Table Of Contents

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.

1. INTRODUCTION

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 milli watt
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

1. INTRODUCTION

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	Pseudo 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, 770 mAh Size: 35 × 62 × 3.8mm Weight: 16g	
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 3hours (GSM TX Level 7)	
Stand by time	Up to 200hours (Paging Period: 9, RSSI: -85 dBm)	
Charging time	Standard charge: 5hours Rapid charge: Approx. 2.5hours	
RX Sensitivity	GSM, EGSM: -105dBm, DCS: -105dBm	
TX output power	GSM, EGSM: 33dBm(Level 5), DCS: 30dBm(Level 0)	
GPRS compatibility	Class 10	
SIM card type	3V Small	
Display	Main LCD: 128 × 160 pixel 65K Color Sub LCD: 96 × 64 pixel 256 Color	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down Navigation Key Confirm Key, Clear Key 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 Recoding	Yes	
C-Mike	Yes	

2. PERFORMANCE

Item	Feature	Comment
Receiver	Yes	
Travel Adapter	Yes	
MIDI	32 Poly	
Camera	VGA 640 × 320 pixel	
Options	Hands-free kit, CLA, Data Kit	

2.2 Technical Specification

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

2. PERFORMANCE

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

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td rowspan="6">6</td><td rowspan="6">Output RF Spectrum
(due to switching
transient)</td><td colspan="3">DCS</td></tr>
<tr><td colspan="2">Offset from Carrier (kHz).</td><td>Max. dBm</td></tr>
<tr><td colspan="2">400</td><td>-22</td></tr>
<tr><td colspan="2">600</td><td>-24</td></tr>
<tr><td colspan="2">1,200</td><td>-24</td></tr>
<tr><td colspan="2">1,800</td><td>-27</td></tr>
<tr><td>7</td><td>Spurious Emissions</td><td colspan="3">Conduction, Emission Status</td></tr>
<tr><td>8</td><td>Bit Error Ratio</td><td colspan="3">GSM, EGSM
BER (Class II) < 2.439% @-102 dBm
DCS
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>12</td><td>RLR</td><td colspan="3">2±3 dB</td></tr>
</table>

2. PERFORMANCE

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></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="9">16</td><td rowspan="9">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>
<tr><td>19</td><td>32.768KHz tolerance</td><td colspan="3">≤ 30 ppm</td></tr>
<tr><td>20</td><td>Ringer Volume</td><td colspan="3">At least 80 dB under below conditions:
1. Ringer set as ringer.
2. Test distance set as 50 cm</td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th><th colspan="2">Specification</th></tr>
<tr><td>21</td><td>Charge Current</td><td colspan="2">Fast Charge : < 500 mA
Slow Charge : < 60 mA</td></tr>
<tr><td rowspan="7">22</td><td rowspan="7">Antenna Display</td><td>Antenna Bar Number</td><td>Power</td></tr>
<tr><td>5</td><td>-85 dBm ~</td></tr>
<tr><td>4</td><td>-90 dBm ~ -86 dBm</td></tr>
<tr><td>3</td><td>-95 dBm ~ -91 dBm</td></tr>
<tr><td>2</td><td>-100 dBm ~ -96 dBm</td></tr>
<tr><td>1</td><td>-105 dBm ~ -101 dBm</td></tr>
<tr><td>0</td><td>~ -105 dBm</td></tr>
<tr><td rowspan="5">23</td><td rowspan="5">Battery Indicator</td><td>Battery Bar Number</td><td>Voltage</td></tr>
<tr><td>0</td><td>~ 3.62 V</td></tr>
<tr><td>1</td><td>3.62 ~ 3.73 V</td></tr>
<tr><td>2</td><td>3.73 ~ 3.82 V</td></tr>
<tr><td>3</td><td>3.82 V ~</td></tr>
<tr><td rowspan="2">24</td><td rowspan="2">Low Voltage Warning</td><td colspan="2">3.62 ± 0.03V (Call)</td></tr>
<tr><td colspan="2">3.5 ± 0.03V (Standby)</td></tr>
<tr><td>25</td><td>Forced shut down Voltage</td><td colspan="2">3.35 ± 0.03V</td></tr>
<tr><td>26</td><td>Battery Type</td><td colspan="2">1 Li-ion Battery
Standard Voltage = 3.8 V
Battery full charge voltage = 4.2 V
Capacity: 770mAh</td></tr>
<tr><td>27</td><td>Travel Charger</td><td colspan="2">Switching-mode charger
Input: 100 ~ 240 V, 50/60 Hz
Output: 5.2 V, 600 mA</td></tr>
</table>

3. TECHNICAL BRIEF

3.1 General Description of RF parts

The RF parts consists of a transmitter part,a receiver part,a synthesizer part,a voltage supply part,a VCTCXO part. And the main RF Chipset CX74017[U603]is a single-chip dual-band transceiver for the extended global system for mobile communication[E-GSM900MHz]/
Digital communication system[DCS1800MHz] voice and data transfer applications.
This device integrated a direct conversion receiver architecture, a transmitter based on a modulation loop architecture and fractional-N synthesizer part with built in TXVCO and Local-VCO.

3.2 Receiver Part

The Receiver part in CX74017 contains all active circuits completely, full receiver chain with the exception of discrete front-end RF SAW filters. The filtered and amplified signal is down converted in the RF-mixer to the baseband output. The receiver path is supported by internal channel filtering.

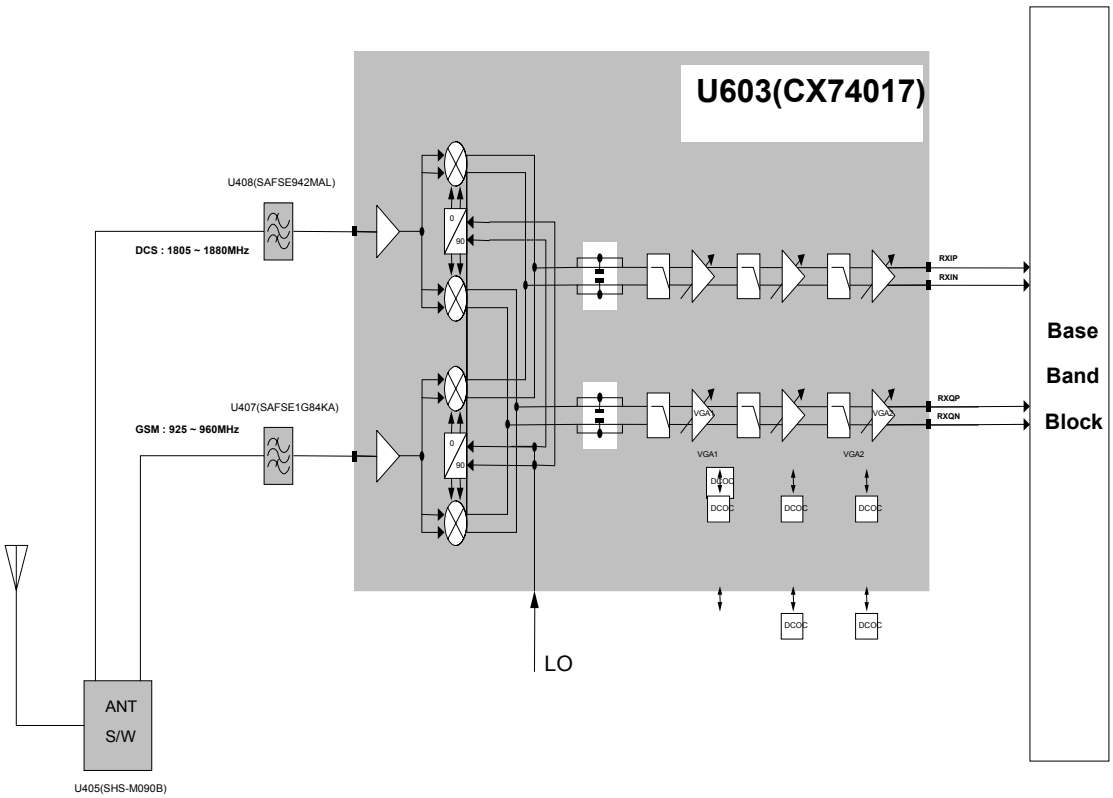


Figure. 3-1 Receiver Block diagram

A. RF Front End

RF front end consists of Antenna Switch(FL405), an integrated two saw filters,(FL601),dual band LNAs integrated in transceiver.
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(FL600) is used to control the Rx and Tx paths. And, the input signals VC1 and VC2 of a FL600 are directly connected to baseband controller to switch either Tx or Rx path on. Ant S/W module(FL600) 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	0 V	2.5 to 3 V	10.0 mA max
DCS TX	2.5 to 3 V	0 V	10.0 mA max
GSM/DCS RX	0 V	0 V	<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 Receive part of CX74017 integrates three differential input LNAs that are matched to the 200 Ohm balanced-output SAW filters through external LC matching networks.

B. Demodulator and baseband processing

In direct conversion receiver there is only one mixer down-converting received RF signal to BB signal directly. The gain down converting mixer is 40dB at high gain mode and 22dB at low gain mode.

The Rx gain setting is done in the AGC algorithm. The nominal gain of the receiver is set as a function of the expected signal strength at the antenna input so that a desired level is reached at the Rx I/Q. 7 blocks in the receiver chain have variable gains, LNA, Mixer, LPF1, VGA1, gmC Filter, Auxiliary gain control and VGA2. The gain settings can be adjustable via 3-wire bus control lines.

The baseband signals pass via integrated low-pass filters to the baseband A/D converters. Theremainder of the channel filtering is performed by the baseband chipset. The demodulator contains switches to maintain the sense of the baseband I/Q outputs with respect to the incoming RF signal on both GSM900 and DCS1800.

C. DC offset compensation

Three correction loops ensure that DC offsets, generated in the CX74017, do not overload the baseband chain at any point.

After compensation, the correction voltages are held on capacitors for the duration of the receive slot(s). A rising edge on the RXEN signal, selected via the serial interface, placed the DC compensation circuitry in the track mode.

3.3 Synthesizer Part

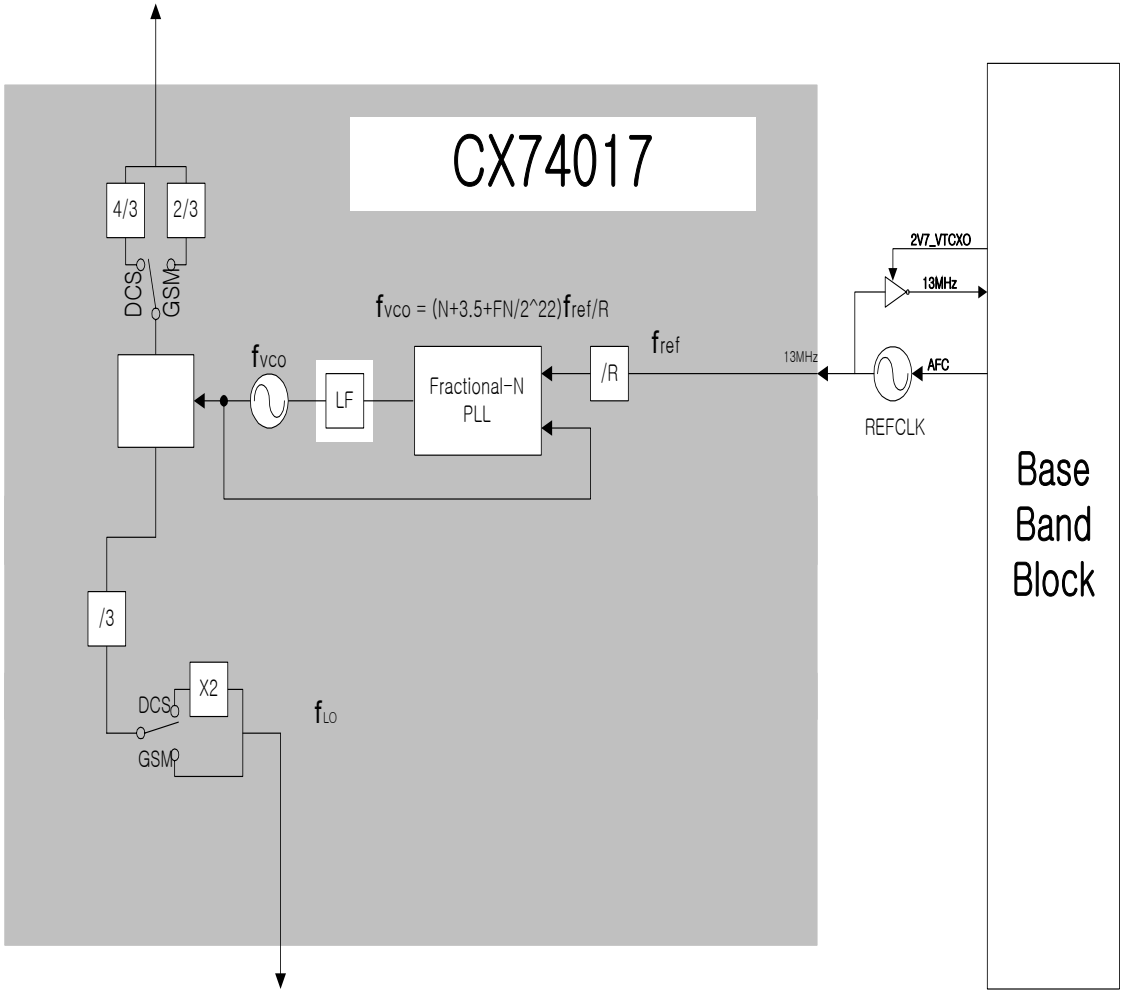


Figure.3-2 Synthesizer Block diagram

The CX74017 includes a fully integrated UHF VCO with an on-chip LC tank.
A single sigma-delta fractional-N synthesizer can phase lock the local osillator used in both transmit and receive path to a precision frequency reference input. Fractional-N operation offers low phase noise and fast setting times, allowing for multiple slot applications such as GPRS.
The counter and mode settings of the synthesizer are also programmed via 3-wire interface.

3.4 Transmitter Part

The Transmitter part contains CX74017 active parts, PAM and Antenna Switch.
The CX74017 active part consists of a vector modulator and offset phase-locked loop block(OPLL) including down-converter, phase detector, loop filter and dual band transmit VCO which can operate at either final RF output frequency. 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 a closed feedback loop. A dual band directional coupler is used to sample the RF output from either PA. The PA outputs from the directional coupler pass to the antenna connector via Antenna Switch.

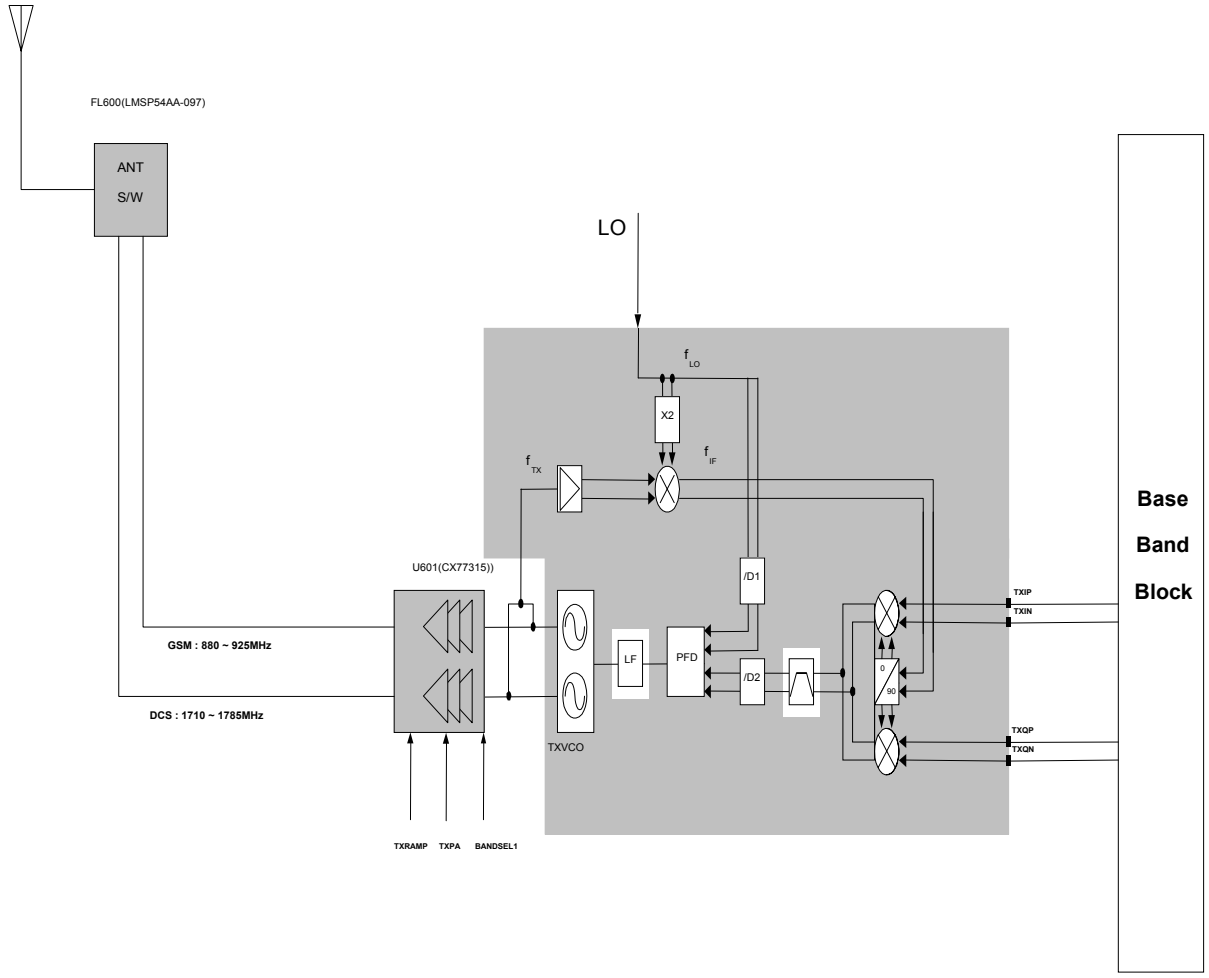


Figure 3-3. RF Transmitter path Block Diagram

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. The IF-frequency input signal is split into two precise orthogonal carriers, which are multiplied by the baseband modulation signal IT/ITX and QT/QTX. It is used as reference signal for the OPLL.

B. OPLL

The offset mixer down converts the feedback Tx RF signal using LO to generate a IF modulating signal. The IF signal goes via external passive bandpass filter to one port of the phase detector. The other side of the phase detector input is LO signal. The phase detector generates an error current proportional to the phase difference between the modulated signal from the offset mixer and the reference signal from the LO. The error current is filtered by a second order low-pass filter to generate an output voltage which depends on the GMSK modulation and the desired channel frequency. This voltage controls the transmit VCO such that the VCO output signal, centered on the correct RF channel, is frequency modulated with the original GMSK data. The OPLL acts as a tracking narrowband band pass filter tuned to the desired channel frequency. This reduces the wideband noise floor of the modulation and up-conversion process and provides significant filtering of spurious products.

C. Power amplifier

The CX77315[U601] is designed in a compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, and PCS1900 operation. The PAM also supports Class 12 General Packet Radio Service(GPRS) multi-slot operation. The module consists of separate GSM850/900 PA and DCS1800/PCS1900 PA blocks, impedance-matching circuitry for 50 ohm input and output impedances, and a Power Amplifier Control (PAC) block with and internal current-sense resistor.

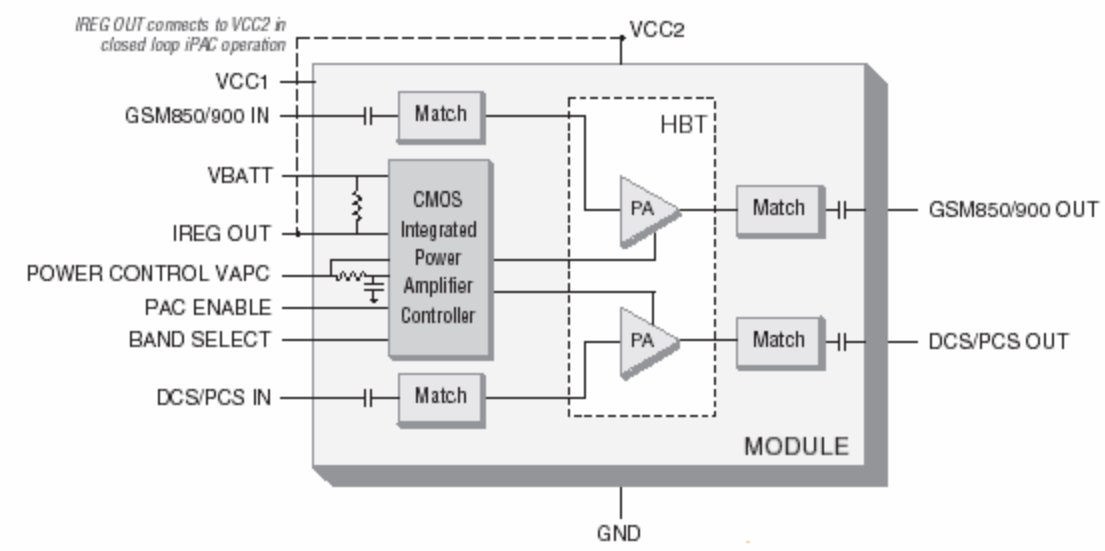


Figure 3-4. Power Amplifier Block Diagram

3.5 13 MHz Clock

The 13 MHz clock(X600) consists of a TCXO(Temperature Compensated Crystal Oscillator) which oscillates at a frequency of 13 MHz. It is used within the CX74017 RF Main Chip,BB Analog chip-set(U100 AD6521), Digital(U101 AD6525), CAMERA IC(U501 CLC344E) and MIDI(U200) Chipset.

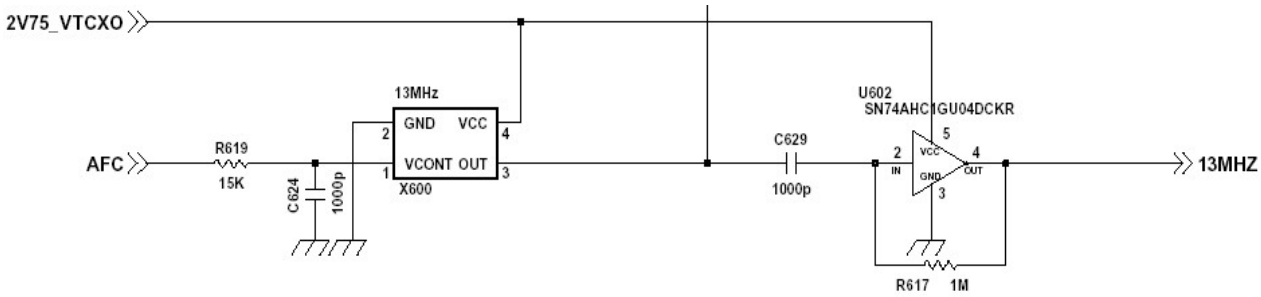


Figure 3-5. VCTCXO Circuit

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(U203), Power management IC to provide the power for the VCTCXO(X600). The other is used to provide the power for remaining RF circuits. Figure 3-6 shows regulator 2.

Table 3-2.Power supplies and control signals.

Regulator	Voltage	Powers	Enable Signal
Regulator 1 (U203,2V75_VTCXO)	12.75V+/- 0.5V	VTCXO	10.0 mA max
Regulator 2 (U600,RF2.85V)	2.85V +/- 0.5V	RF circuitry	VSYNTHEN

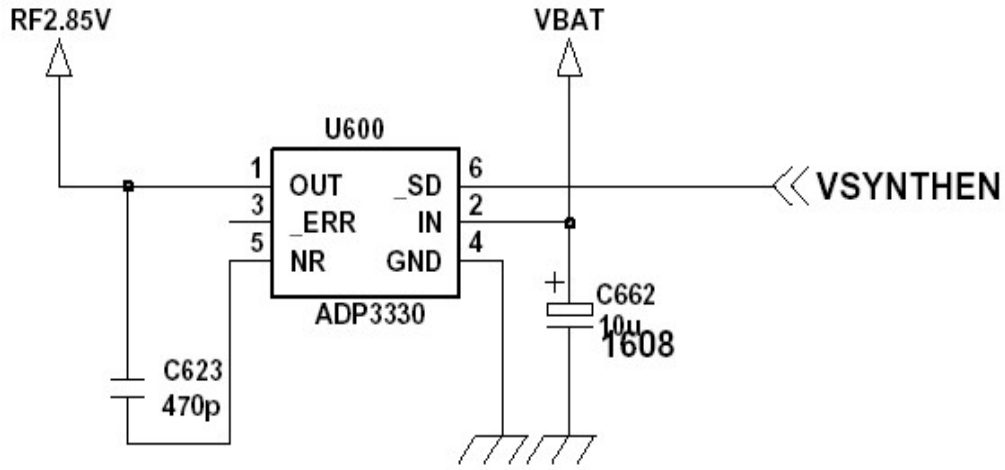


Figure 3-6. Regulator

3.7 Digital Main Processor

AD6525

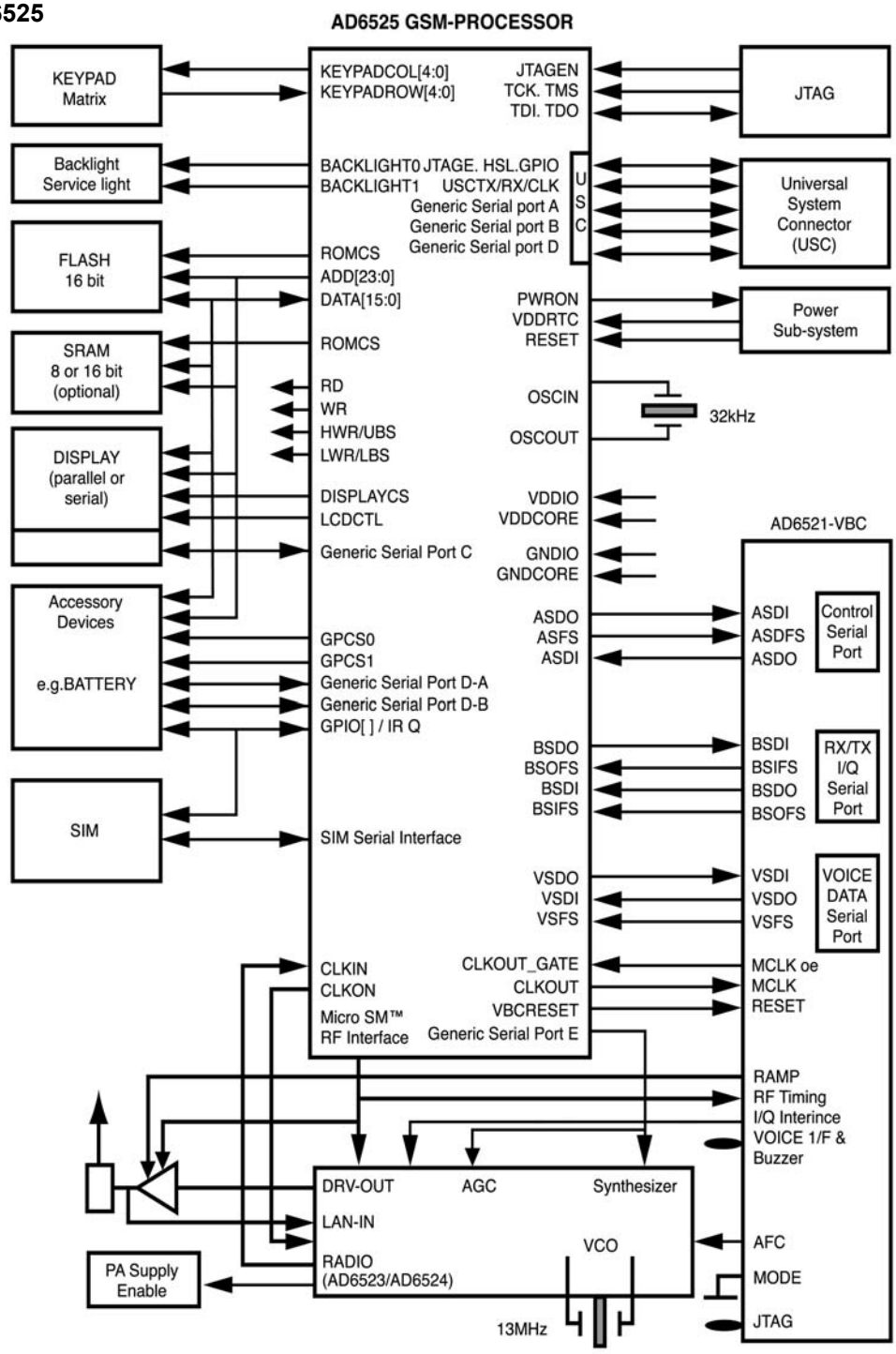


Figure 3-7. Example of System interconnection of AD6525 External Interface

3. TECHNICAL BRIEF

- AD6525 is an ADI designed processor.

- AD6522 consists of
  1. BUS arbitration Subsystem
     - EBUS, RBUS, PBUS, SBUS, DMABUS, IOBUS

  2. DSP Subsystem
     - ADI DSP, Viterbi coprocessor, Ciphering unit, Cache memory/controller system

  3. MCU Subsystem
     - ARM7TDMI, boot ROM, Clock generation and access control module

  4. Peripheral Subsystem
     - MMI group
       ⇒ Keyboard, Display, Backlight, RTC, GPIO interface
     - House Keeping group
       ⇒ Watchdog Timer, Interrupt controller, General Timer
     - GSM system group
     - Direct Memory Access group
       ⇒ Between PBUS,RBUS, and EBUS

3.7.1 Interconnection with external devices

A. RTC block interface

Countered by external X-TAL

The X-TAL oscillates 32.768KHz

B. LCD module interface

The LCD module is controlled by CAMERA IC, CLC344E.

If CLC344E is in the state of by-pass mode, the LCD control signals from AD6525 are by-passed through CLC344E. In operating mode, the CLC344E controls the LCD module through L_MAIN_LCD_CS, L_SUBLCD_CS, L_ADD1, L_WR, L_RD, L_DATA[00-15].

Table 3-3.

	Description
L_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 (L_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.
L_WR	Write control. The phone do not read data from LCD chip.
L_ DATA	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.
L_SUBLCD_CS	SUB LCD driver chip enable, Sub LCD driver IC has own CS pin.
L_DATA[08...15]	Parallel data lines, Sub LCD driver chip uses the 8-bit data in reface.

C. RF interface

The AD6522 control RF parts through TX_EN, RX_EN, BAMDSEL1, DCSSEL, GSMSEL, VSYNTHEN, TXPA, PLL_LE, PLL_DATA, PLL_CLK, PLL_PD

Table 3-4.

GPO	Signal Name	Description	Reset
2	TX_EN	Transmitter Enable/Disable	
3	RX_EN	Receiver Enable/Disable	
4	BANDSEL1	PAM Band Select	
9	DCSSEL	Antenna switch Band Select(DCS Band)	
11	GSMSEL	Antenna switch Band Select(GSM Band)	
16	VSYNTHEN	RF LDO Enable/Disable	
17	TXPA	PAM Enable/Disable	
19	PLL_LE	PLL Enable/Disable	
20	PLL_DATA	Serial Data to PLL	
21	PLL_CLK	Clock to PLL	
22	PLL_PD	Powerdown Input	

D. 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

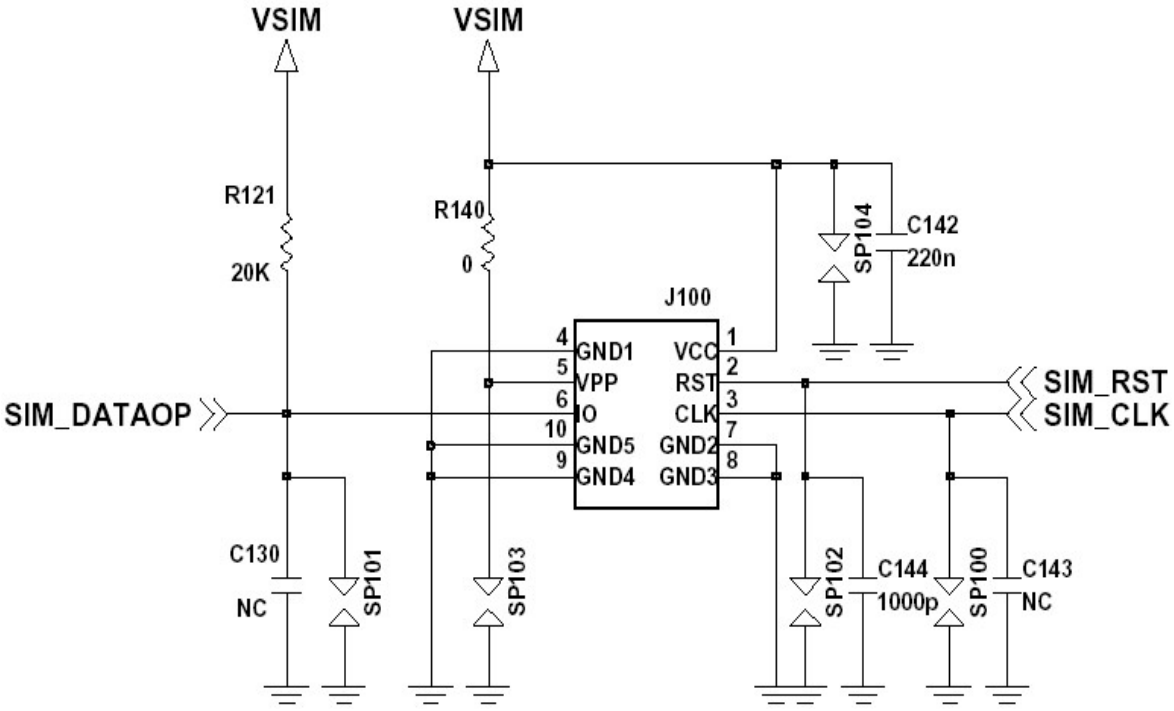


Figure 3-8. SIM Interface of AD6525

E. Key interface

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

F. ADP3522 interrupt

There are two interrupts, EOC and CHRDET

EOC: End of Charge. AD6525 makes charging operation stop when high signal is inputted.

CHRDET: This pin is activated when the charger is inserted.

3.8 Analog Main Processor

AD6521

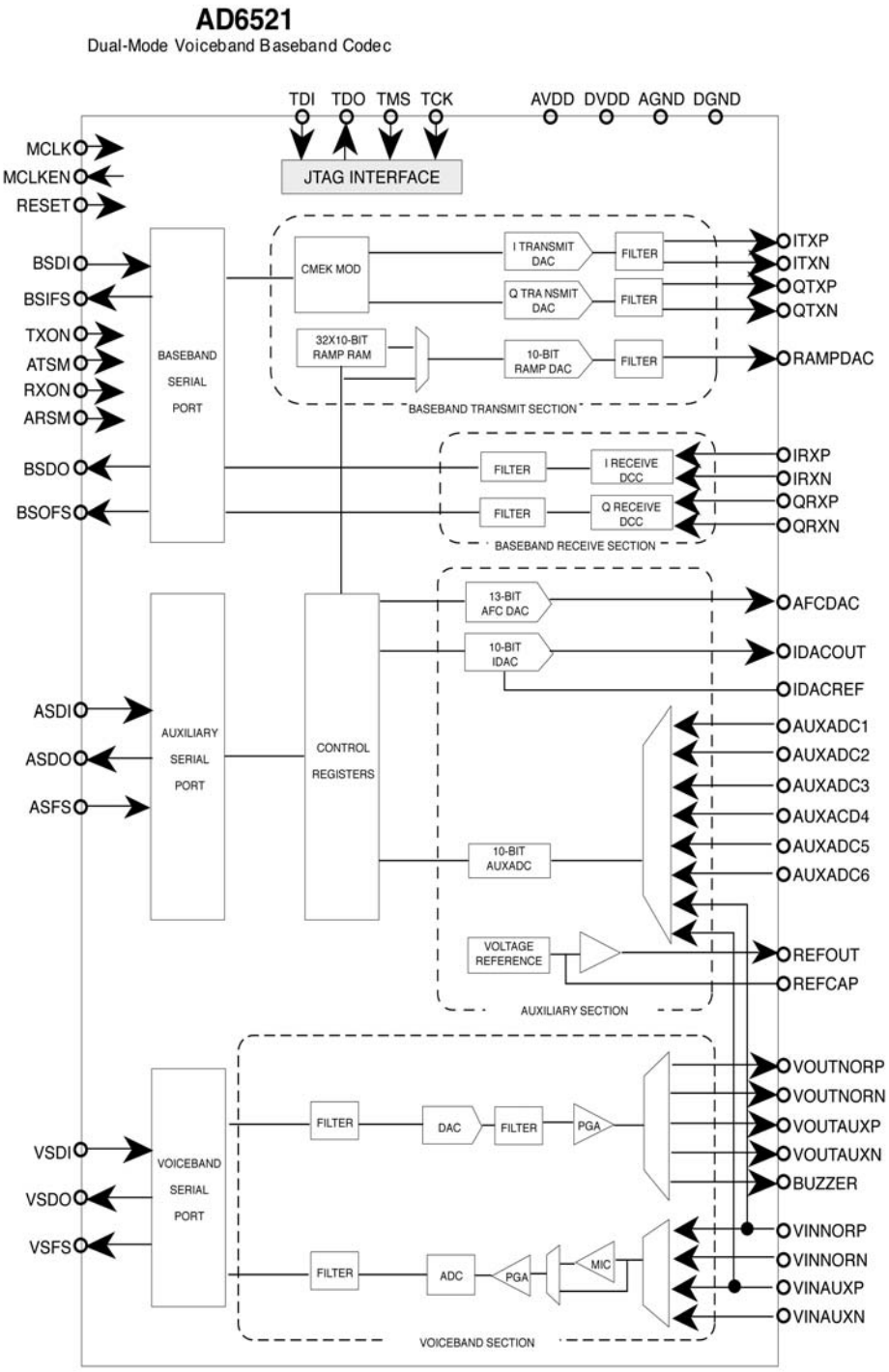


Figure 3-9. AD6521

• AD6521 is an ADI designed processor.

• AD6521 consists of

1. BB Transmit section
   - This section generates in-phase and quadrature BB modulated GMSK signals.
   - Digital GMSK modulator, 10-bit DACs,
     Reconstruction Filter

2. BB Receive section
   - 2 identical ADC channels that process BB in-phase and quadrature input signals.

3. Auxiliary section
   - 2 auxiliary DASs ⇒AFC DAC, IDAC
     AUX ADC
   - AUX ADC : 6 channels 10 bits
     AFC DAC : 13 bits
     10 bits

4. Voiceband section
   - Receive audio signal from MIC.
     Send audio signal to Speaker
   - It interconnect with external device like main microphone, main receiver, ear-microphone and Hands-free kit.

3. TECHNICAL BRIEF

A. 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.

B. 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.

C. 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

D. 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	NC	NO
L	ON	OFF
H	OFF	ON

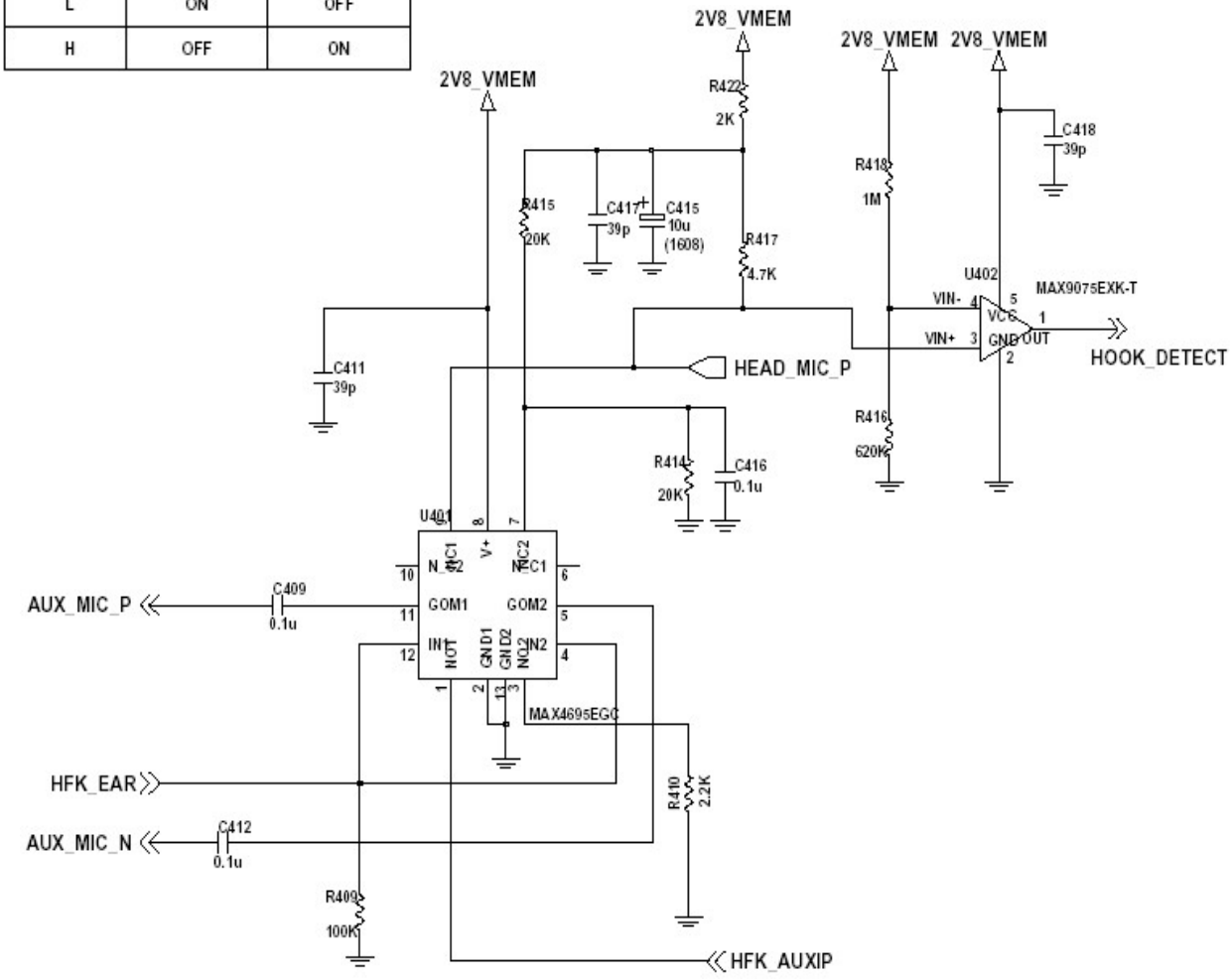


Figure 3-10a. Voice band circuit Diagram

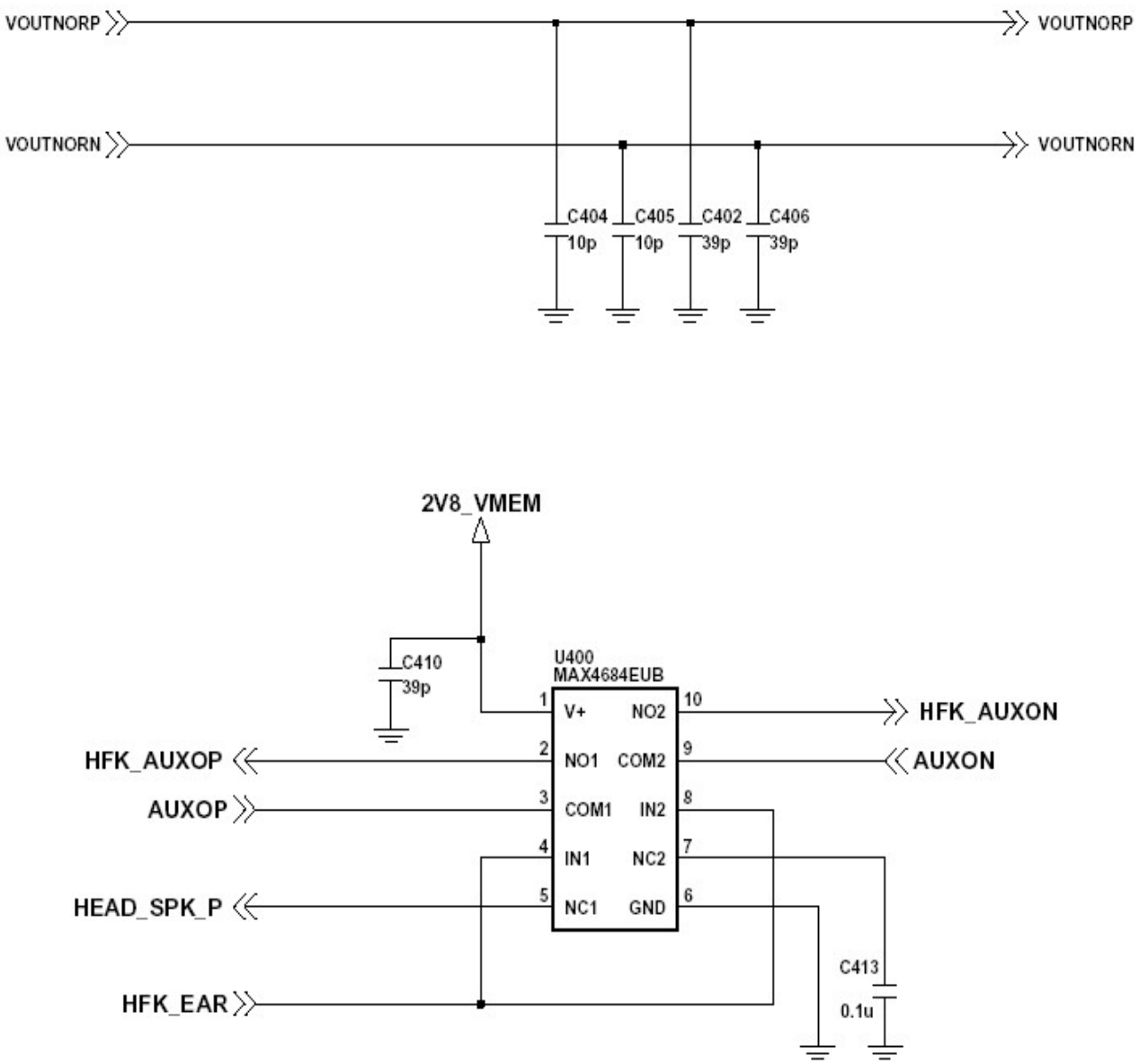


Figure 3-10b. Voice band circuit Diagram

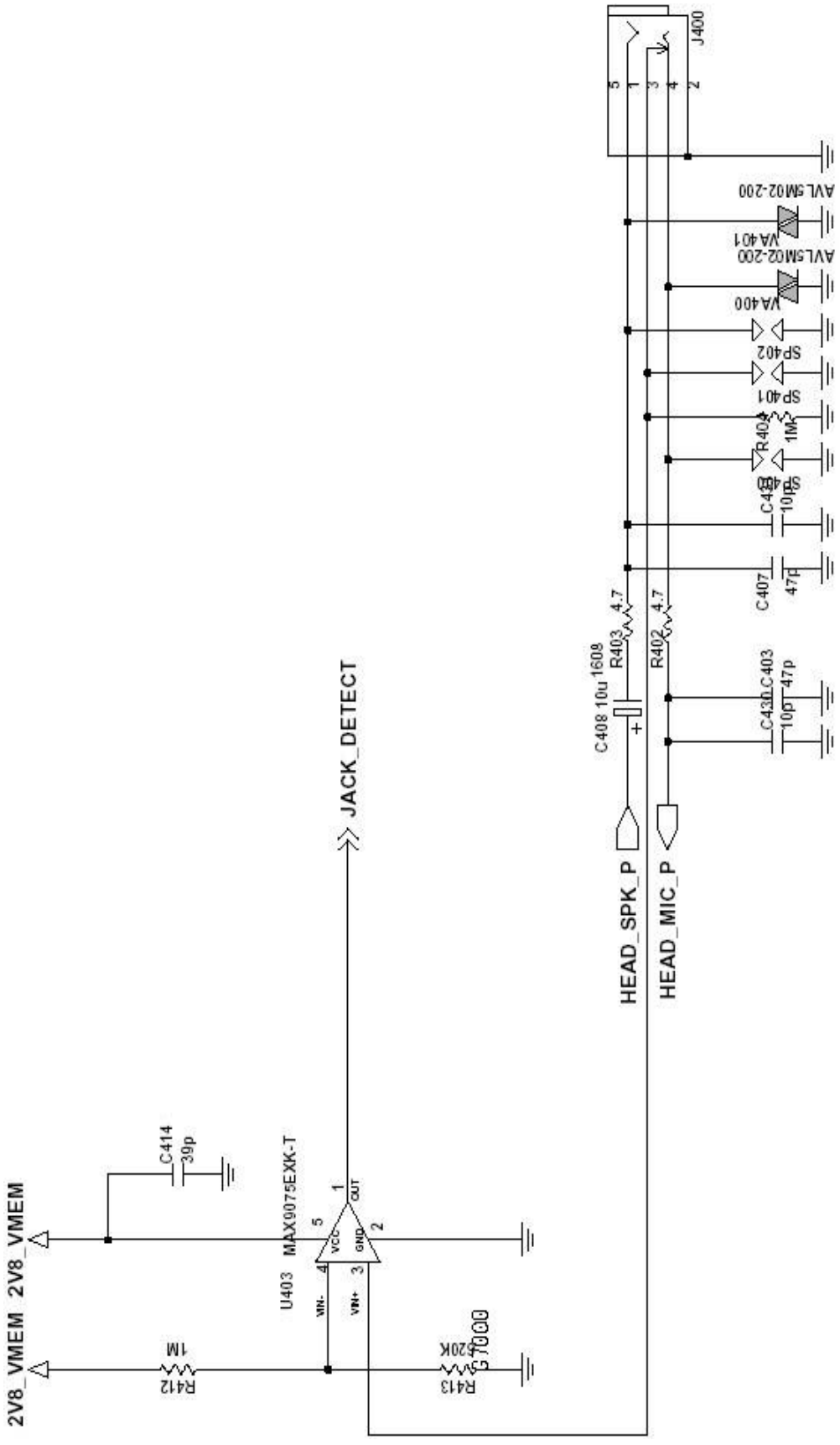


Figure 3-10c. Voice band circuit Diagram

3.9 Power Management IC

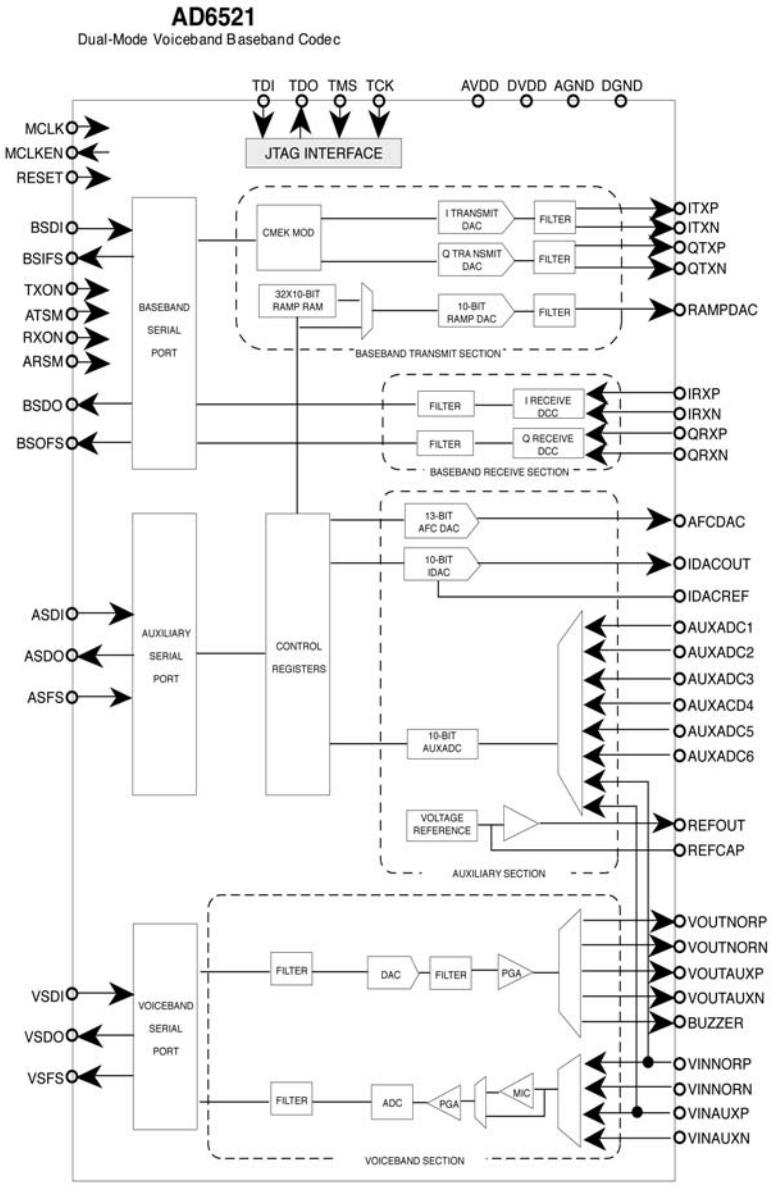


Figure 3-11. ADP3522 inner block diagram

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)

A. Power up sequence logic

The ADP3522 controls power on sequence.

B. 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.

C. LDO block

There are 6 LDOs in the ADP3522.

D. 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.

E. 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.

F. 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.

G. TA (Travel Adaptor)

Input voltage : AC 85V ~ 264V, 47~63Hz

Output voltage : DC 5.2V(±0.2 V)

Output current : Max 750mA(±50mA)

H. Battery

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

Standard battery : Capacity - 740mAh, Li-ion

3.10 Memories

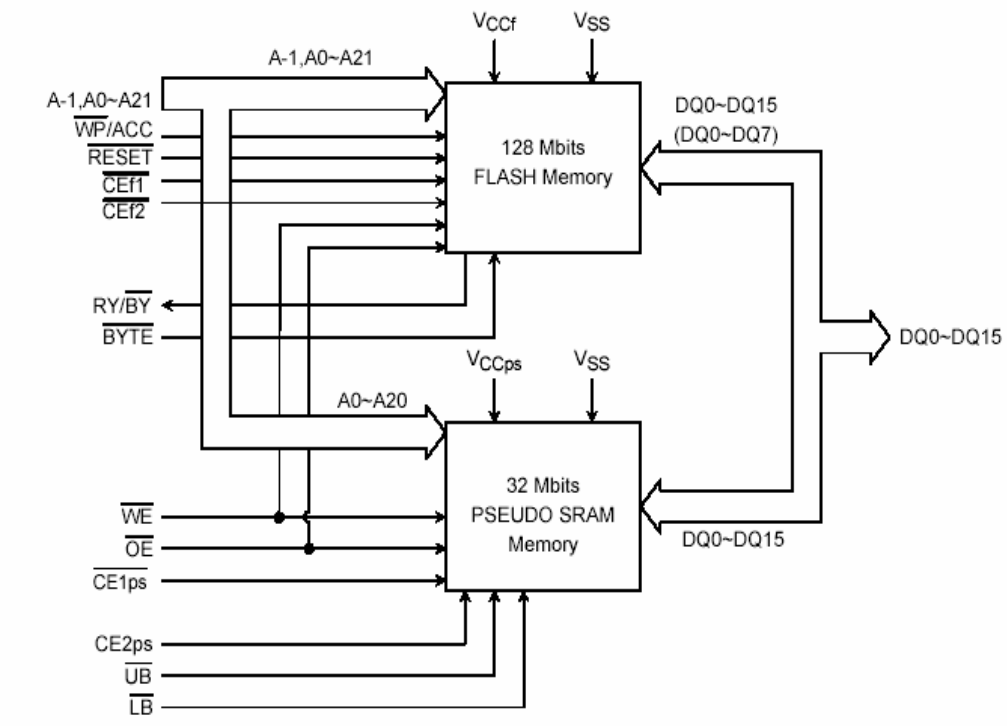


Figure 3-12. Memory block Diagram

- 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

Main LCD Display Format	144 X RGB X 177 dots
Main LCD Backlight	White LED Backlight
Sub LCD Display Format	96 X 64 dots
Sub LCD Backlight	-

G7100 Main LCD supports one 65536 color LCD module.

There are the control signals :

L_MAIN_LCD_CS (which is derived from CLC344E, this acts as the chip select enable for the LCD), L_WR, L_ADD1(LCD_RS) and LCD_RES. CLC344E uses L_DATA[00:15] pins to send data for displaying graphical text onto the LCD.

G7100 Sub LCD supports one 256 color LCD module.

There are the control signals : L_SUBLCD_CS (which is derived from CLC344E, this acts as the chip select enable for the LCD), L_WR, L_ADD1(LCD_RS) and LCD_RES. CLC344E uses L_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 (SW300-SW302,KB300,KB321), 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.

