

**SAMSUNG**

# GSM TELEPHONE

## SGH-X120

# ***SERVICE*** *Manual*

### GSM TELEPHONE



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# 1. SGH-X120 Specification

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## 1. GSM General Specification

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

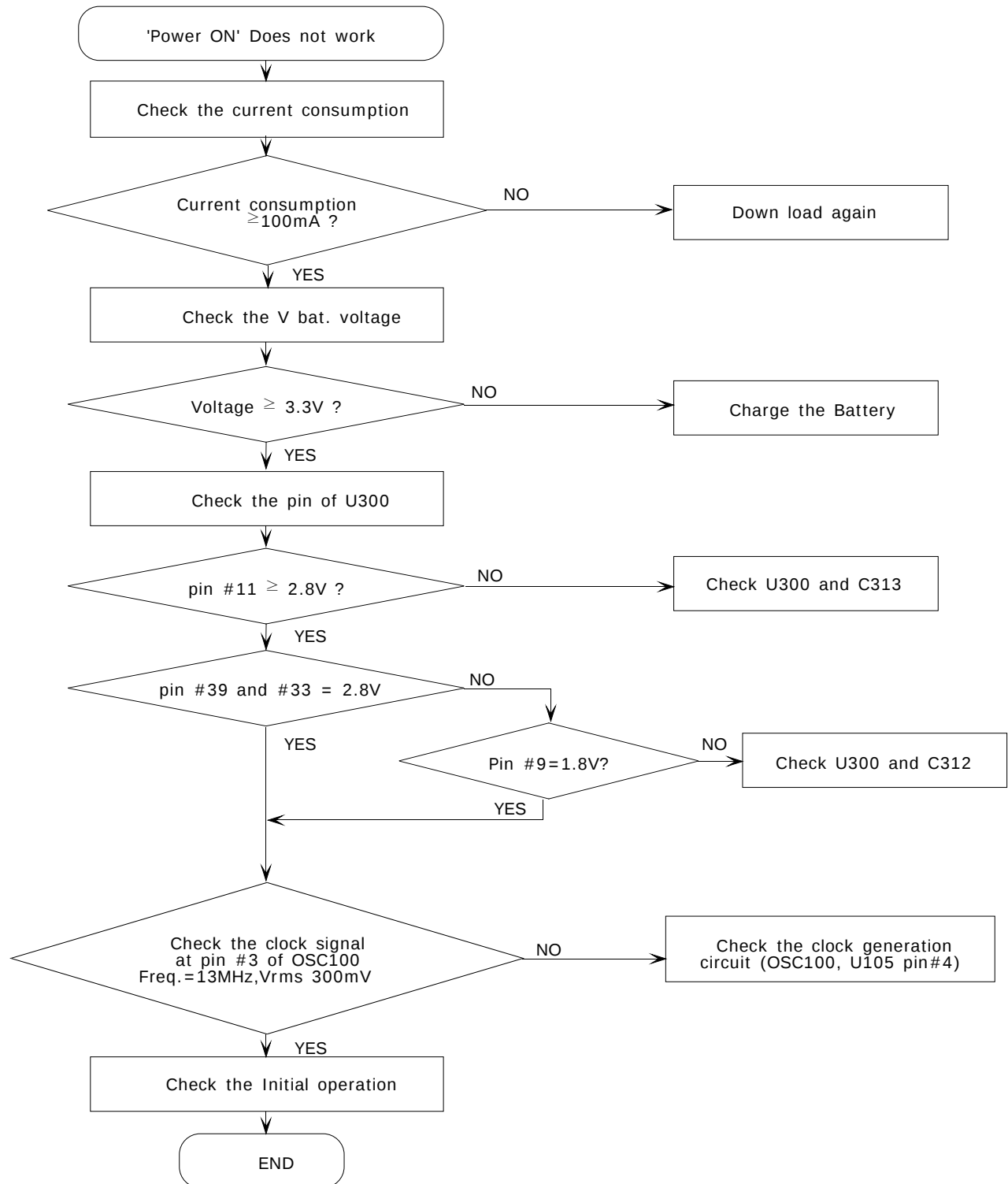
## 2. GSM TX power class

| TX Power control level | GSM900       |
|------------------------|--------------|
| 5                      | $33\pm2$ dBm |
| 6                      | $31\pm2$ dBm |
| 7                      | $29\pm2$ dBm |
| 8                      | $27\pm2$ dBm |
| 9                      | $25\pm2$ dBm |
| 10                     | $23\pm2$ dBm |
| 11                     | $21\pm2$ dBm |
| 12                     | $19\pm2$ dBm |
| 13                     | $17\pm2$ dBm |
| 14                     | $15\pm2$ dBm |
| 15                     | $13\pm2$ dBm |
| 16                     | $11\pm3$ dBm |
| 17                     | $9\pm3$ dBm  |
| 18                     | $7\pm3$ dBm  |
| 19                     | $5\pm3$ dBm  |
|                        |              |

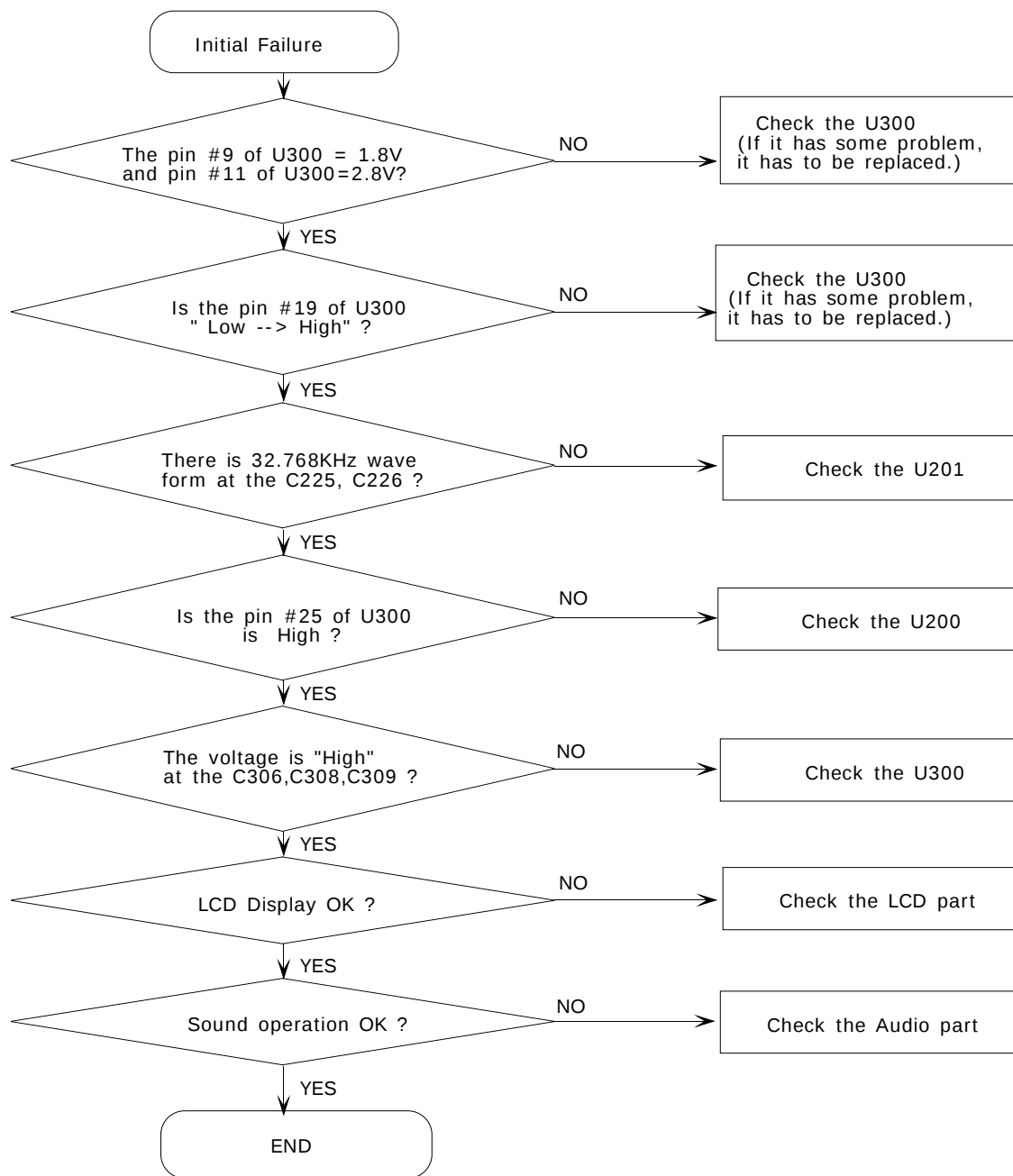
| TX Power control level | DCS1800      |
|------------------------|--------------|
| 0                      | $30\pm3$ dBm |
| 1                      | $28\pm3$ dBm |
| 2                      | $26\pm3$ dBm |
| 3                      | $24\pm3$ dBm |
| 4                      | $22\pm3$ dBm |
| 5                      | $20\pm3$ dBm |
| 6                      | $18\pm3$ dBm |
| 7                      | $16\pm3$ dBm |
| 8                      | $14\pm3$ dBm |
| 9                      | $12\pm4$ dBm |
| 10                     | $10\pm4$ dBm |
| 11                     | $8\pm4$ dBm  |
| 12                     | $6\pm4$ dBm  |
| 13                     | $4\pm4$ dBm  |
| 14                     | $2\pm5$ dBm  |
| 15                     | $0\pm5$ dBm  |

