

**SAMSUNG**

# GSM TELEPHONE

## SGH-i780

# **SERVICE** *Manual*

### GSM TELEPHONE



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**SAMSUNG  
ELECTRONICS**



GSPN (Global Service Partner Network)

<b>Country</b>	<b>Web Site</b>
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
CIS	cis.samsungportal.com
Europe	europe.samsungportal.com
China	china.samsungportal.com
Asia	asia.samsungportal.com
Mideast & Africa	mea.samsungportal.com

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# 1. Safety Precautions

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## 1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.  
Take specially care of tuning or test, because the specification 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 thicken twisted wire when you measure level.  
A thicken 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. Specification

### 2-1. GSM General Specification

	<b>EGSM 900</b>	<b>DCS 1800</b>	<b>PCS 1900</b>	<b>W-CDMA 2100</b>
Freq. Band[MHz] Uplink/Downlink	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1920~1980 2110~2170
ARFCN range	0~124 & 975~1023	512~885	512~810	UL:9612~9888 DL:10562~10838
Tx/Rx spacing	45MHz	95MHz	80MHz	190MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	3.84Mcps (chip rate)
Time Slot Period / Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	Frame length : 10ms Slot length : 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	QPSK (DL) HPSK (UL)
MS Power	33dBm ~ 5dBm	30dBm ~ 0dBm	30dBm ~ 0dBm	24dBm ~ -50dBm
Power Class	4 (max +33dBm)	1 (max +30dBm)	1 (max +30dBm)	3 (max +24dBm)
Sensitivity	-102dBm	-100dBm	-100dBm	-106.7dBm
TDMA Mux	8	8	8	
Cell Radius	35Km	2Km	2Km	2Km

## 2-2. GSM TX power class

TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±3 dBm	11	8±4 dBm	11	8±4 dBm
17	9±3 dBm	12	6±4 dBm	12	6±4 dBm
18	7±3 dBm	13	4±4 dBm	13	4±4 dBm
19	5±3 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

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## 3. Product Function

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### Main Function

- Homescreen
- PIM - Contacts, Calendar, Tasks, Voice Note
- Messaging - SMS, MMS, Email, VoiceRecorder within MMS
- Windows Live! Portal
- Windows Update
- Email Setup Wizard
- Internet Explorer
- Multimedia capability - 2 Mega Pixel / VGA Camera, Camcorder, Windows Media Player
- Zoomer
- Dialer
- Video Telephony
- Accessary Applications - Alarms, Calculator, NotePad, Task Manager, Smart Converter, World Clock, Stopwatch, Smart Search
- Active Sync
- Bluetooth
- WIFI
- Document Viewer
- T9
- File Manager, My Item
- Java
- Pod Casting, RSS Reader
- Games (Solitarie, Bubble breaker)
- MTV
- Postcard
- Google Map





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## 4. Array course control

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### 4-1. Software Adjustments

There is 2 set to download the binary image into your device.

[First set]



1. JIG BOX (UMTS TEST JIG: GH80-03308A)
2. USB Cable : JIG to PC
3. Test Cable : JIG to SGH-i780 (GH39-00890A)
4. Power Cable : JIG to power supply
5. Serial Cable : SGH-i780 to PC
6. Power Supply
7. RF Cable : SGH-i560 to Agilent 8960 or CMU200 (GH39-00599A)
8. Test Cable : JIG to SGH-i780 (GH39-00886A)

[Second set]



1. USB DATA Link Cable : GH39-00922A
2. Battery : GH43-02969A

## 4-2. Software Download

### 4-2-1. Pre-requisite for Download

- Downloader Program (there are 2 ways to download.)
  - [\[Image version\].exe \(Single downloader\)](#)
  - [SGH\\_i780V\\_version.exe \(Multi downloader\)](#)
- SGH\_i780V Mobile Device
- USB Driver
  - PDA : [Samsung MITs USB Sync \[Samsung MITs USB Sync.zip\]](#)
  - Phone : [Samsung CDMA Modem \[Samsung CDMA Modem.zip\]](#)
- Driver Installation.
  - PDA

Make sure that you install drivers.

**If you installed the latest ActiveSync program, you don't need to install the pda driver. Please install the latest ActiveSync program.**

- Phone

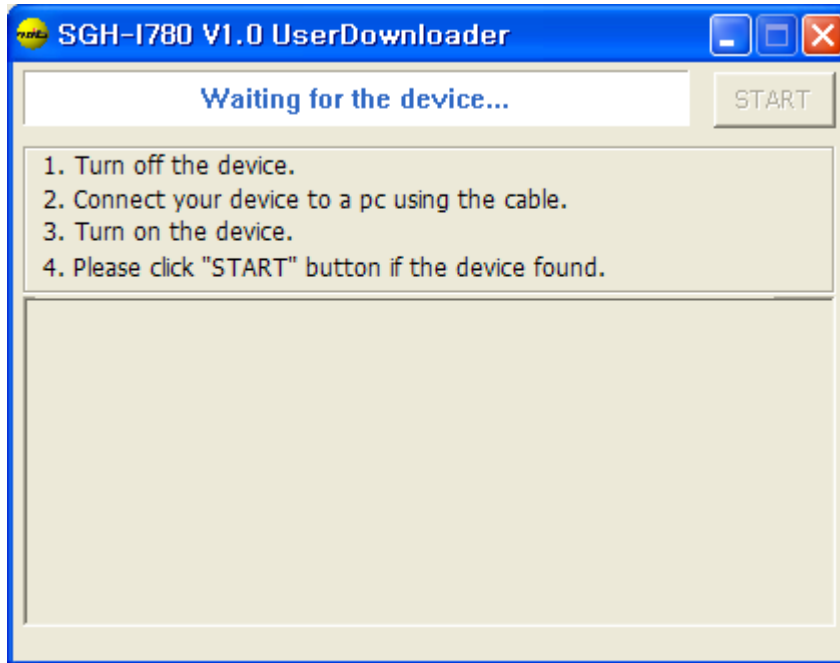
When you download the phone image, you need the driver of Samsung CDMA Modem.

If you want to download the phone image, install the Samsung CDMA Modem driver.

**After you install the driver of Samsung CDMA Modem, please restart a host computer.**

## 4-2-2. Single download ([Image version].exe)

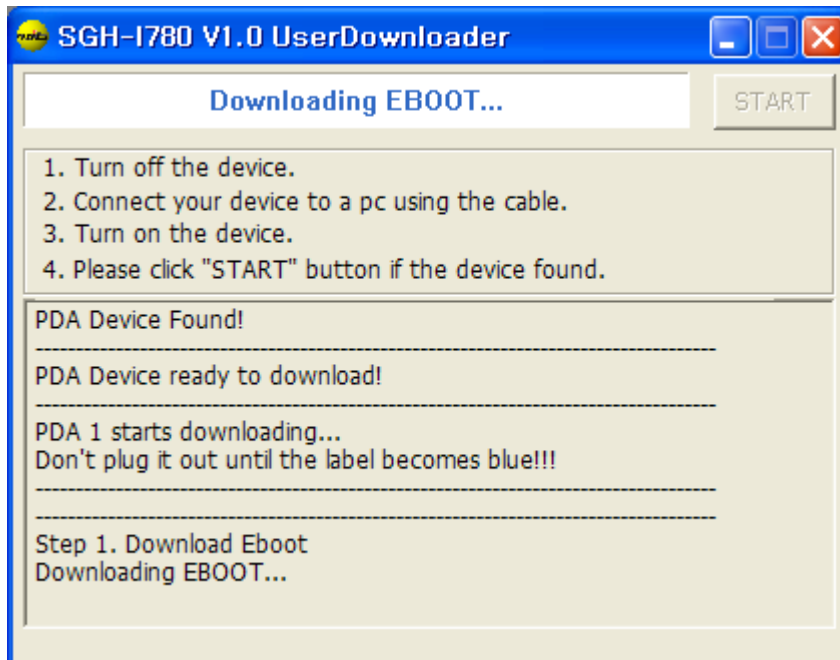
### 1. Execute the Downloader Program. [Image Version.exe]



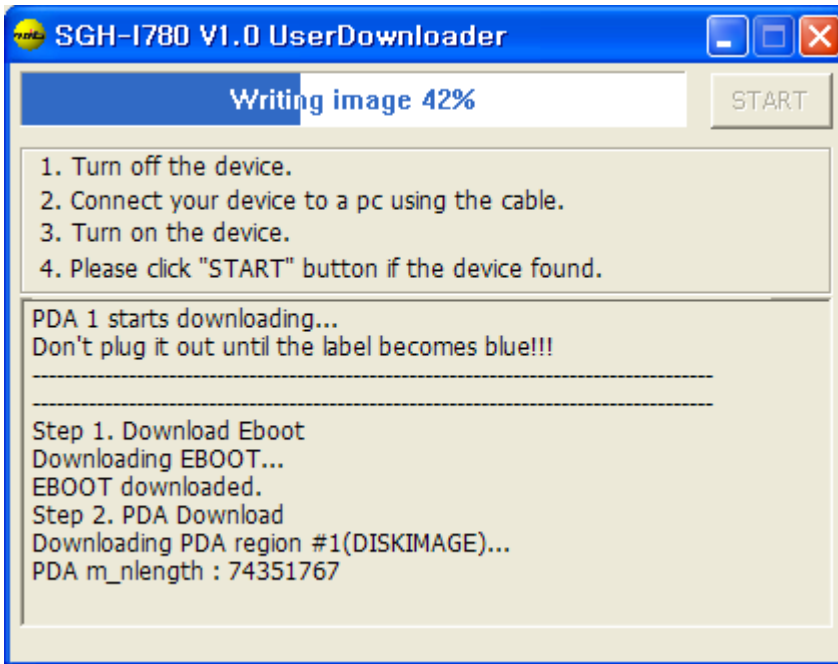
### 2. Turn off your device.

### 3. Connect your device to a host computer by using USB DATA Link Cable.

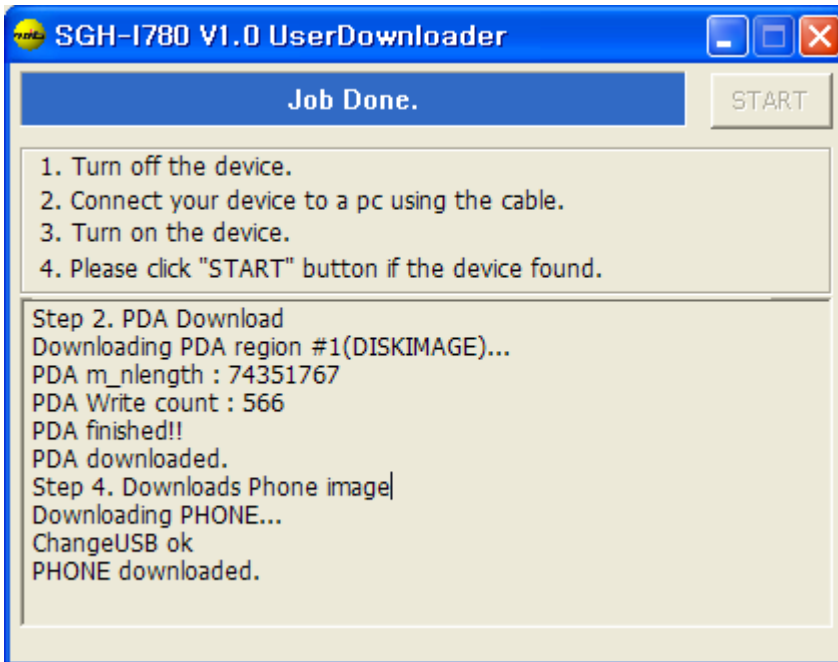
### 4. Turn on your device and wait.



### 5. Downloading is started automatically.



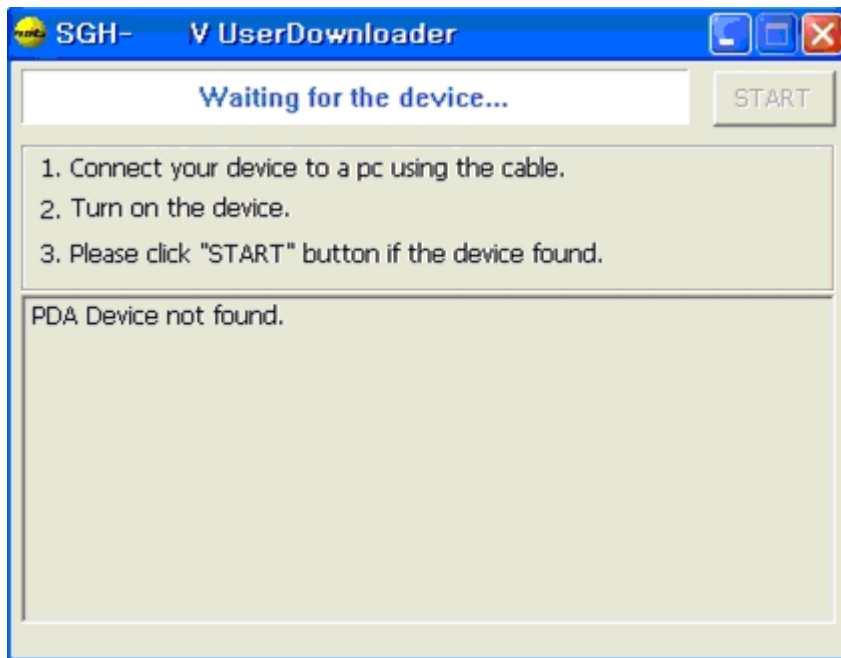
6. When the download is finished, the phone is turned off automatically.



[ Job Done ]

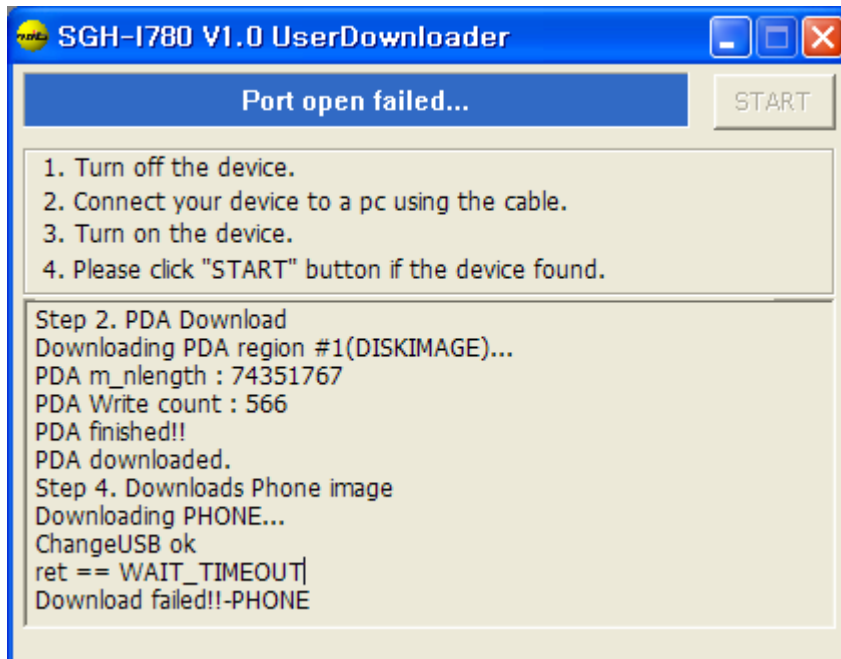
## ☛ Trouble Shooting

1. "PDA Device not found" message



☞ Make sure that your device is connected a host computer by USB DATA Link cable.

2. "Port Open Failed" message or application hang



☞ After you install "phone USB driver (Samsung CDMA Modem)" at first time, you may see "Port open failed..." message or application hang while downloading a phone image. If so, terminate the application and then try the download again.

☞ If USB port is changed, at first time you may see “Port open failed...” message or application hang. If so, terminate the application and then try the download again.

☞ If USB cable to the mobile device is not connected tightly, you may see “Port open failed...” message or application hang. If so, terminate the application and then try the download again.

☞ If you **always** see “port open failed” message or application hang,

1. When application is activated, go to the device manager, remove the SAMSUNG CDMA Modem and SAMSUNG USB Composite Device.
2. Rename C:\WINDOWS\system32\drivers\Modem.sys to other name. (ex. Modem-.sys)
3. Go to control panel->program add/remove, and then remove Samsung CDMA Modem driver or Samsung USB driver(MCCI)
4. Restart your PC.
5. Install attached SAMSUNG CDMA Modem\_4.34
6. Try the download again.

3. “Write Failed” message

☞ If battery level is low, use charged battery and try again.

### 4-2-3. Multi download

## 1. Device Settings

#### 1. USB 2.0 hub:

Use the D-Link DUB-H7, an authorized Hi-Speed USB 2.0 hub, only.

- 1) Connect the hub to PC.
- 2) Connect the hub to the adapter.



#### 2. Data Cable: Check the serial number first. The number should start with 'D.'

- 1) Connect the hub to the cable.
- 2) Connect testing devices to the cable



### 3. Illustration of MultiDownloader Overall Figure after Settings Configuration



## 2. Prerequisite

**1. Before beginning the download, make sure all testing devices have the GJ2 or later boot image.** Go to the 'Start à Settings à System à Version' to check that the version is 'PDA: i870BVGJ2' or later.

**2. Before beginning the download, confirm that the phone modem of the phone is attached to the computer USB port of the computer where the OS image will be downloaded.**

To this end, make sure the phone image has been downloaded only once.

(The initial attempt will fail, but this is will be failed. This is to install the phone modem to the computer USB port will fail of the computer.)

Ex) In order to multi-download the OS image for 8 devices, select the phone image only to download download it to 8 devices. Initially, the download to 8 devices will be failed. However, you will see that there are 8 SAMSUNG CDMA modems under "Mthe modem" of in the "Device Manager".

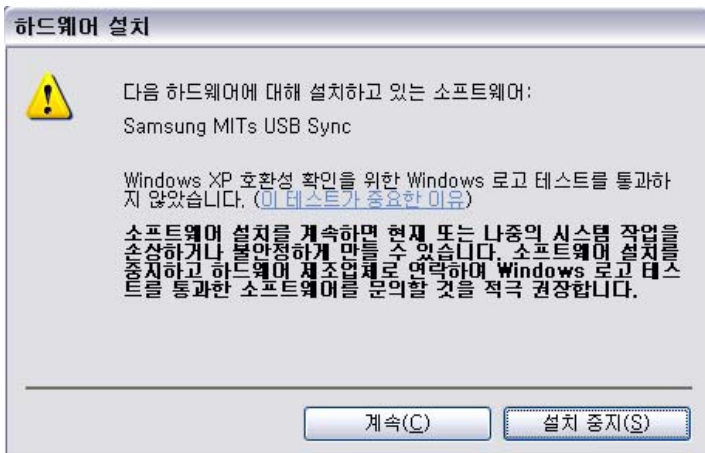
(It may take a while to confirm that the modems appear under the "Mmodem" category. If they appear appeared, they are installed successfully.)



Go to the '3. How to Download' to see the detailed instruction.

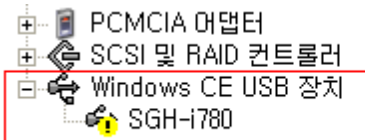
- (1) Run the program.
- (2) Load the image by selecting the phone image only.
- (3) Prepare to detect.
- (4) Connect testing devices.

When the below warning message appears,.

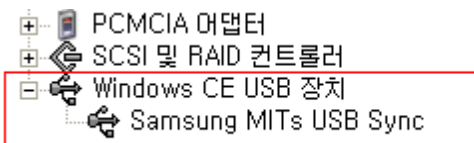


click 'Continue'

and check the Device Manager to see a 'SGH-i780.'



Within 30 seconds, it will change to 'Samsung MITs USB Sync.'



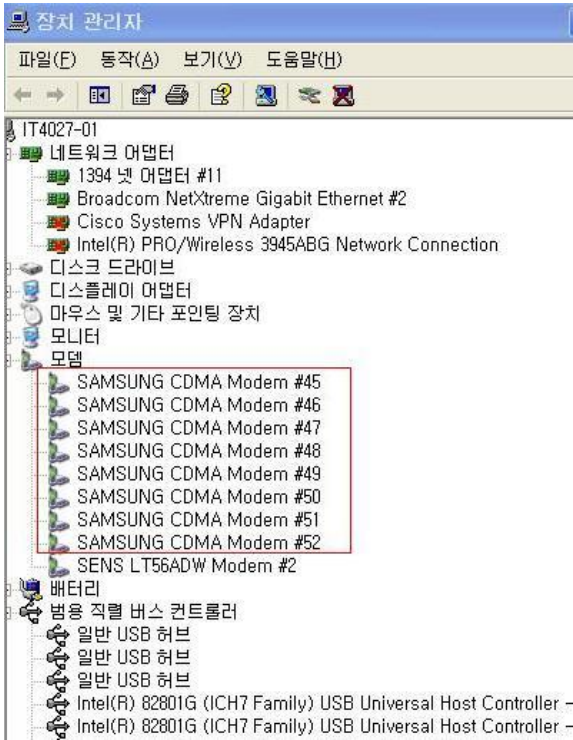
Then, separate the battery and reboot the device to see that the connection has been made.



(5) Start downloading

(6) Wait until the phone modems appear in the Device Manager.

Go to the 'My Computer à Properties à Hardware à Device Manager à Modem' to check that the SAMSUNG CDMA Modem appears.



(7) After terminating the program, disconnect the device.

(8) Repeat the process from (1)

to confirm that downloading to the phone works appropriately.

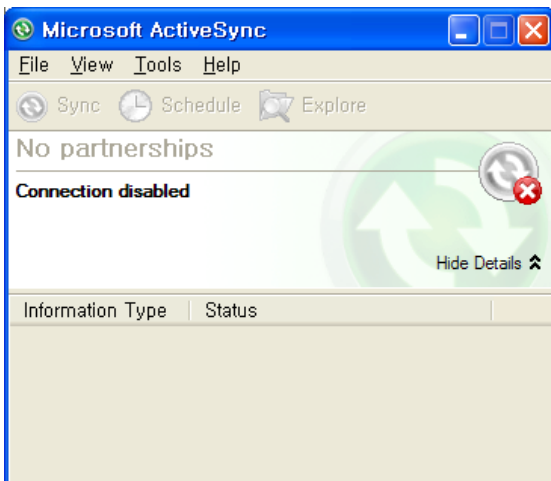
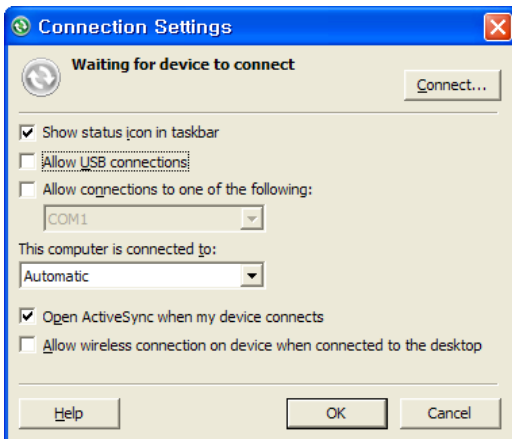
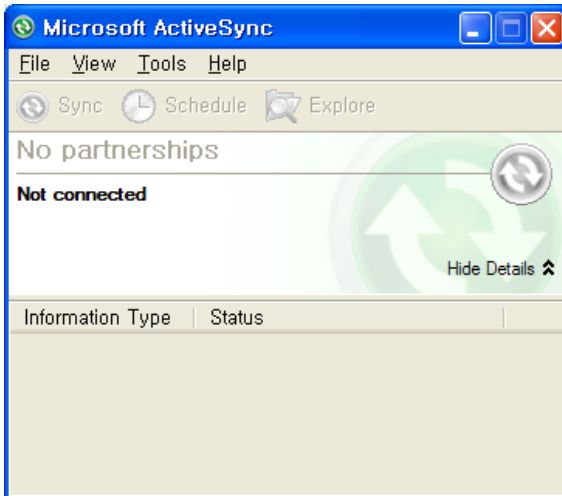
If several phones do not appear,.

repeat the same process until all devices are connected and appear.

## 3. How to Download

### 1. Disconnecting the ActiveSync

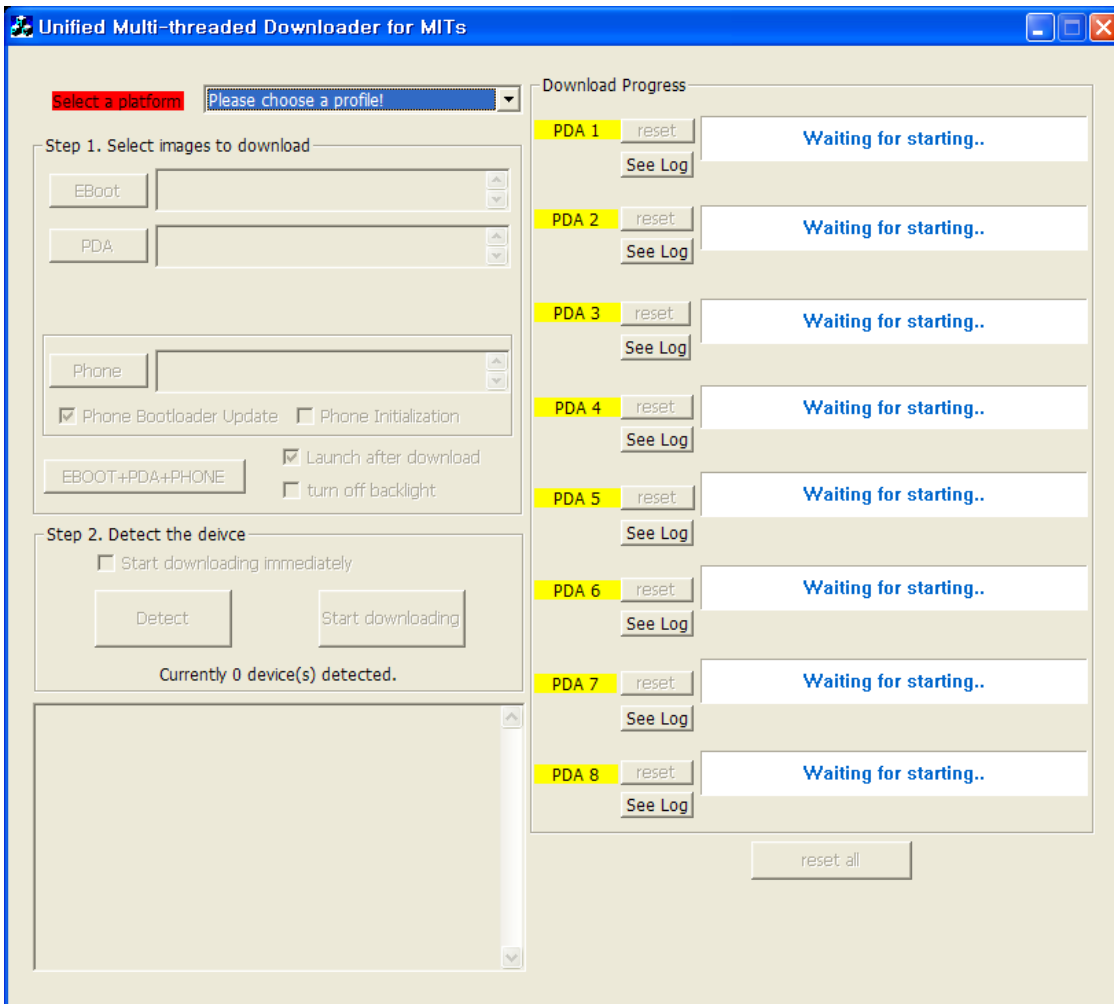
Run the ActiveSync. Then, select the Connection Settings under the 'File' tab. Deselect the 'Allow USB Connection.'



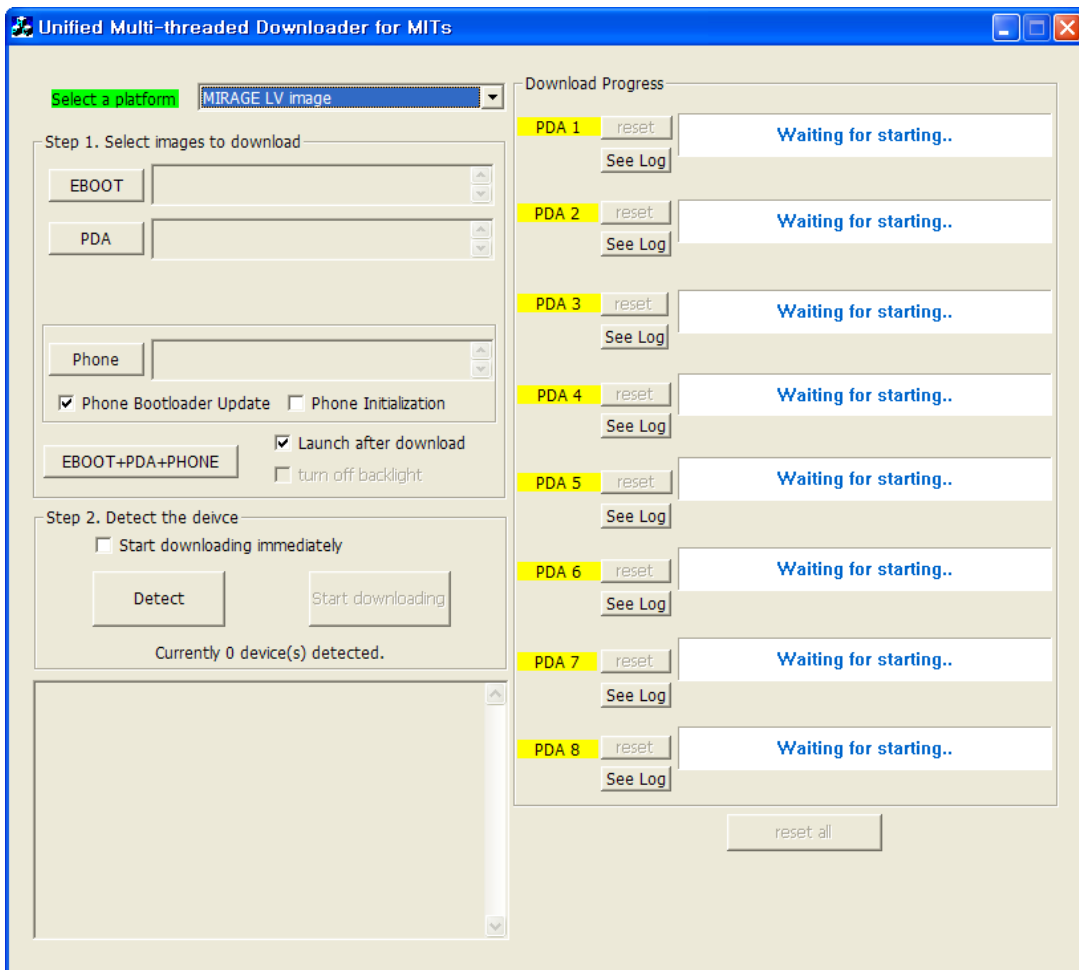
### 1) Running the program

Run the 'UMDL\_i780\_v1.0.exe .'

Note, 'Waiting for starting..' in the screenshot sounds very odd. I would suggest that the client consider changing this to 'Waiting to start..'



Buttons will be activated when the 'MIRAGE LV Image' is selected at in the 'Select a platform' menupane.



## 2) Loading the Image

Press Click the 'EBOOT,' 'PDA,' and 'Phone' buttons each to select the appropriate images.

EBOOT - BootImage.nb0

PDA - Flash.bin

Phone - MIRAGE\_ORANGE\_BVxxx.bin

## 3) Preparing to start 'Detect'

Click the 'Detect' button on the bottom left side of the menu at the left bottom.

## 4) Connecting testing devices

Connect testing devices to the cable and turn on the power.

The connection is complete if the 'Device 1 Detected' appears in the box on the bottom left side at the left bottom and the PDA1 at on the right side turns green.

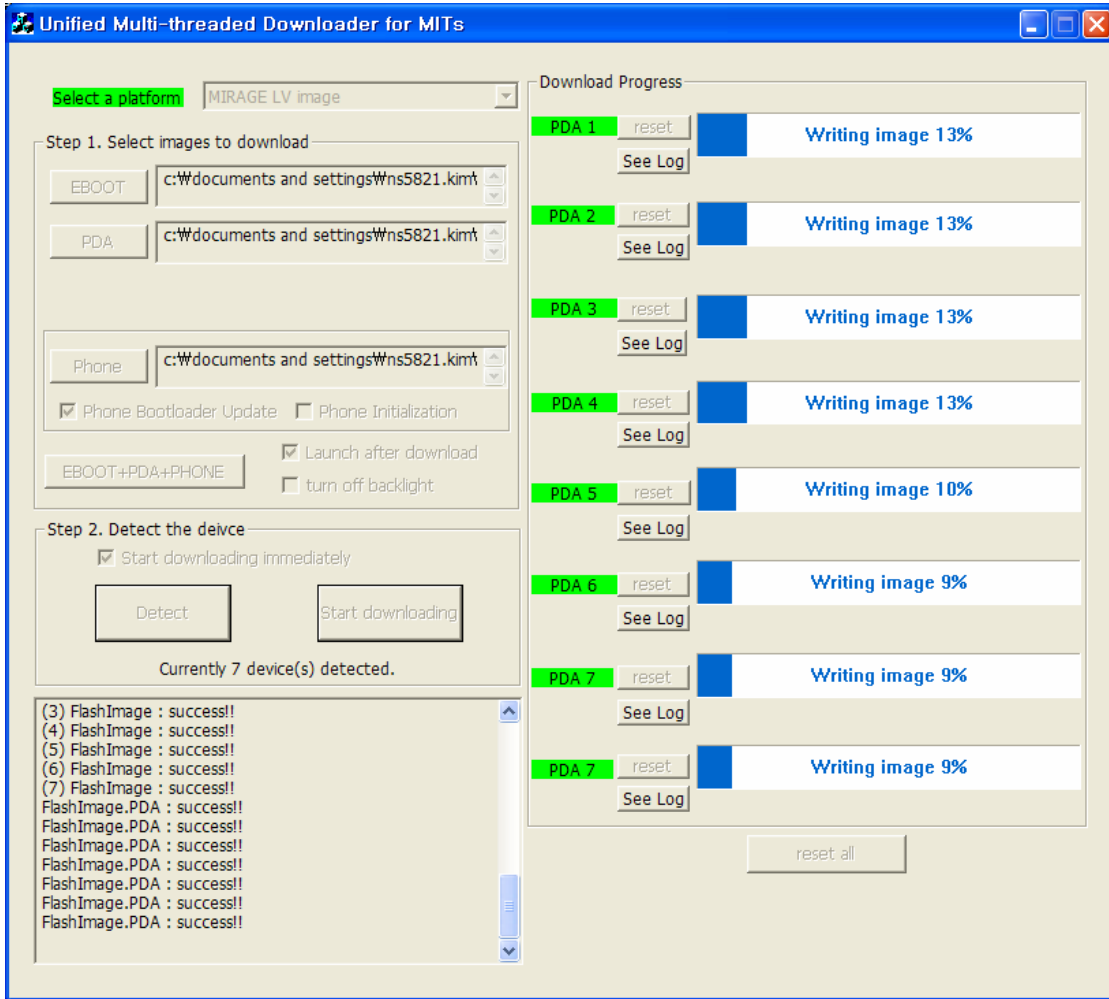
Connect all 8 devices as instructed/written in the above.

**NOTE: Connect the devices one by one.**

Otherwise, an error may occur in the computer USB port of the computer. When this error occurs, go to the page 22 to see the reference.

### 5) Starting the download

Press Click the 'Start downloading' button.



**NOTE1: Make sure the progress, shown in by the bar, is completed for each in a testing device.** (The progress of downloading the 'Flash.bin,' the PDA image, is shown as the green bar at the bottom of the LCD screen.)



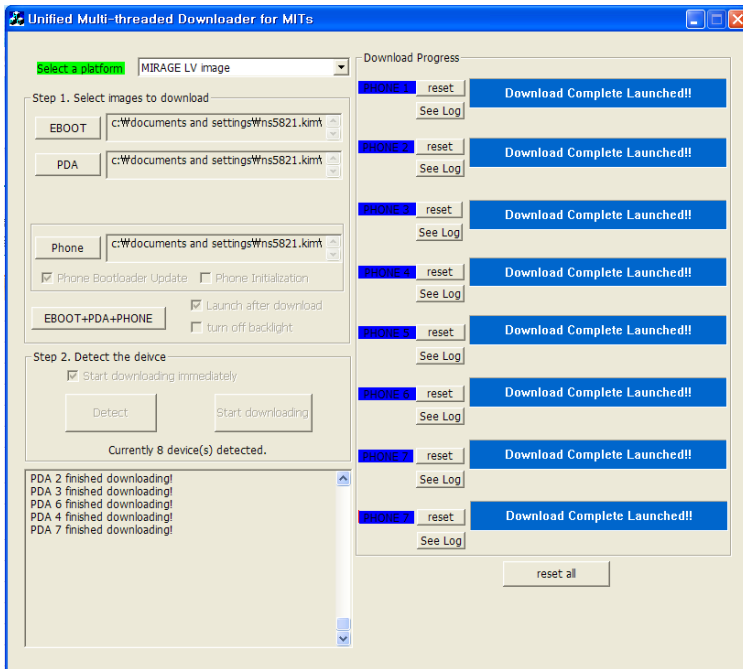
**NOTE 2: If the progress bar is in blue, the process will not be completed.**

Normally, the progress bar goes to the 'o' button only. (If the version of the image is previous than to GJ4, the error may occur.)

