Service Manual

Model : LG400GT

Internal Use Only

Service Manual

LG400GT

Date: January, 2008 / Issue 1.0

REVISED HISTORY

DATE	ISSUE	CONTENTS OF CHANGES	S/W VERSION

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 LG400GT.

Table Of Contents

1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the LG400GT

1.2 Regulatory Information

A. Security

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

B. Incidence of Harm

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

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the LG400GT or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the LG400GT must be performed only by the LGE or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

E. Notice of Radiated Emissions

The LG400GT complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

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

G. Interference and Attenuation

An LG400GT may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

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

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

1.3 ABBREVIATIONS

For the purposes of this manual, following abbreviations apply:

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

1. INTRODUCTION

PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
FEM	Front End Module
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. GENERAL PERFORMANCE

2.1 Product Name
LG400GT: Support GSM

2.2 Supporting Standard

Item	Feature	Comment
Supporting Standard	GSM850/PCS1900 Dual-Band (850/1900) with seamless handover Phase 2+(include AMR) SIM Toolkit: Class 1,2,3	
Frequency Range	GSM850 TX: 824 - 849 MHz GSM850 RX: 869 - 894 MHz PCS1900 TX: 1850 - 1910 MHz PCS1900 RX: 1930 - 1990 MHz	
Application Standard	SMS : Yes	

2.3 Main Parts: GSM Solution

	LG400GT
Digital Baseband	TI Locosto
RF Chip	SKY77318

2.4 H/W Features

Item	Feature	Comment
Form Factor	Folder type	LCD : 65K CSTN, 128 x128
Battery	Capacity Standard: Li-Ion, 750mAh(Min)	Cell Size: Standard 4.9(L)x34.2(W)x46.6(H)mm
	Packing Type: Soft Pack	
Size	Standard: 87.0 x 47.0 x 19.9 mm	L x W x H
Weight	68g	With Battery
PCB	One PCB: 6 Layers, 0.8t	
AVG TCVR current (mA)	Max: 210 mA (GSM, Power Level 5) Max: 85 mA (GSM, Power Level 19)	
Standby Current	1.8 mA	@ Paging Period 6
Standby time	Up to 350 hours	@ Paging Period 6
Charging time	Below 3 hours	@ Power Off /1000mAh
Talk time	Min: 3.0hr@Power Level 5(GSM850) Min: 4.0hr@Power Level 0(PCS)	@ 750 mAh
RX sensitivity	GSM 850: -108 dBm PCS: -107 dBm	Condition: conducted
TX output power	GSM 850: 33 dBm PCS: 30 dBm	Class4 (GSM850) Class1 (PCS)
SIM card type	Plug-In SIM 3V	
Display	MAIN LCD: 65K Color CSTN (128 X128)	
	Backlight: Blue LED	
Keypad	Alphanumeric Key: 12 Function Key: 10 Total Number of Keys: 22	Function Key: 5 Key Navigation, F1, F2, C, SND, END/PWR

Item	Feature	Comment
Antenna	Inner Antenna Type	Dual-band
System connector	18 Pin	
Ear Phone Jack	18 Pin	
PC synchronization	No	
Memory	Flash : 64Mbit / SRAM : 32Mbit	Spansion
Speech coding	FR, EFR, HR, AMR	
Data & Fax	No	
Vibrator	Built in Vibrator	
MIDI a	16 Poly	
Voice Recording	Yes	30 sec.
Travel Adapter	Yes	
Options	Ear-Microphone	
	Cigarette Lighter Adapter	TBD
	Data Cable	TBD

2.5 S/W Features

Item	Feature	Comment
RSSI	0~6 level	
Battery Charging	0~4 level	
Key Volume	0~5 level	
Effect sound volume	0~5 level	
Audio Volume	0~5 level	
Time/Date Display	Yes	
Multi-language	Yes	English / Spanish /Portuguese
Quick Access Mode	Yes	Profiles / Phonebook Calendar / Message
PC Sync	Yes	
Speed Dial	Yes	8EA
Speaker Phone	Yes	
CLIP / CLIR	Yes	
Phonebook	Yes	Total 500 members
Last Dial Number	Yes	10EA
Last Received Number	Yes	10EA
Last Missed Number	Yes (10)	10EA
Search Number/Name	Name only	
Group	No	
Fixed Dial Number	Yes	
Service Dial Number	Yes	
Own Number	Yes	
Voice Memo	Yes	
Call Reminder	Yes	
Network Selection	No	
Call Divert	Yes	
Call Barring	Yes	

Item	Feature	Comment
Call Charge (AoC)	Yes	
Call Duration	Yes	
SMS	100	
EMS melody/Picture Send/ Receive/ Save	No	
SMS Over GPRS	No	
E-Mail	No	
Long Message	Yes	Max. 459 Characters
Cell Broadcast	Yes	
Download Melody / Wallpaper	No	
Gamel	Yes	
Calendar	Yes	
Memo Pad	Yes	
World Clock	Yes	
Unit Convert	Yes	
Fax & Data	No	
Wall Paper	Yes	Default 3EA
WAP Browser	No	
Download	No	
SIM Lock	Yes	Operator Dependent
SIM Toolkit	Class 1, 2, 3	
MMS	No	
AMR	Yes	
CPHS	Yes	
Hold / Retrieve	Yes	
Conference Call	Yes	Max. 6
DTMF	Yes	

3. H/W CIRCUIT DESCRIPTION

3.1 Digital Main Processor(Locosto)

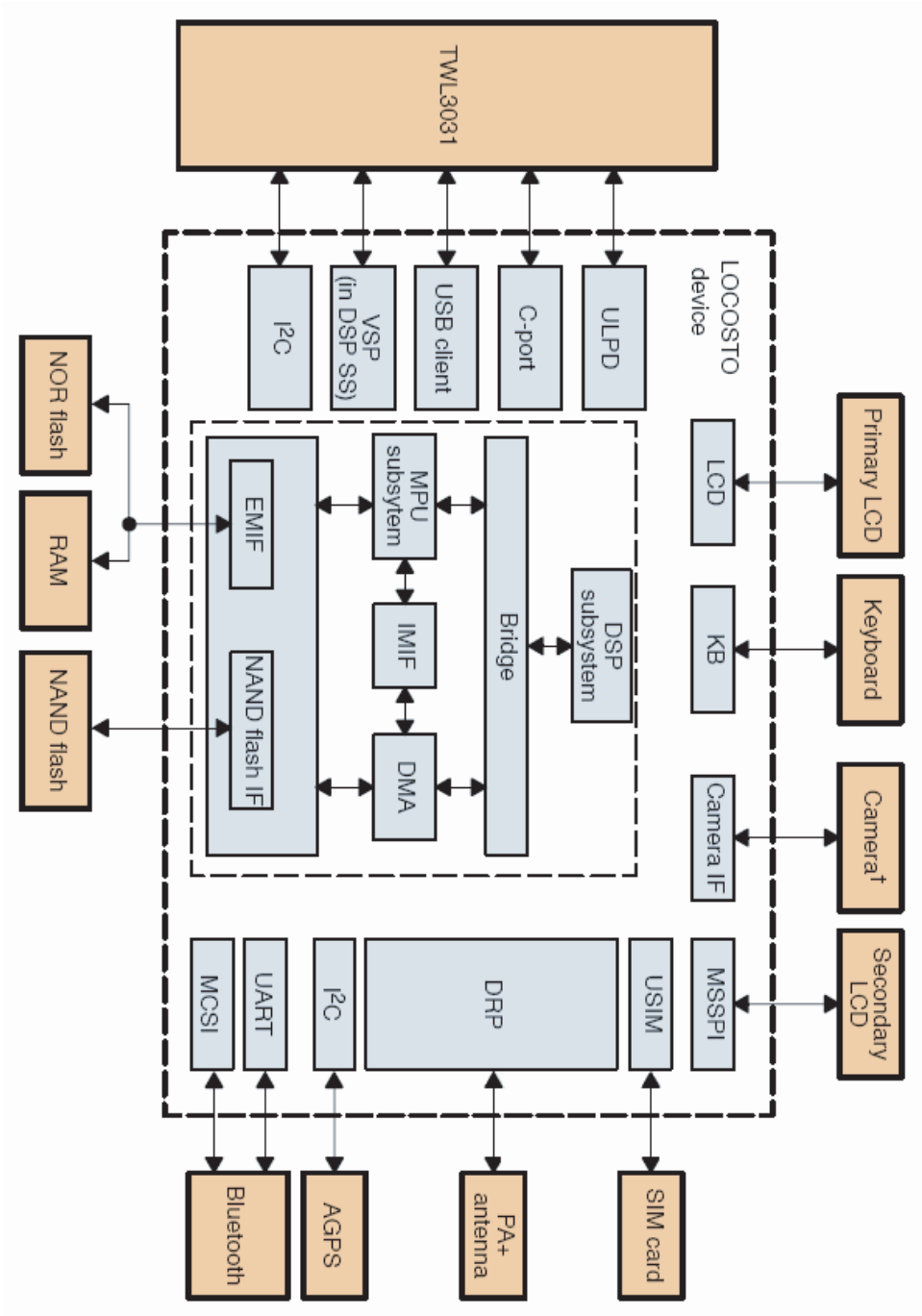

Figure. 3.1 Locosto FUNCTIONAL BLOCK DIAGRAM

3.1.1 Overview of Locosto

The Locosto is a GSM base band modem including RF transceiver covering the low bands GSM850 /GSM900 and high bands GSM1800 / GSM1900 bands. Locosto is Dual Band, therefore, it supports by default a low / high pair of bands at the same time:

1. GSM850 / GSM1800
2. GSM850 / GSM1900
3. GSM900 / GSM1800
4. GSM900 / GSM1900

The Locosto is optimized for voice-centric Mobile Phone applications.

The Locosto is designed as a single chip solution that integrates the digital, mixed-signal, RF functionality and a direct-to-battery Power Management Unit.

The transceiver consists of:

- Constant gain direct conversion receiver with an analog I/Q base band interface
- Fully integrated Sigma/Delta-synthesizer capability
- Fully integrated two-band RF oscillator
- Two-band digital GMSK modulator with digital TX interface
- Digitally controlled crystal oscillator generating system clocks.

The Locosto supports a direct battery connection, hence eliminating the need for an external Power Management Unit. The Locosto has different power down modes and an integrated power up sequencer.

The Locosto is powered by the ARM7(104MHz) MCU and C54® DSP cores. The operating temperature range from -40°C to 85°C. It is manufactured using the 0.13 μm CMOS process.

3.1.2 Features

The LOCOSTO device is an integrated solution that embeds a digital baseband(DBB) and a digital radio processor (DRP) on the same die. The LOCOSTO device targets solutions for GSM/GPRS (low-cost global system for mobile communications/general packet radio service).

The DRP is a digital radio-frequency (RF) transceiver that supports up to a GPRS class12. The DRP is designed for quad-band operation, supporting both the European and the US bands (E-GSM 900 and DCS 1800 bands, GSM850 and PCS 1900 bands, respectively).

The DBB supports the processing of GSM radio signals in the switching circuit mode and the packet data mode (GPRS) for up to class 10, including evolutions such as the SAIC and localization system (A-GPS) in compliance with the European Telecommunications Standards Institute specification.

The LOCOSTO silicon process is a 90-nm digital CMOS technology.

The LOCOSTO device includes two versions: LOCOSTO and LOCOSTO Lite.

The LOCOSTO Lite device does not include the camera interface and the GPRS.

LOCOSTO offers the following features:

- ▶ Dual processors:
  - 104-MHz ARM7TDMI® microprocessor unit (MPU)
  - 104-MHz customized digital signal processor (cDSP) c54x
- ▶ Internal memory:
  - 154KW DSP read-only memory (ROM)
  - 30KW DSP static random-access memory (SRAM)
  - 2.5Mb MPU SRAM
  - 1.5Mb MPU ROM
- ▶ External memory support:
  - 1.8/3 V subscriber identity module (SIM) I/F
  - Direct memory access (DMA) to external memory
  - Burst mode, page-mode external memory: NAND and NOR flash and SRAM (frame buffer)
- ▶ Hardware security
  - Flash content
  - International mobile equipment identity (IMEI) protection
  - SIM lock
- ▶ Peripheral interfaces
  - Vibrator PWM control signal
  - Universal serial bus (USB) 2.0 full-speed client
  - Keypad
  - Universal asynchronous receiver/transmitter (UART)
  - Multichannel serial interface (MCSI)
  - Bluetooth
  - Camera
  - Primary liquid-crystal display (LCD): 8-bit parallel interface Up to QVGA (quarter video graphics array) 256K colors
  - Secondary LCD: Serial interface

▶ DRP2.0 RF integrated RF:
- Digital RF 4 band GSM/GPRS up to Class 12 (On the LOCOSTO Lite device, GSM is dual-band muxed and GPRS is not available.)
- -110 dBm sensitivity
- Digital PA driver output level +2 dBm
- 0.7 degrees RMS phase error
- Integrated digitally controlled crystal oscillator (DCXO)

▶ Software support:
- GSM/GPRS layer 1,2,3 (GPRS is not available on LOCOSTO Lite.)
- Adaptive multirate (AMR), full rate (FR), half rate (HR), enhanced full rate (EFR)
- Teletypewriter (TTY)
- SAIC over GSM
- Man machine interface (MMI) for test
- Wireless application protocol (WAP), enhanced message service(EMS), multimedia message service (MMS), JAVA

▶ Multimedia support:
- Internal 300 KP camera support
- MP3 player
- Up to 32 polyphonies stereo midi player
- Up to 32 polyphonies mono midi ringer
- JPEG encode and decode

The LOCOSTO device communicates with the analog TWL3031 external subsystem, which provides the following capabilities:
- Handset microphone and speaker
- Headset mono/stereo audio speakers and microphone connection
- Melody ringer (hands-free) and buzzer
- Battery pack (Nimh/Li-ion) and six 7-V regulated or 20-V nonregulated charger
- Vibrator motor control
- Real-time clock (RTC) 32-kHz crystal

The following external/extra subsystems are also supported:
- TI-Bluetooth (BRF6150) wireless short-distance connectivity
- Voice/audio and data
- TI-AGPS/TWL5002 localization system (I/F provision)
- Digital camera systems (not available on LOCOSTO Lite)
- VGA camera sensor/module, for example, AGILENT ADCM-2700 (not available on LOCOSTO Lite)
- OMAP-DMxx(GoldenEye) camera companion chip (up to 3M-pixel) (not available on LOCOSTO Lite)
- UART cable or IrDA (infrared data association)
- Boot-manufacturing capability from the USB link
- FM radio receiver (for example, Philips TEA5767/68)
- Primary (Qcif) and secondary LCD
- NAND flash-based media storage (for example, on-board SmartMedia)
- USB carkit

3.1.3 Asynchronous Operation Mode Concept

The Locosto can operate in either:

• The traditional synchronous mode with the 26MHz system clock synchronized on the base station

• A special asynchronous mode (XO concept).

In the asynchronous mode the 26MHz clock input is not synchronized with the base station; the residual

frequency offset is compensated in the digital signal processing domain. This processing includes frequency and timing compensation of the baseband and voiceband signals.

3.1.4 Receiver Antenna Bar Display

	Antenna Bar Number	RX Power (dBm)
Antenna display	5->4	-87dBm ~ -83dBm
	4->3	-92dBm ~ -88dBm
	3->2	-97dBm ~ -93dBm
	2->1	-102dBm ~ -98dBm
	1->0	-107dBm ~ -93dBm

3.2 Power Amplifier Module (SKY77318)

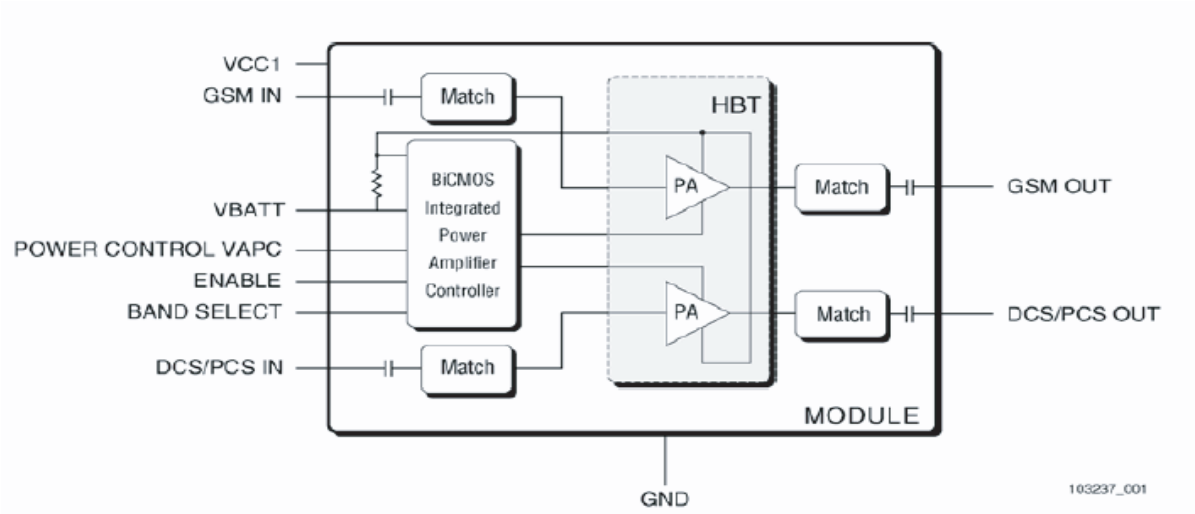

Figure. 3-2 SKY77318 FUNCTIONAL BLOCK DIAGRAM

The SKY77318 Power Amplifier Module (PAM) is designed in a low profile (1.2 mm), compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, and PCS1900 operation. The PAM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation.

3. H/W CIRCUIT DESCRIPTION

The module consists of separate GSM PA and DCS1800/PCS1900 PA blocks, impedance-matching circuitry for 50 Ω input and output impedances and a Power Amplifier Control (PAC) block with an internal current-sense resistor. The custom BiCMOS integrated circuit provides the internal PAC function and interface circuitry. Fabricated onto a single Gallium Arsenide (GaAs) die, one Heterojunction Bipolar Transistor (HBT) PA block supports the GSM bands and the other supports the DCS1800 and PCS1900 bands. Both PA blocks share common power supply pins to distribute current.

The GaAs die, the Silicon (Si) die, and the passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

RF input and output ports of the SKY77318 are internally matched to a 50 Ω load to reduce the number of external components for a quad-band design. Extremely low leakage current (2.5 μA, typical) of the dual PA module maximizes handset standby time. The SKY77318 also contains band select switching circuitry to select GSM (logic 0) or DCS/PCS (logic 1) as determined from the Band Select (BS) signal.

In Figure 1 below, the BS pin selects the PA output (DCS/PCS_OUT or GSM_OUT) and the Analog Power Control (VAPC) controls the level of output power.

The VBATT pin connects to an internal current-sense resistor and interfaces to an integrated power amplifier control (iPAC™) function, which is insensitive to variations in temperature, power supply, process, and input power.

The ENABLE input allows initial turn-on of PAM circuitry to minimize battery drain.

3.3 26 MHz Clock (DCXO)

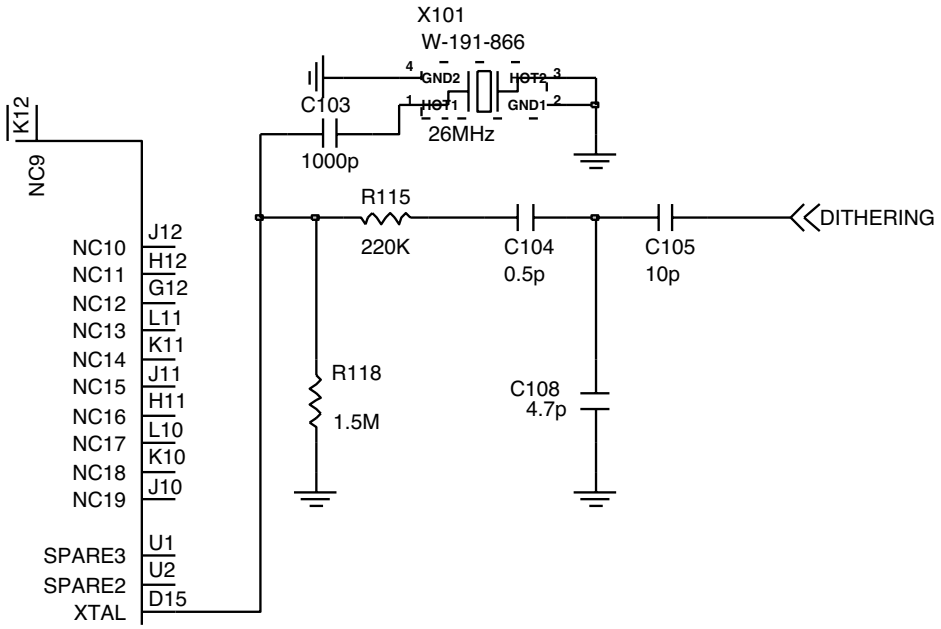

Figure. 3-3 Locosto DCXO Overview

DCXO (Digitally Controlled Crystal Oscillator) and VCTCXO (Voltage Controlled Temperature Compensated Crystal Oscillator) are two different techniques used to maintain the mobile's reference oscillator's accuracy over time. The reference oscillator's accuracy over time will vary due to initial crystal frequency offset, temperature drift and aging. These static and dynamic frequency variations have to be compensated, otherwise the mobile would be in danger of losing connection to the network.

The technique used to perform the frequency compensation is generally termed Automatic Frequency Control (AFC). To summarize the operation of DCXO, GSM Baseband processor will calculate the AFC compensation (which is continuously updated) required based on the measured frequency error.

Then the required AFC compensation is sent to the LUXO (Lineari-Zation Unit of Crystal Oscillator), which in turns control the DCXO core and generates the 26MHz system clock.

3.4 RTC(32.768KHz Crystal)

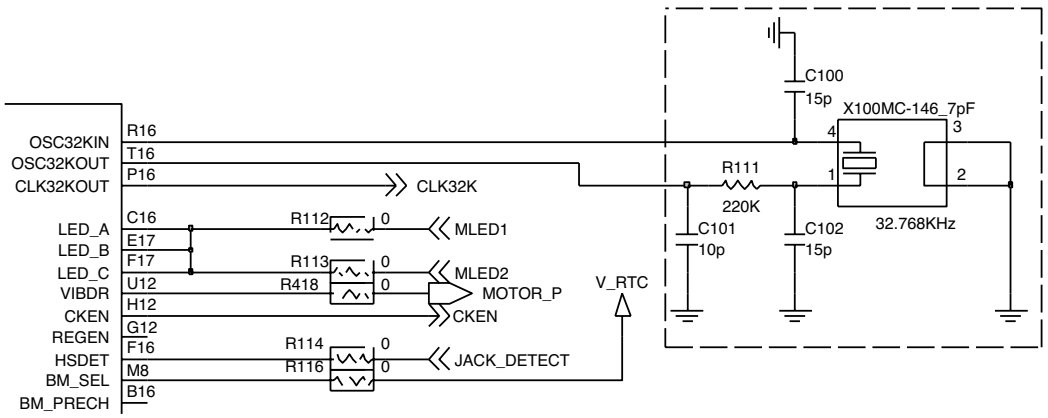

Figure. 3-4 Locosto RTC Interface

The integrated Real Time Clock (RTC) is able to provide programmable alarm functions and external interrupts. Due to its extreme low power consumption the RTC can be supplied from a small backup battery. This allows the generation of external interrupts, even when the main Locosto supply voltage is switched off. For this purpose the RTC is powered by own voltage supply pins VDD_RTC and VSS_RTC.

The RTC shall be driven by a 32.768 kHz (32k) clock which needs to be applied via the Triton(ABB) OSC32KIN and OSC32KOUT pins. The clock can be fed from either an external clock source or use the on chip 32 KHz oscillator module.

The low clock frequency and the optimized low power design give the possibility to run the chip with a minimum of power dissipation. For example, for this specific application the 26 MHz reference oscillator can be switched off during system standby and a low- power time reference can be kept when the 32k clock is provided to the RTC.

The RTC consists of an Locosto specific RTC shell, containing the RTC macro, as well as the 32 kHz oscillator, as described in the following sections. The module RTC Shell solely performs level translation of the 32KHz clock to the VDD_LD1 power supply domain, and is not functionally associated with the RTC.

3.5 LCD Interface(8-bit Parallel interface)

LCD CONNECTOR

MAKER	ID	Voltage
GP(NOVATEK)	LOW	0V
GP(NOVATEK)	HIGH	1.8V

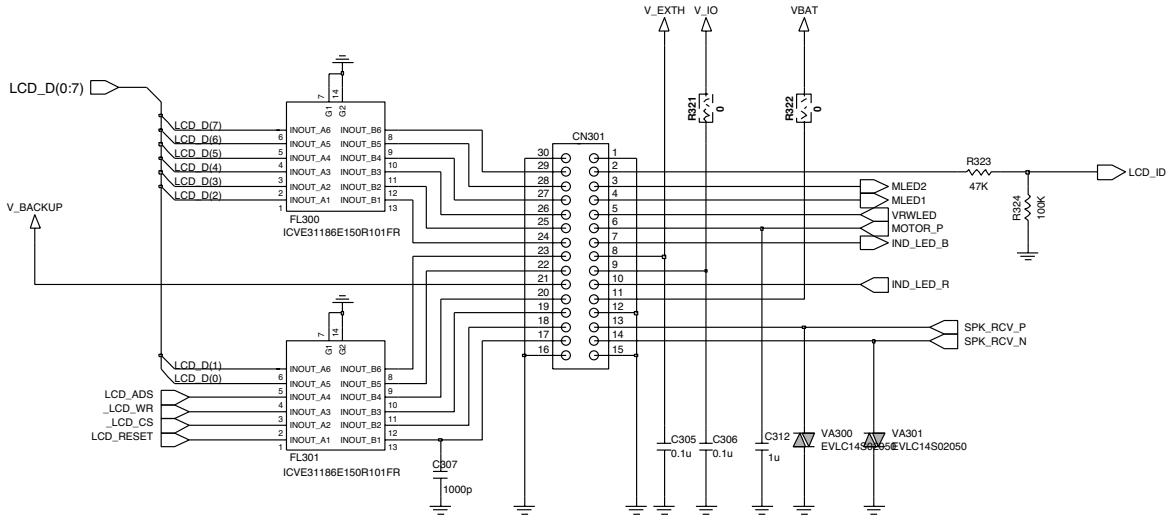

Figure 3-5-1. LCD Interface

Signals	Description
_LCD_CS	This signal enable to access to the driver IC of LCD.
LCD_D(0:7)	This signal transfer display data to driver IC.
LCD_ADS, _LCD_WR	This signal transfer control signal to driver IC.
LCD_RESET	This signal makes driver IC to HW default status.
MLED	This signal provide power to white LEDs.
MLED1/2	This signal be feed back from white LEDs.
V_EXTH, V_IO	This signal provides power to LCD modules.

3.6 SIM Card Interface

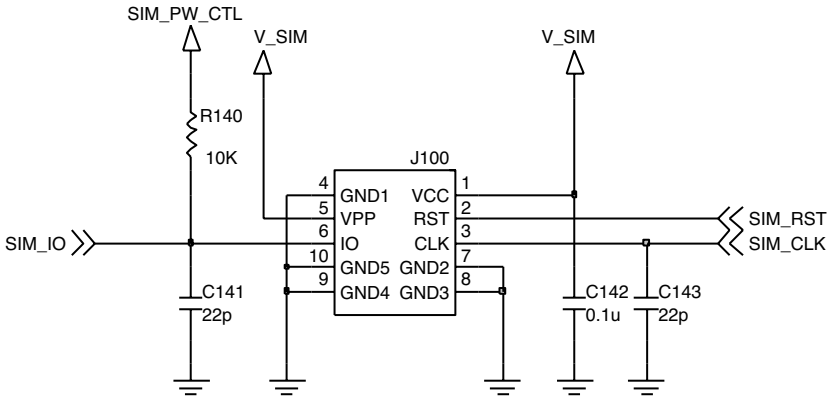

Figure 3-6. SIM CARD Interface

The Locosto provides SIM Interface Module. The Locosto 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.

Signals	Description
SIM_RST	This signal makes SIM card to HW default status.
SIM_CLK	This signal is transferred to SIM card.
SIM_DATA	This signal is interface datum.

3.7 KEYPAD Interface

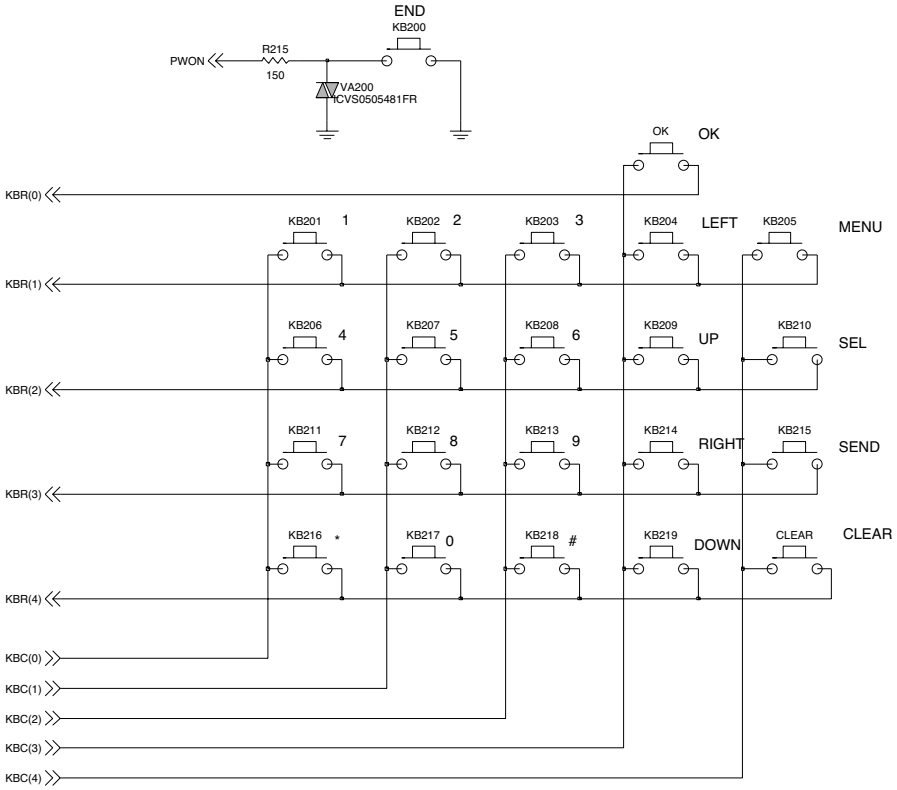

Figure 3-7 KEY MATRIX Interface

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3.8 Battery Charging Block Interface

CHARGING

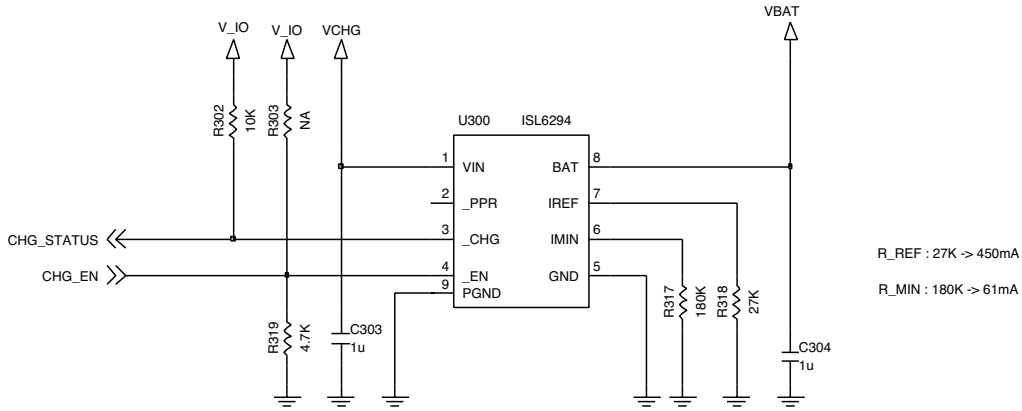


Figure 3-8. Charging IC Interface

The ISL6294 is a high performance battery charger designed to charge single cell lithiumion/polymer batteries with up to 400mA of current from an external power source.

