

**SAMSUNG**

# GSM TELEPHONE

## SGH-T619

# ***SERVICE*** *Manual*

### GSM TELEPHONE



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**SAMSUNG  
ELECTRONICS**



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

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

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

You can prevent from ESD damage by static electricity.

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

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## 2. Specification

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### 2-1. GSM General Specification

|                                       | GSM850<br>Phase 1      | GSM900<br>Phase 1      | EGSM 900<br>Phase 2    | DCS1800<br>Phase 1     | PCS1900                |
|---------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Freq.<br>Band[MHz]<br>Uplink/Downlink | 824~849<br>869~894     | 890~915<br>935~960     | 880~915<br>925~960     | 1710~1785<br>1805~1880 | 1850~1910<br>1930~1990 |
| ARFCN range                           | 128~251                | 1~124                  | 0~124 &<br>975~1023    | 512~885                | 512~810                |
| Tx/Rx spacing                         | 45MHz                  | 45MHz                  | 45MHz                  | 95MHz                  | 80MHz                  |
| Mod. Bit rate<br>/ Bit Period         | 270.833kbps<br>3.692us | 270.833kbps<br>3.692us | 270.833kbps<br>3.692us | 270.833kbps<br>3.692us | 270.833kbps<br>3.692us |
| Time Slot<br>Period<br>/ Frame Period | 576.9us<br>4.615ms     | 576.9us<br>4.615ms     | 576.9us<br>4.615ms     | 576.9us<br>4.615ms     | 576.9us<br>4.615ms     |
| Modulation                            | 0.3GMSK                | 0.3GMSK                | 0.3GMSK                | 0.3GMSK                | 0.3GMSK                |
| MS Power                              | 33dBm~13dBm            | 33dBm~13dBm            | 33dBm~5dBm             | 30dBm~0dBm             | 30dBm~0dBm             |
| Power Class                           | 5pcl ~ 19pcl           | 5pcl ~ 19pcl           | 5pcl ~ 19pcl           | 0pcl ~ 15pcl           | 0pcl ~ 15pcl           |
| Sensitivity                           | -102dBm                | -102dBm                | -102dBm                | -100dBm                | -100dBm                |
| TDMA Mux                              | 8                      | 8                      | 8                      | 8                      | 8                      |
| Cell Radius                           | 35Km                   | 35Km                   | 35Km                   | 2Km                    | 2Km                    |

## 2-2. GSM TX power class

| TX Power control level | GSM850   | TX Power control level | GSM900   | TX Power control level | DCS1800  | TX Power control level | PCS1900  |
|------------------------|----------|------------------------|----------|------------------------|----------|------------------------|----------|
| 5                      | 33±3 dBm | 5                      | 33±3 dBm | 0                      | 30±3 dBm | 0                      | 30±3 dBm |
| 6                      | 31±3 dBm | 6                      | 31±3 dBm | 1                      | 28±3 dBm | 1                      | 28±3 dBm |
| 7                      | 29±3 dBm | 7                      | 29±3 dBm | 2                      | 26±3 dBm | 2                      | 26±3 dBm |
| 8                      | 27±3 dBm | 8                      | 27±3 dBm | 3                      | 24±3 dBm | 3                      | 24±3 dBm |
| 9                      | 25±3 dBm | 9                      | 25±3 dBm | 4                      | 22±3 dBm | 4                      | 22±3 dBm |
| 10                     | 23±3 dBm | 10                     | 23±3 dBm | 5                      | 20±3 dBm | 5                      | 20±3 dBm |
| 11                     | 21±3 dBm | 11                     | 21±3 dBm | 6                      | 18±3 dBm | 6                      | 18±3 dBm |
| 12                     | 19±3 dBm | 12                     | 19±3 dBm | 7                      | 16±3 dBm | 7                      | 16±3 dBm |
| 13                     | 17±3 dBm | 13                     | 17±3 dBm | 8                      | 14±3 dBm | 8                      | 14±3 dBm |
| 14                     | 15±3 dBm | 14                     | 15±3 dBm | 9                      | 12±4 dBm | 9                      | 12±4 dBm |
| 15                     | 13±3 dBm | 15                     | 13±3 dBm | 10                     | 10±4 dBm | 10                     | 10±4 dBm |
| 16                     | 11±5 dBm | 16                     | 11±5 dBm | 11                     | 8±4dBm   | 11                     | 8±4dBm   |
| 17                     | 9±5 dBm  | 17                     | 9±5 dBm  | 12                     | 6±4 dBm  | 12                     | 6±4 dBm  |
| 18                     | 7±5 dBm  | 18                     | 7±5 dBm  | 13                     | 4±4 dBm  | 13                     | 4±4 dBm  |
| 19                     | 5±5 dBm  | 19                     | 5±5 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

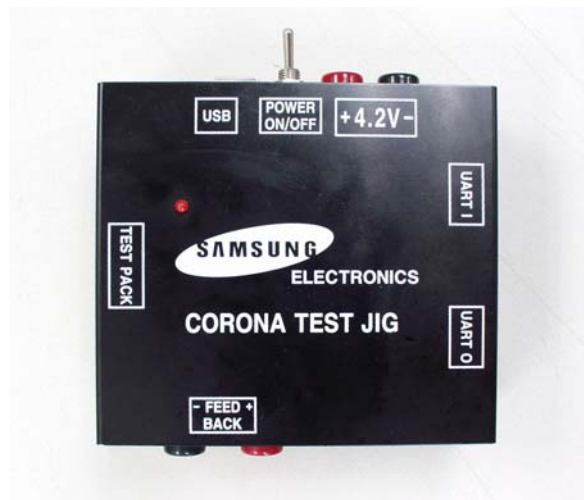
- 1.3M Camera and camcorder
- MP3 player(MP3/AAC/AAC+)
- Phonebook
- Name card
- Multimedia Message Service (MMS)
- E-mail
- Voice recorder
- Bluetooth
- USB
- SyncML
- Web browser
- Java
- Calendar



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## 4. Array course control

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



**Test Cable (GH39-00337A)**



**RF Test Cable (GH39-00283A)**

## **Software Downloading**

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

- **Swift Model firmware is composed of 3 files**

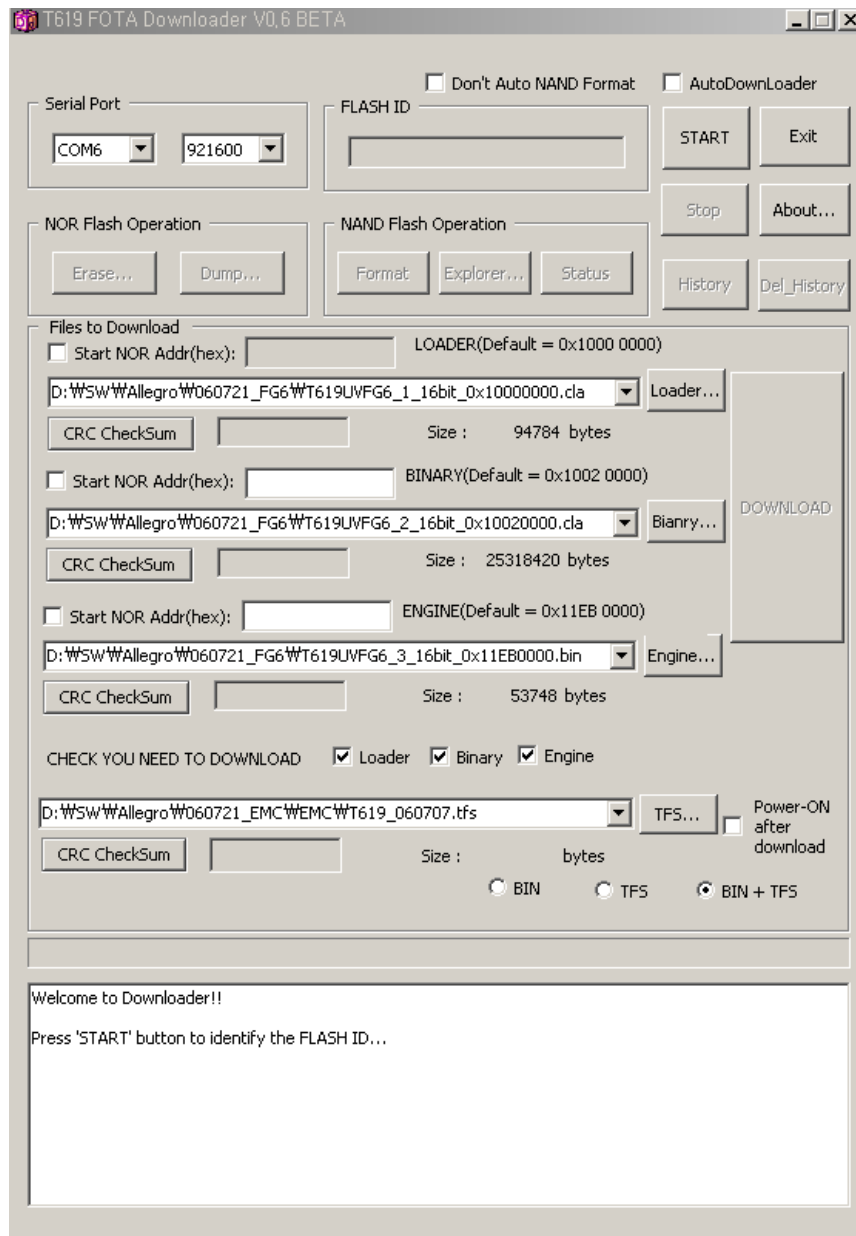
- \*.cla : Main source binary.
- \*.tfs : File which includes image,mp3..etc..which are needed for each application
- \*.cfg : File which has information about .tfs File

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

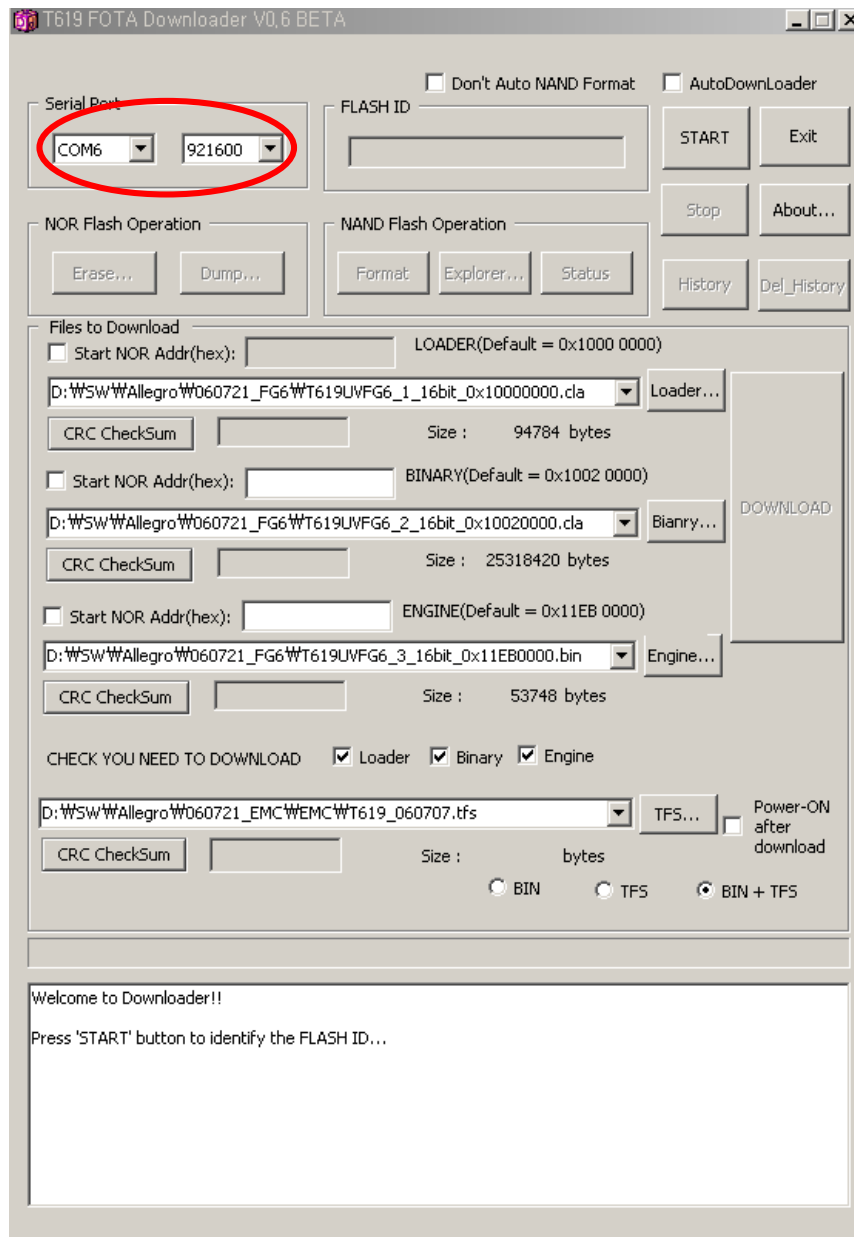
- Downloader ( Single or Multi downloader)
- The firmware
- Data Cable

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

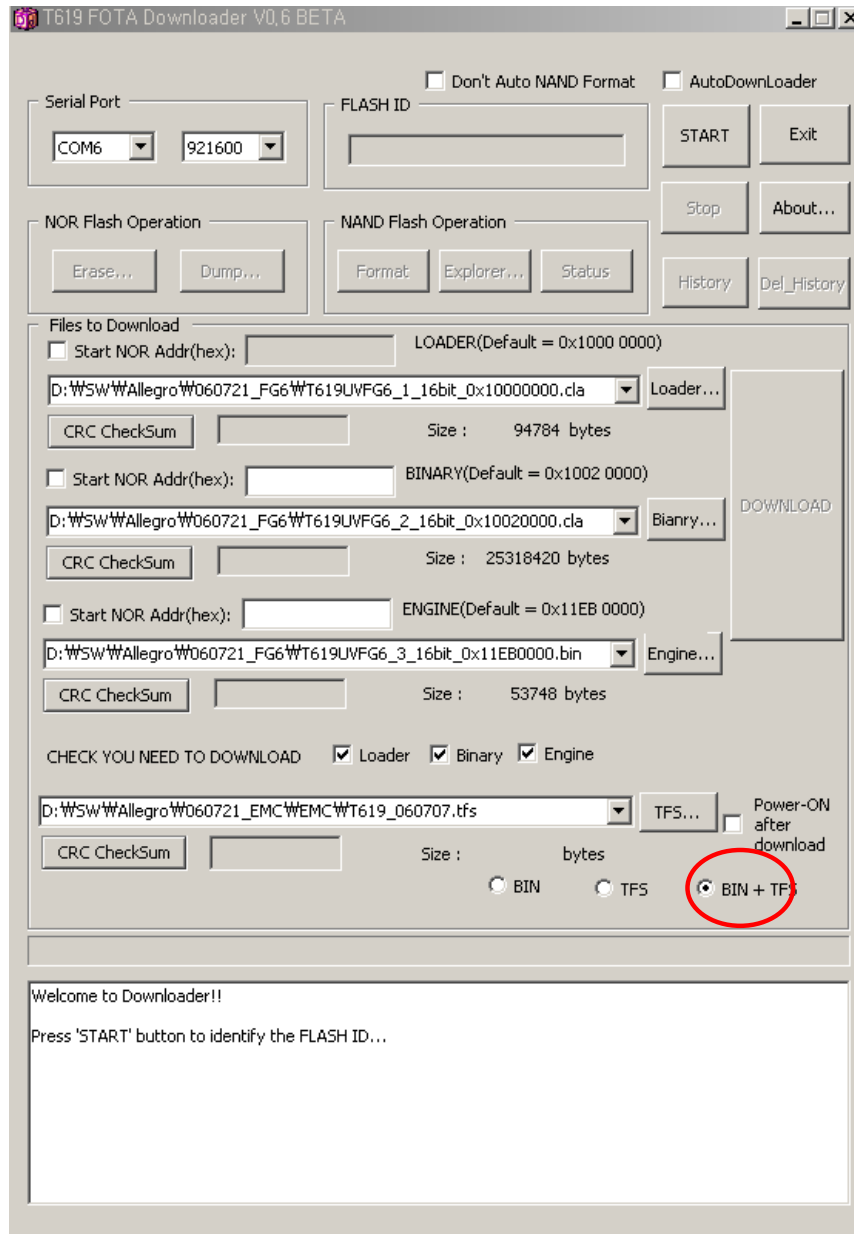
1. Unzip the downloader and firmware files to a folder where you want.
2. Open the downloader



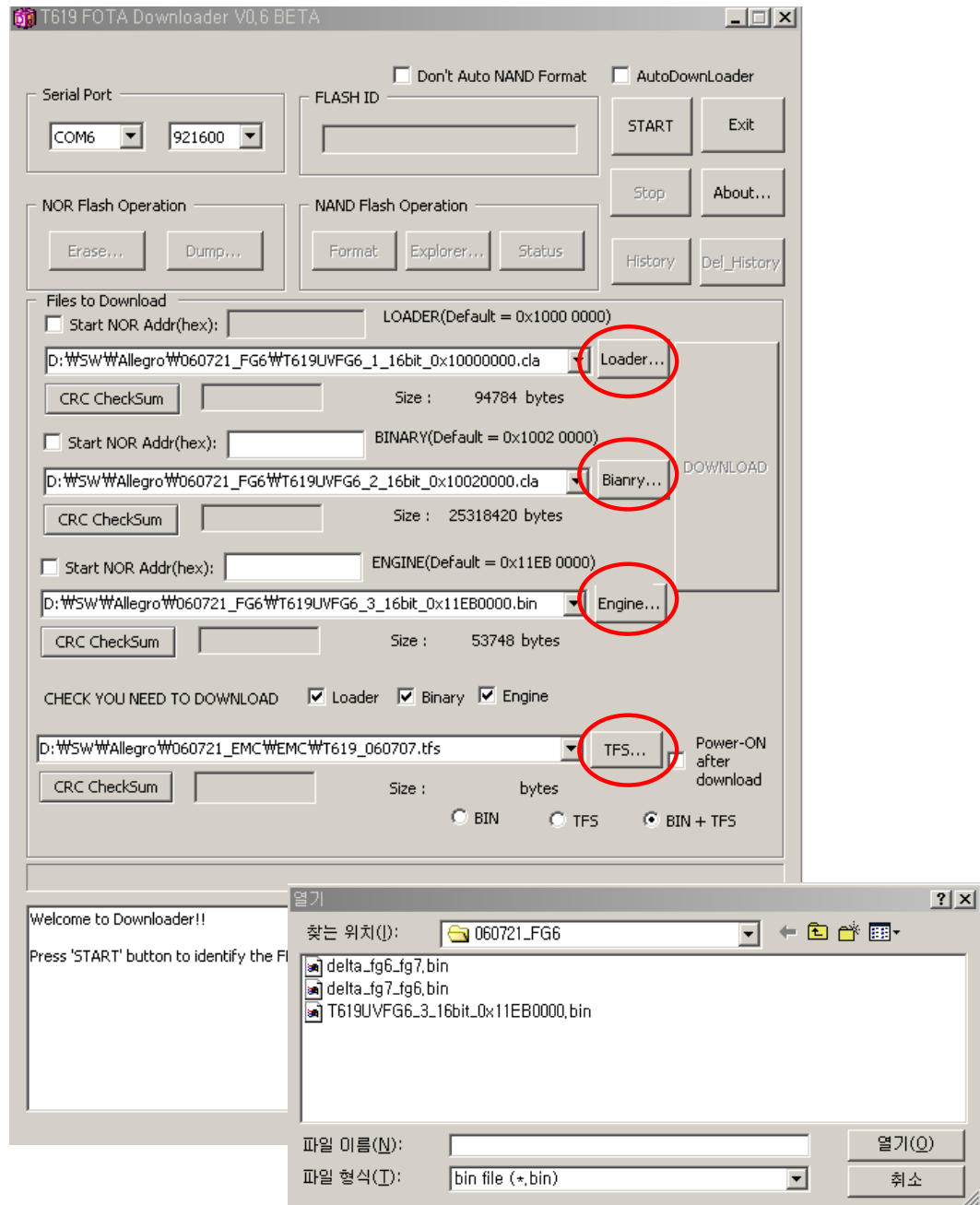
### 3. Set the serial Port and BAUD rate



## 4. Check radio button (Binary only, TFS Only and Binary + TFS).

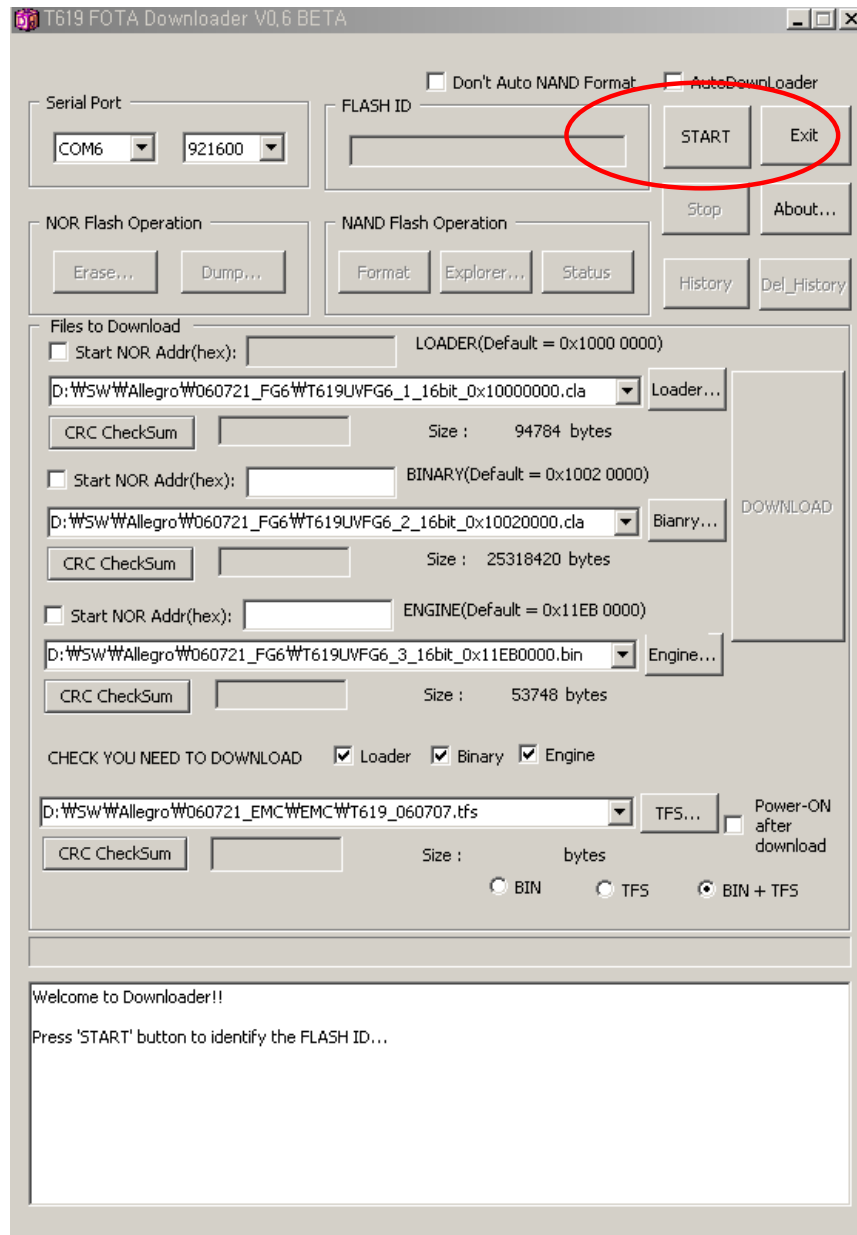


## 5. Select the binary(and TFS) file(s) that you want to download

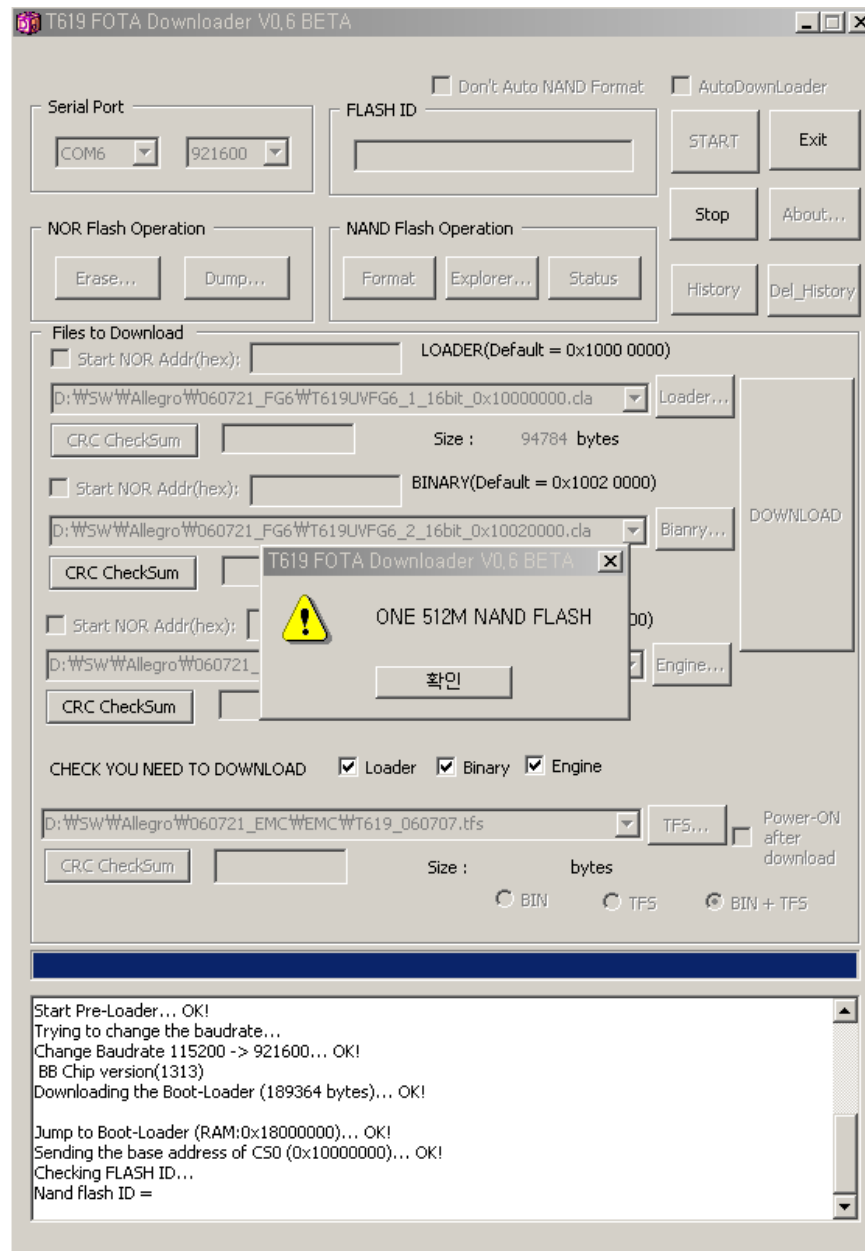




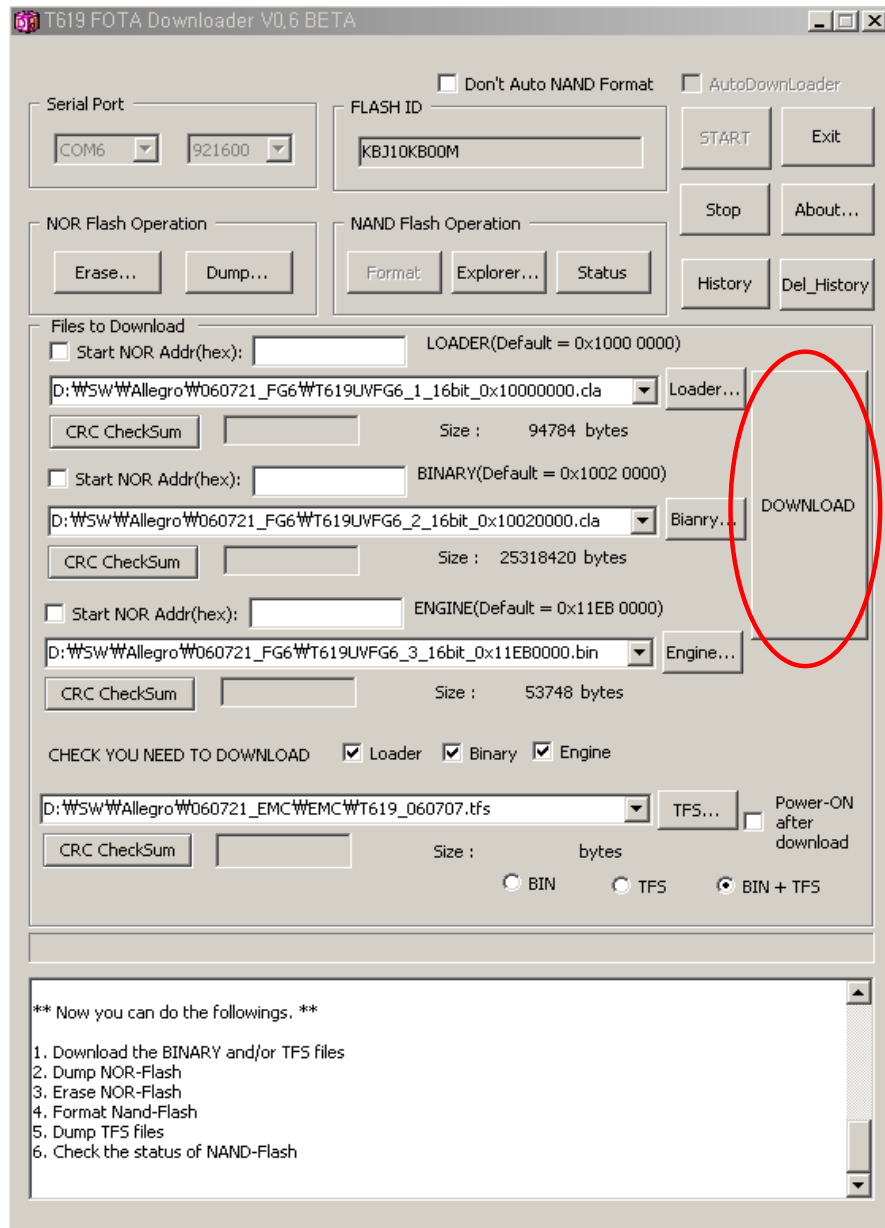
6. Press start button and power on the phone