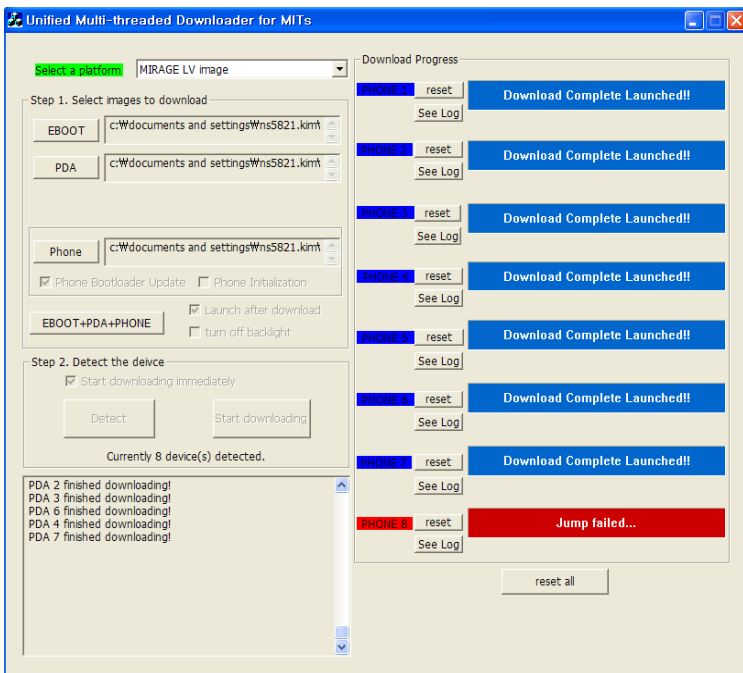
#### **6) Confirming**

Reboot testing devices to confirm whether they work properly.

When the download is complete,,



Click the 'reset all' button at on the bottom right sidethe right bottomto reset the downloader.



**NOTE: If the download failsis failed,, try once again to downloadsucceed.**



## - Reference -

**How to deal with the an error in the computer USB port of the computer.**

Symptom: Device is not identified after connecting it.

Cause: The device is connected before the previous connection is complete. All devices should be connected one by one. Otherwise, an error may occur in the computer USB port of the computer.

### **Solution:**

**Proceed with the following action in order only when the previous action does not work.**

- 1) Unplug the USB port from the computer and plug it again.
- 2) Open the Device Manager and remove the USB hub and install it again.



- 3) Reboot the computer.

## 4. Trouble Shooting

1. "PDA Device not found" message

☞ **Make sure that check box, Allow USB connection at the Connection Settings, is released. (ActiveSync)**

2. "Port Open Failed" message or application hang

☞ **After you install "phone USB driver (Samsung CDMA Modem)" at first time, you may see "Port open failed..." message or application hang( Opening COM XX succeed...) while downloading a**

phone image. If so, terminate the application and then try the download again.

☞ If USB port is changed, at first time you may see “Port open failed...” message or application hang( Opening COM XX succeed...). If so, terminate the application and then try the download again.

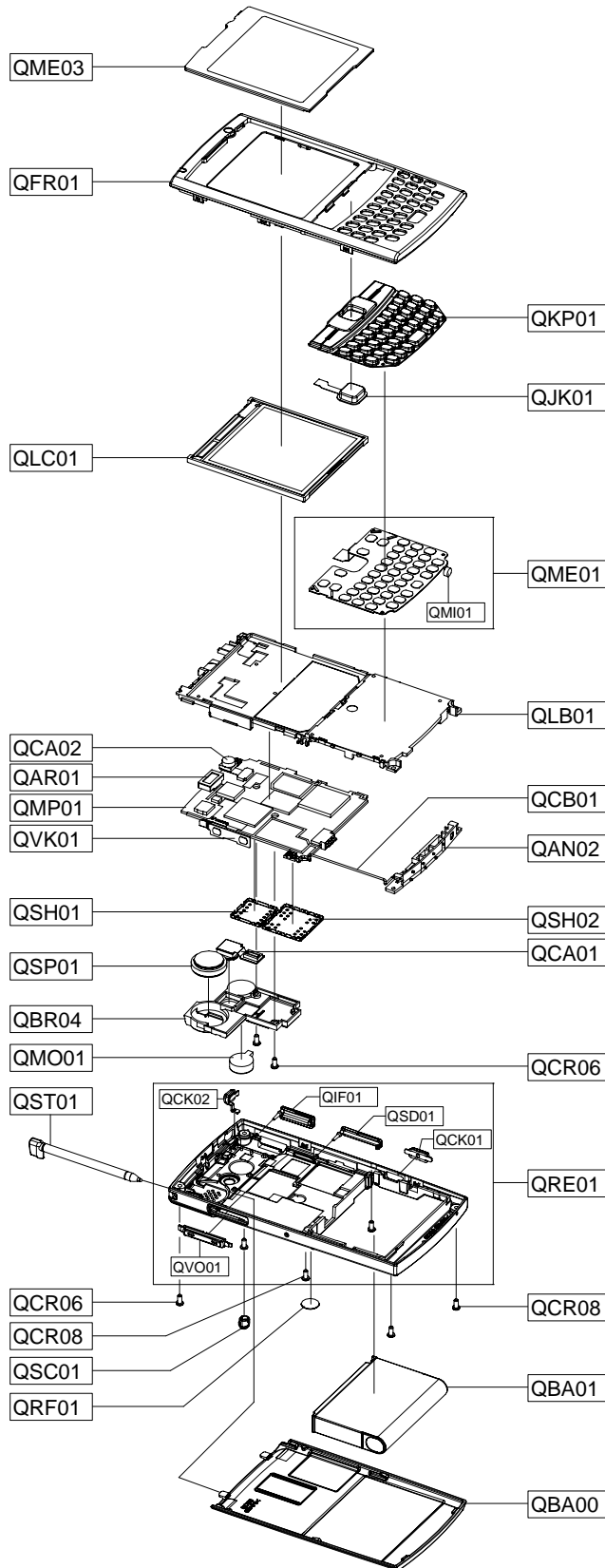
☞ If USB cable to the mobile device is not connected tightly, you may see “Port open failed...” message or application hang( Opening COM XX succeed...). If so, terminate the application and then try the download again.

3. “Write Failed” message

☞ If battery level is low, use charged battery and try again.

# 5. Exploded View and Parts List

## 5-1. Cellular phone Exploded View



## 5-2. Cellular phone Parts List

Design LOC	Description	SEC CODE
QAN02	INTENNA-SGHI780	GH42-01329A
QAR01	AUDIO-RECEIVER	3009-001308
QBA00	ASSY COVER-BATT	GH98-07577A
QBA01	INNER BATTERY PACK-1480MAH,BLK	GH43-02969A
QBR04	ASSY BRACKET-SPEAKER	GH98-06544A
QCA01	CAMERA MODULE	GH59-04823A
QCA02	CAMERA MODULE	GH59-04824A
QCB01	CBF COAXIAL CABLE-SGHI780	GH39-00984A
QCK01	ASSY KEY-CAMERA	GH98-06543A
QCK02	PMO KEY-PWR	GH72-43404A
QCR06	SCREW-MACHINE	6001-001155
QCR06	SCREW-MACHINE	6001-001155
QCR08	SCREW-MACHINE	6001-001611
QCR08	SCREW-MACHINE	6001-001611
QFR01	ASSY CASE-FRONT	GH98-05794A
QIF01	PMO COVER-IF	GH72-43402A
QJK01	UNIT-OPTICAL JOYSTICK	GH59-04912A
QKP01	ASSY KEYPAD-(FTM/BLK)	GH98-07281A
QLB01	ASSY BRACKET-LCD	GH98-06545A
QLC01	LCD-MODULE SGHI780	GH07-01158A
QME01	KEY FPCB-KEY FPCB ASSY	GH59-04910A
QME03	UNIT-TOUCH PANEL(ORA)	GH59-04930A
QMI01	AS-SGHI607 MIC	GH81-06077A
QMO01	MOTOR DC-SGHI780	GH31-00390A
QMP01	PBA MAIN-SGHI780	GH92-04221A
QRE01	ASSY CASE-REAR	GH98-05795A
QRF01	TAPE-RF SHEET	GH74-35960A
QSC01	PMO COVER-SCREW	GH72-45115A
QSD01	PMO COVER-SD	GH72-43401A
QSH01	ICT SHIELD-COVER A	GH70-02883A
QSH02	ICT SHIELD-COVER B	GH70-02884A
QSP01	MICRO SPEAKER	3001-002311
QST01	ASSY ACCE-STYLUS PEN(BLK)	GH98-07299A
QVK01	KEY FPCB-F.P.C(V/K)ASSY	GH59-04905A
QVO01	PMO KEY-VOL	GH72-43403A

Description	SEC CODE
CBF INTERFACE-DLC APCBS10BBE(S)	GH39-00922A
ADAPTOR-ATADS10EBE,BLK,EU	GH44-01702A
CHARGER-SGHI780,BTC,BLK	GH44-01842A
S/W CD-SGHI780 COMPANION CD	GH46-00542A
MANUAL USERS-FTM FRENCH QSG	GH68-16462A
MANUAL USERS-FTM FRENCH QRG	GH68-17163A
BAG PE	6902-000634
LABEL(P)-UNIT SEAL	GH68-00518B
LABEL(P)-FTM MP3SLIM	GH68-11246B
LABEL(R)-MAIN(FRAN)	GH68-16811C
CUSHION-CASE(EU)	GH69-06128A
BOX-UNIT(ORA)	GH69-06185A
LABEL(R)-PALLET FTM	GH68-16969B
RMO RUBBER-ANT C CLIP	GH73-11105A
SPONGE-SPK BRACKET	GH74-35963A
LABEL(R)-WATER SOAK	GH68-09361A
VINYL-BOHO MAIN LCD	GH74-35170A
VINYL-BOHO MAIN CASE	GH74-35171A
EARPHONE-EARPHONE,BLK,S20P,A T	GH59-05409A

## 6. Main Electrical Parts List

SEC Code	Design LOC	Description	STATUS
0401-001110	D500	DIODE-SWITCHING	SA
0403-001547	D301	DIODE-ZENER	SA
0406-001167	ZD600	DIODE-TVS	SA
0406-001167	ZD601	DIODE-TVS	SA
0406-001167	ZD602	DIODE-TVS	SA
0406-001167	ZD603	DIODE-TVS	SA
0406-001190	ZD506	DIODE-TVS	SA
0406-001210	ZD403	DIODE-TVS	SA
0406-001210	ZD404	DIODE-TVS	SA
0406-001210	ZD405	DIODE-TVS	SA
0406-001210	ZD406	DIODE-TVS	SA
0406-001210	ZD408	DIODE-TVS	SA
0406-001210	ZD605	DIODE-TVS	SA
0406-001215	ZD300	DIODE-TVS	SA
0406-001215	ZD301	DIODE-TVS	SA
0406-001215	ZD407	DIODE-TVS	SA
0406-001231	D401	DIODE-TVS	SA
0406-001231	D402	DIODE-TVS	SA
0406-001231	D600	DIODE-TVS	SA
0406-001231	D601	DIODE-TVS	SA
0406-001231	D604	DIODE-TVS	SA
0406-001231	D605	DIODE-TVS	SA
0406-001231	D606	DIODE-TVS	SA
0406-001231	ZD400	DIODE-TVS	SA
0406-001231	ZD401	DIODE-TVS	SA
0406-001231	ZD501	DIODE-TVS	SA
0406-001231	ZD502	DIODE-TVS	SA
0406-001231	ZD503	DIODE-TVS	SA
0406-001231	ZD504	DIODE-TVS	SA
0406-001231	ZD505	DIODE-TVS	SA
0407-000115	D400	DIODE-ARRAY	SA
0407-001002	D300	DIODE-ARRAY	SA
0407-001007	D302	DIODE-ARRAY	SA
0501-000225	TR600	TR-SMALL SIGNAL	SA
0501-000225	TR601	TR-SMALL SIGNAL	SA
0501-000225	TR602	TR-SMALL SIGNAL	SA
0504-000168	Q300	TR-DIGITAL	SA
0504-000168	Q301	TR-DIGITAL	SA
0504-000168	Q303	TR-DIGITAL	SA
0505-001165	Q302	FET-SILICON	SA
0601-001905	LED600	LED	SA
0801-002237	U202	IC-CMOS LOGIC	SA
0801-002529	U203	IC-CMOS LOGIC	SA
0801-002800	U205	IC-CMOS LOGIC	SA
0801-002800	U303	IC-CMOS LOGIC	SA
0801-002800	U307	IC-CMOS LOGIC	SA
0801-002800	U500	IC-CMOS LOGIC	SA
0801-002800	U518	IC-CMOS LOGIC	SA
0801-002882	U305	IC-CMOS LOGIC	SA
0801-003013	U200	IC-CMOS LOGIC	SA
0801-003013	U601	IC-CMOS LOGIC	SA
0801-003013	U602	IC-CMOS LOGIC	SA
0801-003052	U204	IC-CMOS LOGIC	SA

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0801-003052	U508	IC-CMOS LOGIC	SA
0801-003076	U201	IC-CMOS LOGIC	SA
0902-002235	UCP700	IC-MICROPROCESSOR	SA
0909-001056	U503	IC-REAL TIME CLOCK	SA
1001-001336	U502	IC-ANALOG SWITCH	SA
1001-001362	U402	IC-ANALOG SWITCH	SA
1001-001362	U403	IC-ANALOG SWITCH	SA
1001-001401	U501	IC-ANALOG SWITCH	SA
1002-001410	U406	IC-D/A CONVERTER	SA
1006-001322	U600	IC-LINE TRANSCEIVER	SA
1106-001564	UME201	IC-SRAM	SA
1108-000127	UME200	IC-MCP	SA
1201-002446	PAM100	IC-POWER AMP	SA
1201-002531	PAM101	IC-POWER AMP	SA
1201-002587	U400	IC-AUDIO AMP	SA
1203-002785	U507	IC-VOL. DETECTOR	SA
1203-002832	U308	IC-VOL. DETECTOR	SA
1203-003328	U514	IC-DC/DC CONVERTER	SA
1203-003531	U506	IC-POSI.FIXED REG.	SA
1203-003643	U511	IC-MULTI REG.	SA
1203-003664	U512	IC-MULTI REG.	SA
1203-003664	U515	IC-MULTI REG.	SA
1203-003664	U516	IC-MULTI REG.	SA
1203-003748	U510	IC-MULTI REG.	SA
1203-003926	U306	IC-VOL. DETECTOR	SA
1203-004395	U517	IC-POSI.FIXED REG.	SA
1203-004435	U509	IC-MULTI REG.	SA
1203-004435	U513	IC-MULTI REG.	SA
1203-004606	U505	IC-MULTI REG.	SA
1203-004763	U519	IC-VOL. DETECTOR	SA
1203-004838	U301	IC-BATTERY	SA
1203-004841	U309	IC-POWER SUPERVISOR	SA
1203-004926	U302	IC-POWER SUPERVISOR	SA
1205-002720	UCD400	IC-CODEC	SA
1205-002767	U300	IC-SWITCH	SA
1205-003215	UCP200	IC-MODEM	SA
1205-003285	U100	IC-TRANSCEIVER	SA
1205-003286	U101	IC-RECEIVER	SA
1205-003316	U504	IC-INTERFACE	SA
1404-001221	VR400	THERMISTOR-NTC	SA
2007-000070	R300	R-CHIP	SA
2007-000138	R115	R-CHIP	SA
2007-000138	R132	R-CHIP	SA
2007-000138	R136	R-CHIP	SA
2007-000138	R141	R-CHIP	SA
2007-000140	R520	R-CHIP	SA
2007-000141	R113	R-CHIP	SA
2007-000141	R206	R-CHIP	SA
2007-000148	R703	R-CHIP	SA
2007-000148	R706	R-CHIP	SA
2007-000148	R712	R-CHIP	SA
2007-000157	R302	R-CHIP	SA
2007-000162	R139	R-CHIP	SA

<b>SEC Code</b>	<b>Design LOC</b>	<b>Description</b>	<b>STATUS</b>
2007-000162	R140	R-CHIP	SA
2007-000162	R142	R-CHIP	SA
2007-000162	R146	R-CHIP	SA
2007-000162	R149	R-CHIP	SA
2007-000162	R303	R-CHIP	SA
2007-000162	R304	R-CHIP	SA
2007-000162	R320	R-CHIP	SA
2007-000162	R328	R-CHIP	SA
2007-000162	R512	R-CHIP	SA
2007-000162	R704	R-CHIP	SA
2007-000165	R312	R-CHIP	SA
2007-000168	R212	R-CHIP	SA
2007-000170	R329	R-CHIP	SA
2007-000170	R501	R-CHIP	SA
2007-000170	R607	R-CHIP	SA
2007-000171	R103	R-CHIP	SA
2007-000171	R105	R-CHIP	SA
2007-000171	R109	R-CHIP	SA
2007-000171	R121	R-CHIP	SA
2007-000171	R125	R-CHIP	SA
2007-000171	R127	R-CHIP	SA
2007-000171	R131	R-CHIP	SA
2007-000171	R135	R-CHIP	SA
2007-000171	R150	R-CHIP	SA
2007-000171	R151	R-CHIP	SA
2007-000171	R330	R-CHIP	SA
2007-000171	R403	R-CHIP	SA
2007-000171	R404	R-CHIP	SA
2007-000171	R410	R-CHIP	SA
2007-000171	R513	R-CHIP	SA
2007-000171	R702	R-CHIP	SA
2007-000171	R705	R-CHIP	SA
2007-000171	R707	R-CHIP	SA
2007-000172	R100	R-CHIP	SA
2007-000172	R122	R-CHIP	SA
2007-000174	R106	R-CHIP	SA
2007-001284	R123	R-CHIP	SA
2007-001290	R208	R-CHIP	SA
2007-001298	R116	R-CHIP	SA
2007-001298	R130	R-CHIP	SA
2007-001298	R305	R-CHIP	SA
2007-001298	R306	R-CHIP	SA
2007-001305	R107	R-CHIP	SA
2007-001305	R108	R-CHIP	SA
2007-001305	R117	R-CHIP	SA
2007-001305	R118	R-CHIP	SA
2007-001308	R124	R-CHIP	SA
2007-001319	R709	R-CHIP	SA
2007-001319	R710	R-CHIP	SA
2007-003010	R506	R-CHIP	SA
2007-003010	R510	R-CHIP	SA
2007-003010	R511	R-CHIP	SA
2007-003015	R102	R-CHIP	SA



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2007-003015	R110	R-CHIP	SA
2007-007009	R133	R-CHIP	SA
2007-007014	R313	R-CHIP	SA
2007-007014	R314	R-CHIP	SA
2007-007107	R210	R-CHIP	SA
2007-007107	R211	R-CHIP	SA
2007-007107	R401	R-CHIP	SA
2007-007107	R402	R-CHIP	SA
2007-007107	R412	R-CHIP	SA
2007-007107	R516	R-CHIP	SA
2007-007107	R517	R-CHIP	SA
2007-007107	R518	R-CHIP	SA
2007-007132	R319	R-CHIP	SA
2007-007132	R503	R-CHIP	SA
2007-007137	R317	R-CHIP	SA
2007-007137	R318	R-CHIP	SA
2007-007142	R143	R-CHIP	SA
2007-007142	R144	R-CHIP	SA
2007-007142	R200	R-CHIP	SA
2007-007142	R203	R-CHIP	SA
2007-007142	R204	R-CHIP	SA
2007-007142	R205	R-CHIP	SA
2007-007142	R301	R-CHIP	SA
2007-007142	R323	R-CHIP	SA
2007-007142	R500	R-CHIP	SA
2007-007142	R519	R-CHIP	SA
2007-007142	R602	R-CHIP	SA
2007-007142	R603	R-CHIP	SA
2007-007148	R332	R-CHIP	SA
2007-007155	R413	R-CHIP	SNA
2007-007155	R420	R-CHIP	SNA
2007-007193	R101	R-CHIP	SA
2007-007193	R111	R-CHIP	SA
2007-007306	R213	R-CHIP	SA
2007-007309	R104	R-CHIP	SA
2007-007314	R126	R-CHIP	SA
2007-007316	R207	R-CHIP	SA
2007-007316	R307	R-CHIP	SA
2007-007316	R309	R-CHIP	SA
2007-007317	R507	R-CHIP	SA
2007-007317	R509	R-CHIP	SA
2007-007318	R315	R-CHIP	SA
2007-007318	R515	R-CHIP	SA
2007-007318	R600	R-CHIP	SA
2007-007318	R605	R-CHIP	SA
2007-007318	R608	R-CHIP	SA
2007-007405	R308	R-CHIP	SA
2007-007468	R310	R-CHIP	SA
2007-007468	R409	R-CHIP	SA
2007-007491	R120	R-CHIP	SA
2007-007528	R414	R-CHIP	SA
2007-007528	R419	R-CHIP	SA
2007-007589	R326	R-CHIP	SA

SEC Code	Design LOC	Description	STATUS
2007-007698	R502	R-CHIP	SA
2007-007766	R119	R-CHIP	SA
2007-007798	R514	R-CHIP	SA
2007-007798	R604	R-CHIP	SA
2007-007798	R606	R-CHIP	SA
2007-007942	R209	R-CHIP	SA
2007-007942	R327	R-CHIP	SA
2007-007981	R708	R-CHIP	SA
2007-007981	R711	R-CHIP	SA
2007-008015	R601	R-CHIP	SA
2007-008456	R508	R-CHIP	SA
2007-008531	R114	R-CHIP	SA
2007-008544	R112	R-CHIP	SA
2007-008672	R411	R-CHIP	SA
2007-008708	R701	R-CHIP	SA
2007-008739	R321	R-CHIP	SA
2007-008739	R322	R-CHIP	SA
2007-008739	R324	R-CHIP	SA
2007-008739	R325	R-CHIP	SA
2007-008806	R134	R-CHIP	SA
2203-000233	C110	C-CER,CHIP	SA
2203-000233	C157	C-CER,CHIP	SA
2203-000233	C158	C-CER,CHIP	SA
2203-000233	C164	C-CER,CHIP	SA
2203-000233	C166	C-CER,CHIP	SA
2203-000233	C167	C-CER,CHIP	SA
2203-000233	C169	C-CER,CHIP	SA
2203-000233	C170	C-CER,CHIP	SA
2203-000233	C178	C-CER,CHIP	SA
2203-000233	C181	C-CER,CHIP	SA
2203-000233	C182	C-CER,CHIP	SA
2203-000233	C503	C-CER,CHIP	SA
2203-000254	C1004	C-CER,CHIP	SA
2203-000254	C149	C-CER,CHIP	SA
2203-000254	C156	C-CER,CHIP	SA
2203-000254	C193	C-CER,CHIP	SA
2203-000254	C204	C-CER,CHIP	SA
2203-000254	C207	C-CER,CHIP	SA
2203-000254	C214	C-CER,CHIP	SA
2203-000254	C215	C-CER,CHIP	SA
2203-000254	C225	C-CER,CHIP	SA
2203-000254	C229	C-CER,CHIP	SA
2203-000254	C232	C-CER,CHIP	SA
2203-000254	C238	C-CER,CHIP	SA
2203-000254	C242	C-CER,CHIP	SA
2203-000254	C704	C-CER,CHIP	SA
2203-000254	C710	C-CER,CHIP	SA
2203-000254	C714	C-CER,CHIP	SA
2203-000254	C719	C-CER,CHIP	SA
2203-000254	C736	C-CER,CHIP	SA
2203-000311	C611	C-CER,CHIP	SA
2203-000311	C612	C-CER,CHIP	SA
2203-000311	C614	C-CER,CHIP	SA

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2203-000330	C303	C-CER,CHIP	SA
2203-000330	C304	C-CER,CHIP	SA
2203-000330	C432	C-CER,CHIP	SA
2203-000330	C601	C-CER,CHIP	SA
2203-000330	C604	C-CER,CHIP	SA
2203-000330	C742	C-CER,CHIP	SA
2203-000330	C743	C-CER,CHIP	SA
2203-000386	C428	C-CER,CHIP	SA
2203-000386	C434	C-CER,CHIP	SA
2203-000386	C508	C-CER,CHIP	SA
2203-000386	C509	C-CER,CHIP	SA
2203-000438	C1007	C-CER,CHIP	SA
2203-000438	C101	C-CER,CHIP	SA
2203-000438	C120	C-CER,CHIP	SA
2203-000438	C147	C-CER,CHIP	SA
2203-000438	C152	C-CER,CHIP	SA
2203-000438	C206	C-CER,CHIP	SA
2203-000438	C705	C-CER,CHIP	SA
2203-000438	C711	C-CER,CHIP	SA
2203-000489	C200	C-CER,CHIP	SA
2203-000489	C407	C-CER,CHIP	SA
2203-000489	C408	C-CER,CHIP	SA
2203-000627	C100	C-CER,CHIP	SNA
2203-000627	C153	C-CER,CHIP	SNA
2203-000627	C159	C-CER,CHIP	SNA
2203-000627	C188	C-CER,CHIP	SNA
2203-000679	C618	C-CER,CHIP	SA
2203-000679	C619	C-CER,CHIP	SA
2203-000679	C620	C-CER,CHIP	SA
2203-000679	C621	C-CER,CHIP	SA
2203-000679	C622	C-CER,CHIP	SA
2203-000679	C623	C-CER,CHIP	SA
2203-000679	C624	C-CER,CHIP	SA
2203-000679	C625	C-CER,CHIP	SA
2203-000714	C123	C-CER,CHIP	SA
2203-000812	C1006	C-CER,CHIP	SA
2203-000812	C103	C-CER,CHIP	SA
2203-000812	C116	C-CER,CHIP	SA
2203-000812	C126	C-CER,CHIP	SA
2203-000812	C127	C-CER,CHIP	SA
2203-000812	C162	C-CER,CHIP	SA
2203-000812	C171	C-CER,CHIP	SA
2203-000812	C180	C-CER,CHIP	SA
2203-000812	C183	C-CER,CHIP	SA
2203-000812	C344	C-CER,CHIP	SA
2203-000812	C346	C-CER,CHIP	SA
2203-000812	C400	C-CER,CHIP	SA
2203-000812	C403	C-CER,CHIP	SA
2203-000812	C405	C-CER,CHIP	SA
2203-000812	C416	C-CER,CHIP	SA
2203-000812	C422	C-CER,CHIP	SA
2203-000812	C505	C-CER,CHIP	SA
2203-000812	C506	C-CER,CHIP	SA

SEC Code	Design LOC	Description	STATUS
2203-000812	C512	C-CER,CHIP	SA
2203-000812	C514	C-CER,CHIP	SA
2203-000812	C516	C-CER,CHIP	SA
2203-000812	C518	C-CER,CHIP	SA
2203-000812	C600	C-CER,CHIP	SA
2203-000812	C602	C-CER,CHIP	SA
2203-000812	C605	C-CER,CHIP	SA
2203-000812	U405	C-CER,CHIP	SA
2203-000854	C148	C-CER,CHIP	SA
2203-000870	C137	C-CER,CHIP	SA
2203-000870	C142	C-CER,CHIP	SA
2203-000940	C154	C-CER,CHIP	SA
2203-000995	C119	C-CER,CHIP	SA
2203-000995	C125	C-CER,CHIP	SA
2203-000995	C136	C-CER,CHIP	SA
2203-001072	C138	C-CER,CHIP	SA
2203-001153	C424	C-CER,CHIP	SA
2203-001259	C401	C-CER,CHIP	SA
2203-001259	C406	C-CER,CHIP	SA
2203-001259	C415	C-CER,CHIP	SA
2203-001259	C421	C-CER,CHIP	SA
2203-001437	C114	C-CER,CHIP	SA
2203-002668	C118	C-CER,CHIP	SA
2203-002668	C124	C-CER,CHIP	SA
2203-002668	C174	C-CER,CHIP	SA
2203-002668	C190	C-CER,CHIP	SA
2203-002677	C139	C-CER,CHIP	SA
2203-002709	C1001	C-CER,CHIP	SA
2203-002709	C191	C-CER,CHIP	SA
2203-002709	C194	C-CER,CHIP	SA
2203-002709	C196	C-CER,CHIP	SA
2203-002709	C198	C-CER,CHIP	SA
2203-002709	C199	C-CER,CHIP	SA
2203-002709	C201	C-CER,CHIP	SA
2203-002709	C211	C-CER,CHIP	SA
2203-002709	C212	C-CER,CHIP	SA
2203-002709	C223	C-CER,CHIP	SA
2203-002709	C224	C-CER,CHIP	SA
2203-002709	C302	C-CER,CHIP	SA
2203-002709	C309	C-CER,CHIP	SA
2203-002709	C311	C-CER,CHIP	SA
2203-002709	C313	C-CER,CHIP	SA
2203-002709	C315	C-CER,CHIP	SA
2203-002709	C320	C-CER,CHIP	SA
2203-002709	C324	C-CER,CHIP	SA
2203-002709	C325	C-CER,CHIP	SA
2203-002709	C326	C-CER,CHIP	SA
2203-002709	C327	C-CER,CHIP	SA
2203-002709	C328	C-CER,CHIP	SA
2203-002709	C329	C-CER,CHIP	SA
2203-002709	C330	C-CER,CHIP	SA
2203-002709	C336	C-CER,CHIP	SA
2203-002709	C339	C-CER,CHIP	SA

<b>SEC Code</b>	<b>Design LOC</b>	<b>Description</b>	<b>STATUS</b>
2203-002709	C342	C-CER,CHIP	SA
2203-002709	C343	C-CER,CHIP	SA
2203-002709	C409	C-CER,CHIP	SA
2203-002709	C412	C-CER,CHIP	SA
2203-002709	C435	C-CER,CHIP	SA
2203-002709	C501	C-CER,CHIP	SA
2203-002709	C533	C-CER,CHIP	SA
2203-002709	C561	C-CER,CHIP	SA
2203-002709	C613	C-CER,CHIP	SA
2203-002709	C615	C-CER,CHIP	SA
2203-002709	C616	C-CER,CHIP	SA
2203-002709	C617	C-CER,CHIP	SA
2203-002709	C703	C-CER,CHIP	SA
2203-002709	C708	C-CER,CHIP	SA
2203-002709	C709	C-CER,CHIP	SA
2203-002709	C713	C-CER,CHIP	SA
2203-002709	C718	C-CER,CHIP	SA
2203-002709	C734	C-CER,CHIP	SA
2203-002709	C735	C-CER,CHIP	SA
2203-002709	C737	C-CER,CHIP	SA
2203-002709	C738	C-CER,CHIP	SA
2203-002759	C155	C-CER,CHIP	SA
2203-002968	C173	C-CER,CHIP	SA
2203-003054	C510	C-CER,CHIP	SA
2203-003054	C511	C-CER,CHIP	SA
2203-003054	C513	C-CER,CHIP	SA
2203-003054	C515	C-CER,CHIP	SA
2203-003054	C517	C-CER,CHIP	SA
2203-003054	C520	C-CER,CHIP	SA
2203-003054	C603	C-CER,CHIP	SA
2203-005281	C186	C-CER,CHIP	SA
2203-005288	C109	C-CER,CHIP	SA
2203-005382	C112	C-CER,CHIP	SA
2203-005382	C113	C-CER,CHIP	SA
2203-005393	C184	C-CER,CHIP	SA
2203-005481	C210	C-CER,CHIP	SA
2203-005482	C189	C-CER,CHIP	SA
2203-005482	C197	C-CER,CHIP	SA
2203-005482	C213	C-CER,CHIP	SA
2203-005482	C248	C-CER,CHIP	SA
2203-005482	C426	C-CER,CHIP	SA
2203-005659	C104	C-CER,CHIP	SA
2203-005659	C105	C-CER,CHIP	SA
2203-005659	C106	C-CER,CHIP	SA
2203-005659	C107	C-CER,CHIP	SA
2203-005725	C133	C-CER,CHIP	SA
2203-005725	C135	C-CER,CHIP	SA
2203-005725	C150	C-CER,CHIP	SA
2203-005727	C111	C-CER,CHIP	SA
2203-005736	C134	C-CER,CHIP	SA
2203-005736	C151	C-CER,CHIP	SA
2203-005806	C1002	C-CER,CHIP	SNA
2203-005806	C1005	C-CER,CHIP	SNA

SEC Code	Design LOC	Description	STATUS
2203-006048	C102	C-CER,CHIP	SA
2203-006048	C160	C-CER,CHIP	SA
2203-006048	C161	C-CER,CHIP	SA
2203-006048	C165	C-CER,CHIP	SA
2203-006048	C179	C-CER,CHIP	SA
2203-006048	C208	C-CER,CHIP	SA
2203-006048	C216	C-CER,CHIP	SA
2203-006048	C217	C-CER,CHIP	SA
2203-006048	C226	C-CER,CHIP	SA
2203-006048	C230	C-CER,CHIP	SA
2203-006048	C231	C-CER,CHIP	SA
2203-006048	C233	C-CER,CHIP	SA
2203-006048	C234	C-CER,CHIP	SA
2203-006048	C239	C-CER,CHIP	SA
2203-006048	C240	C-CER,CHIP	SA
2203-006048	C243	C-CER,CHIP	SA
2203-006048	C246	C-CER,CHIP	SA
2203-006048	C247	C-CER,CHIP	SA
2203-006048	C249	C-CER,CHIP	SA
2203-006048	C250	C-CER,CHIP	SA
2203-006048	C429	C-CER,CHIP	SA
2203-006048	C433	C-CER,CHIP	SA
2203-006048	C558	C-CER,CHIP	SA
2203-006048	C563	C-CER,CHIP	SA
2203-006048	C564	C-CER,CHIP	SA
2203-006165	C560	C-CER,CHIP	SA
2203-006208	C306	C-CER,CHIP	SA
2203-006208	C310	C-CER,CHIP	SA
2203-006208	C314	C-CER,CHIP	SA
2203-006208	C316	C-CER,CHIP	SA
2203-006208	C402	C-CER,CHIP	SA
2203-006208	C413	C-CER,CHIP	SA
2203-006208	C423	C-CER,CHIP	SA
2203-006208	C529	C-CER,CHIP	SA
2203-006260	C345	C-CER,CHIP	SA
2203-006307	C504	C-CER,CHIP	SA
2203-006324	C192	C-CER,CHIP	SA
2203-006324	C300	C-CER,CHIP	SA
2203-006324	C553	C-CER,CHIP	SA
2203-006348	C565	C-CER,CHIP	SA
2203-006399	C163	C-CER,CHIP	SA
2203-006399	C507	C-CER,CHIP	SA
2203-006399	C524	C-CER,CHIP	SA
2203-006399	C557	C-CER,CHIP	SA
2203-006423	C121	C-CER,CHIP	SA
2203-006423	C122	C-CER,CHIP	SA
2203-006423	C131	C-CER,CHIP	SA
2203-006423	C132	C-CER,CHIP	SA
2203-006423	C143	C-CER,CHIP	SA
2203-006423	C144	C-CER,CHIP	SA
2203-006423	C145	C-CER,CHIP	SA
2203-006423	C146	C-CER,CHIP	SA
2203-006423	C209	C-CER,CHIP	SA

<b>SEC Code</b>	<b>Design LOC</b>	<b>Description</b>	<b>STATUS</b>
2203-006562	C1000	C-CER,CHIP	SA
2203-006562	C130	C-CER,CHIP	SA
2203-006562	C195	C-CER,CHIP	SA
2203-006562	C202	C-CER,CHIP	SA
2203-006562	C203	C-CER,CHIP	SA
2203-006562	C205	C-CER,CHIP	SA
2203-006562	C218	C-CER,CHIP	SA
2203-006562	C221	C-CER,CHIP	SA
2203-006562	C222	C-CER,CHIP	SA
2203-006562	C227	C-CER,CHIP	SA
2203-006562	C228	C-CER,CHIP	SA
2203-006562	C235	C-CER,CHIP	SA
2203-006562	C236	C-CER,CHIP	SA
2203-006562	C237	C-CER,CHIP	SA
2203-006562	C244	C-CER,CHIP	SA
2203-006562	C245	C-CER,CHIP	SA
2203-006562	C307	C-CER,CHIP	SA
2203-006562	C317	C-CER,CHIP	SA
2203-006562	C318	C-CER,CHIP	SA
2203-006562	C319	C-CER,CHIP	SA
2203-006562	C404	C-CER,CHIP	SA
2203-006562	C419	C-CER,CHIP	SA
2203-006562	C420	C-CER,CHIP	SA
2203-006562	C430	C-CER,CHIP	SA
2203-006562	C431	C-CER,CHIP	SA
2203-006562	C436	C-CER,CHIP	SA
2203-006562	C521	C-CER,CHIP	SA
2203-006562	C527	C-CER,CHIP	SA
2203-006562	C534	C-CER,CHIP	SA
2203-006562	C537	C-CER,CHIP	SA
2203-006562	C540	C-CER,CHIP	SA
2203-006562	C548	C-CER,CHIP	SA
2203-006562	C549	C-CER,CHIP	SA
2203-006562	C550	C-CER,CHIP	SA
2203-006562	C554	C-CER,CHIP	SA
2203-006562	C607	C-CER,CHIP	SA
2203-006562	C609	C-CER,CHIP	SA
2203-006562	C702	C-CER,CHIP	SA
2203-006562	C706	C-CER,CHIP	SA
2203-006562	C707	C-CER,CHIP	SA
2203-006562	C712	C-CER,CHIP	SA
2203-006562	C715	C-CER,CHIP	SA
2203-006562	C717	C-CER,CHIP	SA
2203-006562	C722	C-CER,CHIP	SA
2203-006562	C723	C-CER,CHIP	SA
2203-006562	C724	C-CER,CHIP	SA
2203-006562	C725	C-CER,CHIP	SA
2203-006562	C726	C-CER,CHIP	SA
2203-006562	C727	C-CER,CHIP	SA
2203-006562	C728	C-CER,CHIP	SA
2203-006562	C729	C-CER,CHIP	SA
2203-006562	C730	C-CER,CHIP	SA
2203-006562	C731	C-CER,CHIP	SA

