Service Manual

Model : G5400

# Service Manual

## G5400

P/N : MMBD0022701

Date: May, 2003

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# 1. INTRODUCTION

## 1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

## 1.2 Regulatory Information

### A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

### B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

### C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

### D. Maintenance Limitations

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

## E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

## F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

## G. Interference and Attenuation

Phone may interfere with sensitive laboratory equipment, medical equipment, etc.Interference from unsuppressed engines or electric motors may cause problems.

## H. Electrostatic Sensitive Devices

### ATTENTION

**Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the  sign. Following information is ESD handling:**

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

## 1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

| | |
|---|---|
| APC | Automatic Power Control |
| BB | Baseband |
| BER | Bit Error Ratio |
| CC-CV | Constant Current – Constant Voltage |
| DAC | Digital to Analog Converter |
| DCS | Digital Communication System |
| dBm | dB relative to 1 milliwatt |
| DSP | Digital Signal Processing |
| EEPROM | Electrical Erasable Programmable Read-Only Memory |
| ESD | Electrostatic Discharge |
| FPCB | Flexible Printed Circuit Board |
| GMSK | Gaussian Minimum Shift Keying |
| GPIB | General Purpose Interface Bus |
| GSM | Global System for Mobile Communications |
| IPUI | International Portable User Identity |
| IF | Intermediate Frequency |
| LCD | Liquid Crystal Display |
| LDO | Low Drop Output |
| LED | Light Emitting Diode |
| OPLL | Offset Phase Locked Loop |
| PAM | Power Amplifier Module |
| PCB | Printed Circuit Board |
| PGA | Programmable Gain Amplifier |
| PLL | Phase Locked Loop |
| PSTN | Public Switched Telephone Network |
| RF | Radio Frequency |
| RLR | Receiving Loudness Rating |
| RMS | Root Mean Square |
| RTC | Real Time Clock |
| SAW | Surface Acoustic Wave |
| SIM | Subscriber Identity Module |
| SLR | Sending Loudness Rating |
| SRAM | Static Random Access Memory |
| PSRAM | Paeudo SRAM |
| STMR | Side Tone Masking Rating |
| TA | Travel Adapter |
| TDD | Time Division Duplex |
| TDMA | Time Division Multiple Access |
| UART | Universal Asynchronous Receiver/Transmitter |
| VCO | Voltage Controlled Oscillator |
| VCTCXO | Voltage Control Temperature Compensated Crystal Oscillator |
| WAP | Wireless Application Protocol |

# 2. PERFORMANCE

## 2.1 H/W Features

| Item | Feature | Comment |
|---|---|---|
| Standard Battery | Li-ion, 740 mAh<br>Size: 34 × 50 × 4.5mm<br>Weight: 17.2g | |
| Stand by Current | Under the minimum current consumption environment (such as paging period 9), the level of standby current is below 4mA. | |
| Talk time | Up to 3 hours (GSM TX Level 7) | |
| Stand by time | Up to 200 hours (Paging Period: 9, RSSI: -85 dBm) | |
| Charging time | 2.3 hours | |
| RX Sensitivity | GSM, EGSM: -105dBm, DCS: -105dBm | |
| TX output power | GSM, EGSM: 32 dBm (Level 5)<br>DCS: 29dBm (Level 0) | |
| GPRS compatibility | Class 10 | |
| SIM card type | 3V Small | |
| Display | 128 × 128 pixel 65K Color LCD | |
| Status Indicator & keypad | Hard icons<br>Key Pad:<br>0 ~ 9, #, * , Up/Down Navigation Key<br>Confirm Key, Clear Key<br>Send Key, END/PWR Key | |
| ANT | external | |
| EAR Phone Jack | Yes | |
| PC Synchronization | Yes | |
| Speech coding | EFR/FR/HR | |
| Data and Fax | Yes | |
| Vibrator | Yes | |
| Loud Speaker | Yes | |
| Voice Recording | Yes | |
| C-Mike | Yes | |
| Receiver | Yes | |
| Travel Adapter | Yes | |
| Options | Hands-free kit, CLA, Data Kit | |

## 2.2 Technical Specification

<table>
<tr><th>Item</th><th>Description</th><th colspan="6">Specification</th></tr>
<tr><td>1</td><td>Frequency Band</td><td colspan="6">GSM<br>• TX: 890 + n × 0.2 MHz<br>• RX: 935 + n × 0.2 MHz (n = 1 ~ 124)<br>EGSM<br>• TX: 890 + (n – 1024) × 0.2 MHz<br>• RX: 935 + (n – 1024) × 0.2 MHz (n = 975 ~ 1024)<br>DCS<br>• TX: 1710 + (n – 512) × 0.2 MHz<br>• Rx: 1805 + (n – 512) × 0.2 MHz (n = 512 ~ 885)</td></tr>
<tr><td>2</td><td>Phase Error</td><td colspan="6">RMS < 5 degrees<br>Peak < 20 degrees</td></tr>
<tr><td>3</td><td>Frequency Error</td><td colspan="6">< 0.1 ppm</td></tr>
<tr><td rowspan="22">4</td><td rowspan="22">Power Level</td><td colspan="6">GSM, EGSM</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>5</td><td>33 dBm</td><td>± 2dB</td><td>13</td><td>17 dBm</td><td>± 3dB</td></tr>
<tr><td>6</td><td>31 dBm</td><td>± 3dB</td><td>14</td><td>15 dBm</td><td>± 3dB</td></tr>
<tr><td>7</td><td>29 dBm</td><td>± 3dB</td><td>15</td><td>13 dBm</td><td>± 3dB</td></tr>
<tr><td>8</td><td>27 dBm</td><td>± 3dB</td><td>16</td><td>11 dBm</td><td>± 5dB</td></tr>
<tr><td>9</td><td>25 dBm</td><td>± 3dB</td><td>17</td><td>9 dBm</td><td>± 5dB</td></tr>
<tr><td>10</td><td>23 dBm</td><td>± 3dB</td><td>18</td><td>7 dBm</td><td>± 5dB</td></tr>
<tr><td>11</td><td>21 dBm</td><td>± 3dB</td><td>19</td><td>5 dBm</td><td>± 5dB</td></tr>
<tr><td>12</td><td>19 dBm</td><td>± 3dB</td><td></td><td></td><td></td></tr>
<tr><td colspan="6">DCS</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>0</td><td>30 dBm</td><td>± 2dB</td><td>8</td><td>14 dBm</td><td>± 3dB</td></tr>
<tr><td>1</td><td>28 dBm</td><td>± 3dB</td><td>9</td><td>12 dBm</td><td>± 4dB</td></tr>
<tr><td>2</td><td>26 dBm</td><td>± 3dB</td><td>10</td><td>10 dBm</td><td>± 4dB</td></tr>
<tr><td>3</td><td>24 dBm</td><td>± 3dB</td><td>11</td><td>8 dBm</td><td>± 4dB</td></tr>
<tr><td>4</td><td>22 dBm</td><td>± 3dB</td><td>12</td><td>6 dBm</td><td>± 4dB</td></tr>
<tr><td>5</td><td>20 dBm</td><td>± 3dB</td><td>13</td><td>4 dBm</td><td>± 4dB</td></tr>
<tr><td>6</td><td>18 dBm</td><td>± 3dB</td><td>14</td><td>2 dBm</td><td>± 5dB</td></tr>
<tr><td>7</td><td>16 dBm</td><td>± 3dB</td><td>15</td><td>0 dBm</td><td>± 5dB</td></tr>
</table>

| Item | Description | Specification | |
|---|---|---|---|
| 5 | Output RF Spectrum (due to modulation) | GSM, EGSM | |
| | | Offset from Carrier (kHz). | Max. dBc |
| | | 100 | +0.5 |
| | | 200 | -30 |
| | | 250 | -33 |
| | | 400 | -60 |
| | | 600 ~ < 1,200 | -60 |
| | | 1,200 ~ < 1,800 | -60 |
| | | 1,800 ~ < 3,000 | -63 |
| | | 3,000 ~ < 6,000 | -65 |
| | | 6,000 | -71 |
| | | DCS | |
| | | Offset from Carrier (kHz). | Max. dBc |
| | | 100 | +0.5 |
| | | 200 | -30 |
| | | 250 | -33 |
| | | 400 | -60 |
| | | 600 ~ < 1,200 | -60 |
| | | 1,200 ~ < 1,800 | -60 |
| | | 1,800 ~ < 3,000 | -65 |
| | | 3,000 ~ < 6,000 | -65 |
| | | 6,000 | -73 |
| 6 | Output RF Spectrum (due to switching transient) | GSM, EGSM | |
| | | Offset from Carrier (kHz) | Max. (dBm) |
| | | 400 | -19 |
| | | 600 | -21 |
| | | 1,200 | -21 |
| | | 1,800 | -24 |
| | | GSM | |
| | | Offset from Carrier (kHz) | Max. (dBm) |
| | | 400 | -22 |
| | | 600 | -24 |
| | | 1,200 | -24 |
| | | 1,800 | -27 |
| 7 | Spurious Emissions | Conduction, Emission Status | |

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td>8</td><td>Bit Error Ratio</td><td colspan="3">GSM, EGSM<br>BER (Class II) < 2.439% @-102 dBm<br>DCS<br>BER (Class II) < 2.439% @-100 dBm</td></tr>
<tr><td>9</td><td>RX Level Report Accuracy</td><td colspan="3">± 3 dB</td></tr>
<tr><td>10</td><td>SLR</td><td colspan="3">8 ± 3 dB</td></tr>
<tr><td rowspan="10">11</td><td rowspan="10">Sending Response</td><td>Frequency (Hz)</td><td>Max.(dB)</td><td>Min.(dB)</td></tr>
<tr><td>100</td><td>-12</td><td>-</td></tr>
<tr><td>200</td><td>0</td><td>-</td></tr>
<tr><td>300</td><td>0</td><td>-12</td></tr>
<tr><td>1,000</td><td>0</td><td>-6</td></tr>
<tr><td>2,000</td><td>4</td><td>-6</td></tr>
<tr><td>3,000</td><td>4</td><td>-6</td></tr>
<tr><td>3,400</td><td>4</td><td>-9</td></tr>
<tr><td>4,000</td><td>0</td><td>-</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>12</td><td>RLR</td><td colspan="3">2 ± 3 dB</td></tr>
<tr><td rowspan="11">13</td><td rowspan="11">Receiving Response</td><td>Frequency (Hz)</td><td>Max.(dB)</td><td>Min.(dB)</td></tr>
<tr><td>100</td><td>-12</td><td>-</td></tr>
<tr><td>200</td><td>0</td><td>-</td></tr>
<tr><td>300</td><td>2</td><td>-7</td></tr>
<tr><td>500</td><td>*</td><td>-5</td></tr>
<tr><td>1,000</td><td>0</td><td>-5</td></tr>
<tr><td>3,000</td><td>2</td><td>-5</td></tr>
<tr><td>3,400</td><td>2</td><td>-10</td></tr>
<tr><td>4,000</td><td>2</td><td></td></tr>
<tr><td colspan="3">* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.</td></tr>
<tr><td>14</td><td>STMR</td><td colspan="3">13 ± 5 dB</td></tr>
<tr><td>15</td><td>Stability Margin</td><td colspan="3">> 6 dB</td></tr>
<tr><td rowspan="8">16</td><td rowspan="8">Distortion</td><td colspan="2">dB to ARL (dB)</td><td>Level Ratio (dB)</td></tr>
<tr><td colspan="2">-35</td><td>17.5</td></tr>
<tr><td colspan="2">-30</td><td>22.5</td></tr>
<tr><td colspan="2">-20</td><td>30.7</td></tr>
<tr><td colspan="2">-10</td><td>33.3</td></tr>
<tr><td colspan="2">0</td><td>33.7</td></tr>
<tr><td colspan="2">7</td><td>31.7</td></tr>
<tr><td colspan="2">10</td><td>25.5</td></tr>
<tr><td>17</td><td>Side Tone Distortion</td><td colspan="3">Three stage distortion < 10%</td></tr>
<tr><td>18</td><td>System frequency (13 MHz) tolerance</td><td colspan="3">≤ 2.5 ppm</td></tr>
</table>

## 2. PERFORMANCE

| Item | Description | Specification | |
|---|---|---|---|
| 19 | 32.768KHz tolerance | ≤ 30 ppm | |
| 20 | Ringer Volume | At least 80 dB under below conditions:<br>1. Ringer set as ringer.<br>2. Test distance set as 50 cm | |
| 21 | Charge Voltage | Fast Charge : < 500 mA<br>Slow Charge: < 60 mA | |
| 22 | Antenna Display | Antenna Bar Number | Power |
| | | 5 | -85 dBm ~ |
| | | 4 | -90 dBm ~ -86 dBm |
| | | 3 | -95 dBm ~ -91 dBm |
| | | 2 | -100 dBm ~ -96 dBm |
| | | 1 | -105 dBm ~ -101 dBm |
| | | 0 | ~ -105 dBm |
| 23 | Battery Indicator | Battery Bar Number | Voltage |
| | | 0 | ~ 3.62 V |
| | | 1 | 3.62 ~ 3.73 V |
| | | 2 | 3.73 ~ 3.82 V |
| | | 3 | 3.82 V ~ |
| 24 | Low Voltage Warning | 3.5 ± 0.03 V (Call) | |
| | | 3.62 ± 0.03 V (Standby) | |
| 25 | Forced shut down Voltage | 3.35 ± 0.03 V | |
| 26 | Battery Type | 1 Li-ion Battery<br>Standard Voltage = 3.7 V<br>Battery full charge voltage = 4.2 V<br>Capacity: 740mAh- | |
| 27 | Travel Charger | Switching-mode charger<br>Input: 100 ~ 240 V, 50/60 Hz<br>Output: 5.2 V, 600 mA | |

# 3. TECHNICAL BRIEF

## 3.1 General Description

The RF parts consist of a transmitter part, a receiver part, a frequency synthesizer part, a voltage supply part, and a VCTCXO part.
The Aero transceiver is composed of three RF chipsets, Si4200-BM[U401],Si4133T-BM[U403] and Si4201-BM[U402] which is dual and triple-band GSM/GPRS wireless communications.
This device integrated a receiver based on a low IF(100KHz) architecture and a transmitter based on amodulation loop architecture. And the synthesizer[U403] part employed the Silicon Labs Si4133T-BM,a complete dual band synthesizer with built in VCOs.
The transceiver employed a 3 wire serial interface to allow an external system controller to writethe control registers for dividers, receive path gain, power down setting, and other controls.

## 3.2 Receiver Part

### A. RF front end

RF front end consists of Antenna Switch(FL401), two SAW Filters(FL402, FL403) dual band LNAs integrated in transceiver(U401).
The Received RF signals(GSM 925MHz ~ 960MHz, DCS 1805MHz ~ 1880MHz) are fed into the antenna or Mobile switch. An antenna matching circuit is between the antenna and the mobile switch.
The Antenna Switch(FL401) is used to control the Rx and Tx paths. And, the input signals VC1 and VC2 of a FL401 are directly connected to baseband controller to switch either Tx or Rx path on.
Ant S/W module(FL401) is an antenna switch module for dual band phone.
The logic and current is given below table 3-1.

**Table 3-1. The logic and current**

| | VC1 | VC2 | Current |
|---|---|---|---|
| GSM TX | 0V | 2.5 ~ 3.0V | 10.0 mA max |
| DCS TX | 2.5 ~ 3.0V | 0V | 10.0 mA max |
| GSM/DCS RX | 0V | 0V | < 0.1 mA |

The receiver part uses a low-IF receiver architecture that allows for the on-chip integration of the channel selection filters, eliminating the external RF image reject filters and the IF SAW filter required in conventional super-heterodyne architecture. The Si4200-BM[U401] integrates three differential input LNAs that are matched to the 200 Ohm balanced-output SAW filters through external LC matching networks.

### B. IF

A quadrature image-rejection mixer downconverts the RF signal to a 100kHz intermediate frequency(IF) with the RFLO from the Si4133T-BM[U403]. The RFLO frequency is between 1737.8 and 1989.8 MHz, and is divided by two in the Si4200 for GSM850 and E-GSM 900 modes. The mixer output is amplified with an analog programmable gain amplifier(PGA), which is controlled with the AGAIN[2:0] bits in register 05h.
The quadrature IF signal is digitized with high resolution A/D converters(ADCs).
The Si4201-BM[U402] downconverts the ADC output to baseband with a digital 100kHz quadrature LO signal. Digital decimation and IIR filters perform channel selection to remove blocking and

reference interference signals.
The response of the IIR filter is programmable to a high selectivity setting(CSEL=0) or a low selectivity setting(CSEL=1). After channel selection, the digital output is scaled with digital PGA, which is controlled with the DGAIN[5:0] bits in register 05h.

## C. Demodulator and base band processing

The amplified digital output signal go through with DACs that drive a differential analog signal onto the RXIP,RXIN,RXQP and RXQN pins to interface to standard analog ADC input baseband ICs. No special processing is required in the baseband for offset compensation or extended dynamic range.
Compared to a direct-conversion architecture, the low-IF architecture has a much greater degree of immunity to dc offsets that can arise from RF local oscillator(RFLO) self-mixing, 2nd order distortion of blockers, and device 1/f noise.

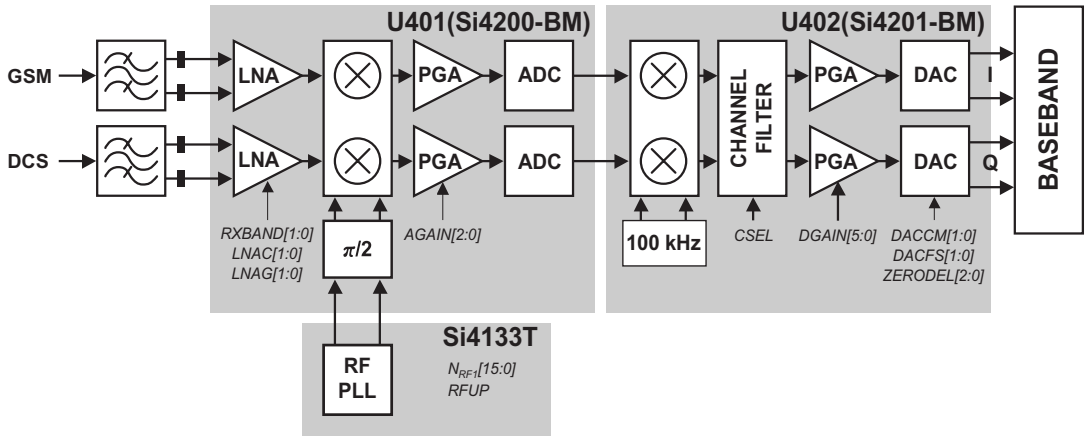



**Figure 3-1. RF Receiver path Block diagram**

# 3.3 Synthesizer Part

The synthesizer IC, the Si4133T-BM[U403] is a monolithic CMOS integrated circuit that performs IF and RF synthesis. Two complete PLLs are integrated including VCOs, varactors, resonators, loop filters, reference and VCO dividers, and phase detectors. Differential outputs for the IF and RF PLLs are providedfor direct connection to the Si4200-BM[U401] transceiver IC. The RF PLL uses two multiplexed VCOs.
The RF1 VCO is used for Receive mode, and the RF2 VCO is used for Transmit mode.
The IF PLL is used only during Transmit mode and uses a single VCO.
The center frequency of each of the three VCOs on the Si4133T is set by connection of an external inductance(Lext). The IF and RF output frequencies are set by programming the N-Divider registers,N[RF1],N[RF2], and N[IF]. Programming the N-Divider register for either RF1 or RF2 automatically selects the proper VCO. The output frequency of each PLL is as follows:

fout = N * fø

A programmable divider at the XIN pin allows either a 13 or 26MHz from the external applied crystal oscillator.
The RF PLL phase detector update rate( fø) can be programmed with the RFUP bit in register 31h to either fø= 100kHz or fø= 200kHz. The IF PLL always uses fø= 200kHz.
Receive mode should use fø= 100kHz in DCS1800 and PCS1900 bands, and fø= 200kHz in the GSM850 and E-GSM 900 bands.
Transmit modes should always use fø= 200kHz. The IF and RF output frequencies are set by

programming the N-Divider registers and also programmed via 3-wire interface with external system controller.

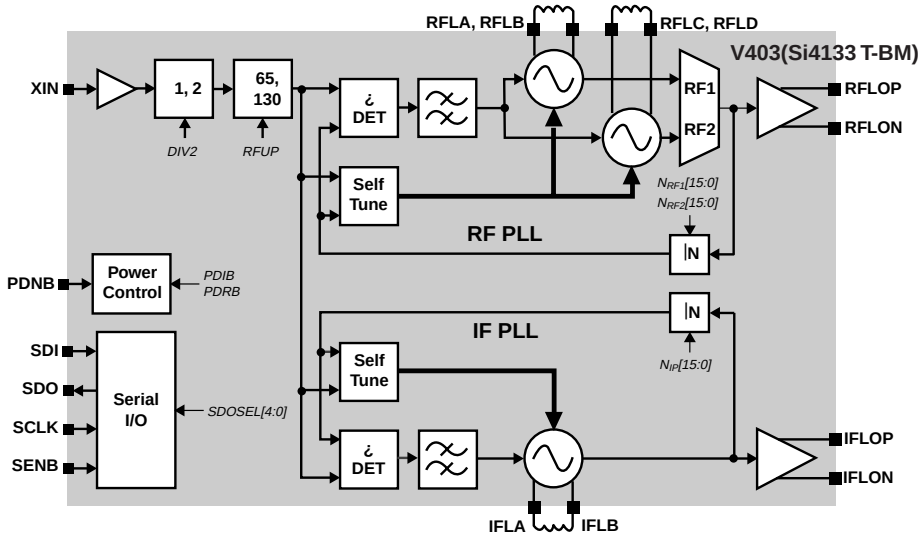



**Figure 3-2. Si4133T Frequency Synthesizer Block Diagram**

## 3.4 Transmitter Part

The Transmitter part contains Si4200-BM[U401] active parts, PAM[U404] and Antenna Switch[FL401].
The transmit section of Si4200-BM [U401] consists of an I/Q baseband upconverter, an offset phase-locked loop (OPLL) and two 50 ohm output buffers that can drive external power amplifiers (PA).
The RF GMSK outputs from the transmit VCO are fed directly to the RF power amplifiers.
The peak output power and the profile of the transmitted burst are controlled by means of incorporated power control circuits inside of PA and DAC output from the Baseband Controller. The PA outputs pass to the antenna connector via Antenna Switch.

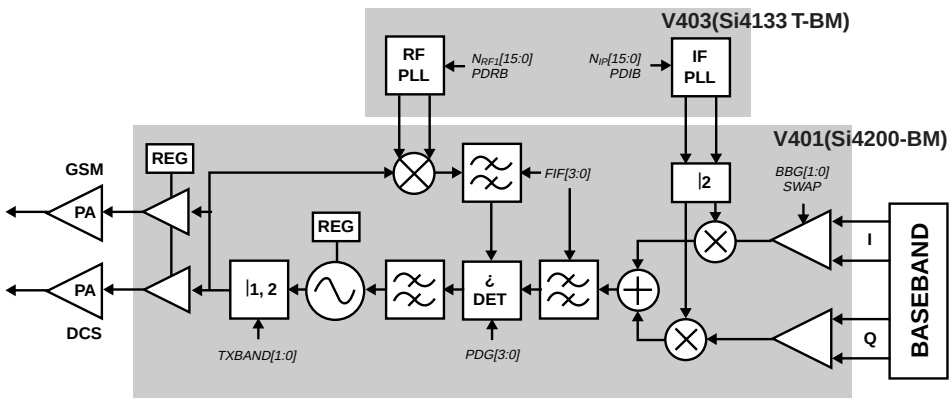



**Figure 3-3. RF Transmit path Block Diagram**

## A. IF Modulator

The baseband converter(BBC) within the GSM chipset generates I and Q baseband signals for the Transmit vector modulator. The modulator provides more than 40dBc of carrier and unwanted side-band Rejection and produces a GMSK modulated signal. The baseband software is able to cancel out differential DC offsets in the I/Q baseband signals caused by imperfections in the D/A converters.
The TX-Modulator implements a quadrature modulator. A quadrature mixer upconverts the differential I/Q signals with the IFLO to generate a SSB IF signal which is filtered and used as the reference input to the OPLL. The Si4133T [U403] generates the IFLO frequency. The IFLO is divided by two to generate The quadrature LO signals for the quadrature modulator.

## B. OPLL

The OPLL consists of a feedback mixer, a phase detector, a loop filter, and a fully integrated TXVCO.
The TXVCO is centered between the DCS 1800 and PCS 1900 bands, and its output is divided by two for the GSM 850 and E-GSM 900 bands. The Si4133T generates the RFLO frequency between 1272 and 1483 MHz. To allow a single VCO to be used for the RFLO, high-side injection is used for the GSM 850 and E-GSM 900 bands, and low-side injection is used for the DCS 1800 and PCS 1900 bands.
Low-pass filters before the OPLL phase detector reduce the harmonic content of the quadrature modulator and feedback mixer outputs. The cutoff frequency of the filters is programmable with the FIF[3:0] bits in register 04h.
The OPLL requires no external duplexer to attenuate transmitter noise and spurious signals in the receive band. Additionally, the output of the transmit VCO (TXVCO) is a constant-envelope signal which reduces the problem of spectral spreading caused by non-linearity in the PA.

## C. Power Amplifier

The RF3133 [U404] is a triple-band GSM/DCS/PCS power amplifier module that incorporates an indirect closed loop method of power control. The indirect closed loop is fully self contained and does not require loop optimization. It can be driven directly from the DAC output in the baseband circuit.
On-board power control provides over 37 dB of control range with an analog voltage input(Vramp). It efficiency is 55% at GSM and 52% at DCS.

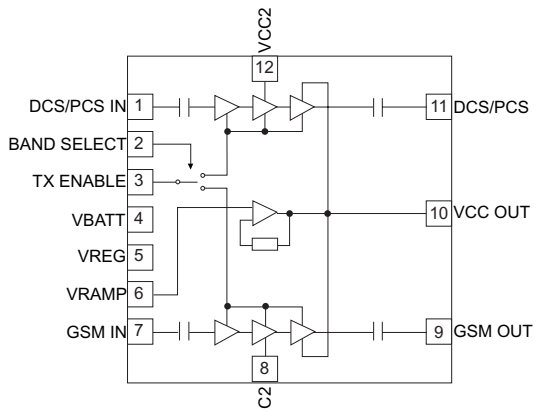



**Figure 3-4. Power Amplifier Block Diagram**

## 3.5 13 MHz Clock

The 13 MHz clock(X401) consists of a TCXO(Temperature Compensated Crystal Oscillator) which oscillates at a frequency of 13 MHz. It is used within the Si4133T/Si4201 RF Main Chip,BB Analog chip-set(U102 AD6521), Digital(U101 AD6525), and MIDI(U201) Chipset.

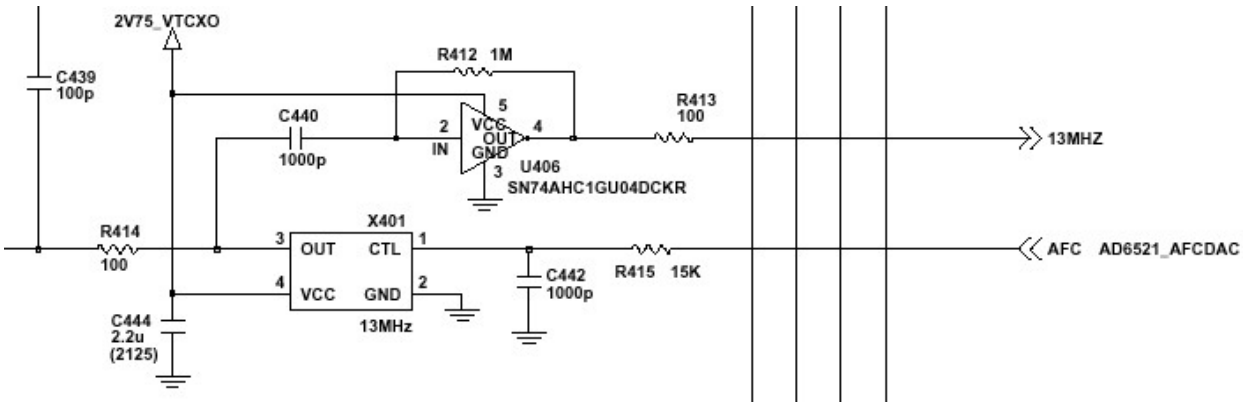



**Figure 3-5. VCTCXO Circuit**

## 3.6 Power Supplies and Control Signals

There are two regulators used in the phone to provide RF power. One is contained inside of ADP3522(U302), Power management IC to provide the power for the VCTCXO(X401).
The other is used to provide the power for remaining RF circuits.

**Table 3-2. Power supplies and control signals.**

| Regulator | Voltage | Powers | Enable Signal |
|---|---|---|---|
| Regulator 1<br>(U302, 2V75_VTCXO) | 12.75V +/- 0.5V | VTCXO | 10.0 mA max |
| Regulator 2<br>(U405, RF2.85V) | 2.85V +/- 0.5V | RF circuitry | RF_EN |

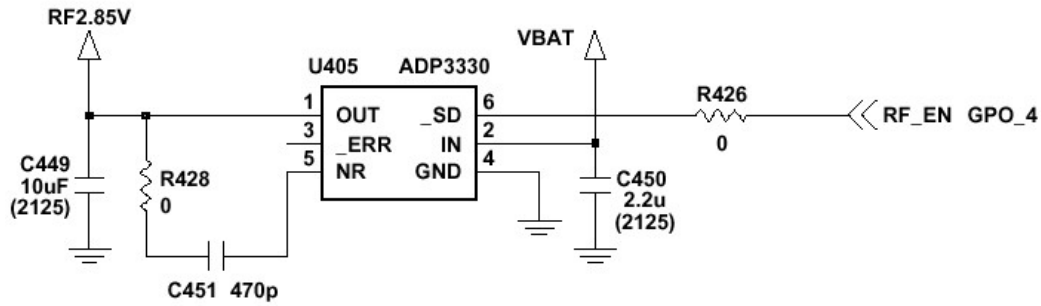



**Figure 3-6. Regulator**

# 3.7 Digital Main Processor

## AD6525

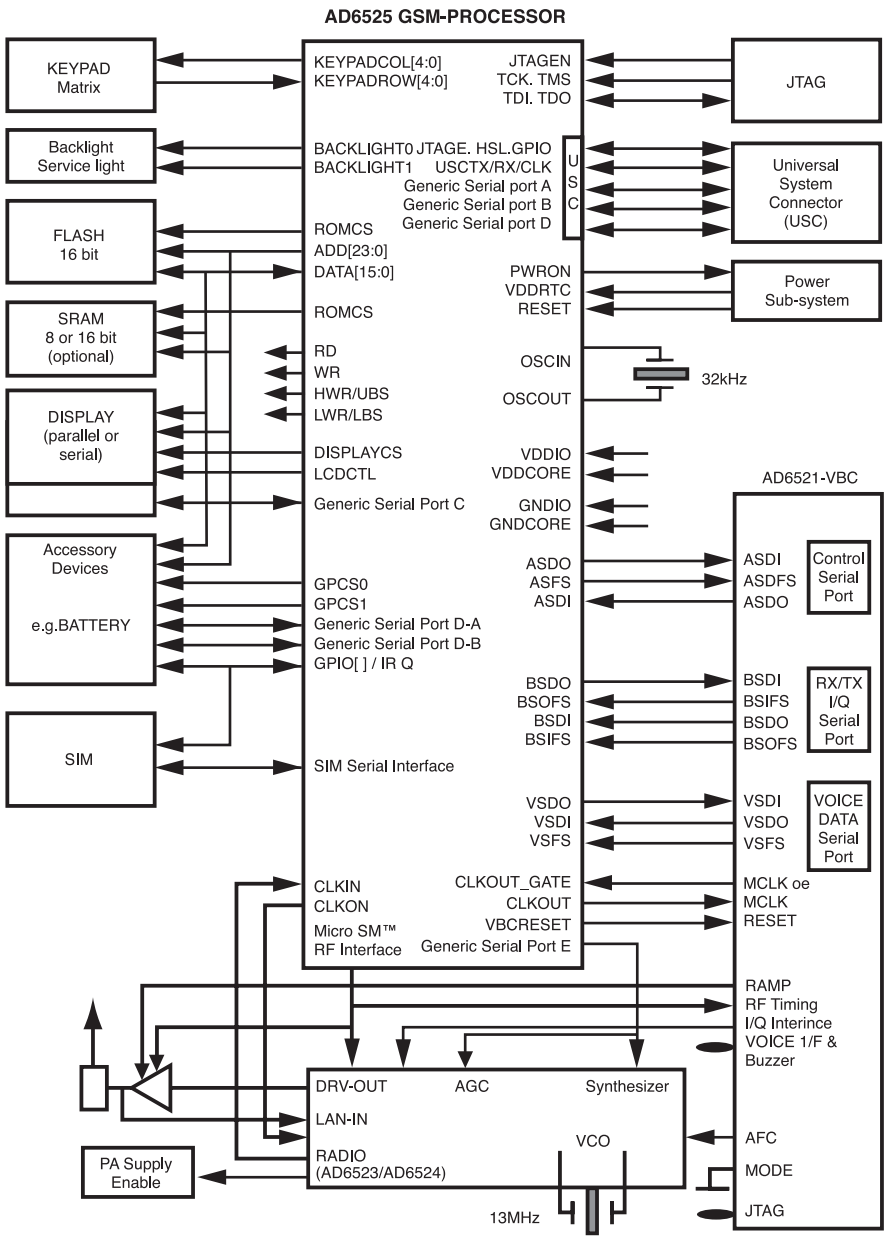



**Figure 3-7. Example of System interconnection of AD6525 External Interface**

## Interconnection with external devices

### RTC block interface

Countered by external X-TAL
The X-TAL oscillates 32.768KHz

### LCD module interface

Main controlled by _MAIN_LCD_CS, _SUBLCD_CS, LCD_RES, LCD_RS(ADD1),_WR,DATA[00...15] signals.

**Table 3-3.**

| | Description |
|---|---|
| _MAIN_LCD_CS | MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin |
| LCD_RES | This pin resets LCD module. |
| LCD_RS (ADD1) | This pin determines whether the data to LCD module are display data or control data. ADD1 can select 16 bit parallel bus. ADD1 is also used to address flash memory. |
| __WR | Write control. The phone do not read data from LCD chip. |
| DATA [00...15] | Parallel data lines. Color LCD driver chip uses the 16-bit data interface. |
| 2V8_VMEM | 3V voltage is supplied to white colored LED driver for backlighting. |
| LCD_BACKLIGHT | Control signal of white LED driver IC. |
| _SUBLCD_CS | SUB LCD driver chip enable, Sub LCD driver IC has own CS pin. |
| DATA[08...15] | Parallel data lines, Sub LCD driver chip uses the 8-bit data in reface. |

### RF interface

The AD6522 control RF parts through TXEN, RXON1, RXON2, AGCEN, PLL_DATA, PLL_CLK, PLL_LE etc.

**Table 3-4.**

| GPO | Signal Name | Description | Reset |
|---|---|---|---|
| 0 | RXON | RX Enable/Disable | L |
| 1 | TXON | TX Enable/Disable | L |
| 4 | RF_EN | RF LDO Enable/Disable | L |
| 8 | VREG | Regulating Voltage input for Power Control function (2.8V nominal) | L |
| 9 | ANT_SW1 | Antenna Switch Band Select (DCS Band) | L |
| 10 | ANT_SW1 | Antenna Switch Band Select (GSM Band) | L |
| 16 | PA_EN | PAM Enable/Disable | L |
| 17 | PA_BAND | PAM Band Selectl | |
| 18 | PDNB | Powerdown Input | L |
| 19 | S_EN | Serial Enable Input | L |
| 20 | S_DATA | Serial Data Input | L |
| 21 | S_CLK | Serial Clock Input | L |

### SIM interface

The AD6525 check status periodically in call mode if SIM card is inserted or not, but the AD6525 don't check in deep sleep mode.
Interface by SIMDATAOP, SIMCLK, SIM_RST(GPIO_23)

**Table 3-5.**

| | Description |
|---|---|
| SIMDATAOP | This pin receives and sends data to SIM card. This model support 1.8volt or 3.0 volt interface SIM card. |
| SIMCLK | Clock 3.25MHz frequency. |
| SIM_RST(GPIO_23) | Reset SIM block. |

### SIM CONNECTOR

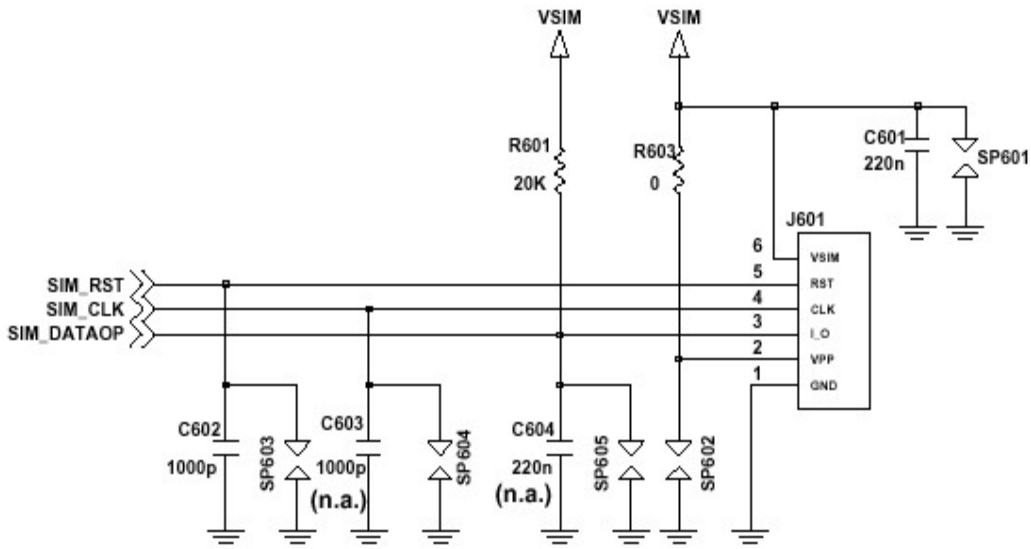



**Figure 3-8. SIM Interface of AD6525**

### Key interface

Include 5 column and 5 row. The AD6522 detect key press by interrupt.

### ADP3522 interrupt

There are two interrupts EOC and CHARGEDET
EOC: End of Charge. AD6525 makes charging operation stop when high signal is inputted.
CHARGEDET: This pin is activated when the charger is inserted.
Description
SIMDATAOP This pin receives and sends data to SIM card. This model support 1.8volt or 3.0 volt interface SIM card.
SIMCLK Clock 3.25MHz frequency.
SIM_RST(GPIO_23) Reset SIM block.

# 3.8 Analog Main Processor

## AD6521

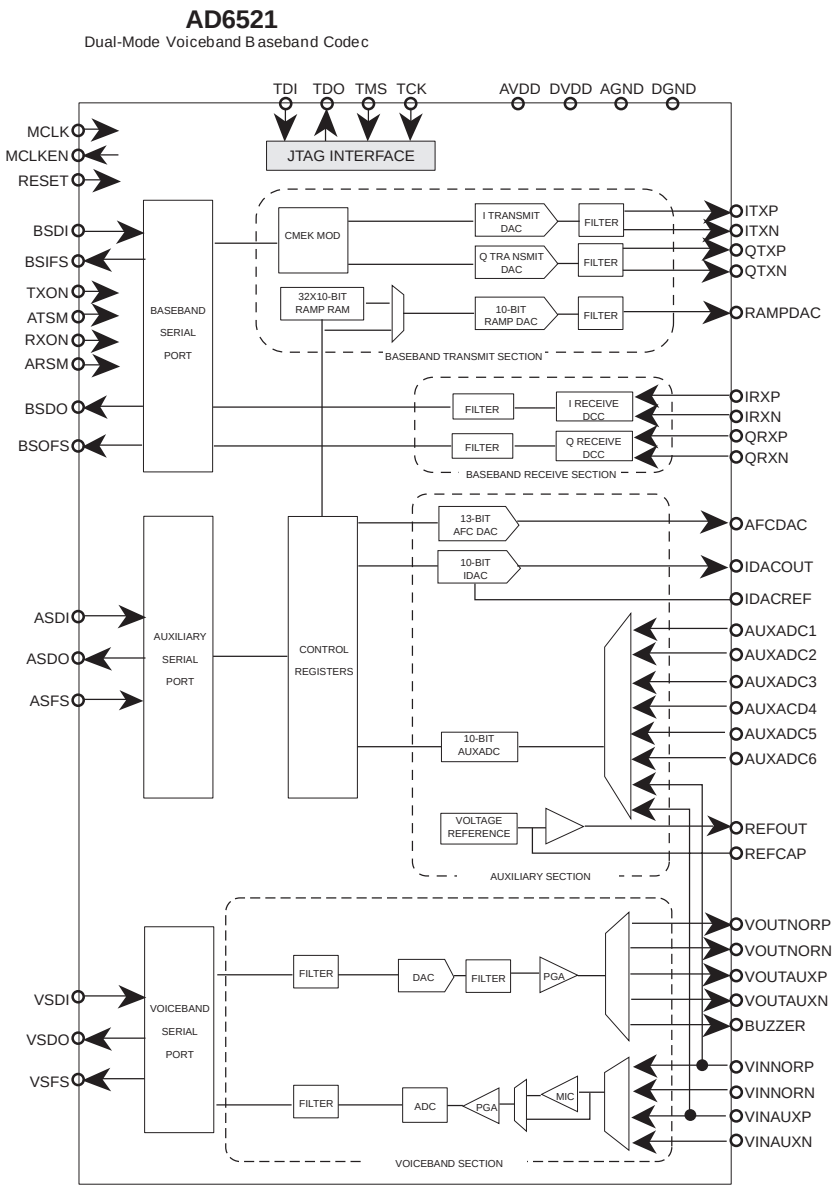



**Figure 3-9. AD6521 function block diagram**

## BB Transmit section

This section generates in-phase and quadrature BB modulated GMSK signals (BT = 0.3) in accordance with GSM 05.05 Phase 2 specifications.

- The transmit channel consists of a digital GMSK modulator, a matched pair of 10-bit DACs and a matched pair of reconstruction filter.

## BB Receive section

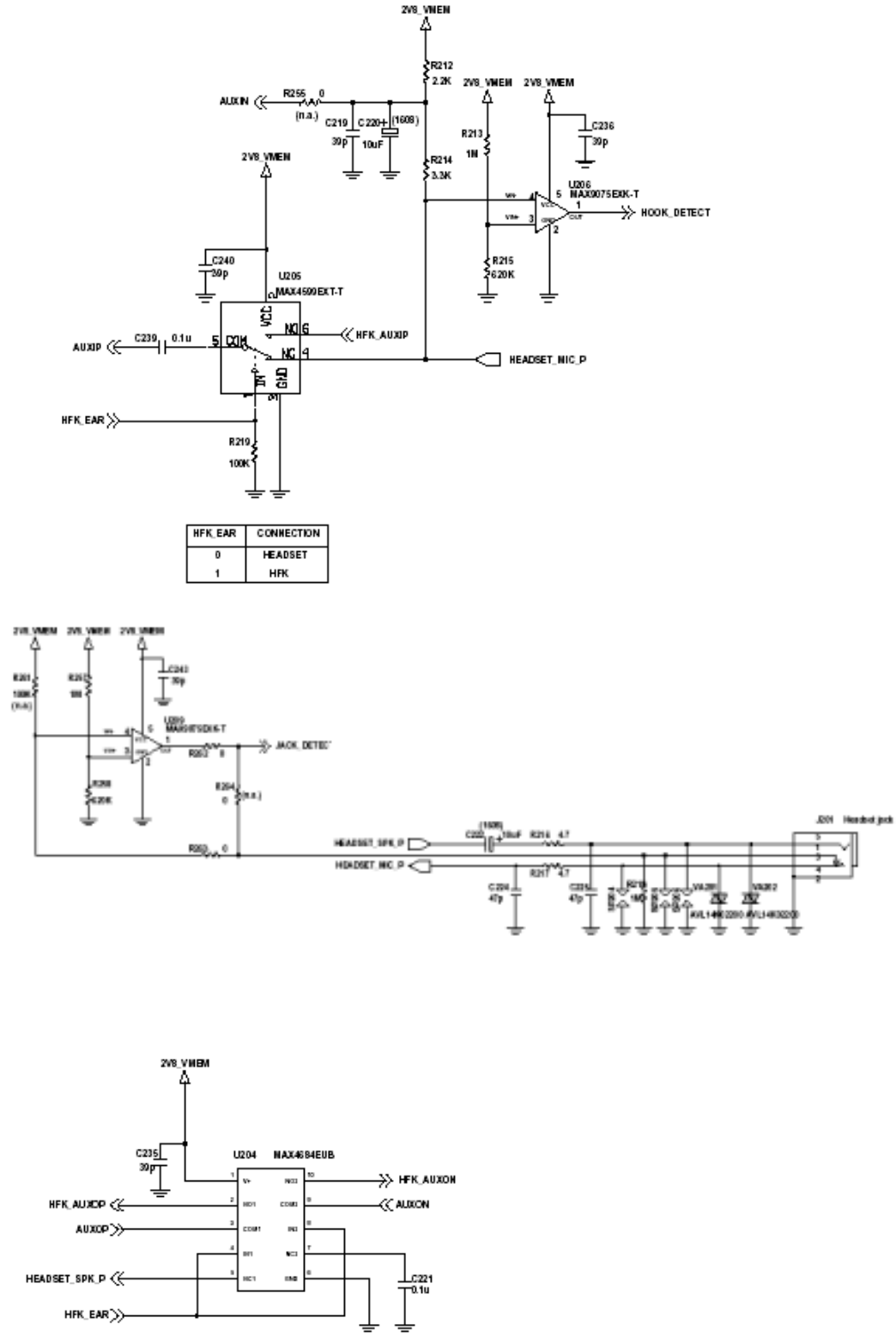
This section consists of two identical ADC channels that process baseband in-phase(I) and quadrature(Q) input signals.
Each channel consists of a coarse switched capacitor input filter, followed by a high-order sigma-delta modulator and a lowpass digital filter.

