

**SAMSUNG**

# **GSM TELEPHONE**

## **SGH-L810V**

# ***SERVICE* Manual**

### **GSM TELEPHONE**



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**SAMSUNG  
ELECTRONICS**



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## 2. Specification

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### 2-1. GSM General Specification

|                                       | EGSM 900                     | DCS 1800                     | PCS 1900                     | WCDMA2100                                   |
|---------------------------------------|------------------------------|------------------------------|------------------------------|---|
| Freq.<br>Band[MHz]<br>Uplink/Downlink | 880~915<br>925~960           | 1710~1785<br>1805~1880       | 1850~1910<br>1930~1990       | 1920~1980<br>2110~2170                      |
| ARFCN range                           | 0~124 &<br>975~1023          | 512~885                      | 512~810                      | UL:9612~9888<br>DL:10562~10838              |
| Tx/Rx spacing                         | 45MHz                        | 95MHz                        | 80MHz                        | 190MHz                                      |
| Mod. Bit rate/<br>Bit Period          | 270.833kbps<br>3.692us       | 270.833kbps<br>3.692us       | 270.833kbps<br>3.692us       | 3.84Mcps                                    |
| Time Slot<br>Period/Frame<br>Period   | 576.9us<br>4.615ms           | 576.9us<br>4.615ms           | 576.9us<br>4.615ms           | Frame length : 10ms<br>Slot length: 0.667ms |
| Modulation                            | 0.3GMSK                      | 0.3GMSK                      | 0.3GMSK                      | QPSK<br>HQPSK                               |
| MS Power                              | 33dBm~5dBm                   | 30dBm~0dBm                   | 30dBm~0dBm                   | 24dBm~ -50dBm                               |
| Power Class                           | <sup>4</sup><br>(max +33dBm) | <sup>1</sup><br>(max +30dBm) | <sup>1</sup><br>(max +30dBm) | <sup>3</sup><br>(max +24dBm)                |
| Sensitivity                           | -102dBm                      | -100dBm                      | -100dBm                      | -106.7dBm                                   |
| TDMA Mux                              | 8                            | 8                            | 8                            | NA  |
| Cell Radius                           | 35Km                         | 2Km                          | 2Km                          | 2Km   |

## 2-2. GSM Tx Power Class

| TX Power control level | GSM900   | TX Power control level | DCS1800  | TX Power control level | PCS1800  |
|------------------------|----------|------------------------|----------|------------------------|----------|
| 5                      | 33±2 dBm | 0                      | 30±3 dBm | 0                      | 30±3 dBm |
| 6                      | 31±2 dBm | 1                      | 28±3 dBm | 1                      | 28±3 dBm |
| 7                      | 29±2 dBm | 2                      | 26±3 dBm | 2                      | 26±3 dBm |
| 8                      | 27±2 dBm | 3                      | 24±3 dBm | 3                      | 24±3 dBm |
| 9                      | 25±2 dBm | 4                      | 22±3 dBm | 4                      | 22±3 dBm |
| 10                     | 23±2 dBm | 5                      | 20±3 dBm | 5                      | 20±3 dBm |
| 11                     | 21±2 dBm | 6                      | 18±3 dBm | 6                      | 18±3 dBm |
| 12                     | 19±2 dBm | 7                      | 16±3 dBm | 7                      | 16±3 dBm |
| 13                     | 17±2 dBm | 8                      | 14±3 dBm | 8                      | 14±3 dBm |
| 14                     | 15±2 dBm | 9                      | 12±4 dBm | 9                      | 12±4 dBm |
| 15                     | 13±2 dBm | 10                     | 10±4 dBm | 10                     | 10±4 dBm |
| 16                     | 11±3 dBm | 11                     | 8±4dBm   | 11                     | 8±4dBm   |
| 17                     | 9±3dBm   | 12                     | 6±4 dBm  | 12                     | 6±4 dBm  |
| 18                     | 7±3 dBm  | 13                     | 4±4 dBm  | 13                     | 4±4 dBm  |
| 19                     | 5±3 dBm  | 14                     | 2±5 dBm  | 14                     | 2±5 dBm  |
|                        |          | 15                     | 0±5 dBm  | 15                     | 0±5 dBm  |

### 5-1. Cellular phone Exploded View



## 5-2. Cellular phone Parts list

| Design LOC |       | Discription                    | SEC CODE    |
|------------|-------|--------------------------------|-------------|
| QAN02      |       | INTENNA-SGHL810V               | GH42-01578A |
| QAN08      |       | ASSY RUBBER-BATT CONTACT       | GH98-08972A |
| QBA00      |       | ASSY CASE-BATT                 | GH98-08202A |
| QBA01      |       | INNER BATTERY PACK-880MAH , BL | GH43-02666A |
| QCA01      |       | CAMERA MODULE-SGHL810V 3M/CIF  | GH59-05738A |
| QCA02      |       | KEY FPCB-SGHL810V CAMERA KEY   | GH59-05740A |
| QCR04      |       | SCREW-MACHINE                  | 6001-001479 |
| QCR05      |       | SCREW-MACHINE                  | 6001-001478 |
| QCR05      |       | SCREW-MACHINE                  | 6001-001478 |
| QFL01      |       | ASSY CASE-SLIDE LOWER          | GH98-08184A |
| QFR01      |       | ASSY CASE-FRONT                | GH98-08181A |
| QHI01      |       | ASSY HINGE-MODULE              | GH98-08183A |
| QMP01      |       | PBA MAIN-SGHL810V              | GH92-04564A |
| QPC01      |       | FPC-SGHZV70 MAIN FPCB          | GH41-02156A |
| QRF01      |       | PMO COVER-RF                   | GH72-47510A |
| QSH04      |       | IPR SHIELD-CAN REAR B          | GH70-03501A |
| QSH05      |       | IPR SHIELD-COVER REAR_A        | GH70-03211A |
| QSH06      |       | IPR SHIELD-CAN FRONT           | GH70-03502A |
| QSP01      |       | ASSY ETC-SGHL810V SPK/MOT      | GH59-05743A |
| QVK01      |       | KEY FPCB-SGHL810V VOLUME KEY   | GH59-05739A |
| QLC01      |       | LCD-MODULE SGHZV70             | GH07-01287A |
|            | QME02 | DOME SHEET-SGHL810V NAVY       | GH59-05744A |
| QFU01      |       | ASSY CASE-SLIDE UPPER          | GH98-08178A |
|            | QKP02 | ASSY KEYPAD-SUB                | GH98-08204A |
|            | QMW02 | PMO WINDOW-MAIN                | GH72-47514A |
| QRE01      |       | ASSY CASE-REAR                 | GH98-08182A |
|            | QCK01 | PMO KEY-CAMERA                 | GH72-47516A |
|            | QIF01 | PMO COVER-IF                   | GH72-47513A |
|            | QSD01 | PMO COVER-SD                   | GH72-47512A |
|            | QVO01 | PMO KEY-VOLUME                 | GH72-47515A |

## 7. Disassembly and Assembly Instructions

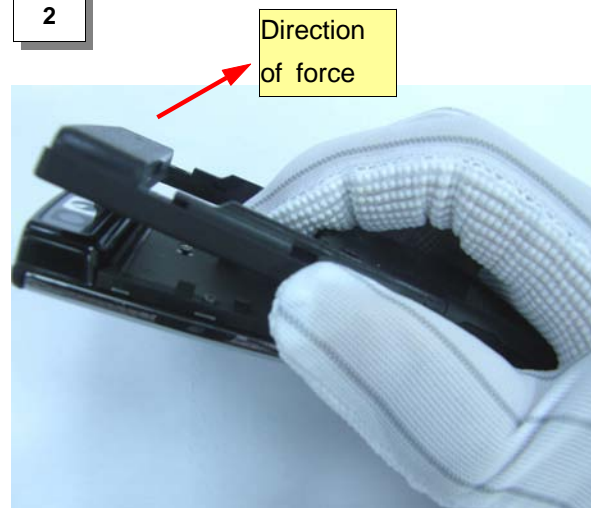
### 7-1. Disassembly

1



1) Unscrew the 6 points of the REAR.

2



1) Be care of the scratch.

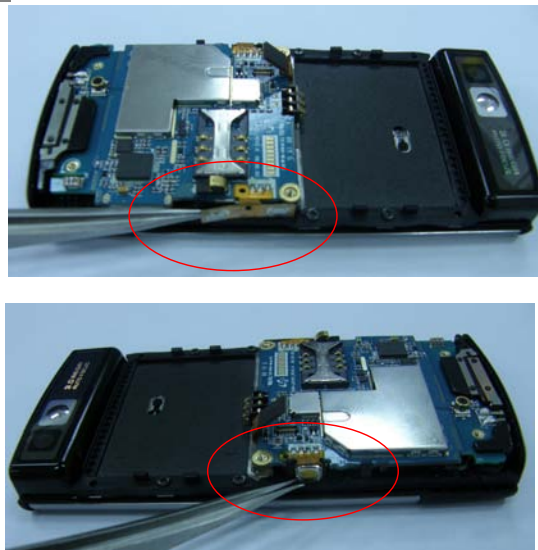
1) Detach the REAR from slide ass'y.

3



1) Detach the FPCB connector by using the pincette.

4

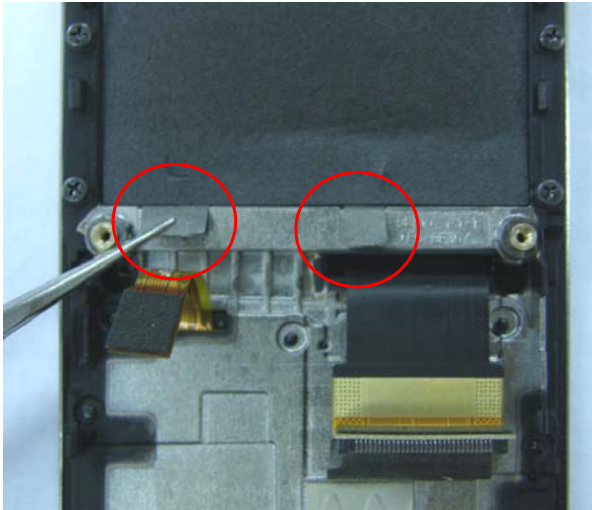


1) Detach the volume key from the molding.  
2) Detach the camera key from the molding.

|   |  |
|---|--|
| <div data-bbox="164 212 240 275" data-label="Text"> <p>5</p> </div> <div data-bbox="256 222 784 871" data-label="Image"> </div>     | <div data-bbox="824 212 901 275" data-label="Text"> <p>6</p> </div> <div data-bbox="967 222 1365 871" data-label="Image"> </div>     |
| <p>1) Detach the mic from holder by using pincette.<br/>2) Detach the PBA, pushing the rib to the left side.</p>                    | <p>1) Put the PBA upside down</p>  |
| <div data-bbox="164 1079 240 1142" data-label="Text"> <p>7</p> </div> <div data-bbox="196 1155 761 1661" data-label="Image"> </div> | <div data-bbox="824 1079 901 1142" data-label="Text"> <p>8</p> </div> <div data-bbox="959 1085 1320 1732" data-label="Image"> </div> |
| <p>1) Detach the electric tape by using pincette.<br/>2) Detach the connector from the PBA.</p>                                     | <p>1) Unscrew the 6 points on the LOWER.</p>   |

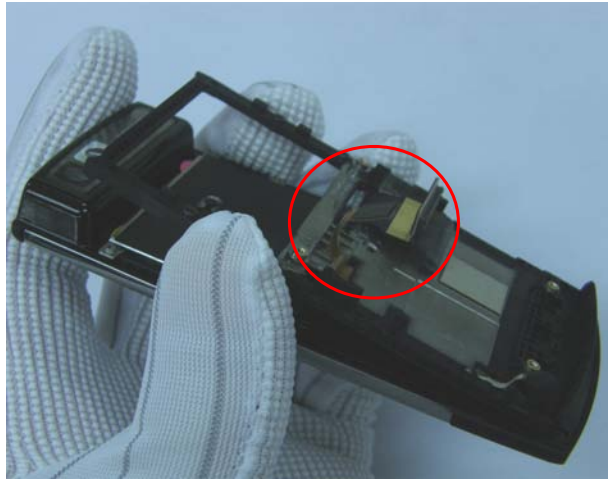


9



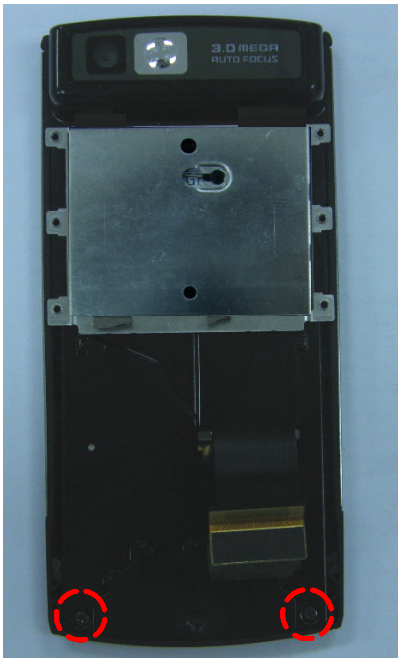
1) Detach the electric tape by using pincette.

10



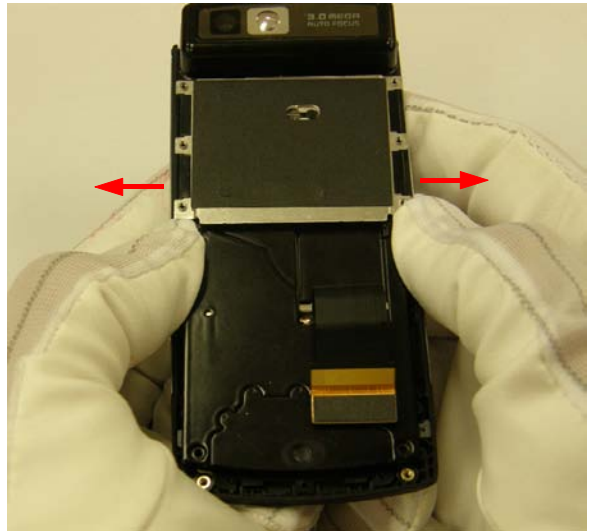
1) Take out the FPCB connector through the hole.  
Be careful.  
2) Detach the front from the Upper Ass'y.

11



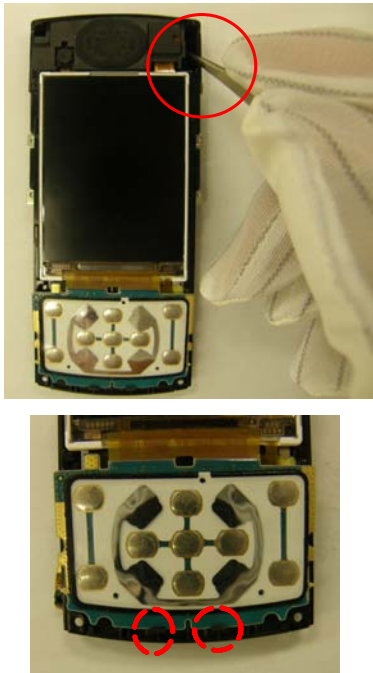
1) Detach the 2 points on the LOWER bottom.

12



1) Detach the LOWER from the UPPER.

13



- 1) Detach the module from top side.
  - 2) Detach the LCD ass'y from the lower.
- Be careful.

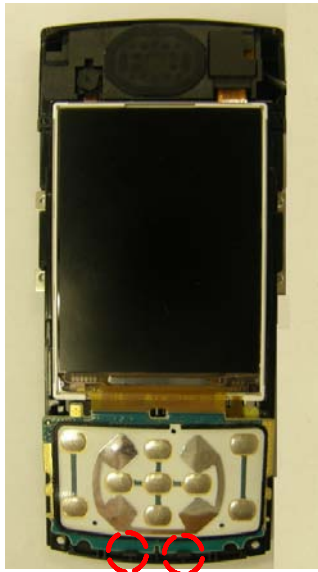
14



- 1) The END.

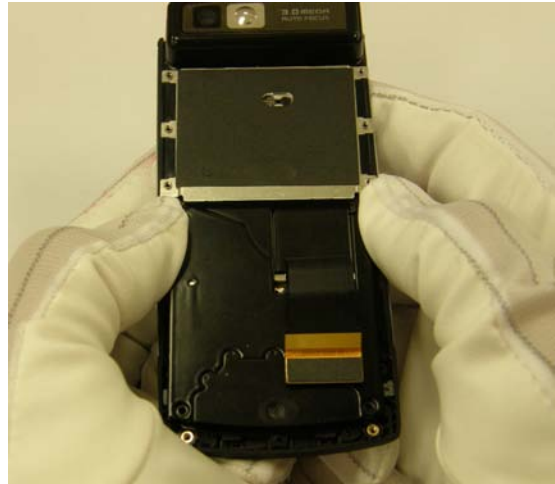
## 7-2. Assembly

1



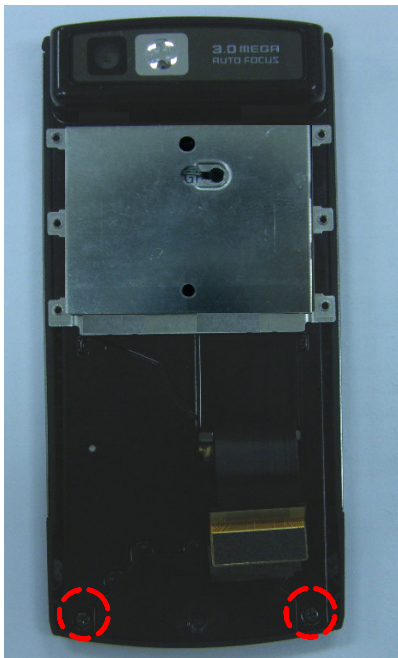
- 1) Attach the LCD ass'y to the LOWER.
- 2) Be careful of the bottom side rib.

2



- 1) Attach the LOWER to the UPPER.

3

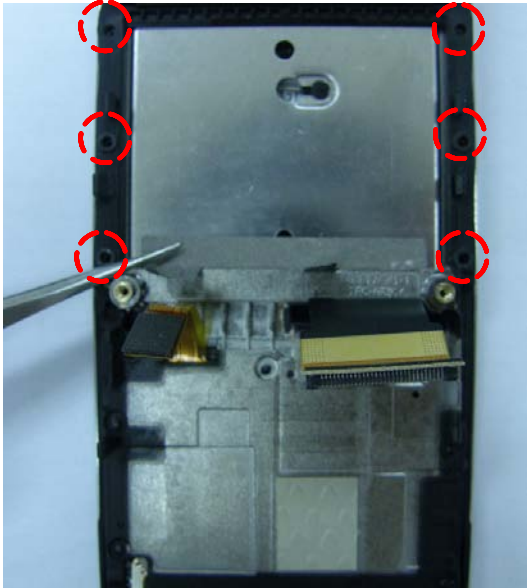
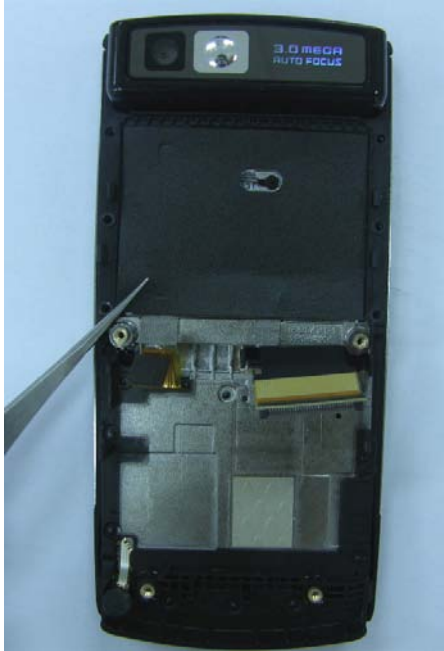
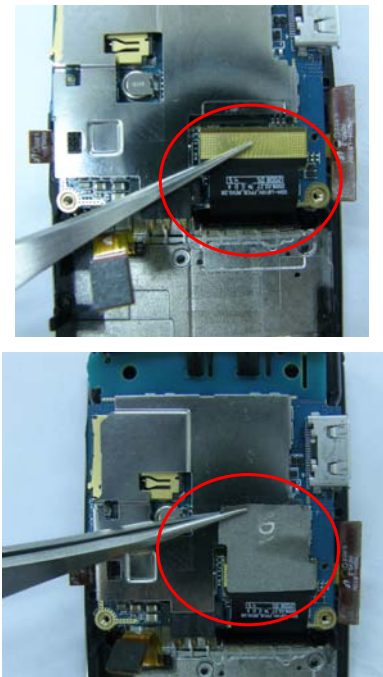



- 2) Screw the 2 points on the LOWER bottom side.

4



- 1) Put in the FPCB connector through the hole.  
Be careful of damage.

|  |   |
|--|---|
| <div data-bbox="168 239 245 296" data-label="Text">5</div>      | <div data-bbox="818 239 894 296" data-label="Text">6</div>      |
| <p>1) Attach the electric tape matching the shape.<br/>2) Screw the 6 point.</p>   | <p>1) Attach the non-elctric tape to the LOWER.</p>   |
| <div data-bbox="155 1066 232 1123" data-label="Text">7</div>  | <div data-bbox="818 1066 894 1123" data-label="Text">8</div>  |
| <p>1) FPCB 커넥터를 결함한다. Attach the FPCB connector.<br/>2) Attach the electric tape to the top of connector.</p>                                    | <p>1) Turn upside down the PBA<br/>2) Attach the FPCB connector.<br/>3) Attach the key FPCB(volume key, camera key) to the molding.</p>           |



9



1) Be careful of scratch.

1) Attach the REAR to the slide ass'y.

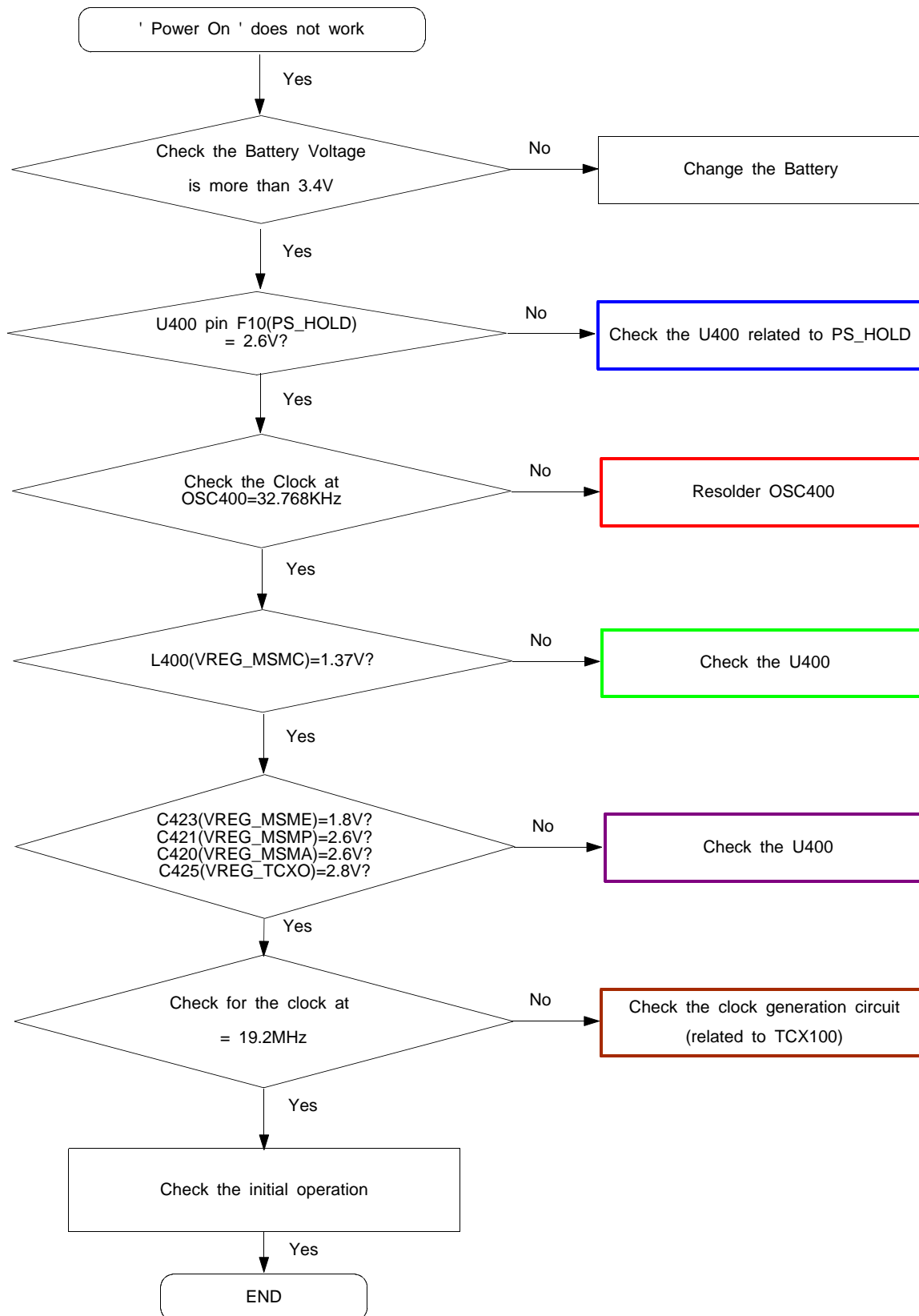
10

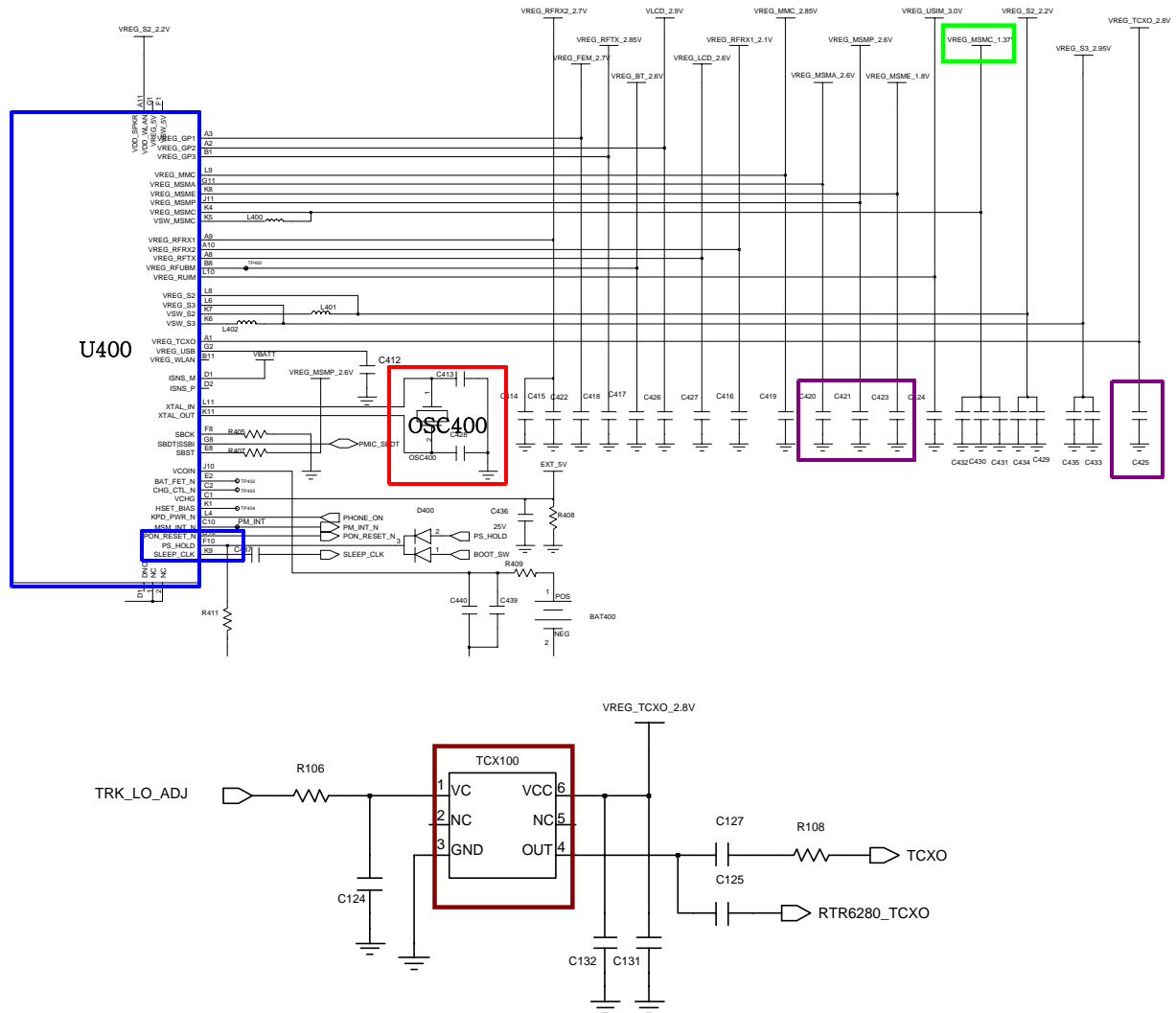


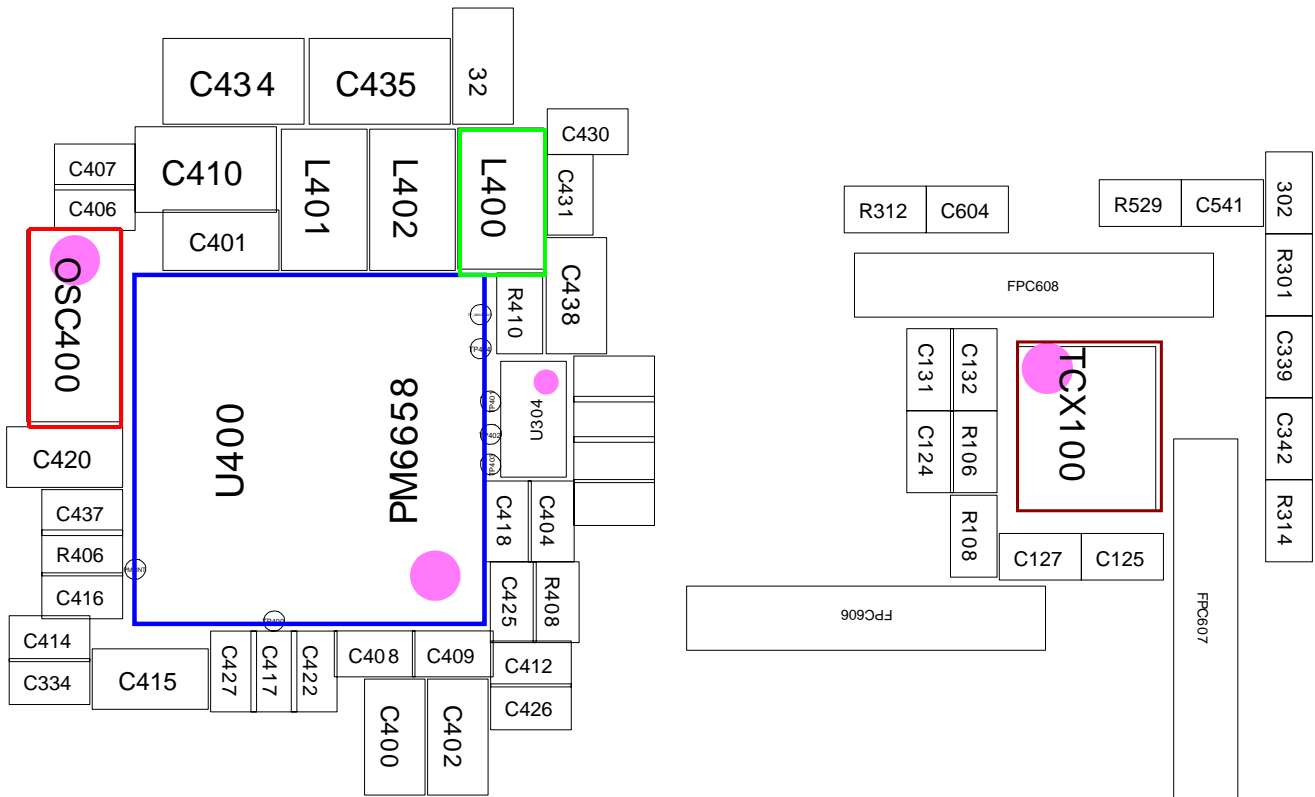
1) Screw down six points.  
2) The END.