<b>SEC Code</b>	<b>Design LOC</b>	<b>Description</b>	<b>STATUS</b>
2203-006562	C732	C-CER,CHIP	SA
2203-006562	C733	C-CER,CHIP	SA
2203-006681	C1008	C-CER,CHIP	SA
2203-006681	C115	C-CER,CHIP	SA
2203-006681	C176	C-CER,CHIP	SA
2203-006681	C500	C-CER,CHIP	SA
2203-006681	C502	C-CER,CHIP	SA
2203-006681	C519	C-CER,CHIP	SA
2203-006681	C528	C-CER,CHIP	SA
2203-006681	C531	C-CER,CHIP	SA
2203-006681	C716	C-CER,CHIP	SA
2203-006681	C720	C-CER,CHIP	SA
2203-006681	C721	C-CER,CHIP	SA
2203-006824	C117	C-CER,CHIP	SA
2203-006824	C220	C-CER,CHIP	SA
2203-006824	C301	C-CER,CHIP	SA
2203-006824	C321	C-CER,CHIP	SA
2203-006824	C322	C-CER,CHIP	SA
2203-006824	C323	C-CER,CHIP	SA
2203-006824	C331	C-CER,CHIP	SA
2203-006824	C332	C-CER,CHIP	SA
2203-006824	C333	C-CER,CHIP	SA
2203-006824	C337	C-CER,CHIP	SA
2203-006824	C338	C-CER,CHIP	SA
2203-006824	C340	C-CER,CHIP	SA
2203-006824	C347	C-CER,CHIP	SA
2203-006824	C522	C-CER,CHIP	SA
2203-006824	C523	C-CER,CHIP	SA
2203-006824	C525	C-CER,CHIP	SA
2203-006824	C535	C-CER,CHIP	SA
2203-006824	C536	C-CER,CHIP	SA
2203-006824	C538	C-CER,CHIP	SA
2203-006824	C539	C-CER,CHIP	SA
2203-006824	C541	C-CER,CHIP	SA
2203-006824	C542	C-CER,CHIP	SA
2203-006824	C543	C-CER,CHIP	SA
2203-006824	C544	C-CER,CHIP	SA
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2203-006824	C546	C-CER,CHIP	SA
2203-006824	C547	C-CER,CHIP	SA
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2203-006824	C555	C-CER,CHIP	SA
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2203-006824	C559	C-CER,CHIP	SA
2203-006825	C334	C-CER,CHIP	SA
2203-006825	C335	C-CER,CHIP	SA
2203-006825	C341	C-CER,CHIP	SA
2203-006825	C348	C-CER,CHIP	SA
2203-006837	C172	C-CER,CHIP	SA
2203-006838	C312	C-CER,CHIP	SA
2203-006838	C414	C-CER,CHIP	SA
2203-006838	C425	C-CER,CHIP	SA



SEC Code	Design LOC	Description	STATUS
2203-006838	C530	C-CER,CHIP	SA
2203-006838	C608	C-CER,CHIP	SA
2203-006838	C610	C-CER,CHIP	SA
2203-006872	C219	C-CER,CHIP	SA
2203-006890	C241	C-CER,CHIP	SA
2203-006890	C308	C-CER,CHIP	SA
2203-007147	C305	C-CER,CHIP	SA
2203-007147	C349	C-CER,CHIP	SA
2203-007165	C562	C-CER,CHIP	SA
2404-001268	TA401	C-TA,CHIP	SA
2404-001339	TA500	C-TA,CHIP	SA
2404-001377	ZD409	C-TA,CHIP	SA
2404-001381	C606	C-TA,CHIP	SA
2404-001381	TA400	C-TA,CHIP	SA
2404-001381	TA402	C-TA,CHIP	SA
2404-001381	TA403	C-TA,CHIP	SA
2404-001381	TA404	C-TA,CHIP	SA
2404-001381	TA501	C-TA,CHIP	SA
2404-001449	TA300	C-TA,CHIP	SA
2404-001449	TA301	C-TA,CHIP	SA
2404-001496	TA100	C-TA,CHIP	SA
2703-001180	L102	INDUCTOR-SMD	SA
2703-001701	L119	INDUCTOR-SMD	SA
2703-001749	L115	INDUCTOR-SMD	SA
2703-001750	L100	INDUCTOR-SMD	SA
2703-001938	L407	INDUCTOR-SMD	SA
2703-001938	L408	INDUCTOR-SMD	SA
2703-002155	L110	INDUCTOR-SMD	SA
2703-002198	L121	INDUCTOR-SMD	SA
2703-002198	L414	INDUCTOR-SMD	SA
2703-002198	L415	INDUCTOR-SMD	SA
2703-002199	L120	INDUCTOR-SMD	SA
2703-002200	L107	INDUCTOR-SMD	SA
2703-002200	L118	INDUCTOR-SMD	SA
2703-002201	L101	INDUCTOR-SMD	SA
2703-002201	L410	INDUCTOR-SMD	SA
2703-002201	L411	INDUCTOR-SMD	SA
2703-002201	L412	INDUCTOR-SMD	SA
2703-002201	L413	INDUCTOR-SMD	SA
2703-002202	L109	INDUCTOR-SMD	SA
2703-002202	L111	INDUCTOR-SMD	SA
2703-002204	L104	INDUCTOR-SMD	SA
2703-002204	L133	INDUCTOR-SMD	SA
2703-002267	L113	INDUCTOR-SMD	SA
2703-002281	L103	INDUCTOR-SMD	SA
2703-002281	L105	INDUCTOR-SMD	SA
2703-002281	L106	INDUCTOR-SMD	SA
2703-002281	L108	INDUCTOR-SMD	SA
2703-002365	L126	INDUCTOR-SMD	SA
2703-002367	L122	INDUCTOR-SMD	SA
2703-002368	L124	INDUCTOR-SMD	SA
2703-002369	L114	INDUCTOR-SMD	SA
2703-002596	L130	INDUCTOR-SMD	SA

SEC Code	Design LOC	Description	STATUS
2703-002798	L112	INDUCTOR-SMD	SNA
2703-002798	L116	INDUCTOR-SMD	SNA
2703-002893	L501	INDUCTOR-SMD	SA
2703-002919	L117	INDUCTOR-SMD	SA
2703-003182	L304	INDUCTOR-SMD	SA
2703-003182	L305	INDUCTOR-SMD	SA
2703-003184	L300	INDUCTOR-SMD	SA
2703-003184	L301	INDUCTOR-SMD	SA
2703-003184	L302	INDUCTOR-SMD	SA
2703-003184	L303	INDUCTOR-SMD	SA
2703-003240	L306	INDUCTOR-SMD	SA
2801-004189	OSC700	CRYSTAL-SMD	SA
2801-004466	OSC300	CRYSTAL-SMD	SA
2801-004466	OSC500	CRYSTAL-SMD	SA
2801-004466	OSC701	CRYSTAL-SMD	SA
2804-001725	OSC400	OSCILLATOR-CLOCK	SA
2809-001280	TCX100	OSCILLATOR-VCTCXO	SA
2901-001361	F600	FILTER-EMI/ESD	SNA
2901-001361	F602	FILTER-EMI/ESD	SNA
2901-001361	F604	FILTER-EMI/ESD	SNA
2901-001461	F601	FILTER-EMI/ESD	SA
2901-001461	F603	FILTER-EMI/ESD	SA
2904-001629	F105	FILTER-SAW	SA
2904-001702	F101	FILTER-SAW	SA
2904-001703	F102	FILTER-SAW	SA
2904-001738	F103	FILTER-SAW	SA
2904-001759	F104	FILTER-SAW	SA
2910-000004	F107	DUPLEXER-FBAR	SA
2911-000091	F100	DUPLEXER-FEM	SA
3301-001438	L405	BEAD-SMD	SA
3301-001438	L406	BEAD-SMD	SA
3301-001534	L500	BEAD-SMD	SA
3301-001682	L402	BEAD-SMD	SA
3301-001682	L403	BEAD-SMD	SA
3301-001682	L404	BEAD-SMD	SA
3301-001756	L131	BEAD-SMD	SA
3301-001789	L400	BEAD-SMD	SA
3301-001789	L401	BEAD-SMD	SA
3404-001303	SW600	SWITCH-TACT	SA
3404-001303	SW601	SWITCH-TACT	SA
3705-001225	ANT100	CONNECTOR-COAXIAL	SA
3705-001421	RFS100	CONNECTOR-COAXIAL	SA
3708-002222	SLC600	CONNECTOR-FPC/FFC/PIC	SA
3708-002222	SLC601	CONNECTOR-FPC/FFC/PIC	SA
3708-002283	SLC602	CONNECTOR-FPC/FFC/PIC	SA
3709-001465	CD300	CONNECTOR-CARD EDGE	SA
3710-002499	IFC500	SOCKET-INTERFACE	SA
3711-005296	HDC601	HEADER-BOARD TO BOARD	SA
3711-005394	HDC600	HEADER-BOARD TO BOARD	SA
3711-006217	BTC300	HEADER-BATTERY	SA
3711-006277	HDC602	HEADER-BOARD TO BOARD	SA
3711-006277	HDC603	HEADER-BOARD TO BOARD	SA
4202-001356	ANT102	ANTENNA-CHIP	SA

<b>SEC Code</b>	<b>Design LOC</b>	<b>Description</b>	<b>STATUS</b>
4302-001180	BAT500	BATTERY-LI(2ND)	SA
4709-001399	F106	COUPLER-DIRECTION	SA
4709-001527	MOD101	W-LAN MODULE	SA
4709-001544	MOD100	BLUETOOTH MODULE	SA
GH71-06620A	ANT104	NPR-CONTACT INTENA	SA
GH71-06620A	ANT105	NPR-CONTACT INTENA	SA
GH71-06620A	ANT106	NPR-CONTACT INTENA	SA
GH71-07813A	SC100	NPR SHIELD-FRAME A	SA
GH71-07814A	SC101	NPR SHIELD-FRAME B	SA

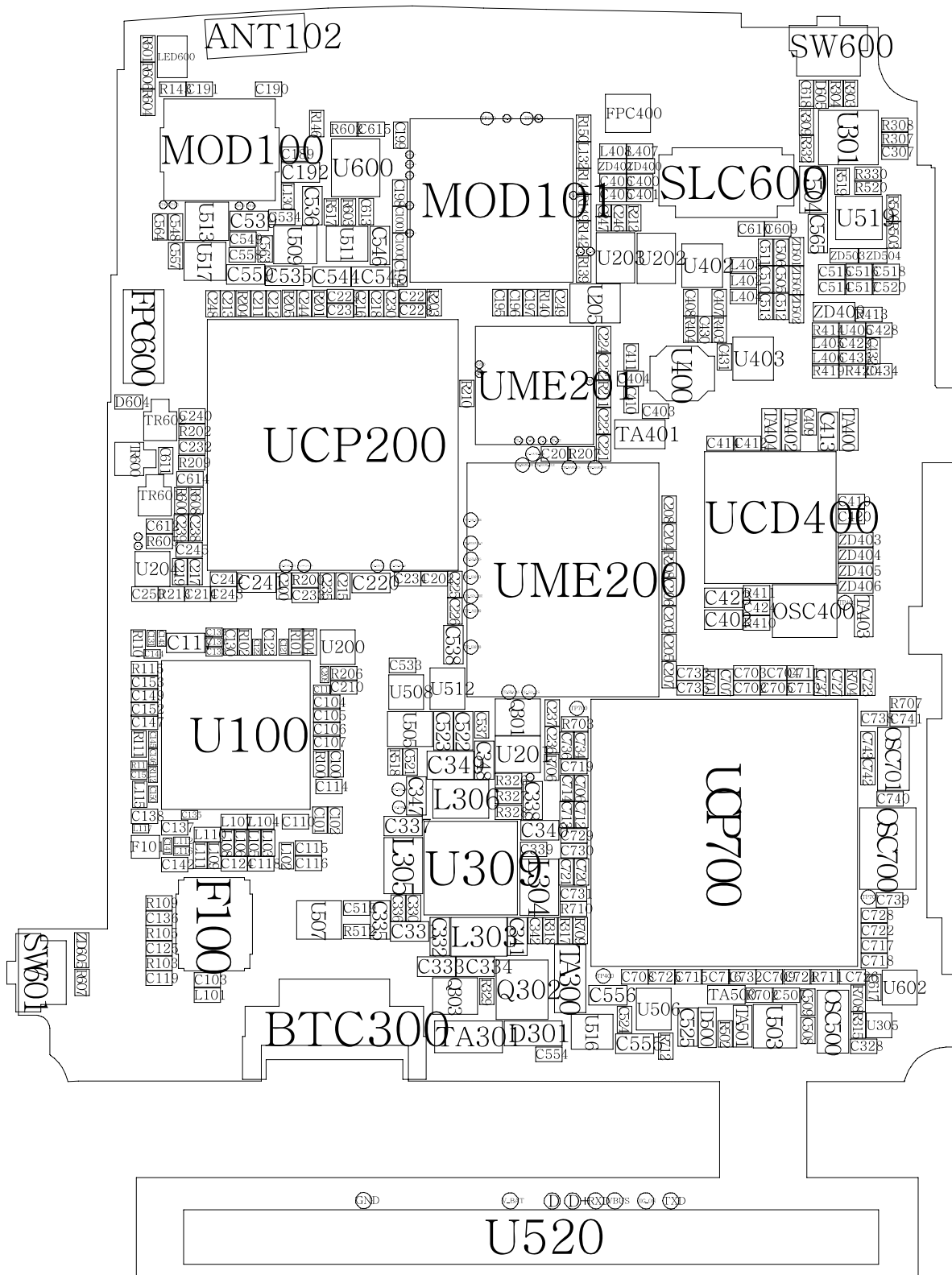
Please consult the GSPN website (Samsung Portal) for the most recent version of the product's part list.



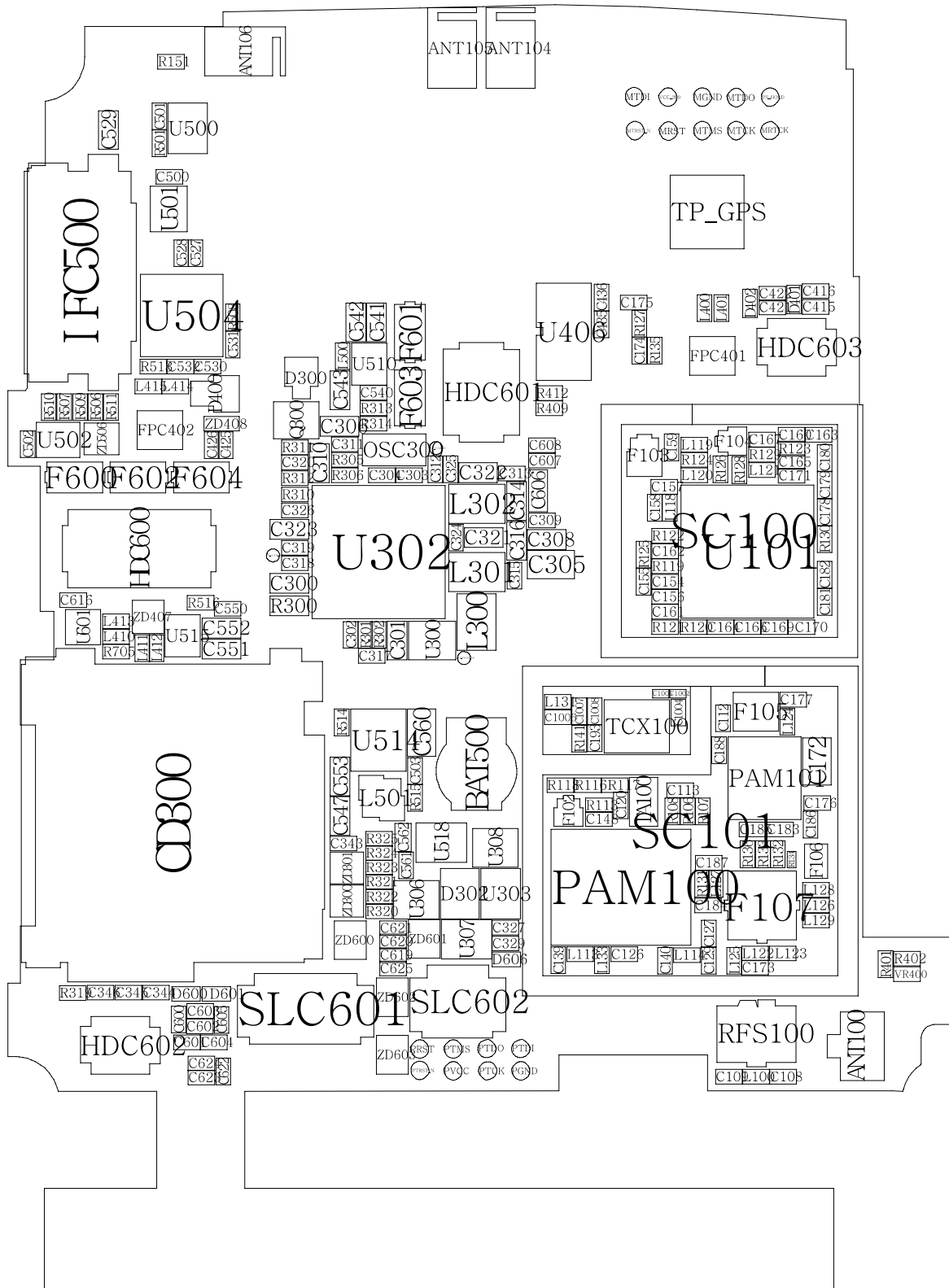


# 8. PCB Diagrams

## 8-1. Main top view



### 8-2. Main bottom view



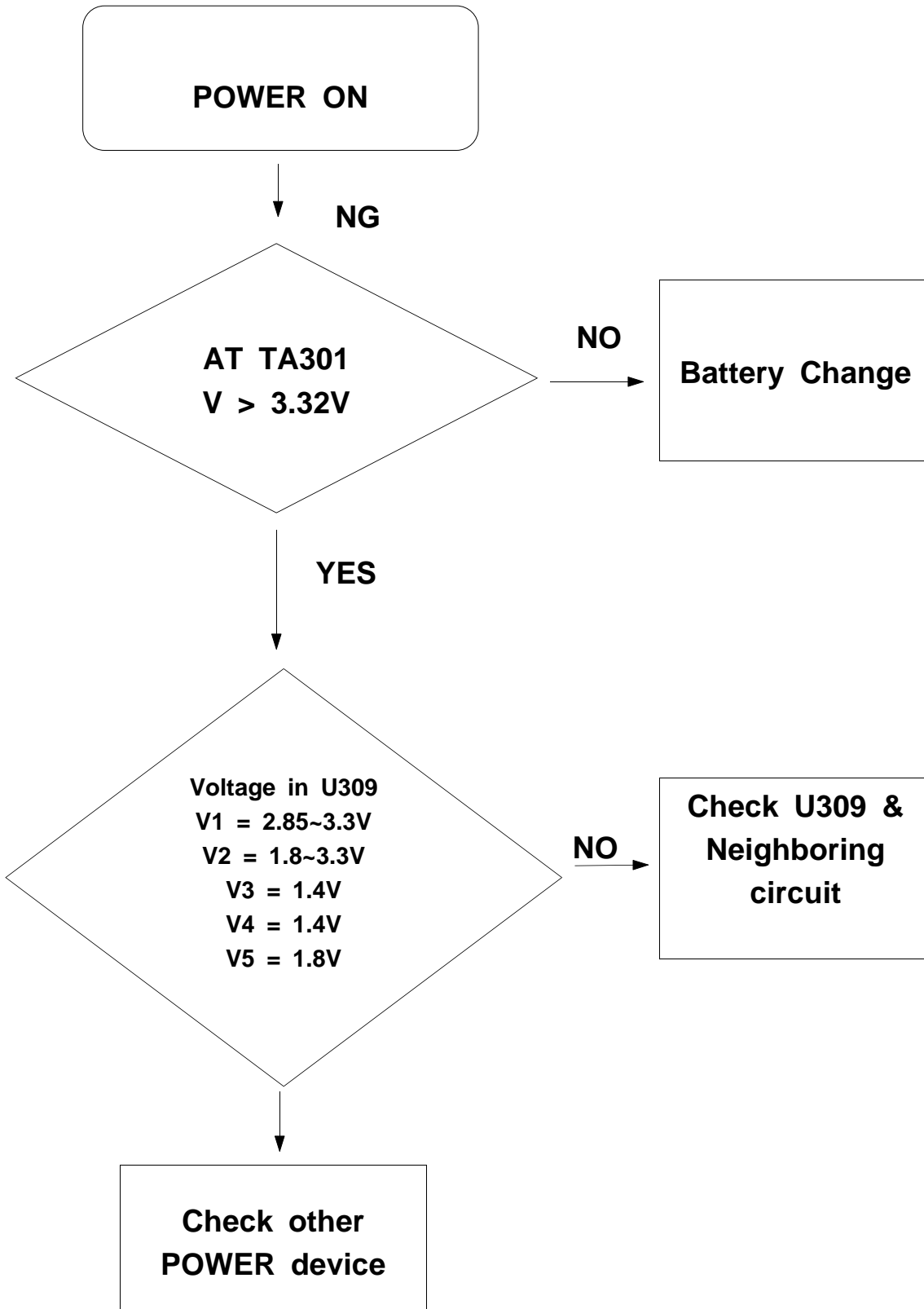
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## 9. Flow Chart of TroubleShooting

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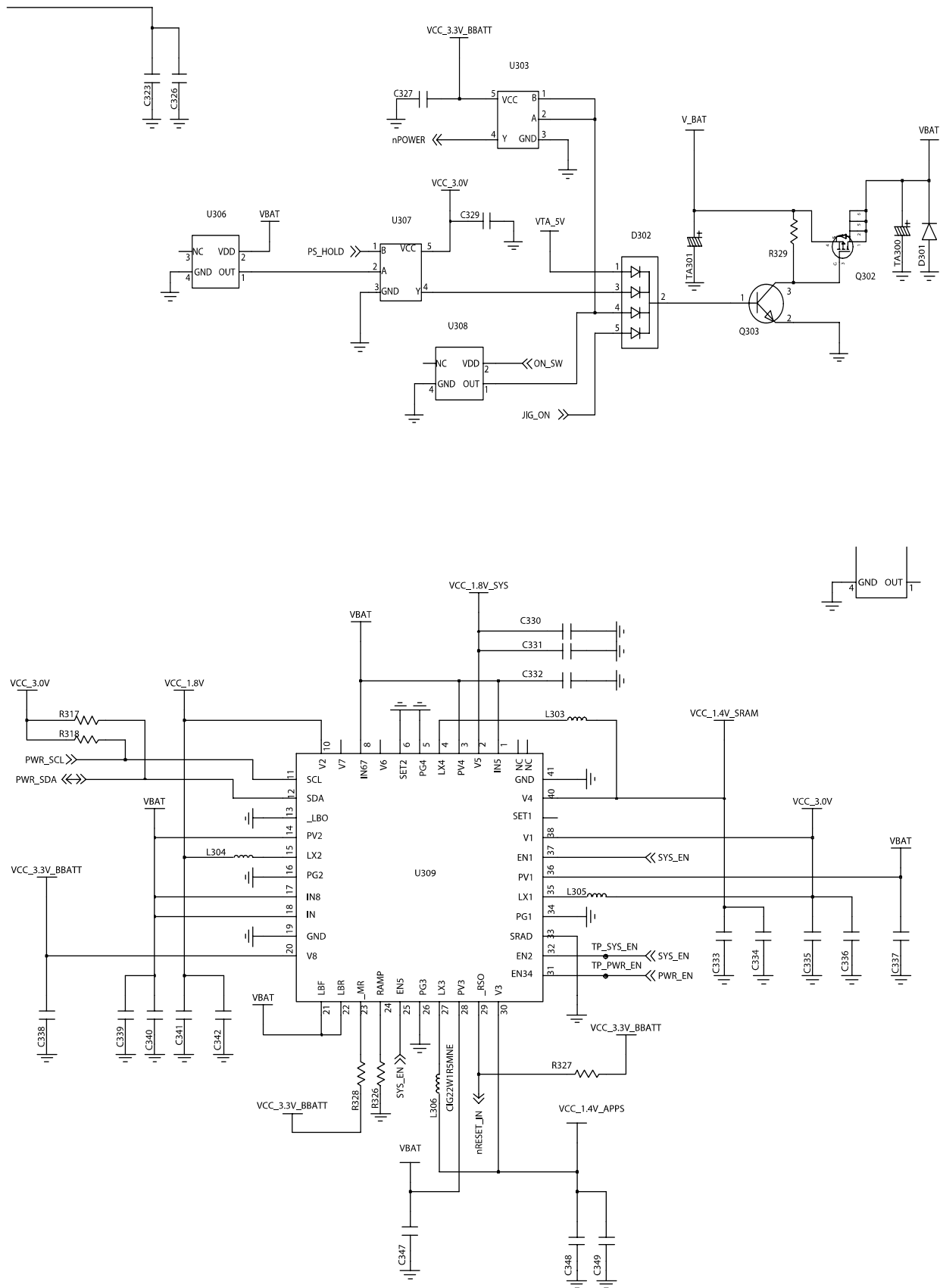
### 9-1. Power On

- PDA Part

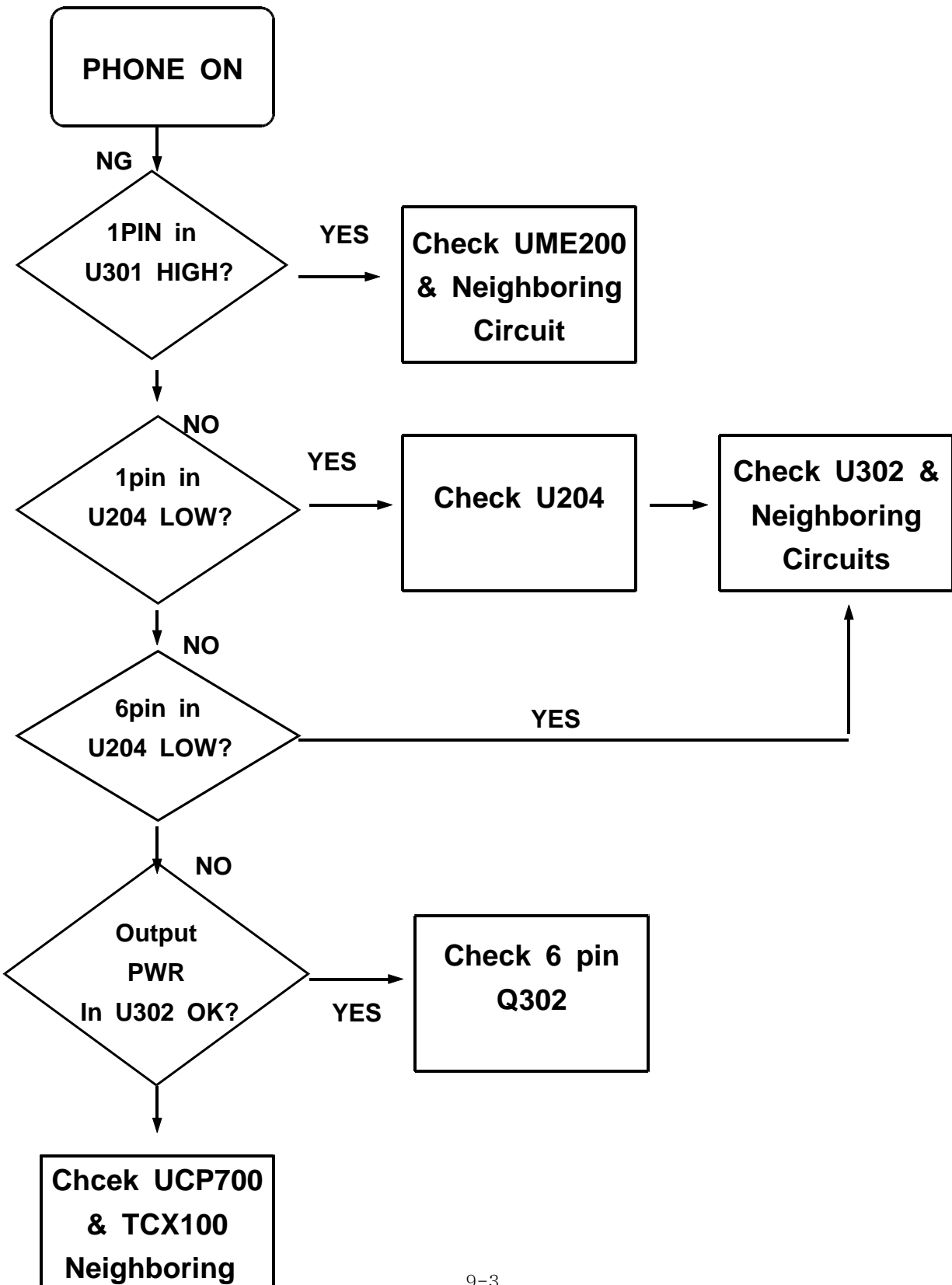




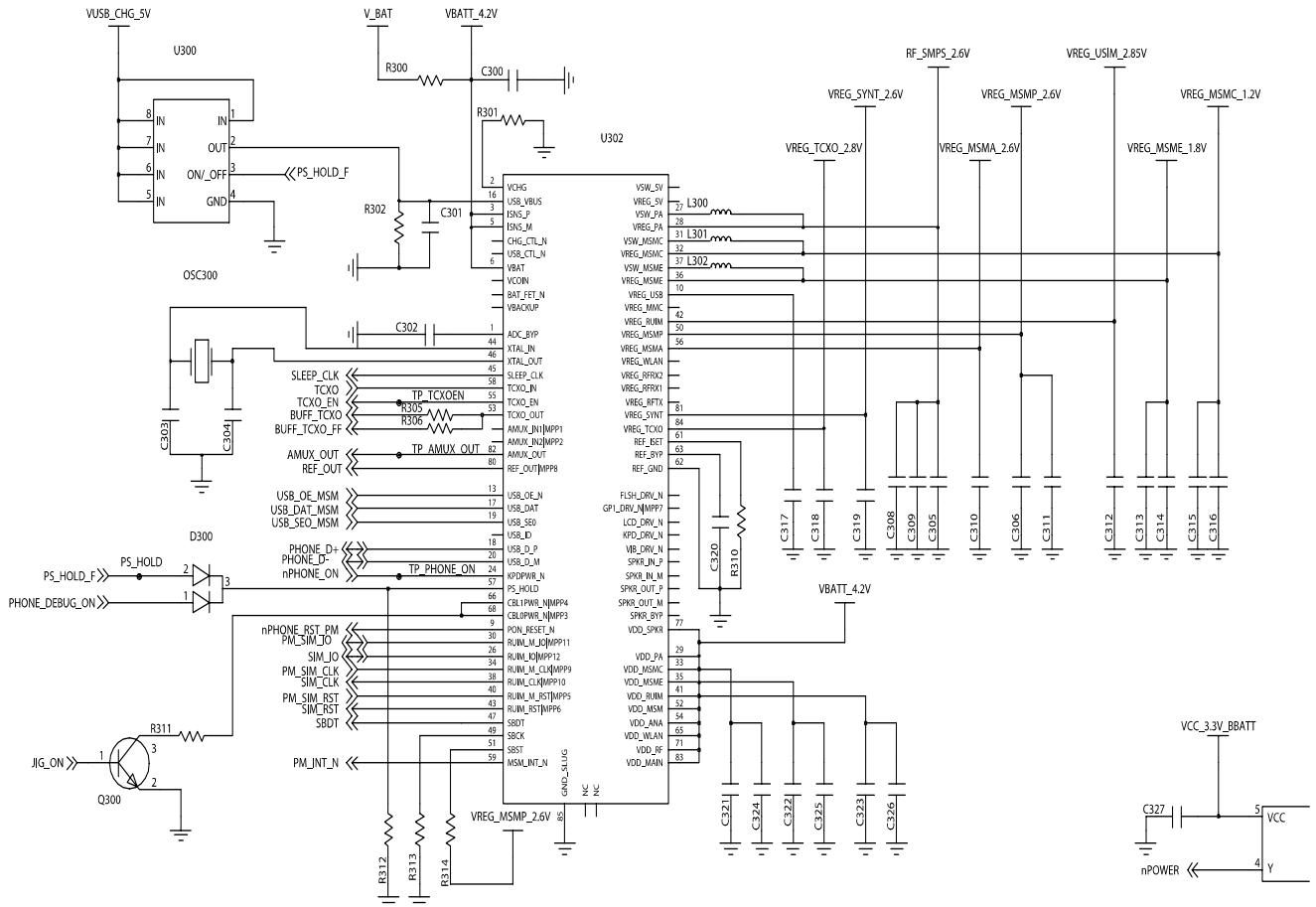
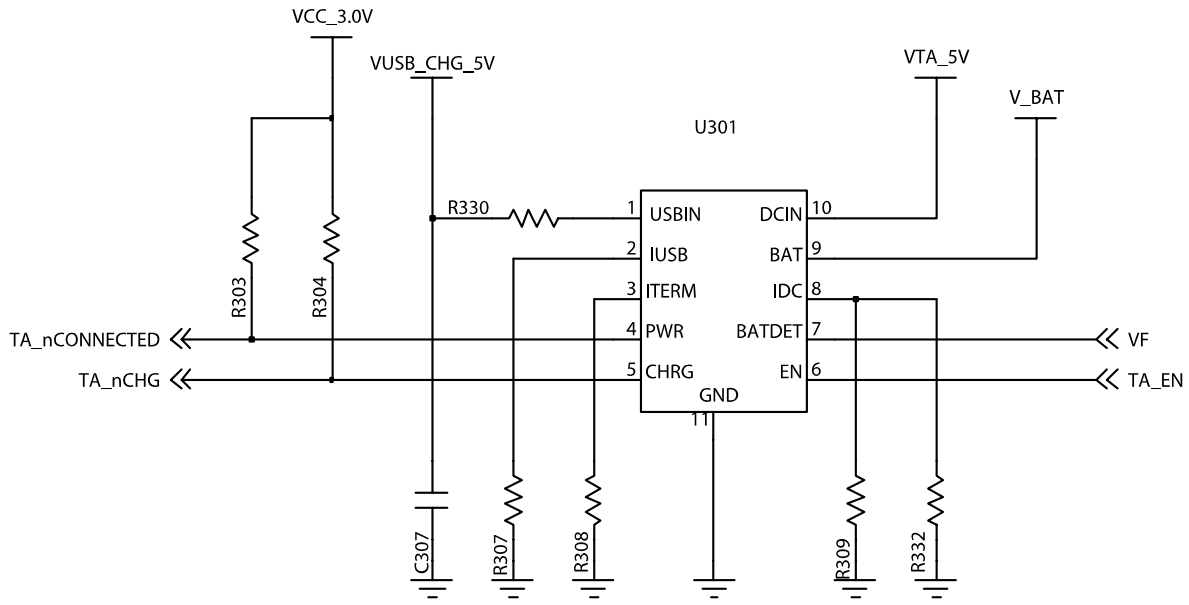
# Flow Chart of Troubleshooting

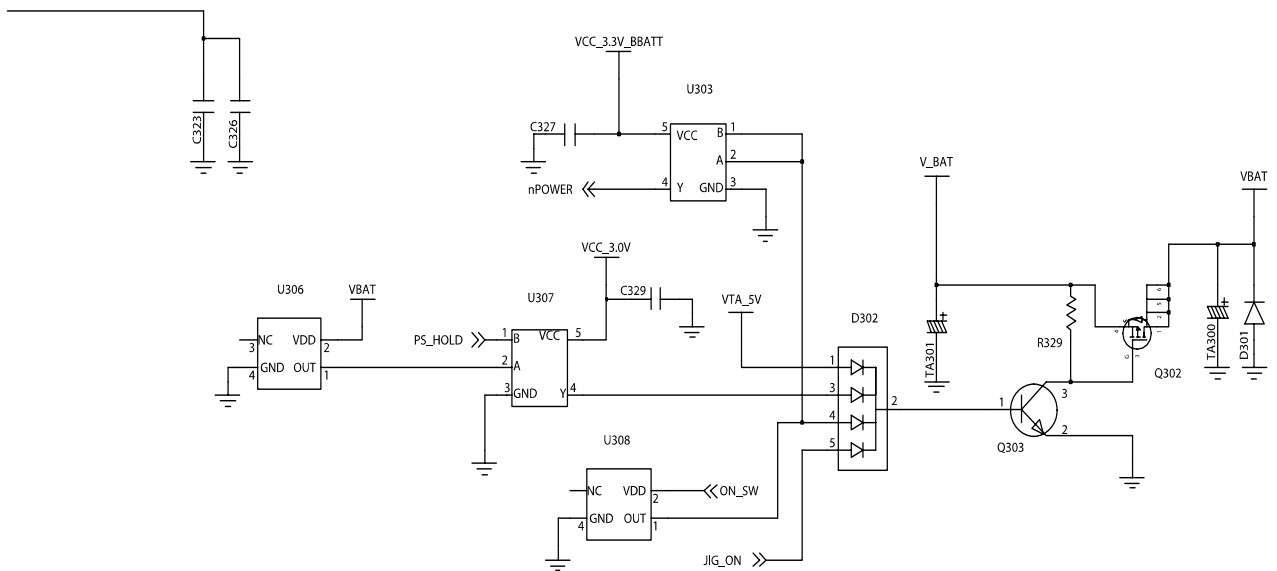
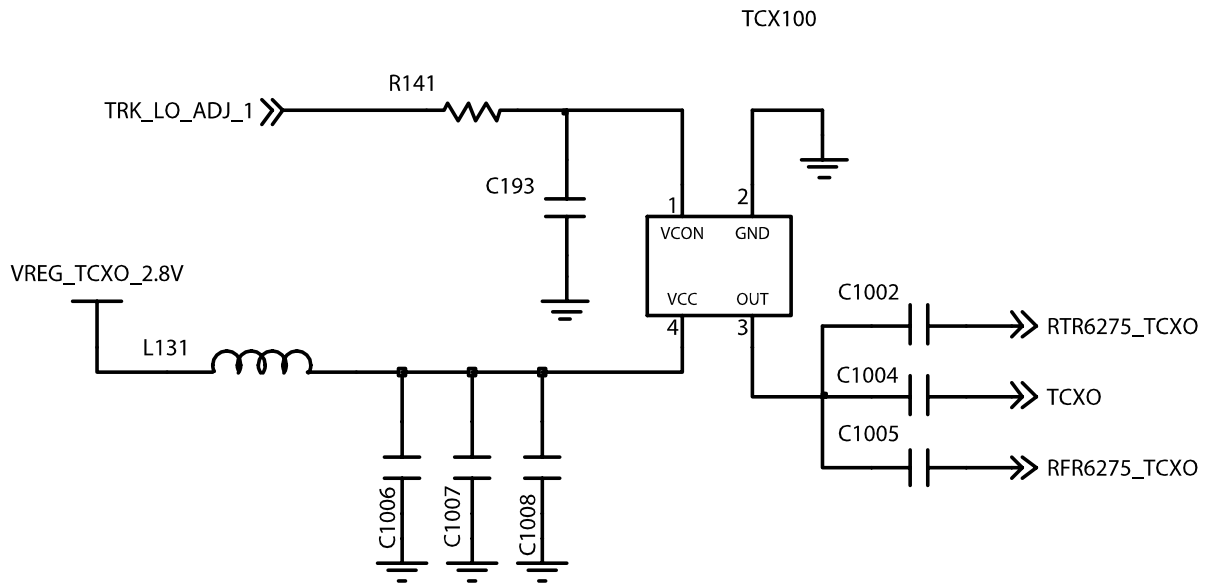