## Auxiliary section

This section contains two auxiliary DACs(AFC DAC, IDAC) for system control.
This section also contains AUX ADC and Voltage Reference
AUX ADC : 6 channel 10 bits
AFC DAC : 13 bits
IDAC : 10 bits

## Voiceband section

Receive audio signal from MIC. The phones use differential configuration.
Send audio signal to Receiver. The phones use differential configuration.
It interconnects external devices such as main microphone, main receiver, ear-phone and Hands free kit through the VINNORP, VINNORN, VOUTNORP, VOUTNORN, VINAUXP, VINAUXN, VOUTAUXP, VOUTAUXN
VINNORP, VINNORN: Main MIC positive/negative terminal.
VOUTNORP, VOUTNORN: Main Receiver positive/negative terminal.
VINAUXP, VINAUXN: Hands free kit microphone positive/negative terminal.
VOUTAUXP, VOUTAUXON: Hands free kit speaker positive/negative terminal.




| HFK_EAR | CONNECTION |
|---|---|
| 0 | HEADSET |
| 1 | HFK |

**Figure 3-10. Voice band circuit diagram**

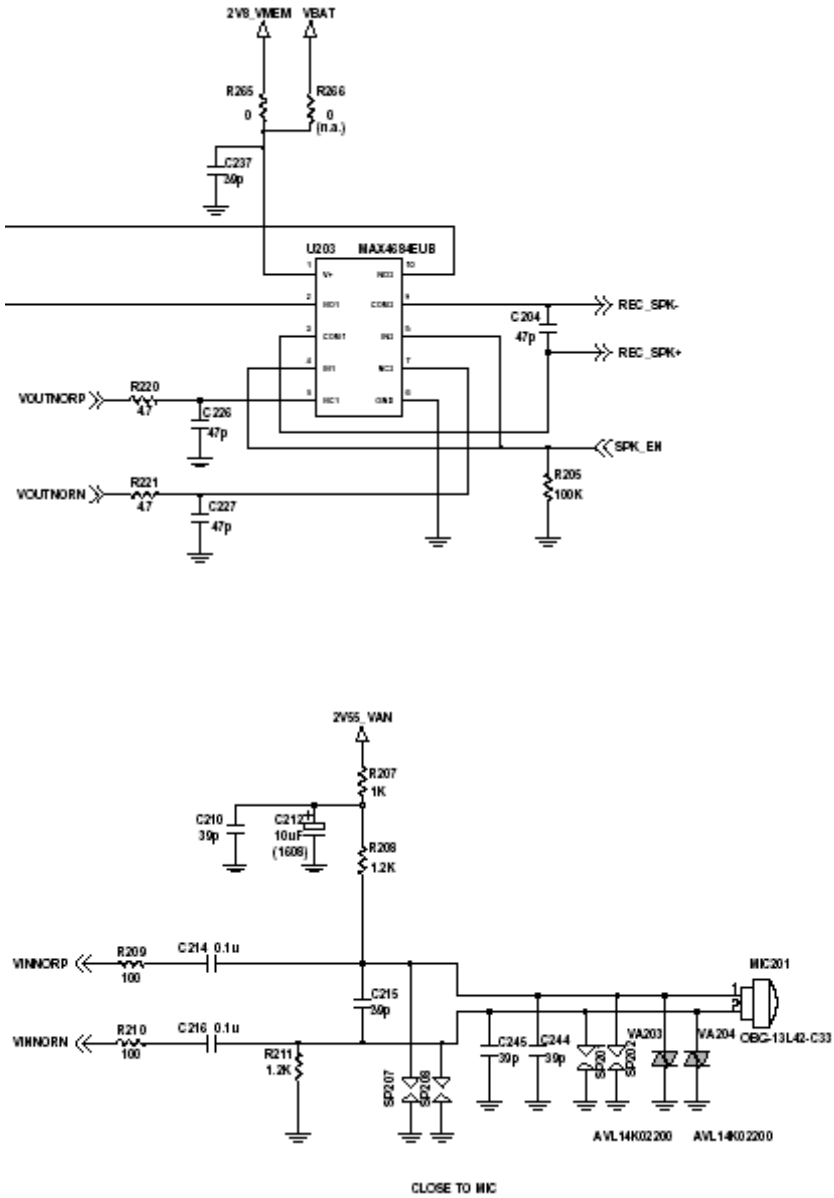



**Figure 3-11. Voice band circuit diagram**

## 3.9 Power Management IC

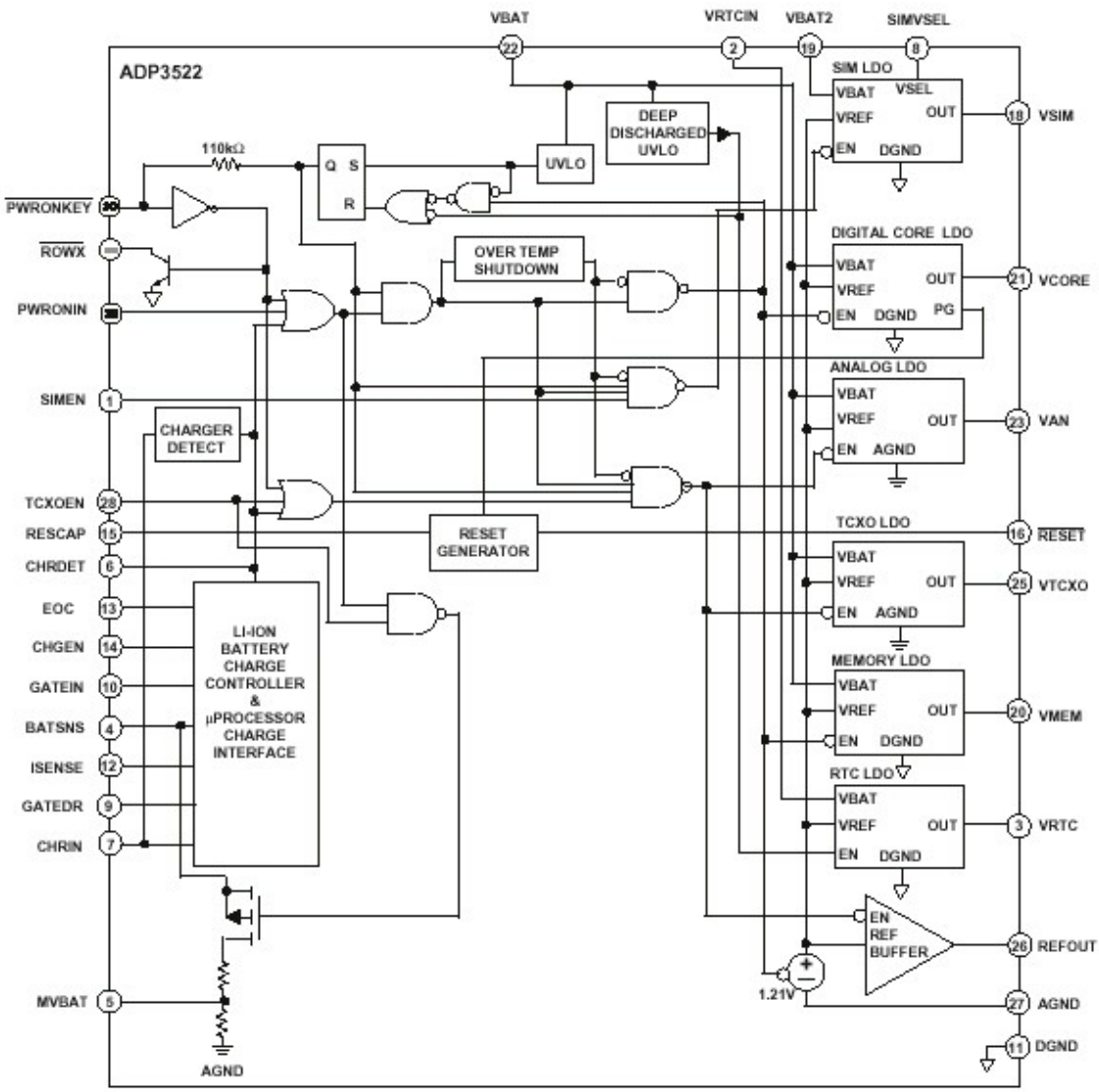



**Figure 3-12. ADP3522 inner block diagram**

**Table 3-6.**

| | Description |
|---|---|
| VSIM | 2.85V(is provided to SIM card) |
| VCORE | 1.8V(is provided to the AD6525 & AD6521's digital core) |
| VRTC | 2.0V(is provided to the RTC and Backup Battery) |
| VAN | 2.55V(is provided to the AD6521 I/O and used as microphone bias) |
| VTCXO | 2.75V(is provided to VCTCXO) |
| VMEM | 2.8V(is provided to Flash) |

## Power up sequence logic

The ADP3522 controls power on sequence.

## Power on sequence

If a battery is inserted, the battery powers the 6 LDOs.
Then if PWRONKEY is detected, the LDOs output turn on.
REFOUT is also enabled, Reset is generated and send to the AD6525.

## LDO block

There are 6 LDOs in the ADP3522.

## Battery charging block

It can be used to charge Lithium Ion and/or Nickel Metal Hydride batteries. The phones use Li-Ion battery only. Charger initialization, trickle charging, and Li-Ion charging control are implemented in hardware.

## Charging Process

1. Check charger is inserted or not.
2. If ADP3522 detects that Charger is inserted, the CC-CV charging starts.
3. Exception: When battery voltage is lower than 3.2V, the precharge (low current charge mode) starts firstly.
4. And the battery voltage reach to 3.2V the CC-CV charging starts.

## Pins used for charging

CHGDET : Interrupt to AD6525 when charger is plugged.
CHGEN : Control signal from AD6525 to charge Li+ battery.
EOC : Interrupt to AD6525 when battery is fully charged.
GATEIN : Control signal from AD6525 to charge NiMH battery. But, not used.
MVBAT : Battery voltage divider. Divide ratio is 1:2.3 and it is sensed in AD6521 AUX_ADC4.

## TA (Travel Adaptor)

Input voltage : AC 85V ~ 264V, 47~63Hz
Output voltage : DC 5.2V(±0.2 V)
Output current : Max 750mA(±50mA )

## Battery

Li-ion battery : Max 4.2V, Nom 4.0V

Standard battery : Capacity - 740mAh, Li-ion

## 3.10 Memories

128Mbit flash memory + 32Mbit PSRAM
16 bit parallel data bus
ADD01 ~ ADD22.
2 Chip enables for Flash memory select.
RF Calibration data, Audio parameters and battery calibration data etc are stored in Flash memory area.

## 3.11 Display and Interface

**Table 3-7.**

| | **LCD** |
|---|---|
| Main LCD Display Format | 128×RGB×160dots |
| Main LCD Backlight | White LED Backlight |
| Sub LCD Display Format | 96×16dots |
| Sub LCD Backlight | 7Color LED Backlight |

G5400 Main LCD supports one 65000 color resolution LCD module.
There are the control signals :_MAIN_LCD_CS (which is derived from AD6525, this acts as the chip select enable for the LCD), _WR, LCD_RS and LCD_RES. AD6525 uses DATA[00:15] pins to send data for displaying graphical text onto the LCD.
G5400 Sub LCD supports one 65000 mono resolution LCD module.
There are the control signals :_SUBLCD_CS (which is derived from AD6525, this acts as the chip select enable for the LCD), _WR, LCD_RS and LCD_RES. AD6525 uses DATA[08:15] pins to send data for displaying graphical text onto the LCD.

## 3.12 Keypad Switches and Scanning

The key switches are metal domes, which make contact between two concentric pads on the keypad layer of the PCB when pressed. There are 25 switches (KB1-KB22), connected in a matrix of 5 rows by 5 columns, as shown in Figure, except for the power switch (KD110), which is connected independently. Functions, the row and column lines of the keypad are connected to ports of AD6525. The columns are outputs, while the rows are inputs and have pull-up resistors built in. When a key is pressed, the corresponding row and column are connected together, causing the row input to go low and generate an interrupt. The columns/rows are then scanned by AD65225 to identify the pressed key.

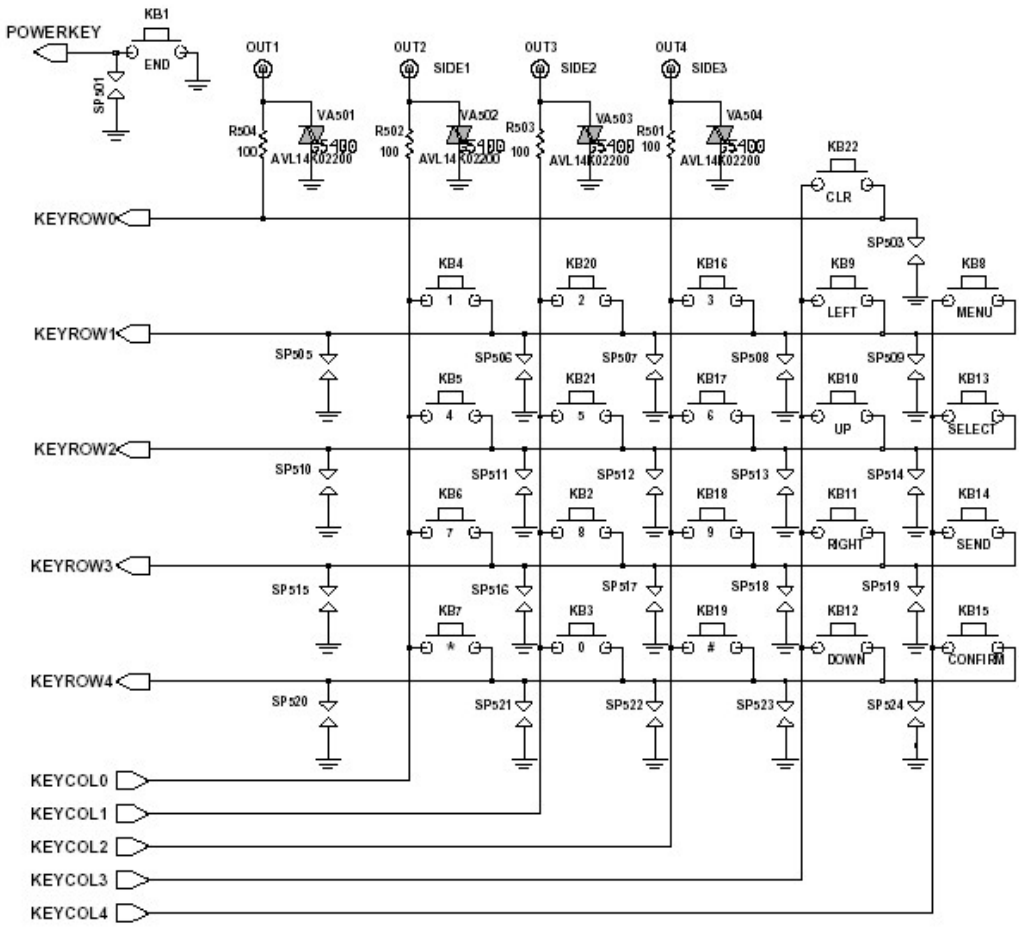



**Figure 3-13. Keypad Switches and Scanning**

## 3.13 Microphone

The microphone is placed to the front cover and contacted to main PCB. The audio signal is passed to VINNORP (#J10) and VINNORN (#K10) pins of AD6525. The voltage supply 2V55_VAN is output from ADP3522, and is a bias voltage for the VINNORP. The VINNOR or VINAUX signal is then A/D converted by the Voiceband ADC part of AD6521. The digitized speech is then passed to the DSP section of AD6525 for processing (coding, interleaving etc.).

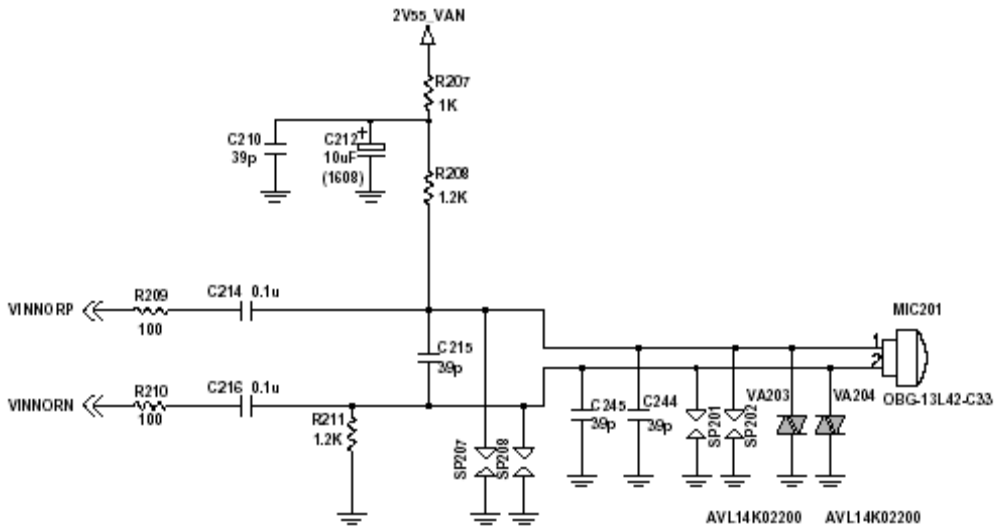



**Figure 3-14. Microphone**

## 3.14 Earpiece

The earpiece is driven directly from AD6521 VOUTNORP (#K8) and VOUTNORN (#K7) pins and the gain is controlled by the PGA in an AD6521.
The earpiece is placed in the folder cover and contacted to LCD PCB.

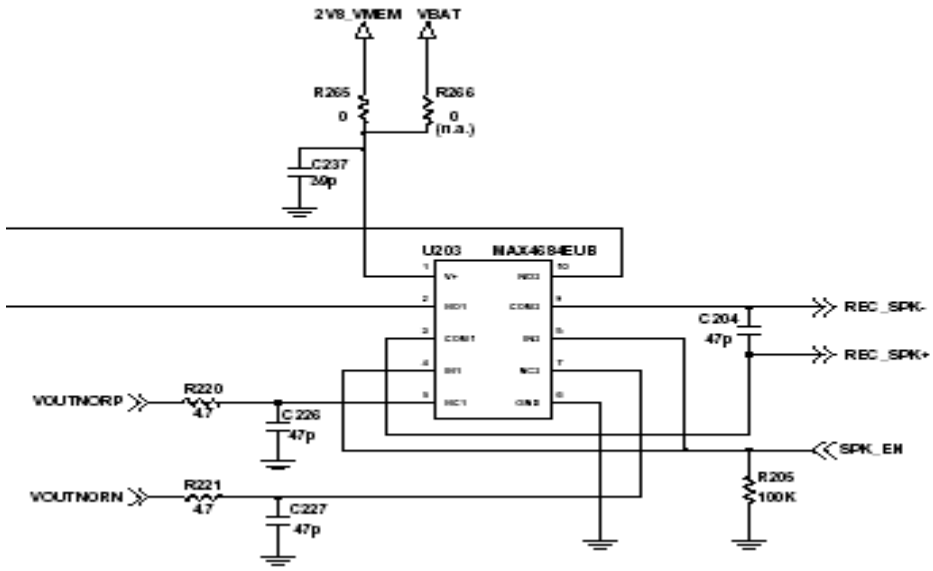



**Figure 3-15. Earpiece**

## 3.15 Hands-free Interface

The audio out (VOUTAUXP & VOUTAUXN) to the hands-free kit consists of a pair of differential signal from AD6521 auxiliary outputs (#K9, #K6), which are tracked down the board to carkit connector (CN602) at the base of the handset. The DC level of the signal is supplied to the VOUTAUX pin.

## 3.16 Headset Jack Interface

This phone chooses a 3-pole type ear-mic jack which has three electrodes such as Receiver +, Mic+, and GND. This type usually supports only single-ended configuration in the audio path. But most of phones use the common interface.

## 3.17 Key Back-light Illumination

In key back-light illumination, there are 12 Blue LEDs in Main Board, which are driven by KEY_BACKLIGHT line from AD6525.

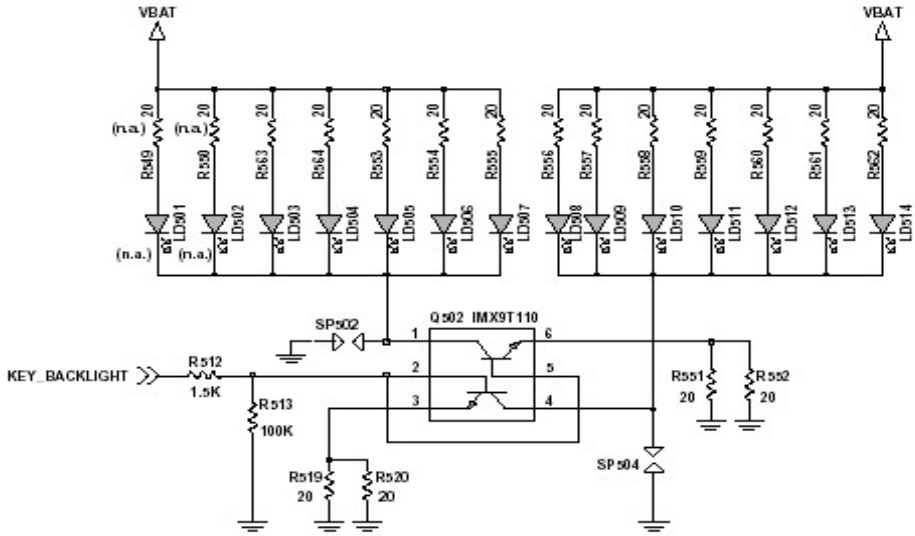



**Figure 3-16. Key Back-light Illumination**

## 3.18 LCD Back-light Illumination

In LCD Back-light illumination, there is an driver in LCD Board, which is driven by BACKLIGHT line from AD6525.

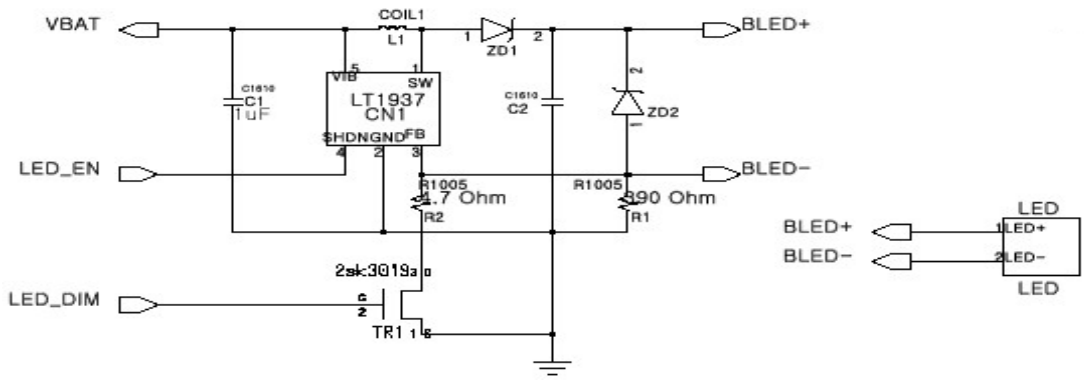



**Figure 3-17. Main LCD Back light Illumination**

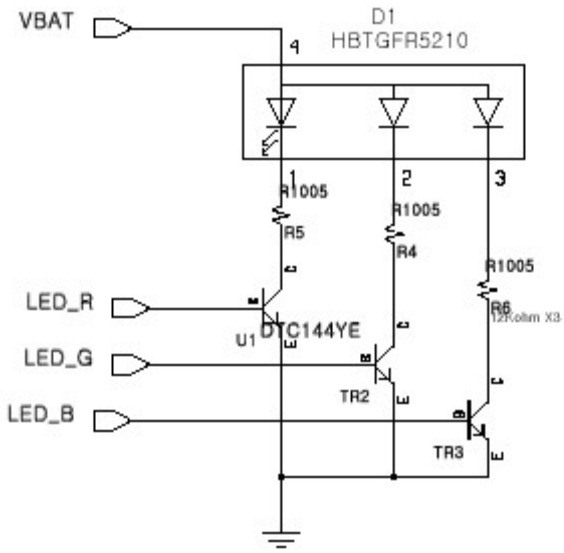



**Figure 3-18. Sub LCD Back-light Illumination**

## 3.19 Speaker & MIDI IC

LG-G5400 don't use buzzer. but uses the loud speaker and Melody IC which makes the robust joyful melody sounds.

**• Melody IC control**

2GPIO are assigned to control melody IC. Melody data is transferred to melody IC.

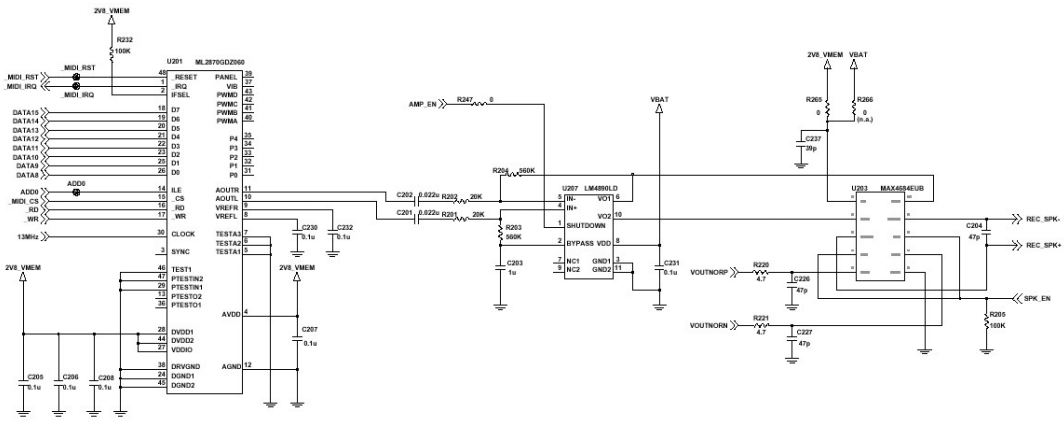



**Figure 3-19. Speaker & MIDI IC**

Basically, this phone have a melody IC of Oki ltd. ML2870(melody IC maker partnumber) is a PCM-based hi-grade sound generator LSI for mobile phones that realize advanced game sounds. This LSI stands in need of external amplifier. External amplifier used by mobile phones in addition to game sounds and ringing melodies that are replayed by a sound generator. This melody IC has hi-grade 175 polyphonies based on General MIDI system level1, the standard spec for PCM sound generator.

# 4. TROUBLE SHOOTING

## 4.1 RF COMPONENTS

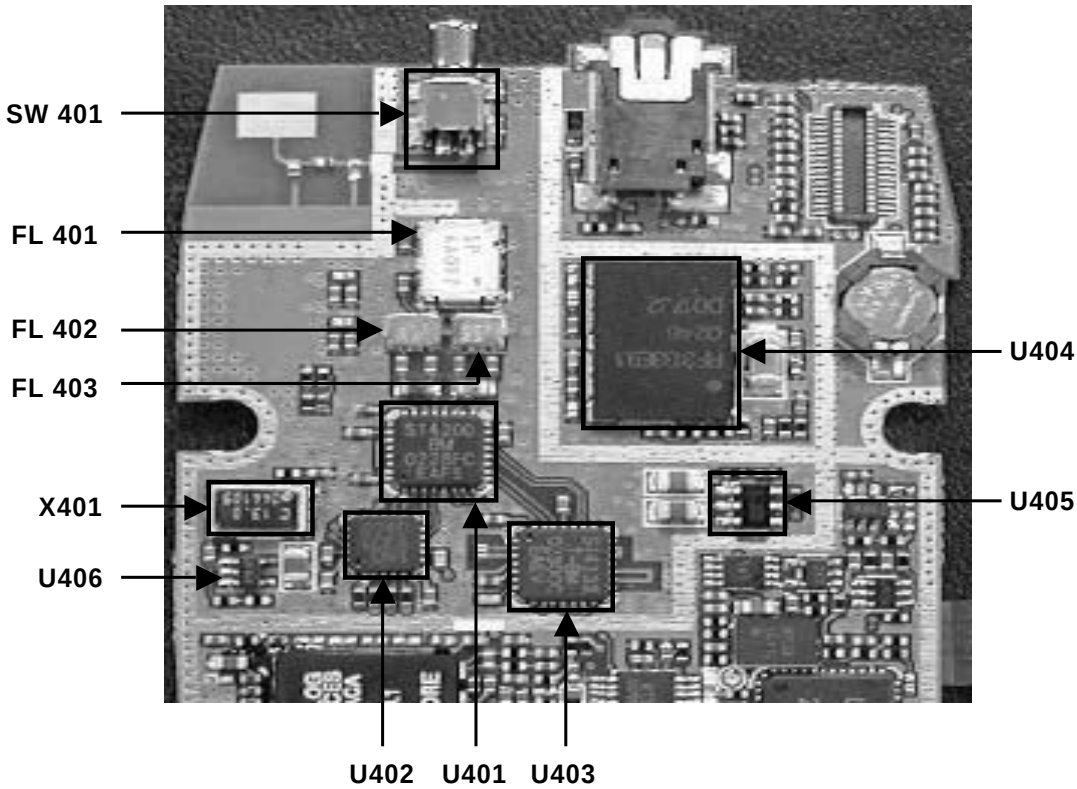
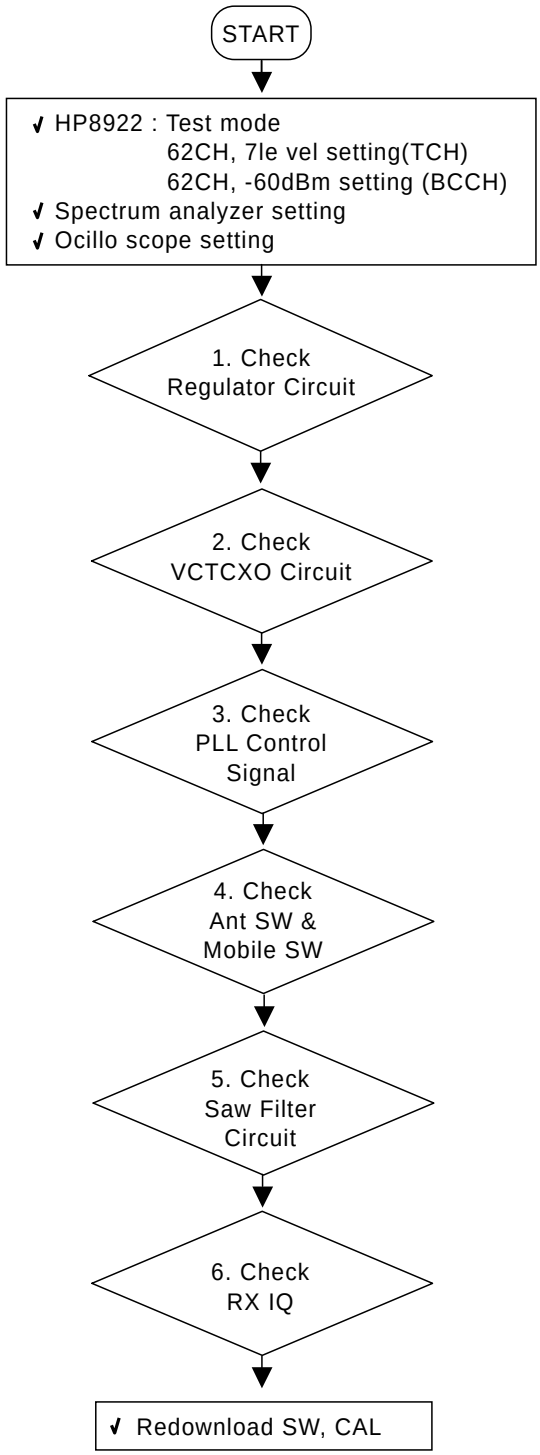



**Figure 4-1.**

**Table 4-1.**

| Reference | VC1 | VC2 | Current |
|---|---|---|---|
| U401, U402, U403 | RF Main Chip | SW401 | Mobile Switch |
| U404 | PAM | FL401 | Antenna Switch |
| U405 | RF LDO | FL402 | GSM SAW Filter |
| U406 | Inverter | FL403 | DCS SAW Filter |
| X401 | VCTCXO | | |

## 4.2 Rx Trouble



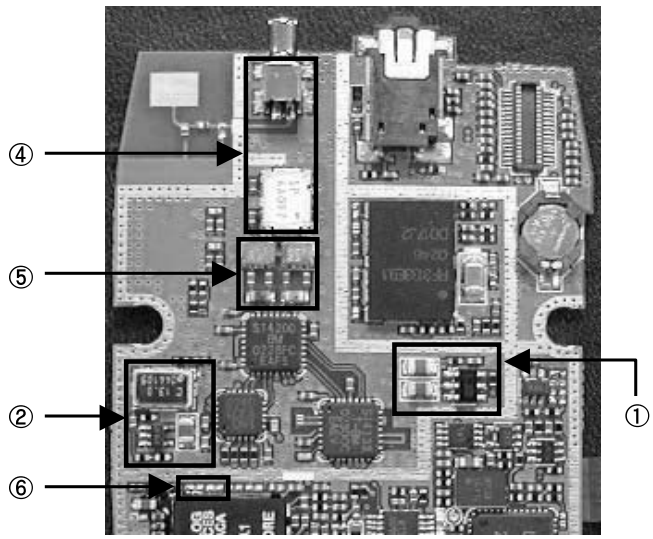




**Figure 4-2a.**

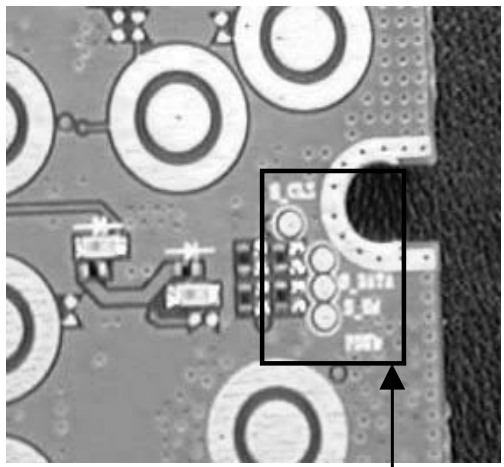
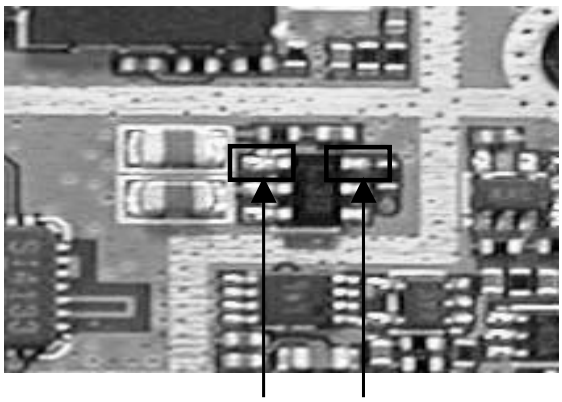



**Figure 4-2b.**

Now See next Page to see
How to check each parts

## 4.2.1 Checking Regulator Circuit



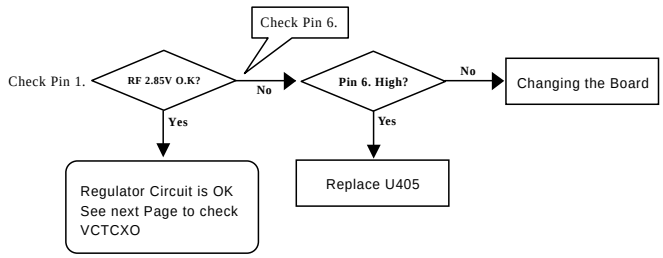
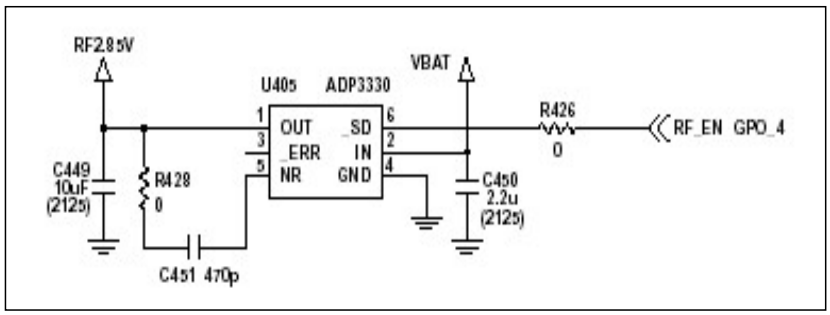
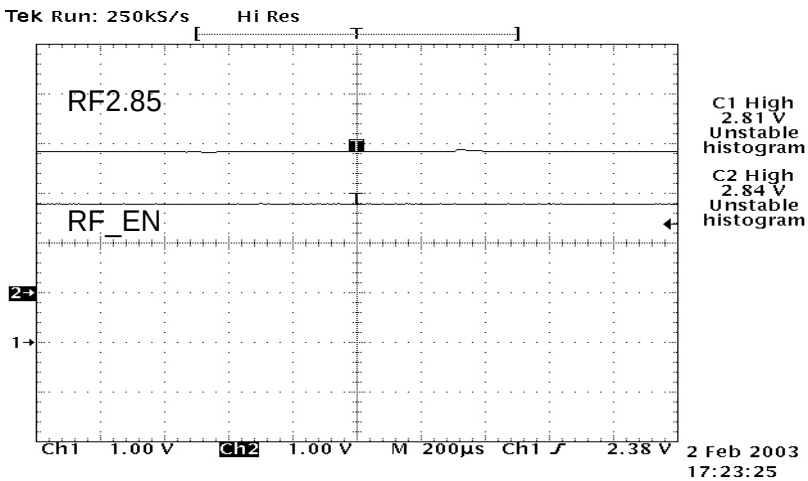



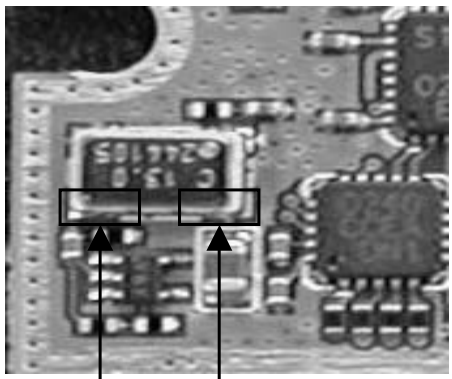

**Figure 4-3.**




**Graphic 4-1.**

## 4.2.2 Checking VCTCXO Circuit



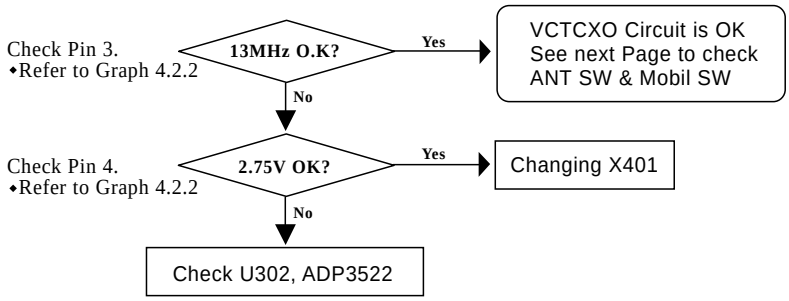
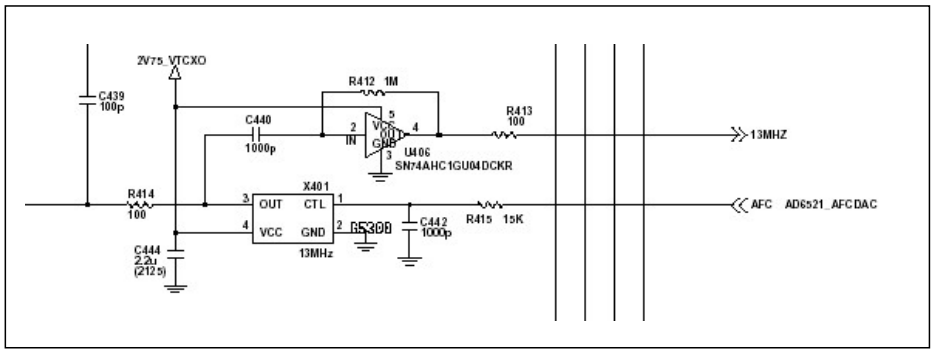
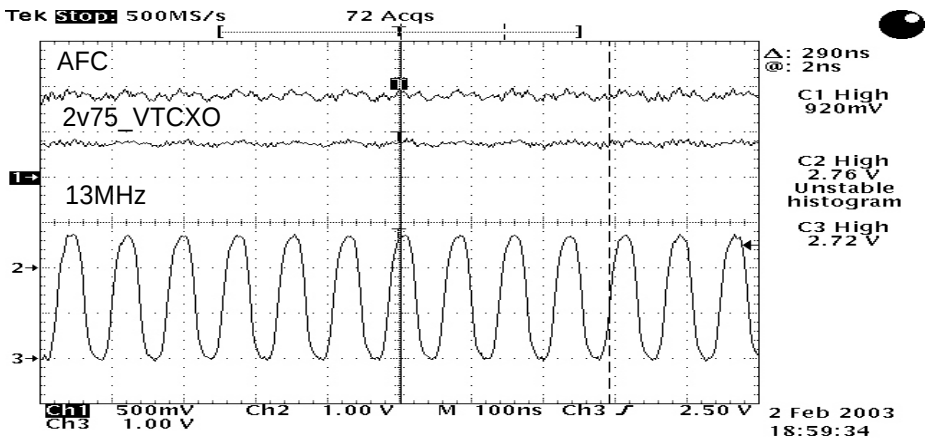




**Figure 4-4.**




**Graphic 4-2.**

## 4.2.3 Checking PLL Control Signal

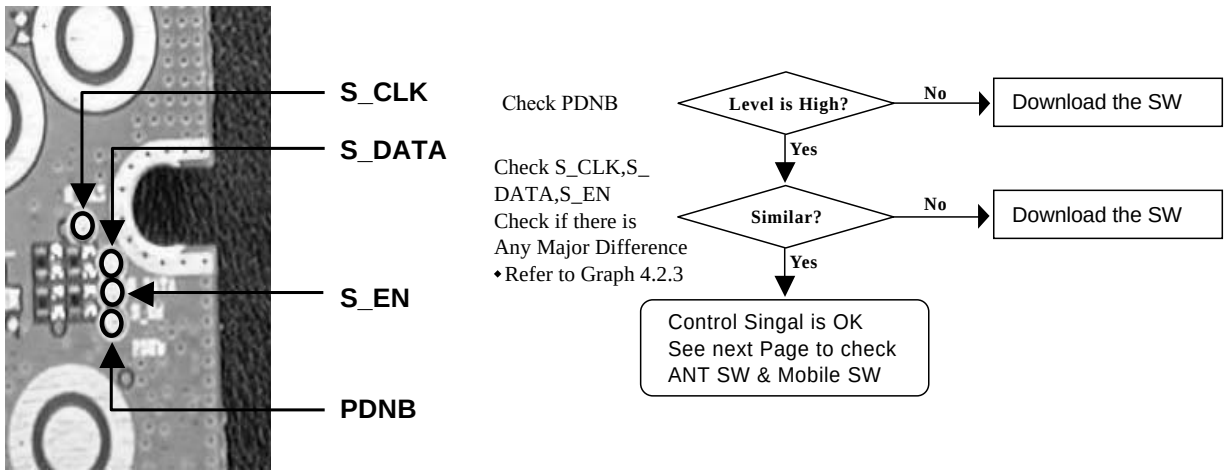
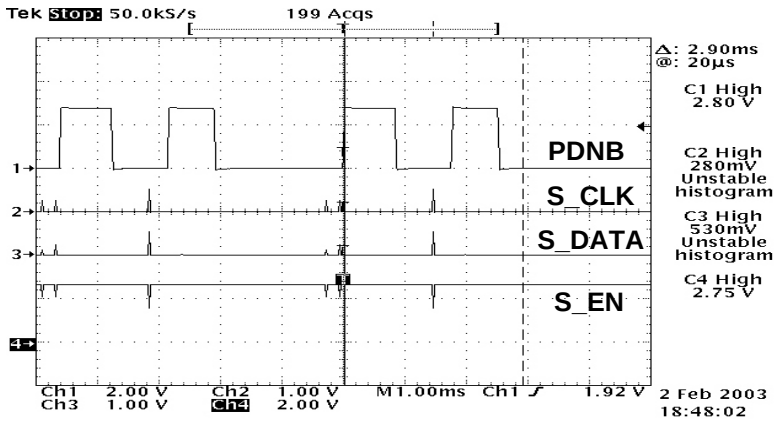
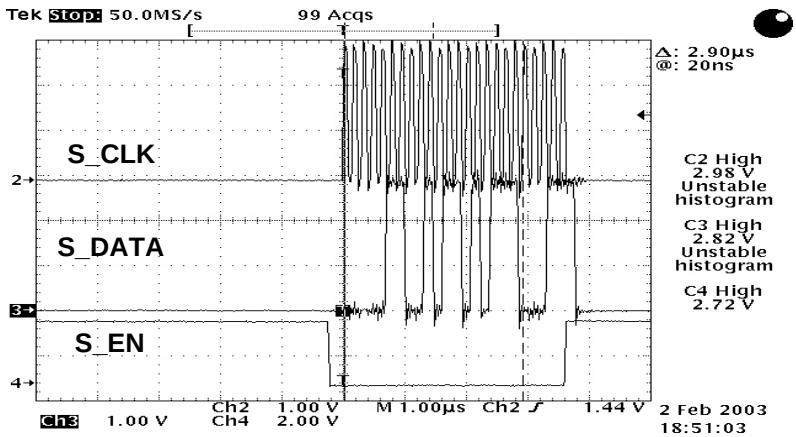



**Figure 4-5.**

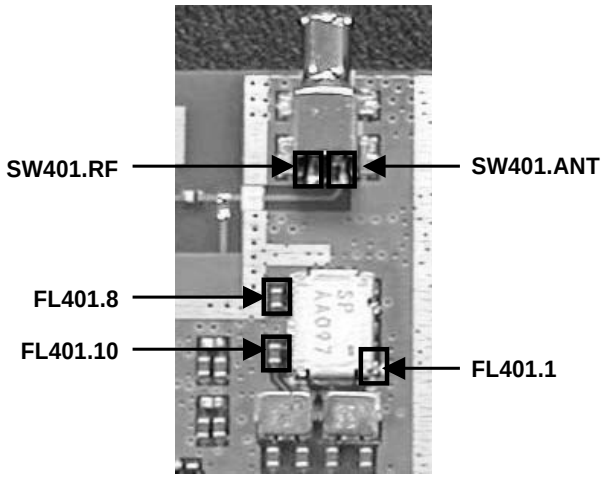



**Graphic 4-3a.**




**Graphic 4-3b.**

## 4.2.4 Checking Ant SW & Mobile SW



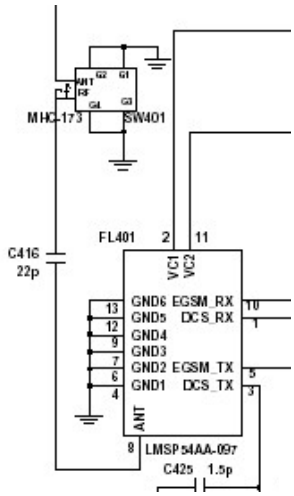




**Figure 4-6.**

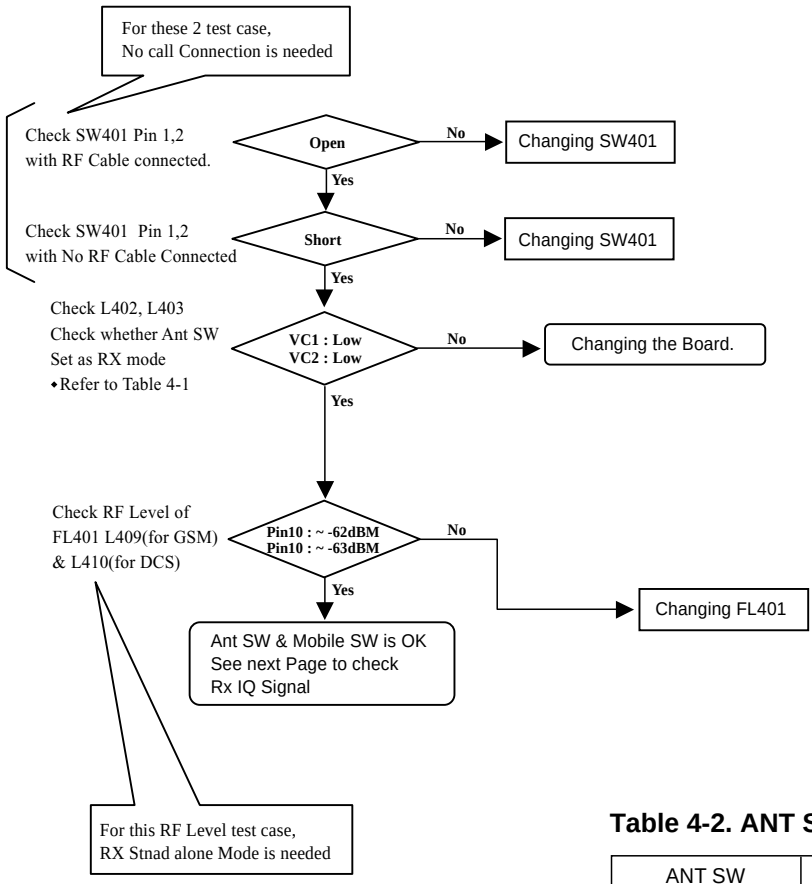



**Table 4-2. ANT SW Control Logic**

| ANT SW | VC1 | VC2 |
|---|---|---|
| EGSM TX | 0 | 1 |
| DCS TX | 1 | 0 |
| EGSM, DCS RX | 0 | 0 |

## 4.2.5 Checking SAW Filter Circuit

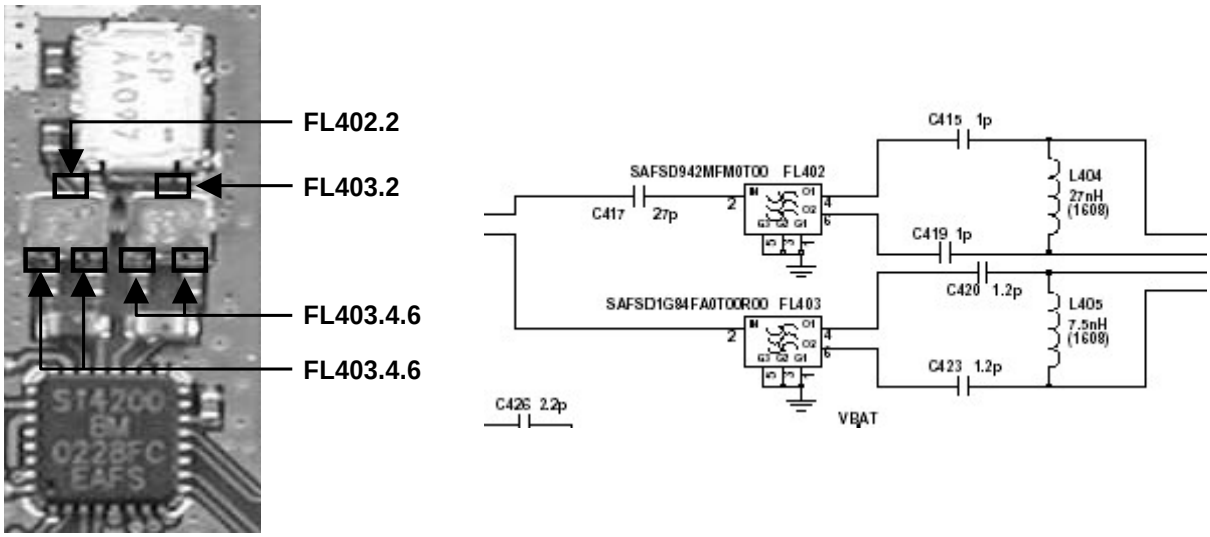
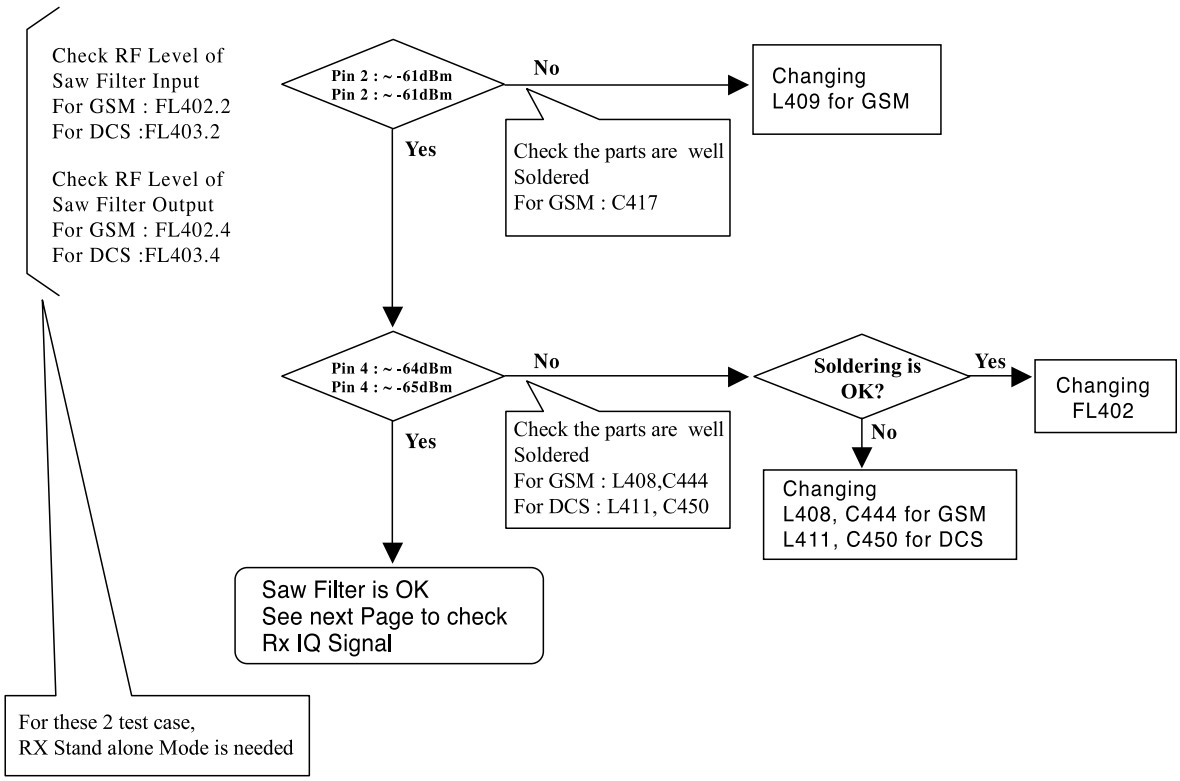
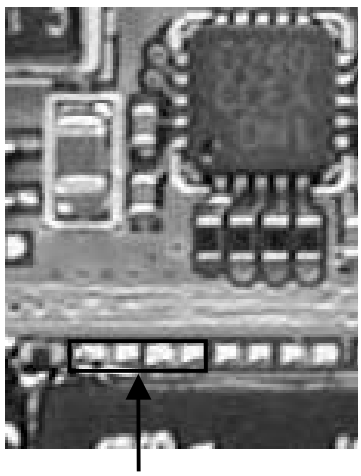