## 10. Flow Chart of Troubleshooting

### 10-1. Power On

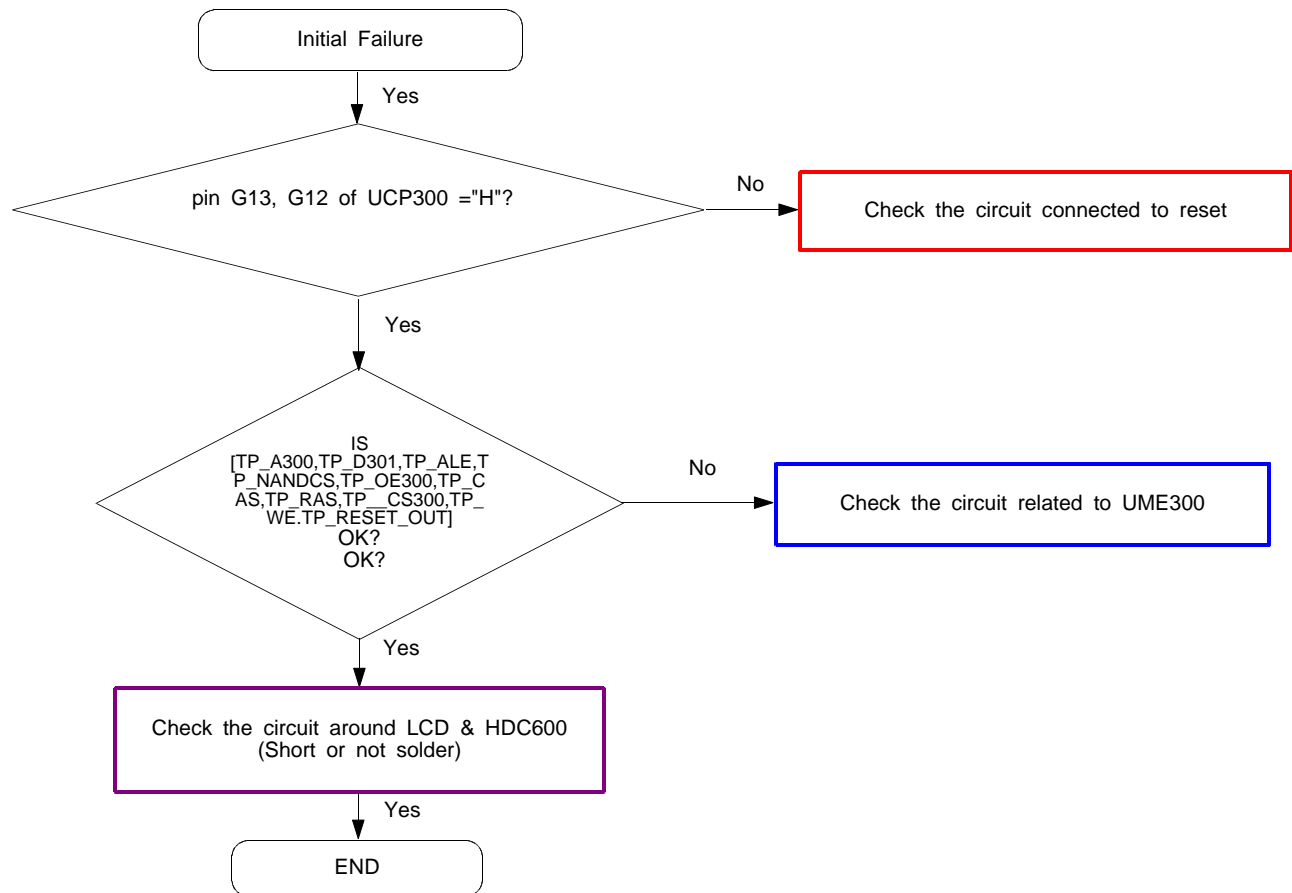


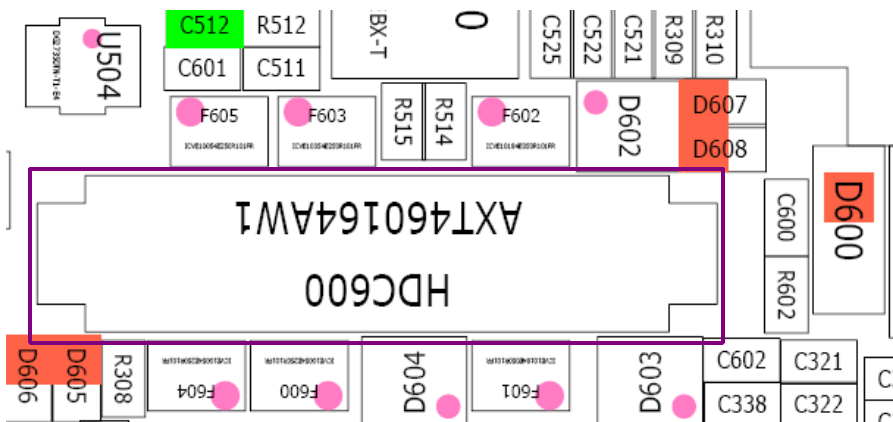
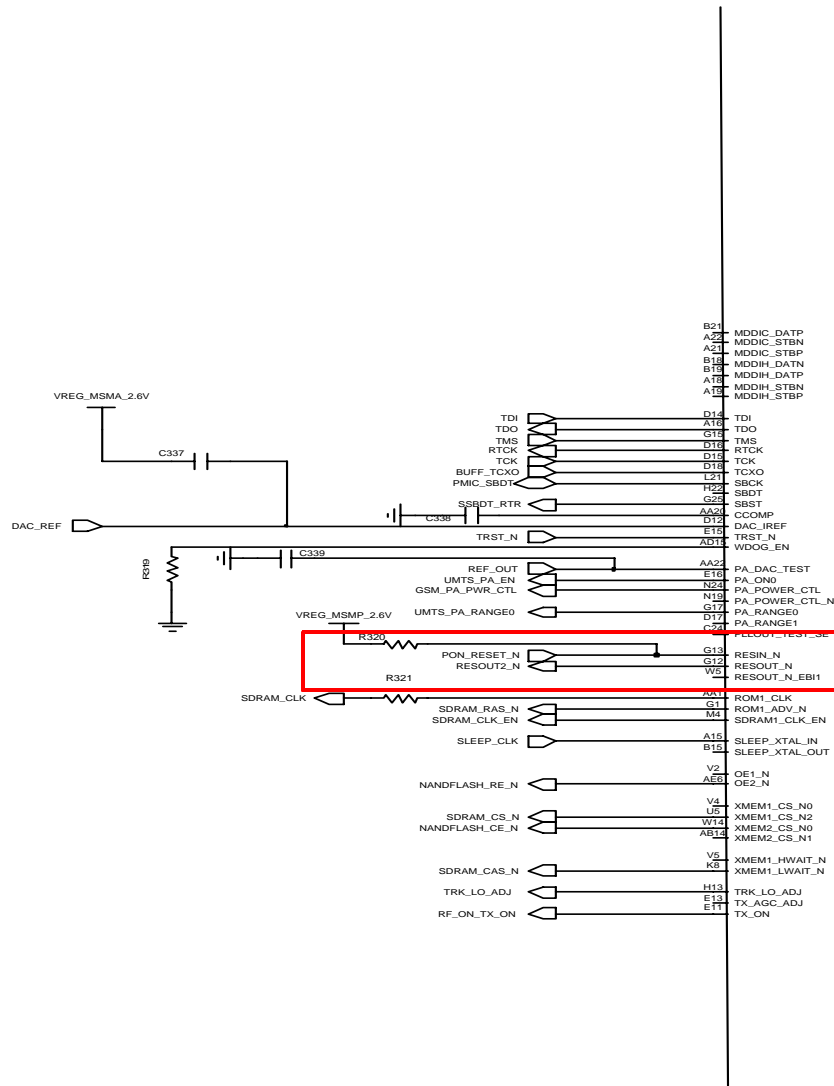


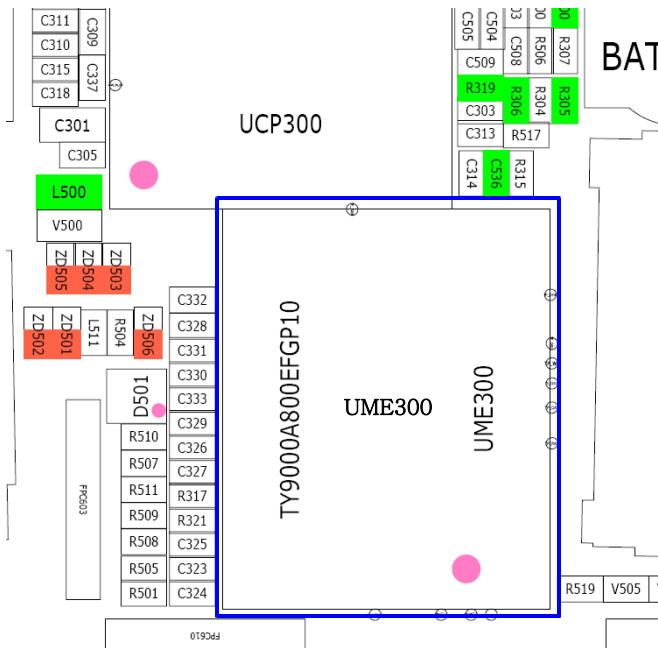
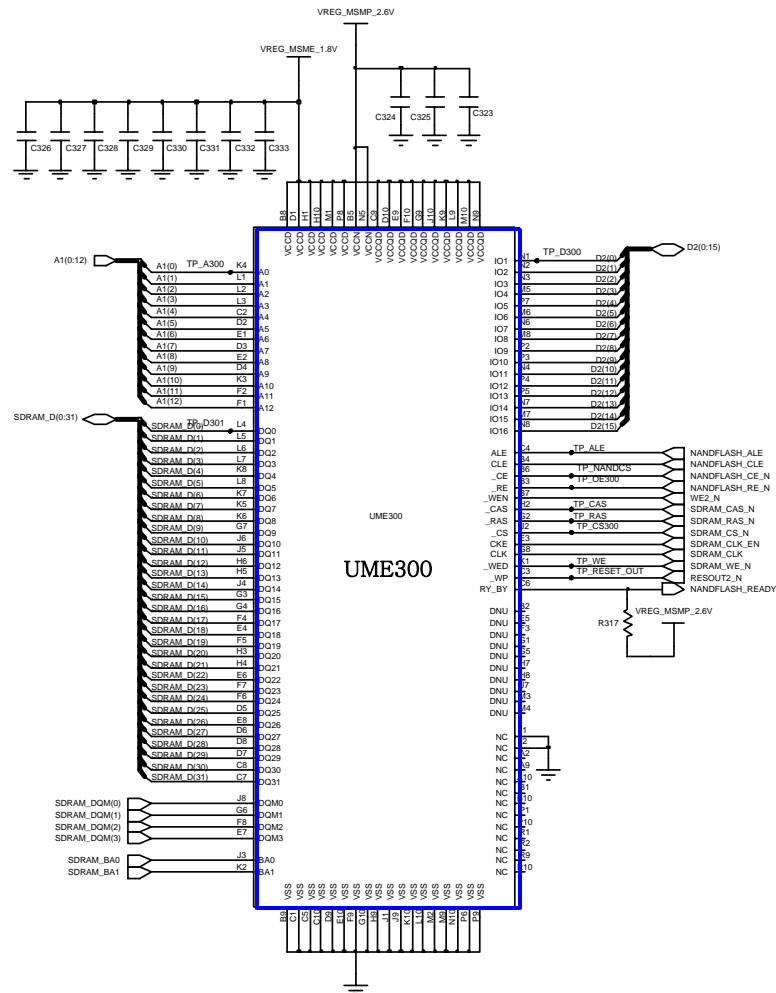




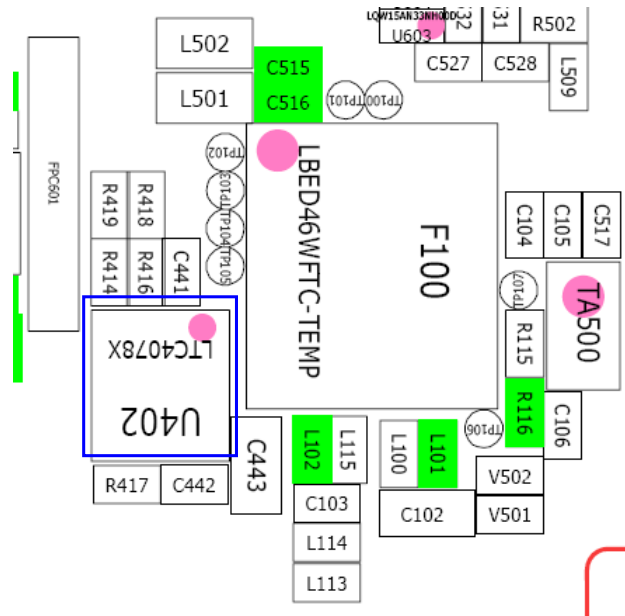
## 10-2. Initial



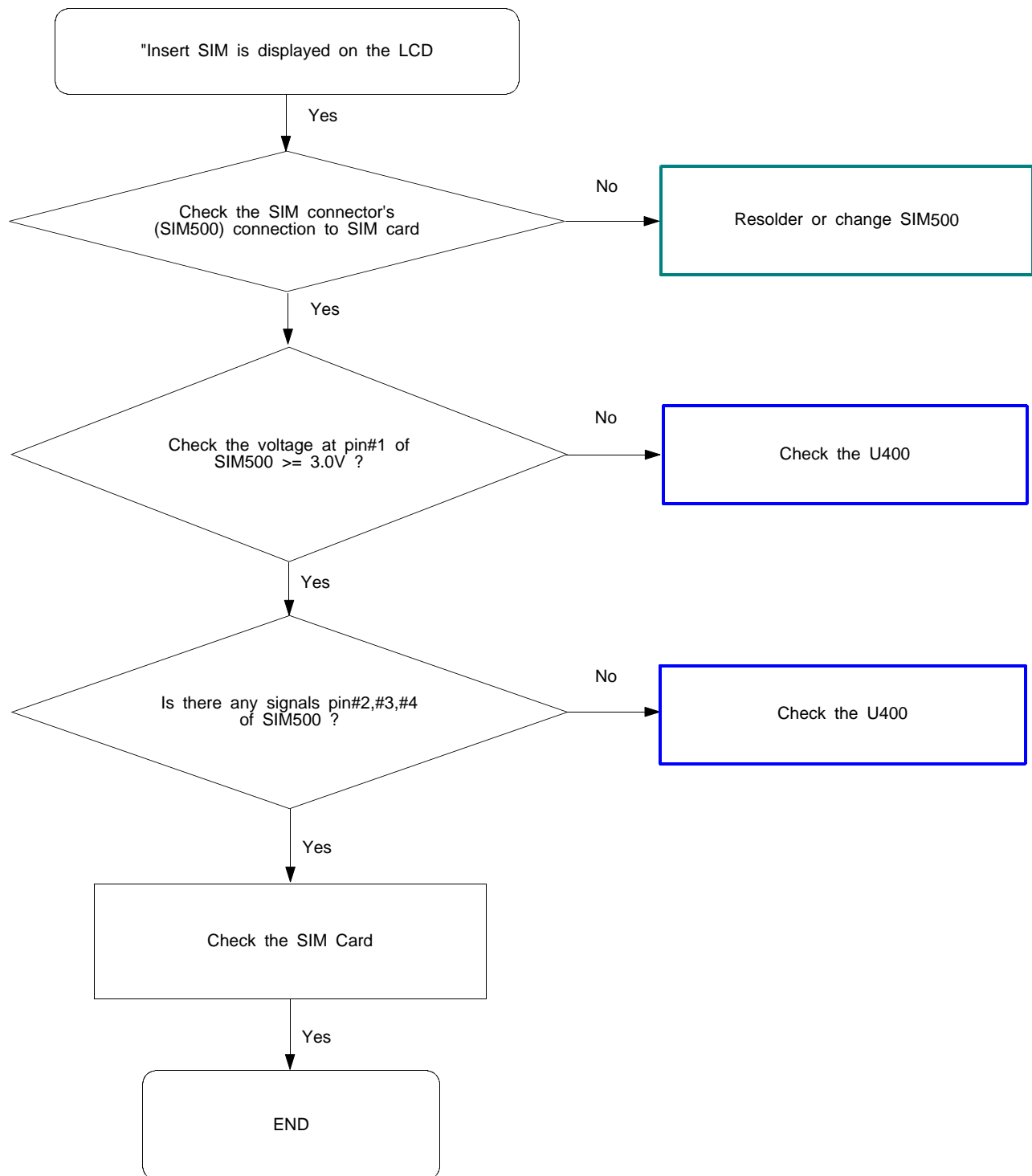


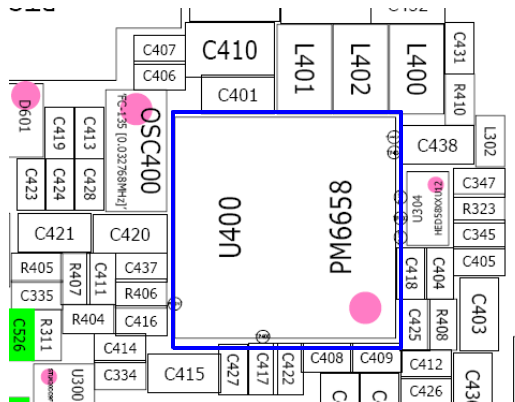
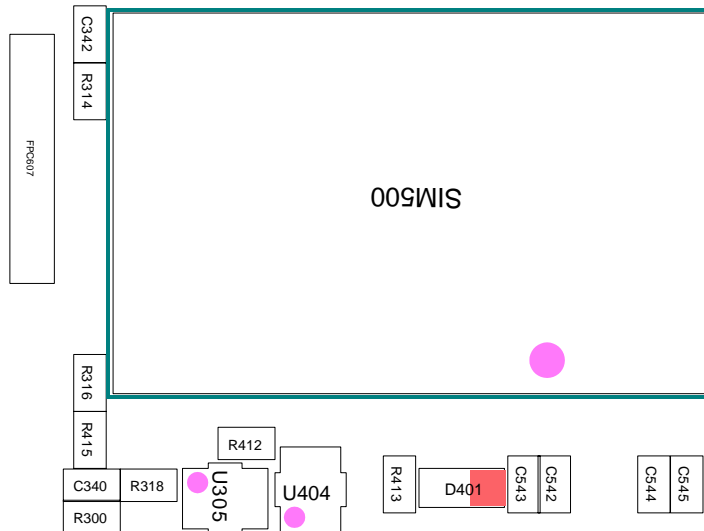
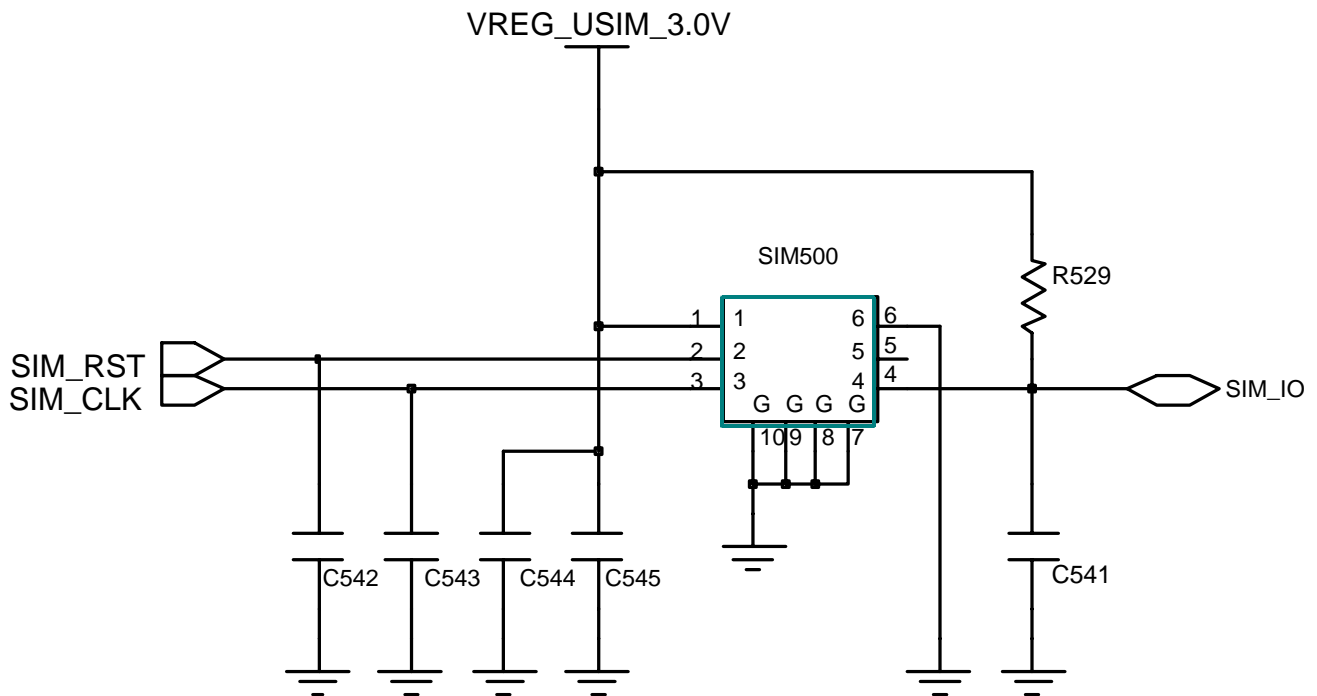




