LG

Service Manual

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MG230d

Model : MG230d

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REVISED HISTORY

Editor	Date	Issue	Contents of Changes	S/W Version
Y. S. Jeong	2007/01/05	A	INITIAL RELEASE	
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* The information in this manual is subject to change without notice and should not be construed as a commitment by LGE Inc. Furthermore, LGE Inc. reserves the right, without notice, to make changes to equipment design as advances in engineering and manufacturing methods warrant.

* This manual provides the information necessary to install, program, operate and maintain the MG230d.

Table Of Contents

1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the MG230d.

1.2 Regulatory Information

A. Security

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

B. 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 MG230d 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.

C. Maintenance Limitations

Maintenance limitations on the MG230d must be performed only at the LGE or its authorized agents. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

D. Notice of Radiated Emissions

The MG230d 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.

E. Pictures

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

F. Interference and Attenuation

An MG230d may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

G. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated  by thesign.
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.

2. SYSTEM SPECIFICATION

Item	Feature	Comment
Standard Battery	Li-ion, 830mAh	
AVG TCVR Current	260 mA typ	GSM850@PL5
Standby Current	3.0 mA typ	@PP9
Talk time	150 min (GSM850 TX Level 5)	
Standby time	200 hours (Paging Period:9, RSSI: -85dBm)	
Charging time	Under 3 hours	
RX Sensitivity	GSM850: -105dBm, DCS/PCS : -105dBm	
TX Output Power	GSM850: 33dBm (@PL 5) DCS/PCS: 30dBm (@PL 0)	
GPRS compatibility	Class 10	
SIM card type	Yes (SIM Block Type) 3V	
Display	Main : 1.51” 128*128 TFT Type Sub : 96*64 Mono STN	
Status Indicator	Soft icons, OK, Navigation Key, 0 ~ 9, #, *,SEND, CLEAR, END/PWR, Volume Up, Volume Down	
ANT	Built in antenna	
EAR Phone Jack	Yes / Jack	
PC Synchronization	Yes	
Speech coding	HR/EFR/FR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Buzzer No		
Voice Recoding	Yes	
C-Mic	Yes	
Receiver	Yes	
Travel Adapter	Yes	
Options	No	
Item	Feature	Comment

3. TECHNICAL BRIEF

3.1 MG230d Block diagram.

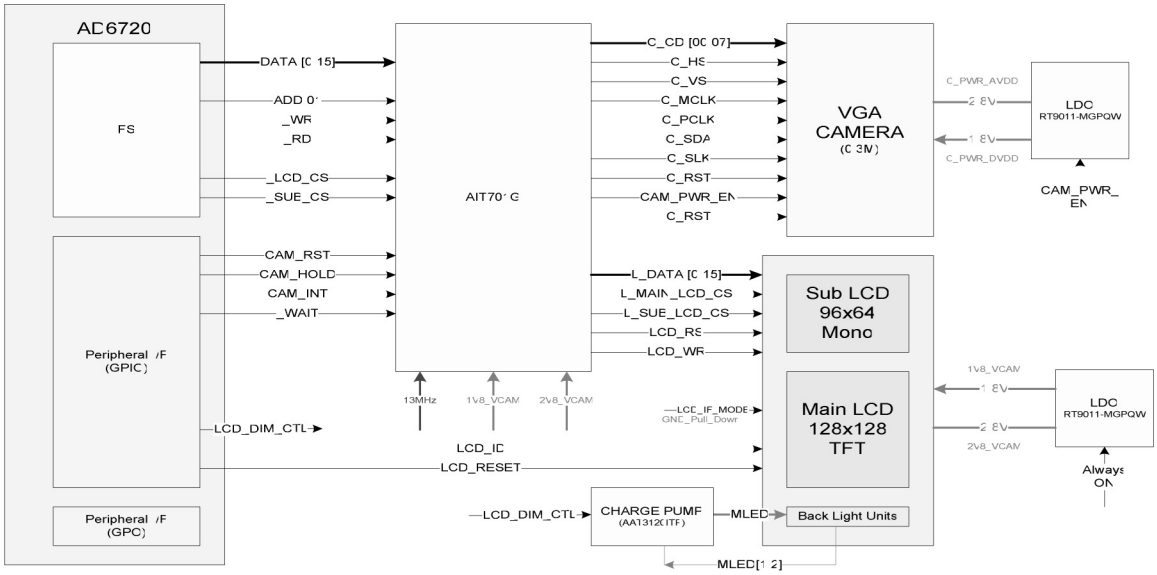


Figure 3-1 MG230d Hardware architecture

MG230d is composed with 3 different PCB part such as main PCB, Key FPCB and LCD FPCB. The functional component arrangement is mentioned below diagram.

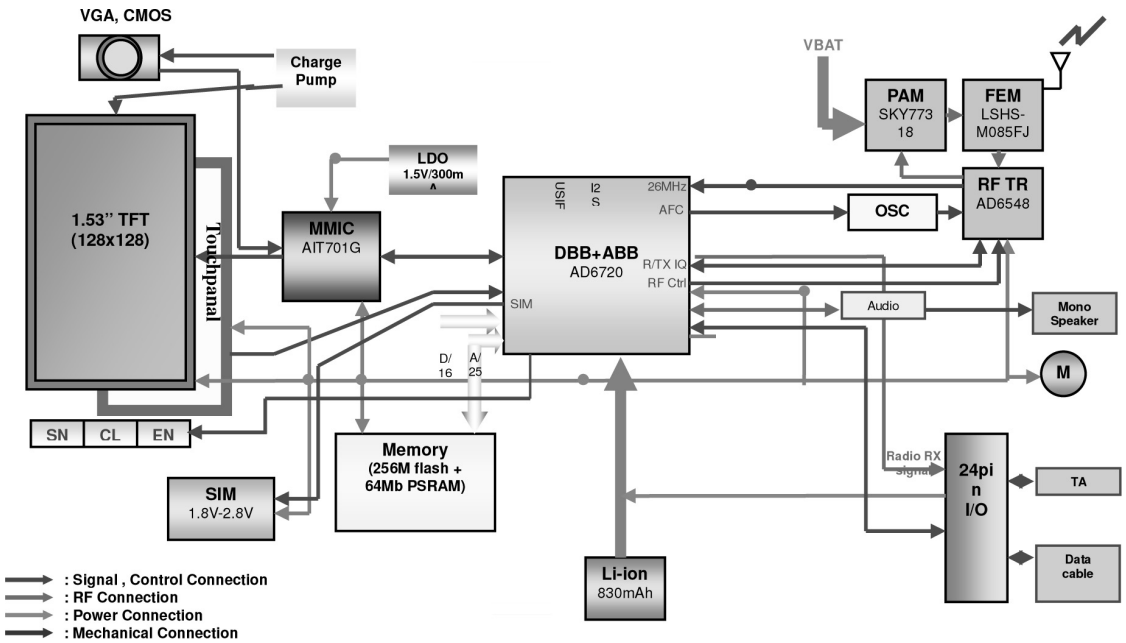


Figure 3-2 MG230d Functional block diagram

3.2. RF Part Introduction

The RF parts consists of a transmitter part, a receiver part, a voltage supply part, the crystal reference system. And the main RF Chipset AD6548 is a highly integrated direct conversion radio solution that combines, on a single chip, Quad Band Radio GSM850,E-GSM,DCS1800 and PCS1900 and power management functions necessary to build the most compact GSM radio solution possible. This quad-band GSM transmit module integrates a PA, a low-pass filter, a linear Tx / Rx switch along with PA and switch control combined with ESD protection circuitry in one module,

3.2.1. Receiver Part

The Receiver part in AD6548 contains all active circuits completely, full receiver chain with the exception of discrete front-end RF SAW filters. The AD6548 uses direct conversion receiver architecture of the OthelloTM family. For Quad band applicationsthe front end features four fully integrated programmable gain differential LNAs. The RF is then downconverted by quadrature 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 RF Receiver block is shown as below.

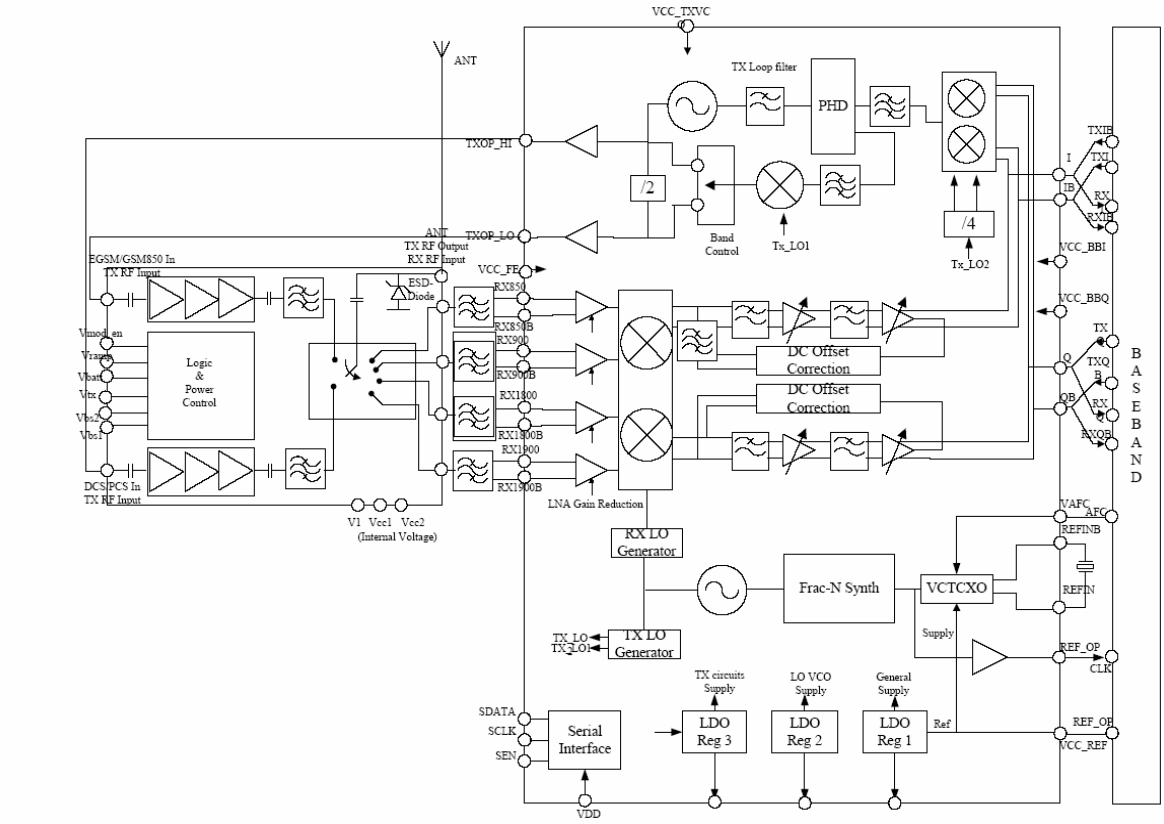


Figure 3-3 The RF Receiver Block

3. TECHNICAL BRIEF

A. Low Noise Amplifiers

The AD6548 includes four fully integrated Low Noise Amplifiers (LNAs), to support quad band applications without further external active components. The LNAs have differential inputs which minimize the effect of unwanted interferers. The inputs are easily matched to industry standard FEMs or discrete Rx SAW filters. The outputs of the LNAs are directly coupled to the down-converting mixers. The voltage gain of the LNAs are typically 24 dB. Each LNA can be switch to a low gain mode when receiving large input signals as part of the AGC system.

B. Down-Converting Mixers

Two quadrature mixers are used to mix down the signals from the LNAs, one for the high bands (1800 and 1900 MHz) and one for the low bands (850 and 900 MHz). The outputs of the mixers are connected to the baseband section through an integrated single pole filter with nominal cut-off frequency of 800kHz. This acts as a “roofing filter” for the largest blocking signals (i.e. those _ 3MHz) and prevents the baseband amplifiers from being overloaded.

C. Baseband Amplifiers / Low Pass Filters

The baseband amplifiers provide the majority of the analog receiver gain. The filtering is provided by an integrated 5th order Chebyshev filter giving the necessary adjacent channel and blocking filtering, it is also acting as an anti-alias filtering for Baseband IC’s converters. A final low pass pole is possible at each of the baseband outputs via internal series resistor along with an external shunt capacitor. The external capacitor is not required with ADI baseband ICs. The on chip filter has an auto calibration feature ensuring that the filters are tuned for optimum performance. The baseband amplifiers have programmable gain for system AGC. A total of 57 dB of gain control is provided in 3dB steps programmable over the serial interface. This together with the LNA gain control gives a total of 77dB of gain control range. The receive baseband outputs are routed to the common Rx/Tx I/Q ports for connection with the baseband converters.

D. Baseband Output D.C. Offset Correction

In order to minimize D.C. offsets inherent in the receiver and maximize dynamic range a D.C offset correction circuit is integrated. This correction is triggered over the serial bus and then an offset tracking loop is enabled to minimize residual offsets under all conditions. The tracking loop is fully hardware integrated, requiring no software intervention.

E. Receiver Local Oscillator (LO) Generator

The Rx LO generator is used to avoid DC offset problems associated with LO leakage into the receiver RF path. By operating the VCO at a frequency other than the desired receive frequencies, any leakage of the VCO (e.g. via package) will fall out of band. The LO generator is used to convert the offset synthesized VCO output to the on-frequency quadrature LO required by the chipset. The LO generator is implemented as a regenerative frequency divider, performing a 2/3 multiplication of the VCO output for the high band (DCS1800/PCS1900) and a 1/3 multiplication for low band (E-GSM/GSM850).

3.2.2 Transmitter Part

The Transmitter part contains AD6548 active parts and PAM .The transmit section of the AD6548 radio implements a translation loop modulator. This consists of a quadrature modulator, high speed phase-frequency detector (PFD) with charge pump output, loop filter, TX VCO and a feedback down converting mixer. The VCO output (divided by 2 for low band) is fed to the power amplifier with a portion internally fed back into the down-converting feedback mixer to close the feedback loop.

A. Power Amplifier Module

The advanced quad-band Transmit Module designed for mobile handset applications provides full RF transmit functionality.The GSM850/900 and DCS/PCS power amplifier blocks including power control are combined with the low insertion loss quad-band pHEMT switch, Tx harmonics filtering, integrated switch decoder, four receive ports, and full ESD protection. This architecture eliminates the need for any PA-to-switch design effort for phone designers. All four Rx ports are frequency independent and allow flexible routing to the transceiver. Fabricated in high-reliability InGaP HBT / pHEMT technology, the module supports GPRS class 12 operation and provides 50 Ohms input and output impedances at all RF input and output ports. The module control inputs are CMOS compatible and has no need for an external reference voltage. With its excellent efficiency performance in all 4 bands, the power amplifier and switch module contributes to the overall talk-time targets of next generation mobile handset designs.

B. Quadrature Modulator

The Quadrature modulator takes the baseband I & Q signals and translates these into a GMSK signal at the Transmit Intermediate Frequency (TX IF). After band-pass filtering and limiting the TX IF signal is used as the reference input to the Phase Frequency Detector (PFD) of the transmit PLL.

C. Phase Frequency Detector (PFD)

The PFD ensures that the transmitted signal contains the required modulation and is accurately locked to the desired GSM channel. The downconverted feedback signal from the TXVCO and the Quadrature Modulator output are phase compared by the PFD. The PFD charge pump generates a current pulse proportional to the difference in phase which is applied to the loop filter.

D. Loop filter

To minimize complexity of the external PCB layout the TX loop filter is fully integrated into the IC. At power up the filter is automatically calibrated as part of the baseband filter cal, eliminating process tolerances. The calibration is fully integrated and requires no extra programming.

E. TX VCO

The Transmit Voltage Controlled Oscillator (TX VCO) and tank components are a fully integrated subsystem. The subsystem includes PA drivers so the outputs are used to directly drive the external PAs. The low noise oscillator design and internal filtering mean that external TX SAW filters are not required. In Low band operation the TX VCO output is divided by two and filtered. The TX VCO is automatically calibrated to ensure optimum performance over its operating frequency of 1648 to 1910 MHz.

F. Feedback Down-Converting Mixer

The feedback down converting mixer is used to translate the TX VCO output frequency to the TX IF. An integrated band pass filter exists between the mixer and the PFD to filter the mixers unwanted side band and higher order mixing products.

G. Transmit Frequency Plan

Unlike many other translation loop modulators the AD6548 uses only a single VCO source to derive the local oscillator signal for both the Feedback Down-Converting Mixer and the Quadrature modulator. Therefore there is a fixed relationship between the Tx IF frequency and the LO VCO frequency .This ratio was chosen to minimize VCO tuning range, TX IF frequency variation and ensure excellent transmit spectral mask performance. The Feedback-Down Converting Mixer operates low side injection for the high bands and high side injection for the low bands. The final relationship between the transmitted TX frequency and the LO VCO frequency is different between the two bands. These relationships are taken account of in the synthesizer architecture and programming.

H. Main Frequency Synthesizer

The AD6548/9 has a single fast-locking fractional synthesizer used for VCO control in both receive and transmit mode. The entire system including VCO, tank, fractional N dividers, sigma delta compensation, charge pump and loop filters are fully integrated. The only external component is a low cost crystal for the reference. The synthesizer is controlled via the serial interface. The VCO is fed into the respective dividers to generate the appropriate LO frequencies for the RX and TX bands.

I. Fractional N Dividers

The fractional N divider allows the PLL system to have a smaller step size than the comparison frequency which is set by the external reference to 26 MHz. This feature allows all the GSM frequency band rasters to be achieved, with fast lock times and good phase noise characteristics. The divider section consists of a dual modulus 8/9 pre-scaler, integer M & A dividers, and fractional N system based on sigma-delta modulation to generate the required fractional divide ratio. The Denominator of the fractional divider can be set to 3 different values, (1040, 1170,1235), depending on the mode of operation. For example a denominator of 1040 with an input fraction F maintains an average value of F/1040 allowing 25 kHz steps when operated at a reference of 26 MHz.

J. Phase Frequency Detector/Charge Pump

A Phase Frequency Detector (PFD) is used for the PLL phase detector. The charge pump is designed such that good matching of up and down currents is achieved over a wide output operating range. The charge pump output is internally routed to the integrated synthesizer loop filter.

K. Synthesizer Loop filter

To minimize complexity of the external PCB layout the Main Synthesizer loop filter is also fully integrated into the IC. No external components or adjustments are required.

L. Voltage Controlled Oscillator

The integrated voltage controlled oscillator (VCO) is a complete self-calibrating subsystem. This employs a fully automated digital self-calibration function to ensure optimum phase noise performance over the entire frequency range. The VCO generates frequencies between 2520MHz and 2985MHz as required to operate in the four bands for RX and TX.

3.2.3 The Crystal Reference System

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. The crystal is connected as shown in figure.

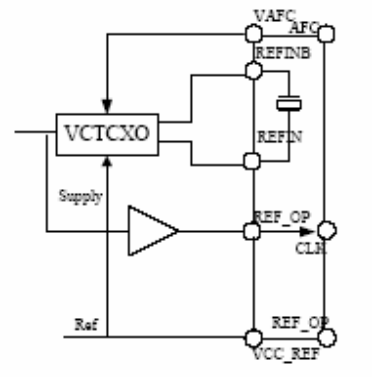


Figure 3-4 The Crystal Reference System

Dedicated control software ensures excellent frequency stability under all circumstances.

3.2.4 Power Management

For direct battery supply connect, and to reduce external circuitry complexity the AD6548/9 features three Low Drop Out Regulators (LDOs). The three LDOs provide isolation of the oscillators and sensitive circuits from unwanted power supply and cross coupled noise. They also ensure the IC operation is robust over a wide range of power supply voltages. For power management the LDOs are independently controlled via the 3 wire serial bus.

A.LDO Usage

The following table describes the LDO usage:

LDO1	LDO2	LDO3
Rx and Tx baseband sections	Main VCO	Tx VCO

Table 3-1 Intended LDO Use

The LDO outputs require external connection to the respective pins described in table 3, and each requires decoupling capacitors.The LDOs are designed to be unconditionally stable regardless of the capacitor's ESR.

LDO OP	Extemal Connection
VLDO1	VCC_FE, VCC_BBI, VCC_BBQ
VLDO2	No external Connections, except for decoupling
VLDO3	No external Connections, except for decoupling

Table 3-2 LDO Connections

LDO1 derives its input references from the crystal supply voltage (VCC_REF). It is therefore expected that VCC_REF be supplied from a external LDO of nominal supply voltage 2.75V (e.g. ADP3330 or Analog Baseband IC: Vout=2.75V_1.4%)

3.3 Baseband Introduction

3.3.1 Baseband Processor (AD6720 , U101)

• AD6720 is an ADI designed processor
• AD6720 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 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
   • 1.8V Typical Core Operating Voltages
   • 289-Ball Package (12x12mm) , 0.65mm Ball pitch

5. The AD6720 baseband transmit section supports the following
   • mobile station GMSK modulation power classes:
   • GSM 900/850 power classes 4 and 5,
   • DCS 1800 power classes 1 and 2, and
   • PCS 1900 power classes 1 and 2

3.3.2 Interconnection with external devices

A. RTC block interface

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

B. LCD module interface

Signals	Description
L_MAIN_LCD_CS	MAIN LCD driver chip enable.
L_SUB_LCD_CS	SUB LCD driver chip enable.
LCD_RESET	This pin resets LCD module.
LCD_WR	Enable writing to LCD Driver.
LCD_RS	This pin determines whether the data to LCD module data or control data.
LCD_DATA(0-15)	LCD data

Table 3-3 LCD Pin Description

The backlight of LCD module is controlled by AD6720 via AAT3120(U400). The control signals related to Backlight LED are given bellow.

Signals	Description
LCD_DIM_CTL	Control LCD backlight level
MLED1,2	Current source for backlight LED

Table 3-4 Description Of LCD Backlight LED Control

C. RF interface

The AD6720 control RF parts through PA_BAND, TX_RAMP, PA_EN, S_EN, S_DATA, S_CLK, ANT_SW1, ANT_SW2

Signals	Description
PA_BAND	PAM Band Select
ANT_SW1, 2	Antenna switch Band Select
TX_RAMP	TX RAMP Control
PA_EN	PAM Enable/Disable
IQ	IQ data(IN, IP, QN, QP)
S_EN	PLL Enable/Disable
S_DATA	Serial Data to PLL
S_CLK	Clock to PLL

Table 3-5 RF Control Signals Description

D. SIM interface

The AD6720 provides SIM Interface Module. The AD6720 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 are required. The descriptions about the signals are given by bellow Table 3-6 in detail.

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

Table 3-6 SIM Control Signals Description

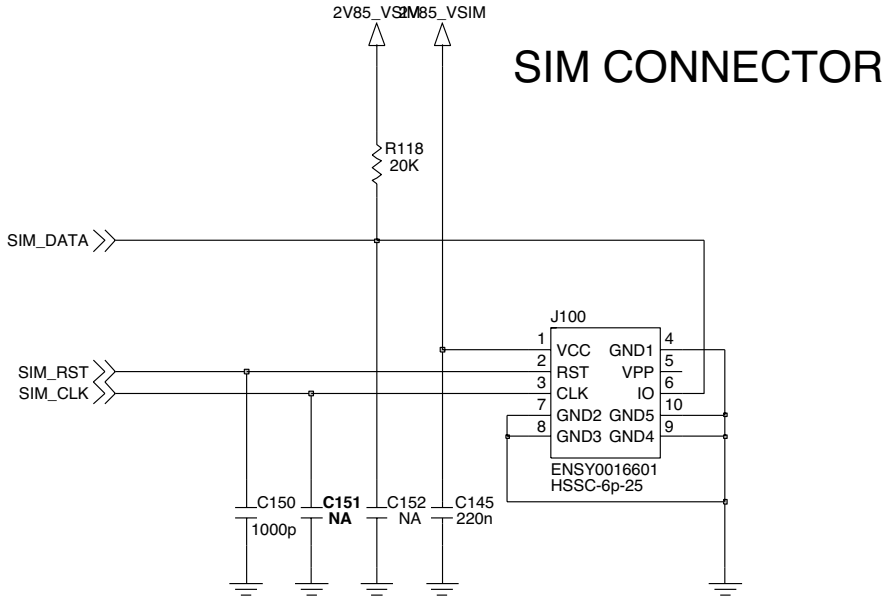


Figure 3-5 SIM Interface of AD6720

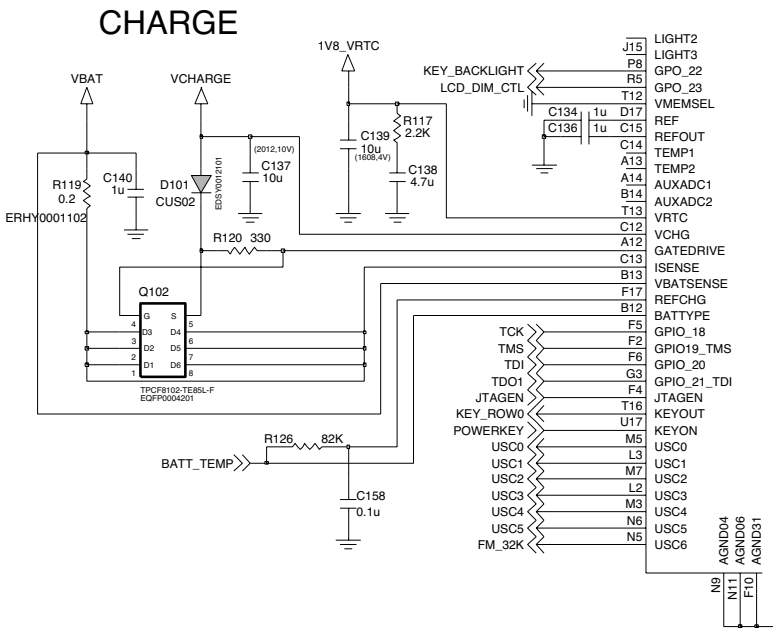
E. LDO Block

There are 8 LDOs in the AD6720.

- VCORE : supplies Digital base band Processor core and AD6720 digital core
- VMEM : supplies external memory and the interface to the external memory on the digital base band processor (1,8V or 2.8V, 150mA)
- VEXT : supplies Radio digital interface and high voltage interface (2.8V, 170mA)
- VSIM : supplies the SIM interface circuitry on the digital processor and SIM card(2.85V, 20mA)
- VRTC : supplies the Real-Time Clock module (1.8 V, 20μA)
- VABB : supplies the analog portions of the AD6720
- VMIC : supplies the microphone interface circuitry (2.5 V, 1 mA)
- VVCXO : supplies the voltage controlled crystal oscillator (2.75 V, 10 mA)

3.3.3 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. Charging Process
   - Check charger is inserted or not
   - If AD6720 detects that Charger is inserted, the CC-CV charging starts.
   - Exception : When battery voltage is lower than 3.2V, the precharge(low current charge mode) starts firstly.
   - And the battery voltage reach to 3.2V the CC-CV charging starts.
3. Pins used for charging
   - VCHG : charger supply.
   - GATEDRIVE : charge DAC output
   - ISENSE : charge current sense input
   - VBATSENSE : battery voltage sense input.
   - BATTYPE : battery type identification input
   - REFCHG : voltage reference output
4. TA (Travel Adaptor)
   - Input voltage: AC 100V ~ 240V, 50~60Hz
   - Output voltage: DC 4.8V
   - Output current: Max 800mA
5. Battery
   - Li-ion battery (Max 4.2V, Nom 3.7V)
   - Standard battery: Capacity - 830mAh



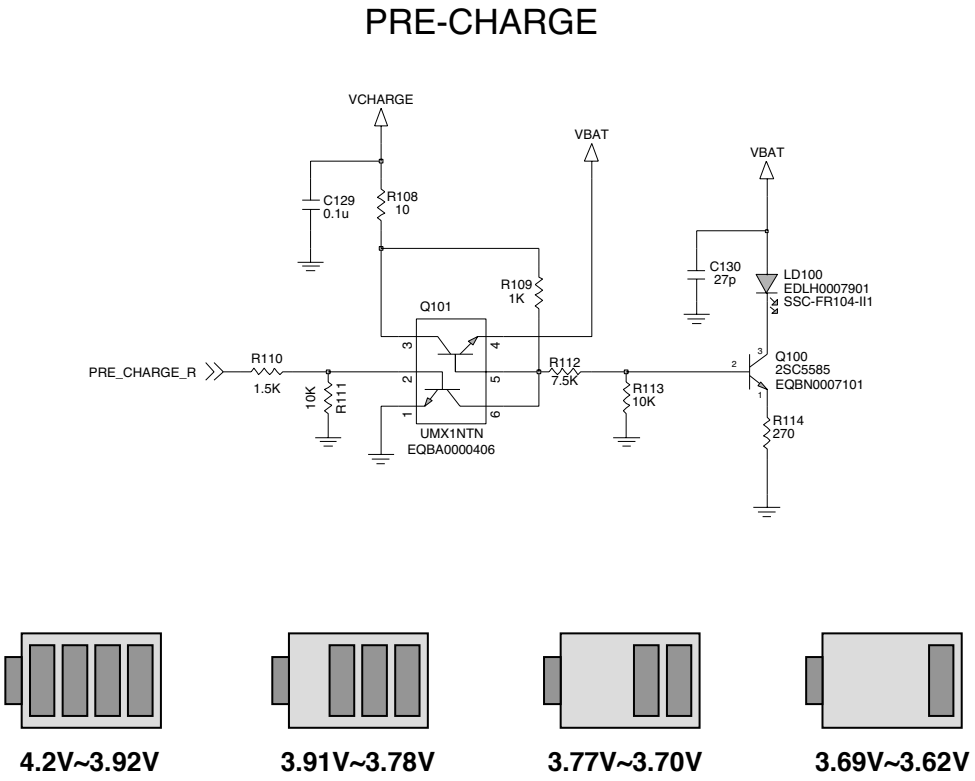


Figure 3-6 Circuit For Battery Charging and Battery Block Indication

3.3.4 Display and Interface

LCD Controlled by L_MAIN_LCD_CS, L_SUB_LCD_CS, LCD_RESET, LCD_RS, LCD_WR, L_RD, LCD_ID, L_DATA[00:15] ports, VSYNC_OUT.

- L_MAIN_LCD_CS : MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
- L_SUB_LCD_CS : SUB LCD driver chip enable. SUB LCD driver IC has own CS pin
- LCD_RST : This pin resets LCD module. This signal comes from AD6720 directly.
- LLCD_RS: This pin determines whether the data to LCD module are display data or control data.
- L_WR : Write control Signal
- L_RD : Read control Signal. But this pin used only for debugging.
- L_DATA[00:15] : Parallel data lines.
- LCD_ID: LCD type selection signals
- VSYNC_OUT : Vsync Interface
- For using 65K color, data buses should be 16 bits.

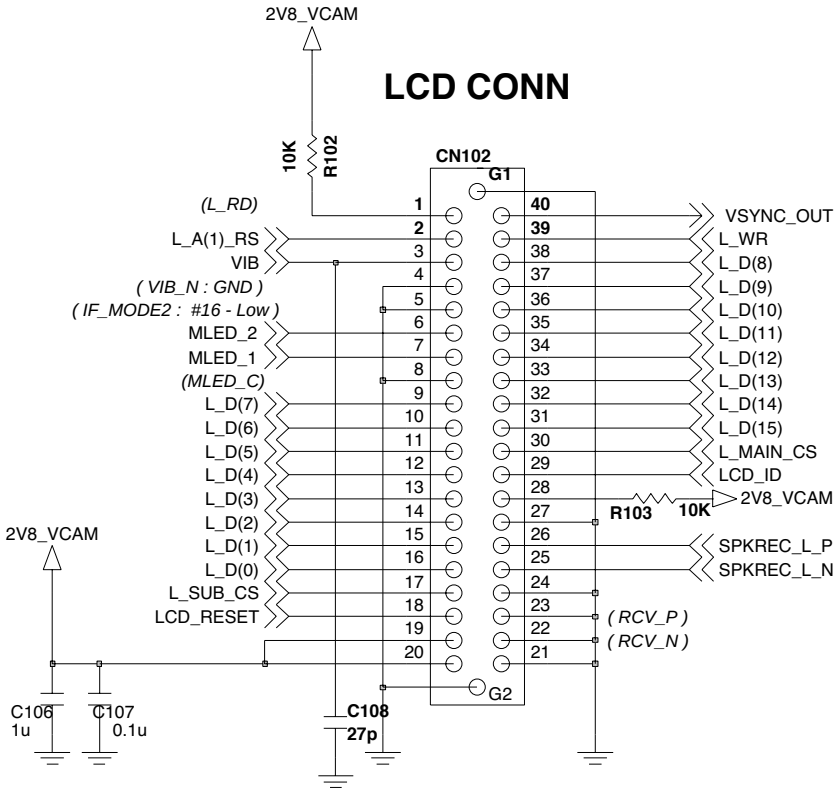


Figure 3-7 LCD Interface Circuit

3.3.5 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 21 switches, connected in a matrix of 5 rows by 5 columns as shown in Figure 3-8, except for the power switch, which is connected independently. Functions, the row and column lines of the keypad are connected to ports of AD6720. 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 AD6720 to identify the pressed key.

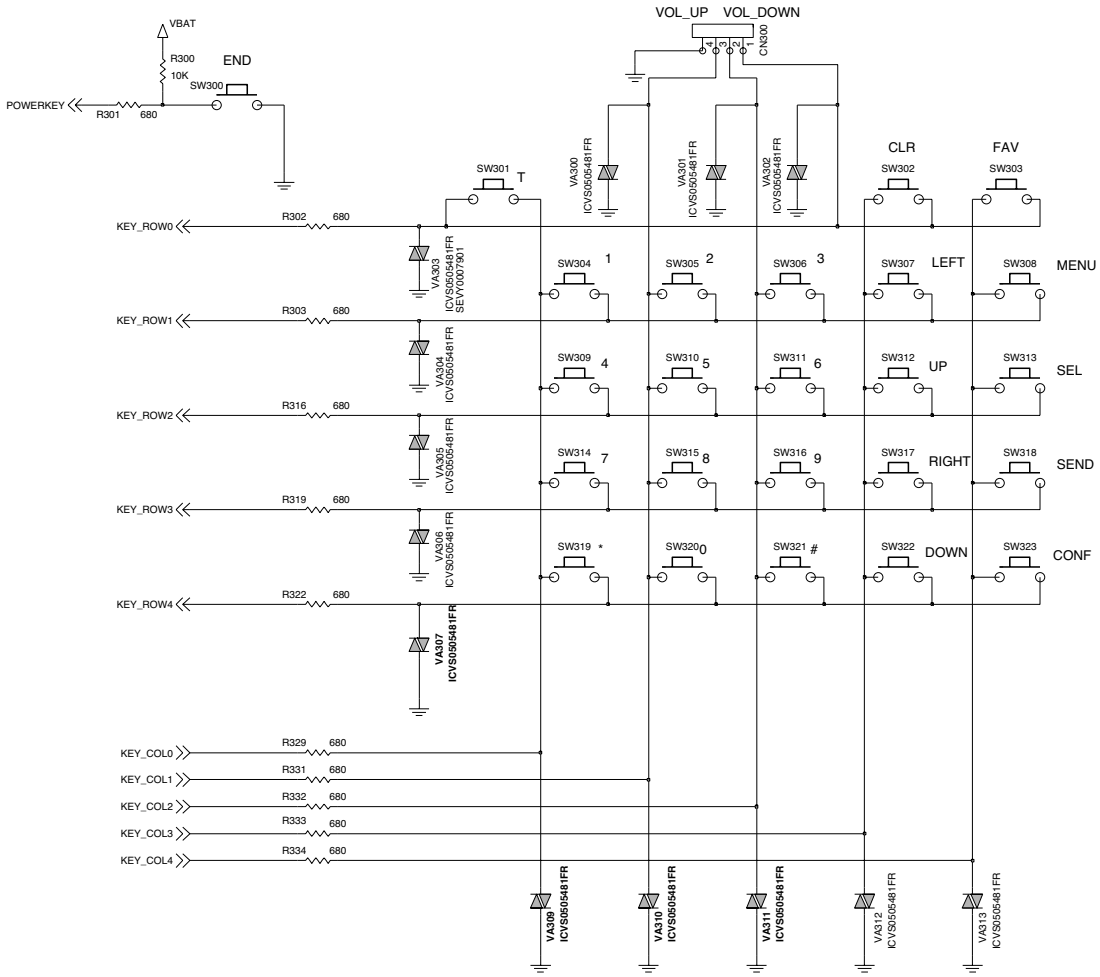


Figure 3-8 Keypad Switches and Scanning

3.3.6 Microphone

The microphone is placed to the front cover and contacted to main PCB. The audio signal is passed to AIN1P and AININ pins of AD6720. The voltage supply VMIC is output from AD6720, and is a biased voltage for the AIN1P. The AIN1P and AIN1N signals are then A/D converted by the voiceband ADC part of AD6720.The digitized speech (PCM 8KHz ,16KHz) is then passed to the DSP section of AD6720 for processing (coding, interleaving etc).