**Figure 4-7.**

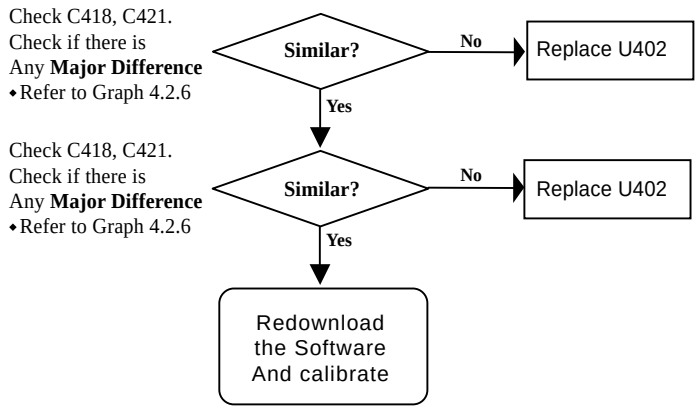


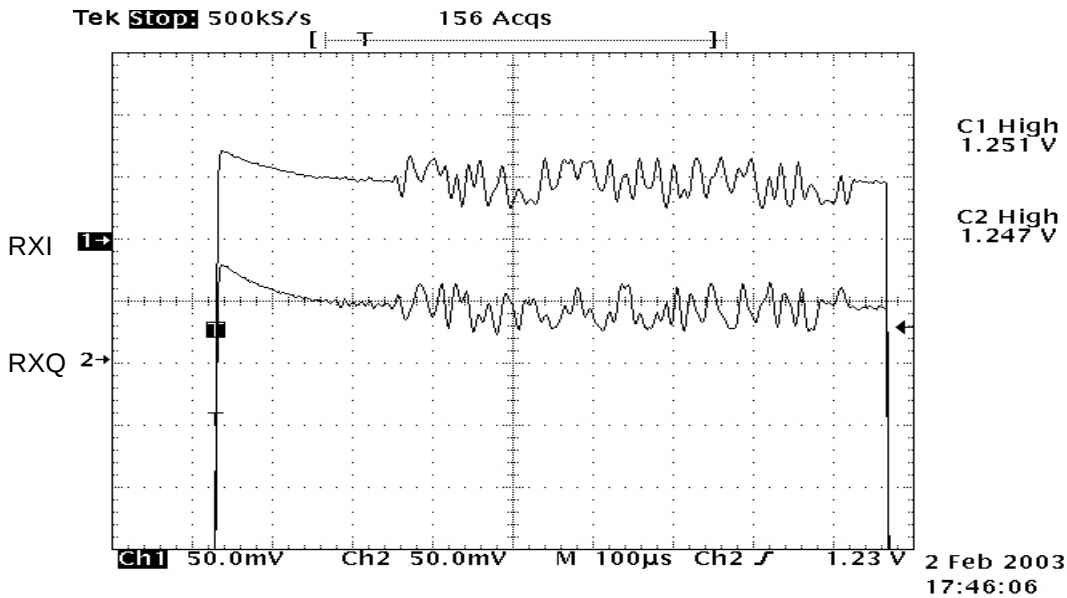
## 4.2.6 Checking RX IQ



C418, C421

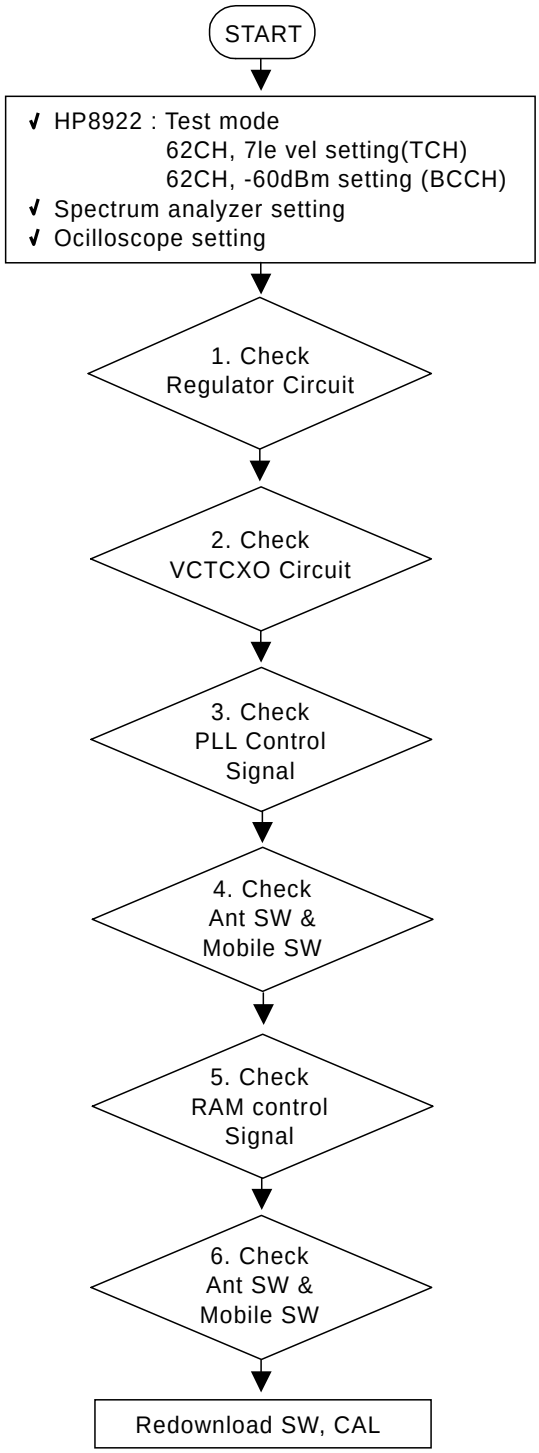
**Figure 4-8.**




**Graphic 4-4.**

## 4.3 TX Trouble



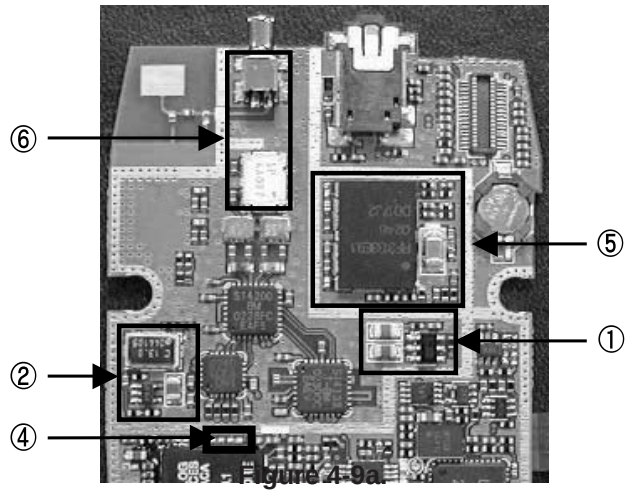




Figure 4-9a.

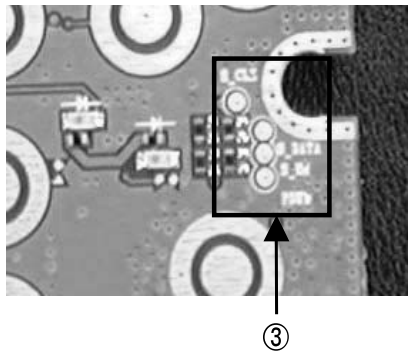
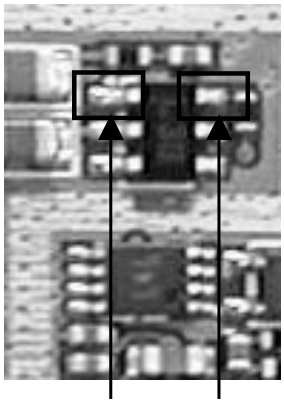



Figure 4-9b.

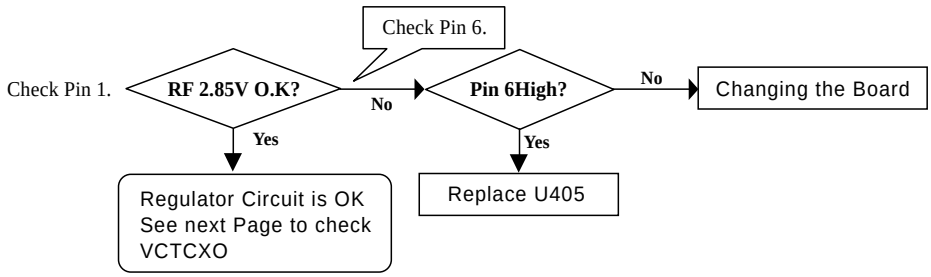
Now next Page to see
How to check each parts

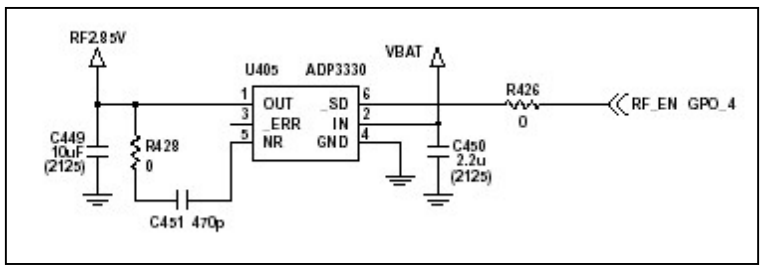
## 4.3.1 Checking Regulator Circuit

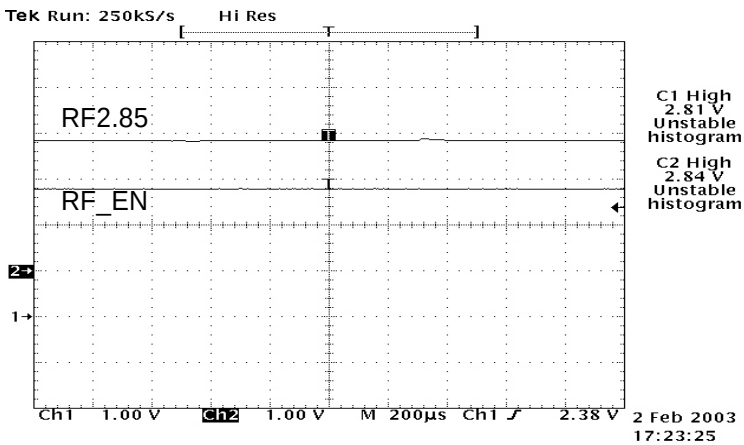


U405.1 U405.6

**Figure 4-10.**

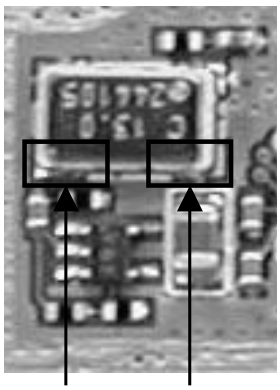



**Graphic 4-5.**

## 4.3.2 Checking VCTCXO Circuit



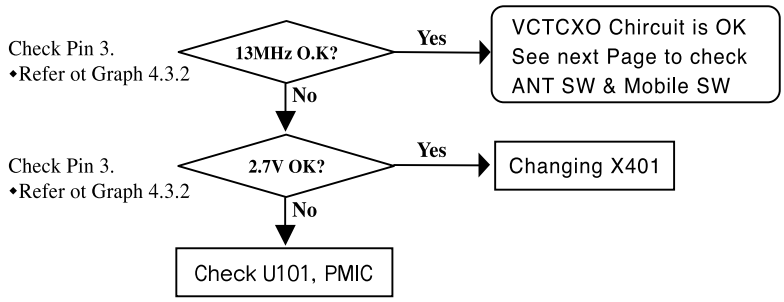
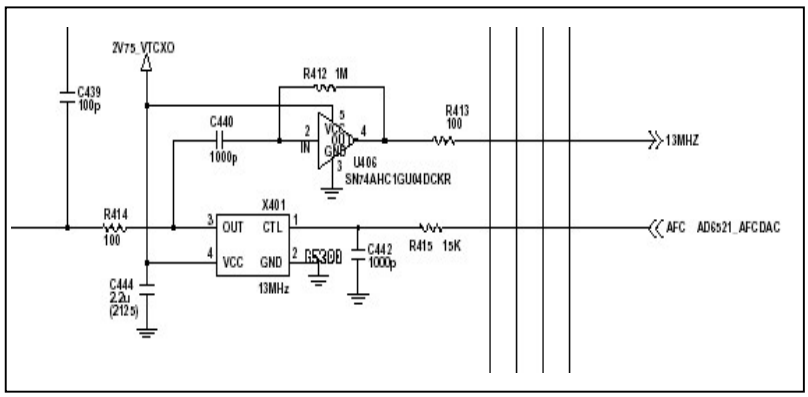
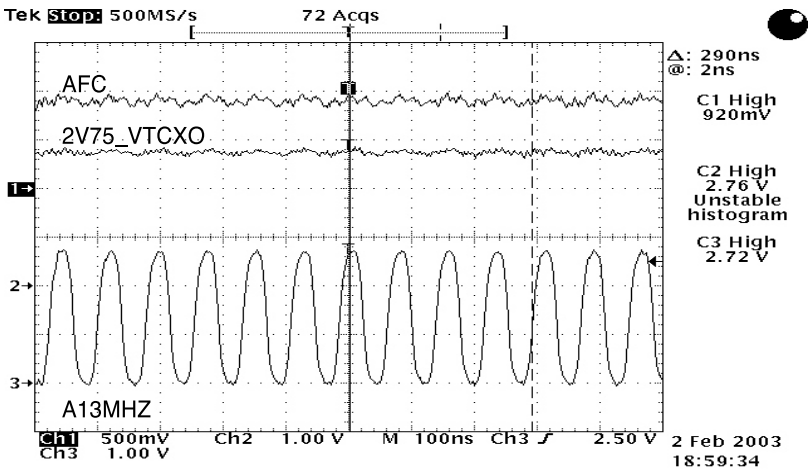




**Figure 4-11.**




**Graphic 4-6.**

## 4.3.3 Checking PLL Control Signal

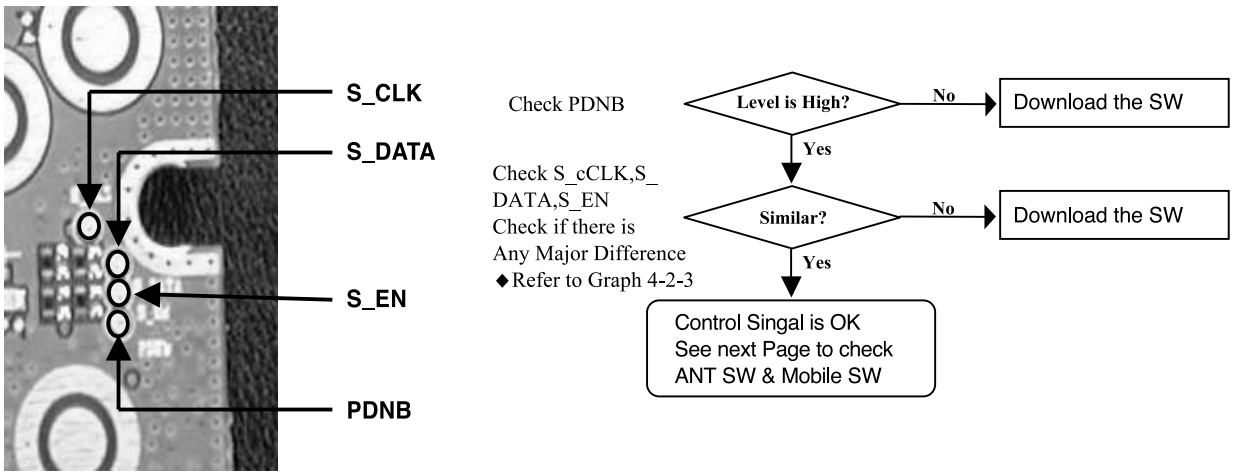
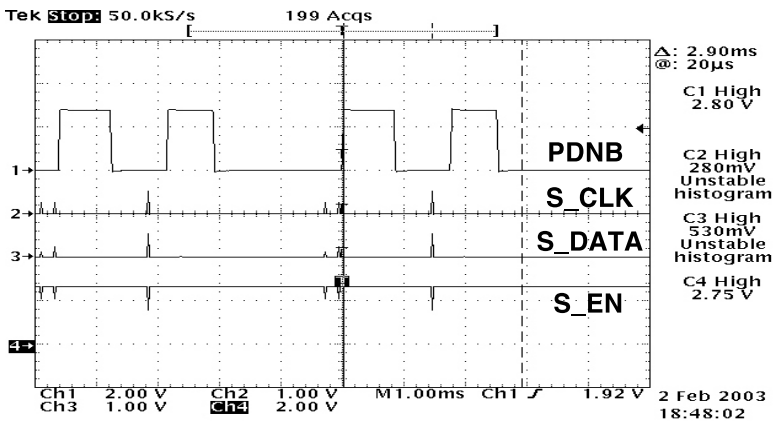
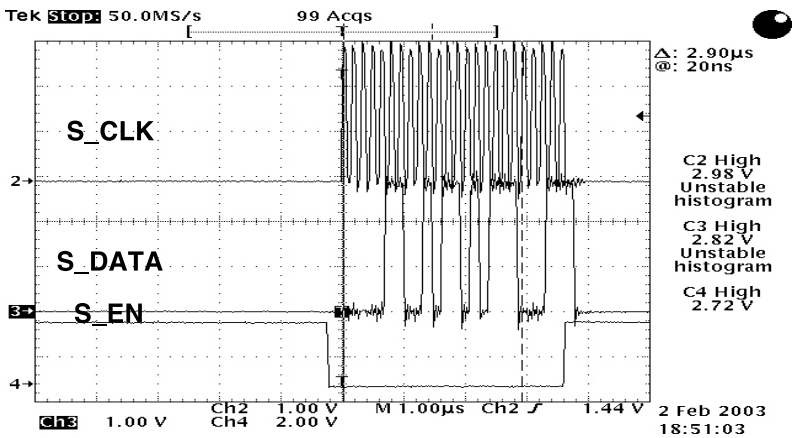



**Figure 4-12.**




**Graphic 4-7a.**




**Graphic 4-7b.**

## 4.3.4 Checking Ant SW & Mobile SW

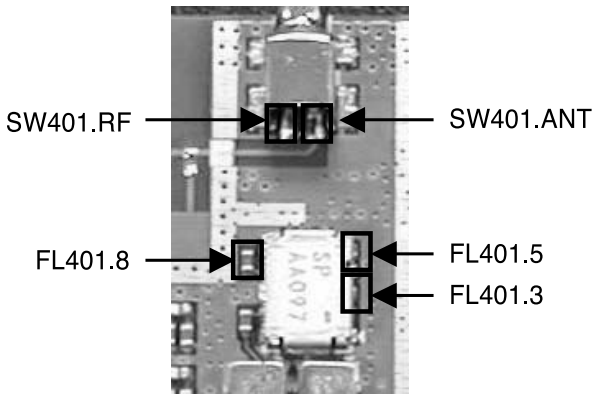
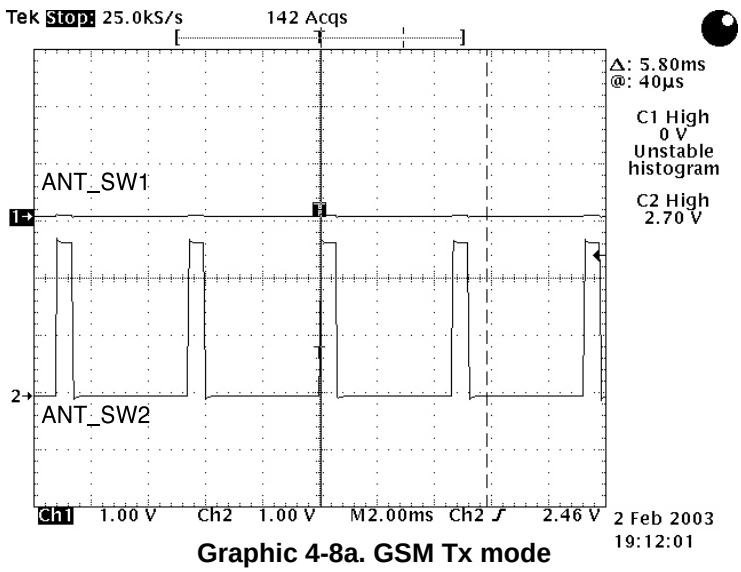
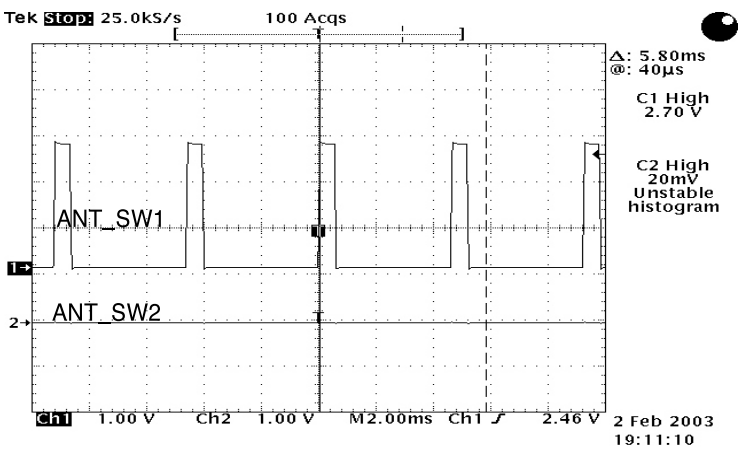



**Figure 4-13.**

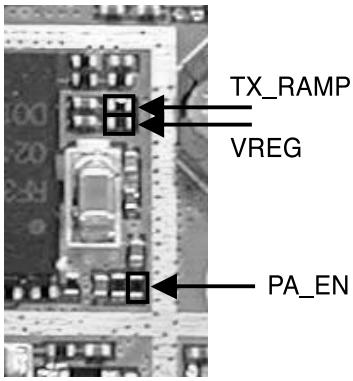



**Graphic 4-8a. GSM Tx mode**




**Graphic 4-8b. DCS Tx mode**

## 4.3.5 Checking PAM Control Signal




Check PA_EN,VREG,
TX_RAMP.
Check if there is
Any Major Difference
Refer to Graph 4-3-5

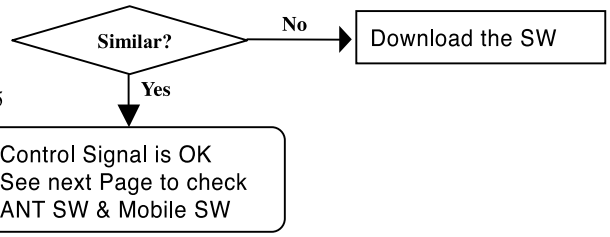
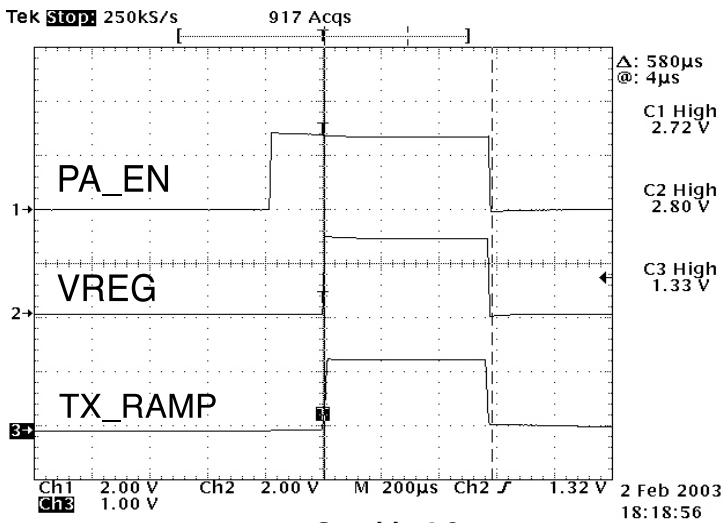
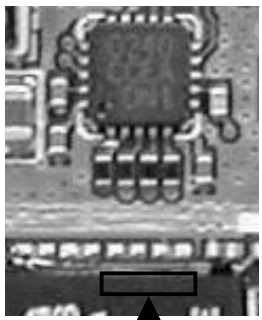



**Figure 4-14.**




**Graphic 4-9.**

## 4.3.6 Checking TX IQ



C427, C436

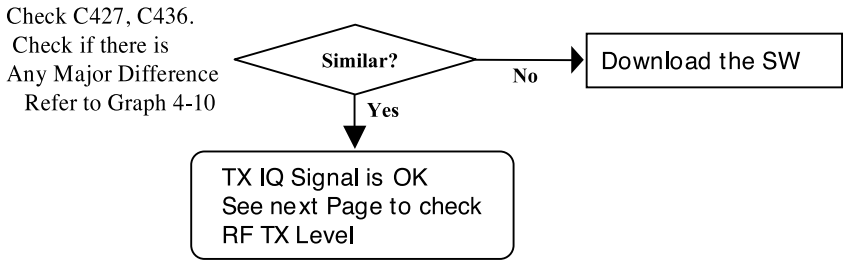
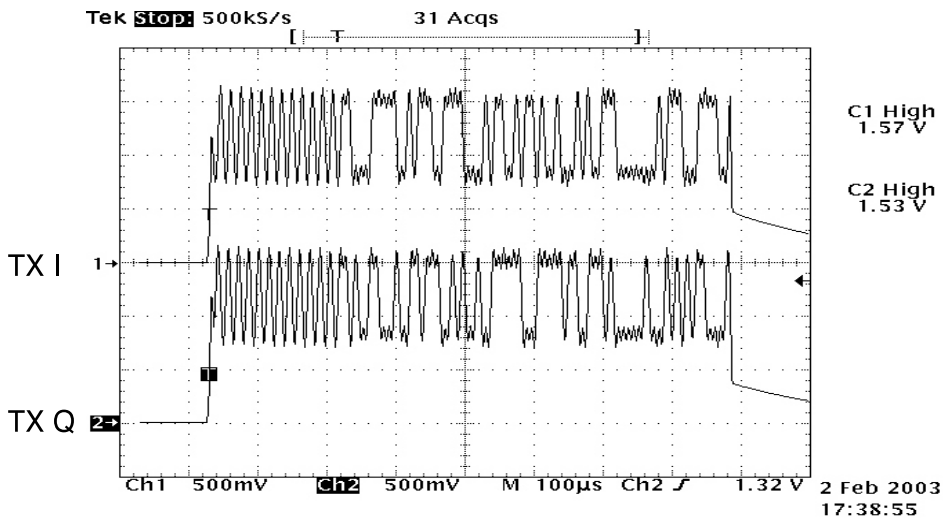
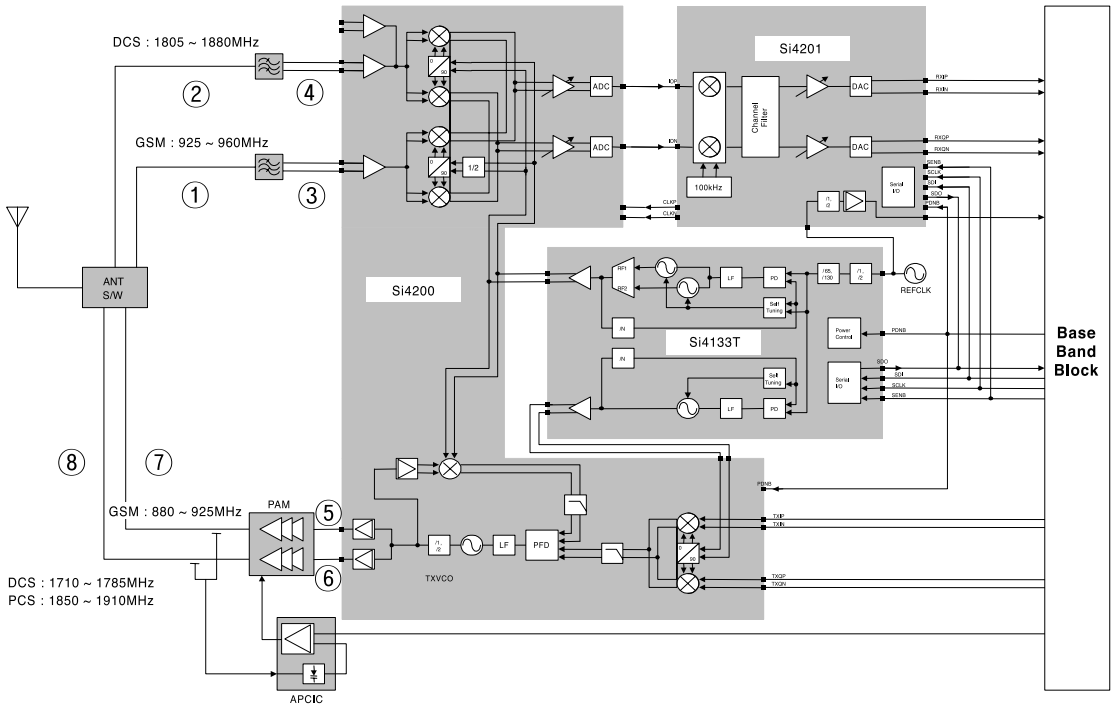



**Figure 4-15.**




**Graphic 4-10.**

## 4.3.7 Receiver and Transmitter RF Level



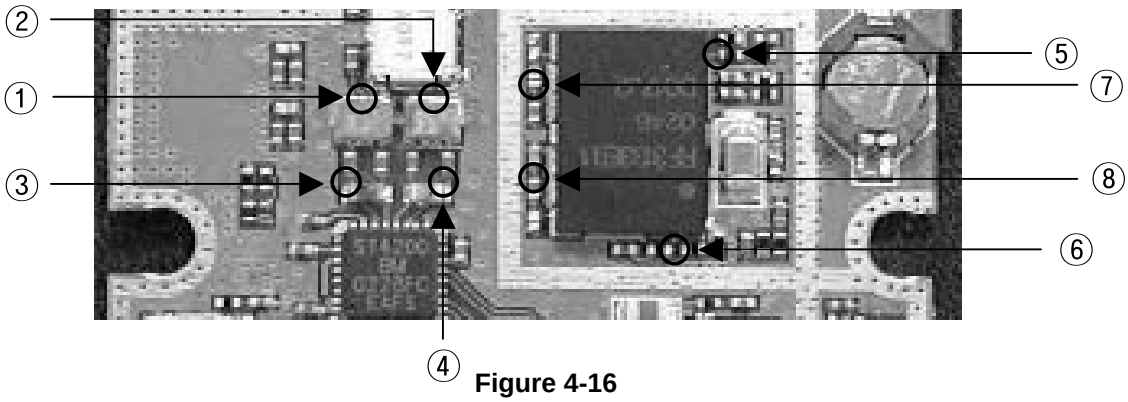
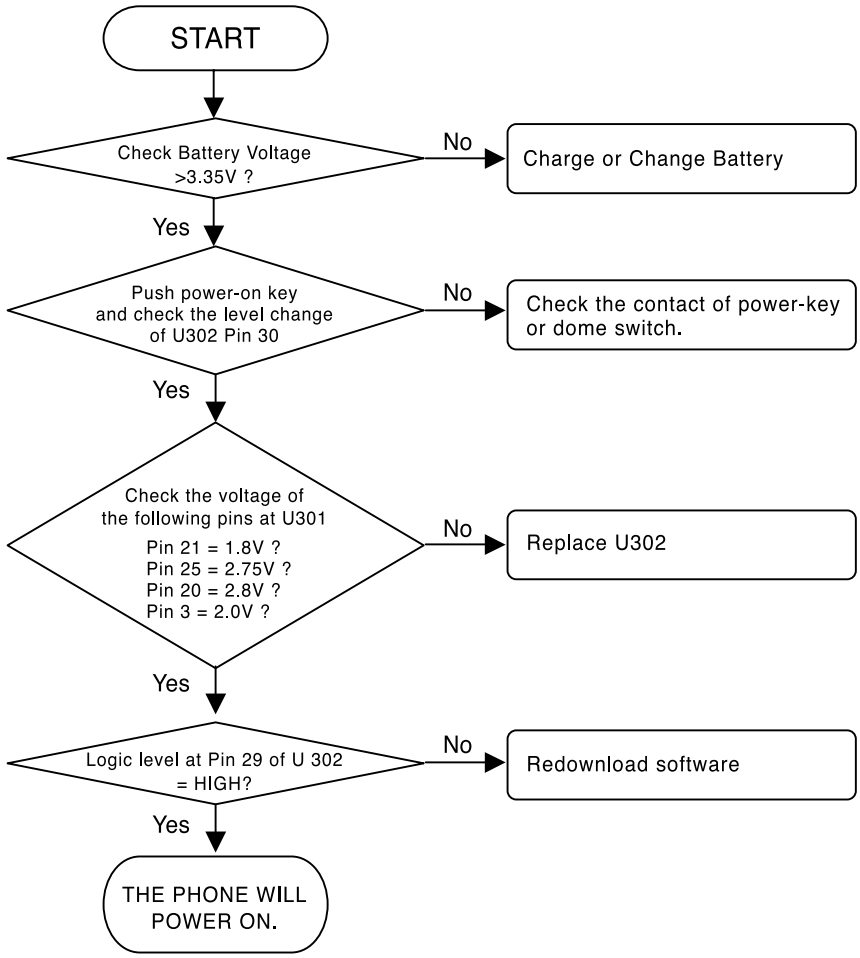



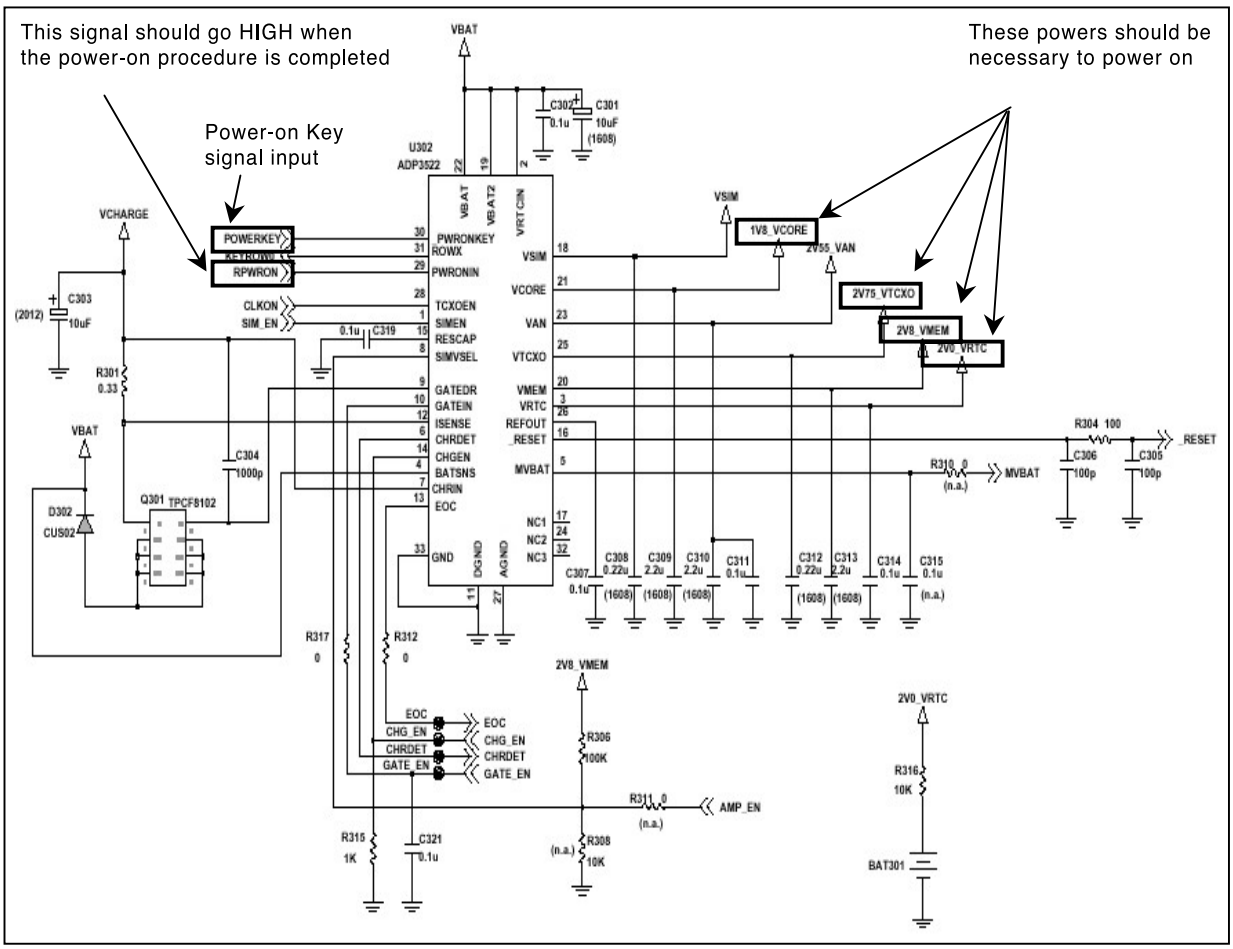

**Figure 4-16**

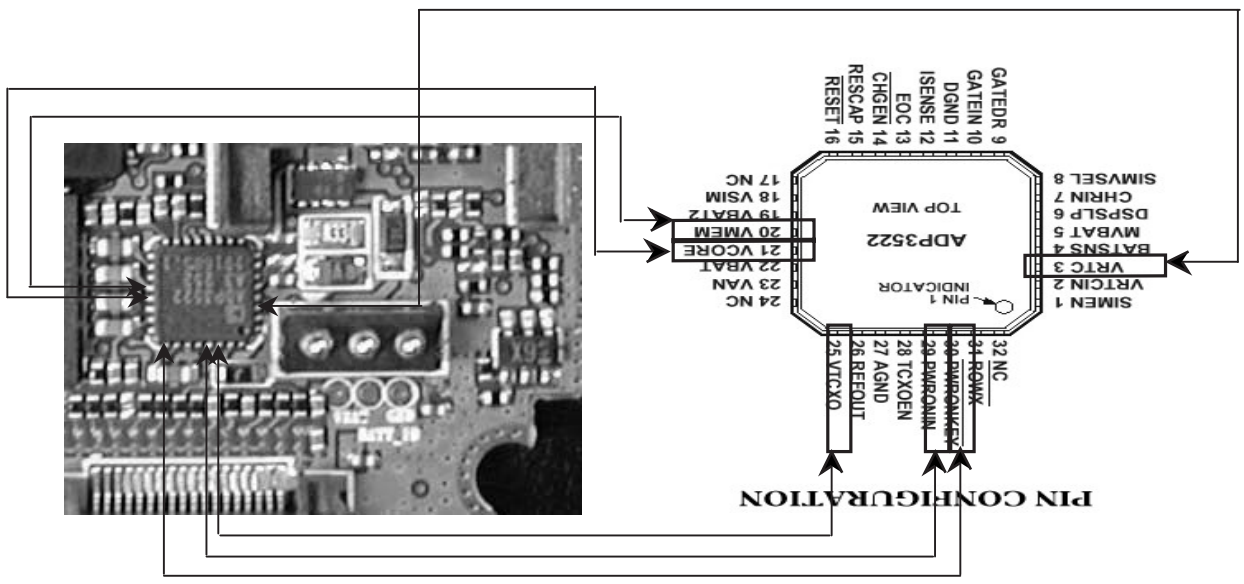
## 4.4 Power On Trouble

SETTING : Connect PIF, and set remote swit ch off at PIF.



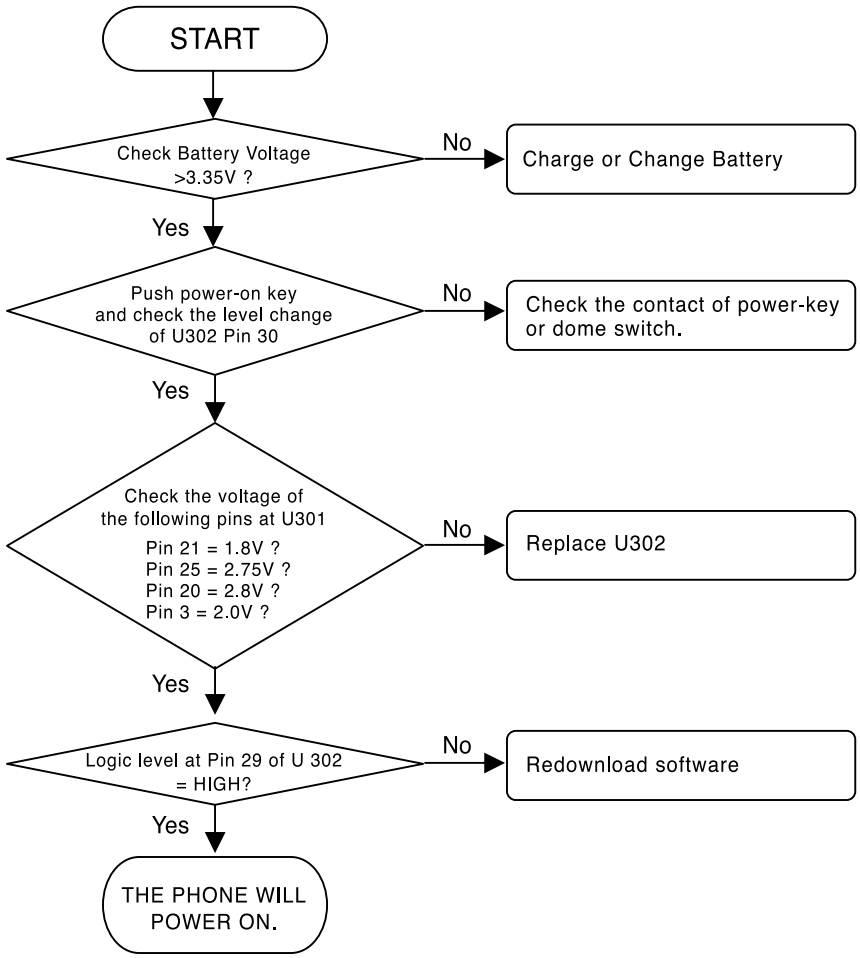
## ◆Test) Check U302(ADP3522)



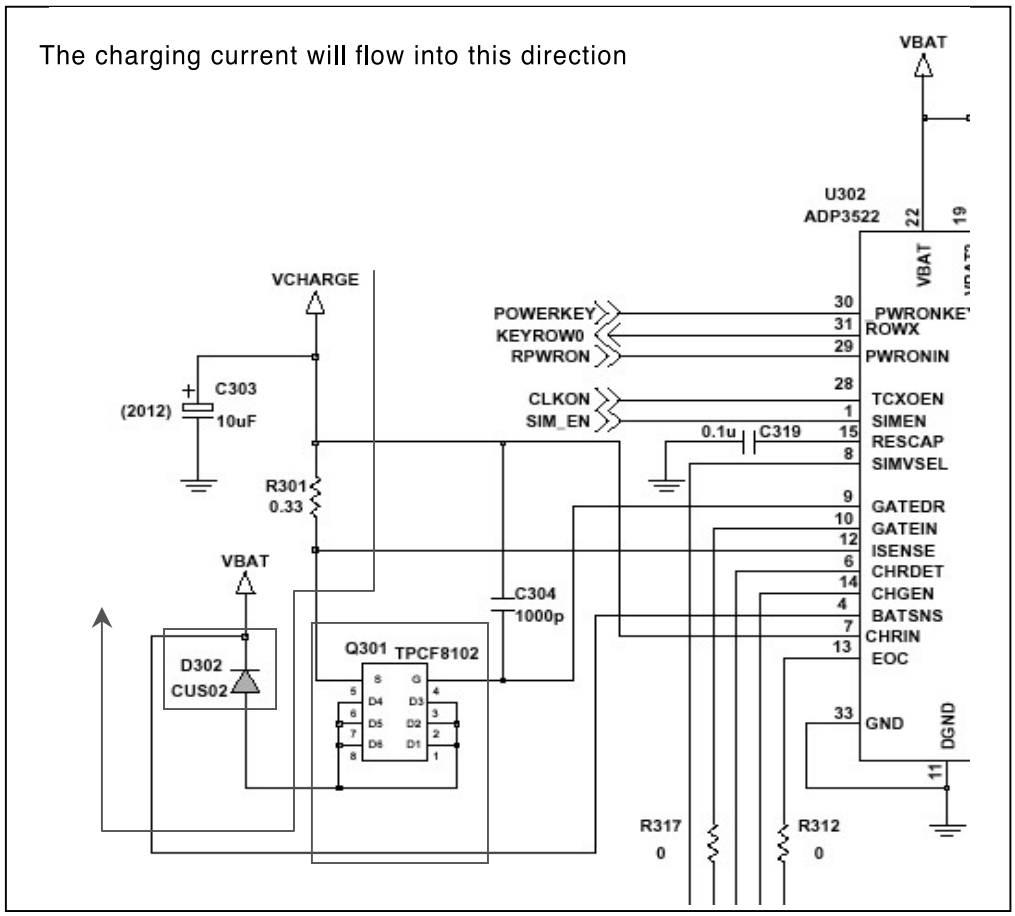



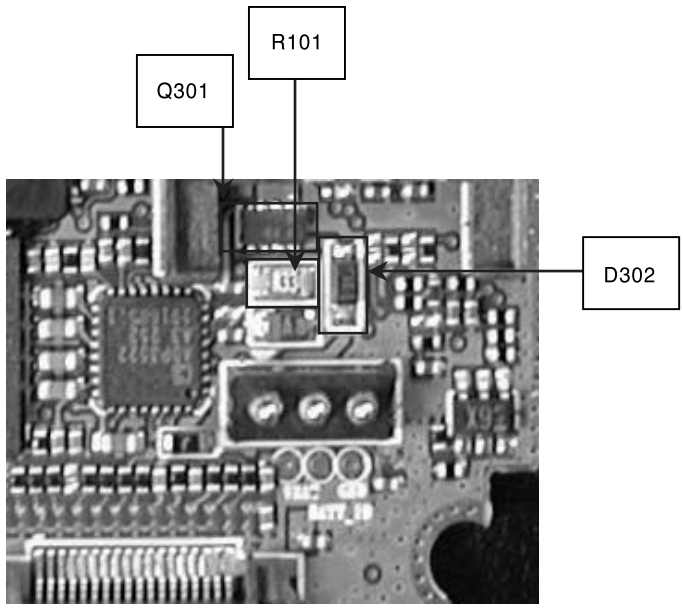
## 4.5 Charging Trouble

SETTING : Connect PIF, and set remote swit ch off at PIF.

