

SAMSUNG

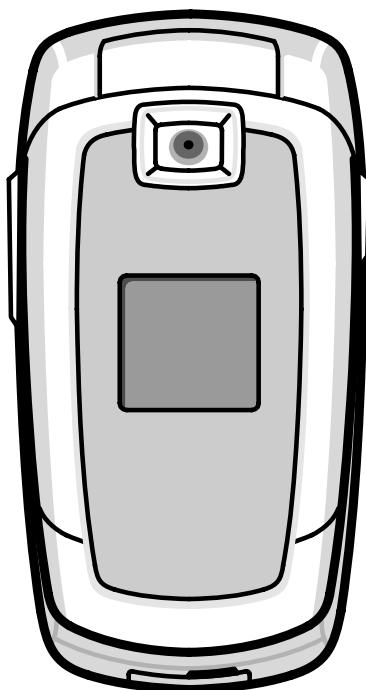
# GSM TELEPHONE

## SGH-X680

# SERVICE *Manual*

GSM TELEPHONE

CONTENTS



1. Safety Precautions
2. Specification
3. Product Function
4. Array course control
5. Exploded View and Parts List
6. Disassembly and Assembly instructions
7. MAIN Electrical Parts List
8. Block Diagrams
9. PCB Diagrams
10. Flow Chart of Troubleshooting
11. Reference data

# Contents

|  |      |
|--|------|
| <b>1. Safety Precautions</b>                                   |      |
| 1-1. Repair Precaution .....                                   | 1-1  |
| 1-2. ESD(Electrostatically Sensitive Devices) Precaution ..... | 1-2  |
| <b>2. Specification</b>  |      |
| 2-1. GSM General Specification .....                           | 2-1  |
| 2-2. GSM Tx Power Class .....                                  | 2-2  |
| <b>3. Product Function</b>                                     |      |
| 3-1. Main Function .....                                       | 3-1  |
| <b>4. Array course control</b>                                 |      |
| Software Downloading   |      |
| 4-1. Downloading Binary Files .....                            | 4-2  |
| 4-2. Pre-requisite for Downloading .....                       | 4-2  |
| 4-3. S/W Downloader Program .....                              | 4-3  |
| <b>5. Exploded View and Parts List</b>                         |      |
| 5-1. Cellular phone Exploded View .....                        | 5-1  |
| 5-2. Cellular phone Part list .....                            | 5-2  |
| <b>6. Disassembly and Assembly instructions</b>                |      |
| 6-1. Disassembly .....   | 6-1  |
| 6-2. Assembly .....  | 6-4  |
| <b>7. MAIN Electrical Parts List</b>                           |      |
| <b>8. Block Diagrams</b>                                       |      |
| <b>9. PCB Diagrams</b>   |      |
| <b>10. Flow Chart of Troubleshooting</b>                       |      |
| 10-1. Baseband   |      |
| 10-1-1. Power ON .....   | 10-1 |

## Contents

|                                  |       |
|----------------------------------|-------|
| 10-1-2. Initial .....            | 10-4  |
| 10-1-3. Sim Part .....           | 10-7  |
| 10-1-4. Charging Part .....      | 10-10 |
| 10-1-5. Microphone Part .....    | 10-12 |
| 10-1-6. Speaker Part .....       | 10-14 |
| 10-1-7. LCD .....                | 10-17 |
| 10-1-8. Camera .....             | 10-19 |
| 10-2. RF                         |       |
| 10-2-1. EGSM Receiver .....      | 10-21 |
| 10-2-2. DCS Receiver.....        | 10-22 |
| 10-2-3. PCS Receiver.....        | 10-23 |
| 10-2-4. GSM Transmitter.....     | 10-24 |
| 10-2-5. DCS/PCS Transmitter..... | 10-25 |
| 10-2-6. Bluetooth Part .....     | 10-28 |

## 11. Reference data

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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 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.

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## 2. Specification

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### 2-1. GSM General Specification

|                                     | GSM900<br>Phase 1        | EGSM 900<br>Phase 2      | DCS1800<br>Phase 1       | PCS1900                  |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Freq. Band[MHz]<br>Uplink/Downlink  | 890~915<br>935~960       | 880~915<br>925~960       | 1710~1785<br>1805~1880   | 1850~1910<br>1930~1990   |
| ARFCN range                         | 1~124                    | 0~124 &<br>975~1023      | 512~885                  | 512~810                  |
| Tx/Rx spacing                       | 45 MHz                   | 45 MHz                   | 95 MHz                   | 80 MHz                   |
| Mod. Bit rate/<br>Bit Period        | 270.833 kbps<br>3.692 us | 270.833 kbps<br>3.692 us | 270.833 kbps<br>3.692 us | 270.833 kbps<br>3.692 us |
| Time Slot<br>Period/Frame<br>Period | 576.9 us<br>4.615 ms     | 576.9 us<br>4.615 ms     | 576.9 us<br>4.615 ms     | 576.9 us<br>4.615 ms     |
| Modulation                          | 0.3 GMSK                 | 0.3 GMSK                 | 0.3 GMSK                 | 0.3 GMSK                 |
| MS Power                            | 33 dBm~13 dBm            | 33 dBm~5 dBm             | 30 dBm~0 dBm             | 30 dBm~0 dBm             |
| Power Class                         | 5 pcl ~ 15 pcl           | 5 pcl ~ 19 pcl           | 0 pcl ~ 15 pcl           | 0 pcl ~ 15 pcl           |
| Sensitivity                         | -102 dBm                 | -102 dBm                 | -100 dBm                 | -100 dBm                 |
| TDMA Mux                            | 8                        | 8                        | 8                        | 8                        |
| Cell Radius                         | 35 Km                    | 35 Km                    | 2 Km                     | -                        |

## 2-2. GSM Tx Power Class

| <b>TX Power control level</b> | <b>GSM900</b> | <b>TX Power control level</b> | <b>DCS1800</b> | <b>TX Power control level</b> | <b>PCS1900</b> |
|-------------------------------|---------------|-------------------------------|----------------|-------------------------------|----------------|
| 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±4dBm         | 11                            | 8±4dBm         |
| 17                            | 9±3dBm        | 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**

- Camera and camcorder
- Music player
- Bluetooth
- Web browser
- Get personal with photo caller ID
- Name card
- Multimedia Message Service (MMS)
- Java
- Calendar
- Voice recorder
- Alarm

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## 4. Array course control

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**Test Jig (GH80-03307A)**



**Test Cable (GH39-00369A)**



**RF Test Cable (GH39-00397A)**

## **Software Downloading**

### **4-1. Downloading Binary Files**

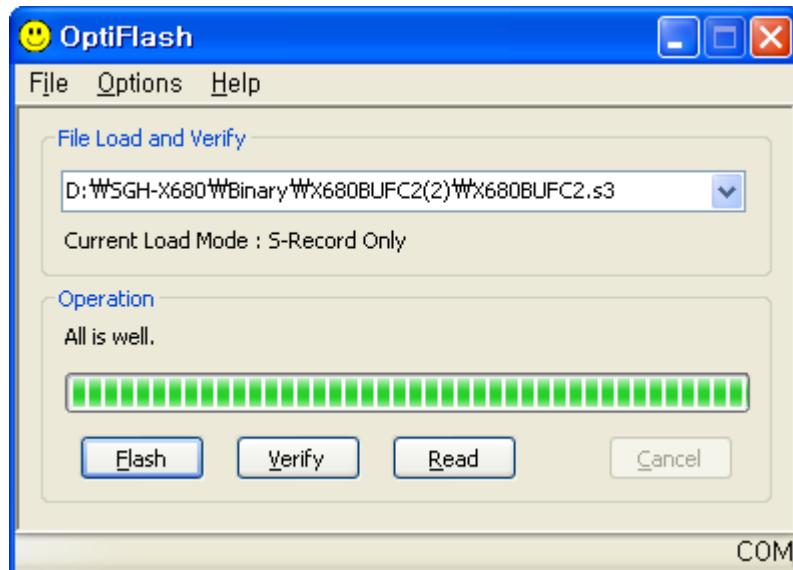
- Three binary files for downloading X680.
  - X680XXXXX.s3 : Main source code binary.

### **4-2. Pre-requisite for Downloading**

- Downloader Program([OptiFlash.exe](#))
- X680 Mobile Phone
- Data Cable
- Binary files

### 4-3. S/W Downloader Program

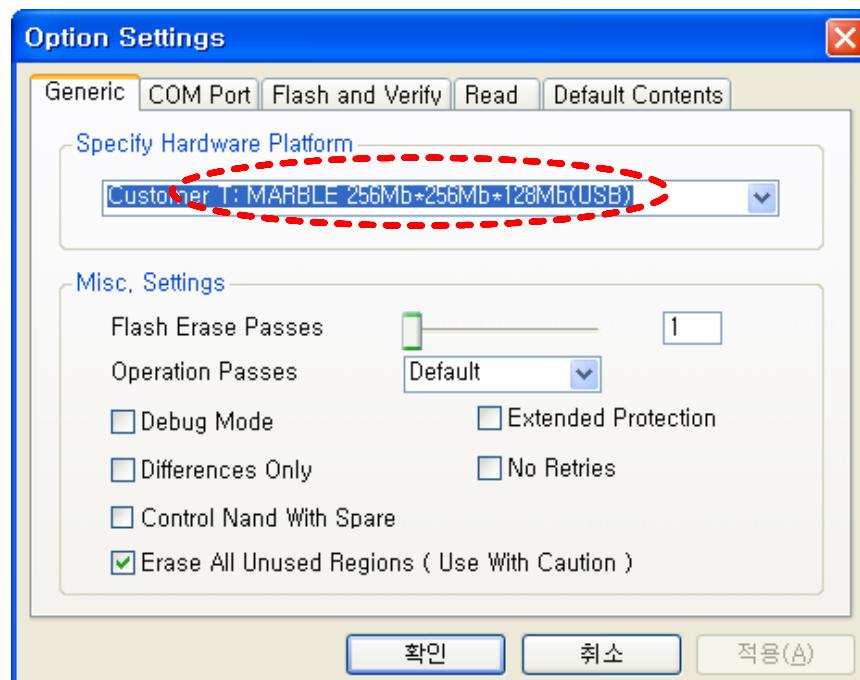
- Load the binary download program by executing the "OptiFlash.exe"



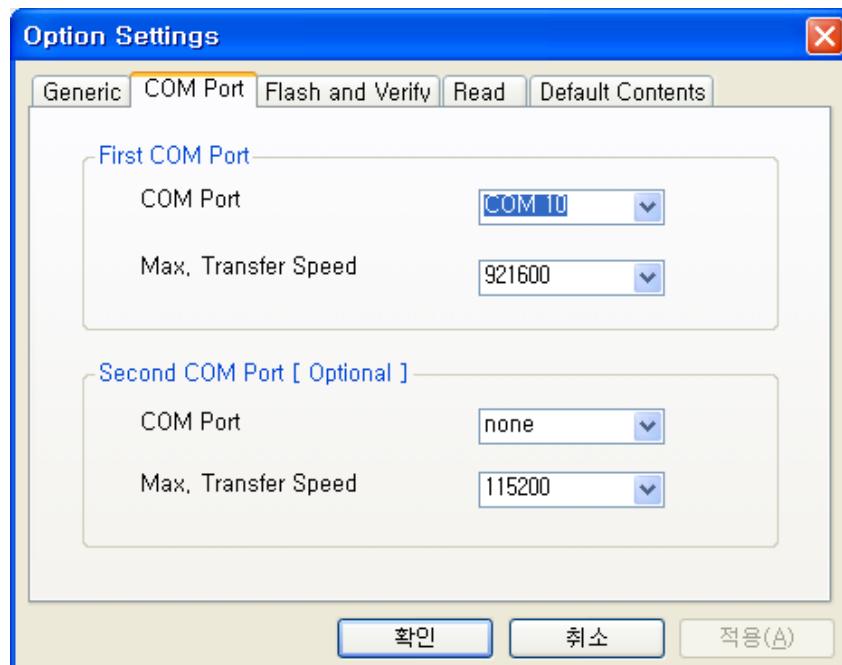
- Select the "Options" -> "Settings" -> "Generic" -> "Specify hardware platform".

Choose hardware platform for the downloader file setting.

Set the everything else as the default values which are shown below



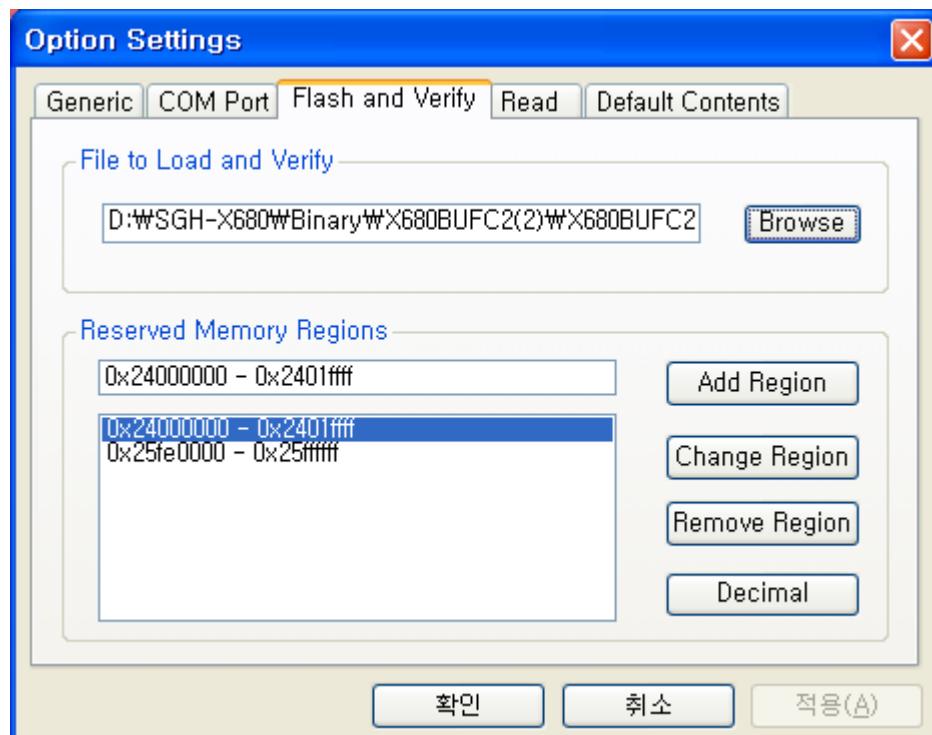
3. Select the **COM port** when the download cable is connected



Up to twelve ports are supported. Additionally you can select the maximum transfer speed OptiFlash will use to communicate with the phone. However, OptiFlash will use a slower speed if either the PC's or the phone's serial hardware is incapable of handling the selected speed

#### 4. Select the "Flash&Verify" -> "Browse"

Set the directory path and choose the latest s/w binary, for example "X680XXXXX.s3", for the downloader binary setting.



**Make sure that not to change the reserved memory regions.▷**

**In case of X680 the reserved regions are :▷**

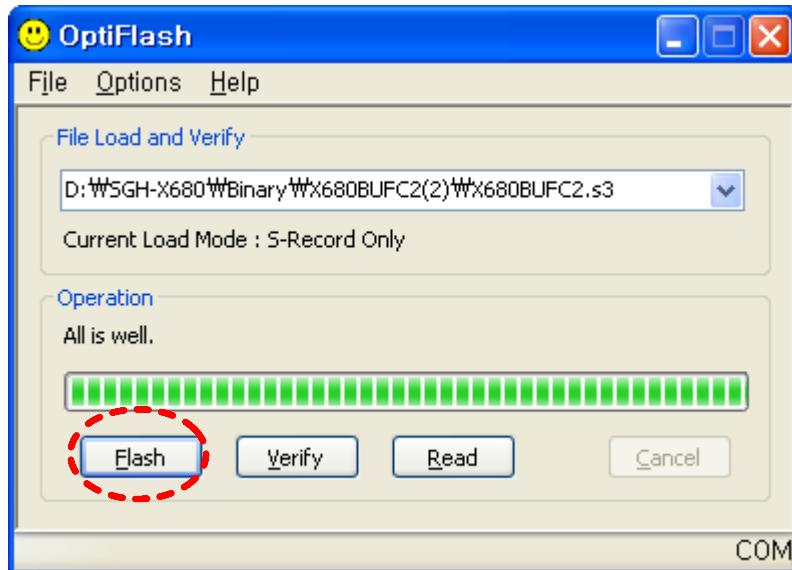
**-0x24000000 – 0x2401ffff▷**

**-0x25fe0000– 0x25ffffff▷**

5. Click “OK” button then press “Flash”.♪

(Before pressing ‘Flash’ button, push the button ‘\*’**and** ‘END’ **at the same time**. Then press ‘Flash’.)♪

Downloader will upload the binary file as below for the downloading. ♪



6. When downloading is finished successfully, there is a “All is well” message.♪

7. After finishing downloading, Certain memory resets should be done to guarantee the normal performance.♪

8. Confirm the downloaded version name and etc. :♪

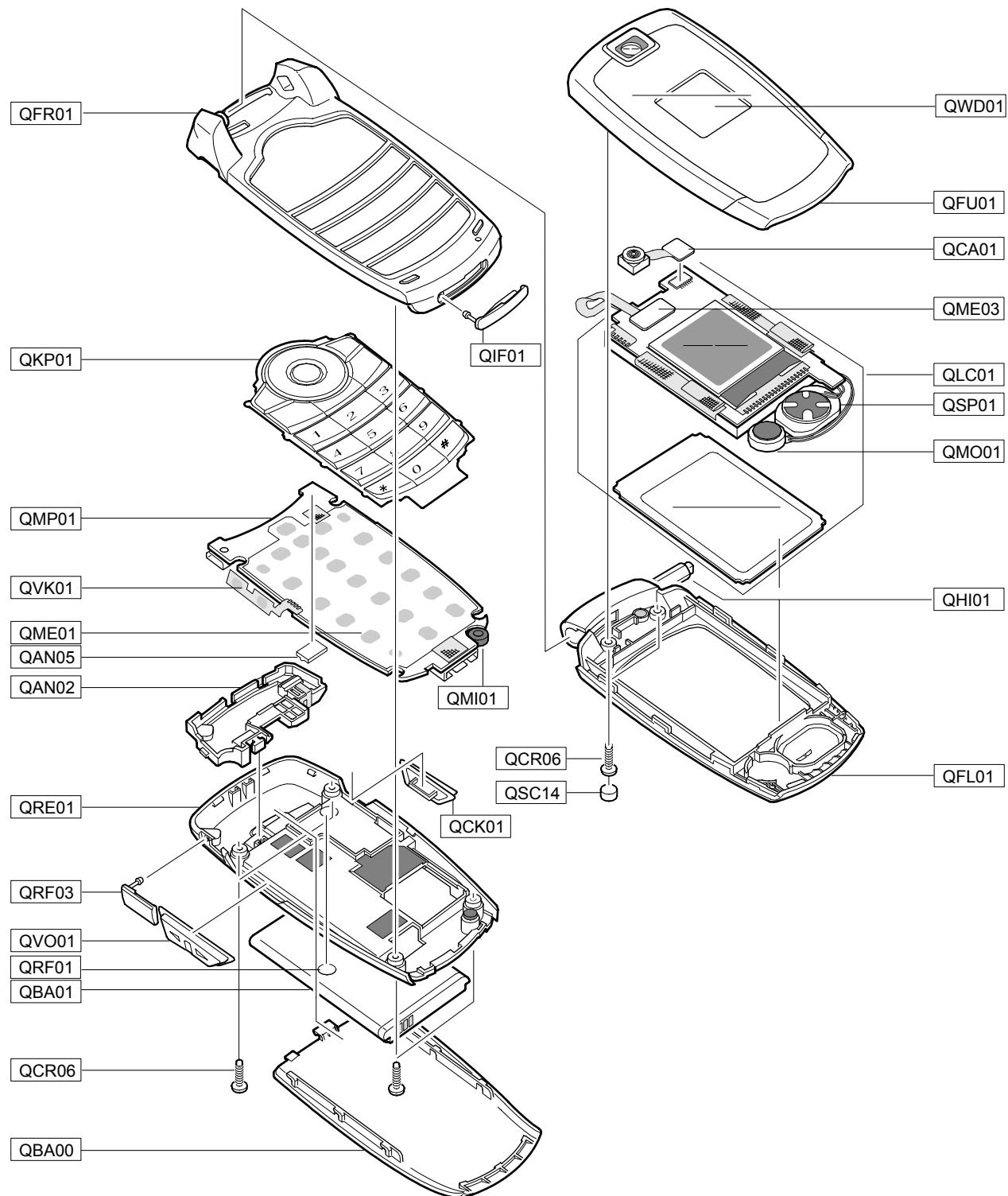
\*#5002\*8376263#♪

Full Reset :♪

\*2767\*3855#

## 5. Exploded View and Parts List

### 5-1. Cellular phone Exploded View



## 5-2. Cellular phone Parts list

| Desgn LOC | Description                    | SEC CODE    |
|-----------|--------------------------------|-------------|
| QAN02     | INTENNA-SGHX680                | GH42-00821A |
| QAN05     | MEC-INTENNA CONTACT            | GH75-08168A |
| QBA00     | ASSY-COVER-BATTERY             | GH98-00947A |
| QBA01     | INNER BATTERY PACK-800MAH,BLK, | GH43-01850A |
| QCA01     | UNIT-CAMERA                    | GH59-03068A |
| QCK01     | PMO-CAM KEY                    | GH72-30786A |
| QCR06     | SCREW-MACHINE                  | 6001-001155 |
| QKP01     | ASSY-KEY-KEYPAD(SAA/XEF)       | GH98-00948A |
| QLC01     | MEA-LCD MODULE KIT             | GH97-06016A |
| QME01     | UNIT-METAL DOME                | GH59-03140A |
| QME03     | UNIT-CON TO CON                | GH59-03139A |
| QMI01     | MICROPHONE-ASSY-5.25MM         | GH30-00177C |
| QMO01     | MOTOR DC-SGHX680               | GH31-00244A |
| QMP01     | PBA MAIN-SGHX680               | GH92-02702A |
| QRF01     | MPR-COVER RF JACK SHEET        | GH74-24164A |
| QSC14     | RMO-CUSHION F/L SCREW CAP      | GH73-07048A |
| QSP01     | SPEAKER                        | 3001-001955 |
| QVK01     | UNIT-VOLUME KEY                | GH59-03141A |
| QVO01     | PMO-VOL KEY                    | GH72-30785A |
| QRE01     | ASSY-CASE-REAR SUB             | GH98-00946A |
| QRF03     | PMO-COVER EARJACK              | GH72-30784A |
| QFR01     | ASSY-CASE-FRONT SUB            | GH98-00943A |
| QIF01     | PMO-COVER IF                   | GH72-30750A |
| QFL01     | ASSY ACCE-LOWER SUB            | GH98-00944A |
| QHI01     | MEC-HINGE(CAN TYPE)            | GH75-04662A |
| QFU01     | ASSY-CASE-UPPER SUB            | GH98-00945A |
| QWD01     | ASSY-COVER-DUAL WINDOW         | GH98-01246A |

| Discription                    | SEC CODE    |
|--------------------------------|-------------|
| BAG PE                         | 6902-000297 |
| ADAPTOR-SGHN288 TAD            | GH44-00184A |
| LABEL(P)-WATER SOAK            | GH68-02026A |
| LABEL(P)-WATER SOAK            | GH68-02026A |
| LABEL(R)-MAIN(EU)              | GH68-10705A |
| MANUAL USERS-EU PORTUGUESE     | GH68-10770A |
| MANUAL USERS-EU ENGLISH        | GH68-10924A |
| BOX(P)-UNIT MAIN(EU)           | GH69-03894A |
| CUSHION-CASE TA2 MA2           | GH69-03895A |
| NPR-COVER LCD CON              | GH71-06463A |
| RMO-RUBBER COVER FOLDER        | GH73-07420A |
| MPR-BOHO VINYL LCD CONN        | GH74-15350A |
| MPR-VINYL BOHO F/L A           | GH74-23061A |
| MPR-VINYL BOHO F/U A           | GH74-23062A |
| MPR-CUSHION CON COVER          | GH74-23065A |
| MPR-TAPE HALL IC               | GH74-23689A |
| MPR-TAPE VOL KEY FPCB          | GH74-23690A |
| MPR-TAPE GASKET PCB            | GH74-23691A |
| MPR-TAPE GASKET LCD A          | GH74-23692A |
| MPR-CUSHION FORM GASKET LCD    | GH74-23693A |
| MPR-TAPE DUST PREVENTION       | GH74-23742A |
| MPR-CUSHION IF GASKET          | GH74-24166A |
| MPR-SPONGE REAR GASKET         | GH74-24196A |
| MPR-SPONGE REAR KEY            | GH74-24543A |
| MPR-VINYL BOHO DUAL WINDOW TOP | GH74-24927A |

## 6. Disassembly and Assembly instructions

### 6-1. Disassembly

1



2



1. Take to pieces screws of main rear  
(4 points)

2. Open IF COVER

3. Open EAR COVER

\* caution

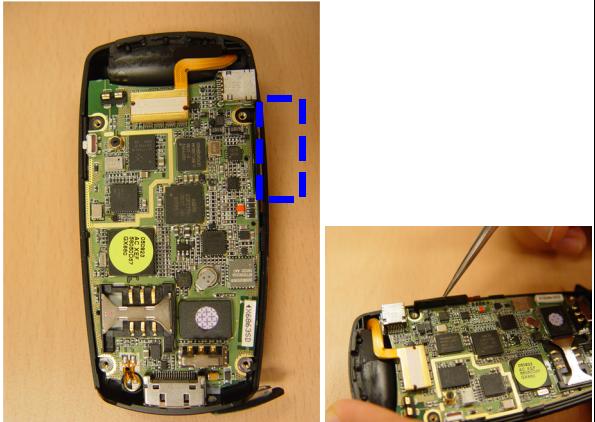
1. Do not scratch or damage at main rear.