It is a stand-alone charging solution, with just one external component required for complete functionality. The ISL6294 precisely regulates battery charge voltage and current for 4.2V lithium-ion/polymer battery cells.

The ISL6294 has four basic modes for the battery charge cycle: pre-conditioning/trickle charge; constant current/fast charge; constant voltage; and end of charge.

3.9 RF Interface

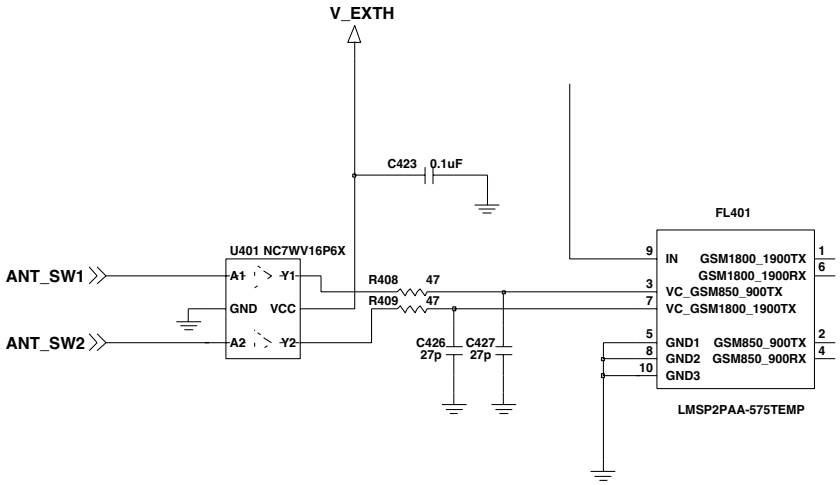


Figure 3-9-1. ASM interface

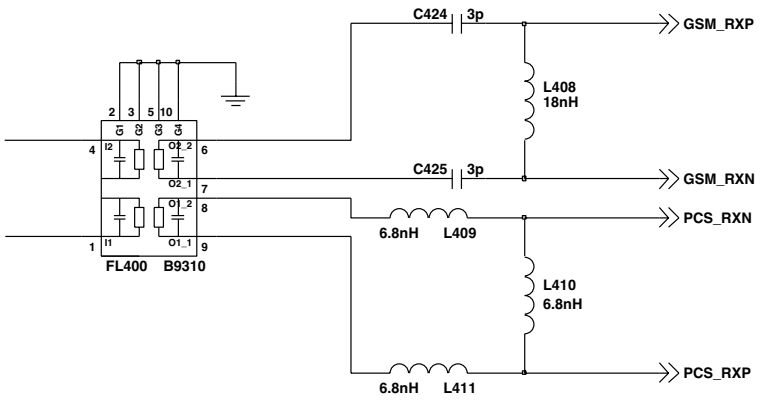


Figure 3-9-2. SAW Filter interface

Locosto features a fully integrated constant-gain direct conversion receiver, i.e. there is no interstage filter needed and the baseband level at the analogue IQ- interface follows directly the RF input level.

Depending on the baseband ADC dynamic range, single- or multiple-step gain switching schemes are possible.

An integrated, selfaligning, low-pass filter ensures the receivers to function under blocking and reference interference conditions and avoids aliasing by baseband sampling. An automatic DC-offset compensation is implemented and can beswitched depending on the gain setting.

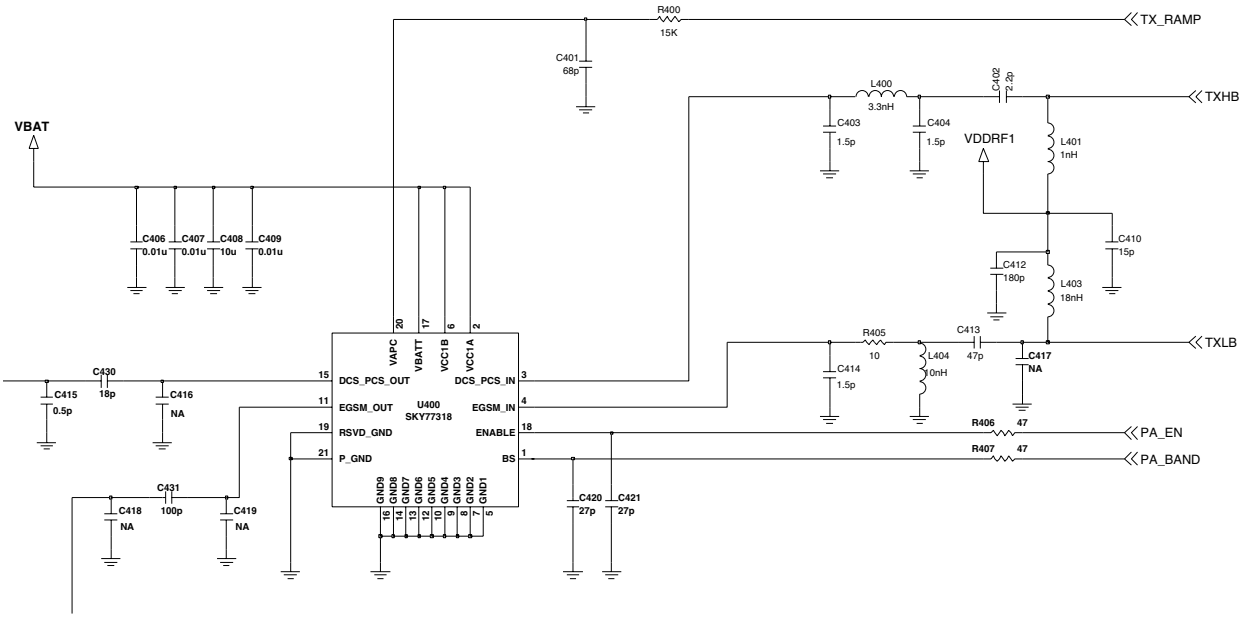


Figure 3-9-3. PAM (Power Amplifier Module) interface

The digital transmitter architecture is based on a fractional-N sigma-delta synthesizer for constant envelope GMSK modulation. This configuration allows a very low power design with a reduced external component count.

The modulation is transferred between baseband- and RF-part of the PMB7880 via a digital interface signal into the digital modulator. The following Gaussian filter shapes the digital data stream for the GMSK modulation. Additionally a pre-distortion filter compensates the attenuation of the PLL transfer function resulting in a very low distortion at the transmit output. The filtered digital data stream is scaled appropriately and added to the channel word.

This sum is fed into the MASH modulator. The output of the MASH modulator is a sequence of integer divider values representing the high resolution fractional input signal. This sequence controls the MMD (multi modulus divider) at a sample rate of 26MHz. Thus a tightly controlled frequency modulation of the VCO is achieved.

3.10 Audio Interface

3.10.1 Uplink Path

A voice signal is converted to electrical signal with Microphone. The converted electrical voice signal is amplified and converted to digital signal in ABB(T3031). The converted digital data is encoded to GSM voice standard in DBB(LOCOSTO).

The audio signals from main microphone goes to MICP and MICN of ABB and the voice signal from head-set to HSMIC of ABB. The bias voltage for microphone is 2V for main mic. and 2V for head-set mic, which bias voltage is generated in ABB(MICBIAS, HSBIAS)

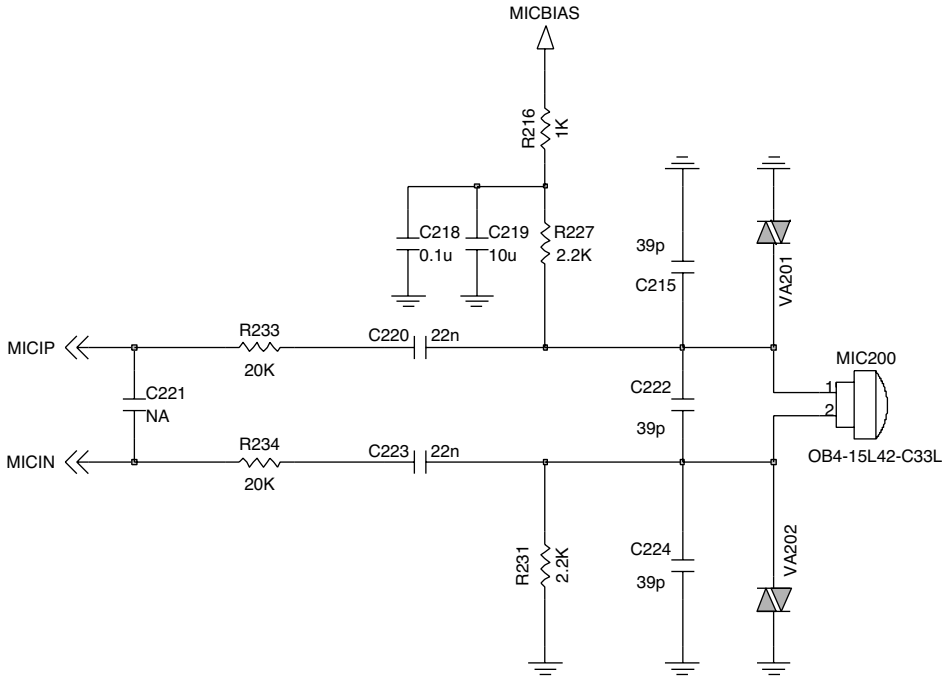


Figure 3-10-1 Main Mic interface

3.10.2 Downlink Path

The voice downlink path receives speech samples at the rate of 8 kHz/16kHz from the DSP via the voice serial interface VSP and converts them to analog signals to drive the external transducers.

Earphone : The earphone amplifier provides a full differential signal on the terminals (EAR_P,EAR_N)

Headset : Each output amplifier provides a single signal on Headset Left.(HSOL)

Handfree : The 8 Ohms speaker amplifier provides a differential signal on the terminals SPKPA, and SPKNA then goes to external AMP for SPEAKER(SPKPA, SPKNA)

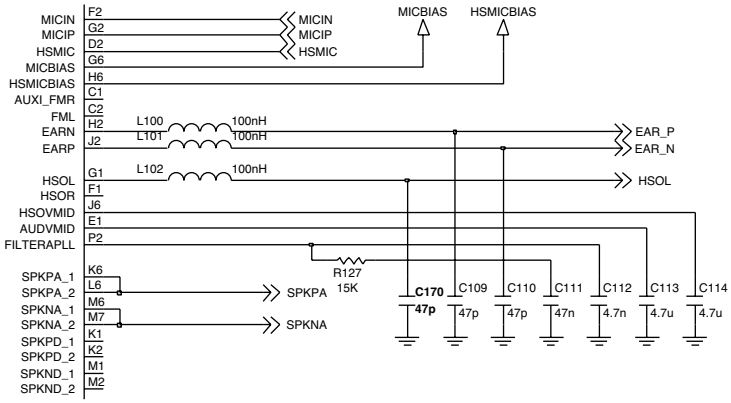
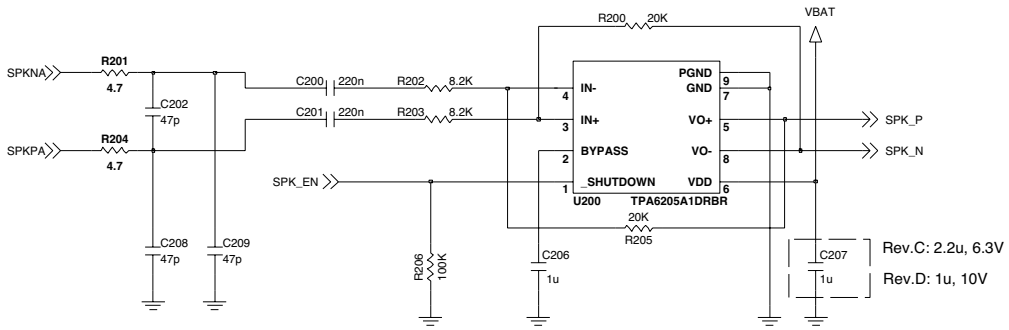


Figure 3-10-2 Downlink Interface of ABB

SPEAKER AMPLIFIER



SPK & RCV SWITCH

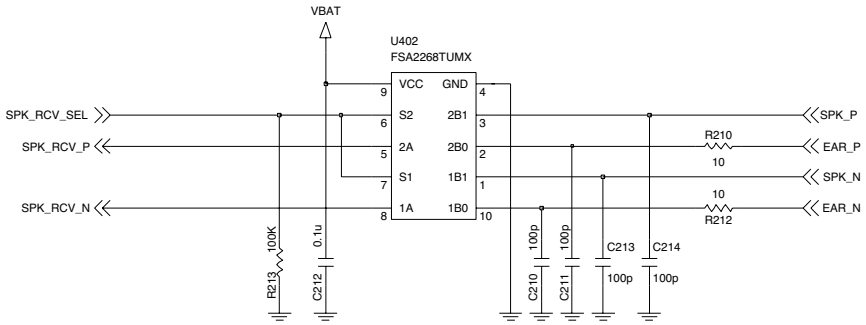


Figure 3-10-3 Speaker/Receiver Interface

3.11 Key LED Interface

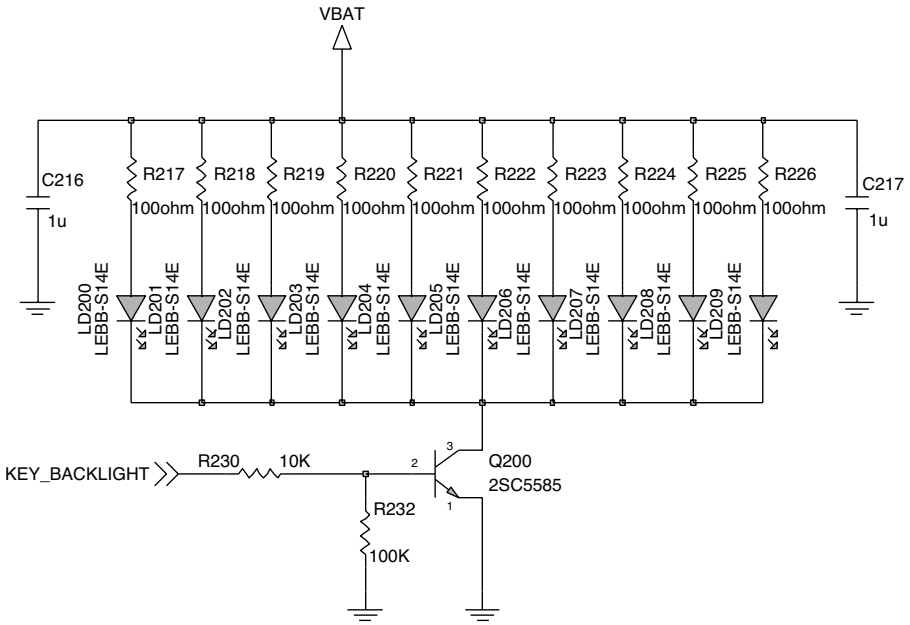


Figure 3-11 Key LED interface

This handset has 10 LEDs that illuminates blue color.

Control signal is controlled by Locosto with PWM and handset has 3 methods, ON, OFF and dimming.

3.12 Vibrator Interface

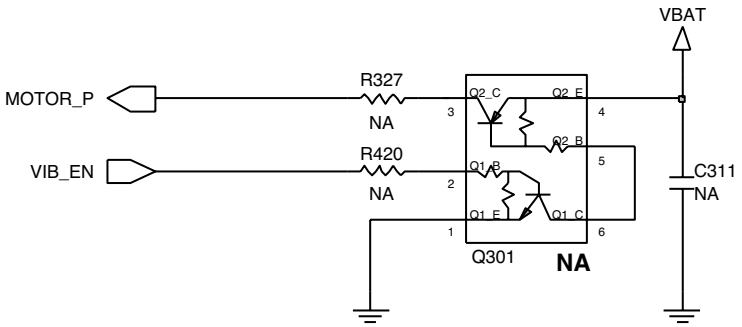


Figure 3-12 Vibrator interface

This handset has vibrator operation. Control signal is controlled by Locosto with PWM.

3.13 Memory Interface

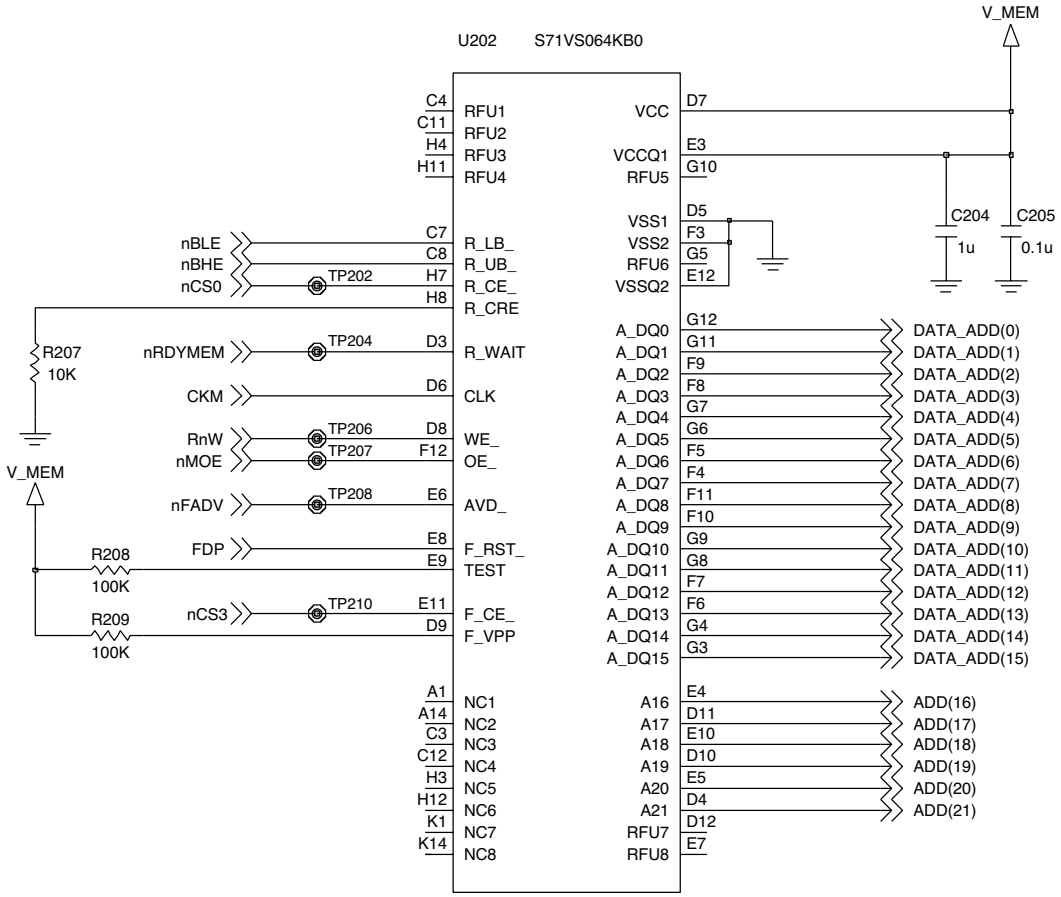


Figure 3-13 Memory interface

3.14 Power Block Interface

There are 10 LDOs(Low Drop Output) regulators and 1 DC-DC converter in ABB chip.

The output of these 10 LDOs and 1 DC-DC converter is as following table.

	Output Voltage	Usage
Usage	1.8V/2.8V, 1.3V/1.03V	Digital Core of DBB
VREXTH	1.8V/2.8V	Peripheral Devices
VRMEM	1.8V	External Memory
VRMMC	1.8V/2.85V	RF
VRABB	2.8V	Analog Block of ABB
VRSIM	1.8V/2.85V	SIM Card Drive
VRUSB	3.3V	USB Block
VRPLL	1.4V/1.3V/1.05V	PLL Block
VRIO	1.8V	I/O Interface
VRWLED	20V	White LED Drive

Table LDO Output Table

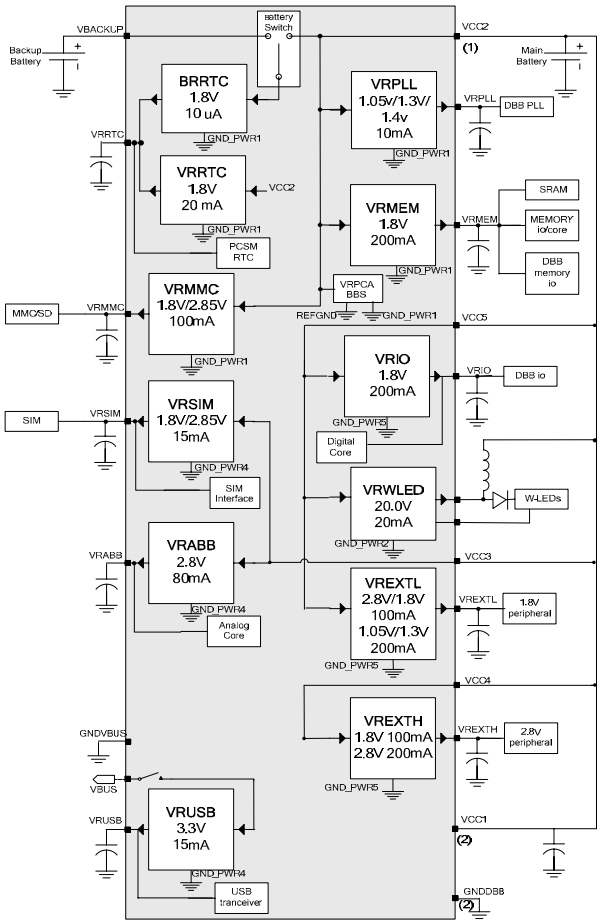
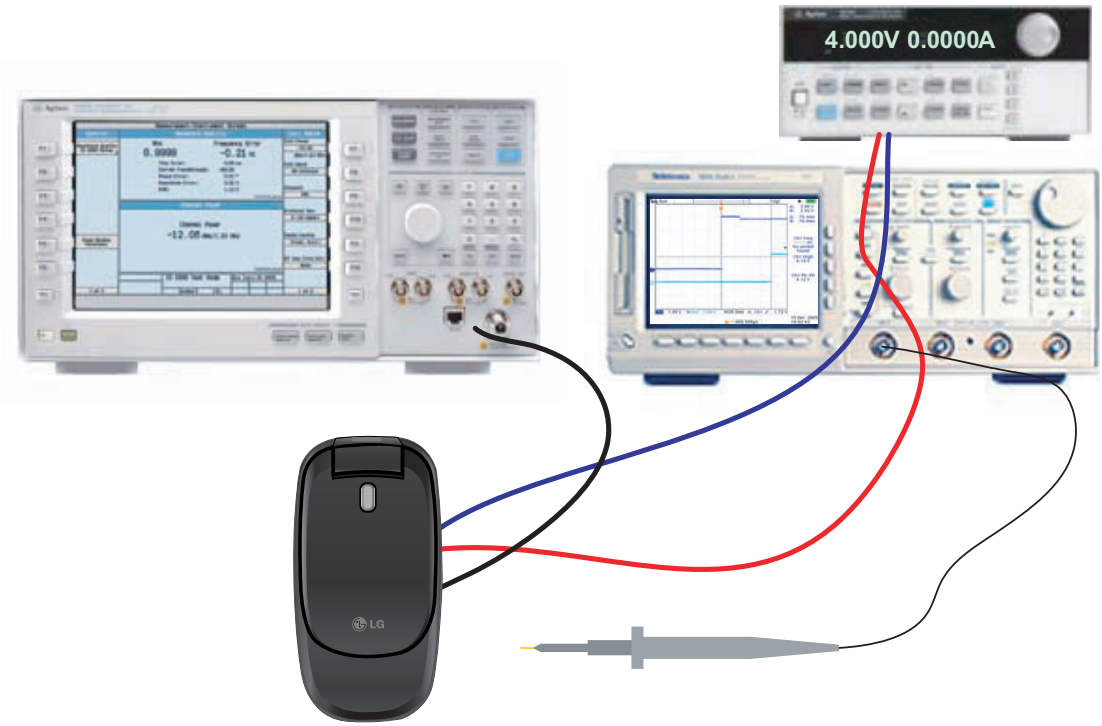


Figure 3-14-2
ABB Power Supply Scheme

4. TROUBLE SHOOTING

4.1 Trouble Test Set-up



Power on all of test equipment

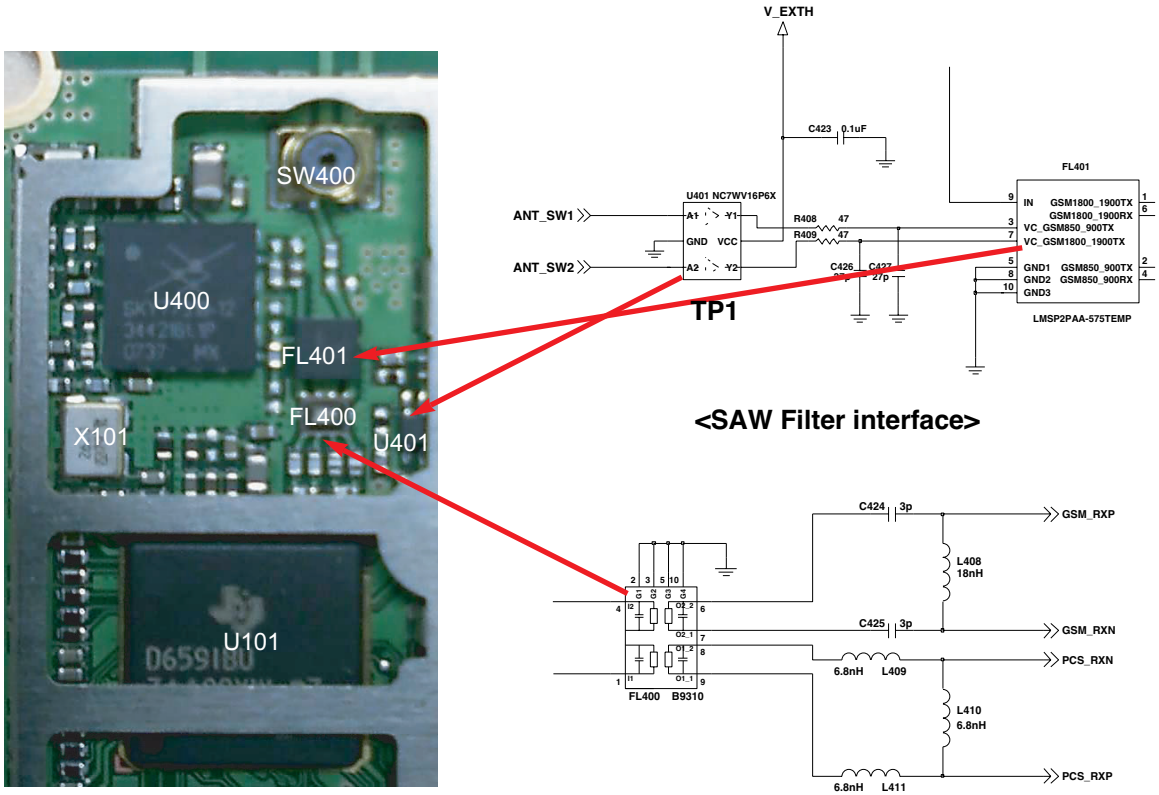
-Connect PIF-UNION JIG or dummy battery to the DUT for power up.

-Connect mobile switch cable between Communication test set and DUT when you need to make a phone call.

-Follow trouble shooting procedure

4.2 RF Components

RF Components Placement

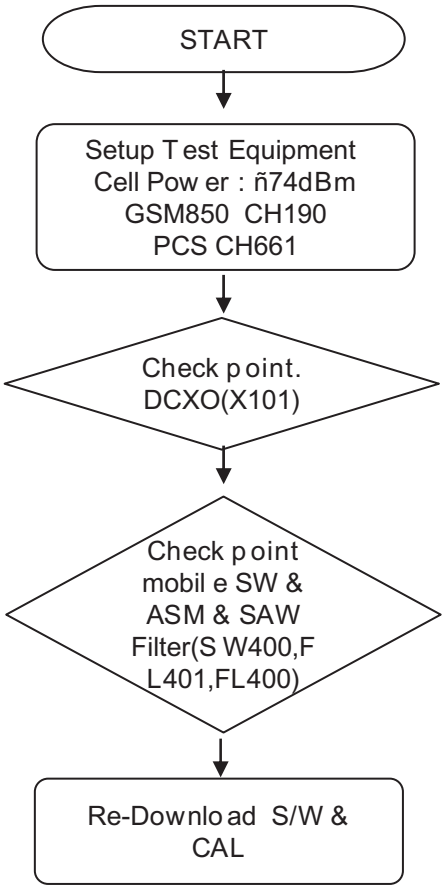


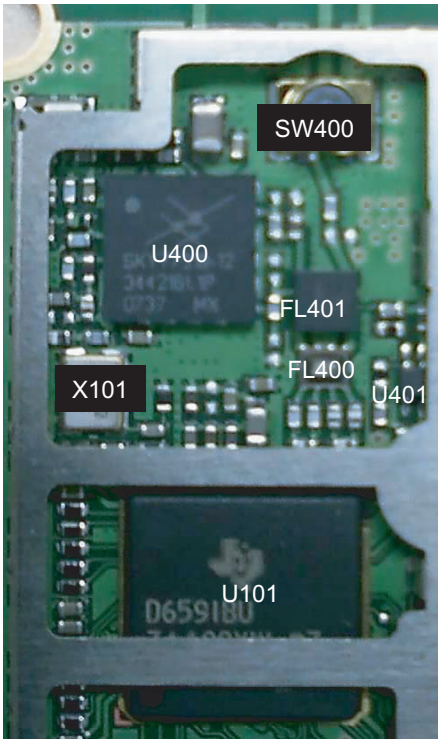
REFERENCE	PART Description
U400	PAM (Power Amp. Module)
X101	DCXO (26MHz)
FL401	ASM (Antenna Switch Module)
SW400	Mobile Switch
FL400	RX SAW Filter

