

**SAMSUNG**

# GSM TELEPHONE SGH-E310

# ***SERVICE*** *Manual*

## GSM TELEPHONE



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# 1. SGH-E310 Specification

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## 1. GSM General Specification

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

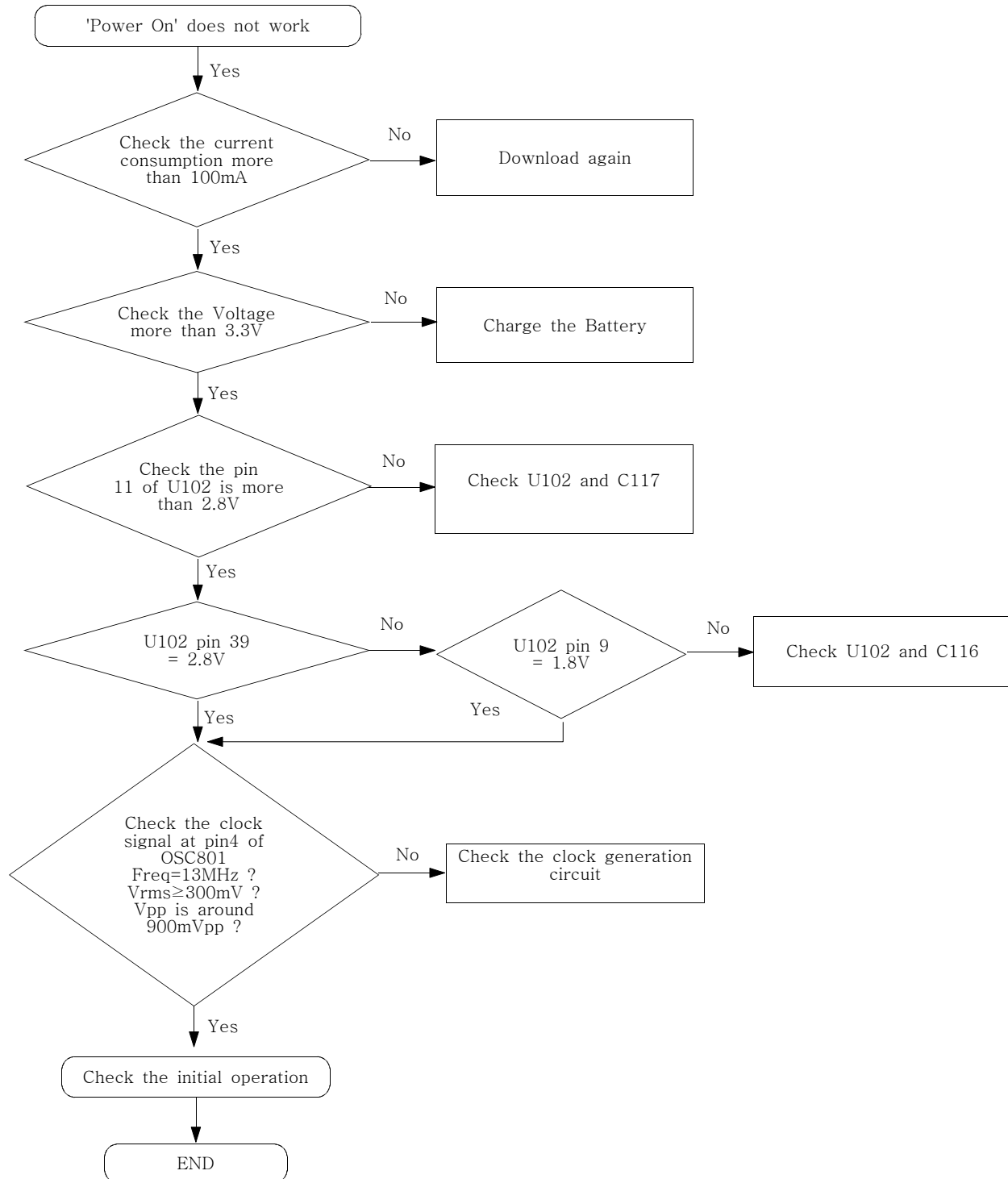
## 2. GSM TX power class

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

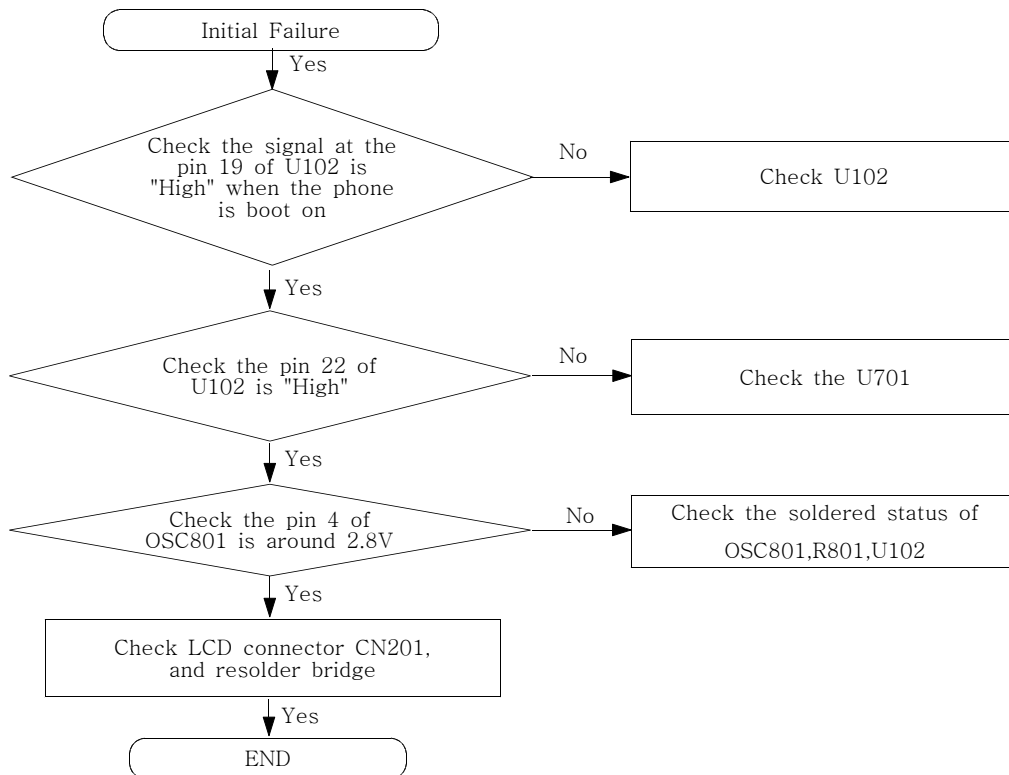
## 2. SGH-E310 Flow Chart of Troubleshooting

