LG

Service Manual

Model : KP135

LG

Internal Use Only

Service Manual

KP135

Date: May, 2008 / Issue 1.0

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1. INTRODUCTION

1.1 Purpose

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

1.2 Regulatory Information

A. Security

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

B. Incidence of Harm

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

C. Changes in Service

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

D. Maintenance Limitations

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

E. Notice of Radiated Emissions

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

F. Pictures

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

G. Interference and Attenuation

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

H. Electrostatic Sensitive Devices

ATTENTION

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

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

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIB	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop

PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
PSRAM	Pseudo SRAM
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. PERFORMANCE

2.1 H/W Features

Item	Feature	Comment
Standard Battery	Li-ion, 3.7V 900mAh	
Talk time	Up to 200min : GSM Tx Level 7	
Stand by time	Up to 200 hours (Paging Period: 5, RSSI: -85 dBm)	
Charging time	Approx. 3 hours	
RX Sensitivity	GSM850: -102dBm, DCS: -102dBm	
TX output power	GSM850: 32.5dBm(Level 5), DCS : 29.5dBm(Level 0)	
GPRS compatibility	Class 10	
SIM card type	3V,1.8V Small	
Display	MAIN : TFT 128 × 128 pixel 65K CSTN	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down/Left/Right/Ok Navigation Key Menu Key, Clear Key, Confirm Key Send Key, PWR Key, Camera Key, Hot Key	
ANT	Internal	
EAR Phone Jack	Yes (mono)	
PC Synchronization	Yes	
Speech coding	EFR/FR/HR/AMR	
Data	Yes	
Vibrator	Yes	
Loud Speaker	Yes	
Voice Recoding	Yes	
Microphone	Yes	
Speaker/Receiver	One way speaker	
Travel Adapter	Yes	
MIDI	SW MIDI (Mono SPK)	
Camera	VGA	
Bluetooth	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">GSM850
• TX: 824 + n x 0.2 MHz
• RX: 935 + n x 0.2 MHz (n=1~124)
PCS
• TX: 1850 + (n-512) x 0.2 MHz
• RX: 1930+ (n-1512) x 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">< 0.1 ppm</td></tr>
<tr><td rowspan="20">4</td><td rowspan="20">Power Level</td><td colspan="6">GSM850</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">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>
</table>

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	**GSM850**	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-63
		3,000~ <6,000	-65
		6,000	-71
		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 transient)	**GSM850**	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24

2. PERFORMANCE

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td rowspan="6">6</td><td rowspan="6">Output RF Spectrum
(due to switching transient)</td><td colspan="2">PCS</td><td></td></tr>
<tr><td colspan="2">Offset from Carrier (kHz).</td><td>Max. (dBm)</td></tr>
<tr><td colspan="2">400</td><td>-22</td></tr>
<tr><td colspan="2">600</td><td>-24</td></tr>
<tr><td colspan="2">1,200</td><td>-24</td></tr>
<tr><td colspan="2">1,800</td><td>-27</td></tr>
<tr><td>7</td><td>Spurious Emissions</td><td colspan="3">Conduction, Emission Status</td></tr>
<tr><td>8</td><td>Bit Error Ratio</td><td colspan="3">GSM850
BER (Class II) < 2.439% @-102 dBm
DCS
BER (Class II) < 2.439% @-102 dBm</td></tr>
<tr><td>9</td><td>RX Level Report Accuracy</td><td colspan="3">±3 dB</td></tr>
<tr><td>10</td><td>SLR</td><td colspan="3">8 ±3 dB</td></tr>
<tr><td rowspan="10">11</td><td rowspan="10">Sending Response</td><td>Frequency (Hz)</td><td>Max.(dB)</td><td>Min.(dB)</td></tr>
<tr><td>100</td><td>-12</td><td>-</td></tr>
<tr><td>200</td><td>0</td><td>-</td></tr>
<tr><td>300</td><td>0</td><td>-12</td></tr>
<tr><td>1,000</td><td>0</td><td>-6</td></tr>
<tr><td>2,000</td><td>4</td><td>-6</td></tr>
<tr><td>3,000</td><td>4</td><td>-6</td></tr>
<tr><td>3,400</td><td>4</td><td>-9</td></tr>
<tr><td>4,000</td><td>0</td><td>-</td></tr>
<tr><td>12</td><td>RLR</td><td colspan="3">2 ±3 dB</td></tr>
<tr><td rowspan="11">13</td><td rowspan="11">Receiving Response</td><td>Frequency (Hz)</td><td>Max.(dB)</td><td>Min.(dB)</td></tr>
<tr><td>100</td><td>-12</td><td>-</td></tr>
<tr><td>200</td><td>0</td><td>-</td></tr>
<tr><td>300</td><td>2</td><td>-7</td></tr>
<tr><td>500</td><td>*</td><td>-5</td></tr>
<tr><td>1,000</td><td>0</td><td>-5</td></tr>
<tr><td>3,000</td><td>2</td><td>-5</td></tr>
<tr><td>3,400</td><td>2</td><td>-10</td></tr>
<tr><td>4,000</td><td>2</td><td></td></tr>
<tr><td colspan="3">* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.</td></tr>
</table>

Item	Description	Specification	
14	STMR	13 ±5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side Tone Distortion	Three stage distortion < 10%	
18	System frequency (13 MHz) tolerance	≤ 2.5ppm	
19	32.768KHz tolerance	≤ 30ppm	
20	Ringer Volume	At least 65 dBspl under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
21	Charge Current	Fast Charge : < 600 mA Slow Charge : < 120 mA	
22	Antenna Display	Antenna Bar Number	Power
		5	-92 dBm ~
		4	-100dBm ~ -92 dBm
		3	-100 dBm ~ -99 dBm
		2	-103 dBm ~ -100 dBm
		1	-105 dBm ~ -103 dBm
		0	~ -105 dBm
23	Battery Indicator	Battery Bar Number	Voltage
		Power off	3.56V ± 0.05 V
		0(blink)	3.66V ± 0.05 V
		1	3.74V ± 0.05 V
		2	3.85V ± 0.05 V
		3	3.76V ± 0.05 V ~
24	Low Voltage Warning	3.56 ± 0.05 V (Call) every 1 minutes	
		3.50 ± 0.05 V (Standby)	

2. PERFORMANCE

Item	Description	Specification
25	Forced shut down Voltage	3.35±0.05V
26	Battery Type	1 Li-ion Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 900mAh
27	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60 Hz Output: 6.6 V, 400 mA

3. TECHNICAL BRIEF

3.1 Power Amplifier (SKY77517, U500)

The SKY77517 is a transmit and receive front-end module (FEM) with Integrated Power Amplifier Control (iPAC¢,) for dual-band cellular handsets comprising GSM850 and PCS1900 operation. Designed in a low profile, compact form factor, the SKY77517 offers a complete Transmit VCO-to-Antenna and Antenna-to-Receive SAW filter solution. The FEM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation. The module consists of a GSM850 PA block and a PCS1900 PA block, impedance-matching circuitry for 50 Ω input and output impedances, TX harmonics filtering, high linearity and low insertion loss PHEMT RF switches, diplexer and a Power Amplifier Control (PAC) block with internal current sense resistor. A custom BiCMOS integrated circuit provides the internal PAC function and decoder circuitry to control the RF switches. The two Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated onto a single Gallium Arsenide (GaAs) die. One PA block supports the GSM850 band and the other PA block supports the PCS1900 band. Both PA blocks share common power supply pads to distribute current. The output of each PA block and the outputs to the two receive pads are connected to the antenna pad through PHEMT RF switches and a diplexer. The GaAs die, PHEMT die, Silicon (Si) die and passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

Band selection and control of transmit and receive modes are performed using two external control pads. Refer to the functional block diagram in Figure 1 below. The band select pad (BS) selects between GSM and PCS modes of operation. The transmit enable (TX_EN) pad controls receive or transmit mode of the espective RF switch (TX = logic 1). Proper timing between transmit enable (TX_EN) and Analog Power Control VRAMP) allows for high isolation between the antenna and TXVCO while the VCO is being tuned prior to the transmit burst. The SKY77517 is compatible with logic levels from 1.2 V to VCC for BS and TX_EN pads, depending on the level applied to the VLOGIC pad. This feature provides additional flexibility for the designer in the selection of FEM interface control logic.

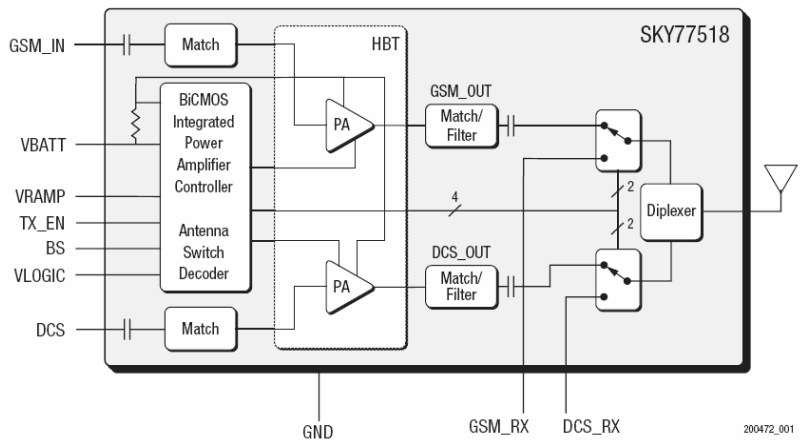
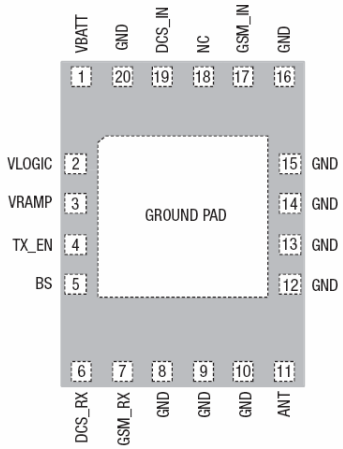
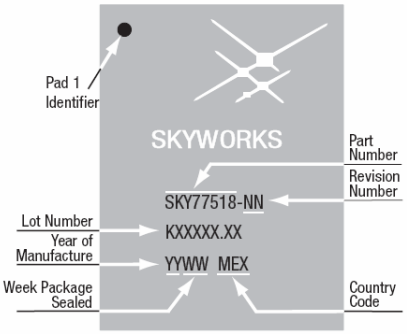


Figure 3.1 Functional Block Diagram

3. TECHNICAL BRIEF





Pin layout as seen from top view looking through the package.

Pin	Mame	Description
1	VBATT	Battery input voltage
2	VLOGIC	Control logic level selection/Standby control
3	VRAMP	Analog power control voltage input
4	TX_EN	TX/RX select (mode control)
5	BS	Band Select (mode control)
6	DCS_RX	DCS Receive RF Output (1805-1880 MHz)
7	GSM_RX	GSM Receive RF Output (920-960 MHz)
8-10	GND	RF and DC Ground
11	ANT	RF_IN/RF_OUT to Antenna
12-16	GND	RF and DC Ground
17	GSM_IN	RF input 880-915 MHz
18	NC	No Connect
19	DCS_IN	RF input 1710-1785 MHz
20	GND	RF and DC Ground
GMD PADS	GROUND GRID	Ground Pads, module underside

SKY77517 Pad Names and Signal Descriptions

3.2 Band Select

Mode	VLOGIC	Input Control Bits	
		TX_En	BS
STANDBY	0	X[1]	X[1]
GSM_RX	1	0	0
DCS_RX	1	0	1
GSM_TX	1	1	0
DCS_TX	1	1	1

Table 3.2.1 Band SW Logic Table

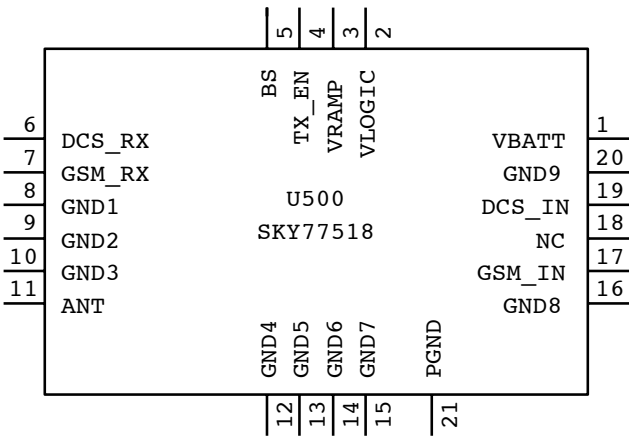


Figure 3.2.1 PAM+ASM CIRCUIT DIAGRAM

3.3 Transceiver (AD6548, U501)

The AD6548 provides a highly integrated direct conversion radio solution that combines, on a single chip, all radio and power management functions necessary to build the most com-pact GSM radio solution possible.
The only external components required for a complete radio design are the Rx SAWs, PA, Switchplexer and a few passives enabling an extremely small cost effective GSM Radio solution. The AD6548 uses the industry proven direct conversion receiver architecture of the OthelloTM family. For Quad band applications the front end features four fully integrated programmable gain differential LNAs. The RF is then down converted by quad-rature mixers and then fed to the baseband programmable-gain amplifiers and active filters for channel selection. The Receiver output pins can be directly connected to the baseband analog processor.
The Receive path features automatic calibration and tracking to remove DC offsets. The transmitter features a translationloop architecture for directly modulating baseband signals onto the integrated TX VCO. The translation-loop modulator and TX VCO are extremely low noise removing the need for external SAW filters prior to the PA. The AD6548 uses a single integrated LO VCO for both the receive and the transmit circuits. The synthesizer lock times are optimized for GPRS applications up to and including class 12. AD6548 incorporates a complete reference crystal calibration system. This allows the external VCTCXO to be replaced with a low cost crystal. No other external components are required. The AD6548 uses the traditional VCTCXO reference source. The AD6548 also contains on-chip low dropout voltage regulators (LDOs) to deliver regulated supply voltages to the functions on chip, with a battery input voltage of between 2.9V and 5.5V. Comprehensive power down options are included to minimize power consumption in normal use. A standard 3 wire serial interface is used to program the IC. The interface features low-voltage digital interface buffers compatible with logic levels from 1.6V to 2.9V.

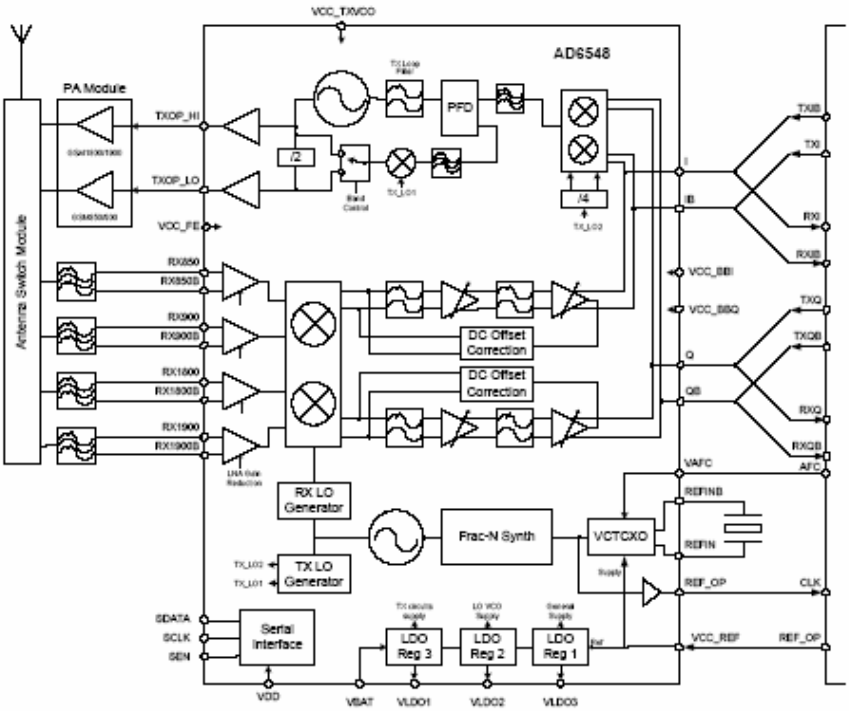
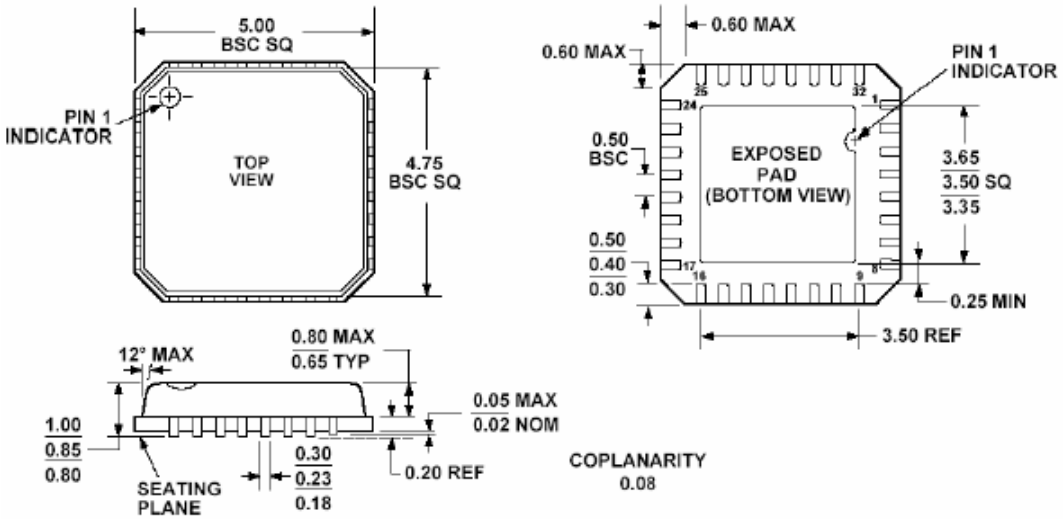


Figure 3.2 AD6548 Block Diagram



GOMPLIANT TO JEDEC STANDARDS MO-220-VHHD-2

No	Name	Description	No	Name	Description
1	VCC_FE	Front end supply (IP)	17	VCC_REF	Reference Oscillator Supply (IP)
2	I	I baseband input/output	18	VAFC/ N/C	AD6548 Crystal Freq control (IP) AD6549: Spare Pin
3	IB	I baseband input/output	19	REFIN	Crystal Connection
4	VCC_BBI	Baseband I, TX path supply (IP)	20	REFINB	Crystal Connection
5	SDATA	Serial port data	21	REF_OP	Reference Frequency Output
6	SCLK	Serial port clock	22	QB	Q baseband input/output
7	SEN	Serial port enable	23	Q	Q baseband input/output
8	N/C	Not connected	24	VCC_BBQ	Baseband Q supply (IP)
9	VLDO3	TX LDO Output (1)	25	RX1900B	PCS 1900 LNA input
10	TXOP_LO	Transmit O/P (850/900MHz)	26	RX1900	PCS 1900 LNA input
11	TXOP_HI	Transmit O/P (1800/1900MHz)	27	RX1800B	DCS 1800 LNA input
12	VCC_TXVCO	TX VCO supply (1)	28	RX1800	DCS 1800 LNA input
13	VDD	Serial interface supply	29	RX900B	E-GSM LNA input
14	VBAT	Battery I/P for LDO reg's	30	RX900	E-GSM LNA input
15	VLDO1	LDO regulator Output (2)	31	RX850B	GSM 850 LNA input
16	VLDO2	LO VCO Supply (3)	32	RX850	GSM 850 LNA input

Table 1 AD6548/9 Pin Descriptions

Notes:

1. Supply regulated by internal LDO3 and should not be connected to any other supply
2. Internally connected as Synth supply (Counters + SDM + Charge pump)
3. Supply regulated by internal LDO2 and should not be connected to any other supply

3.4 26 MHz Clock (Crystal, X500)

The 26 MHz clock (X500) consists of a XO(Crystal Oscillator) which oscillates at a frequency of 26 MHz. The AD6548 requires only an external low cost crystal as the frequency reference. The circuitry to oscillate the crystal and tune its frequency is fully integrated. The Oscillator is a balanced implementation requiring the crystal to be connected across 2 pins. There is a programmable capacitor array included for coarse tuning of fixed offsets (e.g. crystal manufacturing tolerance), and an integrated varactor for dynamic control. The oscillator is designed for use with a 26MHz crystal. Dedicated control software ensures excellent frequency stability under all circumstances.

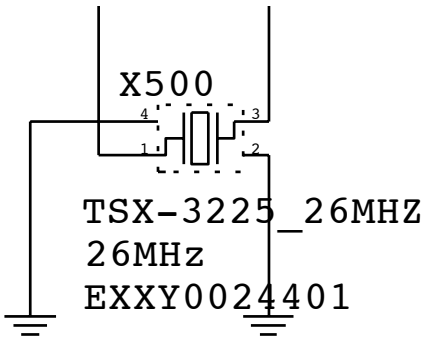


Figure 3.4 CRYSTAL CIRCUIT DIAGRAM

3.5 Baseband Processor (AD6724 , U103)

- **AD6724 is an ADI designed processor**
- **AD6724 consists of**

1. Control Processor Subsystem including:
- 32-bit MCU ARM7TDMI® Control Processor
- 39 MHz operation at 1.8V
- 1Mb of on-chip System SRAM Memory

2. DSP Subsystem including:
- 16-bit Fixed Point DSP Processor
- 91 MIPS[1] at 1.8V
- Data and Program SRAM
- Program Instruction Cache
- Full Rate, Enhanced Full Rate and Half Rate
- Speech Encoding/Decoding
- Capable of Supporting AMR & PDC Speech Algorithms

3. Peripheral Functions
- Parallel and Serial Display Interface
- Keypad Interface
- Flash Memory Interface
- Page-Mode Flash Support
- 1.8V and 3.0V, 64 kbps SIM Interface
- Universal System Connector Interface
- Data Services Interface
- Battery Interface (e.g. Dallas)

4. Other
- Supports 13 MHz and 26 MHz Input Clocks
- 264-Ball Package (12x12mm), 0.65mm Ball pitch

5. The AD6724 baseband transmit section supports the following mobile station GMSK modulation power classes:
- GSM 900/900 power classes 4 and 5,
- DCS 1800 power classes 1 and 2, and
- DCS 1800 power classes 1 and 2

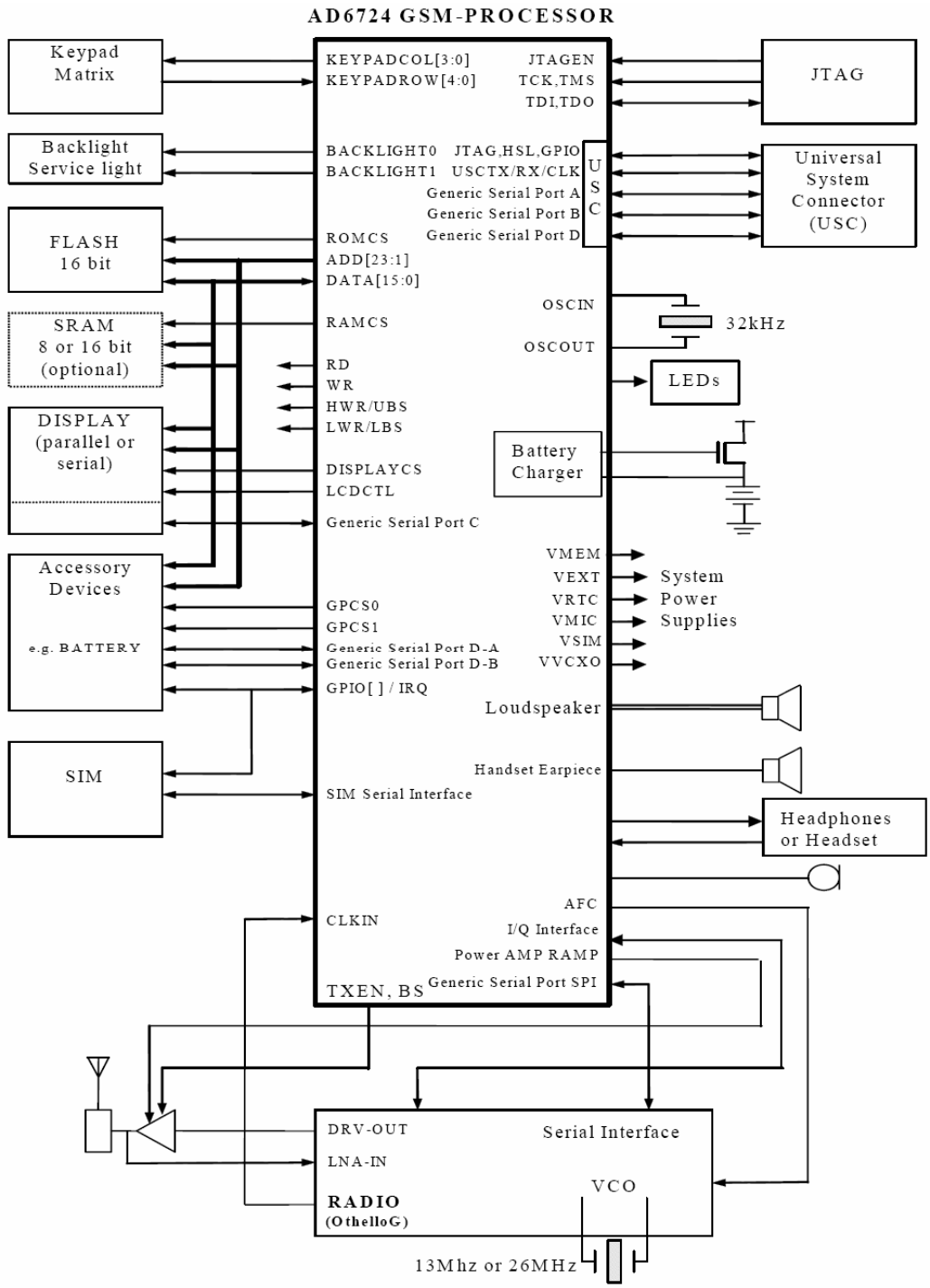


Figure 3.5 SYSTEM INTERCONECTION OF AD6724 EXTERNAL INTERFACE

3.5.1 Interconnection with external devices

A. RTC block interface

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

B. LCD module interface

The LCD module is controlled by CAMERA IC, AIT701G
If AIT701G is in the state of by-pass mode, the LCD control signals from AD6724 are by-passed through AIT701G.
In operating mode, the AIT701G controls the LCD module through nLCD_MAIN_CS, nLCD_RESET, LCD_RS, LCD_WR, LCD_RD, L_DATA[15-00], 2V8_AIT_CAM, IF_MODE, LCD_ID.

Signals	Description
nLCD_MAIN_CS	MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
nLCD_RESET	This pin resets LCD module. This signal comes from AD6724 directly.
LCD_ID	Select LCD module maker(2.4V : NEODIS, 0V : LGIT)
LCD_RS	This pin determines whether the data to LCD module are display data or control data. LCD_RS can select 16 bit parallel bus.
LCD_WR	Enable writing to LCD Driver.
LCD_RD	Enable reading to LCD Driver.
IF_MODE	Select 16bits or 8bits interface mode for MAIN LCD. For the future
2V8_AIT_CAM	2.8V voltage is supplied to LCD driver IC.

Table 3.5.B LCD CONTRON SIGNALS DISCRIPTION

The backlight of LCD module is controlled by AD6724 via AAT3157.
The control signals related to Backlight LED are given bellow.

Signals	Description
MLED	Current source for backlight LED
LCD_BACKLIGHT_CTRL	Control LCD backlight level in 16 steps
MLED[1:2]	This pins are returned-paths for backlight LED current source (MLED)

Table 3.5.B2 DESCRIPTION OF LCD BACKLIGHT LED CONTROL

C. RF interface

The AD6724 control RF parts through PA_BAND, ANT_SW , CLKON , PA_EN, S_EN, S_DATA, S_CLK

Signals	Description
PA_BAND (GPO 3)	PAM Band Select
ANT_SW (GPO 9)	Control logic level selection/ standby control
PA_EN (GPO 11)	Tx/Rx Select
S_CLK (GPO 21)	Clock to PLL
S_EN (GPO 19)	PLL Enable/Disable
S_DATA (GPO 20)	Serial Data to PLL

Table 3.5.C RF CONTROL SIGNALS DESCRIPTION

D. SIM interface

The AD6724 provides SIM Interface Module. The AD6724 checks status periodically during established call mode whether SIM card is inserted or not, but it doesn't check during deep Sleep mode. In order to communicate with SIM card, 3 signals SIM_DATA, SIM_CLK, SIM_RST(GPIO_23) are required. The descriptions about the signals are given by bellow Table 3-5 in detail.

Signals	Description
SIM_DATA	This pin receives and sends data to SIM card. This model can support 3.0 volt and 1.8 volt interface SIM card.
SIM_CLK	Clock 3.25MHz frequency.
SIM_RST (GPIO_23)	Reset SIM block

Table 3.5.D SIM CONTROL SIGNALS DESCRIPTION

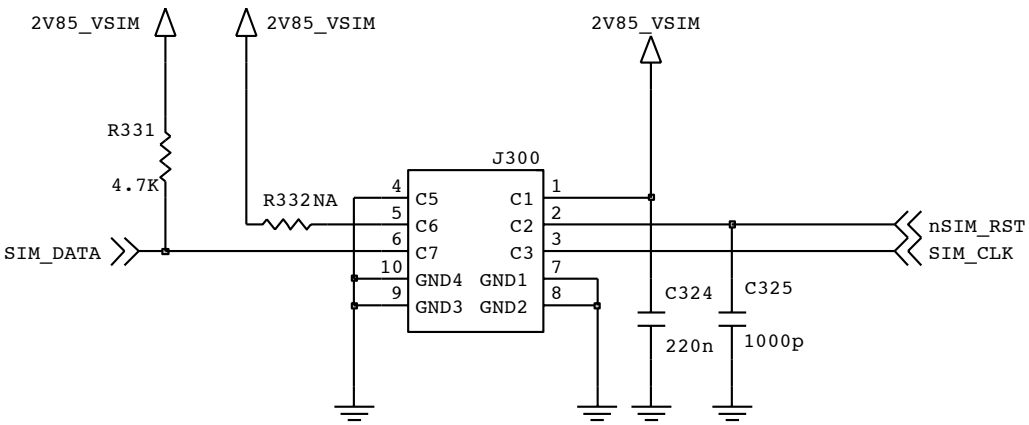


Figure 3.5.D2 SIM Interface of AD6724

E. LDO Block

There are 8 LDOs in the AD6724.

- VCORE : supplies Digital baseband Processor core and AD6724 digital core(1.8V, 80mA)
- VMEM : supplies external memory and the interface to the external memory on the digital baseband processor (2.8V, 150mA)
- VEXT : supplies Radio digital interface and high voltage interface (2.8V, 200mA)
- VSIM : supplies the SIM interface circuitry on the digital processor and SIM card (2.85V,1.8V, 20mA)
- VRTC : supplies the Real-Time Clock module (1.8 V, 20 μA)
- VABB : supplies the analog portions of the AD6724
- VMIC : supplies the microphone interface circuitry (2.5 V, 2 mA)
- VVCXO : supplies the voltage controlled crystal oscillator (2.75 V, 10 mA)

F. Battery Charging Block

1. It can be used to charge Lithium Ion batteries.
   Charger initialization, trickle charging, and Li-Ion charging control are implemented in hardware.
2. Over voltage protection
   It will be automatically disabled when the input voltage is lower than 2.5V or high than 6.5V
3. Charging Process
   - Check charger is inserted or not
   - If MP26021 detects that Charger is inserted, the CC-CV charging starts.
   - Exception : When battery voltage is lower than 2.6V, the trickle charge starts firstly.
   - And the battery voltage reach to 2.6V the CC charging mode starts.
   - And the battery voltage reach to 4.15V the charging mode changes to CV mode.
4. Pins used for charging
   - nCHG_DET : charger supply Detect
   - nCHG_EN :
5. TA (Travel Adaptor)
   - Input voltage: AC 100V ~ 2400V, 50~60Hz
   - Output voltage: DC 6.4V
   - Output current: Max 400mA
6. Battery
   - Li-ion battery (Max 4.2V, Nom 3.7V)
   - Standard battery: Capacity - 900mAh

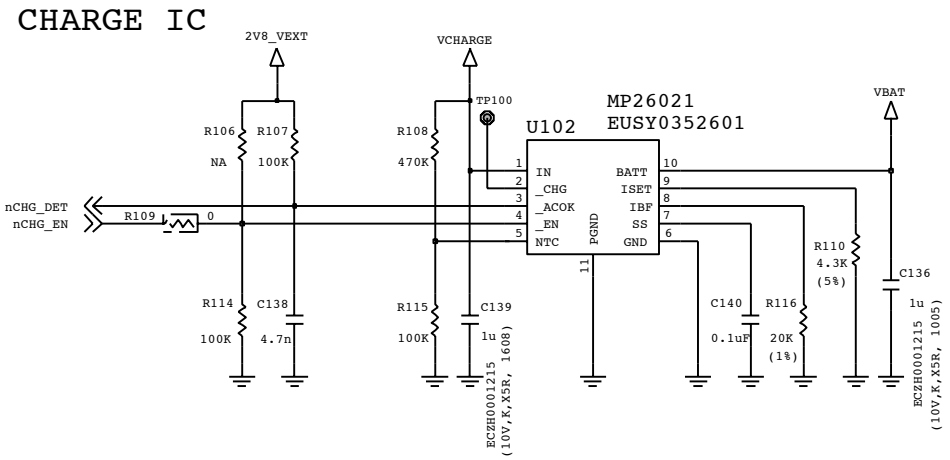


Figure 3.5.F1 CIRCUIT FOR BATTERY CHARGING

3.6 Display and Interface

• **Main LCD**

Properties	Spec.	Unit
Active Screen Size	29.1mm(W) x 30.38mm(H)	mm
Color Depth	65,000	colors
Resolution	128 X RGB X 128	dots

Controlled by nLCD_MAIN_CS, nLCD_RESET, LCD_RS, LCD_WR, LCD_RD, IFMODE, L_DATA[00:15] ports

• nLCD_MAIN_CS : MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin

• nLCD_RESET : This pin resets LCD module. This signal comes from AD6724 directly.

• LCD_RS: This pin determines whether the data to LCD module are display data or control data.

• LCD_WR : Write control Signal

• LCD_RD : Read control Signal. But this pin used only for debugging.

• L_DATA[00:15] : Parallel data lines.

• LCD_ID : LCD type selection signals

• For using 65K color, data buses should be 16 bits.

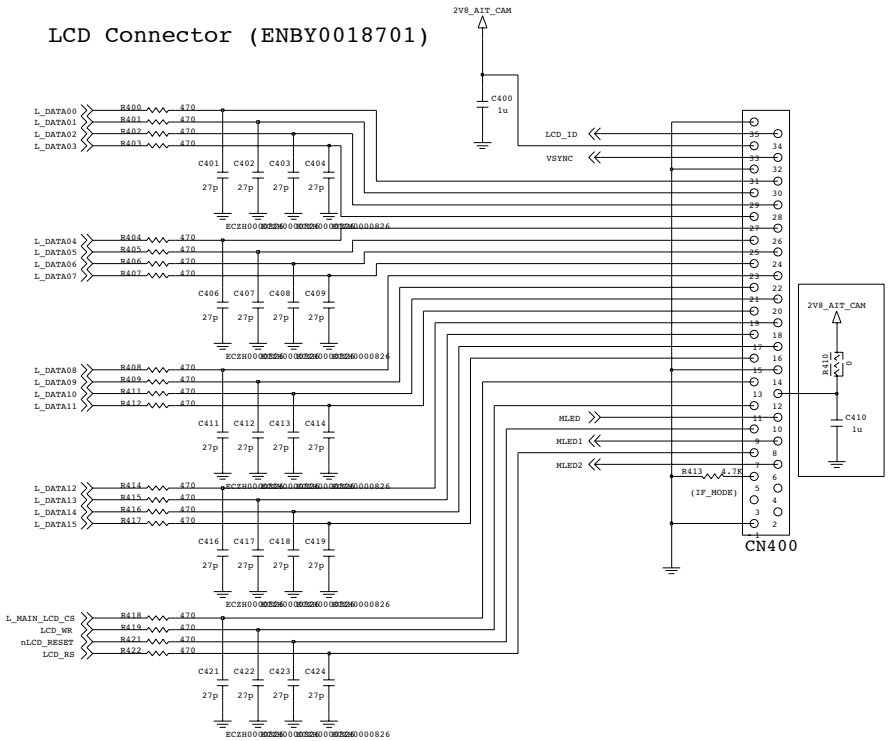


Figure 3.6 LCD INTERFACE CIRCUIT

3.7 Camera Interface(AIT701G, U400)

This model has a built-in VGA(640 x 480) camera module. And the camera produces JPG pictures. Camera module is controlled by AIT701G. Interface is done by I2C and YCbCr format. I2C is a control signal and YCbCr is real data interface signal.

