

**SAMSUNG**

# GSM TELEPHONE

## SGH-C520

# ***SERVICE*** *Manual*

### GSM TELEPHONE



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## 10. Product Function

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# 1. Specification

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## 1-1. GSM General Specification

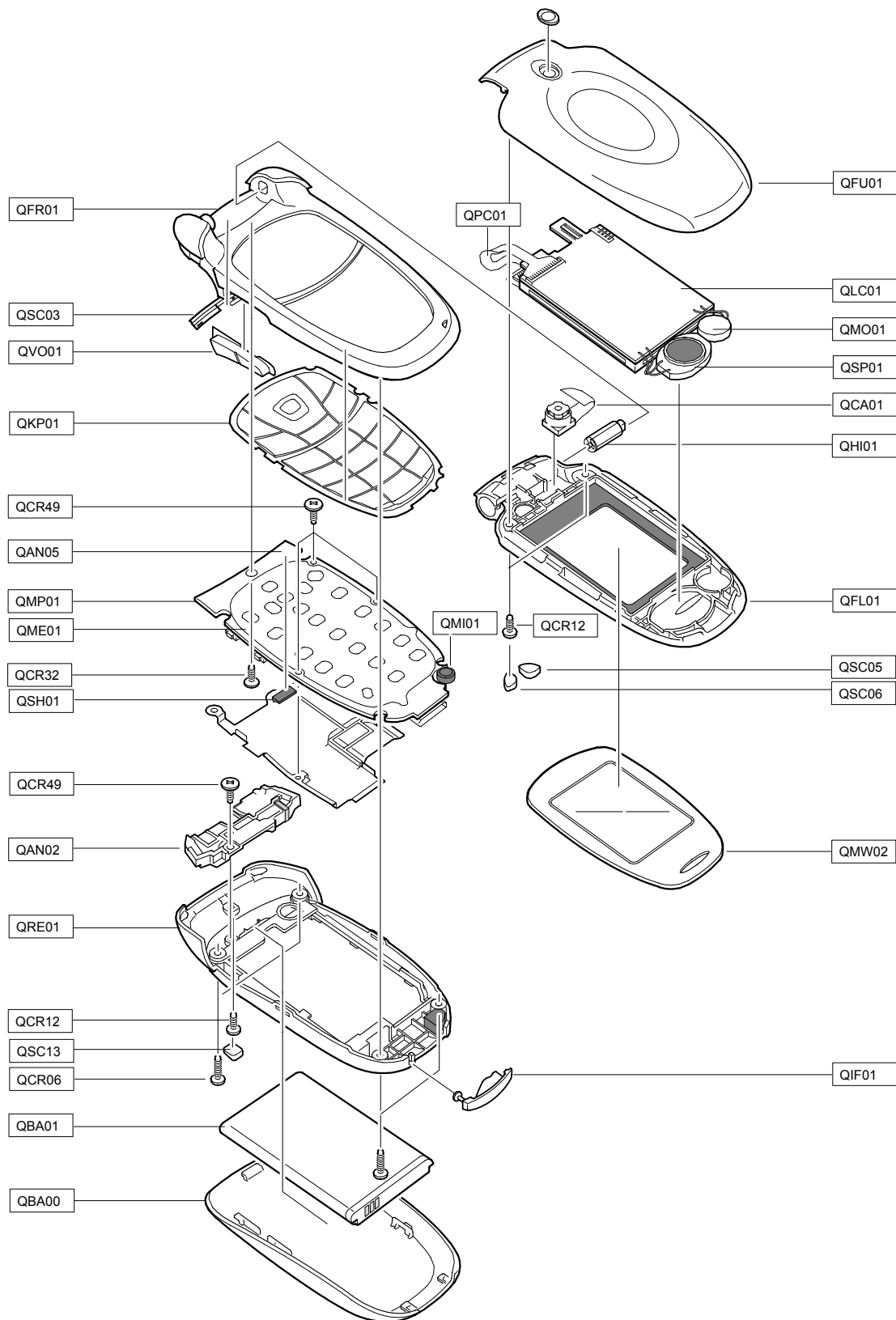
|                                    | <b>GSM 900<br/>Phase 1</b> | <b>EGSM 900<br/>Phase 2</b> | <b>DCS1800<br/>Phase 1</b> |
|------------------------------------|----------------------------|-----------------------------|----------------------------|
| Freq. Band[MHz]<br>Uplink/Downlink | 890~915<br>935~960         | 880~915<br>925~960          | 1710~1785<br>1805~1880     |
| ARFCN range                        | 1~124                      | 0~124 &<br>975~1023         | 512~885                    |
| Tx/Rx spacing                      | 45 MHz                     | 45 MHz                      | 95 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   |
| Time Slot 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       |
| Modulation                         | 0.3 GMSK                   | 0.3 GMSK                    | 0.3 GMSK                   |
| MS Power                           | 33 dBm~13 dBm              | 33 dBm~5 dBm                | 30 dBm~0 dBm               |
| Power Class                        | 5 pcl ~ 15 pcl             | 5 pcl ~ 19 pcl              | 0 pcl ~ 15 pcl             |
| Sensitivity                        | -102 dBm                   | -102 dBm                    | -100 dBm                   |
| TDMA Mux                           | 8                          | 8                           | 8                          |
| Cell Radius                        | 35 Km                      | 35 Km                       | 2 Km                       |

## 1-2. GSM TX power class

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

## 2. Exploded View and Parts List

### 2-1. Cellular phone Exploded View



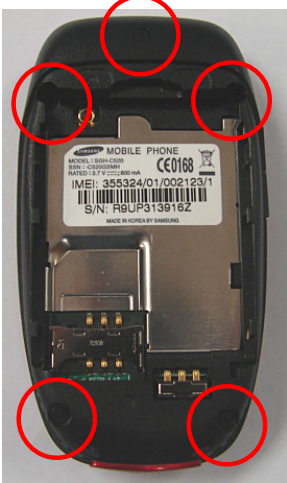
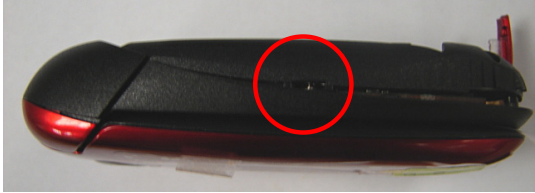


**2-2. Cellular phone Parts list**

| Design LOC |       | Discription                    | SEC CODE    |
|------------|-------|--------------------------------|-------------|
| QAN02      |       | INTENNA-SGHC520                | GH42-01179A |
| QAN05      |       | ASSY MEC-INTENNA CONTACT       | GH75-08168A |
| QBA00      |       | ASSY COVER-BATT                | GH98-04111A |
| QBA01      |       | INNER BATTERY PACK-750MAH,BLK, | GH43-02483A |
| QCA01      |       | UNIT-CAMERA MODULE             | GH59-04202A |
| QCR06      |       | SCREW-MACHINE                  | 6001-001155 |
| QCR12      |       | SCREW-MACHINE                  | 6001-001530 |
| QCR12      |       | SCREW-MACHINE                  | 6001-001530 |
| QCR32      |       | SCREW-MACHINE                  | 6001-001700 |
| QCR49      |       | SCREW-MACHINE                  | 6001-001823 |
| QCR49      |       | SCREW-MACHINE                  | 6001-001823 |
| QFR01      |       | ASSY CASE-FRONT                | GH98-04107A |
| QFU01      |       | ASSY CASE-UPPER                | GH98-04108A |
| QKP01      |       | ASSY KEYPAD-(SER/BLK)          | GH98-04708A |
| QLC01      |       | ELA UNIT-SGH_C520 LCD MODULE   | GH96-02549A |
| QME01      |       | UNIT-DOME SHEET 22KEY          | GH59-04348A |
| QMI01      |       | MICROPHONE-ASSY-SGH-C520       | GH30-00352A |
| QMO01      |       | MOTOR DC-SPHB2300              | GH31-00181A |
| QMP01      |       | PBA MAIN-SGHC520               | GH92-03552A |
| QMW02      |       | PMO-COVER MAIN WINDOW          | GH72-38467A |
| QPC01      |       | FPC-CON TO CON                 | GH41-01626A |
| QSC03      |       | PMO-BRACKET FPCB HOLE          | GH72-38517A |
| QSC05      |       | RMO-RUBBER SCREW FOLDER L      | GH73-09293A |
| QSC06      |       | RMO-RUBBER SCREW FOLDER R      | GH73-09292A |
| QSC13      |       | RMO-RUBBER SCREW REAR          | GH73-09294A |
| QSH01      |       | ASSY CASE-SHIELD CAN           | GH98-04112A |
| QSP01      |       | SPEAKER                        | 3001-002143 |
| QVO01      |       | ASSY KEY-VOLUME                | GH98-04242A |
| QFL01      |       | ASSY CASE-LOWER                | GH98-04109A |
|            | QHI01 | ASSY HINGE                     | GH98-03190A |
| QRE01      |       | ASSY CASE-REAR                 | GH98-04110A |
|            | QIF01 | PMO-COVER IF                   | GH72-38465A |

| Discription                   | SEC CODE    |
|-------------------------------|-------------|
| BAG PE                        | 6902-000297 |
| ADAPTOR-SGHE690,BLK,EU,A_TYPE | GH44-01361A |
| UNIT-20P,EARPHONE,BLK,B-TYPE  | GH59-04029A |
| MANUAL-SFC                    | GH68-04336A |
| LABEL(P)-BARCODE RUSSIA       | GH68-08494A |
| LABEL(R)-WATER SOAK           | GH68-09361A |
| LABEL(R)-MAIN(SER)            | GH68-14667B |
| MANUAL USERS-EU RUSSIAN       | GH68-14702A |
| BOX(P)-UNIT MAIN(EU)          | GH69-05343B |
| RMO-RUBBER BGA A              | GH73-09385A |
| RMO-RUBBER BGA B              | GH73-09386A |
| RMO-RUBBER BGA C              | GH73-09387A |
| MPR-REMOVE TAPE LCD           | GH74-13804A |
| MPR-INSU TAPE                 | GH74-18047A |
| MPR-INSU TAPE                 | GH74-23315A |
| MPR-TAPE IF COVER             | GH74-24740A |
| MPR-TAPE                      | GH74-27509A |
| MPR-INSU TAPE                 | GH74-27512A |
| MPR-TAPE                      | GH74-27712A |
| MPR-INSU TAPE                 | GH74-28241A |
| MPR-SPONGE MAIN CON           | GH74-30820A |
| MPR-TAPE MAIN WINDOW          | GH74-30961A |
| MPR-INSU TAPE                 | GH74-30998A |
| MPR-VINYL BOHO FOLDER LOWER A | GH74-31355A |
| MPR-GASK TAPE                 | GH74-31677A |
| TAPE INSU                     | GH74-33048A |



### 2-3. Disassembly

|  |   |
|--|---|
| <p><b>1</b></p>   | <p><b>2</b></p>   |
| <p>1) Unscrew the REAR at the 5 point after remove screw rubber cap.</p> <p><b>* caution</b></p> <p>1) Be careful not to make scratch and molding damage!</p>          | <p>1) Disassemble the REAR from the lower end to the upper end.</p> <p><b>* caution</b></p> <p>1) Be careful not to make scratch and molding damage!</p> <p>2) Please remove the lower end locker first.</p>            |
| <p><b>3</b></p>   | <p><b>4</b></p>   |
| <p>1) Push the upper end locker of REAR, to arrow direction, and remove REAR.</p> <p><b>* caution</b></p> <p>1) Be careful not to make scratch and molding damage!</p> | <p>1) Disassemble the CON TO CON FPCB, and unscrew the PBA at the 1 point.</p> <p><b>* caution</b></p> <p>1) Be careful not to make scratch and molding damage!</p> <p>2) Be careful not to damage CON TO CON FPCB!</p> |

5

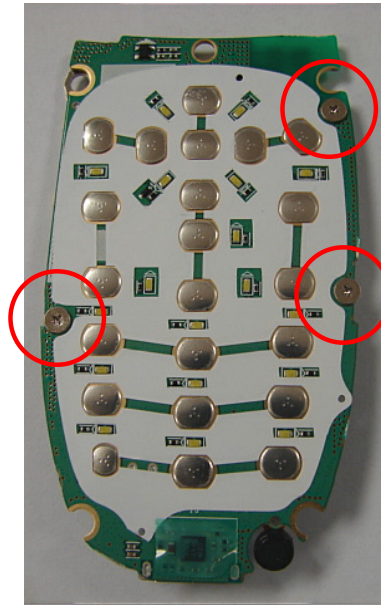


1) Disassemble the PBA from the FRONT ASS'Y.

※ **caution**

- 1) Be careful not to make scratch and molding damage!
- 2) Be careful not to damage CON TO CON FPCB!

6



1) Unscrew the SHIELDCAN at the 3 point.

※ **caution**

- 1) Be careful not to make scratch and molding damage!

7

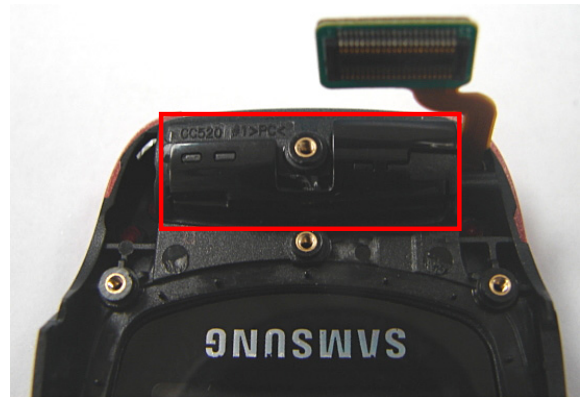


1) Disassemble the KEYPAD.

※ **caution**

- 1) Be careful not to make scratch and molding damage!

8



1) Disassemble the upper end BRACKET of FRONT.

※ **caution**

- 1) Be careful not to make scratch and molding damage!
- 2) Be careful not to damage CON TO CON FPCB! solder in soldering part.

9



1) Push the hinge between FOLDER UPPER and FOLDER LOWER, and disassemble FRONT from FOLDER.

※ **caution**

- 1) Be careful not to make scratch and molding damage!
- 2) Be careful not to damage CON TO CON FPCB!

10



1) Please remove screw rubber caps and unscrew the FOLDER UPPER at the 2 point.

※ **caution**

- 1) Be careful not to make scratch and molding damage!

11

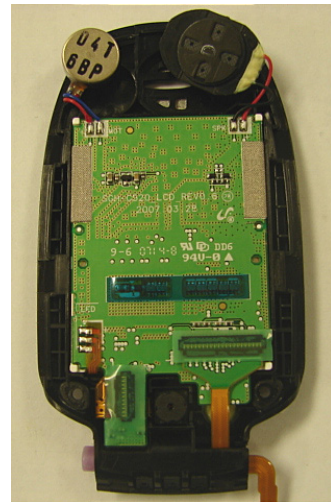


1) By using an assembly stick, disassemble FOLDER UPPER from FOLDER LOWER (Right and Left are the same process)

※ **caution**

- 1) Be careful not to make scratch and molding damage!

12



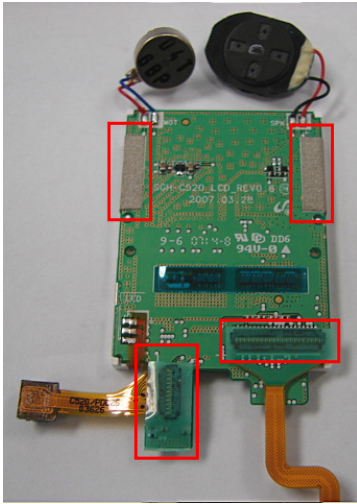
1) Disassemble the MOTOR and SPEAKER from FOLDER LOWER by using a pincette.

※ **caution**

- 1) Be careful not to make scratch and molding damage!

## 2-4. Assembly

1

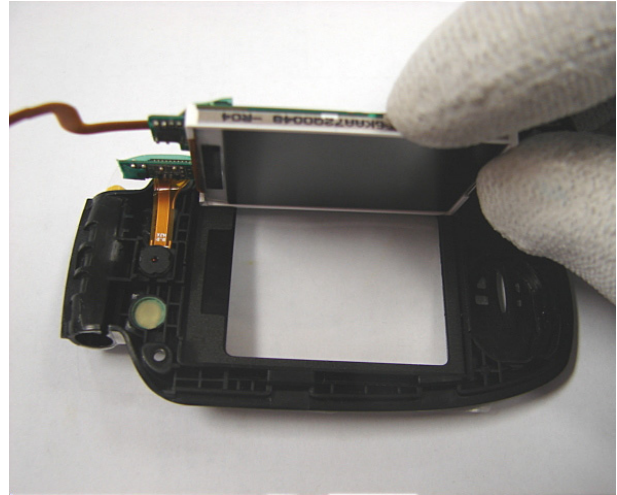


1) Insert CON TO CON to LCD and attach insulation tape.

※ **caution**

1) Be careful not to make scratch and molding damage!

2



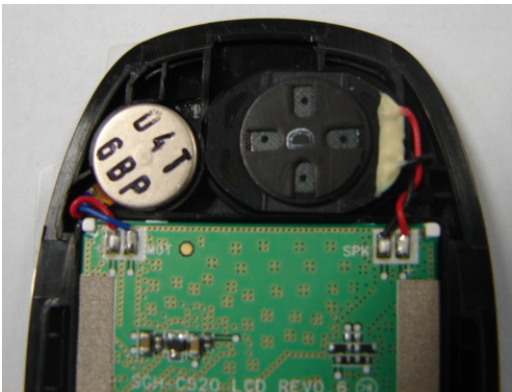
1) Insert CAMERA and LCD into FOLDER LOWER.

※ **caution**

1) Be careful not to make scratch and molding damage!

2) Be careful not to damage CAMERA FPCB!

3



1) Twist twice SPEAKER and insert into FOLDER LOWER.

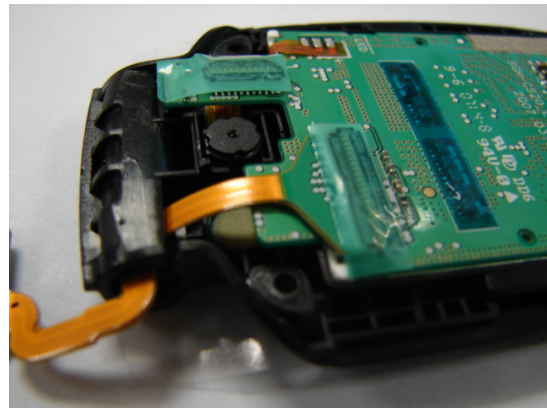
2) Twist twice MOTOR wire and insert into FOLDER LOWER.

※ **caution**

1) Be careful not to make scratch and molding damage!

2) Arrange Wires clearly as above picture is shown.

4



1) Insert the CON TO CON into FOLDER LOWER. detached it.

※ **caution**

1) Be careful not to make scratch and molding damage!

2) Be careful not to damage CON TO CON FPCB!

5



1) Assemble FOLDER UPPER with FOLDER LOWER from the upper end to the lower end.

※ **caution**

1) Be careful not to make scratch and molding damage!

Use  $1.1 \pm 0.1$  Kgf·Cm

6



1) Screw up the FOLDER LOWER at two point.  
2) Attach screw rubber caps on the screws by using a pincette.

※ **caution**

1) Be careful not to damage CON TO CON FPCB!

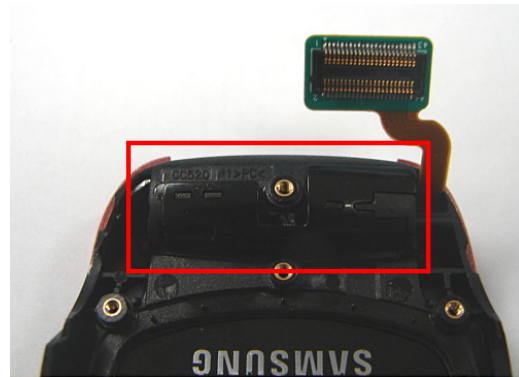
7



1) Be careful not to make scratch and molding damage!

