LG

Service Manual

Model : KE600

LG

Service Manual

KE600

Date: October, 2006 / Issue 1.0

REVISED HISTORY

Editor	Date	Issue	Contents of Changes	S/W Version
S. H. RYU	2006/07/06	0.1	Initial Release	
S. H. RYU	2006/08/24	0.2	The second Release	
S. H. RYU	2006/10/16	1.0	Final Release	

* The information in this manual is subject to change without notice and should not be construed as a commitment by LGE Inc. Furthermore, LGE Inc. reserves the right, without notice, to make changes to equipment design as advances in engineering and manufacturing methods warrant.

* This manual provides the information necessary to install, program, operate and maintain the KE600/KE608.

Table Of Contents

1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the KE600/KE608.

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 you're 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. LGE 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. LGE 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 KE600/KE608 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 the KE600/KE608 must be performed only at the LGE or its authorized agents. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

E. Notice of Radiated Emissions

The KE600/KE608 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

An KE600/KE608 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 contains 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 such as EEPROM to the factory, use the protective package as described.

1.3 ABBREVIATION

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
CLA	Cigar Lighter Adapter
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
EGPRS	Enhanced General Packet Radio Service
EL	Electroluminescence
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIB	General Purpose Interface Bus
GPRS	General Packet Radio Service
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

1. INTRODUCTION

LGE	LG Electronics
OPLL	Offset Phase Locked Loop
PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
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
8PSK	8 Phase Shift Keying

2. PERFORMANCE

2.1 H/W Feature

Item	Feature	Comment
Standard Battery	Li-Poly, 950mAh Battery Size :36.50(W)x58.50(H)x3.65(T)[mm]	
AVG TCVR Current	280mA	PL5
Standby Current	<2.7 mA	@PP9
Talk time	Up to 3 hours (GSM900,TX Level :5)	
Standby time	Up to 220 hours (Paging period :9, RSSI: -85dBm)	
Charging time	Under 3 hours	
RX Sensitivity	GSM900 : -105dBm, DCS/PCS : -105dBm	
TX output power	GSM900: 32.5dBm (Level 5) DCS/PCS: 29.8dBm (Level 0)	
GPRS compatibility	Class 10	
SIM card type	3V Plug in Type	
Display	240 x 320 pixels, 2 inch wide, 262K color, TFT	
Status Indicator	Soft icons Key Pad 0 ~ 9, #, *, Navigation wheel type Key, Up/Down Side Key, Camera Side key, END/PWR Key, MP3 Key,	
ANT	Internal Type	
EAR Phone Jack	12pin multi port Headset jack with Remote controller	
PC Synchronization	Yes	
Speech coding	HR/EFR/FR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Buzzer	No	
Voice Recoding	Yes	
C-Mic	Yes	
Receiver	Yes	
Travel Adapter	Yes	
Options	Bluetooth hands-free kit, Data Kit	

2.2 Technical specification

<table>
<tr><th>Item</th><th>Description</th><th colspan="6">Specification</th></tr>
<tr><td>1</td><td>Frequency Band</td><td colspan="6">GSM900
• TX: 890 + 0.2 x n MHz
• RX: 935 + 0.2 x n MHz (n = 1 ~ 124)
EGSM
• TX: 890 + 0.2 x (n-1024) MHz
• RX: 935 + 0.2 x (n-1024) MHz (n = 975 ~ 1023)
DCS1800
• TX: 1710 + (n-511) x 0.2 MHz (n = 512 ~ 885)
• RX: TX + 95 MHz
PCS1900
• TX: 1850.2 + (n-512) x 0.2 MHz (n = 512 ~ 810)
• RX: TX + 80MHz</td></tr>
<tr><td>2</td><td>Phase Error</td><td colspan="6">RMS < 5 degrees
Peak < 20 degrees</td></tr>
<tr><td>3</td><td>Frequency Error</td><td colspan="6">< 0.1ppm</td></tr>
<tr><td rowspan="20">4</td><td rowspan="20">Power Level</td><td colspan="6">GSM900/EGSM</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>5</td><td>33 dBm</td><td>±2dB</td><td>13</td><td>17 dBm</td><td>±3dB</td></tr>
<tr><td>6</td><td>31 dBm</td><td>±3dB</td><td>14</td><td>15 dBm</td><td>±3dB</td></tr>
<tr><td>7</td><td>29 dBm</td><td>±3dB</td><td>15</td><td>13 dBm</td><td>±3dB</td></tr>
<tr><td>8</td><td>27 dBm</td><td>±3dB</td><td>16</td><td>11 dBm</td><td>±5dB</td></tr>
<tr><td>9</td><td>25 dBm</td><td>±3dB</td><td>17</td><td>9 dBm</td><td>±5dB</td></tr>
<tr><td>10</td><td>23 dBm</td><td>±3dB</td><td>18</td><td>7 dBm</td><td>±5dB</td></tr>
<tr><td>11</td><td>21 dBm</td><td>±3dB</td><td>19</td><td>5 dBm</td><td>±5dB</td></tr>
<tr><td>12</td><td>19 dBm</td><td>±3dB</td><td></td><td></td><td></td></tr>
<tr><td colspan="6">DCS1800/PCS1900</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>0</td><td>30 dBm</td><td>±2dB</td><td>8</td><td>14 dBm</td><td>±3dB</td></tr>
<tr><td>1</td><td>28 dBm</td><td>±3dB</td><td>9</td><td>12 dBm</td><td>±4dB</td></tr>
<tr><td>2</td><td>26 dBm</td><td>±3dB</td><td>10</td><td>10 dBm</td><td>±4dB</td></tr>
<tr><td>3</td><td>24 dBm</td><td>±3dB</td><td>11</td><td>8 dBm</td><td>±4dB</td></tr>
<tr><td>4</td><td>22 dBm</td><td>±3dB</td><td>12</td><td>6 dBm</td><td>±4dB</td></tr>
<tr><td>5</td><td>20 dBm</td><td>±3dB</td><td>13</td><td>4 dBm</td><td>±4dB</td></tr>
<tr><td>6</td><td>18 dBm</td><td>±3dB</td><td>14</td><td>2 dBm</td><td>±5dB</td></tr>
<tr><td>7</td><td>16 dBm</td><td>±3dB</td><td>15</td><td>0 dBm</td><td>±5dB</td></tr>
</table>

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	**GSM900/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
		DCS1800/PCS1900	
		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)	**GSM900/EGSM**	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24

2. PERFORMANCE

<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="2">DCS1800/PCS1900</td><td></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">GSM900/EGSM
BER (Class II) < 2.439% @-102dBm
DCS1800/PCS1900
BER (Class II) < 2.439% @-100dBm</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>
<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>
</table>

Item	Description	Specification	
14	STMR	13 ±5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side tone Distortion	Three stage distortion < 10%	
18	<Change> System frequency (26 MHz) tolerance	≤ 2.5ppm	
19	<Change>32.768KHz tolerance	≤ 30ppm	
20	Power consumption	Standby - Normal ≤ 3 mA(@PP9)	
21	Talk Time	GSM900/Lvl 5 (Battery Capacity 950mA):240 min GSM900/Lvl 12(Battery Capacity 950 mA):420 min	
22	Standby Time	Under conditions, at least 200 hours: 1. Brand new and full 950mAh battery 2. Full charge, no receive/send and keep GSM in idle mode. 3. Broadcast set off. 4. Signal strength display set at 3 level above. 5. Backlight of phone set off.	
23	Ringer Volume	At least 65 dB under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
24	Charge Current	Fast Charge : < 600 mA Slow Charge: < 120 mA	
25	Antenna Display	Antenna Bar Number	Power
		5	-85 dBm ~
		4	-90 dBm ~ -86 dBm
		3	-95 dBm ~ -91 dBm
		2	-100 dBm ~ -96 dBm
		1	-105 dBm ~ -101 dBm
		0	~ -105 dBm

2. PERFORMANCE

Item	Description	Specification	
26	Battery Indicator	Battery Bar Number	Voltage(±0.05V)
		4	3.86V~4.2V
		3	3.75V~3.85V
		2	3.75V~3.69V
		1	3.69V~3.58V
		0	3.58V~
27	Low Voltage Warning	3.58V↓ ±0.05V (Call)	
		3.50V↓ ±0.05V (Standby)	
28	Forced shut down Voltage	3.35± 0.05 V	
29	Battery Type	Li-ion Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 950mAh	
30	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60Hz Out put: 5.2, 0.8A	

*** EDGE RF Specification (Option: KE608 is not serviced for "EDGE mode")**

<table>
<tr><th>Item</th><th>Description</th><th colspan="6">Specification</th></tr>
<tr><td>1
2
3
4</td><td>RMS EVM
Peak EVM
95th Percentile EVM
Origin Offset Suppression</td><td colspan="6">≤ 9%
≤ 30%
≤ 15%
≥ 30dB</td></tr>
<tr><td rowspan="20">5</td><td rowspan="20">Power Level</td><td colspan="6">GSM900/EGSM</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>5</td><td>27dBm</td><td>±3dB</td><td>13</td><td>17dBm</td><td>±3dB</td></tr>
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<tr><td>12</td><td>19dBm</td><td>±3dB</td><td></td><td></td><td></td></tr>
<tr><td colspan="6">DCS1800, PCS1900</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>0</td><td>26dBm</td><td>±3dB</td><td>8</td><td>14 dBm</td><td>±3dB</td></tr>
<tr><td>1</td><td>26dBm</td><td>±3dB</td><td>9</td><td>12 dBm</td><td>±4dB</td></tr>
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<tr><td>4</td><td>22 dBm</td><td>±3dB</td><td>12</td><td>6 dBm</td><td>±4dB</td></tr>
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<tr><td>6</td><td>18 dBm</td><td>±3dB</td><td>14</td><td>2 dBm</td><td>±5dB</td></tr>
<tr><td>7</td><td>16 dBm</td><td>±3dB</td><td>15</td><td>0 dBm</td><td>±5dB</td></tr>
<tr><td rowspan="11">6</td><td rowspan="11">Output RF Spectrum
(due to modulation)</td><td colspan="6">GSM900/EGSM</td></tr>
<tr><td colspan="4">Offset from carrier(kHz)</td><td colspan="2">Max. dBc</td></tr>
<tr><td colspan="4">100</td><td colspan="2">+0.5</td></tr>
<tr><td colspan="4">200</td><td colspan="2">-30</td></tr>
<tr><td colspan="4">250</td><td colspan="2">-33</td></tr>
<tr><td colspan="4">400</td><td colspan="2">-54</td></tr>
<tr><td colspan="4">600~<1,200</td><td colspan="2">-60</td></tr>
<tr><td colspan="4">1,200~<1,800</td><td colspan="2">-60</td></tr>
<tr><td colspan="4">1,800~<3,000</td><td colspan="2">-63</td></tr>
<tr><td colspan="4">3,000~<6,000</td><td colspan="2">-65</td></tr>
<tr><td colspan="4">6,000</td><td colspan="2">-71</td></tr>
</table>

2. PERFORMANCE

Item	Description	Specification	
6	Output RF Spectrum	**DCS1800, PCS1900**	
	(due to modulation)	Offset from carrier(kHz)	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-54
		600~<1,200	-60
		1,200~<1,800	-60
		1,800~<3,000	-63
		3,000~<6,000	-65
		6,000	-71
7	Output RF Spectrum	**GSM900/EGSM**	
	(due to switching transient)	Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	--30
		DCS1800, PCS1900	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	-30

3. TECHNICAL BRIEF

Baseband circuit

3.1 KE600 / KE608 Component Block diagram.

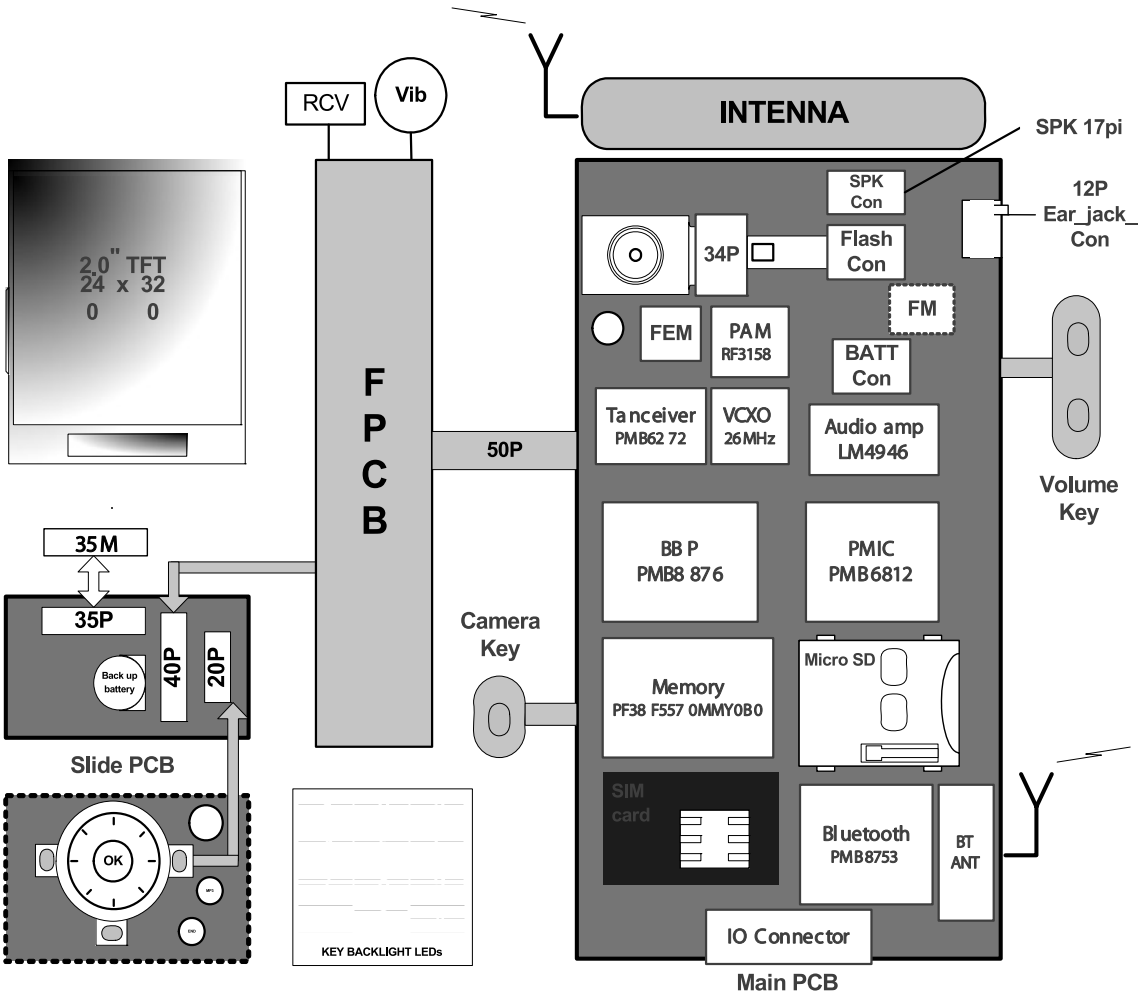


Figure 1 KE600/KE608 Hardware architecture

KE600/KE608 is composed with 3 different PCB part such as main PCB, sub PCB and FPCB.

3. TECHNICAL BRIEF

The functional component arrangement is mentioned below diagram.

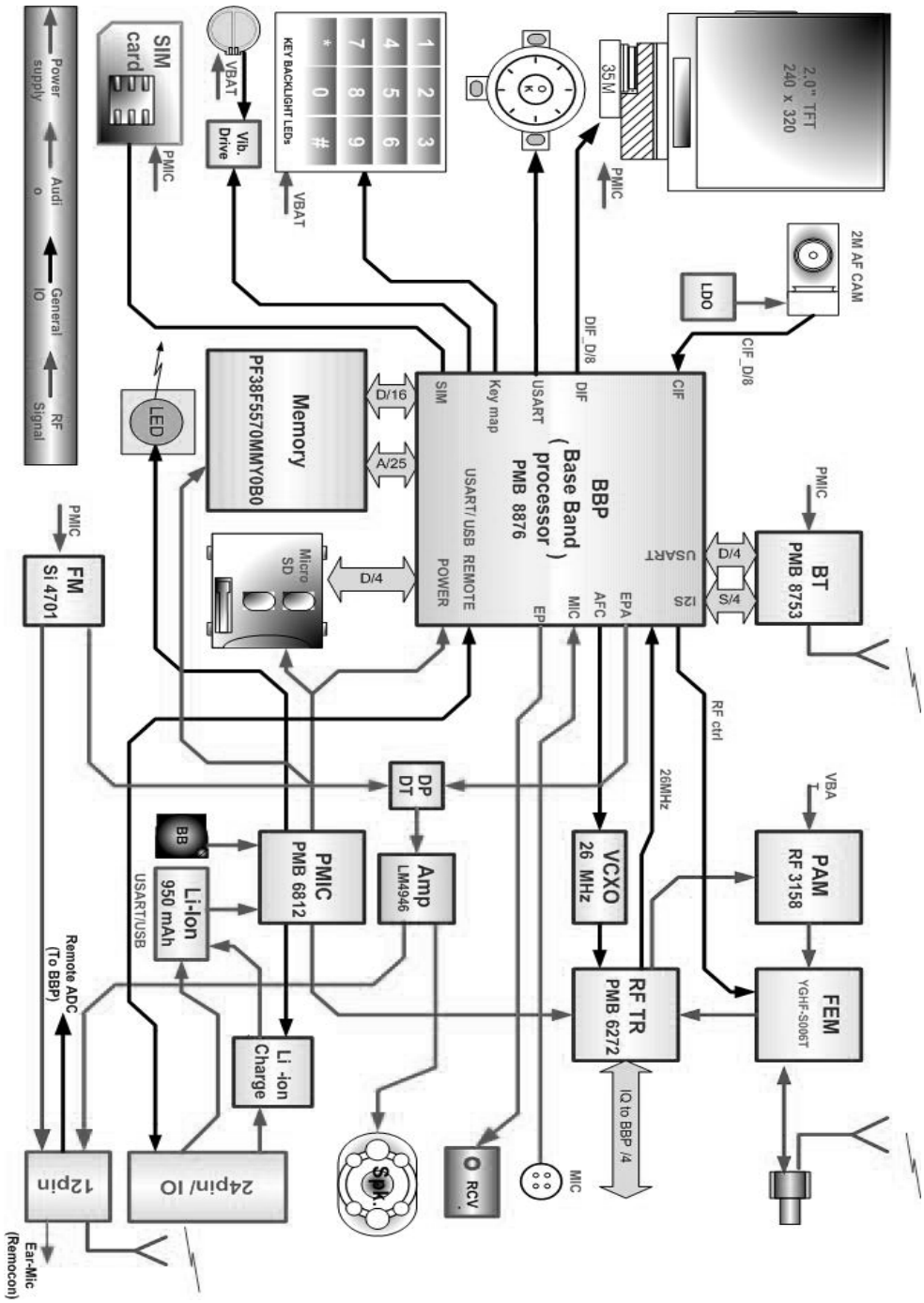


Figure 2 KE600/KE608 Functional block diagram

3.2. Baseband Processor (BBP) Introduction

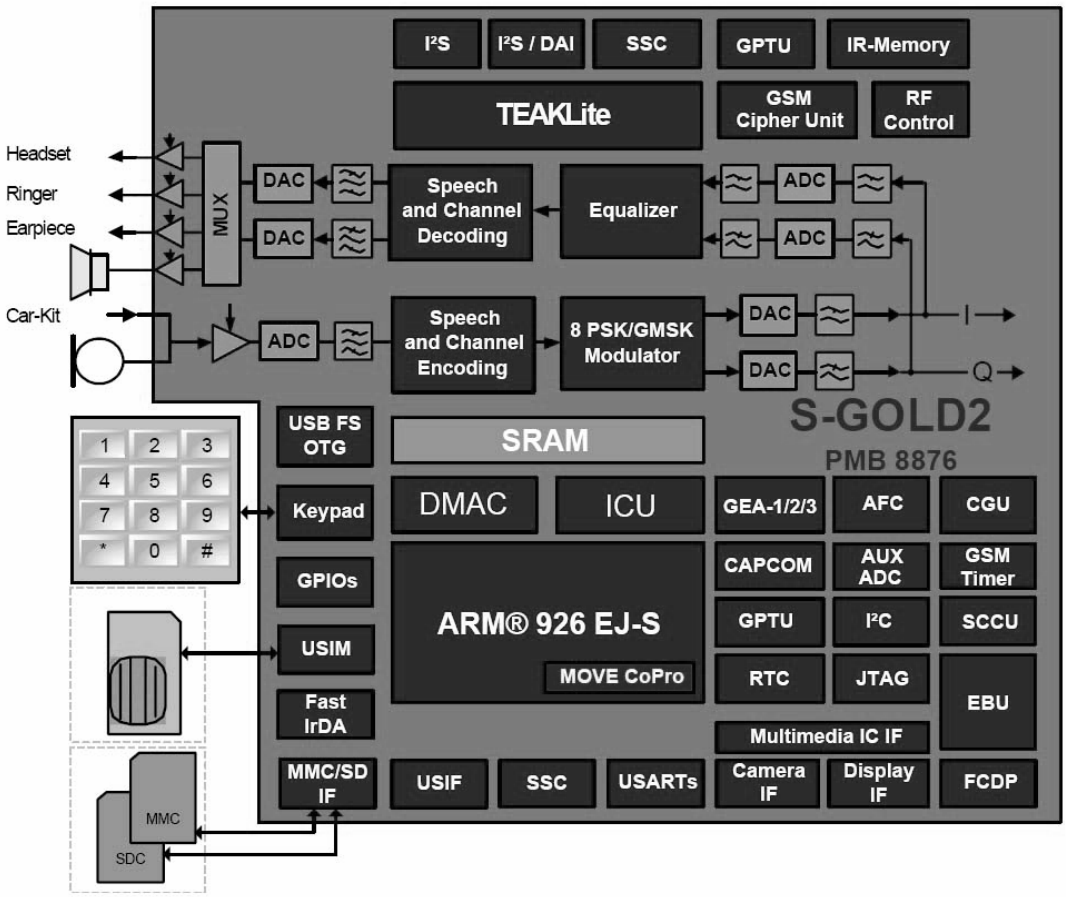


Figure 3. Top level block diagram of the S-GOLD2™ (PMB8876)

3.2.1 General Description

S-GOLD2™ is a GSM/EDGE single chip mixed signal Baseband IC containing all analog and digital functionality of a cellular radio. Additionally S-GOLD2™ Provides multimedia extensions such as camera, software MIDI, MP3 sound. It is designed as a single chip solution, integrating the digital and mixed signal portions of the base band in 0.13um, 1.5V technology.
The chip will fully support the FR, EFR, HR and AMR-NB vocoding.S-GOLD2™ support multi-slot operation modes HSCSD (up to class 10), GPRS for high speed data application (up to class 12) and EGPRS (up to class 12) without additional external hardware.

3.2.2. Block Description

• Processing core
ARM926EJ-S 32 bit processor core for controller functions. The ARM926EJ-S includes an MMU, and the Jazelle Java extension for Java acceleration.
- TEAKLite DSP core

• ARM-Memory
- 32k Byte Boot ROM on the AHB
- 96k Byte SRAM on the AHB, flexibly usable as program or data RAM
- 16k Byte Cache for Program (internal)
- 8k Byte tightly coupled memory for Program(internal)
- 8k Byte Cache for Data(internal)
- 8k Byte tightly coupled memory for Data(internal)

• DSP-Memory
- 104K x 16bit Program ROM
- 8k x 16bit Program RAM
- 60k x 16bit Data ROM
- 37k x 16bit Data RAM
- Incremental Redundancy(IR) Memory of 35904 words of 16bit

• Shared Memory Block
1.5K x 32bit Shared RAM(dual ported) between controller system and TEAKLite.

• Controller Bus system
The processor cores and their peripherals are connected by powerful buses. Multi-layer AHB for connecting the ARM and the other master capable building blocks with the internal and external memories and with the peripheral buses.

• Clock system
The clock system allows widely independent selection of frequencies for the essential parts of the S-GOLD2. Thus power consumption and performance can be optimized for each application.

• Functional Hardware block
- CPU and DSP Timers
- MOVE coprocessor performing motion estimation for video encoding algorithms (H.263, MPEG-4)
- Programmable PLL with additional phase shifters for system clock generation
- GSM Timer Module that off-loads the CPU from radio channel timing
- GMSK / 8-PSK Modulator according to GSM-standard 05.04 (5/2000)
- GMSK Modulator: gauss-filter with B*T=0.3
- EDGE Modulator: 8PSK-modulation with linearized GMSK-Pulse-Filter
- Hardware accelerators for equalizer and channel decoding.
- Incremental Redundancy memory for EDGE class 12 support
- A5/1, A5/2, A5/3 Cipher unit
- GEA1, GEA2, GEA3 Cipher Unit to support GPRS data transmission

- Advanced static and dynamic power management features including TDMA-Frame synchronous low power mode and enhanced CPU modes(idle and sleep modes)
- Pulse Number Modulation output for Automatic Frequency Correction(AFC)
- Serial RF Control interface: support of direct conversion RF
- A Universal Serial Interface(USIF) enabling asynchronous (UART) of synchronous (SPI) serial data transmission
- 1 Serial Synchronous SPI compatible interfaces in the controller domain
- 1 Serial Synchronous SPI compatible interface in the TEAKLite domain
- 2 USART with autobaud detection, hardware flow control and integrated IrDA controller supporting IrDA's SIR standard (up to 115.2Kbps)
- A dedicated Fas IfDA Controller supporting IrDA's SIR,MIR and FIR standards (up to 4Mbps)
- I2C-bus interface (e.g. connection to S/M power)
- A fast display interface supporting serial and parallel interconnection
- An ITU-R BT.656 compatible Camera interface.
- Programmable clock output for a camera
- An multimedia/Secure Digital Card Interface (MMCI/SD:SDIO capable)

3.2.3. External Devices connected to memory interface

Table 1 Memory interface

Device	Name	Maker	Remark
FLASH	PF38F5570MMY0B0	Intel	Synchronous / A synchronous
SDRAM	PF38F5570MMY0B0	Intel	Synchronous 104MHz
LCD	IL200DBN1A	LPL	8bit access 3times transmission
Melody IC	Not Used	S/W	Infineon Software CODEC

3.2.4. RF Interface (T_OUT)

S-Gold2 uses this interface to control RF IC and Peripherals. 13 signals are provided switch on/off RF ICs Periodically each TDMA frame.

Table 2 RF Interface Spec.

T_OUT		
Resource	Interconnection	Description
T_OUT0	TXON_PA	PAM Power on
T_OUT1	Other function	-
T_OUT2	PA_BAND	TX RF band select
T_OUT3	ANT_SW1	FEM control
T_OUT4	ANT_SW2	FEM control
T_OUT5	ANT_SW3	FEM control
T_OUT6	MODE	PAM Mode select

3.2.5. USART Interface

KE600/KE608 have two UART Drivers as follow :
- USART1 : Hardware Flow Control / SW upgrade / Calibration
- USART2 : SW debug trace.

Table 3 USART Interface Spec.

USART_0(USART1)		
Resource	Name	Remark
USART0_TXD	TXD_0	Transmit Data
USART0_RXD	RXD_0	Receive Data
USART0_CTS	CTS_0	Clear To Send
USART0_RTS	RTS_0	Request To Send
	DSR	N.C.
USART_1(USART2)		
USART1_TXD	TX_DEBUG	Trace data tx
USART1_RXD	RX_DEBUG	Trace data rx
USART1_CTS	N.C.	N.C.
USART1_RTS	N.C.	N.C.

3.2.6. ADC channel

BBP ADC block is composed of 7 external ADC channel. This block operates charging process and other related process by reading battery voltage and other analog values.

Table 4 S-Gold2 ADC channel usage

ADC channel		
Resource	Interconnection	Description
M0	BATT_TEMP	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M7	H/W VERSION	S-Gold2 H/W version detect
M8	VSUPPLY	Battery supply voltage measure
M9	I_MONITOR	Current consumption measure
M10	REMOTE_ADC	Remote control key detect

3.2.7. GPIO map

Over a hundred allowable resources, KE600/KE608 is using as follows except dedicated to SIM and Memory. KE600/KE608 GPIO(General Purpose Input/Output) Map, describing application, I/O state, and enable level, is shown in below table.

Table 5 S-Gold2 GPIO pin Map

Port function	KE820 Net Name	Description
KEY MATRIX		
KP_IN0	KP_IN0	Refer to Key Matrix
KP_IN1	KP_IN1	Refer to Key Matrix
KP_IN2	KP_IN2	Refer to Key Matrix
KP_IN3	KP_IN3	Refer to Key Matrix
KP_IN4	KP_IN4	Refer to Key Matrix
KP_IN5	KP_IN5	Refer to Key Matrix
KP_OUT5	KP_OUT5	Refer to Key Matrix
KP_OUT0	KP_OUT0	Refer to Key Matrix
KP_OUT1	KP_OUT1	Refer to Key Matrix
KP_OUT2	KP_OUT2	Refer to Key Matrix
KP_OUT3	KP_OUT3	Refer to Key Matrix
USART_0		
USART0_RXD	RXD_0	UARTO, RS232 Data
USART0_TXD	TXD_0	UARTO, RS232 Data
USART0_RTS_N	CTS_0	UARTO, RS232 RTS
USART0_CTS_N	RTS_0	UARTO, RS232 CTS
CC1CC6IO	FM_INT	For FM Radio Interrupt
USART_1		
USART1_RXD	TX_DEBUG	For debugging
USART1_TXD	RX_DEBUG	For debugging
USART1_RTS_N	Not Use	
USART1_CTS_N	Not Use	
USB		
USB_DPLUS	USB_DP	USB data
USB_DMINUS	USB_DM	USB data

MEMORY &CLK		
GPIO_20	F_DPD	For INTEL Memory
CLK32K	CLK32K	For FM Radio & BLUETOOTH
GPIO_22	Not Use	
CAMERA I/F		
CIF_D0	CIF_D(0)	Camera DATA[0]
CIF_D1	CIF_D(1)	Camera DATA[1]
CIF_D2	CIF_D(2)	Camera DATA[2]
CIF_D3	CIF_D(3)	Camera DATA[3]
CIF_D4	CIF_D(4)	Camera DATA[4]
CIF_D5	CIF_D(5)	Camera DATA[5]
CIF_D6	CIF_D(6)	Camera DATA[6]
CIF_D7	CIF_D(7)	Camera DATA[7]
CIF_PCLK	CIF_PCLK	Camera pixel clock
CIF_HSYNC	CIF_HS	Camera H sync
CIF_VSYNC	CIF_VS	Camera V sync
CLKOUT	CIF_MCLK	Camera main clock
CIF_PD	CIF_PD	Camera power down(active high)
CIF_RESET	CIF_RESET	Camera reset
LCD IF/		
DIF_D0	DIF_D(0)	LCD data[0]
DIF_D1	DIF_D(1)	LCD data[1]
DIF_D2	DIF_D(2)	LCD data[2]
DIF_D3	DIF_D(3)	LCD data[3]
DIF_D4	DIF_D(4)	LCD data[4]
DIF_D5	DIF_D(5)	LCD data[5]
DIF_D6	DIF_D(6)	LCD data[6]
DIF_D7	DIF_D(7)	LCD data[7]
DIF_CS1	DIF_CS	LCD chip select
GPIO_96	FM_BBP_SEL	Audio amp inuput select(High: FM sound, Low: BBP sound)
DIF_CD	DIF_CD	Command Data switch
DIF_WR	MM_WR	LCD Write
DIF_RD	MM_RD	LCD Read

GPIO_99	CHG_LED_CTRL	Charging indicator LED control
GPIO_100	TF_PWR_EN	TransFlash card power enable(active High)
DIF_RESET1_GPIO	DIF_RESET1	LCD Reset
EINT6	REMOTE_INT	For Remote Control Headset
I2c		
I2C_SCL	SCL	For SM-Power, FM Radio, Audio AMP
I2C_SDA	SDA	"
PM_INT (EINT)	PM_INT	SM-Power interrupt
SIM CARD		
CC_IO	SIM_IO SIM CARD I/O	SIM CARD I/O
CC_CLK	SIM_CLK	SIM CARD CLOCK
CC_RST	SIM_RST	SIM CARD RESET
I2S		
I2S2_CLK0	Not Use	
GPIO_102	_WP	Not Connected
I2S2_RX	Not Use	
I2S2_TX	Not Use	
I2S2_WA0	Not Use	
I2S2_WA1	Not Use	
EXTERNAL MEMORY		
MMCI_CMD	TF_CMD	For T-Flash
MMCI_DAT[0]	TF_DAT0	"
MMCI_CLK	TF_CLK	"
BT I/F		
USIF_TXD_MTSR	USIF_TXD	For Bluetooth
USIF_RXD_MRST	USIF_RXD	"
GPIO_109	_USB_EOC	USB End of charging detect(High: EOC, Low: charging)
GPIO_110	RPWRON	Remote power on detect (High: Remote , Low: Normal
GPIO_111	SPK_RCV_SEL	Audio pass select(high: Speaker, Low: Receiver)
I2S		
I2S1_CLK0	I2S1_CLK	For Bluetooth
GPTU0_0	FLASH_EN	For Camera Flash LED

I2S1_RX	I2S1_RX	For Bluetooth
I2S1_TX	I2S1_TX	"
I2S1_WA0	I2S1_WA0	"
MMC		
MMCI_DAT[1]	TF_DAT1	For T-Flash
MMCI_DAT[2]	TF_DAT2	"
MMCI_DAT[3]	TF_DAT3	"
AUDIO I/F		
EPN1	RCV_N	For Receiver
EPP1	RCV_P	"
EPPA1	BBP_SND_L	For Speaker
EPPA2	BBP_SND_R	For Speaker
MICN1	MIC1_N	For Mic
MICP1	MIC1_P	"
MICN2	MIC2_N	For Headset Mic
MICP2	MIC2_P	"
VMICP	VMICP	For Mic
VMICN	VMICN	"
ADC		
M_0	BAT_TEMP	Battery temperature detect
M_1	RF_TEMP	RF Power amp reference temperature detect
M_2	JACK_TYPE	For 18Pin Cable Type Detect
M_7		HW revision indication
M_8		Battery voltage measurement
M_9	I_MONITOR	Current consumption measurement
M_10	REMOTE_ADC	For Remote Control Headset Key detect with REMOTE_INT
JTAG		
TDO	TDO	For JTAG & ETM Interface
TDI	TDI	"
TMS	TMS	"
TCK	TCK	"
TRST_n	TRSTn	"
RTCK	RTCK	"

ETM		
TRIG_IN	TRIG_IN	"
MON1	MON1	"
MON2	MON2	"
TRACESYNC	TRACESYNC	"
TRACECLK	TRACECLK	"
PIPESTAT[2]	PIPESTAT[2]	"
PIPESTAT[1]	PIPESTAT[1]	"
PIPESTAT[0]	PIPESTAT[0]	"
TRACEPKT[0]	TRACEPKT[0]	"
TRACEPKT[1]	TRACEPKT[1]	"
TRACEPKT[2]	TRACEPKT[2]	"
TRACEPKT[3]	TRACEPKT[3]	"
TRACEPKT[4]	TRACEPKT[4]	"
TRACEPKT[5]	TRACEPKT[5]	"
TRACEPKT[6]	TRACEPKT[6]	"
TRACEPKT[7]	TRACEPKT[7]	"
Data bus		
EBU_AD[0]	D(0)	Data bus[0]
EBU_AD[1]	D(1)	Data bus[1]
EBU_AD[2]	D(2)	Data bus[2]
EBU_AD[3]	D(3)	Data bus[3]
EBU_AD[4]	D(4)	Data bus[4]
EBU_AD[5]	D(5)	Data bus[5]
EBU_AD[6]	D(6)	Data bus[6]
EBU_AD[7]	D(7)	Data bus[7]
EBU_AD[8]	D(8)	Data bus[8]
EBU_AD[9]	D(9)	Data bus[9]
EBU_AD[10]	D(10)	Data bus[10]
EBU_AD[11]	D(11)	Data bus[11]
EBU_AD[12]	D(12)	Data bus[12]
EBU_AD[13]	D(13)	Data bus[13]
EBU_AD[14]	D(14)	Data bus[14]
EBU_AD[15]	D(15)	Data bus[15]
EBU_WR_n	_WR	Write strobe

EBU_RD_n	_RD	Read strobe
EBU_BC0_n	_BC0	
EBU_BC1_n	_BC1	
EBU_A[0]	A(0)	Address bus[0]
EBU_A[1]	A(1)	Address bus[1]
EBU_A[2]	A(2)	Address bus[2]
EBU_A[3]	A(3)	Address bus[3]
EBU_A[4]	A(4)	Address bus[4]
EBU_A[5]	A(5)	Address bus[5]
EBU_A[6]	A(6)	Address bus[6]
EBU_A[7]	A(7)	Address bus[7]
EBU_A[8]	A(8)	Address bus[8]
EBU_A[9]	A(9)	Address bus[9]
EBU_A[10]	A(10)	Address bus[10]
EBU_A[11]	A(11)	Address bus[11]
EBU_A[12]	A(12)	Address bus[12]
EBU_A[13]	A(13)	Address bus[13]
EBU_A[14]	A(14)	Address bus[14]
EBU_A[15]	A(15)	Address bus[15]
EBU_A[16]	A(16)	Address bus[16]
EBU_A[17]	A(17)	Address bus[17]
EBU_A[18]	A(18)	Address bus[18]
EBU_A[19]	A(19)	Address bus[19]
EBU_A[20]	A(20)	Address bus[20]
EBU_A[21]	A(21)	Address bus[21]
EBU_A[22]	A(22)	Address bus[22]
EBU_A[23]	A(23)	Address bus[23]
EBU_A[24]	A(24)	Address bus[24]
EBU_CS0_n	_FLASH1_CS	Flash ROM chip select
EBU_CS1_n	_RAM_CS	SDRAM Chip select
EBU_CS2_n	_FLASH2_CS	Not used
EBU_CS3_n	_CS3	Not used
EBU_ADV_n	_ADV	
EBU_RAS_n	_RAS	
EBU_CAS_n	_CAS	

EBU_WAIT_n	_WAIT	
EBU_SDCLKO	SDCLKO	
EBU_SDCLKI	SDCLKI	
EBU_BFCLKO	BFCLKO	
EBU_BFCLKI	BFCLKI	
EBU_CKE	CKE	
SSC1_SCLK	F_DPD	
T_OUT0	TXON_PA	RF Power amp turn on
GPIO_44	VIBRATOR_EN	Vibrator enable(High: enable, Low:disable)
T_OUT2	PA_BAND	RF band select
T_OUT3	ANT_SW1	RF FEM control signal 1
T_OUT4	ANT_SW2	RF FEM control signal 2
EINT3	ANT_SW3	RF FEM control signal 3
T_OUT6	MODE	For RF
GPIO_50	KP_OUT(4)	Key pad
GPIO_51	AU_PWR_EN	Audio amp power enable(active high)
CC1CC3IO	LCD BACKLIGHT	LCD Backlight Control
GPIO_53	JACK_DETECT	For Headset Detect(High: unplugged, Low: plugged)
GPIO_54	_FM_RESET	FM Radio chip reset
GPIO_55	AF_PWR_EN	Auto focus power enable(active high)
RF_STR0	EN	RF Transceiver chip enable
GPIO_57	TF_DETECT	Micro SD card detect (High: inserted, Low: ejected)
RF_DATA	DA	RF Transceiver chip data
RF_CLK	CLK	RF Transceiver chip clock
System port		
AFC	AFC	Automatic Frequency control DAC output for 26MHz VCTCXO
CLKOUT0 [<=26MHz]	Not Use	
F26M	26MHZ_MCLK	Baseband processor PLL input Main clock

F32K		Sleep crystal 32.768KHz
OSC32K		Sleep crystal 32.768KHz
RESET_n	_RESET	Baseband processor reset
CC1CC1IO	TRIG_OUT	For JTAG & ETM Interface
RTC_OUT	RTC_OUT	Wake up signal to alarm (High; wake up, Low: Power off)
VCXO_EN	VCXO_EN	26MHz clock enable
DSP		
DSPIN0	_BT_RESET	Bluetooth chip reset
GPIO_62	Not Use	
GPIO_63	_SIM_EN	SIM card power enable

3.3. Power management IC

3.3.1. General Description

SM-POWER is a highly integrated Power and Battery Management IC for mobile handsets. It has been specially designed for usage with S-Gold2. Although optimized for usage with the Infineon S-GOLD baseband device it is suitable for the S-GOLDlite and the E-GOLD+ baseband devices as well. It also supports the cellular RF devices like SMARTi-DC, SMARTi-DC+, SMARTi-SD and the Bluemoon Single, Infineon's single chip solution for Bluetooth. If used with S-GOLD2 it provides all power supply functions (except for the RF PA) for a complete advanced GSM Edge smart phone minimizing external device count.

Block Description

- Highly efficient step-down converter for main digital baseband supply including Core, DSP and memory interface (External Bus Unit).
- Support of S-GOLD standby power-down concept
- Low-drop-out (LDO) regulators for Flash and mobile RAM memory devices
- Voltage independent switching of two SIM cards
- LDO regulators for baseband I/O supply
- LDO regulator for analog mixed-signal section of S-GOLD
- Low-noise LDO regulators for RF devices
- Supply for Bluemoon Single, Infineon's single chip solution for Bluetooth
- Audio amplifier 8 Ohms for handsfree operation and ringing
- Charge Control for charging Li-Ion/Polymer batteries under software control
- Pre-charge current generator with selectable current level
- RTC regulator with ultra-low quiescent current
- USB interface support for peripheral and mini-host mode
- Backlight LEDs driver with current selection and PWM dimming function
- Two single LED driver outputs for signaling
- Vibrator driver with adjustable voltage
- Fully controlable by software via I2C - Bus
- Temperature and battery voltage sensors
- Interrupt channels for peripherals
- System debug mode
- VQFN 48 package with heat sink and non-protruding leads
- Compatible with the Infineon E-GOLD+ V2 and V3

3. TECHNICAL BRIEF

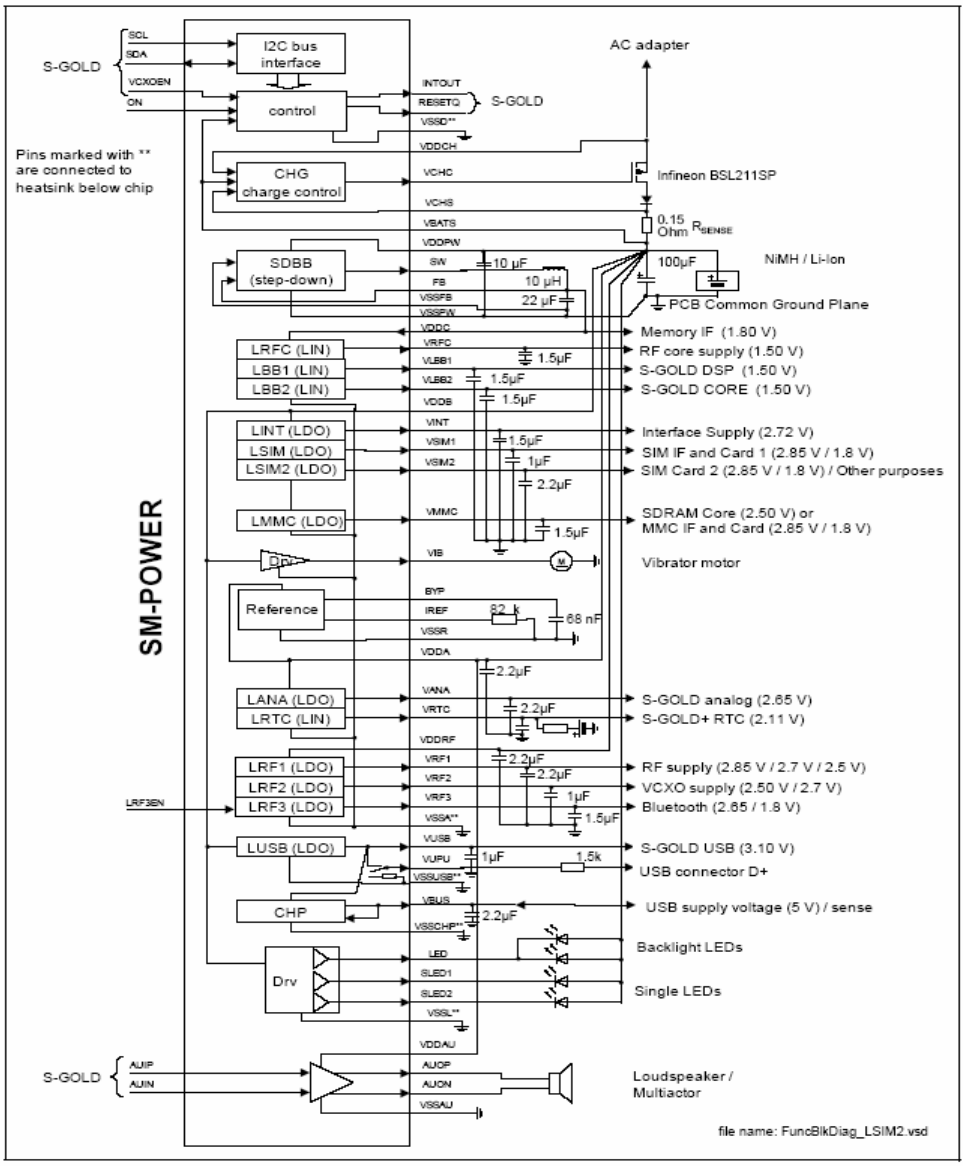


Figure 4 Top level block diagram of the SM-Power(PMB6812)

SM-POWER is a further step on the successful E-Power product line with enhanced and optimized functionality. SM-POWER features a baseband supply concept with a DC/DC step-down converter (SDBB) cascaded by two linear regulators (LBB1/2)

- SM-POWER's DC/DC converter makes up to 40 % reduction of battery current for smart phone functions (e.g. organizer functions, games, MP3 decoding) possible.
- SDBB has high efficiency up to 95% and also a power save mode.
- Memory Interface is directly supported by the SDBB
- SDBB can also act as main supply voltage for E-GOLD+ or S-GOLDlite baseband devices.
- For S-GOLD two linear regulators for DSP and Core are cascaded after the SDBB.

SM-POWER supports the standby power-down concept of S-GOLD by temporarily switching off the linear regulator LBB1 for the DSP during mobile standby whenever this subsystem is not used. In this phase the ARM controller and most peripherals including parts of the on-chip SRAM are kept powered-up with power being supplied by the other linear regulator LBB2.
SM-POWER includes a fully differential audio amplifier able to drive loads down to a nominal value of 8 Ohm for usage in hands-free phones and for ringing

- 400 mW maximum output power
- adjustable gain
- mute switch
- click and pop - protection

SM-POWER also integrates a charging function for Li-Ion, Li-Polymer batteries

- Pre-charge current source with two current levels
- Constant current / constant voltage charging with 3 different termination voltages
- Programmable charge current limitation for use with different batteries
- Freely programmable pulse charging to reduce the thermal power dissipation in the constant voltage charging phase
- Top-off charge current sensing

SM-POWER completes the USB interface of S-GOLD

- Regulated voltage for S-GOLD USB interface including reverse current and over-voltage protection
- Switch to supply USB pull-up resistor
- Mini-host pull down resistor functionality
- Charge pump with internal switching capacitor for USB host VBUS supply voltage

SM-POWER fully supports LED and Vibra Motor functionality

- no external components needed
- driver for backlight LEDs adjustable in steps up to 140mA and with soft turn on and off by PWM dimming
- two driver outputs for single LEDs for pre-charge indication and signaling with i.e. change of color
- driver for Vibrator Motor with adjustable voltages, soft startup / shutdown and current limitation

SM-POWER offers several control functions

- Power-on Reset Generator with logic state machine
- I2C bus interface
- I2C bus configurable mode control logic with ON (push-button or RTC), VCXOEN and LRF3EN (wake-up by Bluetooth) inputs
- Programmable interrupt channels to handle peripherals like SIM, MMC and USB
- Monitoring of charging functions
- Under-voltage Shut-Down
- Error flags (volatile or non-volatile) from many power-supply functions and thermal sensor in order to debug system
- Over--temperature Shut-Down
- Over-temperature Warning
- Support of S-GOLD standby power-down concept
- Support of S-GOLD Power-Down Pad Tristate Function

Table 6 LDO Output Table of SM-Power

LDO	Net name	Output Voltage	Output Current	Usage
SDBB	1V8_MEM	1.8V	850mA	Memory & for LDO
LRFC	1V5_RF	1.5V	120mA	RF transceiver
LBB1	1V5_DSP	1.5V	170mA	DSP in BBP
LBB2	1V5_CORE	1.5V	300mA	ARM core in BBP
LINT	2V72_IO	2.72V	135mA	Peripherals
LSIM	2V85_SIM	2.85V	22mA	SIM card
LSIM2	2V85_IO2	2.85V	200mA	Peripherals
LMMC	2V85_CARD	2.85V	135mA	SD card
LANA	2V65_ANA	2.65V	220mA	Analog block in BBP
LRTC	2V11_RTC	2.11V	0.3mA	RTC block & Backup battery
LRF1	2V85_RF	2.85V	250mA	RF IC
LRF2	2V7_RF	2.7V	10mA	RF IC
LRF3	2V65_BT	2.65V	150mA	BT IC(Blue moon
LUSB	3V1_USB	3.1V	45mA	USB I/F

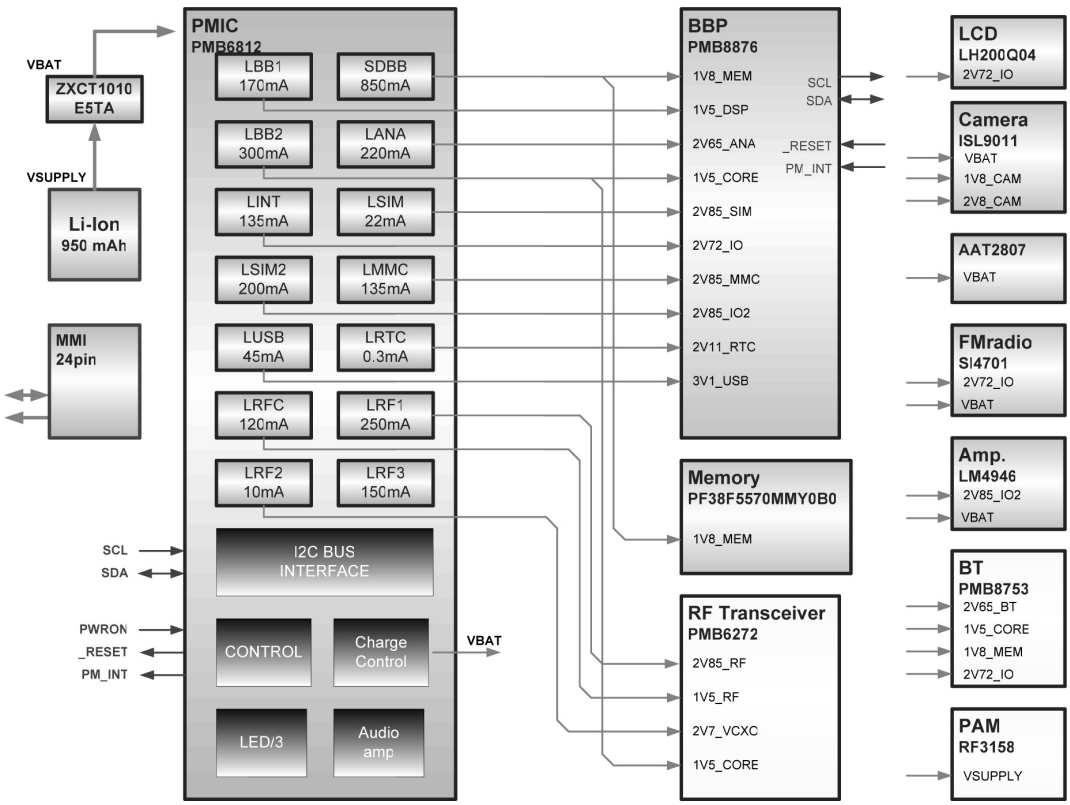


Figure 5 Power domain block diagram of KE600/KE608

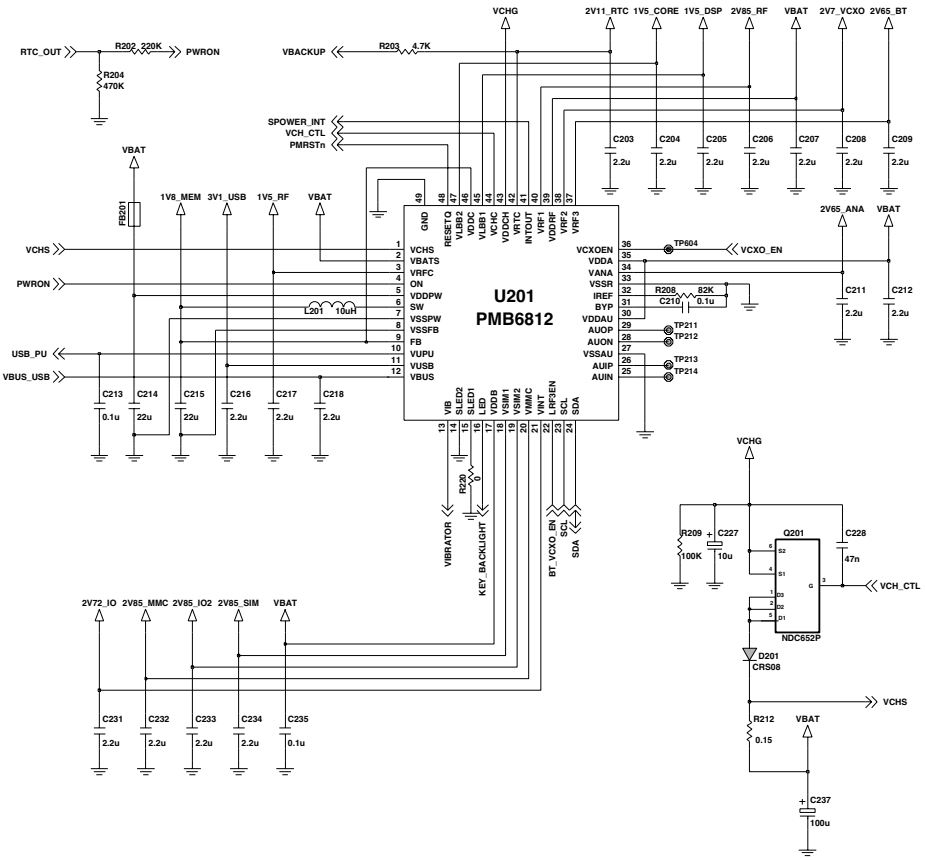


Figure 6 SM-Power circuit diagram with charging part

3.3.2. Charging

SM-POWER provides together with an external p-channel FET Siliconix Si3455 an external AC-adapter a complete charge control function for charging of Li-Ion or Li-Ion-Polymer batteries. Either a 1-cell Li-Ion or Li-Ion-Polymer battery with 4.1, 4.2 or 4.4 Volts may be used.