● PHONE Part



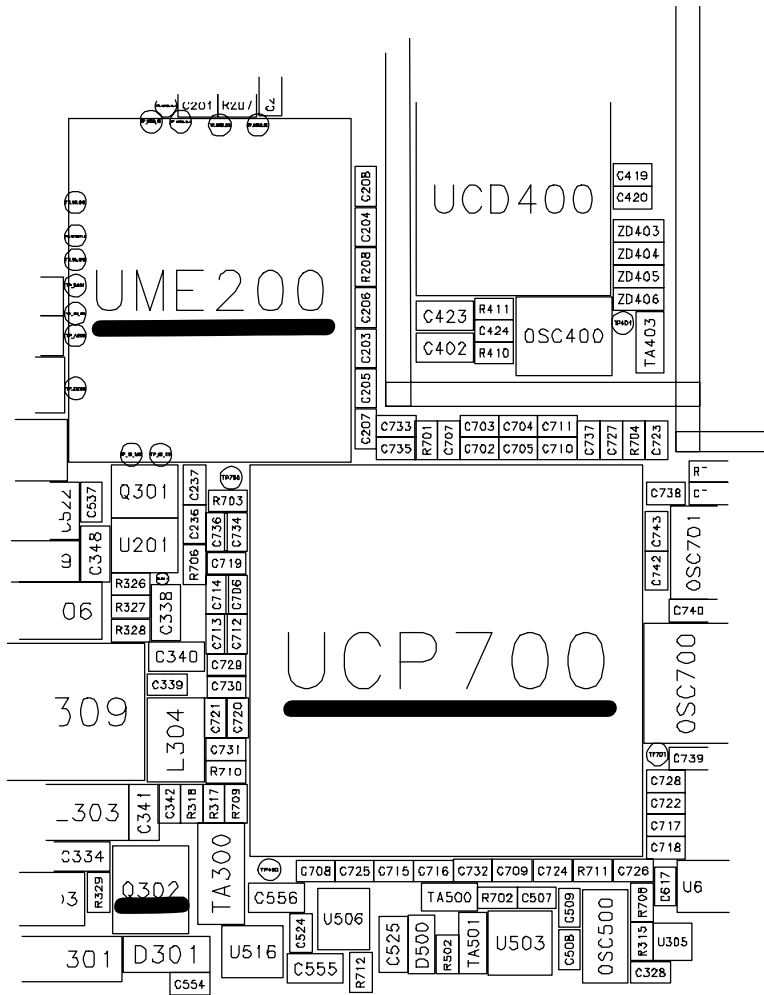




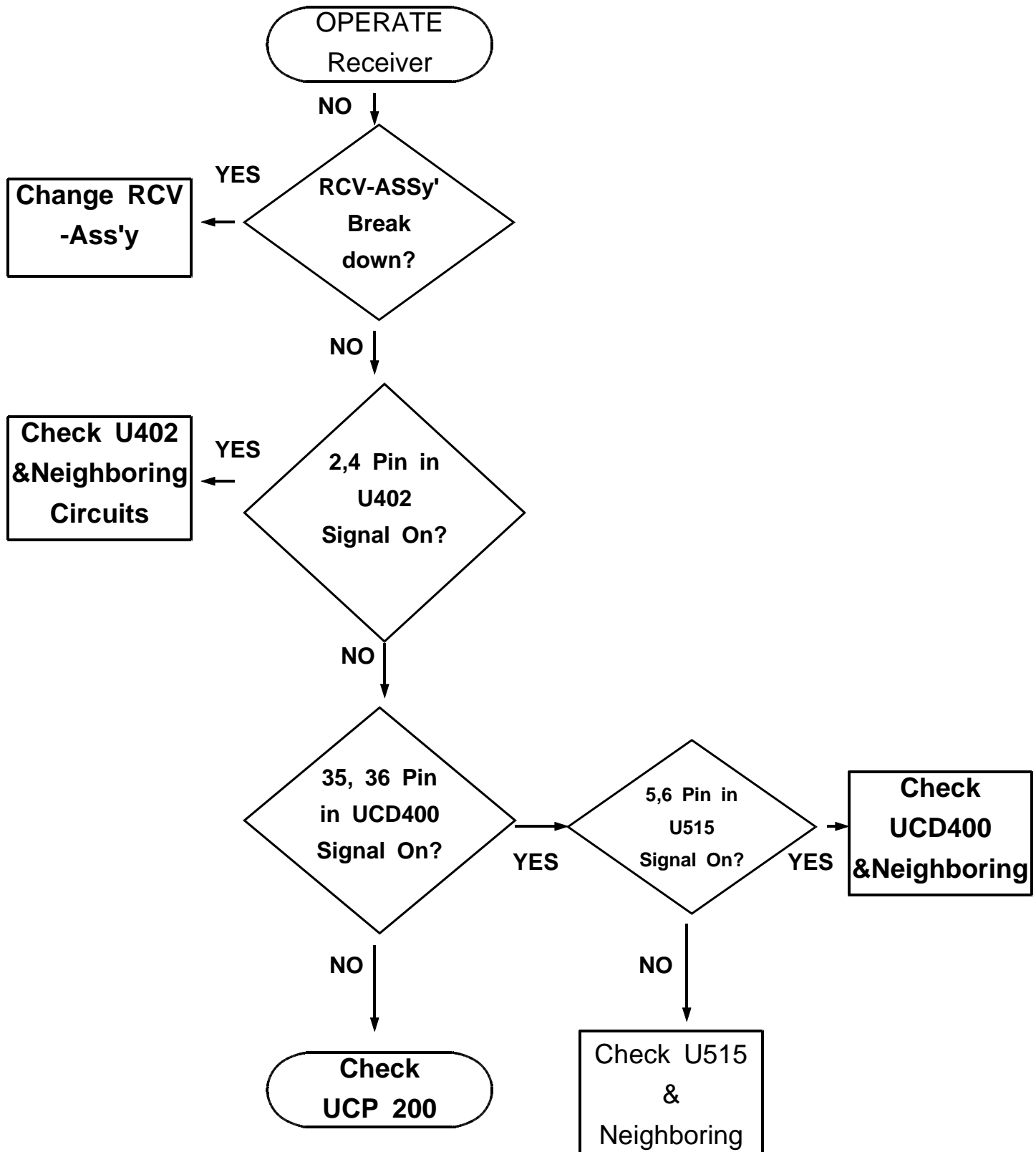




# Flow Chart of Troubleshooting

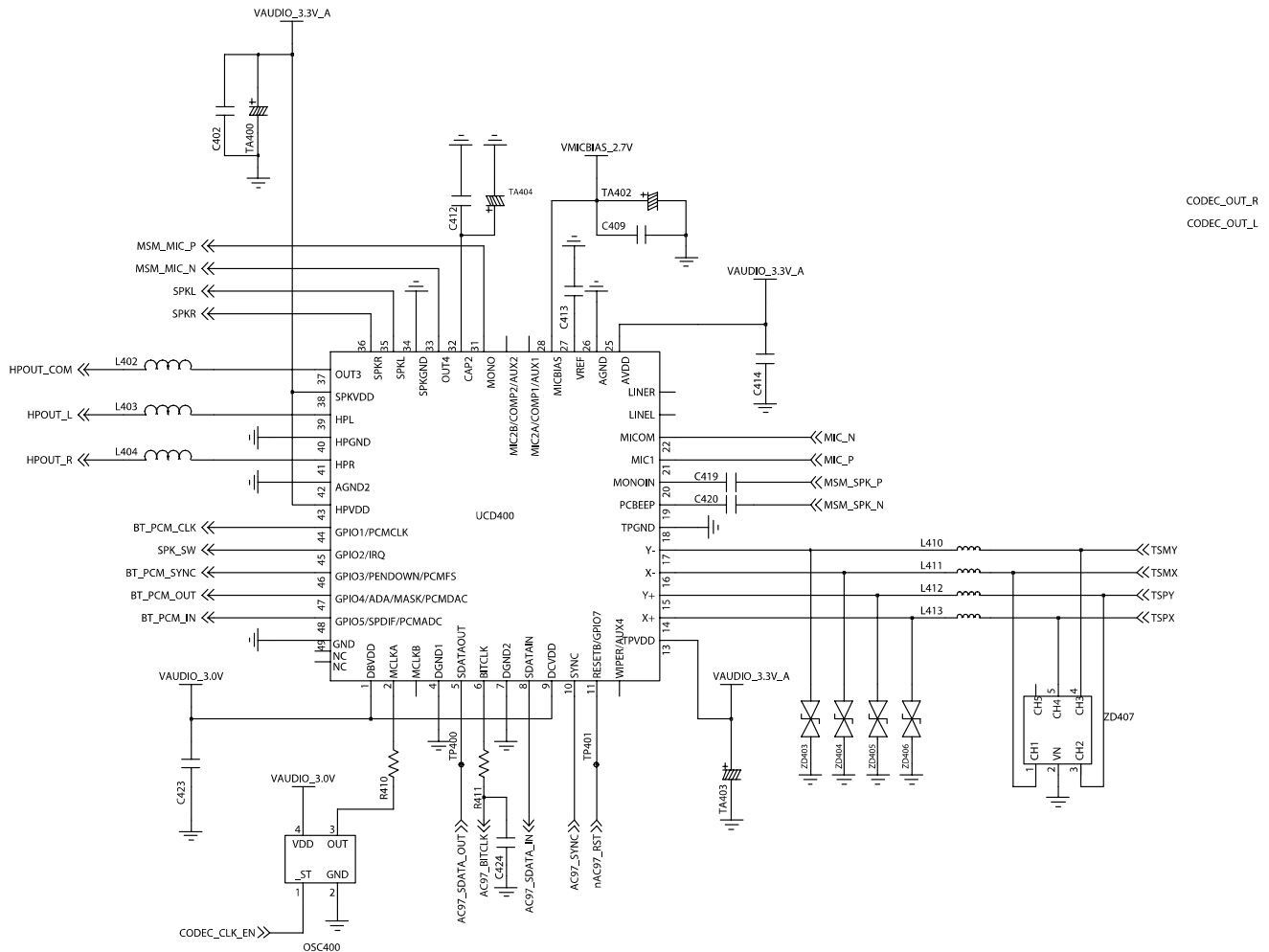
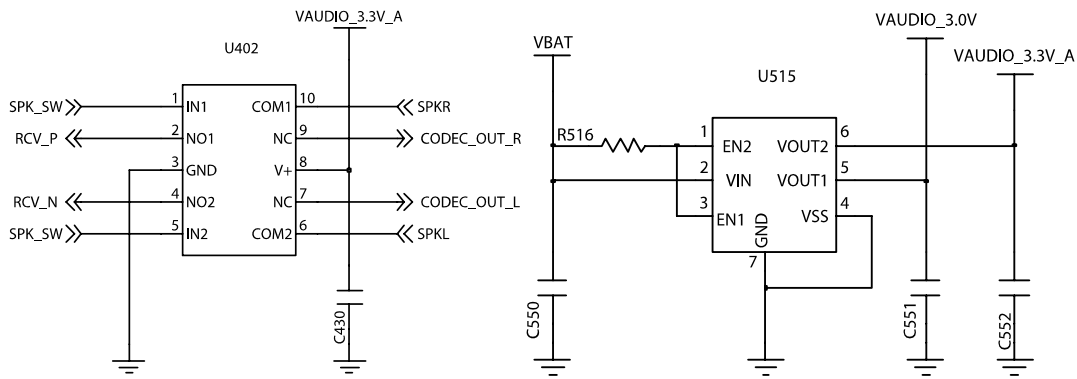


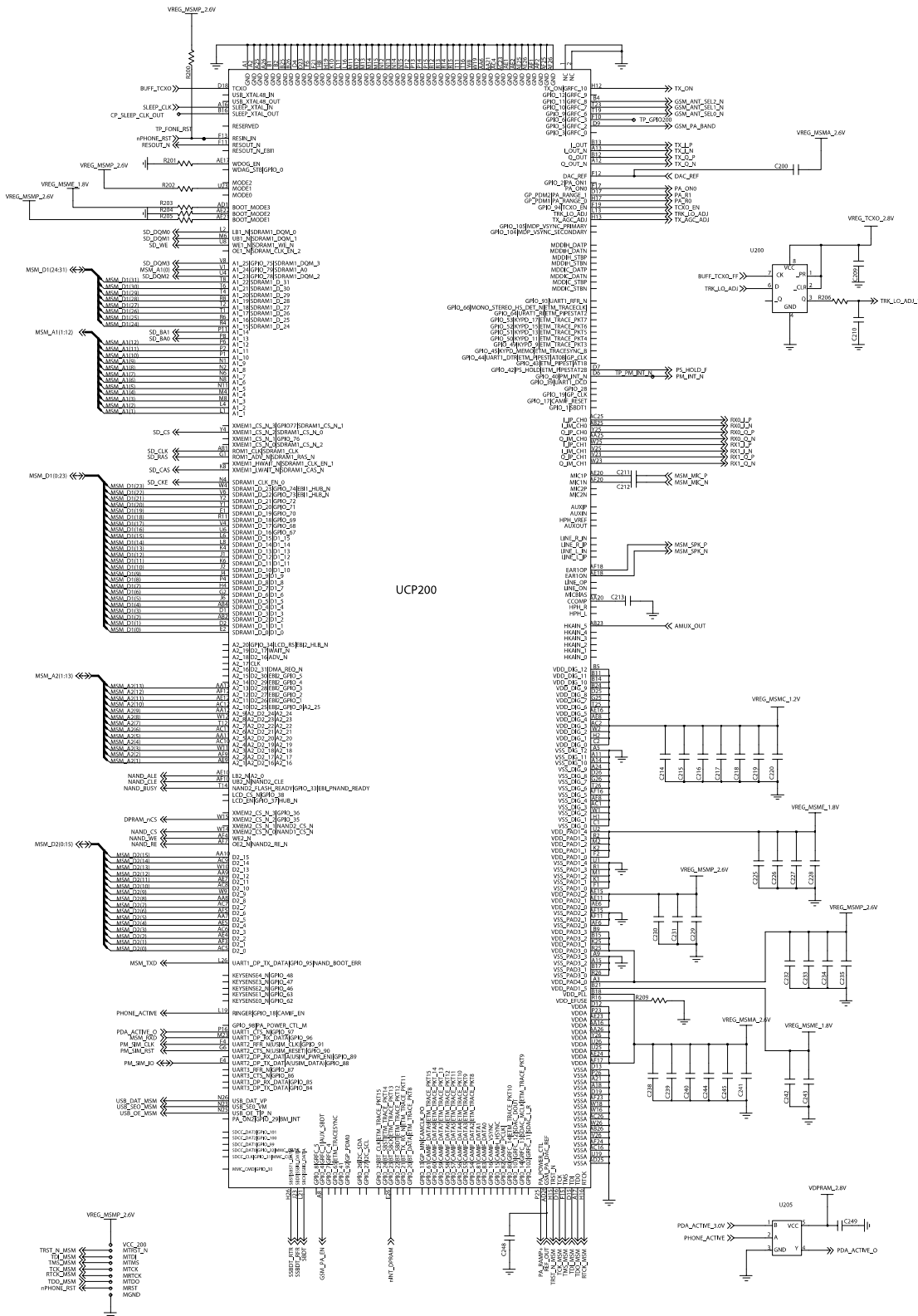
9-2. RECEIVER Working



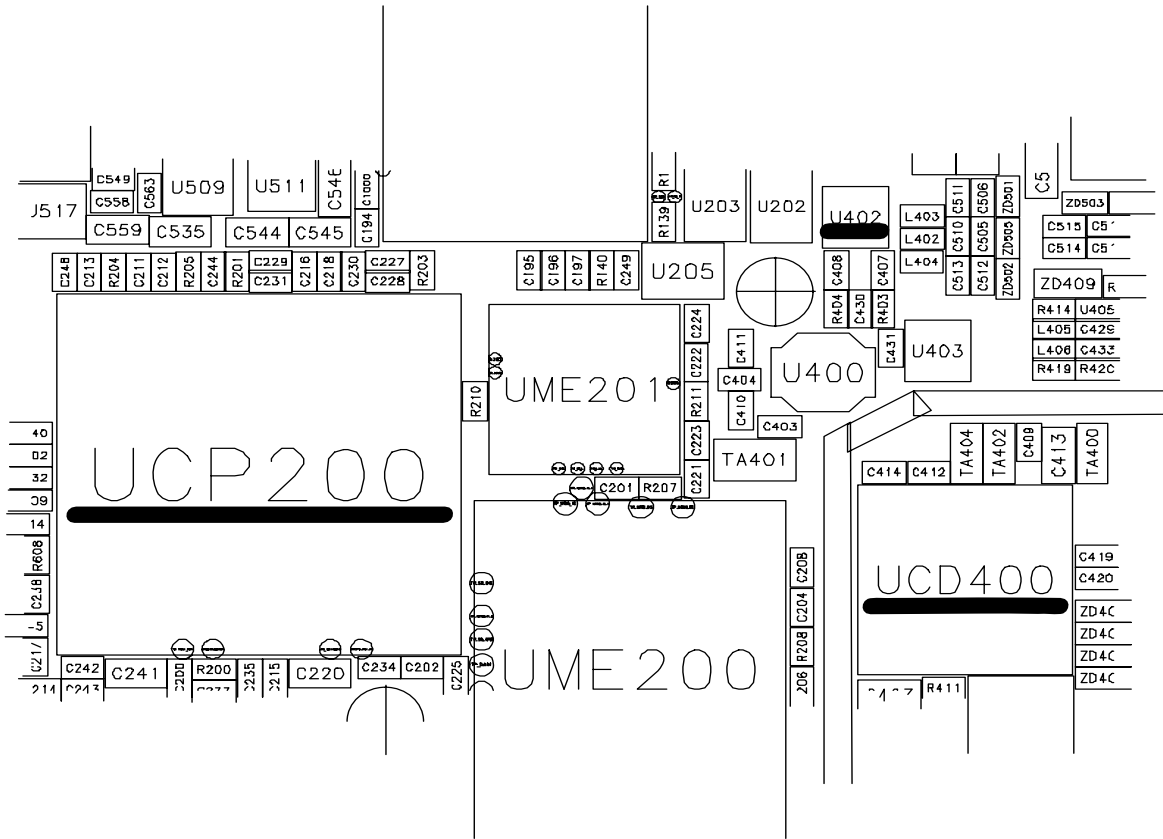


# Flow Chart of Troubleshooting

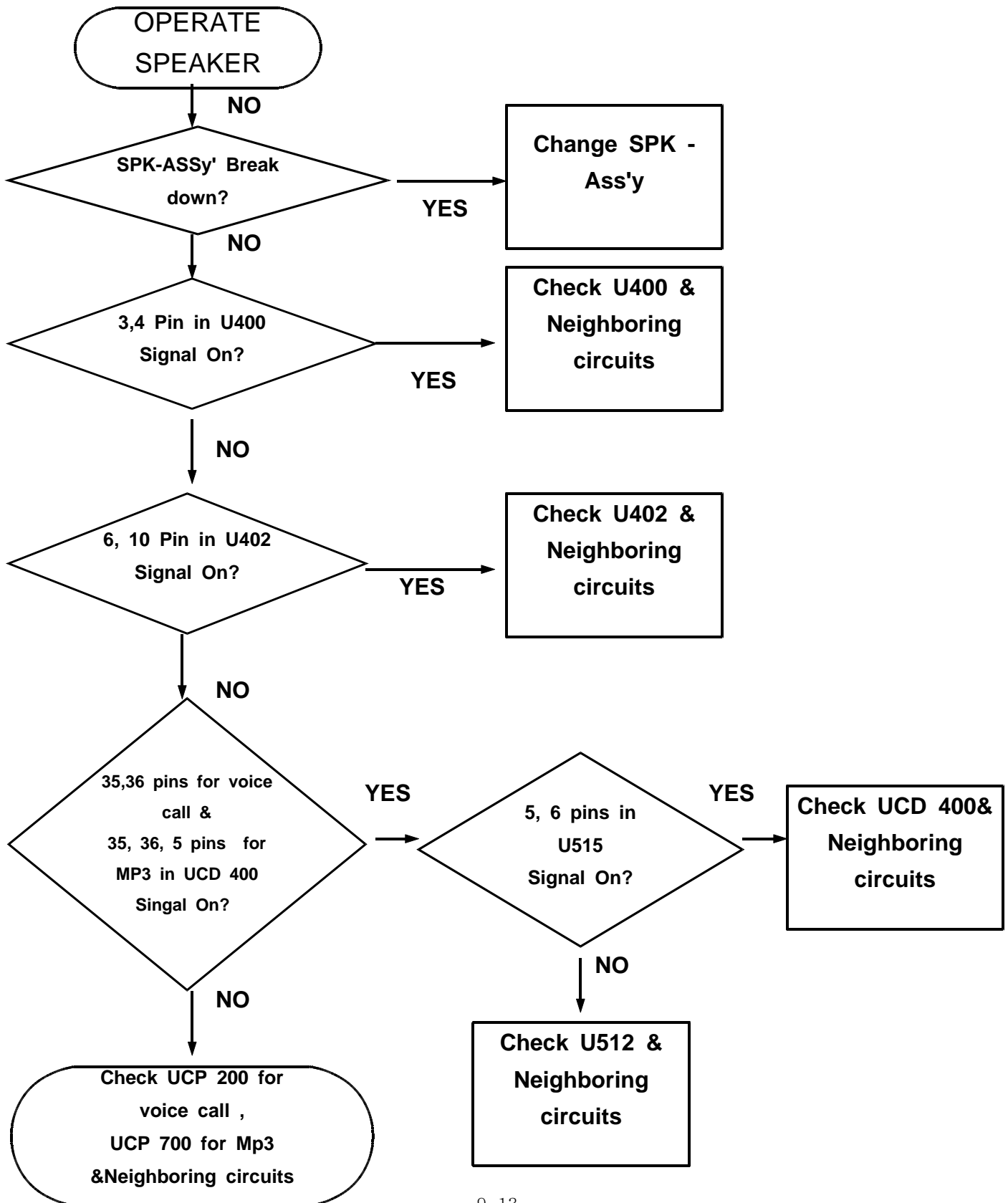




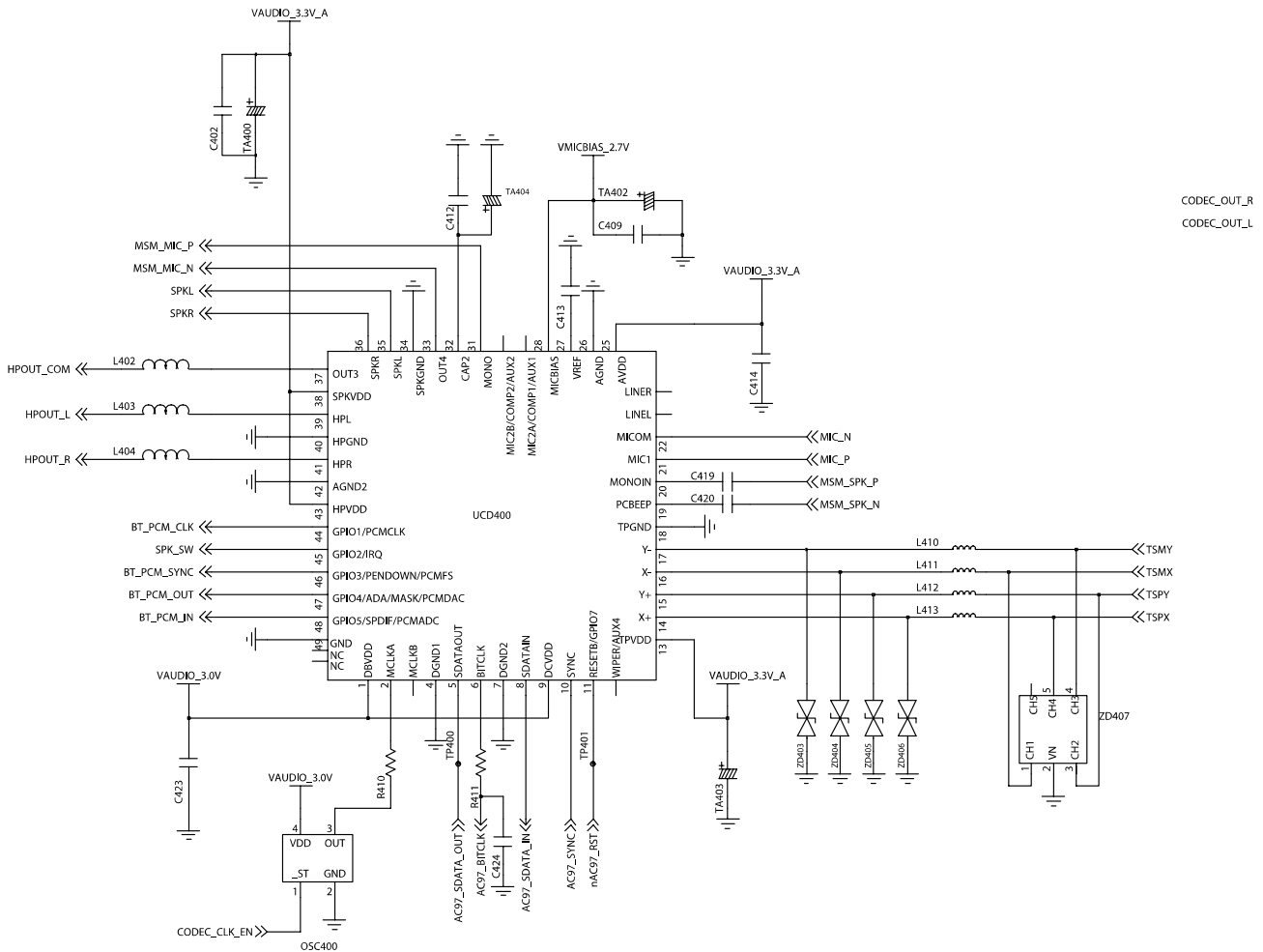
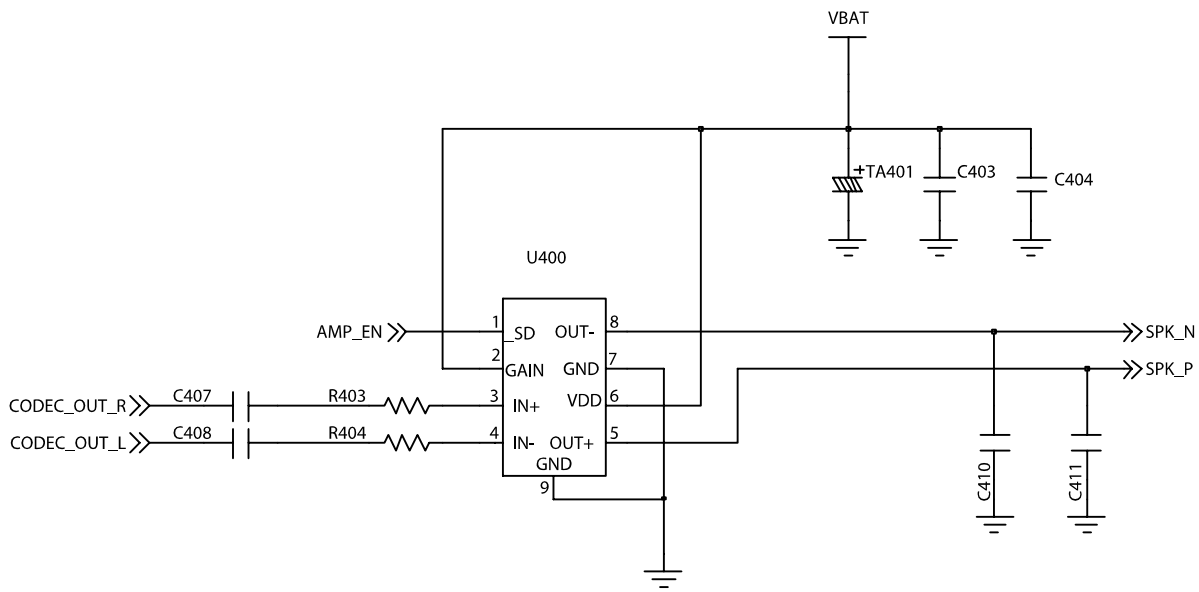
# Flow Chart of Troubleshooting

