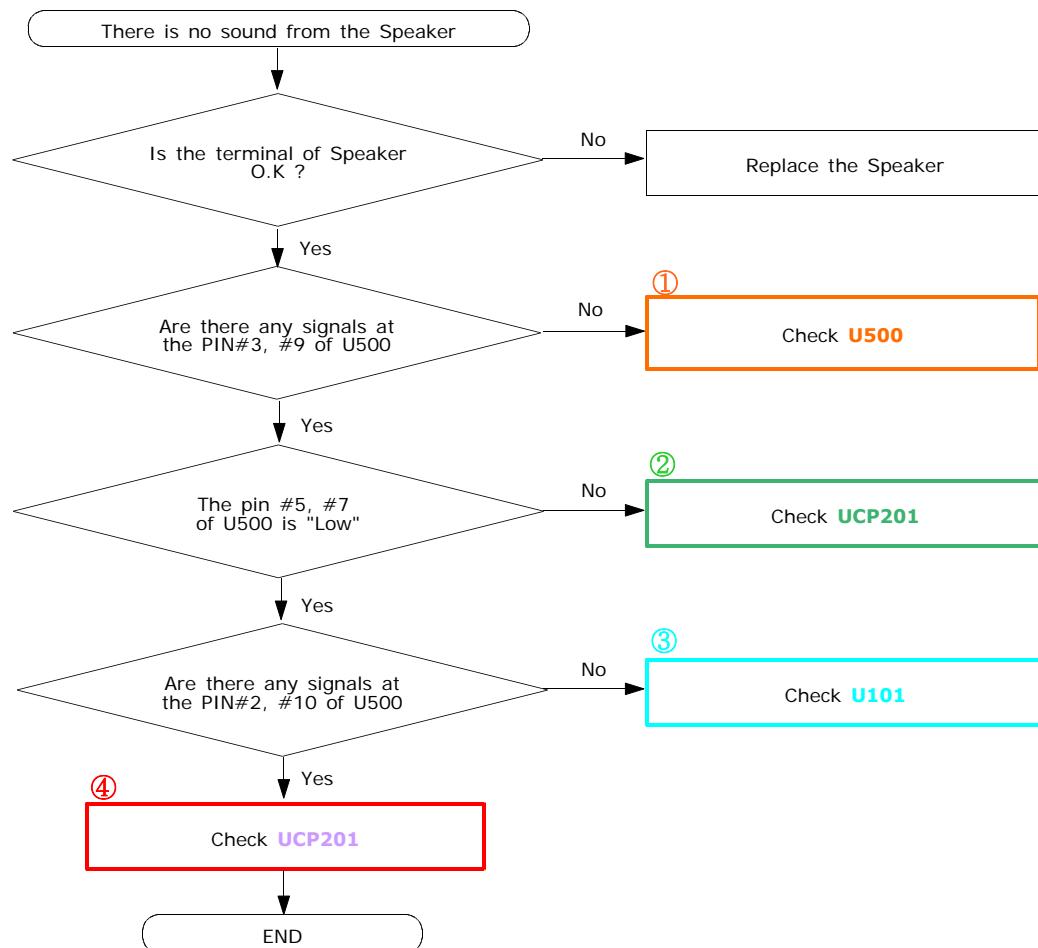


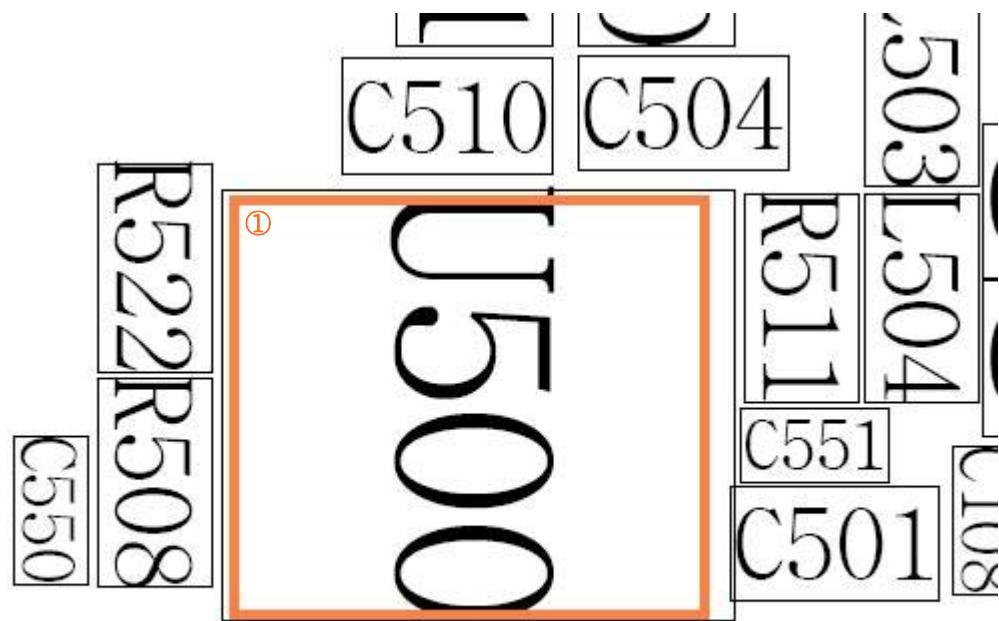
Flow Chart of Troubleshooting

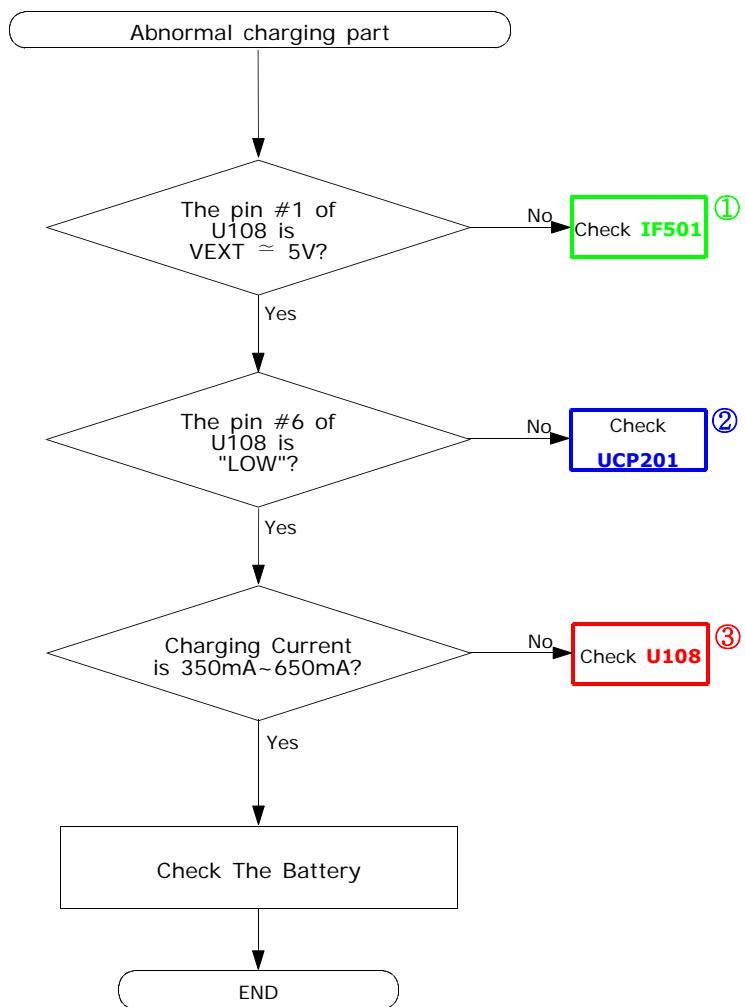