### 1.Baseband

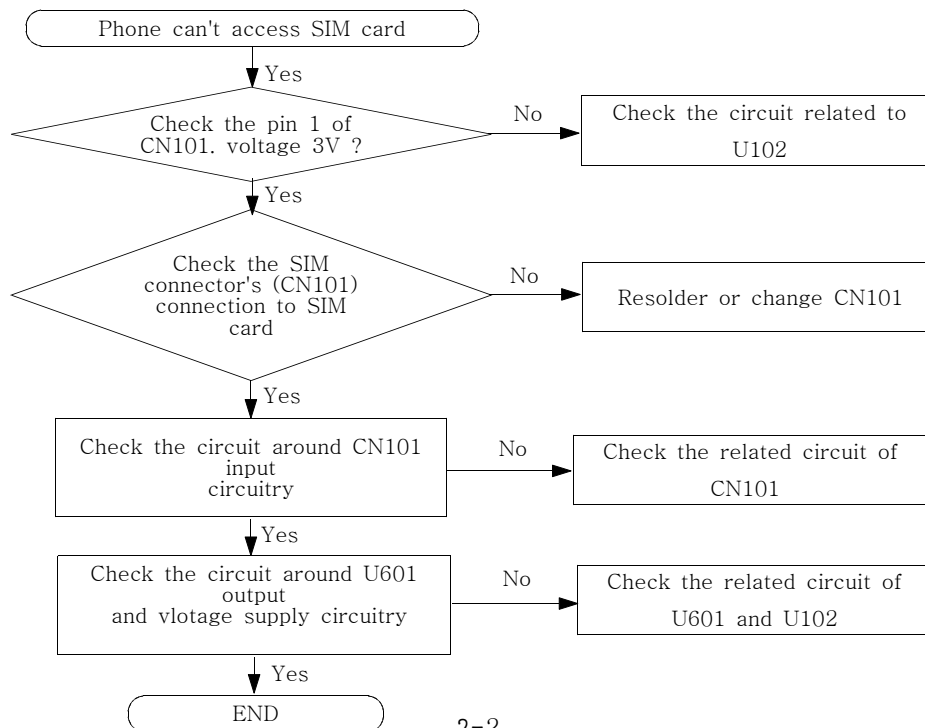
#### 1. Power ON



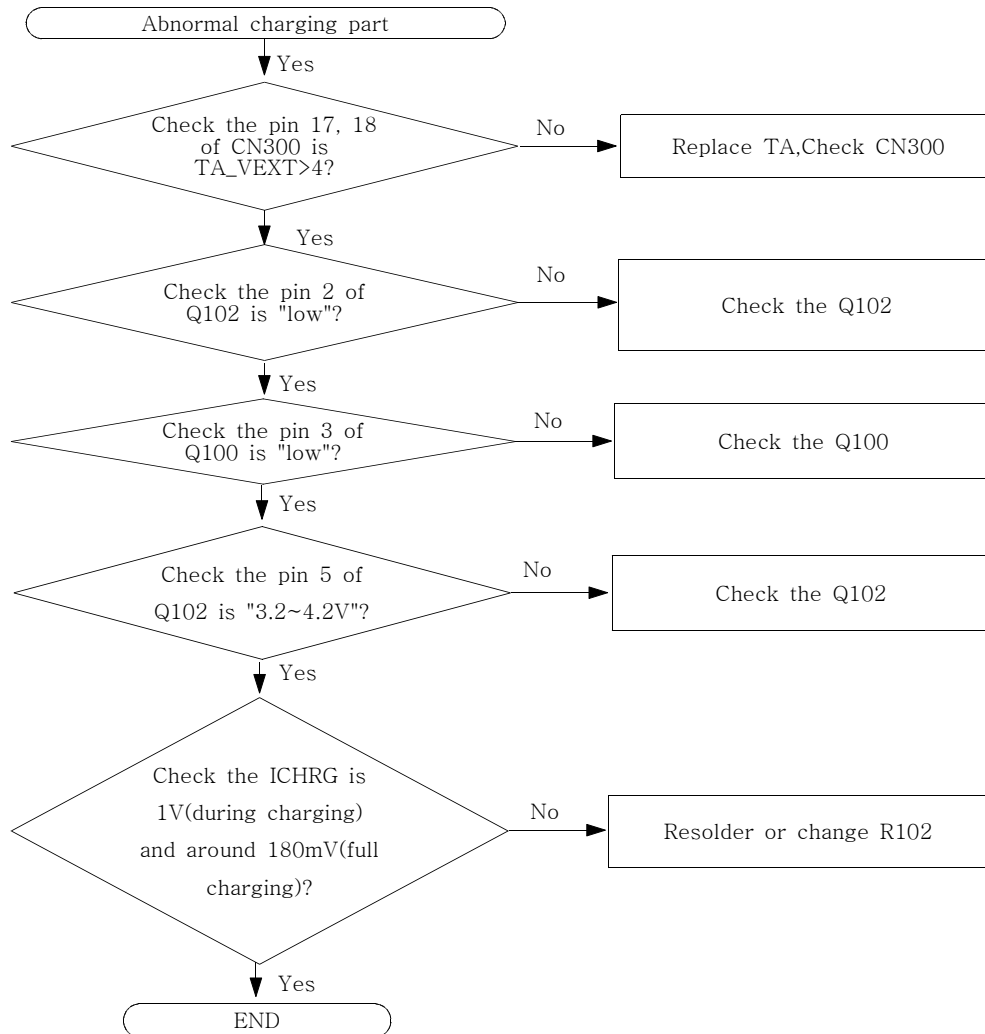
## 2. Initial



## 3. Sim Part



#### 4. Charging Part

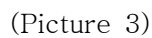




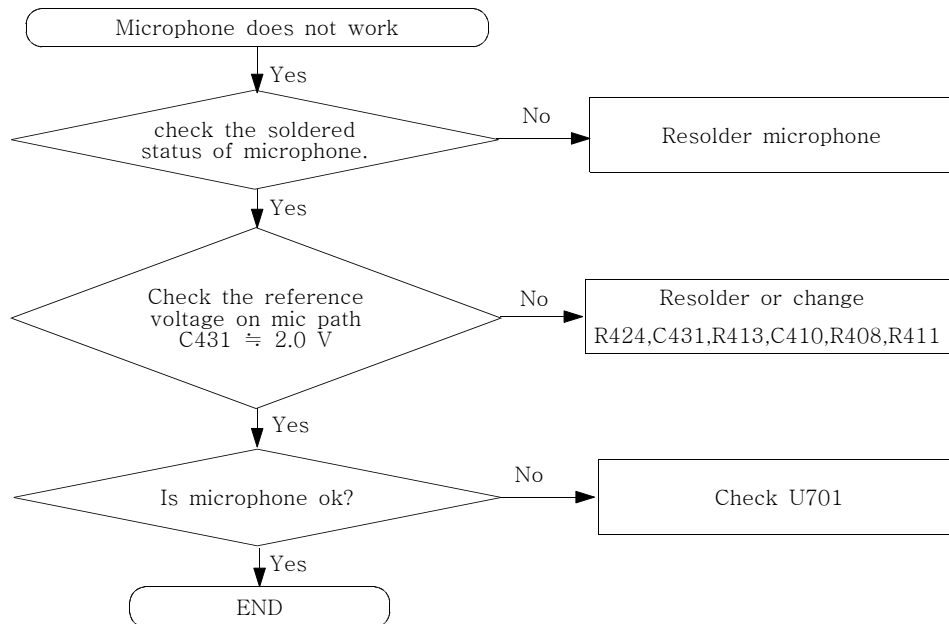
(Picture 1)