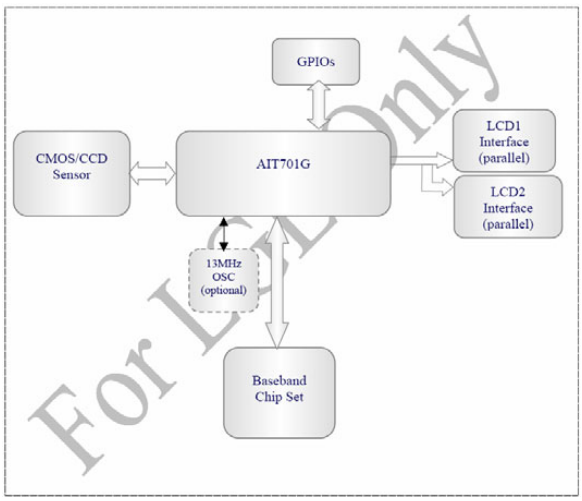


Figure 3.7.1 AIT701G BLOCK DIAGRAM

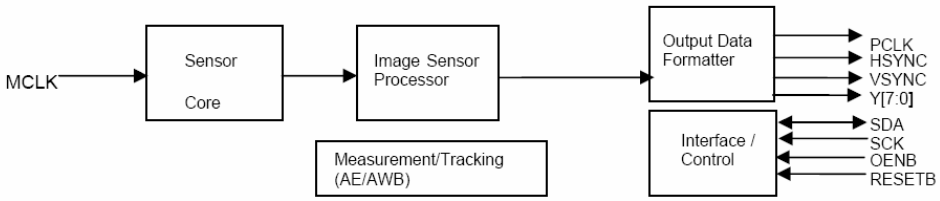


Figure 3.7.2 SENSOR CHIP BLOCK DIAGRAM

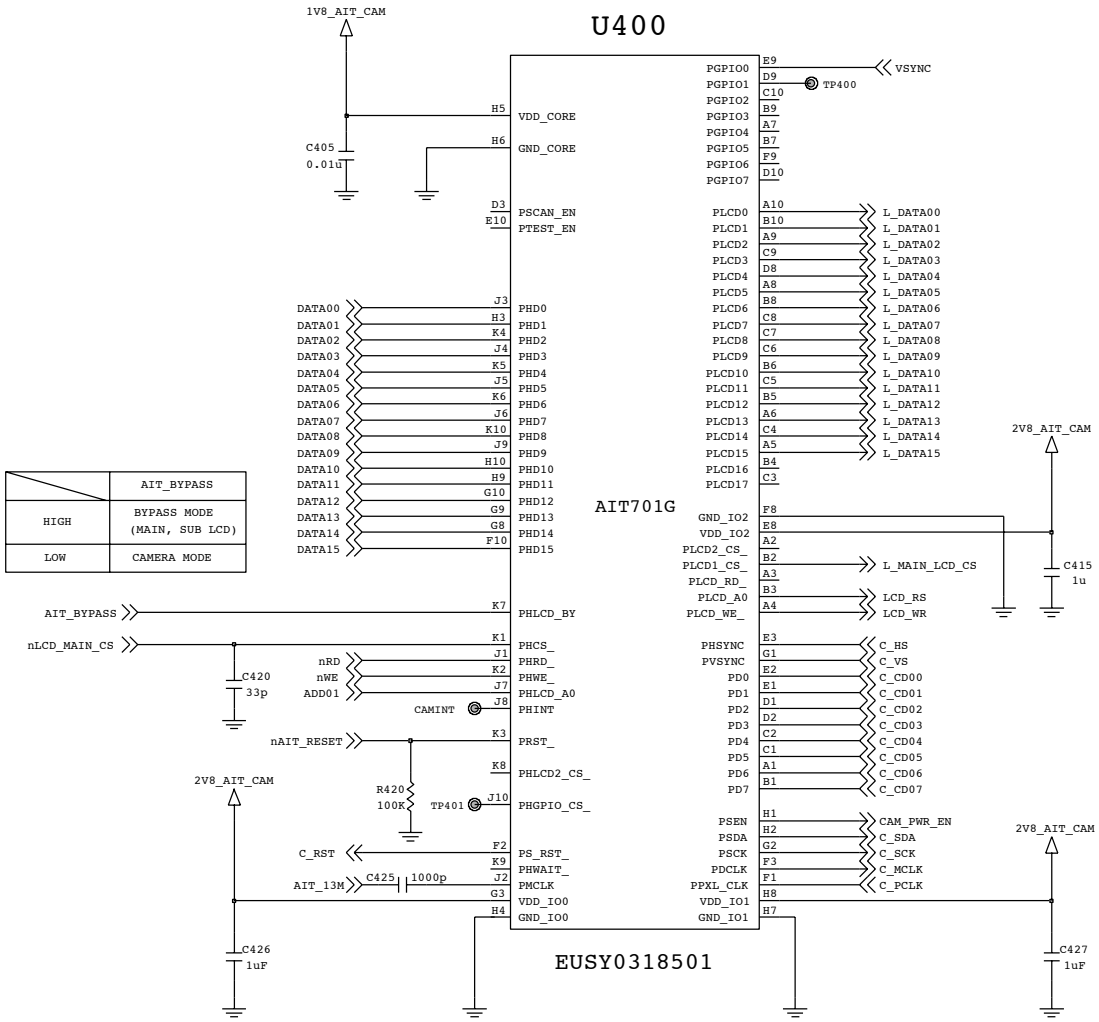


Figure 3.7.3 AIT701G CIRCUIT

3.8 Keypad Switches and Scanning

The key switches are metal domes, which make contact between two concentric pads on the keypad layer of the PCB when pressed. There are 26 switches (Normal Key 24EA, Volume up down side key, PWR down side key), connected in a matrix of 5 rows by 5 columns, as shown in Figure 3-11, except for the power switch (SW301), which is connected independently. Functions, the row and column lines of the keypad are connected to ports of AD6724. The columns are outputs, while the rows are inputs and have pull-up resistors built in. When a key is pressed, the corresponding row and column are connected together, causing the row input to go low and generate an interrupt. The columns/rows are then scanned by AD6724 to identify the pressed key.

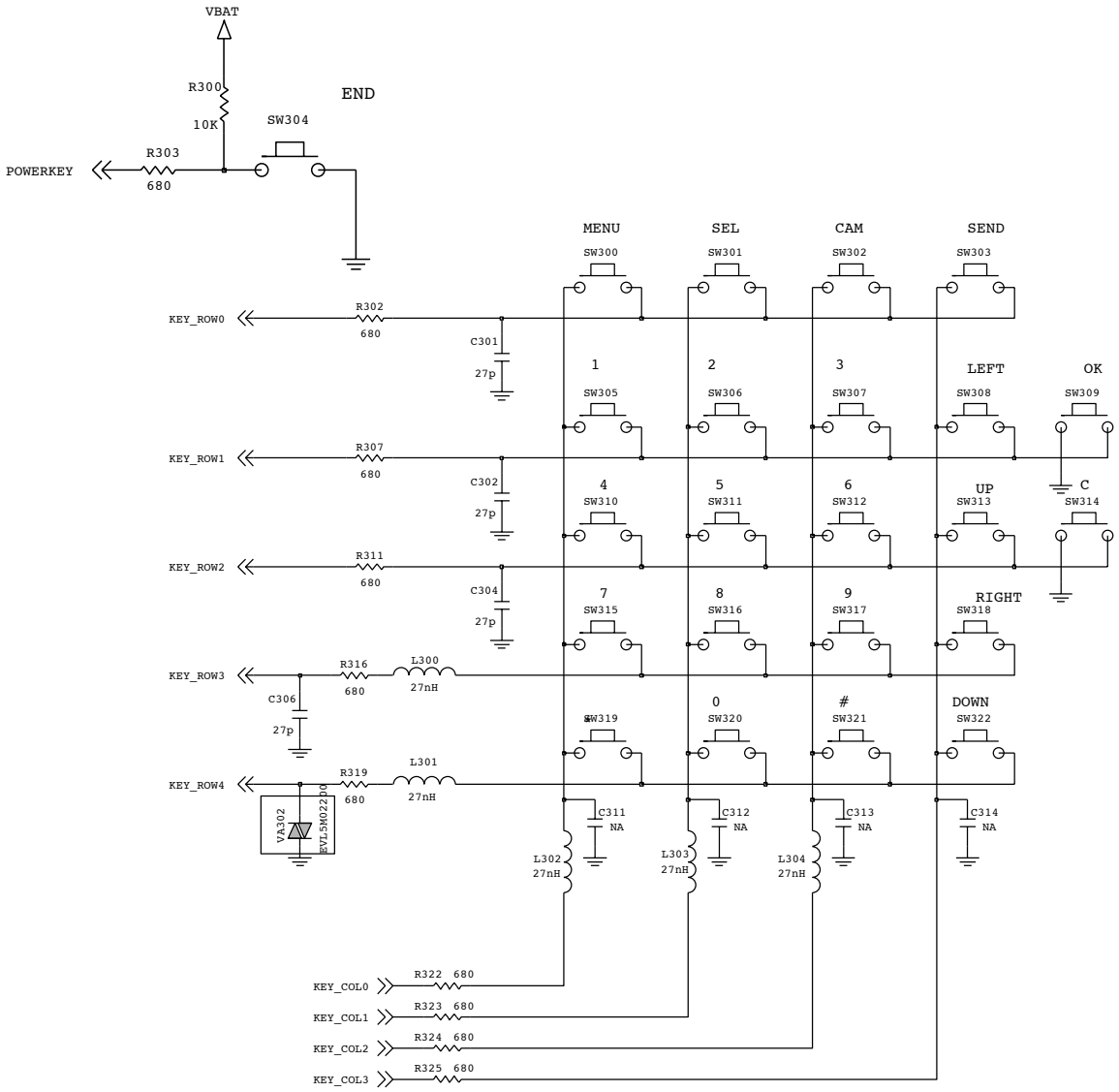


Figure 3.8 Keypad Switches and Scanning

3. 9 Microphone

The microphone is placed to the Front cover and contacted to main PCB. The audio signal is passed to VINNORP and VINNORN pins of AD6724. The voltage supply VMIC is output from AD6724, and is a biased voltage for the VINNORP. The VINNORP and VINNORN signals are then A/D converted by the voice band ADC part of AD6724.The digitized speech (PCM 8KHz ,16KHz) is then passed to the DSP section of AD6724 for processing (coding, interleaving etc).

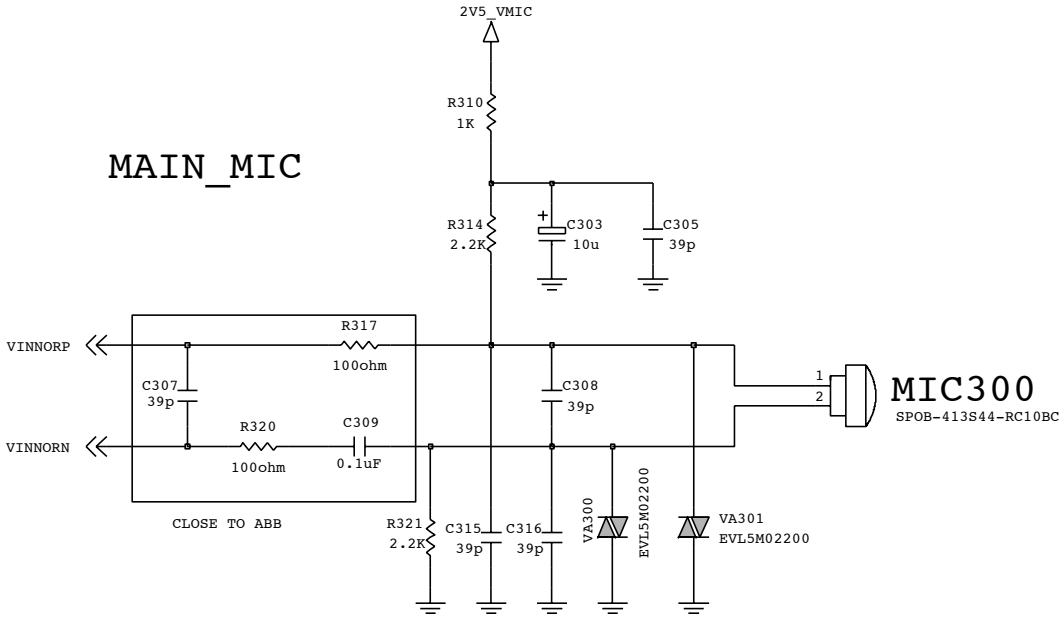


Figure 3.9 Connection between Microphone and AD6724

3.10 Main Speaker

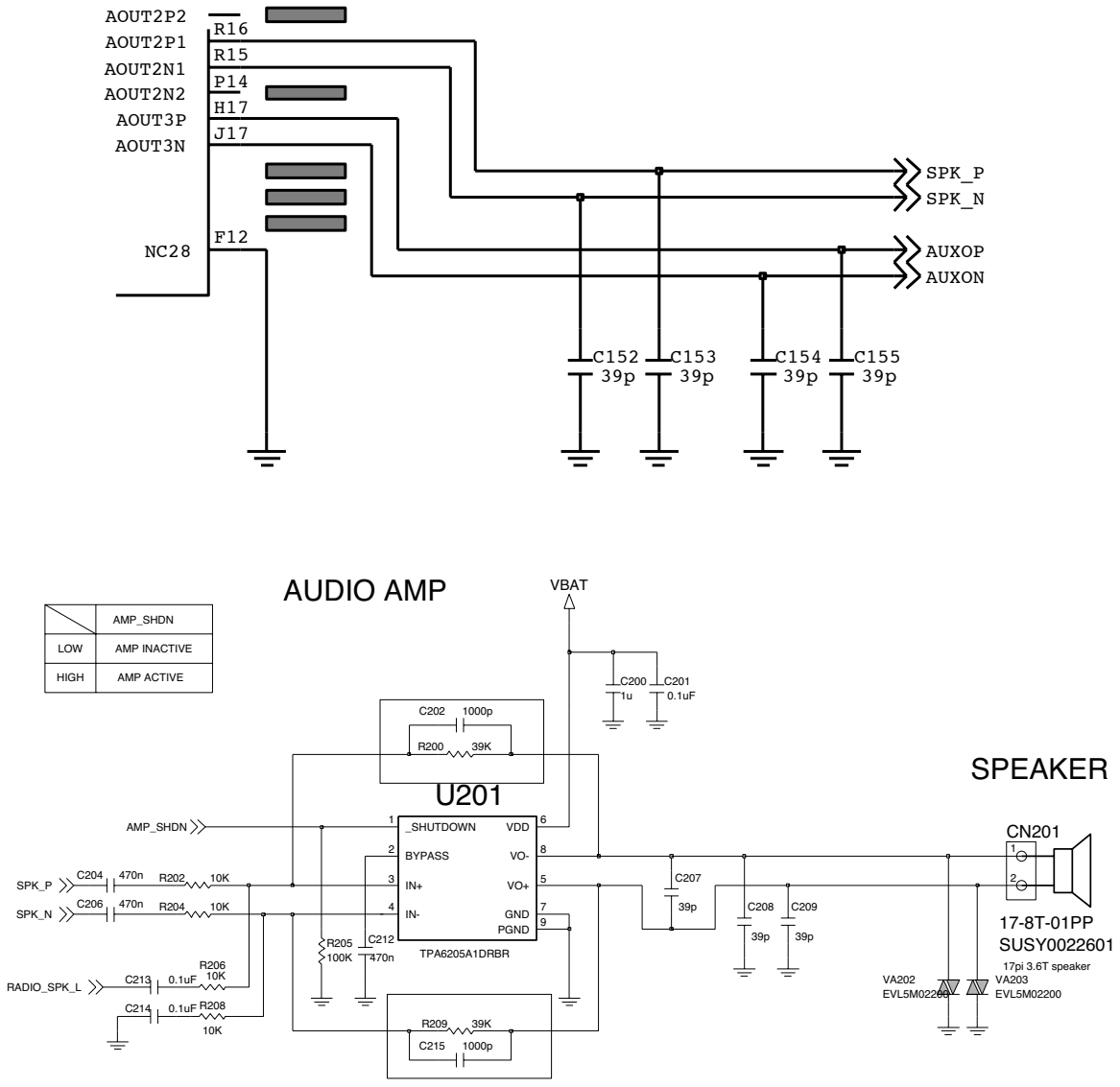


Figure 3.10 Connection between Speaker, Amp and AD6724

3.11 Headset Interface

This phone has 6 electrodes such as GND, AUXIP, AUXIN (this pin is floating), AUXOP, n JACK_DET, HOOK_DET. This type supports mono sound

Switching from Receiver to Headset Jack

If jack is inserted, nJACK_DET goes from low to high.

Audio path is switched from receiver to earphone by nJACK_DET interrupt.

Switching from Headset Jack to Receiver

If jack is removed, nJACK_DET goes from high to low.

Audio path is switched from earphone to receiver by nJACK_DET interrupt.

Hook detection

If hook-button is pressed, HOOK_DET is changed from high to low.

This is detected by USC5.

And then hook is detected.

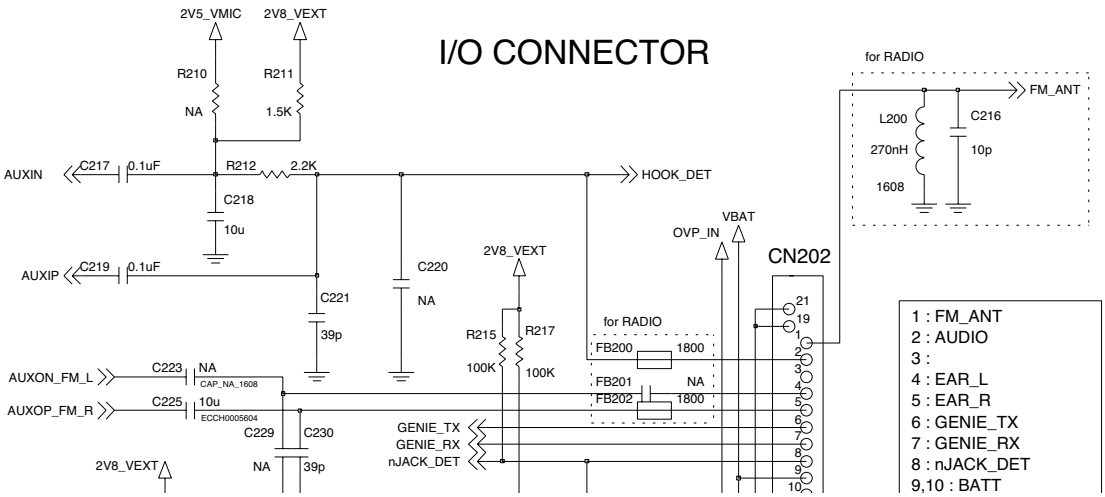


Figure 3.11 HEADSET JACK INTERFACE

3.12 Key Back-light Illumination

In key back-light illumination, there are 10 Blue LEDs in Main Board, which are driven by KEY_BACKLIGHT port from AD6724.

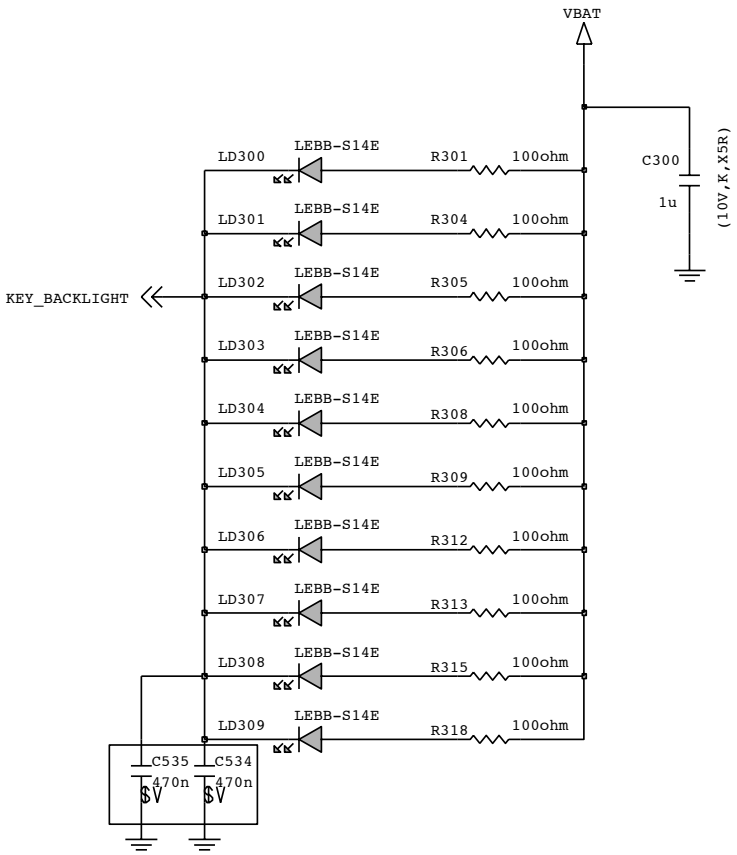


Figure 3.12 KEY BACK-LIGHT ILLUMINTION

3.13 LCD Back-light Illumination

LCD backlight LEDs is controlled by AD6724 via AAT3157, U300.

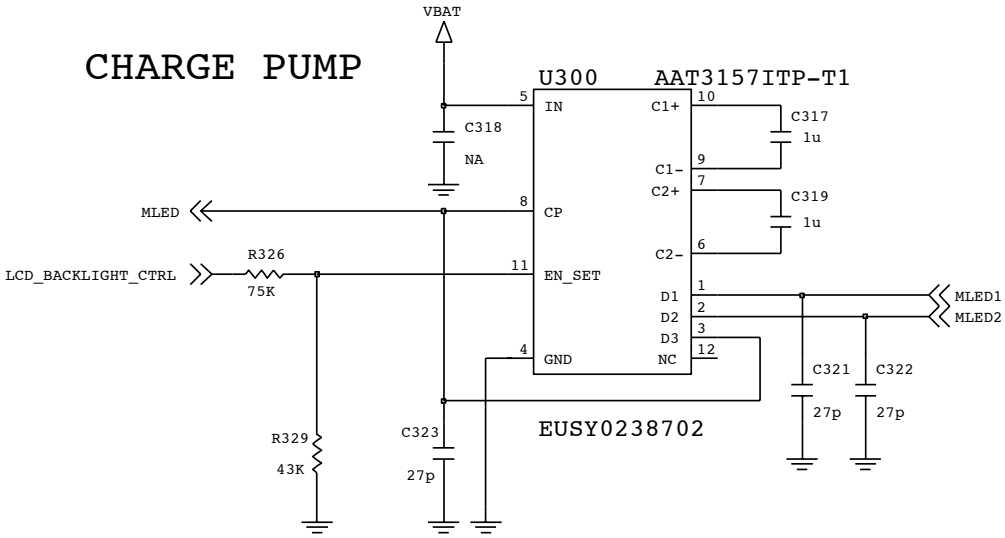


Figure 3.12 KEY BACK-LIGHT ILLUMINTION

3.14 VIBRATOR

The vibrator is placed in the folder cover and contacted to LCD MODULE. The vibrator is driven from VIBRATOR (USC3) of AD6724

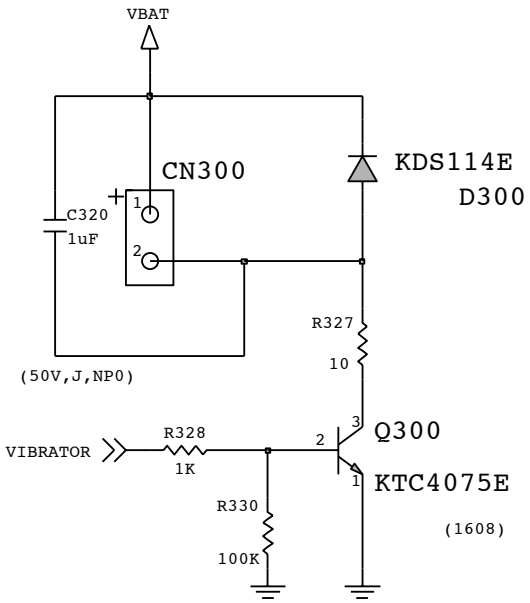


Figure 3.14 Vibrator

3.15 FM Radio (Si4702, U202)

The Si4702 integrates the complete tuner function from antenna input to stereo audio output for FM broadcast radio reception.

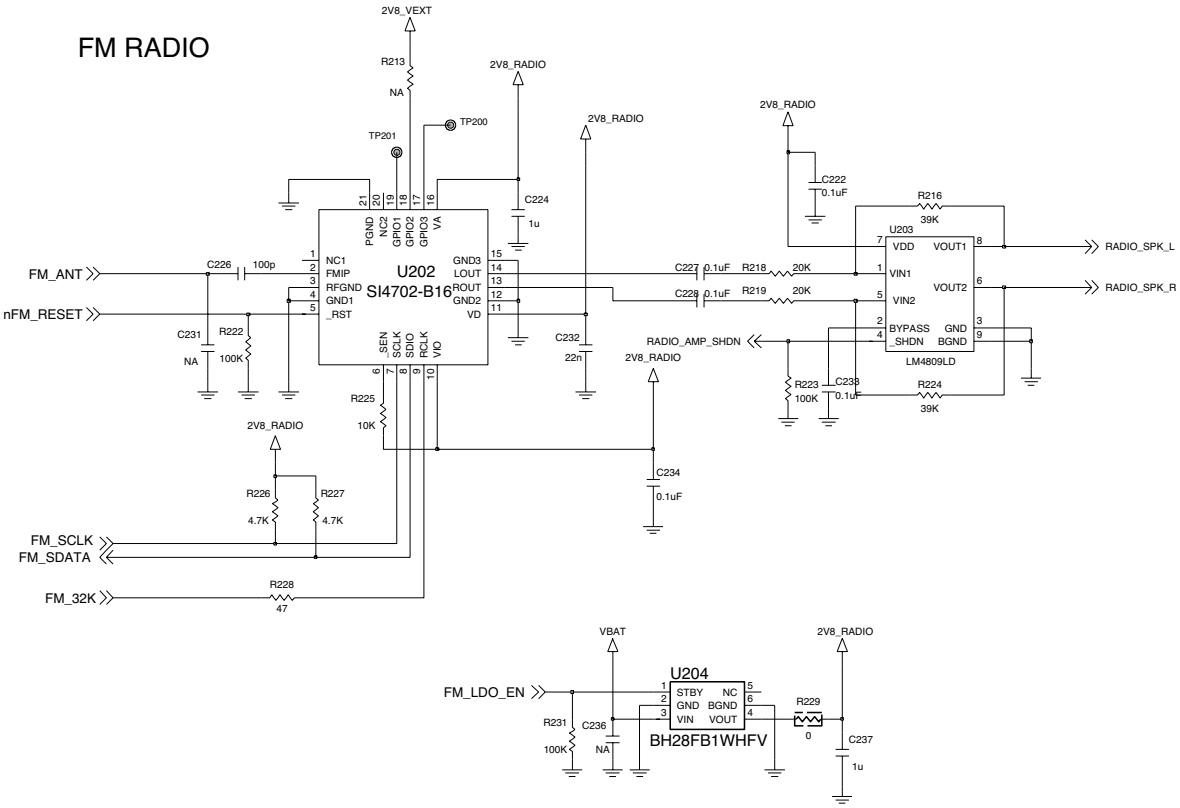


Figure 3.15 FM Radio

3.15.1 FM Tunner

The Si4702 patented digital low-IF architecture reduces external components and eliminates the need for factory adjustments. The receive (RX) section integrates a low noise amplifier (LNA) supporting the worldwide FM broadcast band (76 to 108MHz). An automatic gain control (AGC) circuit controls the gain of the LNA to optimize sensitivity and rejection of strong interferers.
For two-wire operation, a transfer begins with the START condition. The control word is latched internally on rising SCLK edges and is eight bits in length, comprised of a seven bit device address equal to 0010000b and a read/write bit (write = 0 and read = 1). The device acknowledges the address by setting SDIO low on the next falling SCLK edge. For write operations, the device acknowledge Is followed by an eight bit data word latched internally on rising edges of SCLK. The device always acknowledges the data by setting SDIO low on the next falling SCLK edge. An internal address counter automatically increments to allow continuous data byte writes, starting with the upper byte of register 02h, followed by the lower byte of register 02h, and onward until the lower byte of the last register is reached. The internal address counter then automatically wraps around to the upper byte of register 00h and proceeds from there until continuous writes cease. Data transfer ceases with the STOP command. After every STOP Command, The internal address counter is reset.
For read operations, the device acknowledge is followed by an eight bit data word shifted out on falling SCLK edges. An internal address counter automatically increments to allow continuous data byte reads, starting with the upper byte of register 0Ah, followed by the lower byte of register 0Ah, and onward until the lower byte of the last register is reached. The internal address counter then automatically wraps around to the upper byte of register 00h and proceeds from there until continuous reads cease. After each byte of data is read, the controller IC should return an acknowledge if an additional byte of data will be requested. Data transfer ceases with the STOP command. After every STOP command, the internal address counter is reset.

3.15.2 Headphone Amplifier

The LM4809 is a dual audio power amplifier capable of delivering 105mW per channel of continuous average power into a 16ßŸ load with 0.1% (THD+N) from a 5V power supply.
Boomer audio power amplifiers were designed specifically to provide high quality output power with a minimal amount of external components. Since the LM4809 does not require bootstrap capacitors or snubber networks, it is optimally suited for low-power portable systems.
The unity-gain stable LM4809 can be configured by external gain-setting resistors.
The LM4809 features an externally controlled, active-low, micro-power consumption shutdown mode, as well as an internal thermal shutdown protection mechanism.

4. TROUBLE SHOOTING

4.1 RF Component

TEST POINT

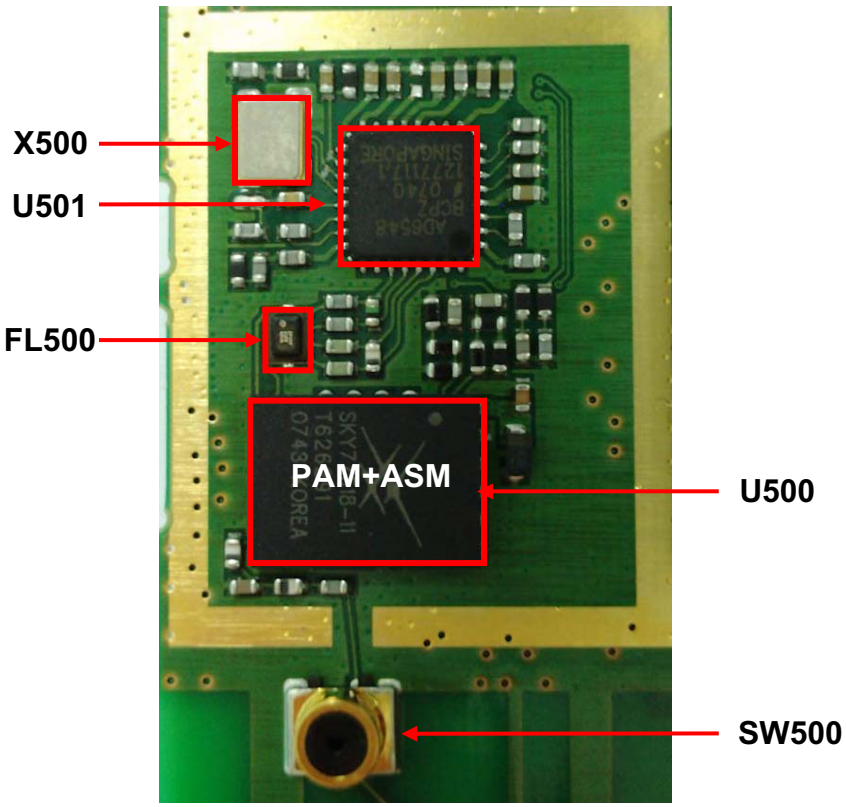
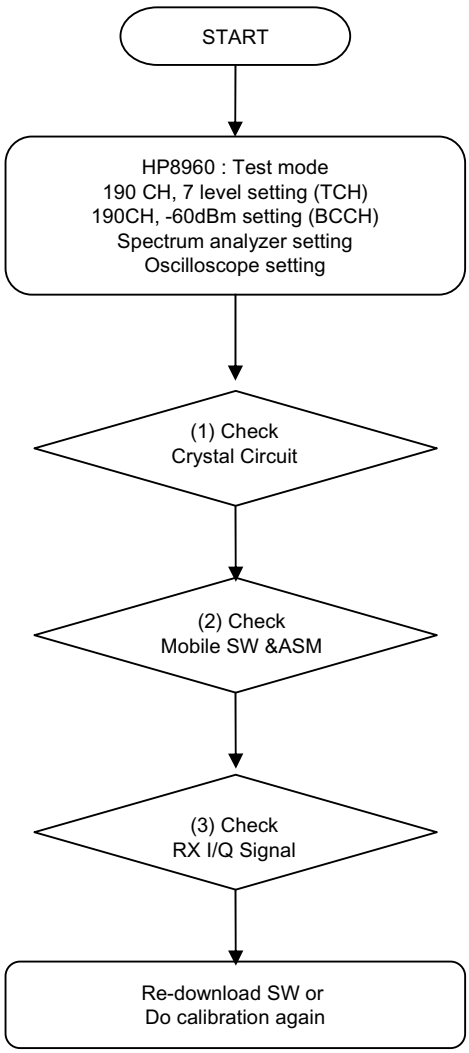


Figure 4.1

U500	PAM +ASM (SKY77517)
U501 (AD6548)	RF Main Chip (Transceiver)
X500	Crystal, 26MHz Clock
FL500	SAW Filter
SW500	Mobile Switch

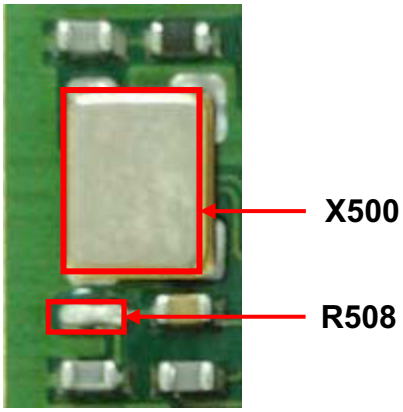
4.2 RX Trouble

CHECKING FLOW

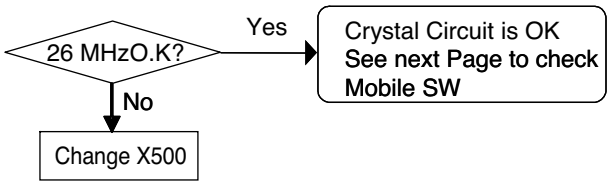


(1) Checking Crystal Circuit

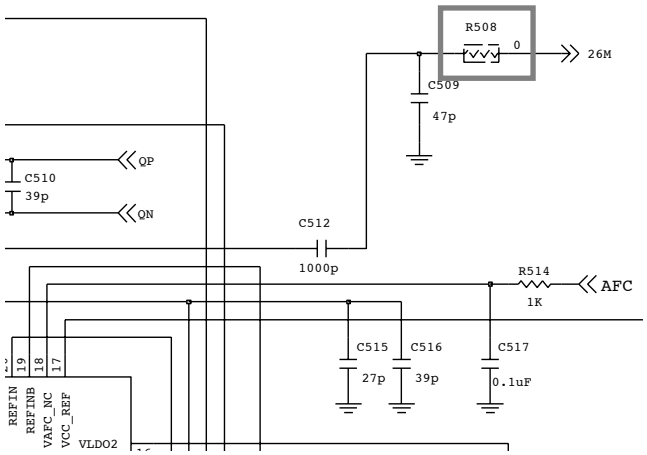
TEST POINT



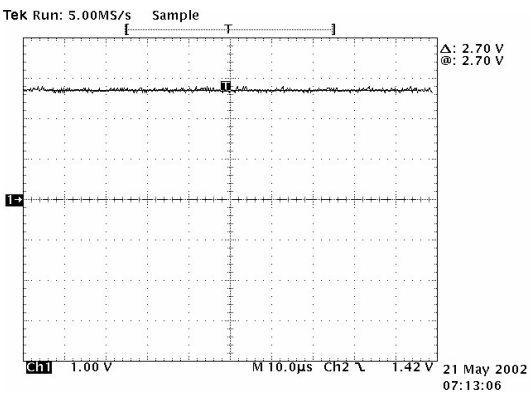
CHECKING FLOW



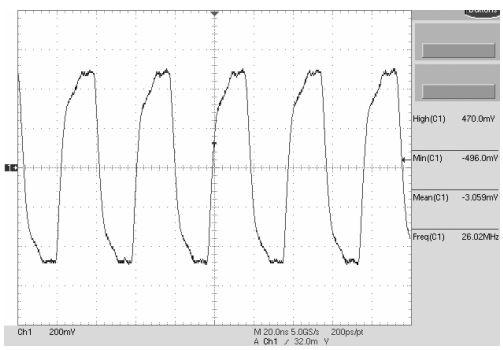
CIRCUIT



WAVEFORM



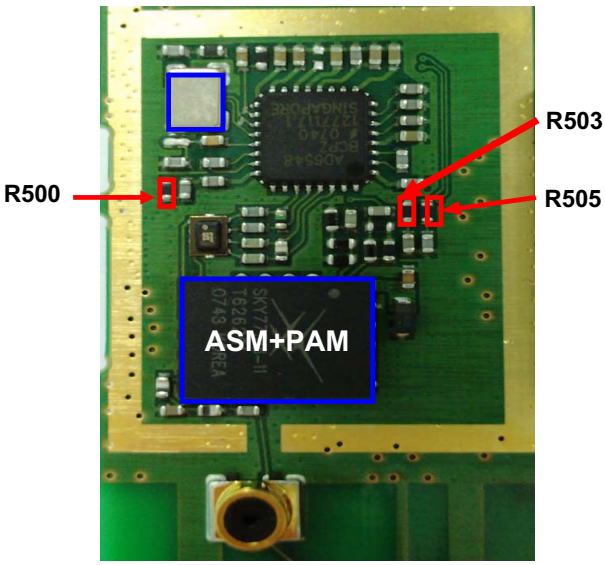
Graph 4.2.1(a)



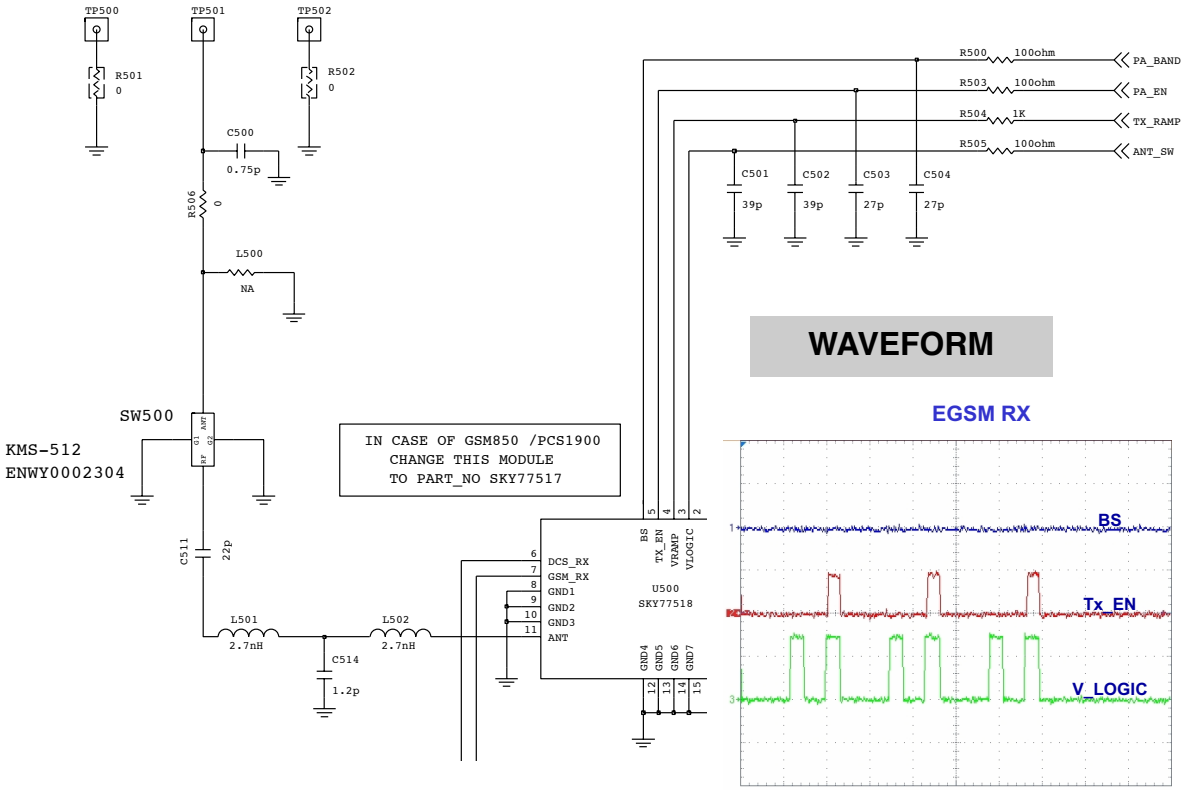
Graph 4.2.1(b)