1. Disjoint the hooker at left and right portion of main rear, separating main rear referring figure.

\* caution

1. Do not scratch or damage at main rear.

3



4



1. Separate LCD Connector.
2. Separate volume key FPCB from main front by tweezers.
3. Separate PBA from main front ass'y.
4. Separate keypad from main front ass'y

\* caution

1. Do not damage at LCD connector and volume key FPCB when separating.

1. Remove the front tape.
2. Push the hinge using a disassembly tool, separating main front from LCD Ass'y

\* caution

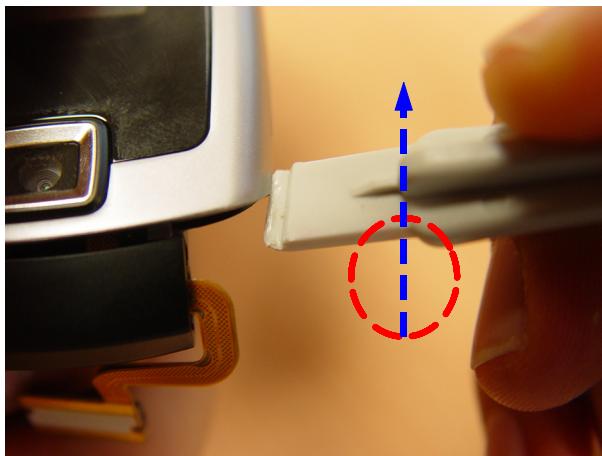
1. Do not scratch or damage at main front.
2. Handle with care LCD connector FPCB when separating.

5



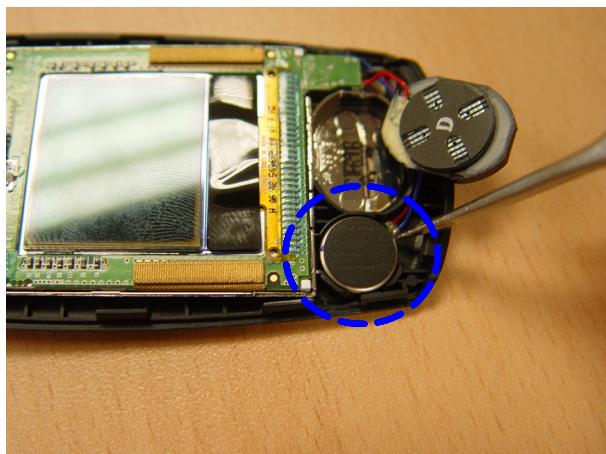
1. Remove the screw cap by tweezer.
  2. Take to pieces screws(2 Points)
- \* caution
1. Do not scratch or damage at LCD ass'y.
  2. Handle with care LCD connector FPCB.

6



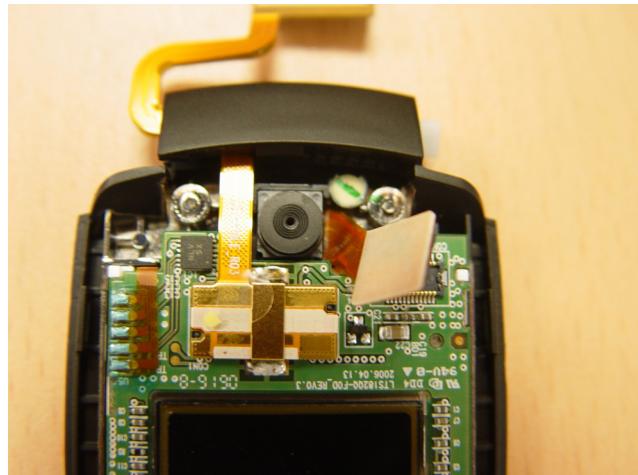
1. Separate folder upper from folder lower using a disassembly tool.  
(Disjoint the hooker at left and right portion of LCD ass'y)
- \* caution
1. Do not scratch or damage at LCD ass'y.

7



1. Separate the speaker firstly
  2. Separate the vibration motor by tweezers
- \* caution
1. Do not damage at speaker and motor wires.
  2. Handle with care speaker and motor.

8



1. Disjoint the camera connector and separate camera module from LCD lower.
- \* caution
1. Do not damage at camera FPCB.

9



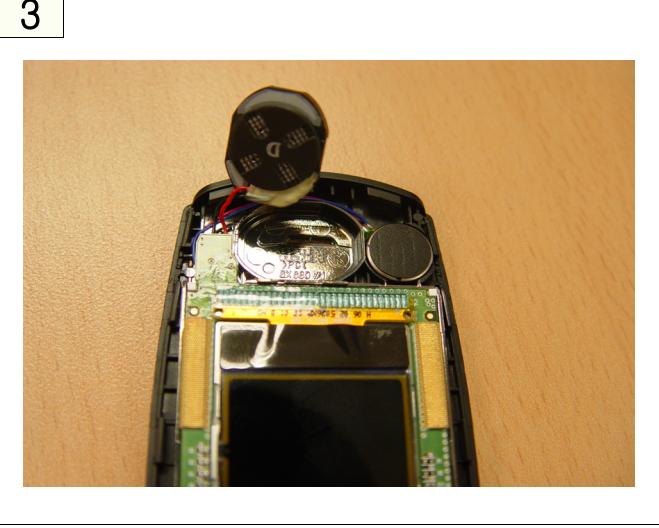
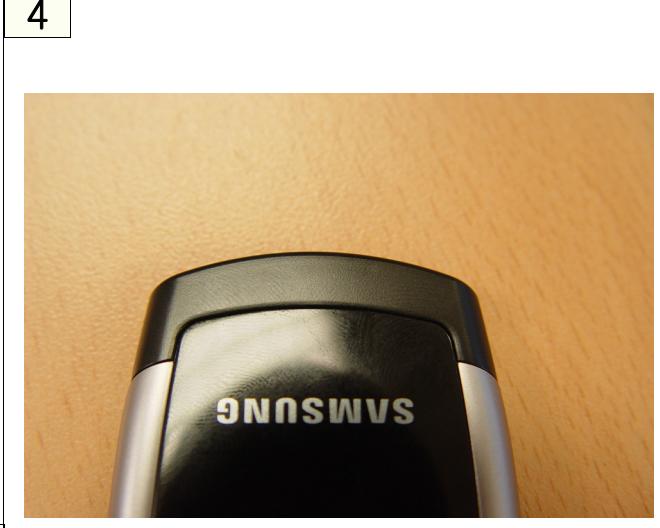
1. Separate LCD connector FPCB from LCD lower.  
**\* caution**
1. Do not damage at LCD Connector and FPCB.

10



1. 1. Separate the LCD ass'y from LCD lower.  
**\* caution**
1. Handle with care LCD Module because attached LCD module on LCD lower by two-faced attaching tape.

## 6-2. Assembly

|  |   |
|--|---|
|  <p>1</p>   |  <p>2</p>   |
| <ol style="list-style-type: none"> <li>1. Assemble LCD module at LCD lower.</li> <li>2. Insert LCD connector FPCB to hinge of LCD lower.</li> </ol> <p><b>* caution</b></p> <ol style="list-style-type: none"> <li>1. Do not damage at LCD connector FPCB when inserting</li> </ol>                                      | <ol style="list-style-type: none"> <li>1. Assemble camera module at LCD lower.</li> <li>2. Exactly insert the camera connector.</li> </ol> <p><b>* caution</b></p> <ol style="list-style-type: none"> <li>1. Do not damage at camera FPCB when inserting camera module in LCD Lower.</li> </ol> |
|  <p>3</p>   |  <p>4</p>   |
| <ol style="list-style-type: none"> <li>1. Assemble the vibration motor.</li> <li>2. Assemble the speaker.</li> </ol> <p><b>* caution</b></p> <ol style="list-style-type: none"> <li>1. Arrange the motor wire after assembling the speaker.</li> <li>2. First assemble the motor wire, next the speaker wire.</li> </ol> | <ol style="list-style-type: none"> <li>1. Assemble LCD upper and LCD lower. When Assembling, first you must assemble black deco part of LCD upper</li> </ol> <p><b>* caution</b></p> <ol style="list-style-type: none"> <li>1. Do not scratch or damage at LCD ass'y.</li> </ol>                |

5



1. Screw the LCD lower.
  2. Insert to the screw cap.
- \* caution**
1. When screwing, Set a gauge of screwdriver  
 $1.2 \pm 0.2$  Kgf.cm

6



1. Insert LCD Connector to main front and assemble LCD ass'y pushing the hinge.
  2. Attach the front tape.
- \* caution**
1. Do not damage at LCD connector.

7



1. settle keypad on the front ass'y.
- \* caution**
1. Exactly settle keypad on the front ass'y at fixed hole.

8



1. Settle PBA on the front ass'y.
  2. Attach the volume key.
  3. Insert LCD connector to PBA exactly.
- \* caution**
1. When settling PBA, Do not bend or crack at hooker.

9



1. Insert camera and volume key
  2. Assemble rear case from part below
- \* caution**
1. Do not scratch or damage at main front and rear.

10



1. after hooking below, cover the rear case.
  2. As figure 2, assemble rear case pushing the upper part.
- \* caution**
1. Do not damage at LCD connector.

11



1. screw the main rear.(4 points)
- \* caution**
1. Do not scratch and damage at main rear.

12

## 7. MAIN Electrical Parts List

| SEC CODE    | Design LOC | Description             | STATUS |
|-------------|------------|-------------------------|--------|
| 4202-001154 | ANT200     | ANTENNA-CHIP            | SA     |
| GH71-06338A | ANT701     | NPR-BRACKET ANT CONTACT | SA     |
| GH71-06338A | ANT702     | NPR-BRACKET ANT CONTACT | SA     |
| 4302-001158 | BAT101     | BATTERY-LI(2ND)         | SA     |
| 3711-006228 | BTC600     | HEADER-BATTERY          | SA     |
| 2203-000254 | C100       | C-CER,CHIP              | SA     |
| 2203-000254 | C101       | C-CER,CHIP              | SA     |
| 2203-005061 | C102       | C-CER,CHIP              | SA     |
| 2203-006377 | C103       | C-CER,CHIP              | SA     |
| 2203-006681 | C104       | C-CER,CHIP              | SA     |
| 2203-005061 | C106       | C-CER,CHIP              | SA     |
| 2203-005061 | C107       | C-CER,CHIP              | SA     |
| 2203-006108 | C108       | C-CER,CHIP              | SA     |
| 2203-000278 | C109       | C-CER,CHIP              | SA     |
| 2203-000812 | C110       | C-CER,CHIP              | SA     |
| 2203-000278 | C111       | C-CER,CHIP              | SA     |
| 2203-000233 | C112       | C-CER,CHIP              | SA     |
| 2203-006348 | C113       | C-CER,CHIP              | SA     |
| 2203-006348 | C114       | C-CER,CHIP              | SA     |
| 2203-006348 | C116       | C-CER,CHIP              | SA     |
| 2203-006348 | C117       | C-CER,CHIP              | SA     |
| 2203-005061 | C118       | C-CER,CHIP              | SA     |
| 2203-006348 | C119       | C-CER,CHIP              | SA     |
| 2203-000254 | C120       | C-CER,CHIP              | SA     |
| 2203-001405 | C121       | C-CER,CHIP              | SA     |
| 2203-001405 | C122       | C-CER,CHIP              | SA     |
| 2203-005061 | C123       | C-CER,CHIP              | SA     |
| 2203-006825 | C124       | C-CER,CHIP              | SA     |
| 2203-000233 | C125       | C-CER,CHIP              | SA     |
| 2203-006348 | C127       | C-CER,CHIP              | SA     |
| 2203-006260 | C128       | C-CER,CHIP              | SA     |
| 2203-006825 | C129       | C-CER,CHIP              | SA     |
| 2203-006048 | C200       | C-CER,CHIP              | SA     |
| 2203-006048 | C201       | C-CER,CHIP              | SA     |
| 2203-000254 | C202       | C-CER,CHIP              | SA     |
| 2203-000254 | C203       | C-CER,CHIP              | SA     |
| 2203-006048 | C204       | C-CER,CHIP              | SA     |
| 2203-006048 | C205       | C-CER,CHIP              | SA     |
| 2203-000254 | C206       | C-CER,CHIP              | SA     |
| 2203-000254 | C207       | C-CER,CHIP              | SA     |
| 2203-001405 | C208       | C-CER,CHIP              | SA     |
| 2203-006562 | C209       | C-CER,CHIP              | SA     |
| 2203-006562 | C210       | C-CER,CHIP              | SA     |

| SEC CODE    | Design LOC | Description | STATUS |
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| 2203-005503 | C211       | C-CER,CHIP  | SA     |
| 2203-006048 | C212       | C-CER,CHIP  | SA     |
| 2203-006562 | C213       | C-CER,CHIP  | SA     |
| 2203-006048 | C214       | C-CER,CHIP  | SA     |
| 2203-006048 | C215       | C-CER,CHIP  | SA     |
| 2007-000157 | C216       | R-CHIP      | SA     |
| 2203-005061 | C217       | C-CER,CHIP  | SA     |
| 2203-006348 | C218       | C-CER,CHIP  | SA     |
| 2203-000330 | C219       | C-CER,CHIP  | SA     |
| 2203-000330 | C220       | C-CER,CHIP  | SA     |
| 2203-005061 | C221       | C-CER,CHIP  | SA     |
| 2203-005061 | C222       | C-CER,CHIP  | SA     |
| 2203-006260 | C223       | C-CER,CHIP  | SA     |
| 2203-000438 | C224       | C-CER,CHIP  | SA     |
| 2203-006825 | C225       | C-CER,CHIP  | SA     |
| 2203-006562 | C300       | C-CER,CHIP  | SA     |
| 2203-000254 | C302       | C-CER,CHIP  | SA     |
| 2203-006048 | C303       | C-CER,CHIP  | SA     |
| 2203-000254 | C304       | C-CER,CHIP  | SA     |
| 2203-006048 | C305       | C-CER,CHIP  | SA     |
| 2203-006048 | C306       | C-CER,CHIP  | SA     |
| 2203-000254 | C307       | C-CER,CHIP  | SA     |
| 2203-006048 | C308       | C-CER,CHIP  | SA     |
| 2203-006048 | C309       | C-CER,CHIP  | SA     |
| 2203-006048 | C310       | C-CER,CHIP  | SA     |
| 2203-006562 | C311       | C-CER,CHIP  | SA     |
| 2203-006048 | C312       | C-CER,CHIP  | SA     |
| 2203-006048 | C313       | C-CER,CHIP  | SA     |
| 2203-000386 | C314       | C-CER,CHIP  | SA     |
| 2203-000386 | C315       | C-CER,CHIP  | SA     |
| 2203-000812 | C400       | C-CER,CHIP  | SA     |
| 2203-006562 | C401       | C-CER,CHIP  | SA     |
| 2203-000812 | C402       | C-CER,CHIP  | SA     |
| 2203-000254 | C403       | C-CER,CHIP  | SA     |
| 2203-000254 | C404       | C-CER,CHIP  | SA     |
| 2203-000812 | C405       | C-CER,CHIP  | SA     |
| 2203-000812 | C406       | C-CER,CHIP  | SA     |
| 2203-000812 | C407       | C-CER,CHIP  | SA     |
| 2203-006348 | C408       | C-CER,CHIP  | SA     |
| 2203-005061 | C409       | C-CER,CHIP  | SA     |
| 2203-000812 | C411       | C-CER,CHIP  | SA     |
| 2203-000628 | C412       | C-CER,CHIP  | SA     |
| 2203-005061 | C413       | C-CER,CHIP  | SA     |

| SEC CODE    | Design LOC | Description | STATUS |
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| 2203-006824 | C414       | C-CER,CHIP  | SA     |
| 2203-005061 | C415       | C-CER,CHIP  | SA     |
| 2203-005061 | C417       | C-CER,CHIP  | SA     |
| 2203-005061 | C418       | C-CER,CHIP  | SA     |
| 2203-000812 | C419       | C-CER,CHIP  | SA     |
| 2203-000812 | C420       | C-CER,CHIP  | SA     |
| 2203-006562 | C421       | C-CER,CHIP  | SA     |
| 2203-005682 | C422       | C-CER,CHIP  | SA     |
| 2203-005682 | C423       | C-CER,CHIP  | SA     |
| 2203-005682 | C424       | C-CER,CHIP  | SA     |
| 2203-005682 | C425       | C-CER,CHIP  | SA     |
| 2203-005682 | C426       | C-CER,CHIP  | SA     |
| 2203-005682 | C427       | C-CER,CHIP  | SA     |
| 2203-006562 | C428       | C-CER,CHIP  | SA     |
| 2203-000311 | C429       | C-CER,CHIP  | SA     |
| 2203-000311 | C430       | C-CER,CHIP  | SA     |
| 2203-006562 | C433       | C-CER,CHIP  | SA     |
| 2203-000311 | C434       | C-CER,CHIP  | SA     |
| 2203-000628 | C438       | C-CER,CHIP  | SA     |
| 2203-006562 | C439       | C-CER,CHIP  | SA     |
| 2203-001405 | C442       | C-CER,CHIP  | SA     |
| 2203-000278 | C444       | C-CER,CHIP  | SA     |
| 2203-006562 | C445       | C-CER,CHIP  | SA     |
| 2203-000654 | C446       | C-CER,CHIP  | SA     |
| 2203-000278 | C450       | C-CER,CHIP  | SA     |
| 2203-000654 | C451       | C-CER,CHIP  | SA     |
| 2203-000940 | C456       | C-CER,CHIP  | SA     |
| 2203-000940 | C457       | C-CER,CHIP  | SA     |
| 2203-000940 | C458       | C-CER,CHIP  | SA     |
| 2203-000940 | C459       | C-CER,CHIP  | SA     |
| 2203-006825 | C464       | C-CER,CHIP  | SA     |
| 2203-006825 | C467       | C-CER,CHIP  | SA     |
| 2203-006048 | C500       | C-CER,CHIP  | SA     |
| 2203-006048 | C501       | C-CER,CHIP  | SA     |
| 2203-006963 | C502       | C-CER,CHIP  | SA     |
| 2203-000812 | C503       | C-CER,CHIP  | SA     |
| 2203-000812 | C504       | C-CER,CHIP  | SA     |
| 2203-006257 | C505       | C-CER,CHIP  | SA     |
| 2203-006257 | C506       | C-CER,CHIP  | SA     |
| 2203-006257 | C507       | C-CER,CHIP  | SA     |
| 2203-006562 | C508       | C-CER,CHIP  | SA     |
| 2203-006048 | C509       | C-CER,CHIP  | SA     |
| 2203-006825 | C510       | C-CER,CHIP  | SA     |