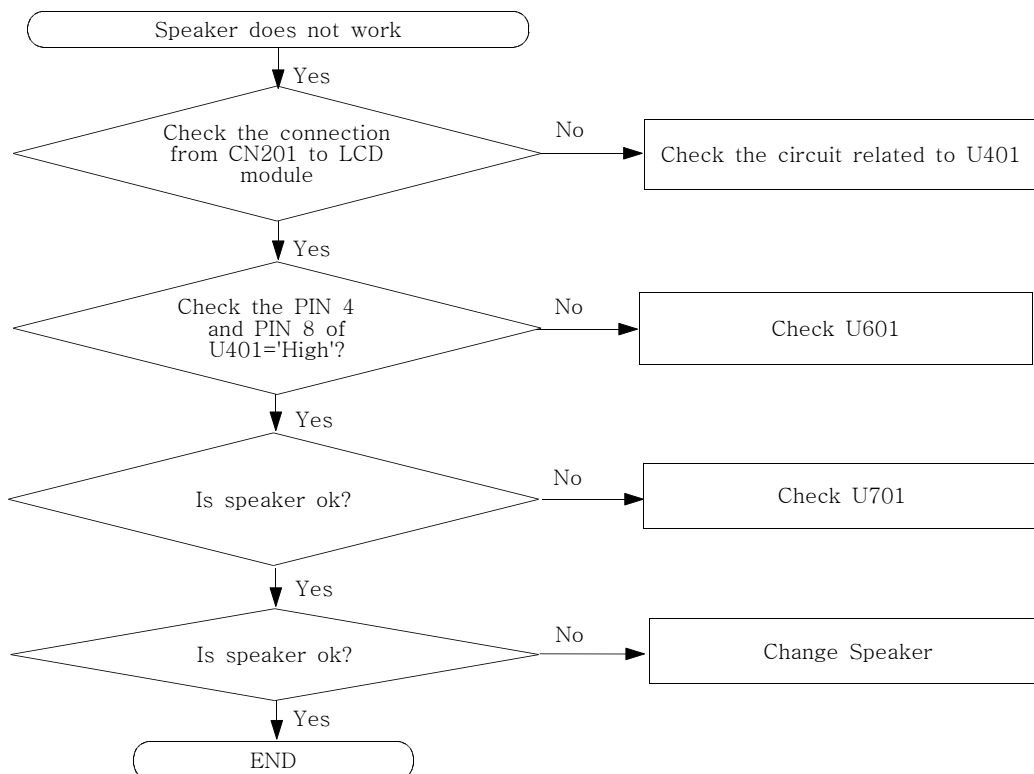


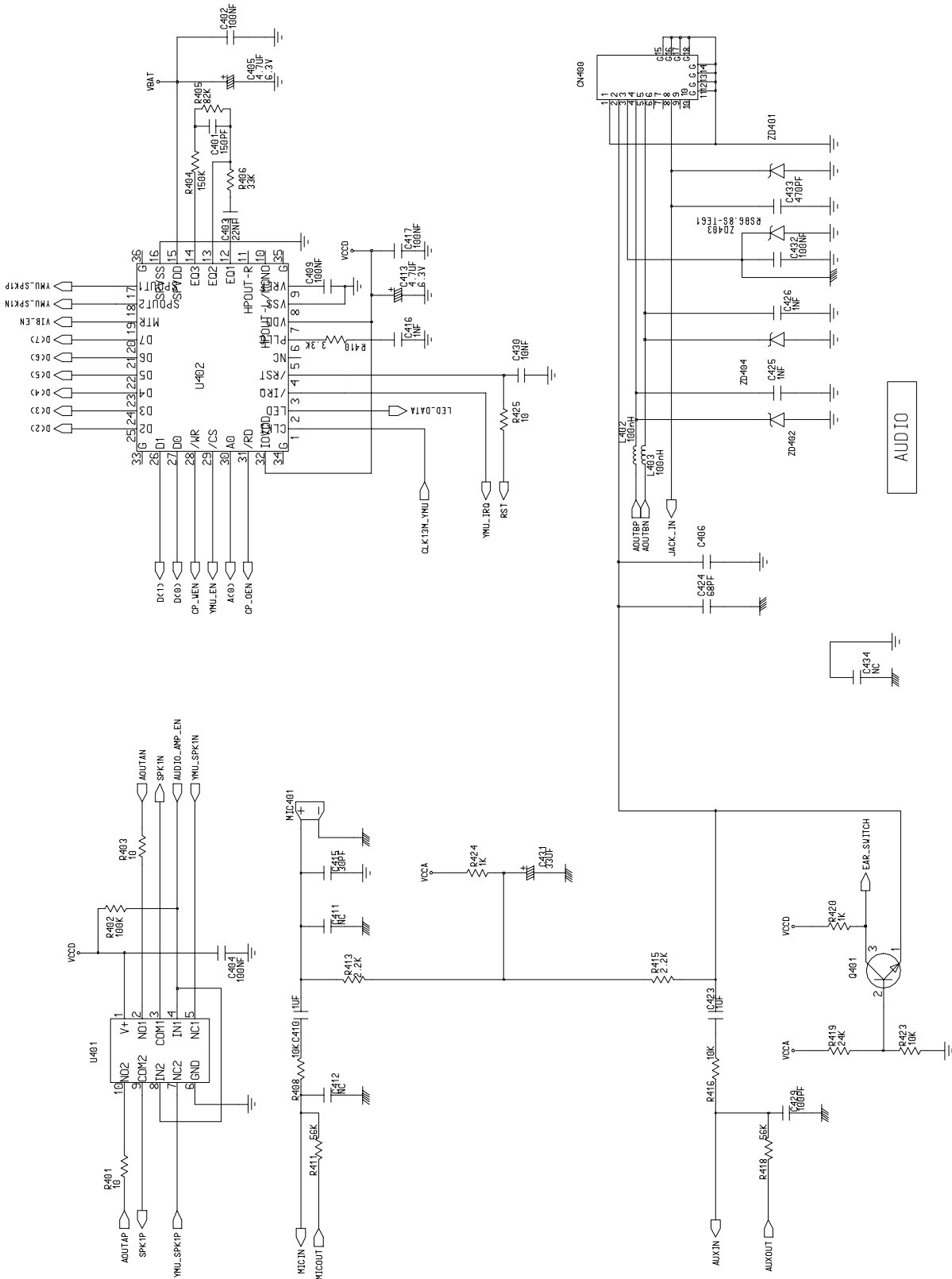


## 5. Microphone Part

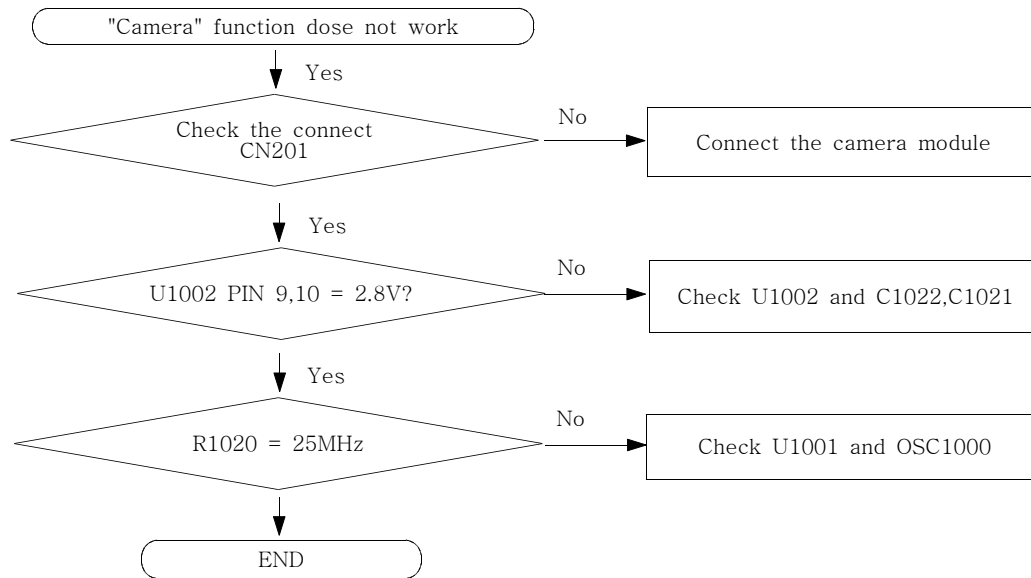


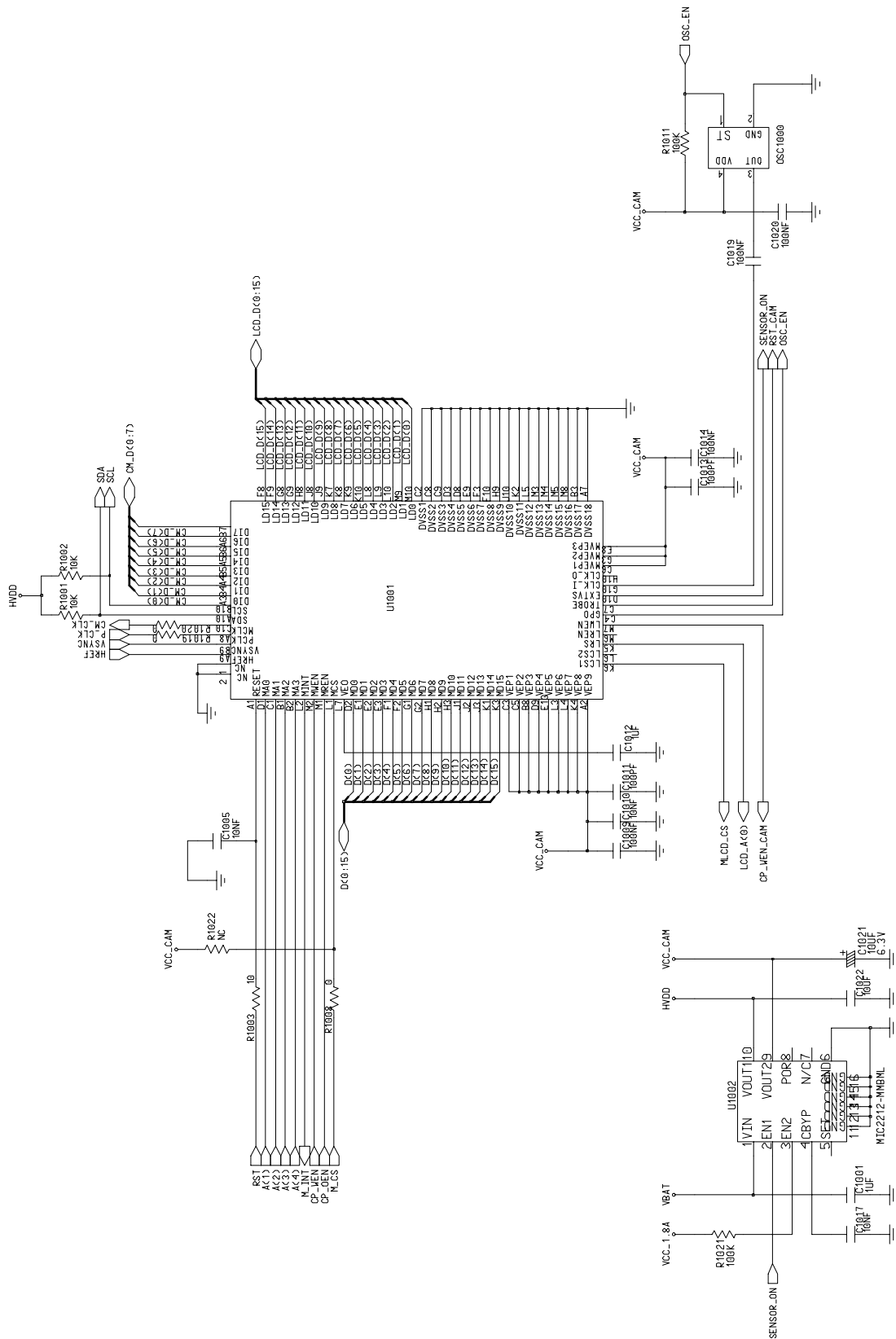