(2) Checking Mobile SW & FEM

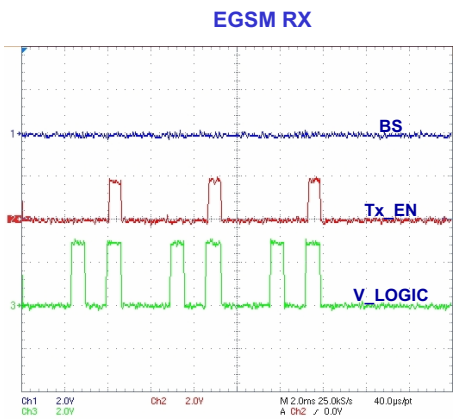
TEST POINT



CIRCUIT

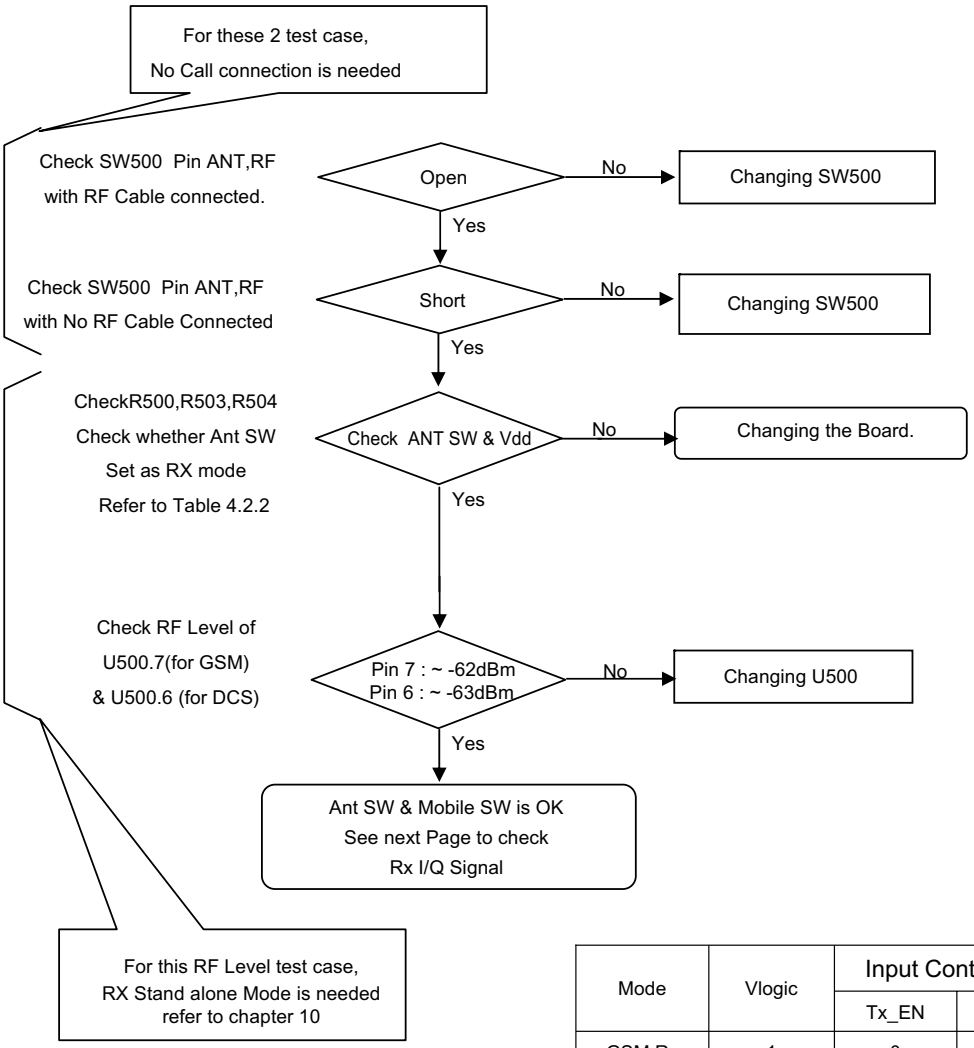


WAVEFORM



Graph 4.2.2 ASM Control Signal

CHECKING FLOW



Mode	Vlogic	Input Control Bits	
		Tx_EN	BS
GSM Rx	1	0	0
DCS Rx	1	0	1
GSM Tx	1	1	0
DCS Tx	1	1	1

Table 4.2.2

(3) Checking RX I/Q

TEST POINT

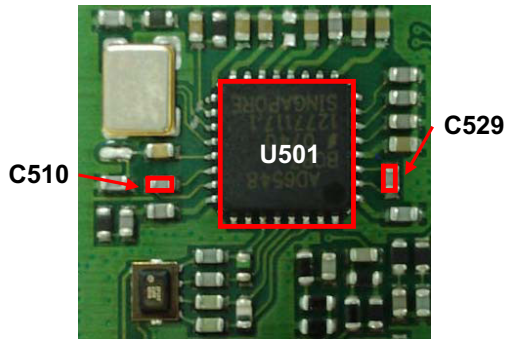
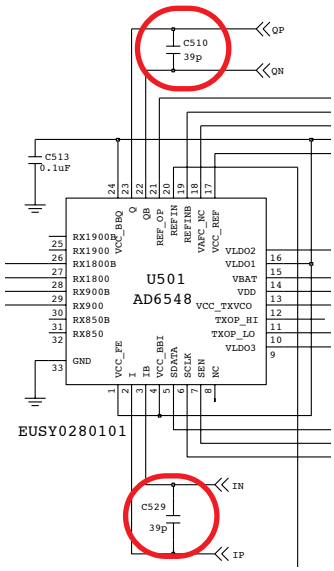
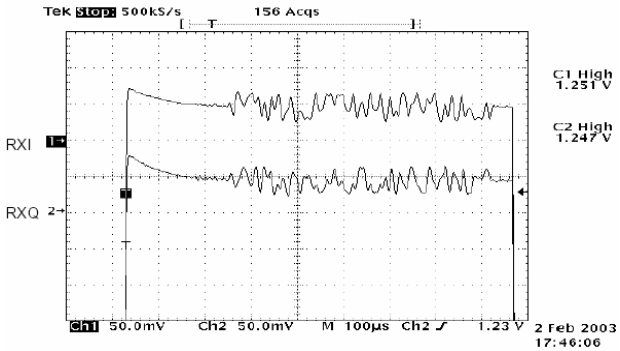


Figure 4.2.3

CIRCUIT

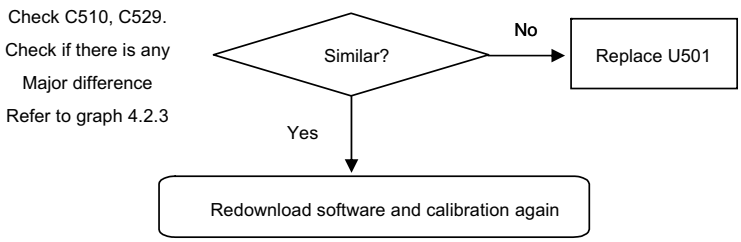


WAVEFORM



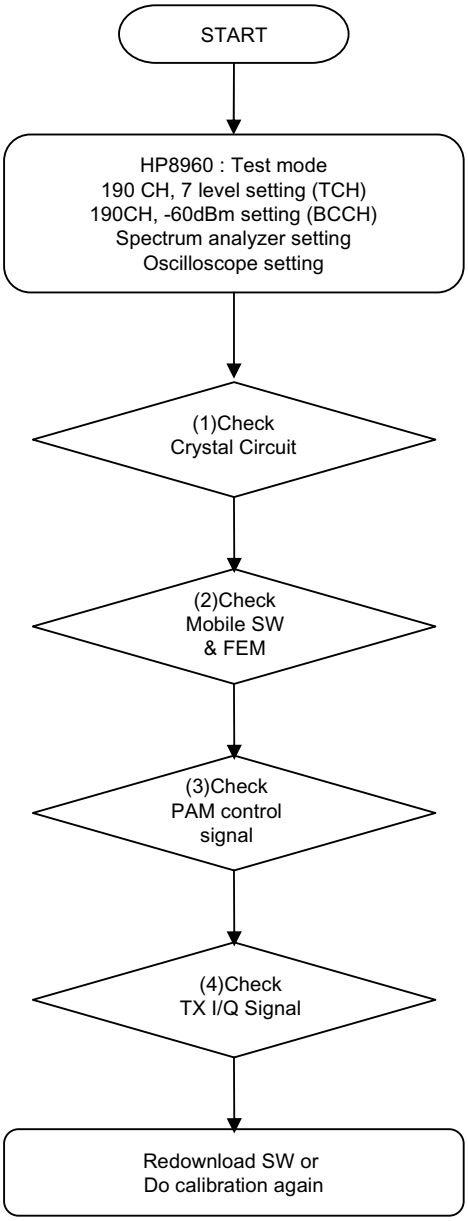
Graph 4.2.3

CHECKING FLOW



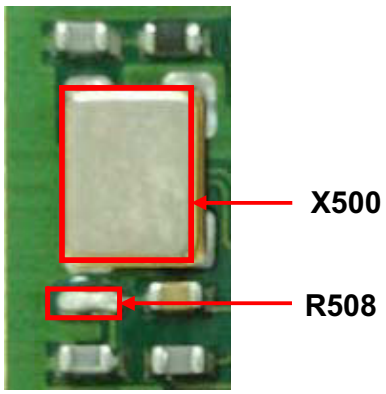
4.3 TX Trouble

CHECKING FLOW

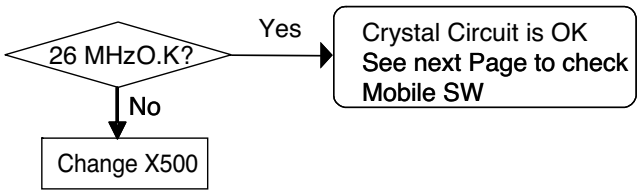


(1) Checking Crystal Circuit

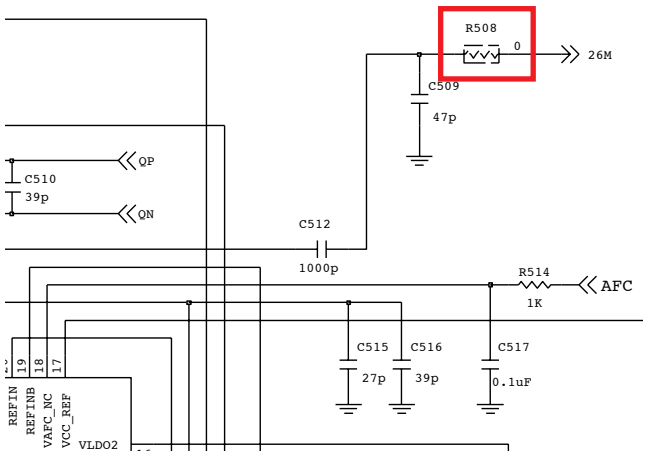
TEST POINT



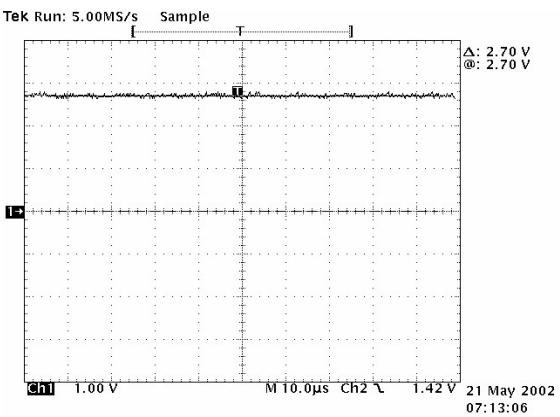
CHECKING FLOW



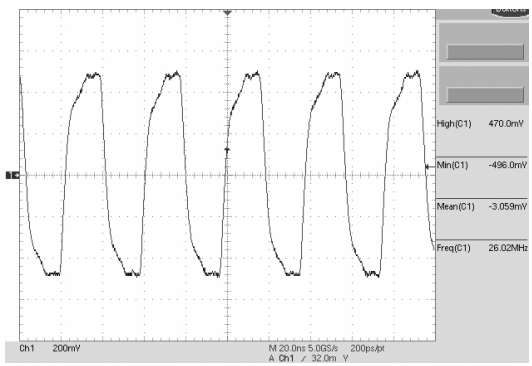
CIRCUIT



WAVEFORM



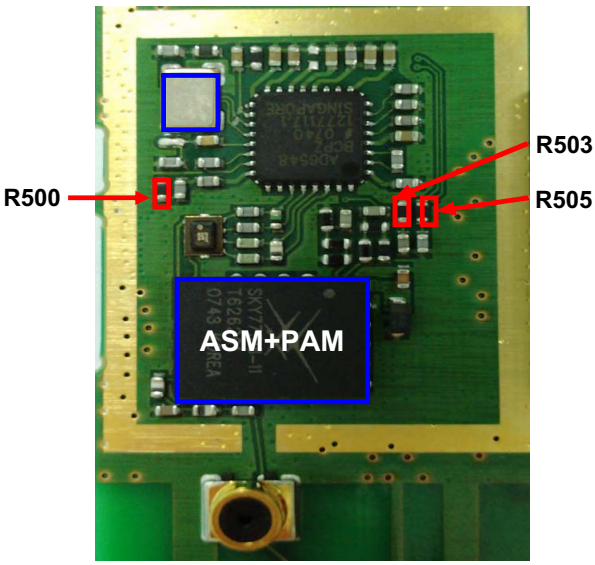
Graph 4.2.1(a)



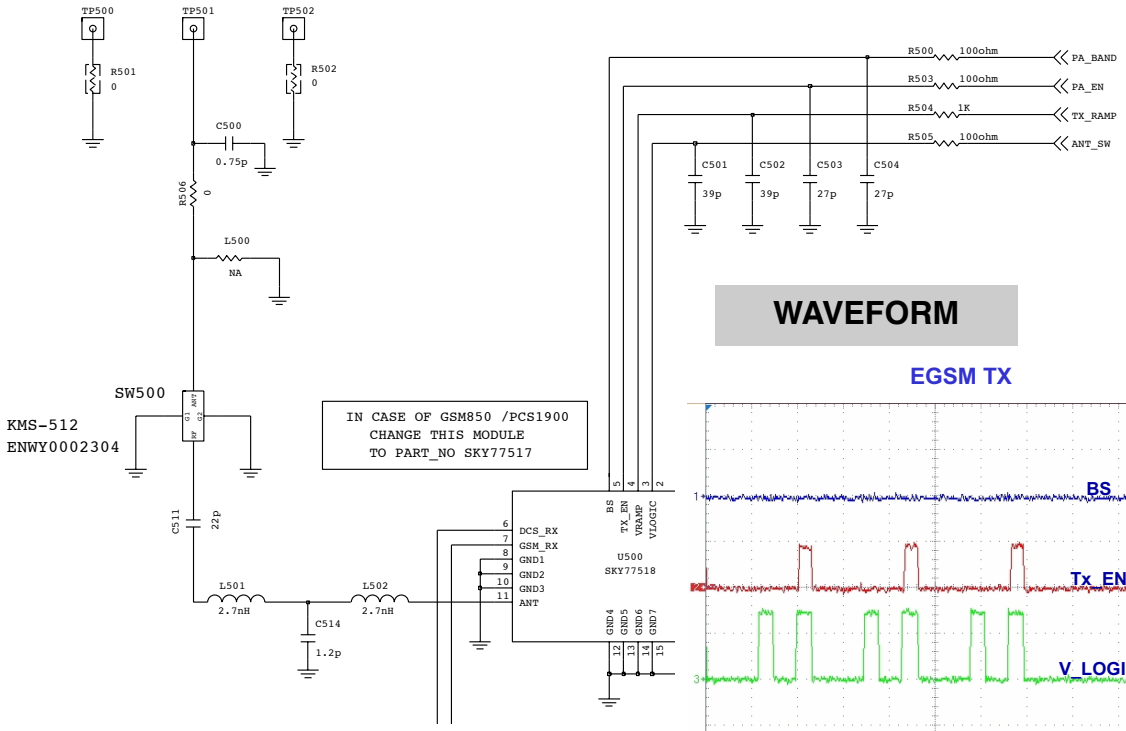
Graph 4.2.1(b)

(2) Checking Mobile SW & FEM

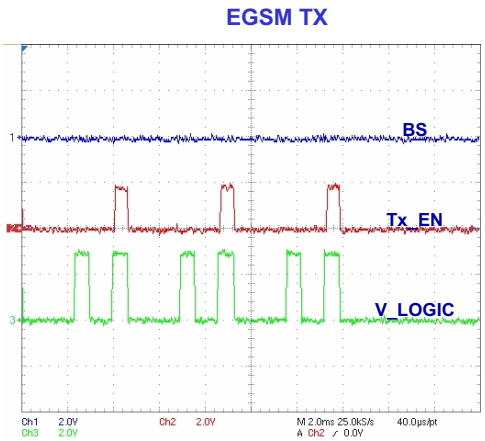
TEST POINT



CIRCUIT

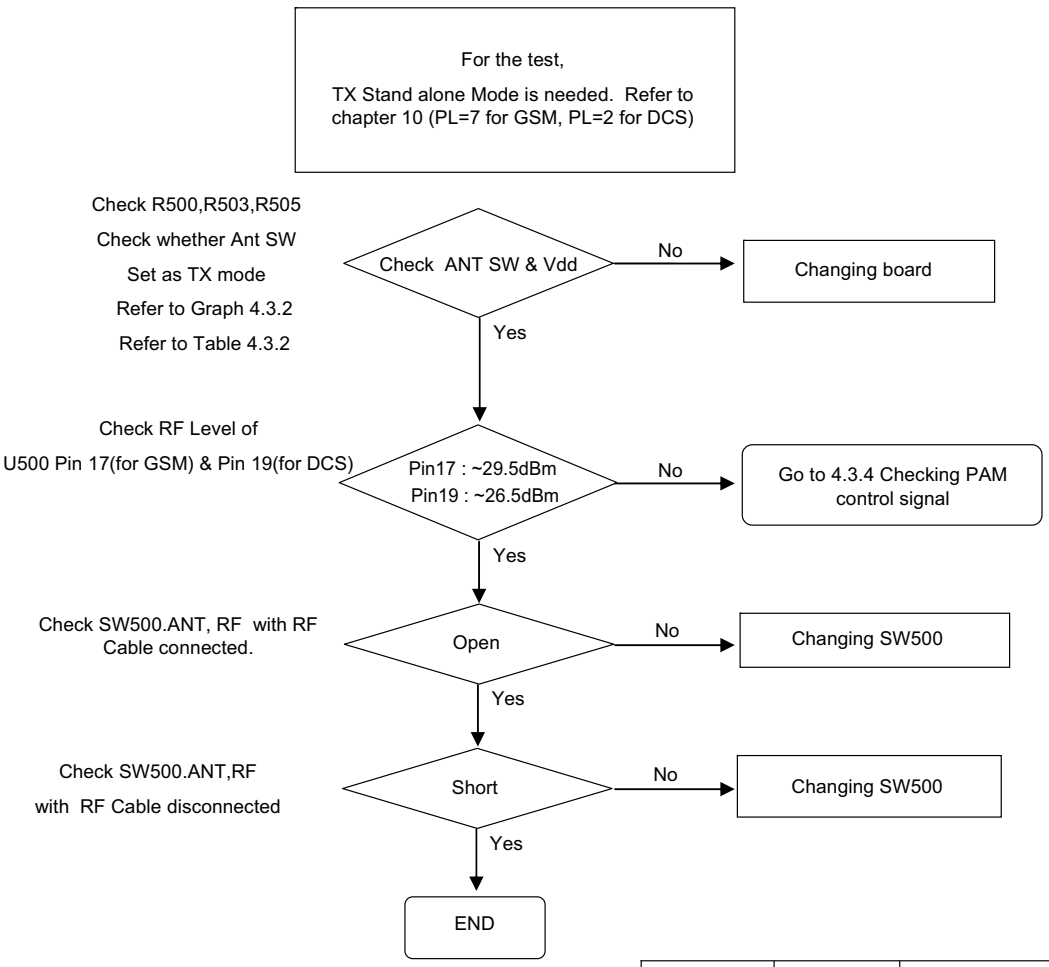


WAVEFORM



Graph 4.2.2 ASM Control Signal

CHECKING FLOW



Mode	Vlogic	Input Control Bits	
		Tx_EN	BS
GSM Rx	1	0	0
DCS Rx	1	0	1
GSM Tx	1	1	0
DCS Tx	1	1	1

Table 4.3.2

(3) Checking PAM Control Signal

TEST POINT

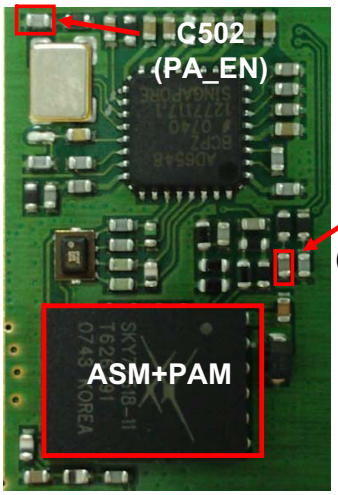
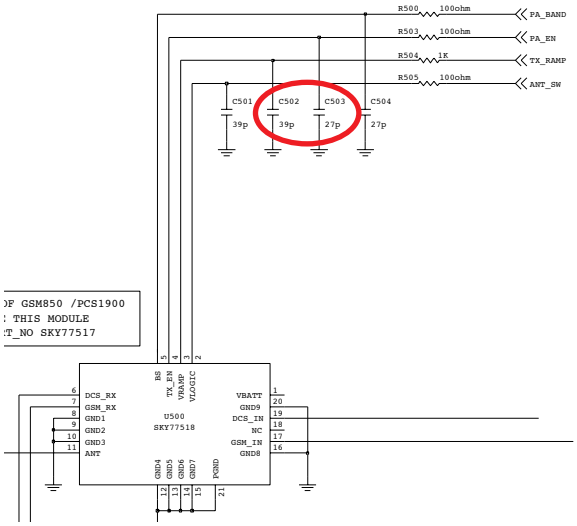
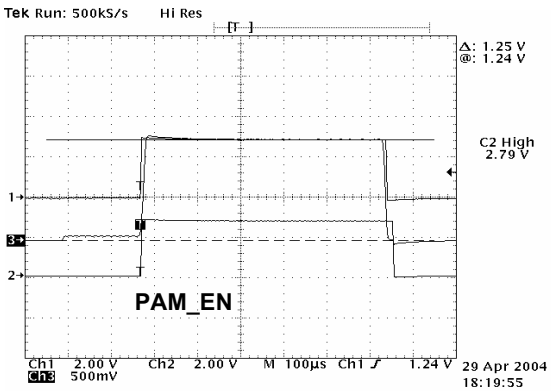


Figure 4.3.3

CIRCUIT



WAVEFORM



Graph 4.3.3

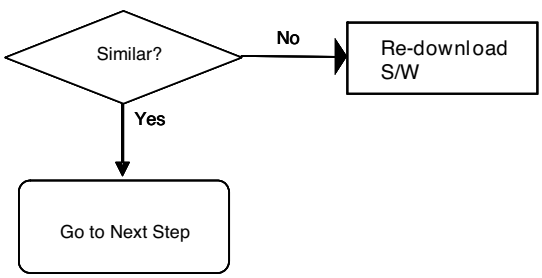
CHECKING FLOW

Check TX_RAMP and PAM_EN

Check if there is

Any Major Difference or not

Refer to Graph 4.3.3



(4) Checking TX I/Q

TEST POINT

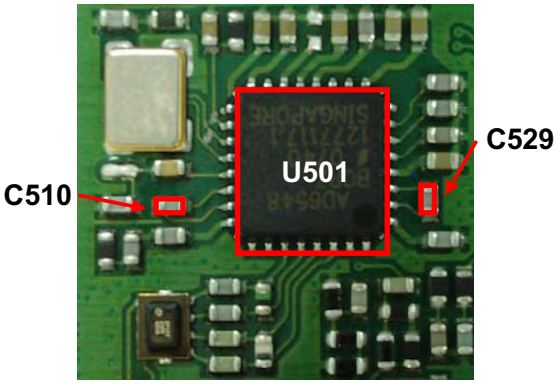
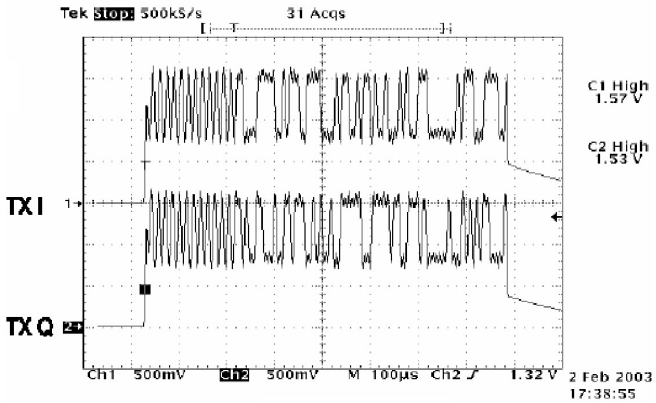


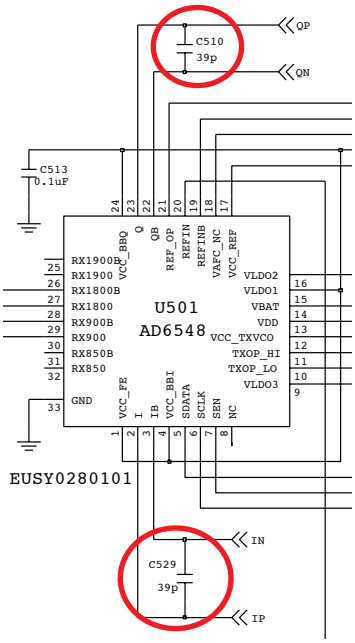
Figure 4.3.4

WAVEFORM

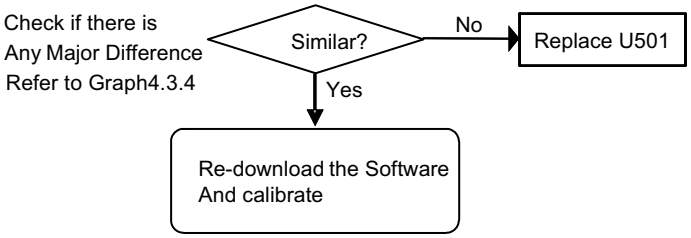


Graph 4.3.4

CIRCUIT



CHECKING FLOW



4.4 Power On Trouble

TEST POINT

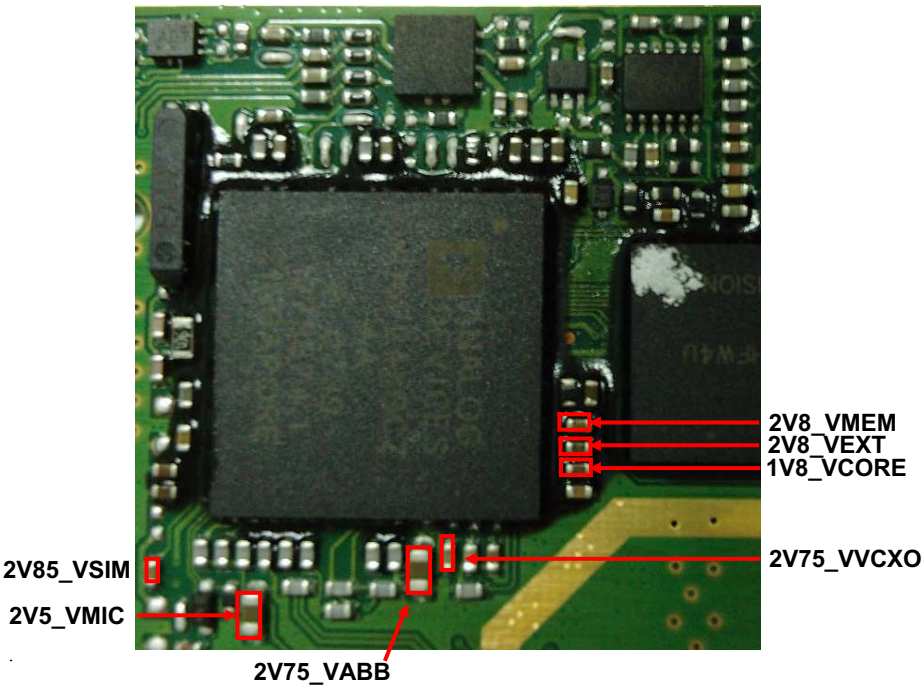
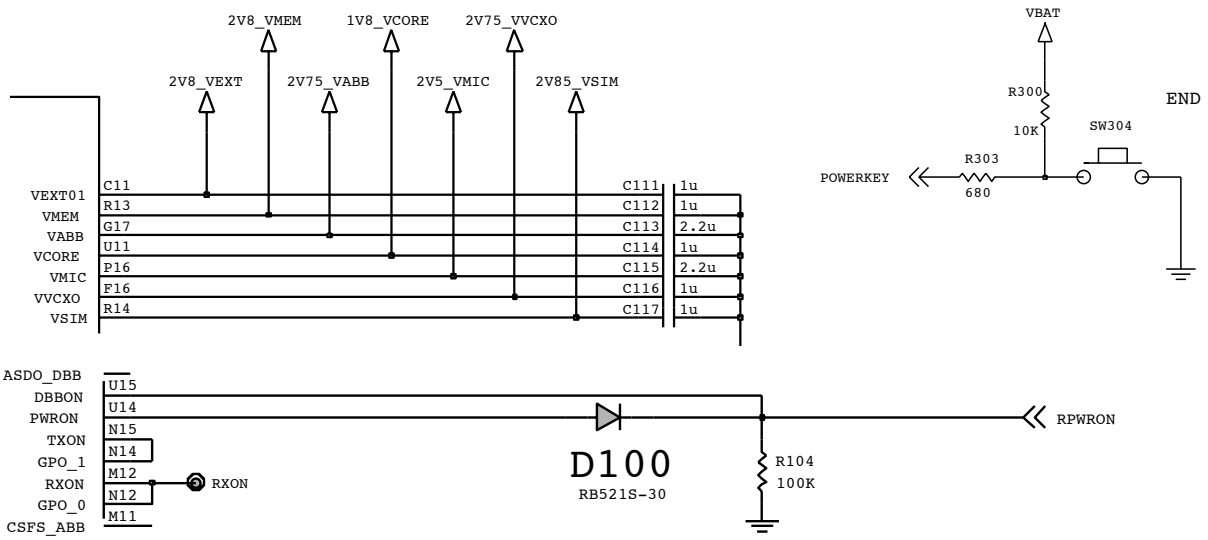
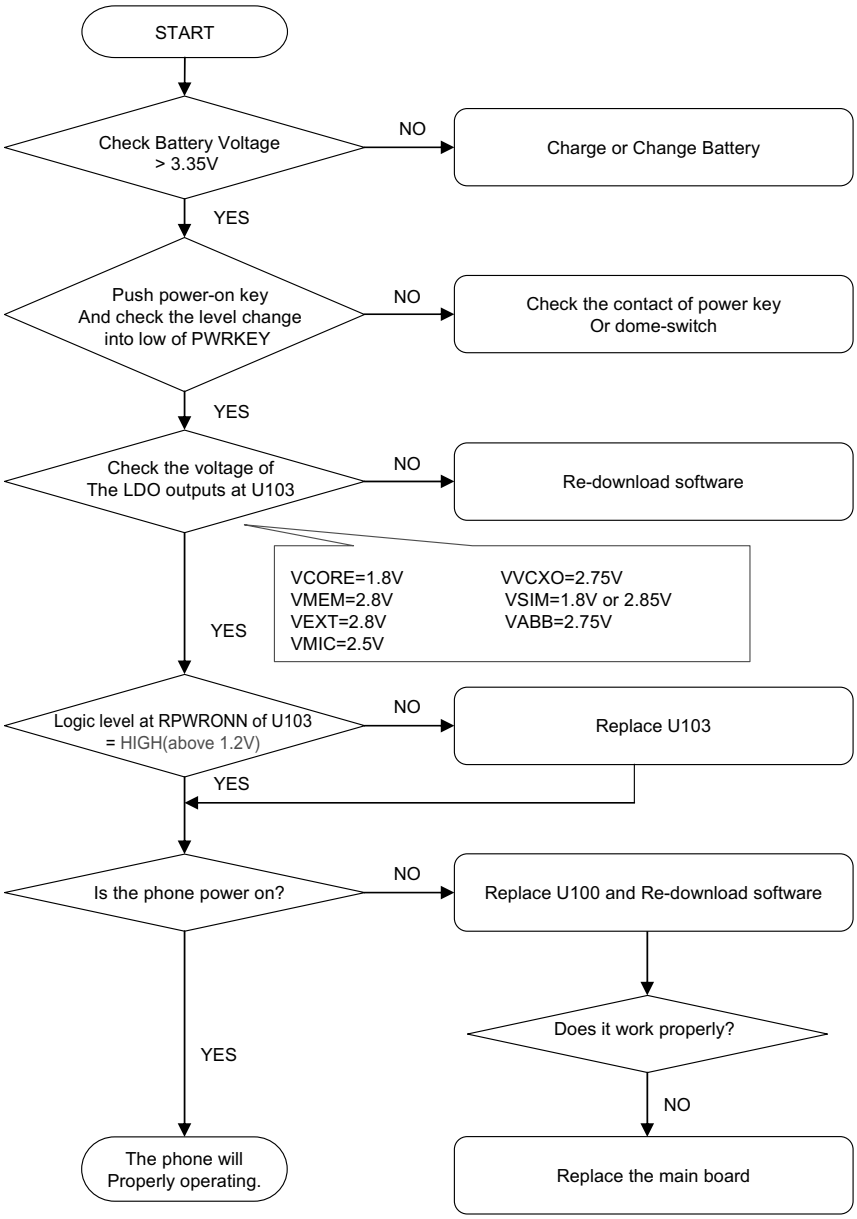


Figure 4.4

CIRCUIT



CHECKING FLOW



4.5 Charging Trouble

TEST POINT

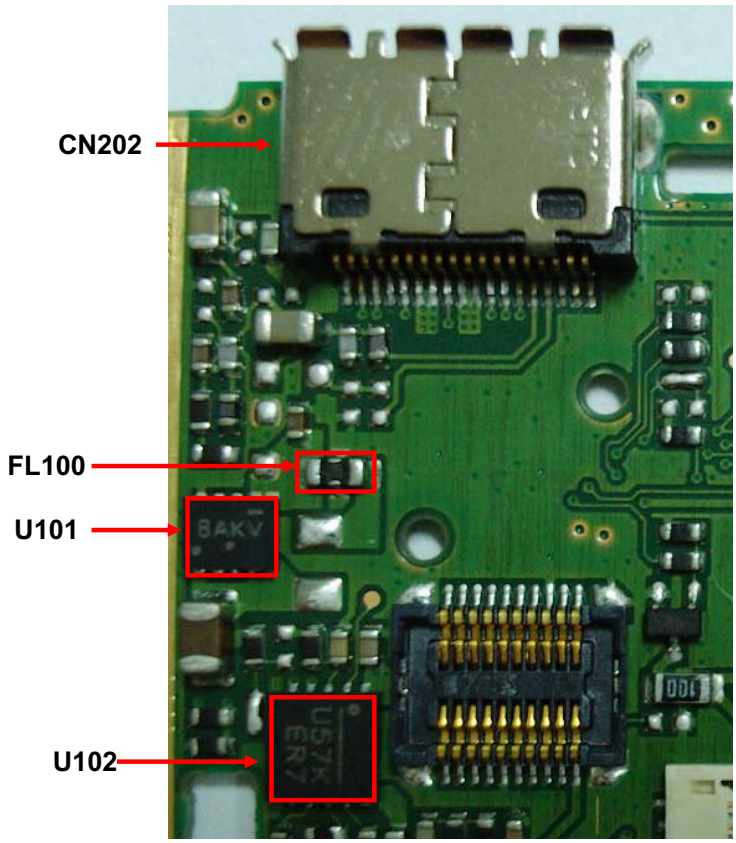
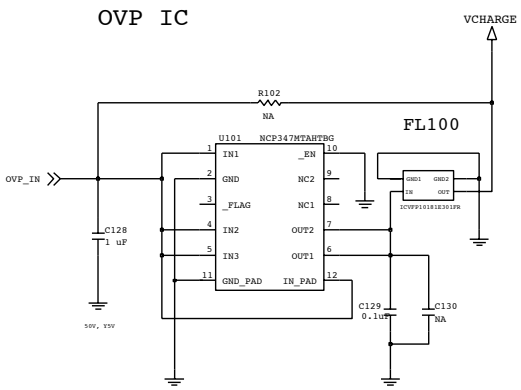
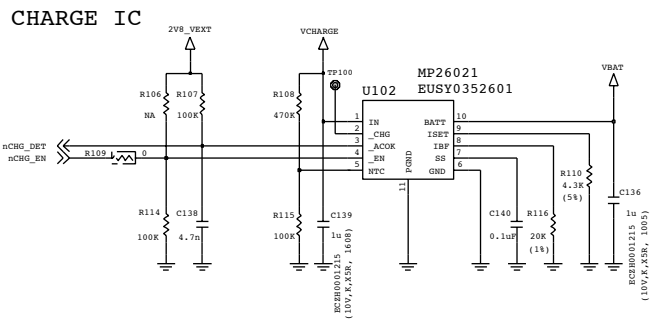