| SEC CODE    | Design LOC | Description           | STATUS |
|-------------|------------|-----------------------|--------|
| 2203-006963 | C512       | C-CER,CHIP            | SA     |
| 2203-006963 | C513       | C-CER,CHIP            | SA     |
| 2203-006681 | C600       | C-CER,CHIP            | SA     |
| 2203-005061 | C601       | C-CER,CHIP            | SA     |
| 2203-006048 | C603       | C-CER,CHIP            | SA     |
| 2203-005725 | C700       | C-CER,CHIP            | SA     |
| 2203-000386 | C701       | C-CER,CHIP            | SA     |
| 2203-000466 | C703       | C-CER,CHIP            | SA     |
| 2203-006361 | C704       | C-CER,CHIP            | SA     |
| 2203-006423 | C705       | C-CER,CHIP            | SA     |
| 2203-005725 | C706       | C-CER,CHIP            | SA     |
| 2203-005819 | C707       | C-CER,CHIP            | SA     |
| 2203-002677 | C708       | C-CER,CHIP            | SA     |
| 2203-006423 | C710       | C-CER,CHIP            | SA     |
| 2203-006305 | C711       | C-CER,CHIP            | SA     |
| 2203-006305 | C712       | C-CER,CHIP            | SA     |
| 2203-005736 | C715       | C-CER,CHIP            | SA     |
| 2203-005736 | C717       | C-CER,CHIP            | SA     |
| 2203-000311 | C719       | C-CER,CHIP            | SA     |
| 2203-005683 | C722       | C-CER,CHIP            | SA     |
| 2203-000330 | C724       | C-CER,CHIP            | SA     |
| 2203-005736 | C726       | C-CER,CHIP            | SA     |
| 2203-006423 | C727       | C-CER,CHIP            | SA     |
| 2203-006556 | C728       | C-CER,CHIP            | SA     |
| 2203-000812 | C731       | C-CER,CHIP            | SA     |
| 2203-006361 | C732       | C-CER,CHIP            | SA     |
| 2203-006194 | C733       | C-CER,CHIP            | SA     |
| 2203-000254 | C734       | C-CER,CHIP            | SA     |
| 2203-006121 | C735       | C-CER,CHIP            | SA     |
| 2203-006194 | C736       | C-CER,CHIP            | SA     |
| 2203-006305 | C737       | C-CER,CHIP            | SA     |
| 0404-001172 | D100       | DIODE-SCHOTTKY        | SA     |
| 3722-002082 | EAR400     | JACK-PHONE            | SA     |
| 2901-001286 | F501       | FILTER-EMI SMD        | SA     |
| 2901-001286 | F502       | FILTER-EMI SMD        | SA     |
| 2901-001286 | F503       | FILTER-EMI SMD        | SA     |
| 2901-001286 | F504       | FILTER-EMI SMD        | SA     |
| 2901-001286 | F505       | FILTER-EMI SMD        | SA     |
| 2901-001286 | F506       | FILTER-EMI SMD        | SA     |
| 2901-001286 | F507       | FILTER-EMI SMD        | SA     |
| 2911-000034 | F700       | DUPLEXER-FEM          | SA     |
| 3711-005747 | HDC501     | HEADER-BOARD TO BOARD | SA     |
| 3710-001611 | IFC601     | CONNECTOR-INTERFACE   | SA     |

| SEC CODE    | Design LOC | Description  | STATUS |
|-------------|------------|--------------|--------|
| 2703-002734 | L100       | INDUCTOR-SMD | SA     |
| 3301-001534 | L201       | BEAD-SMD     | SA     |
| 3301-001534 | L400       | BEAD-SMD     | SA     |
| 2703-002313 | L401       | INDUCTOR-SMD | SA     |
| 2703-002313 | L402       | INDUCTOR-SMD | SA     |
| 2703-002910 | L700       | INDUCTOR-SMD | SA     |
| 2703-002170 | L701       | INDUCTOR-SMD | SA     |
| 2703-002370 | L702       | INDUCTOR-SMD | SA     |
| 2703-002370 | L703       | INDUCTOR-SMD | SA     |
| 2703-002586 | L704       | INDUCTOR-SMD | SA     |
| 2703-002586 | L705       | INDUCTOR-SMD | SA     |
| 2703-002700 | L706       | INDUCTOR-SMD | SA     |
| 2703-002700 | L707       | INDUCTOR-SMD | SA     |
| 3301-001756 | L708       | BEAD-SMD     | SA     |
| 2703-002369 | L709       | INDUCTOR-SMD | SA     |
| 0601-002160 | LED500     | LED          | SA     |
| 0601-002160 | LED501     | LED          | SA     |
| 2801-004466 | OSC202     | CRYSTAL-SMD  | SA     |
| 2801-004458 | OSC301     | CRYSTAL-SMD  | SA     |
| 2801-004552 | OSC700     | CRYSTAL-SMD  | SA     |
| 1201-002368 | PAM700     | IC-POWER AMP | SA     |
| 2007-008483 | R100       | R-CHIP       | SA     |
| 2007-009160 | R101       | R-CHIP       | SA     |
| 2007-008137 | R102       | R-CHIP       | SA     |
| 2007-000157 | R103       | R-CHIP       | SA     |
| 2007-008483 | R104       | R-CHIP       | SA     |
| 2007-000171 | R105       | R-CHIP       | SA     |
| 2007-000982 | R106       | R-CHIP       | SA     |
| 2007-008055 | R107       | R-CHIP       | SA     |
| 2007-008055 | R108       | R-CHIP       | SA     |
| 2007-007308 | R111       | R-CHIP       | SA     |
| 2007-007314 | R112       | R-CHIP       | SA     |
| 2007-000157 | R113       | R-CHIP       | SA     |
| 2007-007136 | R114       | R-CHIP       | SA     |
| 2007-000138 | R115       | R-CHIP       | SA     |
| 2007-008542 | R116       | R-CHIP       | SA     |
| 2007-000146 | R200       | R-CHIP       | SA     |
| 2007-000162 | R201       | R-CHIP       | SA     |
| 2007-000171 | R202       | R-CHIP       | SA     |
| 2007-000171 | R203       | R-CHIP       | SA     |
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| 2007-000171 | R205       | R-CHIP       | SA     |
| 2007-000157 | R206       | R-CHIP       | SA     |

| SEC CODE    | Design LOC | Description | STATUS |
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| 2007-000162 | R207       | R-CHIP      | SA     |
| 2007-000162 | R208       | R-CHIP      | SA     |
| 2007-000157 | R209       | R-CHIP      | SA     |
| 2007-000171 | R210       | R-CHIP      | SA     |
| 2007-000157 | R211       | R-CHIP      | SA     |
| 2007-007528 | R212       | R-CHIP      | SA     |
| 2007-000139 | R213       | R-CHIP      | SA     |
| 2007-000139 | R214       | R-CHIP      | SA     |
| 2007-001292 | R215       | R-CHIP      | SA     |
| 2007-001292 | R216       | R-CHIP      | SA     |
| 2007-000138 | R217       | R-CHIP      | SA     |
| 2007-000171 | R218       | R-CHIP      | SA     |
| 2007-001284 | R219       | R-CHIP      | SA     |
| 2007-000143 | R300       | R-CHIP      | SA     |
| 2007-000143 | R301       | R-CHIP      | SA     |
| 2007-000162 | R302       | R-CHIP      | SA     |
| 2007-000171 | R303       | R-CHIP      | SA     |
| 2007-009124 | R304       | R-CHIP      | SA     |
| 2007-000170 | R305       | R-CHIP      | SA     |
| 2007-000162 | R307       | R-CHIP      | SA     |
| 2007-000157 | R308       | R-CHIP      | SA     |
| 2007-000171 | R309       | R-CHIP      | SA     |
| 2007-000162 | R310       | R-CHIP      | SA     |
| 2007-000173 | R400       | R-CHIP      | SA     |
| 2007-007306 | R401       | R-CHIP      | SA     |
| 2007-000137 | R402       | R-CHIP      | SA     |
| 2007-000171 | R403       | R-CHIP      | SA     |
| 2007-000146 | R404       | R-CHIP      | SA     |
| 2007-000146 | R405       | R-CHIP      | SA     |
| 2007-000171 | R406       | R-CHIP      | SA     |
| 2007-000171 | R407       | R-CHIP      | SA     |
| 2007-000173 | R408       | R-CHIP      | SA     |
| 2007-007095 | R409       | R-CHIP      | SA     |
| 2007-000157 | R410       | R-CHIP      | SA     |
| 2007-000148 | R411       | R-CHIP      | SA     |
| 2007-000148 | R412       | R-CHIP      | SA     |
| 2007-000171 | R413       | R-CHIP      | SA     |
| 2007-000148 | R414       | R-CHIP      | SA     |
| 2007-000172 | R415       | R-CHIP      | SA     |
| 2007-000172 | R418       | R-CHIP      | SA     |
| 2007-000171 | R419       | R-CHIP      | SA     |
| 2007-007142 | R420       | R-CHIP      | SA     |
| 2007-000159 | R421       | R-CHIP      | SA     |

| SEC CODE    | Design LOC | Description | STATUS |
|-------------|------------|-------------|--------|
| 2007-007142 | R422       | R-CHIP      | SA     |
| 2007-000171 | R423       | R-CHIP      | SA     |
| 2007-000159 | R424       | R-CHIP      | SA     |
| 2007-000141 | R425       | R-CHIP      | SA     |
| 2007-000141 | R426       | R-CHIP      | SA     |
| 2007-000139 | R427       | R-CHIP      | SA     |
| 2007-007981 | R428       | R-CHIP      | SA     |
| 2007-000162 | R429       | R-CHIP      | SA     |
| 2007-000171 | R430       | R-CHIP      | SA     |
| 2007-000141 | R431       | R-CHIP      | SA     |
| 2007-000141 | R432       | R-CHIP      | SA     |
| 2007-000172 | R433       | R-CHIP      | SA     |
| 2007-007142 | R434       | R-CHIP      | SA     |
| 2007-000172 | R435       | R-CHIP      | SA     |
| 2007-000831 | R436       | R-CHIP      | SA     |
| 2007-000172 | R437       | R-CHIP      | SA     |
| 2007-007142 | R438       | R-CHIP      | SA     |
| 2007-000831 | R439       | R-CHIP      | SA     |
| 2007-000172 | R444       | R-CHIP      | SA     |
| 2007-008786 | R447       | R-CHIP      | SA     |
| 2007-008786 | R448       | R-CHIP      | SA     |
| 2007-000157 | R501       | R-CHIP      | SA     |
| 2007-000174 | R502       | R-CHIP      | SA     |
| 2007-000174 | R503       | R-CHIP      | SA     |
| 2007-000174 | R504       | R-CHIP      | SA     |
| 2007-000174 | R505       | R-CHIP      | SA     |
| 2007-000174 | R506       | R-CHIP      | SA     |
| 2007-001288 | R507       | R-CHIP      | SA     |
| 2007-001288 | R508       | R-CHIP      | SA     |
| 2007-000157 | R509       | R-CHIP      | SA     |
| 2007-000174 | R525       | R-CHIP      | SA     |
| 2007-000174 | R526       | R-CHIP      | SA     |
| 2007-000174 | R527       | R-CHIP      | SA     |
| 2007-000174 | R528       | R-CHIP      | SA     |
| 2007-000174 | R529       | R-CHIP      | SA     |
| 2007-008483 | R600       | R-CHIP      | SA     |
| 2007-008542 | R601       | R-CHIP      | SA     |
| 2007-008542 | R602       | R-CHIP      | SA     |
| 2007-008419 | R604       | R-CHIP      | SA     |
| 2007-008419 | R605       | R-CHIP      | SA     |
| 2007-008419 | R608       | R-CHIP      | SA     |
| 2007-008542 | R701       | R-CHIP      | SA     |
| 2007-007741 | R702       | R-CHIP      | SA     |

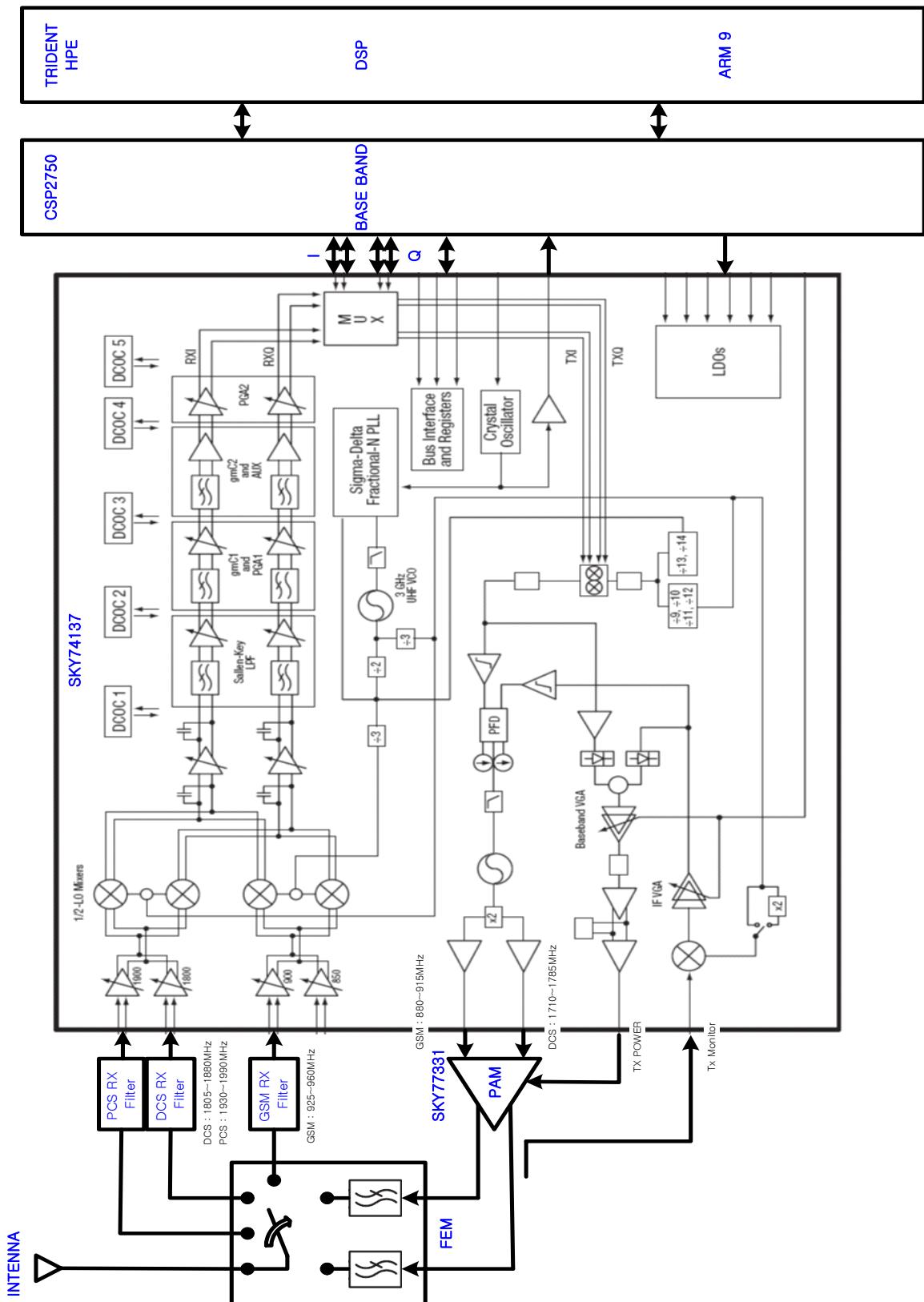
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|-------------|------------|---------------------|--------|
| 2007-007134 | R704       | R-CHIP              | SA     |
| 2007-008587 | R711       | R-CHIP              | SA     |
| 2007-001290 | R712       | R-CHIP              | SA     |
| 2007-008045 | R713       | R-CHIP              | SA     |
| 2007-000139 | R714       | R-CHIP              | SA     |
| 2007-000139 | R715       | R-CHIP              | SA     |
| 2007-009314 | R716       | R-CHIP              | SA     |
| 2007-008542 | R717       | R-CHIP              | SA     |
| 2007-007317 | R718       | R-CHIP              | SA     |
| 2007-008542 | R719       | R-CHIP              | SA     |
| 2007-008542 | R722       | R-CHIP              | SA     |
| 2007-008542 | R723       | R-CHIP              | SA     |
| 2007-008516 | R724       | R-CHIP              | SA     |
| 2007-008542 | R730       | R-CHIP              | SA     |
| 2007-008542 | R731       | R-CHIP              | SA     |
| 3705-001358 | RFS701     | CONNECTOR-COAXIAL   | SA     |
| 3709-001451 | SIM101     | CONNECTOR-CARD EDGE | SA     |
| 2404-001381 | TA105      | C-TA,CHIP           | SA     |
| 2404-001225 | TA115      | C-TA,CHIP           | SA     |
| 2404-001381 | TA301      | C-TA,CHIP           | SA     |
| 2404-001225 | TA401      | C-TA,CHIP           | SA     |
| 2404-001225 | TA402      | C-TA,CHIP           | SA     |
| 2404-001381 | TA410      | C-TA,CHIP           | SA     |
| 2404-001225 | TA416      | C-TA,CHIP           | SA     |
| 2404-001151 | TA437      | C-TA,CHIP           | SA     |
| 2404-001353 | TA443      | C-TA,CHIP           | SA     |
| 2404-001353 | TA449      | C-TA,CHIP           | SA     |
| 2404-001406 | TA602      | C-TA,CHIP           | SA     |
| 3404-001152 | TAC501     | SWITCH-TACT         | SA     |
| 1404-001165 | TH101      | THERMISTOR-NTC      | SA     |
| 1203-003434 | U105       | IC-DC/DC CONVERTER  | SA     |
| 1203-003663 | U106       | IC-BATTERY          | SA     |
| 0801-002529 | U109       | IC-CMOS LOGIC       | SA     |
| 1205-002272 | U202       | IC-TRANSCEIVER      | SA     |
| 4709-001374 | U203       | BLUETOOTH MODULE    | SA     |
| 1009-001024 | U204       | IC-HALL EFFECT S/W  | SA     |
| 1203-003432 | U205       | IC-POSI.FIXED REG.  | SA     |
| GH13-00036A | U302       | IC ASIC-SGHX670     | SA     |
| 1203-003585 | U303       | IC-POSI.FIXED REG.  | SA     |
| 0801-002975 | U304       | IC-CMOS LOGIC       | SA     |
| 1201-002240 | U401       | IC-AUDIO AMP        | SA     |
| 1001-001349 | U403       | IC-ANALOG MULTIPLEX | SA     |
| 1001-001358 | U404       | IC-ANALOG MULTIPLEX | SA     |

| SEC CODE    | Design LOC | Description         | STATUS |
|-------------|------------|---------------------|--------|
| 1203-003735 | U501       | IC-POSI.FIXED REG.  | SA     |
| 1203-003735 | U502       | IC-POSI.FIXED REG.  | SA     |
| 0801-002958 | U700       | IC-CMOS LOGIC       | SA     |
| 1002-001441 | UCD402     | IC-D/A CONVERTER    | SA     |
| 1205-002944 | UCD700     | IC-TRANSCEIVER      | SA     |
| 1203-004119 | UCP101     | IC-POWER SUPERVISOR | SA     |
| GH09-00044A | UCP201     | IC MICOM            | SA     |
| 1108-000068 | UME301     | IC-MCP              | SA     |
| 1405-001082 | VR101      | VARISTOR            | SA     |
| 1405-001082 | VR201      | VARISTOR            | SA     |
| 1405-001082 | VR202      | VARISTOR            | SA     |
| 1405-001082 | VR301      | VARISTOR            | SA     |
| 1405-001082 | VR401      | VARISTOR            | SA     |
| 1405-001082 | VR402      | VARISTOR            | SA     |
| 1405-001082 | VR403      | VARISTOR            | SA     |
| 1405-001082 | VR404      | VARISTOR            | SA     |
| 1405-001108 | VR501      | VARISTOR            | SA     |
| 1405-001108 | VR502      | VARISTOR            | SA     |
| 1405-001108 | VR505      | VARISTOR            | SA     |
| 1405-001108 | VR506      | VARISTOR            | SA     |
| 1405-001108 | VR507      | VARISTOR            | SA     |
| 1405-001108 | VR510      | VARISTOR            | SA     |
| 1405-001108 | VR511      | VARISTOR            | SA     |
| 1405-001108 | VR518      | VARISTOR            | SA     |
| 1405-001082 | VR601      | VARISTOR            | SA     |
| 1405-001082 | VR602      | VARISTOR            | SA     |
| 1405-001082 | VR603      | VARISTOR            | SA     |
| 1405-001082 | VR604      | VARISTOR            | SA     |
| 0406-001150 | ZD401      | DIODE-TVS           | SA     |
| 0406-001150 | ZD402      | DIODE-TVS           | SA     |
| 0406-001254 | ZD403      | DIODE-TVS           | SA     |
| 0406-001254 | ZD404      | DIODE-TVS           | SA     |
| 0406-001254 | ZD405      | DIODE-TVS           | SA     |
| 0406-001254 | ZD406      | DIODE-TVS           | SA     |
| 0406-001254 | ZD407      | DIODE-TVS           | SA     |
| 0406-001254 | ZD408      | DIODE-TVS           | SA     |
| 0406-001150 | ZD501      | DIODE-TVS           | SA     |
| 0406-001150 | ZD502      | DIODE-TVS           | SA     |
| 0406-001150 | ZD503      | DIODE-TVS           | SA     |
| 0406-001150 | ZD504      | DIODE-TVS           | SA     |
| 0406-001150 | ZD505      | DIODE-TVS           | SA     |
| 0406-001150 | ZD519      | DIODE-TVS           | SA     |
| 0403-001547 | ZD601      | DIODE-ZENER         | SA     |

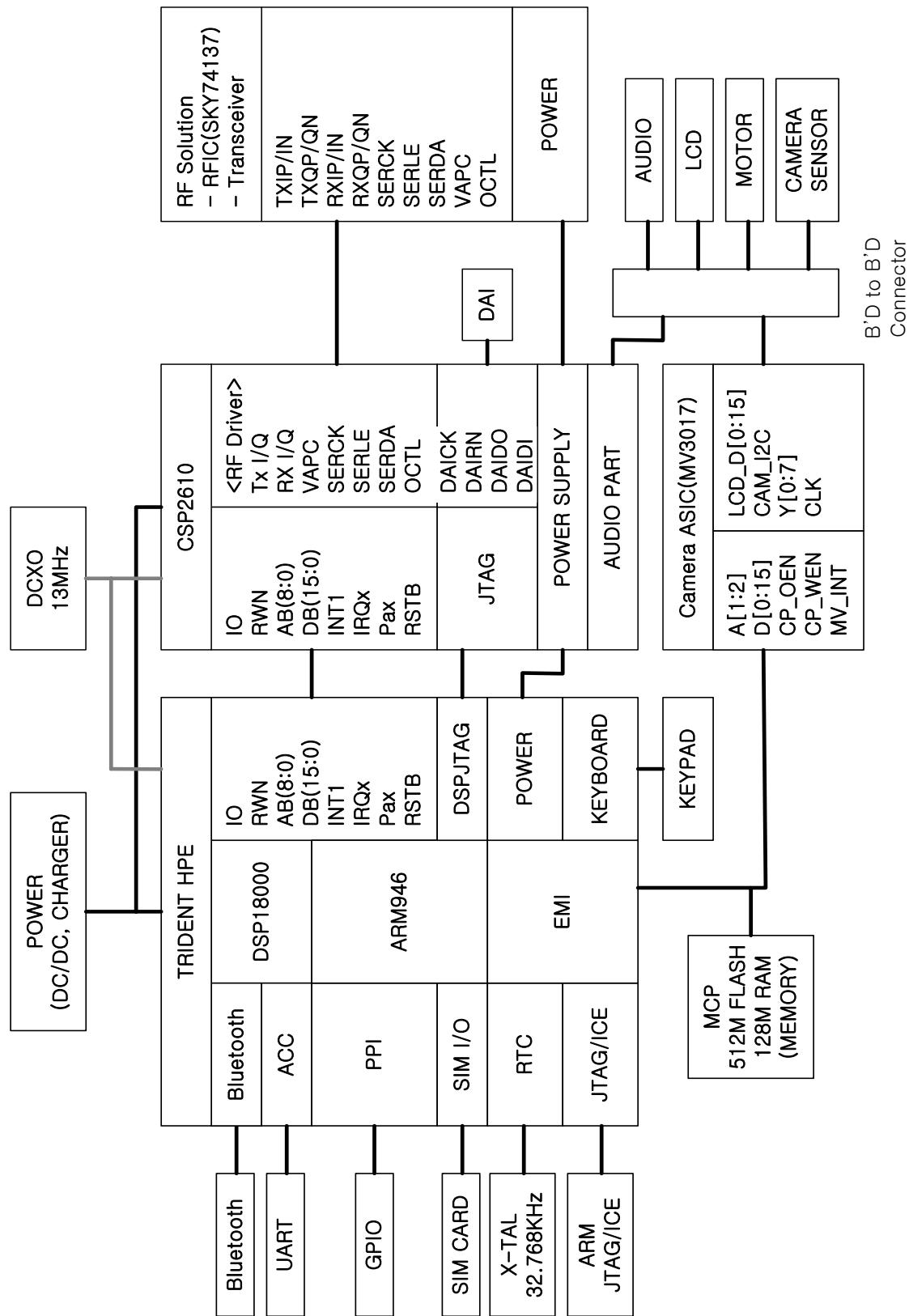
| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 0406-001208 | ZD604      | DIODE-TVS   | SA     |
| 0406-001208 | ZD605      | DIODE-TVS   | SA     |