## 2. SGH-X120 Flow Chart of Troubleshooting

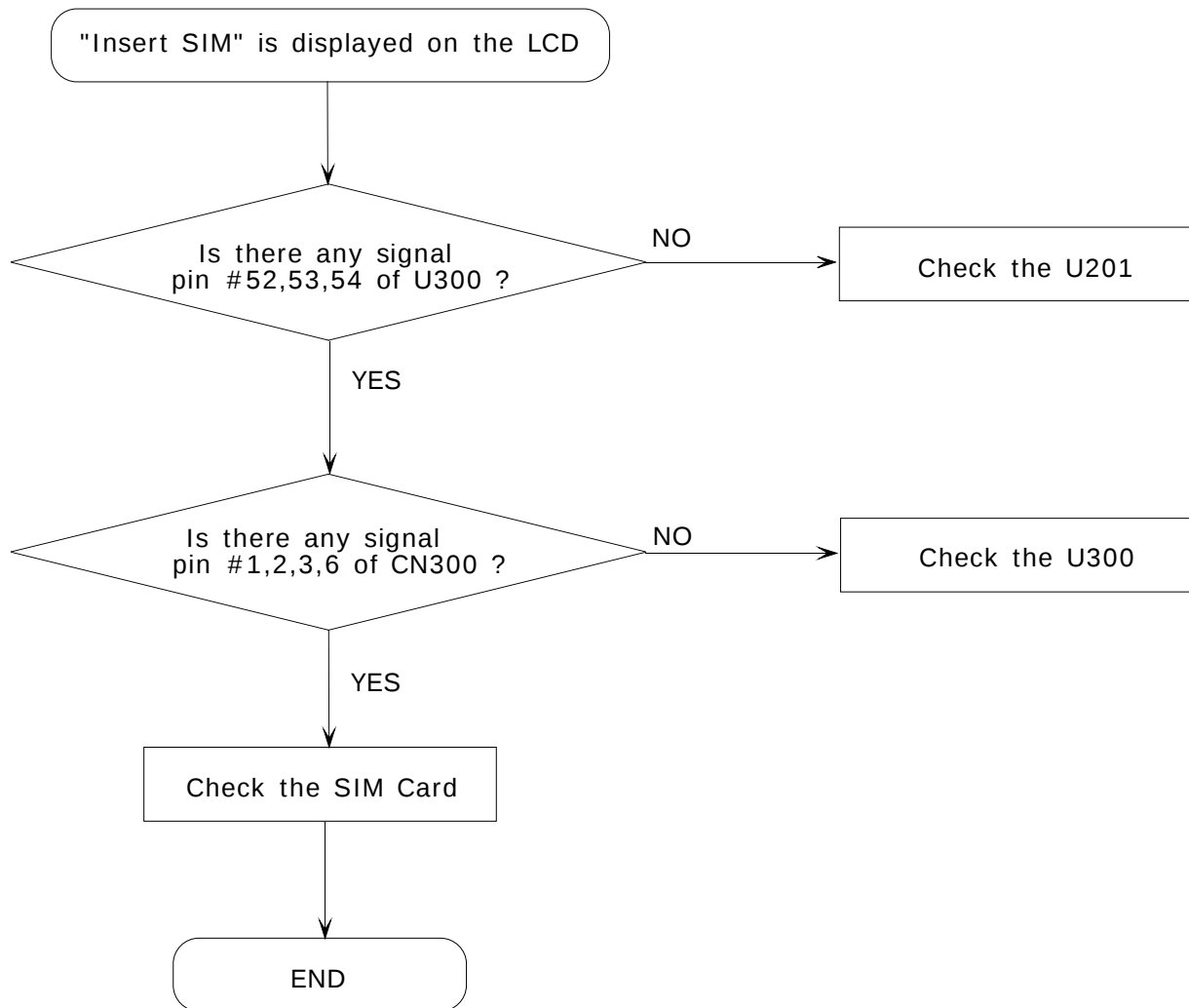
### 1. Power ON



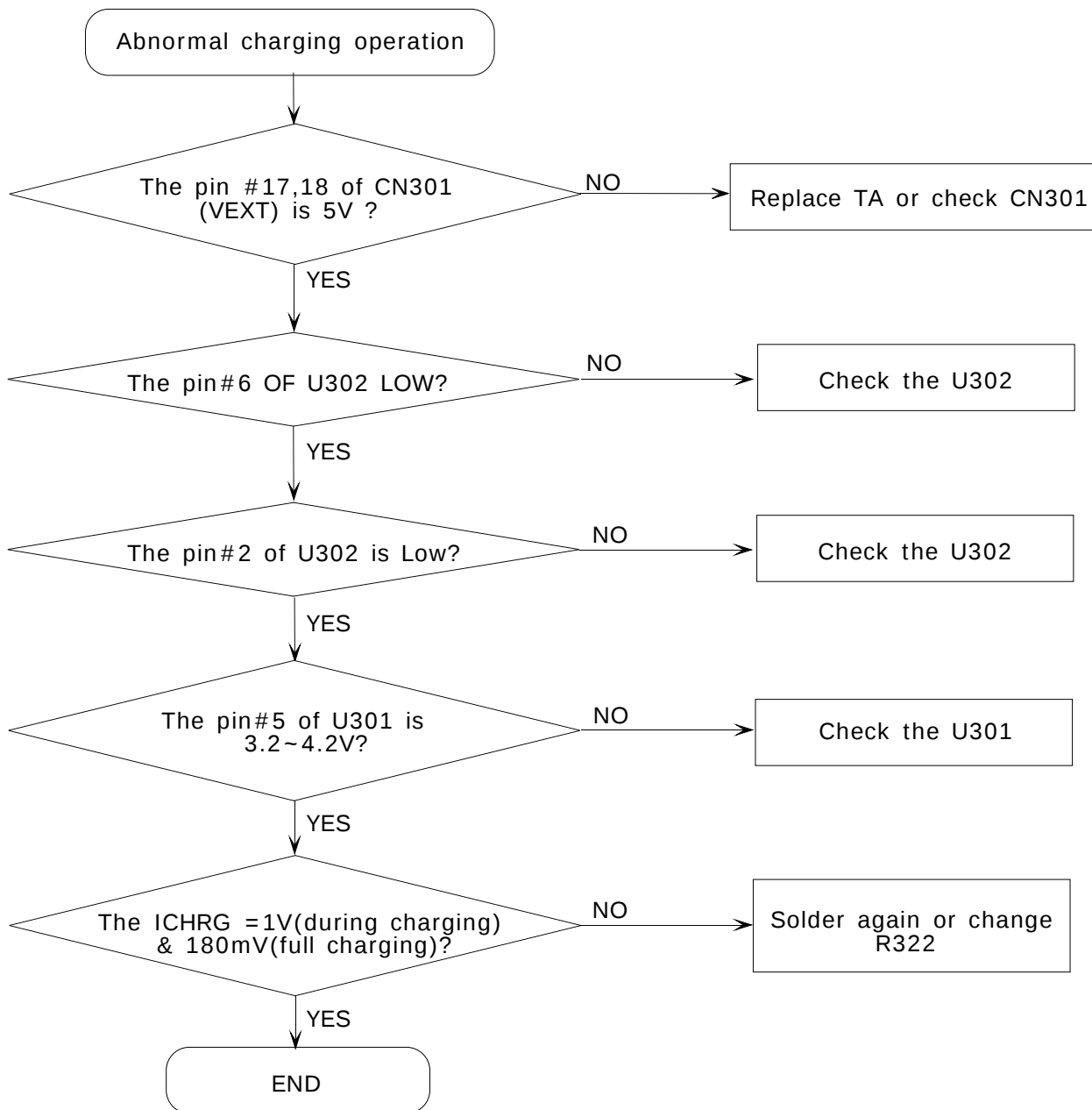
## 2. System Initial



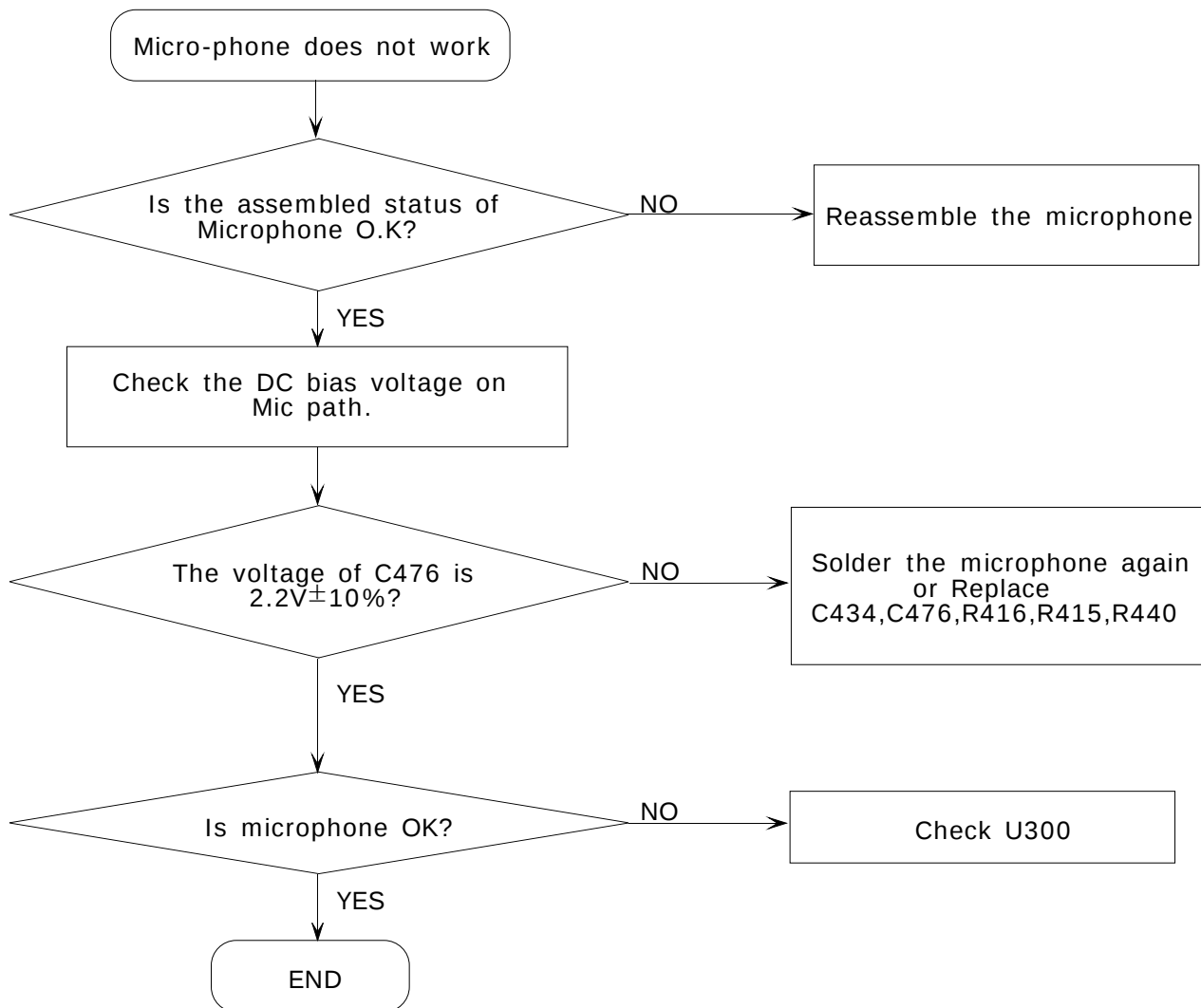
### 3. SIM Part



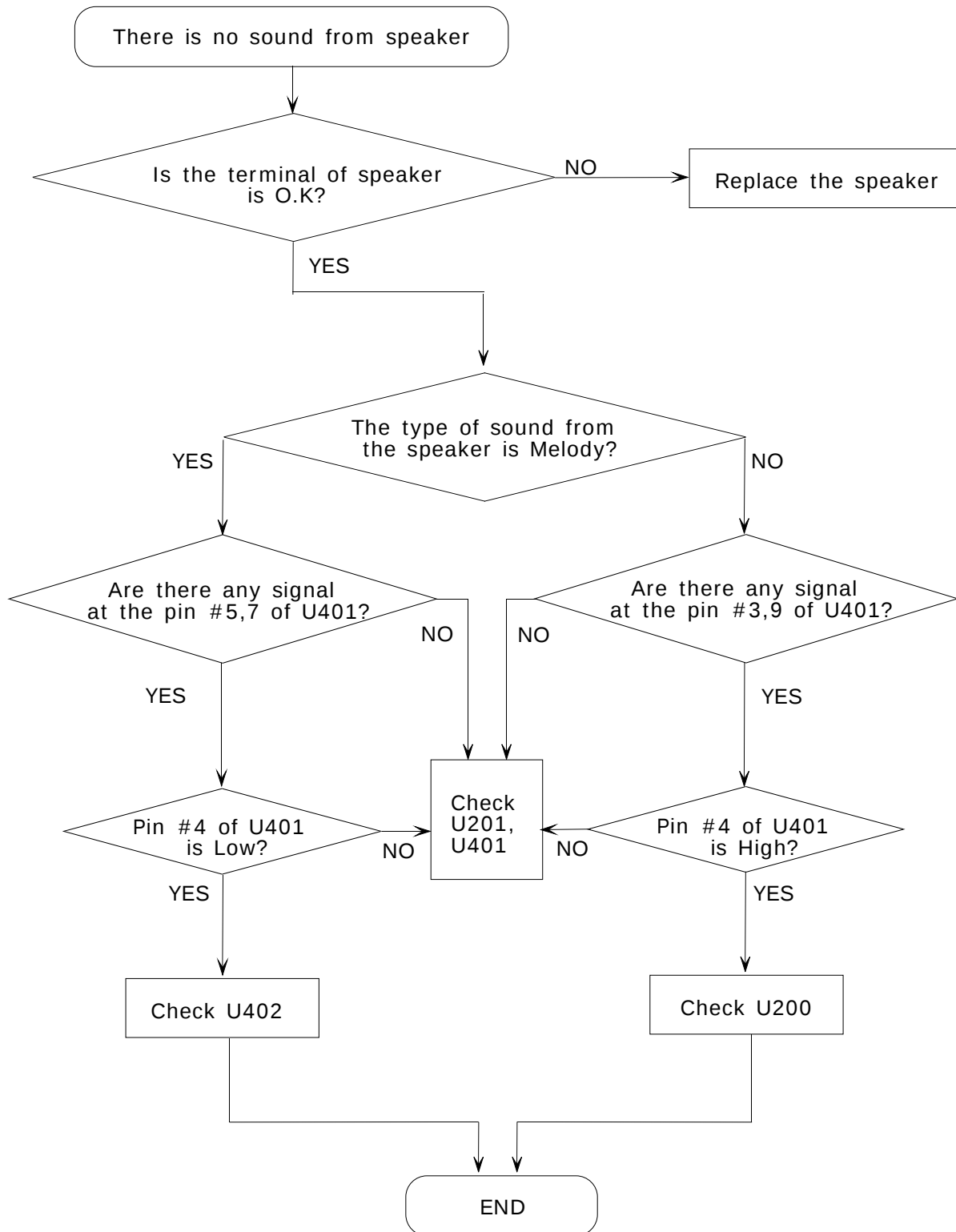
## 4. Charging Part



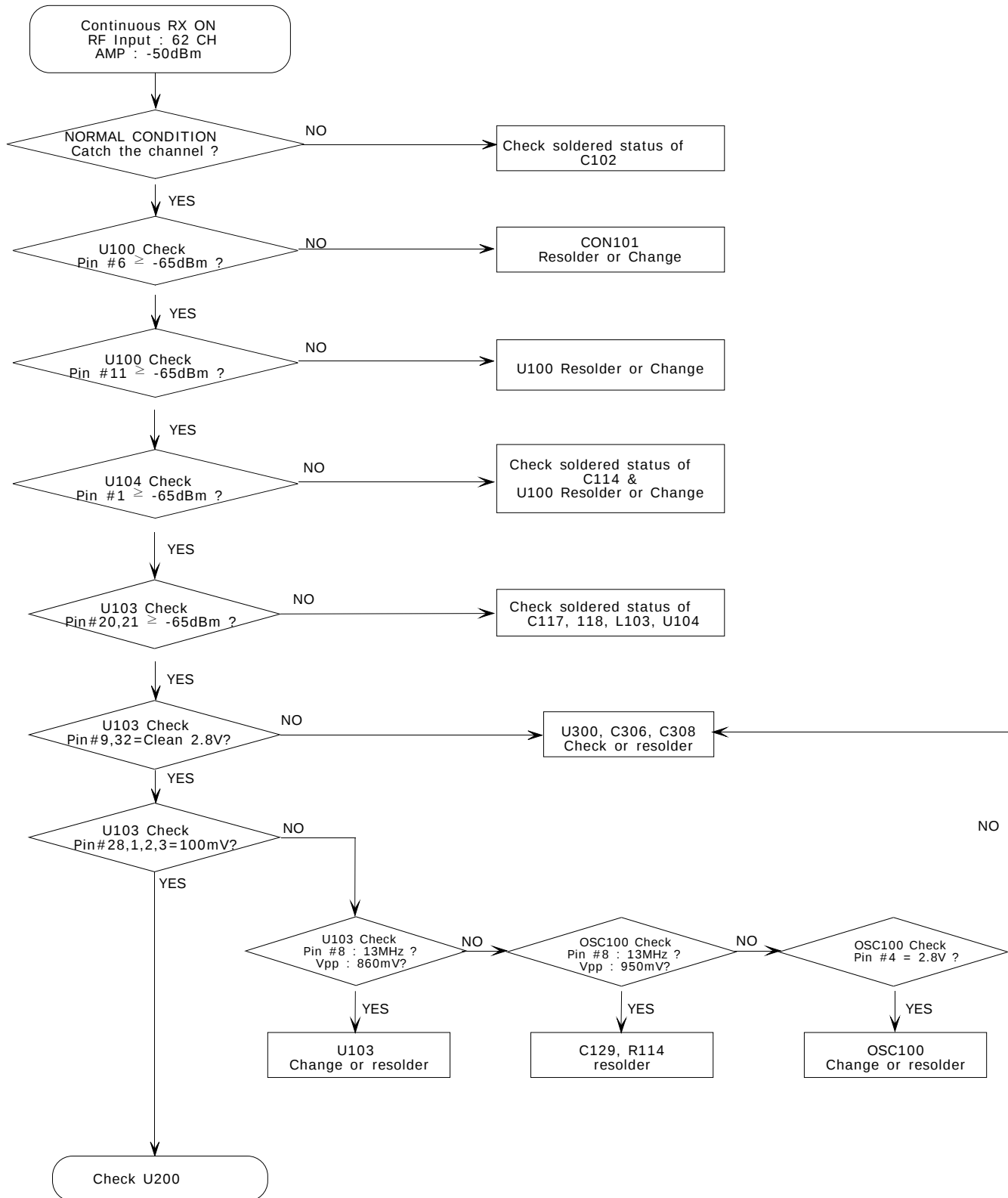
## 5. Microphone Part



## 6. Speaker Part

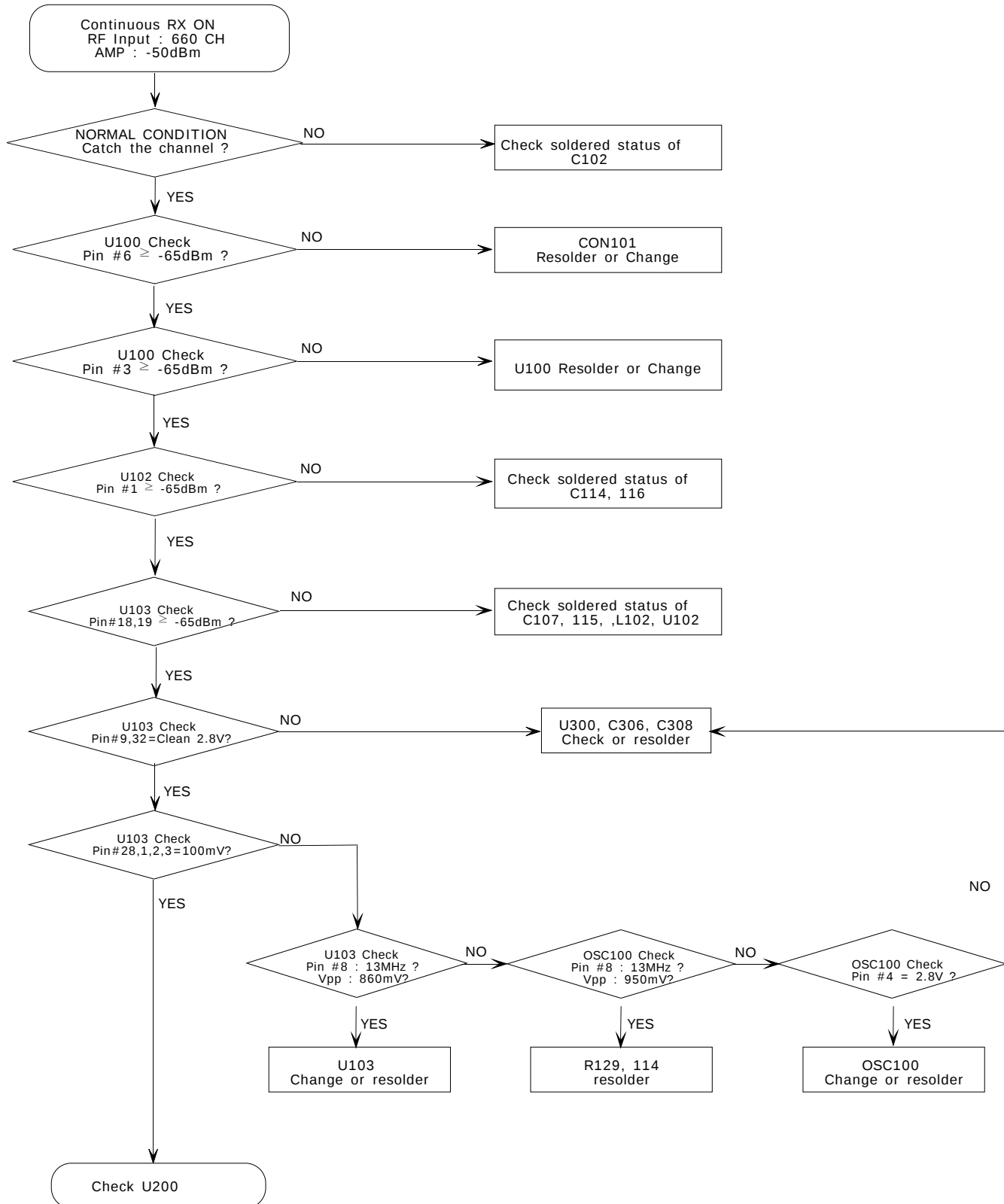


## 7. EGSM Receiver

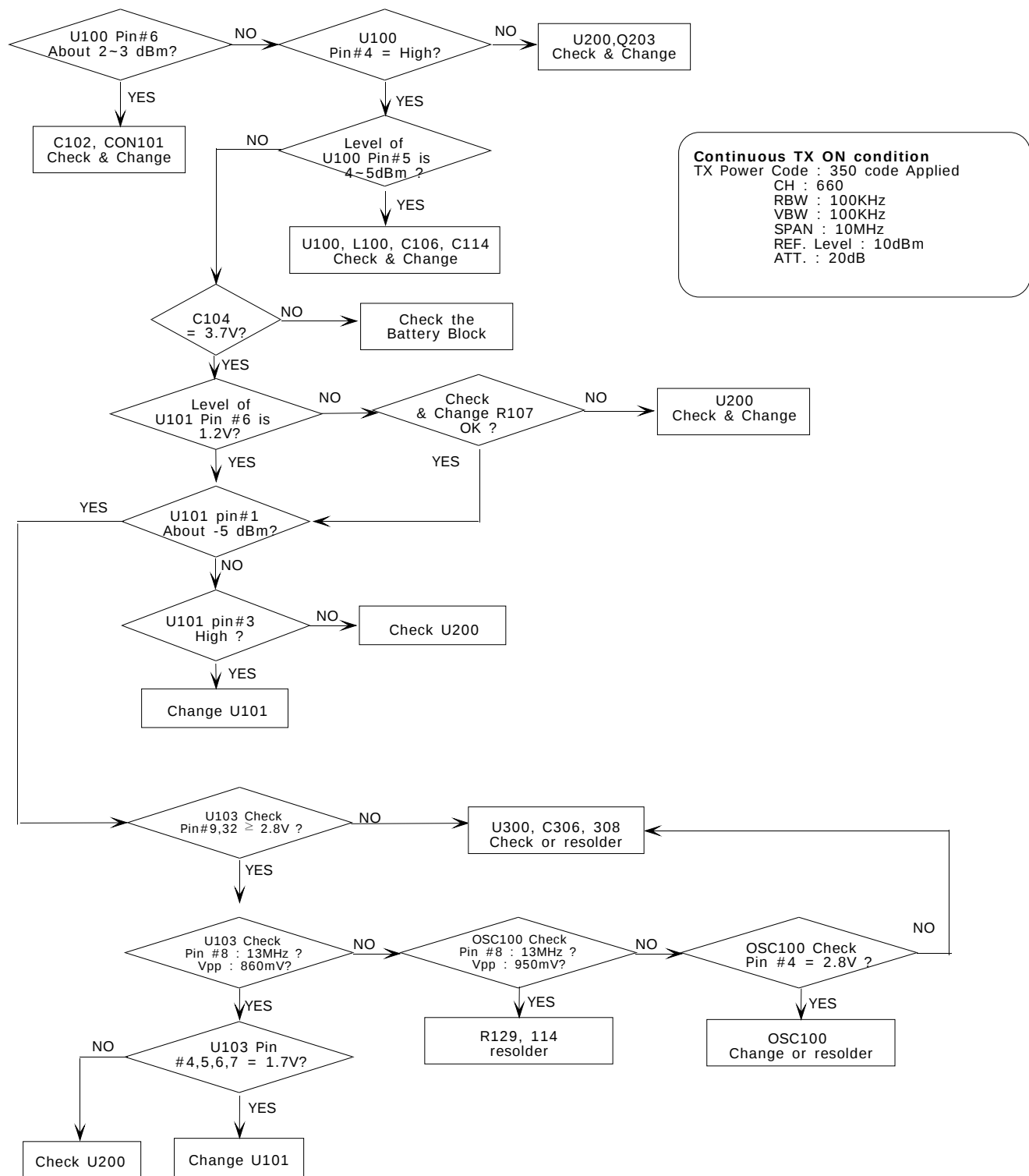


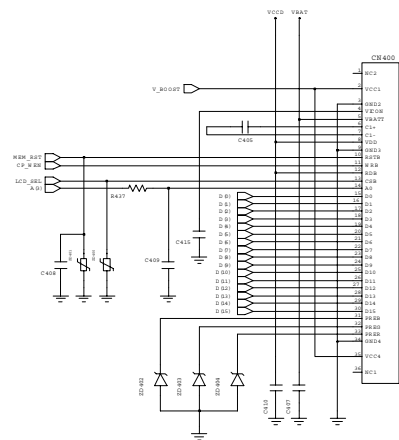


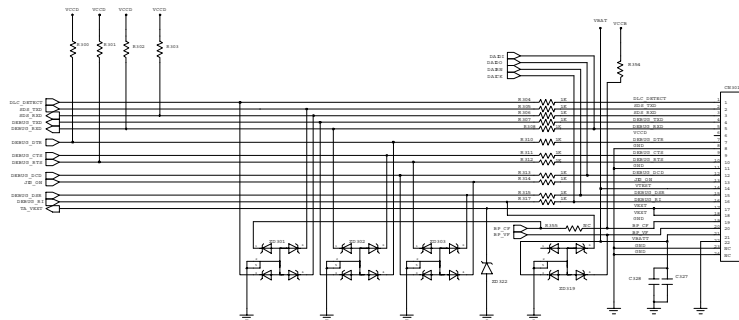
# 9. DCS Receiver



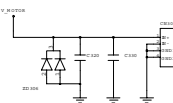
# 10. DCS Transmitter



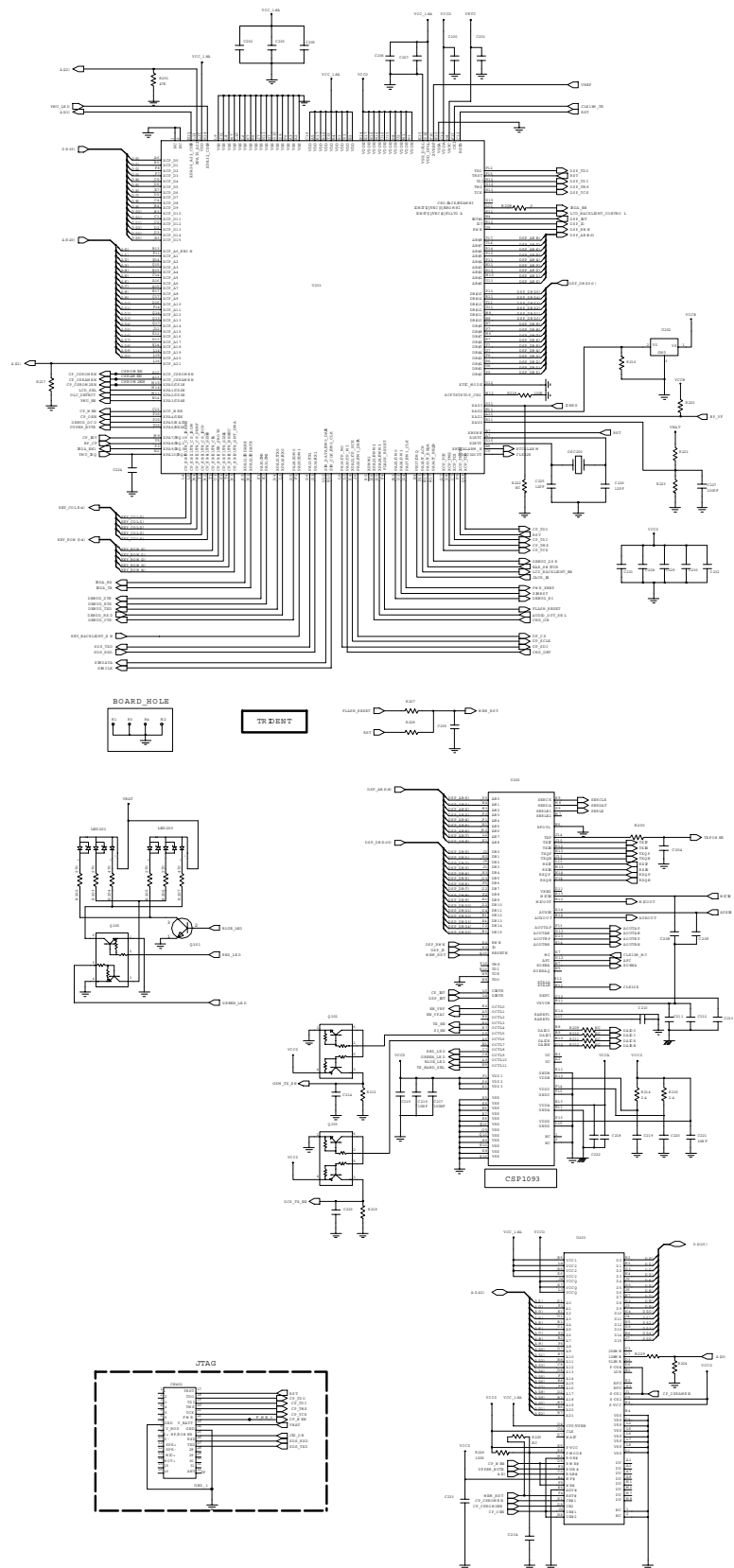




IF CONNECTOR

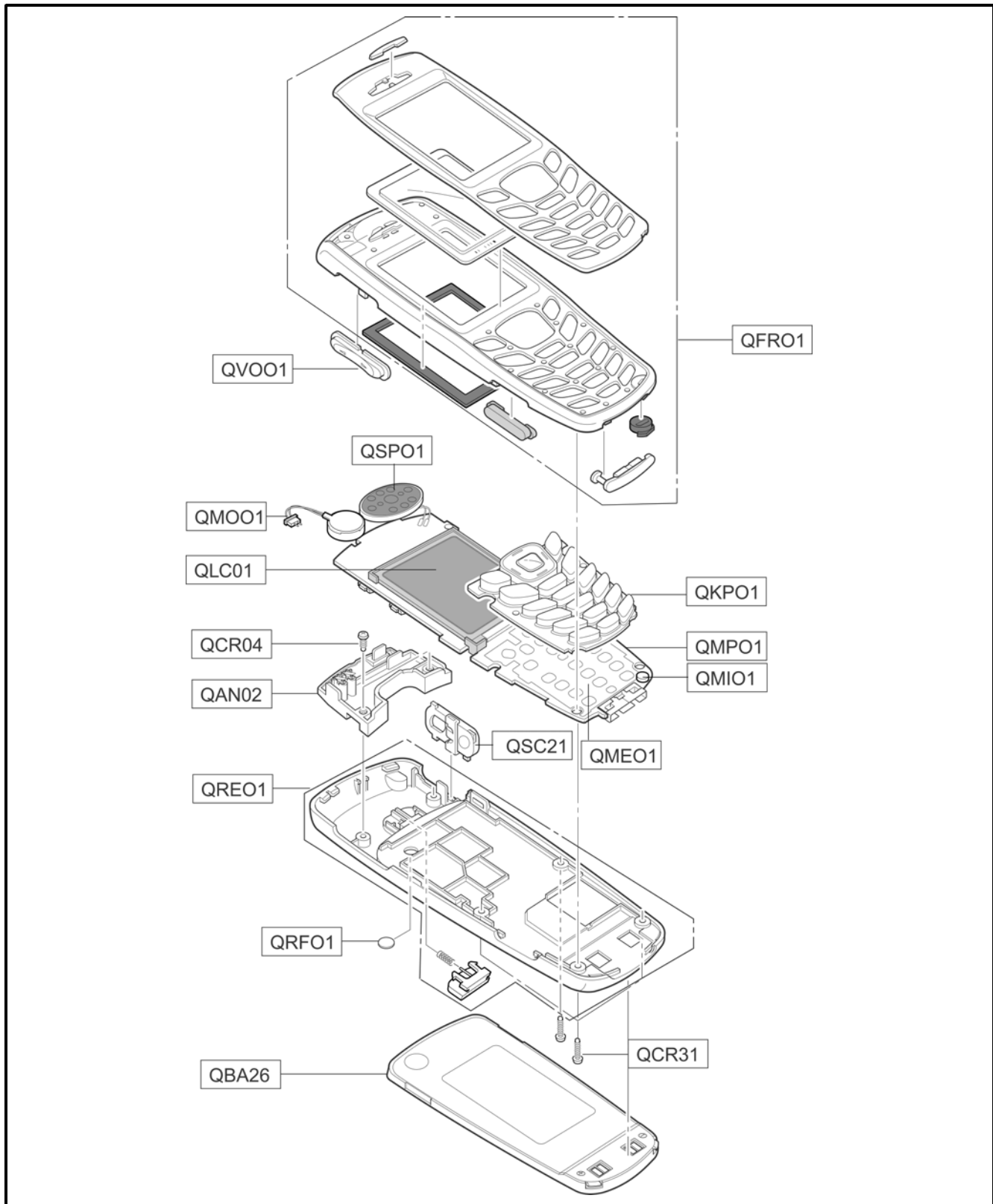






### 3. SGH-X120 Exploded View and its Parts list

#### 1. Cellular phone Exploded View



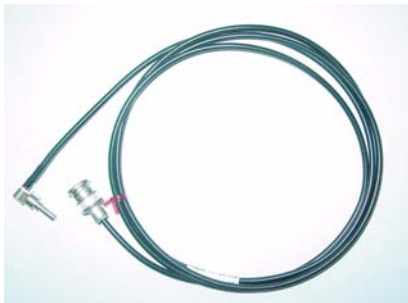
## 2. Cellular phone Parts list

| Location<br>NO. |  | Description         | SEC CODE    | Remark |
|-----------------|--|---------------------|-------------|--------|
| QLC01           |  | LCD                 | GH07-00547A |        |