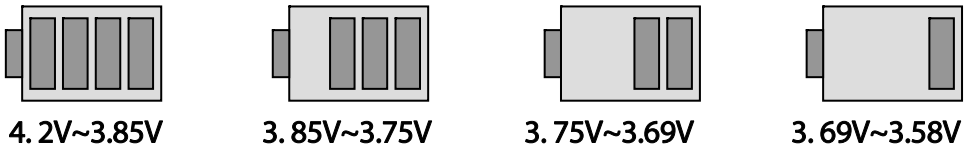


Figure 7 Battery Block Indication

1. Charging method : CC-CV
2. Charger detect voltage : 4.0V
3. Charging time : 3h
4. Charging current : 600mA
5. CV voltage : 4.2V
6. Cutoff current : 100mA
7. Full charge indication current (icon stop current) : 100mA
8. Recharge voltage : 4.15V
9. Low battery alarm
   a. Idle : 3.50V~3.35V
   b. Dedicated : 3.58V~3.35V
10. Low battery alarm interval
    a. Idle : 2min
    b. Dedicated:2min
11. Switch-off voltage : 3.35V
12. Charging temperature adc range
    a. ~ -20˚C : low charging voltage operation (3.6V ~ 4.2V) .
    b. -20˚C ~ 60˚C : standard charging (up to 4.2 V)
    c. 60˚C ~ : low charging voltage operation (3.6V ~ 4.2V)

3.4. Power ON/OFF

KE600/KE608 Power State : Defined 3cases as follow

- ▶ Power-ON : Power key detect (SM-Power's ON port
- ▶ Power-ON-charging : Charger detect.
- ▶ Power-ON-remote : remote power on detect (Factory use only)

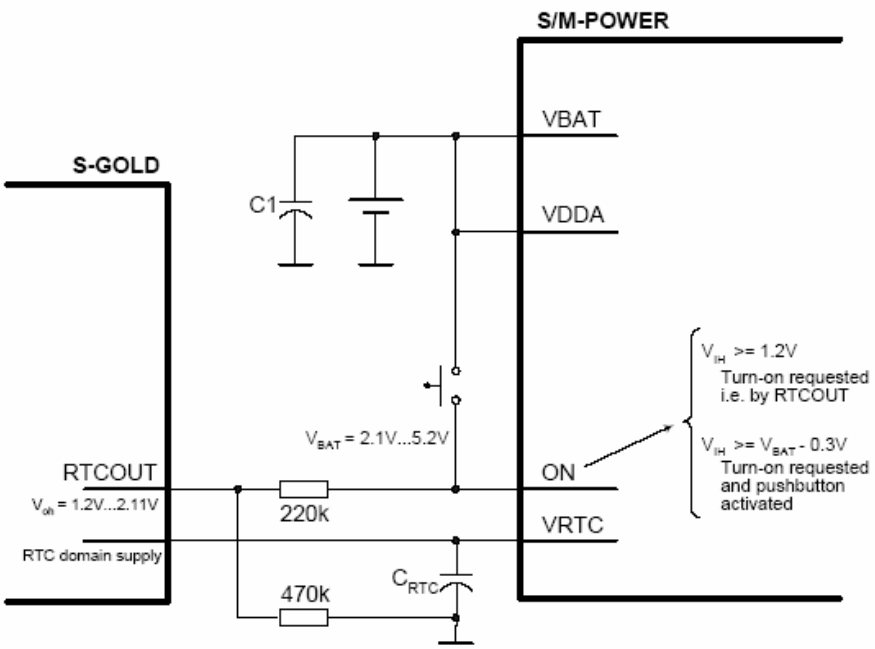


Figure 8 Power on application.

Input ON is a power-on input for SM-POWER with 2 active high levels (see Figure 8). It might be triggered by a push button or by the RTCOUT output of the S-GOLD device as well. To detect if the push-button is pressed during system operation the logical level at pin ON or its change (if Bit 1 EION in INTCTRL2 is asserted) is recorded in bit LON of the ISF register. If the high level of voltage at pin ON does not reach V_{IHdet} (Vbat-0.8 ~ Vbat-0.3) the above-mentioned bit won't be set.
To support Remote power on function for factory mass production, applied an analog switch as following figure. As monitoring the RPWRON(GPIO_110) and Key matrix KP_OUT(1) & KP_IN(5), KE600/KE608 system recognize whether remote power on or End-key pushed

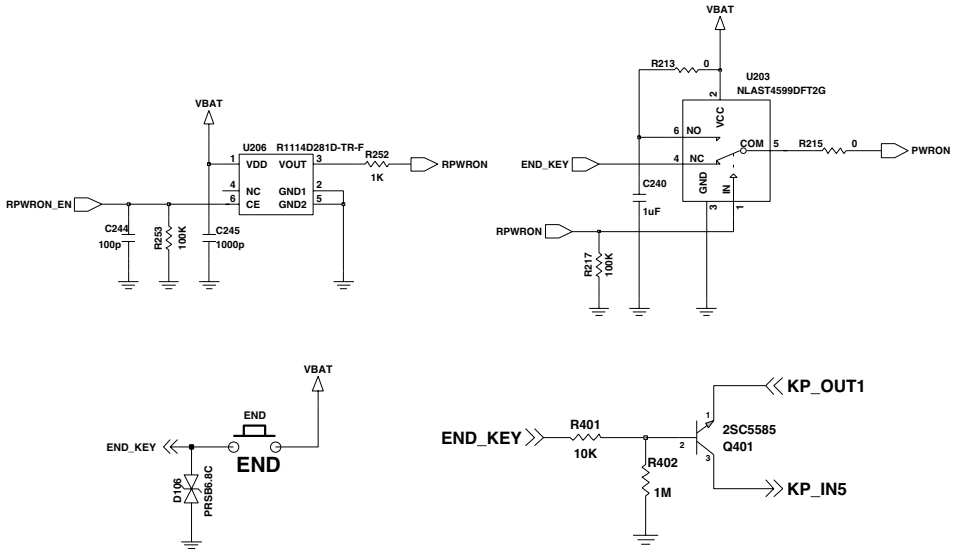


Figure9 Remote power on and End-key power on circuit

3.5. SIM interface

KE600/KE608 supports 1.8V & 3V plug in SIM, SIM interface scheme is shown in (Figure 10). SIM_IO, SIM_CLK, SIM_RST ports are used to communicate with BBP(S-Gold2) and the SIM power supply enabled by BBP (_SIM_EN).

SIM Interface

SIM_CLK : SIM card reference clock
SIM_RST : SIM card Async /sync reset
SIM_IO : SIM card bidirectional reset

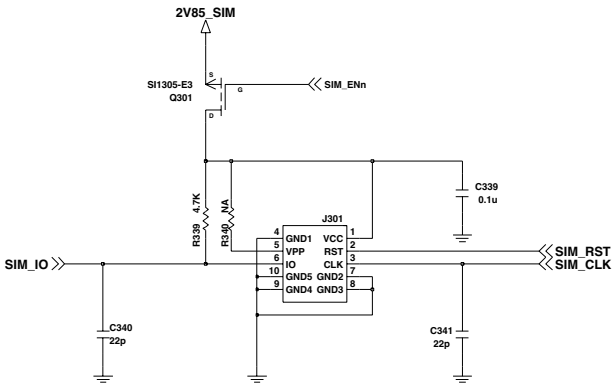


Figure 10 SIM CARD Interface

3.6. Memory

1Gbit Flash & 512Mbit SDRAM employed on KE600/KE608 with 16 bit parallel data bus thru ADD(0) ~ ADD(24). The 256Mbit Sibley Wireless Flash memory with LPSDRAM stacked device family offers multiple high-performance solutions. The Sibley flash die is manufactured on 90 nm process technology.

It delivers 108 MHz synchronous burst and page-mode read rates with supports multi-partitioning with Read-While-Write (RWW) or Read-While-Erase (RWE) dual operations. The LPSDRAM is a high-performance volatile memory operating at speeds up to 104 MHz with configurable burst lengths.

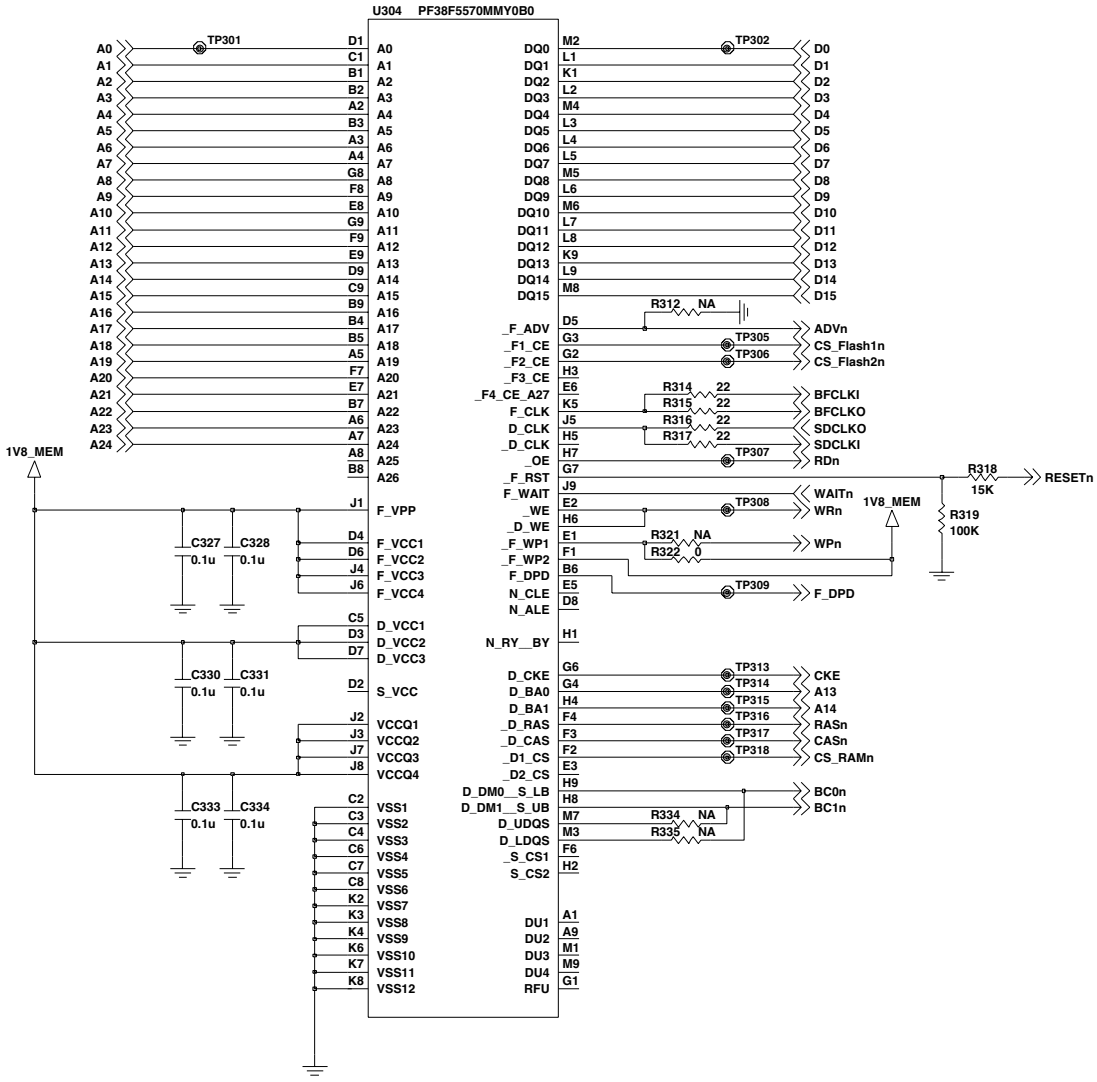


Figure 11 Flash memory & SDRAM MCP circuit diagram

3.7. LCD Display

LCD module include:

- LCD : 240 x 320 262K Colors TFT LCD
- Backlight : 3 piece of white LED illumination

LCD module is connected to sub board thru 35 pins connector.

LCD FPC Interface Spec:

Table 7 LCD FPC Interface Spec.

Pin No.	Pin Name	I/O	Description
1	MLED	I	White LED common Anode
2	MLED1	O	White LED1 Cathode
3	MLED2	O	White LED2 Cathode
4	MLED3	O	White LED3 Cathode
5	2V85_MMC	I	LCD power supply
6	2V72_IO	I	LCD power supply
7	LCD_ID	O	LCD maker Identification
8	NC		
9	NC		
10	NC		
11	NC		
12	NC		
13	NC		
14	NC		
15	NC		
16	DIF_D7	I/O	Data[7] for LCD
17	DIF_D6	I/O	Data[6] for LCD
18	DIF_D5	I/O	Data[5] for LCD
19	DIF_D4	I/O	Data[4] for LCD
20	DIF_D3	I/O	Data[3] for LCD
21	DIF_D2	I/O	Data[2] for LCD
22	DIF_D1	I/O	Data[1] for LCD
23	DIF_D0	I/O	Data[0] for LCD
24	GND		GROUND
25	GND		GROUND
26	DIF_RD	I	Read strobe
27	DIF_WR	I	Write strobe
28	DIF_RS	I	Data/command selection
29	DIF_CS	I	LCD chip selection
30	DIF_VSYNC	O	Vertical sync
31	IF2	I	CPU interface bus width selection
32	IF1	I	CPU interface bus width selection
33	DIF_RESET	I	LCD reset
34	GND		GROUND
35	GND		GROUND

3.8. Keypad Switching & Scanning

The keypad interface is a peripheral which can be used for scanning keypads up to 8 rows (outputs from Port Control Logic) and 8 columns (inputs to PCL). The number of rows and columns depend on settings of the PCL.

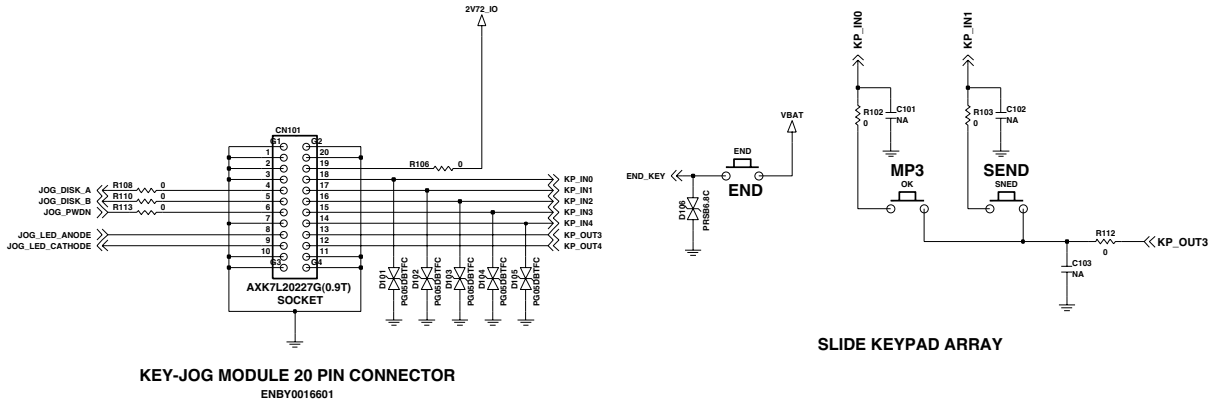


Figure 12 SUB PCB part Jog-key matrix

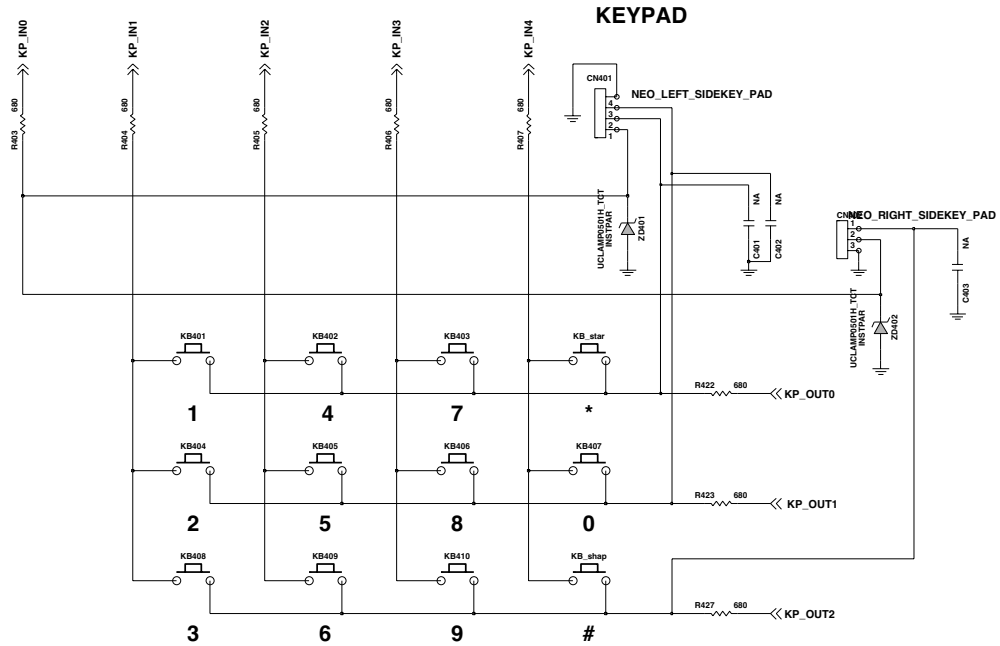


Figure 13 MAIN PCB part numeric key matrix

Numeric keys, Camera key and volume up & down keys are located on the MAIN PCB, Jog key for menu navigation, Power on (End key), MP3 hot key and Send key is on the SUB PCB, are connected via 50pin board to board connector between main PCB and FPCB.

3.9. Keypad back-light illumination

There are 9 snow white color LEDs on the sub PCB for keypad illumination. Keypad Back-light is controlled by SM-Power LED port which has constant current control function.
The whole configuration of the SM-POWER LED drivers is shown in below Figure14. (SLED1, SLED2 port are not used in the KE600.KE608)

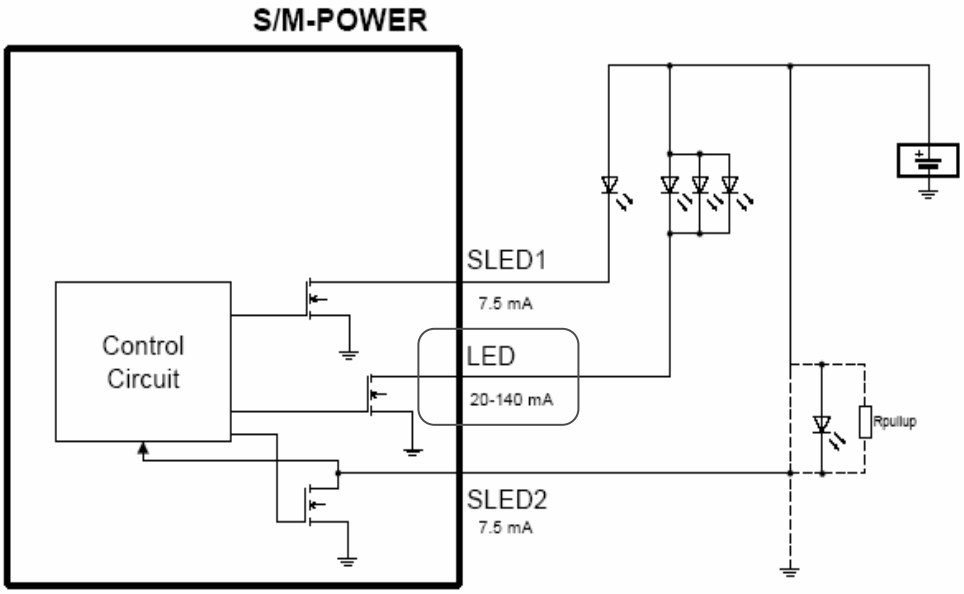


Figure 14 Keypad Back-light LEDs

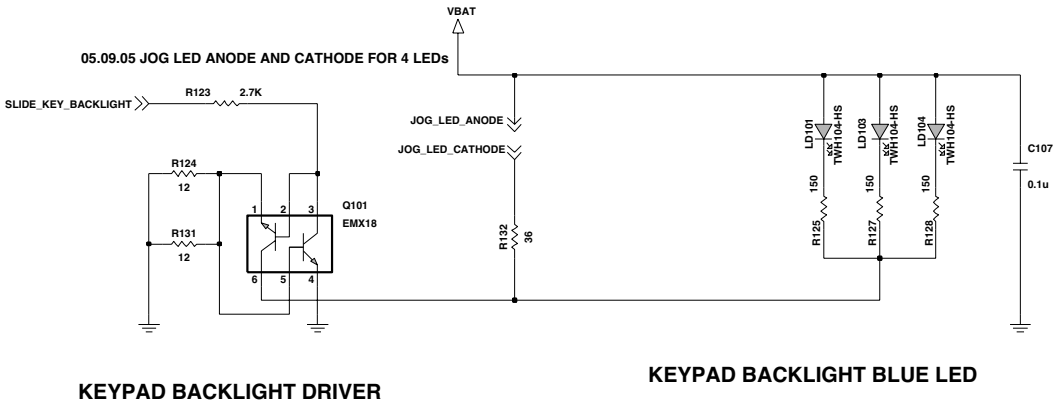


Figure 15 SUB Keypad Back-light LEDs

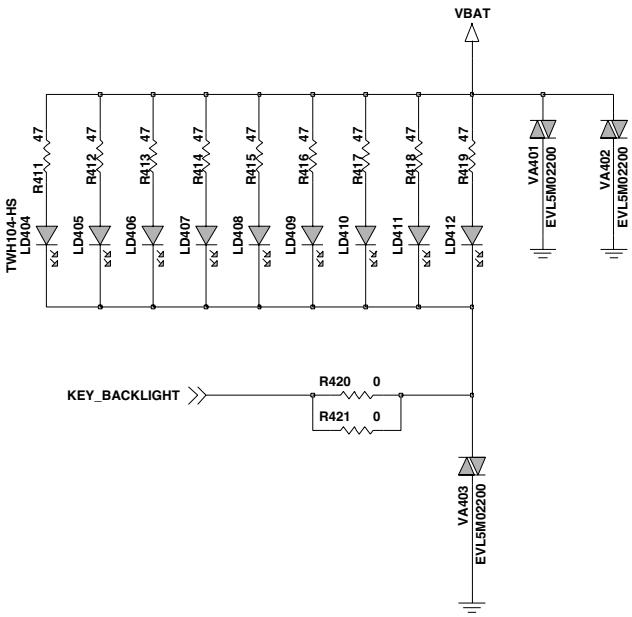


Figure 16 Keypad Back-light LEDs

3.10. LCD back light illumination

Employed the AAT2807 is a dual charge pump designed to support both the white LED backlight and flash applications for systems operating with lithium-ion/polymer batteries. The backlight charge pump is capable of driving up to three LEDs at a total of 60mA. The current sinks may be operated individually or in parallel for driving higher current LEDs. To maximize power efficiency, the charge pump operates in 1X, 1.5X, or 2X mode, where the mode of operation is automatically selected by comparing the forward voltage of each LED with the input voltage.

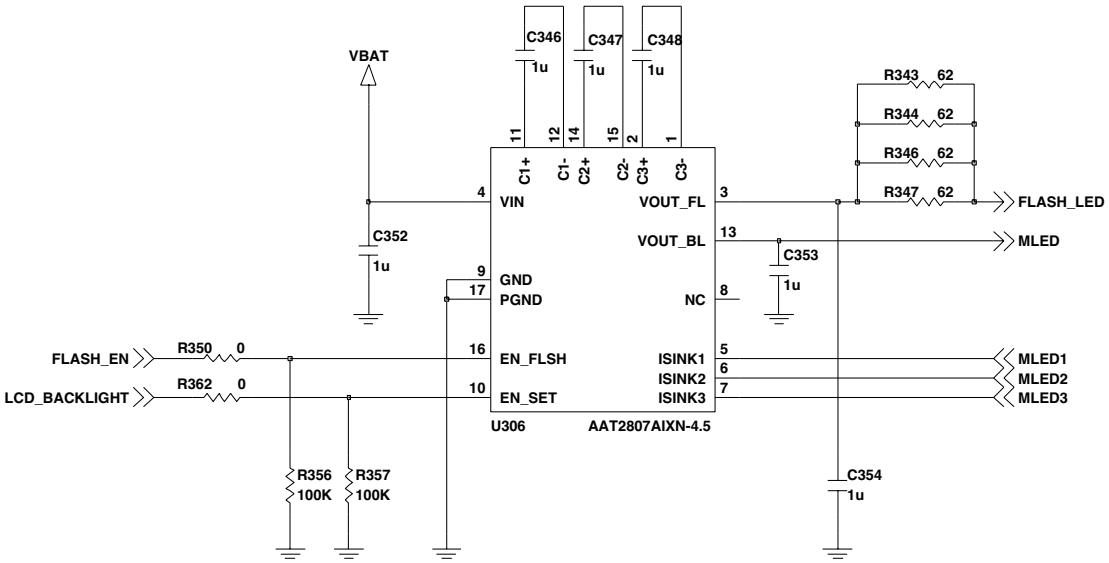


Figure 18 LCD Back light unit and Flash LED charge pump IC

The interface relies on the number of rising edges of the EN/SET pin to address and load the registers. S2Cwire latches data or address after the EN/SET pin has been held high for time TLAT. The interface records rising edges of the EN/SET pin and decodes them into 16 different states, as indicated in table

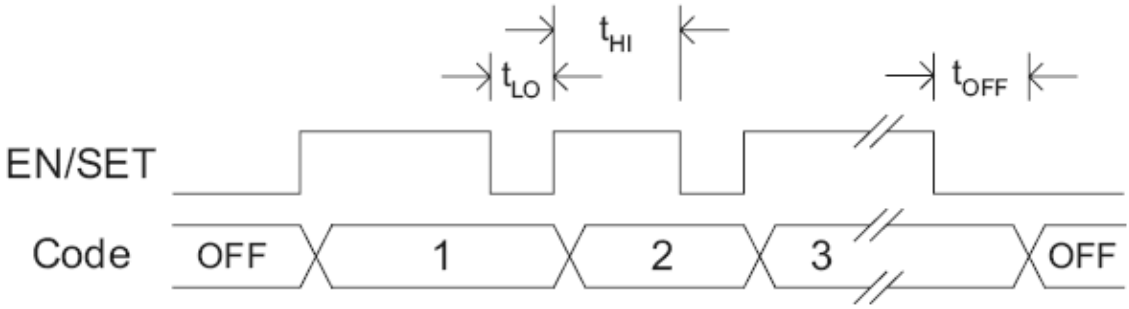


Figure 19 S2Cwire EN/SET port control method

Data	I_{OUT} (mA)
1	20
2	14
3	10
4	7
5	20
6	14
7	10
8	7
9	0
10	0
11	0
12	0
13	0.05
14	0.5
15	1
16	2

Table 8. Charge pump IC LCD part current setting table

3.11 Battery current consumption monitor

KE600/KE608 use a current monitoring function to calculate the battery capacity and the remaining time, as monitoring current flow from the battery thru 47mohm resistor.

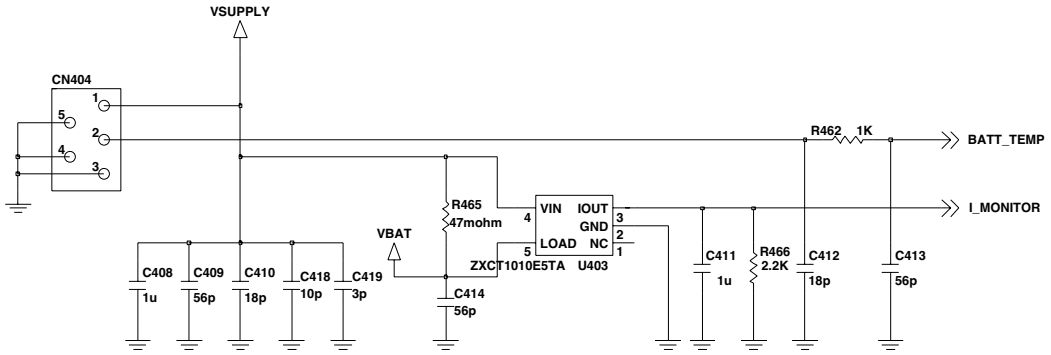


Figure 20 Current monitor circuit

3.12 JTAG & ETM interface connector

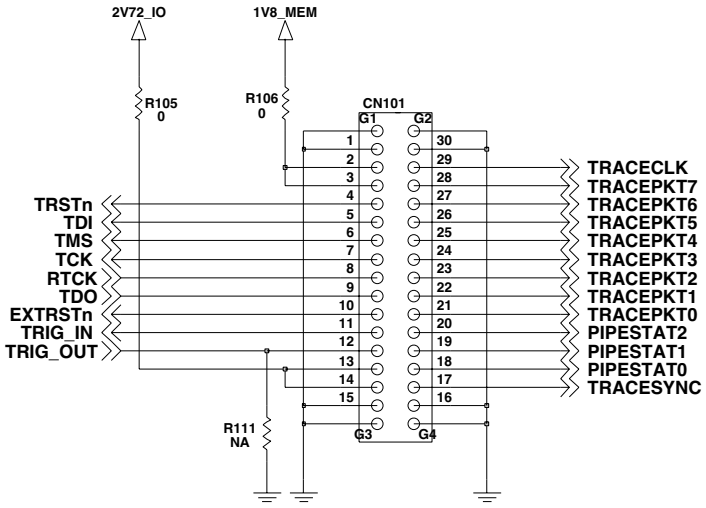


Figure 21 JTAG & ETM(Embedded Trace Module) interface connector

In case of KE600/KE608 mass production, the JTAG & ETM interface connector will not be mount on board. That is only for developing and software debugging purpose.(It will not be mounted on mass production PCB)

3.13. Audio

KE600/KE608 Audio signal flow diagram as following diagram.

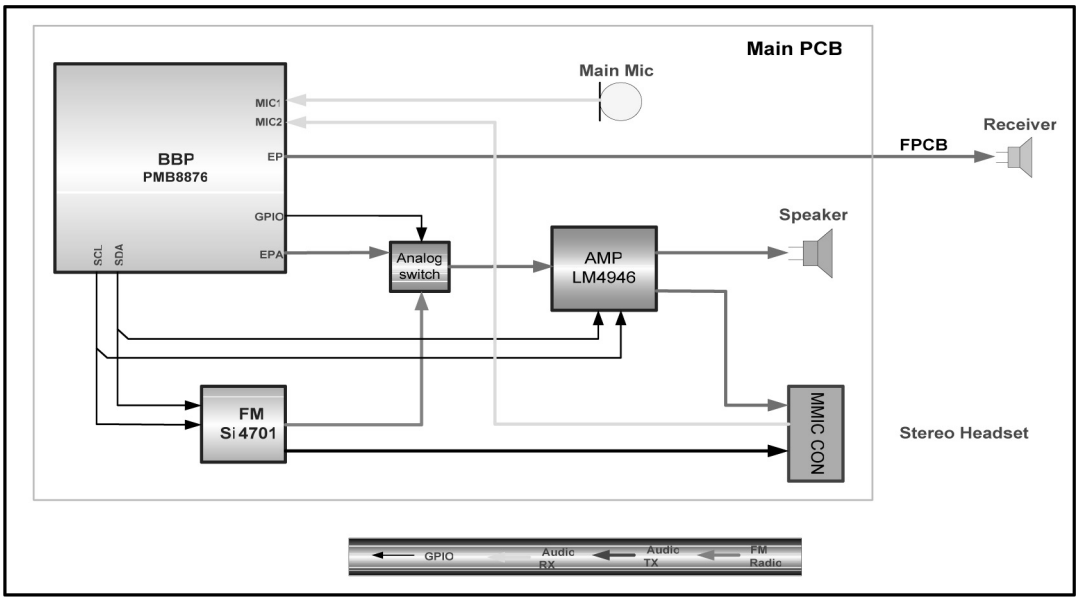


Figure 22 Audio signal flow diagram

3.13.1. Audio amplifier sub system IC with 3D effect

Audio amplifier sub system IC is an audio power amplifier capable of delivering 540mW of continuous average power into a mono 8ßŸ bridged-tied load(BTL) with 1% THD+N, 35mW per channel of continuous average power into stereo 32ßŸ single-ended (SE) loads with 1% THD+N from a 3.3V Power supply. The LM4946 features a 32-step digital volume control and eight distinct output modes. The digital volume control, 3D enhancement, and output modes (mono/SE/OCL) are programmed through a two-wire I2C interface that allows flexibility in routing and mixing audio channels.

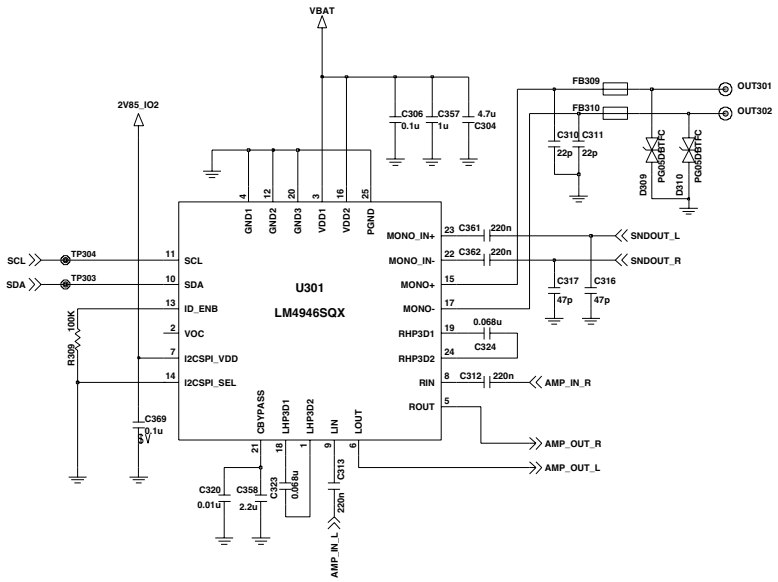


Figure 23 Audio amplifier Sub-system IC

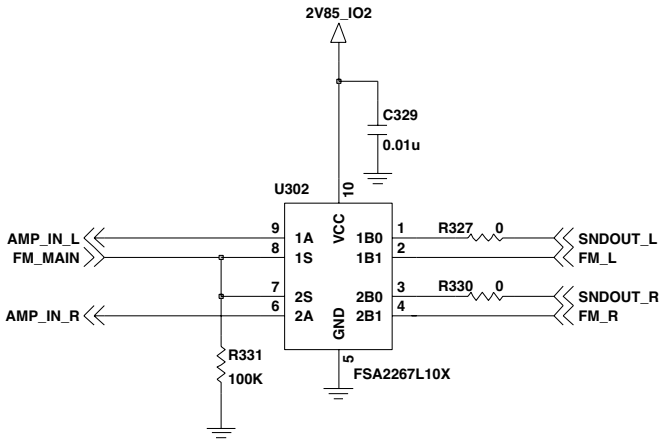


Figure 24 Audio signal distribute analog switch

3.13.2. Microphone

The microphone is a omni-directional microphone condenser microphone with -42 3dB sensitivity.

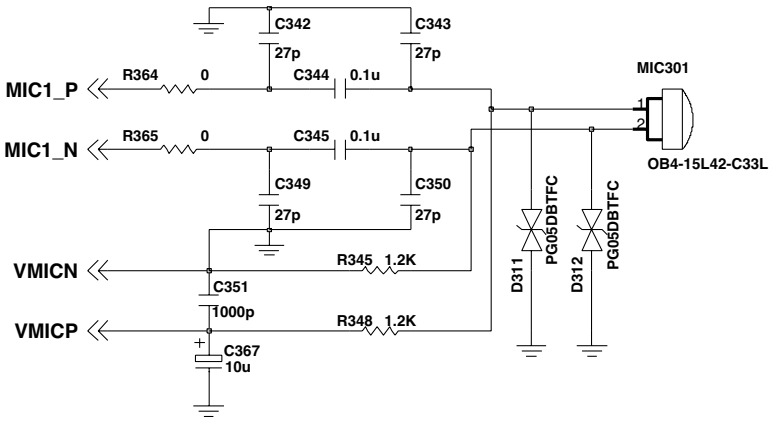


Figure 25 Microphone with Gain switching circuit

3.14. USB charging circuit

The USB charging circuit is a fully integrated USB VBUS voltage single-cell Li-ion battery charger circuit. The charger uses a CC/CV charge profile required by Li-ion batteries. CC charging current and End of charging current is programmable I_{REF} & IMIN resistors.

I_{REF} resistor between this pin and the GND pin to set the charge current limit determined by the following equation:

I_{CC} = 12089/33K = 366mA

The End Of Charging current is set by I_{MIN} That can be programmed by the as following equation:

I_{EOC} = 11000/220K = 50mA

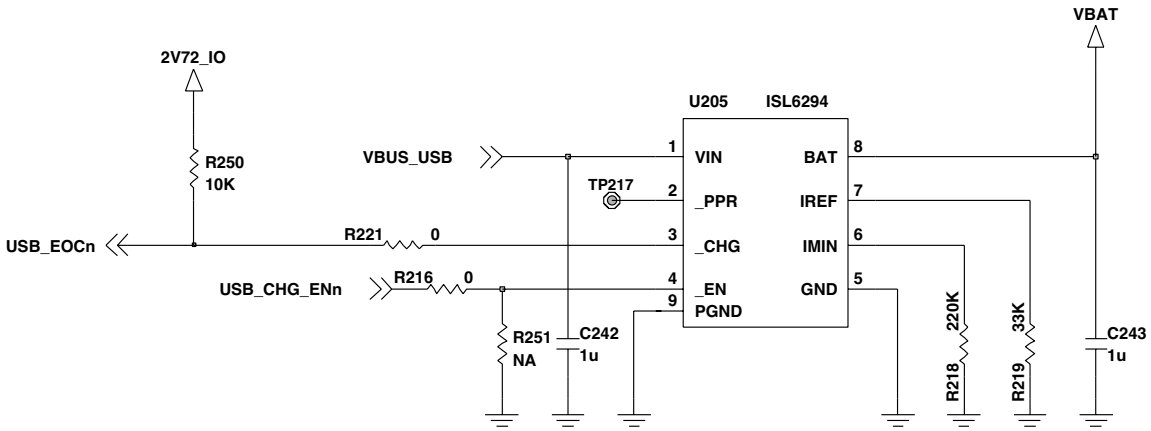


Figure 26 USB charging circuit

3.15 FM radio with RDS function

The FM receiver uses a digital low-IF architecture which allows for the elimination of external components and factory adjustments. The receive (RX) section integrates a low noise amplifier (LNA) supporting the worldwide FM broadcast band (87.5 to 108 MHz). An automatic gain control (AGC) circuit controls the gain of the LNA to optimize sensitivity and rejection of strong interferers.

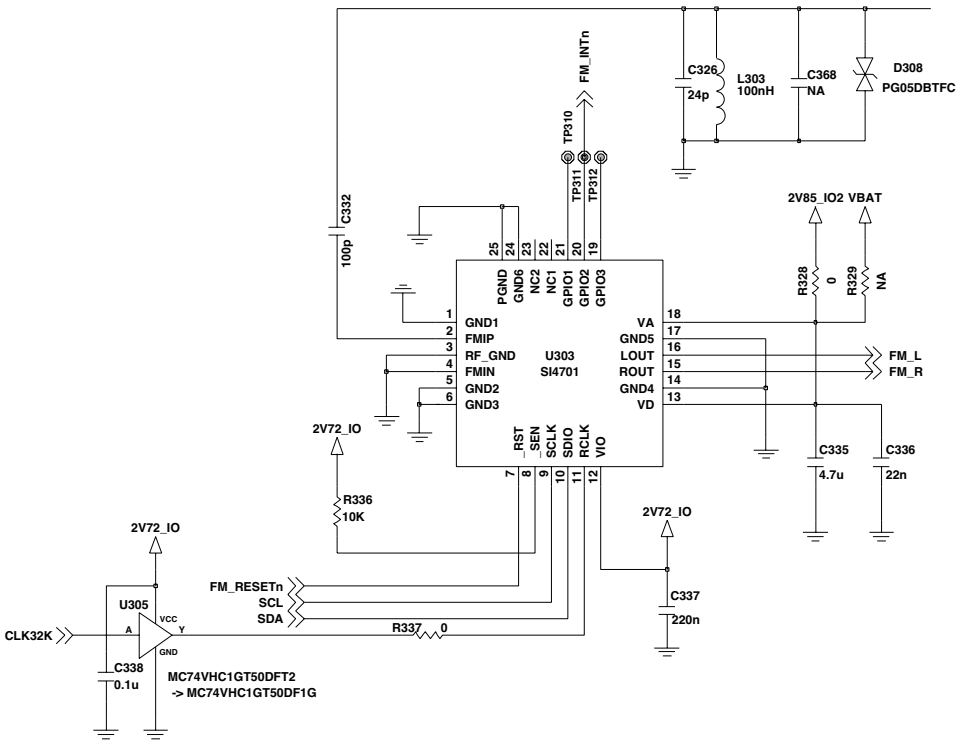


Figure 27 FM Radio circuit

3.16. BLUETOOTH

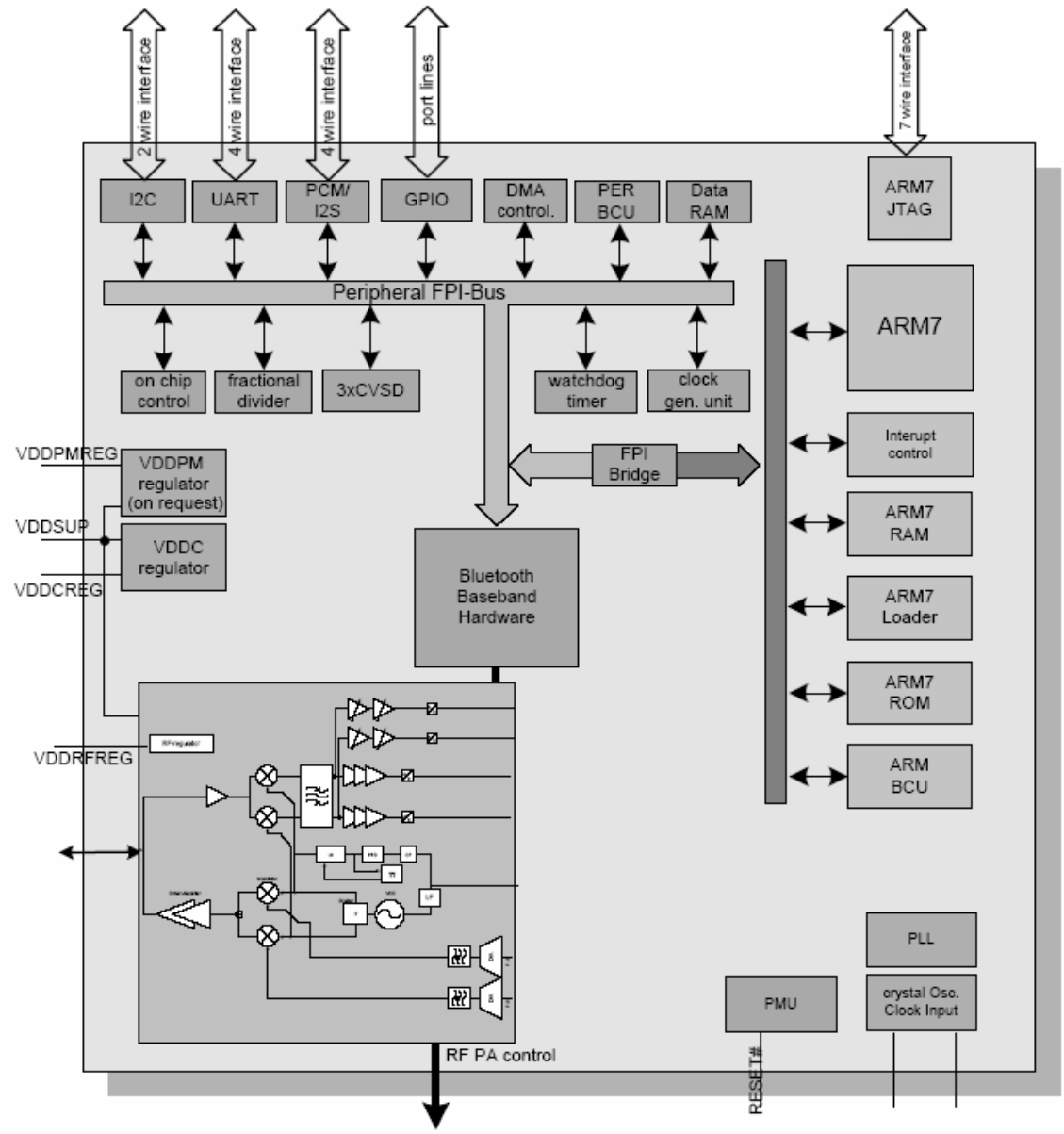


Figure 28 BLUETOOTH Functional block diagram.