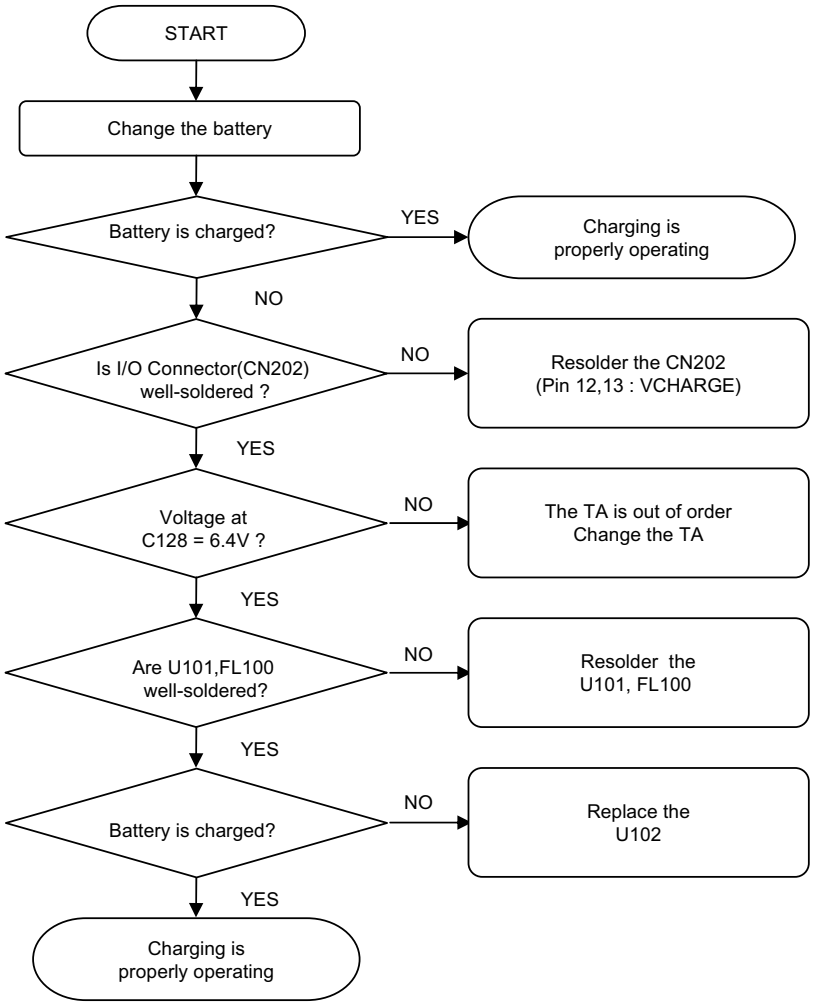
Figure 4.5

CIRCUIT





CHECKING FLOW



4.6 Vibrator Trouble

TEST POINT

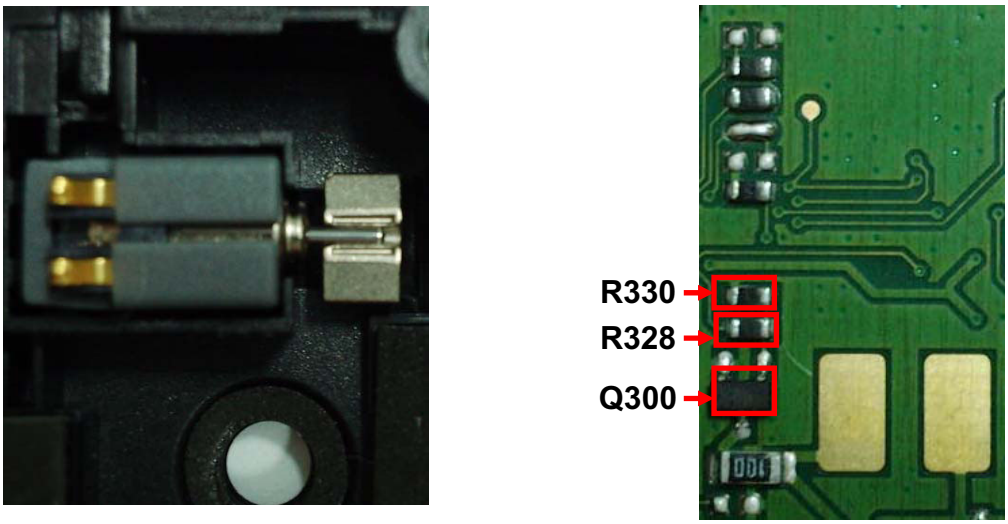
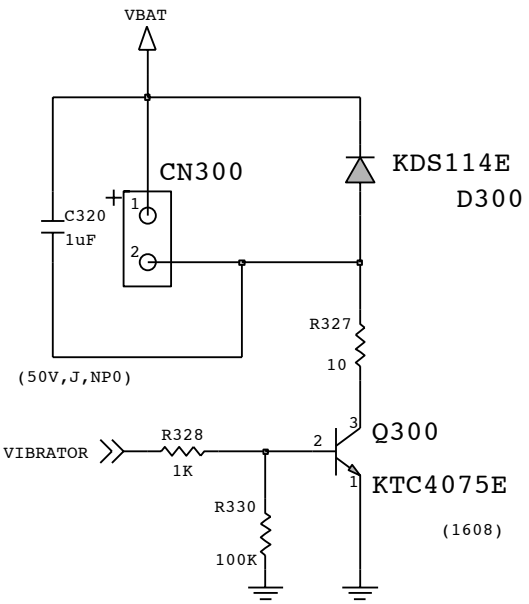


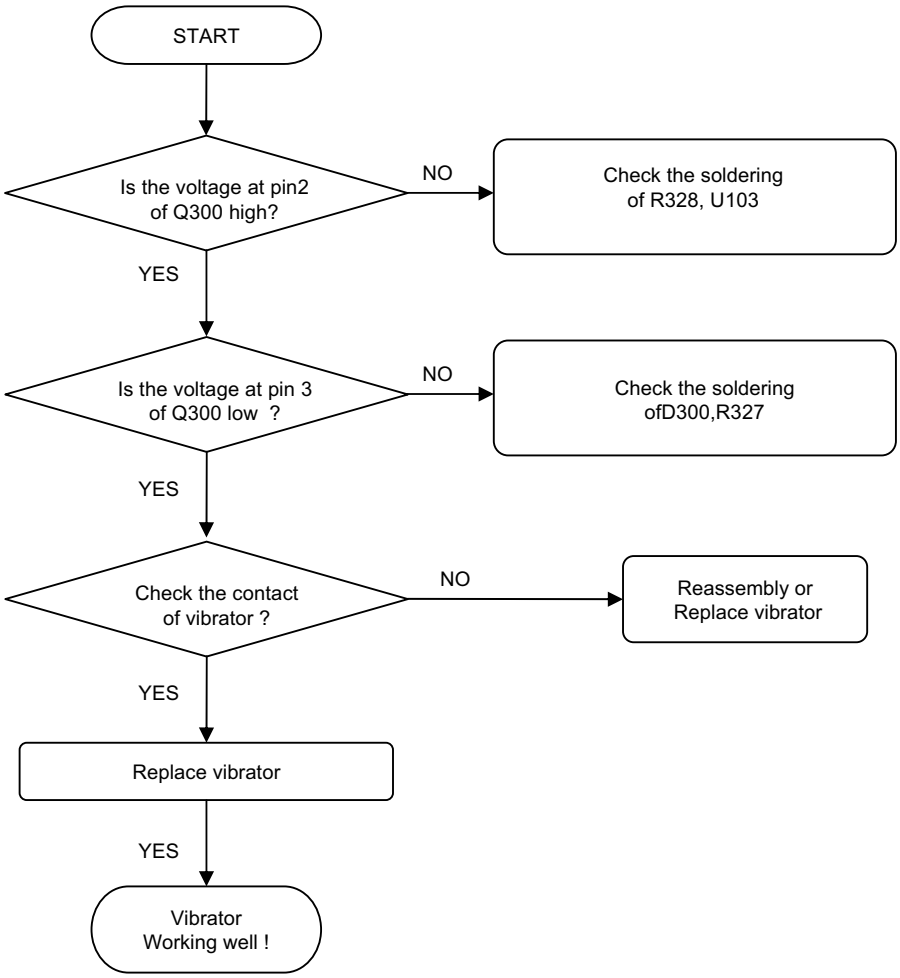
Figure 4.6

CIRCUIT



CHECKING FLOW

SETTING : Enter the engineering mode, and set vibrator on at vibration of BB test menu



4.7 LCD Trouble

TEST POINT

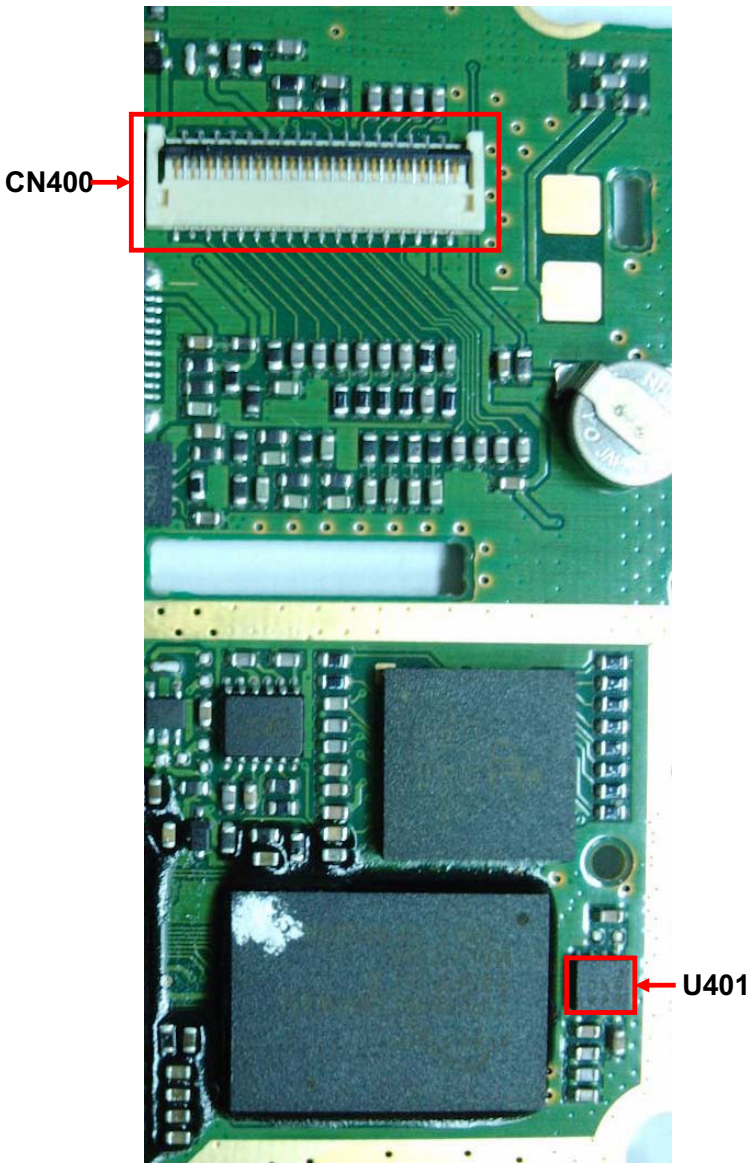
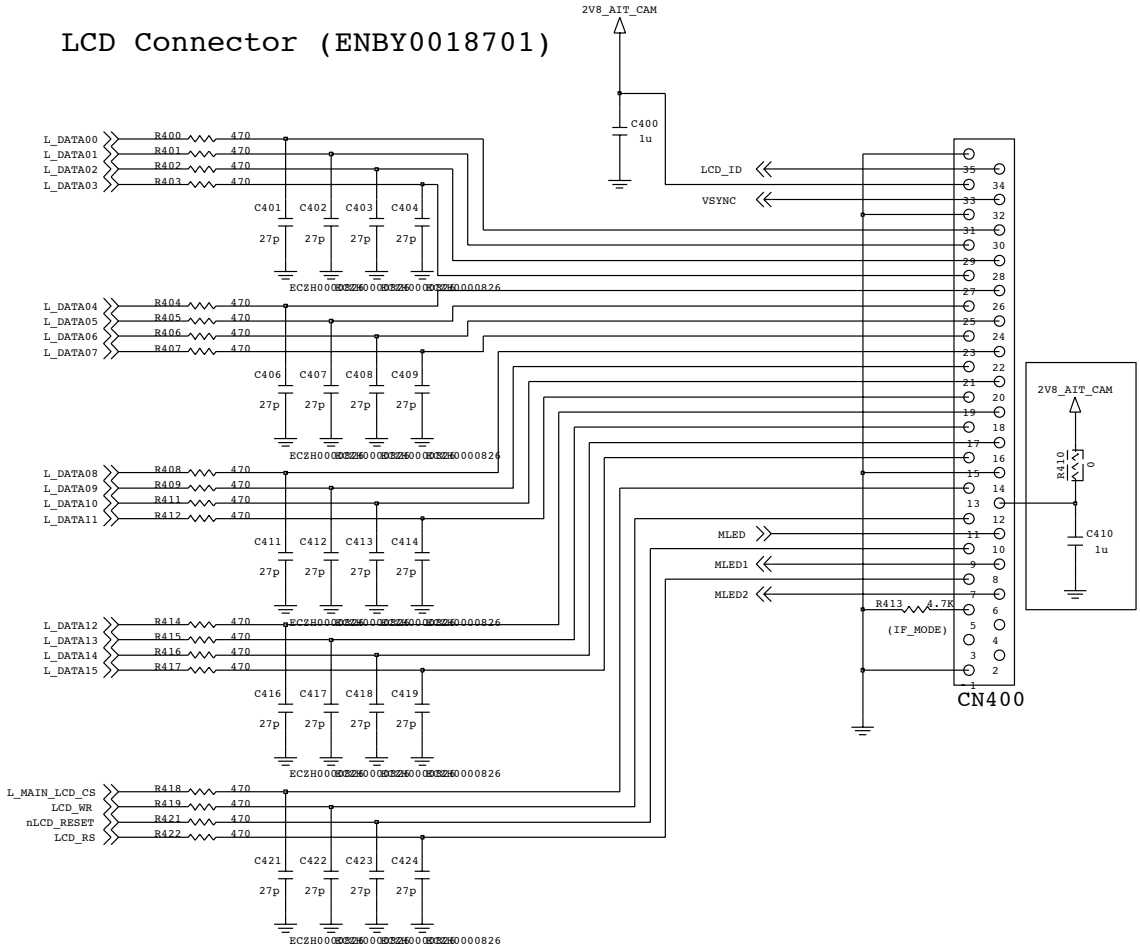
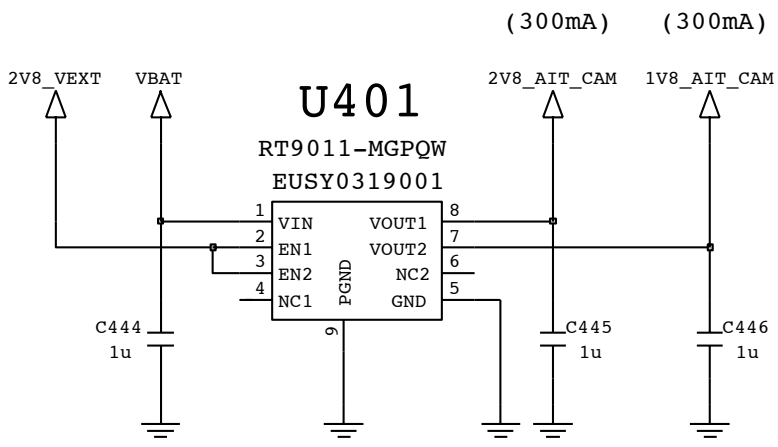


Figure 4.7

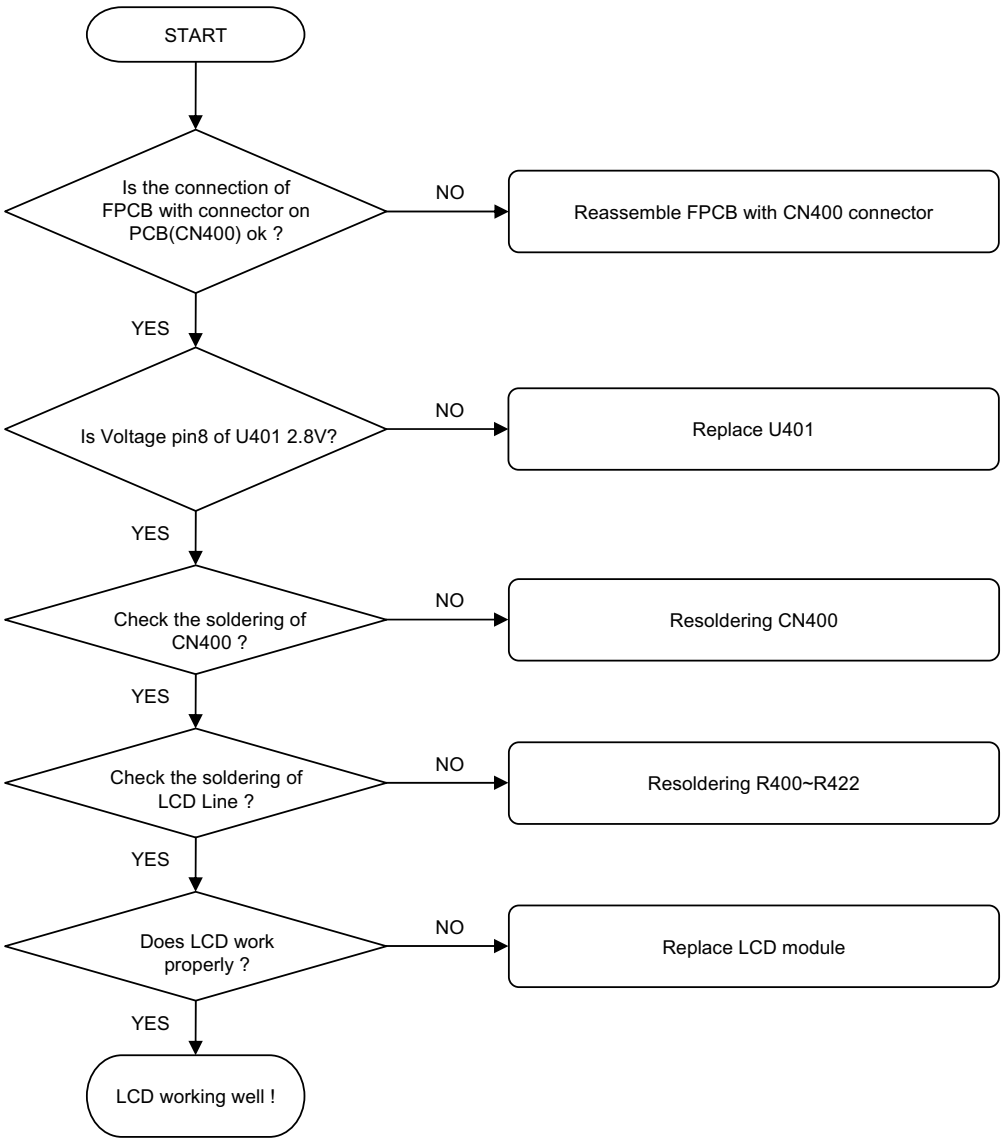
CIRCUIT





4. TROUBLE SHOOTING

CHECKING FLOW



4.8 Camera Trouble

TEST POINT

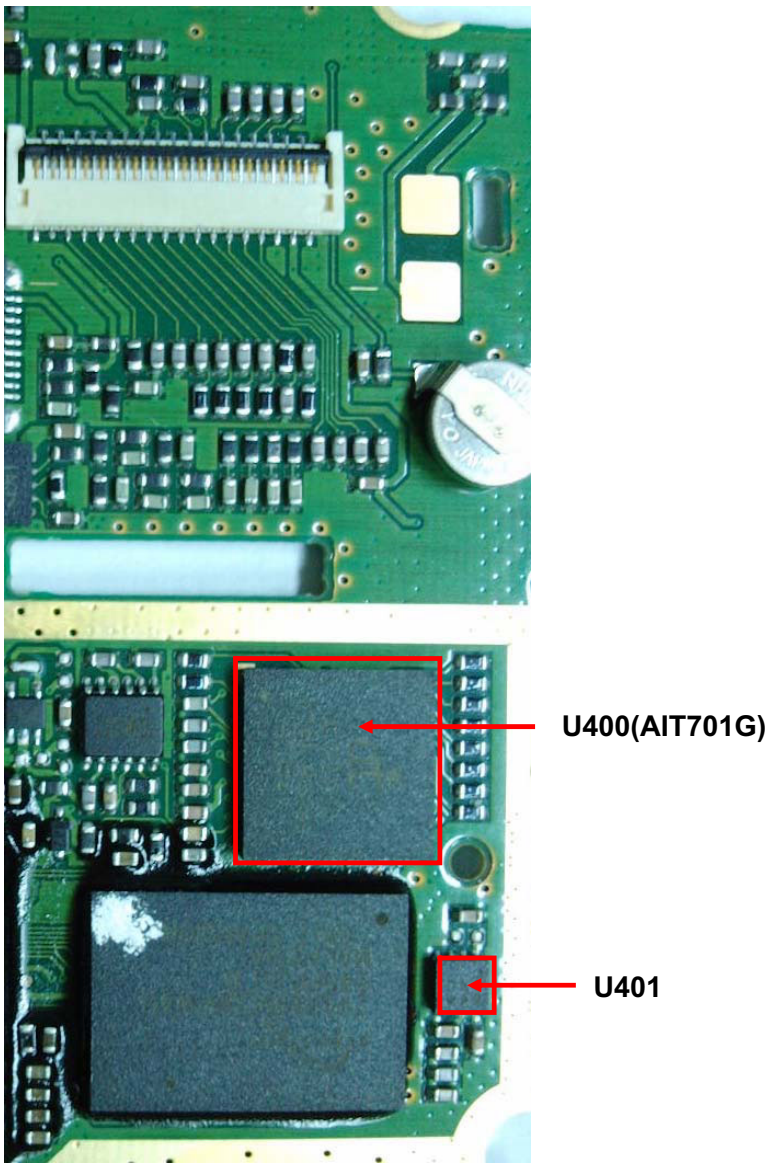
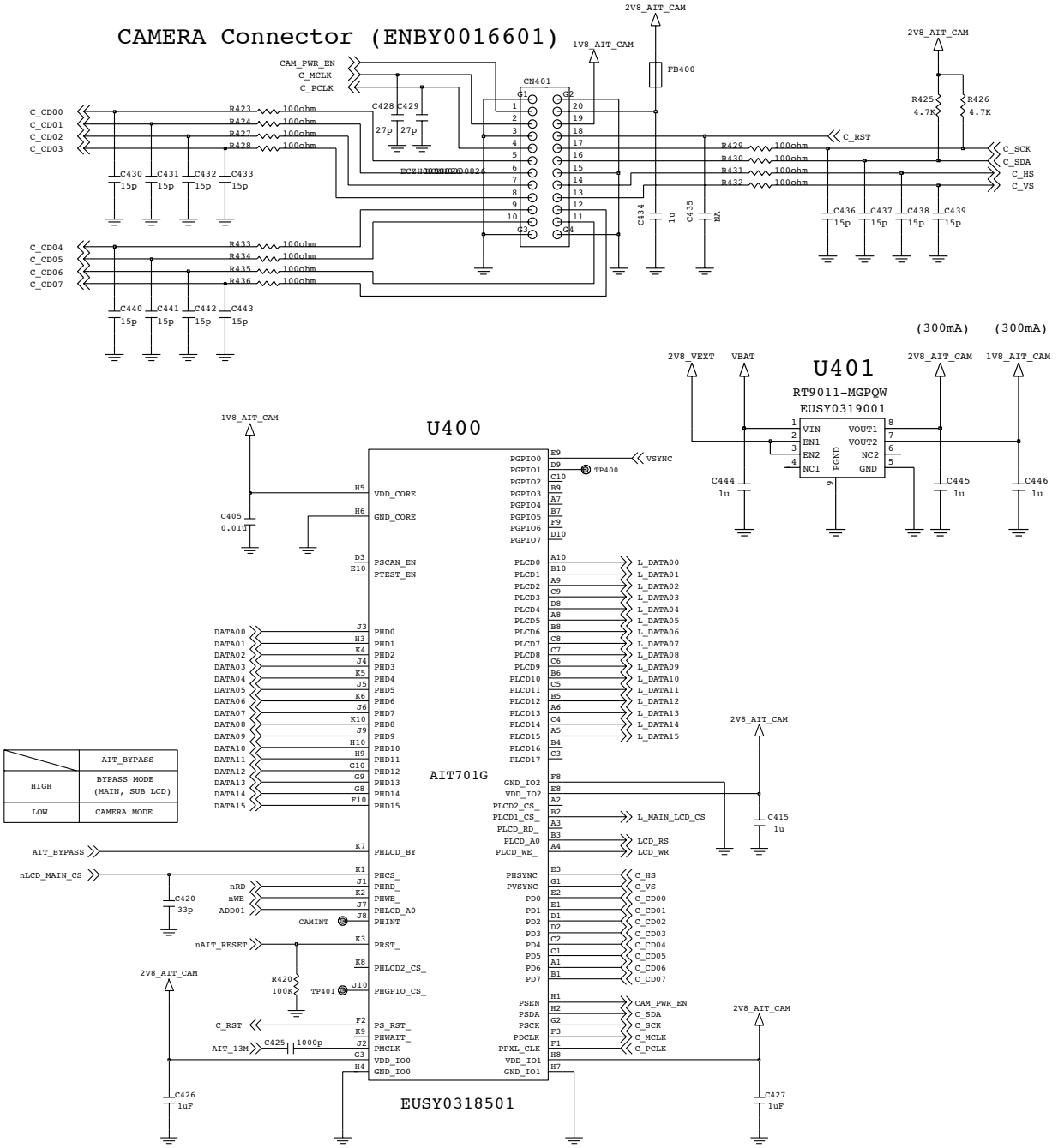
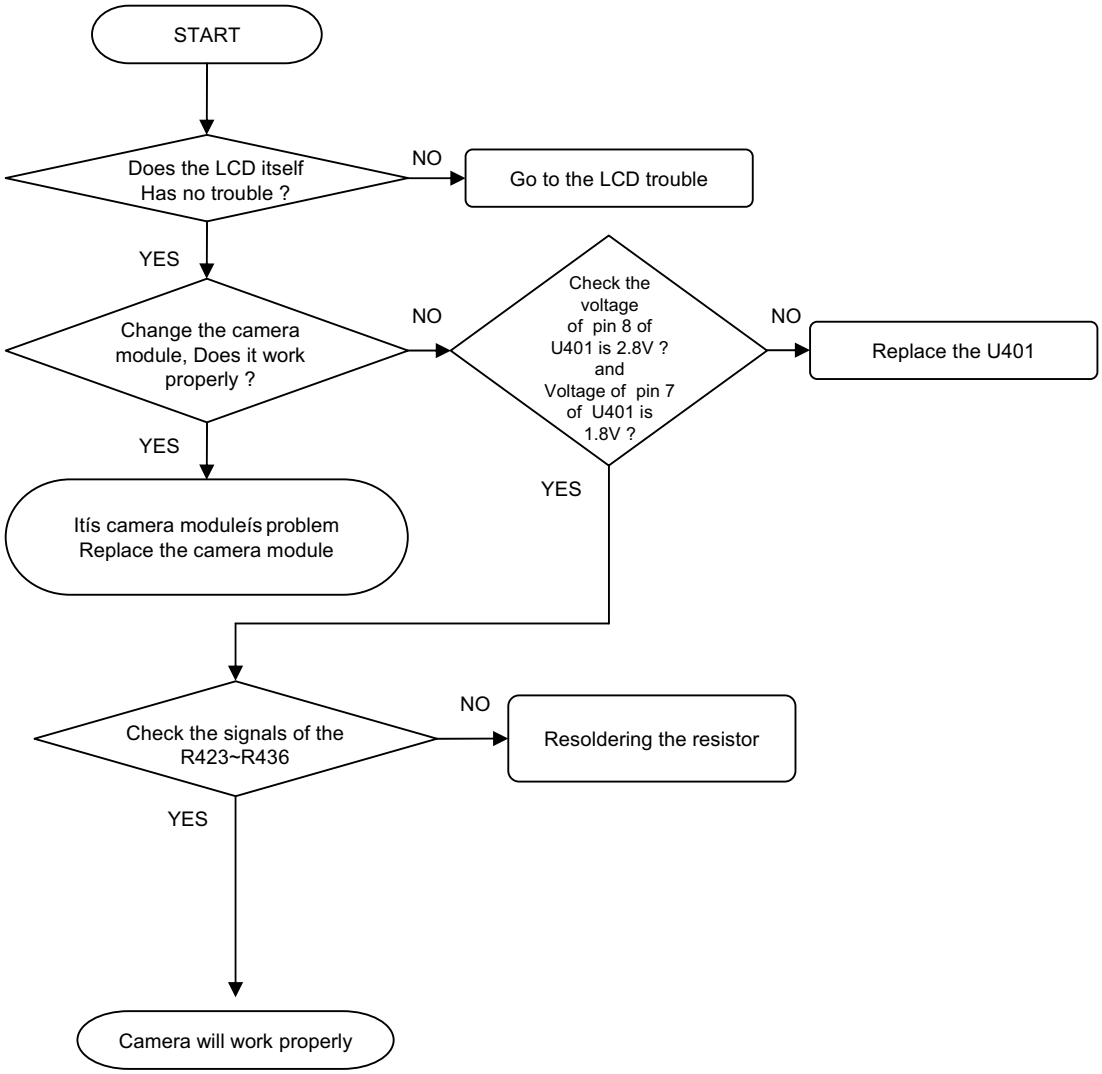


Figure 4.8

CIRCUIT



CHECKING FLOW



4.9 Speaker Trouble

TEST POINT

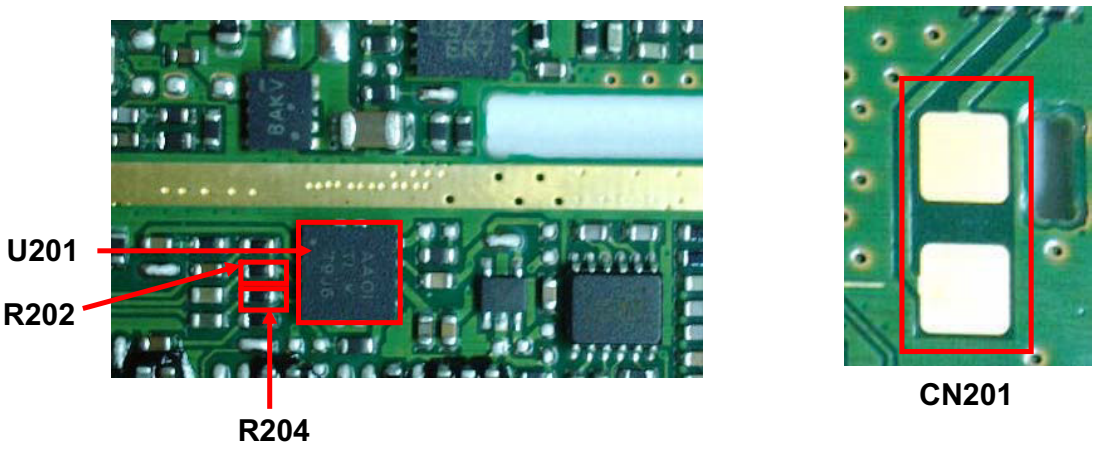
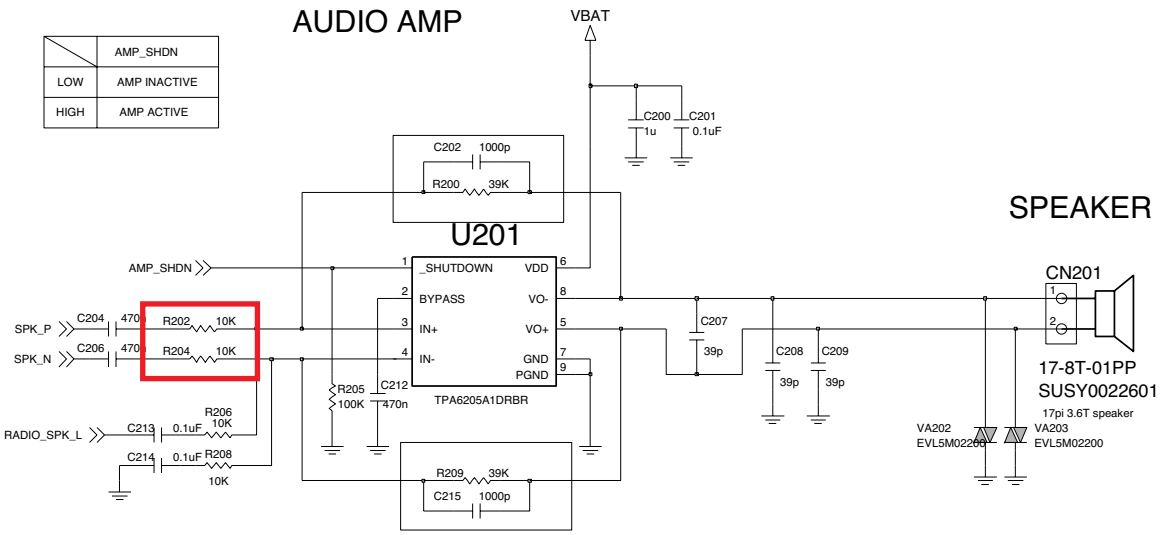
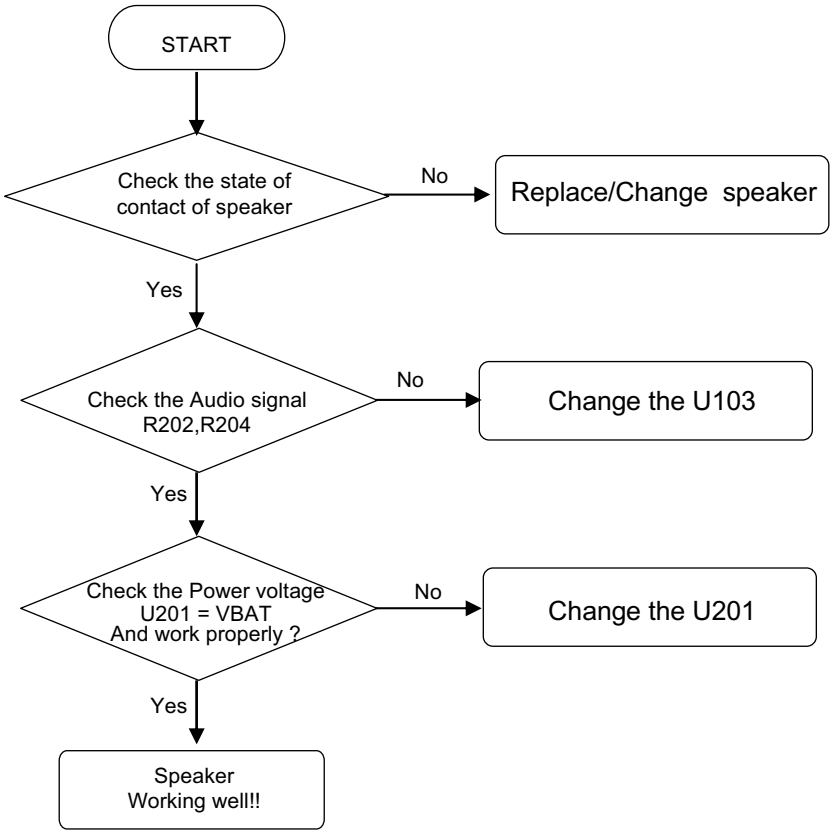