## 8. Block Diagrams

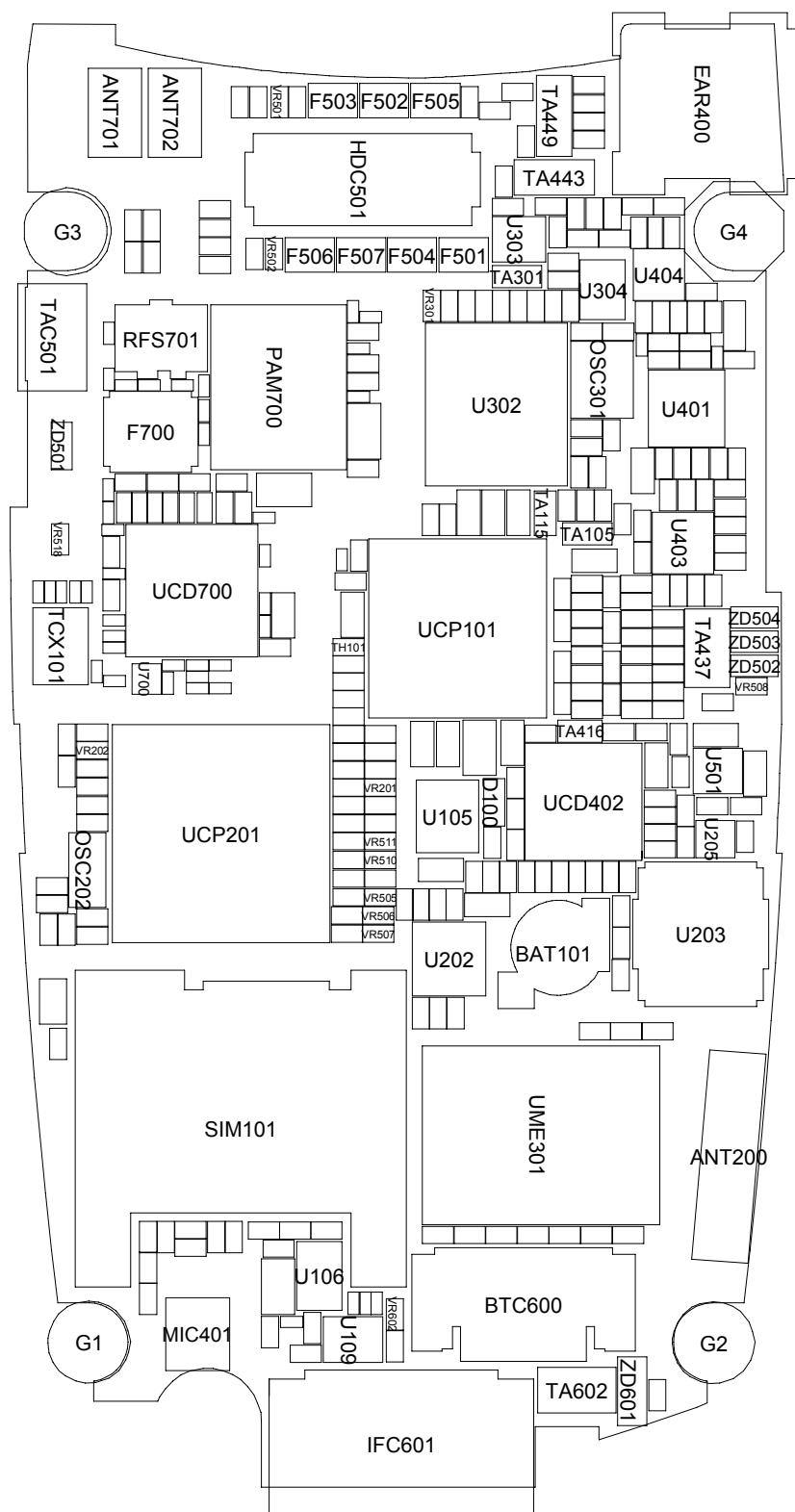
< SGH-X680 Block Diagram – RF Part >

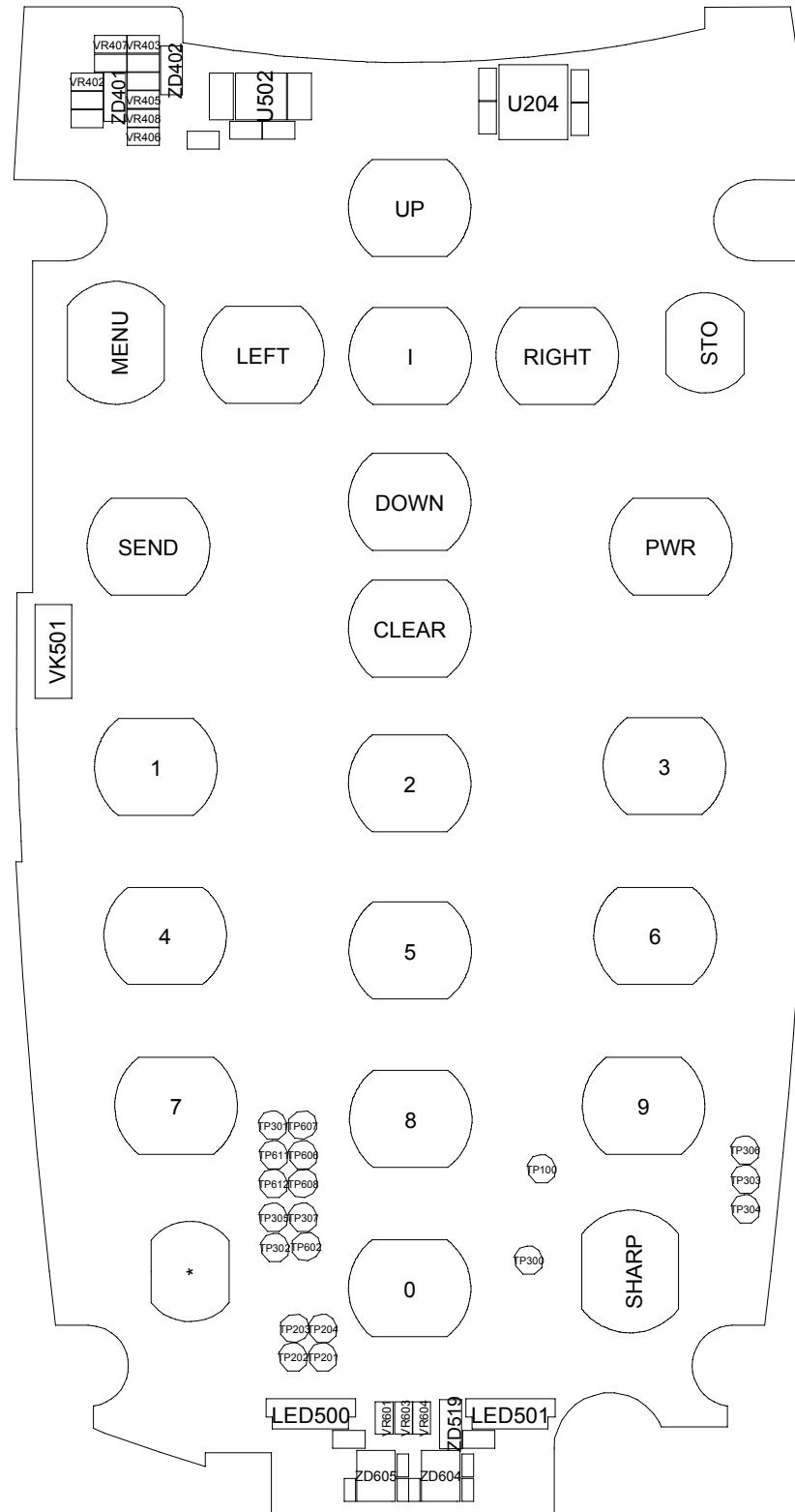


## &lt; SGH-X680 Block Diagram – Base Band Part&gt;



## 9. PCB Diagrams

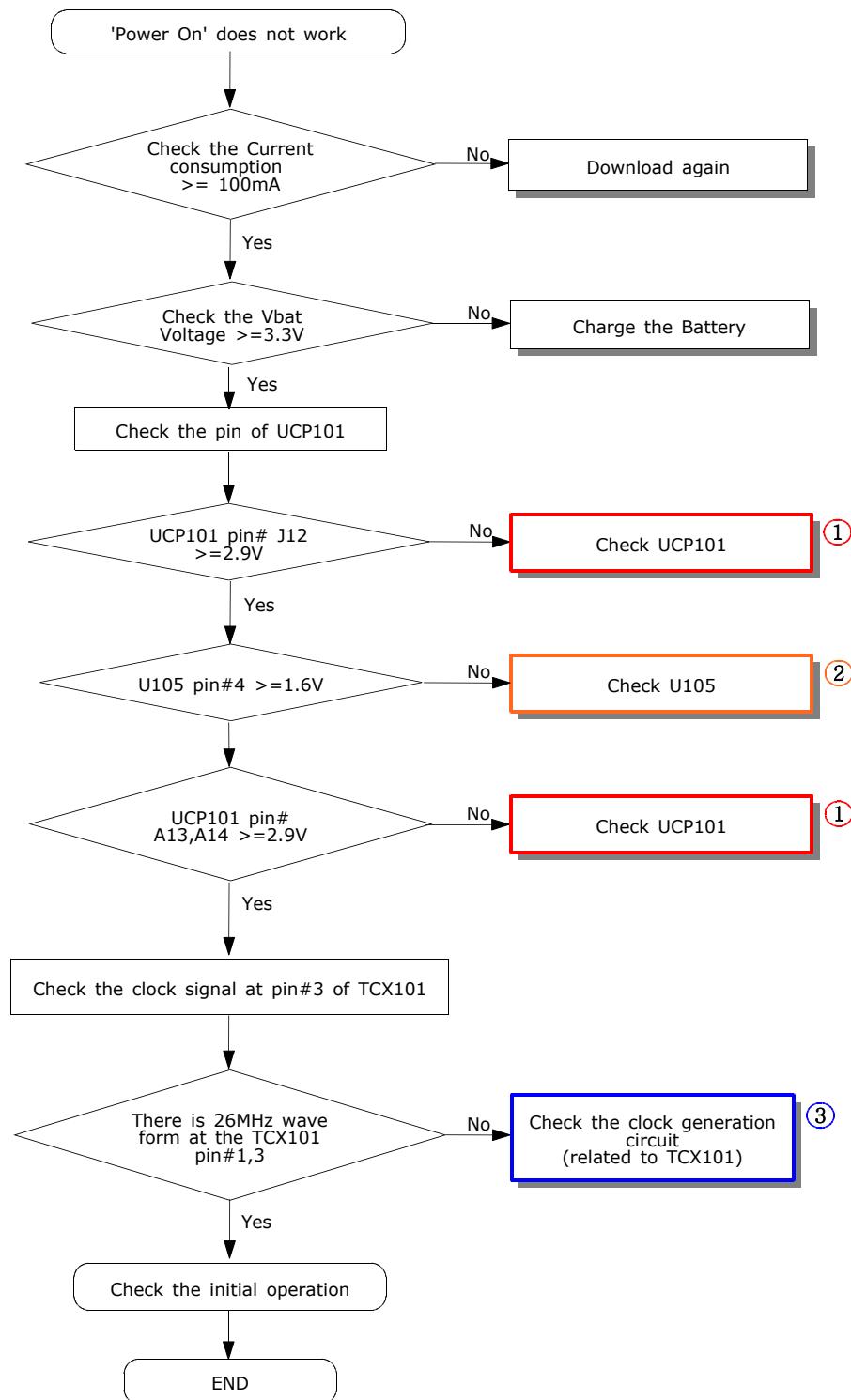


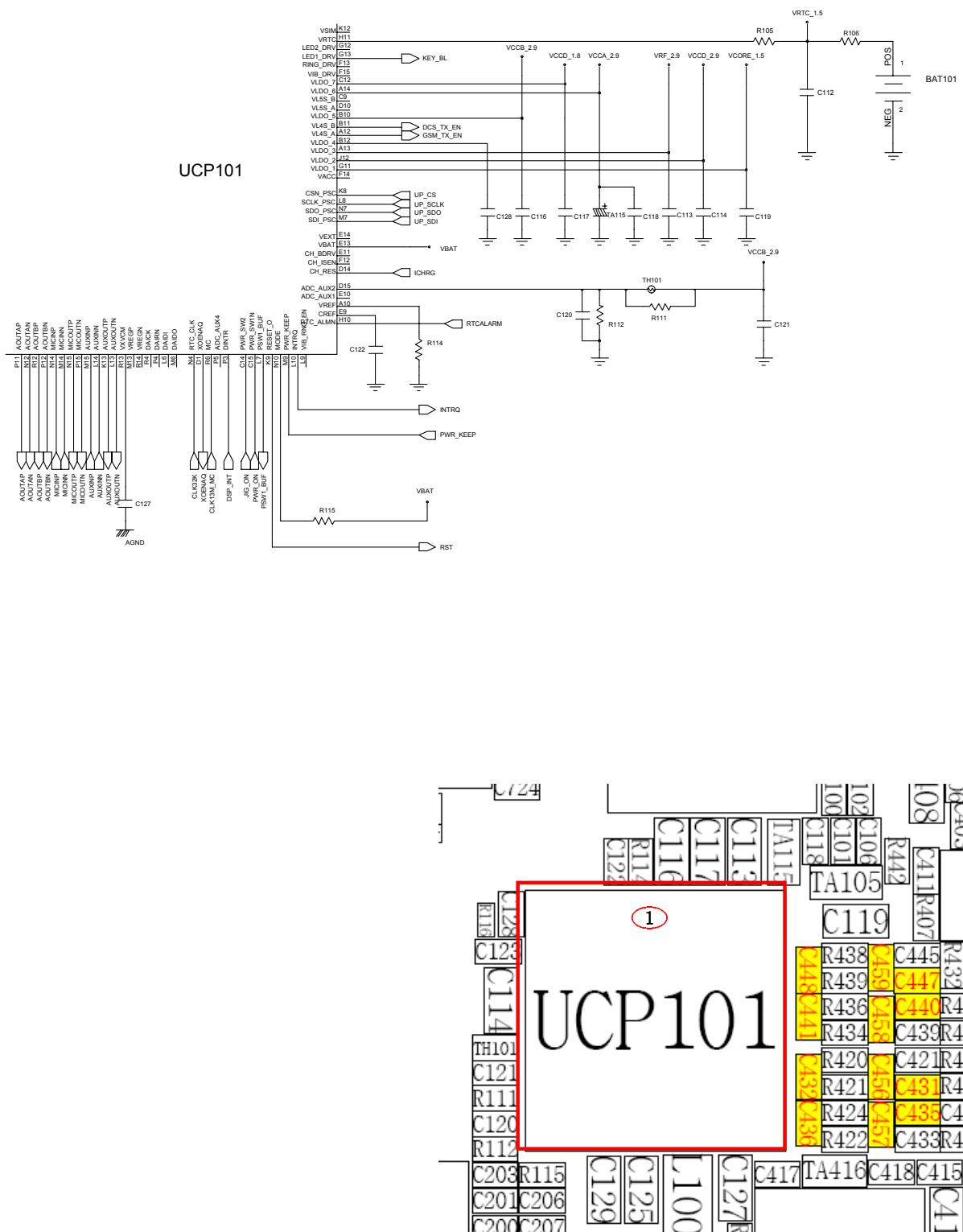


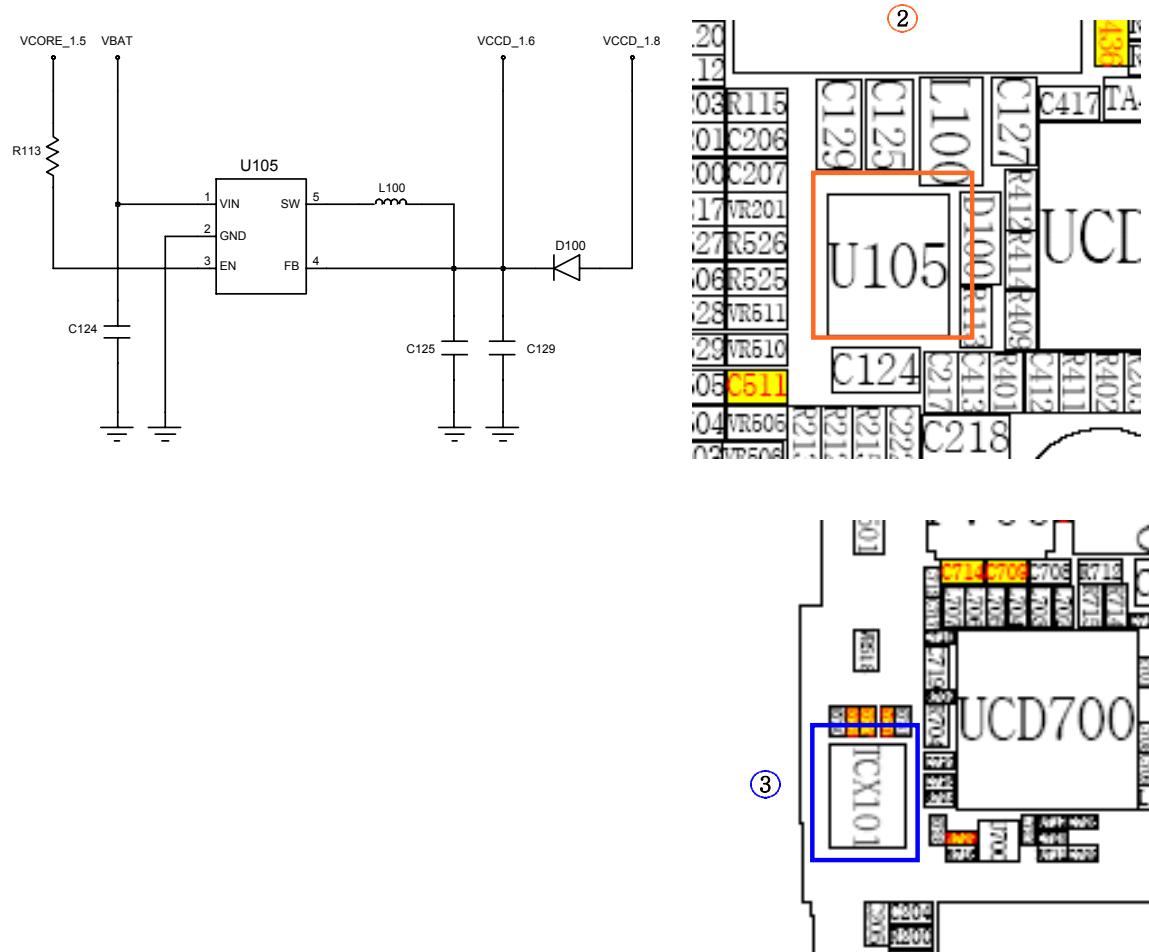