3.16.1. General Features

- Single Chip Bluetooth device for cellular applications integrating radio, baseband and memory
- Fabricated in advanced low power 0.13•Ïm CMOS technology
- Very low component count (6 external components)
- Ultra low power design
  - Peak current 40mA for basic data rate
  - Peak current 45mA for enhanced data rate
  - Bluetooth low power mode typ. 25μA
- Multiple input clock signals supported (10-40MHz)
- Supply from external voltage regulator 1.8V..3.6V 1)
- Autonomous power down scenarios of Bluetooth and cellular system supported
- Packages:
  - P-VQFN-48 package
  - P-WFLGA-56 package
- Temperature range from -40°C up to 85°C
- Boundary scan for interface lines via JTAG

3.16.2 Micro-Controller-Section

- ARM7TDMI-STM ARM® Processor for protocol and application software
- Timers + Watchdog + Interrupt Module

3.16.3 Micro-Controller Memory

- 32 KByte RAM
- 256 KByte read only Program Memory
- 8 KByte Patch RAM

3.16.4 Interfaces

- UART (Bluetooth - Interface, support for HCI UART and Three-Wire UART transport layers with/without hardware handshaking) up to 3.25MBaud
- Two channel PCM Audio interface with I2S mode
- I2C Interface
- Three channel full duplex CVSD trans coder
- General Purpose I/Os
  - External interrupt
  - Port output levels available during low-power mode (VDD supplied)
- Separate voltage domains for GPIO, UART and PCM interfaces
- Control signal for requesting external (cellular) system clock
- Multi frequency (e.g. 32.768 kHz) low power clock input

3.16.5. RF-Section

- Integrated antenna switch to minimize external components count
- Programmable RF transmit power between -55dBm...+6dBm
  - Fine tuning in 2dB programmable steps also supported
- 20dBm power class 1 supported with external power amplifier
  - Separate TX output interface to PA (bypass of internal T/R switch)
  - Digital power step control
- Receiver sensitivity typ. -90dBm
- High performance integrated LNA with excellent blocking and inter modulation performance
- Low-IF receiver topology eliminates external IF filters
- Digital demodulation for optimum sensitivity and co- / adjacent channel performance
  - Digital offset compensation, symbol and frame synchronization
- RSSI information for power control

3.16.6 System Integration

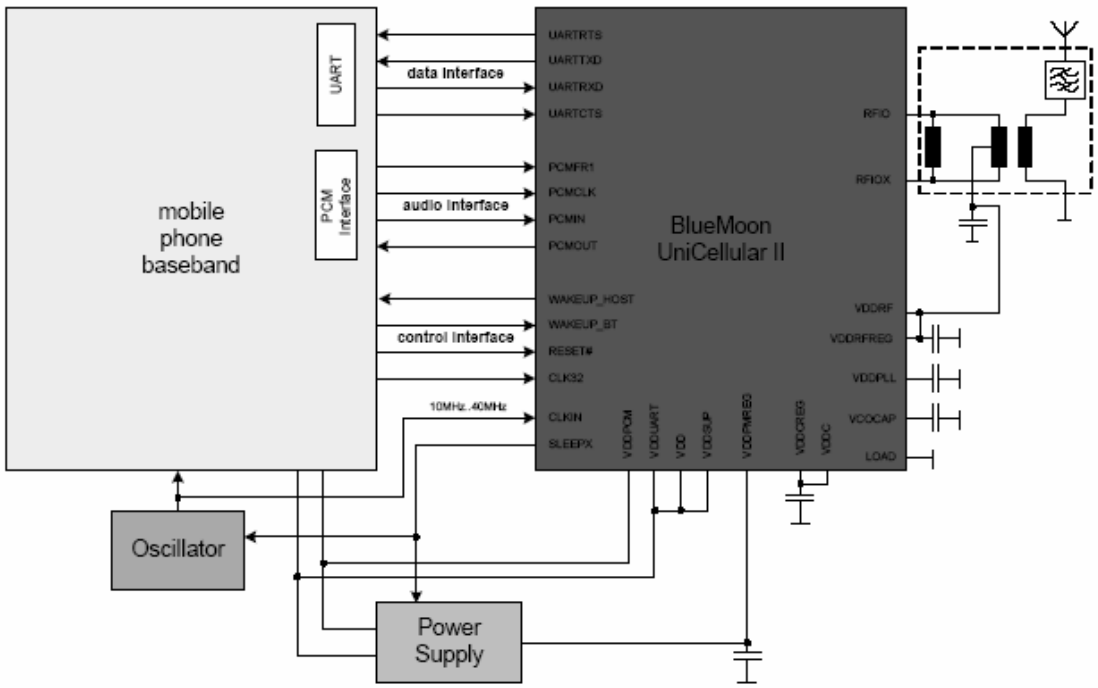


Figure 29 Mobile system integration

The UART (serial interface) is used for the software interface between S-Gold2 baseband and the Bluetooth chip. For the HCI UART transport layer four interface lines are needed, two for data (UARTTXD and UARTRXD) and two for hardware flow control (UARTRTS and UARTCTS). For the HCI Three-Wire UART transport layer two interface lines (UARTTXD and UARTRXD) are needed. The hardware flow control lines (UARTRTS and UARTCTS) are supported but the use is optional. In KE600/KE608 used three-wire UART communication.
The UART interface has its own supply voltage (VDDUART) to ensure compatibility with the I/O voltages used by the S-Gold2.
The PCM/I2S interface is used as audio interface and can handle up to two voice channels. The PCM interface also has its own supply voltage (VDDPCM) to ensure compatibility with the I/O voltages used by the S-Gold2 baseband processor.

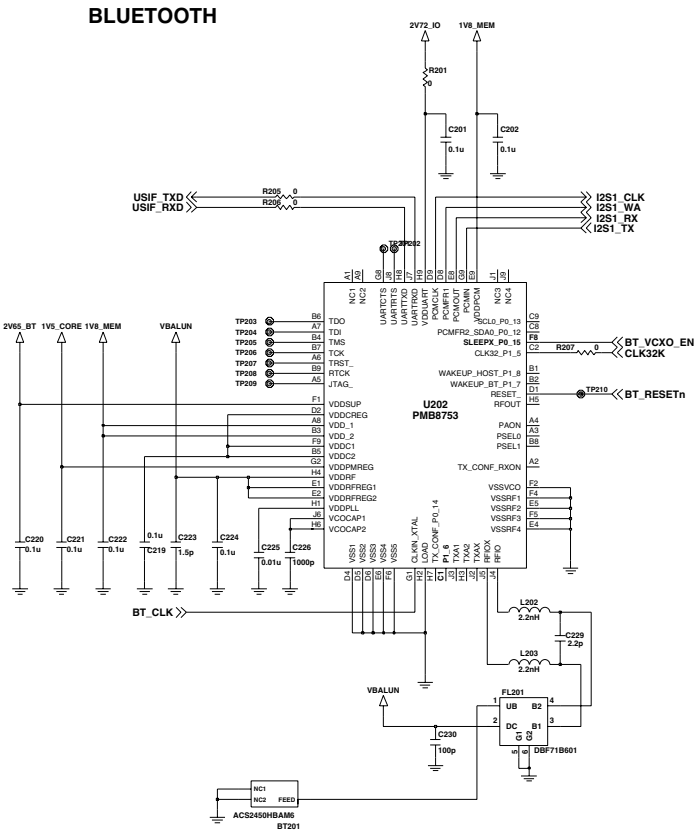


Figure 30 Bluetooth circuit

3.17. Micro SD external memory card slot

The MicroSD Memory Module has eight exposed contacts on one side. The S-Gold2 is connected to the module using a dedicated eight-pin connector

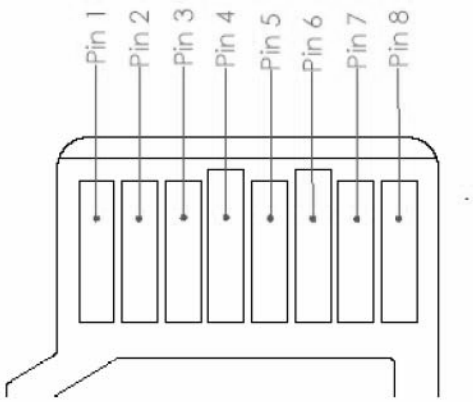


Figure 32 Micro SD pin assignment

Table 9 Micro SD memory pad assign.

SD mode			
Pin No.	Name	Type	Description
1	DAT2	I/O	Data bit [2]
2	CD/DAT3	I/O	Data bit [3]
3	CMD	I/O	Command response
4	VDD	Power	Power supply
5	CLK	I	Clock
6	VSS	Ground	Power ground
7	DAT0	I/O	Data bit [0]
8	DAT1	I/O	Data bit [1]

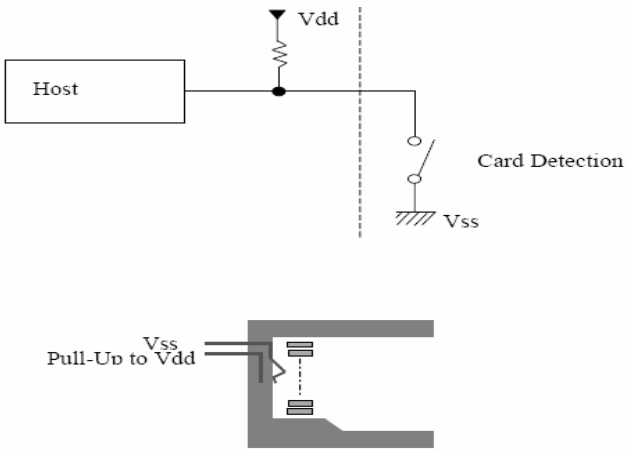


Figure 32 Micro SD memory card detection scheme

Table 10 Micro SD memory card detect truth table.

	Micro SD card status	
	it is removed	it is inserted
TF_DETECT	High	Low

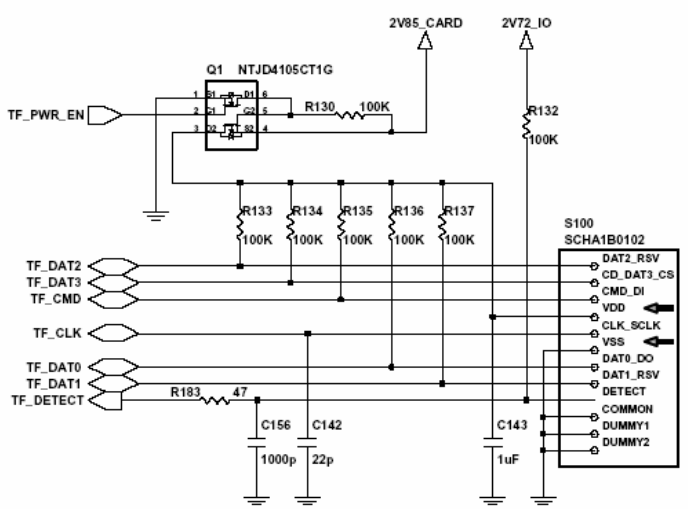


Figure 35 Micro SD socket circuit with power control

3.18. 12pin Multi Media Interface connector

Table 11 Multi media interface pin assign

KE600/KE608 MMI		
	Pin Function	**Description**
1	FM_ANT	FM radio antenna / Audio ground
2	HS_MIC_P / HS_ VMICP	Headset microphone positive signal / HS_ Mic positive source
3	HS_MIC_N / HS_ VMICN	Headset microphone negative signal / HS_ Mic negative source
4	HS_OUT_L	Headset left sound
5	HS_OUT_R	Headset Right sound
6	HS_DETECT	Headset detect (active low)
7	REMOTE_ADC	Remote control Key ADC
8	HOOK_DETECT	Hook detect (active low)
9	REMOTE_INT	Remote control interrupt
10	V_HS	Head_set source (2.72_IO)
11	IDEL	Idle pin
12	IDEL	Idle pin

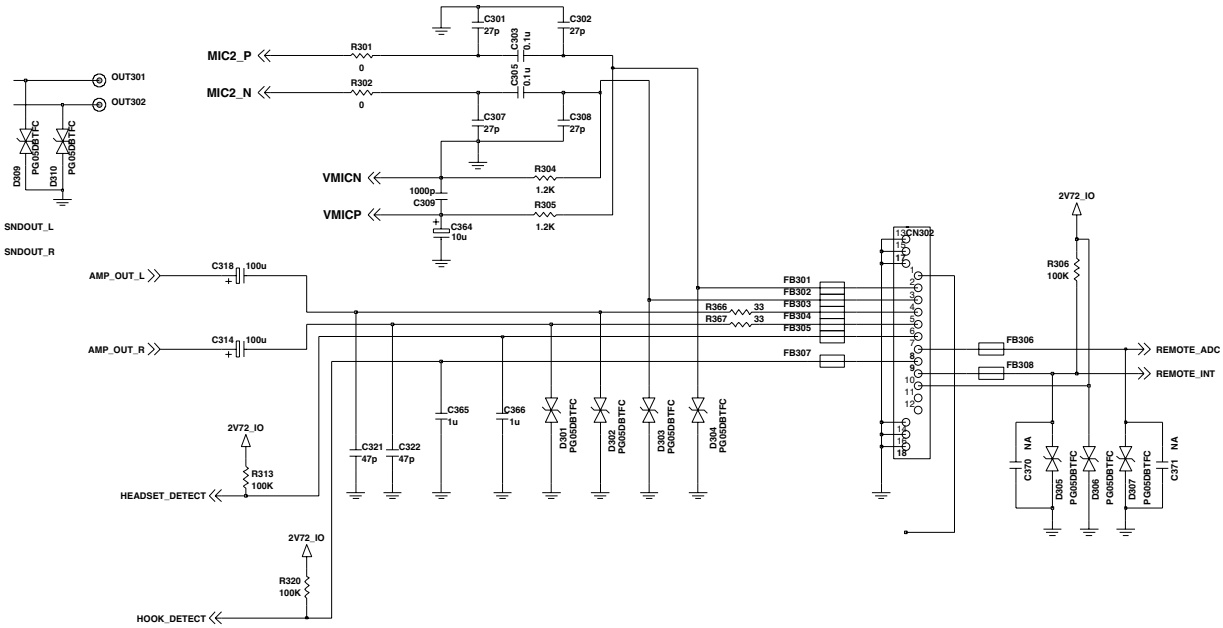
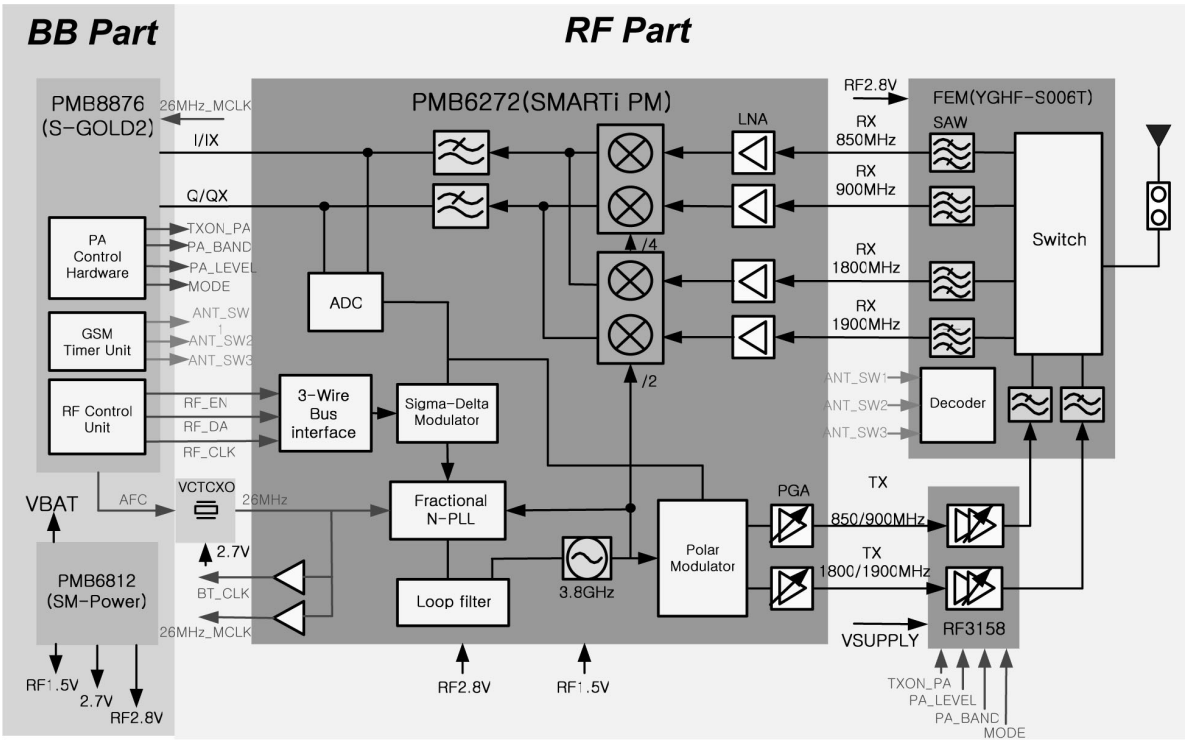


Figure 34 MMI 12pin connector circuit

RF circuit



RF Block Diagram

3.19. General Description

The RF transceiver (PMB 6272 SMARTi-PM) is an integrated single chip, quad-band transceiver for GSM850/GSM900/GSM1800/GSM1900 designed for voice and data transfer applications. The transceiver provides an analog I/Q baseband interface and consists of a direct conversion receiver and a quad-band polar transmitter for GSM and EDGE with integrated PGA functionality. Further on a completely integrated SD-synthesizer with HSCSD and GPRS/EDGE capability, a digitally controlled reference oscillator with three outputs, a fully integrated quad-band RF oscillator and a three wire bus interface with all necessary control circuits complete the transceiver.

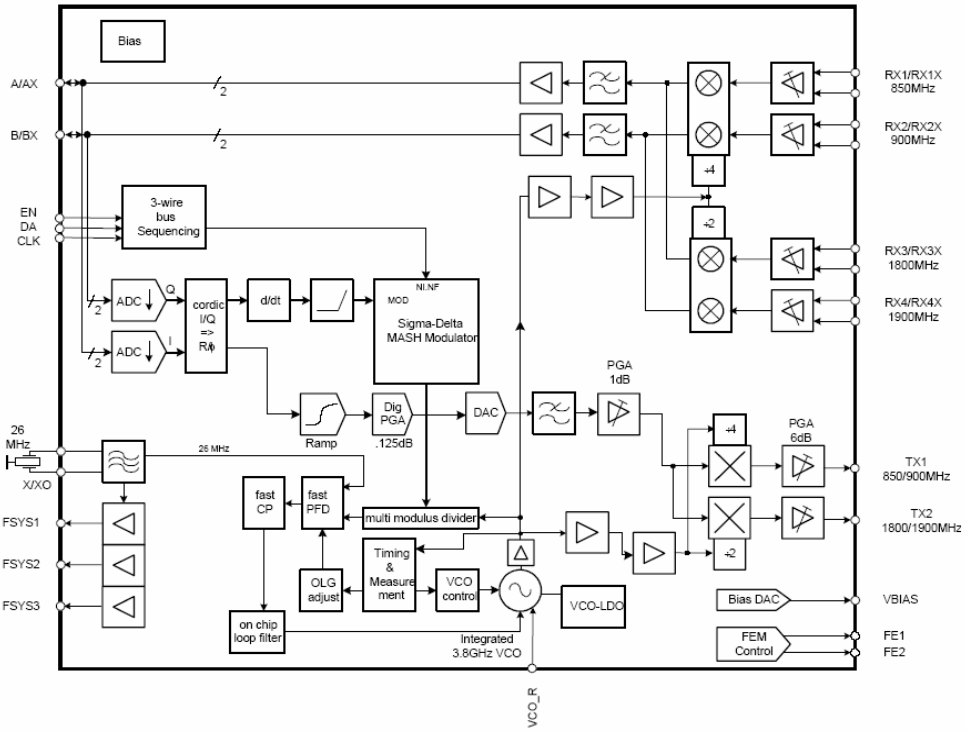


Figure 35 RF transceiver PMB7262 SMARTi-PM functional block diagram

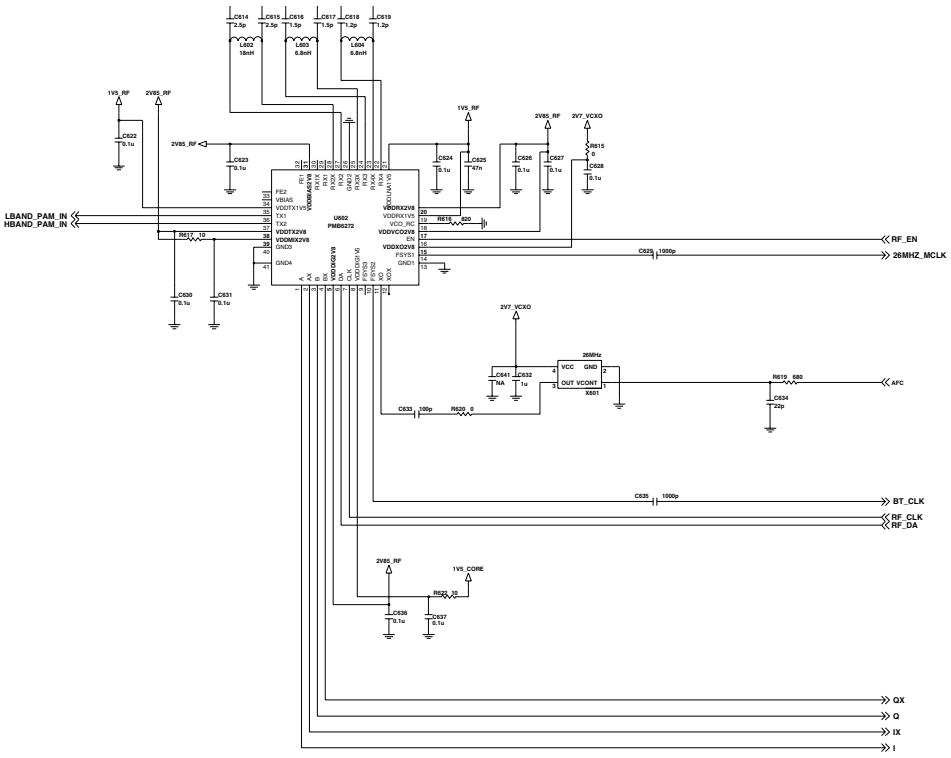


Figure 36 RF transceiver PMB7262 SMARTi-PM schematic

3.20. Receiver part

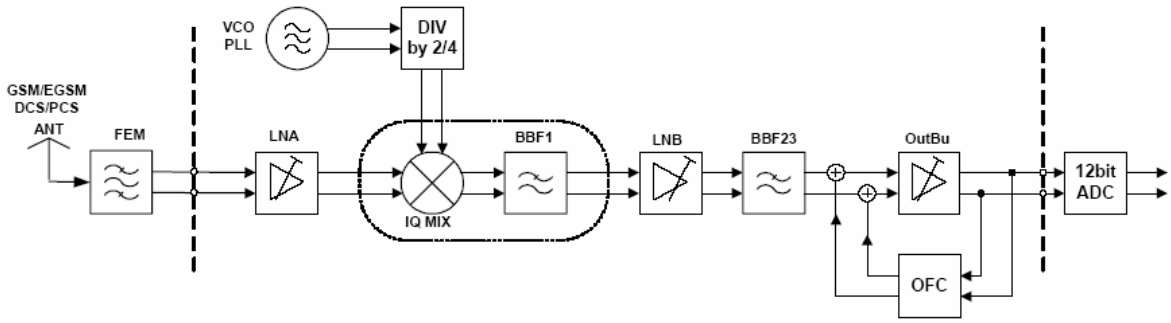


Figure 37 Receiver part block diagram

The constant gain direct conversion receiver contains all active circuits for a complete receiver chain for GSM/GPRS/EDGE (see Figure 37). The GSM850/900/DCS1800/ PCS1900 LNAs with balanced inputs are fully integrated. No inter-stage filtering is needed. The orthogonal LO signals are generated by a divider-by-four for GSM850/900 band and a divider-by-two for the DCS1800/PCS1900 band. Down conversion to baseband domain is performed by low/high band quadrature direct down conversion mixers. The baseband chain contains a LNB (low noise buffer), channel filter, output buffer and DC-offset compensation. The 3rd order low pass filter is fully integrated and provides sufficient suppression of blocking signals as well as adjacent channel interferers and avoids anti-aliasing through the baseband ADC. The receive path is fully differential to suppress on-chip interferences. Several gain steps are implemented to cope with the dynamic range of the input signals. Depending on the baseband ADC dynamic range, single- or multiple gain step switching schemes are applicable. Furthermore an automatic DC-offset compensation can be used (depending on the gain setting) to reduce the DC-offset at baseband-output. A programmable gain correction can be applied to correct for front end- and receiver gain tolerances.

3.21. Transmitter part

The GMSK transmitter supports power class 4 for GSM850 and GSM900 as well as power class 1 for DCS1800 and PCS1900. The digital transmitter architecture is based on a very low power fractional-N Sigma-Delta synthesizer without any external components (see Figure39). The analog I/Q modulation data from the baseband is converted to digital, filtered and transformed to polar coordinates. The phase/frequency signal is further on processed by the Sigma-Delta modulation loop. The output of its associated VCO is divided by four or two, respectively, and connected via an output buffer to the appropriate single ended output pin. This configuration ensures minimum noise level. The 8PSK transmitter supports power class E2 for GSM850 and GSM900 as well as for DCS1800 and PCS1900.

The digital transmitter architecture is based on a polar modulation architecture, where the analog modulation data (rectangular I/Q coordinates) is converted to digital data stream and is subsequently transformed to polar coordinates by means of a CORDIC algorithm. The resulting amplitude information is fed into a digital multiplier for power ramping and level control. The ready processed amplitude signal is applied to a DAC followed by a low pass filter which reconstructs the analog amplitude information. The phase signal from the CORDIC is applied to the Sigma-Delta fractional-N modulation loop.
The divided output of its associated VCO is fed to a highly linear amplitude modulator, recombining amplitude and phase information. The output of the amplitude modulator is connected to a single ended output RF PGA for digitally setting the wanted transmit power. The PA interface of SMARTi-PM supports direct control of standard dual mode power amplifiers (PA's) which usually have a power control input VAPC and an optional bias control pin VBIAS for efficiency enhancement. In GMSK mode, the PA is in saturated high efficiency mode and is controlled via its VAPC pin directly by the baseband ramping DAC. In this way both up- / down-ramping and output power level are set. In 8PSK mode, the ramping functionality is assured by an on-chip ramping generator, whereas output power is controlled by the PGA's as described above.

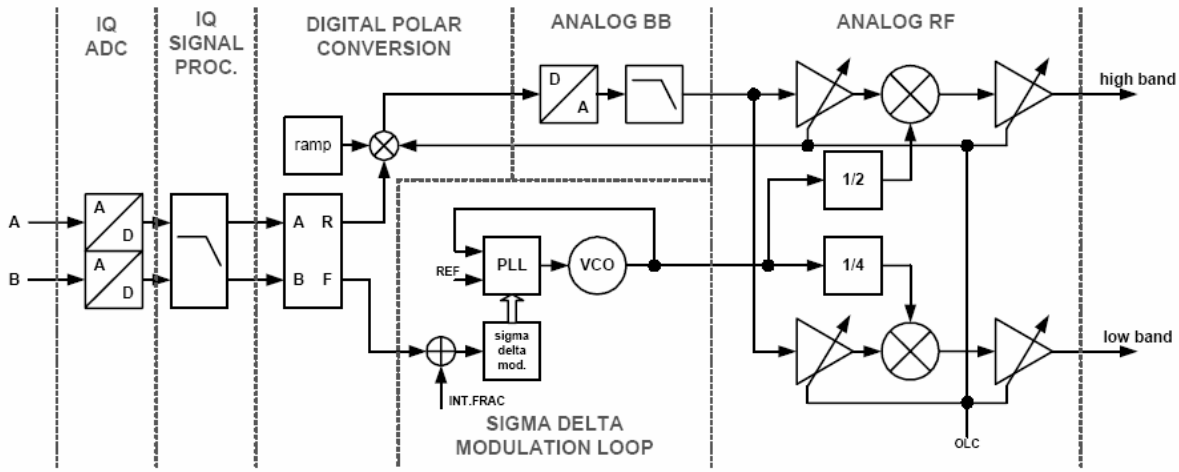


Figure 38 Transmitter part block diagram

3.22. RF synthesizer

The transceiver contains a fractional-N sigma-delta synthesizer for the frequency synthesis in the RX operation mode. For TX operation mode the fractional-N sigma-delta synthesizer is used as Sigma-Delta modulation loop to process the phase/frequency signal. The 26MHz reference signal is provided by the internal crystal oscillator. This frequency serves as comparison frequency of the phase detector and as clock frequency for all digital circuitry.The divider in the feedback path of the synthesizer is carried out as a multi-modulus divider (MMD). The loop filter is fully integrated and the loop bandwidth is about 100 kHz to allow the transfer of the phase modulation. The loop bandwidth is automatically adjusted prior to each slot (OLGA^2). To overcome the statistical spread of the loop filter element values an automatic loop filter adjustment (ALFA) is performed before each synthesizer startup. The fully integrated quad-band VCO is designed for the four GSM bands (850, 900, 1800, 1900 MHz) and operates at double or four times transmit or receive frequency. To cover the wide frequency range the VCO is automatically aligned by a binary automatic band selection (BABS) before each synthesizer startup.

3.23. VCTCXO

The VCTCXO (X601) supply 26MHz reference clock and controlled by AFC input to generate a strict system clock. The 26MHz clock is used to Transceiver(U602), Bluetooth chip(U202) and S-Gold2 (U101).

Figure39 VCTCXO Schematic

3.24. Front End Module control

Implemented in the S-Gold2 (U101) are three outputs which are ANT_SW1, ANT_SW2 and ANT_SW3 for direct control of front end modules with three logic input pins to select RX and TX mode as well as low and high band operation.

MODE	Tx 1GHz	Tx 2GHz	Rx EGSM	Rx DCS	TX PCS
VDD	ON	ON	ON	ON	ON
VCTRL1	ON	ON	OFF	OFF	OFF
VCTRL2	OFF	ON	ON	OFF	OFF
VCTRL3	OFF	OFF	OFF	ON	OFF

Figure 40 FEM schematic

3.25. Power Amplifier Module

The RF3158 (U601) is a high-power, dual-mode amplifier (PA) with integrated power control. This PA is designed to operate both in a saturated mode for GMSK signaling and in a linear mode for 8PSK modulation. Featuring input and output terminals that are internally matched to 50 ohms, the PAM is designed to be the final amplification stage in a dual-mode GSM/EDGE mobile transmit lineup operating in the 824 MHz to 915 MHz (low) and 1710 MHz to 1910 MHz (high) bands.

Table 13 PAM pin description

PIN	Function	Description
1	HB_RFIN	RF input to the High-band PA
2 BAND_SEL	Logic low=low band, Logic high=high band select	
3	TX_EN	PA Enable
4	VBATT	Main supply
5	VMODE	Logic low=GMSK mode, Logic high=8PSK mode select
6	VRAMP	Ramped burst pin
7	LB_RFIN	RF input to the Low-band PA
8,9,10,11	GND	Ground
12	LB_	RFOUT RF output from the low-band PA
13,14,15,16,17	GND	
18	HB_RFOUT	RF output from the high-band PA
19,20,21,22,23	GND	

Table 13 PAM pin description

3.26. Dual Mode Operation

MODE	VMODE	RF INPUT	VRAMP	TX ENABLE
GSM	Low	Fixed	Ramp Burst Control	High
EDGE	High	Ramp Burst Control	Control amp bias current	High

When VMODE is low, the voltage on VRAMP is used to regulate the PA collector voltage which directly controls the output power. When VMODE is high, the PA collector voltage is regulated to 3.6V, and the supply for the PA base bias can be adjusted via the VRAMP pin to optimize current drain for low or high power ranges. In addition, in 8PSK mode, the first stage of the low band PA is bypassed to decrease gain, but in high band, the PA operates with all stages.

3.26.1 PAM Schematic

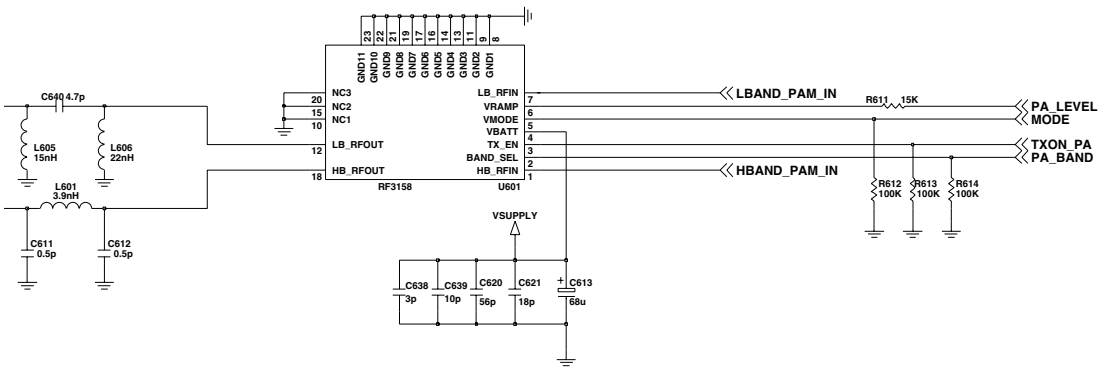


Figure 42 PAM schematic

4. PCB layout

4.1 Main & Sub PCB component placement

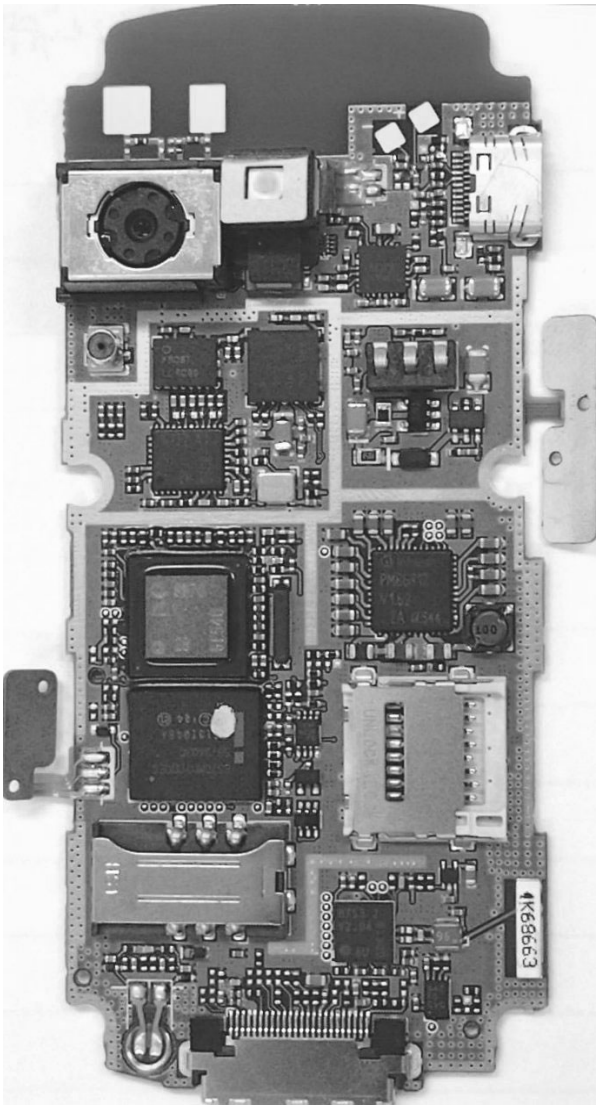


Figure 43 Main PCB top

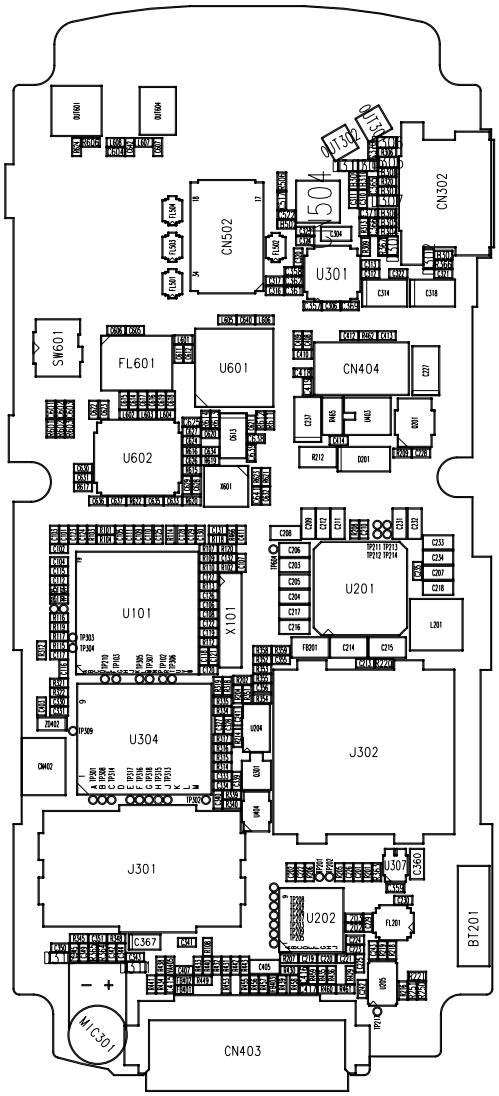


Figure 44 Main PCB top placement

4. PCB layout

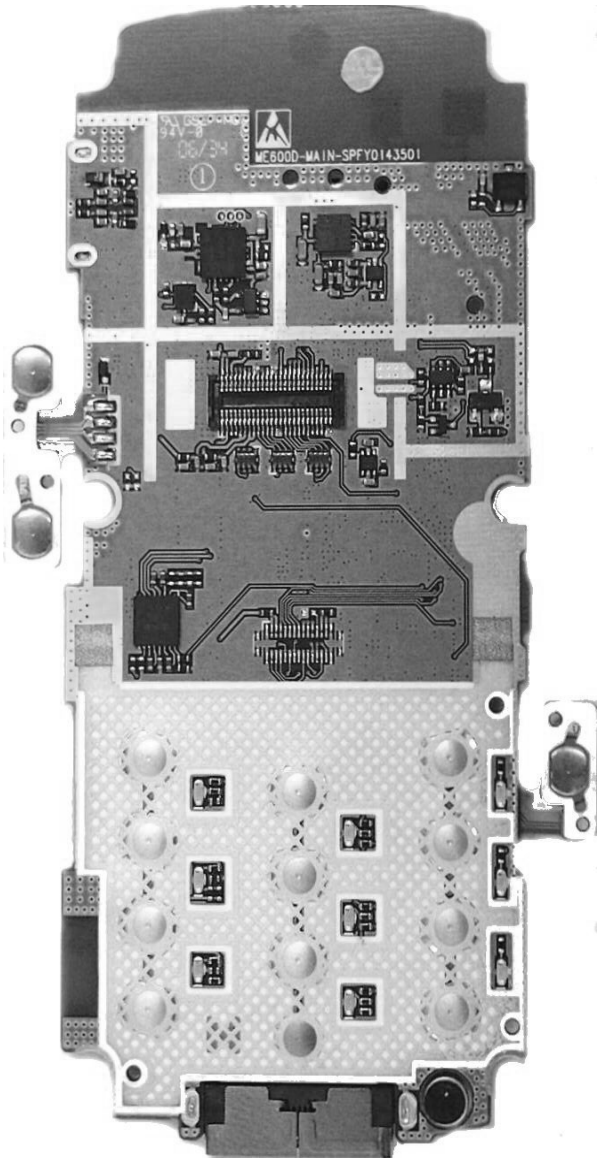


Figure 45 Main PCB bottom

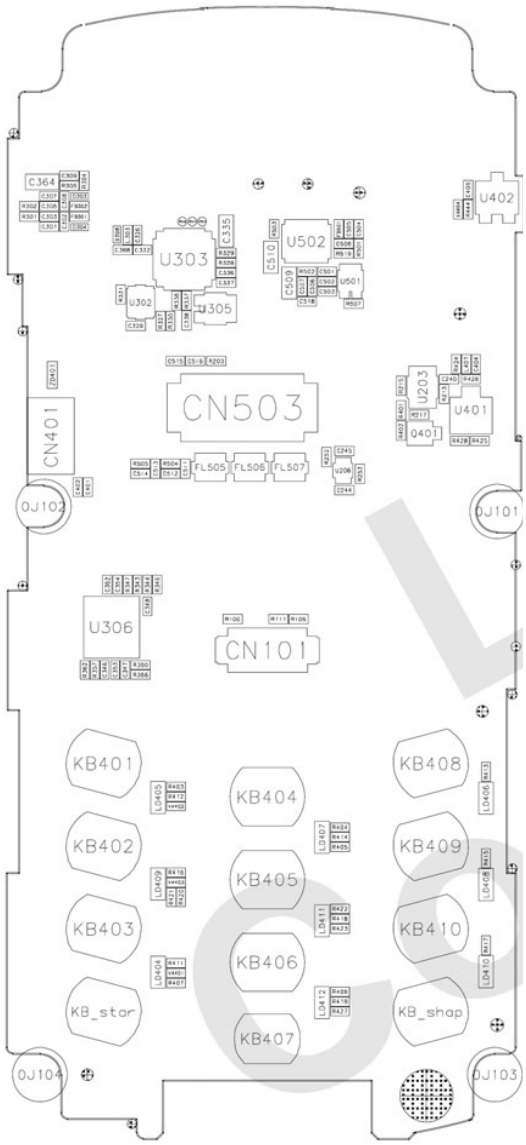


Figure 46 Main PCB bottom placement

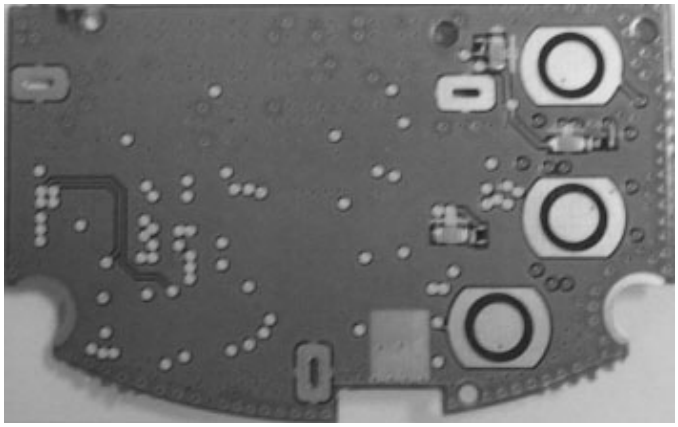


Figure 47 Sub PCB top

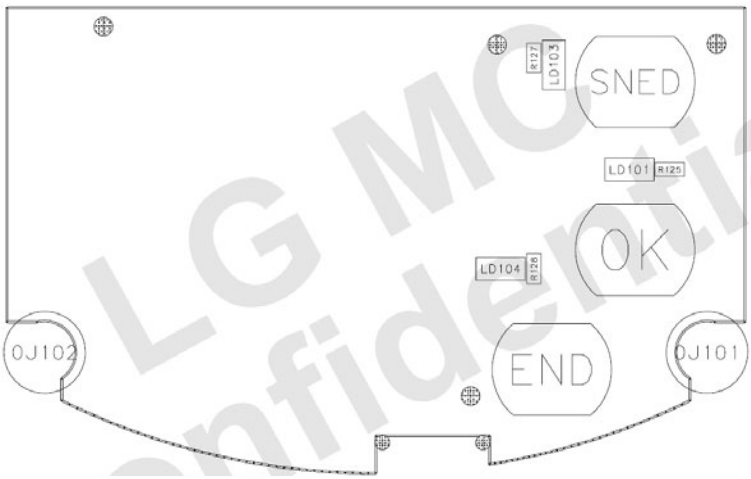


Figure 48 Sub PCB top placement

4. PCB layout

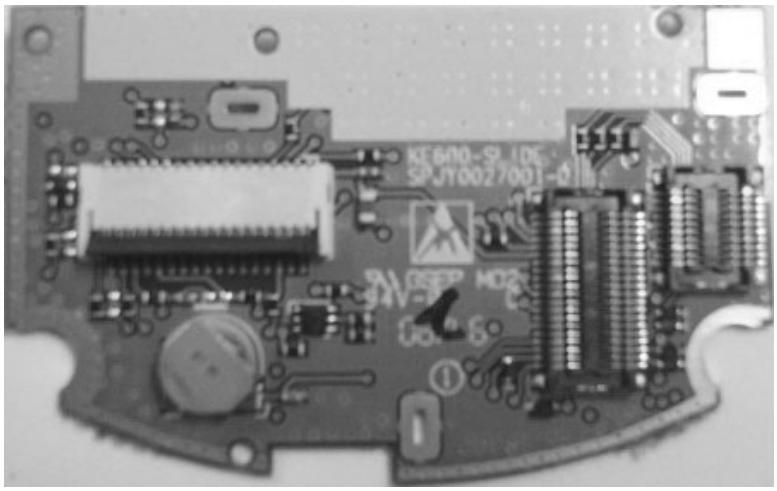


Figure 49 Sub PCB bottom

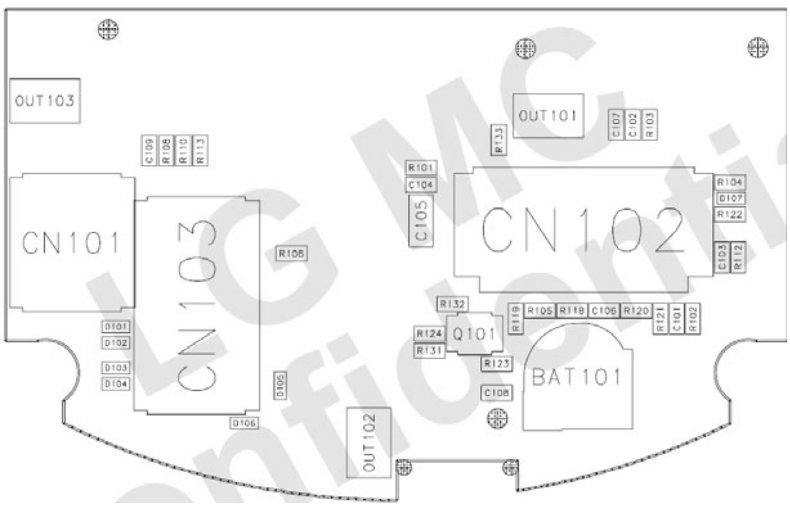
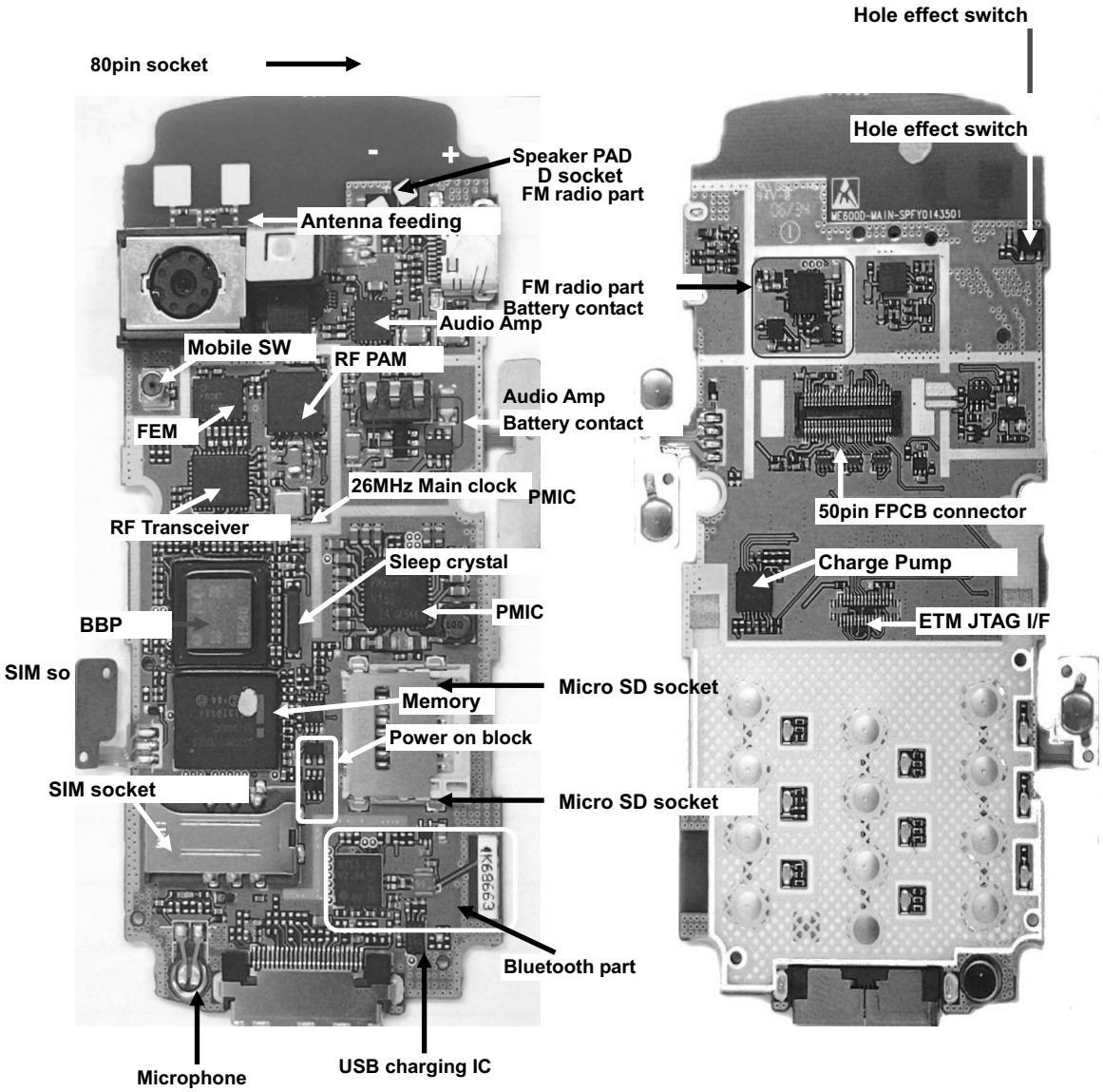
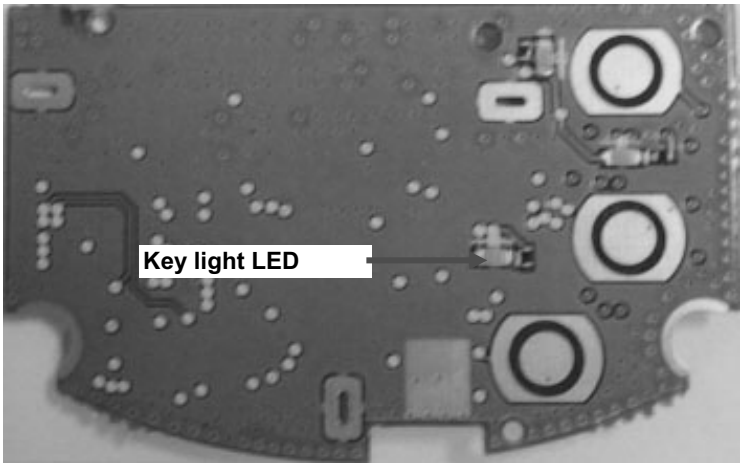
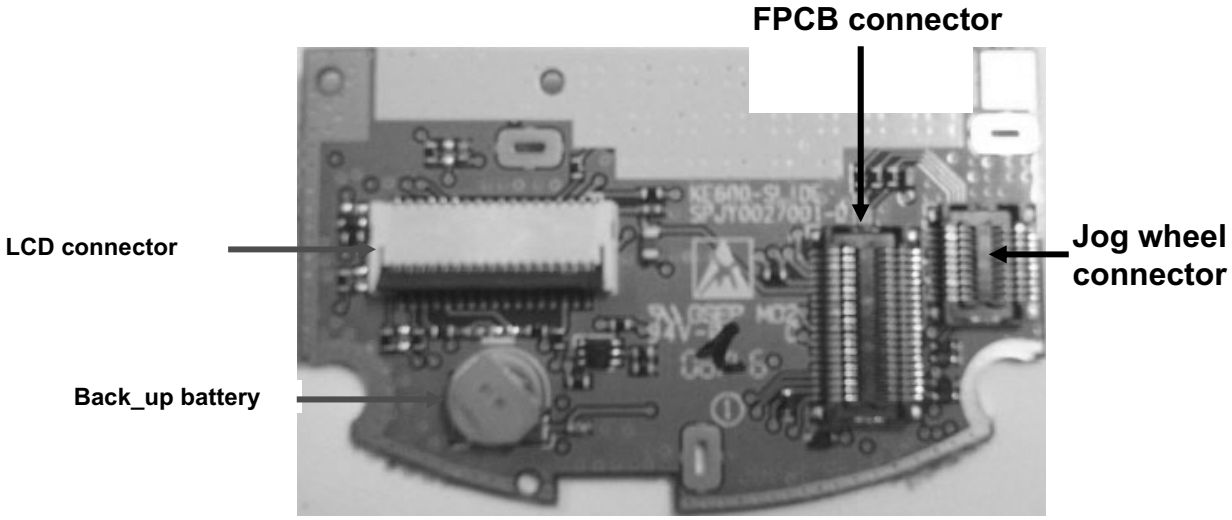