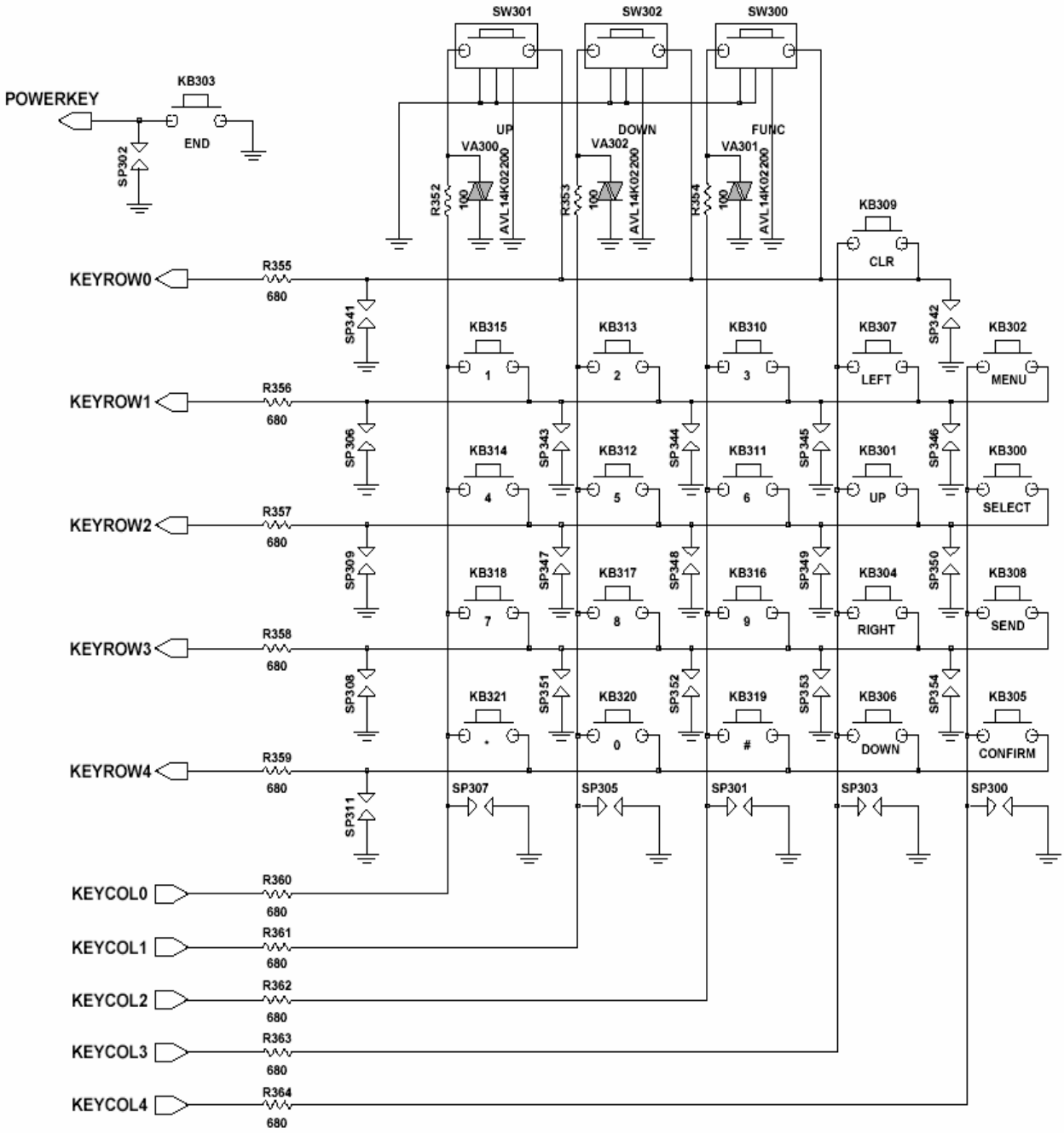


Figure 3-13. Keypad Switches and Scanning

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.). AD6525 enables the MIC by USC3 signal, which minimize the standby current.

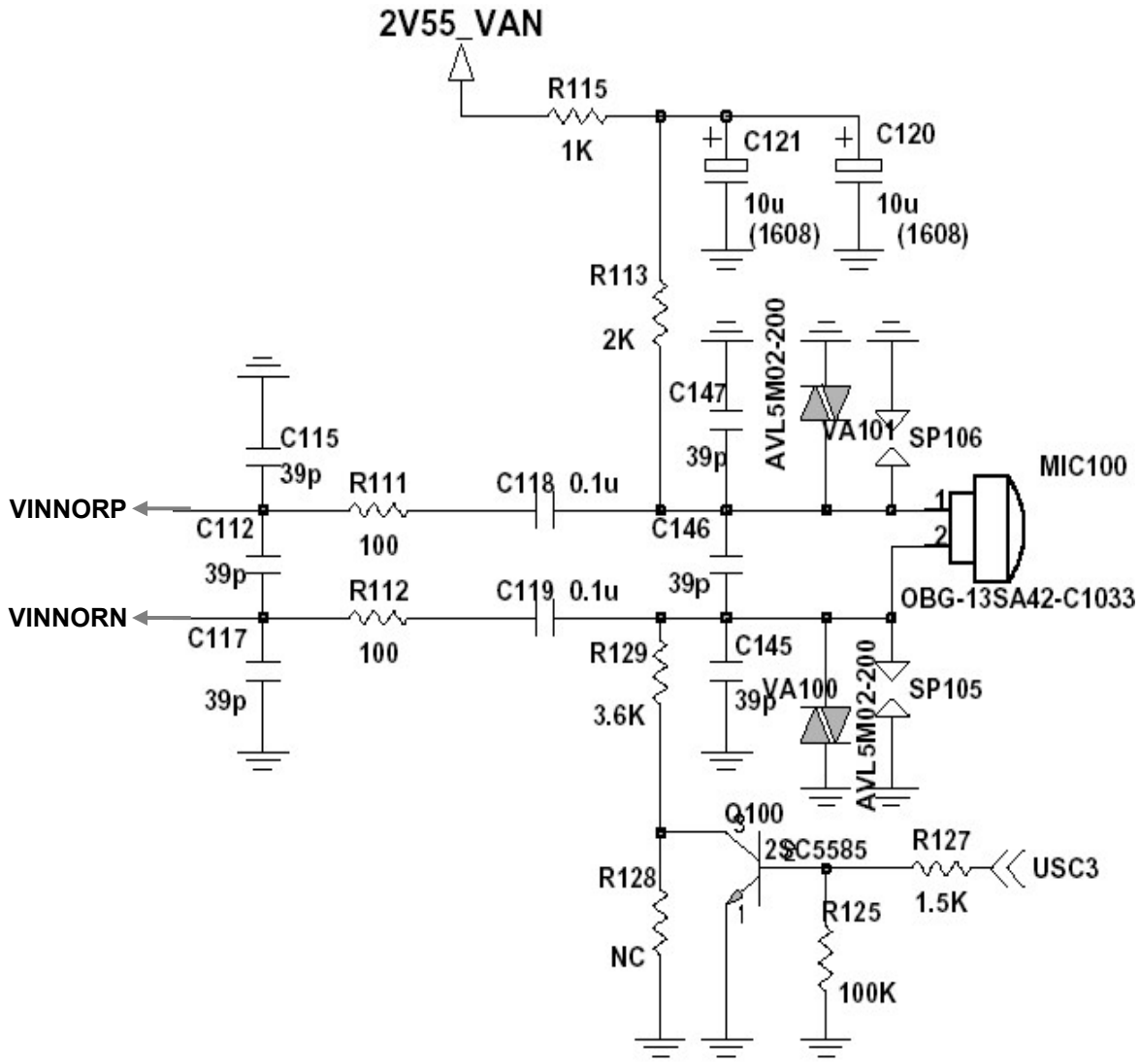


Figure 3-14. Microphone

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.

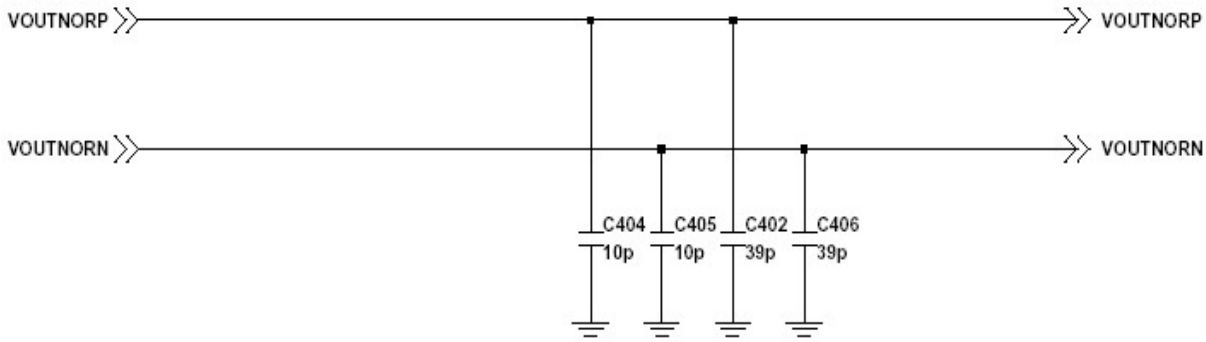


Figure 3-15. Earpiece

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 (CN300) 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.

HFK_EAR	NC	NO
L	ON	OFF
H	OFF	ON

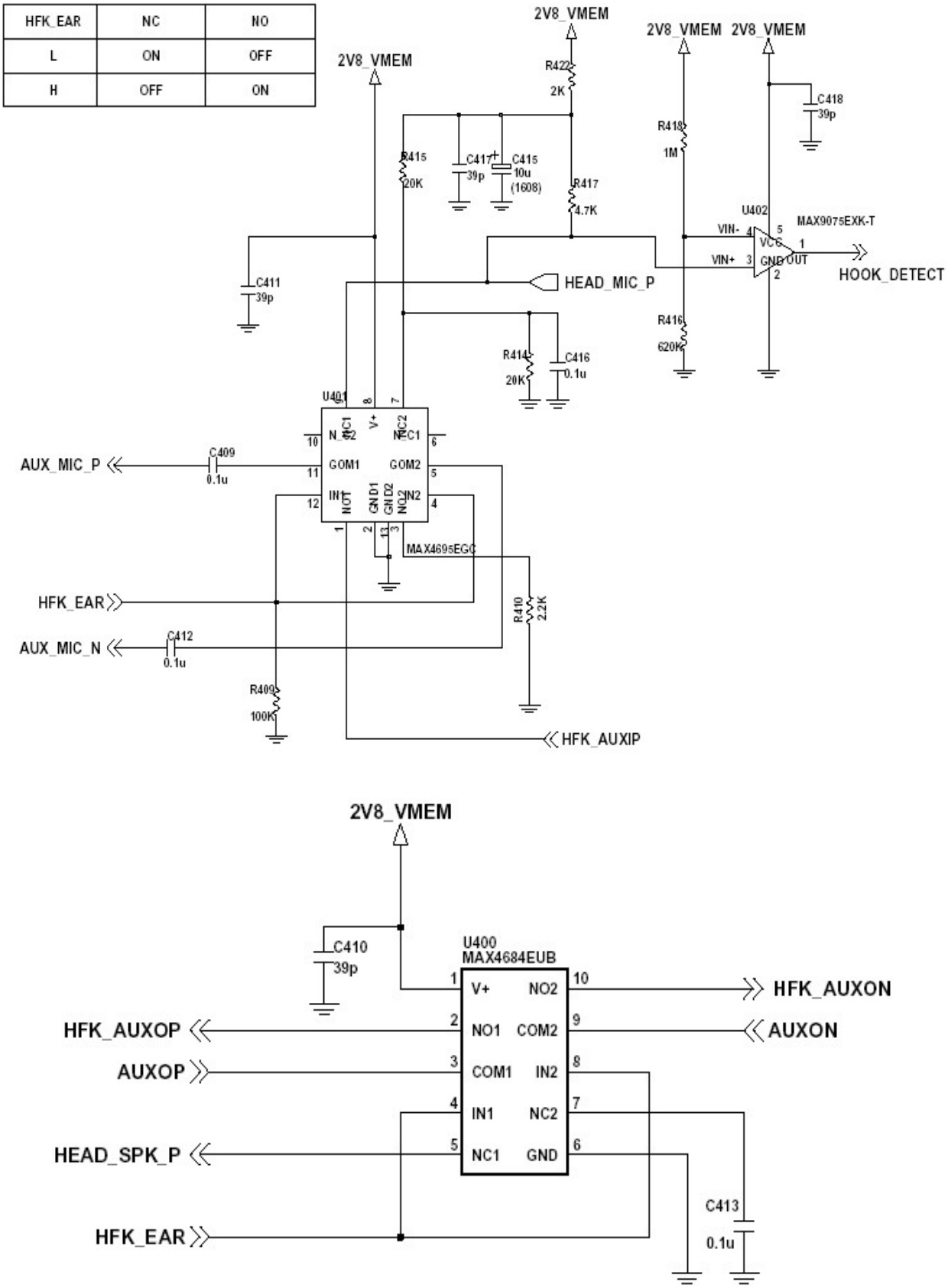


Figure 3-16a. Hands-free & Headset Jack Interface

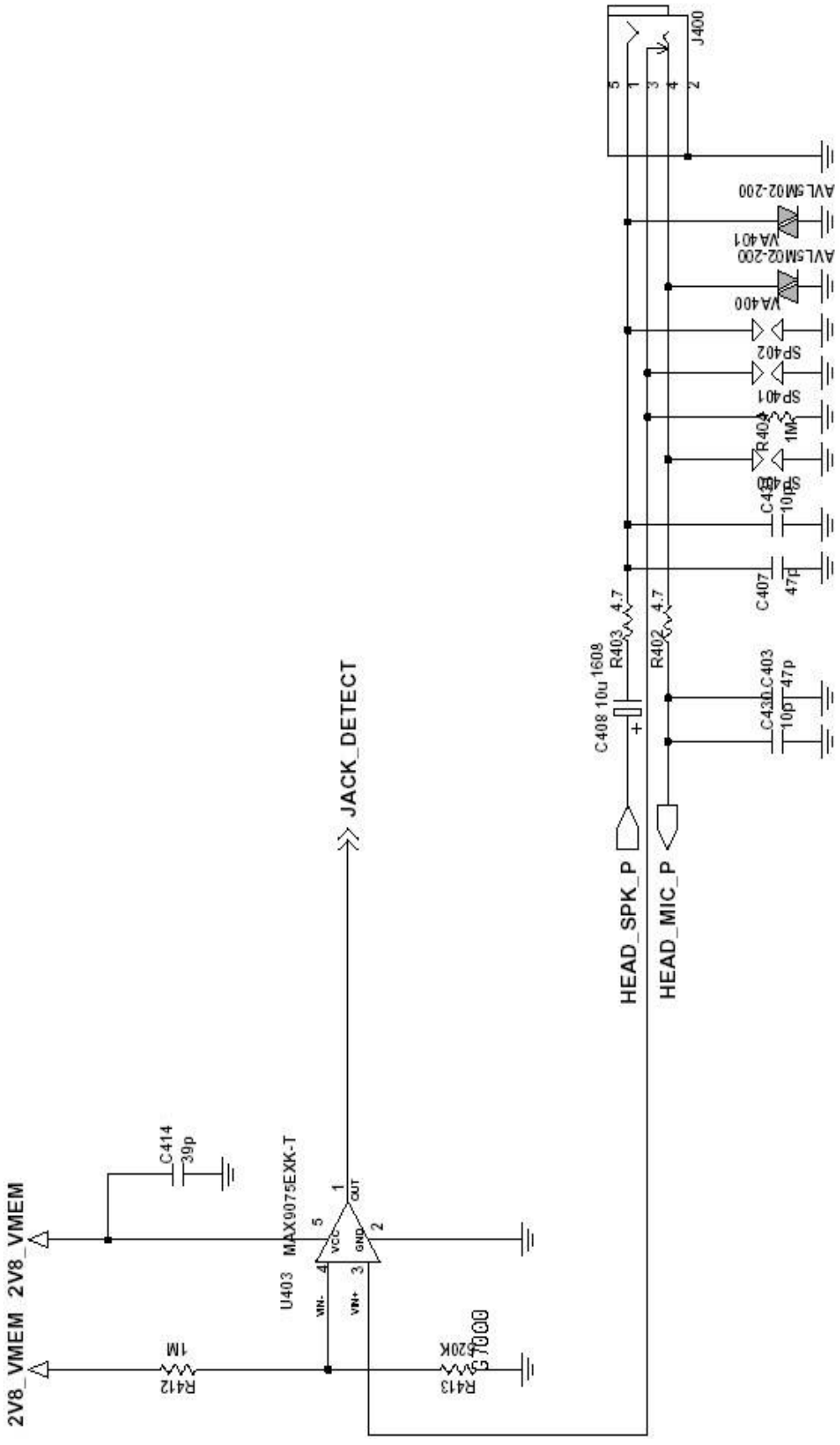


Figure 3-16b. Hands-free & Headset Jack Interface

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.

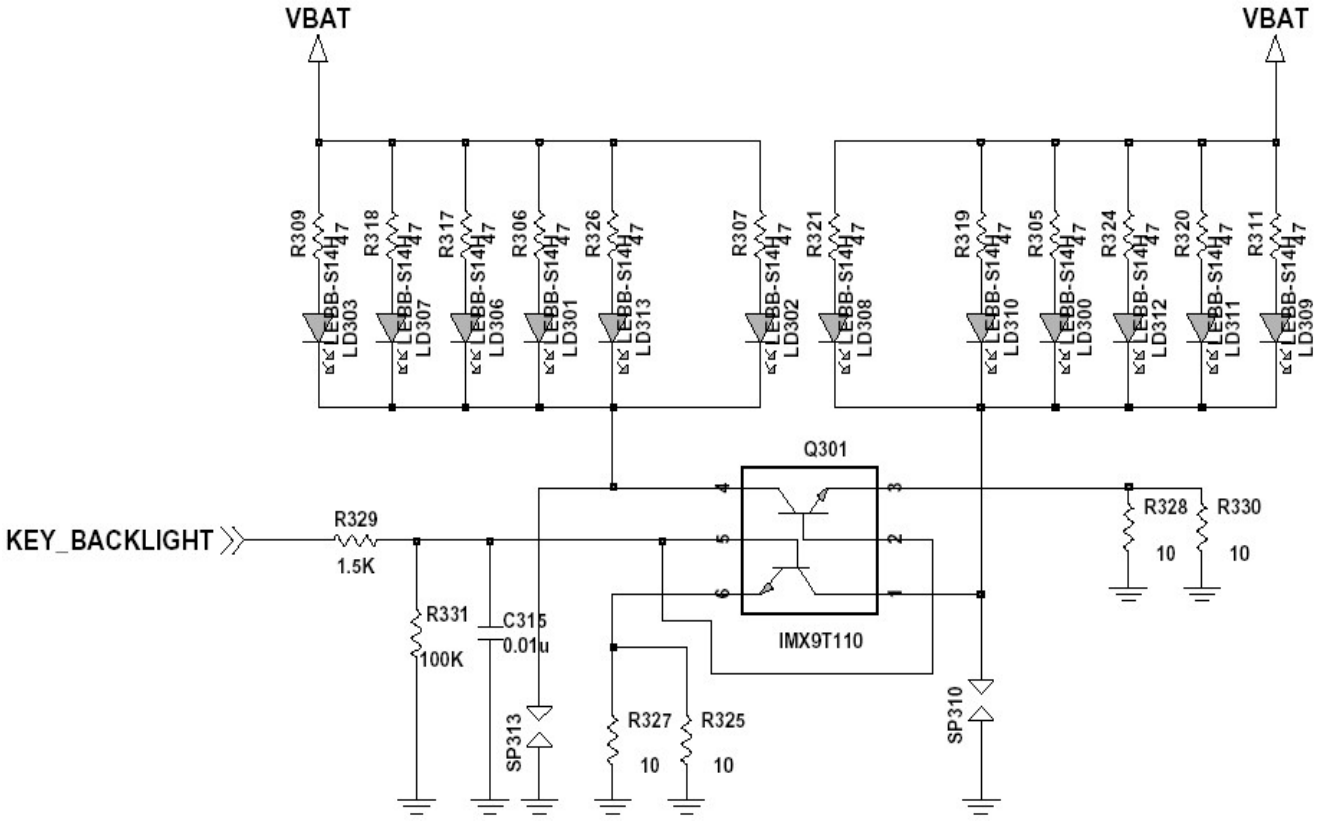


Figure 3-17. Key Back-Light Illumination

3.18 LCD Back-light Illumination

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

The sub-LCD, organic light emitting diode (OLED), doesn't need back-light illumination.

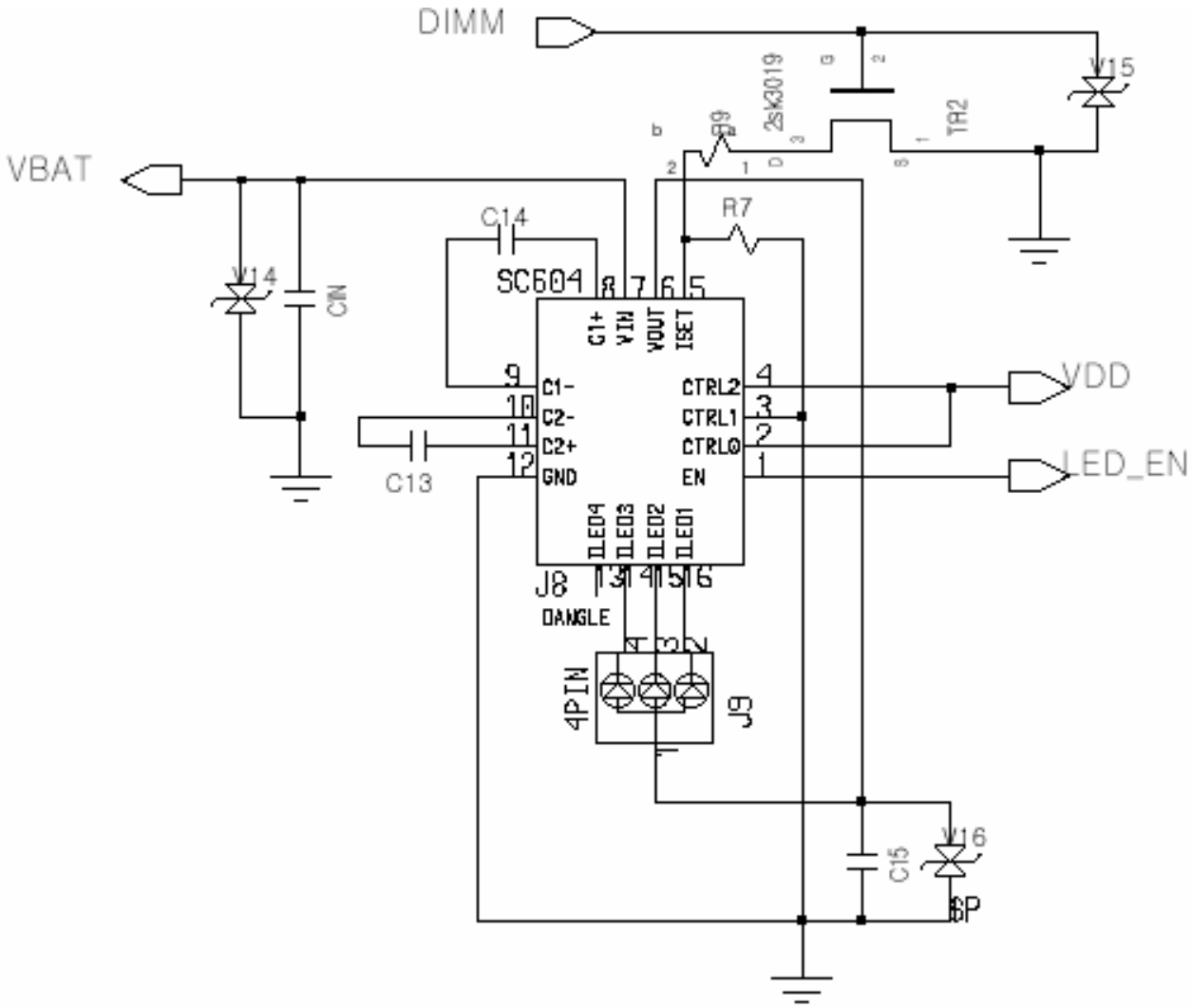


Figure 3-18. Main LCD Backlight Illumination

3.19 Speaker & MIDI IC

LG-G7100 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.

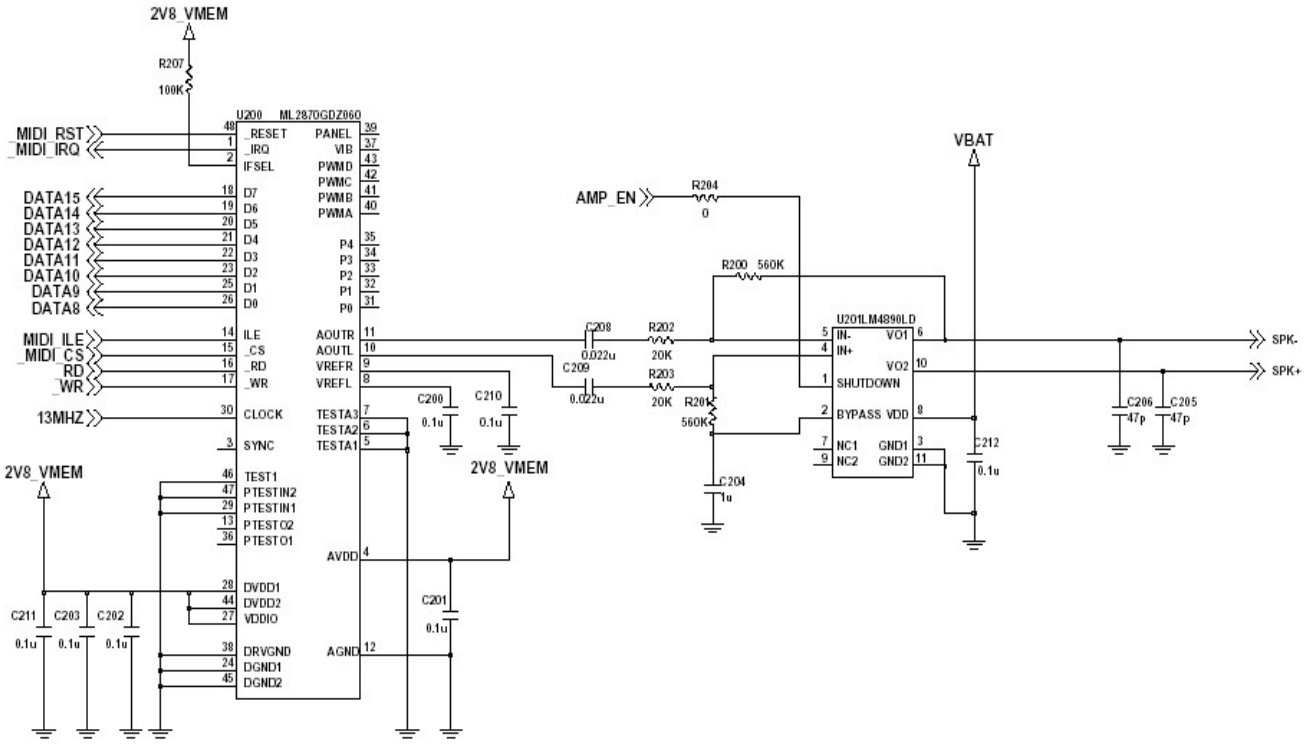


Figure 3-19. Speaker & MIDI IC

Basically, this phone have a melody IC of Oki ltd. ML2870(melody IC maker part number) is a PCMbased 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.

3.20 CAMERA IC

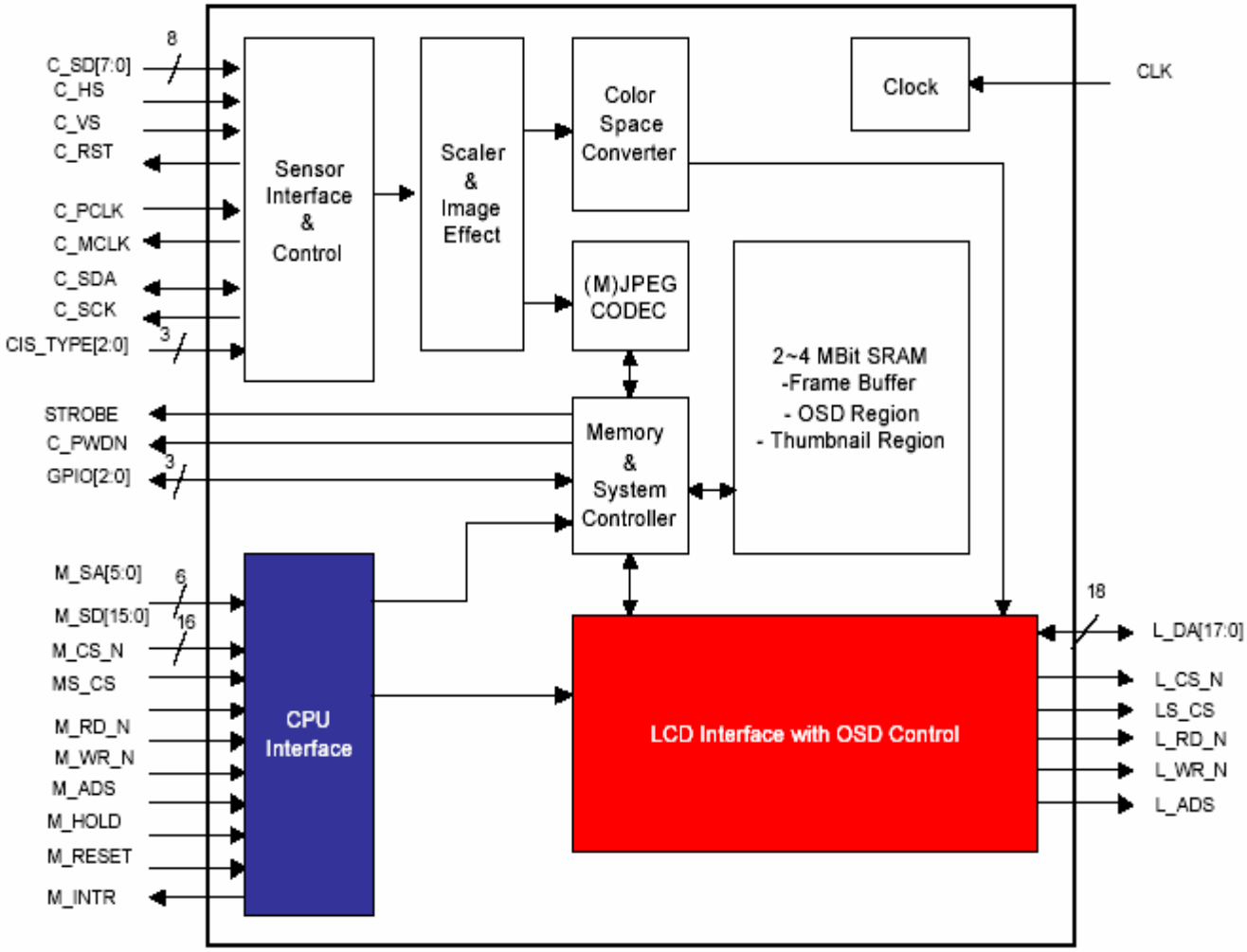


Figure 3-20. CLC344E block diagram

- External Clock Source Up to 27 MHz
- Internal Clock Divider 1/2, 1/3, 1/4 for Sensor Clock Output
- Support Standard SRAM Interface (6bit Address & 16bit Data) for CPU Interface
- 4Mbit Stacked SRAM
- Support LCD Signal By-pass Mode
- Fully Hardwired JPEG and Motion-JPEG Codec
- Support three General Port IO
- 8 x 8 100pin BGA Package

The camera IC, CLC344E, is controlled through _RD, _WR, CAM_INT, CAM_HOLD, CAM_RST, ADD[1-6], DATA[0-15] by AD6525. In by-pass mode, CLC344E bypasses all LCD control signal from AD6525 to LCD module. In operating mode, CLC344E samples the image data from camera sensor connected on CN501 through C_CD[0-7], C_MCLK, C_PCLK, C_HS, C_VS, C_SDA, C_SCK, C_RST signals and controls the LCD module.

The camera power is provided by U500 ADP3330. It converts VBAT from battery to 2.85V

Table 3-8

_WR	Write control to CLC344E or LCD module.
_RD	Read control. The phone do not read data from LCD chip
CAM_INT	Interrupt to AD6525. It can be set to level or edge interrupt
CAM_HOLD	This signal determines the camera operation mode. Making high, disable all CLC344E functions.
CAM_RST	This signal resets the CLC344E
ADD[1-6]	Address lines.
DATA[0-15]	Parallel data lines.
2V85_CAM	2.8V power supply to CLC344E
C_D[0-7]	Sensor Data bus
C_RST	Sensor reset
C_PCLK	Sensor input data sampling clock
C_MCLK	Sensor clock
C_SDA	IIC bus data line
C_SCK	IIC bus clock line
C_PWDN	Sensor power down control pin

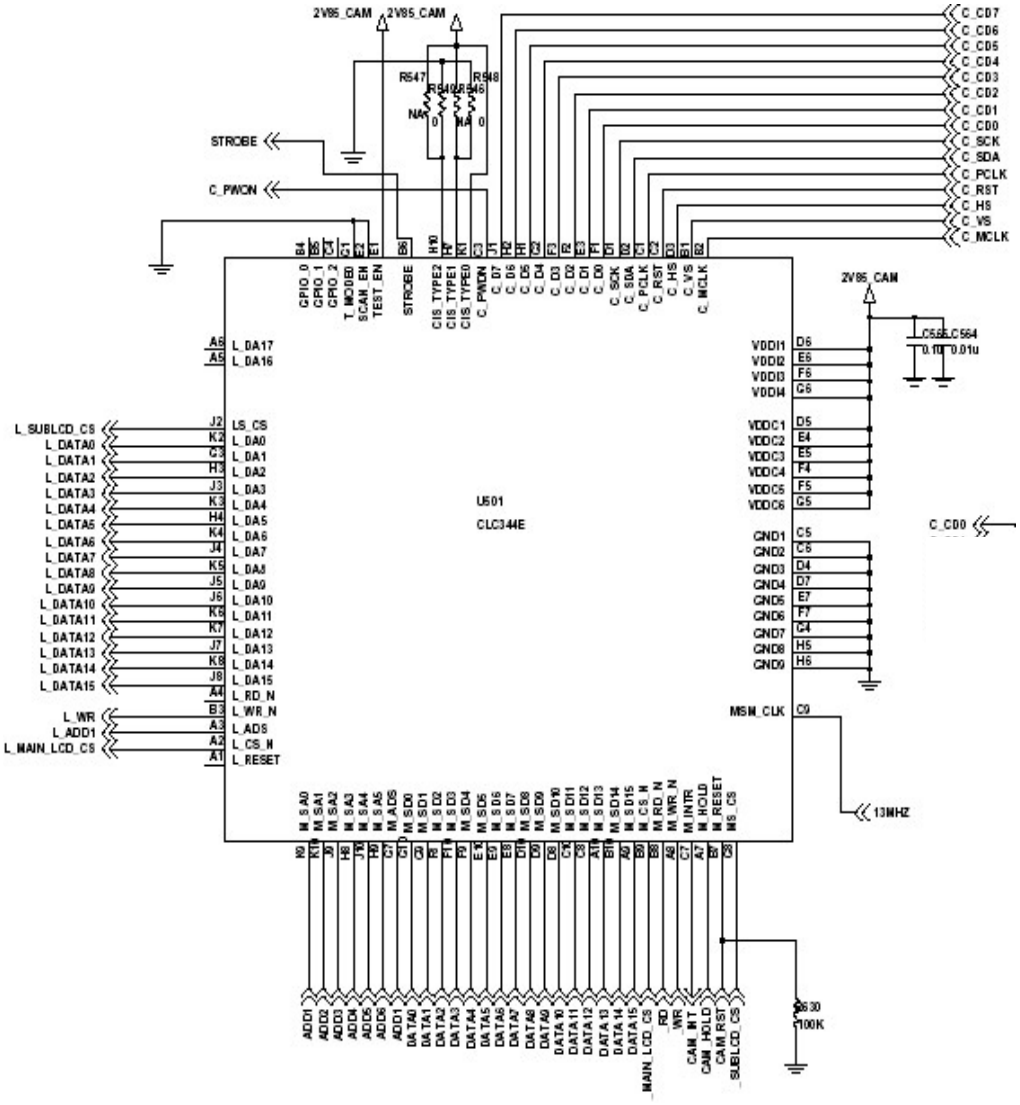


Figure 3-21a. CLC344E

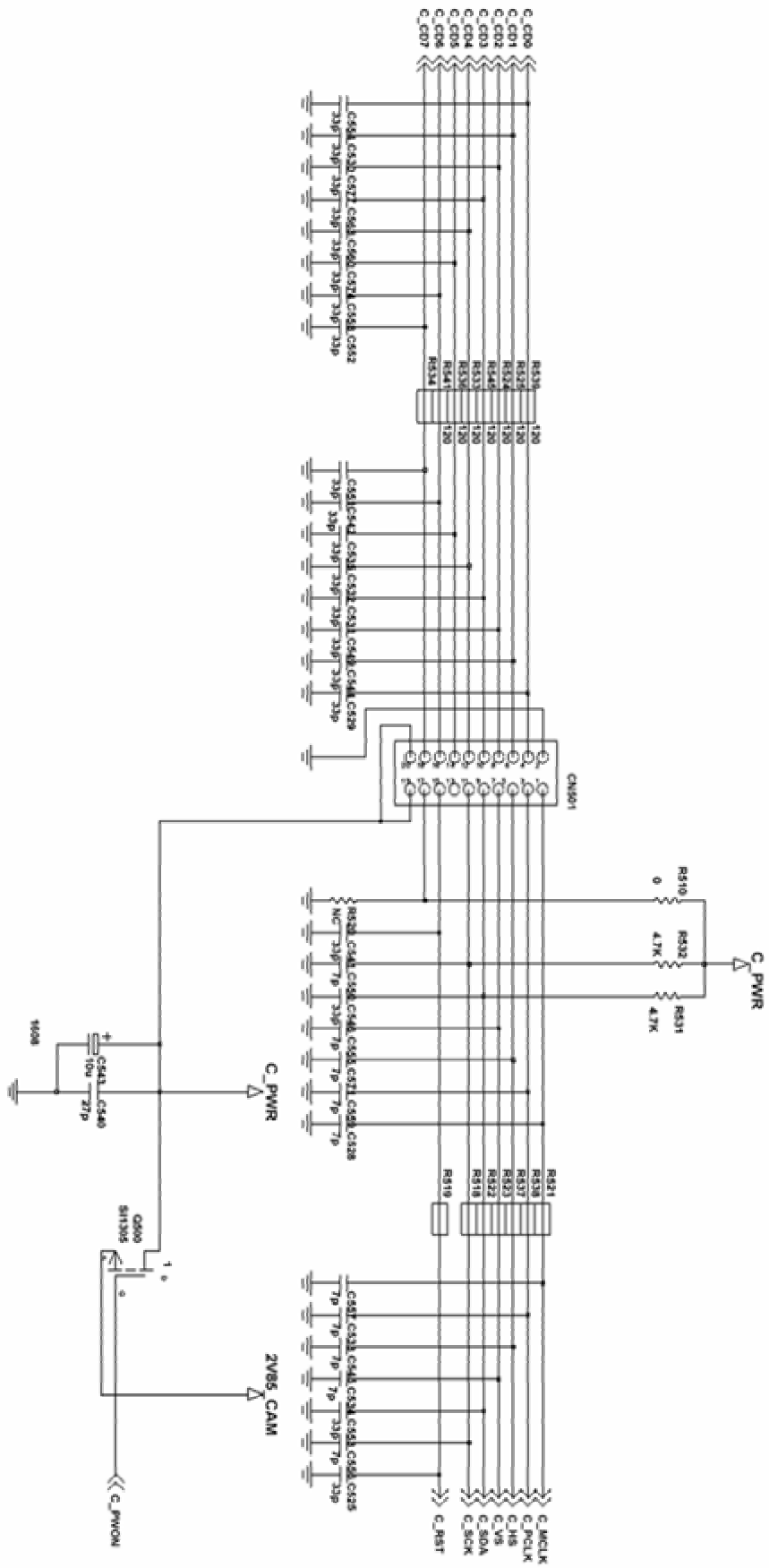


Figure 3-21b. Sensor connection

4. TROUBLE SHOOTING

4.1 RF Components

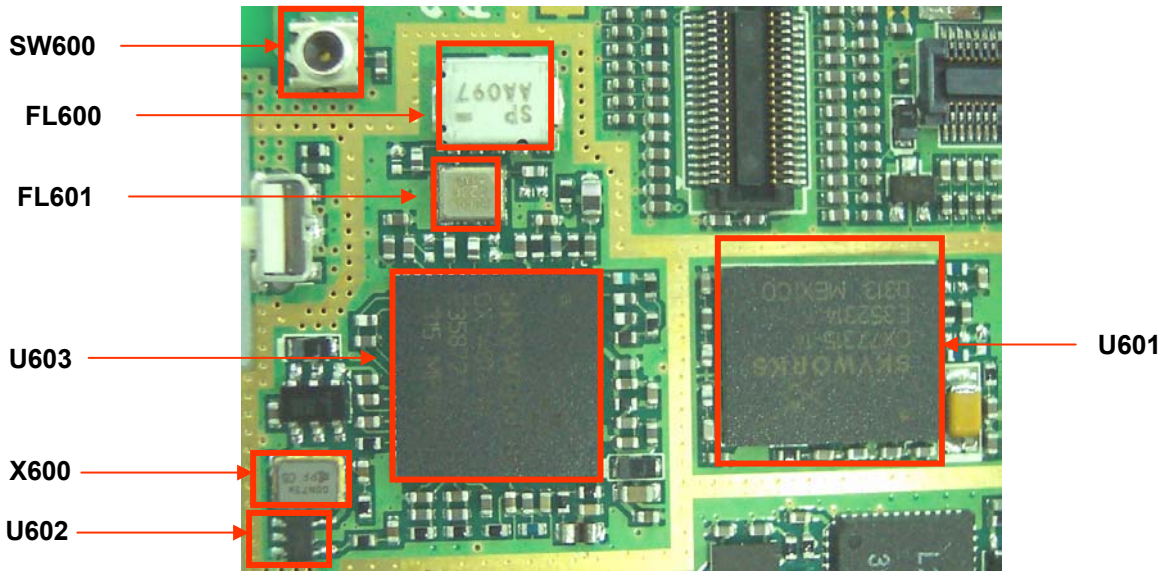


Figure 4-1

Table 4-1. RF COMPONENTS

Reference	Description	Reference	Description
U603	RF Main Chipset	FL601	Dual SAW Filter
SW600	Mobile S/W	X600	VCTCXO
FL600	Ant. S/W	U602	Inverter IC
U601	PAM		

4.2 RX Trouble

Checking Flow

START

✓ HP8922 : Test mode (PCS band)
62 CH, 7 level setting (TCH)
62 CH, -60dBm setting (BCCH)

1. Check Regulator Circuit

2. Check VCTCXO Circuit

3. Check Control Signal

4. Check Ant SW & Mobile SW

5. Check Saw Filter Circuit

6. Check RX IQ

✓ Redownload SW, CAL

Checking Points

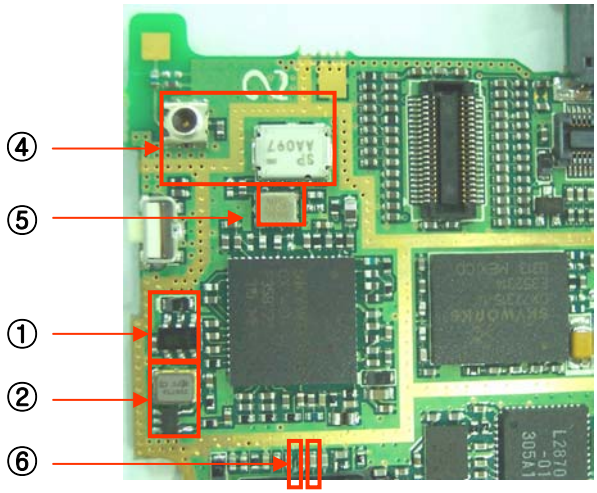


Figure 4-2a

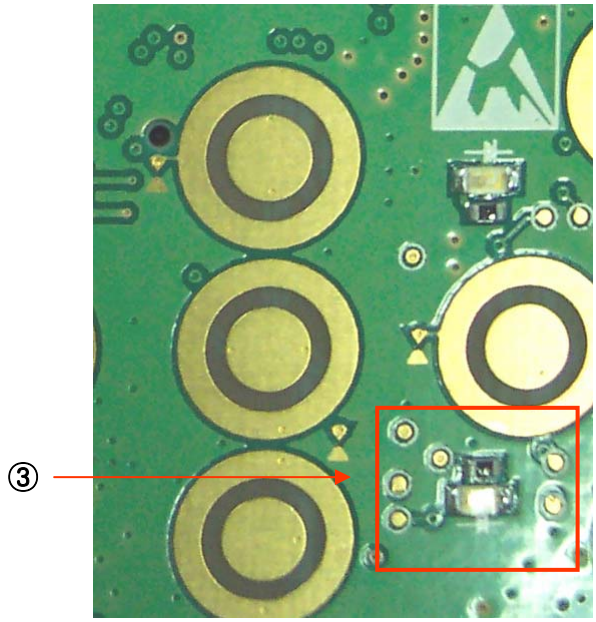
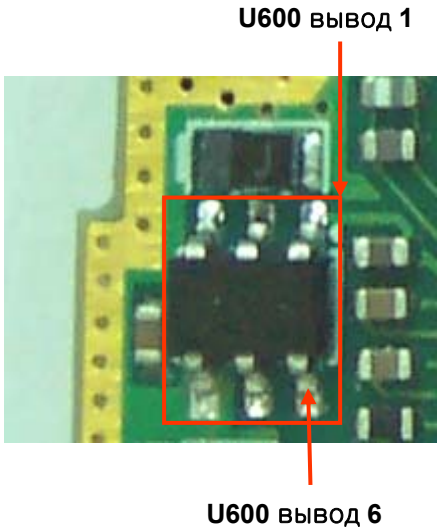


Figure 4-2b

4.2.1 Checking Regulator Circuit

Test Points



Checking Flow

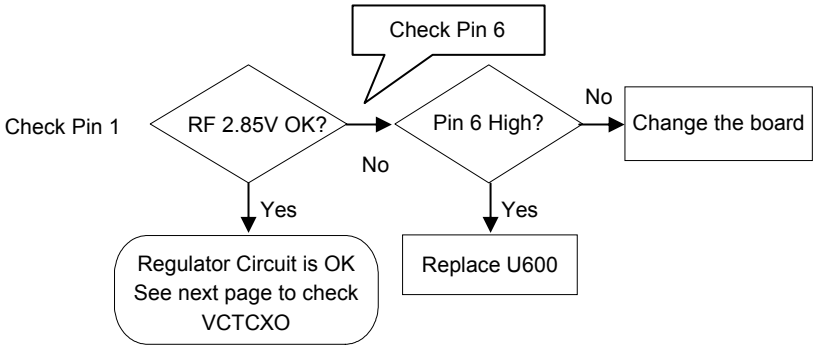
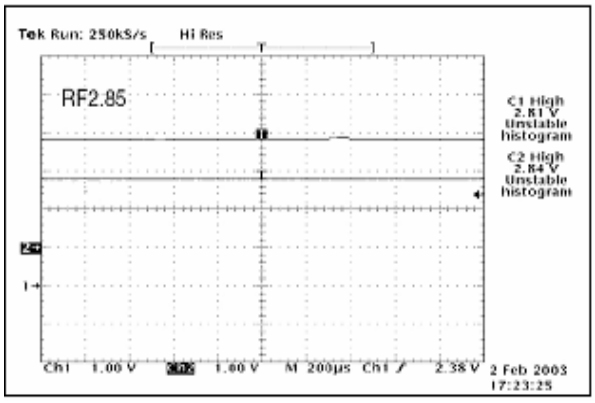


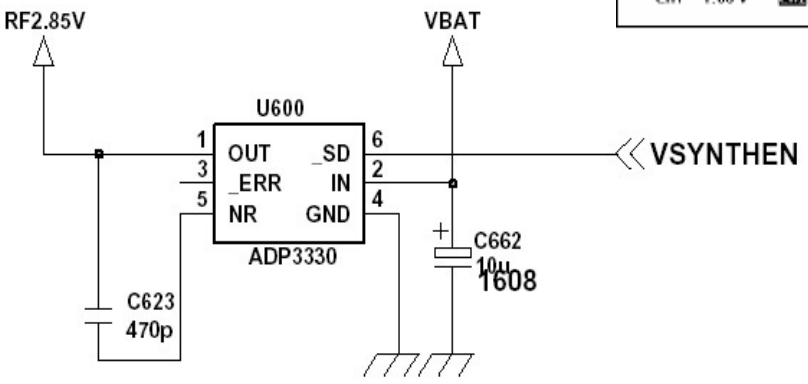
Figure 4-3

Waveform



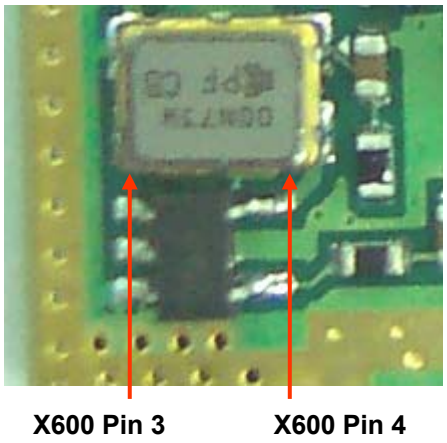
Graph 4-1

Regulator part Circuit Diagram



4.2.2 Checking VCTCXO Circuit

Test Points



Checking Flow

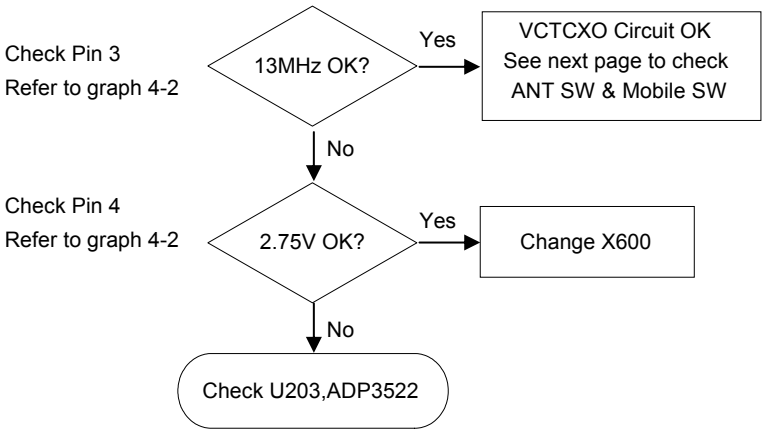
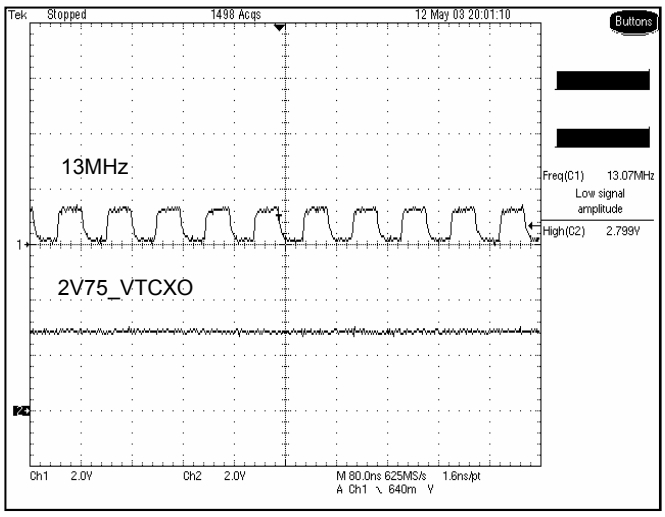


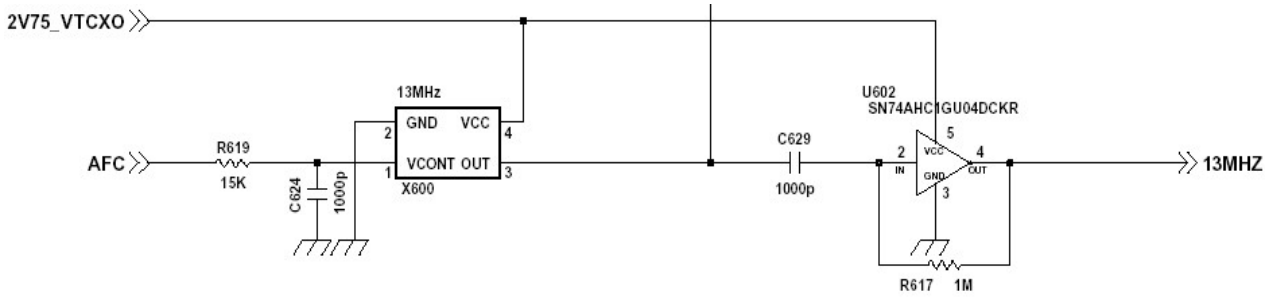
Figure 4-4

Waveform



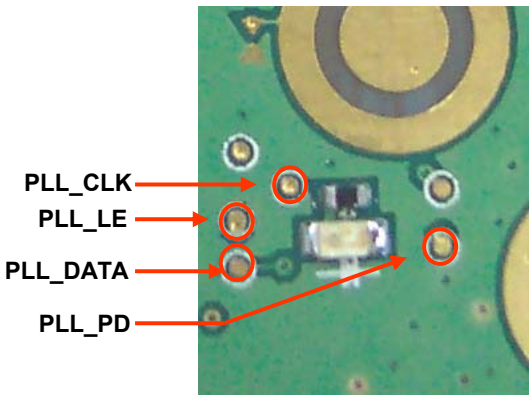
Graph 4-2

Circuit Diagram



4.2.3 Checking PLL Control Signal

Test Points



Checking Flow

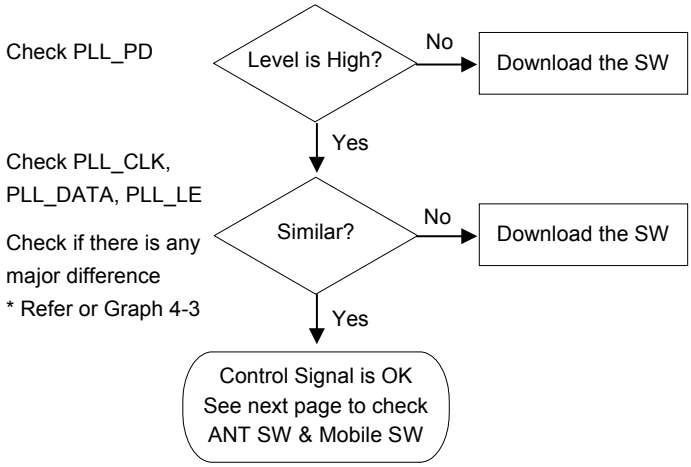
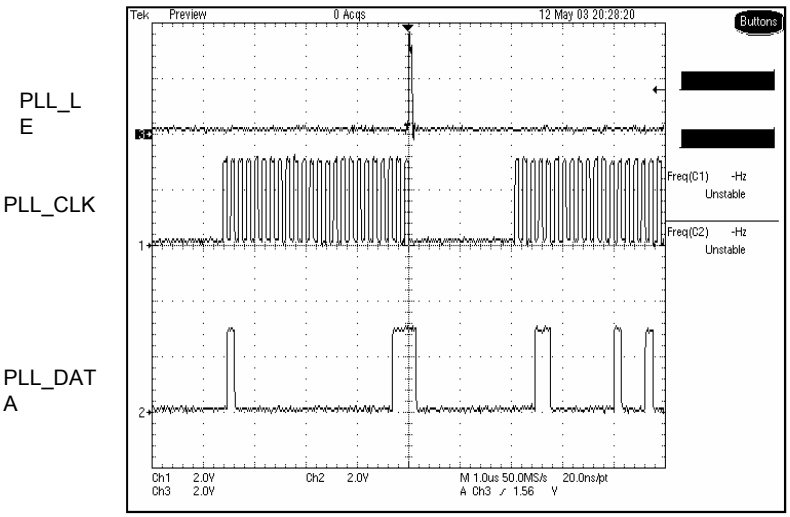