then the downloader can recognize the flash memory type of the phone



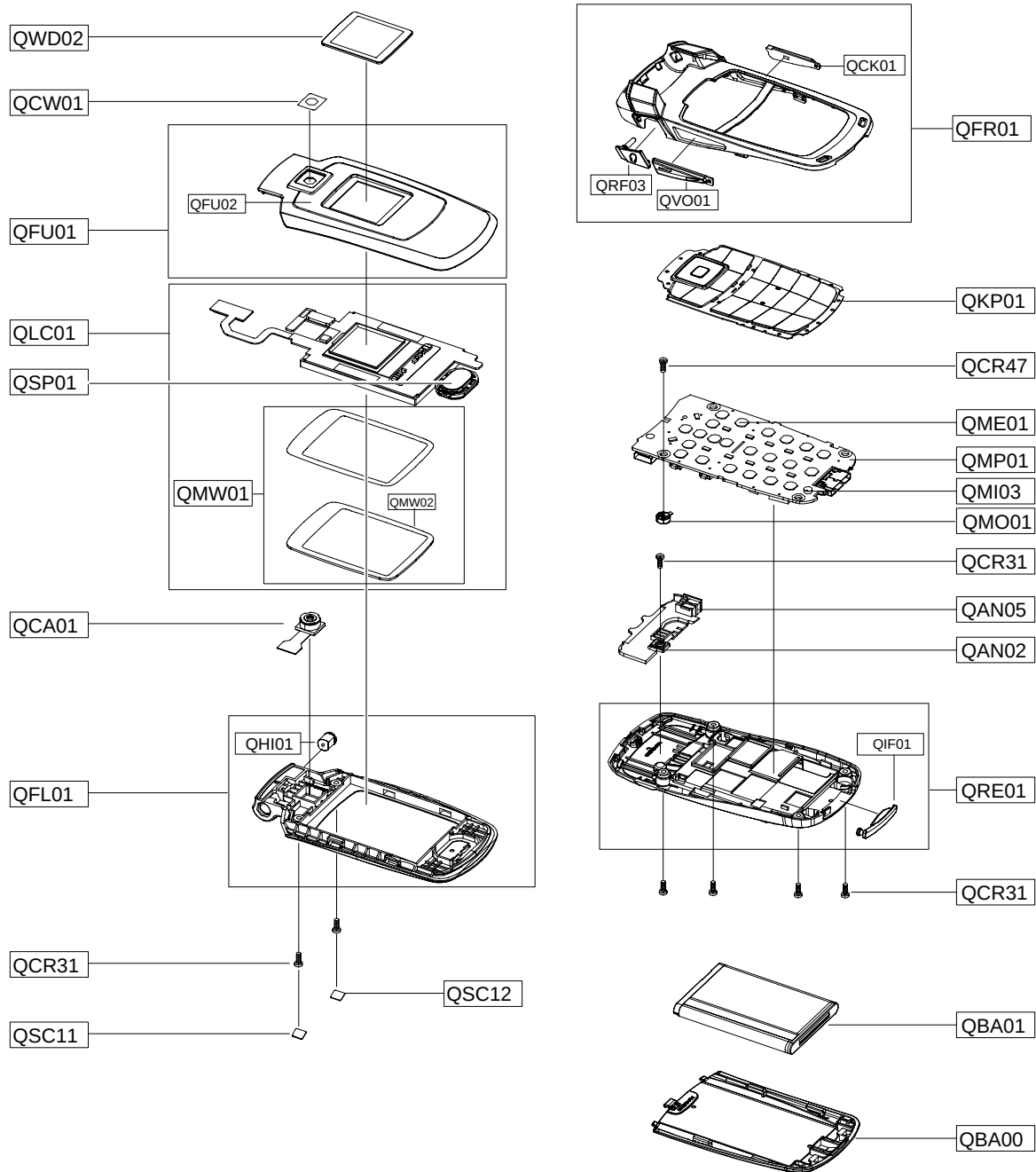
## 7. After confirming the memory type, press 'DOWNLOAD' button





## 5. Exploded View / Disassembly&Assembly Instructions

### 5-1. Cellular phone Exploded View



## 5-2. Cellular phone Parts list

|       |       |       |                                |             |
|-------|-------|-------|--------------------------------|-------------|
| QAN02 |       |       | INTENNA-SGHT619                | GH42-00938A |
| QAN05 |       |       | ASSY MEC-INTENNA CONTACT       | GH75-08168A |
| QBA00 |       |       | PMO-CASE BATTERY               | GH72-32853A |
| QBA01 |       |       | INNER BATTERY PACK-800MAH,BLK, | GH43-02186A |
| QCA01 |       |       | UNIT-CAMERA MODULE             | GH59-03439A |
| QCR12 |       |       | SCREW-MACHINE                  | 6001-001530 |
| QCR31 |       |       | SCREW-MACHINE                  | 6001-001795 |
| QCR31 |       |       | SCREW-MACHINE                  | 6001-001795 |
| QCR31 |       |       | SCREW-MACHINE                  | 6001-001795 |
| QCW01 |       |       | PCT-CAMERA WINDOW              | GH72-30893A |
| QKP01 |       |       | ASSY KEYPAD-(TMB/SIL)          | GH98-01923A |
| QME01 |       |       | UNIT-METAL DOME                | GH59-03271A |
| QMI03 |       |       | RMO-CUSHION RUBBER MIC         | GH73-07303A |
| QMO01 |       |       | MOTOR DC-SPHM500               | GH31-00242A |
| QMP01 |       |       | PBA MAIN-SGHT619               | GH92-02973A |
| QSC11 |       |       | MPR-SHEET FOLDER SCREW CAP R   | GH74-21404A |
| QSC12 |       |       | MPR-SHEET FOLDER SCREW CAP L   | GH74-23942A |
| QSP01 |       |       | SPEAKER                        | 3001-002041 |
| QWD02 |       |       | PCT-SUB WINDOW                 | GH72-30894A |
| QFL01 |       |       | ASSY-CASE-FOLDER LOWER         | GH98-01036A |
|       | QHI01 |       | ASSY MEC-HINGE(CAN TYPE)       | GH75-04662A |
| QRE01 |       |       | ASSY CASE-REAR                 | GH98-01930A |
|       | QIF01 |       | PMO-COVER IF                   | GH72-33458A |
| QLC01 |       |       | ELA ETC-SGHT619 LCD MODULE     | GH96-02250A |
|       | QMW01 |       | ASSY COVER-MAIN WINDOW         | GH98-02203A |
|       |       | QMW02 | PCT-LCD MAIN WINDOW            | GH72-30773A |
| QFU01 |       |       | ASSY CASE-FOLDER UPPER         | GH98-01766A |
|       | QFU02 |       | ASSY DECO-FOLDER UPPER         | GH98-01637A |
| QFR01 |       |       | ASSY CASE-FRONT                | GH98-01929A |
|       | QRF03 |       | PMO-COVER EAR                  | GH72-31900A |
|       | QVO01 |       | PMO-VOLUME KEY                 | GH72-31905A |
|       | QCK01 |       | PMO-CAMERA KEY                 | GH72-31906A |

|                                |             |
|--------------------------------|-------------|
| ADAPTOR-SGHR225 TAD            | GH44-00184G |
| UNIT-EARPHONE                  | GH59-01659A |
| PMO-GUIDE MOTOR                | GH72-30883A |
| MPR-CUSHION SPONGE FRONT SHIEL | GH74-24173A |
| MPR-TAPE MIC RUBBER            | GH74-24184A |
| MPR-GASK TAPE                  | GH74-25155A |
| MPR-GASKET TAPE                | GH74-26790A |
| MPR-BOHO VINYL LCD CONN        | GH74-15350A |
| MPR-VINYL BOHO UPPER           | GH74-23093A |
| MPR-VINYL BOHO MAIN            | GH74-23096A |
| MPR-TAPE FRONT SHIELD          | GH74-24179A |
| MPR-TAPE CAMERA CONN INSULATIO | GH74-24191A |
| MPR-CUSHION SPONGE SUB LCD L   | GH74-24276A |
| MPR-CUSHION SPONGE SUB LCD R   | GH74-24277A |
| MPR-SPONGE GAKSET LCD          | GH74-25156A |
| MPR-GASK TAPE                  | GH74-25157A |
| MPR-GASKET TAPE                | GH74-26789A |
| MPR-GASK TAPE FRONT            | GH74-26852A |
| MPR-REMOVE TAPE LCD            | GH74-13804A |
| MPR-TAPE LED                   | GH74-17926A |
| MPR-TAPE REMOVE LCD            | GH74-18286A |
| MPR-TAPE SUB LCD INSUL         | GH74-18531A |
| MPR-TAPE MAIN LDI              | GH74-19992A |
| MPR-VINYL BOHO MAIN WINDOW     | GH74-22341A |
| MPR-TAPE,28X7XT0.05,TESA4965   | GH74-26546A |
| MPR-TAPE,24.3X3XT0.05,TESA4965 | GH74-26547A |
| MPR-CUSHION SPONGE MOTOR       | GH74-24177A |
| MPR-SPONGE INTENNA GPCB        | GH74-25940A |
| LABEL(R)-WATER SOAK T_MOBILE   | GH68-05914A |
| MPR-SPONGE LCD CONNECTOR       | GH74-26912A |
| UNIT-AWB SIM CARD              | GH59-00943A |
| LABEL(P)-SEAL UNIT             | GH68-04256A |
| BAG PE                         | 6902-000297 |
| LABEL(R)-MAIN(TMB)             | GH68-11825A |
| CUSHION-CASE UPPER(T809_NEW)   | GH69-03561A |
| BOX(P)-UNIT(TMB)               | GH69-04227A |
| CUSHION-CASE LOW(T619)         | GH69-04231A |
| PAA ETC-MANUAL(TMB)            | GH99-18689A |
| MPR-VINYL BOHO SUB WINDOW      | GH74-26770A |
| MPR-VINYL BOHO MAIN WINDOW A   | GH74-26771A |

## 5-3. Disassembly and Assembly Instructions

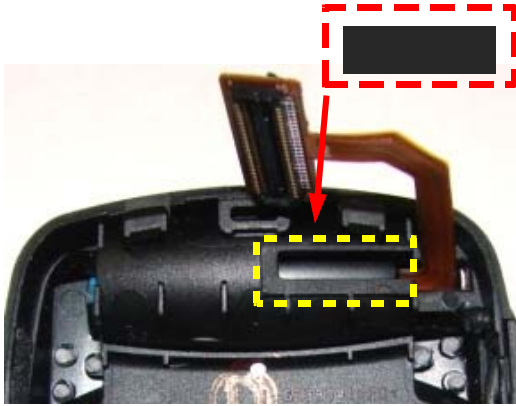
### — Disassembly

|                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div data-bbox="168 310 245 359" data-label="Text">1</div> <div data-bbox="261 310 808 432" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Removed RF COVER in the left side top portion.</li> <li>2) Open earphone COVER, I/F COVER.</li> </ol> </div> <div data-bbox="355 447 634 905" data-label="Image"> </div> | <div data-bbox="833 310 909 359" data-label="Text">2</div> <div data-bbox="925 310 1468 384" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Disjoint the 4 screws of rear plastic.</li> <li>2) Disjoint set from lower part.</li> </ol> </div> <div data-bbox="1027 453 1287 892" data-label="Image"> </div> |
| <div data-bbox="149 1031 808 1062" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Be careful of the damage of cover and scratch.</li> </ol> </div>                                                                                                                                                                  | <div data-bbox="812 993 1468 1098" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Be careful of the damage of cover and scratch.</li> <li>2) When disjoint, take care so that transformation may not go to REAR.</li> </ol> </div>                                                                           |
| <div data-bbox="168 1136 245 1184" data-label="Text">3</div> <div data-bbox="261 1136 808 1220" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Separate the LCD CONNECOTOR.</li> <li>2) Separate the MIC HOLDER.</li> </ol> </div> <div data-bbox="358 1251 641 1745" data-label="Image"> </div>                    | <div data-bbox="833 1136 909 1184" data-label="Text">4</div> <div data-bbox="925 1136 1468 1184" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Separate BOARD from SET.</li> </ol> </div> <div data-bbox="888 1245 1414 1709" data-label="Image"> </div>                                                    |
| <div data-bbox="149 1791 808 1864" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Take care so that damage may not occur to LCD CONNECTOR FPCB.</li> </ol> </div>                                                                                                                                                   | <div data-bbox="812 1770 1468 1885" data-label="List-Group"> <ol style="list-style-type: none"> <li>1) Take care so that damage may not occur to SPEAKER FPCB, LCD and CAMERA CONNECTOR FPCB.</li> <li>2) Take care lest BGA parts breakdown should occur.</li> </ol> </div>                                                     |



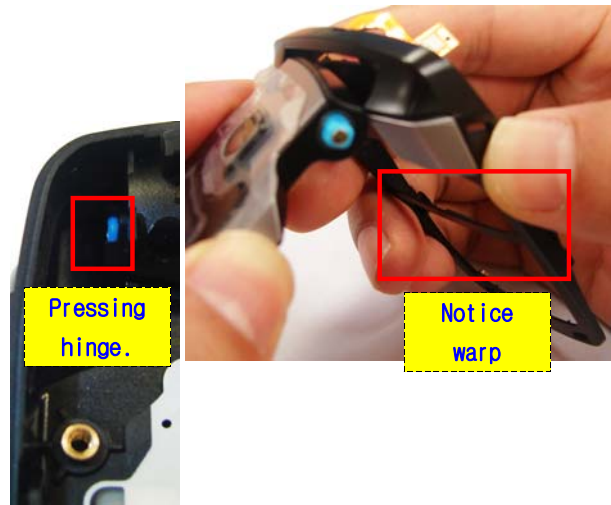
5

1) Remove dust prevention TAPE.



6

1) Separate FRONT from FOLDER by pressing FOLDER hinge.



- 1) Pay attention to FPCB crack and CONNECTOR damage.
- 2) Take care lest BGA parts breakdown should occur.

- 1) When separate, observe in FRONT warp.
- 2) Take care of be tearing LCD and CAMERA FPCB.
- 3) Be careful of the damage of appearance and scratch

7

1) Remove SCREW COVER.



- 1) Remove using tweezers.
- 2) Be careful of the damage of appearance and scratch.

8

1) Disjoint 2 SCREWS.



- 1) Be careful of the damage of appearance and scratch

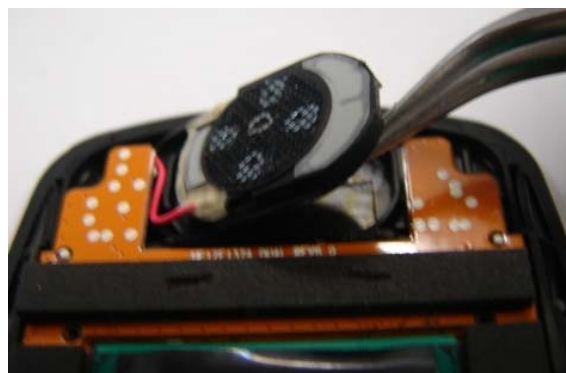
9

- 1) Disjoint from lower part using decomposition beam.
- 2) Pick out F-PCB.



10

- 1) Using tweezers, separate speaker from FOLDER LOWER.

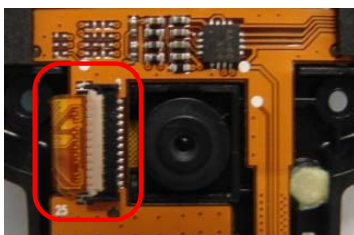
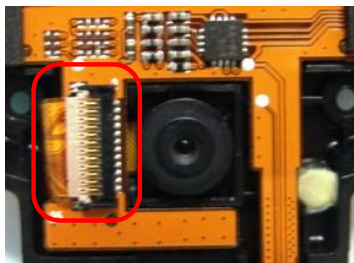


- 1) Pay attention to FPCB crack and CONNECTOR damage.
- 2) Be careful of the damage of appearance and scratch.

- 1) When separate, take care lest wire should be cut.
- 2) Be careful of the damage of appearance and scratch

11

- 1) Separate F-PCB by opening CAMERA CONNECTOR's LOCKER to opposite side.



- 1) Be careful of the damage of appearance and scratch.
- 2) Pay attention to F-PCB damage.

12

- 1) Separate LCD module from FOLDER LOWER



- 1) Be careful of the damage of appearance and scratch

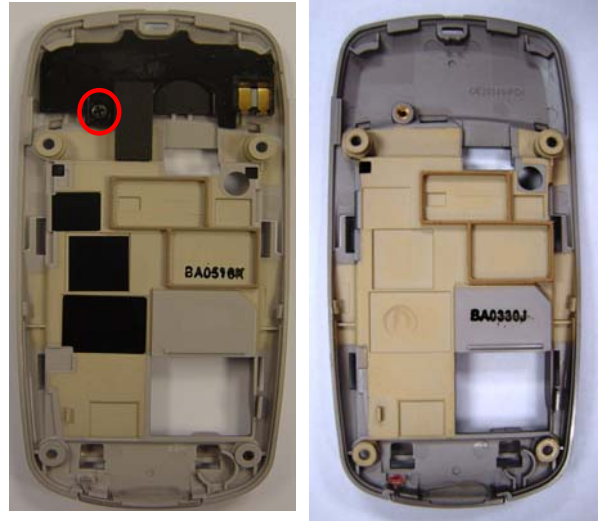
13

1) Separate CAMERA module from FOLDER LOWER by using tweezers.



15

1) After disjoining ANTENNA SCREW, separate ANTENNA from REAR.



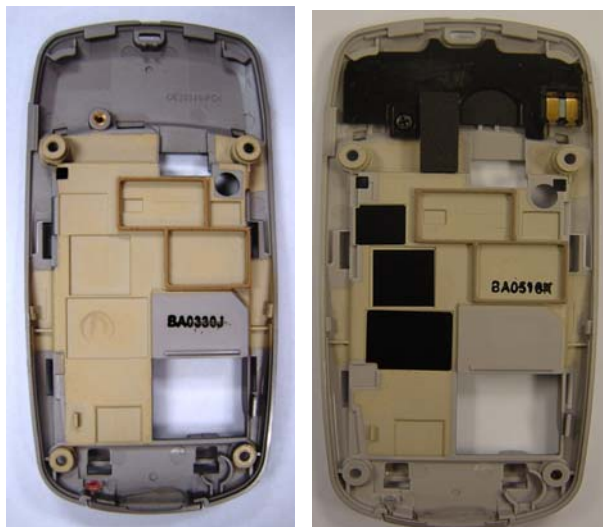
1) Be careful of the damage of appearance and scratch.  
2) Pay attention to CAMERA FPCB damage.

1) Be careful of the damage of appearance and scratch

## — Assembly

1

1) Joint INTENNA to REAR by SCREW.



1) Be careful of the damage of appearance and scratch.

2

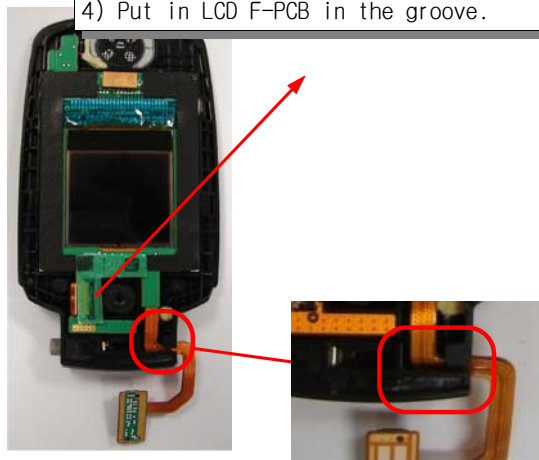
1) Combine camera and LCD MODULE.  
2) Insert CAMERA module to FOLDER LOWER  
3) Preserve CAMERA CONNECTOR not to come out, set LCD safely on LOWER.



1) Pay attention to CAMERA FPCB damage.

3

1) Install LCD module to UPPER.  
2) Install SPEAKER , preserving WIRE threads not to get snarl.  
3) Attach CAMERA CONNECTOR fixing insulation TAPE.  
4) Put in LCD F-PCB in the groove.



1) Be careful of the damage of appearance and scratch.  
2) Pay attention to F-PCB damage.

4

1) Combine UPPER and LOWER from upper direction.



1) Be careful of the damage of appearance and scratch



7

1) Joint 2 SCREWS.



8

1) Attach SCREW COVER.



7

1) Pass LCD module F-PCB through REAR's aperture.  
2) By pressing hinge, combine FOLDER and FRONT.



8

1) Set KEYPAD safely to FRONT.

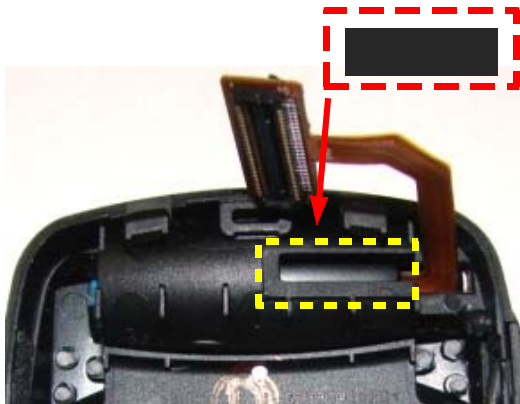


1) Be careful of the damage of appearance and scratch.  
2) When pass home, observe as F-PCB does not damage.

1) Confirm whether KEYPAD matches rear exactly, when KEYPAD be set.

9

1) Attach dust protection TAPE.



1) Pay attention to F-PCB damage.

10

1) Set BOARD safely to REAR.  
2) Combine LCD CONNECTOR.



1) Assemble by observing on LCD CONNECTOR direction.  
2) Confirm whether click sound sounds when contract.

11

1) Combine FRONT and REAR from upper direction.



1) Be careful of the damage of appearance and scratch.

12

1) Joint SCREW.



1) Be careful of the damage of appearance and scratch

13

1) Attach RF COVER in the left side top portion.

2) Insert earphone COVER and I/F COVER.



1) Be careful of the damage of appearance and scratch.