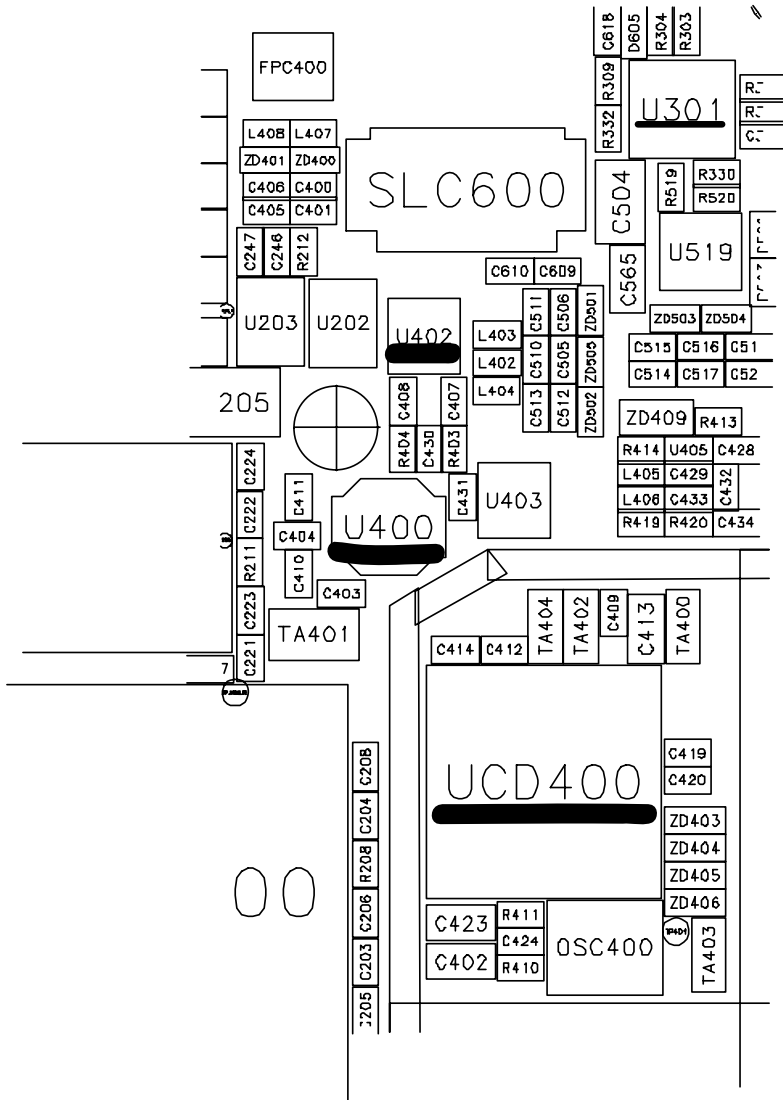


9-3. SPEAKER Working

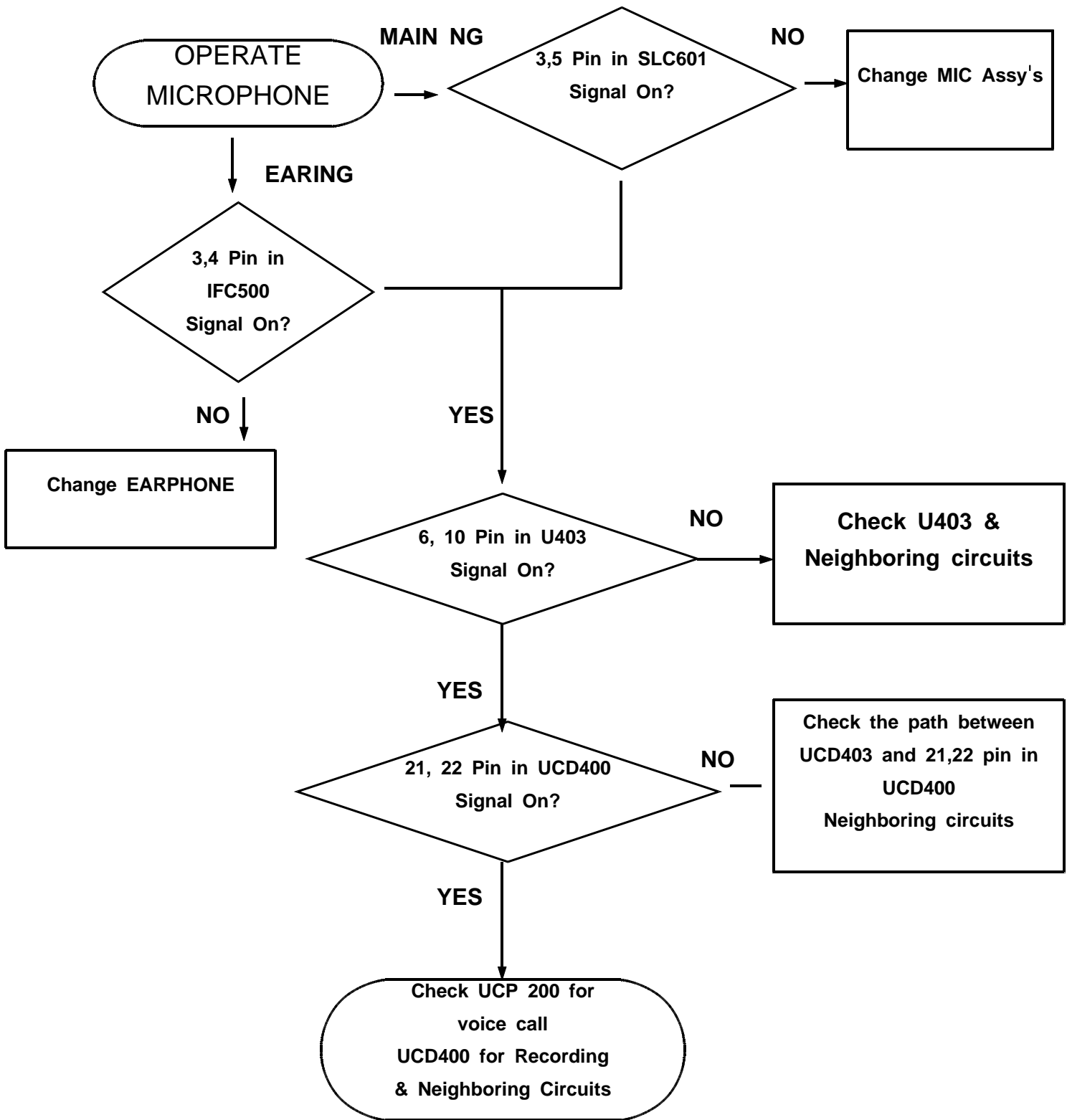


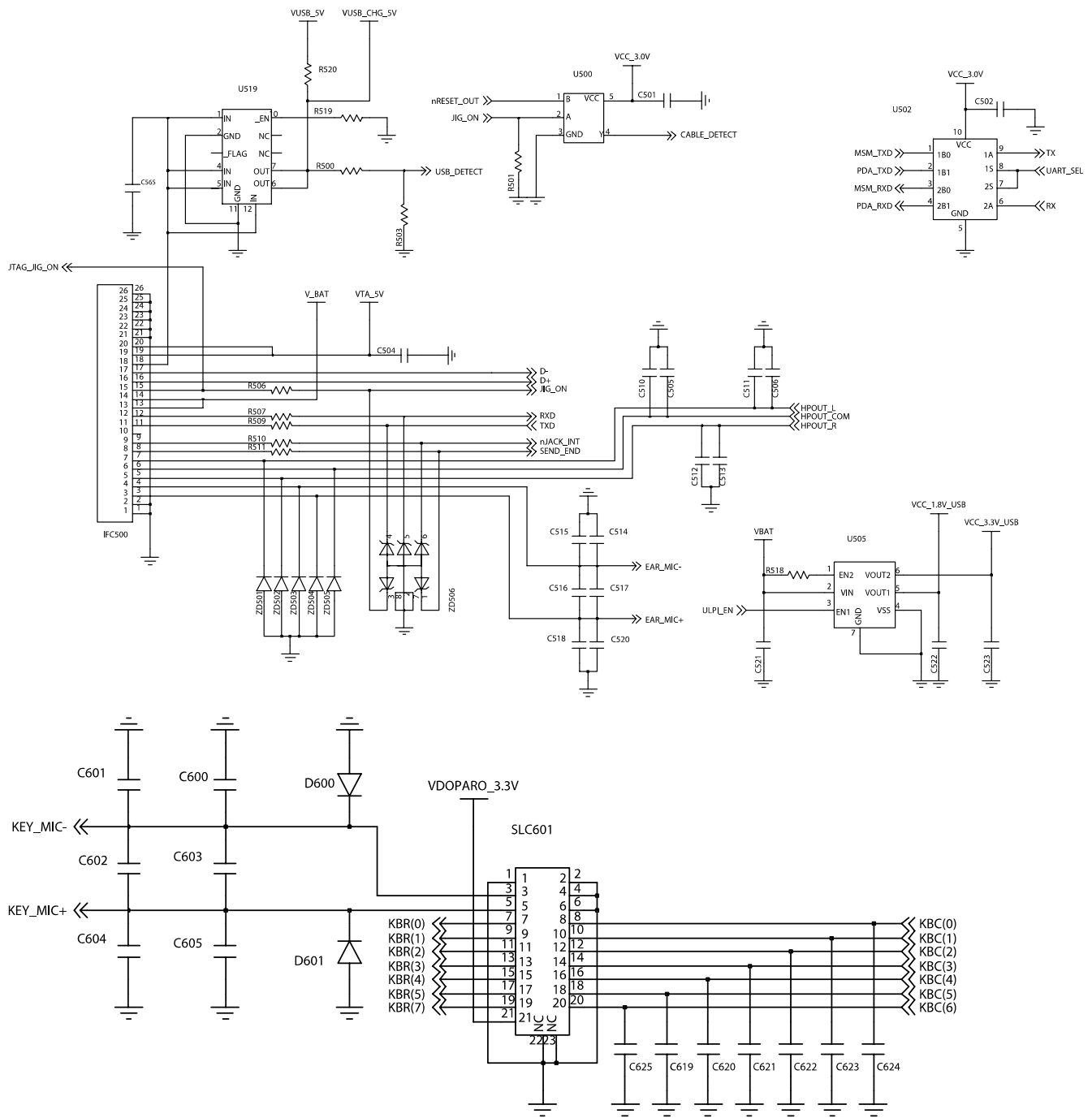
# Flow Chart of Troubleshooting





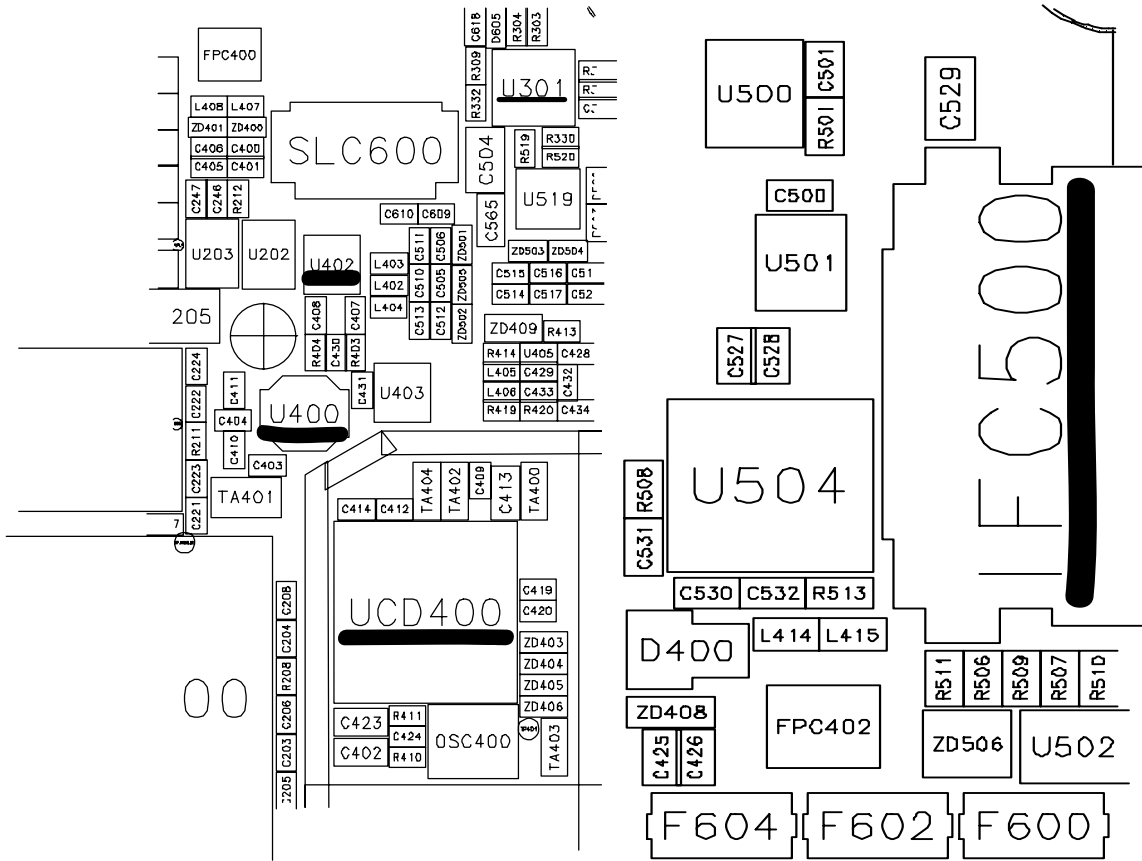
9-4. MIC Working



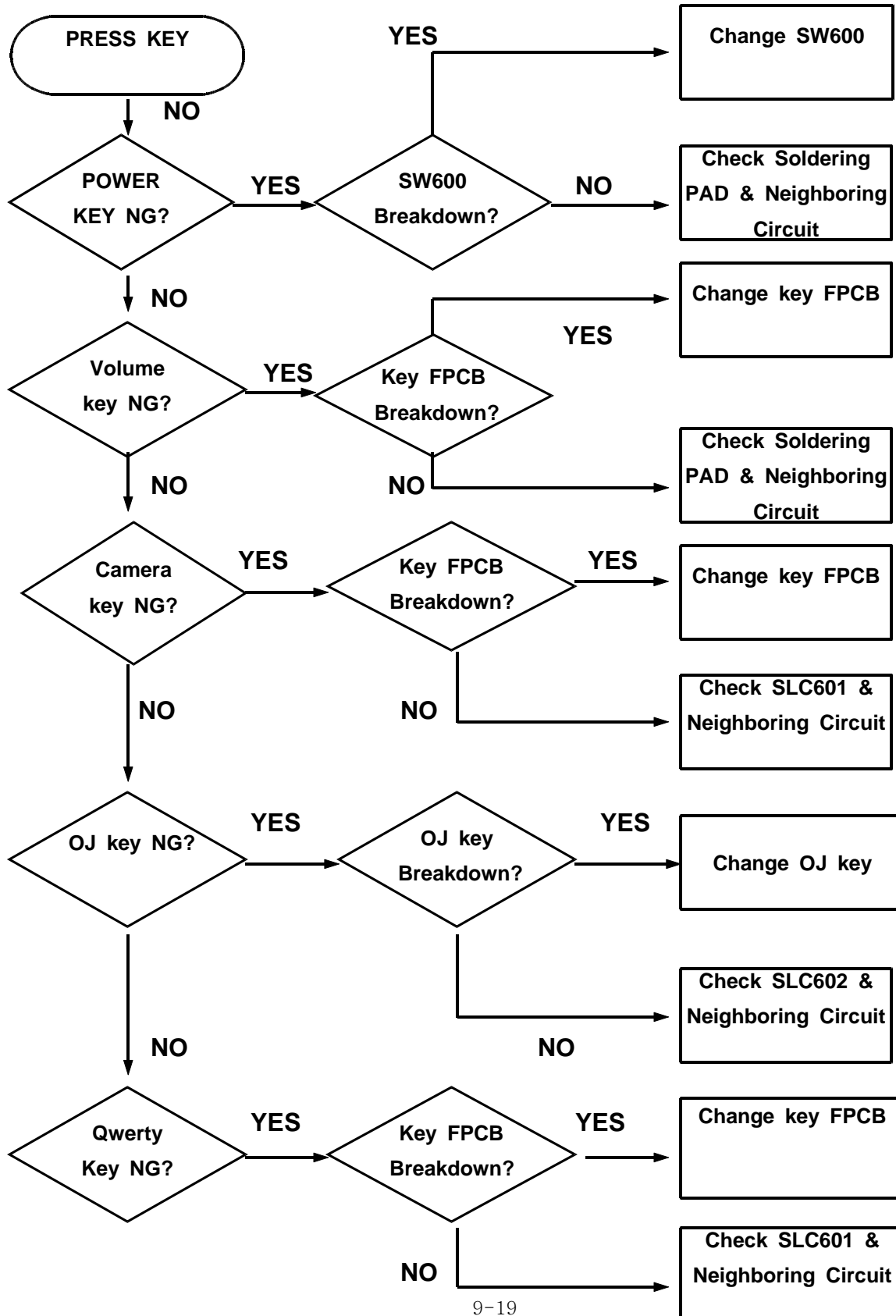




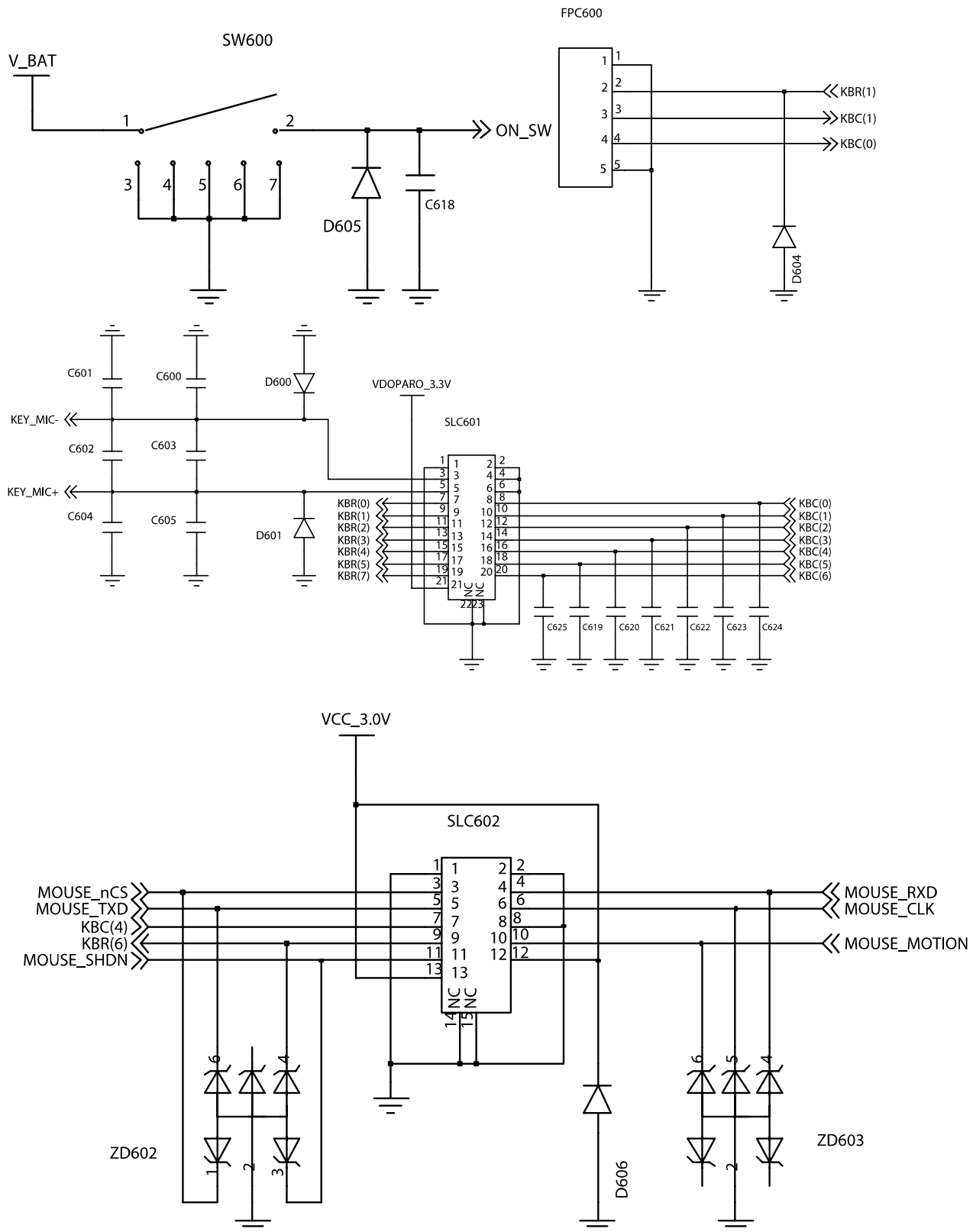
# Flow Chart of Troubleshooting

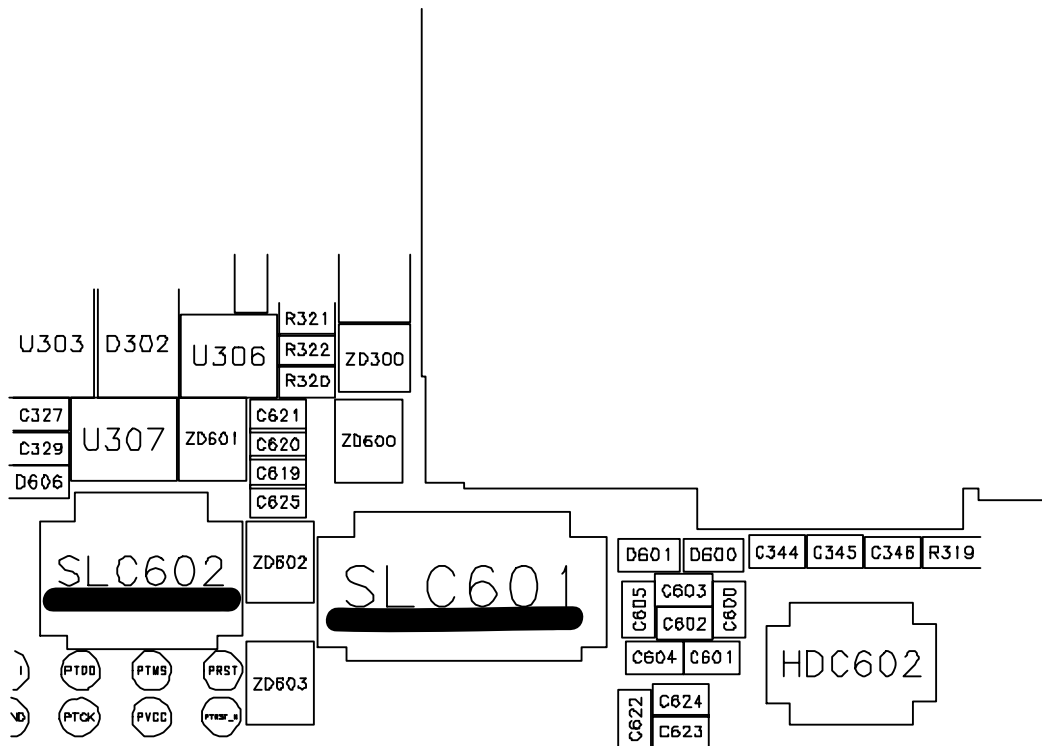
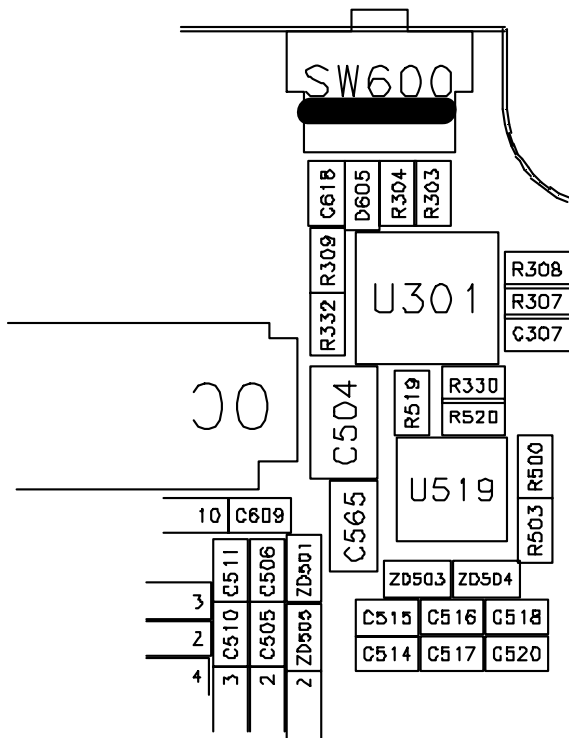


9-5. KEY Working

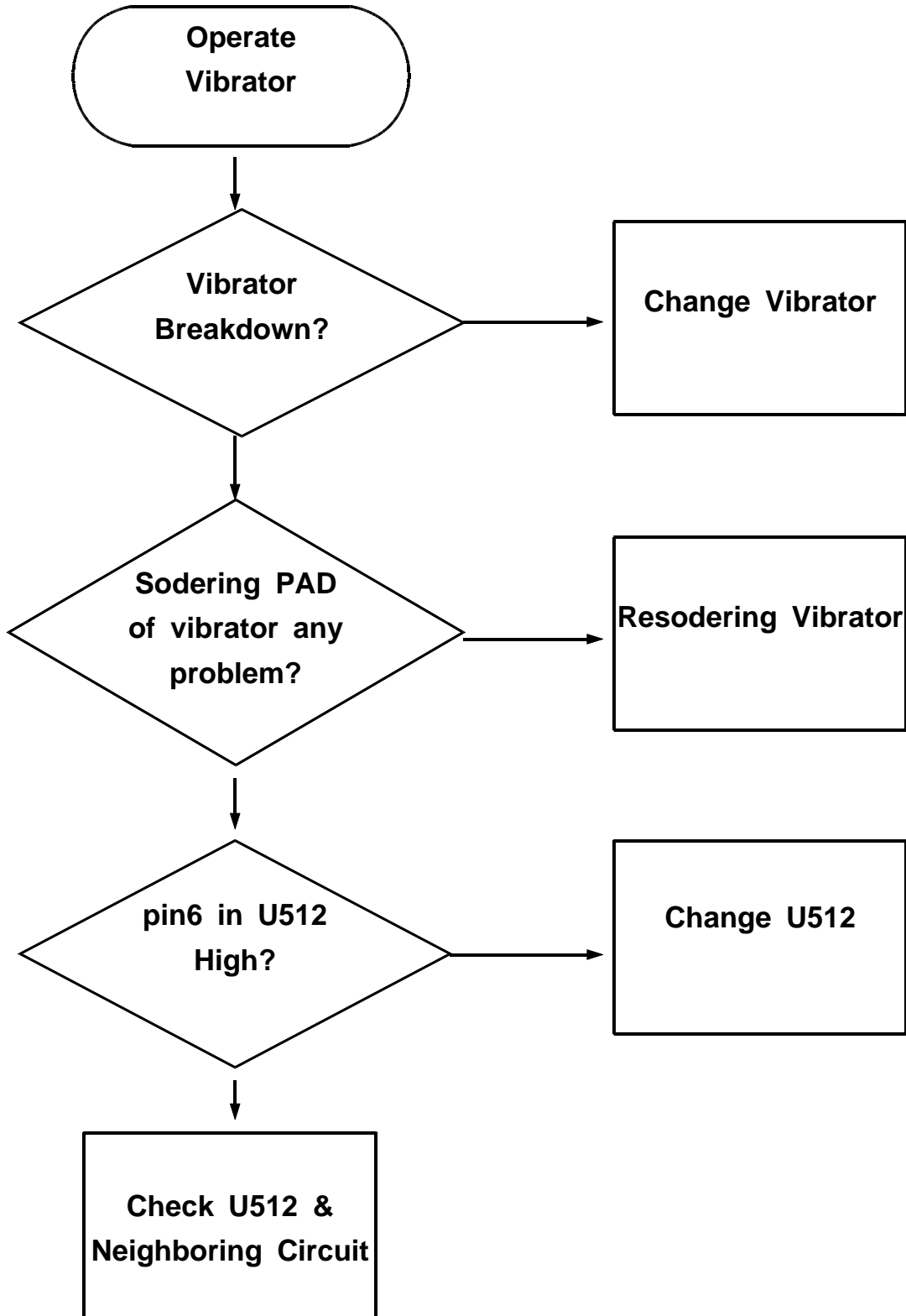


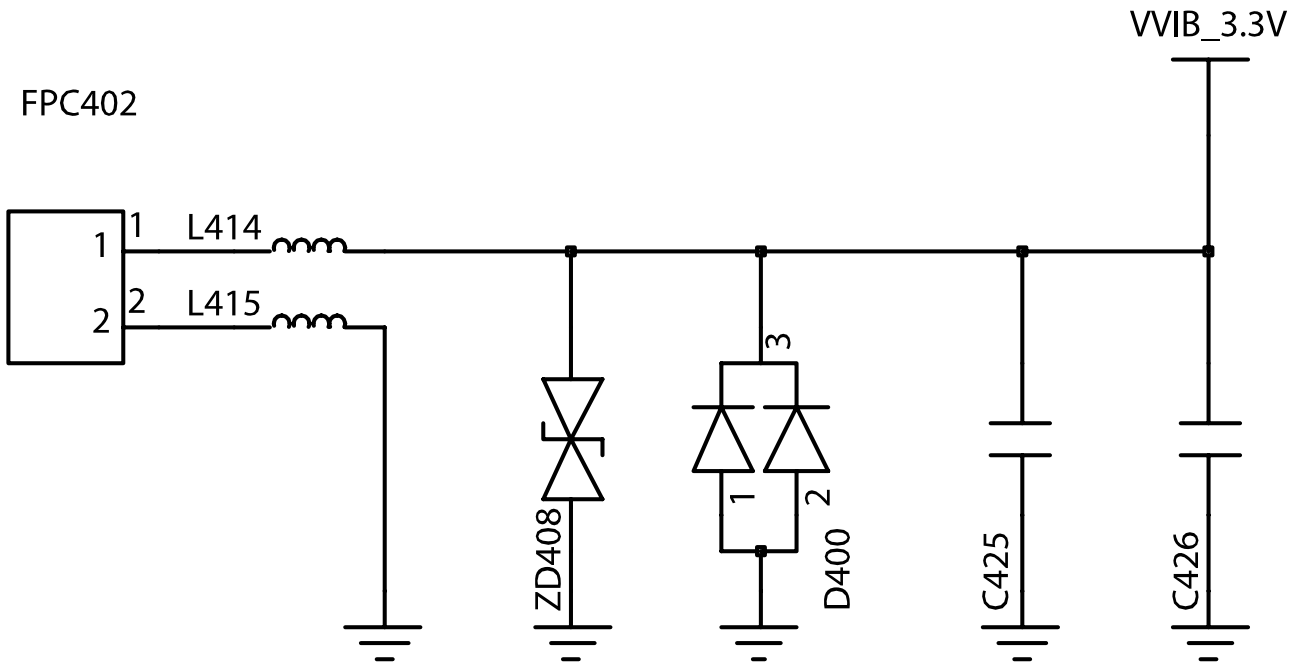
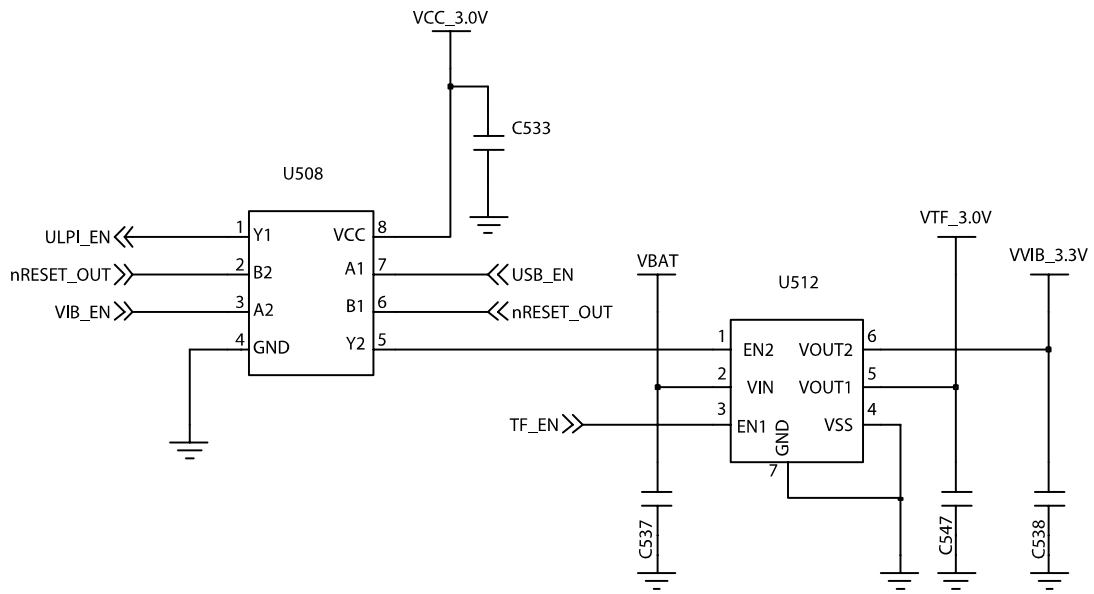
# Flow Chart of Troubleshooting



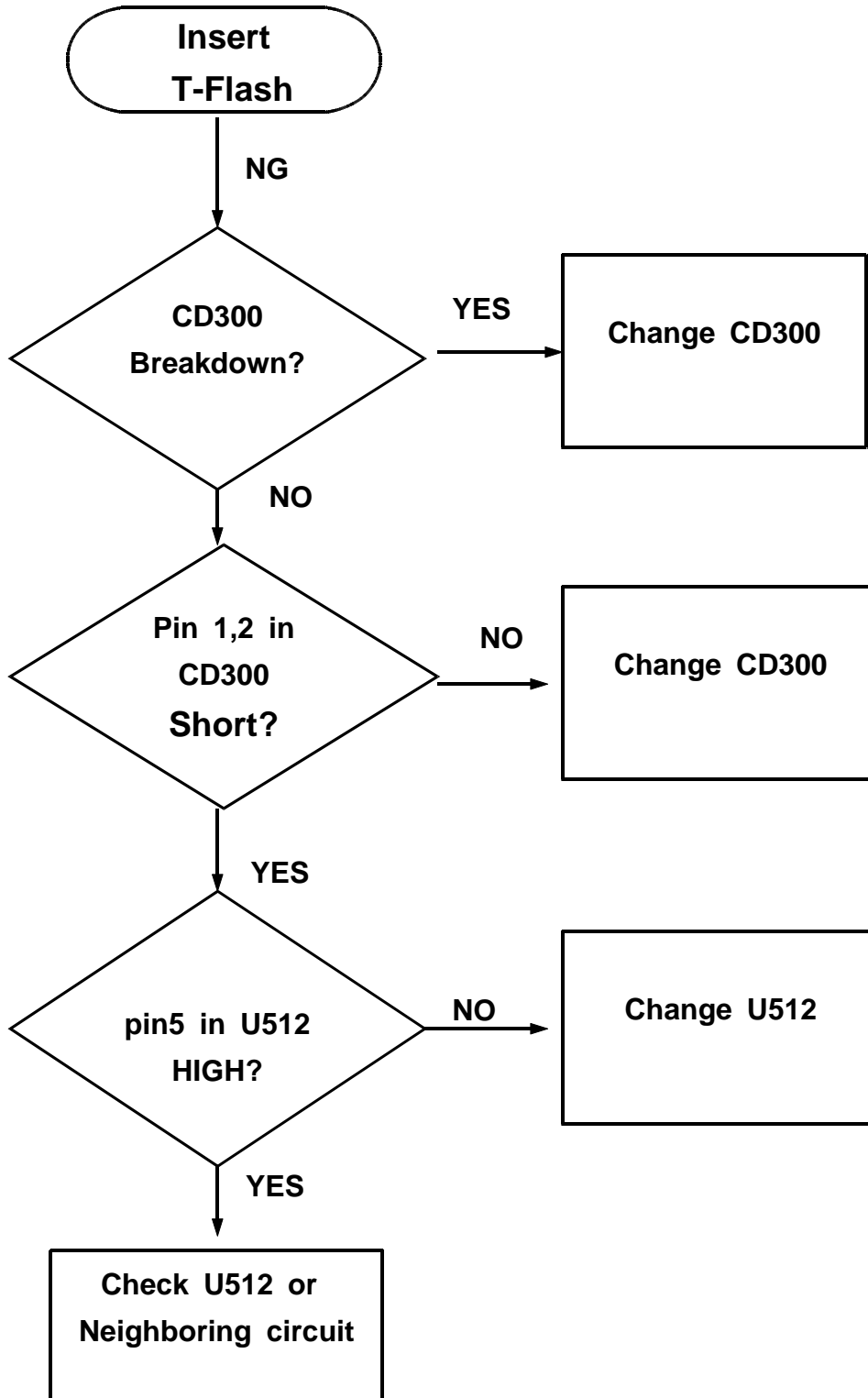


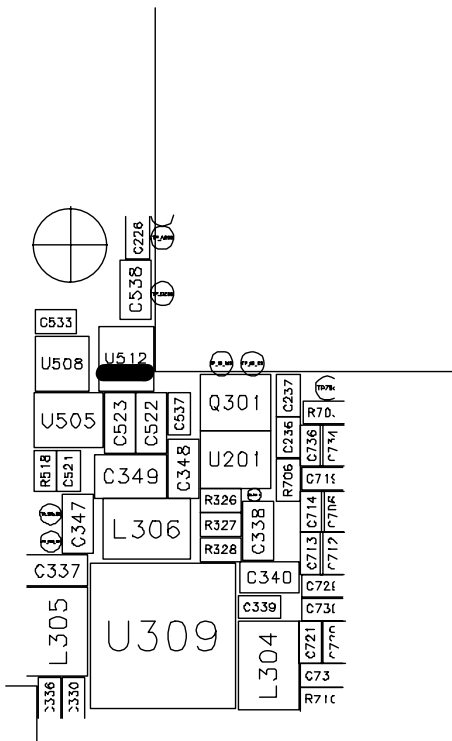
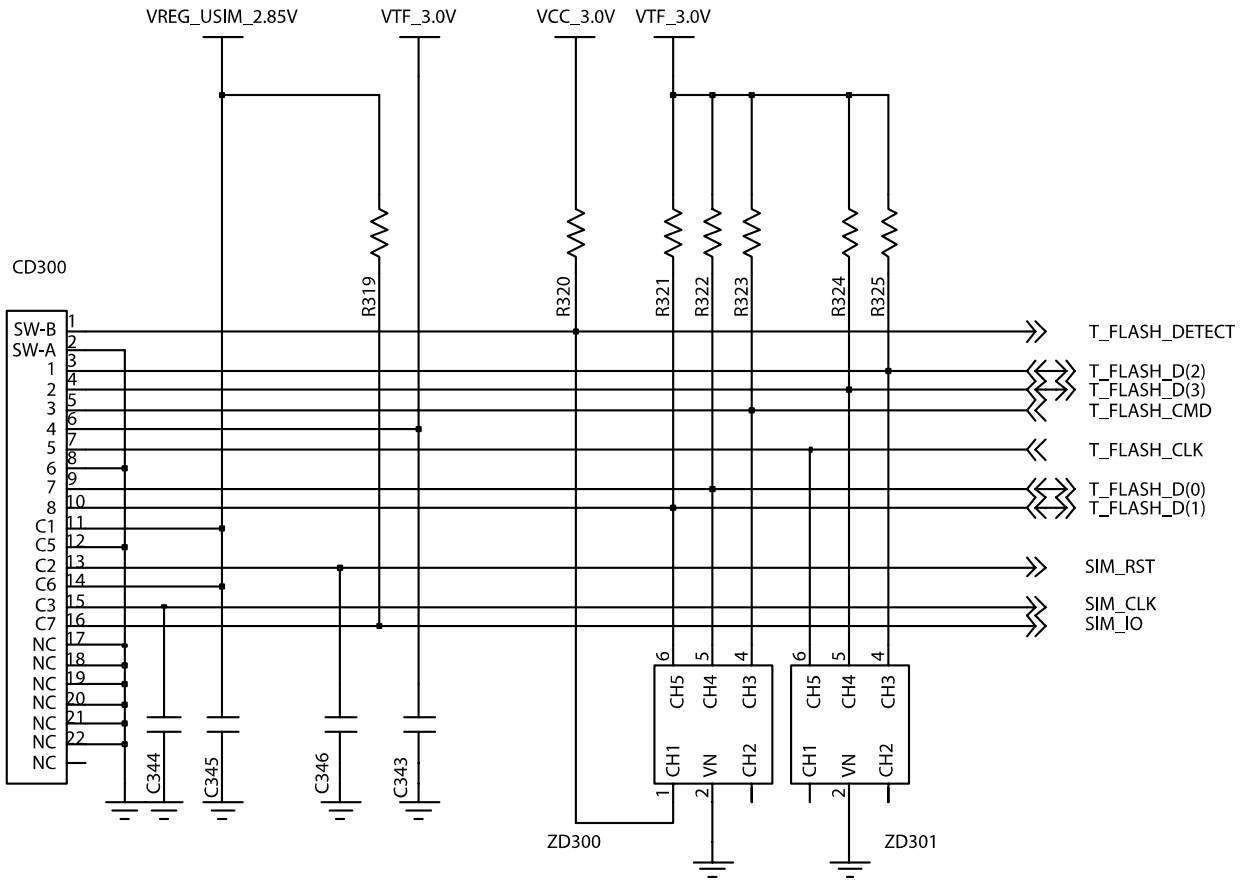
### 9-6. Vibrator Working