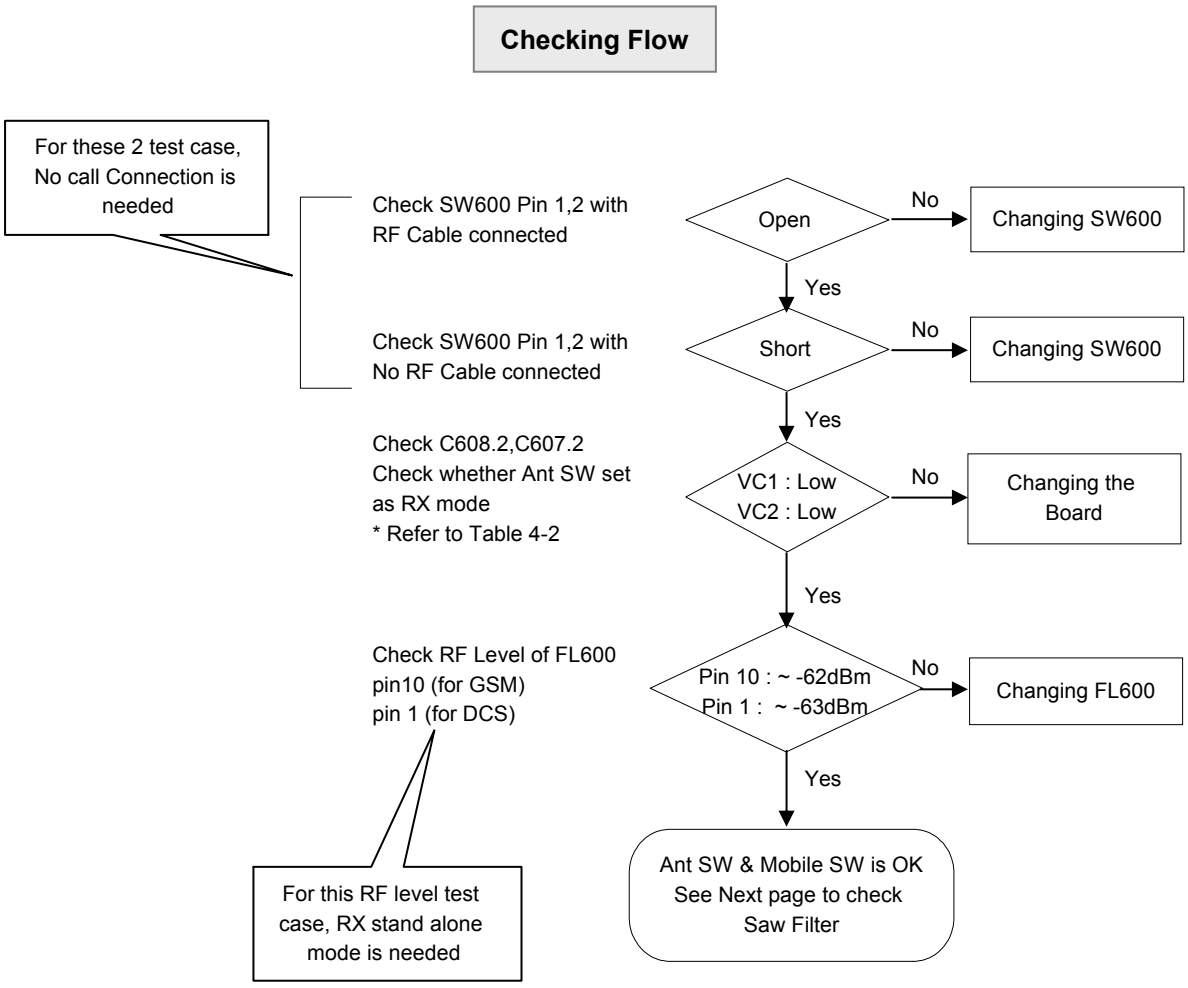
Figure 4-5

Waveform



Graph 4-3

4.2.4 Checking Ant SW & Mobile SW



Test Points

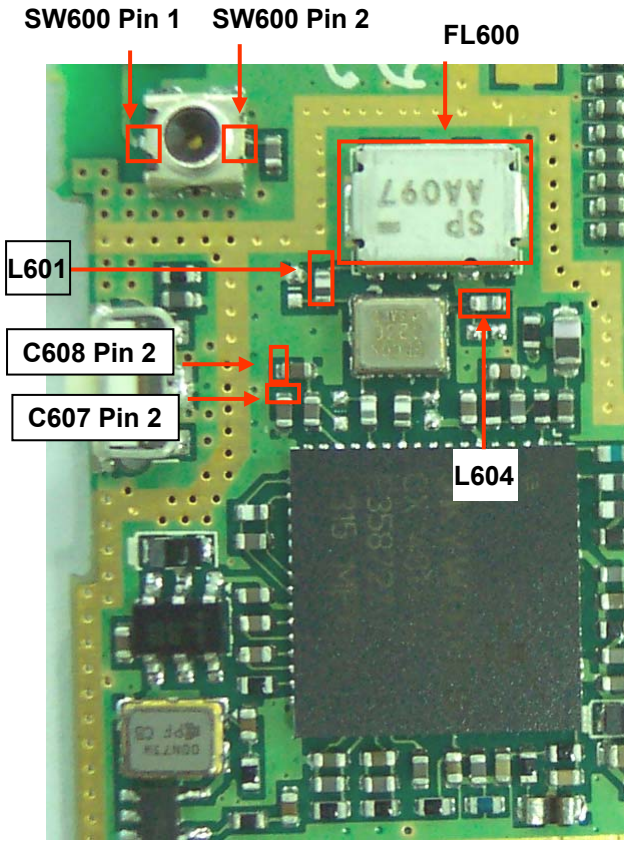


Figure 4-6

Ant sw& Mobile sw part Circuit Diagram

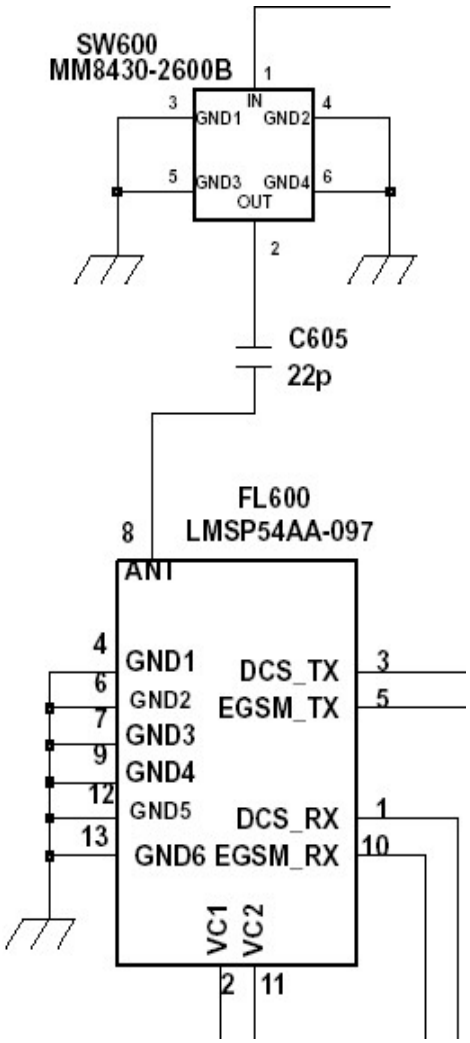
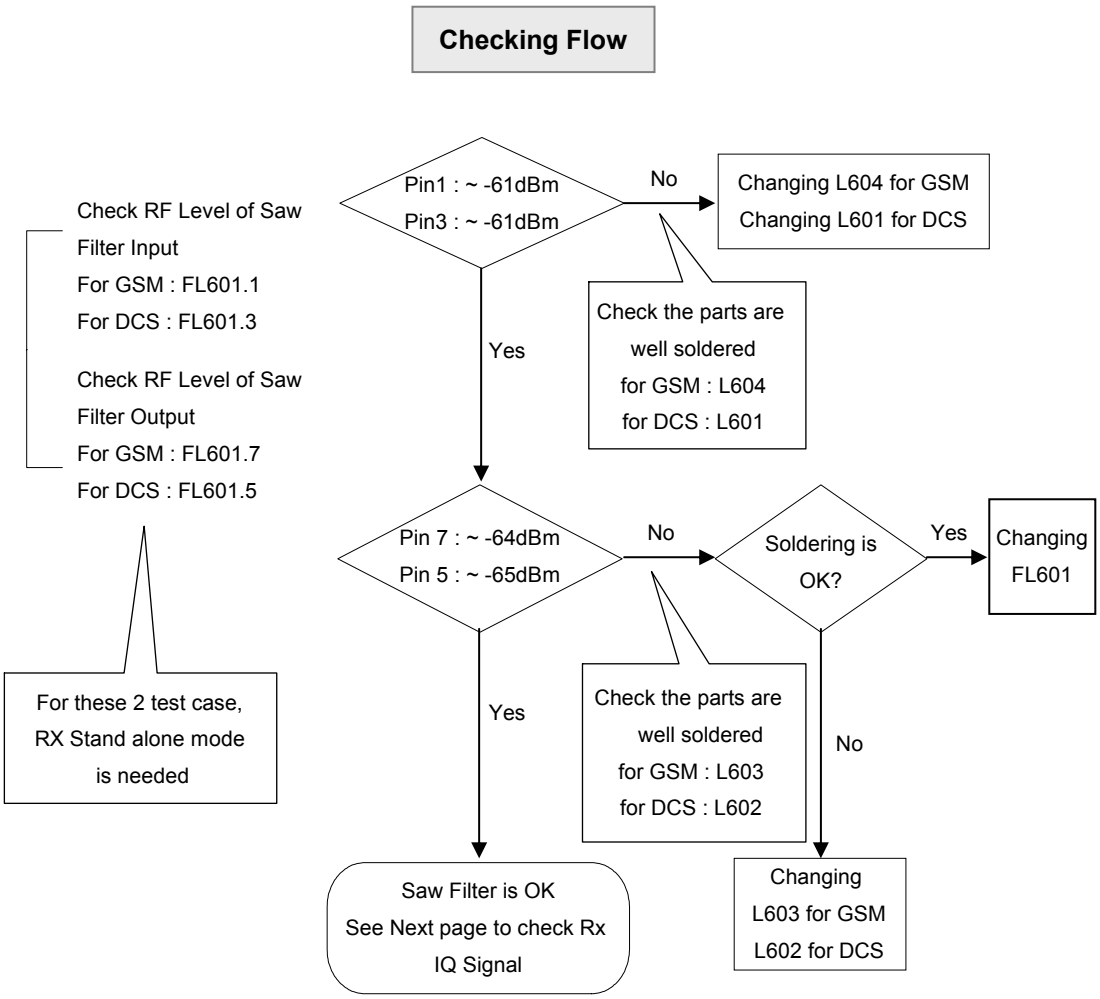


Table 4-2. ANT SW Control Logic

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

4.2.5 Checking SAW Filter Circuit



Test Points

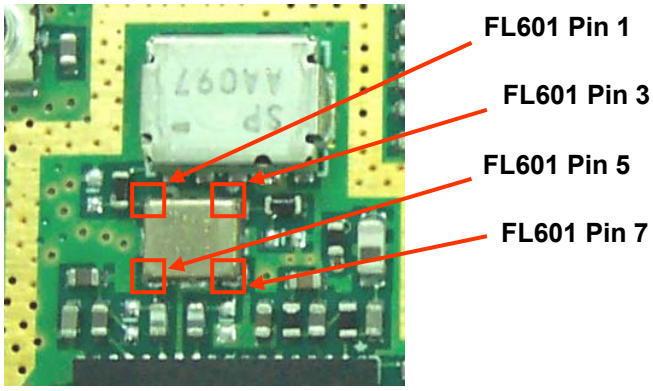
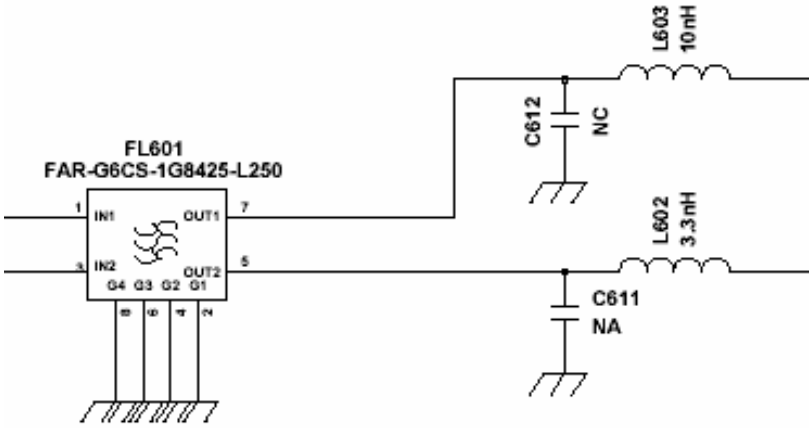


Figure 4-7

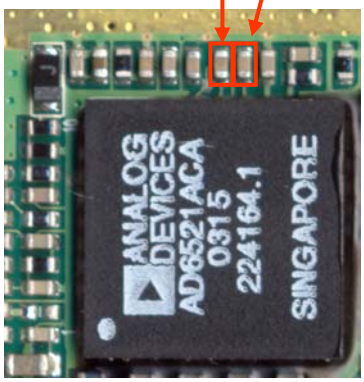
SAW filter part Circuit Diagram



4.2.5 Checking RX IQ

Test Points

C658 C659



Checking Flow

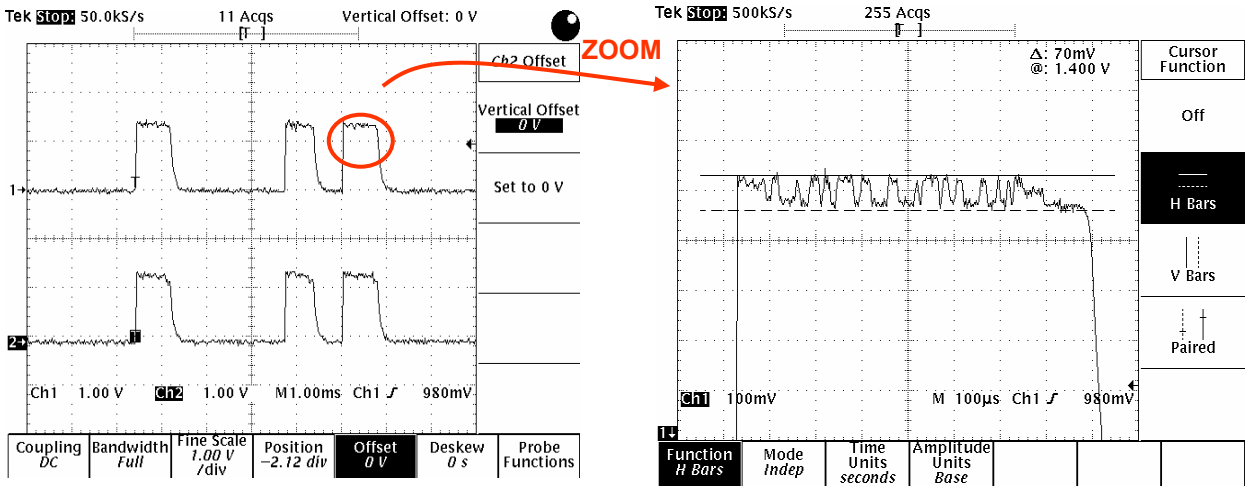
Check C658,C659.
Check if there is any Major Difference
* Refer to graph 4-4

Similar? — No → Replace U603

Yes → Redownload the Software and calibrate

Figure 4-8

Waveform



Graph 4-4

4.3 TX Trouble

Test Points

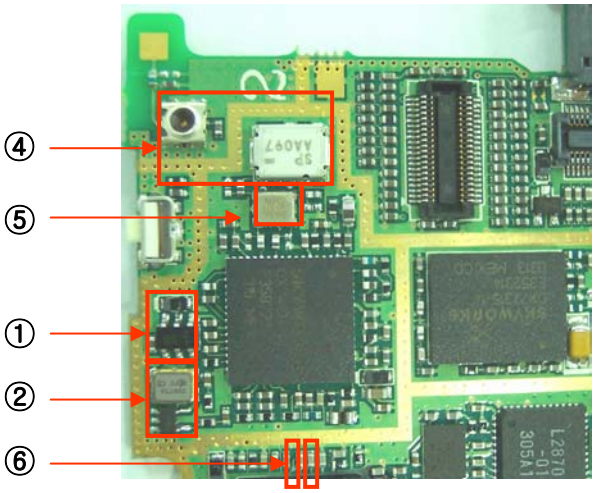


Figure 4-9a

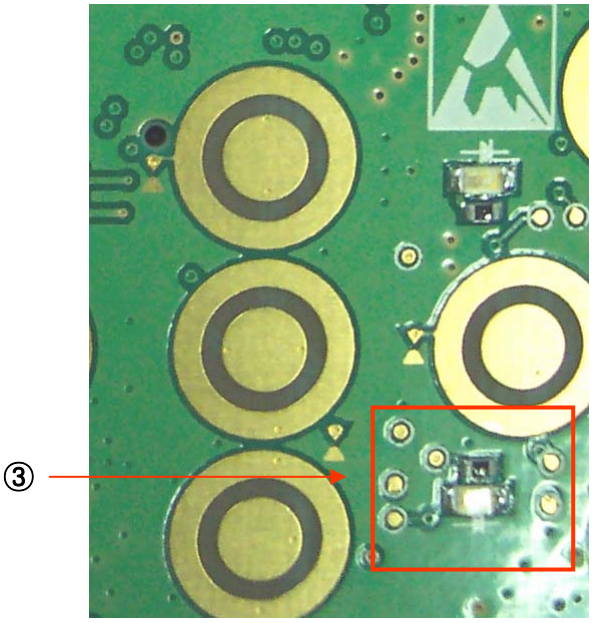
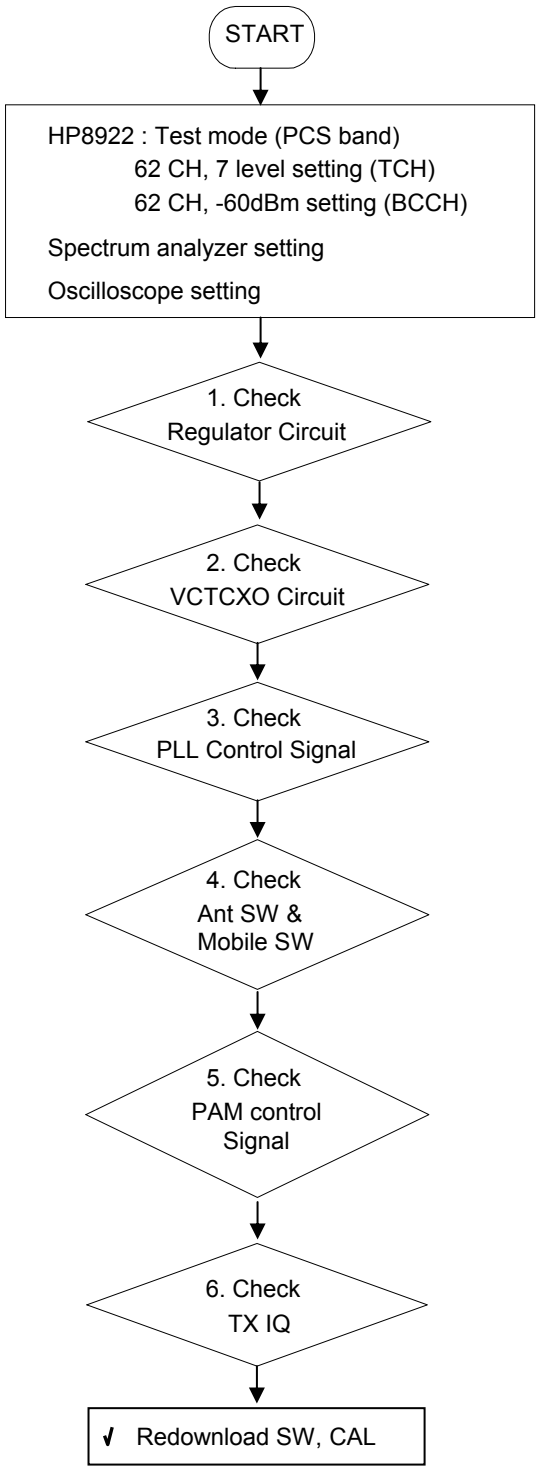


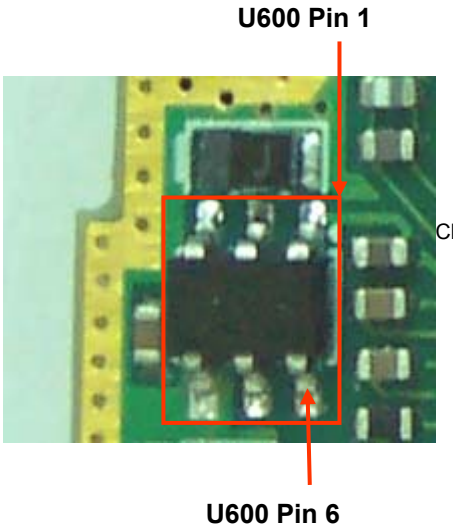
Figure 4-9b

Checking Flow



4.3.1 Checking Regulator Circuit

Test Points



Checking Flow

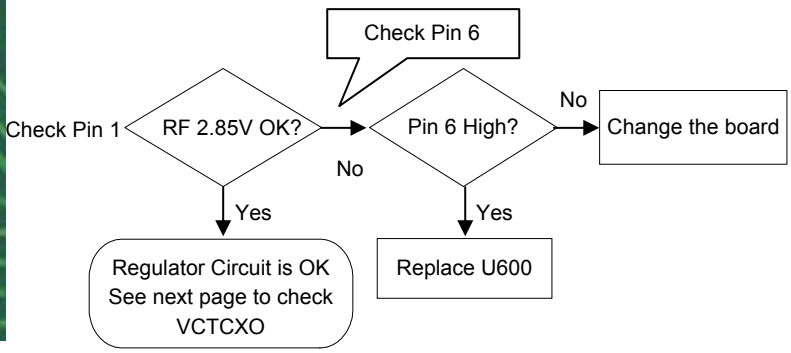
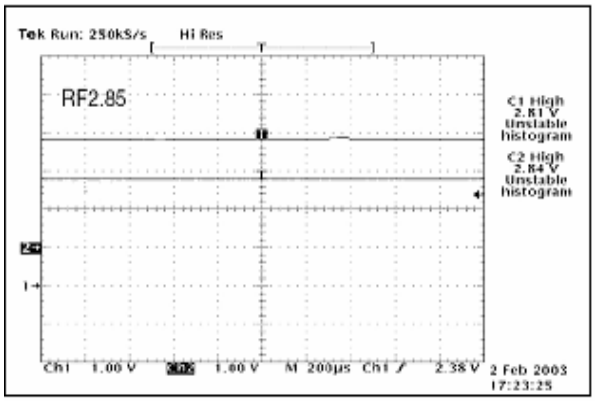


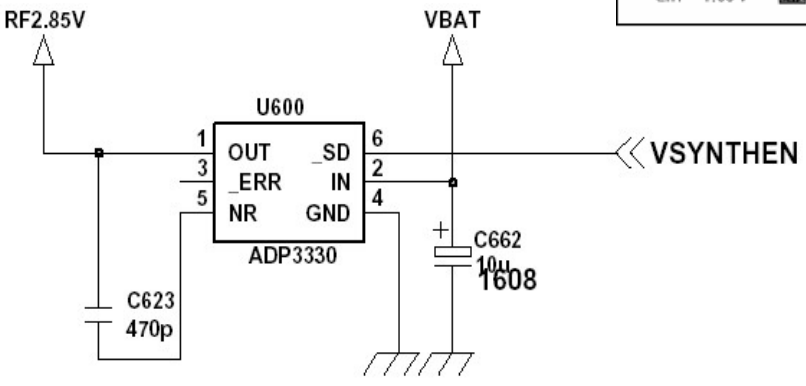
Figure 4-10

Waveform



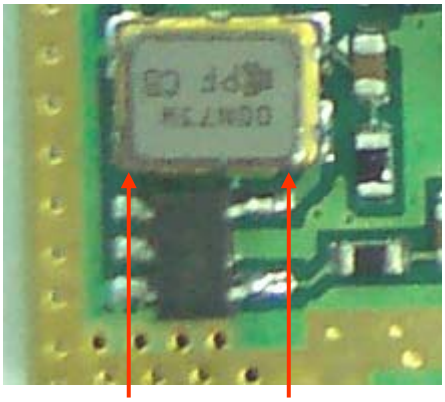
Graph 4-1

Regulator part Circuit Diagram



4.3.2 Checking VCTCXO Circuit

Test Points



Checking Flow

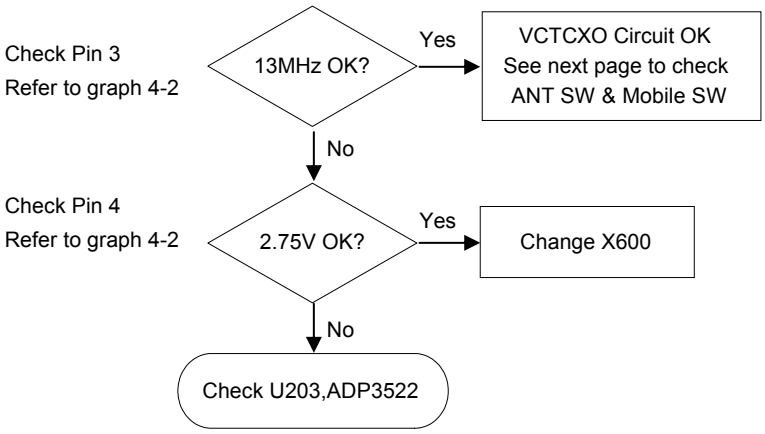
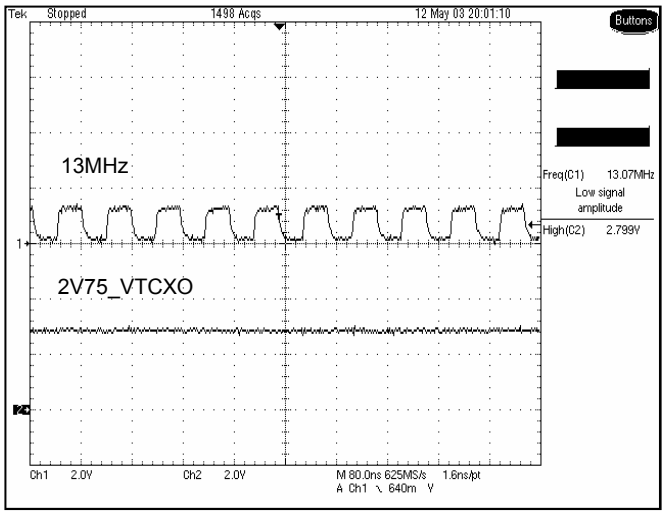


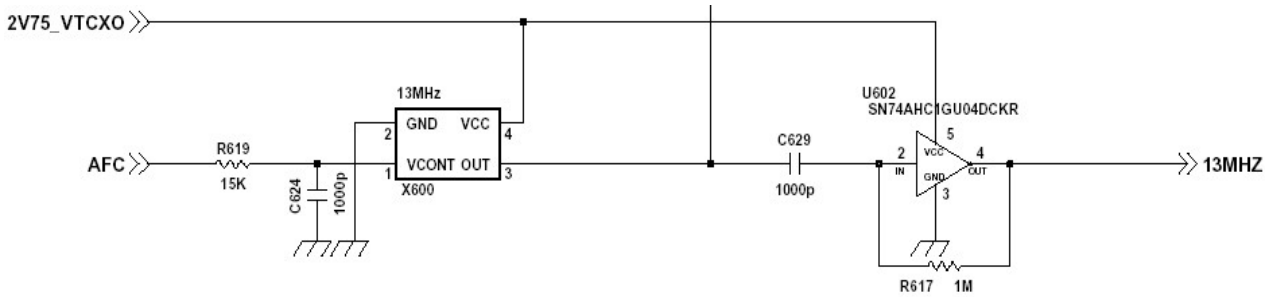
Figure 4-11

Waveform



Graph 4-2

Circuit Diagram



4.3.3 Checking PLL Control Signal

Test Points

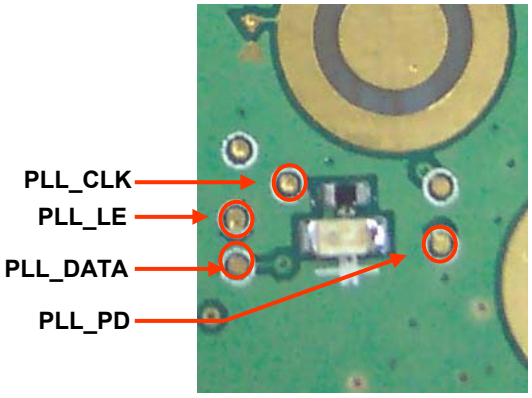
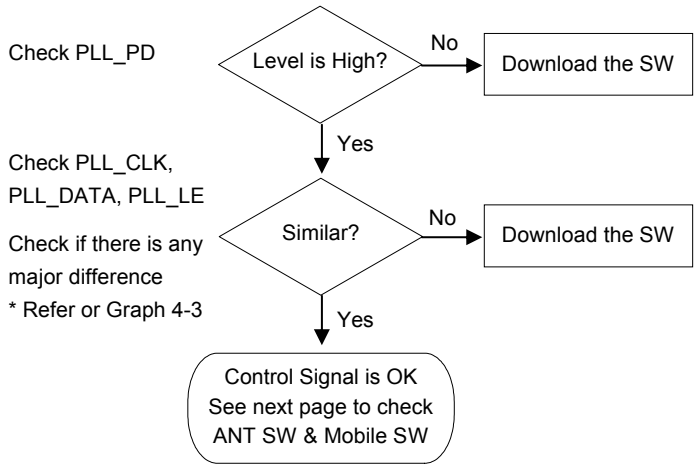
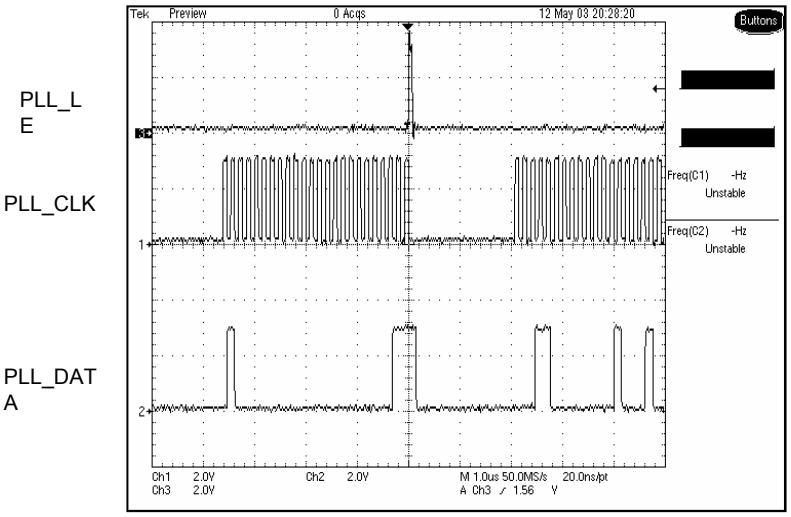


Figure 4-12

Checking Flow

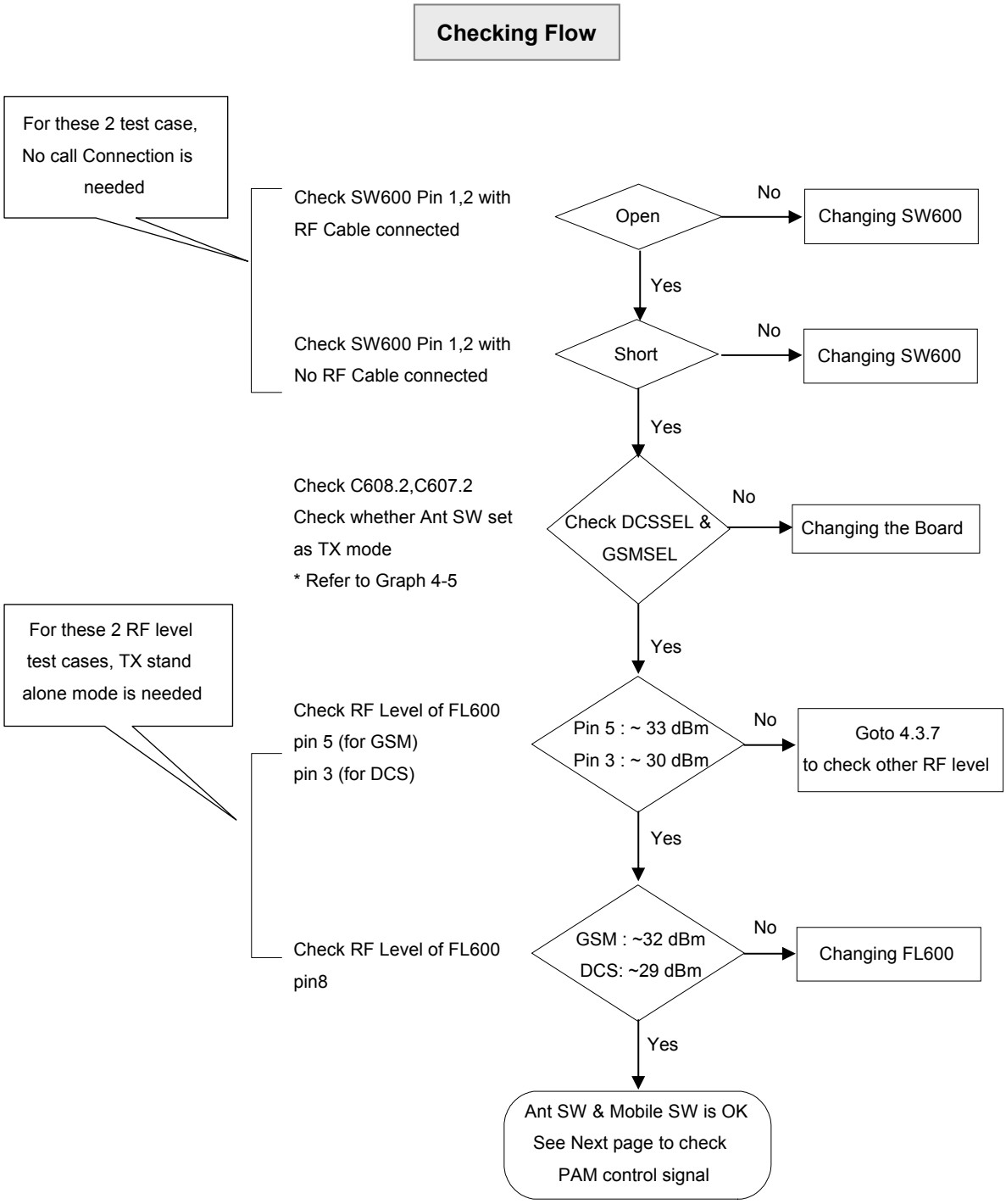


Waveform



Graph 4-3

4.3.4 Checking Ant SW & Mobile SW



Test Points

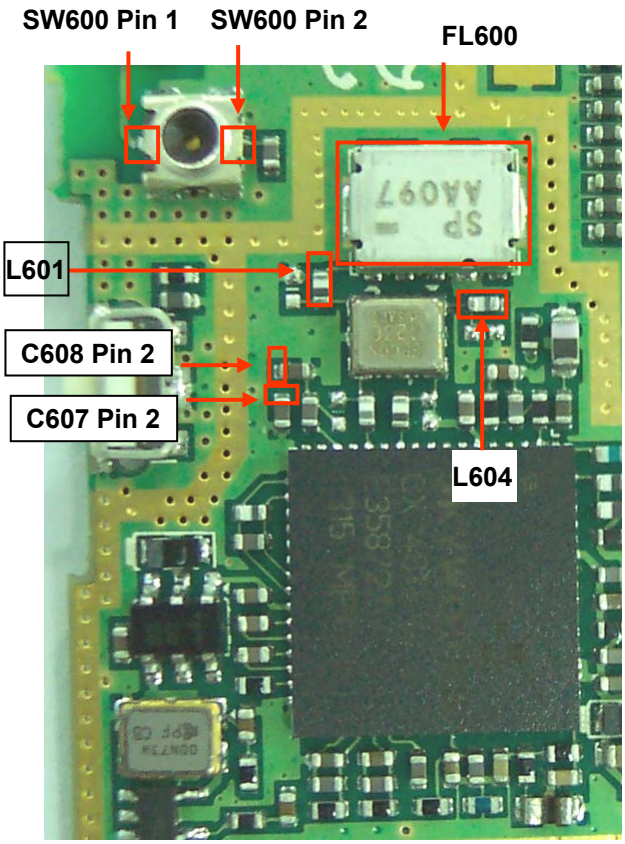
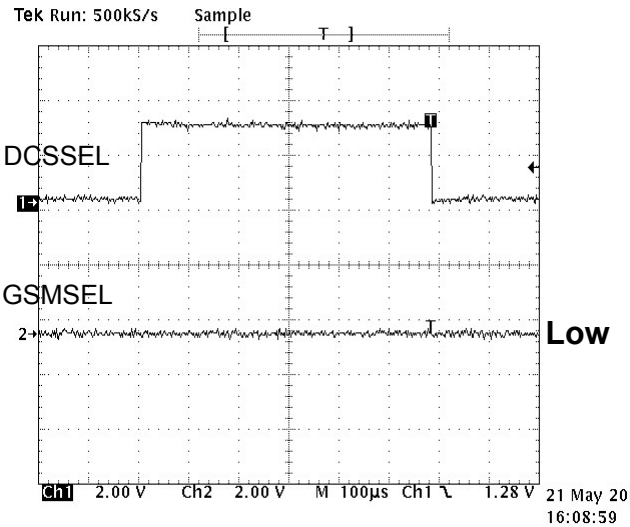
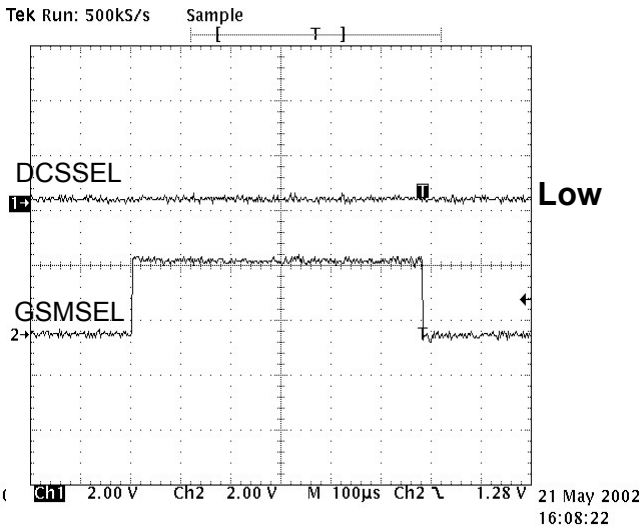


Figure 4-13

Waveform



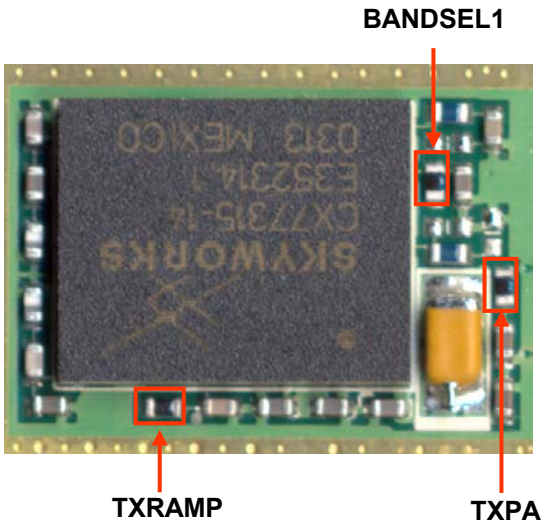
Graph 4-5a DCS TX mode



Graph 4-5b GSM TX mode

4.3.5 Checking PAM Control Signal

Test Points



Checking Flow

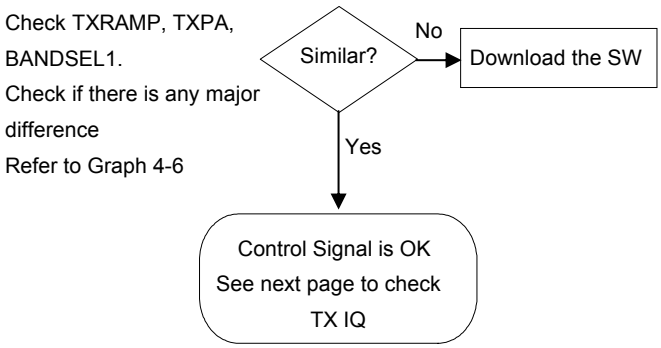
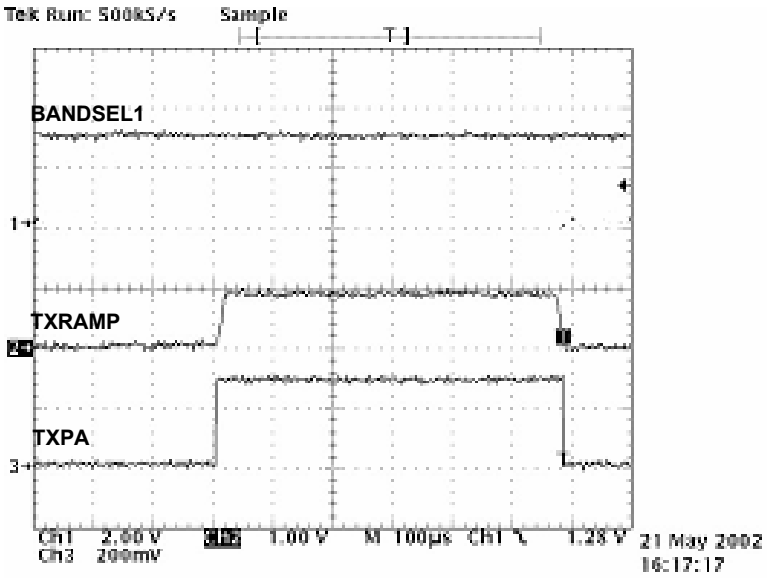


Figure 4-10

Waveform

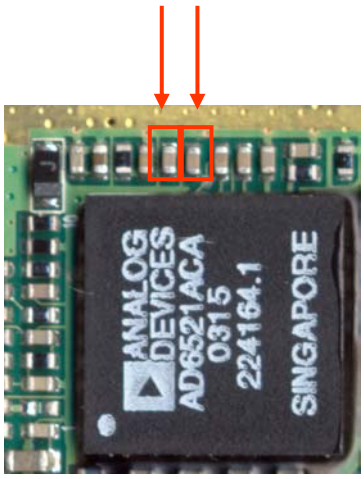


Graph 4-6

4.3.6 Checking TX IQ

Test Points

C660 C661



Checking Flow

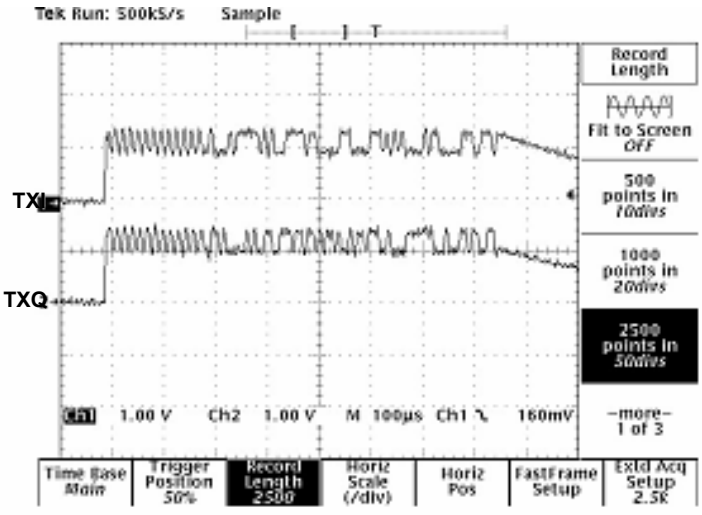
Check C660,C661.
Check if there is any major difference
Refer to Graph 4-7

Similar? — No → Download the SW

Yes → TX IQ signal is OK
See next page to check RF TX Level

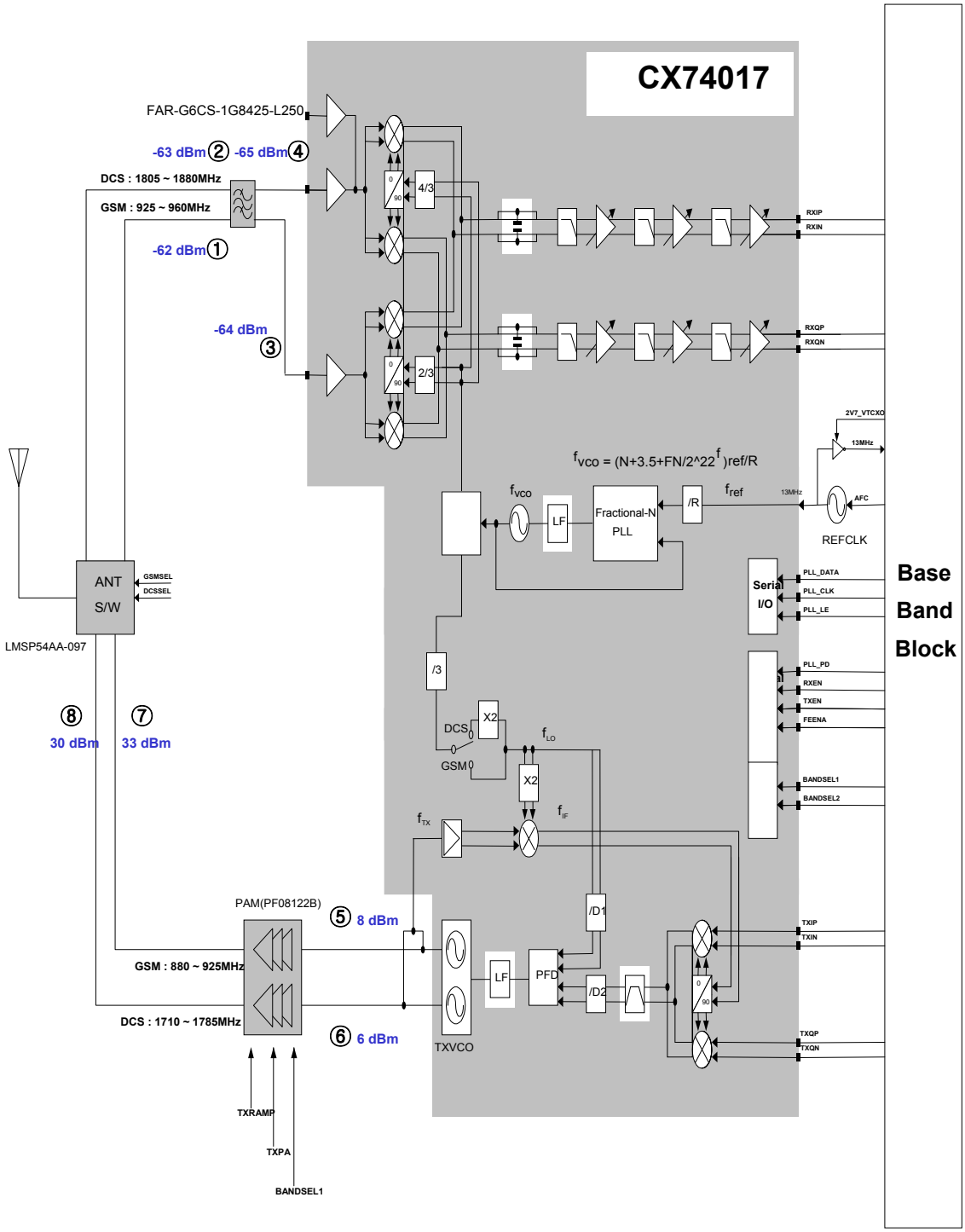
Figure 4-11

Waveform



Graph 4-7

4.3.7 Receiver and Transmitter RF Level



Test Points

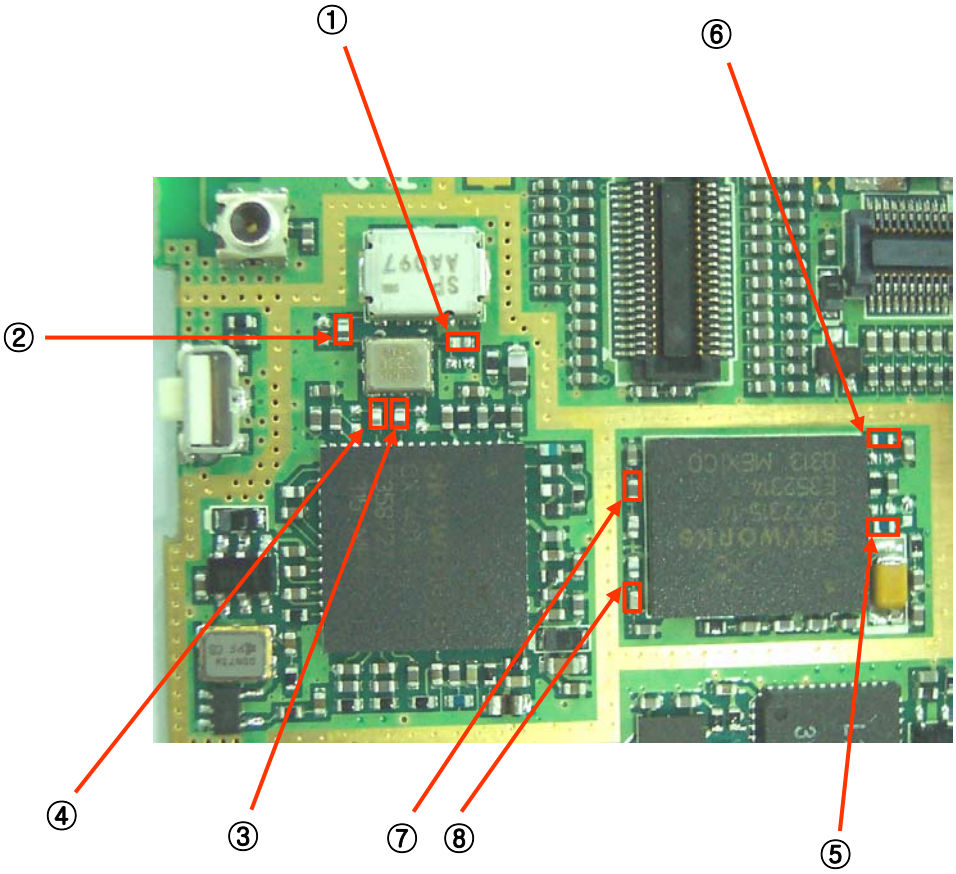
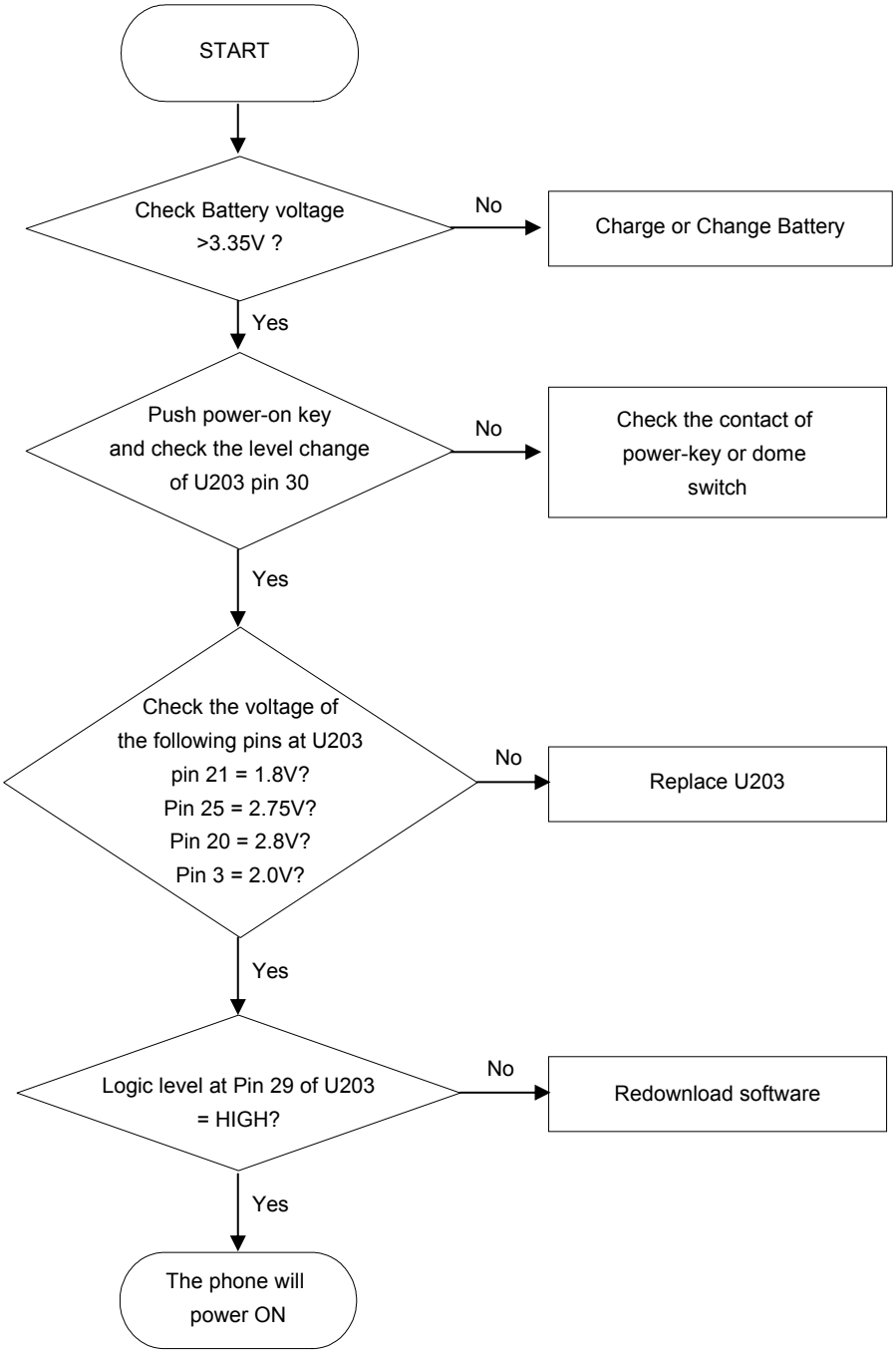


Figure 4-12

4.4 Power On Trouble

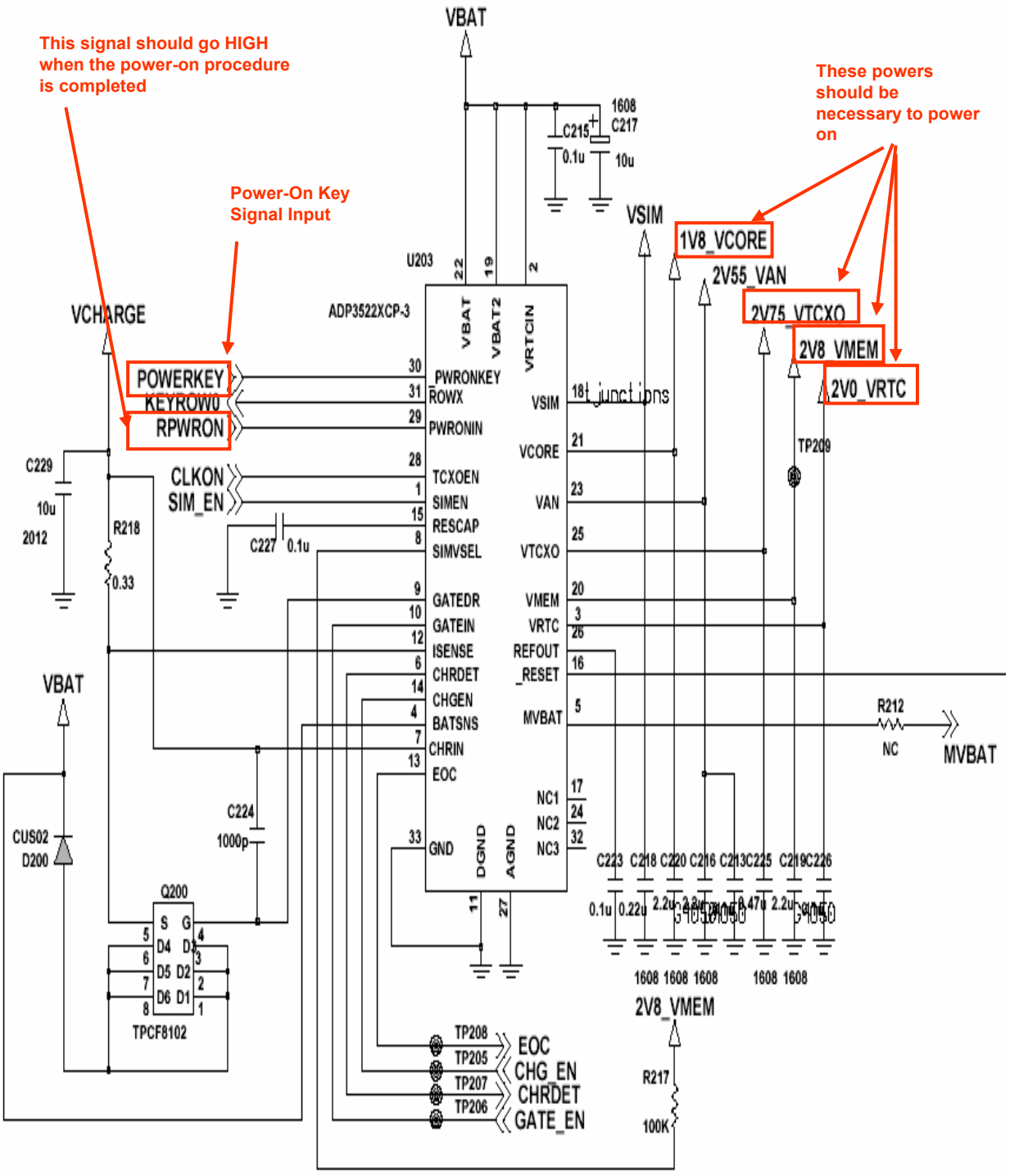
SETTING : Connect PIF, and set remote switch off at PIF