2) Be careful not to damage CON TO CON FPCB!

8



1) Attach FRONT BRACKET.

※ **caution**

1) Be careful not to make scratch and molding damage!

9



- 1) Insert the KEYPAD into FRONT.
  - 2) Attach insulation tape to cover metal deco.
- ※ **caution**
- 1) Be careful not to make scratch and molding damage!

10



- 1) Insert PBA and connect CON TO CON FPCB.
  - 2) Screw PBA at 1 point.
- ※ **caution**
- 1) Be careful not to make scratch and molding damage!
  - 2) Be careful not to unstable connection con to con Use  $1.0 \pm 0.1$  Kgf-Cm

11



- 1) Locate VOLUME KEY and assemble REAR with FRONT. Insert left side hook as below picture.
- ※ **caution**
- 1) Be careful not to make scratch and molding damage!
  - 2) Be careful not to damage LOCKER.

12



- 1) Insert right side hook as below picture.
- ※ **caution**
- 1) Be careful not to make scratch and molding damage!
  - 2) Be careful not to damage LOCKER.

**13**



1) Assemble FOLDER UPPER with FOLDER LOWER from the upper end to the lower end.

**\* caution**

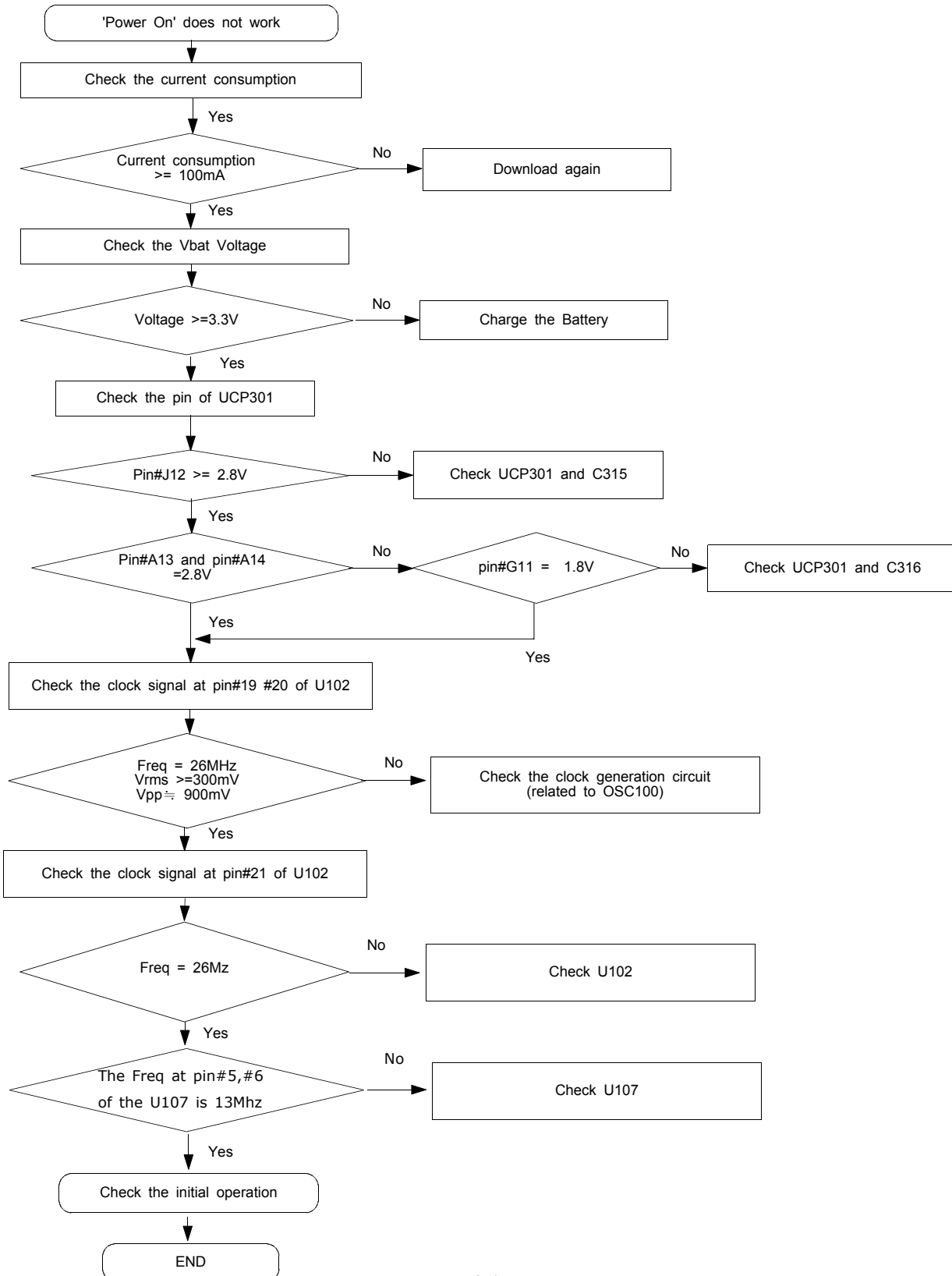
1) Be careful not to make scratch and molding damage!