## 6. Speaker Part





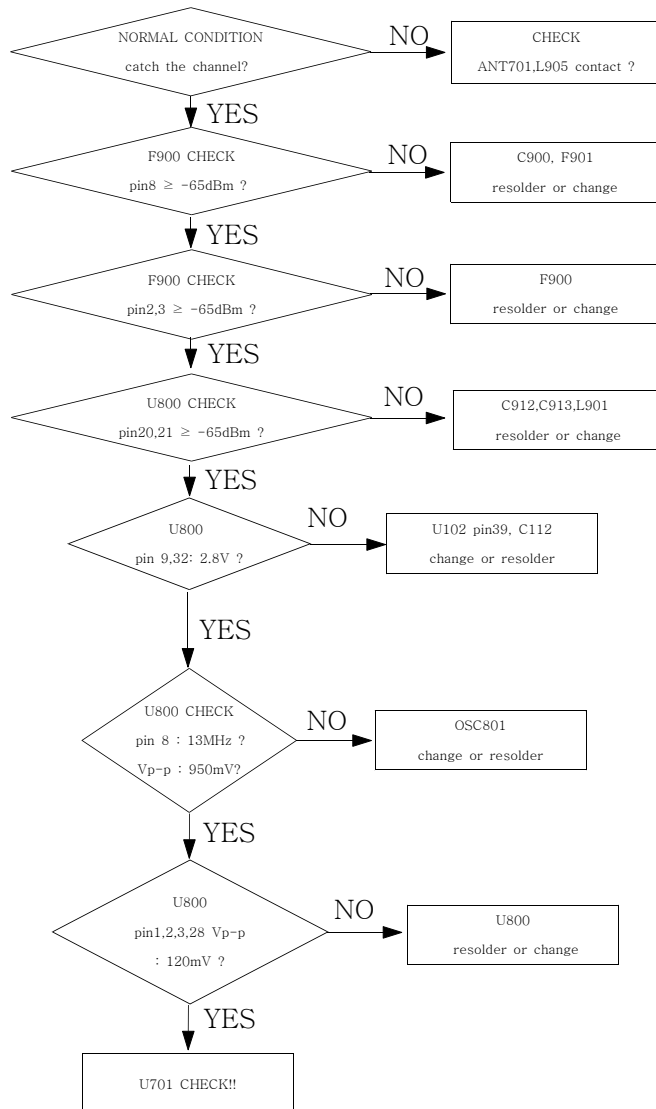
## 7. Camera Part





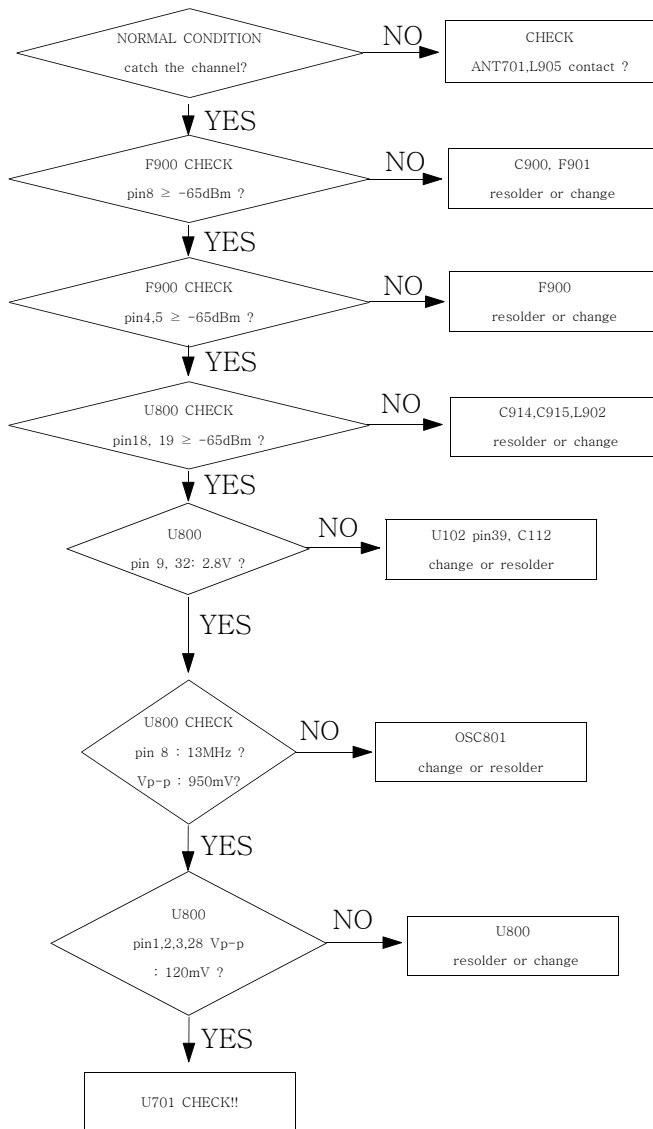
## 2.RF

### 1. EGSM RX



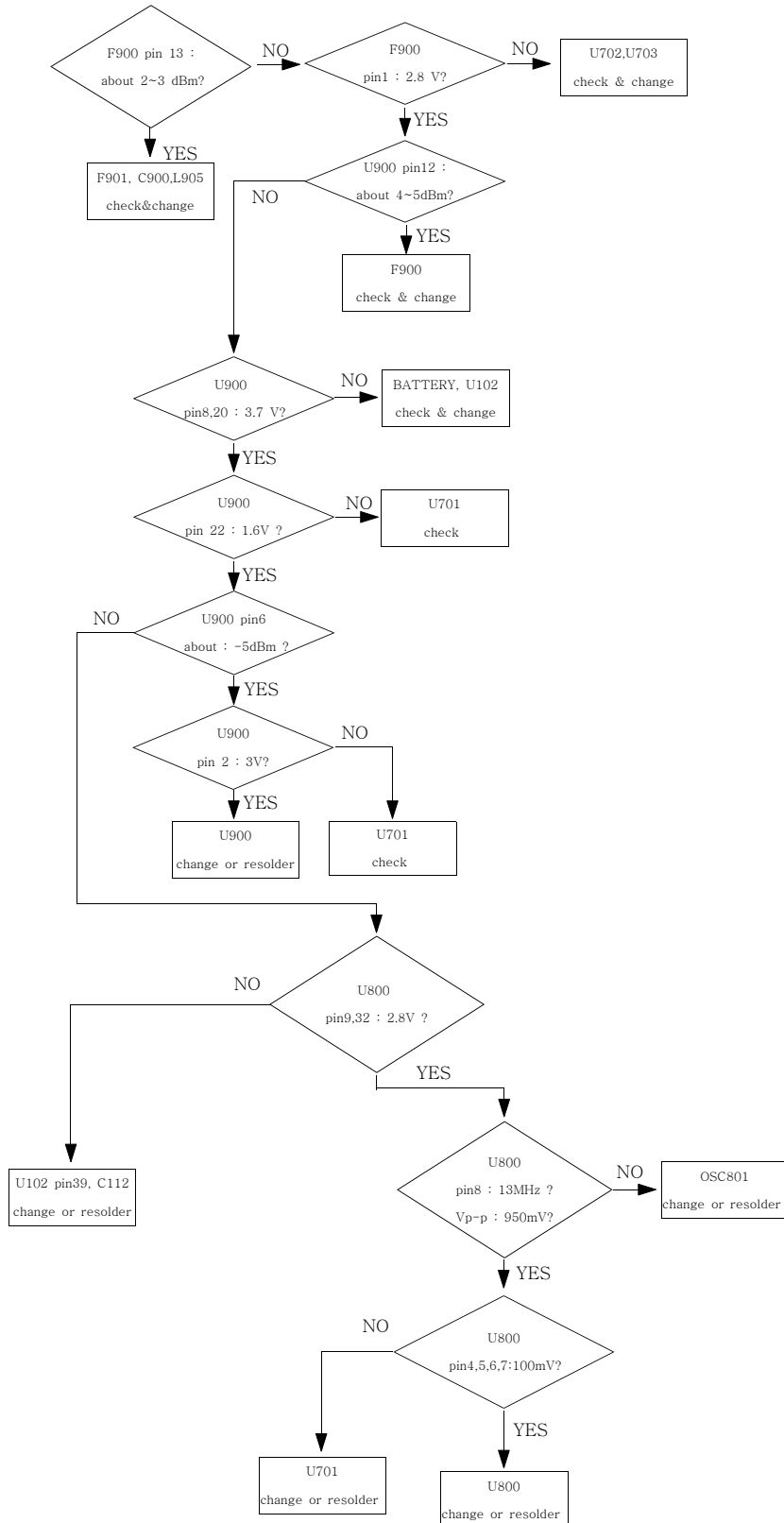
CONTINUOUS RX ON  
RF INPUT : 62CH  
AMP : -50dBm