Checking Flow



4. TROUBLE SHOOTING

Power On part Circuit Diagram



Test Points

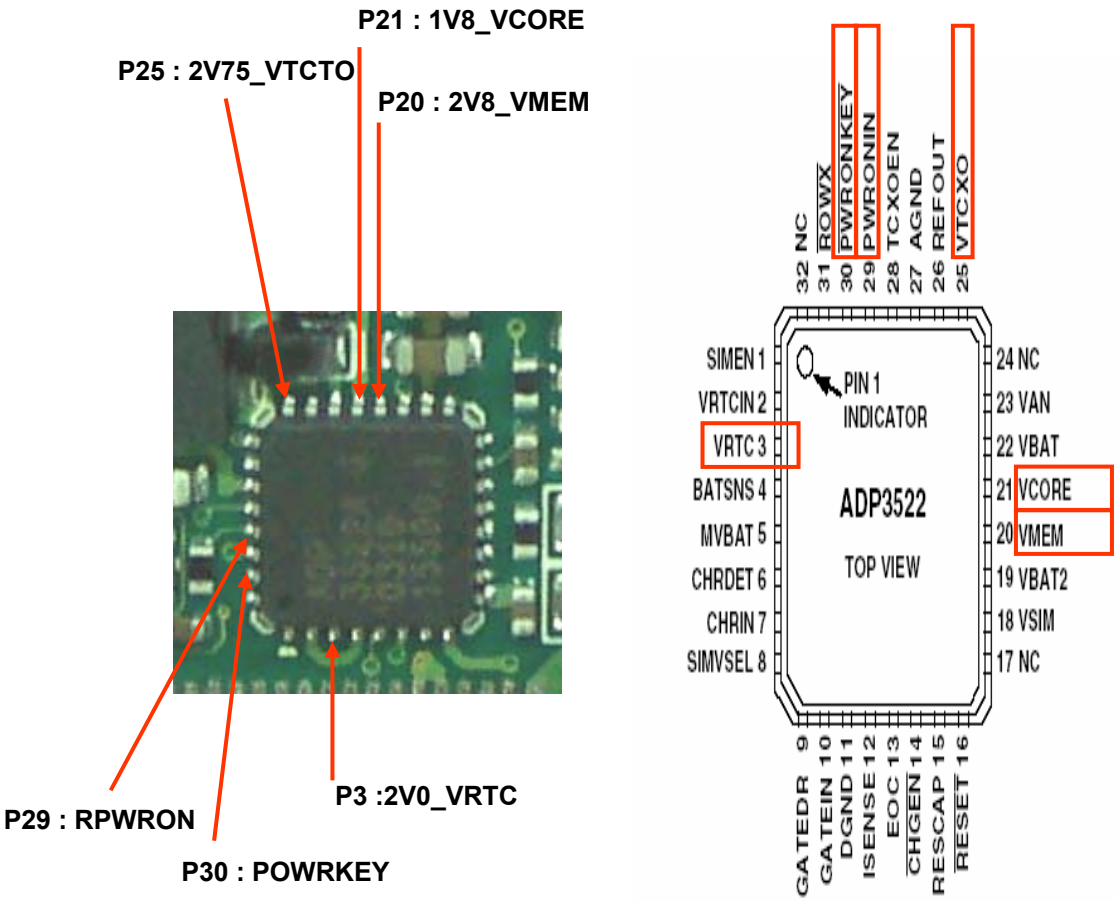
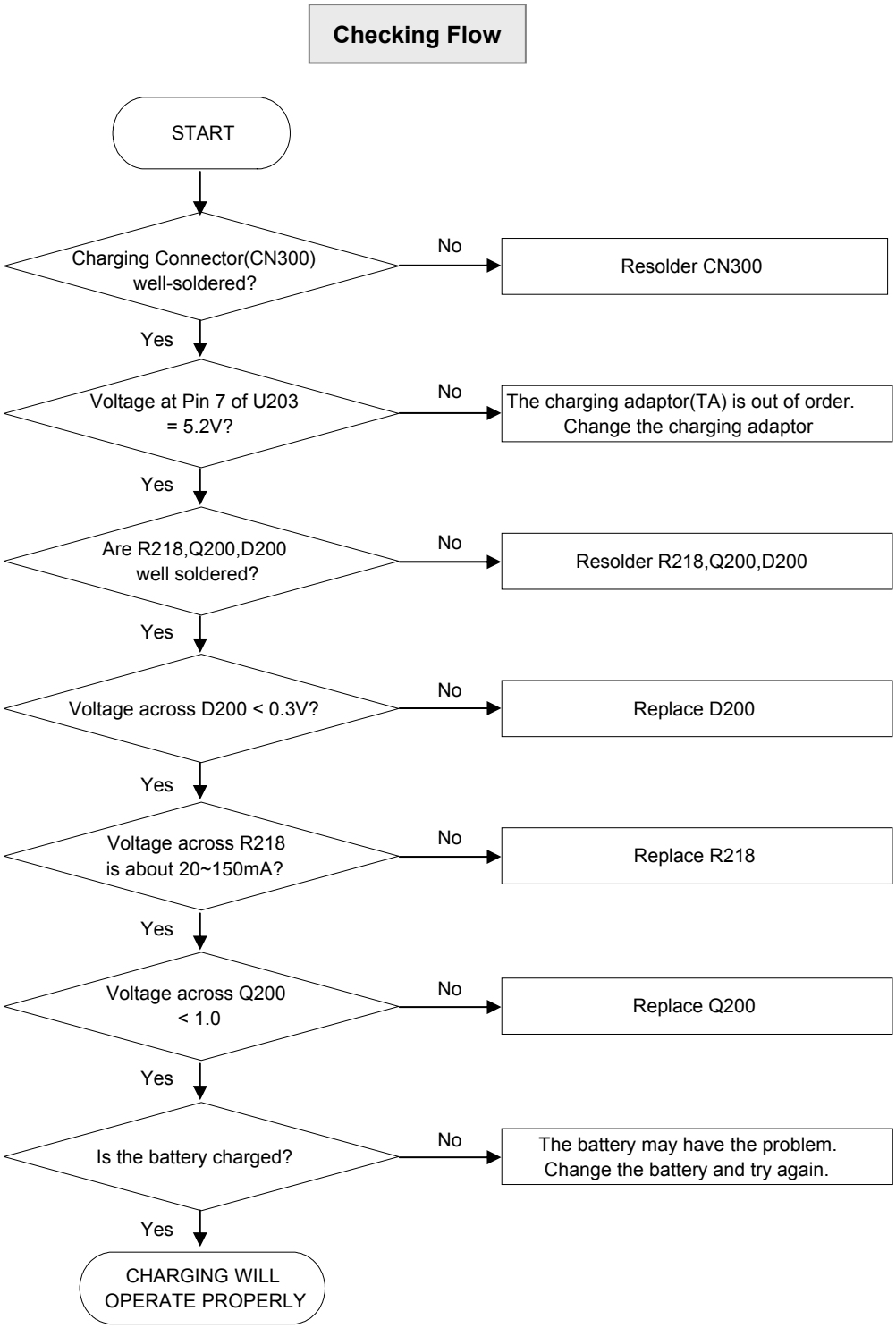


Figure 4-13

4.5 Charging Trouble

SETTING : Connect the battery and the charging adaptor(TA) to the phone



Test Points

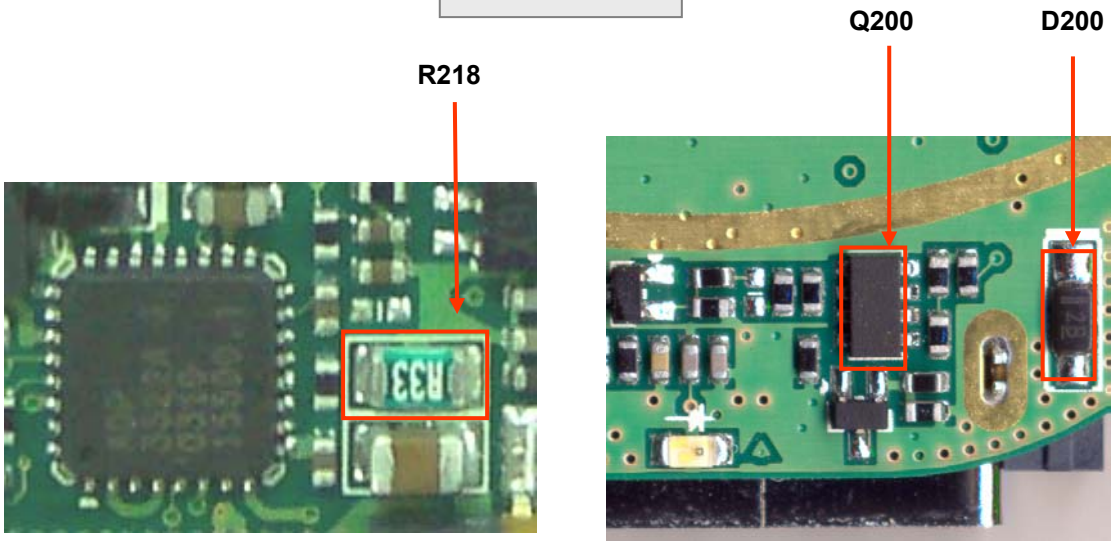
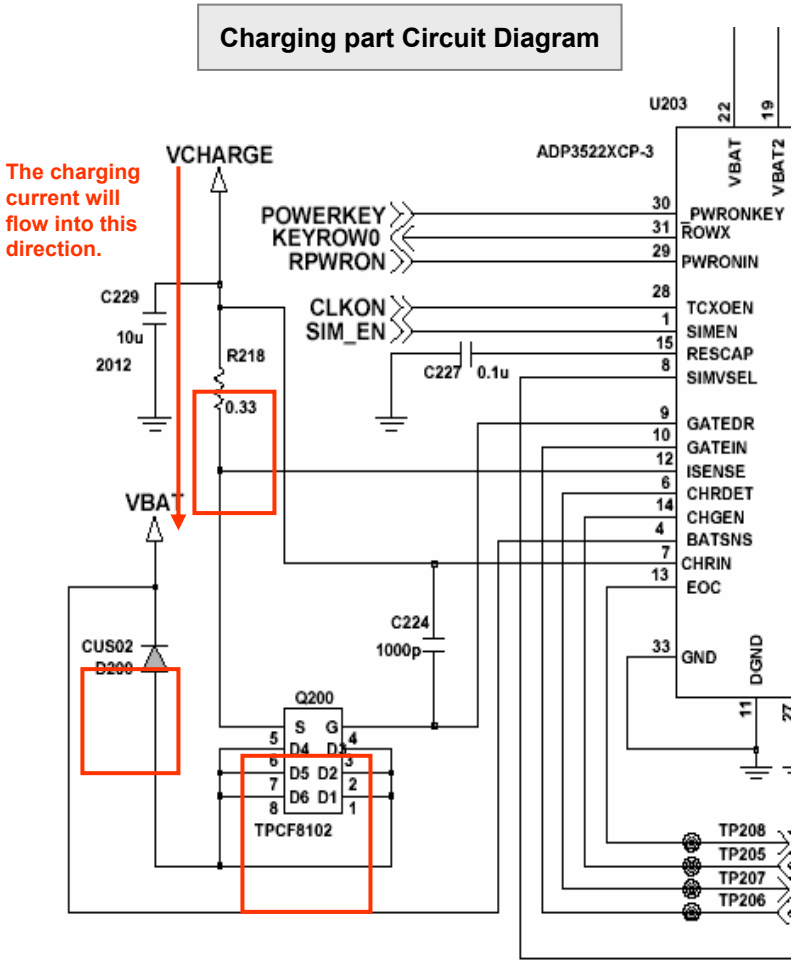
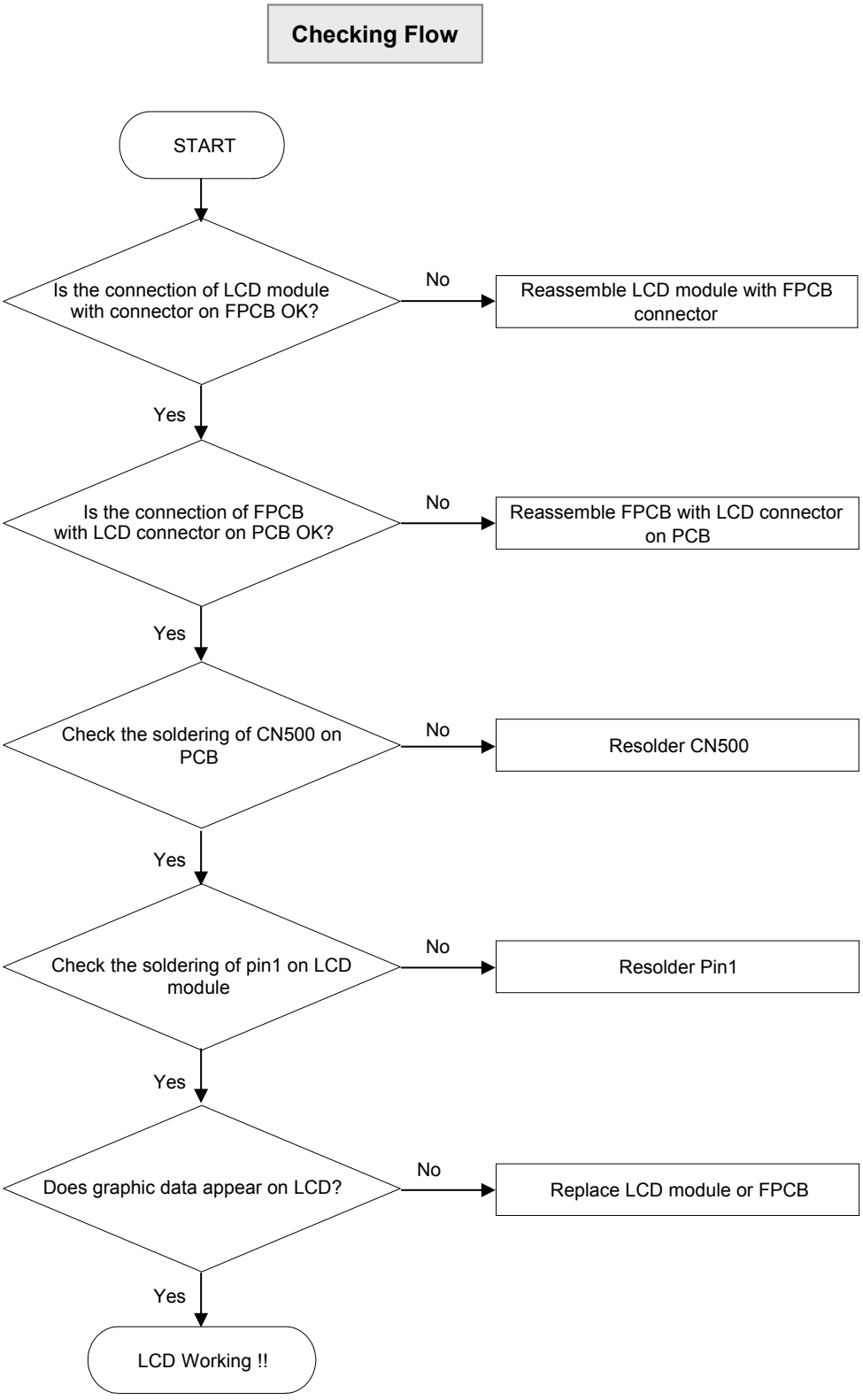


Figure 4-14

Charging part Circuit Diagram



4.6 LCD Trouble.



Test Points

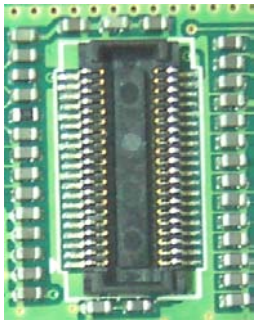


Figure 4-15a
LCD Connector on PCB

Figure 4-15b
LCD Module

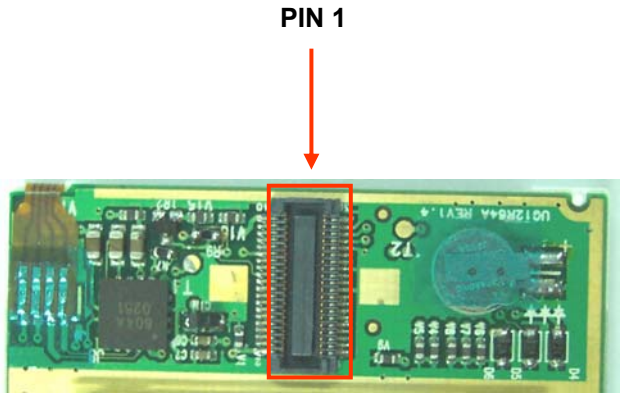


Figure 4-15c
LCD Connector on LCD PCB

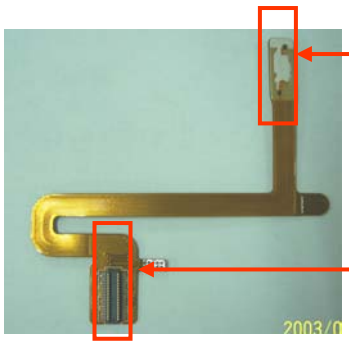
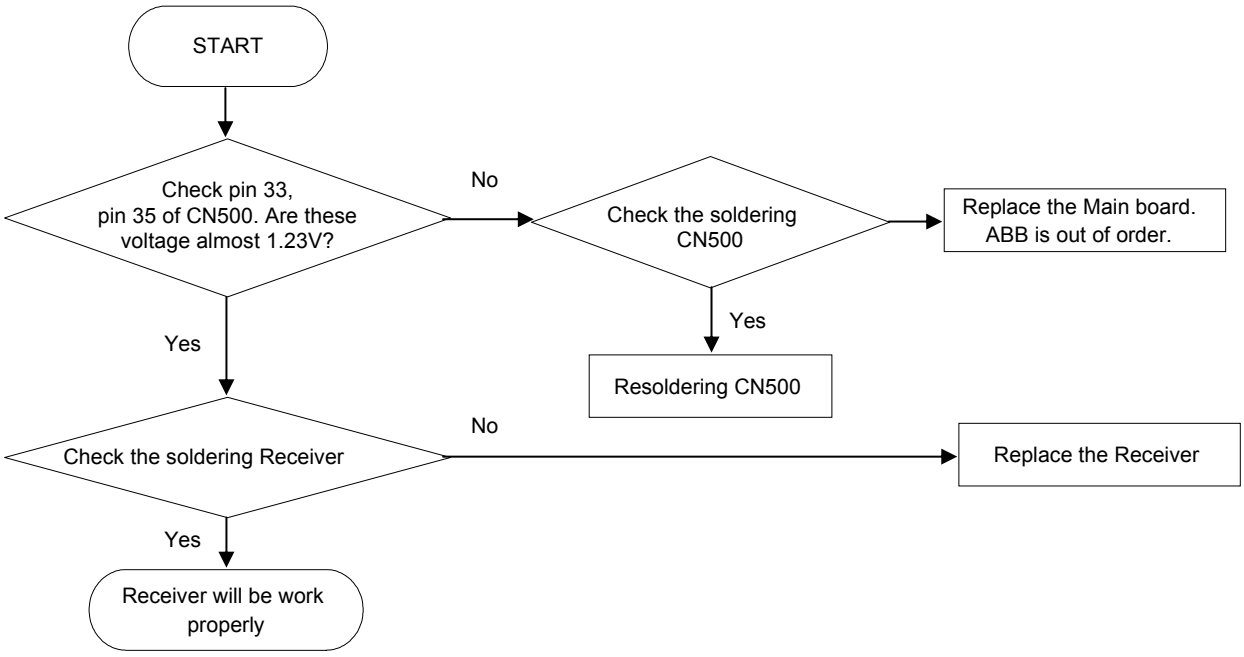


Figure 4-15d
FPCB Ass'y

4.7 Receiver Trouble

SETTING : After initialize Agilent 8960, Test EGSM, DCS mode

Checking Flow



Test Points

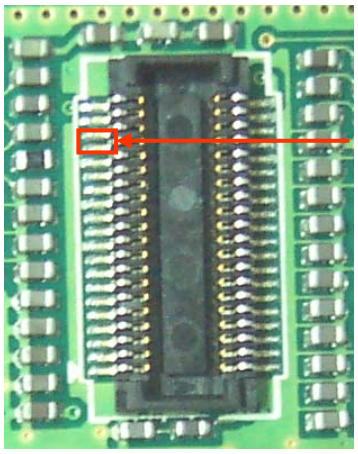
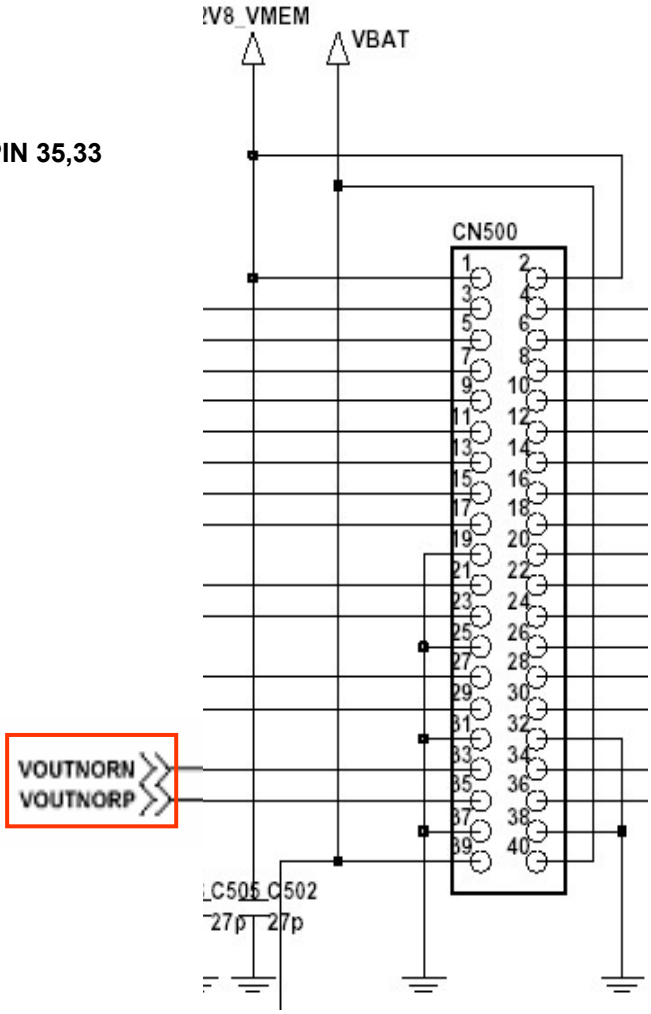


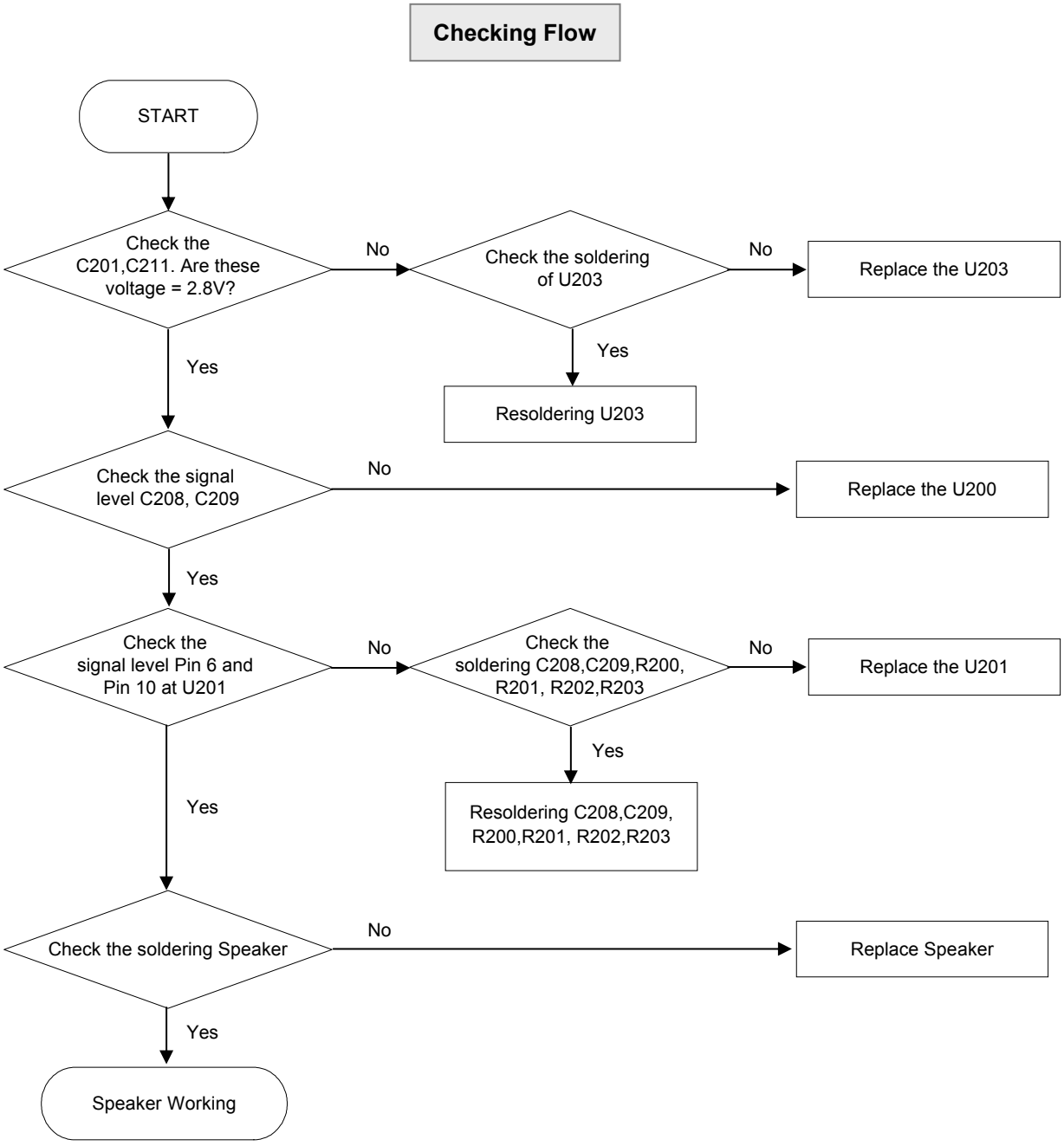
Figure 4-16

Receiver part Circuit Diagram



4.8 Speaker Trouble

SETTING : Connect PIF to the phone, and Power on. Enter the engineering mode, and set "Melodyon" at Buzzer of BB test menu.



Test Points

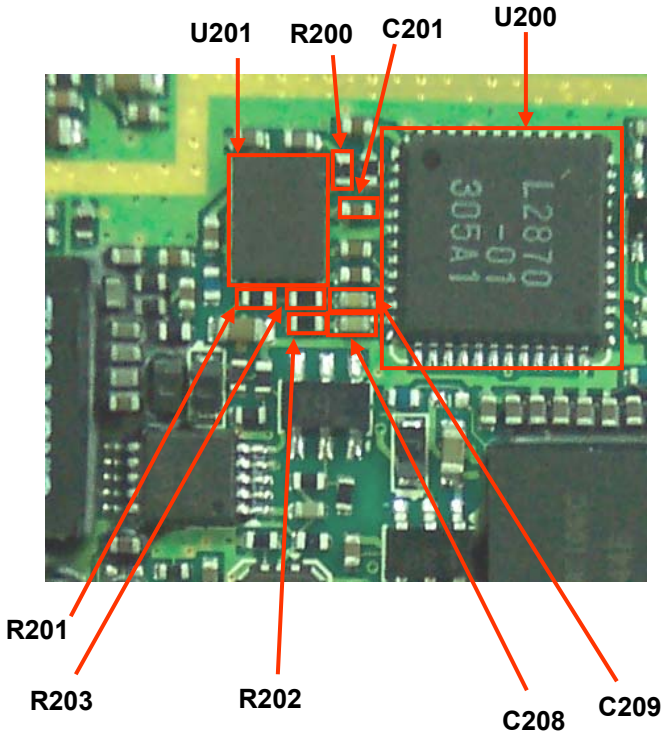
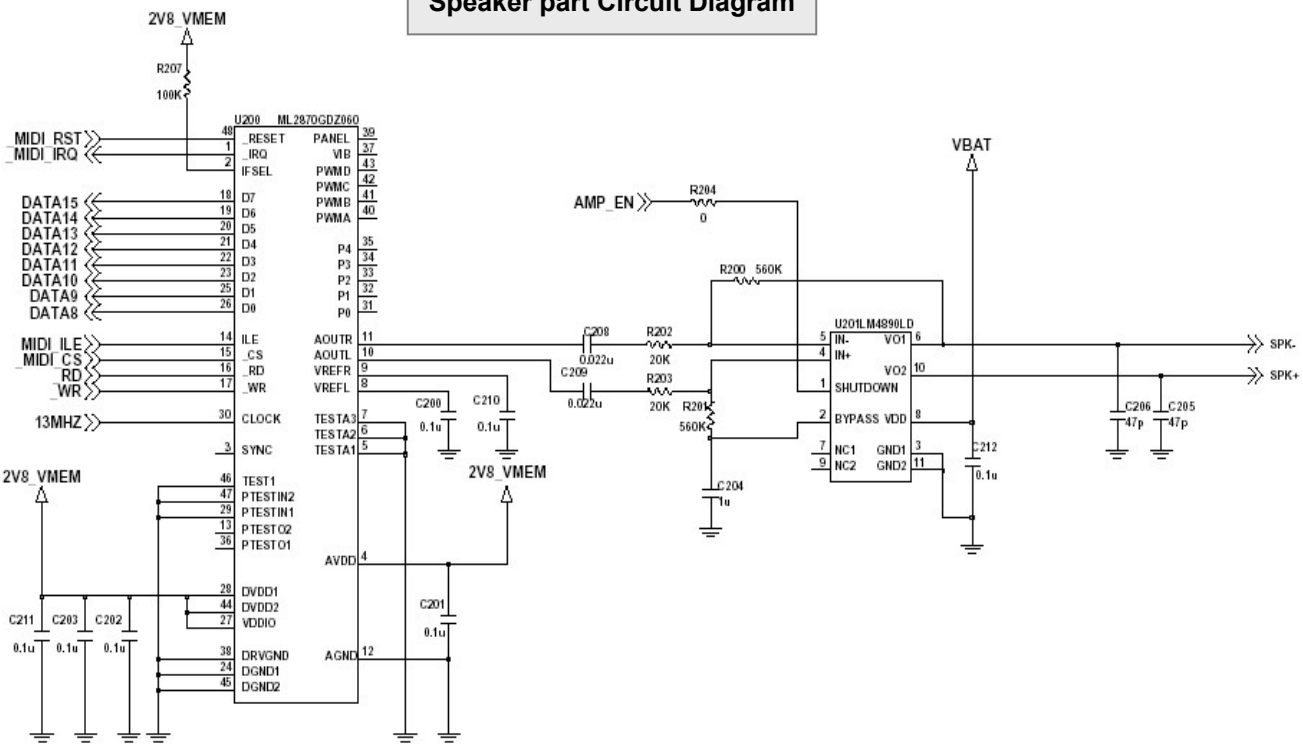


Figure 4-17

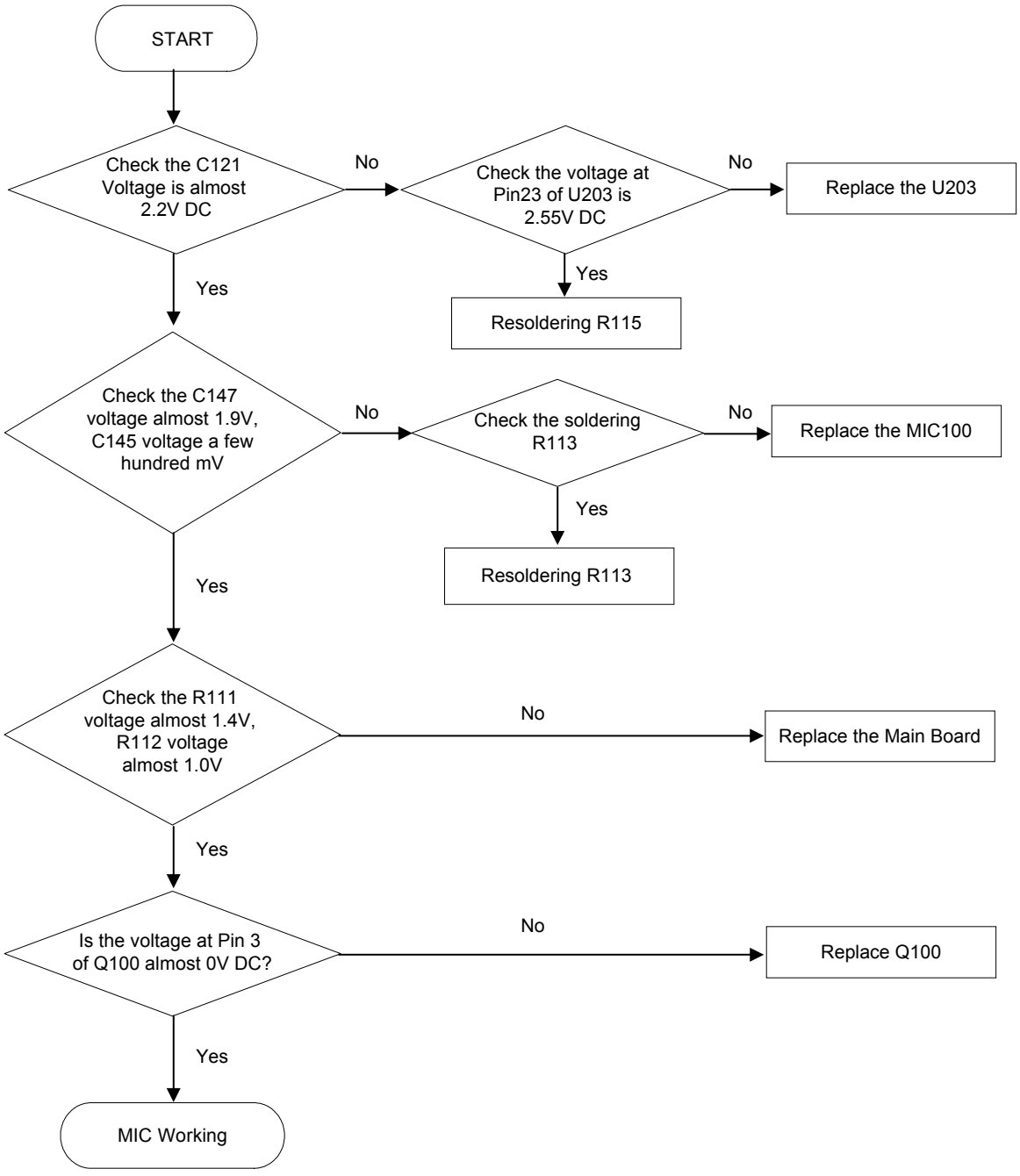
Speaker part Circuit Diagram



4.9 MIC Trouble

SETTING : After initialize Agilent 8960, Test EGSM, DCS mode

Checking Flow



Test Points

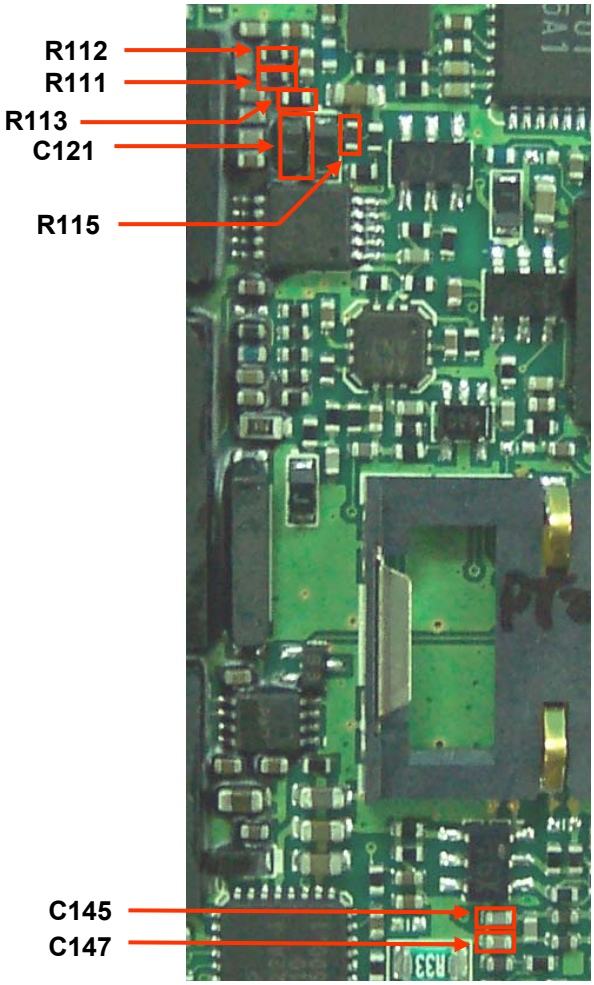
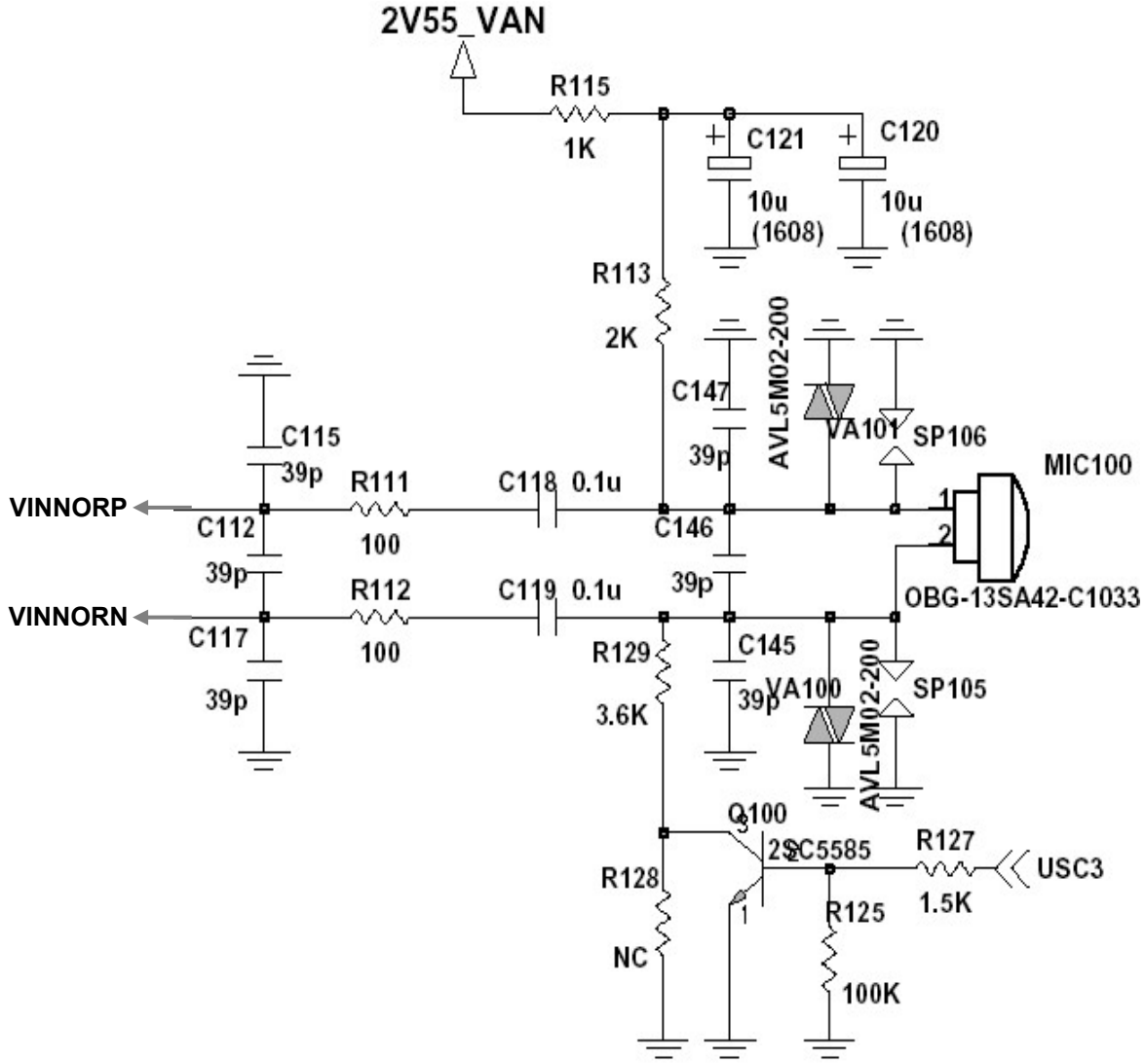


Figure 4-18

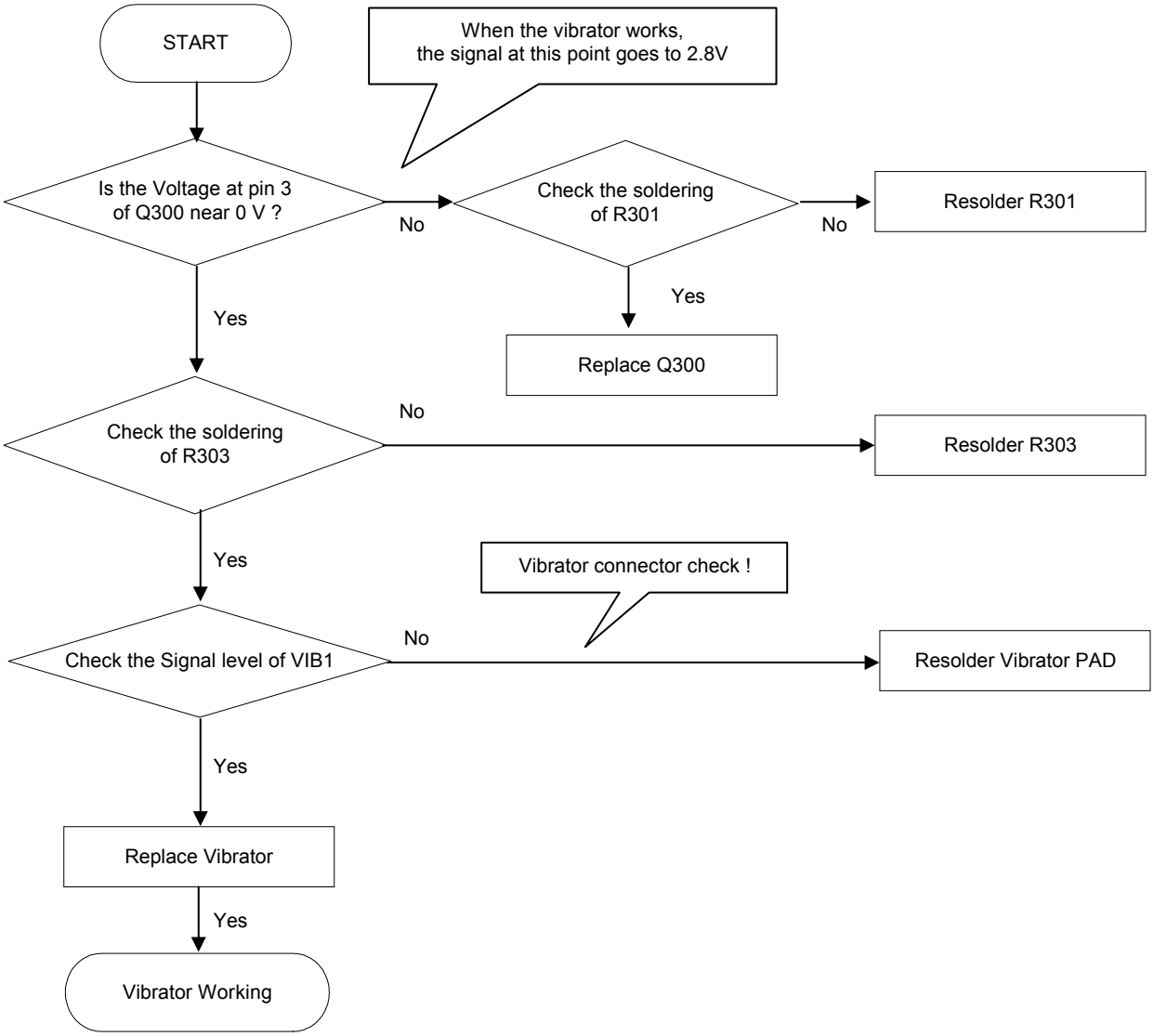
MIC part Circuit Diagram



4.10 Vibrator Trouble

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

Checking Flow



Test Points

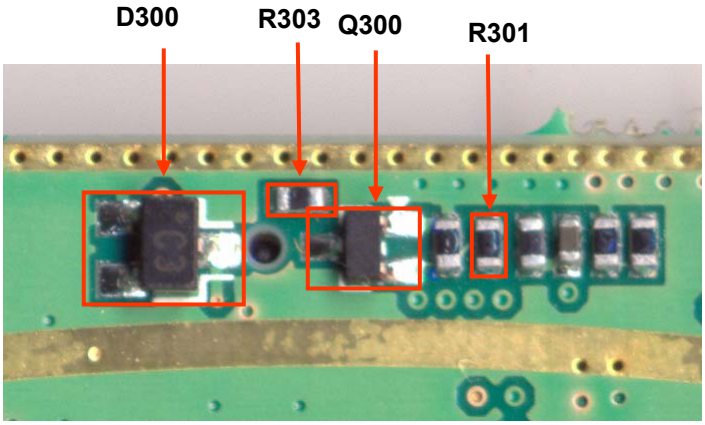
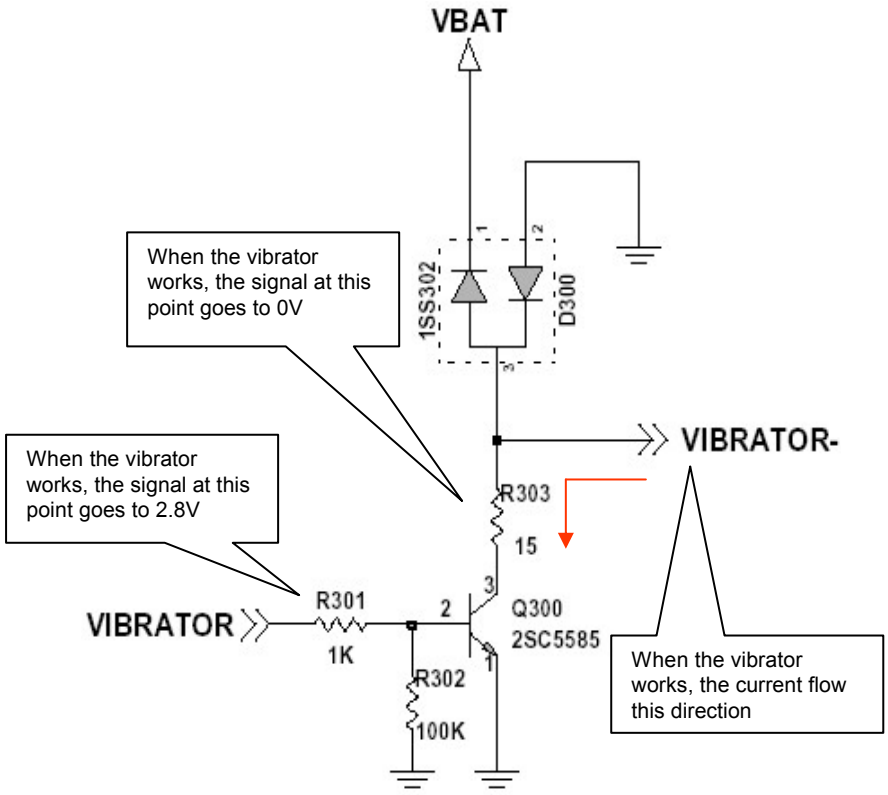


Figure 4-19a

Figure 4-19b
VIB on LCD module

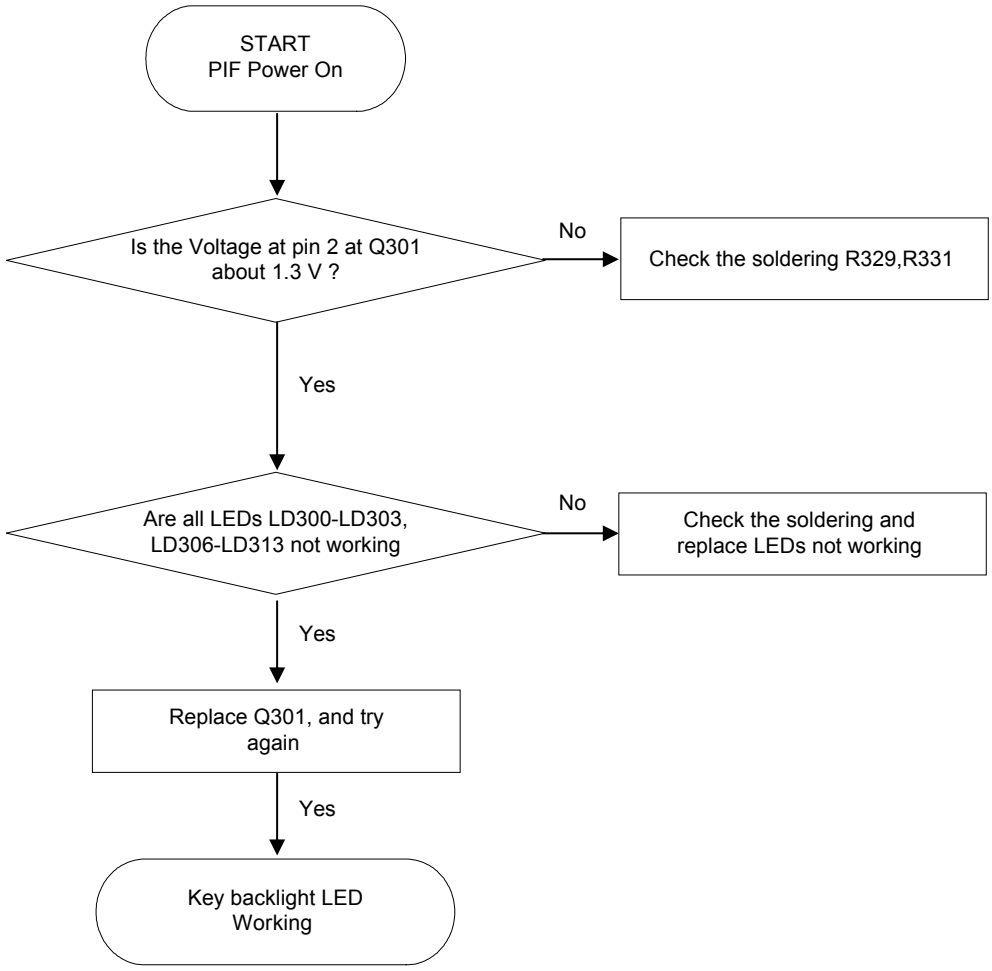
Vibrator part Circuit Diagram



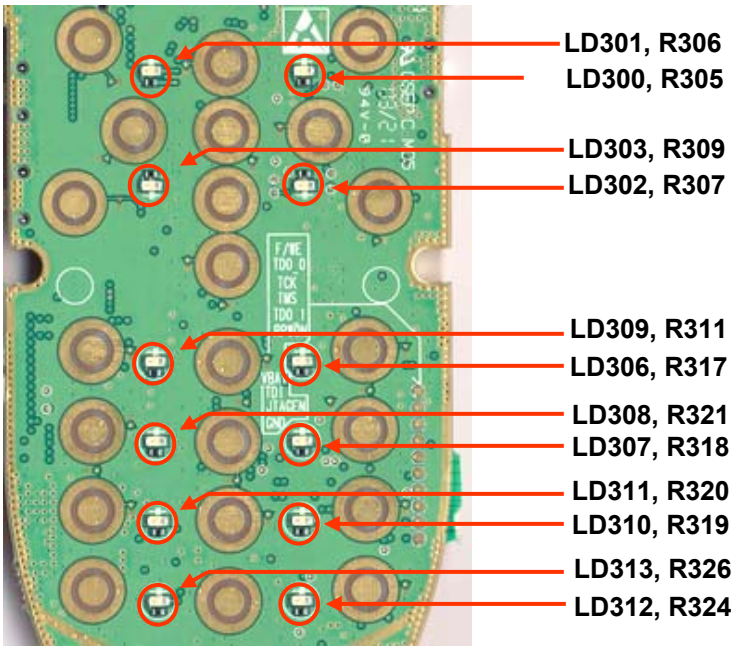
4.11 Key Backlight LED Trouble

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

Checking Flow



Test Points



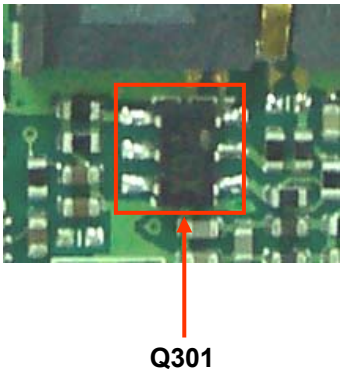
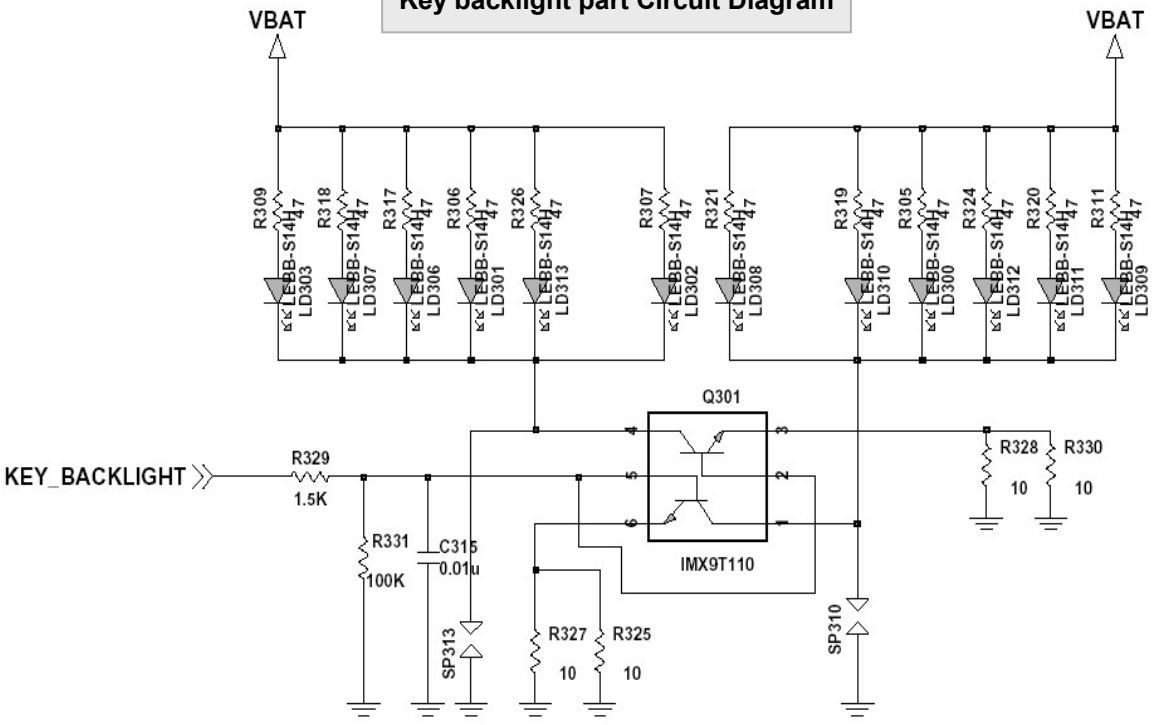