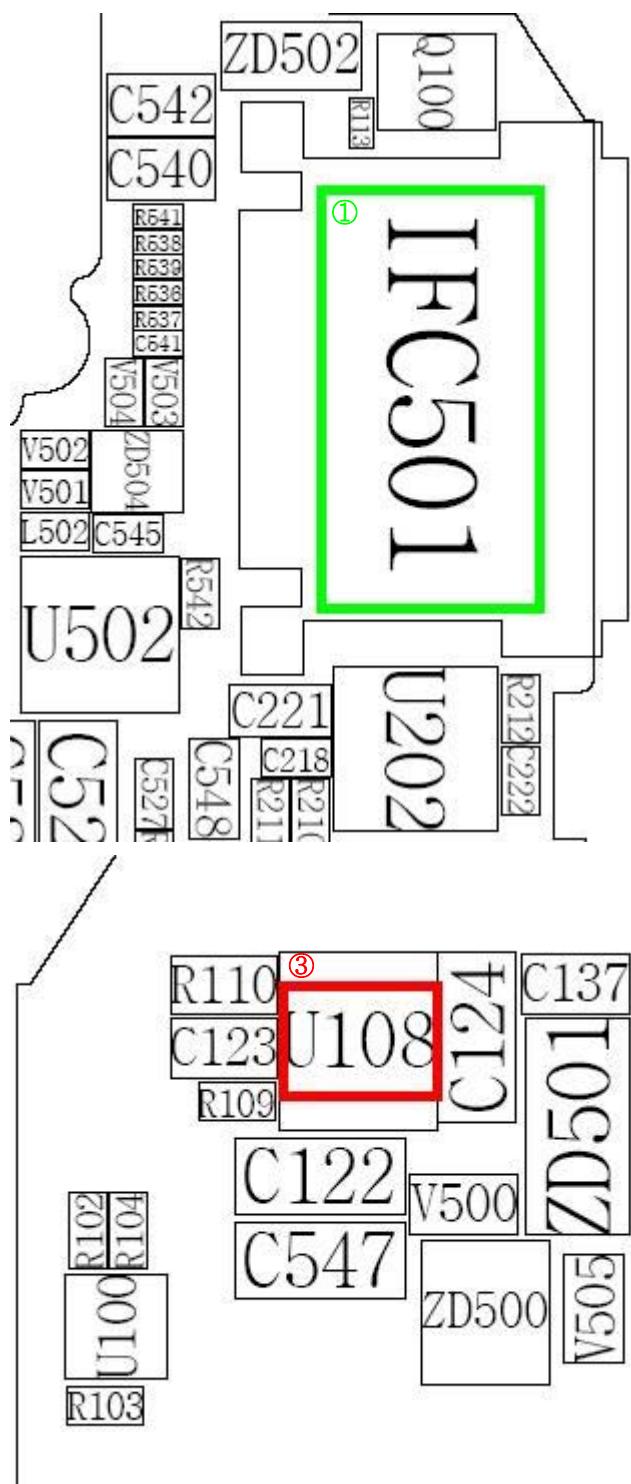


11-1-6. Speaker Part_2(RECEIVER)

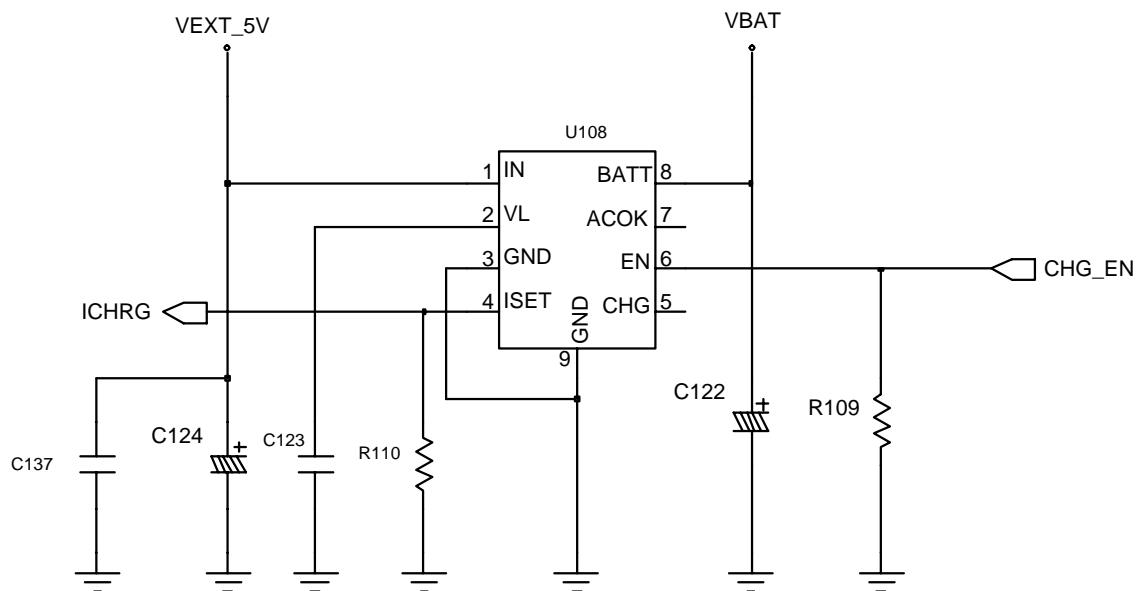
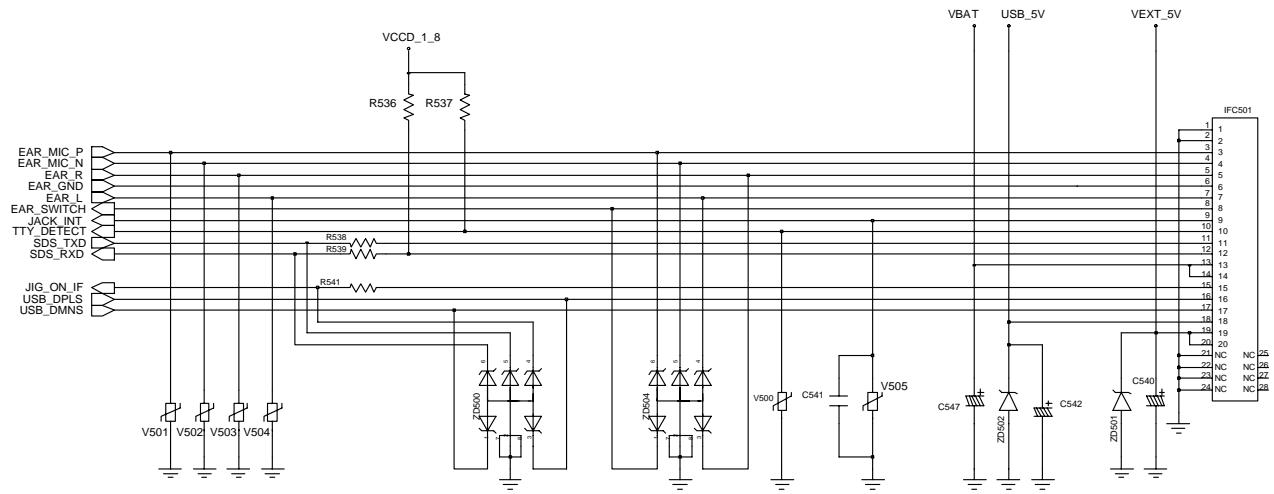