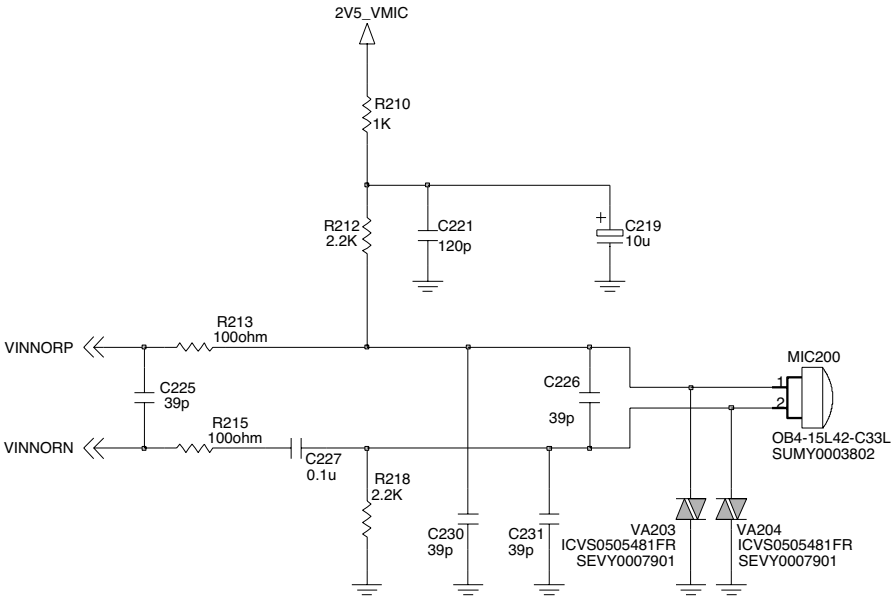


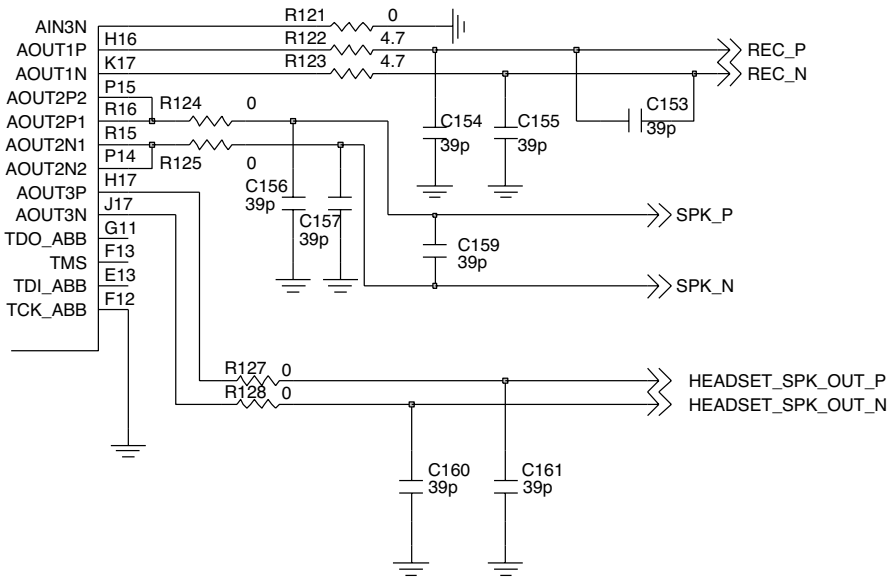
Figure 3-9 Connection Between Microphone And AD6720

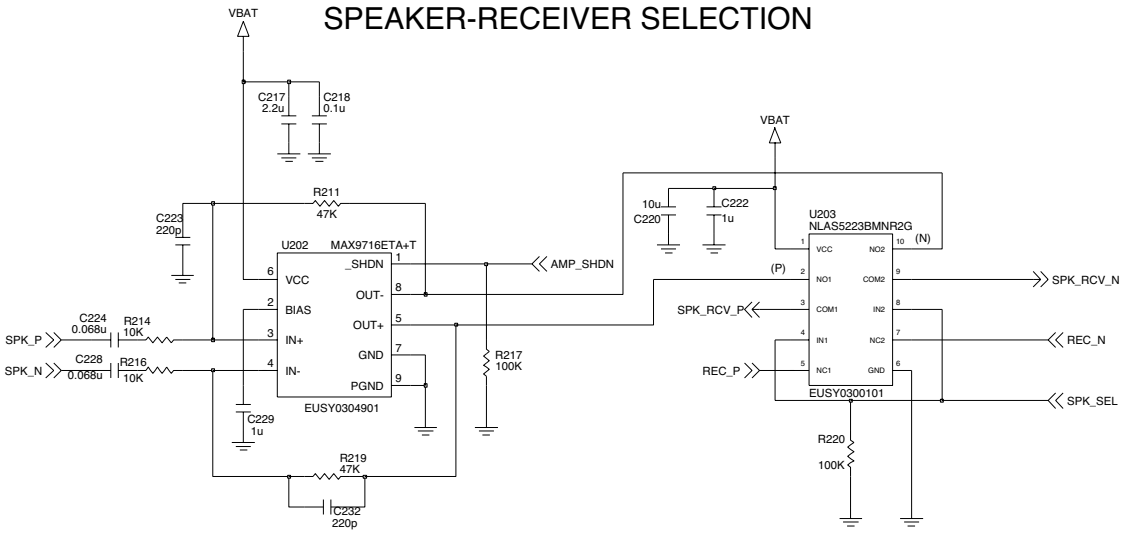
3.3.7 Soft-midi and Main Speaker

The TTPCom Embedded MIDI & Polyphonic Orchestra product, “TEMPO”, is a complete MIDI music player solution offering the following features:

- MIDI-standards compliant
- MIDI files playable as polyphonic ringtones
- Low memory footprint - less than 8 kB internal MCU system RAM
- 40 notes polyphony
- Intelligent note-stealing algorithm ensures optimum use of available synthesizer polyphony
- Open API enabling product differentiation via the addition of MIDI music support to existing and new customer applications
- MIDI file parser supports Standard MIDI (formats 0, 1 and 2), SMAF-MA3, GM-Lite and SP-MIDI

The main speaker is driven directly by AD6720 AOUT2P and AOUT2N pins and the gain is controlled by the PGA in an AD6720.





SPEAKER FILTER

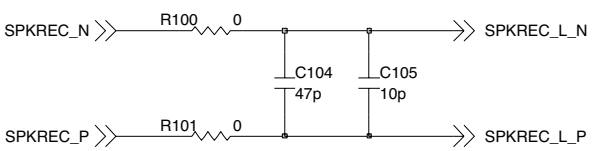


Figure 3-10 Main Speaker Circuit

3.3.8 Headset Interface

This phone has 5 electrodes such as GND, AUXIP, ACK_DETECT, HOOK_DETECT. This type supports mono sound.

Switching from Receiver to Headset Jack

If jack is inserted, JACK_DETECT goes from high to low.
Audio path is switched from receiver to earphone by JACK_DETECT interrupt.

Switching from Headset Jack to Receiver

If jack is removed, JACK_DETECT goes from low to high.
Audio path is switched from earphone to receiver by JACK_DETECT interrupt.

Hook detection

If hook-button is pressed, HOOK_DETECT is changed from low to high.
This is detected by AUXADC2.
And then hook is detected.

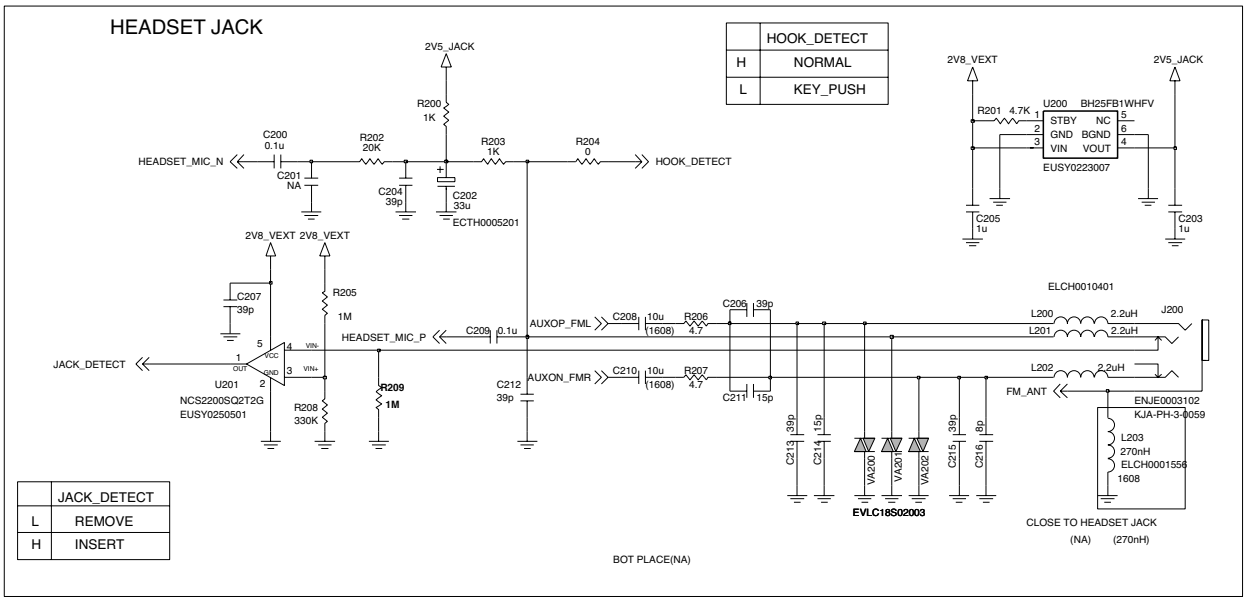


Figure 3-11 Headset Jack Interface

3.3.9 Key Back-light Illumination

In key back-light illumination, there are 12 White LEDs in Main Board, which are driven by KEY_BACKLIGHT signal from AD6720.

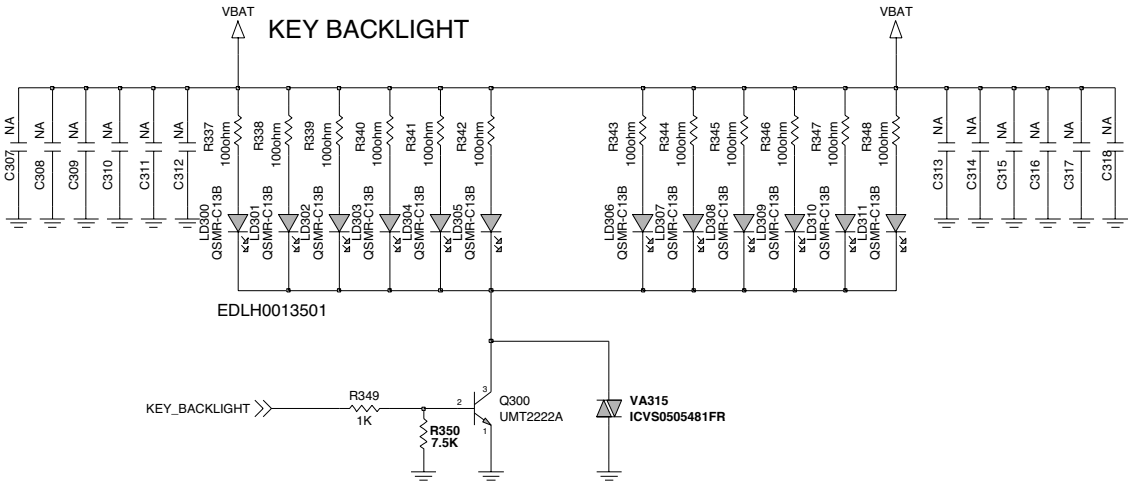


Figure 3-12 Key Backlight Illumination

3.3.10 LCD Back-light Illumination

LCD backlight LEDs is controlled by AD6720 via AAT3120, U400.

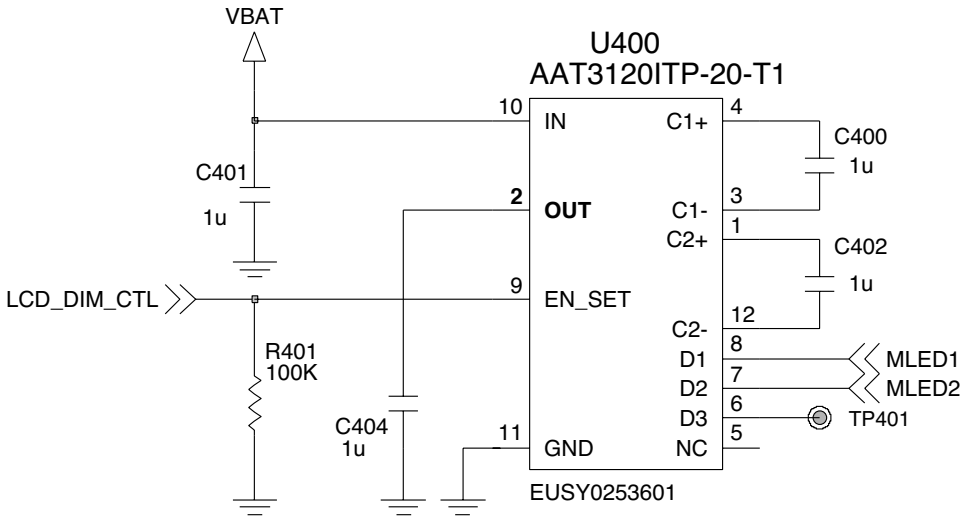


Figure 3-13 LCD Backlight Illumination

3.3.11 VIBRATOR

The vibrator is placed in the folder cover and contacted to LCD MODULE. The vibrator is driven from VIBRATOR (GPIO_0) of AD6720

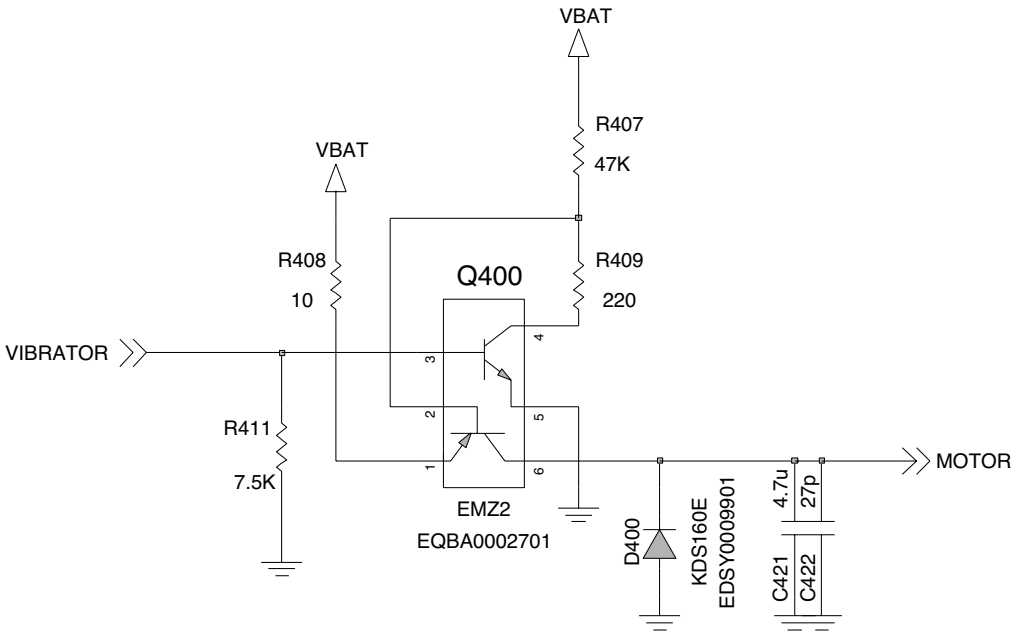
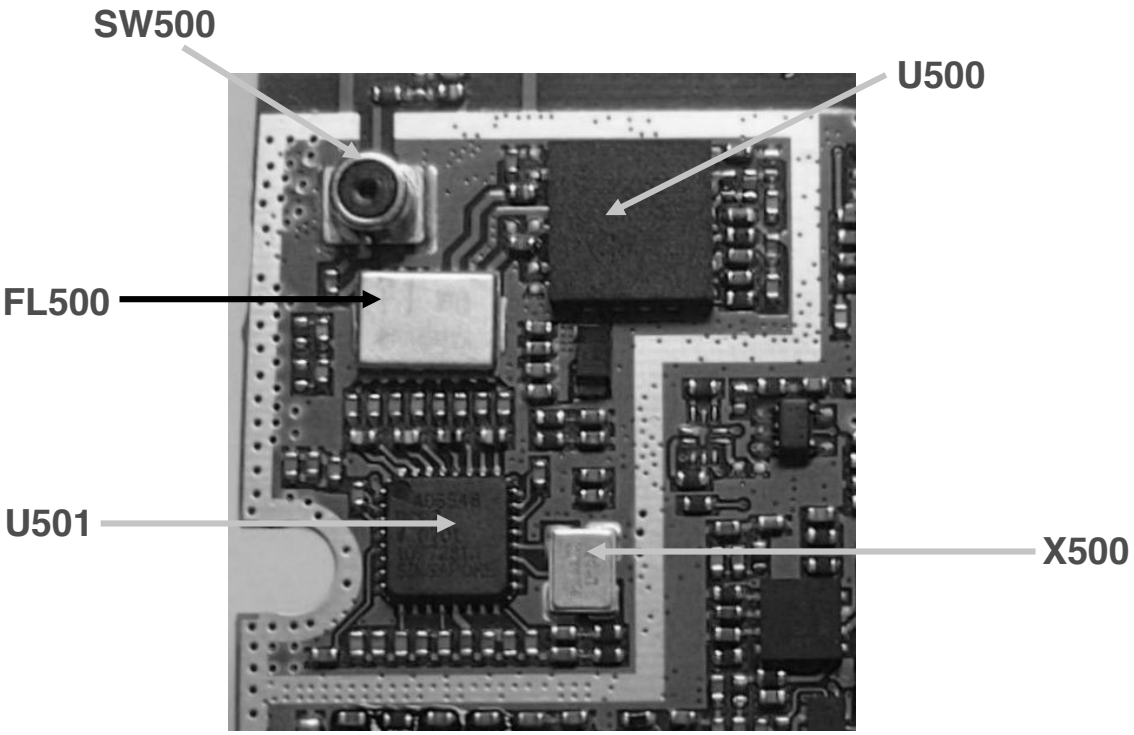


Figure 3-14 Vibrator Circuit

4. TROUBLE SHOOTING

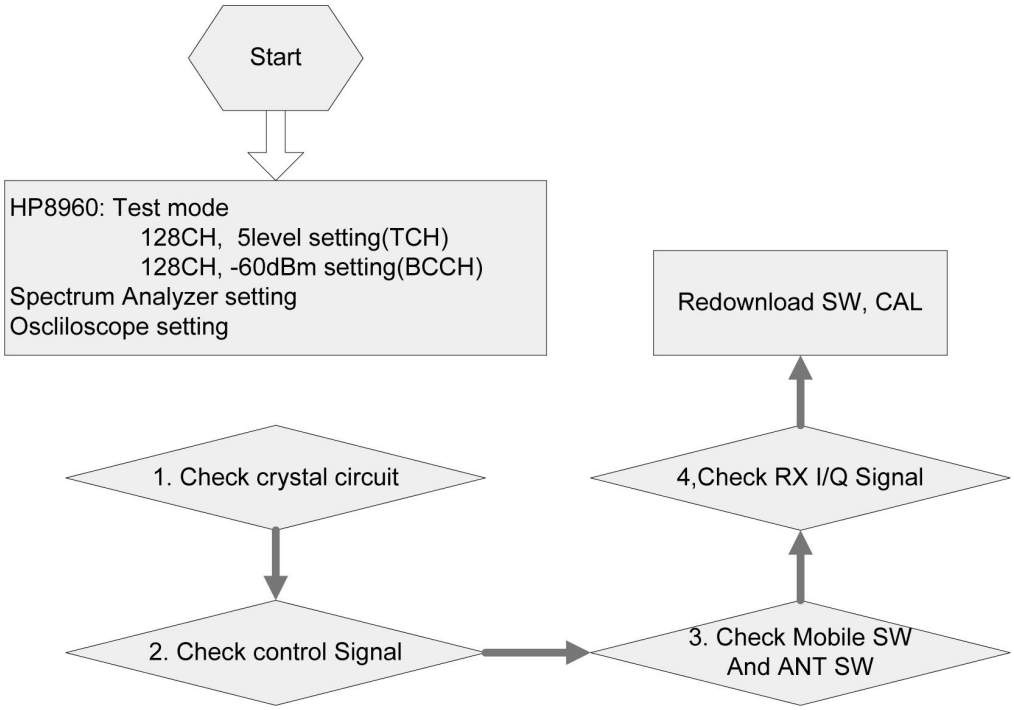
4.1 RF components



REFERENCE	PART Description
U500	PAM (Power Ampilifier Module)
X500	OSC (26MHz)
FL500	FEM (Front End Module)
U501	Transceiver
SW500	Mobile Switch

Table 4-1. RF Components

4.2 RX Trouble



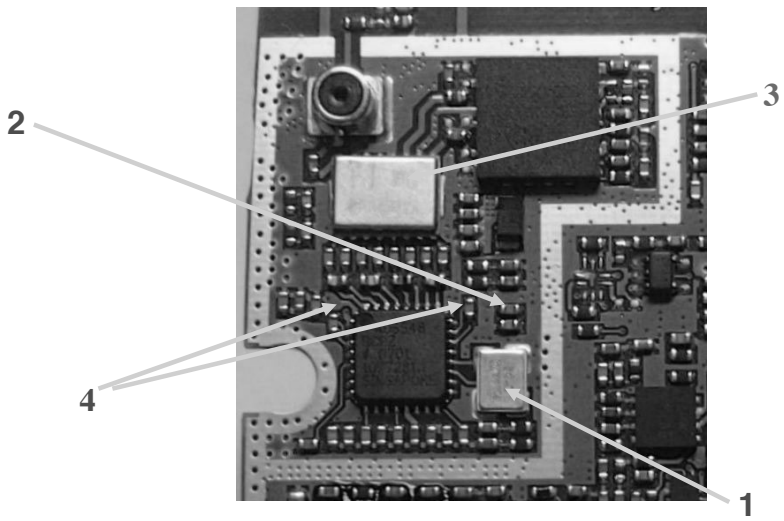
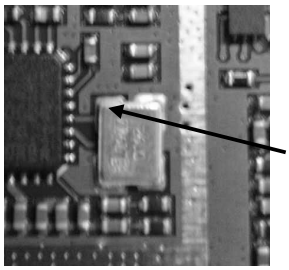


Figure 4-2. Receiver Part

4.2.1 Check Crystal Circuit



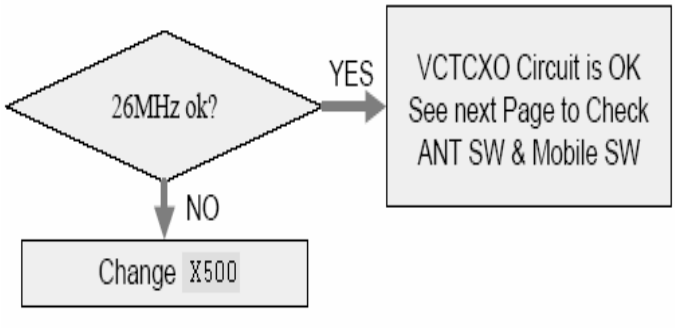


Figure 4-3

4.2.2 Check Control Signal

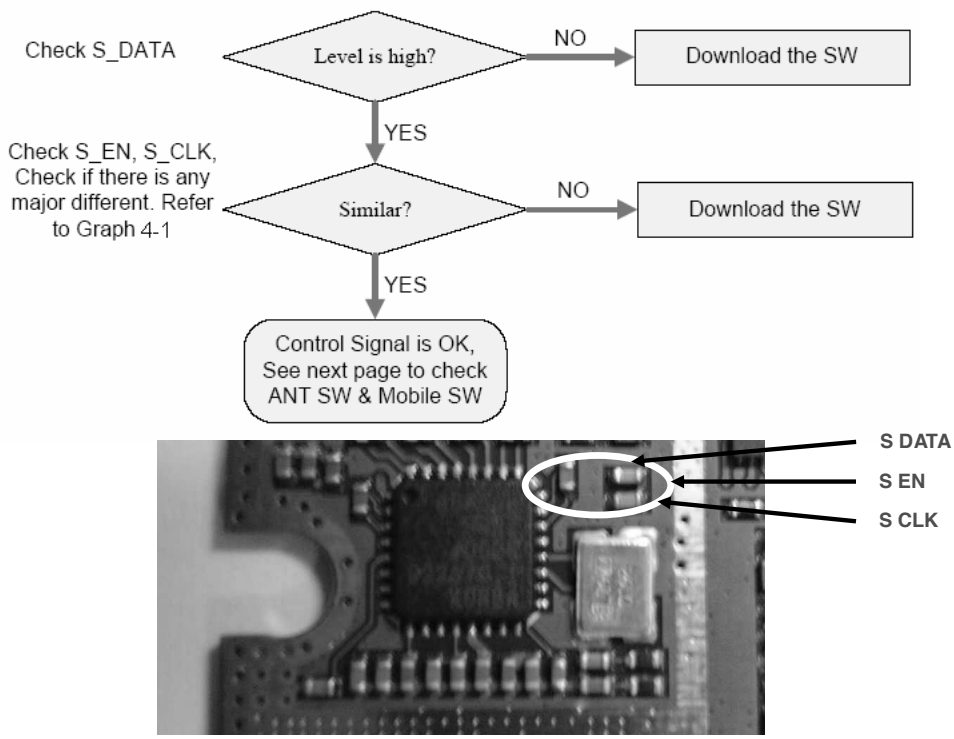
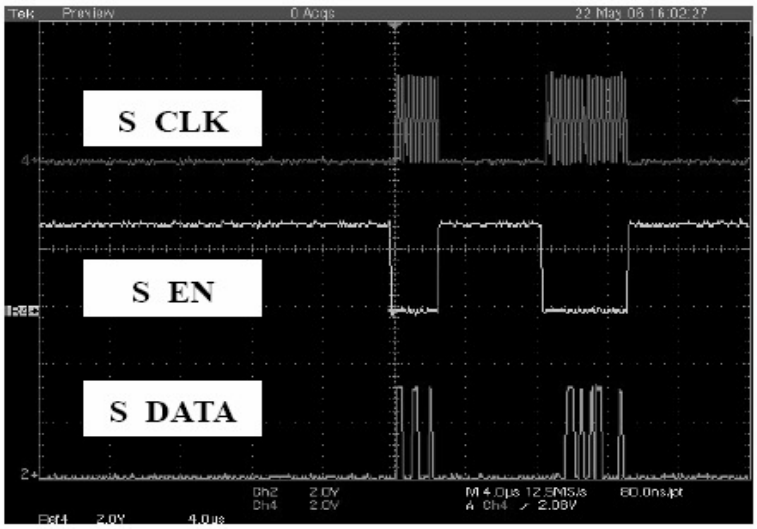
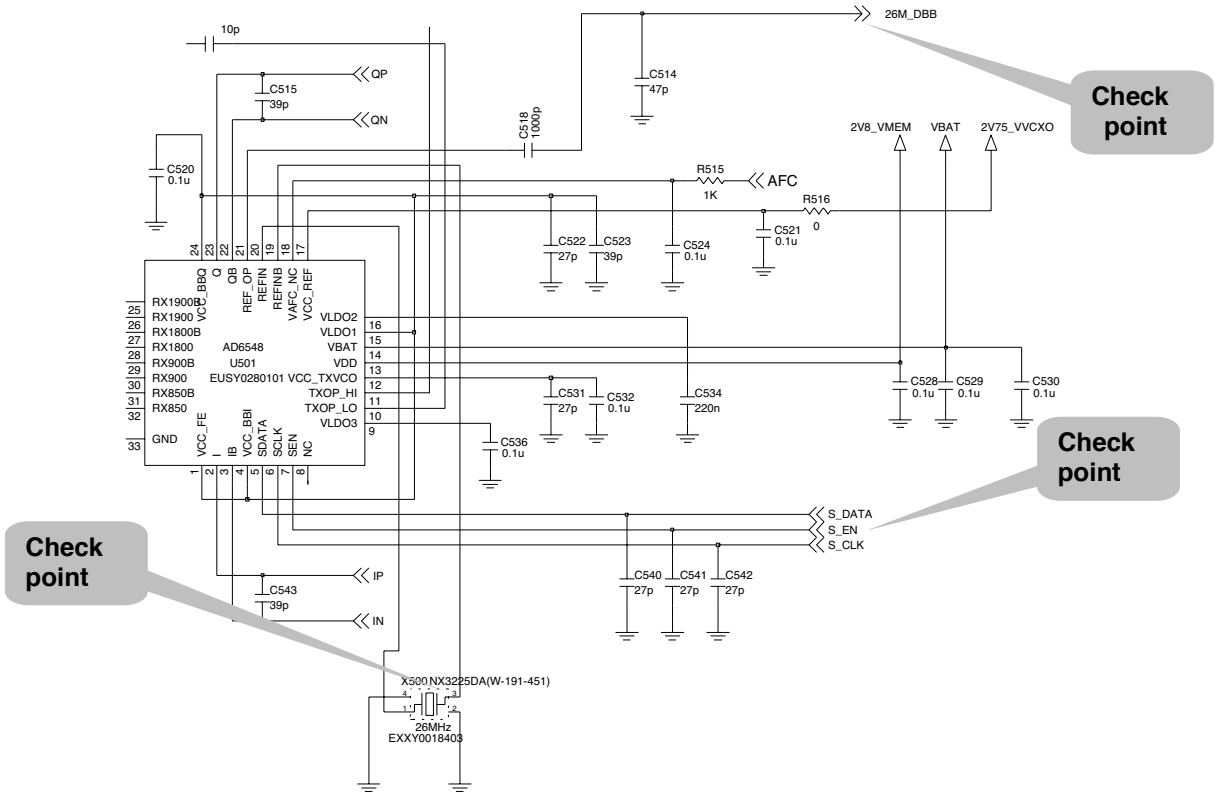


Figure 4-4

4. TROUBLE SHOOTING

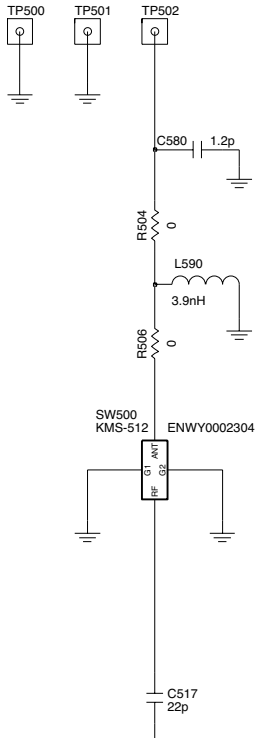


Graph 4-1



4.2.3 Check Mobile SW & ANT SW

Check Mobile SW



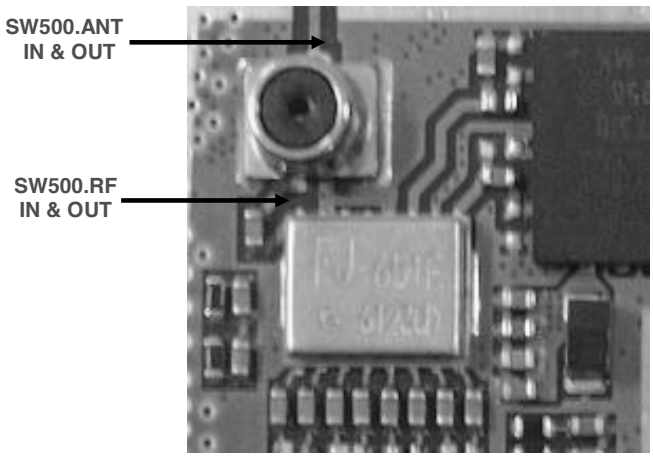
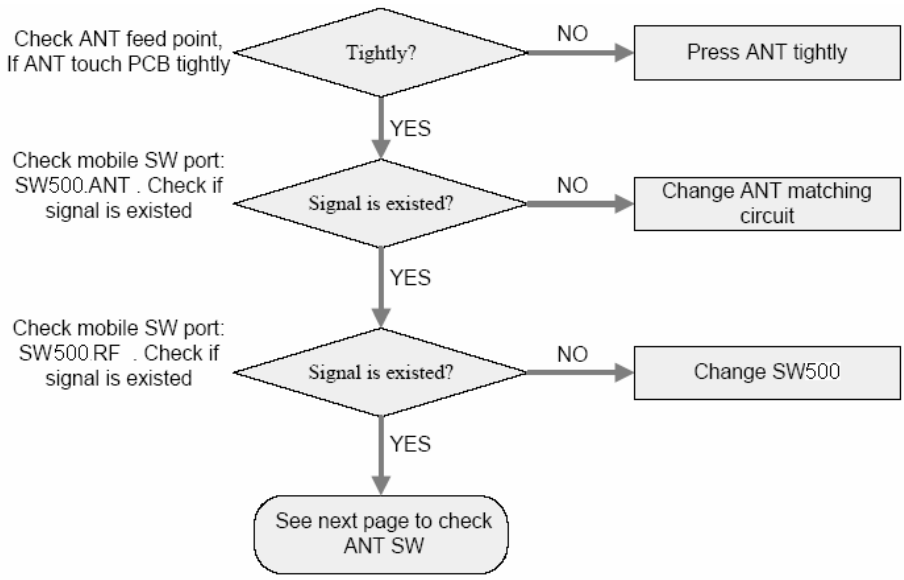


Figure 4-5



4.2.4 Check ANT SW(SAW filter)

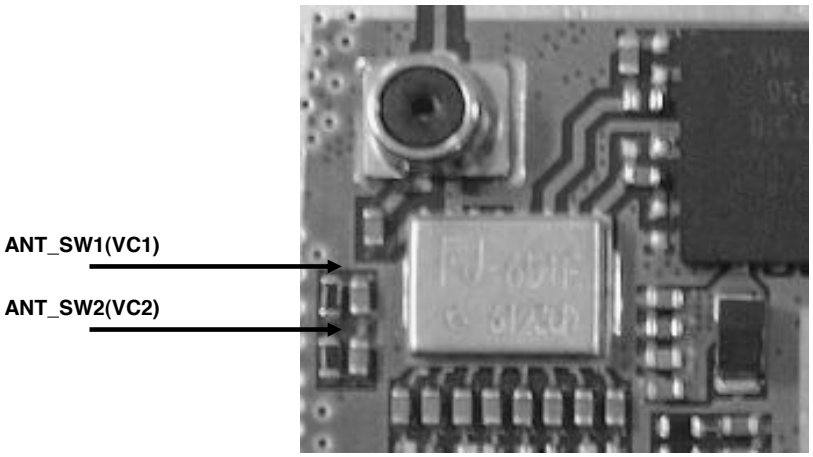
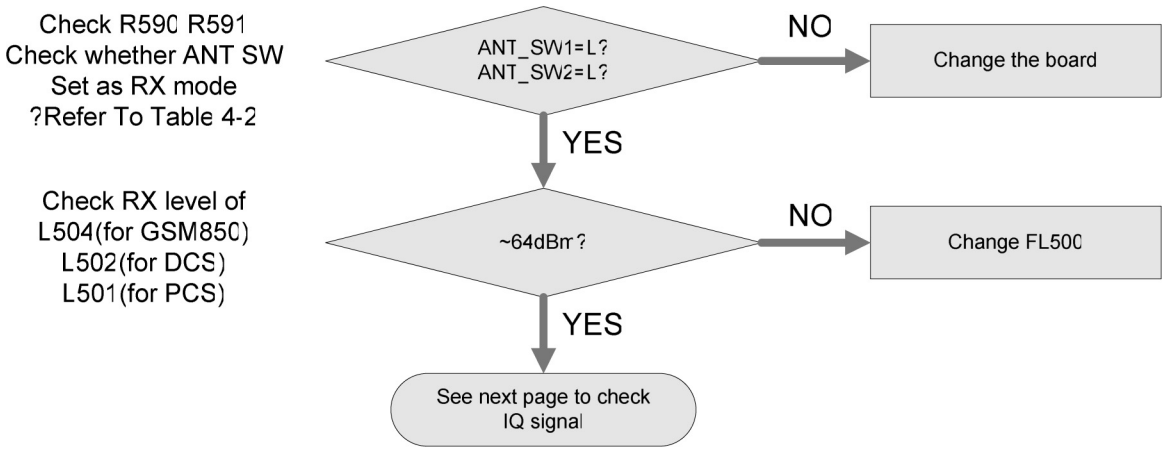