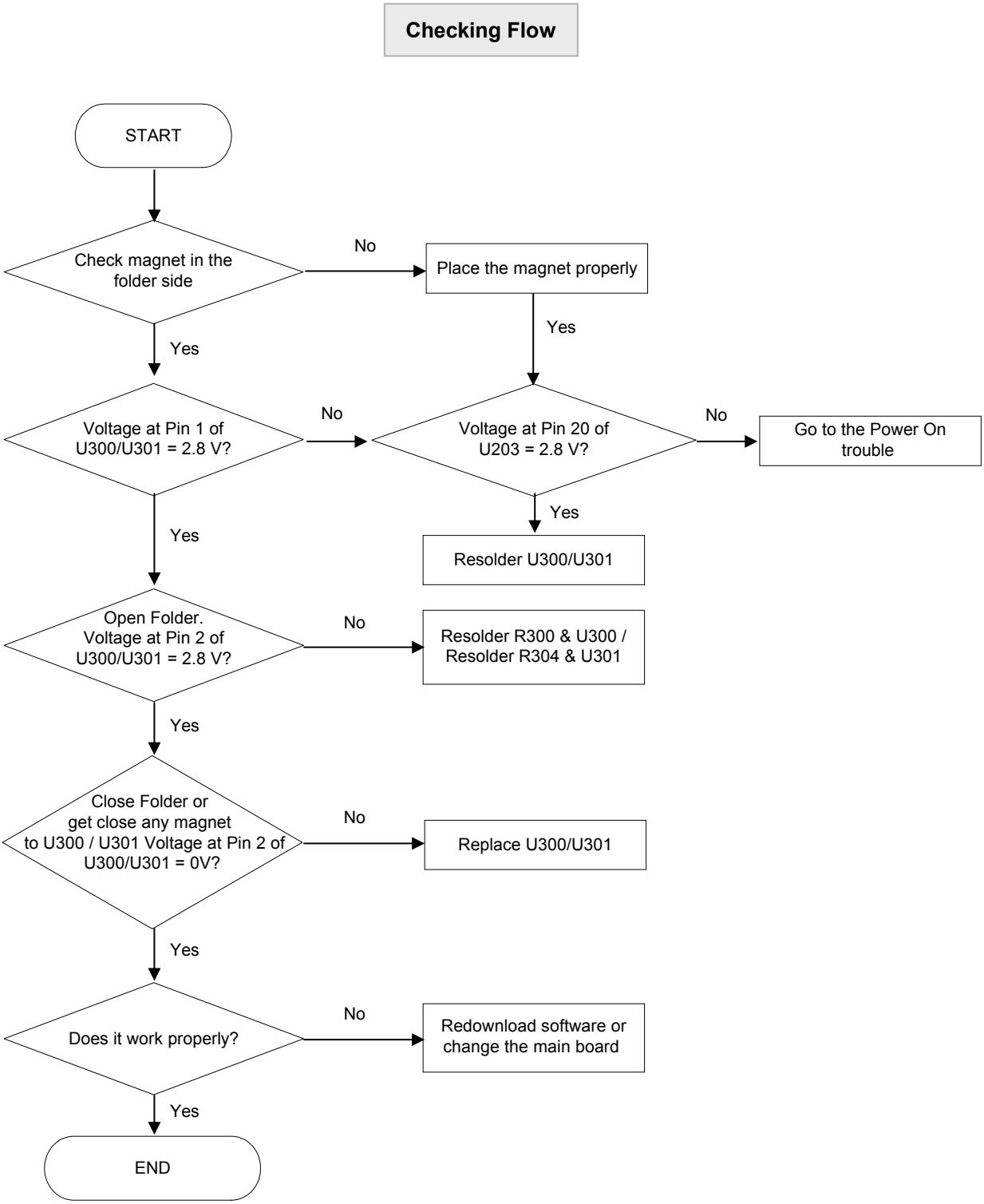
Figure 4-20b

Figure 4-20a

Key backlight part Circuit Diagram



4.12 Folder on/off Trouble



Test Points

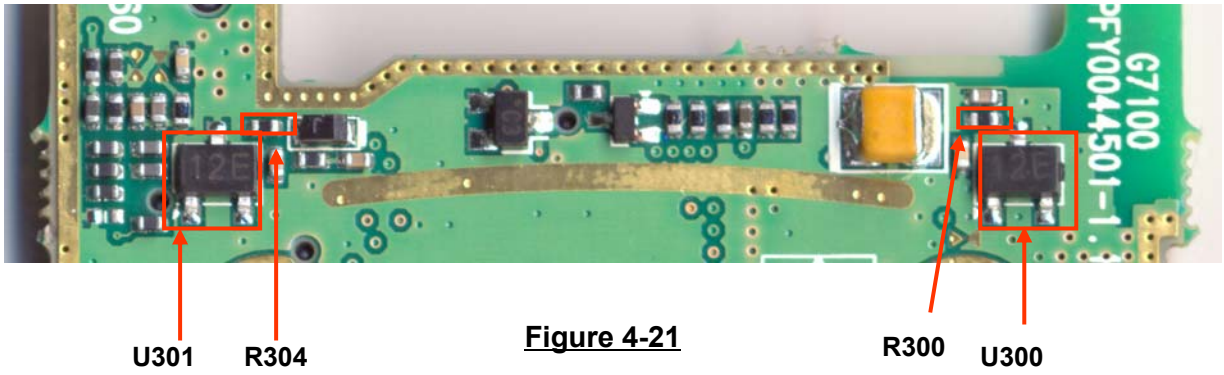
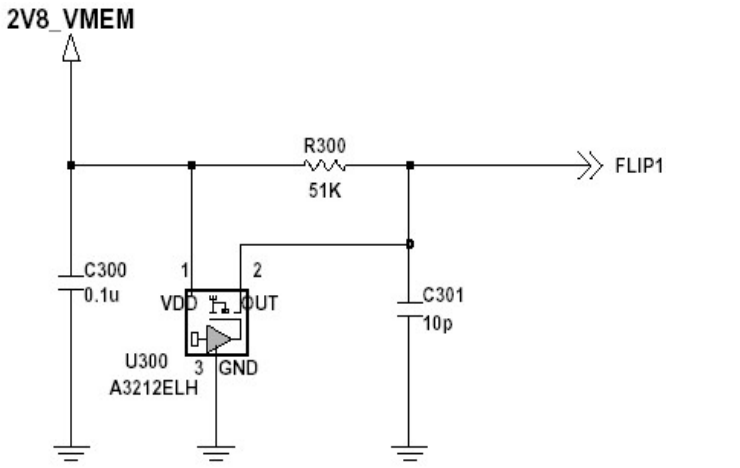
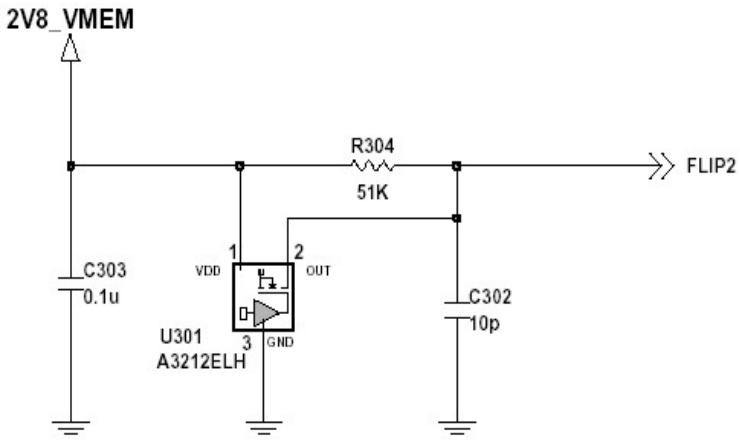


Figure 4-21

Folder on/off part Circuit Diagram

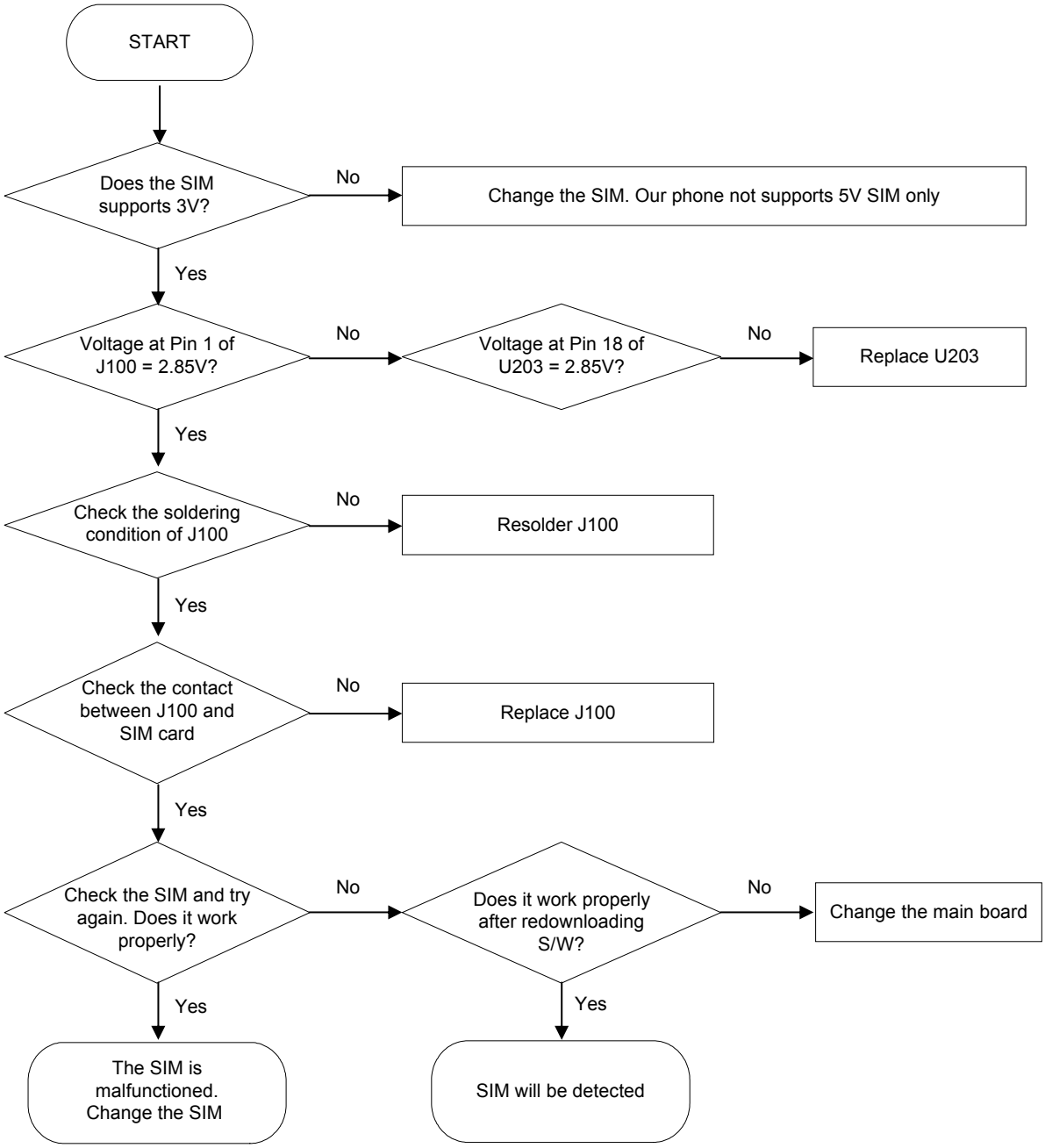




4.13 SIM Detect Trouble

SETTING : Insert the SIM into J100, Connect PIF to the phone, and power on

Checking Flow



Test Points

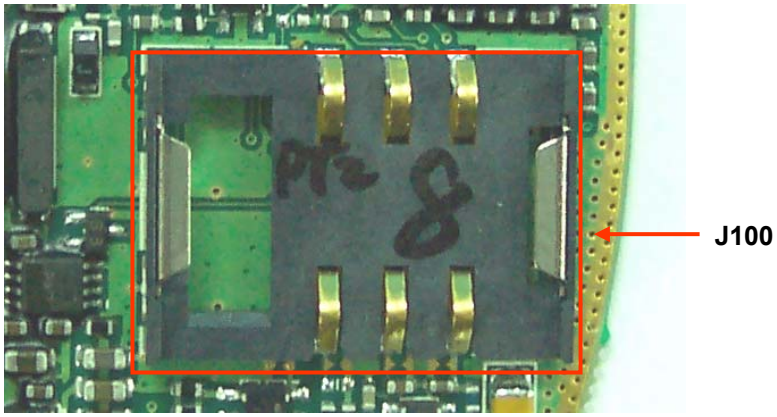
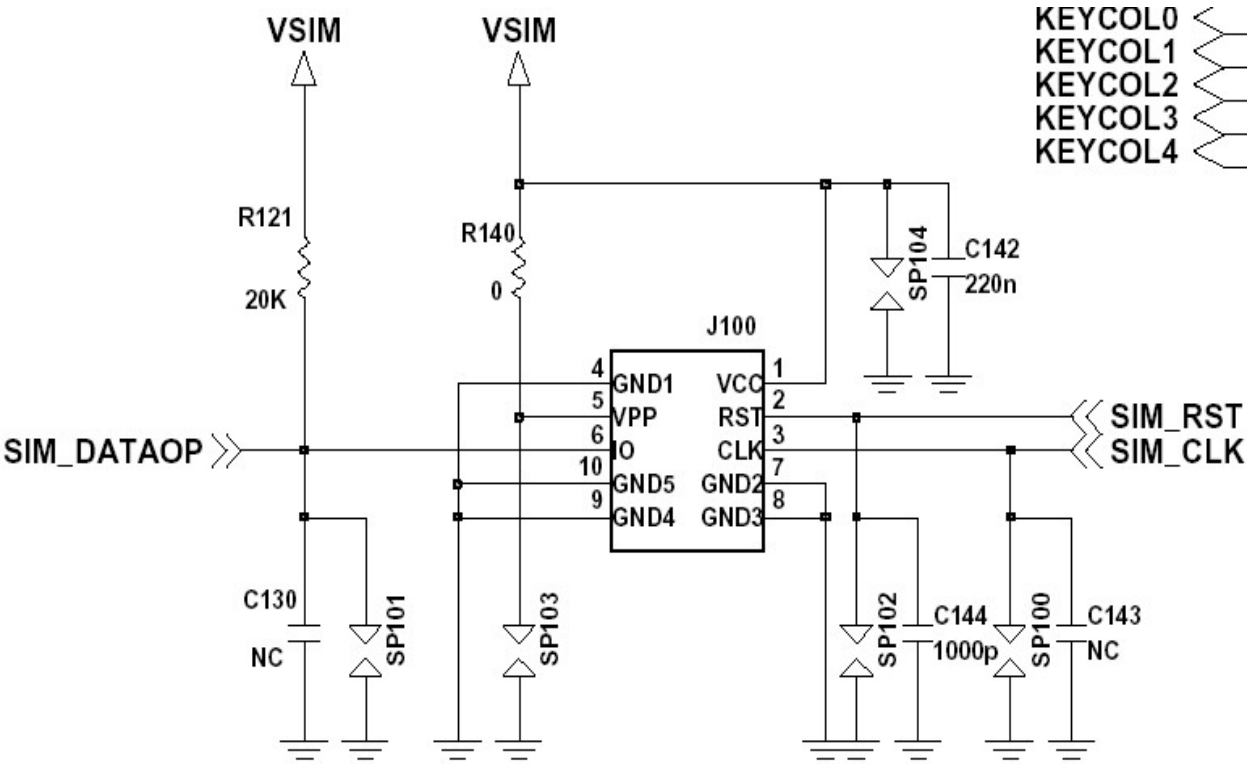


Figure 4-22

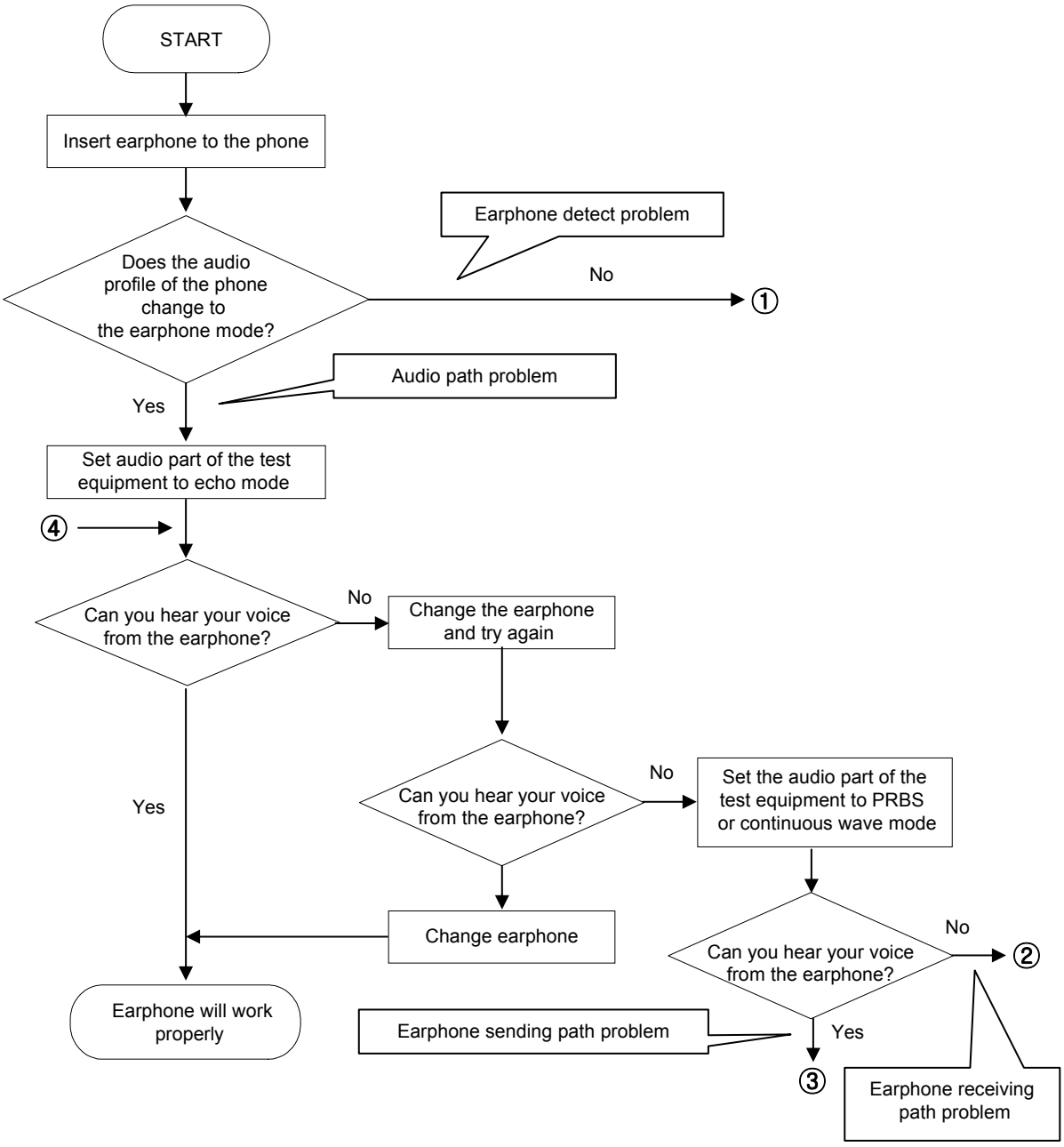
SIM part Circuit Diagram



4.14 Earphone Trouble

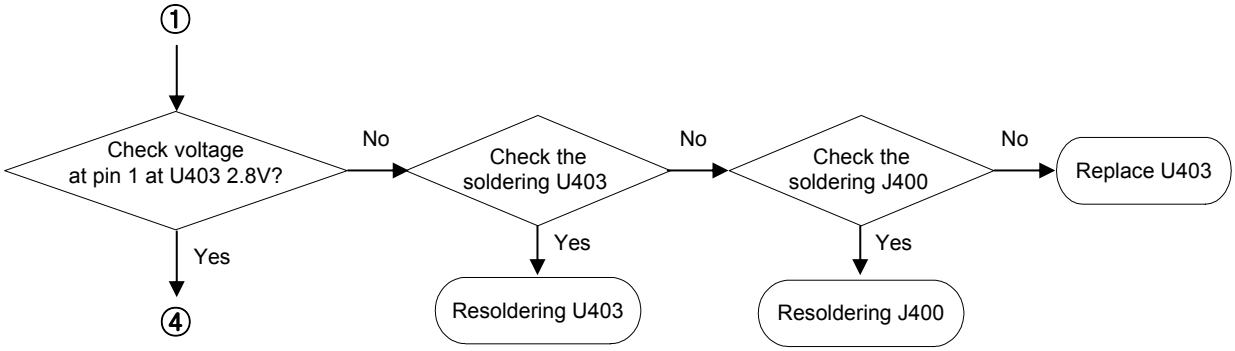
SETTING : After initialize Agilent 8960, Test EGSM,DCS mode

Checking Flow

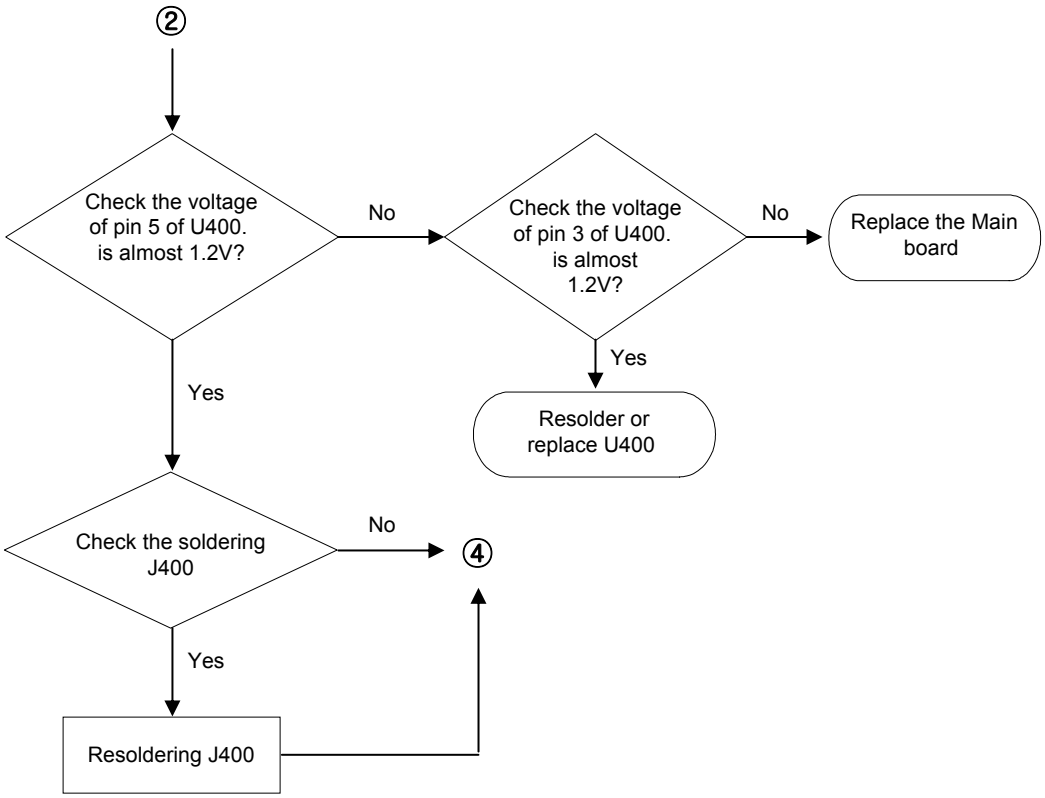


4. TROUBLE SHOOTING

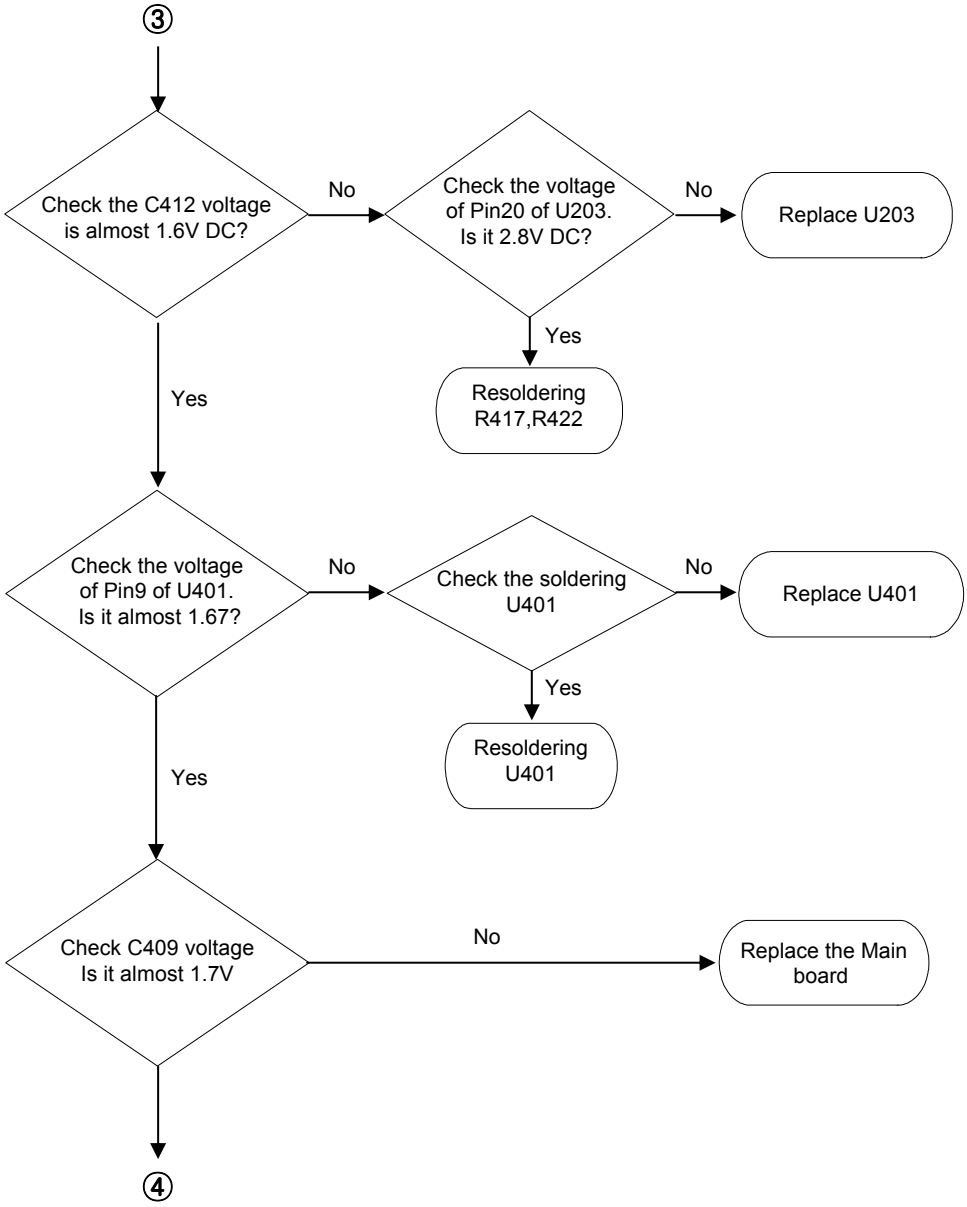
Earphone detect problem



Earphone receiving path problem



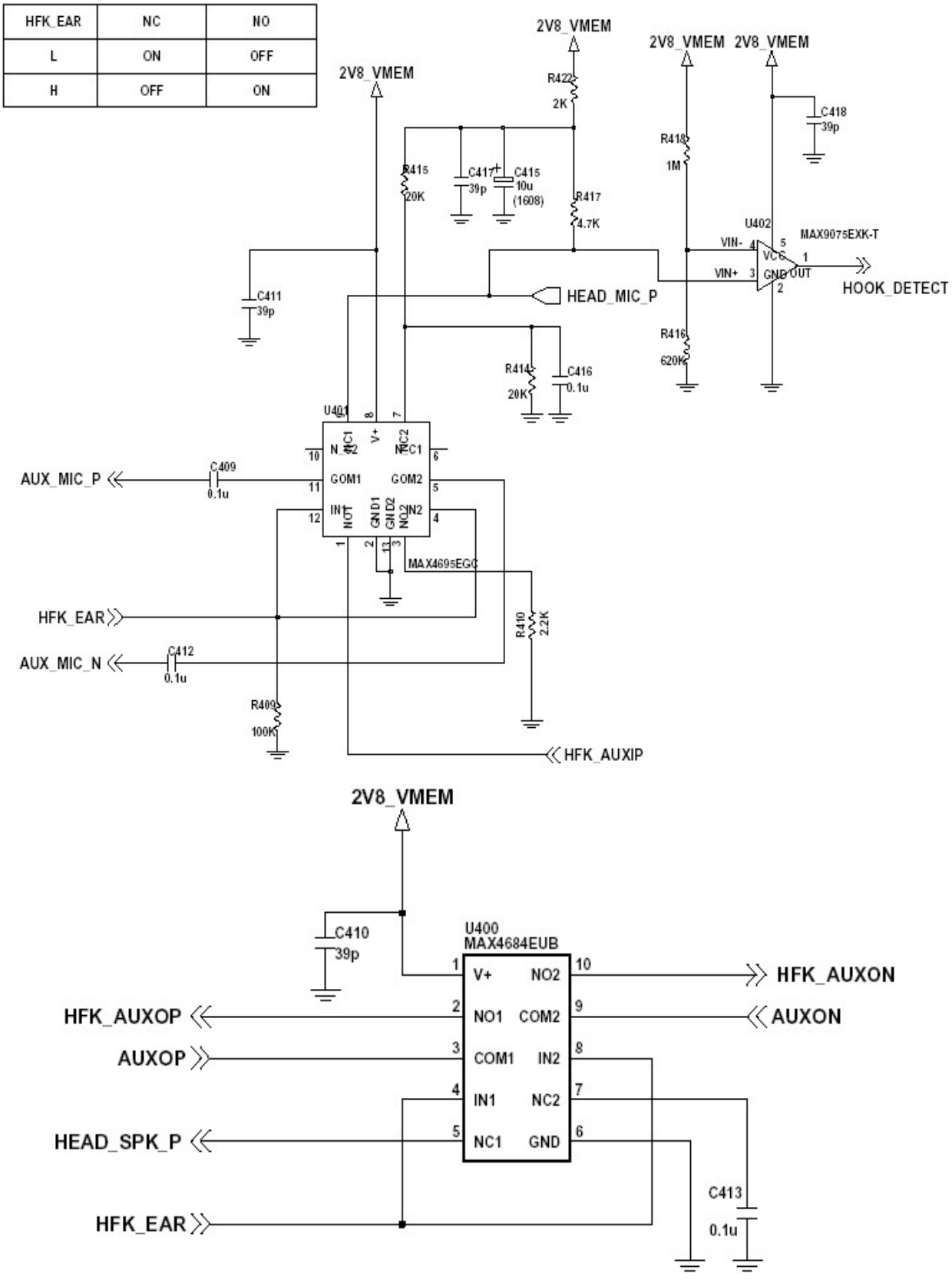
Earphone sending path problem



4. TROUBLE SHOOTING

Earphone part Circuit Diagram

HFK_EAR	NC	NO
L	ON	OFF
H	OFF	ON



Test Points

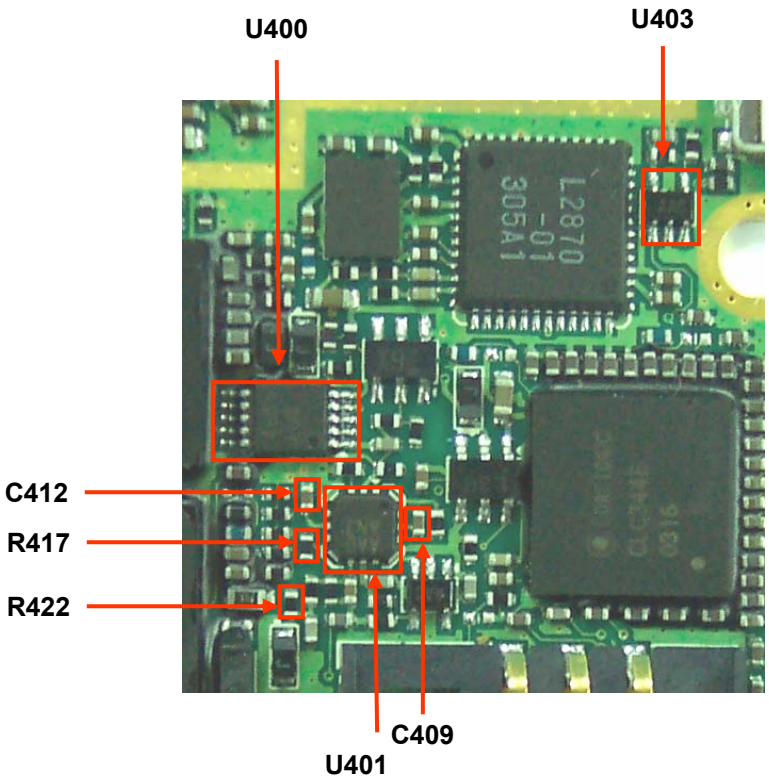


Figure 4-23a

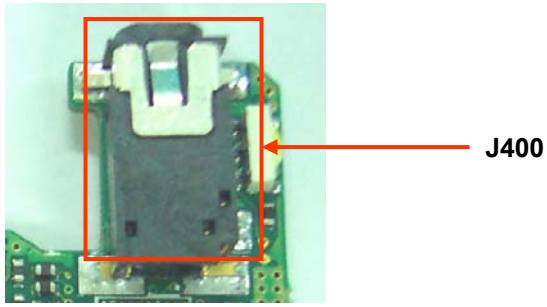
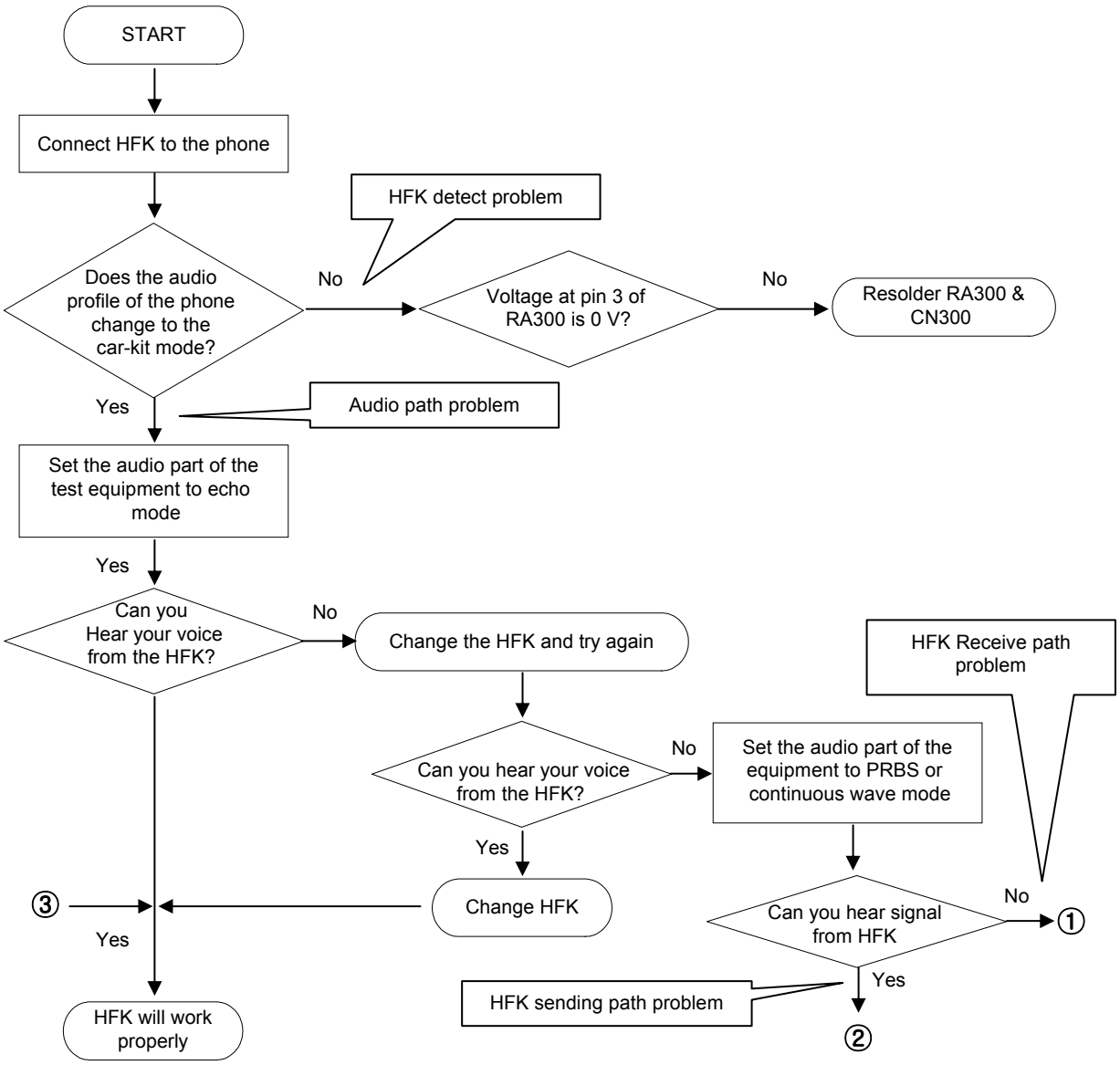


Figure 4-23b

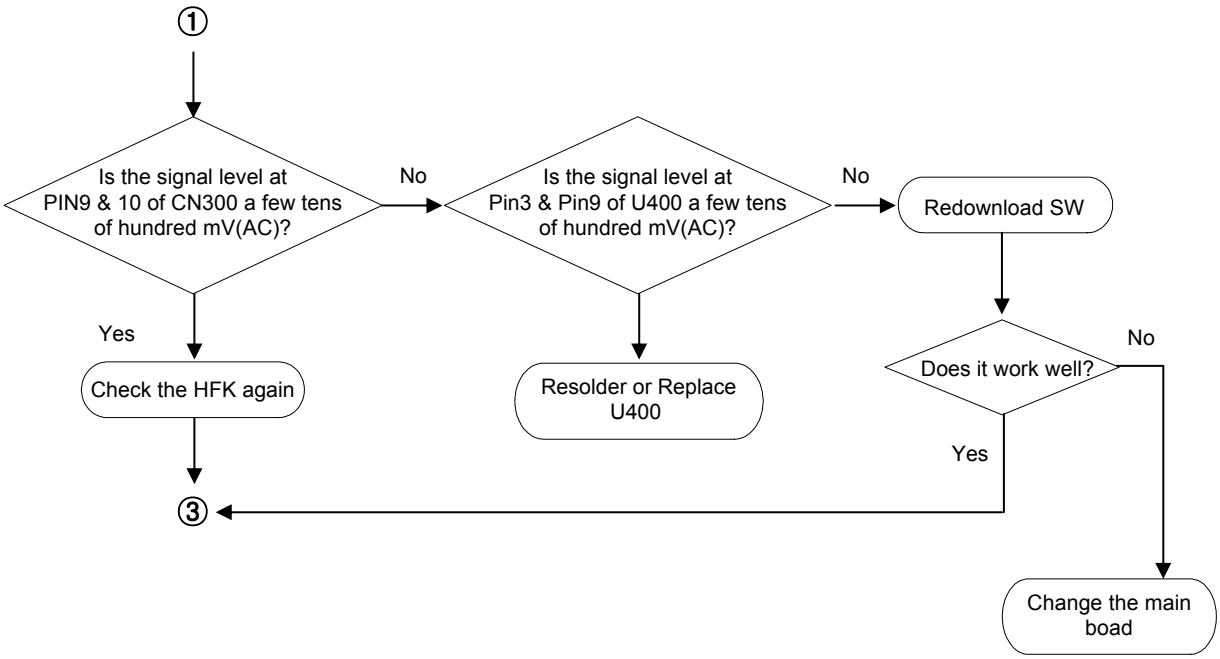
4.15 HFK Trouble

SETTING : After initializing GSM test equipment, connect PIF to the phone, and Power on

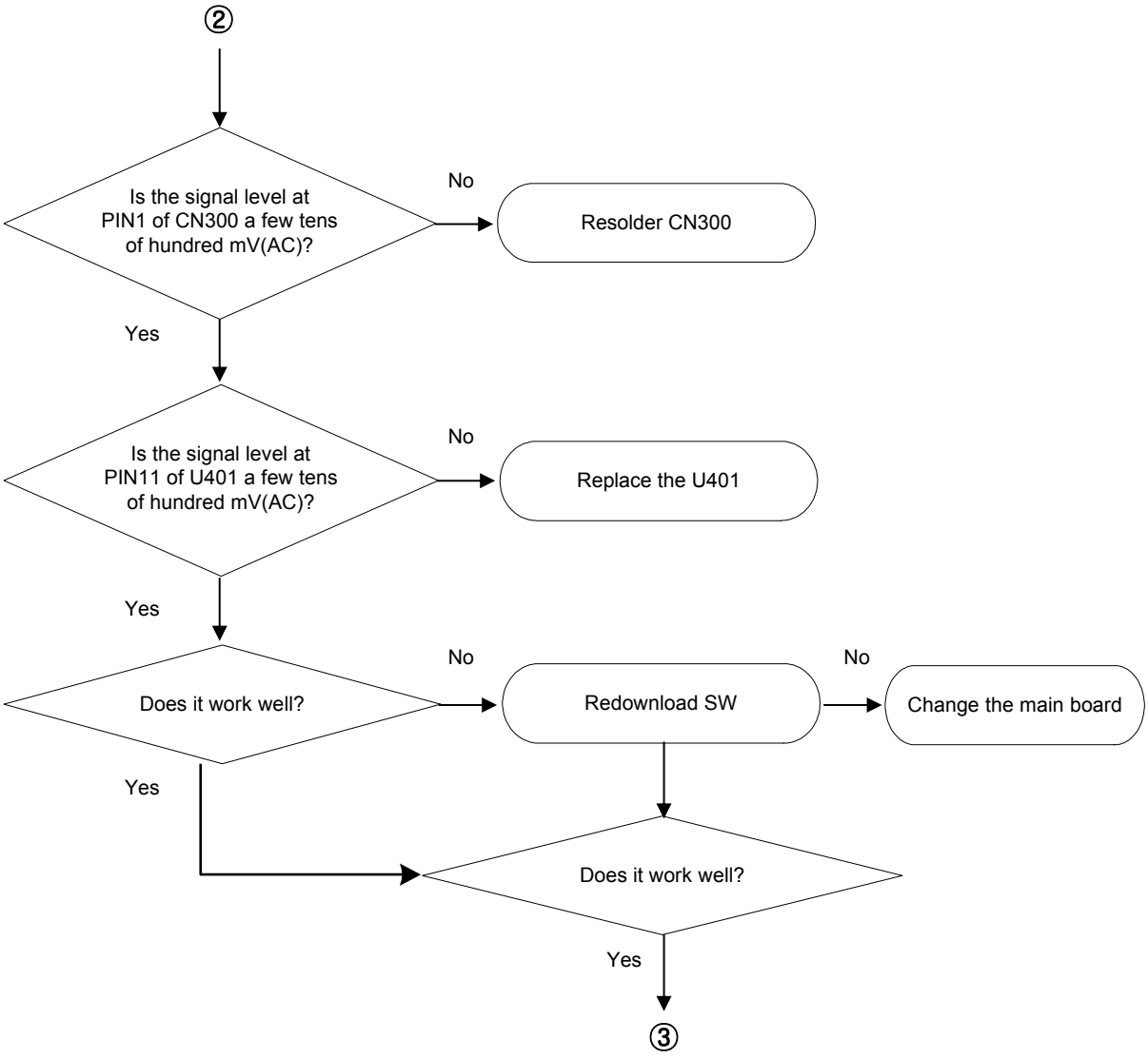
Checking Flow



HFK Receiving path problem

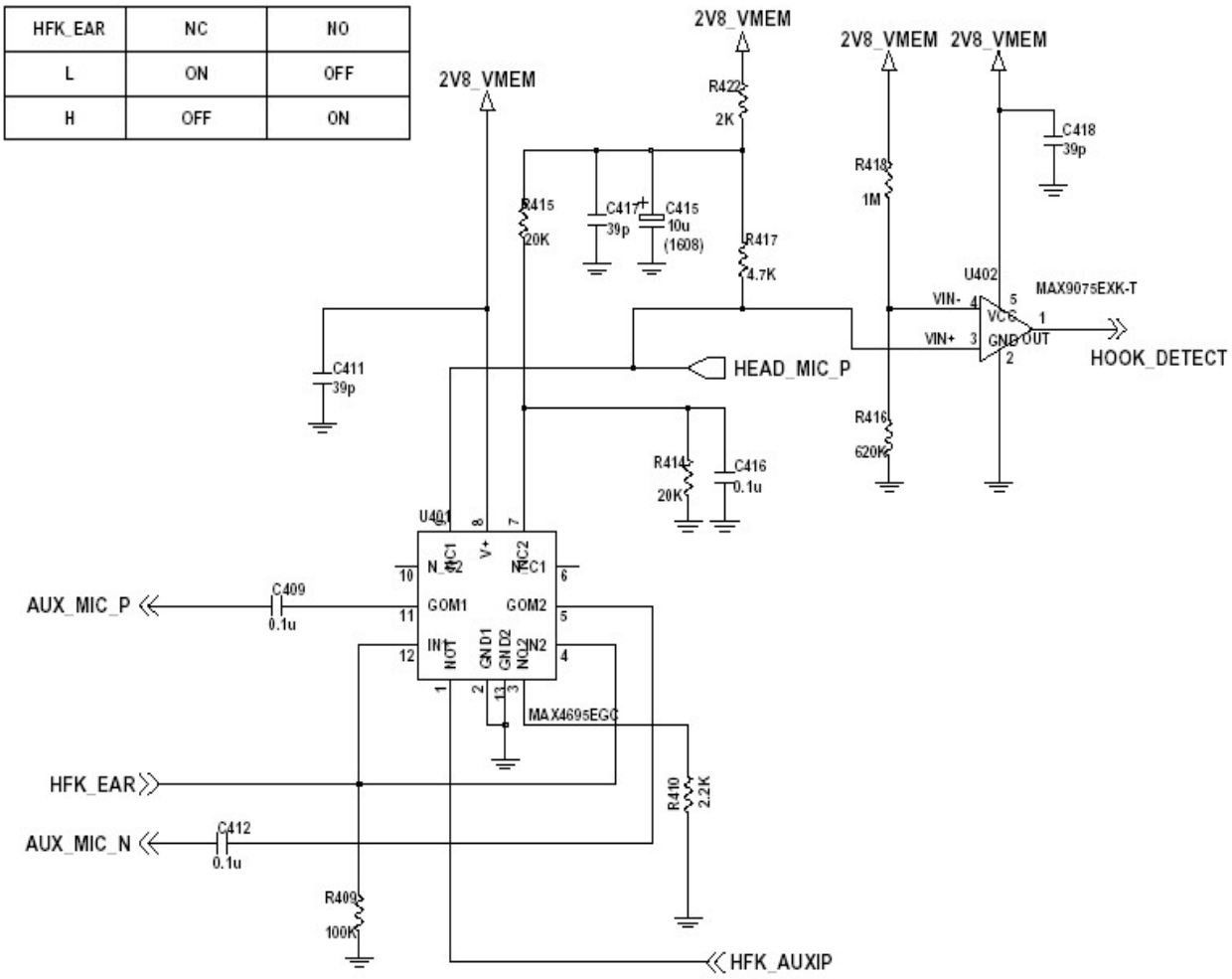


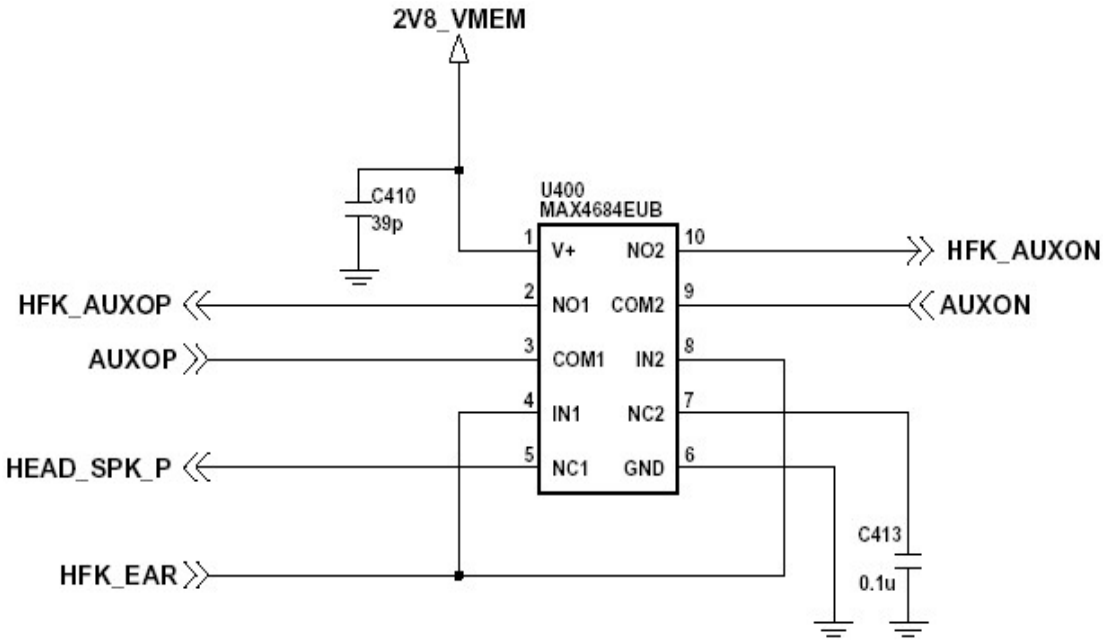
HFK Sending path problem

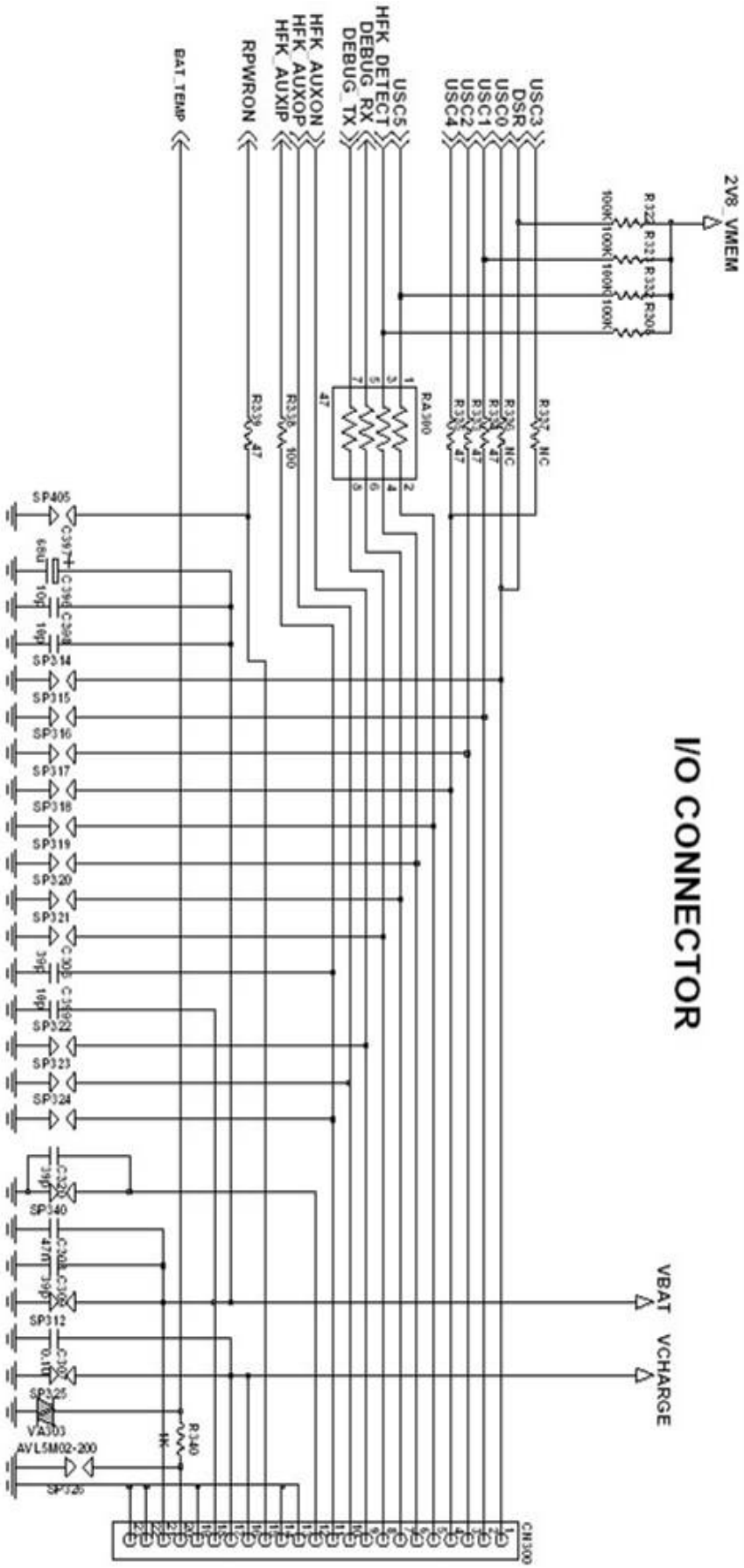


HFK part Circuit Diagram

HFK_EAR	NC	NO
L	ON	OFF
H	OFF	ON






I/O CONNECTOR
2V8_VMEM
USC3
DSR
USC0
USC1
USC2
USC4
USC5
HFK_DETECT
DEBUG_RX
DEBUG_TX
HFK_AUXON
HFK_AUXOP
HFK_AUXIP
RPWRON
BAT_TEMP
VBAT
VCHARGE
CN300
RA300
AVL5M02-200