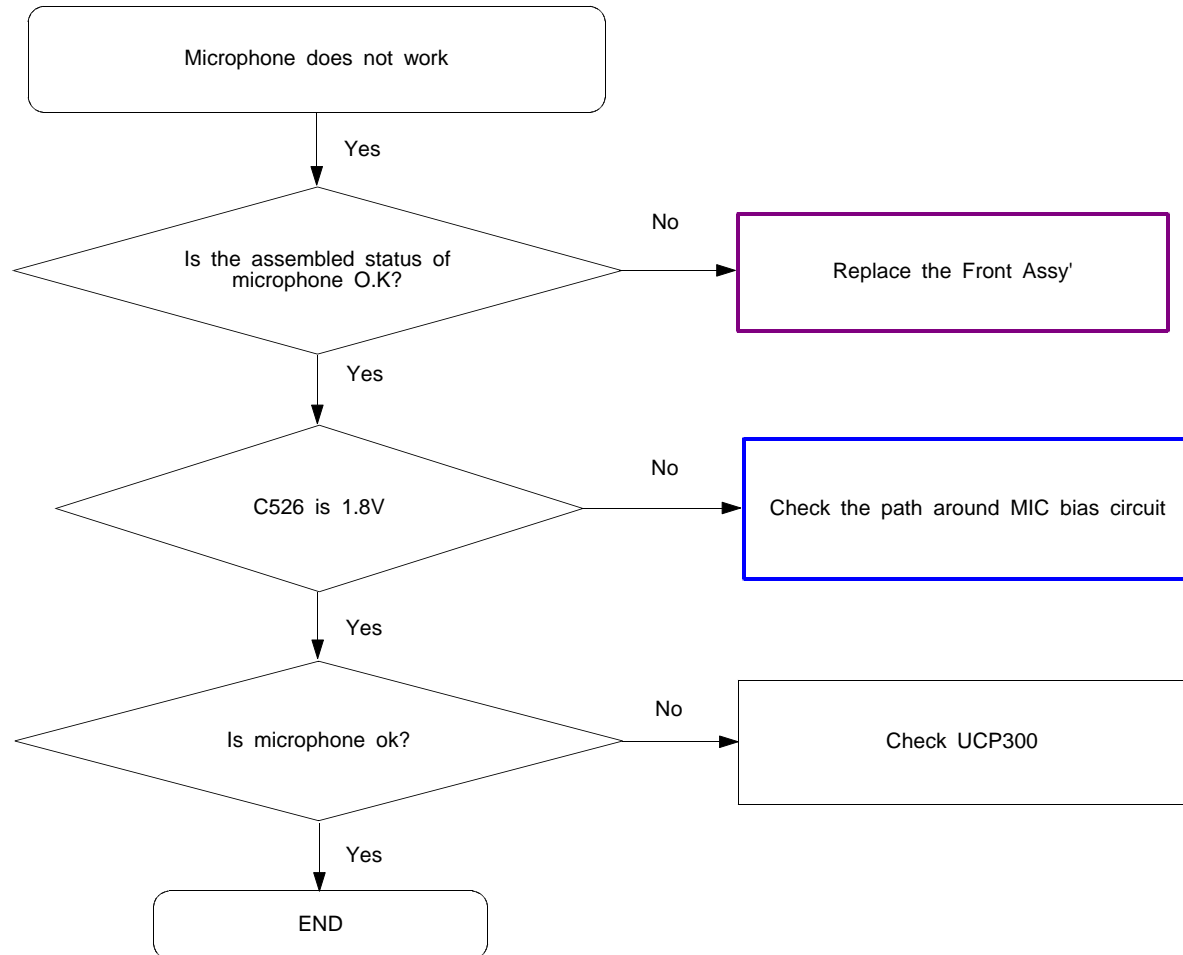


## 10-4. Sim Part

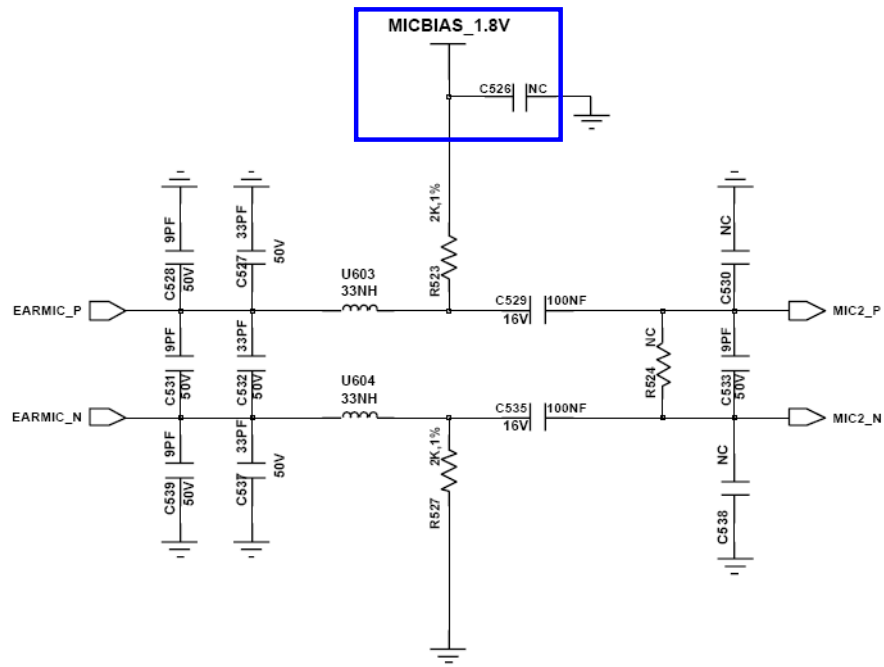




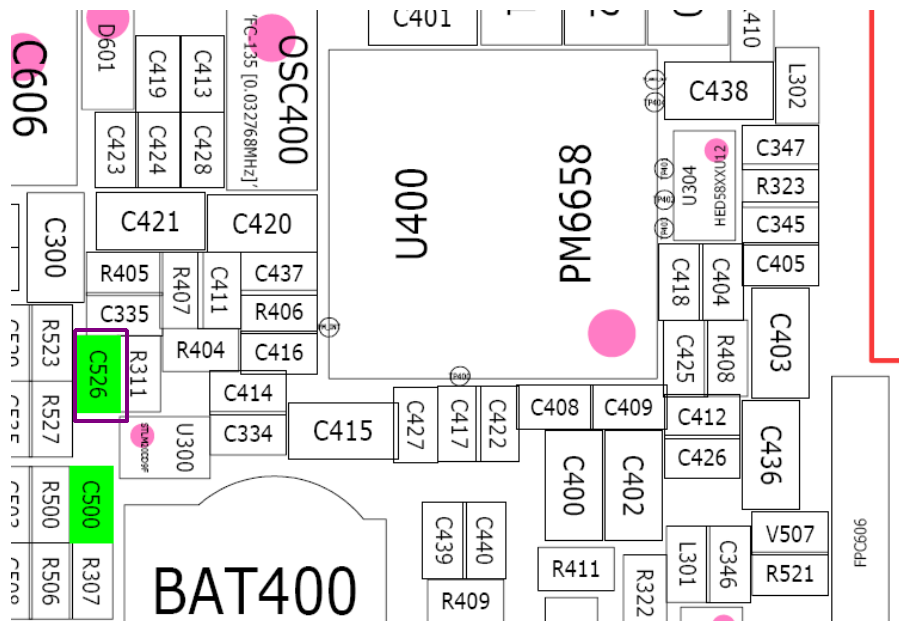
## 10-5. Microphone Part



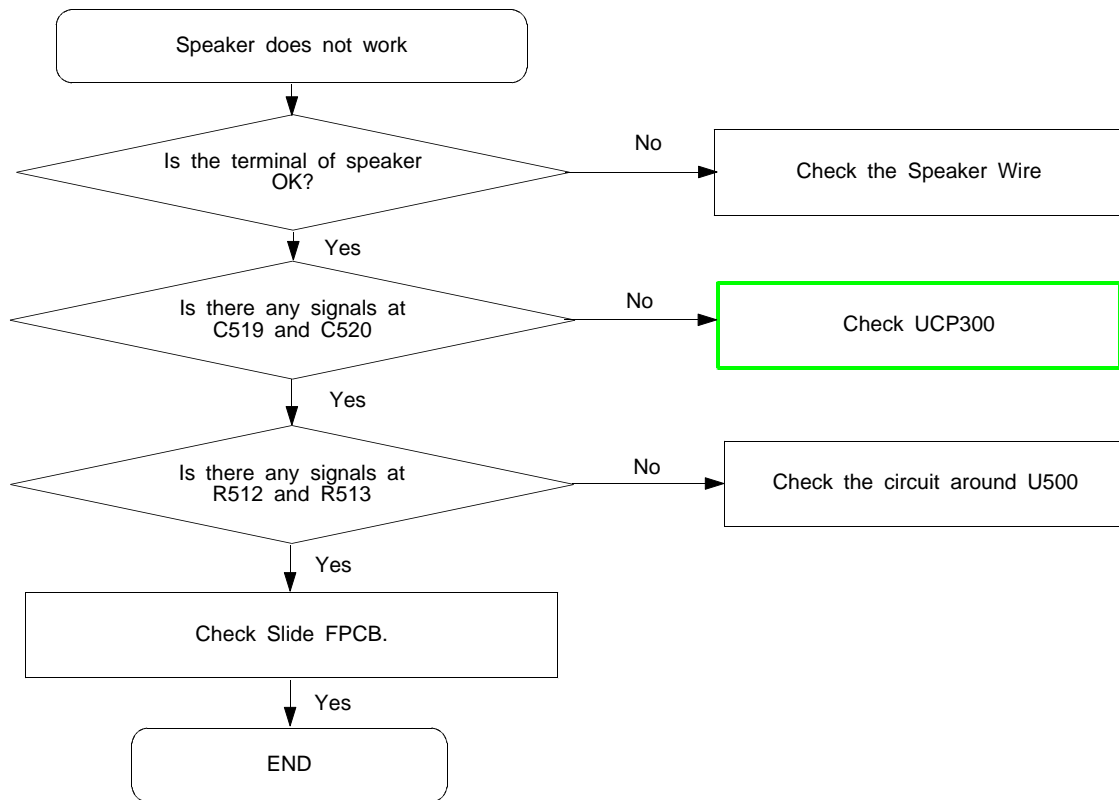


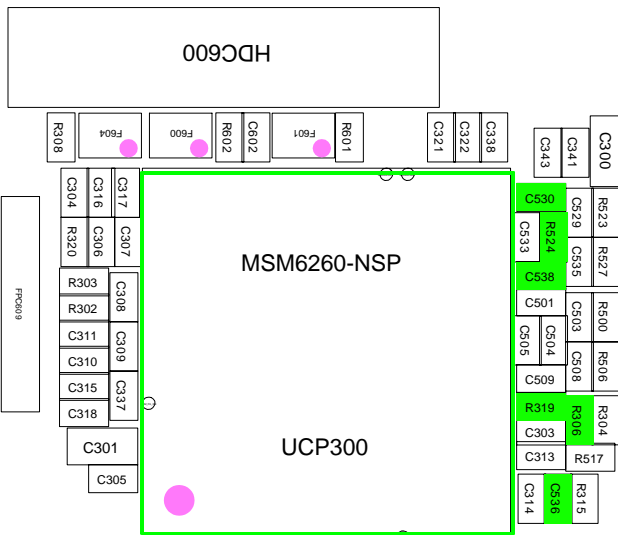


## EARMIC PATH

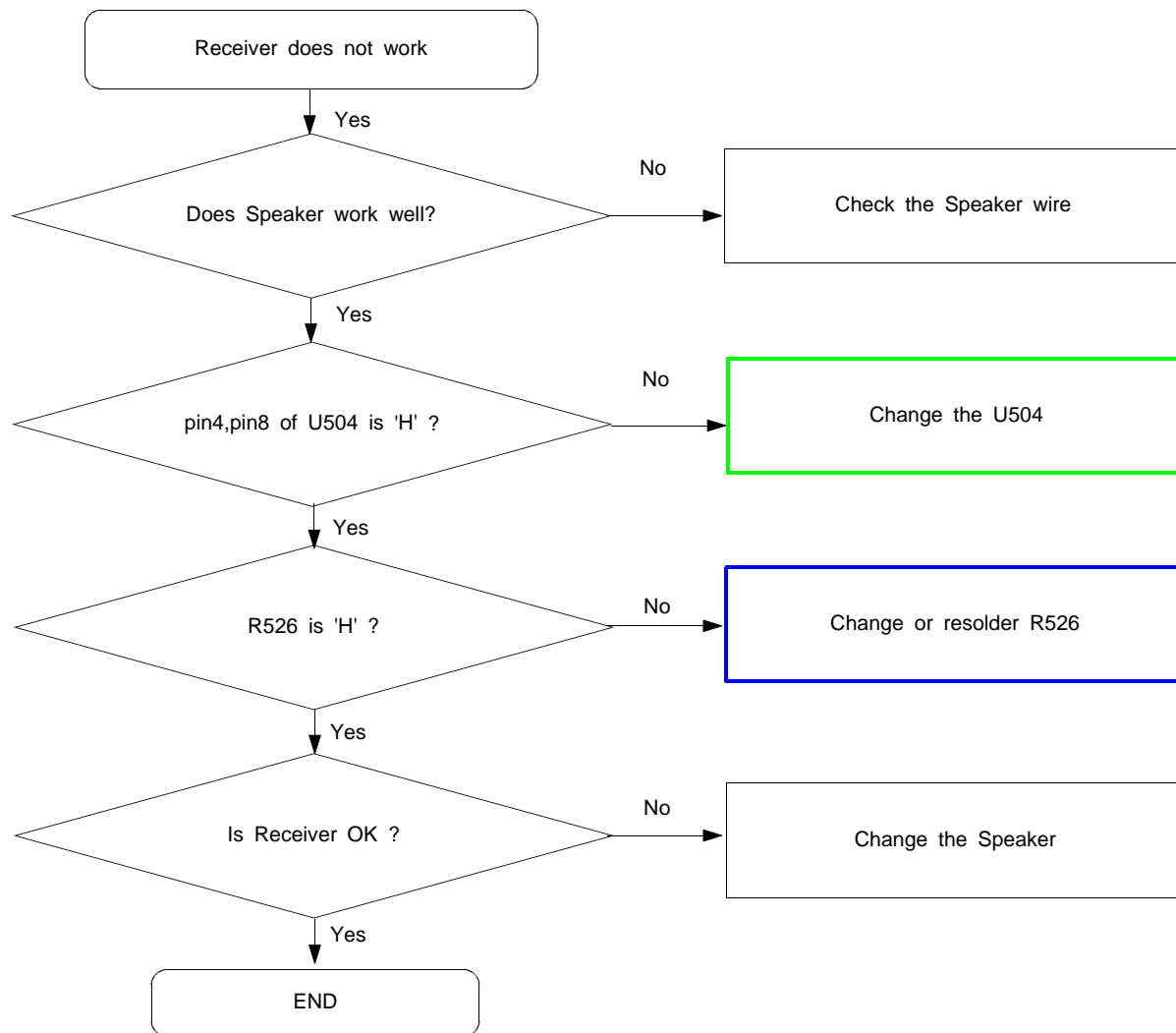


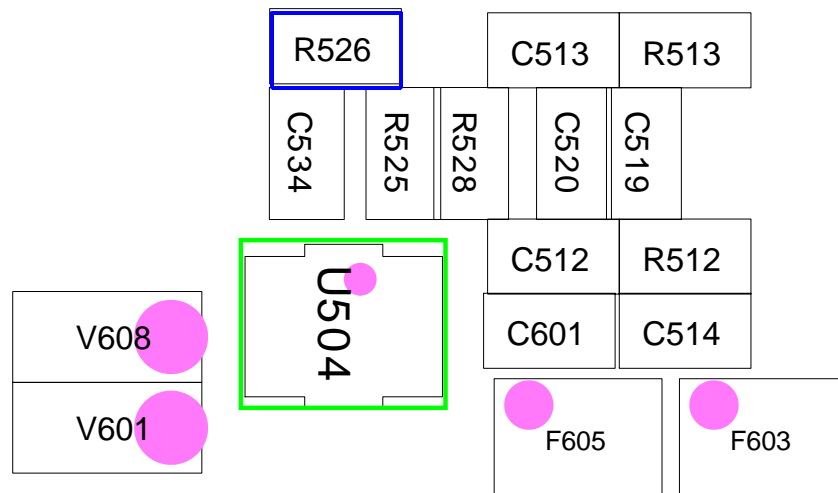
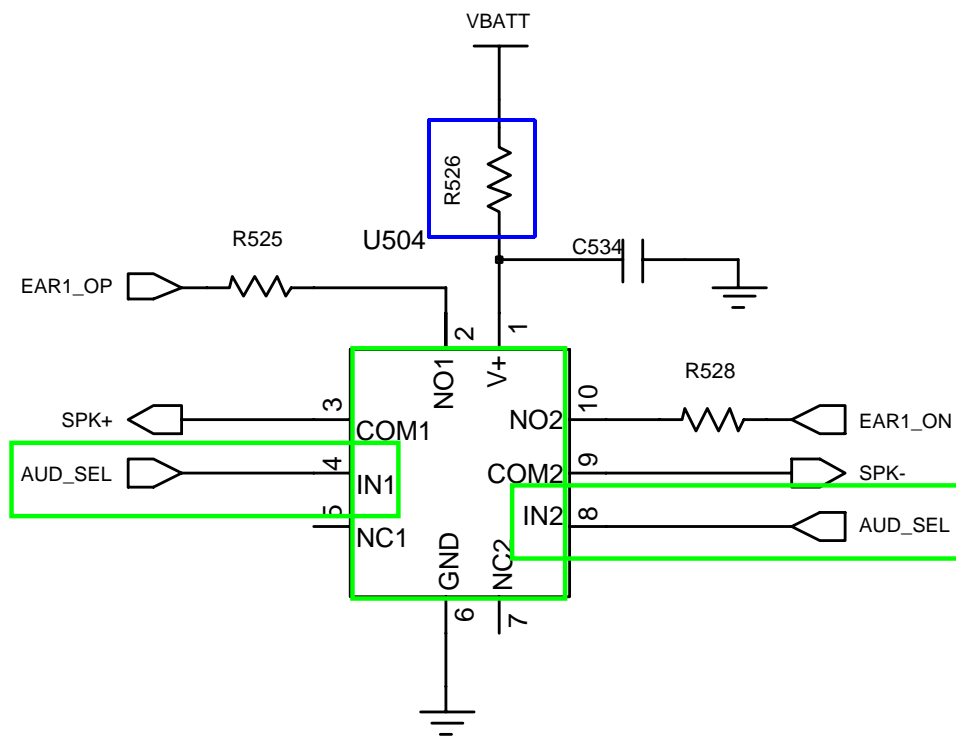
## 10-6. Speaker Part



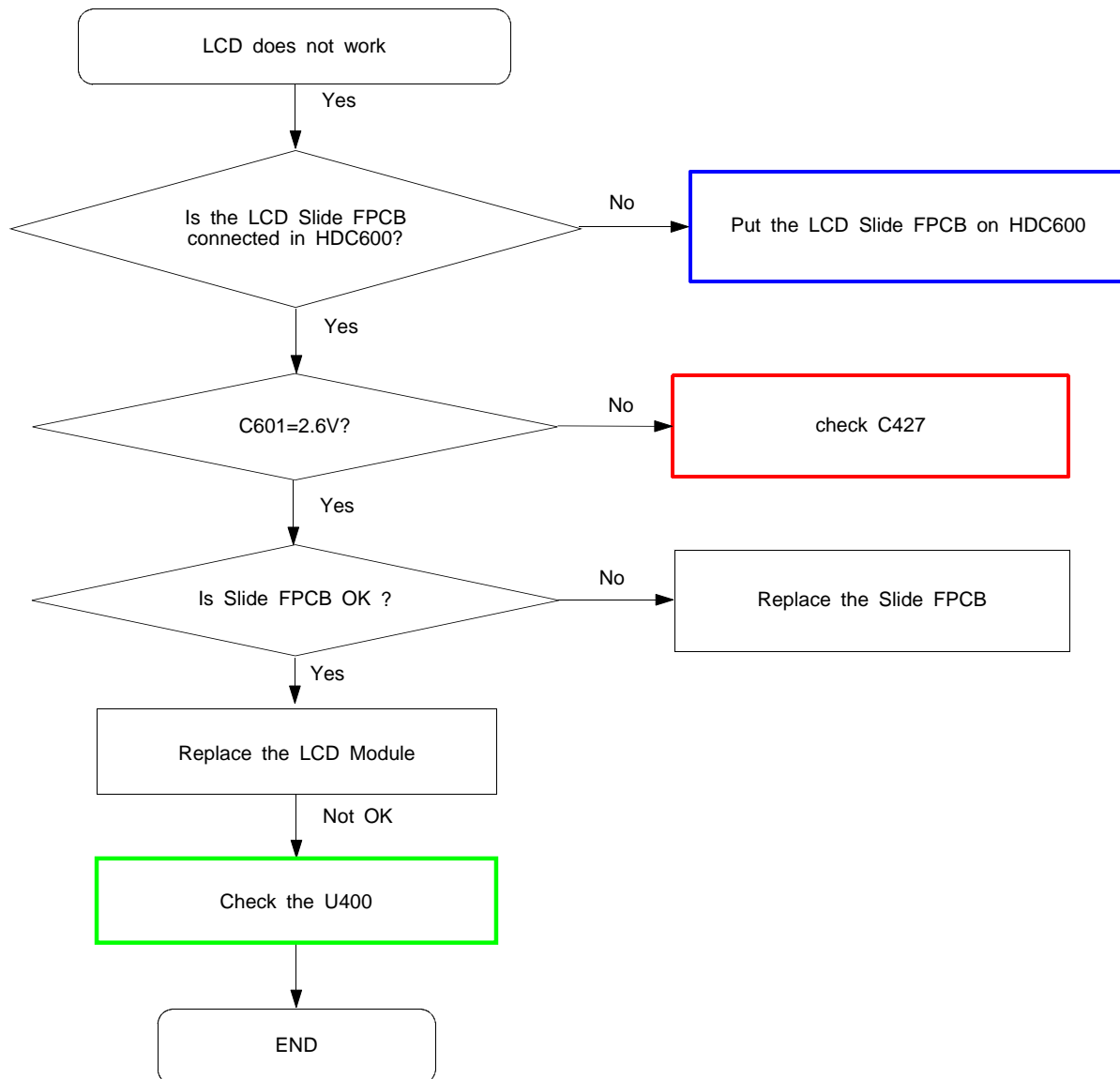


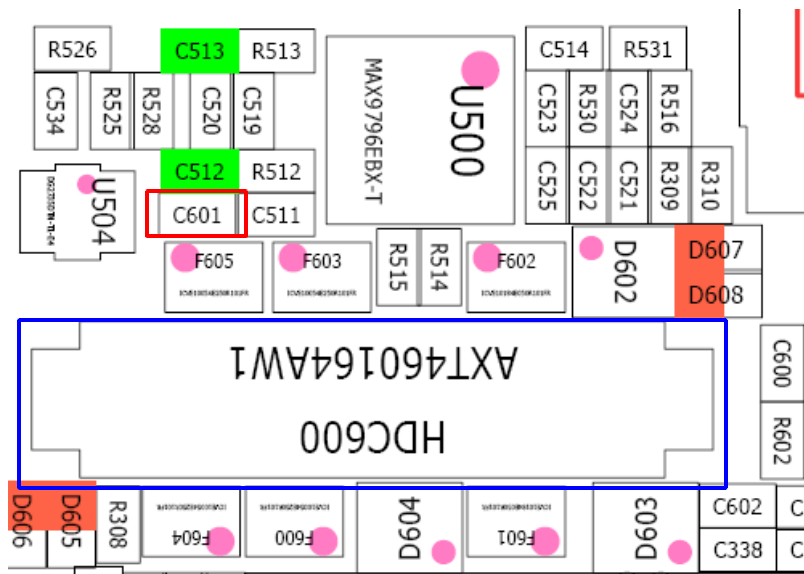
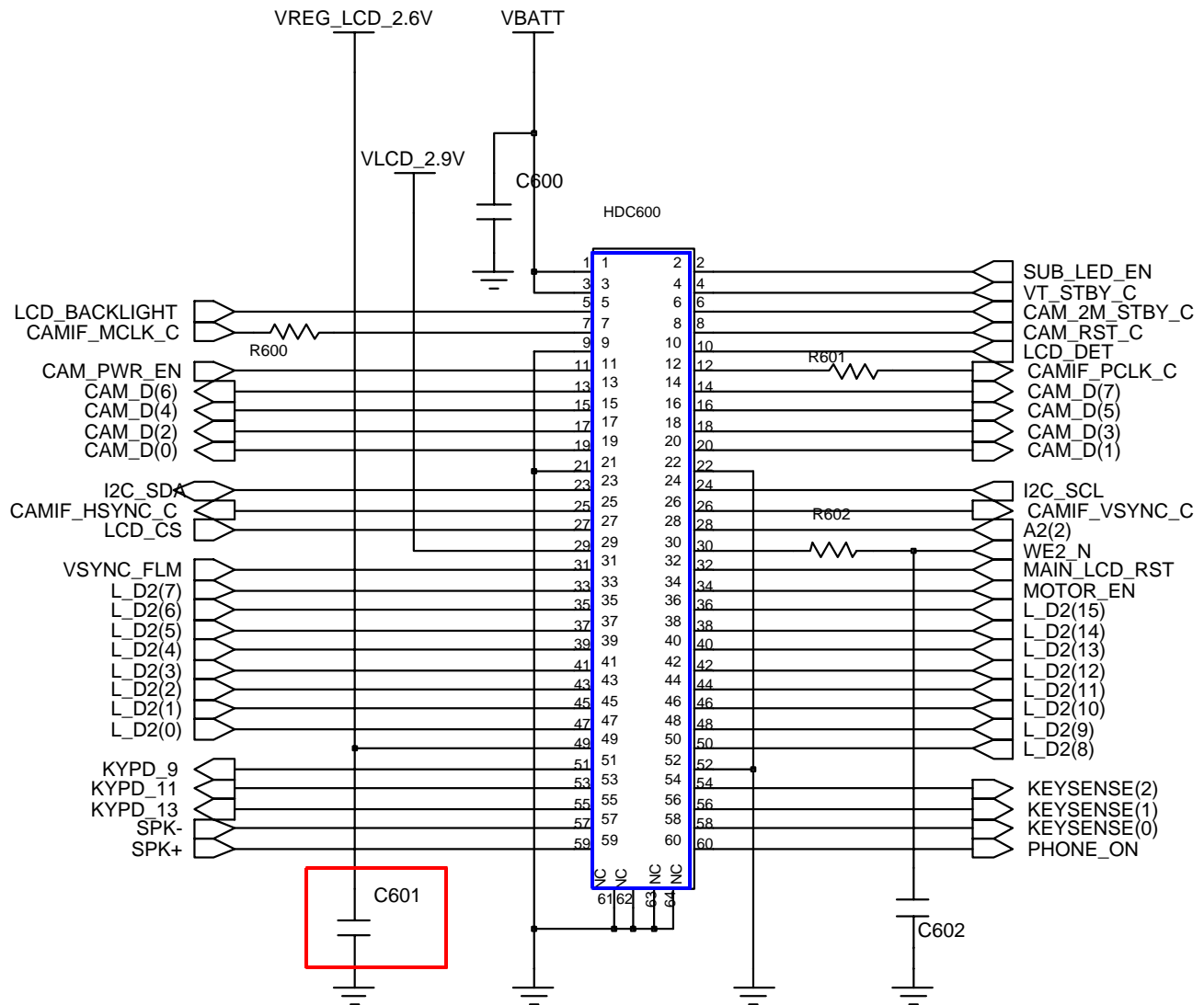
## 10-7. Receiver Part



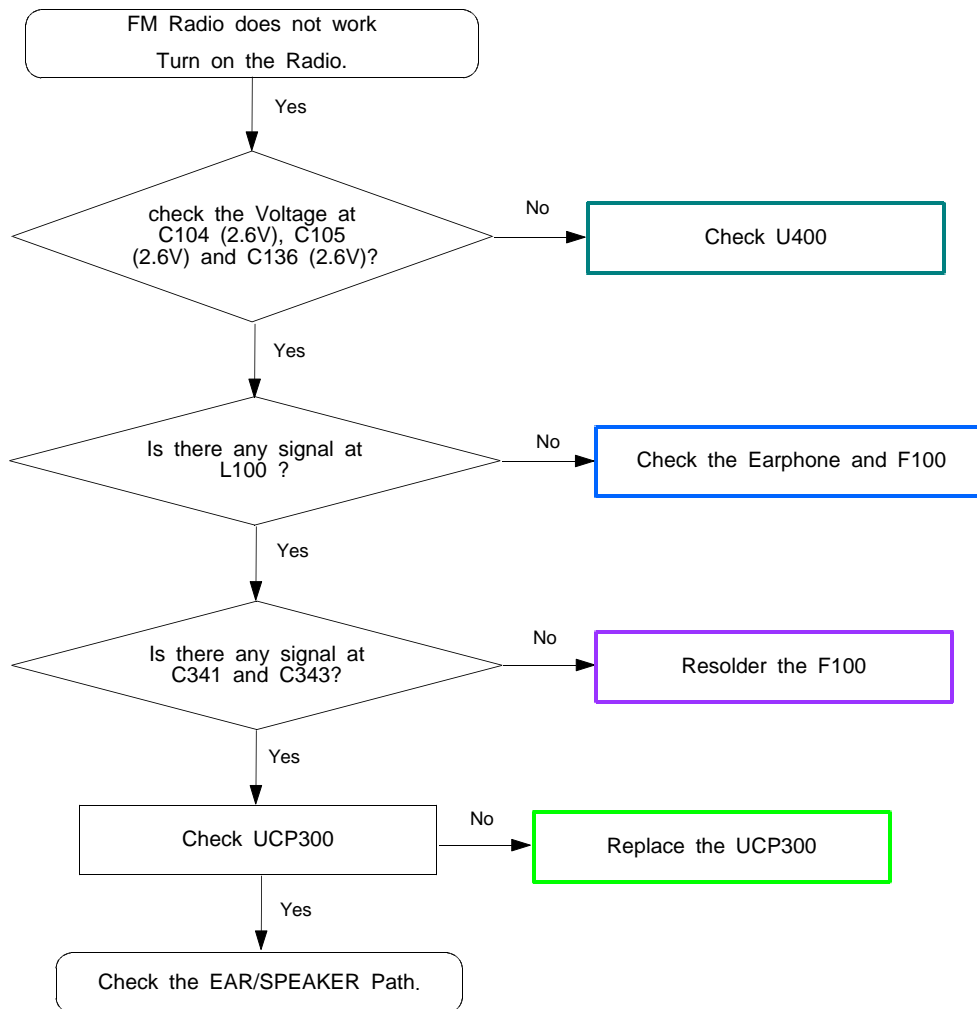


## 10-8. LCD part

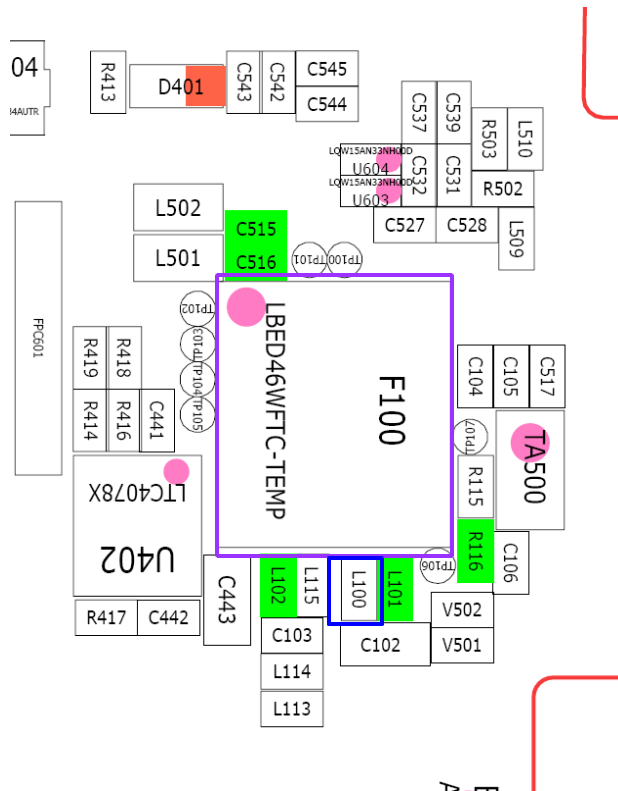
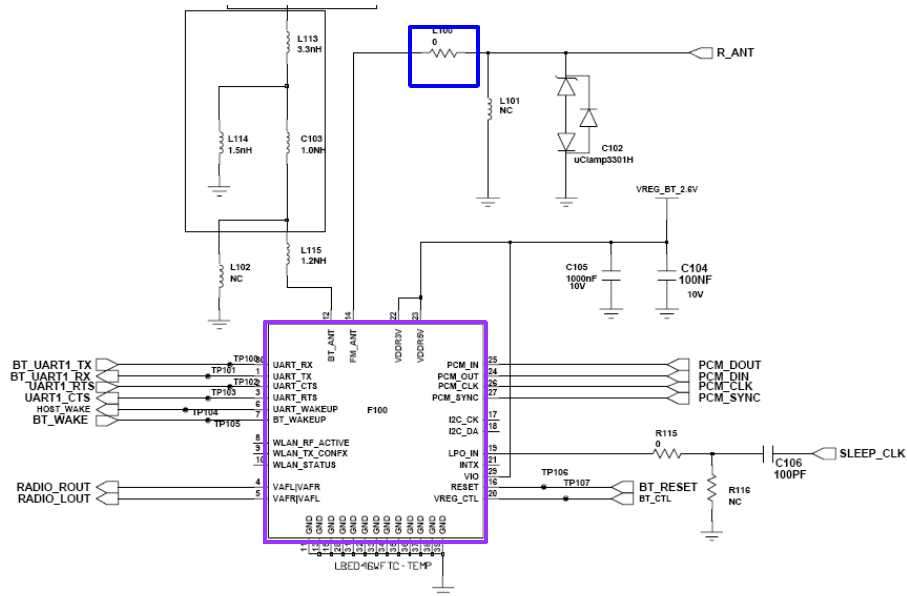




