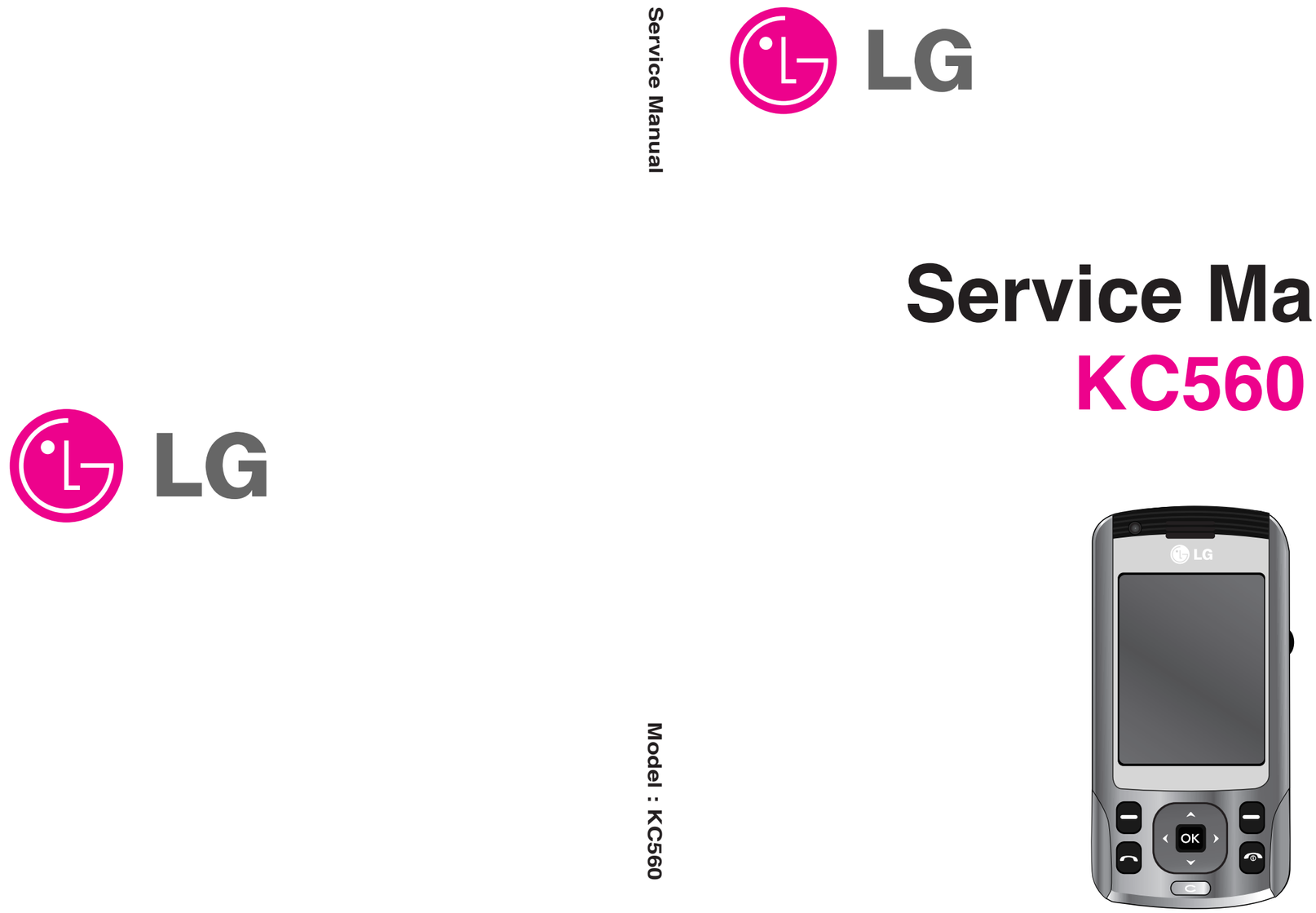
Service Manual

Model : KC560



Internal Use Only

Service Manual

KC560

Date: November, 2008 / Issue 1.0

REVISED HISTORY

Editor	Date	Issue	Contents of Changes	S/W Version
J.G.PARK	6/02	0.1		

* 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 KC560.

Table Of Contents

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
- **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
- **DCXO** Digitally Controlled Crystal Oscillator
- **WAP** Wireless Application Protocol
- **8PSK** 8 Phase Shift Keying

1. INTRODUCTION

1.1. Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the KC560.

1.2. Regulatory Information

1.2.1. 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.

1.2.2. 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.

1.2.3. 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 KC560 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.

1.2.4. Maintenance Limitations

Maintenance limitations on the KC560 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.

1.2.5. Notice of Radiated Emissions

The KC560 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.

1.2.6. Pictures

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

1.2.7. Interference and Attenuation

The KC560 may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

1.2.8. 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.

2. PERFORMANCE

2.1 H/W Feature

Item		Feature	Comment
Form Factor		Slide	
Battery		1) Capacity Standard : Li-Ion, 900mAh	
		2) Packing Type : Soft Pack	
Size		Standard : 103.8 X 51.4 X 14.9 mm	
Weight		TBD	With Battery
Volume		??cc	
PCB		Staggered 10Layers , 0.8t	
Stand by time		250 hrs	@ Paging Period 9
Charging time		3 hrs	@ Power Off / 900mAh
Talk time		Min : 3.0 hrs @ Power Level 7	@ EGSM / 900mAh
RX sensitivity		EGSM : -105 dBm DCS 1800 : -105 dBm PCS 1900 : -105 dBm	
TX output power	GSM/ GPRS	EGSM : 32.7 dBm DCS 1800 : 31dBm PCS 1900 : 30 dBm	Class4 (EGSM) Class1 (PCS) Class1 (DCS)
	EDGE	EGSM : 26 dBm DCS 1800 : 25 dBm PCS 1900 : 25 dBm	E2 (EGSM) E2 (PCS) E2 (DCS)
GPRS compatibility		GPRS Class 10	
EDGE compatibility		EDGE Class 10	
SIM card type		Plug-In SIM 3V /1.8V	

2. PERFORMANCE

Display	1. Main LCD 2. 262K Color TFT (320 x 240) Backlight : White LED	
Built-in Camera	3M CMOS Camera (QXGA)	One button access
Status Indicator	None	
Keypad	Alphanumeric Key : 12 Function Key : 10 Side Key : 4 Total No of Keys :26	Function Key: 4 Key Navigation, OK, F1, F2, CLR, SND, END Side Key : Jog wheel, CAM, Task
ANT	Main : Internal Fixed Type	
System connector	18 Pin	
Ear Phone Jack	18pin, Stereo	
PC synchronization	Yes	
Memory	NAND Flash : 1Gbit SDRAM : 512Mbit	
Speech coding	FR, EFR, HR,AMR	
Data & Fax	Built in Data & Fax support	
Vibrator	Built in Vibrator	
Blue Tooth	V2.1	
MIDI(for Buzzer Function)	64Poly, MP3 ringtone	
Music Player	MP3/ WMA/AAC/AAC+/AAC++	With Graphic EQ
Video Player	MPEG4, H.263,	
Camcorder	MPEG4, H.263,	
Voice Recording	Yes	
Speaker Phone mode Support	Yes	
Travel Adapter	Yes	
CDROM	No	
Stereo Headset	Yes	
Data Cable	No	
T-Flash(External Memory)	No	

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
1) PGSM
TX: 890 + 0.2 x n MHz
RX: 935 + 0.2 x n MHz (n = 1 ~ 124)
2) EGSM
TX: 890 + 0.2 x (n-1024) MHz
RX: 935 + 0.2 x (n-1024) MHz (n = 975 ~ 1023)
DCS1800
TX: 1710.2 + 0.2 x (n-512) MHz
RX: 1805.2 + 0.2 x (n-512) MHz (n = 512 ~ 885)
PCS1900
TX: 1850 + (n-511) × 0.2 MHz
RX: 1930 + (n-511) × 0.2 MHz (n = 512 ~ 810)</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</td></tr>
<tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr>
<tr><td>5</td><td>33 dBm</td><td>–2dB</td><td>13</td><td>17 dBm</td><td>–3dB</td></tr>
<tr><td>6</td><td>31 dBm</td><td>–3dB</td><td>14</td><td>15 dBm</td><td>–3dB</td></tr>
<tr><td>7</td><td>29 dBm</td><td>–3dB</td><td>15</td><td>13 dBm</td><td>–3dB</td></tr>
<tr><td>8</td><td>27 dBm</td><td>–3dB</td><td>16</td><td>11 dBm</td><td>–5dB</td></tr>
<tr><td>9</td><td>25 dBm</td><td>–3dB</td><td>17</td><td>9 dBm</td><td>–5dB</td></tr>
<tr><td>10</td><td>23 dBm</td><td>–3dB</td><td>18</td><td>7 dBm</td><td>–5dB</td></tr>
<tr><td>11</td><td>21 dBm</td><td>–3dB</td><td>19</td><td>5 dBm</td><td>–5dB</td></tr>
<tr><td>12</td><td>19 dBm</td><td>–3dB</td><td></td><td></td><td></td></tr>
<tr><td colspan="6">DCS / PCS</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>
<tr><td rowspan="4">5</td><td rowspan="4">Output RF Spectrum
(due to modulation)</td><td colspan="4">GSM900</td></tr>
<tr><td colspan="2">Offset from Carrier (kHz).</td><td colspan="2">Max. dBc</td></tr>
<tr><td colspan="2">100</td><td colspan="2">+0.5</td></tr>
<tr><td colspan="2">200</td><td colspan="2">-30</td></tr>
</table>

		250	-33	
		400	-60	
		600 ~ 1,200	-60	
		1,200 ~ 1,800	-60	
		1,800 ~ 3,000	-63	
		3,000 ~ 6,000	-65	
		6,000	-71	
		DCS / PCS		
		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)	GSM900		
		Offset from Carrier (kHz)	Max. (dBm)	
		400	-19	
		600	-21	
		1,200	-21	
		1,800	-24	
		DCS / PCS		
		Offset from Carrier (kHz)	Max. (dBm)	
		400	-22	
		600	-24	
		1,200	-24	
		1,800	-27	
7	Spurious Emissions	Conduction, Emission Status Conduction, Emission Status		
8	Bit Error Ratio	GSM900 BER (Class II) < 2.439% @-102dBm DCS / PCS BER (Class II) < 2.439% @-102dBm		
9	Rx Level Report accuracy	± 3 dB		
10	SLR	8 ± 3 dB		
11	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	/
		200	0	/

		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	/
12	RLR	2 ± 3 dB		
13	Receiving Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-6	/
		200	2	/
		300	2	-9
		1,000	2	-7
		3,400	2	-12
		4,000	2	
14	STMR	> 17 dB		
15	Echo Loss	> 44 dB		
16	Idle Noise Sending	< -64 dBm0p		
17	Idle Noise Receiving	< -54 dBm0p		
18	<Change> System frequency (13 MHz) tolerance	≤ 2.5ppm		
19	<Change>32.768KHz tolerance	≤ 30ppm		
20	Power consumption	Full power < 340mA (GSM900) ; < 260mA (DCS / PCS) Standby - Normal Mode ≤ 4.0mA(Max. power) - Using Test mode on DSP Sleep function ≤ 6mA		
21	Talk Time	GSM900/Level7 (Battery 900mA):230 Min GSM900/Level12(Battery 900mA):390 Min PCS1800/Level5 (Battery 900mA):340 Min PCS1800/Level10(Battery 900mA):430 Min		
22	Standby Time	Under conditions, at least 250 hours: Brand new and full 900mAh battery Full charge, no receive/send and keep GSM in the mode. Broadcast set off. Signal strength display set at 3 level above. Backlight of phone set off.		
23	Ringer Volume	At least 55 dB under below conditions: 1. Ringer set as ringer. 2. Test distance set as 1 m		
24	Charge Voltage	Fast Charge : < 500 mA		

		Slow Charge: < 120 mA	
25	Antenna Display	Antenna Bar Number	Power
		7->5	-93 ¡ 3dBm
		5->4	-98 ¡ 3dBm
		4->2	-101 ¡ 3dBm
		2->1	-104 ¡ 3dBm
		1->0	-106 ¡ 3dBm
26	Battery Indicator	Battery Bar Number	Voltage
		Cut Off	3.20V ~ 3.30V (3.25V)
		1->Blinking	3.50V ~ 3.60V (3.55V)
		2->1	3.58V ~ 3.68V (3.63V)
		3->2	3.68V ~ 3.78V (3.73V)
		3	~ 4.20V
		Call, Blinking Voltage	3.52V ~ 3.62V (3.57V)
27	Low Voltage Warning	3.57 ¡ 0.05 V (Call / Warning tone once per one minutes)	
		3.55 ¡ 0.05 V (Stand by / Warning tone once per three minutes)	
28	Forced shut down Voltage	3.25 ¡ 0.05 V	
29	Battery Type	Li-Ion Battery, Soft pack, Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V, Capacity: 900mAh	
30	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60Hz Out put: 5.1V, 700mA	

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

Item	Description	Specification					
1	RMS EVM	≤9%					
2	Peak EVM	≤30%					
3	95th Percentile EVM	≤15%					
4	Origin Offset Suppression	≥30dB					
5	Power Level	**GSM900/EGSM**					
		Level	Power	Toler.	Level	Power	Toler.
		5	26dBm	–3dB	13	17dBm	–3dB
		6	26dBm	–3dB	14	15dBm	–3dB
		7	26dBm	–3dB	15	13dBm	–3dB
		8	25dBm	–3dB	16	11dBm	–5dB
		9	25dBm	–3dB	17	9dBm	–5dB
		10	23dBm	–3dB	18	7dBm	–5dB
		11	21dBm	–3dB	19	5dBm	–5dB
		12	19dBm	–3dB			
		DCS1800, PCS1900					
		Level	Power	Toler.	Level	Power	Toler.
		0	25/25dBm	–3dB	8	14dBm	–3dB
		1	25/25dBm	–3dB	9	12dBm	–4dB
		2	25/25dBm	–3dB	10	10dBm	–4dB
		3	24dBm	–3dB	11	8dBm	–4dB
		4	22dBm	–3dB	12	6dBm	–4dB
		5	20dBm	–3dB	13	4dBm	–4dB
		6	18dBm	–3dB	14	2dBm	–5dB
		7	16dBm	–3dB	15	0dBm	–5dB
6	Output RF Spectrum (due to modulation)	**GSM900/EGSM**					
		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		
		DCS1800, PCS1900					
		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 (due to switching transient)	**GSM900/EGSM**	
		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

III-1 Baseband circuit

3.1. KC560 Functional Block diagram.

The functional component arrangement is mentioned below diagram.

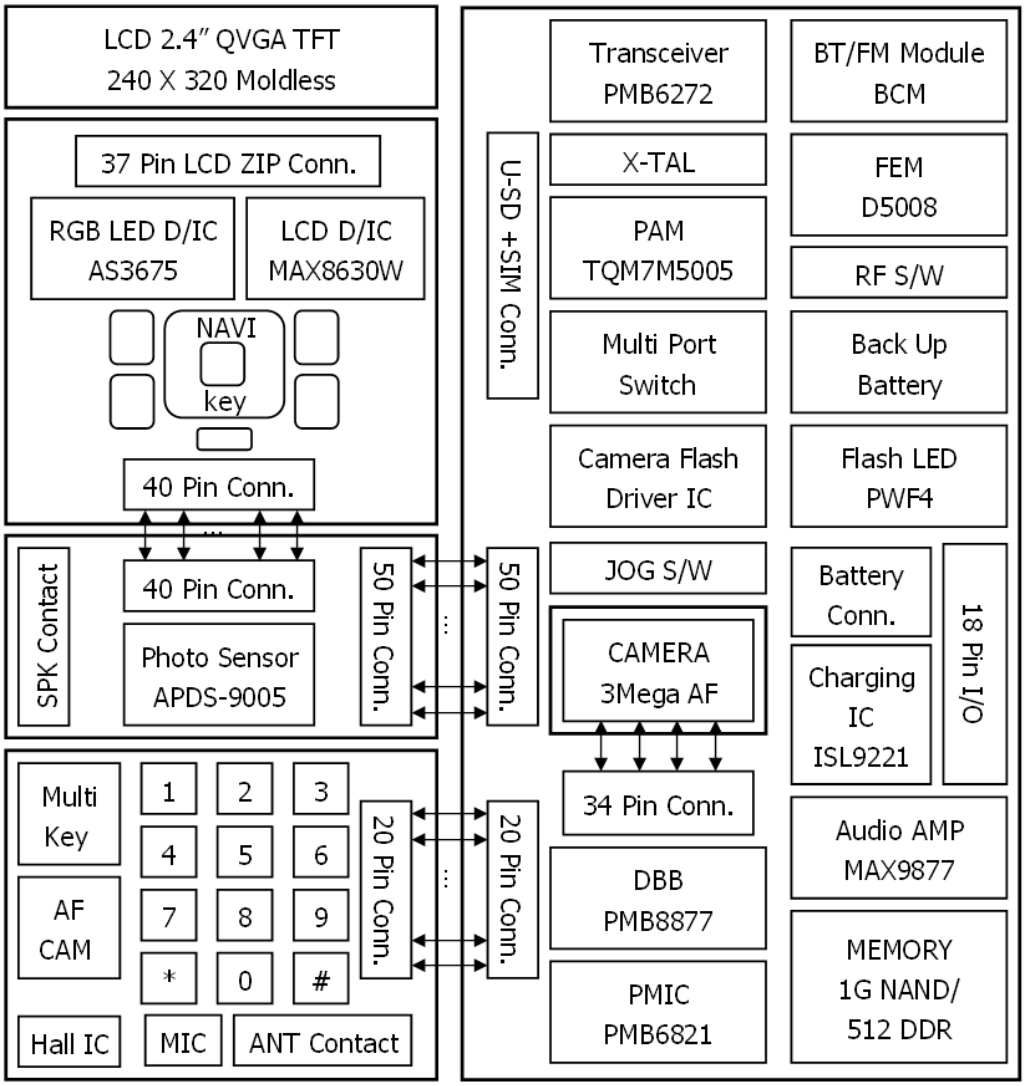


Figure 2 KC560 Functional block diagram

3.2. Baseband Processor (BBP) Introduction

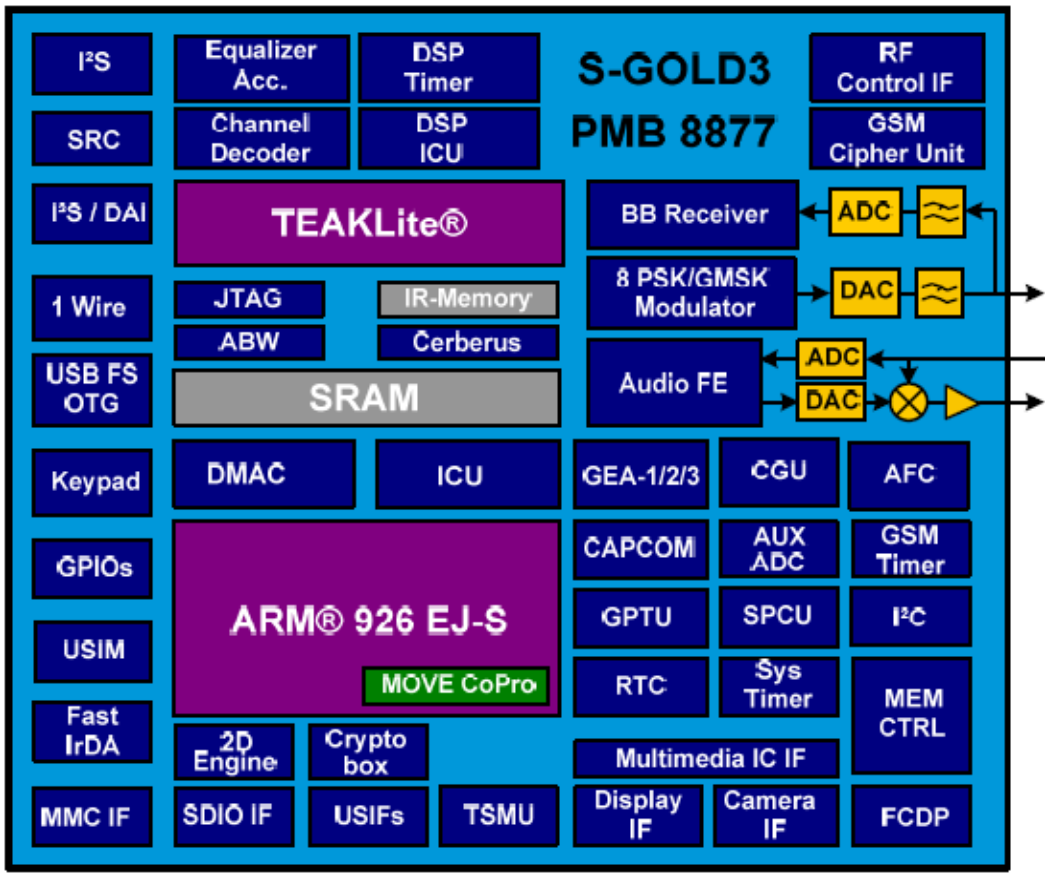


Figure 3 Top level block diagram of the S-GOLD3™ (PMB8877)

3.2.1. General Description

S-GOLD3™ is a GSM/EDGE single chip mixed signal Baseband IC containing all analog and digital functionality of a cellular radio. Additionally S-GOLD3™ 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 0.09um, 1.2V technology.

The chip will fully support the FR, EFR, HR and AMR-NB vocoding.

S-GOLD3™ 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-GOLD3. 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
  - 3 USIF with auto baud detection, hardware flow control and integrated
  - A dedicated Fast IrDA 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	K5E1H12ACM-D075	Samsung	Synchronous / A synchronous
DDR	K5E1H12ACM-D075	Samsung	Synchronous 133MHz
LCD	IM240DBNCA	LGIT	16bit access
CAMERA	C3AA-M197B	LGIT	8bit data Interface

3.2.4. RF Interface (T_OUT)

S-Gold3 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	FE2	FEM control
T_OUT2	PA_BAND	TX RF band select
T_OUT3	FE1	FEM control
T_OUT4	Other operation	-
T_OUT5	Other operation	-
T_OUT6	PA MODE	PAM Mode select

3.2.5. USIF Interface

KC560 have three USIF Drivers as follow :
- USIF1 : Hardware Flow Control / SW upgrade / Calibration
- USIF2 : MON used Rx, Tx and CTS, RTS use BT Interface
- USIF3 : BT Interface

Table 3. USIF Interface Spec.

Resource	Name	Remark
USIF1		
USIF1_TXD	UART_TX	Transmit Data
USIF1_RXD	UART_RX	Receive Data
USIF1_CTS	USB_SE0_VM	
USIF1_RTS	USB_DAT_VP	
USIF2		
USIF2_TXD	N.C	,
USIF2_RXD	N.C	
USIF2_CTS	UART_BT_CTS	
USIF2_RTS	UART_BT_RTS.	
USIF3		
USIF3_TXD	UART_BT_TX	BT Transmit tx
USIF3_RXD	UART_BT_RX	BT Receive rx

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-Gold3 ADC channel usage

ADC channel		
Resource	**Interconnection**	**Description**
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	REMOTE_ADC	Remote Control
M3	JACK_TYPE	Accessory type detect
M4	N.C	
M5	2V62_VIO	PCB revision
M6	N.C	
M7	N.C	
M8	VSUPPLY	Battery supply voltage measure
M9	LOAD	Current consumption measure
M10	N.C	

3.2.7. GPIO map

Over a hundred allowable resources, KC560 is using as follows except dedicated to SIM and Memory. KC560 GPIO(General Purpose Input/Output) Map, describing application, I/O state, and enable level, is shown in below table

Table 5 S-Gold3 GPIO pin Map

Port Function	***Net Name***	***Description***
KEY MATRIX		
KP_IN0	KP_ROW0	
KP_IN1	KP_ROW1	
KP_IN2	KP_ROW2	
KP_IN3	KP_ROW3	
KP_IN4	KP_ROW4	
KP_IN5	KP_ROW5	
KP_IN6	KP_ROW6	
KP_OUT0	KP_COL0	
KP_OUT1	KP_COL1	
KP_OUT2	KP_COL2	
KP_OUT3	KP_COL3	
USIF1		
USIF1_RXD	RXD	UART, RS232 Data
USIF1_TXD	TXD	UART, RS232 Data
USIF1_RTS_N	USB_DAT_VP	USB Data
USIF1_CTS_N	USB_SE0_VM	USB Data
USIF2		
USIF2 _RXD		Not used

USIF2 _TXD		Not used
USIF2_RTS_N	UART_BT_RTS	Bluetooth RTS
USIF2_CTS_N	UART_BT_CTS	Bluetooth CTS
USIF3		
USIF3 _RXD	UART_BT_RX	Bluetooth RX
USIF3 _TXD	UART_BT_TX	Bluetooth TX
CLK		
CLK32K	CLK32k	For FM Radio, BT CLK32K
GPIO_22		Not used
CAMERA I/F		
CIF_D0	CIF_D0	Camera DATA[0]
CIF_D1	CIF_D1	Camera DATA[1]
CIF_D2	CIF_D2	Camera DATA[2]
CIF_D3	CIF_D3	Camera DATA[3]
CIF_D4	CIF_D4	Camera DATA[4]
CIF_D5	CIF_D5	Camera DATA[5]
CIF_D6	CIF_D6	Camera DATA[6]
CIF_D7	CIF_D7	Camera DATA[7]
CIF_PCLK	CIF_PCLK	Camera pixel clock
CIF_HSYNC	CIF_HSYNC	Camera H sync
CIF_VSYNC	CIF_VSYNC	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 I/F		
DIF_D0	DIF_D0	LCD data[0]
DIF_D1	DIF_D1	LCD data[1]
DIF_D2	DIF_D2	LCD data[2]
DIF_D3	DIF_D3	LCD data[3]
DIF_D4	DIF_D4	LCD data[4]
DIF_D5	DIF_D5	LCD data[5]
DIF_D6	DIF_D6	LCD data[6]
DIF_D7	DIF_D7	LCD data[7]
DIF_D8		Not used
DIF_CS1	DIF_CS	MAIN LCD chip select
DIF_CS2		Not used
DIF_CD	DIF_CD	Command Data switch
DIF_WR	DIF_WR	LCD Write
DIF_RESET1	DIF_RESET	LCD Reset
DIF_RESET2	REMOTE_INT	
I2C		
I2C_SCL	SCL	For FM/BT/Amp/Camera
I2C_SDA	SDA	For FM/BT/Amp/Camera
PM_INT (EINT)	PM_INT	
SIM I/F		
CC_IO	SIM_IO	SIM CARD I/O
CC_CLK	SIM_CLK	SIM CARD CLOCK

CC_RST	SIM_RST	SIM CARD RESET
I2S2		
I2S2_CLK0	_EOC	_EOC
GPIO_102	LCD_ID	LCD_ID
I2S2_RX	_PPR	_PPR
I2S2_TX	BT_INT	BT_INT
I2S2_WA0	Not used	Not used
GPIO_103	Key_EN	Key_EN
External Memory		
MMCI_CMD	MMC_CMD	T-flash
MMCI_DAT[0]	MMC_DAT(0)	T-flash
MMCI_CLK	MMC_CLK	T-flash
IrDA		
IrDA_TX	USB_OEn	USB_OEn
IrDA_RX	SLIDE_OPEN	SLIDE_OPEN
I2S1		
I2S1_CLK0	I2S1_CLK	For Bluetooth
EINT_0	MMC_DETECT	MMC_DETECT
I2S1_RX	I2S1_RX	For Bluetooth
I2S1_TX	I2S1_TX	For Bluetooth
I2S1_WA0	I2S1_WA0	For Bluetooth
External Memory		
MMCI_DAT[1]	MMC_DAT(1)	T-flash
MMCI_DAT[2]	MMC_DAT(2)	T-flash
MMCI_DAT[3]	MMC_DAT(3)	T-flash
Audio I/F		
EPN1	RCV_N	For Receiver
EPP1	RCV_P	For Receiver
EPPA1	BBP_SND_L	For Speaker
EPREF		Reference
EPPA2	BBP_SND_R	For Speaker
MICN1	MAIN_MIC_N	For Mic
MICP1	MAIN_MIC_P	For Mic
MICN2	HS_MIC_N	For Headset Mic
MICP2	HS_MIC_N	For Headset Mic
VMICP	VMIC_P	Power for MIC
VMICN	VMIC_N	Power for MIC
ADC		
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	REMOTE_ADC	Remote Control
M3	JACK_TYPE	Accessory type detect
M7	H/W VERSION	S-Gold H/W version detect
M8	VSUPPLY	Battery supply voltage measure
M9	LOAD	Current consumption measure
M10	N.C	

Reference		
VREF	VREF	
IREF		
JTAG I/F		
TDO	TDO	JTAG
TDI	TDI	JTAG
TMS	TMS	JTAG
TCK	TCK	JTAG
TRST_n	TRSTn	JTAG
RTCK	RTCK	JTAG
ETM I/F		
TRIG_IN	TRIG_IN	ETM (Embedded Trace Macro Cell)
MON1	2V62_VIO	ETM
MON2	MON2	ETM
TRACESYNC	TRACESYNC	ETM
TRACECLK	TRACECLK	ETM
PIPESTAT[2]	PIPESTAT2	ETM
PIPESTAT[1]	PIPESTAT1	ETM
PIPESTAT[0]	PIPESTAT0	ETM
TRACEPKT[0]	TRACEPKT0	ETM
TRACEPKT[1]	TRACEPKT1	ETM
TRACEPKT[2]	TRACEPKT2	ETM
TRACEPKT[3]	TRACEPKT3	ETM
TRACEPKT[4]	TRACEPKT4	ETM
TRACEPKT[5]	TRACEPKT5	ETM
TRACEPKT[6]	TRACEPKT6	ETM
TRACEPKT[7]	TRACEPKT7	ETM
Memory		
MEM_AD[0]	DATA(0)	
MEM _AD[1]	DATA (1)	
MEM _AD[2]	DATA (2)	
MEM _AD[3]	DATA (3)	
MEM _AD[4]	DATA (4)	
MEM _AD[5]	DATA (5)	
MEM _AD[6]	DATA (6)	
MEM _AD[7]	DATA (7)	
MEM _AD[8]	DATA (8)	
MEM _AD[9]	DATA (9)	
MEM _AD[10]	DATA (10)	
MEM _AD[11]	DATA (11)	
MEM _AD[12]	DATA (12)	
MEM _AD[13]	DATA (13)	
MEM _AD[14]	DATA (14)	
MEM _AD[15]	DATA (15)	
MEM _WRN	_WR	
MEM _RDN	_RD	
MEM _BC0_N	_BC0	

MEM _BC1_n	_BC1	
MEM _A[0]	ADD(0)	
MEM _A[1]	ADD (1)	
MEM _A[2]	ADD (2)	
MEM _A[3]	ADD (3)	
MEM _A[4]	ADD (4)	
MEM _A[5]	ADD (5)	
MEM _A[6]	ADD (6)	
MEM _A[7]	ADD (7)	
MEM _A[8]	ADD (8)	
MEM _A[9]	ADD (9)	
MEM _A[10]	ADD (10)	
MEM _A[11]	ADD (11)	
MEM _A[12]	ADD (12)	
MEM _A[13]	ADD (13)	
MEM _A[14]	ADD (14)	
MEM _A[15]	ADD (15)	
MEM _A[16]	ADD (16)	
MEM _A[17]	ADD (17)	
MEM _A[18]	ADD (18)	
MEM _A[19]	ADD (19)	
MEM _A[20]	ADD (20)	
MEM _A[21]	ADD (21)	
MEM _A[22]	ADD (22)	
MEM _A[23]	ADD (23)	
MEM _A[24]	ADD (24)	
MEM _CS0_N	_NAND_CS	
MEM _CS1_N	_RAM_CS	
MEM _CS2_N	TP103	Not used
MEM _CS3_N	N.C	Not used
MEM _ADVN	N.C	
MEM _RAS_N	_RAS	
MEM _CAS_N	_CAS	
MEM _WAITN	N.C	
MEM _SDCLKO	SDCLKO	For Burst mode
MEM _BFCLKO2	SDCLKI	For Burst mode
MEM _BFCLKO1	N.C	For Burst mode
MEM _CKE	CKE	
Memory		
FCDP_RBN	FCDP	
TDMA I/F		
T_OUT0	TXON_PA	PAM
T_OUT1	FE2	
T_OUT2	PA_BAND	PAM
T_OUT3	FE1	
T_OUT4	DBB_INT	
T_OUT5	MULTIKEY_BL	

T_OUT6	PA_MODE	PAM
KP_OUT4	N.C	
GPIO_51	FLASH_TORCH_EN	
T_OUT9	DSR	
CC1CC7IO	JACK_DETECT	
GPIO_54	BT_LDO_EN	
RF I/F		
RF_STR0	RF_EN	
RF_STR1	N.C	
RF_DATA	RF_DA	
RF_CLK	RF_CLK	
System Port		
AFC	N.C	
CLKOUT0	RPWRON_EN	
F26M	26MHZ_MCLK	26M Main Clock
F32K	F32K	to 32k crystal
OSC32K	OSC32K	to 32k crystal
RESET_N	_RESET	
TRIG_IN	TRIG_IN	
RTC_OUT	RTC_OUT	
SPCU_RC_OUT0	VCXO_EN	
DSP		
DSPIN0	CLK32K	
DSPOUT1	WDOG	
DSPIN1	N.C	

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-Gold3. Although optimized for usage with the Infineon S-GOLD baseband device it is suitable for the S-GOLD lite 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-GOLD3 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 controllable 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

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 cascaded by two linear regulators

- 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 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.

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

– 450 mW maximum output power

– adjustable gain

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

– click and pop -protection SM-POWER also integrates a charging function for Li-Ion, Li-Polymer batteries
– Precharge 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 overvoltage 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 precharge indication and signaling with i.e. change of color

–driver for Vibra 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
SD1	1V35_Core	1.35V	600mA	Core & for LDO
SD2	1V8_SD	1.8V	300mA	Memory
VAUX	2V85_VAF	2.85V	100mA	Cam Auto Focus
VIO	2V62_VIO	2.62V	100mA	Peripherals
VSIM	2V9_SIM	2.9V	70mA	SIM card
VMME	2V8_VMME	2.9V	150mA	u-SD
VUMTS	2V85_AMP	2.85V	110mA	Headset AMP
VUSB	VUSB	3.1V	40mA	Not used
VLED	VLED	2.9V	10mA	Not used
VAUDIOa	2V5_VAUDA	2.5V	200mA	Stereo headset, Mono earpiece
VAUDIOb	2V5_VAUDB	2.5V	50mA	Analog parts of S-Gold
VRF1	2V85_VRF	2.85V	150mA	2.85 V supply for SMARTi-PM RF transceiver
VRF2	1V5_VRF	1,53V	100mA	1.5 V supply for SMARTi-PM RF transceiver
VRF3	2V65_VBT	2.7V	150mA	Bluetooth
VPLL	1V35_VPLL	1.35V	30mA	S-GOLD3 PLL
VRTC	2V11_RTC	2.11V	4mA	Real Time Clock
VAFC	2V7_VRF	2.65V	5mA	Not used
VVIB	2V8_CAM_A	2.8V	140mA	CAMERA

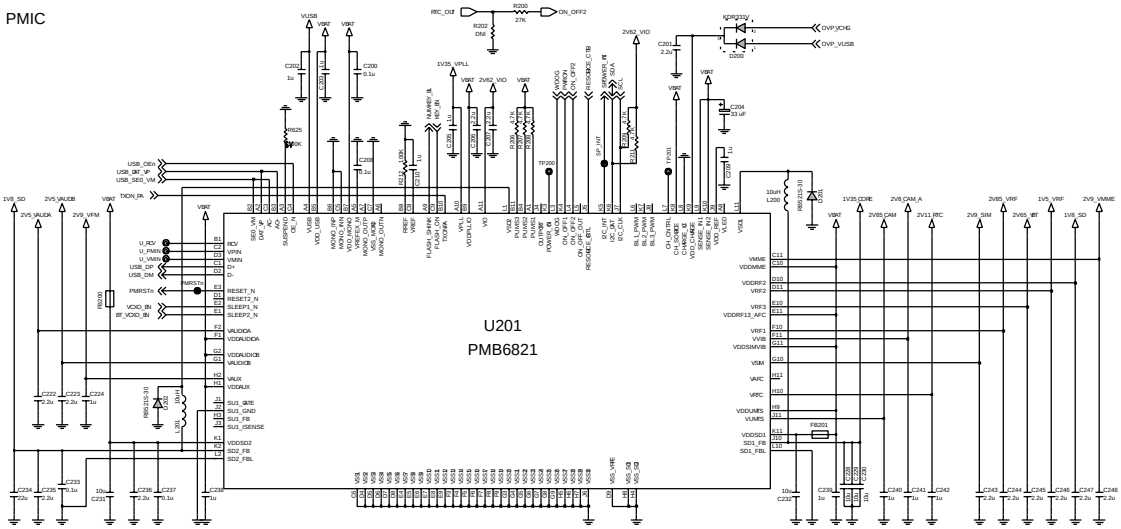


Figure 4 PMIC Circuit

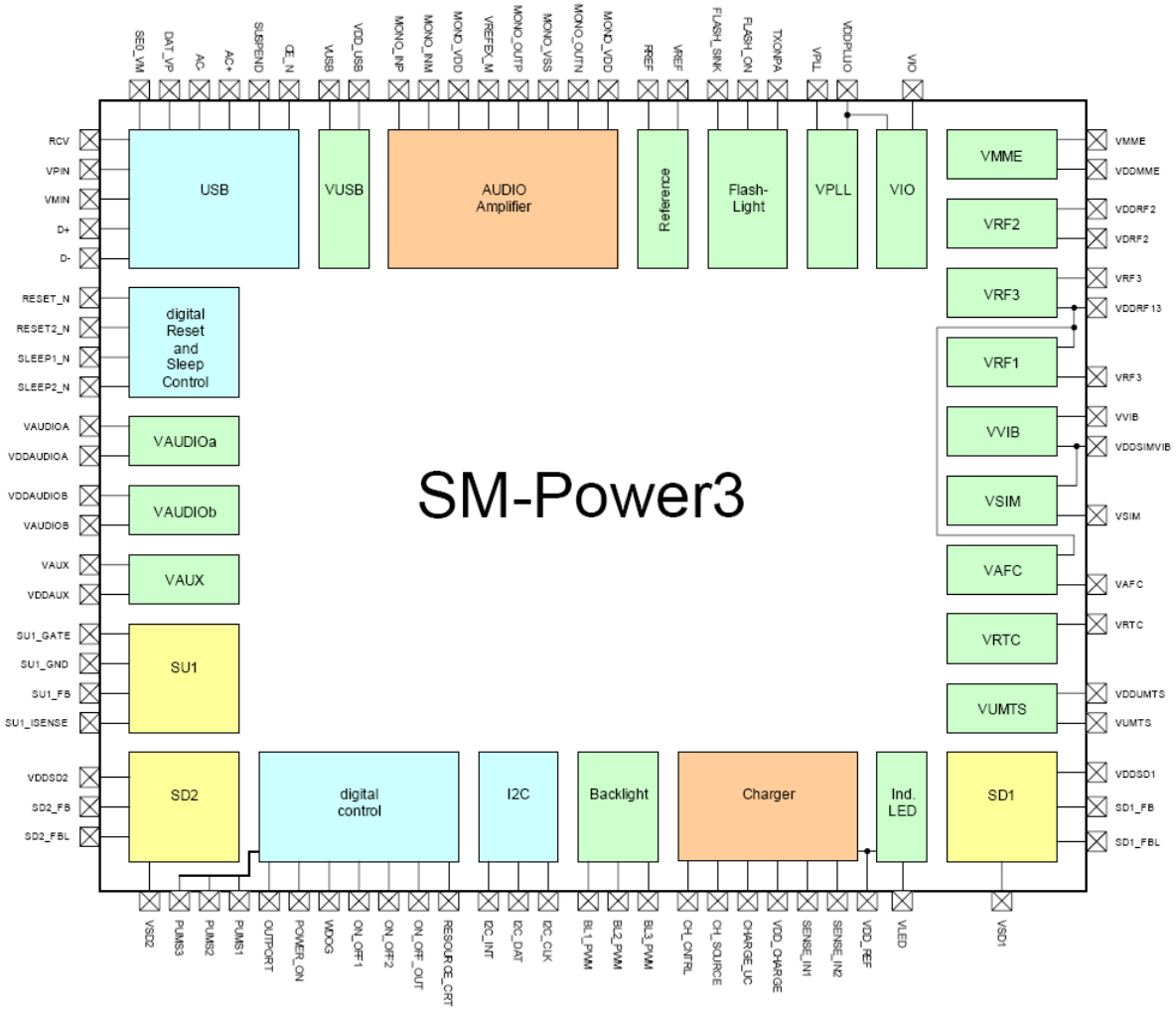


Figure 5 SM-Power Circuit Diagram of KC560

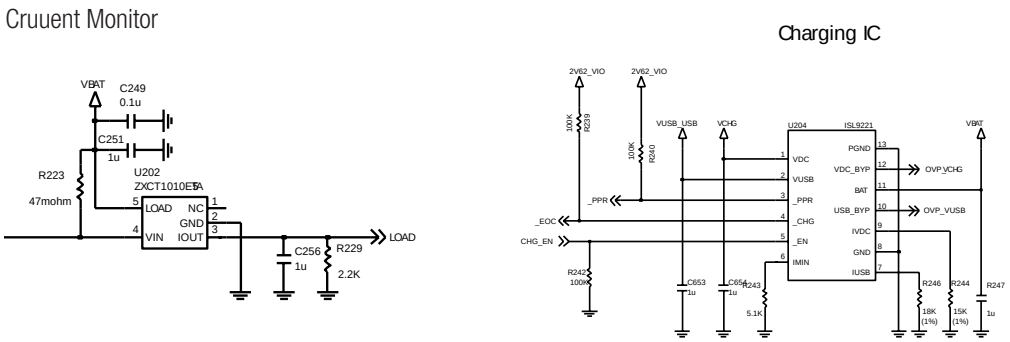


Figure 6 SM-Power circuit diagrams with charging part

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.

4.2V~3.69V 3.78V~3.68V 3.68V~3.58V 3.60V~3.50V

Figure 7 Battery Block Indications

1. Charging method : CC-CV
2. Charger detect voltage : 4.0 V
3. Charging time : 2h 50m
4. Charging current : 434mA
5. CV voltage : 4.2 V
6. Cutoff current : 107mA
7. Full charge indication current (icon stop current) : 107mA
8. Recharge voltage : 4.15 V
9. Low battery alarm
   a. Idle : 3.25 V ~ 3.55 V
   b. Dedicated : 3.25 V ~ 3.57 V
10. Low battery alarm interval
    a. Idle : 3 min
    b. Dedicated : 1 min
11. Switch-off voltage : 3.25 V
12. Charging temperature adc range

a. ~ -10℃ : low charging voltage operation (3.6 V ~ 3.9 V) .
b. -10℃ ~ 50℃ : standard charging (up to 4.2 V)
c. 50℃~ : low charging voltage operation (3.6V ~ 3.9V)

3.4. Power ON/OFF

KC560 Power State : Defined 3cases as follow

- ¢″ Power-ON : Power key detect (SM-Power s ON port)
- ¢″ Power-ON-charging : Charger detect.

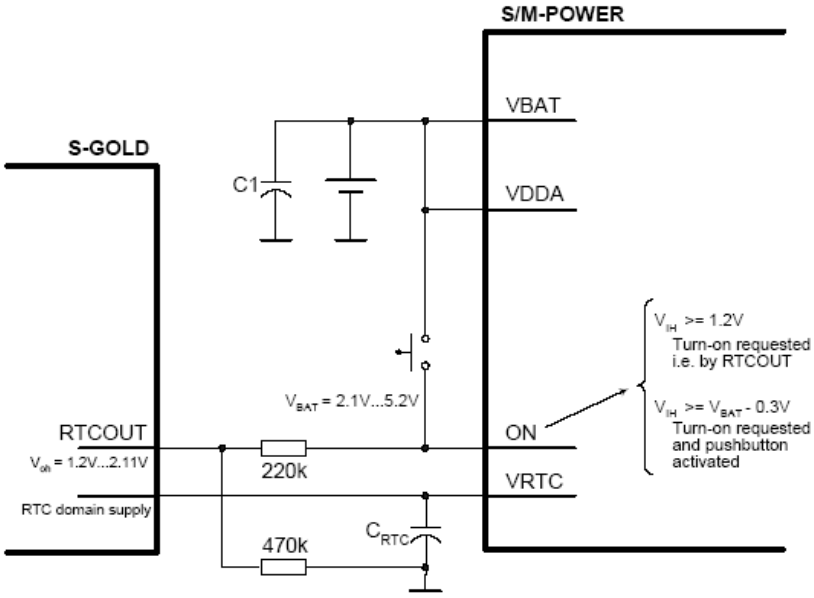


Figure 8 Power on application.

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 VIHdet (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 and Key matrix KP_OUT(2) & KP_IN(0), KC560 system recognize whether remote power on or End-key pushed

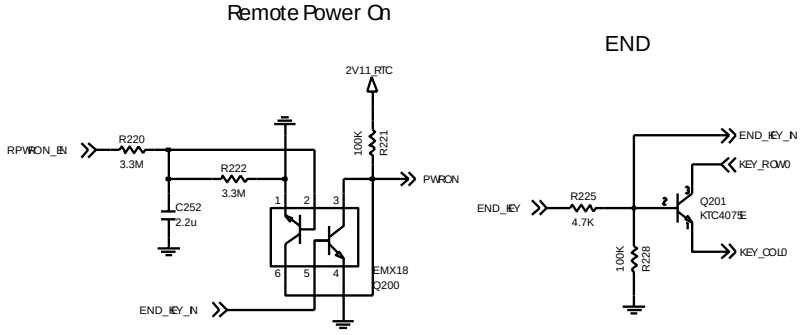


Figure 9 Remote power on and End-key power on circuit

3.5. SIM & uSD interface

KC560 supports 1.8V & 2.9V 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-Gold3) and the SIM power supply enabled by PMIC.