Figure 4.9

CIRCUIT



CHECKING FLOW



4.10 SIM Card Interface Trouble

TEST POINT

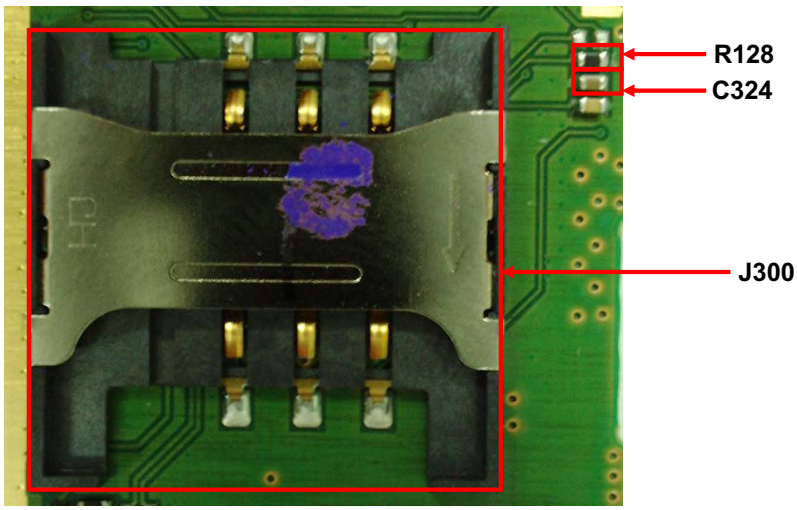
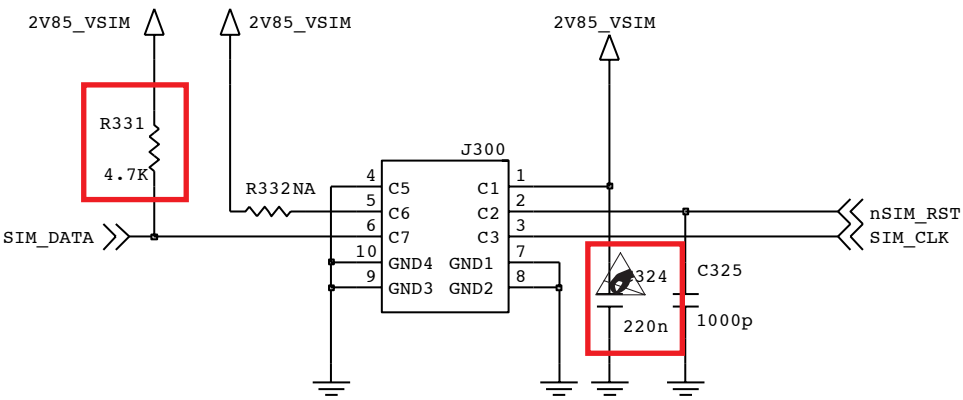
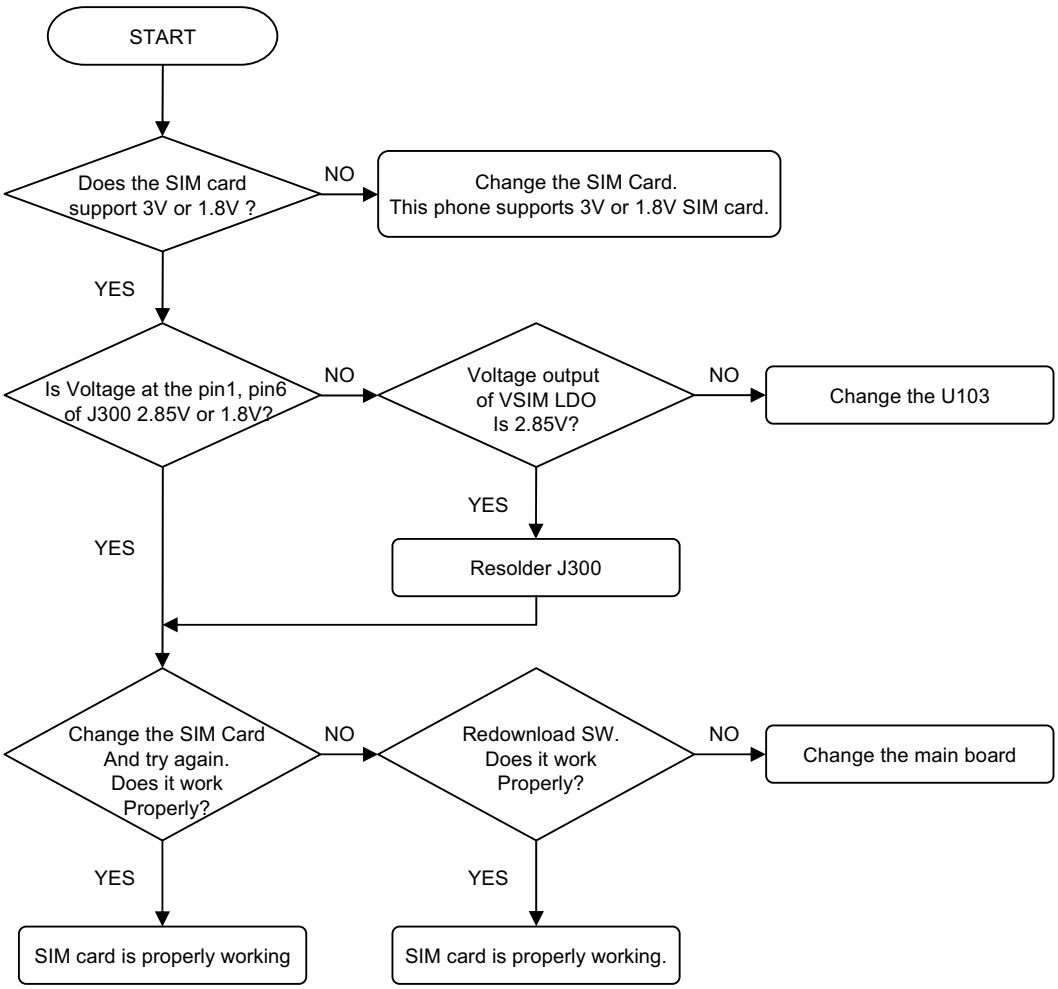


Figure 4.10

CIRCUIT



CHECKING FLOW



4.11 Earphone Trouble

TEST POINT

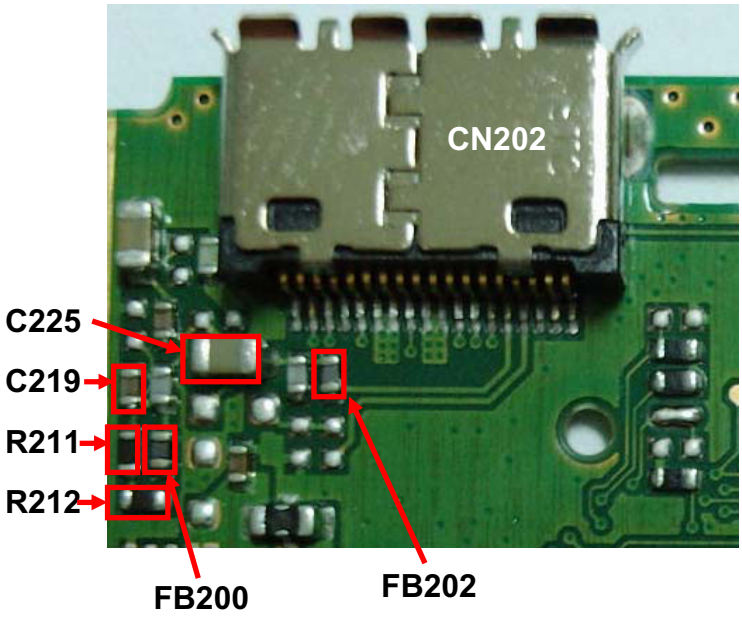
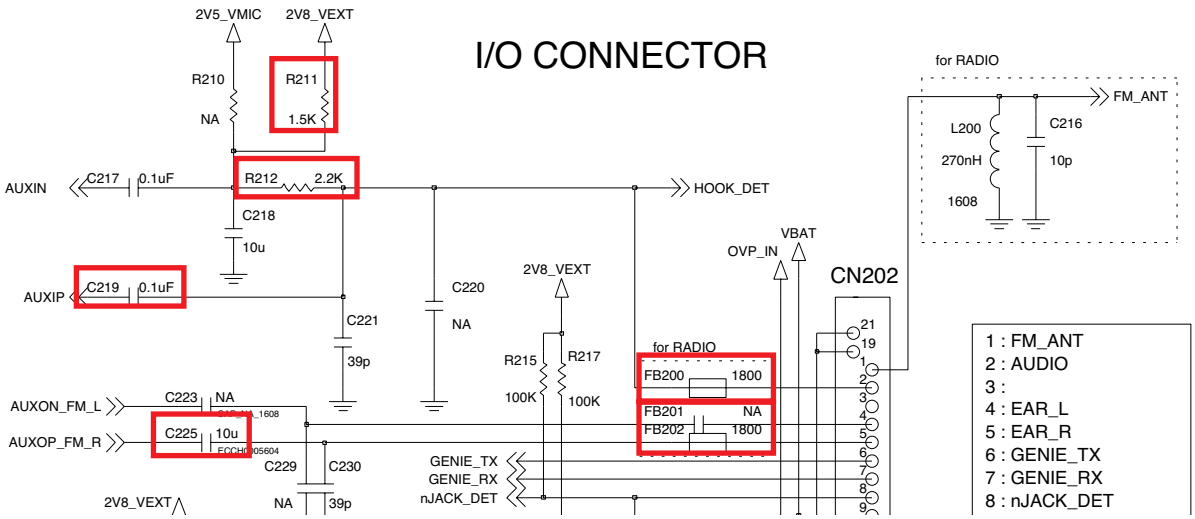
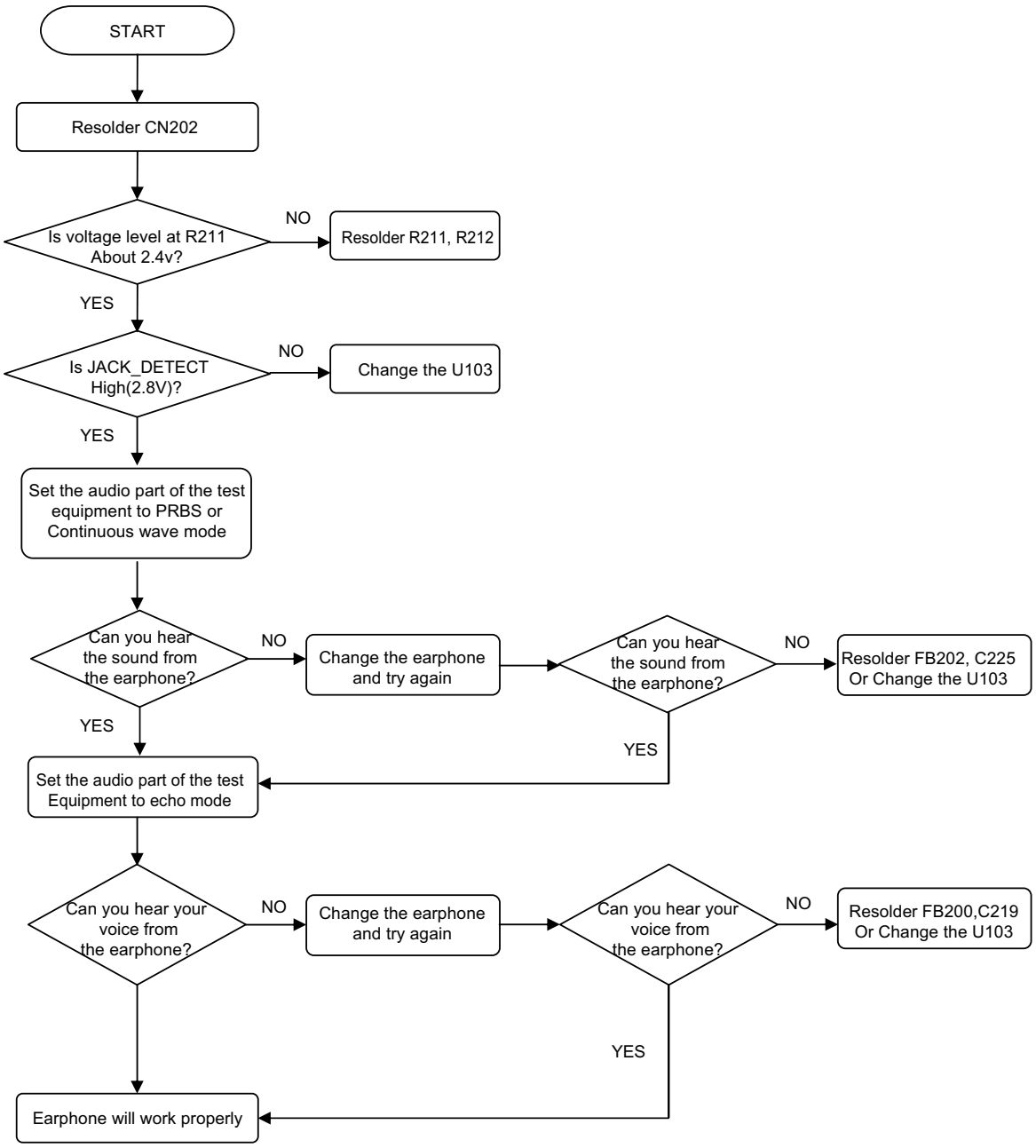


Figure 4.11

CIRCUIT

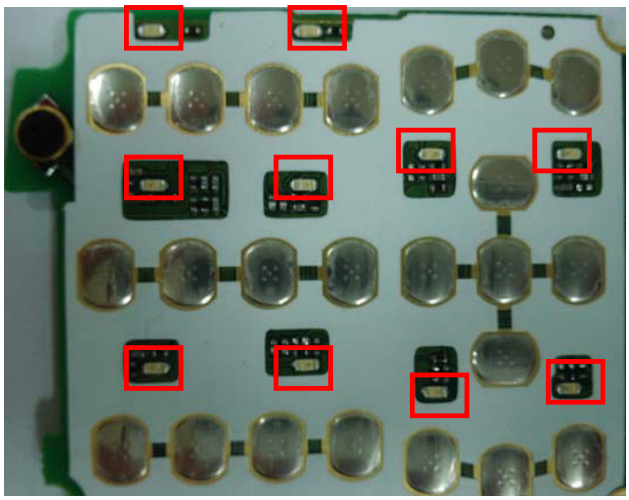


CHECKING FLOW



4.12 KEY backlight Trouble

TEST POINT



CIRCUIT

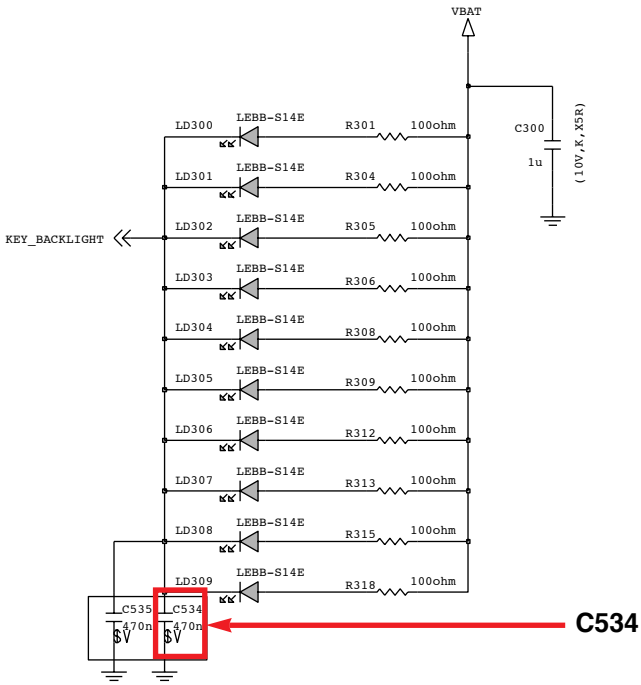
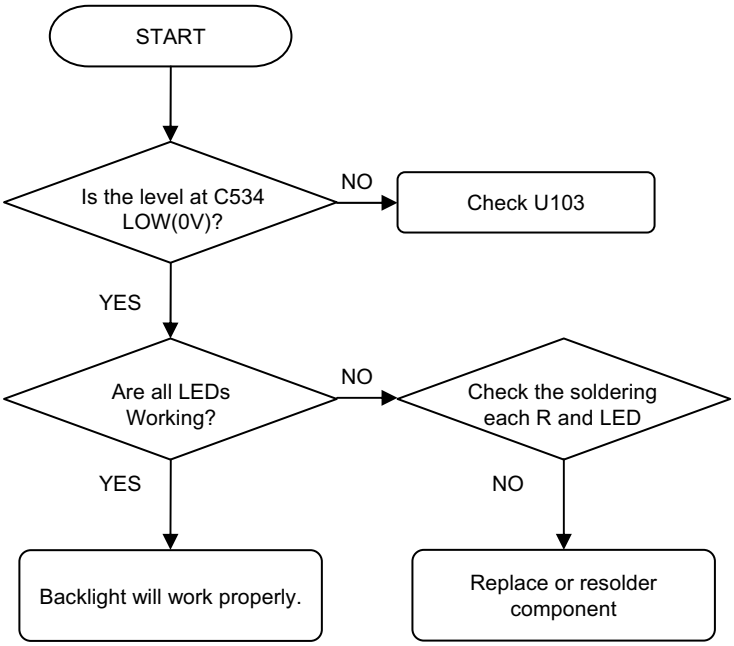


Figure 4.12

CHECKING FLOW



4.13 Receiver Trouble

TEST POINT

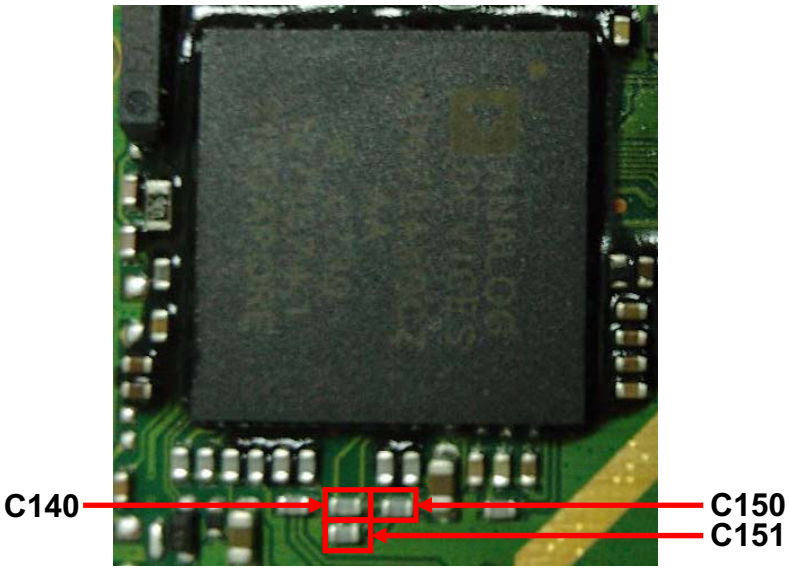
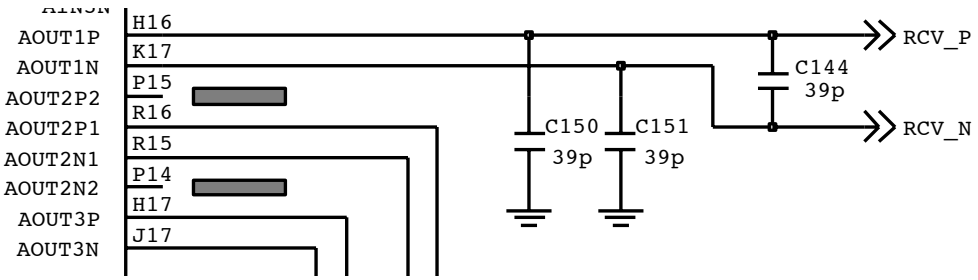


Figure 4.13

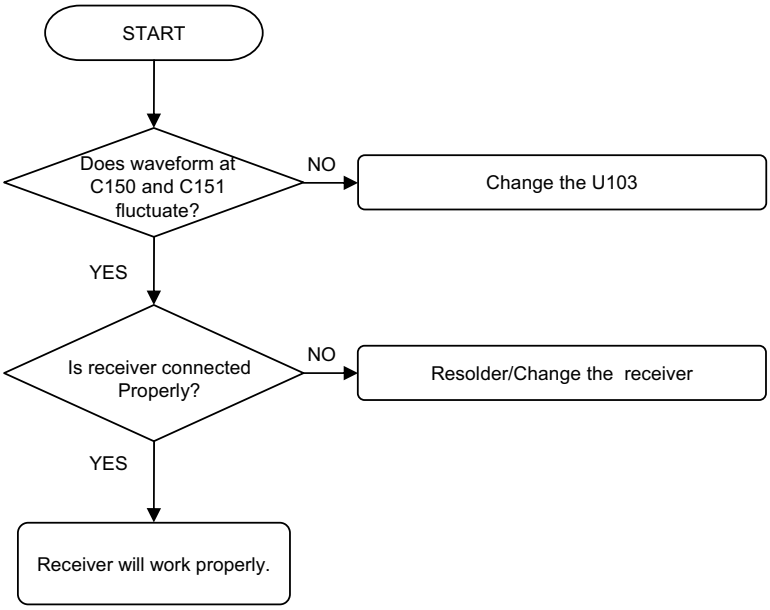
CIRCUIT



CHECKING FLOW

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

Set the property of audio as PRBS or continuous wave. Set the receiving volume of mobile as Max.



4.14 Microphone Trouble

TEST POINT

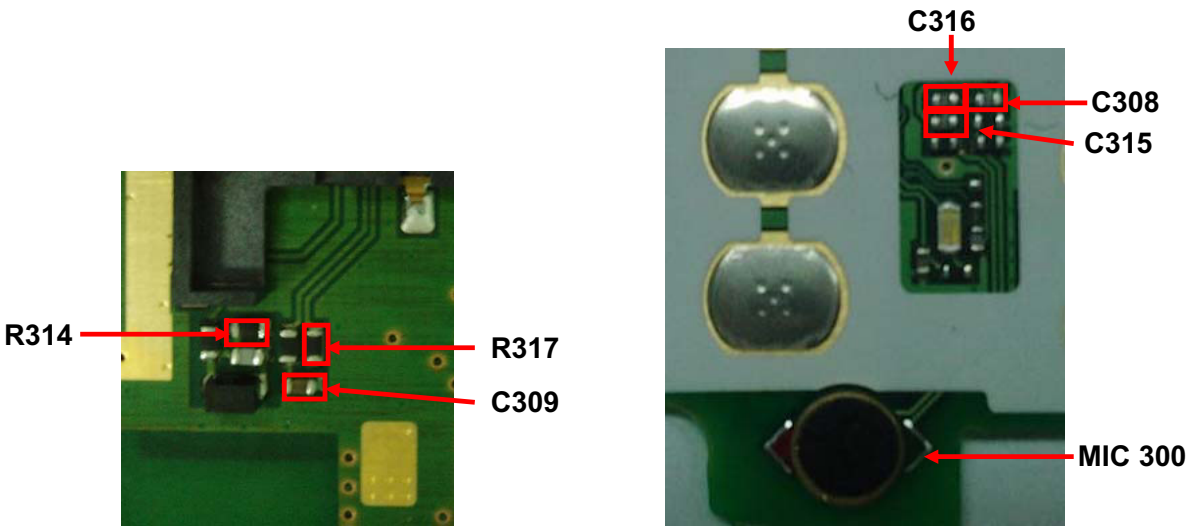
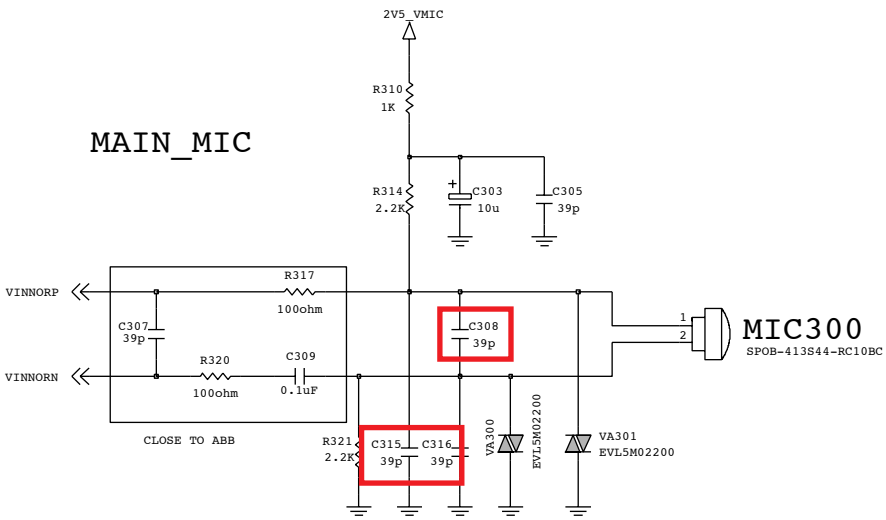


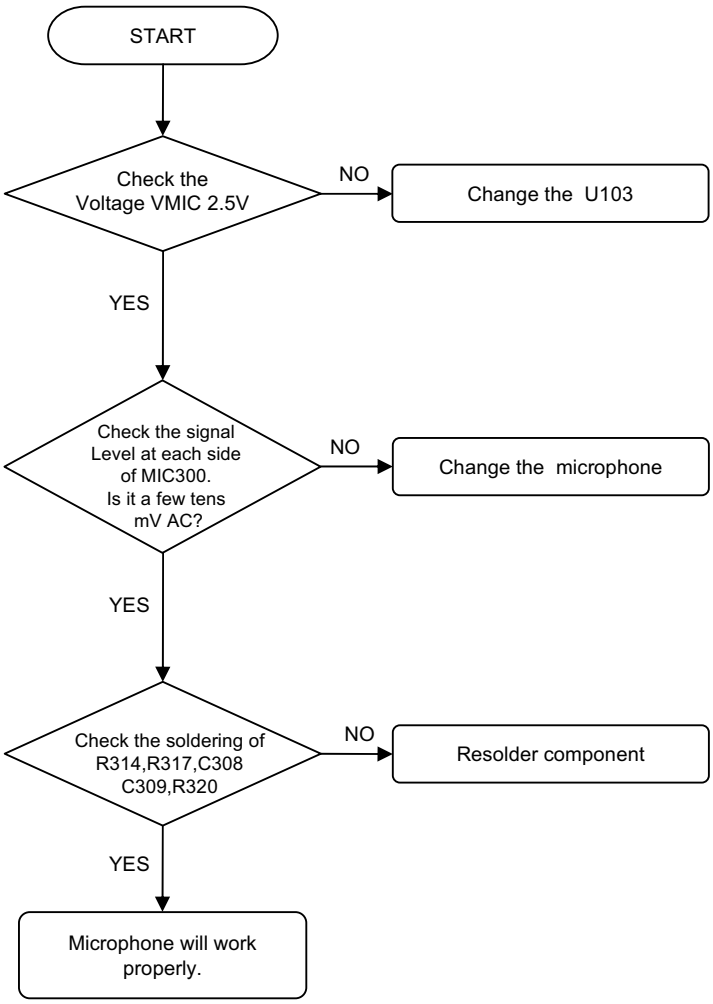
Figure 4.14

CIRCUIT



CHECKING FLOW

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



4.15 RTC Trouble

TEST POINT

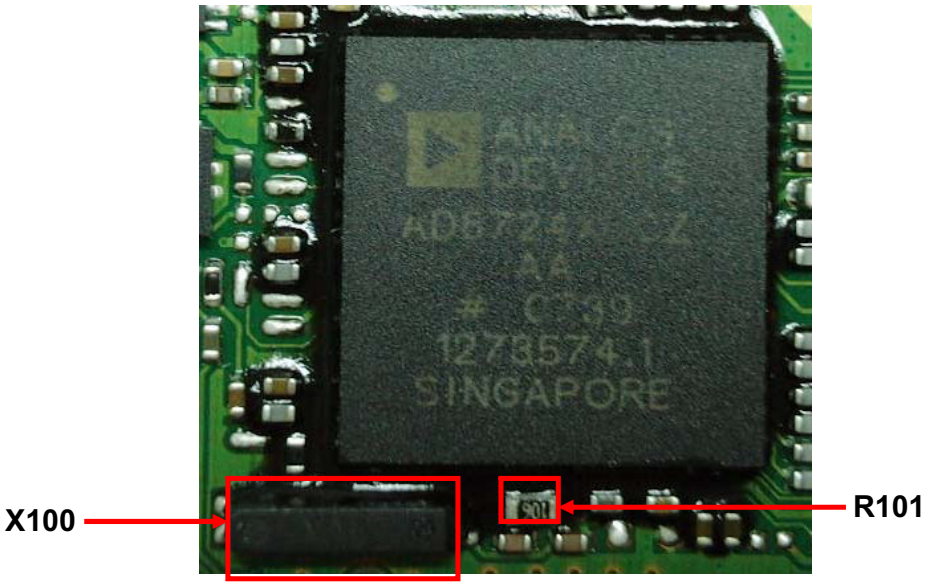
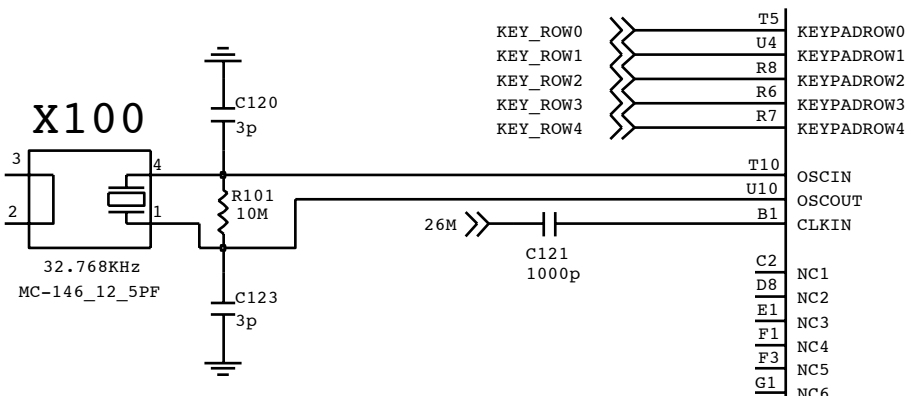
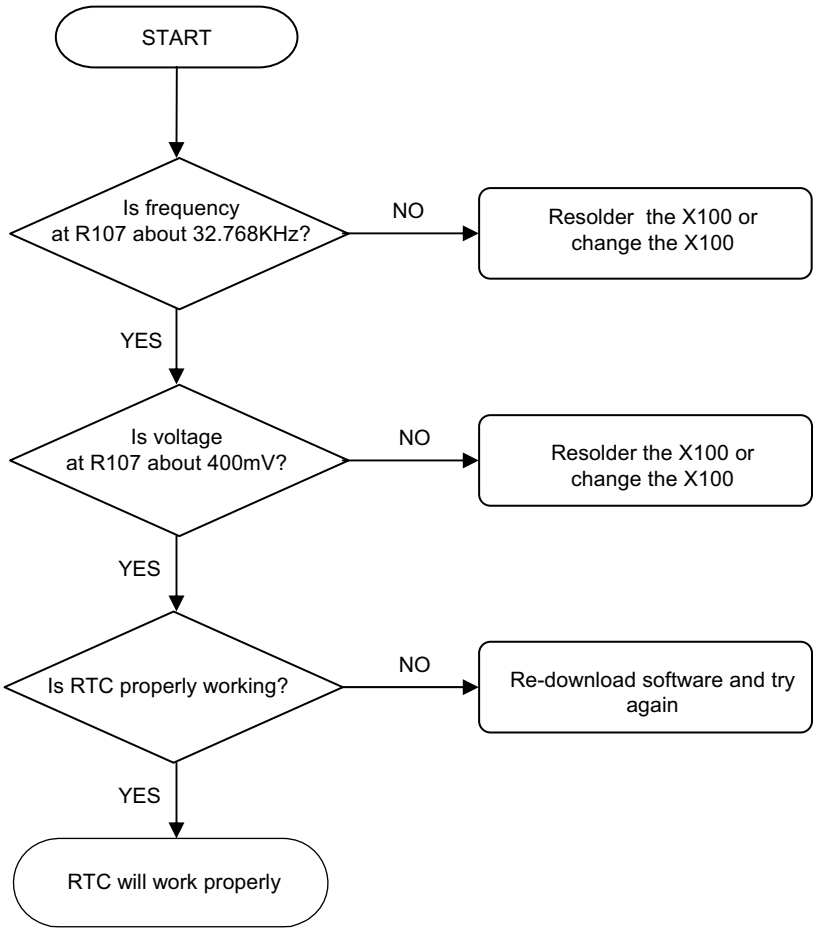


Figure 4.15

CIRCUIT



CHECKING FLOW



4.16 FM Radio

TEST POINT

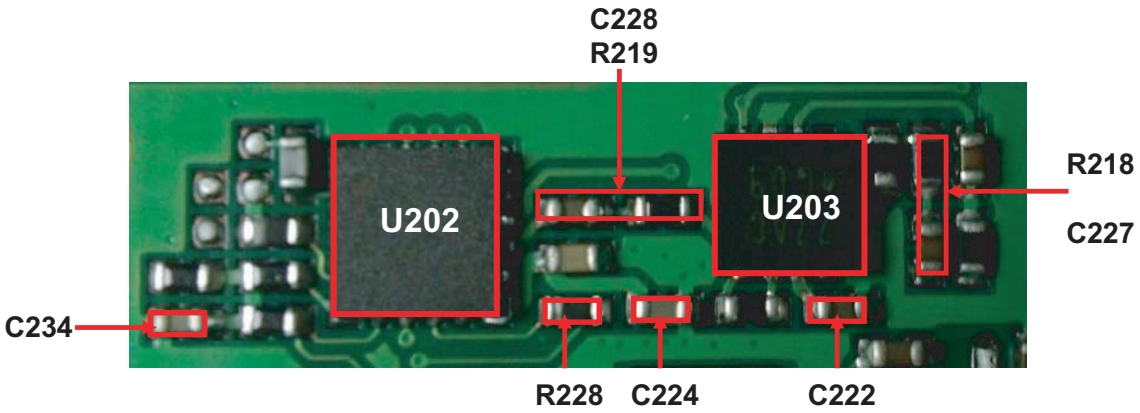
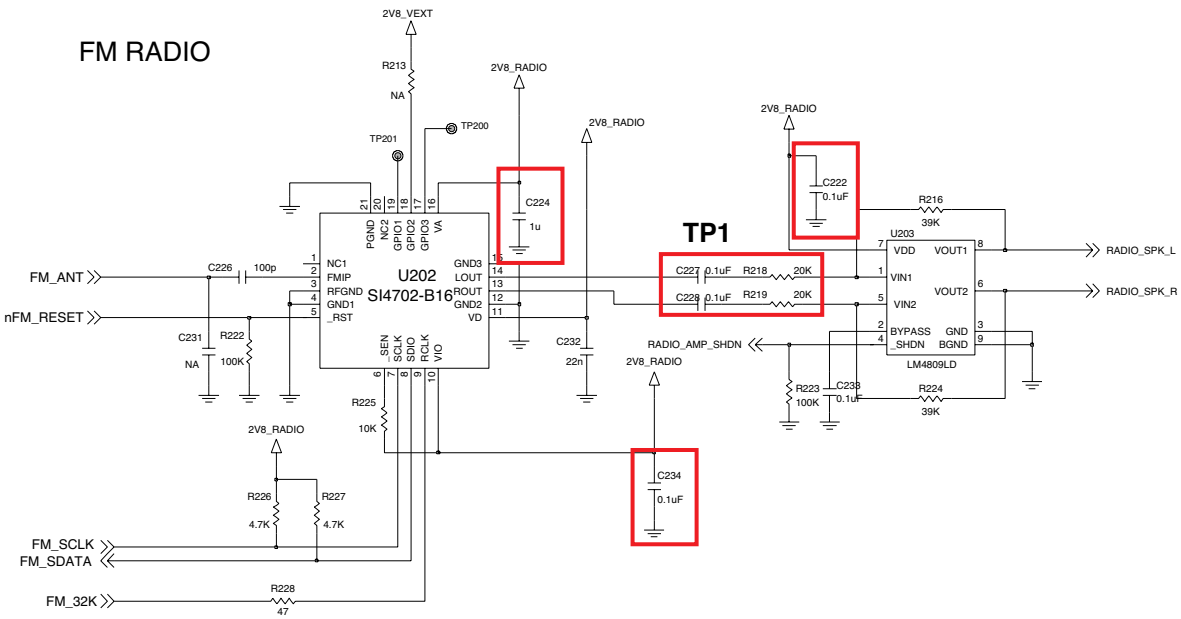
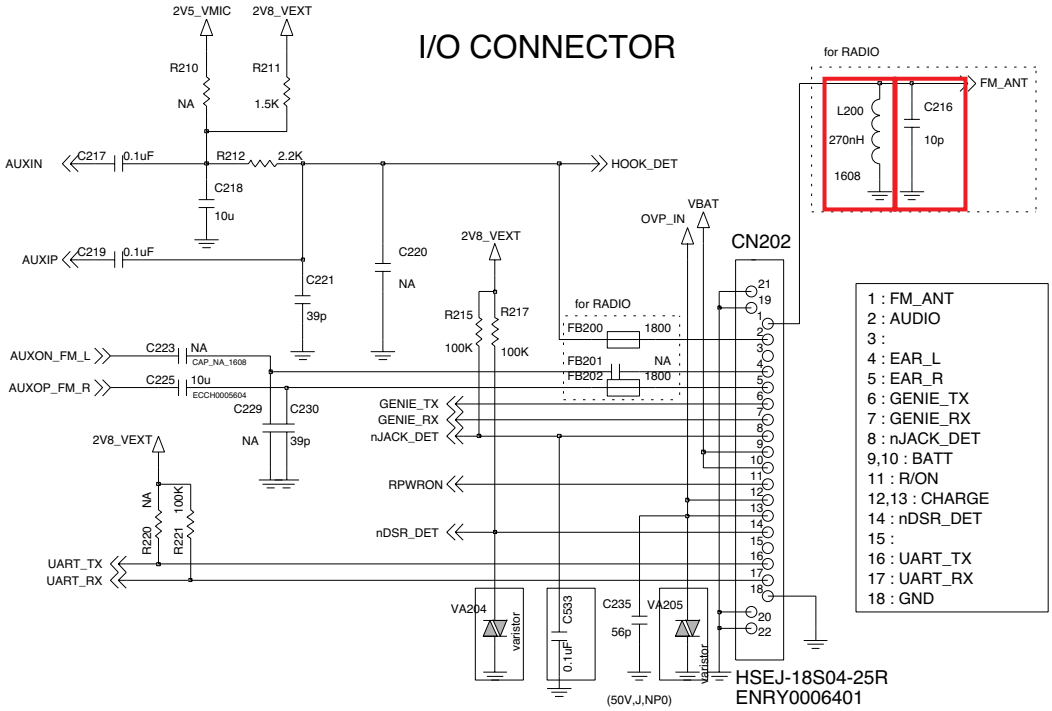