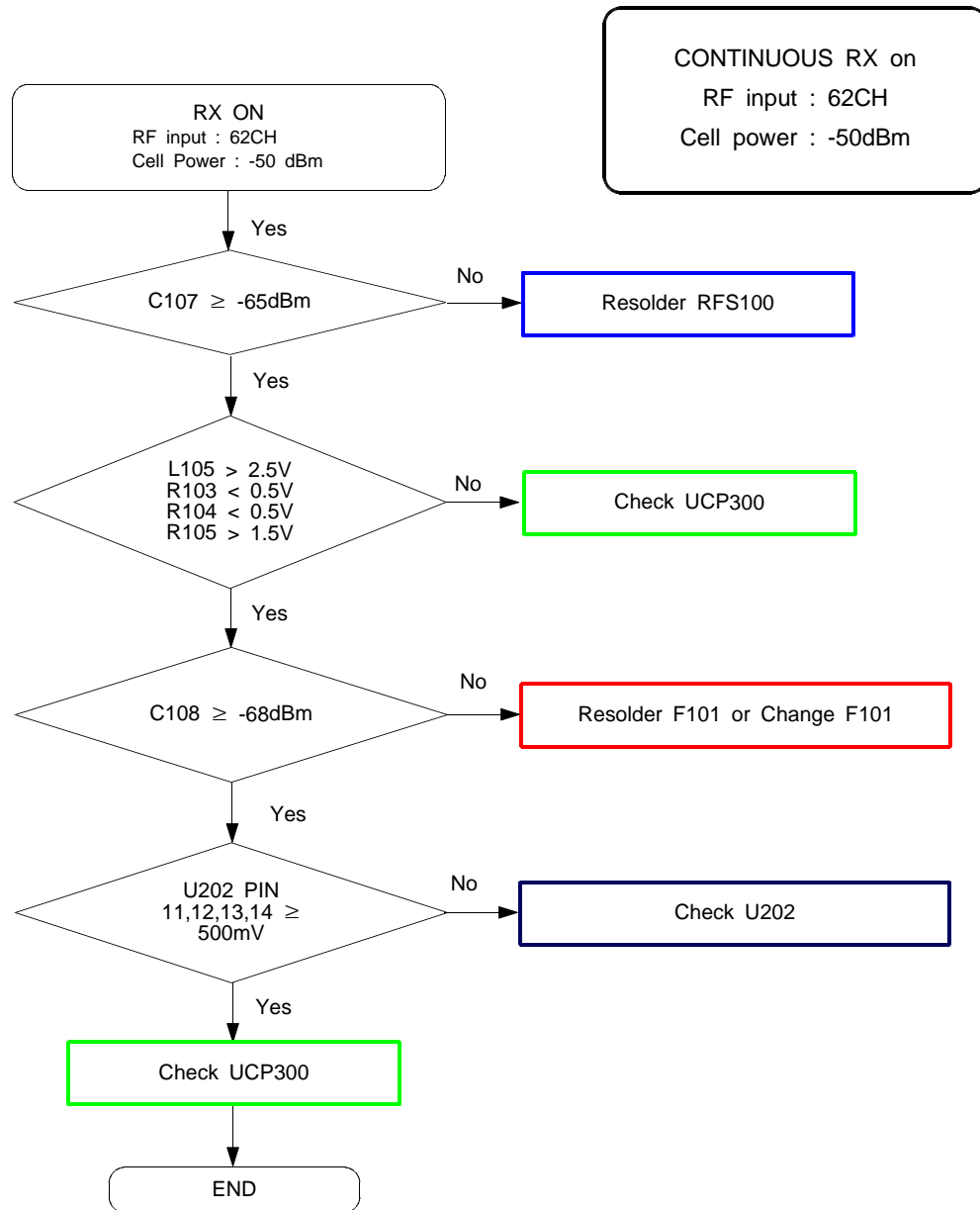
## 10-9. FM RADIO Part

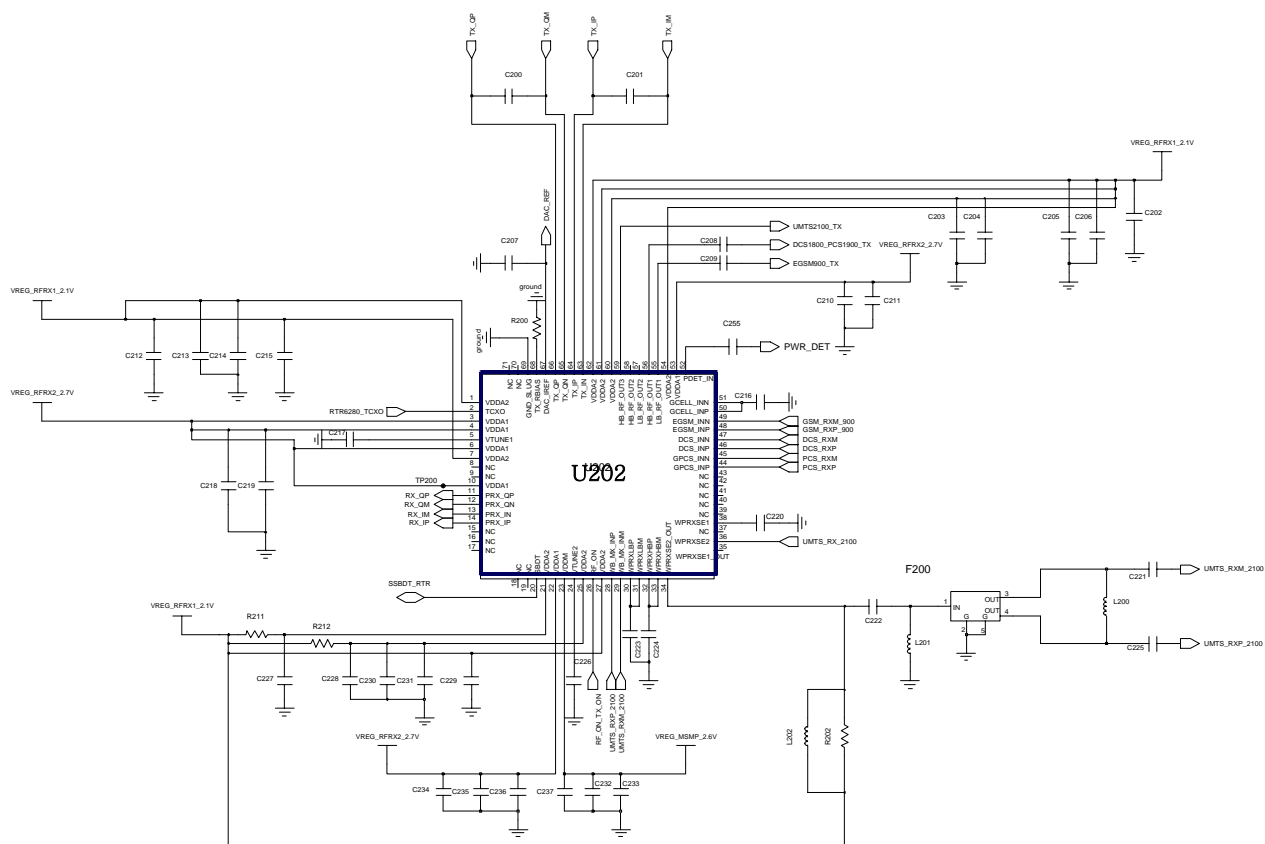
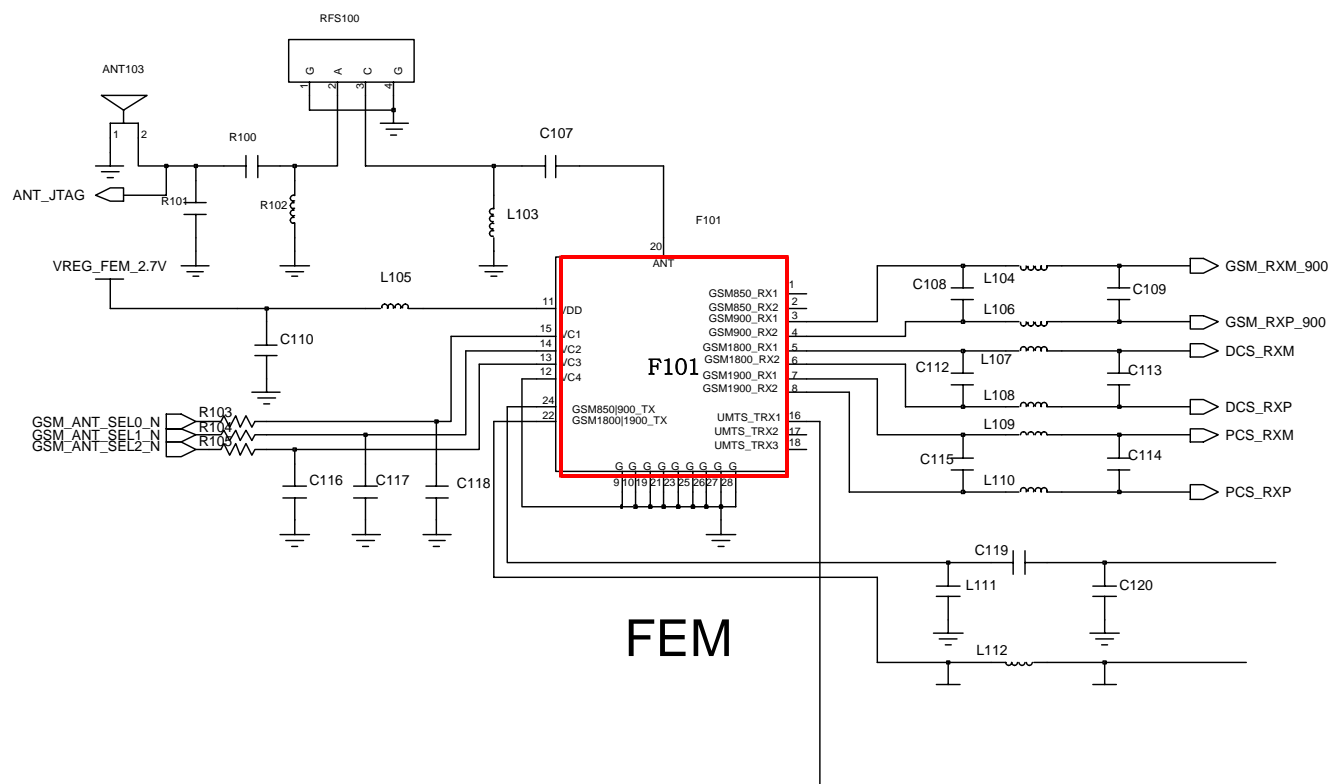






## 10-10. GSM Receiver

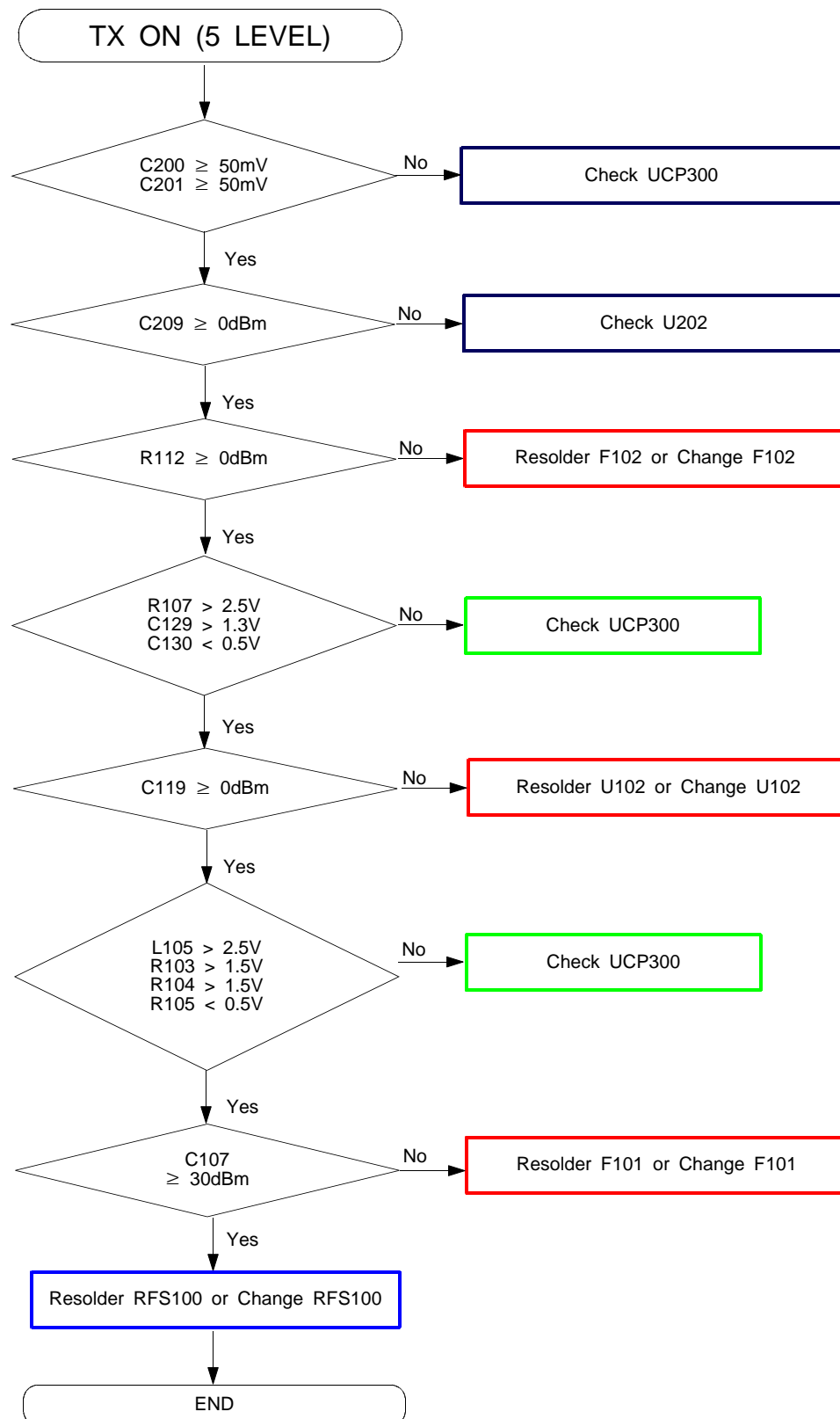




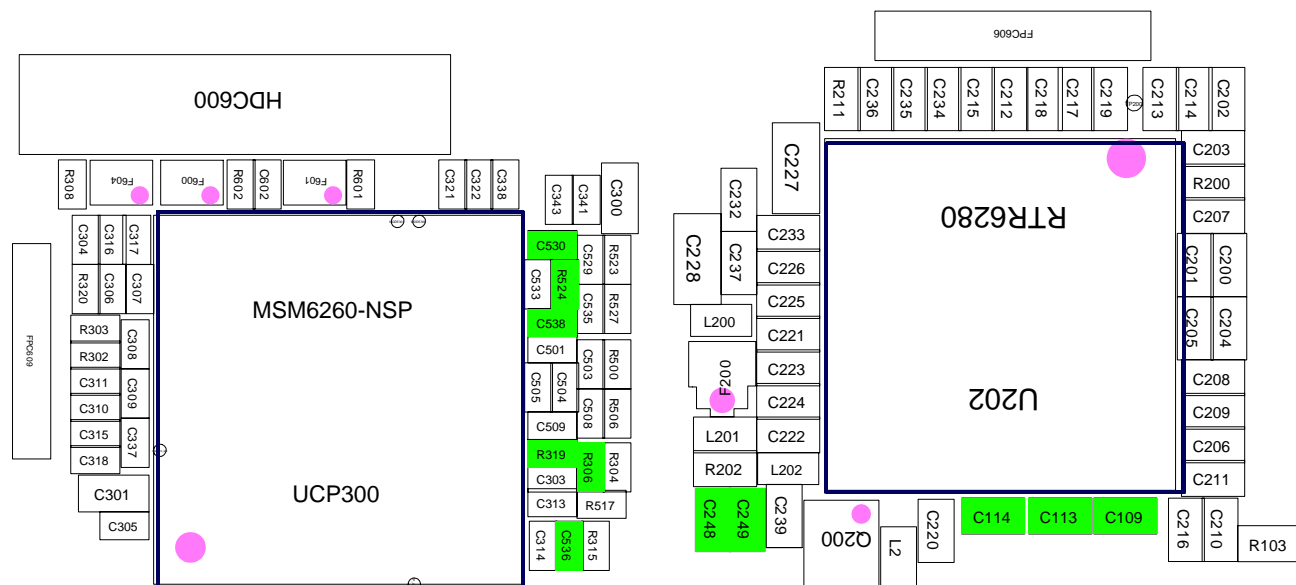
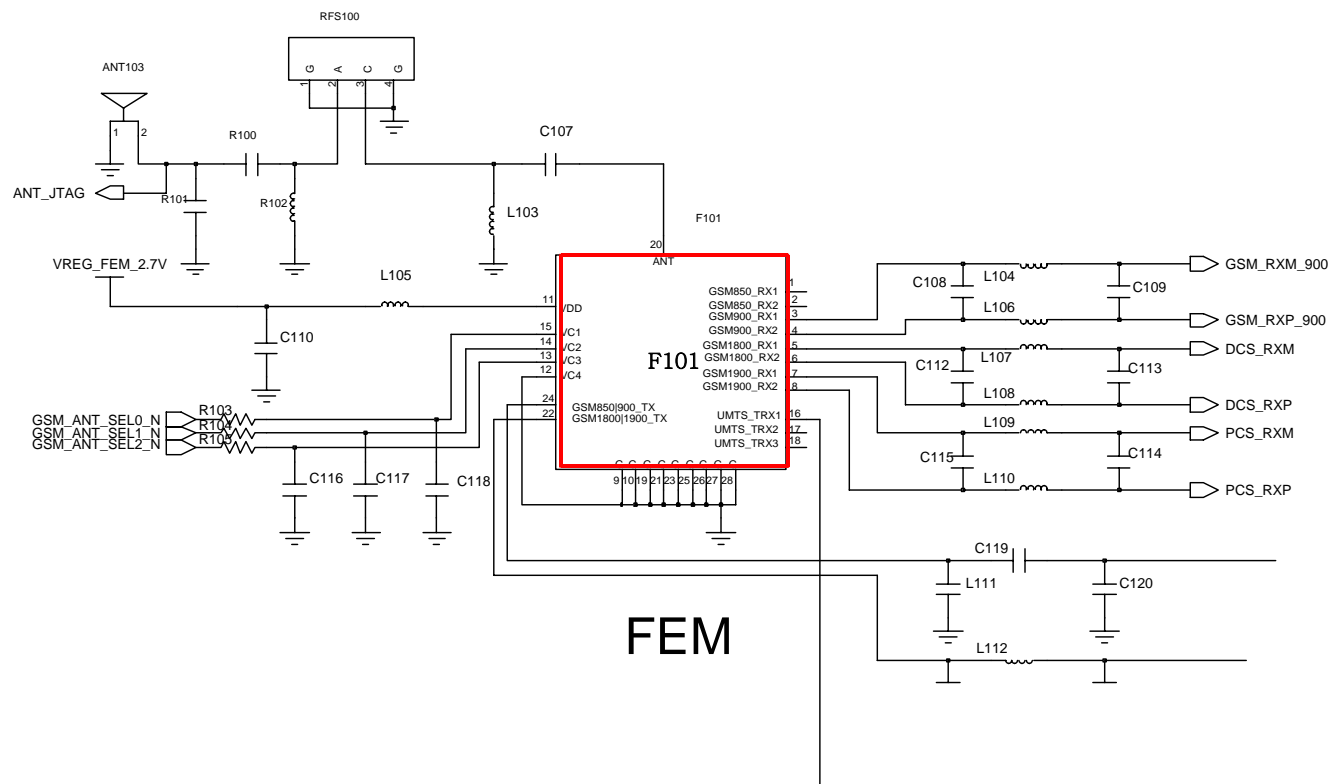
## RF TRANSCEIVER