Test Points

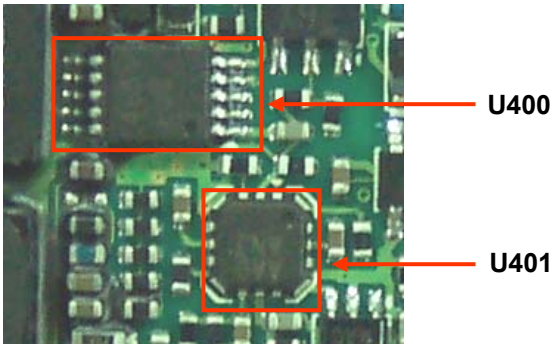


Figure 4-24a

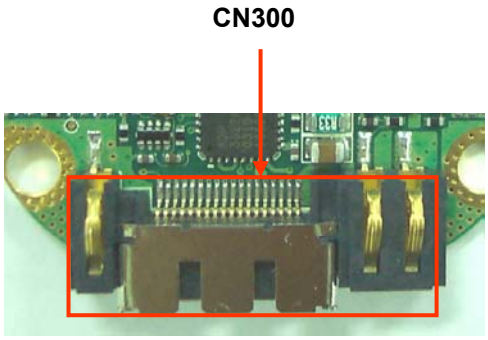
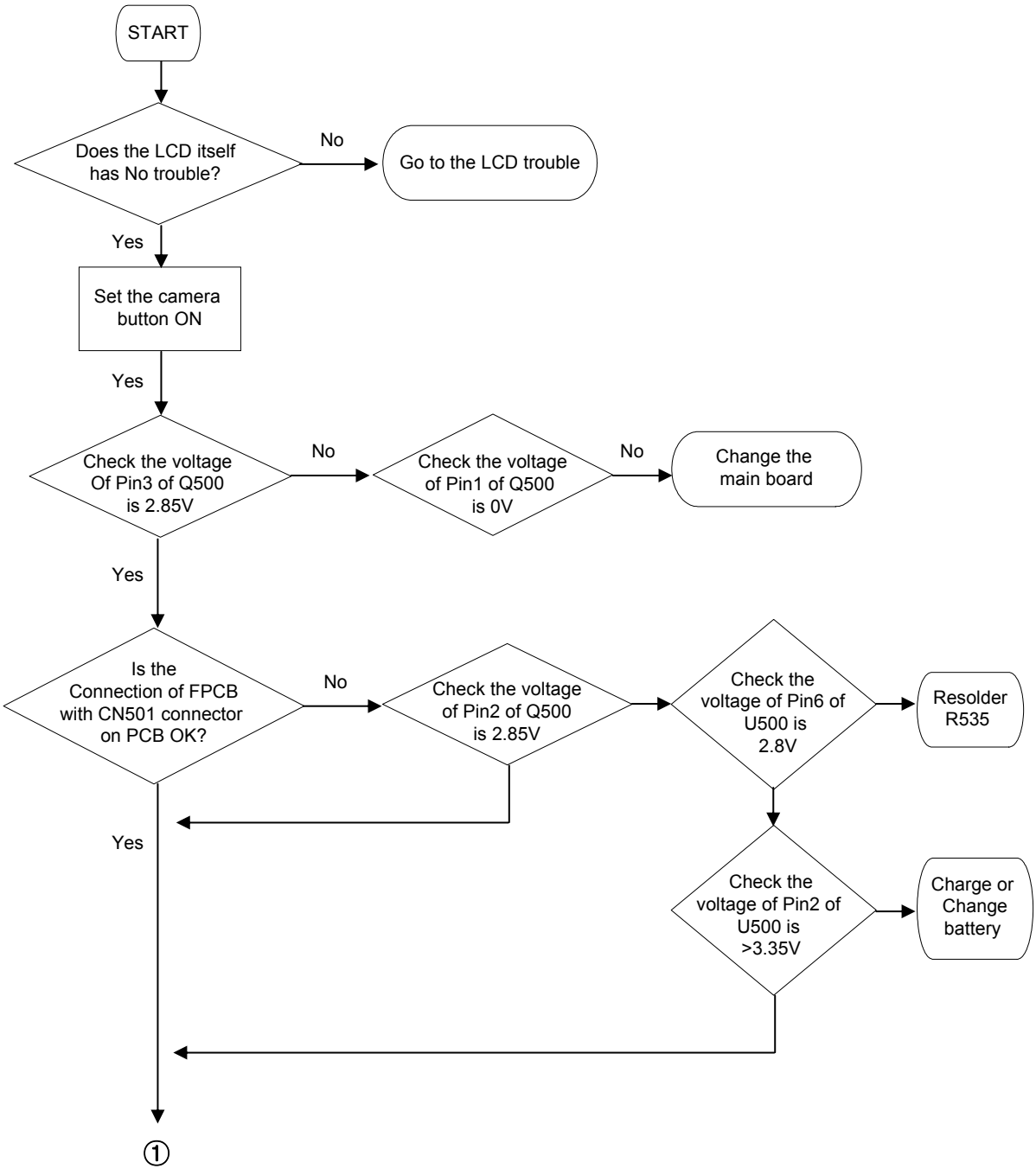


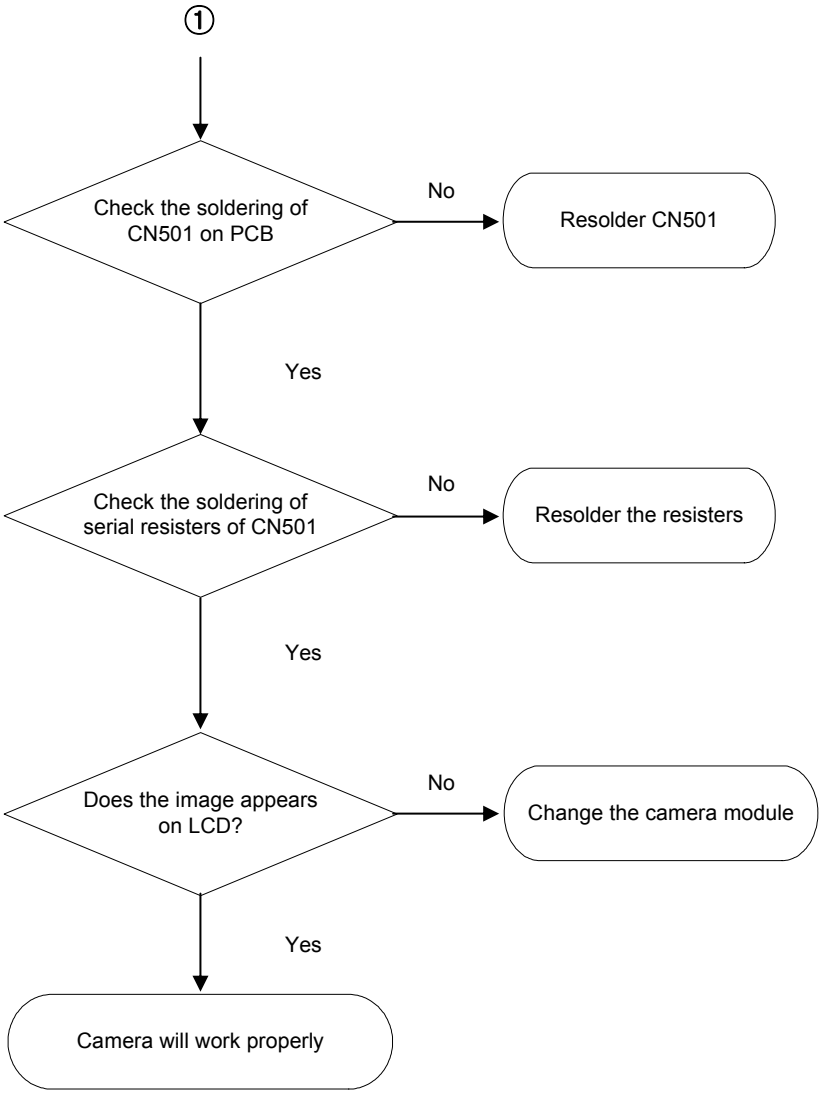
Figure 4-24b CN300

4.16 CAMERA Trouble

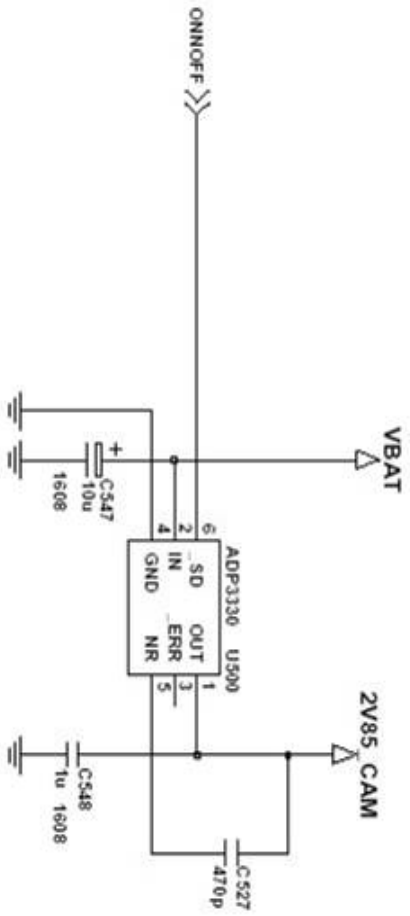
SETTING : Connect PIF, and set remote switch ON at PIF

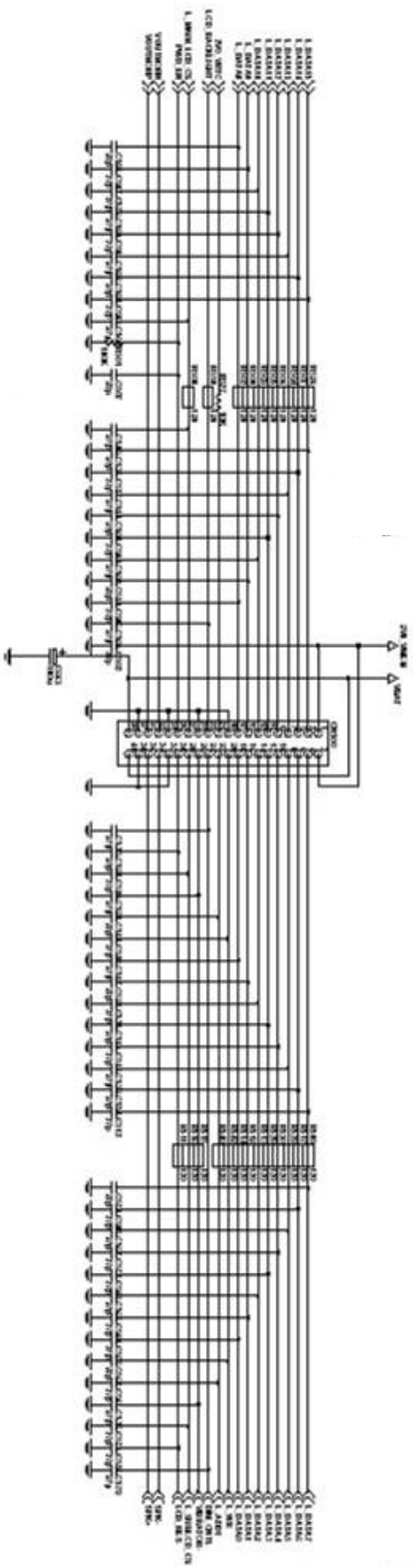
Checking Flow




①
Check the soldering of CN501 on PCB
No
Resolder CN501
Yes
Check the soldering of serial resisters of CN501
No
Resolder the resisters
Yes
Does the image appears on LCD?
No
Change the camera module
Yes
Camera will work properly

Camera part Circuit Diagram





Test Points

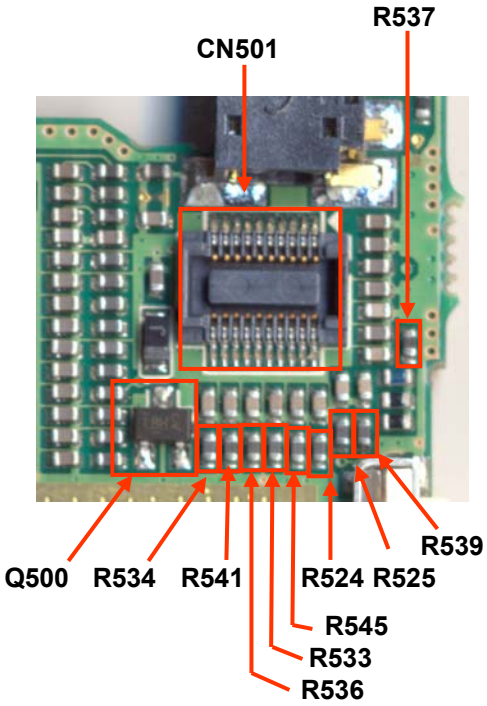


Figure 4-25a

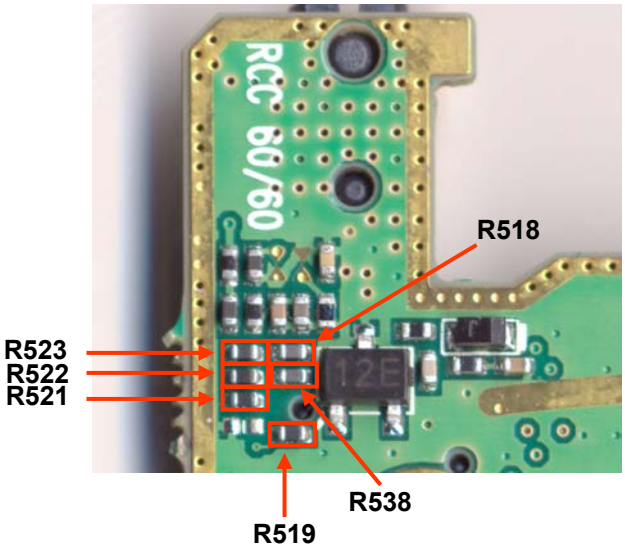
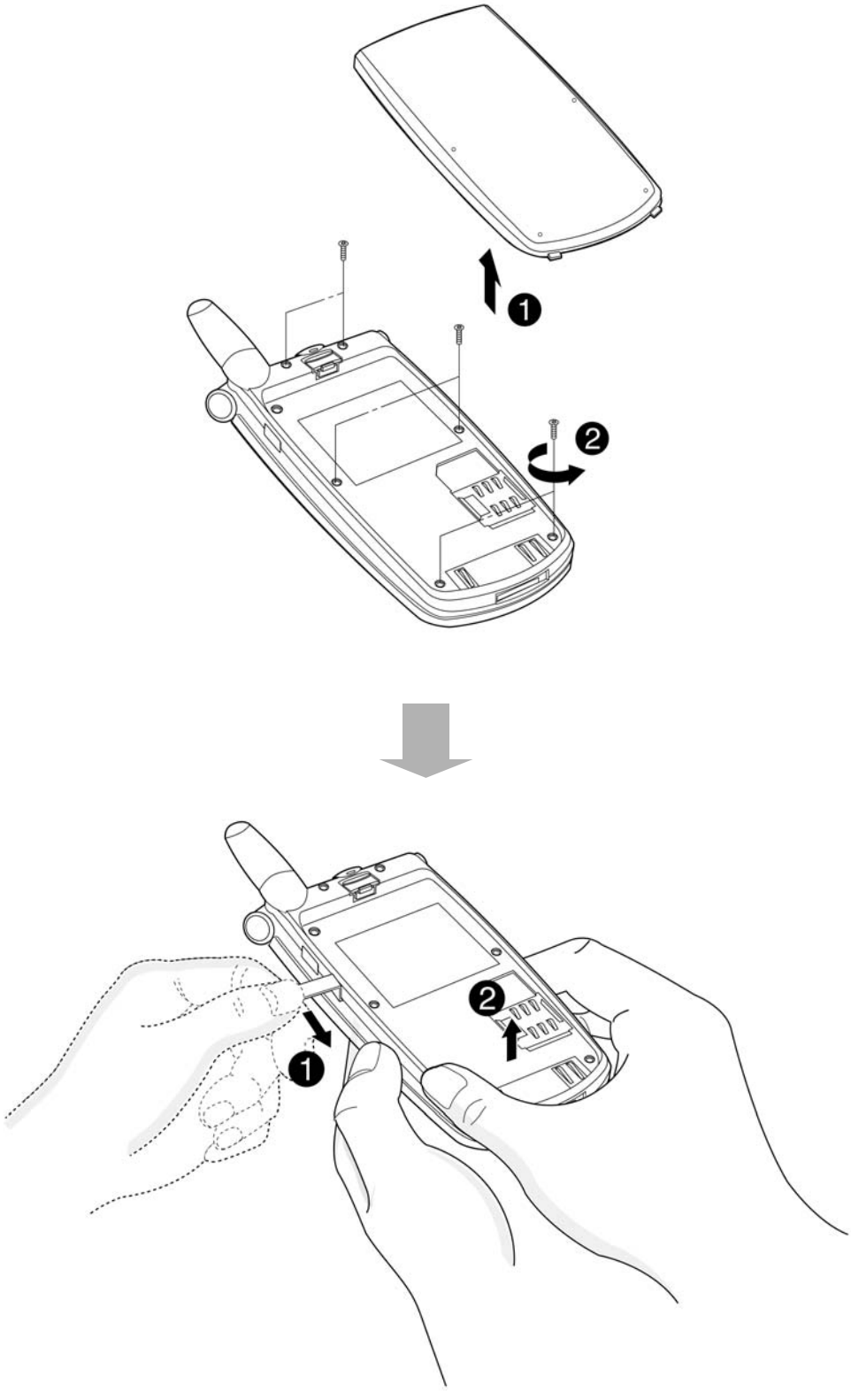
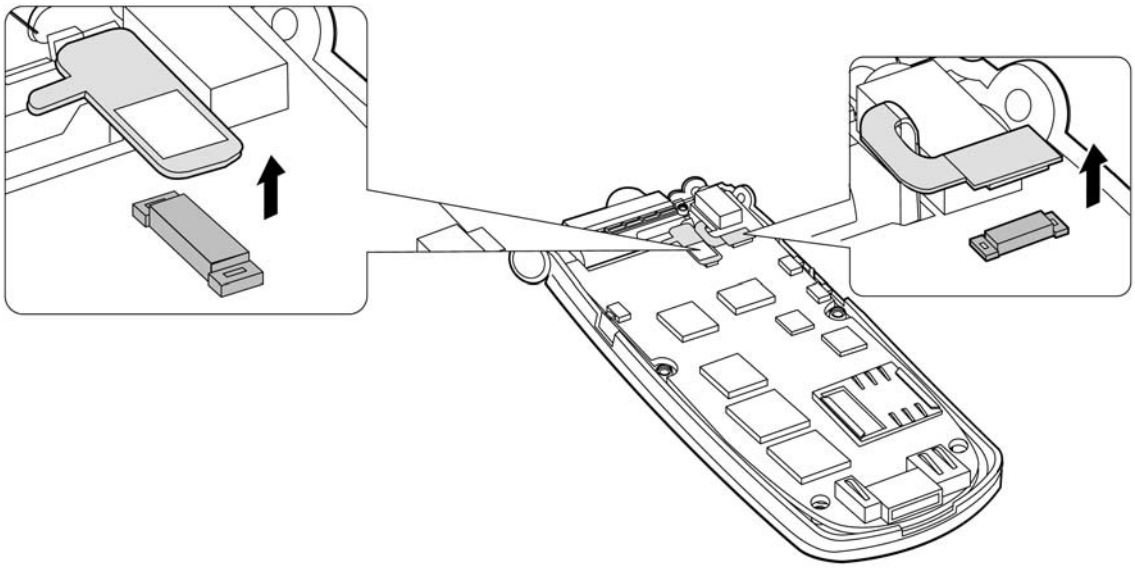


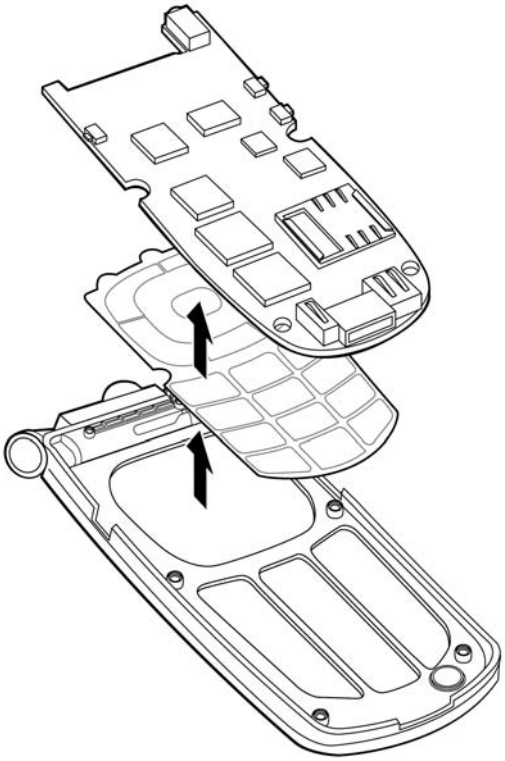
Figure 4-25b

5. DISASSEMBLY INSTRUCTION

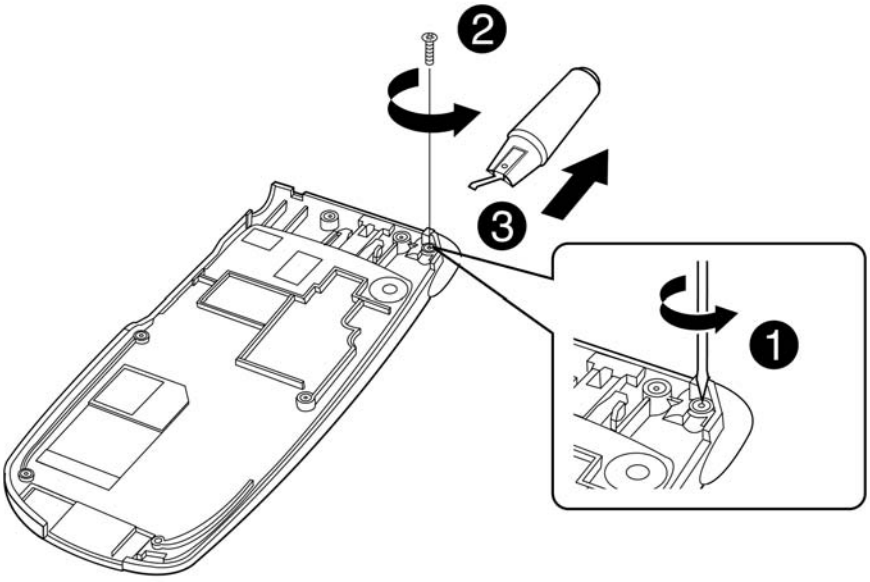
5.1 Disassembly

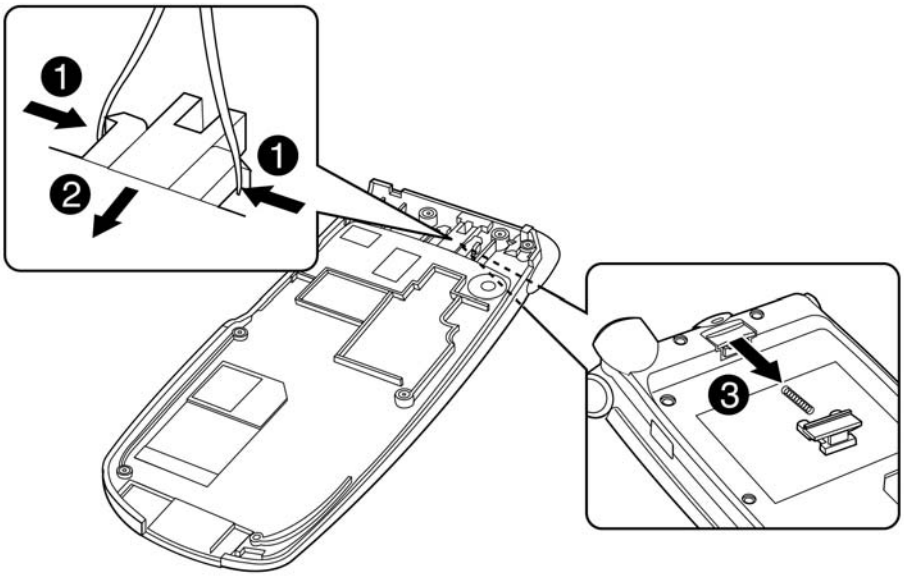


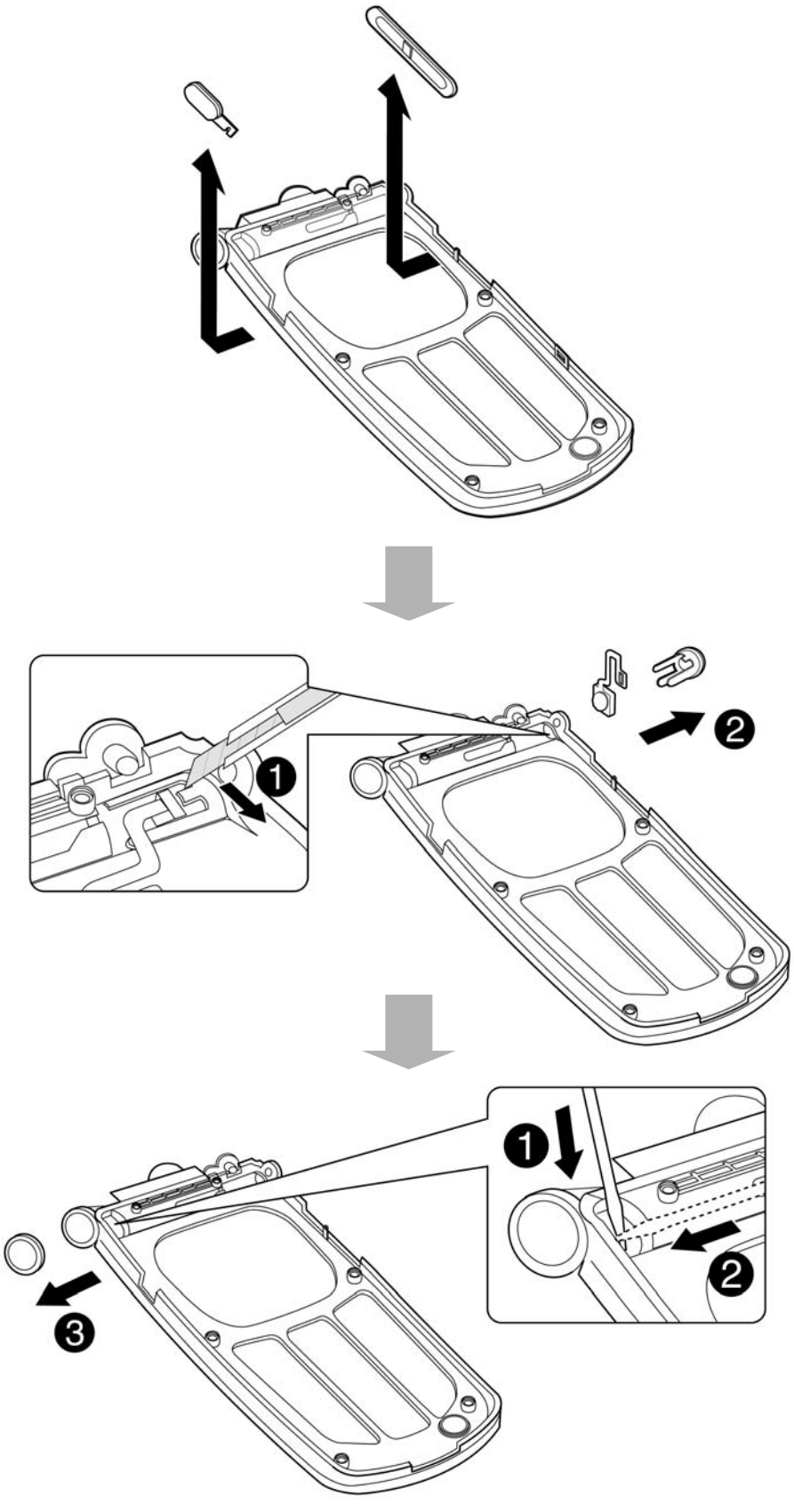




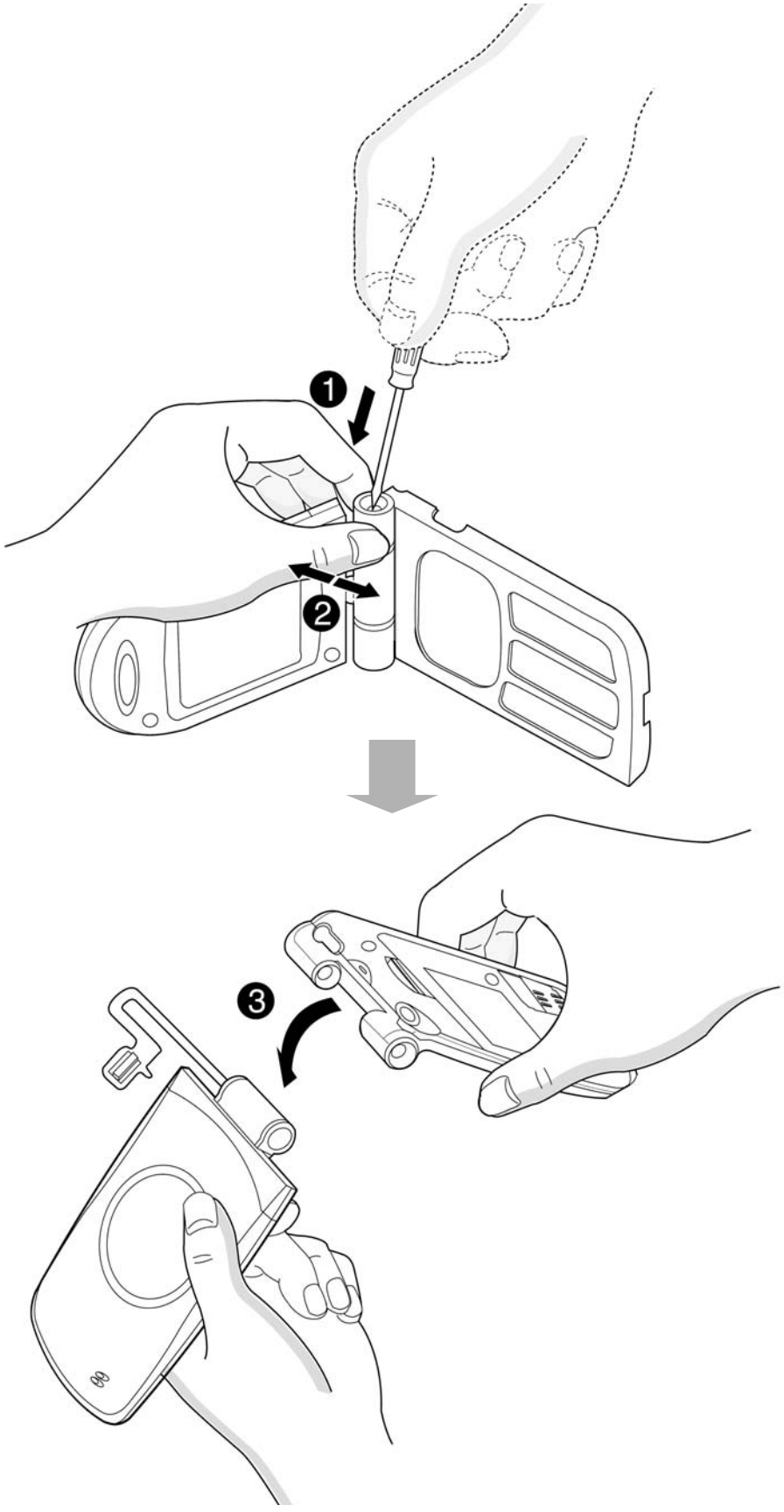
5. DISASSEMBLY INSTRUCTION

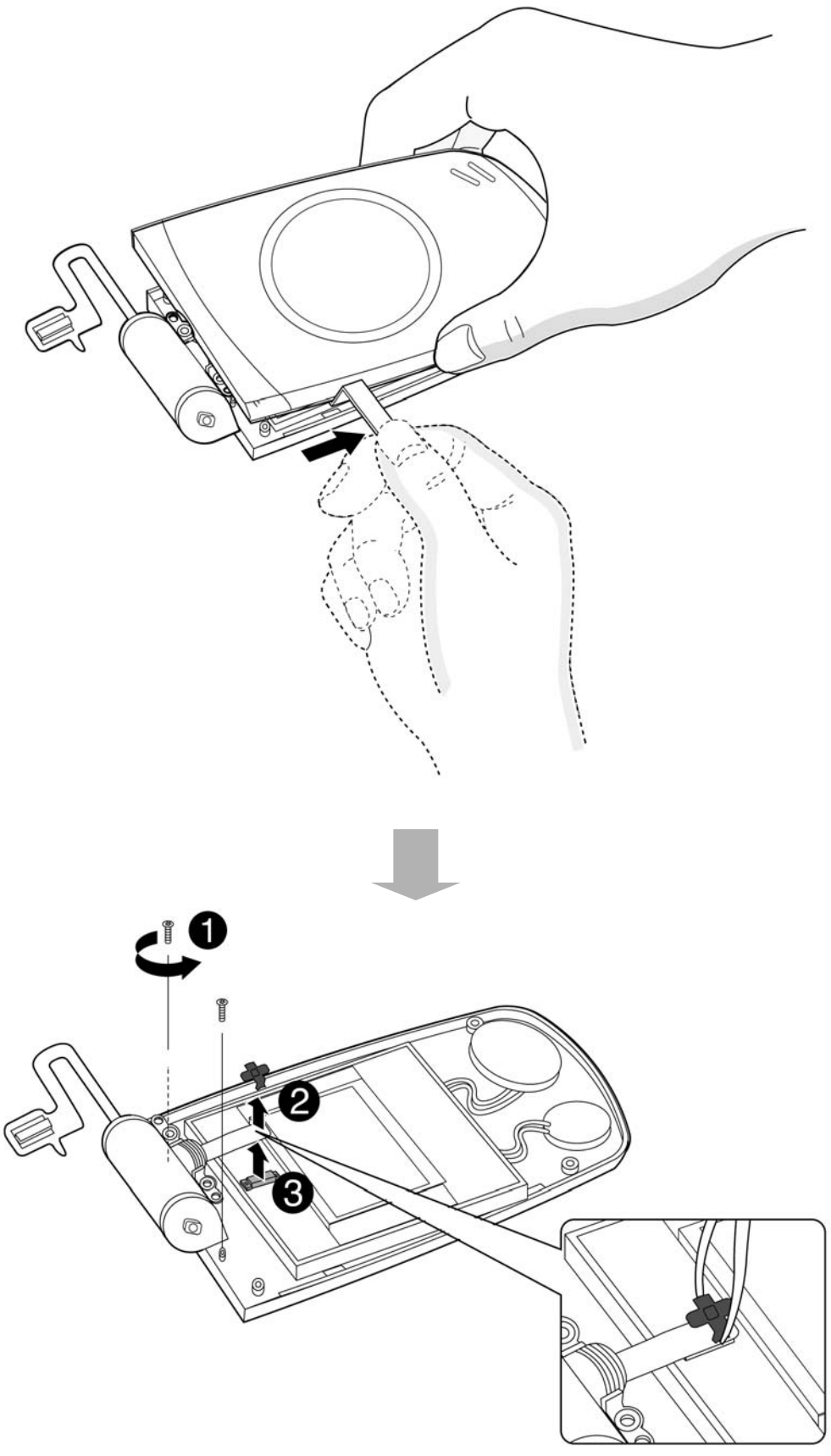




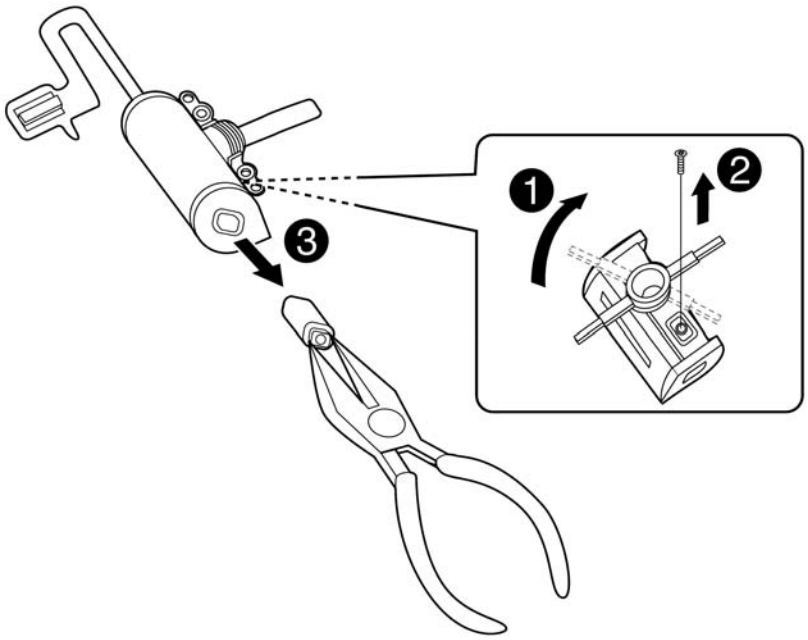

1
2
1
2
3

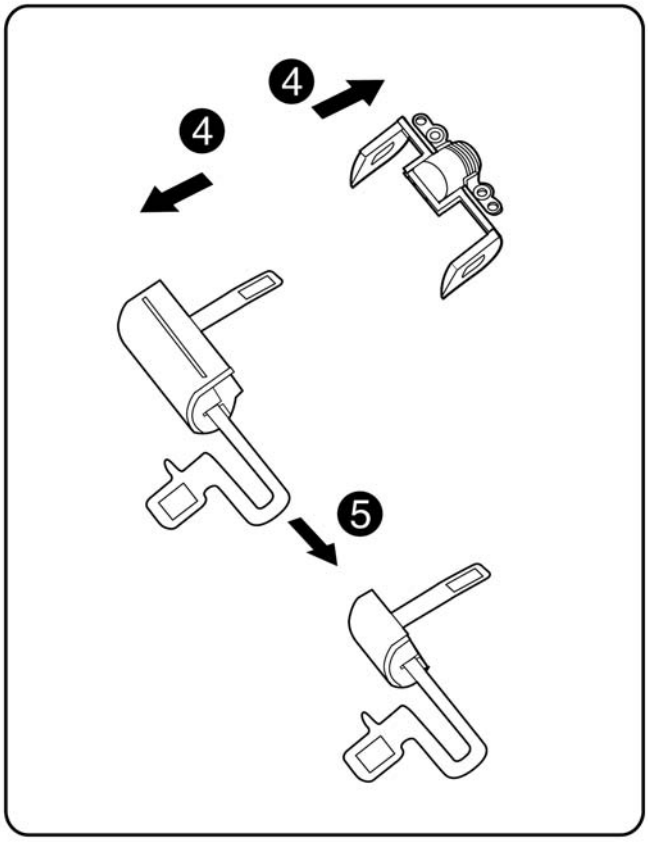
5. DISASSEMBLY INSTRUCTION

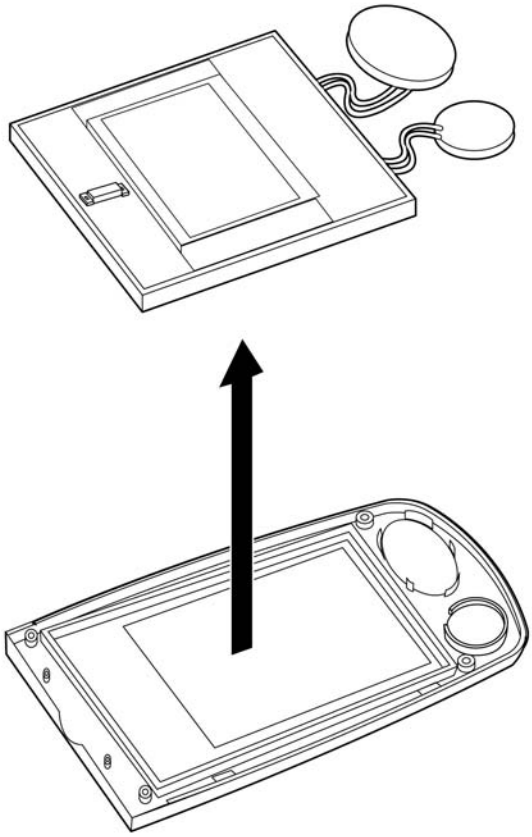



1
2
3

5. DISASSEMBLY INSTRUCTION







6. DOWNLOAD AND CALIBRATION

6.1 Download

A. Download Setup

Figure 6-1 describes Download setup

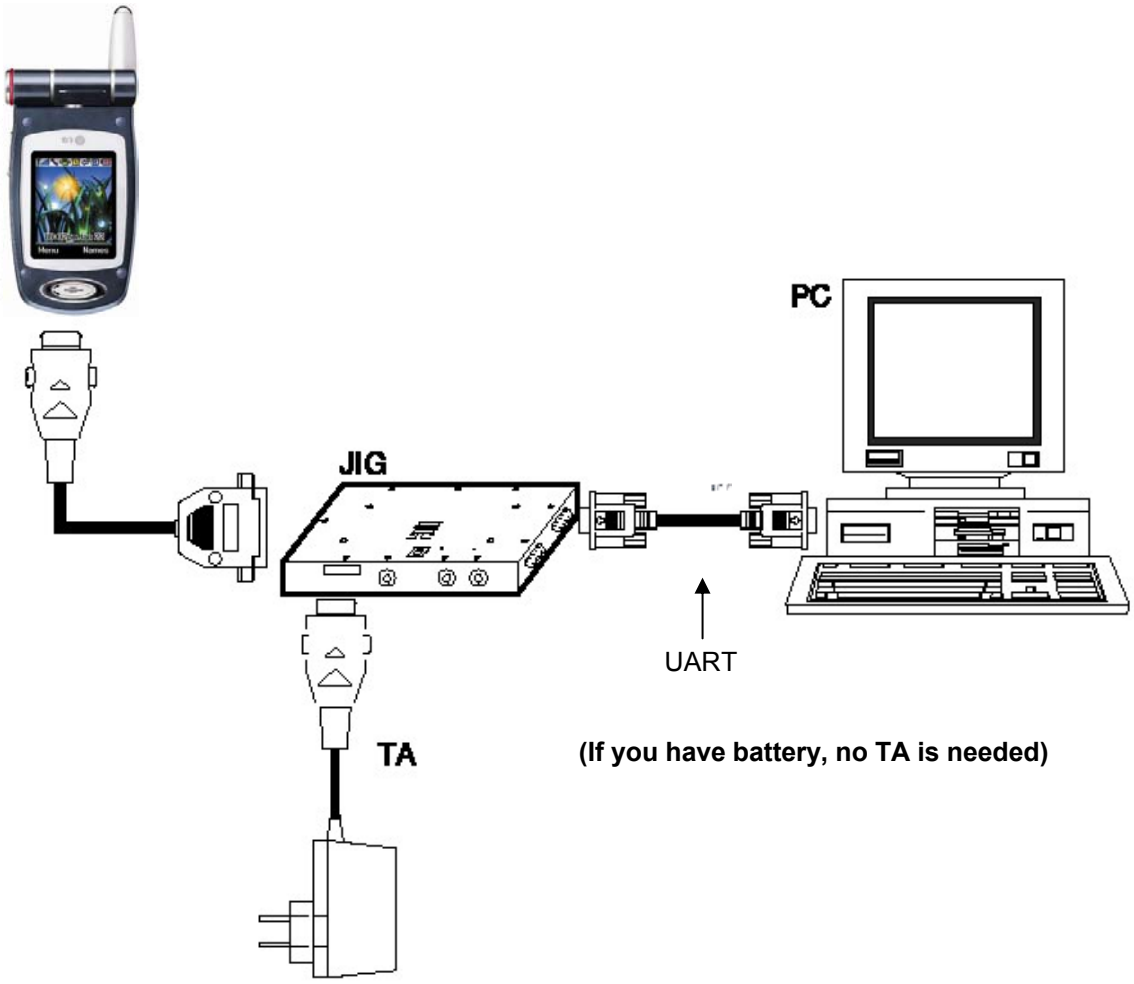
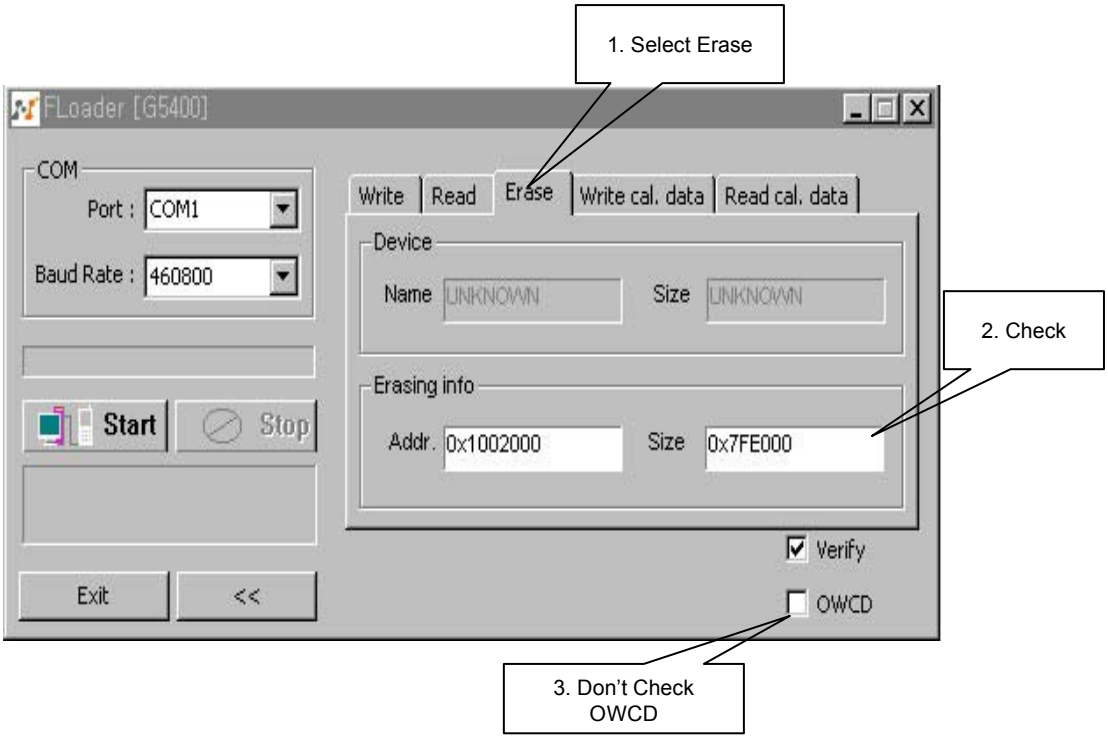


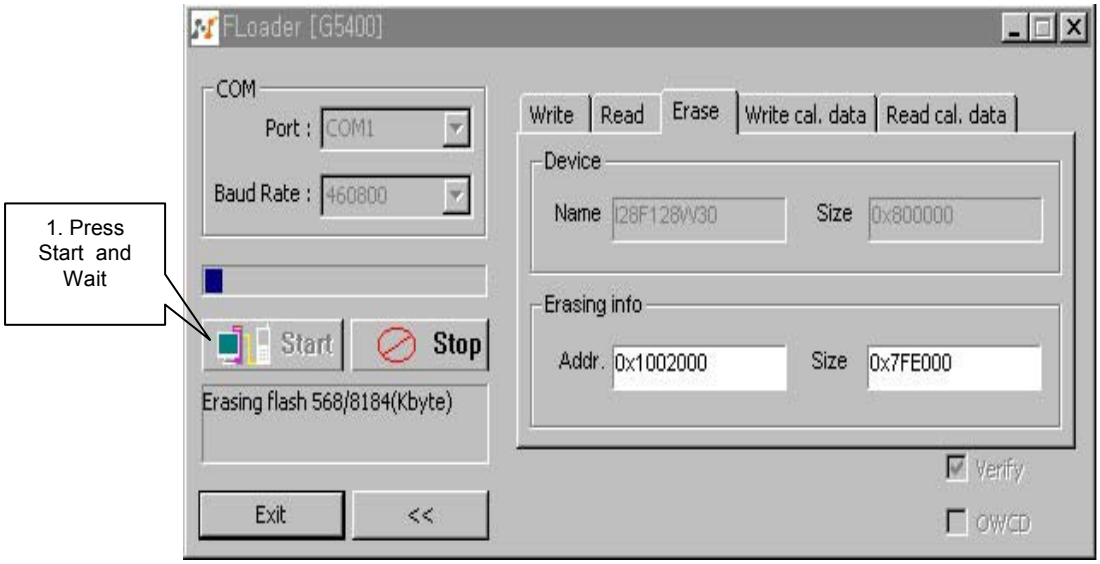
Figure 6-1. Download Setup

B. Download Procedure

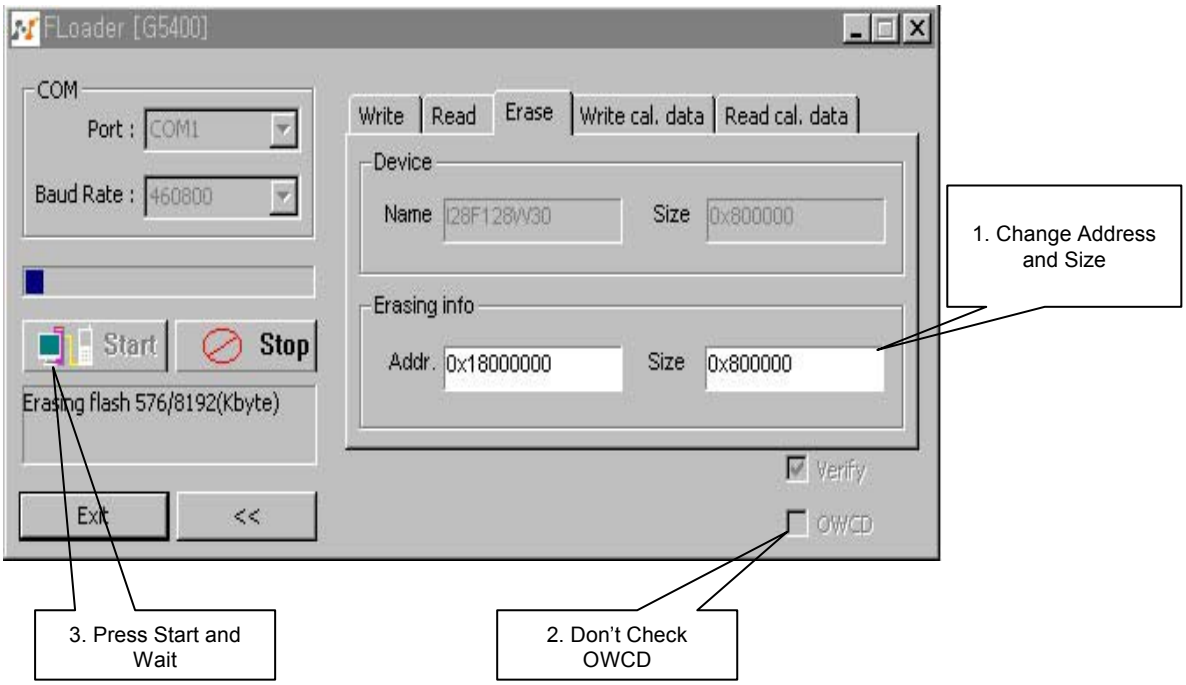
1. Access Flash loader program in PC and select Erase.(Don't check OWCD)



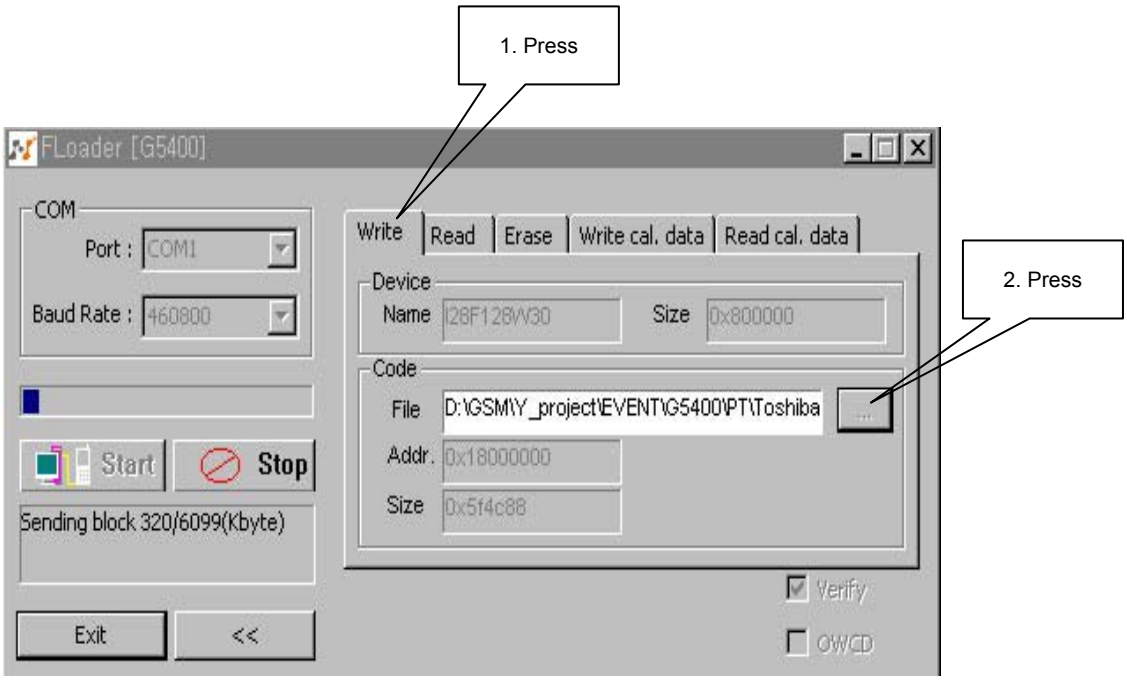
2. Press Start and Wait until Erase is completed.



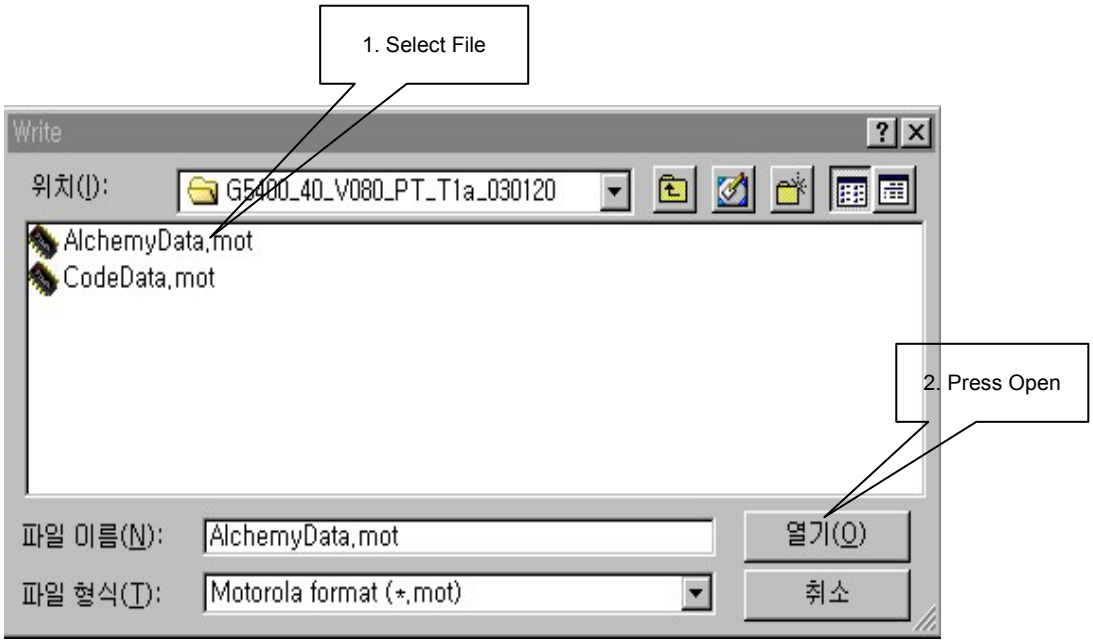
3. Change Address and Size(Address : 18000000, Size : 0x800000), and Press Start and Wait until Erase is completed again.