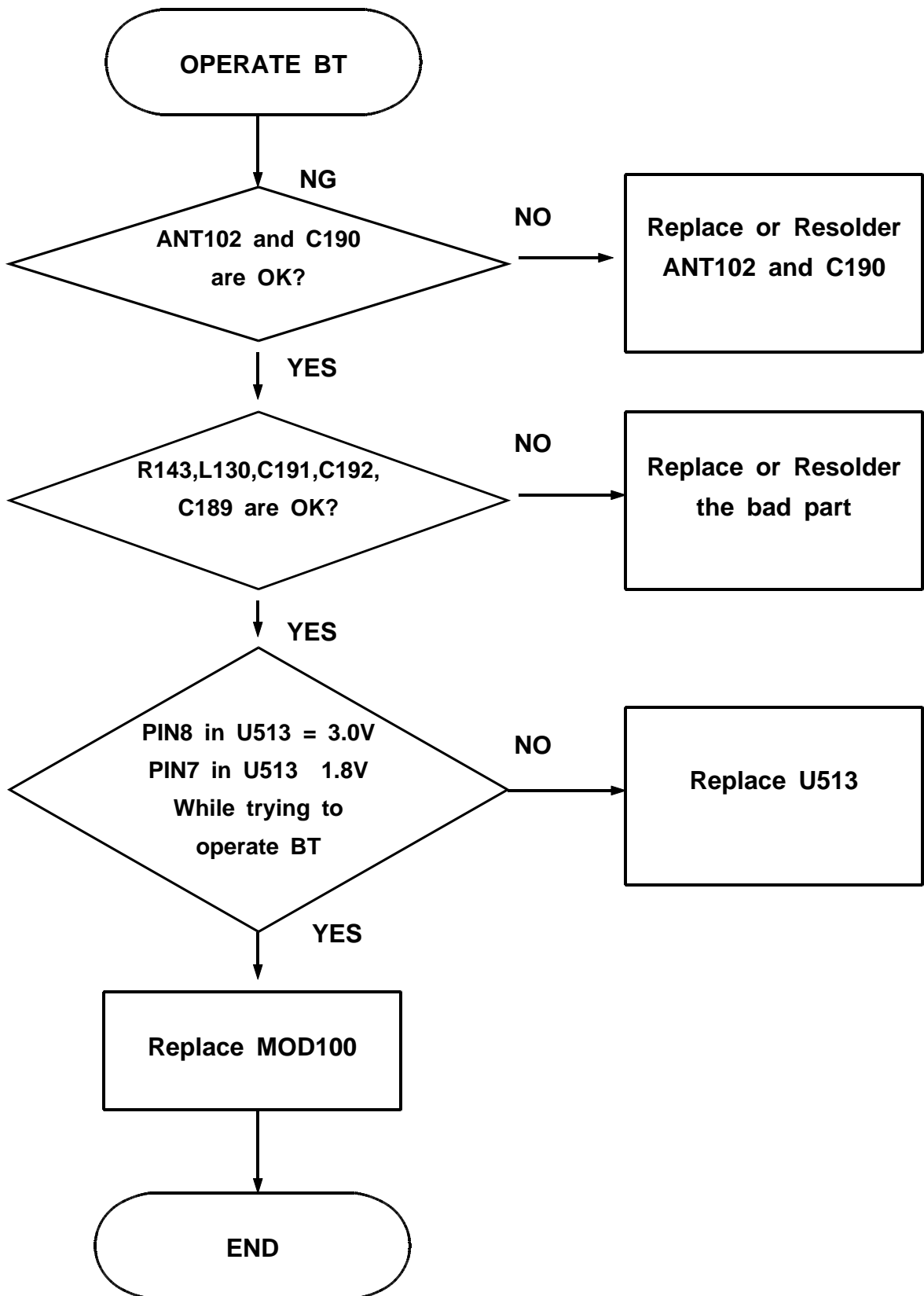
### 9-7. T-Flash Card Working

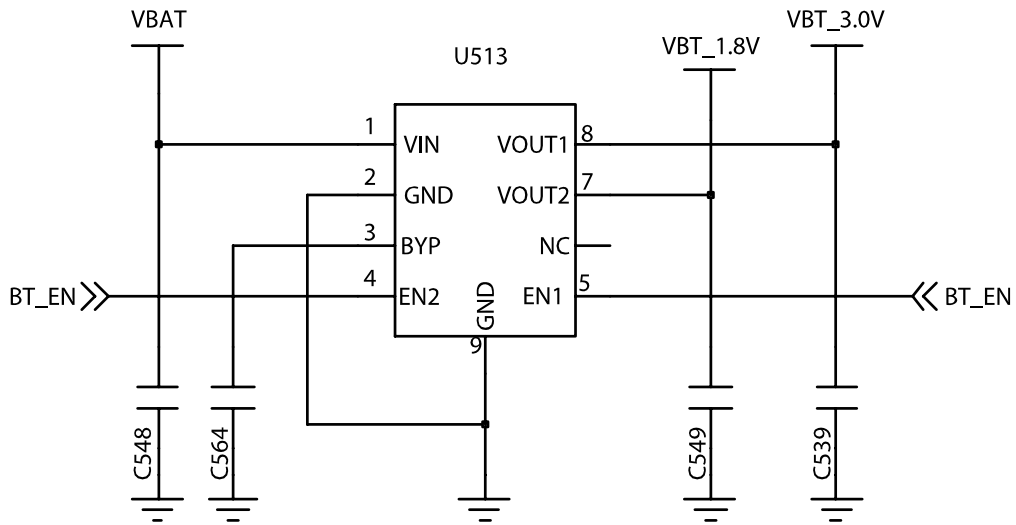
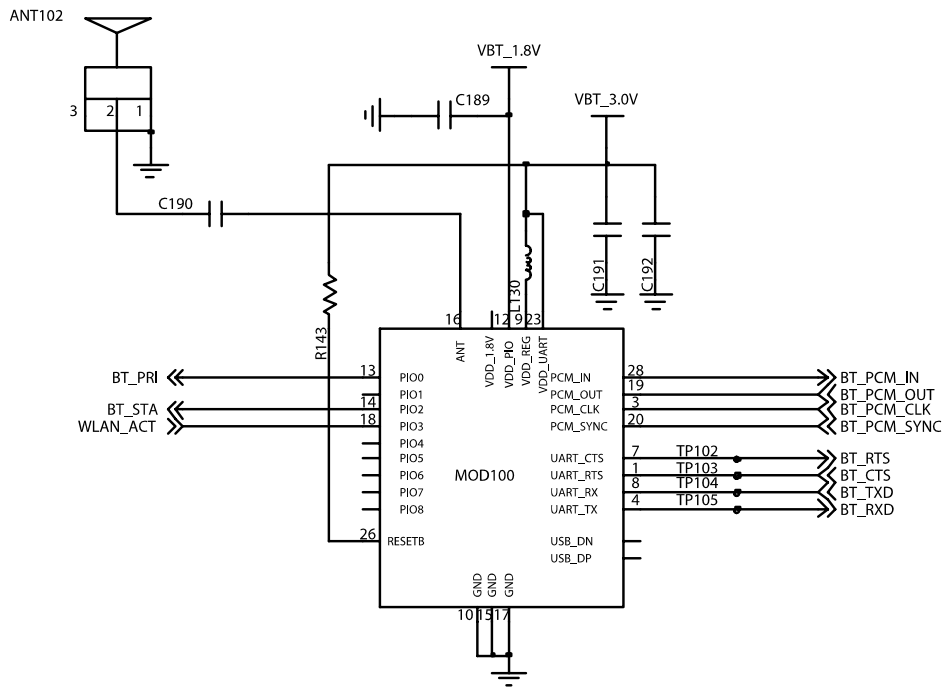


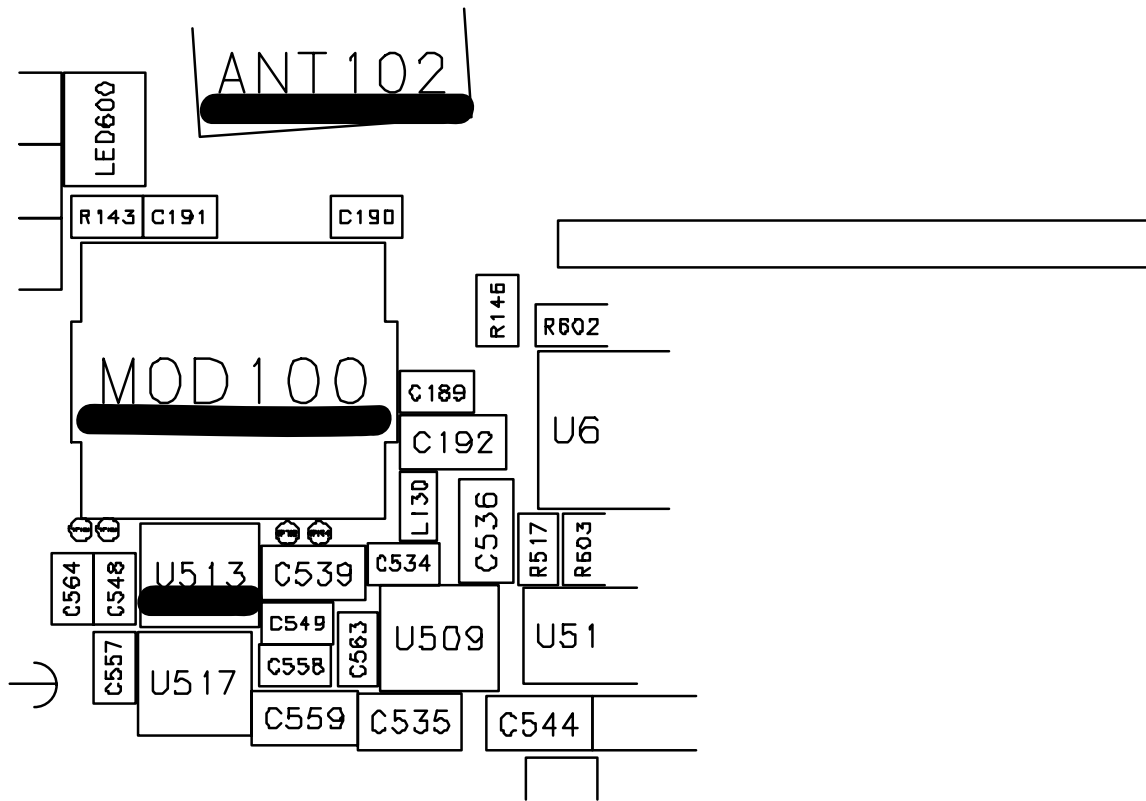




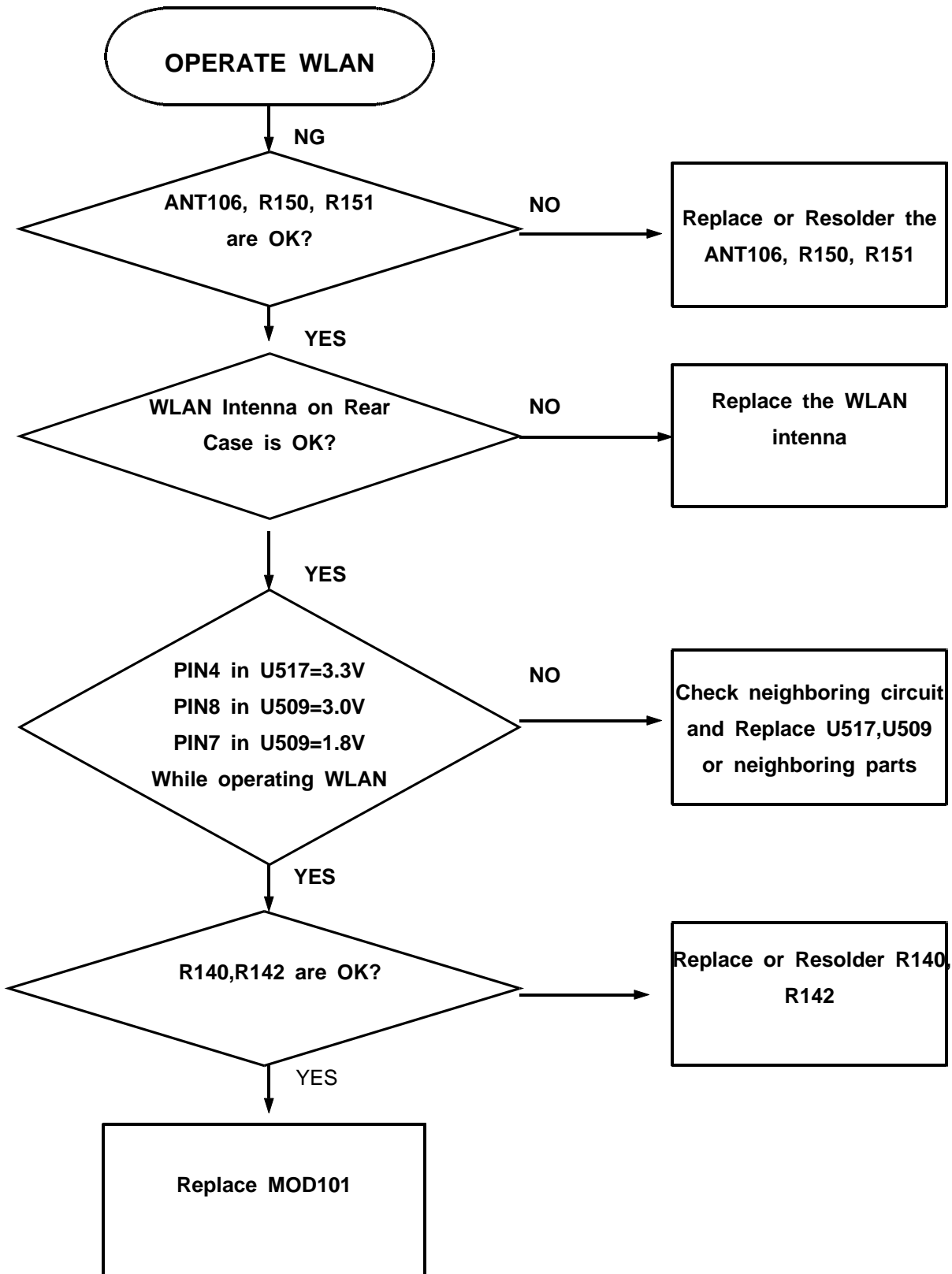
9-8. Bluetooth Working



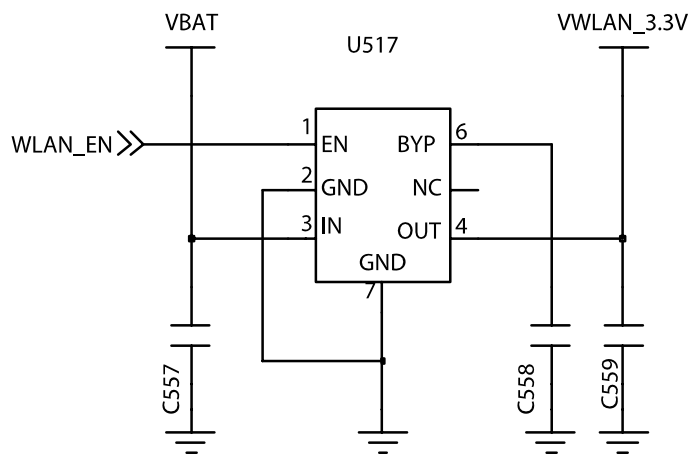
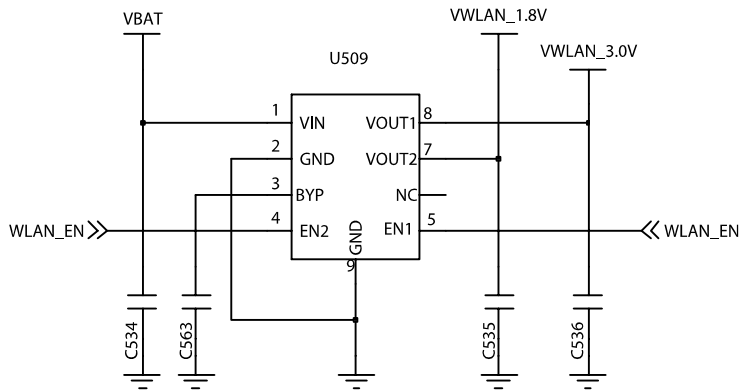
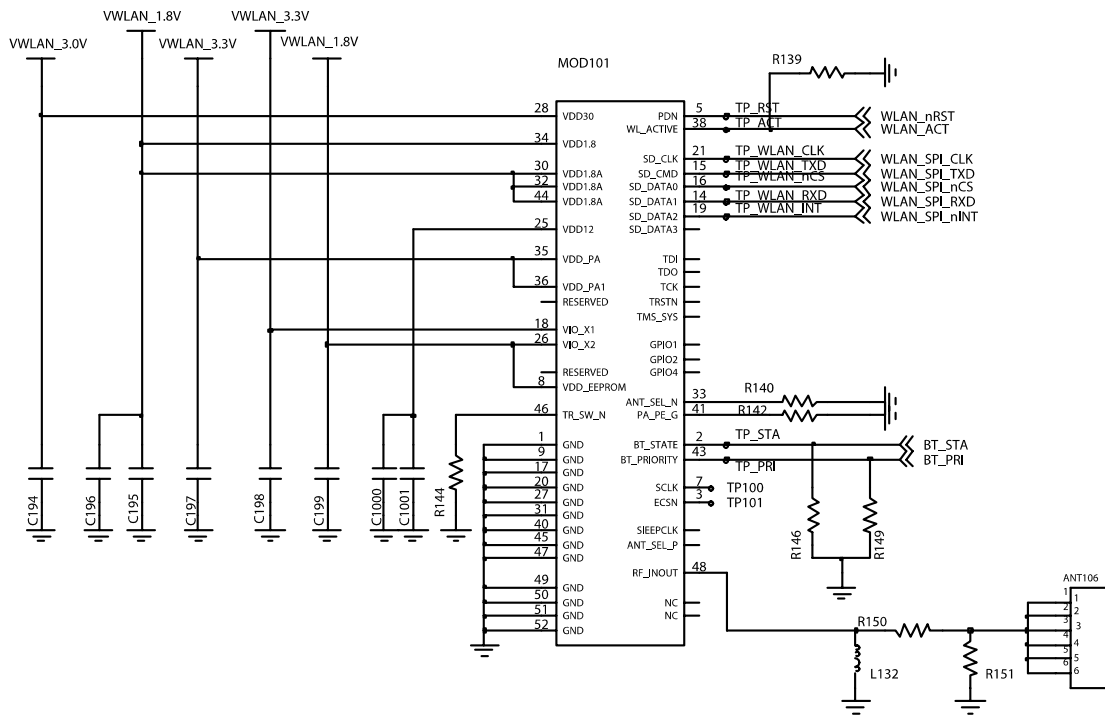


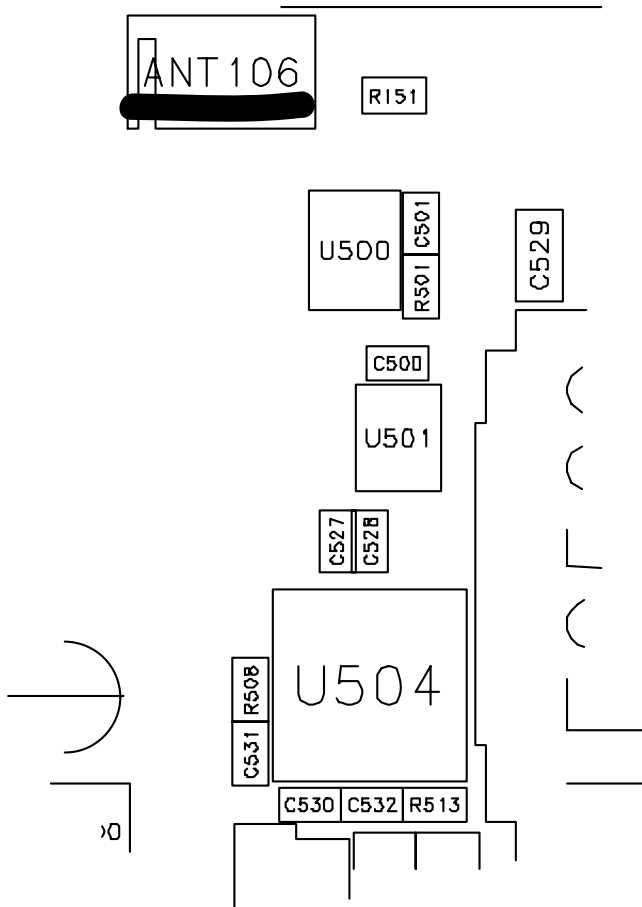
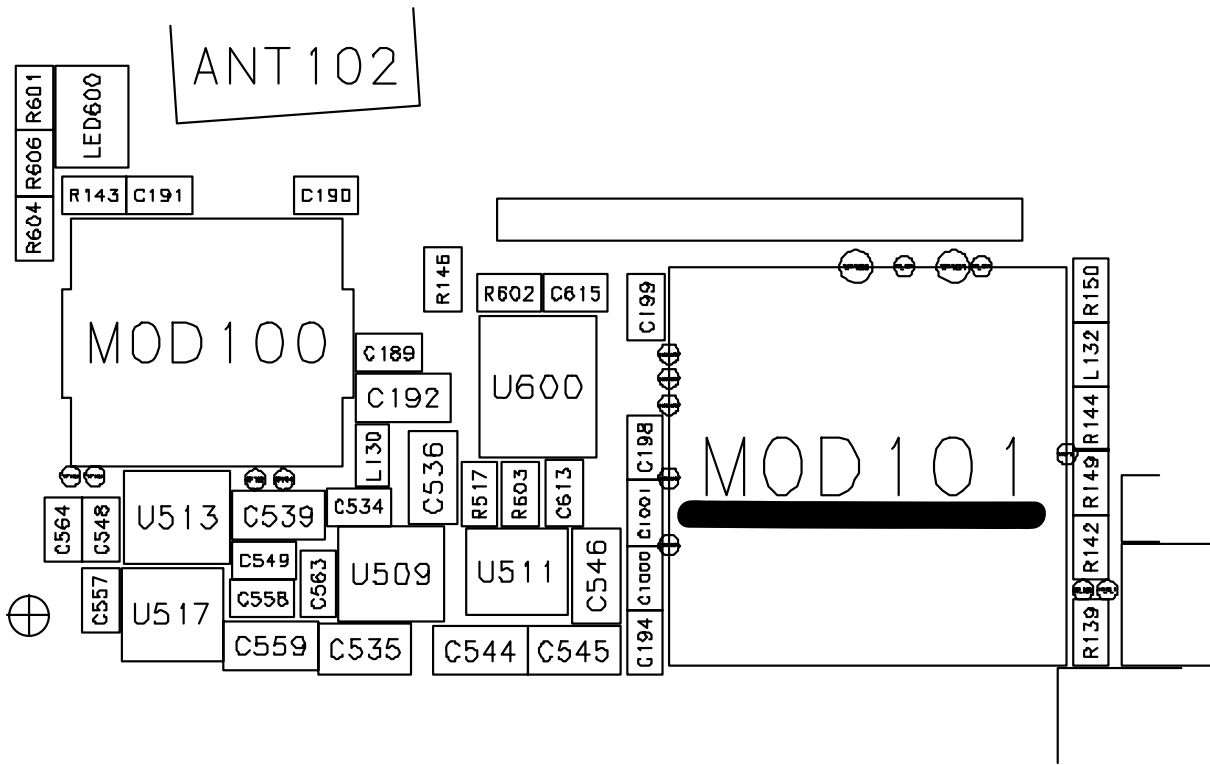


9-9. WLAN Working

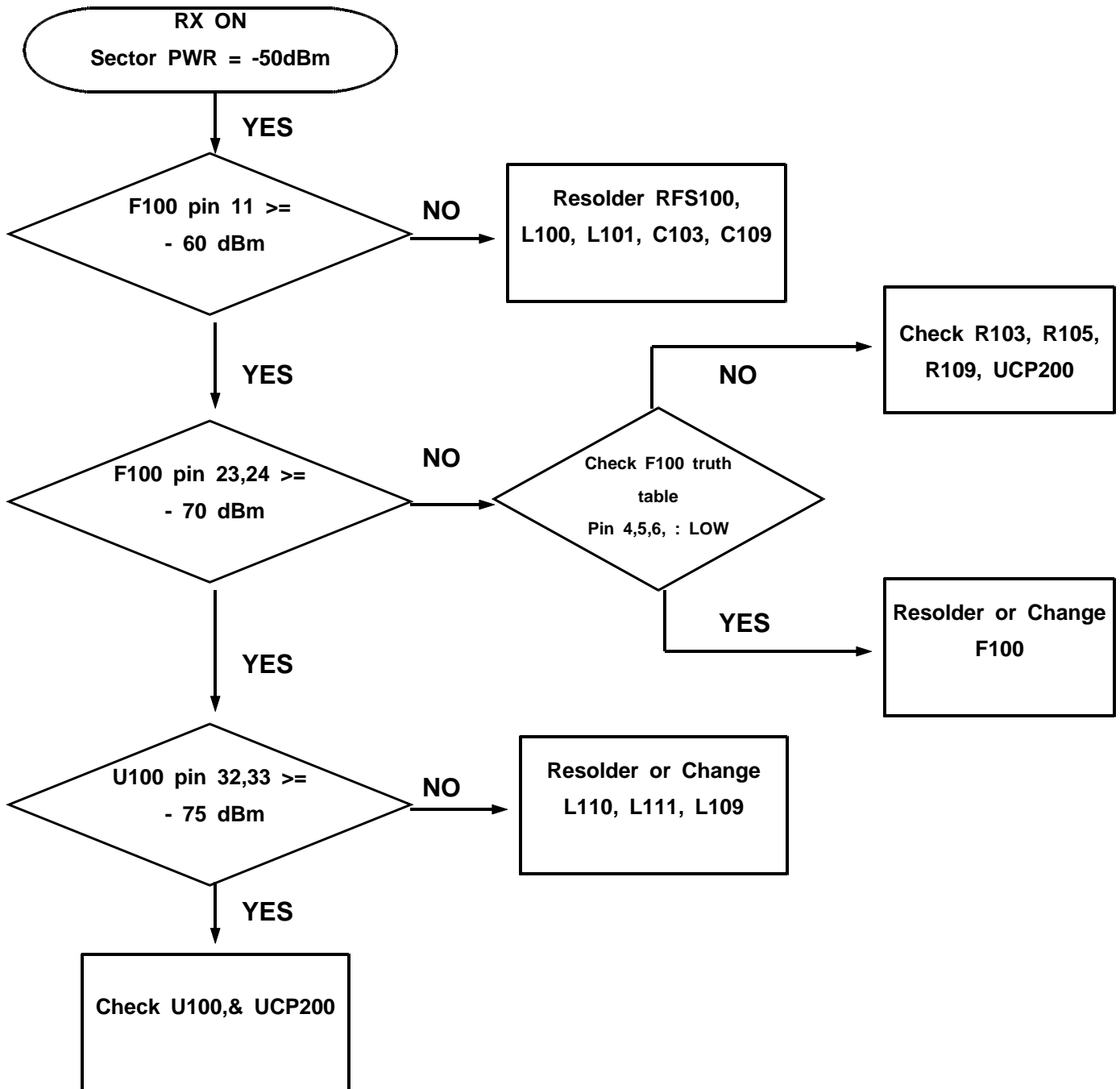


# Flow Chart of Troubleshooting





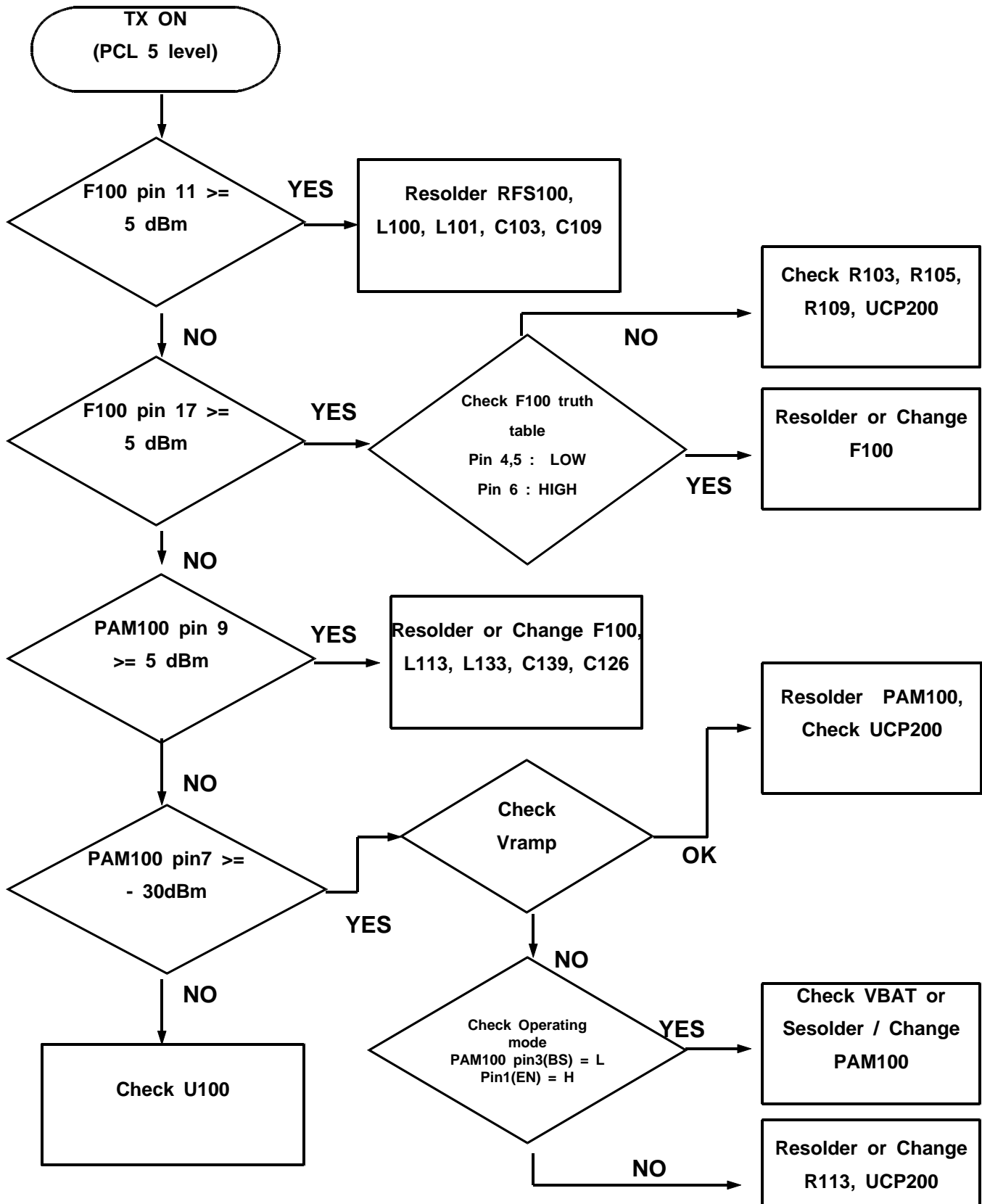
9-10. GSM Receiver





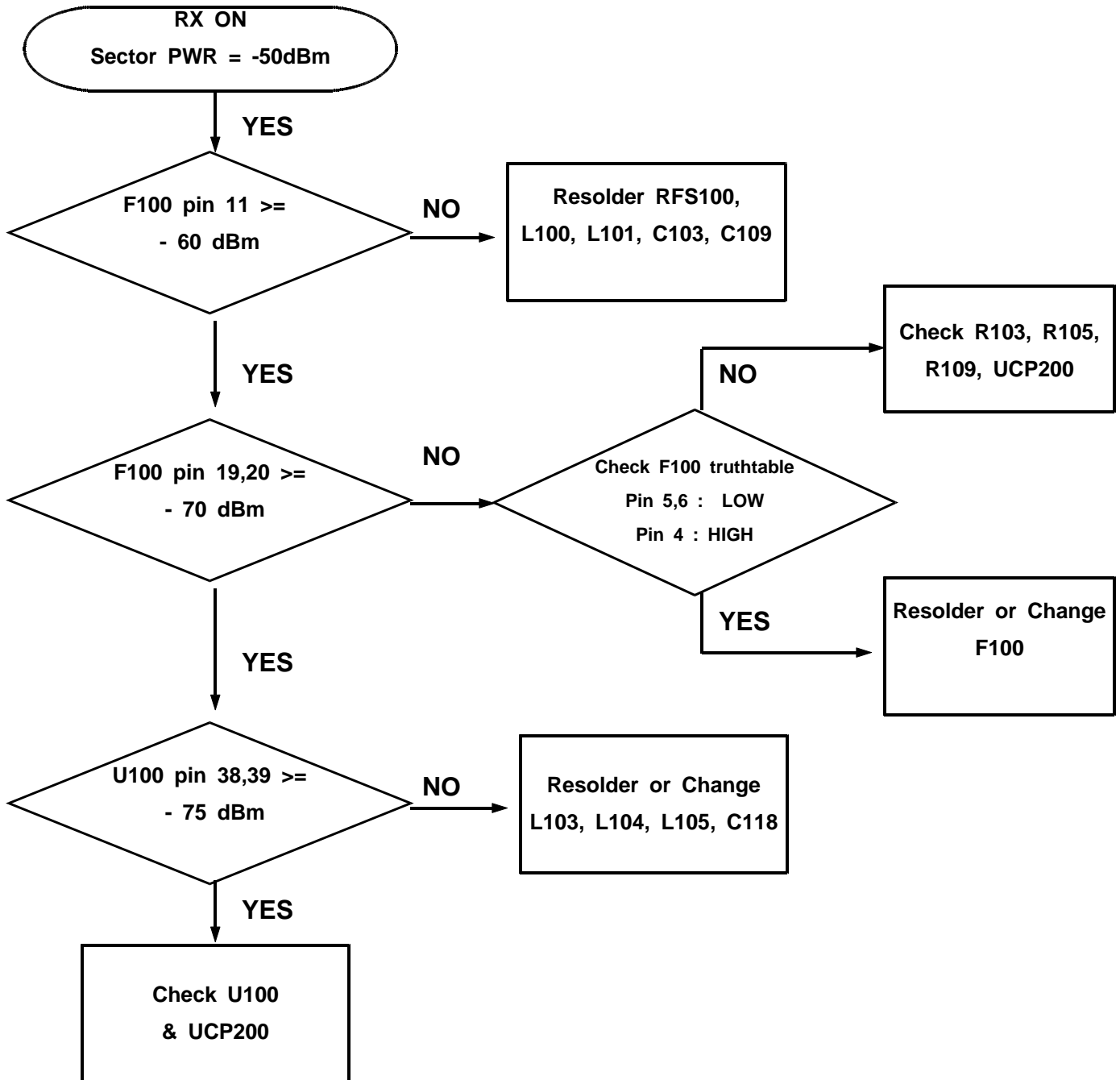


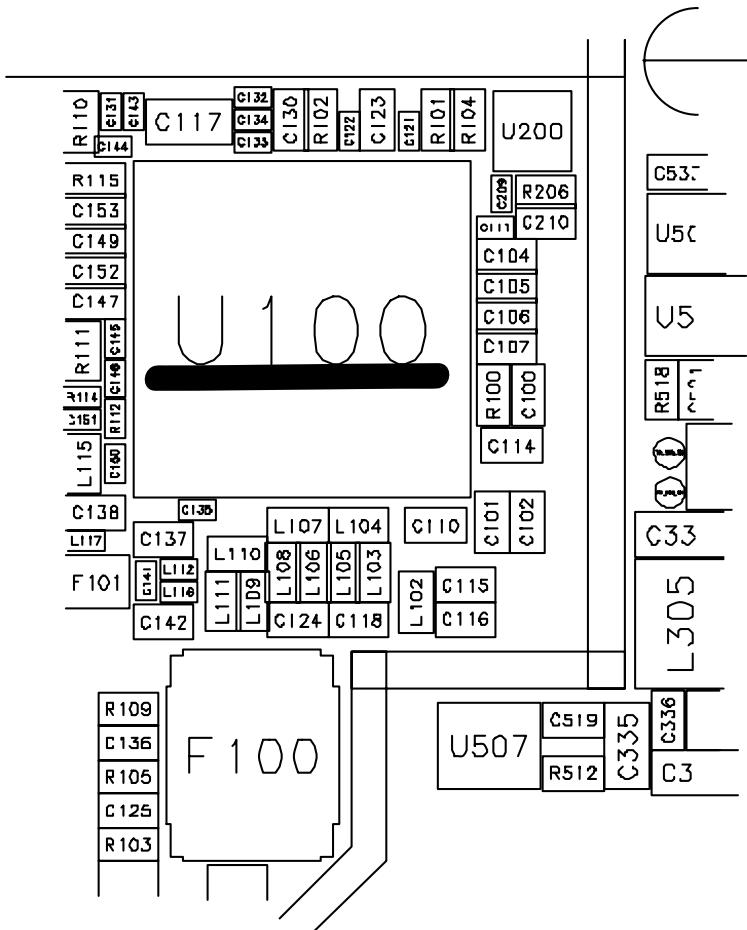
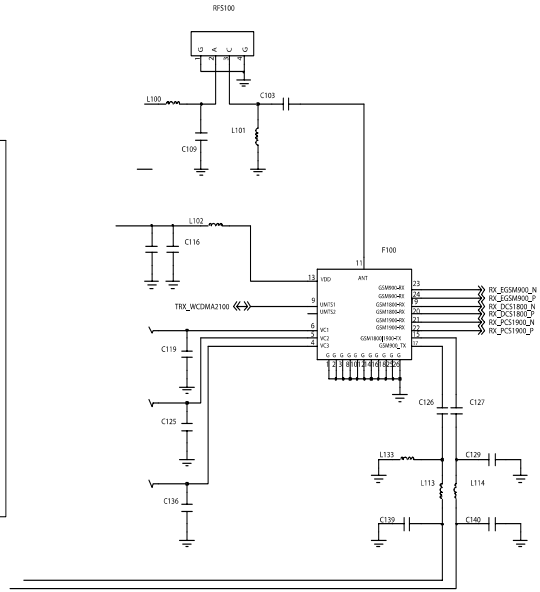
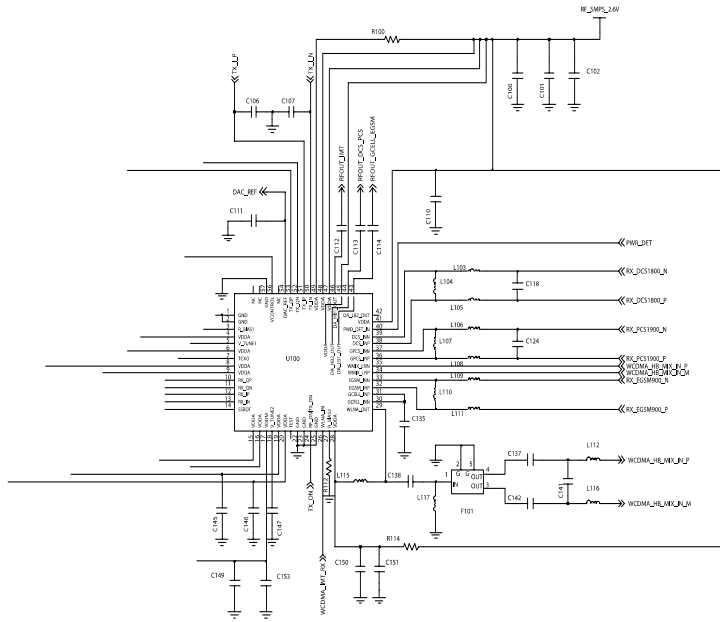
9-11. GSM Transmitter