4.3 RX Receiver Part

RX Receiver Part

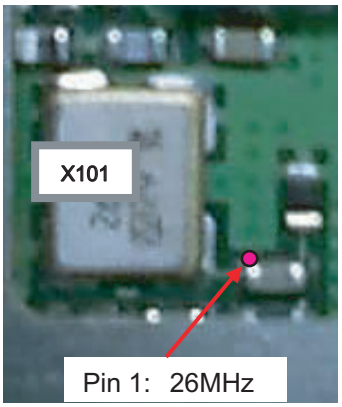
CHECKING FLOW



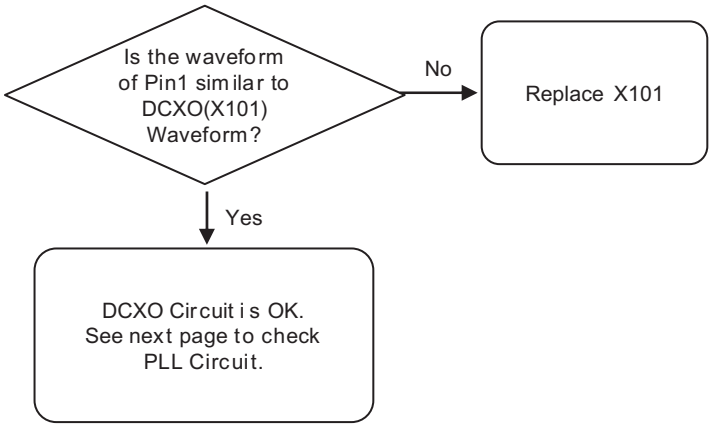


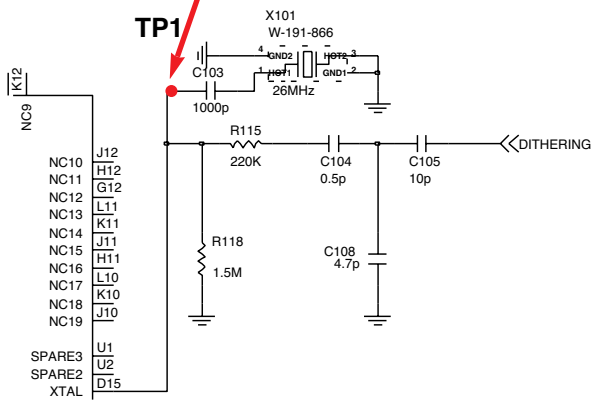
DCXO

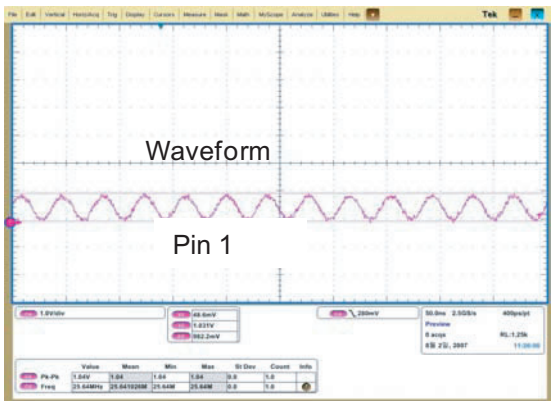
Checking Points



CHECKING FLOW





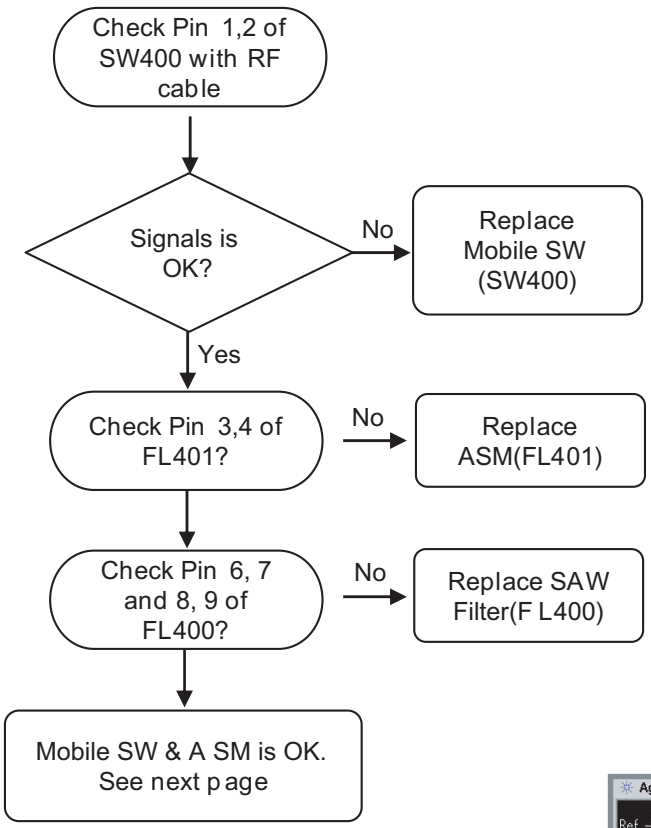


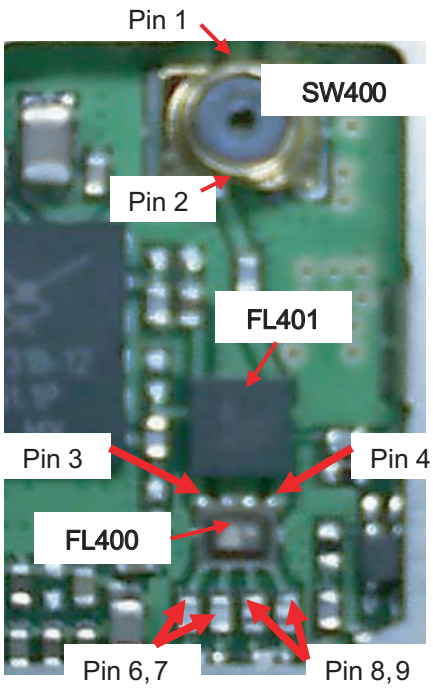
< DCXO Circuit>

<DCXO Waveform>

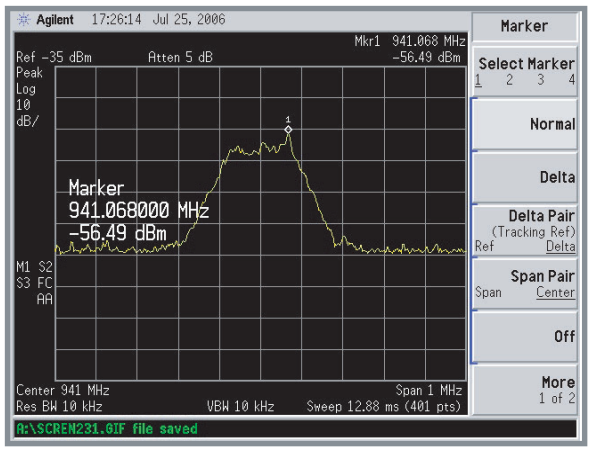
Mobile S/W & ASM & SAW Filter

CHECKING FLOW





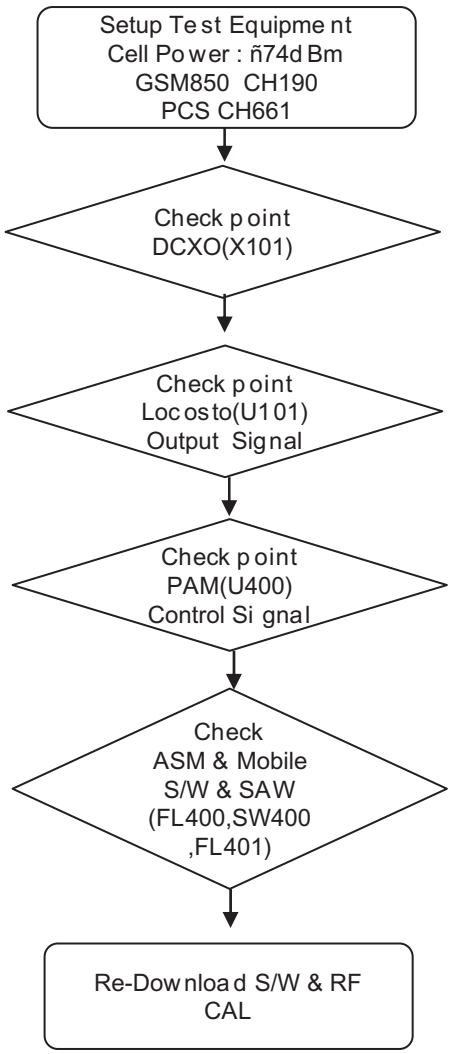
* FL400 6, 7 and 8, 9 output are balanced

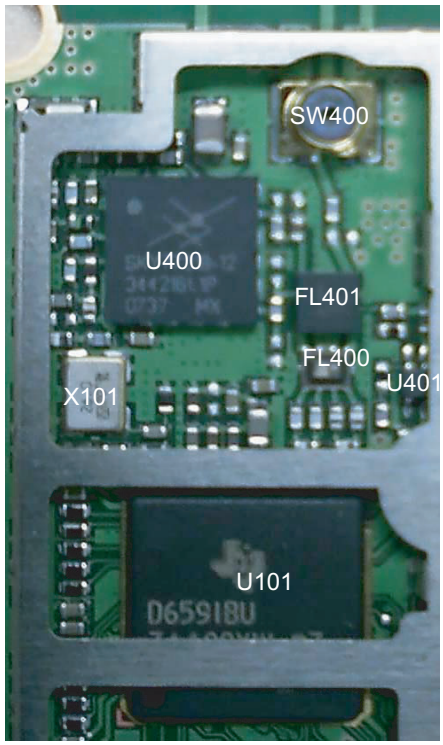


4.4 TX Transmitter Part

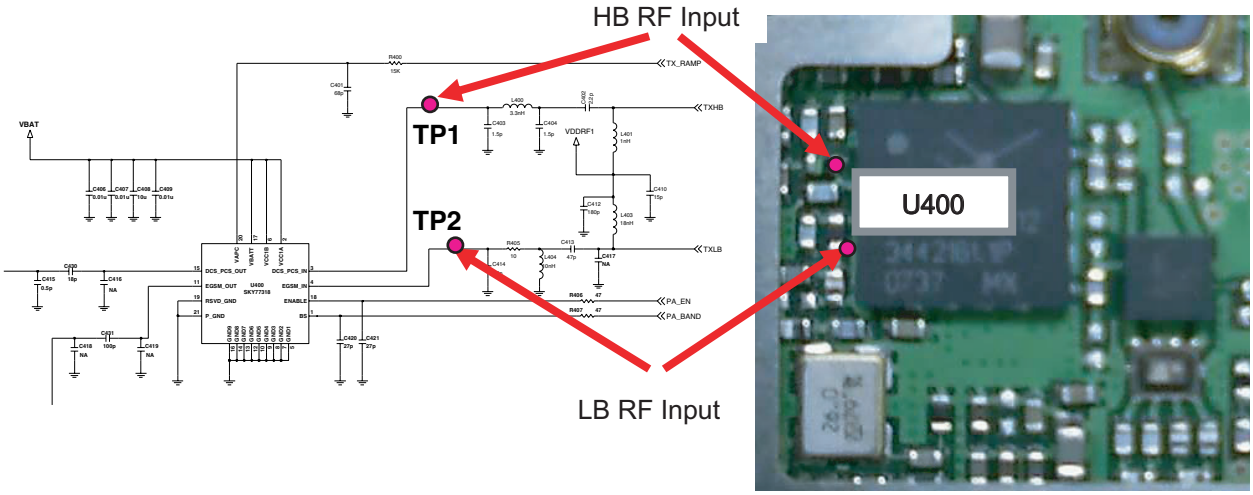
TX Transmitter Part

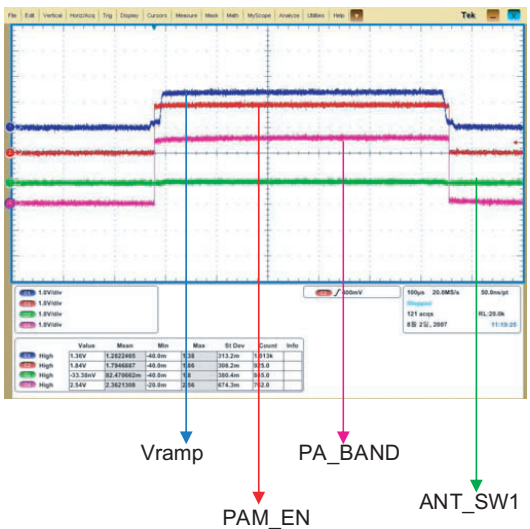
CHECKING FLOW





Locosto RF Output Signals





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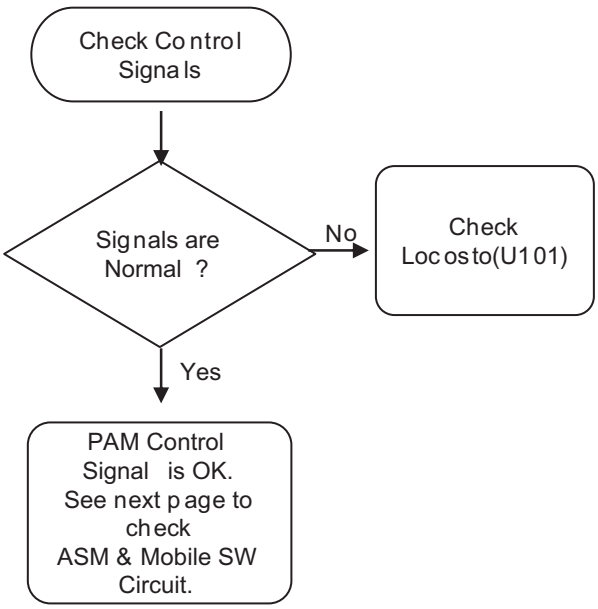
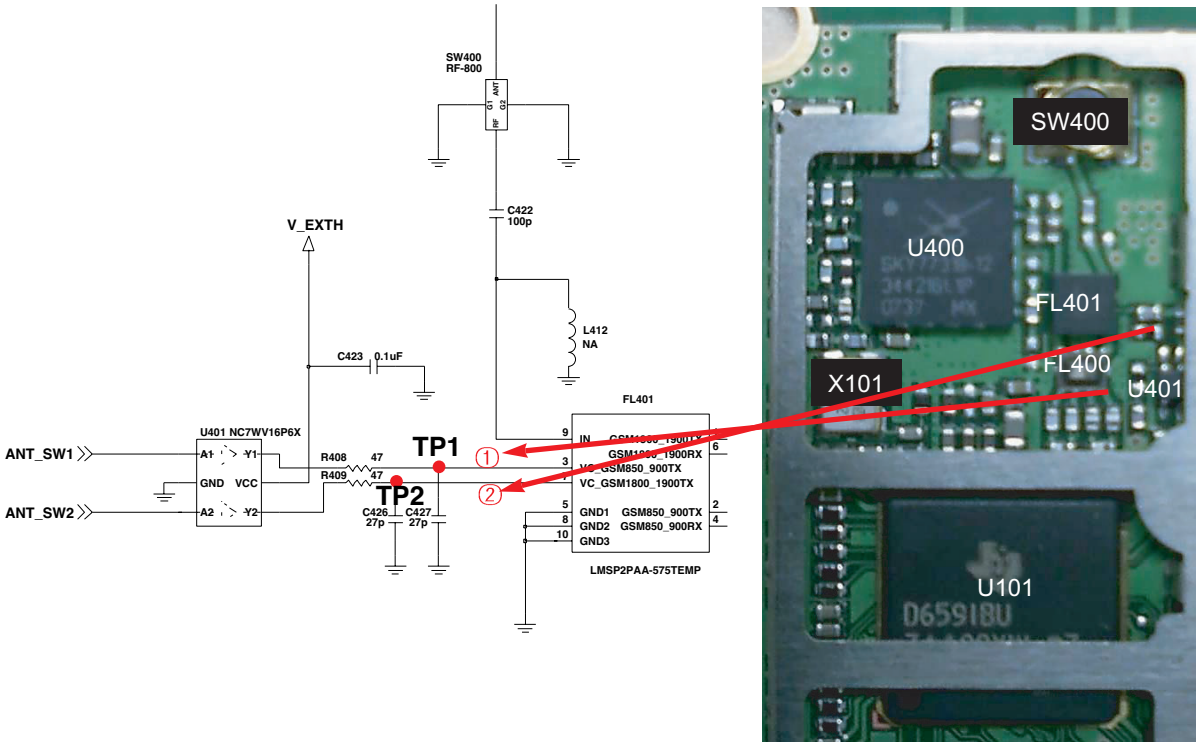


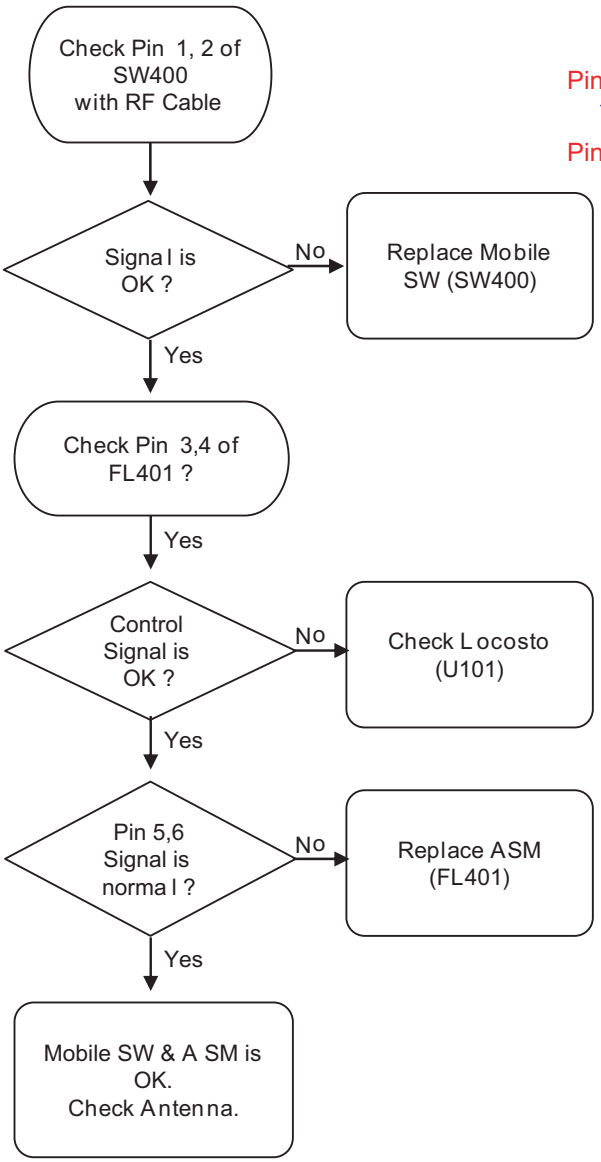
Mobile S/W & ASM

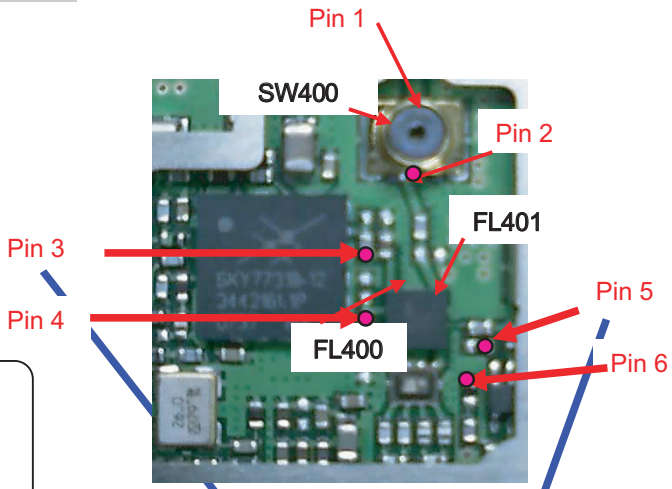


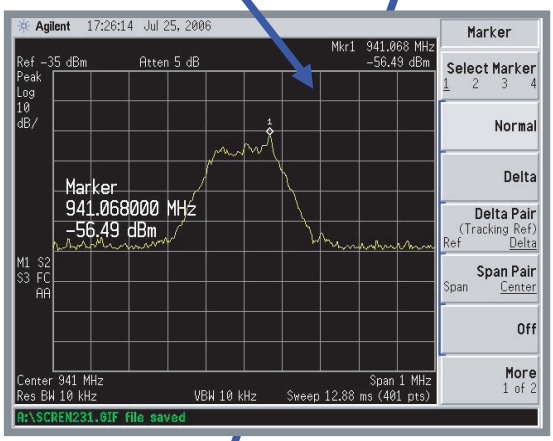
Mode	GSM850 TX	PCS1900 TX	GSM850 RX	PCS1900 RX
ANT_SW1	H(1.8V)	L	L	L
ANT_SW2	L	H(1.8V)	L	L
①	H(2.7V)	L	L	L
②	L	H(2.7V)	L	L

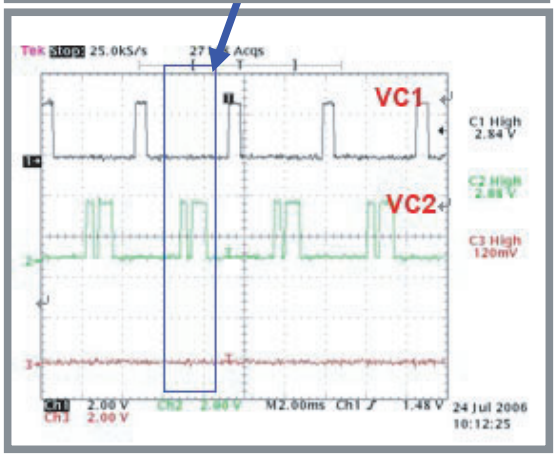
Mobile S/W & ASM

CHECKING FLOW





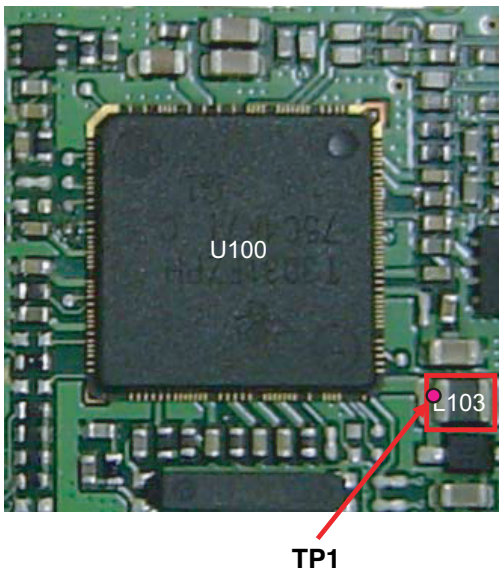




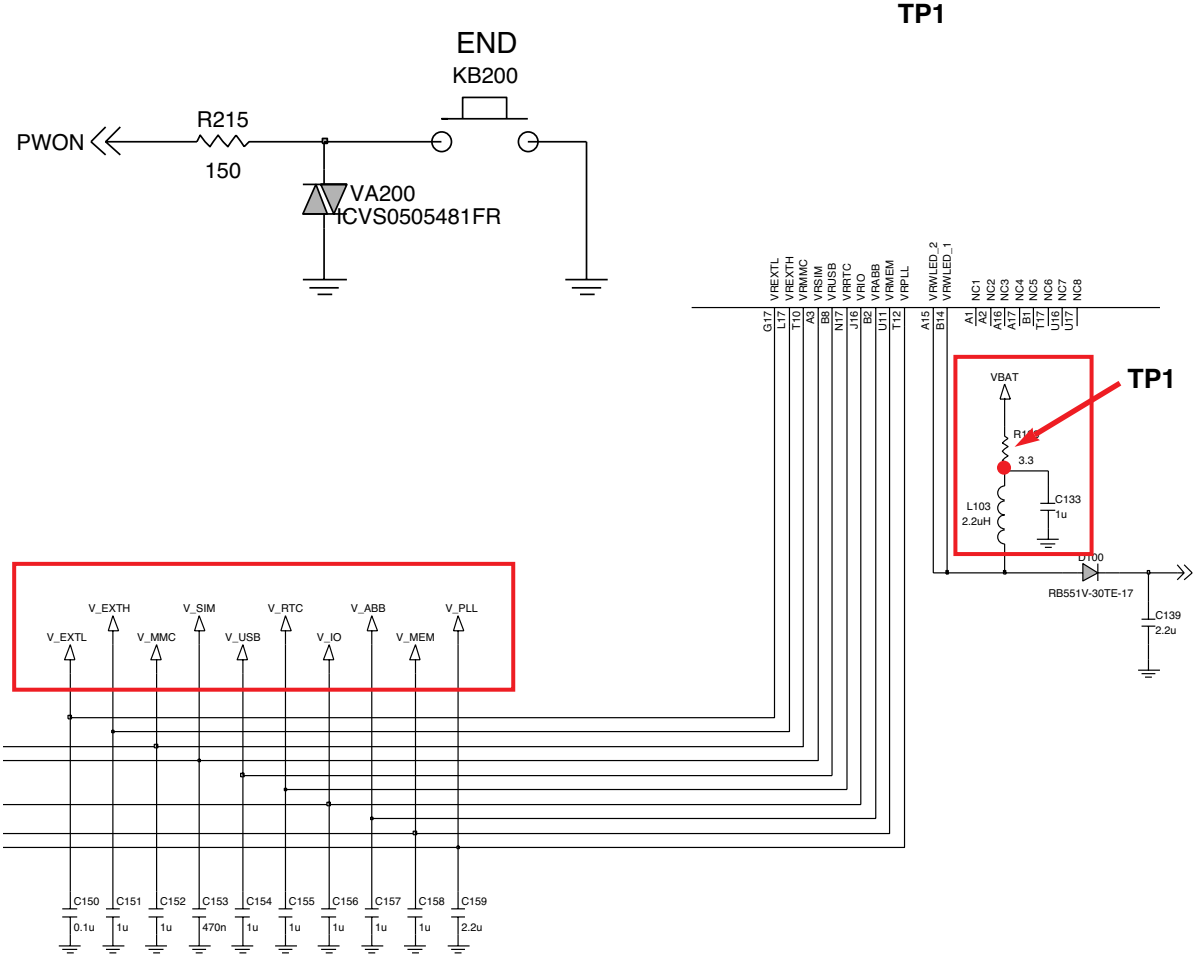
4.5 Power On Trouble

TEST POINT

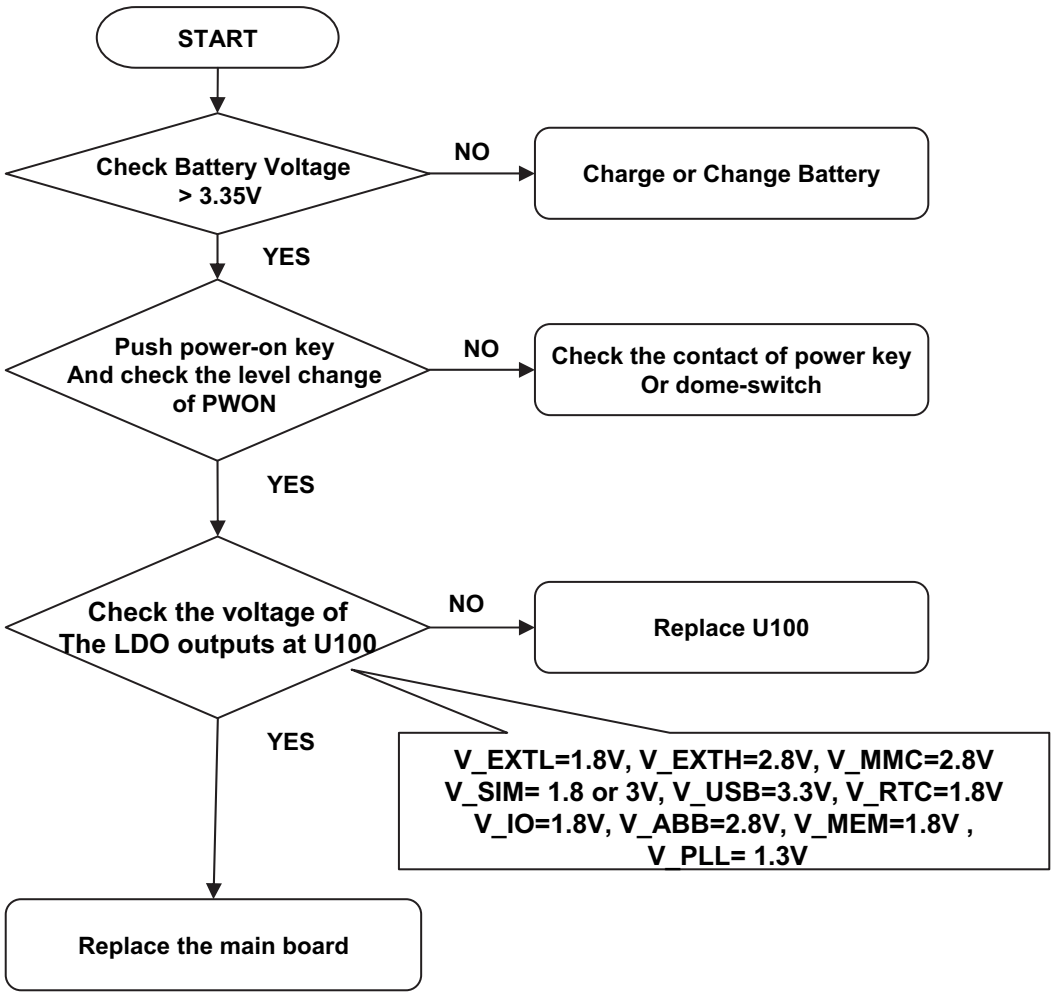
Check Points
-Battery Voltage(Need to over 3.35V)
-Power-On Key detection (PWRON signal)
-Outputs of LDOs from ABB(Triton-Lite)