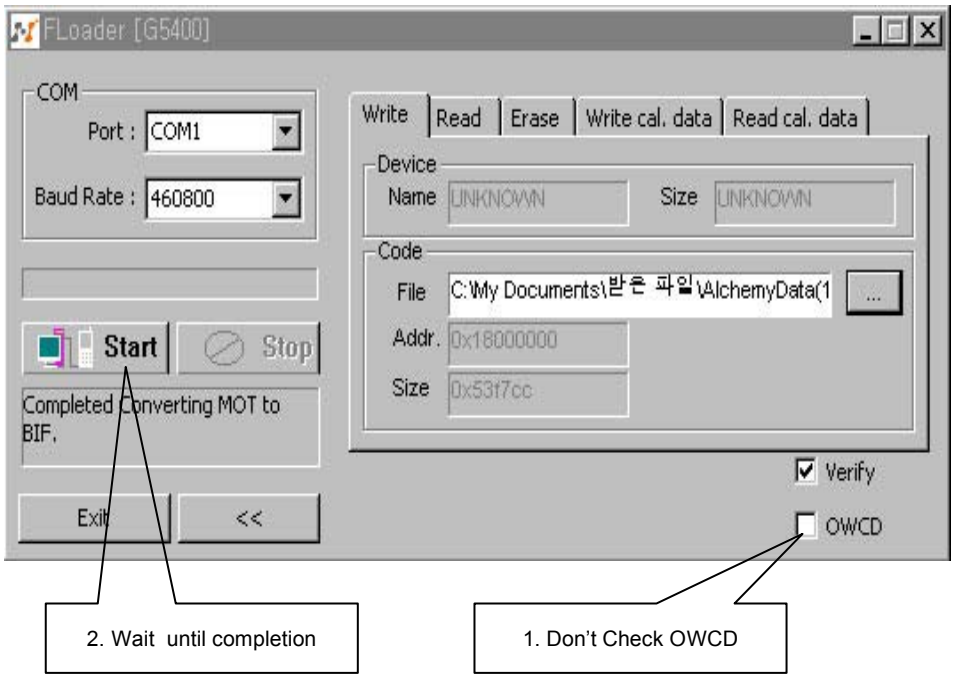
4. Press Write to start Download and press [...] Key to choose software (AlchemyData.mot)



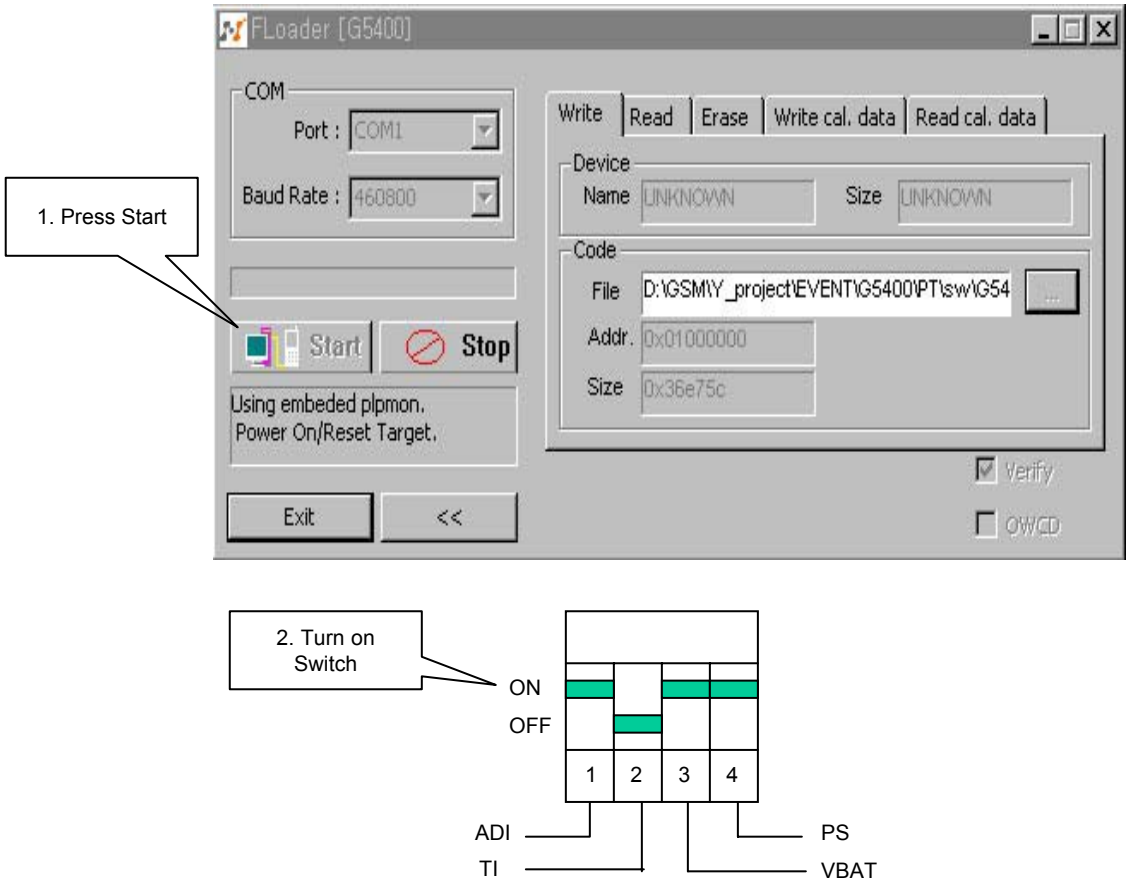
5. Choose software



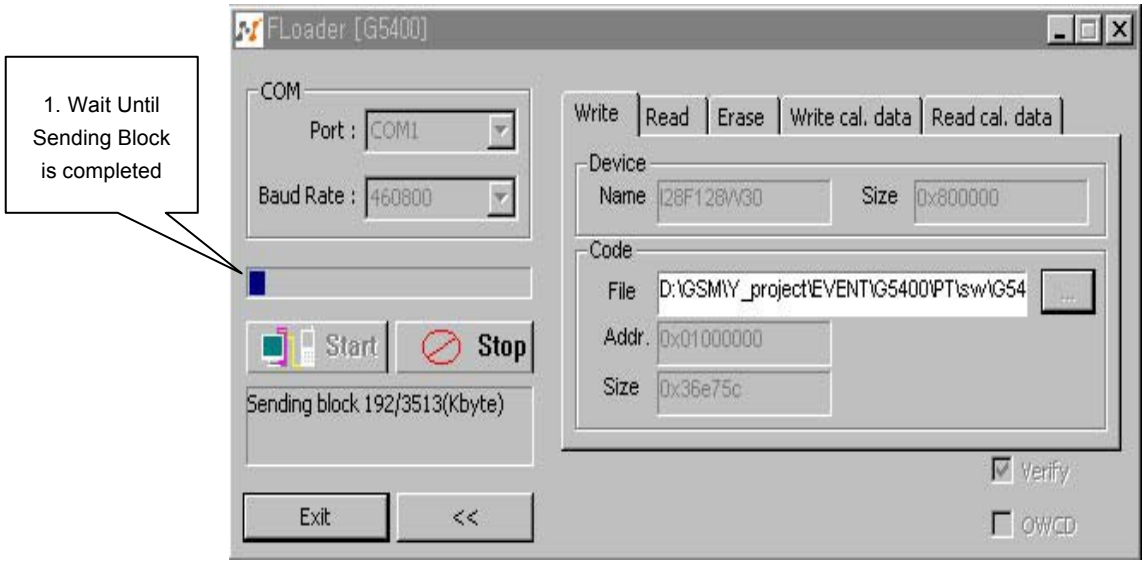
6. Wait until converting from MOT to BIF is completed(Don't check OWCD)



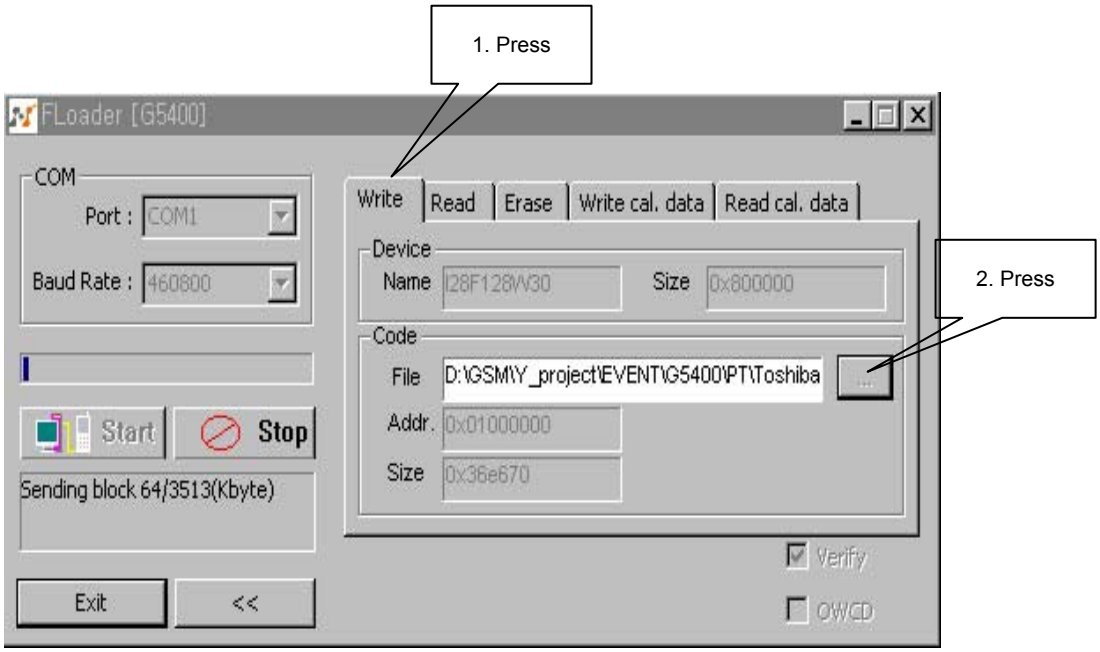
7. Press Start and Power on the phone using JIG remote Power on(Switch 1)



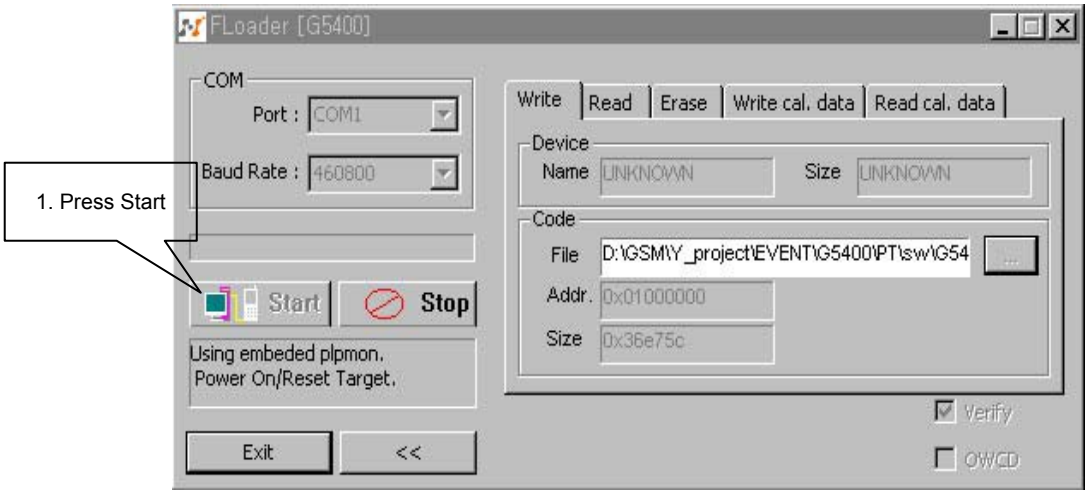
8. Wait until Sending Block is completed

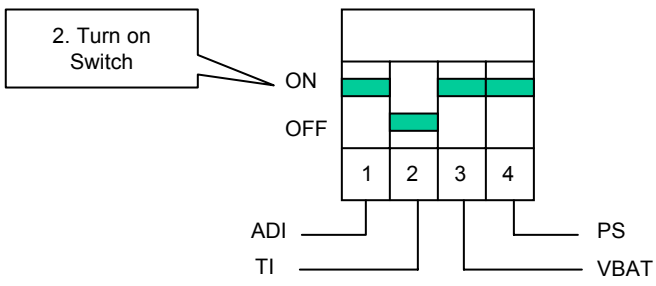


9. Press Write to start Download and press [...] Key to choose software(CodeData.mot)

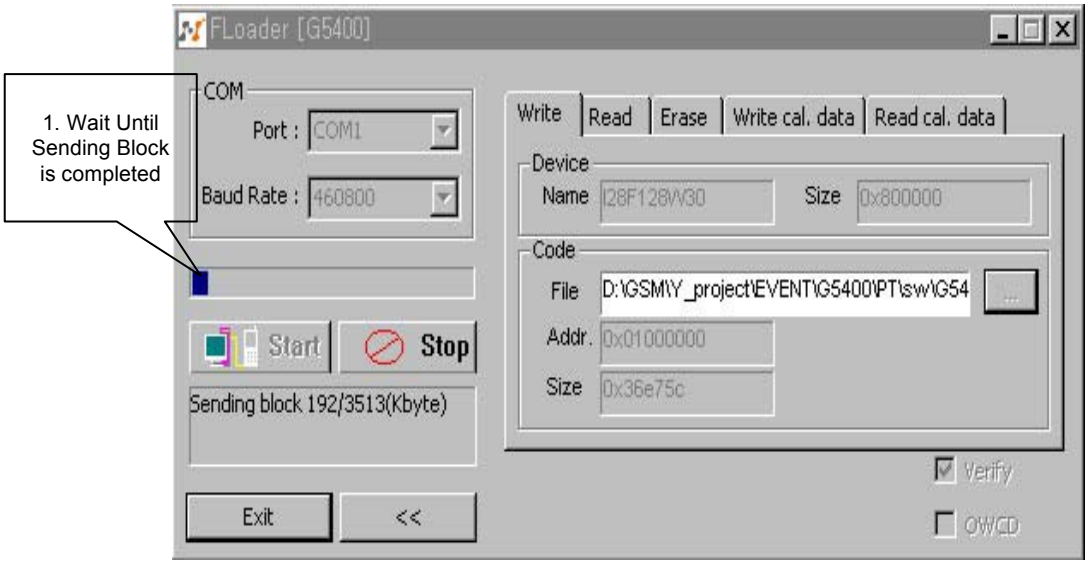


10. Choose software





11. Wait until Sending Block is completed



6.2 Calibration

A. Equipment List

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

Table 6-1. Calibration Equipment List.

B. Equipment Setup

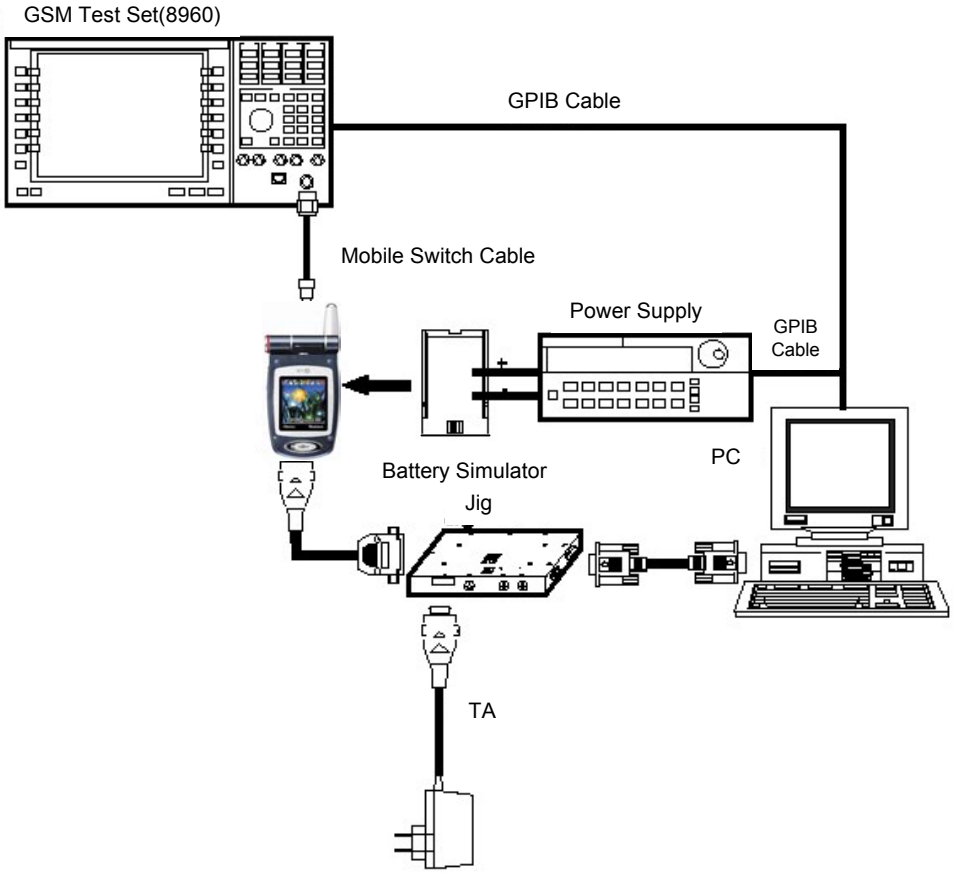


Figure 6-2. Equipment Setup

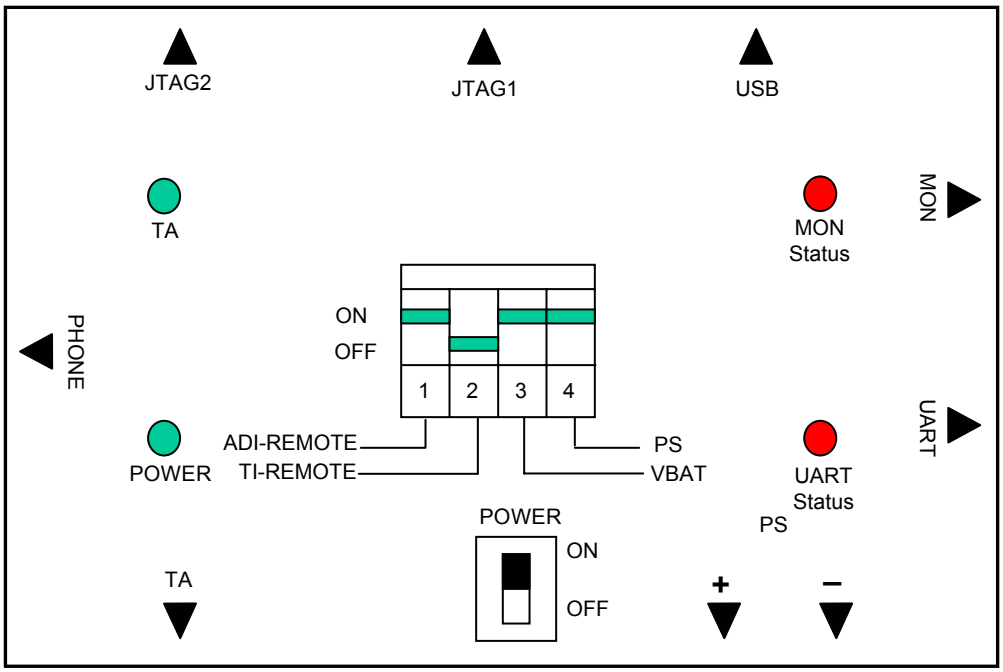


Figure 6-3 The top view of Test JIG

C. Test Jig Operation

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

Table 6-2 Jig Power

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 6-3 Jig DIP Switch

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

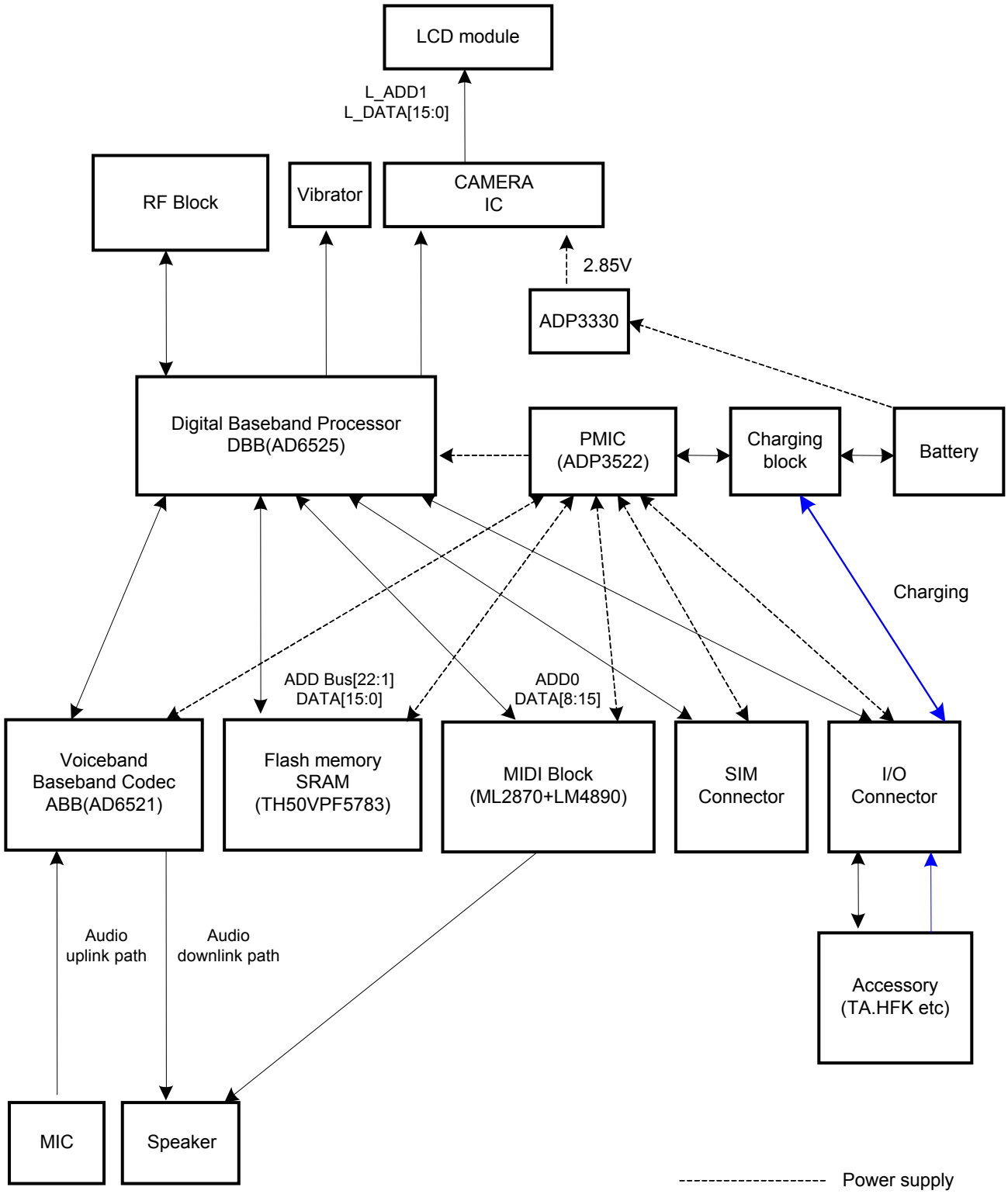
Table 6-4 LED Description

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 3rd, 4th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1st ON state

D. Procedure

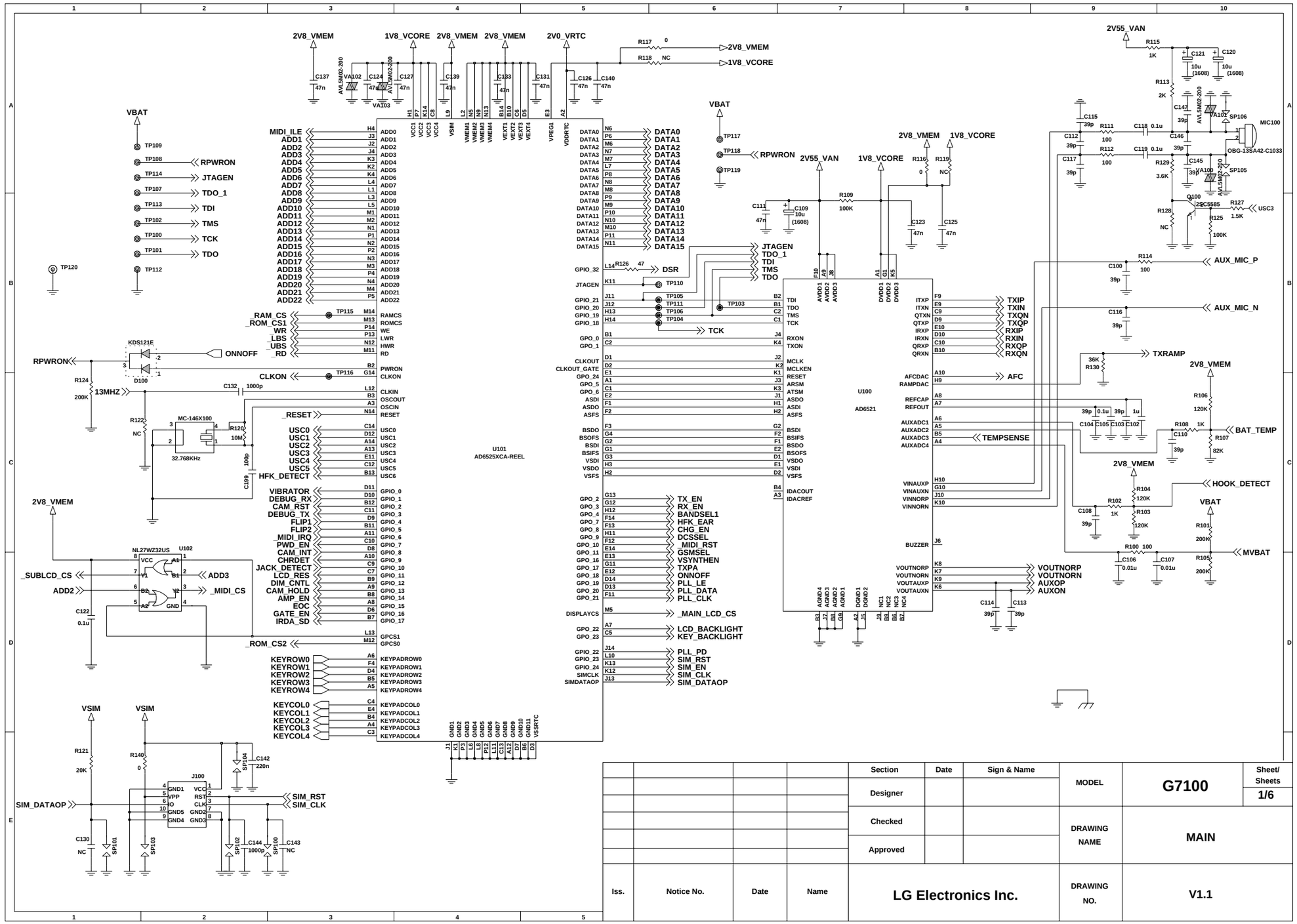
1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Power ON PC then enter into Windows 98(Remark : Windows 2000 system could be feasible)
3. Run AUTOCAL.exe, the AUTOCAL application window will be appeared.

7. BLOCK DIAGRAM



8. CIRCUIT DIAGRAM

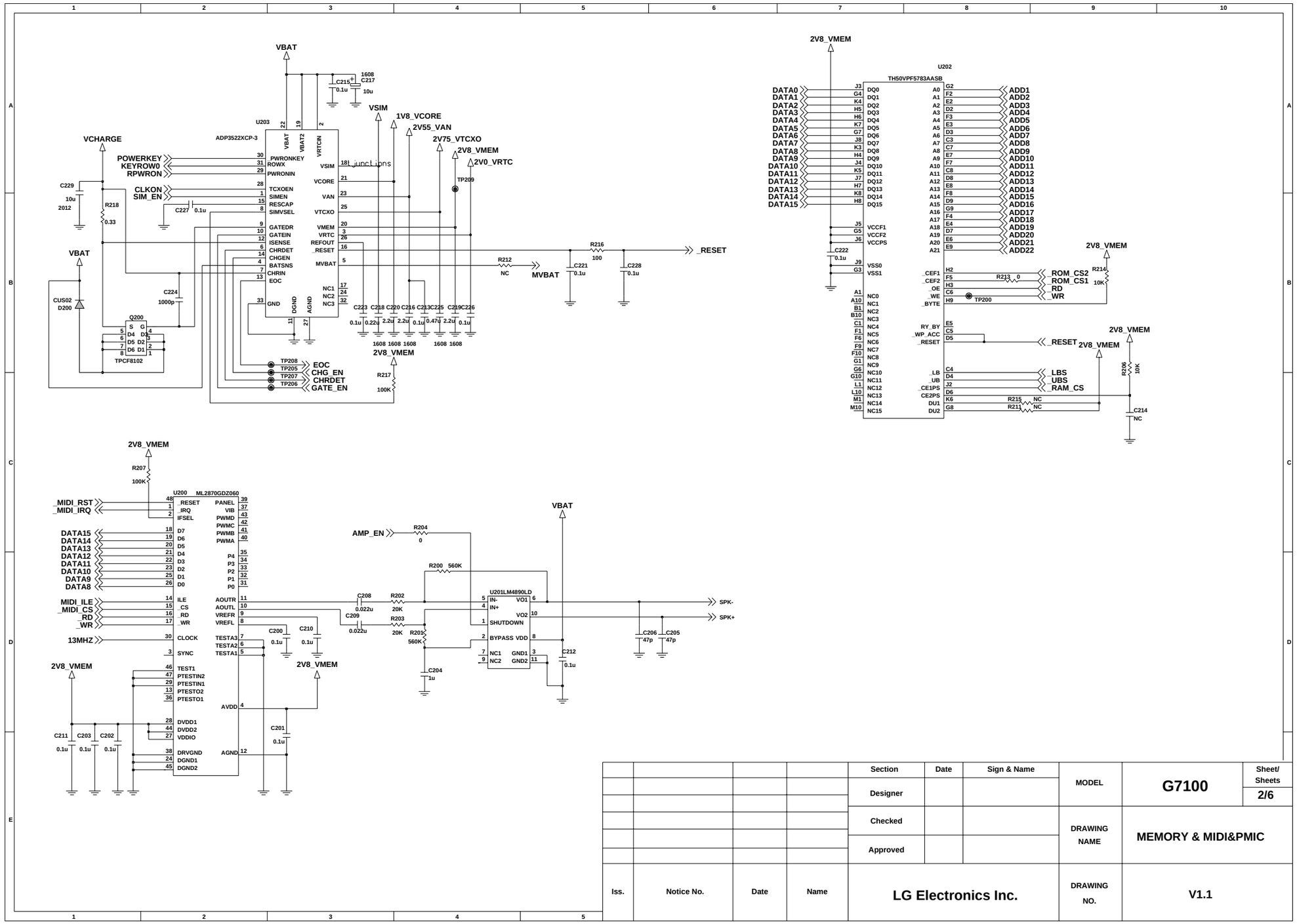
8.1 MAIN



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

LG Electronics Inc.

8.2 Memory & MIDI & PMIC



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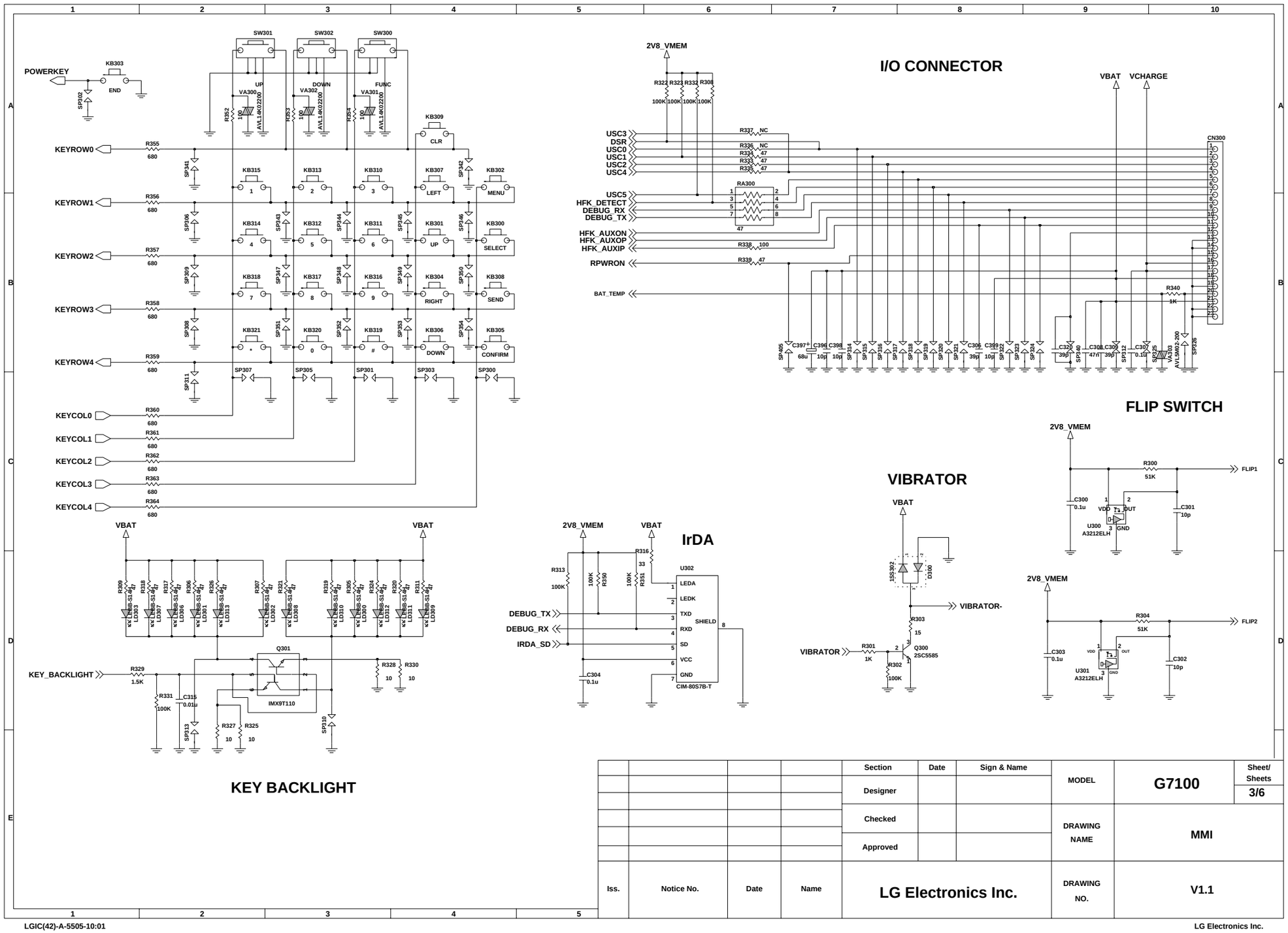
				Designer					2/6
				Checked			DRAWING NAME	MEMORY & MIDI&PMIC	
				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	V1.1	

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

LG Electronics Inc.

8.3 MMI



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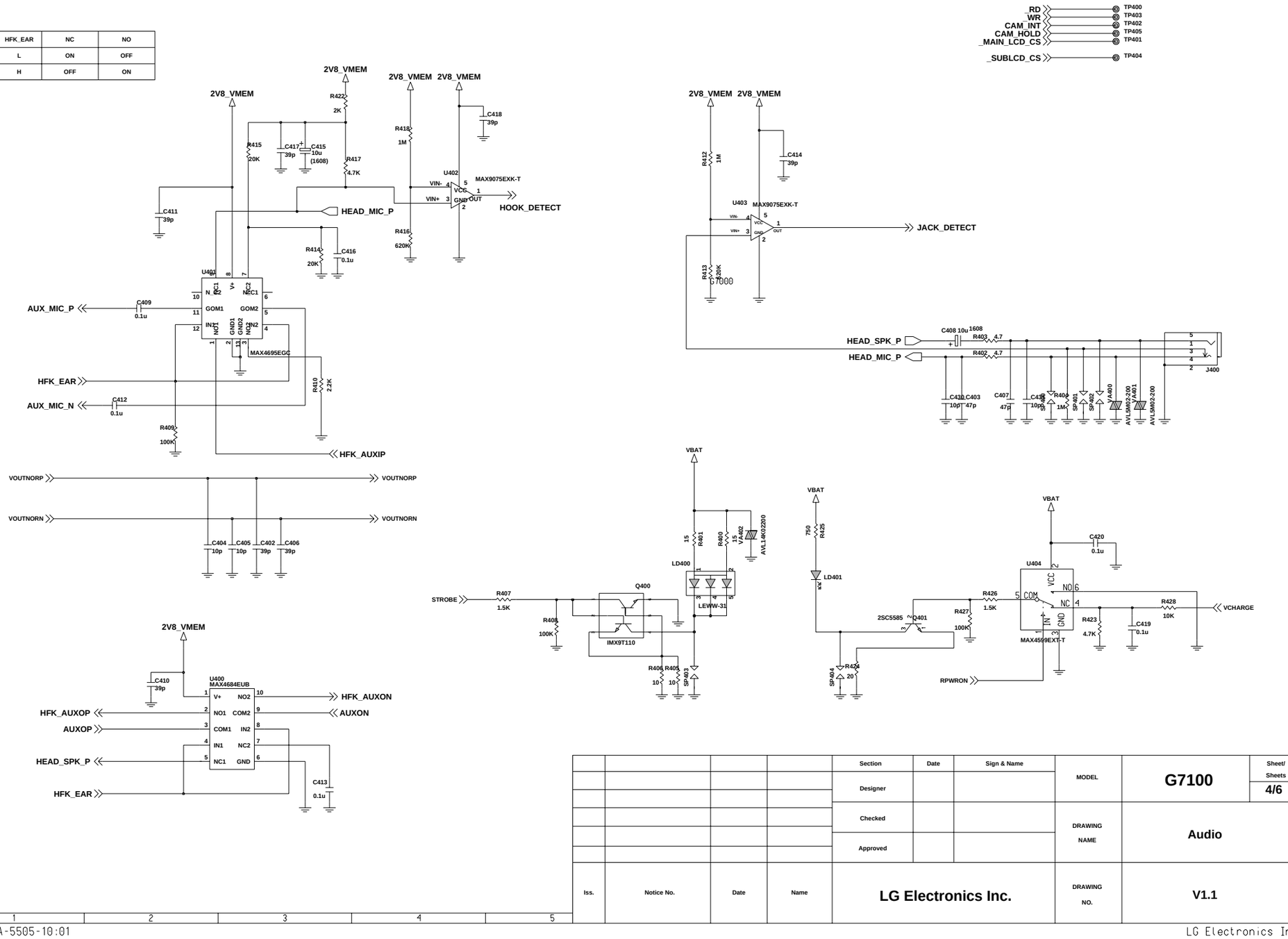
				Designer					3/6
				Checked			DRAWING NAME	MMI	
				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	V1.1	

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

LG Electronics Inc.

8.4 Audio

HFK_EAR	NC	NO
L	ON	OFF
H	OFF	ON



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				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	V1.1	

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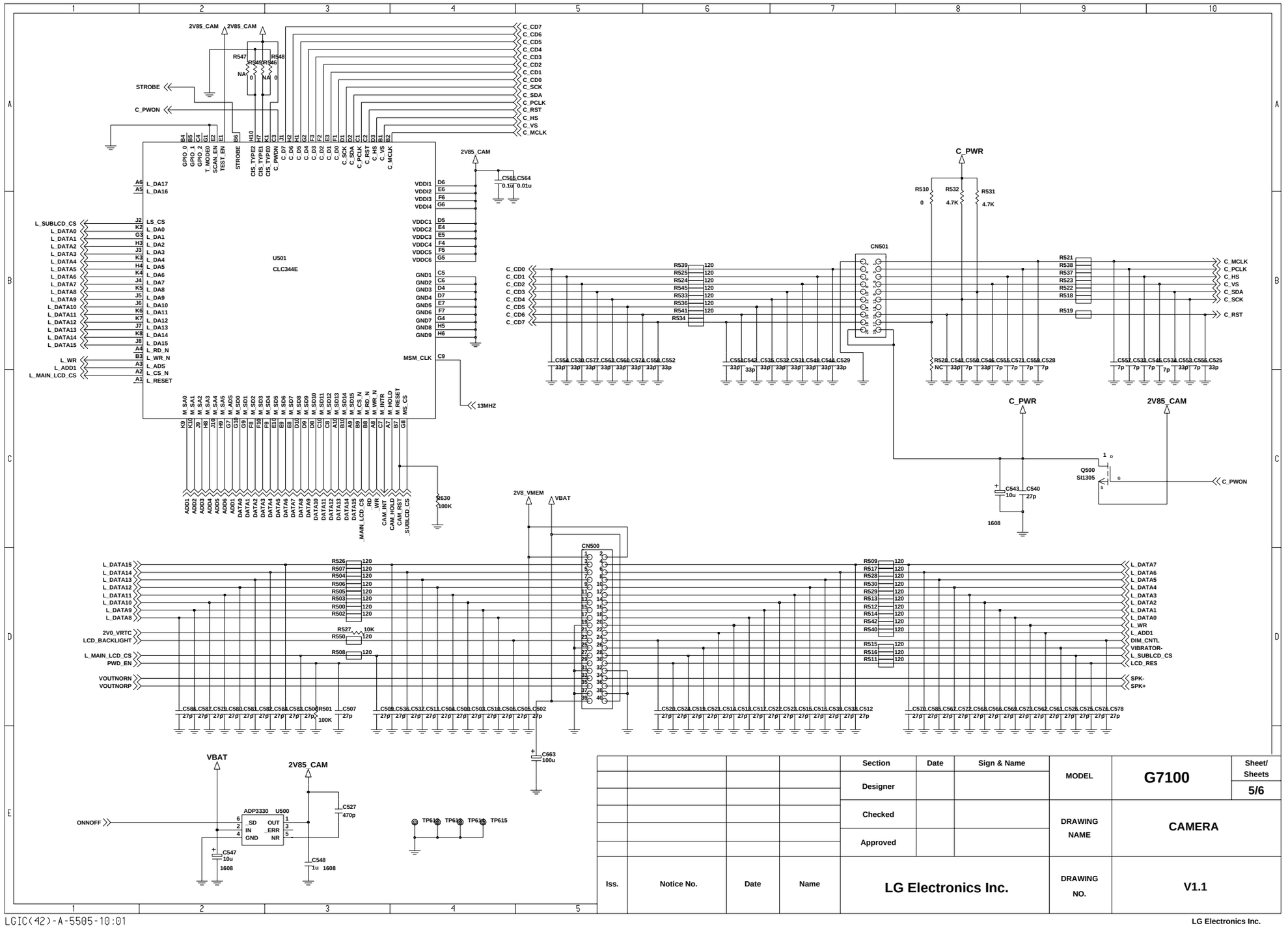
LG Electronics Inc.

8.5 Camera



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				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	V1.1	

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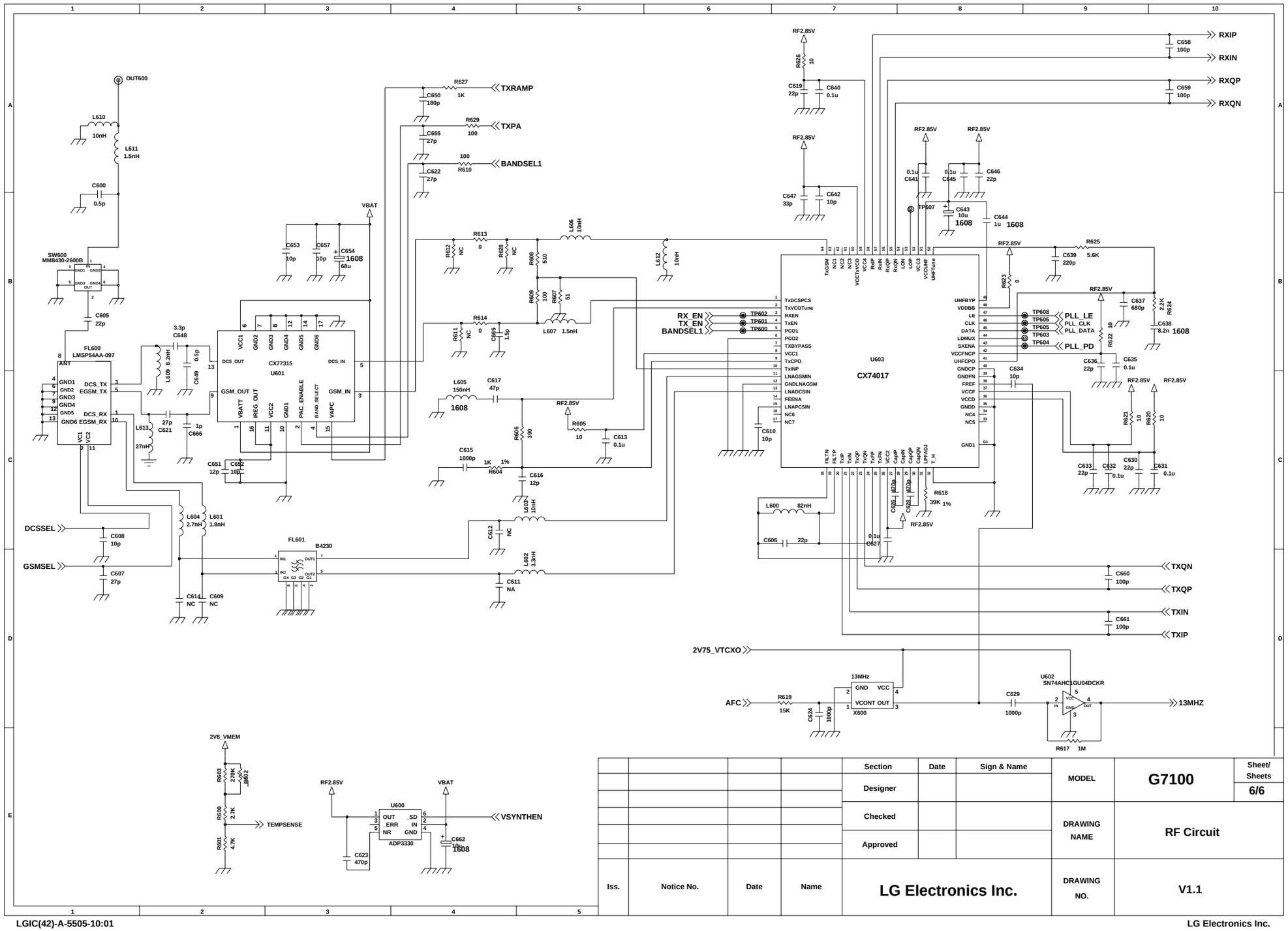
LG Electronics Inc.

8.6 RF Circuit



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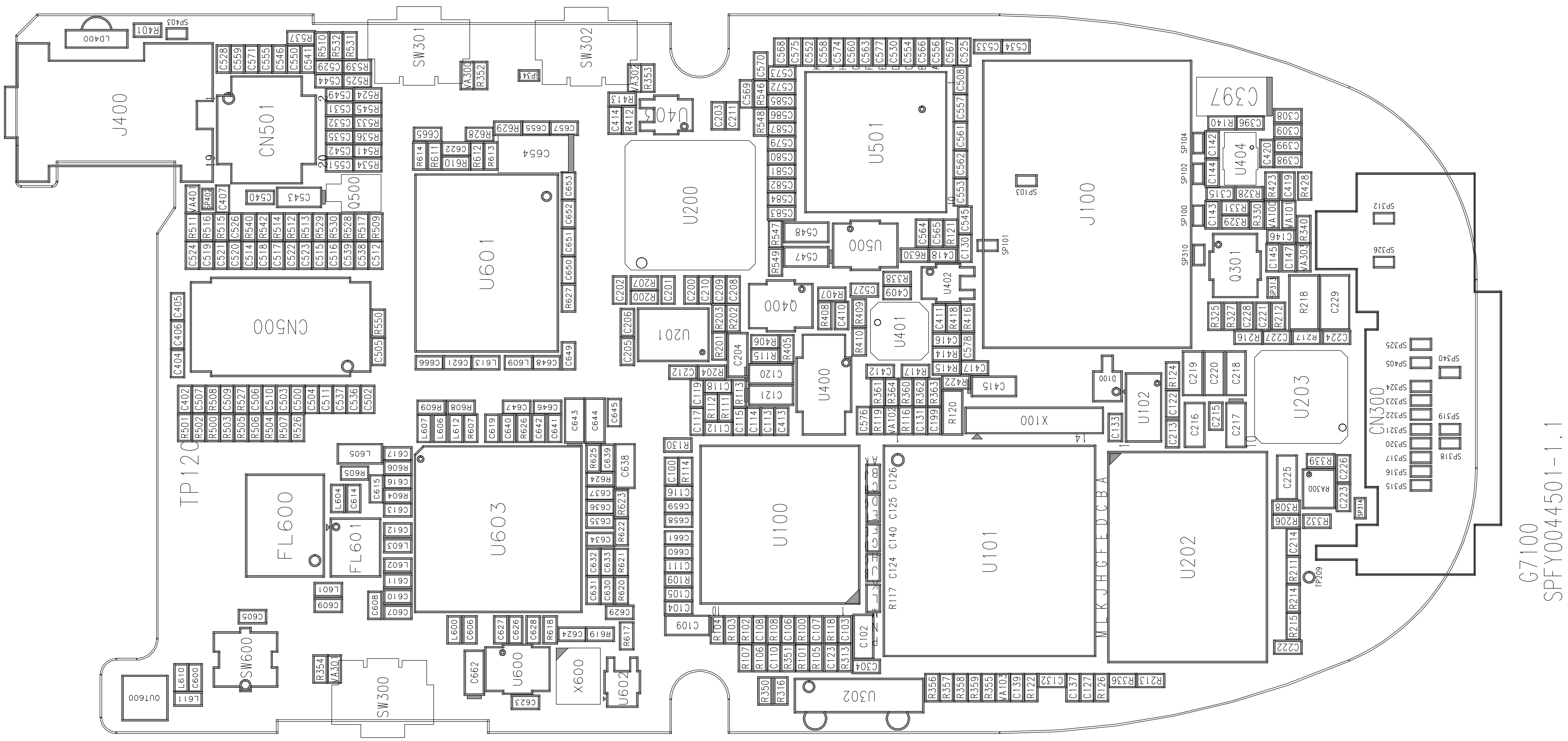
				Designer					6/6
				Checked			DRAWING NAME	RF Circuit	
				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	V1.1	

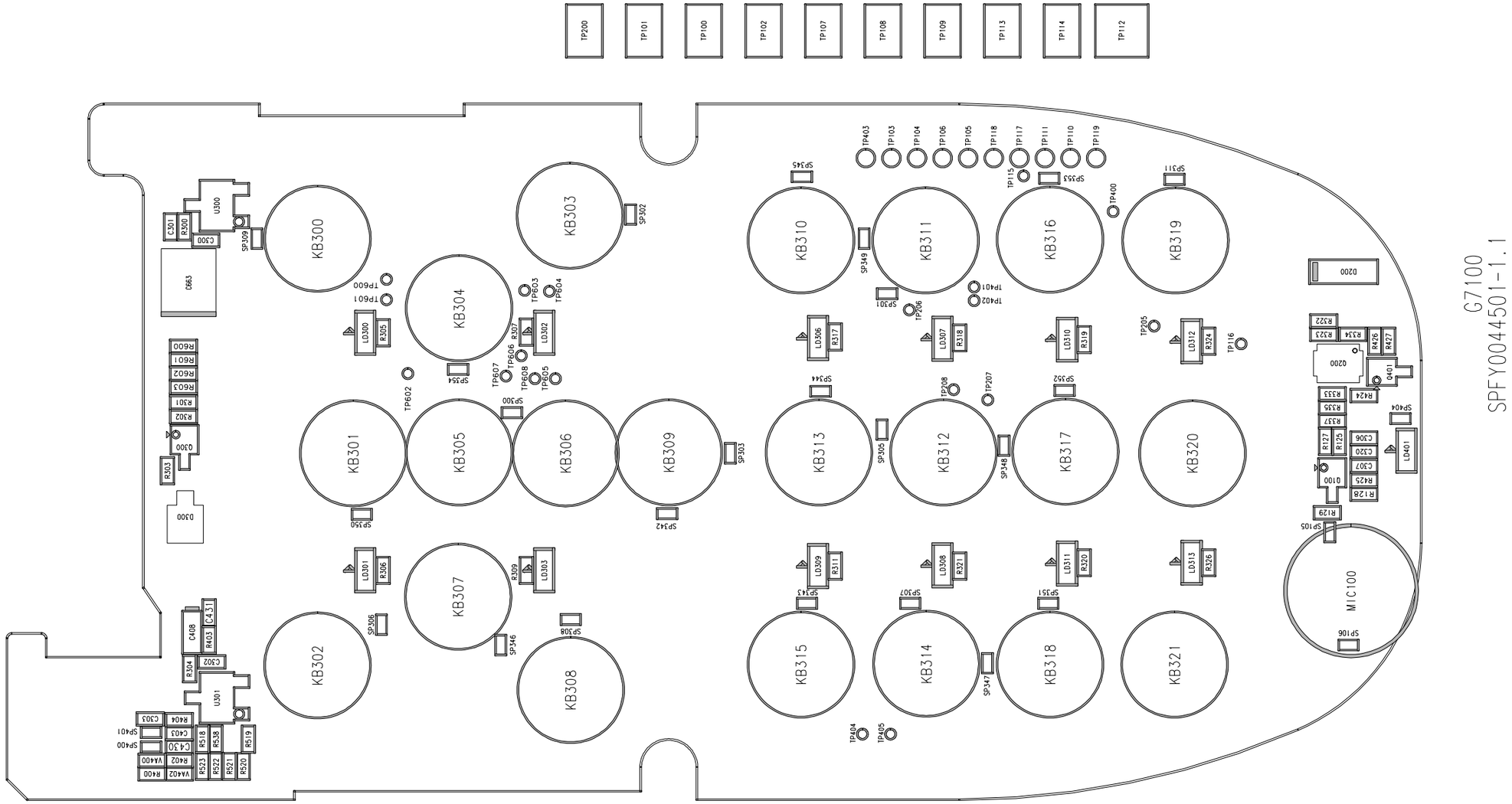
LGIC(42)-A-5505-10:01

LG Electronics Inc.

9. PCB LAYOUT



9. PCB LAYOUT


G7100
SPFY0044501-1.1
KB300
KB301
KB302
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KB304
KB305
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KB307
KB308
KB309
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KB314
KB315
KB316
KB317
KB318
KB319
KB320
KB321
MIC100
U300
U301
D200
D300
D100
Q401
TP200
TP101
TP100
TP102
TP107
TP108
TP109
TP113
TP114
TP112

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.

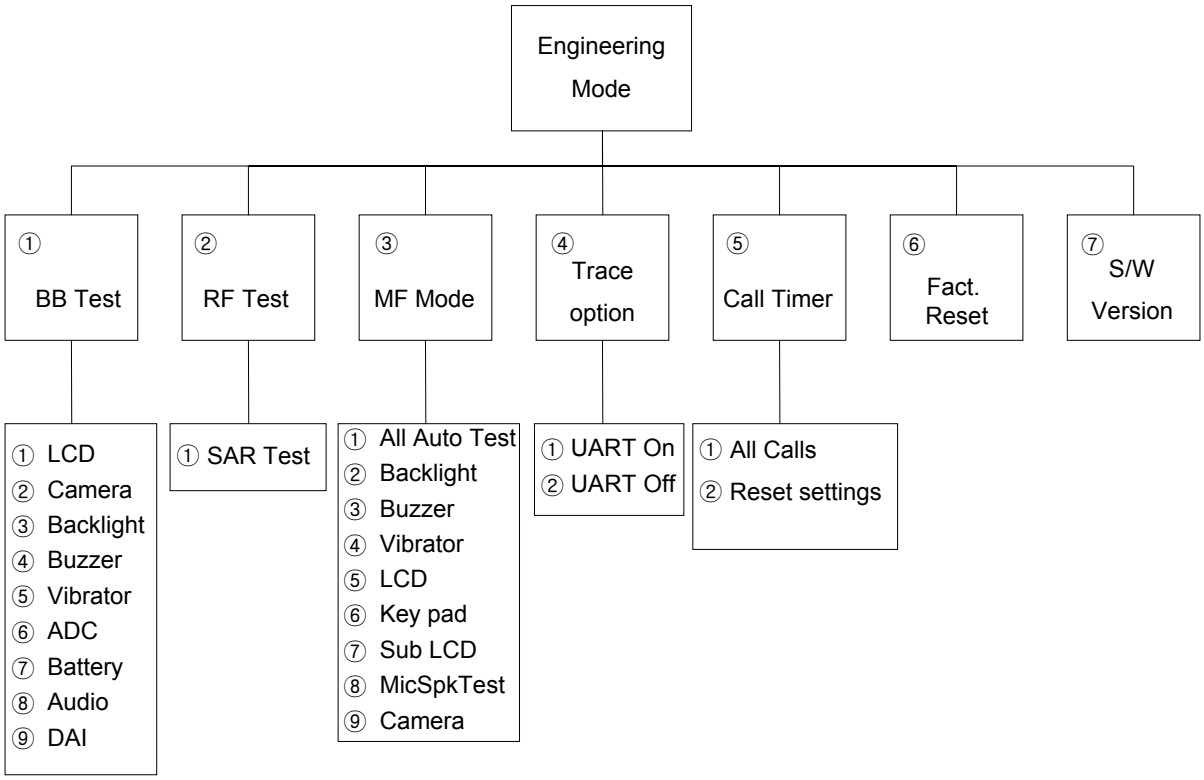
B. Access Codes

The key sequence for switching the engineering mode on is 2945#*#. 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.

D. Engineering Mode Menu Tree



10. ENGINEERING MODE

10.1 BB Test [MENU 1]

Baseband Test

10.1.1 LCD

1) Contrast value : This menu is to test Main LCD contrast.

- Contrast Value [10-50] : Change this value by up and down key.

2) Sub LCD Contrast : This menu is to test Sub LCD contrast.

- Contrast Value [0-50] : Change this value by up and down key.

10.1.2 Camera

1) Take picture : Taking picture is not available. Only previewing scene is shown on the main LCD

10.1.3 Backlight

This menu is to test the LCD Backlight and Keypad Backlight.

1) Backlight on : LCD Backlight and Keypad Backlight light on at the same time.

2) Backlight off : LCD Backlight and Keypad Backlight light off at the same time.

3) Backlight value : 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.

10.1.4 Buzzer

This menu is to test the melody sound.

1) Melody on : Melody sound is played through the speaker.

2) Melody off : Melody sound is off.

10.1.5 Vibrator

This menu is to test the vibration mode.

1) Vibrator on : Vibration mode is on.

2) Vibrator off : Vibration mode is off.

10.1.6 ADC (Analog to Digital Converter)

This displays the value of each ADC.

1) MVBAT ADC : Main Voltage Battery ADC

2) AUX ADC : Auxiliary ADC

3) TEMPER ADC : Temperature ADC

10.1.7 BATTERY

1) Bat Cal : 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

2) TEMP Cal : 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

10.1.8 Audio

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.

1) VbControl1 : VbControl1 bit Register Value Setting
2) VbControl2 : VbControl2 bit Register Value Setting
3) VbControl3 : VbControl3 bit Register Value Setting
4) VbControl4 : VbControl4 bit Register Value Setting
5) VbControl5 : VbControl5 bit Register Value Setting
6) VbControl6 : VbControl6 bit Register Value Setting

10.1.9 DAI (Digital Audio Interface)

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

1) DAI AUDIO : DAI audio mode

2) DAI UPLINK : Speech encoder test

3) DAI DOWNLINK : Speech decoder test

4) DAI OFF : DAI mode off

10.2 RF Test [MENU 2]

Radio Frequency Test

10.2.1 SAR test

This menu is to test the Specific Absorption Rate.