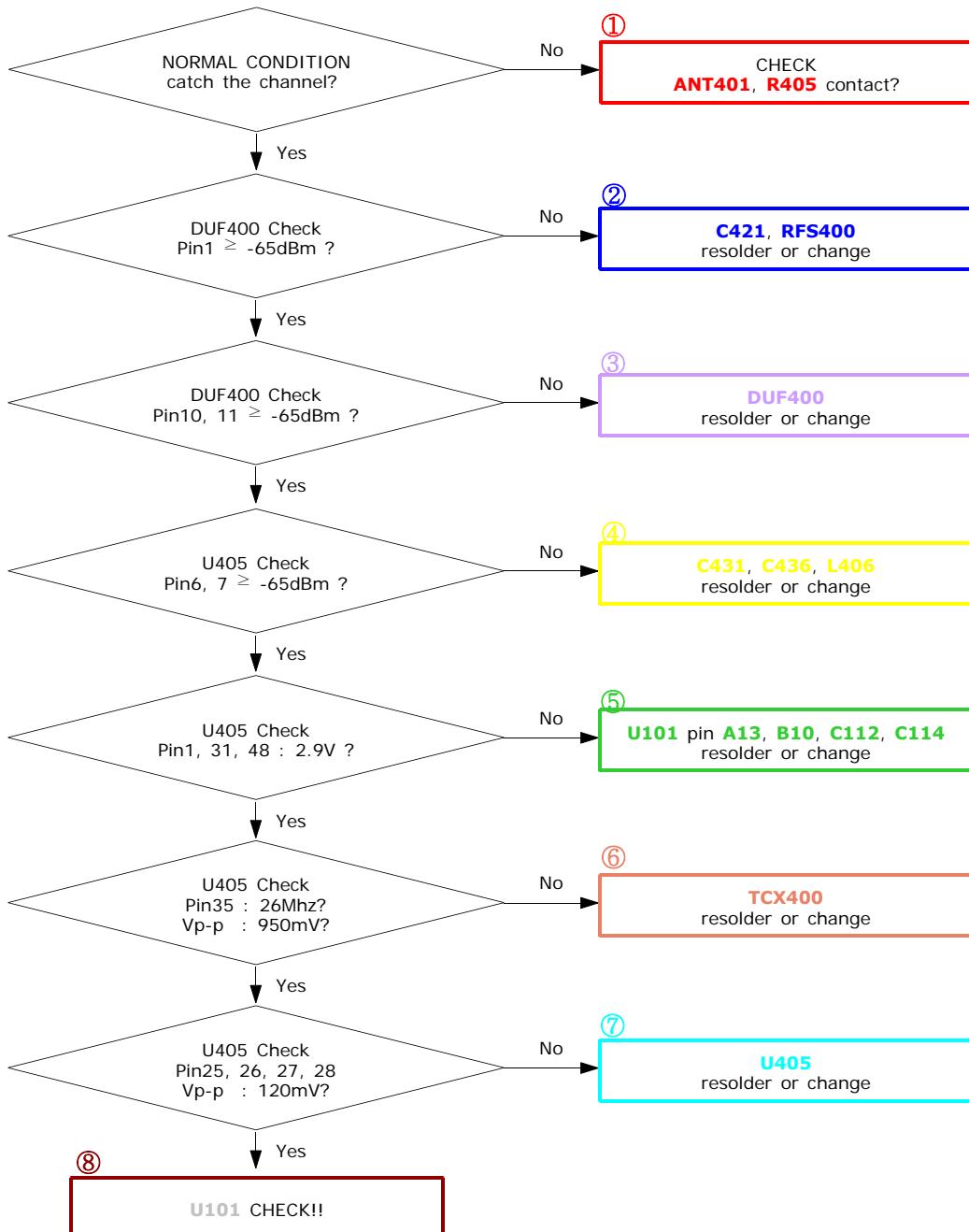


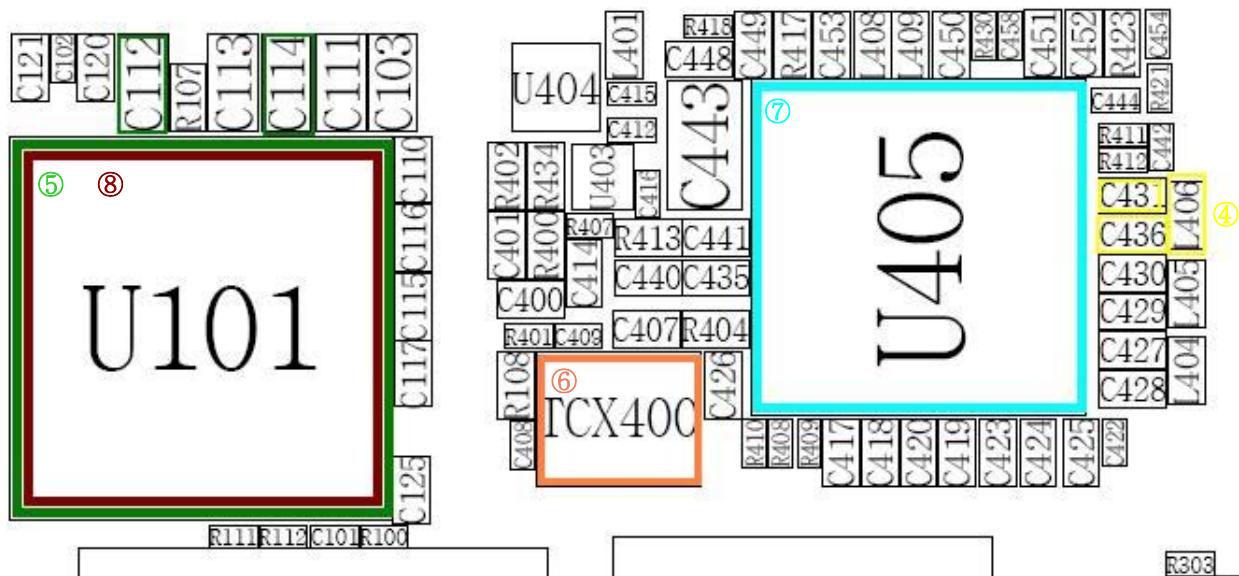
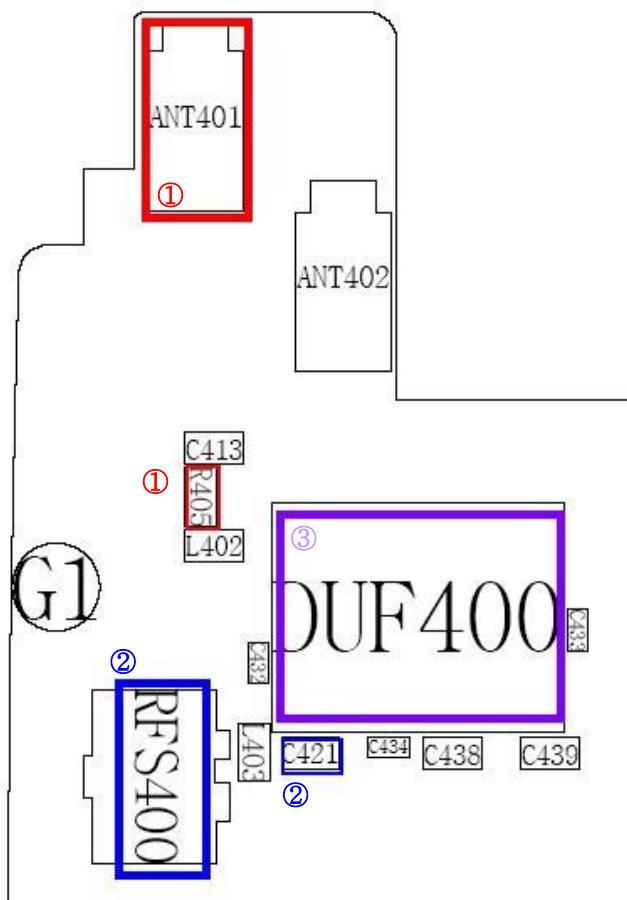
11-1-7. Charging Part