Use  $1.1 \pm 0.1$  Kgf·Cm

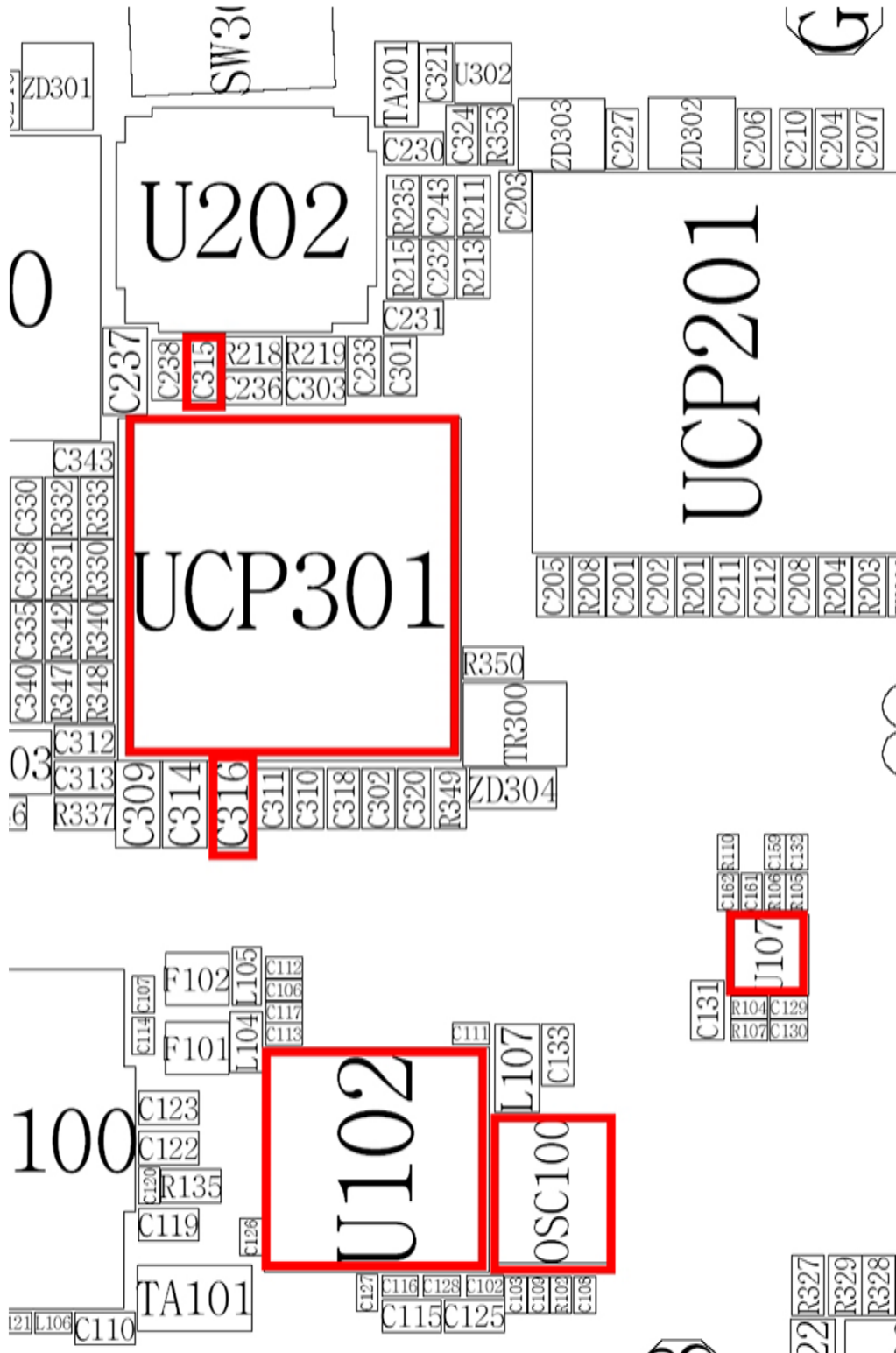
## 3. Flow Chart of Troubleshooting

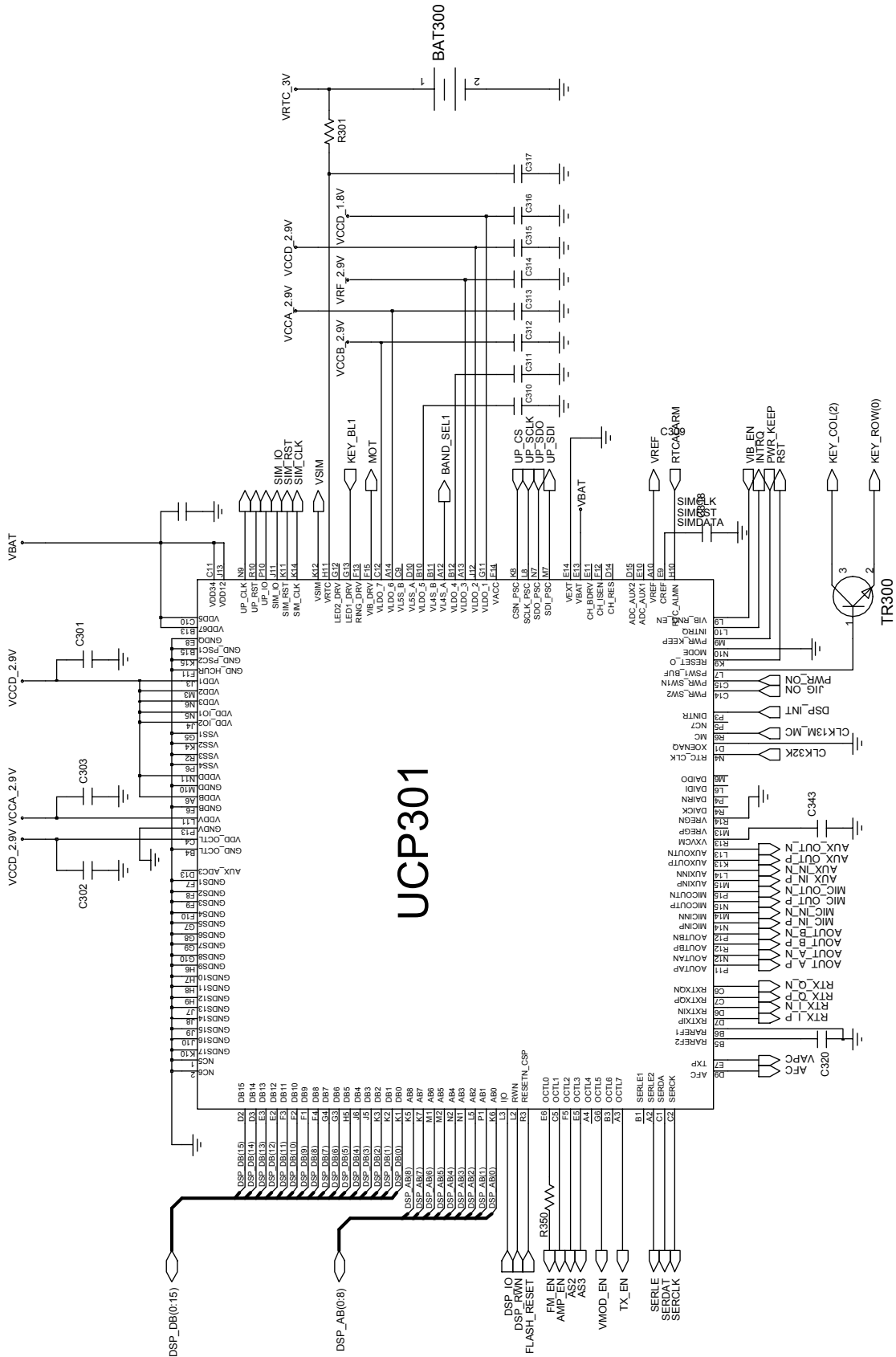
### 3-1. Baseband

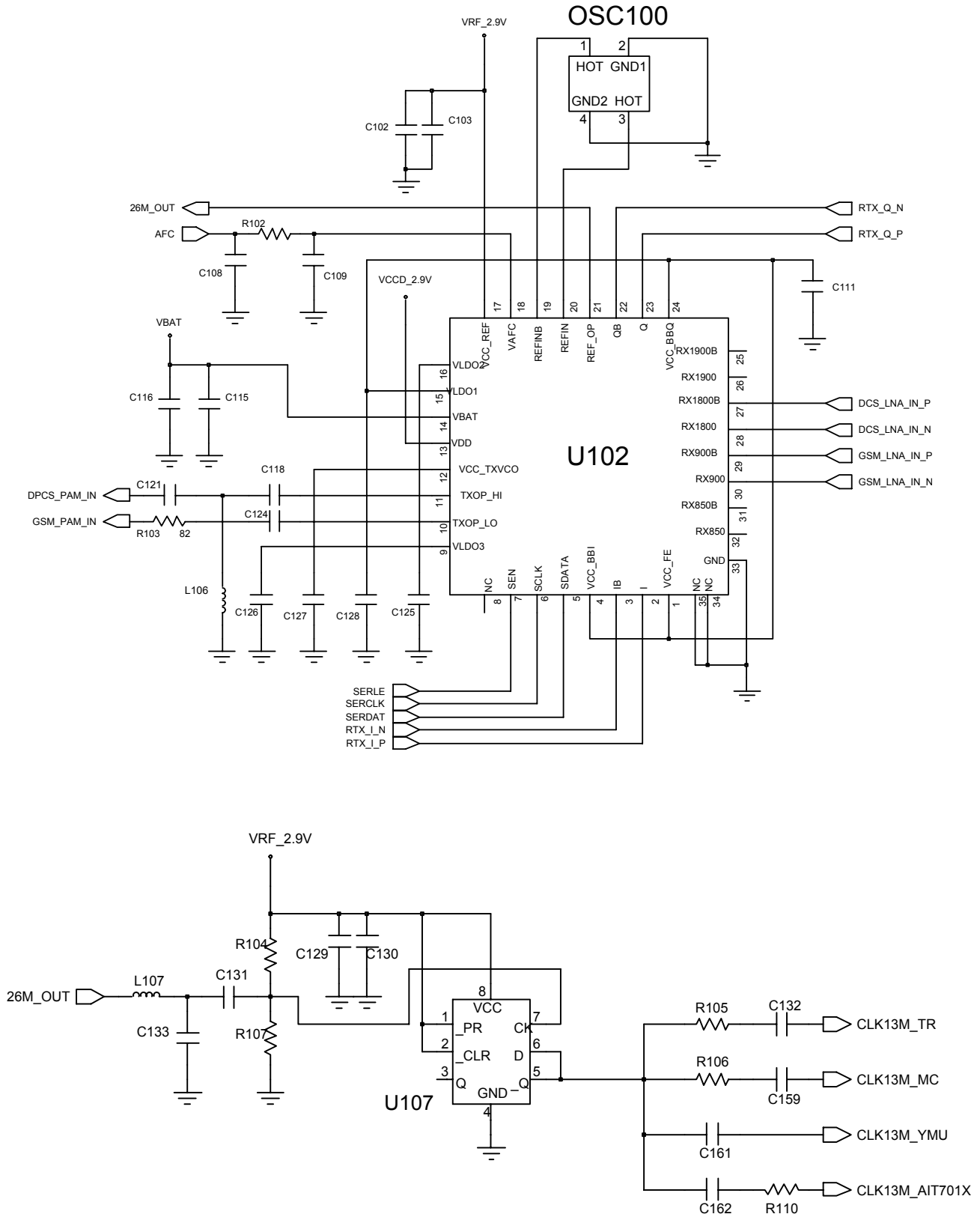
#### 3-1-1. Power ON



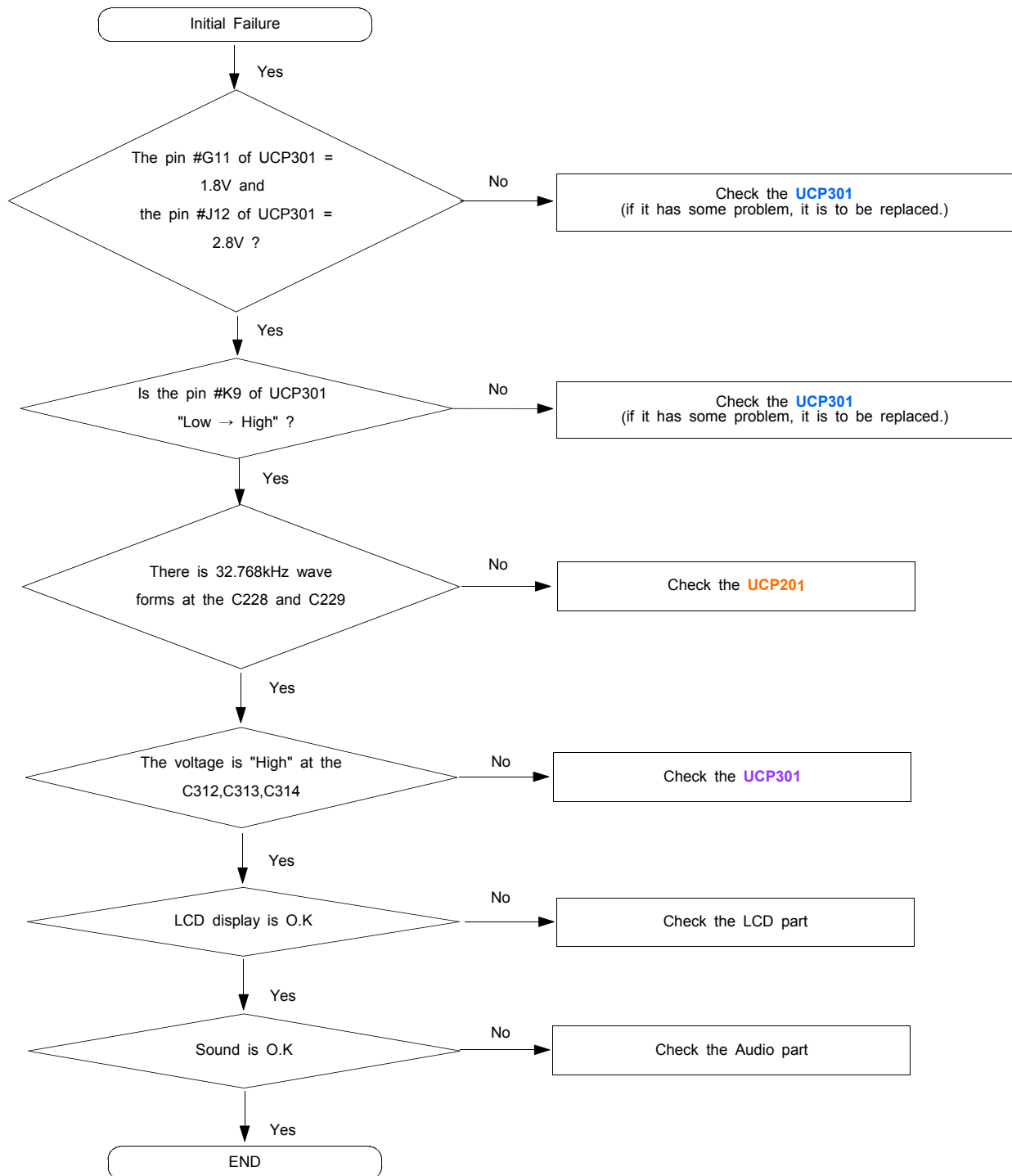


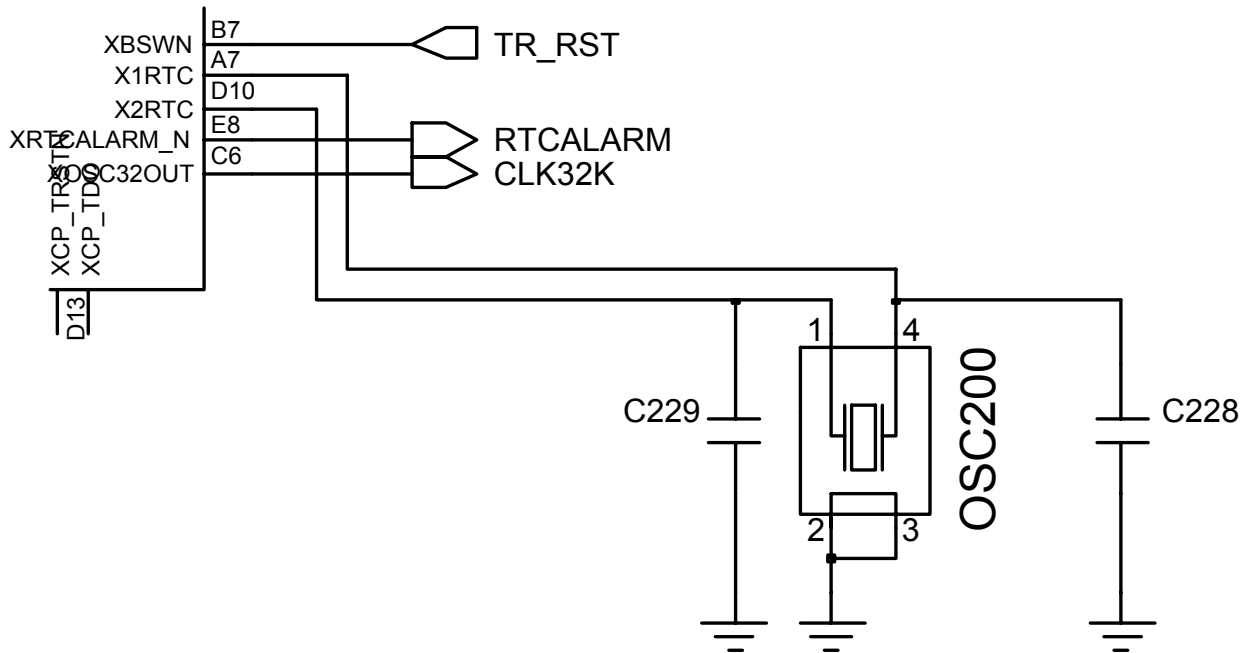
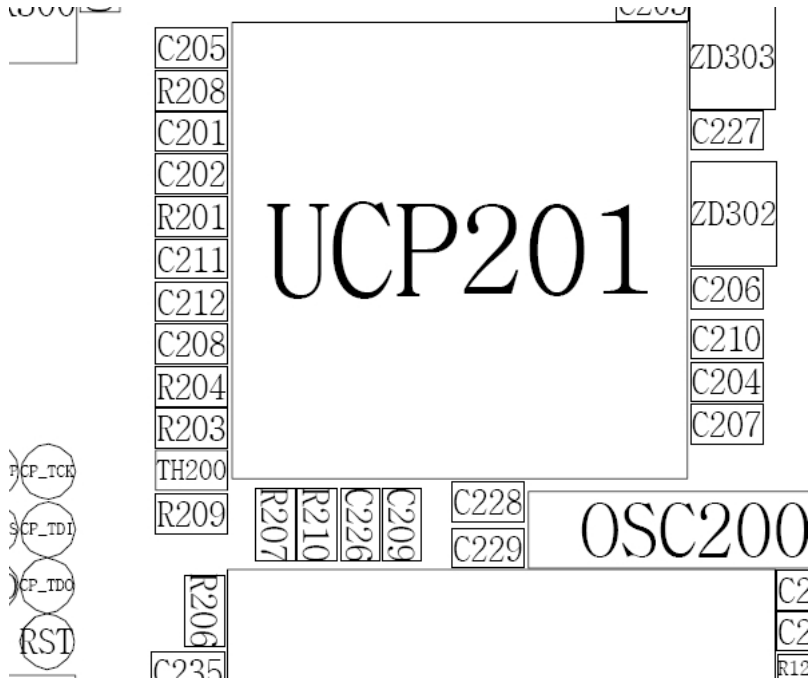




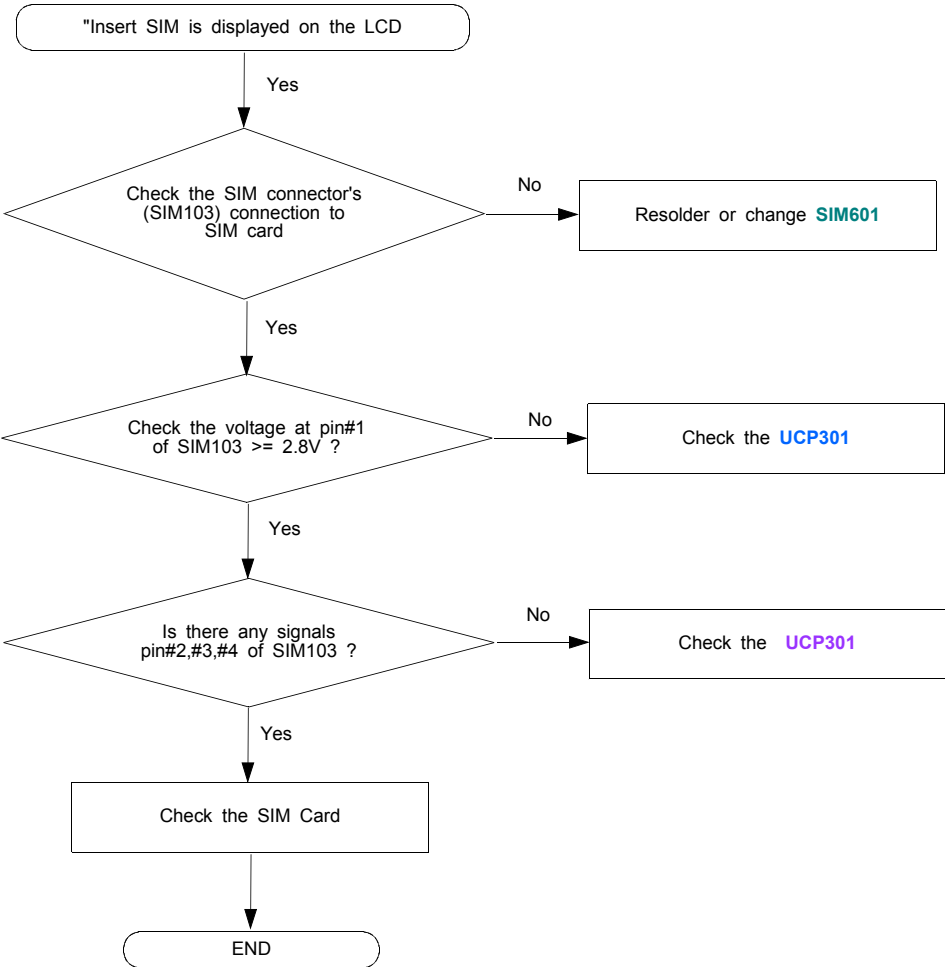


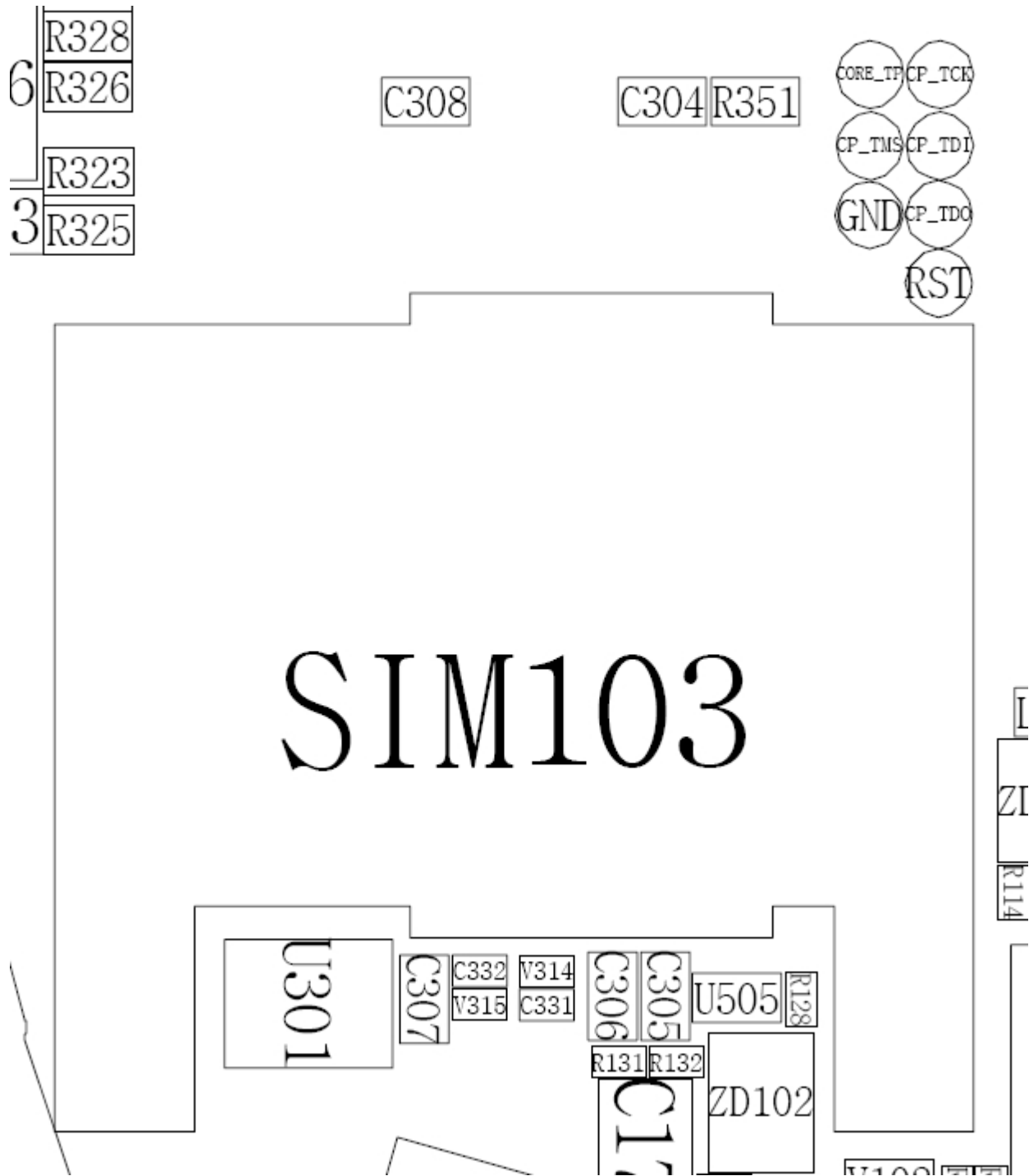
### 3-1-2. Initial

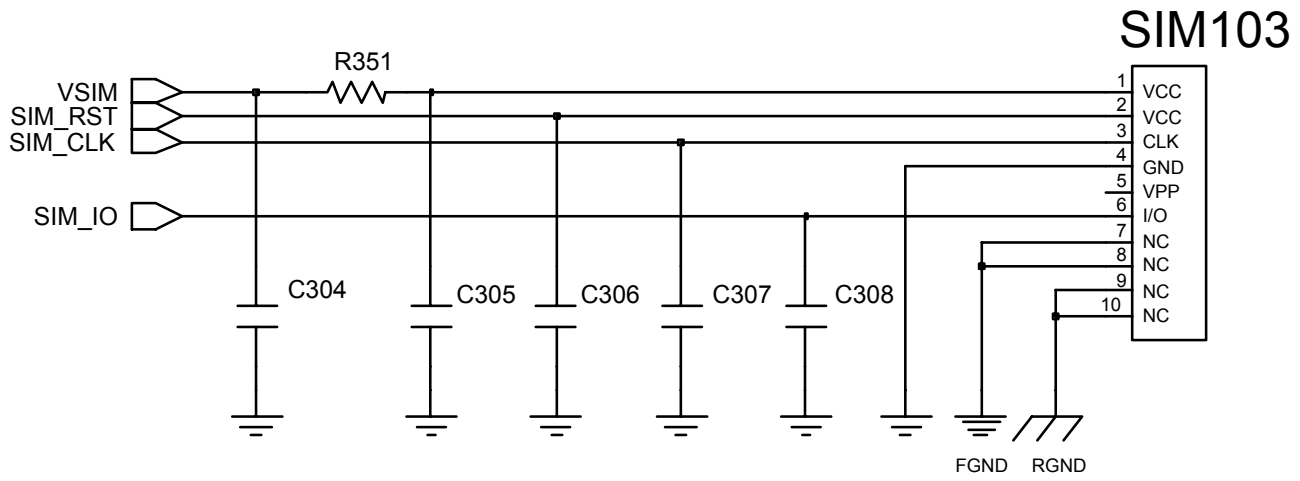




3-1-3. Sim Part

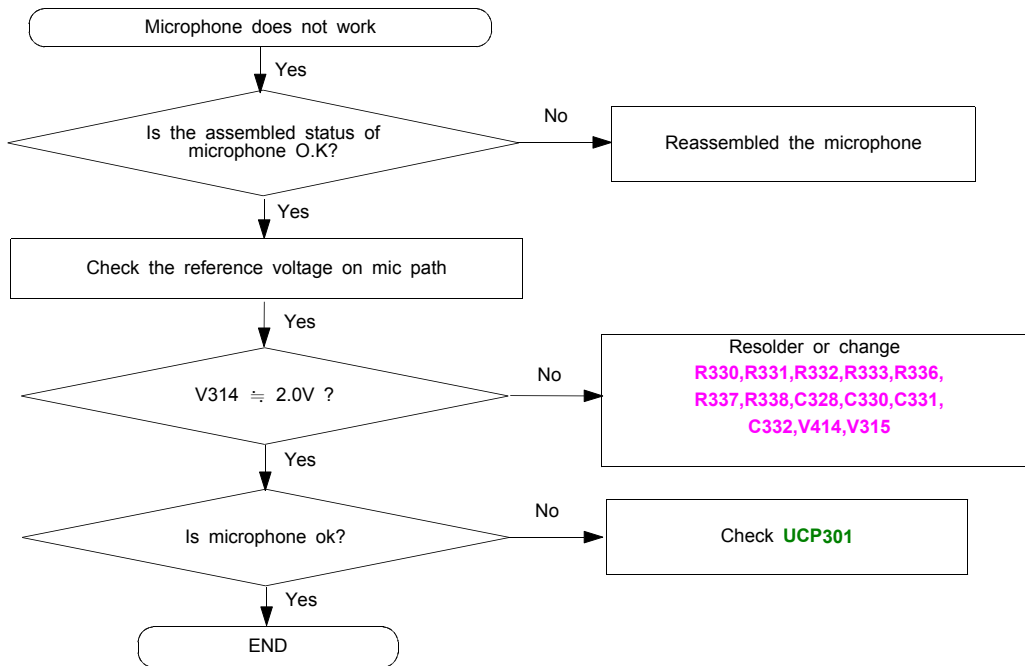


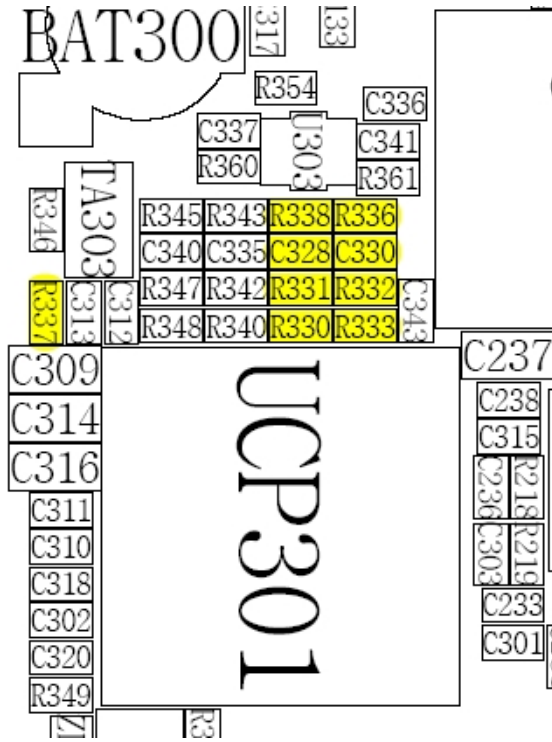




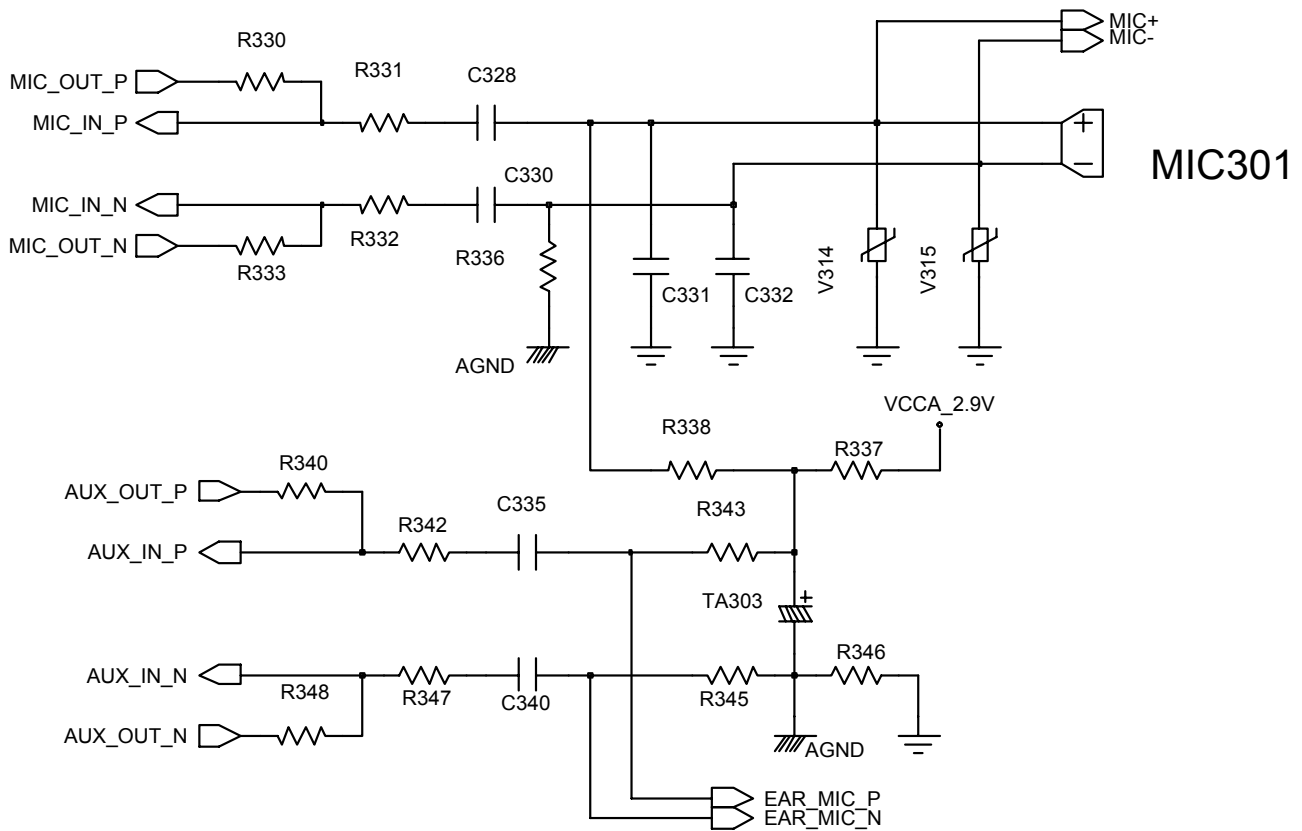
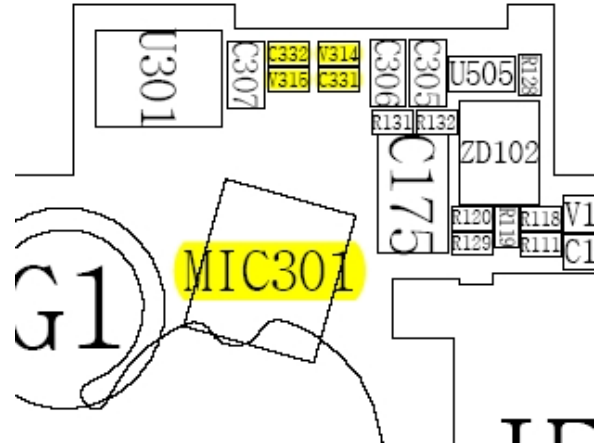