Figure 50 Sub PCB bottom placement

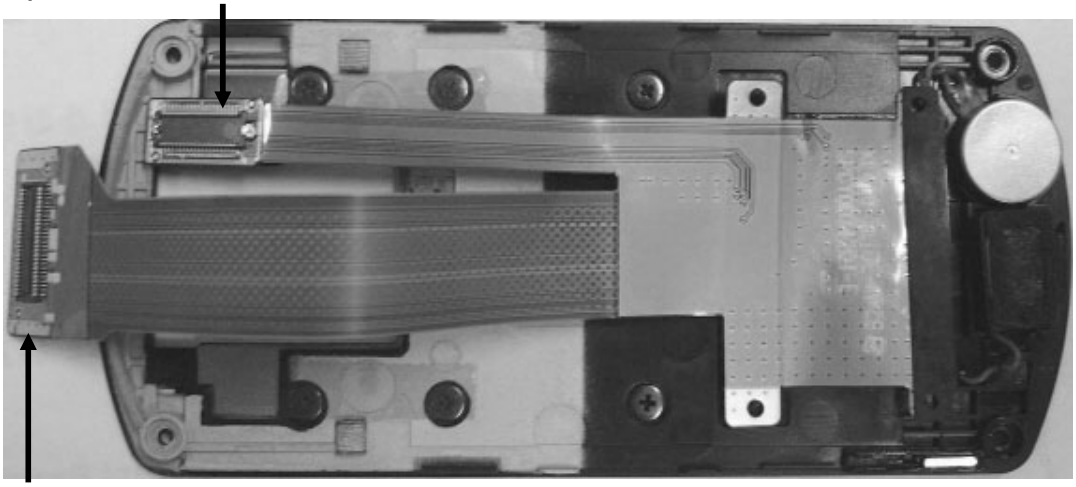

Hole effect switch
80pin socket
Hole effect switch
Speaker PAD
D socket
FM radio part
Antenna feeding
FM radio part
Battery contact
Audio Amp
Mobile SW
RF PAM
Audio Amp
Battery contact
FEM
26MHz Main clock
PMIC
50pin FPCB connector
RF Transceiver
Sleep crystal
Charge Pump
PMIC
ETM JTAG I/F
BBP
SIM so
Micro SD socket
Memory
Power on block
SIM socket
Micro SD socket
Bluetooth part
Microphone
USB charging IC

4. PCB layout

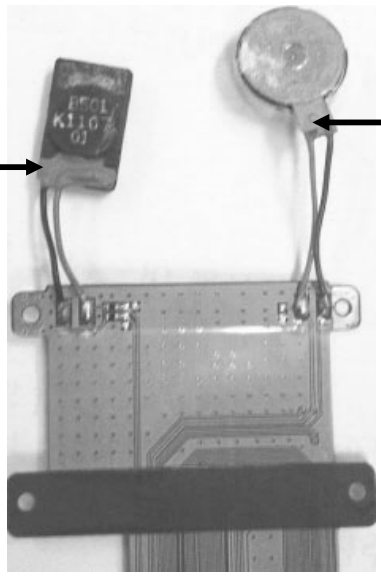

Key light LED


FPCB connector
LCD connector
Jog wheel connector
Back_up battery

40pin FPCB connector connected in Main Pcb



50pin FPCB connector connected in Main Pcb



5. Trouble shooting

5.1 Trouble shooting test setup

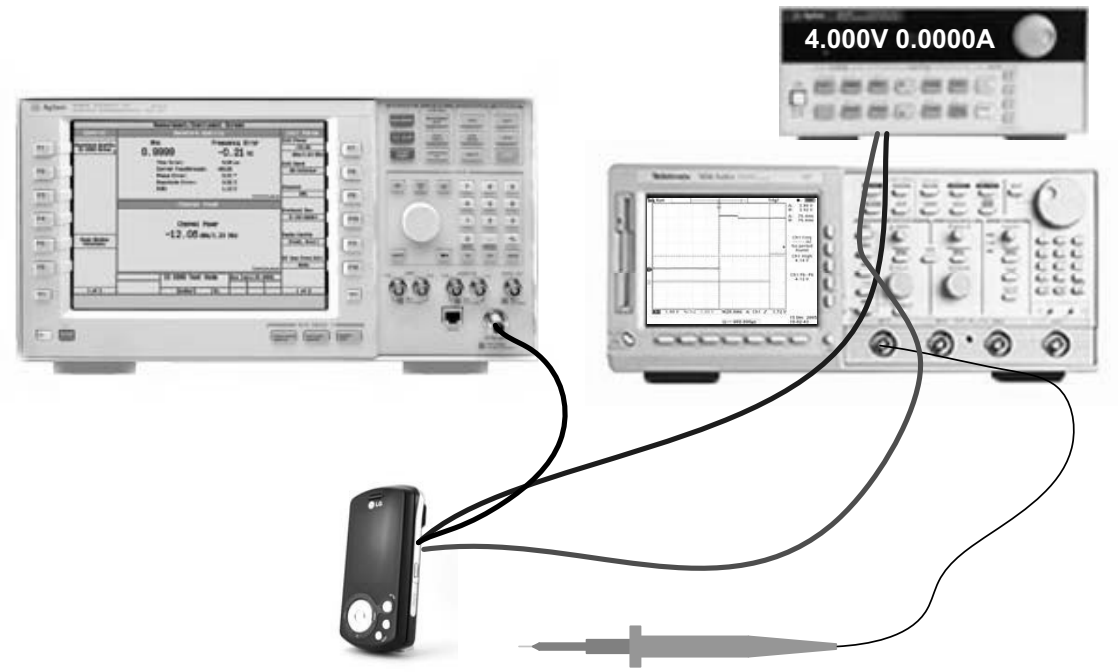
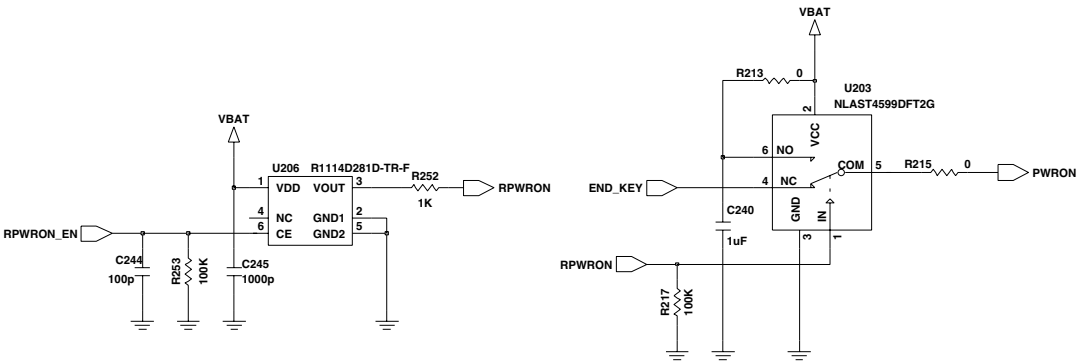


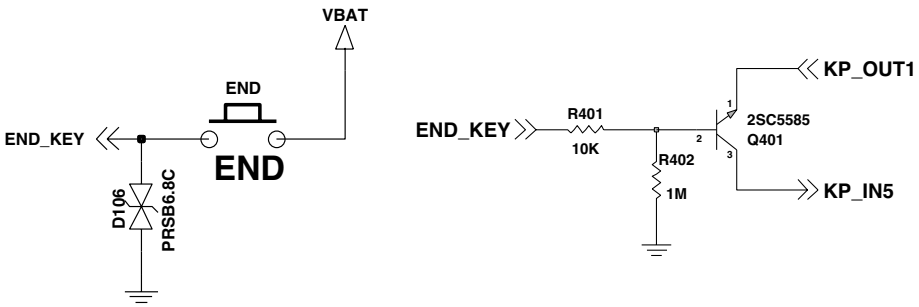
Figure 51 Equipment setup

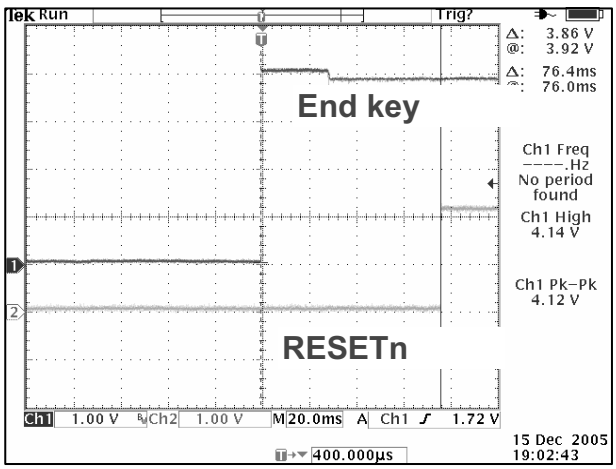
Power on all of test equipment
- Connect PIF-UNION JIG or dummy battery to the DUT for power up.
- Connect mobile switch cable between Communication test set and DUT when you need to make a phone call.
- Follow trouble shooting procedure

5.2 Power on Trouble

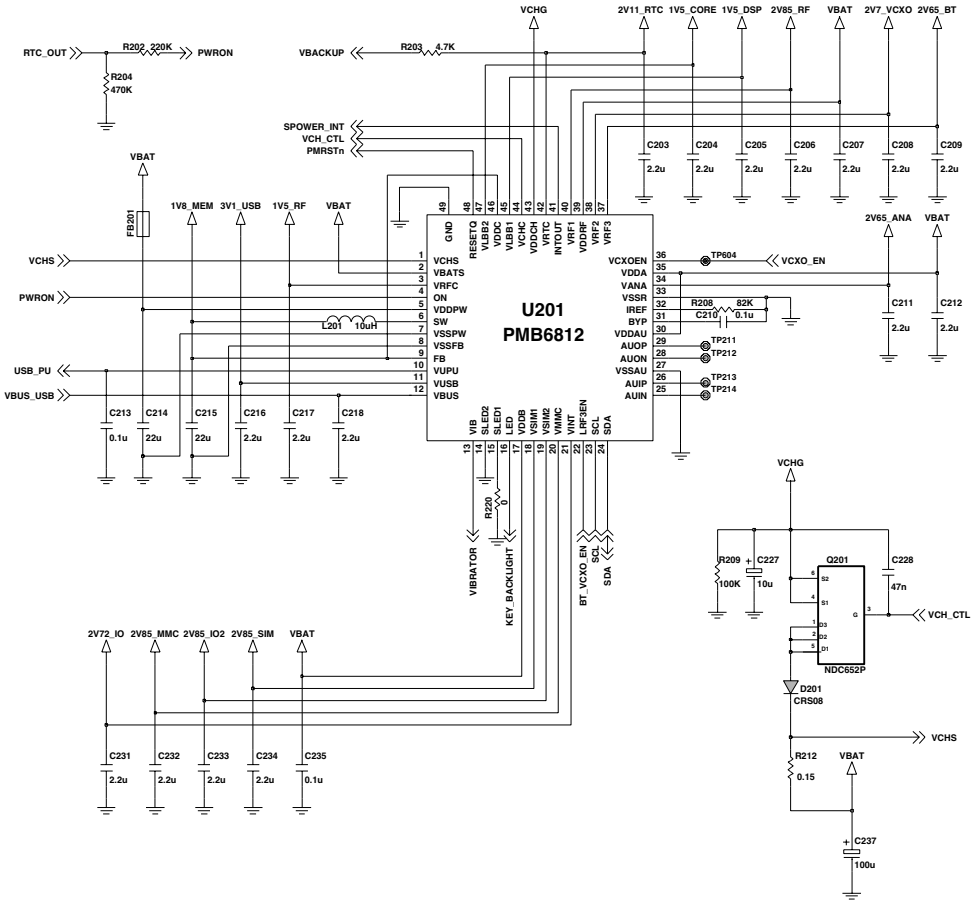
Check Points
-Battery Voltage(Need to over 3.35V)
-Power-On Key detection (PWRON signal)
-Outputs of LDOs from PMIC

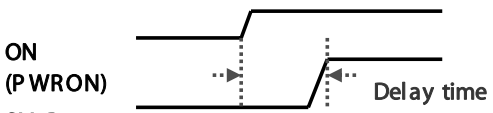

VBAT
U206 R1114D281D-TR-F
VDD VOUT
NC GND1
CE GND2
R252
1K
RPWRON
RPWRON_EN
C244
100p
R253
100K
C245
1000p
R213
0
U203
NLAST4599DFT2G
VCC
NO
COM
NC
GND
IN
R215
0
PWRON
END_KEY
C240
1uF
RPWRON
R217
100K


VBAT
END
END_KEY
END
D106
PRSB6.8C
KP_OUT1
END_KEY
R401
10K
2SC5585
Q401
R402
1M
KP_IN5

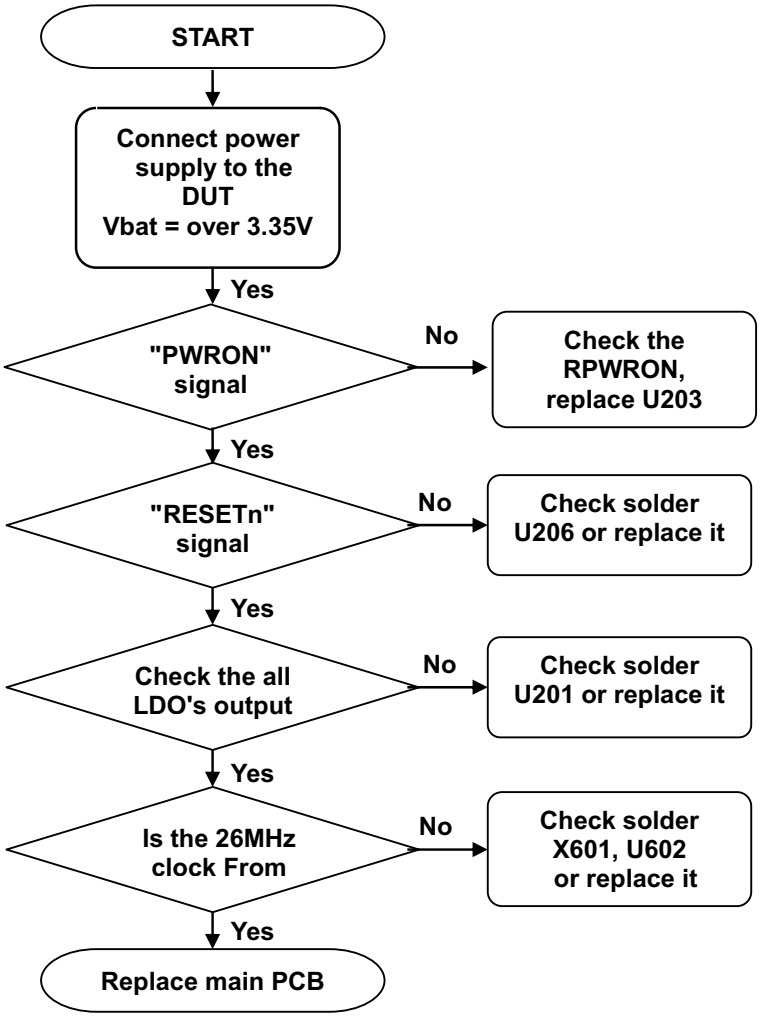

Tek Run
Trig?
Δ: 3.86 V
@: 3.92 V
Δ: 76.4ms
@: 76.0ms
End key
Ch1 Freq
-----.Hz
No period
found
Ch1 High
4.14 V
Ch1 Pk-Pk
4.12 V
RESETn
Ch1 1.00 V
Ch2 1.00 V
M 20.0ms
A Ch1 1.72 V
400.000µs
15 Dec 2005
19:02:43

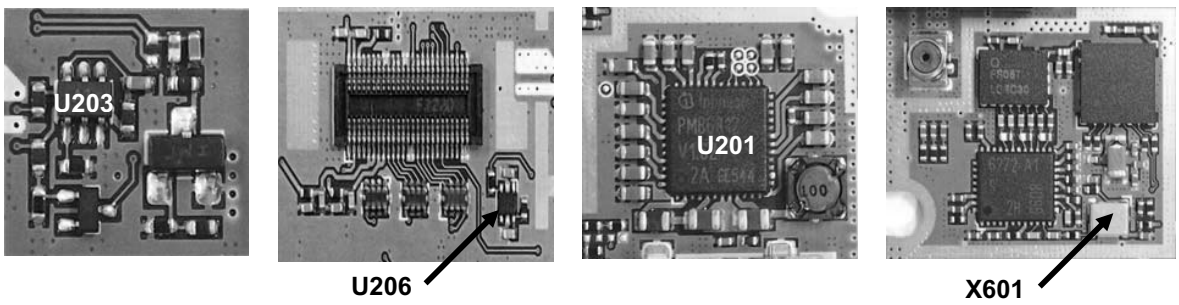
5. Trouble shooting





SM-POWER LDOS	2V7_VCXO	1V5_CORE	1V8_MEM	1V5_DSP	2V72_IO	2V65_ANA	2V85_SIM	2V85_IO2	2V85_MMC	3V1_USB	1V5_RF	2V85_RF
LDO NAME	VRF2	VLBB2	SW(SDBB)	VLBB1	VINT	VANA	VSIM1	VSIM2	VMMC	VUSB	VRFC	VRF1
Delay time(msec)	20	24.2	23.7	26.2	26.2	28.1	30.2	32.2	34.3	36.6	628	628


START
Connect power supply to the DUT Vbat = over 3.35V
Yes
"PWRON" signal
No
Check the RPWRON, replace U203
Yes
"RESETn" signal
No
Check solder U206 or replace it
Yes
Check the all LDO's output
No
Check solder U201 or replace it
Yes
Is the 26MHz clock From
No
Check solder X601, U602 or replace it
Yes
Replace main PCB


U203
U206
U201
X601

5.3 Charging trouble

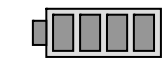
Check Points

-Connection of TA (check TA voltage 4.8V)

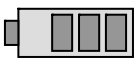
-Charging Current Path component voltage drop

-Battery voltage

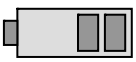
- Charging method : CC-CV
- Charger detect voltage : about 4.0V
- ChCharging time : 3h under
- Charging current : 600mA
- Cutoff current : 100mA
- Low battery alarm
  - Idle : 3.50V
  -. Dedicated : 3.58V
- Switch-off voltage : 3.35V
- Charging temperature ADC range
  - ~ -20°C : small charging operation.
  - -20°C ~ 60°C : charging.
  - 60°C ~ : not charging operation small charging operation.



4.2V~3. 86V

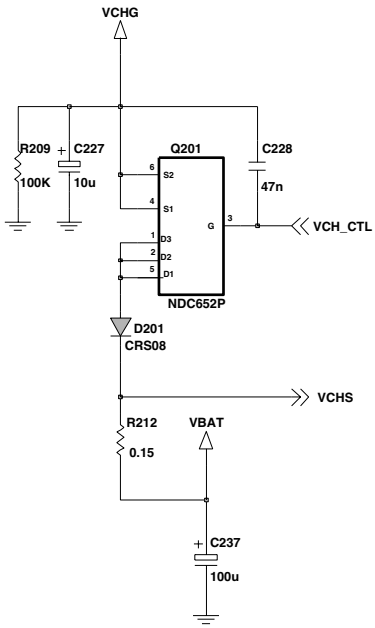


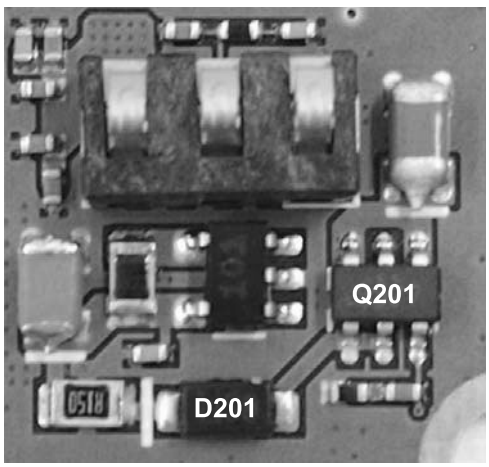
3.85V~ 3.75V

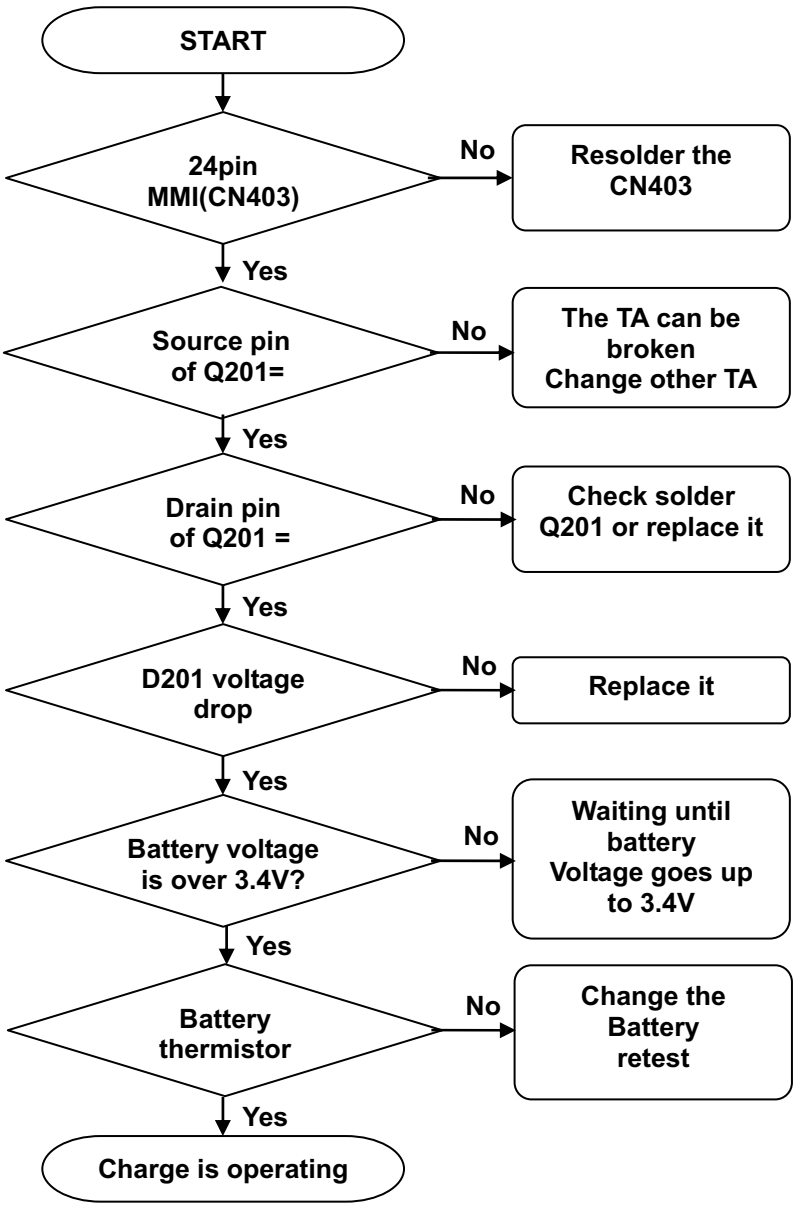


3.75V~ 3.69V

3.69V~ 3.58V






START
24pin MMI(CN403)
No
Resolder the CN403
Yes
Source pin of Q201=
No
The TA can be broken Change other TA
Yes
Drain pin of Q201 =
No
Check solder Q201 or replace it
Yes
D201 voltage drop
No
Replace it
Yes
Battery voltage is over 3.4V?
No
Waiting until battery Voltage goes up to 3.4V
Yes
Battery thermistor
No
Change the Battery retest
Yes
Charge is operating

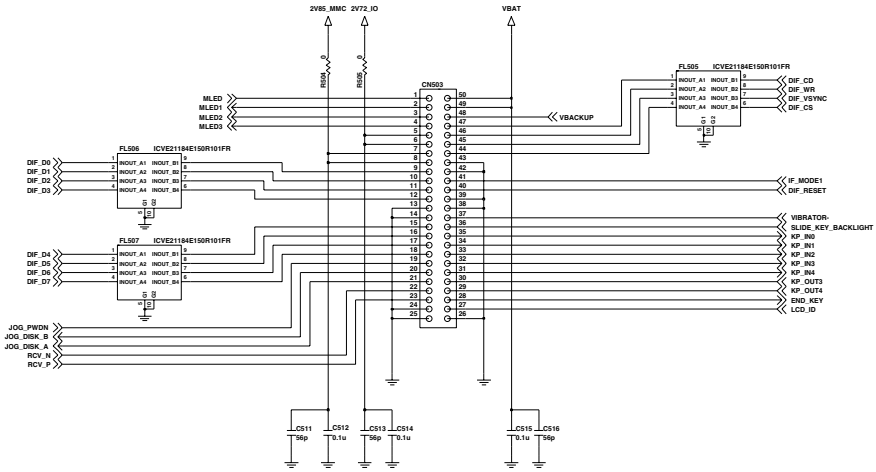
5.4 LCD display trouble

Check Points

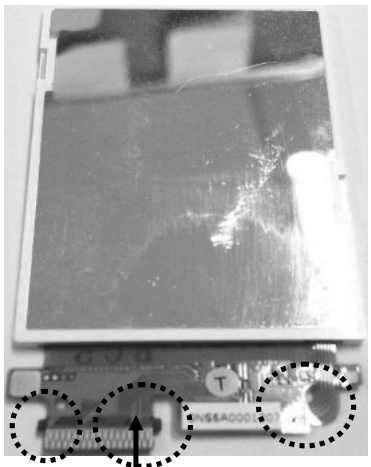
-LCD assembly status (FPCB)

-EMI filter soldering

-Connector combination

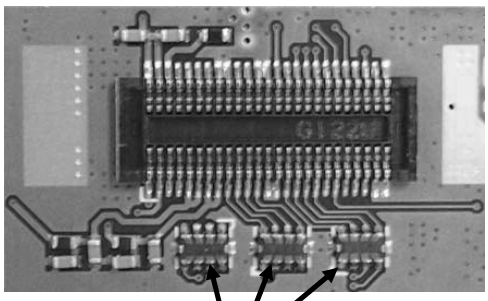


cking Point

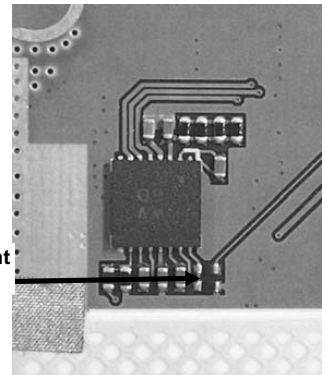


Check signal line disconnection of the LCD FPCB

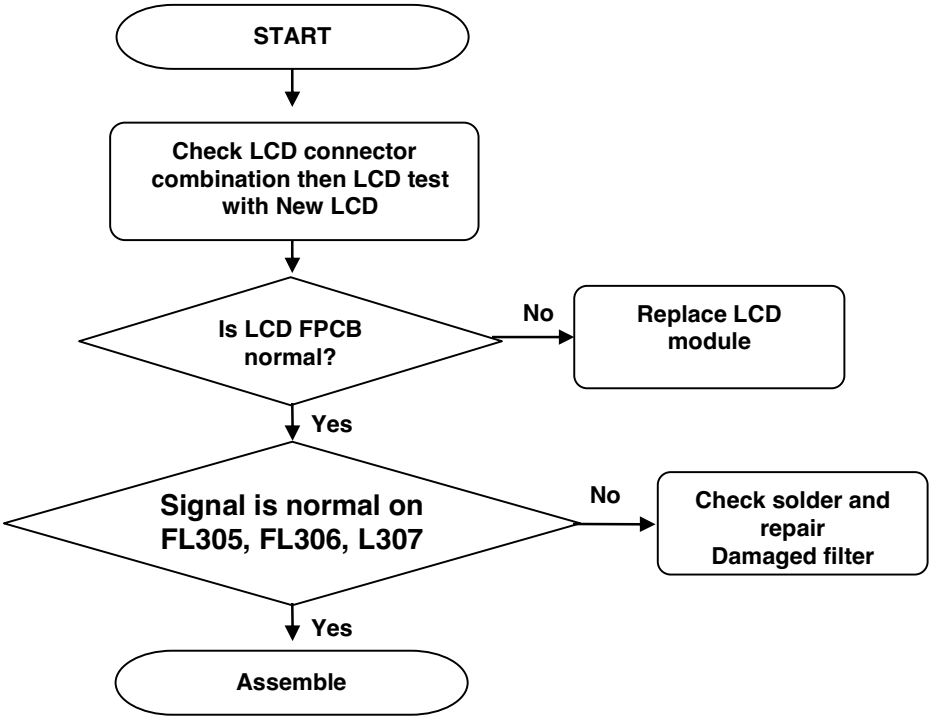
LCD CONNECTOR



Check signal flow via EMI filter



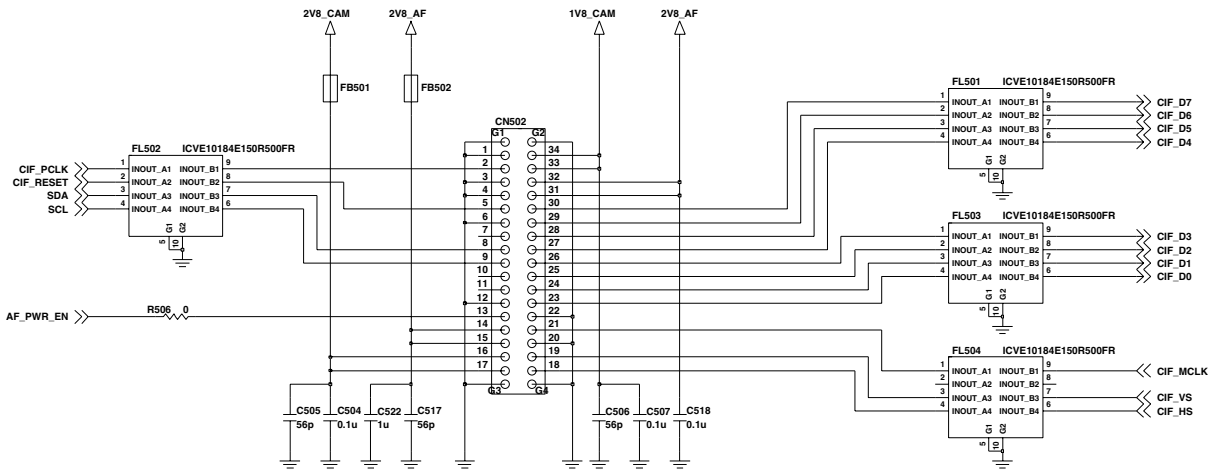
At first check the LCD back light enable signal



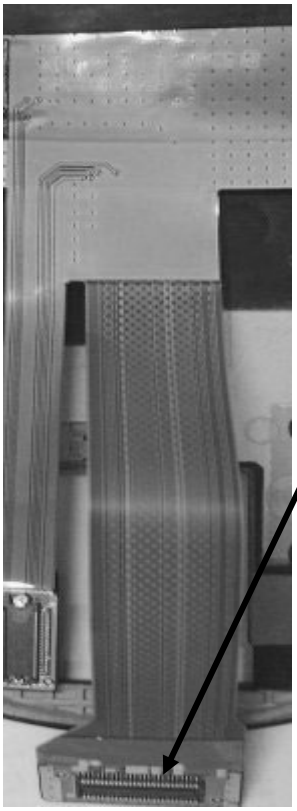
5.5 Camera Trouble

Check Points

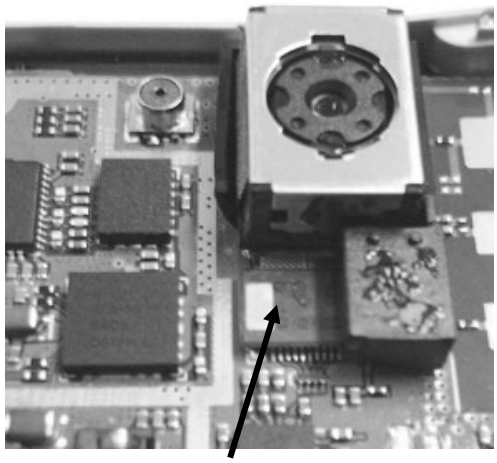
-Connectors combination
-EMI filter soldering
-FPCB status



Checking Point

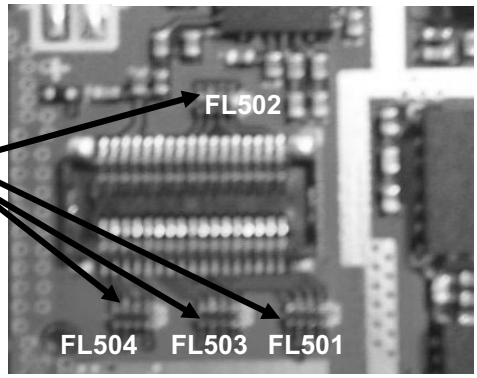


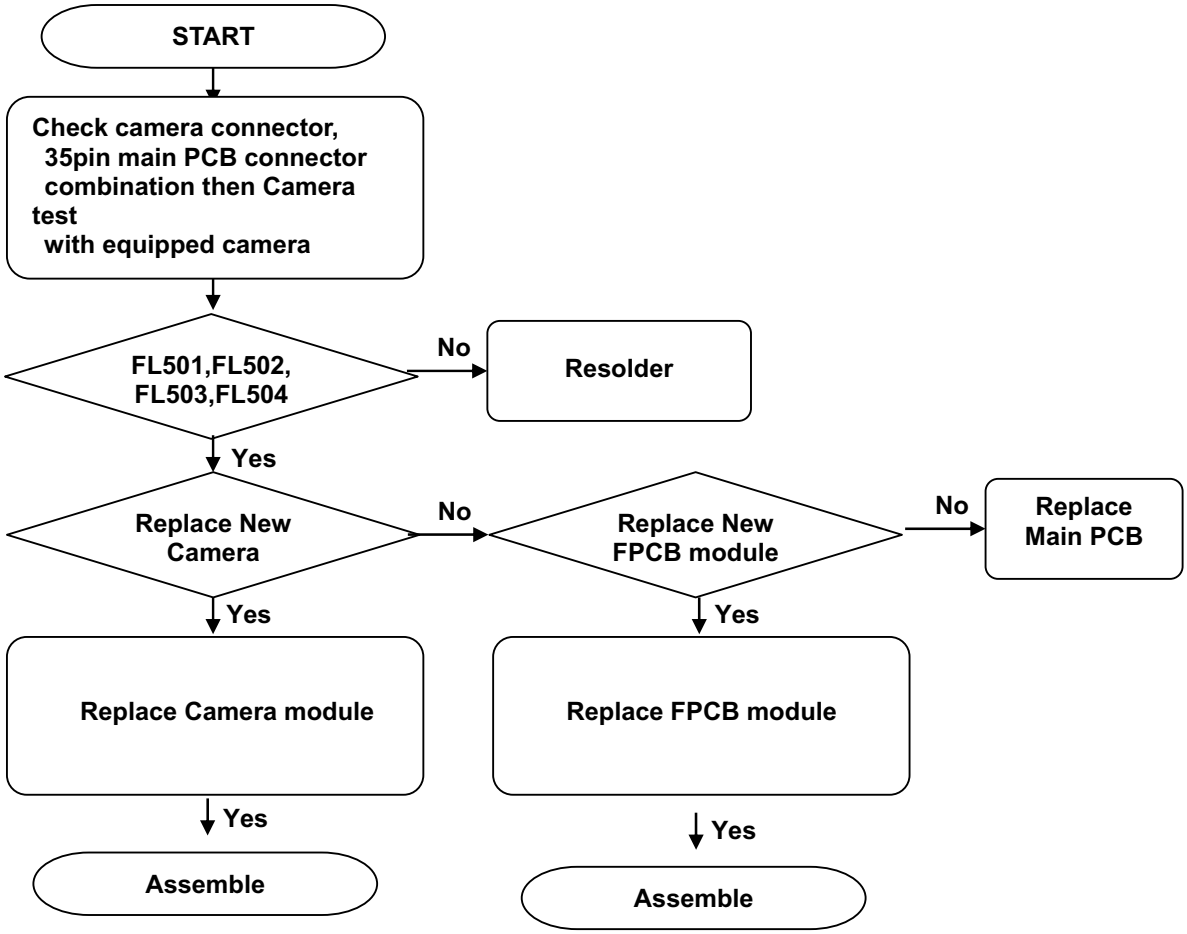
50pin main PCB connector



Check the connector combination

Check signal flow via EMI filter

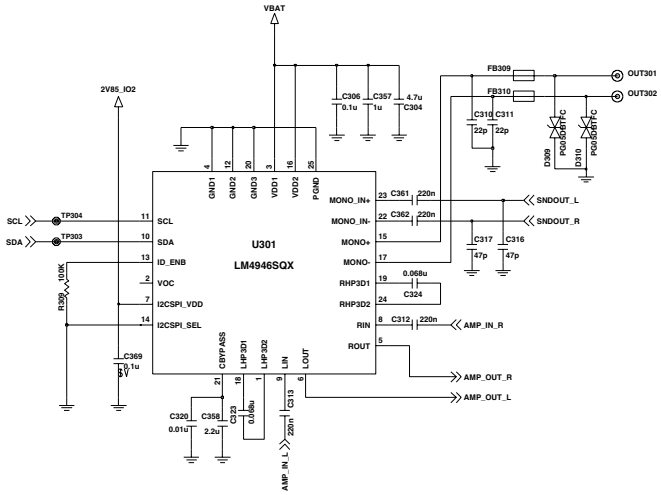


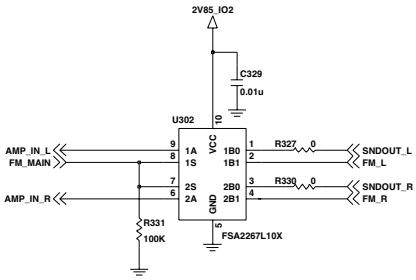

START
Check camera connector,
35pin main PCB connector
combination then Camera
test
with equipped camera
FL501,FL502,
FL503,FL504
No
Resolder
Yes
Replace New
Camera
No
Replace New
FPCB module
No
Replace
Main PCB
Yes
Yes
Replace Camera module
Replace FPCB module
Yes
Yes
Assemble
Assemble

5.6 Speaker trouble

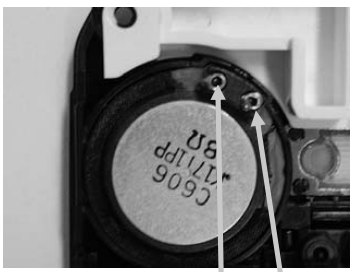
Check Points

-Speaker spring contact
-Audio amp soldering
-analog switch soldering

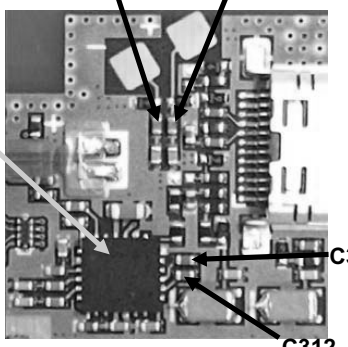


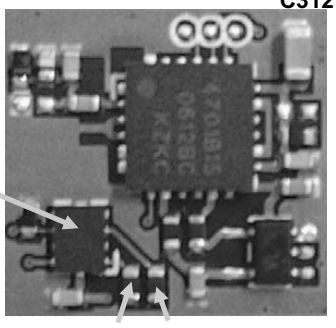


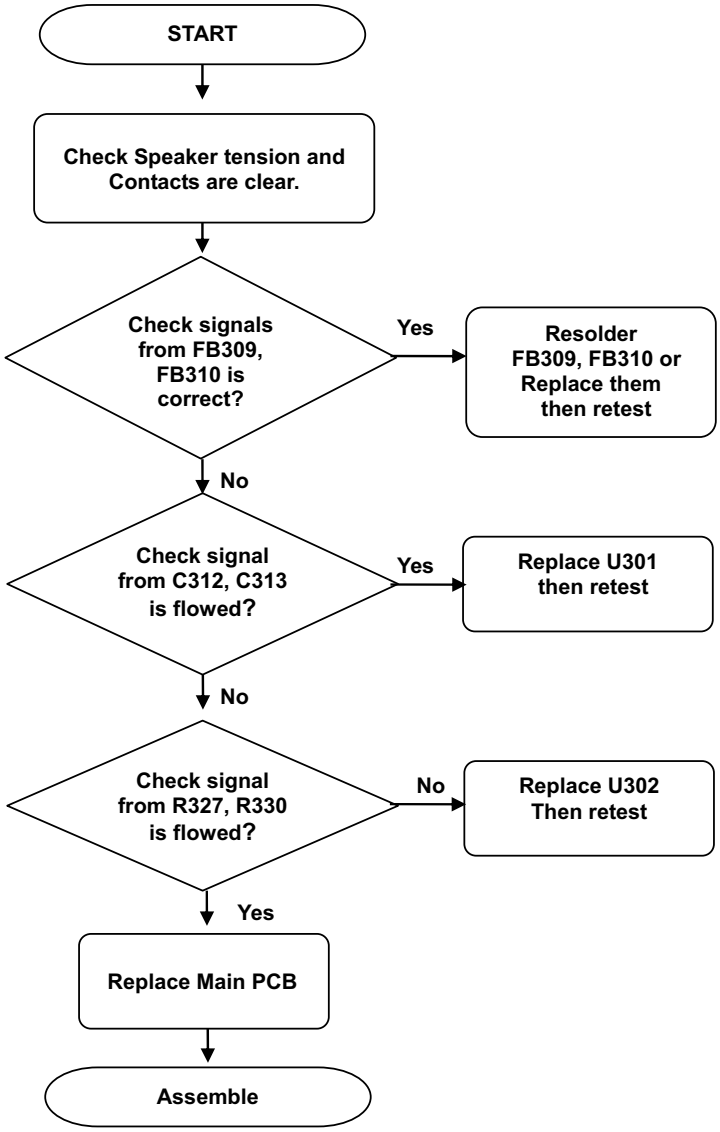
Checking Point



Check the contact spring tension and dust on the contact point

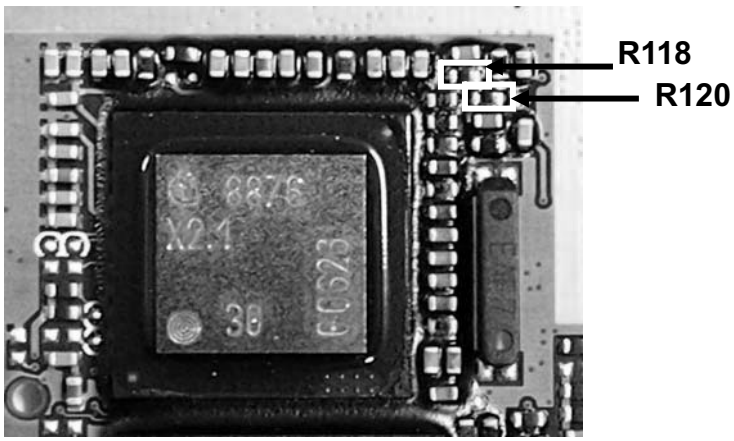


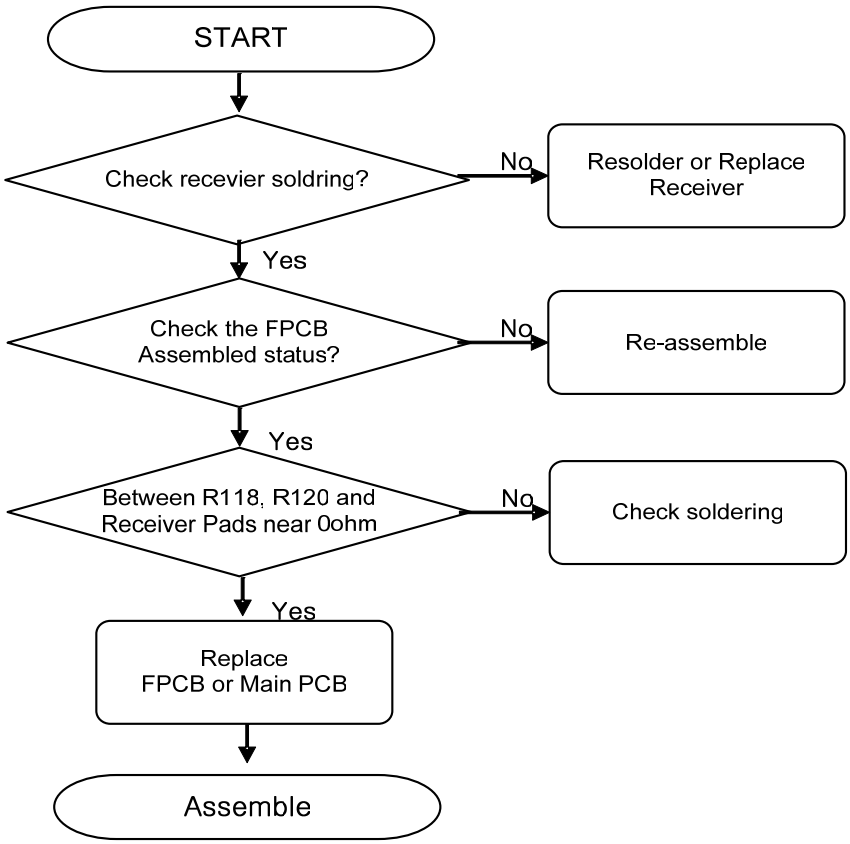



START
Check Speaker tension and Contacts are clear.
Check signals from FB309, FB310 is correct?
Yes
Resolder FB309, FB310 or Replace them then retest
No
Check signal from C312, C313 is flowed?
Yes
Replace U301 then retest
No
Check signal from R327, R330 is flowed?
No
Replace U302 Then retest
Yes
Replace Main PCB
Assemble

5.7 Receiver trouble

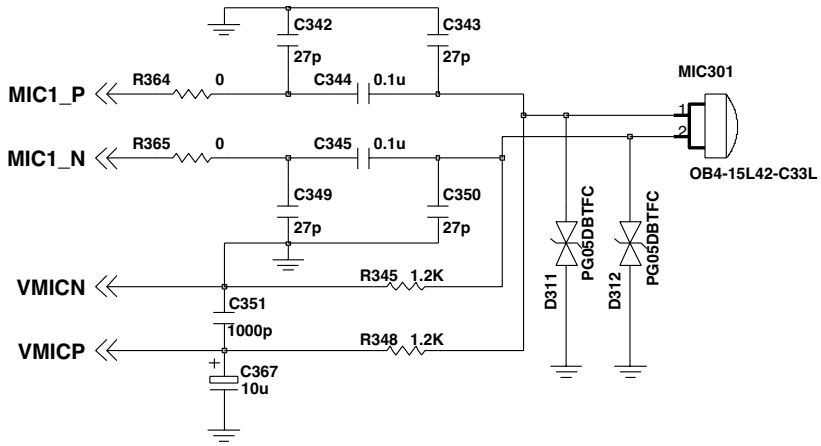
Check Points
-Receiver soldering
-FPCB Assembled status



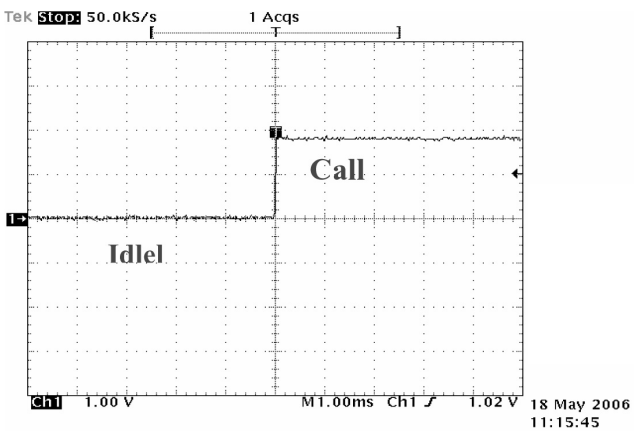


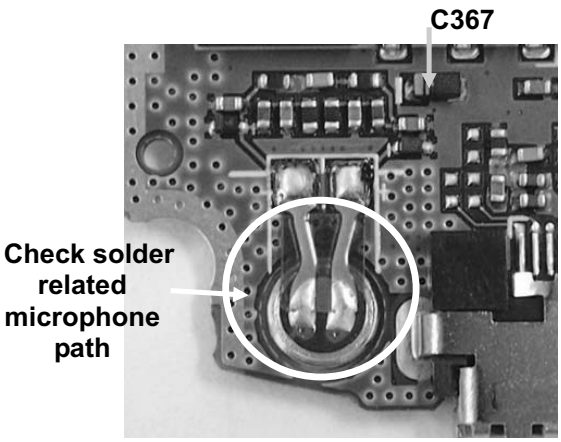
5.8 Microphone trouble

Check Points
-Microphone hole
-Mic. Bias & signal come from

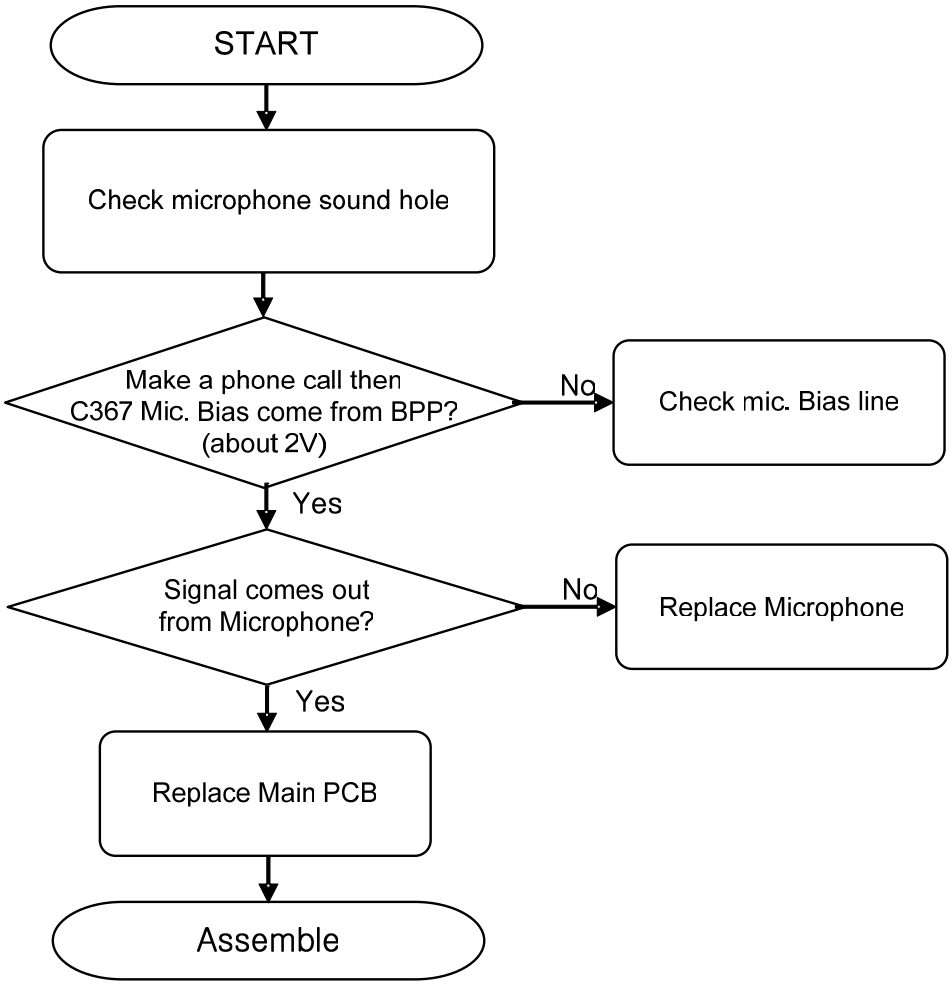


Checking Point





5. Trouble shooting

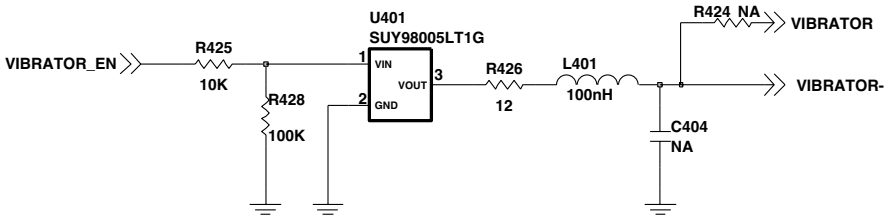


5.9 Vibrator trouble

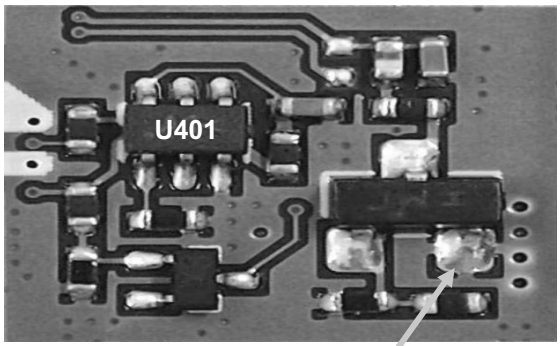
Check Points

-Vibrator contact

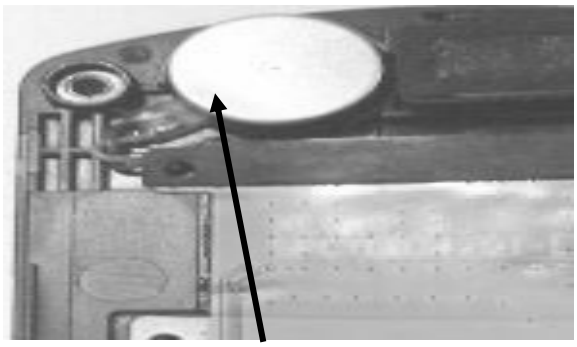
-IC is working correct



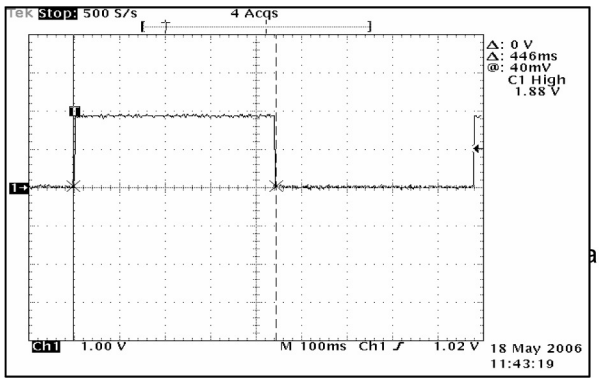
Checking Point



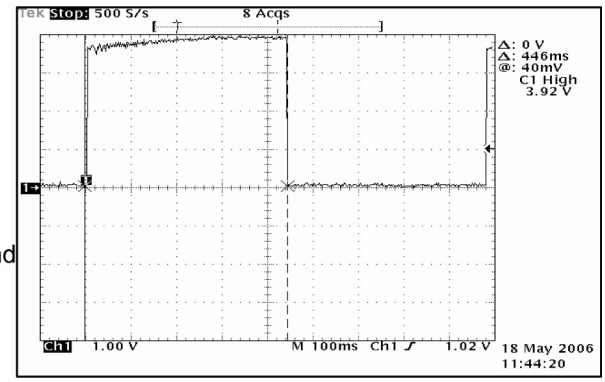
Check the driver IC
Enable signal goes to high then vibration