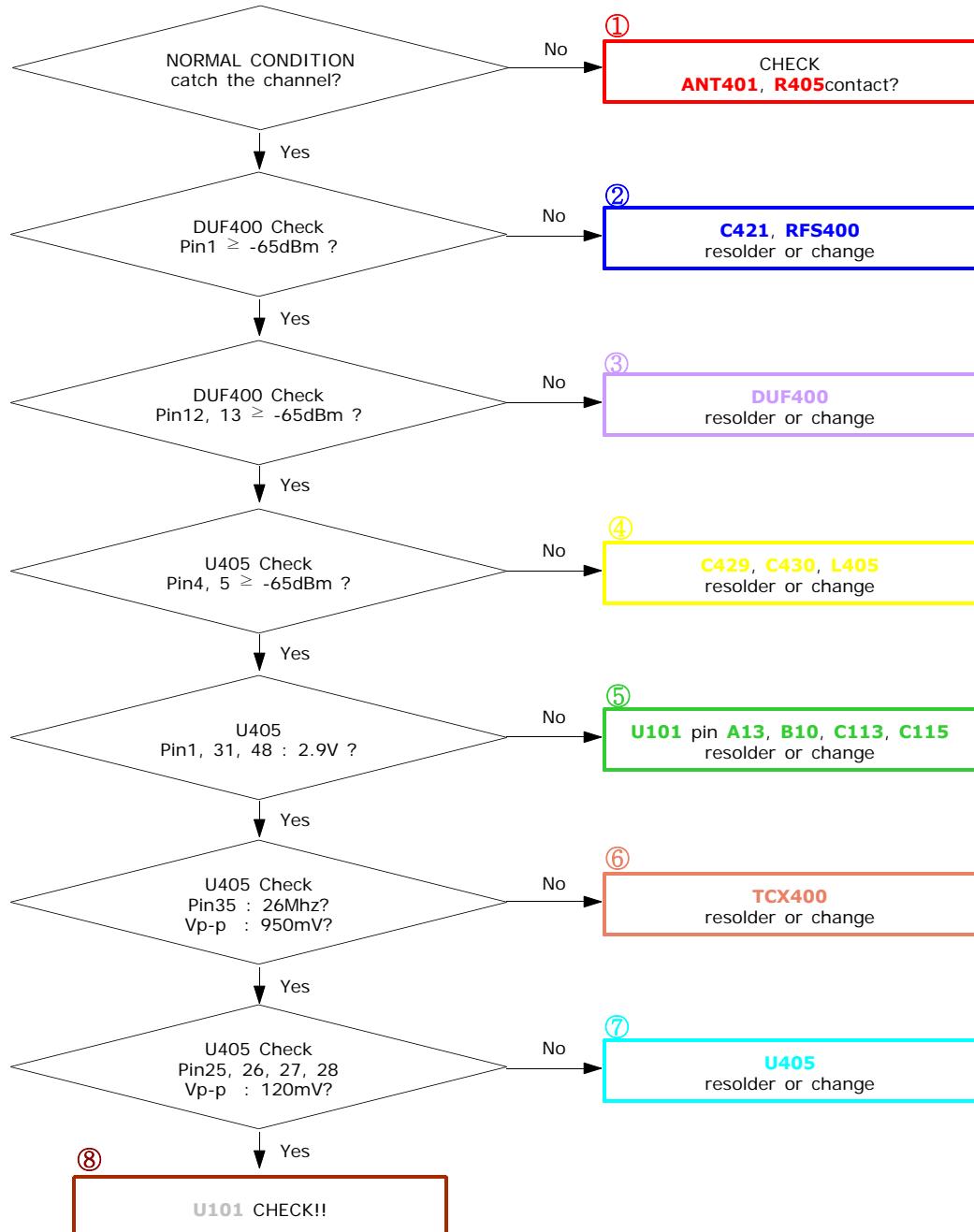


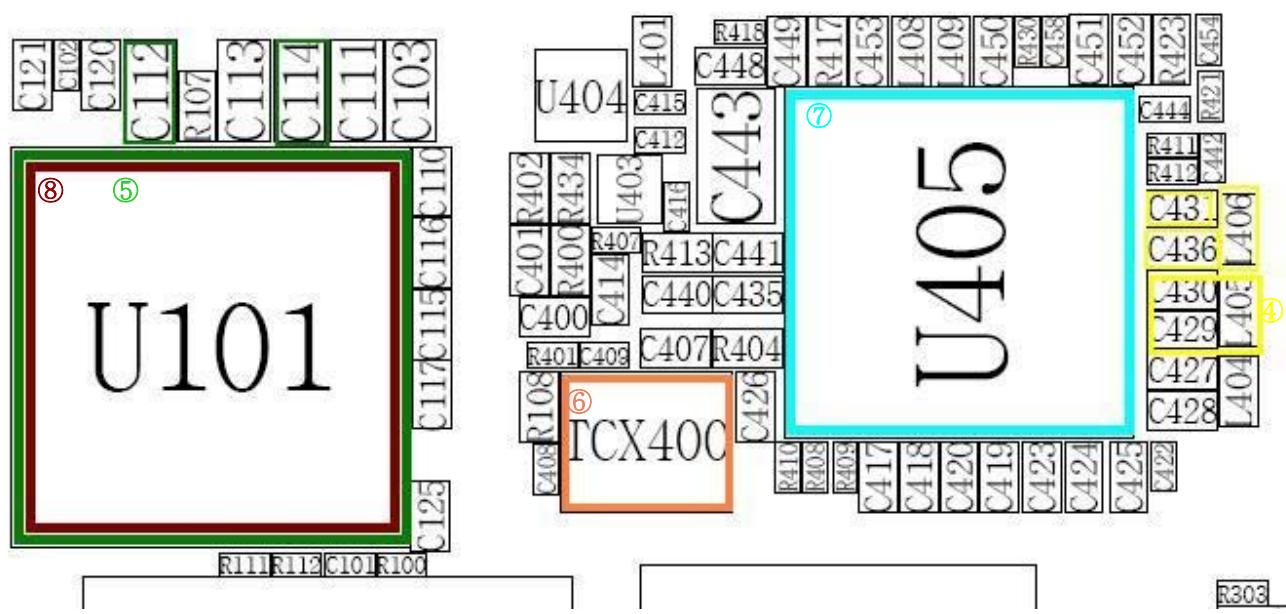
Flow Chart of Troubleshooting

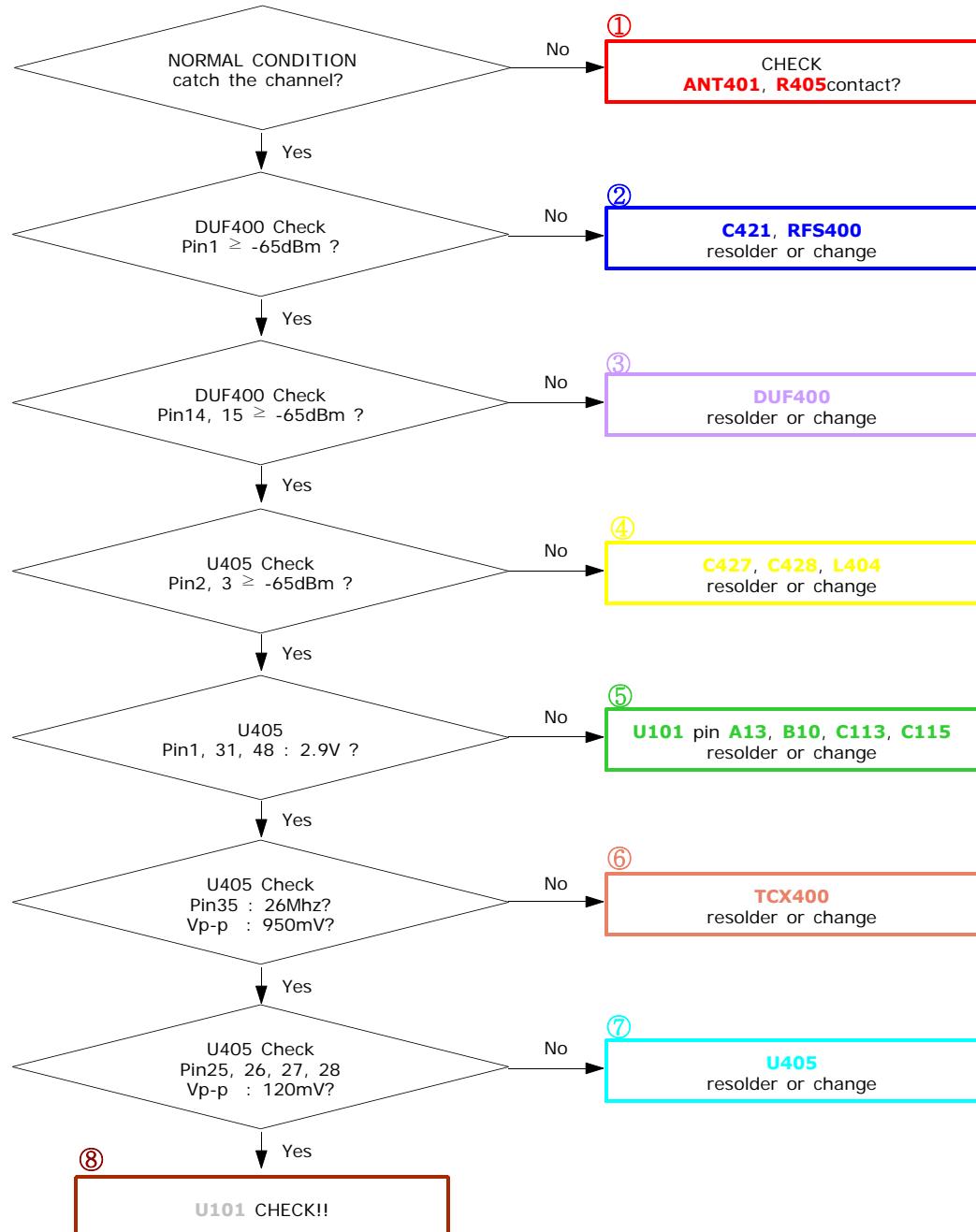


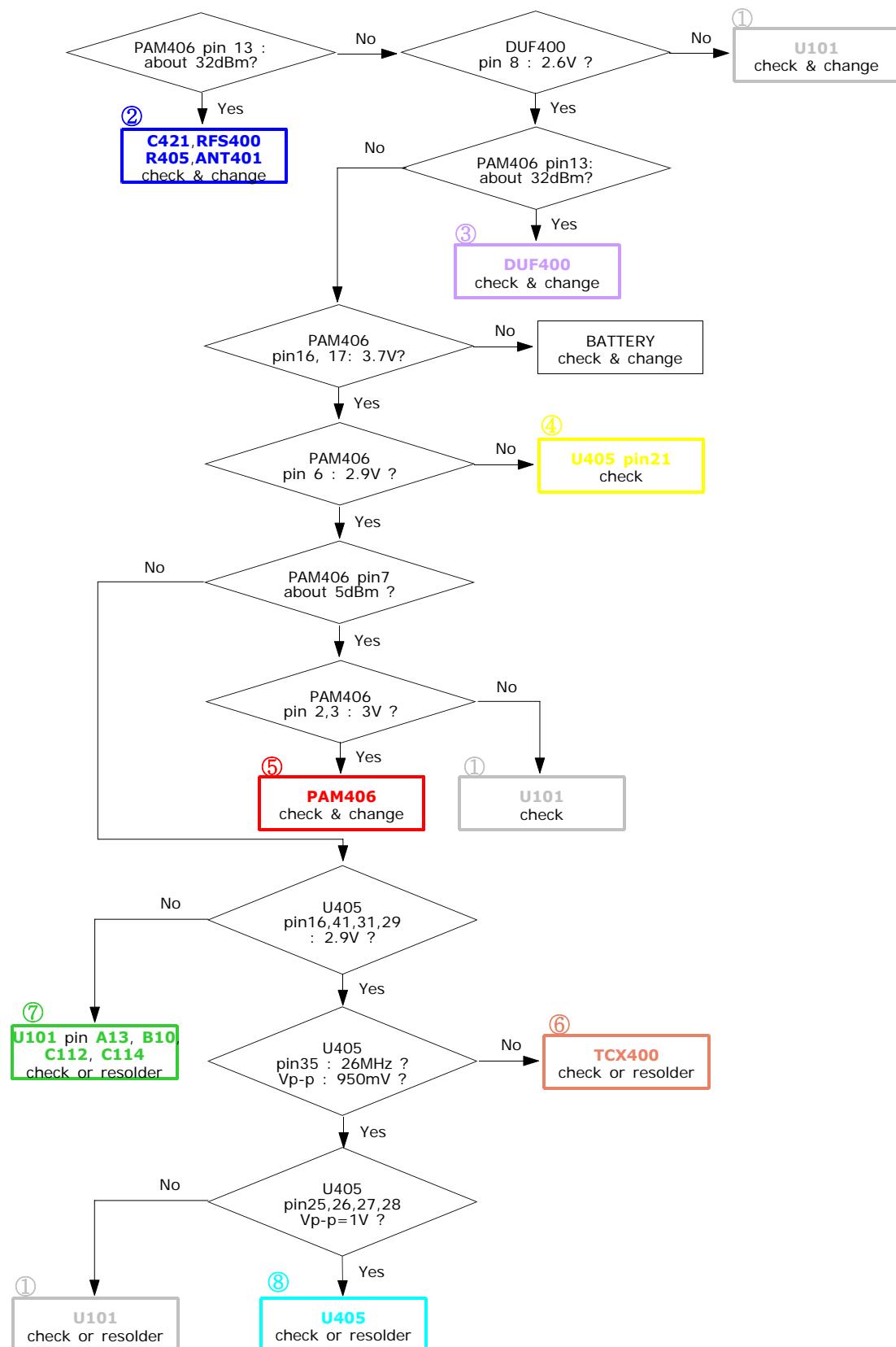
11-2. RF**11-2-1. GSM850/EGSM RX**

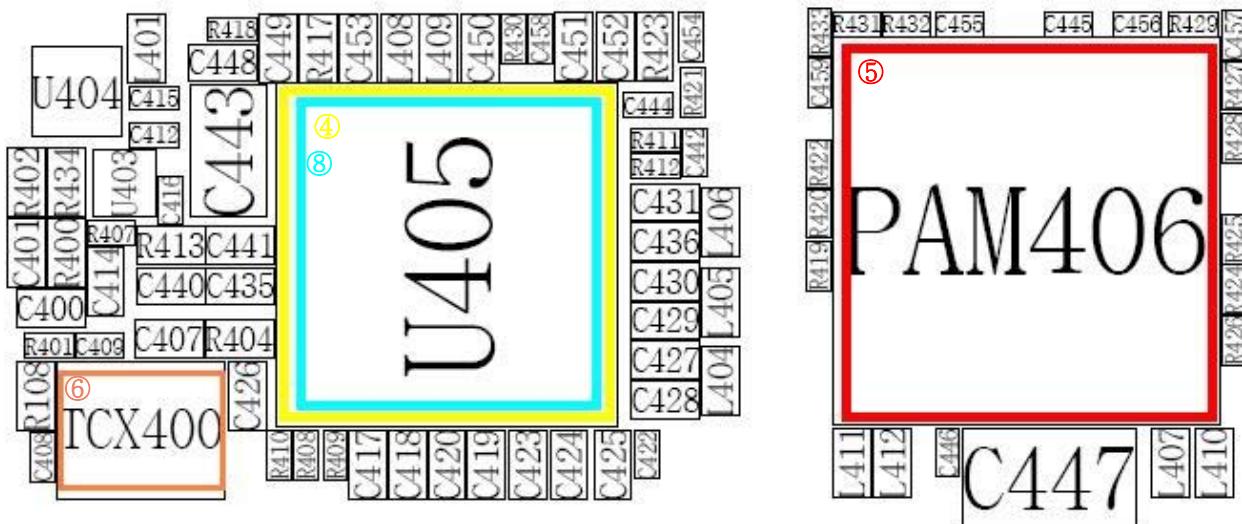