### 3-1-4. Microphone Part

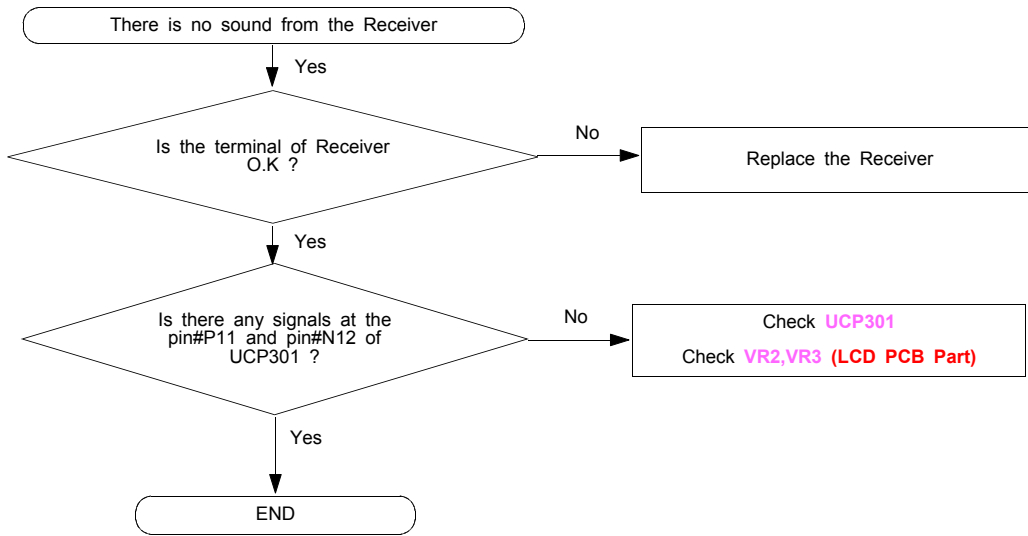




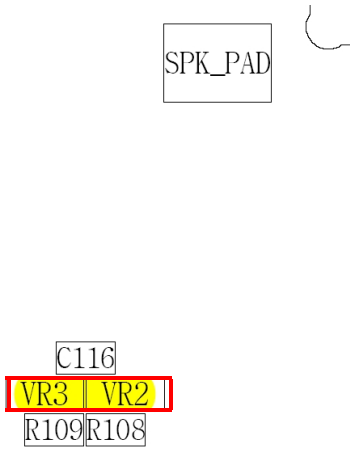
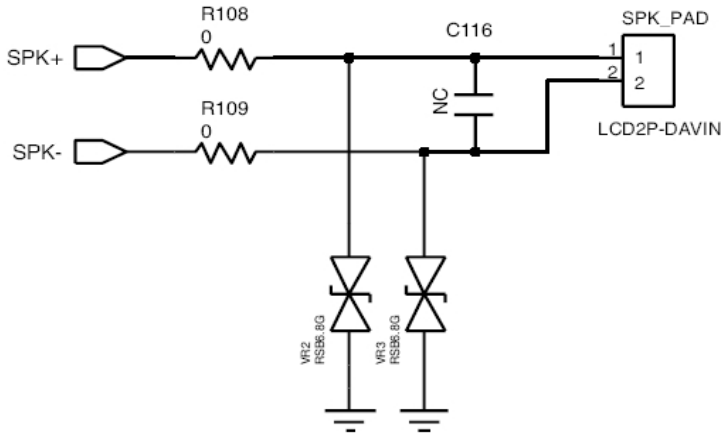
# SIM103



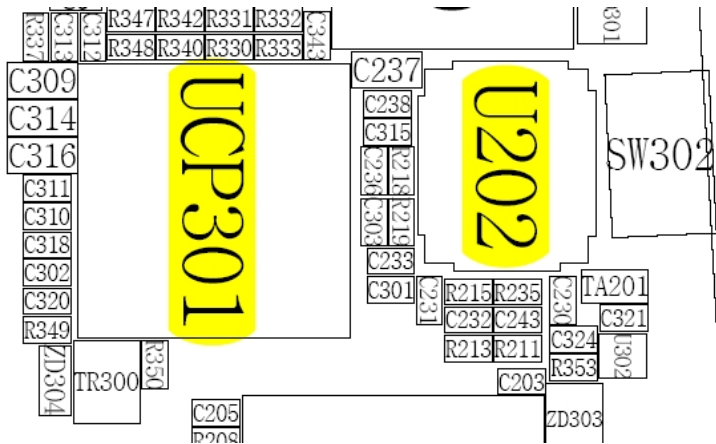
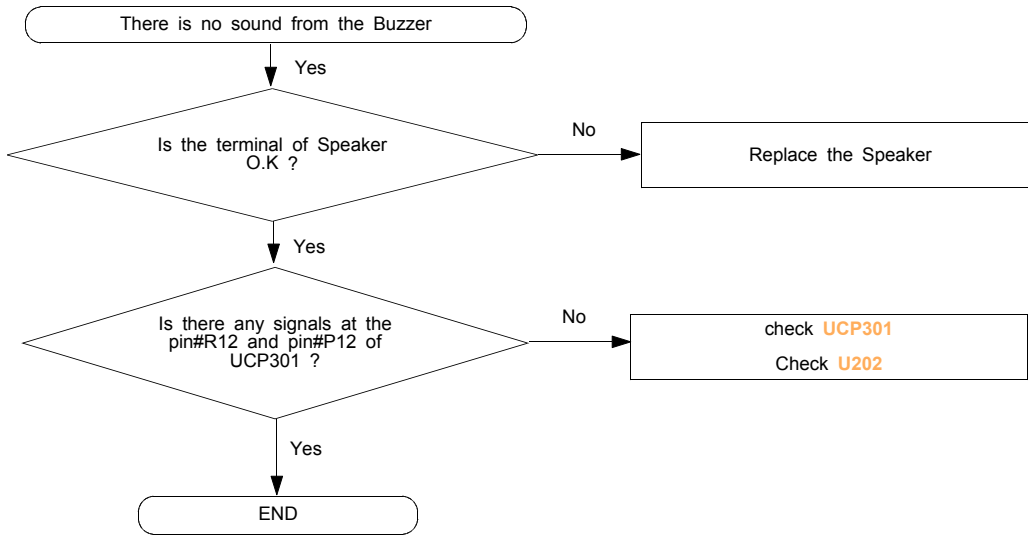
### 3-1-5. Receiver Part

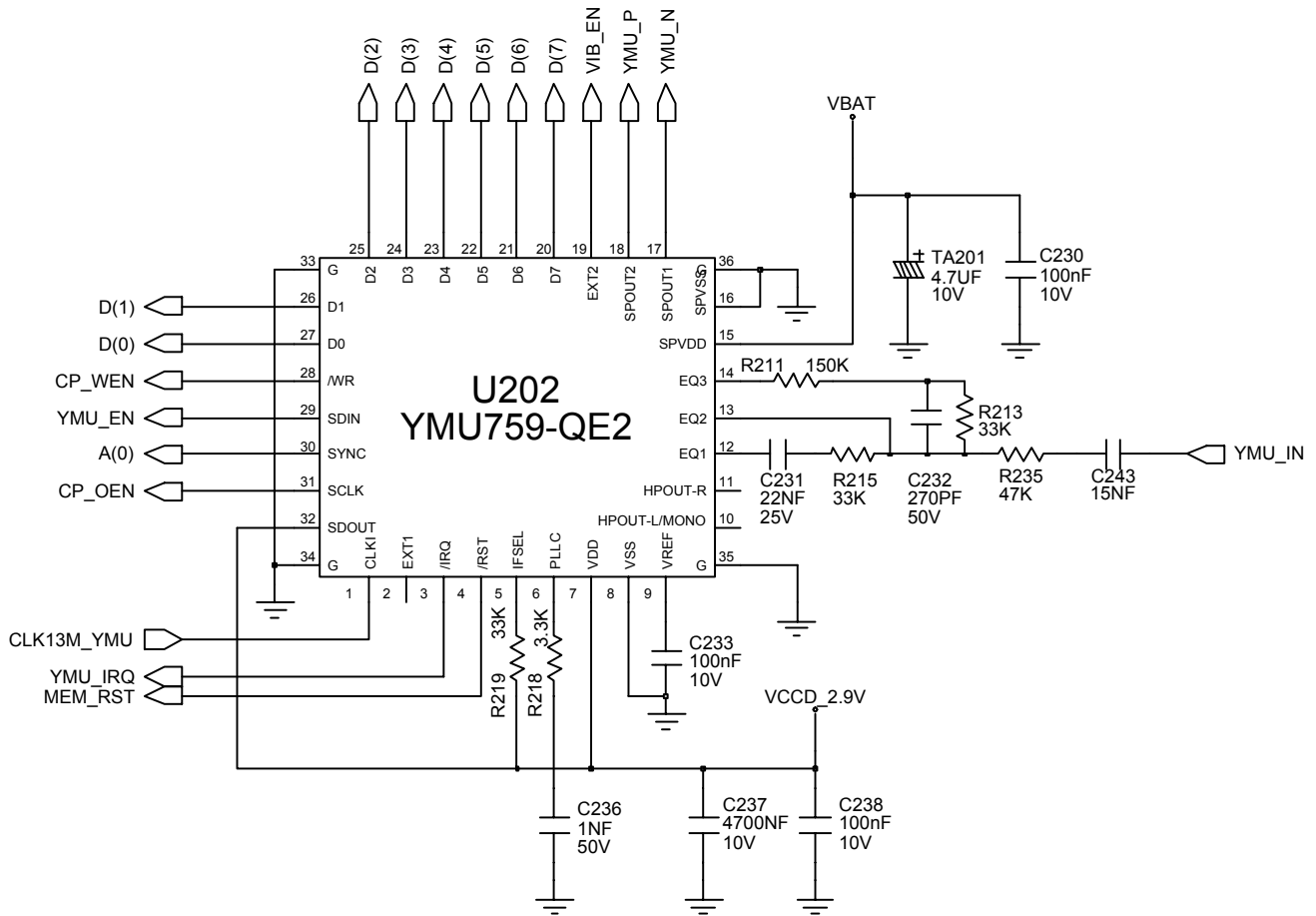


#### < LCD PCB Part >

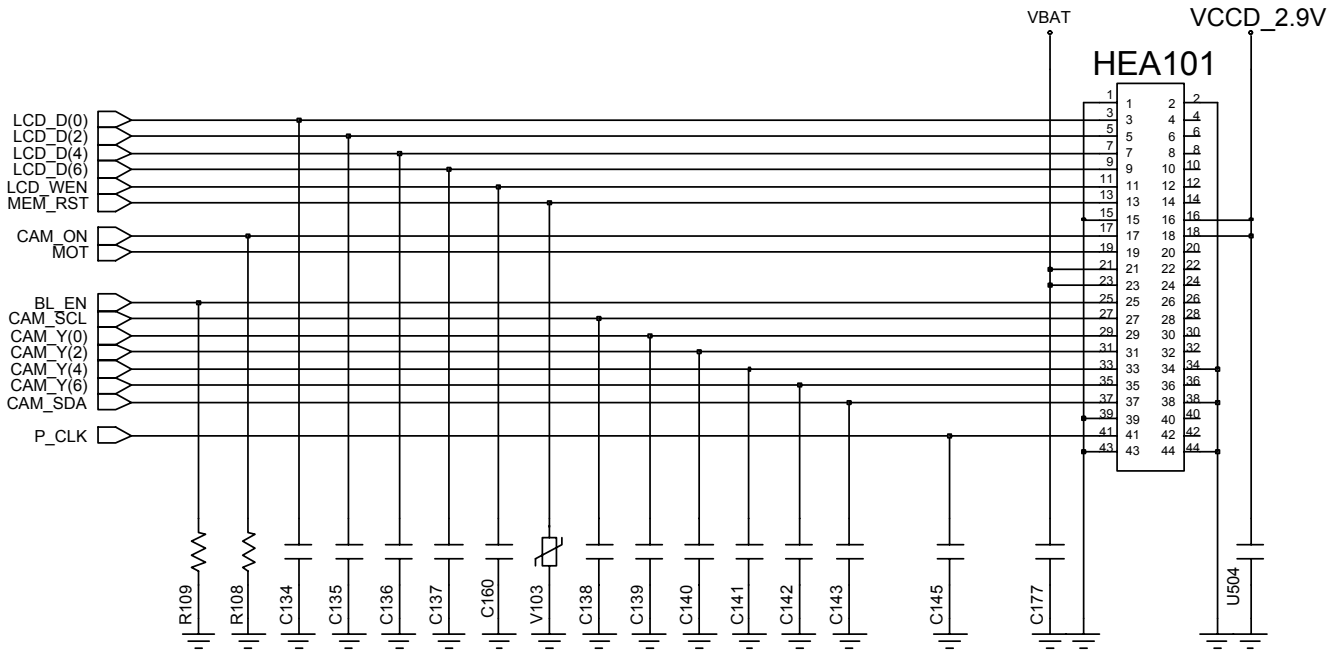
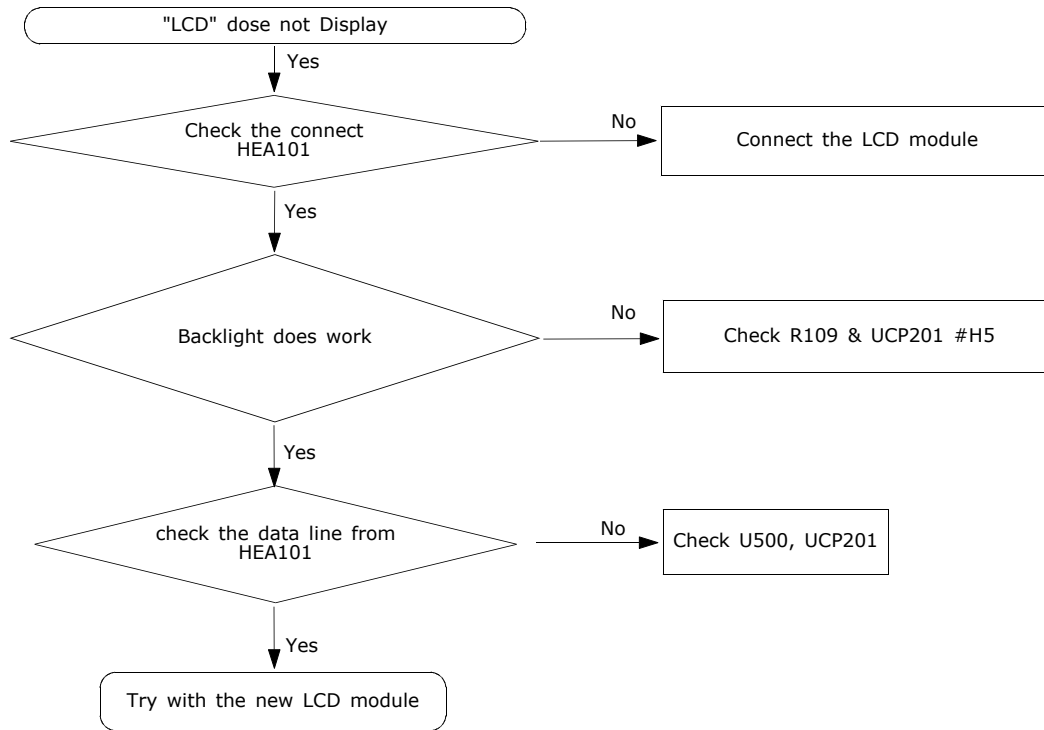