## 6. MAIN Electrical Parts List

| Design LOC | Description         | SEC Code    | STATUS |
|------------|---------------------|-------------|--------|
| ANT_GND    | NPR-ANTENNA CONTACT | GH71-06379A | SA     |
| ANT101     | NPR-ANTENNA CONTACT | GH71-06379A | SA     |
| ANT300     | ANTENNA-CHIP        | 4202-001178 | SA     |
| BAT409     | BATTERY-LI(2ND)     | 4302-001181 | SA     |
| BTC500     | HEADER-BATTERY      | 3711-006137 | SA     |
| C100       | C-CER,CHIP          | 2203-001259 | SA     |
| C101       | C-CER,CHIP          | 2203-000812 | SA     |
| C102       | C-CER,CHIP          | 2203-005446 | SA     |
| C103       | C-CER,CHIP          | 2203-000233 | SA     |
| C104       | C-CER,CHIP          | 2203-000812 | SA     |
| C105       | C-CER,CHIP          | 2203-000812 | SA     |
| C107       | C-CER,CHIP          | 2203-005552 | SA     |
| C108       | C-CER,CHIP          | 2203-005052 | SA     |
| C111       | C-CER,CHIP          | 2203-006123 | SA     |
| C113       | C-CER,CHIP          | 2203-000812 | SA     |
| C114       | C-CER,CHIP          | 2203-000233 | SA     |
| C115       | C-CER,CHIP          | 2203-005736 | SA     |
| C117       | C-CER,CHIP          | 2203-006120 | SA     |
| C118       | C-CER,CHIP          | 2203-000438 | SA     |
| C119       | C-CER,CHIP          | 2203-000812 | SA     |
| C120       | C-CER,CHIP          | 2203-001383 | SA     |
| C121       | C-CER,CHIP          | 2203-000254 | SA     |
| C122       | C-CER,CHIP          | 2203-000812 | SA     |
| C125       | C-CER,CHIP          | 2203-005450 | SA     |
| C127       | C-CER,CHIP          | 2203-006190 | SA     |
| C128       | C-CER,CHIP          | 2203-006642 | SA     |
| C129       | C-CER,CHIP          | 2203-005736 | SA     |
| C130       | C-CER,CHIP          | 2203-000812 | SA     |
| C131       | C-CER,CHIP          | 2203-005053 | SA     |
| C132       | C-CER,CHIP          | 2203-005054 | SA     |
| C134       | C-CER,CHIP          | 2203-005446 | SA     |
| C135       | C-CER,CHIP          | 2203-000438 | SA     |
| C136       | C-CER,CHIP          | 2203-000233 | SA     |
| C137       | C-CER,CHIP          | 2203-006194 | SA     |
| C139       | C-CER,CHIP          | 2203-000812 | SA     |
| C141       | INDUCTOR-SMD        | 2703-002268 | SA     |
| C142       | C-CER,CHIP          | 2203-000812 | SA     |
| C143       | C-CER,CHIP          | 2203-005288 | SA     |
| C201       | C-CER,CHIP          | 2203-006194 | SA     |
| C202       | C-CER,CHIP          | 2203-006423 | SA     |
| C203       | C-CER,CHIP          | 2203-006423 | SA     |
| C204       | C-CER,CHIP          | 2203-005682 | SA     |
| C205       | C-CER,CHIP          | 2203-006423 | SA     |
| C206       | C-CER,CHIP          | 2203-006423 | SA     |
| C207       | C-CER,CHIP          | 2203-006423 | SA     |
| C208       | C-CER,CHIP          | 2203-006423 | SA     |
| C209       | C-CER,CHIP          | 2203-006423 | SA     |
| C210       | C-CER,CHIP          | 2203-006399 | SA     |
| C211       | C-CER,CHIP          | 2203-006423 | SA     |
| C212       | C-CER,CHIP          | 2203-005482 | SA     |
| C214       | C-CER,CHIP          | 2203-005682 | SA     |
| C215       | C-CER,CHIP          | 2203-006423 | SA     |
| C218       | C-CER,CHIP          | 2203-005482 | SA     |

| Design LOC | Description | SEC Code    | STATUS |
|------------|-------------|-------------|--------|
| C220       | C-CER,CHIP  | 2203-006562 | SA     |
| C221       | C-CER,CHIP  | 2203-006423 | SA     |
| C300       | C-CER,CHIP  | 2203-003054 | SA     |
| C301       | C-CER,CHIP  | 2203-000254 | SA     |
| C302       | C-CER,CHIP  | 2203-005482 | SA     |
| C303       | C-CER,CHIP  | 2203-005482 | SA     |
| C304       | C-CER,CHIP  | 2203-005736 | SA     |
| C305       | C-CER,CHIP  | 2203-006562 | SA     |
| C306       | C-CER,CHIP  | 2203-006423 | SA     |
| C307       | C-CER,CHIP  | 2203-006423 | SA     |
| C308       | C-CER,CHIP  | 2203-006423 | SA     |
| C309       | C-CER,CHIP  | 2203-006562 | SA     |
| C310       | C-CER,CHIP  | 2203-000679 | SA     |
| C311       | C-CER,CHIP  | 2203-005482 | SA     |
| C315       | C-CER,CHIP  | 2203-006562 | SA     |
| C316       | C-CER,CHIP  | 2203-006562 | SA     |
| C401       | C-CER,CHIP  | 2203-006562 | SA     |
| C402       | C-CER,CHIP  | 2203-006838 | SA     |
| C405       | C-CER,CHIP  | 2203-005482 | SA     |
| C406       | C-CER,CHIP  | 2203-006257 | SA     |
| C407       | C-CER,CHIP  | 2203-000386 | SA     |
| C408       | C-CER,CHIP  | 2203-000386 | SA     |
| C411       | C-CER,CHIP  | 2203-000812 | SA     |
| C412       | C-CER,CHIP  | 2203-006208 | SA     |
| C414       | C-CER,CHIP  | 2203-006208 | SA     |
| C415       | C-CER,CHIP  | 2203-006257 | SA     |
| C416       | C-CER,CHIP  | 2203-006257 | SA     |
| C418       | C-CER,CHIP  | 2203-006208 | SA     |
| C419       | C-CER,CHIP  | 2203-005482 | SA     |
| C422       | C-CER,CHIP  | 2203-006208 | SA     |
| C423       | C-CER,CHIP  | 2203-006208 | SA     |
| C424       | C-CER,CHIP  | 2203-006257 | SA     |
| C425       | C-CER,CHIP  | 2203-006257 | SA     |
| C426       | C-CER,CHIP  | 2203-000233 | SA     |
| C500       | C-CER,CHIP  | 2203-006423 | SA     |
| C501       | C-CER,CHIP  | 2203-006361 | SA     |
| C502       | C-CER,CHIP  | 2203-006090 | SA     |
| C503       | C-CER,CHIP  | 2203-006626 | SA     |
| C504       | C-CER,CHIP  | 2203-003054 | SA     |
| C505       | C-CER,CHIP  | 2203-005482 | SA     |
| C506       | C-CER,CHIP  | 2203-006399 | SA     |
| C602       | C-CER,CHIP  | 2203-005482 | SA     |
| C603       | C-CER,CHIP  | 2203-000278 | SA     |
| C604       | C-CER,CHIP  | 2203-005482 | SA     |
| C607       | C-CER,CHIP  | 2203-000278 | SA     |
| C608       | C-CER,CHIP  | 2203-000995 | SA     |
| C609       | C-CER,CHIP  | 2203-005050 | SA     |
| C610       | C-CER,CHIP  | 2203-000278 | SA     |
| C612       | C-CER,CHIP  | 2203-000425 | SA     |
| C613       | C-CER,CHIP  | 2203-001437 | SA     |
| C614       | C-CER,CHIP  | 2203-001259 | SA     |
| C615       | C-CER,CHIP  | 2203-000995 | SA     |
| C616       | C-CER,CHIP  | 2203-001437 | SA     |

| Design LOC | Description     | SEC Code    | STATUS |
|------------|-----------------|-------------|--------|
| C618       | C-CER,CHIP      | 2203-005482 | SA     |
| C619       | C-CER,CHIP      | 2203-000425 | SA     |
| C620       | C-CER,CHIP      | 2203-006137 | SA     |
| C621       | C-CER,CHIP      | 2203-001239 | SA     |
| C623       | C-CER,CHIP      | 2203-000438 | SA     |
| C624       | C-CER,CHIP      | 2203-005482 | SA     |
| C625       | C-CER,CHIP      | 2203-001239 | SA     |
| C626       | C-CER,CHIP      | 2203-000278 | SA     |
| C627       | C-CER,CHIP      | 2203-005482 | SA     |
| C628       | C-CER,CHIP      | 2203-000438 | SA     |
| C631       | C-CER,CHIP      | 2203-002709 | SA     |
| C633       | C-CER,CHIP      | 2203-006562 | SA     |
| C634       | C-CER,CHIP      | 2203-005482 | SA     |
| C635       | C-CER,CHIP      | 2203-006585 | SA     |
| C636       | C-CER,CHIP      | 2203-006585 | SA     |
| C639       | C-CER,CHIP      | 2203-006562 | SA     |
| C642       | C-CER,CHIP      | 2203-003054 | SA     |
| C643       | C-CER,CHIP      | 2203-003054 | SA     |
| C700       | C-CER,CHIP      | 2203-002443 | SA     |
| C701       | C-CER,CHIP      | 2203-006562 | SA     |
| C702       | C-CER,CHIP      | 2203-006361 | SA     |
| C703       | C-CER,CHIP      | 2203-006190 | SA     |
| C704       | C-CER,CHIP      | 2203-006048 | SA     |
| C705       | C-CER,CHIP      | 2203-005682 | SA     |
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| C719       | C-CER,CHIP      | 2203-005682 | SA     |
| C720       | C-CER,CHIP      | 2203-005682 | SA     |
| C721       | C-CER,CHIP      | 2203-005682 | SA     |
| C722       | C-CER,CHIP      | 2203-005682 | SA     |
| C723       | C-CER,CHIP      | 2203-005682 | SA     |
| C724       | C-CER,CHIP      | 2203-005682 | SA     |
| C725       | C-CER,CHIP      | 2203-006562 | SA     |
| C726       | C-CER,CHIP      | 2203-006562 | SA     |
| C728       | C-CER,CHIP      | 2203-006562 | SA     |
| C729       | C-CER,CHIP      | 2203-005482 | SA     |
| C730       | C-CER,CHIP      | 2203-005482 | SA     |
| D404       | DIODE-SCHOTTKY  | 0404-001172 | SA     |
| D603       | DIODE-SWITCHING | 0401-001141 | SA     |
| EAR600     | JACK-EAR PHONE  | 3722-002010 | SA     |
| F101       | DUPLEXER-FEM    | 2911-000043 | SA     |
| F102       | FILTER-EMI SMD  | 2901-001254 | SA     |

| Design LOC | Description           | SEC Code    | STATUS |
|------------|-----------------------|-------------|--------|
| F500       | FILTER-EMI SMD        | 2901-001316 | SA     |
| HDC700     | HEADER-BOARD TO BOARD | 3711-005747 | SA     |
| IFC500     | CONNECTOR-INTERFACE   | 3710-001994 | SA     |
| L100       | INDUCTOR-SMD          | 2703-002367 | SA     |
| L101       | INDUCTOR-SMD          | 2703-002208 | SA     |
| L103       | INDUCTOR-SMD          | 2703-002200 | SA     |
| L104       | INDUCTOR-SMD          | 2703-002369 | SA     |
| L106       | INDUCTOR-SMD          | 2703-002201 | SA     |
| L108       | INDUCTOR-SMD          | 2703-002281 | SA     |
| L109       | INDUCTOR-SMD          | 2703-002365 | SA     |
| L110       | INDUCTOR-SMD          | 2703-002205 | SA     |
| L111       | INDUCTOR-SMD          | 2703-002199 | SA     |
| L112       | INDUCTOR-SMD          | 2703-002199 | SA     |
| L113       | INDUCTOR-SMD          | 2703-002313 | SA     |
| L114       | INDUCTOR-SMD          | 2703-002170 | SA     |
| L115       | INDUCTOR-SMD          | 2703-002365 | SA     |
| L116       | INDUCTOR-SMD          | 2703-002267 | SA     |
| L121       | INDUCTOR-SMD          | 2703-002268 | SA     |
| L141       | INDUCTOR-SMD          | 2703-002201 | SA     |
| L201       | BEAD-SMD              | 3301-001729 | SA     |
| L500       | INDUCTOR-SMD          | 2703-002962 | SA     |
| L601       | INDUCTOR-SMD          | 2703-002204 | SA     |
| L603       | INDUCTOR-SMD          | 2703-002204 | SA     |
| L617       | INDUCTOR-SMD          | 2703-002204 | SA     |
| L618       | INDUCTOR-SMD          | 2703-002204 | SA     |
| L701       | BEAD-SMD              | 3301-001534 | SA     |
| LED700     | LED                   | 0601-002094 | SA     |
| LED701     | LED                   | 0601-002094 | SA     |
| LED702     | LED                   | 0601-002094 | SA     |
| LED703     | LED                   | 0601-002094 | SA     |
| LED704     | LED                   | 0601-002094 | SA     |
| LED705     | LED                   | 0601-002094 | SA     |
| LED706     | LED                   | 0601-002094 | SA     |
| LED708     | LED                   | 0601-002094 | SA     |
| LED709     | LED                   | 0601-002094 | SA     |
| LED710     | LED                   | 0601-002094 | SA     |
| LED711     | LED                   | 0601-002094 | SA     |
| LED712     | LED                   | 0601-002094 | SA     |
| MIC600     | MIC-CONDENSOR         | 3003-001107 | SA     |
| OSC100     | OSCILLATOR-VCTCXO     | 2809-001293 | SA     |
| OSC400     | CRYSTAL-SMD           | 2801-004339 | SA     |
| PAM100     | IC-POWER AMP          | 1201-002275 | SA     |
| R103       | R-CHIP                | 2007-007741 | SA     |
| R104       | R-CHIP                | 2007-000566 | SA     |
| R105       | R-CHIP                | 2007-008531 | SA     |
| R106       | R-CHIP                | 2007-000566 | SA     |
| R107       | R-CHIP                | 2007-007741 | SA     |
| R109       | R-CHIP                | 2007-009157 | SA     |
| R136       | R-CHIP                | 2007-000171 | SA     |
| R137       | R-CHIP                | 2007-000171 | SA     |
| R138       | R-CHIP                | 2007-000140 | SA     |
| R139       | R-CHIP                | 2007-000171 | SA     |
| R140       | R-CHIP                | 2007-000171 | SA     |

| <b>Design LOC</b> | <b>Description</b> | <b>SEC Code</b> | <b>STATUS</b> |
|-------------------|--------------------|-----------------|---------------|
| R201              | R-CHIP             | 2007-008516     | SA            |
| R202              | R-CHIP             | 2007-000171     | SA            |
| R203              | R-CHIP             | 2007-000162     | SA            |
| R215              | R-CHIP             | 2007-008478     | SA            |
| R216              | R-CHIP             | 2007-008478     | SA            |
| R219              | R-CHIP             | 2007-008052     | SA            |
| R220              | R-CHIP             | 2007-009157     | SA            |
| R221              | R-CHIP             | 2007-000171     | SA            |
| R250              | R-CHIP             | 2007-008055     | SA            |
| R251              | R-CHIP             | 2007-008055     | SA            |
| R252              | R-CHIP             | 2007-008055     | SA            |
| R300              | R-CHIP             | 2007-007317     | SA            |
| R301              | R-CHIP             | 2007-007317     | SA            |
| R303              | R-CHIP             | 2007-000171     | SA            |
| R304              | R-CHIP             | 2007-000171     | SA            |
| R305              | R-CHIP             | 2007-000148     | SA            |
| R306              | R-CHIP             | 2007-007488     | SA            |
| R308              | R-CHIP             | 2007-001303     | SA            |
| R309              | R-CHIP             | 2007-007589     | SA            |
| R310              | R-CHIP             | 2007-000171     | SA            |
| R311              | R-CHIP             | 2007-000171     | SA            |
| R314              | R-CHIP             | 2007-000171     | SA            |
| R315              | R-CHIP             | 2007-000162     | SA            |
| R401              | R-CHIP             | 2007-007100     | SA            |
| R402              | R-CHIP             | 2007-000171     | SA            |
| R403              | R-CHIP             | 2007-000171     | SA            |
| R404              | R-CHIP             | 2007-008055     | SA            |
| R405              | R-CHIP             | 2007-002796     | SA            |
| R500              | R-CHIP             | 2007-000162     | SA            |
| R501              | R-CHIP             | 2007-000758     | SA            |
| R502              | R-CHIP             | 2007-000758     | SA            |
| R503              | R-CHIP             | 2007-008516     | SA            |
| R504              | R-CHIP             | 2007-007334     | SA            |
| R506              | R-CHIP             | 2007-009084     | SA            |
| R507              | R-CHIP             | 2007-009084     | SA            |
| R509              | R-CHIP             | 2007-000162     | SA            |
| R510              | R-CHIP             | 2007-008483     | SA            |
| R511              | R-CHIP             | 2007-007573     | SA            |
| R512              | R-CHIP             | 2007-007334     | SA            |
| R513              | R-CHIP             | 2007-008117     | SA            |
| R514              | R-CHIP             | 2007-007318     | SA            |
| R515              | R-CHIP             | 2007-007766     | SA            |
| R516              | R-CHIP             | 2007-007798     | SA            |
| R517              | R-CHIP             | 2007-007798     | SA            |
| R600              | R-CHIP             | 2007-000141     | SA            |
| R601              | R-CHIP             | 2007-008516     | SA            |
| R604              | R-CHIP             | 2007-000141     | SA            |
| R605              | R-CHIP             | 2007-002796     | SA            |
| R606              | R-CHIP             | 2007-000162     | SA            |
| R607              | R-CHIP             | 2007-000162     | SA            |
| R608              | R-CHIP             | 2007-001339     | SA            |
| R609              | R-CHIP             | 2007-000171     | SA            |
| R610              | R-CHIP             | 2007-007142     | SA            |

| Design LOC | Description         | SEC Code    | STATUS |
|------------|---------------------|-------------|--------|
| R611       | R-CHIP              | 2007-007334 | SA     |
| R612       | R-CHIP              | 2007-002796 | SA     |
| R613       | R-CHIP              | 2007-000140 | SA     |
| R614       | R-CHIP              | 2007-000140 | SA     |
| R615       | R-CHIP              | 2007-002796 | SA     |
| R616       | R-CHIP              | 2007-002796 | SA     |
| R619       | R-CHIP              | 2007-007142 | SA     |
| R620       | R-CHIP              | 2007-007142 | SA     |
| R621       | R-CHIP              | 2007-000170 | SA     |
| R622       | R-CHIP              | 2007-000170 | SA     |
| R623       | R-CHIP              | 2007-007528 | SA     |
| R624       | R-CHIP              | 2007-000171 | SA     |
| R700       | R-CHIP              | 2007-008055 | SA     |
| R701       | R-CHIP              | 2007-001217 | SA     |
| R702       | R-CHIP              | 2007-001298 | SA     |
| R703       | R-CHIP              | 2007-001298 | SA     |
| R704       | R-CHIP              | 2007-001298 | SA     |
| R705       | R-CHIP              | 2007-001294 | SA     |
| R706       | R-CHIP              | 2007-001298 | SA     |
| R707       | R-CHIP              | 2007-001298 | SA     |
| R708       | R-CHIP              | 2007-001298 | SA     |
| R709       | R-CHIP              | 2007-001298 | SA     |
| R710       | R-CHIP              | 2007-001217 | SA     |
| R711       | R-CHIP              | 2007-000171 | SA     |
| R712       | R-CHIP              | 2007-000171 | SA     |
| R713       | R-CHIP              | 2007-009157 | SA     |
| R714       | R-CHIP              | 2007-001298 | SA     |
| R715       | R-CHIP              | 2007-001298 | SA     |
| RFS100     | CONNECTOR-COAXIAL   | 3705-001421 | SA     |
| SIM400     | CONNECTOR-CARD EDGE | 3709-001400 | SA     |
| TA123      | C-TA,CHIP           | 2404-001411 | SA     |
| TA400      | C-TA,CHIP           | 2404-001381 | SA     |
| TA504      | C-TA,CHIP           | 2404-001268 | SA     |
| TA507      | C-TA,CHIP           | 2404-001380 | SA     |
| TA600      | C-TA,CHIP           | 2404-001281 | SA     |
| TA622      | C-TA,CHIP           | 2404-001281 | SA     |
| TA632      | C-TA,CHIP           | 2404-001381 | SA     |
| TAC702     | SWITCH-TACT         | 3404-001152 | SA     |
| TAC703     | SWITCH-TACT         | 3404-001152 | SA     |
| TAC704     | SWITCH-TACT         | 3404-001152 | SA     |
| U102       | IC-TRANSCIVER       | 1205-002817 | SA     |
| U301       | IC ASIC-SGHE380     | GH13-00038A | SA     |
| U302       | BLUETOOTH MODULE    | 4709-001426 | SA     |
| U303       | IC-CMOS LOGIC       | 0801-002958 | SA     |
| U304       | TR-DIGITAL          | 0504-001151 | SA     |
| U308       | IC-CMOS LOGIC       | 0801-002237 | SA     |
| U314       | IC-POSI.FIXED REG.  | 1203-003767 | SA     |
| U400       | IC-POWER SUPERVISOR | 1203-003882 | SA     |
| U402       | IC-POSI.FIXED REG.  | 1203-003737 | SA     |
| U501       | IC-DC/DC CONVERTER  | 1203-004273 | SA     |
| U600       | IC-ANALOG SWITCH    | 1001-001408 | SA     |
| U601       | IC-AUDIO AMP        | 1201-002240 | SA     |
| U602       | IC-ANALOG SWITCH    | 1001-001359 | SA     |

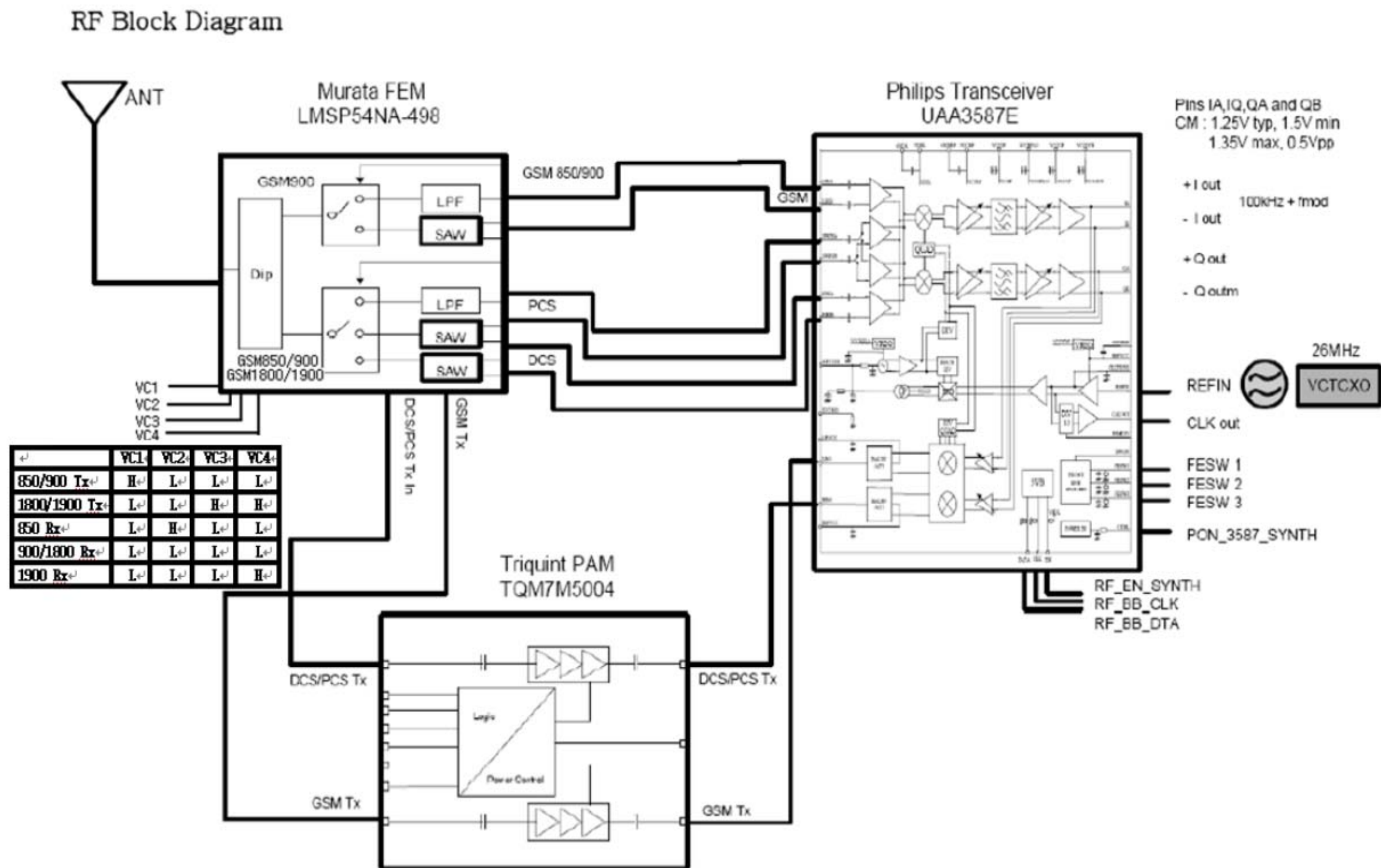
| <b>Design LOC</b> | <b>Description</b>  | <b>SEC Code</b> | <b>STATUS</b> |
|-------------------|---------------------|-----------------|---------------|
| U700              | IC-POSI.FIXED REG.  | 1203-003737     | SA            |
| U701              | IC-HALL EFFECT S/W  | 1009-001020     | SA            |
| U702              | IC-POSI.FIXED REG.  | 1203-003737     | SA            |
| UCP200            | IC-COMM. CONTROLLER | 1205-002757     | SA            |
| UME300            | IC-MCP              | 1108-000083     | SA            |
| VR400             | VARISTOR            | 1405-001082     | SA            |
| VR500             | THERMISTOR-NTC      | 1404-001221     | SA            |
| VR600             | VARISTOR            | 1405-001138     | SA            |
| VR601             | VARISTOR            | 1405-001138     | SA            |
| VR700             | VARISTOR            | 1405-001082     | SA            |
| VR701             | VARISTOR            | 1405-001138     | SA            |
| VR702             | VARISTOR            | 1405-001138     | SA            |
| VR703             | VARISTOR            | 1405-001138     | SA            |
| VR704             | VARISTOR            | 1405-001138     | SA            |
| VR705             | VARISTOR            | 1405-001138     | SA            |
| ZD500             | DIODE-TVS           | 0406-001188     | SA            |
| ZD505             | DIODE-ZENER         | 0403-001427     | SA            |
| ZD506             | DIODE-ZENER         | 0403-001547     | SA            |
| ZD600             | DIODE-TVS           | 0406-001201     | SA            |
| ZD601             | DIODE-TVS           | 0406-001104     | SA            |
| ZD602             | DIODE-TVS           | 0406-001201     | SA            |
| ZD701             | DIODE-TVS           | 0406-001201     | SA            |
| ZD703             | DIODE-SWITCHING     | 0401-001141     | SA            |