1) SAR test on : Phone continuously process TX only. Call-setup equipment is not required.

2) SAR test off : 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.

10.3.1 All auto test

LCD, Backlight, Vibrator, Buzzer, Key Pad, Mic&Speaker, Camera are tested in order for a certain time.

10.3.2 Backlight

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

10.3.3 Buzzer

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.

10.3.4 Vibrator

Vibrator is on for about 1.5 seconds.

10.3.5 LCD

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

10.3.6 Key pad

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 seconds automatically.

10.3.7 Sub LCD

Sub LCD screen resolution tests horizontally one by one and fills the screen.

10.3.8 MicSpkTest

The sound from MIC is recorded for about 3 seconds, then it is replayed on the speaker automatically

10.3.9 Camera

The scene from camera sensor is shown on the main LCD.

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]

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

1) All calls : This displays total conversation time. User cannot reset this value.

2) Reset settings : This resets total conversation time to this, [00:00:00].

3) DAI DOWNLINK : Speech decoder test

4) DAI OFF : DAI mode off

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.

Attention

① Fact. Reset (i.e.Factory Reset) should be only used during the Manufacturing process.

② Servicemen should NOT progress this menu, otherwise some of valuable data such as Setting value, RF Calibration data, etc. cannot be restored again.

10.7 S/W version

This displays software version stored in the phone.

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

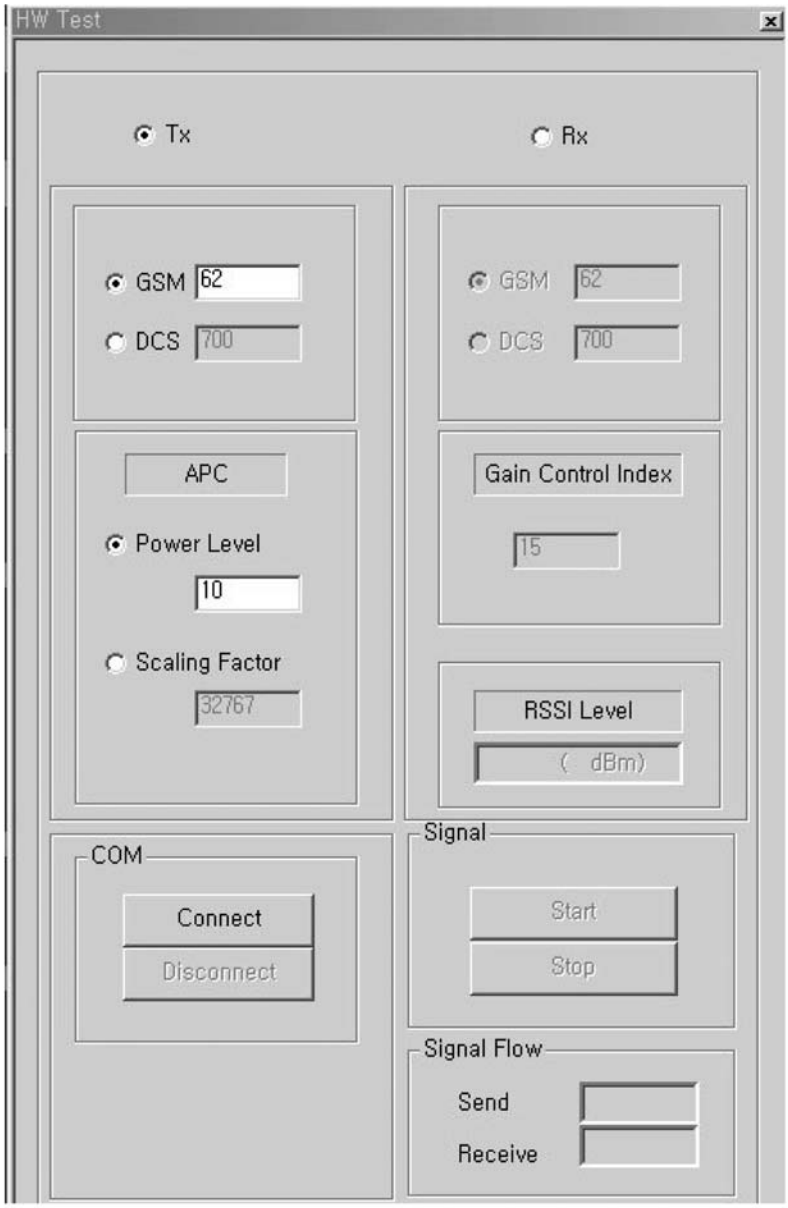


Figure 11-1. HW test program

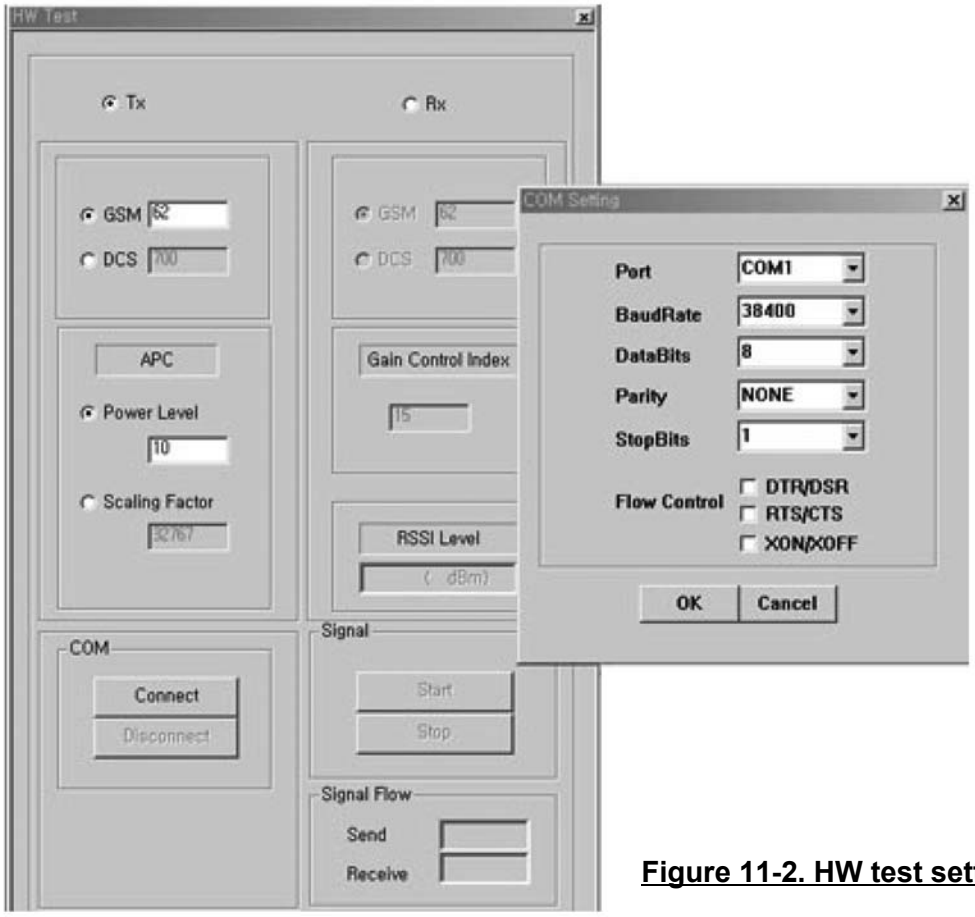


Figure 11-2. HW test setting

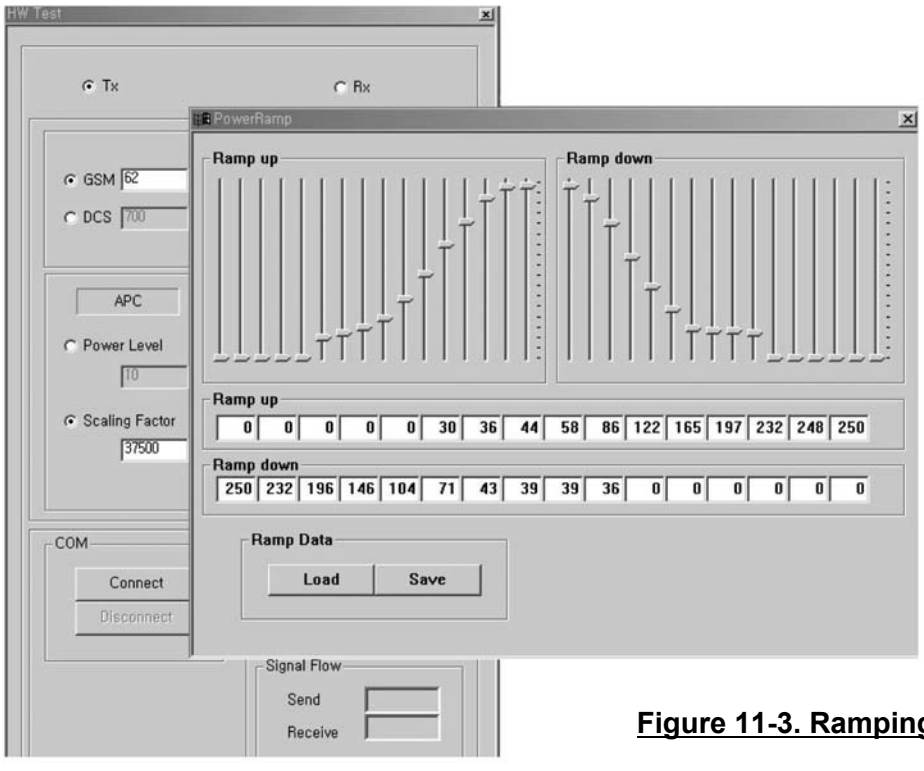


Figure 11-3. Ramping profile

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.

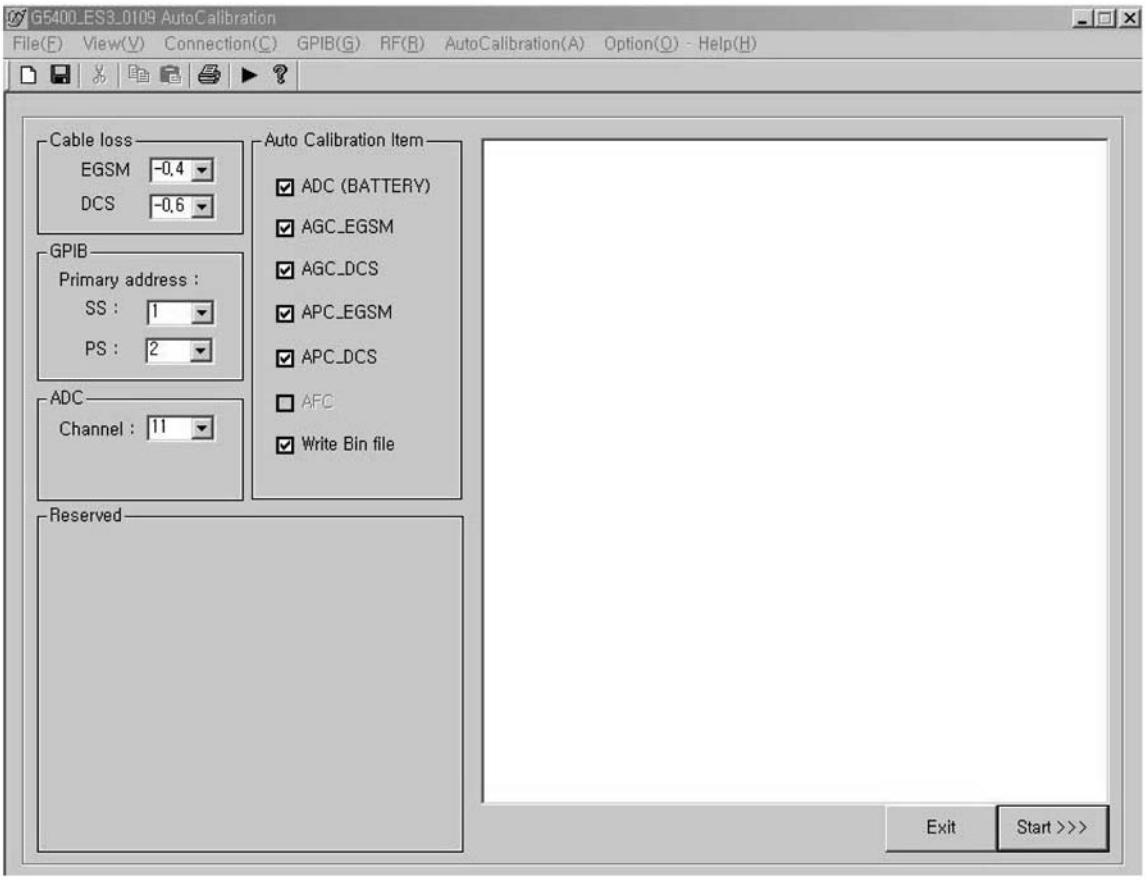


Figure 12-1. Auto Calibration Program

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

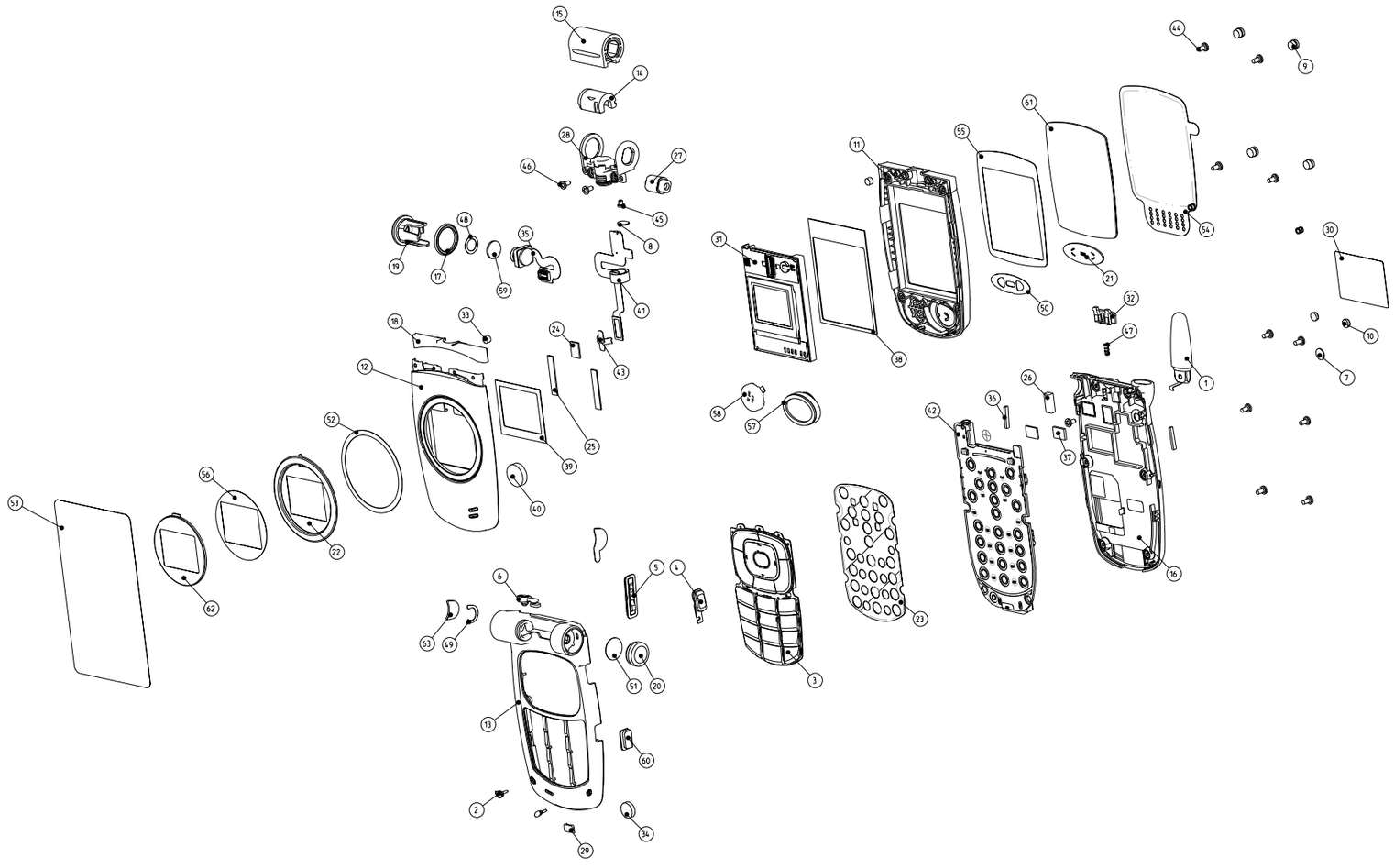
check com port and cable loss. Select automatic calibration item. If you uncheck one item calibration will stop from the unchecked item. This is useful when you want to process only one item.

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



SCALE 0.500

ITEM	PART_NAME	PART_NO	Q'TY	TYPE
63	WINDOW,LED	MWAD0001701-MP	1	PART
62	WINDOW,LCD(SUB)	MWAF0010501-MP	1	PART
61	WINDOW,LCD	MWAC0027301-MP	1	PART
60	WINDOW,IrDA	MWAG0002701-MP	1	PART
59	WINDOW,CAMERA	MWAE0000401-MP	1	PART
58	VIBRATOR,MOTOR	SJMY0002802-MP	1	PART
57	TWO WAY MODE SPEAKER	SUVT0003501-MP	1	PART
56	TAPE,WINDOW SUB	MTAE0009801-MP	1	PART
55	TAPE,WINDOW	MTAD0013901-MP	1	PART
54	TAPE,PROTECTION(MAIN WINDOW)	MTAB0018901-MP	1	PART
53	TAPE,PROTECTION	MTAB0001401-MP	1	PART
52	TAPE,DECO(SUB WINDOW)	MTAA0027801-MP	1	PART
51	TAPE,DECO(RIGHT HINGE DECO)	MTAA0027901-MP	1	PART
50	TAPE,DECO(RECEIVER)	MTAA0027701-MP	1	PART
49	TAPE(FLASH WINDOW)	MTAZ0014501-MP	1	PART
48	TAPE(CAMERA WINDOW)	MTAZ0014601-MP	1	PART
47	SPRING,COIL	MSDB0001701-MP	1	PART
46	SCREW MACHINE	GMZZ0010101-MP	3	PART
45	SCREW MACHINE	GMZZ0007601-MP	1	PART
44	SCREW MACHINE	GMZZ0003201-MP	10	PART
43	PLATE,GROUND	MPFD0001201-MP	1	PART
42	PCB ASSY,MAIN	SAFY0076801-MP	1	ASSEMBLY
41	PCB ASSY,FLEXIBLE	SACY0012101-MP	1	ASSEMBLY
40	PAD,MOTOR	MPBJ0008401-MP	1	PART
39	PAD,LCD(SUB)	MPBQ0008501-MP	1	PART
38	PAD,LCD	MPBG0011901-MP	1	PART
37	PAD,CAMERA	MPBT0002201-MP	1	PART
36	PAD,BUTTON	MPBR0000901-MP	2	PART
35	MODULE,ETC	SMZY0006201-MP	1	ASSEMBLY
34	MICROPHONE	SUMY0006401-MP	1	PART
33	MAGNET,SWITCH	MMAA0001601-MP	2	PART
32	LOCKER,BATTERY	MLEA0010101-MP	1	PART
31	LCD MODULE	SVLM0005801-MP	1	ASSEMBLY
30	LABEL,MODEL	MLAK0006801-MP	1	PART
29	INDICATOR,LED	MIAA0008801-MP	1	PART
28	HINGE,FOLDER(SWIVEL)	MHFD0004301-MP	1	ASSEMBLY
27	HINGE,FOLDER(ON/OFF)	MHFD0004201-MP	1	PART
26	GASKET,SHIELD FOAM	MGAD0033501-MP	1	PART
25	GASKET,SHIELD FOAM	MGAD0031801-MP	2	PART
24	GASKET,SHIELD FOAM	MGAD0031701-MP	2	PART
23	DOME ASSY,METAL	ADCA0011801-MP	1	ASSEMBLY
22	DECO,WINDOW(SUB)	MDAM0002801-MP	1	PART
21	DECO,RECEIVER	MDAH0002801-MP	1	PART
20	DECO,HINGE(R)	MDAJ0003301-MP	1	PART
19	DECO,HINGE(L)	MDAJ0003201-MP	1	ASSEMBLY
18	DECO,FOLDER(UPPER)	MDAE0014301-MP	1	PART
17	DECO,CAMERA	MDAD0001601-MP	1	PART
16	COVER,REAR	MCJN0013101-MP	1	PART
15	COVER,HINGE(UPPER)	MCJU0000401-MP	1	PART
14	COVER,GUIDE	MCJL0000801-MP	1	PART
13	COVER,FRONT	MCJK0015801-MP	1	PART
12	COVER,FOLDER(UPPER)	MCJJ0015001-MP	1	PART
11	COVER,FOLDER(LOWER)	MCJH0010601-MP	1	PART
10	CAP,SCREW(REAR)	MCCH0014501-MP	2	PART
9	CAP,SCREW(LOWER)	MCCH0014401-MP	4	PART
8	CAP,SCREW(HINGE)	MCCH0014301-MP	1	PART
7	CAP,MOBILE SWITCH	MCCF0010501-MP	1	PART
6	CAP,EARPHONE JACK	MCCC0008701-MP	1	PART
5	BUTTON,VOLUME	MBJN0001901-MP	1	ASSEMBLY
4	BUTTON,FUNCTION	MBJC0008001-MP	1	ASSEMBLY
3	BUTTON,DIAL	MBJA0010301-MP	1	ASSEMBLY
2	BUMPER	MBHY0006401-MP	2	PART
1	ANTENNA,GSM,FIXED	SNGF0002001-MP	1	PART

13.2 Accessory

Level	Location No	Description	Part No	Specification	SVC	Color
2	SBPL00	BATTERY PACK,LI-ION	SBPL0065880	3.7 V,750 mAh,1 CELL,PRISMATIC ,G7100 STD BATTERY(SV)	Y	
2	SGDY00	DATA CABLE	SGDY0003003	LG-510W/G510 ,CABLE W/O POWER BULK	Y	
2	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003401	W3000 ,3Pole Necklace type(CDMA Design)	Y	
2	SRCY00	CDROM	SRCY0001305	S/W ,NONE ,. ,650 MB,G7100,1ST LOT	Y	
2	SSAD00	ADAPTOR,AC-DC	SSAD0007801	100-240V ,60 Hz,5.2 V,850 mA,CE ,85VAC~264VAC / 50HZ~60HZ	Y	
2	MHBY00	HANDSTRAP	MHBY0001101	Neck Strap 400mm (CDMA,common use)	Y	Gray
2	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0002901	G7000,G5200 Common use, 3P EAR MIC	Y	

13.3 Replacement Parts

< Mechanic component >

Level	Location No	Description	Part No	Specification	SVC	Color	Remark
1		GSM(FOLDER)	TGFF0016701		N	METALIC SILVER	
1		GSM(FOLDER)	TGFF0017001		N	METALIC SILVER	
1		GSM(FOLDER)	TGFF0016901		N	METALIC SILVER	
2	APEY00	PHONE	APEY0092201		N	METALIC SILVER	
2	APEY00	PHONE	APEY0092401		N	METALIC SILVER	
2	APEY00	PHONE	APEY0092301		N	METALIC SILVER	
3	ACGG00	COVER ASSY, FOLDER	ACGG0029301	G7100 Two tone Color	Y		
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0015101	7100	Y	DARK BLUE	
5	MCJH00	COVER,FOLDER (LOWER)	MCJH0010601	7100 FOLDER LOWER	Y	DARK BLUE	11
5	MDAH00	DECO,RECEIVER	MDAH0002801	7100 RECEIVER DECO	Y	Silver	21
5	MICA00	INSERT,FRONT	MICA0001201	LG-G510,511,512 common use, DIA = 1.7mm+2.3t	N		
5	MMAA00	MAGNET,SWITCH	MMAA0001601	7100 magnetic	Y	Silver	33
5	MPBG00	PAD,LCD	MPBG0011901	7100 MAIN LCD PAD	Y	Black	38
5	MTAA00	TAPE,DECO	MTAA0027701	7100 receiver deco tape	Y		50
5	MTAD00	TAPE,WINDOW	MTAD0013901	7100 main window tape	Y		55
4	ACGJ00	COVER ASSY,FOLDER (UPPER)	ACGJ0023401	G7100	Y	METALIC SILVER	
5	MCJJ00	COVER,FOLDER (UPPER)	MCJJ0015001	7100 folder upper	Y	METALIC SILVER	12
5	MDAE00	DECO,FOLDER (UPPER)	MDAE0014301	7100 folder upper deco (injection)	Y	DARK BLUE	18
5	MDAM00	DECO,WINDOW(SUB)	MDAM0002801	7100 sub window deco	Y	Silver	22
5	MGAD00	GASKET,SHIELD FORM	MGAD0031801	7100 7110 COMMON USE (3.3x18x0.5t)	Y	Gold	25
5	MMAA00	MAGNET,SWITCH	MMAA0001601	7100 magnetic	Y	Silver	
5	MPBJ00	PAD,MOTOR	MPBJ0008401	7100 vibrator pad	Y	Black	40
5	MPBQ00	PAD,LCD(SUB)	MPBQ0008501	7100 sub lcd pad	Y	Black	39
5	MTAA00	TAPE,DECO	MTAA0027801	7100 sub window deco tape	Y		52
5	MTAE00	TAPE,WINDOW(SUB)	MTAE0009801	G7100	Y		56
4	ACGK00	COVER ASSY,FRONT	ACGK0025201	g7100	Y	DARK BLUE	
5	MBHY00	BUMPER	MBHY0006401	7100 bumper	Y	DARK BLUE	2
5	MCCC00	CAP,EARPHONE JACK	MCCC0008701	7100 Earphone jack	Y	DARK BLUE	6

Level	Location No	Description	Part No	Specification	SVC	Color	Remark
5	MCJK00	COVER,FRONT	MCJK0015801	7100 main front	Y	DARK BLUE	13
5	MIAA00	INDICATOR,LED	MIAA0008801	7100 indicator	Y	White	29
5	MICA00	INSERT,FRONT	MICA0001201	LG-G510,511,512 common use, DIA = 1.7mm+2.3t	N		
5	MTAZ00	TAPE	MTAZ0014501	7100 flash window tape	Y		49
5	MWAD00	WINDOW,LED	MWAD0001701	7100 flash window	Y	Silver	63
5	MWAG00	WINDOW,IRDA	MWAG0002701	7100 IrDA window	Y	Black	60
4	ADBB00	DECO ASSY,SIDE	ADBB0000701	7100 hinge deco right assy	Y	Silver	
5	MDAJ00	DECO,HINGE	MDAJ0003301	7100 hinge deco Right	Y	Silver	20
5	MTAA00	TAPE,DECO	MTAA0027901	7100 hinge deco right tape	Y		51
4	ADBY00	DECO ASSY	ADBY0001901	G7100 hinge deco assy	Y	Silver	
5	MDAD00	DECO,CAMERA	MDAD0001601	7100 & 7110 common use	Y	Black	17
5	MDAJ00	DECO,HINGE	MDAJ0003201	7100 hinge deco left	Y	Silver	19
5	MTAZ00	TAPE	MTAZ0014601	7100 camera window tape	Y		48
4	AHFA00	HINGE ASSY,FOLDER	AHFA0000301	swivel hinge assy	Y		
5	GMZZ00	SCREW MACHINE	GMZZ0007601	MSWR3 ,N ,+ [* + *],- , H=0.6mm,L=2.0mm, M1.7x2.0 Dia=3.0	Y	Silver	45
5	MCCH00	CAP,SCREW	MCCH0014301	7100 hinge cover screw cap	Y	Silver	8
5	MCJL00	COVER,GUIDE	MCJL0000801	7100 fpcb guide(hinge cover)	Y	Black	14
5	MCJU00	COVER,HINGE(UPPER)	MCJU0000401	7100 HINGE COVER	Y	DARK BLUE	15
5	MHFD00	HINGE,FOLDER	MHFD0004201	7100 folder on/off hinge	Y	Silver	27
5	MHFD01	HINGE,FOLDER	MHFD0004301	7100 swivel hinge	Y	Silver	28
5	MICA00	INSERT,FRONT	MICA0005901	7100 hinge insert nut	N	Silver	
5	SACY00	PCB ASSY,FLEXIBLE	SACY0012101	40PIN,5mm	Y		41
6	CN1	CONNECTOR,BOARD TO BOARD	ENBY0013405	40 PIN,0.4 mm,STRAIGHT ,Au ,B to B CNT BOSS	Y		
6	CN2	CONNECTOR,BOARD TO BOARD	ENBY0013405	40 PIN,0.4 mm,STRAIGHT ,Au ,B to B CNT BOSS	Y		
6	SPCY00	PCB,FLEXIBLE	SPCY0017201	POLYI ,.5 mm,DOUBLE ,G7100-FPCB,V0.4	N		
4	GMZZ00	SCREW MACHINE	GMZZ0003201	3.5 mm,3.5 mm,MSWR3(FN) ,N ,STR ,- , M1.7X3.5 DIA3.5	Y	Silver	
4	GMZZ01	SCREW MACHINE	GMZZ0010101	3.5 mm,3.5 mm,MSWR3(FN) ,N ,STR ,- , M1.7x3.5 dia3.5	Y	Silver	46
4	MCCH00	CAP,SCREW	MCCH0014401	7100 folder screw cap	Y	DARK BLUE	9
4	MGAD00	GASKET,SHIELD FORM	MGAD0031701	G7100 rear case use(5x7x0.5t)	Y	Gold	24
4	MPFD00	PLATE,GROUND	MPFD0001201	7100 fpcb ground plate (press)	Y	Silver	43
4	MTAB00	TAPE,PROTECTION	MTAB0001401	LG-G510,G7030, G7100 common use	N		53
4	MTAB01	TAPE,PROTECTION	MTAB0018901	Main window protection tape	N		54
4	MWAC00	WINDOW,LCD	MWAC0027301	7100 main window	Y	Silver	61
4	MWAE00	WINDOW,CAMERA	MWAE0000401	7100 camera window	Y	Silver	59
4	MWAF00	WINDOW,LCD(SUB)	MWAF0010501	7100 folder sub window	Y	Silver	62

Level	Location No	Description	Part No	Specification	SVC	Color	Remark
4	SJMY00	VIBRATOR,MOTOR	SJMY0002802	3 V,0.08 A,12*15 ,G5300 VIBRATOR (0.5t PAD)	Y		58
4	SMZY00	MODULE,ETC	SMZY0006201	CMOS VGA 20P Hynix Hansung assy	Y		35
4	SUVT00	TWO-WAY MODE SPEAKER	SUVT0003501	8 ohm,32 ohm,87 dB,110 dB,20 mm,20*14	Y		57
4	SVLM00	LCD MODULE	SVLM0005801	128*160 ,28*35 ,G7100 LCD	Y		31
3	ACGM00	COVER ASSY,REAR	ACGM0022301	g7100	Y	METALIC SILVER	
4	GMZZ00	SCREW MACHINE	GMZZ0010101	3.5 mm,3.5 mm,MSWR3(FN) ,N ,STR ,- , M1.7x3.5 dia3.5	Y	Silver	
4	MCJN00	COVER,REAR	MCJN0013101	7100 main rear	N	METALIC SILVER	16
4	MGAD00	GASKET,SHIELD FORM	MGAD0031701	G7100 rear case use(5x7x0.5t)	Y	Gold	
4	MGAD01	GASKET,SHIELD FORM	MGAD0033501	3.5x8.5x2.5	Y	Gold	26
4	MLEA00	LOCKER,BATTERY	MLEA0010101	7100 battery locker	Y	METALIC SILVER	32
4	MPBR00	PAD,BUTTON	MPBR0000901	(10X1.5X0.8t)	Y	Black	36
4	MPBT00	PAD,CAMERA	MPBT0002201	(5X7X1.0t)	Y	Black	37
4	MSDB00	SPRING,COIL	MSDB0001701	G7000	Y	Pearl White	47
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0002001	3.0 ,-2 dBd,SOFT GRAY ,GSM+DCS	Y		1
3	ADCA00	DOME ASSY,METAL	ADCA0011801	7100 metal dome 7110 common use	Y	Silver	23
3	GMZZ00	SCREW MACHINE	GMZZ0003201	3.5 mm,3.5 mm,MSWR3(FN) ,N ,STR ,- , M1.7X3.5 DIA3.5	Y	Silver	44
3	MBJA00	BUTTON,DIAL	MBJA0009401	7100 Dial button	Y	Silver	3
3	MBJC00	BUTTON,FUNCTION	MBJC0008001	7100 Camera button	Y	Silver	4
3	MBJN00	BUTTON,VOLUME	MBJN0001901	7100 volume button	Y	Silver	5
3	MBJA00	BUTTON,DIAL	MBJA0010501		Y	Silver	
3	MCCF00	CAP,MOBILE SWITCH	MCCF0010501	7100 (5.0phi PC Sheet) 7110 common use	Y	Silver	7
3	MCCH00	CAP,SCREW	MCCH0014501	7100 screw cap (rear)	Y	Silver	10
3	MLAK00	LABEL,MODEL	MLAK0006801	English, 30.5X21.5	N		30

13.3 Replacement Parts

< Main component >

Level	Location No	Description	Part No	Specification	SVC	Remark
3	SAFY00	PCB ASSY,MAIN	SAFY0076801	G7100 Product/6060 RCC PCB	Y	42
4	MLAB00	LABEL,A/S	MLAB0000601	HUMIDITY STICKER	Y	
4	SAFA00	PCB ASSY,MAIN,AUTO	SAFA0027901	G7100 Product/6060 RCC PCB	Y	
5	C100	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C102	CAP,CERAMIC,CHIP	ECCH0000276	1 uF,10V,Z,Y5V,HD,1608,R/TP	Y	
5	C103	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C104	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C105	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C106	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	Y	
5	C107	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	Y	
5	C108	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C109	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C110	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C111	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C112	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C113	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C114	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C115	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C116	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C117	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C118	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C119	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C120	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C121	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C122	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C123	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C124	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C125	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C126	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C127	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C131	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C132	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	Y	
5	C133	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C137	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C139	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C140	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C142	CAP,CERAMIC,CHIP	ECCH0001811	220000 pF,10V ,Z ,Y5V ,HD ,1005 ,R/TP	Y	
5	C144	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	C145	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C146	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C147	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C199	CAP,CERAMIC,CHIP	ECCH0000128	100 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C200	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C201	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C202	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C203	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C204	CAP,CERAMIC,CHIP	ECCH0000276	1 uF,10V,Z,Y5V,HD,1608,R/TP	Y	
5	C205	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C206	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C208	CAP,CERAMIC,CHIP	ECCH0000159	22 nF,16V,K,X7R,HD,1005,R/TP	Y	
5	C209	CAP,CERAMIC,CHIP	ECCH0000159	22 nF,16V,K,X7R,HD,1005,R/TP	Y	
5	C210	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C211	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C212	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C213	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C215	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C216	CAP,CERAMIC,CHIP	ECCH0005801	2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP	Y	
5	C217	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C218	CAP,CERAMIC,CHIP	ECCH0000274	0.22 uF,16V,Z,Y5V,HD,1608,R/TP	Y	
5	C219	CAP,CERAMIC,CHIP	ECCH0005801	2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP	Y	
5	C220	CAP,CERAMIC,CHIP	ECCH0005801	2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP	Y	
5	C221	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C222	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C223	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C224	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	Y	
5	C225	CAP,CERAMIC,CHIP	ECCH0000279	0.47 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP	Y	
5	C226	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C227	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C228	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C229	CAP,CERAMIC,CHIP	ECCH0003401	10 uF,6.3V ,Z ,Y5V ,HD ,2012 ,R/TP	Y	
5	C300	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C301	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C302	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C303	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C304	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C306	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C307	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C308	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP	Y	
5	C309	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C315	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	C320	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C396	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C398	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C399	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C402	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C403	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C404	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C405	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C406	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C407	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C408	CAP,CERAMIC,CHIP	ECCH0005801	2.2 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP	Y	
5	C409	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C410	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C411	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C412	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C413	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C414	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C415	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C416	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C417	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C418	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C419	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C420	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C430	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C431	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C500	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C502	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C503	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C504	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C505	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C506	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C507	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C508	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C509	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C510	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C511	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C512	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C514	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C515	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C516	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C517	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C518	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	C519	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C520	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C521	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C522	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C523	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C524	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C525	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C526	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C527	CAP,CERAMIC,CHIP	ECCH0000139	470 pF,50V,K,X7R,HD,1005,R/TP	Y	
5	C528	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C529	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C530	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C531	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C532	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C533	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C534	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C535	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C536	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C537	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C538	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C539	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C540	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C541	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C542	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C543	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C544	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C545	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C546	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C547	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C548	CAP,CERAMIC,CHIP	ECCH0000276	1 uF,10V,Z,Y5V,HD,1608,R/TP	Y	
5	C549	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C550	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C551	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C552	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C553	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C554	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C555	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C556	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C557	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C558	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C559	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C560	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	C561	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C562	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C563	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C564	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	Y	
5	C565	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C566	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C567	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C568	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C569	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C570	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C571	CAP,CERAMIC,CHIP	ECCH0000108	7 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C572	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C573	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C574	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C575	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C576	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C577	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C578	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C579	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C580	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C581	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C582	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C583	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C584	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C585	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C586	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C587	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C600	CAP,CERAMIC,CHIP	ECCH0000101	0.5 pF,50V,C,NP0,TC,1005,R/TP	Y	
5	C605	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C606	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C607	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C608	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C610	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C613	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C615	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	Y	
5	C616	CAP,CERAMIC,CHIP	ECCH0000111	12 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C617	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C619	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C621	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C622	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C623	CAP,CERAMIC,CHIP	ECCH0000139	470 pF,50V,K,X7R,HD,1005,R/TP	Y	
5	C624	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	C626	CAP,CERAMIC,CHIP	ECCH0000139	470 pF,50V,K,X7R,HD,1005,R/TP	Y	
5	C627	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C628	CAP,CERAMIC,CHIP	ECCH0000139	470 pF,50V,K,X7R,HD,1005,R/TP	Y	
5	C629	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	Y	
5	C630	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C631	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C632	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C633	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C634	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C635	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C636	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C637	CAP,CERAMIC,CHIP	ECCH0000141	680 pF,50V,K,X7R,HD,1005,R/TP	Y	
5	C638	CAP,FILM,MPP	ECFD0000901	8.2 nF,6.3V ,J ,STD ,SMD ,1608 mm,R/TP	Y	
5	C639	CAP,CERAMIC,CHIP	ECCH0000133	220 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	Y	
5	C640	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C641	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C642	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C643	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C644	CAP,CERAMIC,CHIP	ECCH0000276	1 uF,10V,Z,Y5V,HD,1608,R/TP	Y	
5	C645	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	Y	
5	C646	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C647	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	Y	
5	C648	CAP,CERAMIC,CHIP	ECCH0000180	3.3 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	Y	
5	C649	CAP,CERAMIC,CHIP	ECCH0000101	0.5 pF,50V,C,NP0,TC,1005,R/TP	Y	
5	C650	CAP,CERAMIC,CHIP	ECCH0000131	180 pF,50V,J,SL,TC,1005,R/TP	Y	
5	C651	CAP,CERAMIC,CHIP	ECCH0000111	12 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C652	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C653	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C654	CAP,TANTAL,CHIP, MAKER	ECTZ0005001	68 uF,6.3V ,M ,L_ESR ,ETC ,R/TP	Y	
5	C655	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C657	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	Y	
5	C658	CAP,CERAMIC,CHIP	ECCH0000128	100 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C659	CAP,CERAMIC,CHIP	ECCH0000128	100 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C660	CAP,CERAMIC,CHIP	ECCH0000128	100 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C661	CAP,CERAMIC,CHIP	ECCH0000128	100 pF,50V,J,NP0,TC,1005,R/TP	Y	
5	C662	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	Y	
5	C663	CAP,TANTAL,CHIP, MAKER	ECTZ0005101	100 uF,6.3V ,M ,L_ESR ,ETC ,R/TP	Y	
5	C665	CAP,CERAMIC,CHIP	ECCH0000103	1.5 pF,50V,C,NP0,TC,1005,R/TP	Y	
5	C666	CAP,CERAMIC,CHIP	ECCH0000102	1 pF,50V,C,NP0,TC,1005,R/TP	Y	
5	CN300	CONN,RECEPTACLE	ENEY0002501	18 PIN,3 ,0 ,0.5 PITCH / 18 PIN I/O + POWER	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	CN500	CONNECTOR,BOARD TO BOARD	ENBY0013406	40 PIN,0.4 mm,STRAIGHT ,Au ,B to B CNT BOSS	Y	
5	CN501	CONNECTOR,BOARD TO BOARD	ENBY0013409	20 PIN,0.4 mm,ETC ,AU ,	Y	
5	D100	DIODE,SWITCHING	EDSY0005701	EMT3 ,80 V,4 A,R/TP ,	Y	
5	D200	DIODE,SWITCHING	EDSY0012101	US-FLAT ,30 V,1 A,R/TP ,2.5*1.25*0.6(t)	Y	
5	D300	DIODE,SWITCHING	EDSY0005301	SC-70 ,80 V,0.1 A,R/TP ,	Y	
5	FL600	FILTER,SEPERATOR	SFAY0001901	880/960 ,1710/1880 ,1.3 dB,1.5 dB,30 dB,25 dB,ETC ,5.4*4.0*1.8	Y	
5	FL601	FILTER,SAW	SFSY0017601	942.1842 MHz,3*2.5*0.98 ,SMD ,DUAL BAND	Y	
5	J100	CONN,SOCKET	ENSY0009301	6 PIN,ETC ,G510 mold cutting ,2.54 mm,2.95T, GUIDE SMD TYPE	Y	
5	J400	CONN,JACK/PLUG, EARPHONE	ENJE0002301	3,5 PIN,G7000 EAR JACK 3 pole, 5 pin KSD	Y	
5	L600	INDUCTOR,CHIP	ELCH0001425	82 nH,J ,1005 ,R/TP ,	Y	
5	L601	INDUCTOR,CHIP	ELCH0005010	1.8 nH,S ,1005 ,R/TP ,	Y	
5	L602	INDUCTOR,CHIP	ELCH0001405	3.3 nH,S,1005,R/TP	Y	
5	L603	INDUCTOR,CHIP	ELCH0001001	10 nH,J,1005,R/TP	Y	
5	L604	INDUCTOR,CHIP	ELCH0005002	2.7 nH,S ,1005 ,R/TP ,	Y	
5	L605	INDUCTOR,CHIP	ELCH0000718	150 nH,J,1608,R/TP	Y	
5	L606	INDUCTOR,CHIP	ELCH0001001	10 nH,J,1005,R/TP	Y	
5	L607	INDUCTOR,CHIP	ELCH0001404	1.5 nH,S,1005,R/TP	Y	
5	L609	INDUCTOR,CHIP	ELCH0001004	8.2 nH,J,1005,R/TP	Y	
5	L611	INDUCTOR,CHIP	ELCH0001404	1.5 nH,S,1005,R/TP	Y	
5	L612	INDUCTOR,CHIP	ELCH0001001	10 nH,J,1005,R/TP	Y	
5	L613	INDUCTOR,CHIP	ELCH0005005	27 nH,J ,1005 ,R/TP ,	Y	
5	LD300	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD301	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD302	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD303	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD306	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD307	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD308	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD309	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD310	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD311	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD312	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD313	DIODE,LED,CHIP	EDLH0004502	BLUE ,1608 ,R/TP ,0.35T	Y	
5	LD400	DIODE,LED,CHIP	EDLH0008301	WHITE ,ETC ,R/TP ,3.5*1.7 FLASH	Y	
5	LD401	DIODE,LED,CHIP	EDLH0007901	RED ,1608 ,R/TP ,0.4T	Y	
5	Q100	TR,BJT,NPN	EQBN0007101	EMT3 ,0.15 W,R/TP ,LOW FREQUENCY	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	Q200	TR,FET,P-CHANNEL	EQFP0004201	2.9*1.9*0.8(t) ,0.7 W,20 V,-6.0 A,R/TP ,NDC652P upgrade(substitution) item	Y	
5	Q300	TR,BJT,NPN	EQBN0007101	EMT3 ,0.15 W,R/TP ,LOW FREQUENCY	Y	
5	Q301	TR,BJT,NPN	EQBN0004801	SMT6 ,0.2 W,R/TP ,	Y	
5	Q400	TR,BJT,NPN	EQBN0004801	SMT6 ,0.2 W,R/TP ,	Y	
5	Q401	TR,BJT,NPN	EQBN0007101	EMT3 ,0.15 W,R/TP ,LOW FREQUENCY	Y	
5	Q500	TR,FET,P-CHANNEL	EQFP0004501	SOT-323 ,0.29 W,1.8 V,0.86 A,R/TP ,P-Chanel MOSFET	Y	
5	R100	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R101	RES,CHIP	ERHY0000286	200K ohm,1/16W,J,1005,R/TP	Y	
5	R102	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP	Y	
5	R103	RES,CHIP	ERHY0000282	120K ohm,1/16W,J,1005,R/TP	Y	
5	R104	RES,CHIP	ERHY0000282	120K ohm,1/16W,J,1005,R/TP	Y	
5	R105	RES,CHIP	ERHY0000286	200K ohm,1/16W,J,1005,R/TP	Y	
5	R106	RES,CHIP	ERHY0000282	120K ohm,1/16W,J,1005,R/TP	Y	
5	R107	RES,CHIP	ERHY0000278	82K ohm,1/16W,J,1005,R/TP	Y	
5	R108	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP	Y	
5	R109	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R111	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R112	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R113	RES,CHIP	ERHY0000246	2K ohm,1/16W,J,1005,R/TP	Y	
5	R114	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R115	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP	Y	
5	R116	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R117	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R120	RES,CHIP	ERHY0000512	10M ohm,1/16W,J,1608,R/TP	Y	
5	R121	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP	Y	
5	R124	RES,CHIP	ERHY0000286	200K ohm,1/16W,J,1005,R/TP	Y	
5	R125	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R126	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R127	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP	Y	
5	R129	RES,CHIP	ERHY0000251	3.6K ohm,1/16W,J,1005,R/TP	Y	
5	R130	RES,CHIP	ERHY0000140	36K ohm,1/16W,F,1005,R/TP	Y	
5	R140	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R200	RES,CHIP	ERHY0000294	560K ohm,1/16W,J,1005,R/TP	Y	
5	R201	RES,CHIP	ERHY0000294	560K ohm,1/16W,J,1005,R/TP	Y	
5	R202	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP	Y	
5	R203	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP	Y	
5	R204	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R206	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP	Y	
5	R207	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R213	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R214	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	R216	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R217	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R218	RES,CHIP	ERHY0001103	0.33 ohm,1/4W ,F ,2012 ,R/TP	Y	
5	R300	RES,CHIP	ERHY0000274	51K ohm,1/16W,J,1005,R/TP	Y	
5	R301	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP	Y	
5	R302	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R303	RES,CHIP	ERHY0000205	15 ohm,1/16W,J,1005,R/TP	Y	
5	R304	RES,CHIP	ERHY0000274	51K ohm,1/16W,J,1005,R/TP	Y	
5	R305	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R306	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R307	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R308	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R309	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R311	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R313	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R316	RES,CHIP	ERHY0000211	33 ohm,1/16W,J,1005,R/TP	Y	
5	R317	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R318	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R319	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R320	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R321	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R322	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R323	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R324	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R325	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R326	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R327	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R328	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R329	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP	Y	
5	R330	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R331	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R332	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R333	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R334	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R335	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R338	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R339	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP	Y	
5	R340	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP	Y	
5	R350	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R351	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R352	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R353	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	R354	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R355	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R356	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R357	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R358	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R359	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R360	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R361	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R362	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R363	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R364	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP	Y	
5	R400	RES,CHIP	ERHY0000205	15 ohm,1/16W,J,1005,R/TP	Y	
5	R401	RES,CHIP	ERHY0000205	15 ohm,1/16W,J,1005,R/TP	Y	
5	R402	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP	Y	
5	R403	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP	Y	
5	R404	RES,CHIP	ERHY0000296	1M ohm,1/16W,J,1005,R/TP	Y	
5	R405	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R406	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R407	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP	Y	
5	R408	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R409	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R410	RES,CHIP	ERHY0000247	2.2K ohm,1/16W,J,1005,R/TP	Y	
5	R412	RES,CHIP	ERHY0000296	1M ohm,1/16W,J,1005,R/TP	Y	
5	R413	RES,CHIP	ERHY0006602	620 Kohm,1/16W ,J ,1005 ,R/TP	Y	
5	R414	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP	Y	
5	R415	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP	Y	
5	R416	RES,CHIP	ERHY0000188	430 Kohm,1/16W ,F ,1005 ,R/TP	Y	
5	R417	RES,CHIP	ERHY0000250	3.3K ohm,1/16W,J,1005,R/TP	Y	
5	R418	RES,CHIP	ERHY0000296	1M ohm,1/16W,J,1005,R/TP	Y	
5	R422	RES,CHIP	ERHY0000247	2.2K ohm,1/16W,J,1005,R/TP	Y	
5	R423	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP	Y	
5	R424	RES,CHIP	ERHY0000207	20 ohm,1/16W,J,1005,R/TP	Y	
5	R425	RES,CHIP	ERHY0000238	750 ohm,1/16W,J,1005,R/TP	Y	
5	R426	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP	Y	
5	R427	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R428	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP	Y	
5	R500	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R501	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	R502	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R503	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R504	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R505	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	R506	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R507	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R508	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R509	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R510	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R511	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R512	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R513	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R514	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R515	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R516	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R517	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R518	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R519	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R521	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R522	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R523	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R524	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R525	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R526	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R527	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP	Y	
5	R528	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R529	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R530	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R531	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP	Y	
5	R532	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP	Y	
5	R533	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R534	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R536	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R537	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R538	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R539	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R540	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R541	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R542	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R545	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R548	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R549	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R550	FILTER,BEAD,CHIP	SFBH0007101	120 ohm,1005 ,Ferrite Bead	Y	
5	R600	RES,CHIP	ERHY0000249	2.7K ohm,1/16W,J,1005,R/TP	Y	
5	R601	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP	Y	
5	R602	THERMISTOR	SETY0001201	NTC ,22 Kohm,SMD ,1.0*0.5 / NSM4 SERIES	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	R603	RES,CHIP	ERHY0000289	270K ohm,1/16W,J,1005,R/TP	Y	
5	R604	RES,CHIP	ERHY0000112	1K ohm,1/16W,F,1005,R/TP	Y	
5	R605	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R606	RES,CHIP	ERHY0000231	390 ohm,1/16W,J,1005,R/TP	Y	
5	R607	RES,CHIP	ERHY0000214	51 ohm,1/16W,J,1005,R/TP	Y	
5	R608	RES,CHIP	ERHY0000234	510 ohm,1/16W,J,1005,R/TP	Y	
5	R609	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R610	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R613	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R614	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R617	RES,CHIP	ERHY0000296	1M ohm,1/16W,J,1005,R/TP	Y	
5	R618	RES,CHIP	ERHY0000141	39K ohm,1/16W,F,1005,R/TP	Y	
5	R619	RES,CHIP	ERHY0000263	15K ohm,1/16W,J,1005,R/TP	Y	
5	R620	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R621	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R622	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R623	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP	Y	
5	R624	RES,CHIP	ERHY0000247	2.2K ohm,1/16W,J,1005,R/TP	Y	
5	R625	RES,CHIP	ERHY0000255	5.6K ohm,1/16W,J,1005,R/TP	Y	
5	R626	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP	Y	
5	R627	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP	Y	
5	R629	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP	Y	
5	R630	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP	Y	
5	RA300	RES,ARRAY,R	ERNR0000401	47 ohm, ohm,8 PIN,J ,1/32 W ,SMD ,R/TP	Y	
5	SPFY00	PCB,MAIN	SPFY0044501	FR-4 ,0.95 mm,MULTI-8 ,G7100 Ver0.4	Y	
5	SW300	SWITCH,TACT	ESCY0002501	12 V,0.05 A,HORIZONTAL ,220 G,G5200 TACK S/W	Y	
5	SW301	SWITCH,TACT	ESCY0002501	12 V,0.05 A,HORIZONTAL ,220 G,G5200 TACK S/W	Y	
5	SW302	SWITCH,TACT	ESCY0002501	12 V,0.05 A,HORIZONTAL ,220 G,G5200 TACK S/W	Y	
5	SW600	CONN,RF SWITCH	ENWY0000401	STRAIGHT ,SMD ,0.1 dB,3*3*1.8 / 500 CYCLES	Y	
5	U100	IC	EUSY0100701	64 BALL LFBGA / MINI-BGA ,64 PIN,R/TP ,DUAL-MODE VOICEBAND BASEBAND CODEC / AD20MSP430	Y	
5	U101	IC	EUSY0157001	LFBGA ,160 PIN,R/TP ,DIGITAL BASEBAND PROCESSOR	Y	
5	U102	IC	EUSY0147002	US8 ,8 PIN,R/TP ,DUAL 2-INPUT OR GATE	Y	
5	U200	IC	EUSY0148902	QFN ,48 PIN,R/TP ,16 TONES 32 POLY / GM by PCM method	Y	
5	U201	IC	EUSY0149701	LLP ,10 PIN,R/TP ,1 Watt Audio Power Amplifier / Leadless Type	Y	
5	U202	IC	EUSY0145401	P-FBGA73 ,73 PIN,R/TP ,128M FLASH 32M PSRAM / BOTTOM BOOT / CE 2 PCS	N	
5	U203	IC	EUSY0145101	LFCSP-32 (5mmX5mm) ,32 PIN,R/TP ,2.8V LDO for Memory / GSM POWER MANAGEMENT SYSTEM	Y	

Level	Location No	Description	Part No	Specification	SVC	Remark
5	U300	IC	EUSY0129501	SC-74A FIT ,3 PIN,R/TP ,HALL EFFECT SWITCH	Y	
5	U301	IC	EUSY0129501	SC-74A FIT ,3 PIN,R/TP ,HALL EFFECT SWITCH	Y	
5	U302	IC	EUSY0122301	SURFACE MOUNT ,7 PIN,R/TP ,IRDA DATA 1.3 LOW POWER TRANSCEIVER / 115.2kb/s	Y	
5	U400	IC	EUSY0119001	10 uMAX ,10 PIN,R/TP ,DUAL SPDT ANALOG SWITCHES	Y	
5	U401	IC	EUSY0136701	12 QFN ,12 PIN,R/TP ,QFN TYPE SPDT ANALOG SWITCH	Y	
5	U402	IC	EUSY0077701	SC70-5 ,5 PIN,R/TP ,	Y	
5	U403	IC	EUSY0077701	SC70-5 ,5 PIN,R/TP ,	Y	
5	U404	IC	EUSY0077301	SC70-6/SOT23-6 ,6 PIN,R/TP ,	Y	
5	U500	IC	EUSY0076701	SOT-23-6 ,6 PIN,R/TP ,	Y	
5	U501	IC	EUSY0156701	CSP (8mm*8mm) ,100 PIN,R/TP ,LCD CONTROLLER, JPEG ENCODER / DECODER	Y	
5	U600	IC	EUSY0076701	SOT-23-6 ,6 PIN,R/TP ,	Y	
5	U601	PAM	SMPY0003801	15 dBm,54 %, A, dBc, dB,10*8*1.5(t) ,SMD ,16-PIN	Y	
5	U602	IC	EUSY0077201	SOT(DCK) ,5 PIN,R/TP ,	Y	
5	U603	IC	EUSY0129801	Land Grid Array(LGA) ,64 PIN,R/TP ,9 x 9 mm	Y	
5	VA100	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA101	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA102	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA103	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA300	VARISTOR	SEVY0000702	14 V,10% ,SMD ,	Y	
5	VA301	VARISTOR	SEVY0000702	14 V,10% ,SMD ,	Y	
5	VA302	VARISTOR	SEVY0000702	14 V,10% ,SMD ,	Y	
5	VA303	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA400	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA401	RES,VARIABLE,ETC	ERVZ0000101	ohm, PIN, ,SMD ,R/TP ,1005 SIZE CHIP VARISTOR	Y	
5	VA402	VARISTOR	SEVY0000702	14 V,10% ,SMD ,	Y	
5	X100	X-TAL	EXXY0015601	32.768 KHz,20 PPM,6 pF,65 Kohm,SMD ,6.9*1.4*1.3 ,	Y	
5	X600	VCTCXO	EXSK0004101	13 MHz,3 PPM,10 pF,SMD ,3.2*2.5*1.0 ,	Y	
3	SUMY00	MICROPHONE	SUMY0006401	UNIT ,-44 dB,6*1.3 ,G7100	Y	34