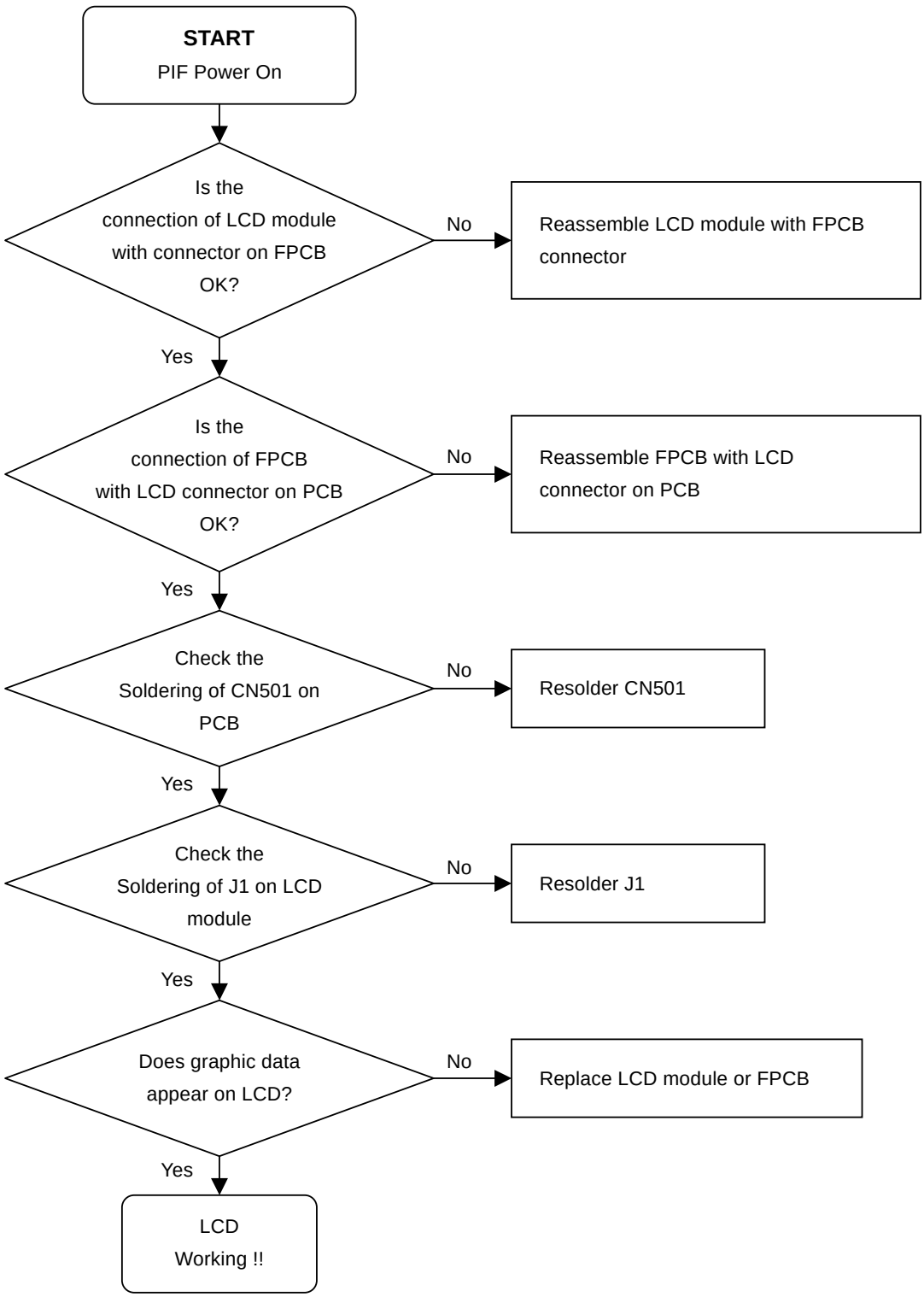


◆ **Test) Check R301, Q301, D302**

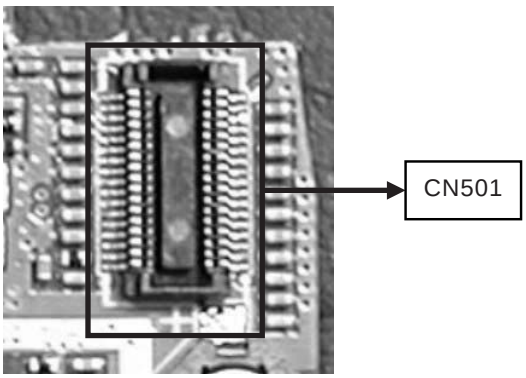


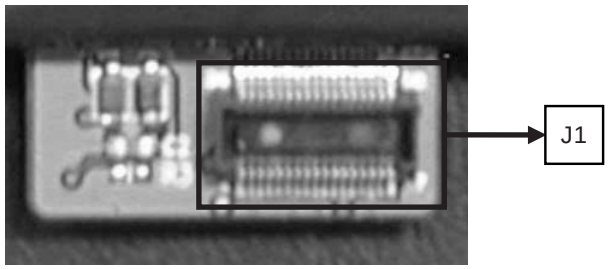
## 4.6 LCD Trouble



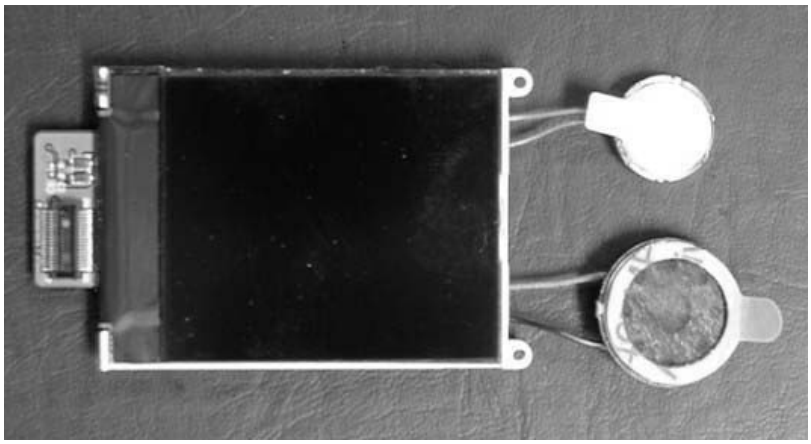
◆ **Test) CN501 & J1 Check !!**



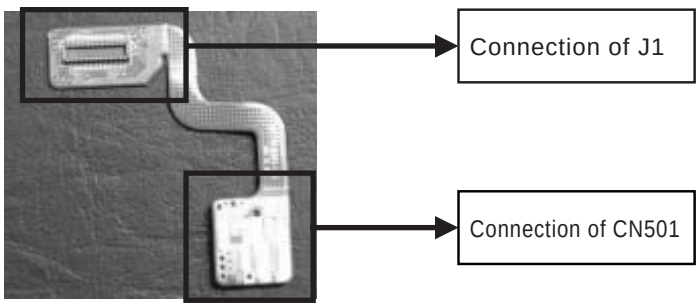

**LCD connector on PCB**




**LCD connector on LCD PCB**



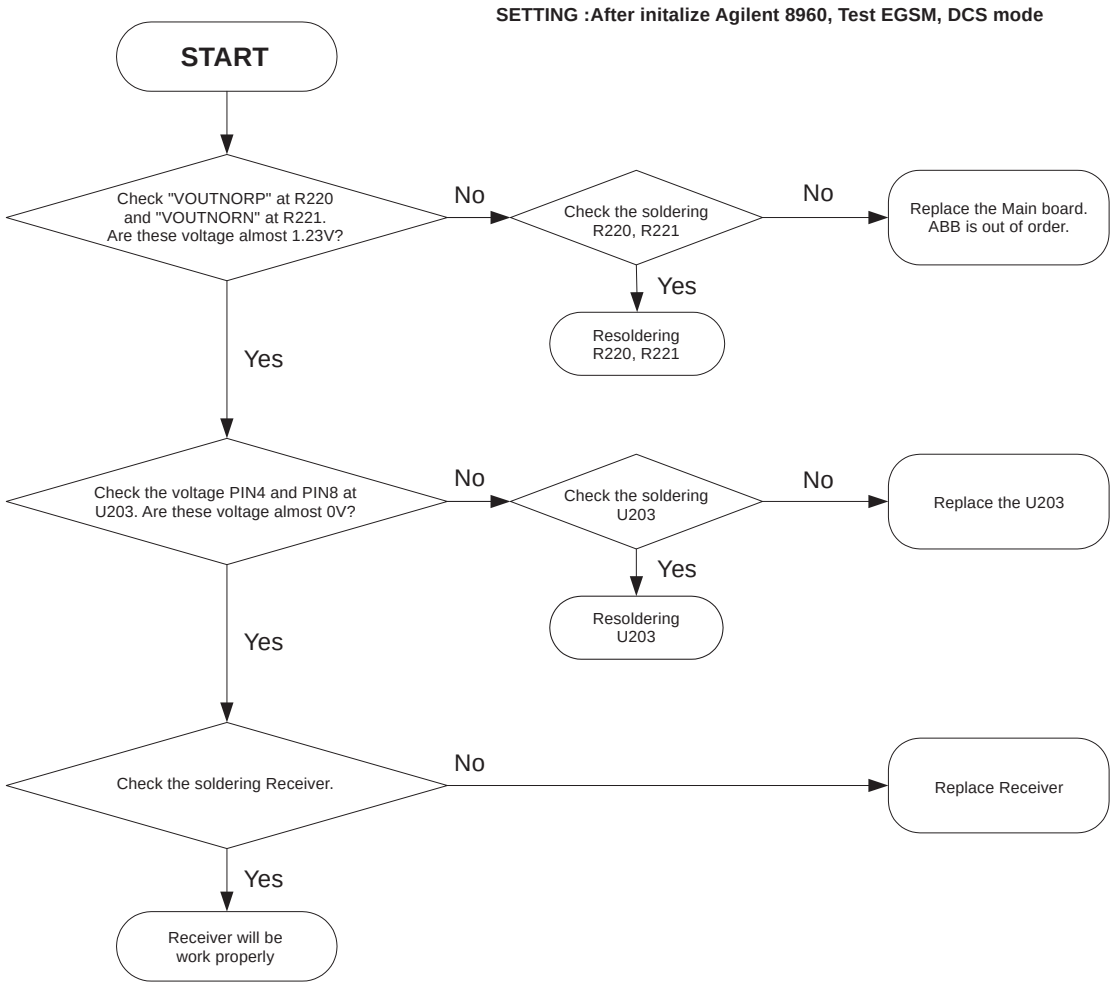
**LCD module**



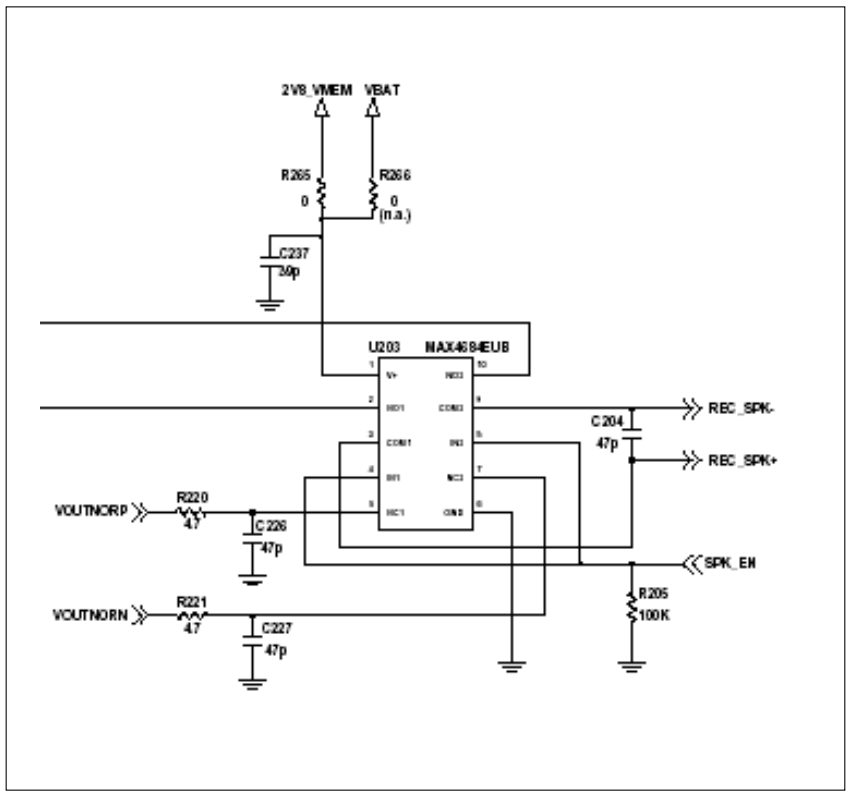

**FPCB Ass y**

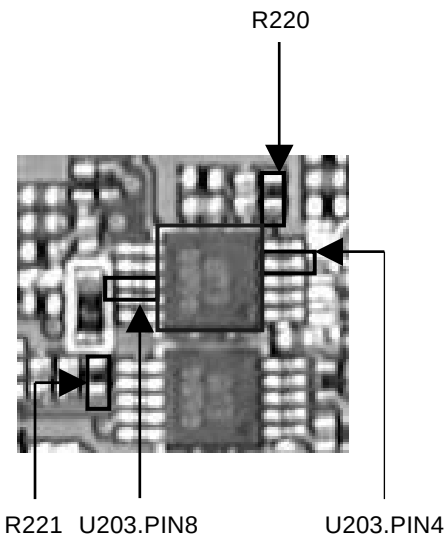
# 4.7 Receiver Trouble

**Receiver Trouble**



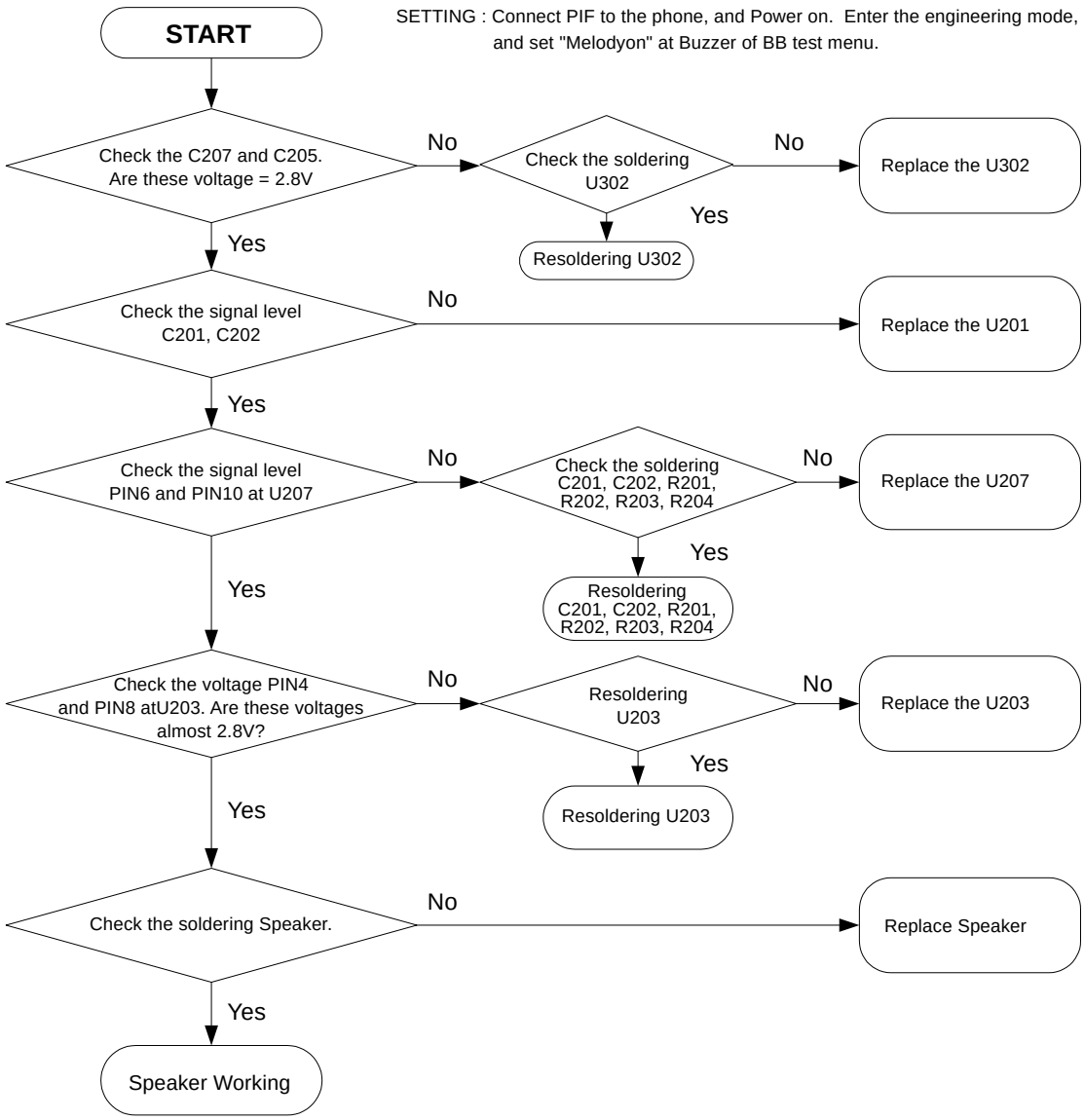
◆ **The Receiver part Circuit Diagram**



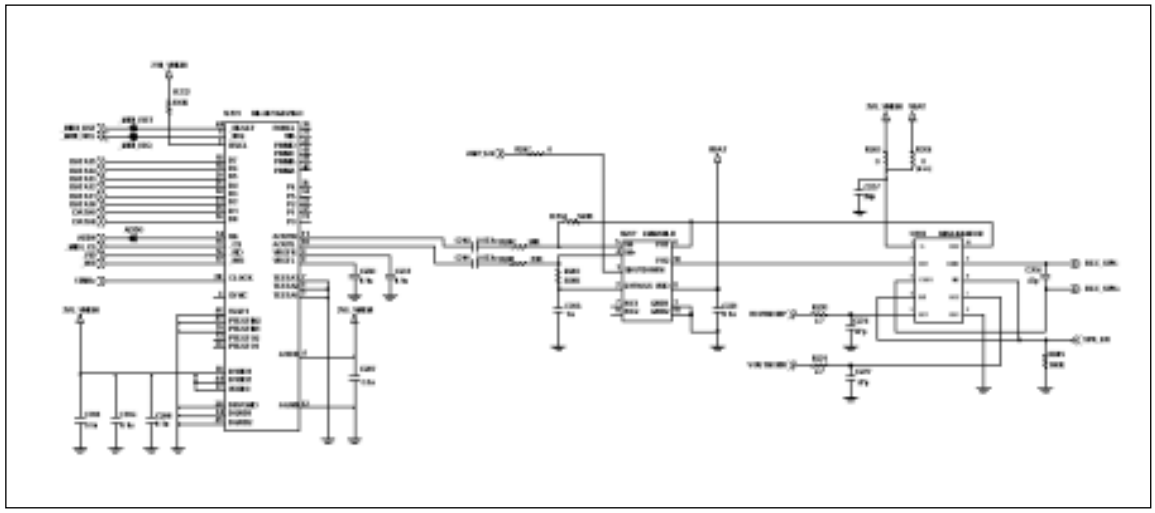



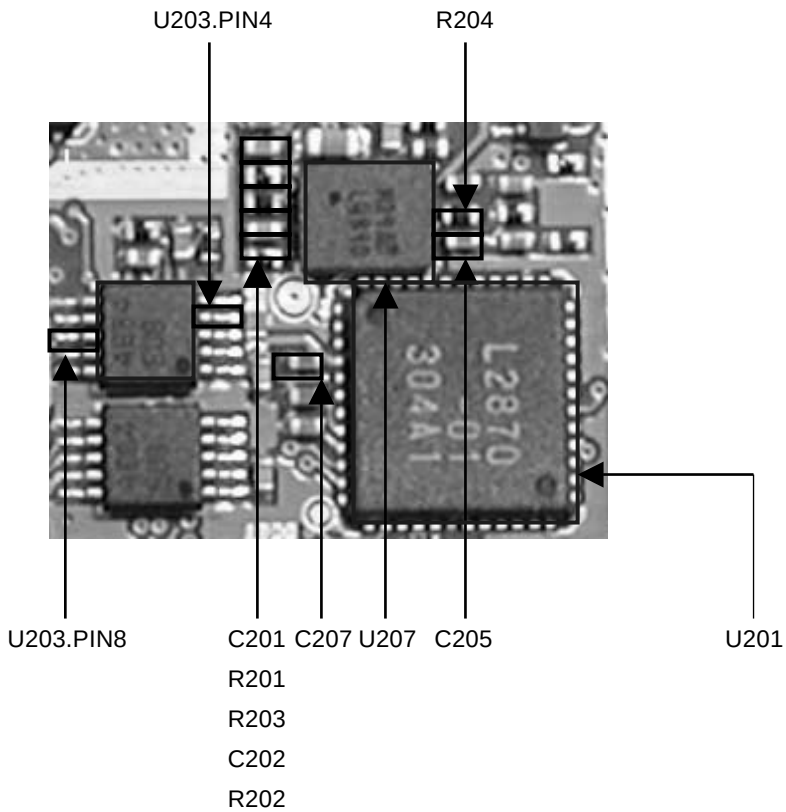
# 4.8 Speaker Trouble

**Speaker Trouble**

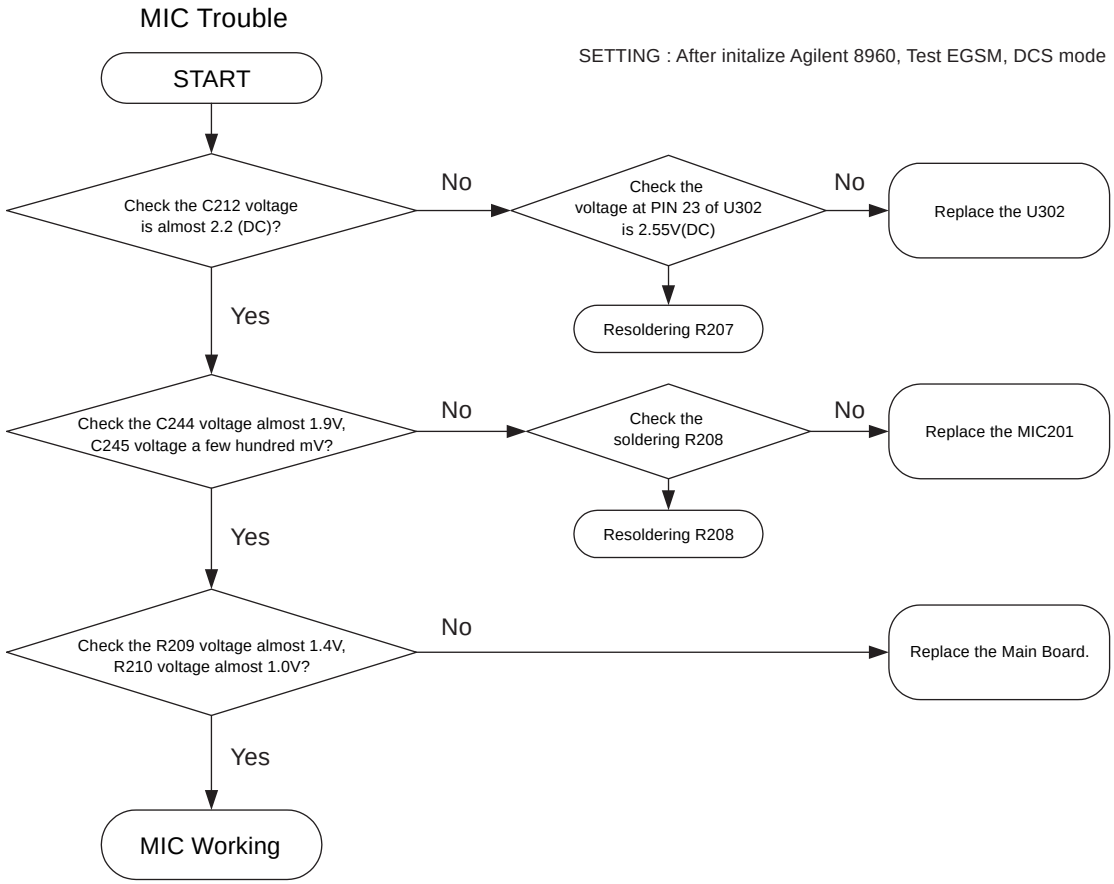


◆ **Speaker part Circuit Diagram**

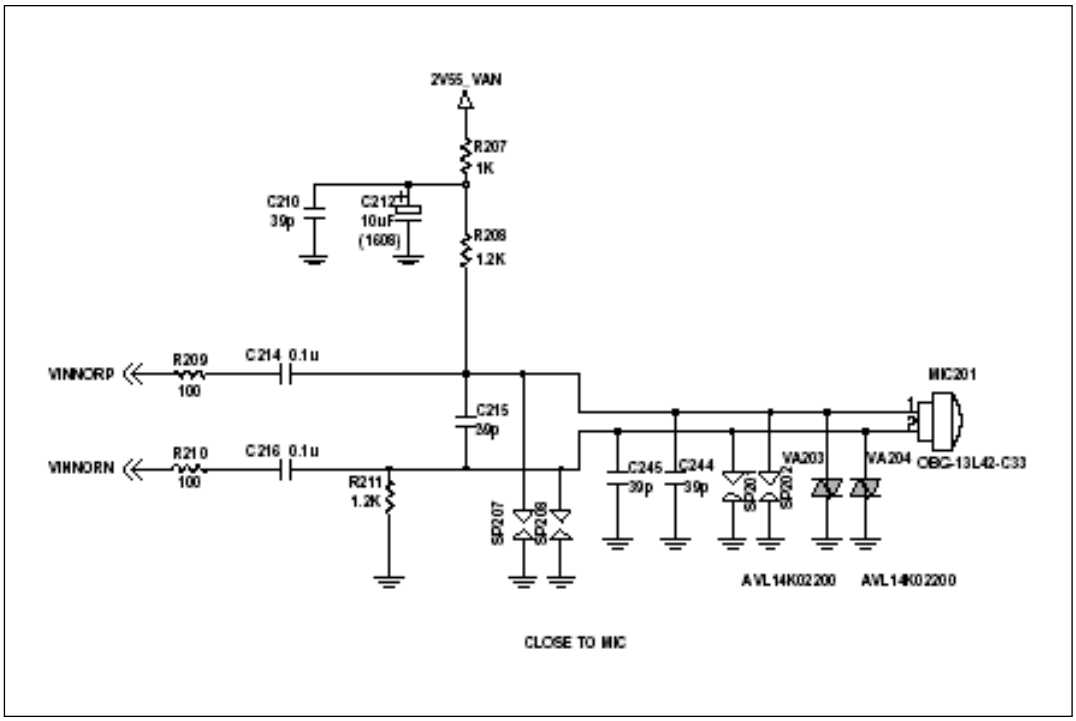


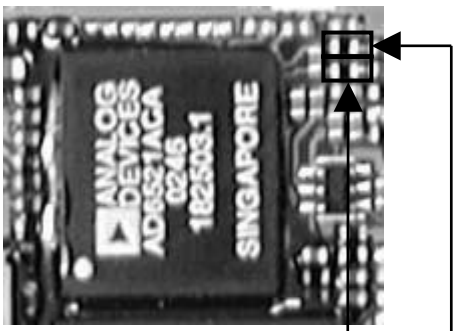


# 4.9 MIC Trouble

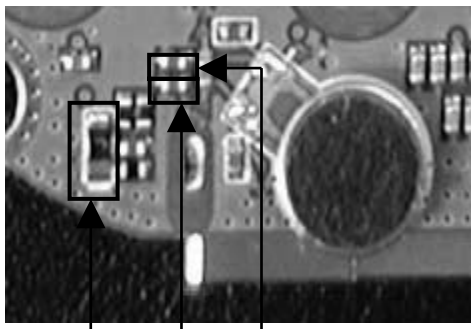


## ◆ MIC Circuit Diagram



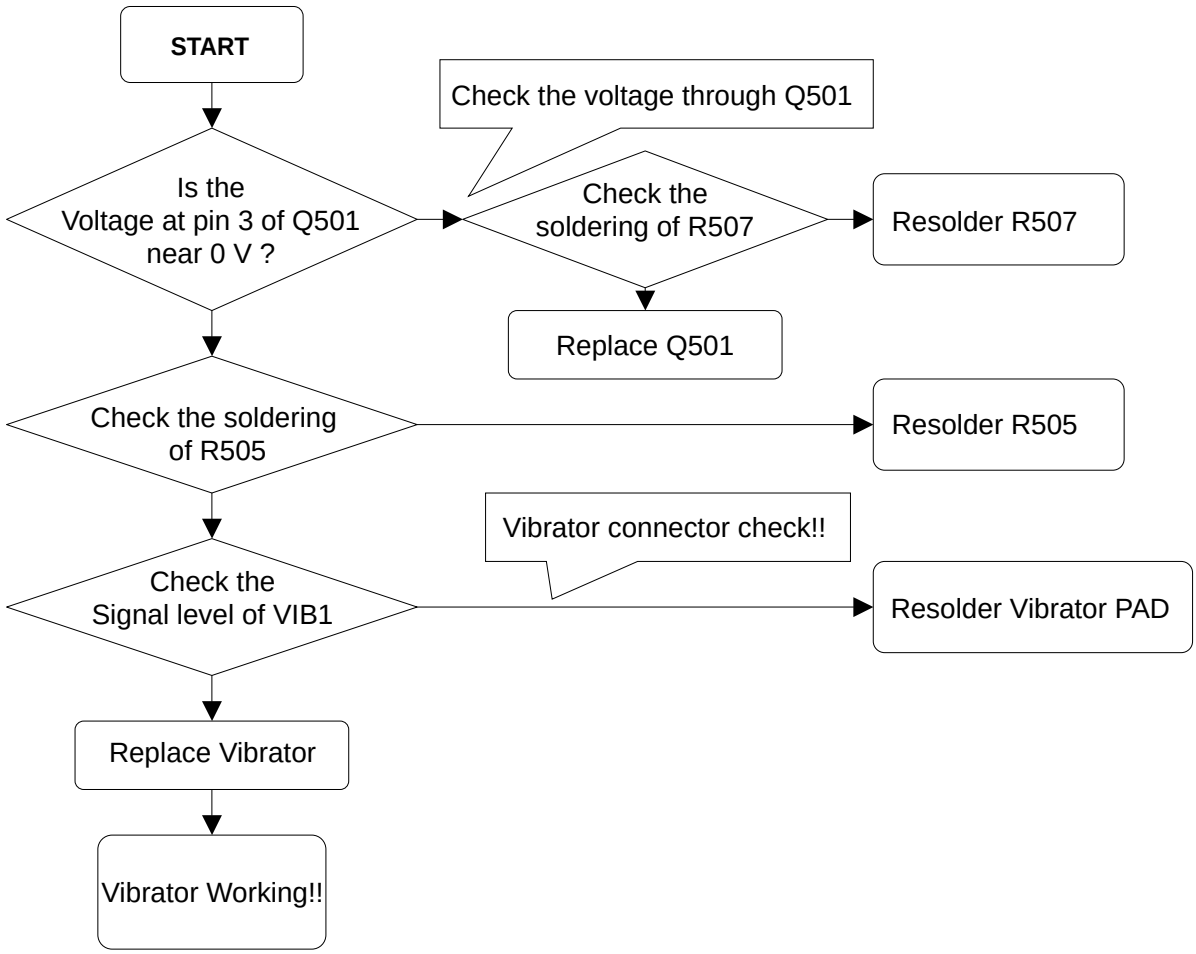

R210 R209



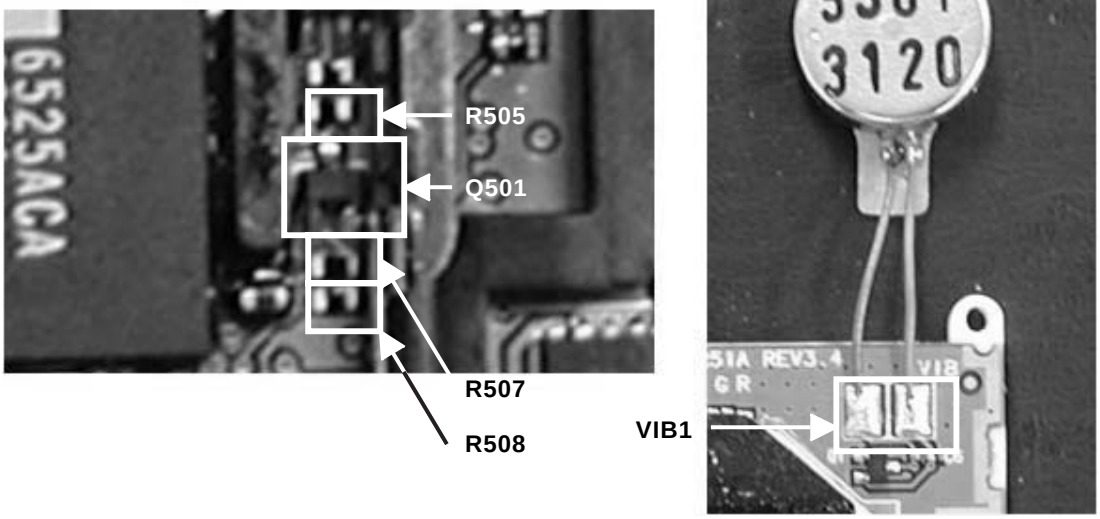
C212 C244 C245

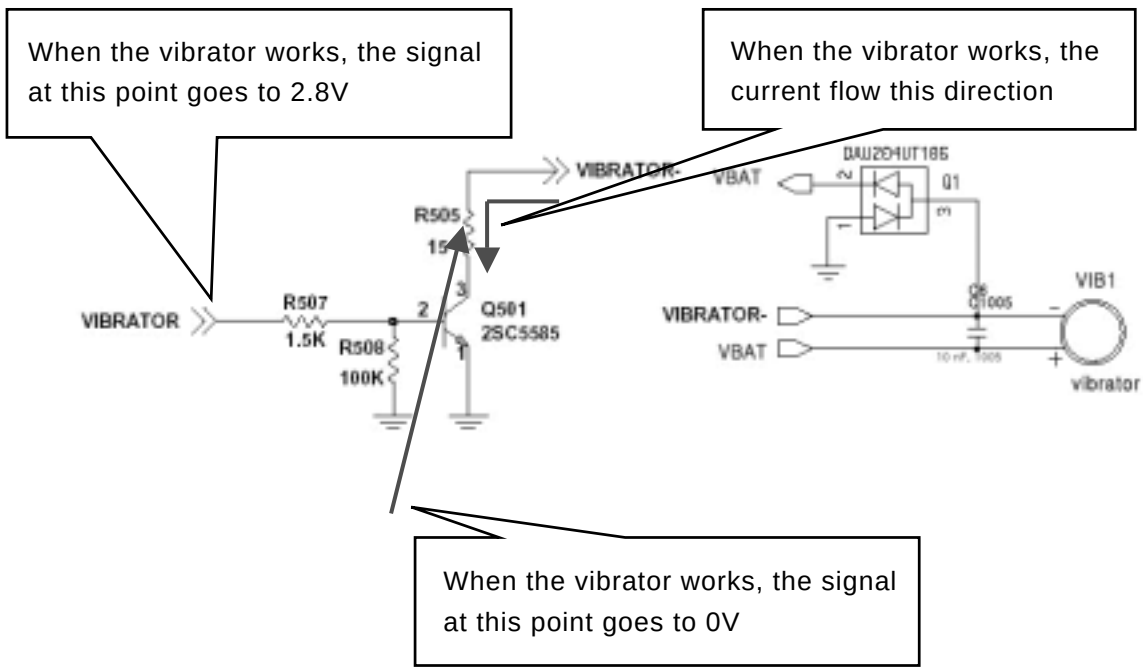
## 4.10 Vibrator Trouble

SETTING : After Initialize Agilent 8960, Test in EG SM, Connect PIF to the phone, and Power on.
Enter The engineering mode, and set Vibrator on at Vibration of BB test menu.



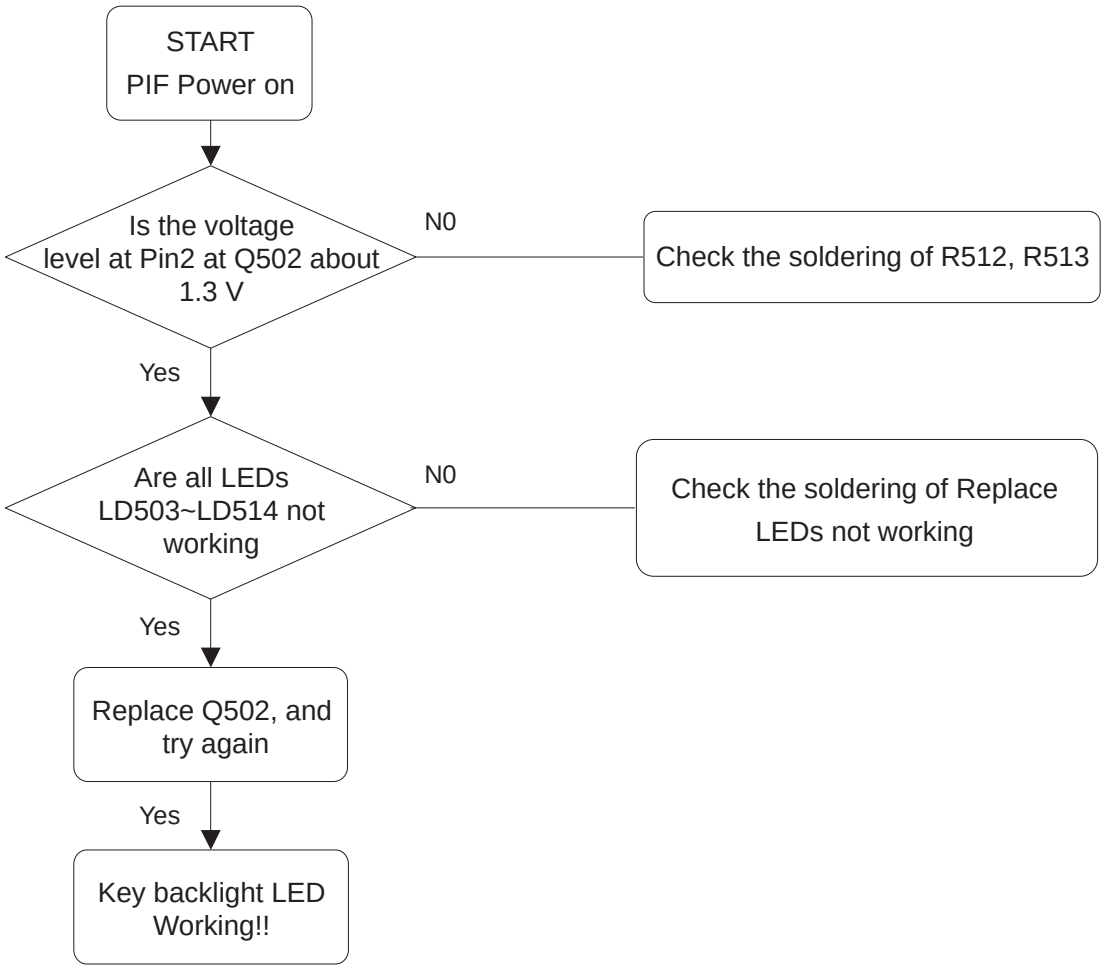
◆ **Test) Q501,R505,R507,R508 and Vibrator Check !!**



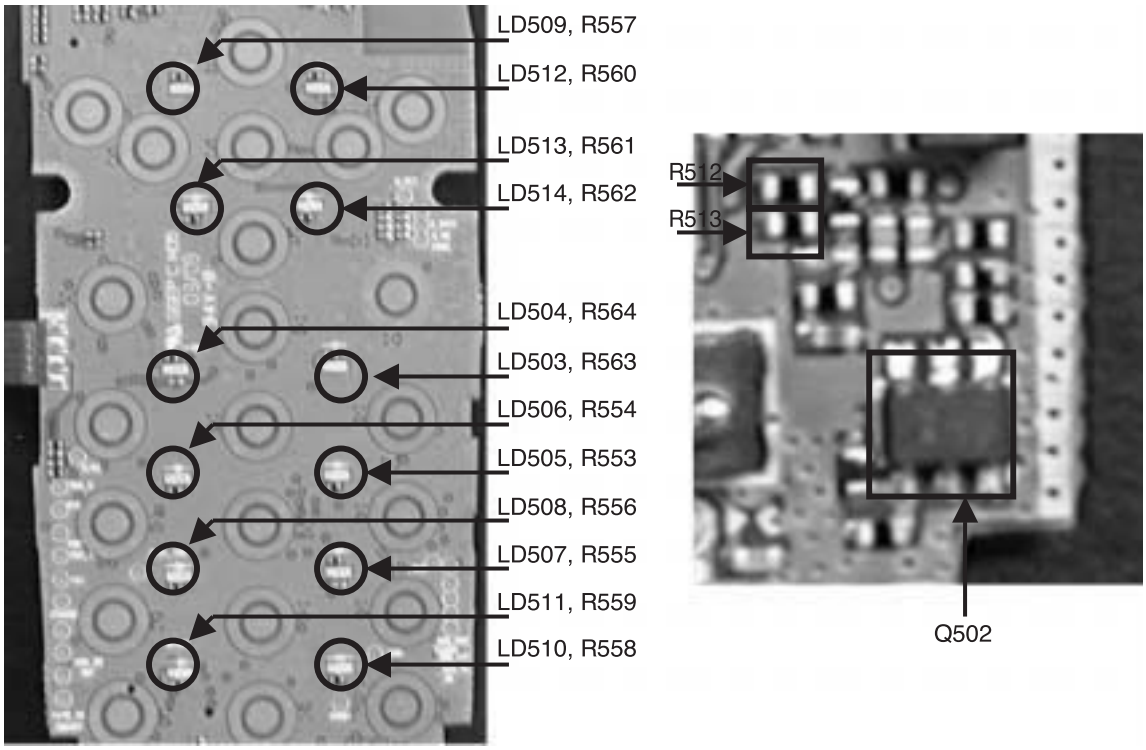



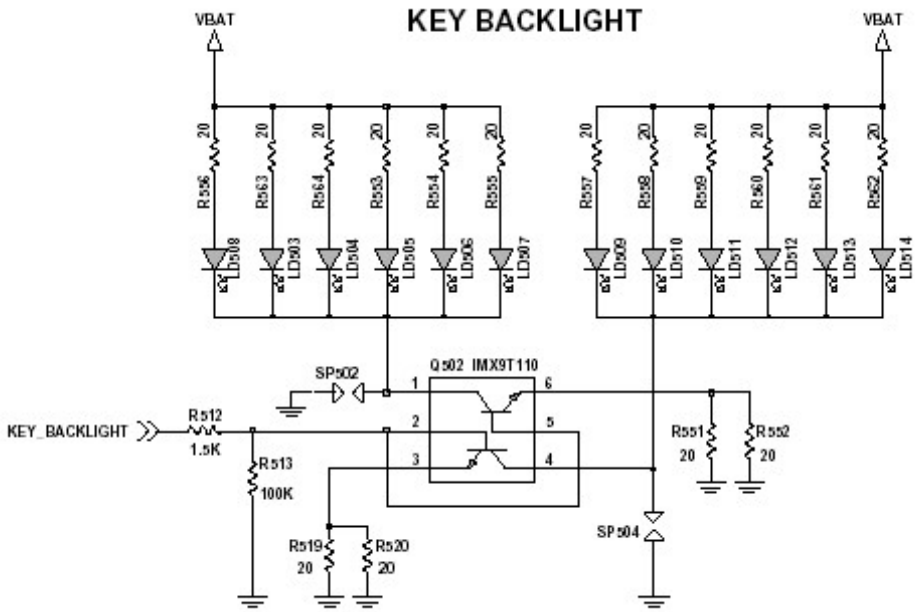
## 4.11 Key Backlight LED Trouble

SETTING : Connect PIF to the phone, and power on, Enter engineering mode, and set Backlight on at Backlight of BB test menu.

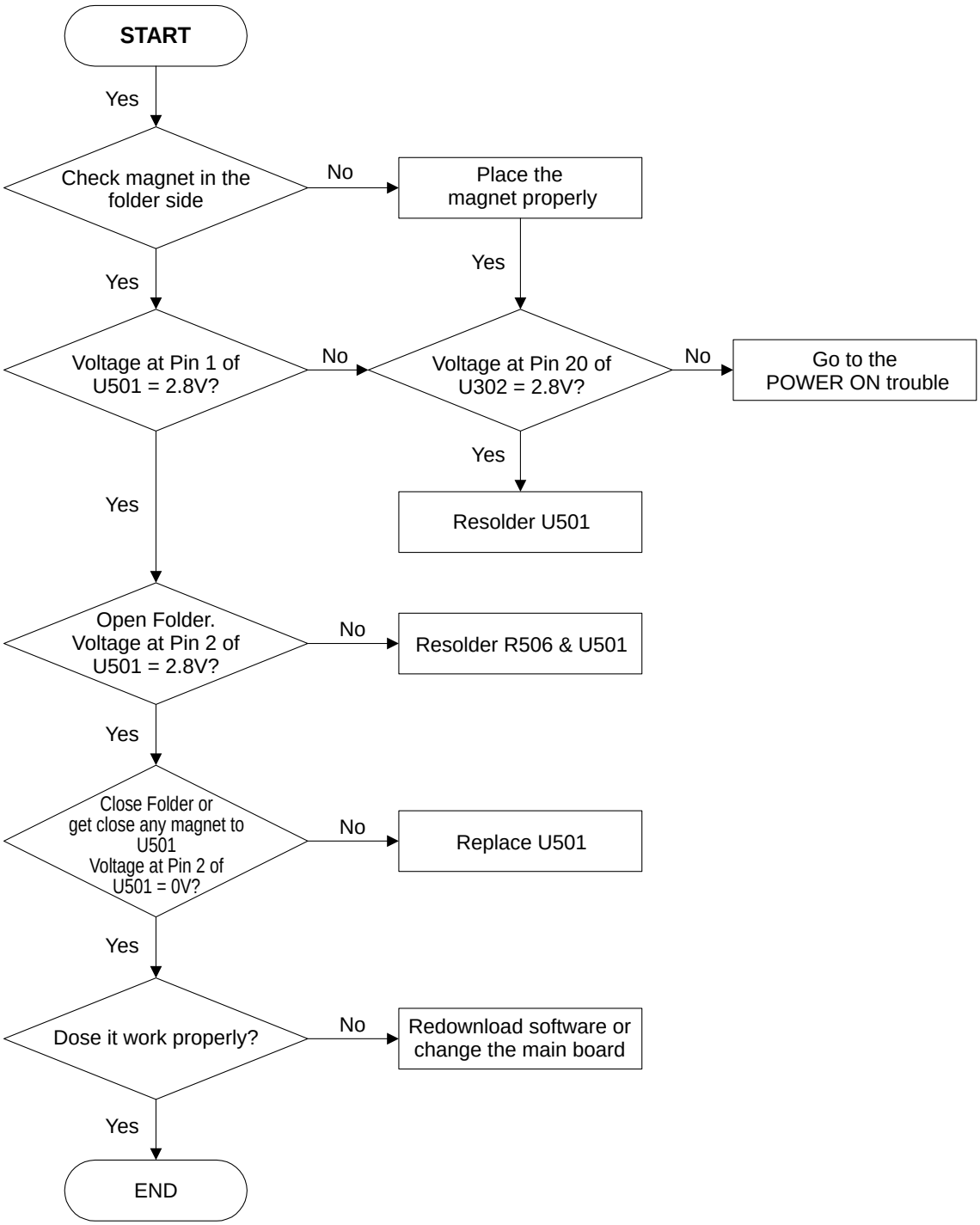


◆ **Test) Q502, R512, R513 and LD503 ~LD514 Check !!**

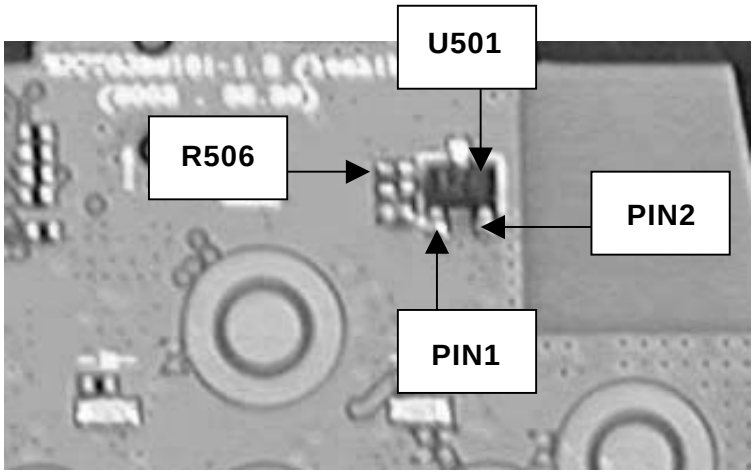


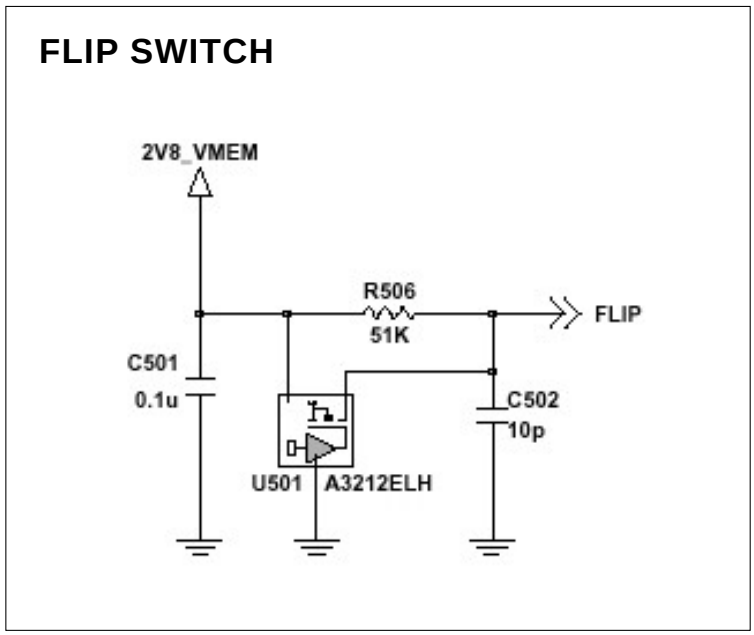



## 4.12 Folder on/off Trouble



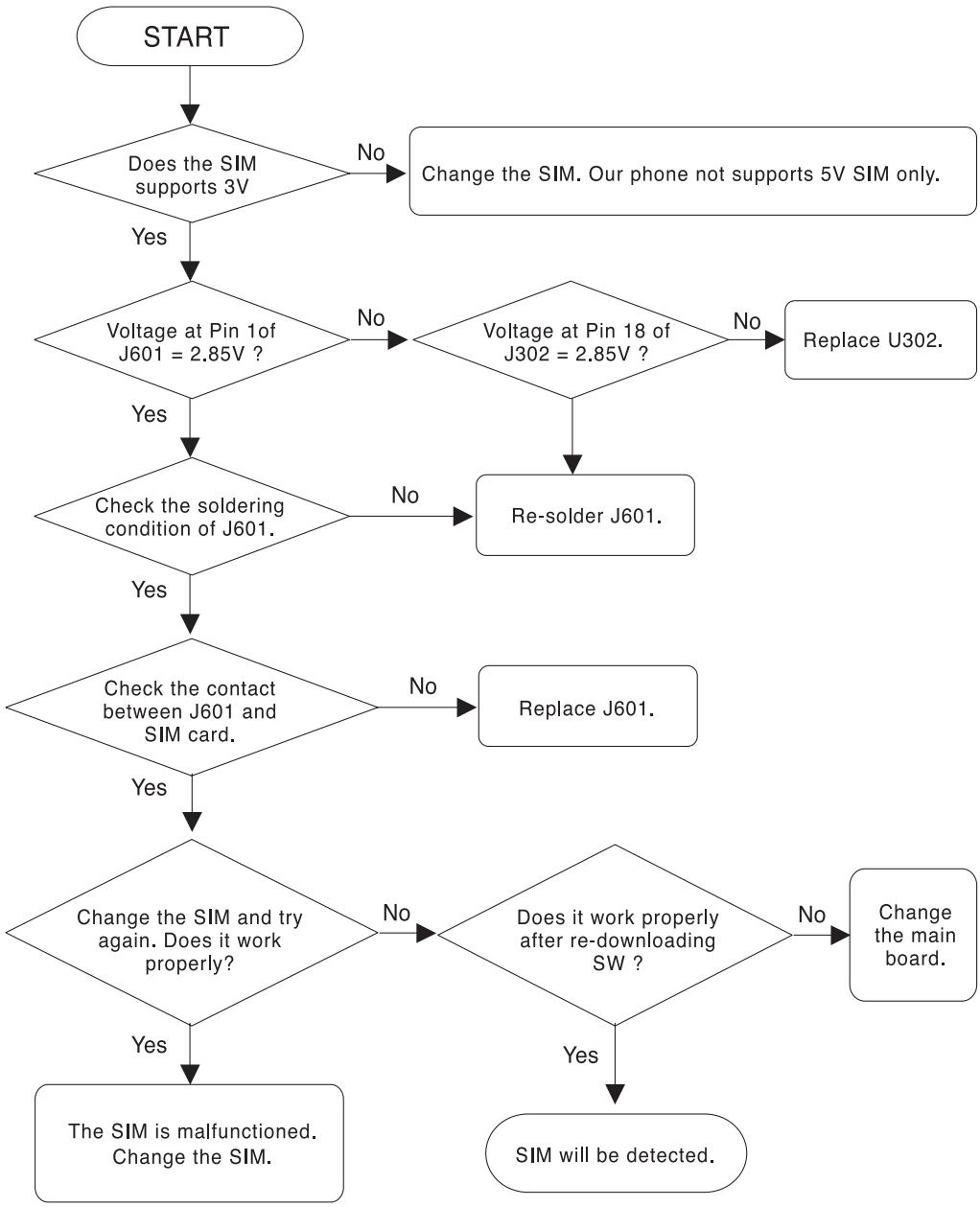
◆ **FLIP SWITCH**


U501
R506
PIN2
PIN1

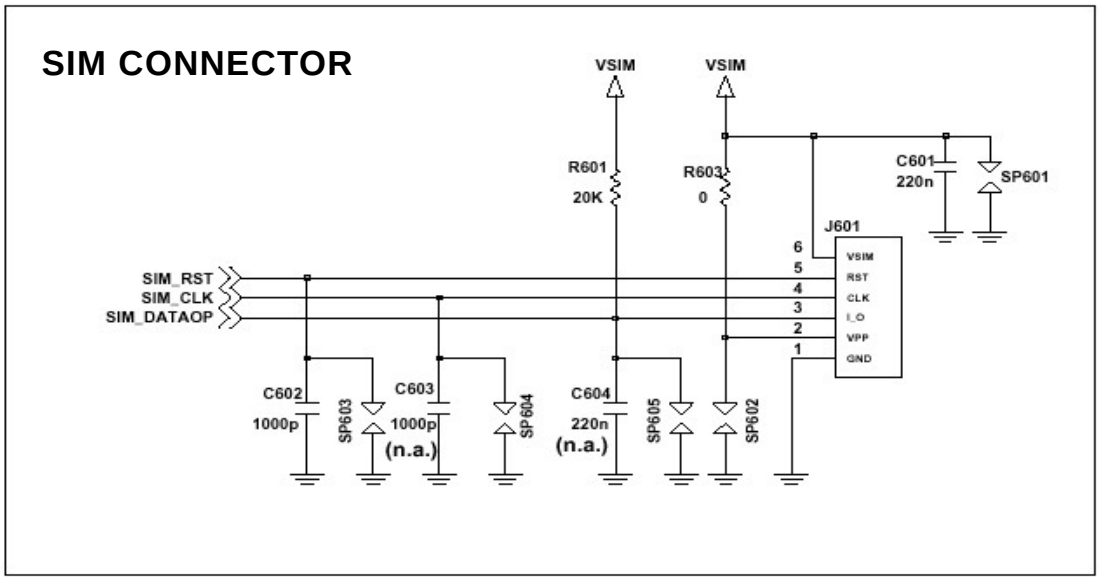

FLIP SWITCH
2V8_VMEM
R506
51K
FLIP
C501
0.1u
C502
10p
U501
A3212ELH

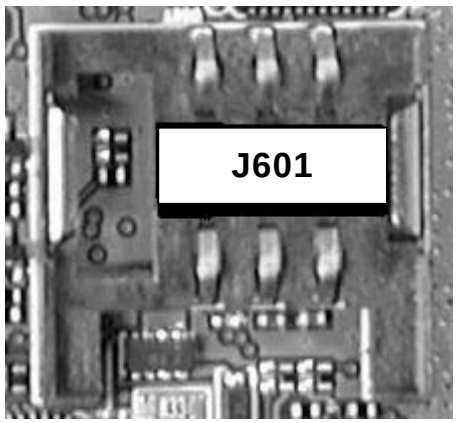
## 4.13 SIM Detect Trouble

SETTING : Insert the SIM into J301. Connect PIF to the phone, and power on.