Figure 4-6

MODE	VC1	VC2
GSM1800/1900 Rx	L	L
GSM850/900 Rx	L	L
GSM850/900 Tx	H	L
GSM1800/1900 Tx	L	H

Table 4-3



4.2.5 Check I/Q signal

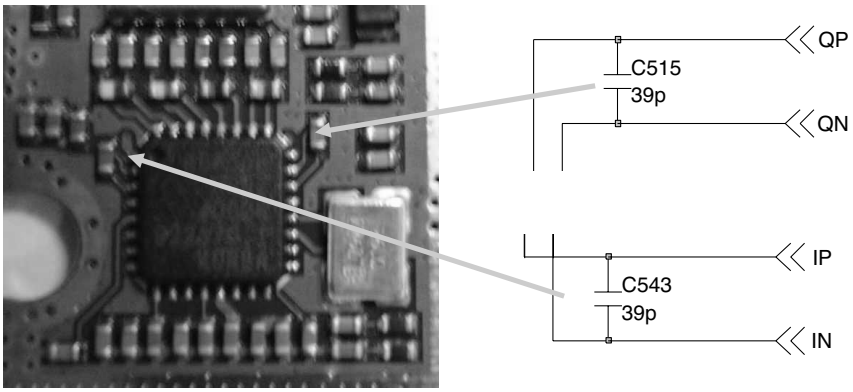
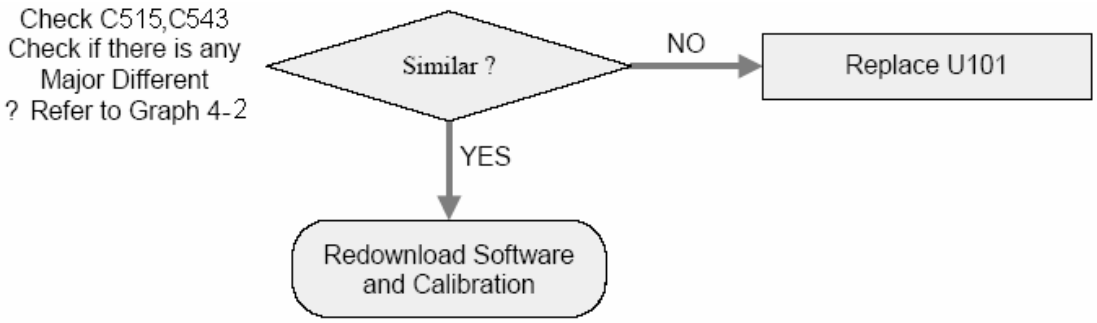
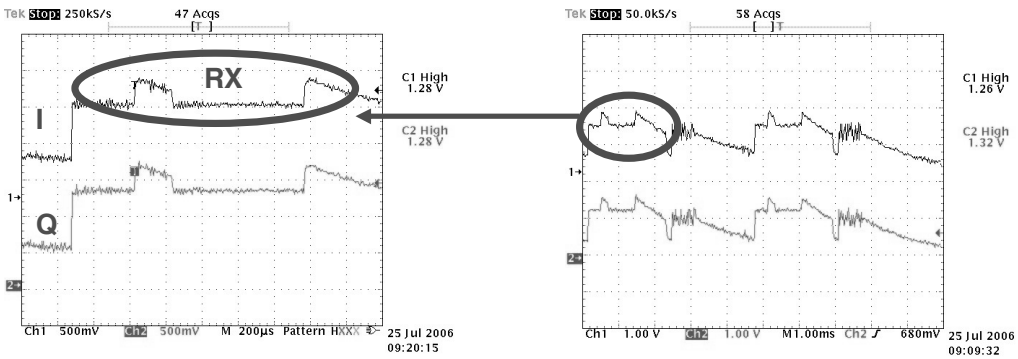


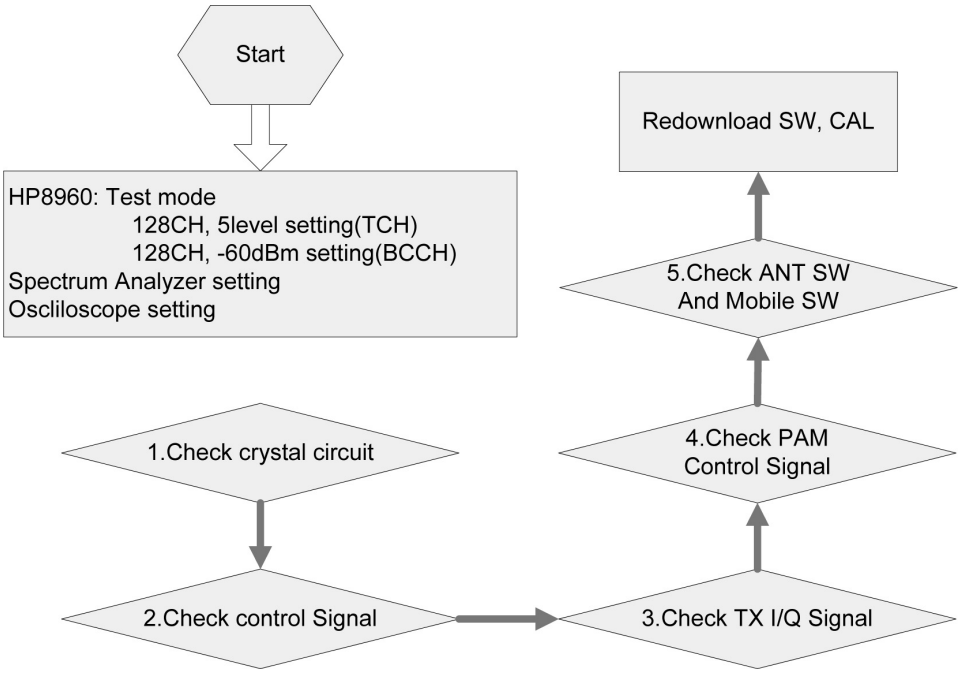
Figure 4-8





Graph 4-2

4.3 TX Trouble



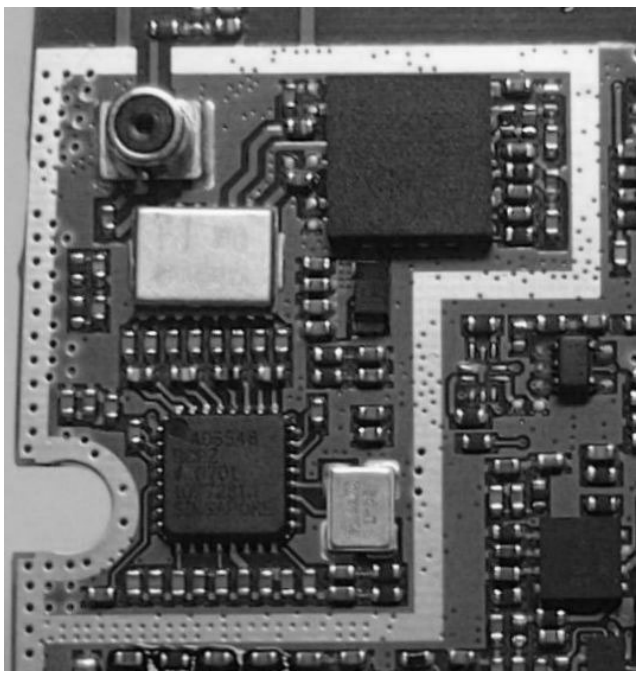


Figure 4-9

4.3.1 Check Crystal Circuit

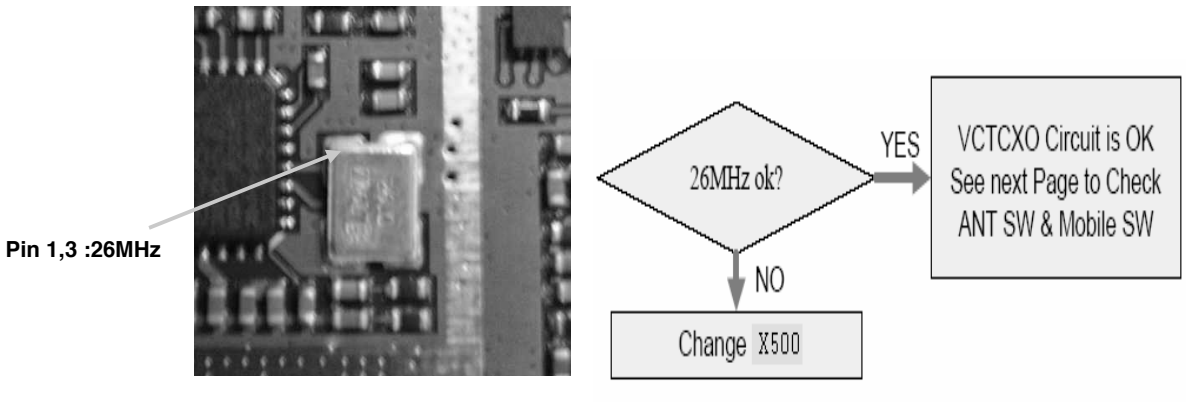
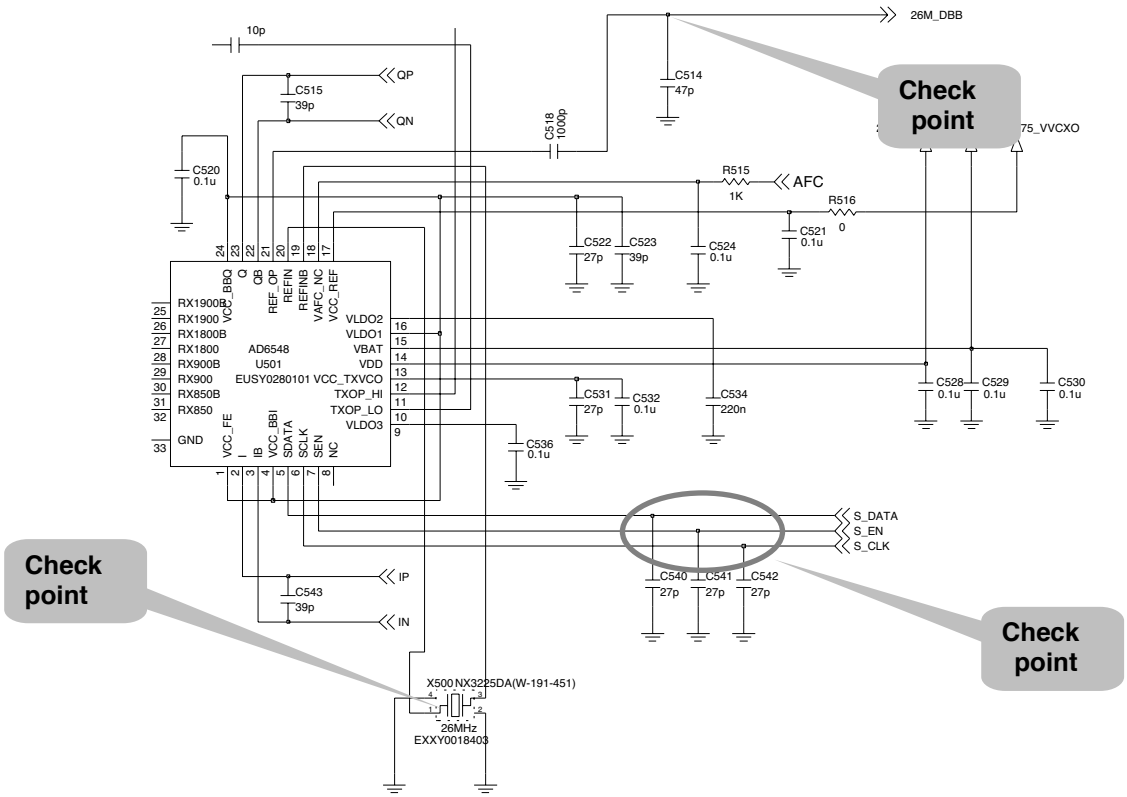
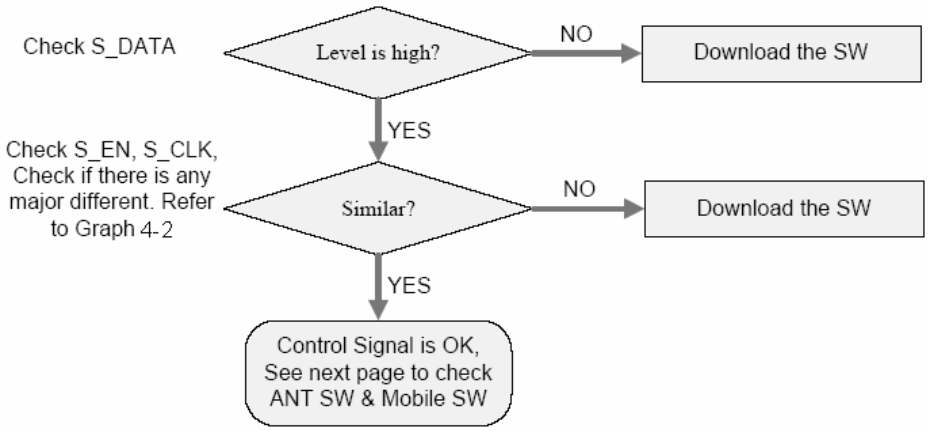


Figure 4-10



4.3.2 Check Control Signal



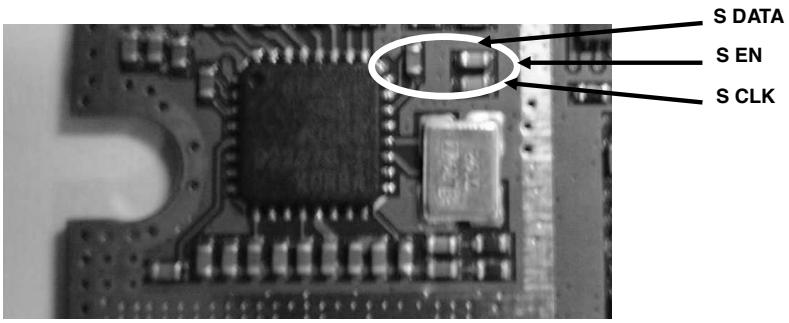
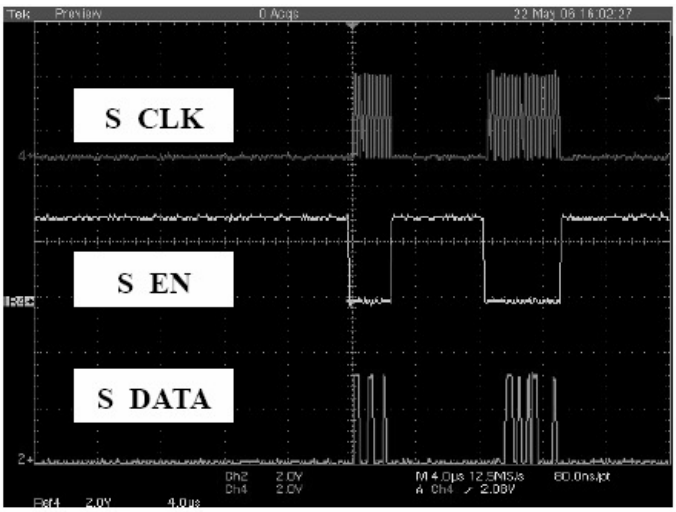


Figure 4-11



Graph 4-2

4.3.3 Check TX I/Q signal

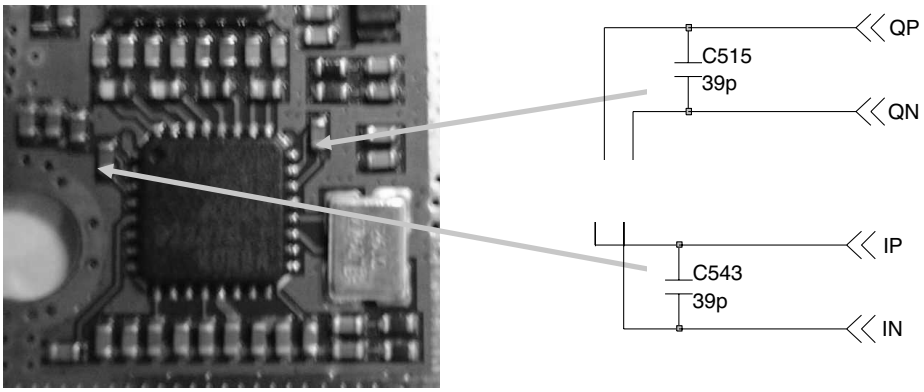
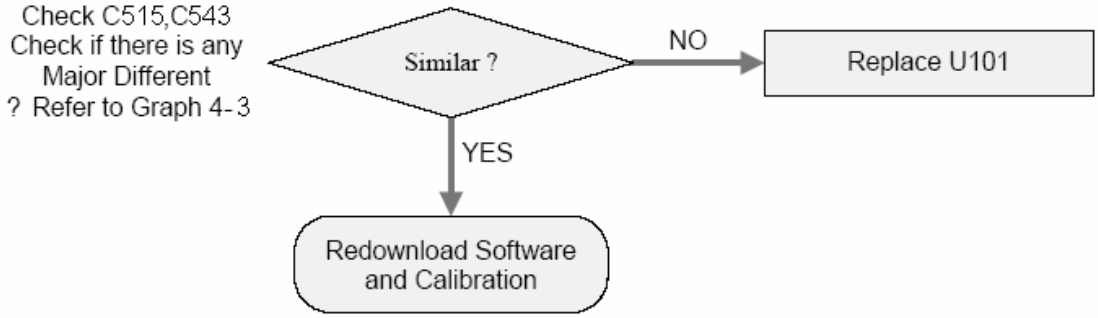
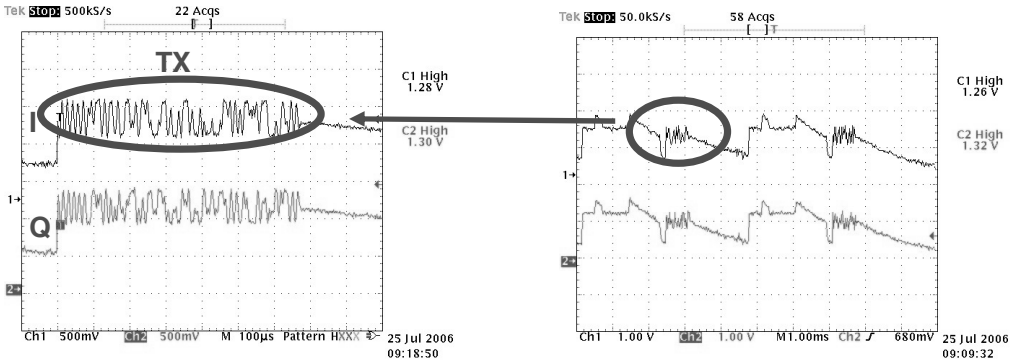


Figure 4-12





Graph 4-2

4.3.4 Check PAM control signal

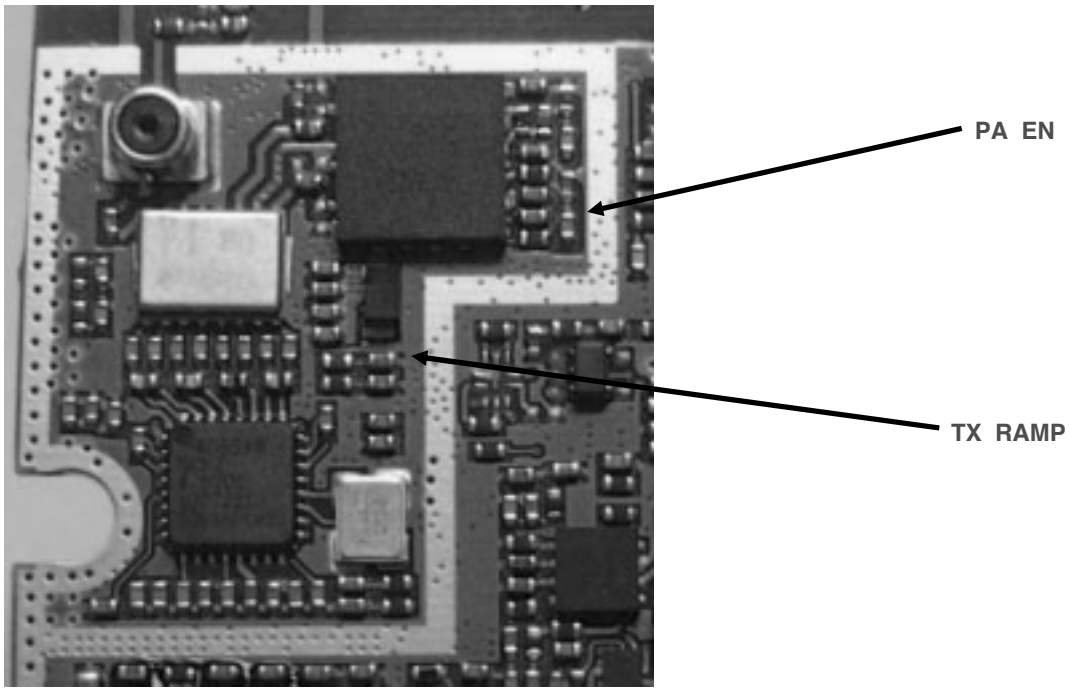
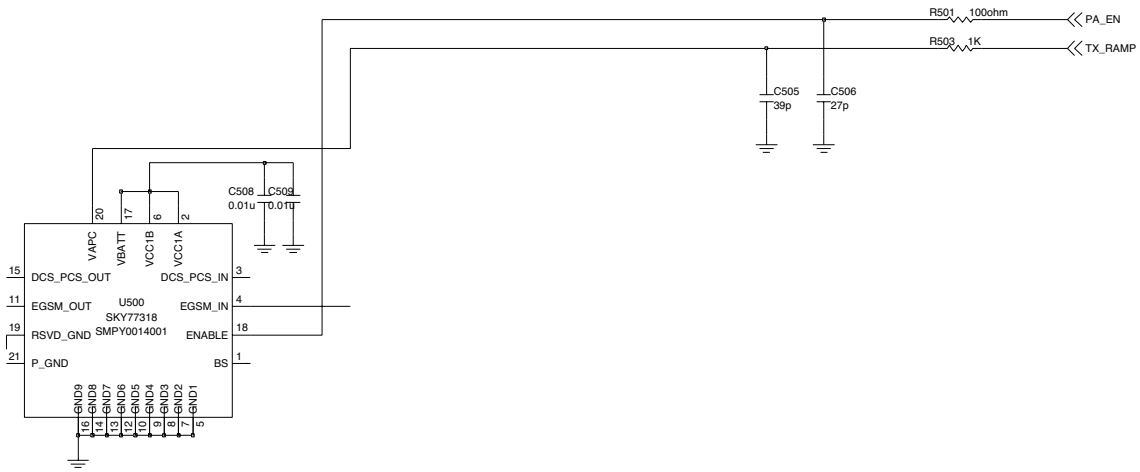
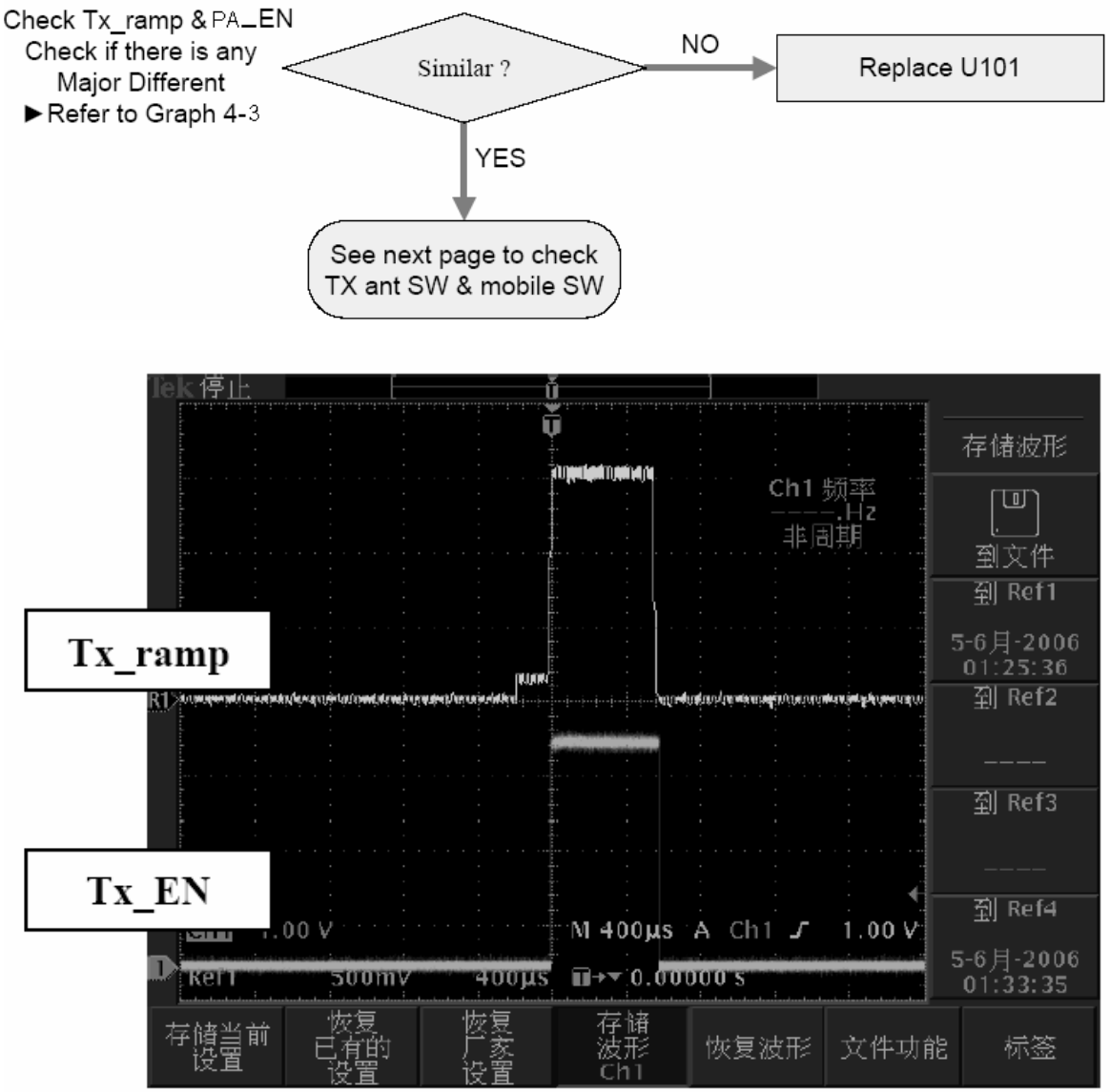


Figure 4-13




Check Tx_ramp & PA_EN
Check if there is any
Major Different
►Refer to Graph 4-3
Similar ?
NO
Replace U101
YES
See next page to check
TX ant SW & mobile SW
Tx_ramp
Tx_EN
Ch1 频率
非固期
存储波形
到文件
到 Ref1
5-6月-2006
01:25:36
到 Ref2
到 Ref3
到 Ref4
5-6月-2006
01:33:35
M 400µs A Ch1 1.00 V
Ref1 500mV 400µs 0.00000 s
存储当前设置
恢复已有的设置
恢复厂家设置
存储波形 Ch1
恢复波形
文件功能
标签

Graph 4-3

4.3.5 Check Mobile SW & ANT SW

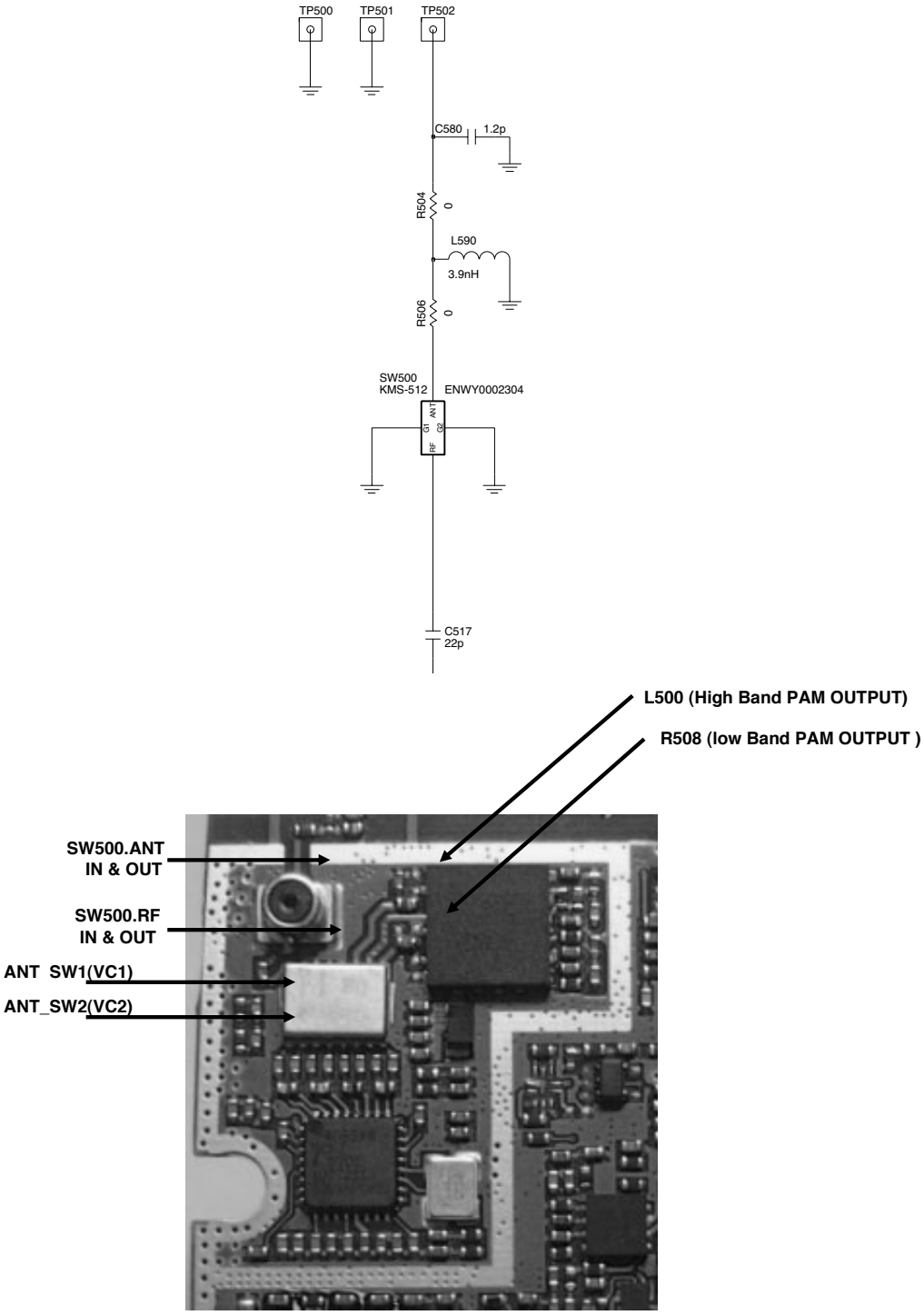
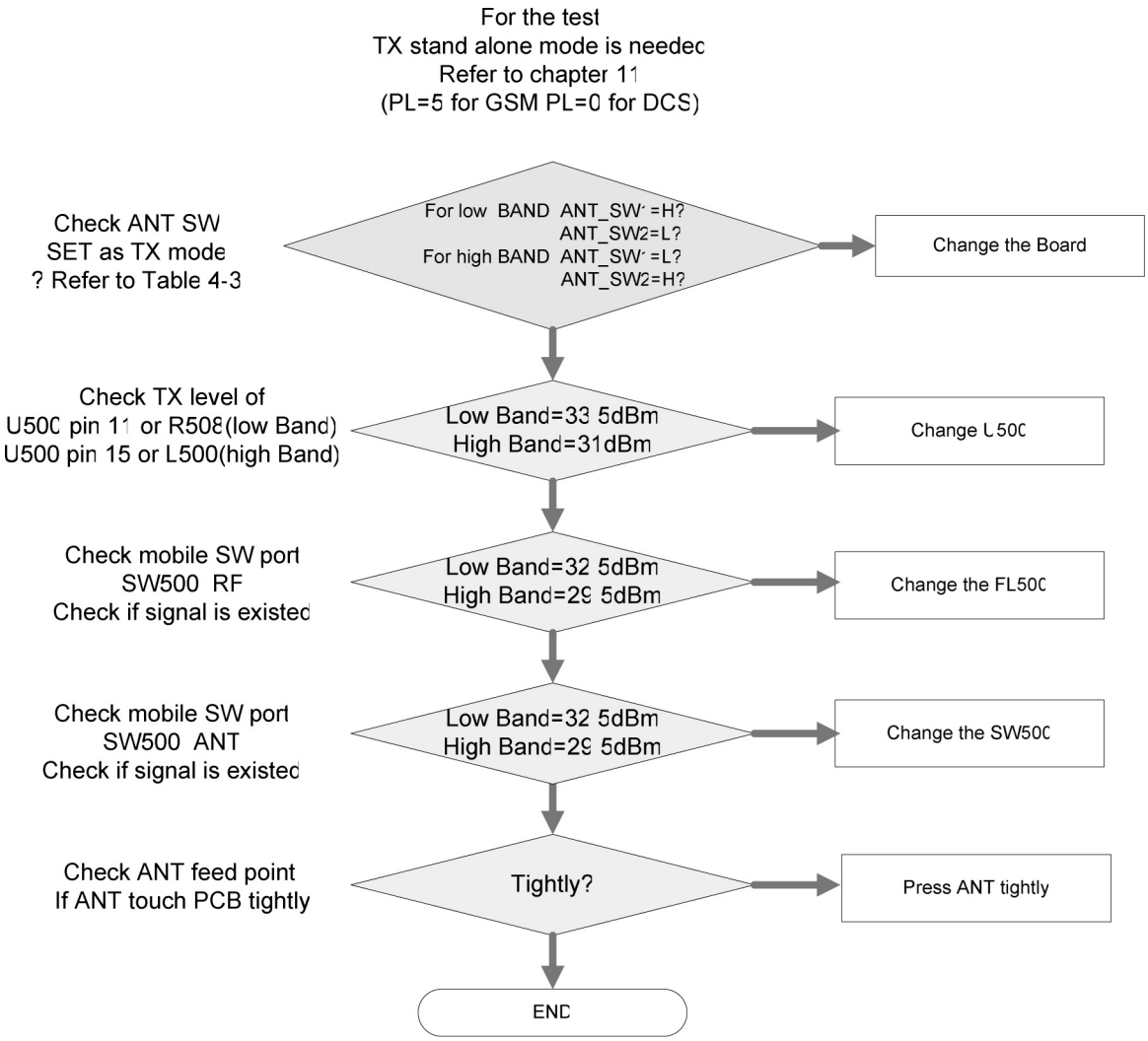


Figure 4-14

MODE	VC1	VC2
GSM1800/1900 Rx	L	L
GSM850/900 Rx	L	L
GSM850/900 Tx	H	L
GSM1800/1900 Tx	L	H

Table 4-3



4.4 Power On Trouble

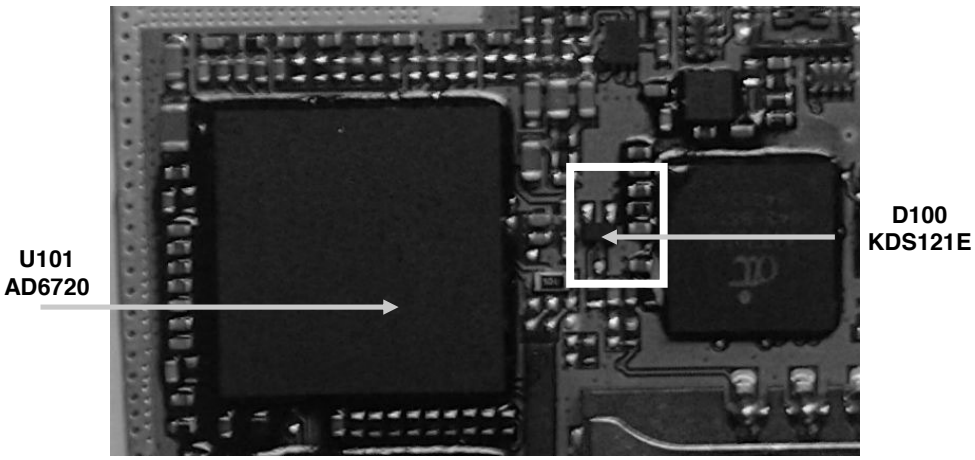
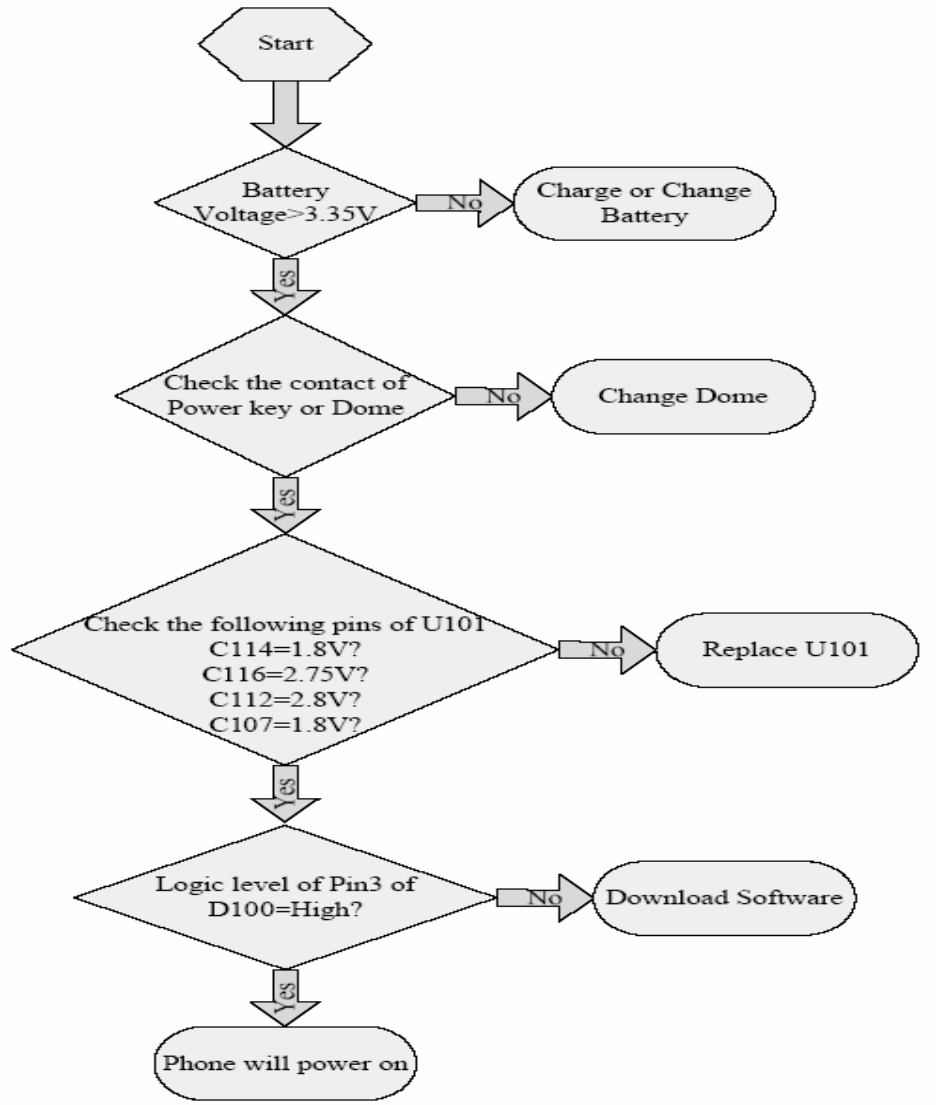


Figure 4-15

Check the Phone with the following process.