CIRCUIT



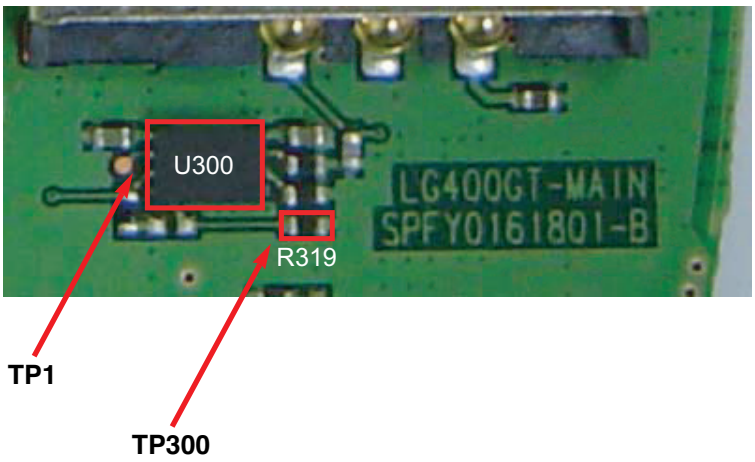
CHECKING FLOW



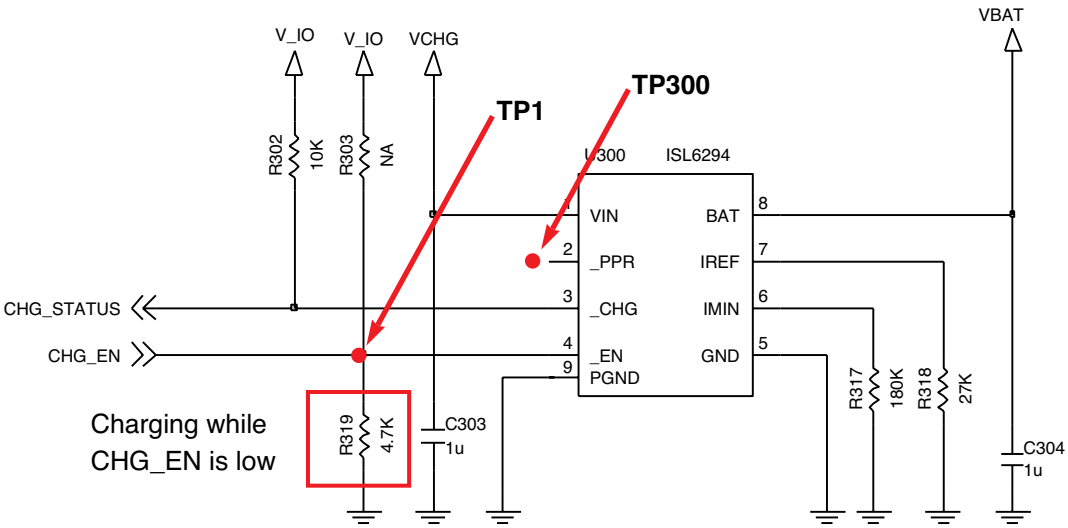
4.6 Charging Trouble

TEST POINT

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

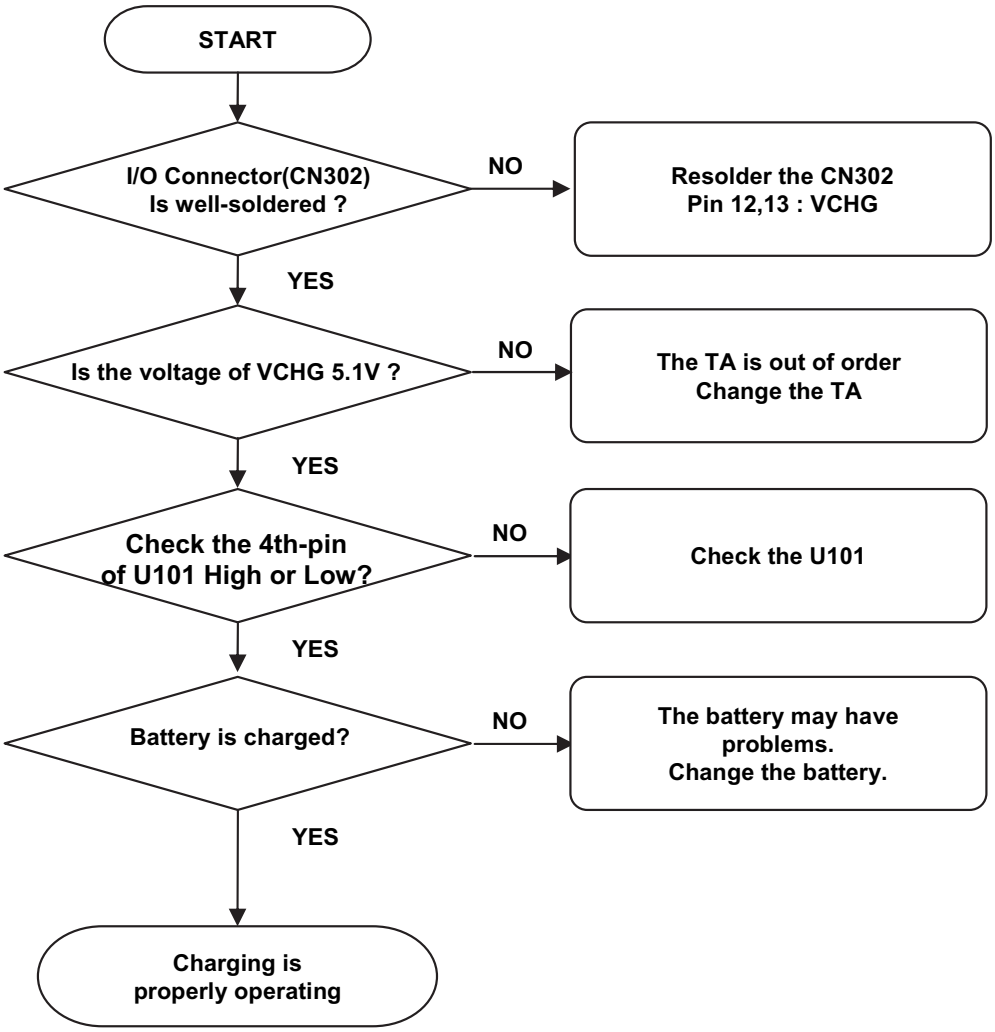


CIRCUIT



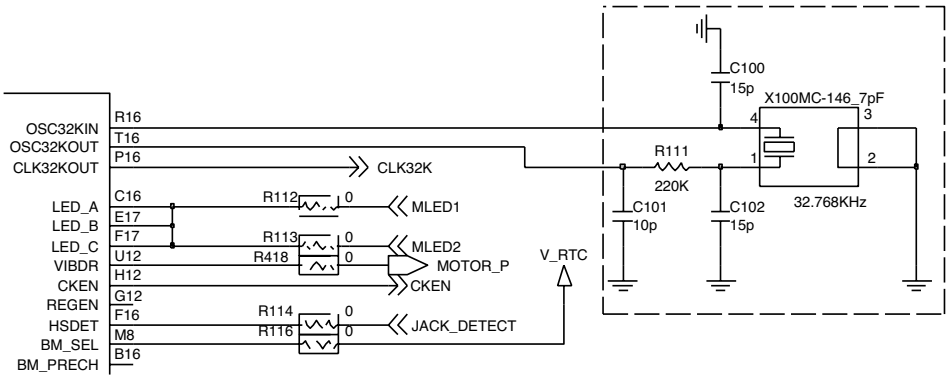
4. TROUBLE SHOOTING

CHECKING FLOW

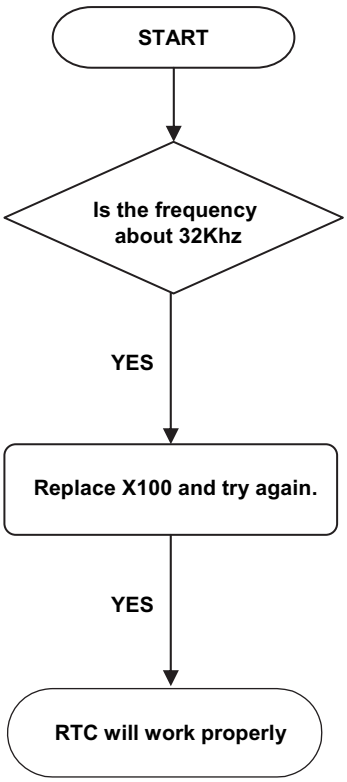


4.7 RTC Trouble

CIRCUIT



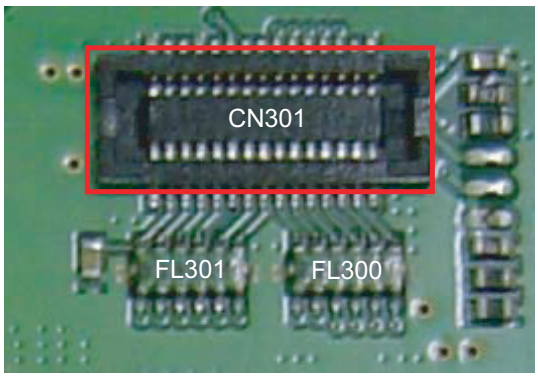
CHECKING FLOW



4.8 LCD Trouble

TEST POINT

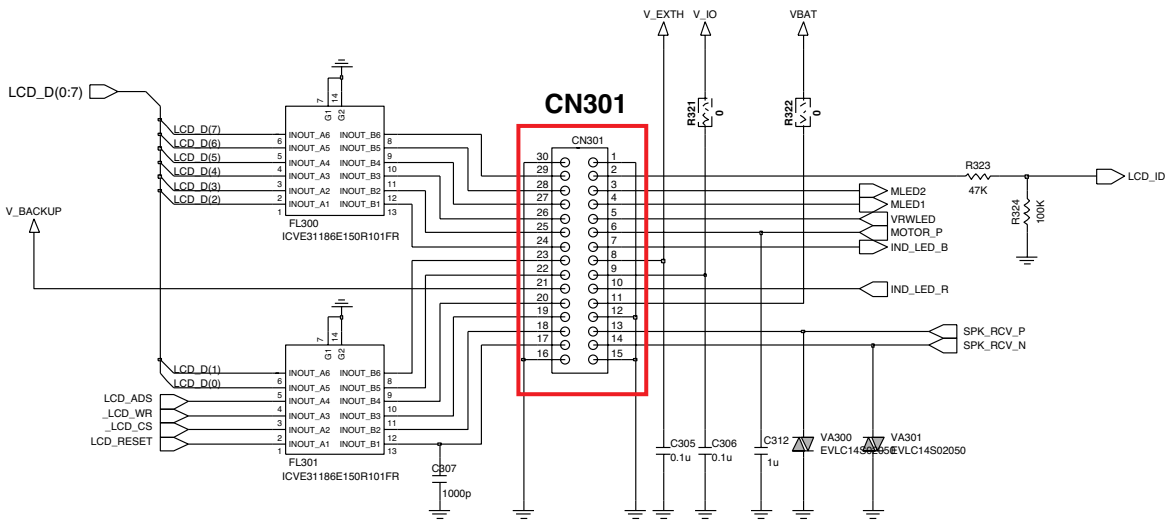
-LCD assembly status (FPCB)
-LCD Interface's status
-Connector combination
-Data signal through EMI filter



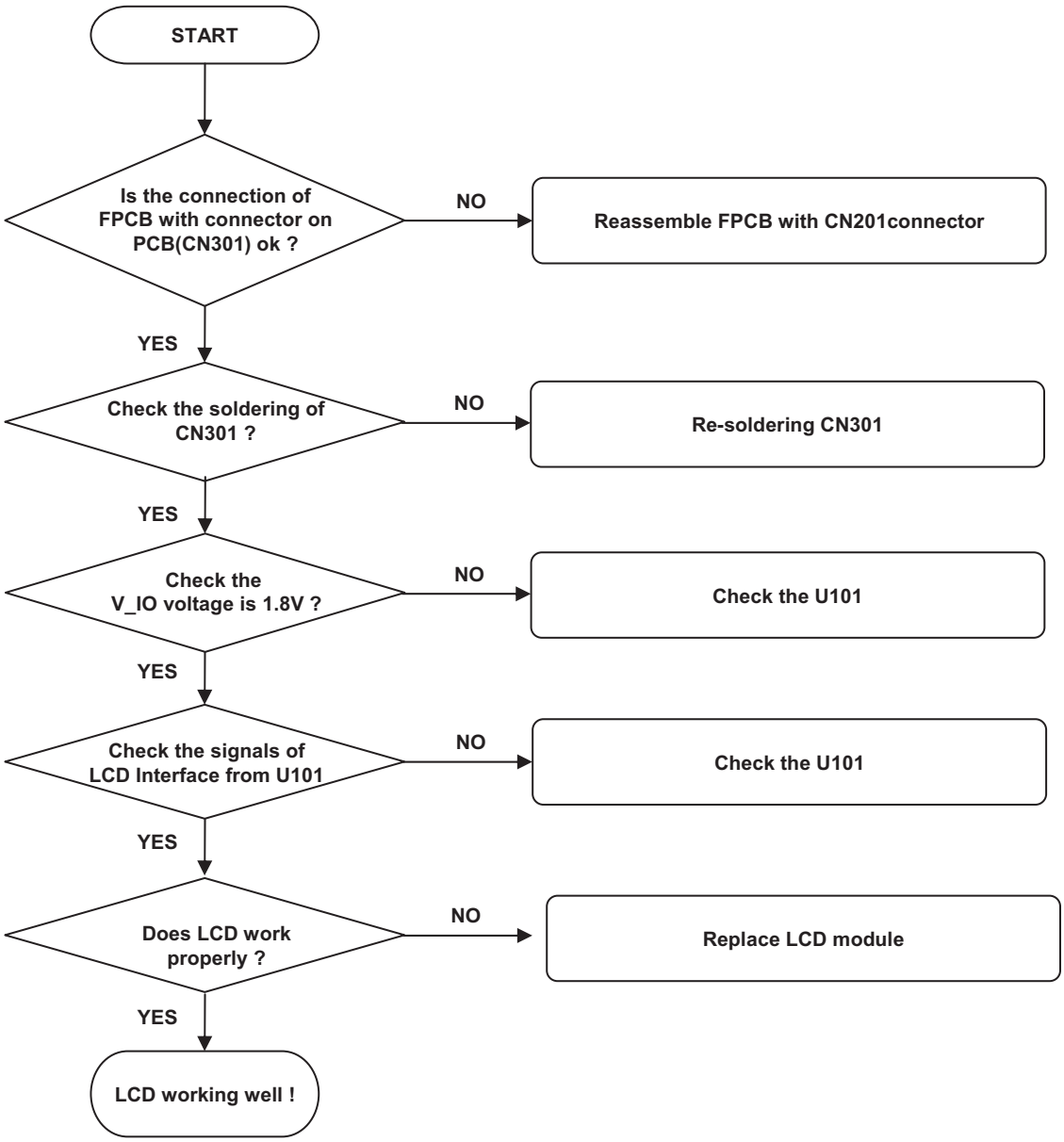
CIRCUIT

LCD CONNECTOR

MAKER	ID	Voltage
GP(NOVATEK)	LOW	0V
GP(NOVATEK)	HIGH	1.8V



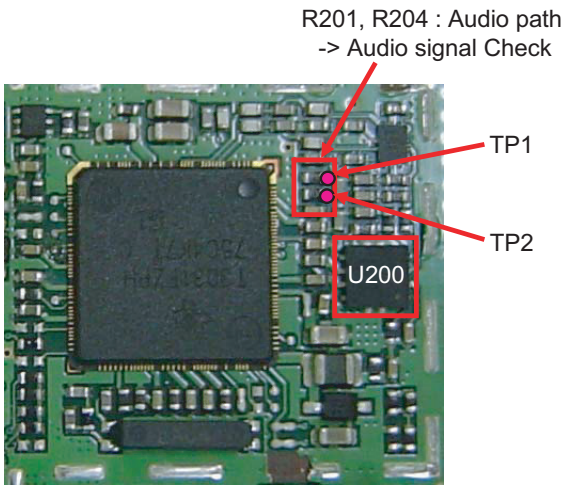
CHECKING FLOW



4.9 Speaker & Receiver Trouble

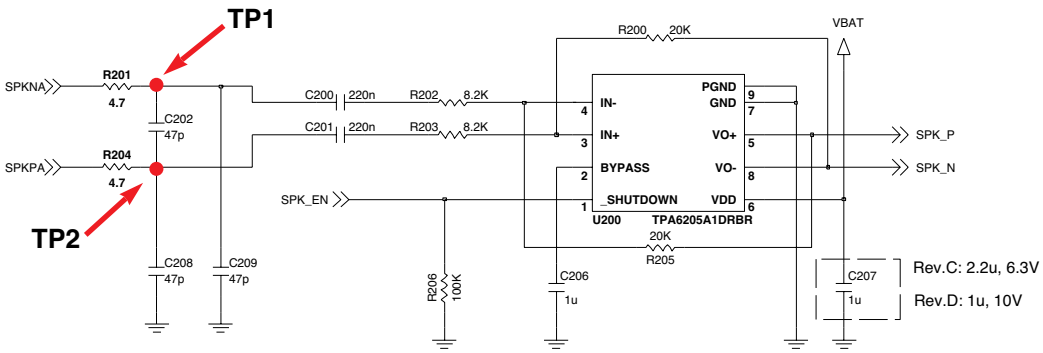
TEST POINT

Check Points
-Speaker Solder contact
-Audio amp soldering

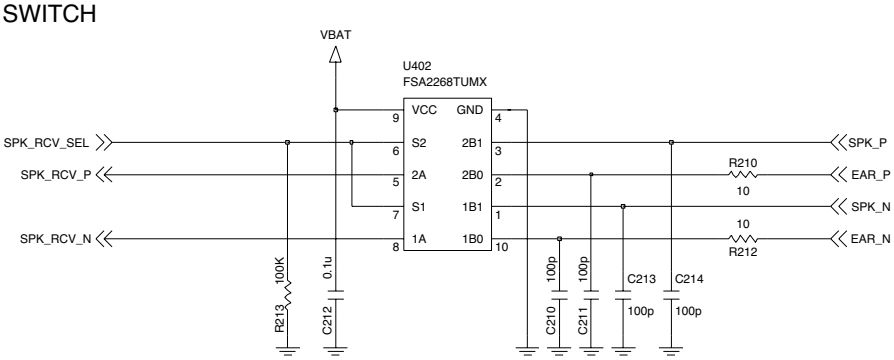


CIRCUIT

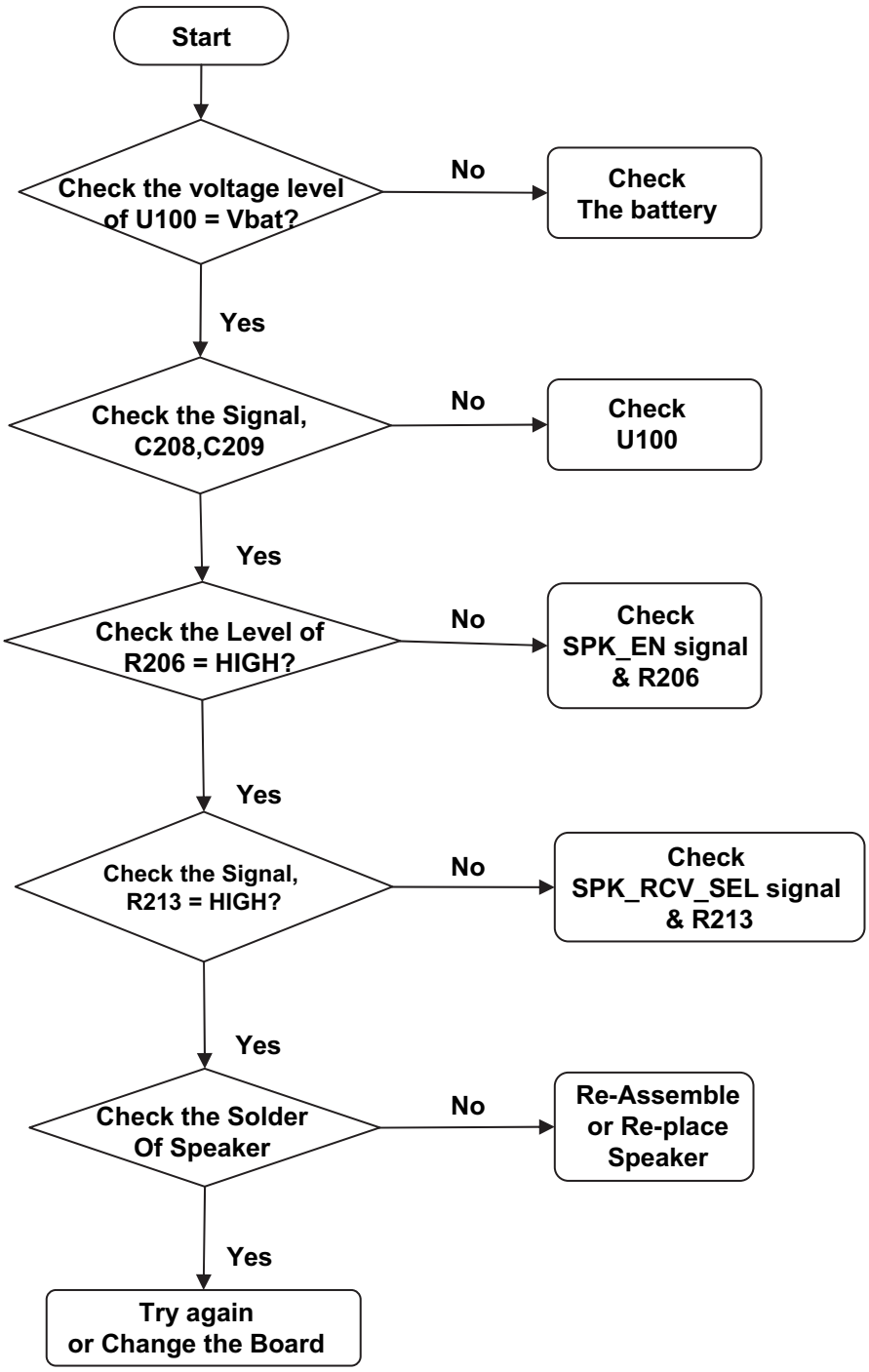
SPEAKER AMPLIFIER



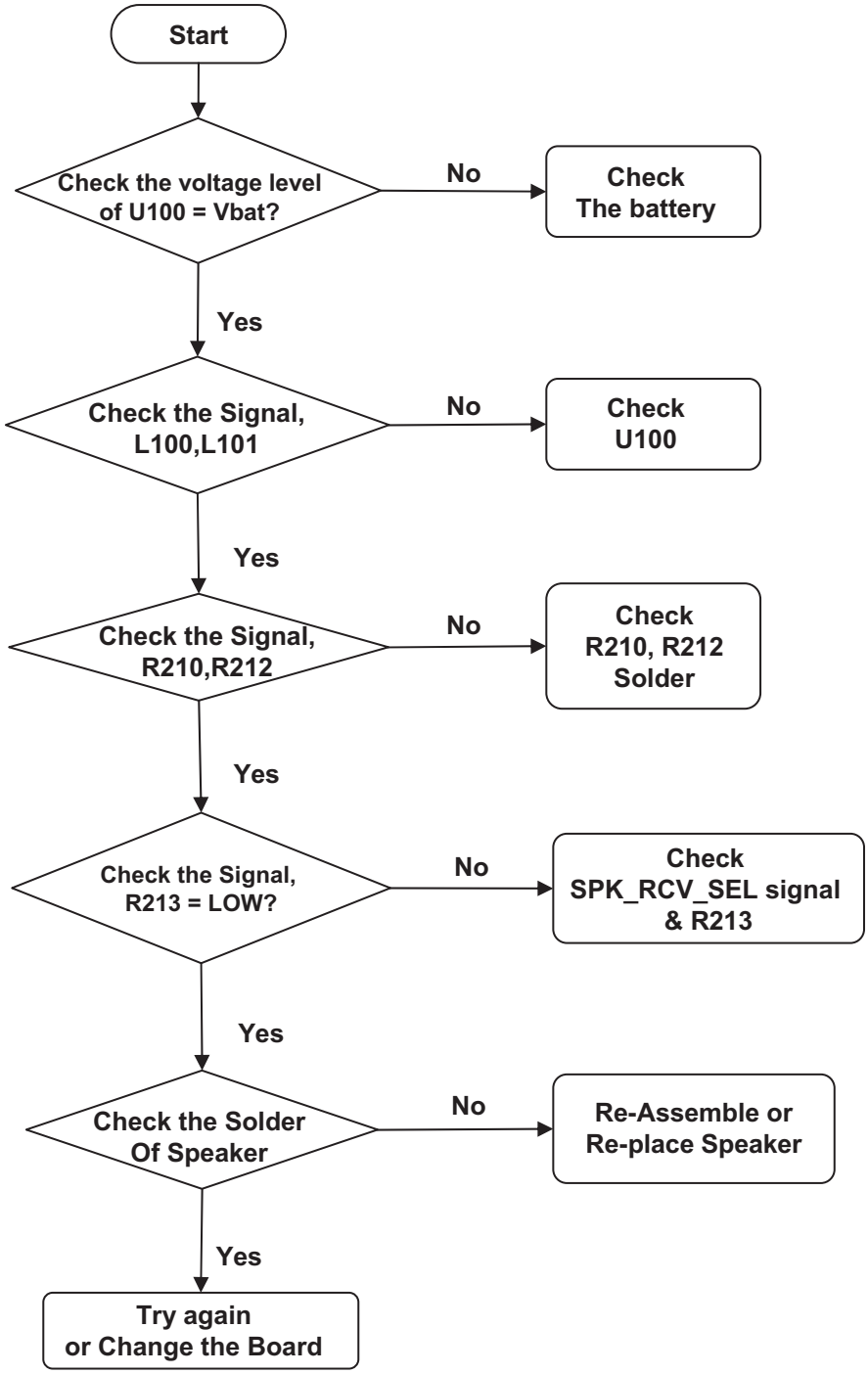
SPK & RCV SWITCH



CHECKING FLOW (Speaker)



CHECKING FLOW (Receiver)

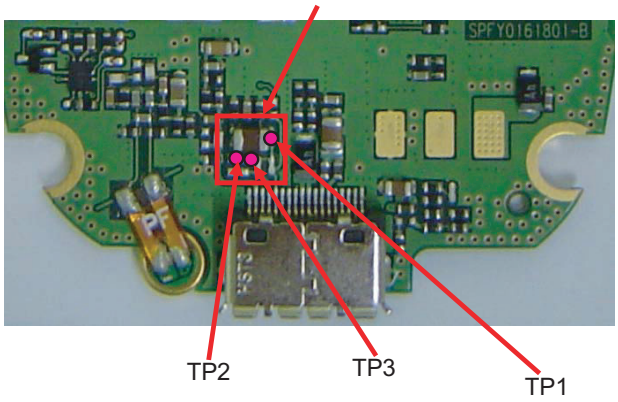


4.10 Headphone Trouble

TEST POINT

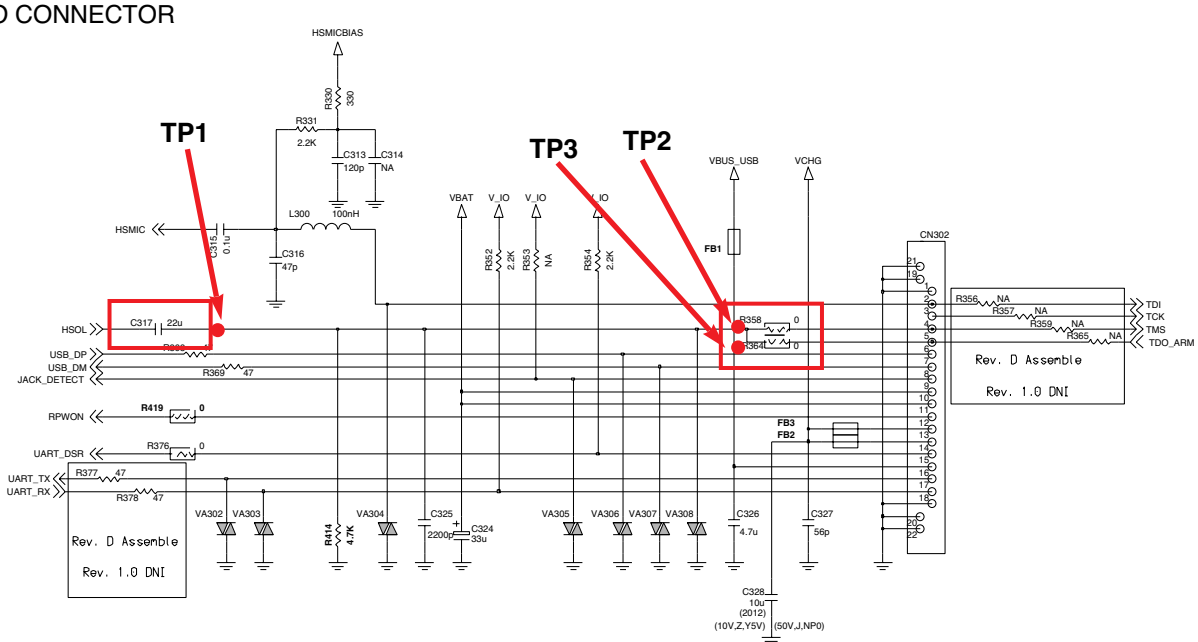
Check Points
-18pin IO connector
-Passive Parts soldering Status

C317, R358(0ohm), R364(0ohm) : Audio path
-> Audio signal Check

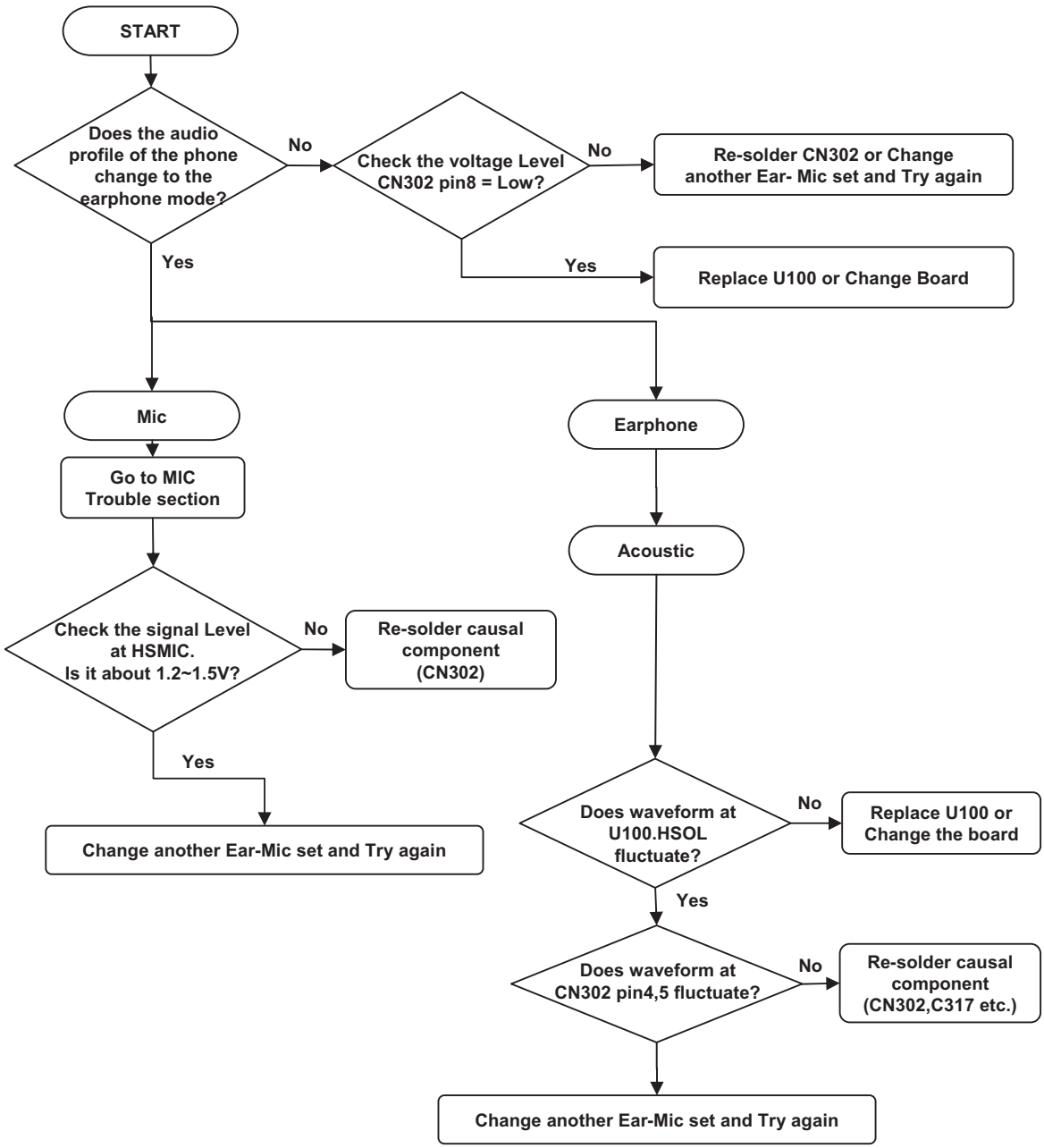


CIRCUIT

I/O CONNECTOR

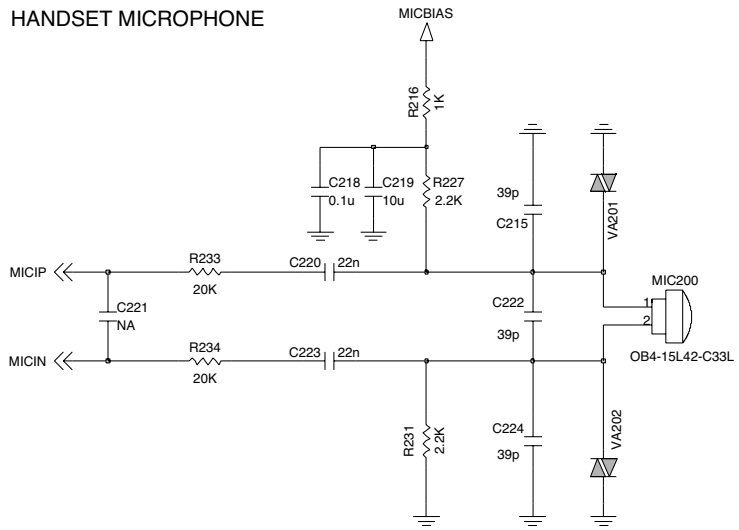


CHECKING FLOW

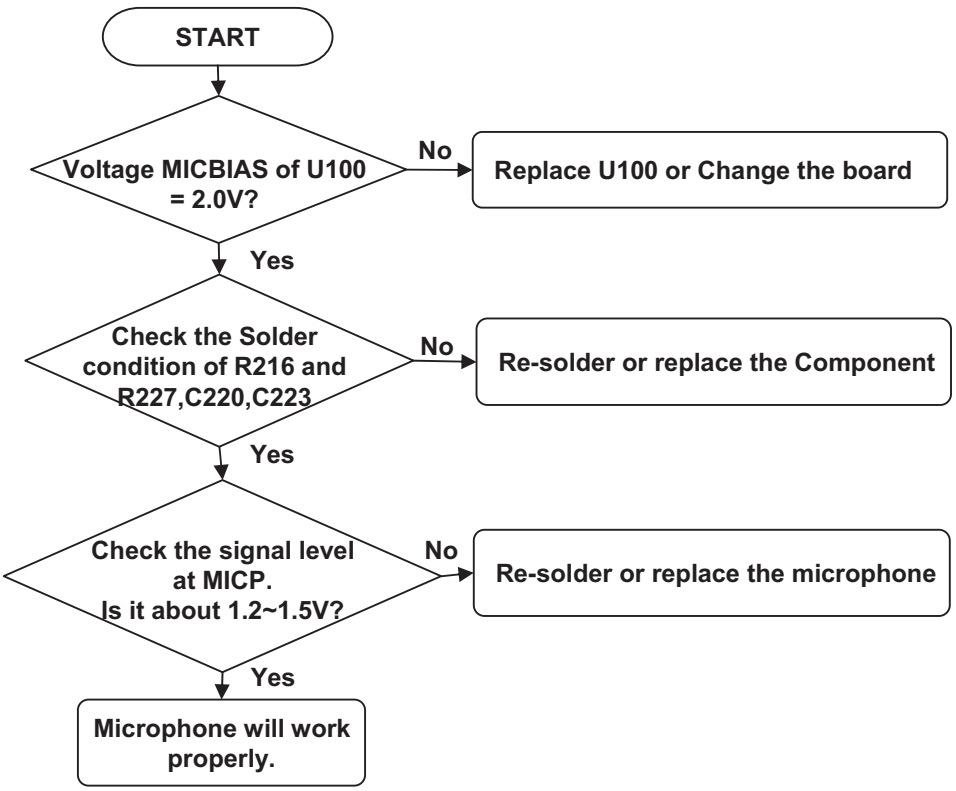


4.11 Microphone Trouble

CIRCUIT



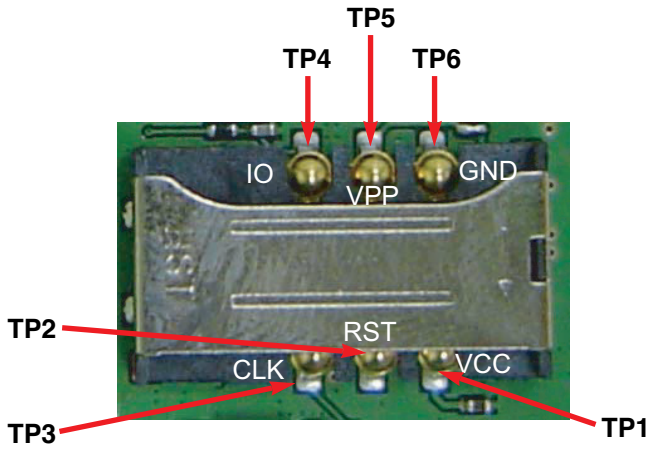
CHECKING FLOW



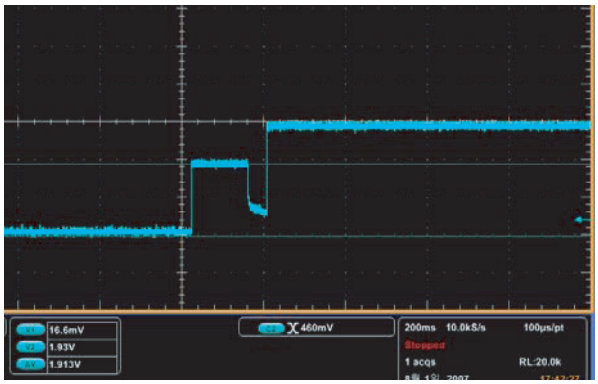
4.12 SIM Card Trouble

TEST POINT

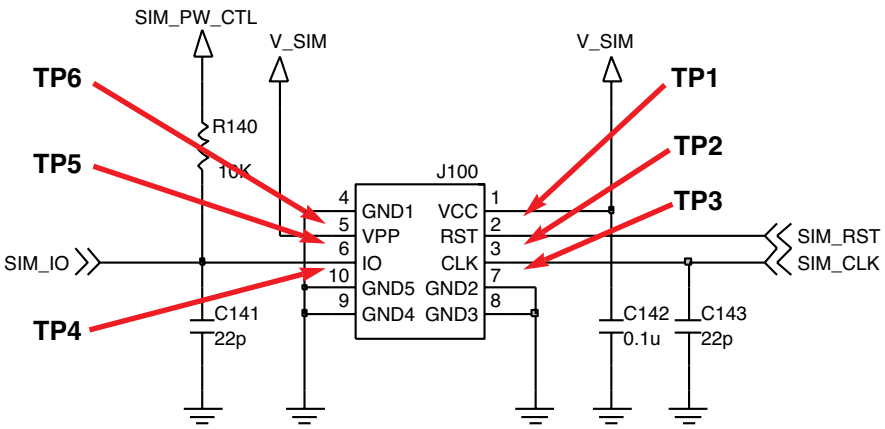
Check Points
-Socket soldering
-Proper SIM is used