Figure 4.16

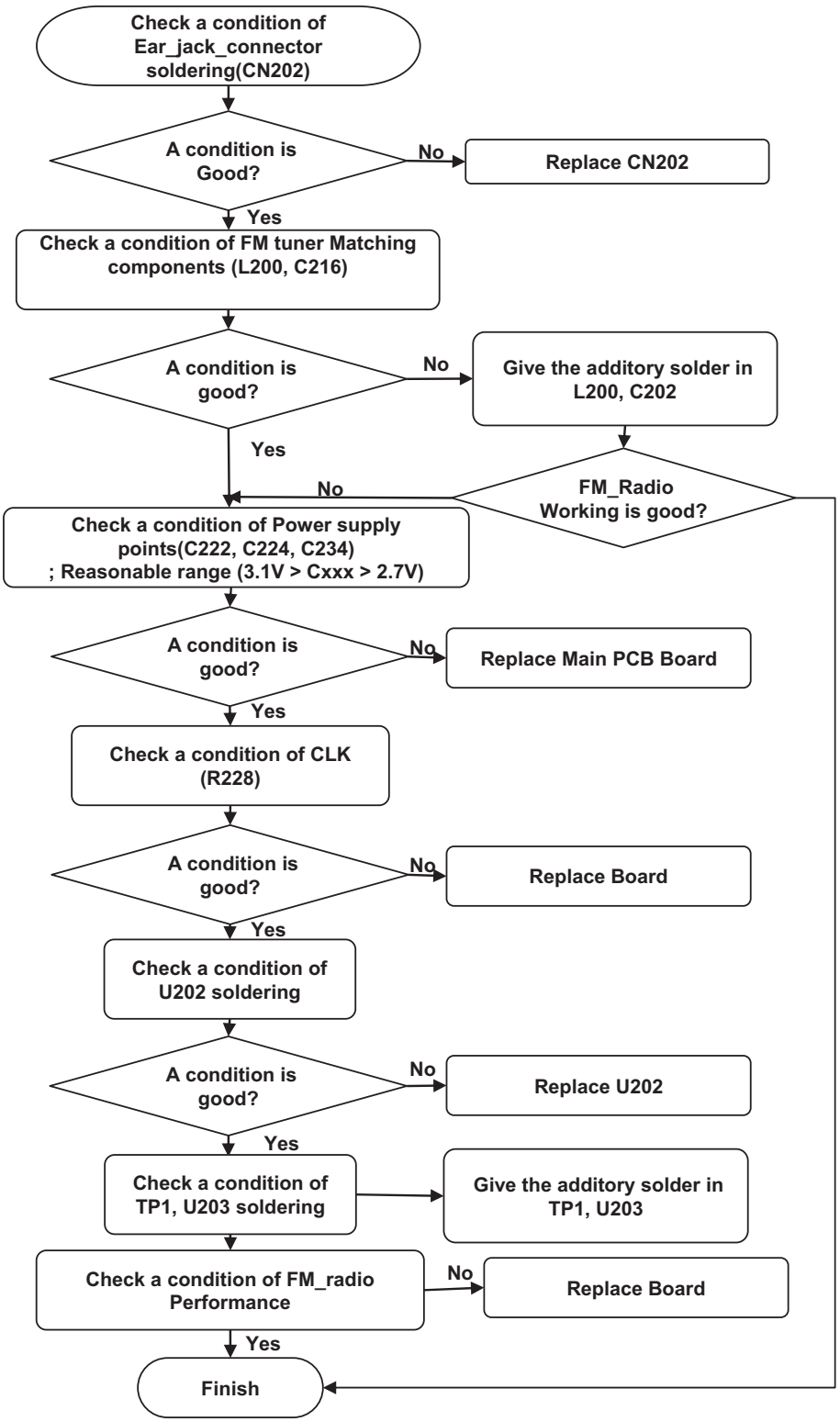
CIRCUIT



CIRCUIT



CHECKING FLOW



5. DOWNLOAD

5.1 Download

A. Download Setup

Figure 5.1 describes Download setup

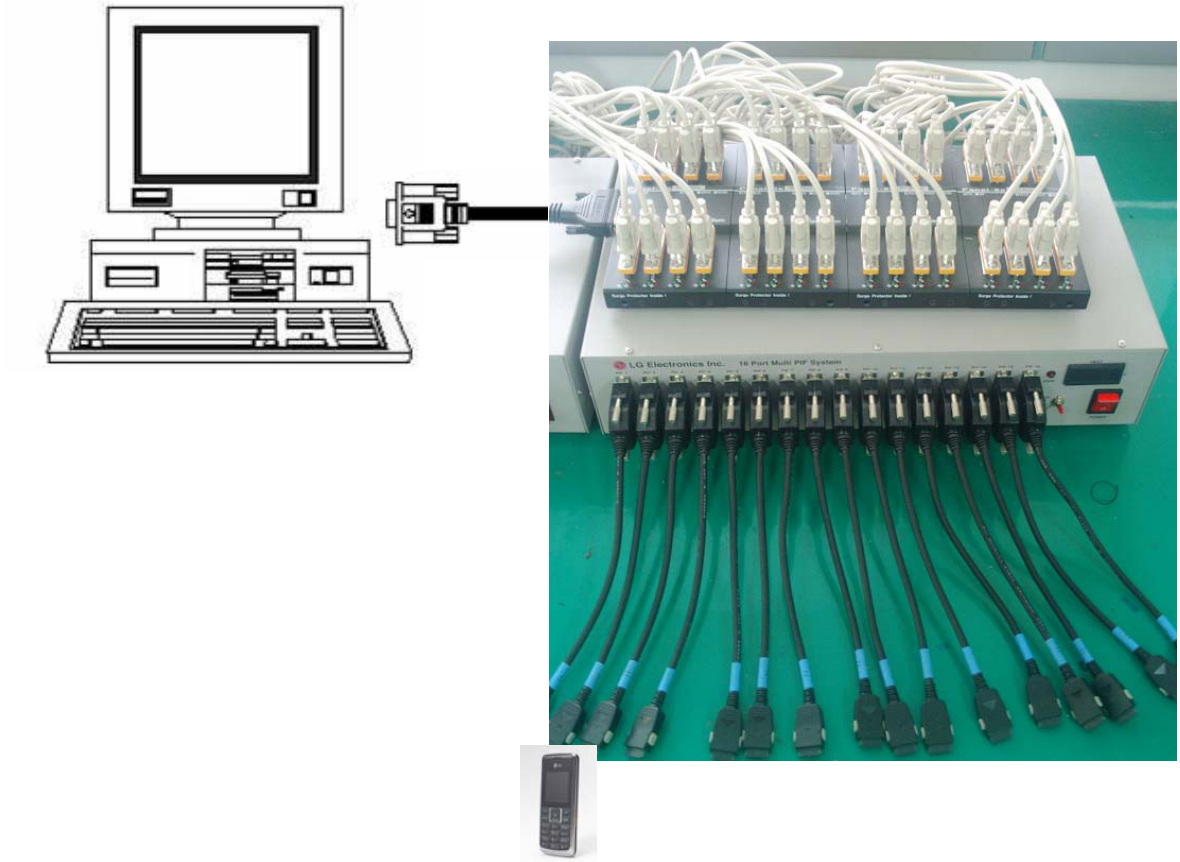
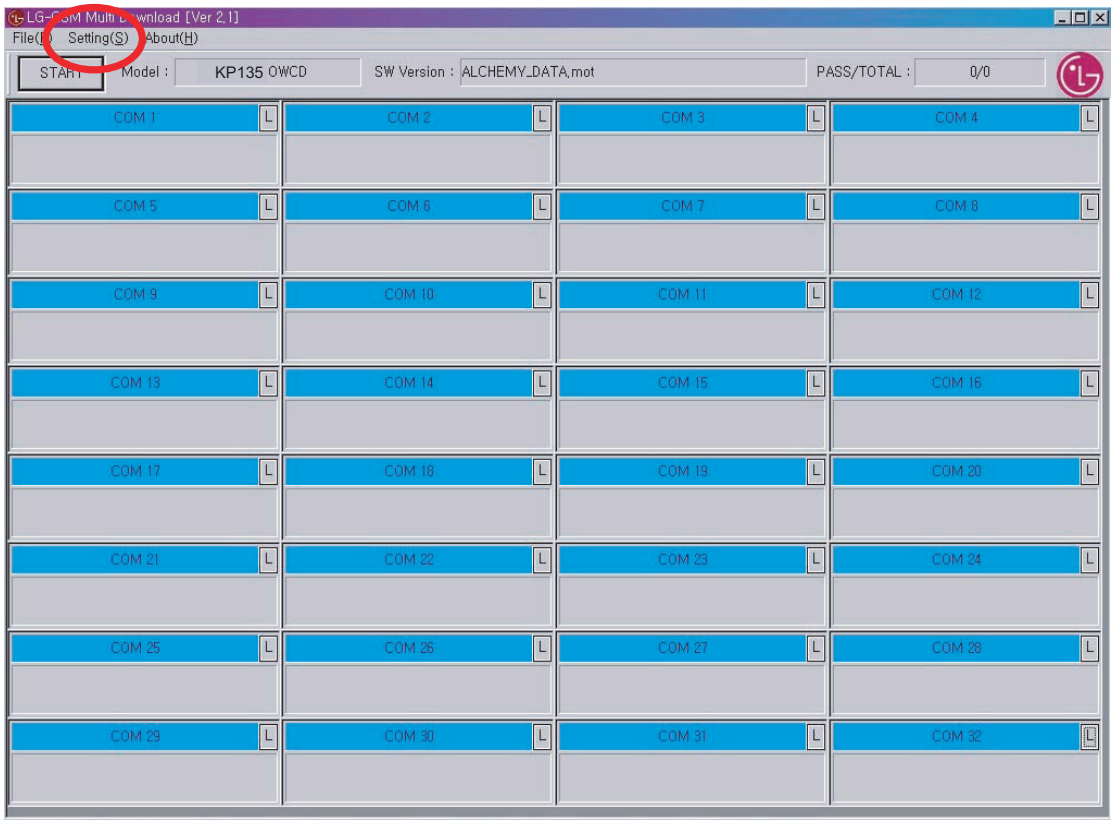


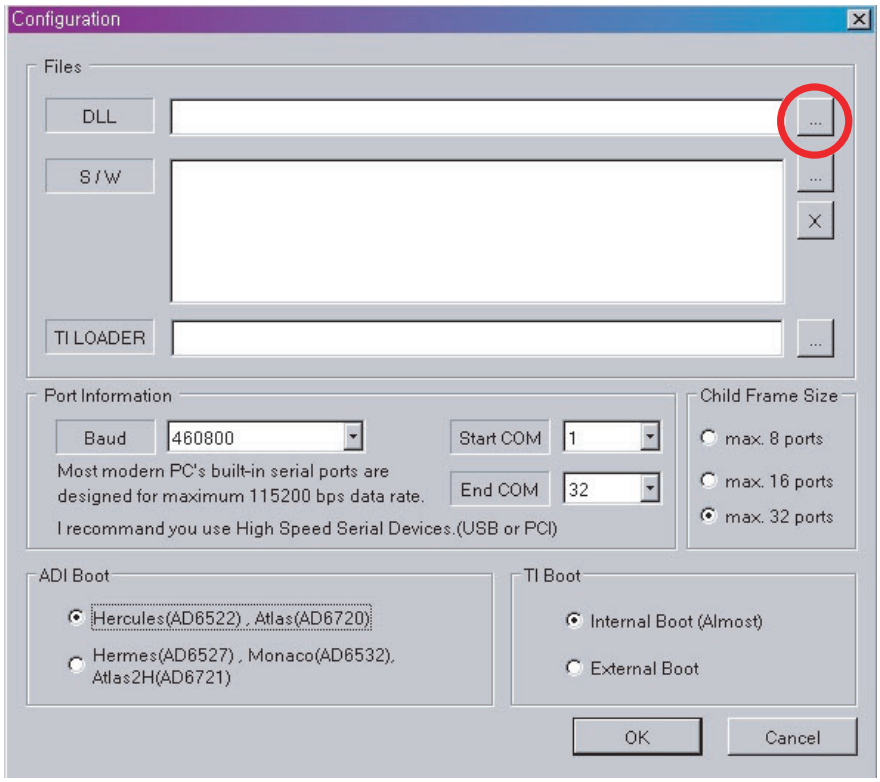
Figure 5.1 Download Setup

B. Multi Download Procedure

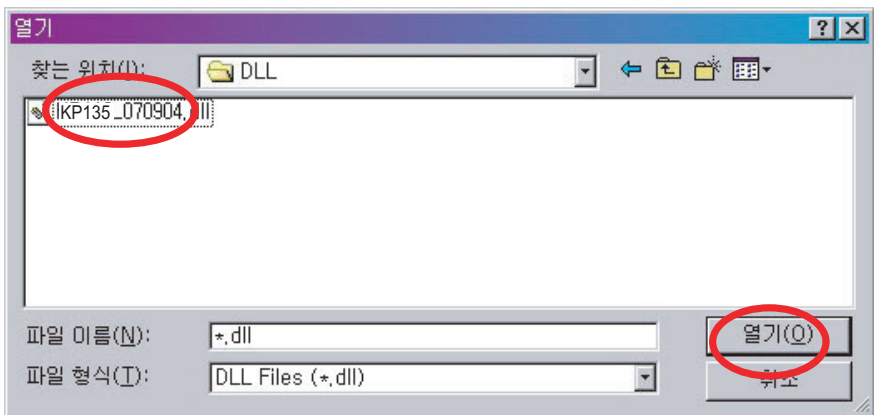
1. Run GSM Multi Download program and select Setting



2. Select Configuration from the menu and you may see this window

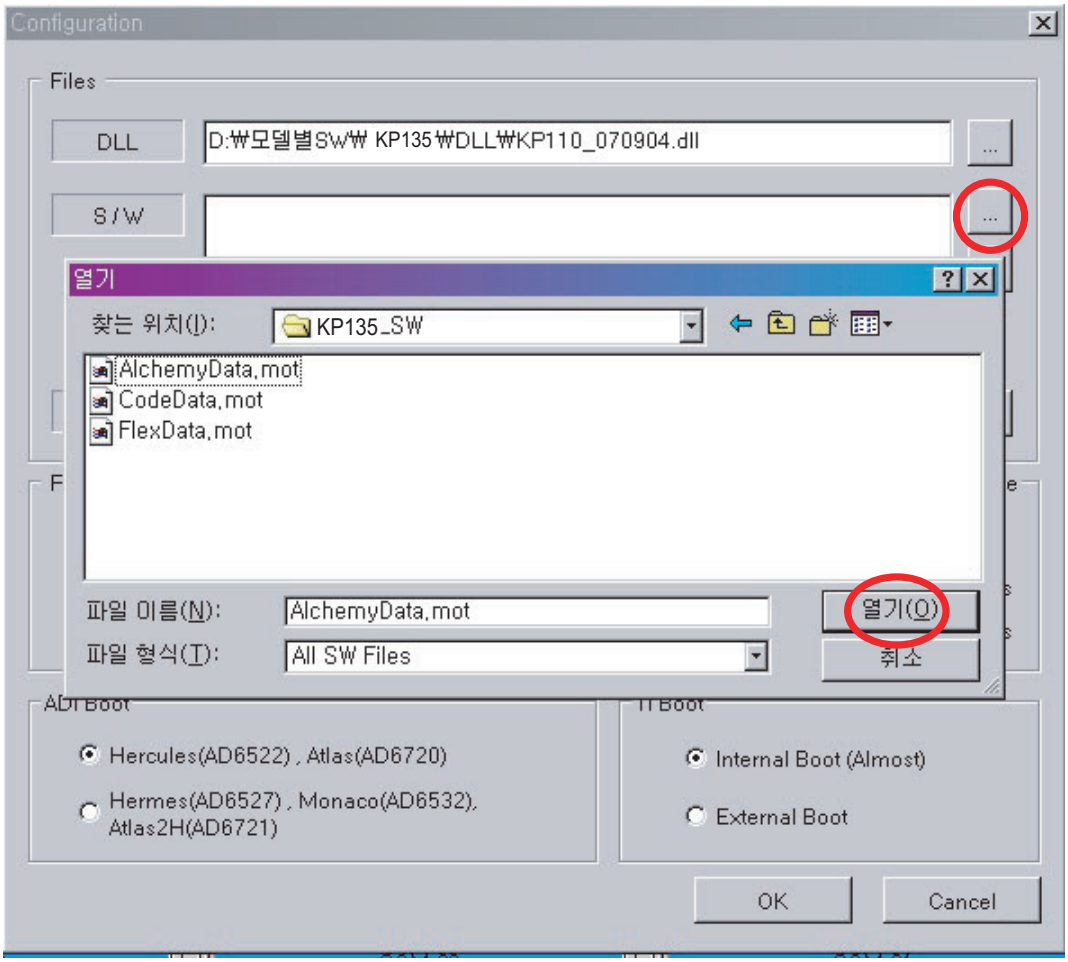


3. Press ... key to select DLL file and press Open

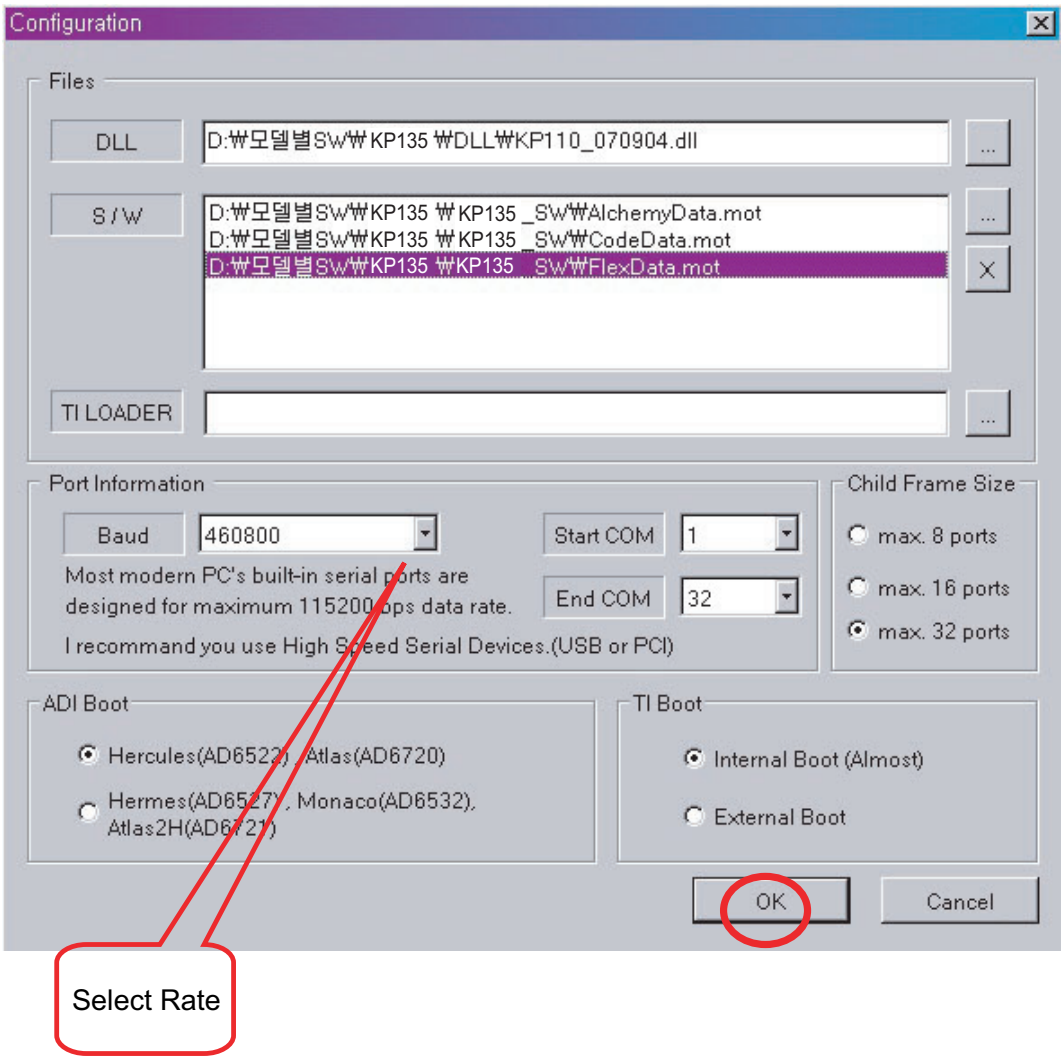


5. DOWNLOAD

4. Press [...] key to select the mot files
5. Select AlchemyData.mot and press open
6. Repeat step 4-5 to select CodeData.mot
7. Repeat step 4-5 to select FlexData.mot

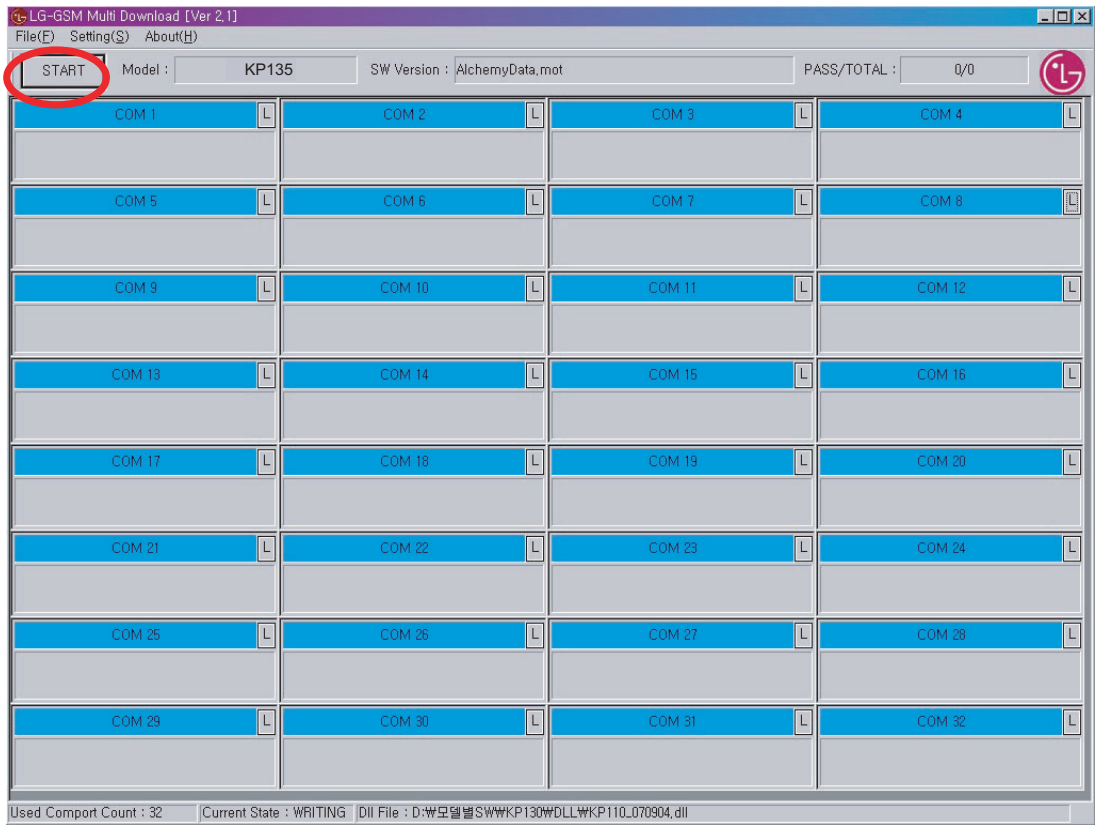


8. Check if the ADI option is set to Hermes
9. Press OK to end Configuration



5. DOWNLOAD

10. Press START to execute download
11. Once downloading is started, press STOP button to keep from re-downloading after downloading is completed.



6. BLOCK DIAGRAM

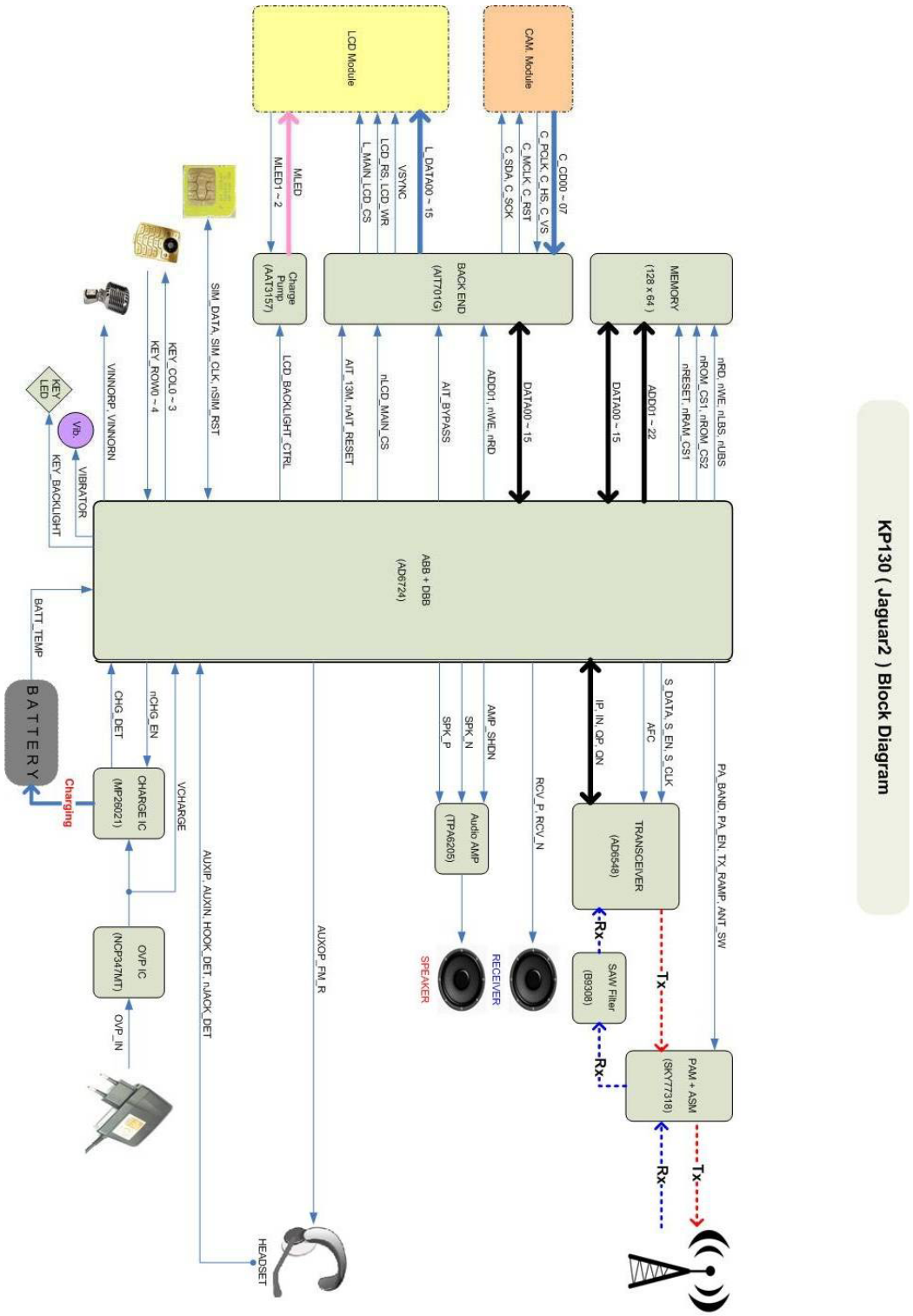
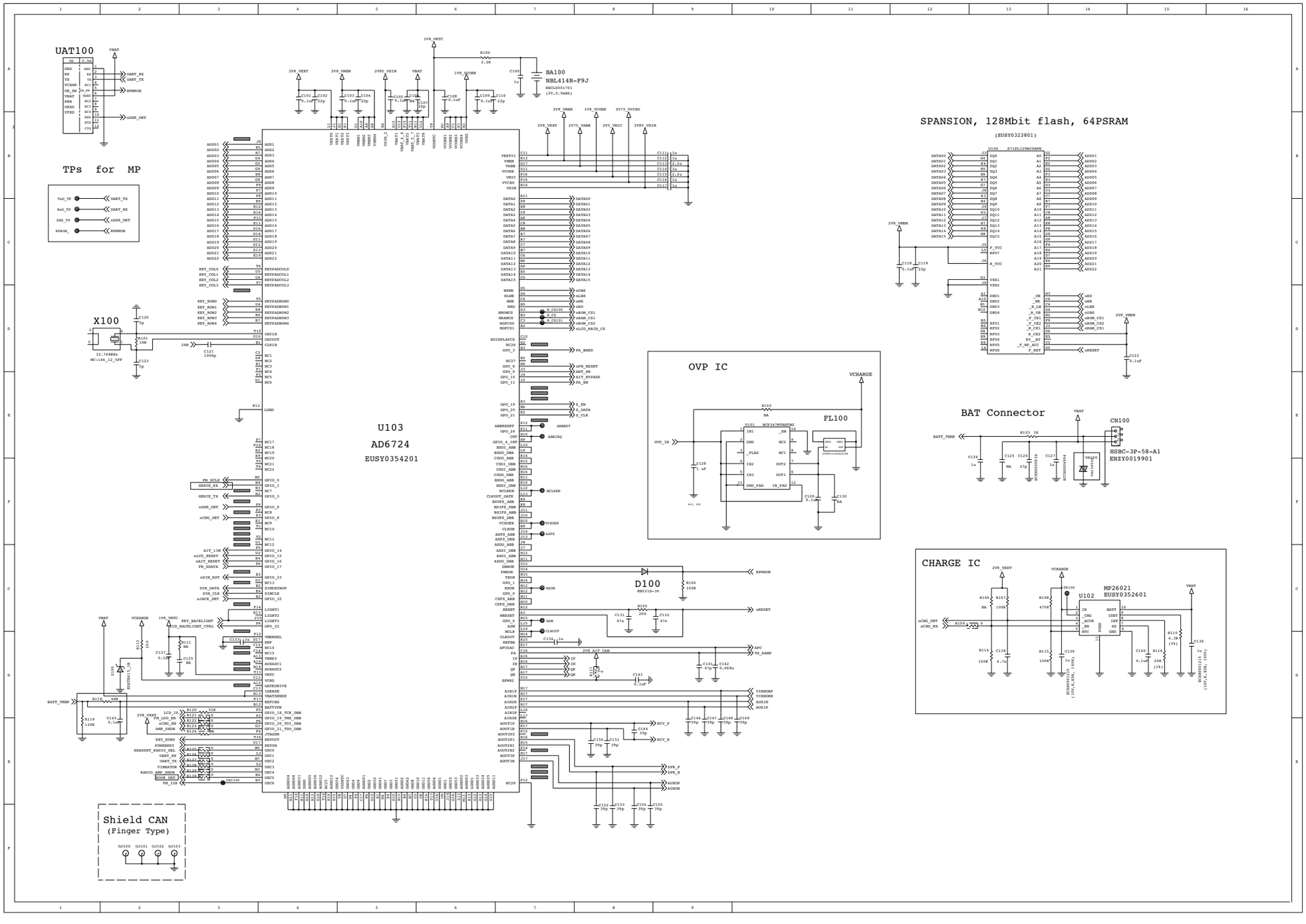
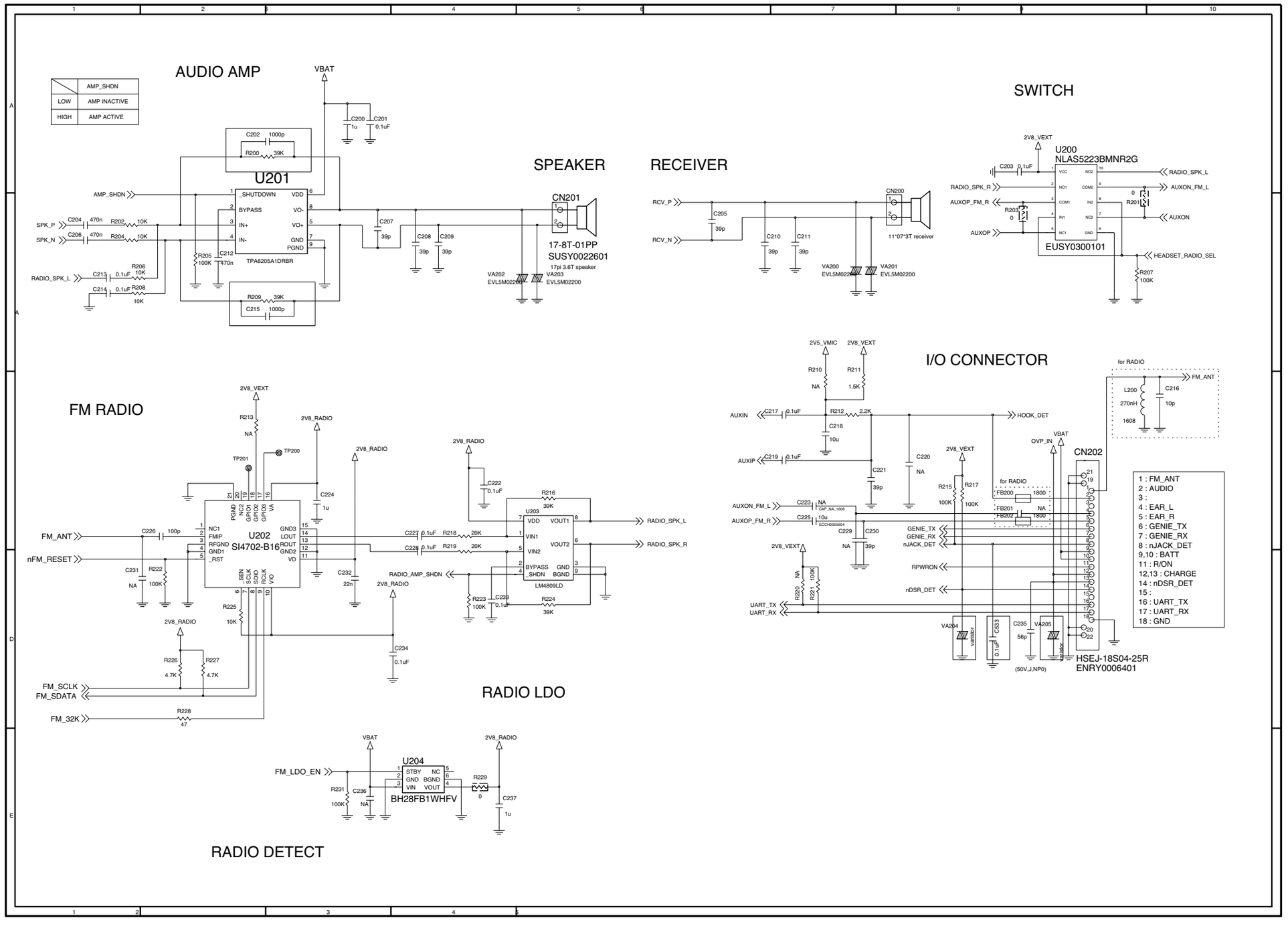