4.5 Charging Trouble

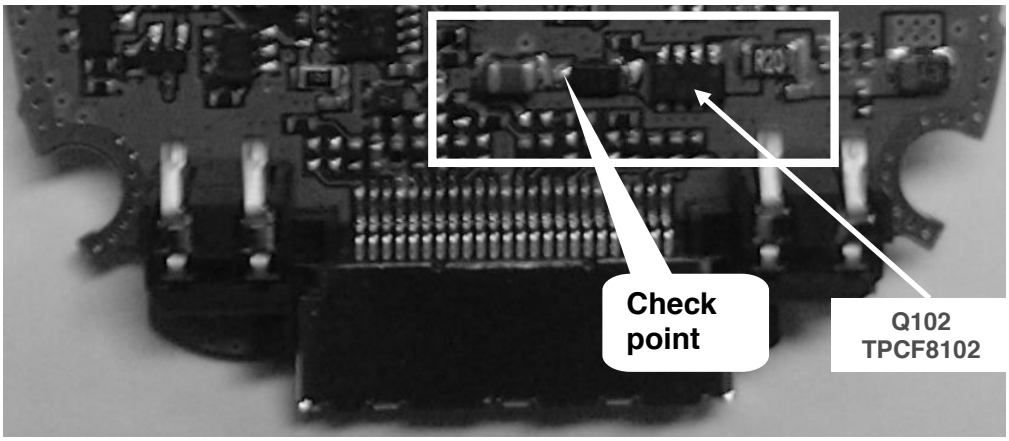
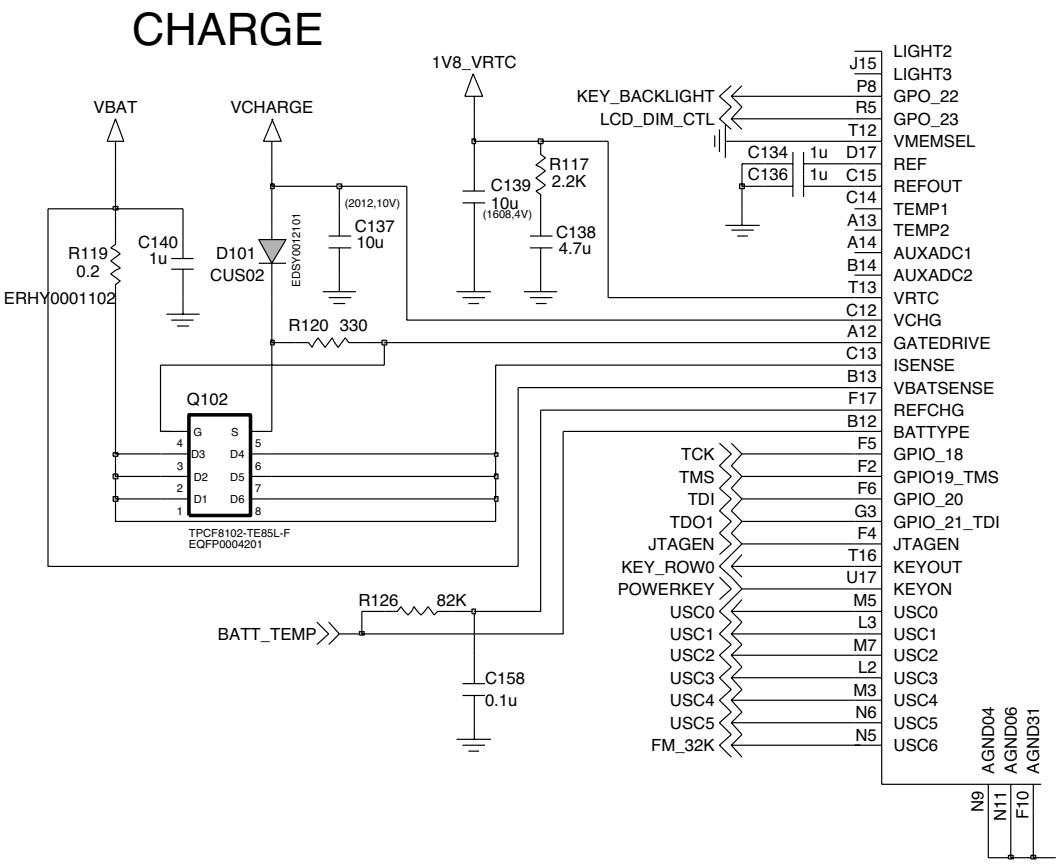
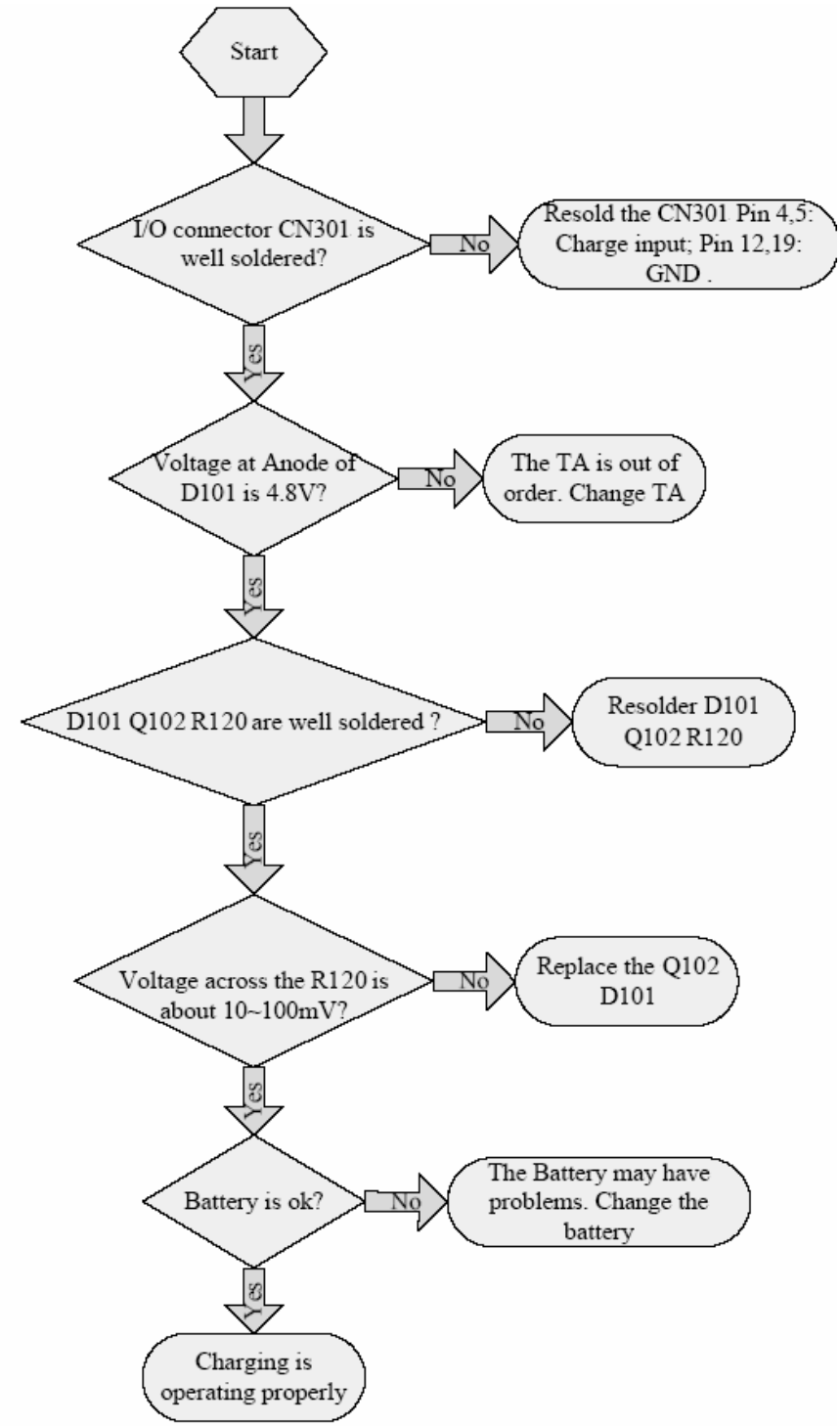


Figure 4-16




Start
I/O connector CN301 is well soldered?
No
Resold the CN301 Pin 4,5: Charge input; Pin 12,19: GND .
Yes
Voltage at Anode of D101 is 4.8V?
No
The TA is out of order. Change TA
Yes
D101 Q102 R120 are well soldered ?
No
Resolder D101 Q102 R120
Yes
Voltage across the R120 is about 10~100mV?
No
Replace the Q102 D101
Yes
Battery is ok?
No
The Battery may have problems. Change the battery
Yes
Charging is operating properly

4.6 LCD Trouble

4.6.1 LCD Blue Screen or abnormal display

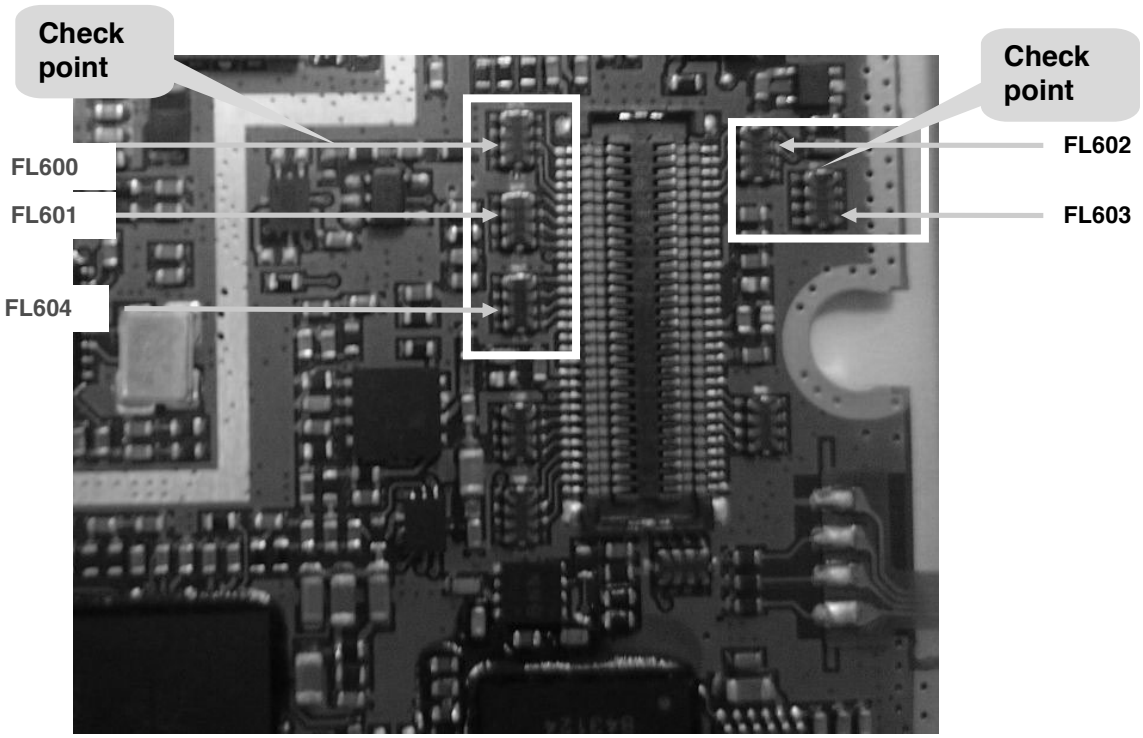
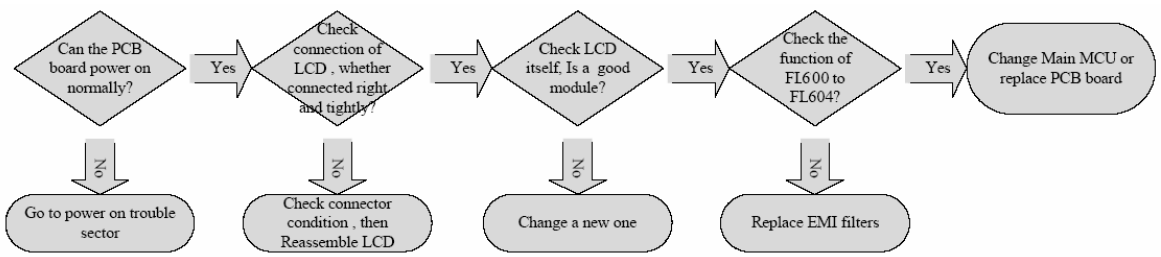


Figure 4-17

Checking Flow



4.6.2 LCD Black Screen

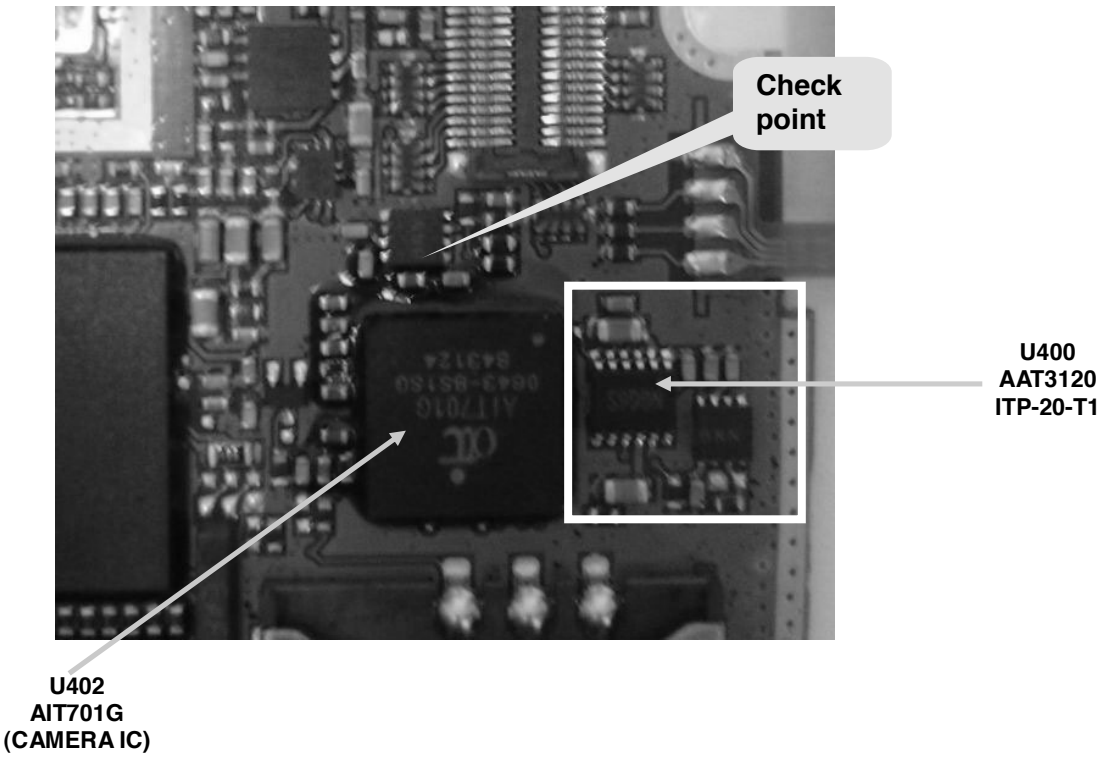
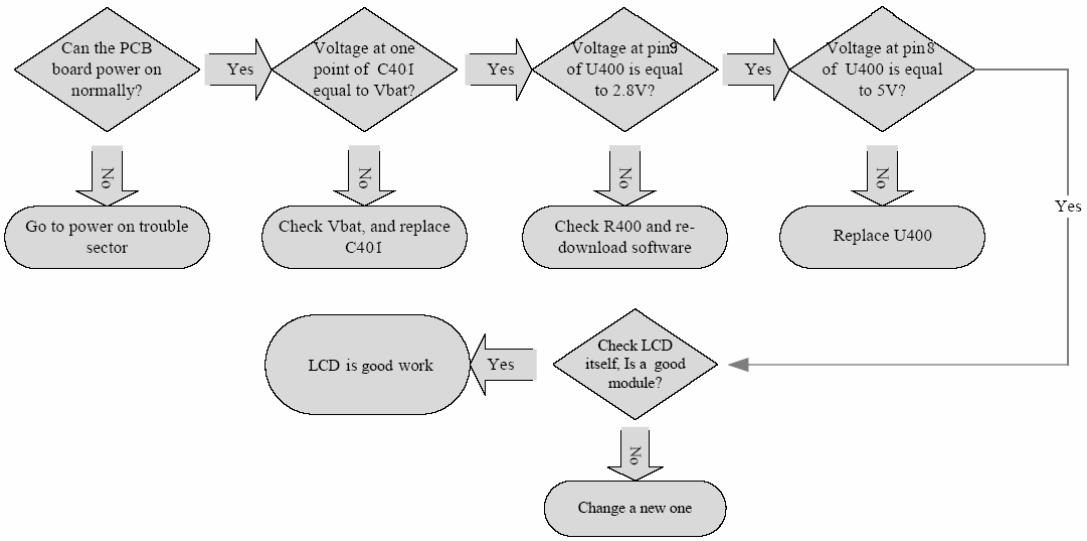
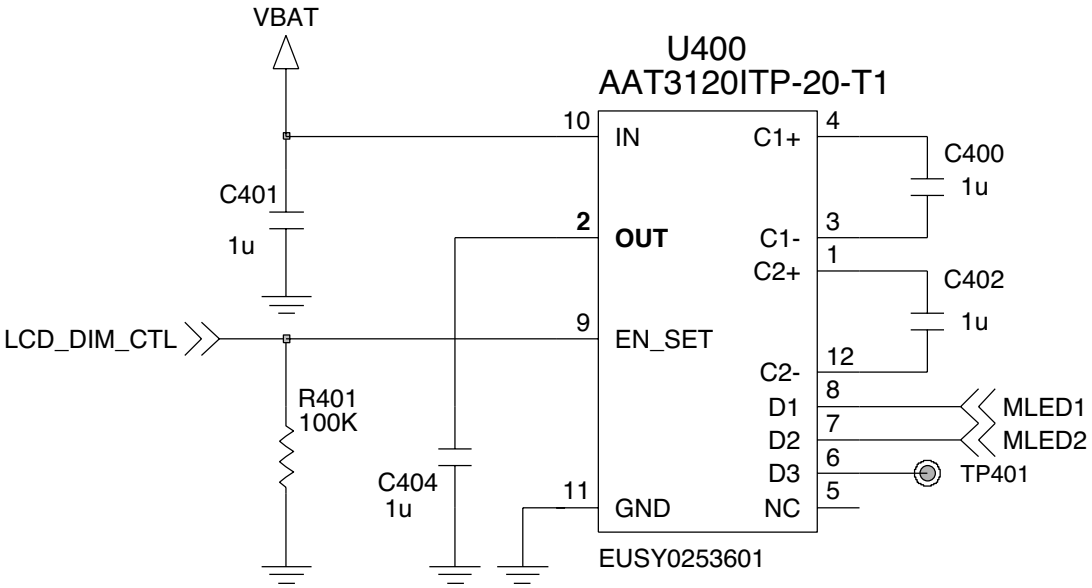


Figure 4-18

Checking Flow



Circuit Diagram



LCD BACKLIGHT

4.7 Receiver Trouble

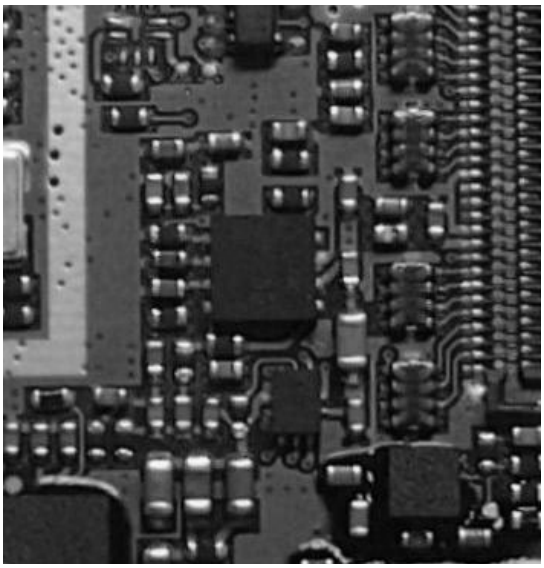
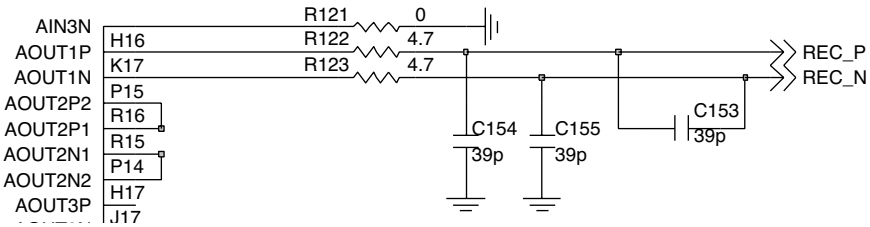
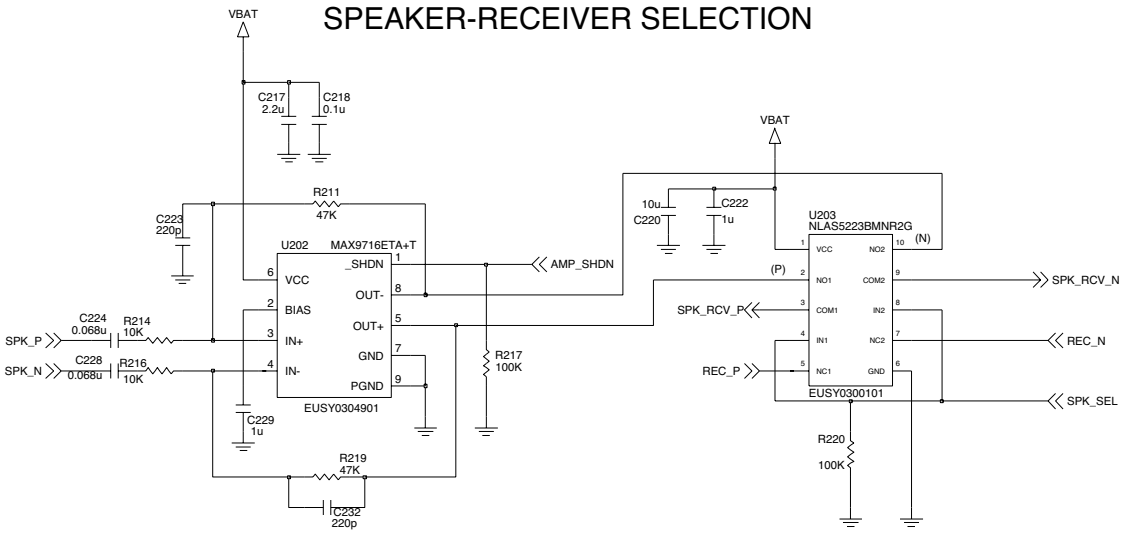


Figure 4-19

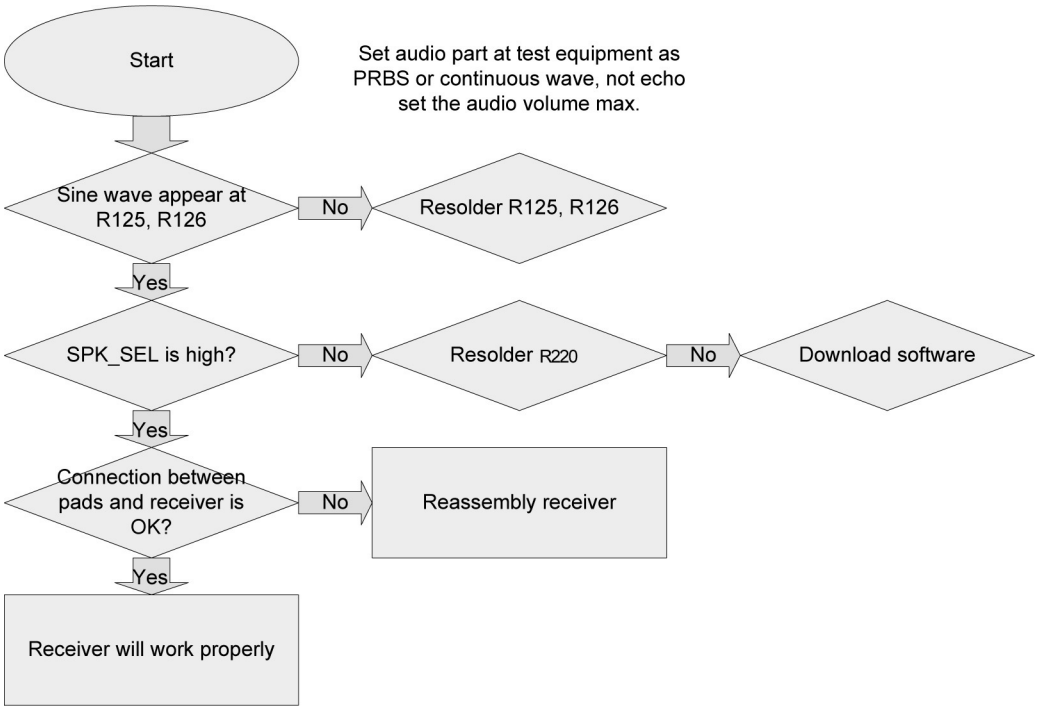
CIRCUIT DIAGRAM





4. TROUBLE SHOOTING

CHECKING FLOW



4.8 Speaker Trouble

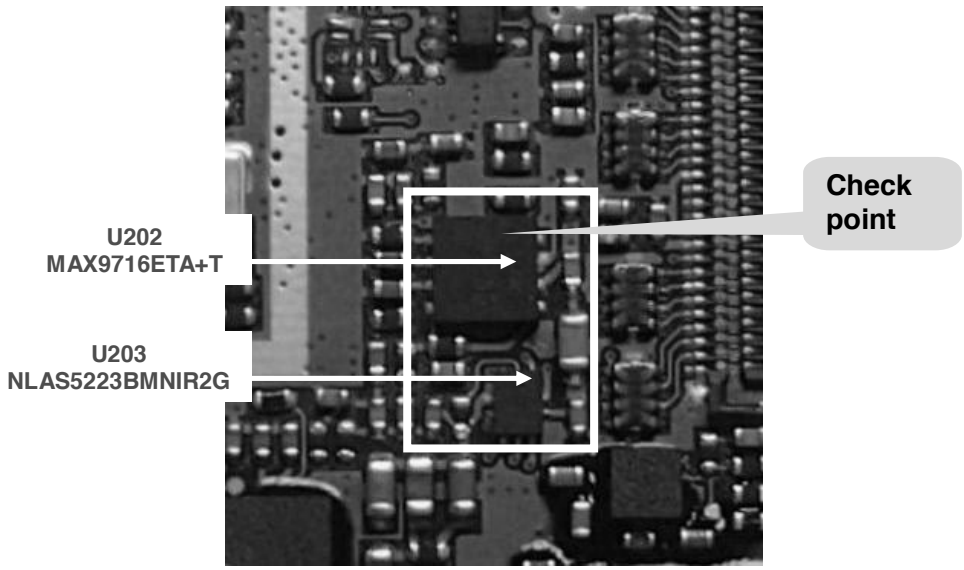
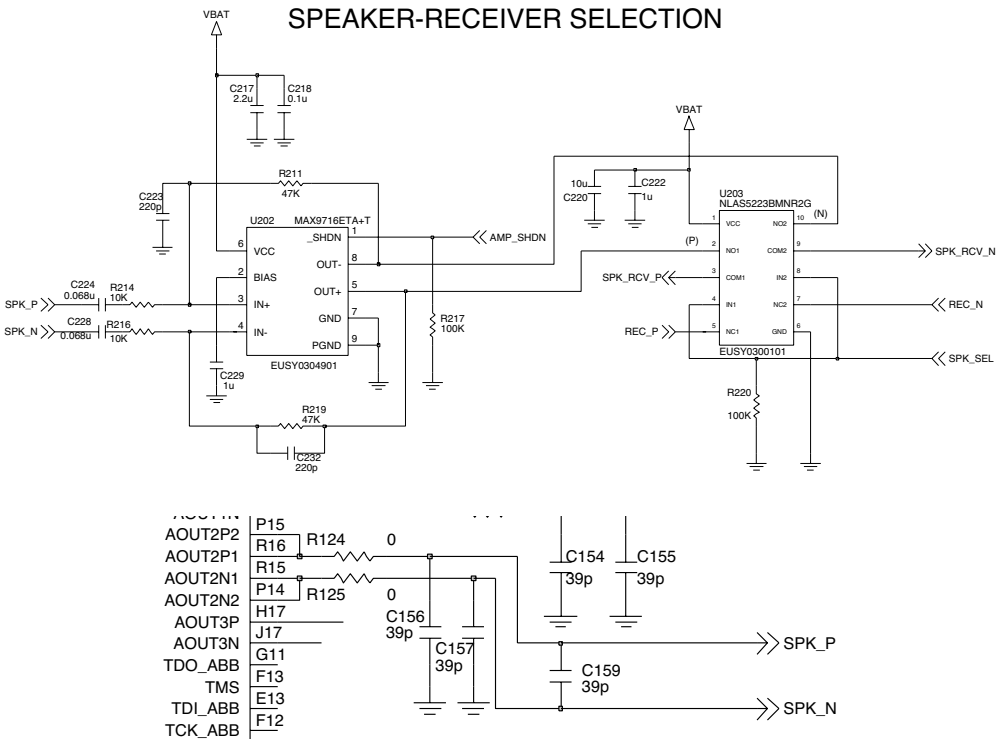