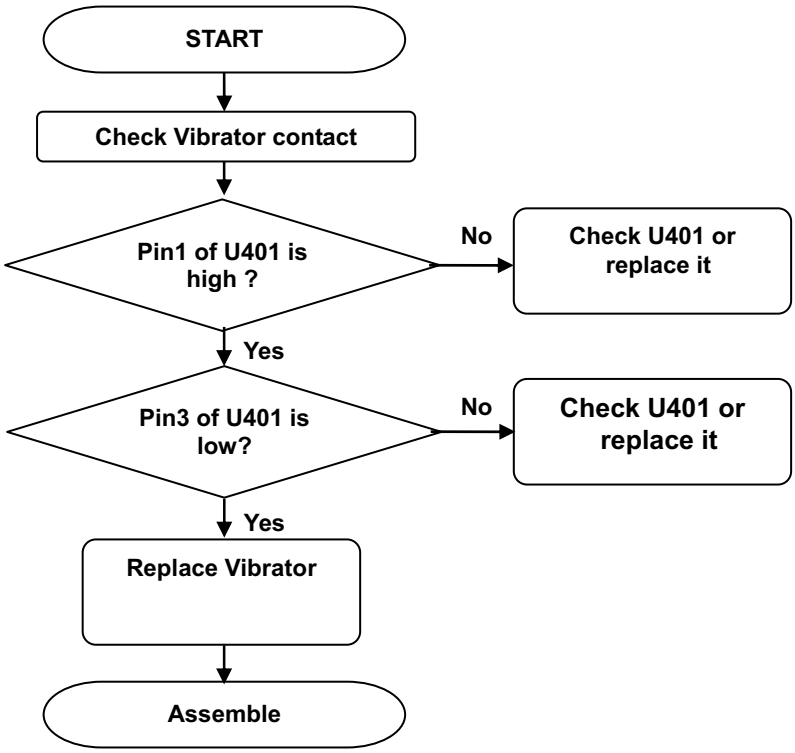
Check the contact is clear, if there is some obstacles then remove them



and



5. Trouble shooting

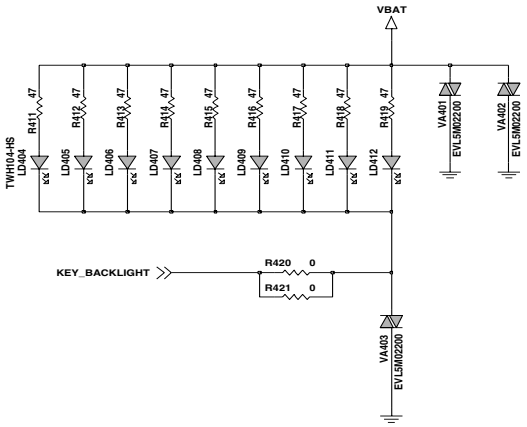


5.10 Keypad back light trouble

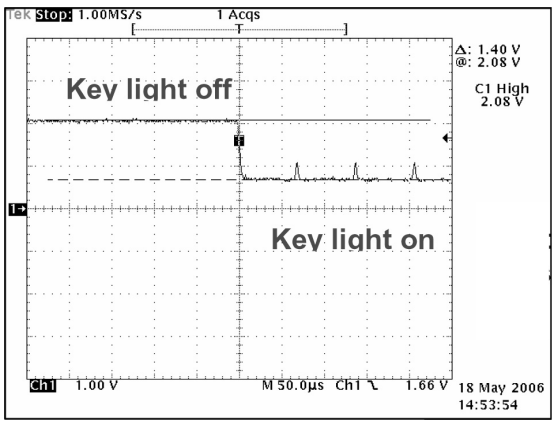
Check Points

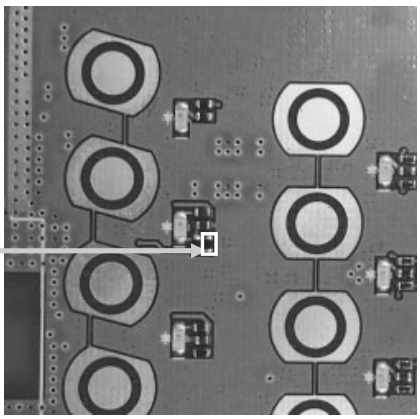
-Signal path is connected well

-Control IC is working properly

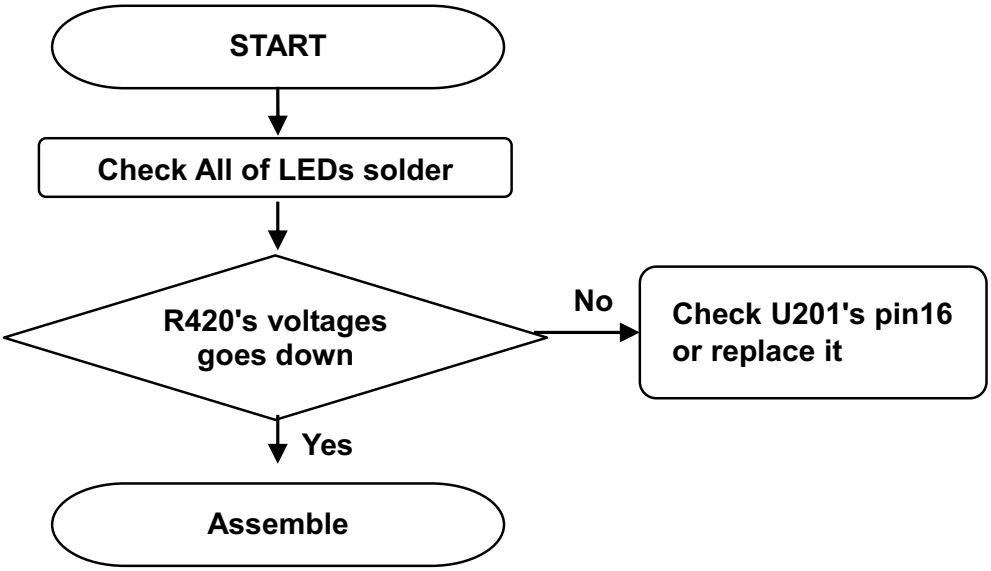


Checking Point





5. Trouble shooting



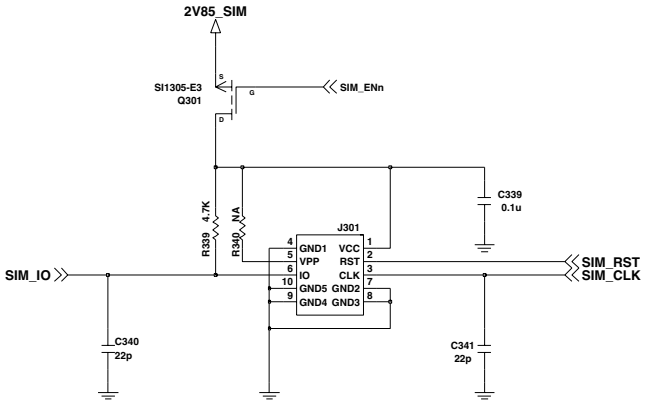
5.11 SIM card trouble

Check Points

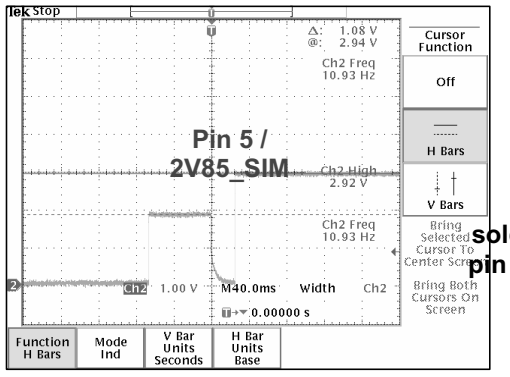
-Power control FET is working

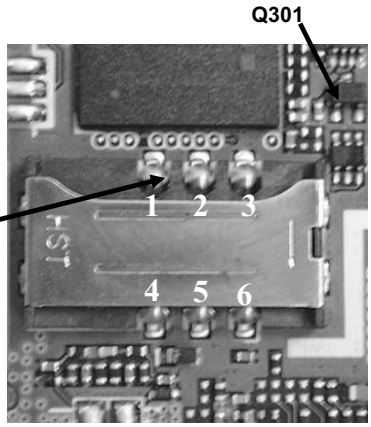
-Socket soldering

-Proper SIM is used

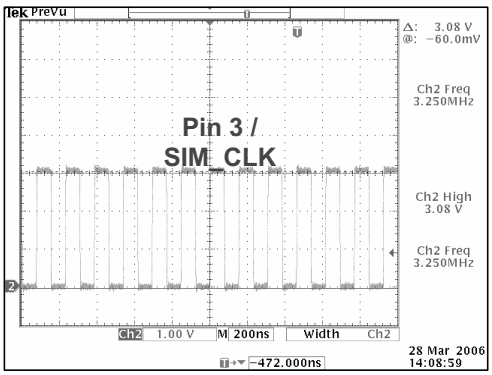


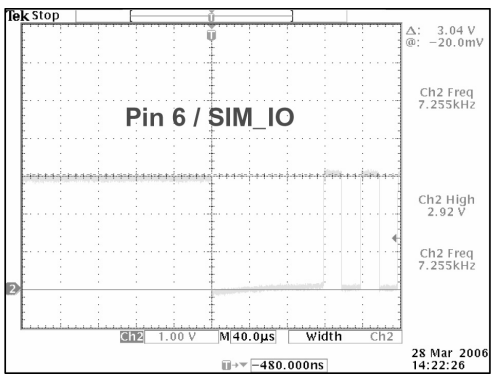
Checking Point

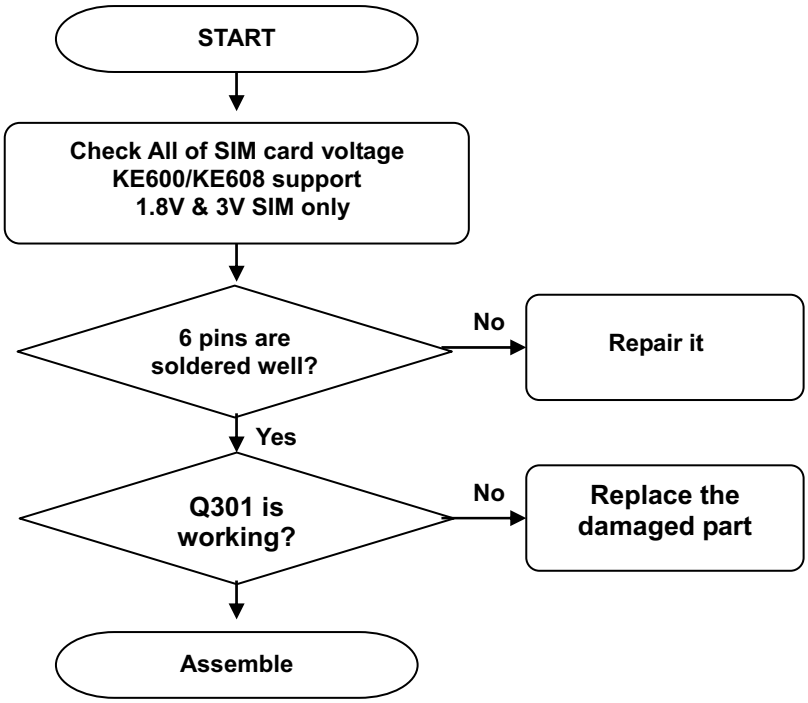




Check soldering all pin of socket






START
Check All of SIM card voltage
KE600/KE608 support
1.8V & 3V SIM only
6 pins are
soldered well?
No
Repair it
Yes
Q301 is
working?
No
Replace the
damaged part
Assemble

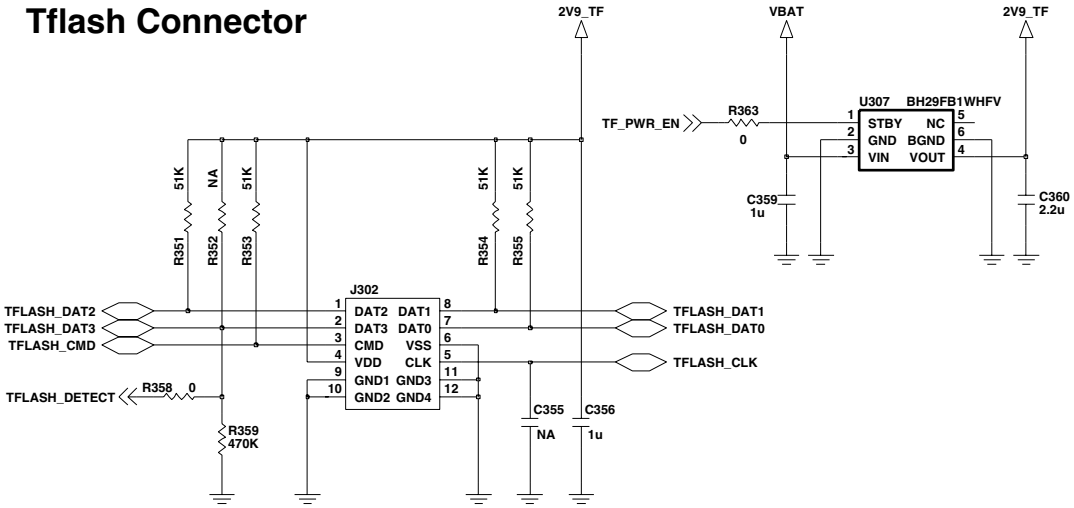
5.12 MicroSD trouble

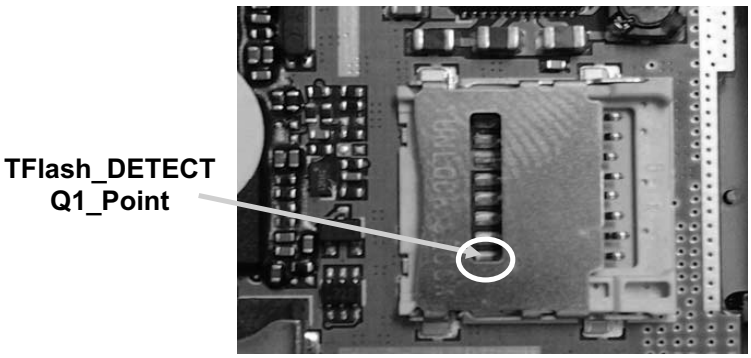
Check Points

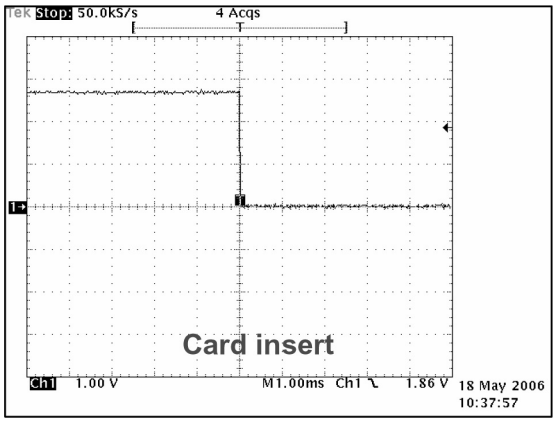
-Power control FET is working

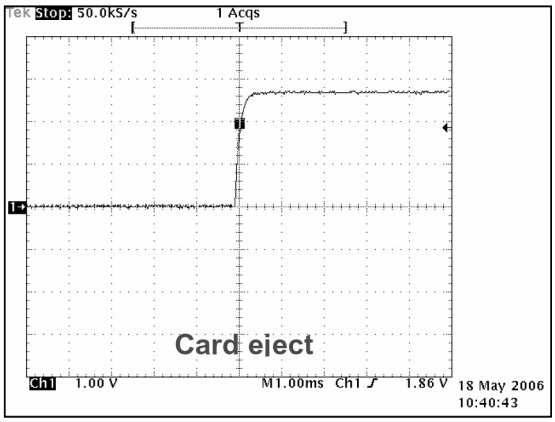
-Socket soldering

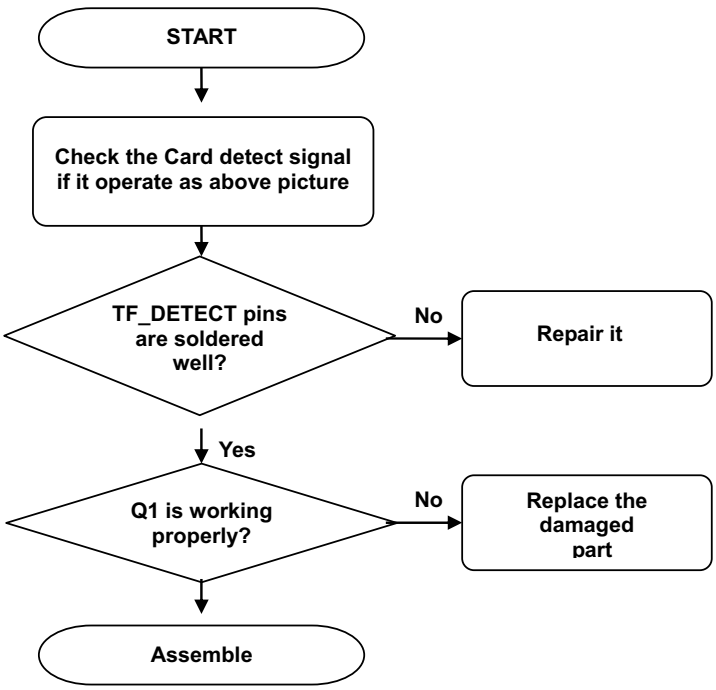
-Card detect is working




TFlash_DETECT
Q1_Point


Tek Stop: 50.0kS/s 4 Acqs
Card insert
Ch1 1.00 V M1.00ms Ch1 1.86 V 18 May 2006
10:37:57


Tek Stop: 50.0kS/s 1 Acqs
Card eject
Ch1 1.00 V M1.00ms Ch1 1.86 V 18 May 2006
10:40:43


START
Check the Card detect signal if it operate as above picture
TF_DETECT pins are soldered well?
No
Repair it
Yes
Q1 is working properly?
No
Replace the damaged part
Assemble

5.13 Bluetooth trouble

Check Points

-A condition of Bluetooth Antenna soldering
-Balun filter is correctly working
-Bluetooth data is perfectly flowed
-Power and clock signals are supplied in U202

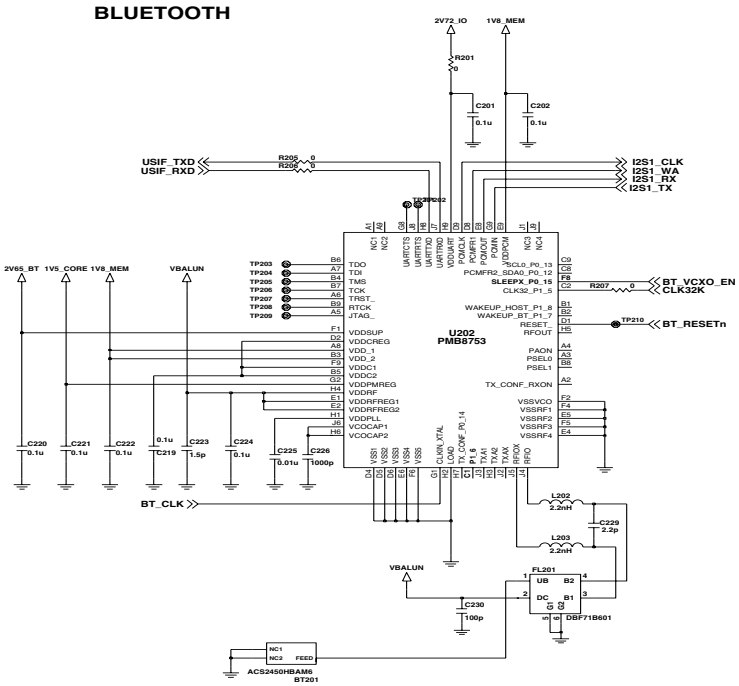


Figure 30 Bluetooth circuit

Checking Points

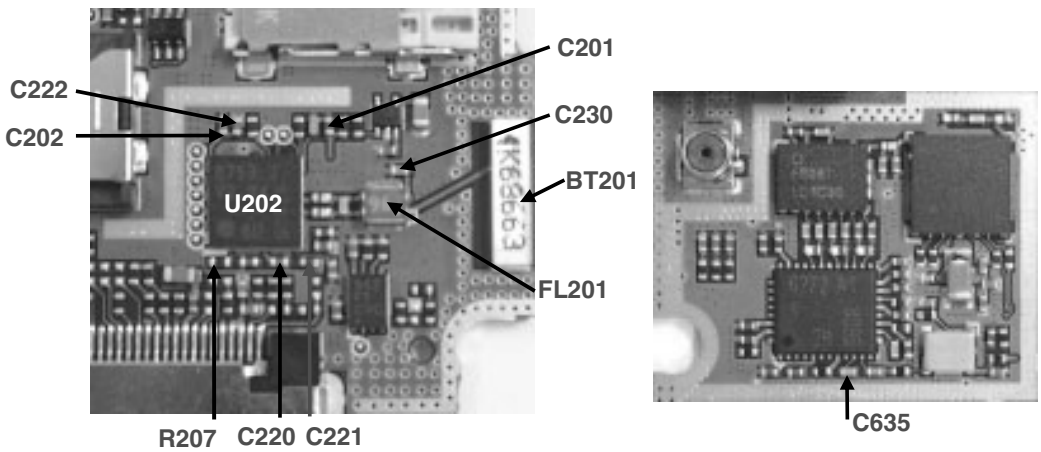
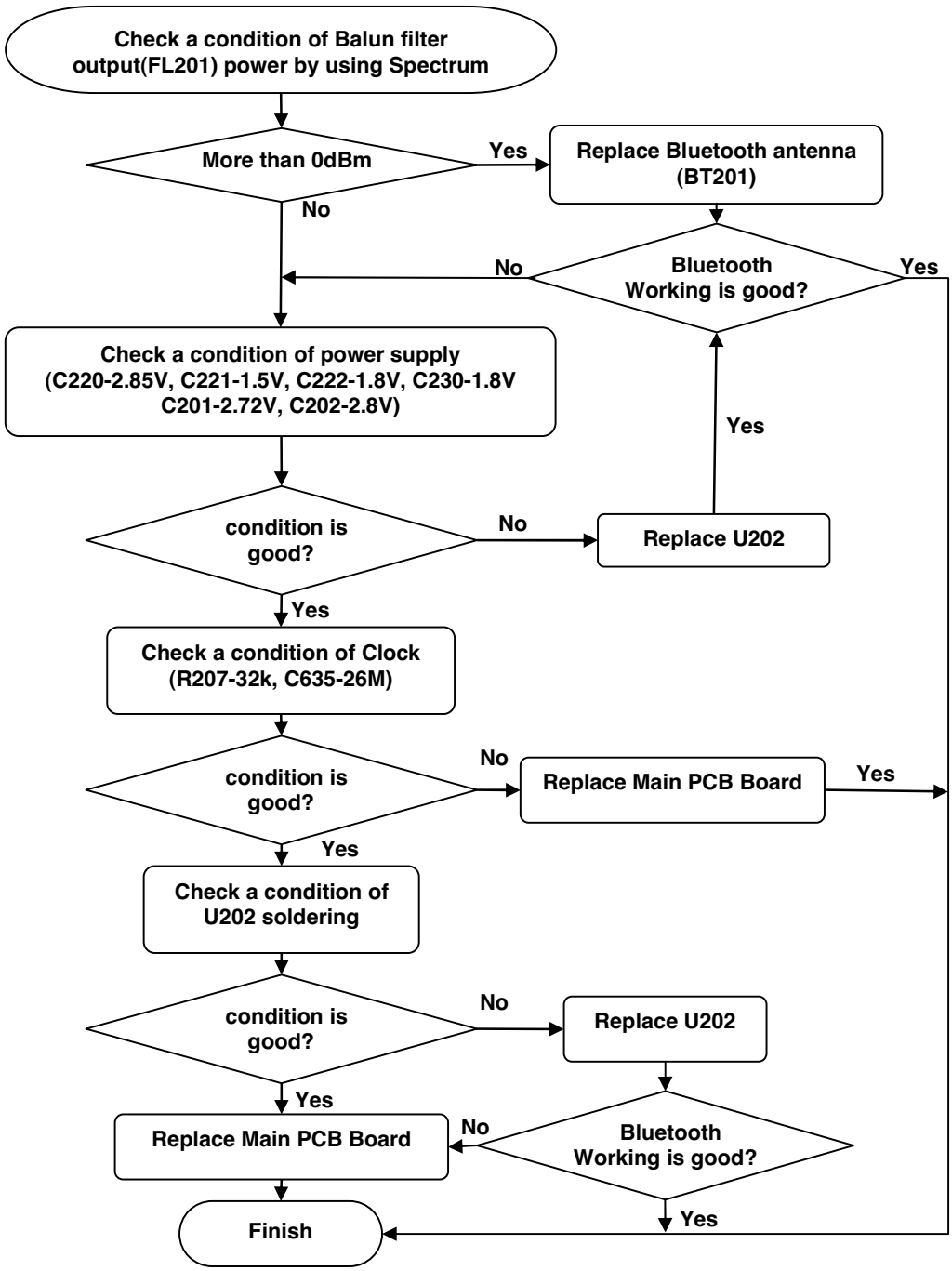


Figure 20. Bluetooth Part

5. Trouble shooting

Checking Flow



5.14 FM Radio trouble

Check Points

-Ear_mic_set is correctly operated as FM radio antenna
(When user uses the FM radio function, Ear_mic_set must be connected in phone)
-A condition of FM_Radio module soldering
-FM_Radio signal is flowed correctly
-Power and clock signals are supplied in U303

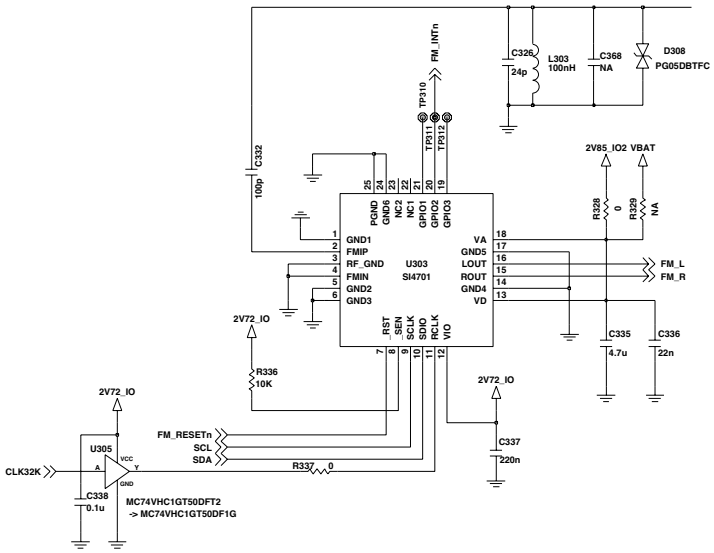


Figure 30 Bluetooth circuit

Checking Points

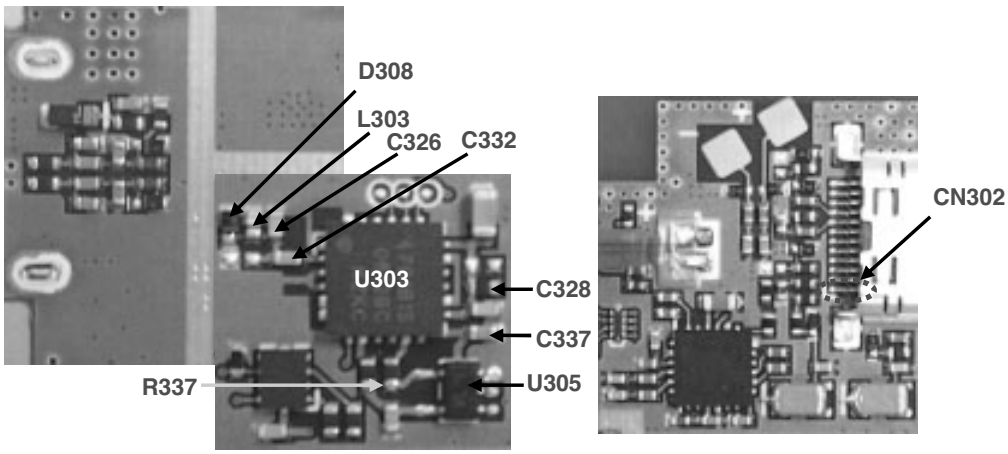
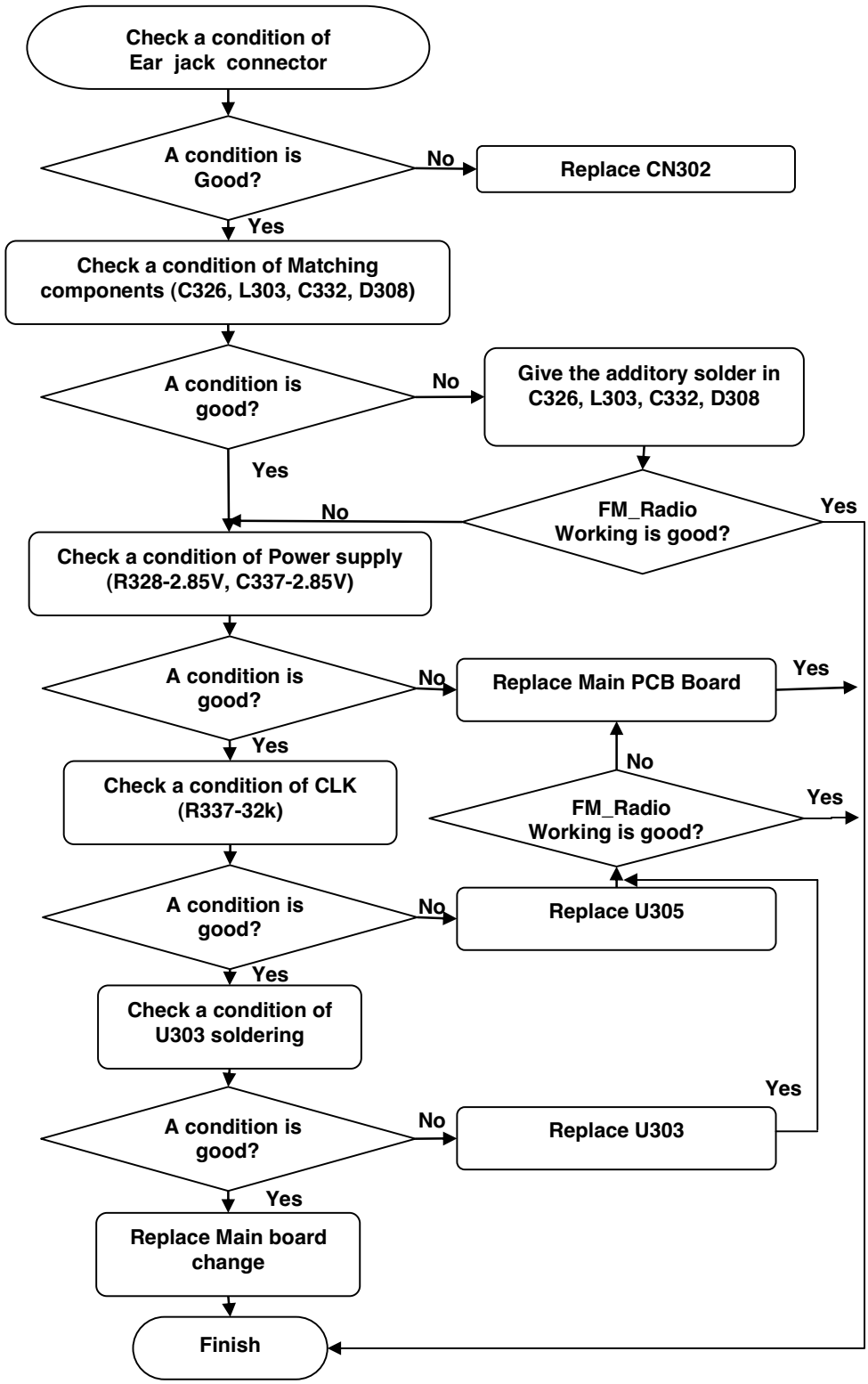


Figure 20. FM_Radio Part

5. Trouble shooting

Checking Flow



5.15 RF PART TROUBLESHOOTING

5.15.1 RF Components

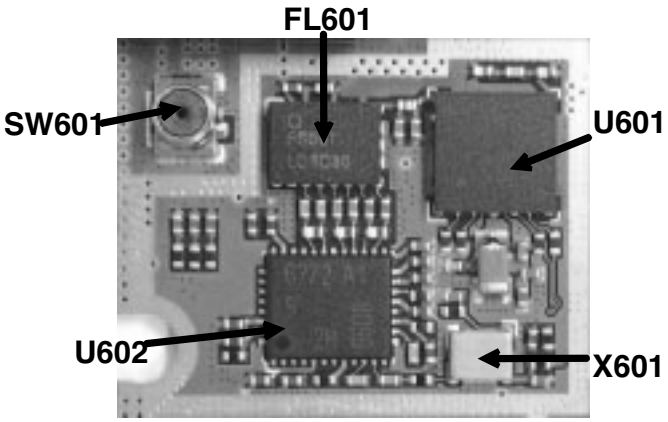


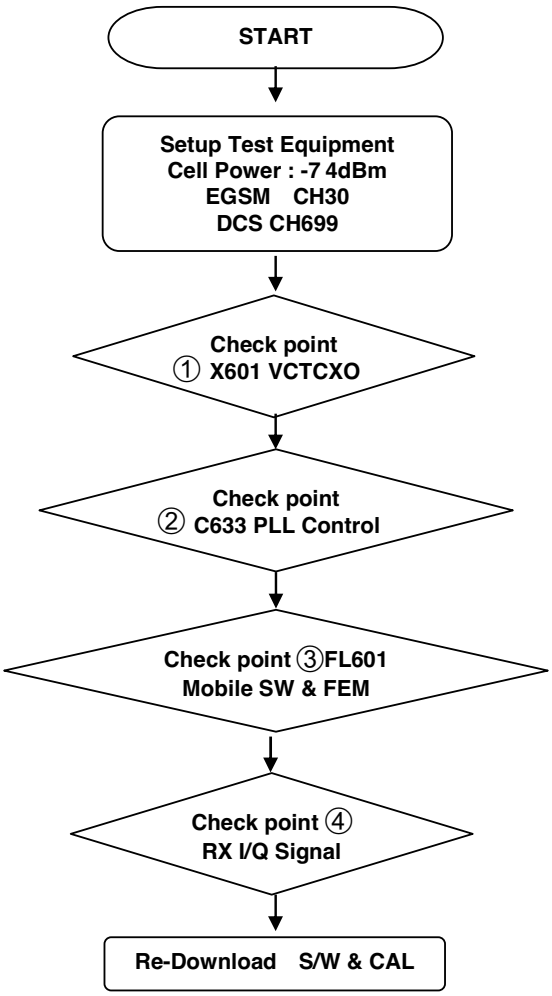
Figure 1. RF Components

REFERENCE	PART Description
U601	PAM (Power Ampilifier Module)
X601	VCTCXO (26MHz)
FL601	FEM (Front End Module)
U602	Transceiver
SW601	Mobile Switch

Table 1. RF Components

5.15.2 Trouble Shooting of Receiver Part

Checking Flow



Checking Points

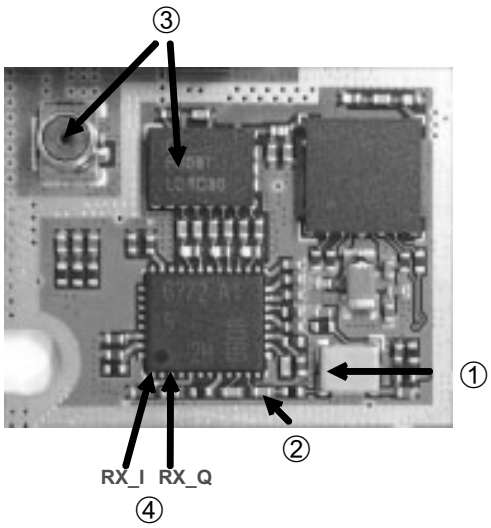
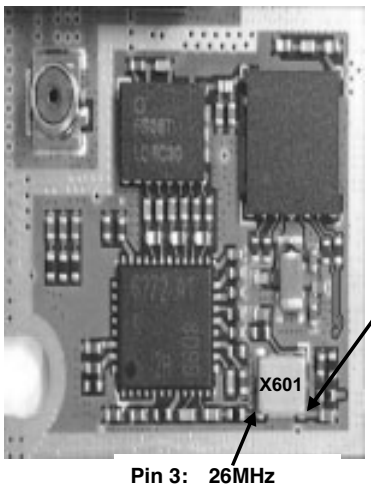


Figure 2. Receiver Part

5.15.3 Checking VCTCXO Circuit

Checking Points



Checking Flow

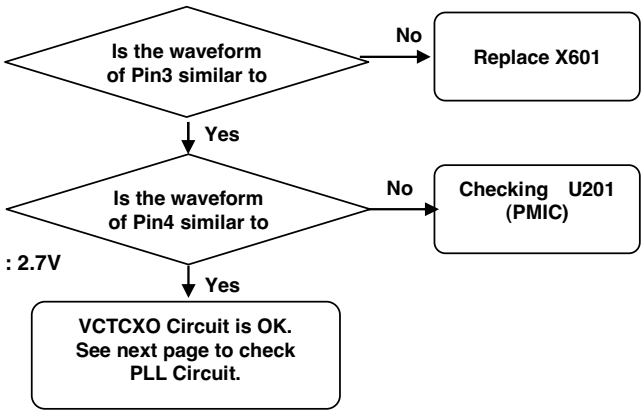


Figure 4. VCTCXO

VCTCXO Circuit Diagram

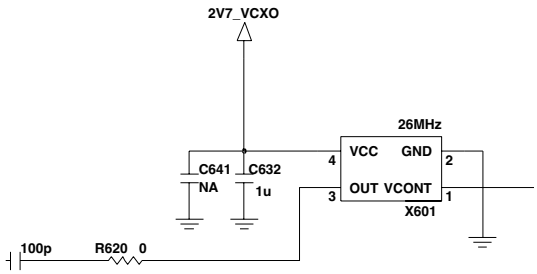


Figure 5. VCTCXO

Waveform

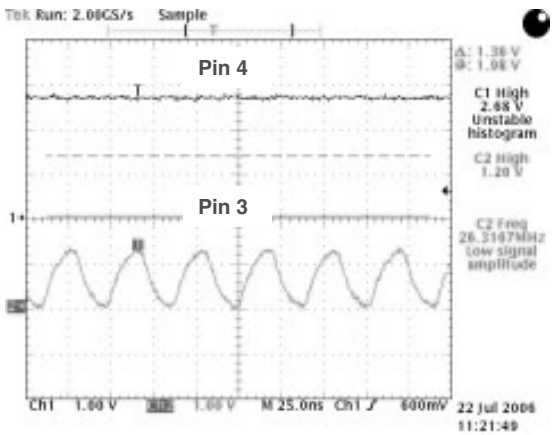


Figure 6. VCTCXO Waveform

5.15.4 Checking PLL Control signals

Checking Points

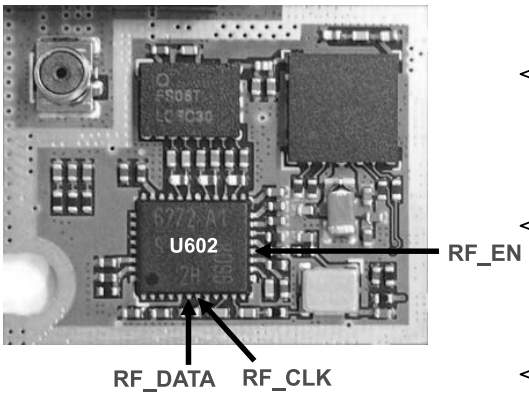
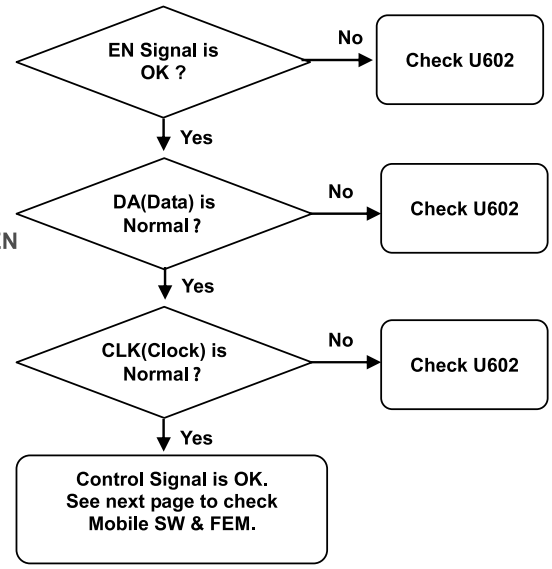


Figure 7. Transceiver

Checking Flow



RF Transceiver Circuit Diagram

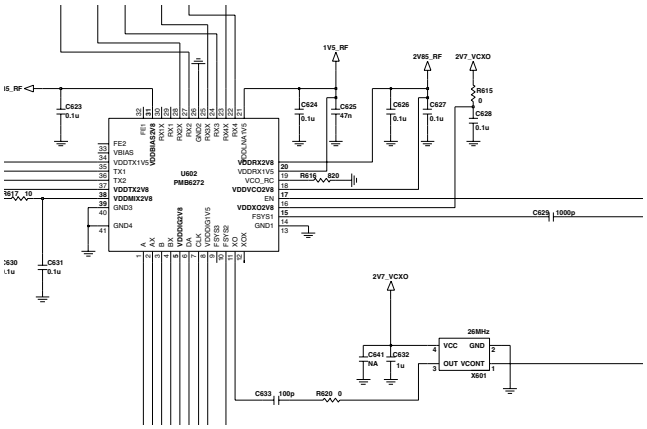


Figure 8. Transceiver Circuit

Waveform

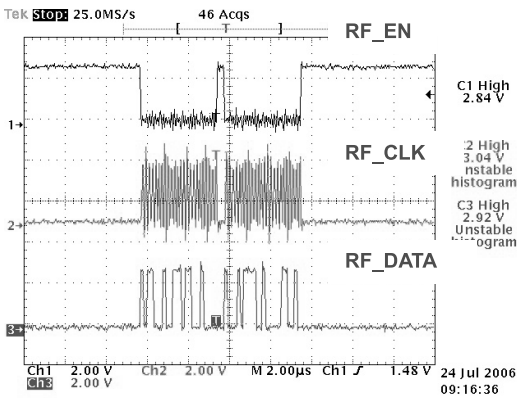


Figure 9. PLL Control Waveform

5.15.5 Checking Mobile SW & FEM

Mobile SW & FEM Circuit Diagram

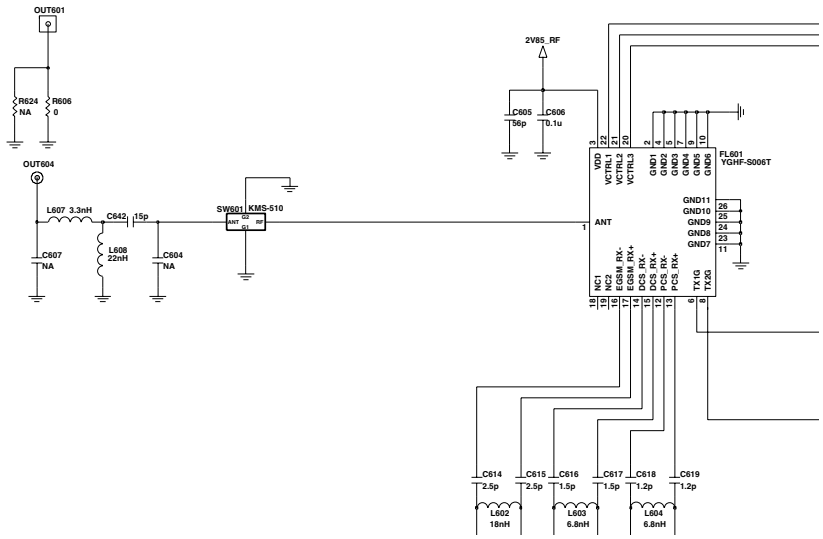


Figure 10. Mobile SW & FEM Circuit

Checking Points

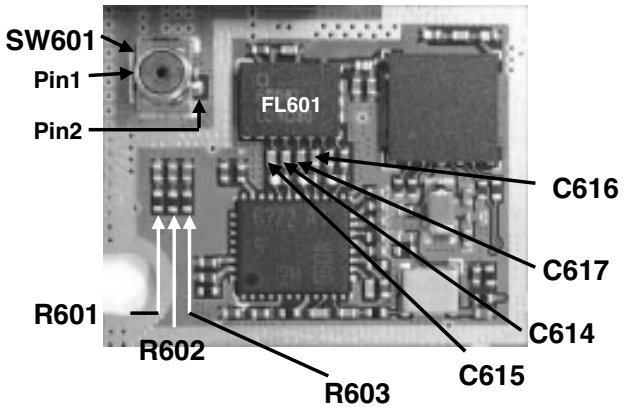
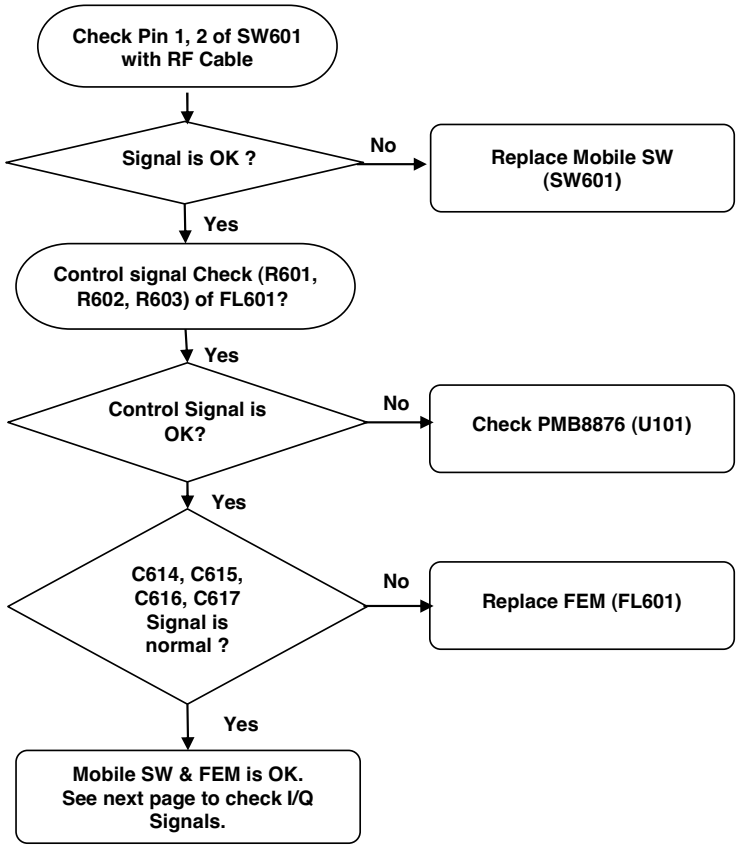