SIM Interface

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

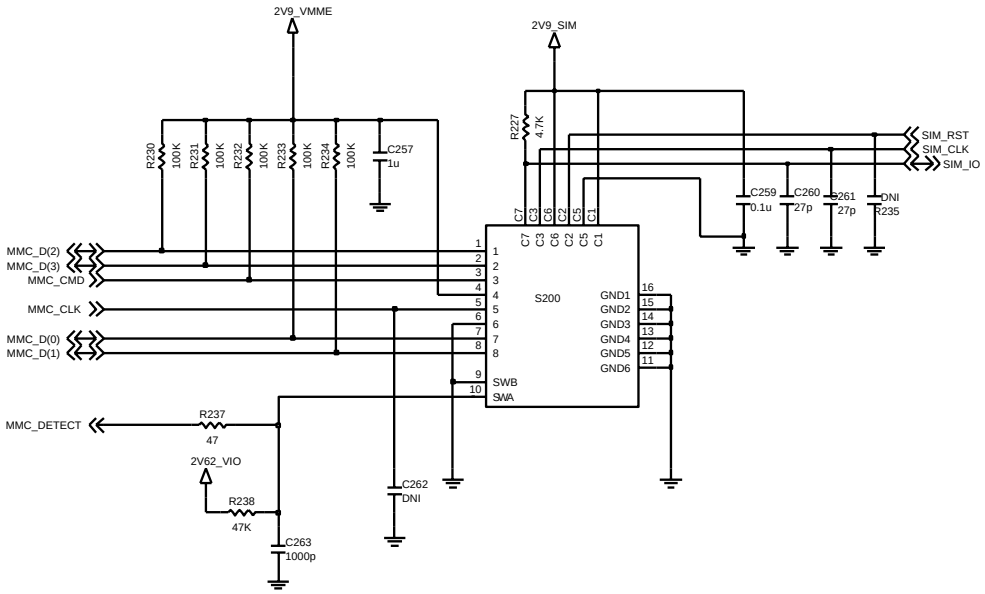
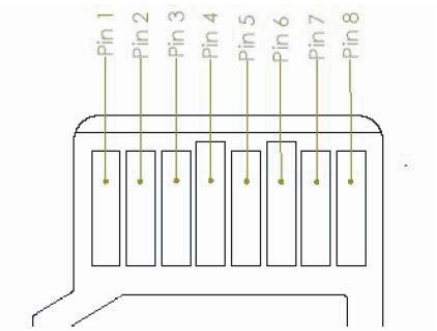


Figure 10 SIM & Micro SD Circuit

The Micro SD Memory Module has eight exposed contacts on one side. The S-Gold3 is connected to the module using a dedicated eight-pin connector



Micro SD Memory Card Detection Scheme

Table 7 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]

Table 8 Micro SD memory card detect truth table.

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

3.6. Memory

1Gbit NAND & 512Mbit DDRAM employed on KC560 with 8 & 16 bit parallel data buses thru ADD(0) ~ ADD(28). The 1Gbit NAND Flash memory with DDRAM stacked device family offers multiple high-performance solutions.

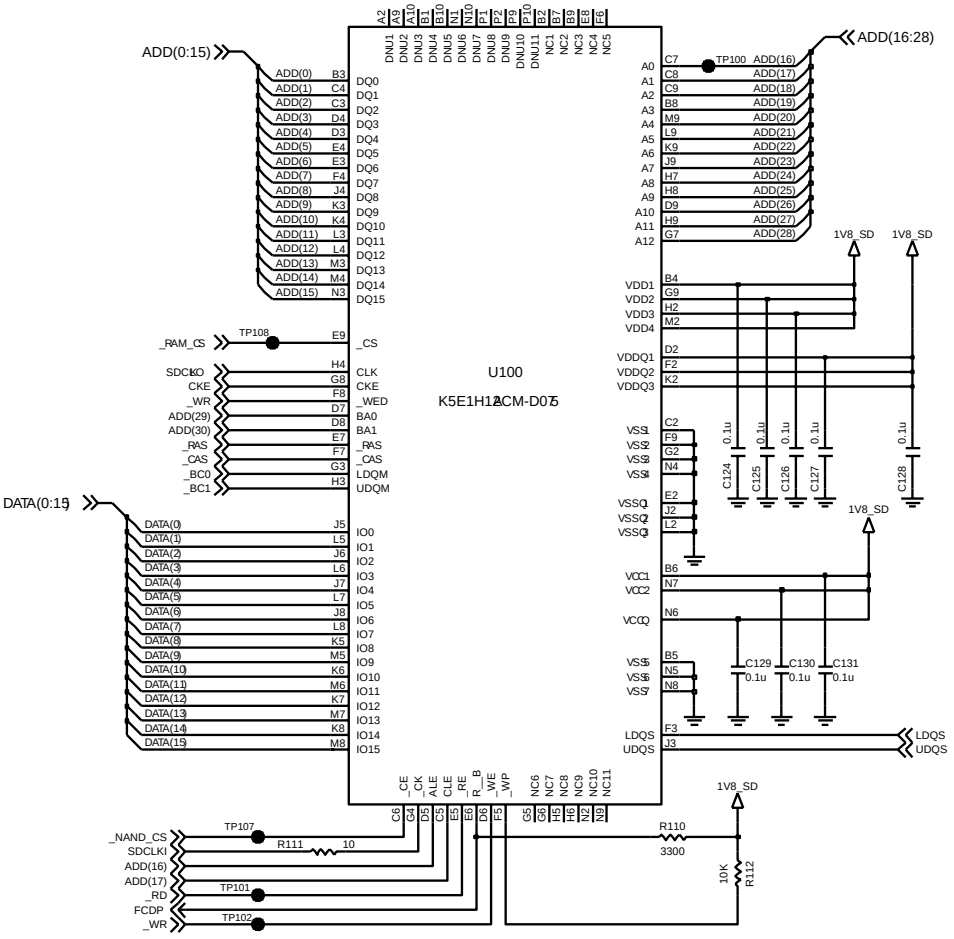


Figure 11 Flash memory & DDR RAM MCP circuit diagram

3.7. LCD Display

LCD module includes:
- Main LCD: 2.2¡ – 240x320 QVGA, 262K color TFT
- Backlight : 5 piece of white LED

LCD FPC Interface Spec:

Table 9 LCD FPC Interface Spec.

No.	Symbol	Description
1	GND	GND
2	PWM	BLU CONTROL PWM SIGNAL
3	BS0	INTERFACE SELECTION 1
4	BS1	INTERFACE SELECTION 2
5	BS3	INTERFACE SELECTION 3
6	VSYNCOUT	VSYNC OUTPUT
7	/RD	READ DATA
8	/WR	WRITE DATA
9	RS	REGISTER SELECT
10	/CS	CHIP SELECT
11	D15	DATA BUS 15
12	D14	DATA BUS 14
13	D13	DATA BUS 13
14	D12	DATA BUS 12
15	D11	DATA BUS 11
16	D10	DATA BUS 10
17	D09	DATA BUS 09
18	D08	DATA BUS 08
19	D07	DATA BUS 07
20	D06	DATA BUS 06
21	D05	DATA BUS 05
22	D04	DATA BUS 04
23	D03	DATA BUS 03
24	D02	DATA BUS 02
25	D01	DATA BUS 01
26	D00	DATA BUS 00
27	MAKER ID	MAKER ID (LOW)
28	IOVCC(1.8V)	IO VOLTAGE
29	VCC(2.6V)	ANALOG VOLTAGE(VCI)
30	/RESET	/RESET
31	LED_C5	LED5 CATHODE CONNECTION
32	LED_C4	LED4 CATHODE CONNECTION
33	LED_C3	LED3 CATHODE CONNECTION
34	LED_C2	LED2 CATHODE CONNECTION
35	LED_C1	LED1 CATHODE CONNECTION
36	LED_A	LED COMMON ANODE CONNECTION
37	GND	GND

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 used depends on the settings of the port control logic.

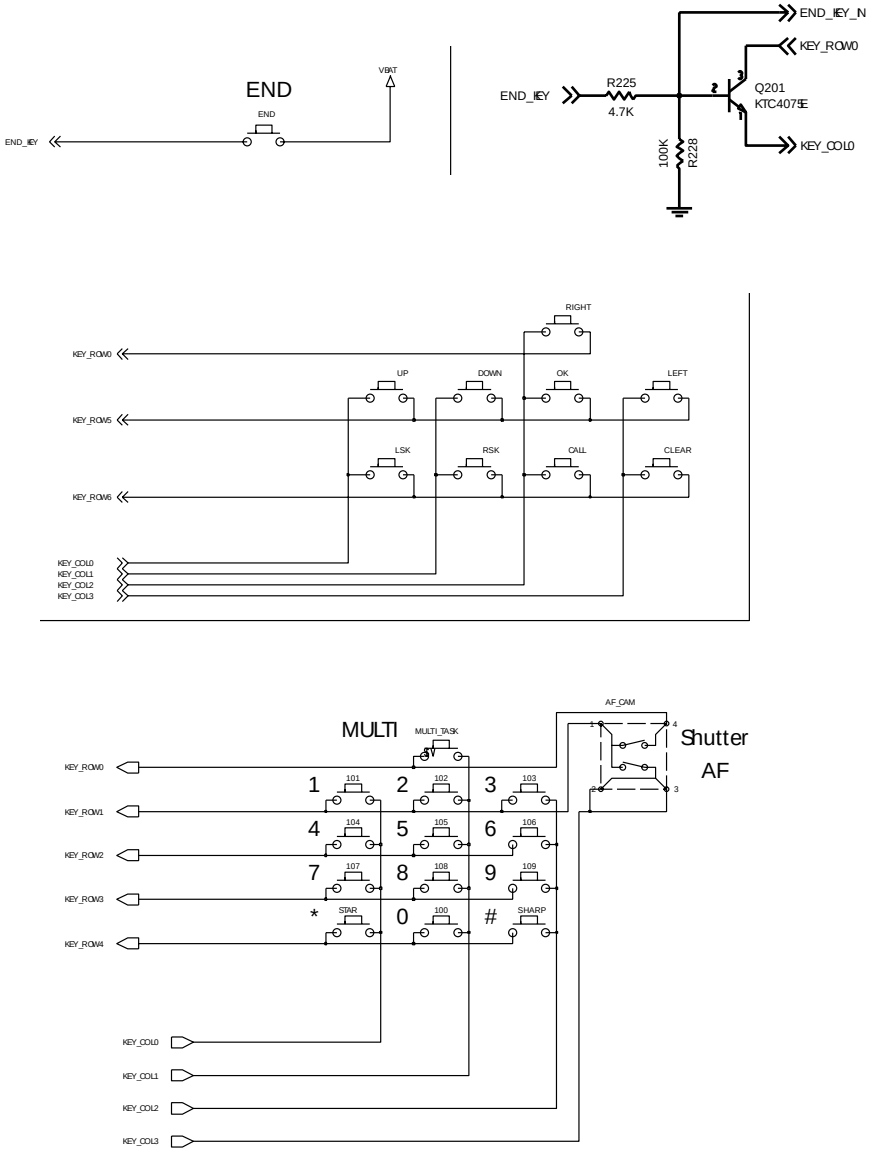


Figure 12 Key pad part key matrix

3.9. Keypad back-light illumination

There are 2 snow white color LEDs on Key FPCB for keypad illumination. Keypad Back-light is controlled by SM-Power Flash LED port which has constant current control function. The whole configuration of the SM-POWER Flash LED drivers is shown in below Figure14.

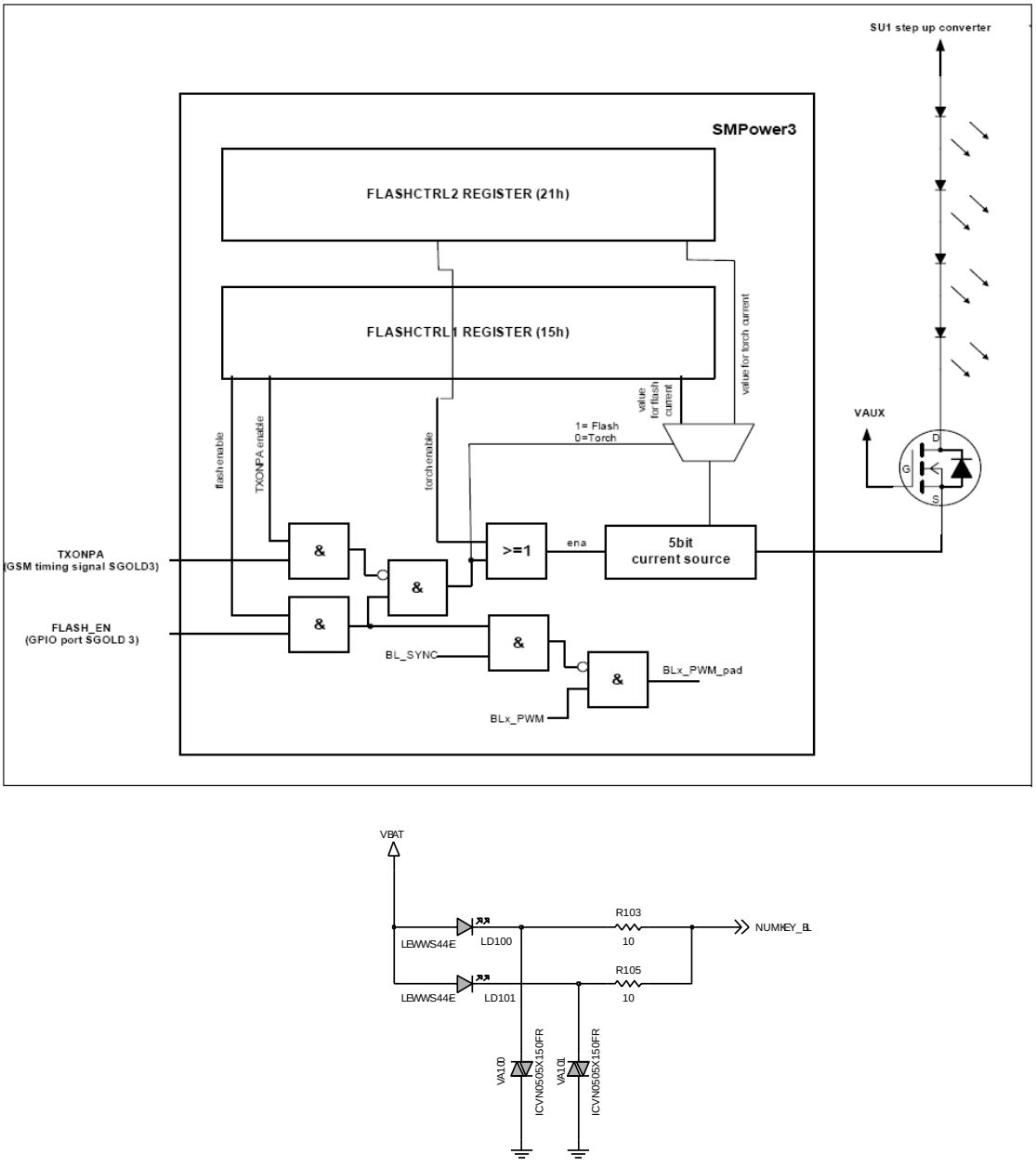


Figure 14 Keypad Back-light LEDs

3.10. LCD back-light illumination

The AS3675 is a highly-integrated CMOS Power and Lighting Management Unit for operating with lithium-ion/polymer batteries. And AS3675 support 13 Current sinks, the RGB and white LEDs. The AS3675 is capable of driving up to three LEDs at a total of 500mA. 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.

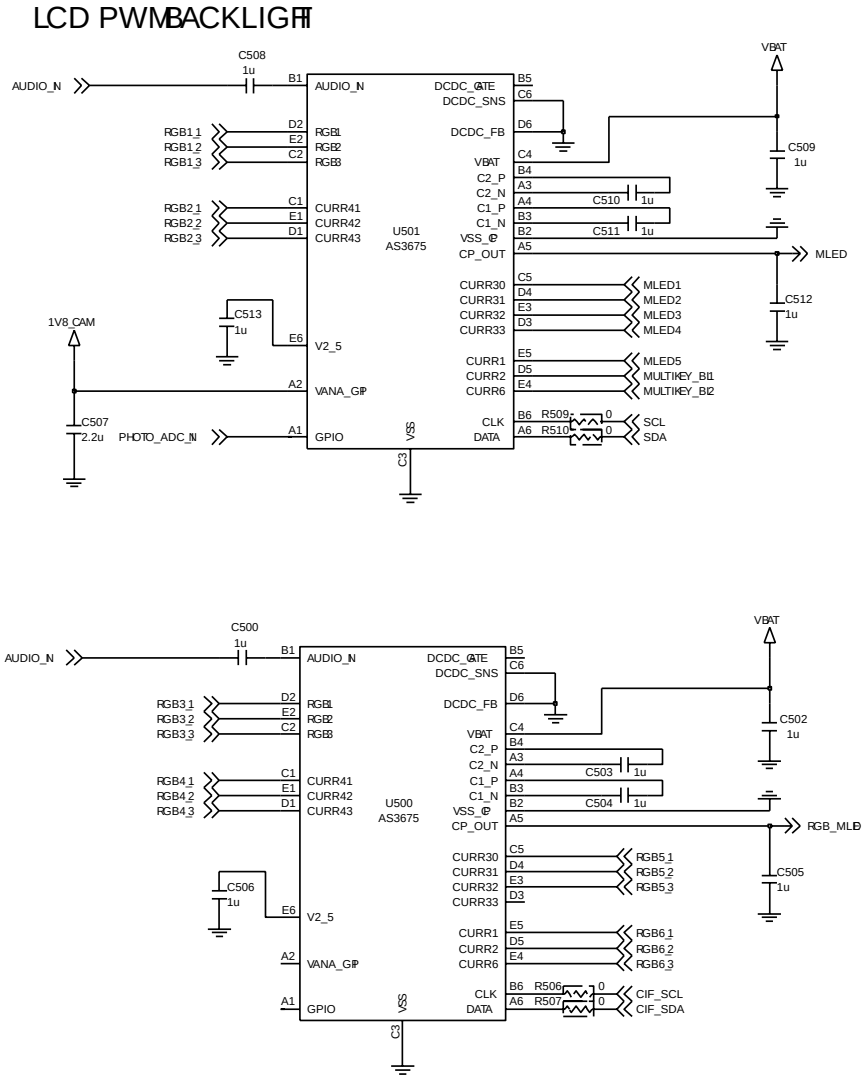


Figure 15 LCD Back light unit and Flash LED charge pump IC

The AS3675 is controlled using serial interface pins CLK and DATA. The clock line CLK is never held Low by the AS3675(as the AS3675 does not use clock stretching of the bus)

- Fast Mode Capability(Maximum Clock Frequency is 400 kHZ)
- Write Formats
- Write Formats (-. Single-Byte Write , -. Page-Write)
- Read Formats (-. Current-Address Read -. Random-Read, - Sequential Read)
- DATA Input Delay and CLK Spike Filtering by Integrated RC address.

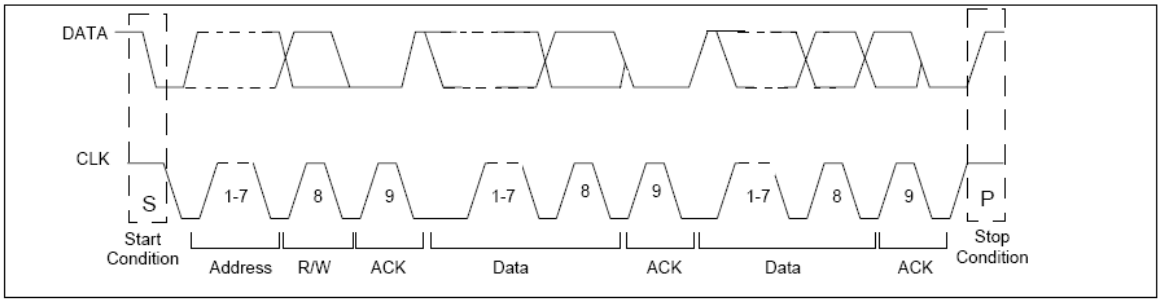


Figure 16 I2C Serial data port control method

3.11 ALC

The automatic luminance control (ALC) circuit adjusts the LED dimming by changing the LED current automatically in response to the brightness of the surroundings. An external photodiode or similar luminance sensor must be connected for the ALC automatic control to function. The luminance sensor is connected to PD and must be set to increase the PD input current in response to increasing luminance of the surroundings. In the typical application circuit in section 13, the SM8152A VREF terminal is used and the luminance sensor photodiode is connected between PD and VREF

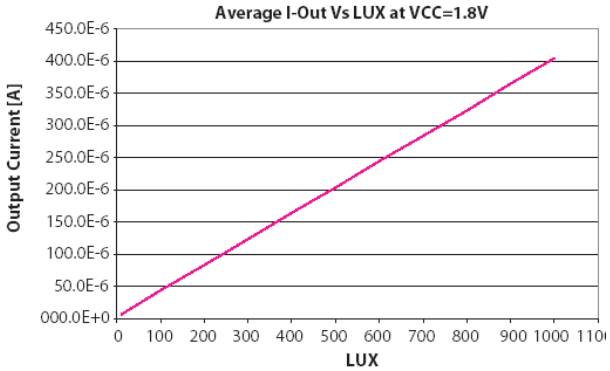


Figure 17 Average Iout vs Lux on photo sensor

3.12 Battery current consumption monitor

KC560 use a current monitoring function to calculate the battery capacity and the remaining time, as monitoring current flow from the battery thru 47mohm resistor.

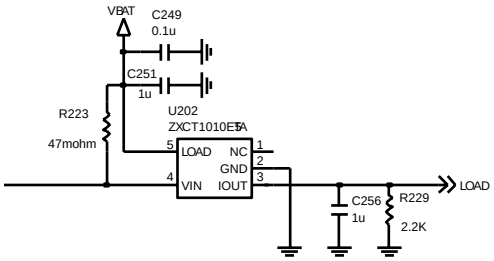


Figure 18 Current monitor circuits

3.13 JTAG & ETM interface connector

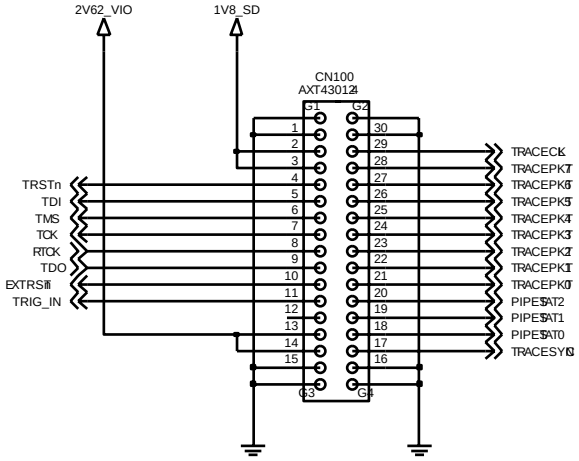


Figure 19 JTAG & ETM(Embedded Trace Module) interface connector

In case of KC560 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)

3.14. Audio

KC560 Audio signal flow diagram as following diagram.

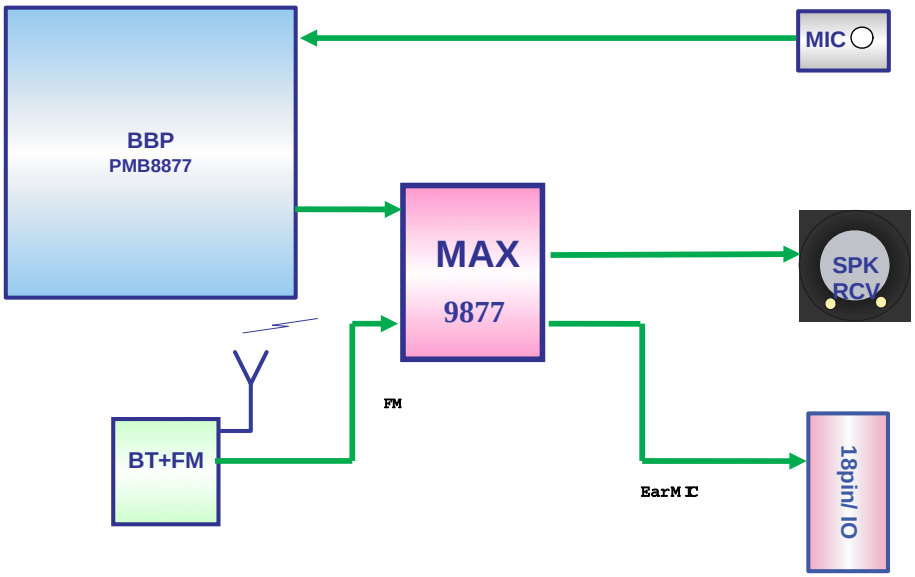


Figure 20 Audio signal flow diagram

3.14.1. Audio amplifier

Audio amplifier sub system IC is an audio power amplifier capable of delivering 1.2 W of continuous average power into a mono 8Ω load, 50mW per channel of continuous average power into stereo 32Ω single-ended (SE) loads. The MAX9877 features a 32-step digital volume control and ten distinct output modes. The digital volume control, output modes (mono/SE/OCL) are programmed through a two-wire I2C interface that allows flexibility in routing and mixing audio channels.

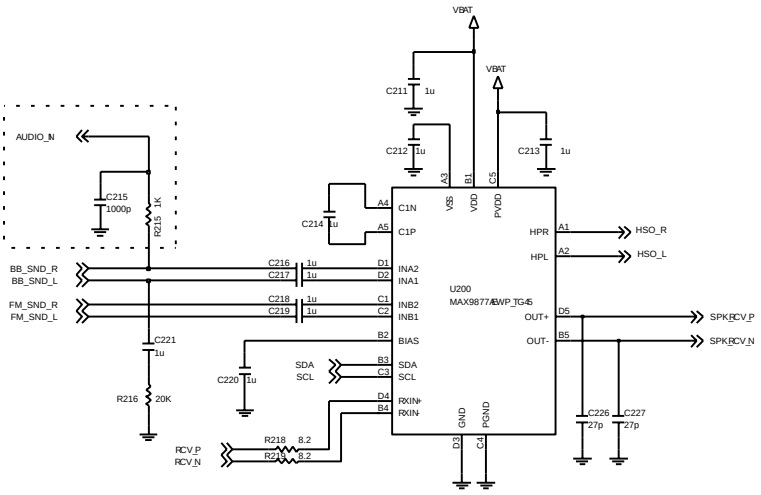


Figure 21 Audio amplifier PM IC

3.14.2. Microphone circuit

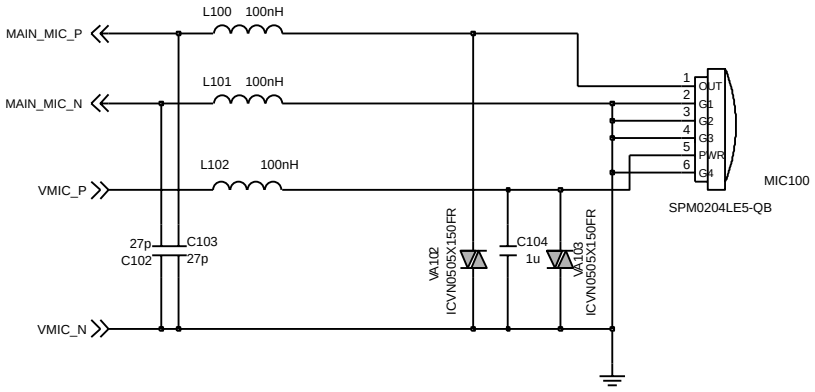


Figure 22 Microphone circuit

3.15. charging circuit

ISL9221 accepts two power inputs, normally one from a USB (Universal Serial Bus) port and the other from a desktop cradle.
The ISL9221 features 28V and 7V maximum voltages for the cradle and the USB inputs respectively. Due to the 28V rating for the cradle input, low-cost, large output tolerance adapters can be used safely.

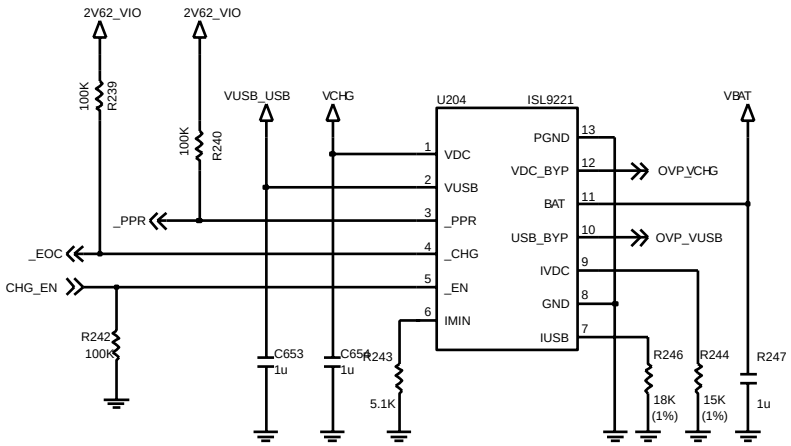


Figure 23 charging circuit

3.16 FM radio & BLUETOOTH

- **FM radio**

Simultaneous operation with Bluetooth
• Support of US/Europe (87.5 to 108 MHz) and Japanese (76 to 90 MHz) FM band
• Wide dynamic range AGC
• Soft mute and stereo blend
• Adjustment-free stereo decoder and AFC
• Autonomous search tuning function (up/down) with programmability (threshold setting)
• RDS demodulator
• Audio output available over Bluetooth audio interface or dedicated audio output
• Control of FM via Bluetooth HCI or I2C
• Adaptive filter to suppress narrow band interference in the FM channel

- **Bluetooth**

General Features
- Small outline by LTCC substrate built-in RF function and Resin mold
-Integrated top BPF for Bluetooth and FM radio
-Integrated RDS/RBDS demodulator and decoder
- ***Bluetooth***® 2.1+EDR conformity
- Secure Simple Pairing (SSP)
- Encryption Pause Resume (EPR)
- Enhance Inquiry Response (EIR)
- Link Supervision Time Out (LSTO)
- Sniff Sub Rating (SSR)
- Erroneous Data (ED)
- Packet Boundary Flag (PBF)
-WLAN coexistence including 802.15.2 three-wire coexistence support
-UART Interface
-PCM Interface
-I2S Interface
-I2C Interface

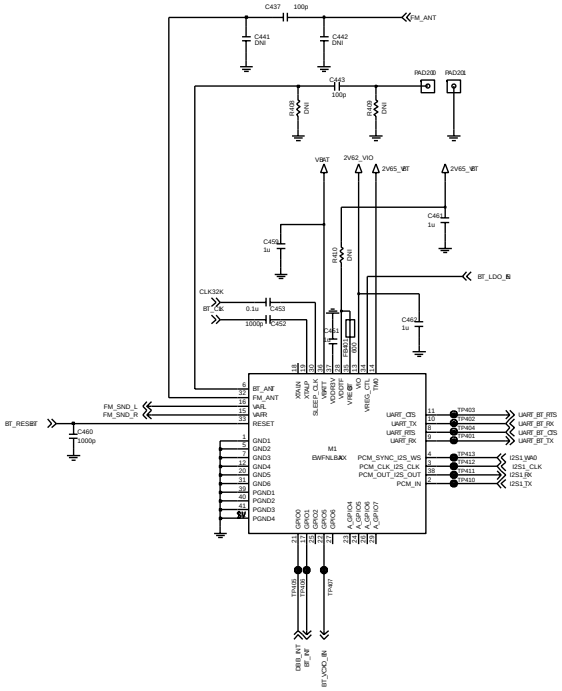


Figure 24 Bluetooth / FM Radio Circuit Diagram

Bluetooth Radio
• Common TX/RX terminal simplifies external matching, eliminates external antenna switch
• No external trimming is required In production
• Bluetooth v2.1 + EDR Specification compliant

Bluetooth Transmitter
• +6 dBm RF Transmit power with level control from on-chip 6-bit DAC over a dynamic range > 30dB
• Class 2 and Class 3 support without the need for an external power amplifier or TX/RX switch.

Bluetooth Receiver
• Integrated channel filters
• Digital demodulator for improved sensitivity and co-channel rejection
• Real time digitized RSSI available on HCI interface
• Fast AGC for enhanced dynamic range
• Channel classification for AFH

Synthesizer
• Fully integrated synthesizer requires no external VCO varactor diode, resonator or loop filter
• Compatible with crystals between 7.5 and 40MHz(in multiples of 250KHz) or an external clock

Audio
• Single-ended stereo analogue output
• 16-bit 48 kHz digital audio bit stream output

Baseband and Software
• Internal 48Kbyte RAM, allows full speed data transfer, mixed voice and data, and full piconet operation, including all medium rate packet types

• Logic for forward error correction, header error control, access code correlation. CRC, demodulation, encryption bit stream generation, whitening and transmit pulse shaping. Supports all Bluetooth v 2.1 + EDR features incl. ESCO and AFH
• Transcoders for A-law, u-law and linear voice from host and A-law, u-law and CVSD voice over air

Physical Interfaces
• Synchronous serial interface up to 4Mbits/s for system debugging
• UART interface with programmable baud rate up to 4Mbits/s with an optional bypass mode
• USB v1.1 interface
• I2C slave for FM
• Two audio PCM interfaces (input and output)
• Analogue stereo (output only)

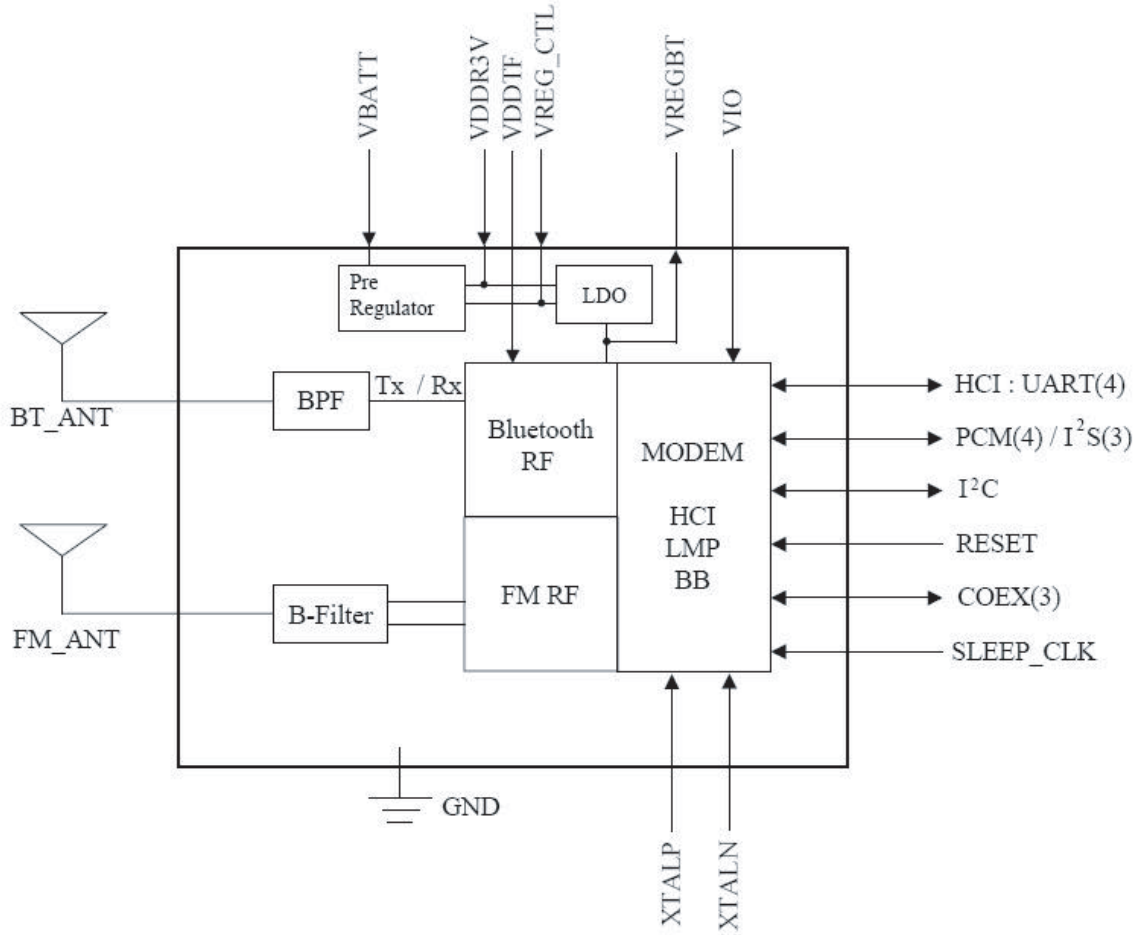


Figure 25 Bluetooth / FM Radio Block Diagram

3.17. 18pin Multi Media Interface connector

Table 10 Multi media interface pin assign

	KC560 MMI	
	Pin Function	Description
1	FM_ANT	FM radio antenna / Audio ground
2	HS_MIC	Headset microphone signal
3	JACK_TYPE	Accessory type detect
4	HSO_L	Headset left sound
5	HSO_R	Headset Right sound
6	USB_DP/ REMOTE_INT	USB/ Remote control interrupt
7	USB_DM/ REMOTE_ADC	USB/ Remote control Key ADC
8	JACK_DETECT	Headset detect (active low)
9	VSUPPLY	Supply Voltage
10	VSUPPLY	Supply Voltage
11	RPWRON_EN	Remote power enable
12	VCHG	Charger voltage
13	VCHG	Charger voltage
14	DSR	N.C.
15	VBUS_USB	USB VBUS
16	UART_TX	UART TX data
17	UART_RX	UART RX data
18	GND	Power GND

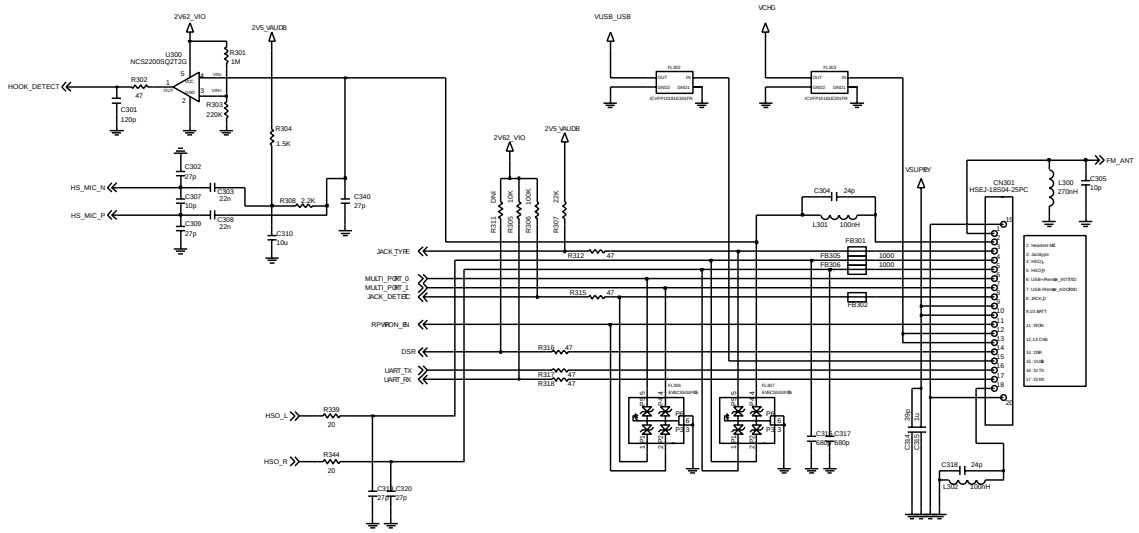


Figure 26 MMI 18pin connector circuit

III-2. RF circuit

*RF Block Diagram

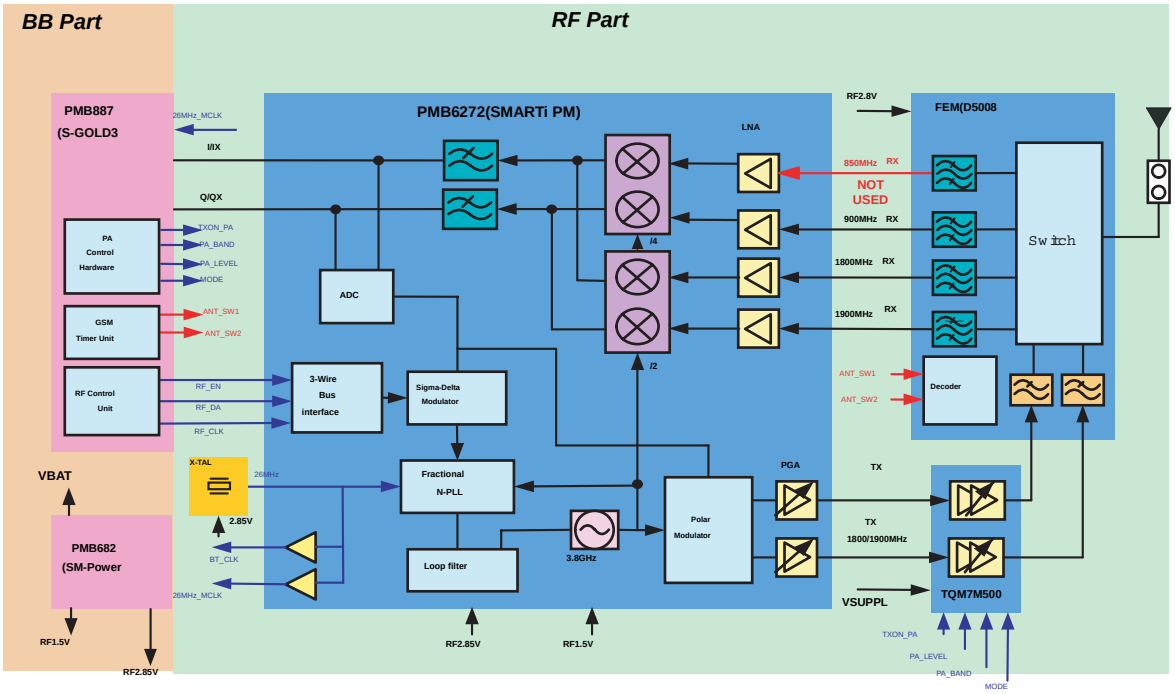


Figure 27 KC560 RF block diagram

3.18. 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.

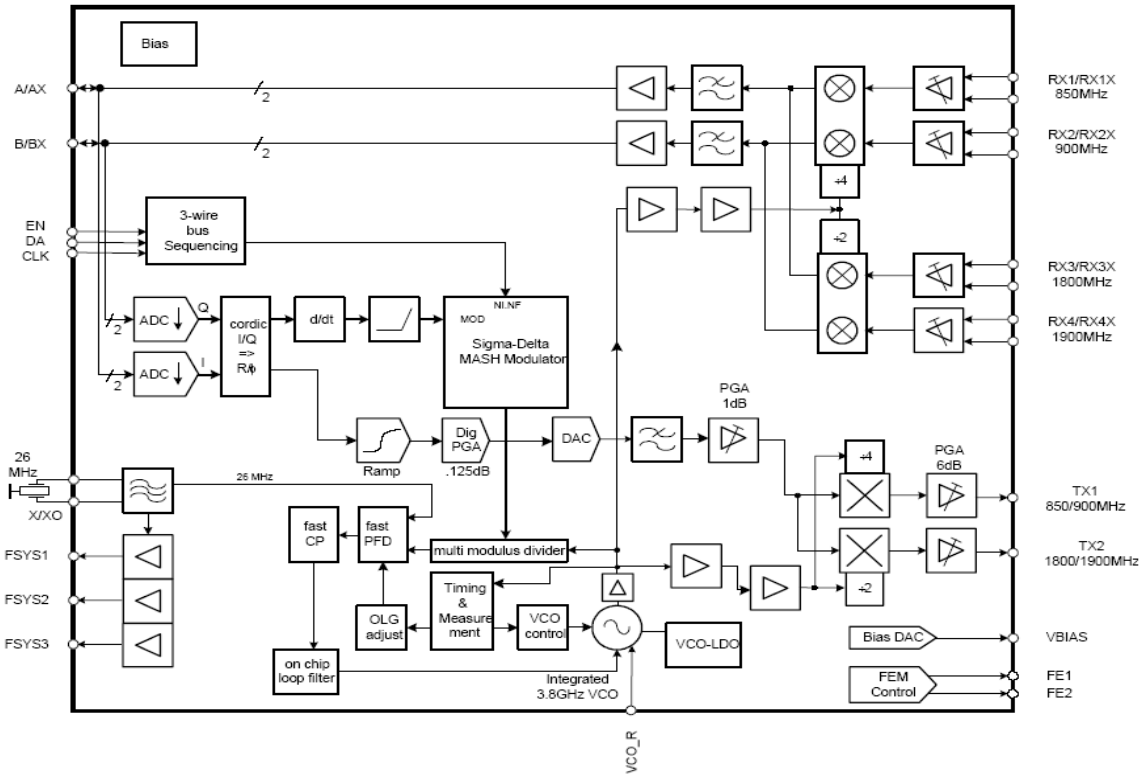


Figure 28 RF transceiver PMB6272 SMARTi-PM functional block diagram

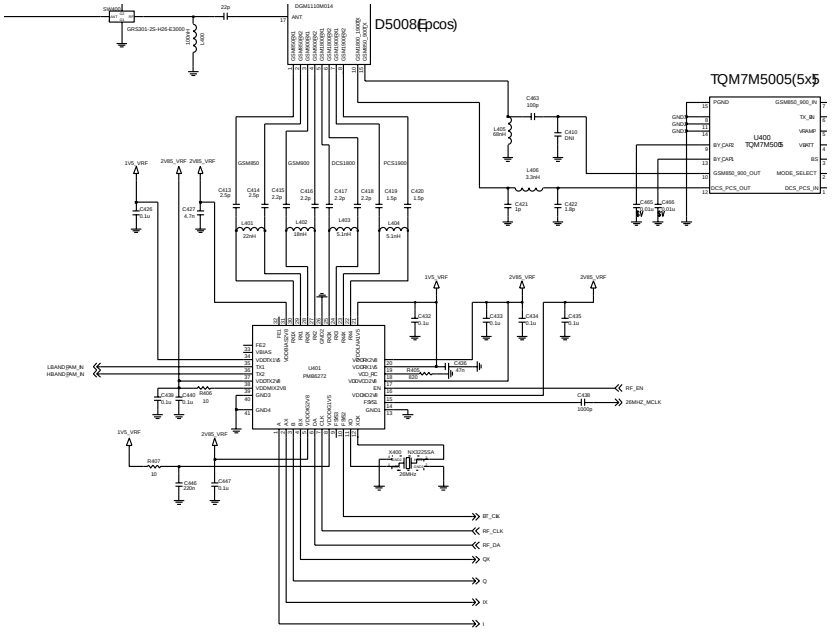


Figure 29 RF transceiver PMB6272 SMARTi-PM schematic

3.19. Receiver part

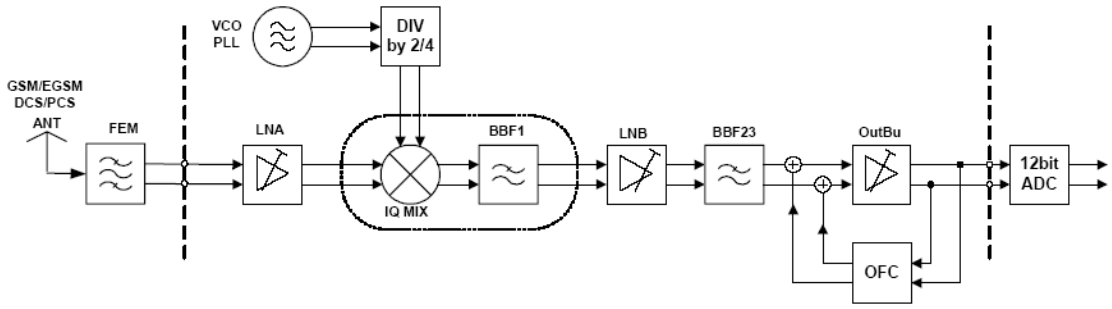


Figure 30 Receiver part block diagram

The constant gain direct conversion receiver contains all active circuits for a complete receiver chain for GSM/GPRS/EDGE (see Figure 33). 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.