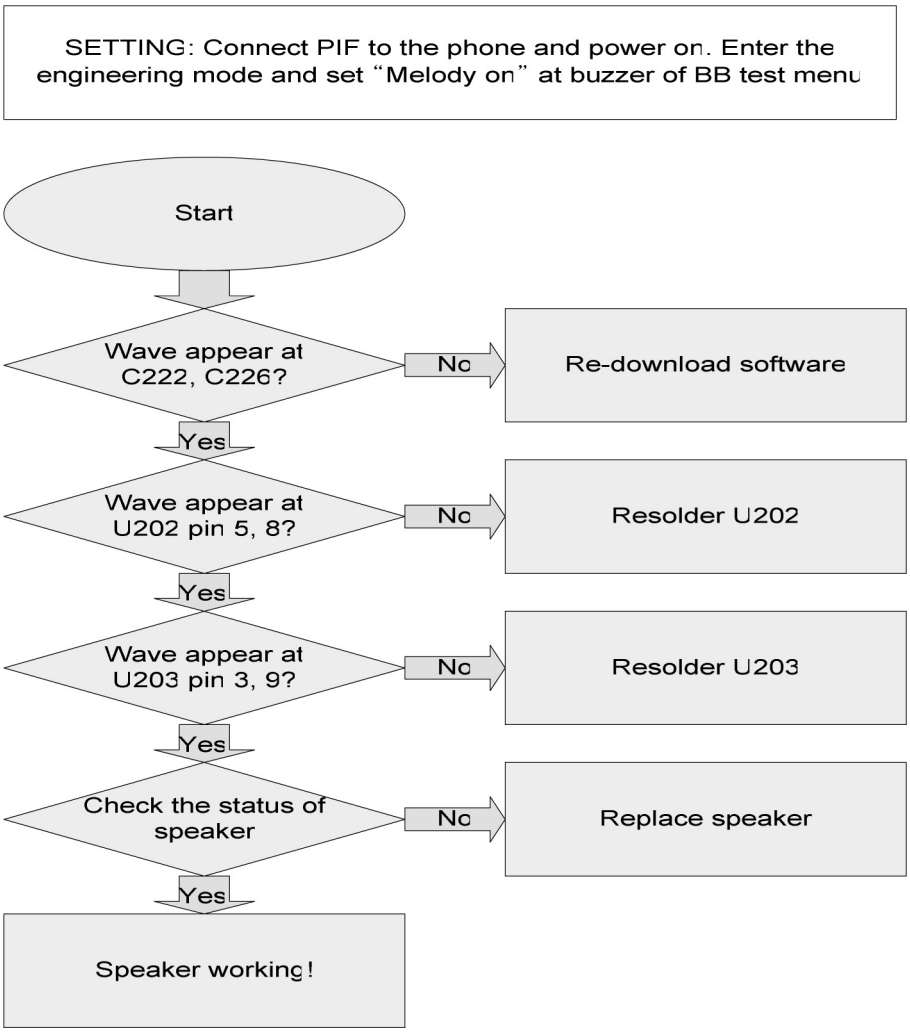
Figure 4-20

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

CHECKING FLOW



4.9 MIC Trouble

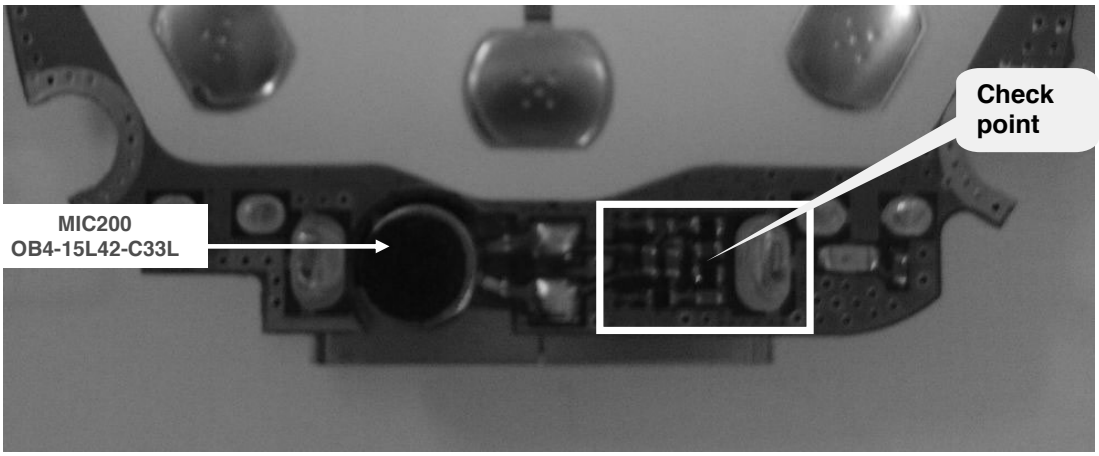
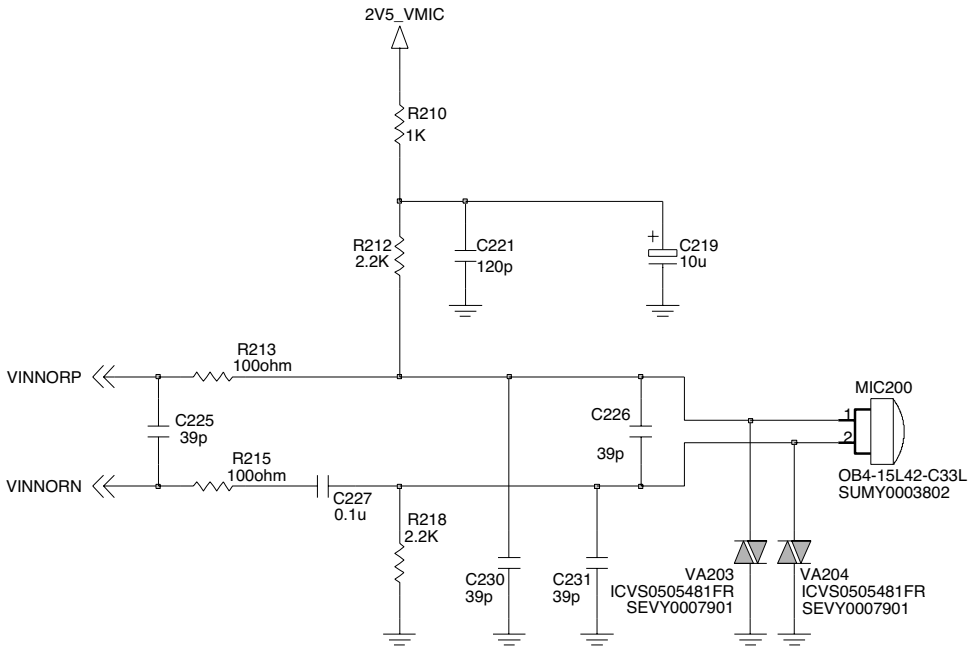


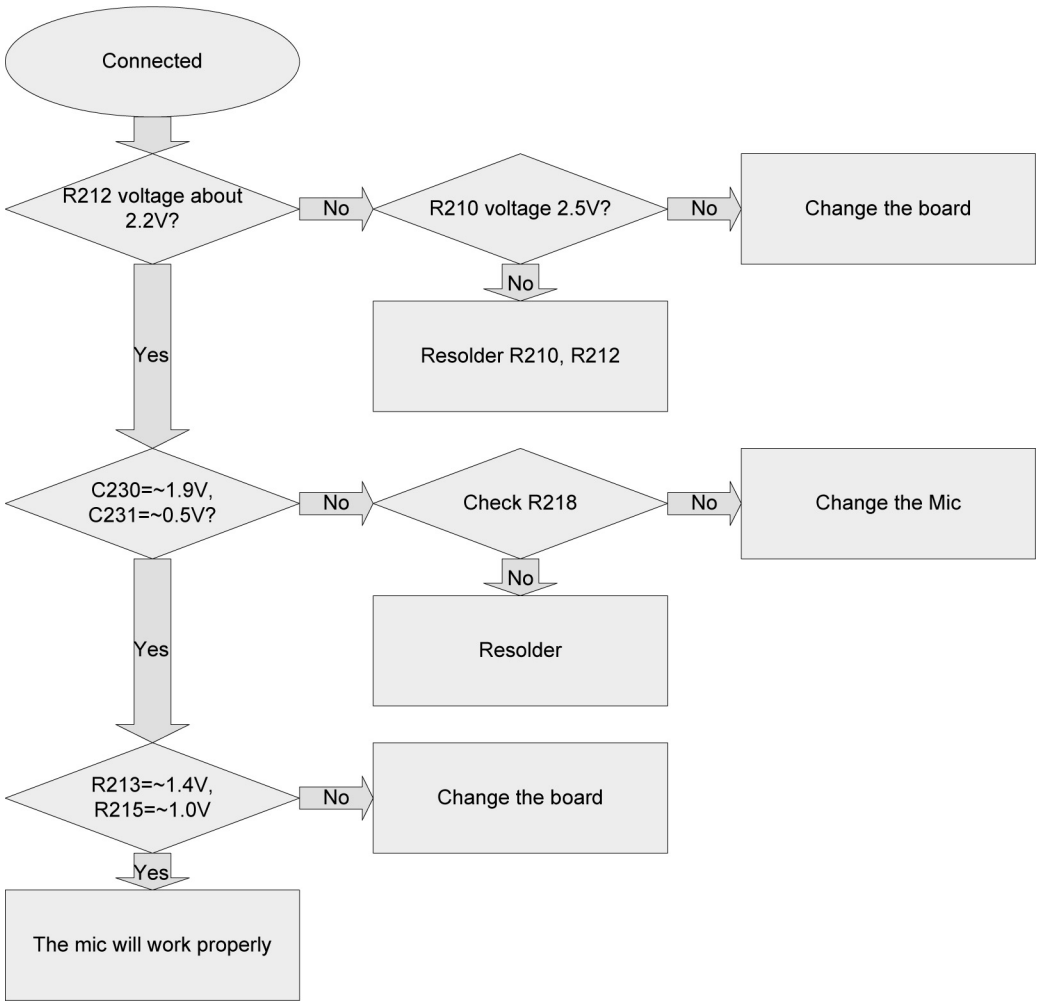
Figure 4-21

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

CHECKING FLOW



4.10 Earphone Trouble

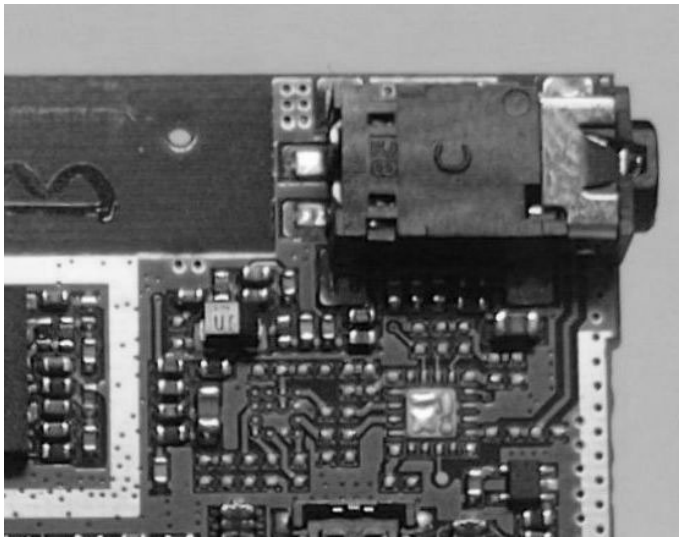
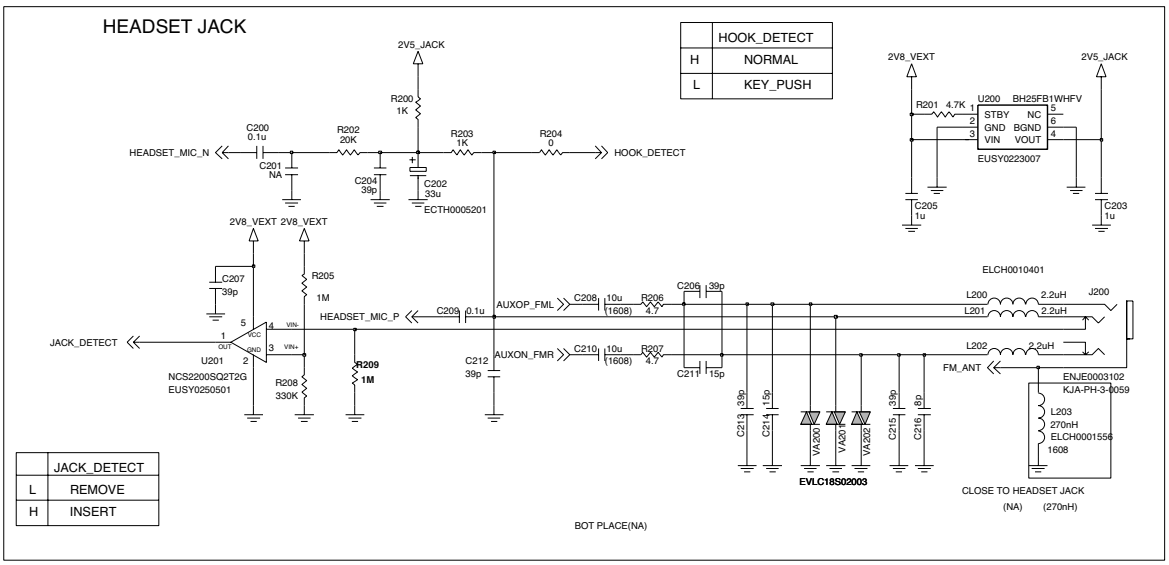


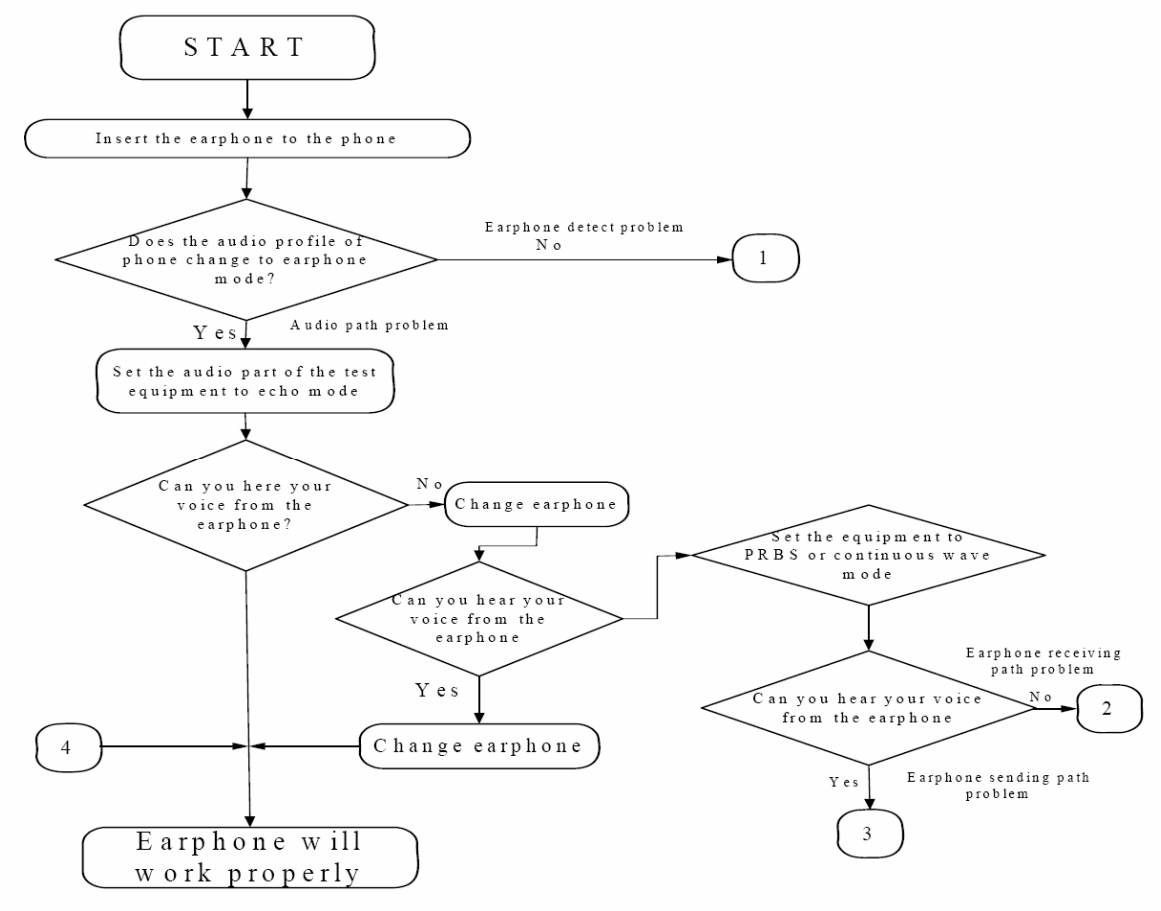
Figure 4-22

CIRCUIT DIAGRAM

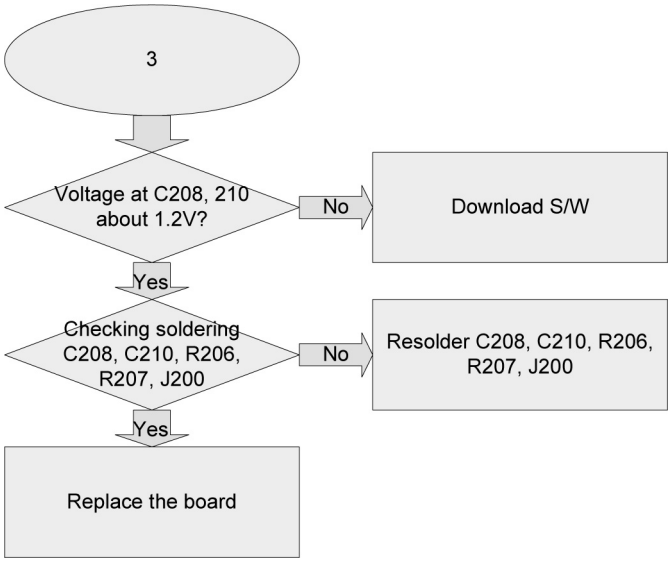


4. TROUBLE SHOOTING

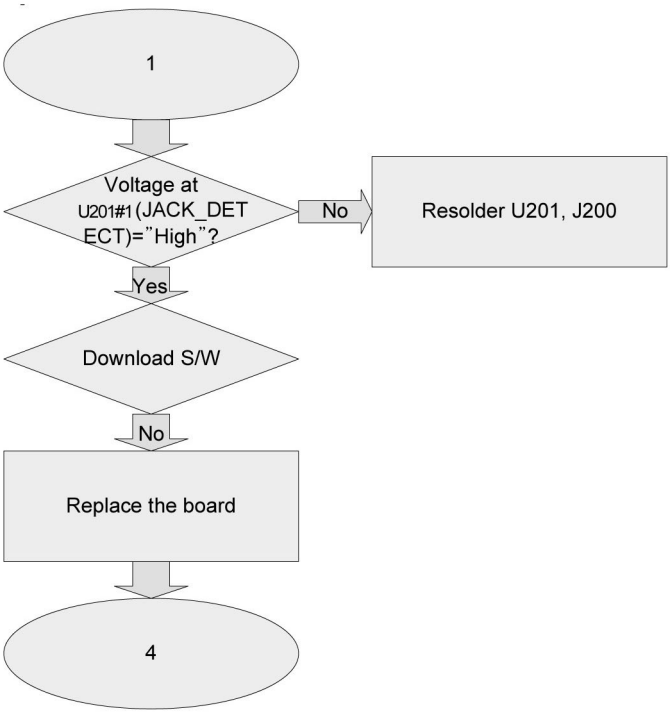
CHECKING FLOW



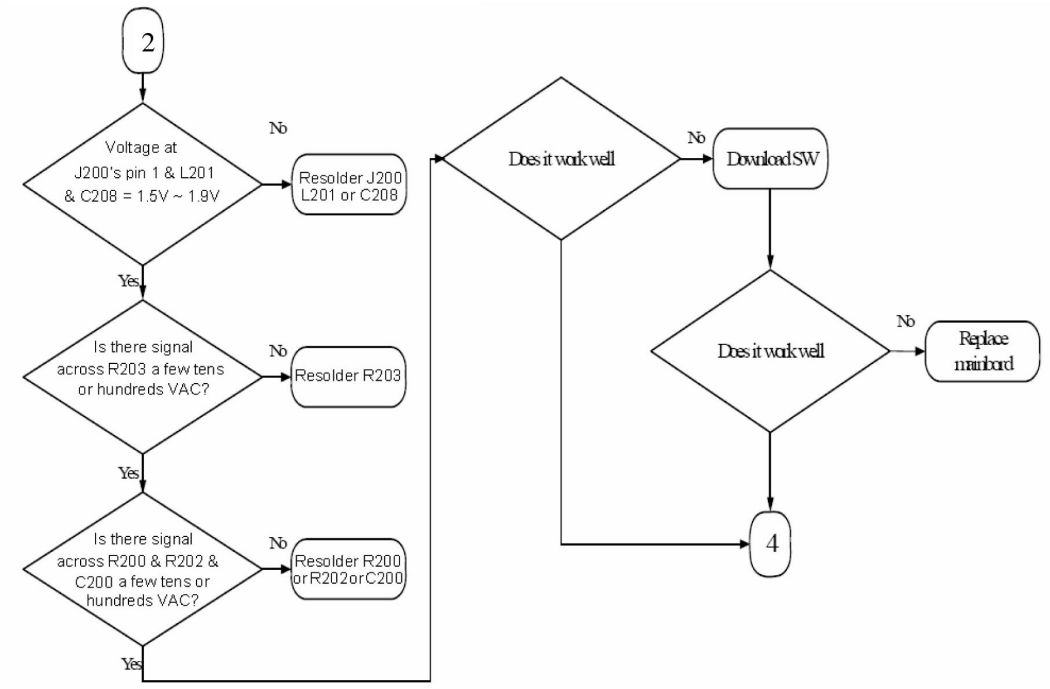
Earphone receiving path problem



Earphone detect problem



Earphone sending path problem



4.11 KEYPAD Backlight LEDS Trouble

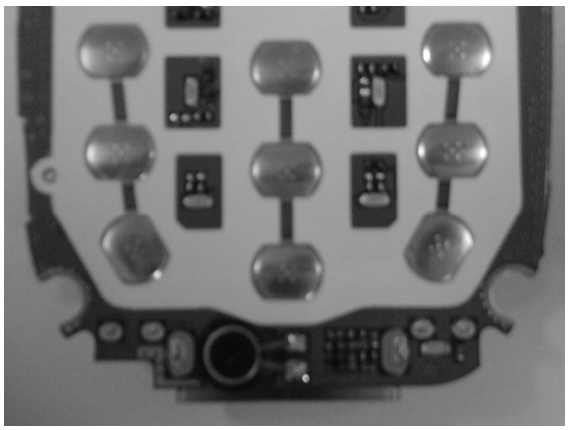
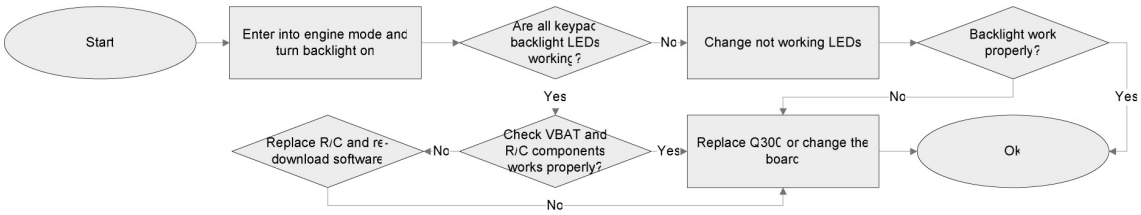
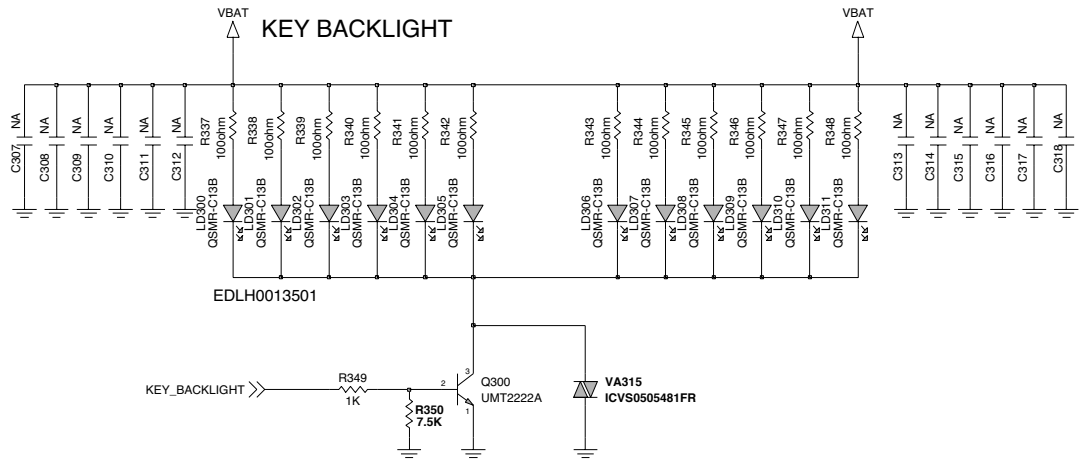


Figure 4-23

Checking Flow





4.12 SIM Trouble

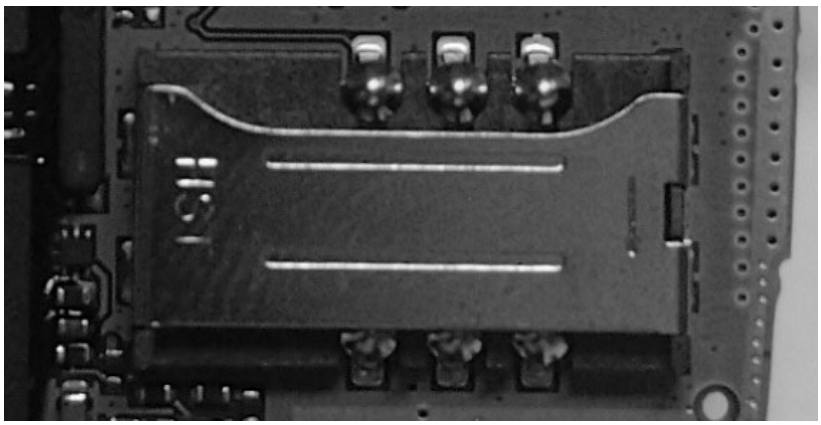
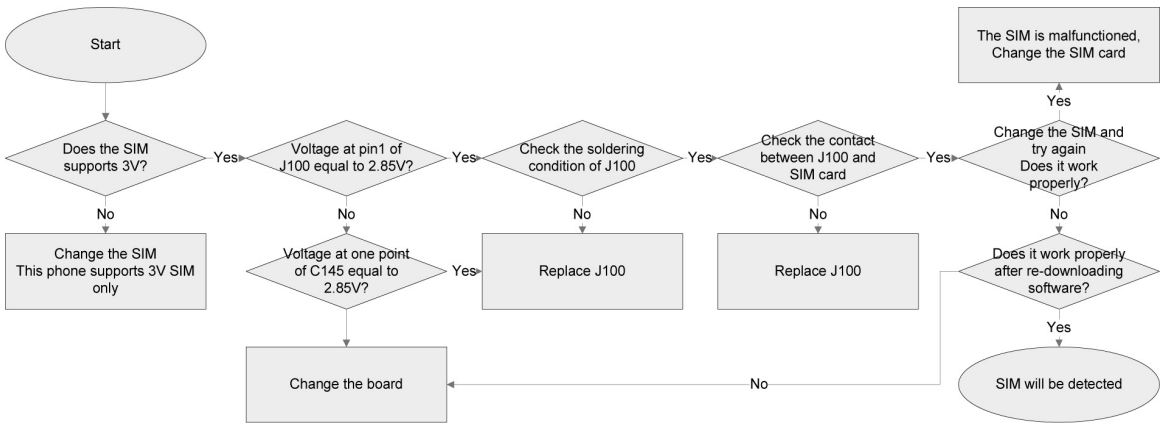
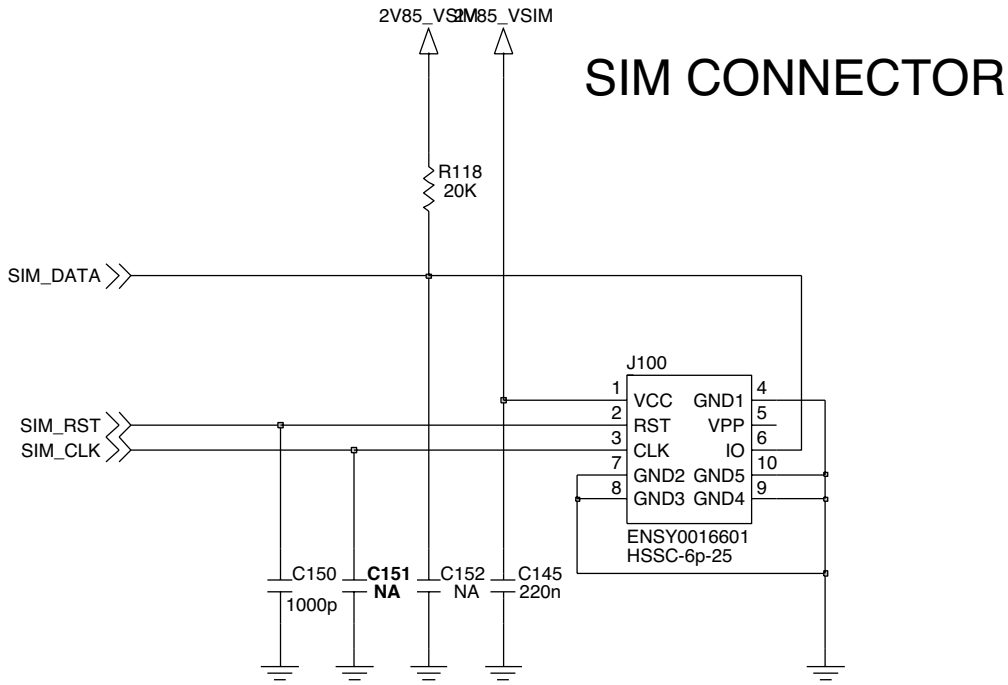


Figure 4-24

Checking Flow




SIM CONNECTOR
2V85_VSIM
2V85_VSIM
R118
20K
SIM_DATA
SIM_RST
SIM_CLK
J100
1
2
3
7
8
VCC
RST
CLK
GND2
GND3
GND1
VPP
IO
GND5
GND4
4
5
6
10
9
ENSY0016601
HSSC-6p-25
C150
1000p
C151
NA
C152
NA
C145
220n

4.13 Vibration Trouble

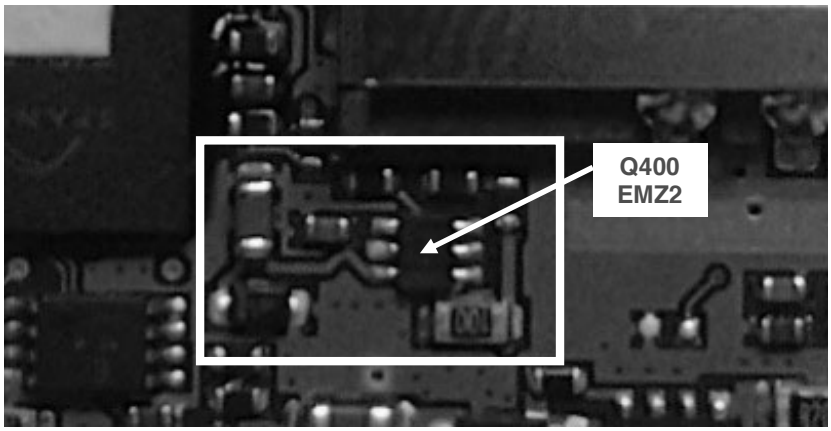
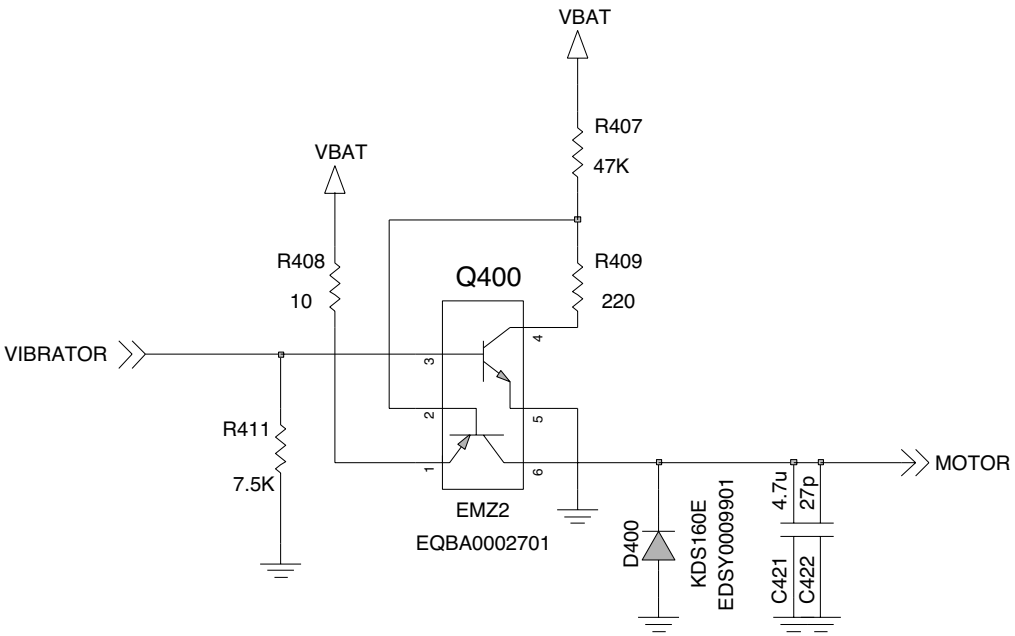
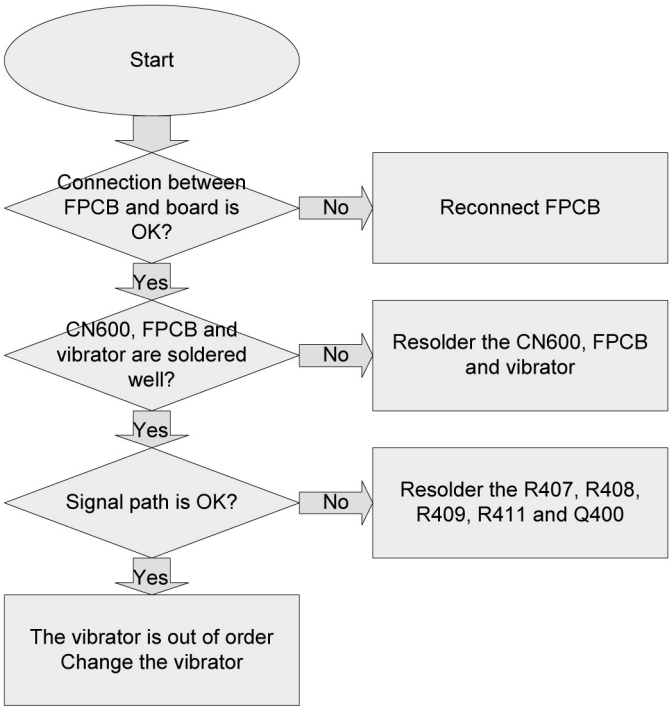


Figure 4-25



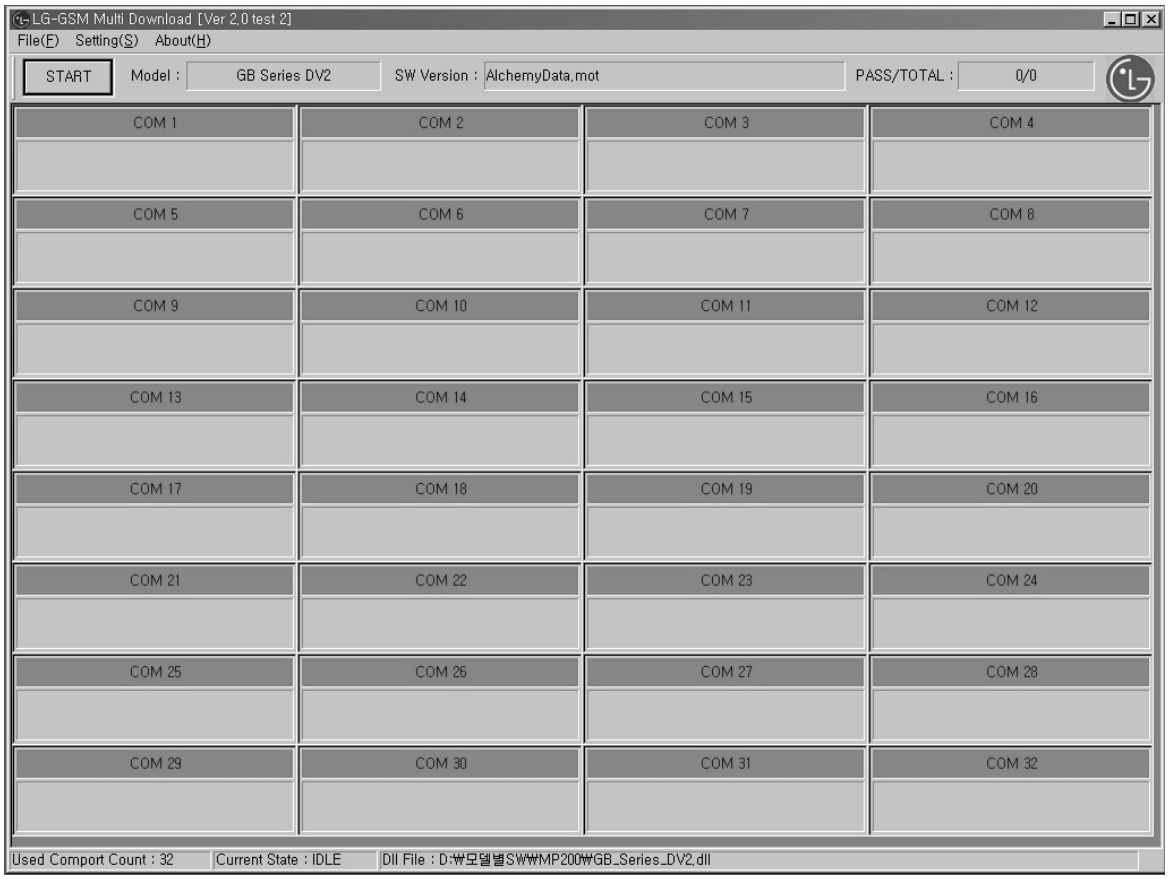

Start
Connection between FPCB and board is OK?
No
Reconnect FPCB
Yes
CN600, FPCB and vibrator are soldered well?
No
Resolder the CN600, FPCB and vibrator
Yes
Signal path is OK?
No
Resolder the R407, R408, R409, R411 and Q400
Yes
The vibrator is out of order
Change the vibrator

5. DOWNLOAD

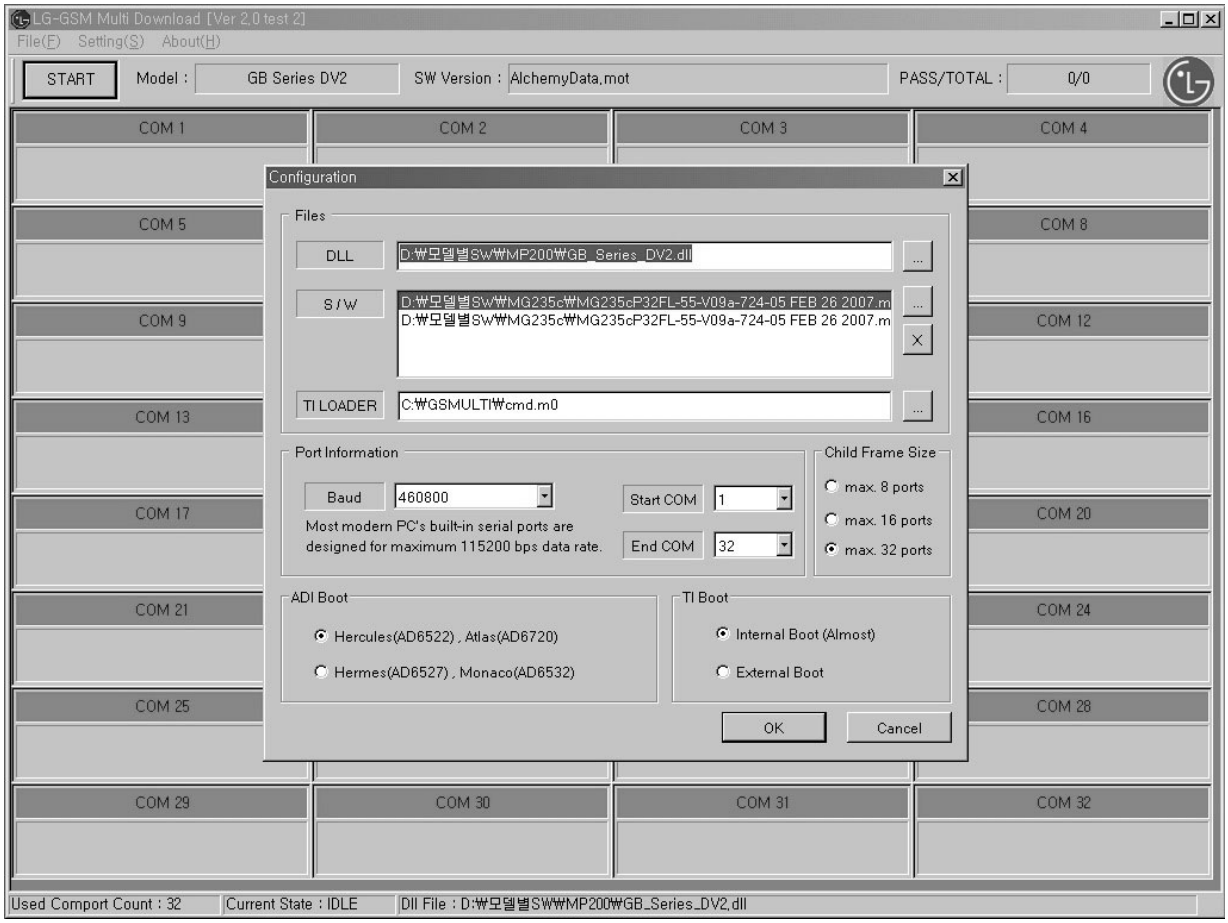
5.1 Download

Download with GSMULTI

Firstly, run the “GSMULTI” shown as the following picture.