### 3-1-6. Speaker Part

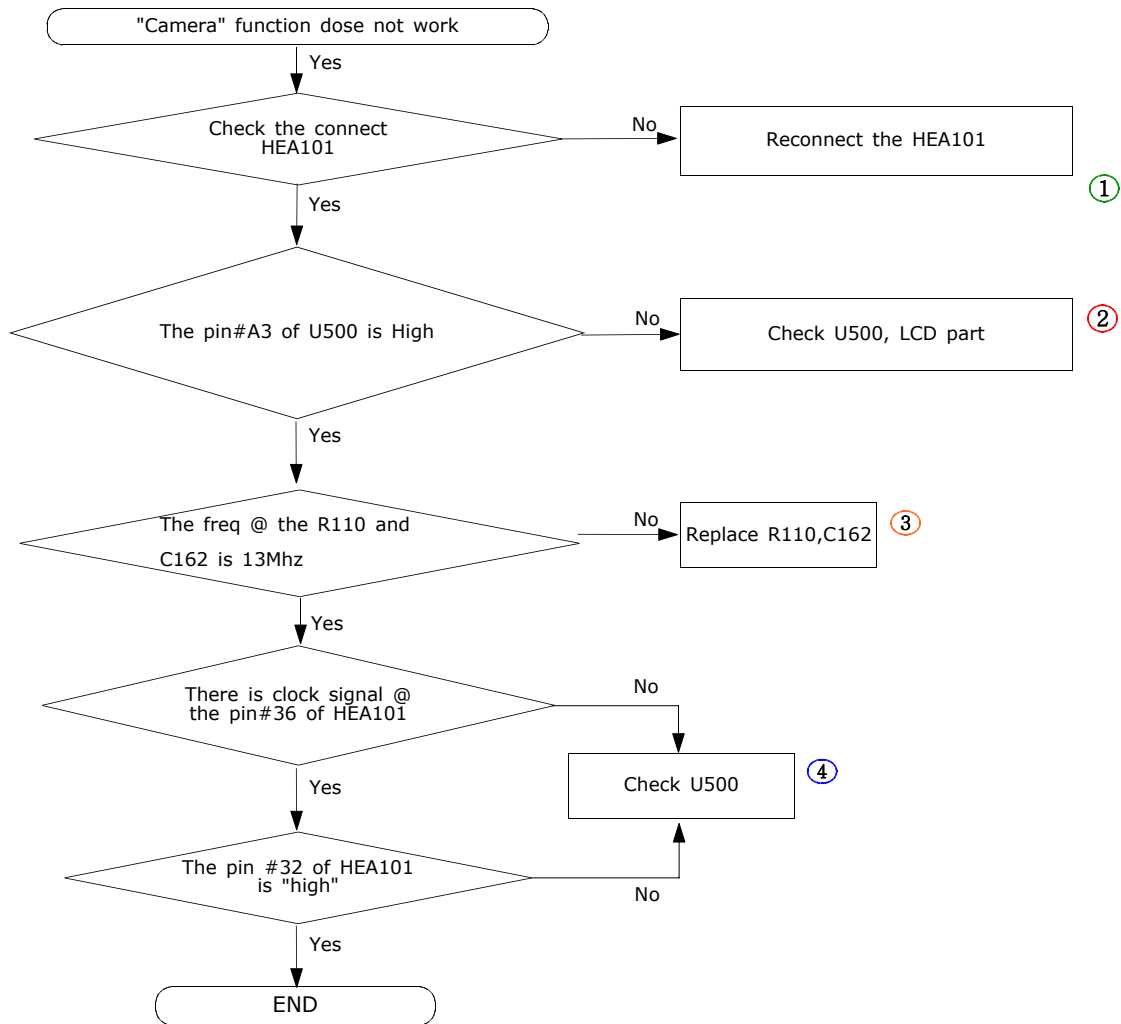




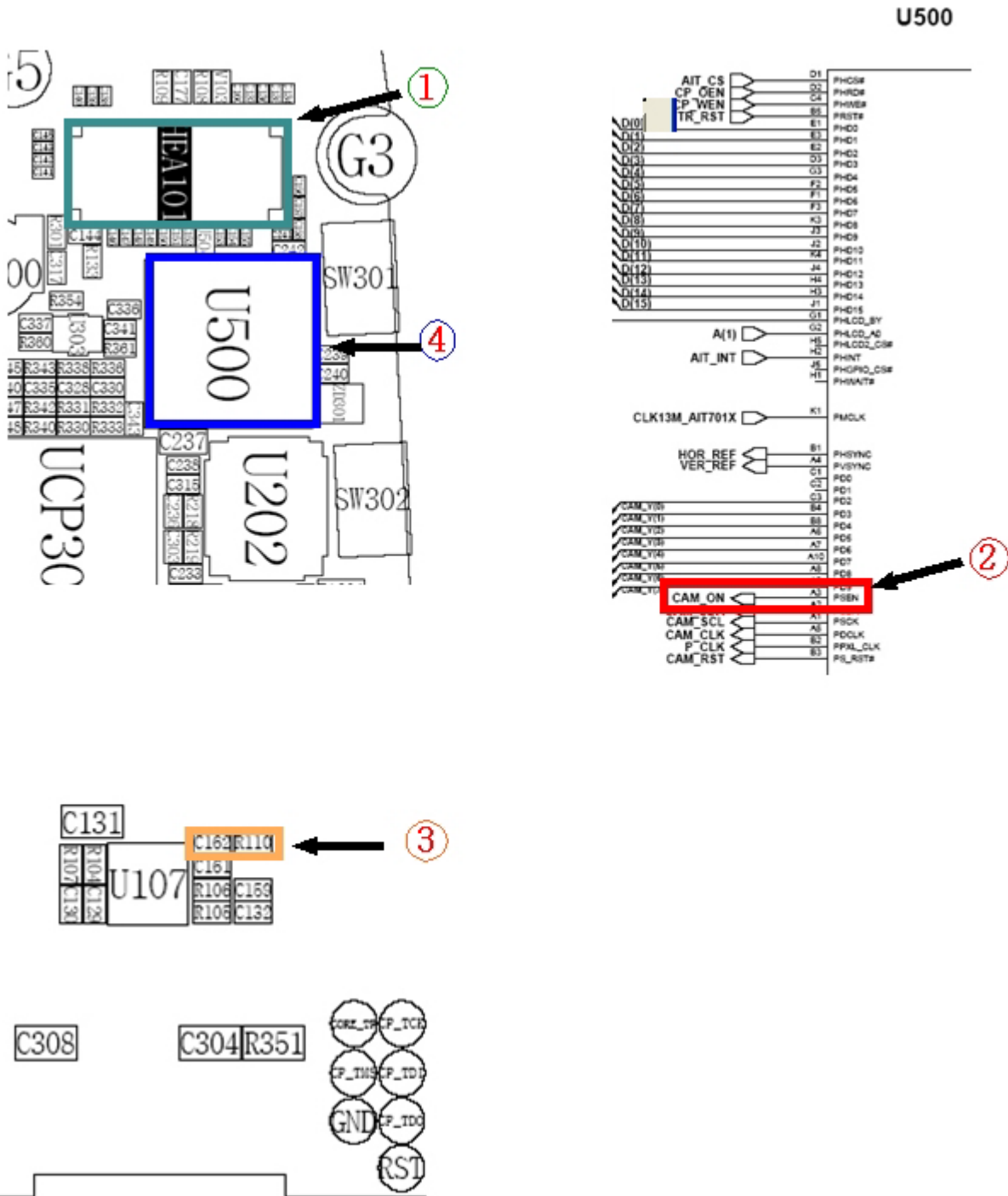
### 3-1-7. LCD





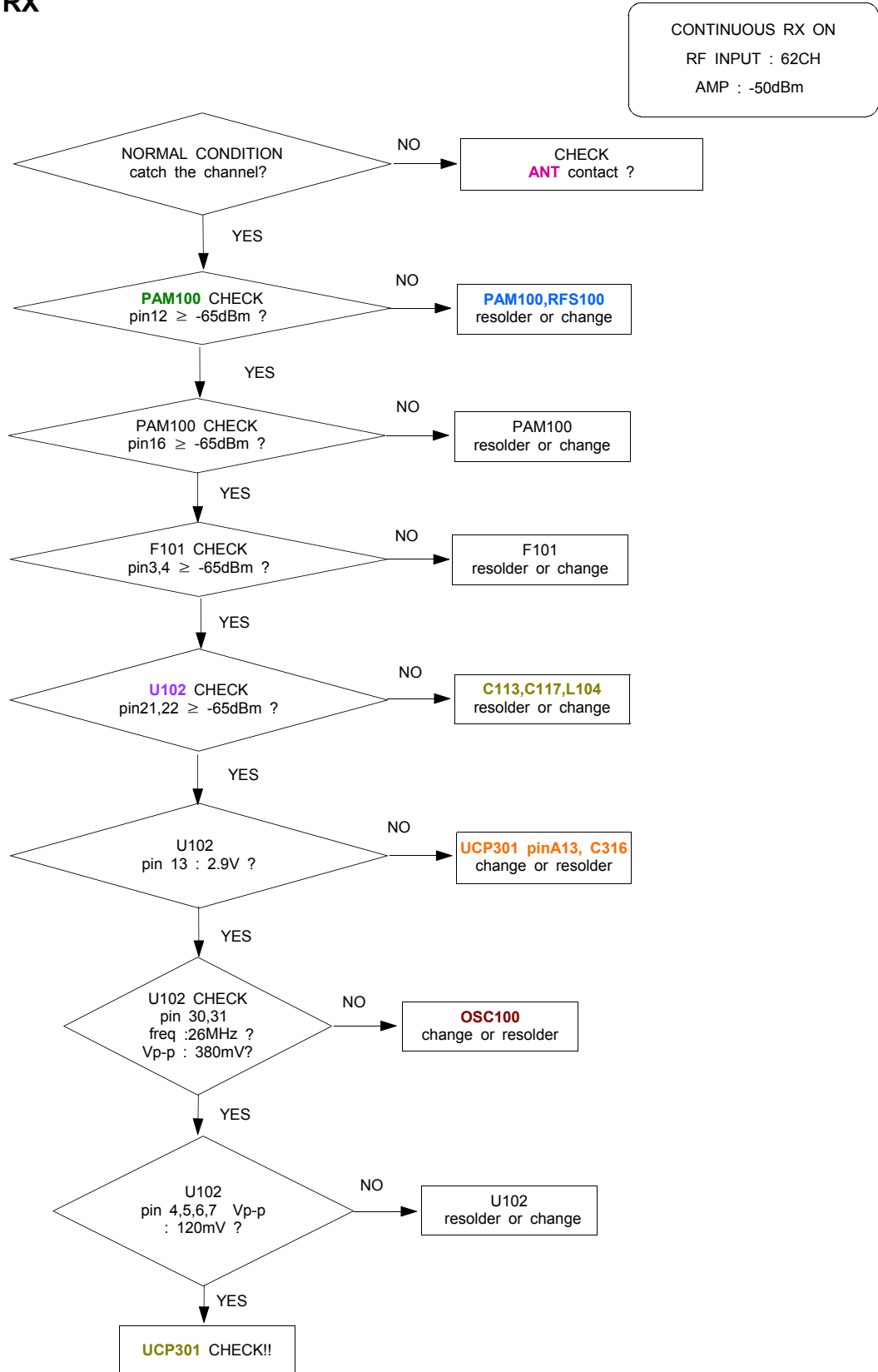
**3-1-8. Camera**





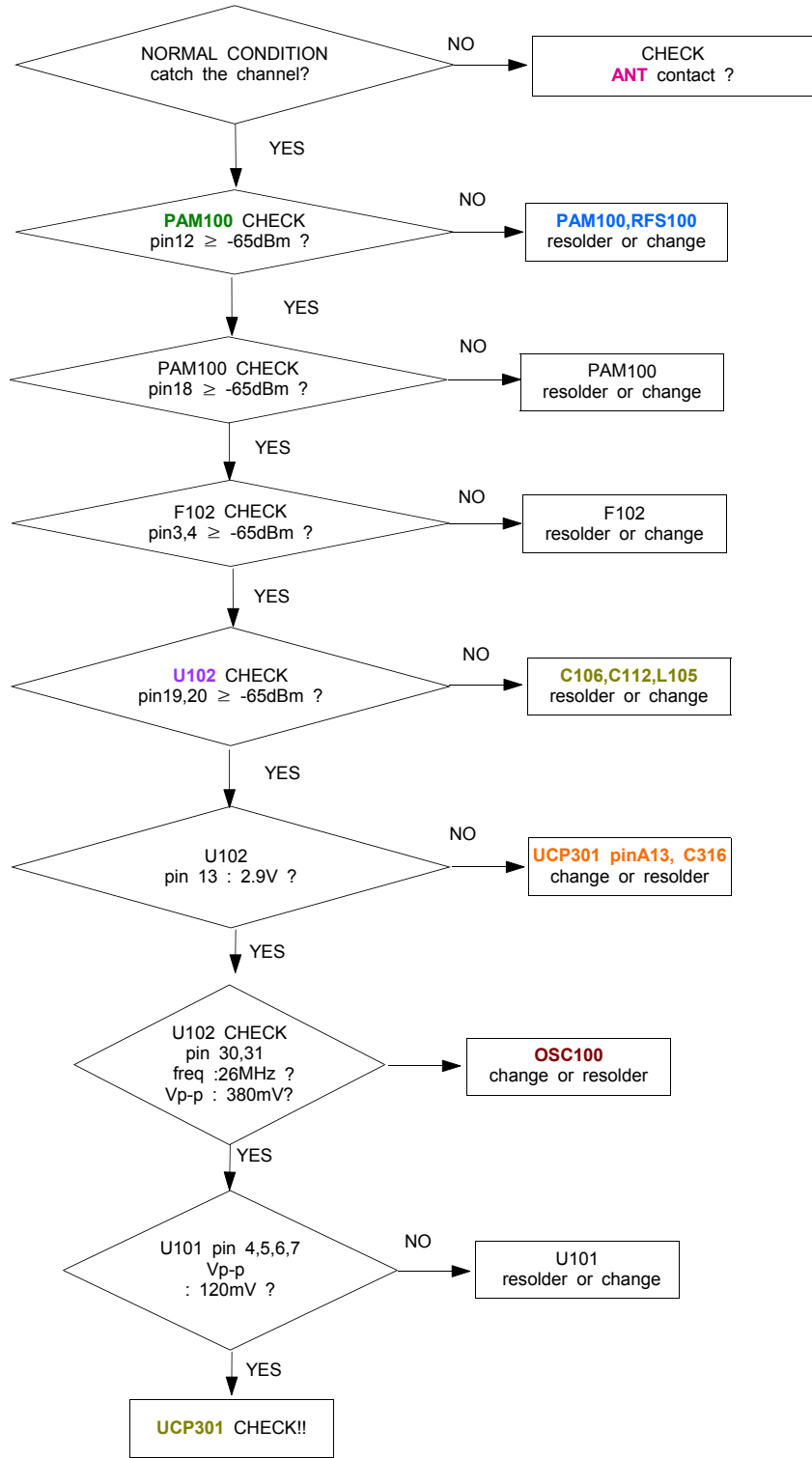
### 3-2.RF

#### 3-2-1. EGSM RX

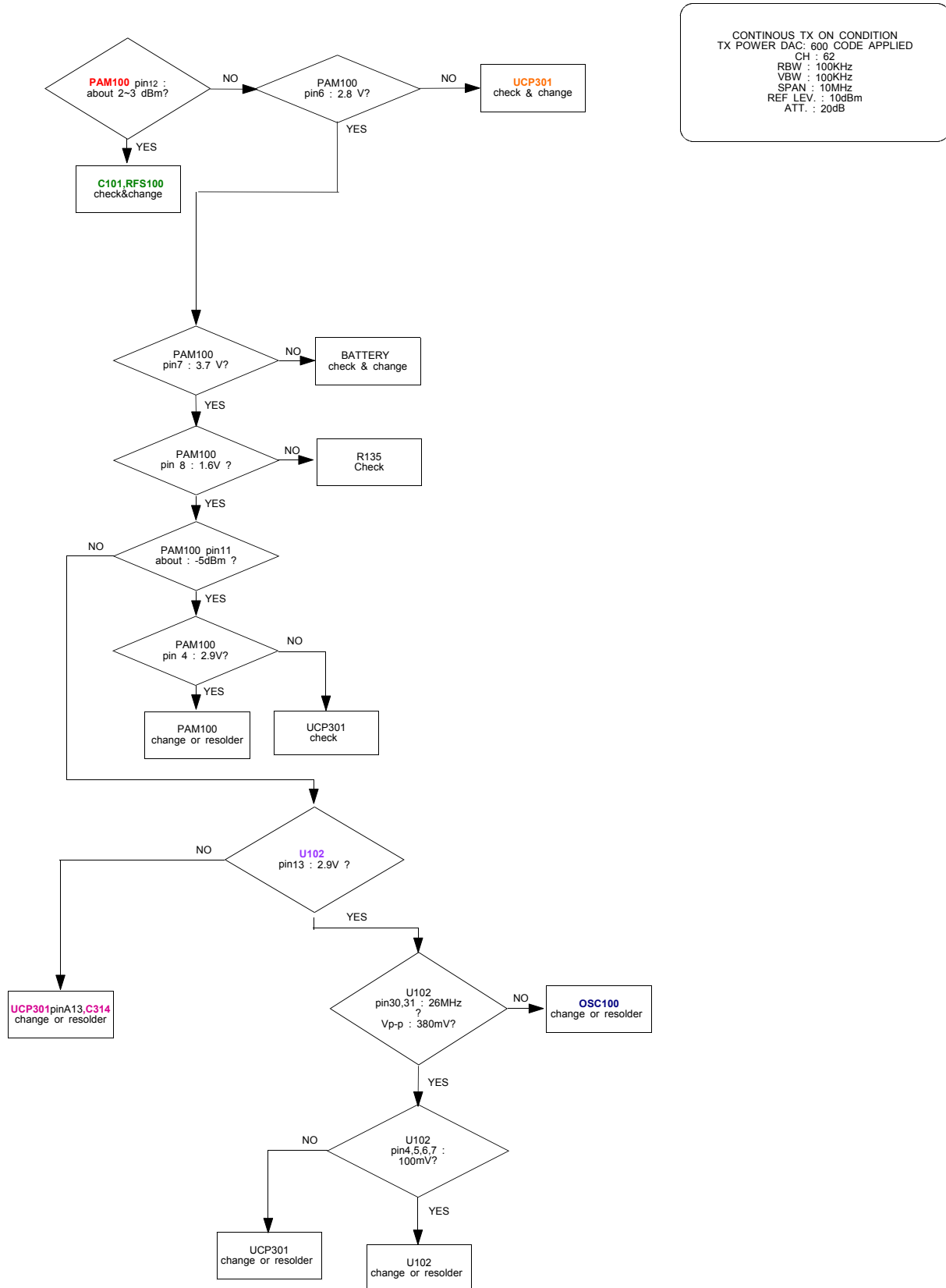


3-2-2. DCS RX

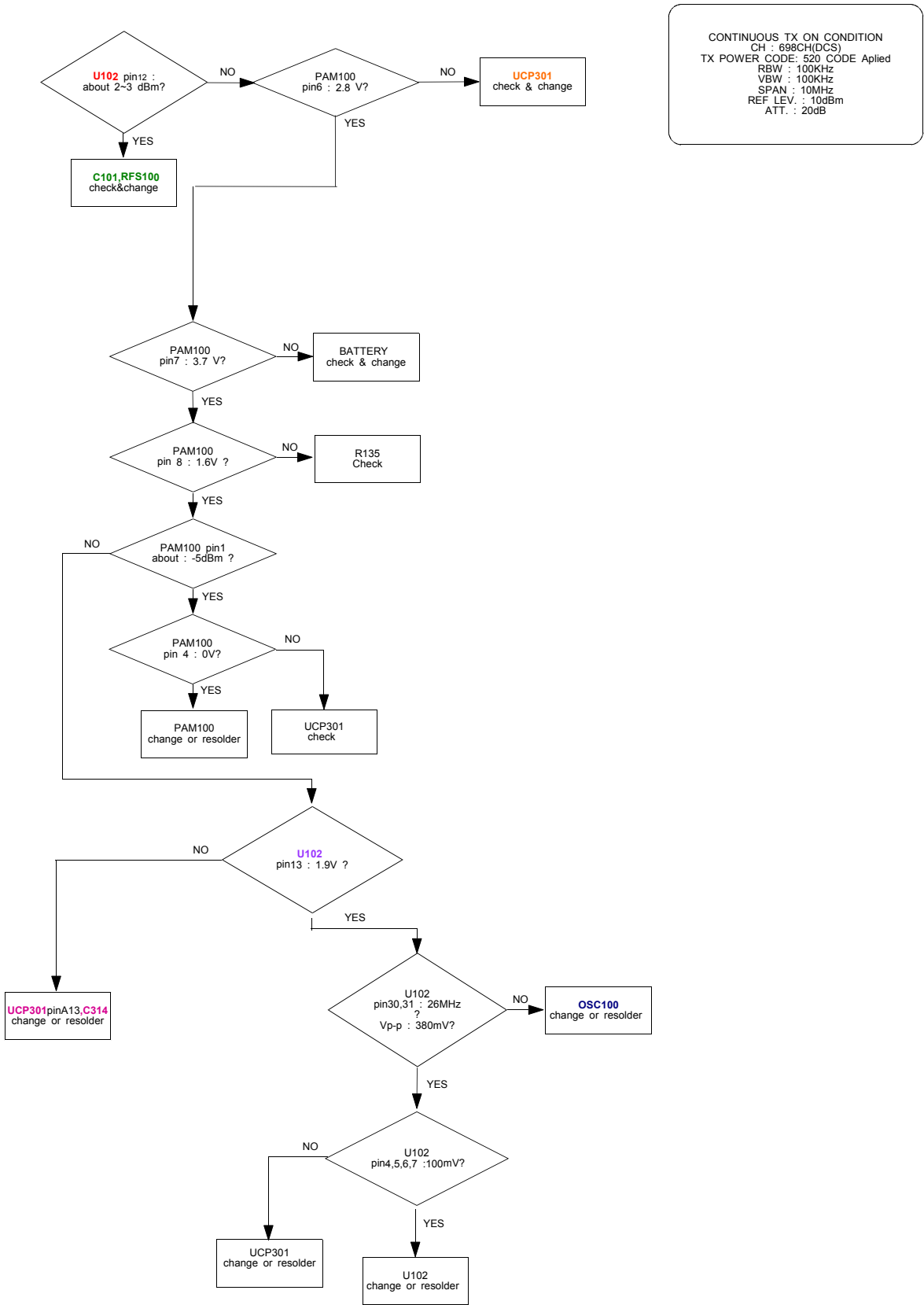
CONTINUOUS RX ON  
RF INPUT : 698CH  
AMP : -50dBm