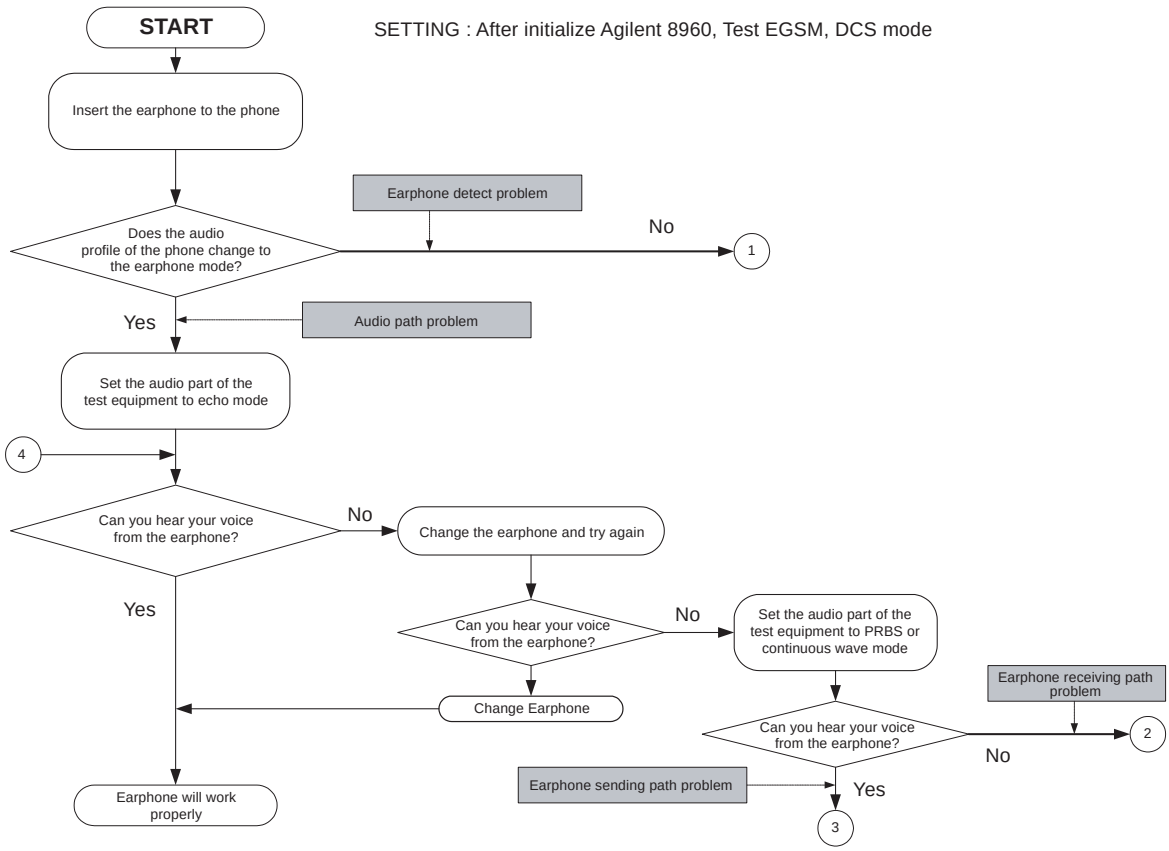
◆ **Test) Check SIM Connector**

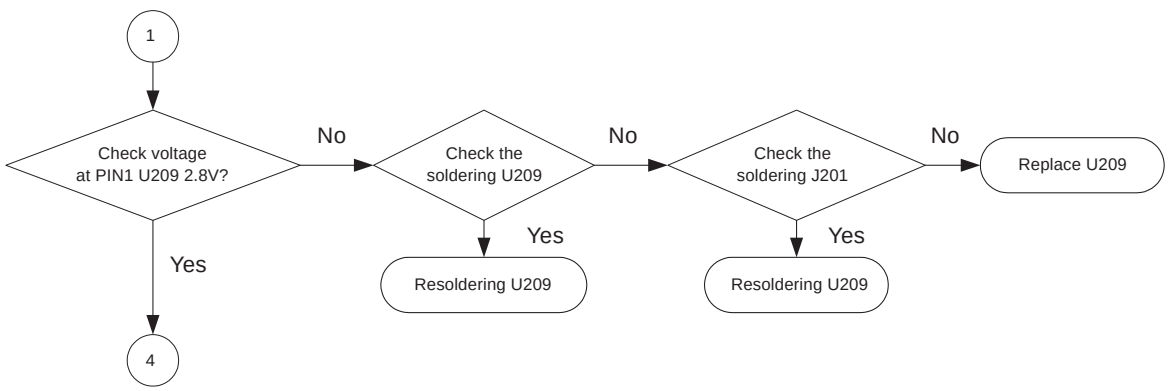


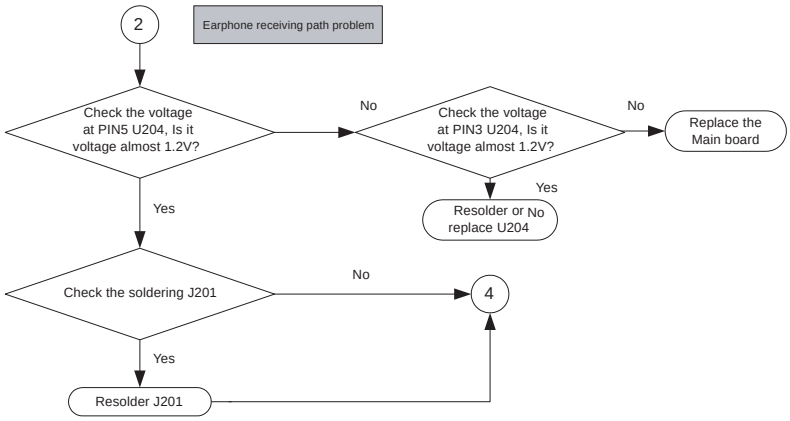



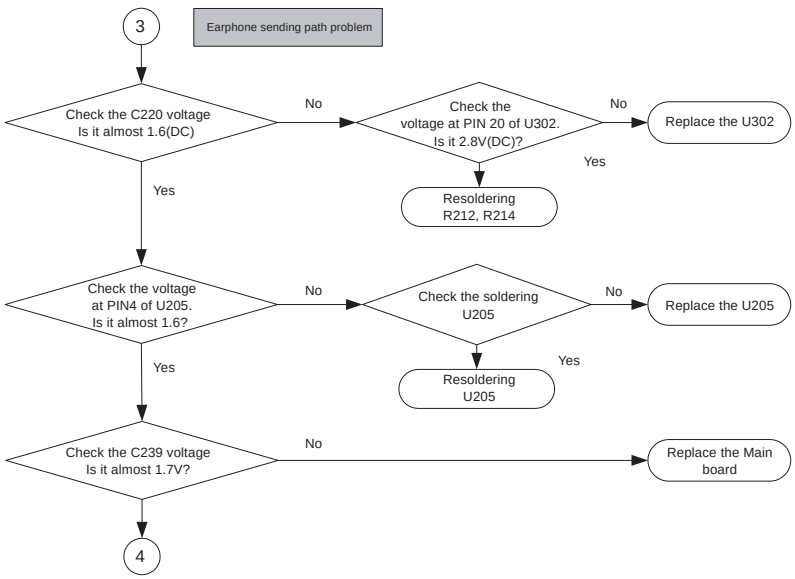
# 4.14 Earphone Trouble

**Earphone Trouble**

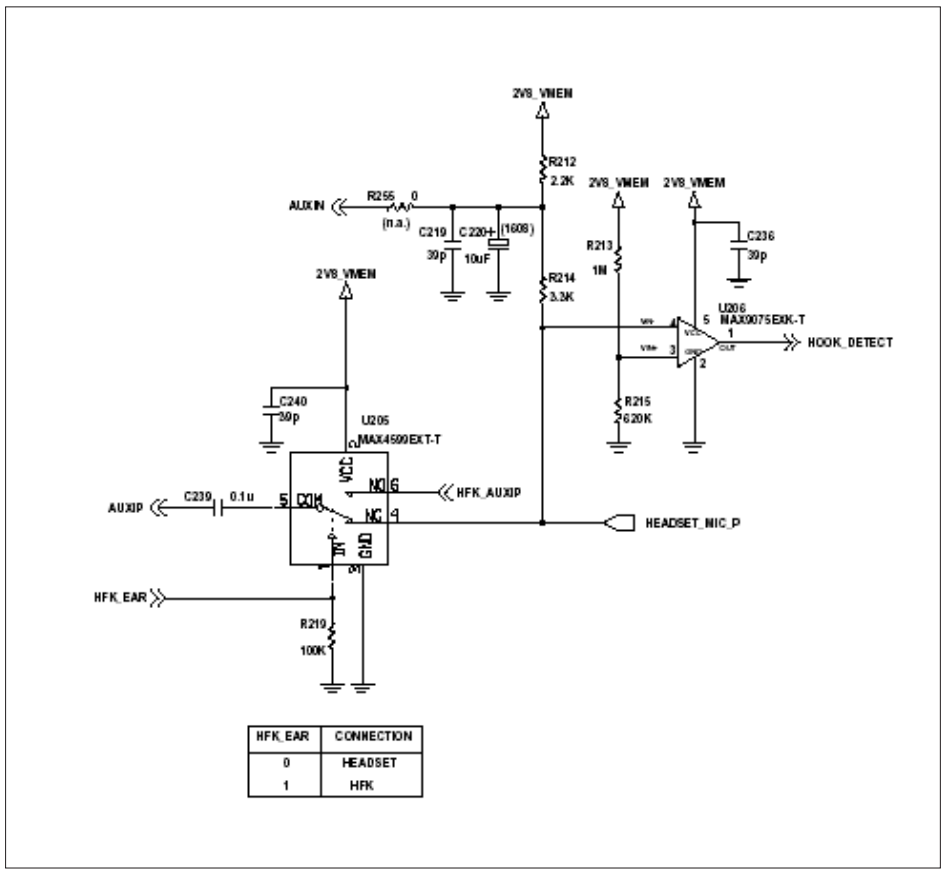


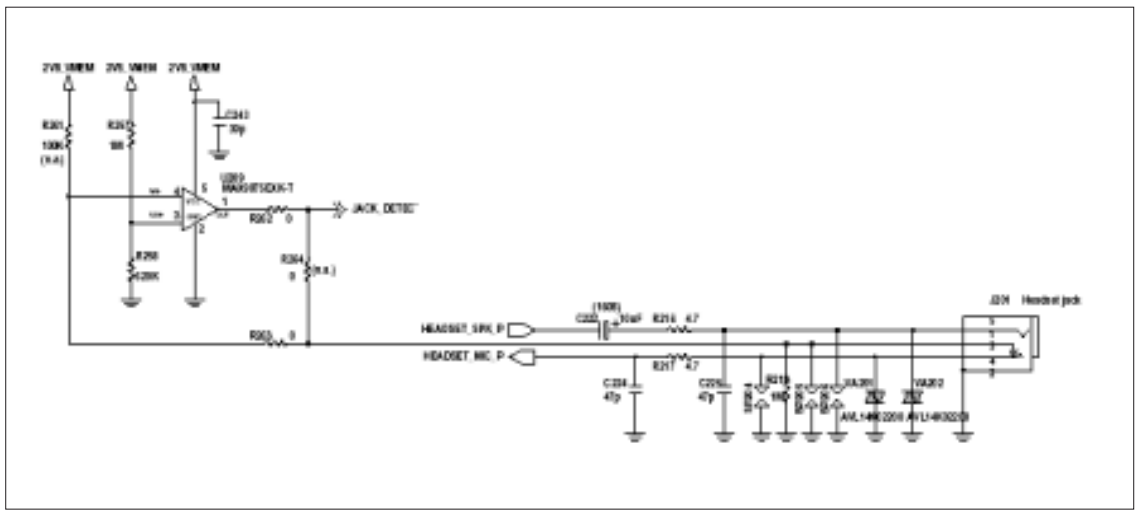

2
Earphone receiving path problem
Check the voltage at PIN5 U204, Is it voltage almost 1.2V?
No
Check the voltage at PIN3 U204, Is it voltage almost 1.2V?
No
Replace the Main board
Yes
Resolder or replace U204
No
Yes
Check the soldering J201
No
4
Yes
Resolder J201

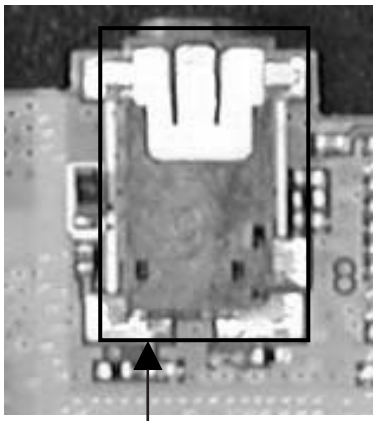

3
Earphone sending path problem
Check the C220 voltage Is it almost 1.6(DC)
No
Check the voltage at PIN 20 of U302. Is it 2.8V(DC)?
No
Replace the U302
Yes
Resoldering R212, R214
Yes
Check the voltage at PIN4 of U205. Is it almost 1.6?
No
Check the soldering U205
No
Replace the U205
Yes
Resoldering U205
Yes
Check the C239 voltage Is it almost 1.7V?
No
Replace the Main board
4

## ◆ Earphone part Circurt Diagram

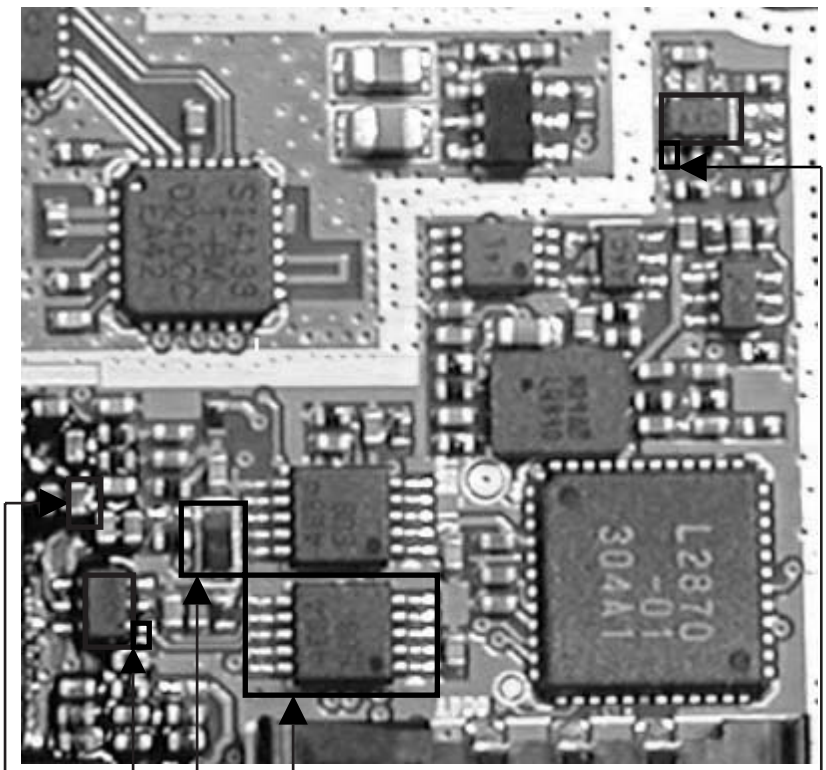



| HFK_EAR | CONNECTION |
|---|---|
| 0 | HEADSET |
| 1 | HFK |





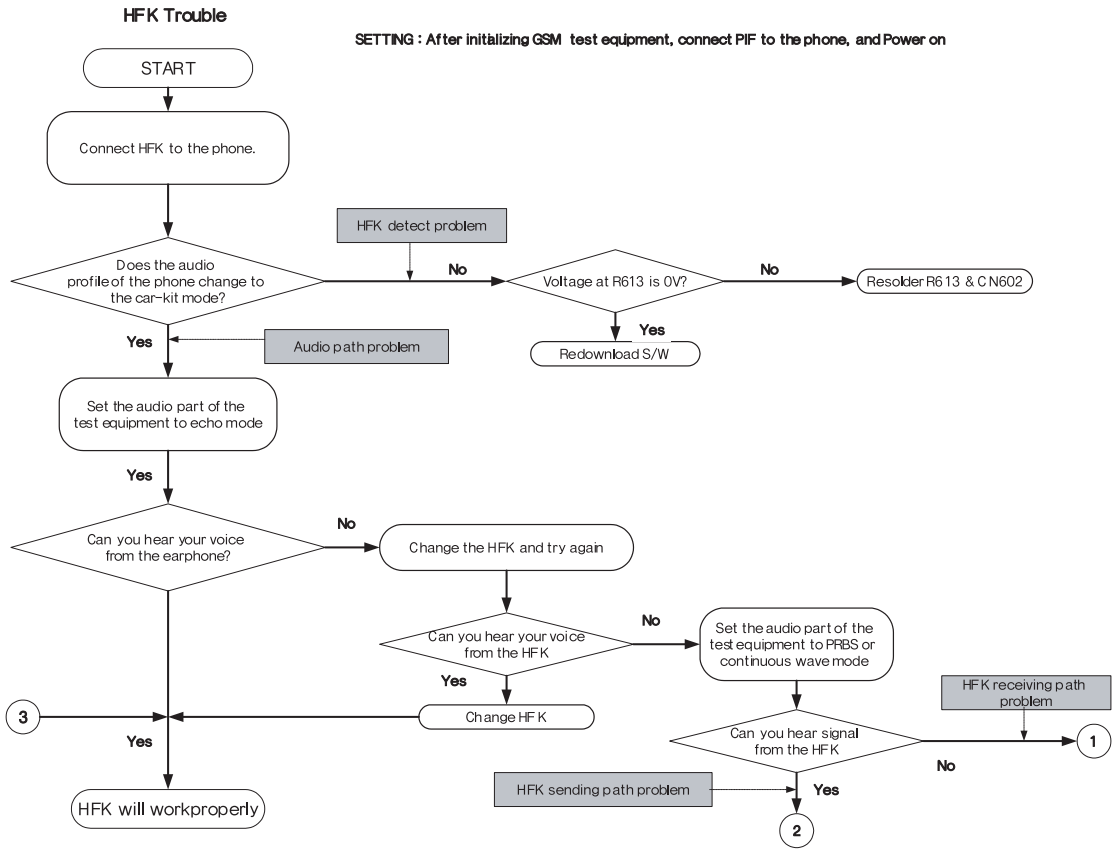
J201

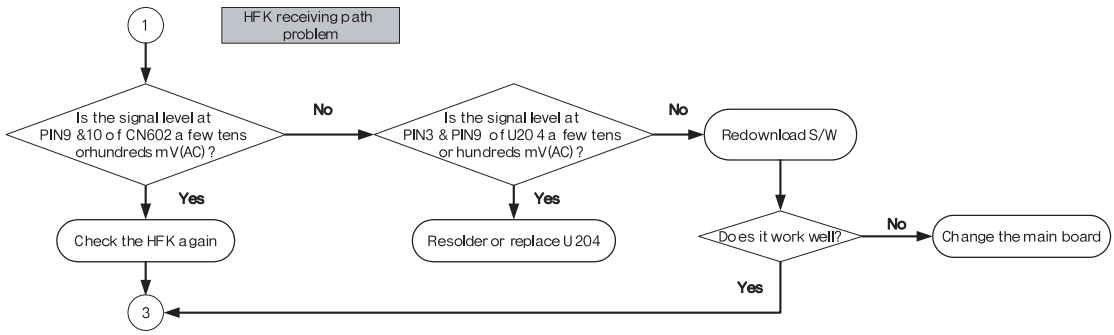


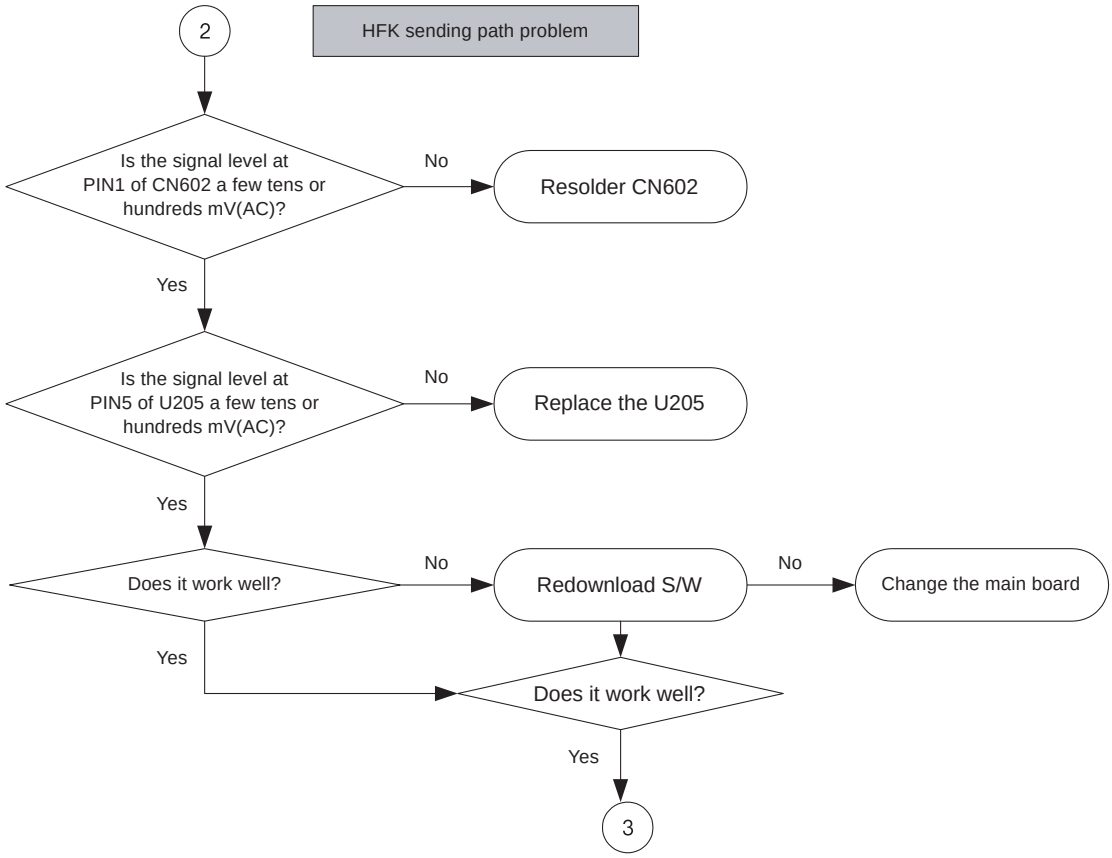

C239 C220 U204 U209.PIN1

U205.PIN1

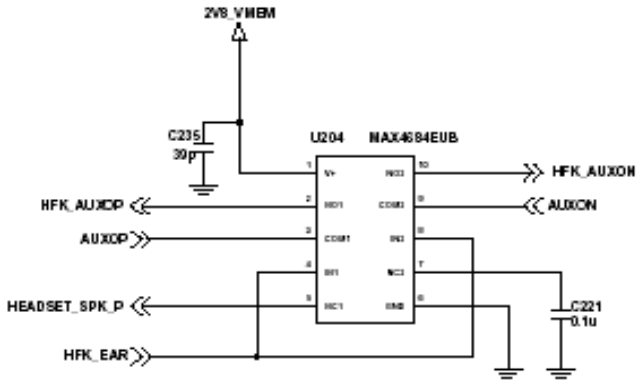
# 4.15 HFK Trouble

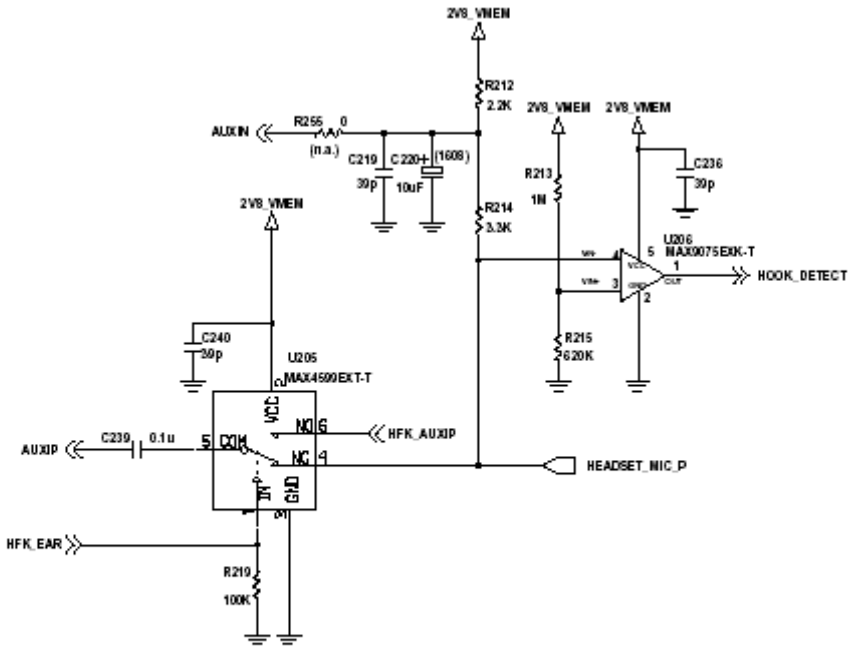



2
HFK sending path problem
Is the signal level at PIN1 of CN602 a few tens or hundreds mV(AC)?
No
Resolder CN602
Yes
Is the signal level at PIN5 of U205 a few tens or hundreds mV(AC)?
No
Replace the U205
Yes
Does it work well?
No
Redownload S/W
No
Change the main board
Yes
Does it work well?
Yes
3

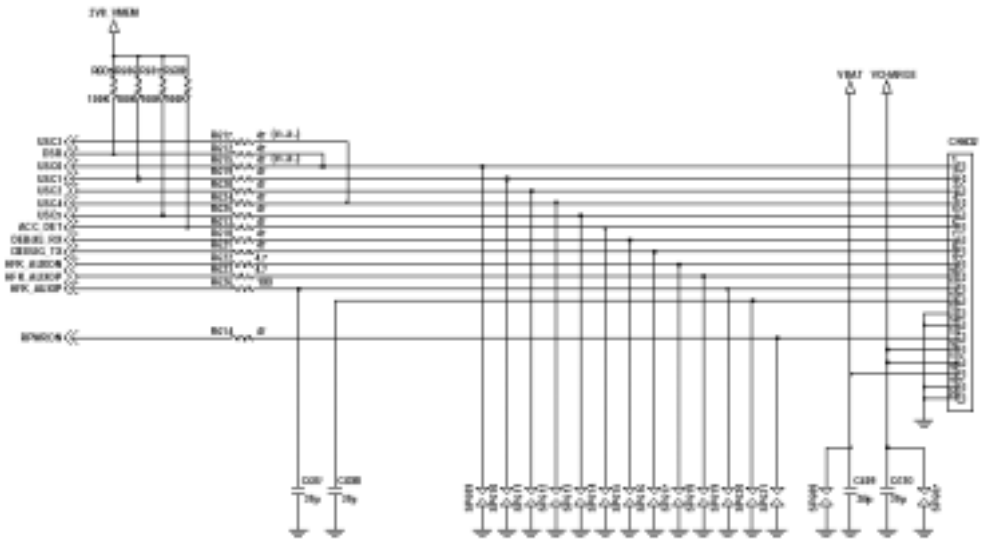
## ◆ HFK part Circuit Diagram

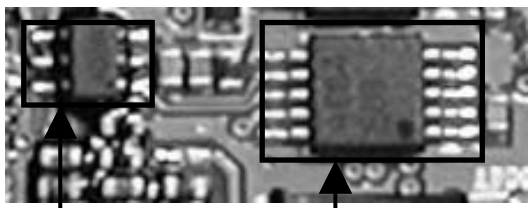


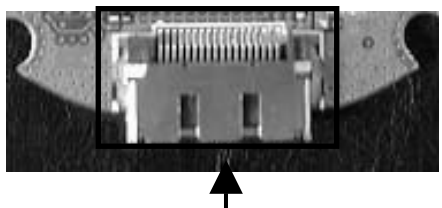

| HFK_EAR | CONNECTION |
|---|---|
| 0 | HEADSET |
| 1 | HFK |

## I/O CONNECTOR





U205 U204



CN602

# 5. DISASSEMBLY INSTRUCTION

## 5.1 Disassembly

1. Remove the battery, screws as shown above.

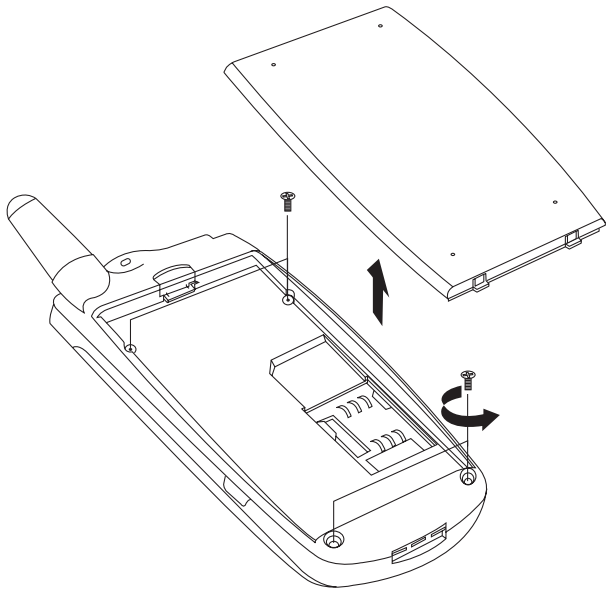


**Figure 5-1. Removing battery pack, screws and antenna**

2. Carefully lift up the bottom of rear cover first, then hold the covers and twist them.

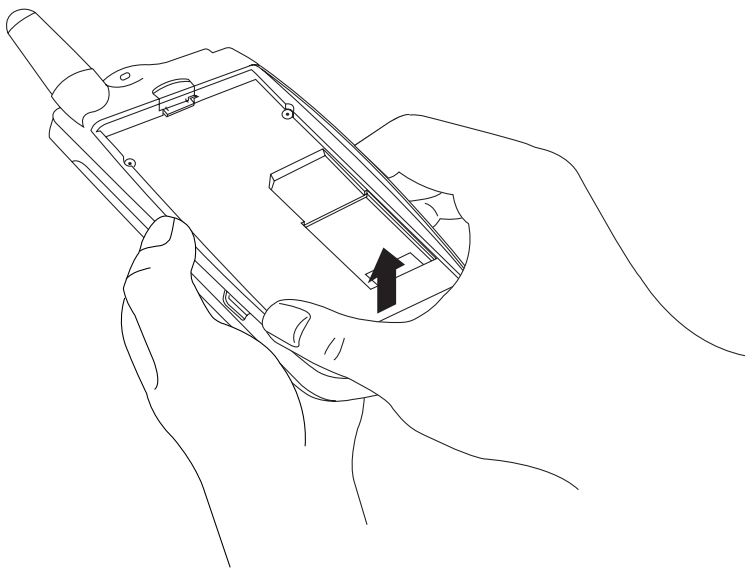


**Figure 5-2. Disassembly of rear cover and front cover**

3. Finally carefully remove the rear-cover from the hooks on the top of front-cover.

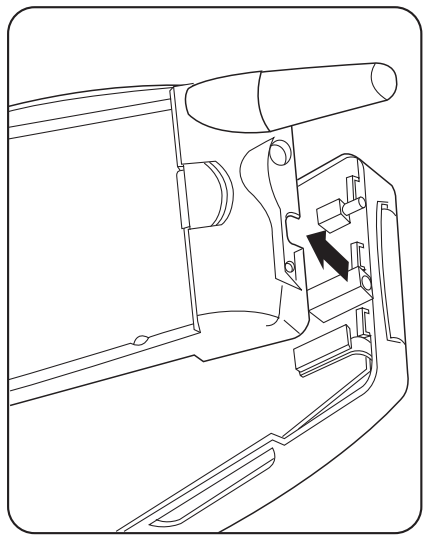


**Figure 5-3. Disassembly from the hooks**

4. Remove the pin shown below to unlock the PCB.

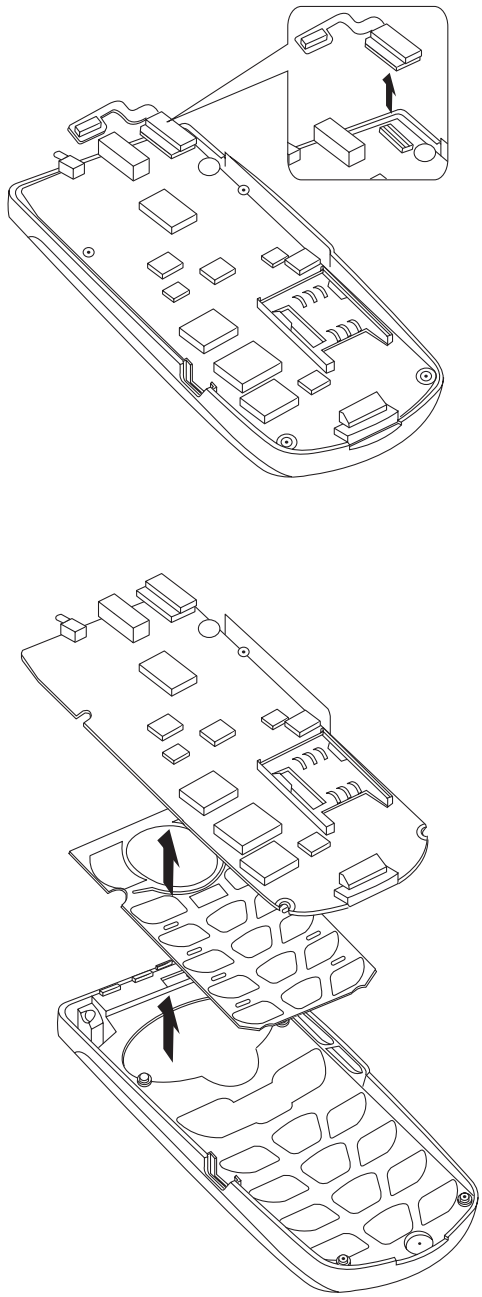


**Figure 5-4. Removing battery pack, screws and antenna**

5. Use a tweezers to remove the battery locker

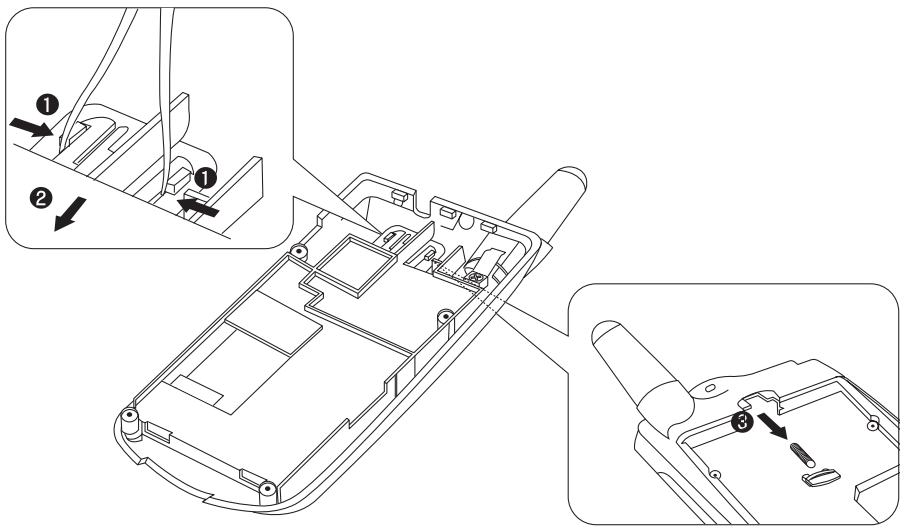



**Figure 5-5. Removing battery locker**

6. Remove the side keys

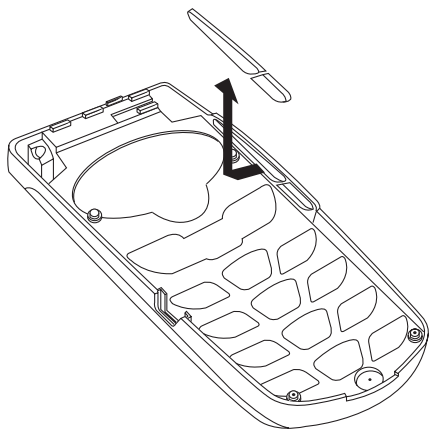


**Figure 5-6. Removing side keys**

7. Push away the hinge to remove the folder.

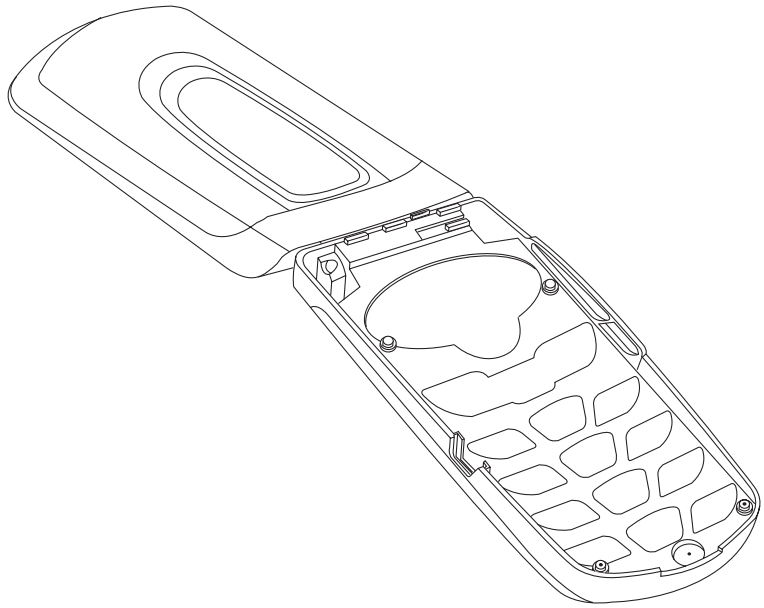


**Figure 5-7. Detaching folder**

8. Remove a hinge from the folder. Then detach screw caps and screws.

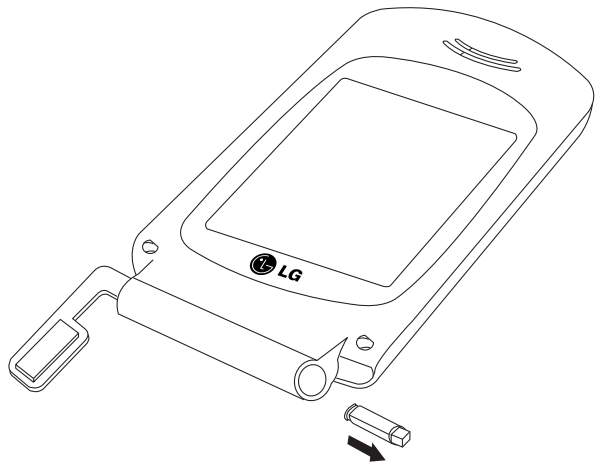


**Figure 5-8. Removing hinge and screws.**

9. Place the folder on a desk. Then hold the hinge and push it down carefully. Finally, detach it from the rest hooks shown above.

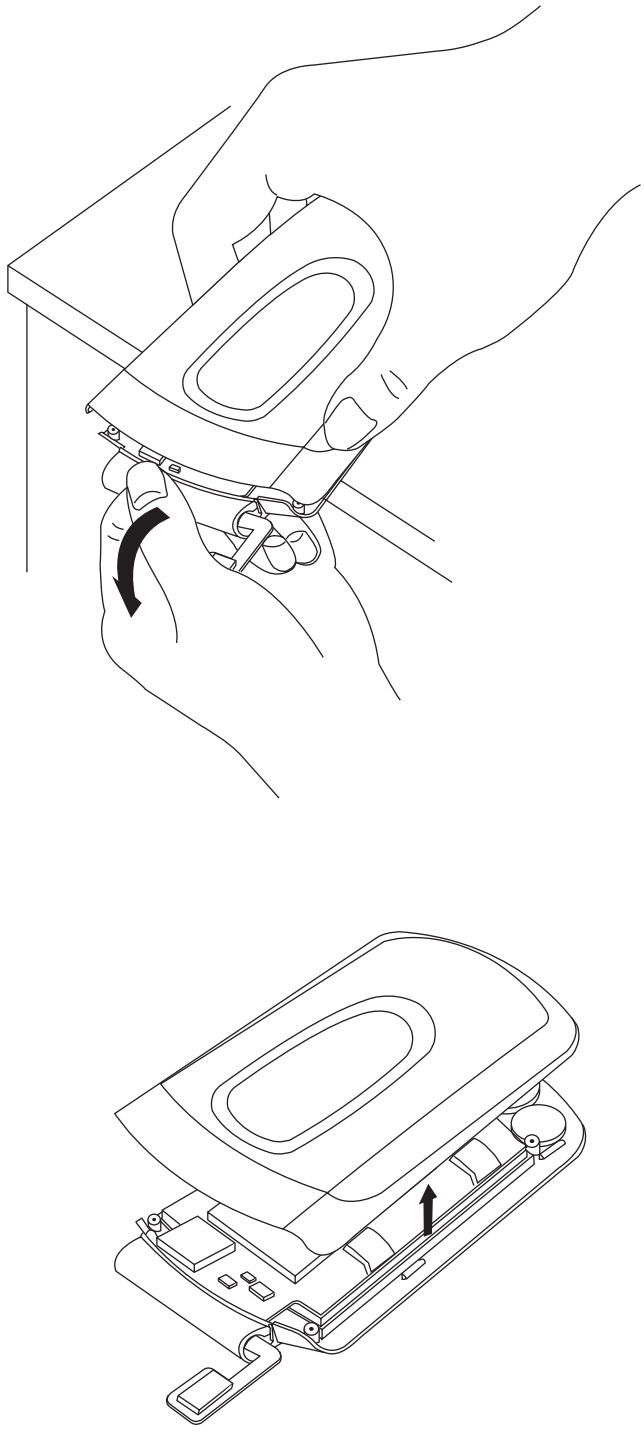


**Figure 5-9. Disassembly of folder**

10. Detach the rest components as shown below.

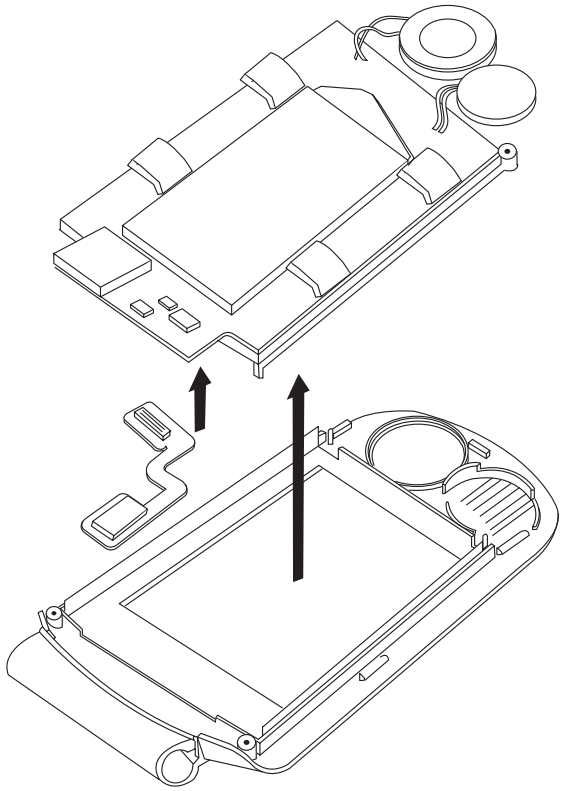


**Figure 5-10. Disassembly of rest components.**

# 6. DOWNLOAD AND CALIBRATION

## 6.1 Download

### A. Download Setup

Figure 6-1 describes Download setup.