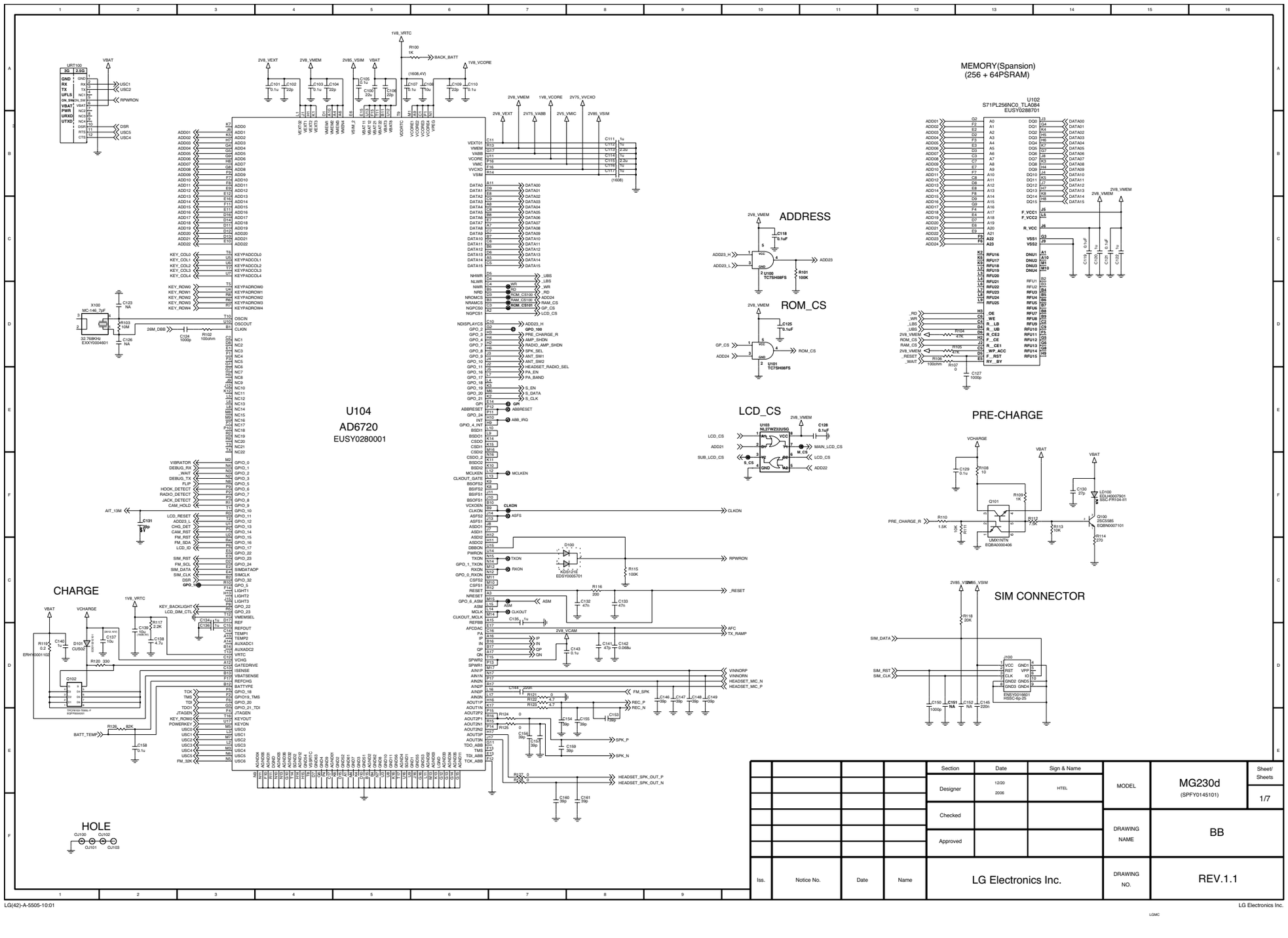


Then turn the switch on the multidownloader to “ADI”.
Thereafter, you should configure the setting by press the tab “Setting-> Configuration”.
See the following picture for detail:

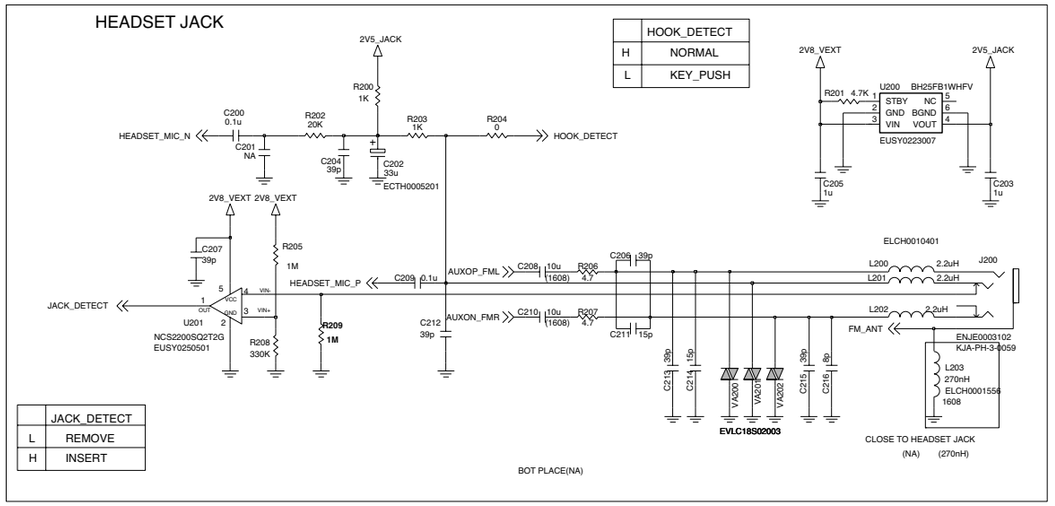


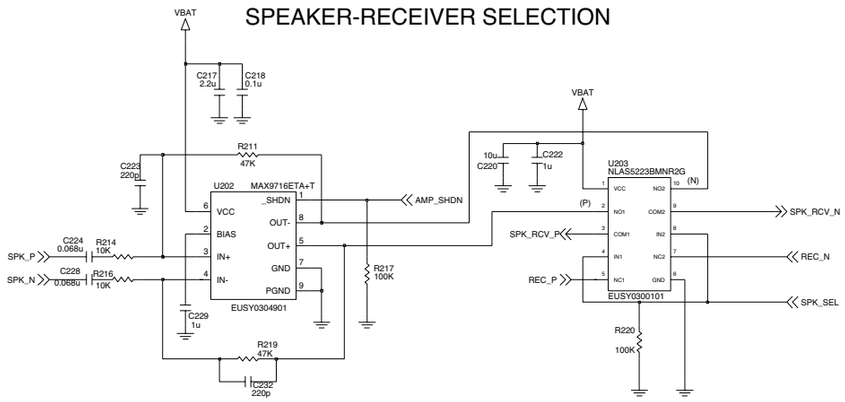
Firstly, for initial download, you should choose the .dll file.
Then choose the .mot file you want to download.
The loader should be set as :Cmd.mo;
According to you equipment configuration, please choose the right Baund rate your equipment support.
For “Option(ADI)”, “Common” should be chosen.
After confirm by press “OK”, you can download by connect your phone with the cable of multidownloader

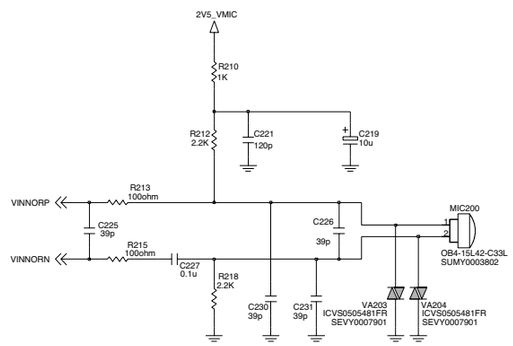
6. CIRCUIT DIAGRAM



6. CIRCUIT DIAGRAM





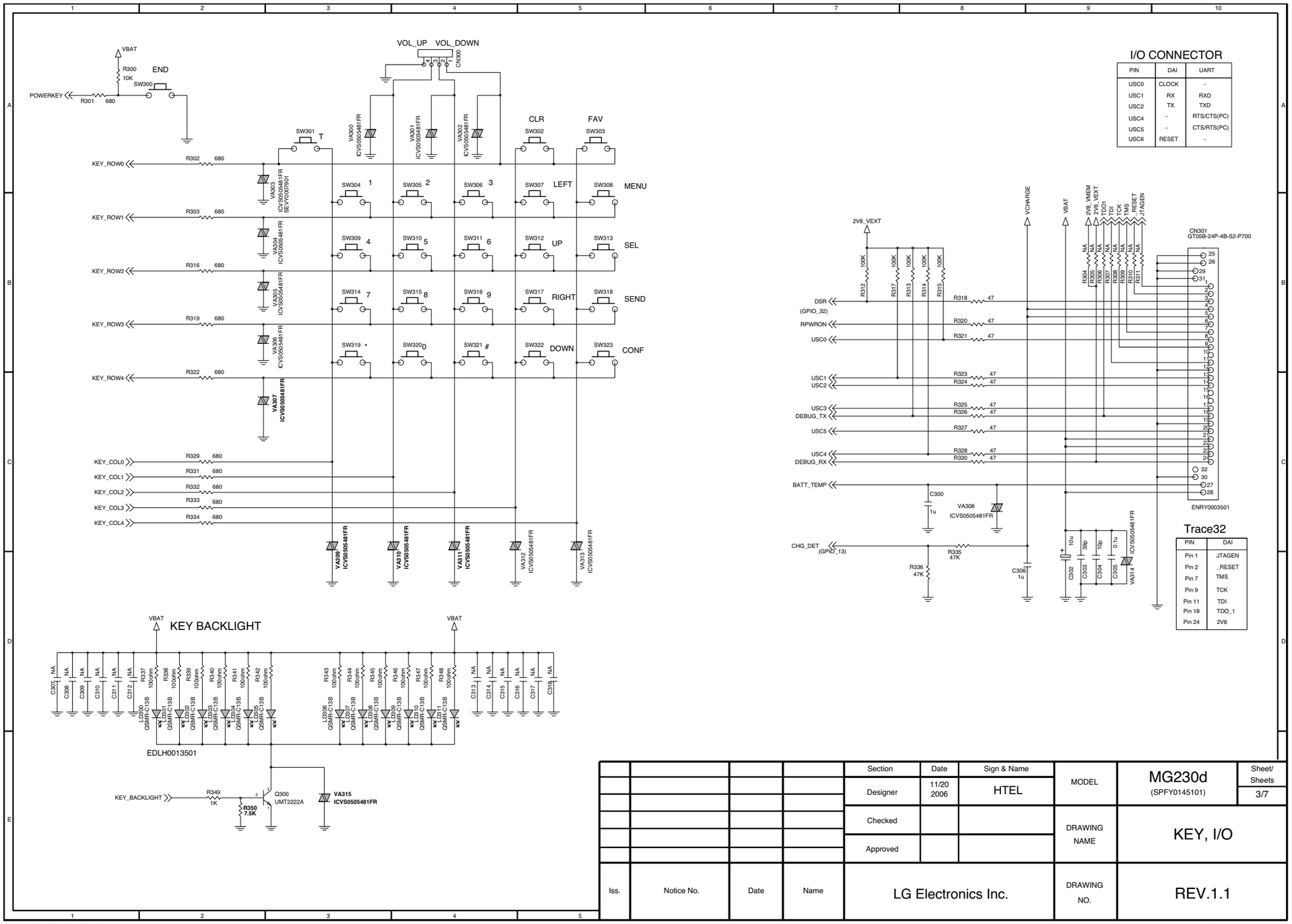


				Section	Date	Sign & Name	MODEL	MG230d (SPFY0145101)	Sheet/ Sheets
				Designer	11/20 2006	HTEL			2/7
				Checked			DRAWING NAME	AUDIO	
				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	REV.1.1	

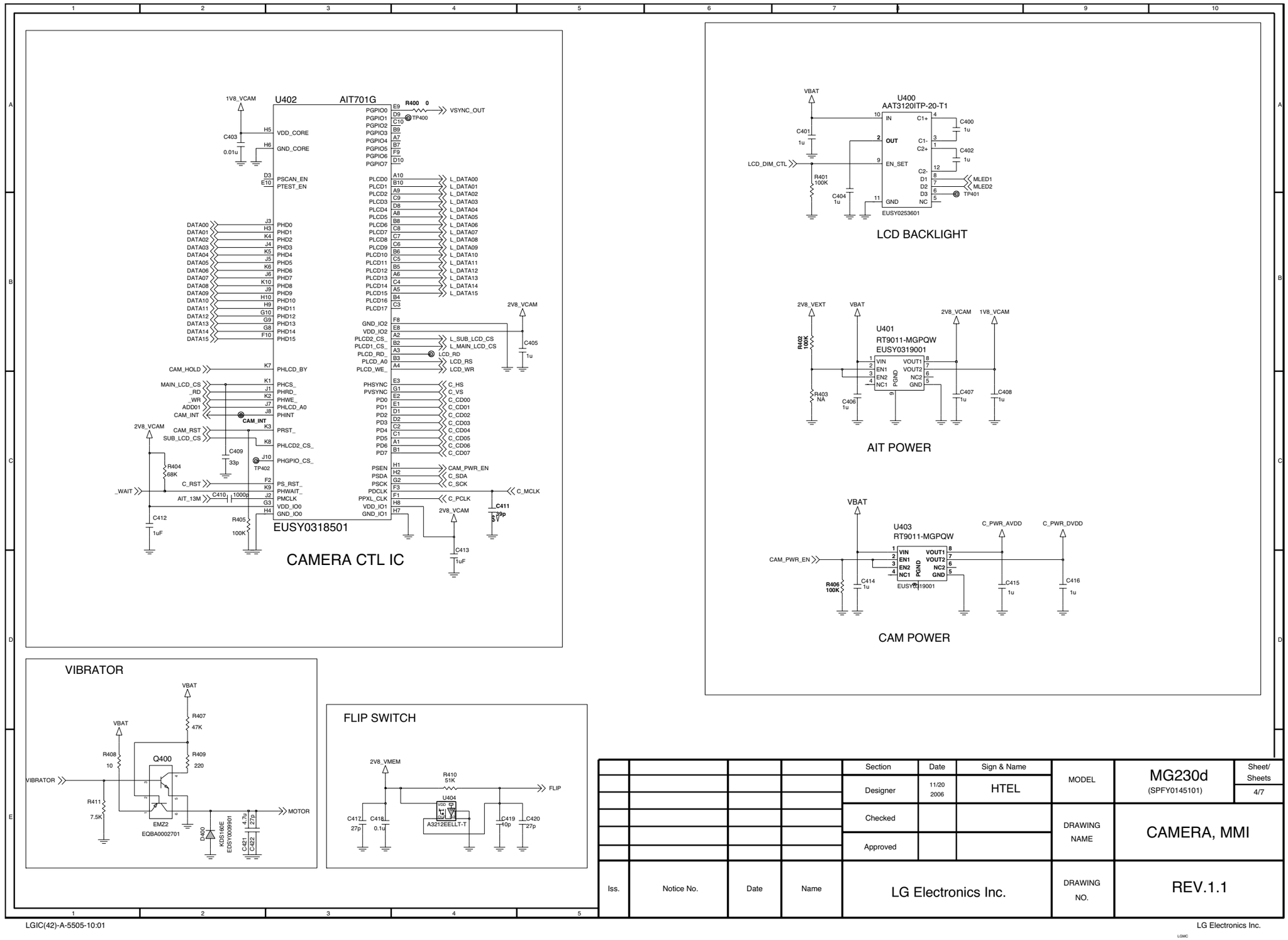
LGIC(42)-A-5505-10:01

LG Electronics Inc.

6. CIRCUIT DIAGRAM



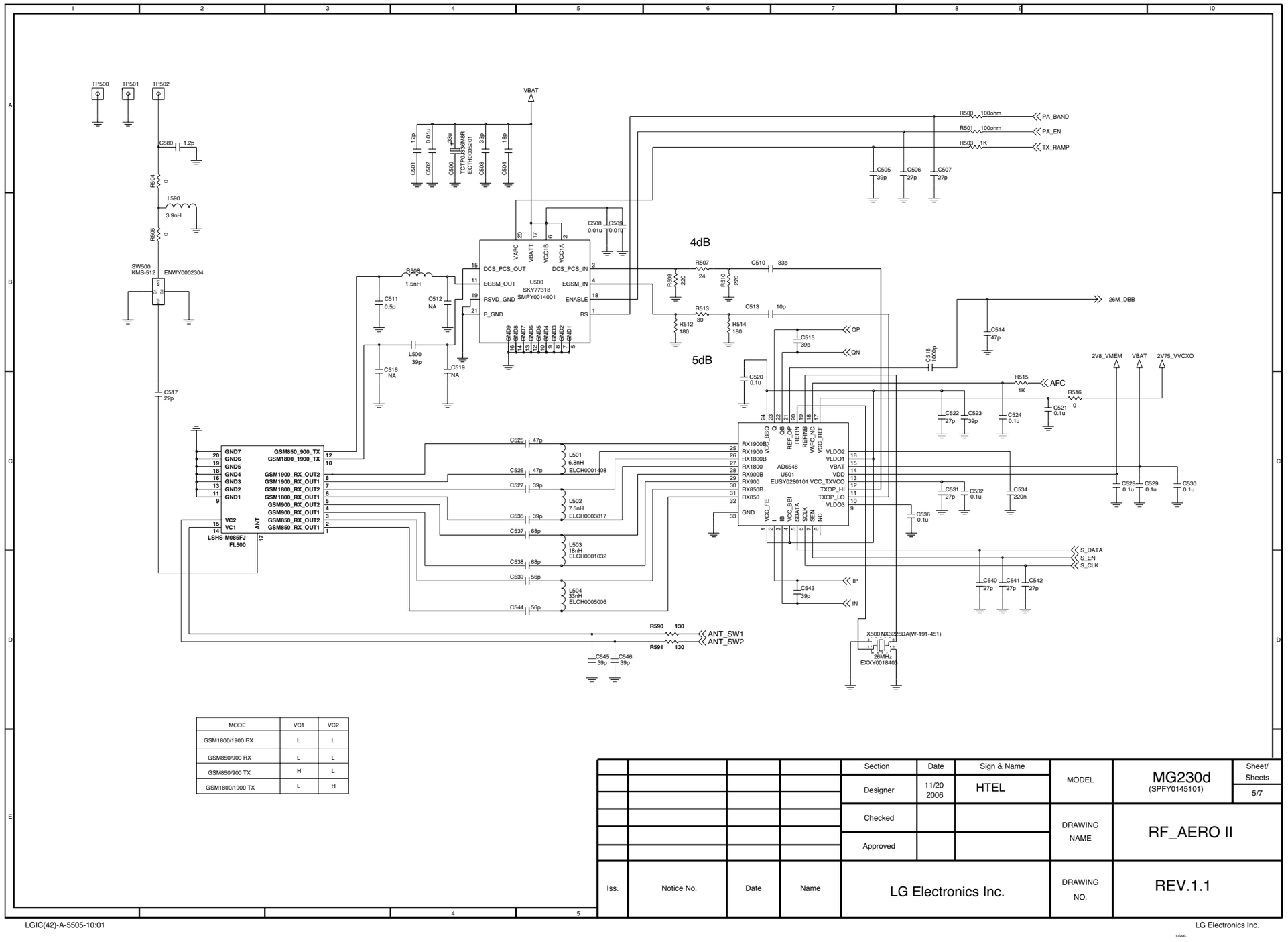
6. CIRCUIT DIAGRAM



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

LG Electronics Inc.

6. CIRCUIT DIAGRAM



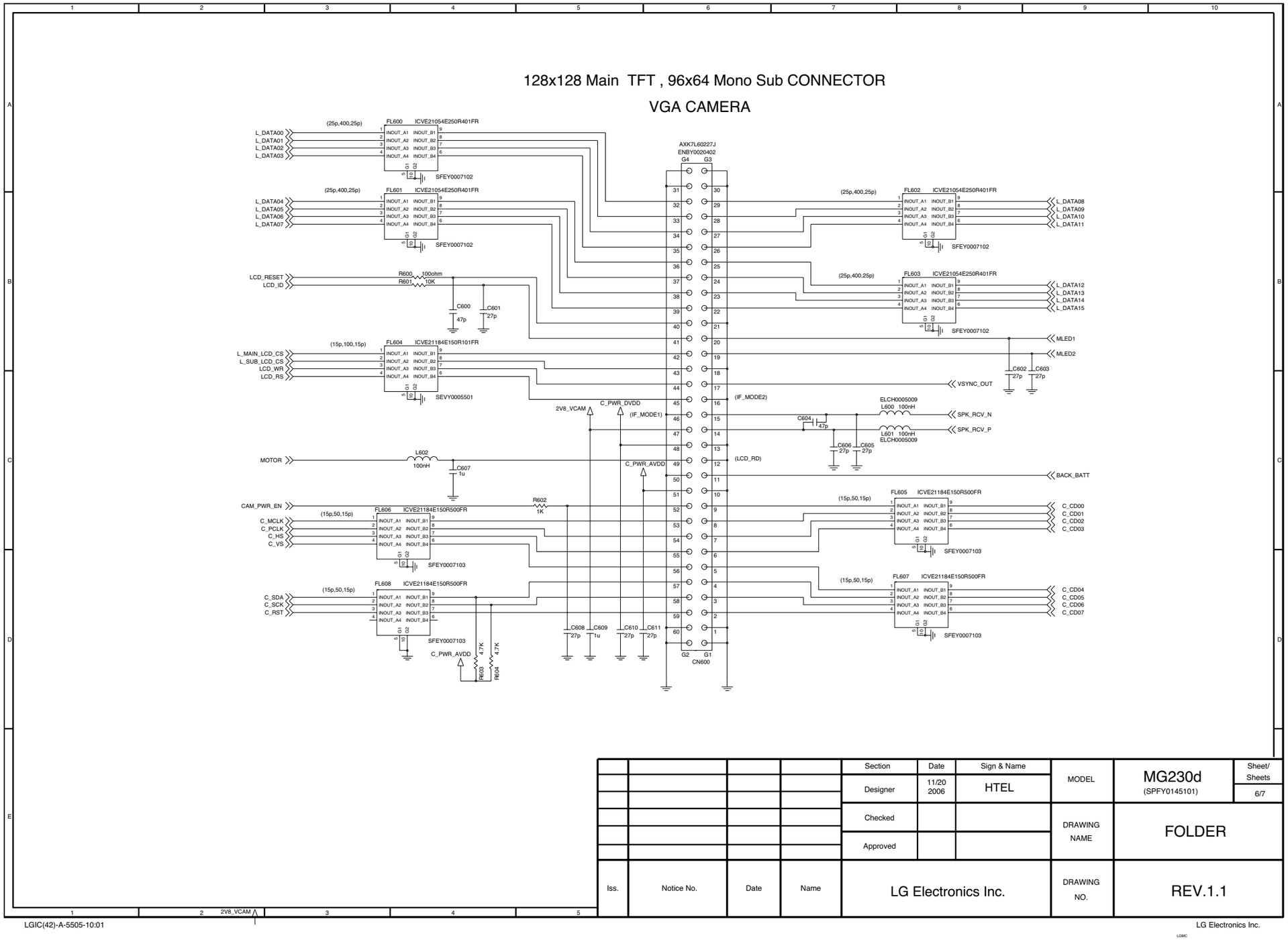
MODE	VC1	VC2
GSM1800/1900 RX	L	L
GSM850/900 RX	L	L
GSM850/900 TX	H	L
GSM1800/1900 TX	L	H

Iss.	Notice No.	Date	Name	Section	Date	Sign & Name	MODEL	MG230d (SPFY0145101)	Sheet/ Sheets
				Designer	11/20 2006	HTEL			5/7
				Checked			DRAWING NAME	RF_AERO II	
				Approved					
				LG Electronics Inc.			DRAWING NO.	REV.1.1	

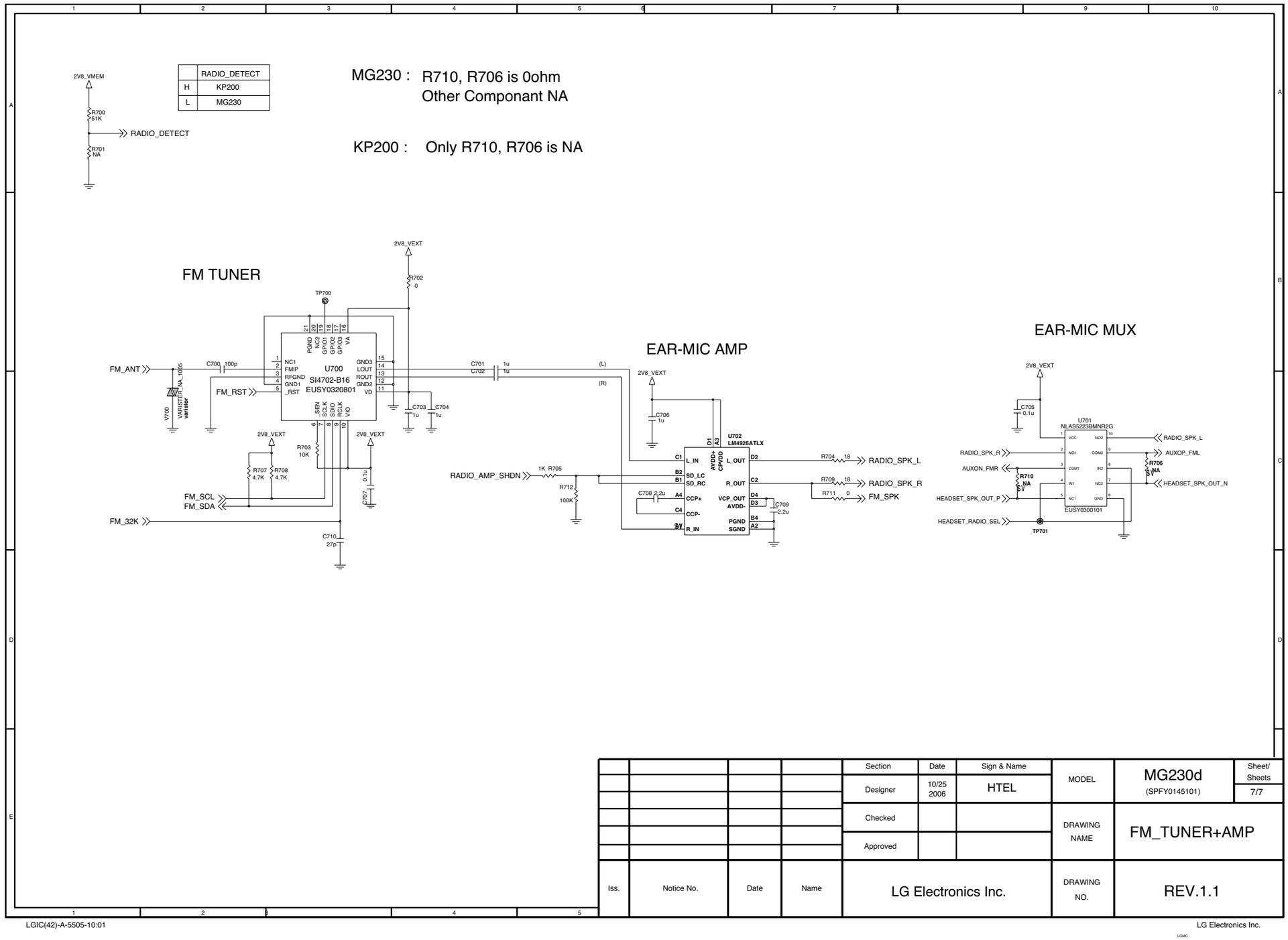
LGIC(42)-A-5505-10:01

LG Electronics Inc.

6. CIRCUIT DIAGRAM



6. CIRCUIT DIAGRAM



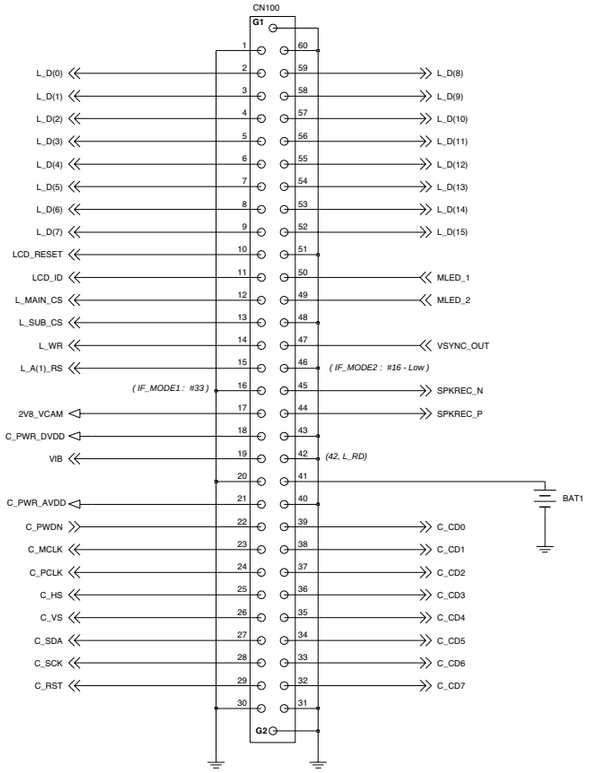
				Section	Date	Sign & Name	MODEL	MG230d (SPFY0145101)	Sheet/ Sheets
				Designer	10/25 2006	HTEL			7/7
				Checked			DRAWING NAME	FM_TUNER+AMP	
				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	REV.1.1	

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

LG Electronics Inc.