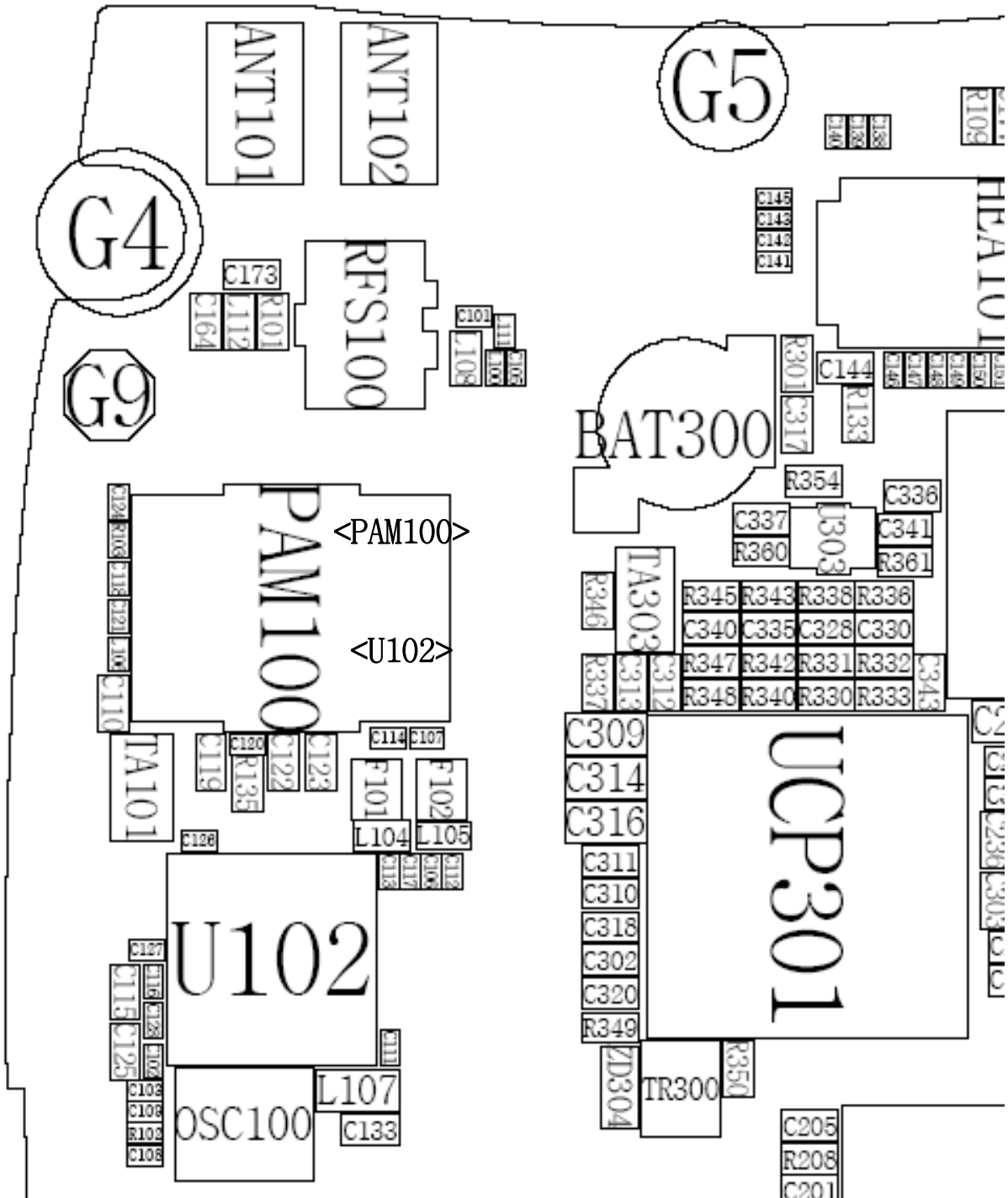
3-2-3. EGSM TX



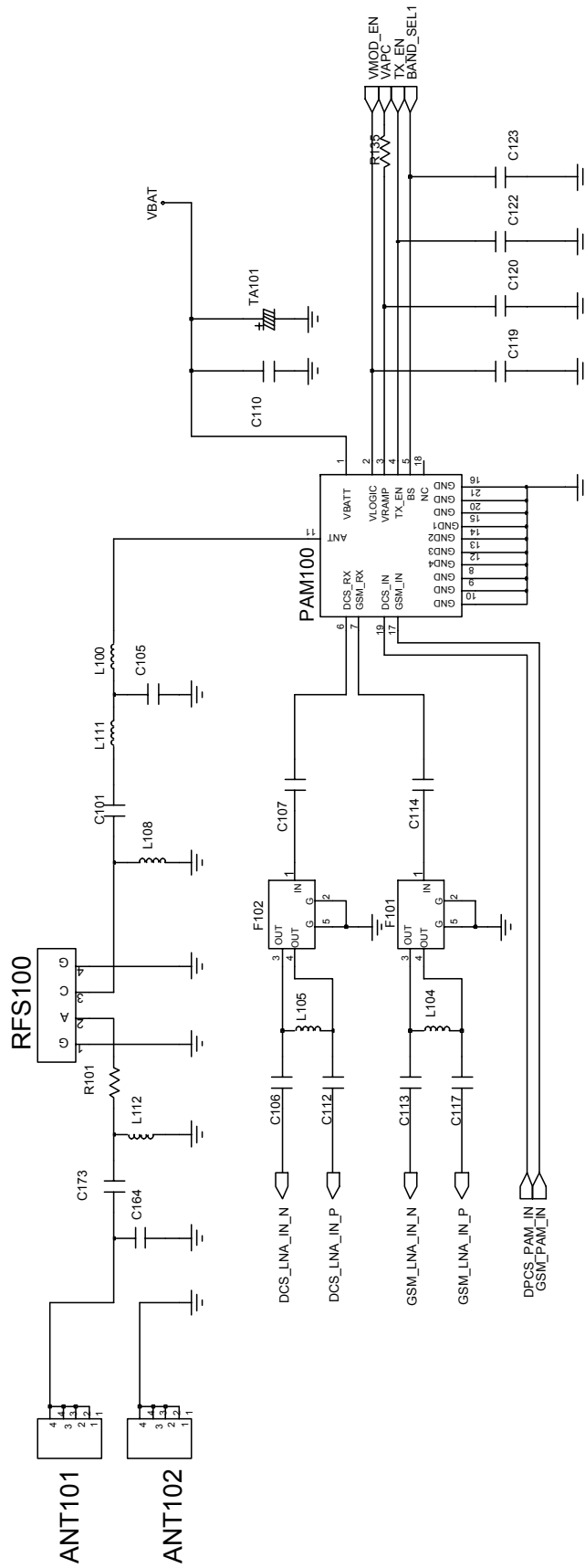
### 3-2-4. DCS TX



CONTINUOUS TX ON CONDITION  
 CH : 698CH(DCS)  
 TX POWER CODE: 520 CODE Applied  
 RBW : 100KHz  
 VBW : 100KHz  
 SPAN : 10MHz  
 REF LEV. : 10dBm  
 ATT. : 20dB









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## 4. Array course control

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**Test Jig (GH80-00865A)**



**Test Cable (GH39-00501A)**



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

## Software Downloading

### 4-1. Downloading Binary Files

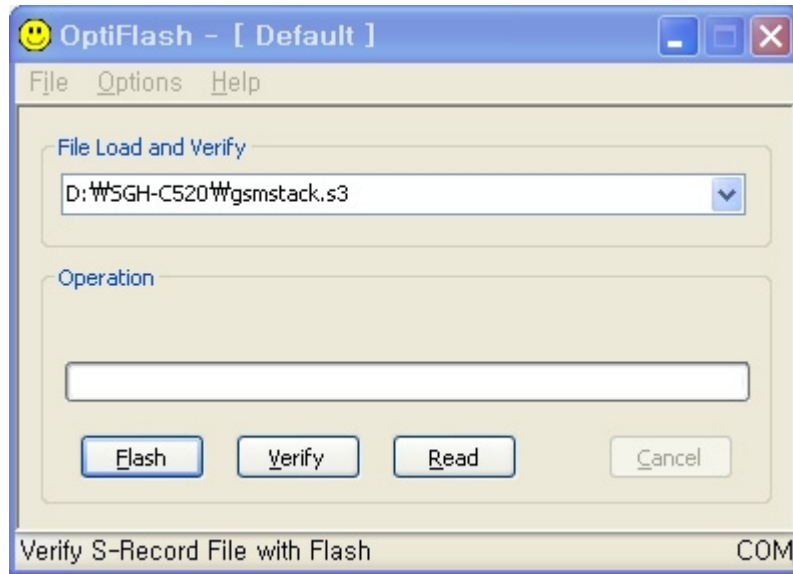
- Three binary files for downloading C520
  - C520XXYYY.s3 : Main source code binary

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

- Downloader Program([OptiFlash.exe](#))
- C520 Mobile Phone
- Data Cable
- Binary files

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

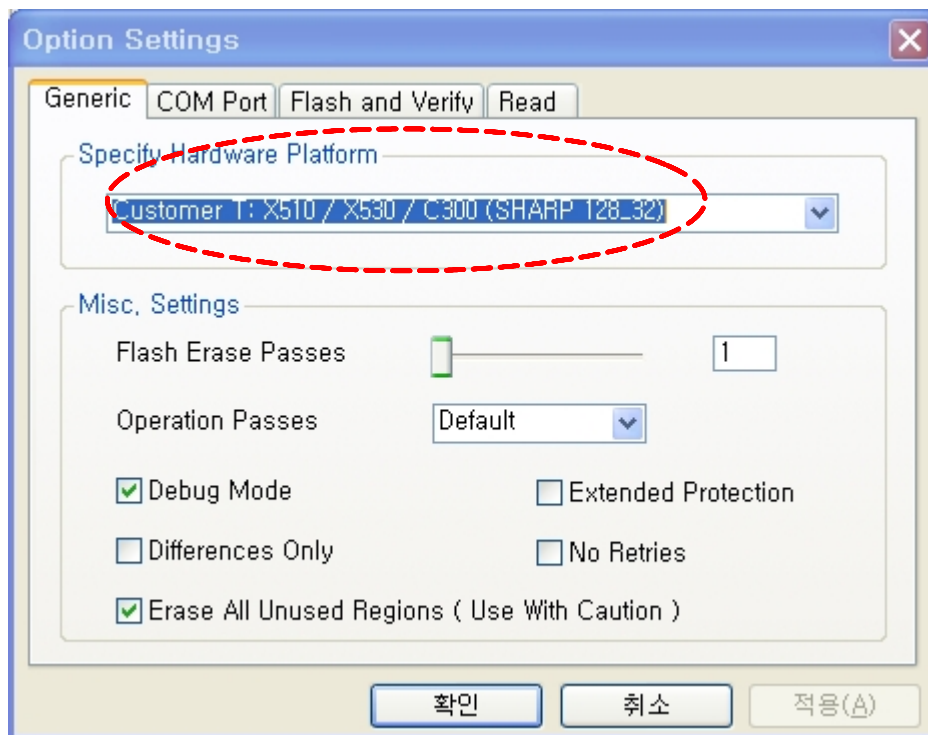
1. Load the binary download program by executing the "**Optiflash.exe**"



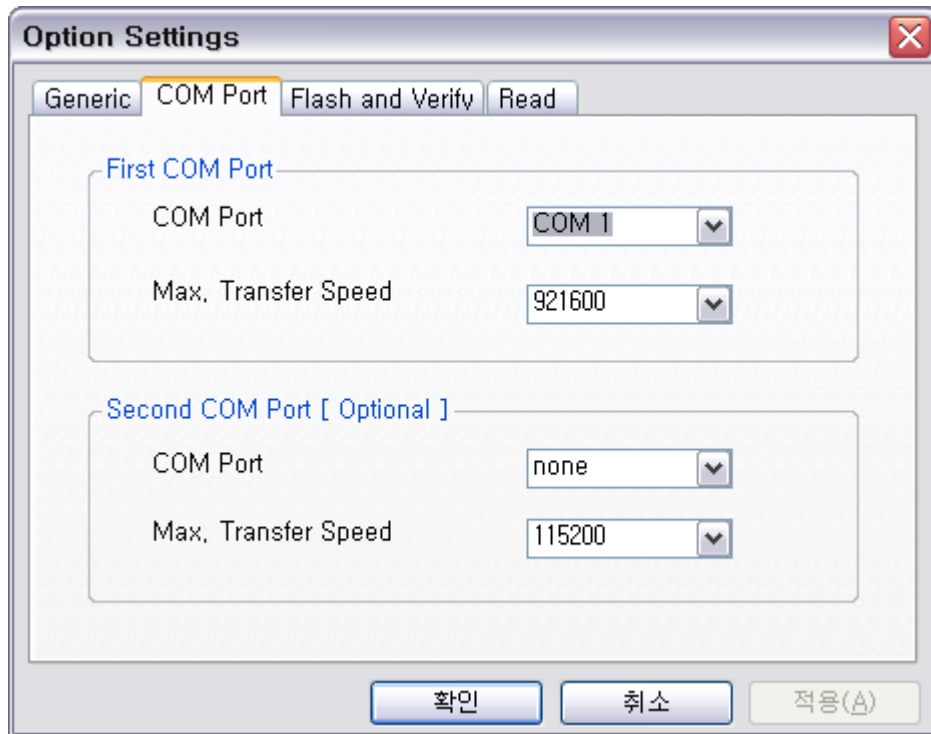
2. Select the "**Options**" → "**Settings**" → "**Generic**" → "**Specify hardware platform**".

Choose hardware platform for the downloader file setting.

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



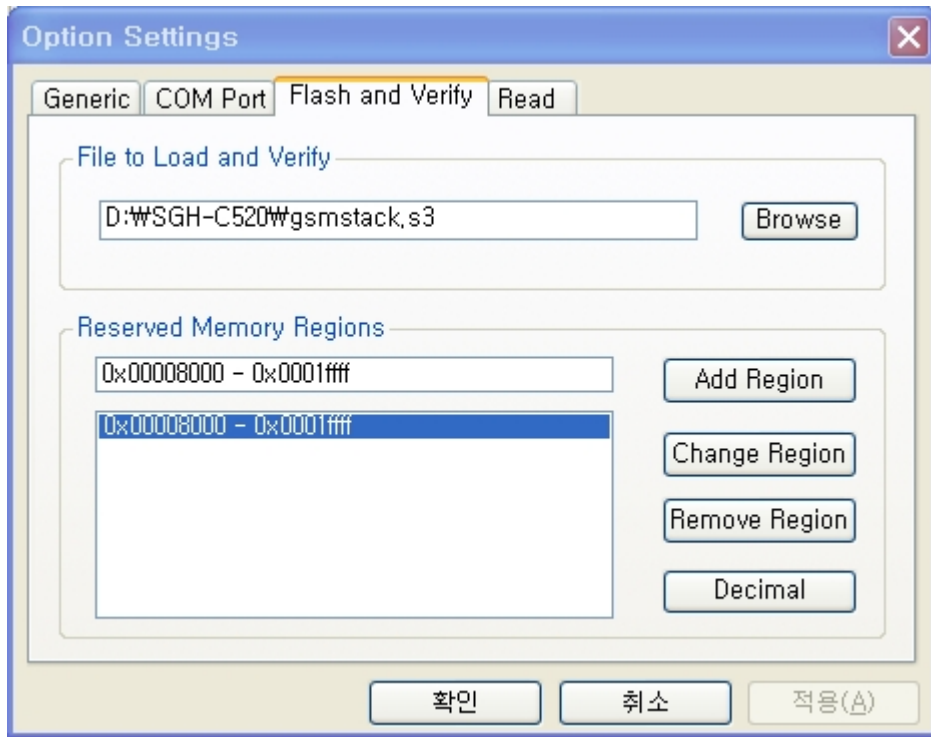
3. Select the **COM port** when the download cable is connected



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 lastet s/w binary, for example "C520XXYYY.s3", for the downloader binary setting.