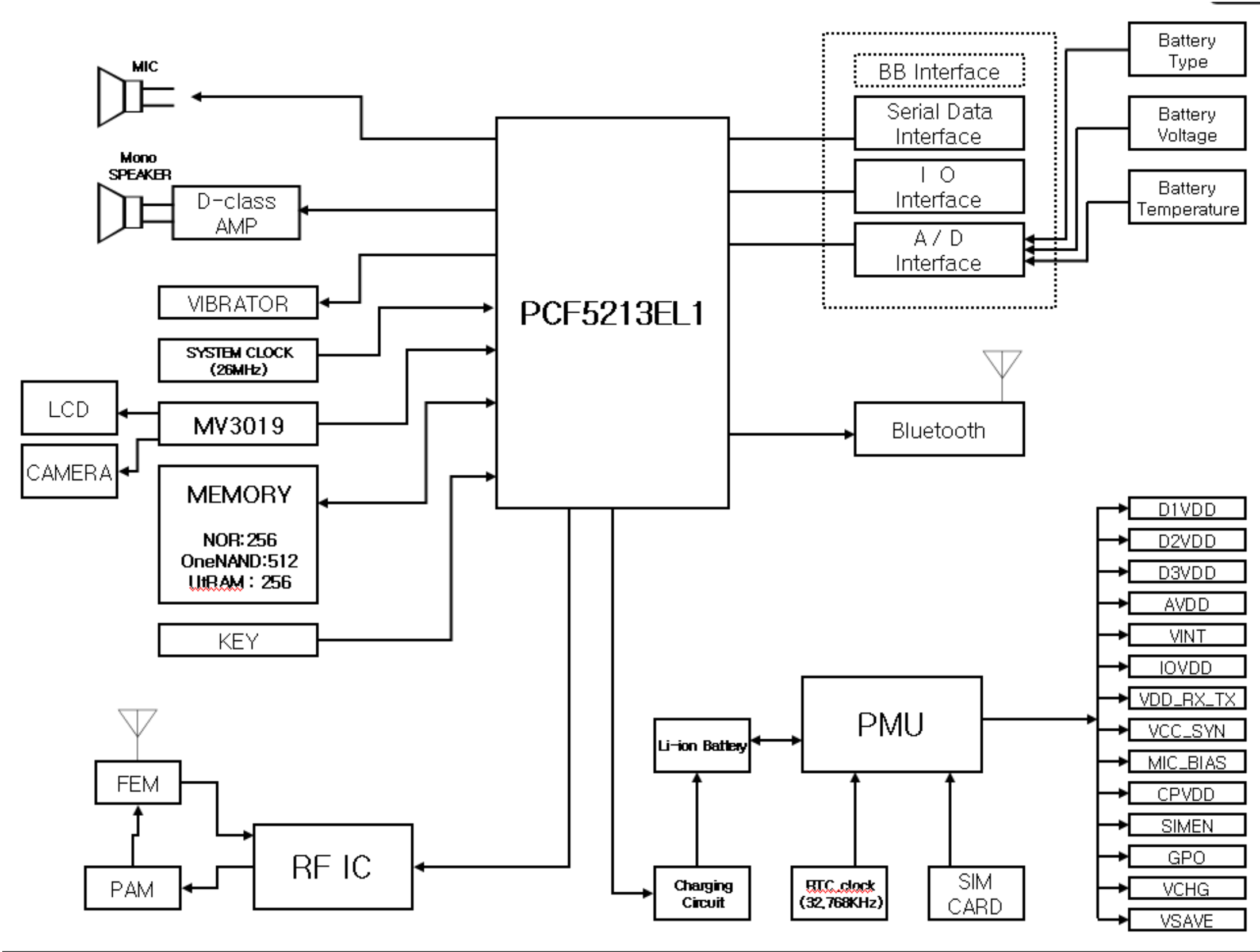


7. Block Diagrams

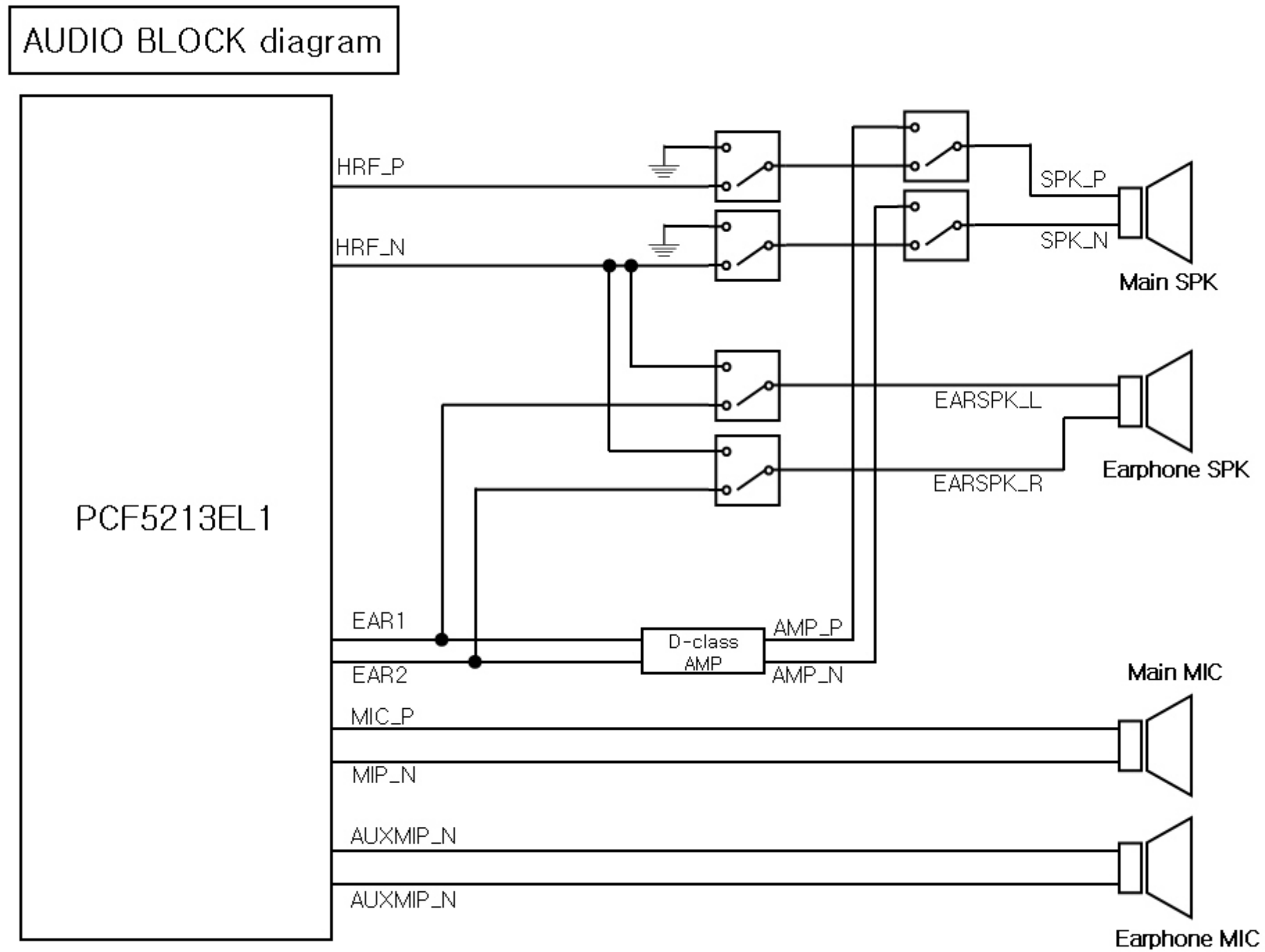
7-1. RF Solution Block Diagram



7-2. Base Band Solution Block Diagram

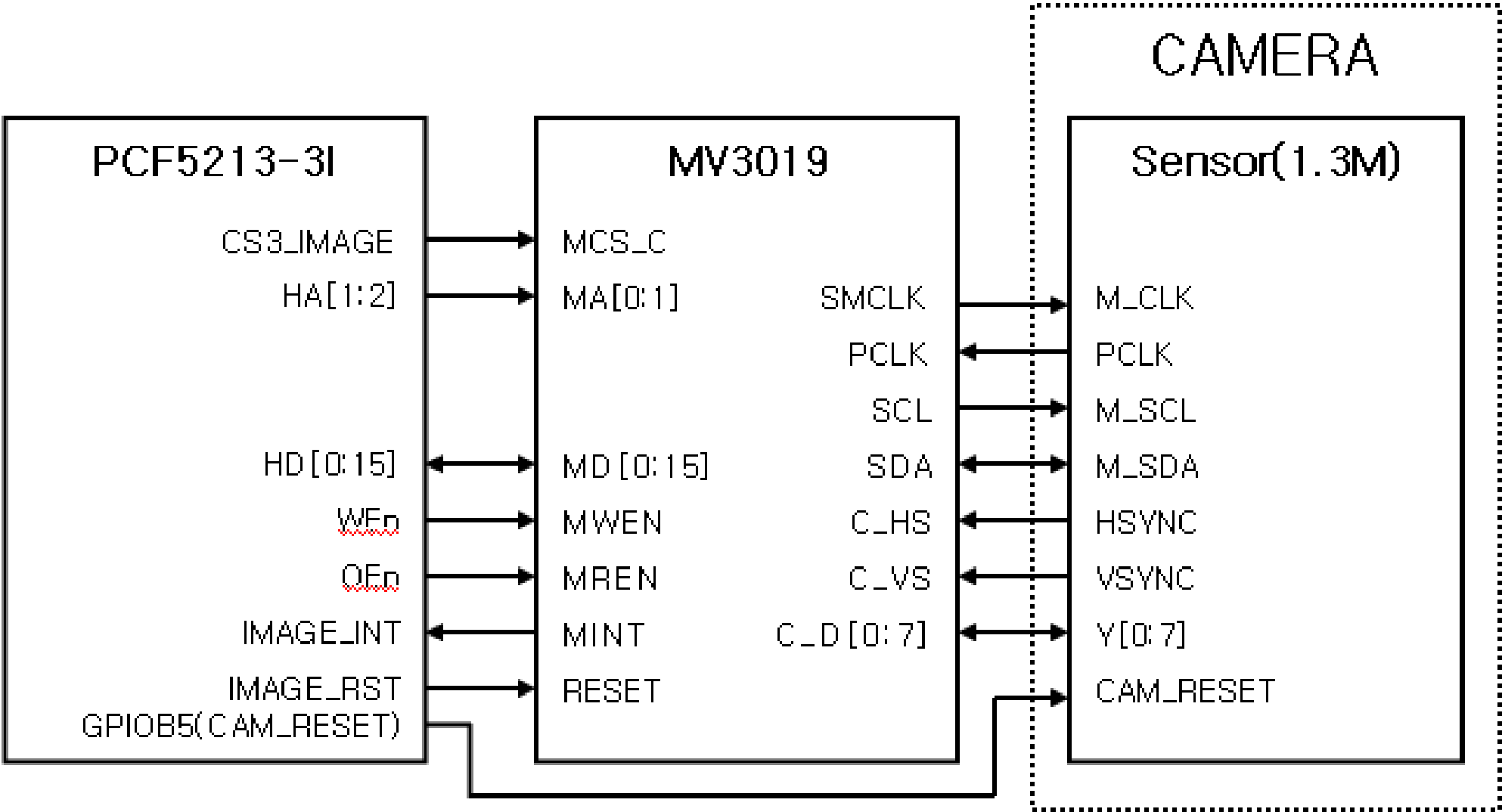


## 7-3. AUDIO BLOCK



7-4. CAMERA BLOCK

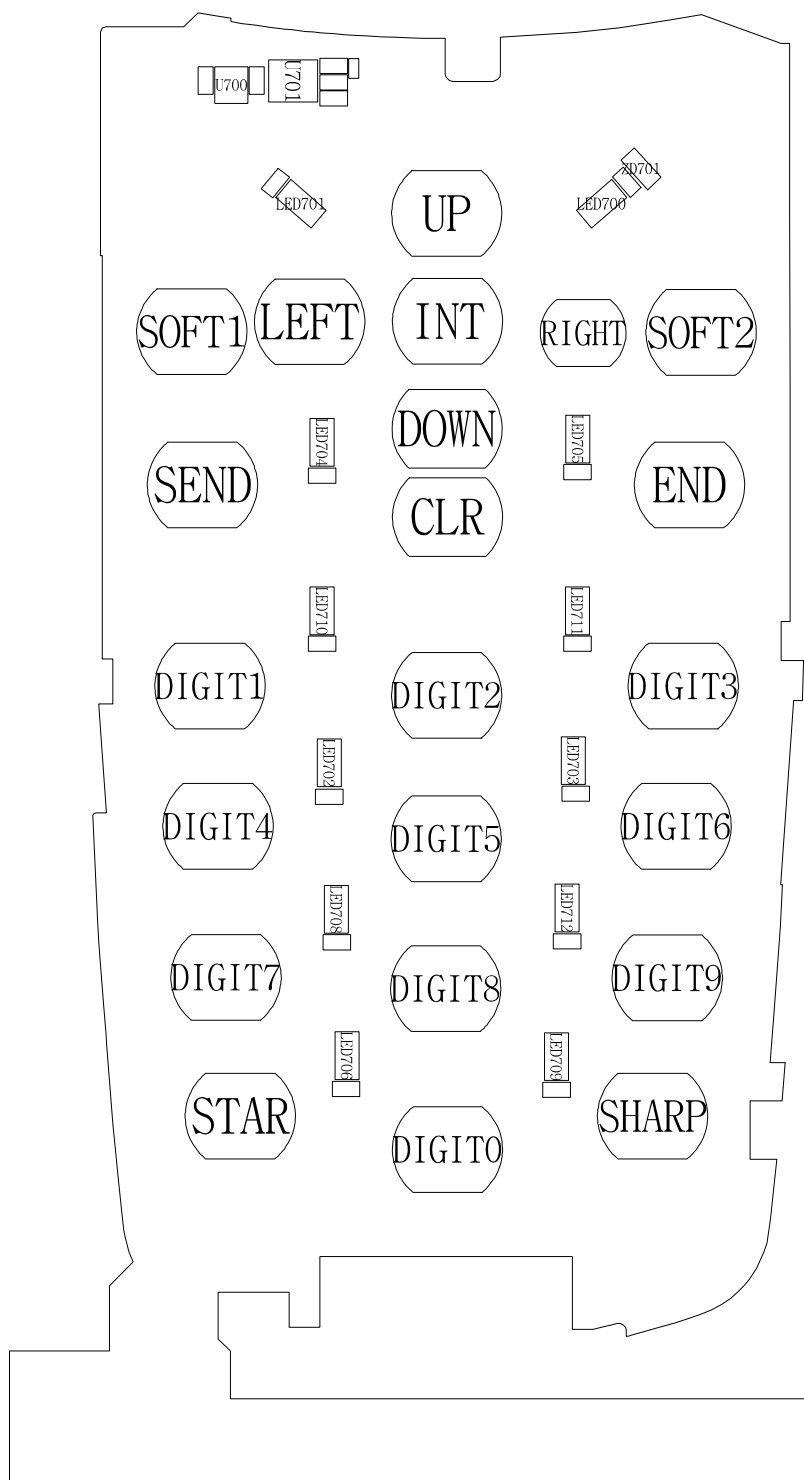
CAMERA Block diagram



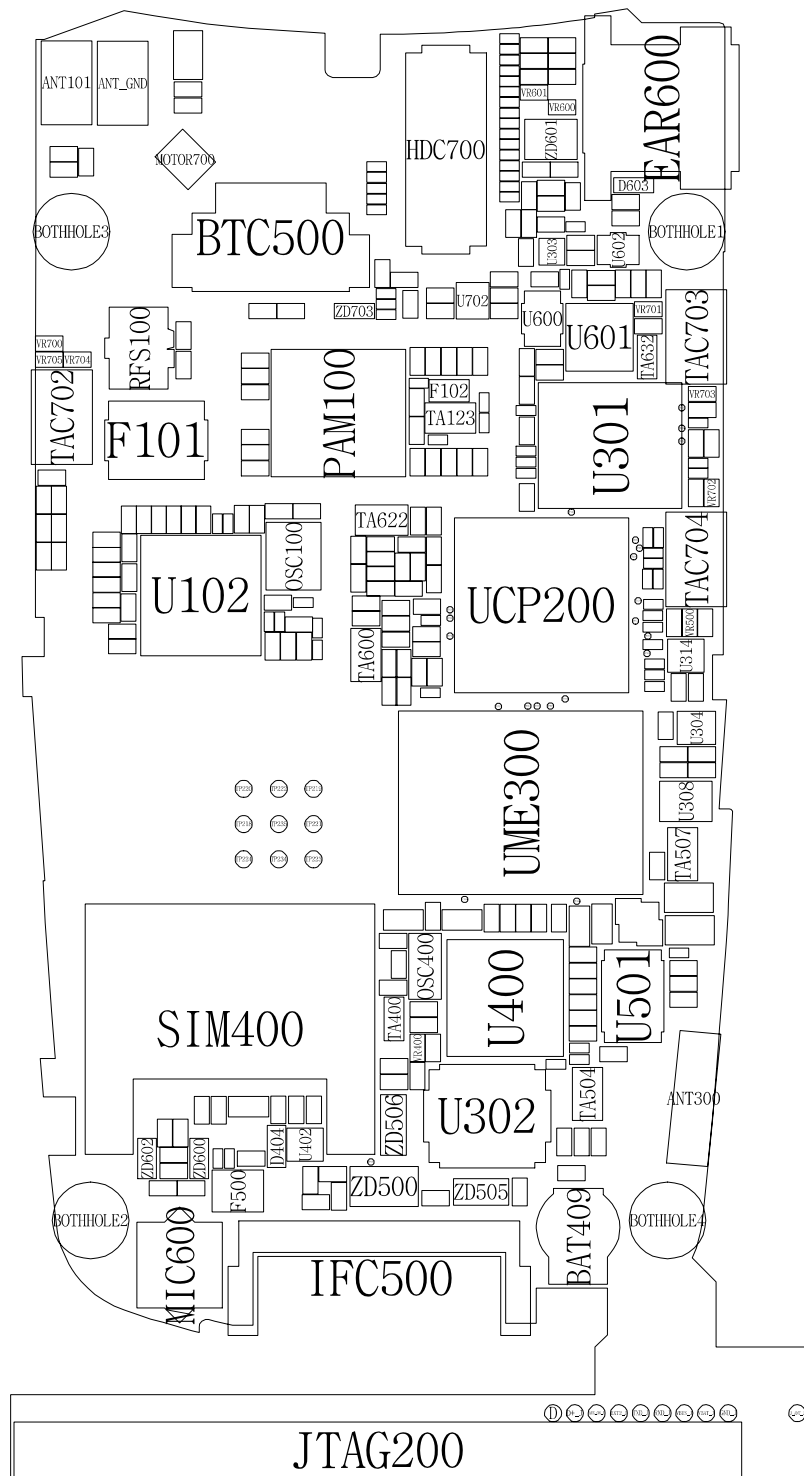
## 8. PCB Diagrams

### 8-1. MAIN

Top

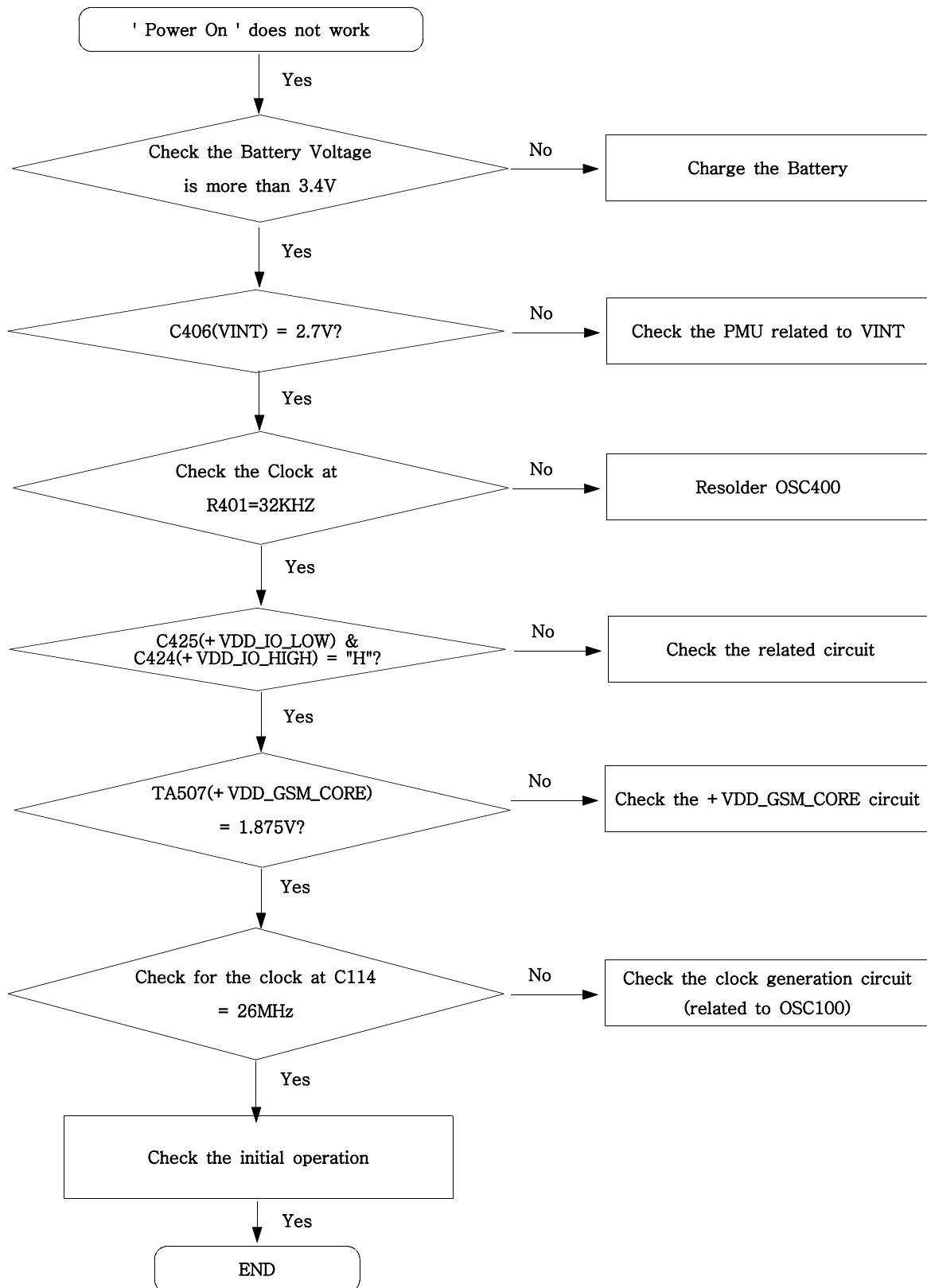


Bottom

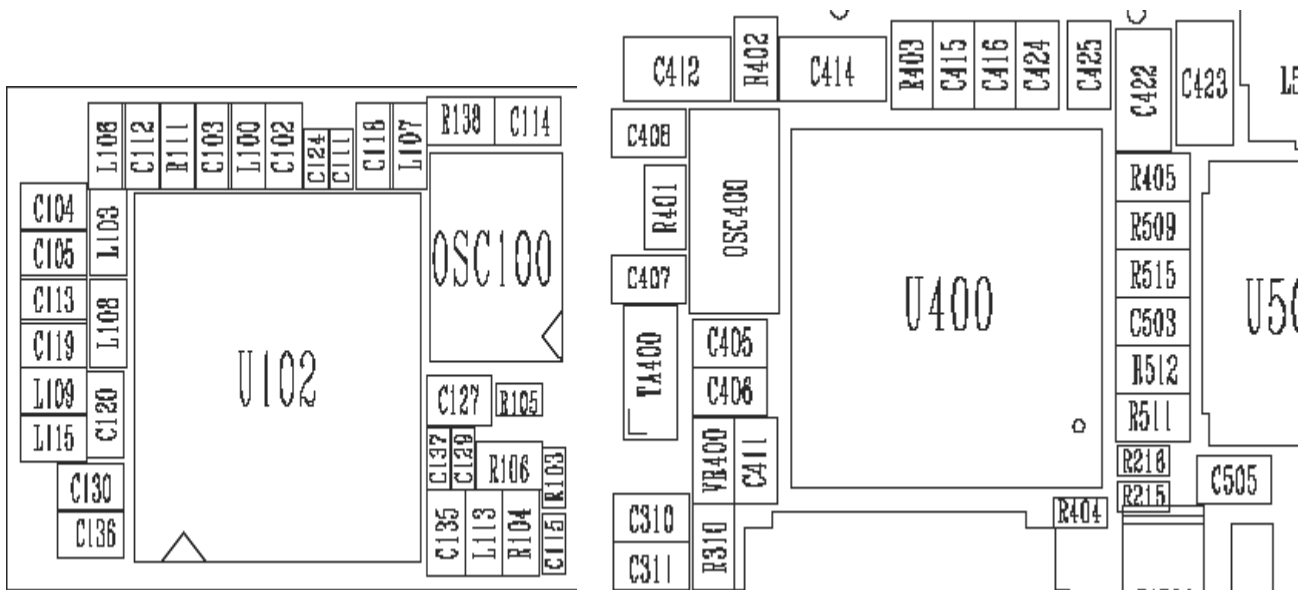
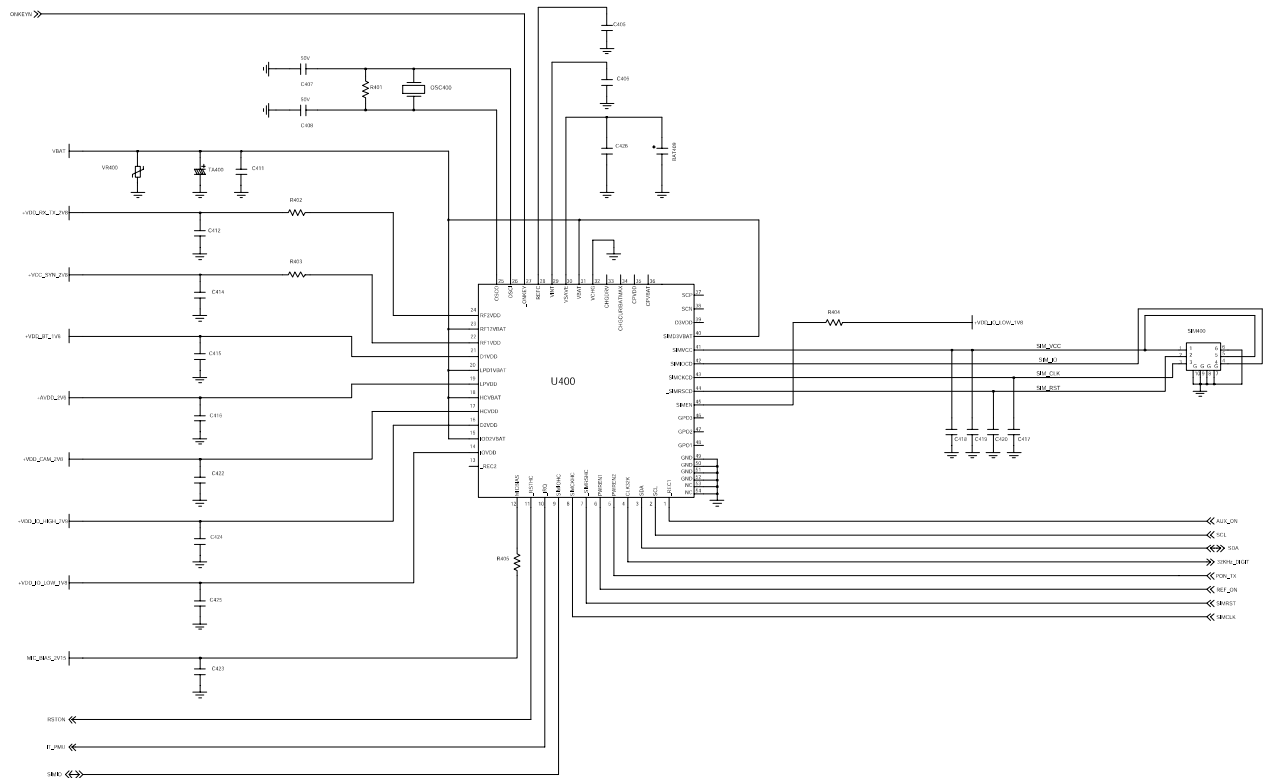