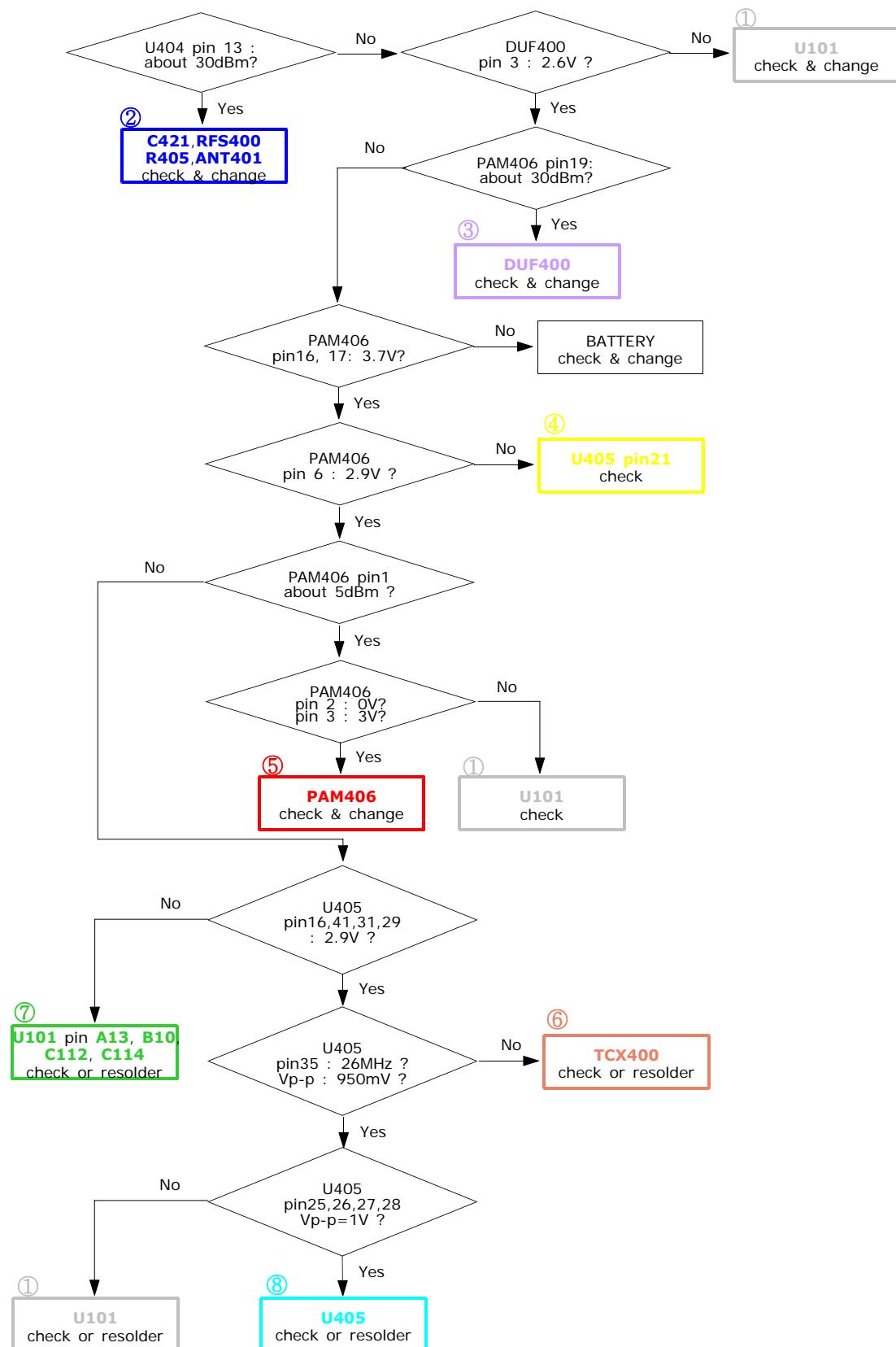
11-2-2. DCS RX



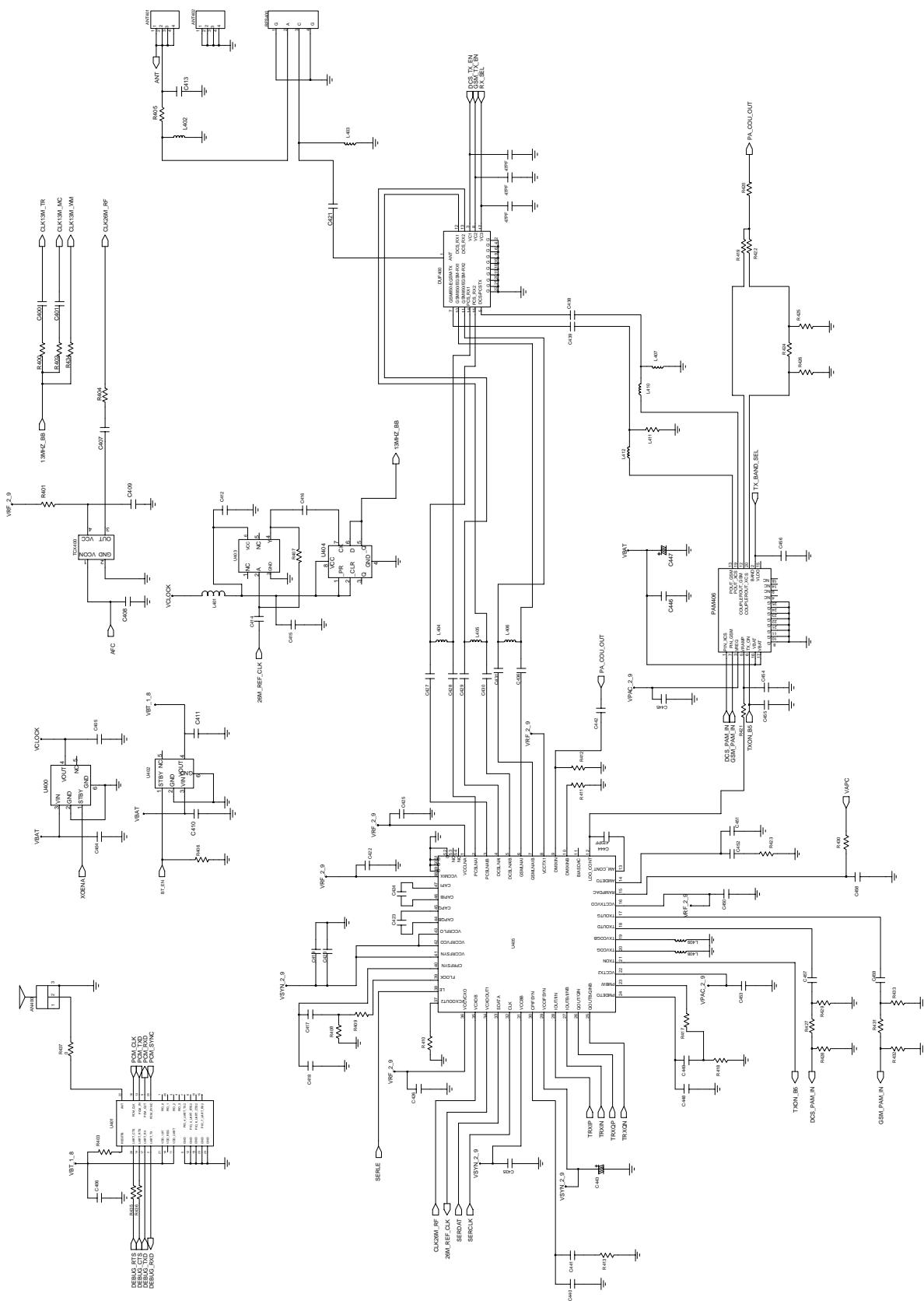
11-2-3. PCS RX

11-2-4. GSM850/EGSM TX

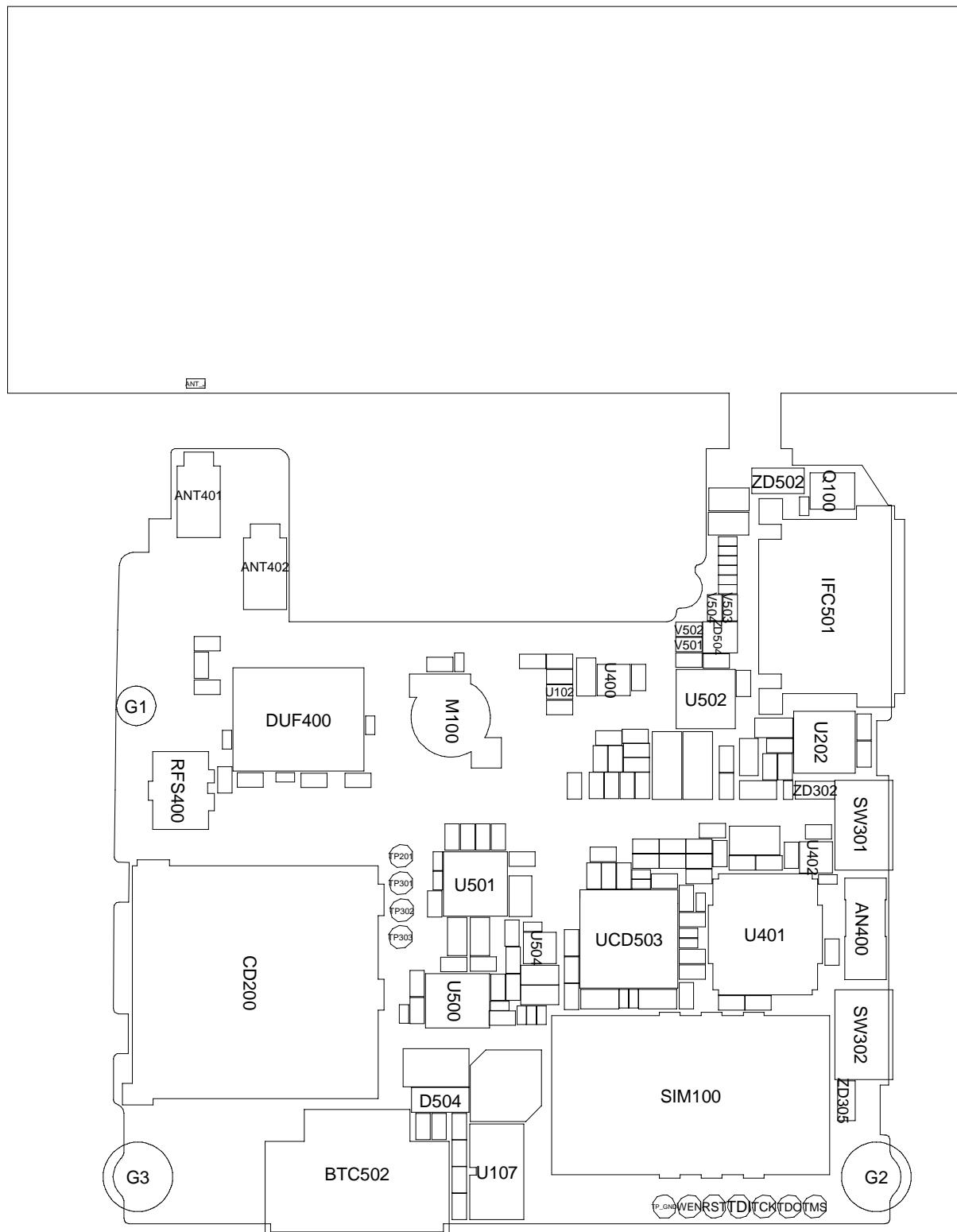


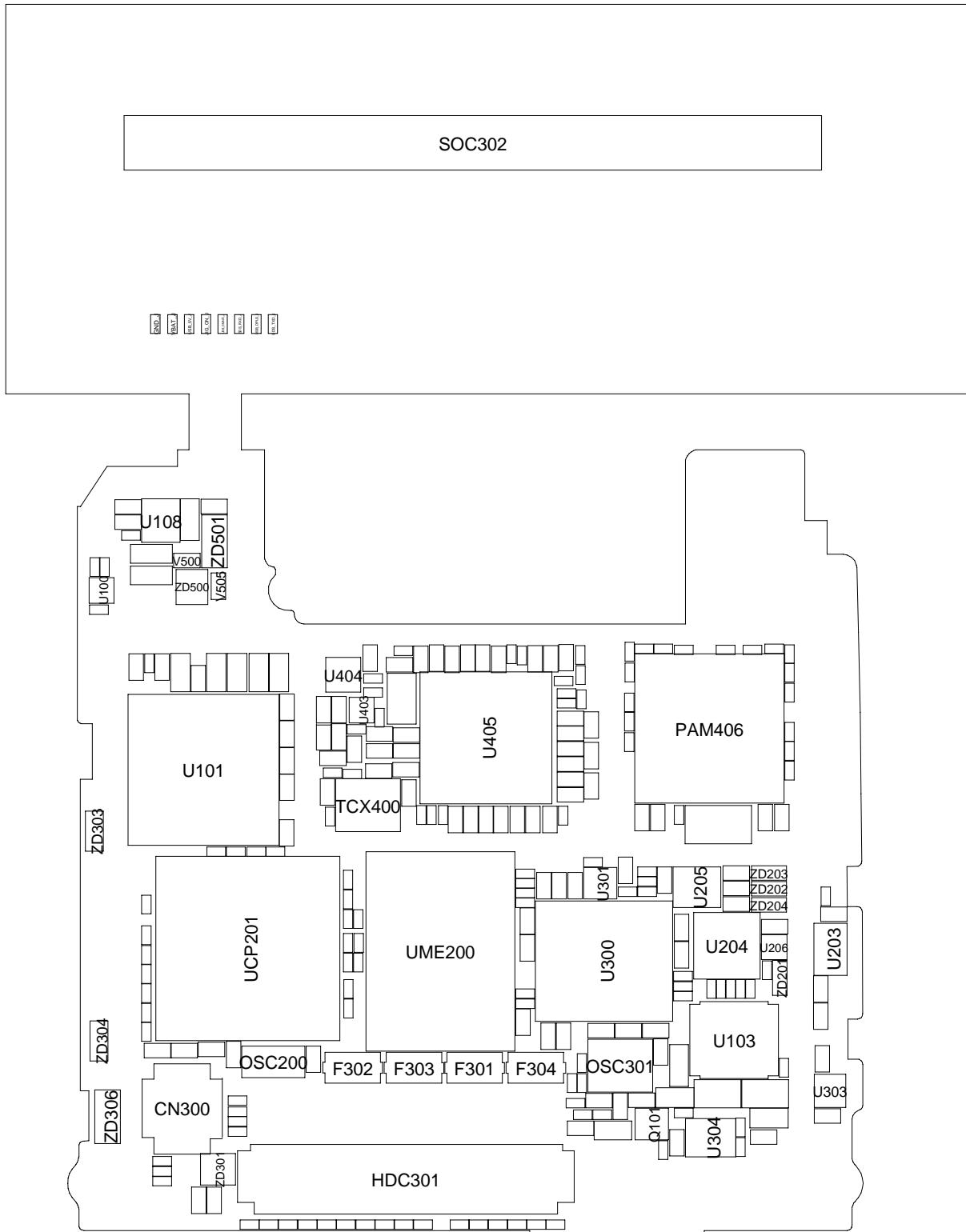
11-2-5. DCS/PCS TX

Flow Chart of Troubleshooting