Figure 6.1 LG-KP235 Block Diagram

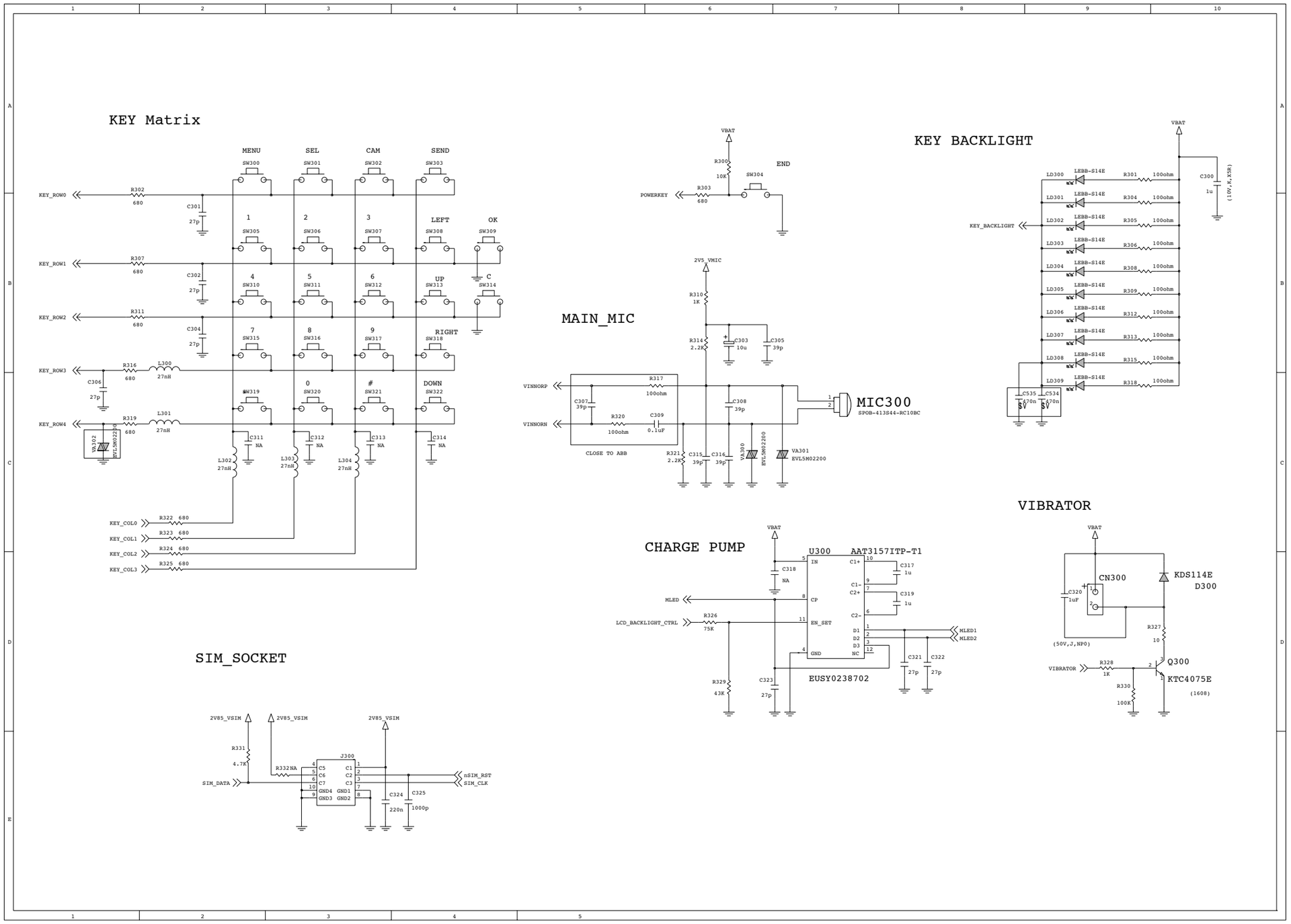
7. CIRCUIT DIAGRAM



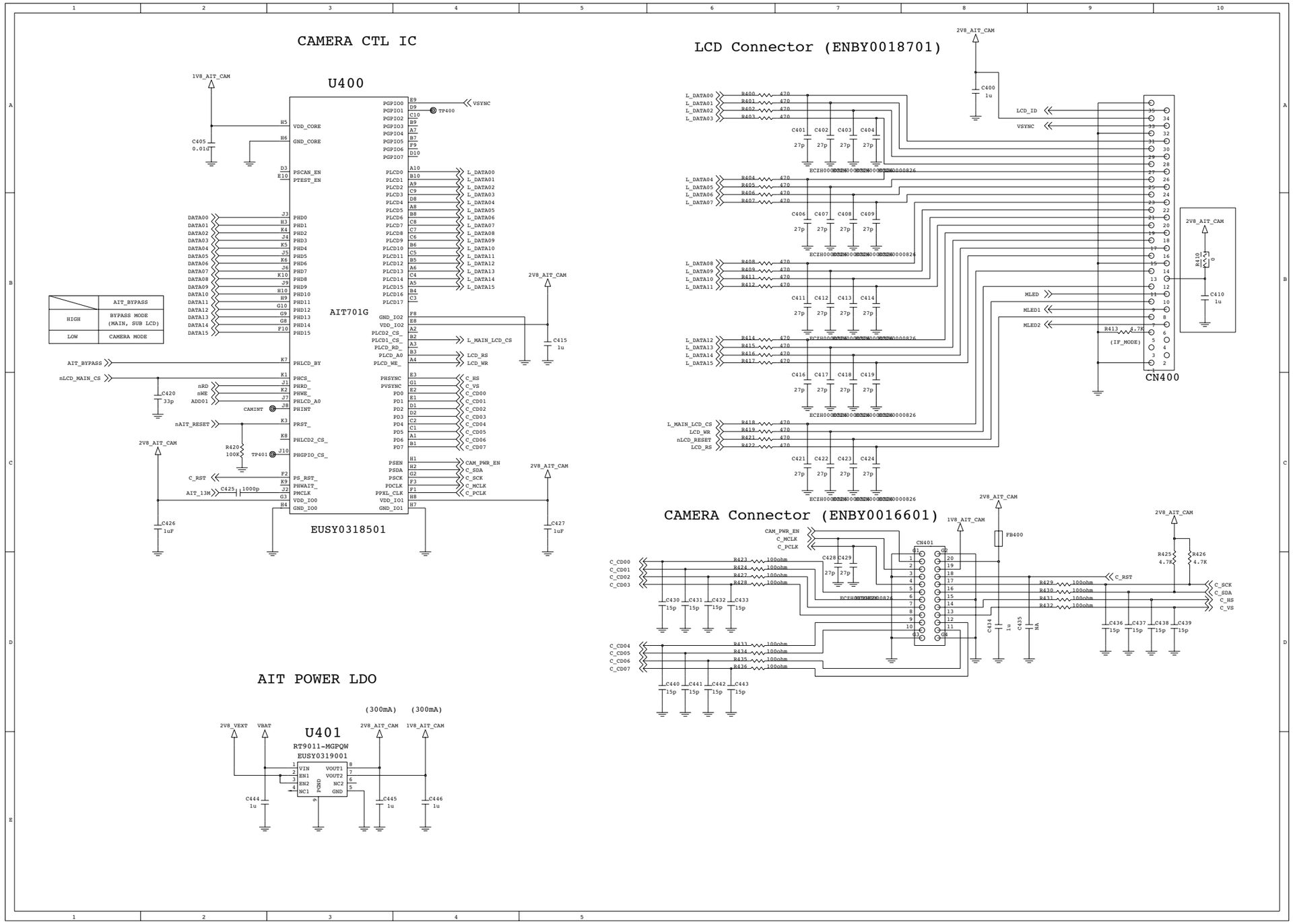
7. CIRCUIT DIAGRAM



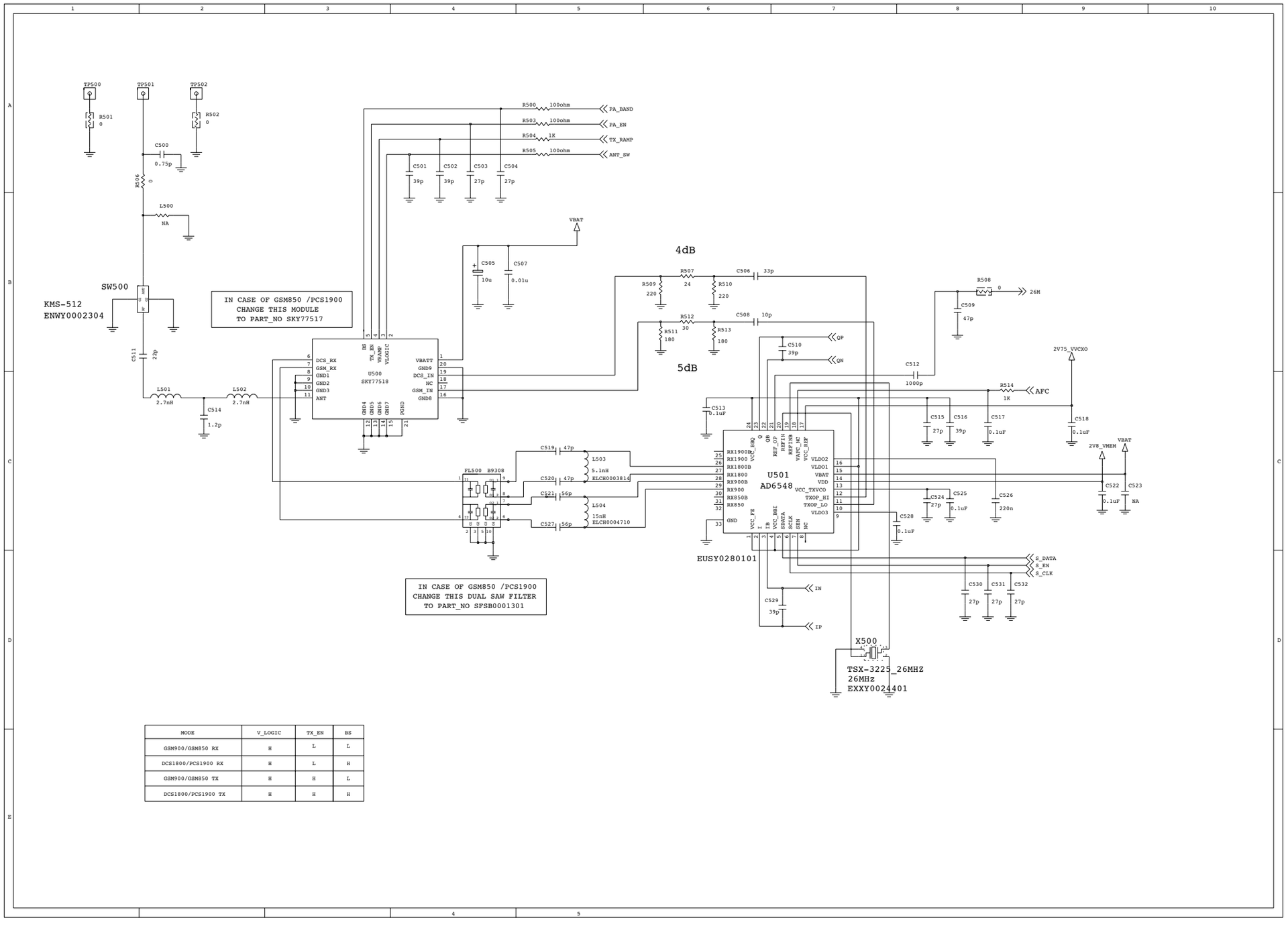
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



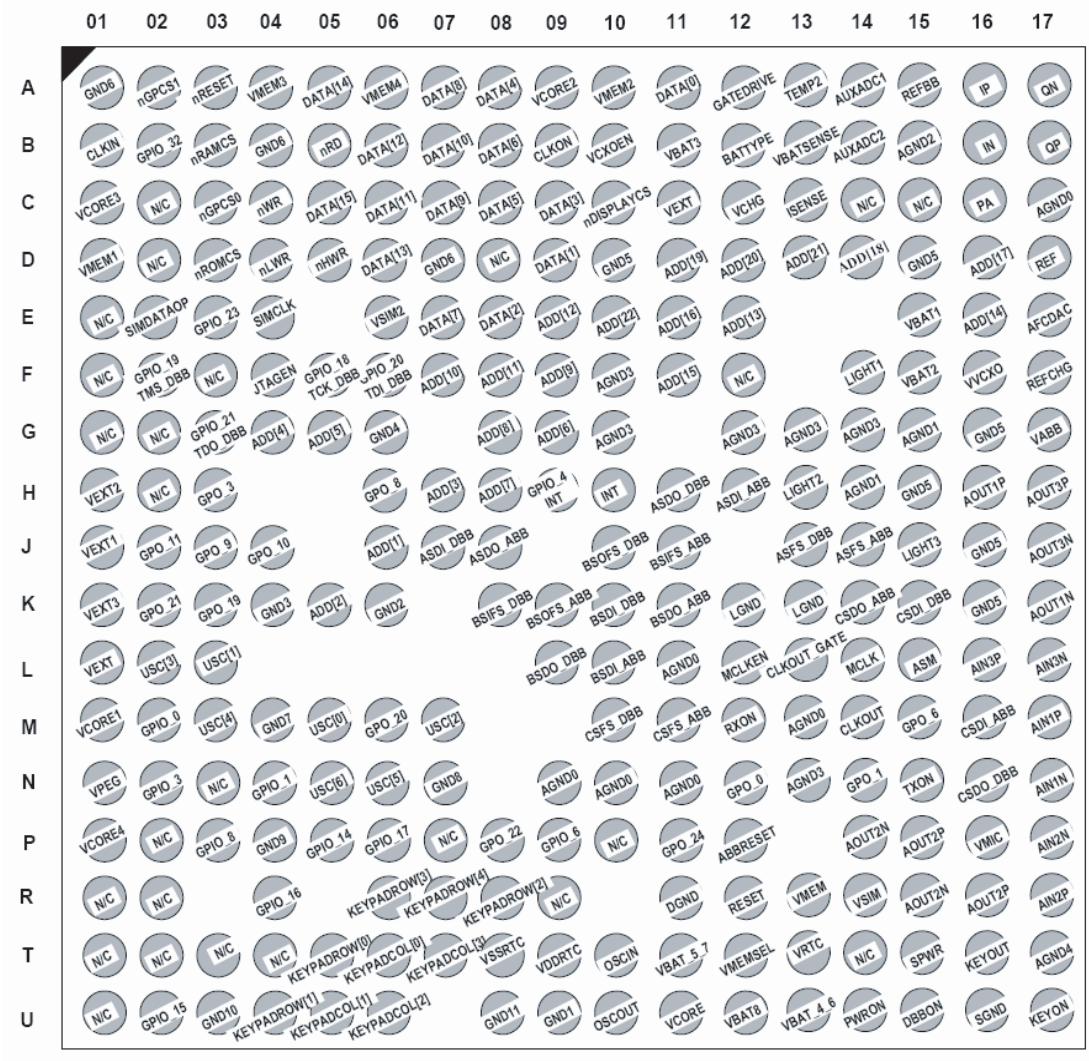
7. CIRCUIT DIAGRAM



MODE	V_LOGIC	TX_EN	BS
GSM900/GSM850 RX	H	L	L
DCS1800/PCS1900 RX	H	L	H
GSM900/GSM850 TX	H	H	L
DCS1800/PCS1900 TX	H	H	L

8. BGA IC Pin Check

AD6724

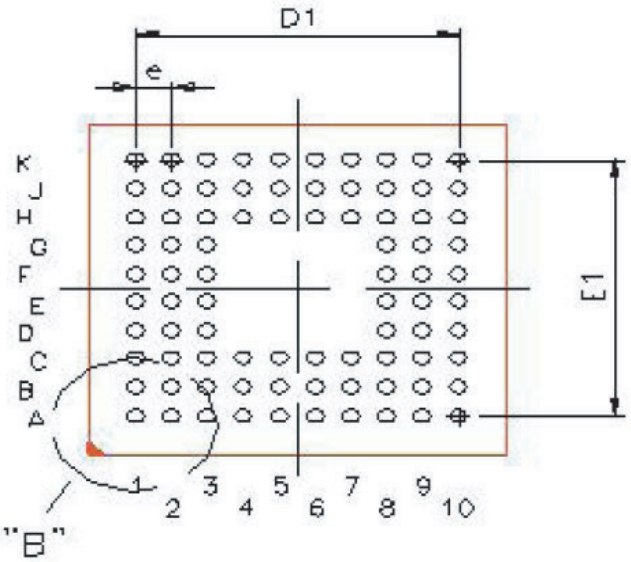


8. BGA IC Pin Check

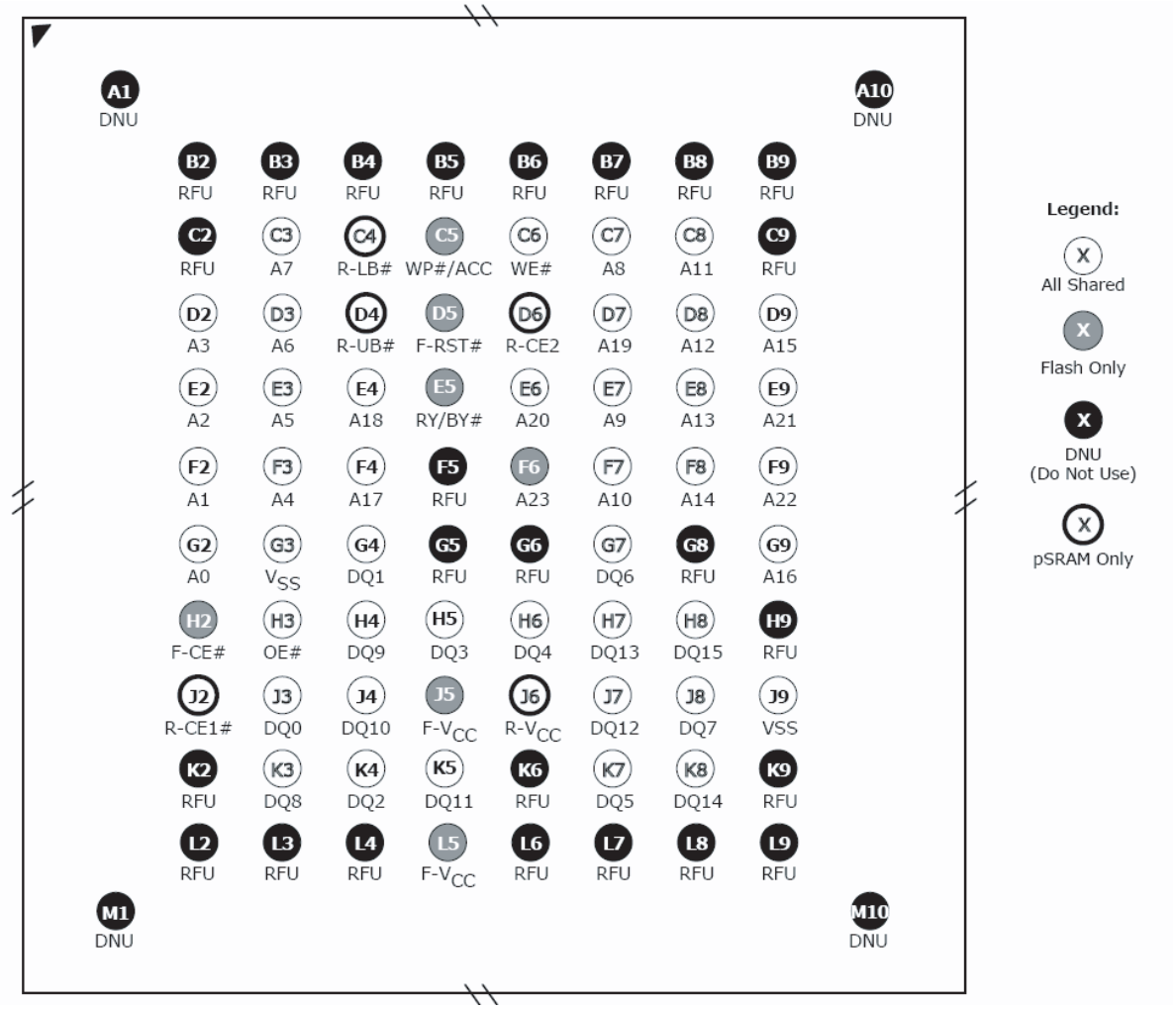
AIT701G

K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
PHCS_	PHWE_	PRST_	PHD2	PHD4	PHD6	PHLCD_BY	X	PHWAIT_	PHD8
J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
PHRD_	PMCLK	PHD0	PHD3	PHD5	PHD7	PHLCD_A0	PHINT	PHD9	PHGPIO_CS_
H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
PSEN	PSDA	PHD1	GND_IO0	VDD_CORE	GND_CORE	GND_IO1	VDD_IO1	PHD11	PHD10
G1	G2	G3					G8	G9	G10
PVSYNC	PSCK	VDD_IO0					PHD14	PHD13	PHD12
F1	F2	F3					F8	F9	F10
PPXL_CLK	PS_RST_	PDCLK					GND_IO2	X	PHD15
E1	E2	E3					E8	E9	E10
PD1	PD0	PHSYNC					VDD_IO2	PGPIO0	X
D1	D2	D3					D8	D9	D10
PD2	PD3	X					PLCD4	PGPIO1	X
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
PD5	PD4	X	PLCD14	PLCD11	PLCD9	PLCD8	PLCD7	PLCD3	PGPIO2
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
PD7	PLCD1_CS_	PLCD_A0	X	PLCD12	PLCD10	X	PLCD6	PGPIO3	PLCD1
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
PD6	X	PLCD_RD_	PLCD_WE_	PLCD15	PLCD13	X	PLCD5	PLCD2	PLCD0

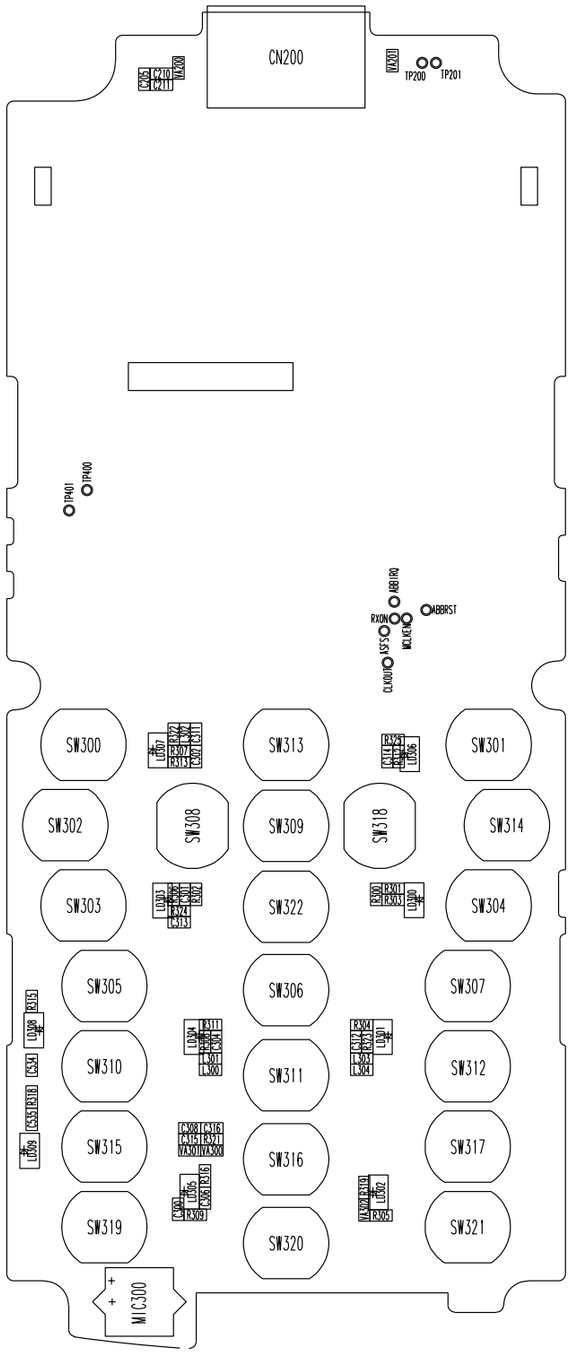
X Do Not Use



S71PL256N

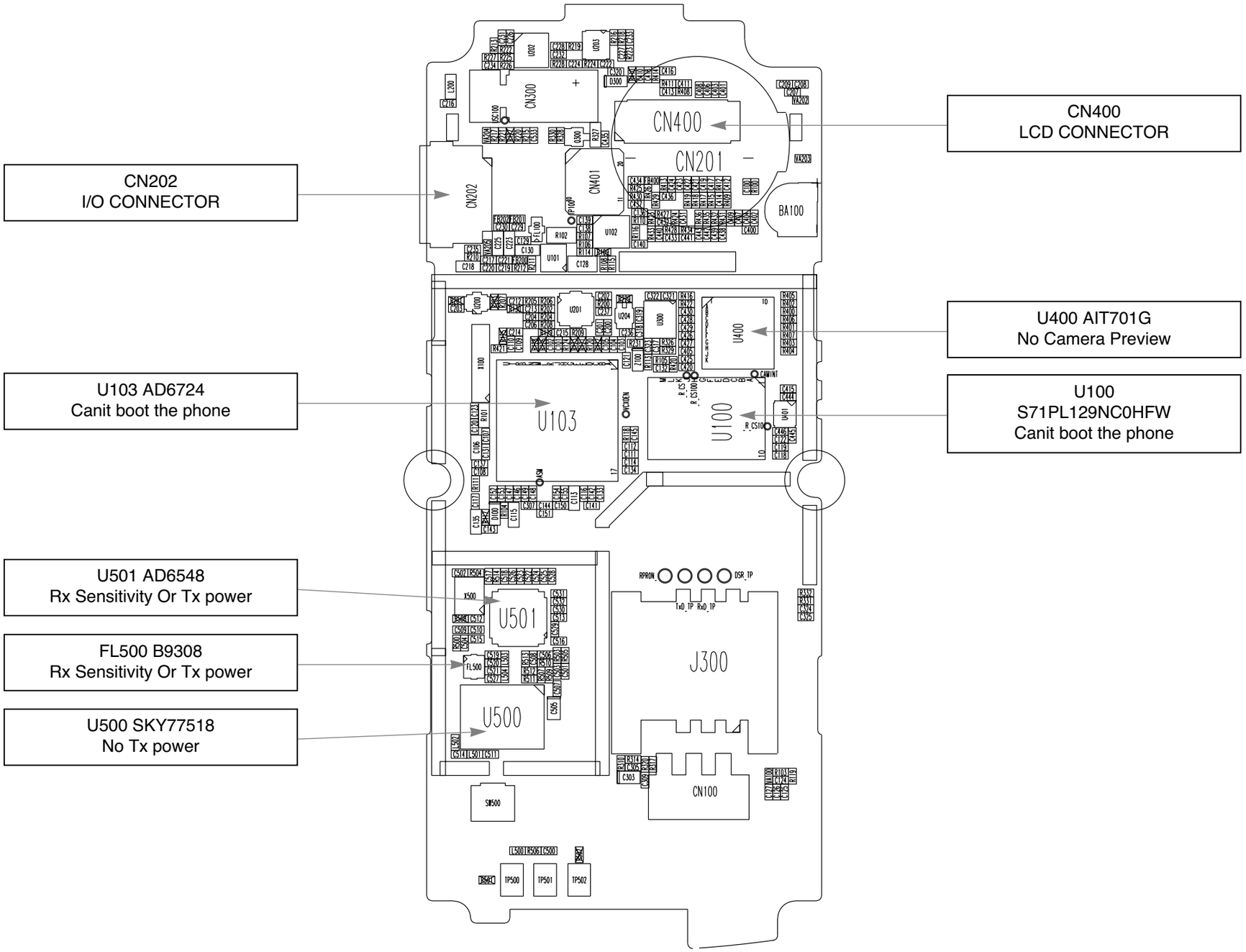


9. PCB LAYOUT



KP130-SPFY0164001-1.0 TOP

9. PCB LAYOUT



KP135-SPFY0164001-1.0 BTM

10. ENGINEERING MODE

A. About Engineering Mode

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

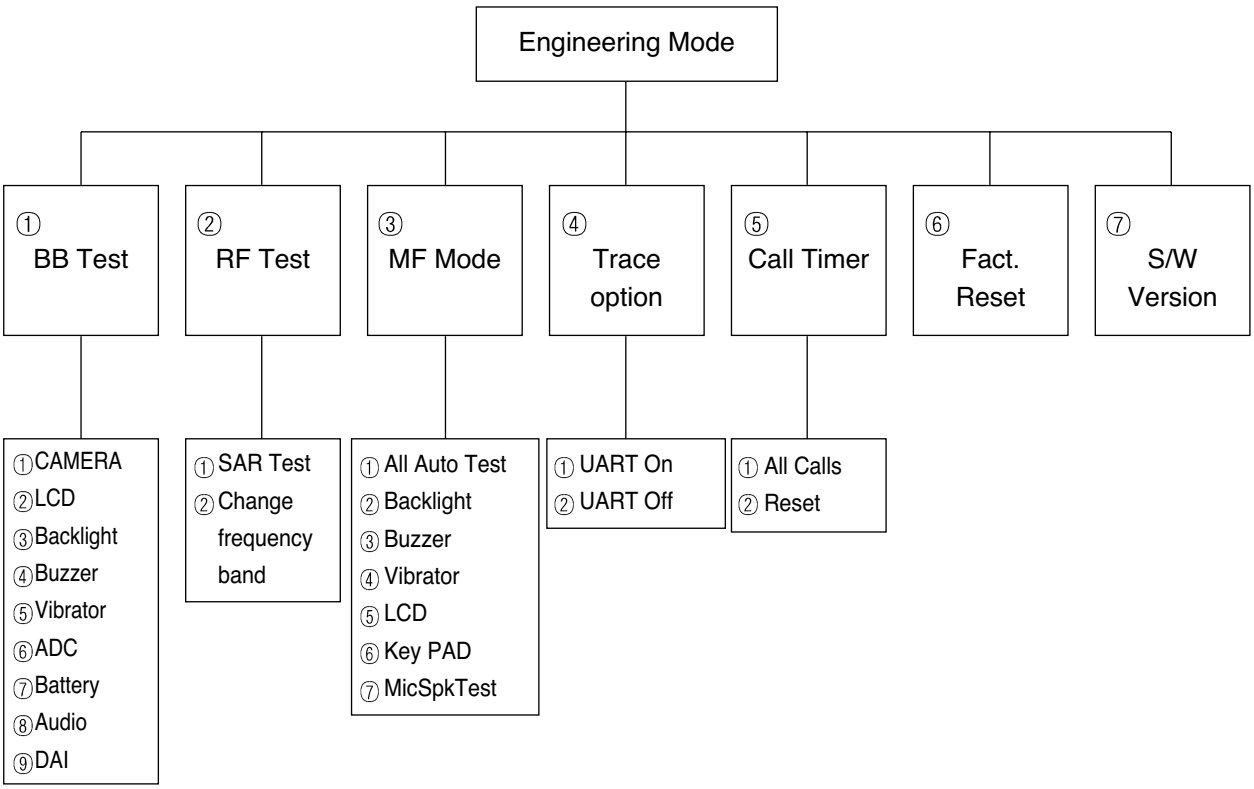
B. Access Codes

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

C. Key Operation

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

D. Engineering Mode Menu Tree



10.1 BB Test [MENU 1]

10.1.1 CAMERA

This menu is to test the Camera.
1) Main LCD preview : It shows the picture on Main LCD.

10.1.2 LCD

1) Brightness
2) Contrast
3) COLOR : WHITE, RED, GREEN, BLUE, BLACK

10.1.3 Backlight

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

10.1.4 Buzzer

This menu is to test the melody sound.
1) Melody on : Melody sound is played through the speaker.
2) Melody off : Melody sound is off.

10.1.5 Vibrator

This menu is to test the vibration mode.
1) Vibrator on : Vibration mode is on.
2) Vibrator off : Vibration mode is off.

10.1.6 ADC (Analog to Digital Converter)

This displays the value of each ADC.
1) MVBAT ADC : Main Voltage Battery ADC
2) AUX ADC : Auxiliary ADC
3) TEMPER ADC : Temperature ADC

10.1.7 BATTERY

1) Bat Cal : This displays the value of Battery Calibration. The following menus are displayed in order : BAT_LEV_3V, BAT_LEV_2_LIMIT, BAT_LEV_1_LIMIT, , BAT_IDLE_LI MIT & BAT_INCALL_LIMIT, SHUT_DOWN_VOLTAGE, BAT_RECHARGE_LMT
2) TEMP Cal : This displays the value of Temperature Calibration. The following menus are displayed in order : TEMP_LOW_LIMIT , TEMP_LOW_RECHARGE_LMT, TEMP_HIGH_RECHARGE_LMT, TEMP_HIGH_LIMIT

10.1.8 Audio

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

10.1.8 DAI (Digital Audio Interface)

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

10.2 RF Test [MENU 2]

10.2.1 SAR test

This menu is to test the Specific Absorption Rate.
1) SAR test on : Phone continuously process TX only. Call-setup equipment is not required.
2) SAR test off : TX process off

10.2.2 Change frequency band

This menu is to test the Specific frequency band.
1) GSM only
2) DCS only
3) PCS only
4) 850 only
5) Default

10.3 MF mode [MENU 3]

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

10.3.1 All auto test

LCD, Backlight, Vibrator, Buzzer, Key Pad, Mic & Speaker, Camera preview

10.3.2 Backlight

LCD Backlight is on for about 1.5 seconds at the same time, then off.

10.3.3 Buzzer

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

10.3.4 Vibrator

Vibrator is on for about 1.5 seconds.

10.3.5 LCD

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

10.3.6 Key pad

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

10.3.7 MicSpk Test

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

10.4 Trace option [MENU 4]

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

10.5 Call timer [MENU 5]

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.
1) All calls : This displays total conversation time. User cannot reset this value.
2) Reset settings : This resets total conversation time to this, [00:00:00].

10.6 Fact. Reset [MENU 6]

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

Attention

① Fact. Reset (i.e.Factory Reset) should be only used during the Manufacturing process.
② Servicemen should NOT progress this menu, otherwise some of valuable data such as Setting value, RF Calibration data, etc. cannot be restored again.

10.7 S/W version [MENU7]

This displays software version stored in the phone.

11. STAND ALONE TEST

11.1 Introduction

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

A. Tx Test

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

B. Rx Test

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

11.2 Setting Method

A. COM port

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

B. Tx

1. Selecting Channel
- Select one of GSM or DCS/DCS Band and input appropriate channel.
2. Selecting APC
a. Select either Power level or Scaling Factor.
b. Power level
- Input appropriate value GSM (between 5~19) or DCS/DCS (between 0~15)
c. Scaling Factor
- A ‘Ramp Factor’ appears on the screen.
- You may adjust the shape of the Ramp or directly input the values.

C. Rx

1. Selecting Channel
- Select one of GSM or DCS/DCS Band and input appropriate channel.
2. Gain Control Index (0~ 26) and RSSI level
- See if the value of RSSI is close to -16dBm when setting the value between 0 ~ 26 in Gain Control Index.
- Normal phone should indicate the value of RSSI close to -16dBm.

11.3 Means of Test

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

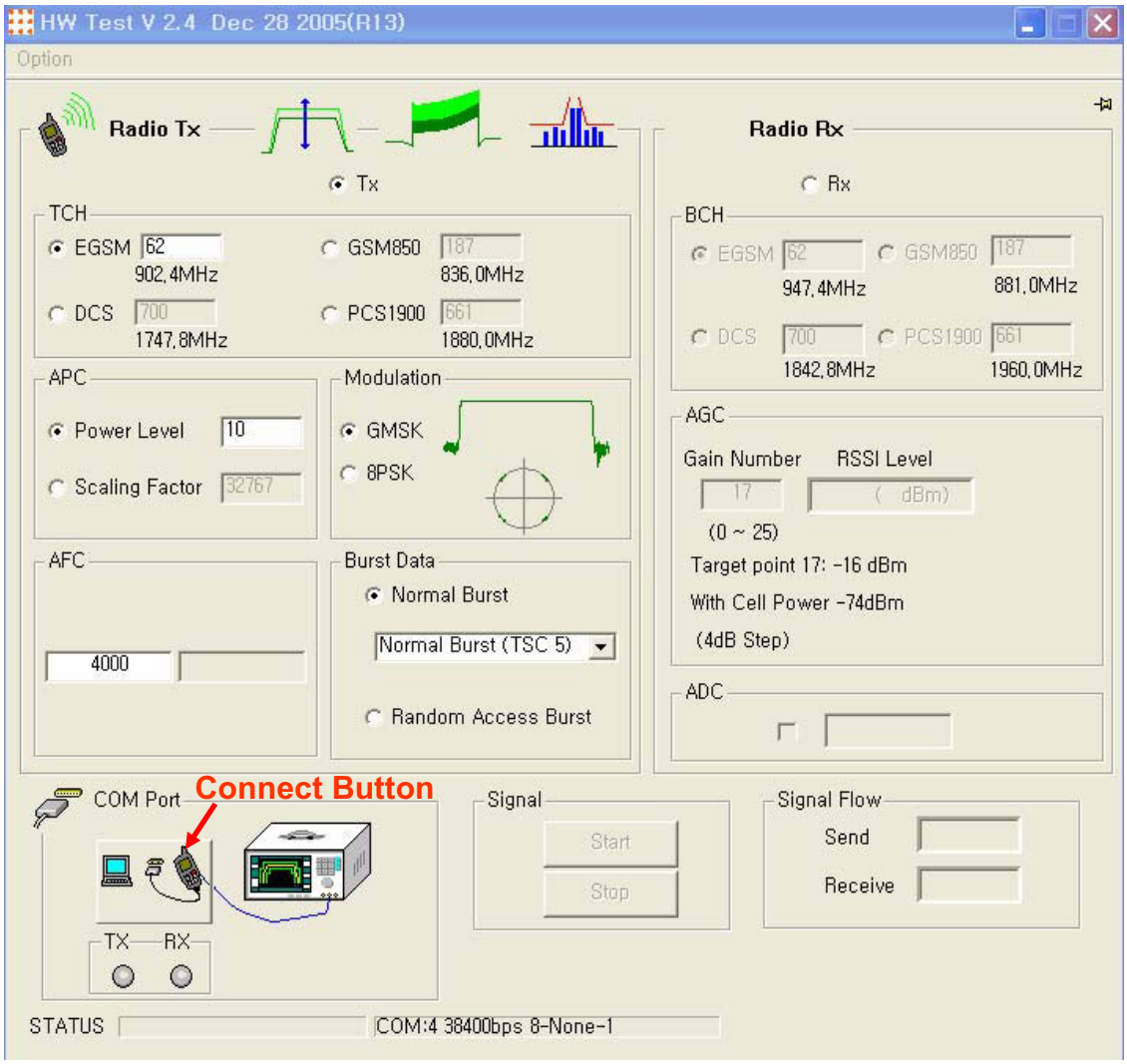


Figure 10.3.1 HW test program

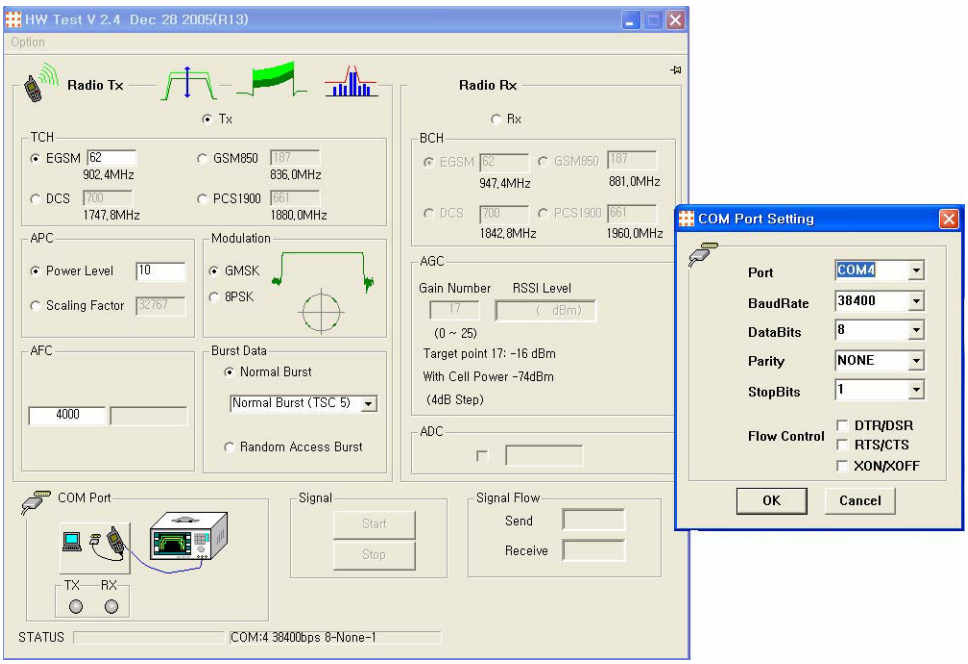


Figure 10.3.2 HW test setting

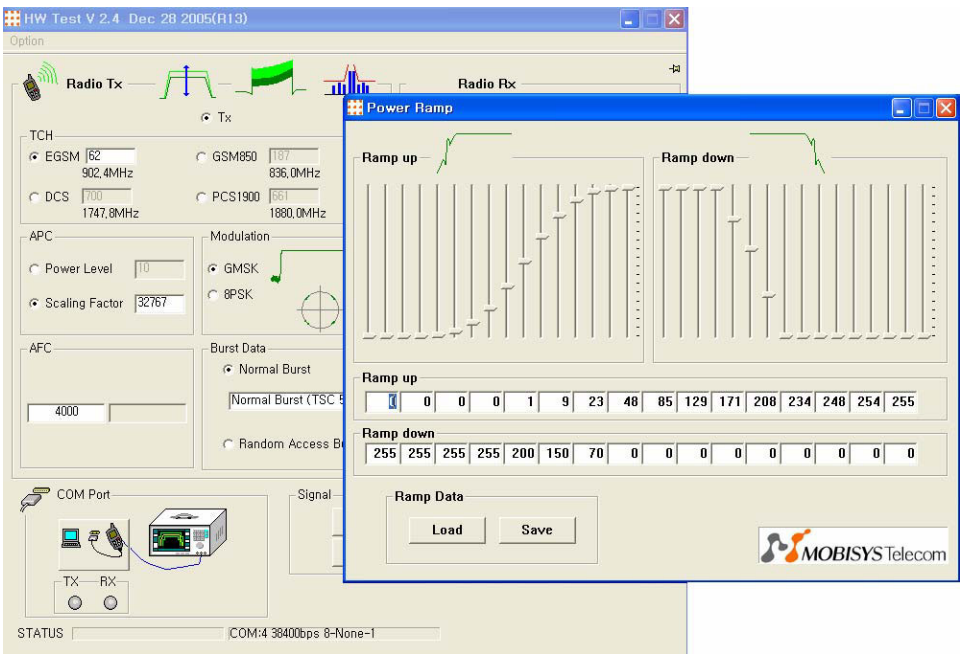


Figure 10.3.3 Ramping profile

12. AUTO CALIBRATION

12.1 Overview

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

12.2 Equipment List

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

Table 11.2.1 Calibration Equipment List.