Figure 11 Mobile SW &

RX Mode	EGSM	DCS	PCS
ANT_SW1	Off	Off	Off
ANT_SW2	On	Off	Off
ANT_SW3	Off	On	Off

Table 2. FEM RX Control Logic

Checking Flow



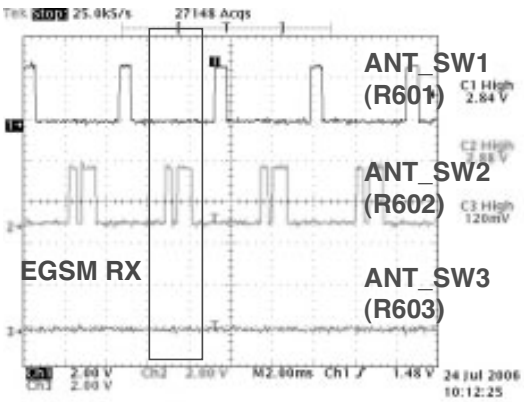


Figure 12 Mobile SW

Figure 13 FEM Control Signals

5.15.6 Checking RX I/Q Signals

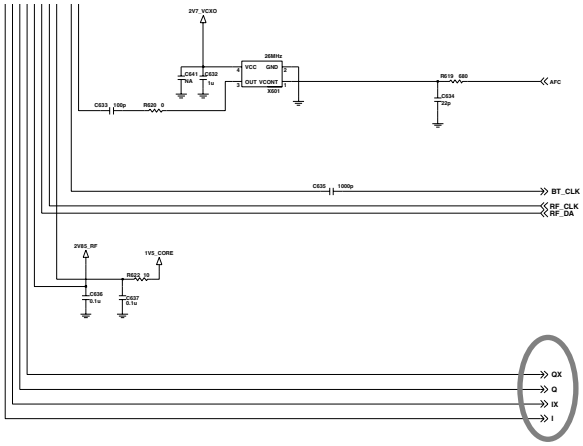
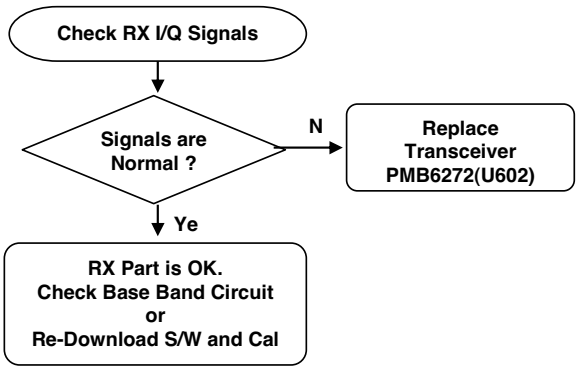


Figure 14. RX I/Q Circuit

Checking Flow



Checking Points

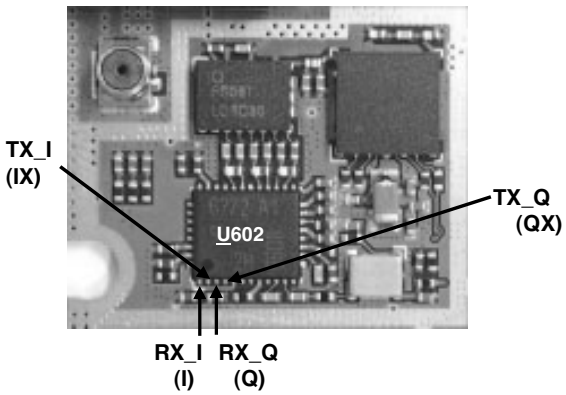


Figure 15. RX I/Q

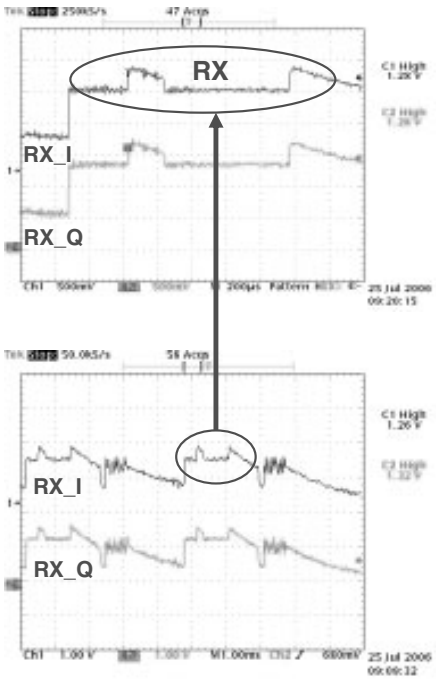
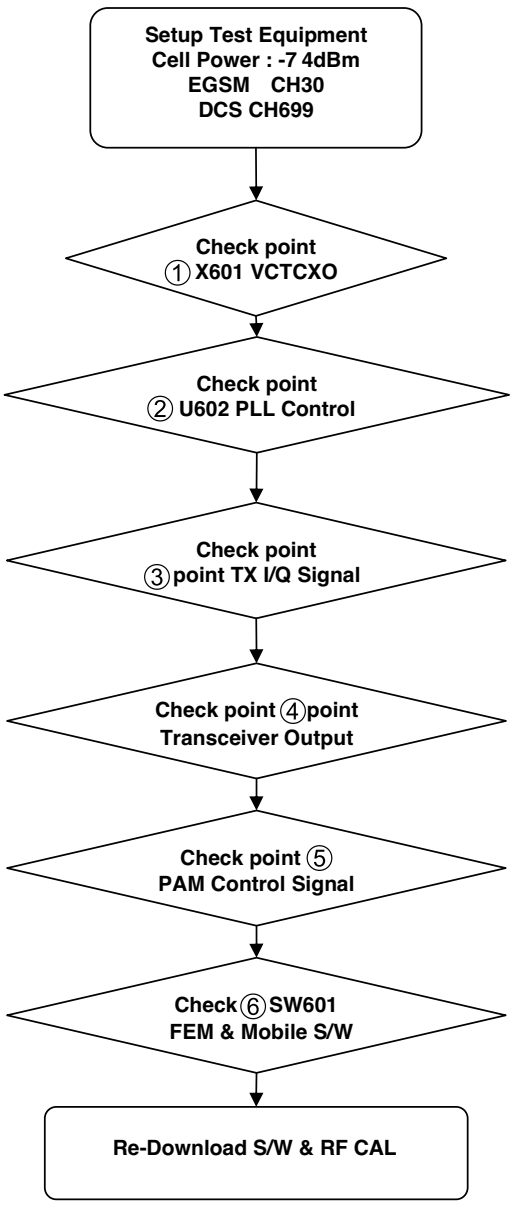


Figure 16. RX I/Q Waveform

5.15.7 Trouble Shooting of Transmitter Part

Checking Flow



Checking Points

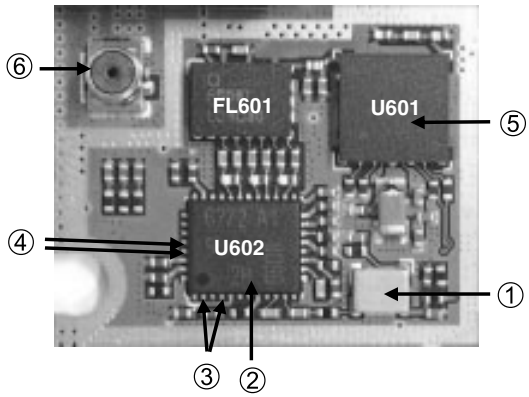


Figure 17. RF Part

5.15.8 Checking VCTCXO Circuit

See RX Part “1. Checking VCTCXO Circuit”

5.15.9 Checking PLL Control Signal

See RX Part “2. Checking PLL Control Signal”

5.15.10 Checking TX I/Q Signals

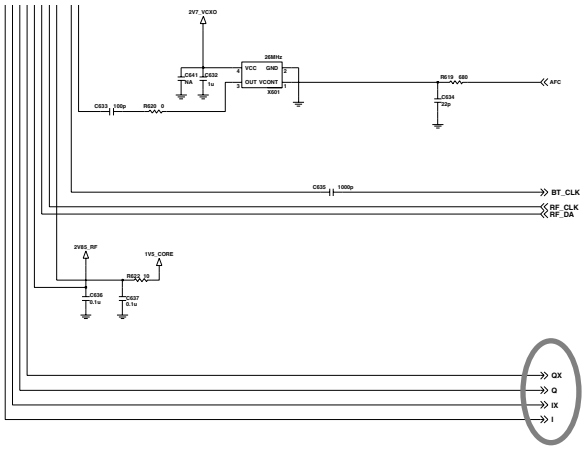
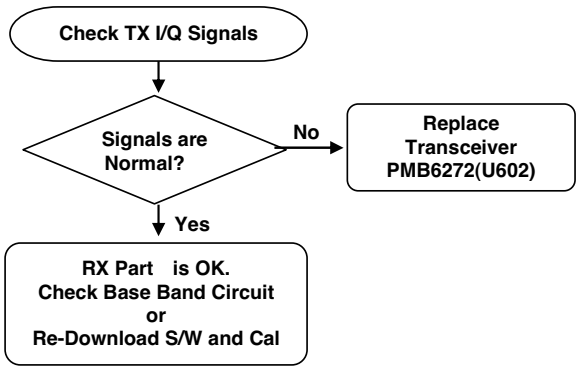


Figure 14. RX I/Q Circuit

Checking Flow



Checking Points

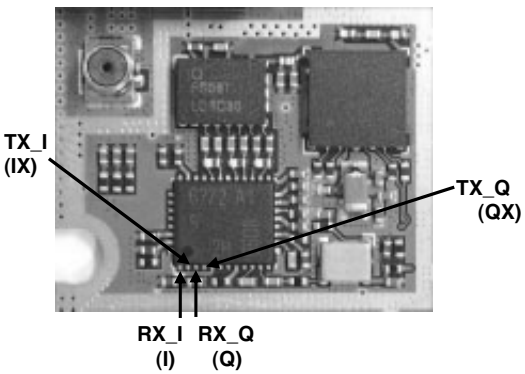


Figure 20. TX I/Q

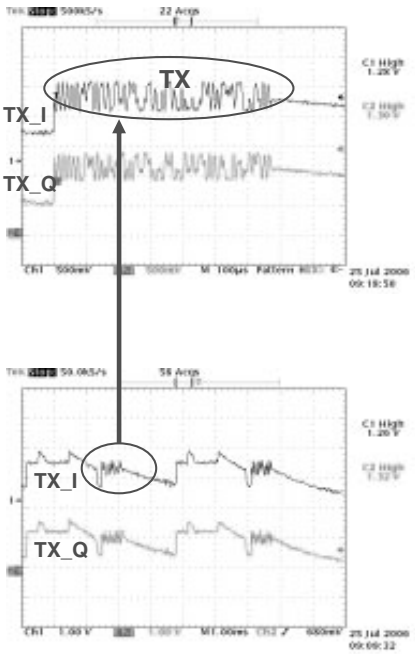


Figure 21. TX I/Q Waveform

5.15.11 Checking Transceiver Output Signals

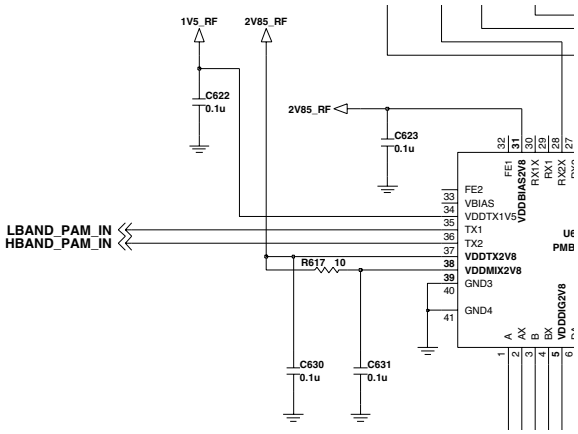


Figure 22. Transceiver Output Circuit

Checking Points

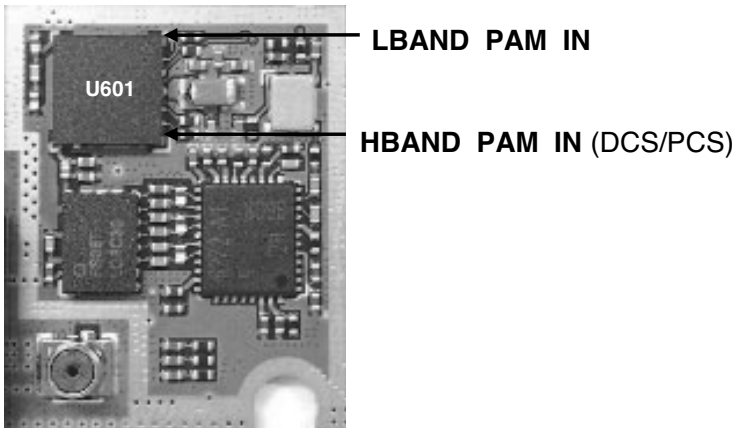
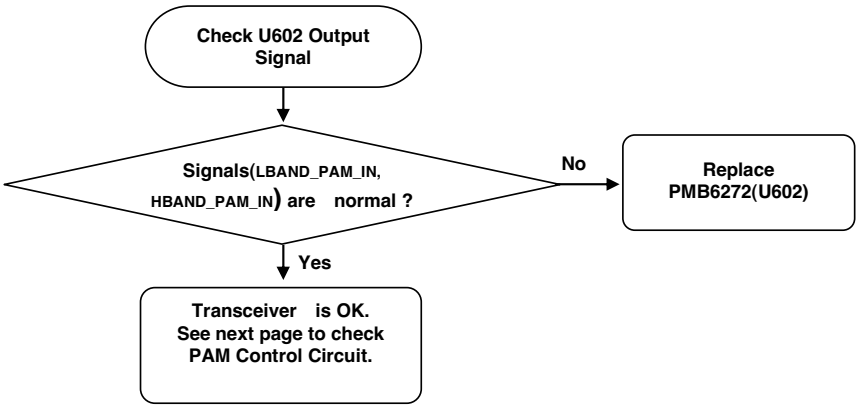


Figure 23. Transceiver

MODE	Transceiver Output
GSMK	Fixed
8PSK	Ramp Burst Control

Table 3. Transceiver Output Operation

Checking Flow



LBAND_PAM_IN (MODE: GMSK)

Figure 24. Transceiver Output (GMSK)

LBAND_PAM_IN (MODE: 8PSK)

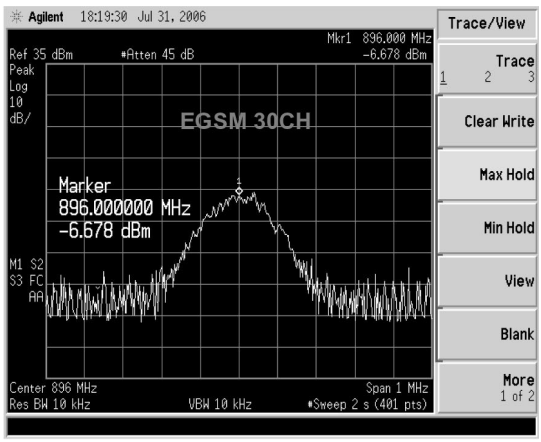


Figure 25. Transceiver Output (8PSK)

5.15.12 Checking PAM Control Signals

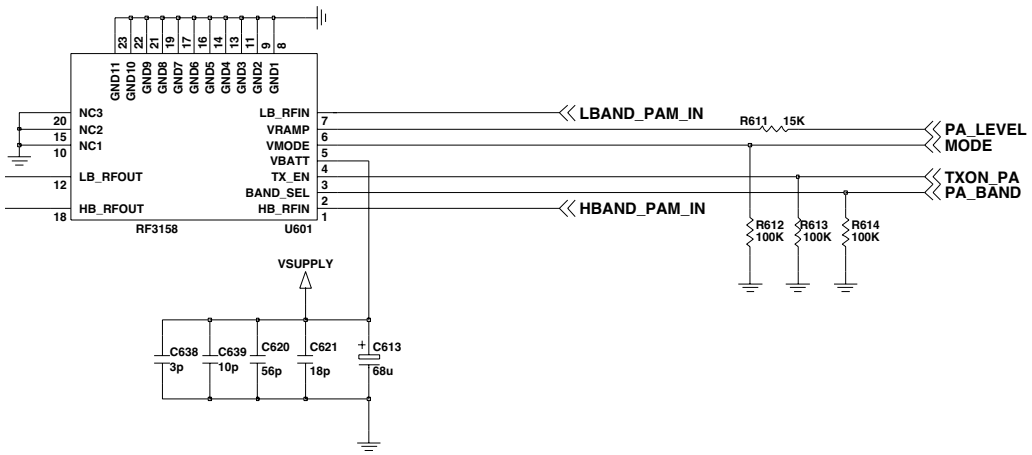


Figure 26. PAM Control Signals Circuit

Checking Points

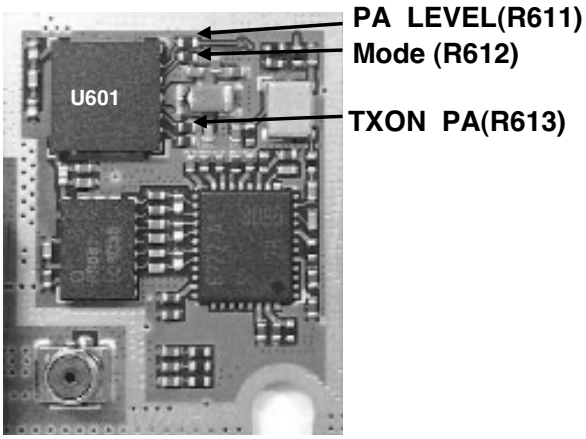
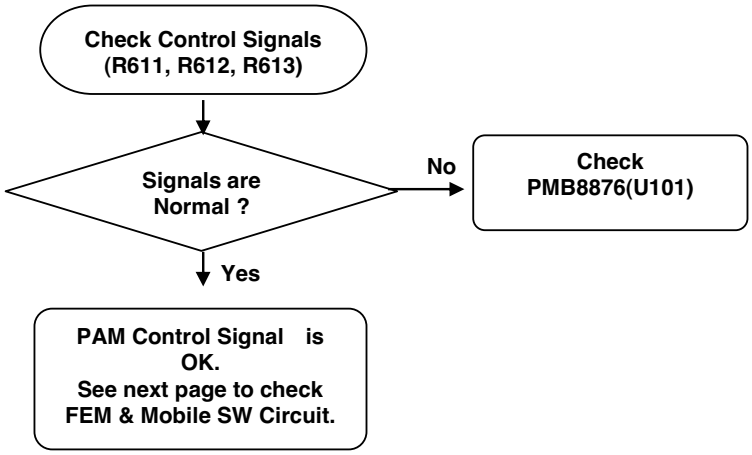


Figure 27. Transceiver

MODE	MODE	PA_LEVEL	TXON_PA
GMSK	LOW	Ramp Burst Control	HIGH
8PSK	HIGH	Control Amp bias	HIGH

Table 4. PAM Mode Operation

Checking Flow



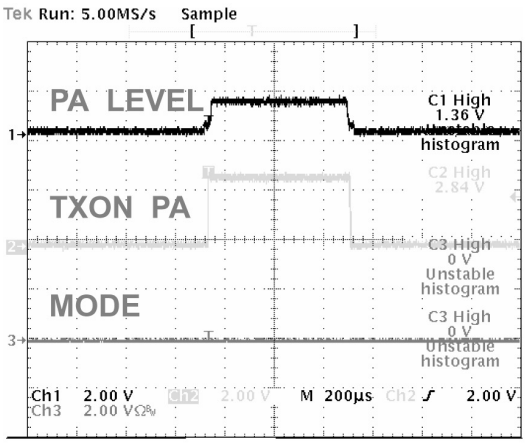


Figure 28. GSMK Control Signal

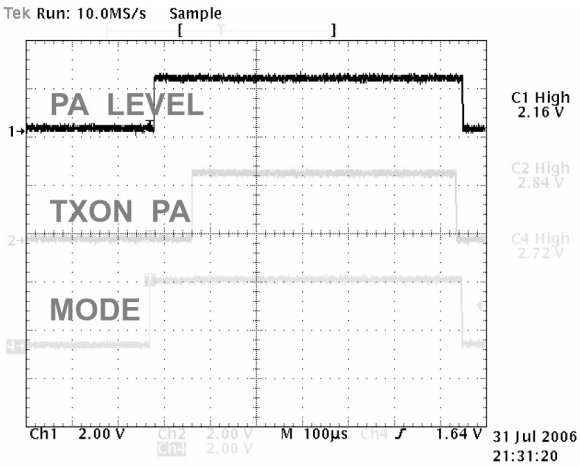


Figure 29. 8PSK Control Signal

6. Download & S/W upgrade

6.1 S/W download setup

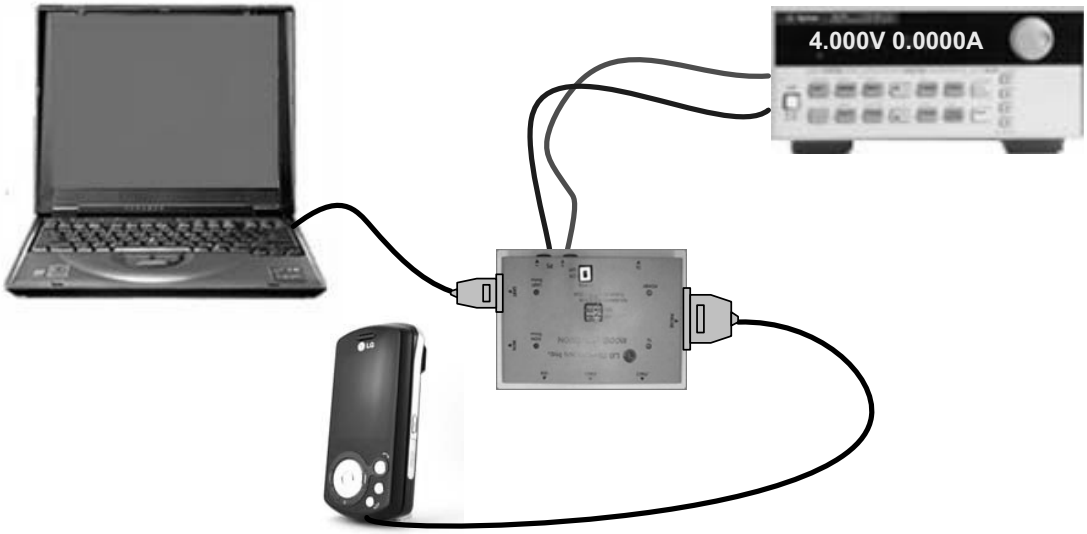


Figure S/W download & upgrade setup

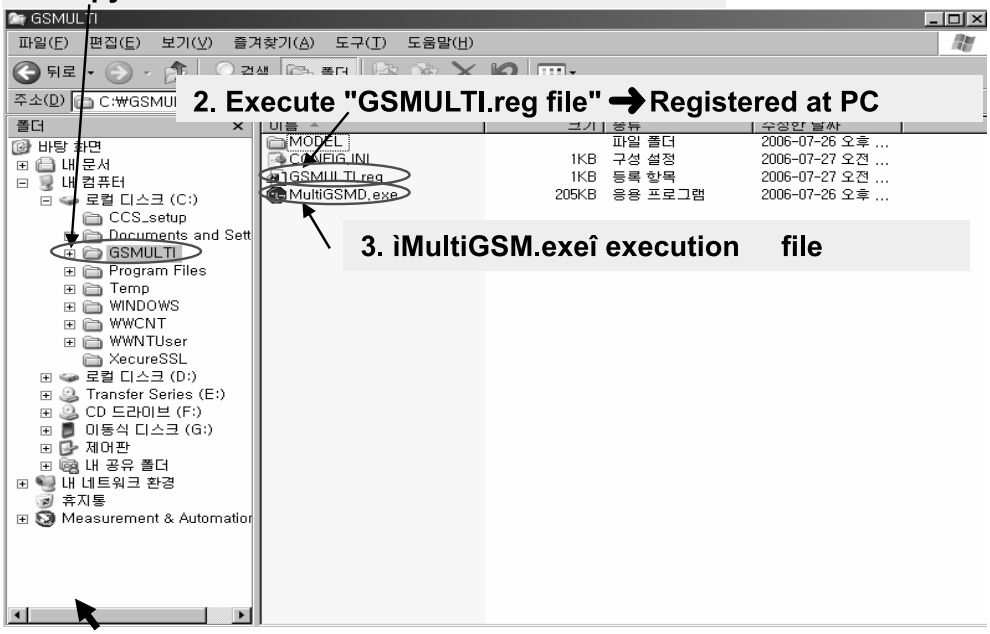
Preparation

- Target terminal
- PIF-Union
- RS-232 Cable and PIF-UNION to Phone interface Cable
- Power Supply or Battery
- IBM compatible PC supporting RS-232 with Windows 98 or newer.

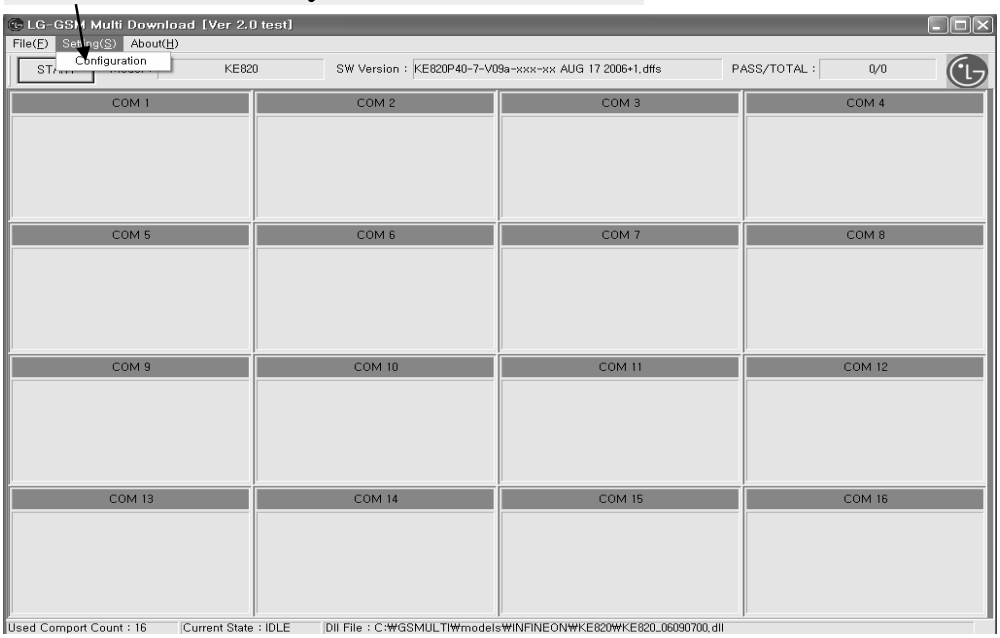
If you are going to use battery, the voltage of the battery should be over 3.7V for stable power supplying during S/W download.

6.2 Download program user guide

1. Copy "GSMULTI" Folder. Paste in " C:\"

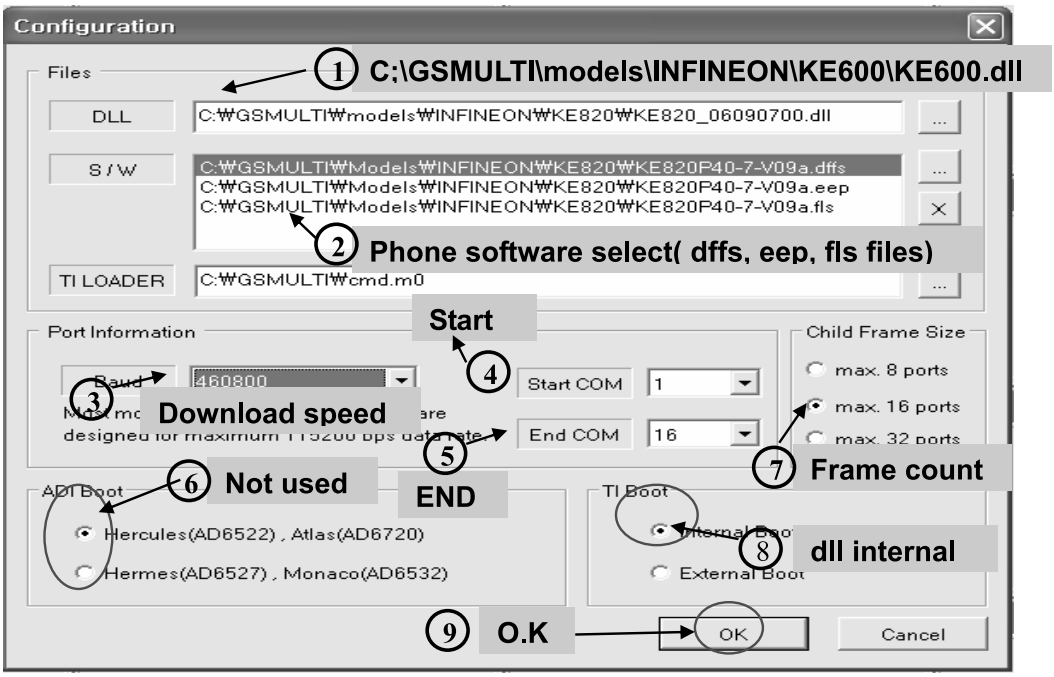


4. Munu "Setting" ➜ "Configuration"

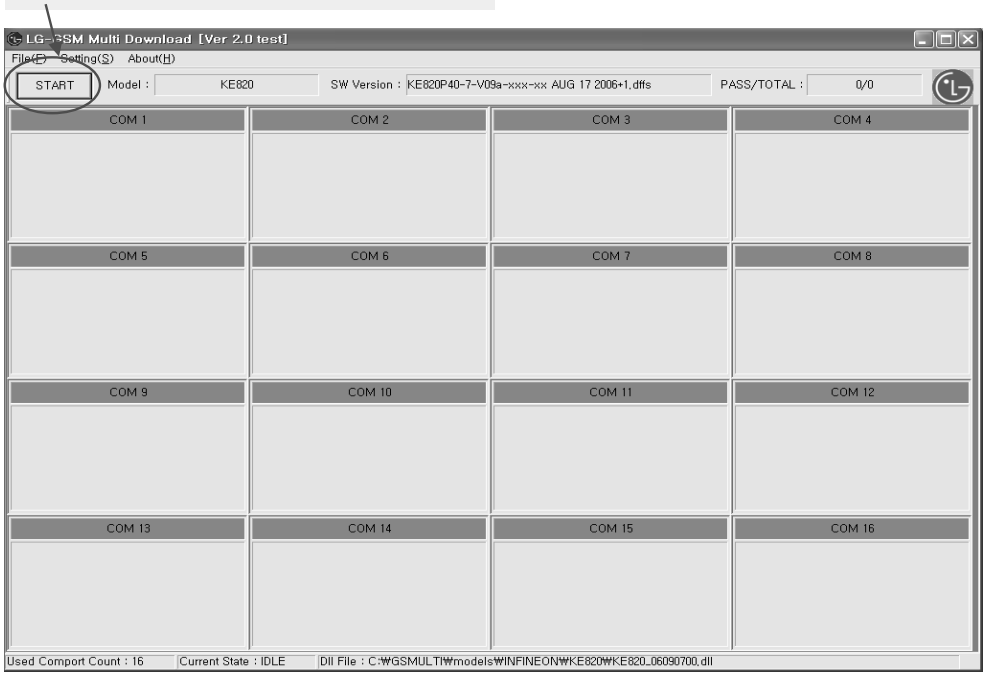


6. Download & S/W upgrade

5. Configuration : Select settings like below



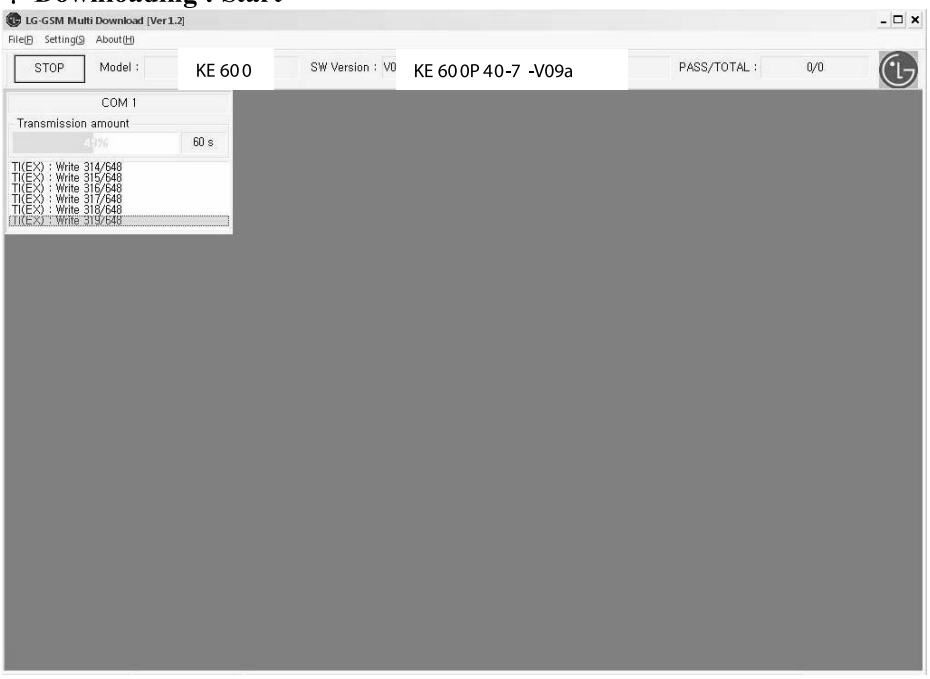
6. Press the " START" button



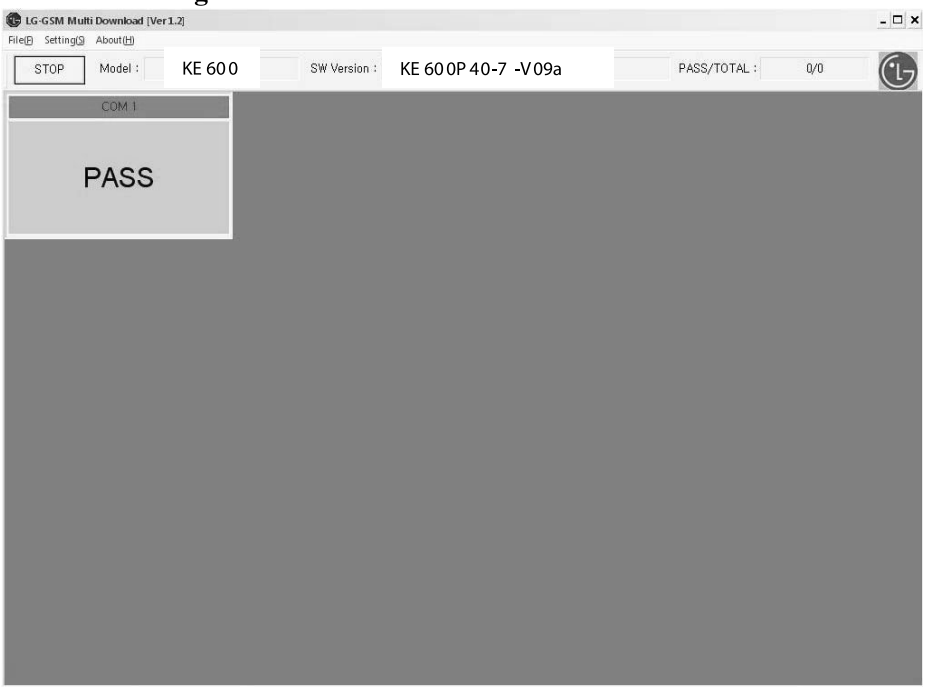
7. Stand-by condition ➜ "Wait" is displayed ➜ connect the Phone

6. Download & S/W upgrade

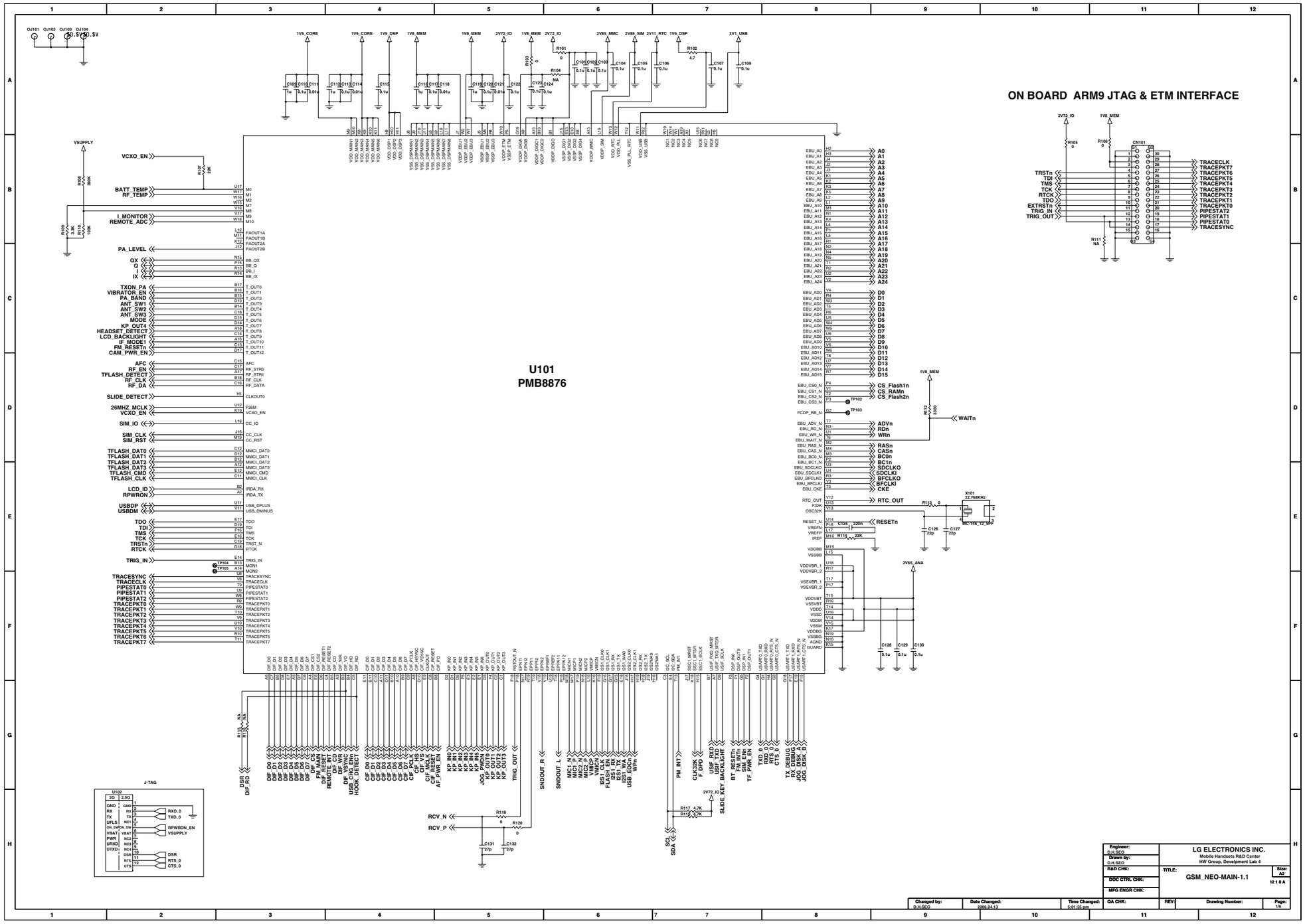
※ Downloading : Start



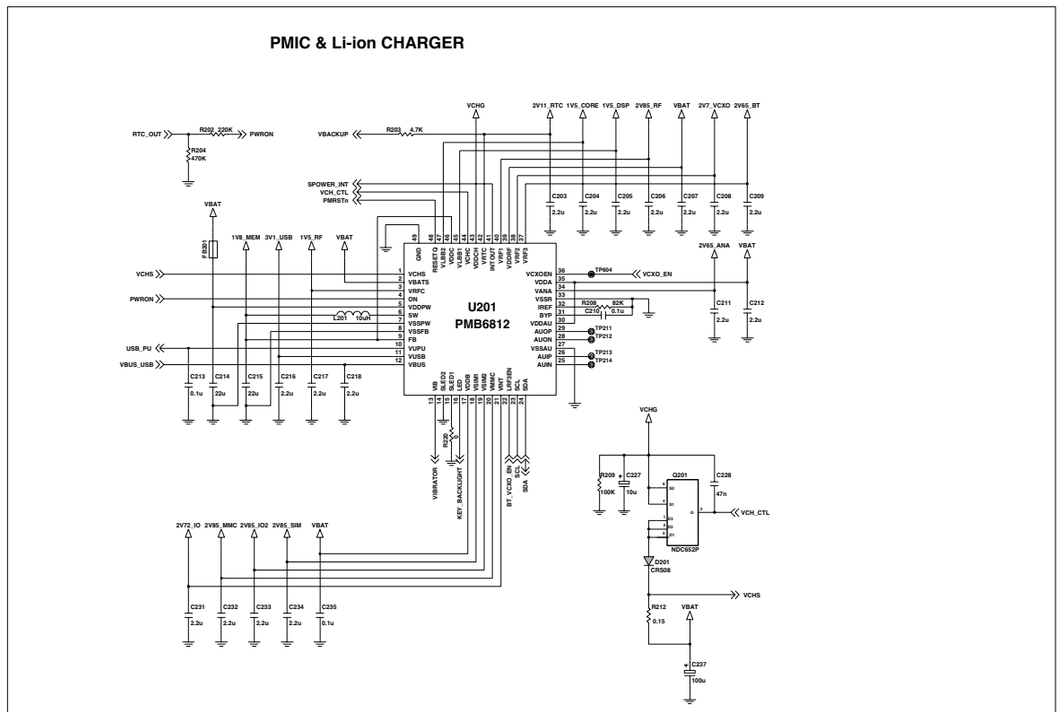
※ Downloading : END

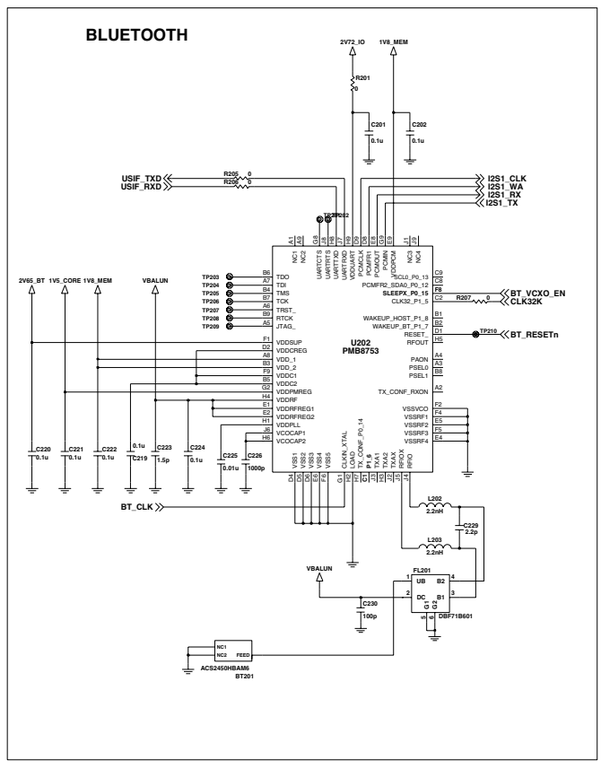


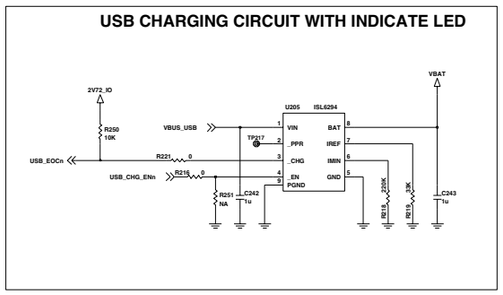
7. CIRCUIT DIAGRAM

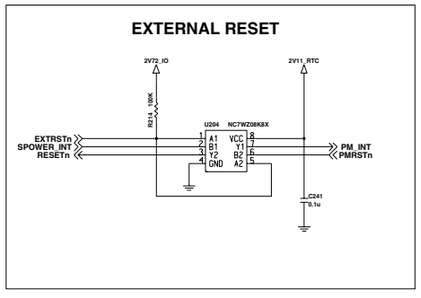


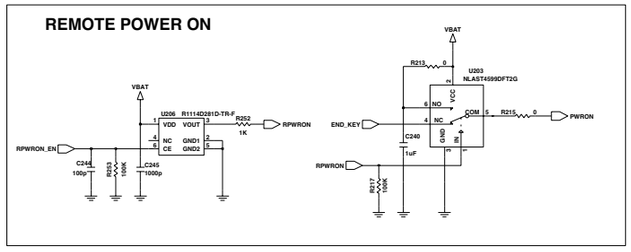
7. CIRCUIT DIAGRAM









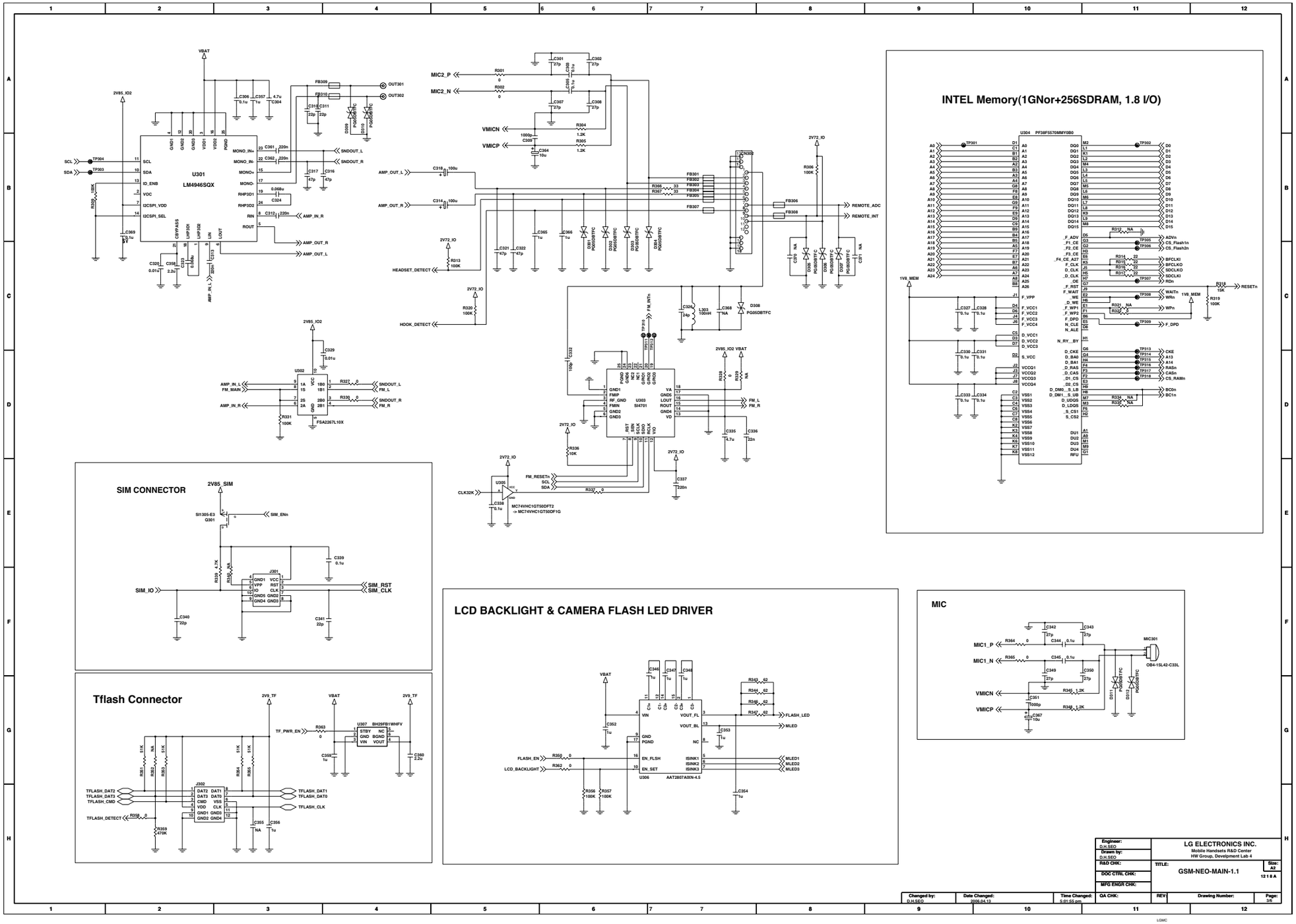


Engineer: D.H.SEO	LG ELECTRONICS INC. Mobile Handsets R&D Center HW Group, Development Lab 4		
Drawn by: D.H.SEO			
R&D CHK:	TITLE: GSM-NEO-MAIN-1.1	Size: A2	12 10 A
DOC CTRL CHK:			
MFG ENGR CHK:			

Changed by:	Date Changed:	Time Changed:	QA CHK:	REV:	Drawing Number:	Page:
D.H.SEO	2006.04.13	5:01:55 pm				2/5

LGMC

7. CIRCUIT DIAGRAM

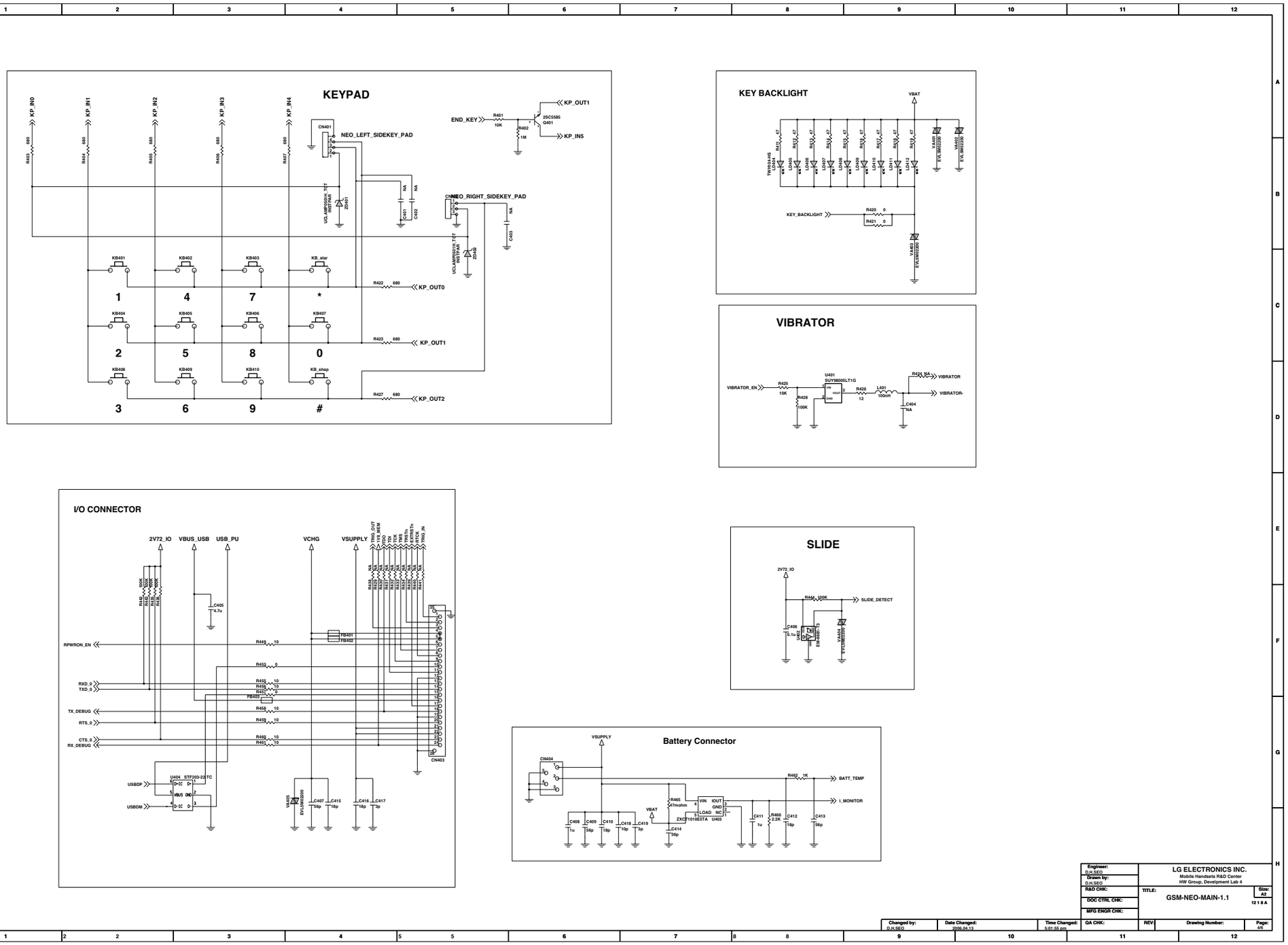


Engineer: D.H.SEO	LG ELECTRONICS INC. Mobile Handsets R&D Center HW Group, Development Lab 4
Drawn by: D.H.SEO	
R&D CHK:	TITLE: GSM-NEO-MAIN-1.1
DOC CTRL CHK:	Size: A2
MFG ENGR CHK:	12 8 A