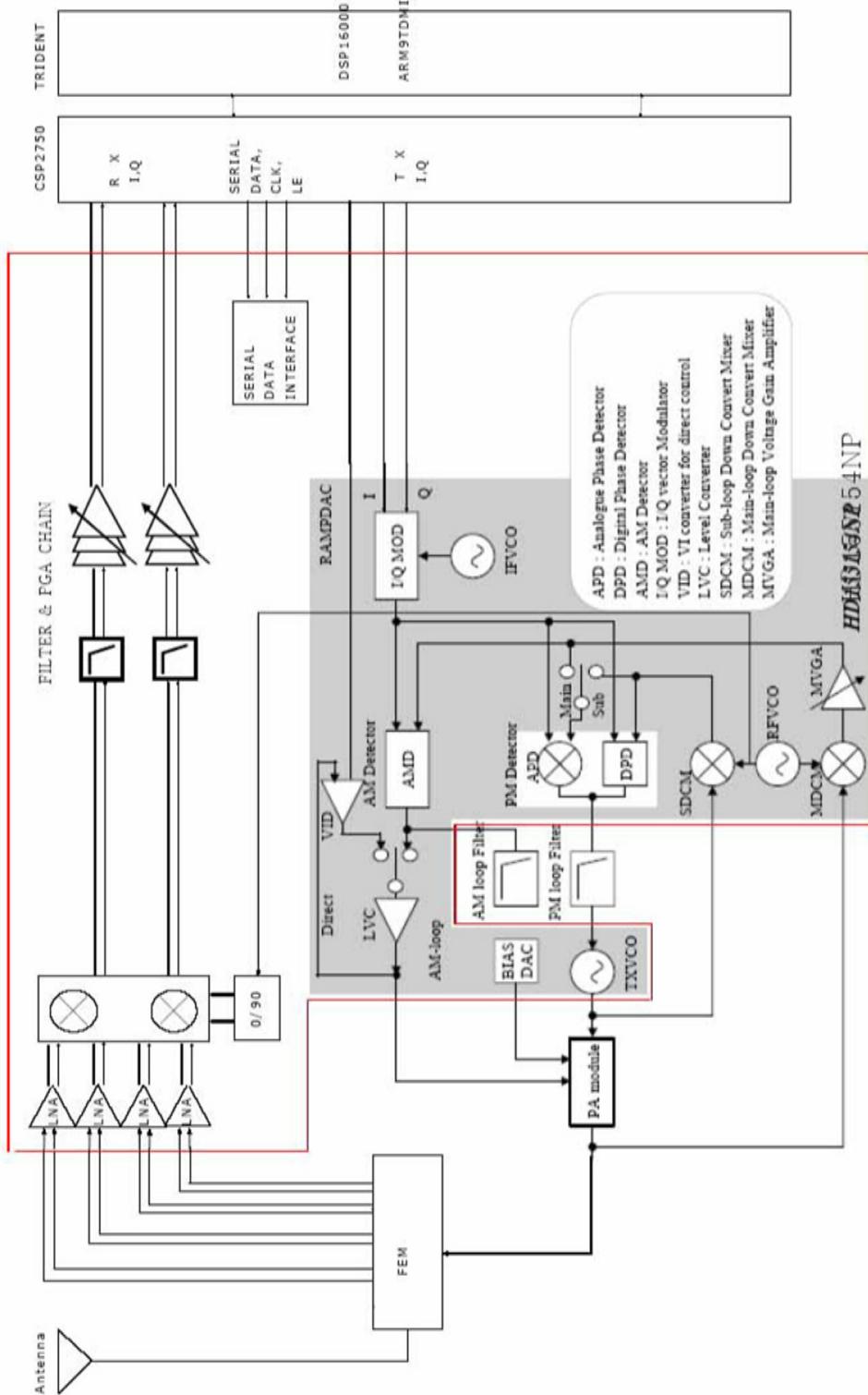
12. PCB Diagrams



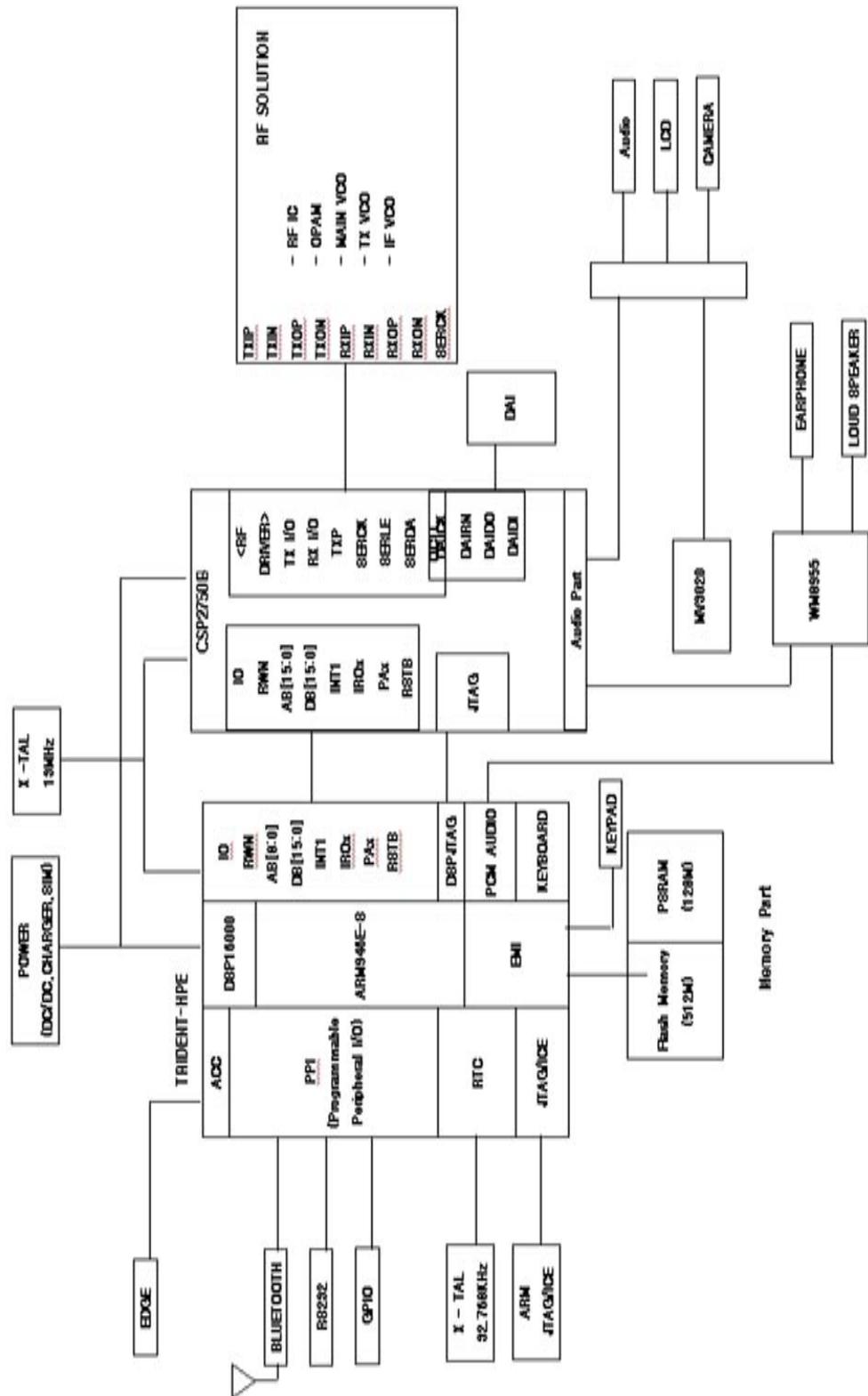


13. Block Diagrams

13-1. RF Solution Block Diagram



13-2. Base Band Solution Block Diagram



14. Reference data

14-1. Reference Abbreviate

AAC: Advanced Audio Coding.

AVC : Advanced Video Coding.

BER : Bit Error Rate

BPSK: Binary Phase Shift Keying

CA : Conditional Access

CDM : Code Division Multiplexing

C/I : Carrier to Interference

DMB : Digital Multimedia Broadcasting

EN : European Standard

ES : Elementary Stream

ETSI: European Telecommunications Standards Institute

MPEG: Moving Picture Experts Group

PN : Pseudo-random Noise

PS : Pilot Symbol

QPSK: Quadrature Phase Shift Keying

RS : Reed-Solomon

SI : Service Information

TDM : Time Division Multiplexing

TS : Transport Stream

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