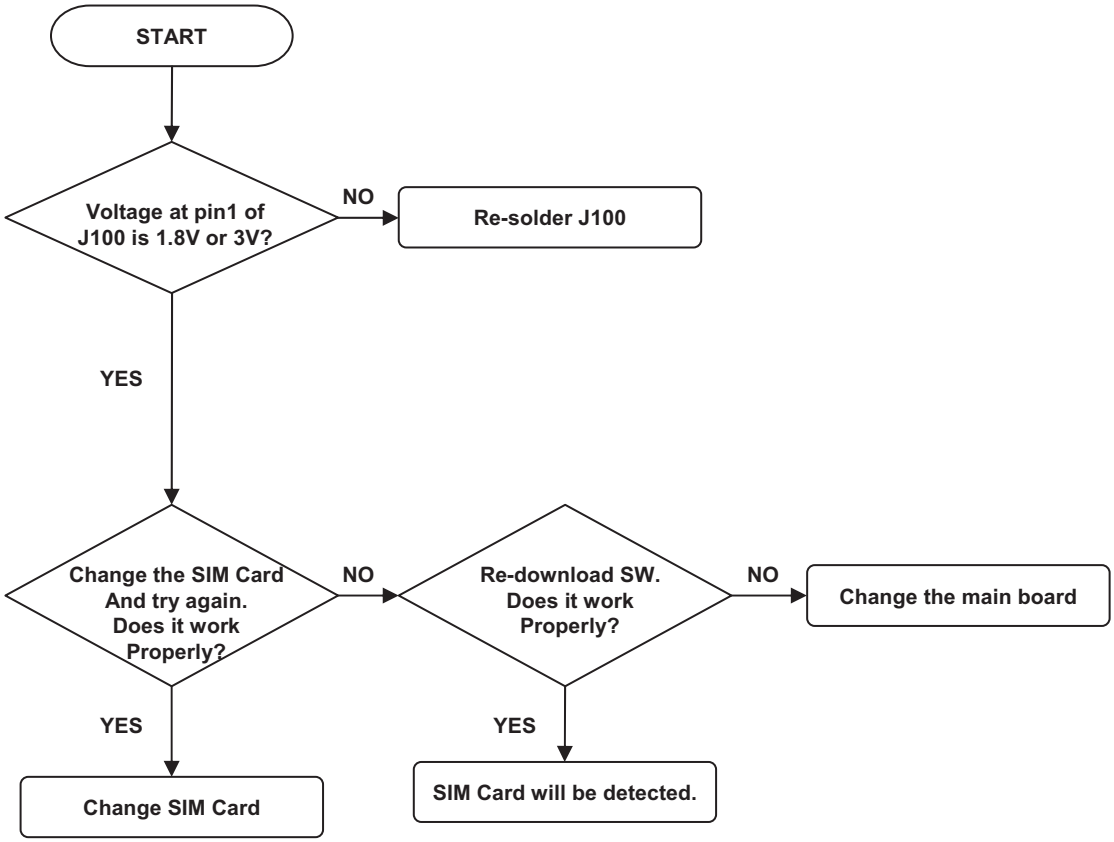
V_SIM



CIRCUIT

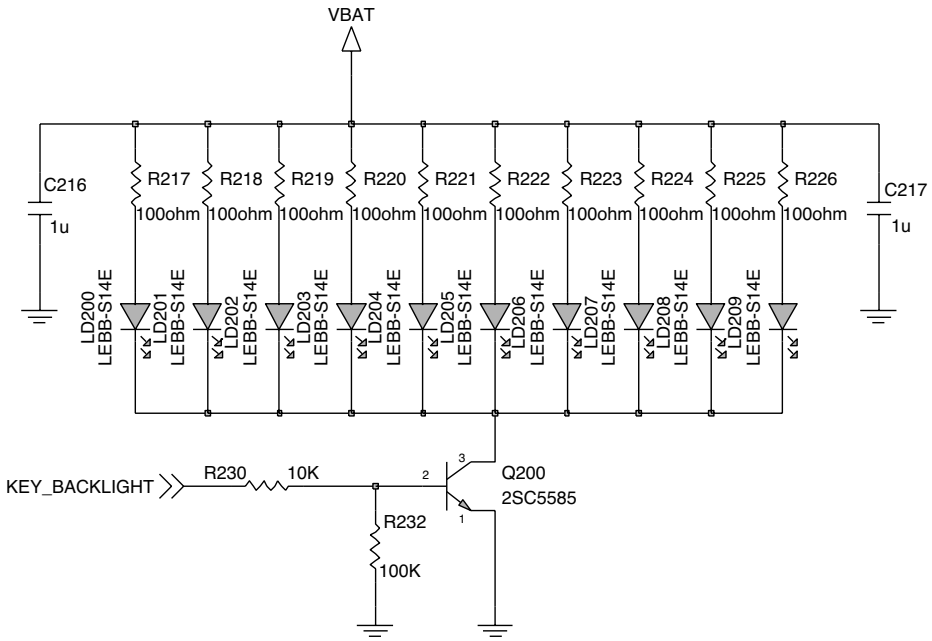


CHECKING FLOW

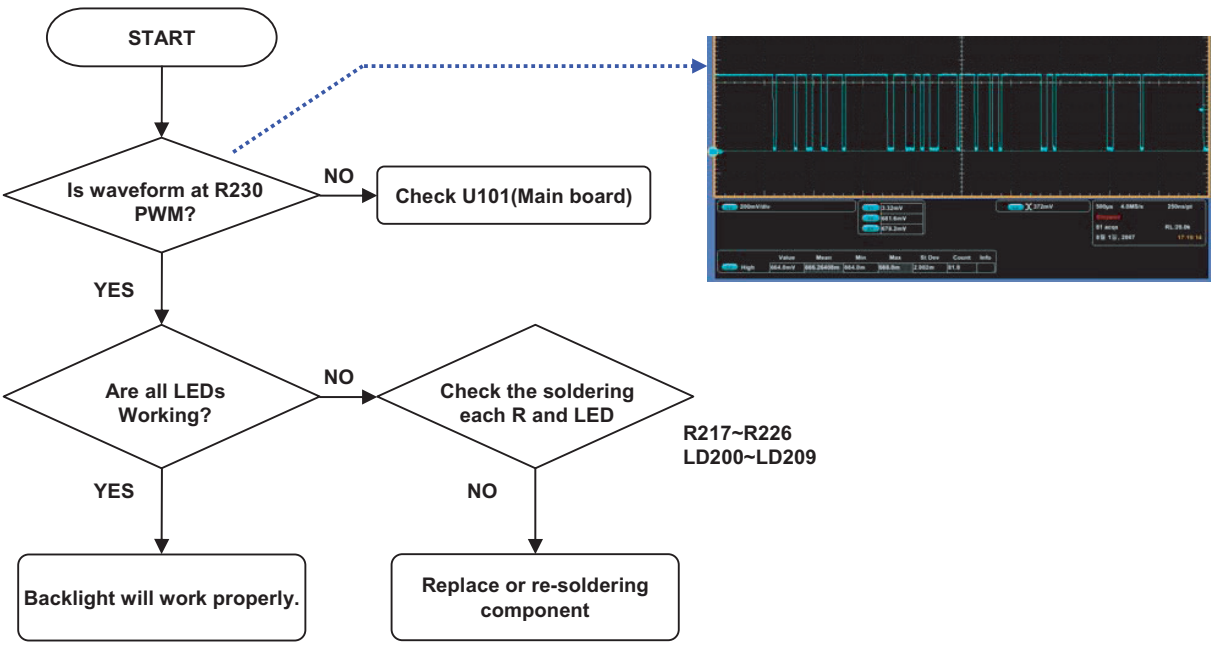


4.13 KEY backlight Trouble

CIRCUIT



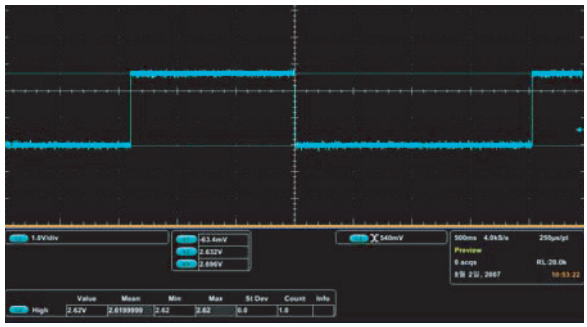
CHECKING FLOW



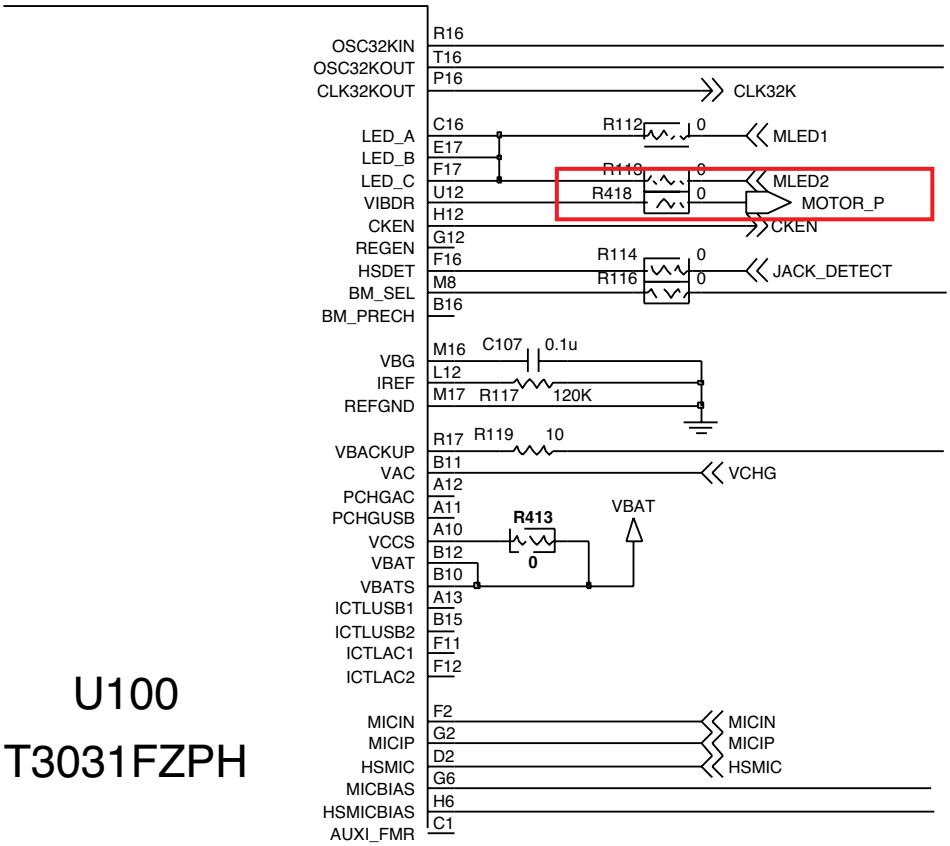
4.14 Vibrator Trouble

TEST POINT

Check Points
-Vibrator contact is right
-MOTOR_P signal working correctly

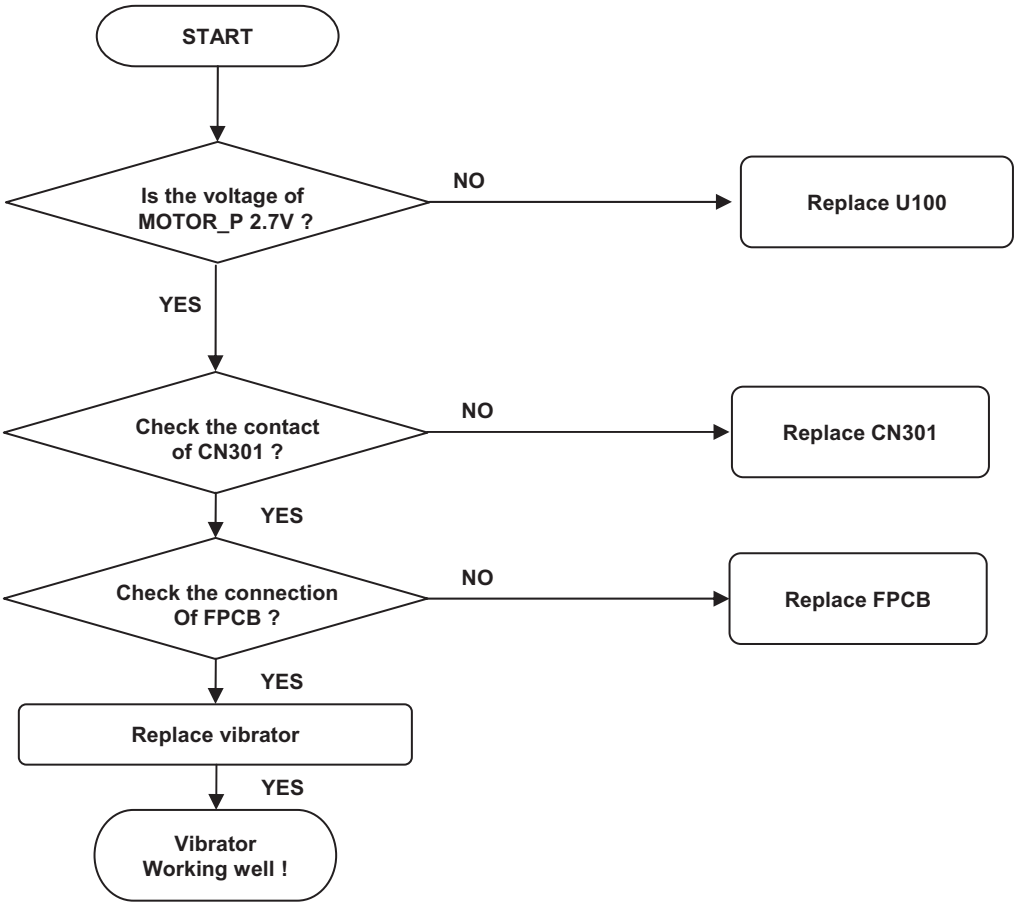


CIRCUIT



CHECKING FLOW

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



5. DOWNLOAD

5.1 Download Setup

Figure 5-1 describes Download setup

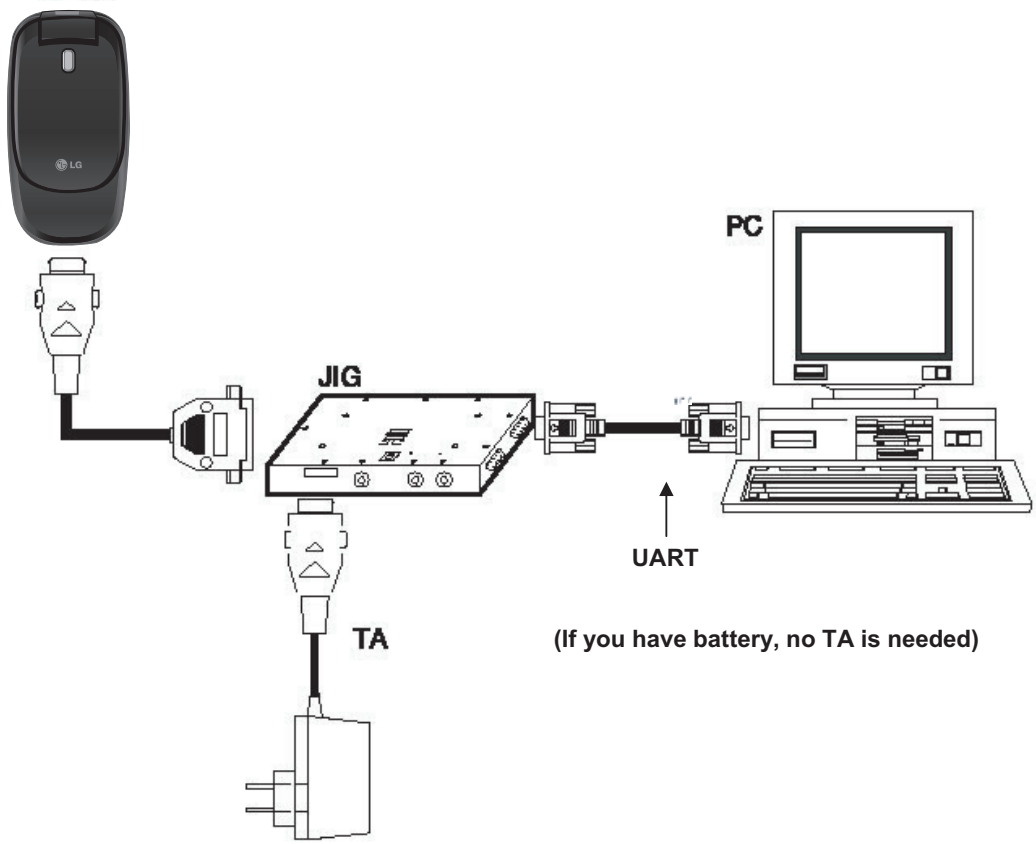
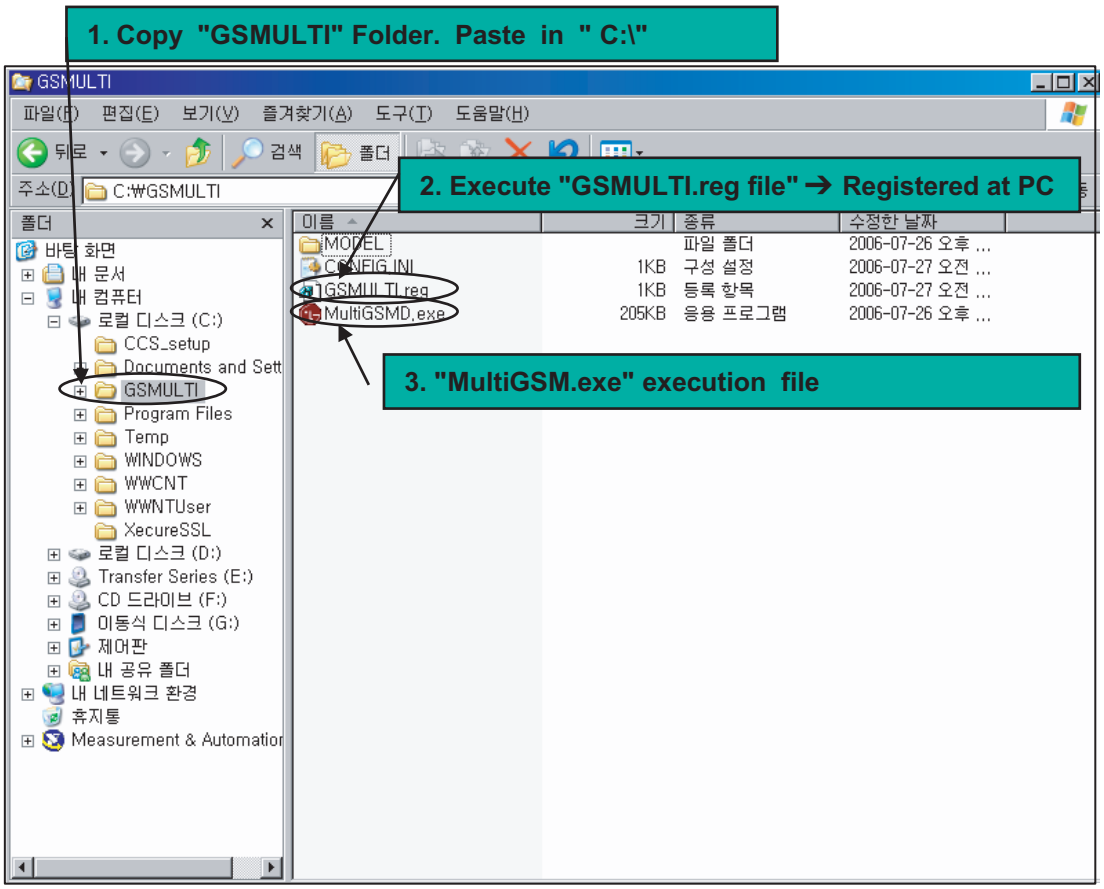