## 10. Flow Chart of Troubleshooting

### 10-1 BASEBAND

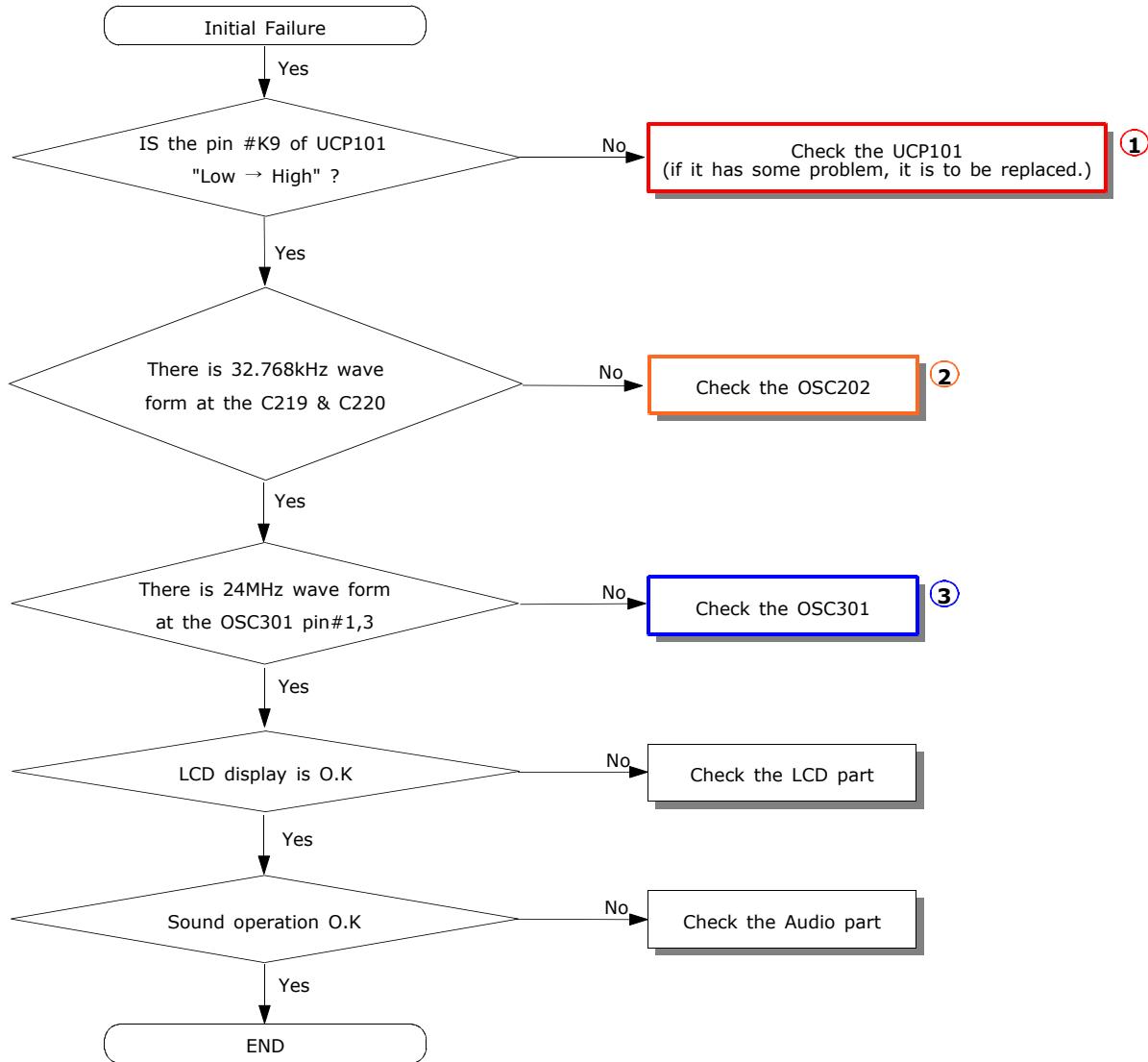
#### 10-1-1. Power ON

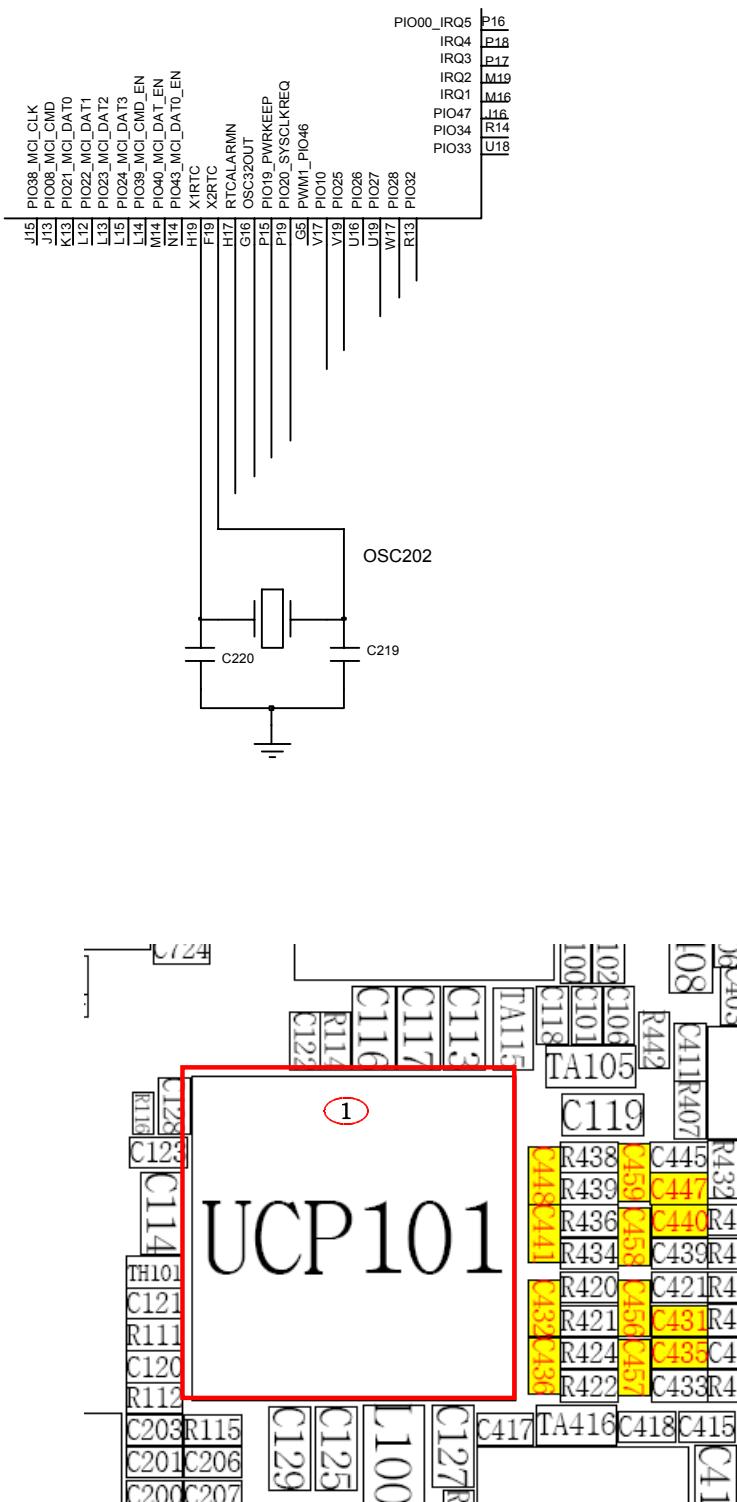


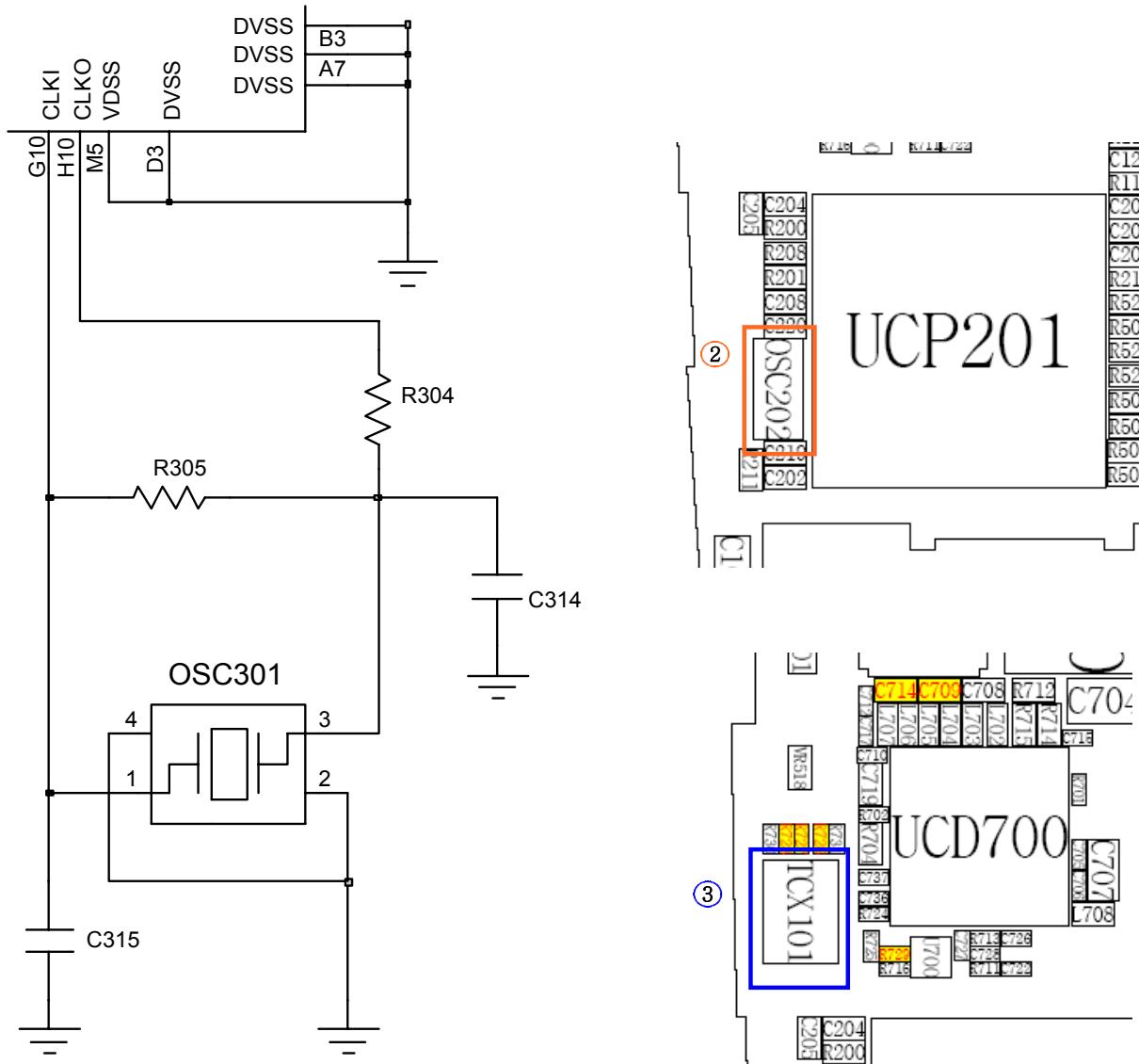




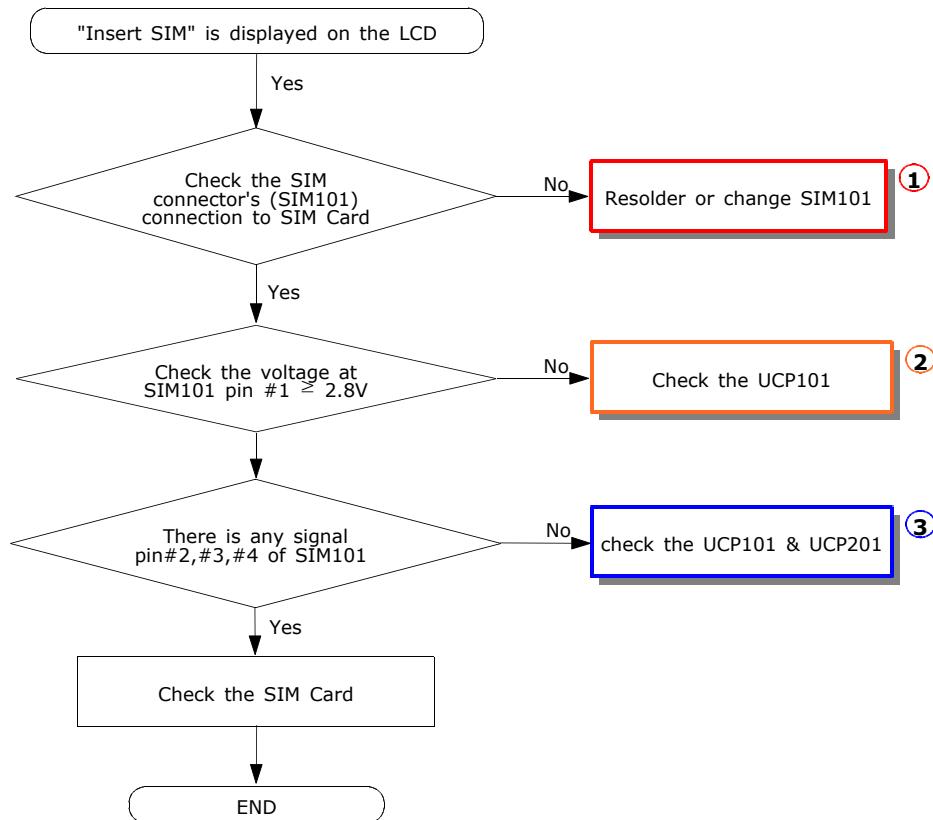
## 10-2-2. Initial

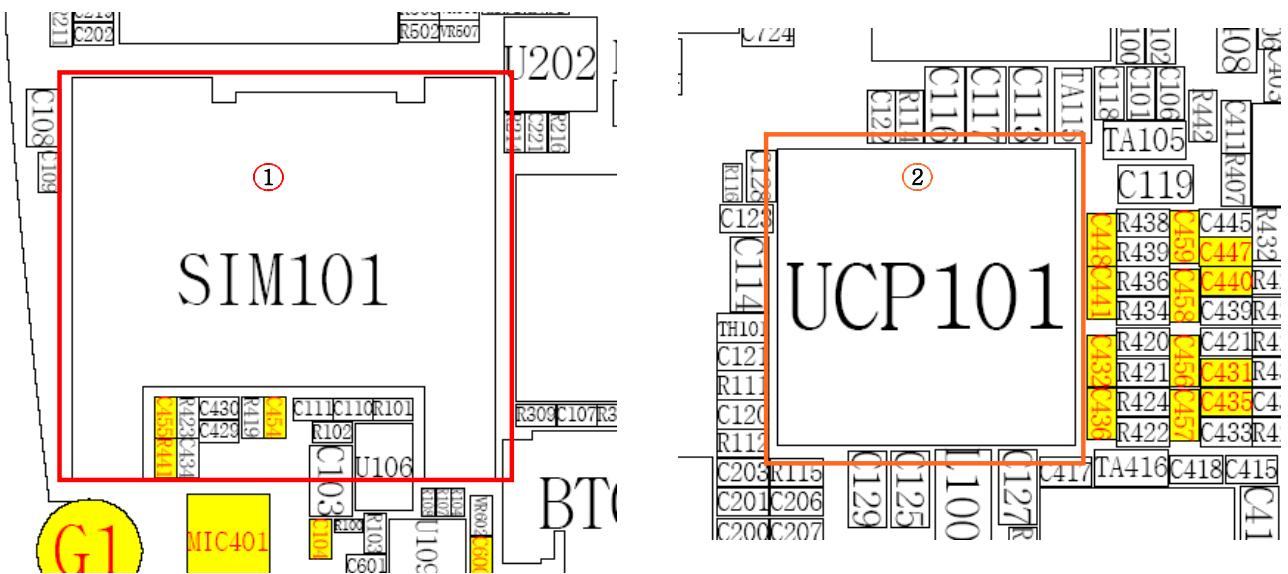
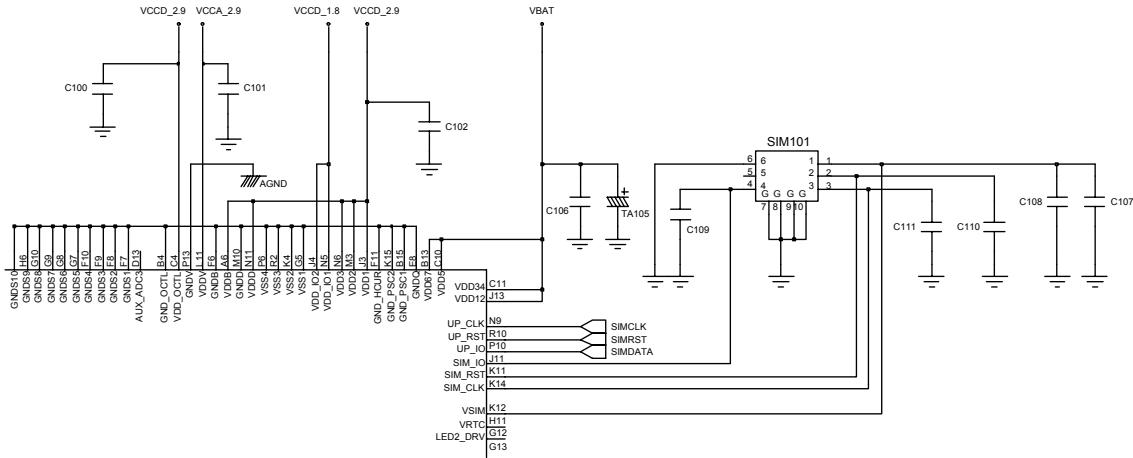


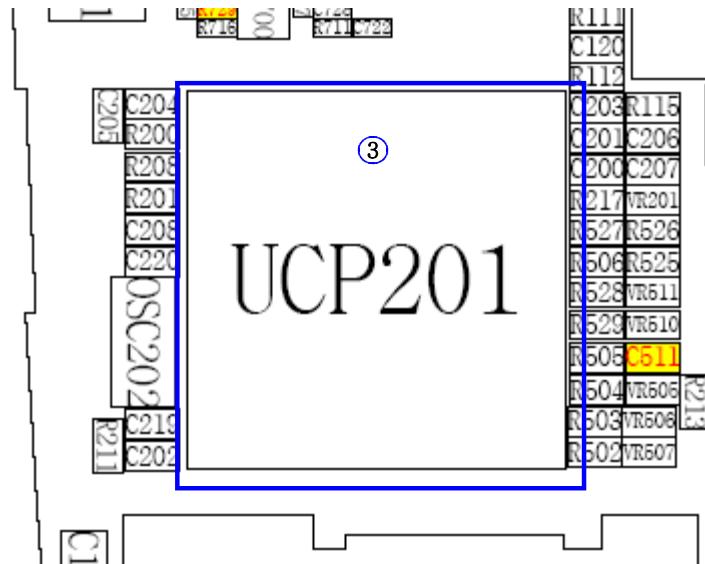
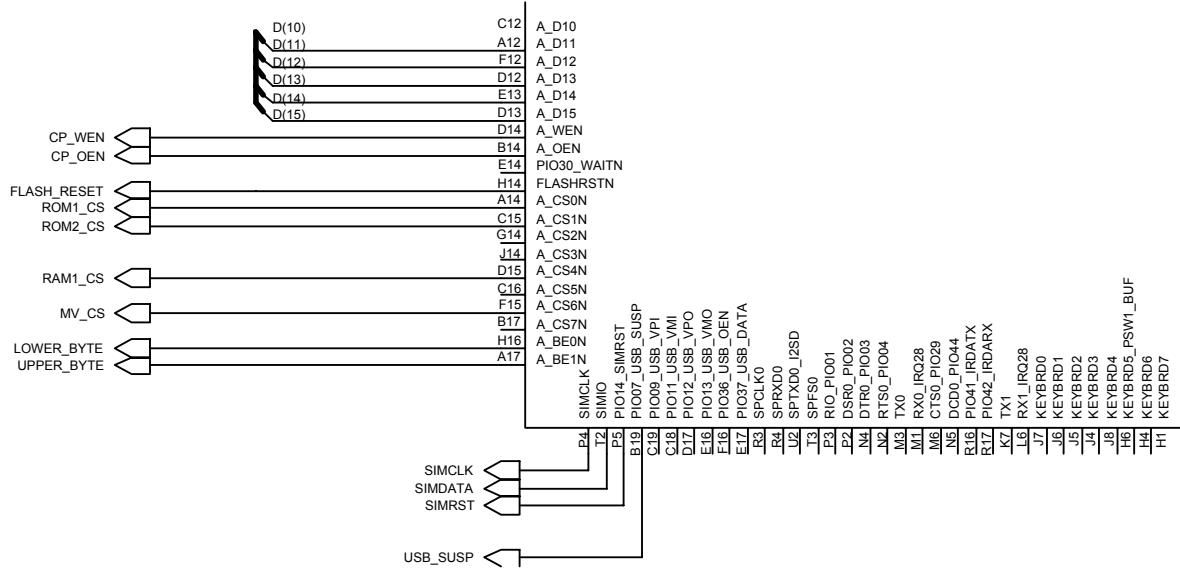