Changed by:	Date Changed:	Time Changed:	QA CHK:	REV:	Drawing Number:	Page:
D.H.SEO	2009.04.13	5:01:55 pm				3/5

LGMC

7. CIRCUIT DIAGRAM



Engineer: D.H.SEO	LG ELECTRONICS INC. Mobile Handsets R&D Center HW Group, Development Lab 4				
Drawn by: D.H.SEO					
R&D CHK:	TITLE: GSM-NEO-MAIN-1.1	Size: A2			
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MFG ENGR CHK:					
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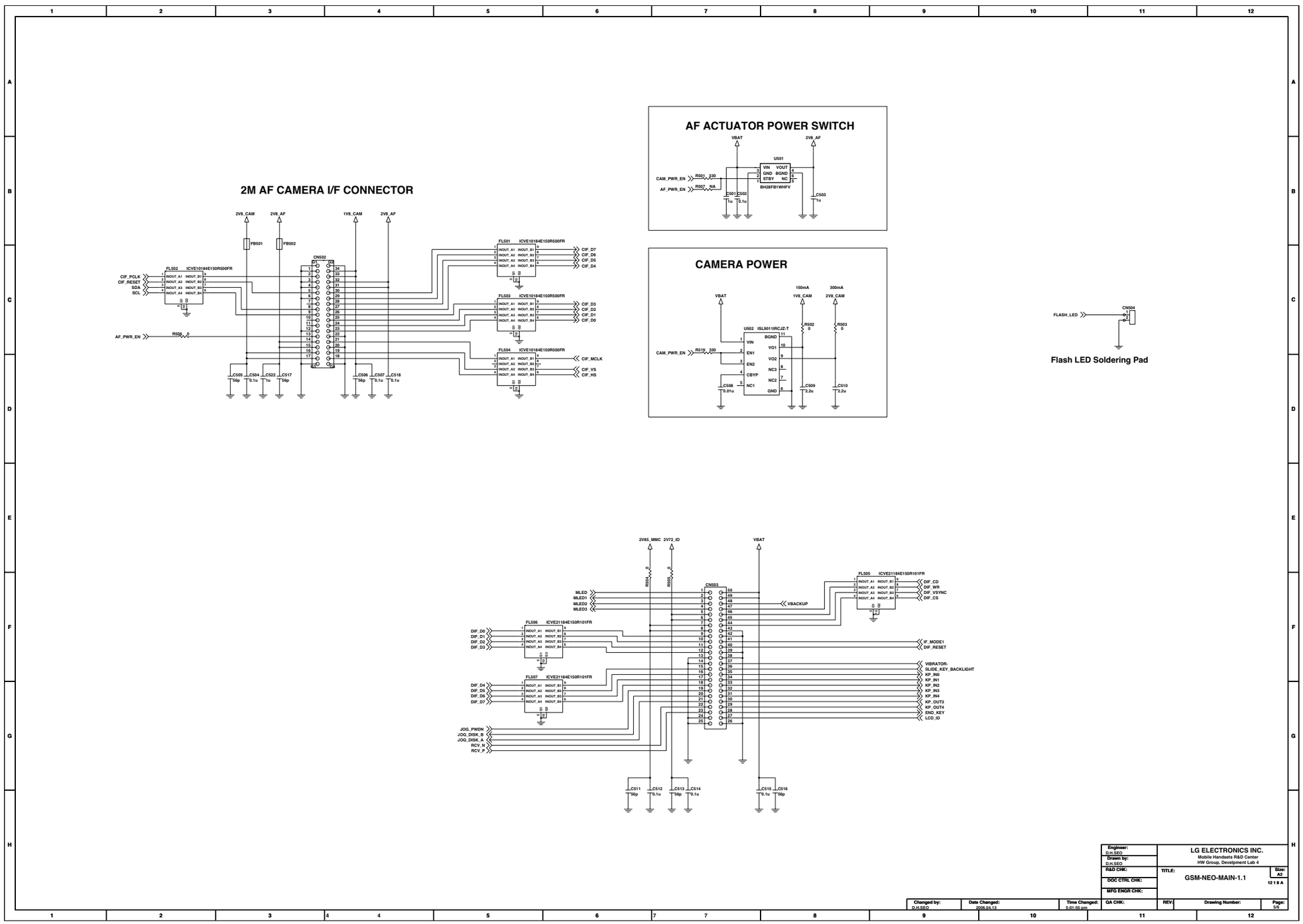
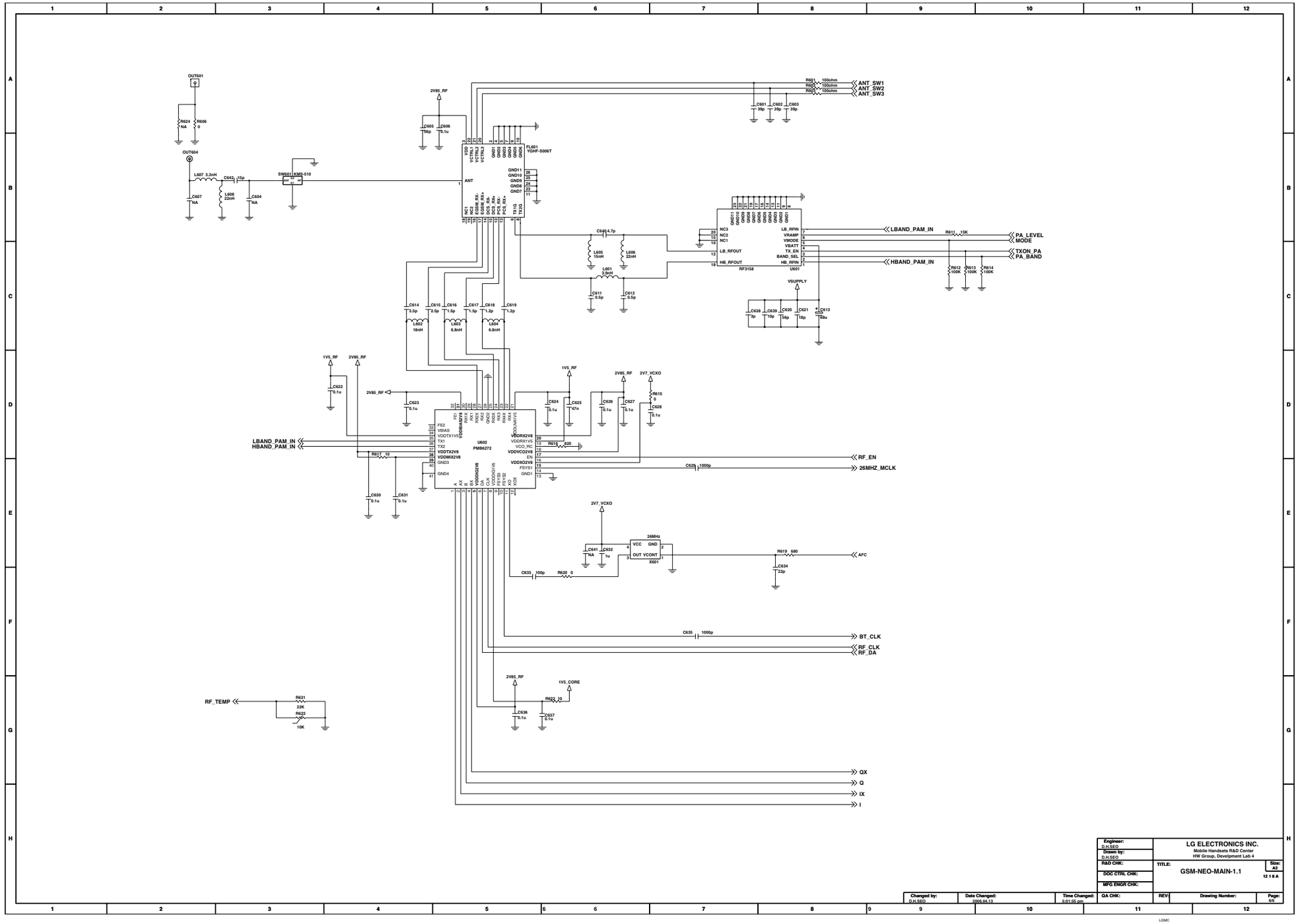
LGMC

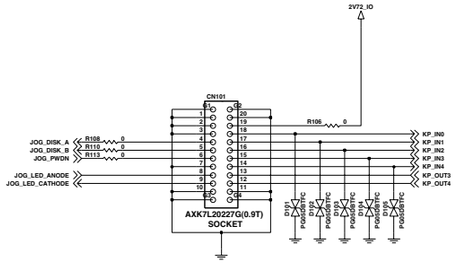
7. CIRCUIT DIAGRAM



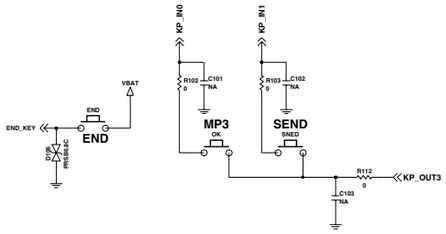
7. CIRCUIT DIAGRAM



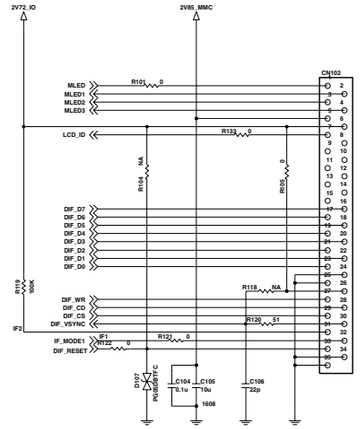
7. CIRCUIT DIAGRAM



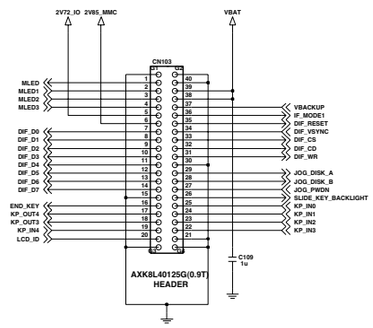
KEY-JOG MODULE 20 PIN CONNECTOR
ENBY0016601



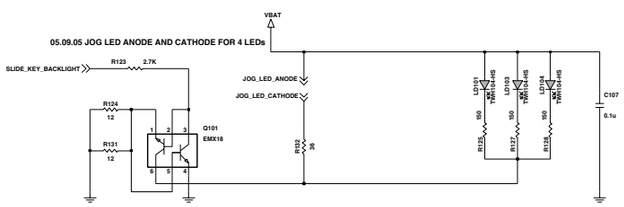
SLIDE KEYPAD ARRAY



XF2B-3545-31A
LCD 35 PIN ROTARY BACKLOCK TYPE CONNECTOR
ENQY0010901



40 PIN SLIDE FPCB TO SLIDE KEY PCB CONNECTOR
ENBY0020201



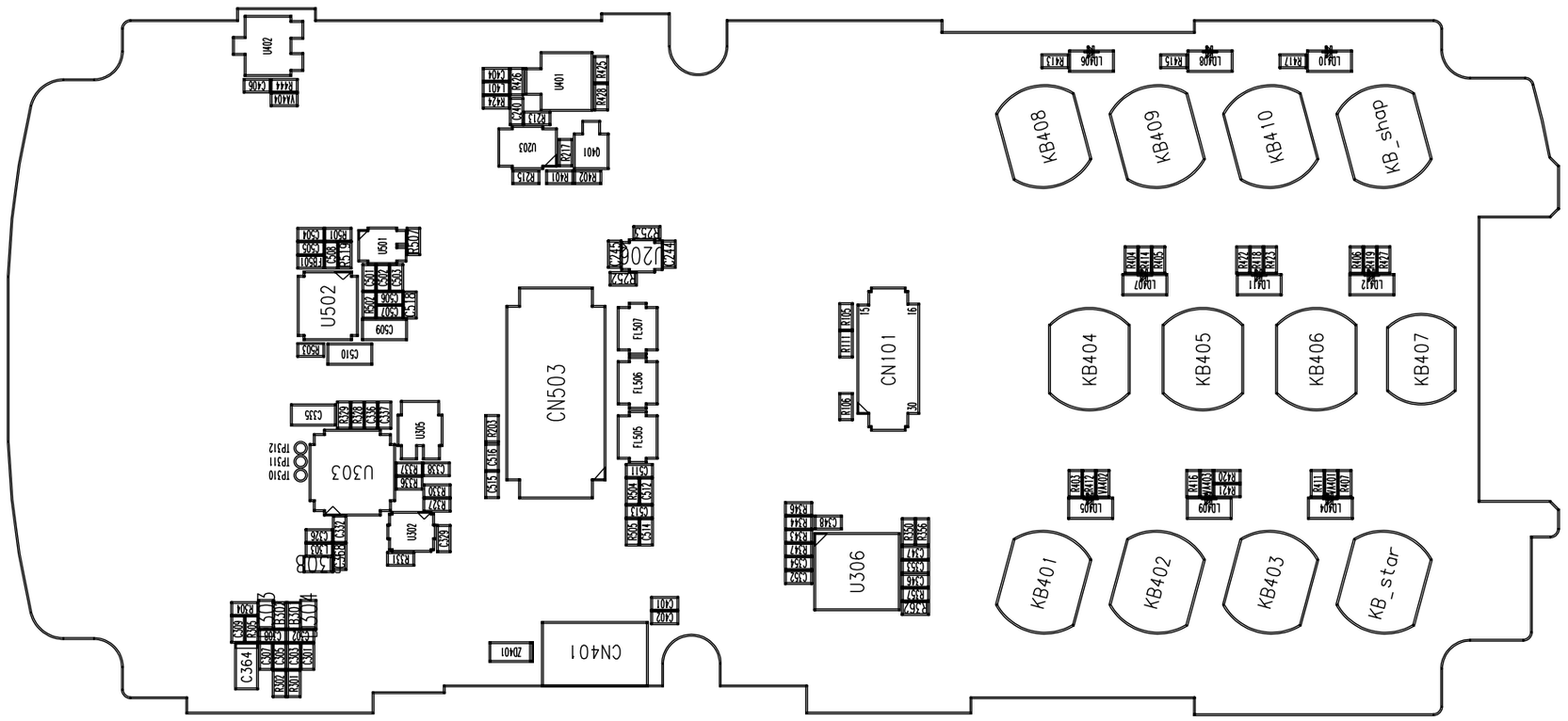
KEYPAD BACKLIGHT DRIVER

KEYPAD BACKLIGHT BLUE LED

Changed by: D.H.SEO	Date Changed: 2006_04_13	Time Changed: 5:01:55 pm	QA CHK:

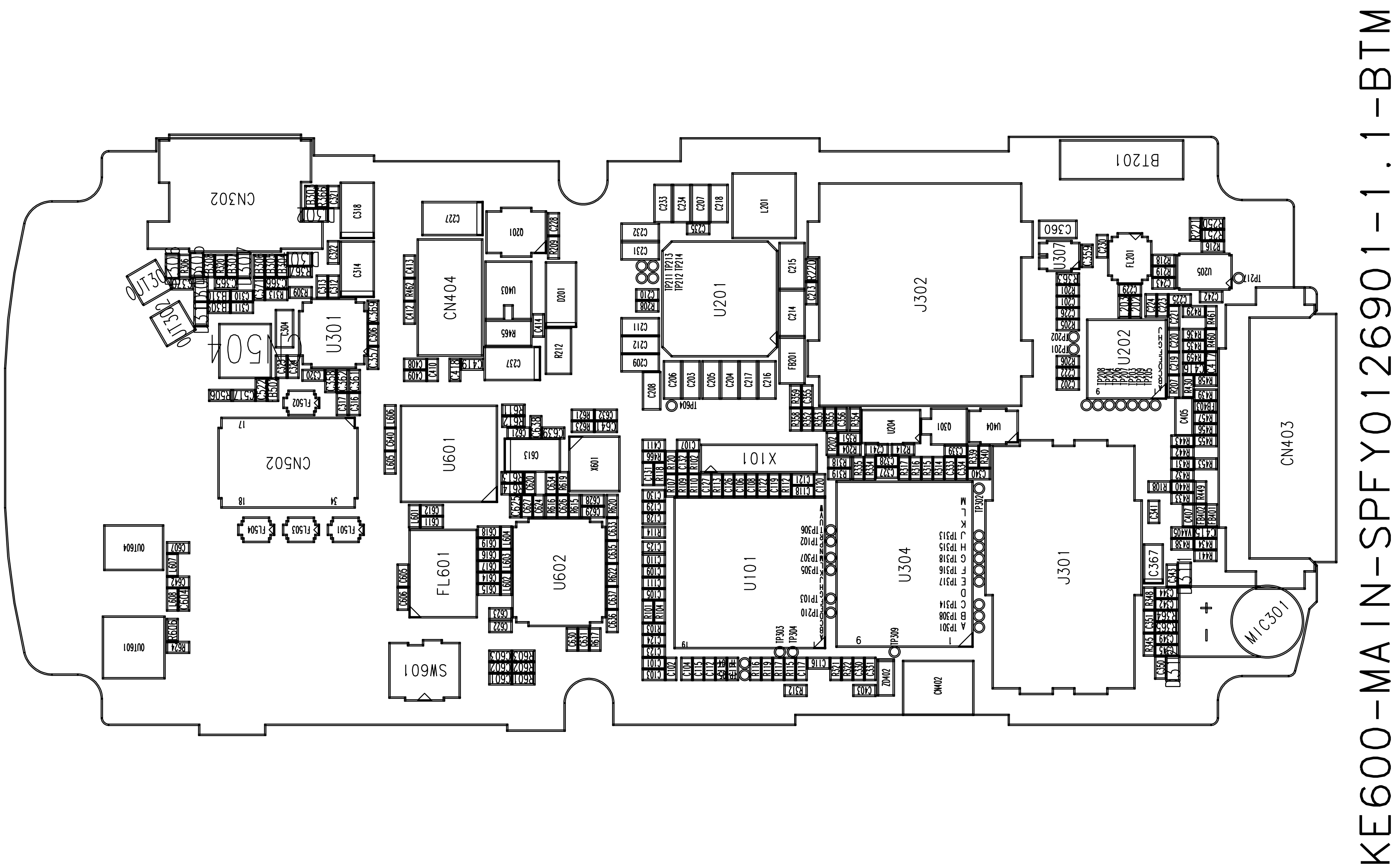
Engineer: D.H.SEO	LG ELECTRONICS INC. GSM HANDSETS LAB. DEVELOPMENT GROUP 4
Drawn by: D.H.SEO	
R&D CHK: D.H.SEO	TITLE: GSM-NEO-SLIDE-1.0 — Size: A3
DOC CTRL CHK:	
MFG ENGR CHK:	
QA CHK:	REV: — Drawing Number: — Page: 1

8. PCB LAYOUT



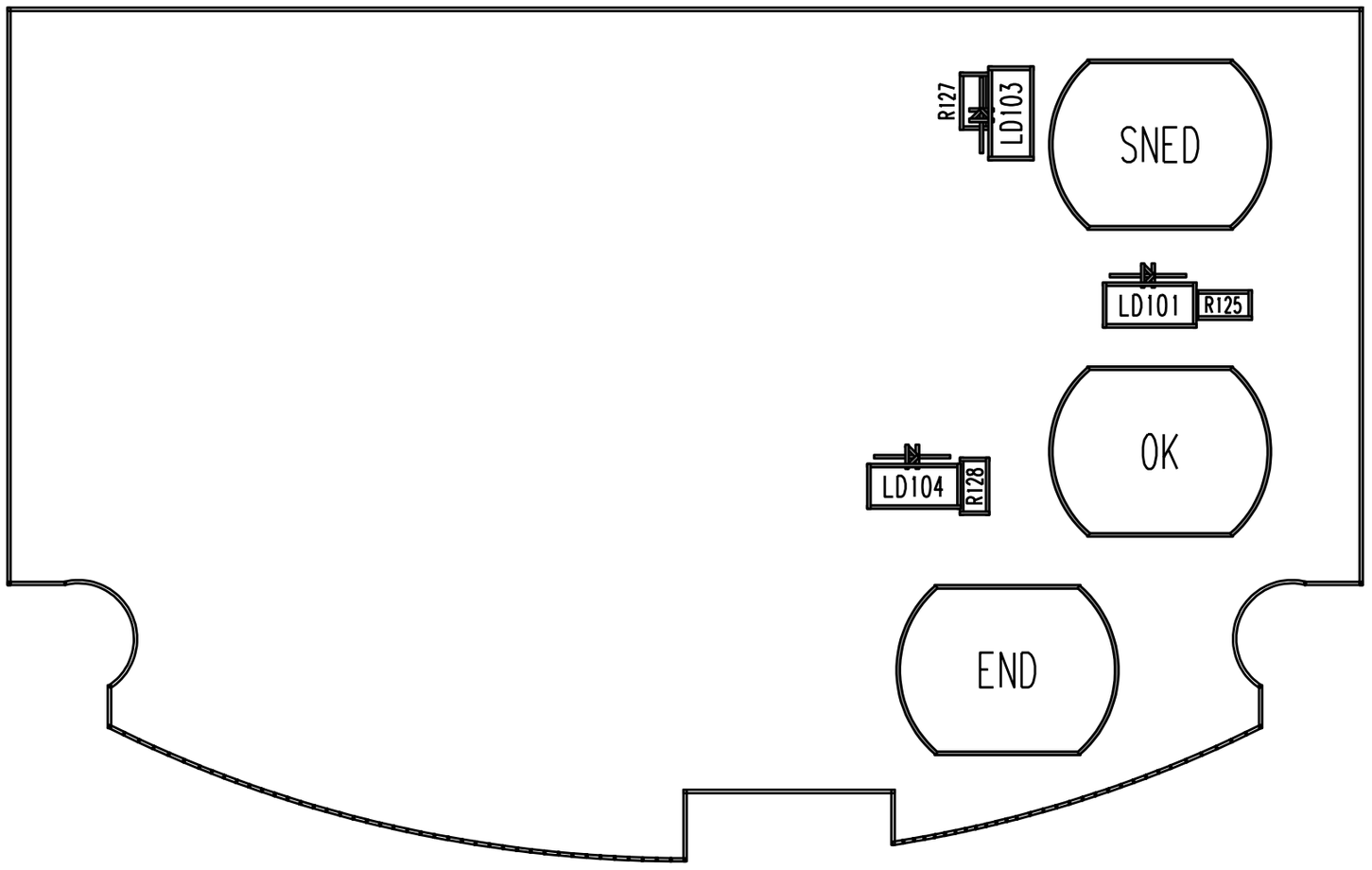
KE600-MAIN-SPFY01269A-1.1-TOP

8. PCB LAYOUT



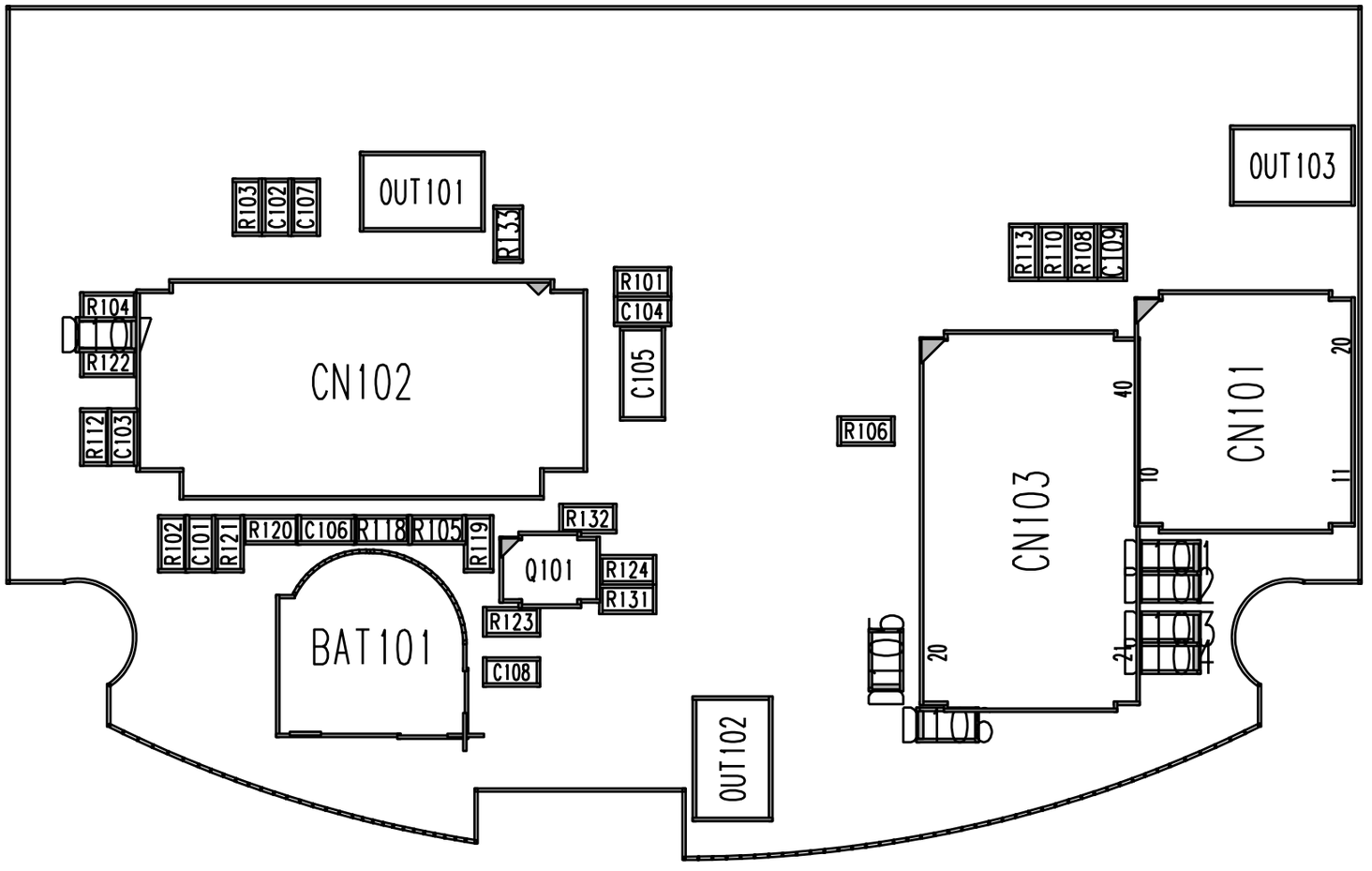
KE600-MAIN-SPFY0126901-1.1-BTM
CN302
CN404
U301
CN502
U601
U602
FL601
SW601
U201
J302
X101
U101
U304
J301
CN403
U202
BT201
MIC301

8. PCB LAYOUT



KE600-SPJY0027001-1.0-TOP

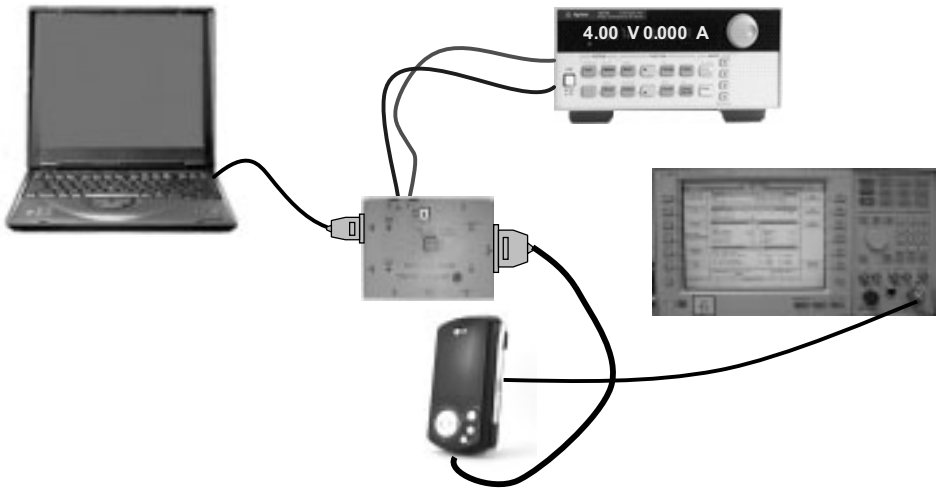
8. PCB LAYOUT



KE600-SPJY0027001-1.0-BTM

9. RF Calibration

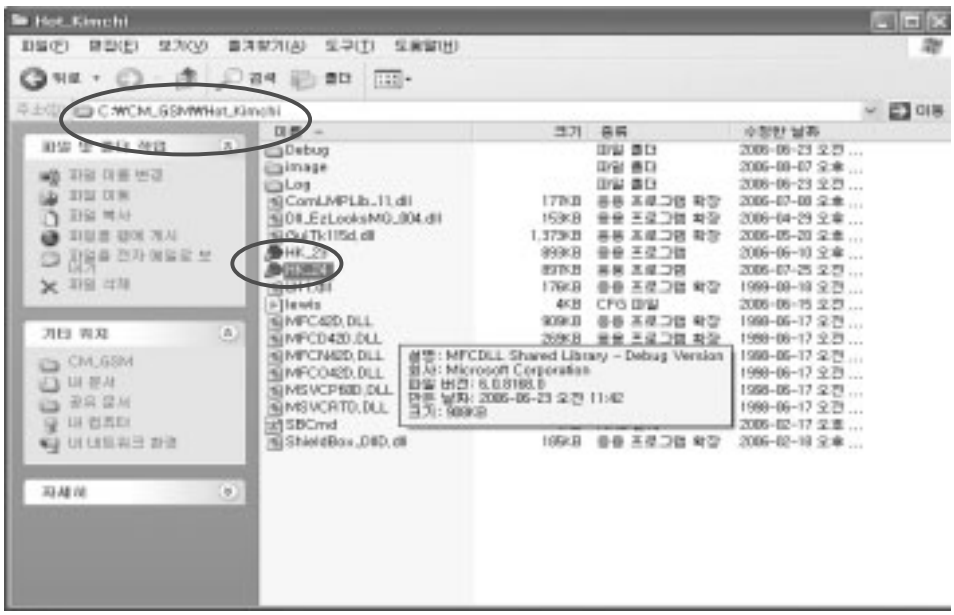
9.1 Test Equipment Setup



9.2 Calibration Steps

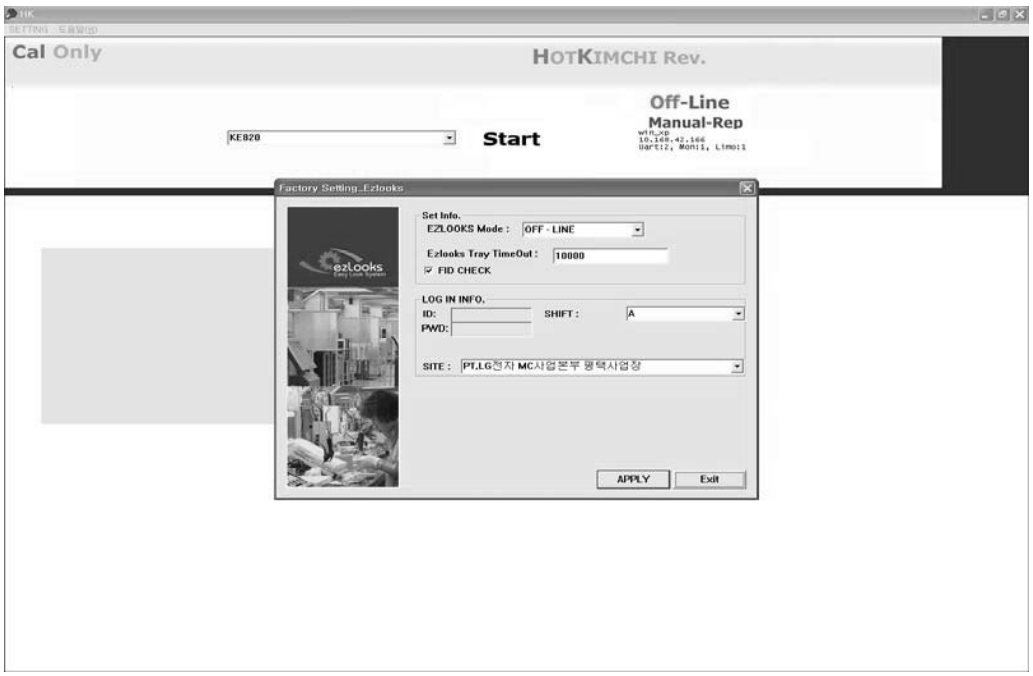
9.2.1. Turn on the Phone.

9.2.2. Execute “HK_24.exe”

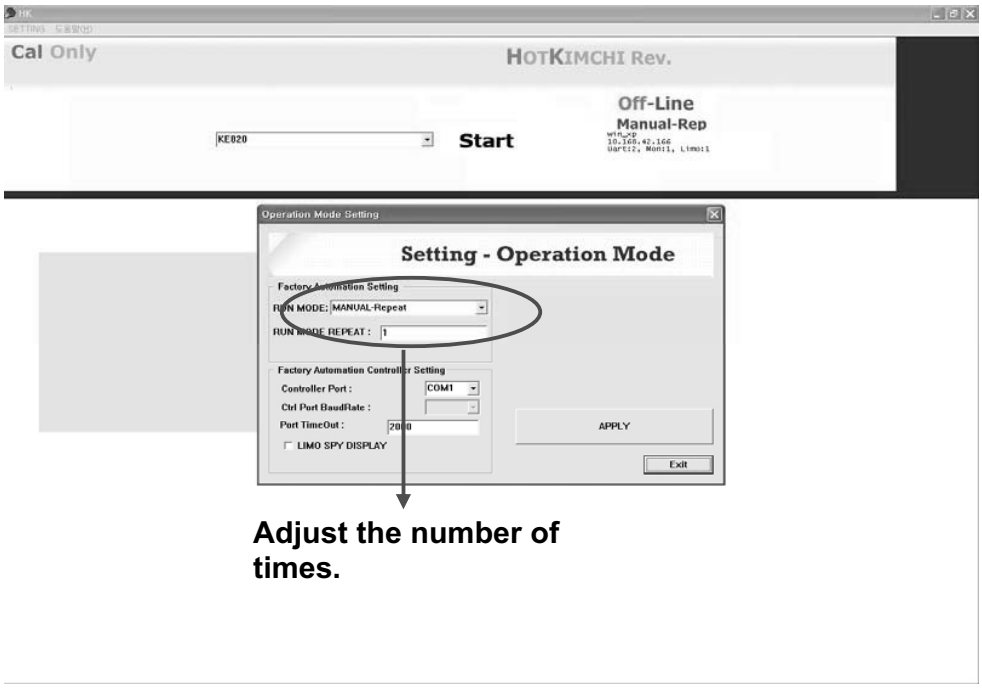


9.2.3. Click “SETTING” Menu

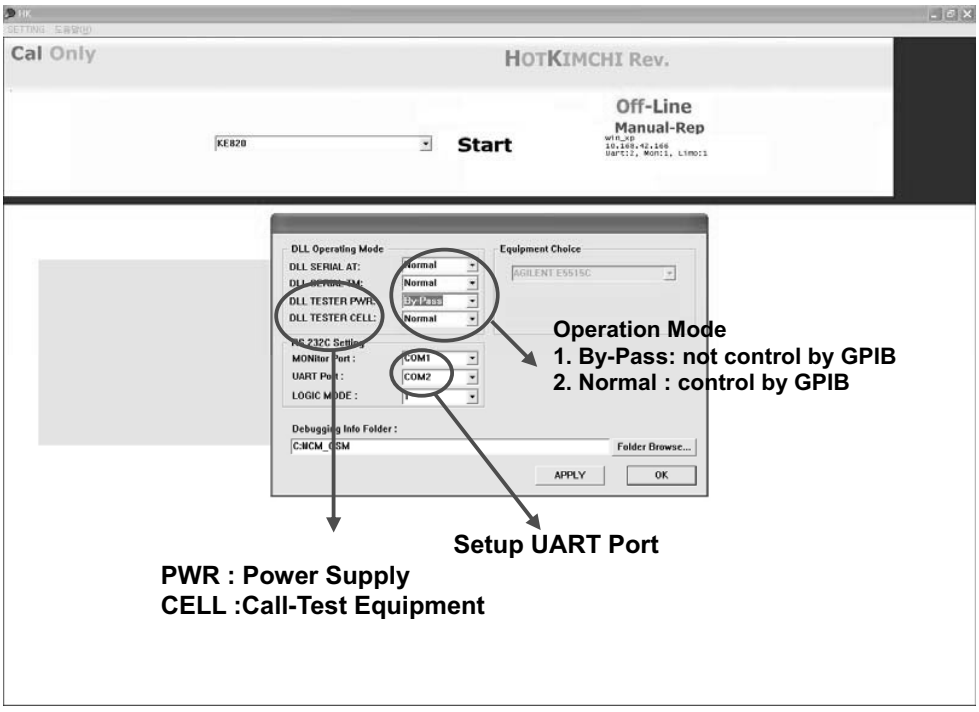
9.2.4. Setup “Ezlooks” menu such as the following figure



9.2.5. Setup “Line System” menu such as the following figure

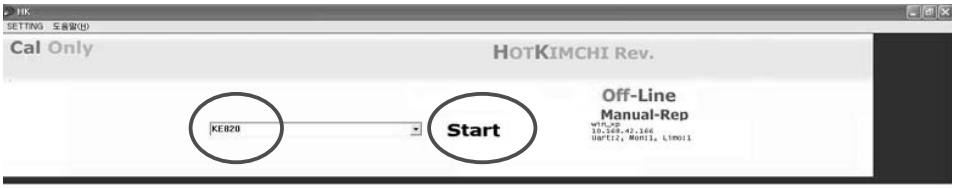


9.2.6. Setup Logic operation such as the following figure.

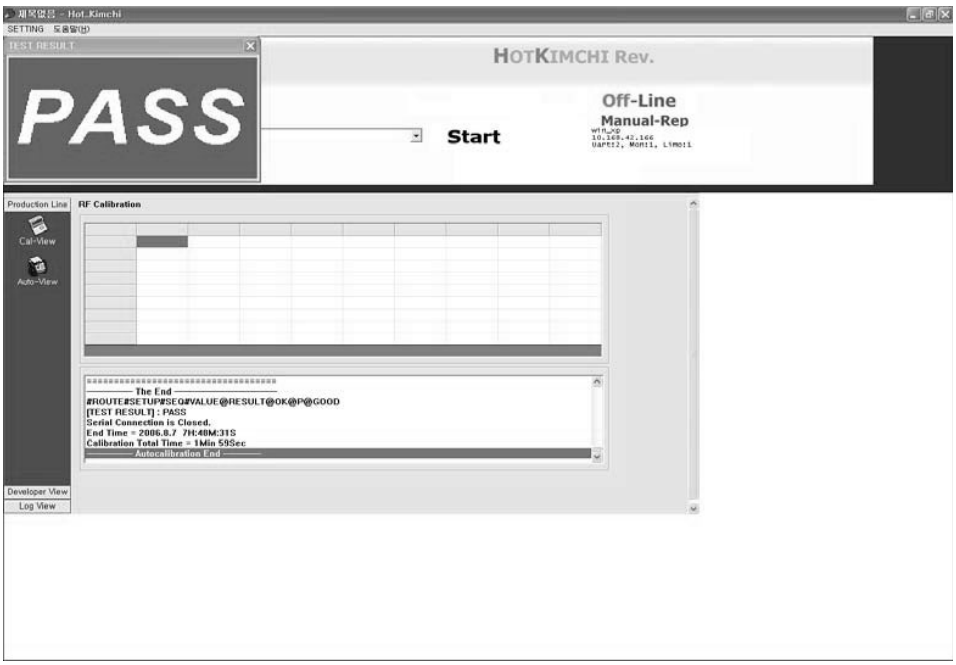


9.2.7. Select “MODEL” .

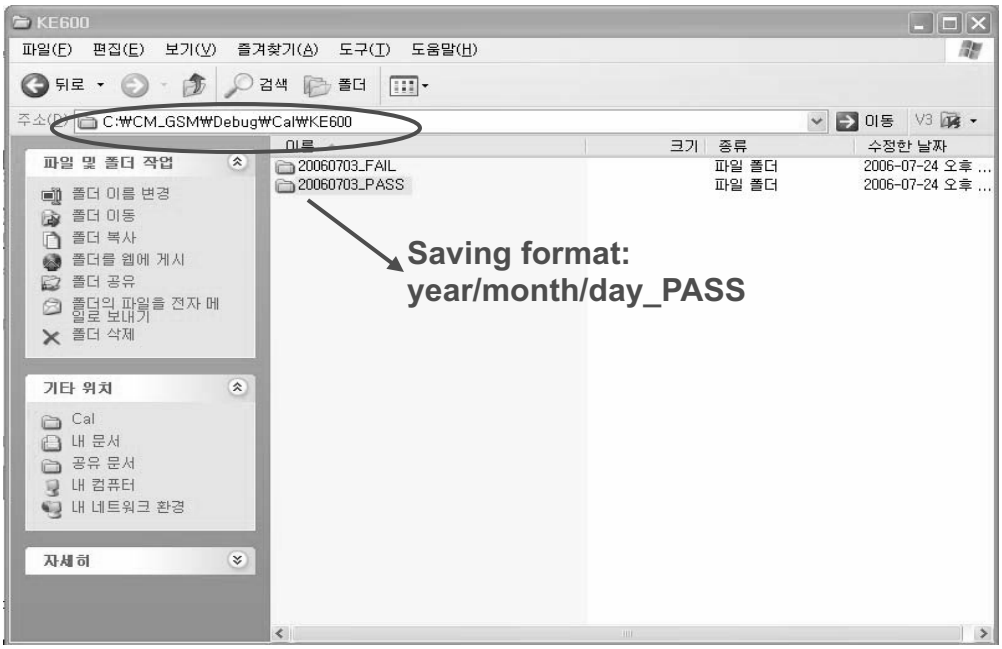
9.2.8. Click “START” for RF calibration



9.2.9. RF Calibration finishes.



9.2.10. Calibration data will be saved to the following folder.

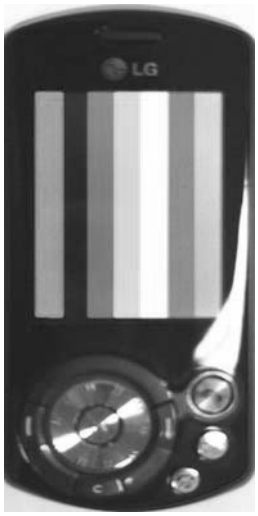


9. RF Calibration

Notices:

1. The state of Phone is “test mode” during the CALIBRATION.
2. Calibration program automatically changes either “normal mode” or “ptest mode” .
3. RF Calibration steps as follow:
TX Channel compensation: EGSM->DCS->PCS->EDGE EGSM->EDGE DCS->EDGE PCS
RX Channel compensation: EGSM->DCS->PCS
3. Phone Operation Mode

< Normal Mode >



< ptest Mode >

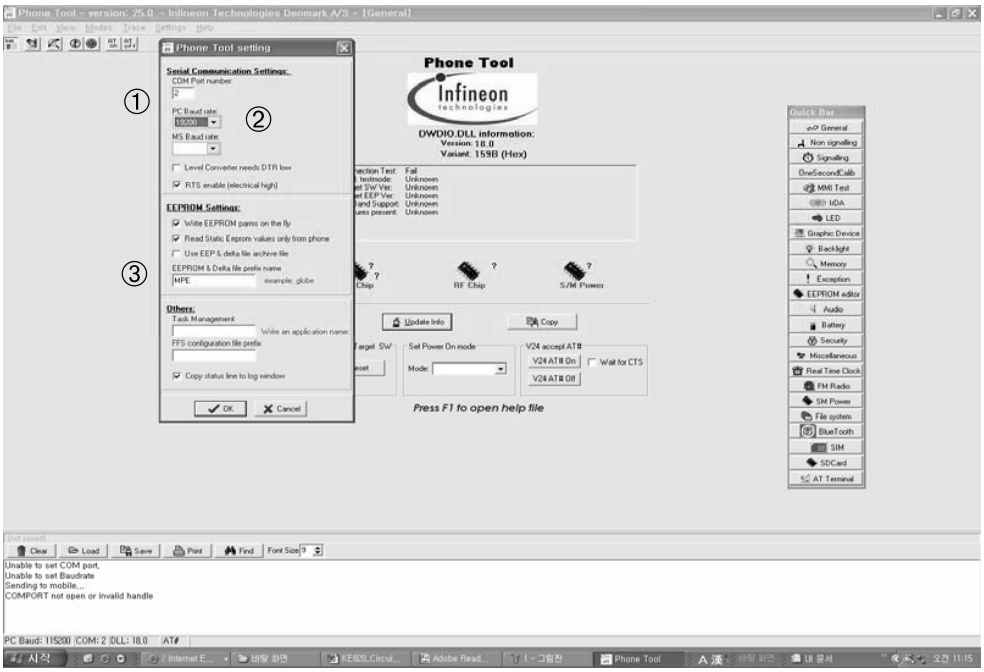
10. Stand-alone Test

1. Test Program Setting

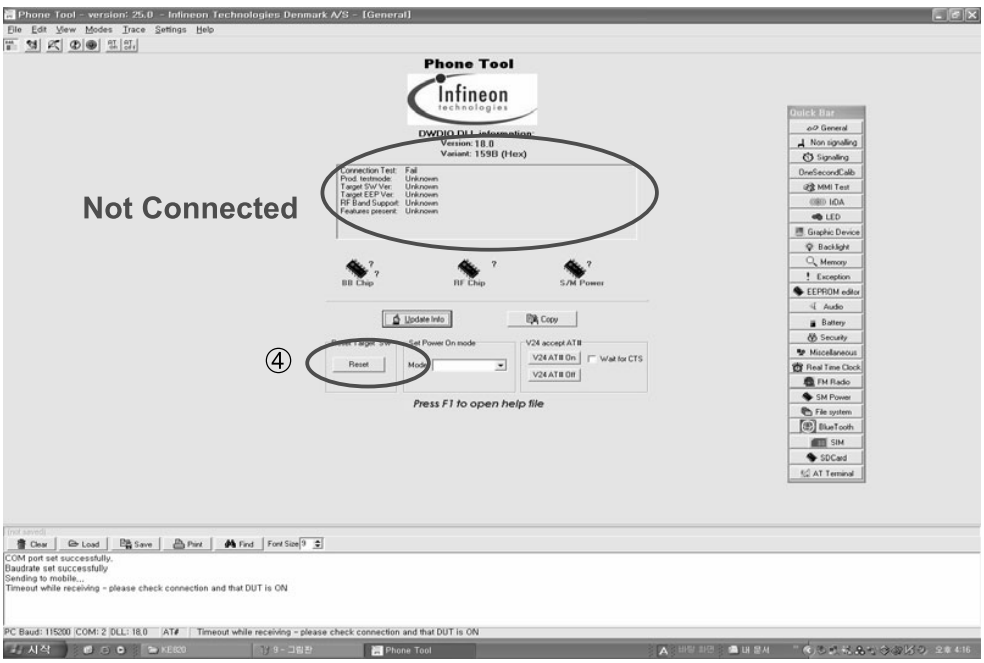
① Set COM Port.

② Check PC Baud rate.

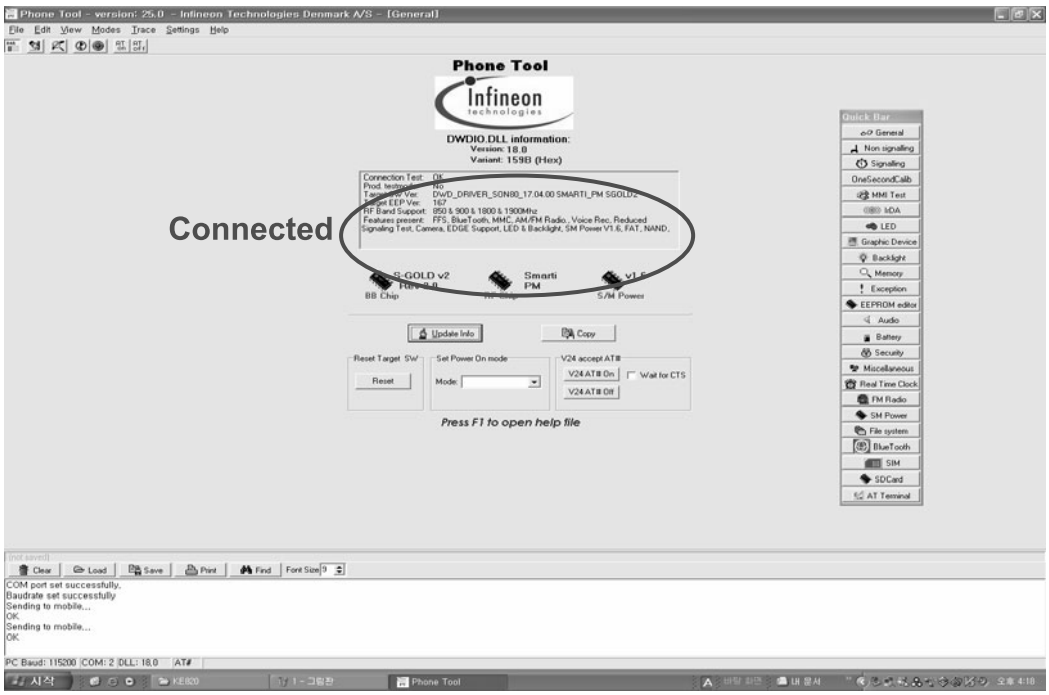
③ Confirm EEPROM & Delta file prefix name.