3.20. 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 Figure34). 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

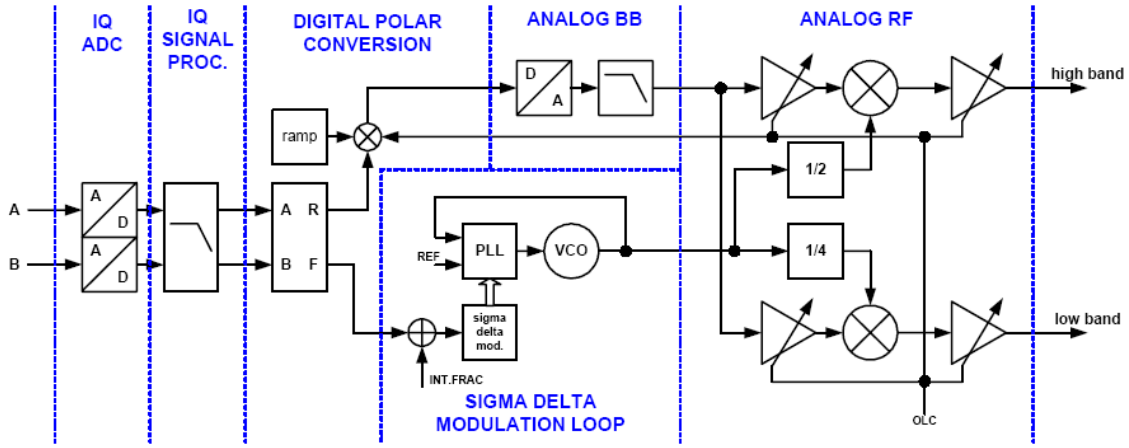


Figure 31 Transmitter part block diagram

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 as described above.

3.21. 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™). 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.

3.22. DCXO

The DCXO (X400) supply 26MHz reference clock and controlled by AFC input to generate a strict system clock. The 26MHz clock is used to Transceiver(U401), Bluetooth chip(M1) and S-Gold3 (U101).

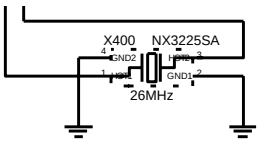


Figure32 DCXO Schematic

3.23. Front End Module control

Implemented in the S-Gold3 (FL400) are three outputs which are FE1, FE2 for direct control of front end modules with two logic input pins to select RX and TX mode as well as low and high band operation.

Table 11 FEM Control Logic

	VDD	VC1(FE1)	VC2(FE2)
GSM850/900 TX	**H**	**L**	**H**
DCS/PCS TX	**H**	**H**	**H**
GSM850/900 RX	**H**	**L**	**L**
DCS/PCS RX	**H**	**H**	**L**

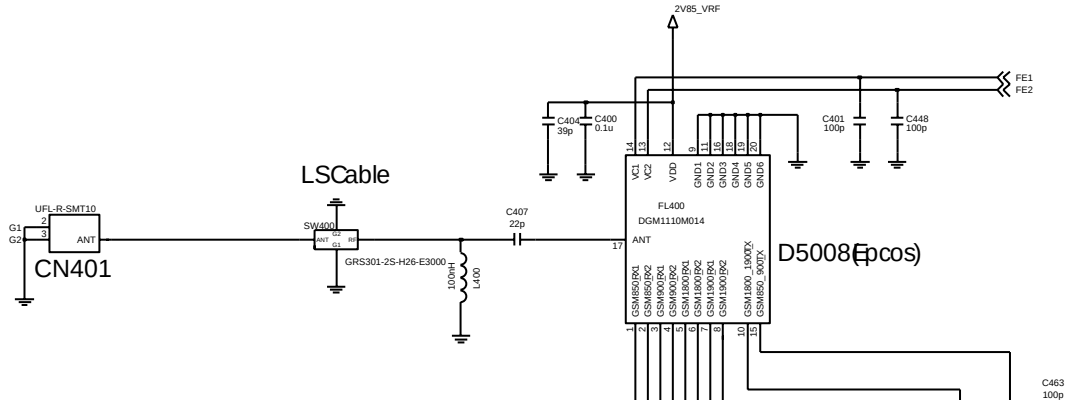


Figure 33 FEM schematic

3.24. Power Amplifier Module

The The TQM7M5005 is an extremely small (5x5x1.1mm3) multi-mode power amplifier module for GSM/EDGE applications. This module has been optimized for high EDGE efficiency and EDGE power class E2 operation while maintaining high GSM/GPRS efficiency. In EDGE mode, the Vramp pin provides a continuously variable bias control to minimize current consumption during backed-off power conditions. The module incorporates two highly integrated InGaP power amplifier die with a CMOS controller. The CMOS controller implements a fully integrated closed-loop power control within the module for GSM Operation. This eliminates the need for any external couplers, power detectors, current sensing etc., to assure the output power level. The latter is set directly from the Vramp input from the DAC. The module has Tx enable, band select, mode (EDGE or GSM) inputs. Module construction is a low-profile over-molded land-grid array on laminate.

Table 12 PAM pin description

PIN	Name	Description
1	DCS / PCS in	DCS/PCS RF input -- DC blocked
2	MODE SELECT	MODE = High, the PAM operates in EDGE (8PSK) mode MODE = Low, the PAM operates in GMSK mode.
3	BAND SELECT (BS)	BAND SELECT = Low, Low-Band active BAND SELECT = High, High-Band active
4	VBATT	Battery supply voltage, typ. 3.0 4.5 V, nom. 1.6A
5	VRAMP	DAC Control Signal (analog). Nominal Vramp range is 0.2 to 1.6V GMSK mode Controls ramp profile and output power. EDGE mode Continuous bias adjustment. Reducing Vramp from max of 1.6V reduces current when used at lower power levels.
6	TX_EN	TX_EN = High, PA is enabled for operation. TX_EN = Low, PA is in sleep mode
7	GSM850 / 900 in	GSM850 / GSM900 RF input -- DC blocked
10	GSM850 / 900 out	GSM850 / GSM900 RF output -- DC blocked
12	DCS / PCS out	DCS / PCS RF output -- DC blocked
9,13	Bypass Cap	Connect 0.01uF bypass capacitor as close to pin as practical
8,11,14	GND	Ground

3.25. Mode Selection

Table 13 Mode Selection

MODE	MODE	RF INPUT	VRAMP	TX ENABLE
GSM	Low	Fixed	Vramp control output Power	High
EDGE	High	Ramp Burst Control	Vramp sets PA bias condition, fixed gain PA	High

MODE circuitry selects GMSK modulation (logic 0) or EDGE modulation (logic 1). VRAMP controls the output power for GMSK modulation and provides bias optimization for EDGE modulation depending on the state of MODE control.

3.26. PAM Schematic

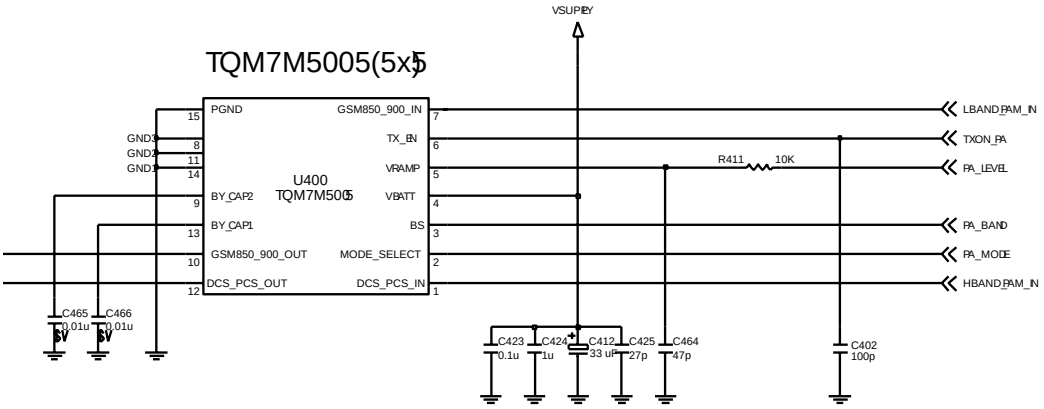
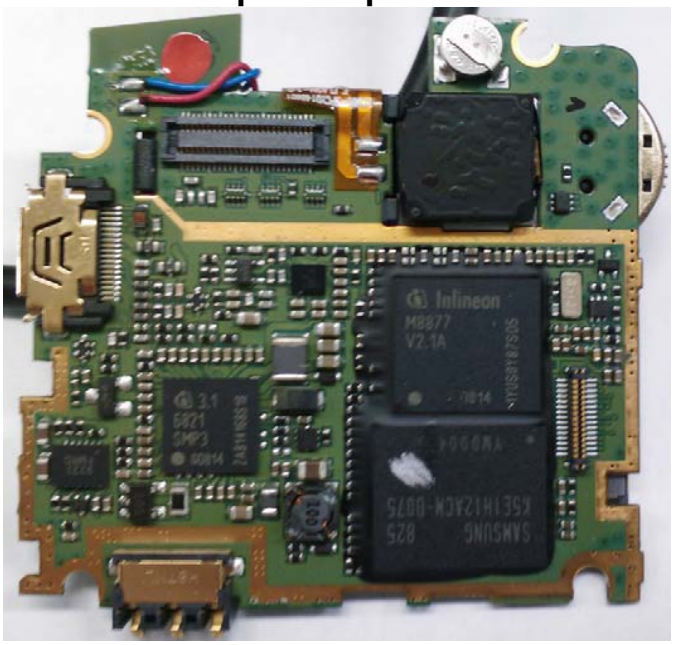


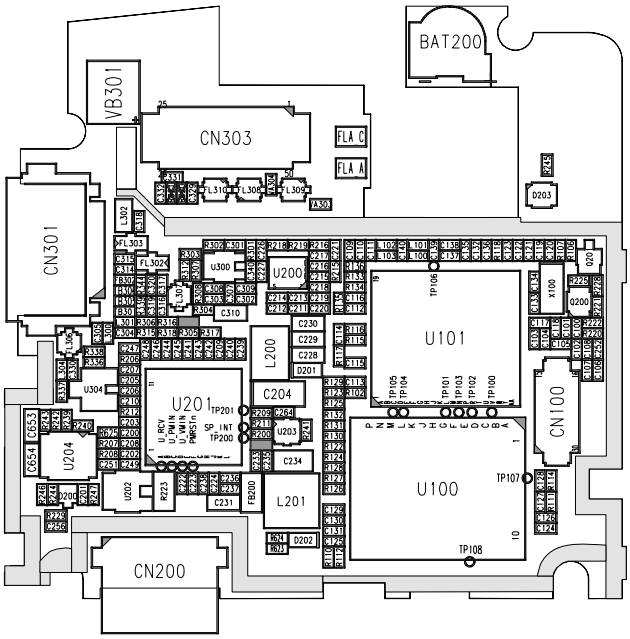
Figure 34 PAM schematic

4. PCB layout

4.1 Main & Sub PCB component placement

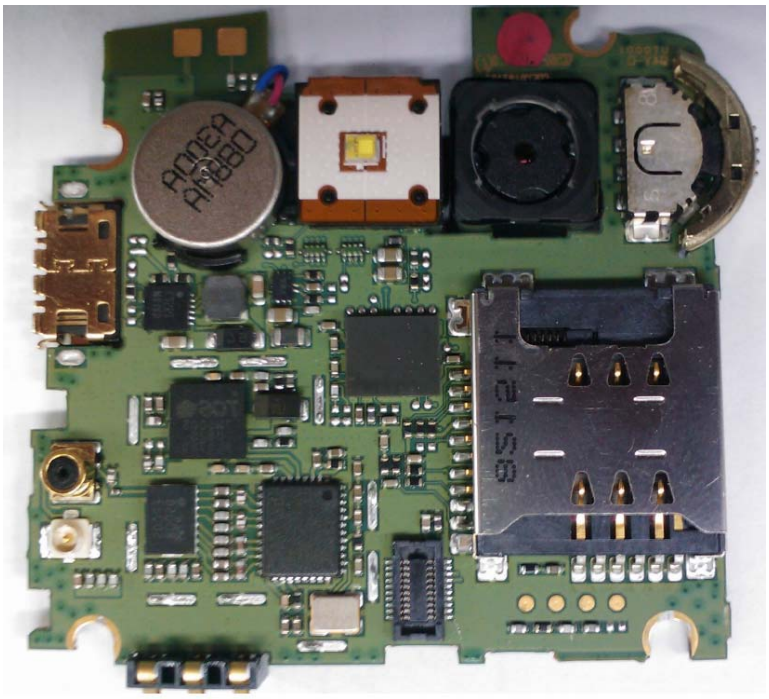


Main PCB Top

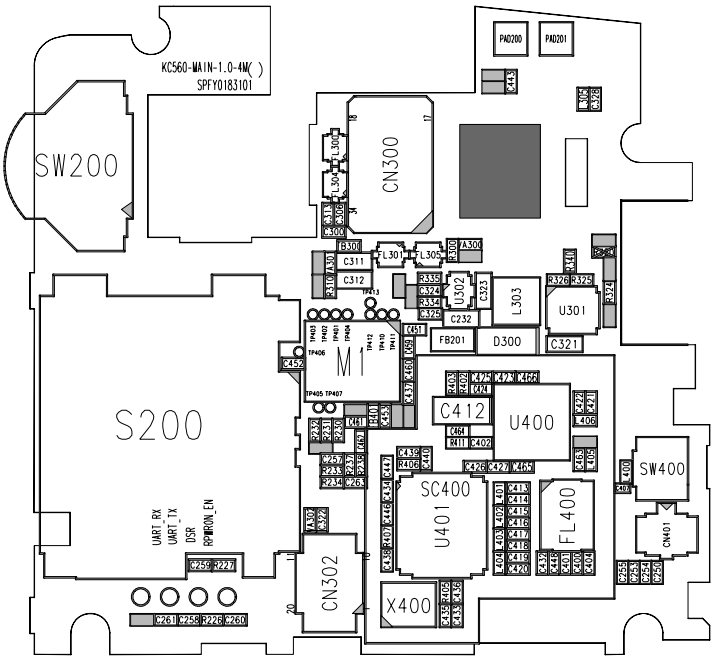


Main PCB Top placement

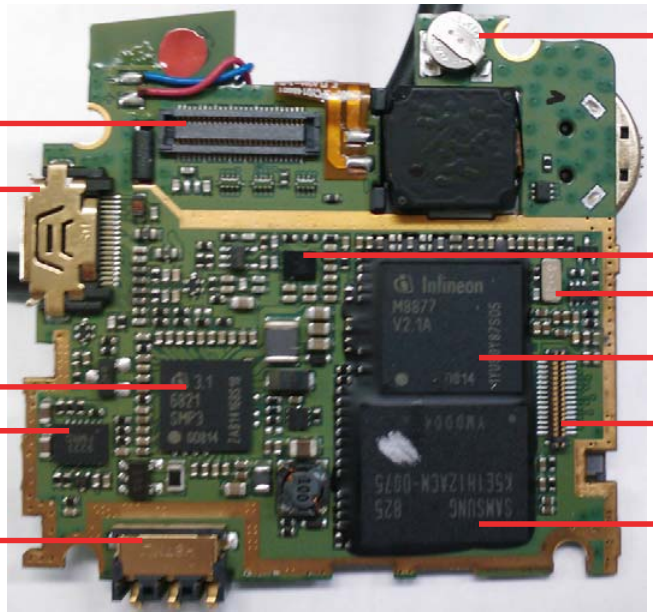
4. PCB layout

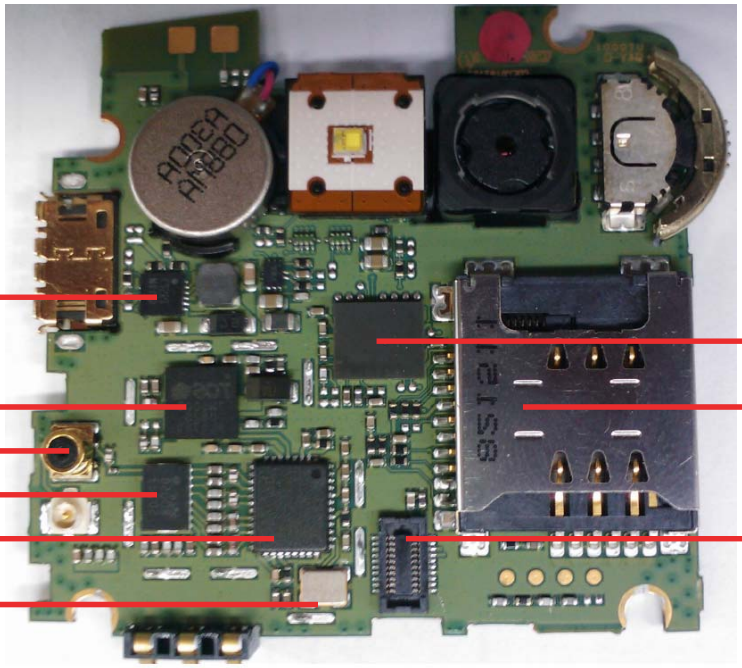


Main PCB bottom

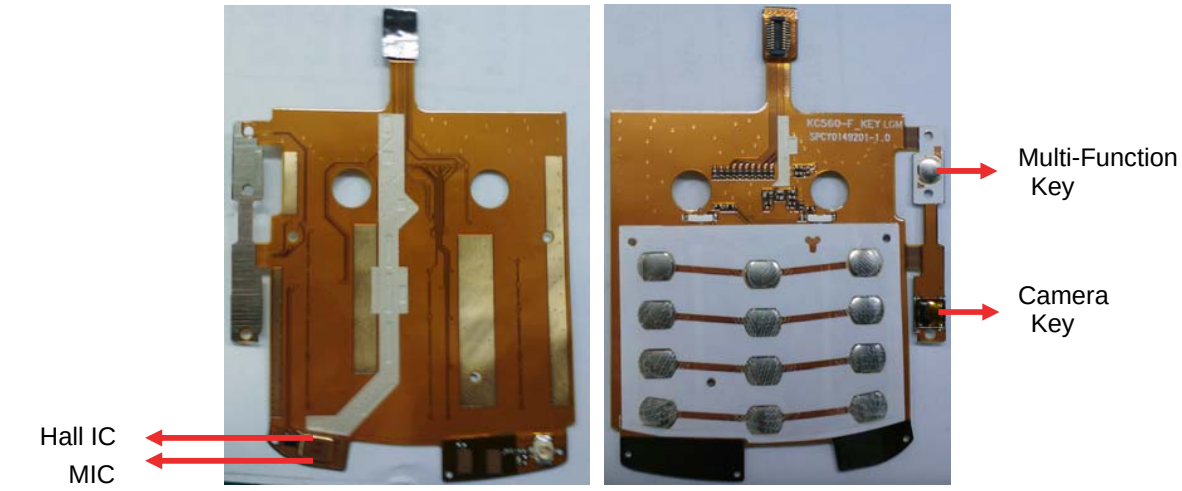


Main PCB bottom placement

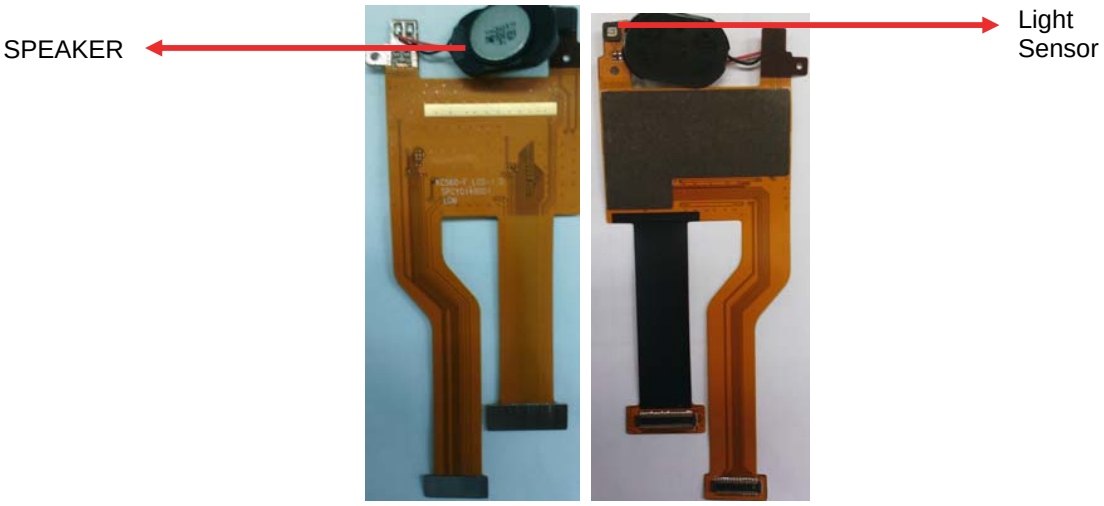




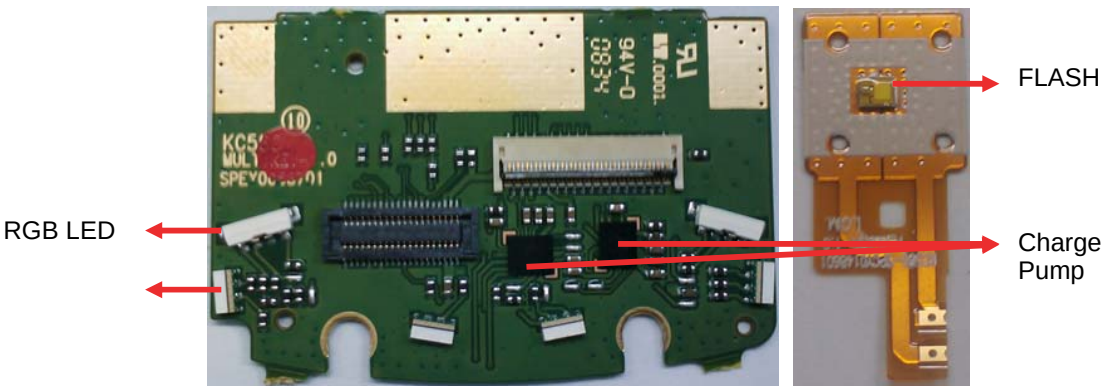
4. PCB layout



KEY FPCB



LCD FPCB

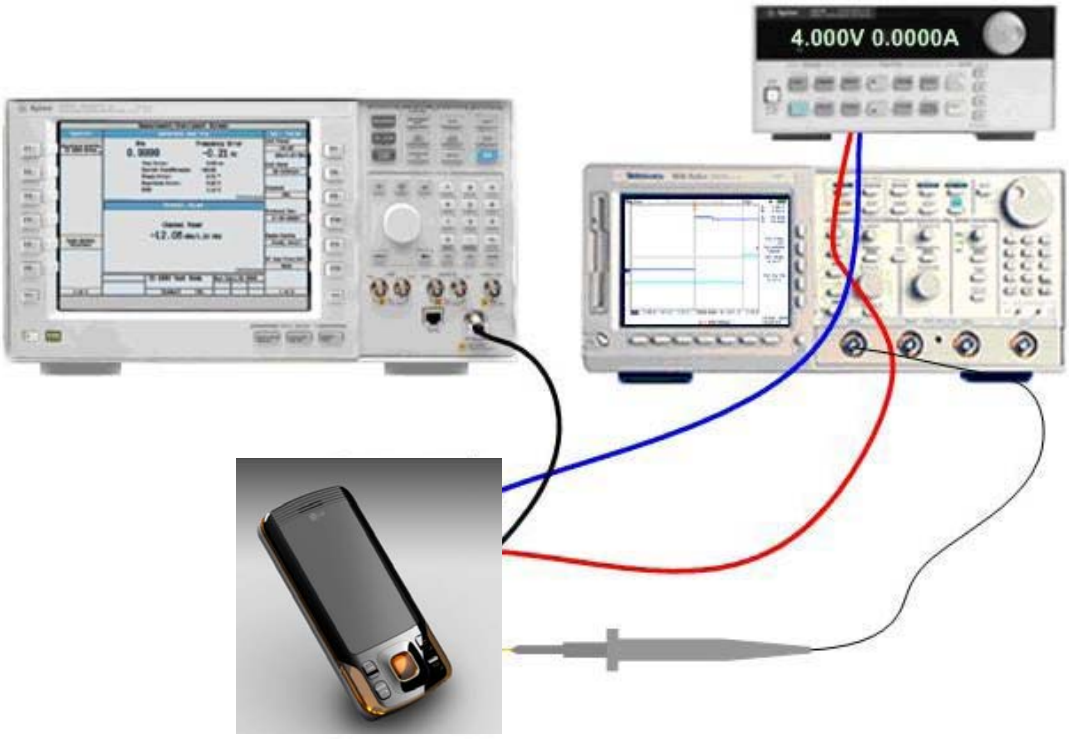


MultiKey PCB

CAMERA FPCB

5. TROUBLE SHOOTING

5.1 Trouble shooting test setup



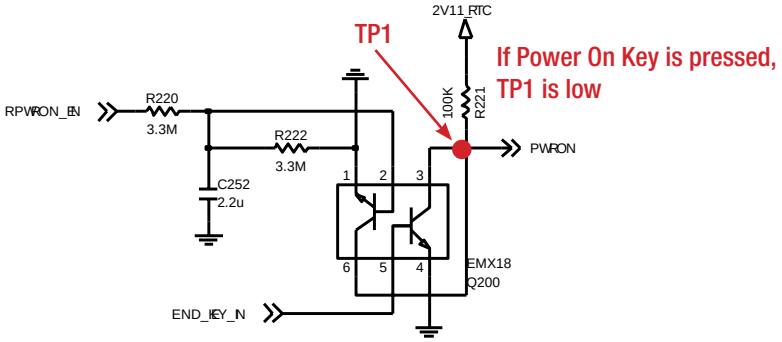
Equipment setup

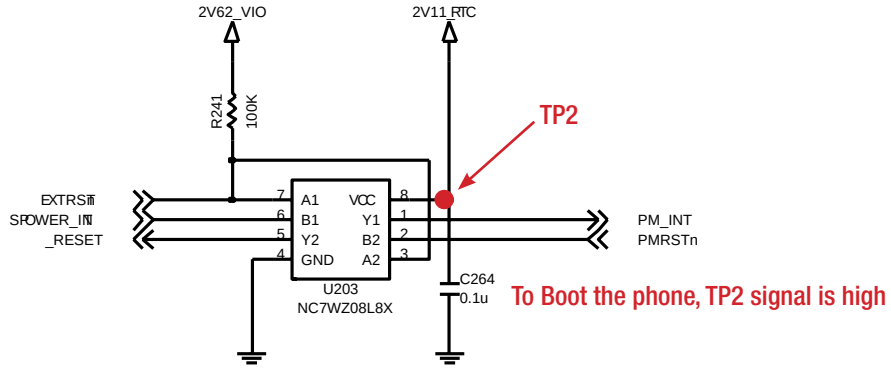
Power on all of test equipment
-Connect PIF-UNION JIG or dummy battery to the DUT for power up.
-Connect mobile switch cable between Communication test set and DUT when you need to make a phone call.
-Follow trouble shooting procedure

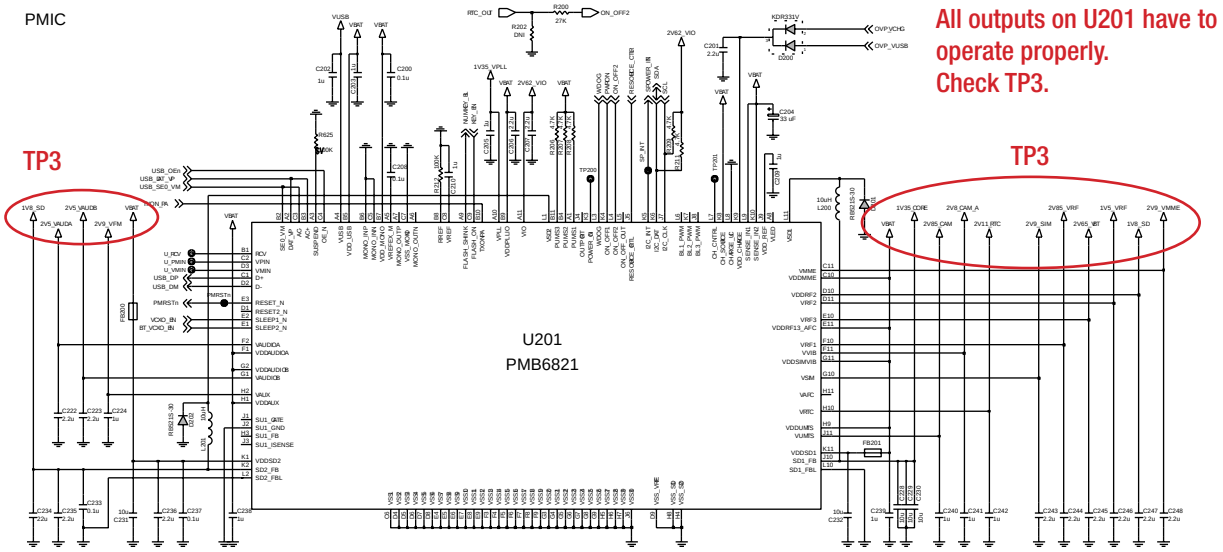
5.2 Power on Trouble

Check Points

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

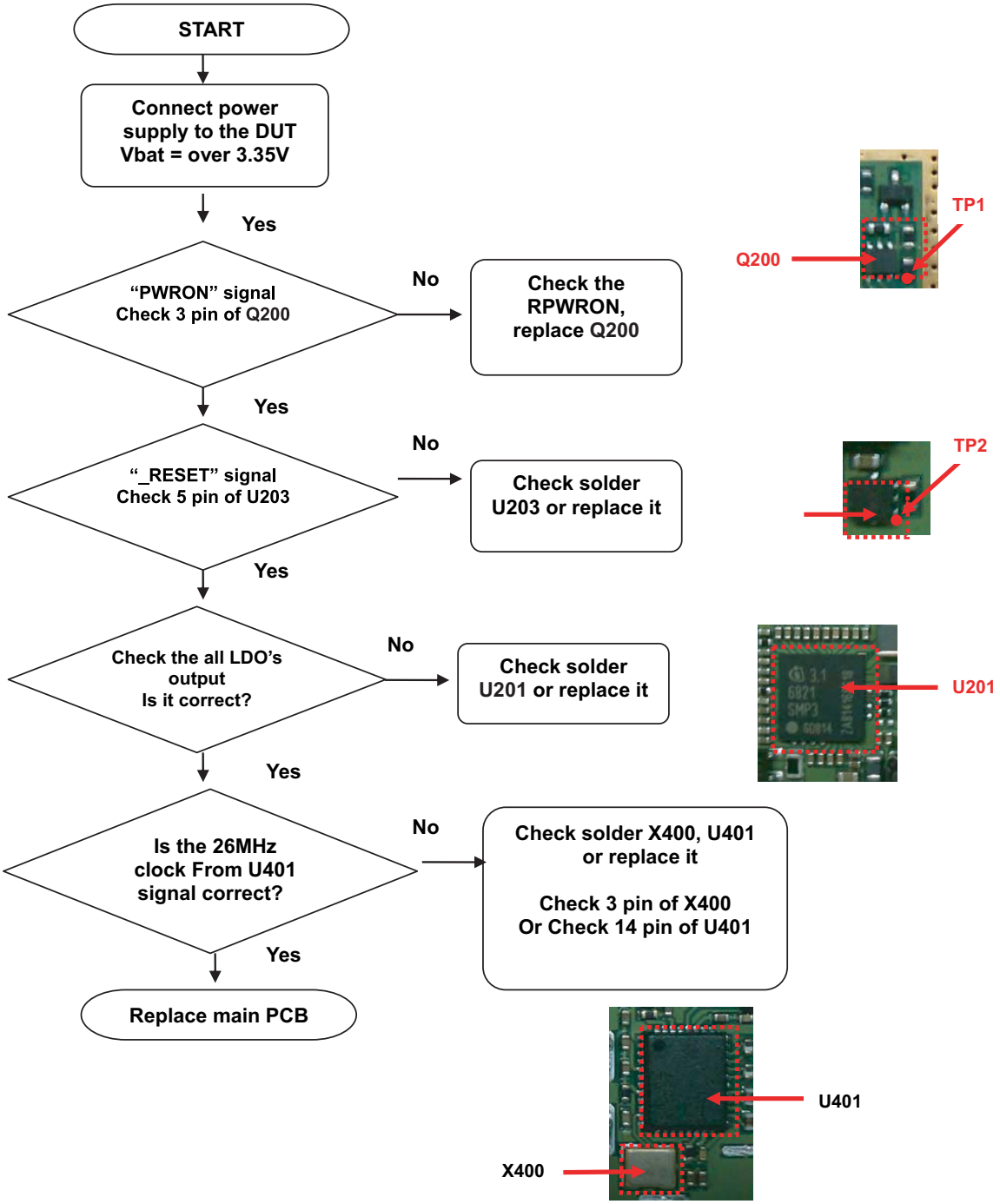






LDO	Net name	Output Voltage	Output Current	Usage
SD1	1V35_Core	1.35V	600mA	Core & for LDO
SD2	1V8_SD	1.8V	300mA	Memory
VAUX	2V9_VAF	2.9V	100mA	Cam Auto Focus
VIO	2V62_VIO	2.62V	100mA	Peripherals
VSIM	2V9_SIM	2.9V	70mA	SIM card
VMME	2V8_VMME	2.9V	150mA	u-SD
VUMTS	2V85_AMP	2.85V	110mA	Headset AMP
VUSB	VUSB	3.1V	40mA	Not used
VLED	VLED	2.9V	10mA	Not used
VAUDIOa	2V5_VAUDA	2.5V	200mA	Stereo headset, Mono earpiece
VAUDIOb	2V5_VAUDB	2.5V	50mA	Analog parts of S-Gold
VRF1	2V85_VRF	2.85V	150mA	2.85 V supply for SMARTi-PM RF transceiver
VRF2	1V5_VRF	1,53V	100mA	1.5 V supply for SMARTi-PM RF transceiver
VRF3	2V65_VBT	2.7V	150mA	Bluetooth
VPLL	1V35_VPLL	1.35V	30mA	S-GOLD3 PLL
VRTC	2V11_RTC	2.11V	4mA	Real Time Clock
VAFC	VAFC	2.65V	5mA	Not used
VVIB	2V8_VLCD	2.8V	140mA	LCD

All Port on U201 have to output proper voltage level.

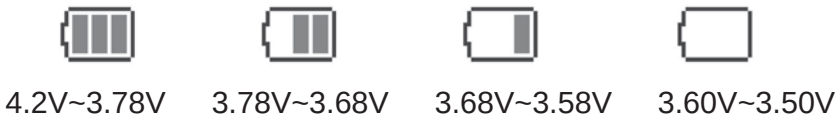


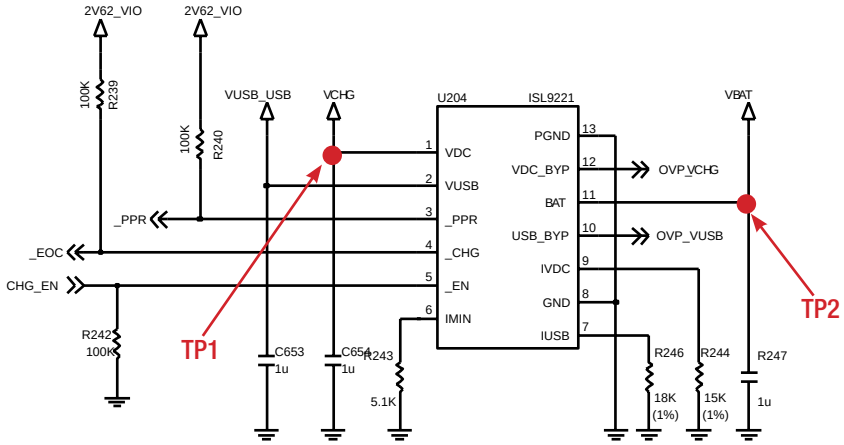
5.3 Charging trouble

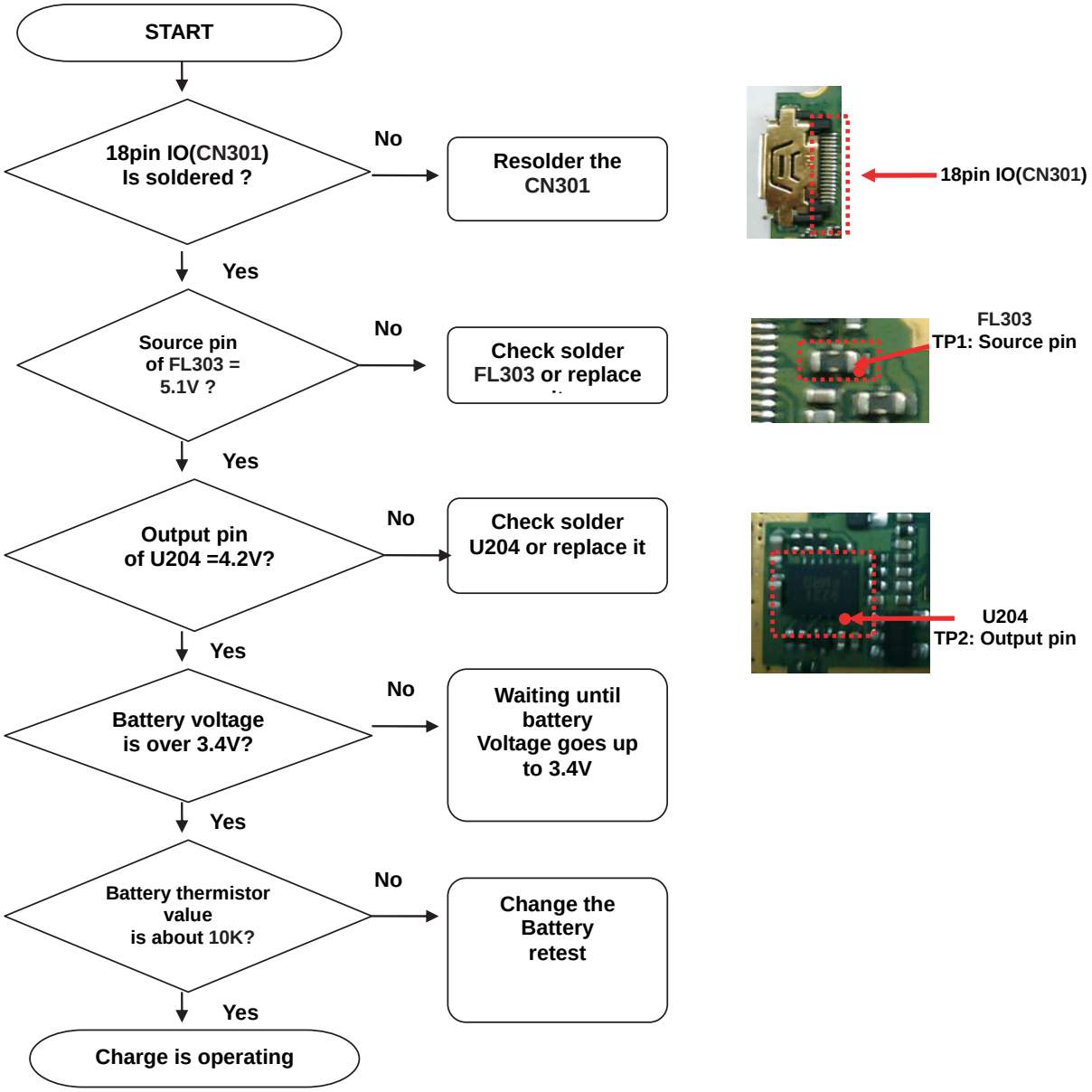
Check Points

- Connection of TA (check TA voltage 5.1V)
-Charging Current Path component voltage drop
- Battery voltage

1 Charging method : CC-CV
2 Charger detect voltage : 4.0 V
3 Charging time : 2h 50m
4 Charging current : 434 mA
5 CV voltage : 4.2 V
6 Cutoff current : 107 mA
7 Full charge indication current (icon stop current) : 107 mA
8 Recharge voltage : 4.15 V



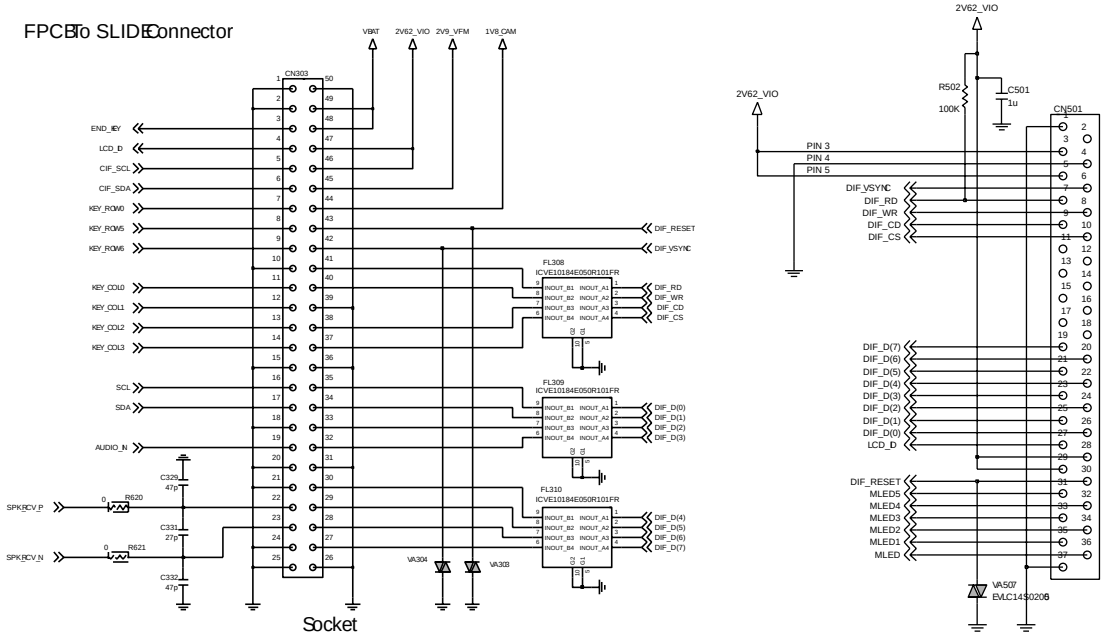


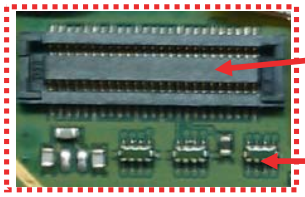


5.4 LCD display trouble

Check Points

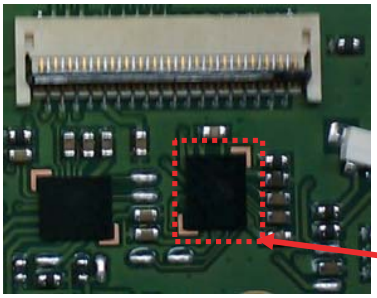
-LCD assembly status (LCD FPCB, Connector on FPCB)
-EMI filter soldering
-Connector combination