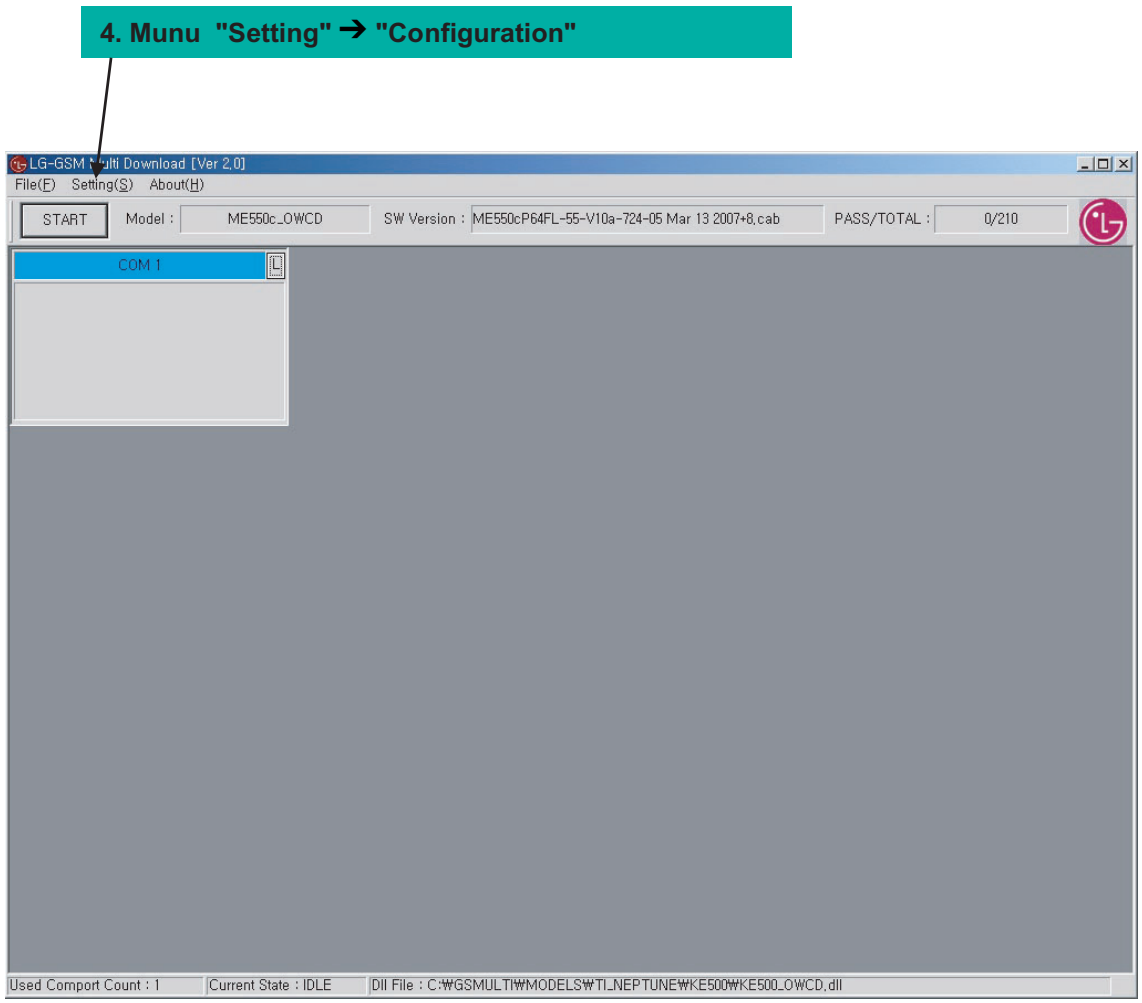
Figure 5-1 Download Setup

5.2 Download Procedure

5.2.1 Computer Program file -> MultiGSM.EXE Click

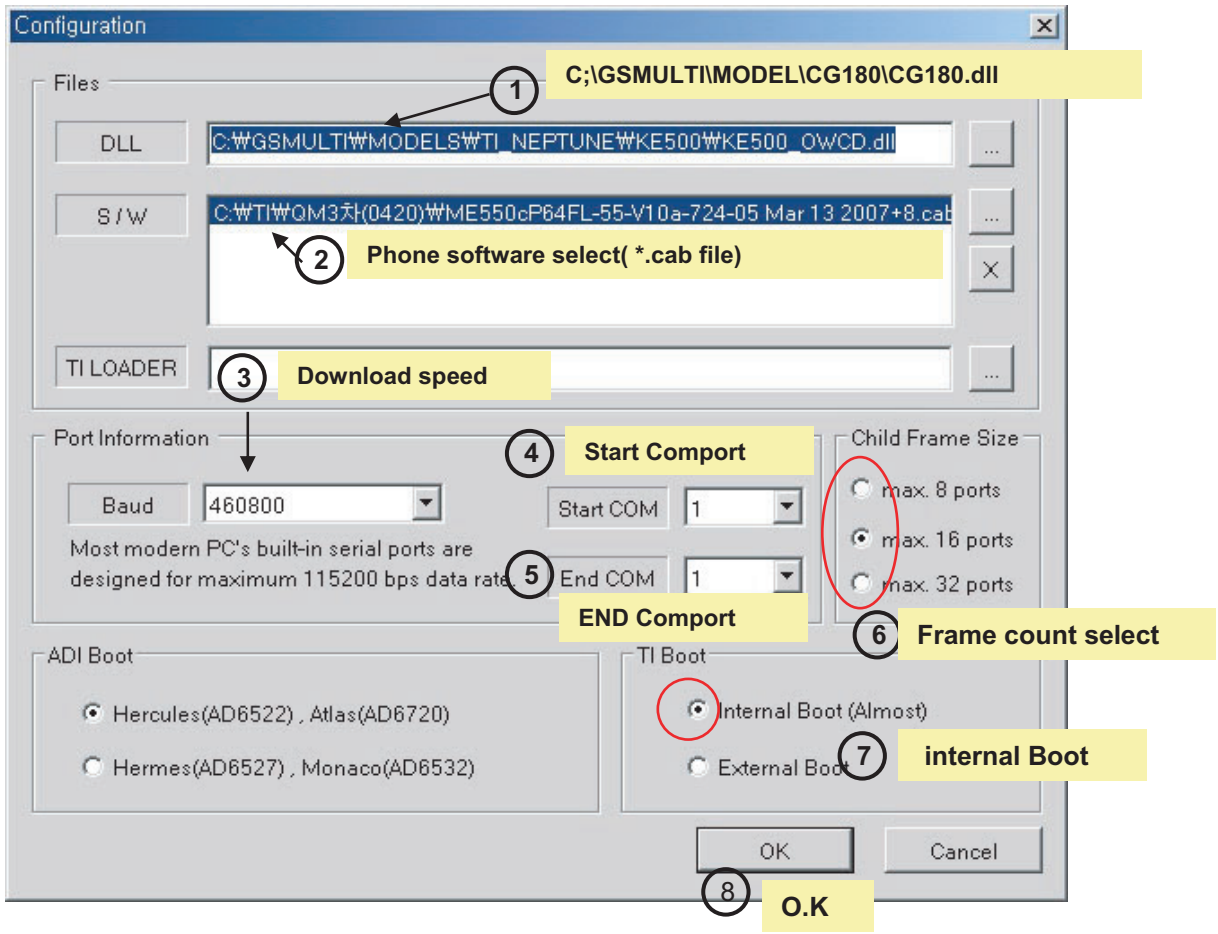


5.2.2 Click the “Setting” button.
Then, choose Configuration which is going to download.

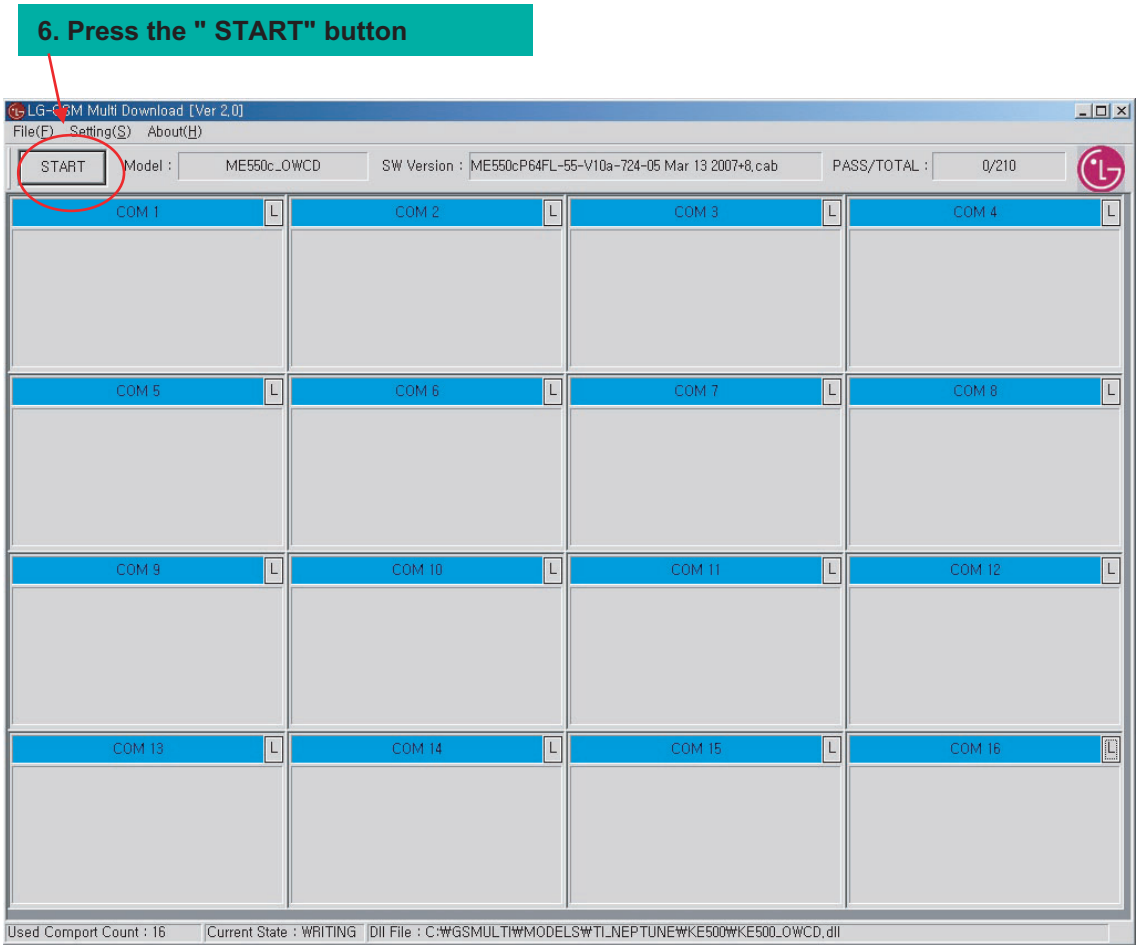


5.2.3 Computer Program file -> MultiGSM.EXE Click

5. Configuration : select values like below

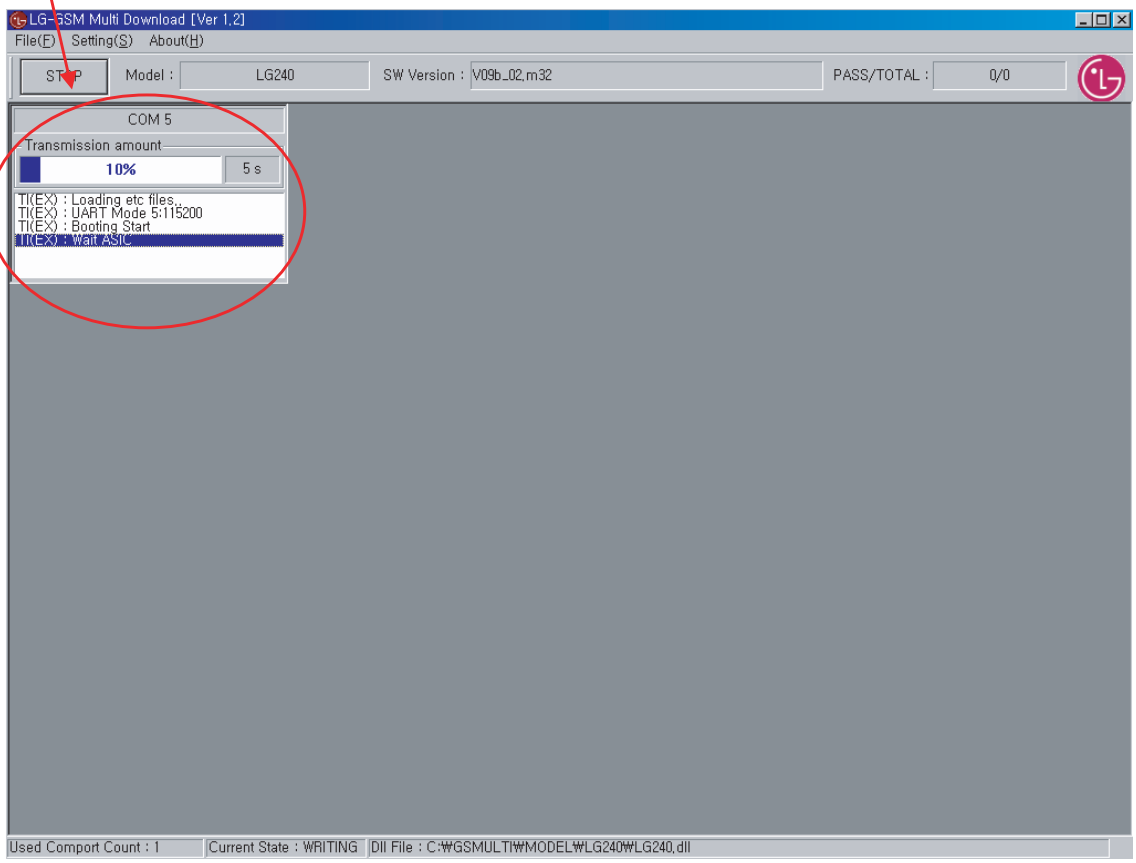


5.2.4 Computer Program file -> MultiGSM.EXE Click



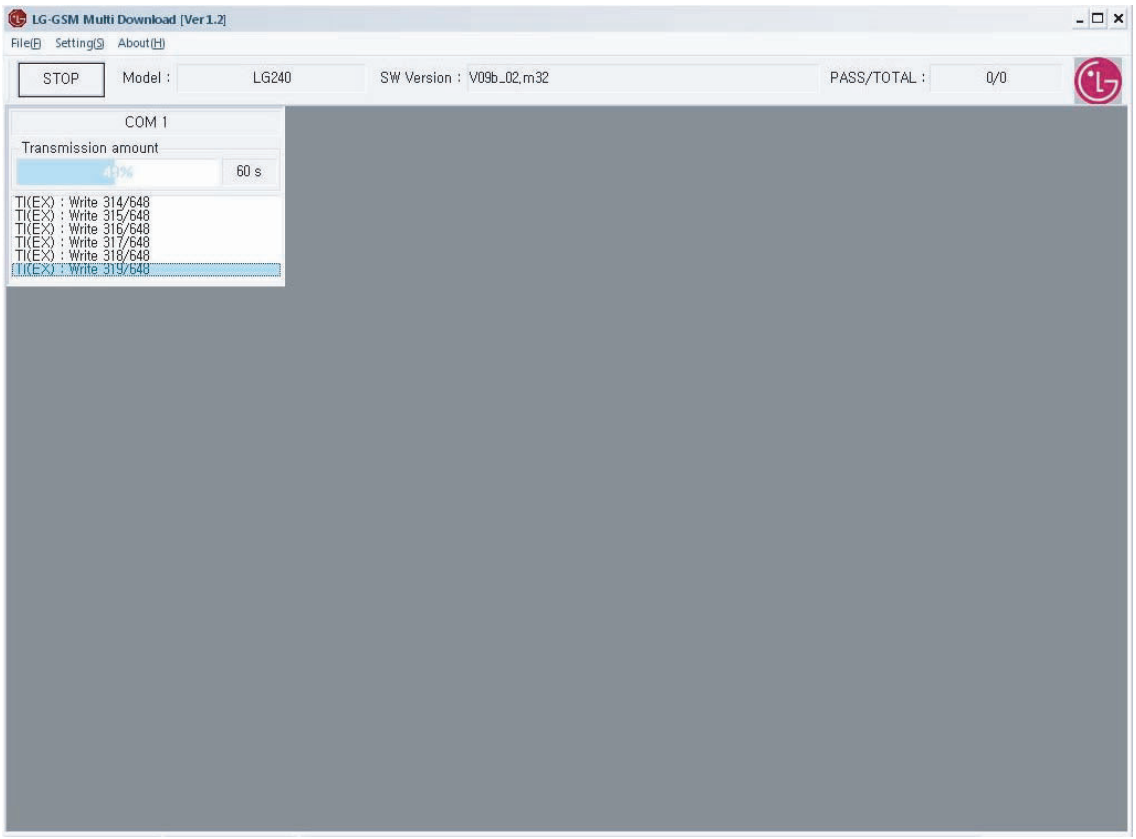
5.2.5 After “Start Button”, Which Stand-by condition

7. Stand-by condition ➔ "TI(EX) : Wait ASIC" is displayed ➔ connect the Phone



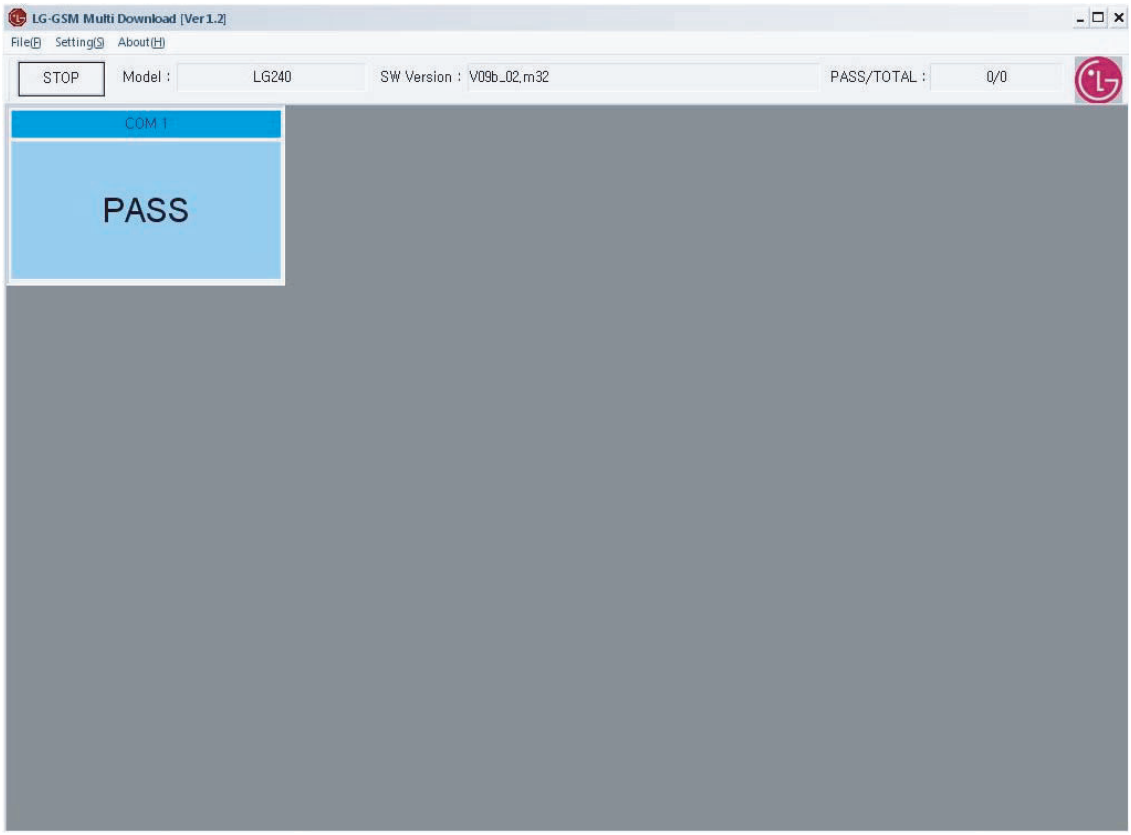
5.2.6 SW downloading condition

※ Downloading: Start

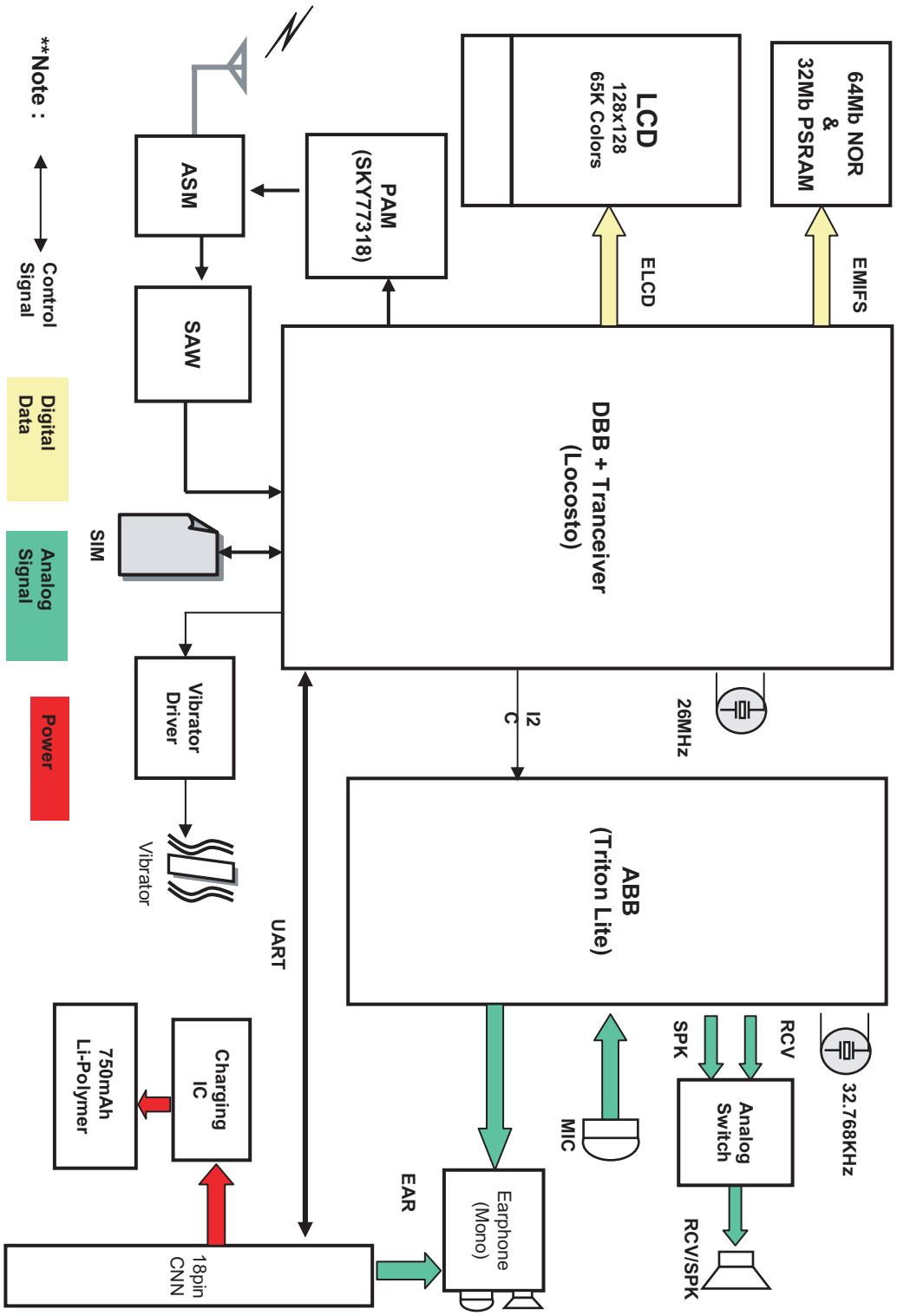


5.2.7 SW downloading END condition

※ Downloading: END

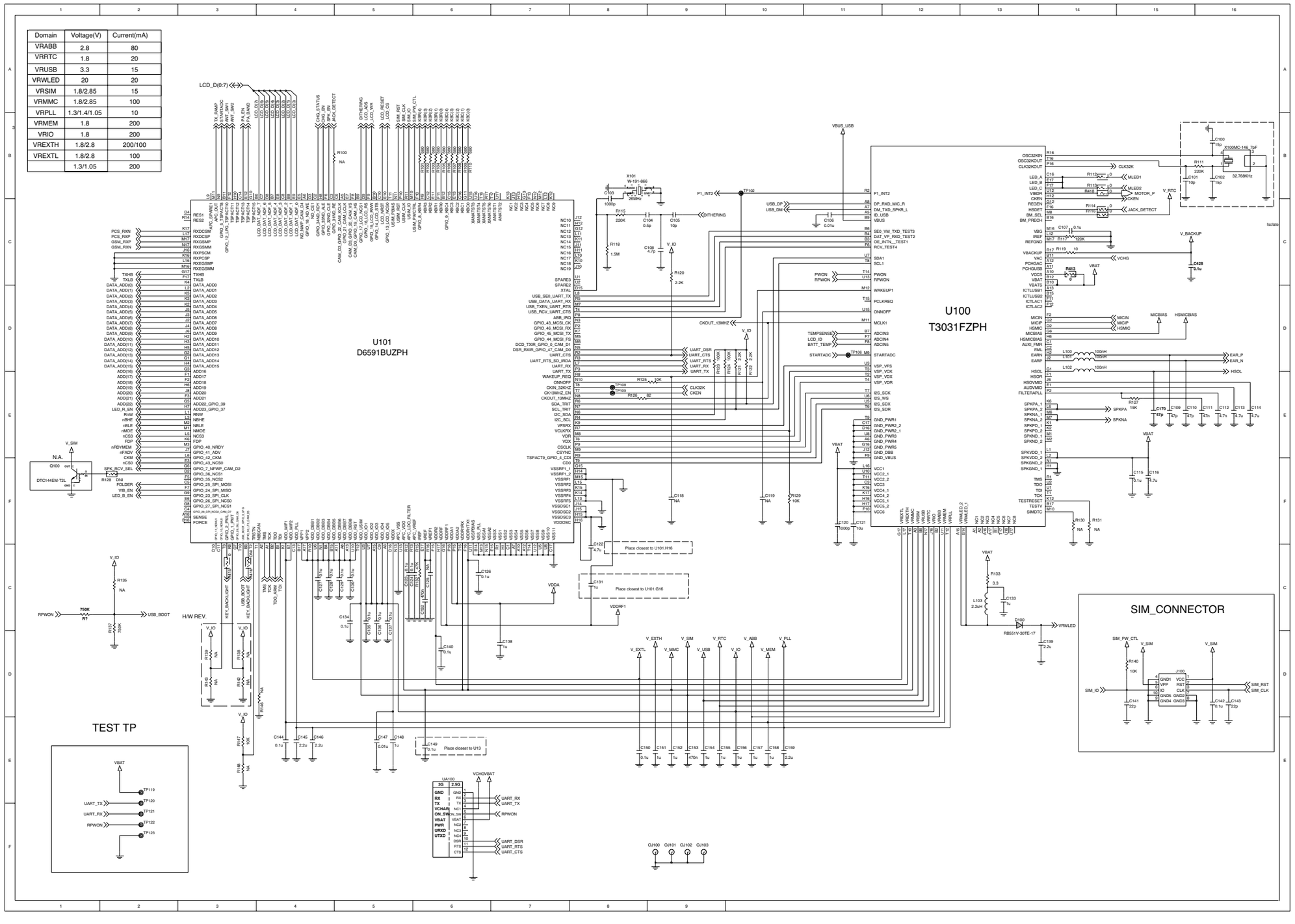


6. BLOCK DIAGRAM

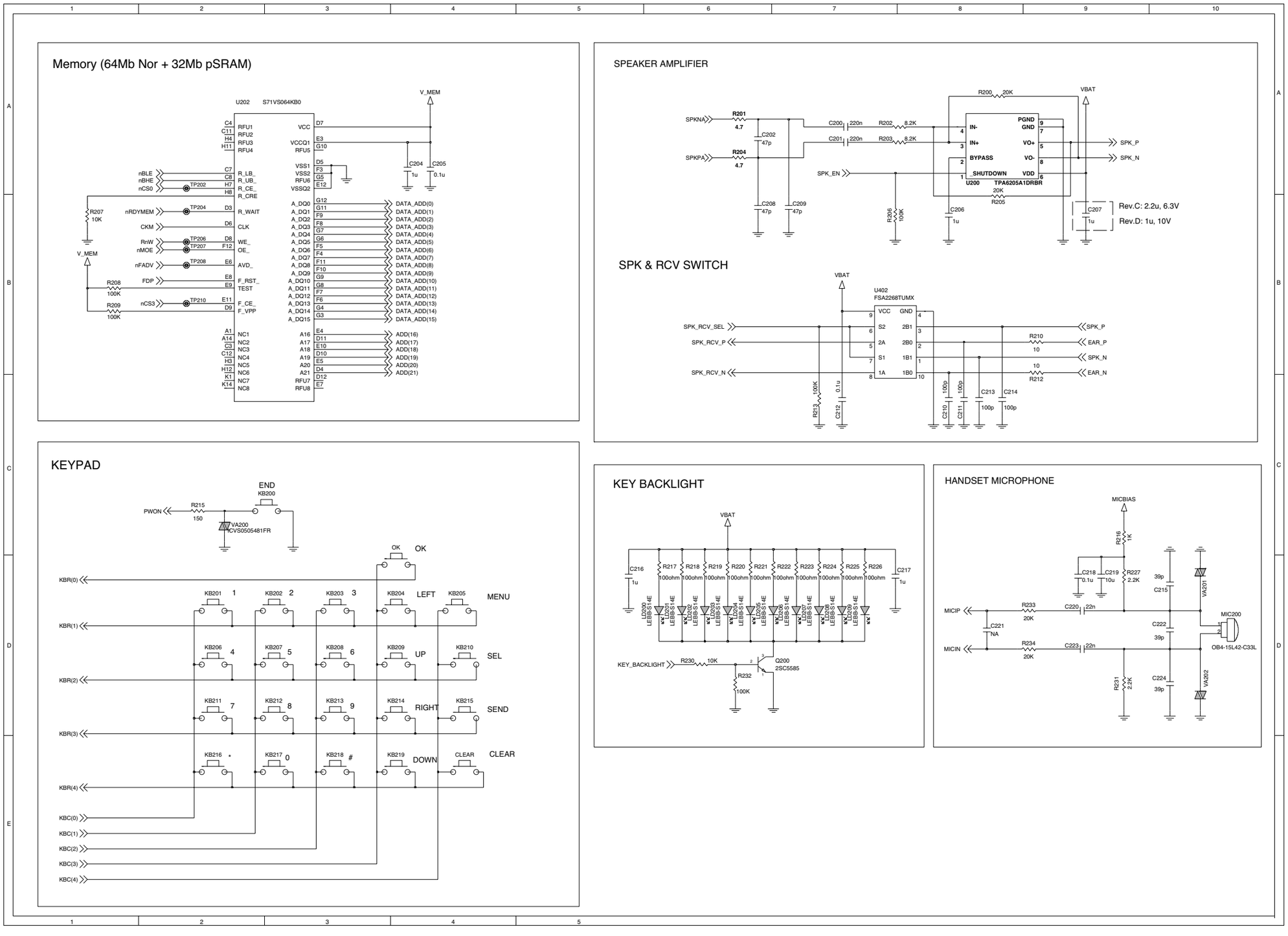


7. CIRCUIT DIAGRAM

Domain	Voltage(V)	Current(mA)
VRABB	2.8	80
VRRTC	1.8	20
VRUSB	3.3	15
VRWLED	20	20
VRSIM	1.8/2.85	15
VRMMC	1.8/2.85	100
VRPLL	1.3/1.4/1.05	10
VRMEM	1.8	200
VRIO	1.8	200
VREXTH	1.8/2.8	200/100
VREXTL	1.8/2.8	100
	1.3/1.05	200



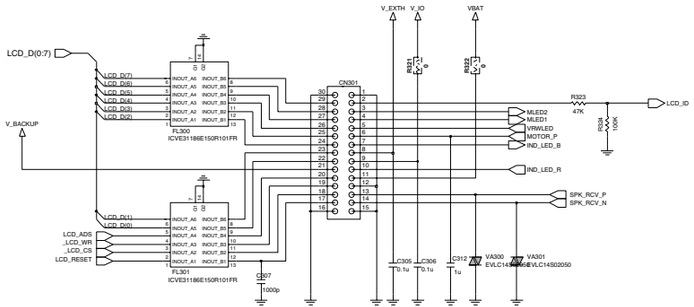
7. CIRCUIT DIAGRAM



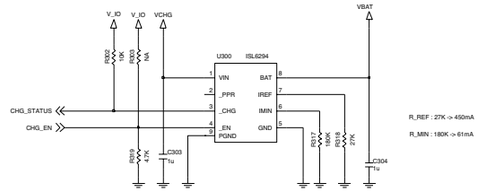
7. CIRCUIT DIAGRAM

LCD CONNECTOR

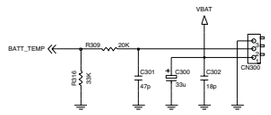
MAKER	ID	Voltage
GP(NOVATEK)	LOW	0V
GP(NOVATEK)	HIGH	1.8V



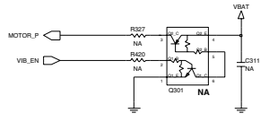
CHARGING



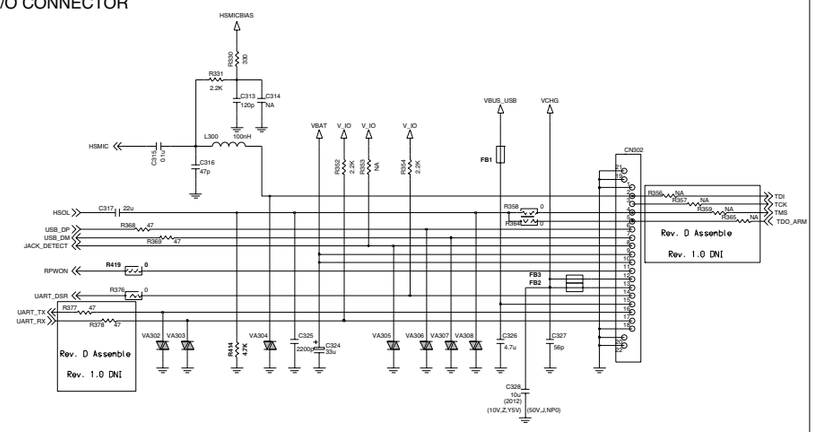
BATTERY CONNECTOR



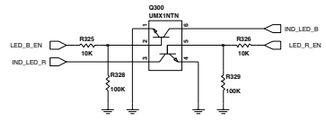
VIBRATOR



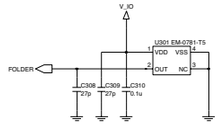
I/O CONNECTOR



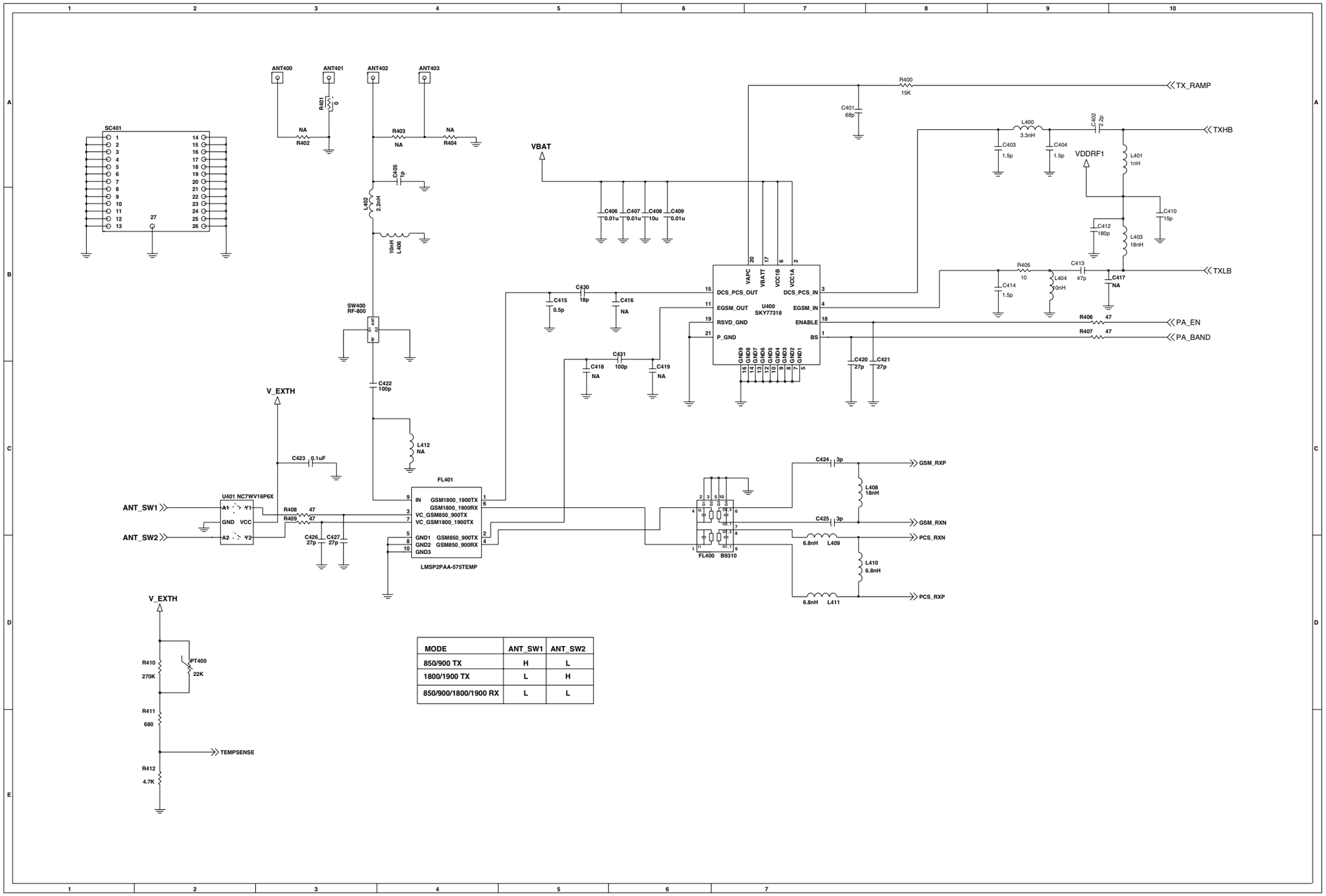
INDICATOR LED SWITCH



FOLDER SENSE



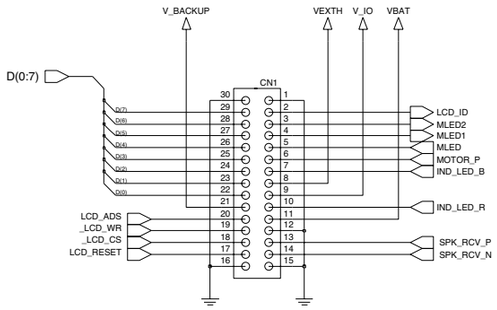
7. CIRCUIT DIAGRAM



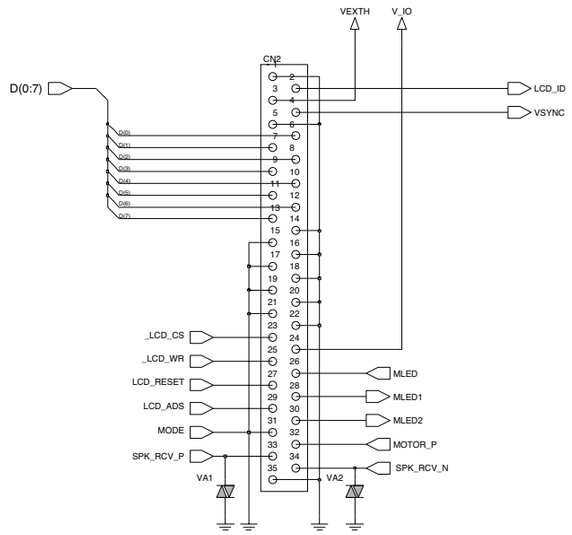
MODE	ANT_SW1	ANT_SW2
850/900 TX	H	L
1800/1900 TX	L	H
850/900/1800/1900 RX	L	L