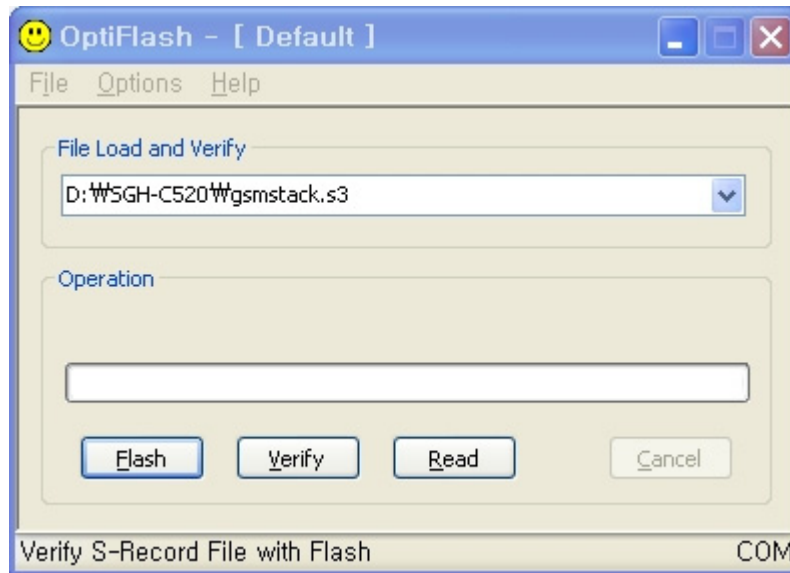
**Make sure that not to change the reserved memory regions.**

**In case of C520 the reserved regions are :**

**- 0x00008000 - 0x0001ffff**

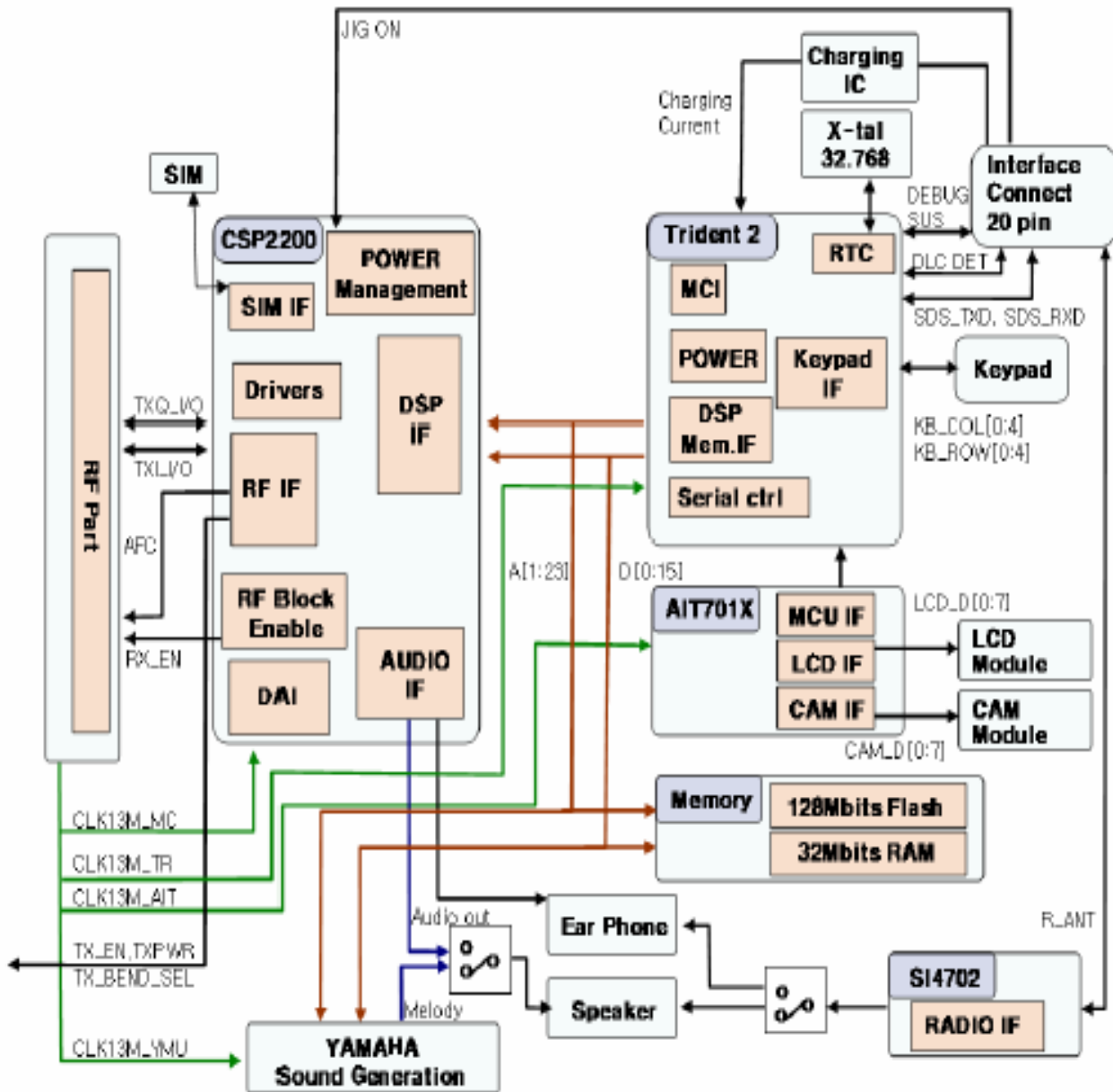
5. Click "**OK**" button then press "**Flash**".  
(Before pressing 'Flash' button, push the button **'END'** at the same time. Then press 'Flash'.)

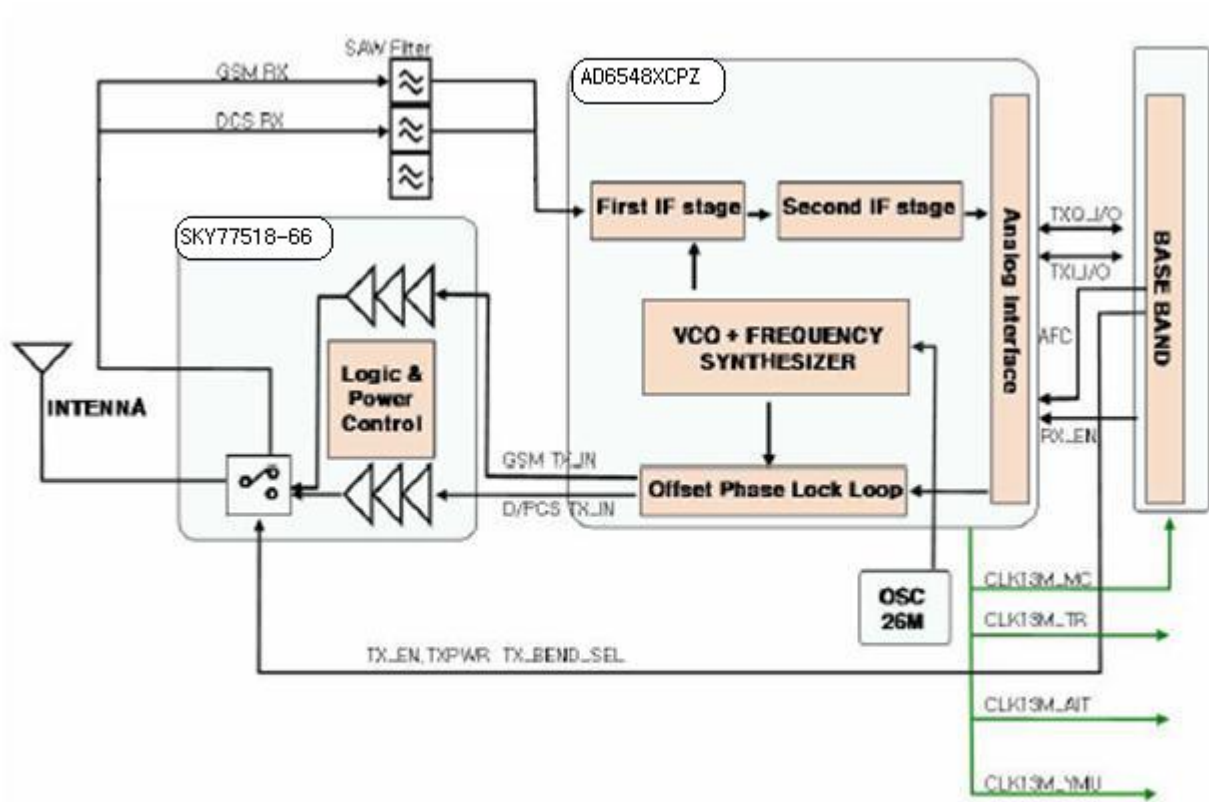
Downloader will upload the binary file as below for the downloading.



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. :  
**\*#1234#**  
Full Reset :  
**\*2767\*3855#**

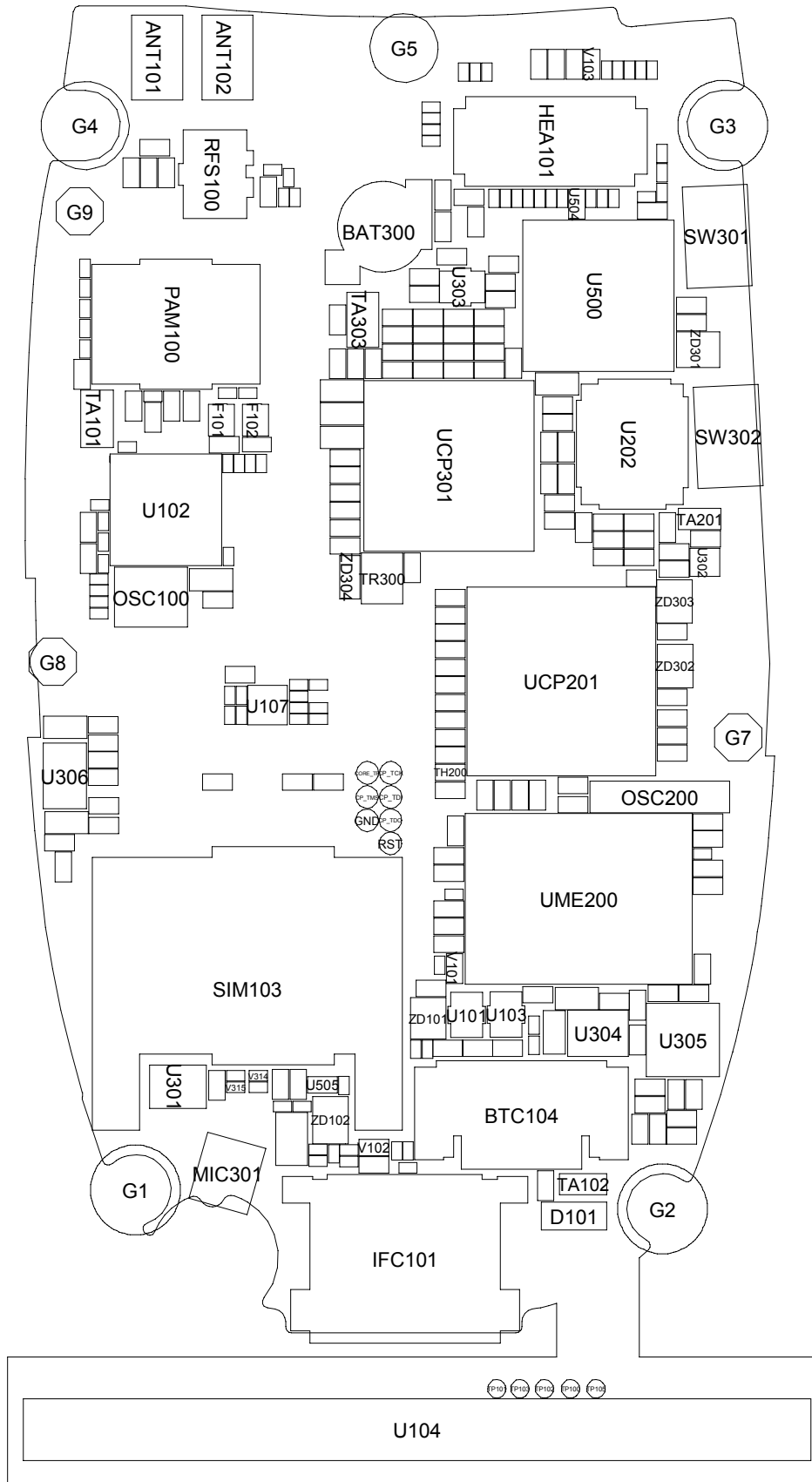
## 5. Block Diagrams

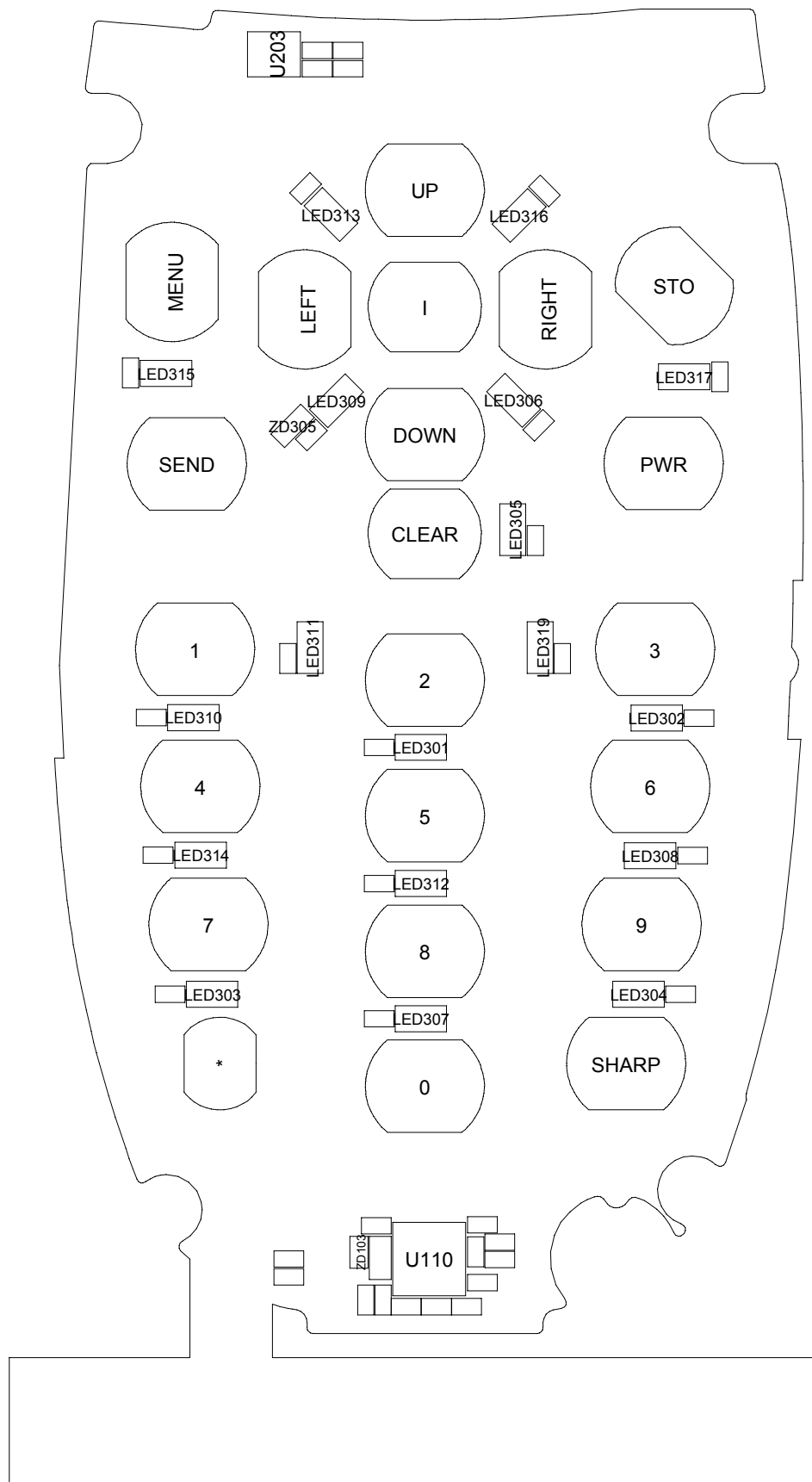






# 6. PCB Diagrams





## 7. MAIN Electrical Parts List

| SEC CODE    | Design LOC | Discription        | STATUS |
|-------------|------------|--------------------|--------|
| 0403-001547 | D101       | DIODE-ZENER        | SA     |
| 0406-001167 | ZD302      | DIODE-TVS          | SA     |
| 0406-001167 | ZD303      | DIODE-TVS          | SA     |
| 0406-001201 | ZD304      | DIODE-TVS          | SA     |
| 0406-001201 | ZD305      | DIODE-TVS          | SA     |
| 0406-001208 | ZD102      | DIODE-TVS          | SA     |
| 0406-001219 | ZD101      | DIODE-TVS          | SA     |
| 0406-001260 | ZD301      | DIODE-TVS          | SA     |
| 0406-001267 | ZD103      | DIODE-TVS          | SA     |
| 0504-000168 | TR300      | TR-DIGITAL         | SA     |
| 0601-001819 | LED301     | LED                | SA     |
| 0601-001819 | LED302     | LED                | SA     |
| 0601-001819 | LED303     | LED                | SA     |
| 0601-001819 | LED304     | LED                | SA     |
| 0601-001819 | LED305     | LED                | SA     |
| 0601-001819 | LED306     | LED                | SA     |
| 0601-001819 | LED307     | LED                | SA     |
| 0601-001819 | LED308     | LED                | SA     |
| 0601-001819 | LED309     | LED                | SA     |
| 0601-001819 | LED310     | LED                | SA     |
| 0601-001819 | LED311     | LED                | SA     |
| 0601-001819 | LED312     | LED                | SA     |
| 0601-001819 | LED313     | LED                | SA     |
| 0601-001819 | LED314     | LED                | SA     |
| 0601-001819 | LED315     | LED                | SA     |
| 0601-001819 | LED316     | LED                | SA     |
| 0601-001819 | LED317     | LED                | SA     |
| 0601-001819 | LED319     | LED                | SA     |
| 0801-002529 | U301       | IC-CMOS LOGIC      | SA     |
| 0801-003013 | U107       | IC-CMOS LOGIC      | SA     |
| 1001-001394 | U302       | IC-ANALOG SWITCH   | SA     |
| 1001-001453 | U101       | IC-ANALOG SWITCH   | SA     |
| 1001-001453 | U103       | IC-ANALOG SWITCH   | SA     |
| 1001-001453 | U303       | IC-ANALOG SWITCH   | SA     |
| 1001-001459 | U304       | IC-ANALOG SWITCH   | SA     |
| 1009-001020 | U203       | IC-HALL EFFECT S/W | SA     |
| 1108-000010 | UME200     | IC-MCP             | SA     |

Main Electrical Parts List

| SEC CODE    | Design LOC | Discription         | STATUS |
|-------------|------------|---------------------|--------|
| 1201-002180 | U305       | IC-AUDIO AMP        | SA     |
| 1201-002490 | PAM100     | IC-POWER AMP        | SA     |
| 1203-003304 | UCP301     | IC-POWER SUPERVISOR | SA     |
| 1203-003663 | U306       | IC-BATTERY          | SA     |
| 1204-001811 | U202       | IC-MELODY           | SA     |
| 1204-002700 | U110       | IC-TUNER            | SA     |
| 1205-003098 | U102       | IC-TRANSCEIVER      | SA     |
| 1404-001221 | TH200      | THERMISTOR-NTC      | SA     |
| 1405-001082 | U505       | VARISTOR            | SA     |
| 1405-001082 | V101       | VARISTOR            | SA     |
| 1405-001082 | V102       | VARISTOR            | SA     |
| 1405-001082 | V103       | VARISTOR            | SA     |
| 1405-001177 | V314       | VARISTOR            | SA     |
| 1405-001177 | V315       | VARISTOR            | SA     |
| 2007-000138 | R349       | R-CHIP              | SA     |
| 2007-000140 | R139       | R-CHIP              | SA     |
| 2007-000143 | R233       | R-CHIP              | SA     |
| 2007-000143 | R234       | R-CHIP              | SA     |
| 2007-000144 | R301       | R-CHIP              | SA     |
| 2007-000148 | R135       | R-CHIP              | SA     |
| 2007-000148 | R358       | R-CHIP              | SA     |
| 2007-000148 | R359       | R-CHIP              | SA     |
| 2007-000157 | R108       | R-CHIP              | SA     |
| 2007-000157 | R206       | R-CHIP              | SA     |
| 2007-000157 | R209       | R-CHIP              | SA     |
| 2007-000157 | R235       | R-CHIP              | SA     |
| 2007-000157 | R328       | R-CHIP              | SA     |
| 2007-000157 | R353       | R-CHIP              | SA     |
| 2007-000157 | R354       | R-CHIP              | SA     |
| 2007-000157 | R355       | R-CHIP              | SA     |
| 2007-000157 | R362       | R-CHIP              | SA     |
| 2007-000159 | R323       | R-CHIP              | SA     |
| 2007-000161 | R330       | R-CHIP              | SA     |
| 2007-000161 | R333       | R-CHIP              | SA     |
| 2007-000161 | R340       | R-CHIP              | SA     |
| 2007-000161 | R348       | R-CHIP              | SA     |
| 2007-000162 | R121       | R-CHIP              | SA     |

| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 2007-000162 | R123       | R-CHIP      | SA     |
| 2007-000162 | R202       | R-CHIP      | SA     |
| 2007-000162 | R208       | R-CHIP      | SA     |
| 2007-000162 | R324       | R-CHIP      | SA     |
| 2007-000162 | R326       | R-CHIP      | SA     |
| 2007-000164 | R211       | R-CHIP      | SA     |
| 2007-000171 | R101       | R-CHIP      | SA     |
| 2007-000171 | R122       | R-CHIP      | SA     |
| 2007-000171 | R138       | R-CHIP      | SA     |
| 2007-000171 | R214       | R-CHIP      | SA     |
| 2007-000171 | R346       | R-CHIP      | SA     |
| 2007-000171 | R350       | R-CHIP      | SA     |
| 2007-000171 | R352       | R-CHIP      | SA     |
| 2007-000171 | R363       | R-CHIP      | SA     |
| 2007-000172 | R216       | R-CHIP      | SA     |
| 2007-000172 | R217       | R-CHIP      | SA     |
| 2007-000173 | R360       | R-CHIP      | SA     |
| 2007-000173 | R361       | R-CHIP      | SA     |
| 2007-000775 | R213       | R-CHIP      | SA     |
| 2007-000775 | R215       | R-CHIP      | SA     |
| 2007-000775 | R219       | R-CHIP      | SA     |
| 2007-000831 | R356       | R-CHIP      | SA     |
| 2007-000831 | R357       | R-CHIP      | SA     |
| 2007-001119 | R337       | R-CHIP      | SA     |
| 2007-001244 | R325       | R-CHIP      | SA     |
| 2007-001284 | R201       | R-CHIP      | SA     |
| 2007-001284 | R351       | R-CHIP      | SA     |
| 2007-001292 | R302       | R-CHIP      | SA     |
| 2007-001292 | R303       | R-CHIP      | SA     |
| 2007-001292 | R306       | R-CHIP      | SA     |
| 2007-001292 | R307       | R-CHIP      | SA     |
| 2007-001292 | R309       | R-CHIP      | SA     |
| 2007-001292 | R310       | R-CHIP      | SA     |
| 2007-001292 | R311       | R-CHIP      | SA     |
| 2007-001292 | R312       | R-CHIP      | SA     |
| 2007-001292 | R313       | R-CHIP      | SA     |
| 2007-001292 | R315       | R-CHIP      | SA     |