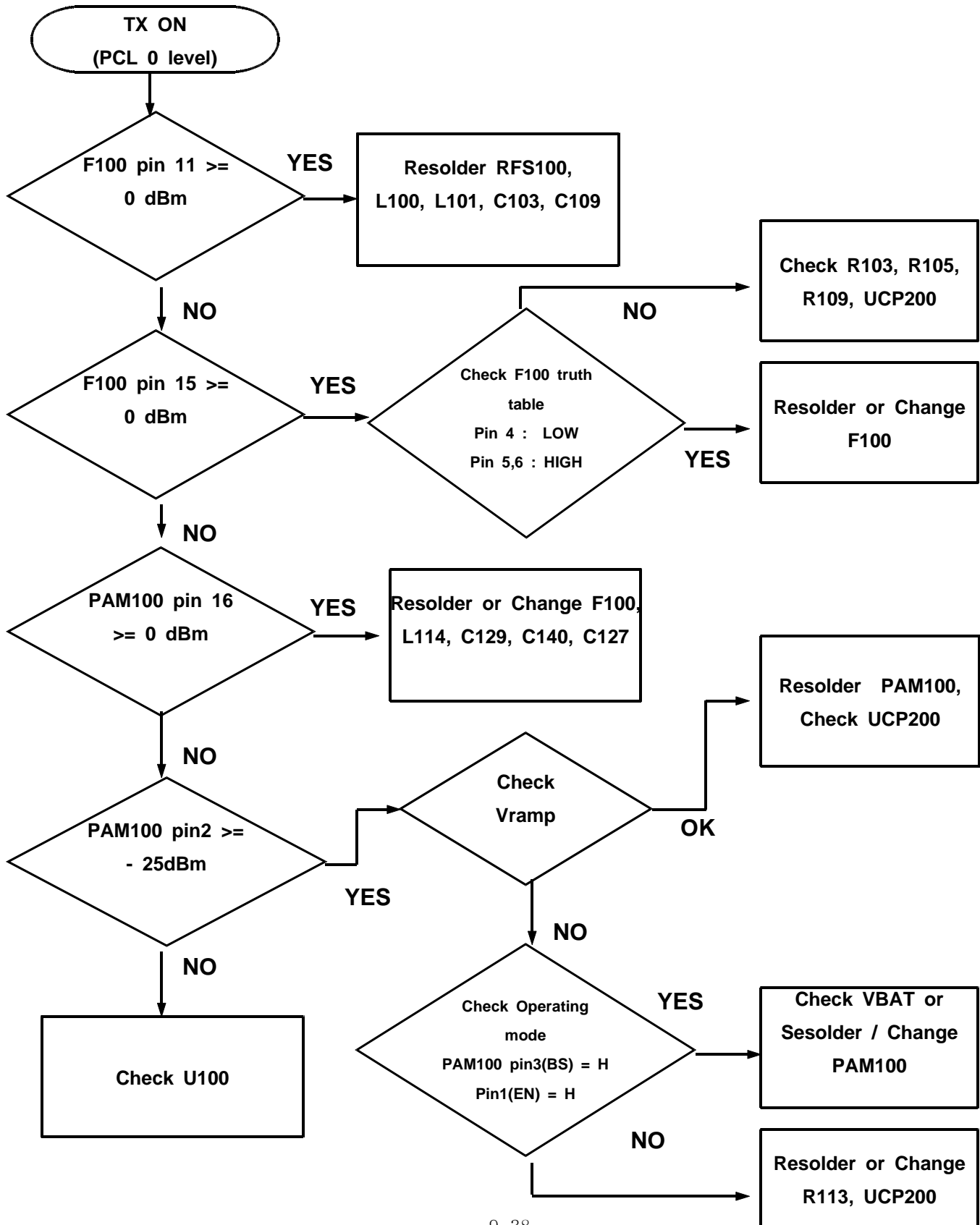


9-12. DCS Receiver



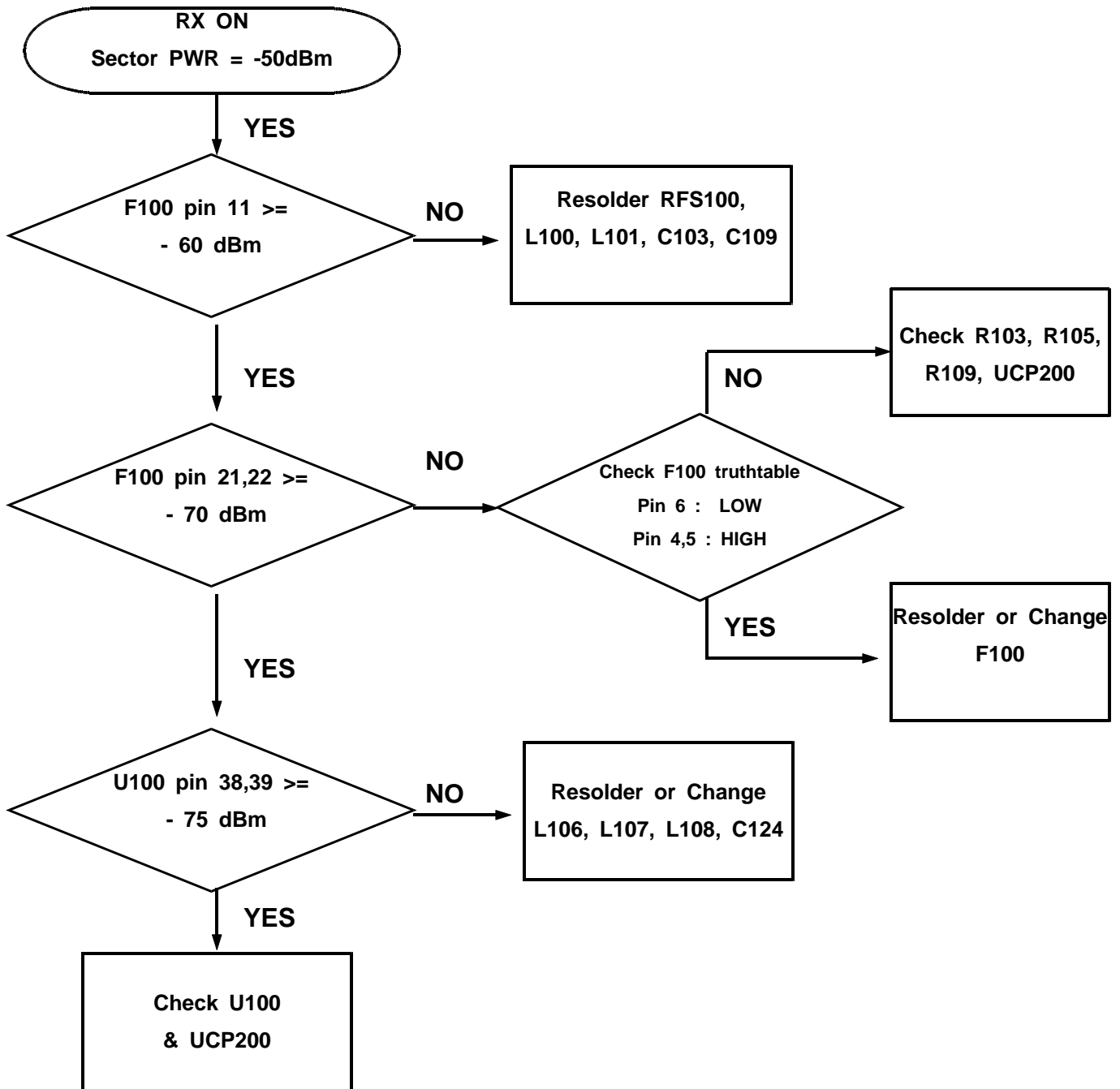


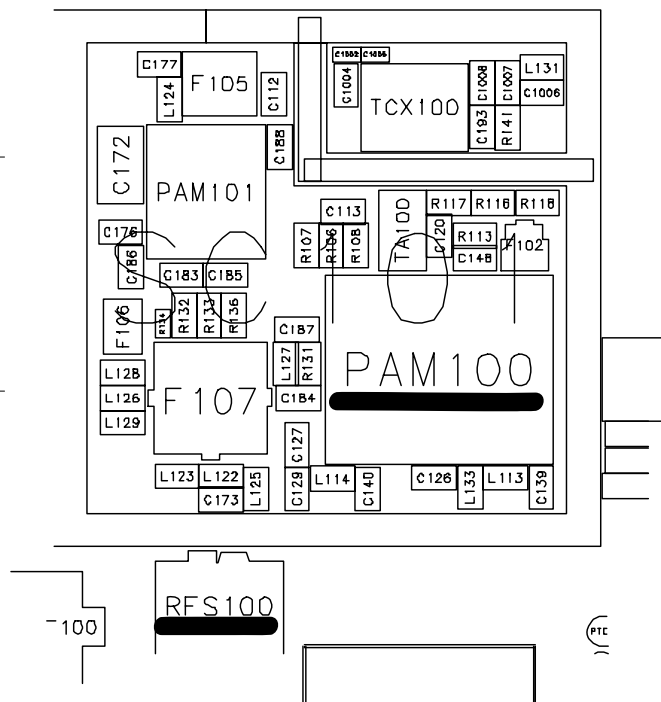
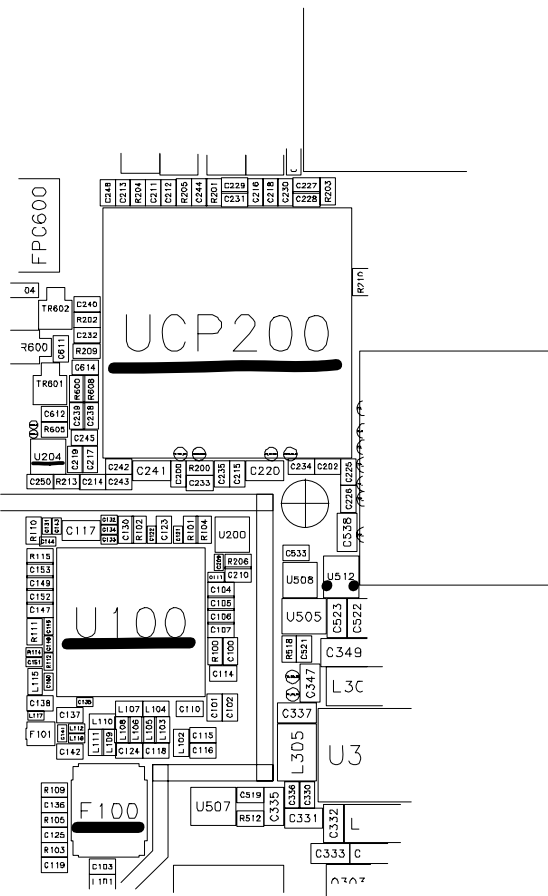
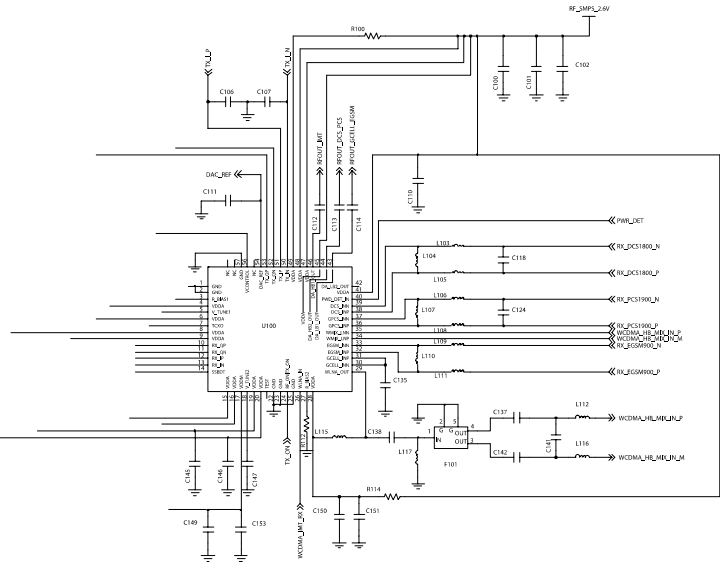
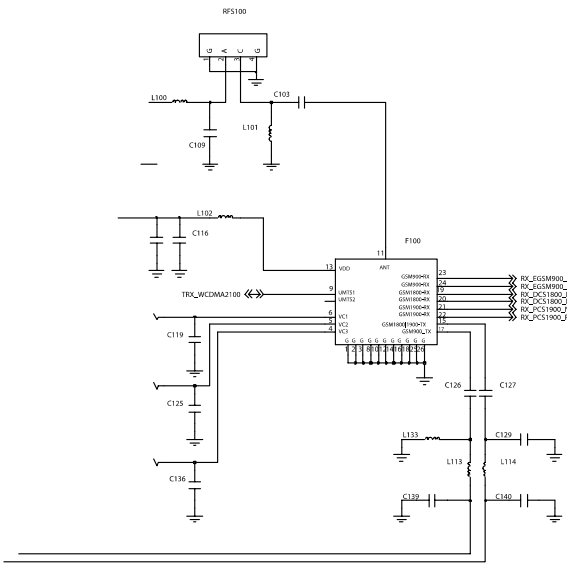
9-13. DCS Transmitter





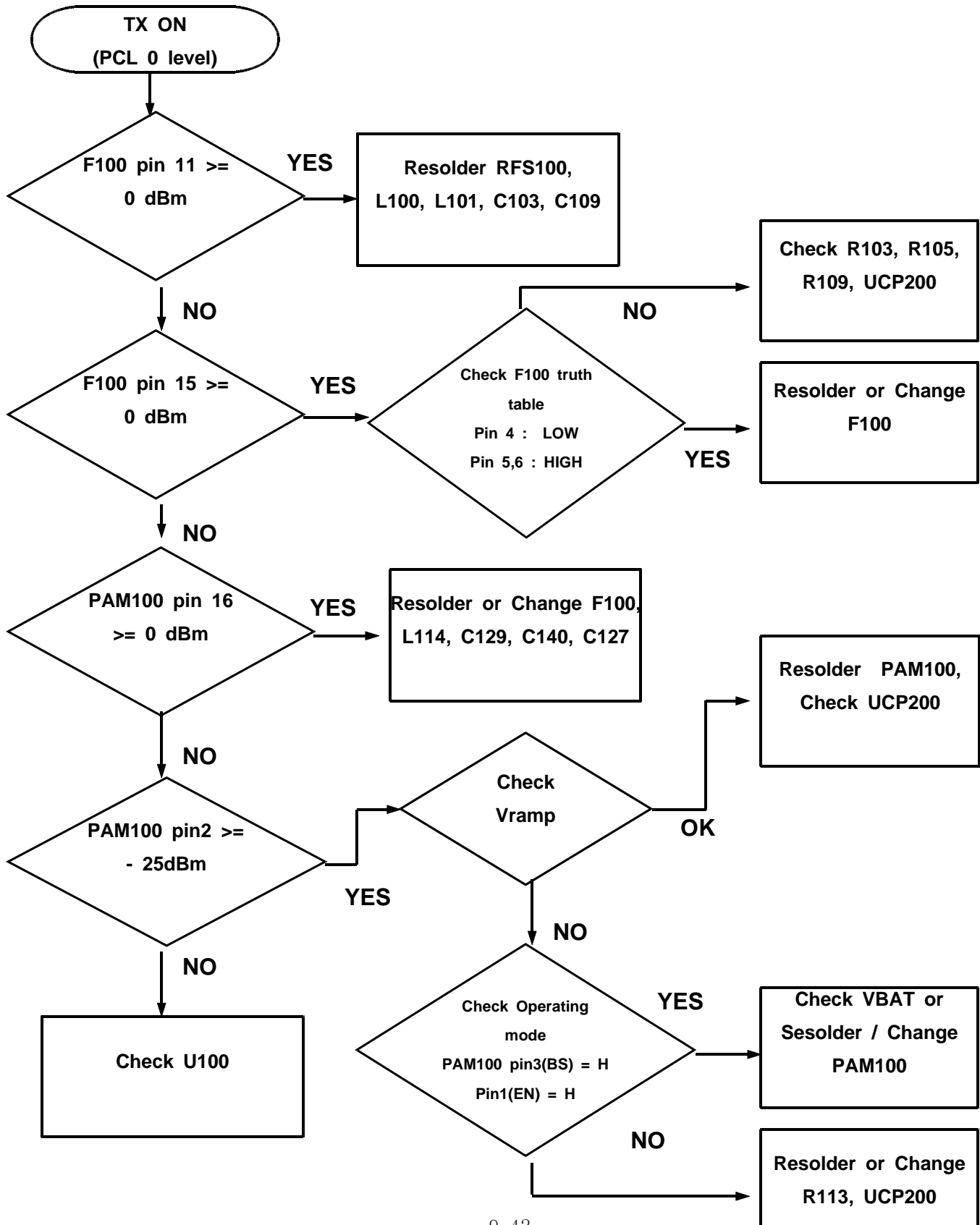
9-14. PCS Receiver

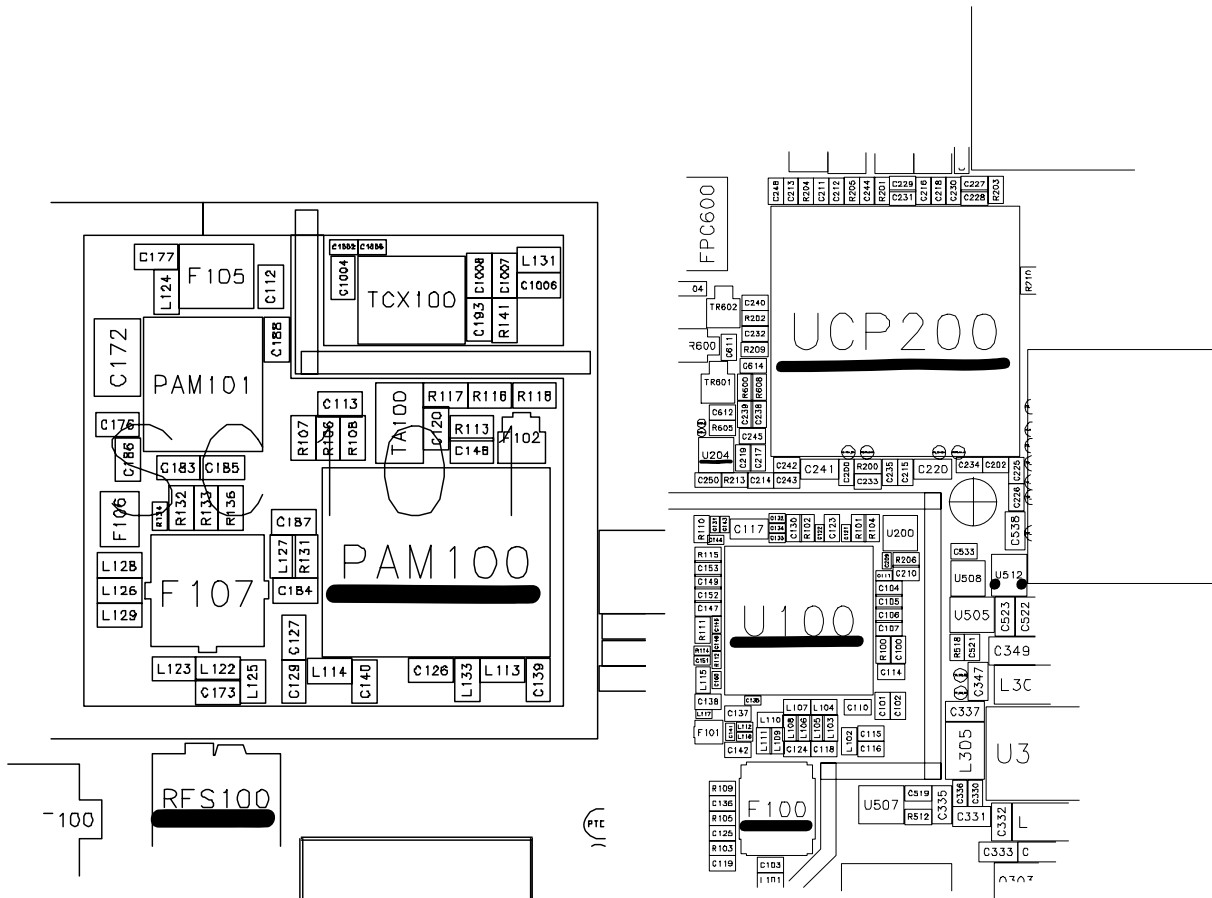
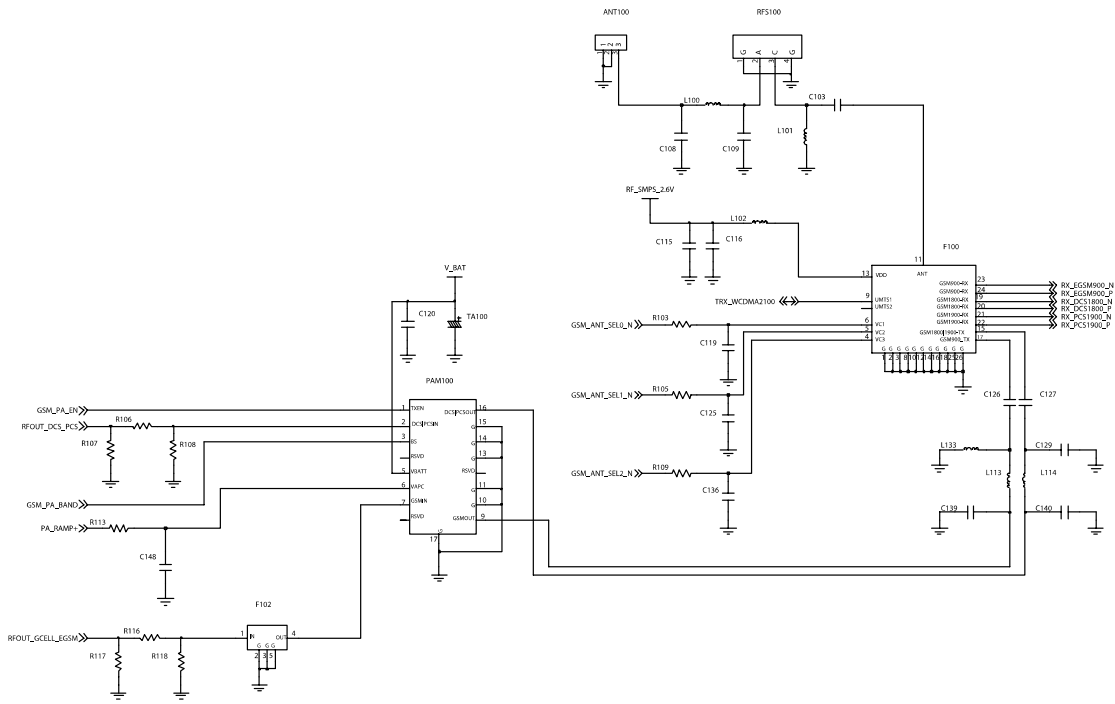




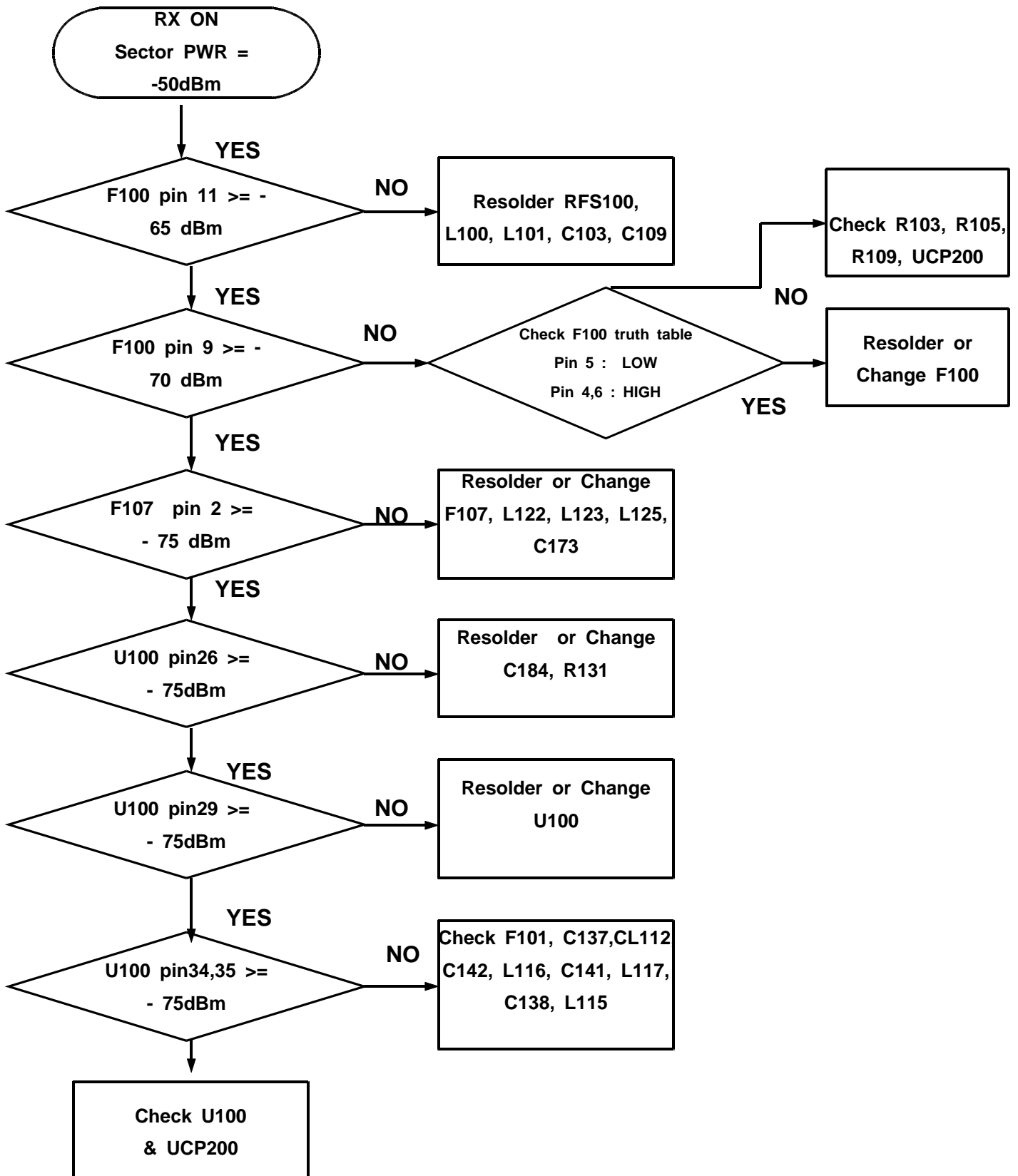


9-15. PCS Transmitter



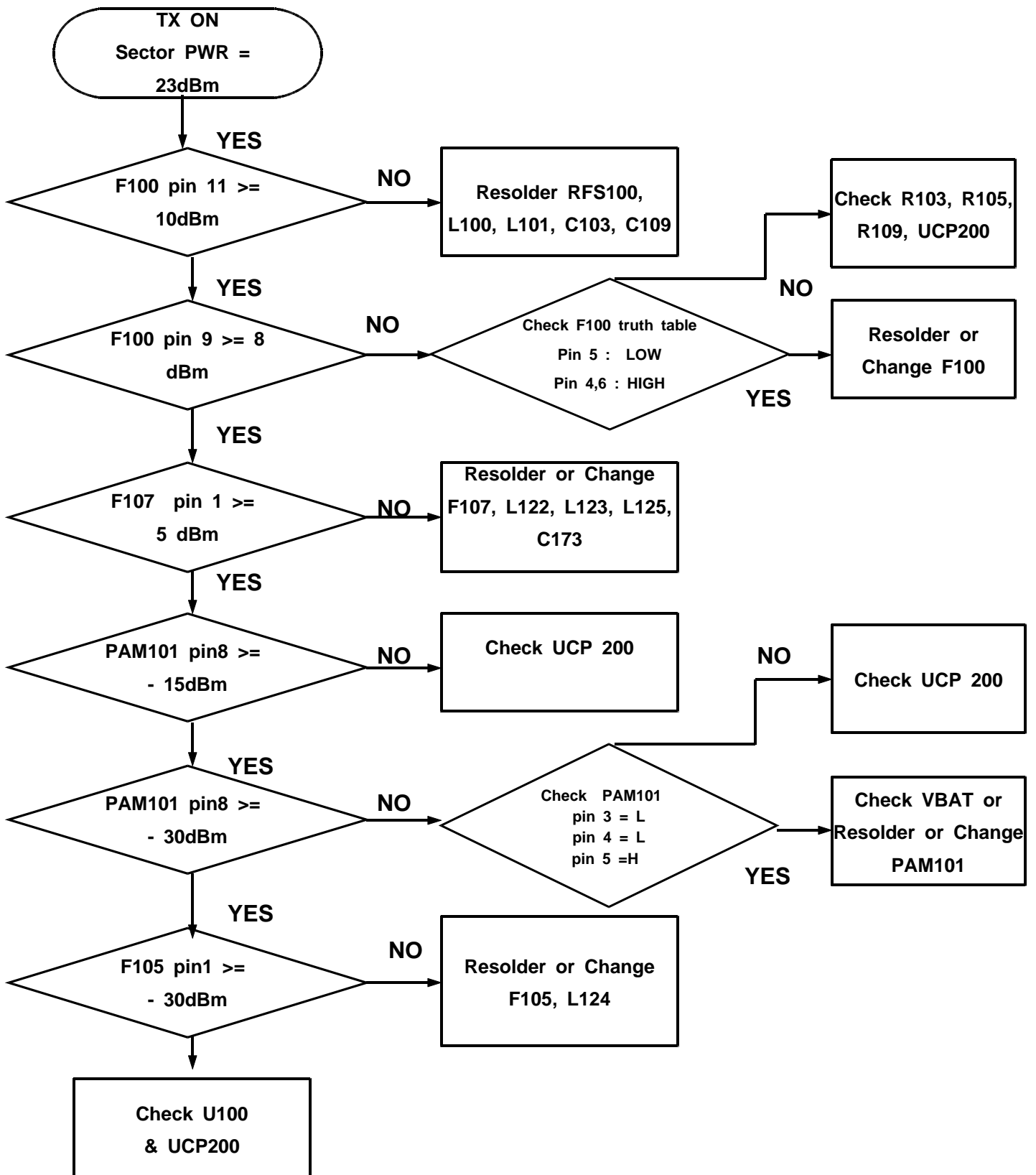


9-16. WCDMA Receiver



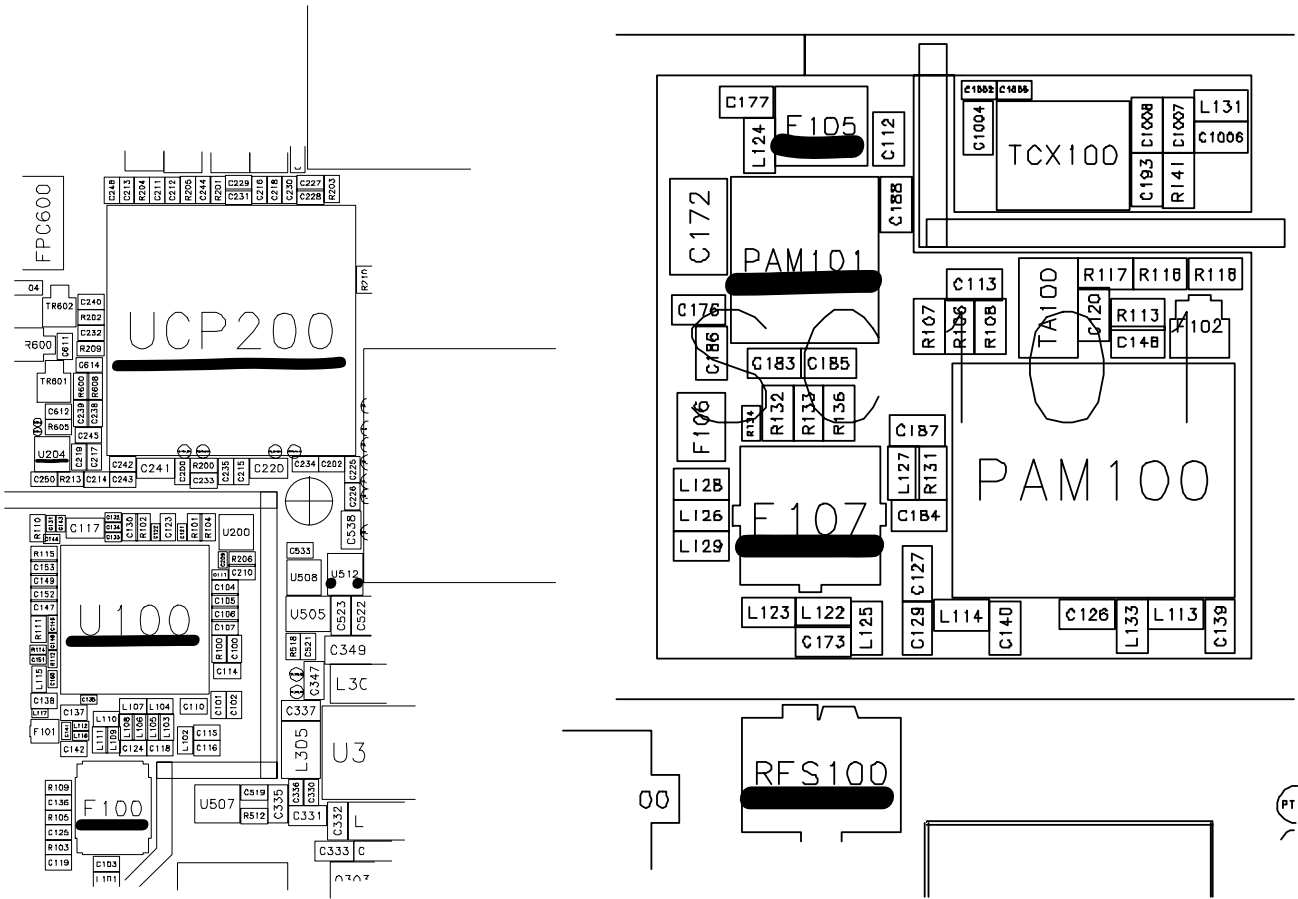


9-17. WCDMA 2100 Transmitter





# Flow Chart of Troubleshooting



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## 10. Reference data

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### Reference Abbreviate

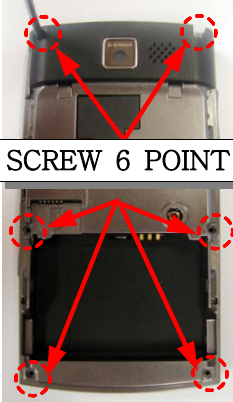

- **ARFCN** : Absolute Radio Frequency Channel Number
- **BGA** : Ball Grid Array
- **DCS** : Digital Communications System
- **DL** : Downlink
- **EDR** : Enhanced Data Rate
- **EFS** : Embaded File System
- **EGSM** : Enhanced Global System for Mobile Communications
- **FTP** : File Transfer Protocol
- **HPSK** : Hybrid Phase Shift Keying
- **HSDPA** : High Speed Downlink Packet Access
- **Mcps** : Mega-chips per second
- **MMS** : Multimedia Messaging Service
- **MSK** : Minimum Shift Keying
- **OBEX** : OBject EXchange
- **PBA** : Panel Board Assembly
- **PCS** : Personal Communication System
- **PIM(S)** : Personal Information Management (System)
- **QPSK** : Quadrature Phase Shift Keying
- **RNDIS** : Remote Network Driver Interface Specification
- **RSS** : Received Signal Strength
- **SAW** : Surface Acoustic Wave
- **SMS** : Short Message Service
- **UL** : Uplink
- **USB** : Universal Serial Bus
- **WCDMA** : Wideband Code Division Multiple Access

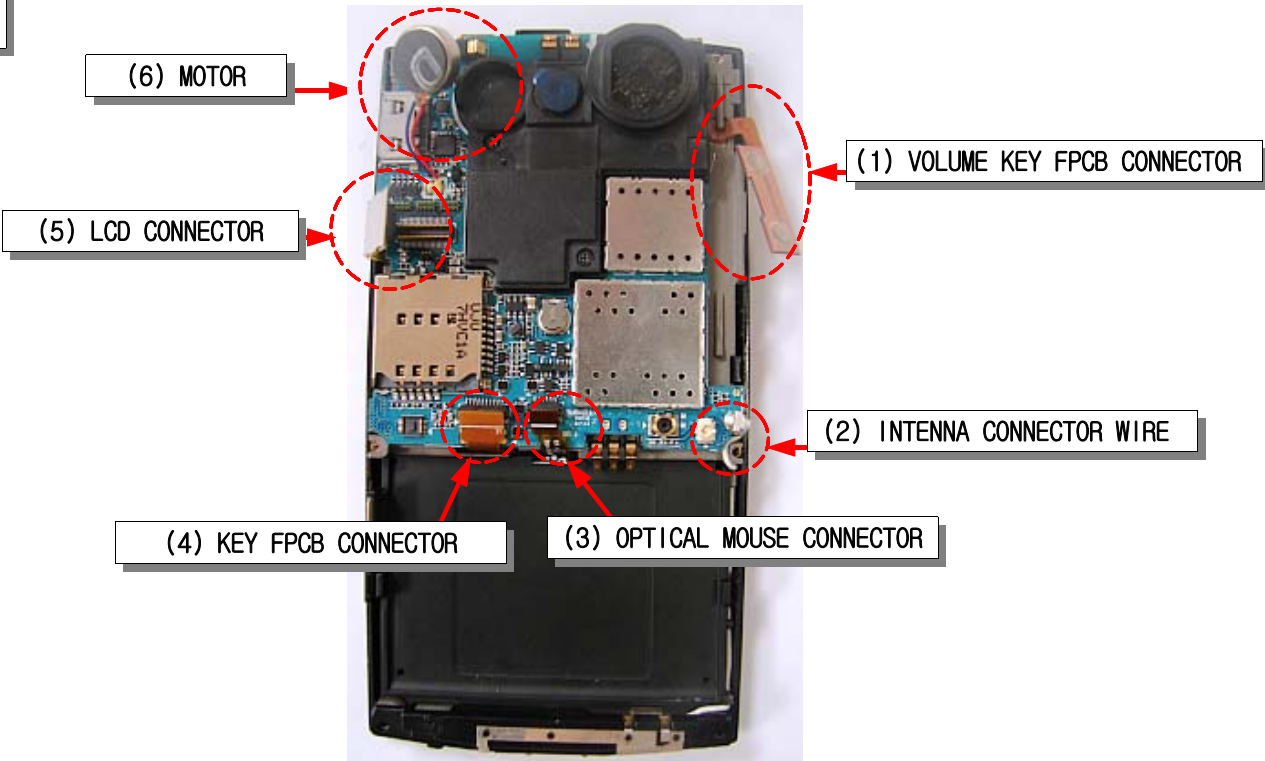




# 11. Disassembly and Assembly Instructions

## 11-1. Disassembly Instructions

<p>1</p>  <p>SCREW 6 POINT</p>	<p>2</p> 
<p>Unscrew 6 points in the rear case. - SCREW 6 POINT</p>	<p>Remove rear cover. - Separate the locker by inserting the disassembly apparatus into the gap between the front and the rear.</p>

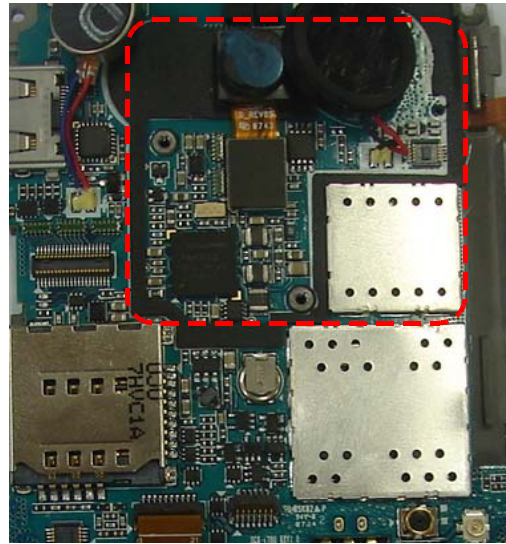
<p>3</p>  <p>(6) MOTOR</p> <p>(5) LCD CONNECTOR</p> <p>(1) VOLUME KEY FPCB CONNECTOR</p> <p>(2) ANTENNA CONNECTOR WIRE</p> <p>(4) KEY FPCB CONNECTOR</p> <p>(3) OPTICAL MOUSE CONNECTOR</p>
<p>(1) VOLUME KEY FPCB CONNECTOR (2) ANTENNA CONNECTOR WIRE (3) OPTICAL MOUSE CONNECTOR (4) KEY FPCB CONNECTOR (5) LCD CONNECTOR (6) MOTOR Detach FPCB. Separate the MOTOR.</p>

4



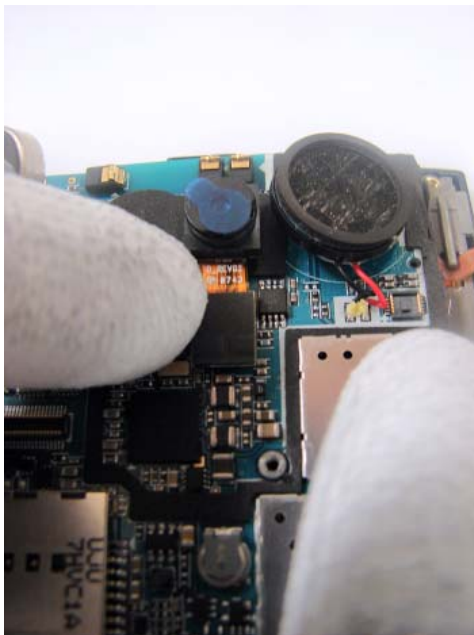
Unscrew 2 points

5



Separate the speaker bracket.