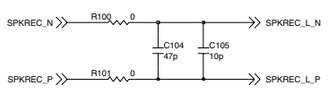
LGMC

6. CIRCUIT DIAGRAM



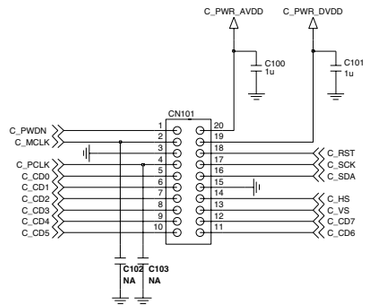
FPCB CONN ENBY0020202 AXK8L60125J

SPEAKER FILTER



VISION MARK

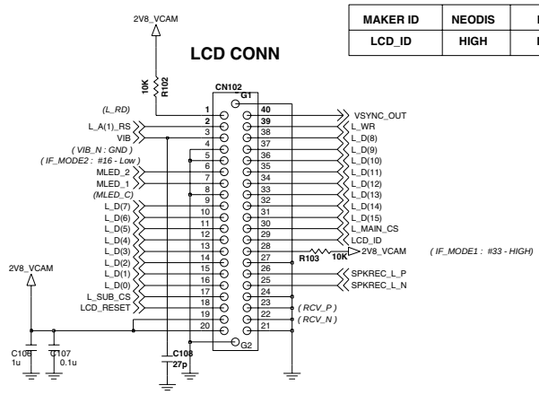
CAMERA CONN



ENBY0019501 AXK720145G

MAKER ID	NEODIS	LGIT
LCD_ID	HIGH	LOW

LCD CONN



ENBY0020201 AXK8L40125G

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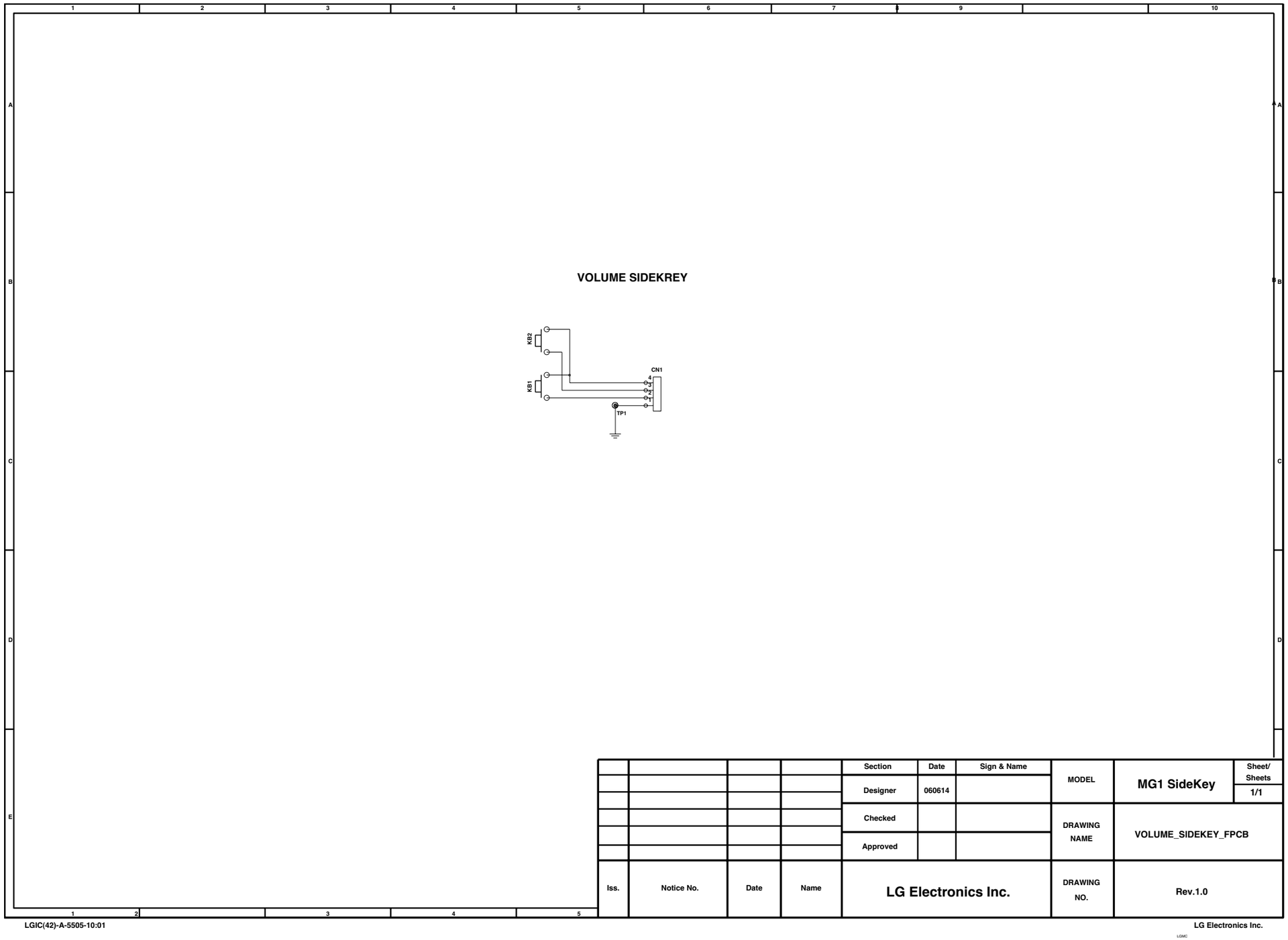
				Designer	061123				1/1
				Checked			DRAWING NAME	LCD_FPCB	
				Approved					
Iss.	Notice No.	Date	Name	LG Electronics Inc.			DRAWING NO.	Rev.1.0	

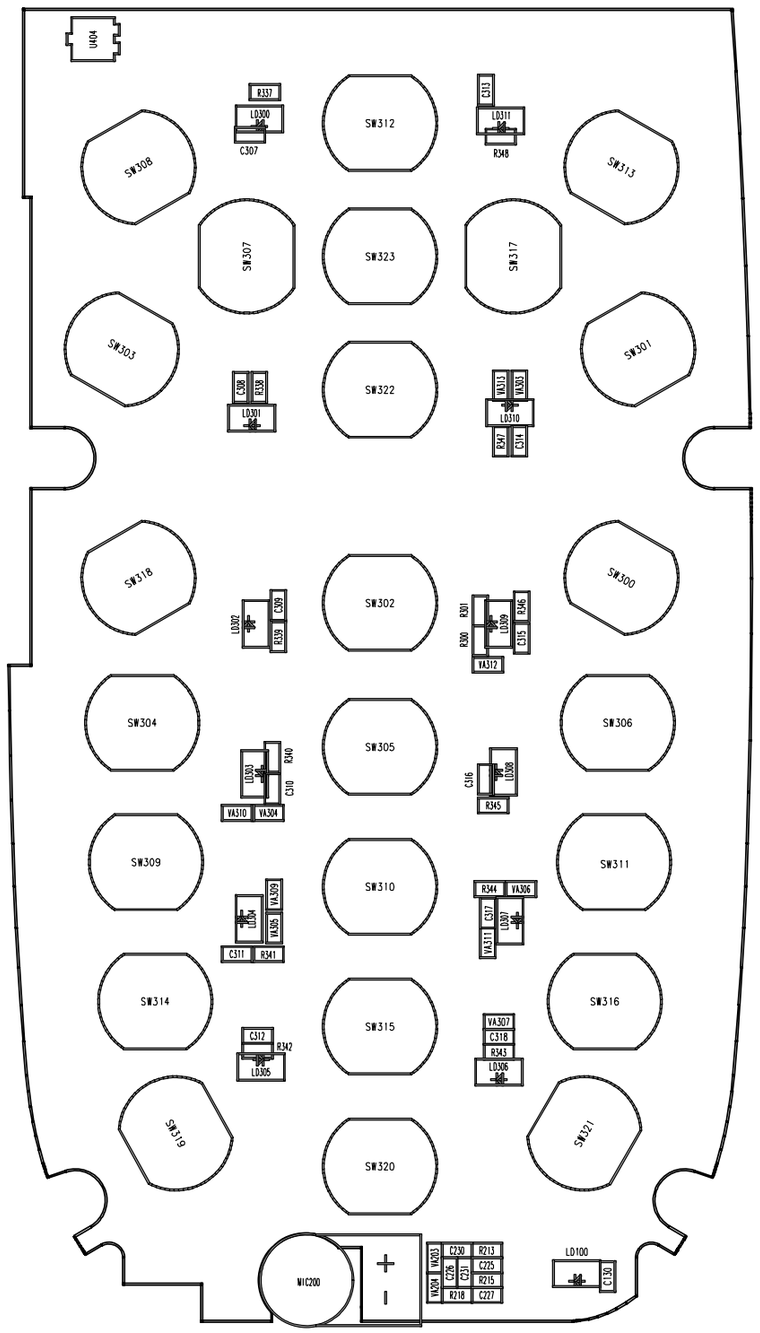
LGIC(42)-A-5505-10:01

LG Electronics Inc.

6. CIRCUIT DIAGRAM

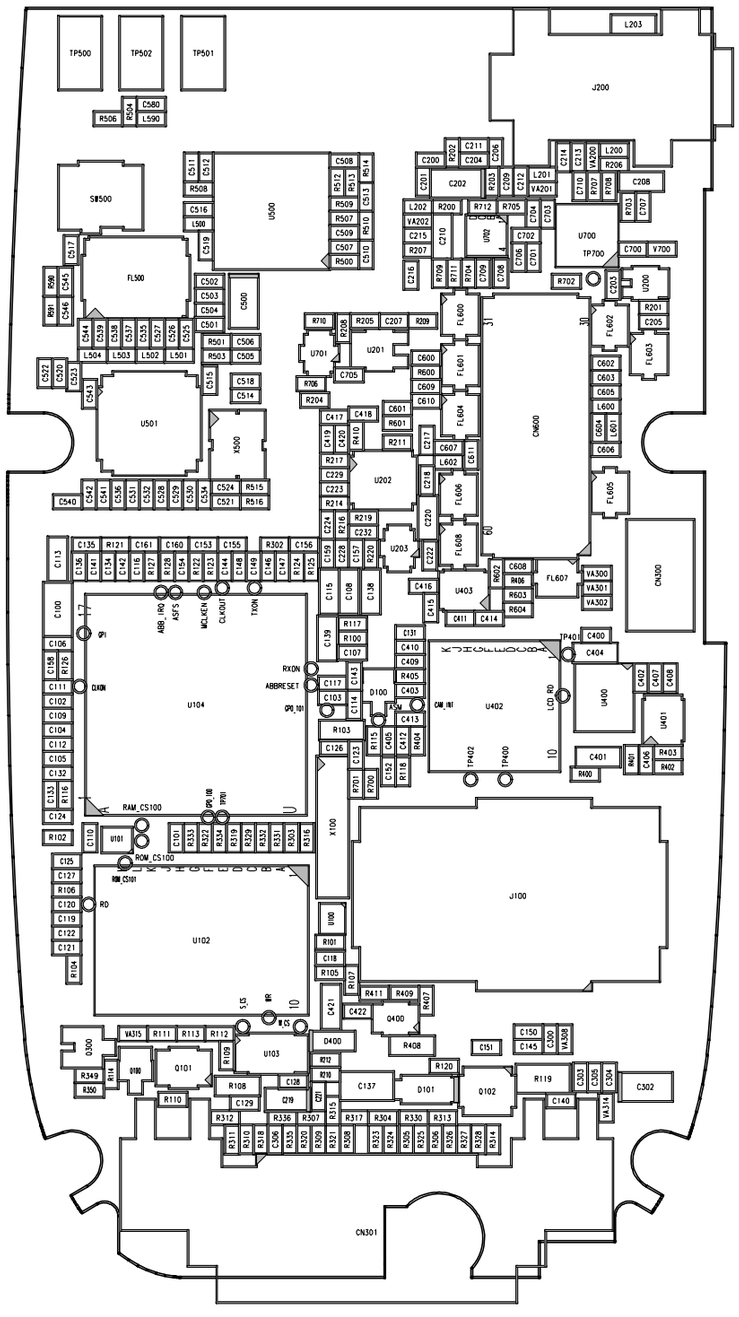


7. pcb layout



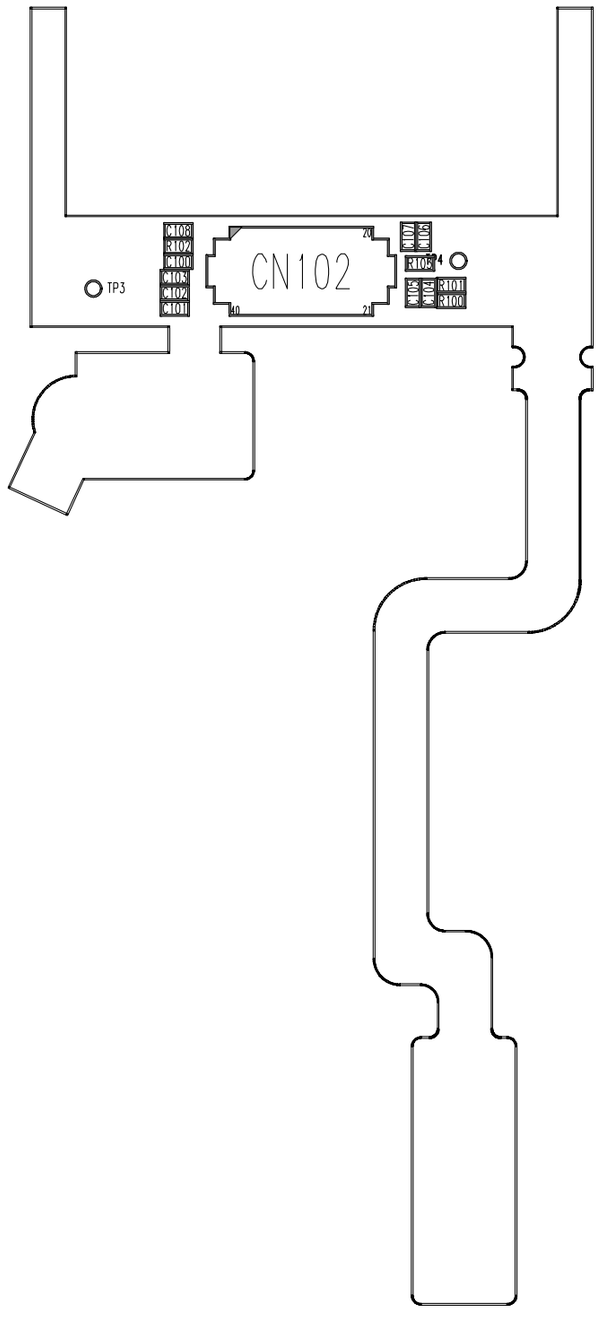
MG230d-SPFY0145101-1.1-TOP

7. pcb layout



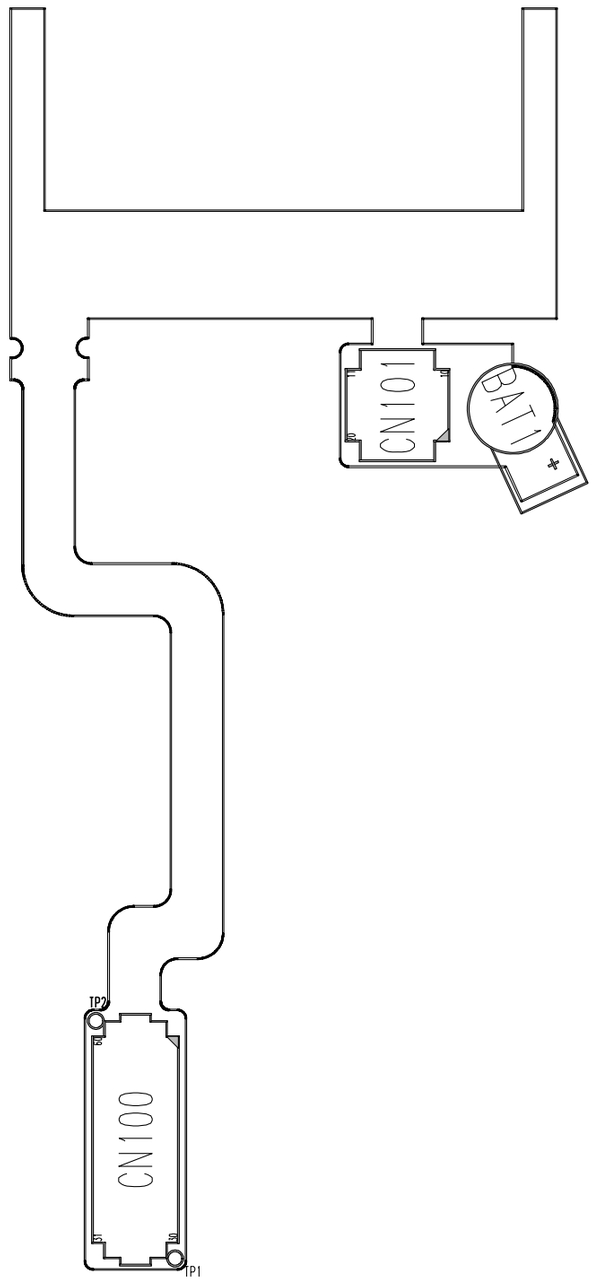
MG230d-SPFY0145101-1.1-BTM

7. pcb layout



MG280d-F_LCD-1.0-SPCY0097601

7. pcb layout



MG280d-F_LCD-1.0-SPCY0097601

8. 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.

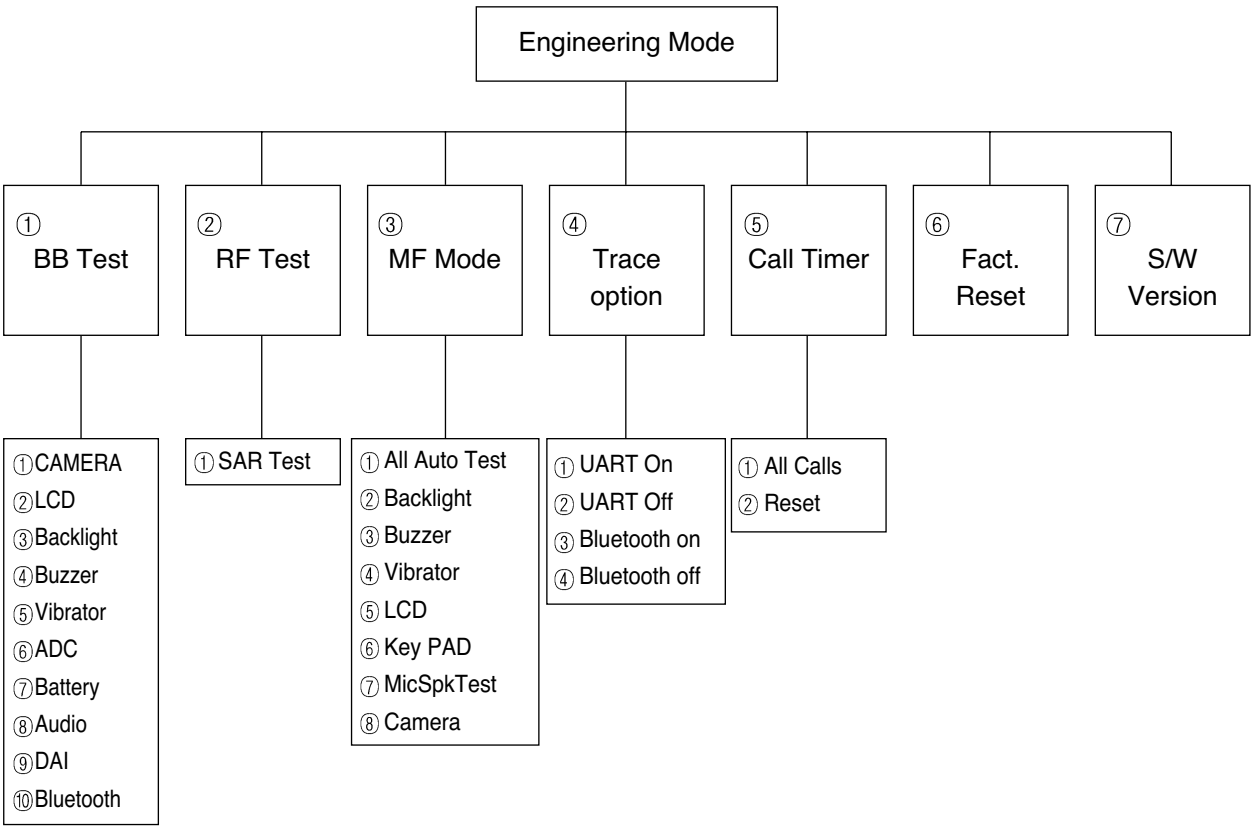
B. Access Codes

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



8. ENGINEERING MODE

8.1 BB Test [MENU 1]

8.1.1 CAMERA

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

8.1.2 LCD

Brightness : 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.
2) COLOUR : WHITE, RED, GREEN, BLUE, BLACK

8.1.3 Backlight

1) Backlight on : LCD Backlight light on.
2) Backlight off : LCD Backlight light goes to dimming state.
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.

8.1.4 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.

8.1.5 Vibrator

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

8.1.6 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

8.1.7 BATTERY

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

8.1.8 Audio

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

8.1.9 DAI (Digital Audio Interface)

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

8.1.10 Bluetooth

This menu can’t use in this phone.

8.2 RF Test [MENU 2]

8.2.1 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

8.3 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.

8.3.1 All auto test

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

8.3.2 Backlight

LCD Backlight is on for about 1.5 seconds, then dimming state.

8.3.3 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.

8.3.4 Vibrator

Vibrator is on for about 1.5 seconds, then off.

8.3.5 LCD

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

8.3.6 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.

8.3.7 MicSpk Test

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

8.3.8 Camera Test

This menu is to test camera(preview and capture automatically.)

8.4 Trace option [MENU 4]

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

8.5 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].

8.6 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.

8.7 S/W version

This displays software version stored in the phone.

9. STAND ALONE TEST

9.1 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.

9.2 Setting Method

A. COM port

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

B. Tx

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

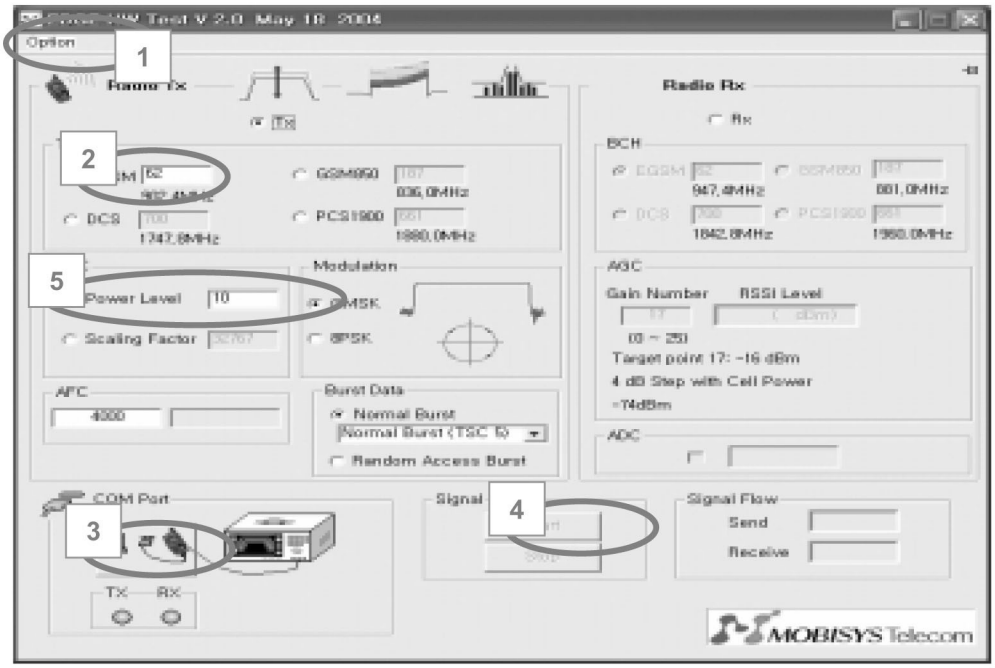
2. Selecting APC
a. Select either Power level or Scaling Factor.
b. Power level
- Input appropriate value GSM (between 5~19) or DCS (between 0~15)

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

C. Rx

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

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



[How to Set program]

1. Select the Option Menu
   - Setting :Mon Port, Baudrate (38400)
2. Input the Band, CH.
   * Tester Setting
   -. Operate mode: GSM BCH + TCH
   -. TCH : Setting BAND & CH
3. click the connect button -> Start button click
4. change the Power level -> measuring
   ** 2.5G Tri band
5. Measured Power
   -> Look at your Tester

Figure 9-1. HW test program

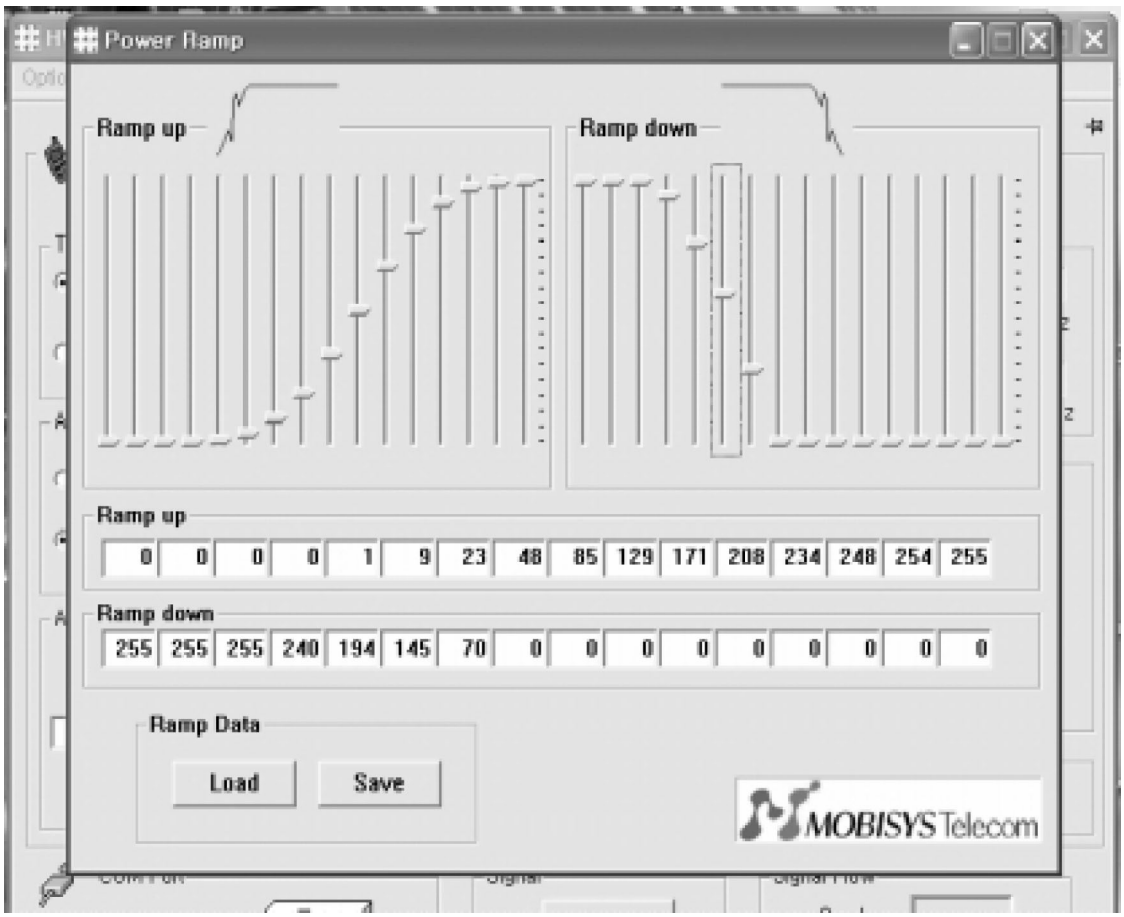
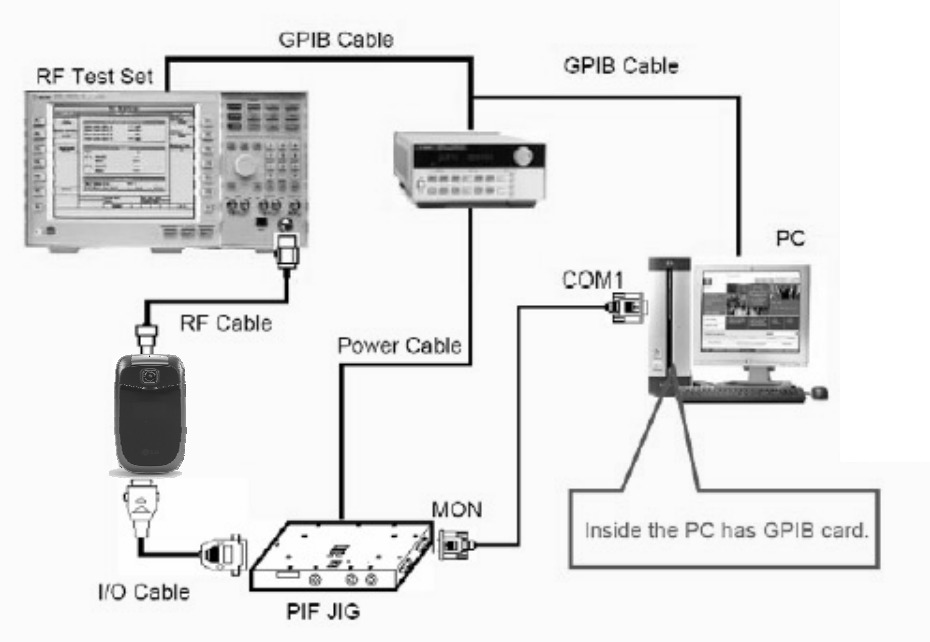


Figure 10-2. Ramping profile

10. Calibration

10.1 Calibration with Hotkimchi

10.1.1 Equipment Setup



No.	Equipment	Quantity
1	RF Text Set(Agilent E5515C)	1EA
2	Power Supply(Agilent 66311B)	1EA
3	GPIB Card	1EA
4	GPIB Cable	2EA
5	PC (Win2000, English)	1EA
6	Com Port Cable	1EA
7	I/O Cable	1EA
8	RF Cable	1EA
9	PIF JIG	1EA

10.1.2 Program Set up

1) How to Program Set

Step1.

CM_GSM Folder set C:\

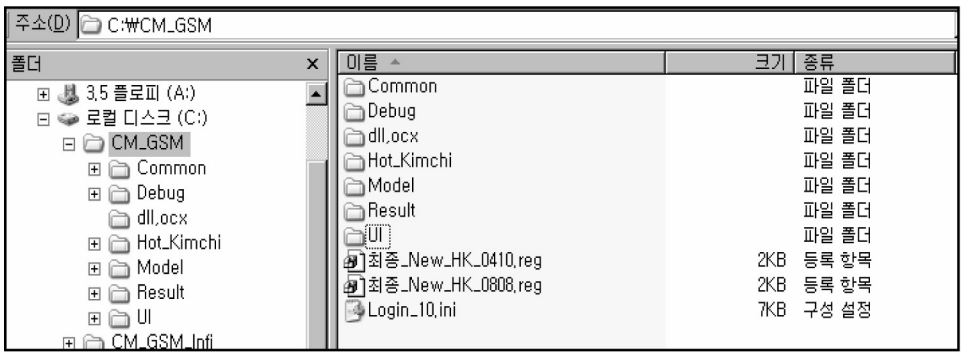
※ The route can be changed.

■ Tester by Folder Name

i) Agilent : CM_GSM

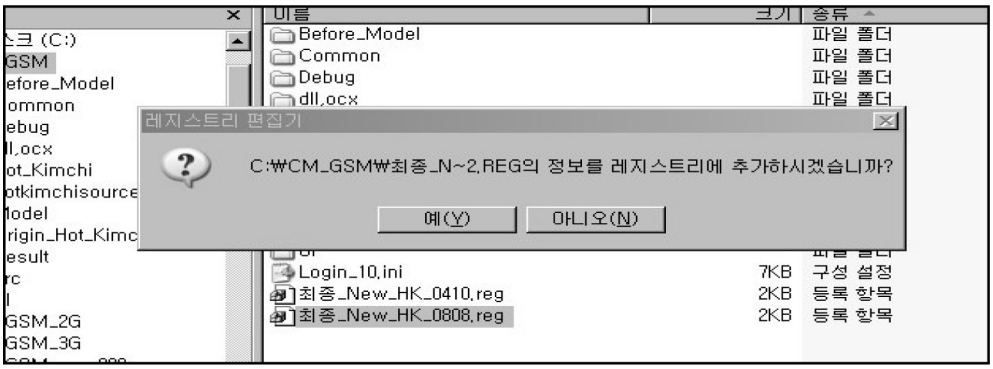
ii) CMU200 : CM_GSM_CMU200

iii) WILLTEK : CM_GSM_WILLTEK



Step2.

Double click on the "_New_HK_0808.reg"

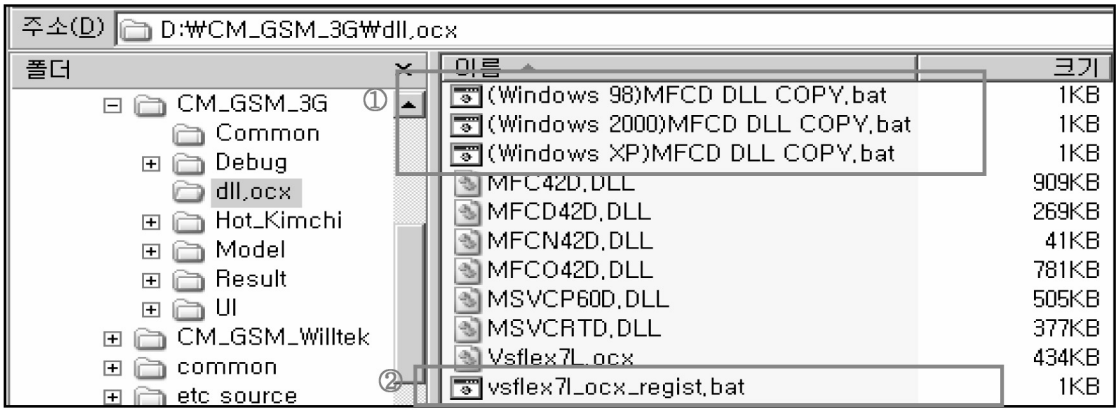


Step3.

i) Double click on the “bat” file in dll,ocx folder

- Windows 98 : (Window 98)MFCD DLL COPY.bat
- Windows 2000 : (Window 2000)MFCD DLL COPY.bat
- Windows XP : (Windows XP)MFCD DLL COPY.bat

ii) Double click on the
“vaflex7l_ocx_regist.bat” file in dll,ocx folder



Step4.

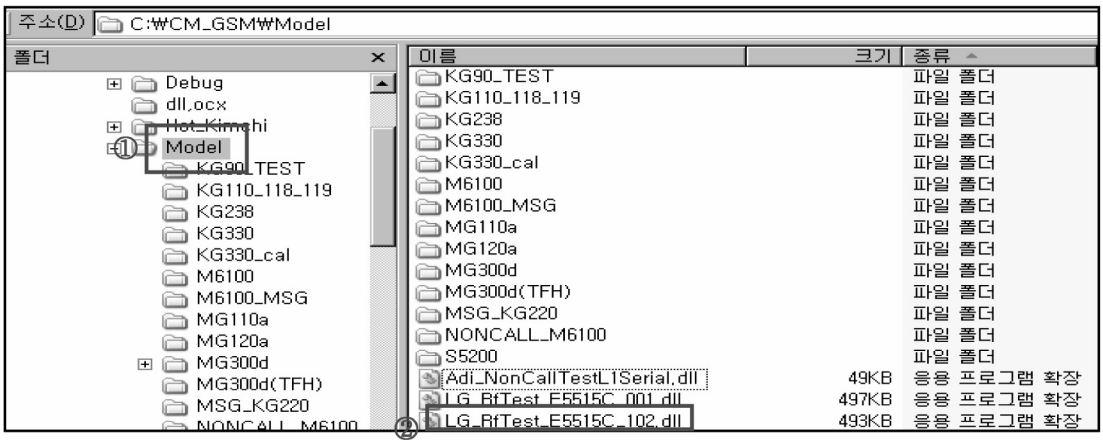
How to add Model

i) Unzip the Model Folder in CM_GSM\Model

① Model Folder → MG230D

② RF TEST DLL

When Update the RF TEST Program, add in CM_GSM\Model



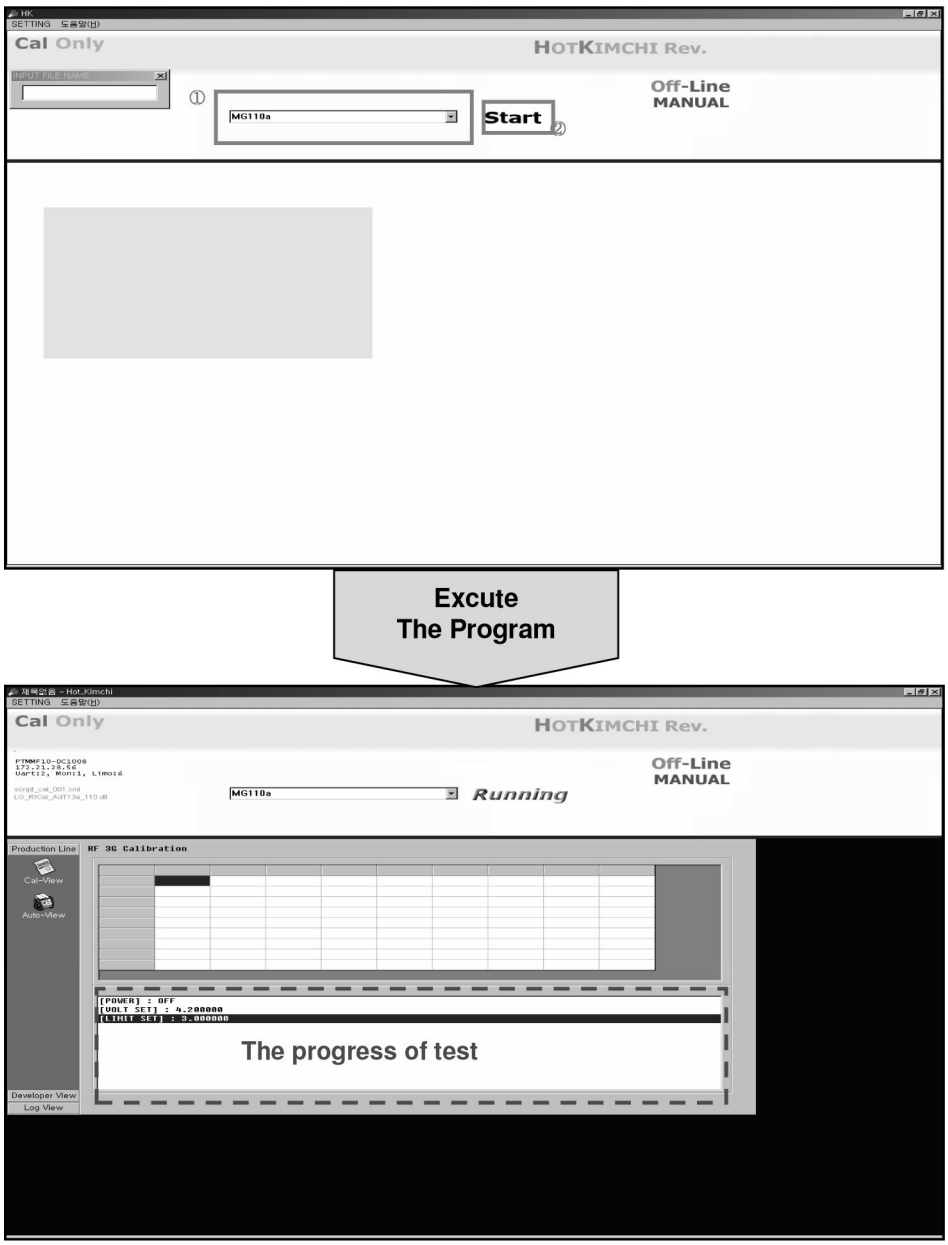
10. Calibration

Step5.