## 2. DCS RX



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

### 3. EGSM TX



#### CONTINUS TX ON CONDITION

TX POWER DAC: 600 CODE APPLIED

CH : 62

RBW : 100KHz

VBW : 100KHz

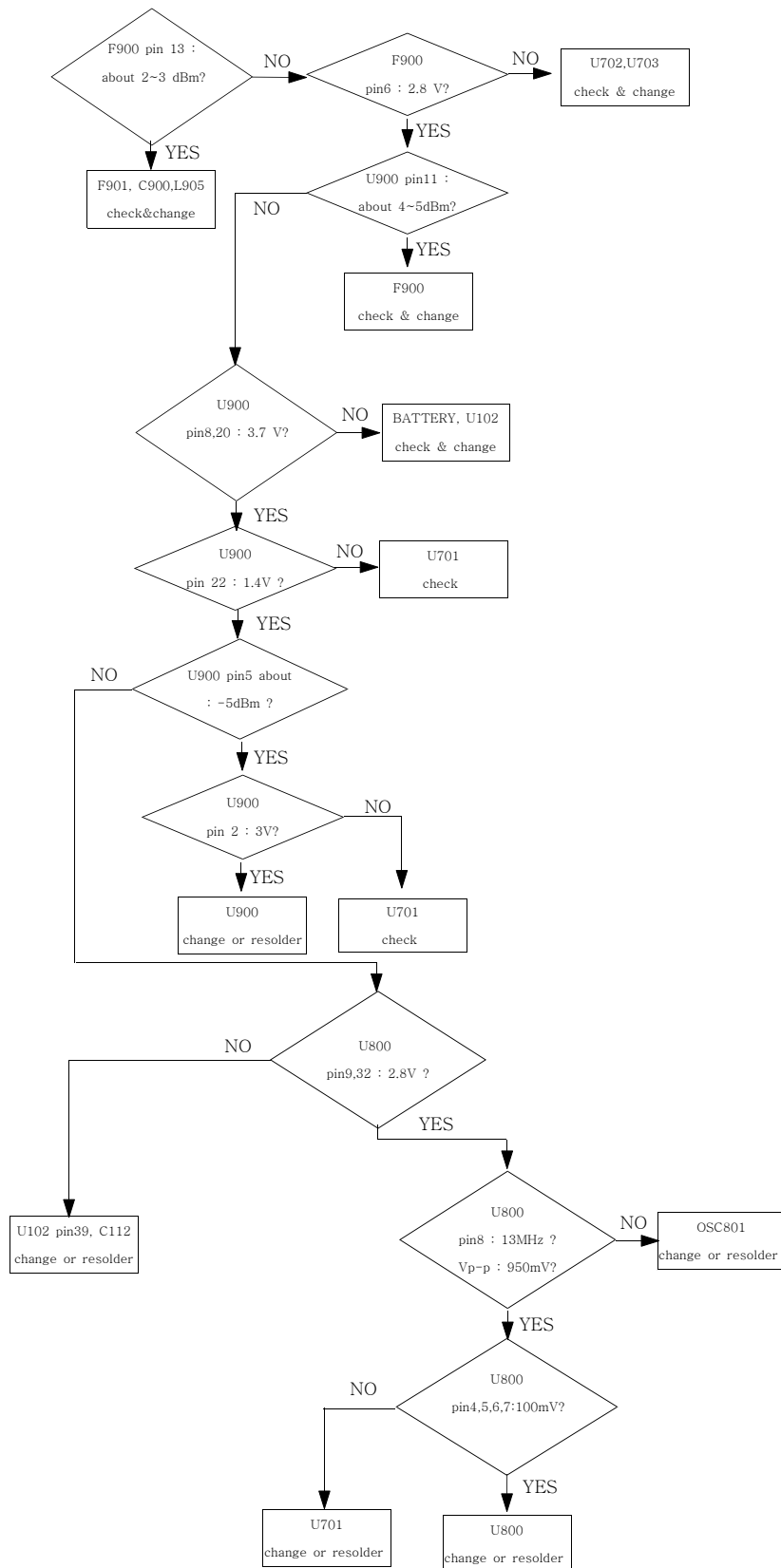
SPAN : 10MHz

REF LEV. : 10dBm

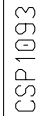
ATT. : 20dB

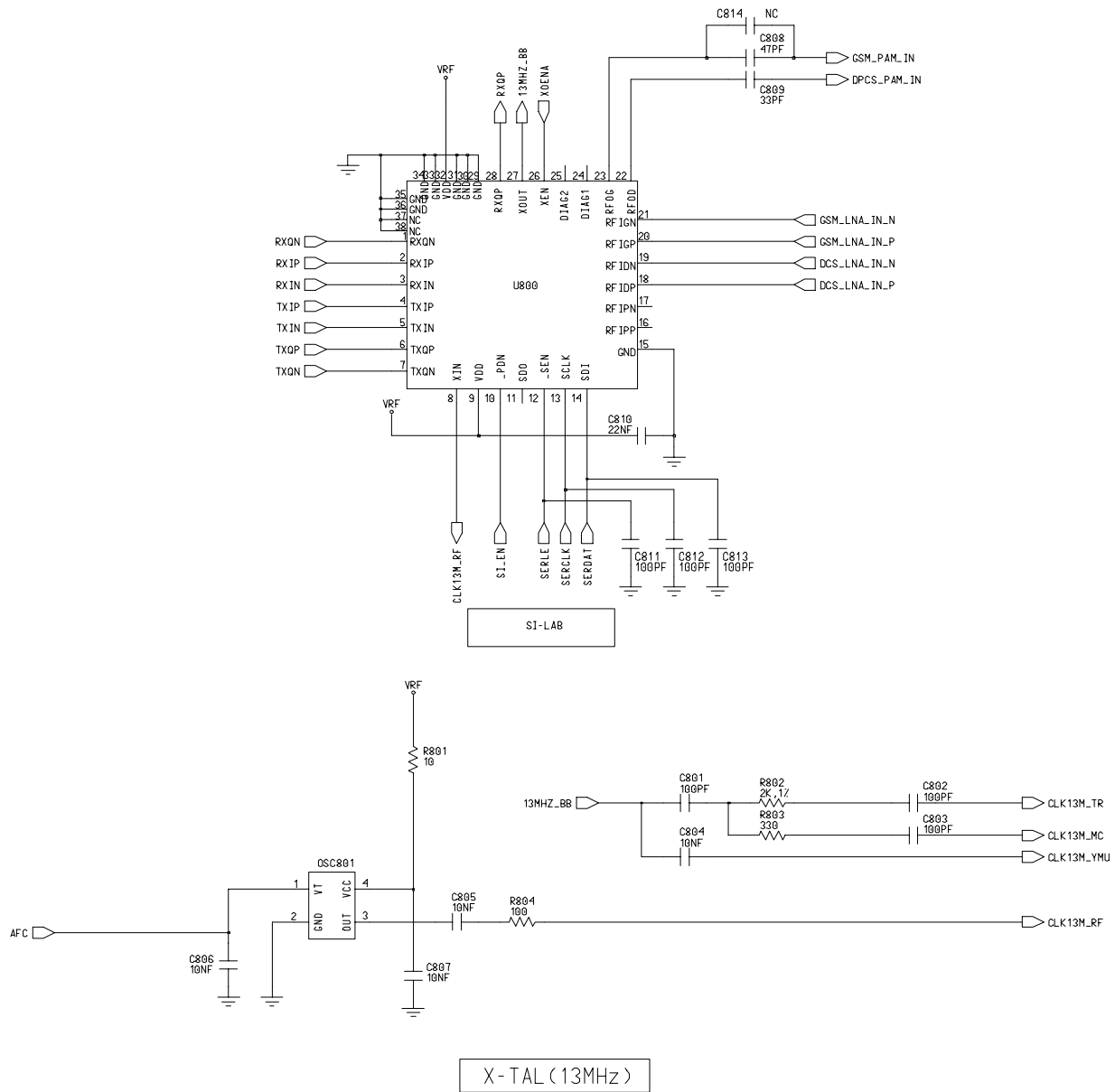


## 5. DCS TX



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



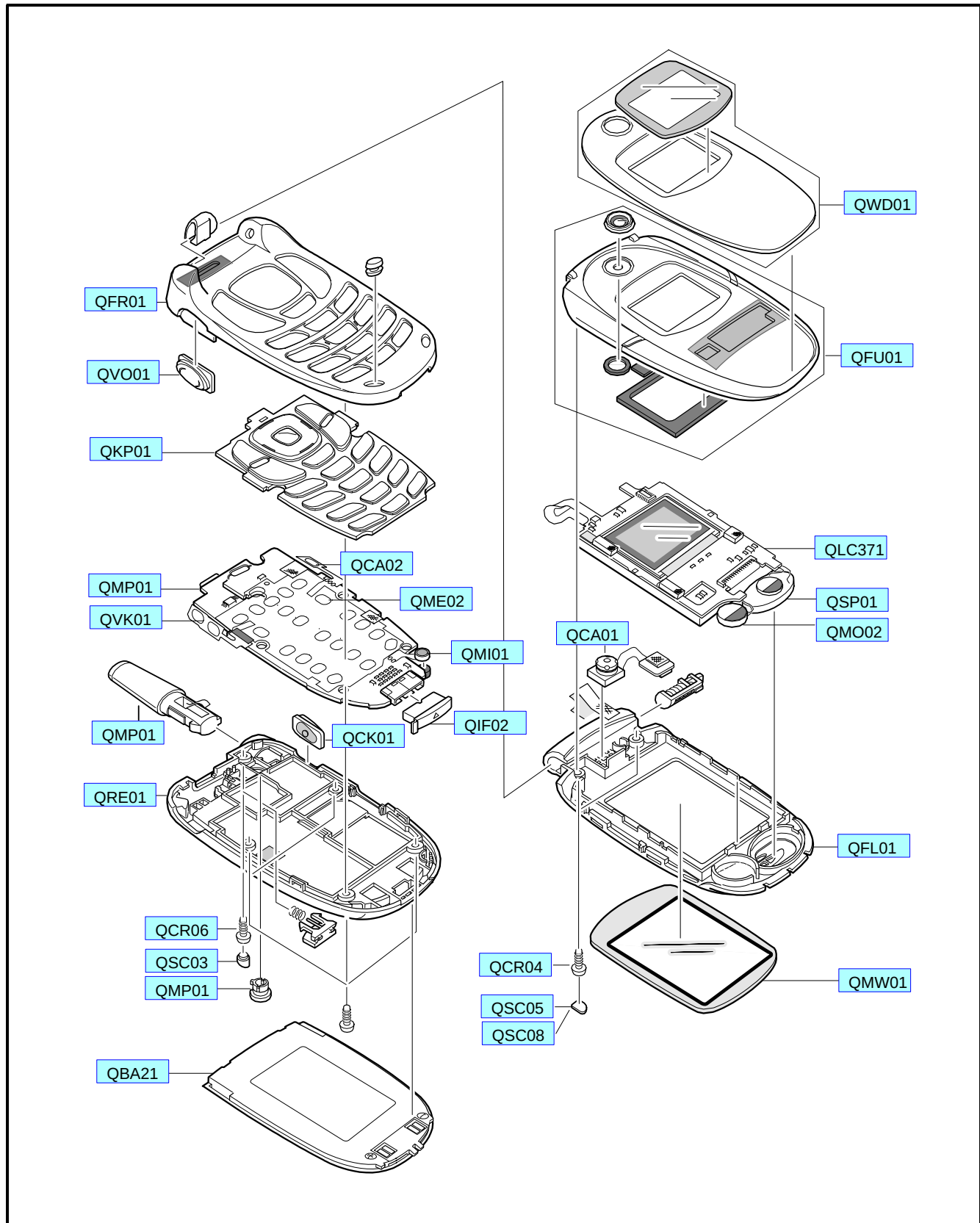


(Picture 2)



### 3. SGH-E310 Exploded View and its Parts list

#### 1. Cellular phone Exploded View



## 2. Cellular phone Parts list

| Location NO. |  | Description      | SEC CODE    | Remark |
|--------------|--|------------------|-------------|--------|
| QWD01        |  | DUAL WINDOW ASSY | GH75-03873A |        |
| QFU01        |  | FOLDER UPPER     | GH75-03869A |        |
| QLC37        |  | LCD              | GH07-00465A |        |
| QSP01        |  | SPEAKER          | 3001-001484 |        |
| QMO02        |  | MOTOR            | 3101-001328 |        |
| QCA01        |  | CAMERA           | GH59-01102A |        |
| QFL01        |  | FOLDER LOWER     | GH75-04999A |        |
| QMW01        |  | LCD WINDOW ASSY  | GH75-03874A |        |
| QCR04        |  | SCREW            | 6001-001479 |        |
| QSC05        |  | SCREW SHEET L    | GH74-06886A |        |
| QSC08        |  | SCREW SHEET R    | GH74-06867A |        |
| QFR01        |  | FRONT COVER      | GH75-03867A |        |
| QVO01        |  | VOLUME KEY       | GH75-04736A |        |
| QKP01        |  | KEYPAD           | GH75-03939A |        |
| QMP01        |  | PBA MAIN         | GH92-01746A |        |
| QVK01        |  | UNIT VOLKEY      | GH59-01016A |        |
| QCA02        |  | CAMERA KEY       | GH59-01458A |        |
| QME02        |  | METAL DOME       | GH59-01097A |        |
| QMI01        |  | MICROPHONE       | GH30-00062A |        |
| QIF02        |  | IF COVER         | GH73-01394F |        |
| QCK01        |  | CAMERA KEY       | GH75-04735A |        |
| QAN01        |  | ANTENNA          | GH42-00362A |        |
| QRE01        |  | REAR COVER       | GH75-03868A |        |
| QRF01        |  | RF COVER         | GH72-10977A |        |
| QCR06        |  | SCREW            | 6001-001155 |        |
| QSC03        |  | SCREW COVER      | GH72-10978A |        |
| QBA21        |  | BATTERY          | GH43-01277A |        |

### 3. Test Jig [GH80-00865A]



#### 3-1. RF Test Cable [GH39-00090A]



#### 3-2. Test Cable [GH39-00127A]



#### 3-3. Serial Cable



#### 3-4. Power Supply Cable



#### 3-5. DATA CABLE [GH39-00159A]



#### 3-6. TA [GH44-00184A]



## 4. SGH-E310 MAIN Electrical Parts List

| SEC Code    | Design LOC | SEC Code    | Design LOC | SEC Code    | Design LOC |
|-------------|------------|-------------|------------|-------------|------------|
| 2203-006053 | C1001      | 2203-005393 | C207       | 2203-005682 | C248       |
| 2203-000254 | C1005      | 2203-000812 | C208       | 2203-005682 | C249       |
| 2203-005482 | C1009      | 2203-005682 | C209       | 2203-000812 | C250       |
| 2203-000812 | C101       | 2203-005682 | C211       | 2203-005682 | C251       |
| 2203-000254 | C1010      | 2203-005682 | C212       | 2203-005682 | C252       |