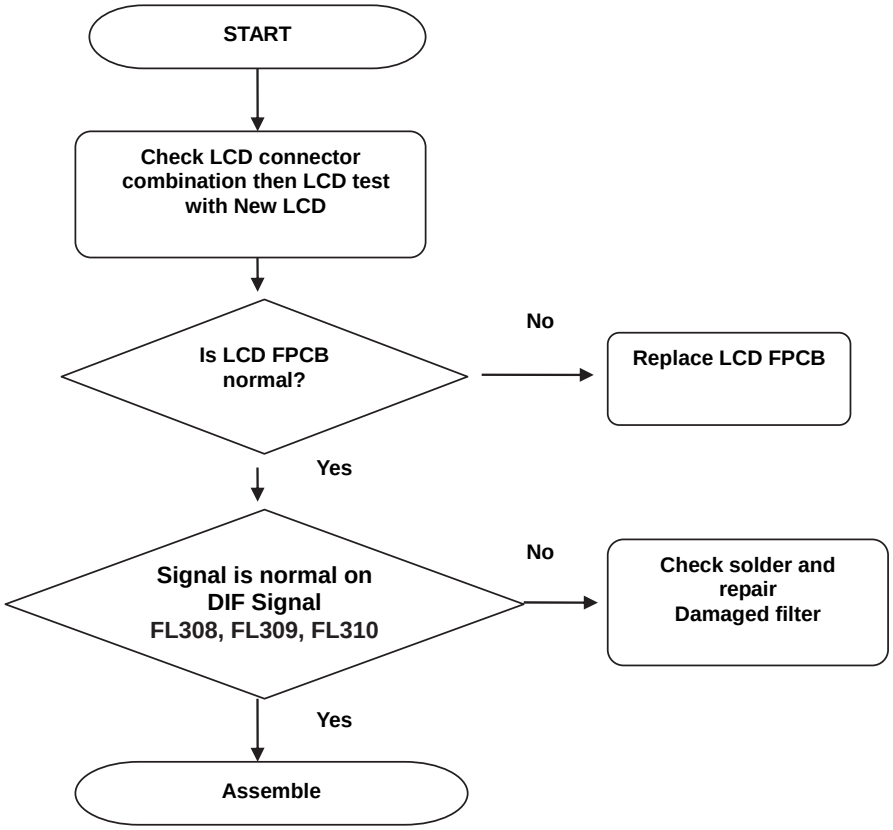


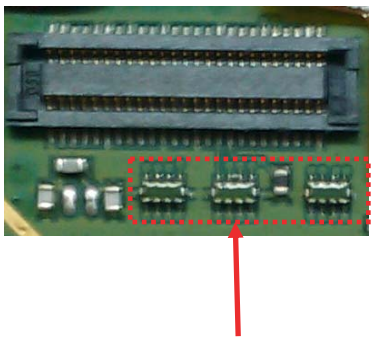
Check the connection LCD FPCB Connector

Check signal flow via EMI filter



Charge Pump





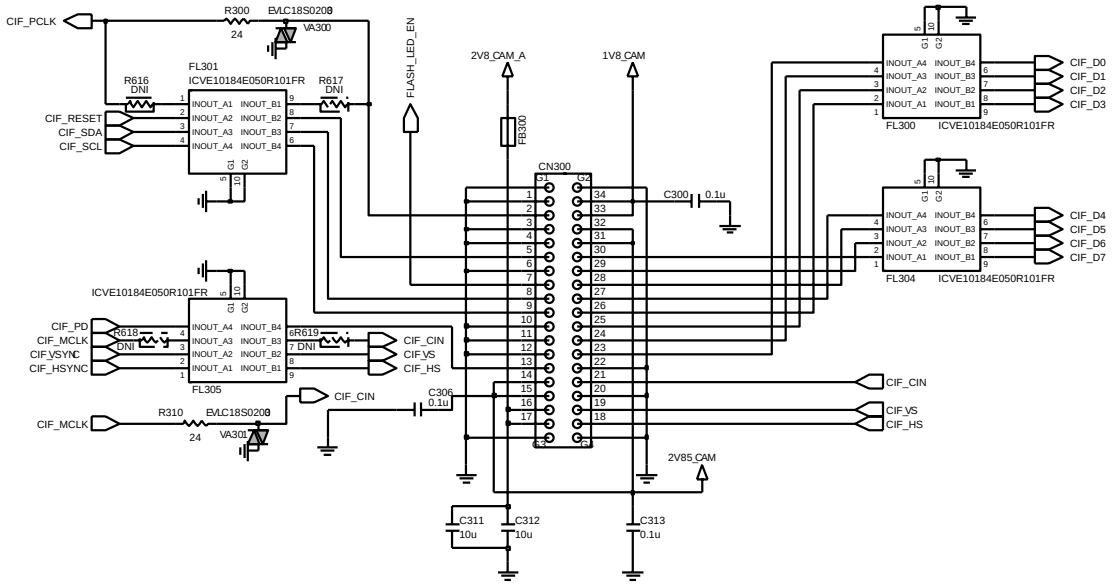
FL308, FL309, FL310

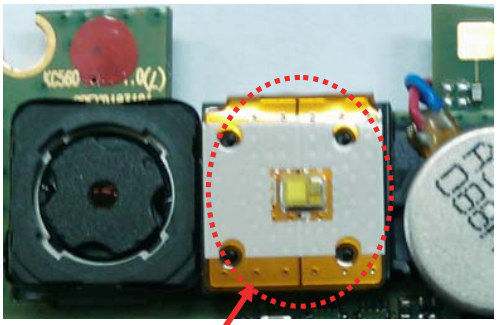
5.5 Camera Trouble

Check Points

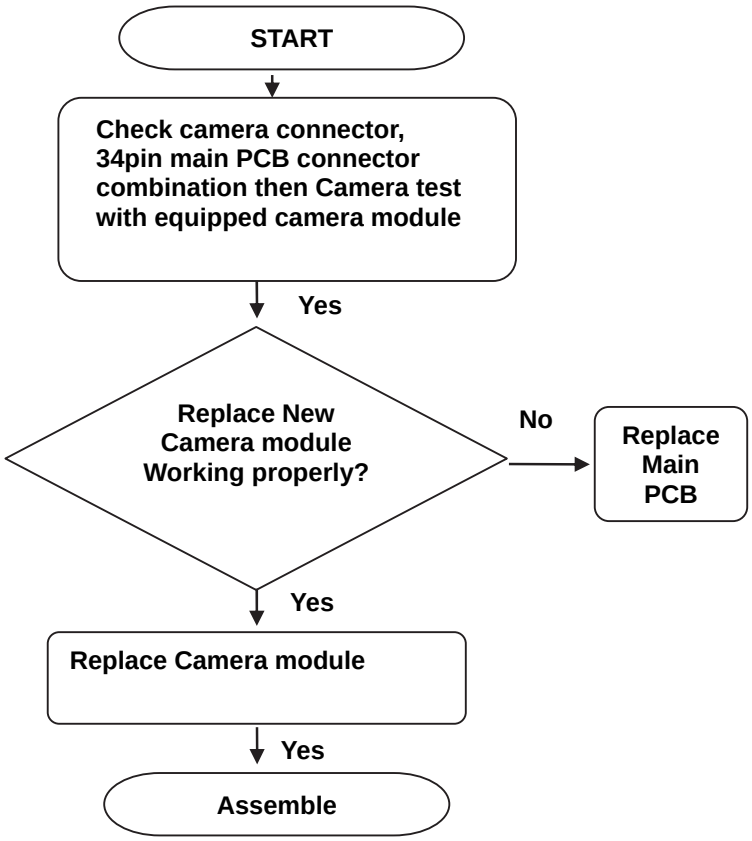
-Connectors combination
-FPCB status

3M A/F CAMERA CONNECTOR





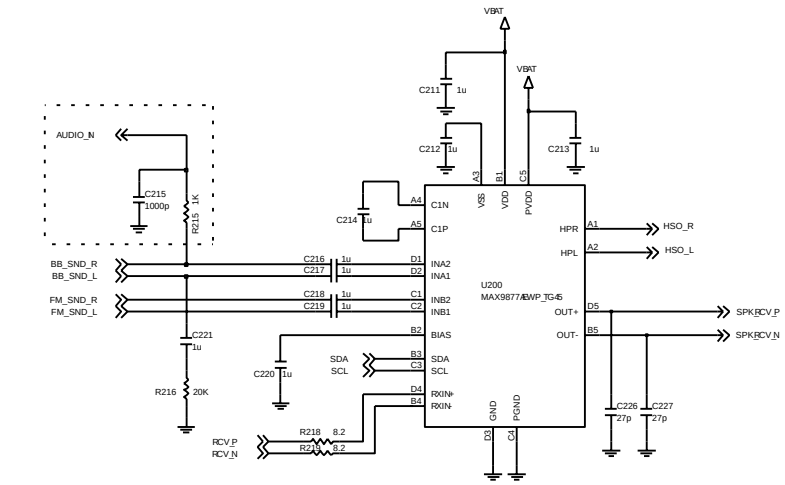
Check the connector combination

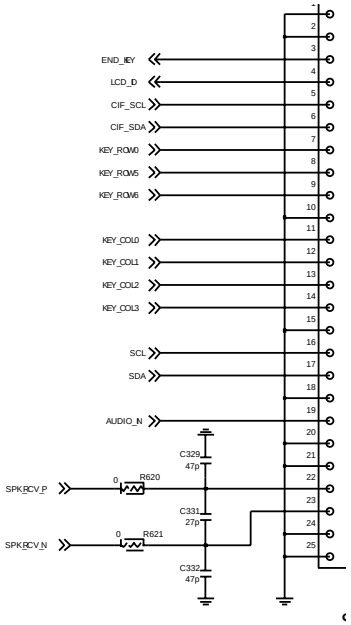


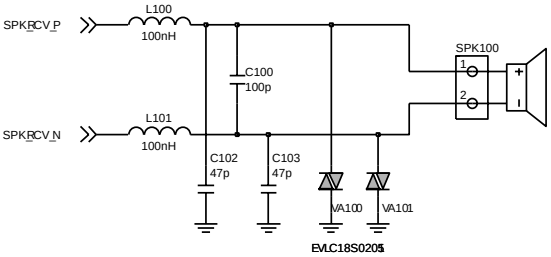
5.6 Receiver & Speaker trouble

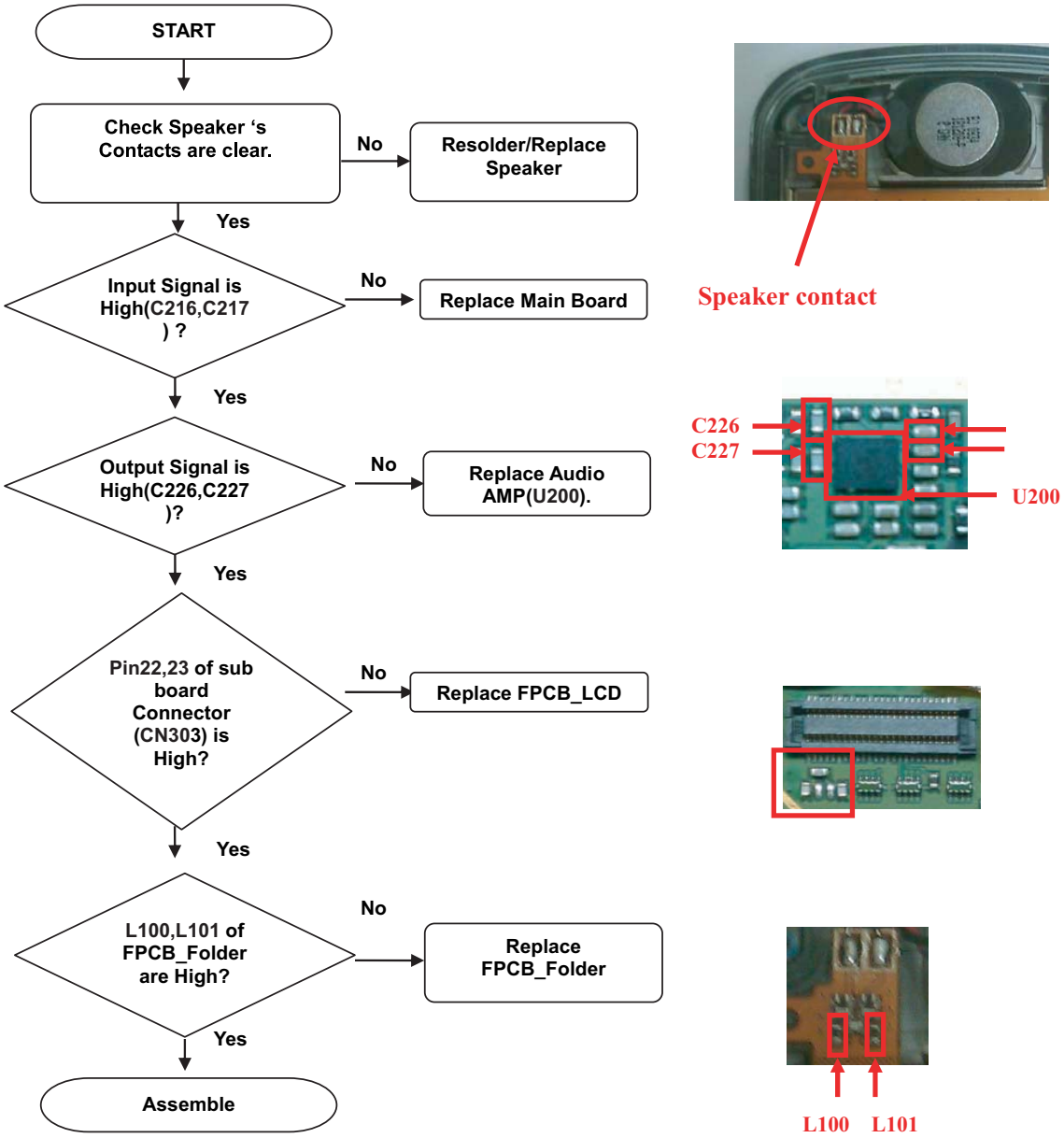
Check Points

-Speaker contact
-Audio amp soldering





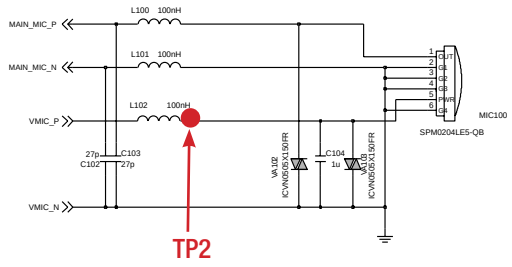


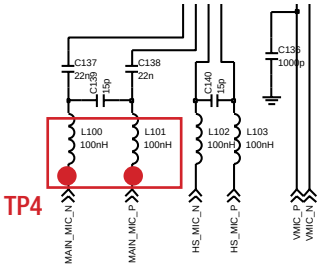


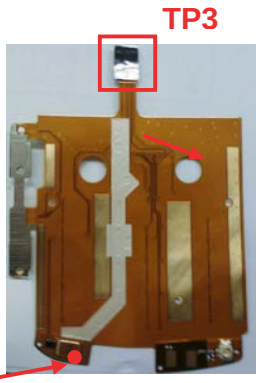
5.7 Microphone trouble

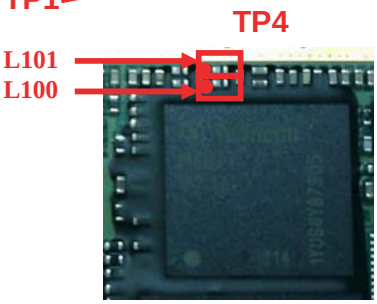
Check Points

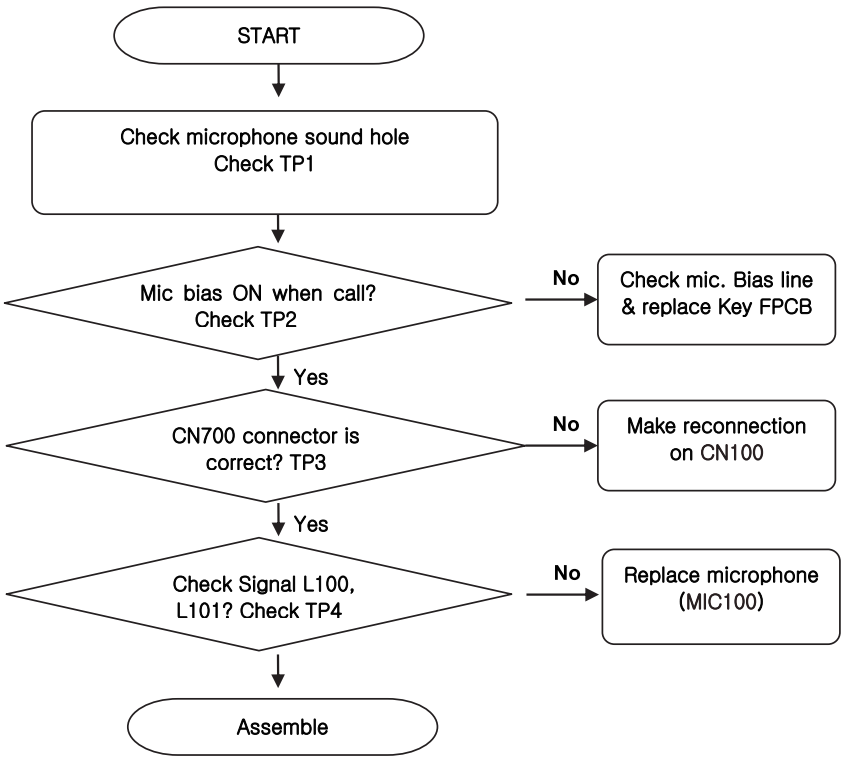
-Microphone hole
-Mic. Bias voltage level & signal line







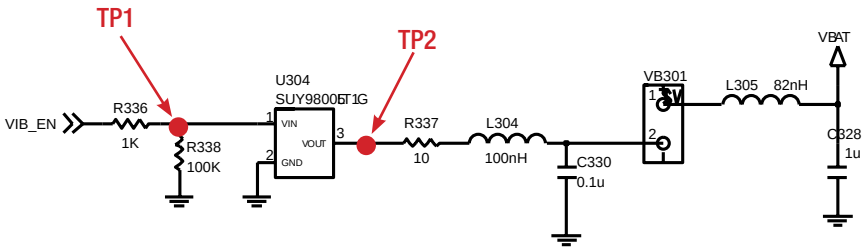


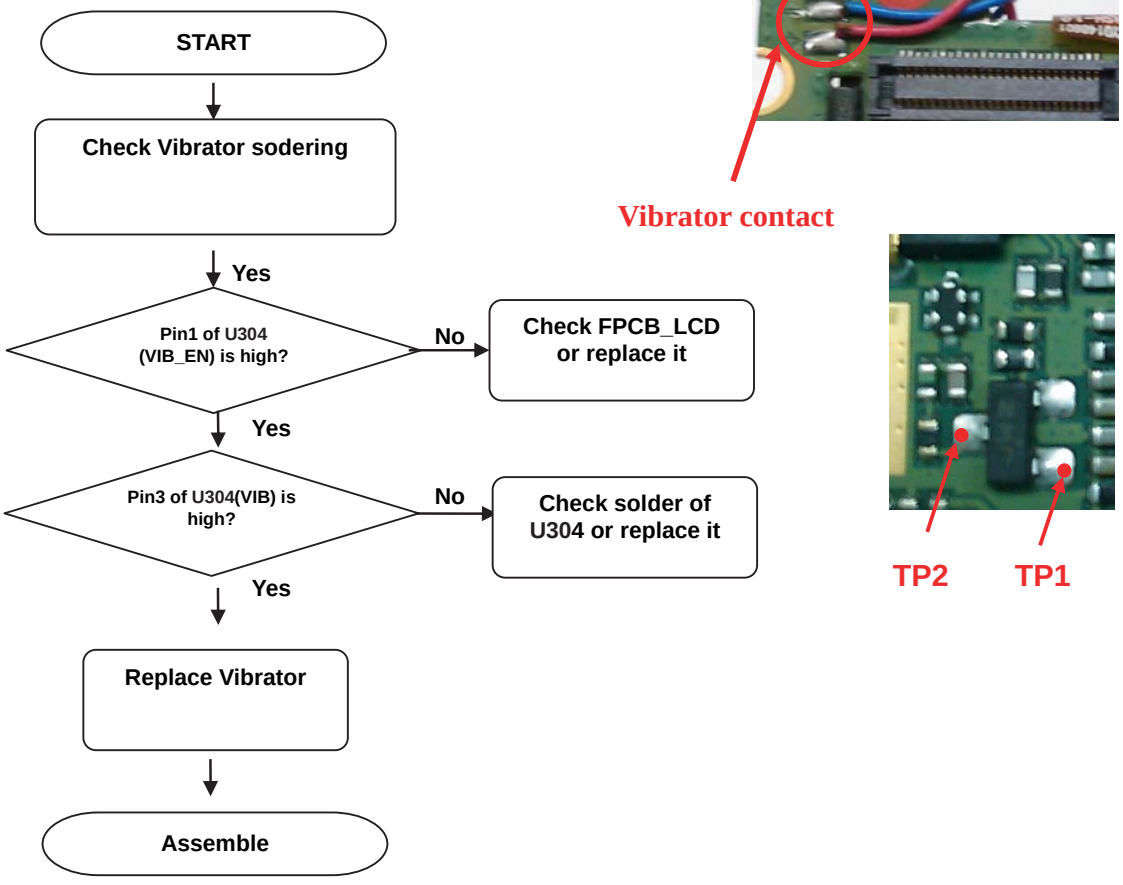


5.8 Vibrator trouble

Check Points

-Vibrator soldering
-IC is working correct

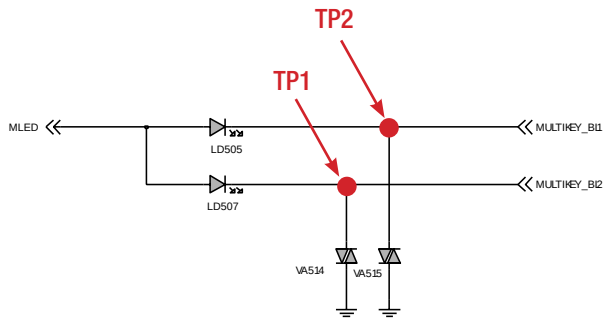


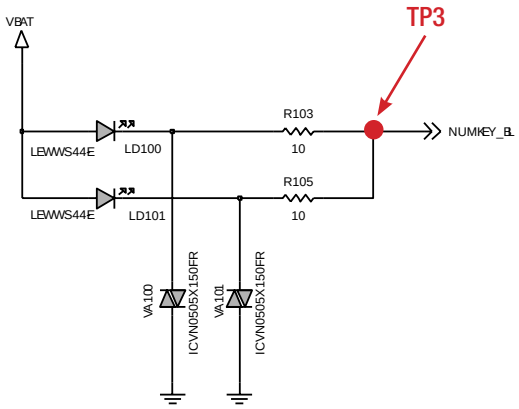


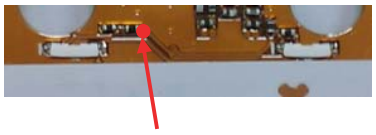
5.9 Keypad back light trouble

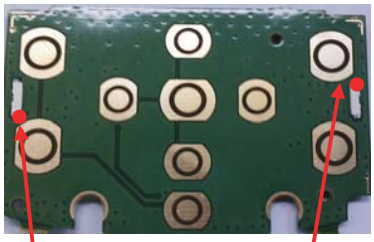
Check Points

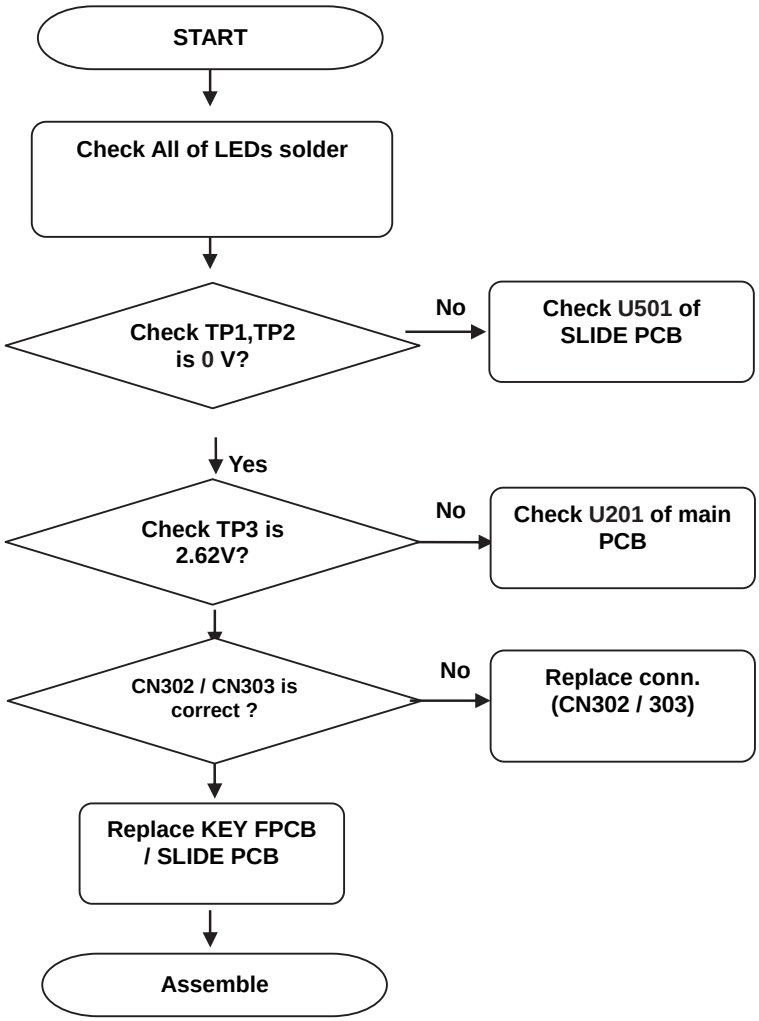
-Signal path is connected well





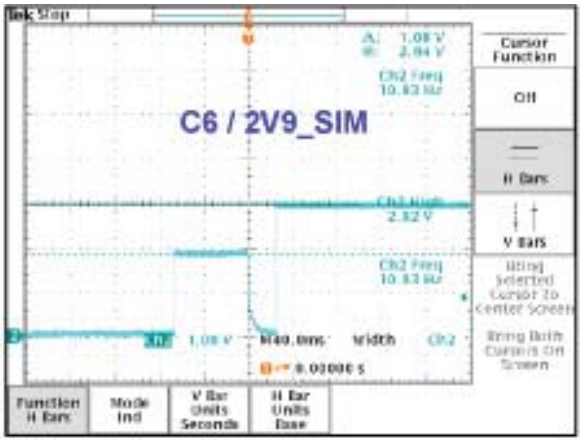


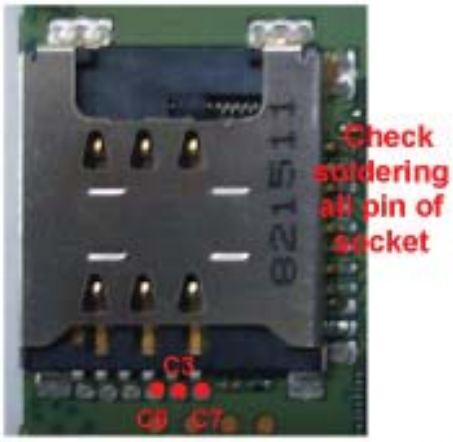


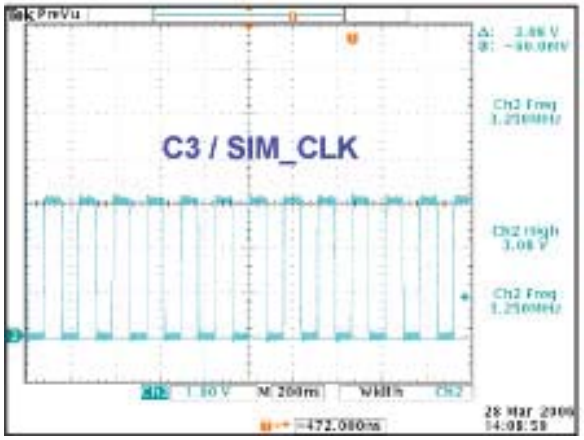


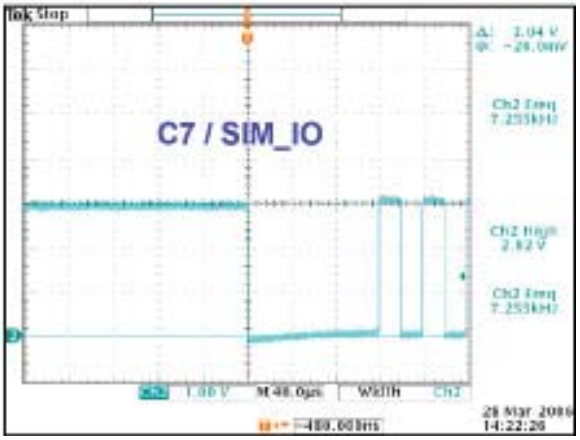
5.10 SIM & uSD trouble

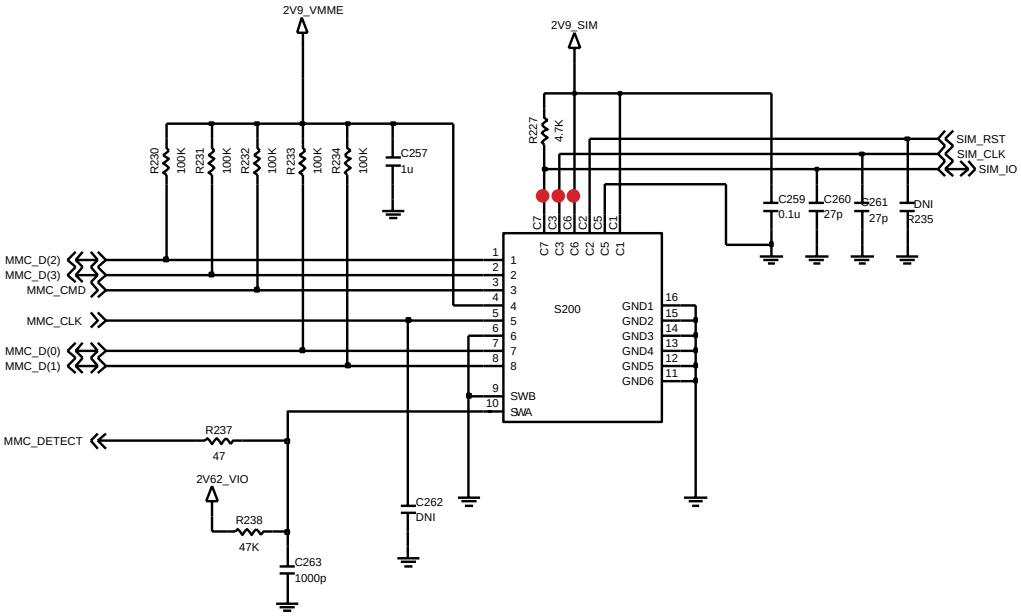
SIM Check Points
-Power is working
-Socket soldering
-Proper SIM is used

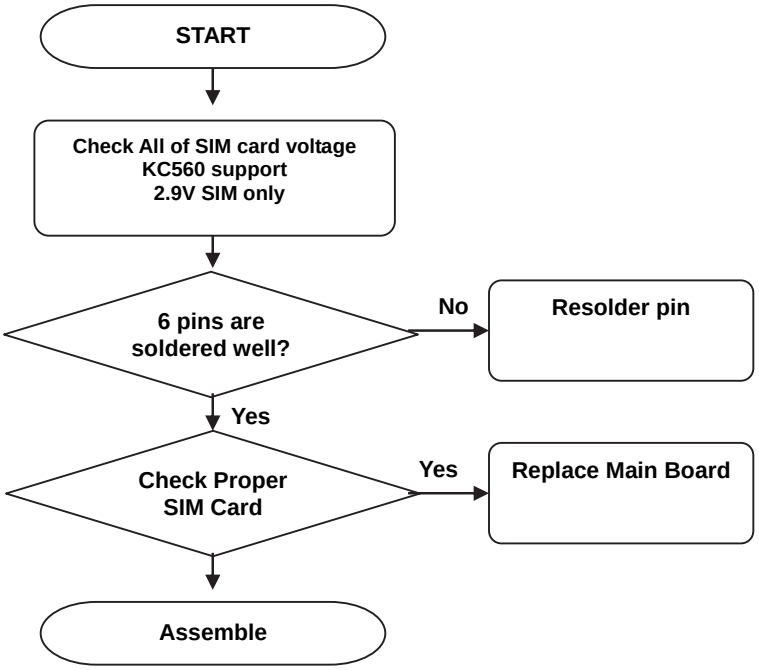








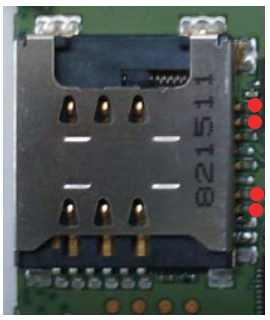




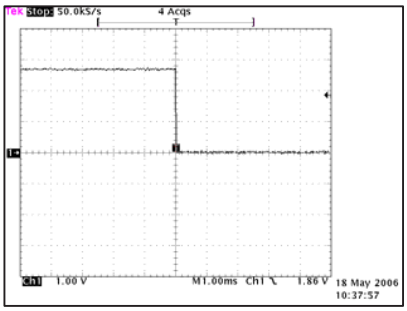
uSD Check Points

-Power is working
-Socket soldering
-Card detect is working

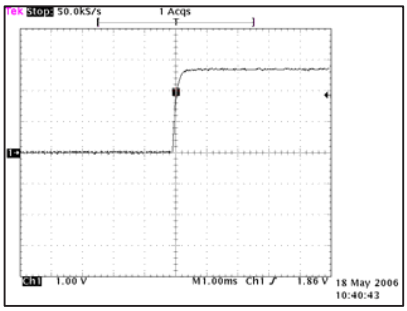
MMC-DETECT PIN



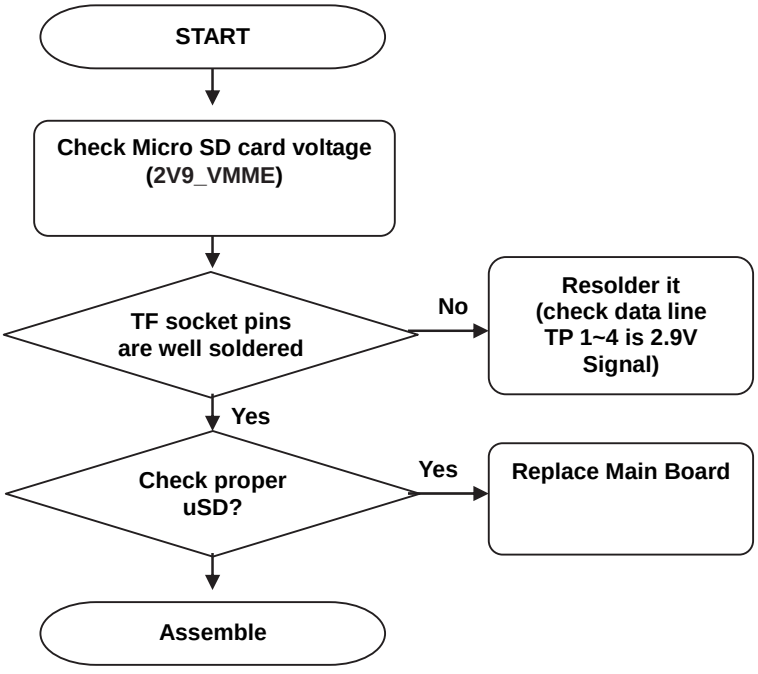
MMC_DETECT SIGNAL



Card insert



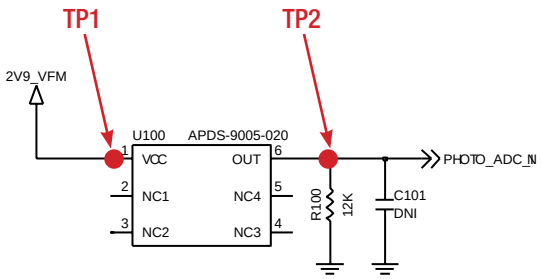
Card Deject

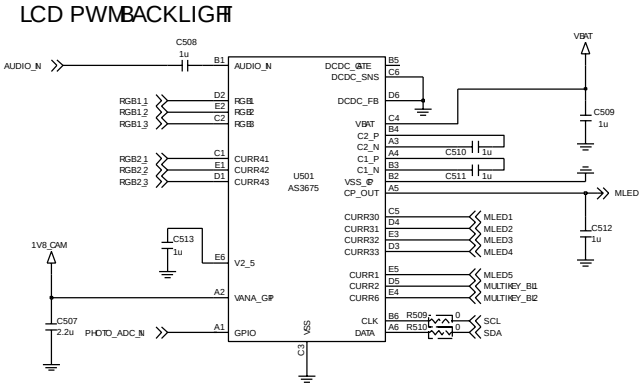


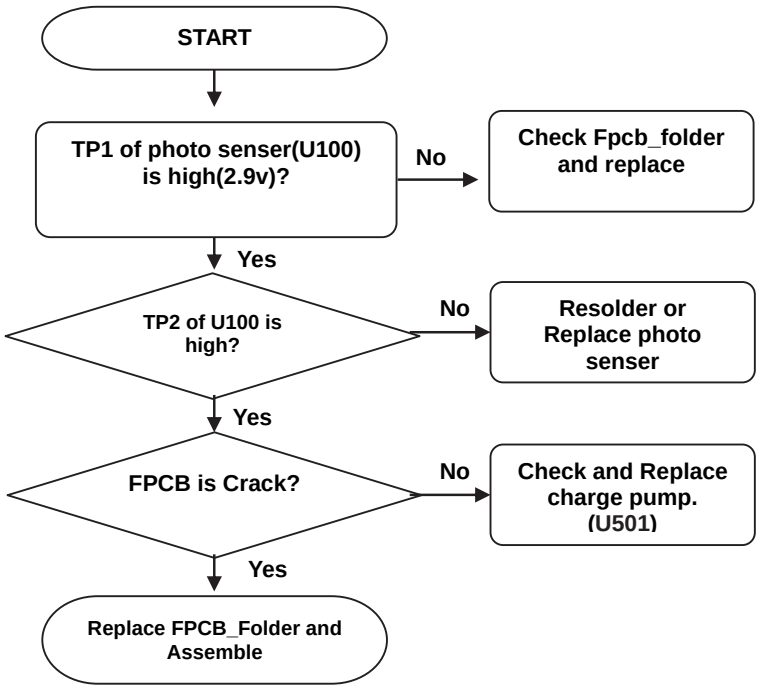
5.11 Photo sensor trouble

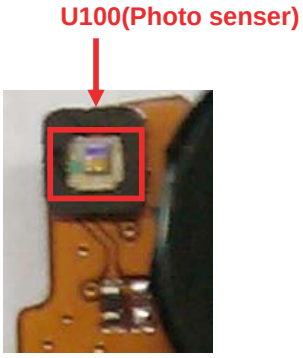
Check Points

- photo senser soldering‘
- FPCB_Folder Crack



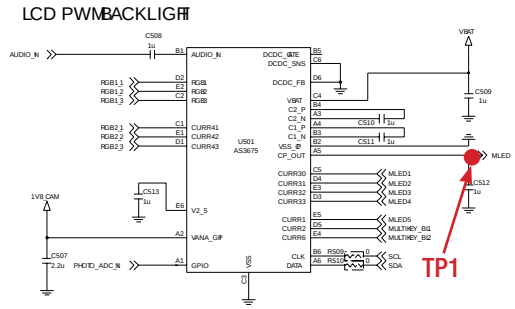


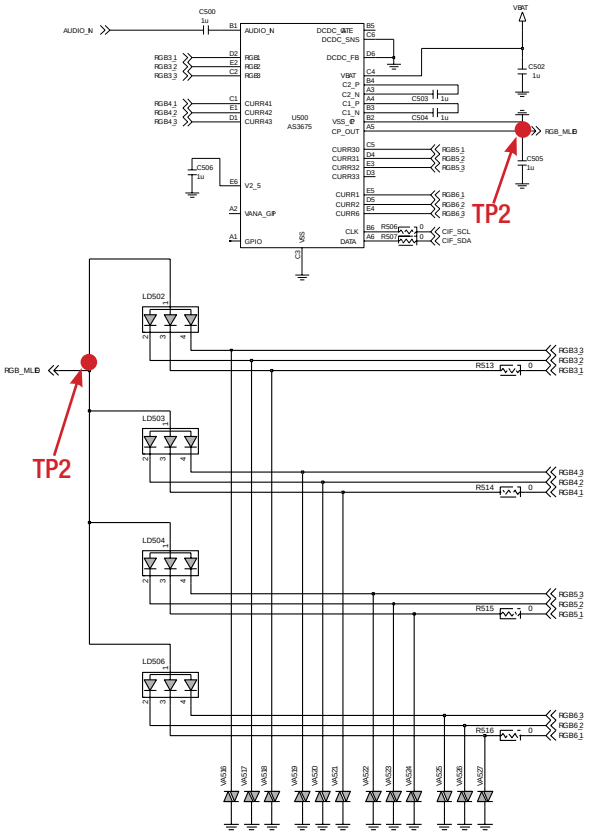


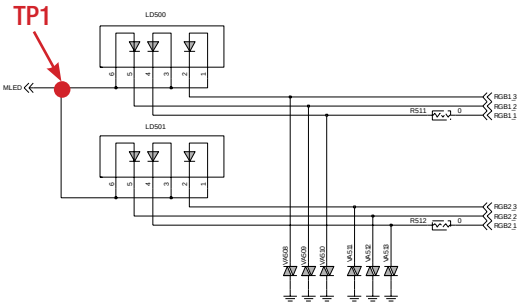


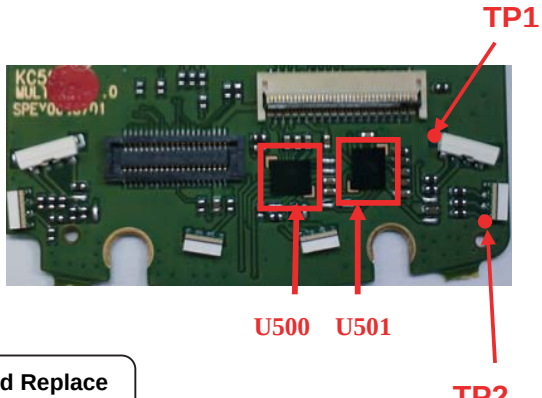
5.12 RGB LED trouble

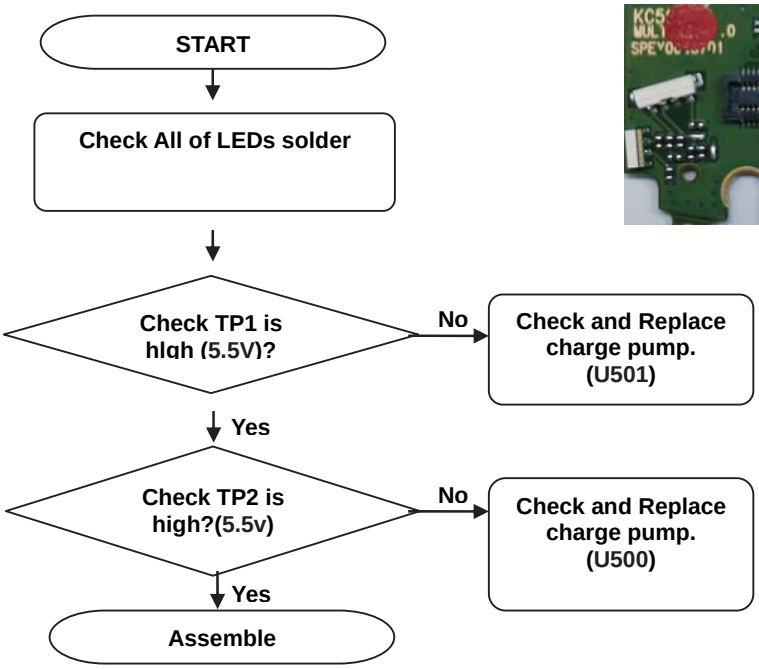
Check Points
-Signal path is connected well