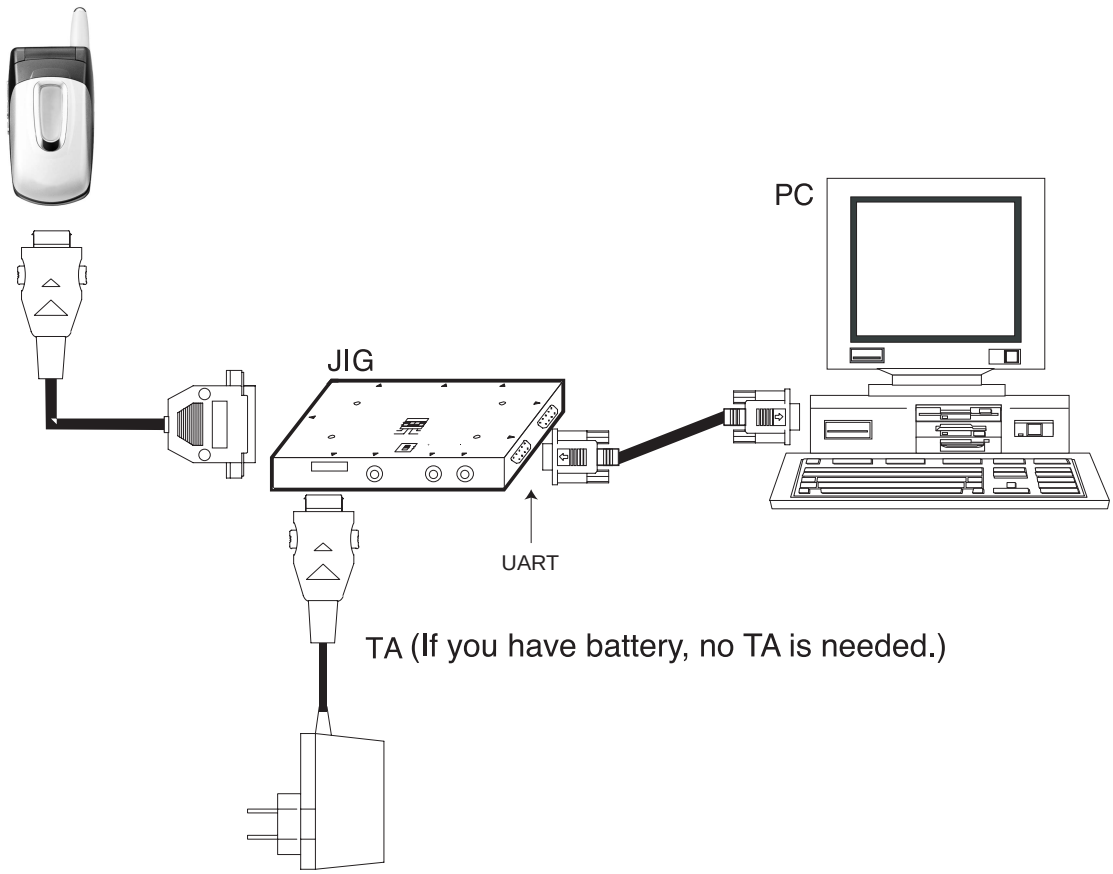
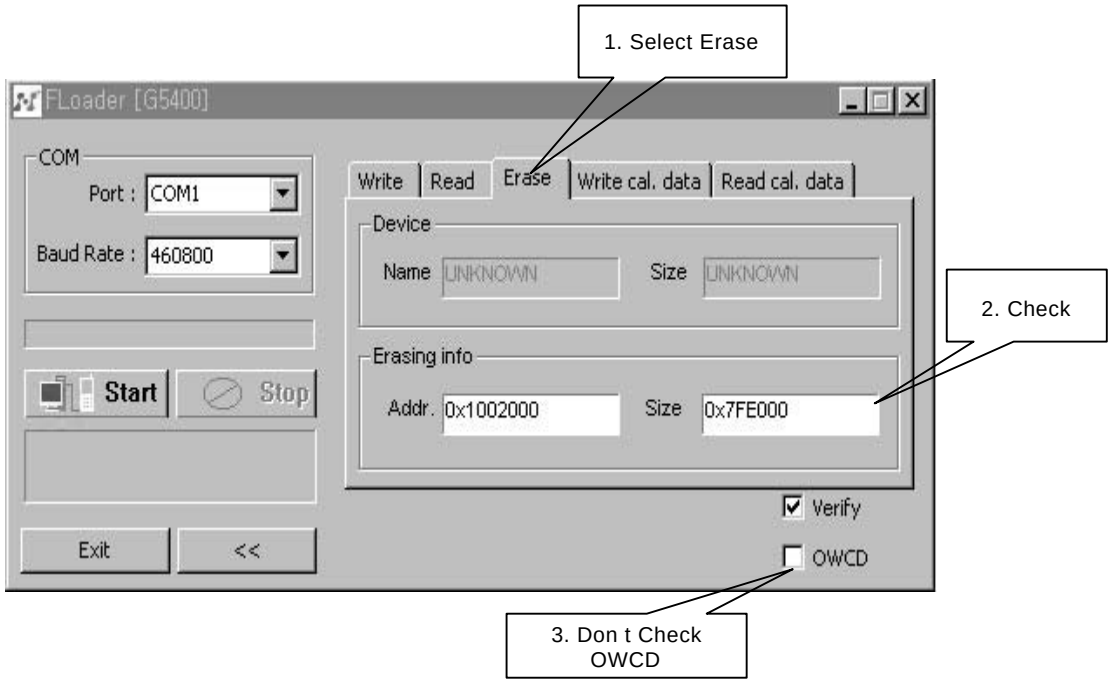


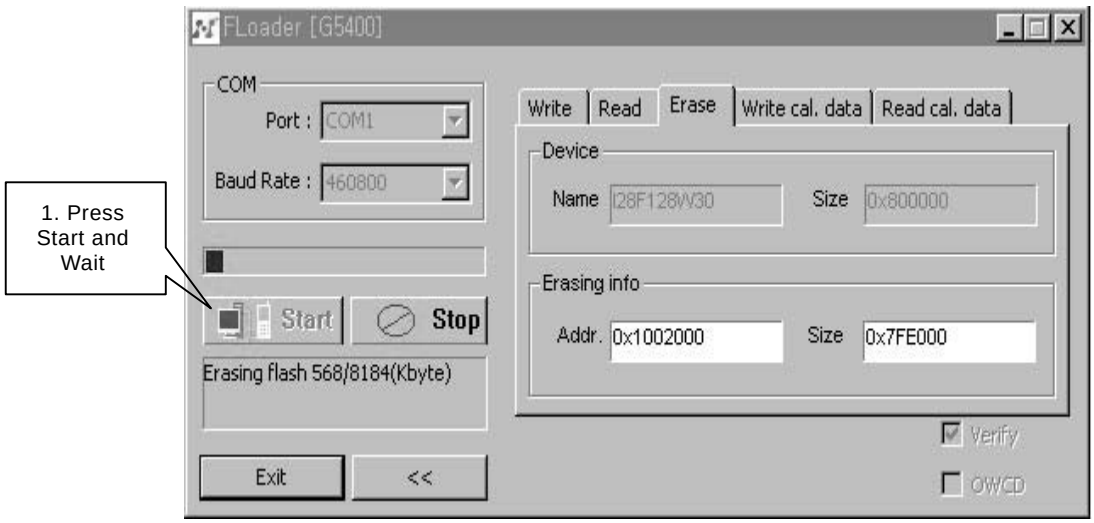

**Figure 6-1. Download Setup**

## B. Download Procedure

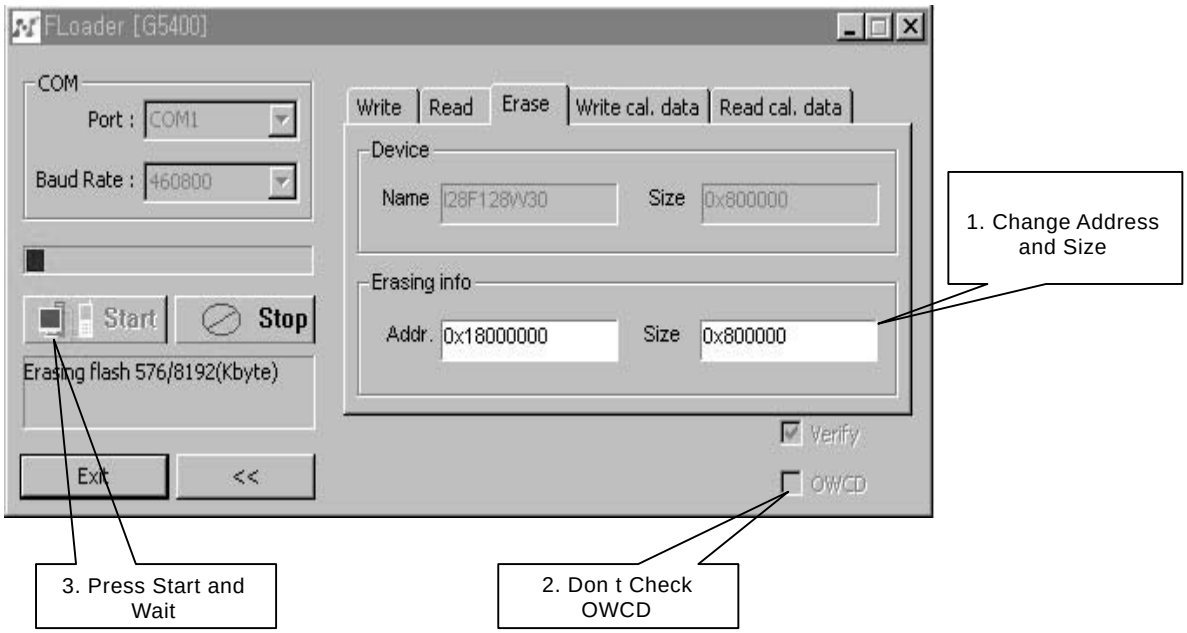
1. Access Flash loader program in PC and select Erase.(Don't check OWCD)



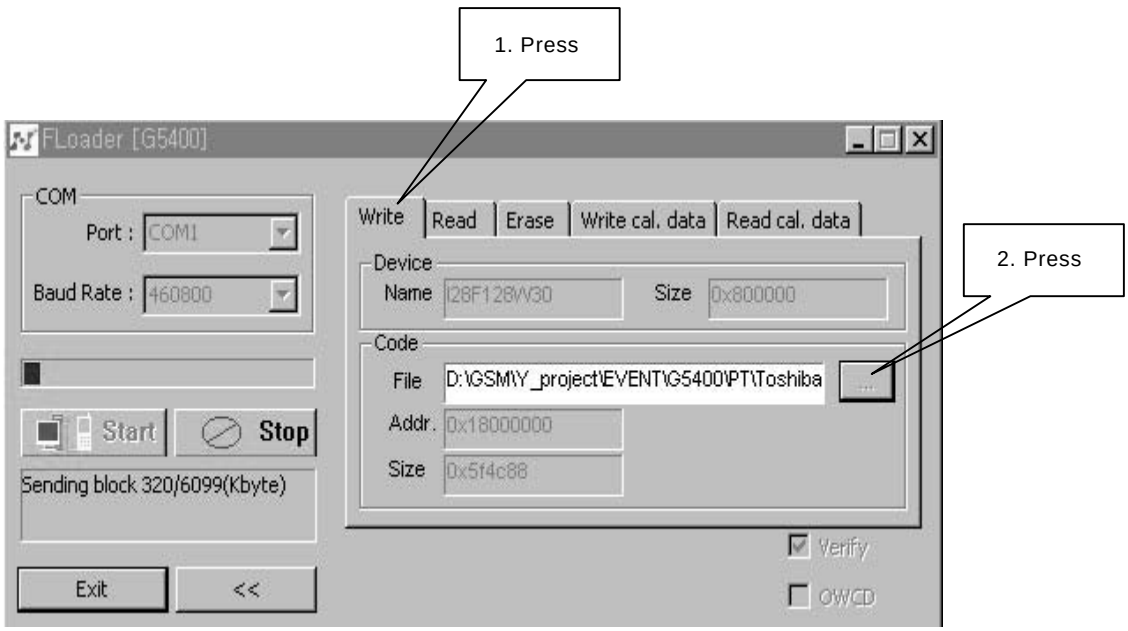

2. Press Start and Wait until Erase is completed.(Code øµø™ erase)



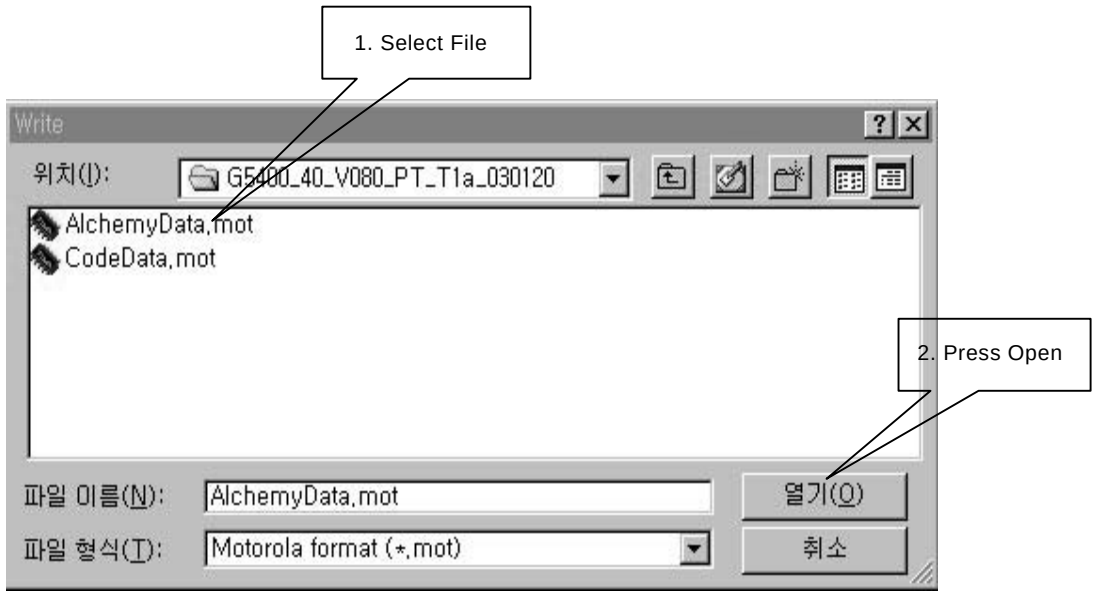
3. Change Address and Size(Address : 18000000, Size : 0x800000), and Press Start and Wait until Erase is completed again (Alchemy 8W8Cerase)



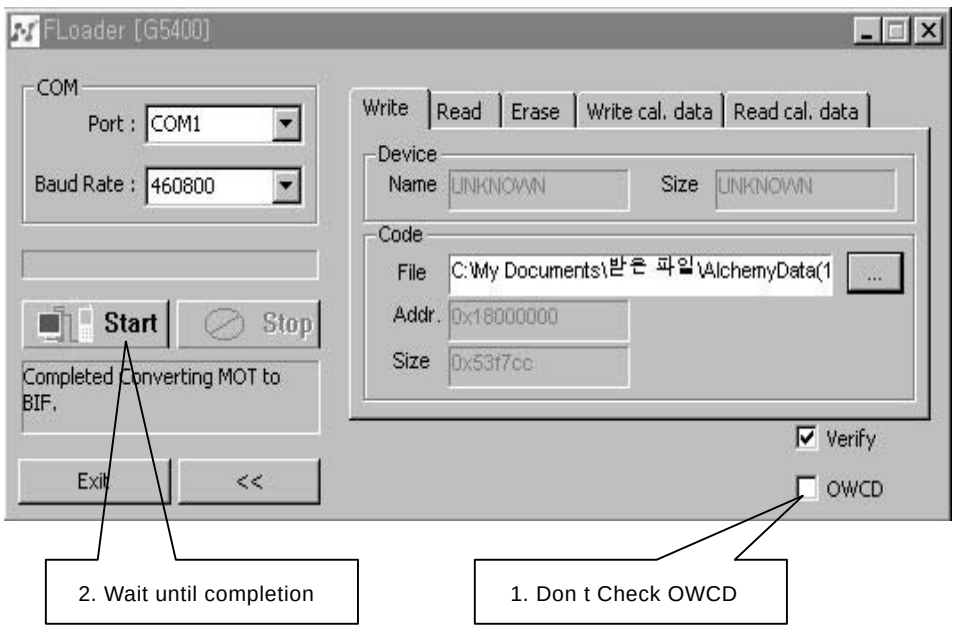

4. Press Write to start Download and press ... Key to choose software (AlchemyData.mot)



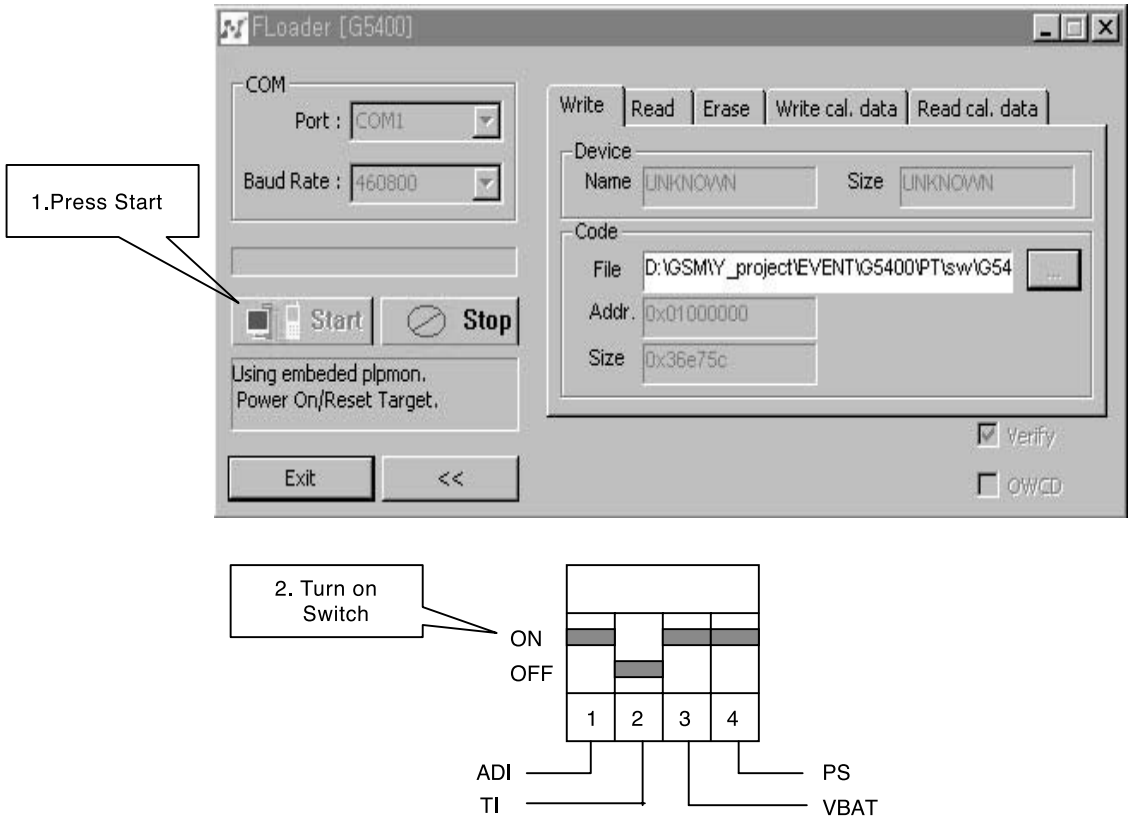
5. Choose software



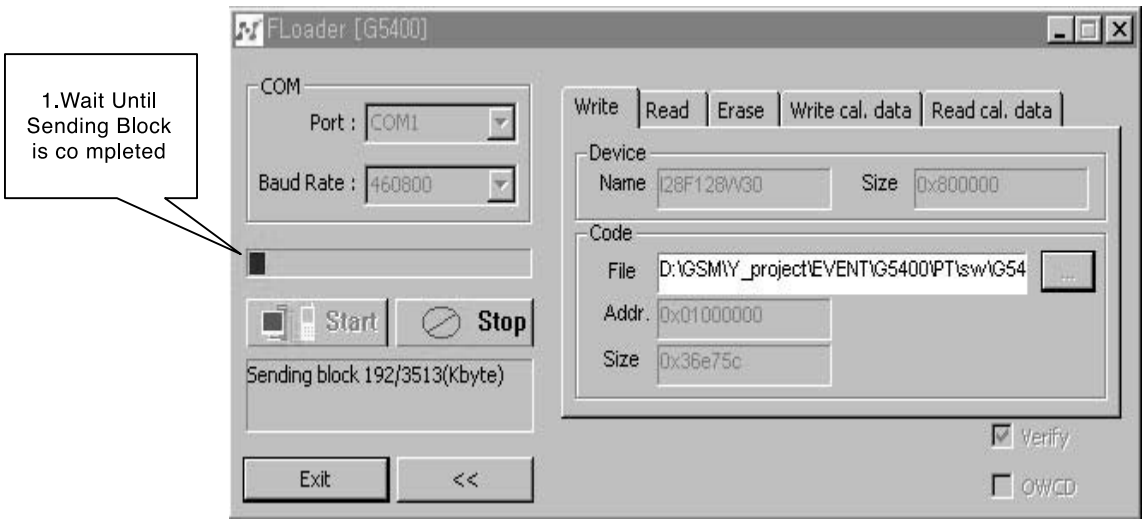

6. Wait until converting from MOT to BIF is completed(Don't check OWCD)



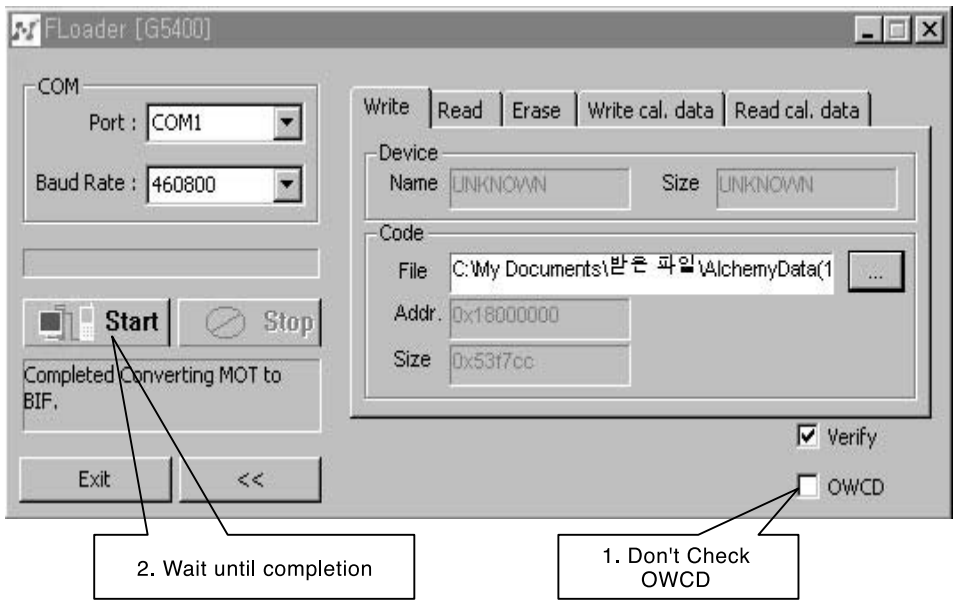
7. Press Start and Power on the phone using JIG remote Power on(Switch 1)



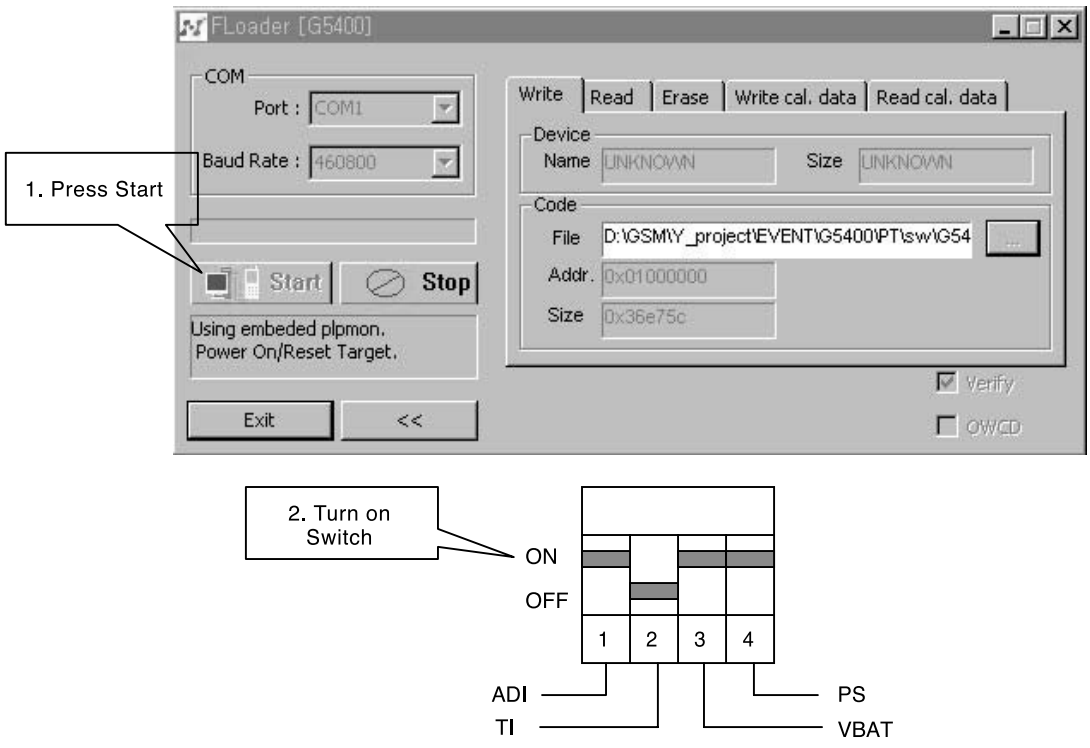

8. Wait until Sending Block is completed



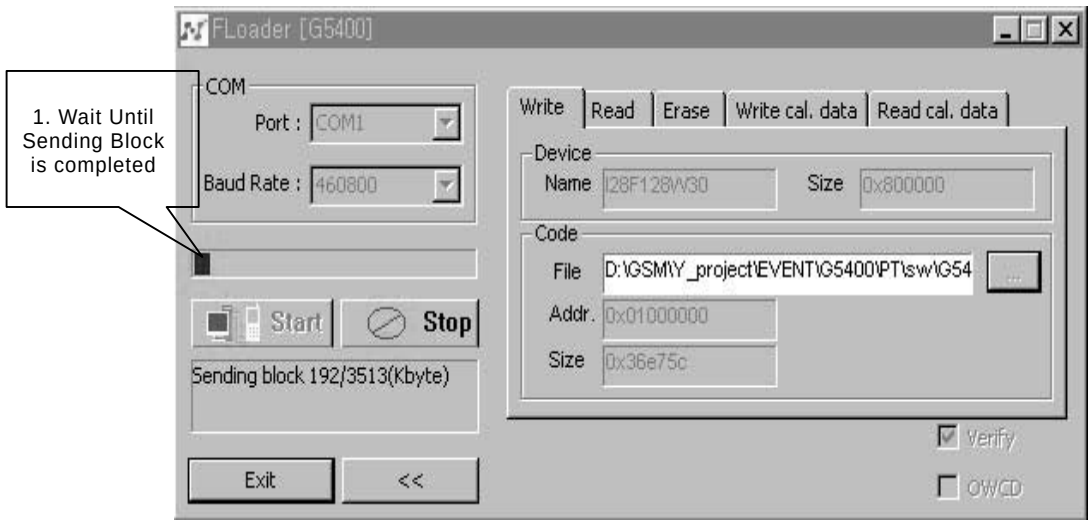
9. Press Write to start Download and press [...] Key to choose software(CodeData.mot)




10. Choose software



11. Wait until Sending Block is completed



# 6.2 Calibration

## A. Equipment List

**Table 6-1. Calibration Equipment List**

| Equipment for Calibration | Type / Model | Brand |
|---|---|---|
| Wireless Communication Test Set | HP-8960 | Agilent |
| RS-232 Cable and Test JIG | | LG |
| RF Cable | | LG |
| Power Supply | HP-66311B | Agilent |
| GPIB interface card | HP-GPIB | Agilent |
| Calibration & Final test software | | LG |
| Test SIM Card | | |
| PC (for Software Installation) | Pentium II class above 300MHz | |

## B. Equipment Setup

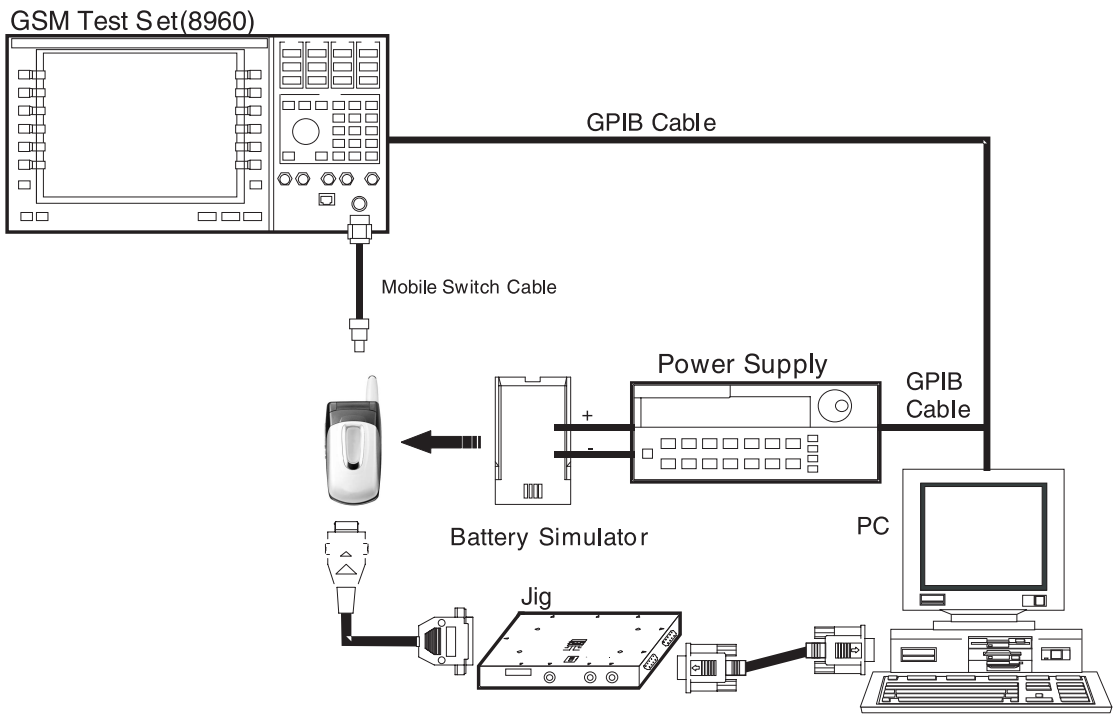



**Figure 6-2.**

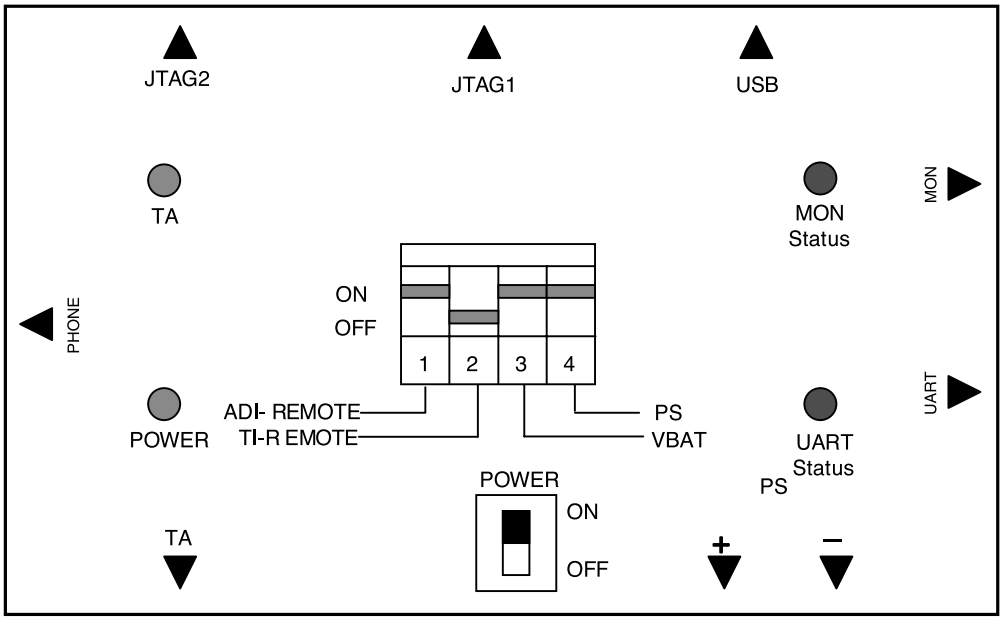



**Figure 6-3. The top view of Test JIG**

## C. Test Jig Operation

**Table 6-2. Calibration Equipment List**

| Power Source | Description |
|---|---|
| Power Supply | usually 4.0V |
| Travel Adaptor | Use TA, name is TA-20G(24pin) |

**Table 6-3. Calibration Equipment List**

| Switch Number | Name | Description |
|---|---|---|
| Switch 1 | ADI-REMOTE | In ON state, phone is awaked. It is used ADI chipset. |
| Switch 2 | TI-REMOTE | In ON state, phone is awaked. It is used TI chipset. |
| Switch 3 | VBAT | Power is provided for phone from battery |
| Switch 4 | PS | Power is provided for phone from Power supply |

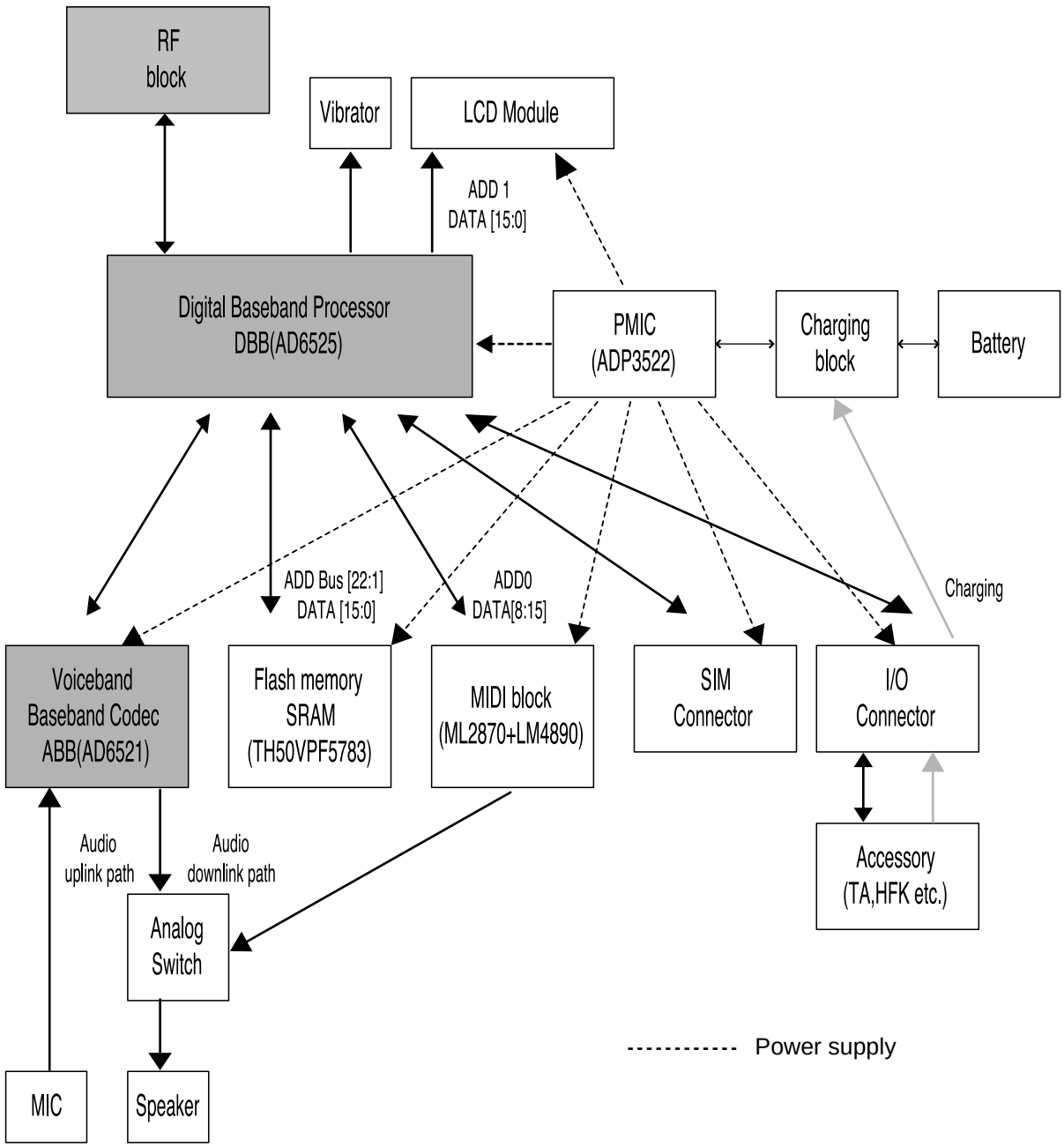
**Table 6-4. Calibration Equipment List**

| LED Number | Name | Description |
|---|---|---|
| LED 1 | Power | Power is provided for Test Jig. |
| LED 2 | TA | Indicate charging state of the phone battery |
| LED 3 | UART | Indicate data transfer state through the UART port |
| LED 4 | MON | Indicate data transfer state through the MON port |

1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Set the Power Supply 4.0V
3. Set the 3 rd , 4 th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1 st ON state

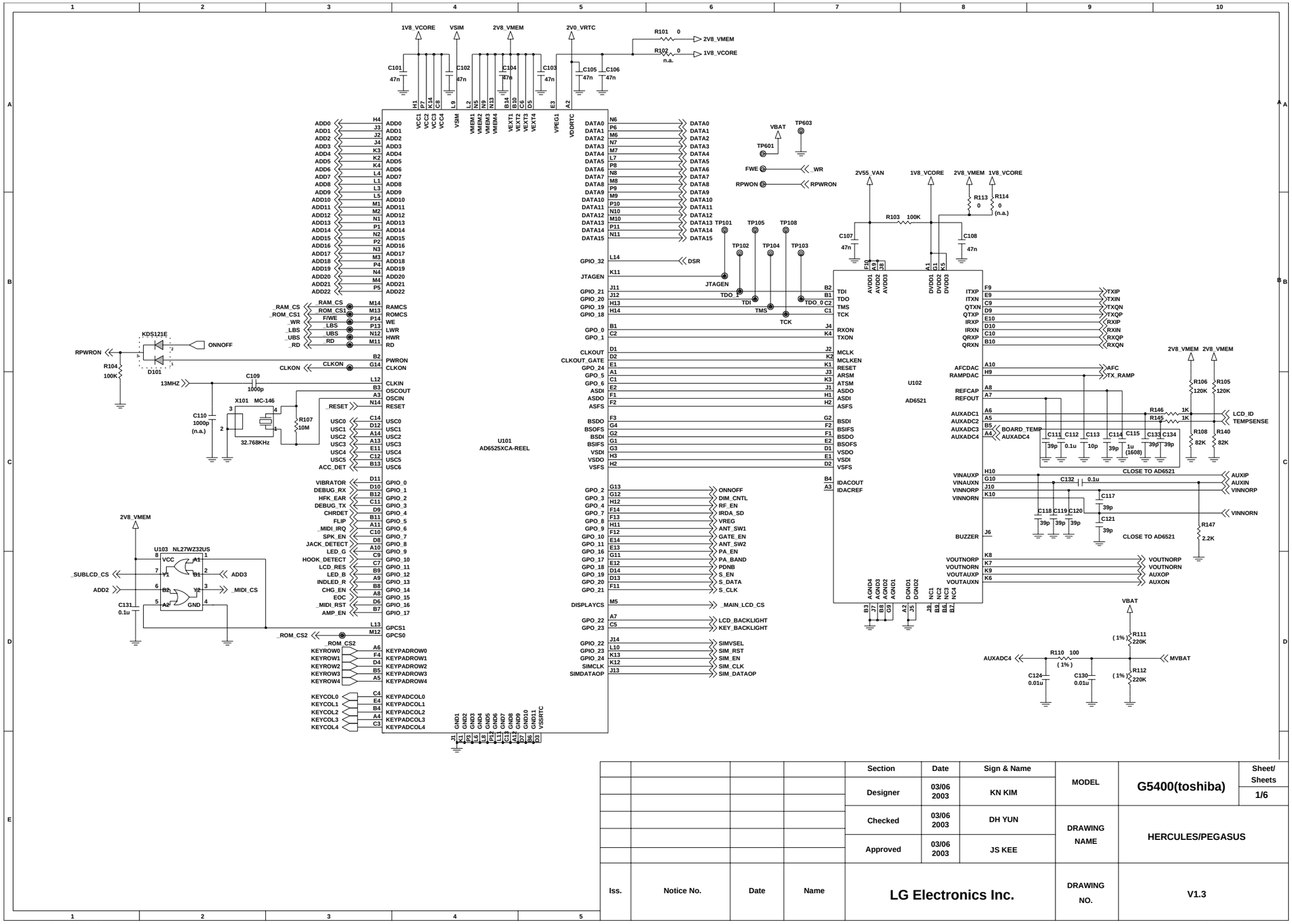
D. Procedure
1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Power ON PC then enter into Windows 98(Remark : Windows 2000 system could be feasible)
3. Run AUTOCAL.exe, the AUTOCAL application window will be appeared.

# 7. BLOCK DIAGRAM



# 8. CIRCUIT DIAGRAM

## 8.1 MAIN




| Section | Date | Sign & Name | MODEL | G5400(toshiba) | Sheet/ Sheets |
|---|---|---|---|---|---|
| Designer | 03/06 2003 | KN KIM | | | 1/6 |
| Checked | 03/06 2003 | DH YUN | DRAWING NAME | HERCULES/PEGASUS | |
| Approved | 03/06 2003 | JS KEE | | | |
| Iss. / Notice No. / Date / Name | | | DRAWING NO. | V1.3 | |

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LGIC(42)-A-5505-10:01

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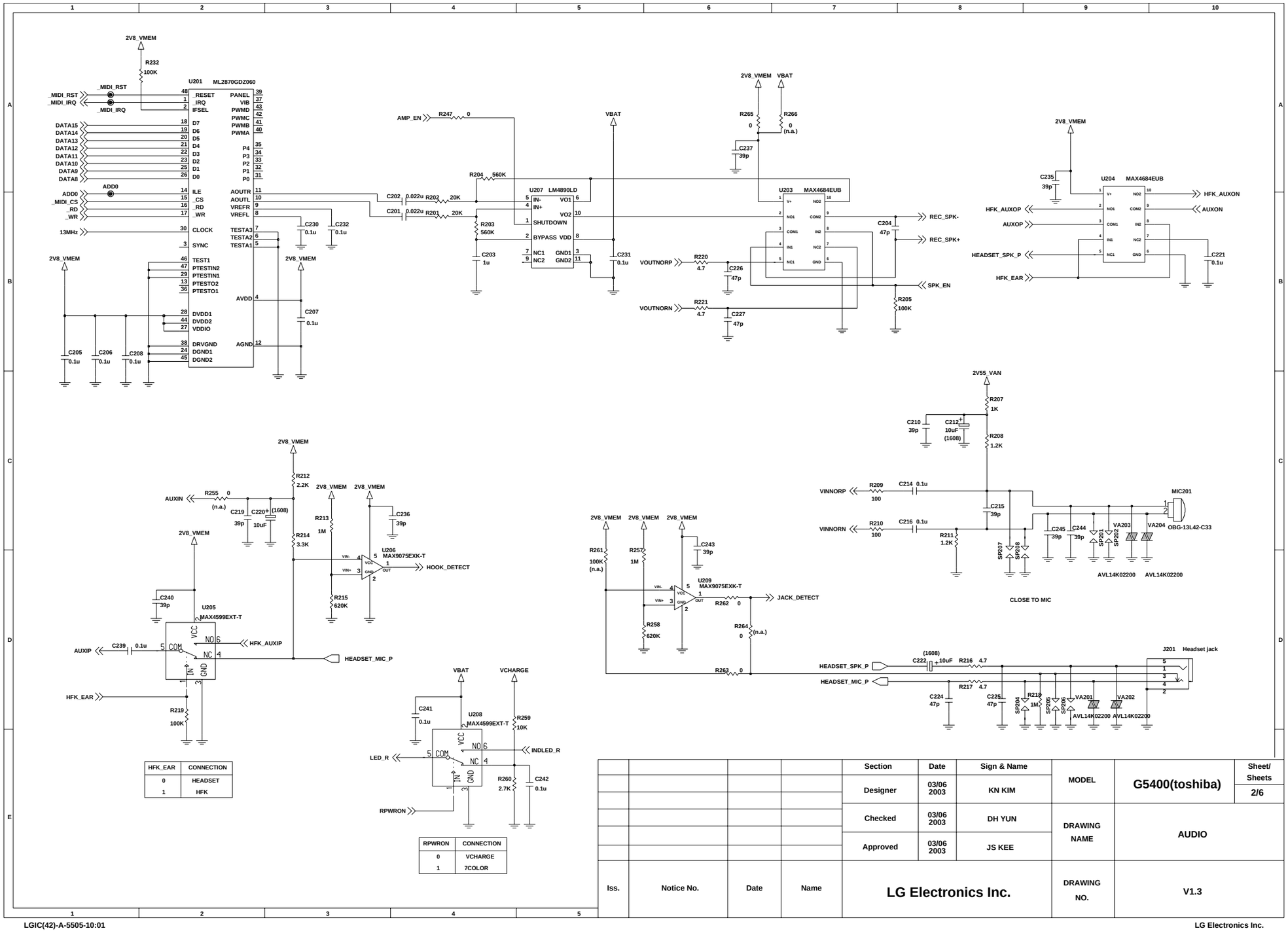
## 8.2 AUDIO




| HFK_EAR | CONNECTION |
|---|---|
| 0 | HEADSET |
| 1 | HFK |

| RPWRON | CONNECTION |
|---|---|
| 0 | VCHARGE |
| 1 | 7COLOR |

| Iss. | Notice No. | Date | Name | Section | Date | Sign & Name | MODEL | G5400(toshiba) | Sheet/ Sheets |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Designer | 03/06 2003 | KN KIM | | | 2/6 |
| | | | | Checked | 03/06 2003 | DH YUN | DRAWING NAME | AUDIO | |
| | | | | Approved | 03/06 2003 | JS KEE | | | |
| | | | | LG Electronics Inc. | | | DRAWING NO. | V1.3 | |

LGIC(42)-A-5505-10:01

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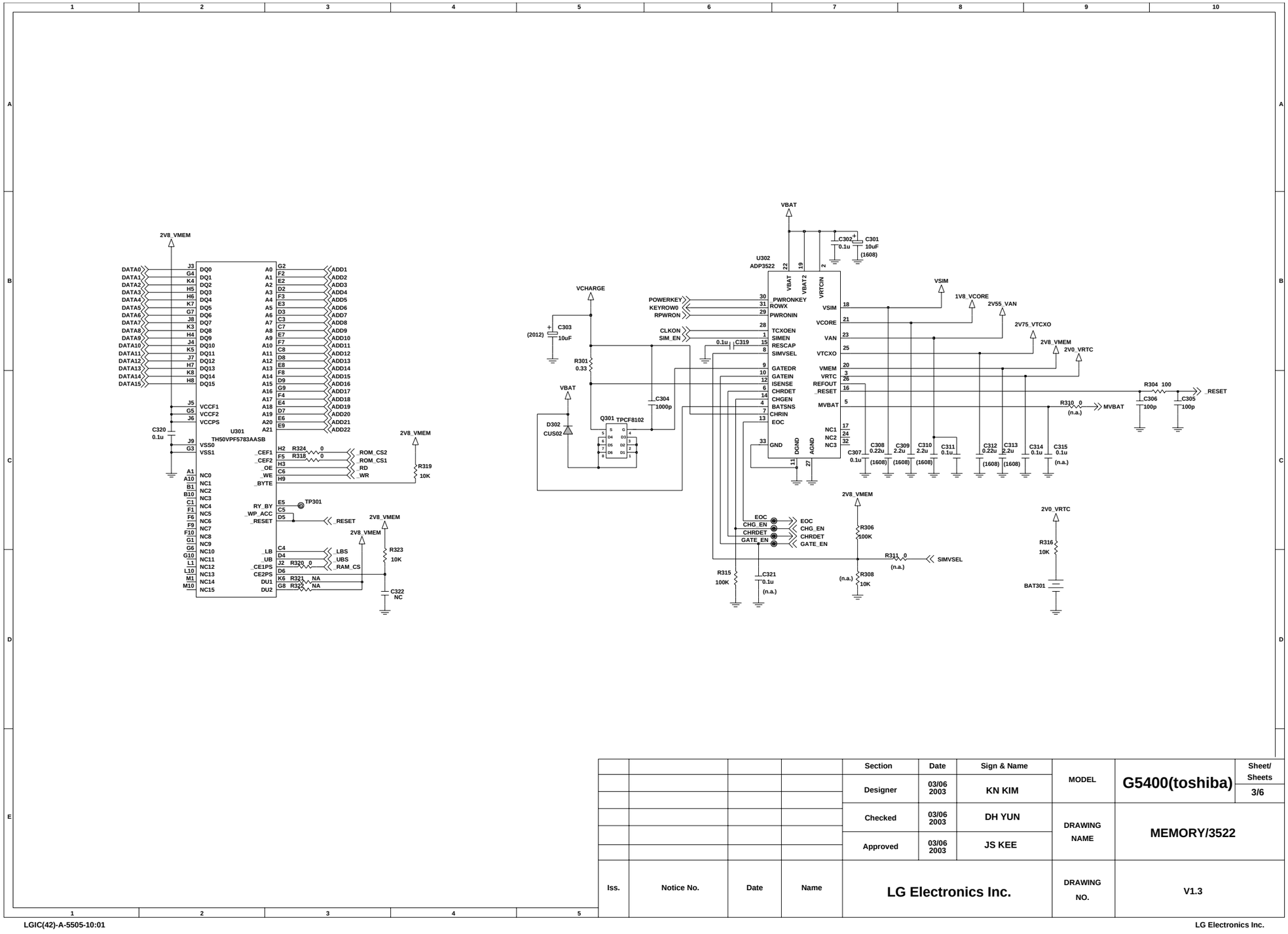
## 8.3 MIDI




| | | | | Section | Date | Sign & Name | MODEL | G5400(toshiba) | Sheet/ Sheets |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Designer | 03/06 2003 | KN KIM | | | 3/6 |
| | | | | Checked | 03/06 2003 | DH YUN | DRAWING NAME | MEMORY/3522 | |
| | | | | Approved | 03/06 2003 | JS KEE | | | |
| Iss. | Notice No. | Date | Name | LG Electronics Inc. | | | DRAWING NO. | V1.3 | |