| 2203-000233 | C1011      | 2203-005682 | C213       | 2203-000812 | C253       |
| 2203-006053 | C1012      | 2203-000812 | C214       | 2203-005682 | C254       |
| 2203-000233 | C1013      | 2203-000812 | C215       | 2203-000812 | C255       |
| 2203-005482 | C1014      | 2203-000812 | C216       | 2203-005682 | C256       |
| 2203-000254 | C1017      | 2203-005682 | C217       | 2203-005061 | C301       |
| 2203-005482 | C1019      | 2203-005682 | C218       | 2203-005061 | C302       |
| 2203-005061 | C102       | 2203-000812 | C219       | 2203-005061 | C303       |
| 2203-005482 | C1020      | 2203-005682 | C220       | 2203-005061 | C304       |
| 2404-001225 | C1021      | 2203-000812 | C221       | 2203-000812 | C305       |
| 2203-005571 | C1022      | 2203-005682 | C222       | 2203-000359 | C401       |
| 2203-001598 | C103       | 2203-005682 | C223       | 2203-005061 | C402       |
| 2203-000812 | C104       | 2203-005682 | C225       | 2203-001405 | C403       |
| 2203-000812 | C105       | 2203-005682 | C226       | 2203-005061 | C404       |
| 2404-001105 | C106       | 2203-005682 | C227       | 2404-001086 | C405       |
| 2404-001268 | C107       | 2203-005682 | C230       | 1405-001082 | C406       |
| 2203-005482 | C108       | 2203-000812 | C231       | 2203-005061 | C409       |
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| 2203-001598 | C114       | 2203-005682 | C236       | 2203-005061 | C417       |
| 2203-000254 | C115       | 2203-005682 | C237       | 2203-005065 | C423       |
| 2203-006053 | C116       | 2203-005682 | C238       | 2203-001153 | C424       |
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| 2203-000233 | C118       | 2203-005682 | C240       | 2203-000438 | C426       |
| 2203-000254 | C201       | 2203-005682 | C241       | 2203-000233 | C429       |
| 2203-000254 | C202       | 2203-000812 | C242       | 2203-000254 | C430       |
| 2203-005509 | C203       | 2203-005682 | C243       | 2404-001151 | C431       |
| 2203-006257 | C204       | 2203-005682 | C244       | 2203-005061 | C432       |
| 2203-005061 | C205       | 2203-005682 | C246       | 2203-000940 | C433       |
| 2203-005061 | C206       | 2203-005682 | C247       | 2203-000254 | C502       |



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| 2203-005480 | C607       |
| 2203-005061 | C608       |
| 2203-001405 | C609       |
| 2203-000679 | C610       |
| 2203-000254 | C611       |
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| 2203-000628 | C613       |
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| 2203-000254 | C807       |

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| 2203-000812 | C809       |
| 2203-001405 | C810       |
| 2203-000233 | C811       |
| 2203-000233 | C812       |
| 2203-000233 | C813       |
| 2203-000995 | C900       |
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| 2203-001383 | C918       |
| 2203-000812 | C919       |
| 3709-001229 | CN101      |
| 3711-005490 | CN201      |
| 3710-001673 | CN300      |
| 3722-002082 | CN400      |
| 2909-001225 | F900       |
| 3705-001287 | F901       |
| 2703-001513 | L402       |
| 2703-001513 | L403       |
| 2703-002485 | L901       |
| 2703-002608 | L902       |
| 2007-000070 | L905       |
| 2703-002203 | L907       |
| 2703-002207 | L908       |