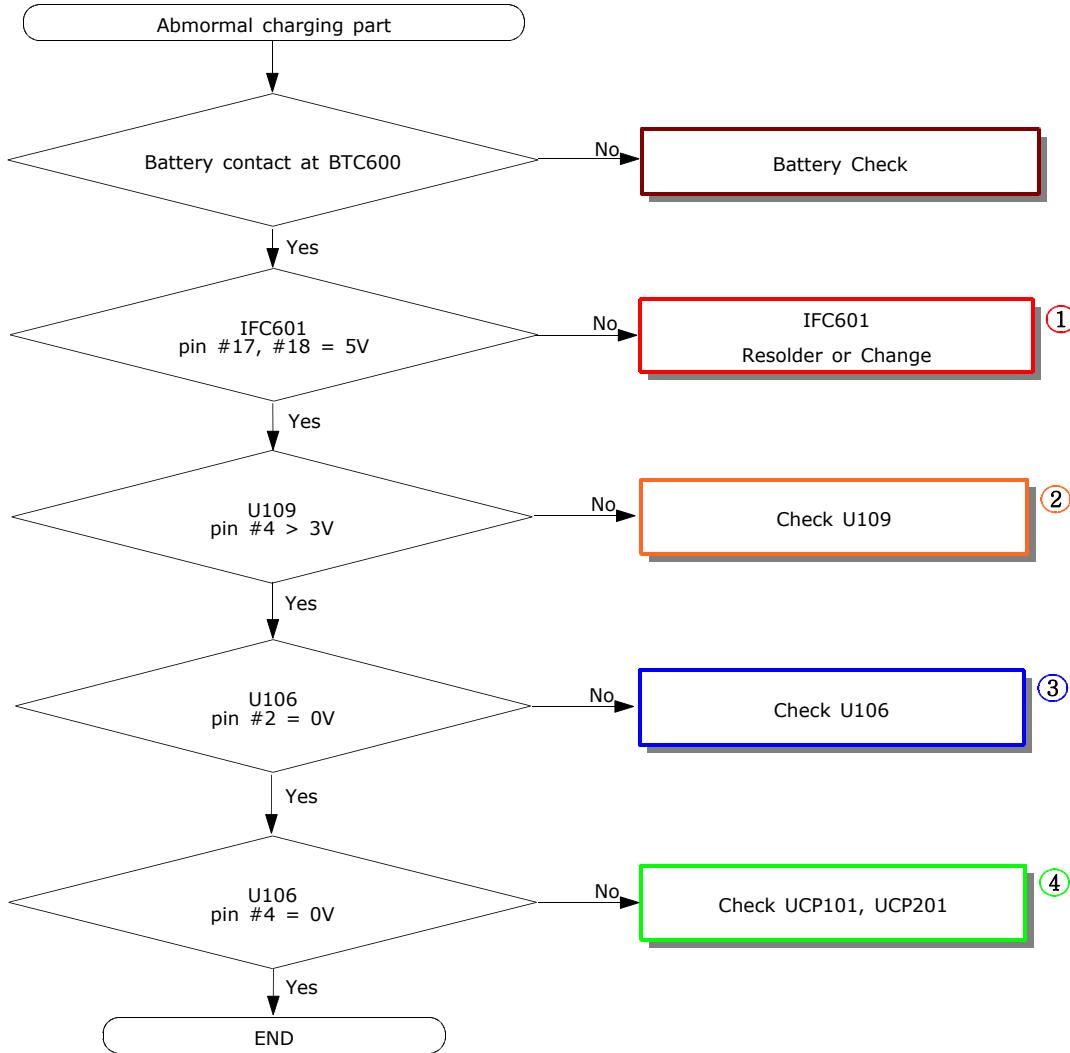
## 10-1-3. SIM Part

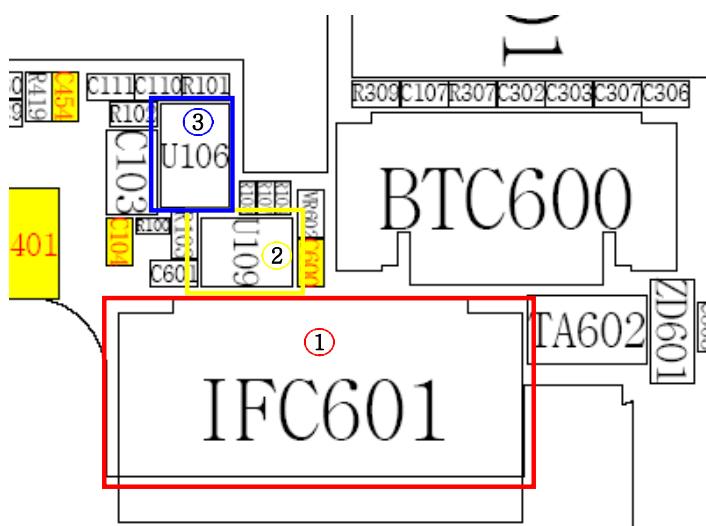
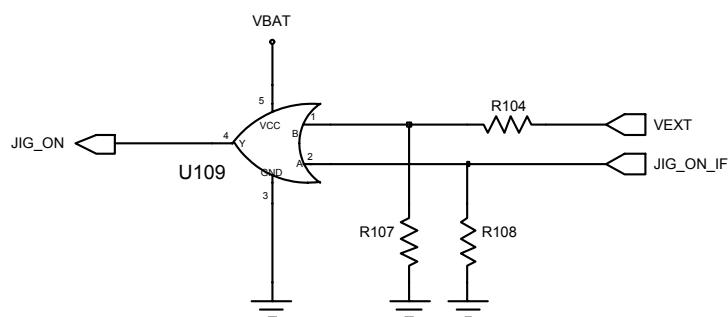
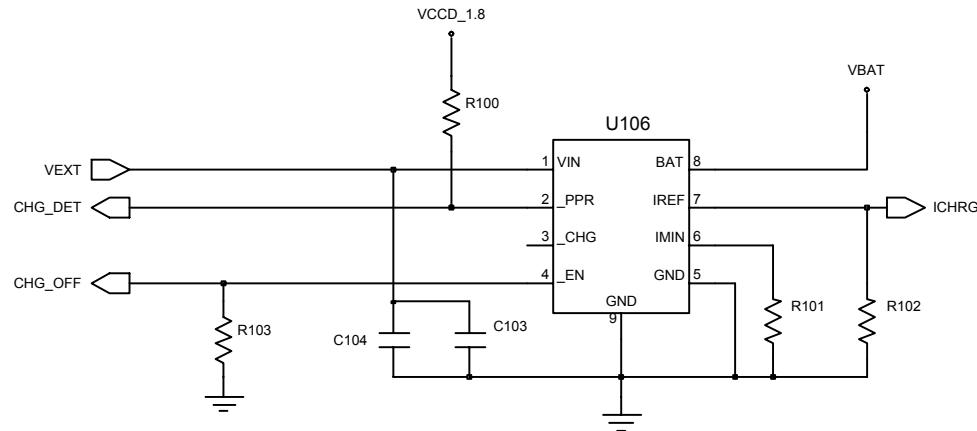




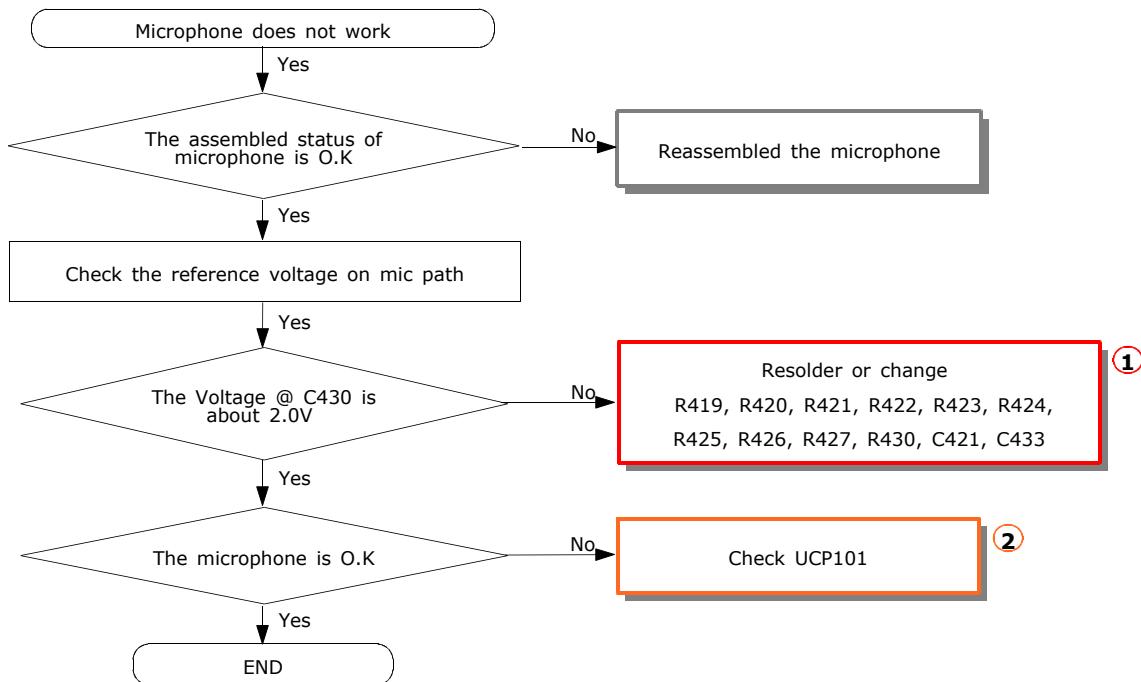


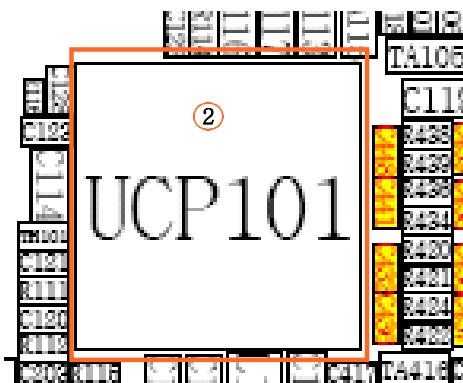
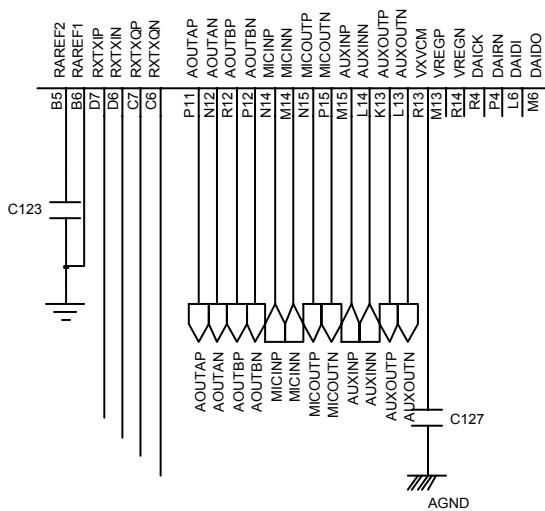
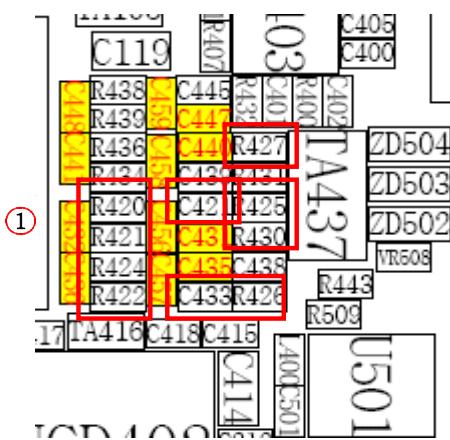
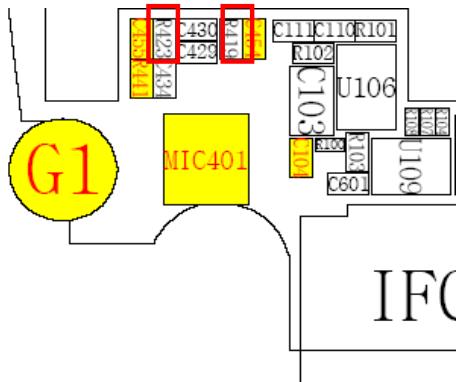
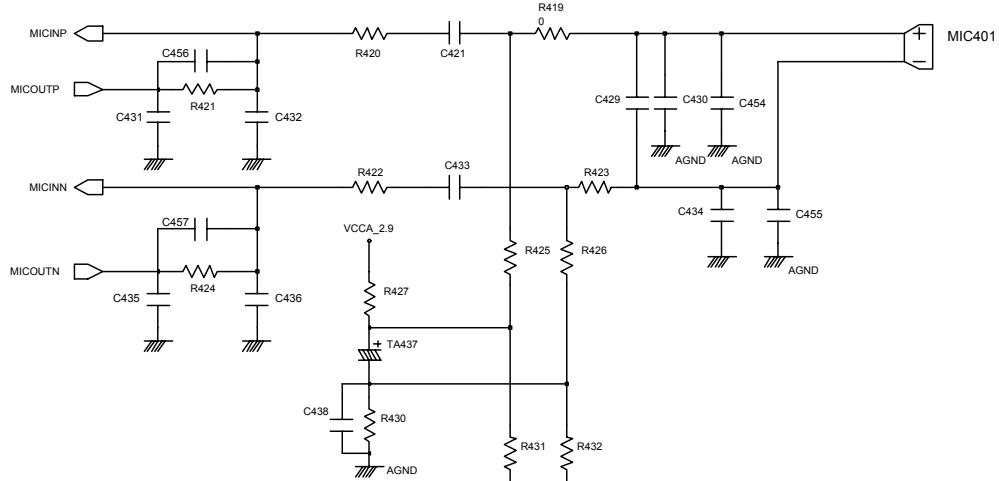
## 10-1-4. Charging Part



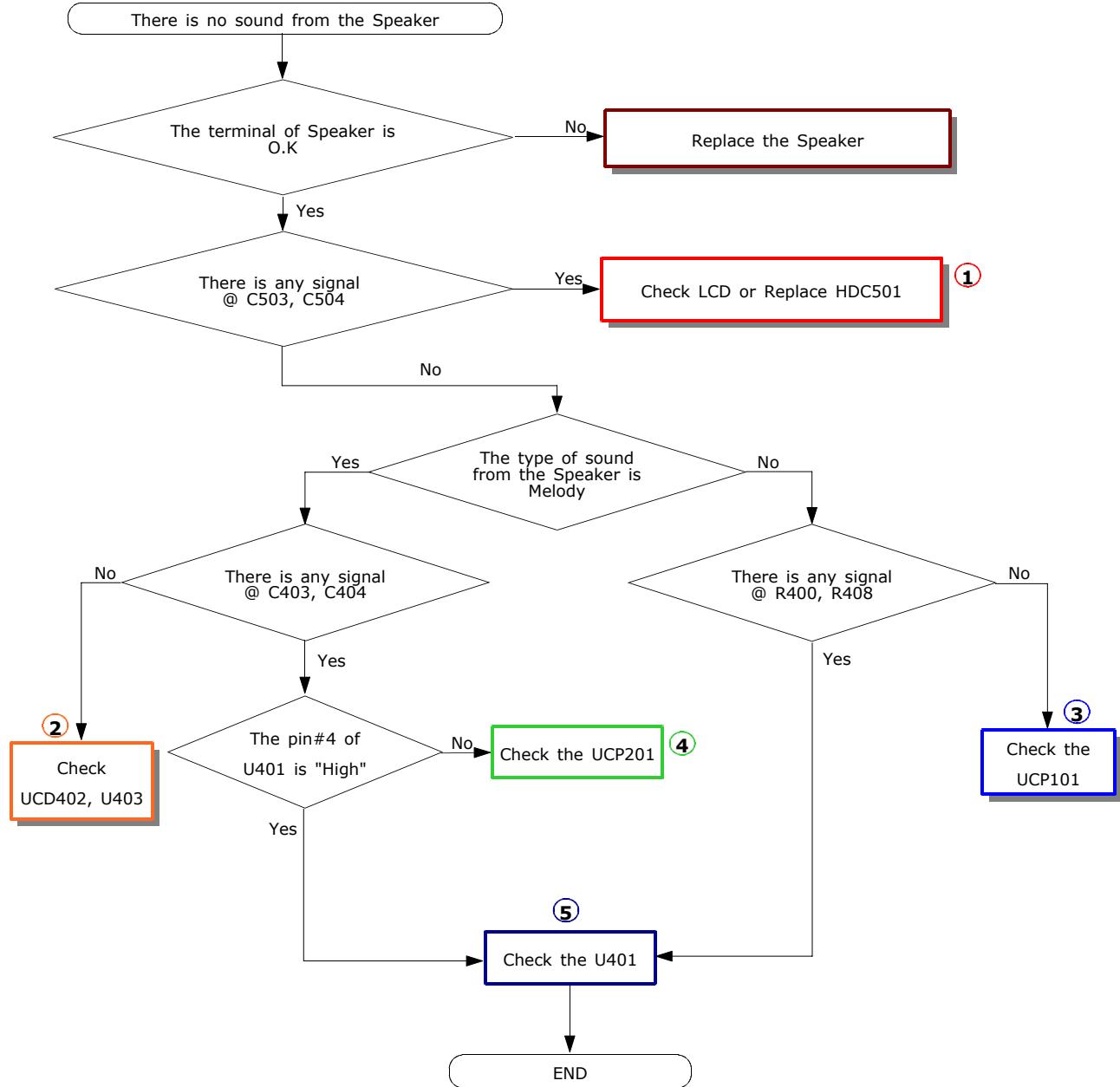


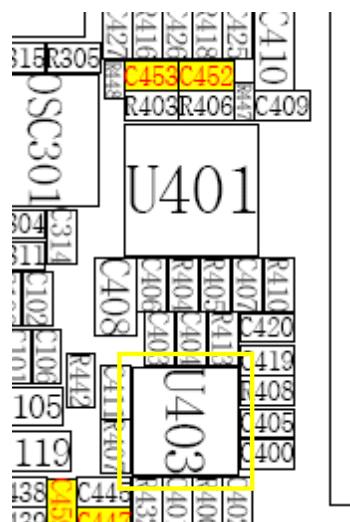
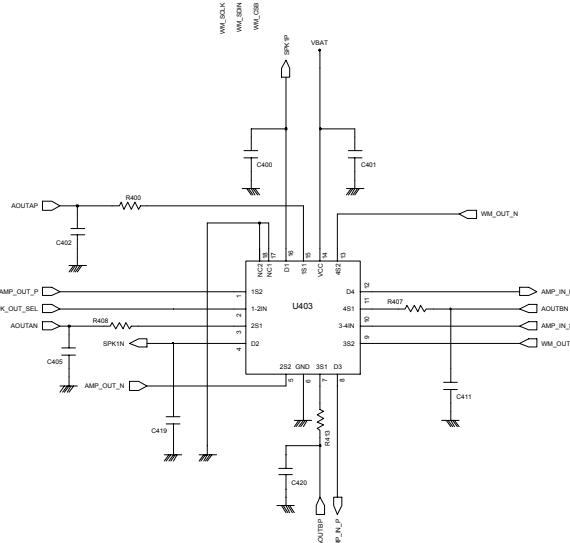
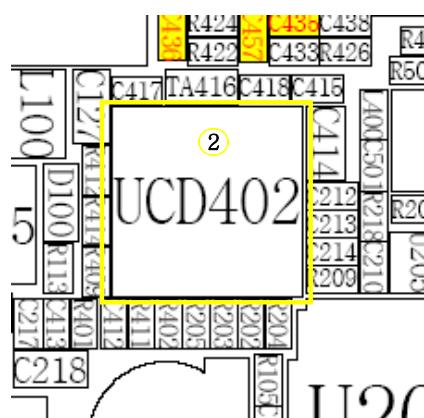
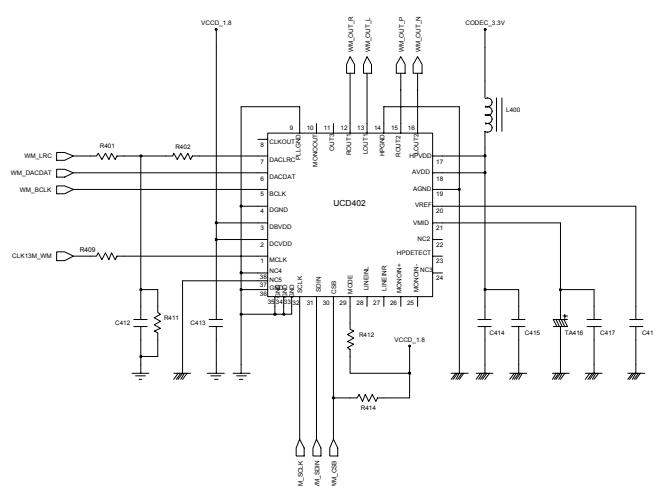
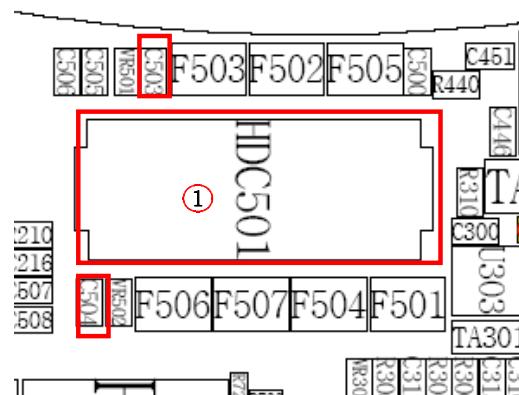
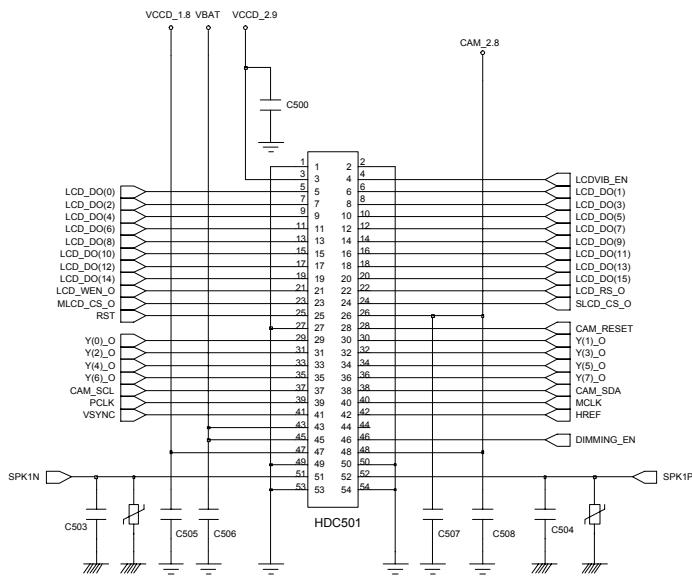
### 10-1-5. Microphone Part



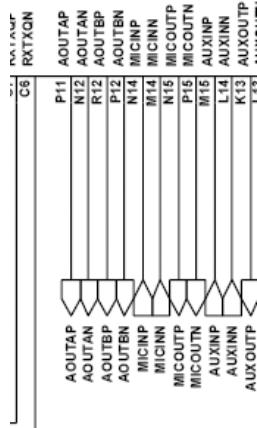


### 10-1-6. Speaker Part

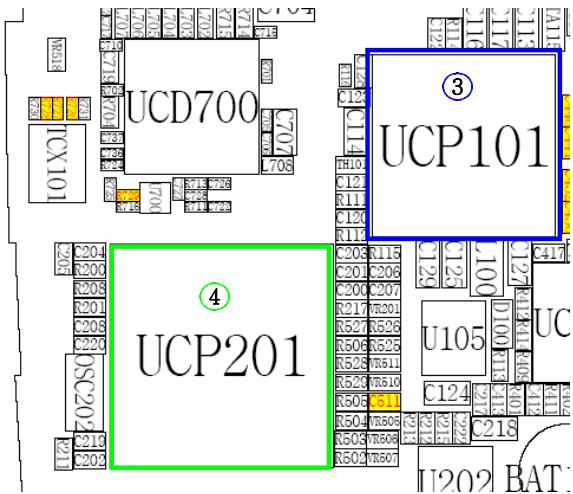
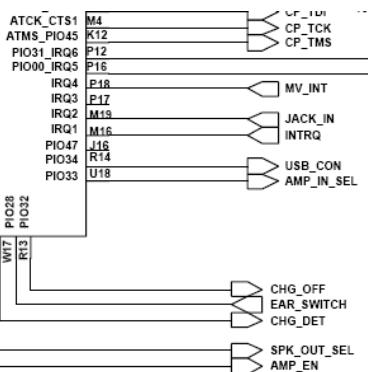




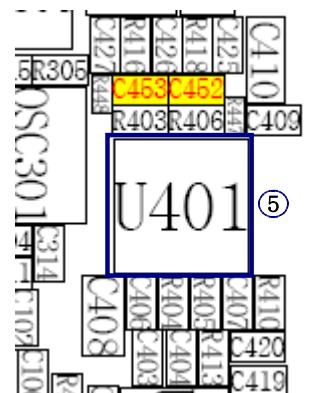
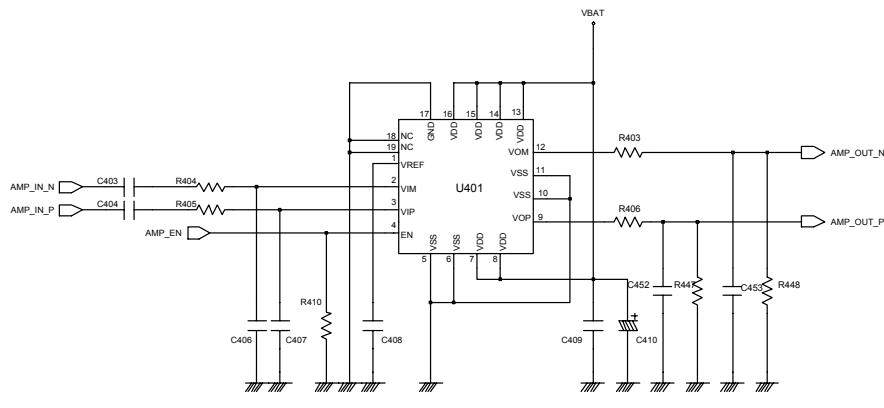
UCP101