7. CIRCUIT DIAGRAM

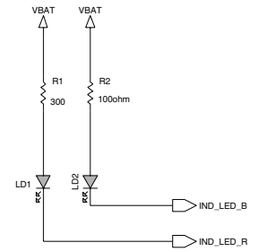
FPCB to PCB INTERFACE CONNECTOR



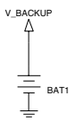
LCD to FPCB INTERFACE CONNECTOR



INDICATOR LEDS

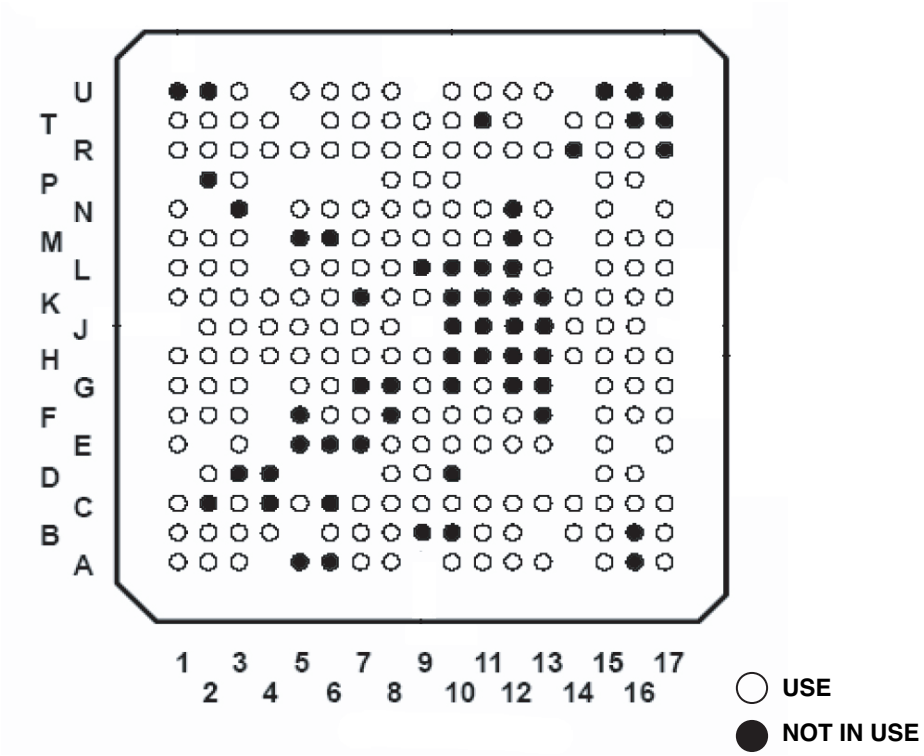


BACKUP BATTERY

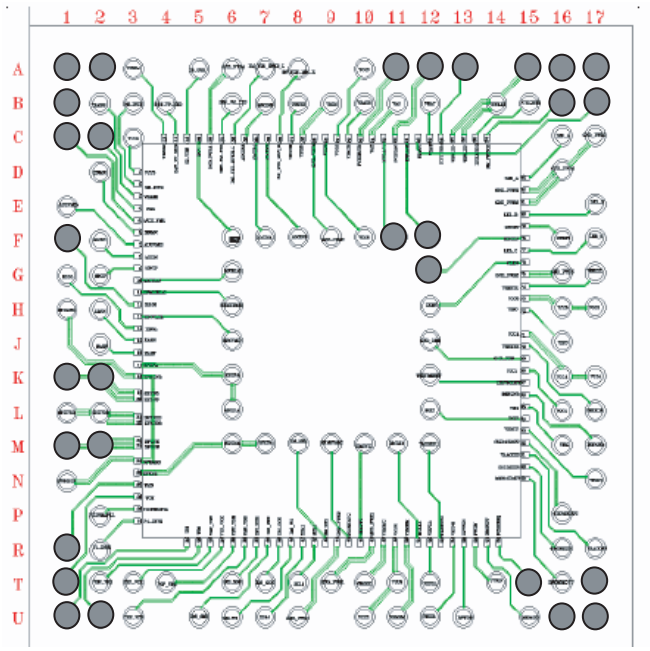


8. BGA IC Pin Check

8.1 DBB (U101: D6591BUZPH)

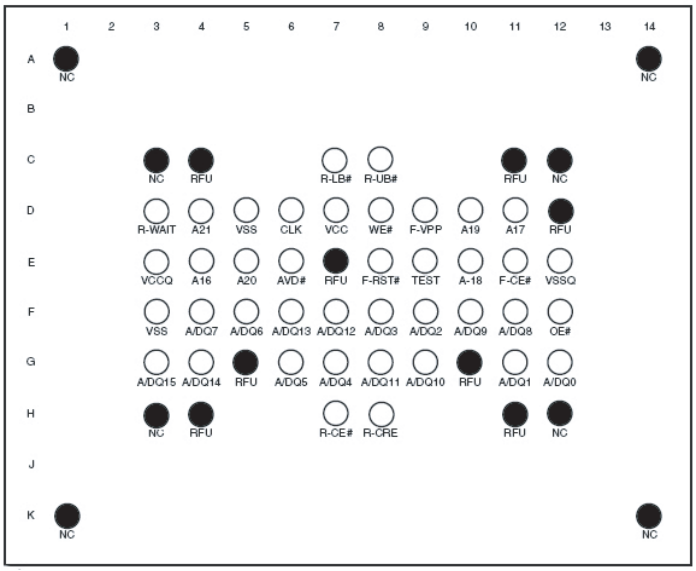


8.2 ABB (U100: T3031FZPH)



8. BGA IC Pin Check

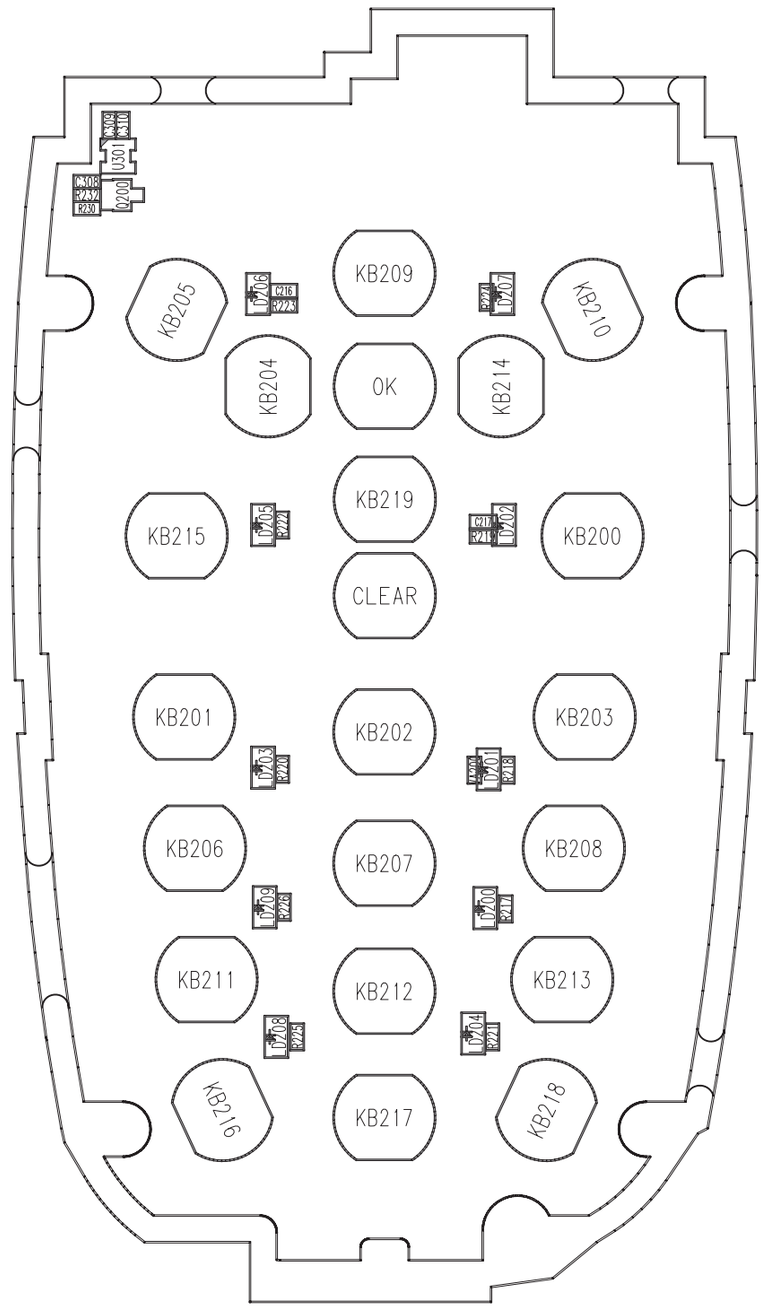
8.3 Memory (U202: S71VS064KB0)



○ **USE**

● **NOT IN USE**

9. PCB LAYOUT



LG400GT-MAIN-SPFY0161801-1.0-TOP

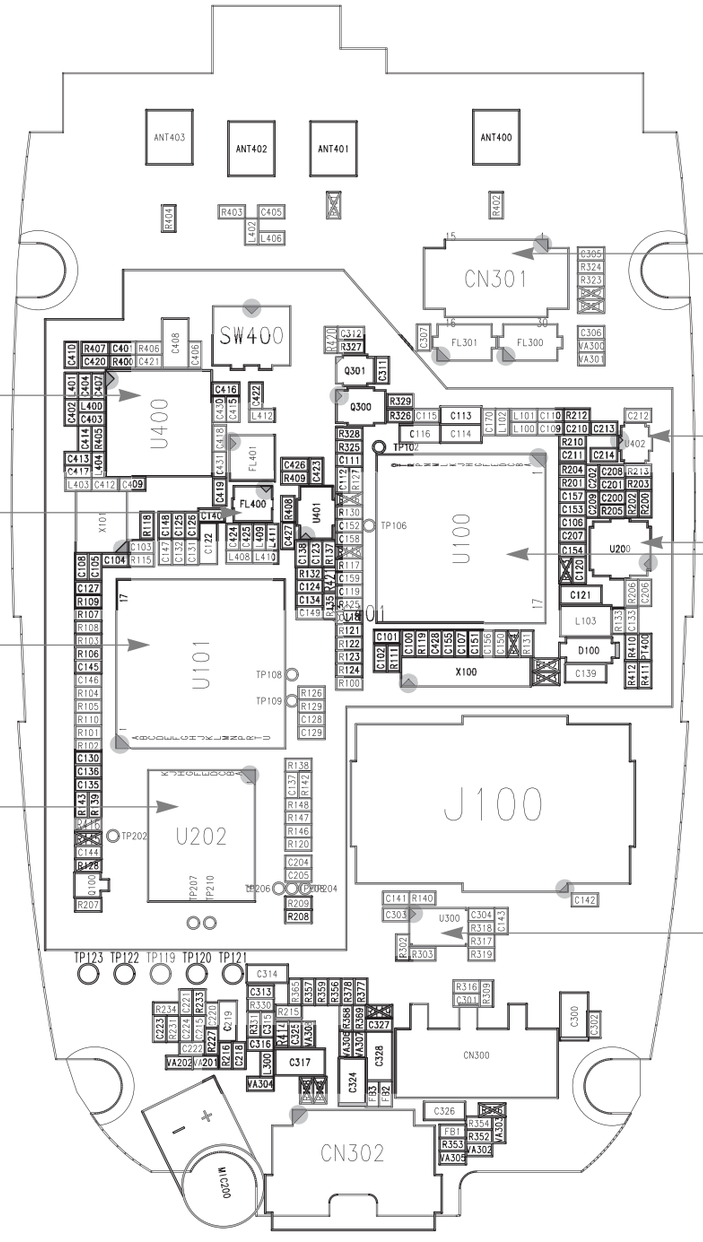
9. PCB LAYOUT

U400 PAM
GSM TX Power
No Service

FL400 FEM
GSM Rx Sensitivity
No Service

U101 Locosto (DBB)
No Booting
No Service
No Display

U202 Memory
No Booting



CN301 FPCB conn.
No Display
No Vibrator
No Sound
No Charging LED

U402 Analog Switch
No Sound (SPK, Voice)

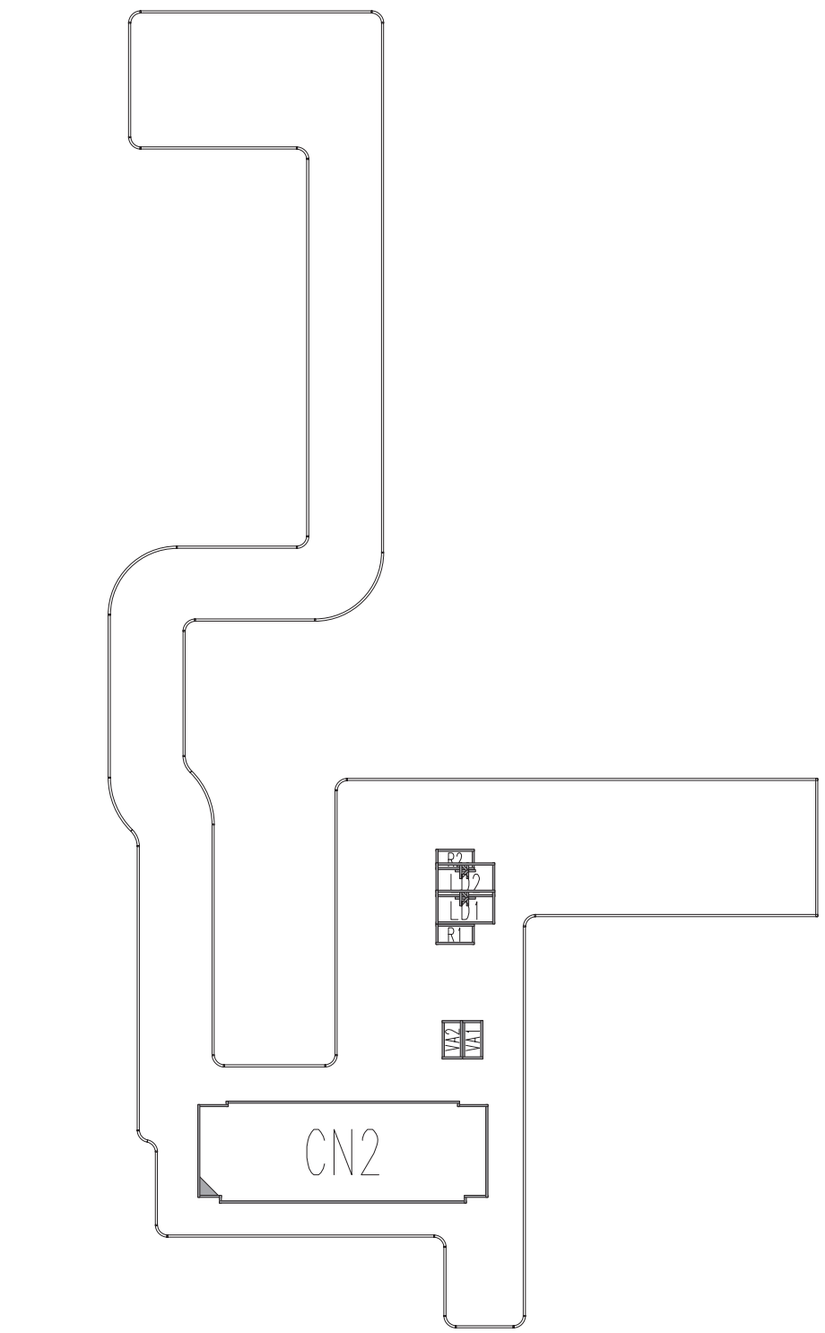
U200 SPK Amp
No Sound (SPK, Voice)

U100 Triton lite(ABB)
No Power On
No Sound
No LED

U300 Charging IC
No Charging

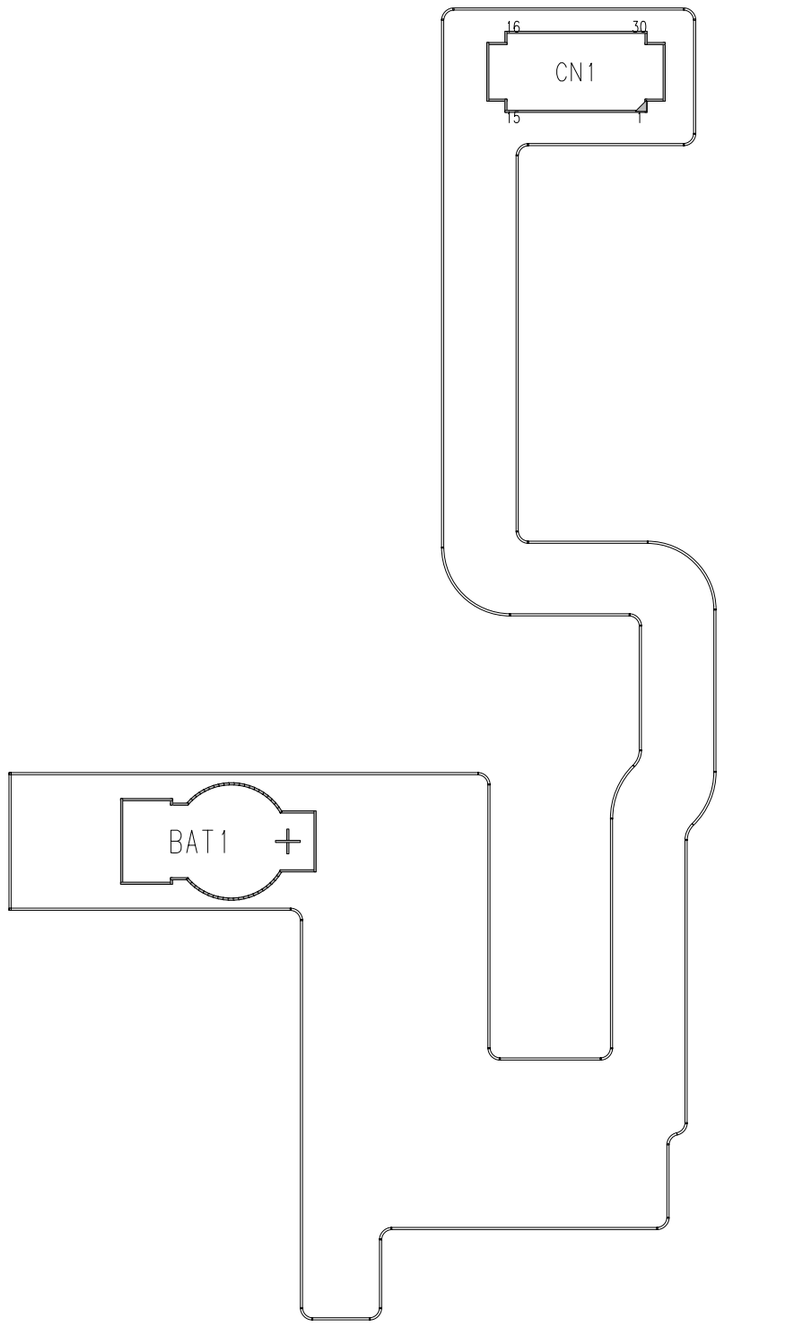
LG400GT-MAIN-SPFY0161801-1.0-BTM

9. PCB LAYOUT



LG400GT-SPCY0112401-1.0-TOP

9. PCB LAYOUT

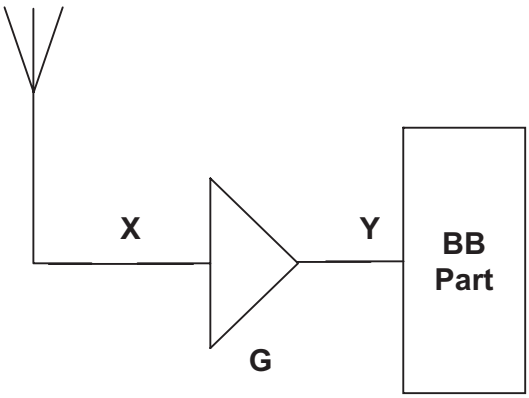


10. RF Calibration

10.1 What's the Rx Calibration?

10.1.1 Find proper AGC Gain to make the same Rx Power fed into the Base Band Part regardless of Antenna Input Level

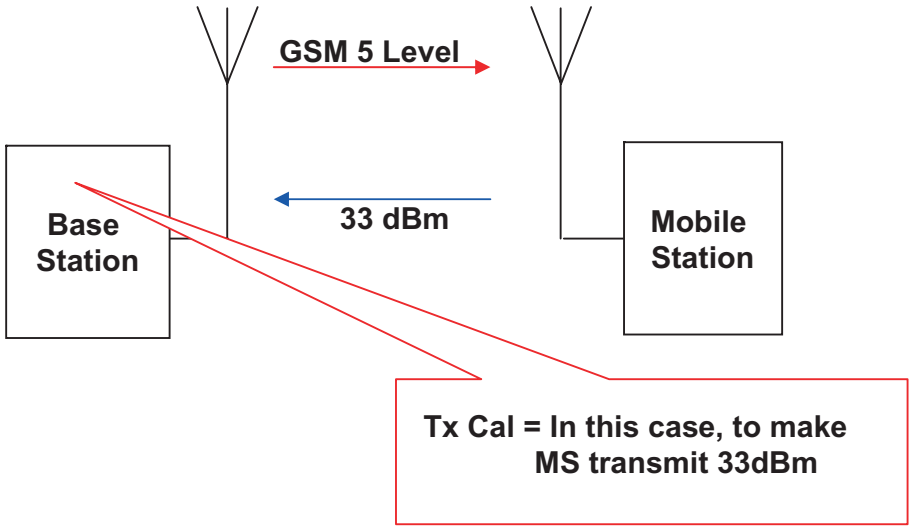
10.1.2 Can make report correct RSSI level



X(Input Level)+G(Gain)=Y

10. 2 What's the Tx Calibration?

10.2.1 To make Tx Power Level transmitted properly following the information of Base Station



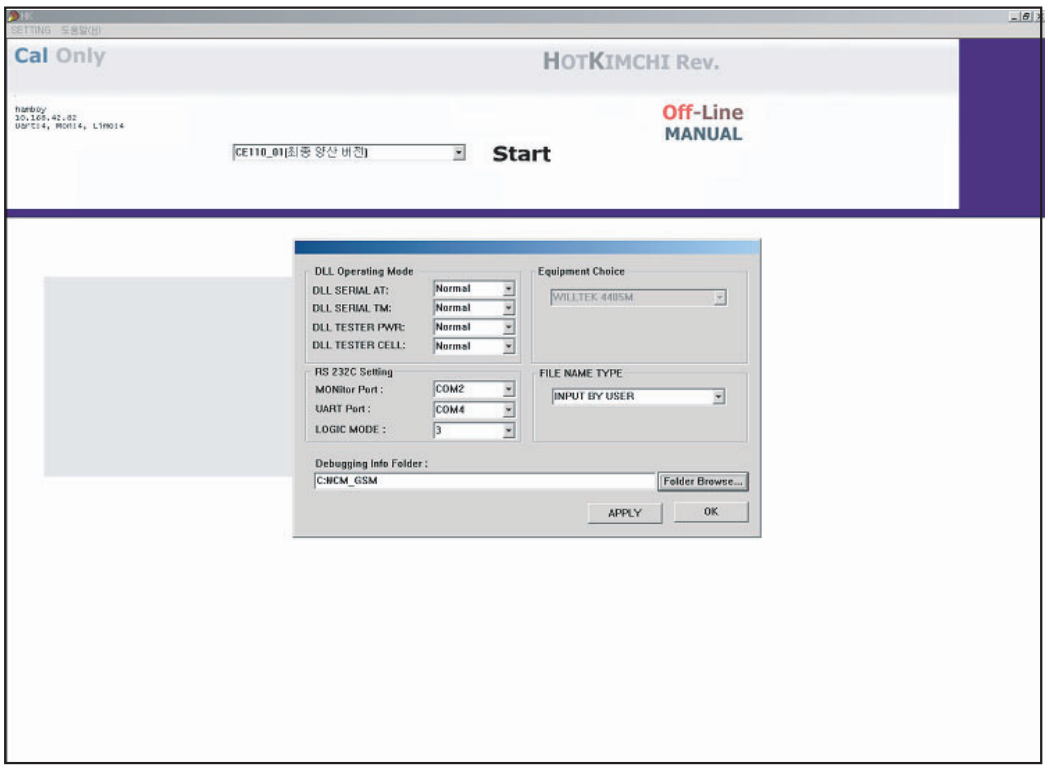
10.3 Calibration program - HOT_KIMCHI

10.3.1 Calibration Program (HOT_KIMCHI)

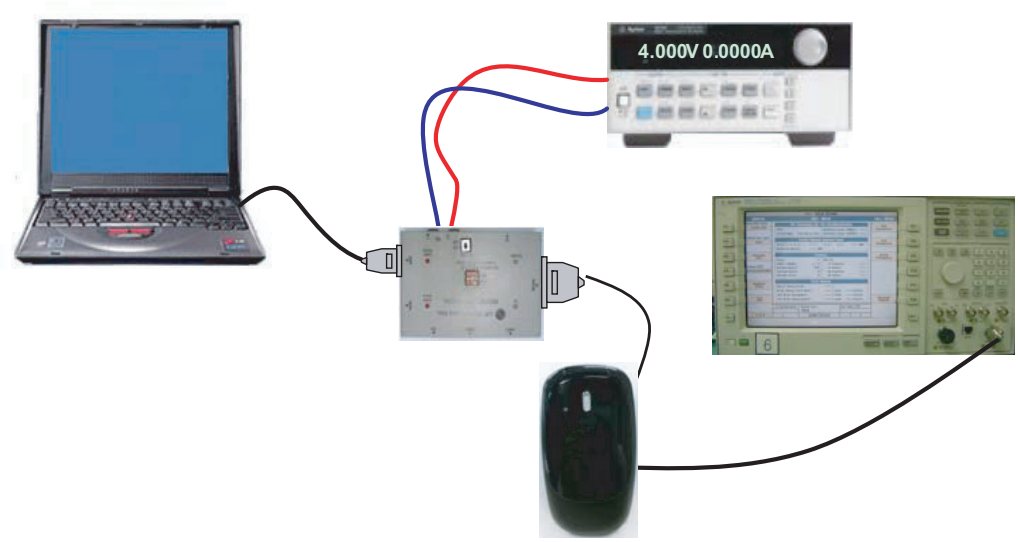
- Under windows 2k or XP
- PIF JIG Support Agilent 8960 Test Set

10.3.2 Required Equipments

- Test PC with PCMCIA slot
- GPIB card
- E5515C(Agilent 8960 series)
- Power supply



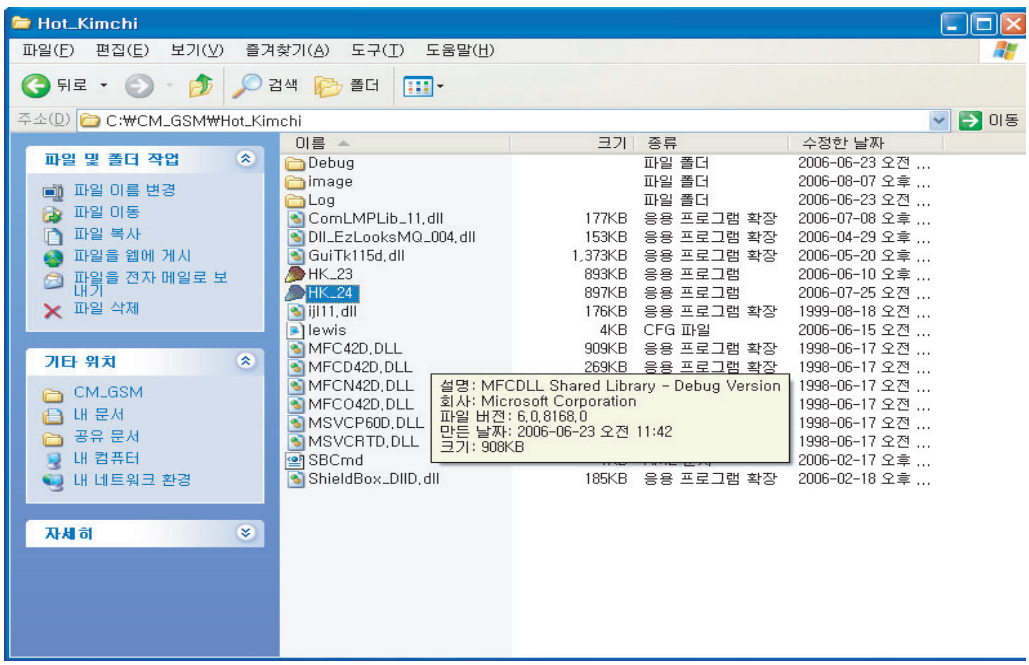
10.4 Calibration Setting



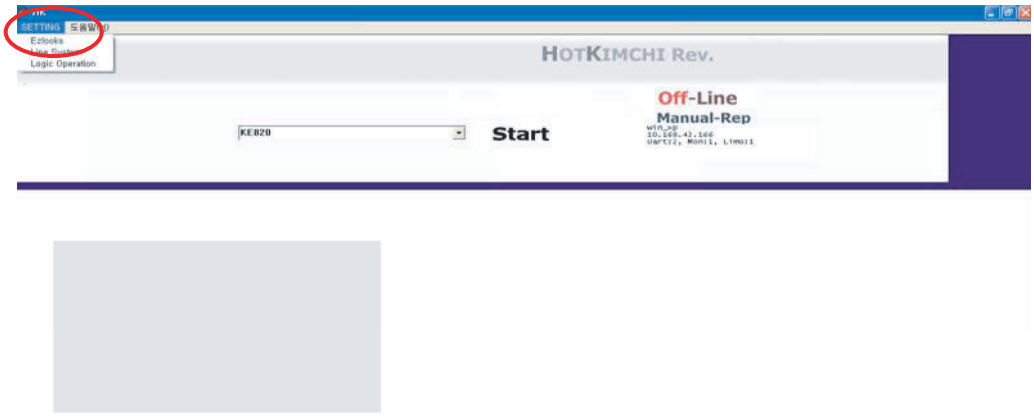
10.5 Calibration Steps

10.5.1 Turn on the Phone.

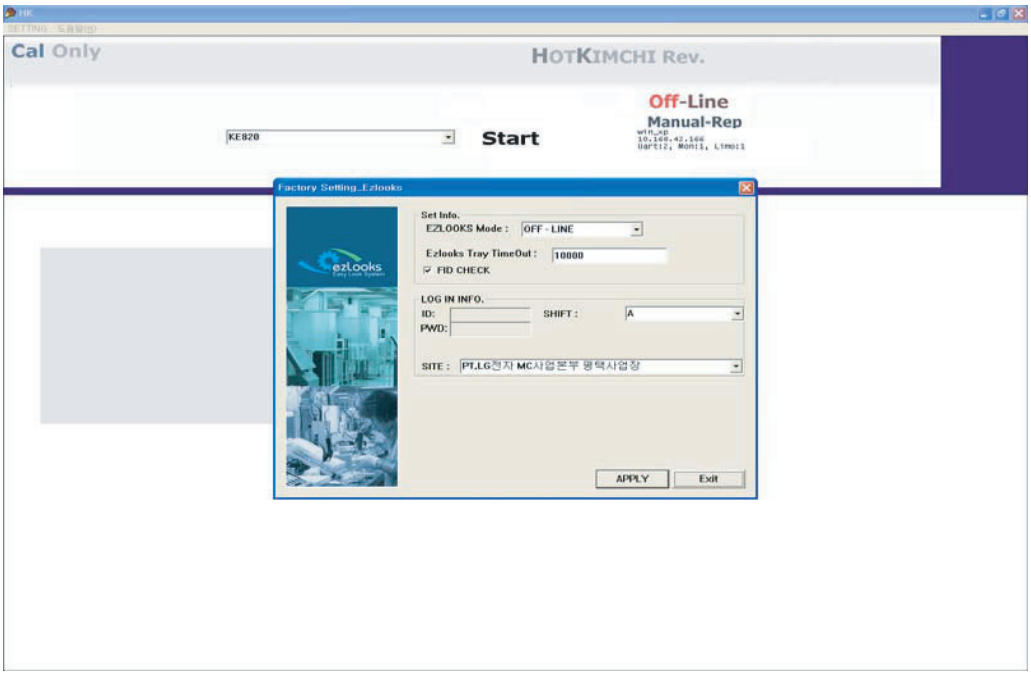
10.5.2 Execute “HK_24.exe”