Double click on the “HK_XX.exe” file Hot_Kimchi folder

① select the Model name (ex:MG230D)

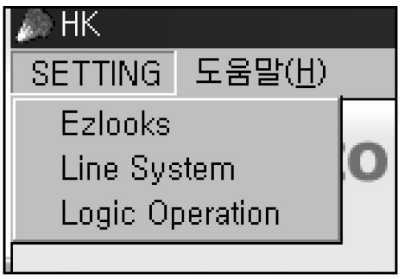
② Click the “Start” Button



■ **Test result leave “CM_GSM\Debug\Model name\Date_Pass/Fail Folder”**

2). Preparing Process Before Launching Program

■ How to set the munu in Hot Kimchi Main Frame



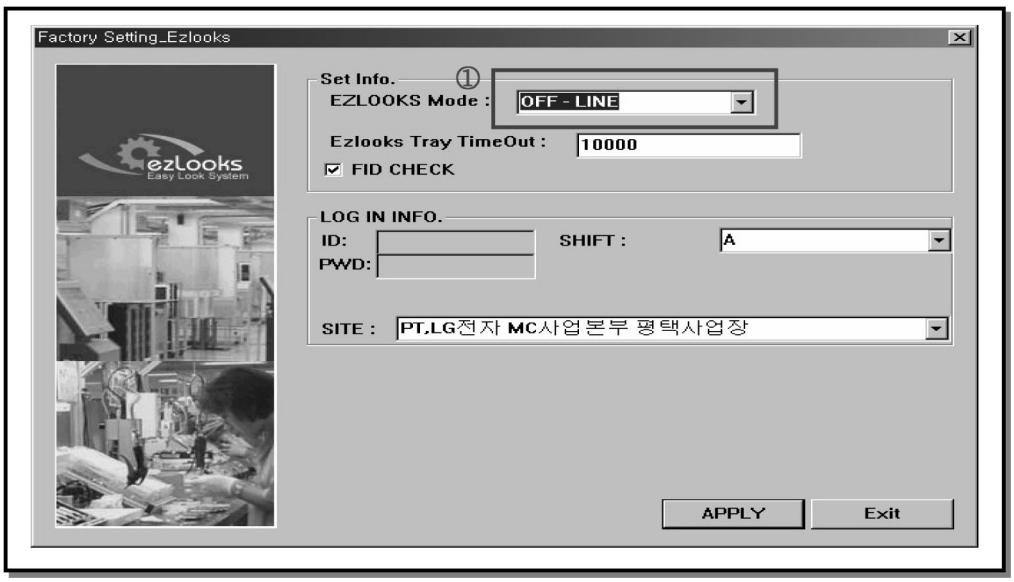
I. Ezlooks

i) a definition of ezLooks

- Manufacturing management system

① select the EzLooks Mode.

* Off-Line : If you could not use ezlooks system, you use off-line mode
* On-Line
* Online Rework



10. Calibration

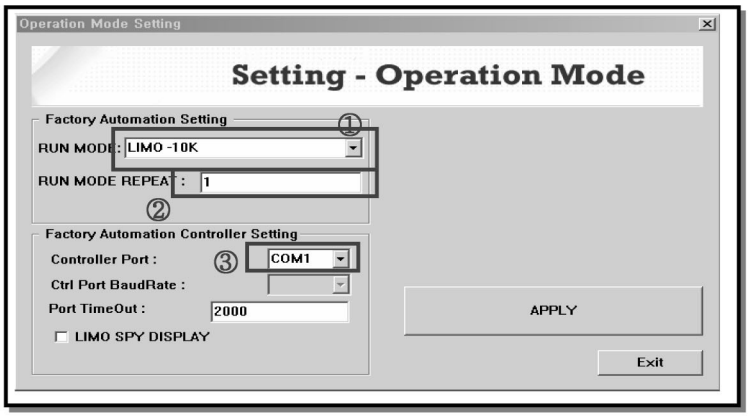
II. Line System

① select the Run mode.

* If you use manual line, you select the Manual -> select the line system.

② When you select repeat mode in RUN MODE tabs, you set up the number of repeat

③ When you use automation Controller system, you set the controller port number
(Our Factory Line use Comport1 overall in automatic line)



III. Logic Operation

① Select whether you use DLL file

* Except for special case, It selects all Normal unconditional.

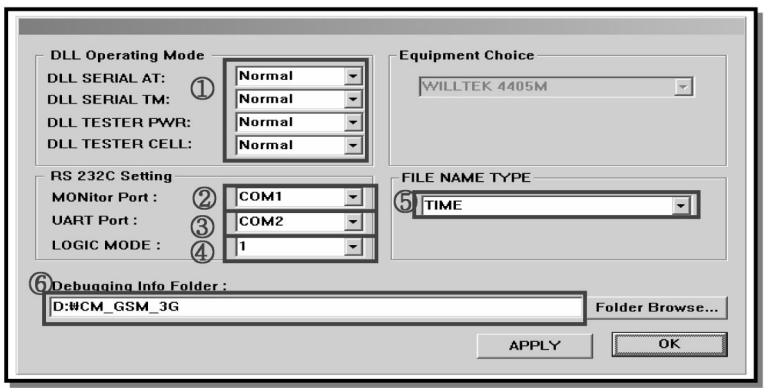
② Some model use to execute the calibration the Monitor Port. (use 2.5G Model)
You Set the Monitor Port

③ It needs to execute the RF TEST.
You Set the UART Port.

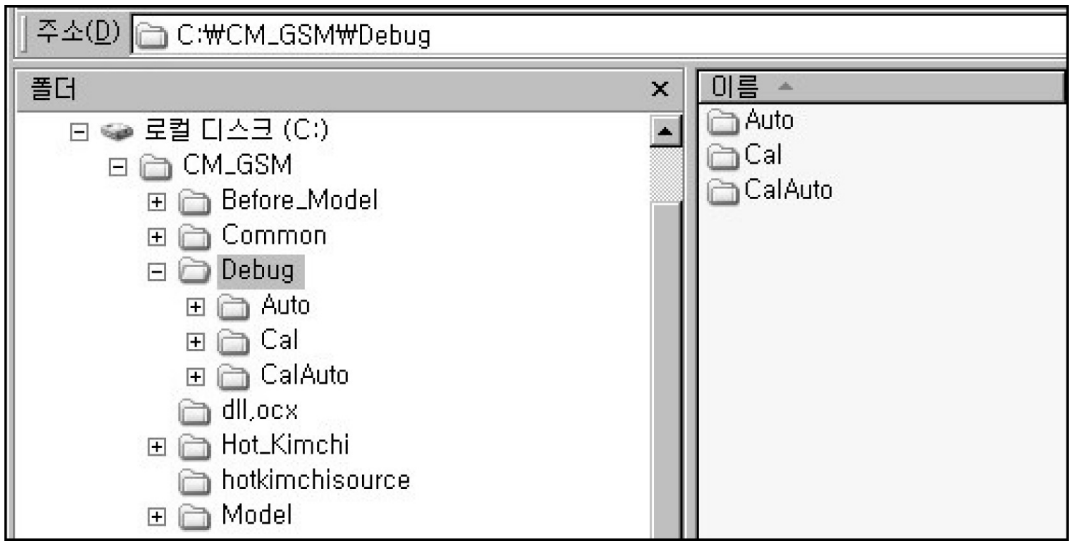
④ Logic Mode : 1 - Calibration Only
2 - RF TEST Only
3 - Calibration + RF TEST

⑤ You set up the result file name.

⑥ The result file creates this path.(non available)



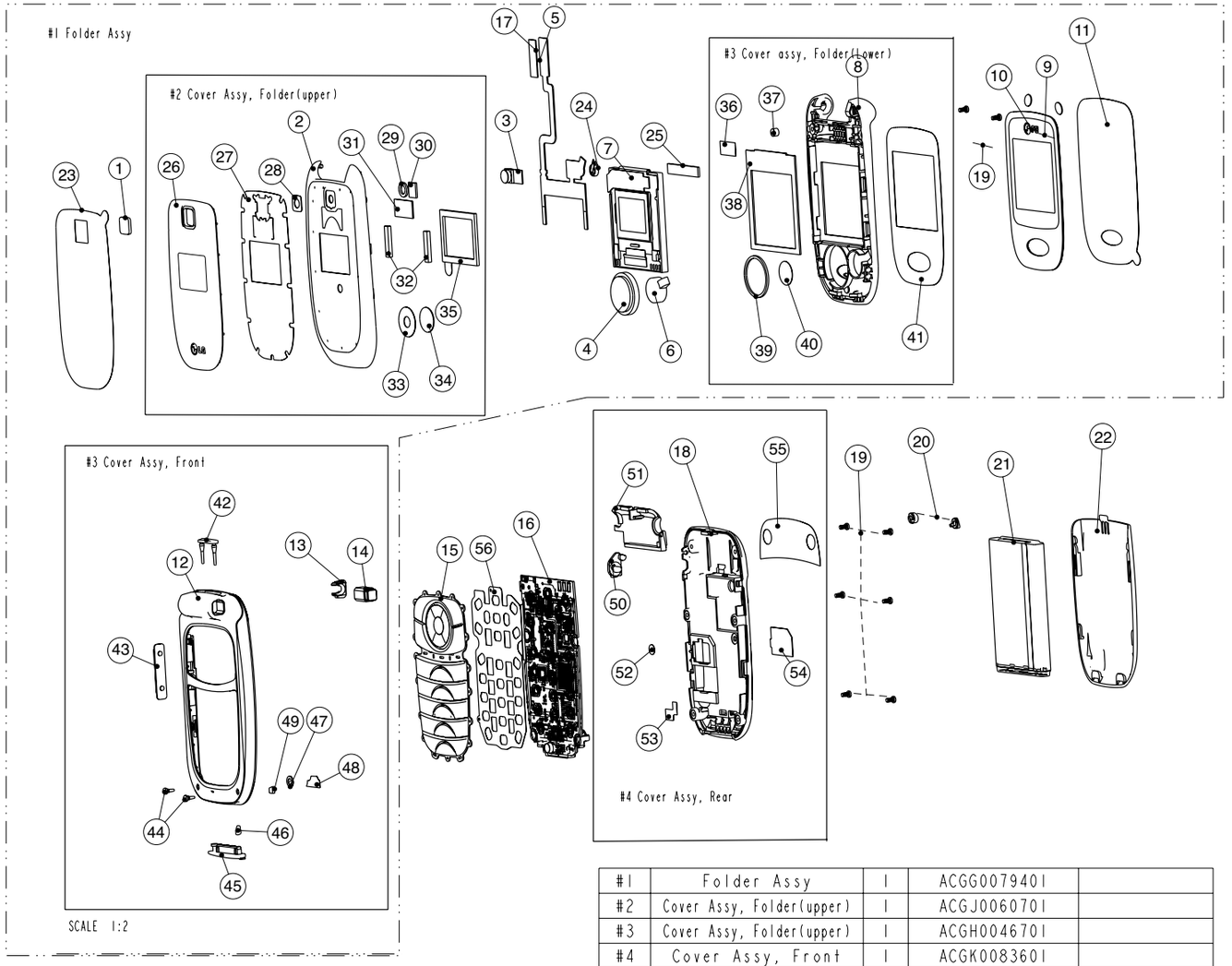
Result file is stored in the following location.
-. CM_GSM\Debug



10. Calibration

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.1 EXPLODED VIEW



#1	Folder Assy	1	ACGG0079401	
#2	Cover Assy, Folder(upper)	1	ACGJ0060701	
#3	Cover Assy, Folder(upper)	1	ACGH0046701	
#4	Cover Assy, Front	1	ACGK0083601	
#5	Cover Assy,Rear	1	ACGM0085301	

56	DOME ASSY, METAL	1	ADCA0065501	
55	TAPE,PROTECTION	1	MTAB0154701	
54	SHEET	1	MSAZ0047501	
53	INSULATOR	1	MIDZ0131501	
52	LABEL, A/S	1	MLAB0001102	
51	ANTENNA,GSM,FIXED	1	SNGF0021703	
50	CAP, EARPHONE JACK	1	MCCC0042101	
49	PAD	1	MPBZ0172501	
48	INSULATOR	1	MIDZ0127601	
47	FILTER, MIKE	1	MFBD0020701	
46	INDICATOR,LED	1	MIAA0020601	
45	CAP,RECEPTACLE	1	MCCE0034901	
44	STOPPER	1	MBHY0003512	

43	BUTTON,SIDE		MBJL0038001	
42	STOPPER		MSGY0019801	
41	TAPE,WINDOW		MTAD0063801	
40	TAPE		MTAF0011101	
39	FILTER,SPEAKER		MFBC0028501	
38	PAD,LCD		MPBG0055701	
37	MAGNET		MMAA0001601	
36	TAPE		MTAZ0177001	
35	PAD,LCD(SUB)		MPBQ0030701	
34	PAD, MOTOR		MPBJ0040201	
33	PAD,SPEAKER		MPBN0037701	
32	GASKET, SHIELD FOAM	2	MGAD0134101	
31	PAD		MPBZ0169001	
30	PAD		MPBZ0169101	
29	PAD, CAMERA		MPBT0037401	
28	TAPE		MTAZ0177101	
27	TAPE, WINDOW(SUB)		MTAE0029901	
26	WINDOW ASSY, LCD	1	AWAB0025201	
25	PAD,LCD DRIVER IC	1	MPBG0061001	
24	BATTERY,CELL,LITHIUM	1	SBCL0001303	
23	TAPE,PROTECTION	1	MTAB0151301	
22	BATTERY_COVER	1	MCJA0038901	
21	INNERPACK	1	SBPL0086002	
20	CAP,SCREW(MAIN)	2	MCCH0099501	
19	SCREW MACHINE	8	GMZZ0015101	
18	COVER,REAR	1	MCJN0062901	
17	GASKET,PCB CONNECTOR	1	MGAD0134201	
16	PCB_ASSY	1	SPFY0145101	
15	KEYPAD ASSY,FOLDER	1	AKAB0007902	
14	HINGE,FOLDER	1	MHFD0013702	
13	BRACKET	1	MBFZ0027401	
12	COVER,FRONT	1	MCJK0067101	
11	TAPE,PROTECTION	1	MTAB0151201	
10	WINDOW,LCD	1	MWAC0074901	
9	CAP,SCREW(FOLDER)	2	MCCH0099901	
8	COVER,FOLDER(LOWER)	1	MCJH0037301	
7	D_LCD	1	SVLM0022801	
6	VIBRATOR	1	SJMY0006508	
5	FPCB_ASSY	1	SPCY0097601	
4	SPK_17PHI_34T	1	SUSY0023501	
3	CAMERA_MODULE	1	SVCY0012601	
2	COVER,FOLDER(UPPER)	1	MCJJ0046601	
1	WINDOW,CAMERA	1	MWAE0023201	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

11.2 Replacement Parts <Mechanic component>

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

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
1		GSM(FOLDER)	TGFF0053007		Titan Silver	
2	AAAY00	ADDITION	AAAY0195601		Titan Silver	
2	APEY00	PHONE	APEY0383001		Titan Silver	
3	ACGG00	COVER ASSY,FOLDER	ACGG0079401		Titan Silver	
4	ACGH00	COVER ASSY,FOLDER(LOWER)	ACGH0046701		Titan Silver	
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0037301	MOLD, PC LUPOY SC-1004A, , , , ,	Titan Silver	8
5	MFBC00	FILTER,SPEAKER	MFBC0028501	COMPLEX, (empty), , , , ,	Black	39
5	MMAA00	MAGNET,SWITCH	MMAA0001601	7100 magnetic	Silver	37
5	MPBG00	PAD,LCD	MPBG0055701	COMPLEX, (empty), , , , ,	Black	
5	MTAD00	TAPE,WINDOW	MTAD0063801	COMPLEX, (empty), , , , ,	Transparent	41
5	MTAF00	TAPE,MOTOR	MTAF0011101	CUTTING, NS, , , , ,	Black	40
5	MTAZ00	TAPE	MTAZ0177001	COMPLEX, (empty), , , , ,	Transparent	36
4	ACGJ00	COVER ASSY,FOLDER(UPPER)	ACGJ0060701		Titan Silver	
5	AWAB00	WINDOW ASSY,LCD	AWAB0025201		Black	26
6	BFAA00	FILM,INMOLD	BFAA0060601	; ,[empty] , , ,	Without Color	
6	MWAF00	WINDOW,LCD(SUB)	MWAF0036201	MOLD, PMMA IF850, , , , ,	Titan Silver	
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0046601	MOLD, PC LUPOY SC-1004A, , , , ,	Titan Silver	2
5	MGAD00	GASKET,SHIELD FORM	MGAD0134101	COMPLEX, (empty), , , , ,	Gold	32
5	MPBJ00	PAD,MOTOR	MPBJ0040201	COMPLEX, (empty), , , , ,	Black	34
5	MPBN00	PAD,SPEAKER	MPBN0037701	COMPLEX, (empty), , , , ,	Black	33
5	MPBQ00	PAD,LCD(SUB)	MPBQ0030701	COMPLEX, (empty), , , , ,	Black	35
5	MPBT00	PAD,CAMERA	MPBT0037401	COMPLEX, (empty), , , , ,	Black	29
5	MPBZ00	PAD	MPBZ0169001	COMPLEX, (empty), , , , ,	Black	
5	MPBZ01	PAD	MPBZ0169101	COMPLEX, (empty), , , , ,	Black	3 1,30
5	MTAE00	TAPE,WINDOW(SUB)	MTAE0029901	COMPLEX, (empty), , , , ,	Transparent	27
5	MTAZ00	TAPE	MTAZ0177101	COMPLEX, (empty), , , , ,	Transparent	28
4	ACGK00	COVER ASSY,FRONT	ACGK0083601		Titan Silver	
5	MBHY00	BUMPER	MBHY0003512	MOLD, Urethane Rubber S190A, , , , ,	Dark Gray	44
5	MBJL00	BUTTON,SIDE	MBJL0038001	MOLD, PC LUPOY SC-1004A, , , , ,	Titan Silver	43
5	MCCE00	CAP,RECEPTACLE	MCCE0034901	MOLD, Urethane Rubber S195A, , , , ,	Titan Silver	45
5	MCJK00	COVER,FRONT	MCJK0067101	MOLD, PC LUPOY SC-1004A, , , , ,	Titan Silver	12
5	MFBD00	FILTER,MIKE	MFBD0020701	COMPLEX, (empty), , , , ,	Black	47

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
5	MIAA00	INDICATOR,LED	MIAA0020601	MOLD, PC LUPOY SC-1004A, , , , ,	Without Color	46
5	MIDZ00	INSULATOR	MIDZ0127601	COMPLEX, (empty), , , , ,	Blue	48
5	MPBZ00	PAD	MPBZ0172501	COMPLEX, (empty), , , , ,	Black	49
5	MSGY00	STOPPER	MSGY0019801	MOLD, Urethane Rubber S195A, , , , ,	Titan Silver	42
4	GMZZ00	SCREW MACHINE	GMZZ0015101	1.4 mm,3.0 mm,MSWR3(FN) ,N ,+ ,- ,	Silver	19
4	MBFZ00	BRACKET	MBFZ0027401	MOLD, PC LUPOY SC-1004A, , , , ,	Gray	13
4	MCCH00	CAP,SCREW	MCCH0099901	COMPLEX, (empty), , , , ,	Titan Silver	9
4	MGAD00	GASKET,SHIELD FORM	MGAD0134201	COMPLEX, (empty), , , , ,	Gold	17
4	MHFD00	HINGE,FOLDER	MHFD0013702	COMPLEX, (empty), , , , ,	Without Color	14
4	MPBG00	PAD,LCD	MPBG0061001	COMPLEX, (empty), , , , ,	Black	25
4	MTAB00	TAPE,PROTECTION	MTAB0151201	COMPLEX, (empty), , , , ,	Transparent	11
4	MTAB01	TAPE,PROTECTION	MTAB0151301	COMPLEX, (empty), , , , ,	Transparent	23
4	MWAC00	WINDOW,LCD	MWAC0074901	CUTTING, PMMA MR 200, , , , ,	Titan Silver	10
4	MWAE00	WINDOW,CAMERA	MWAE0023201	CUTTING, PMMA MR 200, , , , ,	Without Color	1
4	MCCC00	CAP,EARPHONE JACK	MCCC0042101	MOLD, Urethane Rubber S195A, , , , ,	Titan Silver	49
4	MCJN00	COVER,REAR	MCJN0062901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	18
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	

<Main component>

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

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
4	SACY00	PCB ASSY,FLEXIBLE	SACY0056801			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0051301			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0031101			
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0020202	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 0.9 / HEADDER FOR KEYPAD TO MAIN		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0019501	20 PIN,.4 mm,ETC , ,H=1.5, Socket		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0042201			
7	C100	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C104	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C105	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	C106	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C107	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C108	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0020201	40 PIN,0.4 mm,ETC , ,H=0.9, Header		
7	R100	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R102	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
7	R103	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	SPCY00	PCB,FLEXIBLE	SPCY0097601	POLYI ,0.45 mm,MULTI-5 , ,; , , , , , , , , , ,		5
4	SBCL00	BATTERY,CELL,LITHIUM	SBCL0001303	2 V,1 mAh,COIN ,SOLDER TYPE BACKUP BATTERY		24
4	SJMY00	VIBRATOR,MOTOR	SJMY0006508	3 V,.08 A,10*3.45 ,17mm , ,3V , , ,12500 , , , ,38		6
4	SUSY00	SPEAKER	SUSY0023501	ASSY ,8 ohm,90 dB,17 mm, ,; , , , , , , ,WIRE		4
4	SVCY00	CAMERA	SVCY0012601	CMOS ,VGA ,MAGNACHIP 1/7.4"		3
4	SVLM00	LCD MODULE	SVLM0022801	MAIN ,1.52"(128*128)_Sub 0.91"(96*64) Mono ,35.78*39.9*4.0 ,262k ,TFT ,TM ,M_NT39113, S_NT7539 ,Sub Normally Black Panel		7
3	ACGM00	COVER ASSY,REAR	ACGM0085301		Titan Silver	
4	MCCC00	CAP,EARPHONE JACK	MCCC0042101	MOLD, Urethane Rubber S195A, , , , ,	Titan Silver	49
4	MCJN00	COVER,REAR	MCJN0062901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	18
4	MIDZ00	INSULATOR	MIDZ0131501	COMPLEX, (empty), , , , ,	Blue	52
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	51
4	MSAZ00	SHEET	MSAZ0047501	COMPLEX, (empty), , , , ,	Titan Silver	53

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
4	MTAB00	TAPE,PROTECTION	MTAB0154701	COMPLEX, (empty), , , , ,	Transparent	54
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0021703	3.0 ,-2.0 dBd,, ,internal, GSM850/1800/1900 ,; ,TRIPLE ,-2.0 ,50 ,3.0		50
3	AKAB00	KEYPAD ASSY,FOLDER	AKAB0007902	MG230d VIVO	Titan Silver	15
3	GMZZ00	SCREW MACHINE	GMZZ0015101	1.4 mm,3.0 mm,MSWR3(FN) ,N ,+ ,- ,	Silver	
3	MCCH00	CAP,SCREW	MCCH0099501	COMPLEX, (empty), , , , ,	Titan Silver	20
3	MLAK00	LABEL,MODEL	MLAK0006901			
3	SAFY00	PCB ASSY,MAIN	SAFY0191902			
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0070801			
5	ADCA00	DOME ASSY,METAL	ADCA0065501		White	55
5	MGAD00	GASKET,SHIELD FORM	MGAD0134102	MG230d Front Assy	Gold	
5	MPBH00	PAD,MIKE	MPBH0028301	COMPLEX, (empty), , , , ,	Black	
5	SPKY00	PCB,SIDEKEY	SPKY0044001	POLYI ,0.2 mm,DOUBLE , ,; , , , , , , , , , ,		
5	SUMY00	MICROPHONE	SUMY0003802	FPCB ,-42 dB,4*1.5 ,		
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0113102			
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0086501			
6	C100	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C101	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C108	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	C120	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C121	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0003002	10 uF,10V ,Z ,Y5V ,HD ,2012 ,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
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,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C144	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C145	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
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		
6	C149	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C150	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,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	C156	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C157	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C158	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C159	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C160	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C161	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	C200	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C202	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP , , ,[empty] ,[empty] , ,[empty] , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C203	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C219	CAP,TANTAL,CHIP	ECTH0003701	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000133	220 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0000133	220 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C300	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C302	CAP,TANTAL,CHIP	ECTH0002001	10 uF,10V ,M ,STD ,2012 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C400	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C401	CAP,CHIP,MAKER	ECZH0001420	1 uF,10V ,K ,X5R ,HD ,1608 ,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	C403	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C404	CAP,CHIP,MAKER	ECZH0001420	1 uF,10V ,K ,X5R ,HD ,1608 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C407	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C409	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C412	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C413	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C417	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C420	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C422	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C500	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP , , ,[empty] ,[empty] , ,[empty] , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C501	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C503	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C506	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C507	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C510	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C511	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C513	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C514	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C515	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C517	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	C518	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C521	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C522	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C523	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C524	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C525	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C526	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C527	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C528	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C529	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C530	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C531	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C532	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C534	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C535	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C536	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C537	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C538	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C539	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C540	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C541	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C542	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C543	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C544	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C545	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C546	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C580	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C601	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C602	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C603	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C604	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C605	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C606	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C607	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C608	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	C609	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C610	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C611	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	CN301	CONNECTOR,I/O	ENRY0003501	24 PIN,0.5 mm,ANGLE , ,		
6	CN600	CONNECTOR,BOARD TO BOARD	ENBY0020402	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 0.9 / SOCKET FOR KEYPAD TO MAIN		
6	D100	DIODE,SWITCHING	EDSY0005701	EMT3 ,80 V,4 A,R/TP ,		
6	D101	DIODE,SWITCHING	EDSY0012101	US-FLAT ,30 V,1 A,R/TP ,2.5*1.25*0.6(t)		
6	D400	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	FL500	FILTER,SEPERATOR	SFAY0009004	850. 900 ,1800. 1900 ,2.7 dB,3.0 dB,30 dB,30 dB,ETC ,5.4*4.0*1.2, Quard FEM		
6	FL600	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL601	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL602	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL603	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL604	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array(100Ohm,15pF)		
6	FL605	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL606	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL607	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL608	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	J100	CONN,SOCKET	ENSY0016601	6 PIN,ETC , ,2.54 mm,H=2.5		
6	J200	CONN,JACK/PLUG,EARPHONE	ENJE0003102	4 ,4 PIN,BOSS-2		
6	L200	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L201	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L202	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L203	RES,CHIP,MAKER	ERHZ0000701	0 ohm,1/10W ,J ,1608 ,R/TP		
6	L500	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	L501	INDUCTOR,CHIP	ELCH0001408	6.8 nH,J ,1005 ,R/TP ,Pb Free		
6	L502	INDUCTOR,CHIP	ELCH0003817	7.5 nH,J ,1005 ,R/TP ,		
6	L503	INDUCTOR,CHIP	ELCH0001032	18 nH,J ,1005 ,R/TP ,PBFREE		
6	L504	INDUCTOR,CHIP	ELCH0005006	33 nH,J ,1005 ,R/TP ,		
6	L590	INDUCTOR,CHIP	ELCH0001420	3.9 nH,S ,1005 ,R/TP ,PBFREE		
6	L600	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L601	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L602	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	Q100	TR,BJT,NPN	EQBN0007101	EMT3 ,0.15 W,R/TP ,LOW FREQUENCY		
6	Q101	TR,BJT,ARRAY	EQBA0000406	SC-70 ,0.2 W,R/TP ,CDMA,Common use		
6	Q102	TR,FET,P-CHANNEL	EQFP0004201	2.9*1.9*0.8(t) ,.7 W,20 V,-6 A,R/TP ,NDC652P upgrade(substitution) item, Pb free		
6	Q300	TR,BJT,NPN	EQBN0005301	EMT3 ,0.15 W,R/TP ,		
6	Q400	TR,BJT,ARRAY	EQBA0002701	EMT6 ,150 mW,R/TP ,NPN, PNP, 150 mA		
6	R100	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R101	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R102	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP	ERHY0000512	10M ohm,1/16W,J,1608,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R106	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000702	10 ohm,1/10W ,J ,1608 ,R/TP		
6	R109	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000533	7.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R113	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000531	270 ohm,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	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R119	RES,CHIP	ERHY0001102	0.2 ohm,1/4W ,F ,2012 ,R/TP		
6	R120	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP		
6	R121	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R122	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R123	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R124	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R125	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R126	RES,CHIP	ERHY0000278	82K ohm,1/16W,J,1005,R/TP		
6	R127	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R128	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	R202	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000467	330 Kohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R214	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,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	R312	RES,CHIP,MAKER	ERHZ0000360	100 Kohm,1/16W ,D ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000360	100 Kohm,1/16W ,D ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000360	100 Kohm,1/16W ,D ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000360	100 Kohm,1/16W ,D ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000360	100 Kohm,1/16W ,D ,1005 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R320	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R321	RES,CHIP,MAKER	ERHZ0000483	47 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	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R324	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R327	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	R331	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R332	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R333	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R334	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R335	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R336	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R349	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R350	RES,CHIP,MAKER	ERHZ0000533	7.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP,MAKER	ERHZ0000507	68 Kohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R408	RES,CHIP,MAKER	ERHZ0000702	10 ohm,1/10W ,J ,1608 ,R/TP		
6	R409	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000533	7.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R500	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R501	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R503	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000401	0 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	R508	INDUCTOR,CHIP	ELCH0001404	1.5 nH,S,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	R512	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
6	R513	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R514	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
6	R515	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R516	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R590	RES,CHIP,MAKER	ERHZ0000415	130 ohm,1/16W ,J ,1005 ,R/TP		
6	R591	RES,CHIP,MAKER	ERHZ0000415	130 ohm,1/16W ,J ,1005 ,R/TP		
6	R600	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R601	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	R602	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R603	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R604	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R701	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R706	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R710	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	SW500	CONN,RF SWITCH	ENWY0002304	STRAIGHT ,SMD ,0.8 dB,MUSE MODEL		
6	U100	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U101	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U102	IC	EUSY0288701	BGA ,84 PIN,ETC ,256(1die flash)*64(PSRAM), 3V, 8x11.6x1.2mm, 84ball, Pb-Free		
6	U103	IC	EUSY0154001	US8 ,8 PIN,R/TP ,Dual 2-Input OR Gate, Pb Free		
6	U104	IC	EUSY0280001	CSP_BGA ,289 PIN,R/TP ,GSM Onechip Baseband		
6	U200	IC	EUSY0223007	HVSOF5 ,5 PIN,R/TP ,2.5V, 150mA,LDO		
6	U201	IC	EUSY0250501	SC70 ,5 PIN,R/TP ,Comparator, pin compatible to EUSY0077701		
6	U202	IC	EUSY0304901	TDFN ,8 PIN,R/TP ,1.4W Mono AB-Class Audio AMP ,8 PIN,R/TP ,SPK Audio AMP		
6	U203	IC	EUSY0300101	WQFN ,10 PIN,R/TP ,Small package Dual SPDT analog Switch, PB-Free		
6	U400	IC	EUSY0253601	TSSPJW12 ,12 PIN,R/TP ,BACKLIGHT CHARGE PUMP20mAX3		
6	U401	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U402	IC	EUSY0318501	BGA ,84 PIN,R/TP ,7x7, VGA Camera Backend IC		
6	U403	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U500	PAM	SMPY0014001	35.5 dBm,56 %, A, dBc, dB,6x6x1.15 ,SMD ,Tri Band		
6	U501	IC	EUSY0280101	LFCSP-32 ,32 PIN,R/TP ,GSM QUAD BAND TRANSCEIVER, Othello G.		
6	VA200	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA201	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA202	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA300	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA301	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA302	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA308	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA314	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA315	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	X100	X-TAL	EXXY0004601	.032768 MHz,20 PPM,7 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		
6	X500	X-TAL	EXXY0018403	26 MHz,10 PPM, pF, ohm,SMD ,3.2*2.5*0.7 ,temporary spec, W-191-451 ,; ,26 ,10PPM , , , ,SMD ,R/TP		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0085501			
6	C130	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C230	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C231	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	LD100	DIODE,LED,CHIP	EDLH0007901	RED ,1608 ,R/TP ,Indicator,0.4T Red LED		
6	LD300	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD301	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD302	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD303	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD304	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD305	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD306	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD307	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD308	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD309	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD310	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	LD311	DIODE,LED,CHIP	EDLH0013501	BLUE ,1608 ,R/TP ,0.35T ,; ,BLUE ,3~3.15 ,5 ,18~28mcd , , ,[empty] ,[empty] ,[empty]		
6	R213	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R300	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R337	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R338	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R339	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
6	R340	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R341	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R342	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R343	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R344	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R345	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R346	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R347	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R348	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	SPFY00	PCB,MAIN	SPFY0145101	FR-4 ,0.8 mm,BUILD-UP 8 , ,; , , , , , , , , ,		16
6	U404	IC	EUSY0129503	2x2 mm MLPD ,3 PIN,R/TP ,Hall Effect Switch, Pb Free		
6	VA203	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA204	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA303	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA304	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA305	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA306	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA307	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA309	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA310	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA311	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA312	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	VA313	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		

12.3 Accessory

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

Level	Location No.	Part Name	Part Number	Spec	Color	Remark
3	MCJA00	COVER,BATTERY	MCJA0038901	MOLD, PC LUPOY SC-1004A, , , , ,	Titan Silver	22
3	SBPL00	BATTERY PACK,LI-ION	SBPL0086002	3.7 V,830 mAh,1 CELL,PRISMATIC ,KG120 BATT, Latin American Label, Pb-Free ,; ,3.7 ,830 ,0.2C ,PRISMATIC ,50x34x42 , ,BLACK ,Innerpack ,Latin American Label		21
3	SSAD00	ADAPTOR,AC-DC	SSAD0007839	FREE ,50 Hz,5.2 V,800 mA,CE,CB ,		

Note