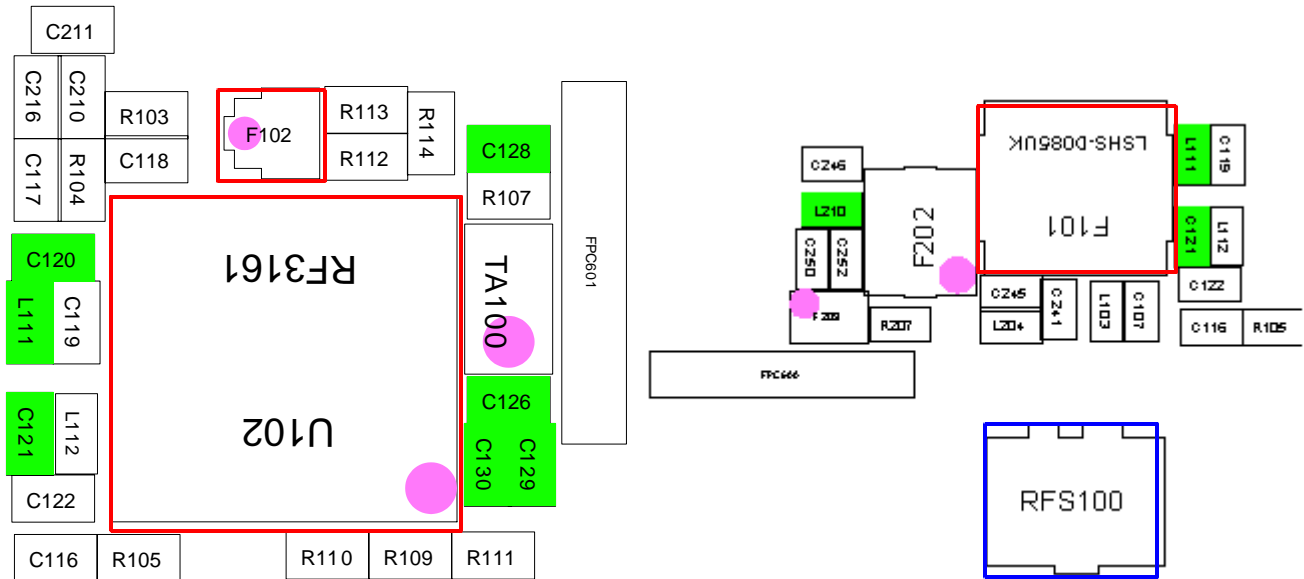


## 10-11 GSM Transmitter



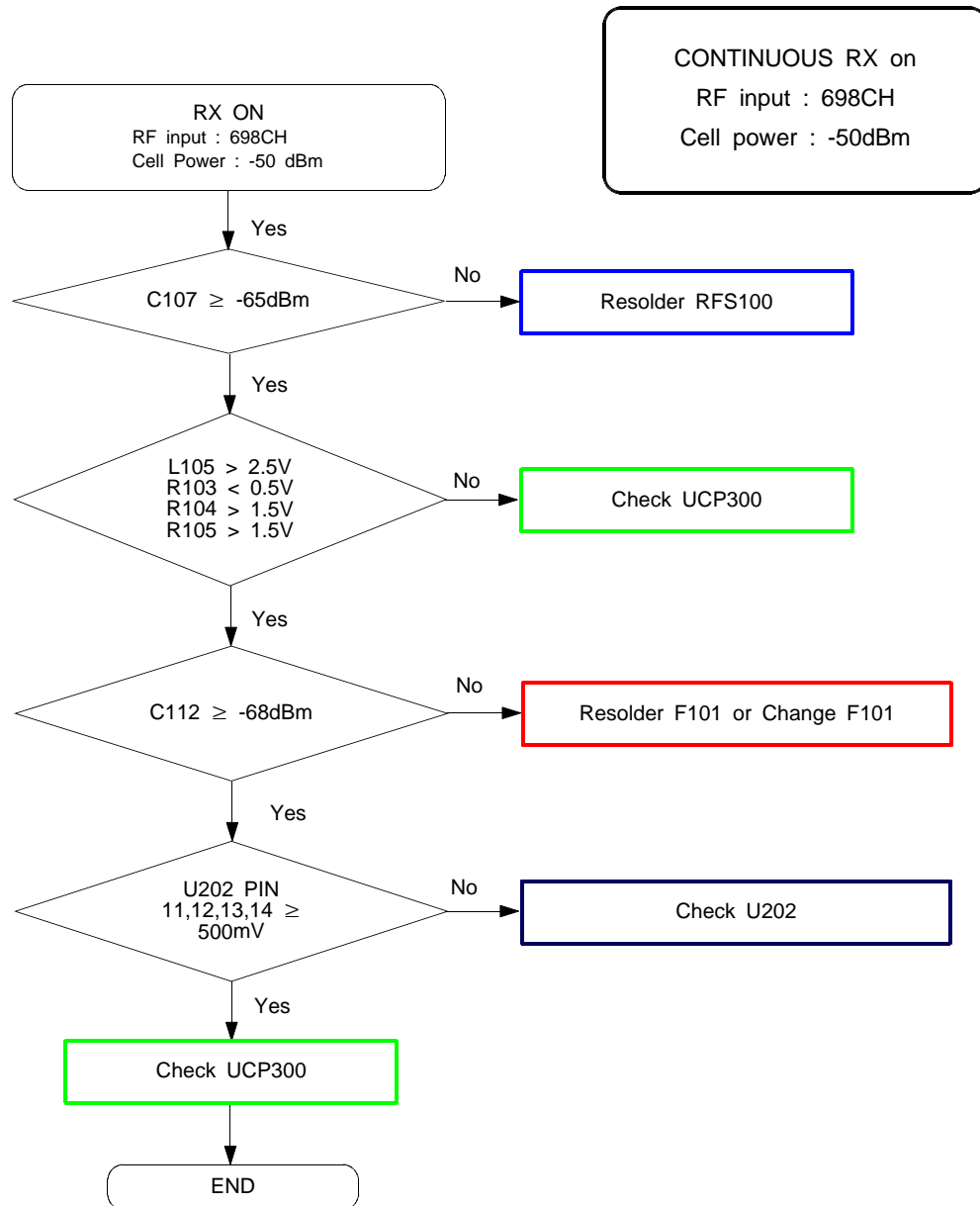


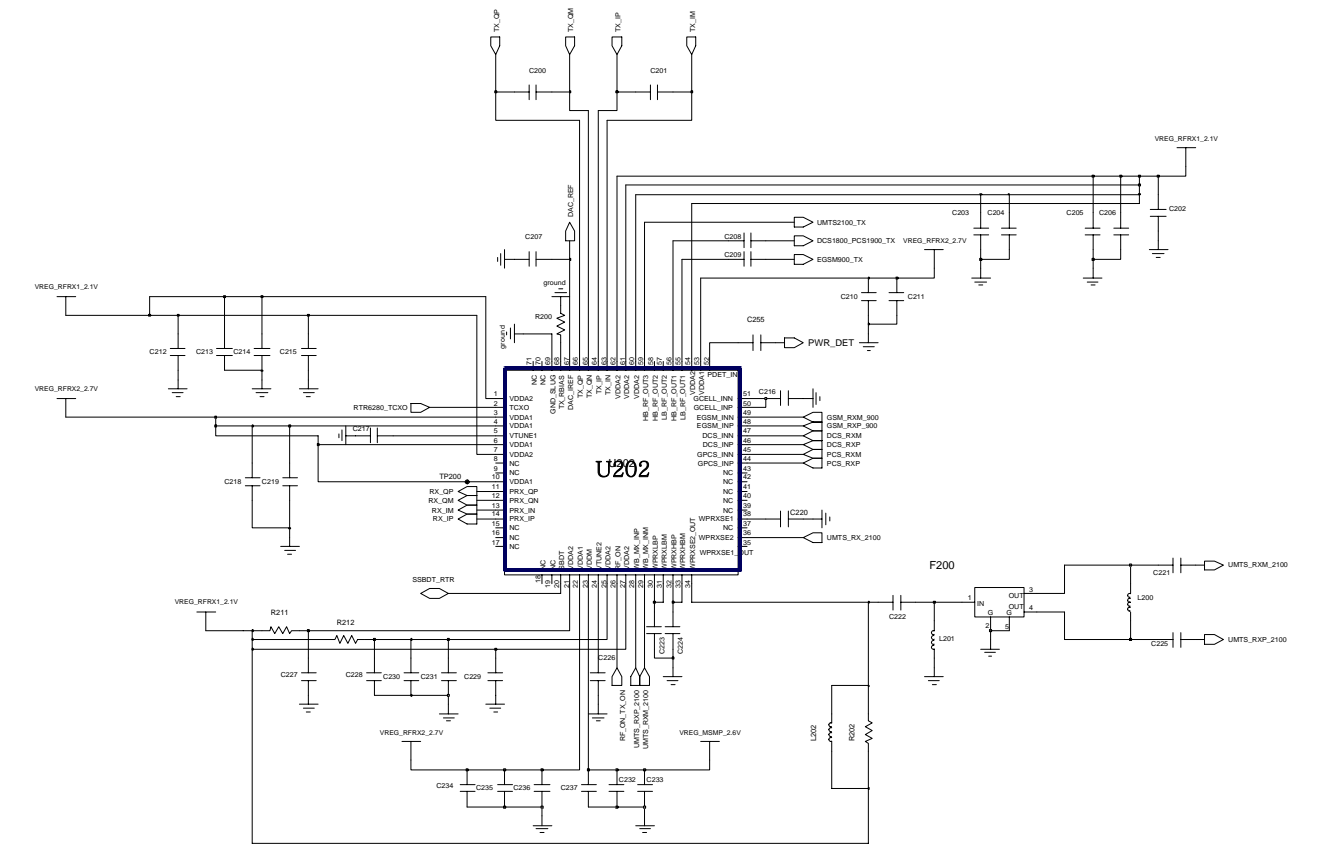


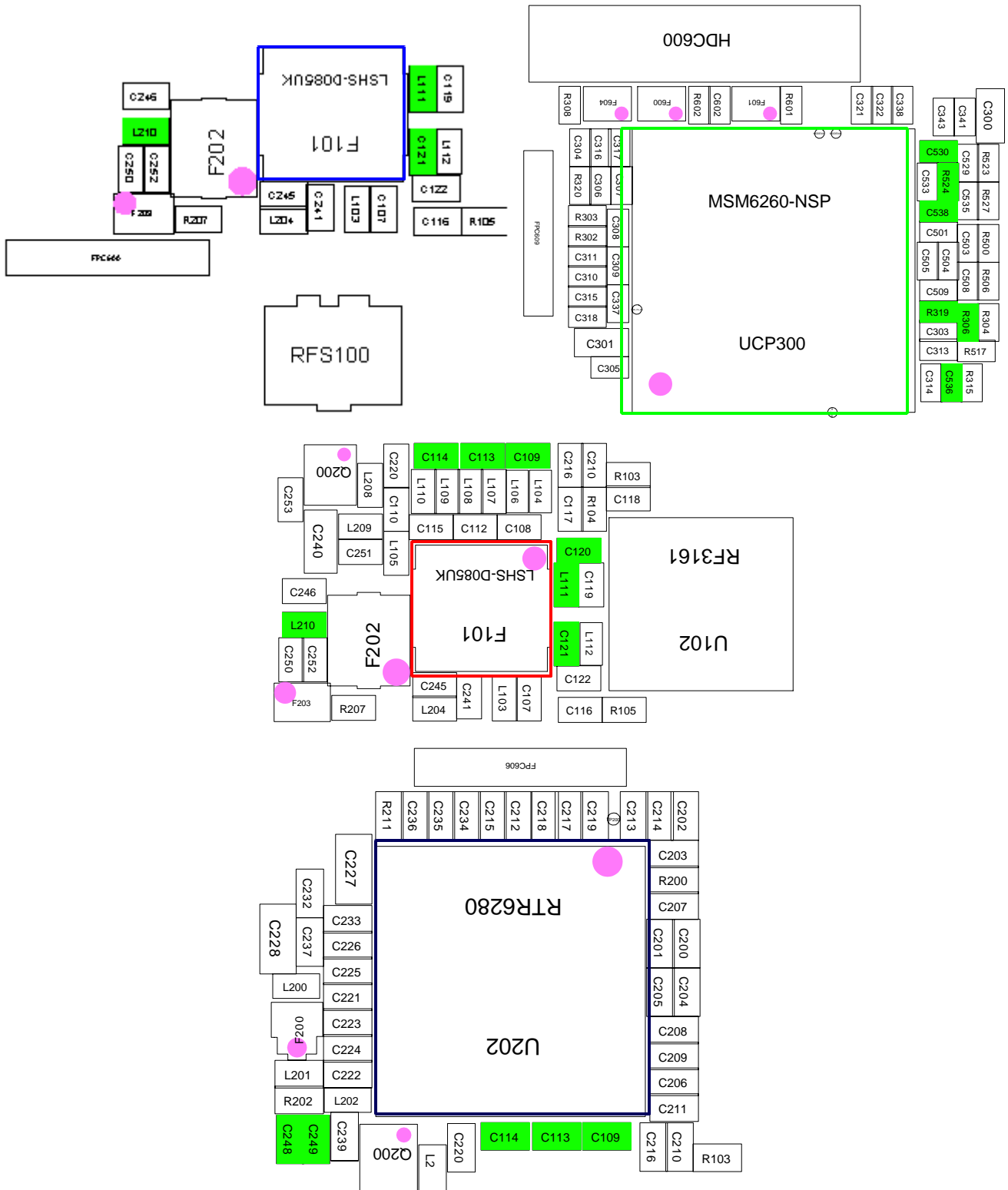




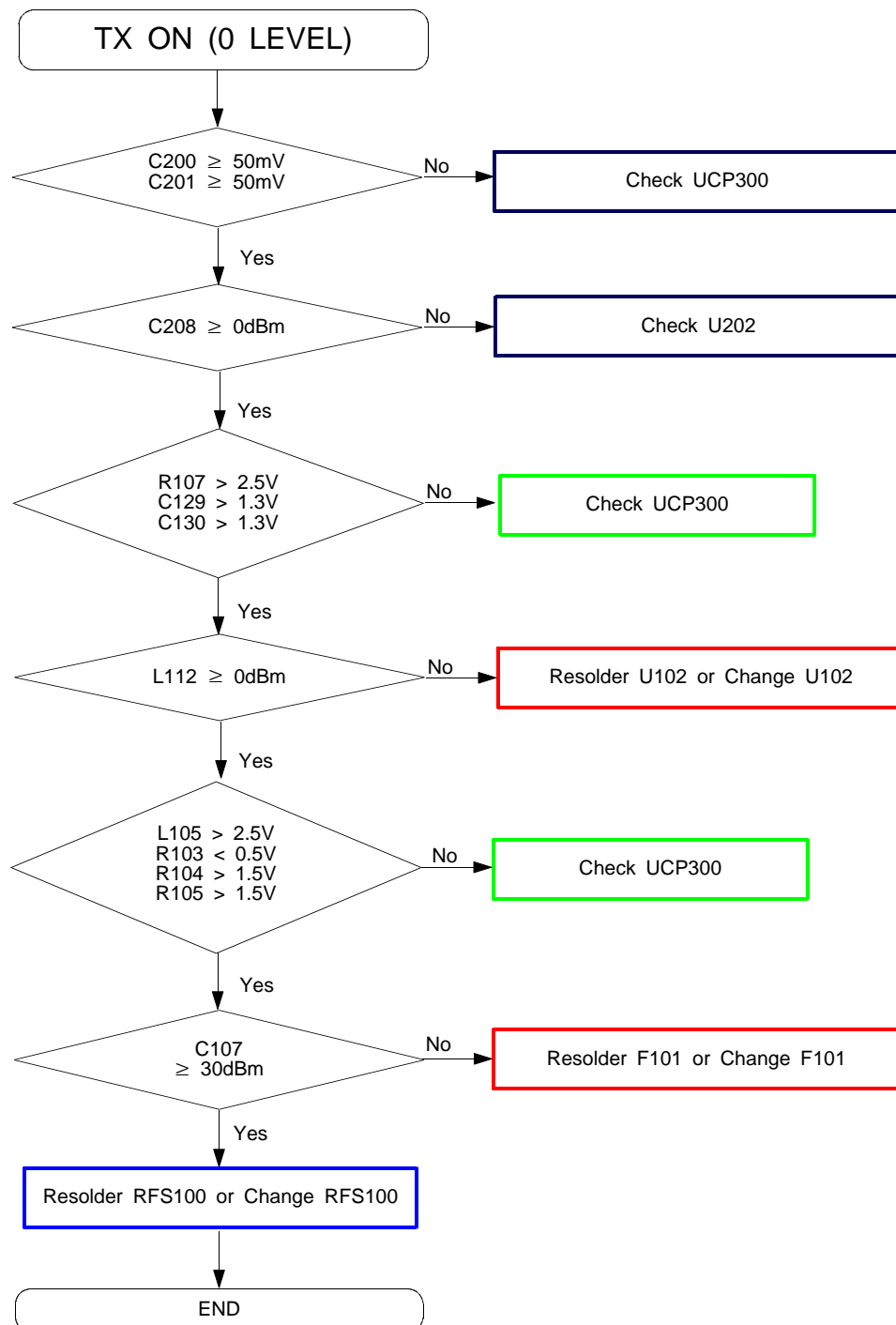
## 10-12. DCS Receiver



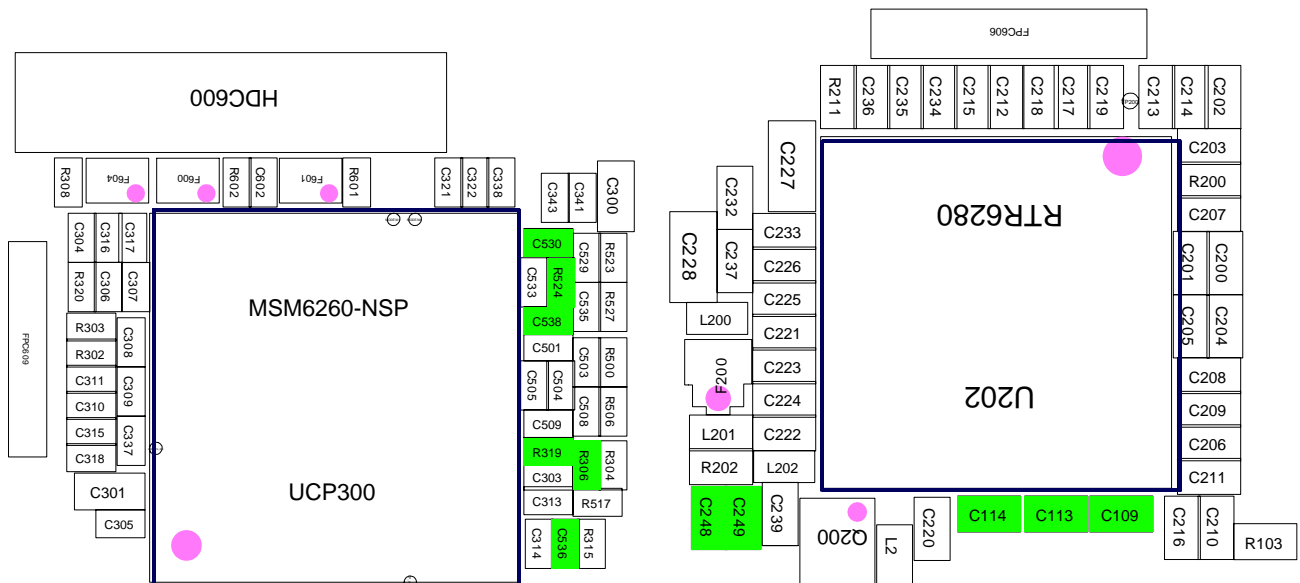
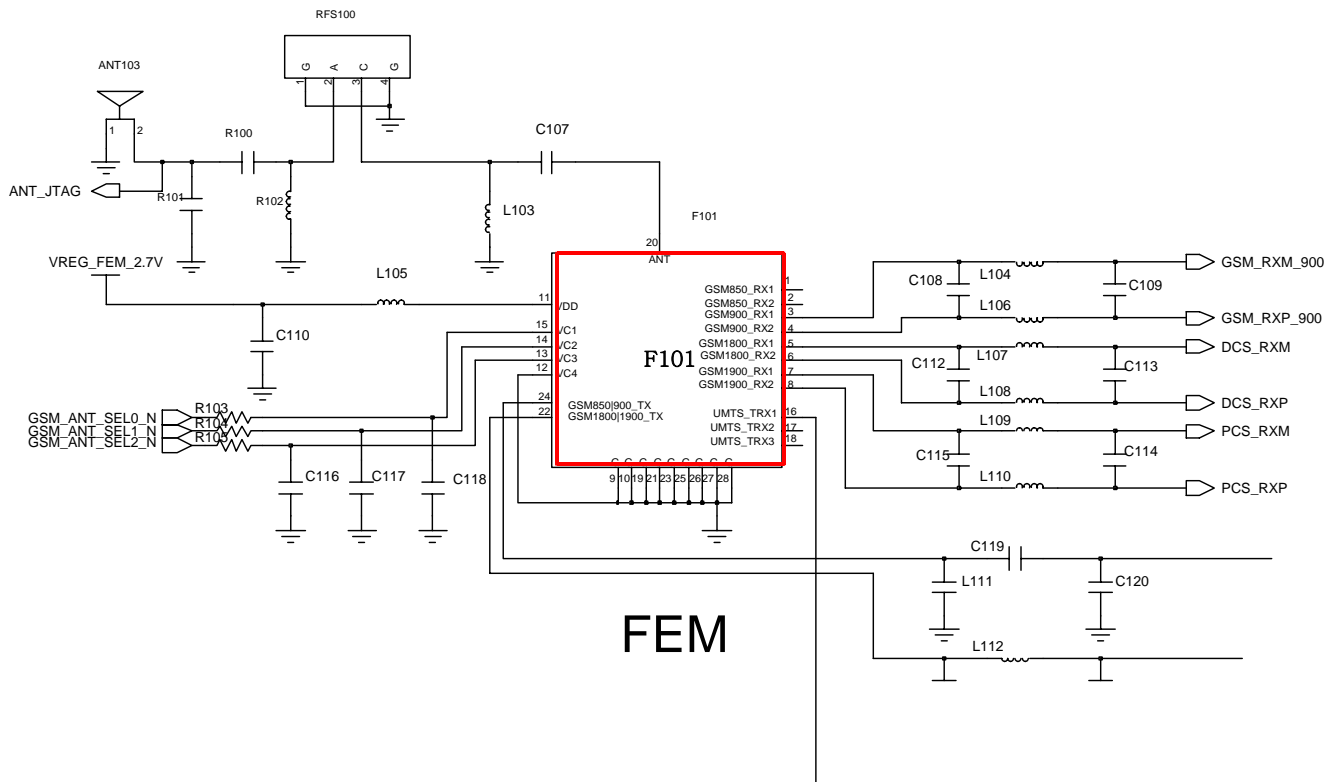


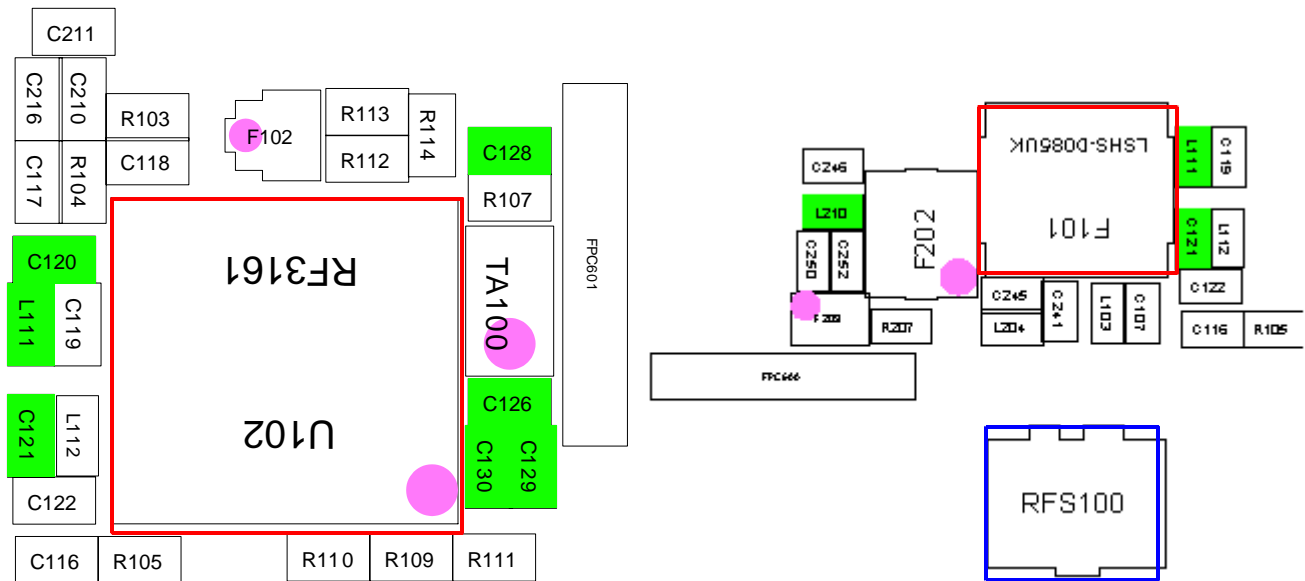


## 10-13. DCS Transmitter

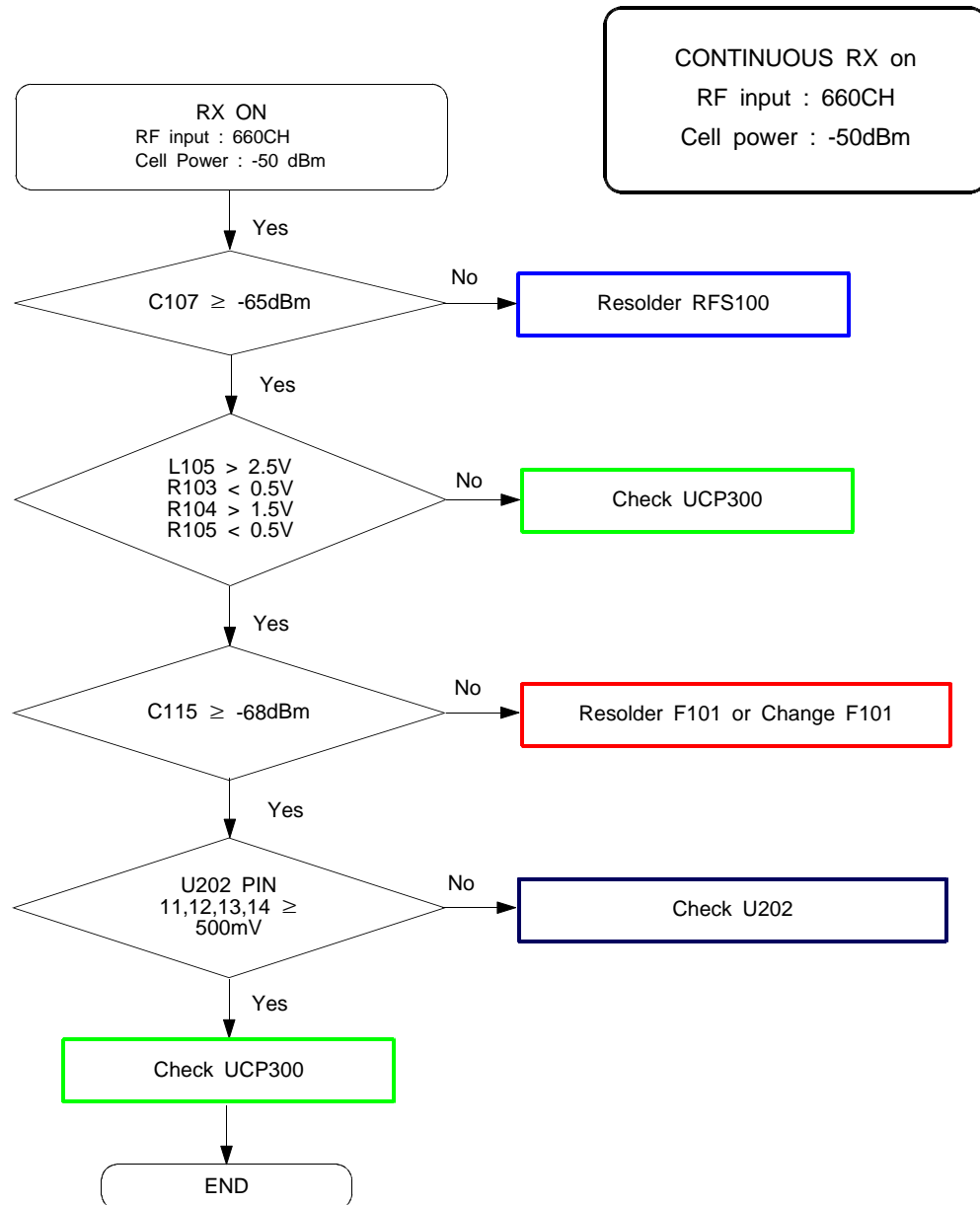




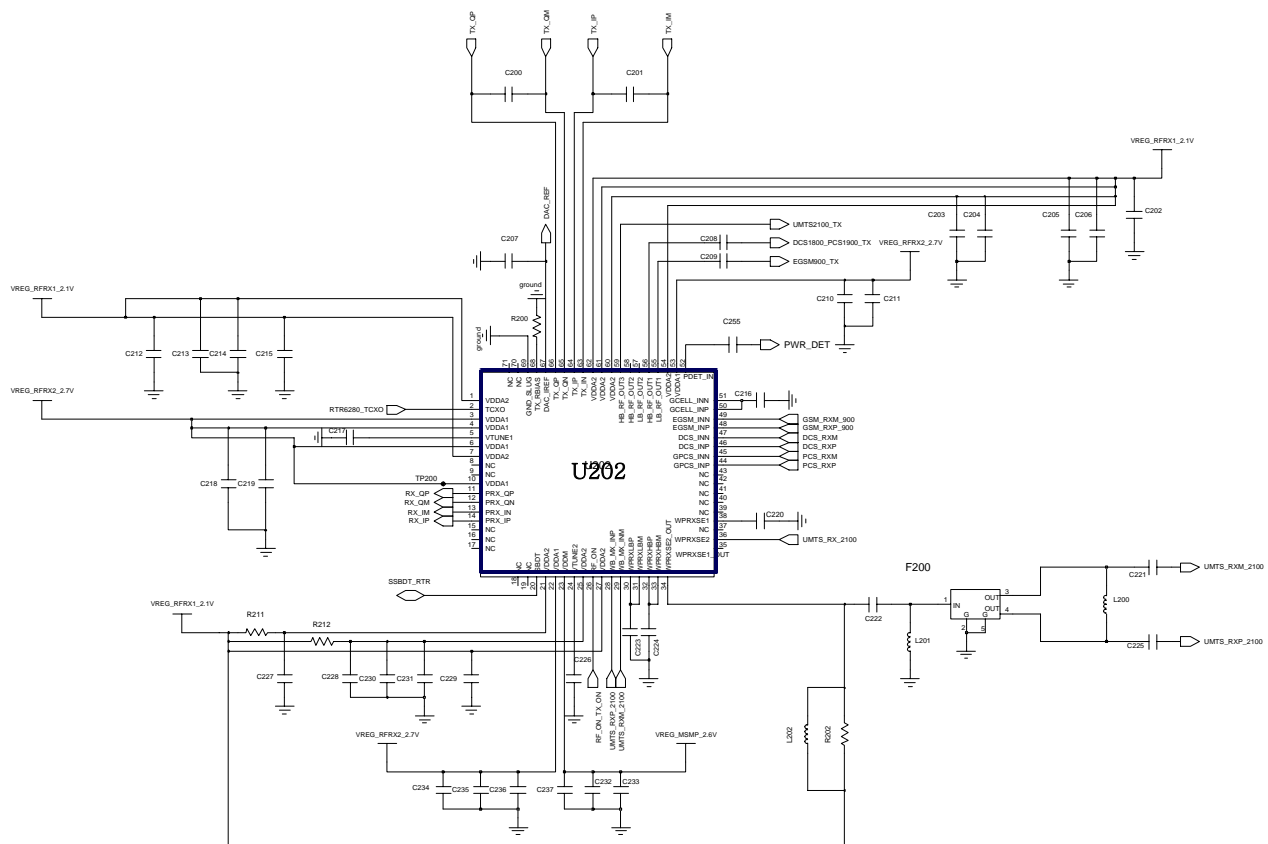
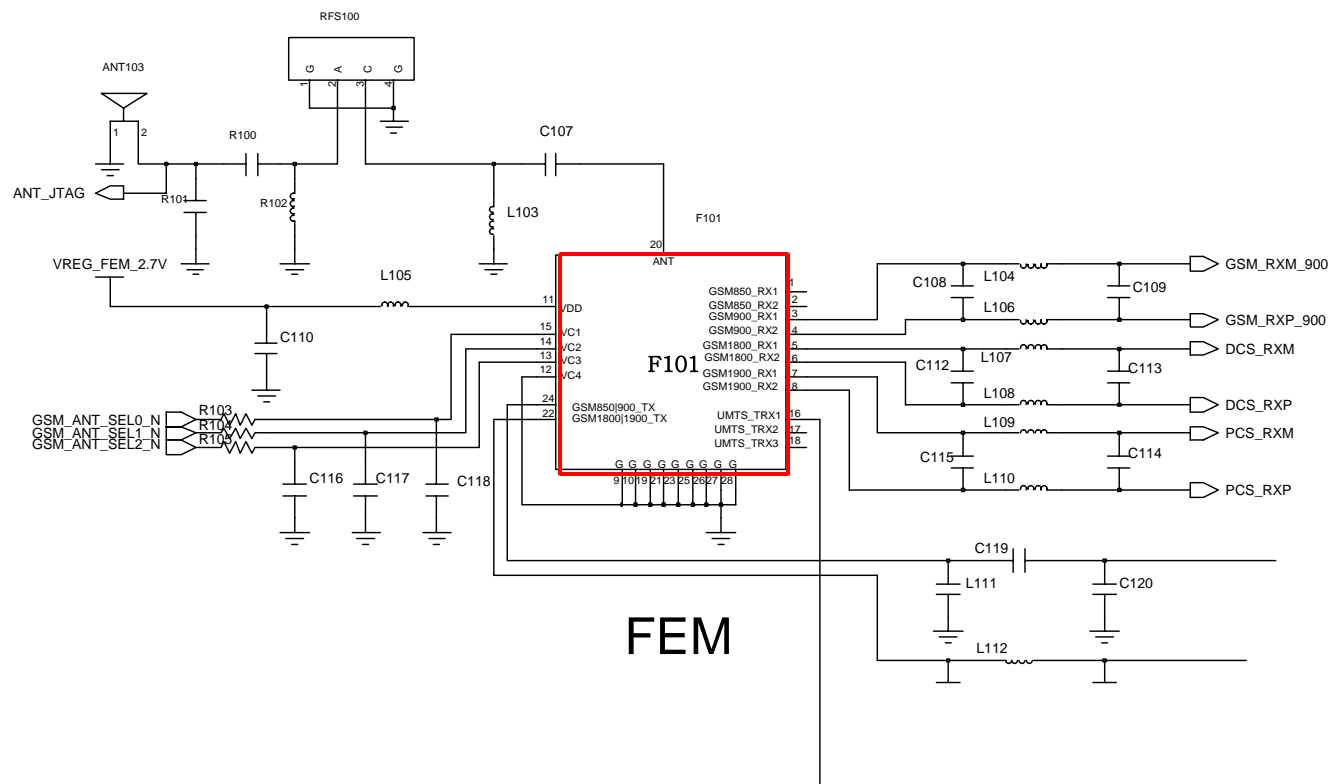