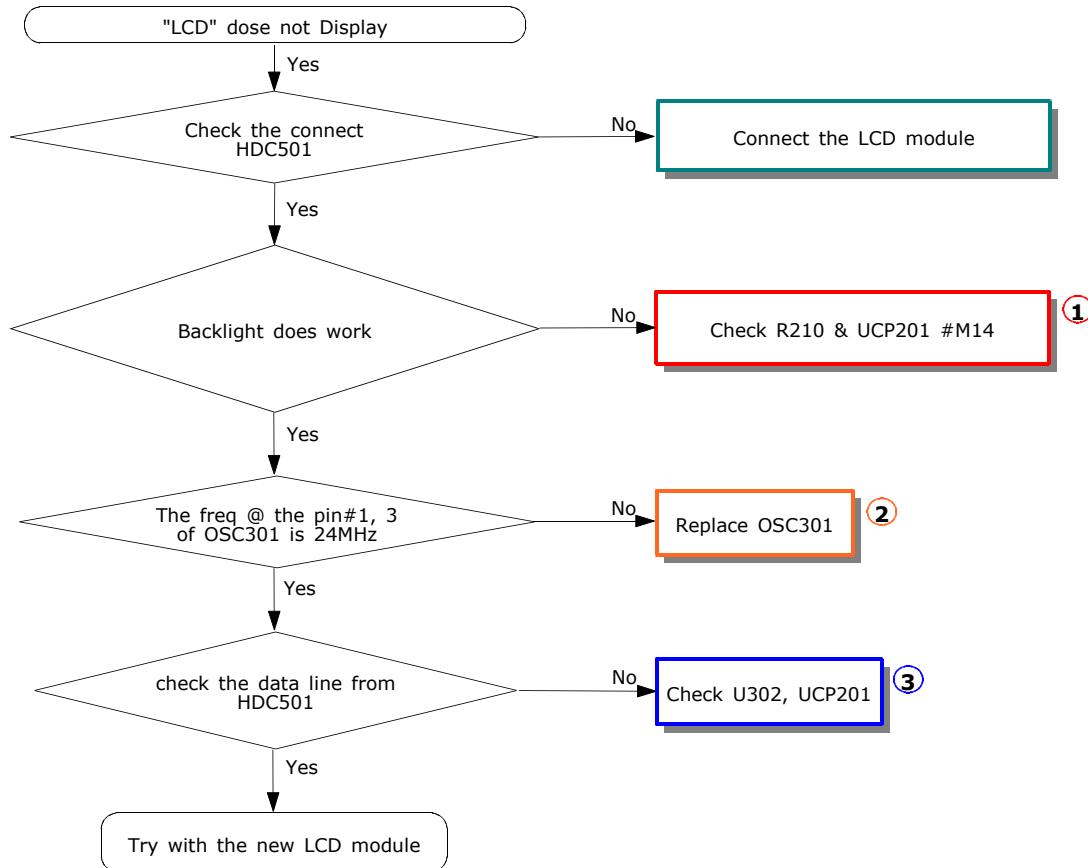
UCP201

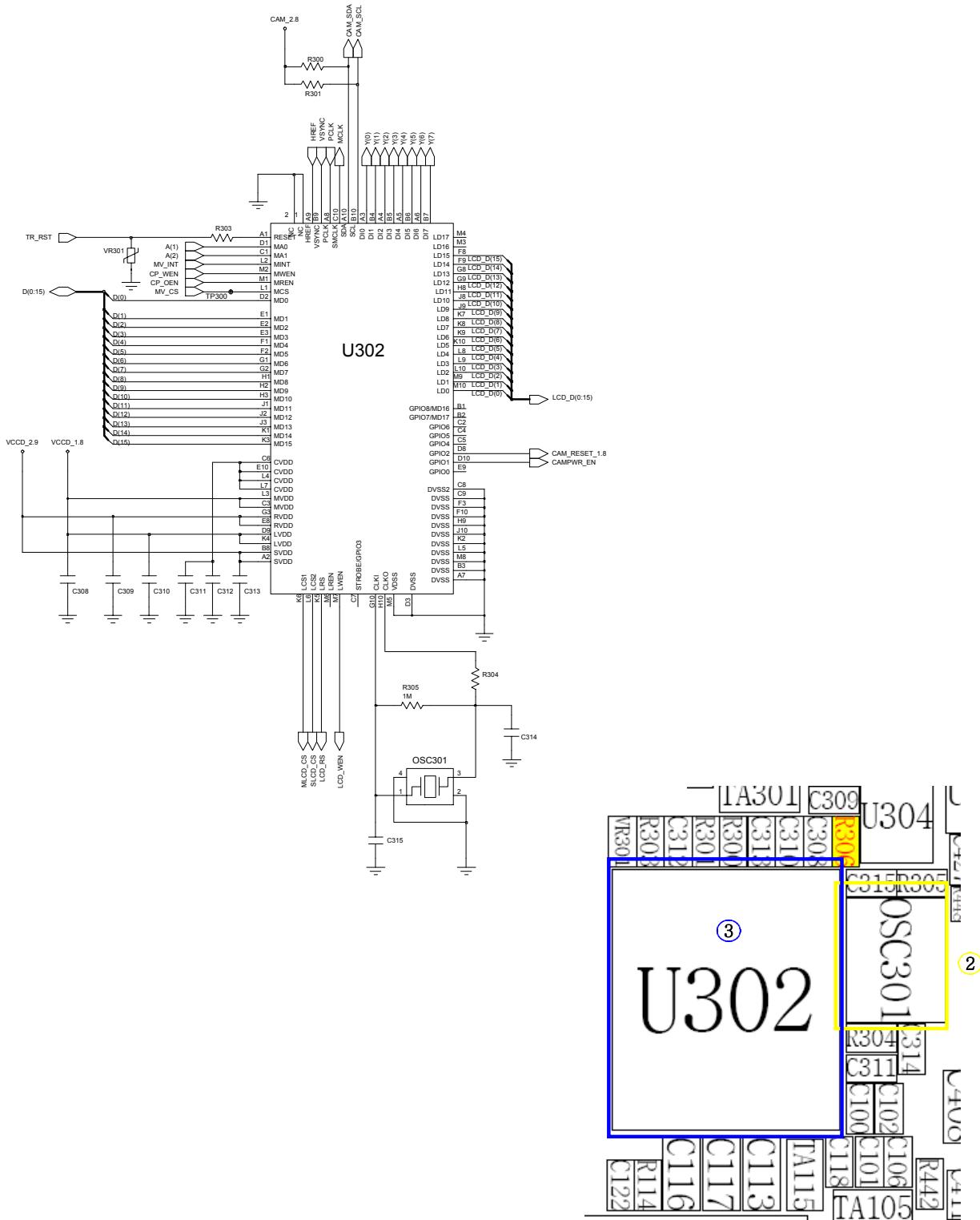


U401 (SAPA1D1)

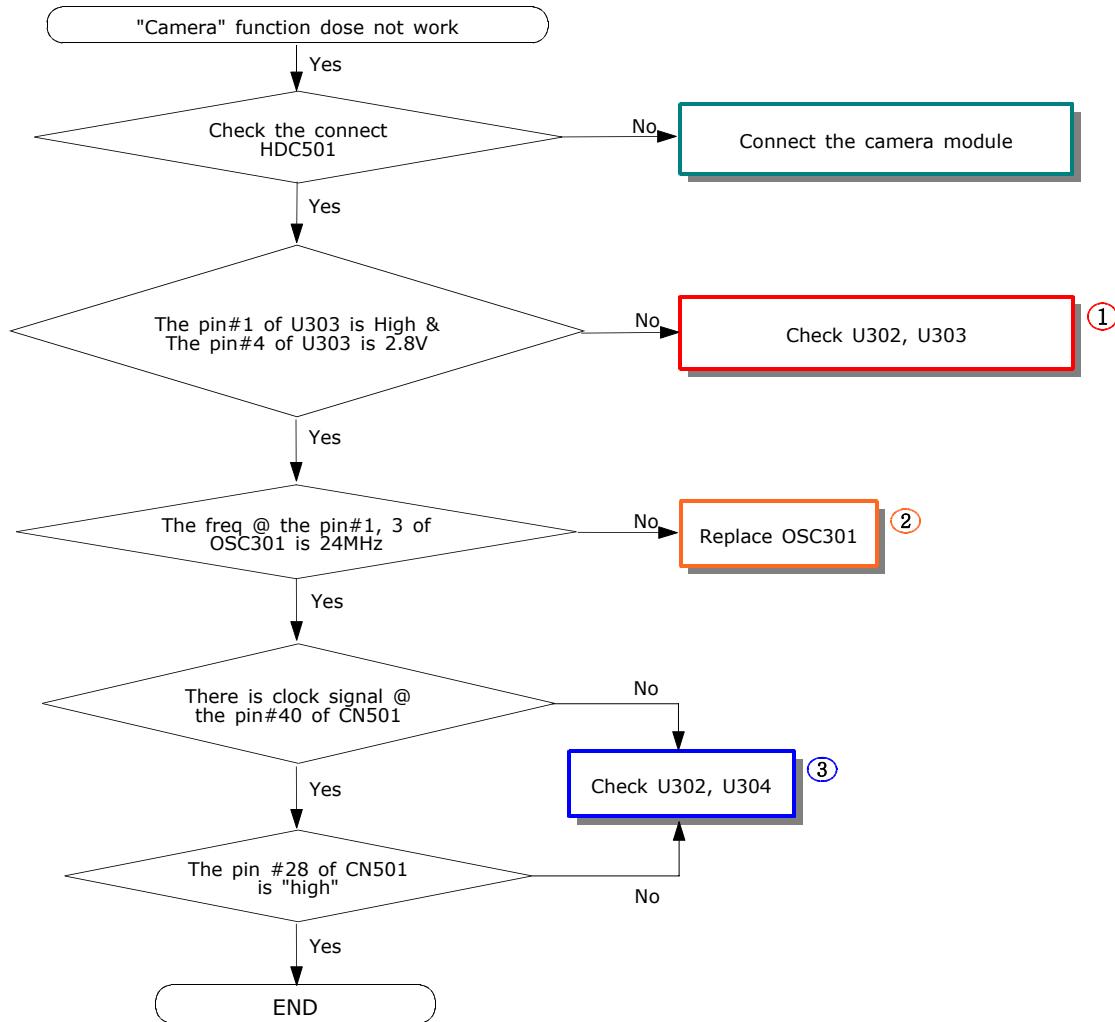


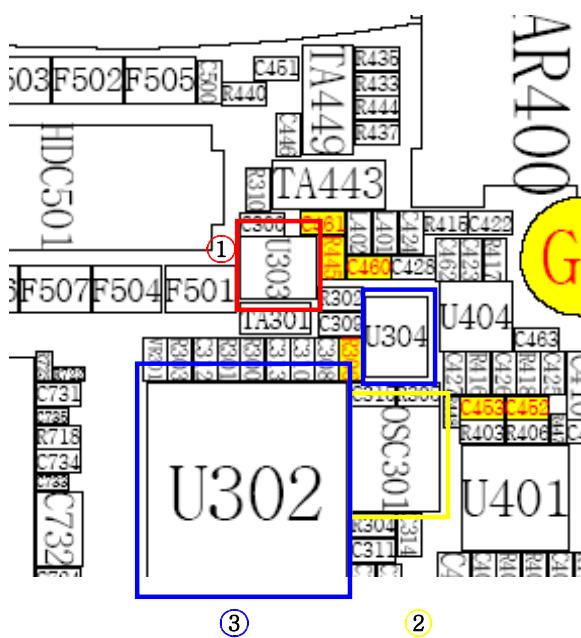
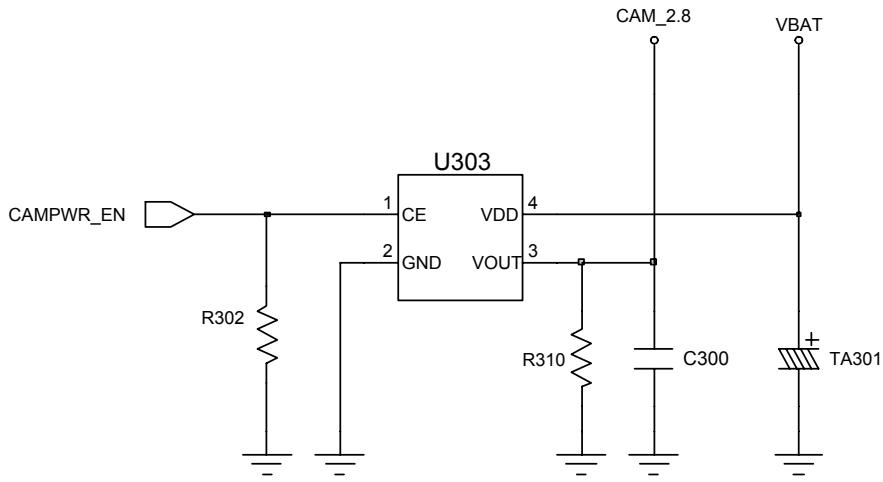
## 10-1-7. LCD





## 10-1-8. Camera

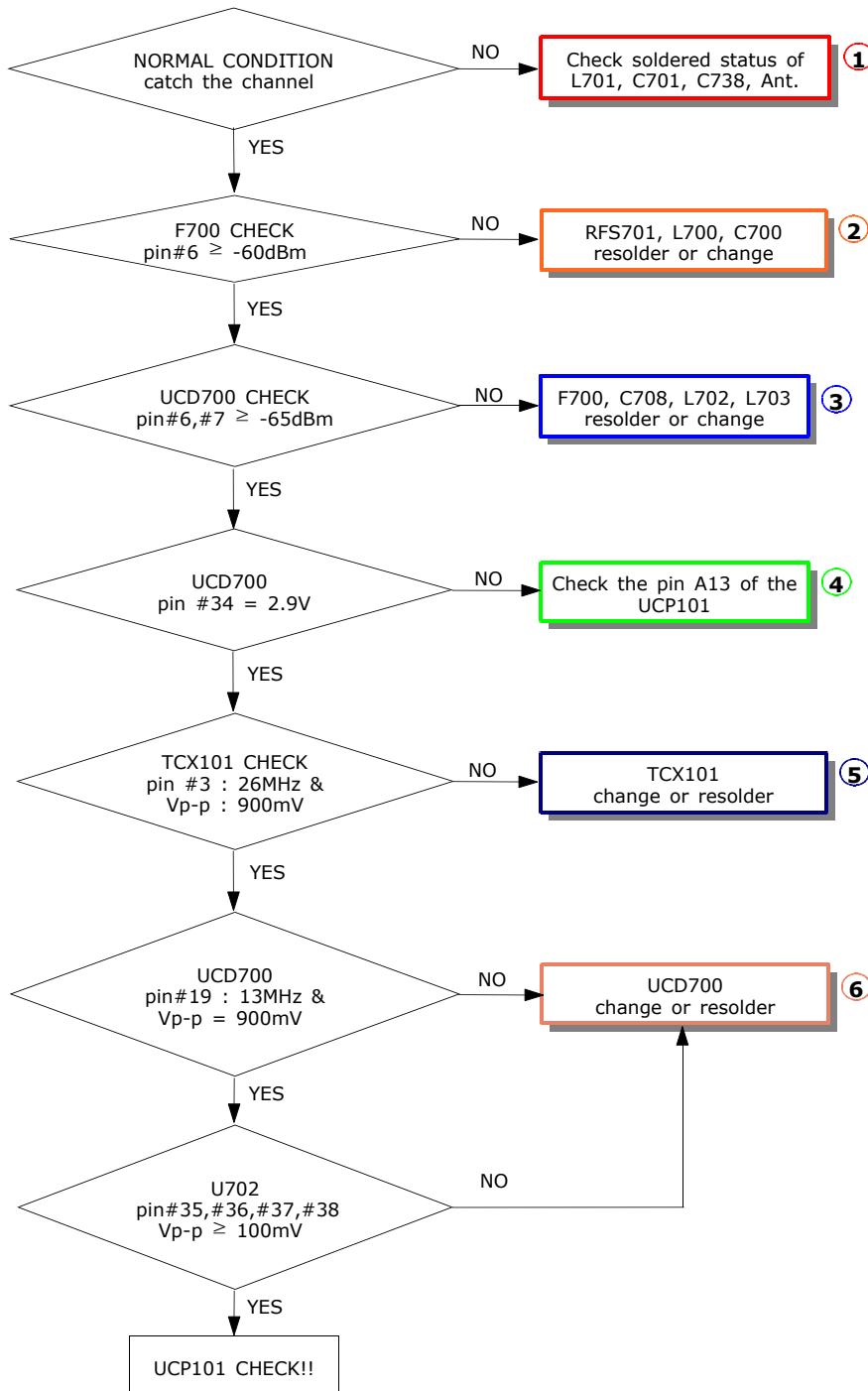




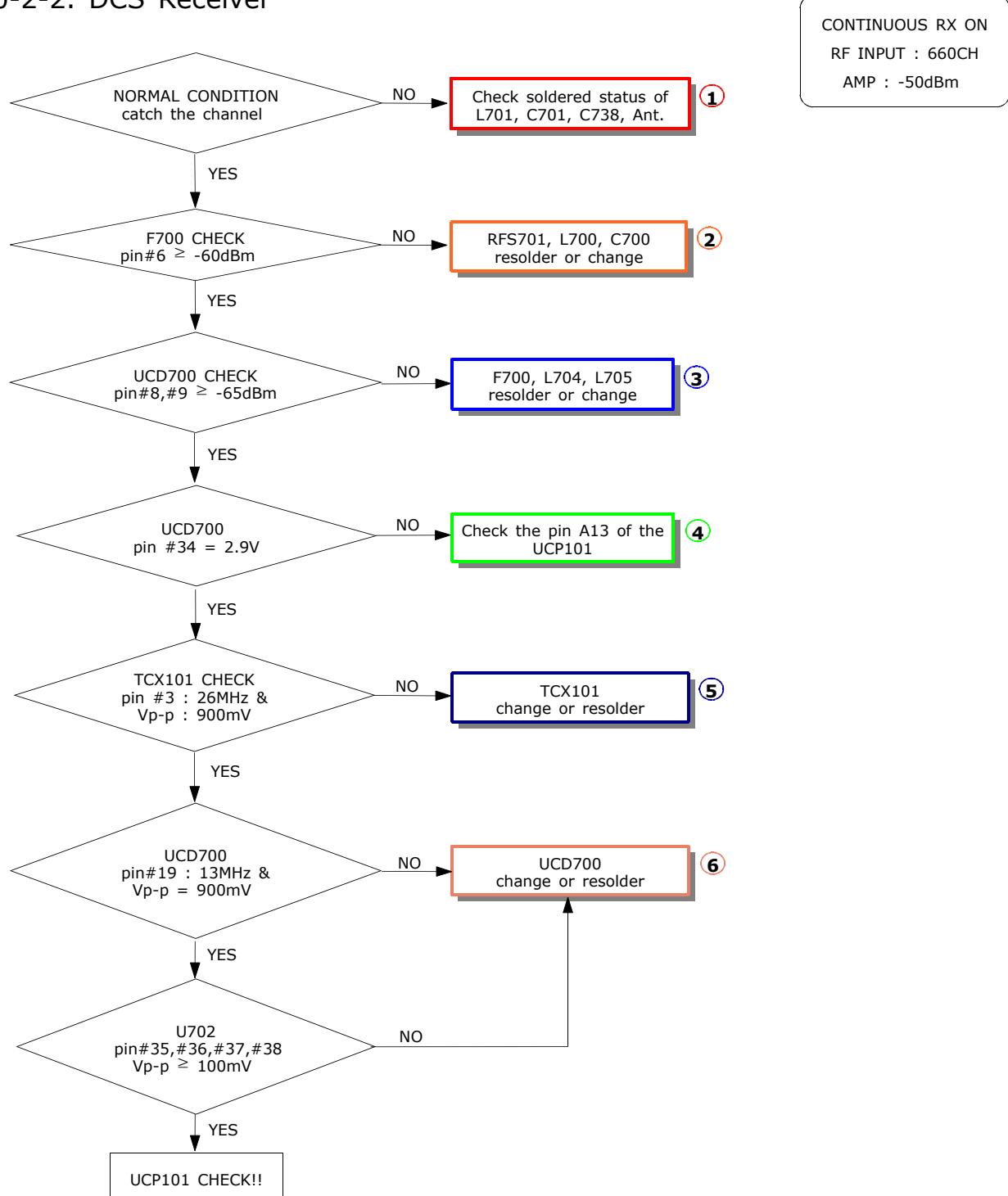
## 10-2. RF

### 10-2-1. EGSM Receiver

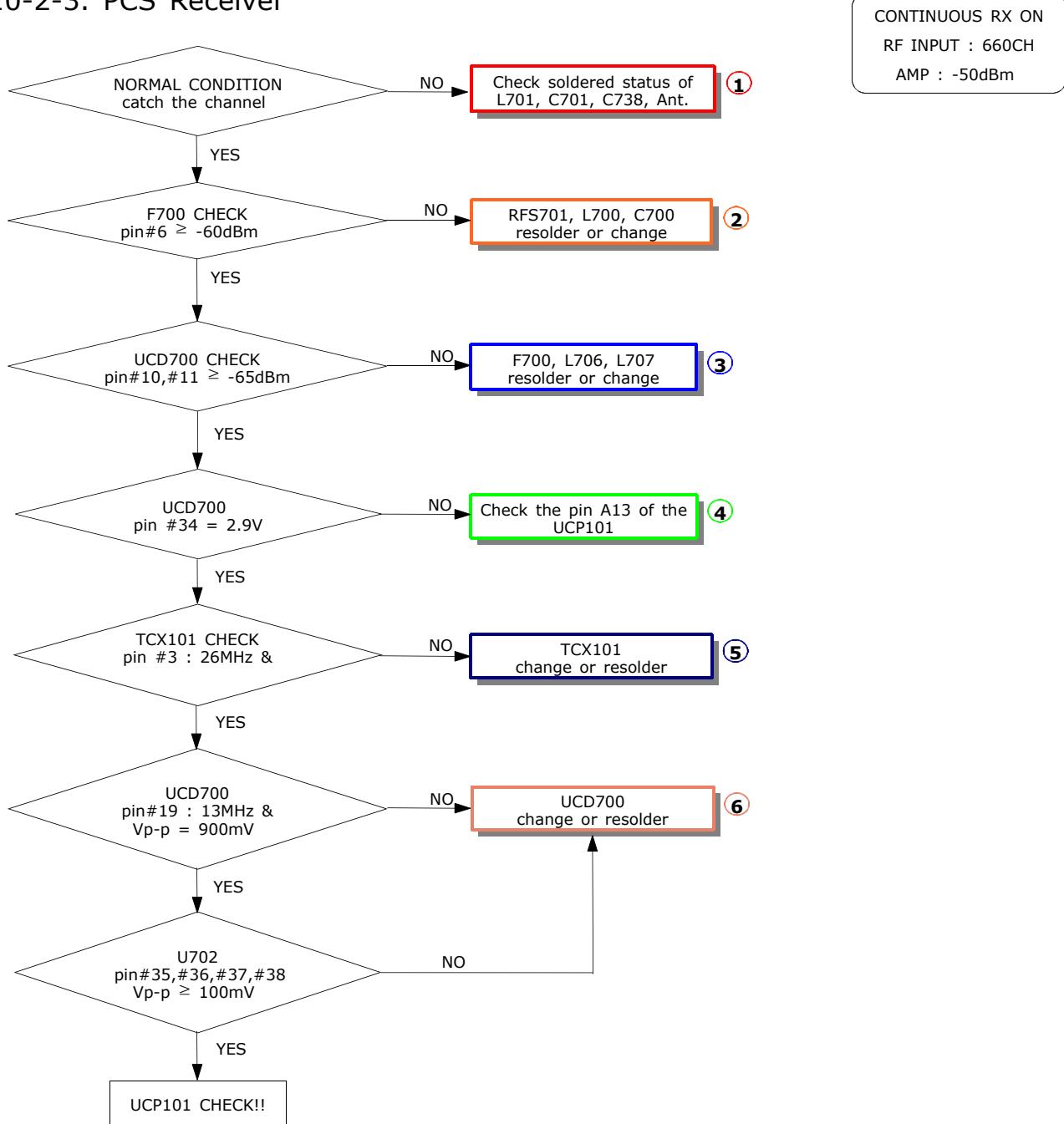
CONTINUOUS RX ON  
RF INPUT : 62CH  
AMP : -50dBm