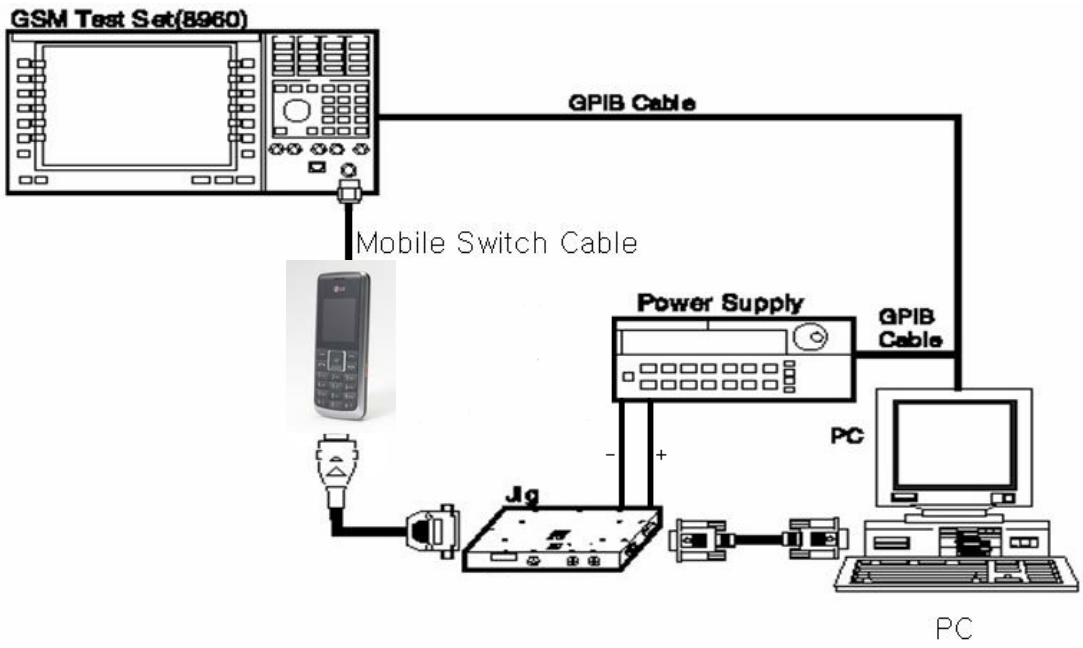


Figure 11.2.1 Equipment Setup

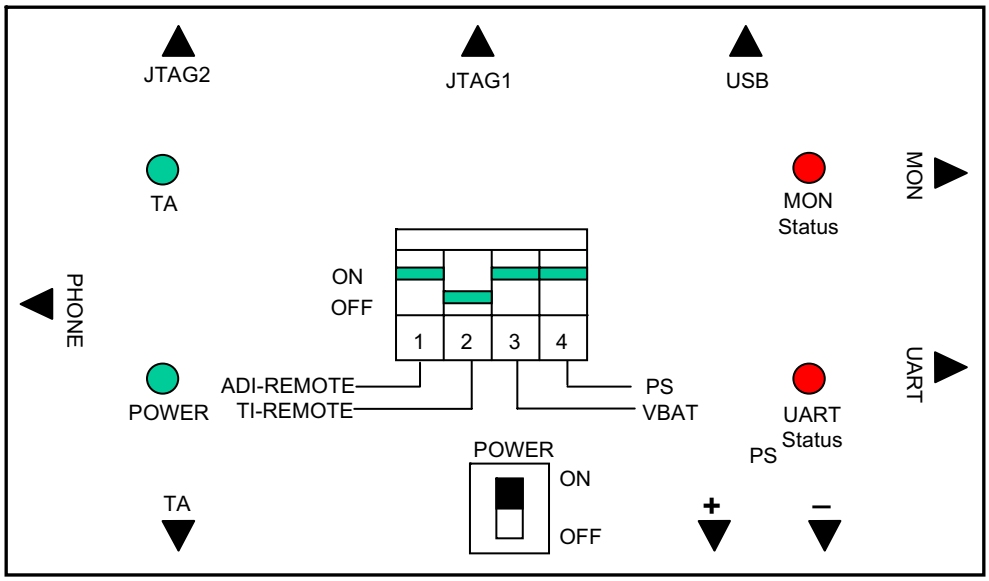


Figure 11.2.2 The top view of Test JIG

12.3 Test Jig Operation

Power Source	Description
Power Supply	Usually 4.0V

Table 12-2 Jig Power

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

Table 12-3 Jig DIP Switch

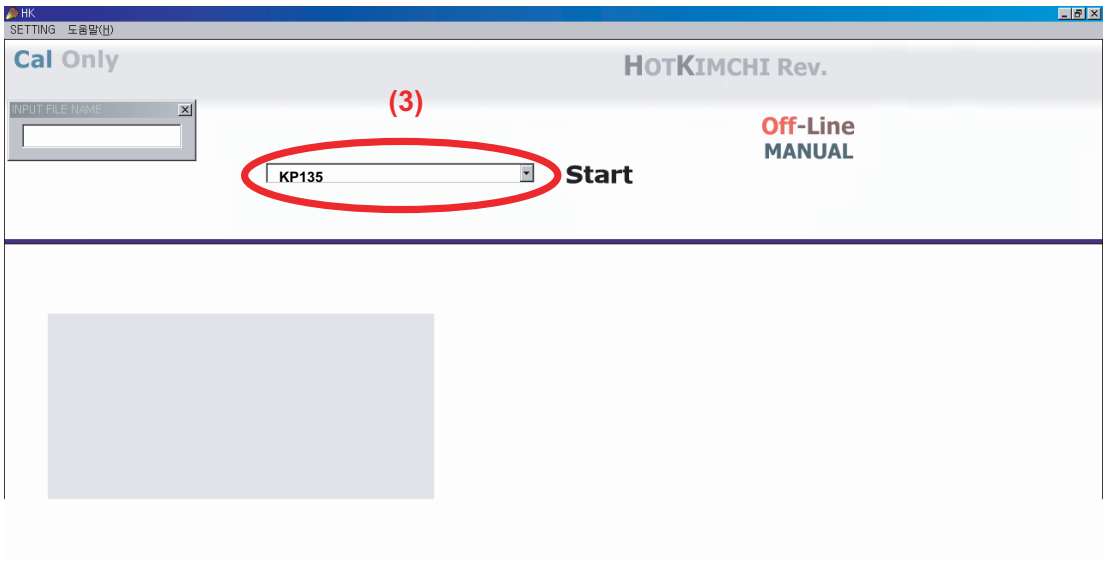
LED Number	Name	Description
LED 1	Power	Power is provided for Test Jig
LED 2	TA	Indicate charging state of the phone battery
LED 3	UART	Indicate data transfer state through the UART port
LED 4	MON	Indicate data transfer state through the MON port

Table 12-4 LED Description

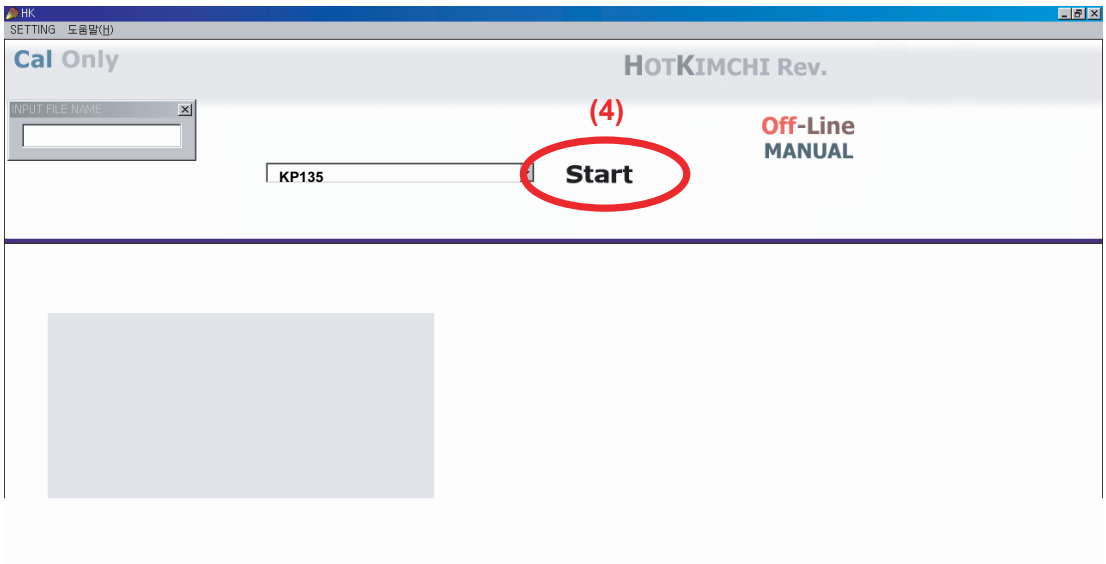
1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Set the Power Supply 4.0V
3. Set the 3rd, 4th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1st ON state

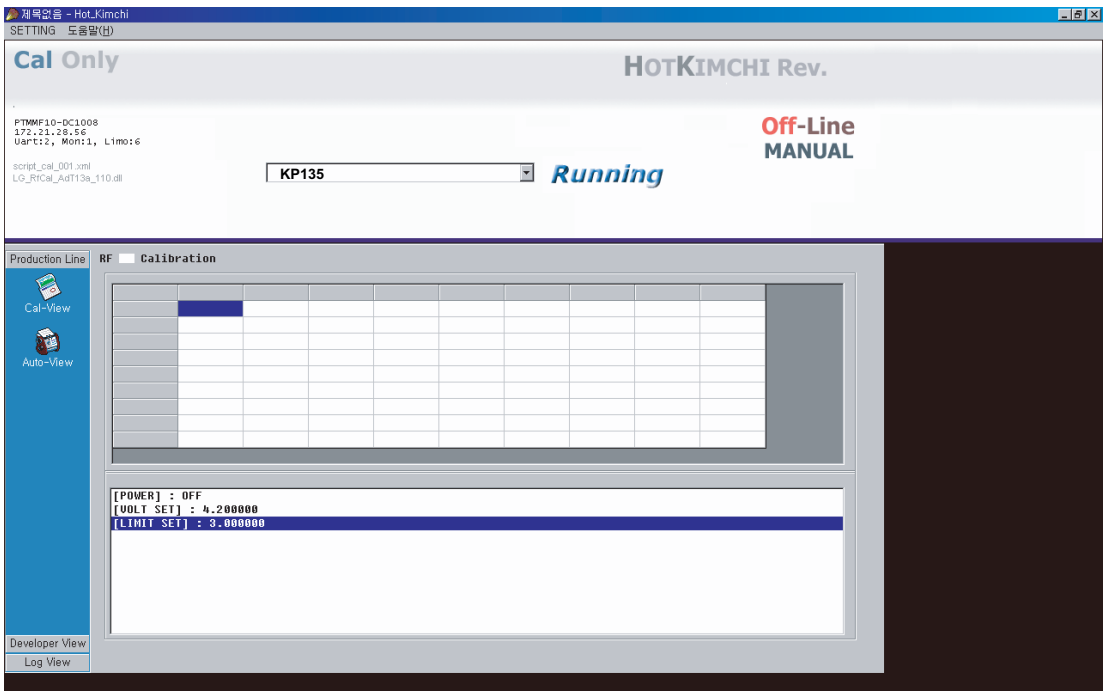
12.4 Procedure

1. Connect as Fig 12.2.2 (RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general.)
2. Run Hot_Kimchi.exe to start calibration.
3. From the Calibration menu, Select KP135!



4. Press Calibration START





12.5 AGC

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

12.6 APC

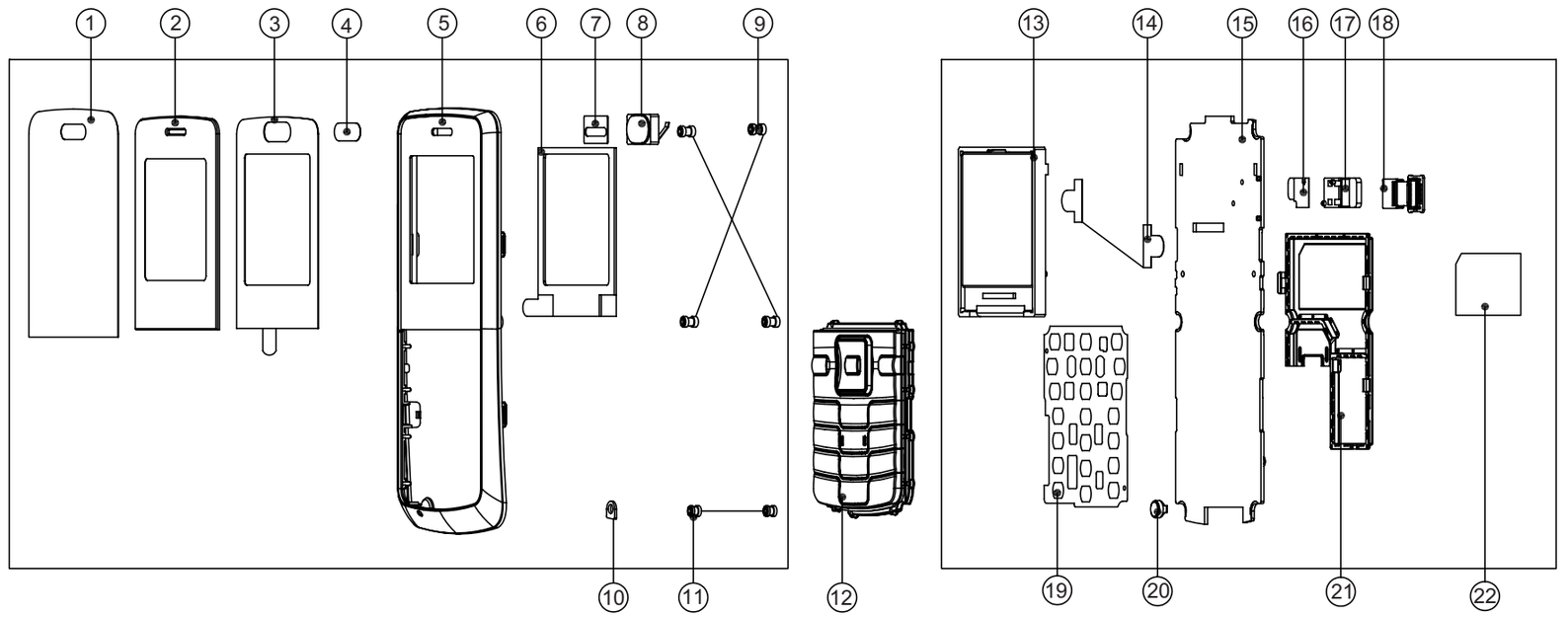
This procedure is for Tx calibration.
In this procedure you can get proper scale factor value and measured power level.

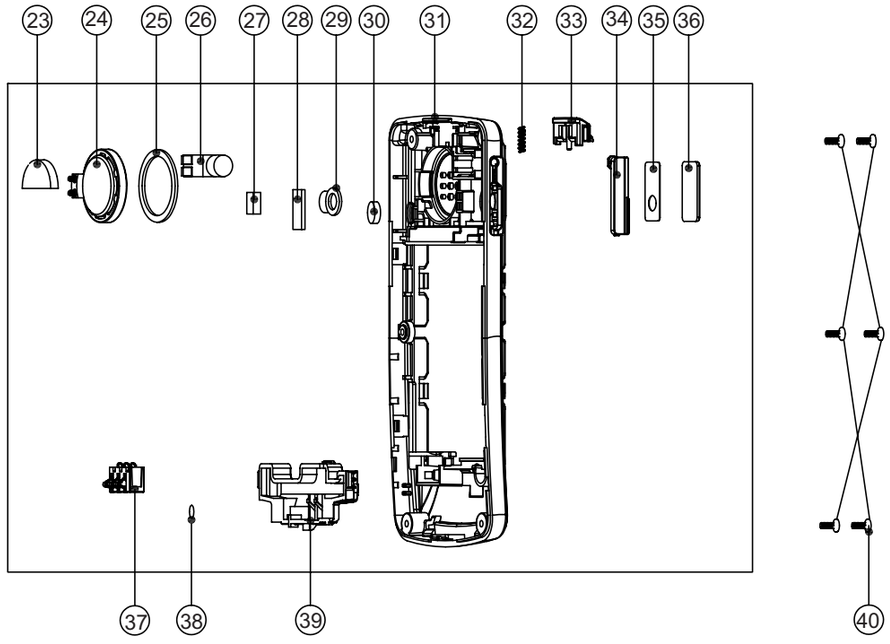
12.7 ADC

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

13. EXPLODED VIEW & REPLACEMENT PART LIST

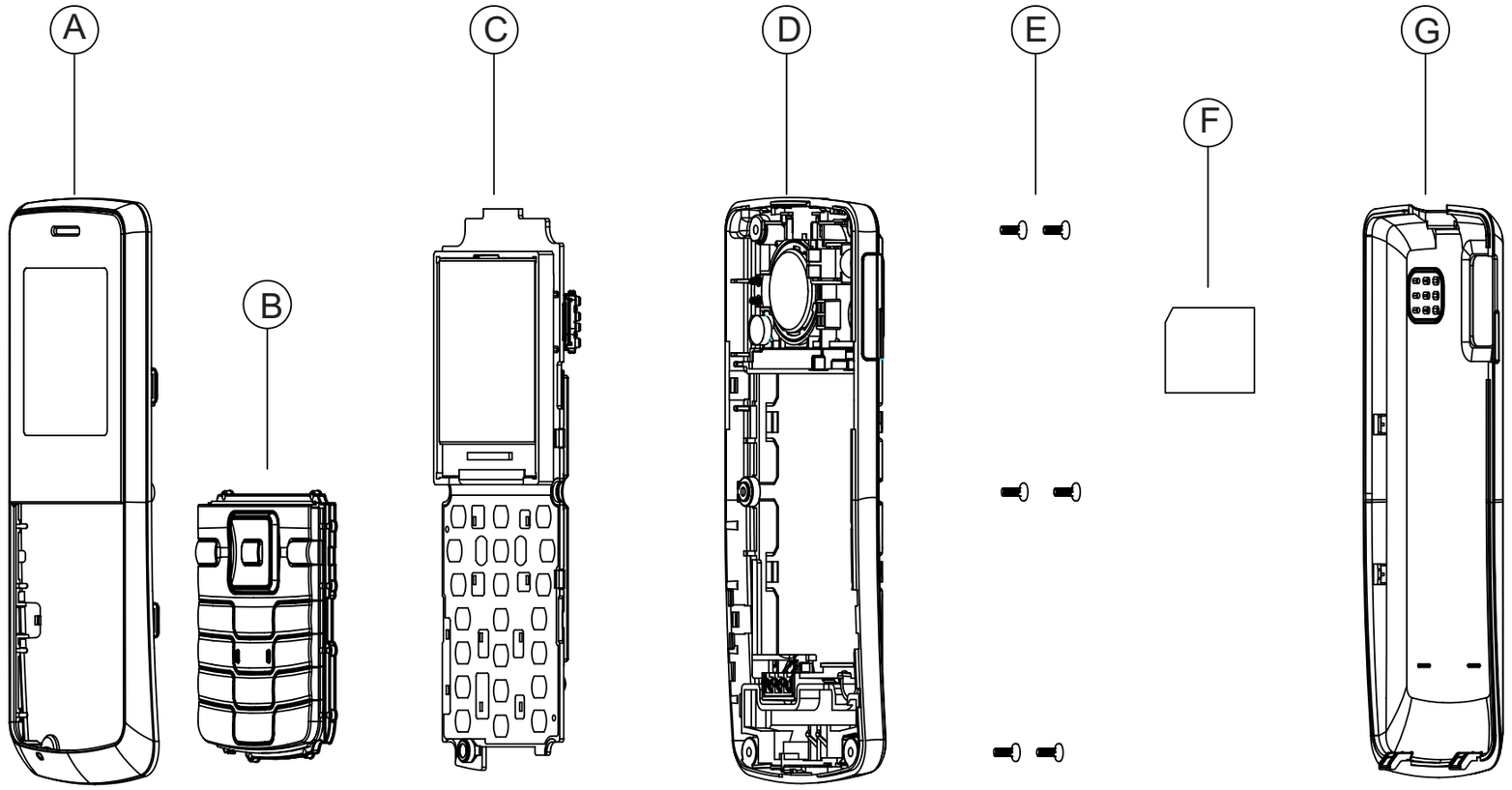
13.1 EXPLODED VIEW





40	SCREW	6	GMEY0009201
39	INTENNA	1	SNGF0031901
38	LABEL A/S	1	MLAB0000601
37	BATTERY CONNECTOR	1	ENZY0019901
36	WINDOW CAMERA	1	MWAE0030501
35	TAPE WINDOW CAMERA	1	MTAZ0198401
34	ID CAP	1	MCCE0040801
33	BATTERY LOCKER	1	MLEA0041801
32	LOCKER SPRING	1	MSDB0004301
31	COVER REAR	1	MCJN0074601
30	PAD BACK UP BATTERY	1	MPBZ0200801
29	PAD CAMERA	1	MPBT0049301
28	PAD COVER REAR	1	MPBZ0199101
27	PAD FPCB CAMERA	1	MPBF0025901
26	VIBRATOR	1	SJMY0007904
25	PAD SPEAKER	1	MPBN0048101
24	SPEAKER	1	SUSY0022601
23	PAD SPEAKER REAR	1	MPBN0052101
22	LABEL MODEL	1	MLAK0018622
21	CAN SHIELD	1	MCBA0024101
20	MIC	1	SUMY0010515
19	DOME ASSY METAL	1	ADCA0072701
18	CAMERA	1	SVCY0014701
17	BRACKET CAMERA	1	MBFP0008101
16	TAPE BRACKET CAMERA	1	MTAZ0198701
15	PCB	1	SPFY0164001
14	TAPE LCD	2	MTAZ0198601
13	LCD	1	SVLM0024704
12	KEYPAD	1	MKAG0003101
11	INSERT	2	MICE0003901
10	FILTER MIC	1	MFBD0026901
9	INSERT	4	MICE0003801
8	RECEIVER	1	SURY0013002
7	PAD RECEIVER	1	MPBM0021201
6	PAD LCD	1	MPBG0068501
5	COVER FRONT	1	MCJK0079001
4	FILTER RECEIVER	1	MFBB0024101
3	TAPE WINDOW	1	MTAD0076401
2	WINDOW LCD	1	MWAC0087301
1	TAPE PROTECTIN FRONT	1	MTAB0215001

ASS'Y EXPLODED VIEW



A	COVER ASSY,FRONT	1	ACGK0098401
B	KEYPAD	1	MKAG0003101
C	PCB ASSY,MAIN	1	SAFY0233606
D	COVER ASSY,REAR	1	ACGM0099301
E	SCREW MACHINE	6	GMEY0009201
F	LABEL MODEL	1	MLAK0018622
G	COVER,BATTERY	1	MCJA0051701

13.2 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(FOLDER)	TGFF0099135		White	
2	AAAY00	ADDITION	AAAY0289224		White	
3	MCJZ00	COVER	MCJZ0030519	COVER(for TR2_COVER_GSM)	Without Color	
3	MLAC00	LABEL,BARCODE	MLAC0003011	PRINTING, (empty), , , , ,	Blue	
3	MLAC01	LABEL,BARCODE	MLAC0004501	Export(105*40)	Without Color	
3	MLAJ00	LABEL,MASTER BOX	MLAJ0004401	LABEL,MASTER BOX(for C1300i NEW_CGR)	Without Color	
3	MLAZ00	LABEL	MLAZ0048201	PRINTING, (empty), , , , ,	Without Color	
3	MPAD00	PACKING,SHELL	MPAD0005804	PRINTING, (empty), , , , ,	Without Color	
3	MPBZ00	PAD	MPBZ0036807	BOX, SW, , , , , 1 COLOR	Without Color	
3	MPCY00	PALLET	MPCY0009501	PALLET(G7100 for Orange UK_EUR)	Black	
2	APEY00	PHONE	APEY0484718		White	
3	ACGK00	COVER ASSY,FRONT	ACGK0098403		White	A
4	MCJK00	COVER,FRONT	MCJK0079001	MOLD, PC LUPOY SC-1004A, , , , ,	Black	5
5	MICE00	INSERT,NUT	MICE0003801	COMPLEX, (empty), , , , ,	Without Color	9
5	MICE01	INSERT,NUT	MICE0003901	COMPLEX, (empty), , , , ,	Without Color	11
4	MFBB00	FILTER,RECEIVER	MFBB0024101	COMPLEX, (empty), , , , ,	Without Color	4
4	MFBD00	FILTER,MIKE	MFBD0026901	COMPLEX, (empty), , , , ,	Without Color	10
4	MPBG00	PAD,LCD	MPBG0068501	COMPLEX, (empty), , , , ,	Without Color	6
4	MPBM00	PAD,RECEIVER	MPBM0021201	COMPLEX, (empty), , , , ,	Without Color	7
4	MTAB00	TAPE,PROTECTION	MTAB0215001	COMPLEX, (empty), , , , ,	Without Color	1
4	MTAD00	TAPE,WINDOW	MTAD0076401	COMPLEX, (empty), , , , ,	Without Color	3
4	MWAC00	WINDOW,LCD	MWAC0087303			2
4	SURY00	RECEIVER	SURY0013002	PIN ,105 dB,32 ohm,11*07 , ,; , , , , , ,PIN ,		8
3	ACGM00	COVER ASSY,REAR	ACGM0099302		White	D
4	ENJY00	CONNECTOR,ETC	ENZY0019901	3 PIN,3 mm,STRAIGHT , ,		37
4	MCCE00	CAP,RECEPTACLE	MCCE0040802			34
4	MCJN00	COVER,REAR	MCJN0074602			31
4	MLAB00	LABEL,A/S	MLAB0000601	PRINTING, (empty), , , , ,	Without Color	38
4	MLEA00	LOCKER,BATTERY	MLEA0041802			33
4	MPBF00	PAD,FLEXIBLE PCB	MPBF0025901	COMPLEX, (empty), , , , ,	Without Color	27
4	MPBN00	PAD,SPEAKER	MPBN0048101	COMPLEX, (empty), , , , ,	Without Color	25
4	MPBN01	PAD,SPEAKER	MPBN0052101	COMPLEX, (empty), , , , ,	Without Color	23
4	MPBT00	PAD,CAMERA	MPBT0049301	COMPLEX, (empty), , , , ,	Black	29

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Description	Part Number	Spec	Color	Remark
4	MPBZ00	PAD	MPBZ0200801	COMPLEX, (empty), , , , ,	Without Color	30
4	MPBZ01	PAD	MPBZ0199101	COMPLEX, (empty), , , , ,	Without Color	28
4	MSDB00	SPRING,COIL	MSDB0004301	COMPLEX, (empty), , , , ,	Without Color	32
4	MTAZ00	TAPE	MTAZ0198401	COMPLEX, (empty), , , , ,	Without Color	35
4	MWAE00	WINDOW,CAMERA	MWAE0030501	COMPLEX, (empty), , , , ,	Without Color	38
3	MKAG00	KEYPAD,MAIN	MKAG0003102	COMPLEX, (empty), , , , ,	White	B,12
3	MLAK00	LABEL,MODEL	MLAK0018622	PRINTING, (empty), , , , ,	Without Color	F, 22
7	MBFP00	BRACKET,CAMERA	MBFP0008101	MOLD, PC LUPOY SC-1004A, , , , ,	Black	17
7	MTAZ00	TAPE	MTAZ0198701	COMPLEX, (empty), , , , ,	Without Color	16
5	MCBA00	CAN,SHIELD	MCBA0024101	PRESS, STS, , , , ,	Black	21
5	MTAZ00	TAPE	MTAZ0198601	COMPLEX, (empty), , , , ,	Without Color	14

<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	SJMY00	VIBRATOR,MOTOR	SJMY0007904	3 V,.1 A,4*8 ,height 5.8mm ,; ,3V , , ,11000 , , , ,		26
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0031901	3.0 ,-2.0 dBd,, ,internal, GSM900/1800 ,; ,DUAL ,-2.0 ,50 ,3.0		39
4	SUSY00	SPEAKER	SUSY0022601	PIN ,8 ohm,90 dB,17 mm,Spring Contact Type		24
3	GMEY00	SCREW MACHINE,BIND	GMEY0009201	1.4 mm,3.5 mm,MSWR3(BK) ,B ,+ ,HEAD D=2.7mm	Black	E, 40
3	SAFY00	PCB ASSY,MAIN	SAFY0233621		Blue	C
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0072702			
5	ACMY00	CAMERA ASSY	ACMY0006501		Without Color	
6	ABFZ	BRACKET ASSY	ABFZ0013901		Without Color	
6	SVCY00	CAMERA	SVCY0014701	CMOS ,VGA ,MAGNACHIP(1/7.4"), 5.5x5.1(14.95)x3.2t, FPCB		18
5	ADCA00	DOME ASSY,METAL	ADCA0072701		Without Color	19
5	SVLM00	LCD MODULE	SVLM0024705	MAIN ,128*128 ,35.78*39.7*2.8 ,65k ,CSTN ,TM ,S6B3301 ,Single		13
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0125166			
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0091704			
6	BA100	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,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C101	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C102	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C103	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C104	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C105	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C106	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C108	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C109	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C110	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C112	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Description	Part Number	Spec	Color	Remark
6	C113	CAP,CHIP,MAKER	ECZH0001511	2.2 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0001511	2.2 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C117	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C119	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C123	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C124	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C127	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C128	CAP,CERAMIC,CHIP	ECCH0000391	1000000 pF,50V ,Z ,Y5V ,HD ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,1.25 mm		
6	C129	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C131	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C133	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C134	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C136	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C137	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C138	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
6	C139	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C140	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C141	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C143	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C144	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C145	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C146	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C148	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		

Level	Location No	Description	Part Number	Spec	Color	Remark
6	C149	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C150	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C152	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C153	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C155	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C200	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C201	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C202	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C204	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C212	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C217	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C218	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C219	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C221	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C225	CAP,TANTAL,CHIP	ECTH0004101	22 uF,6.3V ,M ,STD ,1608 ,R/TP		
6	C230	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C235	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C309	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C317	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C319	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C320	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C321	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C322	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C323	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C324	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Description	Part Number	Spec	Color	Remark
6	C325	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C400	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C401	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C402	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C403	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C404	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C406	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C407	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C408	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C409	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C410	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C411	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C412	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C413	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C414	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C415	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C416	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C417	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C418	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C419	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C420	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C421	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C422	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C423	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C424	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C426	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C427	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C428	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C429	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C430	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C431	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C432	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C433	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C434	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C436	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		

Level	Location No	Description	Part Number	Spec	Color	Remark
6	C437	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C438	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C439	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C440	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C441	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C442	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C443	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C444	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C445	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C446	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C500	CAP,CERAMIC,CHIP	ECCH0000196	0.75 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C501	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C503	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C504	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C506	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C507	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C511	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C512	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C513	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C514	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C515	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C516	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C517	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C518	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C519	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C521	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C522	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C524	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		

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Level	Location No	Description	Part Number	Spec	Color	Remark
6	C525	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C526	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C527	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C528	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C529	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C530	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C531	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C532	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C533	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	CN202	CONNECTOR,I/O	ENRY0006401	18 PIN,0.4 mm,ANGLE , ,H=2.5, Reverse Type		
6	CN400	CONNECTOR,FFC/FPC	ENQY0013901	35 PIN,0.3 mm,STRAIGHT , , ,; , ,0.30MM ,FPC ,STRAIGHT ,BOTH ,SMD ,R/TP ,[empty] ,		
6	CN401	CONNECTOR,BOARD TO BOARD	ENBY0016601	20 PIN,0.4 mm,STRAIGHT ,AU ,0.9 STACKING HEIGHT		
6	D100	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D300	DIODE,SWITCHING	EDSY0010501	ESC ,30 V,100 mA,R/TP ,SWITCH DIODE		
6	FB200	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
6	FB202	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
6	FB400	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL100	FILTER,EMI/POWER	SFEY0007101	SMD ,1CH,1608Feedthru ESD/EMI filter for power Pb-free		
6	FL500	FILTER,SAW,DUAL	SFSB0001401	942.5 MHz,35 MHz,2.1 dB,20 dB,1842.5 MHz,75 MHz,2.3 dB,12 dB,2.0*1.6*0.68 ,SMD ,925M~960M,1805M~1880M,10p,B,150_82,150_15,EGSM+DCS Rx ,; ,942.5, 1842.5 ,2.0*1.6*0.68 ,SMD ,R/TP		
6	J300	CONN,SOCKET	ENSY0018701	6 PIN,ETC , ,2.54 mm,H=1.8		
6	L200	INDUCTOR,CHIP	ELCH0001556	270 nH,J ,1608 ,R/TP ,		
6	L501	INDUCTOR,CHIP	ELCH0001056	2.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L502	INDUCTOR,CHIP	ELCH0001056	2.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L503	INDUCTOR,CHIP	ELCH0003814	5.1 nH,S ,1005 ,R/TP ,5.1nH,1005		
6	L504	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
6	Q300	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3		
6	R100	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R101	RES,CHIP	ERHY0000512	10M ohm,1/16W,J,1608,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

Level	Location No	Description	Part Number	Spec	Color	Remark
6	R108	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R110	RES,CHIP	ERHY0000253	4.3K ohm,1/16W,J,1005,R/TP		
6	R113	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R116	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000312	68 Kohm,1/16W ,F ,1005 ,R/TP		
6	R119	RES,CHIP,MAKER	ERHZ0000213	120 Kohm,1/16W ,F ,1005 ,R/TP		
6	R120	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000476	39 Kohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000476	39 Kohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R221	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R310	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R320	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP	ERHY0000150	75K ohm,1/16W,F,1005,R/TP		
6	R327	RES,CHIP,MAKER	ERHZ0000702	10 ohm,1/10W ,J ,1608 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP	ERHY0000272	43K ohm,1/16W,J,1005,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R331	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		

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Level	Location No	Description	Part Number	Spec	Color	Remark
6	R408	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R409	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R412	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R413	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R416	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R418	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R419	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R420	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R421	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R422	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R423	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R424	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R425	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R426	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R427	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R428	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R429	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R430	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R431	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R432	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R433	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R434	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R435	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R436	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R500	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R503	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R505	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R507	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R509	RES,CHIP,MAKER	ERHZ0000242	220 ohm,1/16W ,F ,1005 ,R/TP		
6	R510	RES,CHIP,MAKER	ERHZ0000242	220 ohm,1/16W ,F ,1005 ,R/TP		
6	R511	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		

Level	Location No	Description	Part Number	Spec	Color	Remark
6	R512	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R513	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
6	R514	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	SW500	CONN,RF SWITCH	ENWY0006001	Press ,SMD ,.8 dB, ,; ,0.40MM ,STRAIGHT ,DIP ,SMD ,[empty] ,[empty] , ,		
6	U100	IC	EUSY0323801	BGA ,64 PIN,R/TP ,128Mb/64Mb , 110 nm, MirroBit		
6	U101	IC	EUSY0354101	QFN ,10 PIN,R/TP ,OVLO 6.8-7.6 ,; ,IC,Charger		
6	U102	IC	EUSY0352601	QFN ,10 PIN,R/TP ,Single Input, 28V OVP ,; ,IC,Charger		
6	U103	IC	EUSY0354201	BGA ,264 PIN,R/TP ,GSM/GPRS Baseband ,; ,IC,Digital Baseband Processor		
6	U201	IC	EUSY0335701	QFN ,8 PIN,R/TP ,1.2W, Mono, Differencial Audio AMP		
6	U300	IC	EUSY0238702	TSOPJW-12 ,12 PIN,R/TP ,3PORT Charge Pump(AAT2154 Low cost version)		
6	U400	IC	EUSY0318501	BGA ,84 PIN,R/TP ,7x7, VGA Camera Backend IC		
6	U401	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U500	RF MODULE,HANDSET	SMRH0004501	MHz, MHz,Dual band for EU ,ASM+PAM		
6	U501	IC	EUSY0280101	LFCSP-32 ,32 PIN,R/TP ,GSM QUAD BAND TRANSCEIVER, Othello G.		
6	VA202	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA203	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	X100	X-TAL	EXXY0004602	.032768 MHz,20 PPM,12.5 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		
6	X500	X-TAL	EXXY0024401	26 MHz,10 PPM,10 pF,.5 ohm,SMD ,32*25*0.6 ,. ,. ,. ,10PPM ,10 ,. ,. ,SMD ,P/TP		
6	Z100	DIODE,ZENER	EDNY0013602	EMD2 ,5.1 V,150 mW,R/TP , ,; , ,[empty] , , ,[empty] ,[empty] ,[empty] ,[empty]		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0091104			
6	C205	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C300	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C301	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C302	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C304	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C534	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C535	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

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Level	Location No	Description	Part Number	Spec	Color	Remark
6	L300	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	L301	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	L302	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	L303	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	L304	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	LD300	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD301	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD302	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD303	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD304	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD305	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD306	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD307	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD308	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD309	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	MIC300	MICROPHONE	SUMY0010515	UNIT ,-44 dB,4*1.35 ,JFET 330ohm ,; , , ,OMNI ,1.5TO5.5V , ,SMD		
6	R300	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R301	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R307	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R308	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R309	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R311	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R312	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R313	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R321	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R322	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R323	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No	Description	Part Number	Spec	Color	Remark
6	R324	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	SPFY00	PCB,MAIN	SPFY0164001	FR-4 ,0.8 mm,BUILD-UP 4 ,KP135 MAIN PCB ,; , , , , , , , , ,		15
6	VA200	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA201	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA300	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA301	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	VA302	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		

13. EXPLODED VIEW & REPLACEMENT PART LIST

13.3 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	MCJA00	COVER,BATTERY	MCJA0051702		White	G
3	SBPL00	BATTERY PACK,LI-ION	SBPL0089902	3.7 V,900 mAh,1 CELL,PRISMATIC ,KU380 Europe IP BATT, Pb-Free ,; ,3.7V ,900mAh ,0.2C ,PRISMATIC ,50x34x46 , ,BLACK ,Innerpack ,Europe Label	Black	
		BATTERY PACK,LI-ION	SBPL0093302	3.7 V,900 mAh,1 CELL,PRISMATIC ,KU380 BATT(Europe Label), Pb-Free ,; ,3.7V ,900mAh ,0.2C ,PRISMATIC ,50x34x46 , ,BLACK ,Innerpack ,Europe Label	Black	
3	SSAD00	ADAPTOR,AC-DC	SSAD0028801	100-240V ,5060 Hz,5.6 V,.4 A,CE ,AC-DC ADAPTOR ,; ,85Vac~264Vac ,5.6V+/-0.8V ,400mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0028802	100-240V ,5060 Hz,5.6 V,.4 A,CE ,AC-DC ADAPTOR ,; ,85Vac~264Vac ,5.6V +/-0.8V ,400mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		

Note