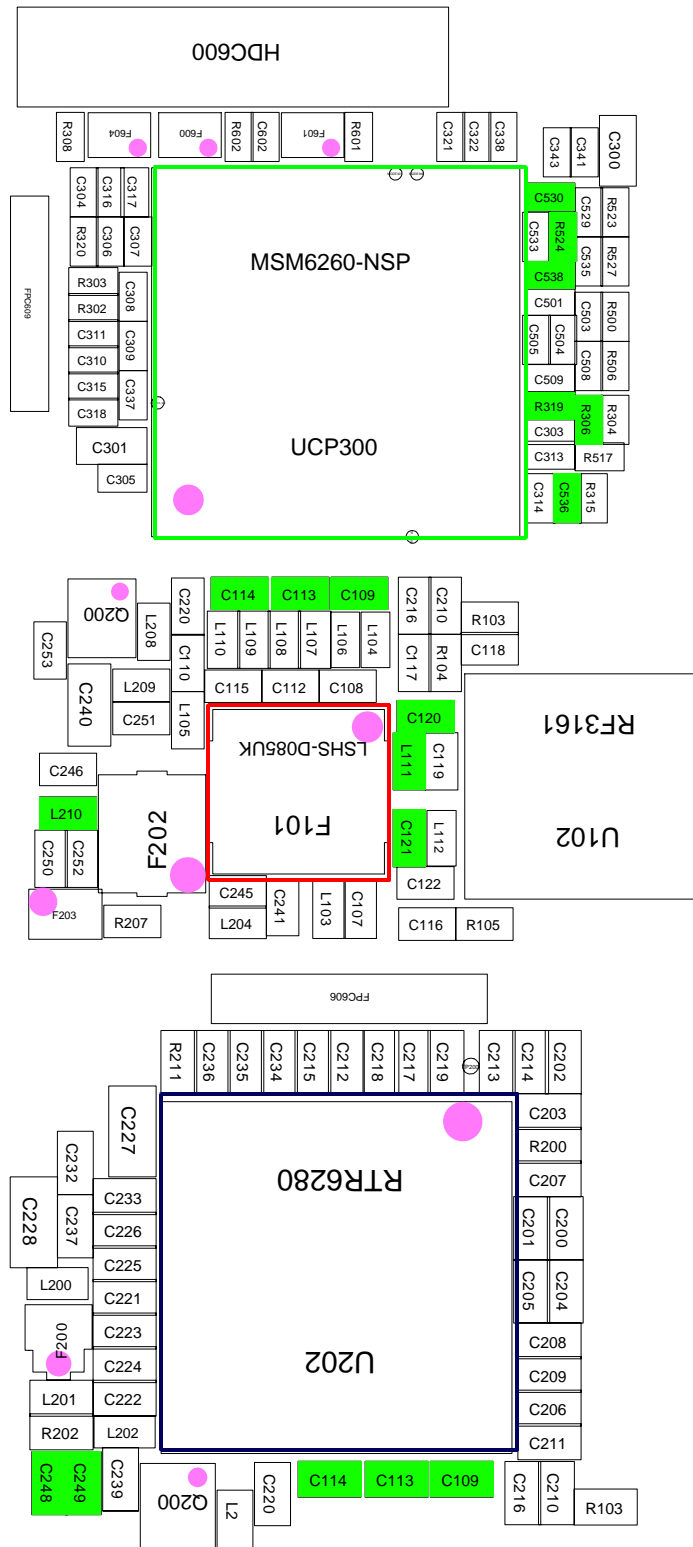
## 10-14. PCS Receiver



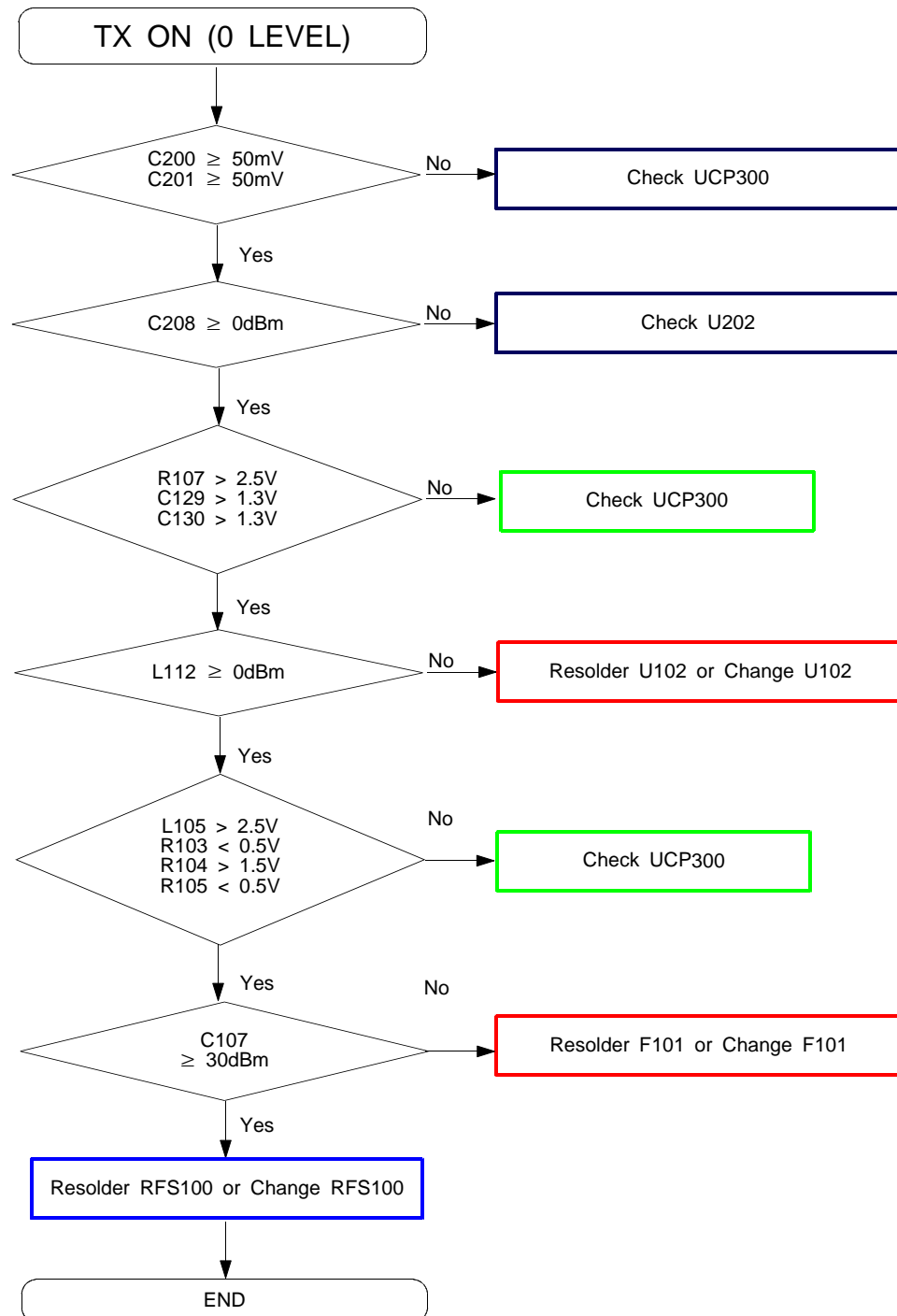




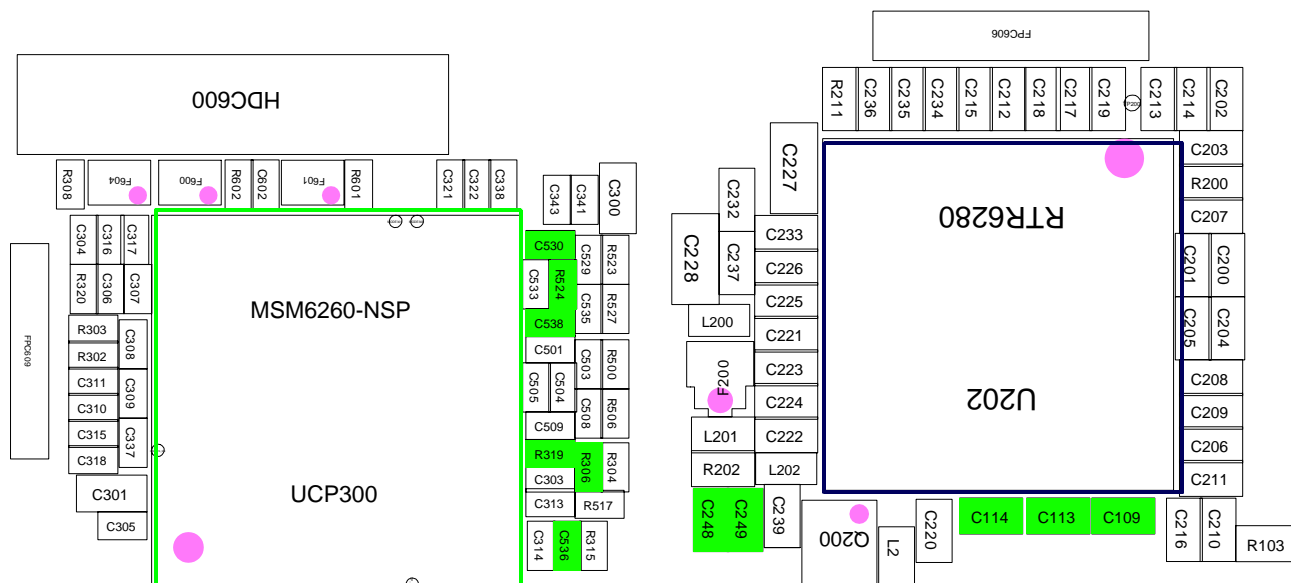
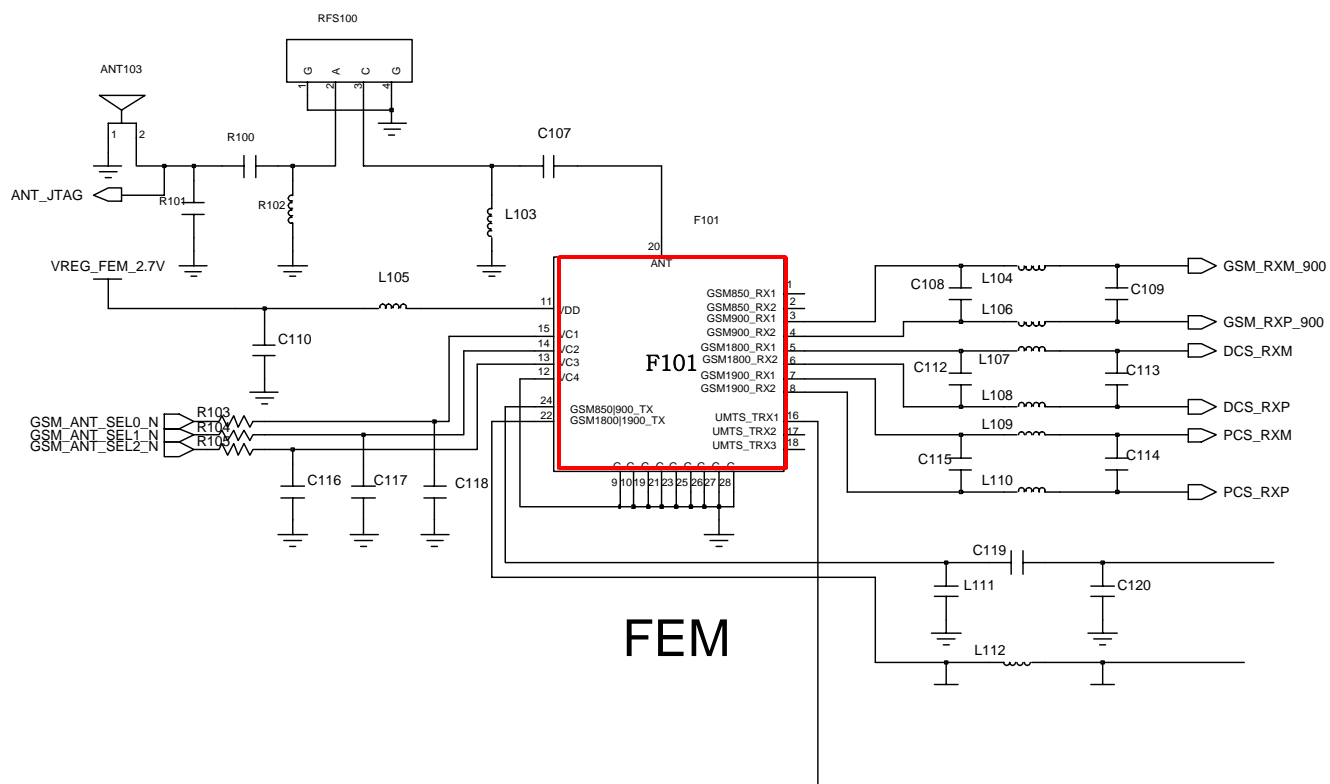
## RF TRANSCEIVER

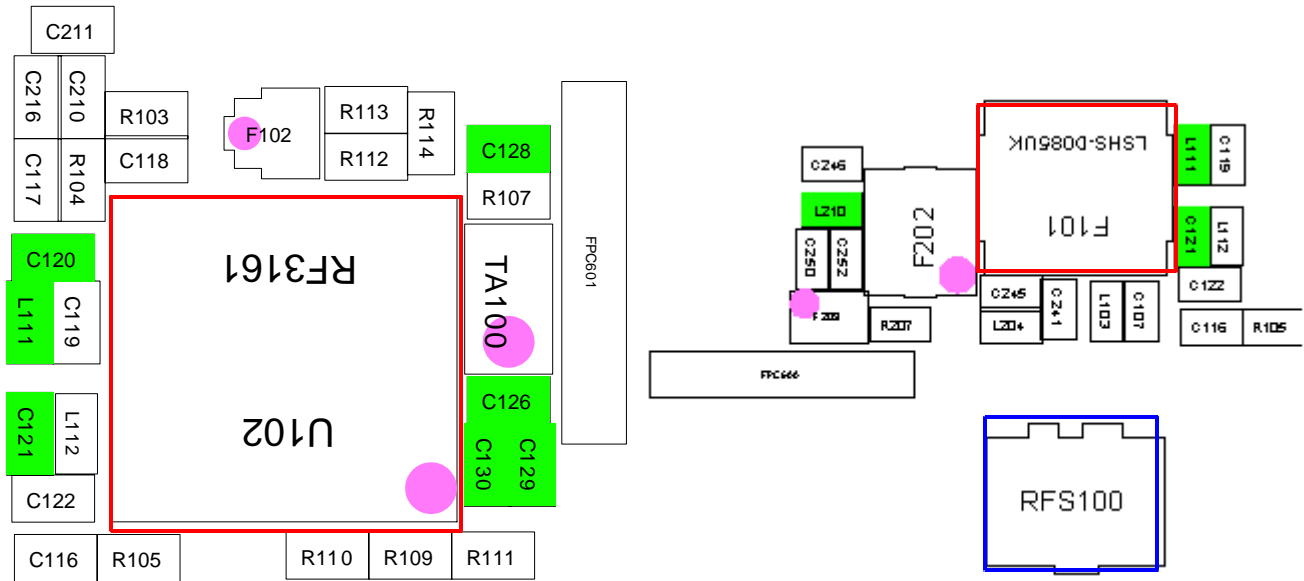


## 10-15. PCS Transmitter

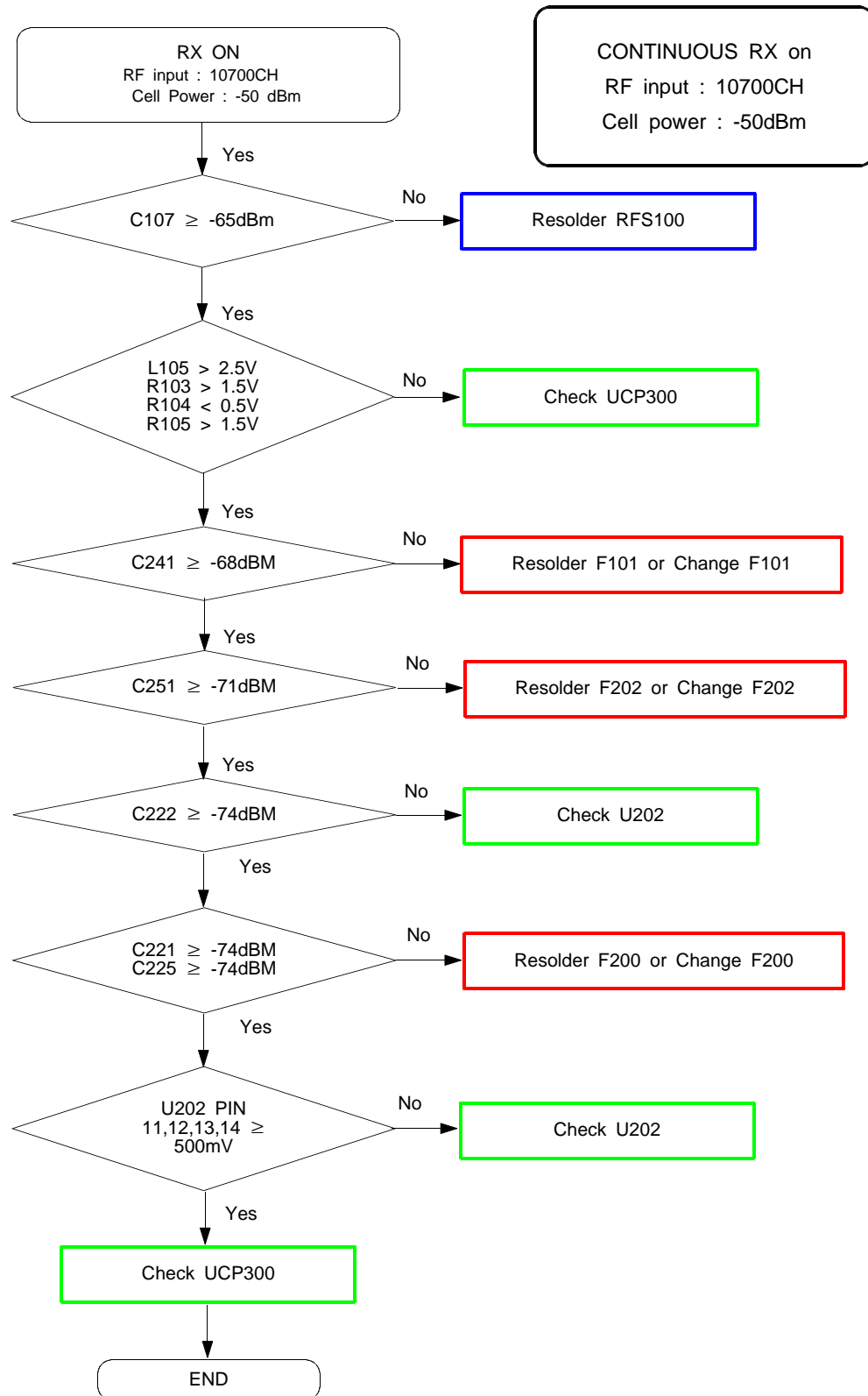


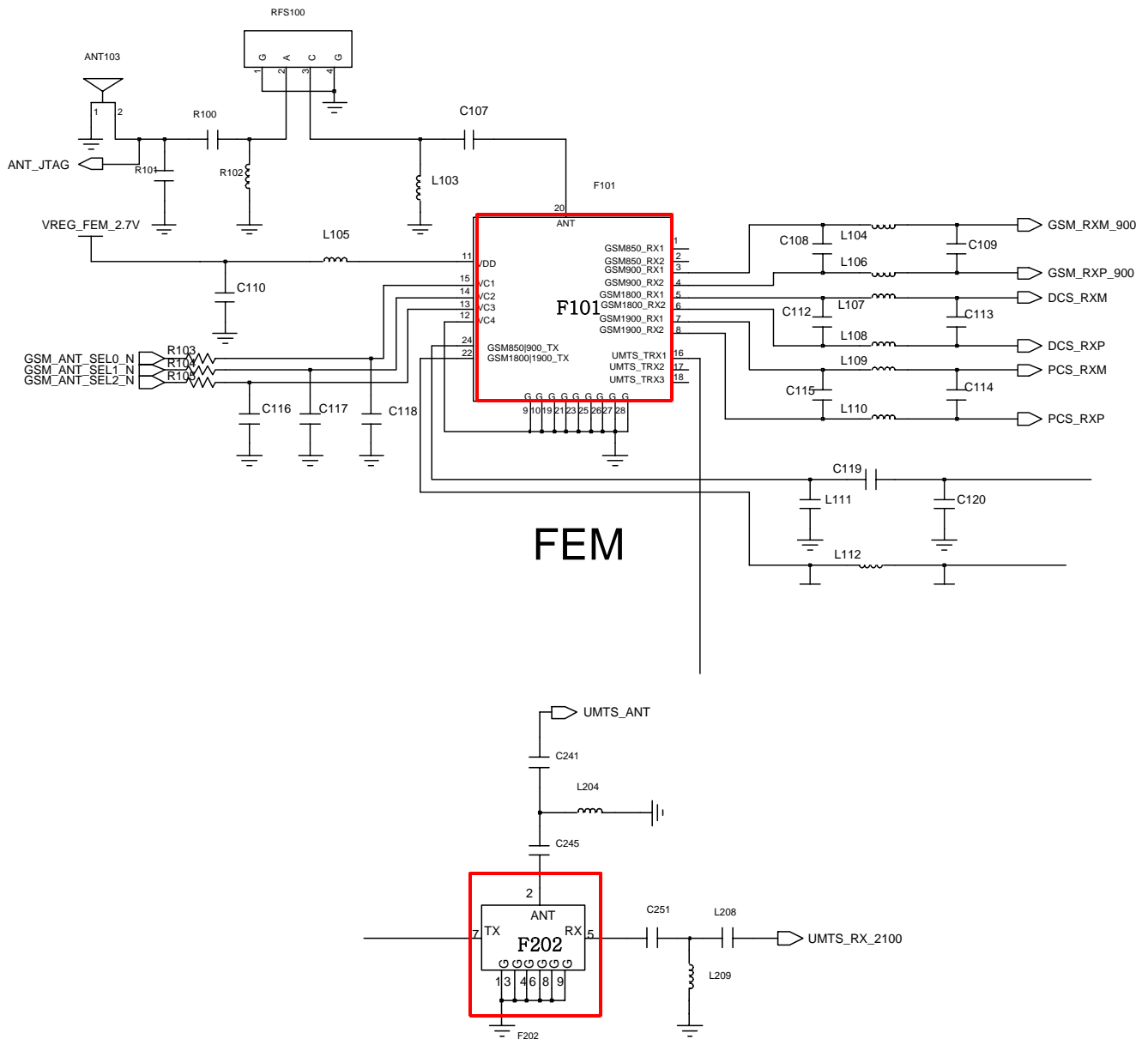




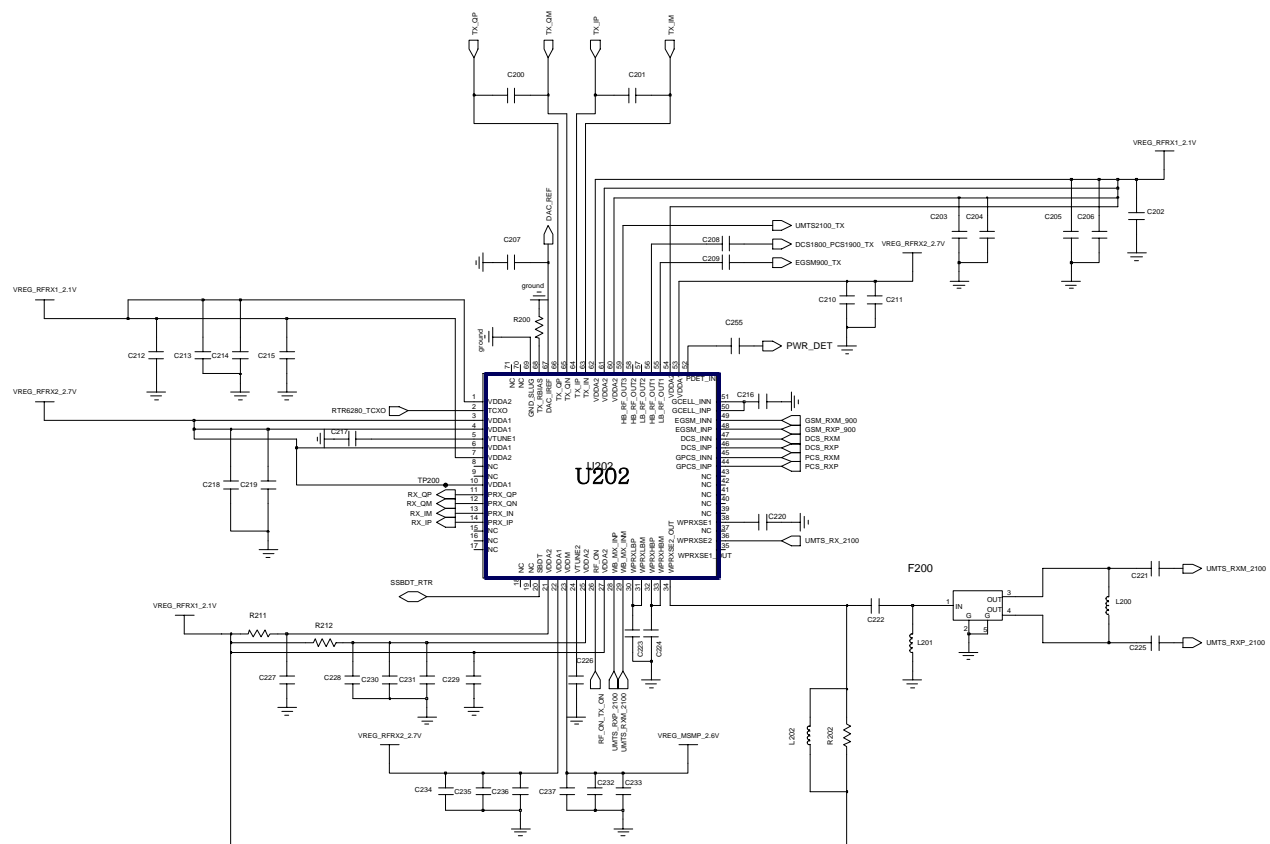


## 10-16. WCDMA Receiver

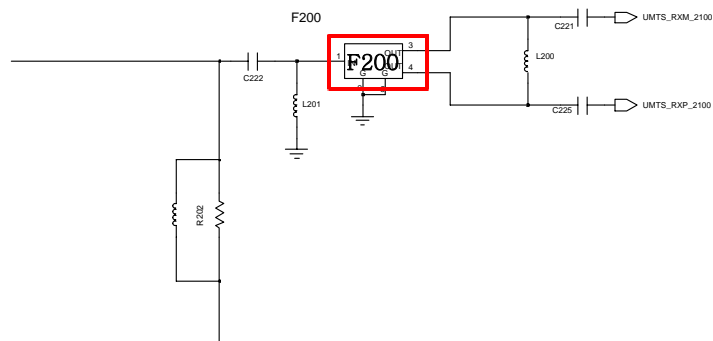


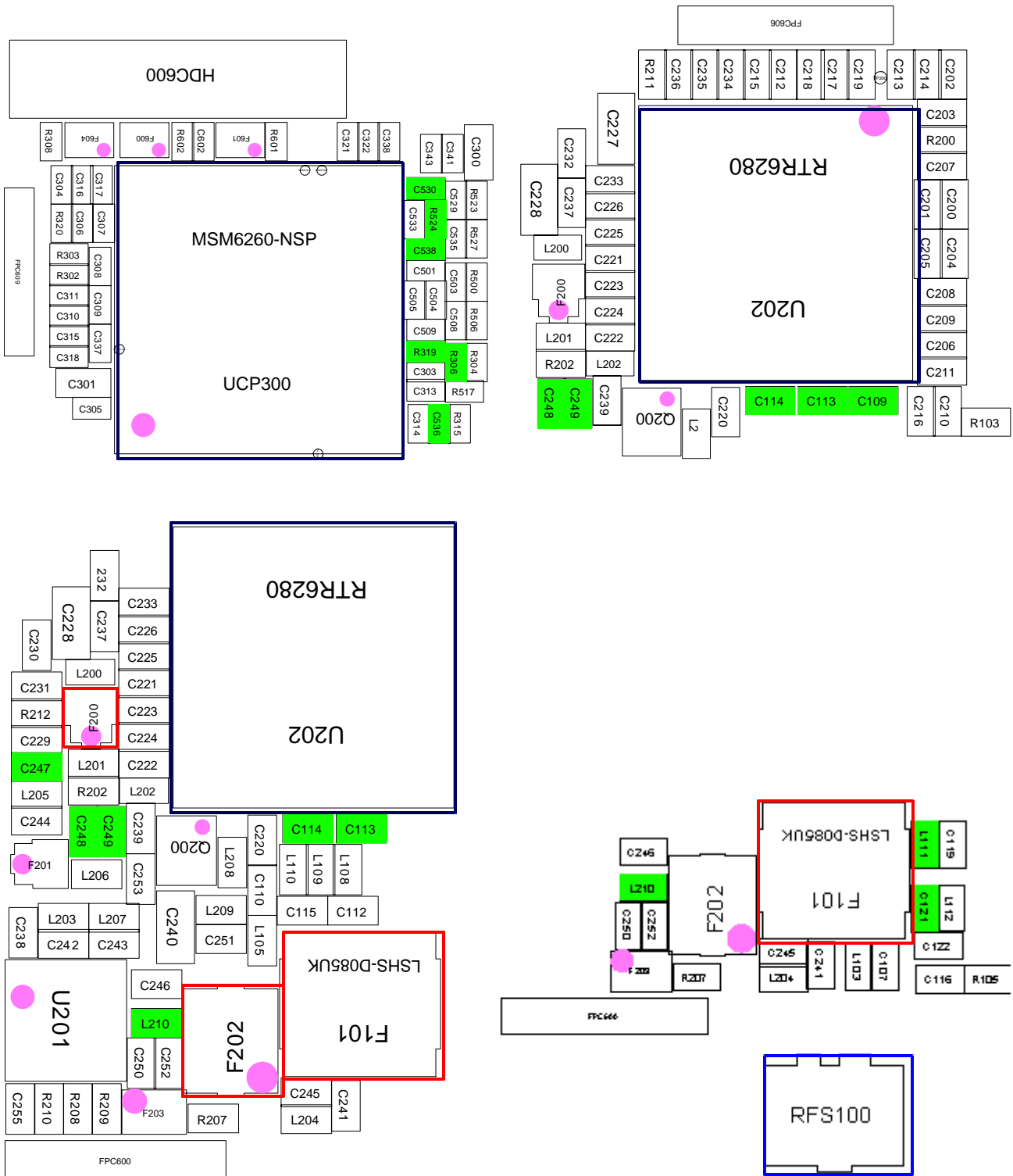




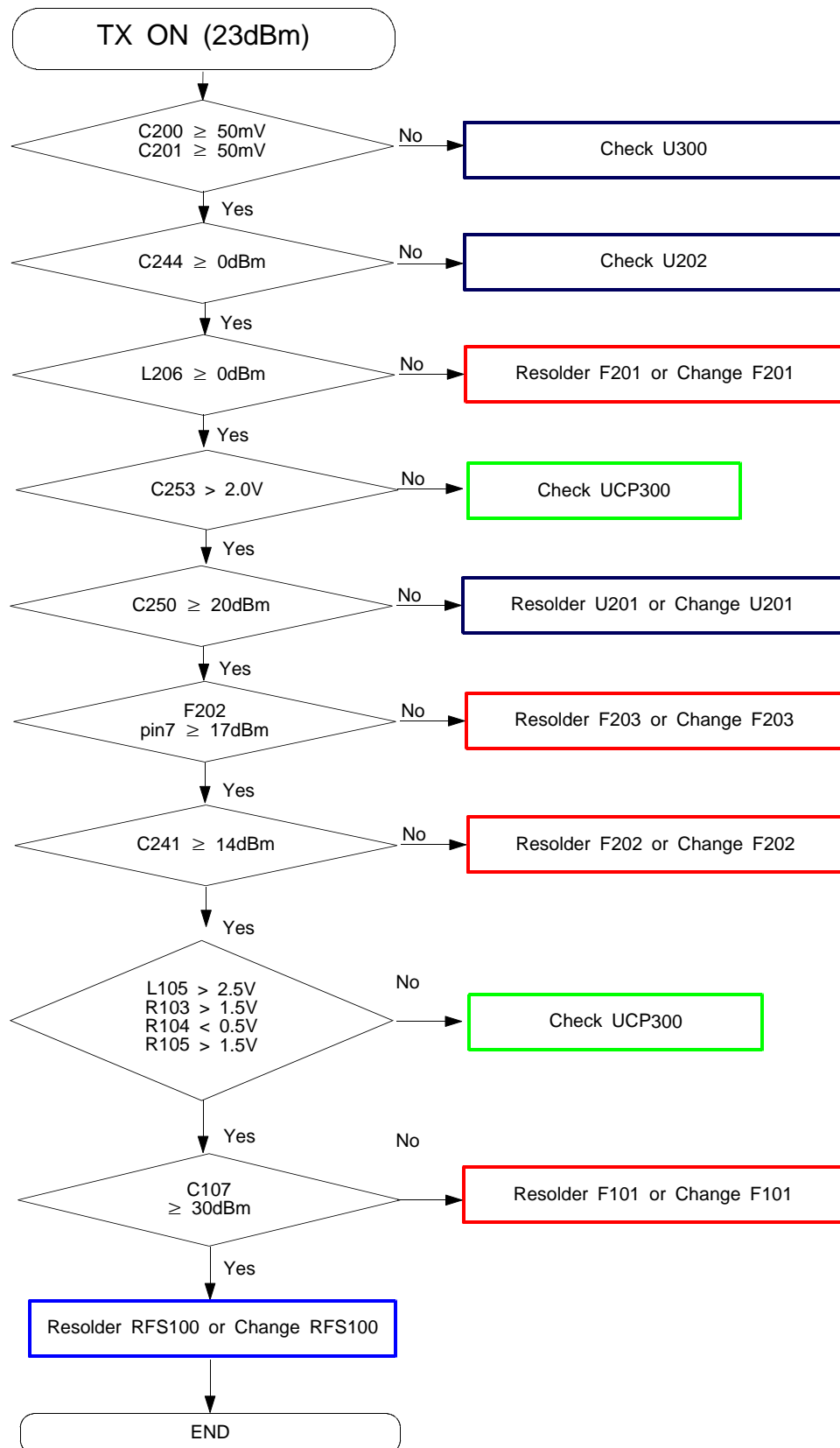


## RF TRANSCEIVER

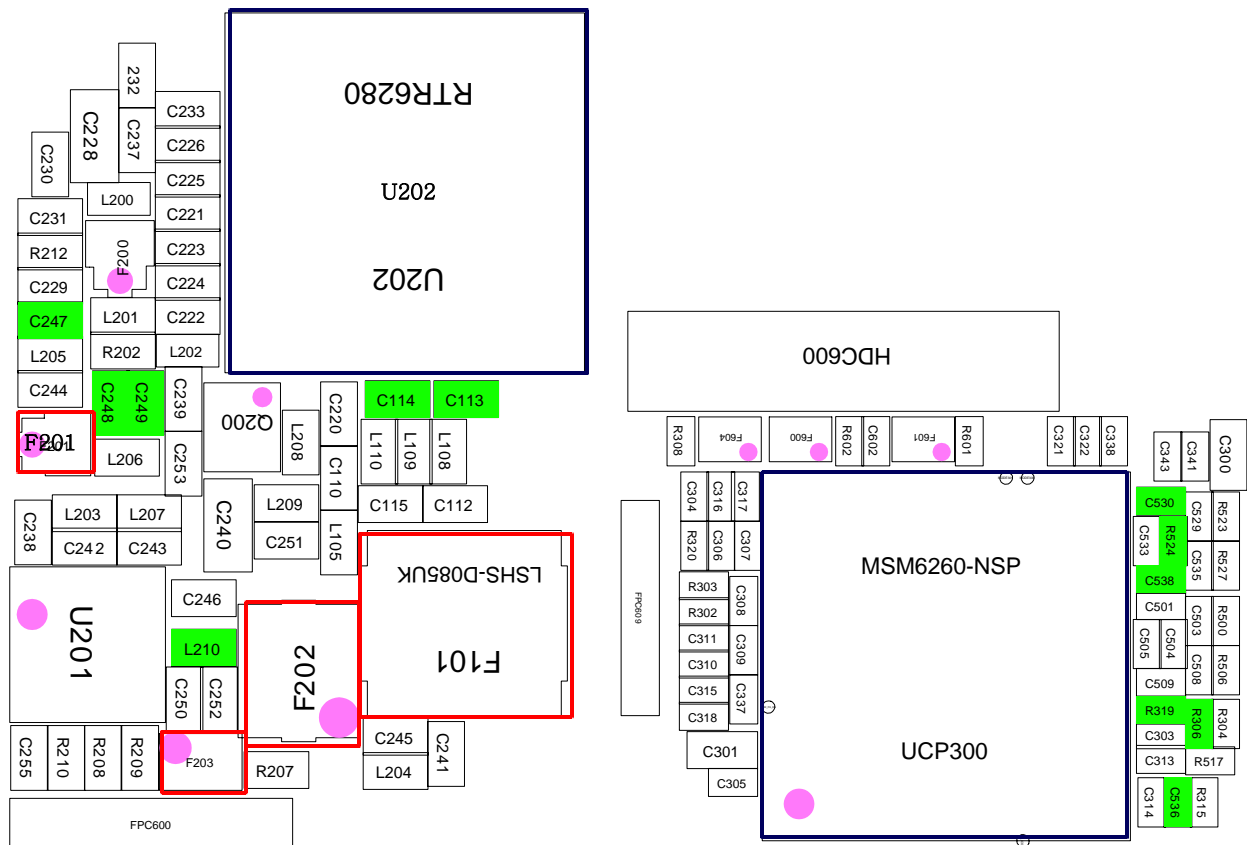
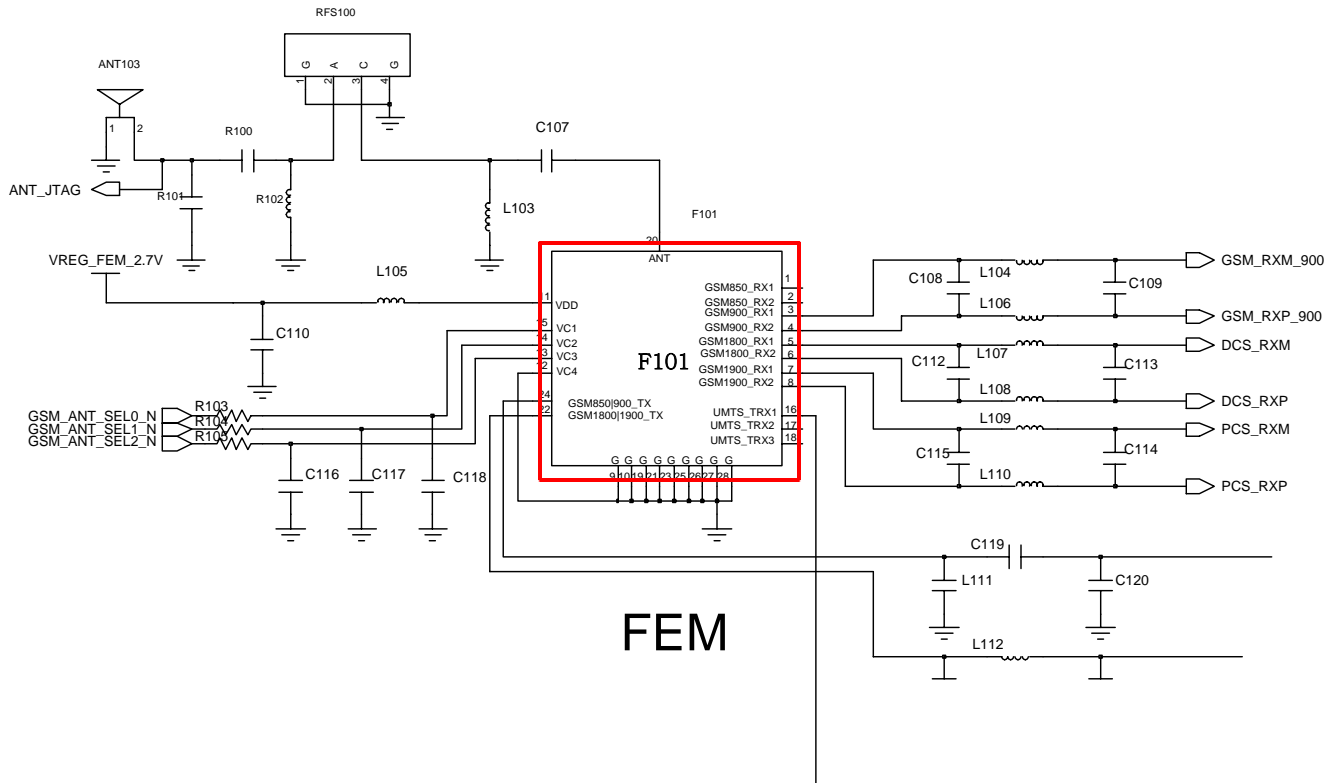