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| 0601-001790 | LED222     |
| 4302-001130 | M101       |
| 2804-001577 | OSC1000    |
| 2801-003856 | OSC601     |
| 2809-001260 | OSC801     |
| 0502-001201 | Q100       |
| 0506-001052 | Q102       |
| 0504-000168 | Q103       |
| 0504-000168 | Q104       |
| 0501-000225 | Q401       |
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| 2007-000171 | R1019      |
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| 2007-000162 | R1021      |
| 2007-007139 | R103       |
| 2007-001323 | R104       |
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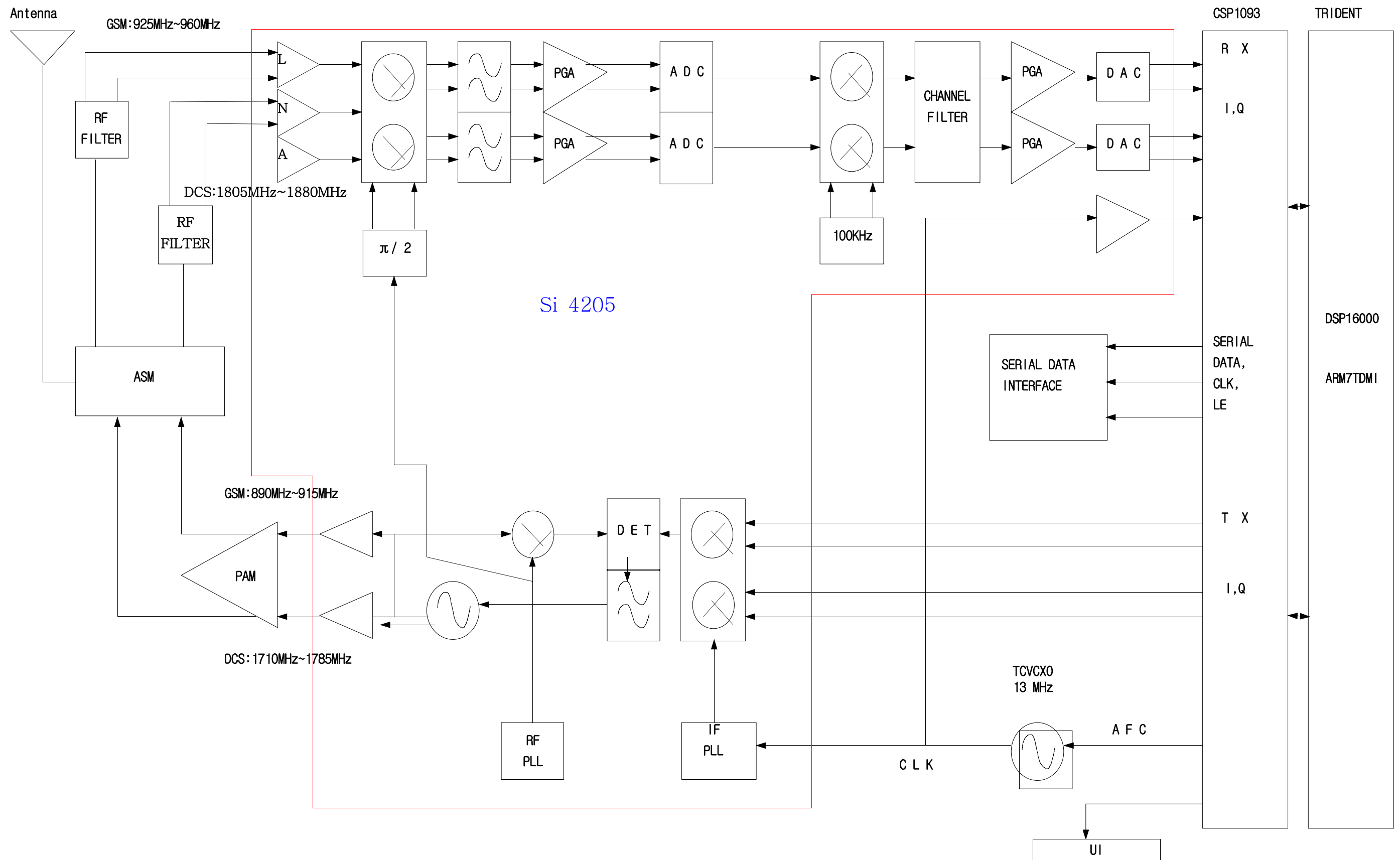
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| 1203-002861 | U1002      |
| 2203-005682 | U1005      |
| 2007-000162 | U1006      |
| 0601-001790 | U1008      |
| 0601-001790 | U1009      |
| 1203-002127 | U101       |
| 1203-002902 | U102       |
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| 1001-001183 | U401       |
| 1204-002161 | U402       |
| 1109-001281 | U500       |
| GH09-00025A | U601       |
| 1209-001219 | U602       |
| 1204-001984 | U701       |
| 0504-001042 | U702       |
| 0504-001042 | U703       |
| 1205-002433 | U800       |
| 1201-002078 | U900       |
| 0403-001427 | V302       |
| 0406-001152 | V307       |
| 0403-001427 | ZD205      |
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| 0406-001169 | ZD207      |
| 0406-001150 | ZD312      |
| 0406-001150 | ZD401      |
| 0406-001150 | ZD402      |
| 0406-001150 | ZD403      |
| 0406-001150 | ZD404      |
| 0406-001169 | ZD405      |
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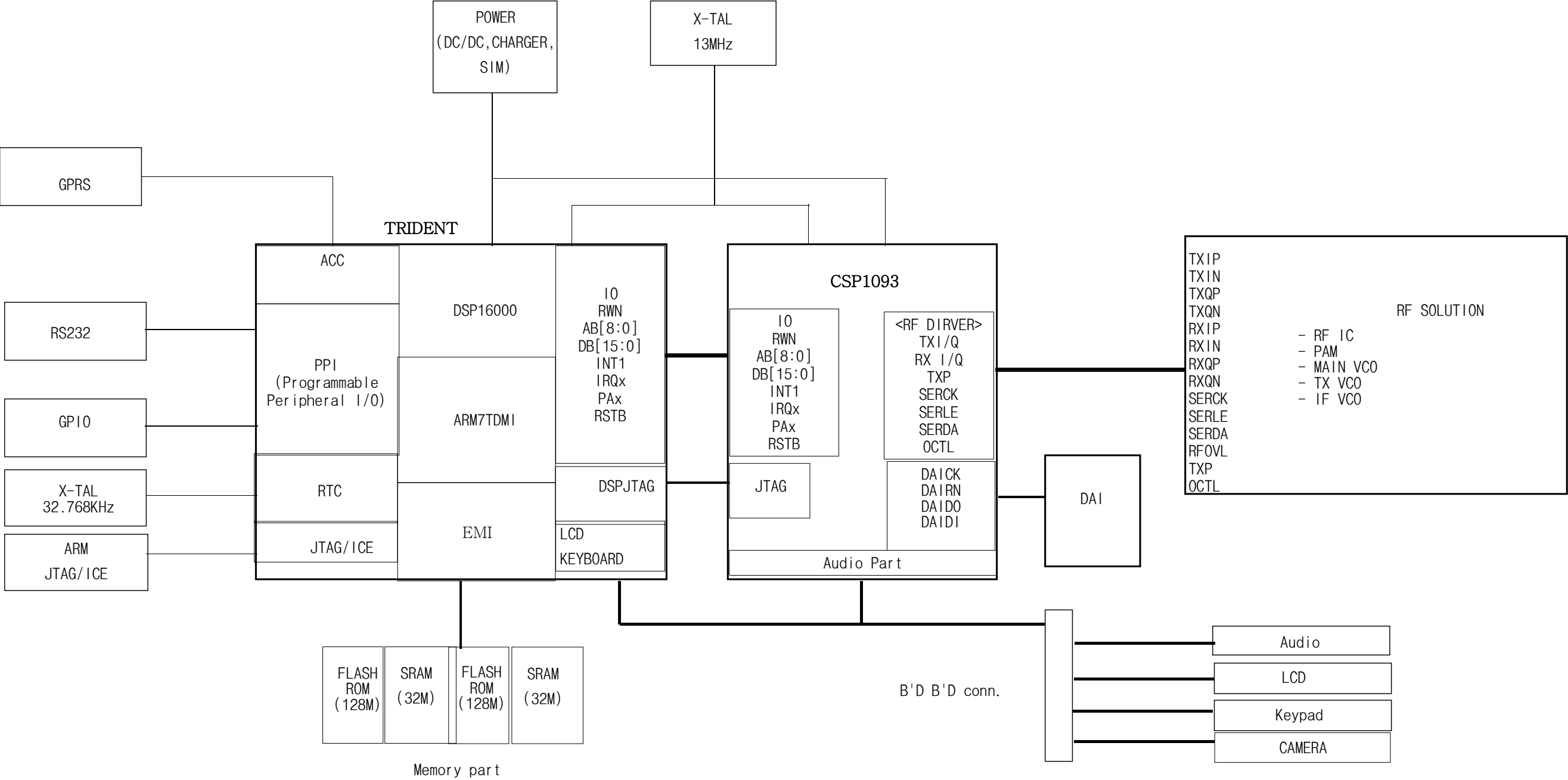
| SEC Code    | Design<br>LOC |
|-------------|---------------|
| GH30-00062A |               |
| GH59-01016A |               |
| GH59-01097A |               |
| GH59-01458A |               |
| GH68-02026A |               |
| GH73-03030A |               |
| GH73-03033A |               |
| GH74-07565A |               |
| GH74-07566A |               |
| GH74-07567A |               |
| GH74-08170A |               |