LGIC(42)-A-5505-10:01

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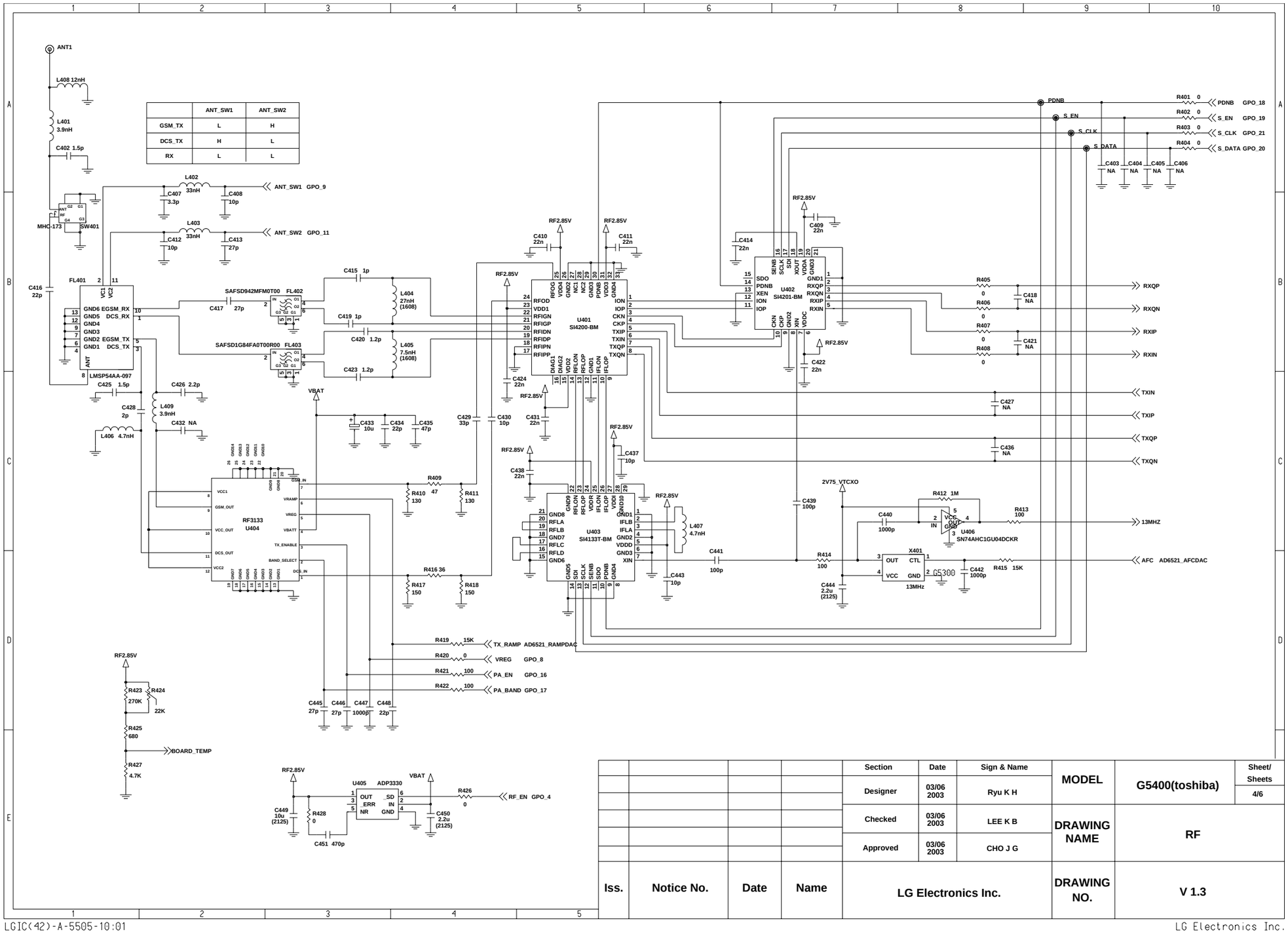
## 8.4 RF CIRCUIT




| | | | | Section | Date | Sign & Name | MODEL | G5400(toshiba) | Sheet/ Sheets |
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| | | | | Designer | 03/06 2003 | Ryu K H | | | 4/6 |
| | | | | Checked | 03/06 2003 | LEE K B | DRAWING NAME | RF | |
| | | | | Approved | 03/06 2003 | CHO J G | | | |
| Iss. | Notice No. | Date | Name | LG Electronics Inc. | | | DRAWING NO. | V 1.3 | |

LGIC(42)-A-5505-10:01

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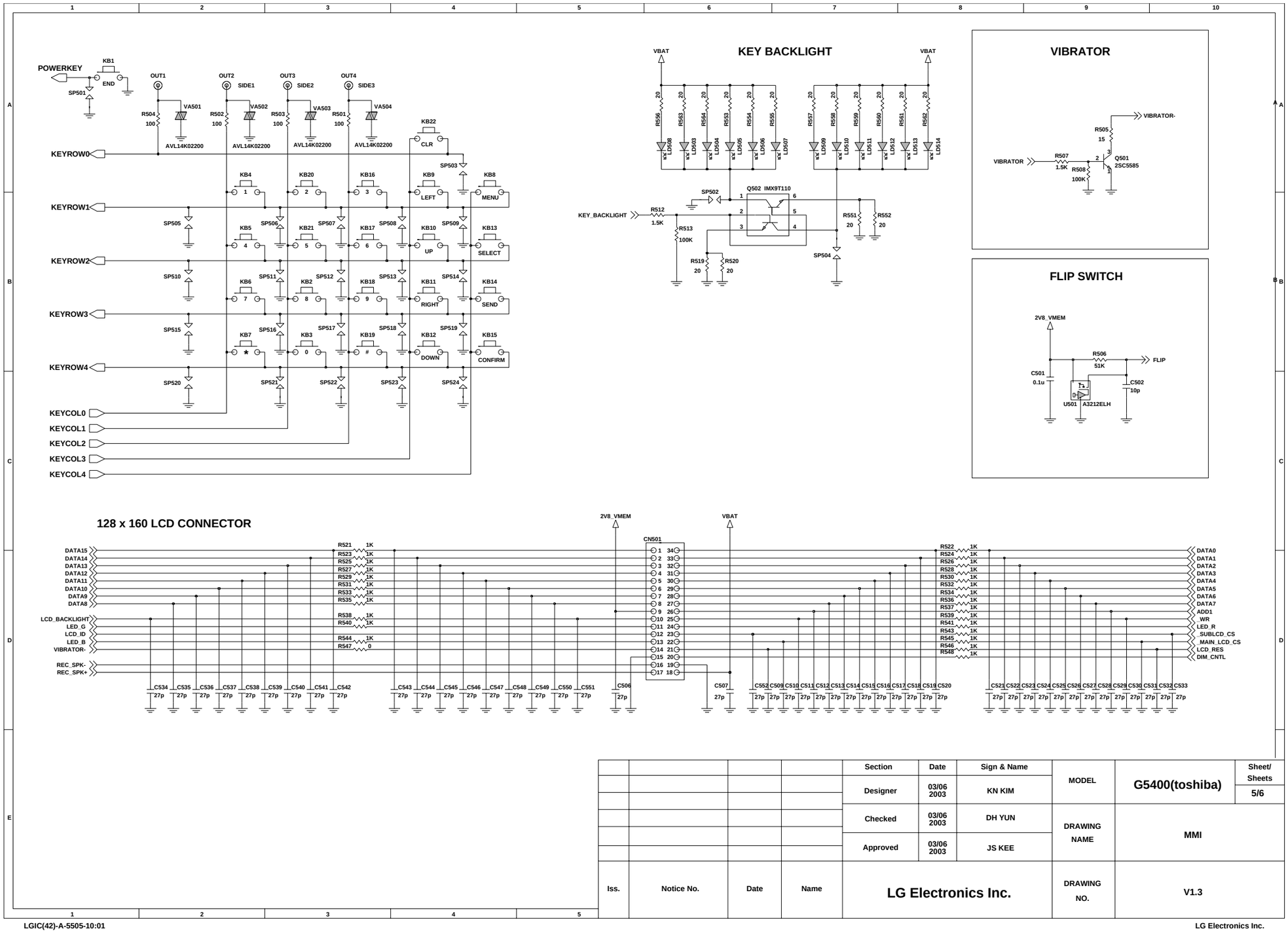
## 8.5 Keypad


POWERKEY
KB1
END
SP501
OUT1
OUT2
SIDE1
OUT3
SIDE2
OUT4
SIDE3
VA501
VA502
VA503
VA504
R504 100
R502 100
R503 100
R501 100
AVL14K02200
KB22
CLR
SP503
KEYROW0
KEYROW1
KEYROW2
KEYROW3
KEYROW4
KB4
KB20
KB16
KB9
KB8
LEFT
MENU
KB5
KB21
KB17
KB10
KB13
UP
SELECT
KB6
KB2
KB18
KB11
KB14
RIGHT
SEND
KB7
KB3
KB19
KB12
KB15
DOWN
CONFIRM
SP505
SP506
SP507
SP508
SP509
SP510
SP511
SP512
SP513
SP514
SP515
SP516
SP517
SP518
SP519
SP520
SP521
SP522
SP523
SP524
KEYCOL0
KEYCOL1
KEYCOL2
KEYCOL3
KEYCOL4
KEY BACKLIGHT
VBAT
R556 20
R563 20
R564 20
R553 20
R554 20
R555 20
R557 20
R558 20
R559 20
R560 20
R561 20
R562 20
LD508 3K
LD503 3K
LD504 3K
LD505 3K
LD506 3K
LD507 3K
LD509 3K
LD510 3K
LD511 3K
LD512 3K
LD513 3K
LD514 3K
SP502
Q502 IMX9T110
KEY_BACKLIGHT
R512 1.5K
R513 100K
R519 20
R520 20
R551 20
R552 20
SP504
VIBRATOR
VIBRATOR-
R505 15
R507 1.5K
R508 100K
Q501 2SC5585
FLIP SWITCH
2V8_VMEM
R506 51K
FLIP
C501 0.1u
C502 10p
U501 A3212ELH
128 x 160 LCD CONNECTOR
CN501
DATA15
DATA14
DATA13
DATA12
DATA11
DATA10
DATA9
DATA8
LCD_BACKLIGHT
LED_G
LCD_ID
LED_B
VIBRATOR-
REC_SPK-
REC_SPK+
R521 1K
R523 1K
R525 1K
R527 1K
R529 1K
R531 1K
R533 1K
R535 1K
R538 1K
R540 1K
R544 1K
R547 0
R522 1K
R524 1K
R526 1K
R528 1K
R530 1K
R532 1K
R534 1K
R536 1K
R537 1K
R539 1K
R541 1K
R543 1K
R545 1K
R546 1K
R548 1K
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
ADD1
_WR
LED_R
_SUBLCD_CS
_MAIN_LCD_CS
LCD_RES
DIM_CNTL
C534 C535 C536 C537 C538 C539 C540 C541 C542 C543 C544 C545 C546 C547 C548 C549 C550 C551 C506 C507 C552 C509 C510 C511 C512 C513 C514 C515 C516 C517 C518 C519 C520 C521 C522 C523 C524 C525 C526 C527 C528 C529 C530 C531 C532 C533
27p
Section
Date
Sign & Name
Designer
03/06 2003
KN KIM
Checked
03/06 2003
DH YUN
Approved
03/06 2003
JS KEE
MODEL
G5400(toshiba)
Sheet/ Sheets
5/6
DRAWING NAME
MMI
Iss.
Notice No.
Date
Name
LG Electronics Inc.
DRAWING NO.
V1.3
LGIC(42)-A-5505-10:01
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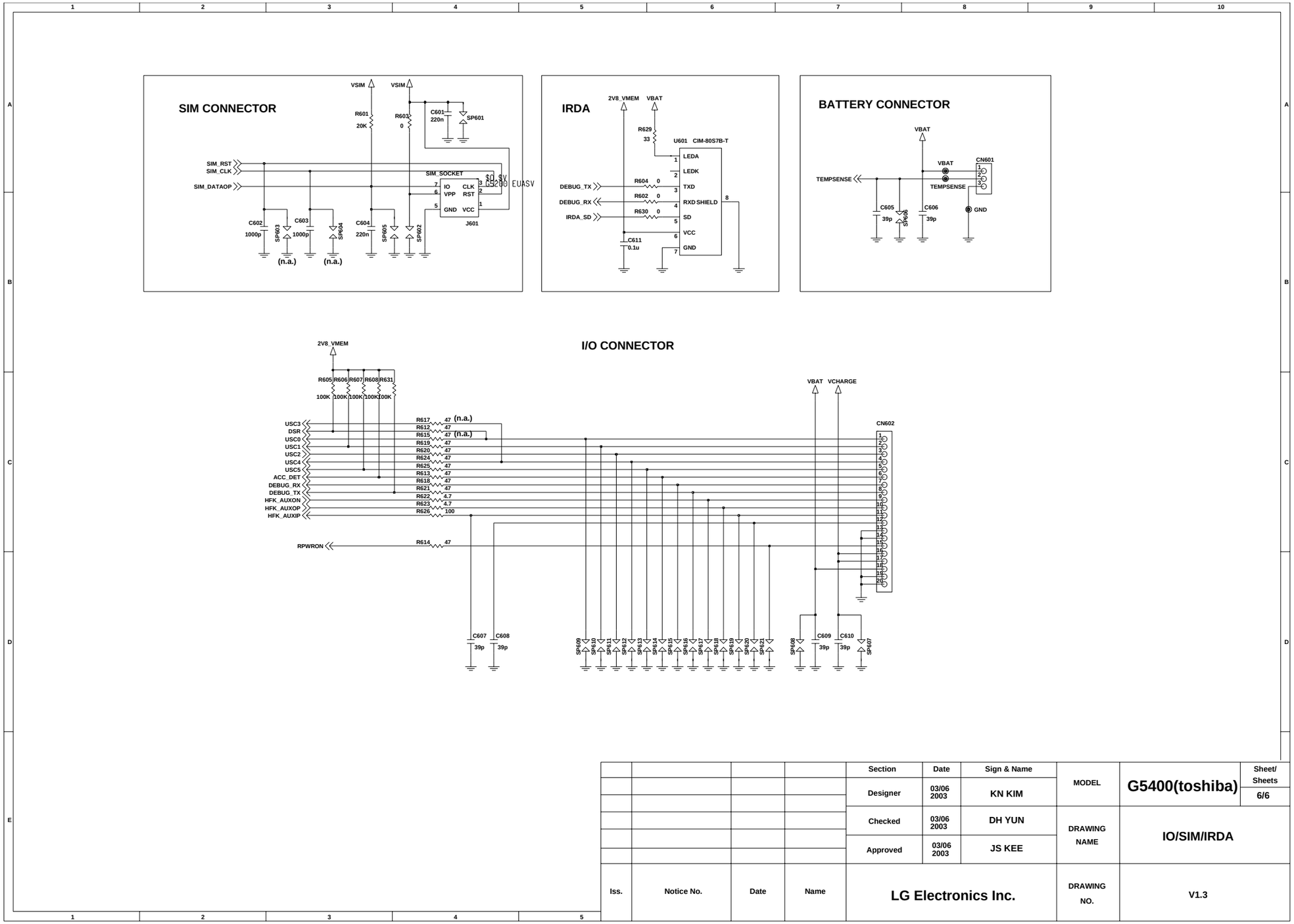
## 8.6 SIM, IrDA, Battery etc




| | | | | Section | Date | Sign & Name | MODEL | G5400(toshiba) | Sheet/ Sheets |
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| | | | | Designer | 03/06 2003 | KN KIM | | | 6/6 |
| | | | | Checked | 03/06 2003 | DH YUN | DRAWING NAME | IO/SIM/IRDA | |
| | | | | Approved | 03/06 2003 | JS KEE | | | |
| Iss. | Notice No. | Date | Name | LG Electronics Inc. | | | DRAWING NO. | V1.3 | |

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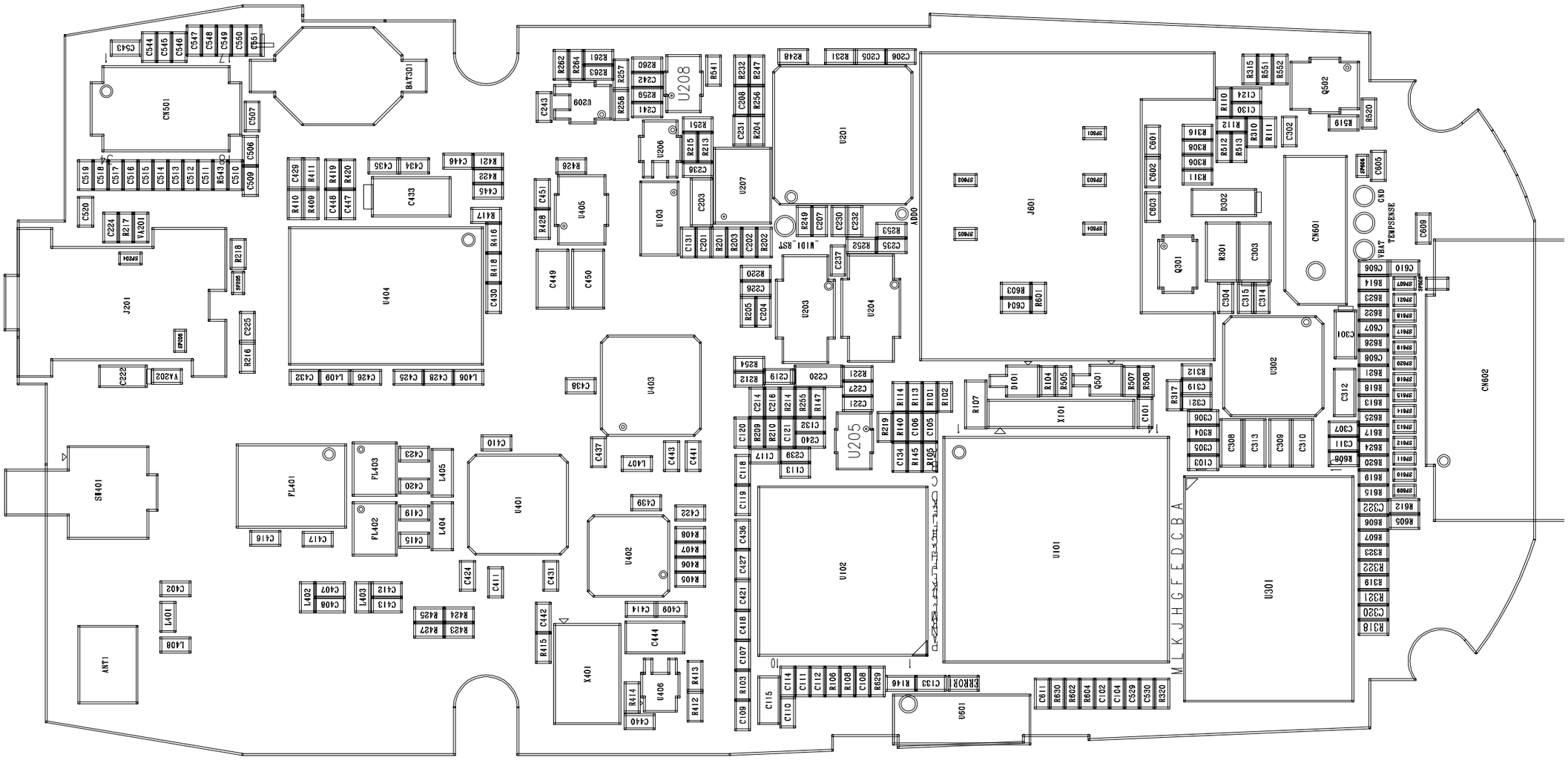
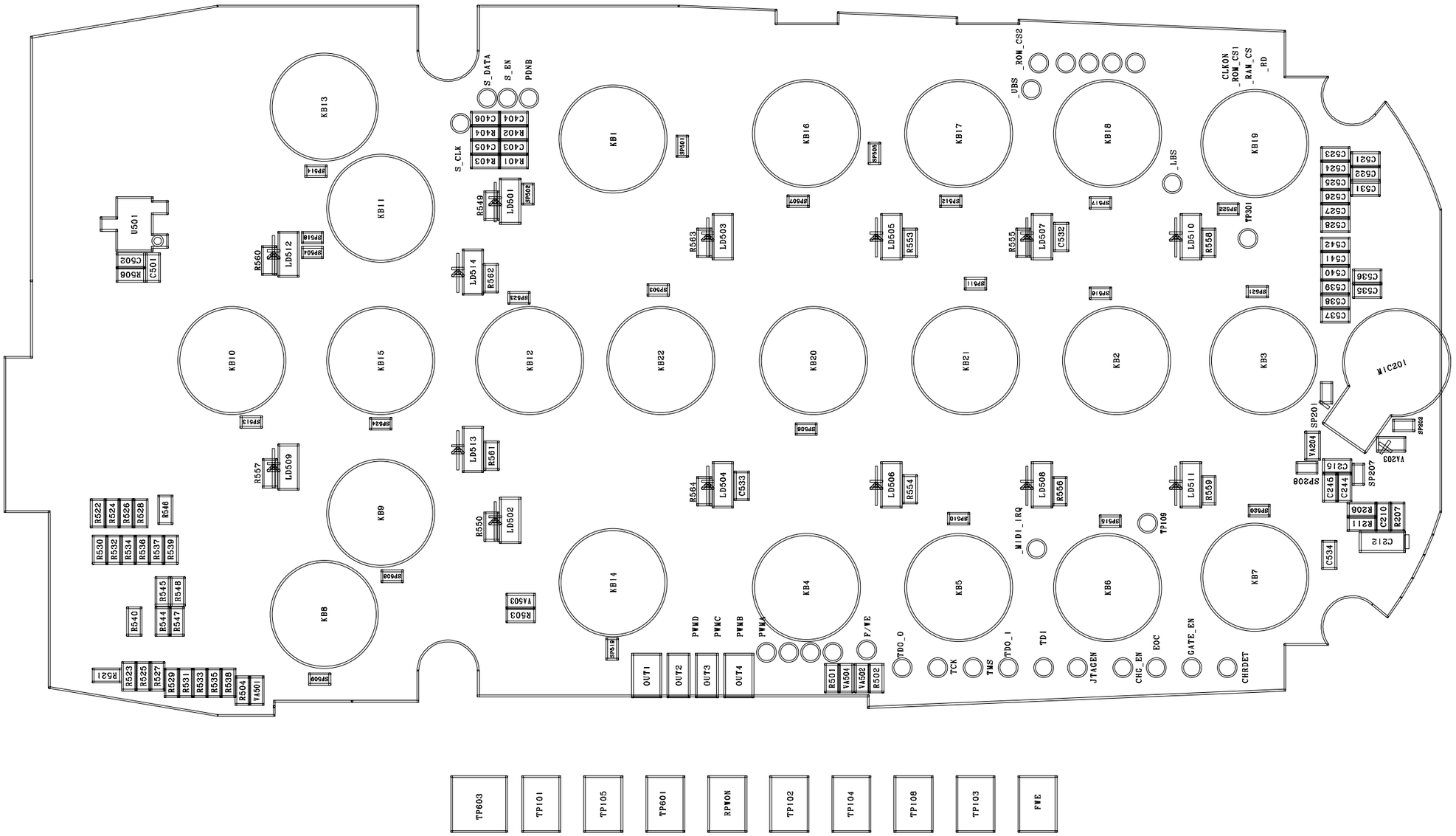
# 9. PCB LAYOUT



# 9. PCB LAYOUT


KB13
KB11
KB1
KB16
KB17
KB18
KB19
KB10
KB15
KB12
KB22
KB20
KB21
KB2
KB3
KB9
KB14
KB4
KB5
KB6
KB7
KB8
U501
S_DATA
S_EN
PDNB
S_CLK
_UBS
_ROM_CS2
CLKON
_ROM_CS1
_RAM_CS
_RD
_LBS
_MIDI_IRQ
TDO_0
TCK
TMS
TDO_I
TDI
JTAGEN
CHG_EN
DOC
GATE_EN
CHRDET
PWMA
PWMB
PWMC
PWMD
P/ME
OUT1
OUT2
OUT3
OUT4
TP603
TP101
TP105
TP601
RPMON
TP102
TP104
TP108
TP103
PME

# 10. ENGINEERING MODE

## A. About Engineering Mode

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset.

## B. Access Codes

The key sequence for switching the engineering mode on is 2945 ‘Select’. Pressing END will switch back to non-engineering mode operation.

## C. Key Operation

Use Up and Down key to select a menu and press ‘select’ key to progress the test. Pressing ‘back’ key will switch back to the original test menu.

# 10.1 BB Test [MENU 1]

Baseband Test

## A. LCD [1-1]

This menu is to test 7color LED.
• Red [1-1-1] :
• Blue [1-1-2] :
• White [1-1-3] :
• Yellow [1-1-4] :

## B. LCD [1-2]

This menu is to test the LCD contrast.
• Contrast Value [1-2-1] : Change this value by up and down key.

## C. Backlight [1-3]

This menu is to test the LCD Backlight and Keypad Backlight.
• Backlight On [1-3-1] : LCD Backlight and Keypad Backlight light on at the same time.
• Backlight Off [1-3-2] : LCD Backlight and Keypad Backlight light off at the same time.
• Backlight value [1-3-3] : This controls brightness of Backlight. When entering into the menu, the present backlight-value in the phone is displayed. Use Left/Right key to adjust the level of brightness. The value of the brightness set at last will be saved in the NVRAM.

## D. Buzzer [1-4]

This menu is to test the melody sound.
• Melody on [1-4-1] : Melody sound is played through the speaker.
• Melody off [1-4-1] : Melody sound is off.

## E. Vibrator [1-5]

This menu is to test the vibration mode.
• Vibrator On [1-5-1] : Vibration mode is on.

• Vibrator Off [1-5-2] : Vibration mode is off.

## F. ADC (Analog to Digital Converter) [1-6]

This displays the value of each ADC.
• MVBAT ADC (Main Voltage Battery ADC) [1-6-1]
• AUX ADC (Auxiliary ADC) [1-6-2]
• TEMPER ADC (Temperature ADC) [1-6-3]

## G. BATTERY [1-7]

• Bat Cal [1-7-1] :
This displays the value of Battery Calibration.
The following menus are displayed in order; BAT_LEV_4V, BAT_LEV_3_LIMIT, BAT_LEV_2_LIMIT, BAT_LEV_1_LIMIT, BAT_IDLE_LI MIT, BAT_INCALL_LIMIT, SHUT_DOWN_VOLTAGE, BAT_RECHARGE_LMT
• TEMP Cal [1-7-2] :
This displays the value of Temperature Calibration.
The following menus are displayed in order;
TEMP_HIGH_LIMIT, TEMP_HIGH_RECHARGE_LMT, TEMP_LOW_RECHARGE_LMT, TEMP_LOW_LIMIT

## H. Audio [1-8]

This is a menu for setting the control register of Voiceband Baseband Codec chip.
Although the actual value can be written over, it returns to default value after switching off and on the phone.
• VbControl1 [1-8-1] : VbControl1 bit Register Value Setting
• VbControl2 [1-8-2] : VbControl2 bit Register Value Setting
• VbControl3 [1-8-3] : VbControl3 bit Register Value Setting
• VbControl4 [1-8-4] : VbControl4 bit Register Value Setting
• VbControl5 [1-8-5] : VbControl5 bit Register Value Setting
• VbControl6 [1-8-6] : VbControl6 bit Register Value Setting

## I. DAI (Digital Audio Interface) [1-9]

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.
• DAI AUDIO [1-9-1] : DAI audio mode
• DAI UPLINK [1-9-2] : Speech encoder test
• DAI DOWNLINK [1-9-3] : Speech decoder test
• DAI OFF [1-9-4] : DAI mode off

## 10.2 RF Test [MENU 2]

Radio Frequency Test

### A. SAR Test [2-1]

This menu is to test the Specific Absorption Rate.
- SAR Test On [2-1-1] : Phone continuously process TX only. Call-setup equipment is not required.
- SAR Test Off [2-1-2] : TX process off

## 10.3 MF Mode [MENU 3]

This manufacturing mode is designed to do the baseband test automatically. Selecting this menu will process the test automatically, and phone displays the previous menu after completing the test.

### A. All auto test [3-1]

LED, Backlight, Buzzer, Vibrator, LCD, Key Pad, and sub LCD are tested in order for a certain time.

### B. LED [3-2]

LED color is desighed to display to the following colors subsequently : Red, Blue, White, Yello, Magata, Green, Cyan

### C. Backlight [3-3]

LCD Backlight and LED Backlight are on for about 1.5 seconds at the same time, then off.

### D. Buzzer [3-4]

This menu is to test the volume of Melody. It rings in the following sequence.
Volume 1, Volume 2, Volume 3, Volume 0 (mute), Volume 4, Volume 5.

### E. Vibrator [3-5]

Vibrator is on for about 1.5 seconds.

### H. LCD [3-6]

Main LCD screen resolution tests horizontally and vertically one by one and fills the screen.

### G. Key pad [3-7]

When a pop-up message shows ‘Press Any Key’, you may press any keys including side keys, but not [Soft2 Key]. If the key is working properly, name of the key is displayed on the screen. Test will be completed in 15 minutes automatically and the screen displays the previous one.

### H. Sub LCD [3-8]

## 10.4 Trace option [MENU 4]

This is NOT a necessary menu to be used by neither engineers nor users.

## 10.5 Call Timer [MENU 5]

### A. All calls [5-1]

This displays total conversation time. User cannot reset this value.

### B. Reset settings [5-2]

This resets total conversation time to this, [00:00:00].

## 10.6 Fact. Reset [MENU 6]

This Factory Reset menu is to format data block in the flash memory and this procedure set up the default value in data block.

## 10.7 S/W version [MENU 7]

This displays software version stored in the phone.

**Attention**

- Fact. Reset (i.e.Factory Reset) should be only used during the Manufacturing process.
- Servicemen should NOT progress this menu, otherwise some of valuable data such as Setting value, RF Calibration data, etc. cannot be restored again.

# 11. STAND ALONE TEST

## 11.1 Introduction

This manual explains how to examine the status of RX and TX of the model.

### A. Tx Test

TX test - this is to see if the transmitter of the phones is activating normally.

### B. Rx Test

RX test - this is to see if the receiver of the phones is activating normally.

## 11.2 Setting Method

### A. COM port

a. Move your mouse on the “Connect” button, then click the right button of the mouse and select “Com setting”.
b. In the “Dialog Menu”, select the values as explained below.
- Port : select a correct COM port
- Baudrate : 38400
- Leave the rest as default values

### B. Tx

**1. Selecting Channel**

- Select one of GSM or DCS Band and input appropriate channel.

**2. Selecting APC**

a. Select either Power level or Scaling Factor.
b. Power level
- Input appropriate value GSM (between 5~19) or DCS (between 0~15)

c. Scaling Factor
- A ‘Ramp Factor’ appears on the screen.
- You may adjust the shape of the Ramp or directly input the values.

### C. Rx

**1. Selecting Channel**

- Select one of GSM or DCS Band and input appropriate channel.

**2. Gain Control Index (0~ 26) and RSSI level**

- See if the value of RSSI is close to -16dBm when setting the value between 0 ~ 26 in Gain Control Index.
- Normal phone should indicate the value of RSSI close to -16dBm.

# 11.3 Means of Test

a. Select a COM port
b. Set the values in Tx or Rx
c. Select band and channel
d. After setting them all above, press connect button.
e. Press the start button

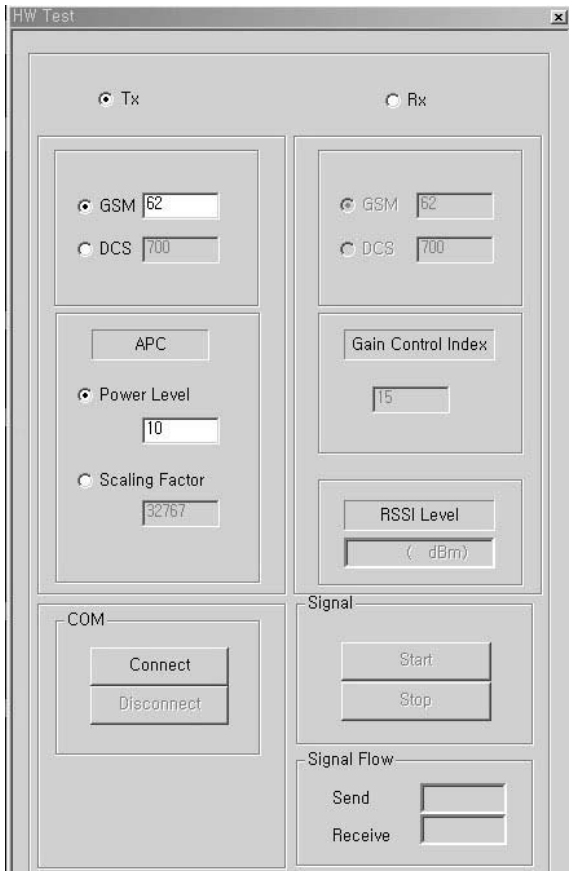



**Figure 11-1. HW test program**

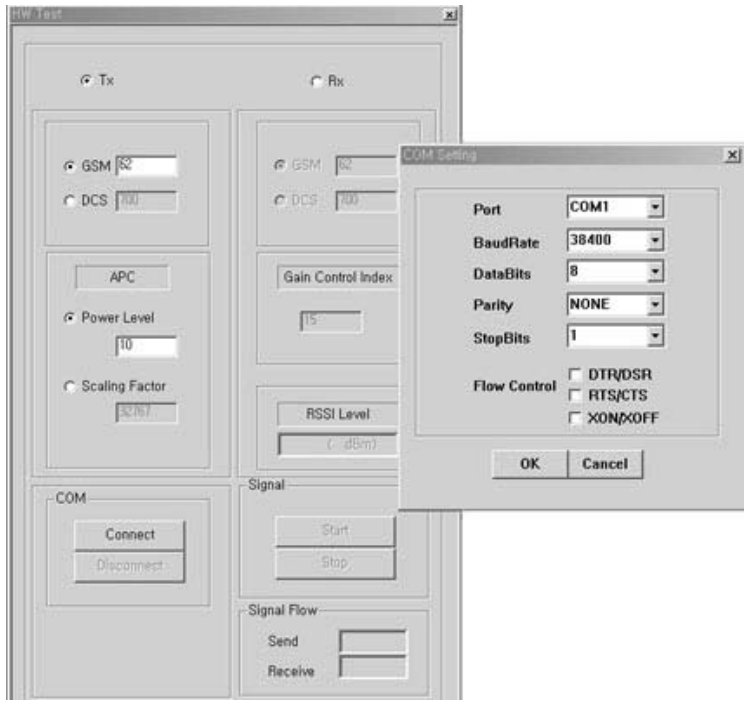



**Figure 11-2. HW test setting**

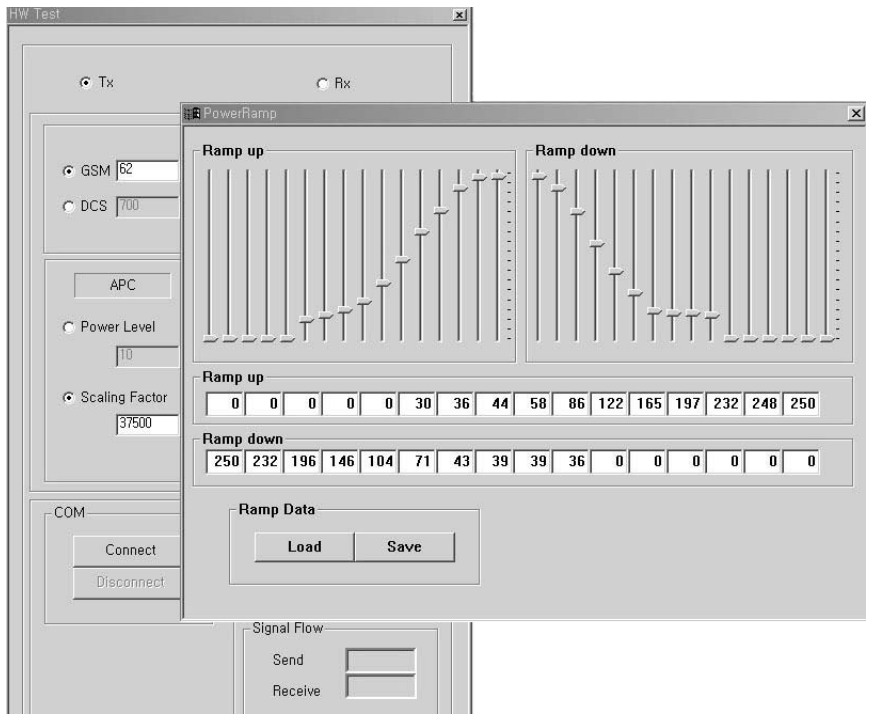



**Figure 11-3. Ramping profile**

# 12.AUTO CALIBRATION

## 12.1 Overview

Autocal (Auto Calibration) is the PC side Calibration tool that perform Tx ,Rx and Battery Calibration with Agilent 8960(GSM call setting instrument) and Tektronix PS2521G(Programmable power supply).
Autocal generate calibration data by communicating with phone and measuring equipment then write it into calibration data block of flash memory in GSM phone.

## 12.2 Requirements

-PC or Notebook installed with Microsoft Windows 98/ME/2000/XP
-Auto Calibration program(Autocal.exe)
-GSM Phone
-LGE PIF JIG, Serial Cable, Data Cable
-Agilent 8960(Call Setting Instrument)
-Tektronix PS2521G(Programmable Power Supply)

## 12.3 Menu and Settings

-File(F) ➞ Clear View : Clear Calibration Status window texts
-File(F) ➞ Save View : Save Calibration Status window texts
-File(F) ➞ Save Setting : Save Current Calibration settings to setting file(*.cal)
-File(F) ➞ Load Setting : Load saved Calibration setting
-File(F) ➞ Make BIN ALL : Make binary file after calibration finished
-File(F) ➞ Make BIN BAT.Cal only : Make binary file of battery cal data only after calibration finished
-File(F) ➞ Make & Write BIN : Make binary file after calibration finished then download it to the Flash Memory
-View(V) ➞ Tools : Enable or disable Tool bar
-View(V) ➞ Status : Enable or disable status bar
-Connection(C) Connect : Connect the phone with PC. This procedure checks whether the PC is connected “ag8960 ” or not. After that it performs sync. procedure with phone. If the sync. procedure is successful state column on status bar changed to SETUP, else you should disconnect phone and try again from the beginning and also check the whole connection. All measurement is performed at state SETUP.
-Connection(C) ➞ Port Setting : Show COM port setting dialog and Baudrate you can change,etc.
-GPIB(G) ➞ Connect : Connect the Ag8960 GPIB card with PC.

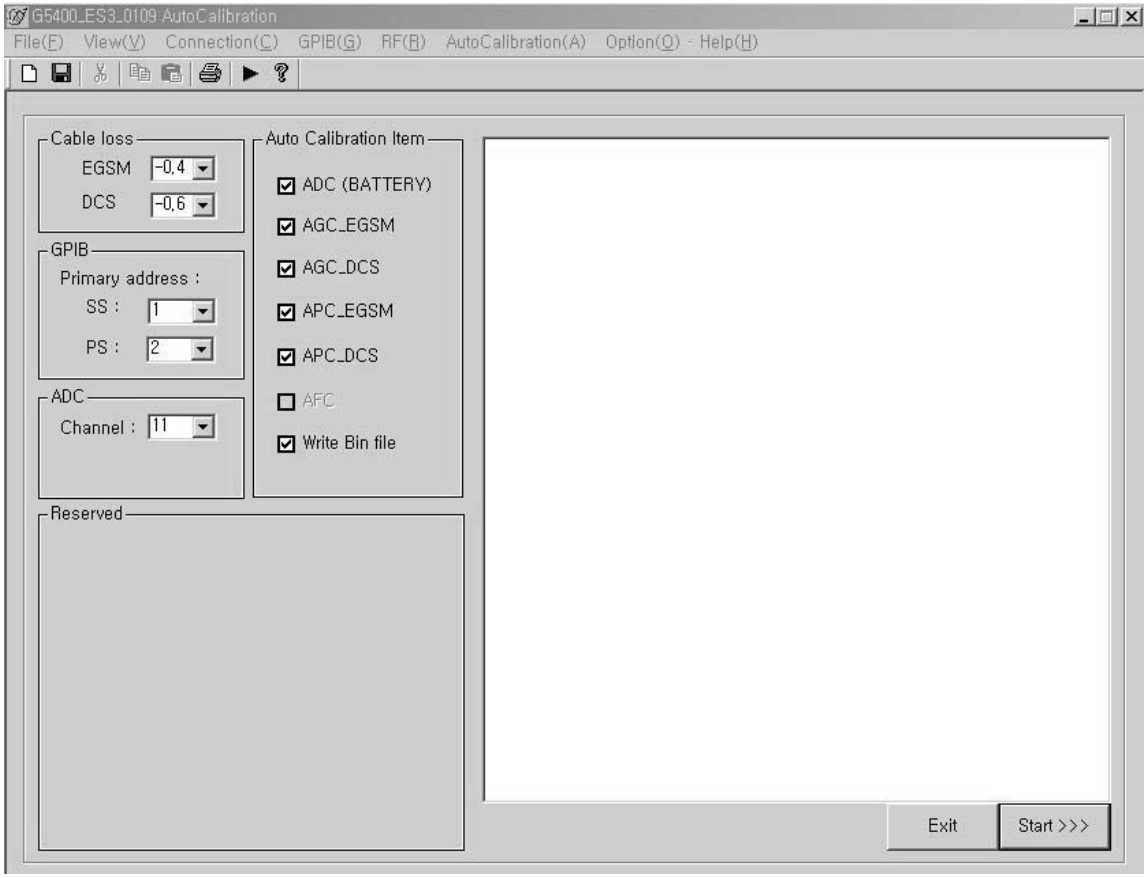



**Figure 12-1. Auto Calibration Program**

-Screen ➞ Cable loss : Enter the RF cable loss GSM and DCS
-Screen ➞ GPIB(Primary address) : Enter the SS(Ag8960) and PS(Tektronix PS2521G) GPIB address
-Screen ➞ ADC Channel : Default ADC Calibration Channel
-Screen ➞ Auto Calibration Item : Default Calibration Settings about Tx, Rx, ADC and write BIN file

## 12.4 AGC

This procedure is for Rx calibration.
In this procedure, We can get RSSI correction value. Set band EGSM and press Start button the result window will show correction values per every power level and gain code and the same measure is performed per every frequency.

## 12.5 APC

This procedure is for Tx calibration.
In this procedure you can get proper scale factor value and measured power level.

## 12.6 ADC

This procedure is for battery calibration.
You can get main Battery Config Table and temperature Config Table

## 12.7 Setting

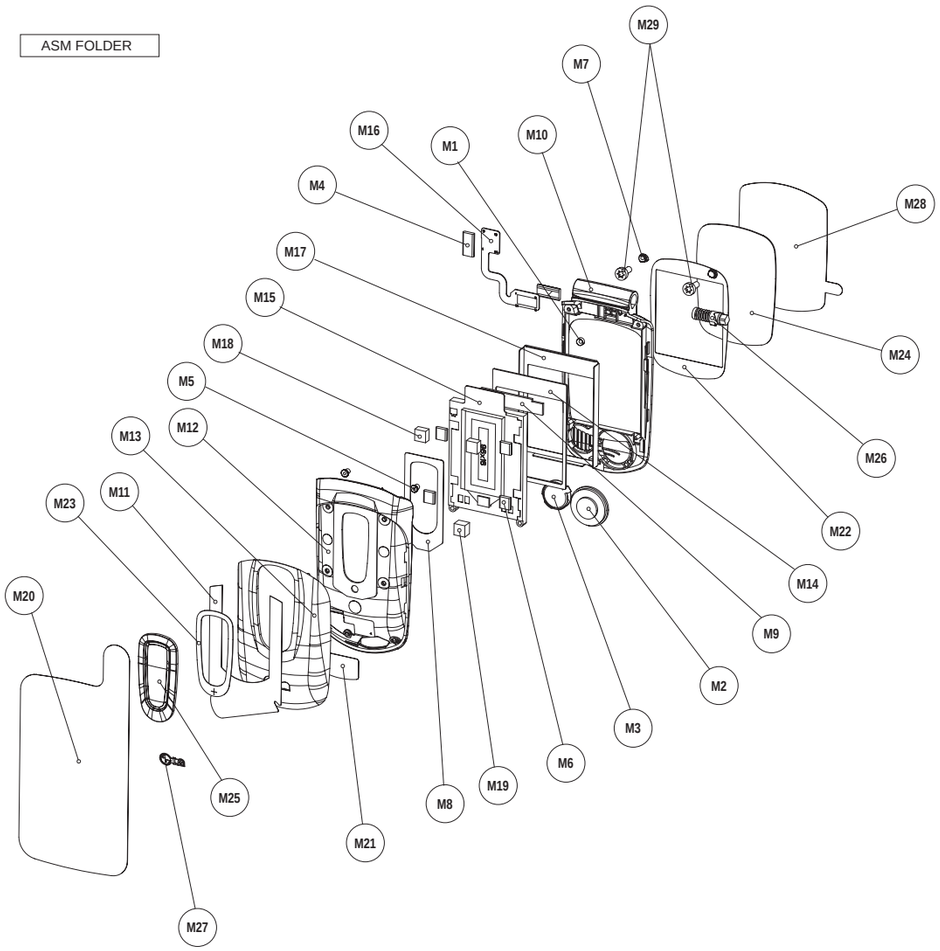
check com port and cable loss. Select automatic calibration item. If you uncheck one item calibration will stop from the unchecked item. This is useful when you want to process only one item.

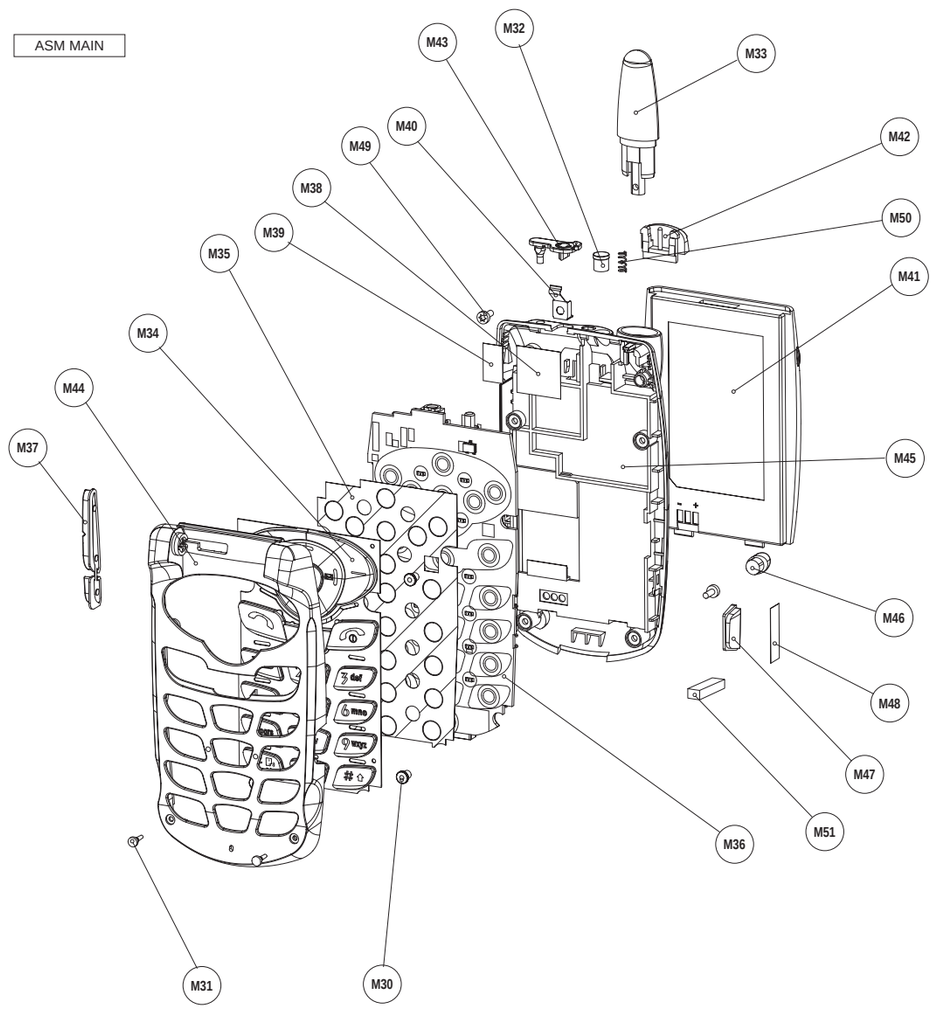
## 12.8 How to do calibration

A. Connect cable between phone and serial port of PC.
B. Connect Ag8960 equipment and Power Supply and phone.
C. Set correct port and baud rate.
D. Press Start button. AutoCal process all calibration procedure
   i. AGC EGSM
   ii. AGC DCS
   iii. APC EGSM
   iv. APC DCS
   v. ADC
E. After finished all measurement. The state is return to SETUP.
F. The Cal file will be generated and then the calibration data will be written into phone and then will be reset.