6



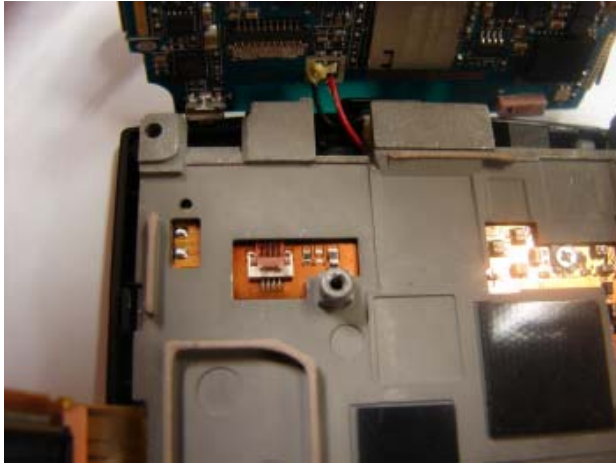
Separate the 2M camera.

7



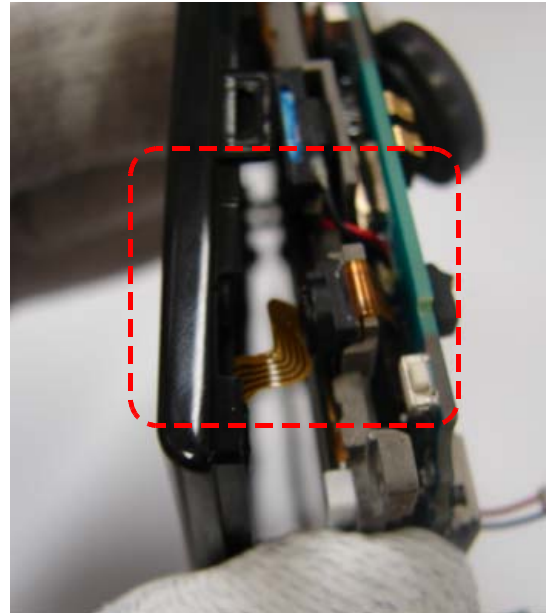
Remove the insulation tape after raising the PBA.

8



Open the TSP WINDOW CONNECTOR LOCKER.

9



Pick out the tsp window connector from the space between LCD and PBA BRACKET.

10



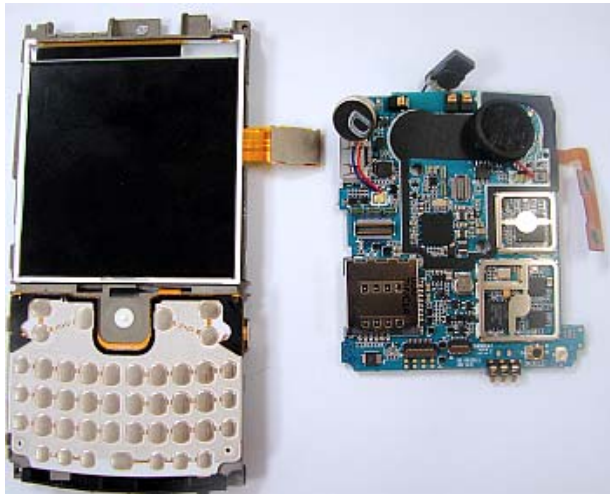
Separate FRONT and PBA BRACKET ASS'Y.

11



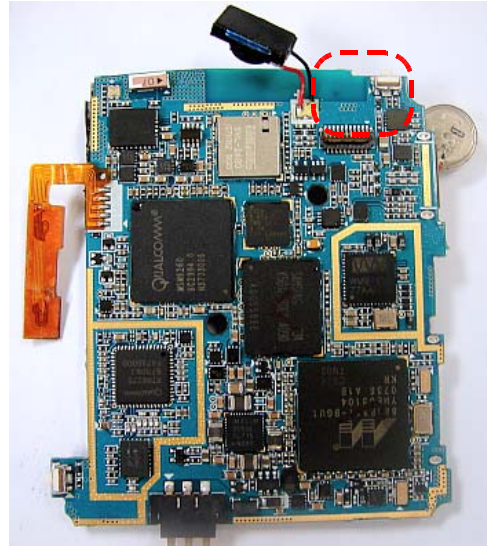
Separate RECEIVER and VGA CAMERA.

12



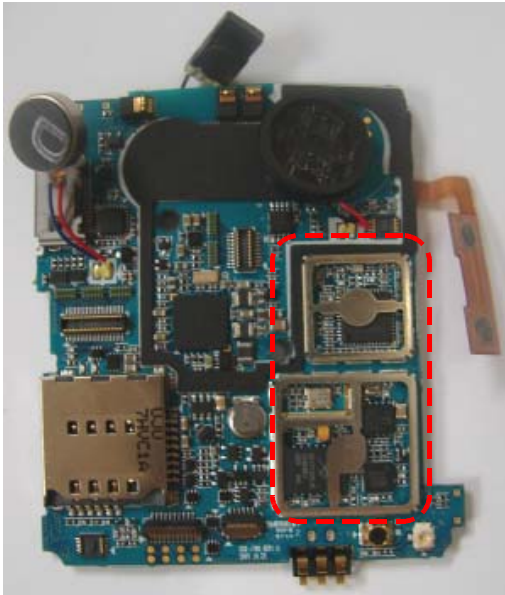
Separate PBA BRACKET and PBA.

13



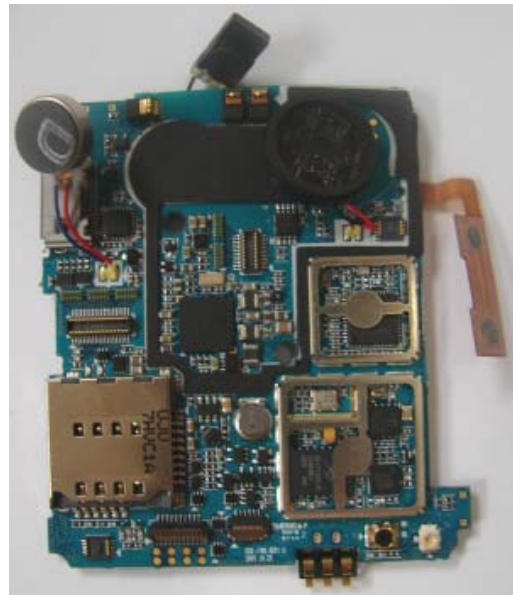
Separate the VGA CAMERA after removing the insulation tape.

14



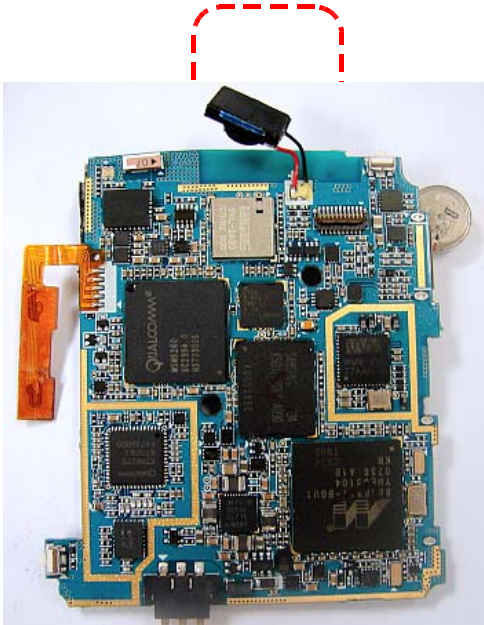
Detach two SHIELD COVERS.

15



Separate the MOTOR and SPEAKER after RE-SOLDERING.

16



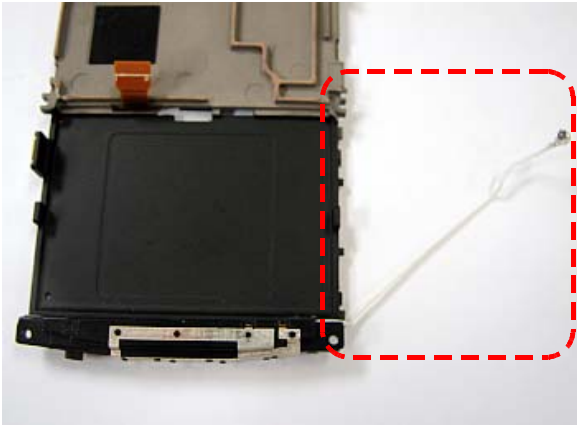
Separate the MOTOR and SPEAKER after RESOLDERING.

17



Separate LCD and PBA BRACKET.

18



Separate PBA BRACKET and ANTENNA WIRE.

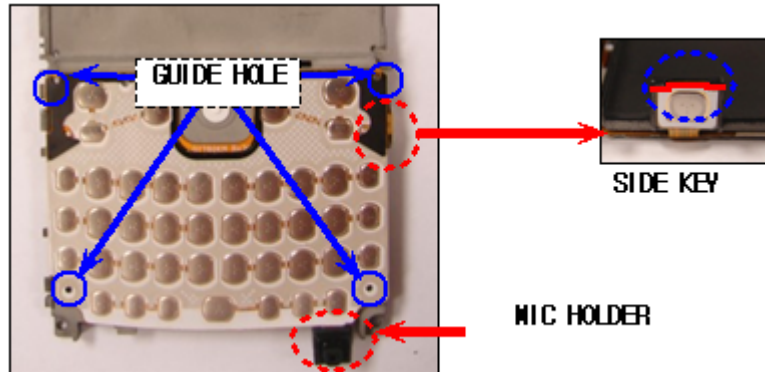
19



Remove the ANTENNA.  
Notice the MIC HOLDER.

## 11-2. Assembly Instructions

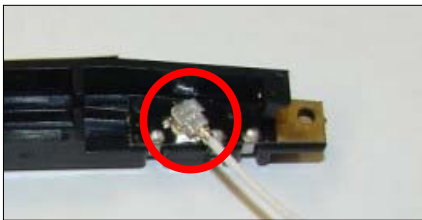
1



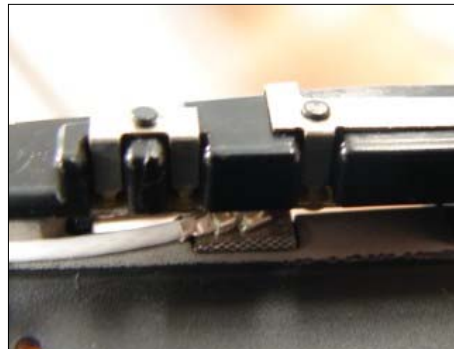
Attach KEY FPCB

1. Remove the sticker of the KEY FPCB.
2. Attach the KEY FPCB standardizing guide hole.

2



< 1. ANTENNA CONNECTOR 체결 >



< 2. GOLD GASKET과 ANTENNA CONNECTOR 접촉 확인 >



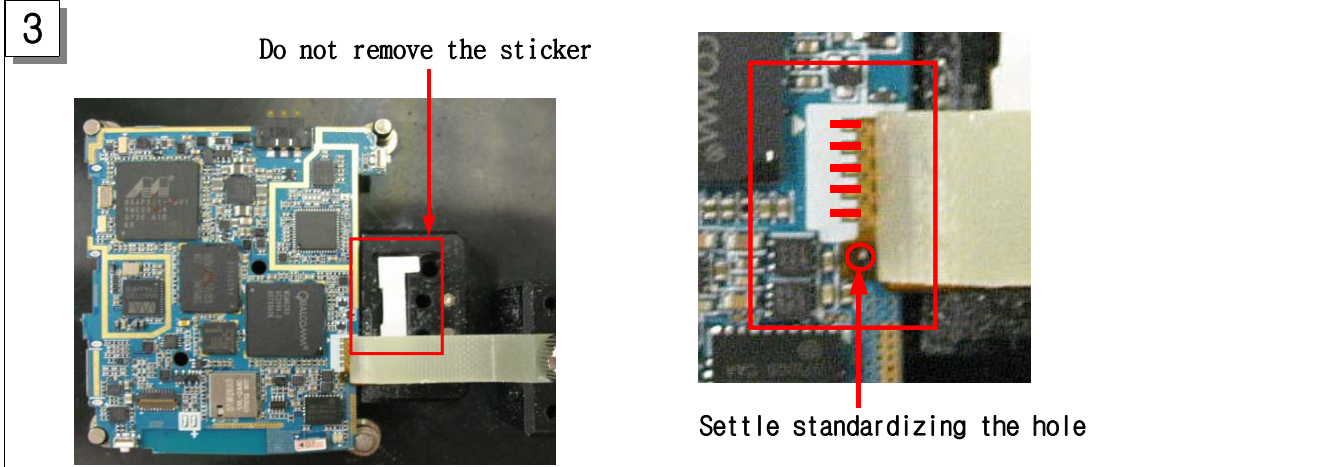
< 3. ANTENNA ASSEMBLY >



< 4. ANTENNA CONNECTOR WIRE 안착 >

ANTENNA ASSEMBLY

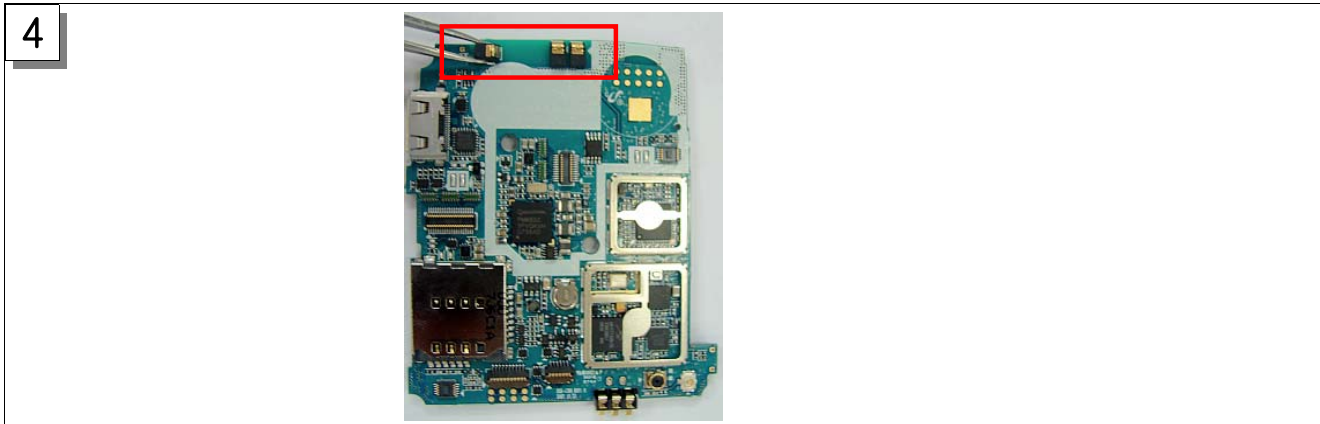
1. Press the antenna connector on antenna perpendicularly.
2. Attach ANTENNA on PBA BRACKET.  
Make sure the contact between GOLD GASKET and ANTENNA CONNECTOR.
3. MIC HOLDER must be settled in ANTENNA HOLE.
4. Attach the ANTENNA CONNECTOR WIRE side of the PBA BRACKET. (refer to the picture)



**VOLUME KEY FPCB SOLDERING**

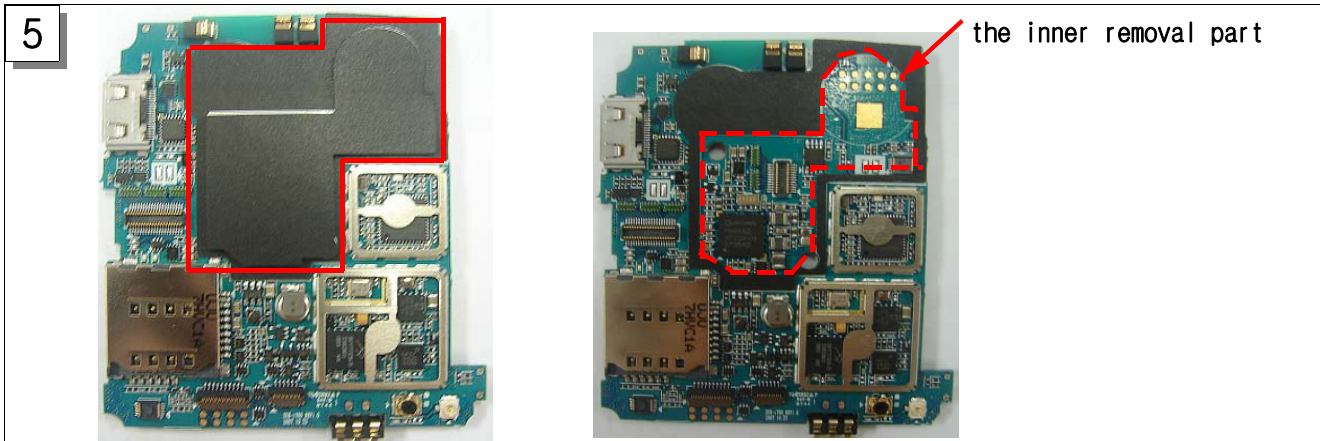
1. Settle the VOLUME KEY FPCB using the GUIDE HOLE and SOLDER the FPCB.

※ Notice SHORT and getting loose  
iron temperature : 350~380'



Insert ANTENNA CONTACT RUBBER

1. Insert rubber into the lower end of the INTENNA CONTACT.




Attach the PORON SPEAKER BRACKET

1. Attach the PORON SPEAKER BRACKET following the guide line of the PCB

2. Remove the inner removal part of the PORON



6

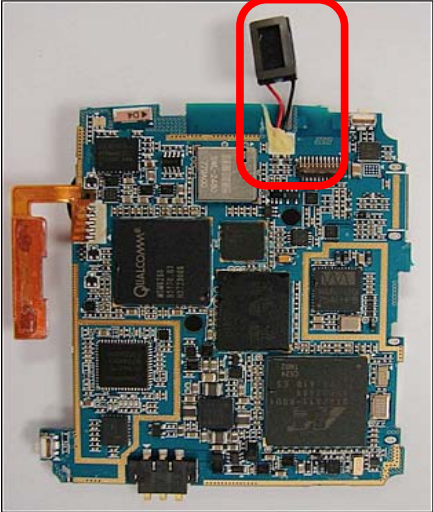


notice the right insertion direction      insert from the left side.


Attach SHIELD COVER  
1. Attach SHIELD COVER from the left side.

7

RECEIVER SOLDERING



MOTOR, SPEAKER SOLDERING



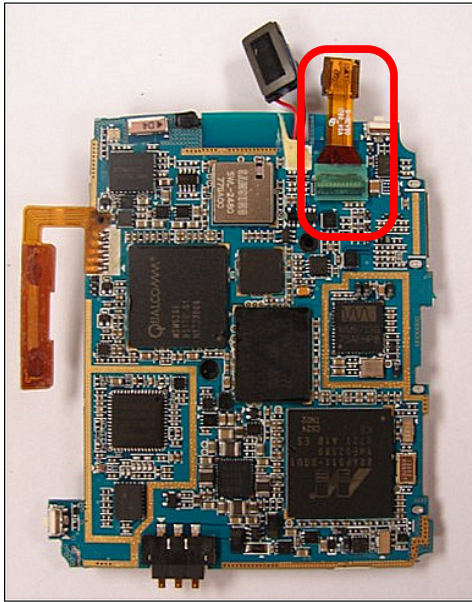
RECEIVER, MOTOR, SPEAKER SOLDERING

1. Solder the RECEIVER on the TOP side.
2. Solder the MOTOR and SPEAKER on the BOTTOM side.

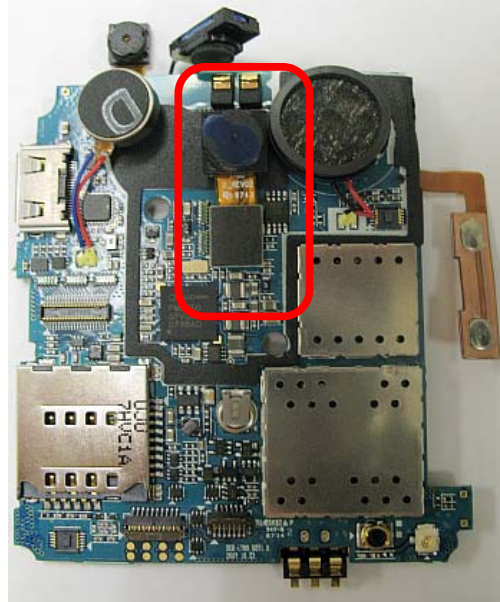
※ Notice SHORT and getting loose  
iron temperature : 350~380'

8

attach VGA CAMERA



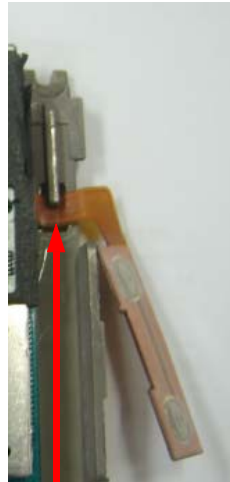
attach 2MEGA CAMERA



Attach CAMERAS

1. Inset the VGA CAMERA (standardize the FPCB SILK LINE) and attach the insulation tape after closing the LOCKER.
2. Press the 2MEGA CAMERA.

9



inset the FPCB into the bracket FIRST.

attach the MOTOR

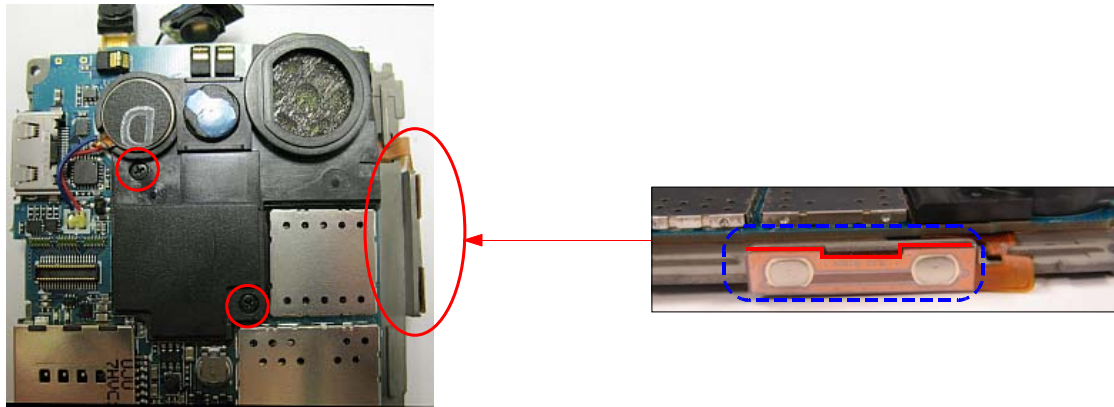


notice the SPEAKER settling

Settle PBA / Attach the SPEAKER BRACKET

1. Inset the FPCB into the BRACKET.
2. Settle the PBA into the PBA BRACKET
3. Attach the MOTOR after assembling the SPEAKER BRACKET.

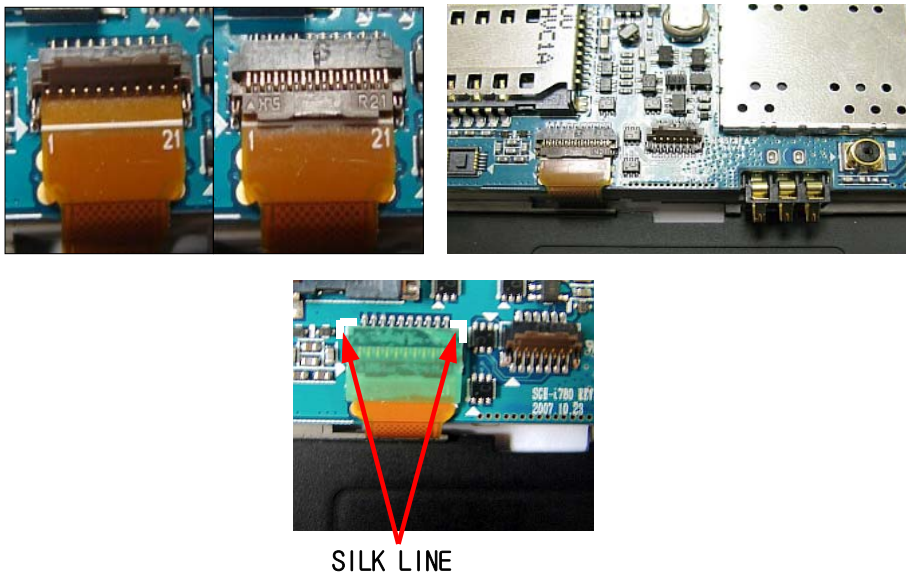
10



**SCREW / Attach VOLUME KEY FPCB**

1. SCREW 2 POINTS. (SCREW SIZE : M1.4,L3.5, TORQUE : 1.1~1.3 Kgf.cm)
2. Attach the VOLUME KEY FPCB on the PBA BRACKET following the picture.

11

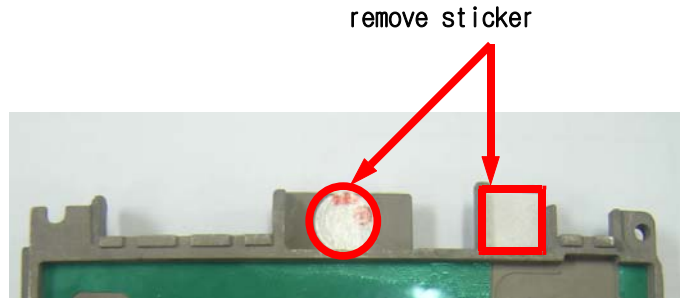
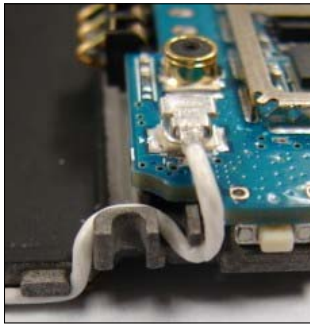


SILK LINE

**Connect KEY FPCB CONNECTOR**

1. Close the LOCKER (SILK LINE of the FPCB must be placed end of the LOCKER)
2. Attach the insulation tape standardizing the CONNECTOR upper SILK LINE

12



remove sticker



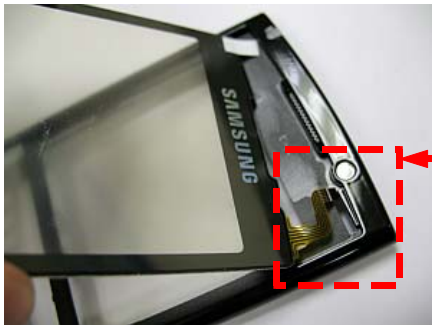
attach after holding

attach the receiver standardizing left/lower-end RIB

Connect the INTENNA WIRE CONNECTOR / attach the RECEIVER and VGA CAMERA

1. Press the INTENNA WIRE CONNECTOR perpendicularly
2. Attach the RECEIVER and VGA CAMERA after removing stickers.

13



insert TSP WINDOW  
FPCB CONNECTOR into the FRONT hole

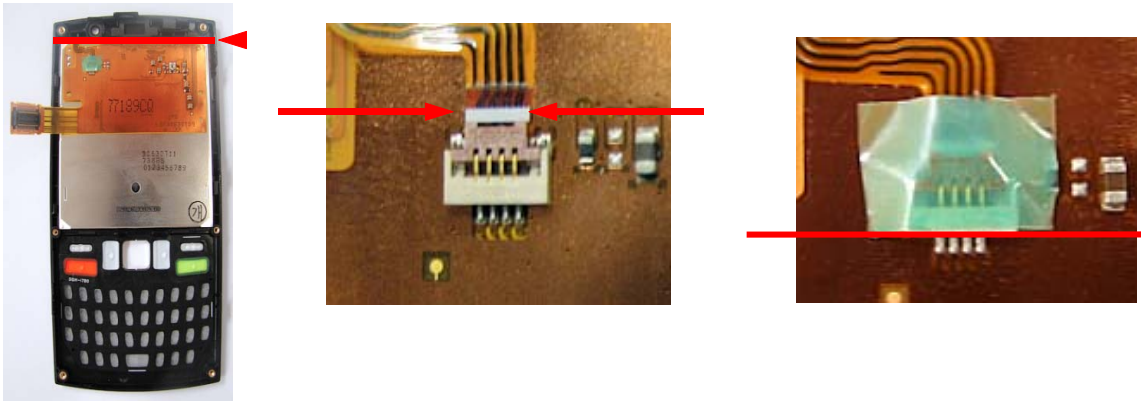


attach the TSP WINDOW on FRONT  
standardizing the upper line

Attach the TSP WINDOW on FRONT

1. Remove the sticker of FRONT WINDOW
2. Insert TSP WINDOW FPCB CONNECTOR into the FRONT hole
3. Attach the TSP WINDOW on FRONT standardizing the upper line

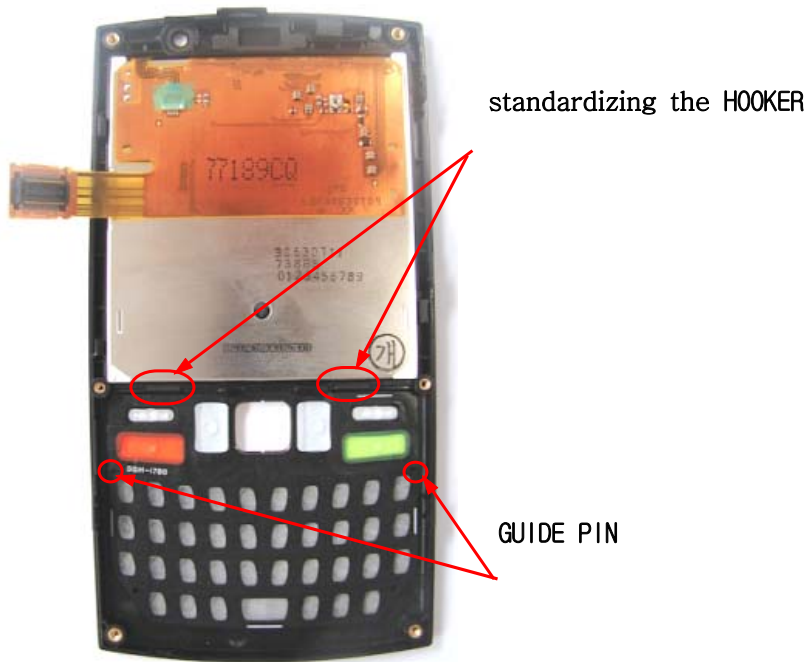
14



Settle LCD / Connect TSP WINDOW CONNECTOR

1. Settle LCD on FRONTstandardizing the upper line
2. Close the LOCKER (FPCB SILK LINE must be placed end of the LOCKER)
3. Attach the insulation tape standardizing the CONNECTOR lower end

15



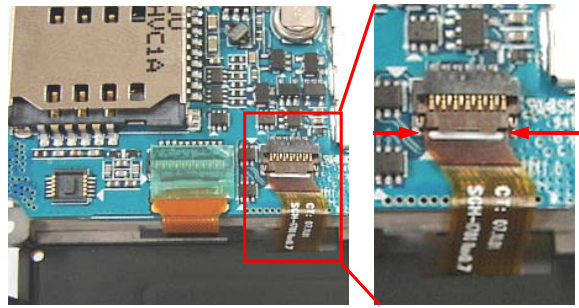
KEY PAD

1. Settle the KEY PAD standardizing the HOOKER.
2. Make sure the key pad attachment.

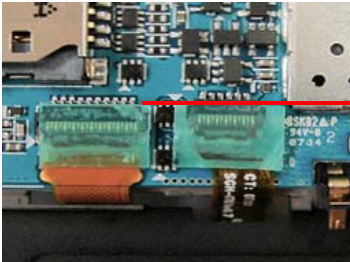
16



inset the OPTICAL MOUSE FPCB into the BRACKET hole



standardizing the SILK LINE



attach the insulation tape standardizing the CONNECTOR upper side.

**OPTICAL MOUSE**

1. Inset the OPTICAL MOUSE FPCB into the BRACKET hole
2. Close the LOCKER after inserting the CONNECTOR
3. Attach the insulation tape standardizing the CONNECTOR upper side.

17



notice interference between VOLUME KEY FPCB and FRONT RIB



connect the LCD CONNECTOR



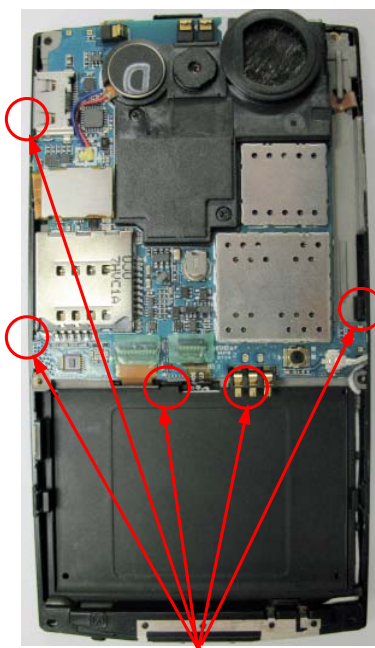
notice interference between VOLUME KEY FPCB and FRONT RIB

Put the PBA BRACKET ASS'Y on FRONT

1. Put the PBA BRACKET ASS'Y on FRONT (right / upper side FIRST)  
Notice interference between VOLUME KEY FPCB and FRONT RIB
2. Connect LCD CONNECTOR

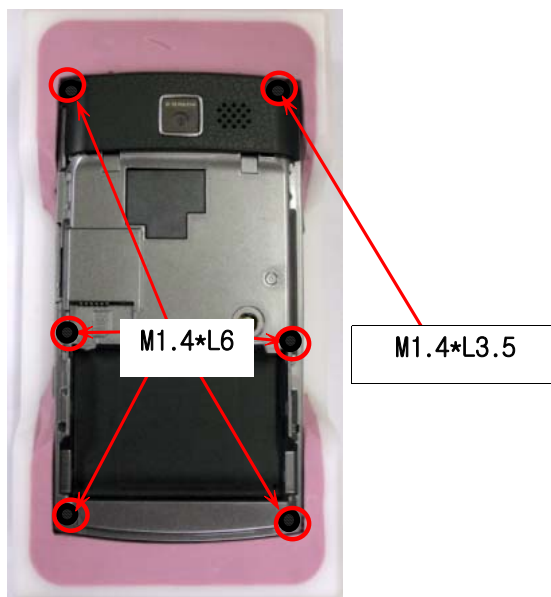
16

HOOKER 5 POINT



Make sure the HOOKER 5 POINT attachment with accuracy

17



Assemble the rear case / SCREW 6 points

1. Assemble the rear case and SCREW 6 POINTS

(SCREW SIZE → M1.4\*L6 : 5 POINT, M1.4\*L3.5 : 1 POINT)

SCREW TORQUE : 1.1~1.3 Kgf.cm