## 9. Flow Chart of Troubleshooting

### 9-1. Power On

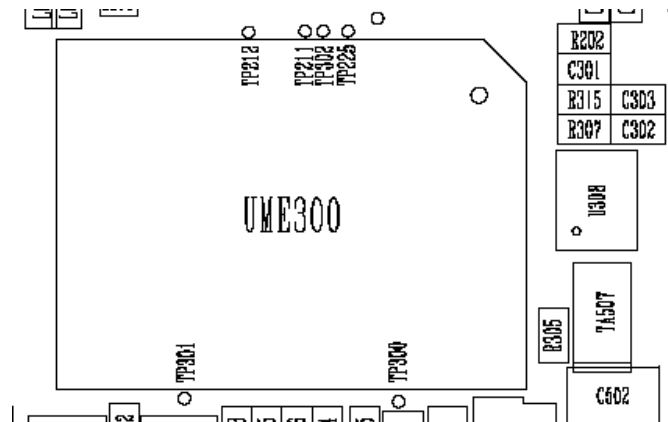
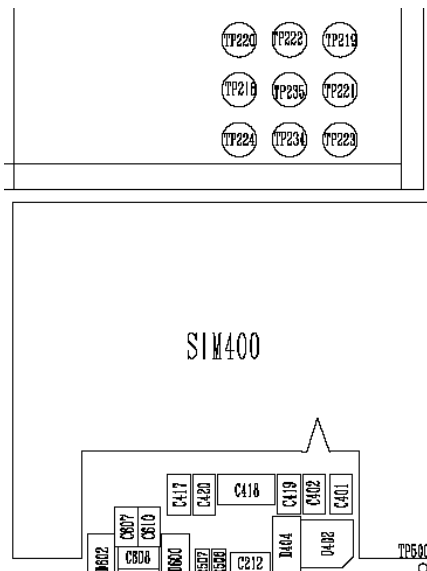
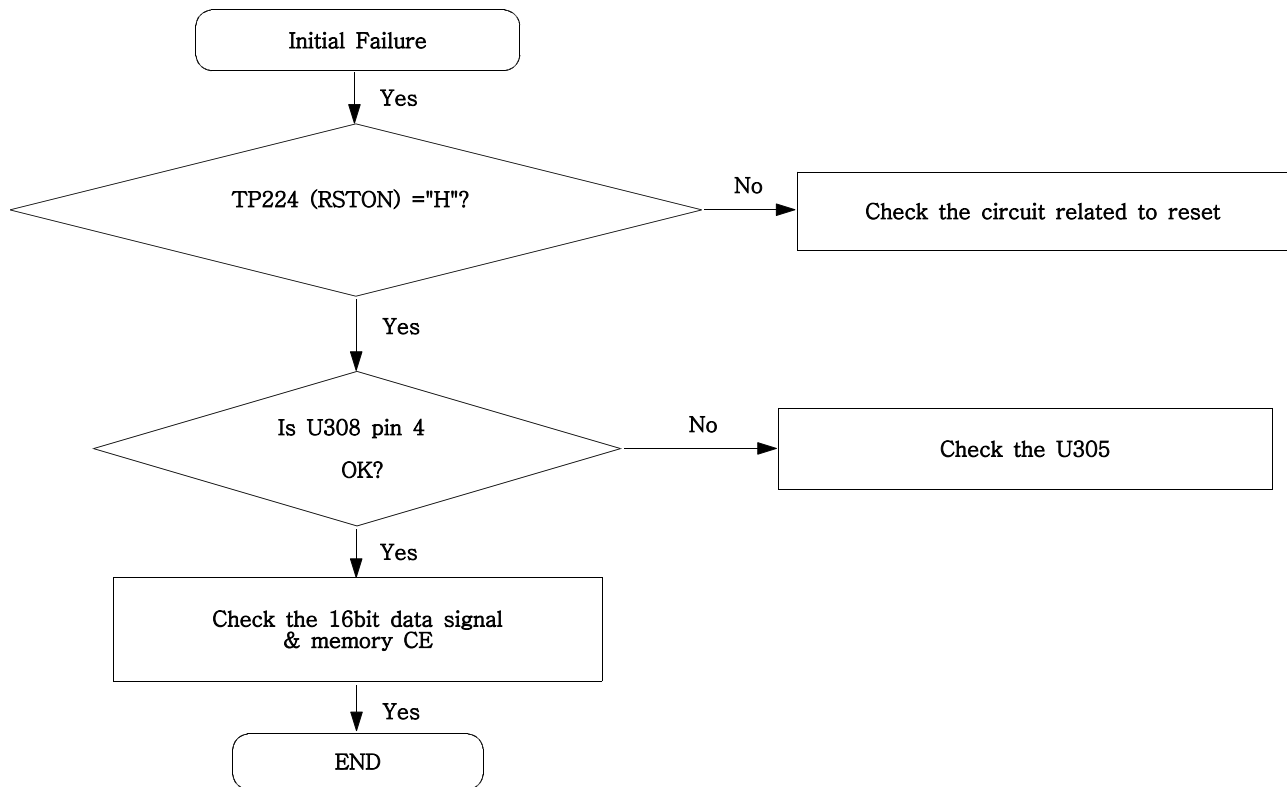


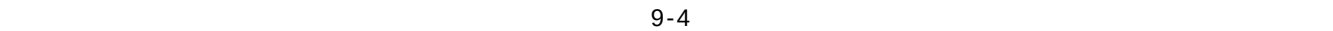
## Flow Chart of Troubleshooting



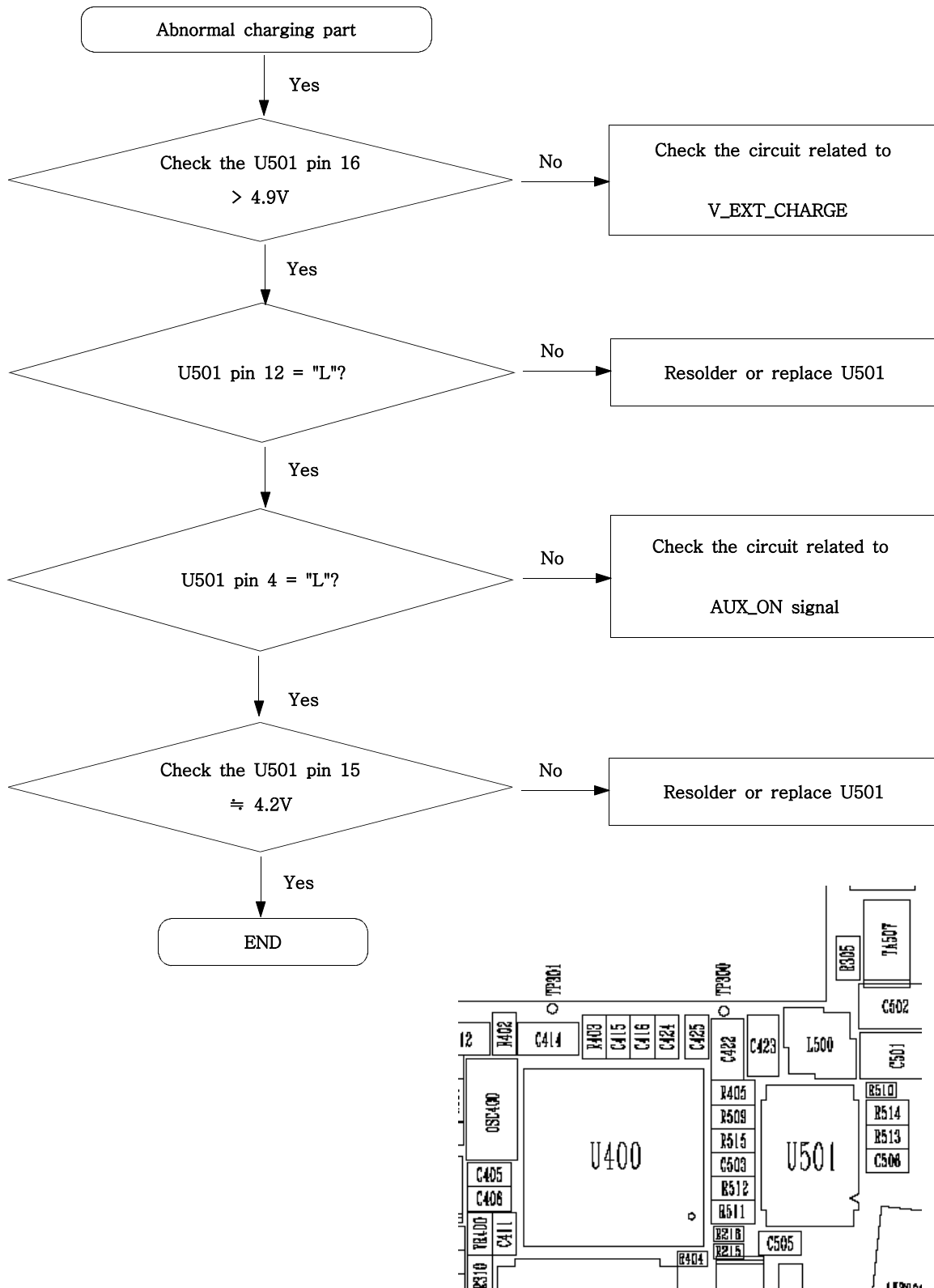


## 9-2. Initial

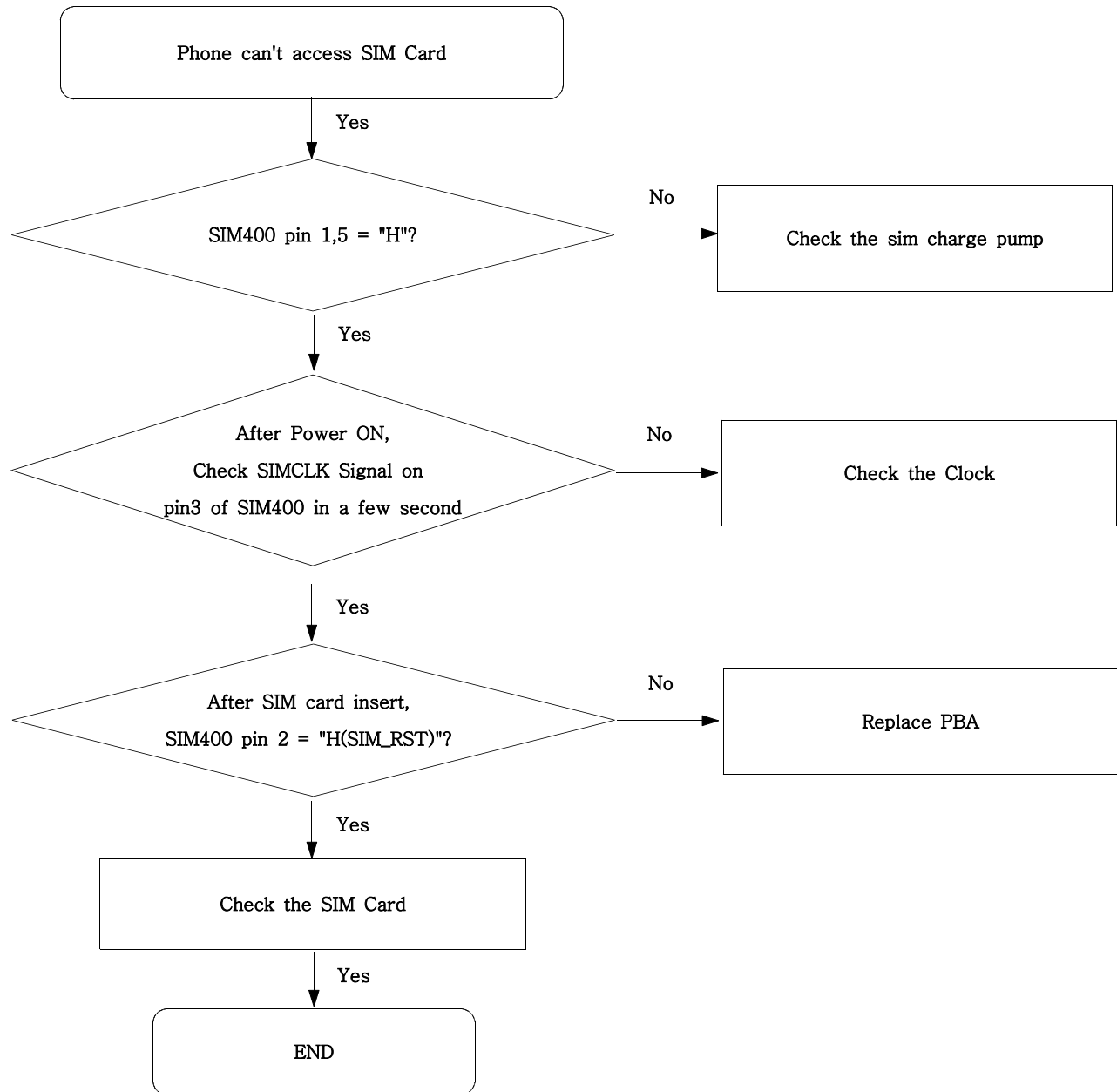


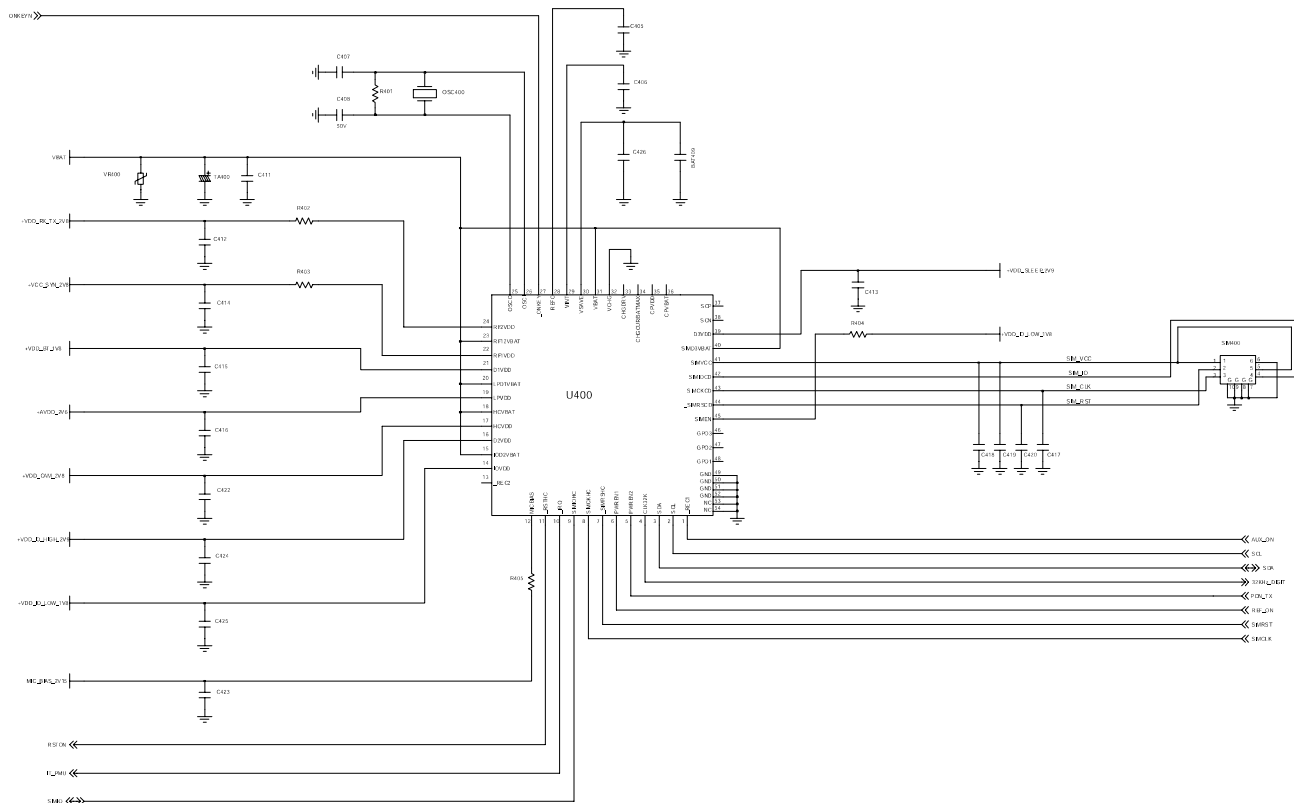


## 9-3. Charging Part

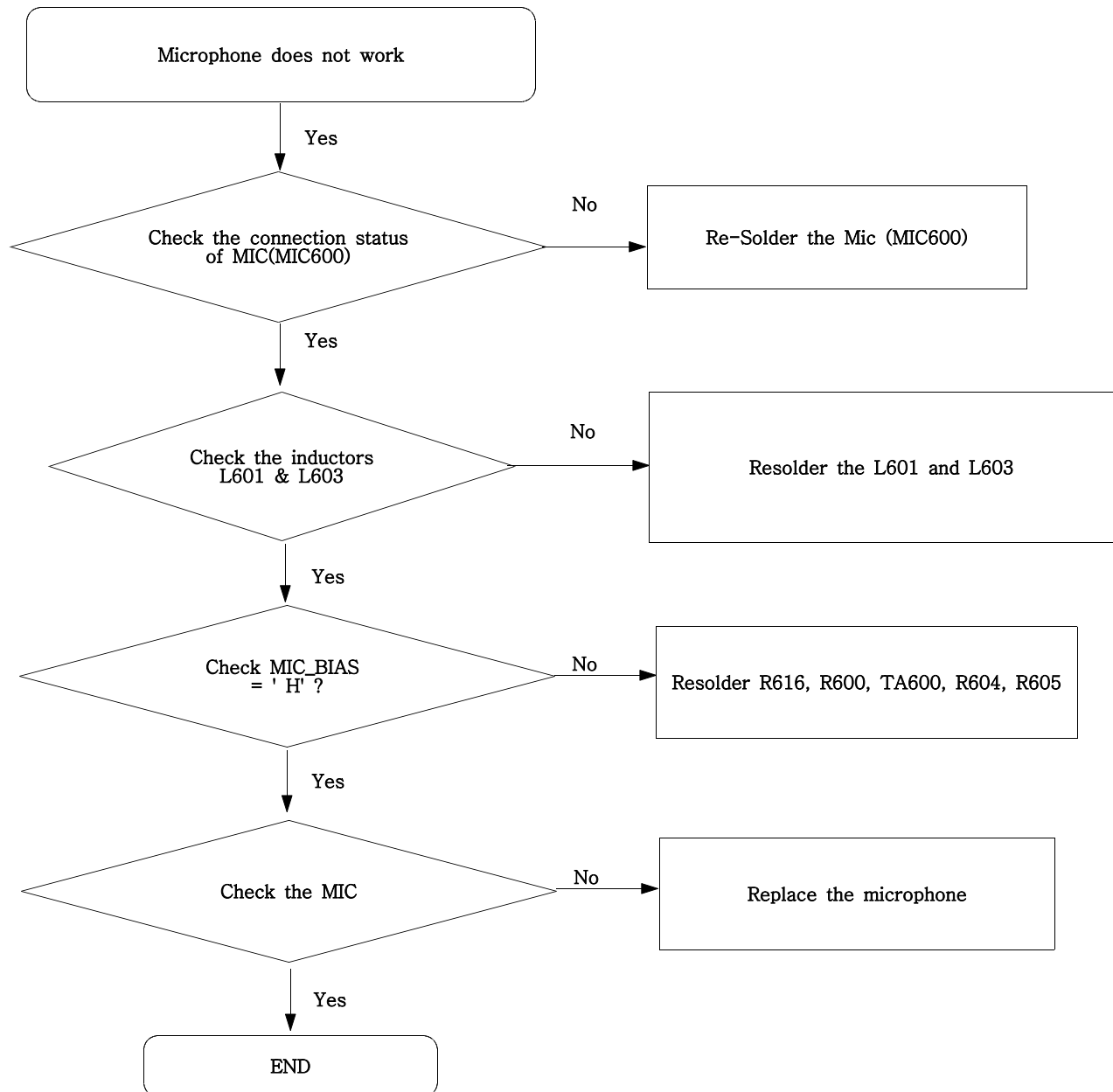


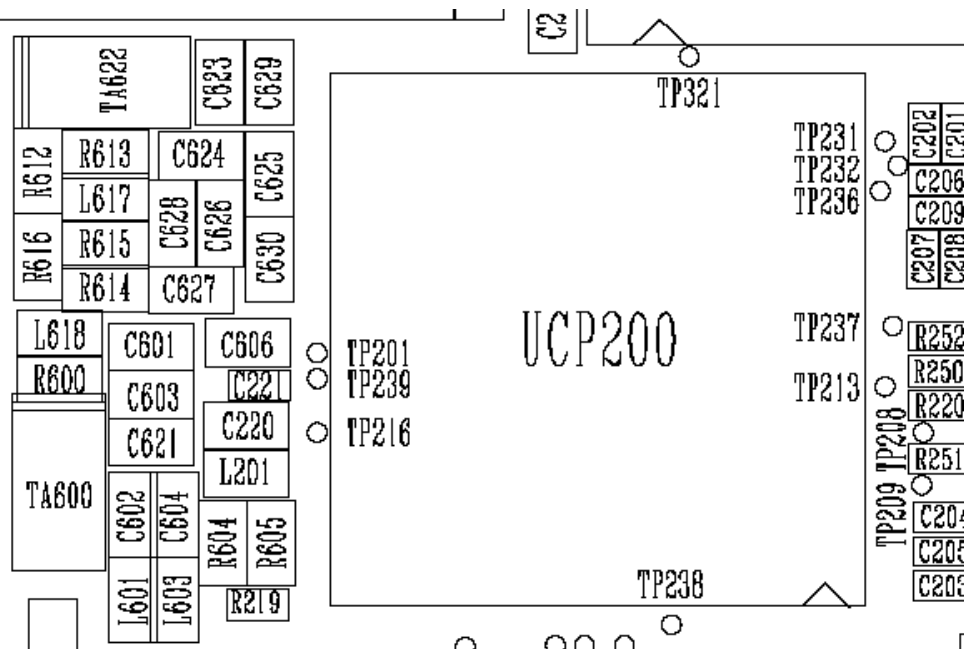
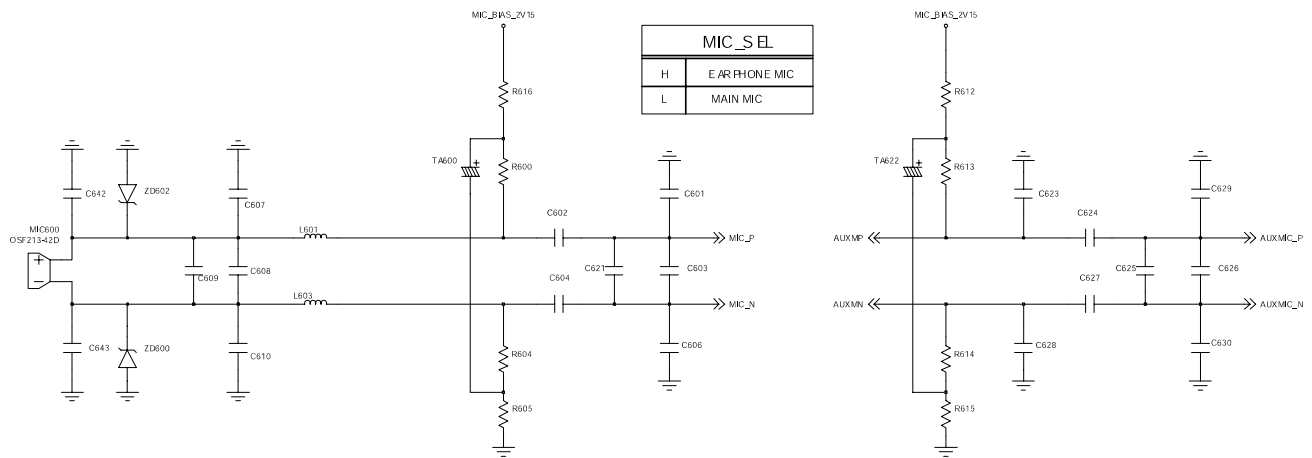
#### 9-4. Sim Part



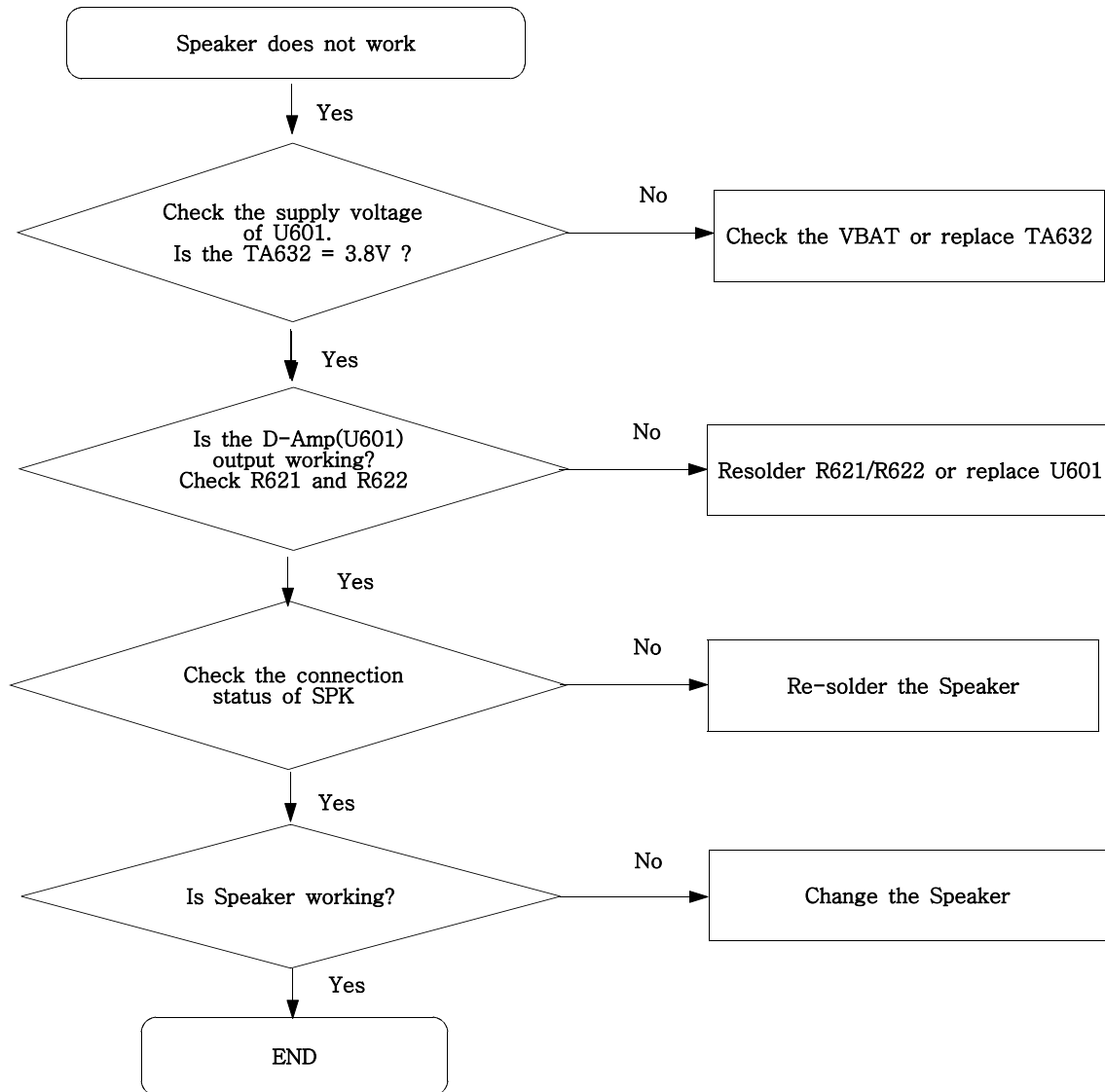


## 9-5. Microphone Part

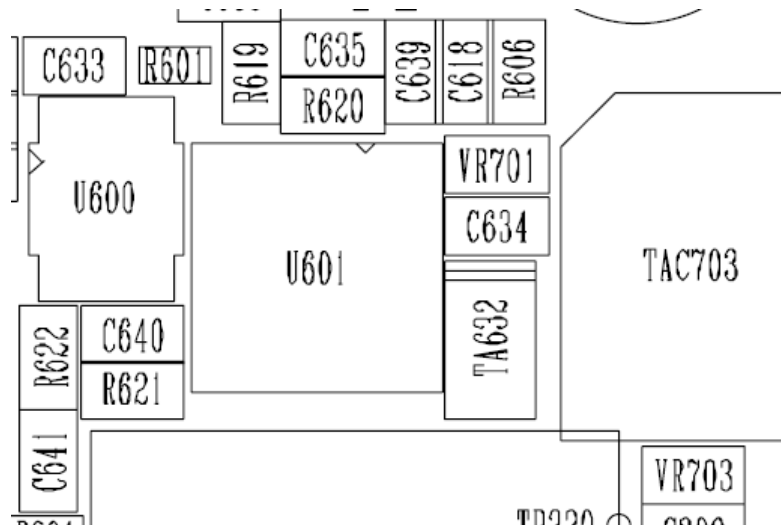
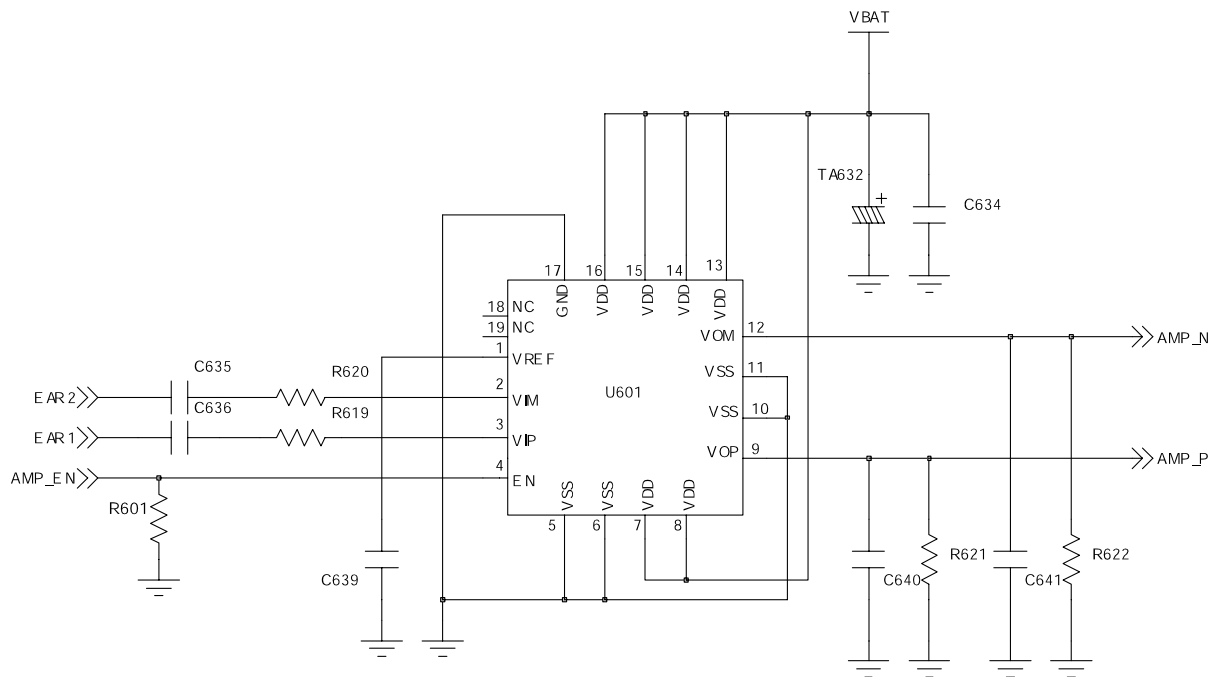