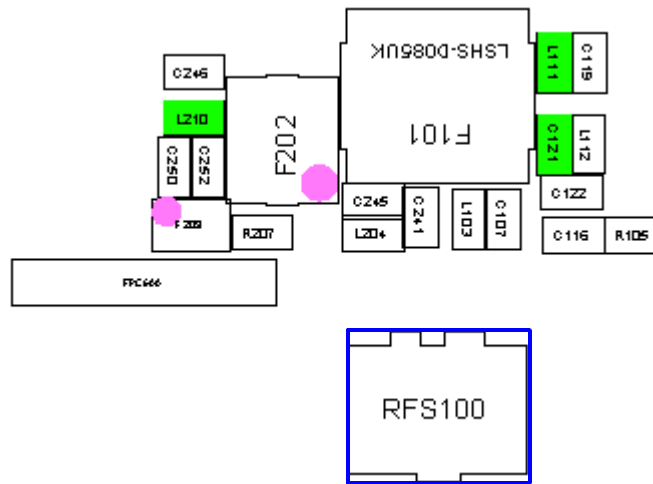


## 10-17. WCDMA Transmitter

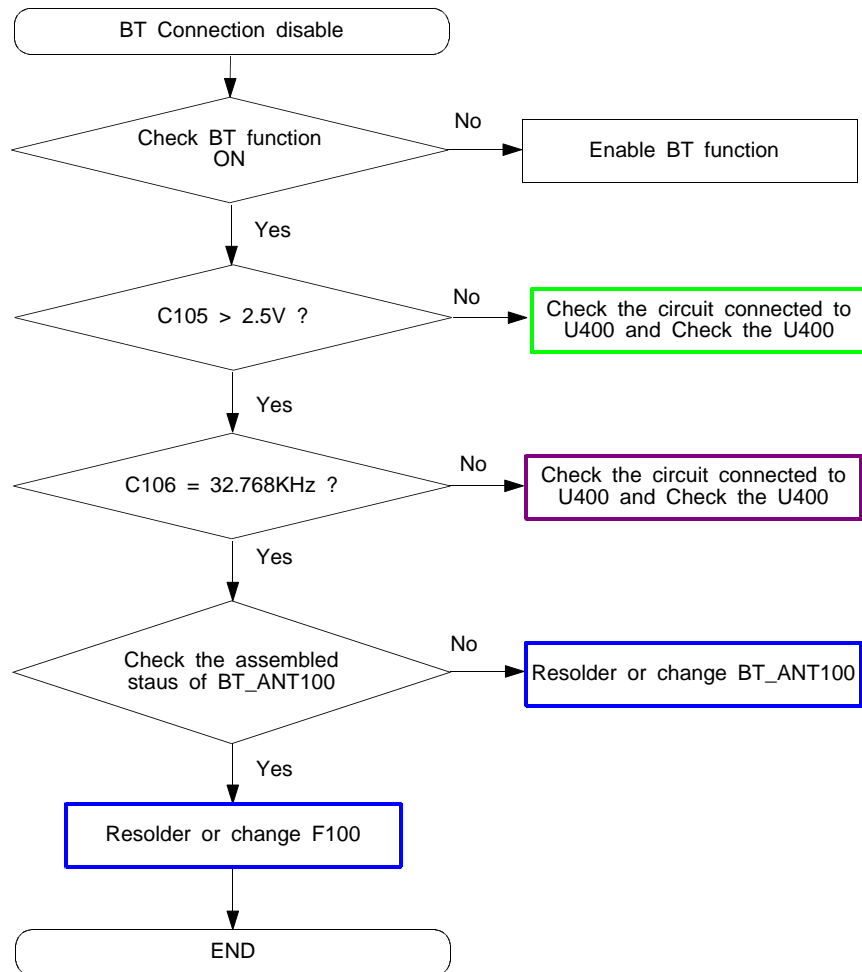






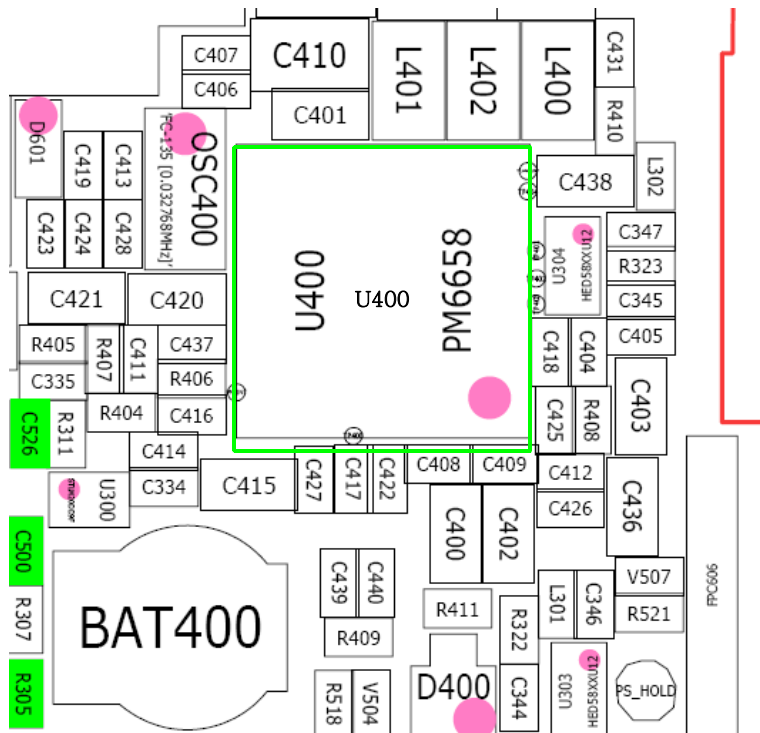
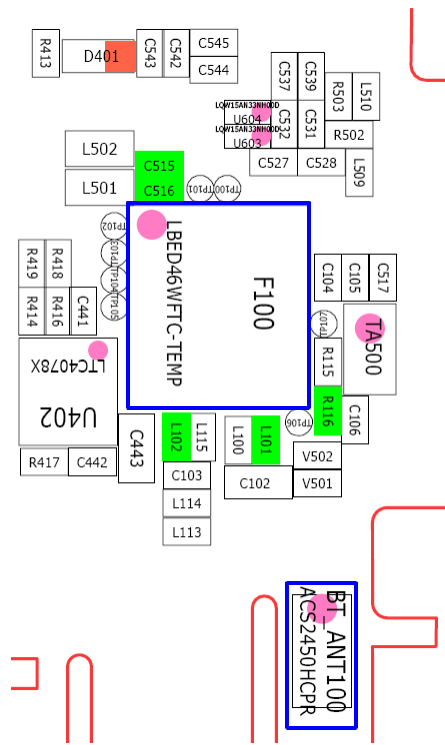


## 10-18. Bluetooth Part









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## 4. Array course control

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### 4-1. Software Adjustments

#### 1. JIG(GH80-03308A): Download, Trace, Calibration, etc



#### 2. 0.4M Test cable(GH39-00886A): JIG to phone



#### 3. 1.5M Test cable(GH39-00890A): JIG to phone



#### 4.Travel Adaptor(GH44-01702A)



#### 5.Data Link Cable(GH39-00922A): USB cable



#### 6.Serial cable(LJ39-00013A) : PC to JIG



## 7. RF test cable(GH39-00397A): RF test



## 4-2. Software Downloading

### 4-2-1. Downloading Binary Files

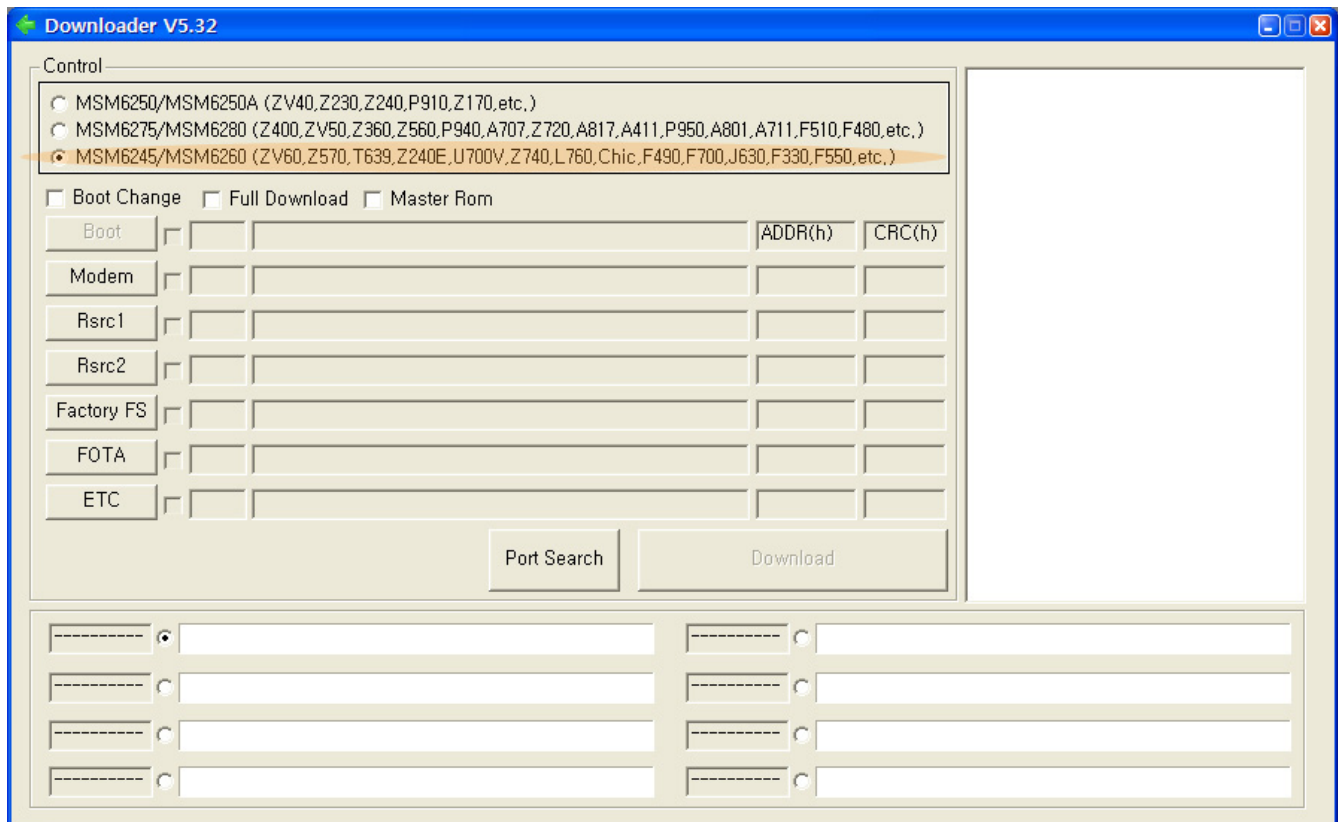
- Four binary files for downloading L810V
  - amss\_compressed.bin : Modem binary for communication function and user interface and various application
  - Rsrc\_L810\_Vodafone.rc1 : Files need for each application
  - Rsrc2\_L810V(Low).rc2 : Power on/off animation
  - FactoryFs\_L810\_Vodafone.ffs : Default file system to be put into in initial production

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

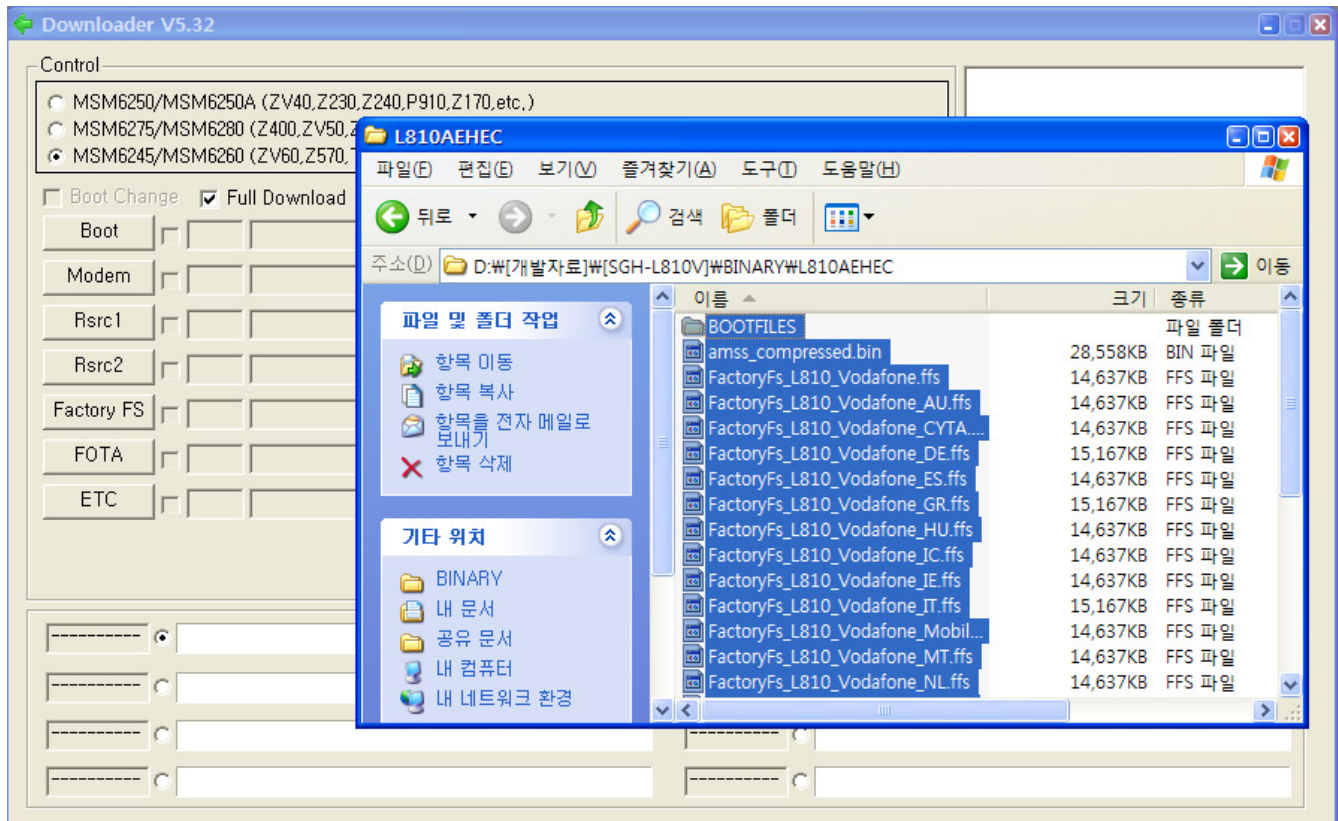
- Downloader Program ([MultiLoader V5.32.exe](#))
- SGH-L810V Mobile Phone
- USB Data Link Cable
- Binary files

### 4-2-3. S/W Downloader Program

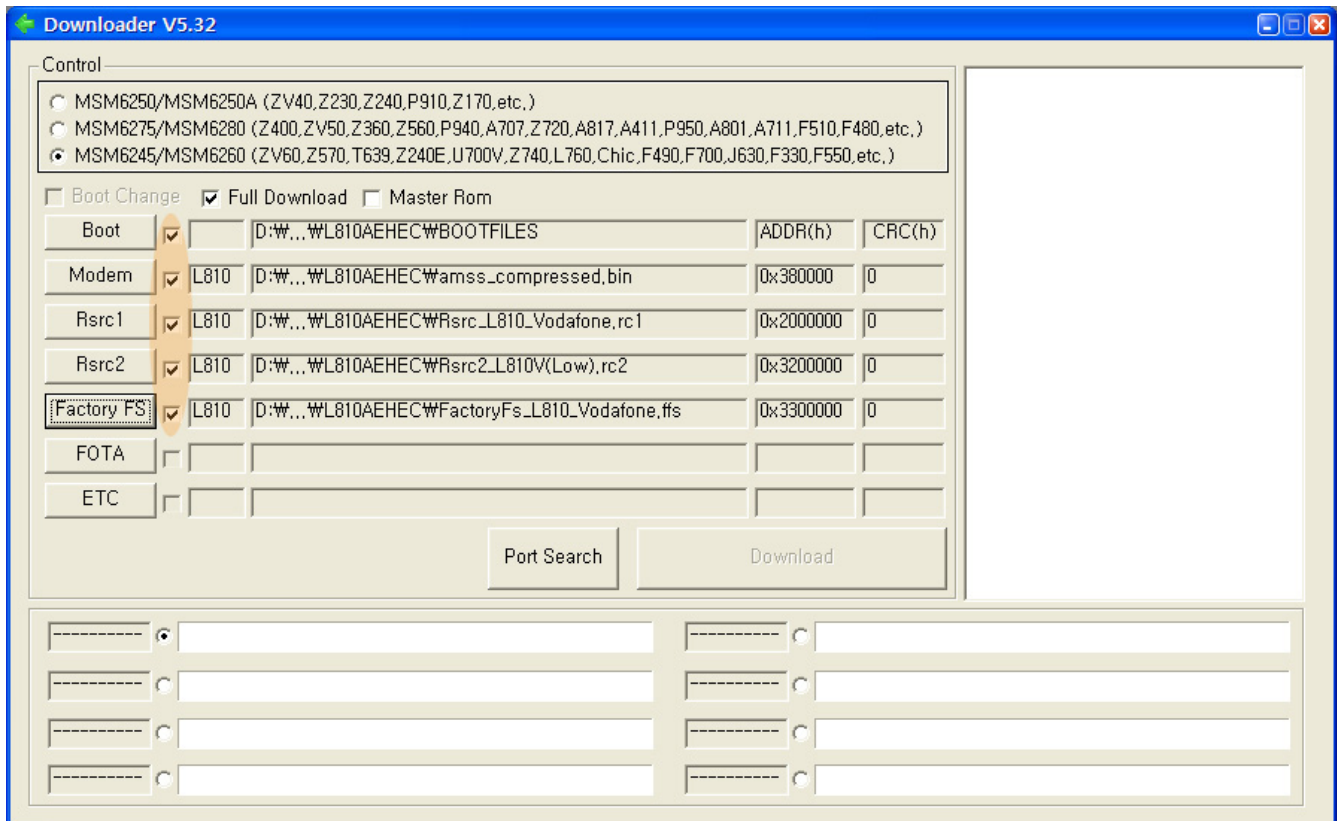
1. Boot the L810V by pressing 'power ON' + 'star(\*)' at the same time.  
If you do properly, you can see the following message on Main LCD "Download"
2. Load the binary download program by executing the "**MultiLoader V5.32.exe**".  
And the Check the **MSM6245/MSM6260**



### 3. Select the binary file what you want to download and drag all



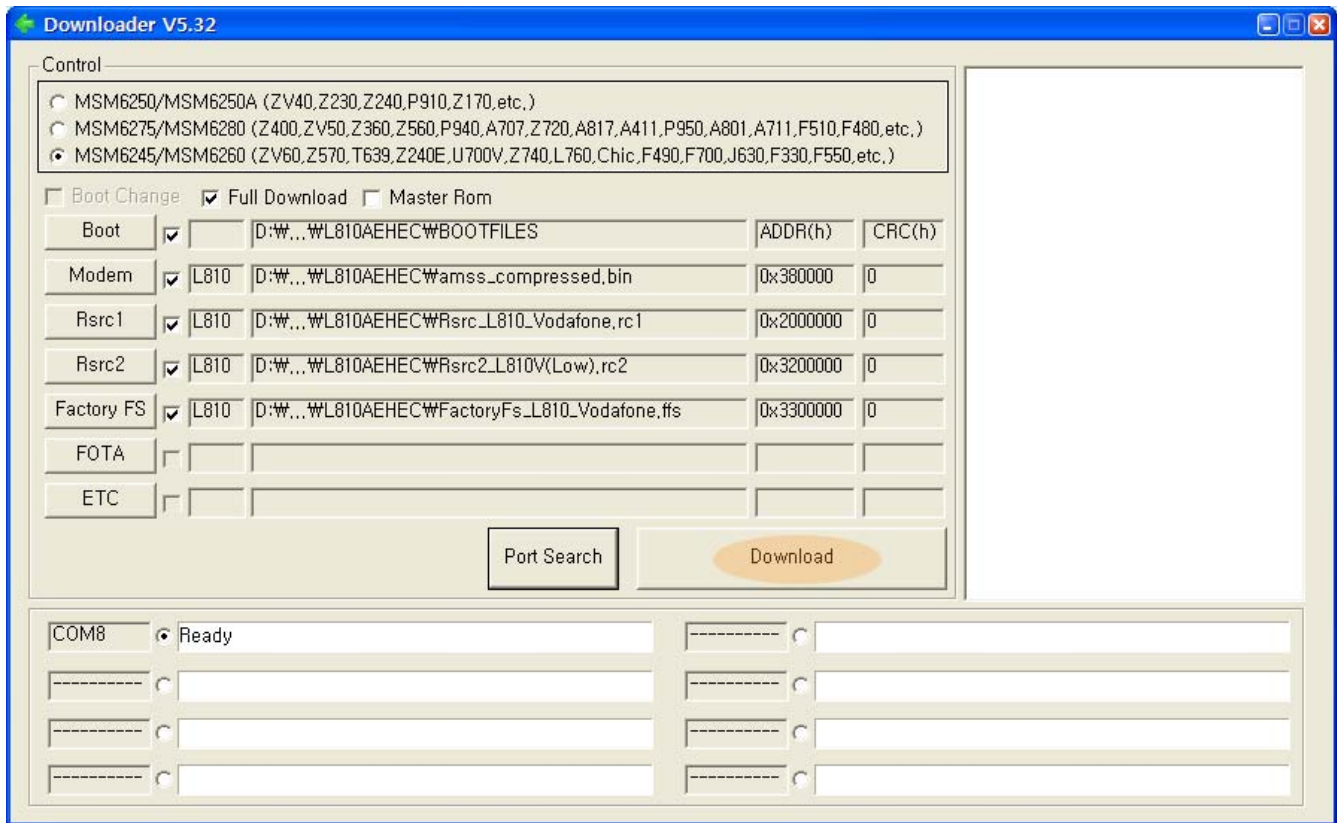
4. Select the check box what you want to download.



\* Up to eight ports are supported.



5. Now press the button 'DownLoad'.

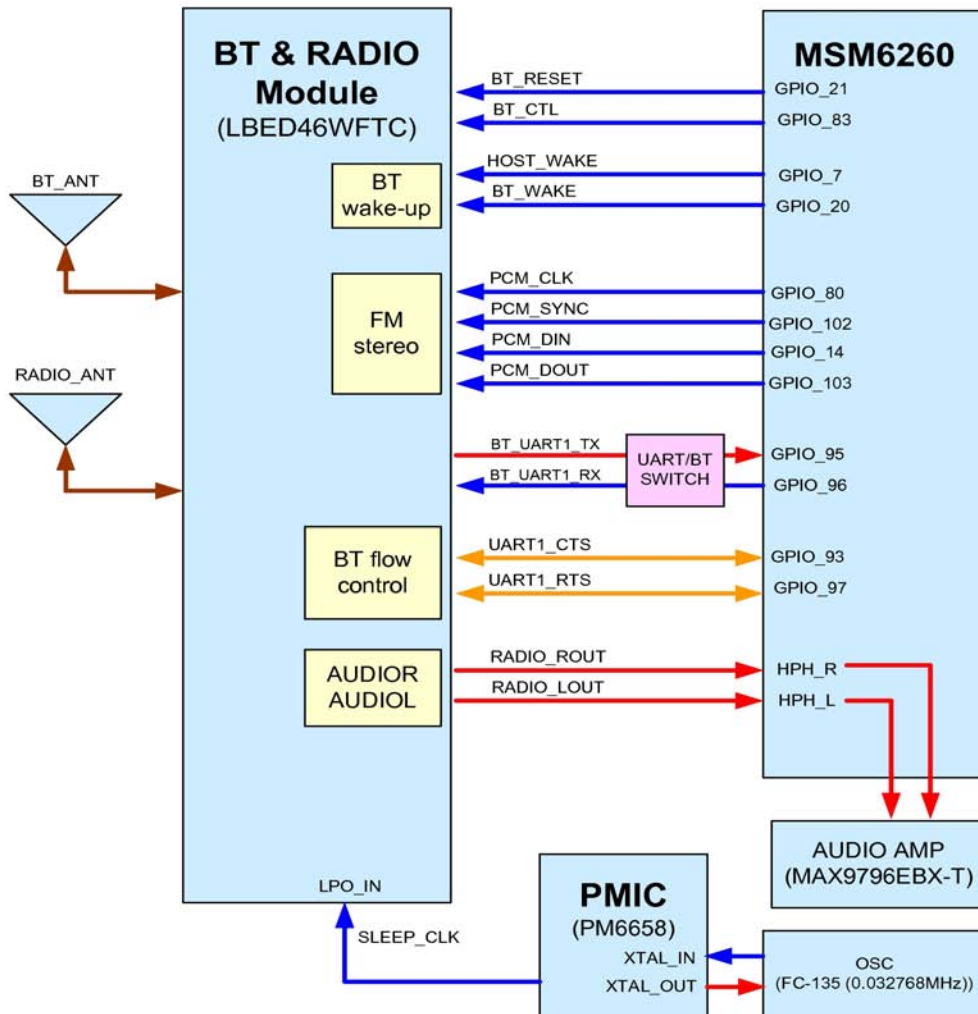


6. When downloading is complete, UE reboot automatically.  
 -If there is difference in FactoryFS.bin, UE will format file system automatically.