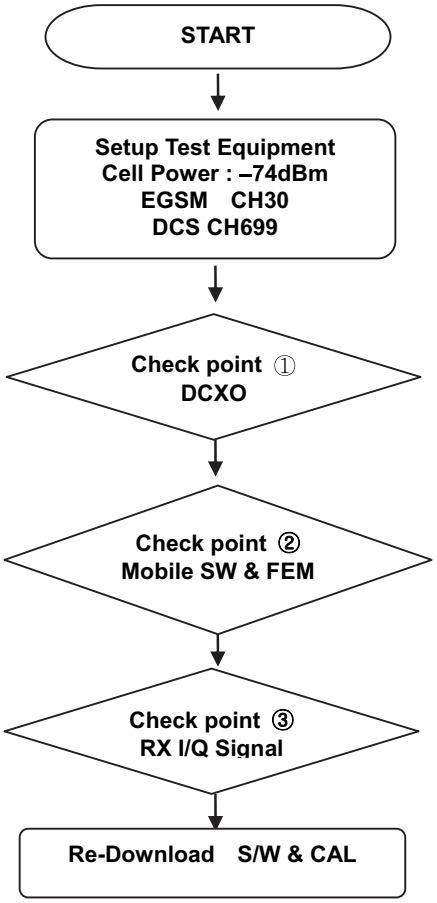






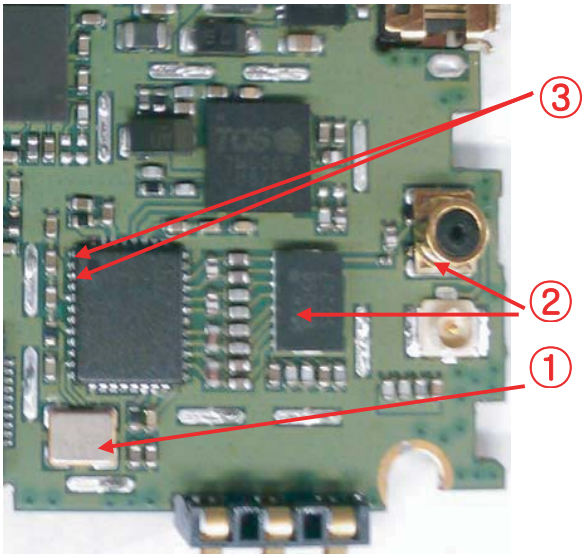
5.13. Trouble Shooting of Receiver Part

Checking Flow



Checking Points

Main PCB Bottom Top

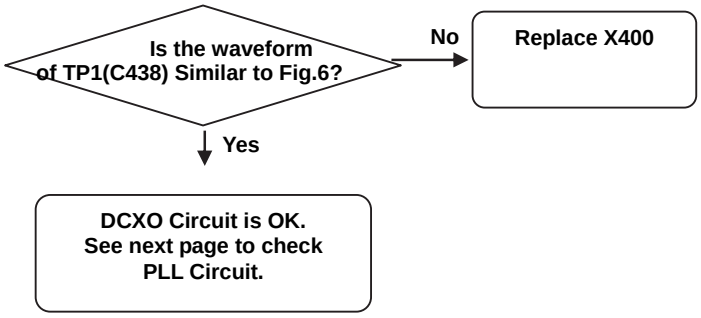


5.13.1. Checking DCXO Circuit

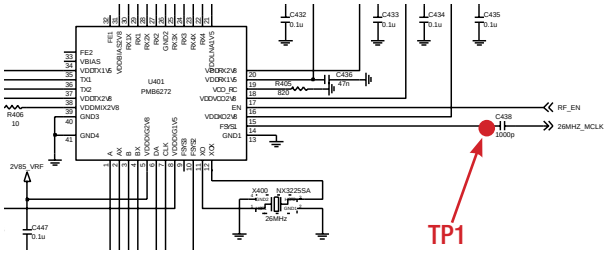
Checking Points

TP1(C438) : 26MHz

Checking Flow

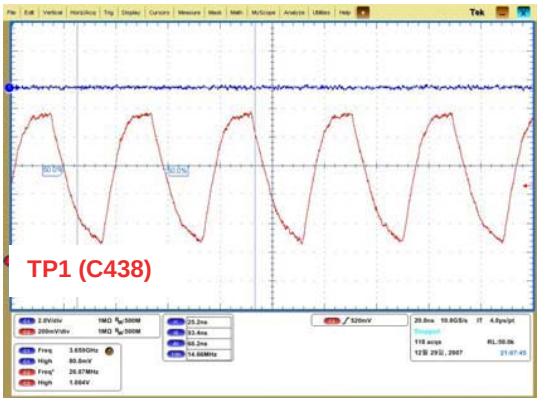


DCXO Circuit Diagram



DCXO Cicuit

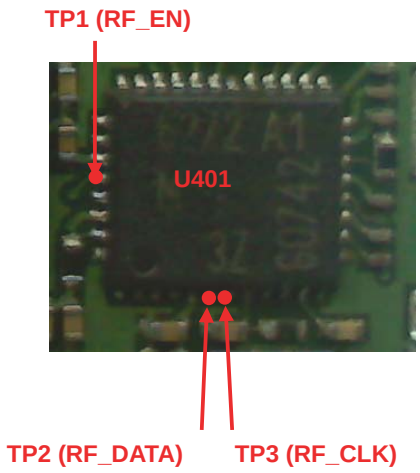
Waveform



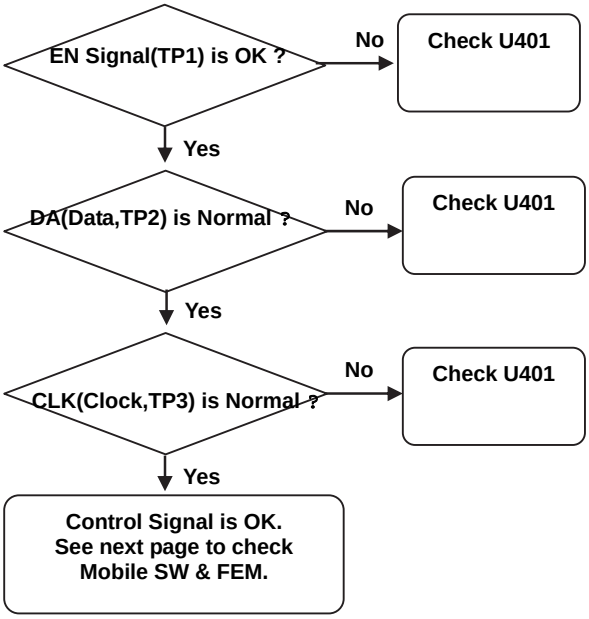
DCXO Waveform

5.13.2. Checking PLL Control signals

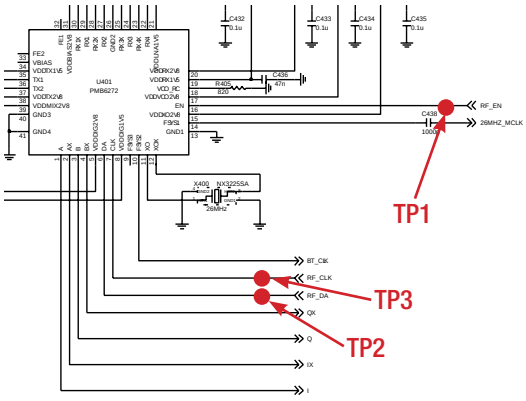
Checking Points



Checking Flow

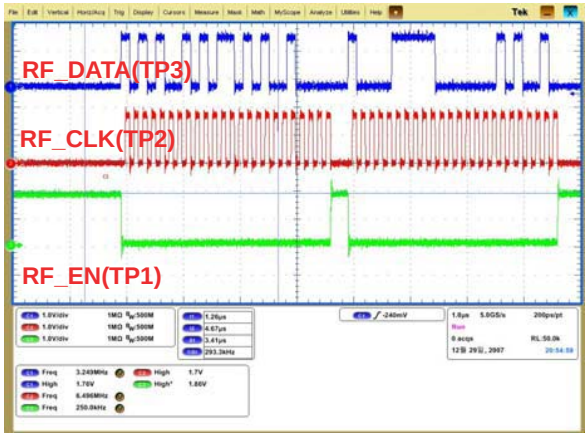


RF Transceiver Circuit Diagram



Transceiver Circuit

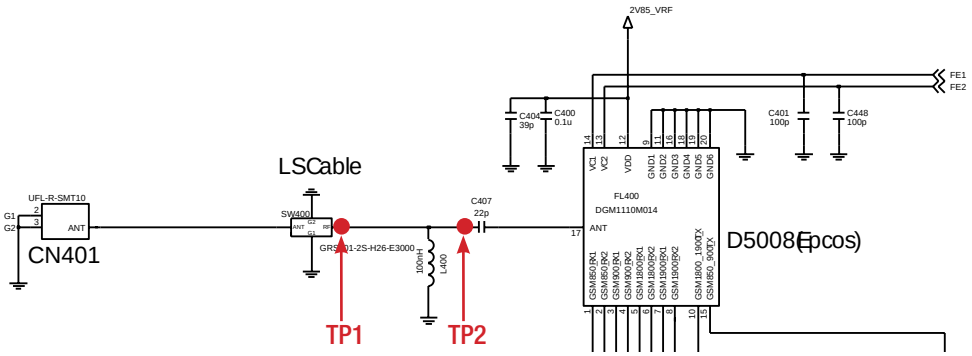
Waveform



PLL Control Waveform

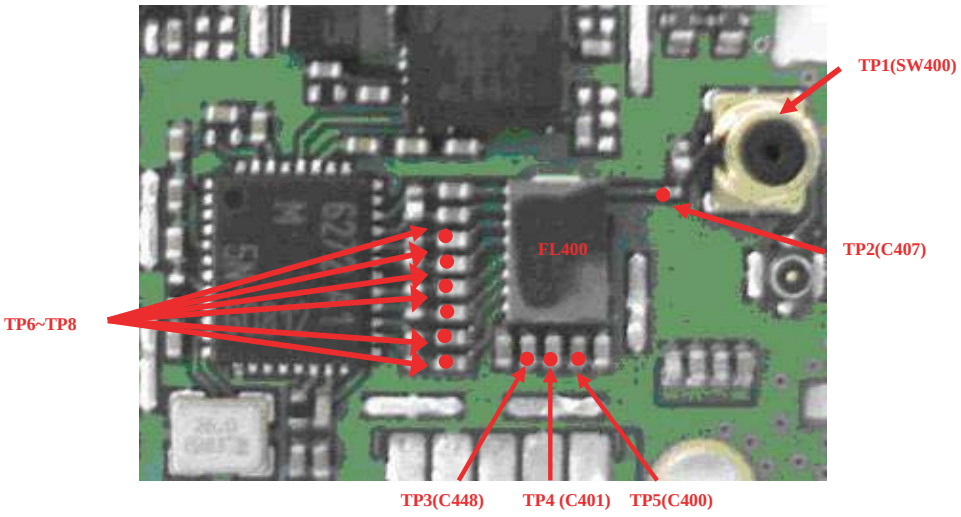
5.13.3 Checking Mobile SW & FEM

Mobile SW & FEM Circuit Diagram



Mobile SW & FEM Circuit

Checking Points

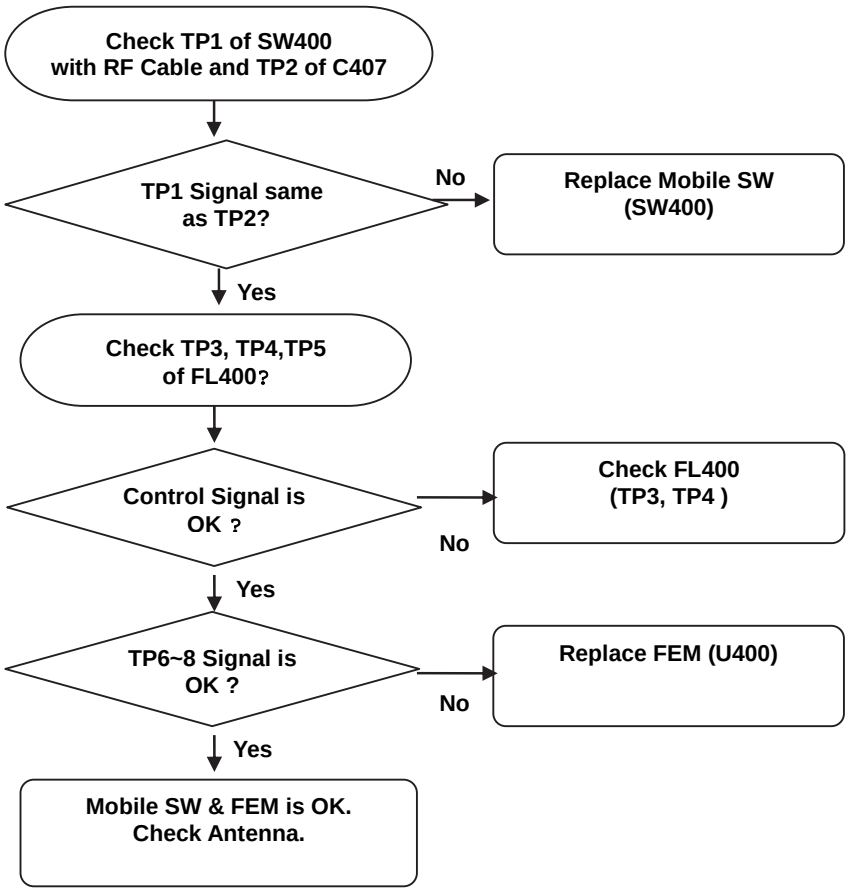


Mobile SW & FEM

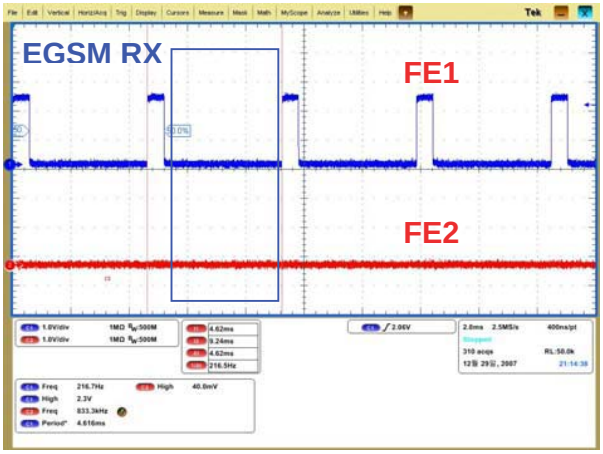
FEM RX Control Logic

RX Mode	VDD	FE1	FE2
GSM900	H	L	L
DCS/PCS	H	H	L

Checking Flow

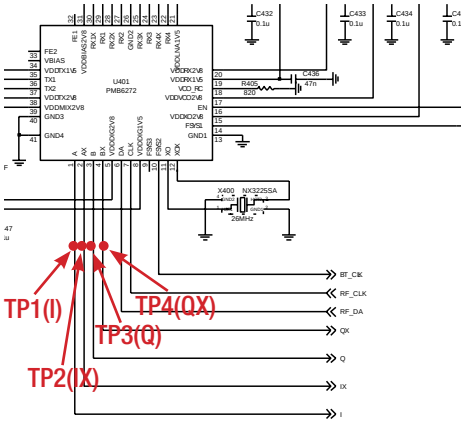


Mobile SW (SW400)



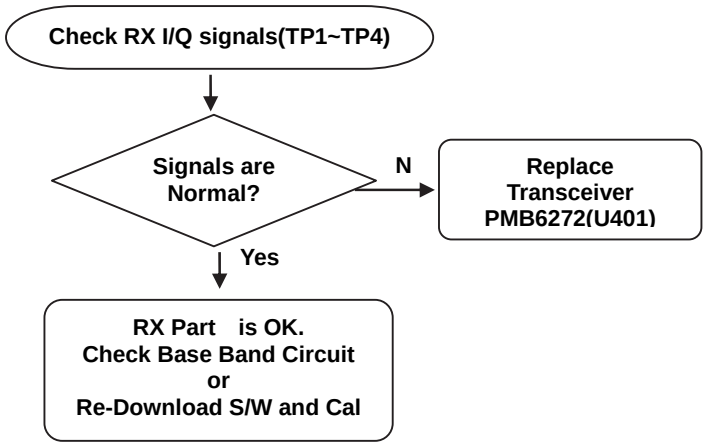
FEM Control Signals

5.13.4. Checking RX I/Q Signals



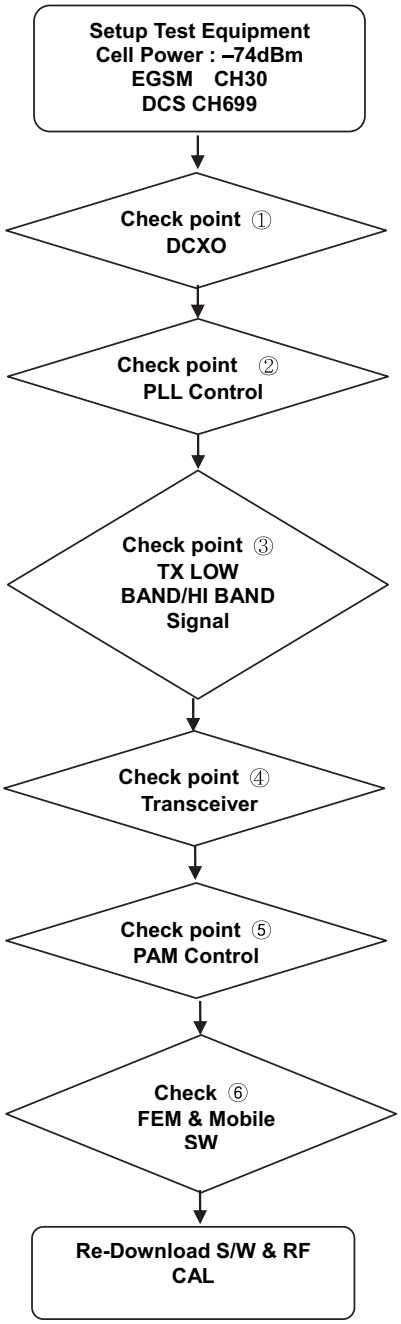
RX I/Q Circuit

Checking Flow

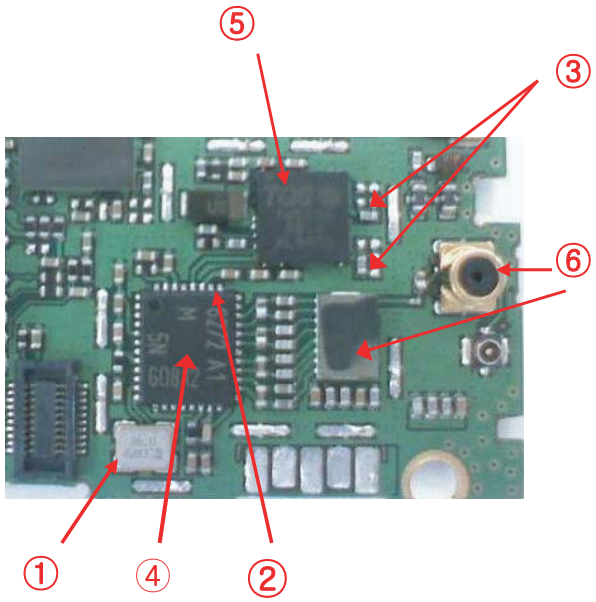


5.14. Trouble Shooting of Transmitter Part

Checking Flow



Checking Points



5.14.1. Checking DCXO Circuit

See RX Part “1. Checking DCXO Circuit”

5.14.2. Checking PLL Control Signal

See RX Part “2. Checking PLL Control Signal”

5.14.3. Checking TX I/Q Signals

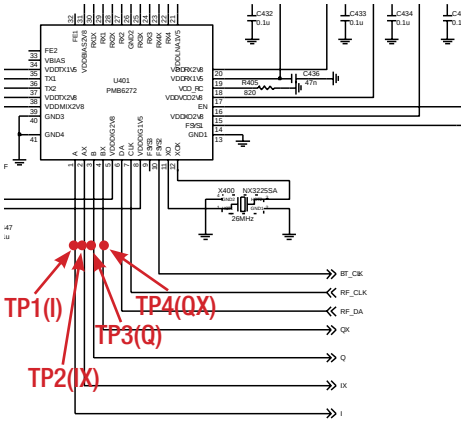
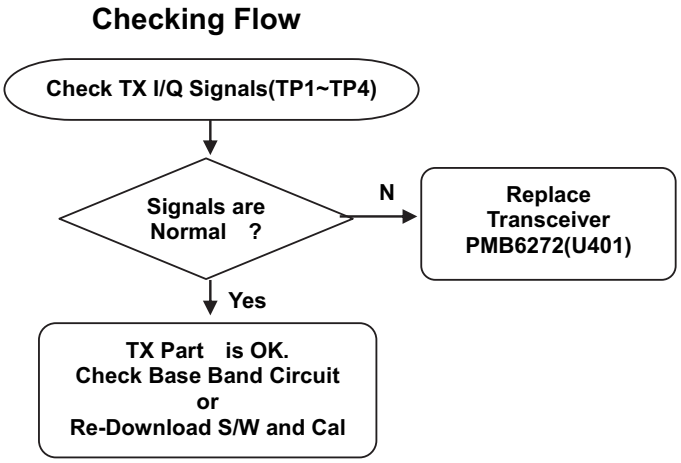
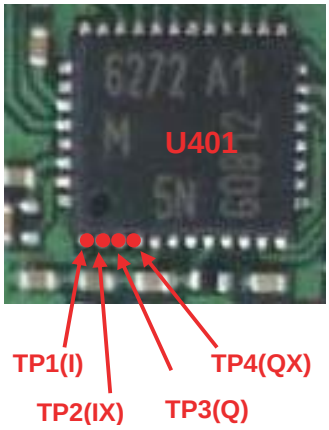


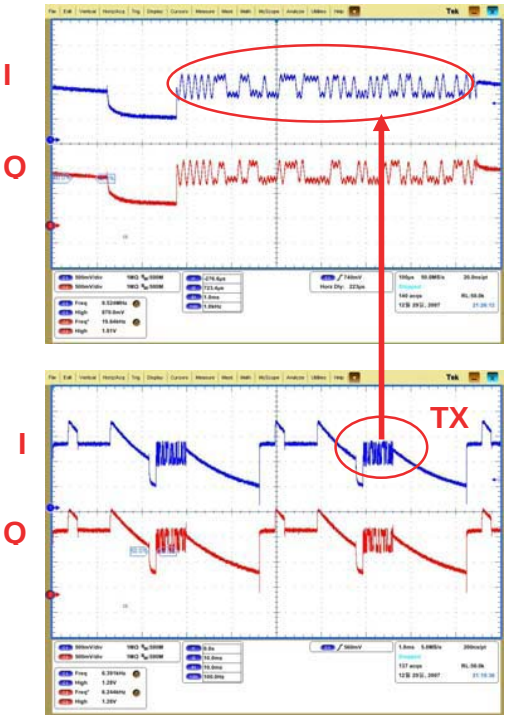
Figure 19. TX I/Q

TX I/Q Circuit



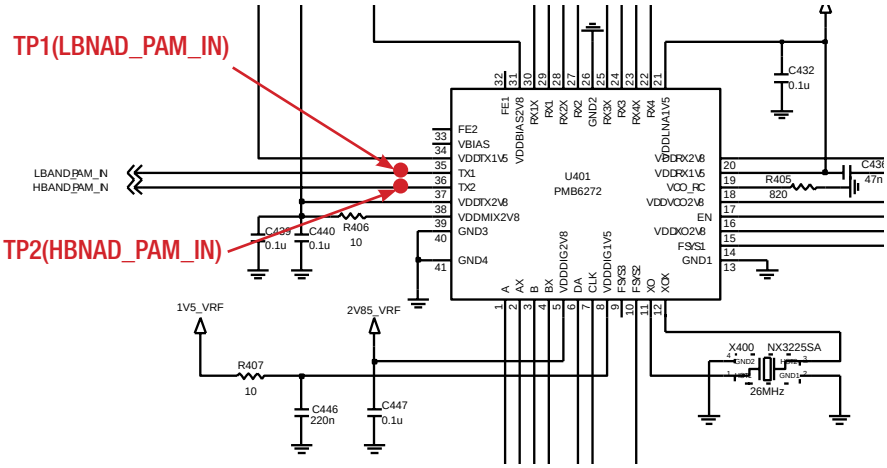
Checking Points





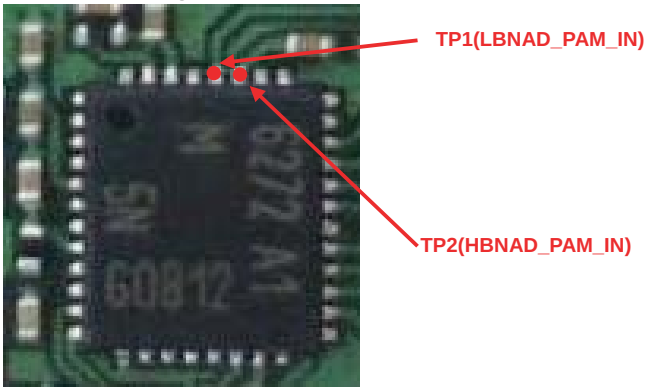
TX I/Q Waveform

5.14.4. Checking Transceiver Output Signals



Transceiver Output Circuit

Checking Points

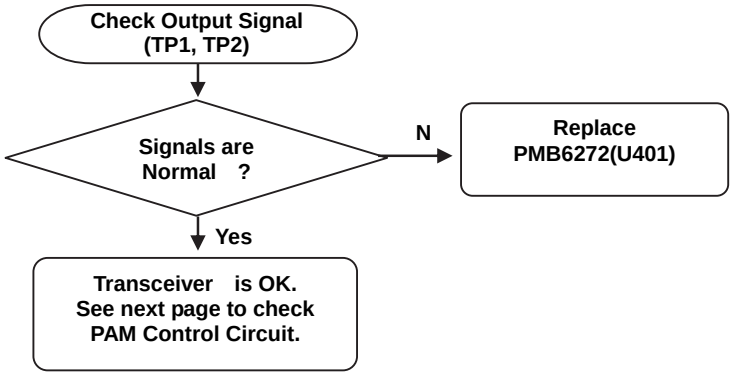


Transceiver Output

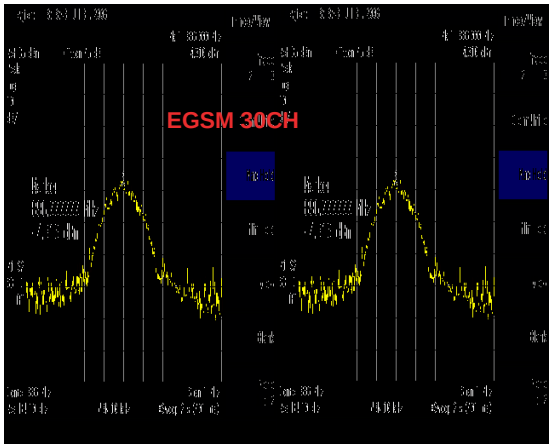
Transceiver Output Operation

MODE	Transceiver Output
GSMK	Fixed
8PSK	Ramp Burst Control

Checking Flow

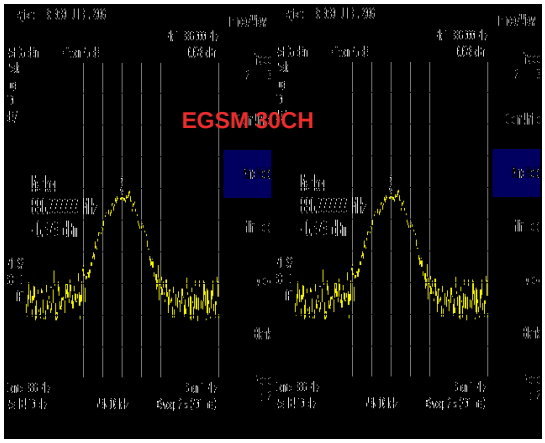


LBAND_PAM_IN (MODE: GMSK) : TP1



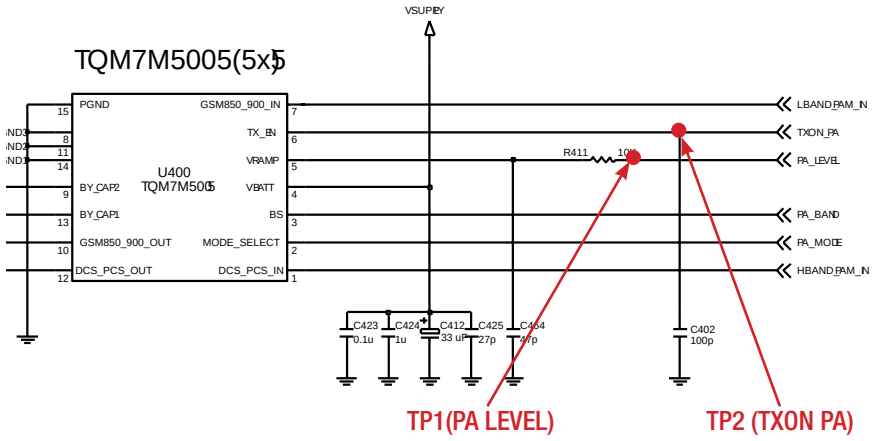
Transceiver Output (GMSK)

LBAND_PAM_IN (MODE: 8PSK) : TP1



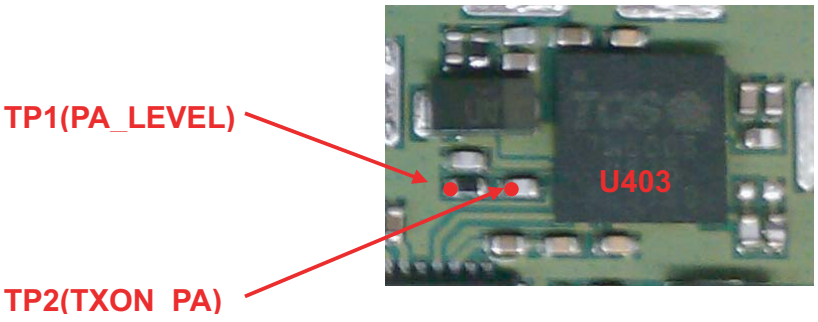
Transceiver Output (8PSK)

5.14.5. Checking PAM Control Signals



PAM Control Signals Circuit

Checking Points

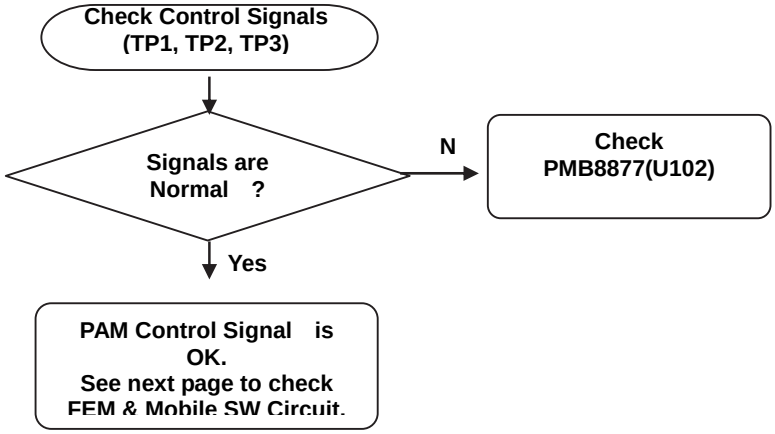


Transceiver Output

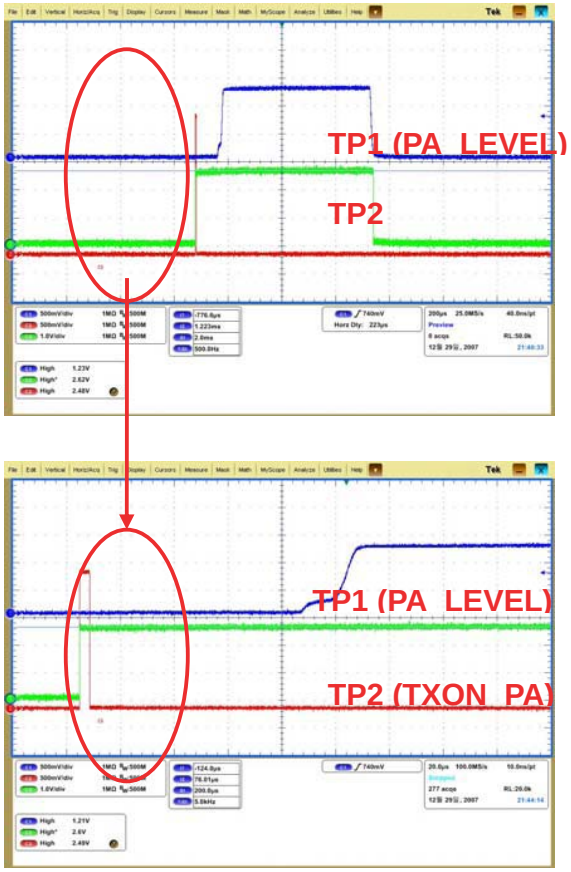
PAM Mode Operation

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

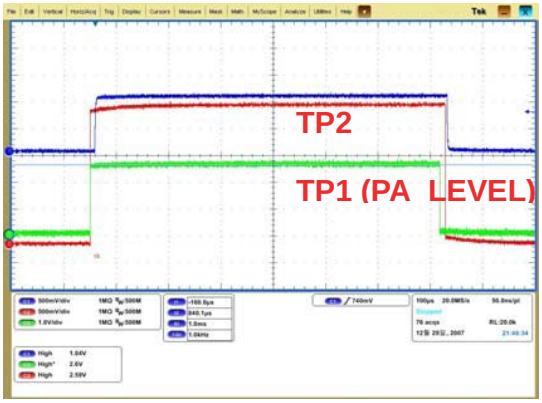
Checking Flow



GSMK Control Signal



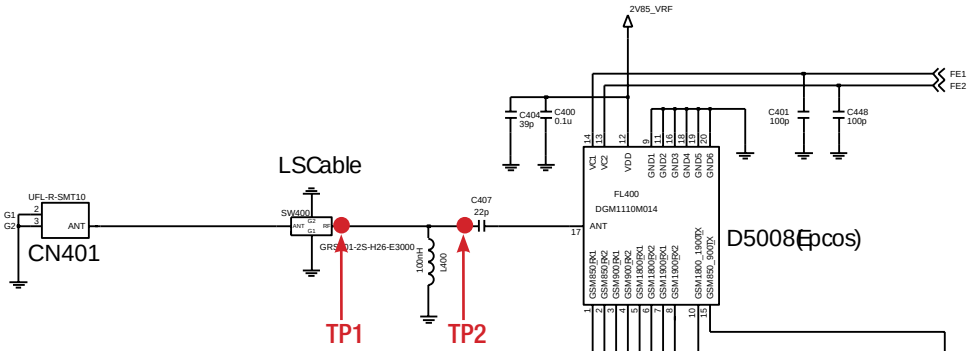
8PSK Control Signal



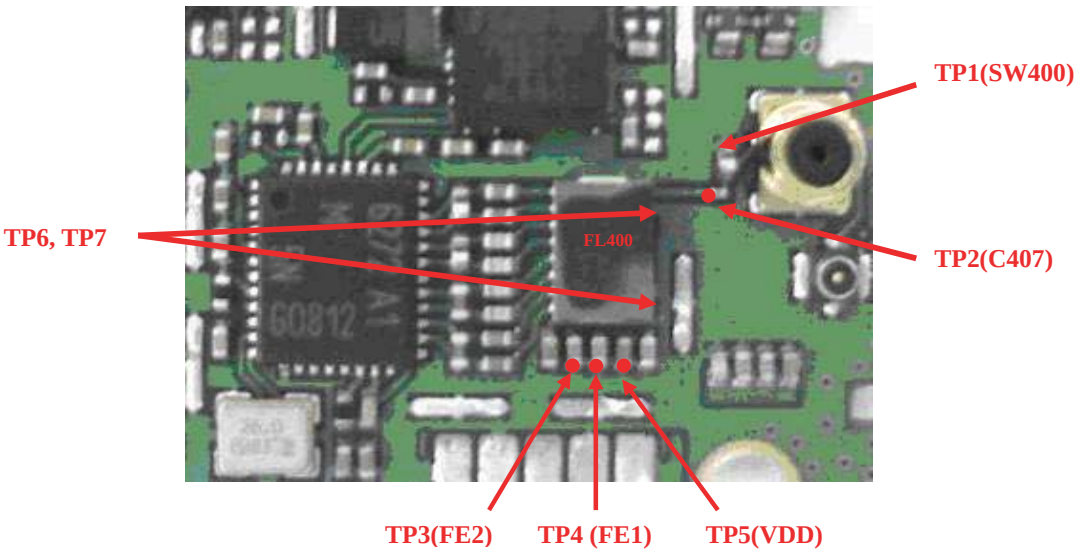
TP1 (PA_LEVEL) : R612
TP2 (TXON_PA) : C402

5.14.6. Checking FEM & Mobile SW

Mobile SW & FEM Circuit Diagram



Mobile SW & FEM Circuit

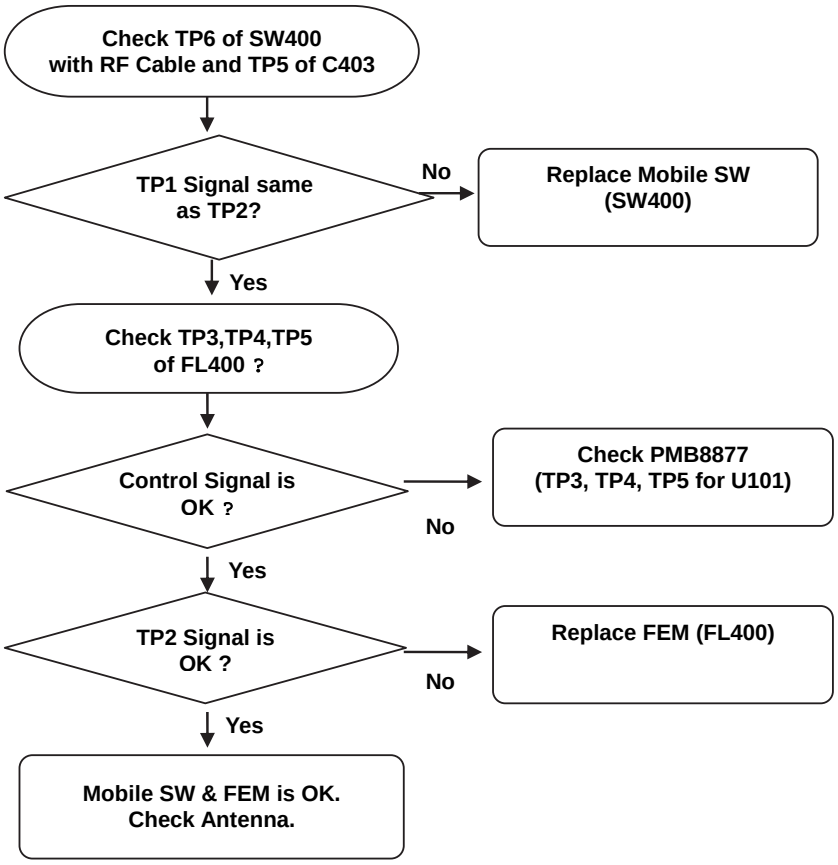


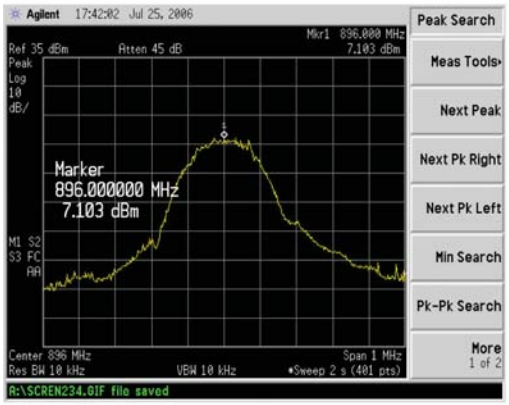
Mobile SW & FEM

FEM TX Control Logic

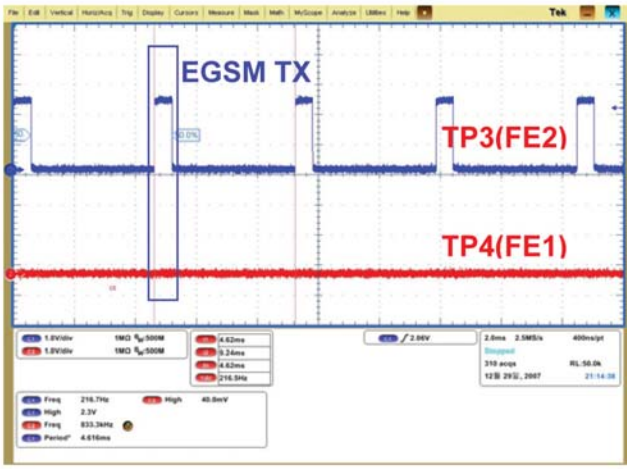
TX Mode	VDD	FE1	FE2
GSM900	H	L	H
DCS/PCS	H	H	H

Checking Flow





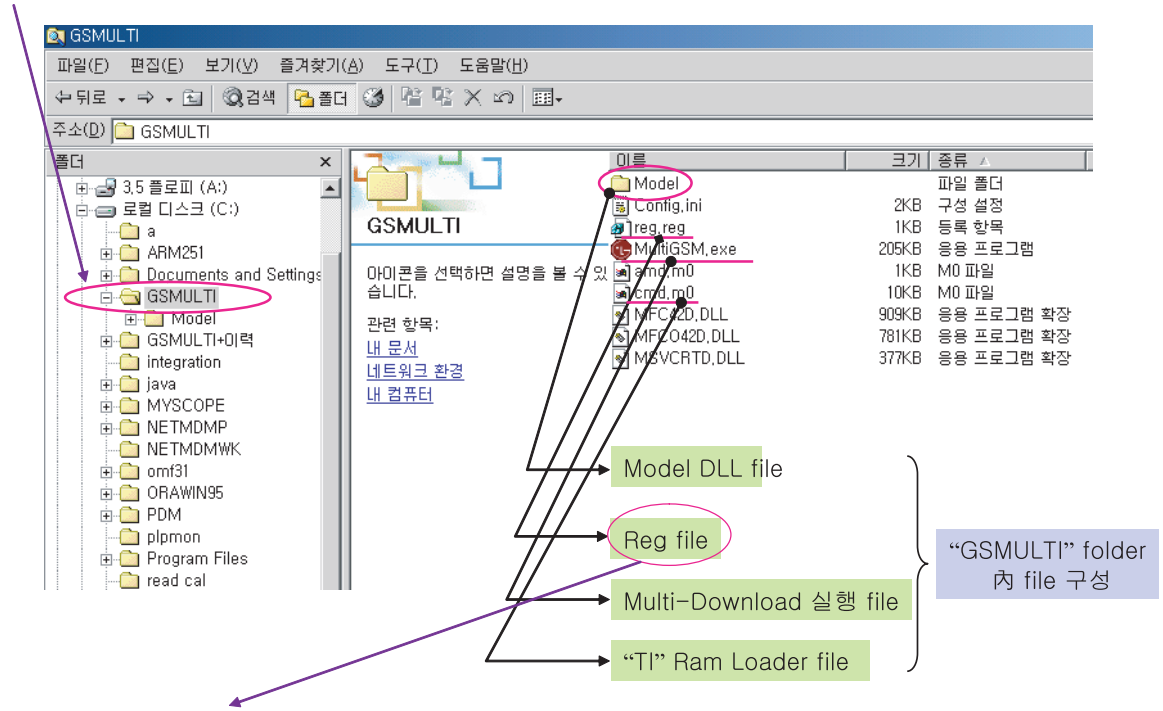
Mobile SW (C407)



FEM Control Signals

6. Multi-Download

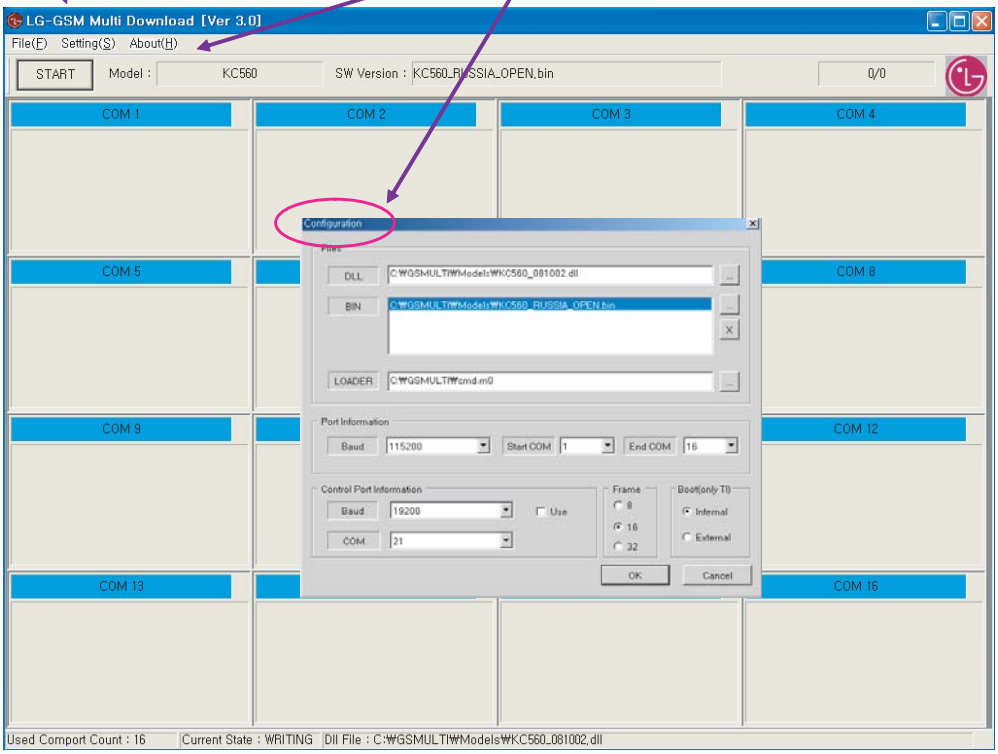
1.After "GSMULTI" folder copy, paste C:



2. Reg.reg file을 double click해서 register 등록을 한다.

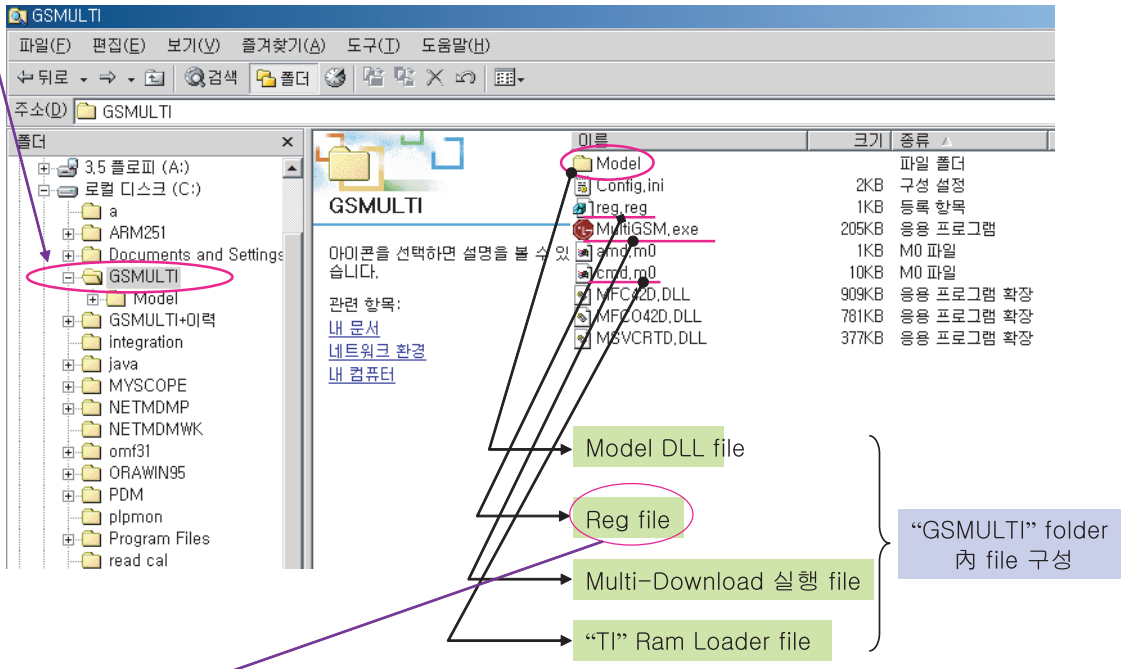
2.”MultiGSM.exe” execution file execute

3. Menu “ Setting “ → “ Configuration “ select



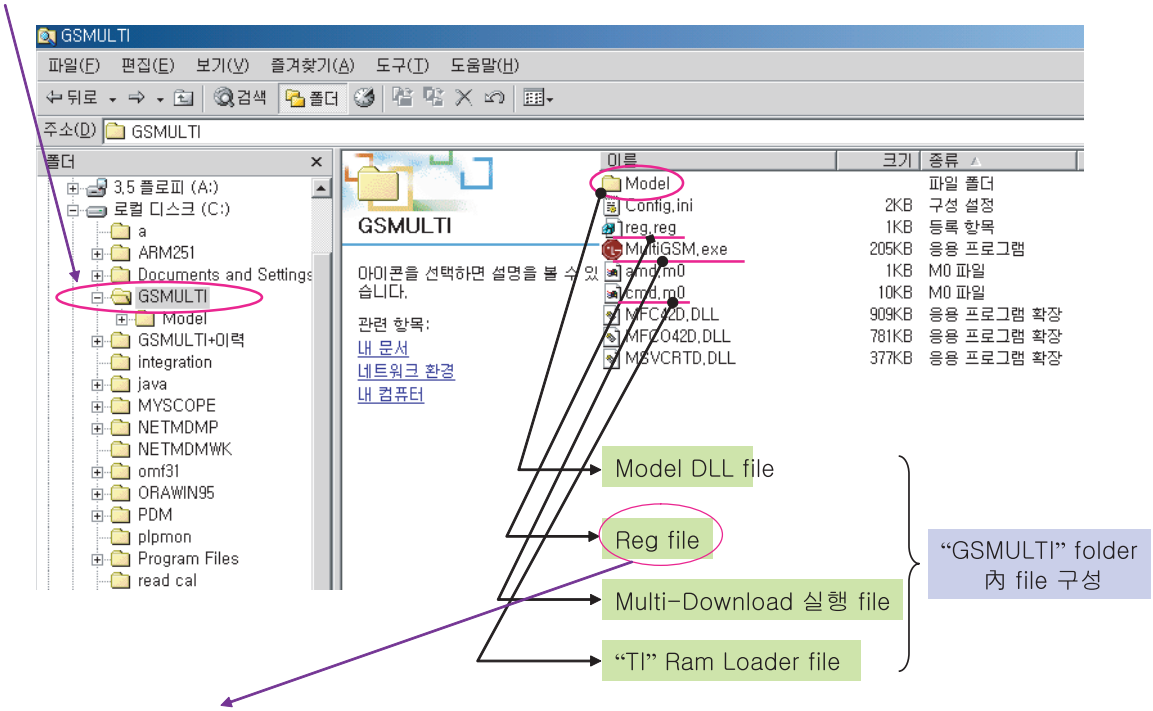
6. Multi-Download

1.After "GSMULTI" folder copy, paste C:



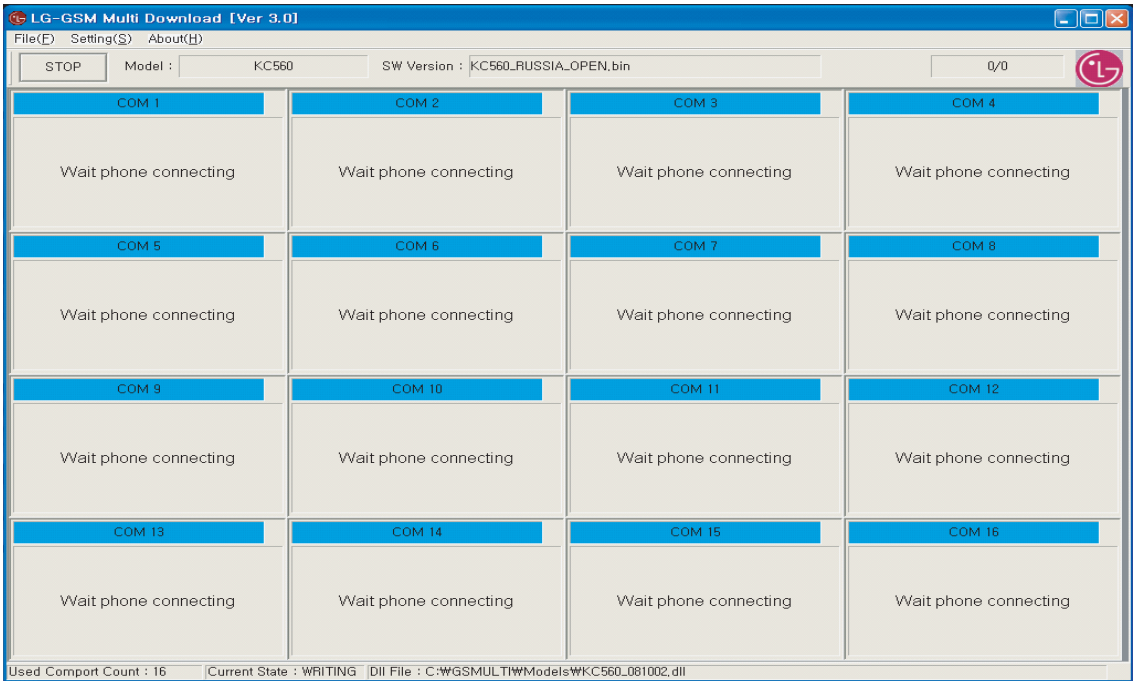
2. Reg.reg file을 double click해서 register 등록을 한다.