| QSP01           |  | SPEAKER             | 3001-001551 |        |
| QMO01           |  | MOTOR               | GH31-00086A |        |
| QMI01           |  | MICROPHONE ASSY     | GH30-00136A |        |
| QFR01           |  | FRONT COVER         | GH75-04428A |        |
| QVO01           |  | VOLUME KEY          | GH75-04433A |        |
| QKP01           |  | KEYPAD              | GH75-04432A |        |
| QMP01           |  | MAIN PBA            | GH92-01798A |        |
| QAN02           |  | INTENNA             | GH42-00406A |        |
| QME01           |  | METAL DOME          | GH59-01375A |        |
| QRE01           |  | REAR COVER          | GH75-04430A |        |
| QRF01           |  | RF COVER TAPE       | GH74-09282A |        |
| QCR04           |  | SCREW               | 6001-001479 |        |
| QBA26           |  | BATTERY             | GH43-01310A |        |
| QSC21           |  | EAR JACK COVER ASSY | GH75-04431A |        |

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



3-1. RF Test Cable  
[GH39-00182A]



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



3-3. Serial Cable



3-4. Power Supply Cable



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



3-6. TA  
[GH44-00482A]



## 4. SGH-X120 MAIN Electrical Parts List

| SEC Code    | Design LOC |
|-------------|------------|
| 2203-000995 | C102       |
| 2203-005061 | C103       |
| 2404-001134 | C104       |
| 2203-000254 | C105       |
| 2203-002668 | C106       |
| 2203-000870 | C107       |
| 2203-000654 | C108       |
| 2203-002668 | C109       |
| 2203-000466 | C110       |
| 2203-000812 | C111       |
| 2203-000438 | C112       |
| 2203-000550 | C113       |
| 2203-000425 | C114       |
| 2203-000870 | C115       |
| 2203-005288 | C117       |
| 2203-005288 | C118       |
| 2203-000233 | C120       |
| 2203-006093 | C121       |
| 2203-006137 | C122       |
| 2203-000278 | C123       |
| 2203-000438 | C124       |
| 2203-000438 | C125       |
| 2203-000233 | C126       |
| 2203-000233 | C127       |
| 2203-000254 | C128       |
| 2203-000254 | C129       |
| 2203-000254 | C130       |
| 2203-005061 | C200       |
| 2203-001405 | C201       |
| 2203-000254 | C202       |
| 2203-000254 | C203       |
| 2203-000233 | C204       |