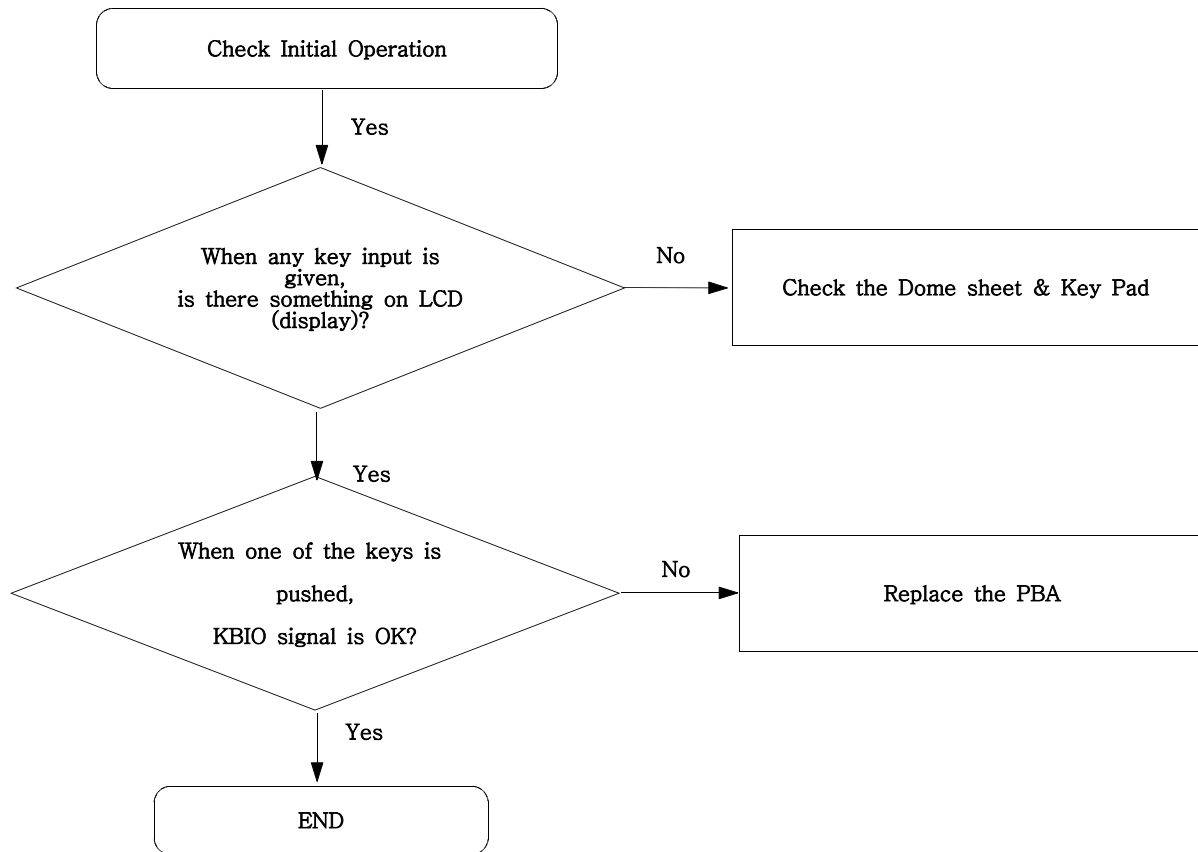
## 9-6. Speaker Part

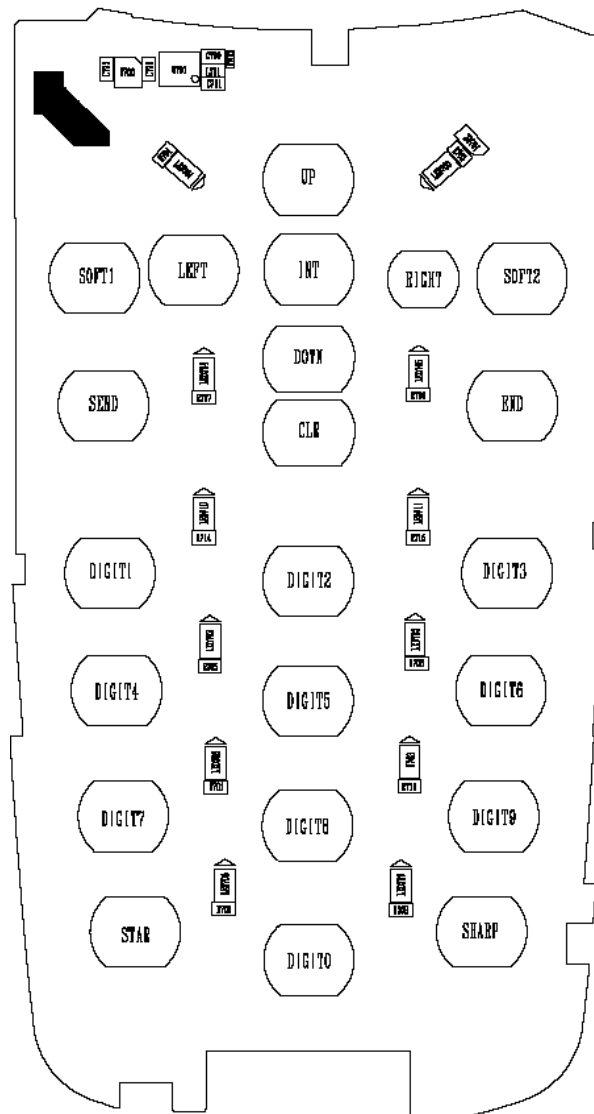
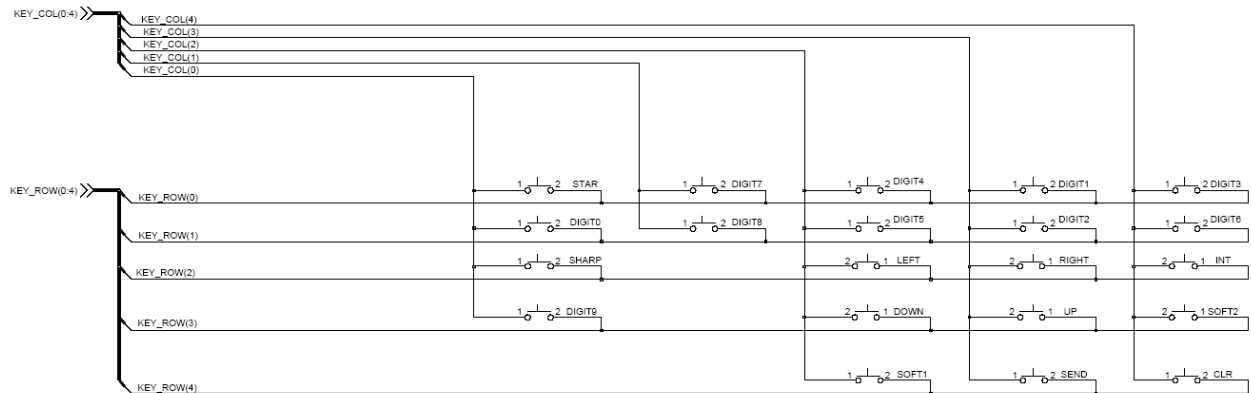




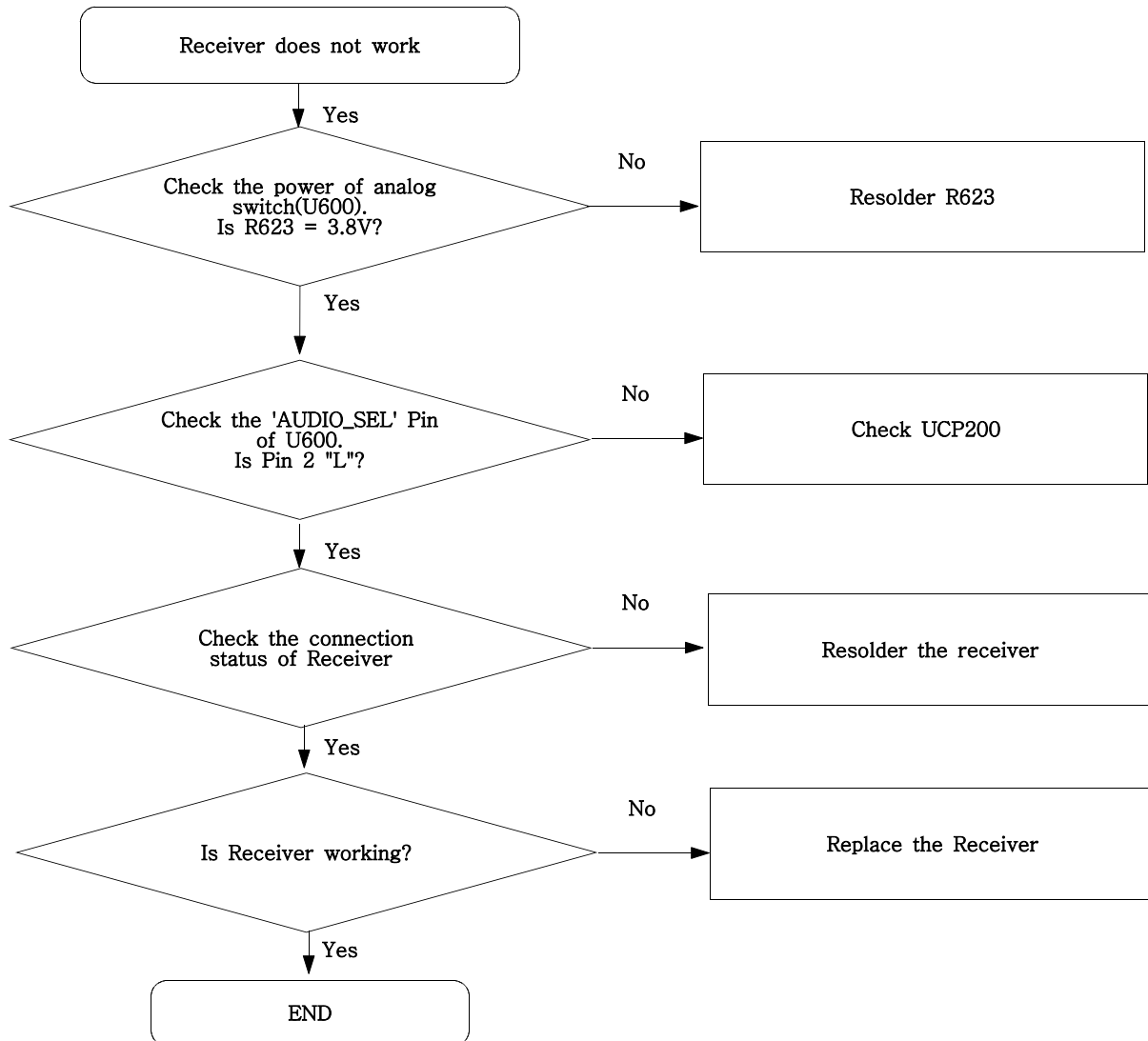


## 9-7. Key Data Input

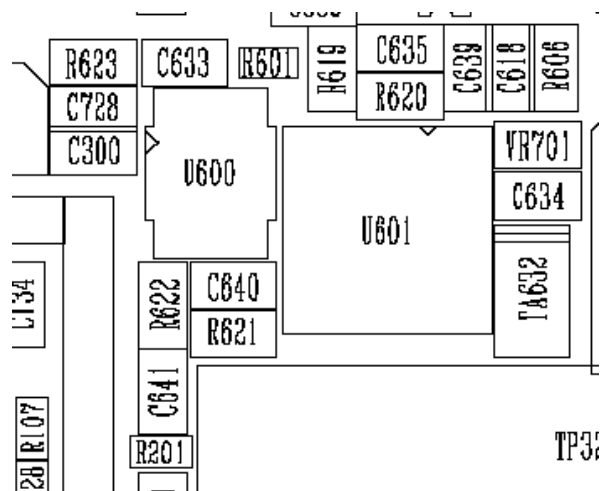
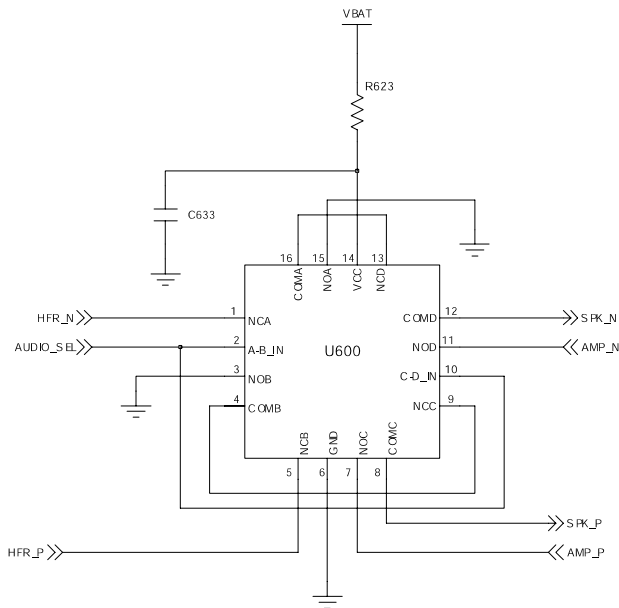
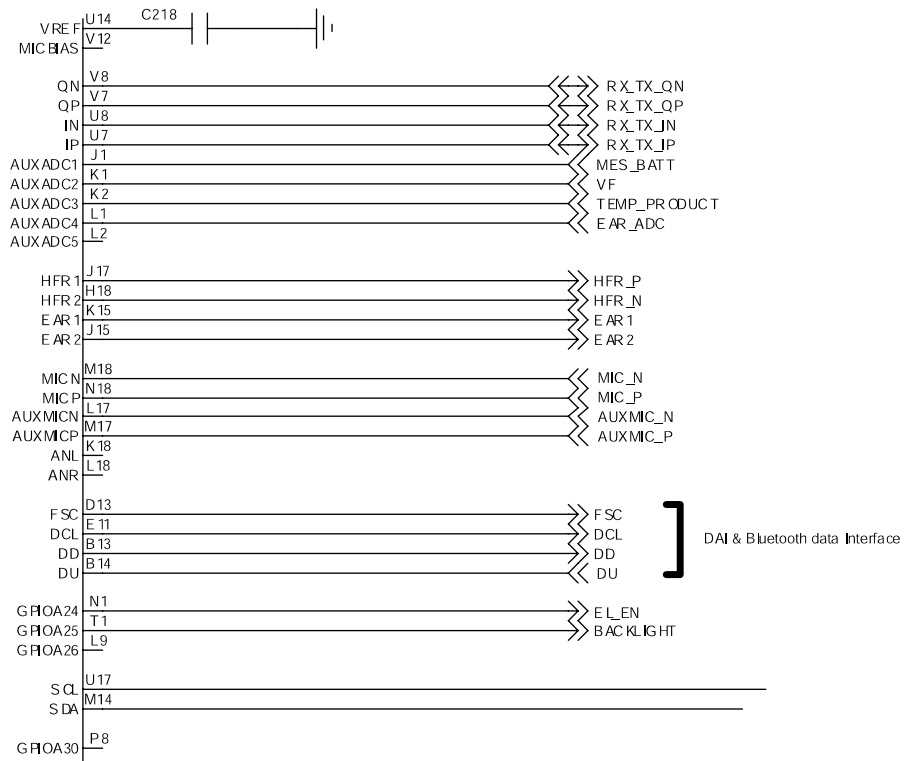




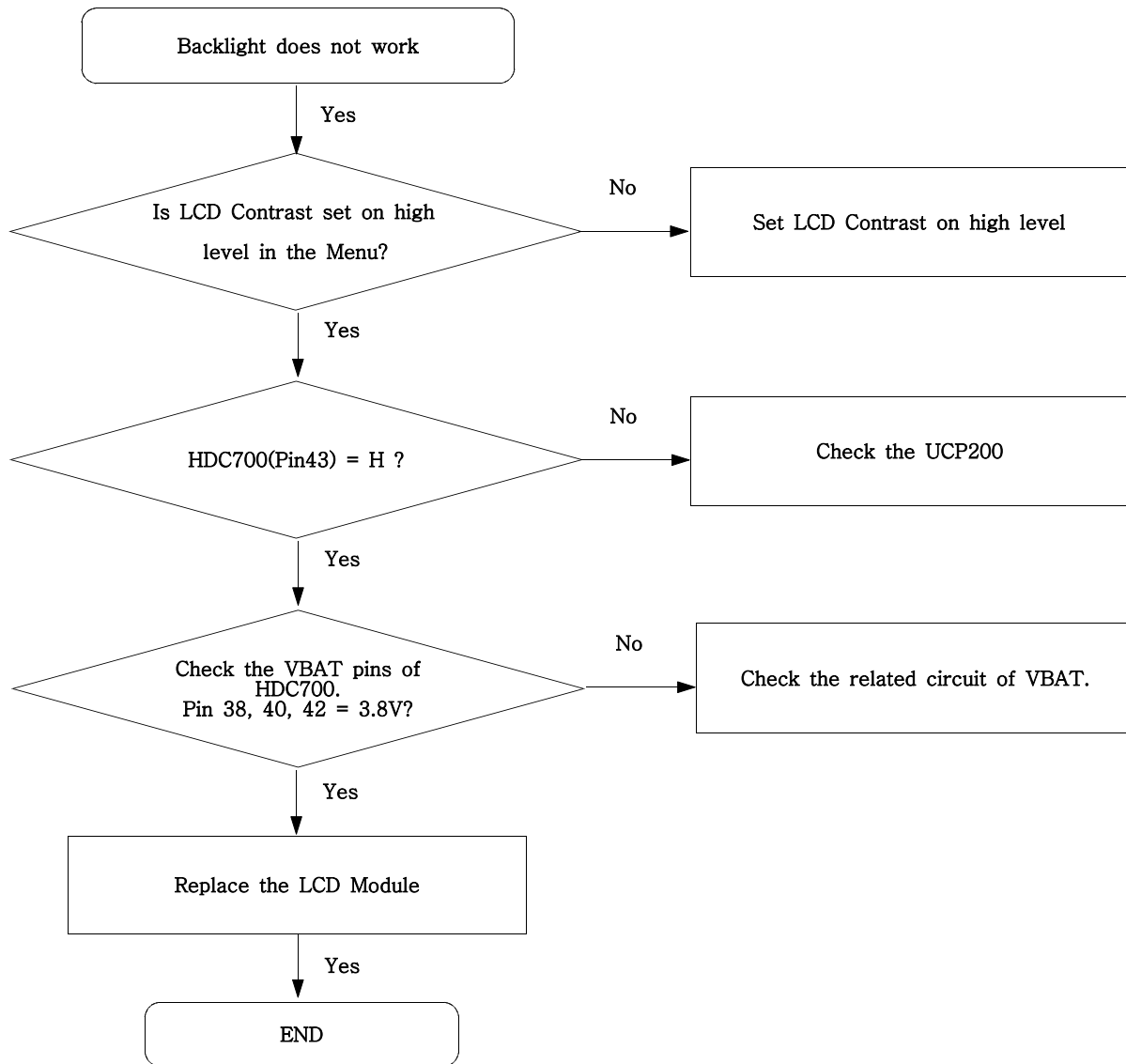
## 9-8. Receiver Part

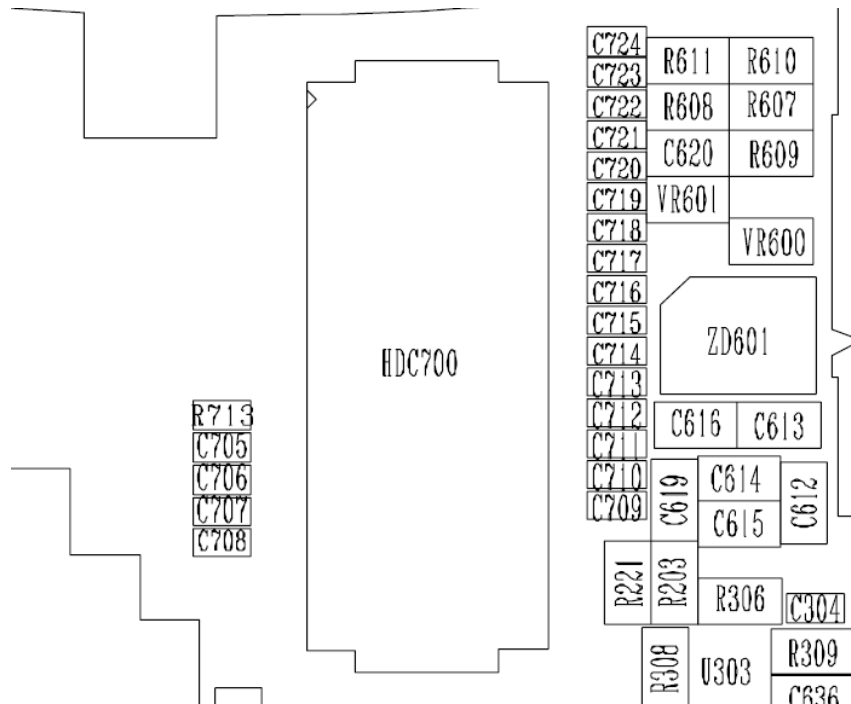
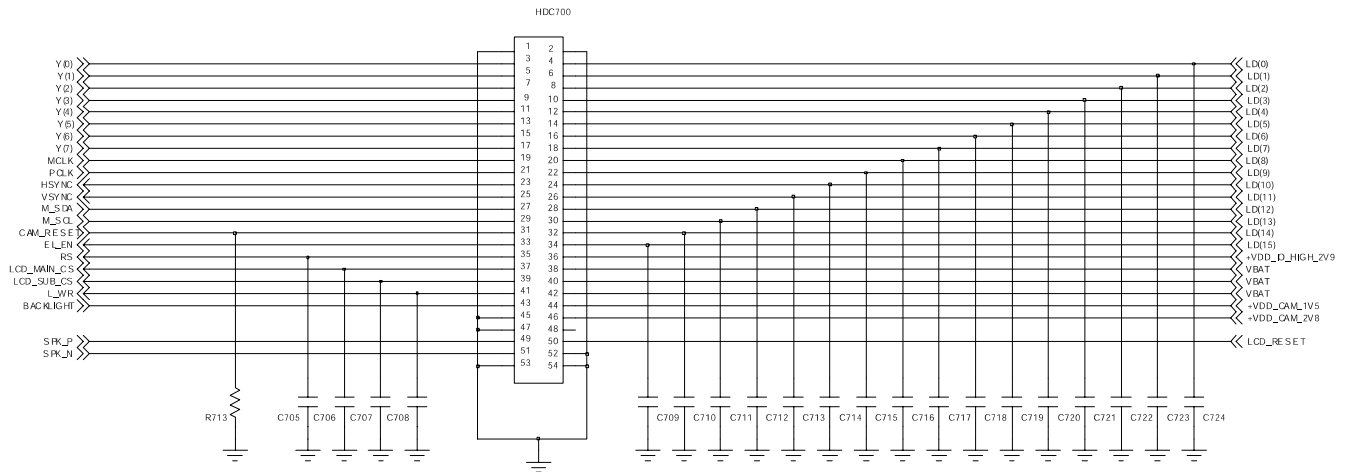