1.After "GSMULTI" folder copy, paste C:



2. Reg.reg file을 double click해서 register 등록을 한다.

◇Stand-by Condition: " Wait phone connecting " confirm → Phone connection



7. BLOCK DIAGRAM

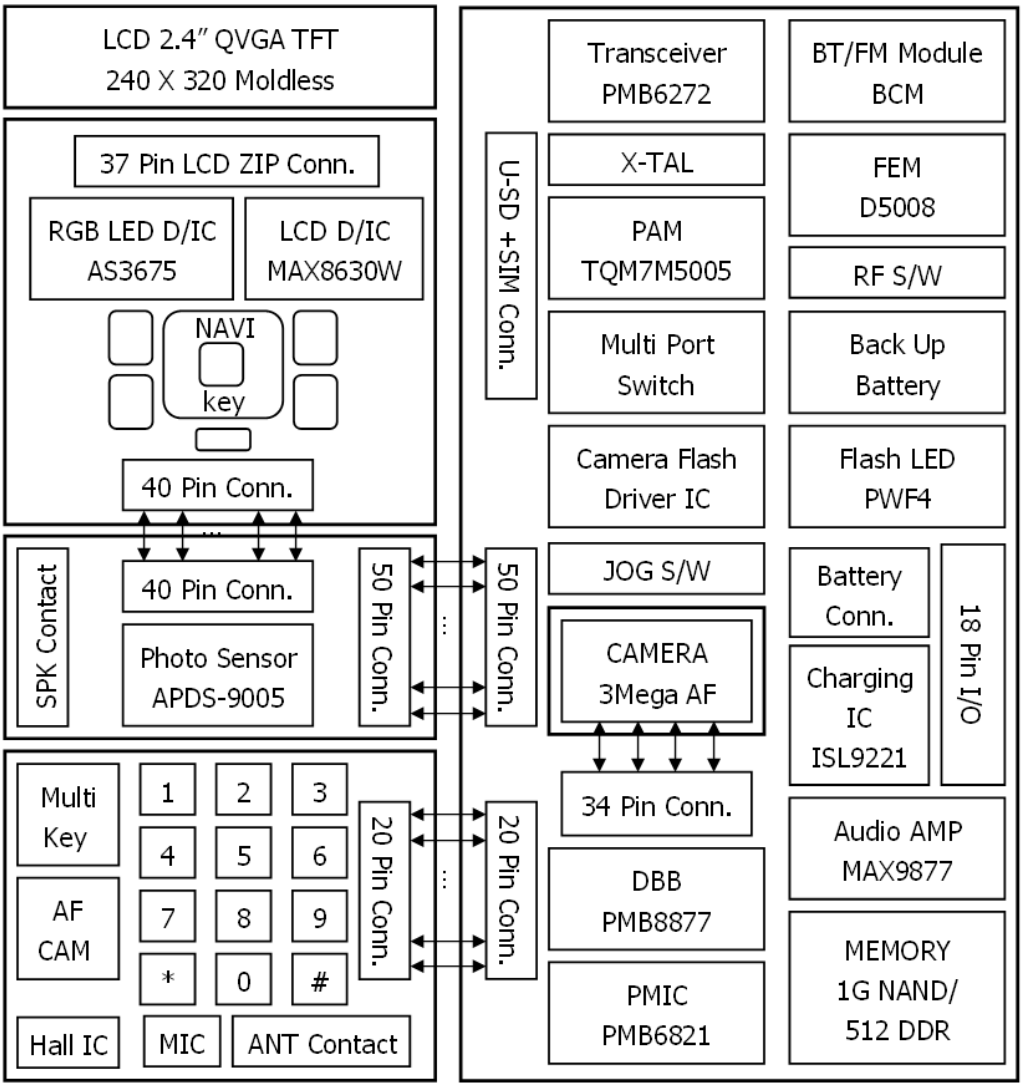
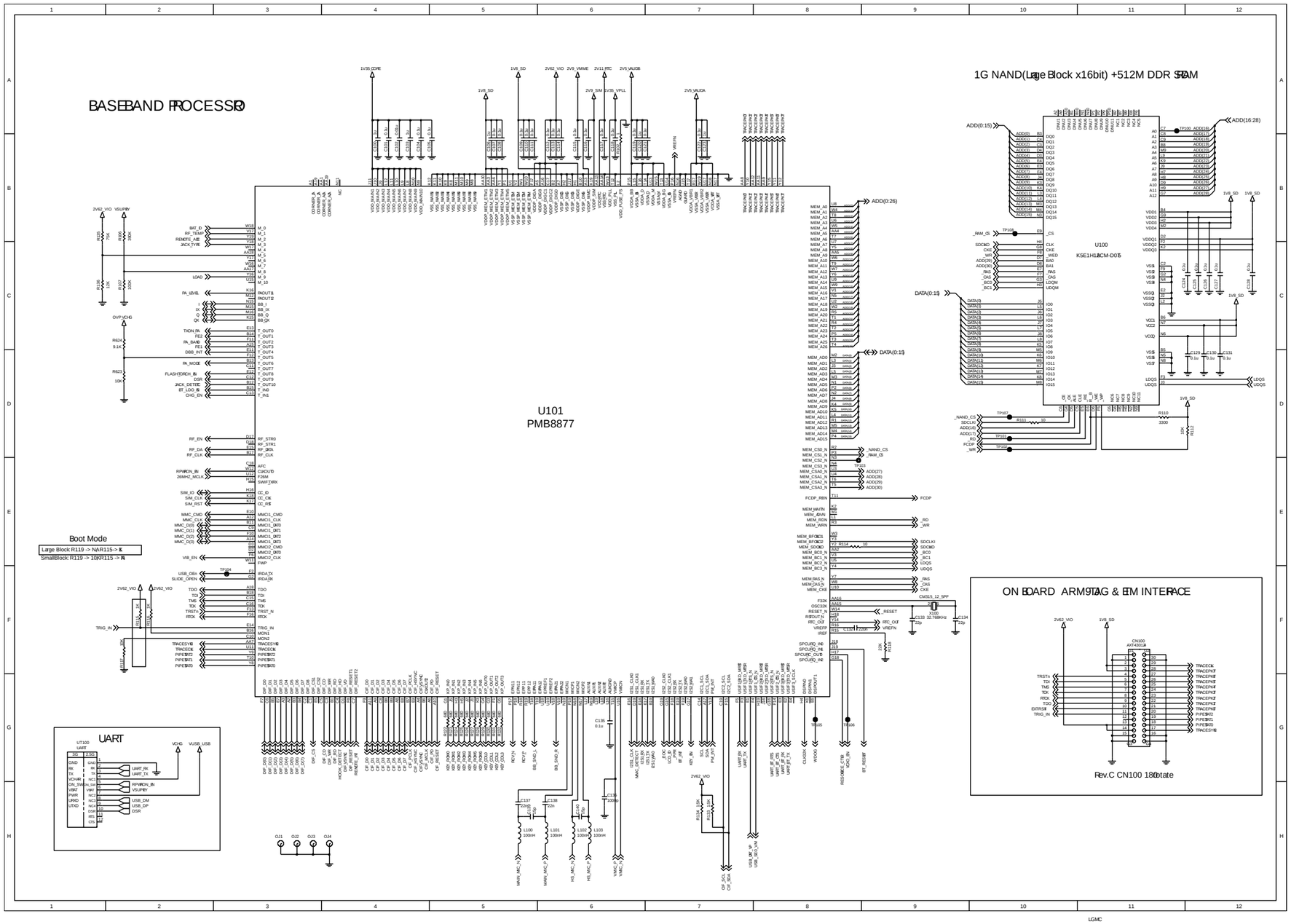
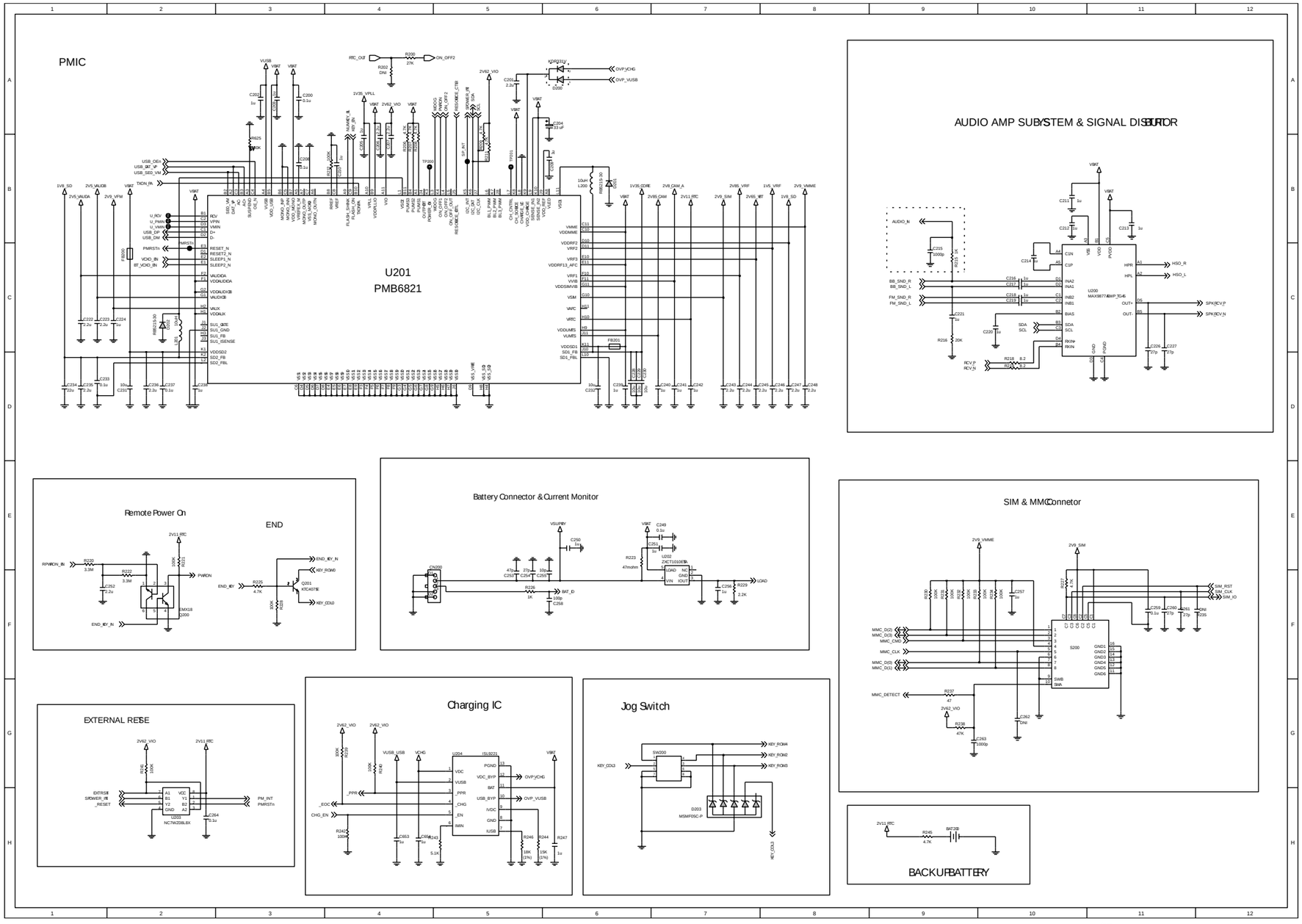


Figure 2 KC560 Functional block diagram

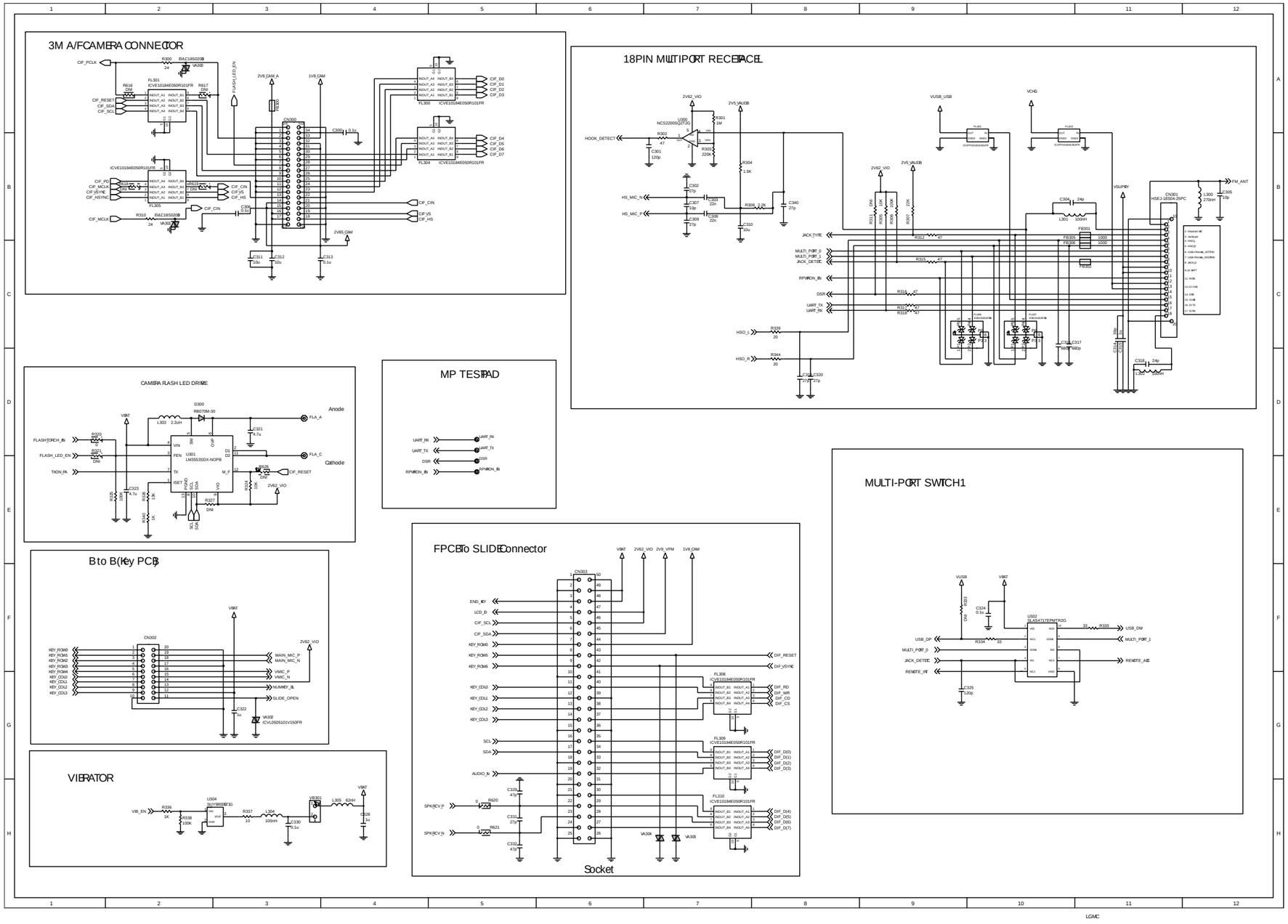
8. CIRCUIT DIAGRAM



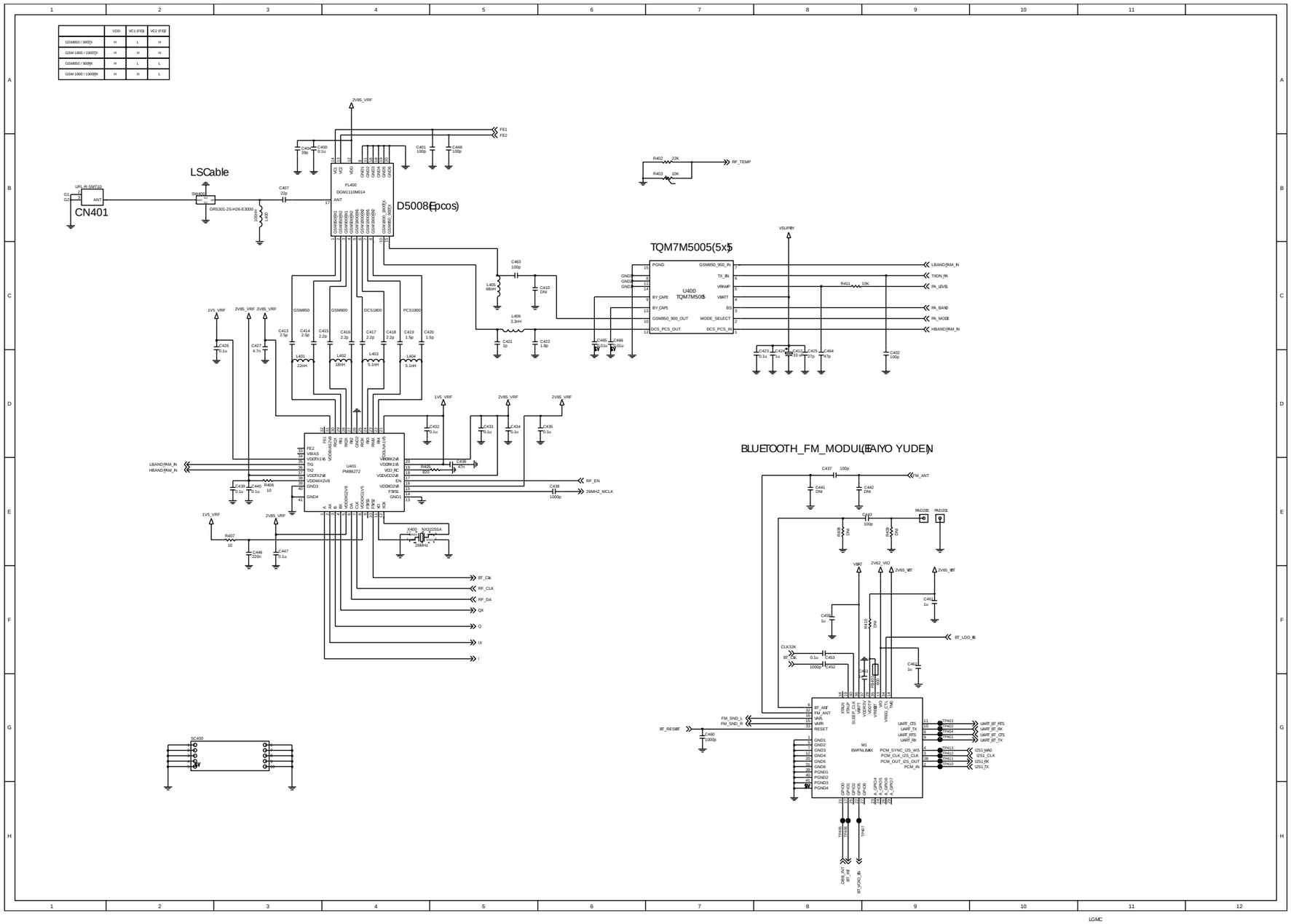
8. CIRCUIT DIAGRAM



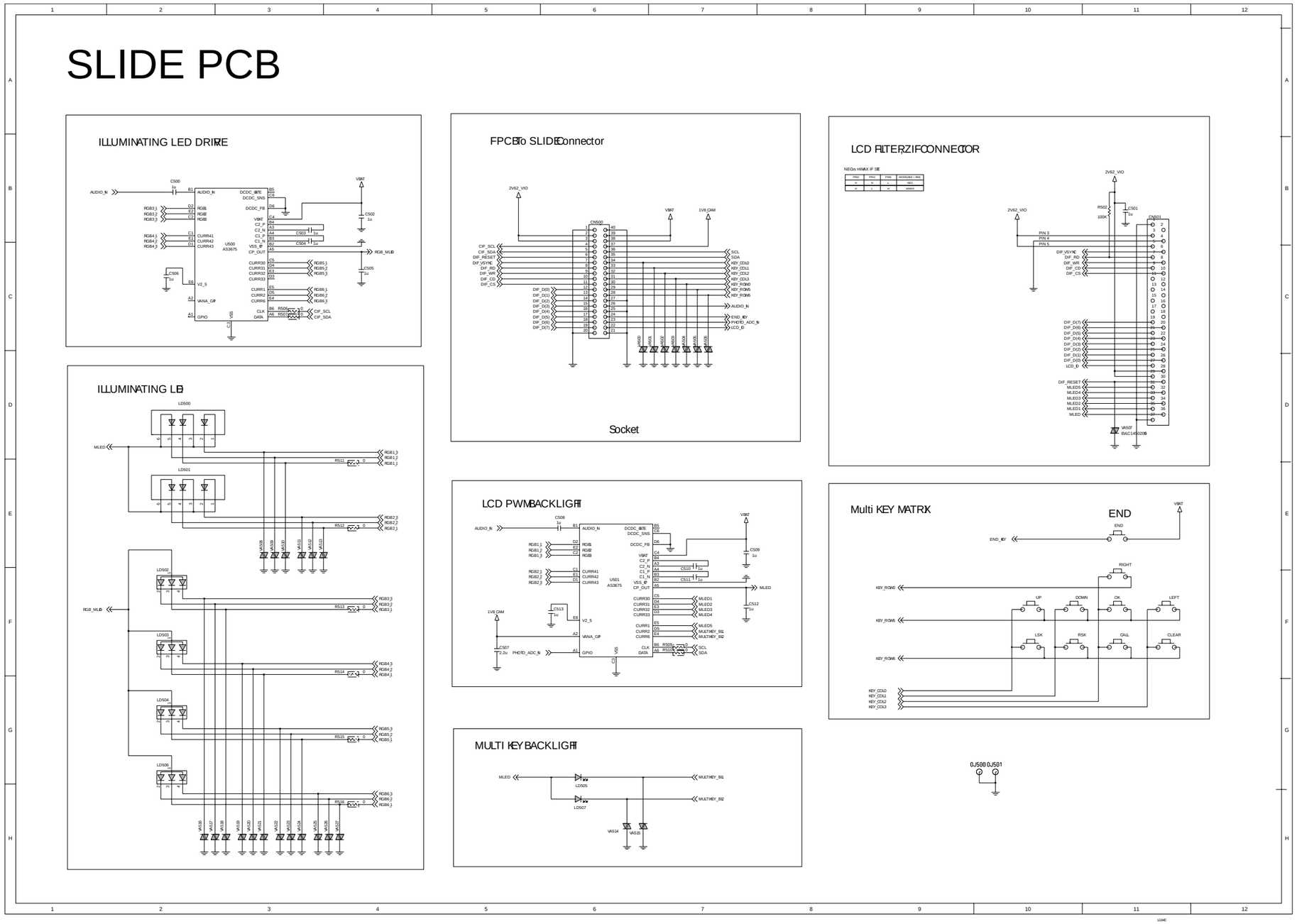
8. CIRCUIT DIAGRAM



8. CIRCUIT DIAGRAM



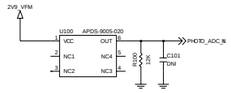
8. CIRCUIT DIAGRAM



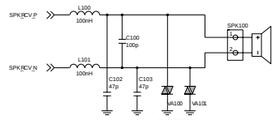
8. CIRCUIT DIAGRAM

LCD FPCB

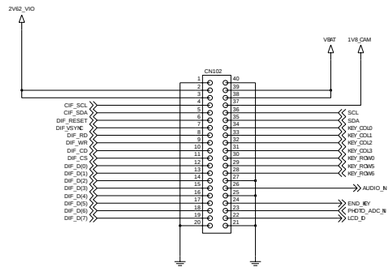
PHOTO SENSOR



SPK

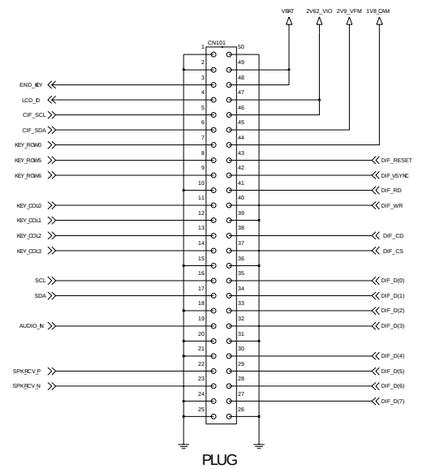


FPCB To SLIDE Connector



PLUG

FPCB To MAIN Connector

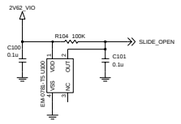


PLUG

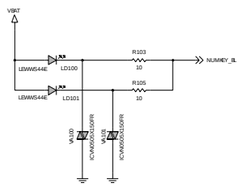
8. CIRCUIT DIAGRAM

KEY PCB

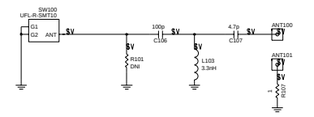
HALL EFFECT S/W



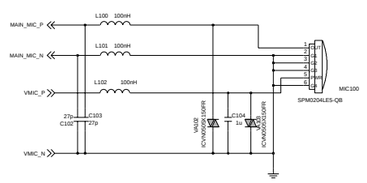
Numeric KEY BACKLIGHT



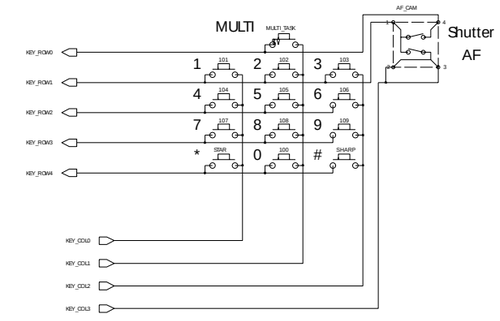
ANTENNA COAXIAL CABLE CONNECTOR



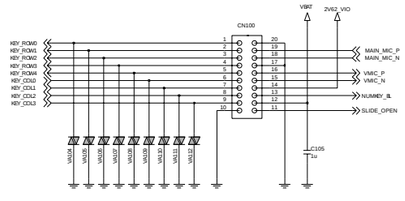
MIC



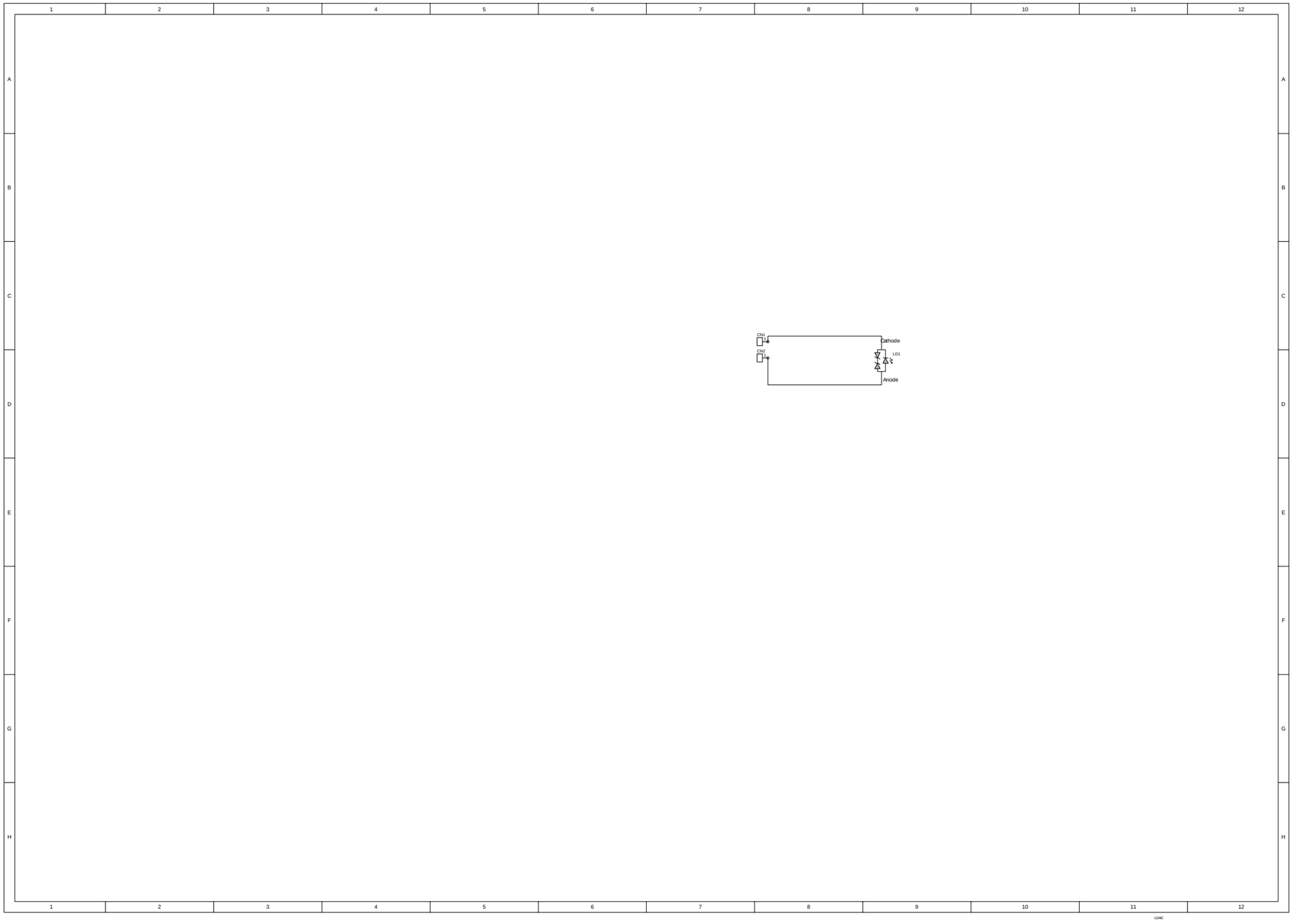
KEYPAD



B to B(Key PCB)



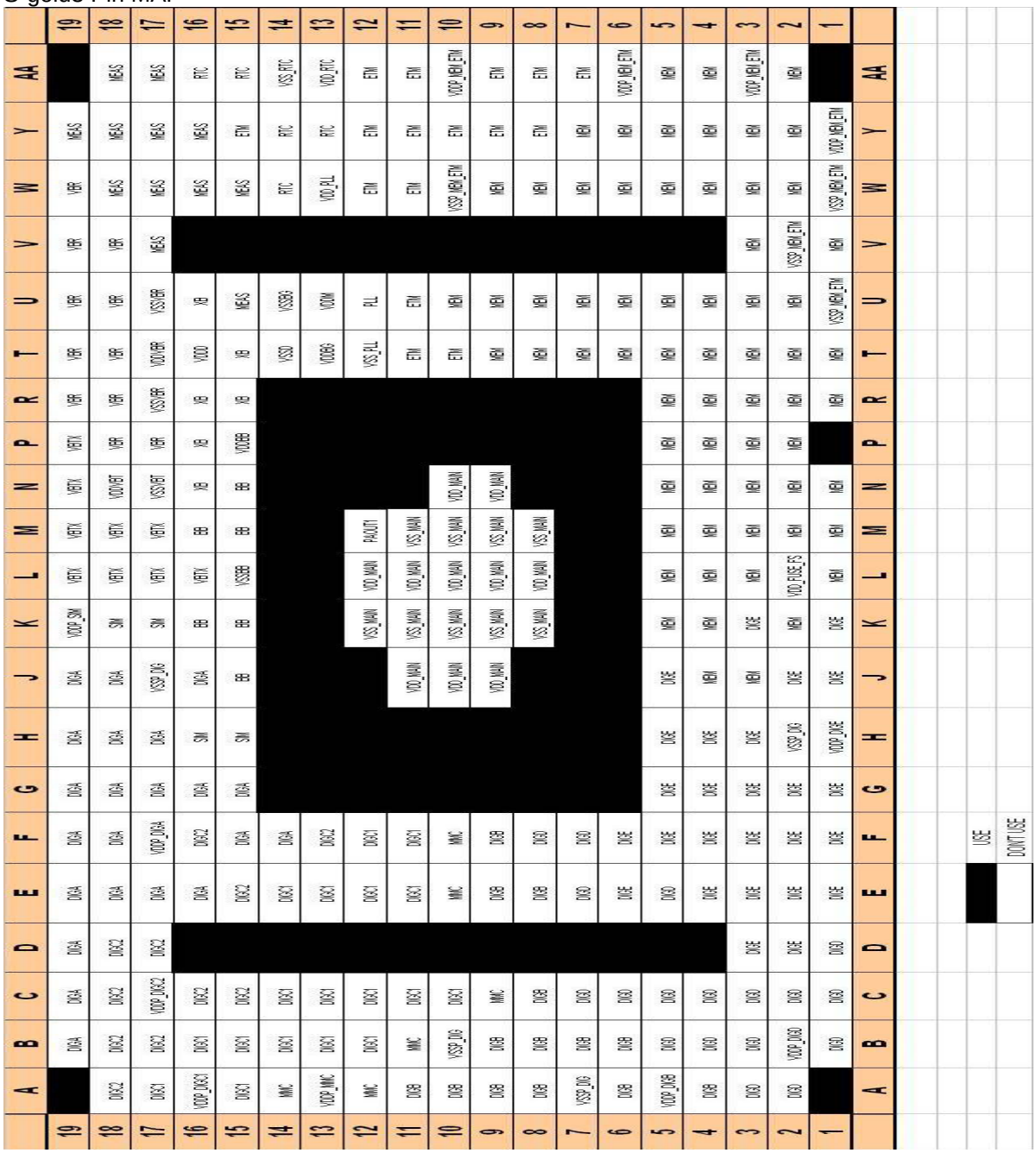
8. CIRCUIT DIAGRAM



9. BGA Pin Map

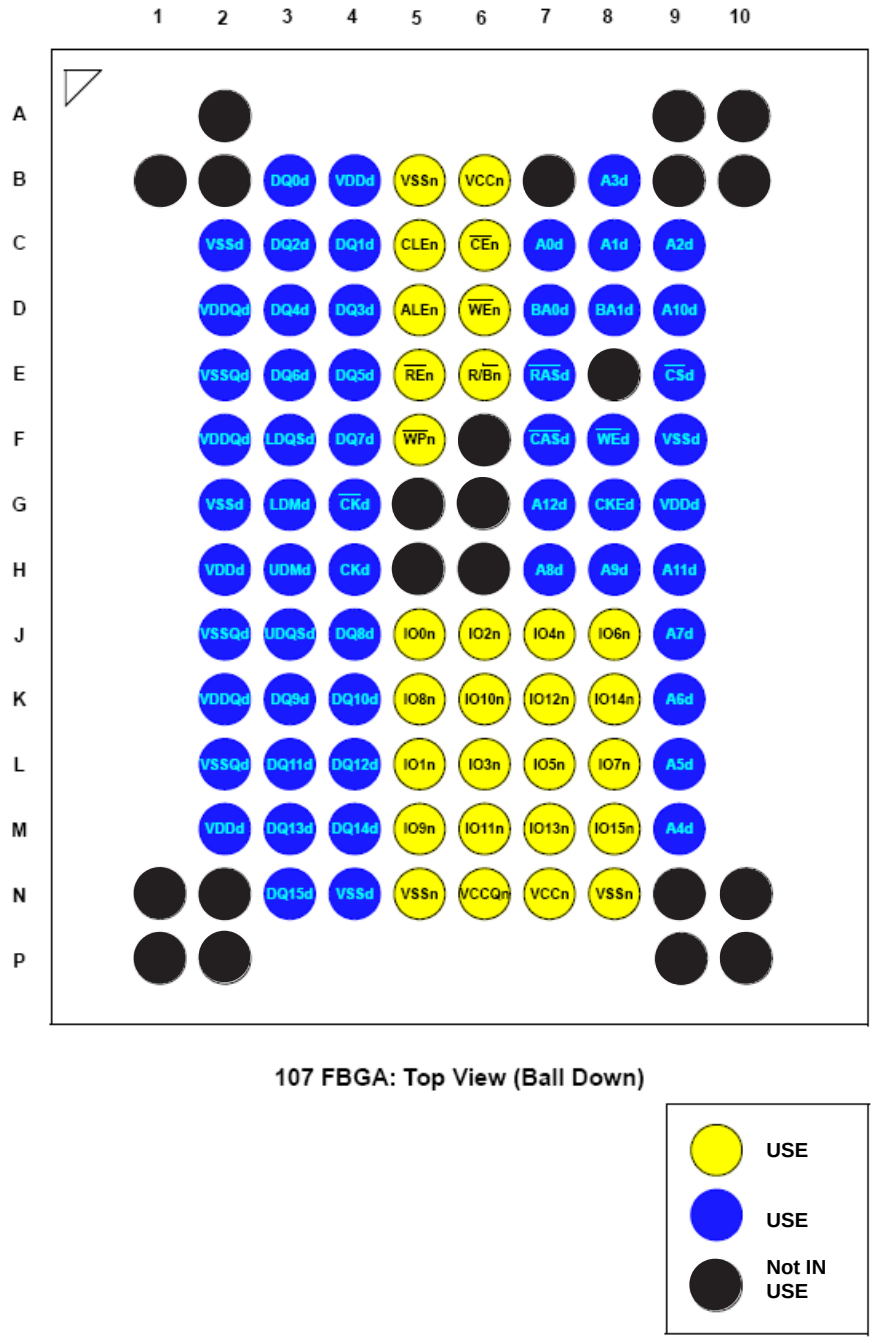
BGA Pin MAP

S-gold3 Pin MAP



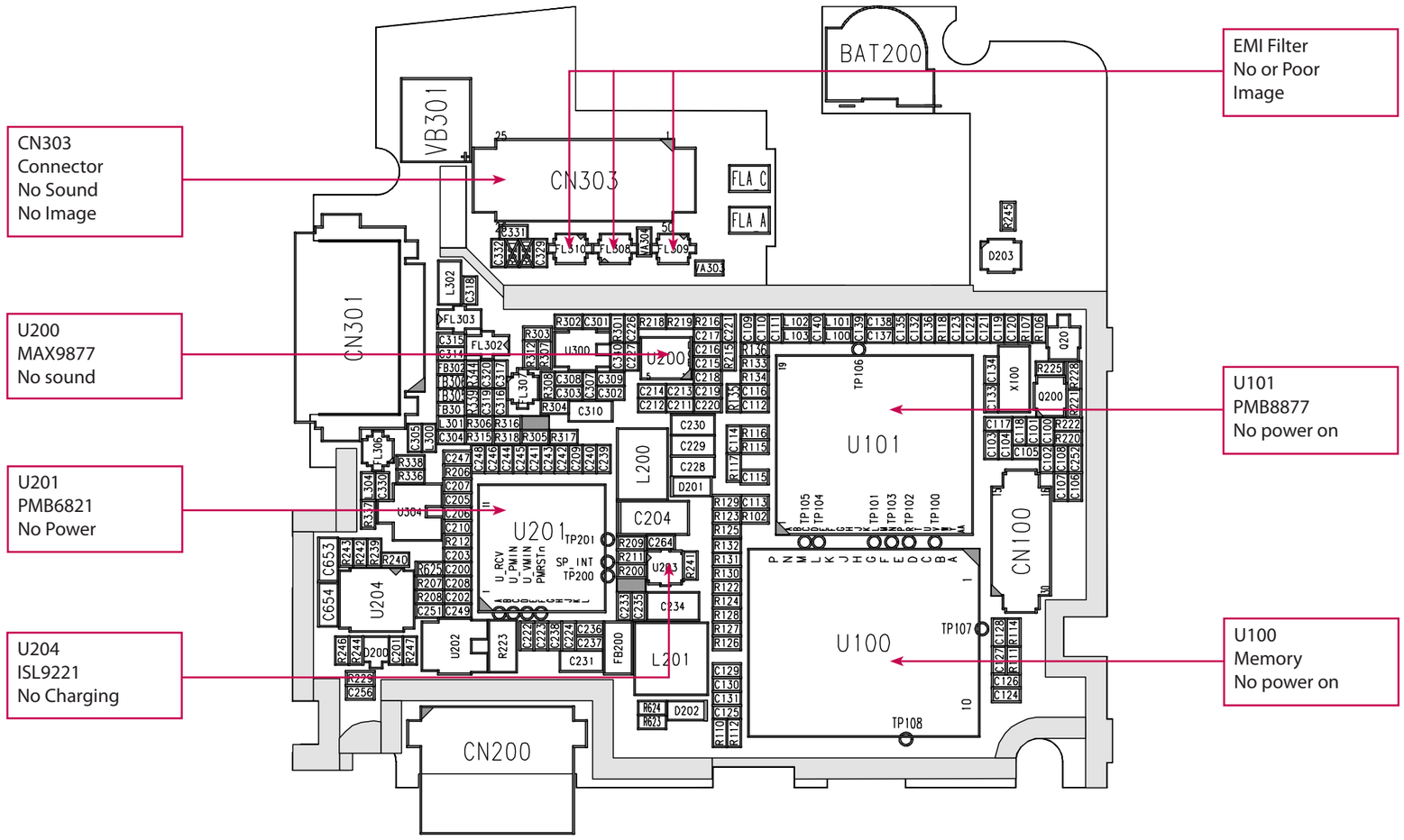
9. BGA Pin Map

Memory Pin Out



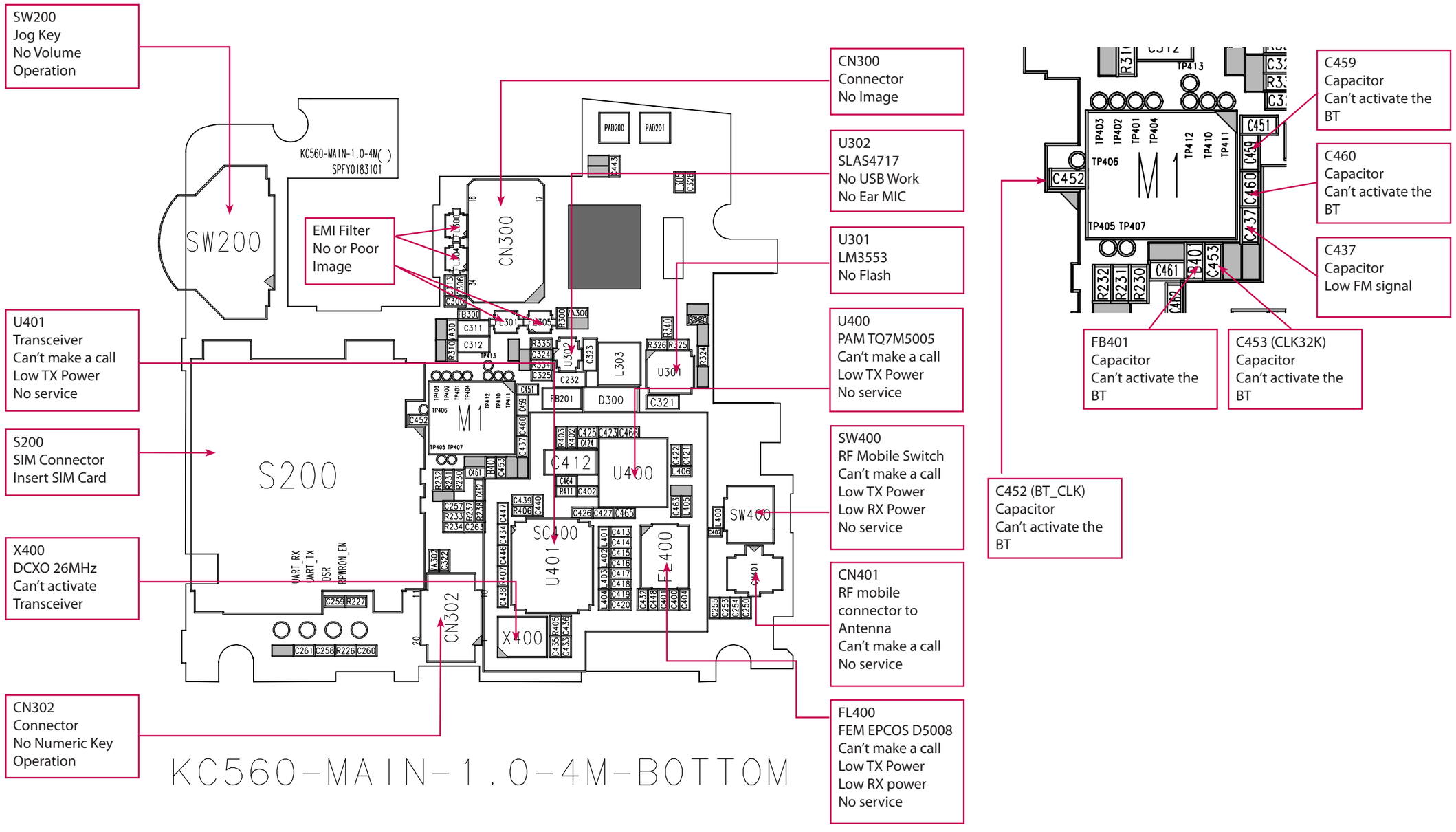
107 FBGA: Top View (Ball Down)