| 2203-005496 | C205       |
| 2203-000679 | C206       |
| 2203-000254 | C207       |
| 2203-000679 | C208       |

| SEC Code    | Design LOC |
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| 2203-005061 | C210       |
| 2203-006093 | C211       |
| 2203-005450 | C212       |
| 2203-005496 | C213       |
| 2203-000233 | C214       |
| 2203-000254 | C215       |
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| 2203-005061 | C217       |
| 2203-000254 | C218       |
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| 2203-000254 | C221       |
| 2203-005052 | C222       |
| 2203-000233 | C223       |
| 2203-000233 | C224       |
| 2203-000628 | C225       |
| 2203-000628 | C226       |
| 2203-000233 | C227       |
| 2203-000254 | C228       |
| 2203-005061 | C229       |
| 2203-000254 | C230       |
| 2203-005061 | C231       |
| 2203-005496 | C232       |
| 2203-000940 | C233       |
| 2203-005061 | C234       |
| 2203-005480 | C235       |
| 2203-000812 | C300       |
| 2203-000812 | C301       |
| 2203-000812 | C302       |
| 2203-005482 | C303       |
| 2203-005061 | C304       |
| 2203-005061 | C305       |
| 2203-006201 | C306       |
| 2203-005796 | C307       |
| 2203-006201 | C308       |

| SEC Code    | Design LOC |
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| 2404-001268 | C309       |
| 2404-001268 | C310       |
| 2203-001652 | C311       |
| 2203-006201 | C312       |
| 2203-006201 | C313       |
| 2203-006201 | C314       |
| 2203-000233 | C315       |
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| 2203-006053 | C322       |
| 2203-006090 | C323       |
| 2203-006053 | C324       |
| 2203-006053 | C325       |
| 2203-005482 | C326       |
| 2203-000233 | C327       |
| 2203-005148 | C328       |
| 2203-000812 | C329       |
| 2203-005482 | C330       |
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| 2404-001299 | C402       |
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| 2203-000585 | C404       |
| 2203-001598 | C405       |
| 2203-005482 | C406       |
| 2203-001598 | C407       |
| 2203-000438 | C408       |
| 2203-000812 | C409       |
| 2203-005061 | C410       |
| 2203-001598 | C415       |
| 2203-000654 | C416       |
| 2404-001086 | C417       |
| 2203-005061 | C418       |

| SEC Code    | Design LOC |
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| 2203-001405 | C419       |
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| 2203-000854 | C424       |
| 2203-005494 | C425       |
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| 2203-005061 | C430       |
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| 2203-005061 | C432       |
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| 2203-006093 | C434       |
| 2203-000438 | C435       |
| 2203-000854 | C437       |
| 2203-001259 | C438       |
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| 2203-000812 | C440       |
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| 2203-005065 | C444       |
| 2404-001151 | C445       |
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| 2203-005503 | C448       |
| 2203-000812 | C449       |
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| 2203-001239 | C452       |
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| 2203-001221 | C457       |
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| 2203-000812 | C459       |
| 2203-000812 | C460       |