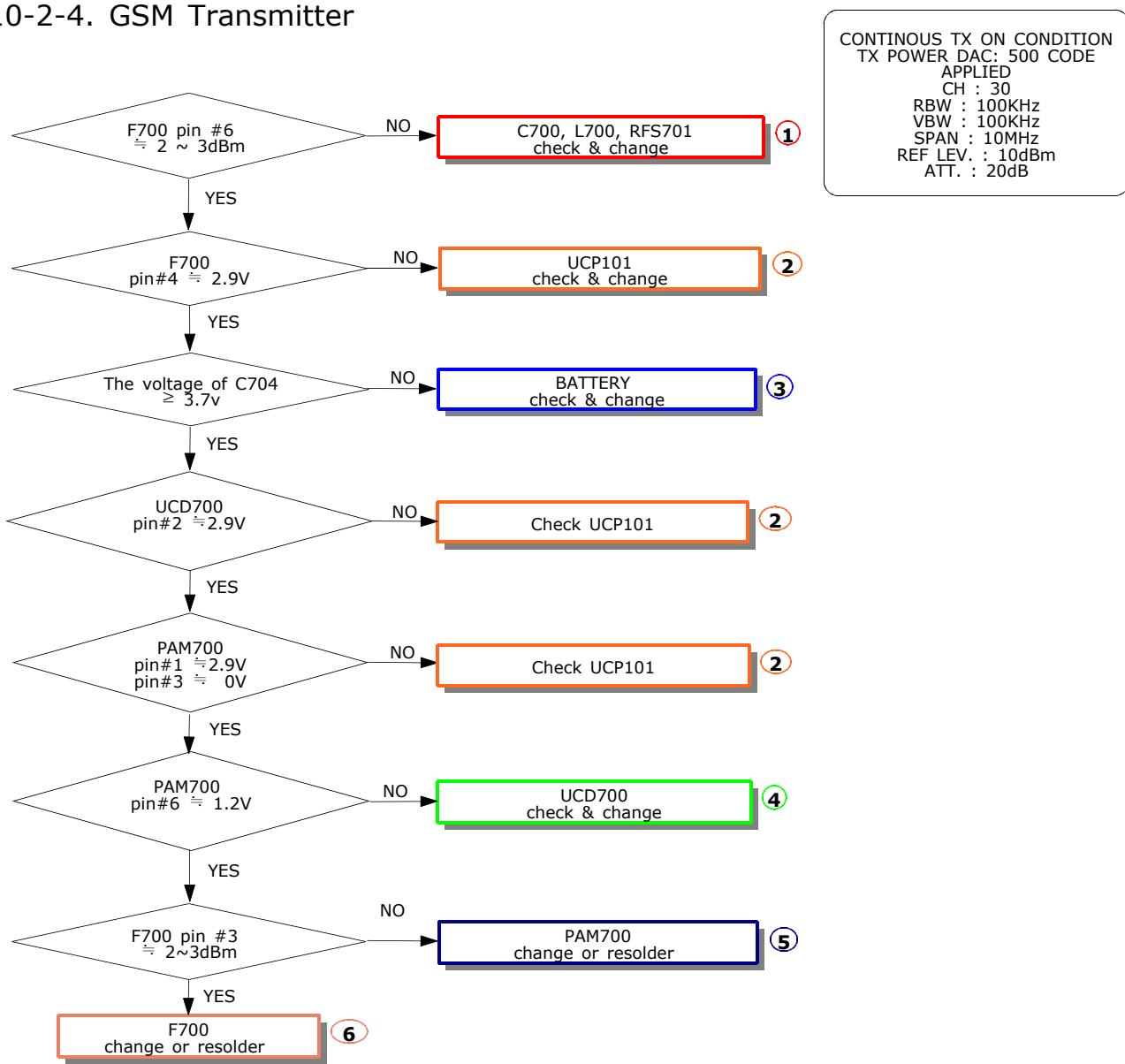
## 10-2-2. DCS Receiver



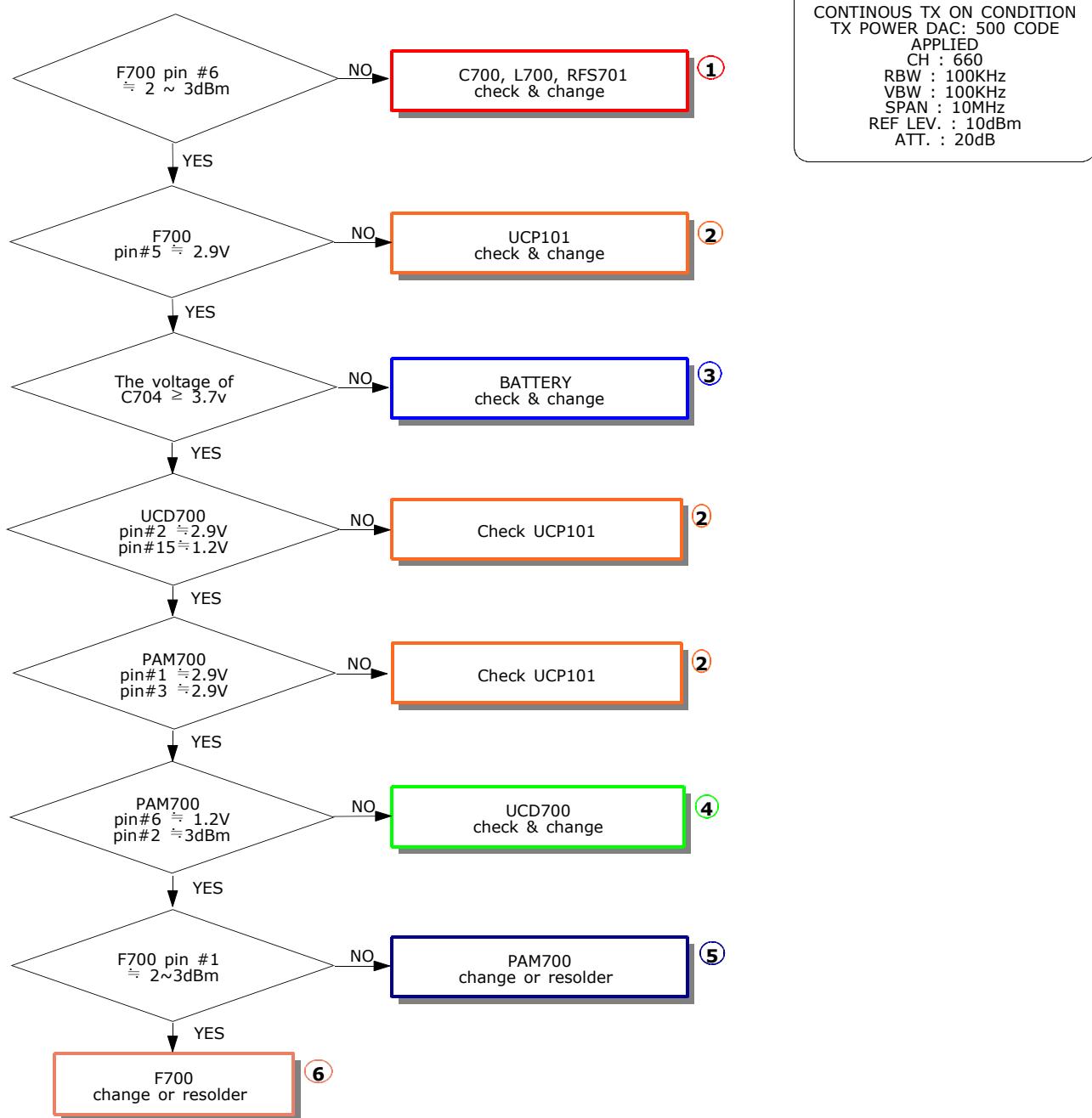
## 10-2-3. PCS Receiver

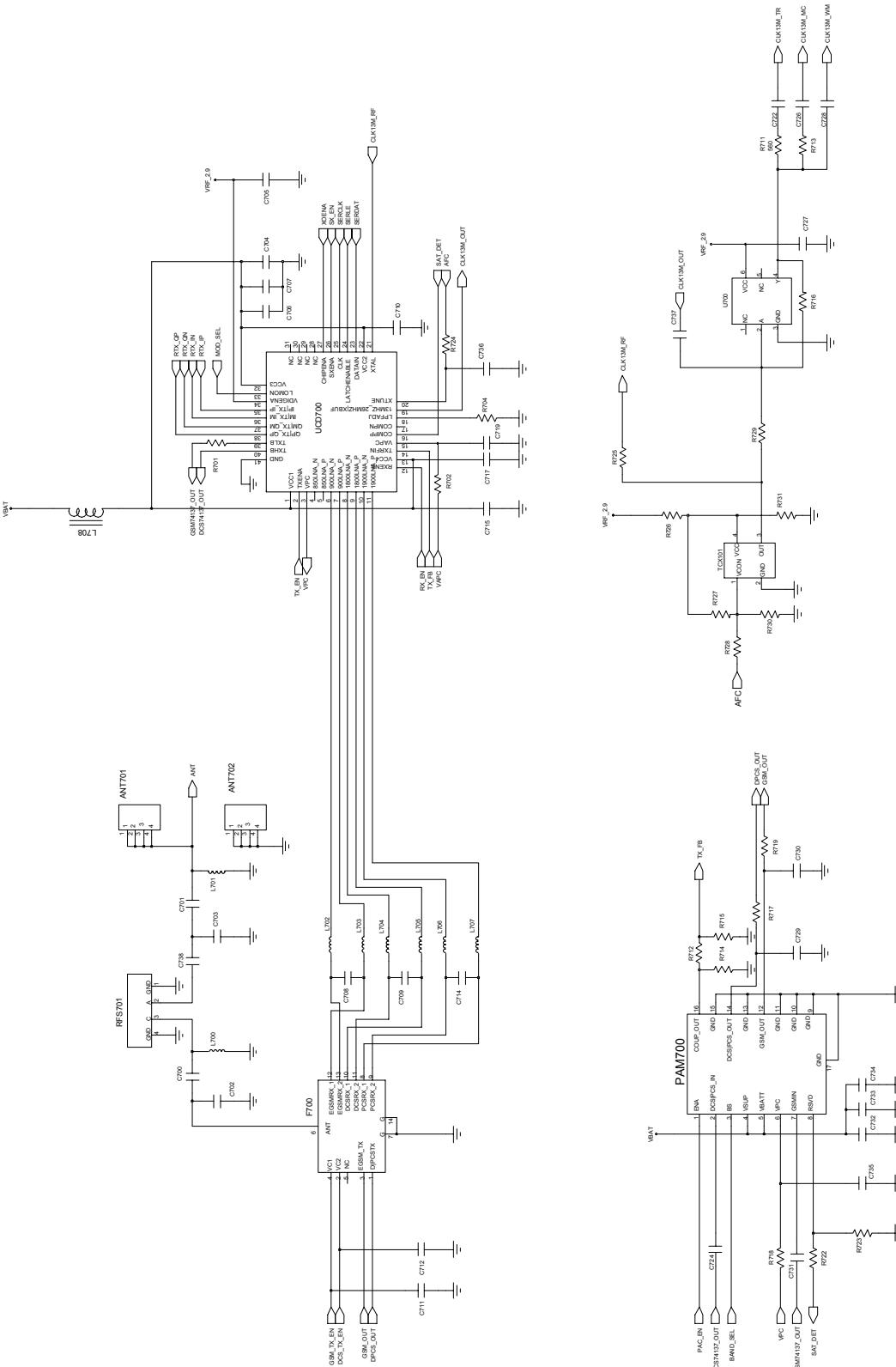


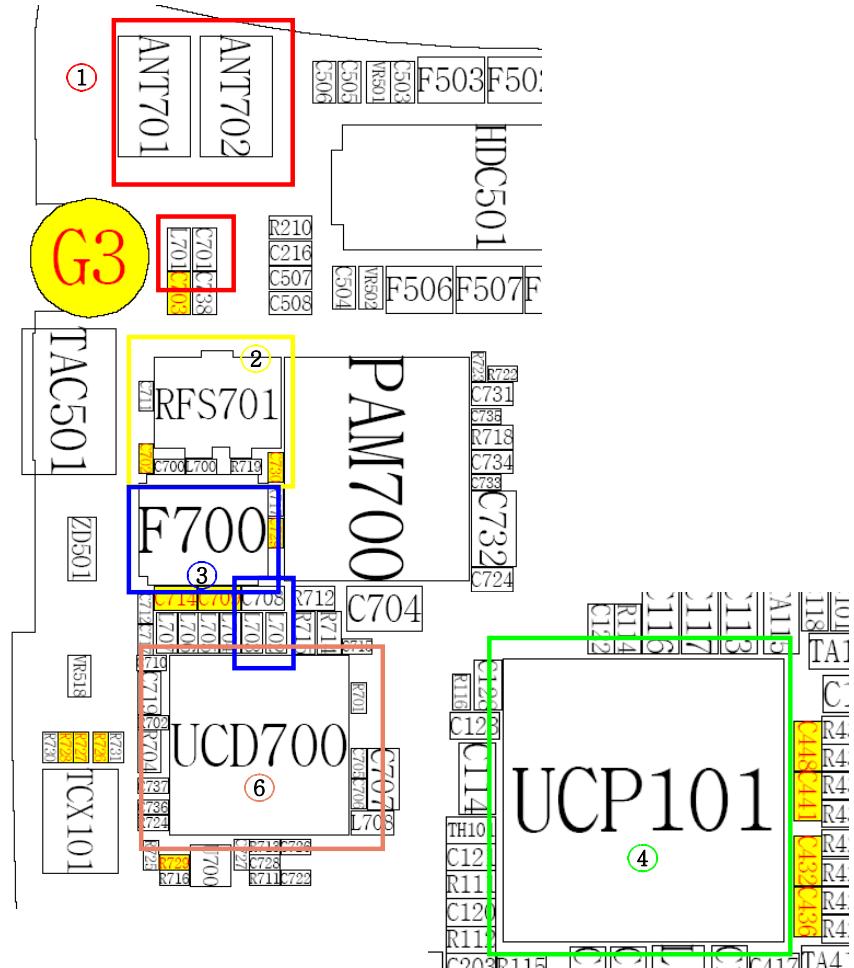
## 10-2-4. GSM Transmitter



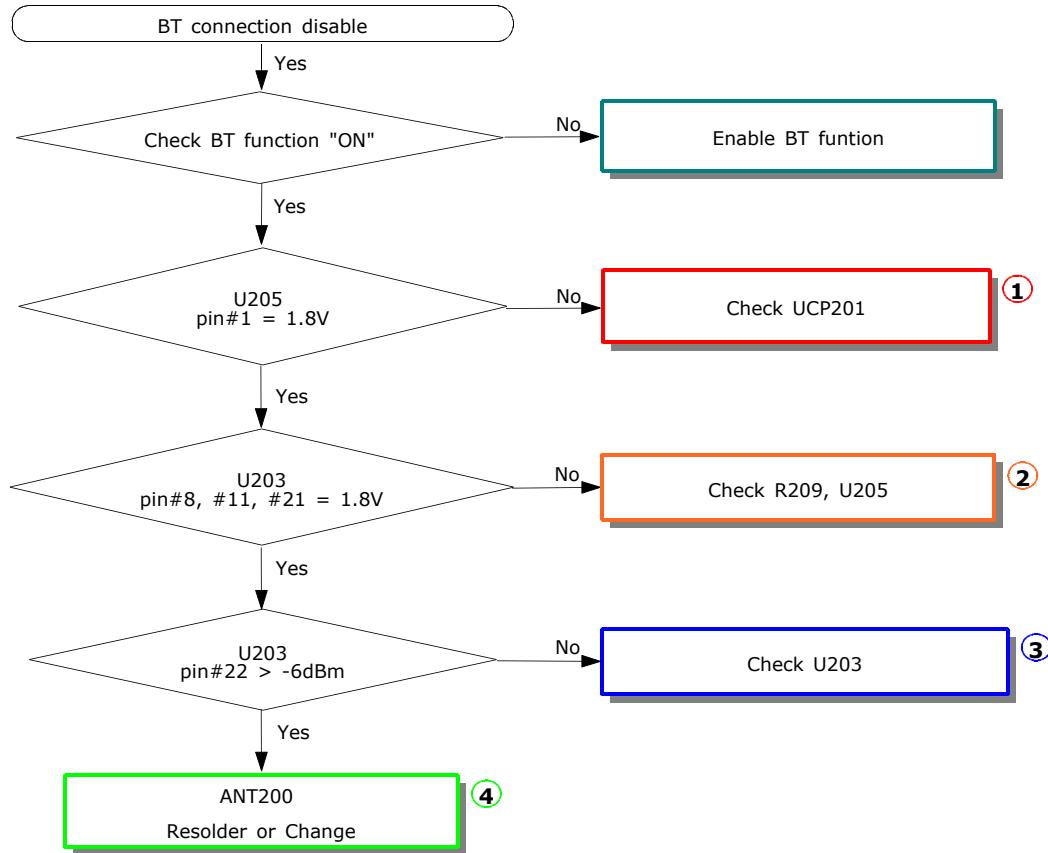
## 10-2-5. DCS/PCS Transmitter

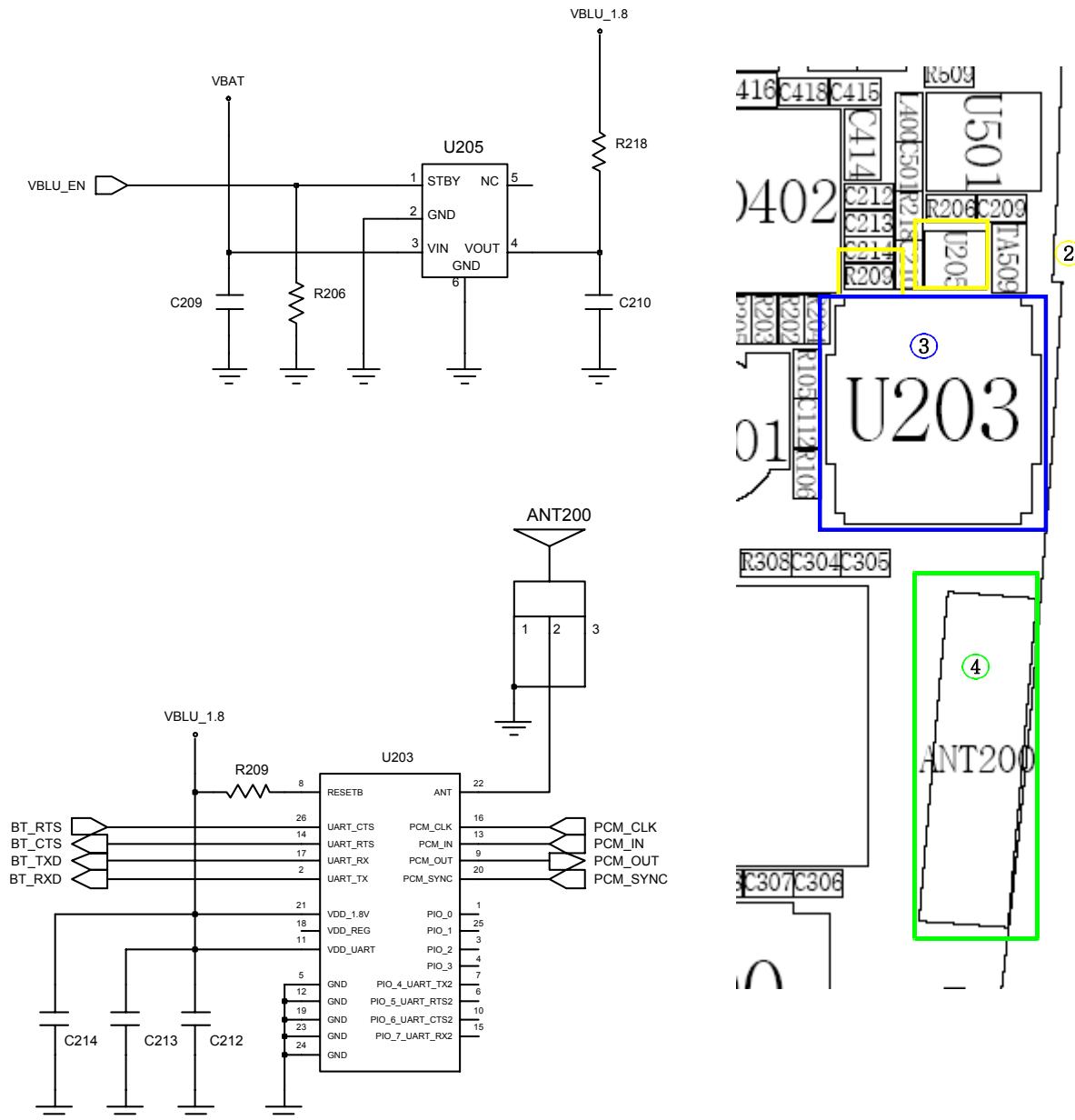






## 10-2-6. Bluetooth Part





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## 11. Reference data

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### 11-1. 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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