10. PCB LAYOUT

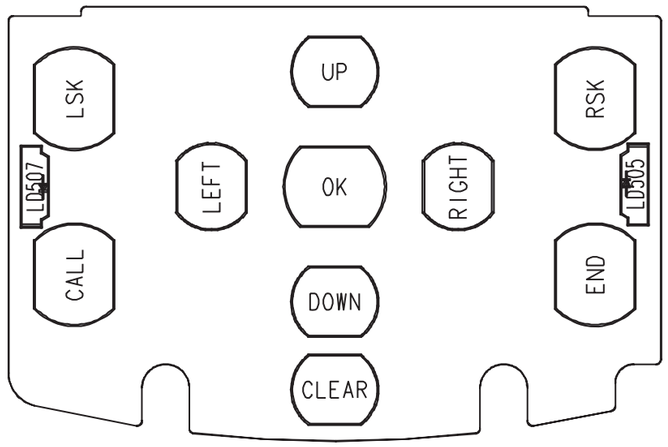


KC560-MAIN-1.0-4M-TOP

10. PCB LAYOUT

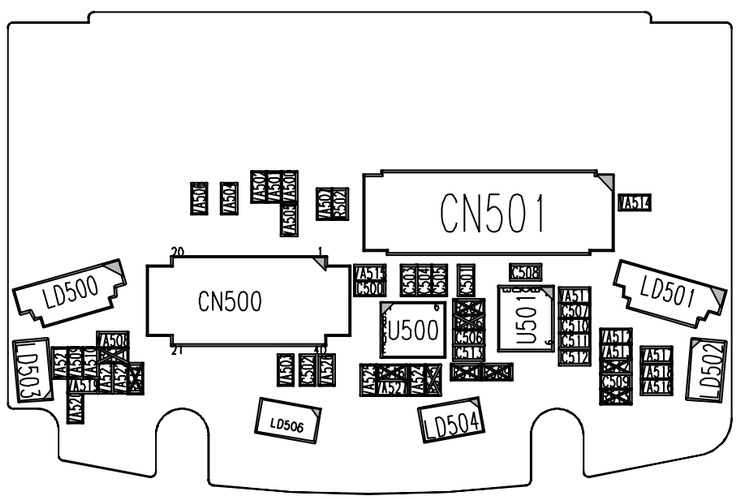


10. PCB LAYOUT



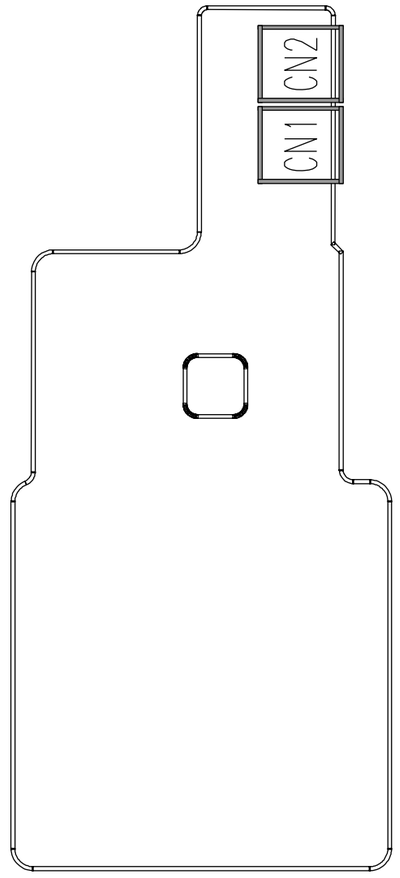
KC560-MULTIKEY-1.0-TOP

10. PCB LAYOUT



KC560-MULTIKEY-1.0-BOT

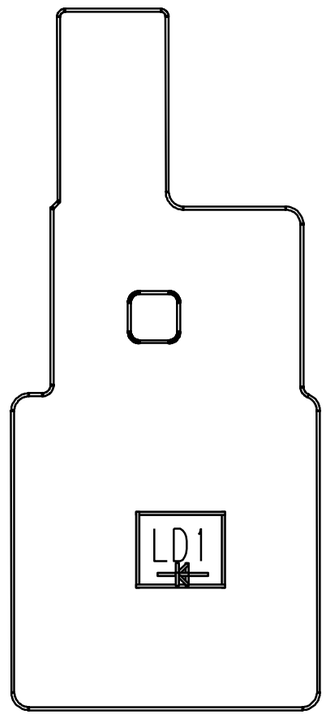
10. PCB LAYOUT



KC560-SPCY0148601-1.0-TOP

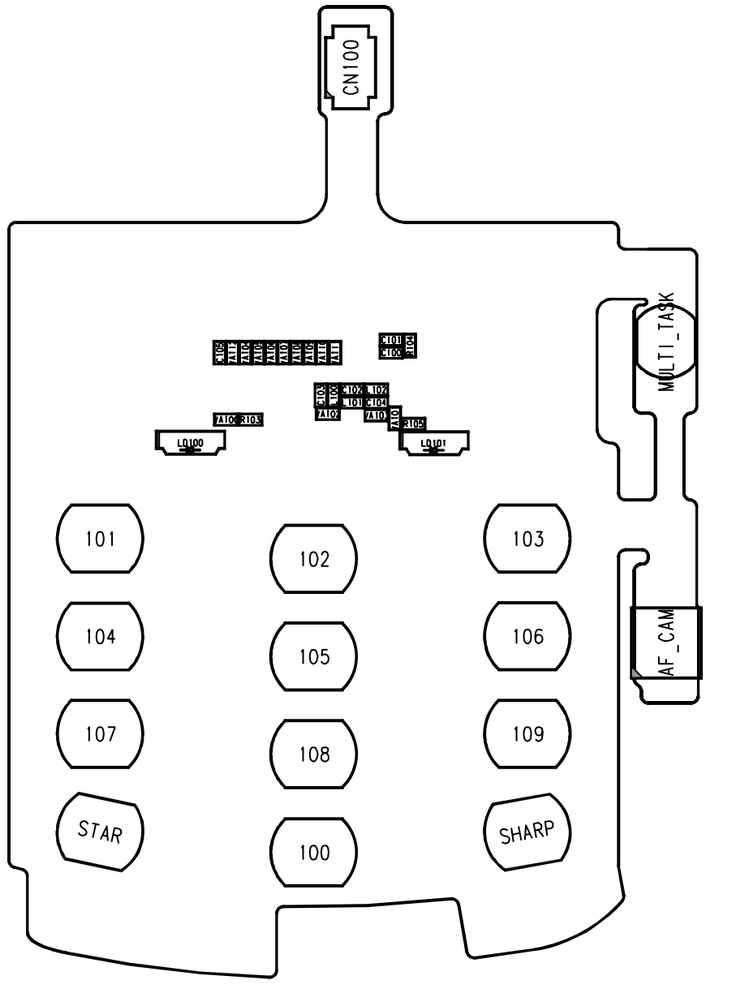
LGMC

10. PCB LAYOUT



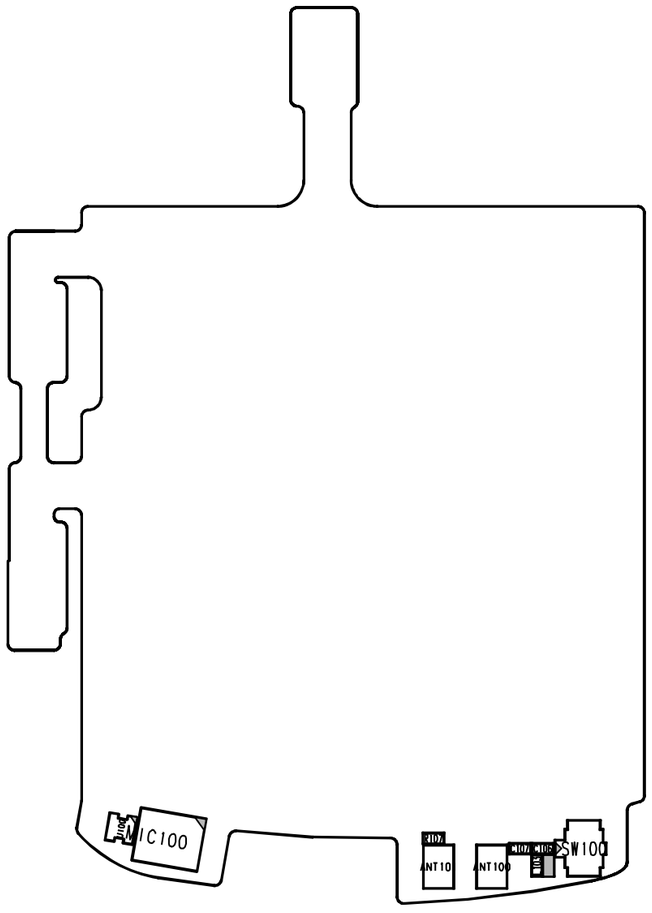
KC560-SPCY0148601-1.0-BOTTOM

10. PCB LAYOUT



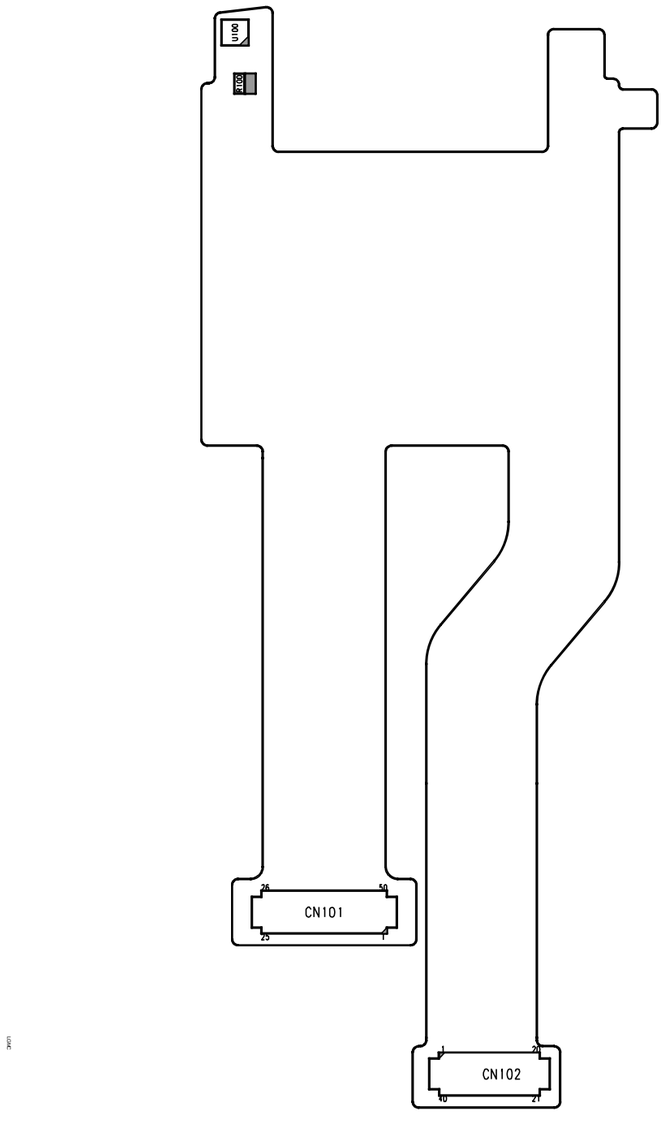
KC560 F_KEY-SPCY0149201-1.0-4M TOP

10. PCB LAYOUT



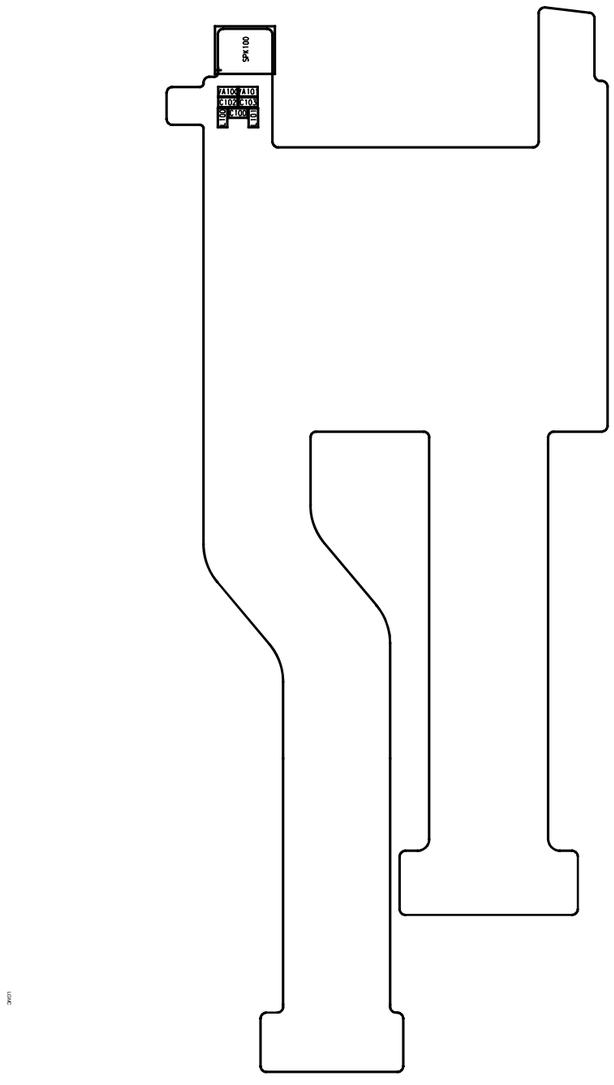
KC560 F_KEY-SPCY0149201-1.0-4M BOT

10. PCB LAYOUT



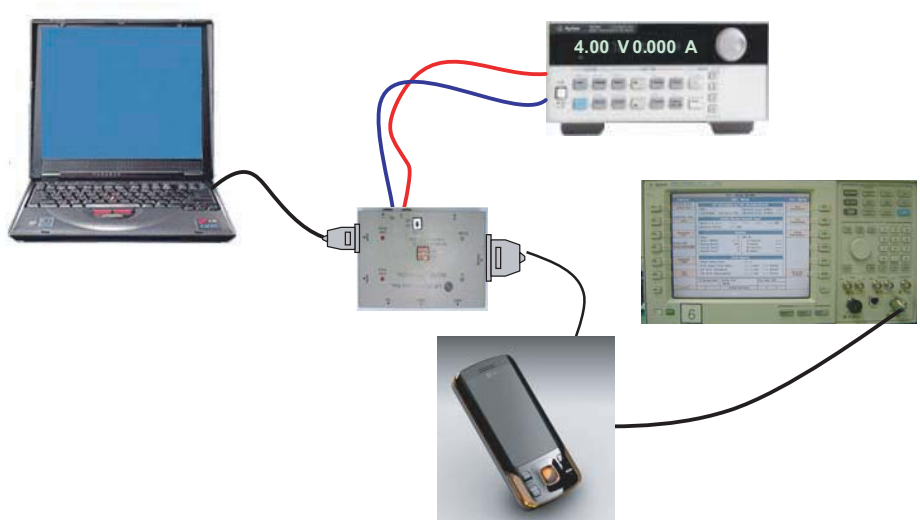
KC560-F_LCD-SPCY0149001-1.0-TOP

10. PCB LAYOUT



11. RF Calibration

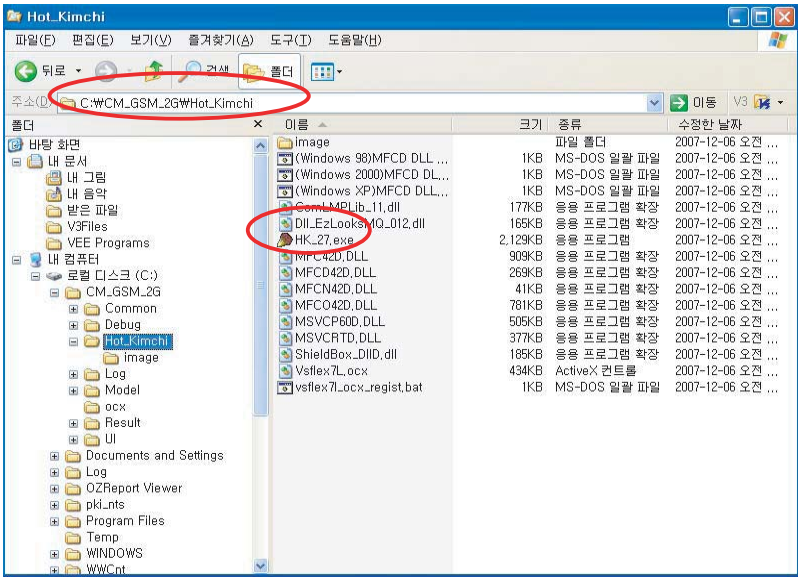
11.1. Test Equipment Setup



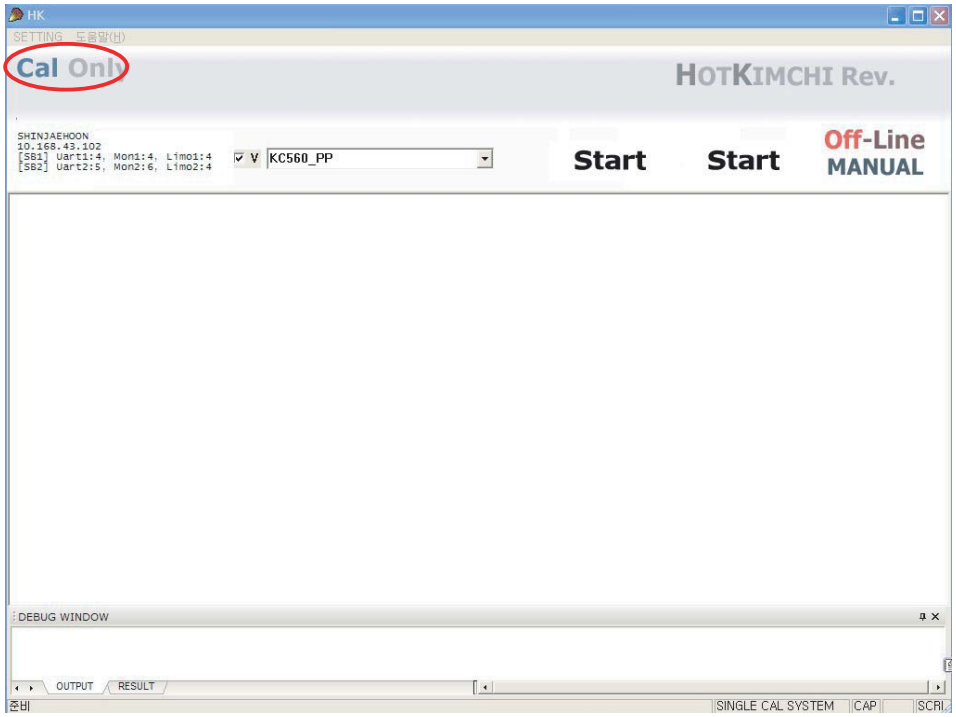
11.2. Calibration Step

11.2.1. Turn on the Phone.

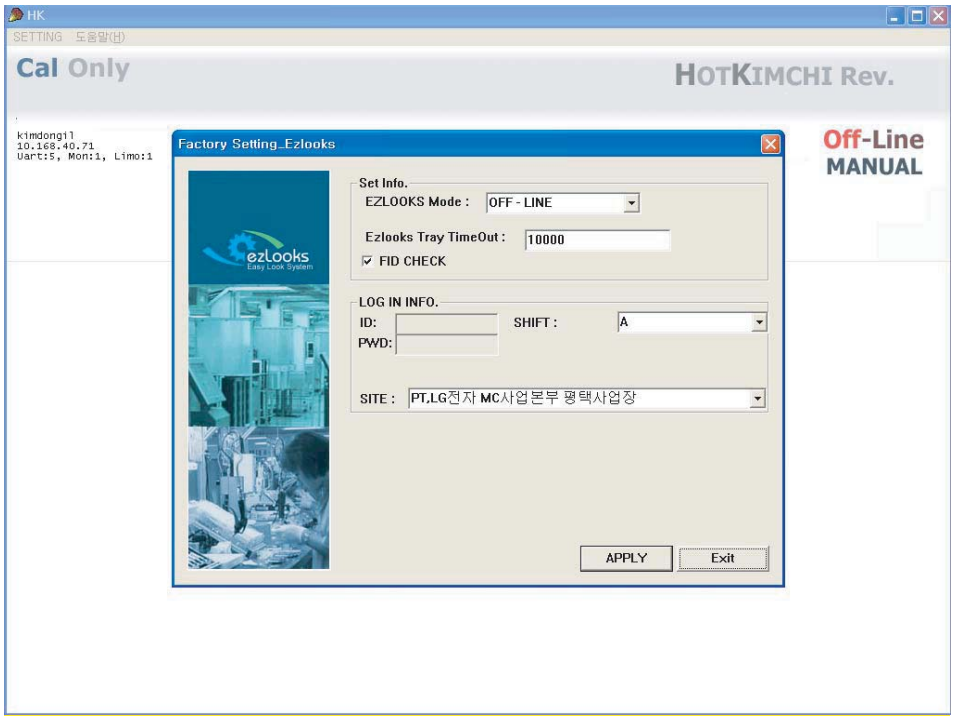
11.2.2. Execute “HK_27.exe”



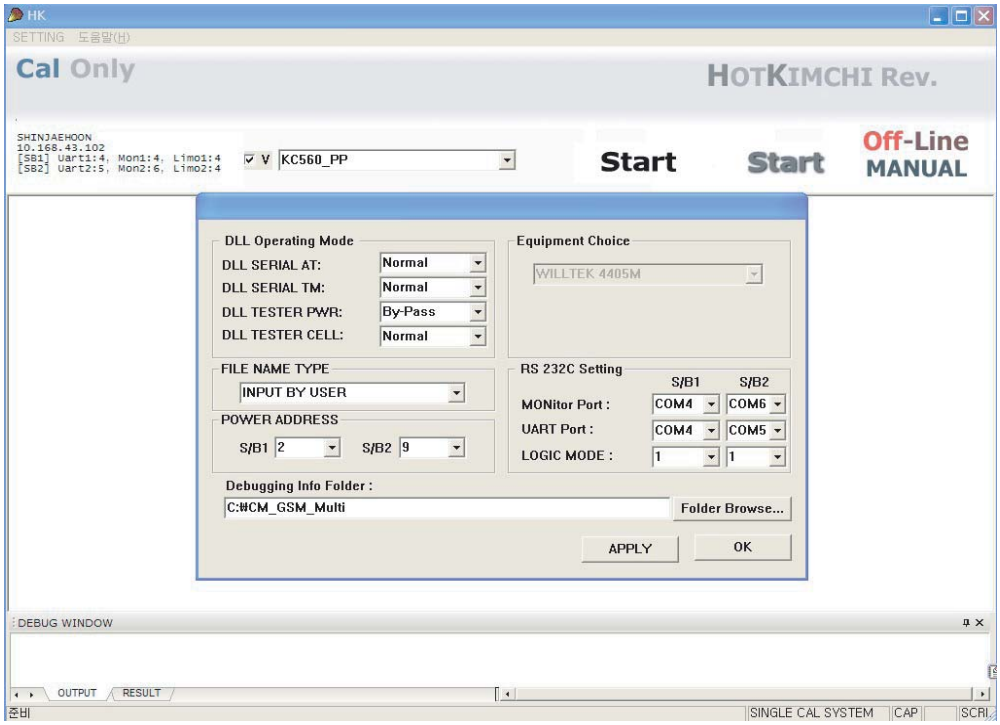
11.2.3. Click “SETTING” Menu



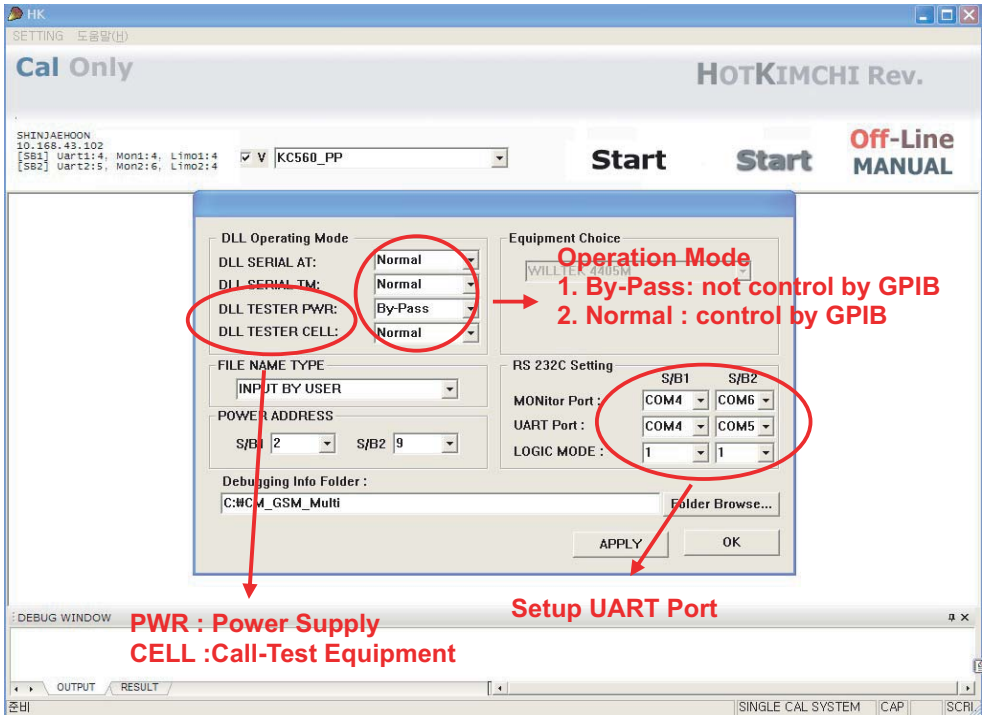
11.2.4. Setup “Ezlooks” menu such as the following figure



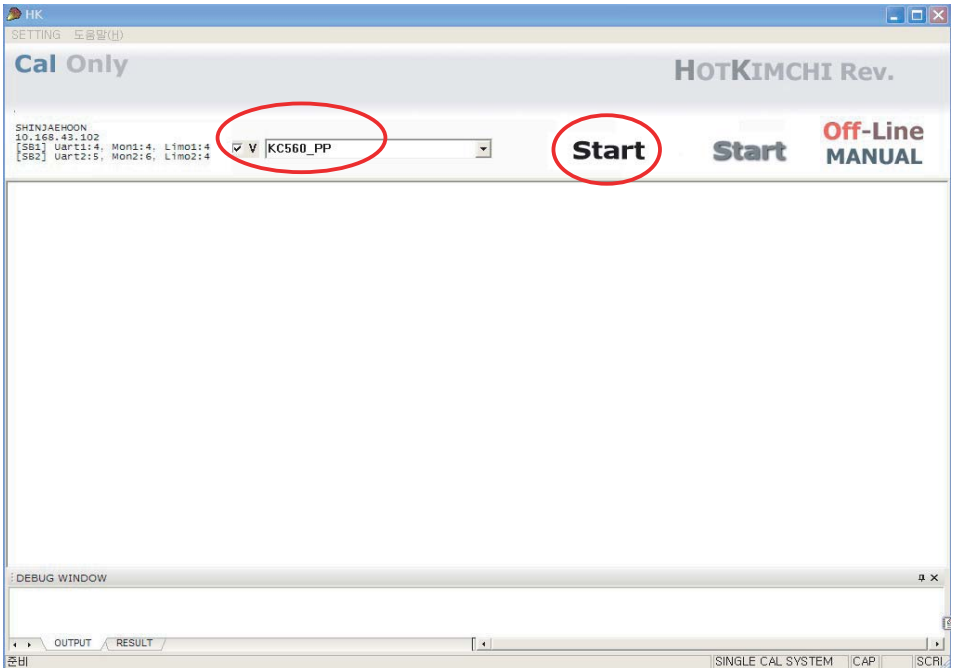
11.2.5. Setup “Line System” menu such as the following figure



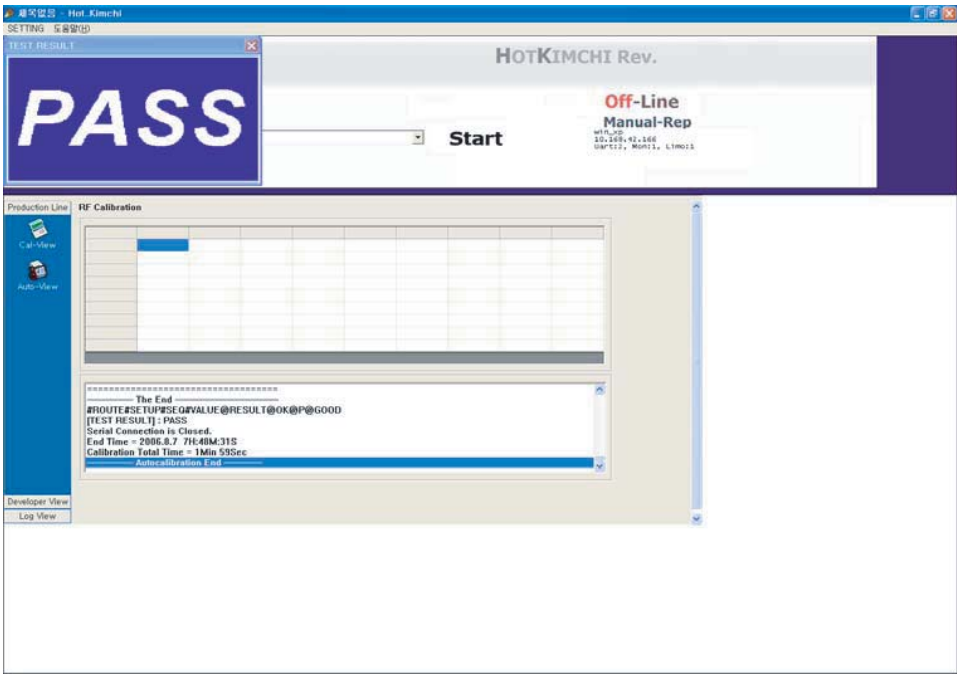
11.2.6.Setup Logic operation such as the following figure.



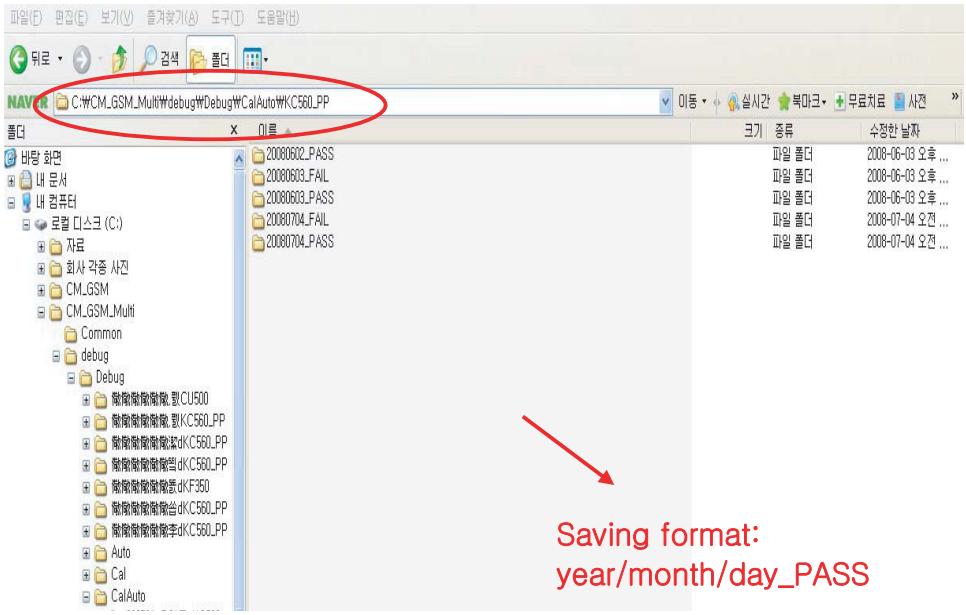
11.2.7. Select “MODEL”.
11.2.8. Click “START” for RF calibration



11.2.9. RF Calibration finishes.



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

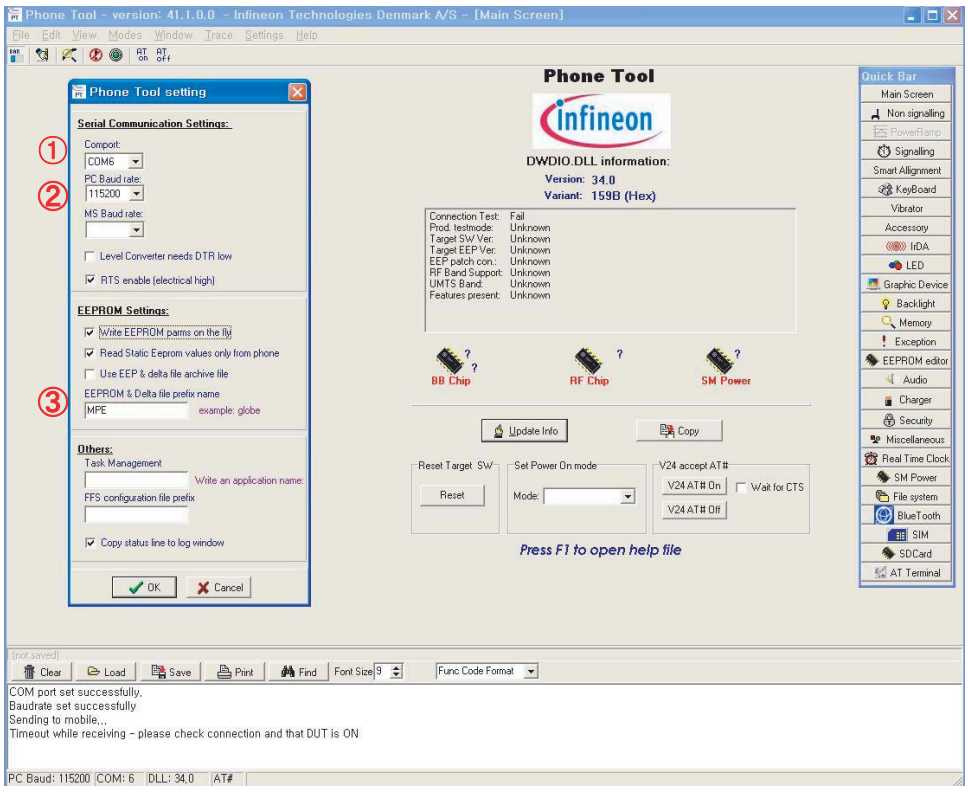


Notices:
1. The state of Phone is “test mode “ during the CALIBRATION.
2. Calibration program automatically changes either “normal mode” or “ptest mode”.
3. RF Calibration steps as follow:
TX Channel compensation: EGSM->DCS->PCS->EDGE EGSM->EDGE DCS->EDGE PCS
RX Channel compensation: EGSM->DCS->PCS
4.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

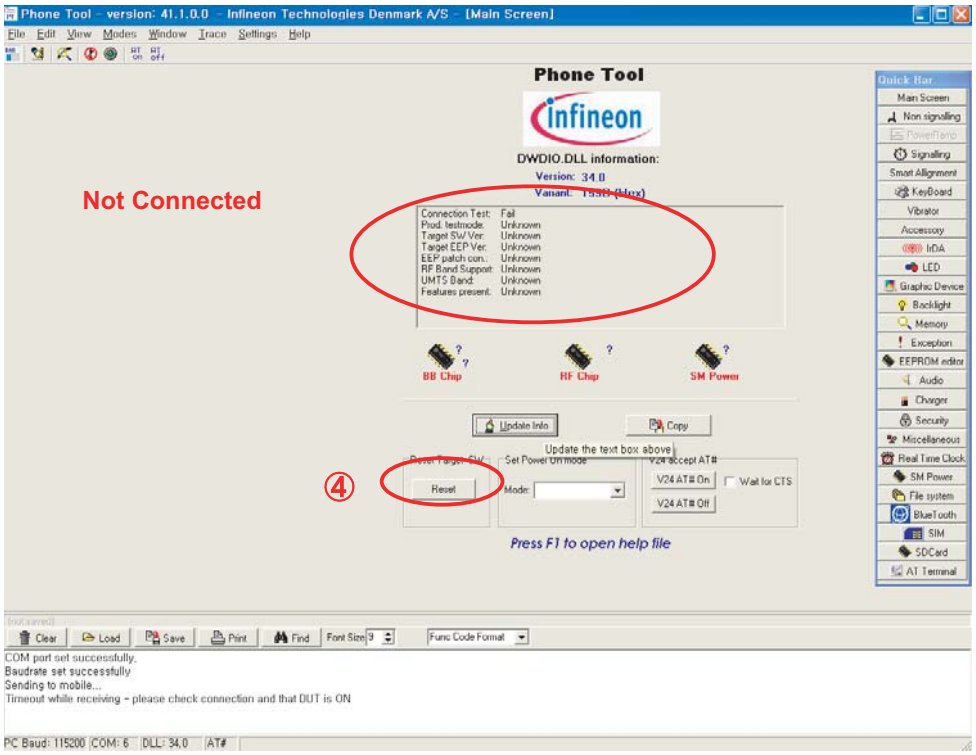
12. STAND-ALONE TEST

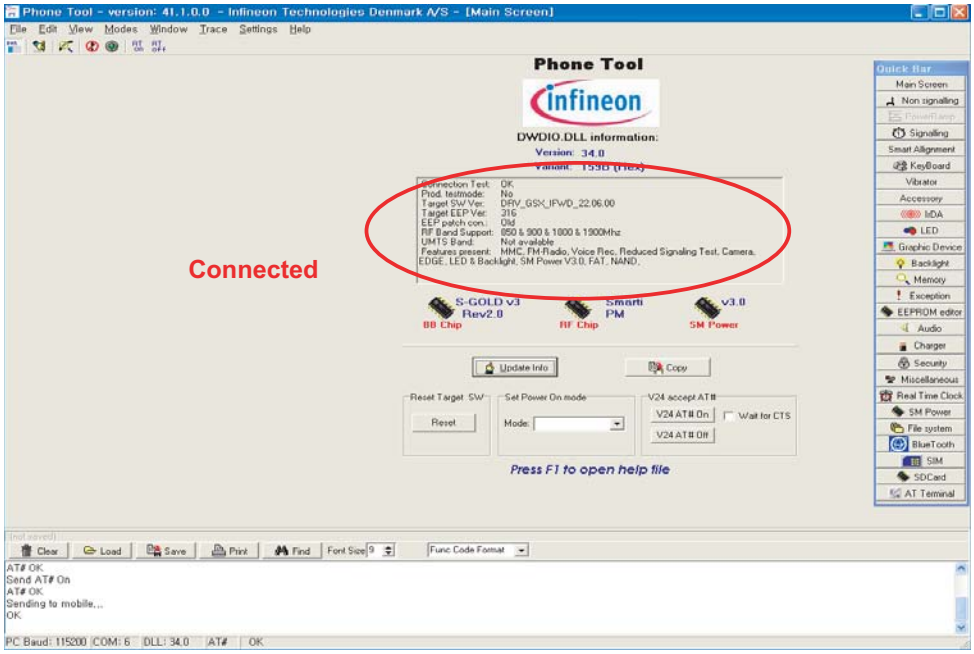
12.1. Test Program Setting

① Set COM Port.
② Check PC Baud rate.
③ Confirm EEPROM & Delta file prefix name.

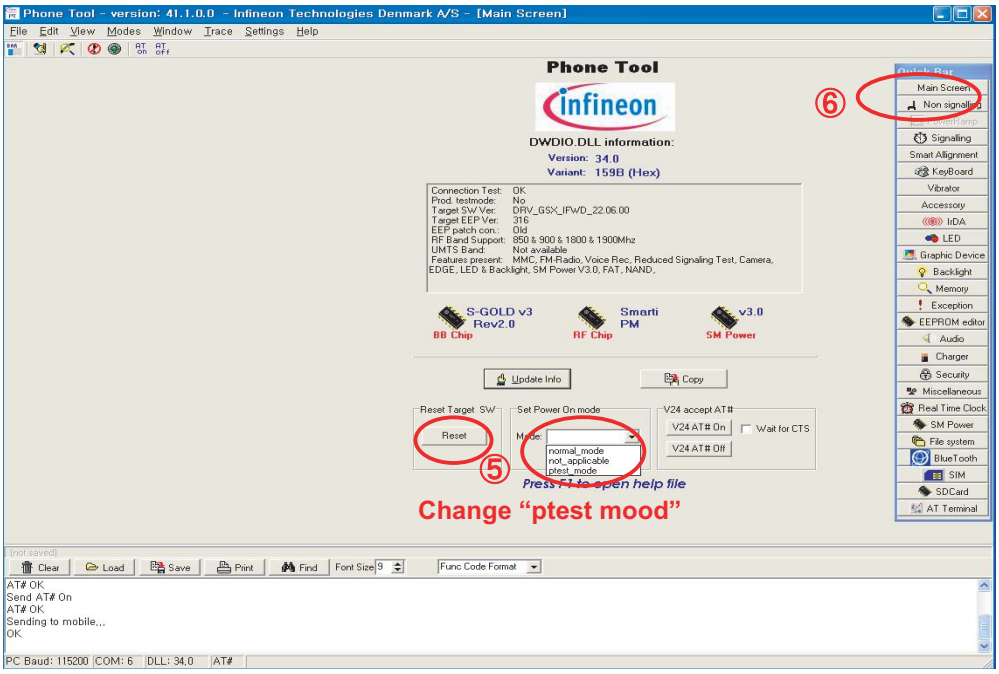


④ Click “Update Info” for communicating Phone and Test-Program.



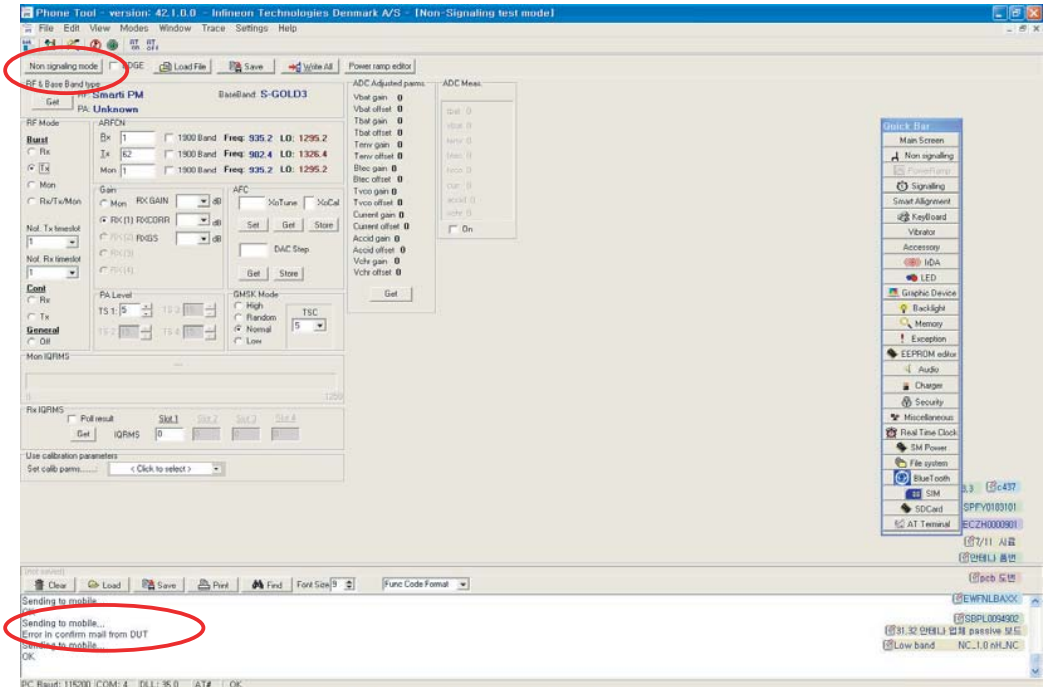


⑤ For the purpose of the Standalone Test, Change the Phone to “ptest mode” and then Click the “Reset” bar.
⑥ Select “Non signaling” in the Quick Bar menu. Then Standalone Test setup is finished.



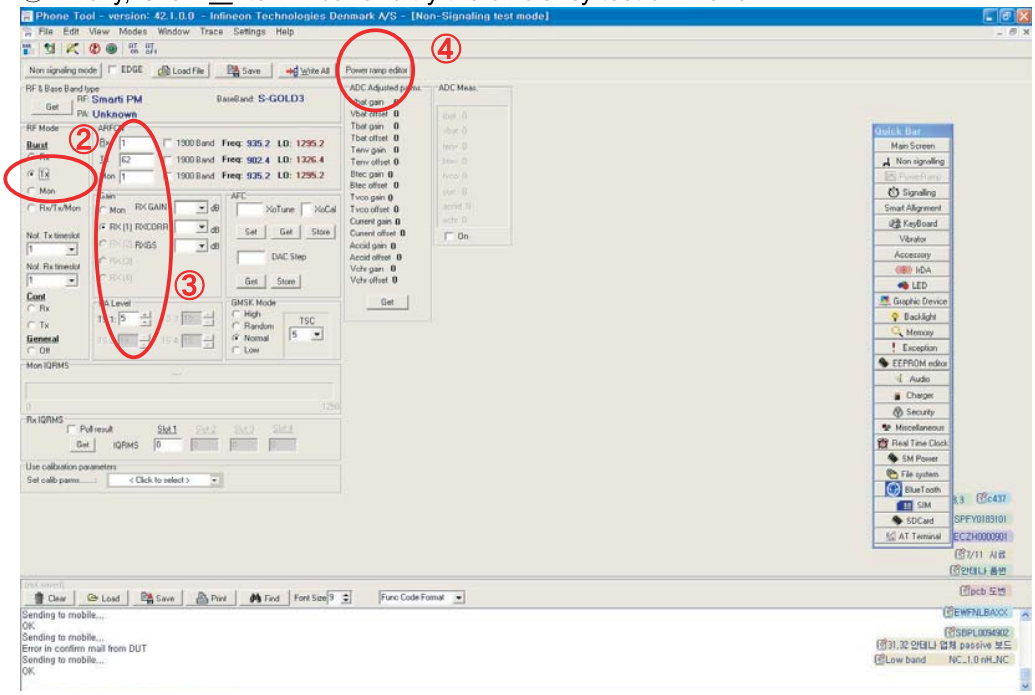
12.2.Tx Test

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.

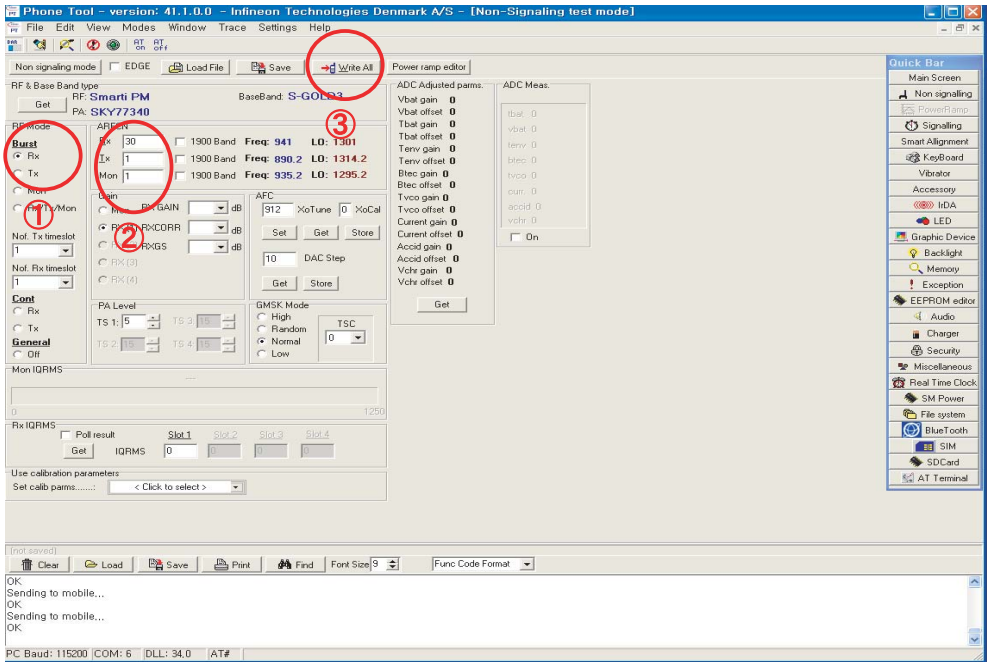
③ Select “Tx” in the RF mode menu and “PCL” in the PA Level menu.
④ Finally, Click “Write All” bar and try the efficiency test of Phone.