# 13. EXPLODED VIEW & REPLACEMENT PART LIST

## 13.1 Exploded View



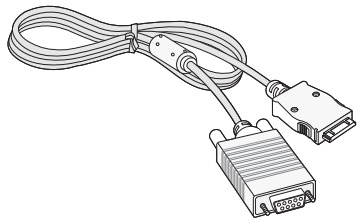
## < Parts List of Exploded View >

| No | Level | Location No. | Part Number | Description | Qty | Specification | Service |
|---|---|---|---|---|---|---|---|
| | 1 | | TGFF0005001 | GSM(FOLDER) | 1 | G5400 EUASV | No |
| | 2 | APEY00 | APEY0056501 | PHONE | 1 | G5400 EUASV | Yes |
| | 3 | ACGG00 | ACGG0021501 | COVER ASSY,FOLDER | 1 | G5400 EUASV | Yes |
| | 4 | ACGH00 | ACGH0011901 | COVER ASSY,FOLDER(LOWER) | 1 | G5400 EUASV | Yes |
| M10 | 5 | MCJH00 | MCJH0009201 | COVER,FOLDER(LOWER) | 1 | G5400 EUASV | Yes |
| M10 | 5 | MCJH00 | MCJH0009202 | COVER,FOLDER(LOWER) | 1 | G5400 EUAMS DARK BLUE | Yes |
| M1 | 5 | MMAA00 | MMAA0000601 | MAGNET,SWITCH | 1 | LG-G510,511,512 common use, DIA : 3.0mm+1.5t | Yes |
| | 4 | ACGJ00 | ACGJ0019601 | COVER ASSY,FOLDER(UPPER) | 1 | G5400 SV | Yes |
| M12 | 5 | MCJJ00 | MCJJ0012901 | COVER,FOLDER(UPPER) | 1 | G5400 EUASV | No |
| | 5 | MCJJ00 | MCJJ0012902 | COVER,FOLDER(UPPER) | 1 | G5400 EUAMS DARK BLUE | No |
| M13 | 5 | MDAE00 | MDAE0012101 | DECO,FOLDER(UPPER) | 1 | G5400 EUASV | No |
| M13 | 5 | MDAE00 | MDAE0012103 | DECO,FOLDER(UPPER) | 1 | G5400 MYSRS | No |
| M5 | 5 | MICZ00 | MICZ0003801 | INSERT | 2 | M1.4x3.0 | No |
| M8 | 5 | MPBQ00 | MPBQ0007201 | PAD,LCD(SUB) | 1 | G5400 EUASV | Yes |
| M27 | 5 | MPFF00 | MPFF0006101 | PLATE,LOGO | 1 | | Yes |
| M23 | 5 | MTAE00 | MTAE0007001 | TAPE,WINDOW(SUB) | 1 | G5400 SUB WINDOW | Yes |
| M21 | 5 | MTAZ00 | MTAZ0012301 | TAPE | 1 | G5400 SV 10x17 Artpaper | No |
| | 4 | ACGK00 | ACGK0020801 | COVER ASSY,FRONT | 1 | G5400 EUASV | Yes |
| M31 | 5 | MBHY00 | MBHY0003503 | BUMPER | 2 | LG-510,511,512,common use for METALIC SILVER,diameter=2.4 | Yes |
| M31 | 5 | MBHY00 | MBHY0003506 | BUMPER | 2 | LG-510,511,512,common use for DARK BLUE,diameter=2.4 | Yes |
| M37 | 5 | MBJL00 | MBJL0006501 | BUTTON,SIDE | 1 | G5400 EUA SV | Yes |
| M44 | 5 | MCJK00 | MCJK0014201 | COVER,FRONT | 1 | G5400 EUASV | Yes |
| M44 | 5 | MCJK00 | MCJK0014202 | COVER,FRONT | 1 | G5400 EUAMS DARK BLUE | Yes |
| M30 | 5 | MICZ00 | MICZ0003801 | INSERT | 4 | M1.4x3.0 | No |
| M48 | 5 | MTAB00 | MTAB0020202 | TAPE,PROTECTION | 1 | 50X83 PROTECTION TAPE | No |
| M47 | 5 | MWAG00 | MWAG0002101 | WINDOW,IRDA | 1 | G5400 EUASV | Yes |
| | 4 | AWAB00 | AWAB0005001 | WINDOW ASSY,LCD | 1 | G5400 SV MAIN WINDOW | Yes |
| M22 | 5 | MTAD00 | MTAD0012401 | TAPE,WINDOW | 1 | G5400 MAIN WINDOW | No |
| M24 | 5 | MWAC00 | MWAC0024801 | WINDOW,LCD | 1 | G5400 MAIN 1.0t | No |
| M25 | 4 | AWAB01 | AWAB0004701 | WINDOW ASSY,LCD | 1 | G5400 MAIN WINDOW, | Yes |
| | 5 | BFAA00 | BFAA0009101 | FILM,INMOLD | 1 | G5400 SUB WINDOW | No |
| | 5 | MWAF00 | MWAF0008401 | WINDOW,LCD(SUB) | 1 | G5400 SUB INMOLD | No |
| M28 | 4 | GMZZ00 | GMZZ0001901 | SCREW MACHINE | 2 | 1.4 mm,3.5 mm,MSWR3(BK) ,N ,STR ,- , t OF HEAD=1.0,DIA OF HEAD=3.1 | Yes |
| M7 | 4 | MCCH00 | MCCH0011901 | CAP,SCREW | 2 | G5400 EUASV, FOLDER | Yes |
| M7 | 4 | MCCH00 | MCCH0011902 | CAP,SCREW | 2 | G5400 EUAMS DARK BLUE, FOLDER | Yes |
| M4 | 4 | MGAD00 | MGAD0025301 | GASKET,SHIELD FORM | 2 | 5x10x1.5t hard | Yes |
| M6 | 4 | MGAD01 | MGAD0025201 | GASKET,SHIELD FORM | 4 | 5x5x1.5t hard | Yes |
| M26 | 4 | MHFD00 | MHFD0004101 | HINGE,FOLDER | 1 | 5400 (5PHI) 5Kg-T | Yes |
| M17 | 4 | MHGD00 | MHGD0001501 | HOLDER,LCD | 1 | G5400 LCD HOLDER | Yes |

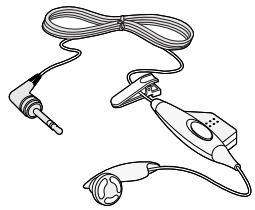
## 13. EXPLODED VIEW & REPLACEMENT PART LIST

| No | Level | Location No. | Part Number | Description | Qty | Specification | Service |
|---|---|---|---|---|---|---|---|
| M9 | 4 | MPBG | MPBG0010102 | PAD,LCD | 1 | 6X33.5X1.0t | Yes |
| M14 | 4 | MPBG00 | MPBG0010101 | PAD,LCD | 1 | G5400 MAIN LCD | Yes |
| M18 | 4 | MPBG02 | MPBG0010103 | PAD,LCD | 2 | 5X5X3t | Yes |
| M19 | 4 | MPBG03 | MPBG0010104 | PAD,LCD | 1 | 5X5X4t | Yes |
| M20 | 4 | MTAB00 | MTAB0009001 | TAPE,PROTECTION | 1 | PROTECTION, FOLDER | No |
| M16 | 4 | SACY00 | SACY0007801 | PCB ASSY,FLEXIBLE | 1 | | Yes |
| | 5 | ENBY00 | ENBY0013401 | CONNECTOR,BOARD TO BOARD | 1 | 34 PIN,0.4 mm,STRAIGHT ,Au ,B to B G5400 | No |
| | 5 | ENBY01 | ENBY0013401 | CONNECTOR,BOARD TO BOARD | 1 | 34 PIN,0.4 mm,STRAIGHT ,Au ,B to B G5400 | No |
| | 5 | MTAZ00 | MTAZ0012302 | TAPE | 1 | 4X12 | Yes |
| | 5 | SPCY00 | SPCY0012501 | PCB,FLEXIBLE | 1 | POLYI ,.45 mm,DOUBLE ,V1.1 | No |
| M2 | 4 | SPK1 | SUSY0006202 | SPEAKER | 1 | ASSY ,8 ohm,92 dB,17 mm,G5400 DUAL SPEAKER | Yes |
| M15 | 4 | SVLM00 | SVLM0005201 | LCD MODULE | 1 | Main:128*160 (1.5"),Sub:96*16 ,A/Area:28.02*35.028 ,65K CSTN(S6B33B0A)/SUB MONO(S6B0723) | Yes |
| M3 | 4 | VIB1 | SJMY0002802 | VIBRATOR,MOTOR | 1 | 3 V,0.08 A,12*15 ,G5300 VIBRATOR (0.5t PAD) | Yes |
| | 3 | ACGM00 | ACGM0017701 | COVER ASSY,REAR | 1 | G5400 | Yes |
| M49 | 4 | GMZZ00 | GMZZ0001901 | SCREW MACHINE | 1 | 1.4 mm,3.5 mm,MSWR3(BK) ,N ,STR ,- , t OF HEAD=1.0,DIA OF HEAD=3.1 | Yes |
| M43 | 4 | MCCC00 | MCCC0007601 | CAP,EARPHONE JACK | 1 | SILVER | Yes |
| M43 | 4 | MCCC00 | MCCC0007602 | CAP,EARPHONE JACK | 1 | RED | Yes |
| M40 | 4 | MCIA00 | MCIA0006601 | CONTACT,ANTENNA | 1 | | Yes |
| M45 | 4 | MCJN00 | MCJN0011301 | COVER,REAR | 1 | G5400 EUASV | Yes |
| M45 | 4 | MCJN00 | MCJN0011302 | COVER,REAR | 1 | G5400 MYSRS | Yes |
| M5 | 4 | MICZ00 | MICZ0003801 | INSERT | 1 | M1.4x3.0 | No |
| M38 | 4 | MIDZ00 | MIDZ0024801 | INSULATOR | 1 | G5400 INSULATOR, 12X13 | Yes |
| M39 | 4 | MIDZ01 | MIDZ0024802 | INSULATOR | 1 | G5400 INSULATOR, 5X9 | Yes |
| M42 | 4 | MLEA00 | MLEA0008501 | LOCKER,BATTERY | 1 | G5400 EUASV | Yes |
| M42 | 4 | MLEA00 | MLEA0008502 | LOCKER,BATTERY | 1 | G5400 MYSRS | Yes |
| M50 | 4 | MSDB00 | MSDB0001701 | SPRING,COIL | 1 | G7000 | Yes |
| M33 | 4 | SNGF00 | SNGF0001601 | ANTENNA,GSM,FIXED | 1 | 3.0 ,-2.0 dBd,P427C , | Yes |
| M35 | 3 | ADCA00 | ADCA0010501 | DOME ASSY,METAL | 1 | G5400 | Yes |
| M49 | 3 | GMZZ00 | GMZZ0001901 | SCREW MACHINE | 4 | 1.4 mm,3.5 mm,MSWR3(BK) ,N ,STR ,- , t OF HEAD=1.0,DIA OF HEAD=3.1 | Yes |
| M34 | 3 | MBJA00 | MBJA0008401 | BUTTON,DIAL | 1 | G5400 ENGLISH | Yes |
| M32 | 3 | MCCF00 | MCCF0002003 | CAP,MOBILE SWITCH | 1 | LG-510,511,512,common use,METALIC SILVER | Yes |
| M32 | 3 | MCCF00 | MCCF0002005 | CAP,MOBILE SWITCH | 1 | LG-510,511,512,common use,RED | Yes |
| M46 | 3 | MCCH00 | MCCH0011801 | CAP,SCREW | 2 | G5400 EUASV, MAIN | Yes |
| M46 | 3 | MCCH00 | MCCH0011802 | CAP,SCREW | 2 | G5400 MYSRS, MAIN | Yes |
| M51 | 3 | MGAD01 | MGAD0006001 | GASKET,SHIELD FORM | 1 | G7000 10x5x1.5t | Yes |
| | 3 | MIC201 | SUMY0004602 | MICROPHONE | 1 | ASSY ,-42 dB,6*1.1 ,G5400 MIC | Yes |
| | 3 | MLAK00 | MLAK0006801 | LABEL,MODEL | 1 | English, 30.5X21.5 | No |
| | 3 | MTAZ00 | MTAZ0011201 | TAPE | 2 | G5400 EUASV, MAIN SCREW CAP | No |

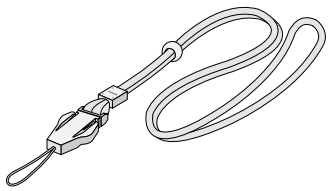
## 13.2 Accessories



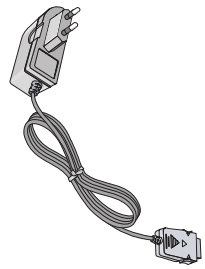
**DATA CABLE**



**EAR PHONE / EAR MIKE SET**



**HANDSTRAP**



**ADAPTOR, AC-DC**

| Level | Location No. | Description | Part No. | QTY | Specification | Service |
|---|---|---|---|---|---|---|
| 2 | SGDY00 | DATA CABLE | SGDY0003003 | 1 | LG-510W/G10, CABLE W/O POWER BULK | YES |
| 2 | MHBY00 | HANDSTRAP | MHBY0001101 | 1 | Neck Strap 400mm (CDMA,common use) | YES |
| 2 | SGEY00 | EAR PHONE/EAR MIKE SET | SGEY0002901 | 1 | G7000,G5200 Common use, 3P EAR MIC | YES |
| 2 | SSAD00 | ADAPTOR,AC-DC | SSAD0007801 | 1 | 100-240V,60 Hz,5.2 V,850 mA,<br>CE,85VAC~264VAC / 50HZ~60HZ | YES |

## 13.3 Replacement Part List

### < Mechanic components >

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 1 | | TGFF0005001 | GSM(FOLDER) | 1 | G5400 EUASV | No | |
| 2 | APEY00 | APEY0056501 | PHONE | 1 | G5400 EUASV | Yes | SILVER |
| 3 | ACGG00 | ACGG0021501 | COVER ASSY,FOLDER | 1 | G5400 EUASV | Yes | SILVER |
| 4 | ACGH00 | ACGH0011901 | COVER ASSY,FOLDER(LOWER) | 1 | G5400 EUASV | Yes | SILVER |
| 5 | MCJH00 | MCJH0009201 | COVER,FOLDER(LOWER) | 1 | G5400 EUASV | Yes | SILVER |
| 5 | MMAA00 | MMAA0000601 | MAGNET,SWITCH | 1 | LG-G510,511,512 common use, DIA : 3.0mm+1.5t | Yes | |
| 4 | ACGJ00 | ACGJ0019601 | COVER ASSY,FOLDER(UPPER) | 1 | G5400 SV | Yes | SILVER |
| 5 | MCJJ00 | MCJJ0012901 | COVER,FOLDER(UPPER) | 1 | G5400 EUASV | No | SILVER |
| 5 | MDAE00 | MDAE0012101 | DECO,FOLDER(UPPER) | 1 | G5400 EUASV | No | SILVER |
| 5 | MICZ00 | MICZ0003801 | INSERT | 2 | M1.4x3.0 | No | SILVER |
| 5 | MPBQ00 | MPBQ0007201 | PAD,LCD(SUB) | 1 | G5400 EUASV | Yes | SILVER |
| 5 | MPFF00 | MPFF0006101 | PLATE,LOGO | 1 | | Yes | |
| 5 | MTAE00 | MTAE0007001 | TAPE,WINDOW(SUB) | 1 | G5400 SUB WINDOW | Yes | SILVER |
| 5 | MTAZ00 | MTAZ0012301 | TAPE | 1 | G5400 SV 10x17 Artpaper | No | SILVER |
| 4 | ACGK00 | ACGK0020801 | COVER ASSY,FRONT | 1 | G5400 EUASV | Yes | SILVER |
| 5 | MBHY00 | MBHY0003503 | BUMPER | 2 | LG-510,511,512,common use for METALIC SILVER,diameter=2.4 | Yes | METALIC SILVER |
| 5 | MBJL00 | MBJL0006501 | BUTTON,SIDE | 1 | G5400 EUA SV | Yes | SILVER |
| 5 | MCJK00 | MCJK0014201 | COVER,FRONT | 1 | G5400 EUASV | Yes | SILVER |
| 5 | MICZ00 | MICZ0003801 | INSERT | 4 | M1.4x3.0 | No | SILVER |
| 5 | MWAG00 | MWAG0002101 | WINDOW,IRDA | 1 | G5400 EUASV | Yes | SILVER |
| 4 | AWAB00 | AWAB0005001 | WINDOW ASSY,LCD | 1 | G5400 SV MAIN WINDOW | Yes | SILVER |
| 5 | MTAD00 | MTAD0012401 | TAPE,WINDOW | 1 | G5400 MAIN WINDOW | Yes | SILVER |
| 5 | MWAC00 | MWAC0024801 | WINDOW,LCD | 1 | G5400 MAIN 1.0t | Yes | SILVER |
| 4 | AWAB01 | AWAB0004701 | WINDOW ASSY,LCD | 1 | G5400 MAIN WINDOW, | Yes | SILVER |
| 5 | BFAA00 | BFAA0009101 | FILM,INMOLD | 1 | G5400 SUB WINDOW | No | SILVER |
| 5 | MWAF00 | MWAF0008401 | WINDOW,LCD(SUB) | 1 | G5400 SUB INMOLD | No | SILVER |
| 4 | GMZZ00 | GMZZ0001901 | SCREW MACHINE | 2 | 1.4 mm,3.5 mm,MSWR3(BK) ,N ,STR ,- , t OF HEAD=1.0,DIA OF HEAD=3.1 | Yes | |
| 4 | MCCH00 | MCCH0011901 | CAP,SCREW | 2 | G5400 EUASV, FOLDER | Yes | SILVER |
| 4 | MGAD00 | MGAD0025301 | GASKET,SHIELD FORM | 2 | 5x10x1.5t hard | Yes | SILVER |
| 4 | MGAD01 | MGAD0025201 | GASKET,SHIELD FORM | 4 | 5x5x1.5t hard | Yes | SILVER |
| 4 | MHFD00 | MHFD0004101 | HINGE,FOLDER | 1 | 5400 (5PHI) 5Kg-T | Yes | SILVER |
| 4 | MHGD00 | MHGD0001501 | HOLDER,LCD | 1 | G5400 LCD HOLDER | Yes | SILVER |
| 4 | MPBG00 | MPBG0010101 | PAD,LCD | 1 | G5400 MAIN LCD | Yes | SILVER |
| 4 | SACY00 | SACY0007801 | PCB ASSY,FLEXIBLE | 1 | | Yes | |
| 5 | ENBY00 | ENBY0013401 | CONNECTOR,BOARD TO BOARD | 1 | 34 PIN,0.4 mm,STRAIGHT ,Au ,B to B G5400 | Yes | |

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | ENBY01 | ENBY0013401 | CONNECTOR,BOARD TO BOARD | 1 | 34 PIN,0.4 mm,STRAIGHT ,Au ,B to B G5400 | Yes | |
| 5 | SPCY00 | SPCY0012501 | PCB,FLEXIBLE | 1 | POLYI ,.45 mm,DOUBLE ,V1.1 | Yes | |
| 4 | SPK1 | SUSY0006202 | SPEAKER | 1 | ASSY ,8 ohm,92 dB,17 mm,G5400 DUAL SPEAKER | Yes | |
| 4 | SVLM00 | SVLM0005201 | LCD MODULE | 1 | Main:128*160 (1.5"),Sub:96*16 ,A/Area:28.02*35.028 ,65K CSTN(S6B33B0A)/SUB MONO(S6B0723) | Yes | |
| 4 | VIB1 | SJMY0002802 | VIBRATOR,MOTOR | 1 | 3 V,0.08 A,12*15 ,G5300 VIBRATOR (0.5t PAD) | Yes | |
| 3 | ACGM00 | ACGM0017701 | COVER ASSY,REAR | 1 | G5400 | Yes | SILVER |
| 4 | GMZZ00 | GMZZ0001901 | SCREW MACHINE | 1 | 1.4 mm,3.5 mm,MSWR3(BK) ,N ,STR ,- , t OF HEAD=1.0,DIA OF HEAD=3.1 | Yes | |
| 4 | MCCC00 | MCCC0007601 | CAP,EARPHONE JACK | 1 | | Yes | SILVER |
| 4 | MCIA00 | MCIA0006601 | CONTACT,ANTENNA | 1 | | Yes | SILVER |
| 4 | MCJN00 | MCJN0011301 | COVER,REAR | 1 | | Yes | SILVER |
| 4 | MICZ00 | MICZ0003801 | INSERT | 1 | M1.4x3.0 | No | SILVER |
| 4 | MLEA00 | MLEA0008501 | LOCKER,BATTERY | 1 | G5400 EUASV | Yes | SILVER |
| 4 | MSDB00 | MSDB0001701 | SPRING,COIL | 1 | G7000 | Yes | PEARL WHITE |
| 4 | SNGF00 | SNGF0001601 | ANTENNA,GSM,FIXED | 1 | 3.0 ,-2.0 dBd,P427C , | Yes | |
| 3 | ADCA00 | ADCA0010501 | DOME ASSY,METAL | 1 | G5400 | Yes | SILVER |
| 3 | GMZZ00 | GMZZ0001901 | SCREW MACHINE | 4 | 1.4 mm,3.5 mm,MSWR3(BK) ,N ,STR ,- , t OF HEAD=1.0,DIA OF HEAD=3.1 | Yes | |
| 3 | MBJA00 | MBJA0008401 | BUTTON,DIAL | 1 | G5400 ENGLISH | Yes | SILVER |
| 3 | MCCF00 | MCCF0002003 | CAP,MOBILE SWITCH | 1 | LG-510,511,512,common use,METALIC SILVER | Yes | METALIC WHITE |
| 3 | MCCH00 | MCCH0011801 | CAP,SCREW | 2 | G5400 EUASV, MAIN | Yes | SILVER |
| 3 | MGAD01 | MGAD0006001 | GASKET,SHIELD FORM | 1 | G7000 10x5x1.5t | Yes | PEARL WHITE |
| 3 | MIC201 | SUMY0004602 | MICROPHONE | 1 | ASSY ,-42 dB,6*1.1 ,G5400 MIC | Yes | |
| 3 | MLAK00 | MLAK0006801 | LABEL,MODEL | 1 | English, 30.5X21.5 | Yes | |
| 3 | MTAZ00 | MTAZ0011201 | TAPE | 2 | G5400 EUASV, MAIN SCREW CAP | Yes | SILVER |

## < Main PCB >

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 3 | SAFY00 | SAFY0060801 | PCB ASSY,MAIN | 1 | G5400 PCB main assy,dual foler,65K Color LCD,7color backlight sub LCD,32ploy MIDI | Yes | |
| 4 | SAFA00 | SAFA0020401 | PCB ASSY,MAIN,AUTO | 1 | | Yes | |
| 5 | BAT301 | ENJE0003001 | CONN,JACK/PLUG,EARPHONE | 1 | 2 ,2 PIN,W3000 Back Up Battery Holder | Yes | |
| 5 | C101 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C102 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C103 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C104 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C105 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C106 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C107 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C108 | ECCH0000163 | CAP,CERAMIC,CHIP | 1 | 47 nF,10V,K,X5R,HD,1005,R/TP | Yes | |
| 5 | C109 | ECCH0000143 | CAP,CERAMIC,CHIP | 1 | 1 nF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C111 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C112 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C113 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |
| 5 | C114 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C115 | ECCH0000276 | CAP,CERAMIC,CHIP | 1 | 1 uF,10V,Z,Y5V,HD,1608,R/TP | Yes | |
| 5 | C117 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C118 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C119 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C120 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C121 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C124 | ECCH0000155 | CAP,CERAMIC,CHIP | 1 | 10 nF,16V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C130 | ECCH0000155 | CAP,CERAMIC,CHIP | 1 | 10 nF,16V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C131 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C132 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C133 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C134 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C201 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C202 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C203 | ECCH0000276 | CAP,CERAMIC,CHIP | 1 | 1 uF,10V,Z,Y5V,HD,1608,R/TP | Yes | |
| 5 | C204 | ECCH0000122 | CAP,CERAMIC,CHIP | 1 | 47 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C205 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C206 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C207 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C208 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C210 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C212 | ECTH0001901 | CAP,TANTAL,CHIP | 1 | 10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP | Yes | |

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | C214 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C215 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C216 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C219 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C220 | ECTH0001901 | CAP,TANTAL,CHIP | 1 | 10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP | Yes | |
| 5 | C221 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C222 | ECTH0001901 | CAP,TANTAL,CHIP | 1 | 10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP | Yes | |
| 5 | C224 | ECCH0000122 | CAP,CERAMIC,CHIP | 1 | 47 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C225 | ECCH0000122 | CAP,CERAMIC,CHIP | 1 | 47 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C226 | ECCH0000122 | CAP,CERAMIC,CHIP | 1 | 47 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C227 | ECCH0000122 | CAP,CERAMIC,CHIP | 1 | 47 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C230 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C231 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C232 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C235 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C236 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C237 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C239 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C240 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C241 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C242 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C243 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C244 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C245 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C301 | ECTH0001901 | CAP,TANTAL,CHIP | 1 | 10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP | Yes | |
| 5 | C302 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C303 | ECTH0002001 | CAP,TANTAL,CHIP | 1 | 10 uF,10V ,M ,STD ,2012 ,R/TP | Yes | |
| 5 | C304 | ECCH0000143 | CAP,CERAMIC,CHIP | 1 | 1 nF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C305 | ECCH0000128 | CAP,CERAMIC,CHIP | 1 | 100 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C306 | ECCH0000128 | CAP,CERAMIC,CHIP | 1 | 100 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C307 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C308 | ECCH0000280 | CAP,CERAMIC,CHIP | 1 | 0.22 uF,10V ,K ,X7R ,HD ,1608 ,R/TP | Yes | |
| 5 | C309 | ECCH0005801 | CAP,CERAMIC,CHIP | 1 | 2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP | Yes | |
| 5 | C310 | ECCH0005801 | CAP,CERAMIC,CHIP | 1 | 2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP | Yes | |
| 5 | C311 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C312 | ECCH0000280 | CAP,CERAMIC,CHIP | 1 | 0.22 uF,10V ,K ,X7R ,HD ,1608 ,R/TP | Yes | |
| 5 | C313 | ECCH0005801 | CAP,CERAMIC,CHIP | 1 | 2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP | Yes | |
| 5 | C314 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C319 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C320 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C402 | ECCH0000103 | CAP,CERAMIC,CHIP | 1 | 1.5 pF,50V,C,NP0,TC,1005,R/TP | Yes | |
| 5 | C407 | ECCH0000171 | CAP,CERAMIC,CHIP | 1 | 3.3 pF,16V ,J ,NP0 ,TC ,1005 ,R/TP | Yes | |
| 5 | C408 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |

## 13. EXPLODED VIEW & REPLACEMENT PART LIST

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | C409 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C410 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C411 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C412 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |
| 5 | C413 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C414 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C415 | ECCH0000102 | CAP,CERAMIC,CHIP | 1 | 1 pF,50V,C,NP0,TC,1005,R/TP | Yes | |
| 5 | C416 | ECCH0000115 | CAP,CERAMIC,CHIP | 1 | 22 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C417 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C419 | ECCH0000102 | CAP,CERAMIC,CHIP | 1 | 1 pF,50V,C,NP0,TC,1005,R/TP | Yes | |
| 5 | C420 | ECCH0000701 | CAP,CERAMIC,CHIP | 1 | 1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP | Yes | |
| 5 | C422 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C423 | ECCH0000701 | CAP,CERAMIC,CHIP | 1 | 1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP | Yes | |
| 5 | C424 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C425 | ECCH0000103 | CAP,CERAMIC,CHIP | 1 | 1.5 pF,50V,C,NP0,TC,1005,R/TP | Yes | |
| 5 | C426 | ECCH0000901 | CAP,CERAMIC,CHIP | 1 | 2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP | Yes | |
| 5 | C428 | ECCH0000176 | CAP,CERAMIC,CHIP | 1 | 2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP | Yes | |
| 5 | C429 | ECCH0000186 | CAP,CERAMIC,CHIP | 1 | 33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP | Yes | |
| 5 | C430 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |
| 5 | C431 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C433 | ECTZ0003901 | CAP,TANTAL,CHIP,MAKER | 1 | 10 uF,16V ,M ,STD ,ETC ,R/TP | Yes | |
| 5 | C434 | ECCH0000115 | CAP,CERAMIC,CHIP | 1 | 22 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C435 | ECCH0000122 | CAP,CERAMIC,CHIP | 1 | 47 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C437 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |
| 5 | C438 | ECCH0000179 | CAP,CERAMIC,CHIP | 1 | 22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C439 | ECCH0000128 | CAP,CERAMIC,CHIP | 1 | 100 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C440 | ECCH0000143 | CAP,CERAMIC,CHIP | 1 | 1 nF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C441 | ECCH0000128 | CAP,CERAMIC,CHIP | 1 | 100 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C442 | ECCH0000143 | CAP,CERAMIC,CHIP | 1 | 1 nF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C443 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |
| 5 | C444 | ECCH0000379 | CAP,CERAMIC,CHIP | 1 | 2.2 uF,6.3V ,K ,X5R ,HD ,2012 ,R/TP | Yes | |
| 5 | C445 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C446 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C447 | ECCH0000143 | CAP,CERAMIC,CHIP | 1 | 1 nF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C448 | ECCH0000115 | CAP,CERAMIC,CHIP | 1 | 22 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C449 | ECCH0003401 | CAP,CERAMIC,CHIP | 1 | 10 uF,6.3V ,Z ,Y5V ,HD ,2012 ,R/TP | Yes | |
| 5 | C450 | ECCH0000379 | CAP,CERAMIC,CHIP | 1 | 2.2 uF,6.3V ,K ,X5R ,HD ,2012 ,R/TP | Yes | |
| 5 | C451 | ECCH0000139 | CAP,CERAMIC,CHIP | 1 | 470 pF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C501 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | C502 | ECCH0000110 | CAP,CERAMIC,CHIP | 1 | 10 pF,50V,D,NP0,TC,1005,R/TP | Yes | |
| 5 | C506 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C507 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C509 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | C510 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C511 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C512 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C513 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C514 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C515 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C516 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C517 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C518 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C519 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C520 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C521 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C522 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C523 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C524 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C525 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C526 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C527 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C528 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C529 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C530 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C531 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C532 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C533 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C534 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C535 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C536 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C537 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C538 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C539 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C540 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C541 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C542 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C543 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C544 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C545 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C546 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C547 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C548 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C549 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C550 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C551 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C552 | ECCH0000117 | CAP,CERAMIC,CHIP | 1 | 27 pF,50V,J,NP0,TC,1005,R/TP | Yes | |

## 13. EXPLODED VIEW & REPLACEMENT PART LIST

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | C601 | ECCH0001811 | CAP,CERAMIC,CHIP | 1 | 0.22 uF,50V ,Z ,Y5V ,HD ,1005 ,R/TP | Yes | |
| 5 | C602 | ECCH0000143 | CAP,CERAMIC,CHIP | 1 | 1 nF,50V,K,X7R,HD,1005,R/TP | Yes | |
| 5 | C605 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C606 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C607 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C608 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C609 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C610 | ECCH0000120 | CAP,CERAMIC,CHIP | 1 | 39 pF,50V,J,NP0,TC,1005,R/TP | Yes | |
| 5 | C611 | ECCH0000182 | CAP,CERAMIC,CHIP | 1 | 0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP | Yes | |
| 5 | CN501 | ENBY0013402 | CONNECTOR,BOARD TO BOARD | 1 | 34 PIN,0.4 mm,STRAIGHT ,Au ,B to B G5400 | Yes | |
| 5 | CN601 | MTCB0000702 | TERMINAL,PIN | 1 | 7.4*2.8 4.3T Mold 2.2T 3P | Yes | BLACK |
| 5 | CN602 | ENEY0003101 | CONN,RECEPTACLE | 1 | 18 PIN,0 ,0 , | Yes | |
| 5 | D101 | EDSY0005701 | DIODE,SWITCHING | 1 | EMT3 ,80 V,4 A,R/TP , | Yes | |
| 5 | D302 | EDSY0012101 | DIODE,SWITCHING | 1 | US-FLAT ,30 V,1 A,R/TP ,2.5*1.25*0.6(t) | Yes | |
| 5 | FL401 | SFAY0001901 | FILTER,SEPERATOR | 1 | 880/960 ,1710/1880 ,1.3 dB,1.5 dB,30 dB,25 dB,ETC ,5.4*4.0*1.8 | Yes | |
| 5 | FL402 | SFSY0012202 | FILTER,SAW | 1 | 942.5 MHz,2.0*2.5*1.0 ,SMD , | Yes | |
| 5 | FL403 | SFSY0012302 | FILTER,SAW | 1 | 1842.5 MHz,2.0*2.5*1.0 ,SMD , | Yes | |
| 5 | J201 | ENJE0002301 | CONN,JACK/PLUG,EARPHONE | 1 | 3,5 PIN,G7000 EAR JACK 3 pole, 5 pin KSD | Yes | |
| 5 | J601 | ENSY0007602 | CONN,SOCKET | 1 | 6 PIN,ETC , , mm,Height 2.7mm | Yes | |
| 5 | L401 | ELCH0001420 | INDUCTOR,CHIP | 1 | 3.9 nH,S ,1005 ,R/TP ,CDMA | Yes | |
| 5 | L402 | ELCH0005006 | INDUCTOR,CHIP | 1 | 33 nH,J ,1005 ,R/TP , | Yes | |
| 5 | L403 | ELCH0005006 | INDUCTOR,CHIP | 1 | 33 nH,J ,1005 ,R/TP , | Yes | |
| 5 | L404 | ELCH0002715 | INDUCTOR,CHIP | 1 | 27 nH,G ,1608 ,R/TP ,coil inductor | Yes | |
| 5 | L405 | ELCH0002714 | INDUCTOR,CHIP | 1 | 7.5 nH,G ,1608 ,R/TP ,coil inductor | Yes | |
| 5 | L406 | ELCH0005013 | INDUCTOR,CHIP | 1 | 4.7 nH,S ,1005 ,R/TP , | Yes | |
| 5 | L407 | ELCH0005013 | INDUCTOR,CHIP | 1 | 4.7 nH,S ,1005 ,R/TP , | Yes | |
| 5 | L408 | ELCH0005003 | INDUCTOR,CHIP | 1 | 12 nH,J ,1005 ,R/TP , | Yes | |
| 5 | L409 | ELCH0001420 | INDUCTOR,CHIP | 1 | 3.9 nH,S ,1005 ,R/TP ,CDMA | Yes | |
| 5 | LD503 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD504 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD505 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD506 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD507 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD508 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD509 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD510 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD511 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD512 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD513 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |
| 5 | LD514 | EDLH0004502 | DIODE,LED,CHIP | 1 | BLUE ,1608 ,R/TP ,0.35T | Yes | |

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | Q301 | EQFP0004201 | TR,FET,P-CHANNEL | 1 | 2.9*1.9*0.8(t) ,0.7 W,20 V,-6.0 A,R/TP ,NDC652P upgrade(substitution) item | Yes | |
| 5 | Q501 | EQBN0007101 | TR,BJT,NPN | 1 | EMT3 ,0.15 W,R/TP ,LOW FREQUENCY | Yes | |
| 5 | Q502 | EQBN0004801 | TR,BJT,NPN | 1 | SMT6 ,0.2 W,R/TP , | Yes | |
| 5 | R101 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R103 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R104 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R105 | ERHY0000282 | RES,CHIP | 1 | 120K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R106 | ERHY0000282 | RES,CHIP | 1 | 120K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R107 | ERHY0000512 | RES,CHIP | 1 | 10M ohm,1/16W,J,1608,R/TP | Yes | |
| 5 | R108 | ERHY0000278 | RES,CHIP | 1 | 82K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R110 | ERHY0000106 | RES,CHIP | 1 | 100 ohm,1/16W,F,1005,R/TP | Yes | |
| 5 | R111 | ERHY0000163 | RES,CHIP | 1 | 220K ohm,1/16W,F,1005,R/TP | Yes | |
| 5 | R112 | ERHY0000163 | RES,CHIP | 1 | 220K ohm,1/16W,F,1005,R/TP | Yes | |
| 5 | R113 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R140 | ERHY0000278 | RES,CHIP | 1 | 82K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R145 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R146 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R147 | ERHY0000247 | RES,CHIP | 1 | 2.2K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R201 | ERHY0000265 | RES,CHIP | 1 | 20K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R202 | ERHY0000265 | RES,CHIP | 1 | 20K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R203 | ERHY0000294 | RES,CHIP | 1 | 560K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R204 | ERHY0000294 | RES,CHIP | 1 | 560K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R205 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R207 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R208 | ERHY0000243 | RES,CHIP | 1 | 1.2K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R209 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R210 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R211 | ERHY0000243 | RES,CHIP | 1 | 1.2K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R212 | ERHY0000247 | RES,CHIP | 1 | 2.2K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R213 | ERHY0000296 | RES,CHIP | 1 | 1M ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R214 | ERHY0000250 | RES,CHIP | 1 | 3.3K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R215 | ERHY0006602 | RES,CHIP | 1 | 620 Kohm,1/16W ,J ,1005 ,R/TP | Yes | |
| 5 | R216 | ERHY0000202 | RES,CHIP | 1 | 4.7 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R217 | ERHY0000202 | RES,CHIP | 1 | 4.7 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R218 | ERHY0000296 | RES,CHIP | 1 | 1M ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R219 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R220 | ERHY0000202 | RES,CHIP | 1 | 4.7 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R221 | ERHY0000202 | RES,CHIP | 1 | 4.7 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R232 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R247 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R257 | ERHY0000296 | RES,CHIP | 1 | 1M ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R258 | ERHY0006602 | RES,CHIP | 1 | 620 Kohm,1/16W ,J ,1005 ,R/TP | Yes | |

## 13. EXPLODED VIEW & REPLACEMENT PART LIST

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | R259 | ERHY0000261 | RES,CHIP | 1 | 10K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R260 | ERHY0000249 | RES,CHIP | 1 | 2.7K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R262 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R263 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R265 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R301 | ERHY0001103 | RES,CHIP | 1 | 0.33 ohm,1/4W ,F ,2012 ,R/TP | Yes | |
| 5 | R304 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R306 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R315 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R316 | ERHY0000261 | RES,CHIP | 1 | 10K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R318 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R319 | ERHY0000261 | RES,CHIP | 1 | 10K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R320 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R323 | ERHY0000261 | RES,CHIP | 1 | 10K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R324 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R401 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R402 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R403 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R404 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R405 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R406 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R407 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R408 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R409 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R410 | ERHY0004301 | RES,CHIP | 1 | 130 ohm,1/16W ,J ,1005 ,R/TP | Yes | |
| 5 | R411 | ERHY0004301 | RES,CHIP | 1 | 130 ohm,1/16W ,J ,1005 ,R/TP | Yes | |
| 5 | R412 | ERHY0000296 | RES,CHIP | 1 | 1M ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R413 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R414 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R415 | ERHY0000263 | RES,CHIP | 1 | 15K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R416 | ERHY0006603 | RES,CHIP | 1 | 36 ohm,1/16W ,J ,1005 ,R/TP | Yes | |
| 5 | R417 | ERHY0000223 | RES,CHIP | 1 | 150 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R418 | ERHY0000223 | RES,CHIP | 1 | 150 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R419 | ERHY0000263 | RES,CHIP | 1 | 15K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R420 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R421 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R422 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R423 | ERHY0000289 | RES,CHIP | 1 | 270K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R424 | SETY0001201 | THERMISTOR | 1 | NTC ,22 Kohm,SMD ,1.0*0.5 / NSM4 SERIES | Yes | |
| 5 | R425 | ERHY0000237 | RES,CHIP | 1 | 680 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R426 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R427 | ERHY0000254 | RES,CHIP | 1 | 4.7K ohm,1/16W,J,1005,R/TP | Yes | |

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | R428 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R501 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R502 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R503 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R504 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R505 | ERHY0000205 | RES,CHIP | 1 | 15 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R506 | ERHY0000274 | RES,CHIP | 1 | 51K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R507 | ERHY0000244 | RES,CHIP | 1 | 1.5K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R508 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R512 | ERHY0000244 | RES,CHIP | 1 | 1.5K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R513 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R519 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R520 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R521 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R522 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R523 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R524 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R525 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R526 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R527 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R528 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R529 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R530 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R531 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R532 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R533 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R534 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R535 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R536 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R537 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R538 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R539 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R540 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R541 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R543 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R544 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R545 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R546 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R547 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R548 | ERHY0000241 | RES,CHIP | 1 | 1K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R551 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R552 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R553 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |

## 13. EXPLODED VIEW & REPLACEMENT PART LIST

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | R554 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R555 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R556 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R557 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R558 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R559 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R560 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R561 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R562 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R563 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R564 | ERHY0000207 | RES,CHIP | 1 | 20 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R601 | ERHY0000265 | RES,CHIP | 1 | 20K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R602 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R603 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R604 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R605 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R606 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R607 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R608 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R612 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R613 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R614 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R618 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R619 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R620 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R621 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R622 | ERHY0000202 | RES,CHIP | 1 | 4.7 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R623 | ERHY0000202 | RES,CHIP | 1 | 4.7 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R624 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R625 | ERHY0000213 | RES,CHIP | 1 | 47 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R626 | ERHY0000220 | RES,CHIP | 1 | 100 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R629 | ERHY0000211 | RES,CHIP | 1 | 33 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R630 | ERHY0000201 | RES,CHIP | 1 | 0 ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | R631 | ERHY0000280 | RES,CHIP | 1 | 100K ohm,1/16W,J,1005,R/TP | Yes | |
| 5 | SPFY00 | SPFY0039101 | PCB,MAIN | 1 | FR-4 ,.9 mm,MULTI-8 ,V1.3 | Yes | |
| 5 | SW401 | ENWY0000101 | CONN,RF SWITCH | 1 | ANGLE ,SMD ,0.5 dB, | Yes | |
| 5 | U101 | EUSY0157001 | IC | 1 | LFBGA ,160 PIN,R/TP ,DIGITAL BASEBAND PROCESSOR | No | |
| 5 | U102 | EUSY0100701 | IC | 1 | 64 BALL LFBGA / MINI-BGA ,64 PIN,R/TP ,DUAL-MODE VOICEBAND BASEBAND CODEC / AD20MSP430 | No | |
| 5 | U103 | EUSY0147002 | IC | 1 | US8 ,8 PIN,R/TP ,DUAL 2-INPUT OR GATE | Yes | |

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 5 | U201 | EUSY0148902 | IC | 1 | QFN ,48 PIN,R/TP ,16 TONES 32 POLY / GM by PCM method | Yes | |
| 5 | U203 | EUSY0119001 | IC | 1 | 10 uMAX ,10 PIN,R/TP ,DUAL SPDT ANALOG SWITCHES | Yes | |
| 5 | U204 | EUSY0119001 | IC | 1 | 10 uMAX ,10 PIN,R/TP ,DUAL SPDT ANALOG SWITCHES | Yes | |
| 5 | U205 | EUSY0077301 | IC | 1 | SC70-6/SOT23-6 ,6 PIN,R/TP , | Yes | |
| 5 | U206 | EUSY0077701 | IC | 1 | SC70-5 ,5 PIN,R/TP , | Yes | |
| 5 | U207 | EUSY0149701 | IC | 1 | LLP ,10 PIN,R/TP ,1 Watt Audio Power Amplifier / Leadless Type | Yes | |
| 5 | U208 | EUSY0077301 | IC | 1 | SC70-6/SOT23-6 ,6 PIN,R/TP , | Yes | |
| 5 | U209 | EUSY0077701 | IC | 1 | SC70-5 ,5 PIN,R/TP , | Yes | |
| 5 | U301 | EUSY0145401 | IC | 1 | P-FBGA73 ,73 PIN,R/TP ,128M FLASH 32M PSRAM / BOTTOM BOOT / CE 2 PCS | No | |
| 5 | U302 | EUSY0145101 | IC | 1 | LFCSP-32 (5mmX5mm) ,32 PIN,R/TP ,2.8V LDO for Memory / GSM POWER MANAGEMENT SYSTEM | Yes | |
| 5 | U401 | EUSY0144804 | IC | 1 | 5*5 MLP32 ,32 PIN,R/TP , | Yes | |
| 5 | U402 | EUSY0144801 | IC | 1 | 5*5 ,32 PIN,R/TP , | Yes | |
| 5 | U403 | EUSY0144802 | IC | 1 | 5*5 MLP28 ,28 PIN,R/TP , | Yes | |
| 5 | U404 | SMPY0004001 | PAM | 1 | 35 dBm,55 %,2 A,-50 dBc,25 dB,10.0 * 7.0 * 1.4 ,SMD , | Yes | |
| 5 | U405 | EUSY0076701 | IC | 1 | SOT-23-6 ,6 PIN,R/TP , | Yes | |
| 5 | U406 | EUSY0077201 | IC | 1 | SOT(DCK) ,5 PIN,R/TP , | Yes | |
| 5 | U501 | EUSY0129501 | IC | 1 | SC-74A FIT ,3 PIN,R/TP ,HALL EFFECT SWITCH | Yes | |
| 5 | U601 | EUSY0122301 | IC | 1 | SURFACE MOUNT ,7 PIN,R/TP ,IRDA DATA 1.3 LOW POWER TRANSCEIVER / 115.2kb/s | Yes | |
| 5 | VA201 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA202 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA203 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA204 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA501 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA502 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA503 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | VA504 | SEVY0000702 | VARISTOR | 1 | 14 V,10% ,SMD , | Yes | |
| 5 | X101 | EXXY0004601 | X-TAL | 1 | 0.32768 MHz,20 PPM,12.5 pF,65000 ohm,SMD ,6.9*1.4*1.3 , | Yes | |
| 5 | X401 | EXSK0003501 | VCTCXO | 1 | 13 MHz,2.5 PPM,10 pF,SMD ,5.0*3.2*1.5 | Yes | |
| 3 | SAKY00 | SAKY0002001 | PCB ASSY,SIDEKEY | 1 | G5400 | Yes | |
| 3 | SBCL00 | SBCL0001302 | BATTERY,CELL,LITHIUM | 1 | 2 V,1 mAh,COIN ,W3000 Back Up Battery | Yes | |
| 2 | MBAD00 | MBAD0002901 | BAG,VINYL(PE) | 1 | LOWDENSITY POLYETHYLENE(t=0.05mm) | Yes | |
| 2 | MBEE00 | MBEE0034601 | BOX,MASTER | 0 | 480*400*315H(G5400#20sets) | No | |

## 13. EXPLODED VIEW & REPLACEMENT PART LIST

| Level | Location No. | Part Number | Description | Qty | Specification | Service | Remark |
|---|---|---|---|---|---|---|---|
| 2 | MBEF00 | MBEF0034601 | BOX,UNIT | 1 | G5400(Standard) | Yes | |
| 2 | MLAC00 | MLAC0000801 | LABEL,BARCODE | 0 | 84 x 203.5 | No | DARK GRAY |
| 2 | MLAQ00 | MLAQ0001601 | LABEL,UNIT BOX | 1 | | Yes | |
| 2 | MLAZ00 | MLAZ0033401 | LABEL | 0 | 210x297(ORANGE#FOR PALLET) | No | |
| 2 | MMBB00 | MMBB0084001 | MANUAL,OPERATION | 1 | 5400 User manual for Europe_English Only | Yes | GRAY |
| 2 | MPAD00 | MPAD0002601 | PACKING,SHELL | 1 | 225*253*75H(G5200) | Yes | GRAY |
| 2 | MPCY00 | MPCY0004401 | PALLET | 0 | 1295*1025(LG-G510) | No | DARK GRAY |
| 2 | SBPL00 | SBPL0065835 | BATTERY PACK,LI-ION | 1 | 3.7 V,720 mAh,1 CELL,PRISMATIC ,G5400 BATTERY (SV) | Yes | |
| 2 | SGEY00 | SGEY0002901 | EAR PHONE/EAR MIKE SET | 1 | G7000,G5200 Common use, 3P EAR MIC | Yes | |
| 2 | SSAD00 | SSAD0007801 | ADAPTOR,AC-DC | 1 | 100-240V ,60 Hz,5.2 V,850 mA,CE ,85VAC~264VAC / 50HZ~60HZ | Yes | |
| 2 | WSYY00 | WSYY0021101 | SOFTWARE | 1 | G5400 EUA V.PT T0 | Yes | |