UCP200

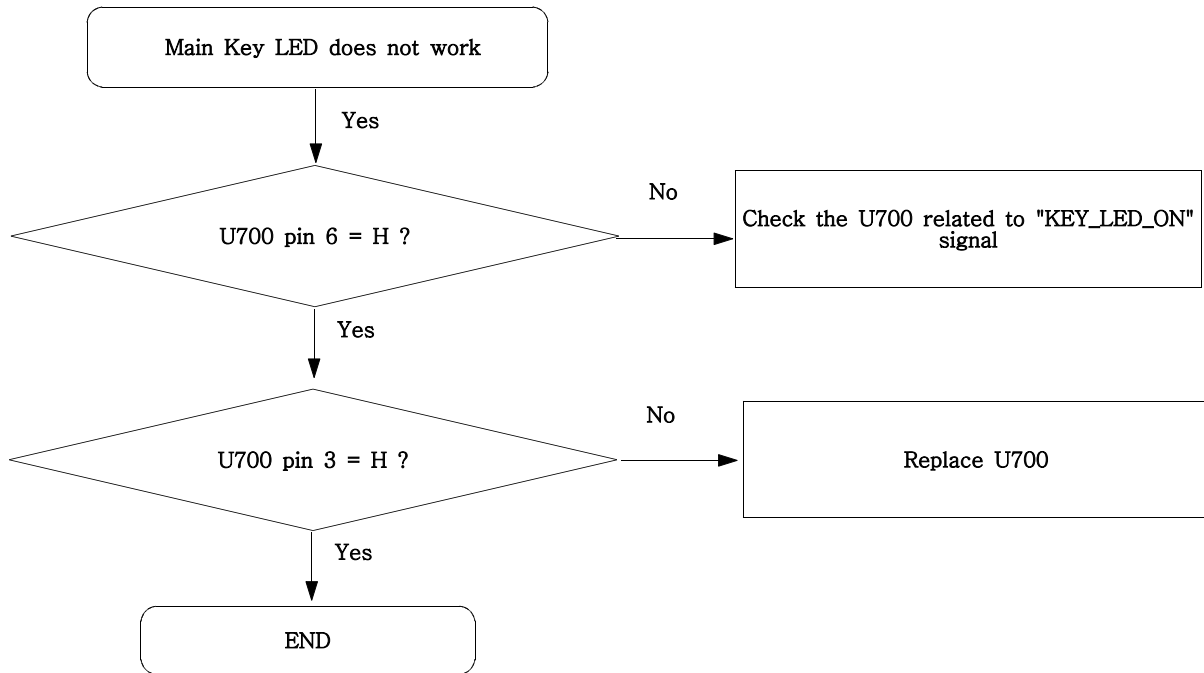


### 9-9. Back Light (for LCD)

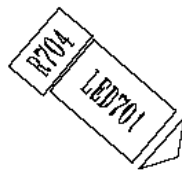
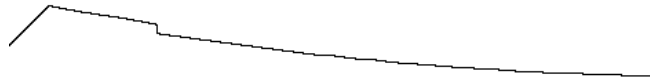
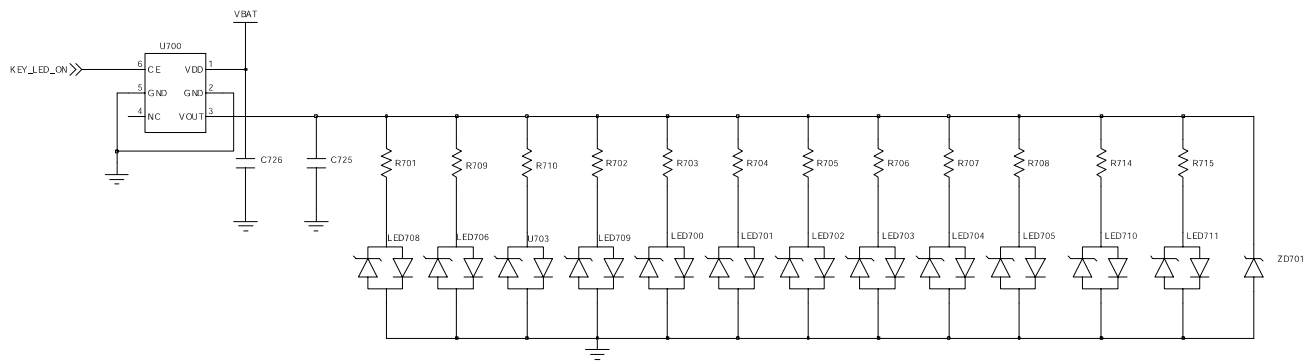




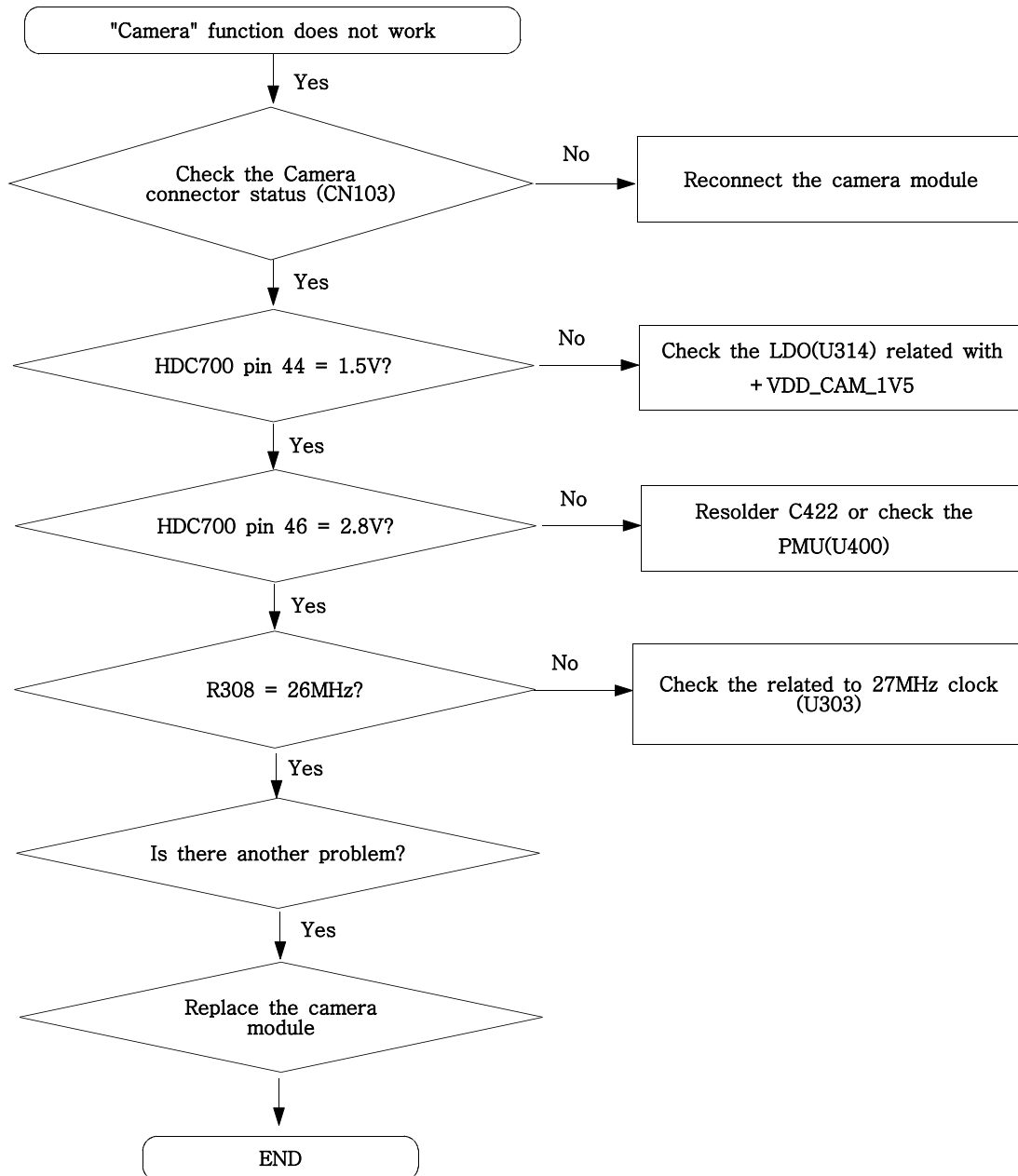
## 9-10. Key Back Light

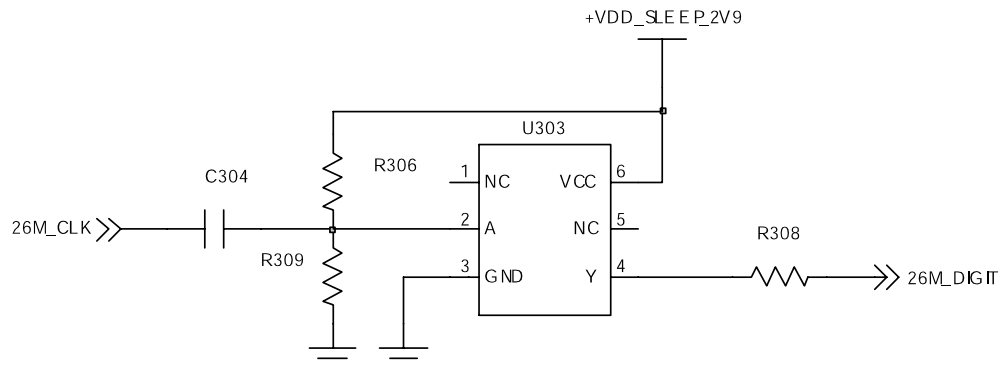
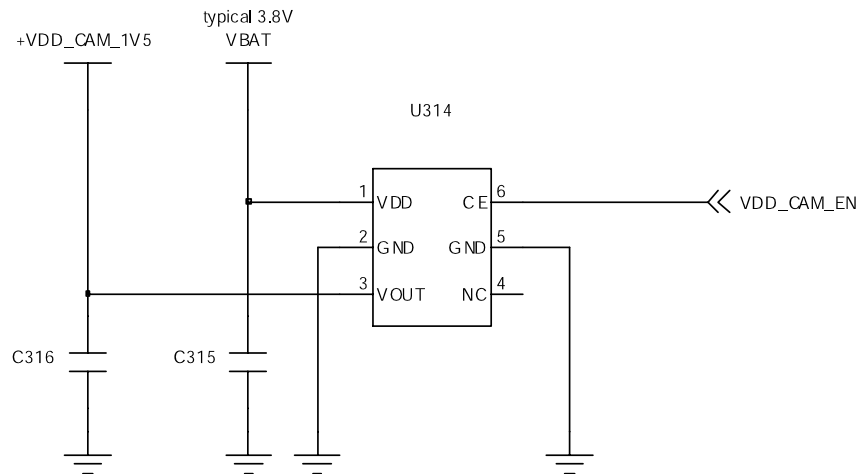
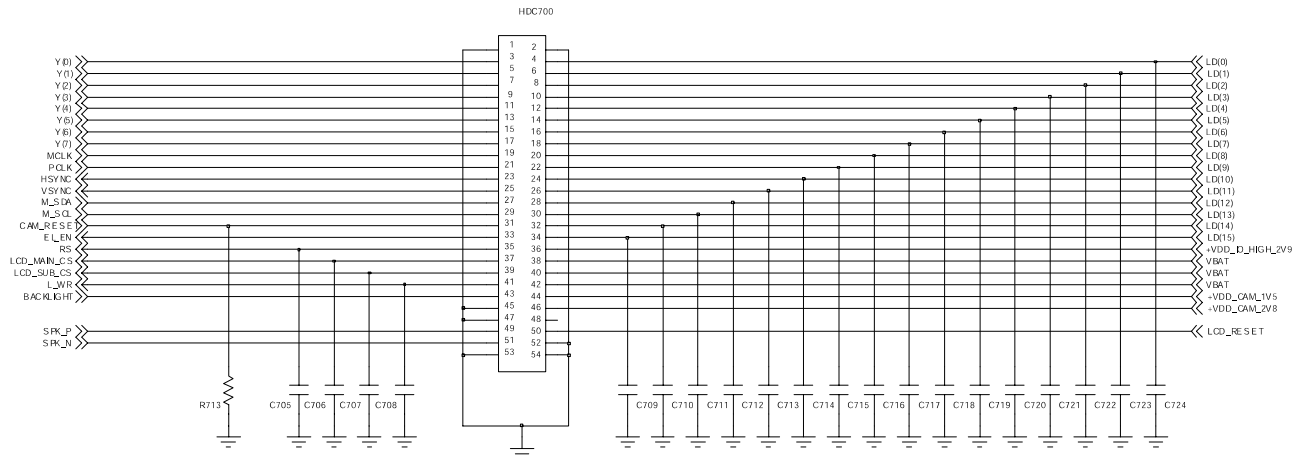


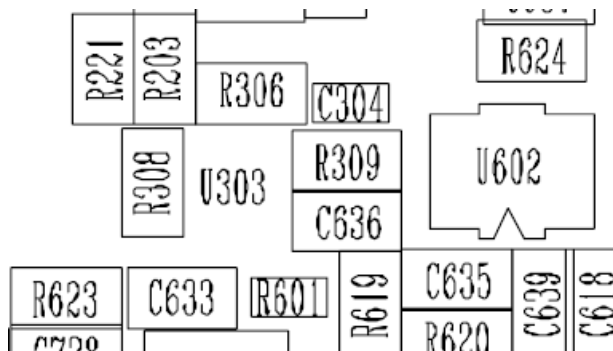
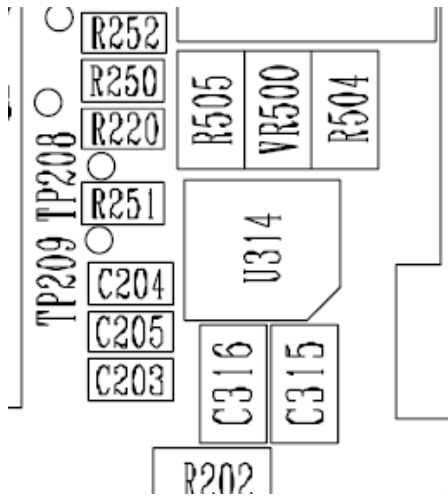
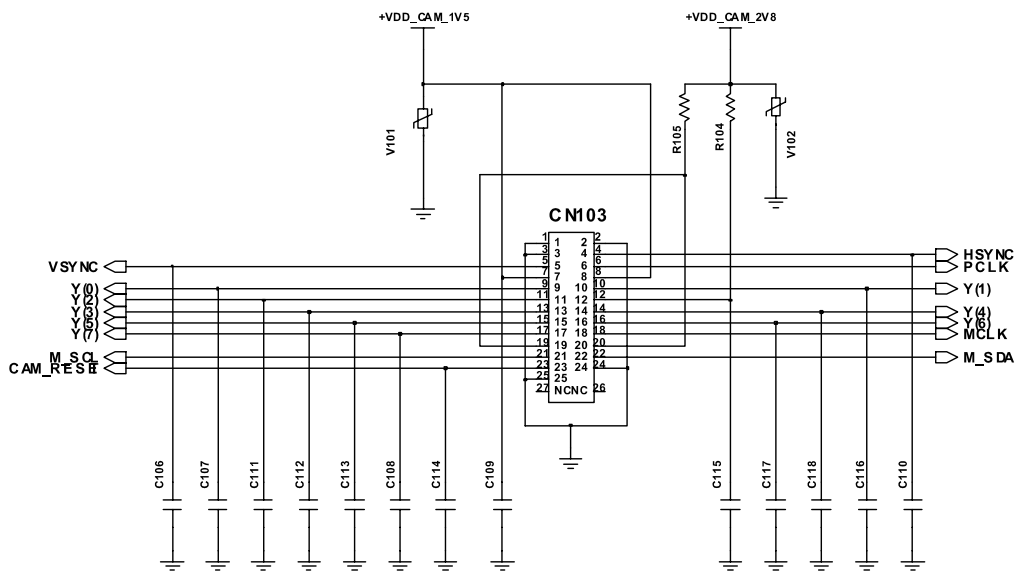