## 8. Block Diagrams

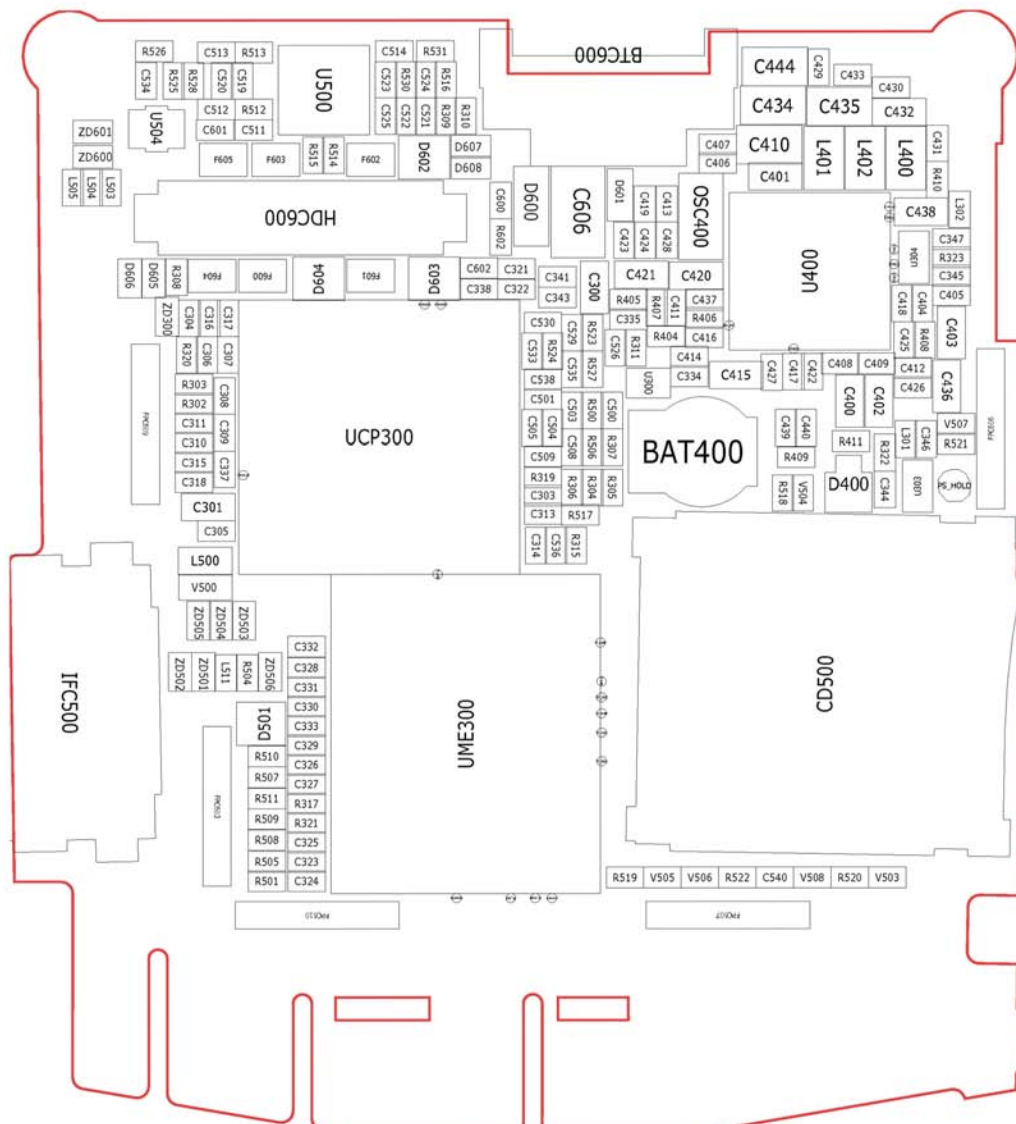
### 8-1. RF Block Diagram

**SGH-L810V BLUETOOTH & RADIO BLOCK DIAGRAM**



## 9. PCB Diagrams

### 1. Main top





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### 3. Product Function

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#### Main Function

- Bluetooth Class 2
- Extended GSM 900MHz & DCS1800MHz & PCS1900MHz & WCDMA 2100MHz Quad Band
- Slide type
- Color LCD (2.2" QVGA 39.19x54.62x2.05t\_max)
- Built-in 3 Mega pixel and CIF Camera
- Built-in MP3 Player
- GPRS Multi-slot Class 12
- Downloadable Game via JAVA
- Sending Photo & Video by MMS or E-Mail
- External Memory Card Socket (T-flash)
- 880mAh Battery

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## 11. Reference data

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### 11-1. Reference Abbreviate

**AAC:** Advanced Audio Coding.

**AVC :** Advanced Video Coding.

**BER :** Bit Error Rate

**BPSK:** Binary Phase Shift Keying

**CA :** Conditional Access

**CDM :** Code Division Multiplexing

**C/I :** Carrier to Interference

**DMB :** Digital Multimedia Broadcasting

**EN :** European Standard

**ES :** Elementary Stream

**ETSI:** European Telecommunications Standards Institute

**MPEG:** Moving Picture Experts Group

**PN :** Pseudo-random Noise

**PS :** Pilot Symbol

**QPSK:** Quadrature Phase Shift Keying

**RS :** Reed-Solomon

**SI :** Service Information

**TDM :** Time Division Multiplexing

**TS :** Transport Stream

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# 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 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.

## 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.



## 6. MAIN Electrical Parts List

| SEC CODE    | Design LOC | Discription         |
|-------------|------------|---------------------|
| 0403-001547 | D600       | DIODE-ZENER         |
| 0404-001172 | D401       | DIODE-SCHOTTKY      |
| 0406-001190 | D501       | DIODE-TVS           |
| 0406-001201 | D601       | DIODE-TVS           |
| 0406-001203 | C102       | DIODE-TVS           |
| 0406-001254 | D605       | DIODE-TVS           |
| 0406-001254 | D606       | DIODE-TVS           |
| 0406-001254 | D607       | DIODE-TVS           |
| 0406-001254 | D608       | DIODE-TVS           |
| 0406-001254 | ZD300      | DIODE-TVS           |
| 0406-001254 | ZD504      | DIODE-TVS           |
| 0406-001254 | ZD505      | DIODE-TVS           |
| 0406-001254 | ZD600      | DIODE-TVS           |
| 0406-001254 | ZD601      | DIODE-TVS           |
| 0406-001254 | ZD603      | DIODE-TVS           |
| 0406-001254 | ZD605      | DIODE-TVS           |
| 0406-001267 | ZD501      | DIODE-TVS           |
| 0406-001267 | ZD506      | DIODE-TVS           |
| 0406-001303 | ZD502      | DIODE-TVS           |
| 0406-001303 | ZD503      | DIODE-TVS           |
| 0406-001303 | ZD606      | DIODE-TVS           |
| 0406-001303 | ZD607      | DIODE-TVS           |
| 0406-001303 | ZD608      | DIODE-TVS           |
| 0406-001303 | ZD609      | DIODE-TVS           |
| 0406-001303 | ZD610      | DIODE-TVS           |
| 0406-001304 | D602       | DIODE-ARRAY         |
| 0406-001304 | D603       | DIODE-ARRAY         |
| 0406-001304 | D604       | DIODE-ARRAY         |
| 0407-001002 | D400       | DIODE-ARRAY         |
| 0504-000168 | Q400       | TR-DIGITAL          |
| 0504-001151 | Q200       | TR-DIGITAL          |
| 1001-001428 | U305       | IC-ANALOG MULTIPLEX |
| 1001-001428 | U404       | IC-ANALOG MULTIPLEX |
| 1001-001447 | U504       | IC-ANALOG MULTIPLEX |
| 1009-001035 | U303       | IC-HALL EFFECT S/W  |
| 1009-001035 | U304       | IC-HALL EFFECT S/W  |
| 1108-000172 | UME300     | IC-MCP              |

6-1SEC CODE□Design LOC□Discription□□

| SEC CODE    | Design LOC | Discription         |
|-------------|------------|---------------------|
| 1201-002461 | U201       | IC-POWER AMP        |
| 1201-002671 | U102       | IC-POWER AMP        |
| 1201-002692 | U500       | IC-AUDIO AMP        |
| 1203-004776 | U602       | IC-POSI.FIXED REG   |
| 1203-004778 | U400       | IC-POWER SUPERVISOR |
| 1203-004838 | U402       | IC-BATTERY          |
| 1205-003281 | UCP300     | IC-MODEM            |
| 1205-003341 | U202       | IC-TRANSCEIVER      |
| 1209-001712 | U300       | IC-SENSOR           |
| 1405-001082 | V605       | VARISTOR            |
| 1405-001133 | V501       | VARISTOR            |
| 1405-001133 | V502       | VARISTOR            |
| 1405-001167 | V503       | VARISTOR            |
| 1405-001167 | V504       | VARISTOR            |
| 1405-001167 | V505       | VARISTOR            |
| 1405-001167 | V506       | VARISTOR            |
| 1405-001167 | V507       | VARISTOR            |
| 1405-001167 | V508       | VARISTOR            |
| 2007-000138 | R318       | R-CHIP              |
| 2007-000138 | R412       | R-CHIP              |
| 2007-000138 | R526       | R-CHIP              |
| 2007-000138 | R602       | R-CHIP              |
| 2007-000140 | R505       | R-CHIP              |
| 2007-000140 | R508       | R-CHIP              |
| 2007-000140 | R509       | R-CHIP              |
| 2007-000140 | R510       | R-CHIP              |
| 2007-000144 | R409       | R-CHIP              |
| 2007-000148 | R304       | R-CHIP              |
| 2007-000148 | R307       | R-CHIP              |
| 2007-000148 | R314       | R-CHIP              |
| 2007-000148 | R315       | R-CHIP              |
| 2007-000148 | R316       | R-CHIP              |
| 2007-000148 | R317       | R-CHIP              |
| 2007-000148 | R320       | R-CHIP              |
| 2007-000148 | R511       | R-CHIP              |
| 2007-000148 | R530       | R-CHIP              |
| 2007-000148 | R531       | R-CHIP              |

| SEC CODE    | Design LOC | Discription |
|-------------|------------|-------------|
| 2007-000149 | R200       | R-CHIP      |
| 2007-000151 | R529       | R-CHIP      |
| 2007-000157 | R410       | R-CHIP      |
| 2007-000157 | R518       | R-CHIP      |
| 2007-000157 | R519       | R-CHIP      |
| 2007-000157 | R520       | R-CHIP      |
| 2007-000157 | R521       | R-CHIP      |
| 2007-000157 | R522       | R-CHIP      |
| 2007-000162 | R413       | R-CHIP      |
| 2007-000162 | R415       | R-CHIP      |
| 2007-000162 | R501       | R-CHIP      |
| 2007-000162 | R516       | R-CHIP      |
| 2007-000165 | R411       | R-CHIP      |
| 2007-000165 | R414       | R-CHIP      |
| 2007-000165 | R419       | R-CHIP      |
| 2007-000165 | R517       | R-CHIP      |
| 2007-000170 | R300       | R-CHIP      |
| 2007-000171 | C601       | R-CHIP      |
| 2007-000171 | L100       | R-CHIP      |
| 2007-000171 | R103       | R-CHIP      |
| 2007-000171 | R104       | R-CHIP      |
| 2007-000171 | R105       | R-CHIP      |
| 2007-000171 | R107       | R-CHIP      |
| 2007-000171 | R115       | R-CHIP      |
| 2007-000171 | R512       | R-CHIP      |
| 2007-000171 | R513       | R-CHIP      |
| 2007-000173 | R321       | R-CHIP      |
| 2007-000173 | R504       | R-CHIP      |
| 2007-000758 | R322       | R-CHIP      |
| 2007-000758 | R323       | R-CHIP      |
| 2007-001288 | R109       | R-CHIP      |
| 2007-001292 | R112       | R-CHIP      |
| 2007-001298 | R108       | R-CHIP      |
| 2007-001298 | R207       | R-CHIP      |
| 2007-001298 | R211       | R-CHIP      |
| 2007-001298 | R301       | R-CHIP      |
| 2007-001298 | R406       | R-CHIP      |

| SEC CODE    | Design LOC | Discription |
|-------------|------------|-------------|
| 2007-001307 | R113       | R-CHIP      |
| 2007-001307 | R114       | R-CHIP      |
| 2007-001319 | R302       | R-CHIP      |
| 2007-001319 | R303       | R-CHIP      |
| 2007-001319 | R507       | R-CHIP      |
| 2007-003010 | R525       | R-CHIP      |
| 2007-003010 | R528       | R-CHIP      |
| 2007-003030 | R514       | R-CHIP      |
| 2007-003030 | R515       | R-CHIP      |
| 2007-007009 | R208       | R-CHIP      |
| 2007-007014 | R308       | R-CHIP      |
| 2007-007014 | R309       | R-CHIP      |
| 2007-007014 | R310       | R-CHIP      |
| 2007-007014 | R312       | R-CHIP      |
| 2007-007014 | R313       | R-CHIP      |
| 2007-007014 | R405       | R-CHIP      |
| 2007-007014 | R407       | R-CHIP      |
| 2007-007014 | R408       | R-CHIP      |
| 2007-007133 | R110       | R-CHIP      |
| 2007-007133 | R111       | R-CHIP      |
| 2007-007193 | R201       | R-CHIP      |
| 2007-007306 | R106       | R-CHIP      |
| 2007-007306 | R209       | R-CHIP      |
| 2007-007306 | R210       | R-CHIP      |
| 2007-007306 | R502       | R-CHIP      |
| 2007-007306 | R503       | R-CHIP      |
| 2007-007316 | R416       | R-CHIP      |
| 2007-007317 | R417       | R-CHIP      |
| 2007-007317 | R500       | R-CHIP      |
| 2007-007317 | R506       | R-CHIP      |
| 2007-007318 | R202       | R-CHIP      |
| 2007-007318 | R418       | R-CHIP      |
| 2007-007468 | R404       | R-CHIP      |
| 2007-007586 | R311       | R-CHIP      |
| 2007-007766 | R523       | R-CHIP      |
| 2007-007766 | R527       | R-CHIP      |
| 2203-000138 | C238       | C-CER,CHIP  |

| SEC CODE    | Design LOC | Discription |
|-------------|------------|-------------|
| 2203-000233 | C106       | C-CER,CHIP  |
| 2203-000233 | C203       | C-CER,CHIP  |
| 2203-000233 | C205       | C-CER,CHIP  |
| 2203-000233 | C209       | C-CER,CHIP  |
| 2203-000233 | C215       | C-CER,CHIP  |
| 2203-000233 | C229       | C-CER,CHIP  |
| 2203-000233 | C232       | C-CER,CHIP  |
| 2203-000233 | C239       | C-CER,CHIP  |
| 2203-000233 | C241       | C-CER,CHIP  |
| 2203-000233 | C429       | C-CER,CHIP  |
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| 2203-000233 | C433       | C-CER,CHIP  |
| 2203-000233 | C439       | C-CER,CHIP  |
| 2203-000233 | L115       | C-CER,CHIP  |
| 2203-000254 | C124       | C-CER,CHIP  |
| 2203-000254 | C127       | C-CER,CHIP  |
| 2203-000254 | C217       | C-CER,CHIP  |
| 2203-000254 | C226       | C-CER,CHIP  |
| 2203-000254 | C246       | C-CER,CHIP  |
| 2203-000254 | C305       | C-CER,CHIP  |
| 2203-000254 | C306       | C-CER,CHIP  |
| 2203-000254 | C308       | C-CER,CHIP  |
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| 2203-000254 | C314       | C-CER,CHIP  |
| 2203-000254 | C325       | C-CER,CHIP  |
| 2203-000254 | C327       | C-CER,CHIP  |
| 2203-000278 | C504       | C-CER,CHIP  |
| 2203-000330 | C207       | C-CER,CHIP  |
| 2203-000330 | C413       | C-CER,CHIP  |
| 2203-000330 | C428       | C-CER,CHIP  |
| 2203-000359 | C244       | C-CER,CHIP  |
| 2203-000386 | L208       | C-CER,CHIP  |
| 2203-000425 | C502       | C-CER,CHIP  |
| 2203-000425 | C510       | C-CER,CHIP  |
| 2203-000438 | C125       | C-CER,CHIP  |
| 2203-000438 | C234       | C-CER,CHIP  |
| 2203-000438 | C242       | C-CER,CHIP  |

| SEC CODE    | Design LOC | Discription |
|-------------|------------|-------------|
| 2203-000438 | C243       | C-CER,CHIP  |
| 2203-000438 | C253       | C-CER,CHIP  |
| 2203-000438 | C326       | C-CER,CHIP  |
| 2203-000489 | C337       | C-CER,CHIP  |
| 2203-000627 | C210       | C-CER,CHIP  |
| 2203-000627 | C220       | C-CER,CHIP  |
| 2203-000627 | C223       | C-CER,CHIP  |
| 2203-000627 | C224       | C-CER,CHIP  |
| 2203-000627 | C230       | C-CER,CHIP  |
| 2203-000627 | C235       | C-CER,CHIP  |
| 2203-000627 | C507       | C-CER,CHIP  |
| 2203-000628 | C214       | C-CER,CHIP  |
| 2203-000628 | C216       | C-CER,CHIP  |
| 2203-000628 | C219       | C-CER,CHIP  |
| 2203-000628 | C237       | C-CER,CHIP  |
| 2203-000643 | C208       | C-CER,CHIP  |
| 2203-000679 | C506       | C-CER,CHIP  |
| 2203-000679 | C541       | C-CER,CHIP  |
| 2203-000812 | C107       | C-CER,CHIP  |
| 2203-000812 | C116       | C-CER,CHIP  |
| 2203-000812 | C117       | C-CER,CHIP  |
| 2203-000812 | C118       | C-CER,CHIP  |
| 2203-000812 | C132       | C-CER,CHIP  |
| 2203-000812 | C222       | C-CER,CHIP  |
| 2203-000812 | C251       | C-CER,CHIP  |
| 2203-000812 | C255       | C-CER,CHIP  |
| 2203-000812 | C323       | C-CER,CHIP  |
| 2203-000812 | C332       | C-CER,CHIP  |
| 2203-000812 | C406       | C-CER,CHIP  |
| 2203-000812 | C431       | C-CER,CHIP  |
| 2203-000812 | C501       | C-CER,CHIP  |
| 2203-000812 | C505       | C-CER,CHIP  |
| 2203-000812 | C509       | C-CER,CHIP  |
| 2203-000812 | C527       | C-CER,CHIP  |
| 2203-000812 | C532       | C-CER,CHIP  |
| 2203-000812 | C537       | C-CER,CHIP  |
| 2203-000812 | C542       | C-CER,CHIP  |

| SEC CODE    | Design LOC | Discription |
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| 2203-000812 | C543       | C-CER,CHIP  |
| 2203-000812 | C544       | C-CER,CHIP  |
| 2203-000995 | C302       | C-CER,CHIP  |
| 2203-000995 | C602       | C-CER,CHIP  |
| 2203-001153 | C200       | C-CER,CHIP  |
| 2203-001153 | C201       | C-CER,CHIP  |
| 2203-002668 | C108       | C-CER,CHIP  |
| 2203-002668 | C112       | C-CER,CHIP  |
| 2203-002668 | C115       | C-CER,CHIP  |
| 2203-002677 | C122       | C-CER,CHIP  |
| 2203-002709 | C110       | C-CER,CHIP  |
| 2203-002709 | C131       | C-CER,CHIP  |
| 2203-002709 | C231       | C-CER,CHIP  |
| 2203-002709 | C340       | C-CER,CHIP  |
| 2203-002709 | C341       | C-CER,CHIP  |
| 2203-002709 | C342       | C-CER,CHIP  |
| 2203-002709 | C343       | C-CER,CHIP  |
| 2203-002709 | C346       | C-CER,CHIP  |
| 2203-002709 | C347       | C-CER,CHIP  |
| 2203-002709 | C437       | C-CER,CHIP  |
| 2203-002709 | C503       | C-CER,CHIP  |
| 2203-002709 | C508       | C-CER,CHIP  |
| 2203-002709 | C529       | C-CER,CHIP  |
| 2203-002709 | C535       | C-CER,CHIP  |
| 2203-003054 | C528       | C-CER,CHIP  |
| 2203-003054 | C531       | C-CER,CHIP  |
| 2203-003054 | C533       | C-CER,CHIP  |
| 2203-003054 | C539       | C-CER,CHIP  |
| 2203-005050 | C103       | C-CER,CHIP  |
| 2203-005053 | R100       | C-CER,CHIP  |
| 2203-005288 | C252       | C-CER,CHIP  |
| 2203-005288 | R102       | C-CER,CHIP  |
| 2203-005382 | C245       | C-CER,CHIP  |
| 2203-005444 | C221       | C-CER,CHIP  |
| 2203-005444 | C225       | C-CER,CHIP  |
| 2203-005450 | C119       | C-CER,CHIP  |
| 2203-005480 | C519       | C-CER,CHIP  |

| SEC CODE    | Design LOC | Discription |
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| 2203-005480 | C520       | C-CER,CHIP  |
| 2203-005482 | C104       | C-CER,CHIP  |
| 2203-005482 | C328       | C-CER,CHIP  |
| 2203-005482 | C329       | C-CER,CHIP  |
| 2203-005482 | C330       | C-CER,CHIP  |
| 2203-005482 | C331       | C-CER,CHIP  |
| 2203-005482 | C338       | C-CER,CHIP  |
| 2203-005482 | C405       | C-CER,CHIP  |
| 2203-005482 | C407       | C-CER,CHIP  |
| 2203-005482 | C408       | C-CER,CHIP  |
| 2203-005482 | C409       | C-CER,CHIP  |
| 2203-005482 | C411       | C-CER,CHIP  |
| 2203-005571 | C434       | C-CER,CHIP  |
| 2203-005571 | C435       | C-CER,CHIP  |
| 2203-006048 | C303       | C-CER,CHIP  |
| 2203-006048 | C304       | C-CER,CHIP  |
| 2203-006048 | C309       | C-CER,CHIP  |
| 2203-006048 | C315       | C-CER,CHIP  |
| 2203-006048 | C316       | C-CER,CHIP  |
| 2203-006257 | C603       | C-CER,CHIP  |
| 2203-006260 | C521       | C-CER,CHIP  |
| 2203-006260 | C522       | C-CER,CHIP  |
| 2203-006324 | C403       | C-CER,CHIP  |
| 2203-006324 | C438       | C-CER,CHIP  |
| 2203-006348 | C436       | C-CER,CHIP  |
| 2203-006348 | C443       | C-CER,CHIP  |
| 2203-006399 | C425       | C-CER,CHIP  |
| 2203-006399 | C440       | C-CER,CHIP  |
| 2203-006474 | C444       | C-CER,CHIP  |
| 2203-006562 | C105       | C-CER,CHIP  |
| 2203-006562 | C310       | C-CER,CHIP  |
| 2203-006562 | C311       | C-CER,CHIP  |
| 2203-006562 | C317       | C-CER,CHIP  |
| 2203-006562 | C321       | C-CER,CHIP  |
| 2203-006562 | C322       | C-CER,CHIP  |
| 2203-006562 | C412       | C-CER,CHIP  |
| 2203-006562 | C441       | C-CER,CHIP  |



| SEC CODE    | Design LOC | Discription |
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| 2203-006562 | C442       | C-CER,CHIP  |
| 2203-006562 | C517       | C-CER,CHIP  |
| 2203-006562 | C523       | C-CER,CHIP  |
| 2203-006562 | C524       | C-CER,CHIP  |
| 2203-006562 | C525       | C-CER,CHIP  |
| 2203-006562 | C534       | C-CER,CHIP  |
| 2203-006562 | C545       | C-CER,CHIP  |
| 2203-006562 | C600       | C-CER,CHIP  |
| 2203-006562 | C604       | C-CER,CHIP  |
| 2203-006681 | C202       | C-CER,CHIP  |
| 2203-006681 | C204       | C-CER,CHIP  |
| 2203-006681 | C206       | C-CER,CHIP  |
| 2203-006681 | C211       | C-CER,CHIP  |
| 2203-006681 | C212       | C-CER,CHIP  |
| 2203-006681 | C213       | C-CER,CHIP  |
| 2203-006681 | C218       | C-CER,CHIP  |
| 2203-006681 | C233       | C-CER,CHIP  |
| 2203-006681 | C236       | C-CER,CHIP  |
| 2203-006681 | C307       | C-CER,CHIP  |
| 2203-006681 | C324       | C-CER,CHIP  |
| 2203-006681 | C334       | C-CER,CHIP  |
| 2203-006681 | C335       | C-CER,CHIP  |
| 2203-006681 | C339       | C-CER,CHIP  |
| 2203-006681 | C344       | C-CER,CHIP  |
| 2203-006681 | C345       | C-CER,CHIP  |
| 2203-006681 | C404       | C-CER,CHIP  |
| 2203-006824 | C227       | C-CER,CHIP  |
| 2203-006824 | C228       | C-CER,CHIP  |
| 2203-006824 | C240       | C-CER,CHIP  |
| 2203-006824 | C301       | C-CER,CHIP  |
| 2203-006824 | C400       | C-CER,CHIP  |
| 2203-006824 | C401       | C-CER,CHIP  |
| 2203-006824 | C402       | C-CER,CHIP  |
| 2203-006824 | C415       | C-CER,CHIP  |
| 2203-006824 | C420       | C-CER,CHIP  |
| 2203-006824 | C421       | C-CER,CHIP  |
| 2203-006824 | C432       | C-CER,CHIP  |

| SEC CODE    | Design LOC | Discription  |
|-------------|------------|--------------|
| 2203-006838 | C414       | C-CER,CHIP   |
| 2203-006838 | C416       | C-CER,CHIP   |
| 2203-006838 | C511       | C-CER,CHIP   |
| 2203-006838 | C514       | C-CER,CHIP   |
| 2203-006841 | C540       | C-CER,CHIP   |
| 2203-006872 | C318       | C-CER,CHIP   |
| 2203-006872 | C333       | C-CER,CHIP   |
| 2203-006872 | C417       | C-CER,CHIP   |
| 2203-006872 | C418       | C-CER,CHIP   |
| 2203-006872 | C419       | C-CER,CHIP   |
| 2203-006872 | C422       | C-CER,CHIP   |
| 2203-006872 | C423       | C-CER,CHIP   |
| 2203-006872 | C424       | C-CER,CHIP   |
| 2203-006872 | C426       | C-CER,CHIP   |
| 2203-006872 | C427       | C-CER,CHIP   |
| 2203-006890 | C300       | C-CER,CHIP   |
| 2203-007195 | C410       | C-CER,CHIP   |
| 2404-001406 | C606       | C-TA,CHIP    |
| 2404-001474 | TA500      | C-TA,CHIP    |
| 2404-001496 | TA100      | C-TA,CHIP    |
| 2703-001180 | L105       | INDUCTOR-SMD |
| 2703-001733 | L203       | INDUCTOR-SMD |
| 2703-001733 | L207       | INDUCTOR-SMD |
| 2703-001737 | L206       | INDUCTOR-SMD |
| 2703-001750 | L201       | INDUCTOR-SMD |
| 2703-002155 | L103       | INDUCTOR-SMD |
| 2703-002207 | L113       | INDUCTOR-SMD |
| 2703-002208 | L102       | INDUCTOR-SMD |
| 2703-002208 | L209       | INDUCTOR-SMD |
| 2703-002267 | L109       | INDUCTOR-SMD |
| 2703-002267 | L110       | INDUCTOR-SMD |
| 2703-002268 | L204       | INDUCTOR-SMD |
| 2703-002281 | L107       | INDUCTOR-SMD |
| 2703-002281 | L108       | INDUCTOR-SMD |
| 2703-002309 | L506       | INDUCTOR-SMD |
| 2703-002309 | L507       | INDUCTOR-SMD |
| 2703-002309 | L508       | INDUCTOR-SMD |

| SEC CODE    | Design LOC | Discription       |
|-------------|------------|-------------------|
| 2703-002367 | L205       | INDUCTOR-SMD      |
| 2703-002368 | C250       | INDUCTOR-SMD      |
| 2703-002369 | L114       | INDUCTOR-SMD      |
| 2703-002551 | U603       | INDUCTOR-SMD      |
| 2703-002551 | U604       | INDUCTOR-SMD      |
| 2703-002593 | L104       | INDUCTOR-SMD      |
| 2703-002593 | L106       | INDUCTOR-SMD      |
| 2703-002597 | L200       | INDUCTOR-SMD      |
| 2703-002608 | L202       | INDUCTOR-SMD      |
| 2703-002708 | L112       | INDUCTOR-SMD      |
| 2703-003205 | L503       | INDUCTOR-SMD      |
| 2703-003205 | L504       | INDUCTOR-SMD      |
| 2703-003205 | L505       | INDUCTOR-SMD      |
| 2703-003258 | L400       | INDUCTOR-SMD      |
| 2703-003258 | L401       | INDUCTOR-SMD      |
| 2703-003258 | L402       | INDUCTOR-SMD      |
| 2801-004339 | OSC400     | CRYSTAL-SMD       |
| 2809-001323 | TCX100     | OSCILLATOR-VCTCXO |
| 2901-001409 | F600       | FILTER-EMI SMD    |
| 2901-001409 | F603       | FILTER-EMI SMD    |
| 2901-001409 | F604       | FILTER-EMI SMD    |
| 2901-001409 | F605       | FILTER-EMI SMD    |
| 2901-001422 | F601       | FILTER-EMI SMD    |
| 2901-001422 | F602       | FILTER-EMI SMD    |
| 2904-001703 | F102       | FILTER-SAW        |
| 2904-001769 | F200       | FILTER-SAW        |
| 2904-001789 | F201       | FILTER-SAW        |
| 2910-000024 | F202       | DUPLEXER-SAW      |
| 2911-000096 | F101       | DUPLEXER-FEM      |
| 3301-001342 | L301       | BEAD-SMD          |
| 3301-001342 | L302       | BEAD-SMD          |
| 3301-001421 | L501       | BEAD-SMD          |
| 3301-001421 | L502       | BEAD-SMD          |
| 3301-001792 | L509       | BEAD-SMD          |
| 3301-001792 | L510       | BEAD-SMD          |
| 3301-001792 | L511       | BEAD-SMD          |
| 3705-001358 | RFS100     | CONNECTOR-COAXIAL |

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|-------------|------------|---------------------------|
| 3709-001448 | CD500      | CONNECTOR-CARD EDGE       |
| 3709-001487 | SIM500     | CONNECTOR-CARD EDGE       |
| 3710-002523 | IFC500     | SOCKET-INTERFACE          |
| 3711-006278 | HDC600     | HEADER-BOARD TO BOARD     |
| 3711-006329 | BTC600     | HEADER-BATTERY            |
| 3711-006782 | HDC601     | HEADER-BOARD TO BOARD     |
| 4202-001453 | BT_ANT100  | ANTENNA-CHIP              |
| 4302-001180 | BAT400     | BATTERY-LI(2ND)           |
| 4709-001399 | F203       | COUPLER-DIRECTION         |
| 4709-001546 | F100       | BLUETOOTH MODULE          |
| GH70-03349A | FPC600     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC601     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC602     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC603     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC604     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC605     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC606     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC607     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC608     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC609     | IPR SHIELD-CAN CLIP       |
| GH70-03349A | FPC610     | IPR SHIELD-CAN CLIP       |
| GH70-03519A | CONTACT600 | IPR COVER-BATTERY CONTACT |

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

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