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| 2203-000812 | C469       |
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| 2203-000812 | C472       |
| 2203-000812 | C473       |
| 2404-001151 | C476       |
| 2203-006257 | C477       |
| 3709-001187 | CN300      |
| 3710-002034 | CN301      |
| 3710-001436 | CN302      |
| 3722-002067 | CN401      |
| 3705-001287 | CON101     |
| 2007-000029 | D300       |
| 0404-001172 | D400       |
| 2007-000171 | E336       |
| 2007-001311 | ER202      |
| 2901-001271 | F400       |
| 2703-001751 | L100       |
| 2703-001257 | L102       |
| 2703-002415 | L103       |
| 3301-001105 | L104       |
| 2703-002269 | L105       |
| 2703-002524 | L400       |
| 2703-002313 | L401       |
| 2703-002313 | L402       |
| 2703-002313 | L403       |
| 2703-002313 | L404       |
| 0601-001823 | LED200     |

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| 0601-001823 | LED201     |
| 0604-001261 | LED300     |
| 0601-001897 | LED301     |
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| 0601-001897 | LED310     |
| 0601-001897 | LED311     |
| 0601-001897 | LED312     |
| 4302-001130 | M1         |
| 2809-001260 | OSC100     |
| 2801-003747 | OSC200     |
| 0504-001162 | Q200       |
| 0504-001012 | Q201       |
| 0504-001042 | Q202       |
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| 0504-001113 | Q300       |
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| 0504-001012 | Q400       |
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| 2007-001316 | R102       |
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| 2007-000171 | R108       |

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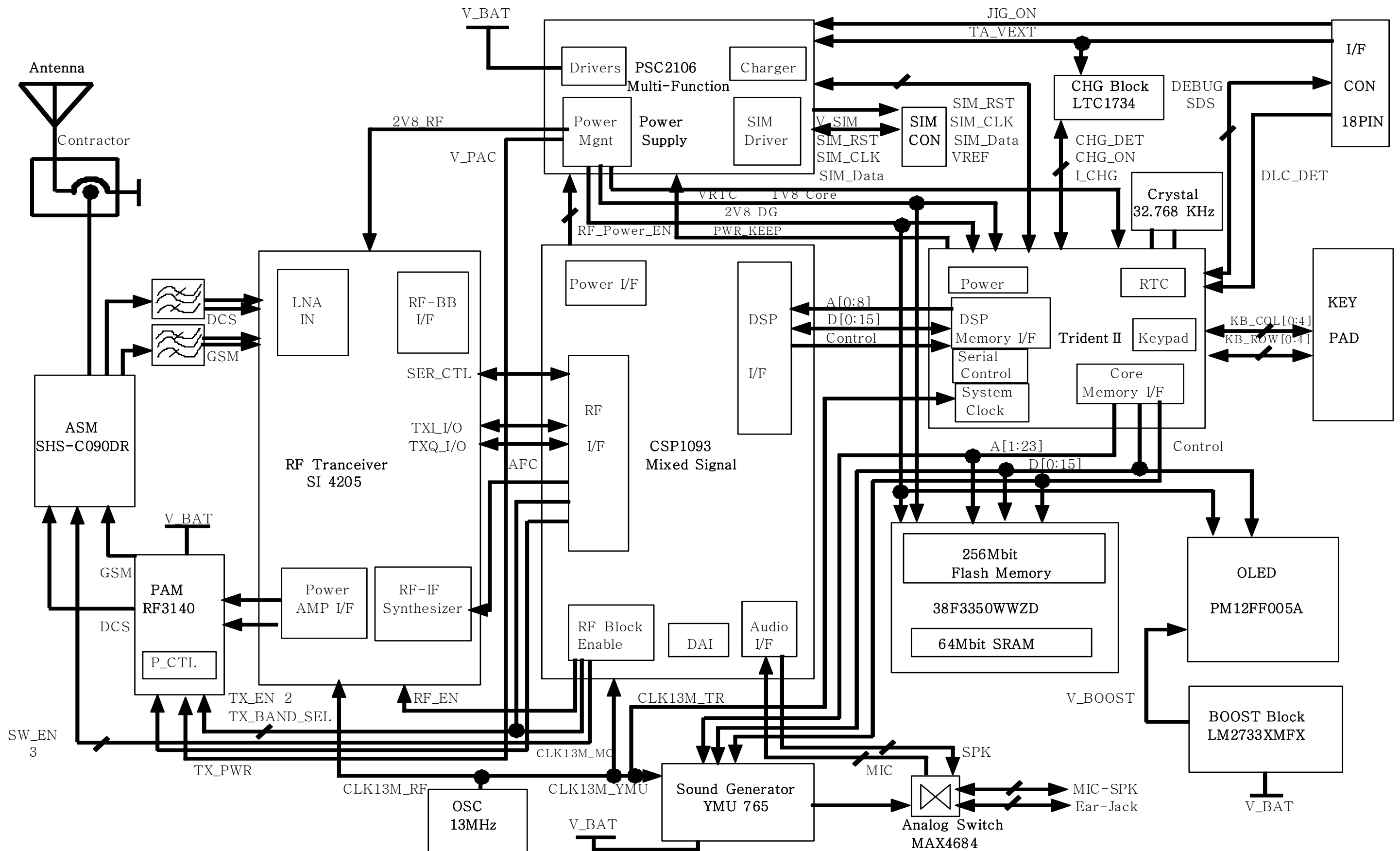
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| 2007-000171 | R350       |
| 2007-000162 | R354       |
| 2007-000171 | R356       |
| 2007-007197 | R400       |
| 2007-007480 | R401       |
| 2007-007131 | R402       |
| 2007-007861 | R403       |
| 2007-000171 | R404       |
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| 2007-007590 | R428       |
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| 2007-000140 | R431       |
| 2007-007014 | R433       |
| 2007-000171 | R437       |
| 2007-001319 | R440       |
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| 3404-001152 | SW2        |
| 2909-001193 | U100       |
| 1201-001954 | U101       |
| 2904-001514 | U102       |
| 1205-002433 | U103       |
| 2904-001520 | U104       |
| 0801-000306 | U105       |
| 1204-001984 | U200       |
| GH09-00025A | U201       |
| 1209-001219 | U202       |
| 1109-001281 | U203       |
| 1203-002902 | U300       |
| 1203-002127 | U301       |
| 1203-002860 | U302       |
| 1203-002940 | U400       |
| 1001-001183 | U401       |
| 1204-002138 | U402       |
| 0406-001169 | ZD301      |
| 0406-001169 | ZD302      |
| 0406-001169 | ZD303      |
| 0407-000115 | ZD306      |
| 1405-001082 | ZD307      |
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| 1405-001082 | ZD309      |
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| 1405-001082 | ZD400      |
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| 0403-001518 | ZD404      |
| 0406-001169 | ZD405      |
| 1405-001082 | ZD406      |
| 1405-001082 | ZD407      |
| 1405-001082 | ZD408      |
| 1405-001082 | ZD409      |

## 5. SGH-X120 Block Diagram



## 1. Main Top Diagram



2. Main Bottom Diagram