## 5. SGH-E310 Block Diagrams

## 1. RF Solution Block Diagram

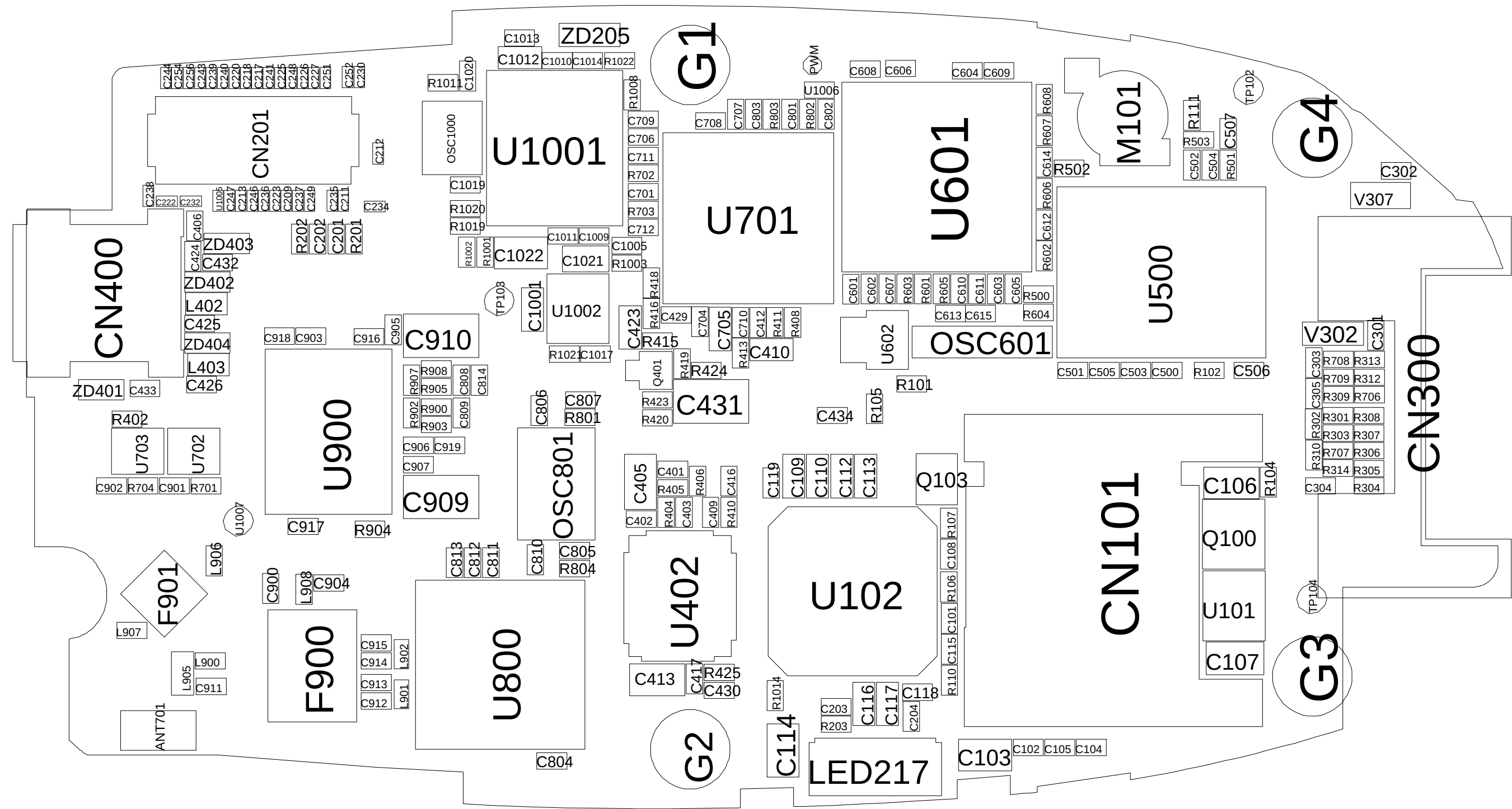


2. Base Band Solution Block Diagram

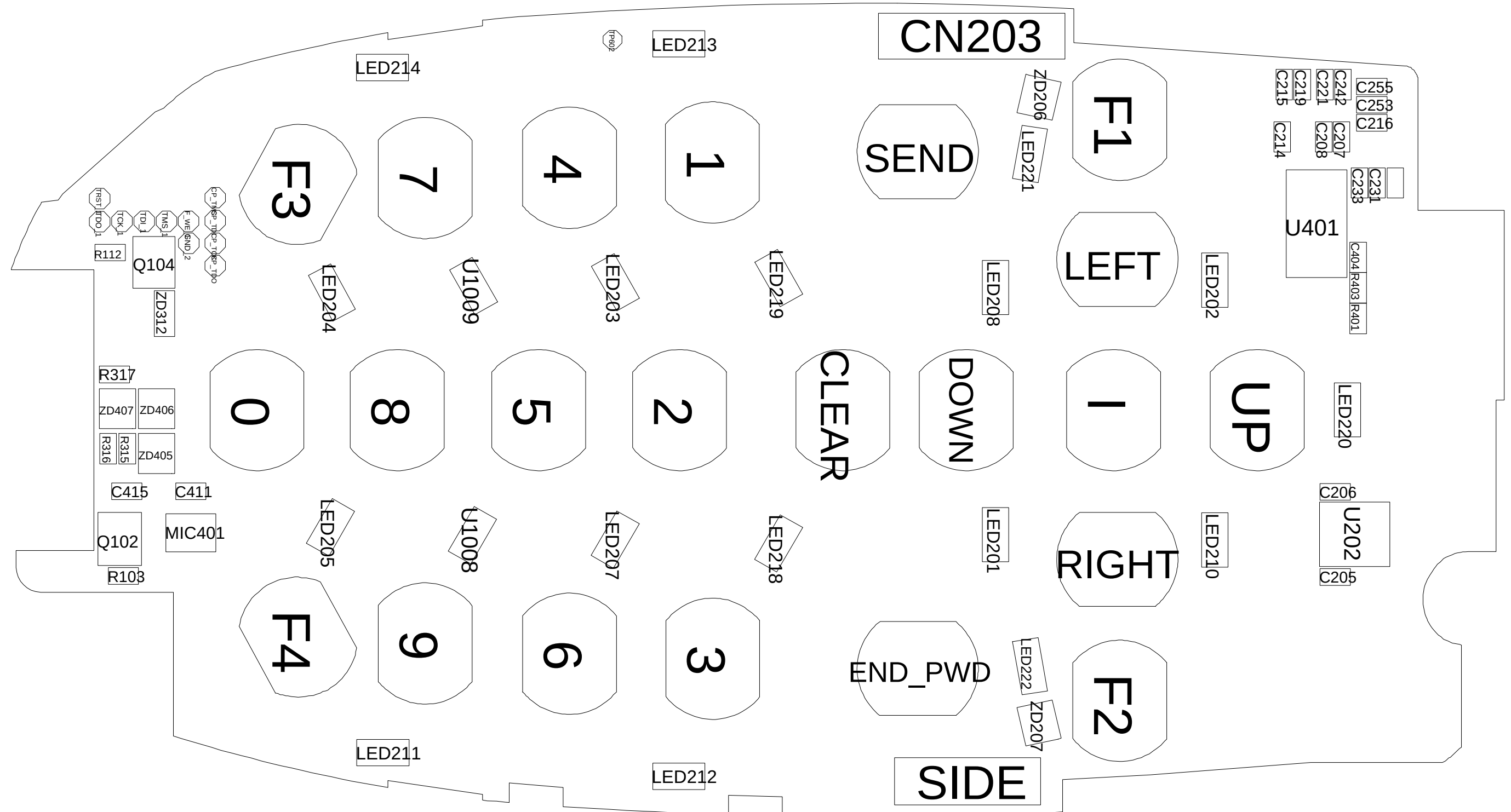


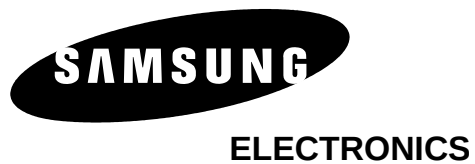
6. SGH-E310 PCB Diagrams

1. Main Top Diagram



## 2. Main Bottom Diagram





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