Main Electrical Parts List

| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 2007-001292 | R316       | R-CHIP      | SA     |
| 2007-001292 | R317       | R-CHIP      | SA     |
| 2007-001292 | R318       | R-CHIP      | SA     |
| 2007-001292 | R319       | R-CHIP      | SA     |
| 2007-001292 | R320       | R-CHIP      | SA     |
| 2007-001325 | R218       | R-CHIP      | SA     |
| 2007-007138 | R327       | R-CHIP      | SA     |
| 2007-007142 | R331       | R-CHIP      | SA     |
| 2007-007142 | R332       | R-CHIP      | SA     |
| 2007-007142 | R342       | R-CHIP      | SA     |
| 2007-007142 | R347       | R-CHIP      | SA     |
| 2007-007197 | R304       | R-CHIP      | SA     |
| 2007-007197 | R305       | R-CHIP      | SA     |
| 2007-007197 | R308       | R-CHIP      | SA     |
| 2007-007317 | R336       | R-CHIP      | SA     |
| 2007-007317 | R345       | R-CHIP      | SA     |
| 2007-007528 | R338       | R-CHIP      | SA     |
| 2007-007528 | R343       | R-CHIP      | SA     |
| 2007-007573 | R207       | R-CHIP      | SA     |
| 2007-007573 | R210       | R-CHIP      | SA     |
| 2007-007590 | R204       | R-CHIP      | SA     |
| 2007-007741 | R102       | R-CHIP      | SA     |
| 2007-007981 | R203       | R-CHIP      | SA     |
| 2007-008043 | R103       | R-CHIP      | SA     |
| 2007-008045 | R115       | R-CHIP      | SA     |
| 2007-008048 | R106       | R-CHIP      | SA     |
| 2007-008055 | R127       | R-CHIP      | SA     |
| 2007-008055 | R129       | R-CHIP      | SA     |
| 2007-008055 | R130       | R-CHIP      | SA     |
| 2007-008419 | R117       | R-CHIP      | SA     |
| 2007-008419 | R118       | R-CHIP      | SA     |
| 2007-008419 | R119       | R-CHIP      | SA     |
| 2007-008419 | R120       | R-CHIP      | SA     |
| 2007-008419 | R128       | R-CHIP      | SA     |
| 2007-008419 | R131       | R-CHIP      | SA     |
| 2007-008419 | R132       | R-CHIP      | SA     |
| 2007-008419 | R134       | R-CHIP      | SA     |

| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 2007-008483 | R111       | R-CHIP      | SA     |
| 2007-008542 | R110       | R-CHIP      | SA     |
| 2007-008587 | R105       | R-CHIP      | SA     |
| 2007-008788 | R114       | R-CHIP      | SA     |
| 2007-008788 | R116       | R-CHIP      | SA     |
| 2007-009084 | R104       | R-CHIP      | SA     |
| 2007-009084 | R107       | R-CHIP      | SA     |
| 2007-009160 | R329       | R-CHIP      | SA     |
| 2007-009170 | R112       | R-CHIP      | SA     |
| 2203-000233 | C163       | C-CER,CHIP  | SA     |
| 2203-000233 | C178       | C-CER,CHIP  | SA     |
| 2203-000233 | C227       | C-CER,CHIP  | SA     |
| 2203-000233 | C317       | C-CER,CHIP  | SA     |
| 2203-000254 | C201       | C-CER,CHIP  | SA     |
| 2203-000254 | C202       | C-CER,CHIP  | SA     |
| 2203-000254 | C203       | C-CER,CHIP  | SA     |
| 2203-000254 | C205       | C-CER,CHIP  | SA     |
| 2203-000254 | C212       | C-CER,CHIP  | SA     |
| 2203-000254 | C234       | C-CER,CHIP  | SA     |
| 2203-000254 | C235       | C-CER,CHIP  | SA     |
| 2203-000254 | C302       | C-CER,CHIP  | SA     |
| 2203-000254 | C303       | C-CER,CHIP  | SA     |
| 2203-000386 | C173       | C-CER,CHIP  | SA     |
| 2203-000386 | C228       | C-CER,CHIP  | SA     |
| 2203-000386 | C229       | C-CER,CHIP  | SA     |
| 2203-000438 | C131       | C-CER,CHIP  | SA     |
| 2203-000438 | C236       | C-CER,CHIP  | SA     |
| 2203-000627 | C133       | C-CER,CHIP  | SNA    |
| 2203-000654 | C232       | C-CER,CHIP  | SA     |
| 2203-000679 | C211       | C-CER,CHIP  | SA     |
| 2203-000812 | C119       | C-CER,CHIP  | SA     |
| 2203-000812 | C122       | C-CER,CHIP  | SA     |
| 2203-000812 | C123       | C-CER,CHIP  | SA     |
| 2203-000812 | C306       | C-CER,CHIP  | SA     |
| 2203-000812 | C307       | C-CER,CHIP  | SA     |
| 2203-000812 | C337       | C-CER,CHIP  | SA     |
| 2203-000812 | C341       | C-CER,CHIP  | SA     |

| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 2203-000940 | C304       | C-CER,CHIP  | SA     |
| 2203-000995 | C144       | C-CER,CHIP  | SA     |
| 2203-000995 | C214       | C-CER,CHIP  | SA     |
| 2203-000995 | C308       | C-CER,CHIP  | SA     |
| 2203-001405 | C231       | C-CER,CHIP  | SA     |
| 2203-002709 | C213       | C-CER,CHIP  | SA     |
| 2203-002759 | C243       | C-CER,CHIP  | SA     |
| 2203-005234 | C164       | C-CER,CHIP  | SA     |
| 2203-005344 | C210       | C-CER,CHIP  | SA     |
| 2203-005344 | C318       | C-CER,CHIP  | SA     |
| 2203-005482 | C110       | C-CER,CHIP  | SA     |
| 2203-005482 | C169       | C-CER,CHIP  | SA     |
| 2203-005482 | C170       | C-CER,CHIP  | SA     |
| 2203-005482 | C240       | C-CER,CHIP  | SA     |
| 2203-005682 | C130       | C-CER,CHIP  | SA     |
| 2203-005682 | C159       | C-CER,CHIP  | SA     |
| 2203-005683 | C101       | C-CER,CHIP  | SA     |
| 2203-005683 | C106       | C-CER,CHIP  | SA     |
| 2203-005683 | C112       | C-CER,CHIP  | SA     |
| 2203-005683 | C145       | C-CER,CHIP  | SA     |
| 2203-005683 | C160       | C-CER,CHIP  | SA     |
| 2203-005719 | C102       | C-CER,CHIP  | SA     |
| 2203-005719 | C108       | C-CER,CHIP  | SA     |
| 2203-005719 | C111       | C-CER,CHIP  | SA     |
| 2203-005719 | C113       | C-CER,CHIP  | SA     |
| 2203-005719 | C117       | C-CER,CHIP  | SA     |
| 2203-005729 | C132       | C-CER,CHIP  | SA     |
| 2203-005736 | C107       | C-CER,CHIP  | SA     |
| 2203-005736 | C114       | C-CER,CHIP  | SA     |
| 2203-005736 | C120       | C-CER,CHIP  | SA     |
| 2203-005777 | C118       | C-CER,CHIP  | SA     |
| 2203-005777 | C121       | C-CER,CHIP  | SA     |
| 2203-005993 | C328       | C-CER,CHIP  | SA     |
| 2203-005993 | C330       | C-CER,CHIP  | SA     |
| 2203-005993 | C335       | C-CER,CHIP  | SA     |
| 2203-005993 | C340       | C-CER,CHIP  | SA     |
| 2203-006048 | C172       | C-CER,CHIP  | SA     |



| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 2203-006048 | C204       | C-CER,CHIP  | SA     |
| 2203-006048 | C208       | C-CER,CHIP  | SA     |
| 2203-006048 | C209       | C-CER,CHIP  | SA     |
| 2203-006048 | C222       | C-CER,CHIP  | SA     |
| 2203-006048 | C223       | C-CER,CHIP  | SA     |
| 2203-006048 | C224       | C-CER,CHIP  | SA     |
| 2203-006048 | C225       | C-CER,CHIP  | SA     |
| 2203-006048 | C226       | C-CER,CHIP  | SA     |
| 2203-006048 | C230       | C-CER,CHIP  | SA     |
| 2203-006048 | C233       | C-CER,CHIP  | SA     |
| 2203-006048 | C238       | C-CER,CHIP  | SA     |
| 2203-006048 | C301       | C-CER,CHIP  | SA     |
| 2203-006048 | C320       | C-CER,CHIP  | SA     |
| 2203-006048 | U504       | C-CER,CHIP  | SA     |
| 2203-006123 | C331       | C-CER,CHIP  | SA     |
| 2203-006123 | C332       | C-CER,CHIP  | SA     |
| 2203-006194 | C109       | C-CER,CHIP  | SA     |
| 2203-006194 | C161       | C-CER,CHIP  | SA     |
| 2203-006257 | C305       | C-CER,CHIP  | SA     |
| 2203-006257 | C310       | C-CER,CHIP  | SA     |
| 2203-006260 | C125       | C-CER,CHIP  | SA     |
| 2203-006260 | C206       | C-CER,CHIP  | SA     |
| 2203-006260 | C207       | C-CER,CHIP  | SA     |
| 2203-006307 | C175       | C-CER,CHIP  | SA     |
| 2203-006318 | C105       | C-CER,CHIP  | SA     |
| 2203-006324 | C309       | C-CER,CHIP  | SA     |
| 2203-006348 | C323       | C-CER,CHIP  | SA     |
| 2203-006423 | C103       | C-CER,CHIP  | SA     |
| 2203-006423 | C127       | C-CER,CHIP  | SA     |
| 2203-006423 | C128       | C-CER,CHIP  | SA     |
| 2203-006423 | C129       | C-CER,CHIP  | SA     |
| 2203-006423 | C241       | C-CER,CHIP  | SA     |
| 2203-006462 | C126       | C-CER,CHIP  | SA     |
| 2203-006556 | C124       | C-CER,CHIP  | SA     |
| 2203-006556 | C134       | C-CER,CHIP  | SA     |
| 2203-006556 | C135       | C-CER,CHIP  | SA     |
| 2203-006556 | C136       | C-CER,CHIP  | SA     |

| SEC CODE    | Design LOC | Discription | STATUS |
|-------------|------------|-------------|--------|
| 2203-006556 | C137       | C-CER,CHIP  | SA     |
| 2203-006556 | C138       | C-CER,CHIP  | SA     |
| 2203-006556 | C139       | C-CER,CHIP  | SA     |
| 2203-006556 | C140       | C-CER,CHIP  | SA     |
| 2203-006556 | C141       | C-CER,CHIP  | SA     |
| 2203-006556 | C142       | C-CER,CHIP  | SA     |
| 2203-006556 | C143       | C-CER,CHIP  | SA     |
| 2203-006556 | C146       | C-CER,CHIP  | SA     |
| 2203-006556 | C147       | C-CER,CHIP  | SA     |
| 2203-006556 | C148       | C-CER,CHIP  | SA     |
| 2203-006556 | C149       | C-CER,CHIP  | SA     |
| 2203-006556 | C150       | C-CER,CHIP  | SA     |
| 2203-006556 | C151       | C-CER,CHIP  | SA     |
| 2203-006556 | C152       | C-CER,CHIP  | SA     |
| 2203-006556 | C153       | C-CER,CHIP  | SA     |
| 2203-006556 | C154       | C-CER,CHIP  | SA     |
| 2203-006556 | C155       | C-CER,CHIP  | SA     |
| 2203-006556 | C156       | C-CER,CHIP  | SA     |
| 2203-006556 | C157       | C-CER,CHIP  | SA     |
| 2203-006556 | C158       | C-CER,CHIP  | SA     |
| 2203-006562 | C167       | C-CER,CHIP  | SA     |
| 2203-006562 | C168       | C-CER,CHIP  | SA     |
| 2203-006562 | C171       | C-CER,CHIP  | SA     |
| 2203-006562 | C176       | C-CER,CHIP  | SA     |
| 2203-006562 | C177       | C-CER,CHIP  | SA     |
| 2203-006562 | C239       | C-CER,CHIP  | SA     |
| 2203-006562 | C242       | C-CER,CHIP  | SA     |
| 2203-006562 | C311       | C-CER,CHIP  | SA     |
| 2203-006562 | C312       | C-CER,CHIP  | SA     |
| 2203-006562 | C313       | C-CER,CHIP  | SA     |
| 2203-006562 | C315       | C-CER,CHIP  | SA     |
| 2203-006562 | C319       | C-CER,CHIP  | SA     |
| 2203-006562 | C321       | C-CER,CHIP  | SA     |
| 2203-006562 | C324       | C-CER,CHIP  | SA     |
| 2203-006562 | C325       | C-CER,CHIP  | SA     |
| 2203-006562 | C333       | C-CER,CHIP  | SA     |
| 2203-006562 | C334       | C-CER,CHIP  | SA     |

| SEC CODE    | Design LOC | Discription  | STATUS |
|-------------|------------|--------------|--------|
| 2203-006562 | C336       | C-CER,CHIP   | SA     |
| 2203-006562 | C338       | C-CER,CHIP   | SA     |
| 2203-006562 | C339       | C-CER,CHIP   | SA     |
| 2203-006562 | C343       | C-CER,CHIP   | SA     |
| 2203-006626 | C115       | C-CER,CHIP   | SA     |
| 2203-006648 | C166       | C-CER,CHIP   | SA     |
| 2203-006824 | C237       | C-CER,CHIP   | SA     |
| 2203-006824 | C314       | C-CER,CHIP   | SA     |
| 2203-006824 | C316       | C-CER,CHIP   | SA     |
| 2203-006824 | C322       | C-CER,CHIP   | SA     |
| 2203-006839 | C165       | C-CER,CHIP   | SA     |
| 2203-006890 | C327       | C-CER,CHIP   | SA     |
| 2203-006890 | C329       | C-CER,CHIP   | SA     |
| 2203-006979 | C116       | C-CER,CHIP   | SA     |
| 2203-006979 | C162       | C-CER,CHIP   | SA     |
| 2404-001339 | TA201      | C-TA,CHIP    | SA     |
| 2404-001374 | TA101      | C-TA,CHIP    | SA     |
| 2404-001381 | TA102      | C-TA,CHIP    | SA     |
| 2404-001414 | TA303      | C-TA,CHIP    | SA     |
| 2703-001178 | L112       | INDUCTOR-SMD | SA     |
| 2703-001180 | L108       | INDUCTOR-SMD | SA     |
| 2703-001236 | L107       | INDUCTOR-SMD | SA     |
| 2703-001722 | L104       | INDUCTOR-SMD | SA     |
| 2703-001851 | L114       | INDUCTOR-SMD | SA     |
| 2703-002484 | L105       | INDUCTOR-SMD | SA     |
| 2703-002858 | L106       | INDUCTOR-SMD | SA     |
| 2703-002906 | L100       | INDUCTOR-SMD | SA     |
| 2703-002906 | L111       | INDUCTOR-SMD | SA     |
| 2801-003856 | OSC200     | CRYSTAL-SMD  | SA     |
| 2801-004587 | OSC100     | CRYSTAL-SMD  | SA     |
| 2904-001592 | F101       | FILTER-SAW   | SA     |
| 2904-001599 | F102       | FILTER-SAW   | SA     |
| 3301-001342 | L200       | BEAD-SMD     | SA     |
| 3301-001659 | R133       | BEAD-SMD     | SA     |
| 3301-001729 | L101       | BEAD-SMD     | SA     |
| 3301-001729 | L102       | BEAD-SMD     | SA     |
| 3301-001729 | L103       | BEAD-SMD     | SA     |

Main Electrical Parts List

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| SEC CODE    | Design LOC | Discription             | STATUS |
|-------------|------------|-------------------------|--------|
| 3301-001729 | L109       | BEAD-SMD                | SA     |
| 3301-001729 | L110       | BEAD-SMD                | SA     |
| 3404-001152 | SW301      | SWITCH-TACT             | SA     |
| 3404-001152 | SW302      | SWITCH-TACT             | SA     |
| 3705-001358 | RFS100     | CONNECTOR-COAXIAL       | SA     |
| 3709-001384 | SIM103     | CONNECTOR-CARD EDGE     | SA     |
| 3710-002442 | IFC101     | SOCKET-INTERFACE        | SA     |
| 3711-006141 | HEA101     | HEADER-BOARD TO BOARD   | SA     |
| 3711-006228 | BTC104     | HEADER-BATTERY          | SA     |
| 4302-001130 | BAT300     | BATTERY-LI(2ND)         | SA     |
| GH09-00036A | UCP201     | IC MICOM-SGHX480        | SA     |
| GH13-00050A | U500       | IC ASIC-SGHC510         | SA     |
| GH71-06338A | ANT101     | NPR-BRACKET ANT CONTACT | SA     |
| GH71-06338A | ANT102     | NPR-BRACKET ANT CONTACT | SA     |

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## 8. Reference data

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### 8-1. 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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## 9. Safety Precautions

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### 9-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.  
Take specially care of tuning or test,  
because specipcty 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 manetic 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.

## 9-2. 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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## 10. Product Function

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### Main Function

- SDN(Service Dialling Numbers)
- Use the SIM service
- Read SMS or MMS message, Send SMS or MMS message, SOS message
- Web browser
- FM radio
- Voice memo
- Camera



**SAMSUNG  
ELECTRONICS**



GSPN (Global Service Partner Network)

| <b>Country</b>   | <b>Web Site</b>  |
|------------------|--|
| North America    | <a href="http://service.samsungportal.com">service.samsungportal.com</a> |
| Latin America    | <a href="http://latin.samsungportal.com">latin.samsungportal.com</a>     |
| CIS              | <a href="http://cis.samsungportal.com">cis.samsungportal.com</a>         |
| Europe           | <a href="http://europe.samsungportal.com">europe.samsungportal.com</a>   |
| China            | <a href="http://china.samsungportal.com">china.samsungportal.com</a>     |
| Asia             | <a href="http://asia.samsungportal.com">asia.samsungportal.com</a>       |
| Mideast & Africa | <a href="http://mea.samsungportal.com">mea.samsungportal.com</a>         |