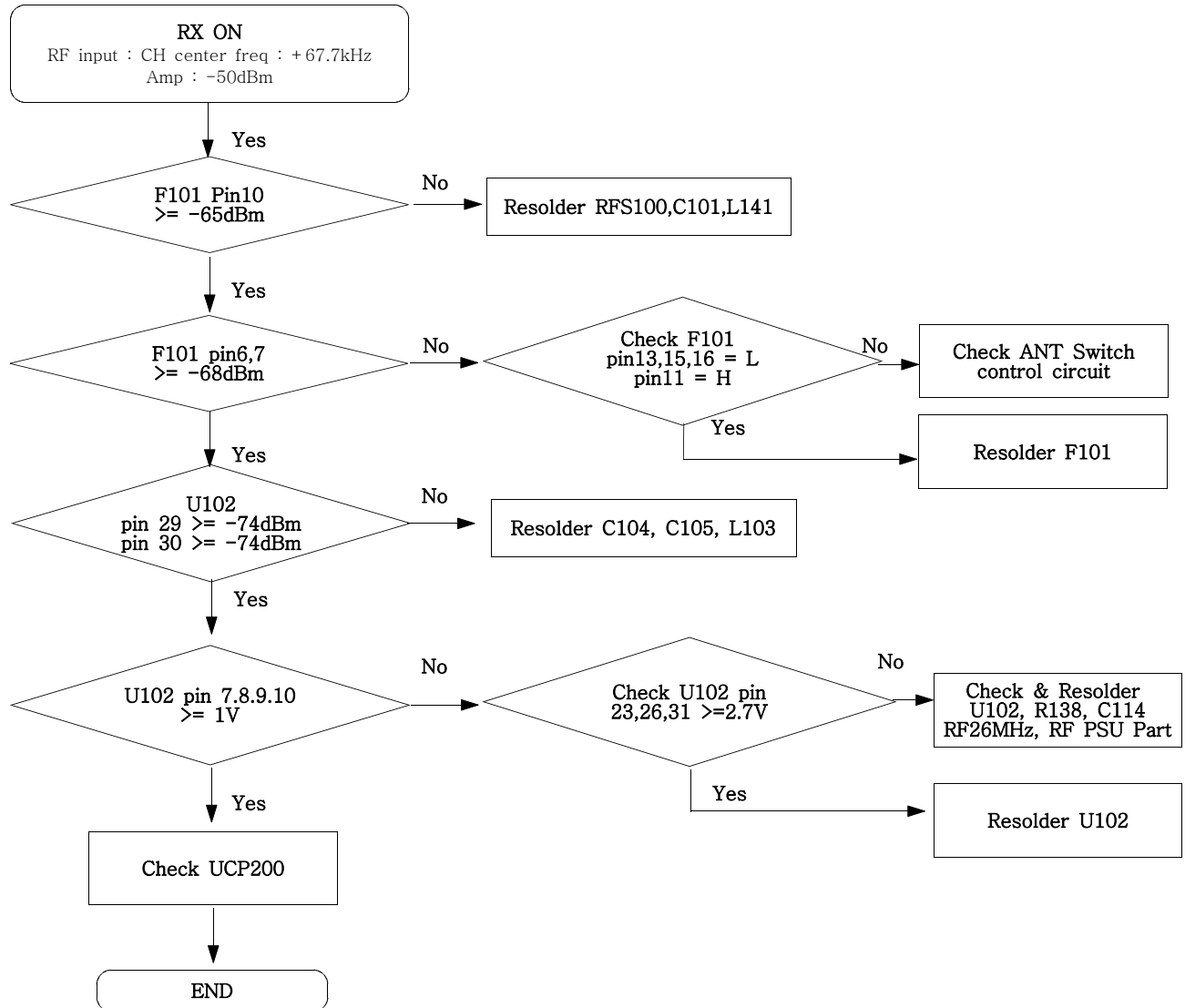
## 9-11. Camera part



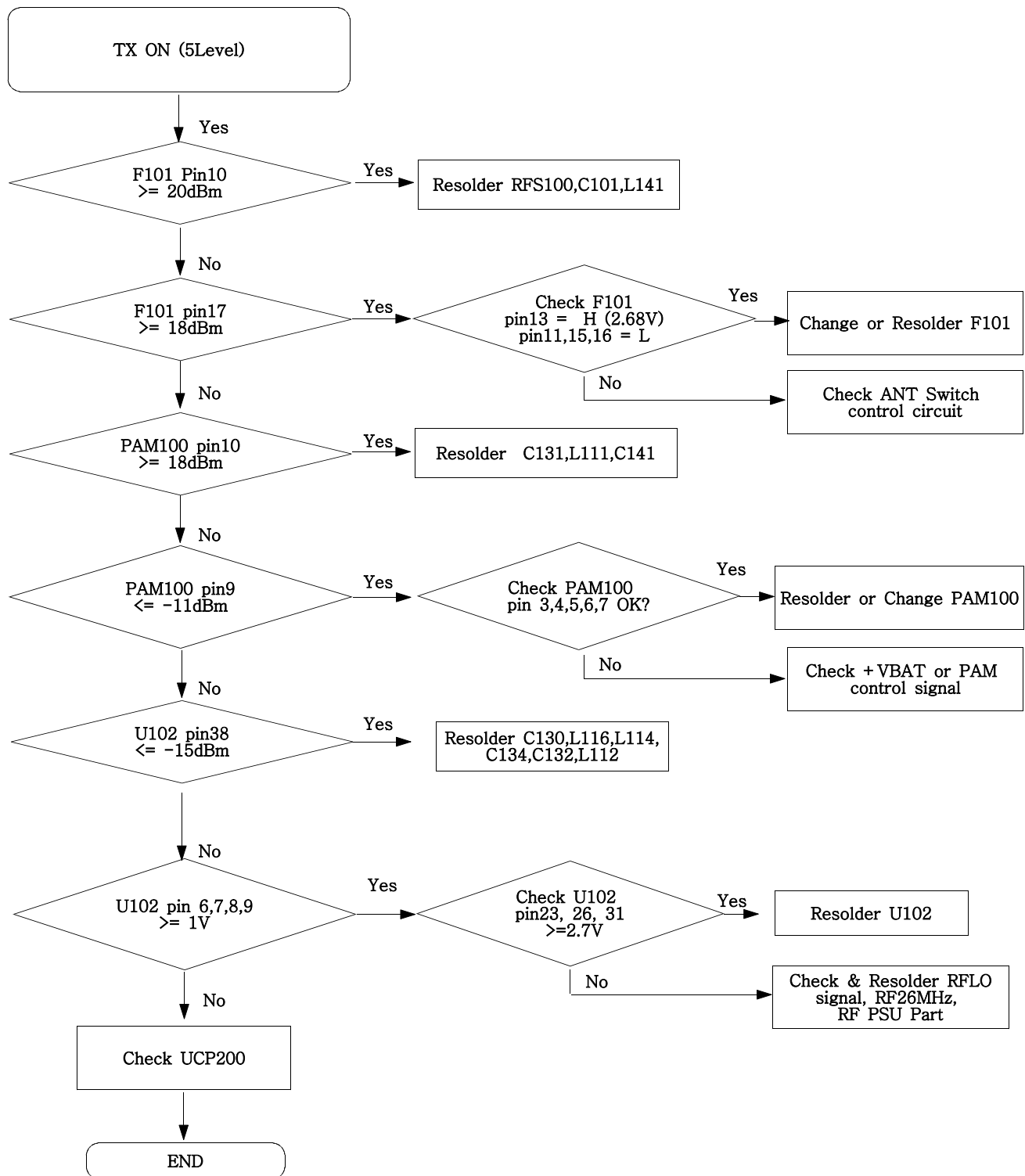




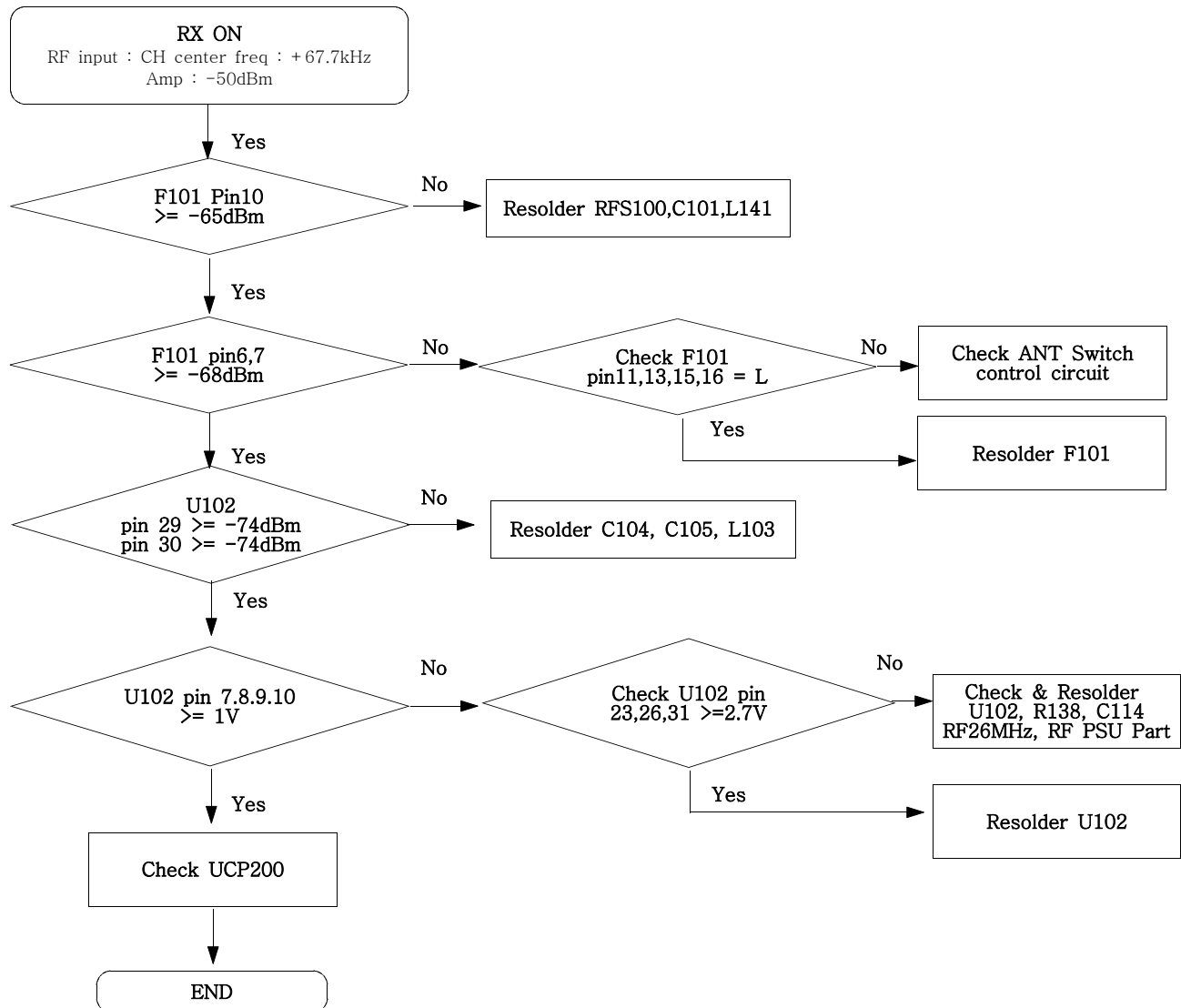
## 9-12. GSM850 Receiver



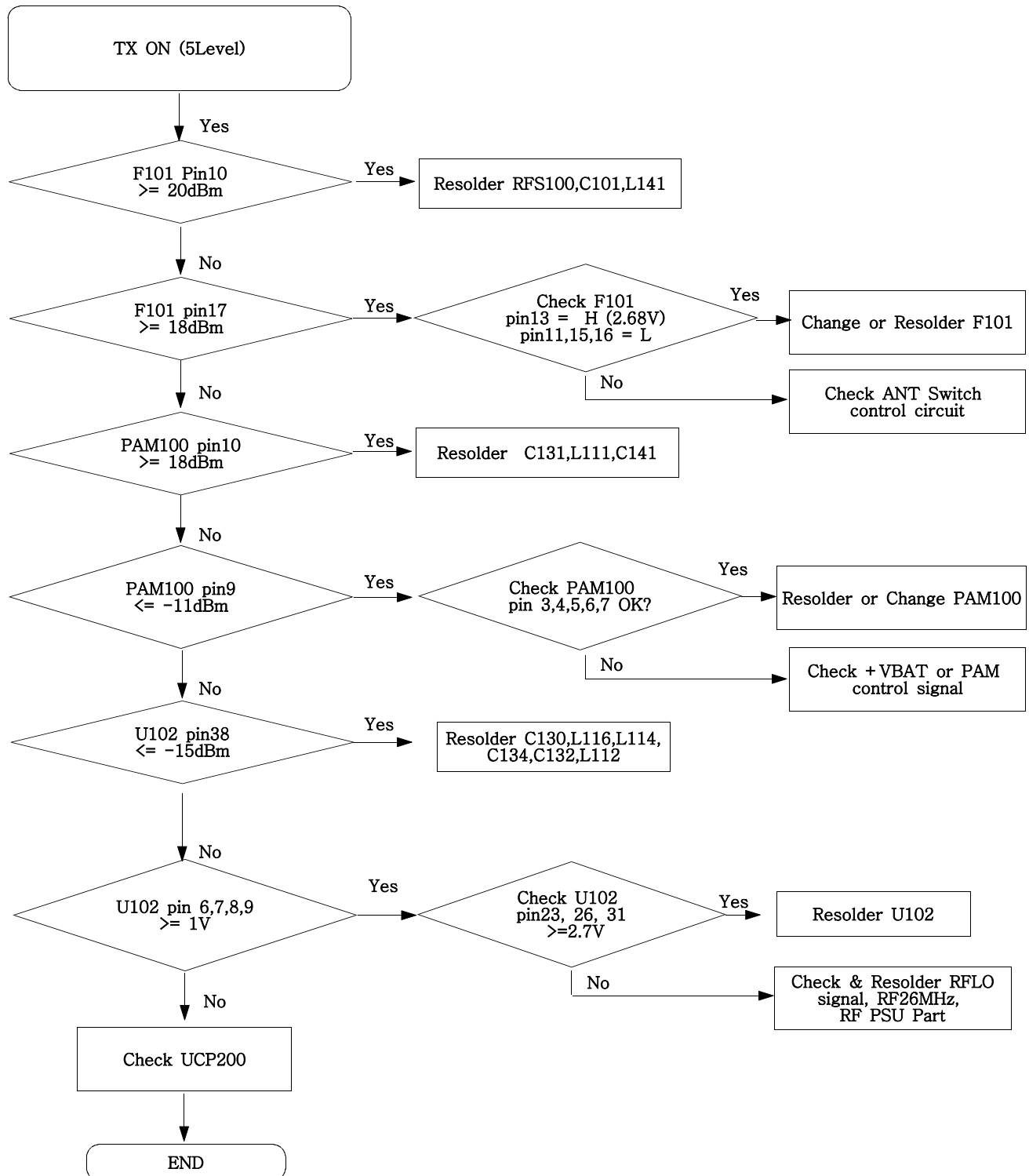
### 9-13. GSM850 Transmitter



## 9-14. GSM900 Receiver

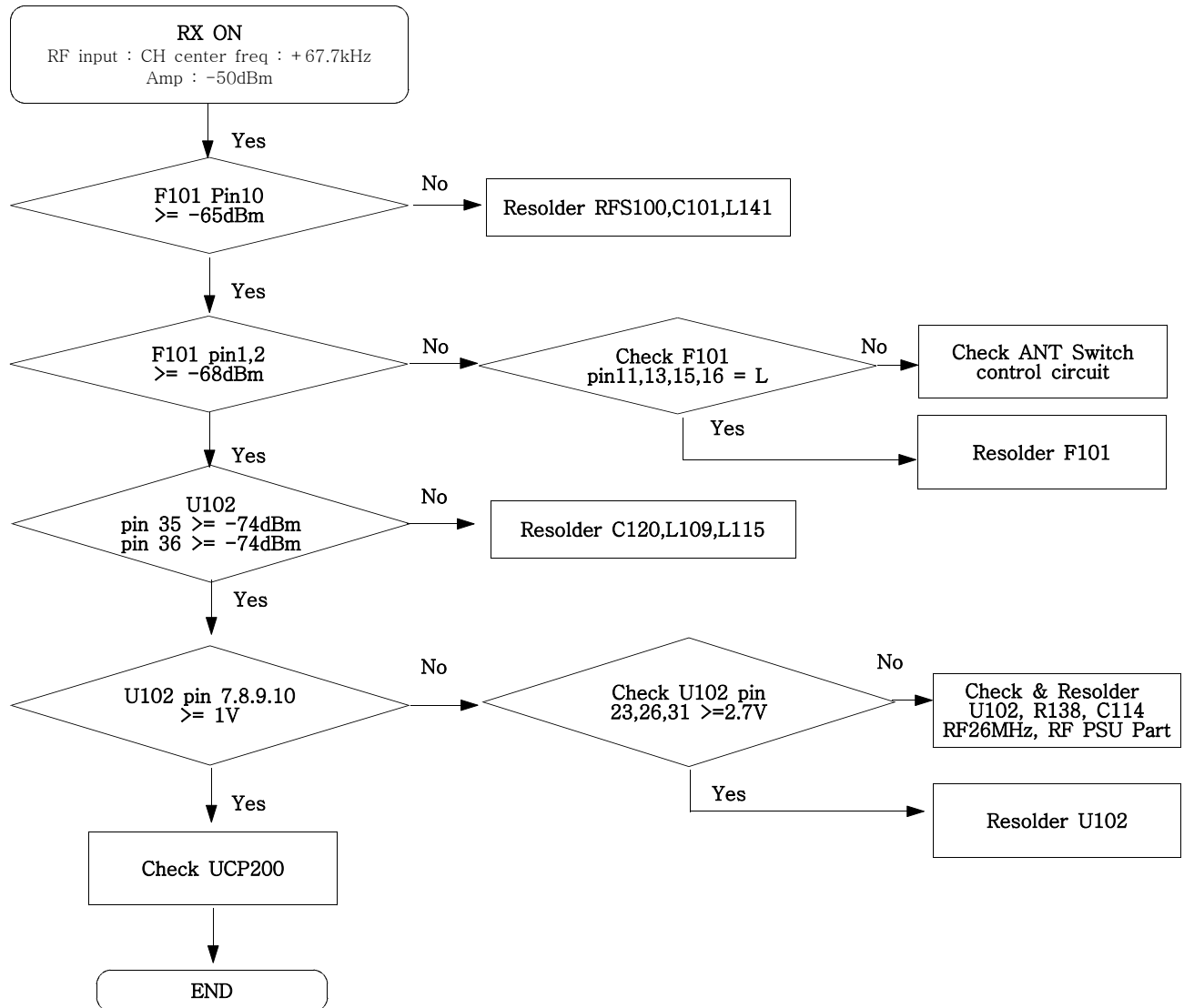


## 9-15. GSM900 Transmitter

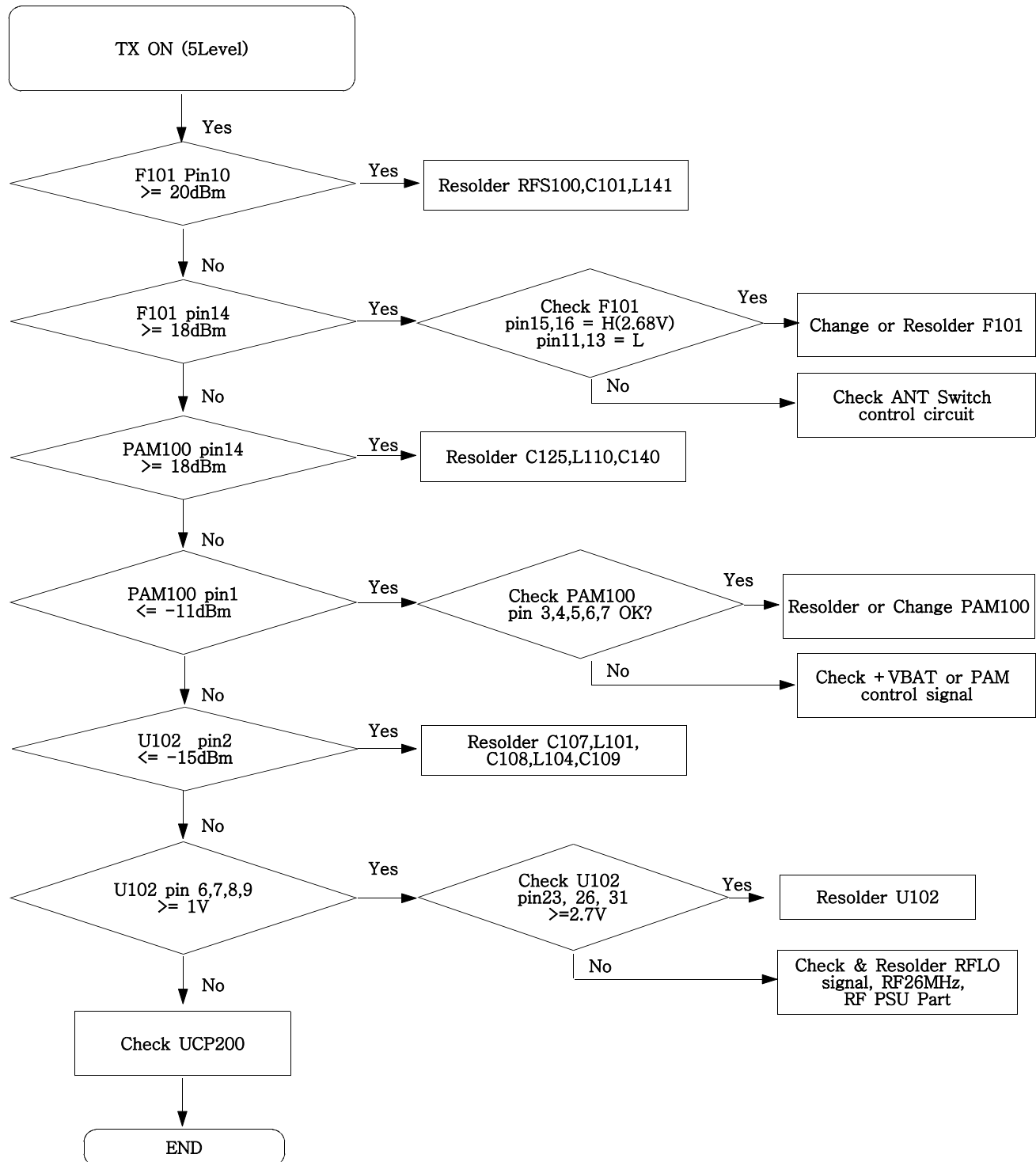




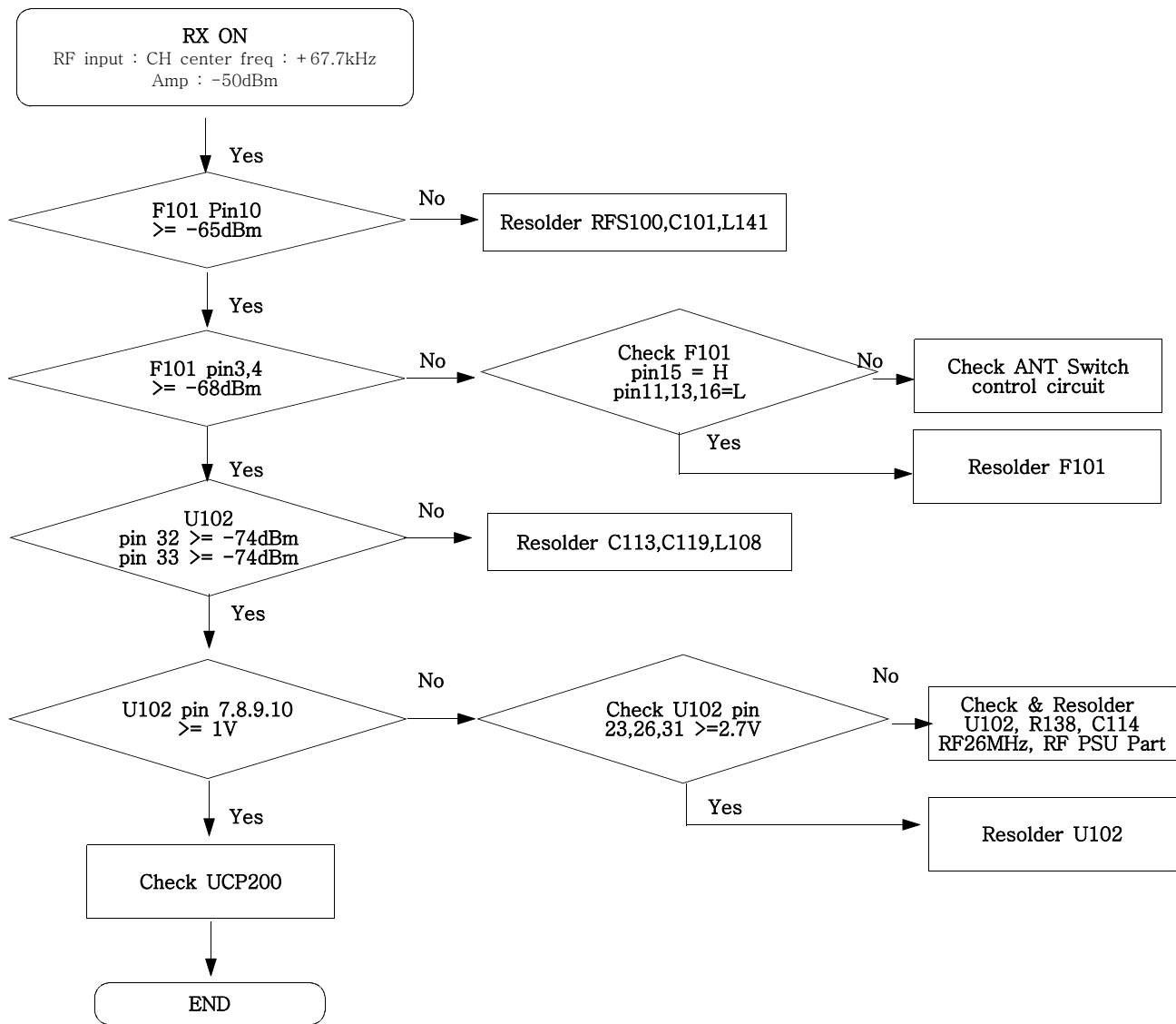
## 9-16. DCS Receiver



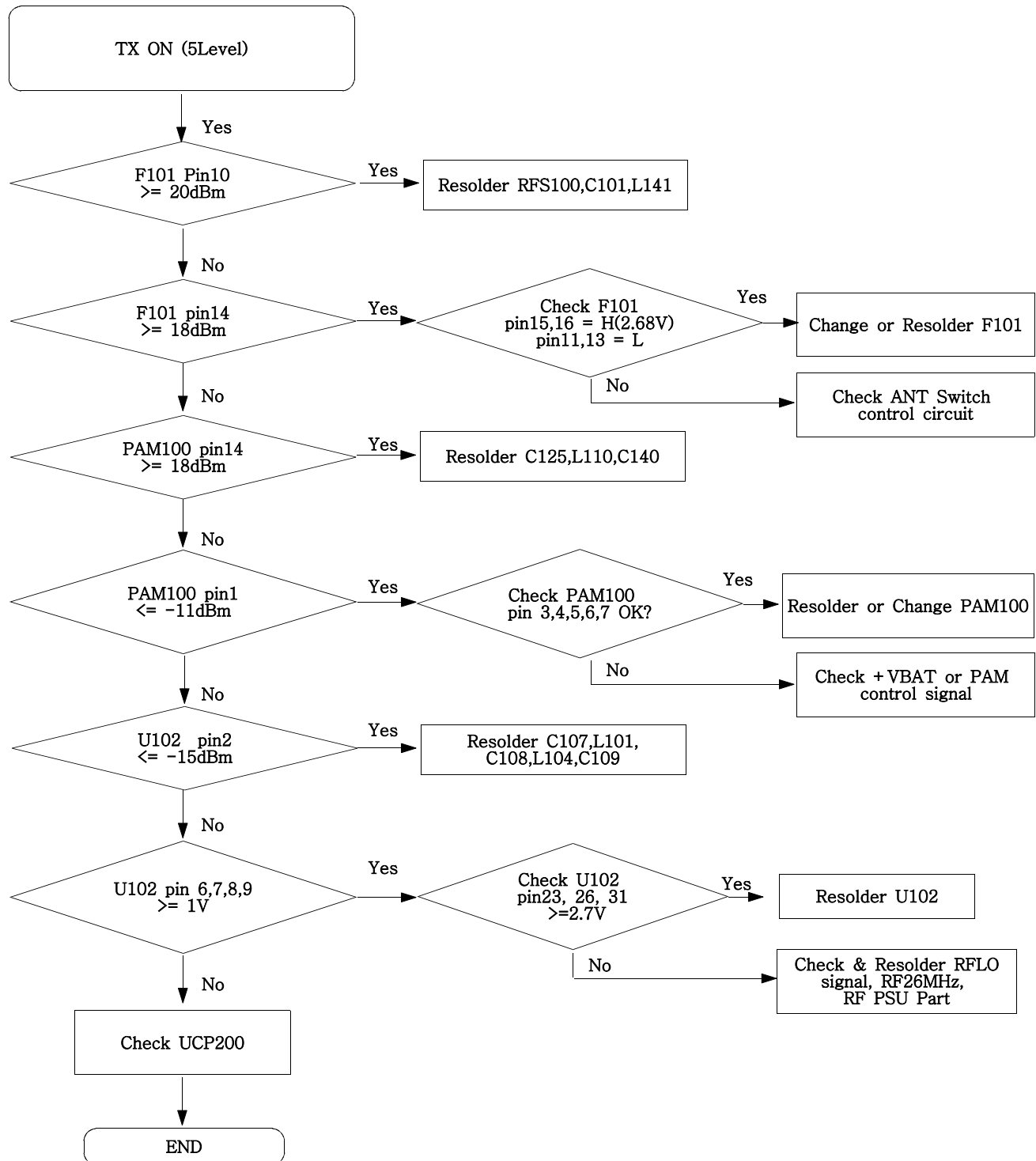
## 9-17. DCS Transmitter

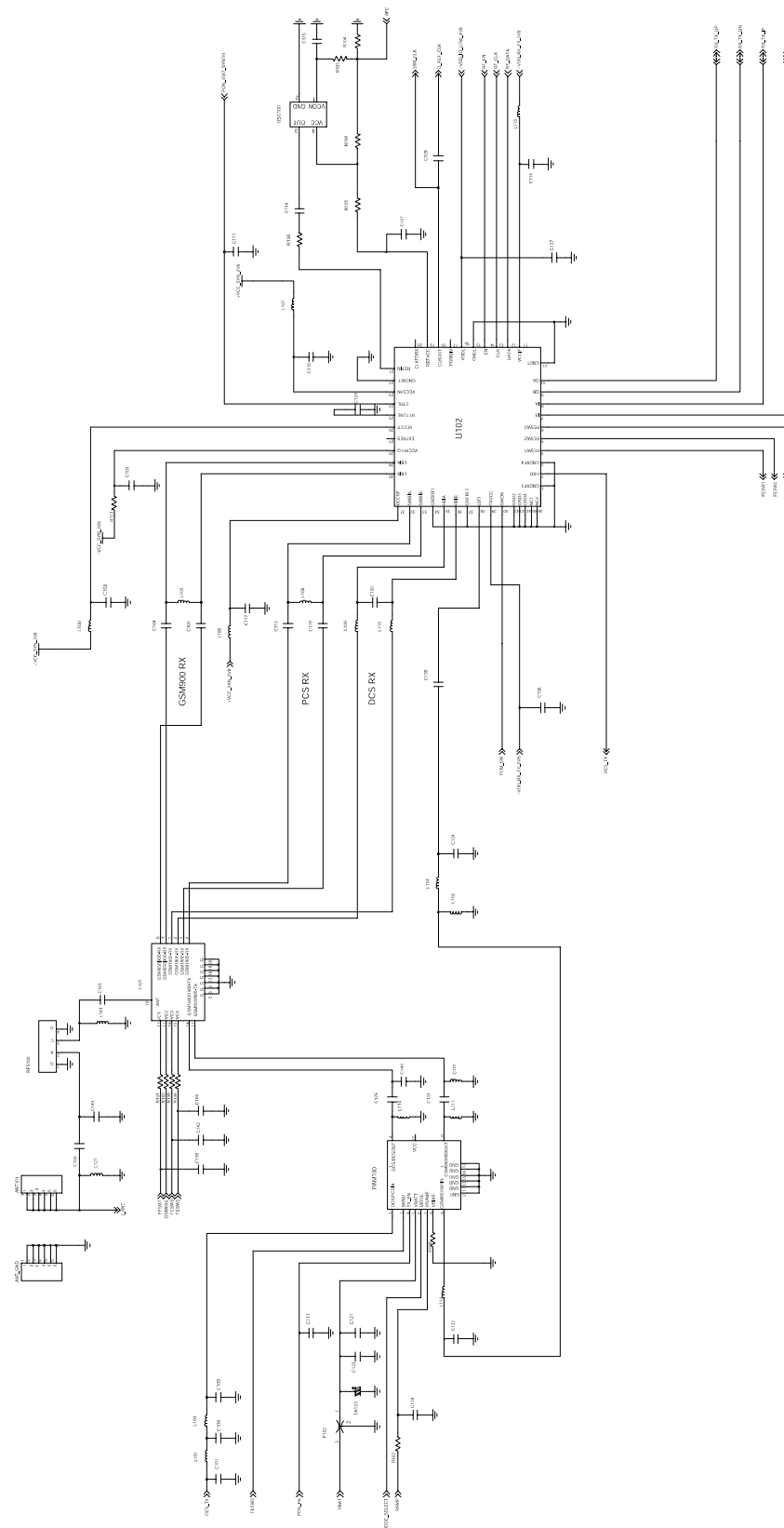


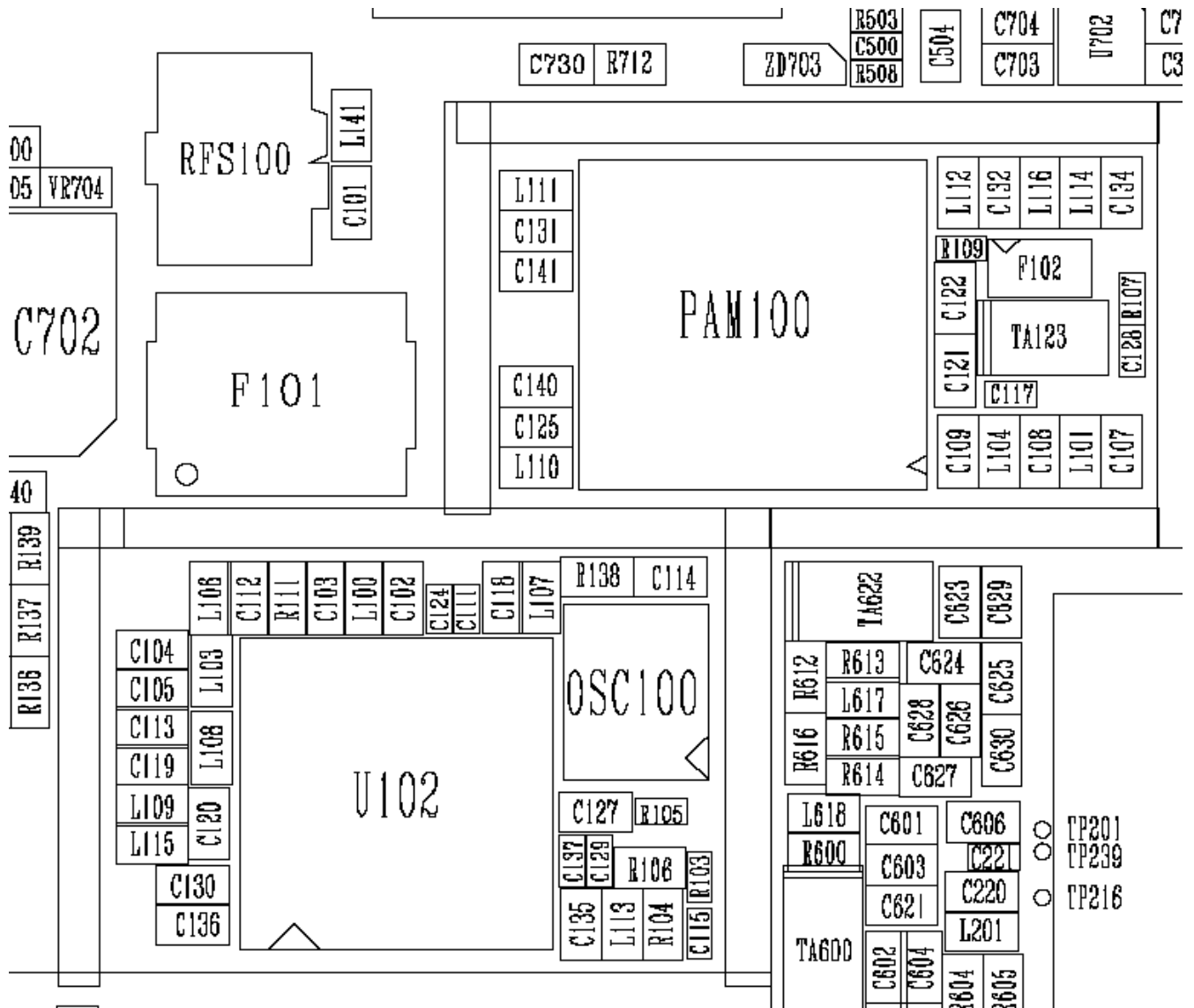
## 9-18. PCS Receiver



## 9-19. PCS Transmitter







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## 10. Reference data

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### Reference Abbreviate

- AAC : Advanced Audio Coding
- ADC : Analog to Digital Converter
- AMR : Adaptive Multi-rate Codec, Narrow and Wide Band
- ARM : Advanced Risc Machines
- BAI : Baseband and Audio Interface
- BB : BaseBand
- BGA : Ball Grid Array
- DAC : Digital to Analog Converter
- DAI : **Digital Audio Interface**
- DSP : Digital Signal Processor (Saturn)
- EDGE : Enhanced Data Rates for GSM Evolution
- EEPROM : Electrically Erasable Programmable Read Only Memory
- EGPRS : Enhanced GPRS
- ETM : Embedded Trace Macrocell
- ETSI : European Telecommunications Standards Institute
- FM : Frequency Modulation
- FPGA : Field Programmable Gate Array
- FR : Full Rate
- FTA : Full Type Approval (GSM specification)
- GPIO : General Purpose Input Output
- GPRS : General Packet Radio Service
- GSM : Global System for Mobile communication
- I2C : Inter IC Control bus; I2C-bus design unit
- I2S : Inter IC Sound bus
- IC : Integrated Circuit
- JTAG : Joint Test Action Group
- KBS : Keyboard Scanner
- LCD : Liquid Crystal Display
- MCP : Multi Chip Package
- MICBIAS : Microphone Bias
- MMC : Multi Media Card
- MMI : Man Machine Interface
- MP3 : MPEG Audio Layer 3
- MPEG : Motion Picture Expert Group

- **PCM** : Pulse Code Modulation
- **PDCU** : Power-Down Control Unit
- **PIO** : Parallel IO unit
- **PLL** : Phase Locked Loop
- **RAM** : Random Access Memory
- **ROM** : Read Only Memory
- **SRAM** : Static Random Access Memory
- **SW** : Software
- **TDMA** : Time Division Multiple Access
- **UART** : Universal Asynchronous Receiver Transmitter
- **UMTS** : Universal Mobile Telecommunication System
- **USB** : Universal Serial Bus
- **USIM** : UMTS SIM