④ Click “Update Info” for communicating Phone and Test-Program.

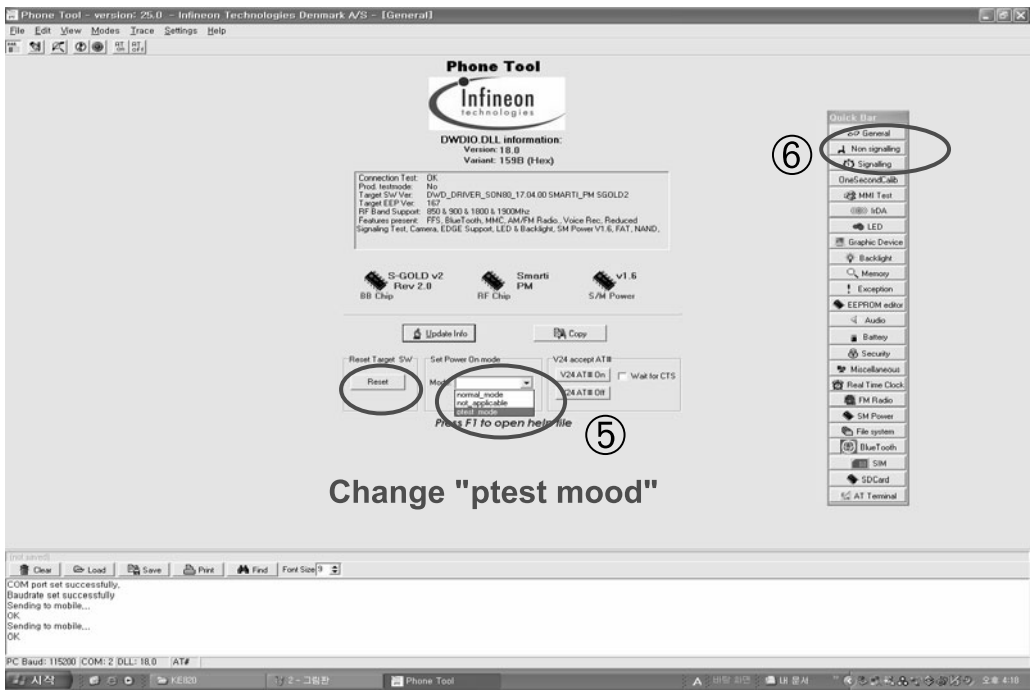


10. Stand-alone Test



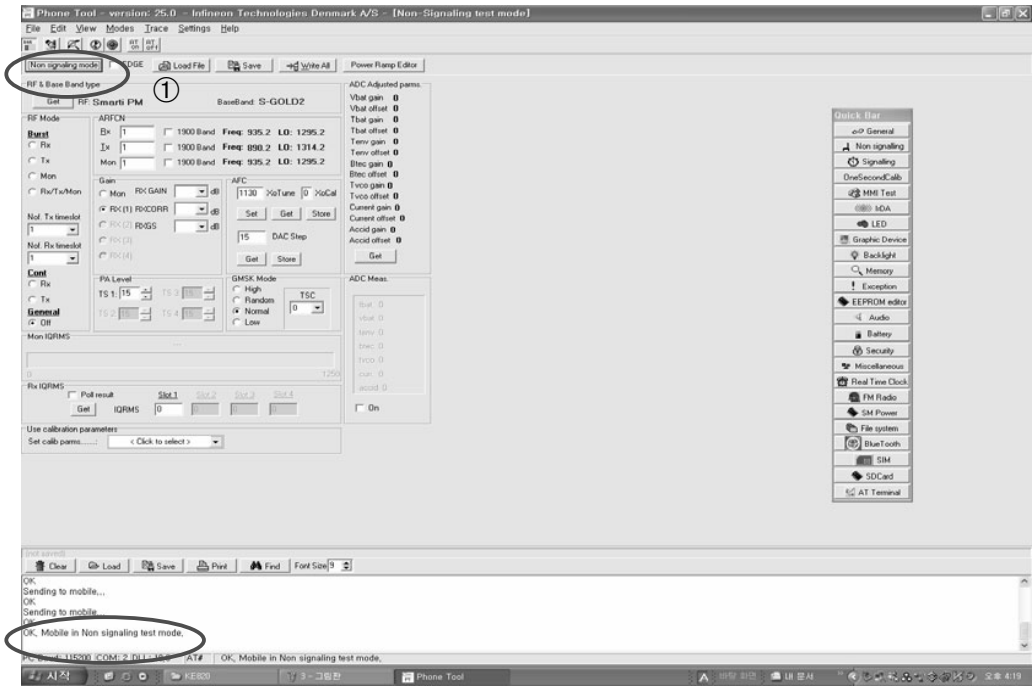
⑤ For the purpose of the Standalone Test, Change the Phone to “ptest mode” and then Click the “Reset” bar.

⑥ Select “Non signaling” in the Quick Bar menu. Then Standalone Test setup is finished.



2.Tx Test

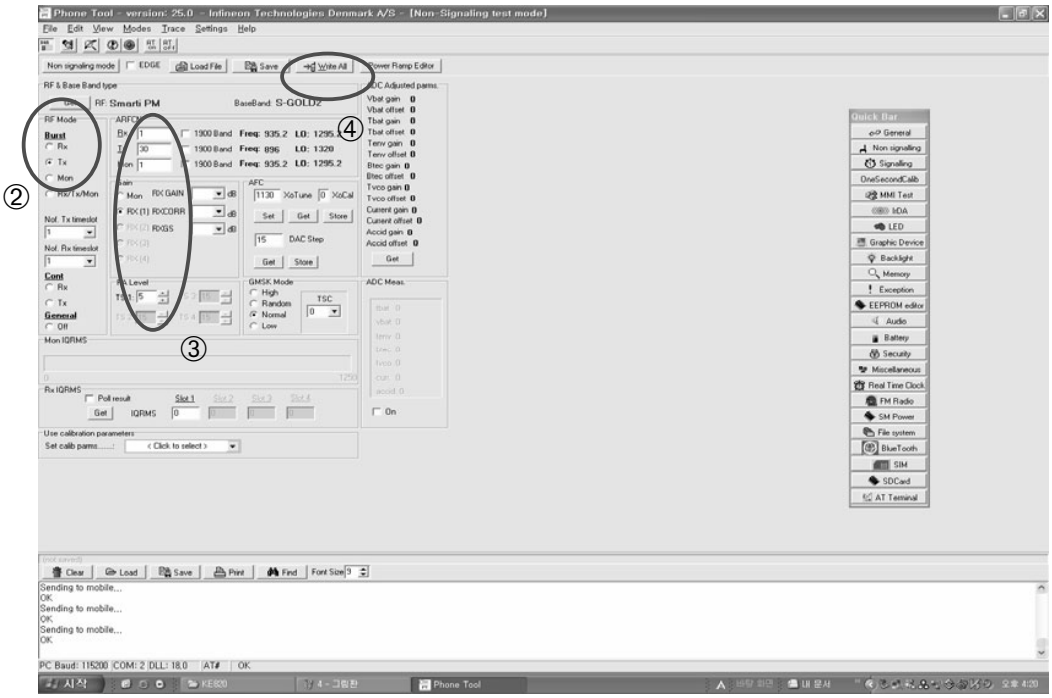
① Click “Non signaling mode” bar and then confirm “OK” text in the command line.



② Put the number of TX Channel in the ARFCN.

③ Select “Tx” in the RF mode menu and “PCL” in the PA Level menu.

④ Finally, Click “Write All” bar and try the efficiency test of Phone.



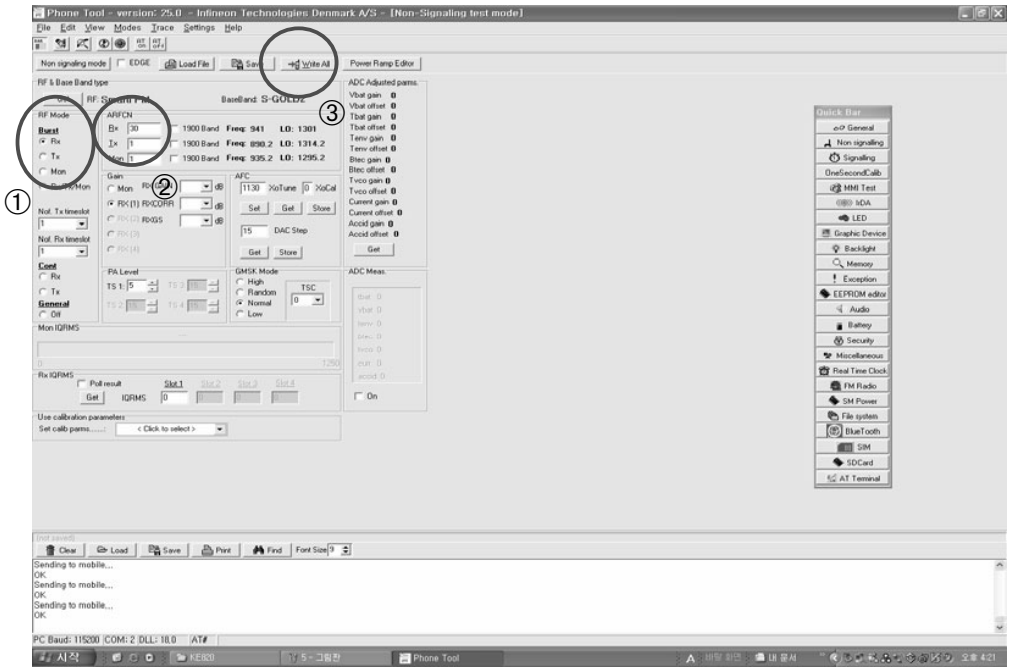
10. Stand-alone Test

3. Rx Test

① Put the number of RX Channel in the ARFCN.

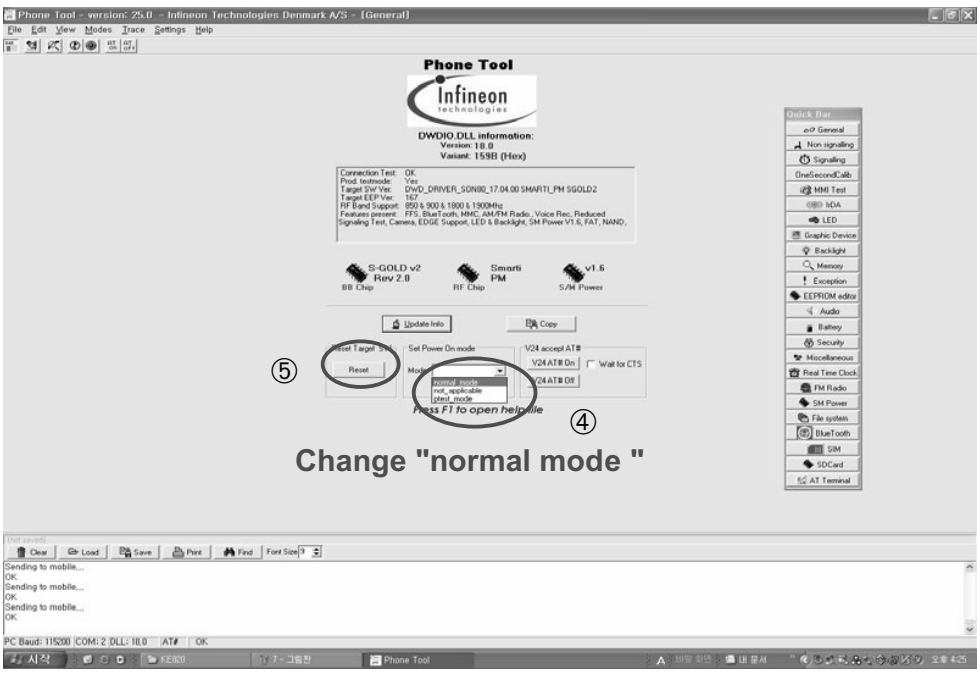
② Select “Rx” in the RF mode menu.

③ Finally, Click “Write All” bar and try the efficiency test of Phone.



④ The Phone must be changed “normal mode” after finishing Test.

⑤ Change the Phone to “normal mode” and then Click the “Reset” bar.



11. ENGINEERING MODE

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset. The key sequence for switching the engineering mode on is “2945#*# “Select. Pressing END will switch back to non-engineering mode 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.

[1] BB TEST

[1-1]Back Light

[1-1-1] LCD Back Light Always On Enable

[1-1-2] LCD Back Light Always On Disable

[1-2]LCD

[1-2-1] LCD Color

[1-3]Camera

[1-3-1] Camera Main Preview

[1-3-2] Flash On

[1-3-3] Flash Off

[1-4]Battery Info

[1-4-1] Battery Info

[1-5]Vibrator

[1-5-1] Vibrator On

[1-5-2] Vibrator Off

[1-6]DAI

[1-6-1] Close

[1-7]SD CARD

[1-7-1] Close

[1-8]Connection

[1-8-1] Bluetooth

[1-8-2] Irda

[1-9]Audio

[1-9-1] Close

[1-0]FM Radio

[1-0-1] FM Radio Turn On

[1-0-2] FM Radio Turn Off

[1-0-3] FM Radio Seek Up

[1-0-4] FM Radio Seek Down

[1-*]Bluetooth Test

[1-*-1] Enter Test Mode

[1-*-1-1] Audio Test

[1-*-1-2] RF Test

[1-*-2] On Off Test

[1-*-2-1] Bluetooth On

[1-*-2-2] Bluetooth Off

[1-*-3] Headset Test

[1-*-4] Communication Mode

[1-*-4-1] AT=USB0, UART0 Trace=UART1

[1-*-4-2] AT=USB0, BT Trace=UART0

[1-*-4-3] AT=USB0, UART0, BT Trace=NULL

[1-*-5] Xhtml Compose Print

[1-*-6] Xhtml Print Test

[1-*-6-1] Images

[1-*-6-2] HtmlTestPrint.xhtml

[2] Model Version

[2-1] Version

[3] Eng Mode

[3-1] Cell Environ.

[3-2] PS Layer Info

[3-2-1] Mobility

[3-2-2] RadioRes

[3-2-3] Gprs

[3-3] Layer Info

[3-3-1] Close

[3-4] Reset Information

[3-4-1] Excpt

[3-5] Memory Configuration

[3-6] MemGenConf

[3-7] MemAllUse

[3-8] MemDetUse

[3-9] MemDump

[3-0] Change Frequency Band

[3-0-1] Close

[4] Call Timer

[5] Factory Reset

[6] MF TEST

[6-1] All Auto Test

[6-2] Backlight

[6-2-1] Backlight On

[6-2-2] Backlight Off

[6-3] Audio

[6-3-1] Audio Test

[6-4] Vibrator

[6-4-1] Vibrator On

[6-4-2] Vibrator Off

[6-5] LCD

[6-5-1] Close

[6-5-2] Auto LCD

[6-6] Key Pad

[6-7] Mic Speaker

[6-8] Camera

[6-8-1] Camera Main Preview

[6-9] FM Radio

[6-9-1] FM Radio Test

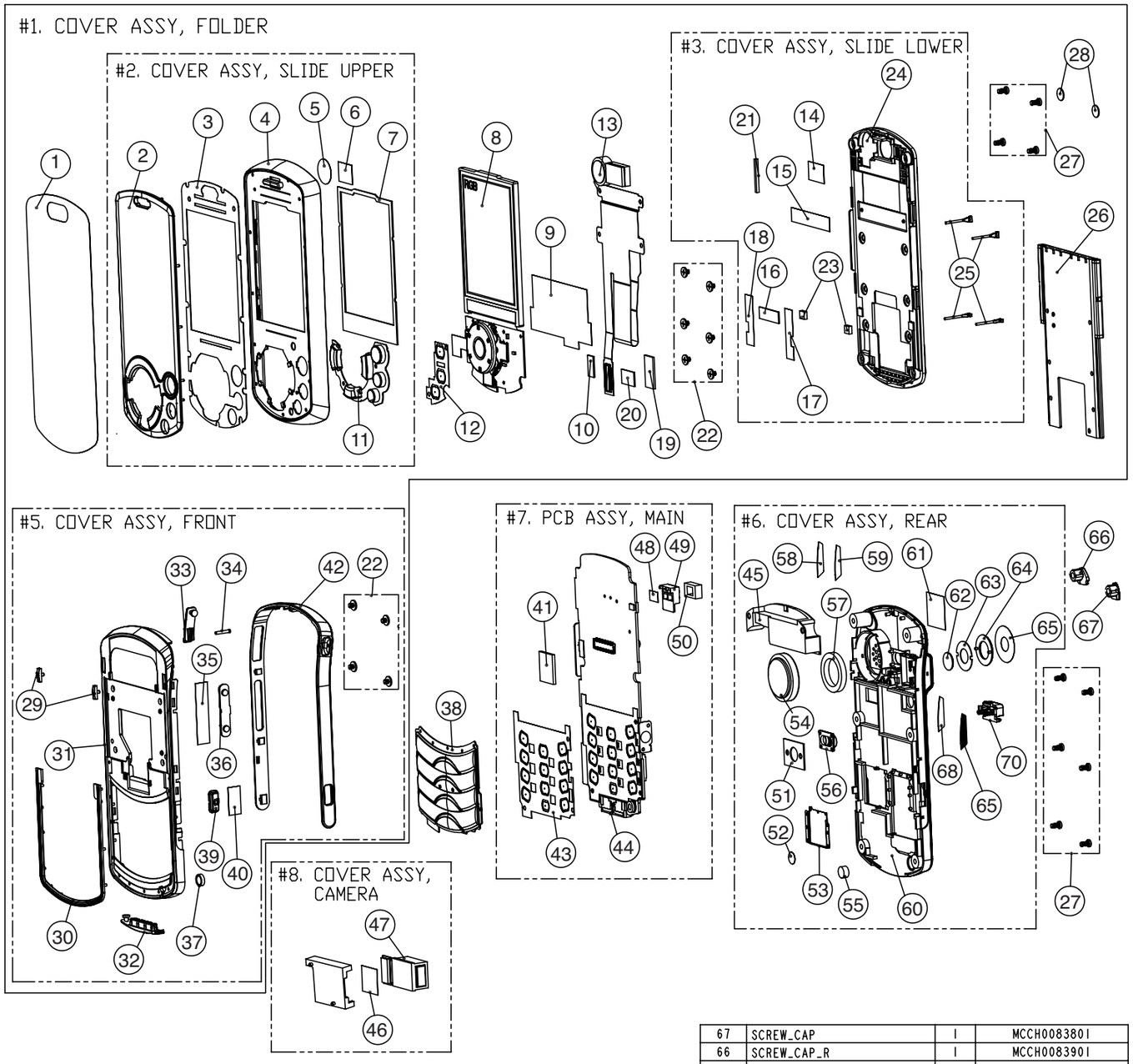
[6-0] Connection

[6-0-1] Blue Tooth

[6-0-2] Irda

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
55	PAD_MIC	1	MPBH0025001	
54	SPEAKER	1	SUSY0022601	
53	BRACKET_SIM	1	MBFZ0025601	
52	A/S_LABEL	1	MLAB0001102	
51	PAD_CAMERA	1	MPBZ0140401	
50	PAD_FLASH	1	MPBZ0140001	
49	BRACKET_FLASH	1	MBFZ0026801	
48	TAPE_FLASH_FPCB	1	MTAZ0139501	
47	CAMERA	1	ABFZ0008801	
46	TAPE_CAMERA	1	MTAZ0139401	
45	INTENNA	1	SNGF0017701	
44	MAIN_PCB_ASSY	1	SAFY0158702	
43	MAIN_DOME_SHEET	1	ADCA0055401	
42	MAIN_SIDE_DECO	1	MDAC0017801	
41	PAD_MAIN_PCB	1	MPBZ0165801	
40	TAPE_PROTACTION_CAMERAKEY	1	MTAB0126301	
39	BUTTON_CAMERA	1	MBJZ0007601	
38	MAIN_KEY_PAD	1	MKAZ0030002	
37	FILTER_MIKE	1	MFBD0017501	
36	BUTTON_SIDE	1	MBJL0033401	
35	TAPE_PROTACTION_SIDEKEY	1	MTAB0126201	
34	PIN_STRAP	1	MSHY0010601	
33	CAP_EAR_JACK	1	MCCC0036601	
32	CAP_RECEPTACLE	1	MCCE0029701	
31	MAIN_FRONT	1	MCJK0059001	
30	DECO_FRONT	1	MDAG0022301	
29	GUIDE_FRONT	2	MGDB0001201	
28	CAP_SCREW_LOWER	2	MCCH0090301	
27	SCREW	10	GMEY0011201	
26	SLIDE_HINGE	1	AHFB0001201	
25	DAMPER_SLIDE	4	MBHY0020201	
24	SLIDE_LOWER	1	MCJV0006801	
23	TAPE_CONDUCTIVE_CUSHION	2	MTAZ0141801	
22	SCREW_HINGE	10	GMEY0015001	
21	MAGNETIC	1	MMAA0007501	
20	PAD_ZIP_CONNECTOR	1	MPBZ0140201	
19	PAD_CONNECTOR	1	MPBZ0140701	
18	TAPE_INSURATION_SCREW_L	1	MTAZ0146501	
17	TAPE_INSURATION_SCREW_R	1	MTAZ0151101	
16	PAD_FPCB	1	MPBZ0140801	
15	TAPE_FPCB	1	MTAZ0139601	
14	TAPE_RECEIVER	1	MTAZ0139701	
13	SLIDE_FPCB_ASSY	1	SACY0049501	
12	SLIDE_DOMESHEET	1	ADCA0055001	
11	SLIDE_KEY_PAD_ASSY	1	MKAZ0029901	
10	PAD_PCB_CONNECTOR	1	MPBZ0140101	
9	TAPE_SHIELD_LCD	1	MTAZ0141901	
8	SLIDE_PCB_ASSY	1	SVLM0012602	
7	PAD_LCD	1	MPBG0049601	
6	FILTER_RECEIVER	1	MFBB0017401	
5	PAD_VIBRATOR	1	MPBZ0140601	
4	SLIDE_UPPER	1	MCJW0008201	
3	MAIN_WINDOW_TAPE	1	MTAD0056601	
2	WINDOW	1	MWAZ0005901	
1	TAPE_PROTECT	1	MTAB0126001	

67	SCREW_CAP	1	MCCH0083801
66	SCREW_CAP_R	1	MCCH0083901
65	TAPE_PROTACTION_CAMWINDOW	1	MTAB0126501
64	DECO_CAMERA	1	MDAD0024301
63	TAPE_WINDOW_CAMERA	1	MTAD0056401
62	WINDOW_CAMERA	1	MWAE0017701
61	TAPE_INSURATOR_BATTERY	1	MIDZ0119901
60	MAIN_REAR	1	MCJN0053701
59	TAPE_SPK_L	1	MTAZ0138401
58	DECO_SPK_L	1	MDAN0011501
57	FILTER_SPK	1	MFBC0025401
56	WINDOW_FLASH	1	MWAH0005801

70	BATTERY_LOCKER	1	MLEA0031301
69	DECO_SPK_R	1	MDAN0011401
68	TAPE_SPK_R	1	MTAZ0138301

12.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
1		GSM(SLIDE)	TGLL0005302		Black	
2	AAAY00	ADDITION	AAAY0136641		Black	
3	ENSY00	CONN,SOCKET	ENSY0015401	9 PIN,ETC , , mm,SD Adaptor for TFR		
3	MCEZ00	CASE	MCEZ0001201	SD Card Case		
2	APEY00	PHONE	APEY0277902		Black	
3	ABFZ01	BRACKET ASSY	ABFZ0008802		Black	
4	MBFZ00	BRACKET	MBFZ0026801	MOLD, PC LEXAN 121R, , , , ,		49
4	MTAZ00	TAPE	MTAZ0139501	COMPLEX, (empty), , , , ,		48
4	MTAZ01	TAPE	MTAZ0174701	COMPLEX, (empty), , , , ,		
4	MTAZ02	TAPE	MTAZ0176701	COMPLEX, (empty), , , , ,		
3	ACGM00	COVER ASSY,REAR	ACGM0077201		Black	
4	MBFZ00	BRACKET	MBFZ0025601	MOLD, PC LEXAN 121R, , , , ,		53
4	MCJN00	COVER,REAR	MCJN0053701	MOLD, PC LEXAN 121R, , , , ,	Black	60
4	MDAD00	DECO,CAMERA	MDAD0024301	MOLD, PC LEXAN 121R, , , , ,	Black	64
4	MDAN00	DECO,SPEAKER	MDAN0011401	PRESS, Al Alloy, , , , ,	Black	69
4	MDAN01	DECO,SPEAKER	MDAN0011501	PRESS, Al Alloy, , , , ,	Black	58
4	MFBC00	FILTER,SPEAKER	MFBC0025401	COMPLEX, (empty), , , , ,		57
4	MIDZ00	INSULATOR	MIDZ0119901	COMPLEX, (empty), , , , ,		61
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	52
4	MLEA00	LOCKER,BATTERY	MLEA0031301	MOLD, PC LEXAN 121R, , , , ,	Black	70
4	MPBH00	PAD,MIKE	MPBH0025001	COMPLEX, (empty), , , , ,		55
4	MPBZ00	PAD	MPBZ0140401	COMPLEX, (empty), , , , ,		51
4	MSDC00	SPRING,LOCKER	MSDC0008301			
4	MTAB00	TAPE,PROTECTION	MTAB0126501	COMPLEX, (empty), , , , ,		65
4	MTAD00	TAPE,WINDOW	MTAD0056401	COMPLEX, (empty), , , , ,		63
4	MWAE00	WINDOW,CAMERA	MWAE0017701	CUTTING, Quartz Glass, , , , ,	Black	62
4	MWAH00	WINDOW,FLASH	MWAH0005801	MOLD, PC LEXAN 121R, , , , ,	White	56
3	ACGN00	COVER ASSY,CAMERA	ACGN0006401		Black	
4	ABFZ00	BRACKET ASSY	ABFZ0008801		Black	47
5	MBFP00	BRACKET,CAMERA	MBFP0006301	MOLD, PC LEXAN 121R, , , , ,		
5	MTAC00	TAPE,SHIELD	MTAC0040901	COMPLEX, (empty), , , , ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
5	MTAZ00	TAPE	MTAZ0139301	COMPLEX, (empty), , , , ,		
5	MTAZ01	TAPE	MTAZ0139401	COMPLEX, (empty), , , , ,		46
4	MTAC00	TAPE,SHIELD	MTAC0040901	COMPLEX, (empty), , , , ,		
3	ACGQ00	COVER ASSY,SLIDE	ACGQ0009602		Black	
4	ACGK00	COVER ASSY,FRONT	ACGK0078001		Black	
5	MBJL00	BUTTON,SIDE	MBJL0033401	MOLD, STS, , , , ,	Black	36
5	MBJZ00	BUTTON	MBJZ0007601	COMPLEX, (empty), , , , ,	Silver	39
5	MCCC00	CAP,EARPHONE JACK	MCCC0036601	MOLD, PC LEXAN 121R, , , , ,	Black	33
5	MCCE00	CAP,RECEPTACLE	MCCE0029701	MOLD, PC LEXAN 121R, , , , ,	Black	32
5	MCJK00	COVER,FRONT	MCJK0059001	MOLD, PC LEXAN 121R, , , , ,	Black	31
5	MDAC00	DECO,SIDE	MDAC0017801	MOLD, PC LEXAN 121R, , , , ,	Silver	42
5	MDAG00	DECO,FRONT	MDAG0022301	MOLD, PC LEXAN 121R, , , , ,	Black	30
5	MFBD00	FILTER,MIKE	MFBD0017501	COMPLEX, (empty), , , , ,		37
5	MGDB00	GUIDE,RIGHT	MGDB0001201	MOLD, POM LUCEL FW-700A, , , , ,	Black	29
5	MSHY00	SUPPORT	MSHY0010601	PRESS, STS, , , , ,		34
5	MTAB00	TAPE,PROTECTION	MTAB0126201	COMPLEX, (empty), , , , ,		35
5	MTAB01	TAPE,PROTECTION	MTAB0126301	COMPLEX, (empty), , , , ,		40
4	ACGR00	COVER ASSY, SLIDE(LOWER)	ACGR0008001		Black	
5	MBHY00	BUMPER	MBHY0020201	MOLD, Silicone Rubber K-770, , , , ,	Black	25
5	MCJV00	COVER,SLIDE(LOWER)	MCJV0006801	MOLD, PC LEXAN 121R, , , , ,	Black	24
5	MMAA00	MAGNET,SWITCH	MMAA0007501	CUTTING, STS, , , , ,		21
5	MPBZ00	PAD	MPBZ0140801	COMPLEX, (empty), , , , ,		16
5	MTAZ00	TAPE	MTAZ0141801	COMPLEX, (empty), , , , ,		23
5	MTAZ01	TAPE	MTAZ0139601	COMPLEX, (empty), , , , ,		15
5	MTAZ02	TAPE	MTAZ0139701	COMPLEX, (empty), , , , ,		14
4	ACGS00	COVER ASSY, SLIDE(UPPER)	ACGS0008801		Black	
5	MCJW00	COVER,SLIDE(UPPER)	MCJW0008201	MOLD, PC LEXAN 121R, , , , ,	Black	4
5	MFBB00	FILTER,RECEIVER	MFBB0017401	COMPLEX, (empty), , , , ,		6
5	MPBG00	PAD,LCD	MPBG0049601	COMPLEX, (empty), , , , ,		7
5	MPBZ00	PAD	MPBZ0140601	COMPLEX, (empty), , , , ,		5
5	MTAD00	TAPE,WINDOW	MTAD0056601	COMPLEX, (empty), , , , ,		3
5	MWAZ00	WINDOW	MWAZ0005901	MOLD, PMMA HI835M, , , , ,		2
6	BFAA00	FILM,INMOLD	BFAA0045701	; ,[empty] , , ,		

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	AHFB00	HINGE ASSY,SLIDE	AHFB0001201		Black	26
4	ESQY00	SWITCH,ROTARY	ESQY0000501	3 V,.012 A,HORIZONTAL ,2.1 G,		
4	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK		27
4	GMEY01	SCREW MACHINE,BIND	GMEY0015601	3.5 mm,1.5 mm,MSWR3(FZW) ,N ,+ , ,; ,HEX ,+ , , ,MSWR ,SILVER ,[empty] ,[empty]		
4	MCCH00	CAP,SCREW	MCCH0090301	MOLD, PC LEXAN 121R, , , , ,	Black	28
4	MKAZ00	KEYPAD	MKAZ0029901	COMPLEX, (empty), , , , ,	Silver	11
4	MLAC00	LABEL,BARCODE	MLAC0003401	EZ LOOKS(user for mechanical)		
4	MPBG00	PAD,LCD	MPBG0055101	COMPLEX, (empty), , , , ,		
4	MPBZ00	PAD	MPBZ0140101	COMPLEX, (empty), , , , ,		10
4	MPBZ01	PAD	MPBZ0140201	COMPLEX, (empty), , , , ,		20
4	MPBZ02	PAD	MPBZ0140701	COMPLEX, (empty), , , , ,		19
4	MPBZ03	PAD	MPBZ0143001	COMPLEX, (empty), , , , ,		
4	MTAB01	TAPE,PROTECTION	MTAB0126001	COMPLEX, (empty), , , , ,		1
4	MTAZ00	TAPE	MTAZ0141901	COMPLEX, (empty), , , , ,		9
4	MTAZ01	TAPE	MTAZ0142001	COMPLEX, (empty), , , , ,		
4	MTAZ02	TAPE	MTAZ0146501	COMPLEX, (empty), , , , ,		18
4	MTAZ03	TAPE	MTAZ0151101	COMPLEX, (empty), , , , ,		17
4	MTAZ04	TAPE	MTAZ0167301	COMPLEX, (empty), , , , ,		
4	MTAZ05	TAPE	MTAZ0167401	COMPLEX, (empty), , , , ,		
4	MTAZ06	TAPE	MTAZ0151301	COMPLEX, (empty), , , , ,		
5	ADCA00	DOME ASSY,METAL	ADCA0055001	SLIDE DOMESHHET ASSY		12
5	MTAZ00	TAPE	MTAZ0151201	COMPLEX, (empty), , , , ,		
3	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK		
3	MCCH00	CAP,SCREW	MCCH0083801	MOLD, STS, , , , ,	Black	67
3	MCCH01	CAP,SCREW	MCCH0083901	MOLD, PC LEXAN 121R, , , , ,	Black	66
3	MIDZ00	INSULATOR	MIDZ0119601	COMPLEX, (empty), , , , ,		
3	MKAZ00	KEYPAD	MKAZ0030002	COMPLEX, (empty), , , , ,	Black	38
3	MLAK00	LABEL,MODEL	MLAK0019001	LG(30.5x19.5 4-1R)	White Pearl	
3	MPBZ00	PAD	MPBZ0140001	COMPLEX, (empty), , , , ,		50
3	MPBZ01	PAD	MPBZ0165801	COMPLEX, (empty), , , , ,		41
5	ADCA00	DOME ASSY,METAL	ADCA0055401	MAIN DOM SHEET ASSY		43
6	MTAZ00	TAPE	MTAZ0151201	COMPLEX, (empty), , , , ,		
5	MLAC00	LABEL,BARCODE	MLAC0003401	EZ LOOKS(user for mechanical)		
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array		

12. EXPLODED VIEW & REPLACEMENT PART LIST

<Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	SMZY00	MODULE,ETC	SMZY0014203	512MB MicroSD		
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0017701	5.0 ,0 dBd, ,Linear Pol, Tri-band Antenna,Pb-Free		45
4	SUSY00	SPEAKER	SUSY0022601	PIN ,8 ohm,90 dB,17 mm,Spring Contact Type		54
4	SVCY00	CAMERA	SVCY0011201	CMOS ,MEGA ,2M AF FPCB (Micron 1/3", SOC2010)		
4	SACY00	PCB ASSY,FLEXIBLE	SACY0049501			13
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0044102			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0026401			
7	C103	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R102	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0036503			
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0038201	50 PIN,0.4 mm,ETC , ,H=1.0, Header		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0020201	40 PIN,0.4 mm,ETC , ,H=0.9, Header		
6	SPCY00	PCB,FLEXIBLE	SPCY0074201	POLYI ,0.5 mm,MULTI-6 ,		
4	SAEY00	PCB ASSY,KEYPAD	SAEY0049501			
5	SAEE00	PCB ASSY,KEYPAD,SMT	SAEE0017001			
6	SAEC00	PCB ASSY,KEYPAD,SMT BOTTOM	SAEC0015101			
7	BAT101	BATTERY,CELL,LITHIUM	SBCL0001701	2 V,0.5 mAh,CYLINDER ,Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
7	C104	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C105	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
7	C106	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C107	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C108	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C109	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0016601	20 PIN,0.4 mm,STRAIGHT ,AU ,0.9 STACKING HEIGHT		
7	CN102	CONNECTOR,FFC/FPC	ENQY0010901	35 PIN,0.3 mm,ETC , ,H=1.2		
7	CN103	CONNECTOR,BOARD TO BOARD	ENBY0020301	40 PIN,0.4 mm,ETC , ,H=0.9, Socket		

Level	Location No.	Description	Part Number	Specification	Color	Remark
7	D101	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
7	D102	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
7	D103	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
7	D104	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
7	D105	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
7	D106	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	D107	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
7	Q101	TR,BJT,NPN	EQBN0013701	EMT6 ,150 mW,R/TP ,DUAL TRANSISTORS		
7	R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R102	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R103	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R105	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R106	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R108	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R110	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R112	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R113	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R119	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R120	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
7	R121	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R122	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R123	RES,CHIP	ERHY0003601	2700 ohm,1/16W ,J ,1005 ,R/TP		
7	R124	RES,CHIP,MAKER	ERHZ0000410	12 ohm,1/16W ,J ,1005 ,R/TP		
7	R131	RES,CHIP,MAKER	ERHZ0000410	12 ohm,1/16W ,J ,1005 ,R/TP		
7	R132	RES,CHIP,MAKER	ERHZ0000469	36 ohm,1/16W ,J ,1005 ,R/TP		
7	R133	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	SAED00	PCB ASSY,KEYPAD,SMT TOP	SAED0015301			
7	LD101	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
7	LD103	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
7	LD104	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
7	R125	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
7	R127	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
7	R128	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	SPJY00	PCB,SUB	SPJY0027001	FR-4 ,0.5 mm,MULTI-4 ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	SJMY00	VIBRATOR,MOTOR	SJMY0006503	3 V,0.08 A,10*3.45 ,17mm double tape		
4	SURY00	RECEIVER	SURY0009501	ASSY ,107 dB,32 ohm,11*07 ,3T		
4	SVLM00	LCD MODULE	SVLM0012602	MAIN ,240*320 2.0" ,37.2*52.1*1.9(t) ,262k ,TFT ,TM ,uPD161802 (G)/uPD161964 (S)-NEC ,		8
3	SAFY00	PCB ASSY,MAIN	SAFY0158702		Black	44
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0057203			
5	MIC301	MICROPHONE	SUMY0003802	FPCB ,-42 dB,4*1.5 ,		
5	SACY00	PCB ASSY,FLEXIBLE	SACY0049401			
6	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0044101			
7	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0029602			
8	LD101	DIODE,LED,MODULE	EDLM0005502	White ,3 LED,3.5*2.8*1.8 ,R/TP ,Flash LED		
7	SPCY00	PCB,FLEXIBLE	SPCY0074301	POLYI ,0.5 mm,Double		
5	SPKY00	PCB,SIDEKEY	SPKY0034001	POLYI ,0.5 mm,MULTI-2 ,		
5	SPKY01	PCB,SIDEKEY	SPKY0034101	POLYI ,0.5 mm,MULTI-2 ,		
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0080802			
5	SAFB00	PCB,MAIN	SPFY0126901	FR-4 ,0.8mm,STAGGERED-8 ,		
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0071401			
6	BT201	ANTENNA,GSM,FIXED	SNGF0017901	3.0:1 ,0 dBd, ,B.T,Ceramic Chip PIFA Pb-Free		
6	C101	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C108	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C117	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C118	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C119	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C128	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C131	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C132	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C219	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C223	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C227	CAP,TANTAL,CHIP,MAKER	ECTZ0003901	10 uF,16V ,M ,STD ,ETC ,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C230	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C231	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C233	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C234	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C237	CAP,TANTAL,CHIP,MAKER	ECTZ0004204	100 uF,6.3V ,M ,STD ,3216 ,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C242	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C243	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C312	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C313	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C314	CAP,TANTAL,CHIP,MAKER	ECTZ0006301	100 uF,4V ,M ,L_ESR ,3216 ,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C318	CAP,TANTAL,CHIP,MAKER	ECTZ0006301	100 uF,4V ,M ,L_ESR ,3216 ,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C323	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C327	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C331	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C333	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C334	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C339	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C340	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C341	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C342	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C343	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C344	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C345	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C349	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C350	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C351	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C356	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C357	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C358	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C359	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C360	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C361	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C362	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C365	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C366	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C367	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C369	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C407	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C409	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C411	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C413	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C414	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C517	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C601	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C602	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C603	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C605	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C606	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C611	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C612	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C613	CAP,TANTAL,CHIP,MAKER	ECTZ0004203	68 uF,6.3V ,M ,STD ,3216 ,R/TP		
6	C614	CAP,CERAMIC,CHIP	ECCH0004906	2.5 pF,50V ,C ,X7R ,TC ,1005 ,R/TP		
6	C615	CAP,CERAMIC,CHIP	ECCH0004906	2.5 pF,50V ,C ,X7R ,TC ,1005 ,R/TP		
6	C616	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C617	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C618	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C619	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C620	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C621	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C622	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C623	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C624	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C625	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C626	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C627	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C628	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C629	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C630	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C631	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C632	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C633	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C634	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C635	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C636	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C637	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C638	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C639	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C640	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C642	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	CN302	CONN,JACK/PLUG,EARPHONE	ENJE0003603	12 ,12 PIN,MMIC CONN.12P		
6	CN403	CONNECTOR,I/O	ENRY0004101	24 PIN,0.5 mm,ETC , ,Off-Set type		
6	CN404	CONNECTOR,ETC	ENZY0016901	3 PIN,2.5 mm,ETC , ,H=2.7		
6	CN502	CONNECTOR,BOARD TO BOARD	ENBY0015601	34 PIN,0.4 mm,STRAIGHT ,AU ,0.9MM HEIGHT		
6	D201	DIODE,SWITCHING	EDSY0005201	SMD ,30 V,1.5 A,R/TP ,		
6	D301	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D302	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D305	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D306	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D307	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D309	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D310	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D311	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D312	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	FB201	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FB303	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB304	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB305	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB306	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB307	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	FB308	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB309	FILTER,BEAD,CHIP	SFBH0007103	75 ohm,1005 ,CHIP BEAD, 300mA		
6	FB310	FILTER,BEAD,CHIP	SFBH0007103	75 ohm,1005 ,CHIP BEAD, 300mA		
6	FB401	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB402	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB403	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB502	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL201	FILTER,DIELECTRIC	SFDY0001601	2450 MHz,2.0*1.25 ,SMD ,Pb-free_Bluetooth_Dielectric		
6	FL501	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL502	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL503	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL504	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL601	FILTER,SEPERATOR	SFAY0007203	900 ,1800.1900 , dB, dB, dB, dB,ETC ,Tri-band FEM		
6	J301	CONN,SOCKET	ENSY0015101	6 PIN,ETC , ,2.54 mm,H=2.7		
6	J302	CONN,SOCKET	ENSY0017701	8 PIN,ETC , , mm,Micro-SD, Hinge type		
6	L201	INDUCTOR,SMD,POWER	ELCP0005104	10 uH,M ,3.8*3.8*1.8 ,R/TP ,power inductor/ 850mA		
6	L202	INDUCTOR,CHIP	ELCH0005001	2.2 nH,S ,1005 ,R/TP ,		
6	L203	INDUCTOR,CHIP	ELCH0005001	2.2 nH,S ,1005 ,R/TP ,		
6	L601	INDUCTOR,CHIP	ELCH0005012	3.9 nH,S ,1005 ,R/TP ,		
6	L602	INDUCTOR,CHIP	ELCH0001052	18 nH,J ,1005 ,R/TP ,PBFREE		
6	L603	INDUCTOR,CHIP	ELCH0001049	6.8 nH,J ,1005 ,R/TP ,PBFREE		
6	L604	INDUCTOR,CHIP	ELCH0001049	6.8 nH,J ,1005 ,R/TP ,PBFREE		
6	L605	INDUCTOR,CHIP	ELCH0001031	15 nH,J ,1005 ,R/TP ,PBFREE		
6	L606	INDUCTOR,CHIP	ELCH0001413	22 nH,J ,1005 ,R/TP ,PBFREE		
6	L607	INDUCTOR,CHIP	ELCH0001405	3.3 nH,S ,1005 ,R/TP ,PBFREE		
6	L608	INDUCTOR,CHIP	ELCH0004711	22 nH,J ,1005 ,R/TP ,		
6	Q201	TR,FET,P-CHANNEL	EQFP0003301	SOT-6 ,1.6 W,30 V,2.4 A,R/TP ,use for charge P-CHANNEL FET		
6	Q301	TR,FET,P-CHANNEL	EQFP0004501	SOT-323 ,.29 W,1.8 V,.86 A,R/TP ,P-Chanel MOSFET, Pb free		
6	R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R108	RES,CHIP	ERHY0000166	390 Kohm,1/16W ,F ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R109	RES,CHIP,MAKER	ERHZ0000267	3300 ohm,1/16W ,F ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R113	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R119	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R120	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP	ERHY0000278	82K ohm,1/16W,J,1005,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP	ERHY0000715	0.15 ohm,1/8W ,F ,2012 ,R/TP		
6	R214	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000466	33 Kohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R221	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R250	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R309	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R320	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R322	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R339	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R345	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
6	R348	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
6	R351	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R353	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R354	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R355	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R358	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R359	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R363	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R364	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R365	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R366	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R367	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R435	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R436	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R442	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R443	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R449	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R453	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R455	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R456	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R457	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R458	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R459	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R460	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R461	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R462	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R465	RES,CHIP	ERHY0011901	47 mohm,1/4W ,F ,2012 ,R/TP		
6	R466	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R601	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R602	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R603	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R606	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R611	RES,CHIP	ERHY0000128	15K ohm,1/16W,F,1005,R/TP		
6	R612	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R613	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R614	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R615	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R616	RES,CHIP,MAKER	ERHZ0000513	820 ohm,1/16W ,J ,1005 ,R/TP		
6	R617	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R619	RES,CHIP,MAKER	ERHZ0000310	680 ohm,1/16W ,F ,1005 ,R/TP		
6	R620	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R621	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R622	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R623	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
6	SW601	CONN,RF SWITCH	ENWY0003002	STRAIGHT ,SMD ,0.3 dB,T510, 3.8X3.0X3.6T		
6	U101	IC	EUSY0274601	BGA ,293 PIN,R/TP ,EDGE BASE BAND S-GOLD2		
6	U201	IC	EUSY0269101	PG-VQFN-48 ,48 PIN,R/TP ,PMIC, Pb Free		
6	U202	IC	EUSY0274901	P-WFSGA-65(5*5*0.8) ,65 PIN,R/TP ,True Single Chip Bluetooth2.0+EDR solution		
6	U204	IC	EUSY0100502	8-LEAD US8 ,8 PIN,R/TP ,UHS DUAL 2-INPUT AND GATE		
6	U205	IC	EUSY0292601	DFN ,8 PIN,R/TP ,Li-ion charger IC, 8 Ld 2 x 3 DFN, Pb-free		
6	U301	IC	EUSY0309801	Output capless audio subsystem with 3D ,24 PIN,R/TP ,NS subsystem audio amp		
6	U304	IC	EUSY0302101	BGA ,105 PIN,R/TP ,1G Nor+256MSDRAM, 1 8V I/O(Sibely)		
6	U307	IC	EUSY0223008	HVSOF5 ,5 PIN,R/TP ,150mA,2.9V,LDO		
6	U403	IC	EUSY0286901	SOT23-5 ,5 PIN,R/TP ,2.5V Sense voltage(max), current monitor		
6	U404	DIODE,TVS	EDTY0006501	SC70-6L ,5.25 V,100 W,R/TP ,		
6	U601	PAM	SMPY0010501	35 dBm,47 %, A, dBc, dB,6X6 ,SMD ,QFN ,23 PIN,R/TP ,QBAND GSM/EDGE PAM 6X6		
6	U602	IC	EUSY0274801	VQFN ,40 PIN,R/TP ,GPRS, EDGE TRANSCEIVER		
6	VA405	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	X101	X-TAL	EXXY0004602	.032768 MHz,20 PPM,12.5 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	X601	VCTCXO	EXSK0007301	26 MHz,2 PPM,10 pF,SMD ,3.2*2.5*0.9 ,2.5ppm at -20 to +75, AFC 0.5V to 2.5V, Supply 2.6V		
6	ZD402	DIODE,TVS	EDTY0007501	SOD-523 ,5 V,240 W,R/TP ,Vc 12.5V , 160pF , 1.6*0.8*.06		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0070801			
6	C240	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C244	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C245	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C301	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C302	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C307	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C308	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C326	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C332	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C335	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C336	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C337	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C338	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C346	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C347	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C348	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C352	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C353	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C354	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C364	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C501	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C505	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C506	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C507	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C511	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C512	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C513	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C514	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C515	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C516	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C518	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	CN503	CONNECTOR,BOARD TO BOARD	ENBY0038301	50 PIN,0.4 mm,ETC , ,H=1.0, Socket		
6	D303	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D304	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	D308	DIODE,TVS	EDTY0008501	TFSC ,5 V,50 W,R/TP ,small size		
6	FB301	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB302	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB501	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL505	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array(100Ohm,15pF)		
6	FL506	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array(100Ohm,15pF)		
6	FL507	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array(100Ohm,15pF)		
6	L303	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L401	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	LD404	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD405	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD406	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD407	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD408	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD409	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD410	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD411	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	LD412	DIODE,LED,CHIP	EDLH0012504	Snow White ,1608 ,R/TP ,color concept		
6	Q401	TR,BJT,NPN	EQBN0007101	EMT3 ,0.15 W,R/TP ,LOW FREQUENCY		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R105	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R252	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R253	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
6	R327	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R331	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R336	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R337	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R343	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R344	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R346	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R347	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R350	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R356	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R357	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R362	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R412	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R413	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R416	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R418	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R419	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R420	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R421	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R422	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R423	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R425	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R426	RES,CHIP,MAKER	ERHZ0000410	12 ohm,1/16W ,J ,1005 ,R/TP		
6	R427	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R428	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R444	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R501	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP		
6	R502	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R503	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R505	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R519	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP		
6	U203	IC	EUSY0077301	SC70-6 ,6 PIN,R/TP ,SPDT Analog switch		
6	U206	IC	EUSY0232812	SON1612-6 ,6 PIN,R/TP ,2.8V, 150mA LDO		
6	U302	IC	EUSY0262401	Micropak ,10 PIN,R/TP ,Dual Analog switch(Ron=0.4ohm@Vcc=2.7V), Pb Free		
6	U303	IC	EUSY0277201	QFN ,24 PIN,R/TP ,FM Tuner Chip, 4X4mm, Pb-Free		
6	U305	IC	EUSY0200801	SC-70 ,5 PIN,R/TP ,Buffer, Pb Free		
6	U306	IC	EUSY0245401	DFN ,16 PIN,R/TP ,Main 3 LEDs(60mA) + Flash (300mA) Charge pump		
6	U401	IC	EUSY0160401	SOT-23 ,3 PIN,R/TP ,DC MOTOR DRIVER / INTEGERATED RELAY		
6	U402	IC	EUSY0217901	3.0x3.1x1.0 ,3 PIN,R/TP ,HALL EFFECT SWITCH IC, Pb Free		
6	U501	IC	EUSY0223002	HVSOF5 ,5 PIN,R/TP ,150mA CMOS LDO WITH OUTPUT CONTROL / 2.8V		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	U502	IC	EUSY0294001	3*3 DFN ,10 PIN,R/TP ,Dual(1.8V/150mA, 2.8V/300mA) LDO Regulator		
6	VA401	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA402	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA403	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA404	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	ZD401	DIODE,TVS	EDTY0007501	SOD-523 ,5 V,240 W,R/TP ,Vc 12.5V , 160pF , 1.6*0.8*.06		

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	MHBY00	HANDSTRAP	MHBY0003604			
3	MLAA00	LABEL,APPROVAL	MLAA0040101	PRINTING, (empty), , , , ,		
3	SBPP00	BATTERY PACK,LI-POLYMER	SBPP0018302	3.7 V,950 mAh,1 CELL,PRISMATIC ,KE600 BATT, Black, Pb-Free ,; ,3.7 ,950 ,0.2C ,PRISMATIC ,59x37x38 , ,BLACK ,Hardpack ,Europe Label	Black	
3	SGDY00	DATA CABLE	SGDY0005601	DK-40G ,K8000 24PIN I/O + USB A TYPE		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0005512	U400 ,2.0T12P,MMI,REMOCOM		
3	SSAD00	ADAPTOR,AC-DC	SSAD0007828	100-240V ,60 Hz,5.2 V,800 mA,CE,CB,GOST ,EU PLUG(24P),STD		

Note