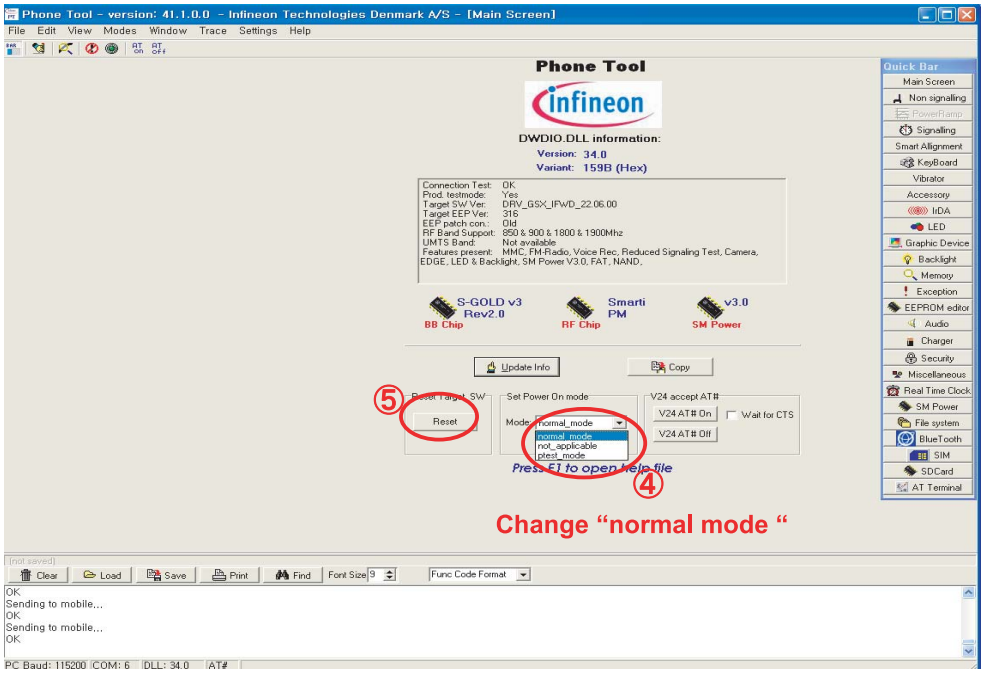
12.3.Rx Test

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.\



13. 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 1809#*560# 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] Device TEST

- **[1-1] Function Test**
- **[1-2] Main LCD**
- **[1-4] LCD Backlight**
- **[1-5] Key Backlight**
- **[1-6] Speaker**
- **[1-7] Vibrator**
- **[1-8] Camera**
- **[1-9] MicRcv**
- **[1-10] Key Press Test**
- **[1-11] Lighting**

[2] ELT Mode

- **[2-1] Automatic**
- **[2-2] Manual**

[3] Version Info

- **[3-1] Main SW**

[4] Factory Reset

[5] Usage Info

- **[5-1] Call Timer**

[6] Eng Mode

- **[6-1] Battery Info**
- **[6-2] Audio Tunning**
- **[6-3] UART Setting**
- **[6-4] BT Testing**

[7] Band Selection

- **[7-1] Auto**
- **[7-2] GSM 850**
- **[7-3] GSM 900**
- **[7-4] DCS 1800**
- **[7-5] PCS 1900**

[8] Network Info

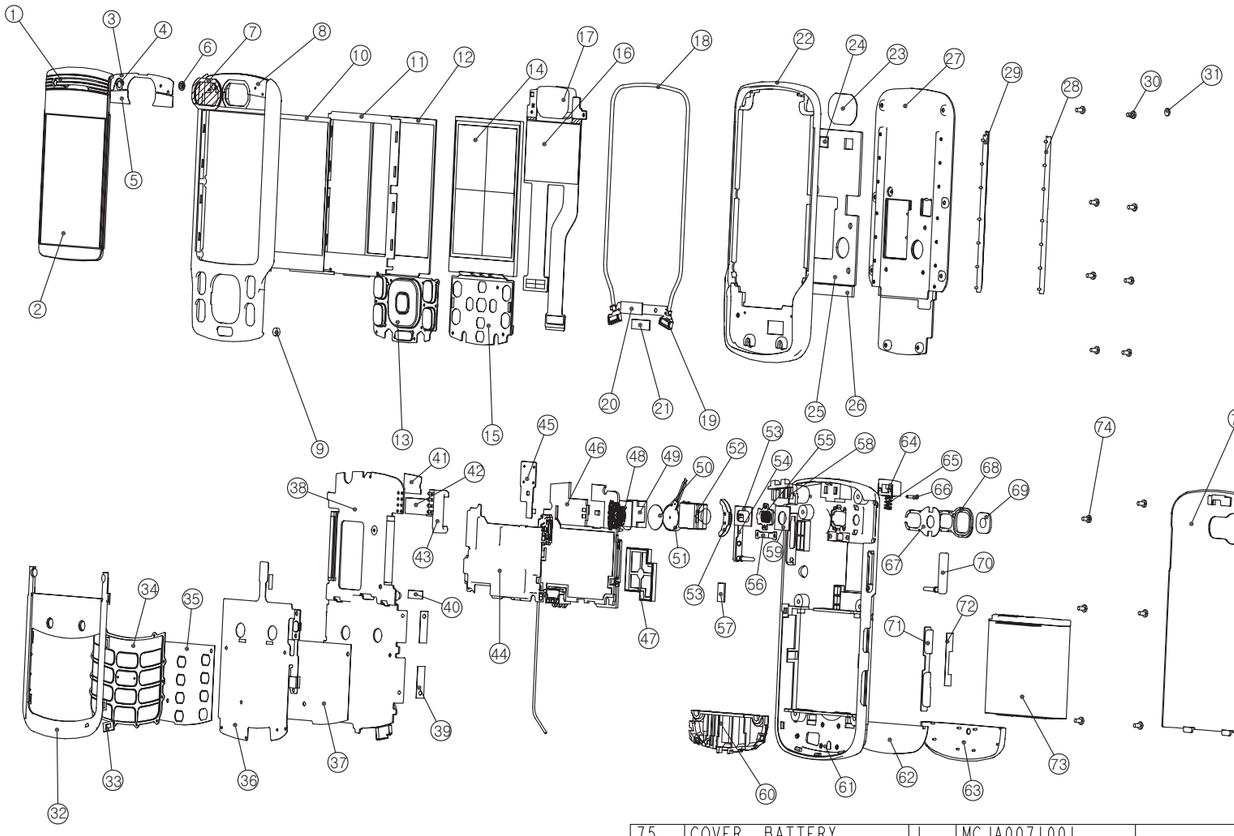
- **[8-1] Cell Env. (Idle)**
- **[8-2] Cell Env. (Ded)**

[9] Others

- **[9-1] Blutooth Test Menu**
- **[9-4] Aging Test**
- **[9-5] Trace**
- **[9-6] PS Attach Mode**
- **[9-7] Streaming settings**
- **[9-8] Debug setting**
- **[9-9] MMS Test**
- **[9-10] DRM Test Set**

14. EXPLODED VIEW & REPLACEMENT PART LIST

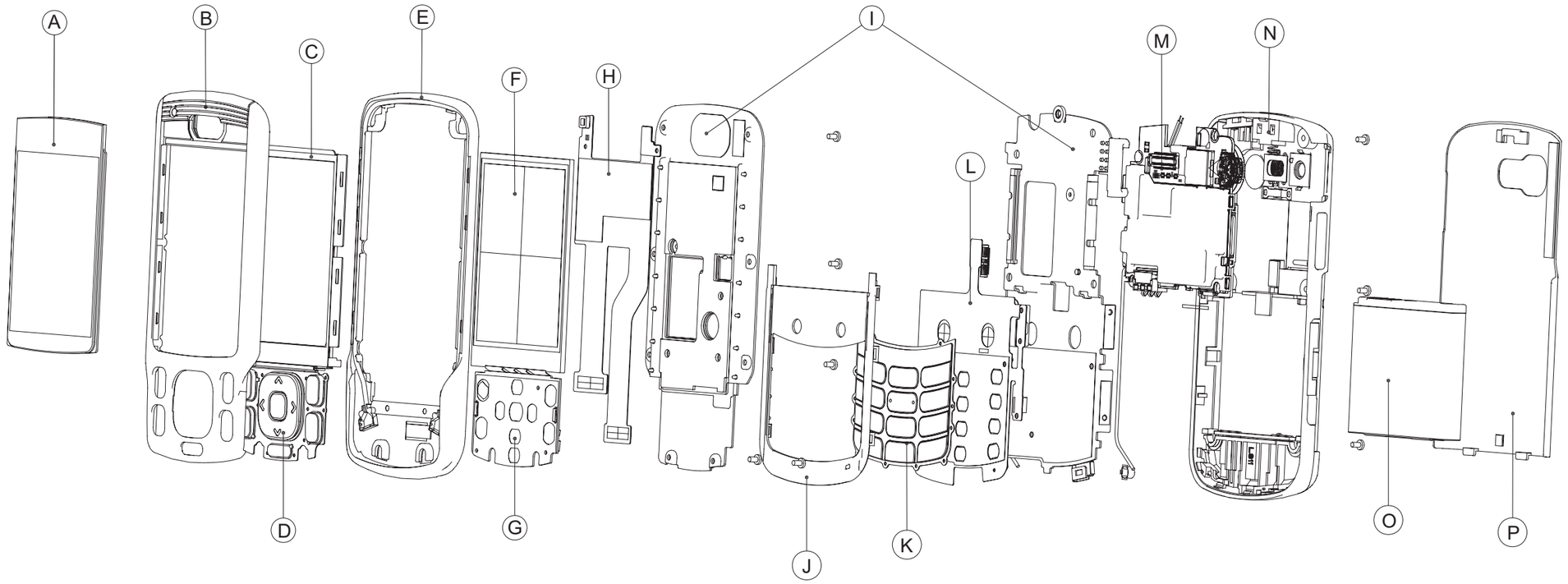
14.1 EXPLODED VIEW



NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
75	COVER, BATTERY	1	MCJA0071001	
74	SCREW MACHINE, BIND	6	GMEY0010601	
73	BATTERY	1	SBPL0097502	
72	INSULATOR	1	MIDZ018590I	
71	BUTTON, FUNCTION	1	MBJC002790I	
70	CAP, MULTIMEDIA CARD	1	MCCG0015201	
69	WINDOW, CAMERA	1	MWAE0039101	
68	DECO, CAMERA	1	MDAD003860I	
67	TAPE, DECO	1	MTAA016670I	
66	SHAFT	1	MSIY0001101	
65	SPRING	1	MSDB0001704	
64	LOCKER, BATTERY	1	MLEA004700I	
63	DECO, REAR	1	MDAK001590I	
62	TAPE, DECO	1	MTAA016660I	

NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
61	COVER, REAR	1	MCJN008920I	
60	INTENNA	1	SNGF003820I	
59	PAD, CAMERA	1	MPBT006320I	
58	INTENNA	1	SNGF0038302	
57	PAD, CONNECTOR	1	MPBU003850I	
56	SPRING, PLATE	1	MSDD000780I	
55	LENS, FLASH	1	MLCE001030I	
54	CAP, EARJACK	1	MCCC005820I	
53	PAD	1	MPBZ021401	
52	CAMERA	1	SVCY001620I	
51	MOTOR	1	SJMY0007106	
50	TAPE, MOTOR	1	MTAF002090I	
49	BRACKET	1	MBFZ003170I	
48	PAD, CONNECTOR	1	MPBU003860I	
47	SHIELD CAN	1	MCBA003540I	
46	PCB ASSY	1	SAFF019580I	
45	PCB ASSY, FLEXIBLE	1	SACY008180I	
44	SHILED CAN	1	MCBA003700I	
43	DECO, SIDE	1	MDAC002370I	
42	PAD, LCD	1	MPBG008230I	
41	INSULATOR	1	MIDZ018710I	
40	INSULATOR	1	MIDZ018720I	
39	TAPE, BUTTON	2	MTAG000870I	
38	RAIL ASSY, SLIDE	1	ARDY000710I	
37	TAPE, FPCB	1	MTAJ001040I	
36	PCB ASSY, FLEXIBLE	1	SACE007630I	
35	DOME ASSY, METAL	1	ADCA008590I	
34	KEYPAD ASSY, MAIN	1	AKAC010600I	
33	PAD, MIC	1	MPBH004060I	
32	COVER, FRONT	1	MCJK009280I	
31	CAP, SCREW	2	MCCH013560I	
30	SCREW MACHINE, BIND	8	GMEY001060I	
29	GUIDE, RIGHT	1	MGDB000940I	
28	GUIDE, LEFT	1	MGDA001470I	
27	RAIL ASSY, SLIDE	1	ARDY000710I	
26	PAD	1	MPBZ021390I	
25	PAD, LCD	1	MPBG008230I	
24	GASKET SHIELD FOAM	2	MGAD017730I	
23	PAD, SPEAKER	1	MPBN006050I	
22	FRAME	1	MFEZ001680I	
21	PAD, CONNECTOR	1	MPBU003830I	
20	PAD, CONNECTOR	1	MPBU003820I	
19	BRACKET	1	MPBZ003180I	
18	LIGHTING TUBE	1	MSLA000020I	
17	RECEIVER	1	SUSY0027203	
16	PCB ASSY, FLEXIBLE	1	SACY008200I	
15	PCB ASSY(SLIDE)	1	SAEY006390I	
14	LCD, MODULE	1	SVLM003000I	
13	BUTTON ASSY, SUB	1	ABGG000660I	
12	PAD, LCD	1	MPBG008220I	
11	BRACKET,LCD	1	MBFF002180I	
10	TAPE, WINDOW	1	MTAD009230I	
9	MAGNET, SWITCH	1	MMAA000820I	
8	COVER, UPPER	1	MCJW002100I	
7	PAD, SPEAKER	1	MPBN006040I	
6	WINDOW	1	MWAE004160I	
5	TAPE, WINDOW	1	MTAD009220I	
4	TAPE	1	MTAZ021940I	
3	TAPE, DECO	1	MTAA016650I	
2	WINDOW, LCD	1	MWAC010600I	
1	DECO, RECEIVER	1	MDAH002500I	

ASS'Y EXPLODED VIEW



P	COVER ASSY, BATTERY		ACGA002520I	
O	BATTERY		SBPL009750I	
N	COVER ASSY, REAR		ACGM011890I	
M	PCB, ASSY (MAIN)		SAFF0195801	
L	PCB ASSY, FLEXIBLE		SACY008180I	
K	KEYPAD ASSY, MAIN		AKAC000370I	

J	COVER ASSY, FRONT		ACGK011980I	
I	RAIL ASSY. SLIDE		ARDY000710I	
H	PCB ASSY. FLEXIBLE		SACY008200I	
G	PCB ASSY (SILDE)		SAEY006390I	
F	LCD, MODULE		SVLM003000I	
E	DECO, ASSY(LIGHT FRAME)		ADBY001310I	
D	BUTTON ASSY, SUB		ABGG000660I	
C	BRACKET, LCD		MBFF002180I	
B	COVER ASSY, SLIDE(UPPER)		ACGS002290I	
A	WINDOW, LCD		MWAC010600I	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

14.2 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	Spec	Color	Remark
1		GSM(SLIDE)	TGLL0020201		Black	
2	AAAY00	ADDITION	AAAY0342201		WITHOUT COLOR	
3	ACGA00	COVER ASSY,BATTERY	ACGA0025201		Black	P
4	MCJA00	COVER,BATTERY	MCJA0071001	PRESS, Al Alloy, 0.63, , , ,	Black	75
4	MTAA00	TAPE,DECO	MTAA0177701	COMPLEX, (empty), , , , ,	Black	
3	MLAA00	LABEL,APPROVAL	MLAA0059401	COMPLEX, (empty), , , , ,	Without Color	
4	MPBZ00	PAD	MPBZ0219601	COMPLEX, (empty), , 503, 860, 145,	Without Color	26
4	MPCY00	PALLET	MPCY0013203	COMPLEX, (empty), , , , ,	Blue	
3	MBAD00	BAG,VINYL(PE)	MBAD0005201	COMPLEX, (empty), , , , ,	DARK BLUE	
3	MLAC00	LABEL,BARCODE	MLAC0004538	PRINTING, (empty), , , , ,	Without Color	
2	APEY00	PHONE	APEY0656201	Open UKRBK (to see UADS)	Black	
3	ACGM00	COVER ASSY,REAR	ACGM0118901		BLACK	N
4	MBJC00	BUTTON,FUNCTION	MBJC0027901	COMPLEX, (empty), , , , ,	Black	71
4	MCCC00	CAP,EARPHONE JACK	MCCC0058201	COMPLEX, (empty), , , , ,	Black	54
4	MCCG00	CAP,MULTIMEDIA CARD	MCCG0015201	COMPLEX, (empty), , , , ,	Black	70
4	MCJN00	COVER,REAR	MCJN0089201	MOLD, PC LUPOY SC-1004A, , , , ,	Black	61
4	MDAD00	DECO,CAMERA	MDAD0038601	MOLD, PC LUPOY SC-1004A, , , , ,	Black	68
4	MDAK00	DECO,REAR	MDAK0015901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	63
4	MIDZ00	INSULATOR	MIDZ0185901	COMPLEX, (empty), , , , ,	Without Color	72
4	MLCE00	LENS,FLASH	MLCE0010301	MOLD, PC LUPOY SC-1004A, , , , ,	Black	55
4	MLEA00	LOCKER,BATTERY	MLEA0047001	MOLD, PC LUPOY SC-1004A, , , , ,	Black	64
4	MPBJ00	PAD,MOTOR	MPBJ0056901	COMPLEX, (empty), , , , ,	Black	
4	MPBT00	PAD,CAMERA	MPBT0063201	COMPLEX, (empty), , , , ,	Black	59
4	MPBU00	PAD,CONNECTOR	MPBU0038501	COMPLEX, (empty), , , , ,	Black	57
4	MPBZ00	PAD	MPBZ0214001	COMPLEX, (empty), , , , ,	Black	
4	MSDB00	SPRING,COIL	MSDB0006101	COMPLEX, (empty), , , , ,	Without Color	65

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MSDD00	SPRING,PLATE	MSDD0007801	PRESS, STS, 0.2, , , ,	Black	56
4	MSIY00	SHAFT	MSIY0002401	PRESS, STS, , , , ,	Without Color	66
4	MTAA00	TAPE,DECO	MTAA0166701	COMPLEX, (empty), , , , ,	Black	67
4	MTAA01	TAPE,DECO	MTAA0166601	COMPLEX, (empty), , , , ,	Black	62
4	MWAE00	WINDOW,CAMERA	MWAE0039101	CUTTING, Quartz Glass, , , , ,	Black	69
3	ACGQ00	COVER ASSY,SLIDE	ACGQ0031901		Black	
4	ABGG00	BUTTON ASSY,SUB	ABGG0006601		Black	D, 13
4	ACGK00	COVER ASSY,FRONT	ACGK0119801		Black	J
5	MCJK00	COVER,FRONT	MCJK0092801	MOLD, PC LUPOY SC-1004A, , , , ,	Black	32
5	MPBH00	PAD,MIKE	MPBH0040601	COMPLEX, (empty), , , , ,	Black	33
4	ACGS00	COVER ASSY,SLIDE(UPPER)	ACGS0022901		Black	B
5	MCJW00	COVER,SLIDE(UPPER)	MCJW0021001	CASTING, Al Alloy, , , , ,	Black	8
5	MDAH00	DECO,RECEIVER	MDAH0025001	MOLD, PC LUPOY SC-1004A, , , , ,	Black	1
5	MMAA00	MAGNET,SWITCH	MMAA0008201	COMPLEX, (empty), , , , ,	Metal Silver	9
5	MPBN00	PAD,SPEAKER	MPBN0060401	COMPLEX, (empty), , , , ,	Black	7
5	MPBN01	PAD,SPEAKER	MPBN0060402		Black	
5	MTAA00	TAPE,DECO	MTAA0166501	COMPLEX, (empty), , , , ,	Black	3
5	MTAD00	TAPE,WINDOW	MTAD0092202		Black	
5	MTAD01	TAPE,WINDOW	MTAD0092201	COMPLEX, (empty), , , , ,	Black	5
5	MTAJ00	TAPE,FLEXIBLE PCB	MTAJ0014301	COMPLEX, (empty), , , , ,	Without Color	37
5	MTAJ01	TAPE,FLEXIBLE PCB	MTAJ0014401	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ01	TAPE	MTAZ0219401	COMPLEX, (empty), , , , ,	Black	4
5	MWAE00	WINDOW,CAMERA	MWAE0041601	COMPLEX, (empty), , , , ,	Without Color	6
4	ADBY00	DECO ASSY	ADBY0013101	LIGHT FRAME	Black	E
5	MBFZ00	BRACKET	MBFZ0031801	MOLD, PC LUPOY SC-1004A, , , , ,	Without Color	
5	MFEZ00	FRAME	MFEZ0016801	MOLD, PC LUPOY SC-1004A, , , , ,	Black	22
5	MPBU01	PAD,CONNECTOR	MPBU0038201	COMPLEX, (empty), , , , ,	Black	20
5	MSLA00	STRING,LIGHT	MSLA0000201	EXTRUSION, LDPE, , , , ,	Black	18
5	MTAZ00	TAPE	MTAZ0219901	COMPLEX, (empty), , , , ,	Black	
4	AKAC00	KEYPAD ASSY,MAIN	AKAC0003701		Black	K, 34

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	ARDY00	RAIL ASSY,SLIDE	ARDY0007101		BLACK	I, 27, 38
5	MDAC00	DECO,SIDE	MDAC0023701	MOLD, PC LUPOY SC-1004A, , , , ,	Black	43
5	MGAD00	GASKET,SHIELD FORM	MGAD0177301	COMPLEX, (empty), , , , ,	Without Color	24
5	MGDA00	GUIDE,LEFT	MGDA0014701	MOLD, PC LUPOY SC-1004A, , , , ,	Black	28
5	MGDB00	GUIDE,RIGHT	MGDB0009401	MOLD, POM TX-31, , , , ,	Black	29
5	MIDZ00	INSULATOR	MIDZ0187101	COMPLEX, (empty), , , , ,	Without Color	41
5	MIDZ01	INSULATOR	MIDZ0187201	COMPLEX, (empty), , , , ,	Without Color	40
5	MIDZ02	INSULATOR	MIDZ0192101	COMPLEX, (empty), , , , ,	Without Color	
5	MIDZ06	INSULATOR	MIDZ0193701	COMPLEX, (empty), , , , ,	Without Color	
5	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	
5	MPBF00	PAD,FLEXIBLE PCB	MPBF0034801	COMPLEX, (empty), , , , ,	Black	
5	MPBG01	PAD,LCD	MPBG0082301	COMPLEX, (empty), , , , ,	Black	25, 42
5	MPBN00	PAD,SPEAKER	MPBN0060501	COMPLEX, (empty), , , , ,	Black	23
5	MTAG00	TAPE,BUTTON	MTAG0008701	COMPLEX, (empty), , , , ,	Black	39
4	GMEY00	SCREW MACHINE,BIND	GMEY0010601	1.4 mm,2.5 mm,MSWR3(BK) ,N ,+ ,NYLOK	Black	30, 74
4	MBFF00	BRACKET,LCD	MBFF0021801	PRESS, STS, , , , ,	Black	C, 11
5	MBFF	BRACKET,LCD	MBFF0023501	PRESS, STS, , , , ,	Silver	
5	MBFF00	BRACKET,LCD	MBFF0023401	PRESS, STS, , , , ,	Without Color	
5	MGAD00	GASKET,SHIELD FORM	MGAD0180301	COMPLEX, (empty), , , , ,	Without Color	
5	MPBG00	PAD,LCD	MPBG0082201	COMPLEX, (empty), , , , ,	Black	12
5	MTAA00	TAPE,DECO	MTAA0175801	COMPLEX, (empty), , , , ,	Transparent	
5	MTAD00	TAPE,WINDOW	MTAD0092301	COMPLEX, (empty), , , , ,	Black	10
4	MCCH00	CAP,SCREW	MCCH0135601	COMPLEX, (empty), , , , ,	Black	31
4	MIDZ00	INSULATOR	MIDZ0192201	COMPLEX, (empty), , , , ,	Without Color	
4	MIDZ01	INSULATOR	MIDZ0194601	COMPLEX, (empty), , , , ,	Without Color	
4	MIDZ02	INSULATOR	MIDZ0194701	COMPLEX, (empty), , , , ,	Without Color	
4	MLAZ01	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MTAB00	TAPE,PROTECTION	MTAB0277801	COMPLEX, (empty), , , , ,	Without Color	
4	MTAB01	TAPE,PROTECTION	MTAB0277901	COMPLEX, (empty), , , , ,	Without Color	
4	MTAB02	TAPE,PROTECTION	MTAB0281801	COMPLEX, (empty), , , , ,	Transparent	
4	MWAC00	WINDOW,LCD	MWAC0106001	CUTTING, PMMA MR 200, , , , ,	Black	A, 2
6	ADCA00	DOME ASSY,METAL	ADCA0085901		BLACK	35
6	ADCA00	DOME ASSY,METAL	ADCA0089201		Without Color	
3	GMEY00	SCREW MACHINE,BIND	GMEY0010601	1.4 mm,2.5 mm,MSWR3(BK) ,N ,+ ,NYLOK	Black	
3	MLAK00	LABEL,MODEL	MLAK0018616	PRINTING, (empty), , , , ,	Without Color	
5	ABFZ00	BRACKET ASSY	ABFZ0014501	MOTOR	Black	
6	MBFZ00	BRACKET	MBFZ0031701	MOLD, PC LUPOY SC-1004A, , , , ,	Without Color	49
6	MPBU00	PAD,CONNECTOR	MPBU0038601	COMPLEX, (empty), , , , ,	Black	48
6	MTAF00	TAPE,MOTOR	MTAF0020901	COMPLEX, (empty), , , , ,	Black	50
5	ACKA01	CAN ASSY,SHIELD	ACKA0011501		Without Color	
5	MKBZ00	KNOB	MKBZ0003401	MOLD, PC LUPOY SC-1004A, , , , ,	Black	
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	
6	SC400	CAN ASSY,SHIELD	ACKA0009601		Black	
7	MCBA00	CAN,SHIELD	MCBA0037101	PRESS, STS, 0.1, , , ,	Black	44
7	MCBA01	CAN,SHIELD	MCBA0035401	PRESS, STS, , , , ,	Without Color	47

14.2 Replacement Parts
<Main component>

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

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0038201	3.0 ,-5 dBd,, ,internal, GSM900/1800/1900 ,; ,TRIPLE ,-5.0 ,50 ,3.0		60
4	SNGF01	ANTENNA,GSM,FIXED	SNGF0038302	3.0 ,-5.0 dBd,, ,internal, bluetooth ,; ,SINGLE ,-5.0 ,50 ,3.0		58
4	SACY00	PCB ASSY,FLEXIBLE	SACY0081801	F-LCD		L, 45
5	SACE	PCB ASSY,FLEXIBLE,SMT	SACE0076401	F-LCD		
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0052301	F-LCD		
7	C100	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C103	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	L100	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
7	L101	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
7	VA100	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA101	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0065201			
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0040401	50 PIN,0.4 mm,ETC , ,H=1.0, Plug		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0035901	40 PIN,0.4 mm,ETC , ,H=1.0, Plug		
7	R100	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
7	U100	IC	EUSY0331801	Photo sensor IC, 6 PIN, Vcc 1.8 to 5.5V ,6 PIN,R/TP ,Photo sensor IC		
6	SPCY00	PCB,FLEXIBLE	SPCY0149001	POLYI ,0.2 mm,DOUBLE , ,; , , , , , , , , ,		
4	SACY01	PCB ASSY,FLEXIBLE	SACY0082001	F-KEY		H, 16
5	SACB	PCB ASSY,FLEXIBLE,INSERT	SACB0049601	F-KEY		
5	SACE	PCB ASSY,FLEXIBLE,SMT	SACE0076301	F-KEY		36
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0052201	F-KEY		
7	C106	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C107	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	L103	INDUCTOR,CHIP	ELCH0004709	3.3 nH,S ,1005 ,R/TP ,		

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	MIC100	MICROPHONE	SUMY0010610	UNIT ,-42 dB,4.72*3.76*1.25 ,mems TDMA Improve ,; , , ,OMNI ,[empty] , ,SMD		
7	R107	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
7	SW100	CONN,RF SWITCH	ENWY0003901	,SMD , dB,		
7	U100	IC	EUSY0313401	QFN ,4 PIN,R/TP ,1.8X1.2X0.5 size wide input voltage Hall Switch		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0065101	F-KEY		
7	AF_CAM	SWITCH,TACT	ESCY0005301	1 V,1 A,HORIZONTAL ,1 G, ,; ,10C2P ,[empty] ,[empty] ,[empty] , ,[empty]		
7	C100	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C101	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C103	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C104	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C105	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0039501	20 PIN,0.4 mm,ETC , ,H=1.0, Plug		
7	L100	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
7	L101	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
7	L102	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
7	LD100	DIODE,LED,CHIP	EDLH0013701	WHITE ,ETC ,R/TP ,SIDEVIEW ,; ,[empty] ,2.9~3.75 ,30mA , , ,120mW ,[empty] ,[empty] ,2P		
7	LD101	DIODE,LED,CHIP	EDLH0013701	WHITE ,ETC ,R/TP ,SIDEVIEW ,; ,[empty] ,2.9~3.75 ,30mA , , ,120mW ,[empty] ,[empty] ,2P		
7	R103	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	R104	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R105	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	VA100	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA101	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA102	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA103	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA104	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA105	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA106	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA107	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	VA108	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA109	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA110	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA111	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
7	VA112	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
6	SPCY00	PCB,FLEXIBLE	SPCY0149201	POLYI ,0.2 mm,DOUBLE , ,; , , , , , , , , ,		
4	SAEY00	PCB ASSY,KEYPAD	SAEY0063901			G, 15
5	SAEB00	PCB ASSY,KEYPAD,INSERT	SAEB0026501			
5	SAEE00	PCB ASSY,KEYPAD,SMT	SAEE0031001			
6	SAEC00	PCB ASSY,KEYPAD,SMT BOTTOM	SAEC0029801			
7	C500	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C501	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C502	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C503	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C504	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C505	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C506	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C507	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C508	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C509	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C510	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C511	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C512	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C513	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN500	CONNECTOR,BOARD TO BOARD	ENBY0036001	40 PIN,0.4 mm,ETC , ,H=1.0, Socket		
7	CN501	CONNECTOR,FFC/FPC	ENQY0014301	37 PIN,0.3 mm,STRAIGHT , , ,; , ,0.30MM ,FFC/FPC ,STRAIGHT ,BOTH ,SMD ,[empty] ,[empty] ,		
7	LD500	DIODE,LED,7-SEG	EDLS0001501	R/G/B ,3 DIGIT,R/TP , ,; ,[empty] ,3 , , , ,190mW ,[empty] ,[empty] ,6P		
7	LD501	DIODE,LED,7-SEG	EDLS0001501	R/G/B ,3 DIGIT,R/TP , ,; ,[empty] ,3 , , , ,190mW ,[empty] ,[empty] ,6P		
7	LD502	DIODE,LED,7-SEG	EDLS0001601	R/G/B ,3 DIGIT,R/TP , ,; ,[empty] ,3 , , , ,125mW ,COMMON ANODE ,[empty] ,4P		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	LD503	DIODE,LED,7-SEG	EDLS0001601	R/G/B ,3 DIGIT,R/TP , ,; ,[empty] ,3 , , , ,125mW ,COMMON ANODE ,[empty] ,4P		
7	LD504	DIODE,LED,7-SEG	EDLS0001601	R/G/B ,3 DIGIT,R/TP , ,; ,[empty] ,3 , , , ,125mW ,COMMON ANODE ,[empty] ,4P		
7	LD506	DIODE,LED,7-SEG	EDLS0001601	R/G/B ,3 DIGIT,R/TP , ,; ,[empty] ,3 , , , ,125mW ,COMMON ANODE ,[empty] ,4P		
7	R502	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R506	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R507	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R509	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R510	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R511	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R512	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R513	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R514	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R515	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R516	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	U500	IC	EUSY0360901	CSP ,30 ,R/TP ,DCDC/Charge pump/ALC/LDO etc ,; ,IC,Charge Pump		
7	U501	IC	EUSY0360901	CSP ,30 ,R/TP ,DCDC/Charge pump/ALC/LDO etc ,; ,IC,Charge Pump		
7	VA500	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA501	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA502	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA503	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA504	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA505	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA506	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA507	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA508	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA509	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA510	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA511	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA512	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA513	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	VA514	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA515	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA516	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA517	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA518	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA519	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA520	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA521	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA522	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA523	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA524	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA525	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA526	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA527	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	SAED00	PCB ASSY,KEYPAD,SMT TOP	SAED0029301			
7	LD505	DIODE,LED,CHIP	EDLH0013701	WHITE ,ETC ,R/TP ,SIDEVIEW ,; ,[empty] ,2.9~3.75 ,30mA , , ,120mW ,[empty] ,[empty] ,2P		
7	LD507	DIODE,LED,CHIP	EDLH0013701	WHITE ,ETC ,R/TP ,SIDEVIEW ,; ,[empty] ,2.9~3.75 ,30mA , , ,120mW ,[empty] ,[empty] ,2P		
6	SPEY00	PCB,KEYPAD	SPEY0058701	FR-4 ,0.5 mm,BUILD-UP 4 , ,; , , , , , , , , ,		
4	SUSY00	SPEAKER	SUSY0027203	ASSY ,8 ohm,90 dB,1812 mm,10mm ,; , , , , , , ,WIRE		17
4	SVLM00	LCD MODULE	SVLM0030001	MAIN ,240*320(2.4") ,37.9*56.4 ,262k ,TFT ,TM ,uPD161710 ,		F, 14
4	SWCC00	CABLE,COAXIAL	SWCC0005801	64 mm, LINE, ,; ,[empty] ,[empty] ,[empty] , ,[empty] , ,[empty]		
3	SAFY00	PCB ASSY,MAIN	SAFY0281501			
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0089401			
5	SACY	PCB ASSY,FLEXIBLE	SACY0081901	F-FLASH		
6	SACE	PCB ASSY,FLEXIBLE,SMT	SACE0076201			
7	EDLM00	DIODE,LED,MODULE	EDLM0009501	white ,1 LED,2.0x1.6x0.7t ,R/TP ,		
7	SPCY	PCB,FLEXIBLE	SPCY0148601	POLYI ,0.2 mm,DOUBLE , ,; , , , , , , , , ,		
5	SJMY00	VIBRATOR,MOTOR	SJMY0007106	3 V,.08 A,10*3.0T ,17mm ,; ,3V , , ,12000 rpm , , , ,		51
5	SVCY00	CAMERA	SVCY0016201	CMOS ,MEGA ,3M AF [Micron 1/4" SOC3130, FPCB]		52
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0195801			M, 46

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0114801			
6	BAT200	BATTERY,CELL,LITHIUM	SBCL0001701	2 V,0.5 mAh,CYLINDER ,Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
6	C100	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C101	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C104	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C105	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C107	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C108	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C109	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C112	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C113	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C117	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C121	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C124	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C127	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C129	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C130	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C131	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C132	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C135	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C200	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C202	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C203	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C204	CAP,TANTAL,CHIP	ECTH0004804	33 uF,10V ,M ,L_ESR ,3216 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C208	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C211	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C213	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C220	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C229	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C230	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C231	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C233	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C234	CAP,CERAMIC,CHIP	ECCH0000393	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,1.25 mm		
6	C235	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C236	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C237	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C238	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C239	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C240	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C242	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C243	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C244	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C245	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C246	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C248	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C249	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C251	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C252	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C256	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C264	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C304	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C314	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C315	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C316	CAP,CHIP,MAKER	ECZH0001122	680 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C317	CAP,CHIP,MAKER	ECZH0001122	680 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C318	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C330	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C331	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C332	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C340	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C653	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C654	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	CN100	CONNECTOR,BOARD TO BOARD	ENBY0029001	30 PIN,0.4 mm,ETC , ,P4S, Header		
6	CN200	CONNECTOR,ETC	ENZY0019401	3 PIN,3.0 mm,ETC , ,H=5.3		
6	CN301	CONNECTOR,I/O	ENRY0006501	18 PIN,0.4 mm,ETC , ,1.2 Offset		
6	CN303	CONNECTOR,BOARD TO BOARD	ENBY0040501	50 PIN,0.4 mm,ETC , ,H=1.0, Socket		
6	D200	DIODE,SWITCHING	EDSY0017301	VSM ,15 V,100 mA,R/TP ,PB-FREE		

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	D201	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D202	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D203	DIODE,TVS	EDTY0008604	SOT-563 ,6 V,100 W,R/TP ,PB-FREE		
6	FB200	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FB301	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ,; , , ,SMD ,R/TP		
6	FB302	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ,; , , ,SMD ,R/TP		
6	FB305	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ,; , , ,SMD ,R/TP		
6	FB306	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ,; , , ,SMD ,R/TP		
6	FL302	FILTER,EMI/POWER	SFEY0007101	SMD ,1CH,1608Feedthru ESD/EMI filter for power Pb-free		
6	FL303	FILTER,EMI/POWER	SFEY0007101	SMD ,1CH,1608Feedthru ESD/EMI filter for power Pb-free		
6	FL306	VARISTOR	SEVY0008302	5.5 V,30% ,SMD ,1409Size (4CH)		
6	FL307	VARISTOR	SEVY0008302	5.5 V,30% ,SMD ,1409Size (4CH)		
6	FL308	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	FL309	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	FL310	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	L100	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
6	L101	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
6	L102	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
6	L103	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
6	L200	INDUCTOR,SMD,POWER	ELCP0006703	10 uH,M ,3.2*2.6*1.0 ,R/TP ,		
6	L201	INDUCTOR,SMD,POWER	ELCP0005104	10 uH,M ,3.8*3.8*1.8 ,R/TP ,power inductor/ 850mA		
6	L300	INDUCTOR,CHIP	ELCH0010402	270 nH,M ,1005 ,R/TP ,CHIP		
6	L301	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
6	L302	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
6	L304	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
6	Q200	TR,BJT,NPN	EQBN0013701	EMT6 ,150 mW,R/TP ,DUAL TRANSISTORS		
6	Q201	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3		
6	R102	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R106	RES,CHIP	ERHY0000166	390 Kohm,1/16W ,F ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R116	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R122	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R123	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R124	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R125	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R126	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R127	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R128	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R129	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R130	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R131	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R132	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R133	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R134	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R135	RES,CHIP	ERHY0000277	75K ohm,1/16W,J,1005,R/TP		
6	R136	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000454	27 Kohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R207	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R208	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R215	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000534	8.2 ohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000534	8.2 ohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP	ERHY0000298	3.3M ohm,1/16W,J,1005,R/TP		
6	R221	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R222	RES,CHIP	ERHY0000298	3.3M ohm,1/16W,J,1005,R/TP		
6	R223	RES,CHIP	ERHY0011901	47 mohm,1/4W ,F ,2012 ,R/TP		
6	R225	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R228	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R229	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R239	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R240	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R241	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R242	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R243	RES,CHIP,MAKER	ERHZ0000294	5100 ohm,1/16W ,F ,1005 ,R/TP		
6	R244	RES,CHIP	ERHY0000128	15K ohm,1/16W,F,1005,R/TP		
6	R245	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R246	RES,CHIP	ERHY0000129	18K ohm,1/16W,F,1005,R/TP		
6	R247	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R307	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R308	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R312	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R318	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R336	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R337	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R338	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R339	RES,CHIP,MAKER	ERHZ0000240	20 ohm,1/16W ,F ,1005 ,R/TP		
6	R344	RES,CHIP,MAKER	ERHZ0000240	20 ohm,1/16W ,F ,1005 ,R/TP		
6	R620	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R621	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R623	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R624	RES,CHIP,MAKER	ERHZ0000519	9100 ohm,1/16W ,J ,1005 ,R/TP		
6	R625	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	U100	IC	EUSY0335803	FBGA ,107 PIN,ETC ,FULLY 1.8V 1G(LB/64Mx16) NAND+512M(DDR/8Mx4x16) SDRAM ,; ,IC,MCP		
6	U101	IC	EUSY0322801	BGA ,293 PIN,R/TP ,Multimedia Extension EDGE BB		
6	U200	IC	EUSY0360201	CSP ,20 ,R/TP ,Class D(mono) + Capless HP + A/S ,; ,IC,Audio Sub System		
6	U201	IC	EUSY0323901	BGA PG-WFSGA ,121 PIN,R/TP ,SMPOWER3		
6	U202	IC	EUSY0286901	SOT23-5 ,5 PIN,R/TP ,2.5V Sense voltage(max), current monitor		
6	U203	IC	EUSY0102802	Micropak ,8 PIN,R/TP ,Daul 2 input AND gate,		
6	U204	IC	EUSY0351601	DFN ,12 PIN,R/TP ,Dual Charger IC (Bypass) ,; ,IC,Charger		
6	U300	IC	EUSY0250501	SC70 ,5 PIN,R/TP ,Comparator, pin compatible to EUSY0077701		
6	U304	IC	EUSY0160401	SOT-23 ,3 PIN,R/TP ,DC MOTOR DRIVER / INTEGERATED RELAY		
6	VA303	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	VA304	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	X100	X-TAL	EXXY0024301	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,-40'C ~ +85'C, C0 1.05pF, C1 fF ,; ,32.768 ,20PPM ,12.5 , , ,SMD ,R/TP		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0113301			
6	C232	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C250	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C253	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C254	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C255	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C257	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C258	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C259	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C260	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C261	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C263	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C300	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C312	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C313	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C322	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C324	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C325	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C328	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C400	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C401	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C402	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C407	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C412	CAP,TANTAL,CHIP	ECTH0004804	33 uF,10V ,M ,L_ESR ,3216 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0004906	2.5 pF,50V ,C ,X7R ,TC ,1005 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0004906	2.5 pF,50V ,C ,X7R ,TC ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C419	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C420	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C421	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C422	CAP,CERAMIC,CHIP	ECCH0000183	1.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C423	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C424	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C426	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C427	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
6	C432	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C433	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C434	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C435	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C436	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C437	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C438	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C439	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C440	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C443	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C446	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C447	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C448	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C451	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C452	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C453	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C459	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C460	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C461	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C462	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C463	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C464	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C465	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C466	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	CN300	CONNECTOR,BOARD TO BOARD	ENBY0015601	34 PIN,0.4 mm,STRAIGHT ,AU ,0.9MM HEIGHT		
6	CN302	CONNECTOR,BOARD TO BOARD	ENBY0039601	20 PIN,0.4 mm,ETC , ,H=1.0, Socket		
6	CN401	CONN,RF SWITCH	ENWY0003901	,SMD , dB,		
6	D300	DIODE,SWITCHING	EDSY0015001	PMDU ,30 V,1.5 A,R/TP ,		
6	FB201	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FB300	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB401	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FL300	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	FL301	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	FL304	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	FL305	FILTER,EMI/POWER	SFEY0015501	SMD ,Pb-free_4ch_5p-100ohm-5p ,; ,Filter,LCR		
6	FL400	FILTER,SEPERATOR	SFAY0011101	850.900 ,1800.1900 ,3.8 dB,4.1 dB, dB, dB,4532 ,4.5X3.2 Size Quad Band FEM		
6	L303	INDUCTOR,SMD,POWER	ELCP0009405	2.2 uH,M ,3x3x1.2 ,R/TP ,coil power inductor ,; ,2,2uH ,20% ,; ,1.5A ,; ,; ,; ,SHIELD ,3.2X3.2X1.2MM ,[empty] ,P/TP ,Inductor,Wire Wound,Chip		
6	L305	INDUCTOR,CHIP	ELCH0001425	82 nH,J ,1005 ,R/TP ,PBFREE		
6	L400	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L401	INDUCTOR,CHIP	ELCH0004711	22 nH,J ,1005 ,R/TP ,		
6	L402	INDUCTOR,CHIP	ELCH0001052	18 nH,J ,1005 ,R/TP ,PBFREE		
6	L403	INDUCTOR,CHIP	ELCH0009110	5.1 nH,J ,1005 ,R/TP ,chip coil		
6	L404	INDUCTOR,CHIP	ELCH0009110	5.1 nH,J ,1005 ,R/TP ,chip coil		
6	L405	INDUCTOR,CHIP	ELCH0005019	68 nH,J ,1005 ,R/TP ,		
6	L406	INDUCTOR,CHIP	ELCH0004709	3.3 nH,S ,1005 ,R/TP ,		
6	M1	MODULE,ETC	SMZY0019201	Bluetooth+FM Module(BCM2048B0,6.3x5.3x1.4) ,; ,Bluetooth		
6	R226	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R227	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R230	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R231	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R232	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R233	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R234	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R237	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R238	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R300	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R310	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R320	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R321	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R324	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP	ERHY0000127	13K ohm,1/16W,F,1005,R/TP		
6	R334	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R335	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R340	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R403	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
6	R405	RES,CHIP	ERHY0000185	820 ohm,1/16W ,F ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R616	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R617	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R618	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R619	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R626	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	S200	CONN,SOCKET	ENSY0017901	14 PIN,ETC , ,2.54 mm,Micro-SD, UIM Dupli Socket		
6	SPFY	PCB,MAIN	SPFY0183101	FR-4 ,0.8 mm,STAGGERED-10 , ,; , , , , , , , , ,		
6	SW200	SWITCH,ROCKER	ESKY0001301	5 V,0.01 A,HORIZONTAL ,2 G,		
6	SW400	CONN,RF SWITCH	ENWY0006201	,SMD ,0.3 dB, ,; ,0.40MM ,STRAIGHT ,SOCKET ,[empty] ,[empty] ,[empty] , ,		

14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	U301	IC	EUSY0227206	LLP ,12 ,R/TP ,1.2V, 3x3x0.8,0 ,; ,IC,DC,DC Converter		
6	U302	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U400	PAM	SMPY0017901	dBm, %, A, dBc, dB,5x5 ,SMD ,IFX Linear Edge ,; , , , , , , , ,R/TP ,R/TP ,		
6	U401	IC	EUSY0274801	VQFN ,40 PIN,R/TP ,GPRS, EDGE TRANSCEIVER		
6	VA300	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA301	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA302	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
6	X400	X-TAL	EXXY0018404	26 MHz,10 PPM,8 pF,40 ohm,SMD ,3.2*2.5*0.6 ,12ppm at -30'C ~ +85'C, C0 1.0pF, C1 3.6fF ,; ,26 ,10PPM ,8 , , ,SMD ,R/TP		

14.3 Accessory

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

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0097501	3.7 V,900 mAh,1 CELL,PRISMATIC ,553443,INNERPACK,WW ,; ,3.7 ,900 ,180 ,PRISMATIC ,5.5X34X43 ,6.1X44X37.5 ,BLACK ,INNERPACK ,WW LABEL	Black	O, 73
3	SGDY00	DATA CABLE	SGDY0014401	; ,[empty] ,[empty] ,1.2M , ,BLACK ,4, 18Pin Plug USB Datacable ,N		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003721	; ,RMS 20mW(0.56V,RMS) ,16Ohm+/-2.4Ohm 1KHZ ,116dB+/-3dB 1KHZ,3mW ,116dB 1KHZ ,96dB 100HZ ,[empty] ,BLACK ,18P MMI CONNECTOR , ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0024902	100-240V ,5060 Hz,5.1 V,.7 A,CB/GOST ,AC-DC ADAPTOR ,; ,100Vac~350Vac ,5.1V (+0.15,-0.2) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		

Note