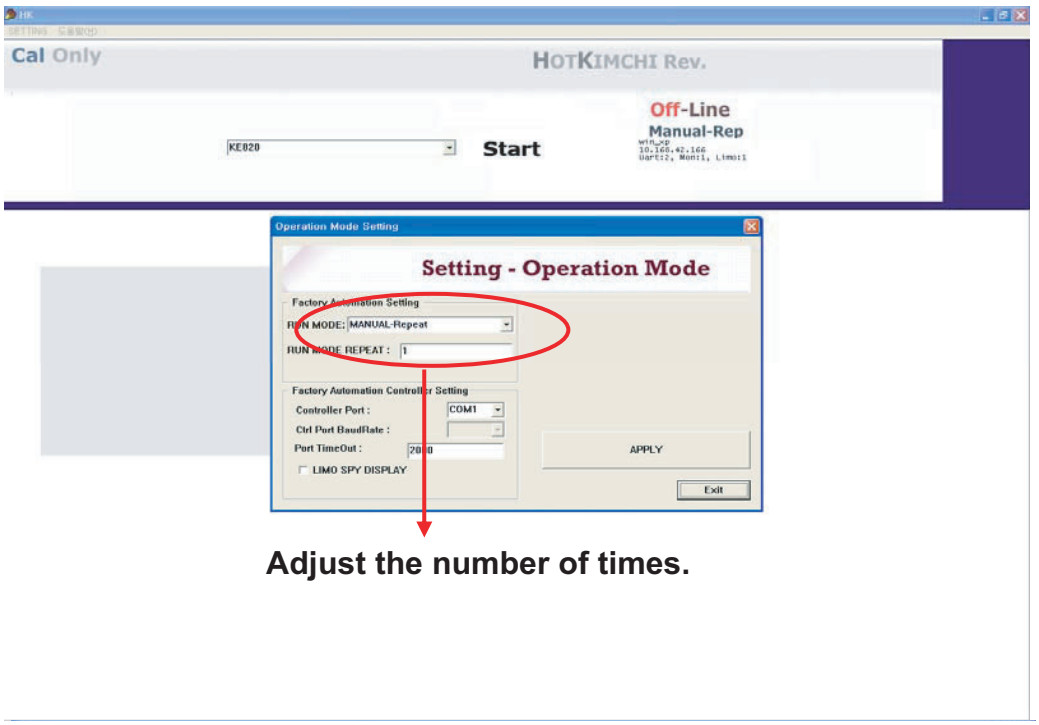
10.5.3 Click “SETTING” Menu



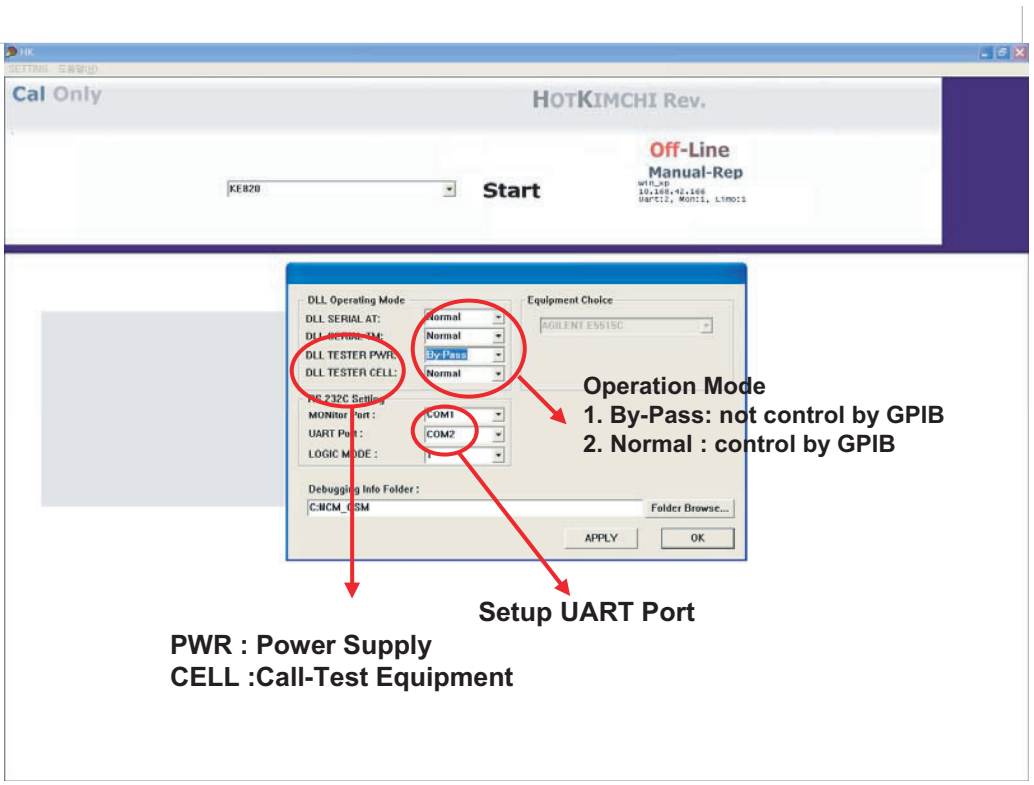
10.5.4 Setup “Ezlooks” menu such as the following figure



10.5.5 Setup “Line System” menu such as the following figure

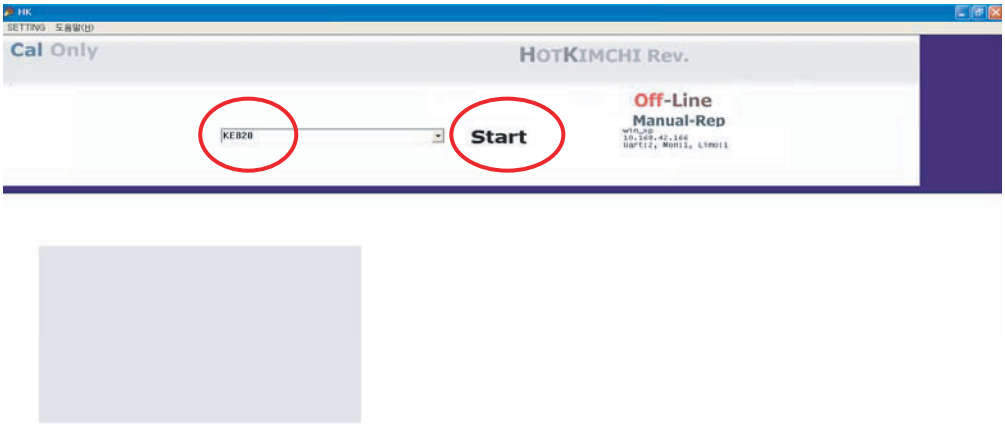


10.5.6 Setup Logic operation such as the following figure.

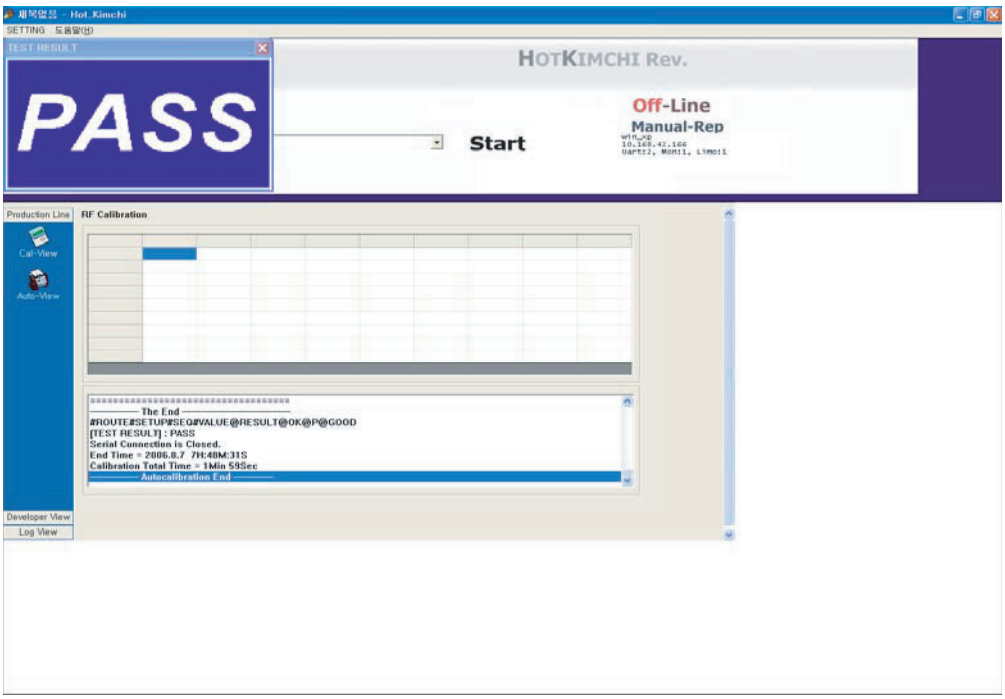


10.5.7 Select “MODEL”.

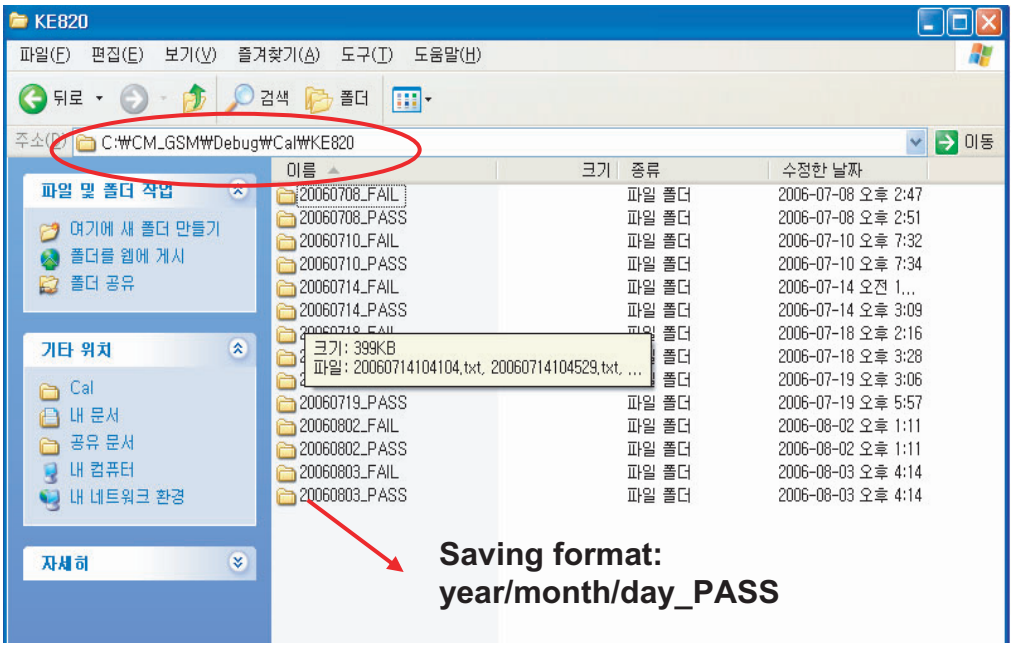
10.5.8 Click “START” for RF calibration



10.5.9 RF Calibration finishes.



10.5.10 Calibration data will be saved to the following folder.

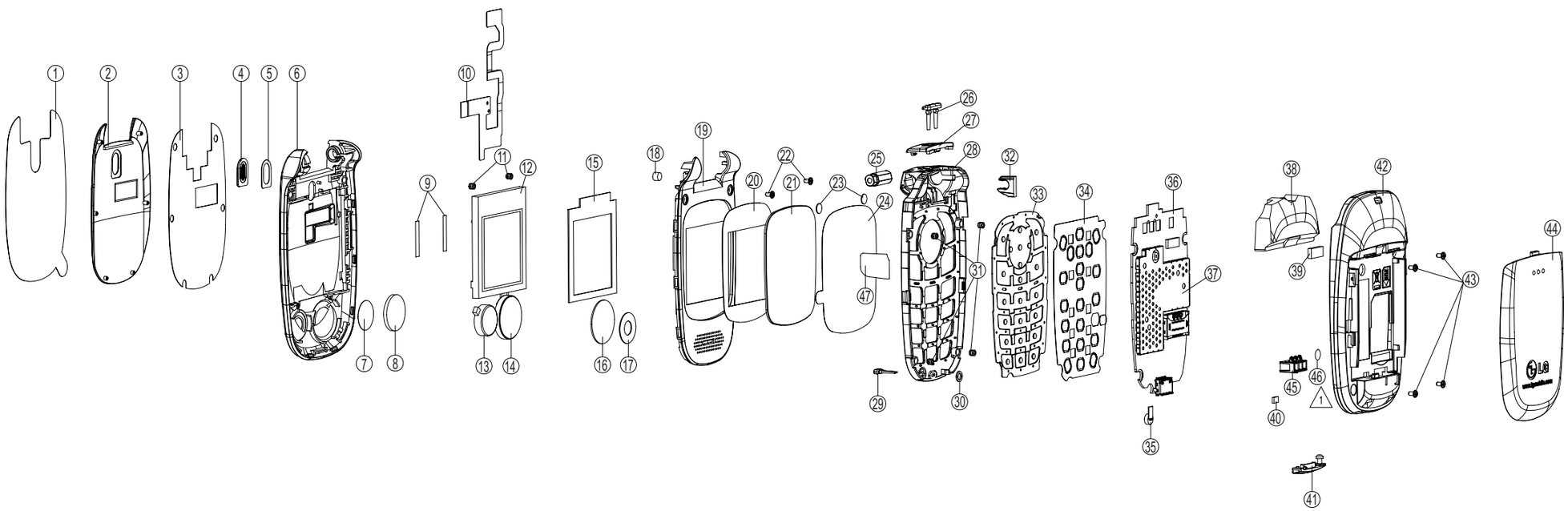


Notices:

1. The state of Phone is “test mode” during the CALIBRATION.
2. Calibration program automatically changes either “normal mode” or “ptest mode”.
3. RF Calibration steps as follow:
TX Channel compensation: GSM850->PCS
RX Channel compensation: GSM850->PCS
4. Phone Operation Mode

11. EXPLODED VIEW & REPLACEMENT PART LIST

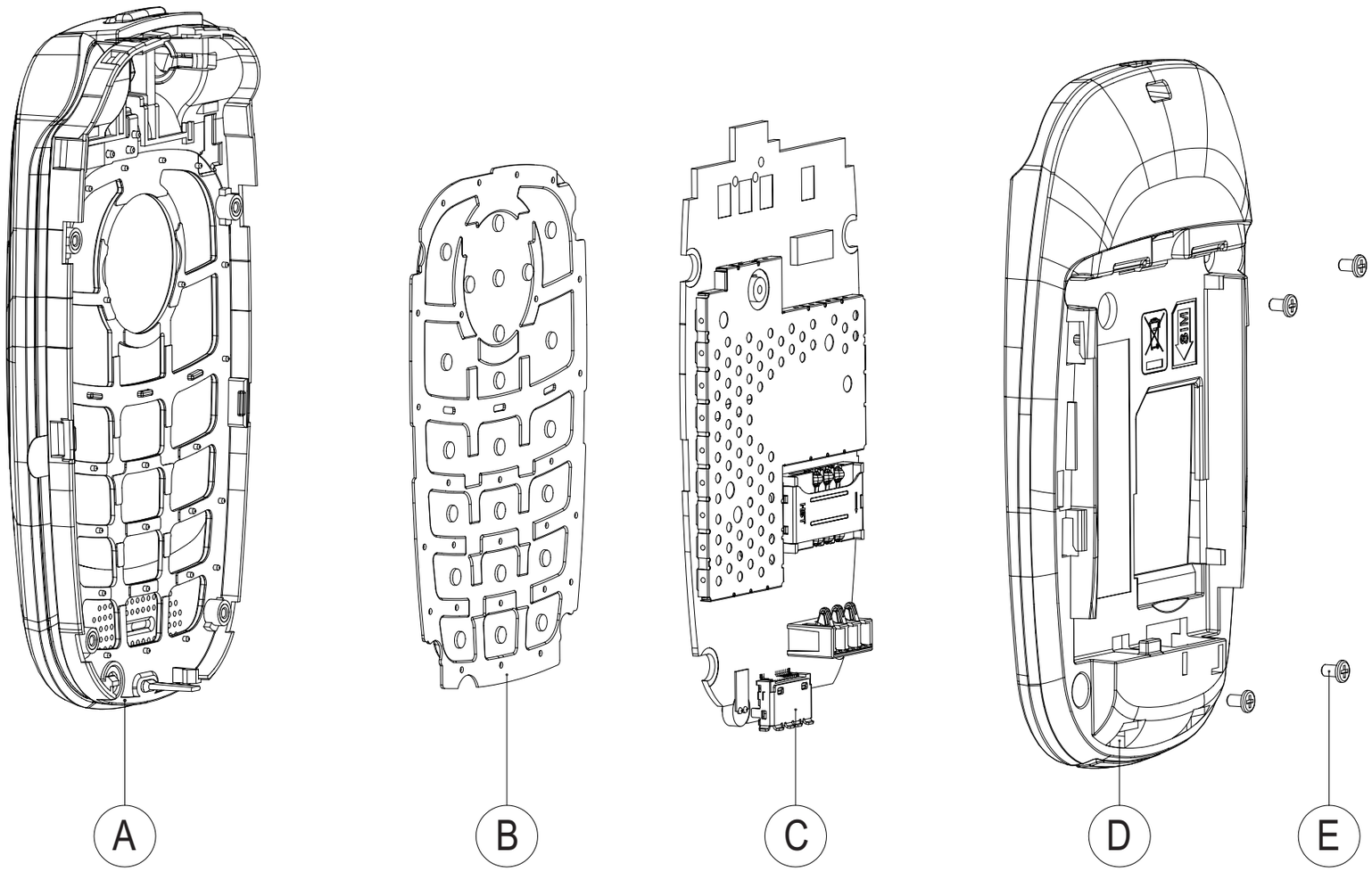
11.1 EXPLODED VIEW



NO	PART NAME		PART NUMBER	REMARK
18	MAGNET_SWITCH		MMAA0005201	
17	PAD_MOTOR		MPBJ0046701	
16	PAD_SPEAKER		MPBN0046301	
15	PAD_LCD		MPBG0066701	
14	SPEAKER		SUSY0026501	
13	VIBRATOR_MOTOR		SJMY0007202	
12	LCD_MODULE		SVLM0024701	
11	INSERT		–	
10	PCB_ASSY_FLEXIBLE		SACY0064501	
9	TAPE (LCD_SUB)		MTAZ0209301	
8	TAPE_SPEAKER		MTAZ0194901	
7	TAPE_MOTOR		MTAF0013801	
6	COVER_UPPER		MCJJ0049501	
5	TAPE_INDICATOR		MTAZ0200201	
4	INDICATOR_LED		MIAA0022101	
3	TAPE_DECO		MTAA0146301	
2	DECO_UPPER		MDAE0040701	
1	TAPE_PROTECTION_DECO		MTAB0202101	

NO	PART NAME	PART NUMBER	REMARK
47	TAPE_BUTTON	MTAG0007601	
46	LABEL_AS	MLAB0000601	
45	CONNECTOR_ETC	ENZY0015701	
44	COVER_BATTERY	MCJA0048901	
43	SCREW	GMEY0012901	
42	COVER_REAR	MCJN0072601	
41	CAP_EARPHONE_JACK	MCCC0048301	
40	PAD,MIKE	MPBH0033401	
39	PAD_FLEXIBLE_PCB	MPBF0024801	
38	ANTENNA_GSM_FIXED	SNGF0029601	
37	SHIELD CAN	MCBA0022301	
36	PCB_ASSY_MAIN	SAFF0176501	
35	MIC	SUMY0003802	
34	DOME_ASSY_METAL	ADCA0070801	
33	BUTTON_DIAL	MBJA0025801	
32	STOPPER_HINGE	MSGB0019801	
31	INSERT	–	
30	FILTER_MIC	MFBD0026001	
29	STOPPER_FOLDER	MSGC0001501	
28	COVER_FRONT	MCJK0076801	
27	DECO_FRONT	MDAG0030301	
26	STOPPER_HINGE	MSGB0019803	
25	HINGE	MHFD0015201	5ø_4.5kgf
24	TAPE_PROTECTION_WINDOW	GMEY0012901	
23	CAP_SCREW	MCCH0107301	2EA
22	SCREW	GMEY0012901	2EA
21	WINDOW_LCD	MWAC0084302	
20	TAPE_WINDOW	MTAD0074401	
19	COVER_LOWER	MCJH0040401	

ASS'Y EXPLODED VIEW



E	SCREW	GMEY0012901	M1.4,3mm
D	COVER ASSY_REAR	ACGM0096201	
C	PCB ASSY_MAIN	–	
B	BUTTON DIAL	MBJA0025801	
A	COVER ASSY_FOLDER	ACGG0084401	
NO	PART NAME	PART NUMBER	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.	Description	Part Number	Spec	Color	Remark
1		GSM(FOLDER)	TGFF0097302		Black	
2	AAAY02	ADDITION	AAAY0284301		Black	
3	MCJA00	COVER,BATTERY	MCJA0048901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	44
3	ACGG00	COVER ASSY,FOLDER	ACGG0084402		Black	A
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0050201		Without Color	
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0040401	MOLD, PC LUPOY SC-1004A, , , , ,	Black	19
5	MMAA00	MAGNET,SWITCH	MMAA0005201		Metal Silver	18
5	MPBG00	PAD,LCD	MPBG0066701	CUTTING, EPDM, , , , ,	Black	15
5	MPBJ00	PAD,MOTOR	MPBJ0046701	CUTTING, EPDM, , , , ,	Black	17
5	MPBN00	PAD,SPEAKER	MPBN0046301	CUTTING, EPDM, , , , ,	Black	16
5	MTAD00	TAPE,WINDOW	MTAD0074401	CUTTING, NS, , , , ,	Black	20
4	ACGJ00	COVER ASSY, FOLDER(UPPER)	ACGJ0065501		Without Color	
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0049501	MOLD, PC LUPOY SC-1004A, , , , ,	Black	6
5	MDAE00	DECO,FOLDER(UPPER)	MDAE0040701	MOLD, PC LUPOY SC-1004A, , , , ,	Black	2
5	MIAA00	INDICATOR,LED	MIAA0022101	COMPLEX, (empty), , , , ,	Black	4
5	MTAA00	TAPE,DECO	MTAA0146301	CUTTING, NS, , , , ,	Black	3
5	MTAB00	TAPE,PROTECTION	MTAB0202101	CUTTING, EPDM, , , , ,	Without Color	1
5	MTAF00	TAPE,MOTOR	MTAF0013801	COMPLEX, (empty), , , , ,	Without Color	7
5	MTAZ00	TAPE	MTAZ0194901	COMPLEX, (empty), , , , ,	Without Color	8
5	MTAZ01	TAPE	MTAZ0200201	CUTTING, EPDM, , , , ,	Without Color	5
5	MTAZ02	TAPE	MTAZ0209301	CUTTING, NS, , , , ,	Without Color	9
4	ACGK00	COVER ASSY,FRONT	ACGK0094901		Without Color	
5	MCJK00	COVER,FRONT	MCJK0076801	MOLD, PC LUPOY SC-1004A, , , , ,	Black	28
5	MDAG00	DECO,FRONT	MDAG0030301	MOLD, PC LUPOY SC-1004A, , , , ,	Black	27
5	MFBD00	FILTER,MIKE	MFBD0026001	COMPLEX, (empty), , , , ,	Black	30
5	MSGB00	STOPPER,HINGE	MSGB0019803	MOLD, Urethane Rubber S190A, , , , ,	Black	26
5	MSGC00	STOPPER,FOLDER	MSGC0001501	MOLD, Urethane Rubber S190A, , , , ,	Black	29

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MTAA00	TAPE,DECO	MTAA0146501	COMPLEX, (empty), , , , ,	Without Color	
4	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	Without Color	
4	MBJA00	BUTTON,DIAL	MBJA0025801	COMPLEX, (empty), , , , ,	Black	33, B
4	MCCH00	CAP,SCREW	MCCH0107301	COMPLEX, (empty), , , , ,	Black	23
4	MHFD00	HINGE,FOLDER	MHFD0015201	COMPLEX, (empty), , , , ,	Red	25
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	
4	MSGB00	STOPPER,HINGE	MSGB0021901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	
4	MTAB00	TAPE,PROTECTION	MTAB0202001	CUTTING, EPDM, , , , ,	Without Color	
4	MWAC00	WINDOW,LCD	MWAC0084302		Black	22
3	ACGM00	COVER ASSY,REAR	ACGM0096201		Without Color	D
4	MCCC00	CAP,EARPHONE JACK	MCCC0048301	MOLD, Urethane Rubber S190A, , , , ,	Black	41
4	MCJN00	COVER,REAR	MCJN0072601	MOLD, PC LUPOY SC-1004A, , , , ,	Black	42
4	MLAB00	LABEL,A/S	MLAB0000601	PRINTING, (empty), , , , ,	Without Color	46
4	MPBF00	PAD,FLEXIBLE PCB	MPBF0024801	COMPLEX, (empty), , , , ,	Without Color	39
4	MPBH00	PAD,MIKE	MPBH0033401	COMPLEX, (empty), , , , ,	Black	40
3	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	Without Color	
3	MLAK00	LABEL,MODEL	MLAK0006901	PRINTING, (empty), , , , ,	White	
3	MTAG00	TAPE,BUTTON	MTAG0007601	CUTTING, EPDM, , , , ,	Without Color	47
5	ADCA00	DOME ASSY,METAL	ADCA0070801		Without Color	34
5	MCBA00	CAN,SHIELD	MCBA0022301	PRESS, STS, t=0.2, , , ,	Without Color	37
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	
6	SC401	CAN,SHIELD	MCBA0022401	PRESS, STS, , , , ,	Without Color	

<Main component>

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

Level	Location No.	Description	Part Number	Spec	Color	Remark
2	APEY04	PHONE	APEY0463002		Black	
4	SACY00	PCB ASSY,FLEXIBLE	SACY0064501		Black	10
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0058901		Black	
6	SACC00	PCB ASSY, FLEXIBLE,SMT BOTTOM	SACC0037901		Black	
7	BAT1	BATTERY,CELL,LITHIUM	SBCL0001305	3 V,1 mAh,COIN ,SMT Temp.260 degree. PB-Free B/B		
7	CN1	CONNECTOR,BOARD TO BOARD	ENBY0040601	30 PIN,0.4 mm,ETC , ,H=1.0 ,; , ,0.40MM ,STRAIGHT ,MALE ,SMD ,R/TP , ,		
6	SACD00	PCB ASSY, FLEXIBLE,SMT TOP	SACD0048601		Black	
7	CN2	CONNECTOR,FFC/FPC	ENQY0013901	35 PIN,0.3 mm,STRAIGHT , , ,; , ,0.30MM ,FPC ,STRAIGHT ,BOTH ,SMD ,R/TP ,[empty] ,		
7	LD1	DIODE,LED,CHIP	EDLH0007901	RED ,1608 ,R/TP ,Indicator,0.4T Red LED		
7	LD2	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
7	R1	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		
7	R2	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	SPCY00	PCB,FLEXIBLE	SPCY0112401	POLYI , mm,MULTI-3 , ,; , , , , , , , , ,		
7	VA1	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA2	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
4	SJMY00	VIBRATOR,MOTOR	SJMY0007202	3 V,.08 A,12*3.4 ,17mm		13
4	SUSY00	SPEAKER	SUSY0026501	ASSY ,8 ohm,91 dB,17 mm, ,; , , , , , , ,WIRE		14
4	SVLM00	LCD MODULE	SVLM0024701	MAIN ,1.52"(128*128) ,35.78*39.7*2.8 ,65k ,CSTN ,TM ,NT7573 ,Single		12
4	ENZY00	CONNECTOR,ETC	ENZY0015701	3 PIN,3 mm,ETC , ,H=6.5		45
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0029601	3.0 ,-2.0 dBd,, ,internal, GSM850/1900 ,; ,DUAL ,-2.0 ,50 ,3.0		38
3	SAFY02	PCB ASSY,MAIN	SAFY0261201		Black	
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0078601			
5	SUMY00	MICROPHONE	SUMY0003802	FPCB ,-42 dB,4*1.5 ,		35
4	SAFF01	PCB ASSY,MAIN,SMT	SAFF0176501		Black	36
5	SAFC01	PCB ASSY,MAIN,SMT BOTTOM	SAFC0100201			
6	C100	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C101	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C103	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C104	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C107	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C108	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C123	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C124	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C127	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C129	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C130	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C132	CAP,CHIP,MAKER	ECZH0001210	470 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C134	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C135	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C136	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C137	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C140	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C141	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C142	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C144	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C145	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C148	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C149	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C150	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C152	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C153	CAP,CHIP,MAKER	ECZH0001210	470 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C155	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C156	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C157	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C158	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C159	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C170	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C200	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C201	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C205	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C207	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C210	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C211	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C212	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C213	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C214	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C215	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C218	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C300	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C301	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C303	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C304	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C305	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C312	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C315	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0000393	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,1.25 mm		
6	C324	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C325	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C326	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C327	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0003002	10000000 pF,10V ,Z ,Y5V ,HD ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,1.25 mm		
6	C401	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C403	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C404	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C405	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C407	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0003002	10000000 pF,10V ,Z ,Y5V ,HD ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,1.25 mm		
6	C409	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0001002	180 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C414	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C415	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C422	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C423	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C424	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C427	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C428	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C430	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C431	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	CN301	CONNECTOR,BOARD TO BOARD	ENBY0040701	30 PIN, mm,ETC , , ,; , ,0.40MM ,STRAIGHT ,FEMALE ,SMD ,R/TP ,1.0 ,		
6	CN302	CONNECTOR,I/O	ENRY0006801	18 PIN,0.4 mm,ETC , , ,; ,18 ,0.40MM ,ANGLE ,RECEPTACLE ,SMD ,R/TP ,		
6	D100	DIODE,SWITCHING	EDSY0010001	UMD2 ,30 V,2 A,R/TP ,SCHOTTKY BARRIER DIODE		
6	FB1	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
6	FB2	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
6	FB3	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
6	FL300	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL301	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL400	FILTER,SAW,DUAL	SFSB0001301	881.5 MHz,25 MHz,1.8 dB,30 dB,1960 MHz,60 MHz,2.3 dB,12 dB,2.0*1.6*0.68 ,SMD ,869M~894M,1930M~1990M,10p,B,150_82,150_18,GSM850+PCS Rx ,; ,881.5, 1960 ,2.0*1.6*0.68 ,SMD ,R/TP		
6	FL401	FILTER,SEPERATOR	SFAY0010101	850.1900 ,900.1800 ,2.0 dB,2.0 dB,2.0 dB,2.0 dB,ETC ,Dual Band ASM, 2.5x2.5x1.2		
6	J100	CONN,SOCKET	ENSY0015301	6 PIN,ETC , ,2.54 mm,H=2.9		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	L100	INDUCTOR,CHIP	ELCH0010628	100 nH,J ,1005 ,R/TP ,		
6	L101	INDUCTOR,CHIP	ELCH0010628	100 nH,J ,1005 ,R/TP ,		
6	L102	INDUCTOR,CHIP	ELCH0010628	100 nH,J ,1005 ,R/TP ,		
6	L103	INDUCTOR,SMD,POWER	ELCP0010001	2.2 uH,M ,2.5x2.0x1.0 ,R/TP ,chip MLCI ,; , ,20% , , , , , ,NON SHIELD ,2.5X2X1MM ,[empty] ,R/TP		
6	L300	INDUCTOR,CHIP	ELCH0010628	100 nH,J ,1005 ,R/TP ,		
6	L400	INDUCTOR,CHIP	ELCH0003826	3.3 nH,S ,1005 ,R/TP ,chip		
6	L401	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,		
6	L402	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,		
6	L403	INDUCTOR,CHIP	ELCH0004714	18 nH,J ,1005 ,R/TP ,		
6	L404	INDUCTOR,CHIP	ELCH0001048	10 nH,J ,1005 ,R/TP ,PBFREE		
6	L406	INDUCTOR,CHIP	ELCH0001048	10 nH,J ,1005 ,R/TP ,PBFREE		
6	L408	INDUCTOR,CHIP	ELCH0001032	18 nH,J ,1005 ,R/TP ,PBFREE		
6	L409	INDUCTOR,CHIP	ELCH0004713	6.8 nH,J ,1005 ,R/TP ,		
6	L410	INDUCTOR,CHIP	ELCH0004713	6.8 nH,J ,1005 ,R/TP ,		
6	L411	INDUCTOR,CHIP	ELCH0004713	6.8 nH,J ,1005 ,R/TP ,		
6	PT400	THERMISTOR	SETY0006501	NTC ,22000 ohm,SMD ,1005, ECTH 1005 Series, Pb Free		
6	Q300	TR,BJT,ARRAY	EQBA0000406	SC-70 ,0.2 W,R/TP ,CDMA,Common use		
6	R101	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R109	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000245	220 Kohm,1/16W ,F ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000213	120 Kohm,1/16W ,F ,1005 ,R/TP		
6	R118	RES,CHIP	ERHY0013401	1.5 Mohm,1/16W ,F ,1005 ,R/TP		
6	R119	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R120	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R121	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R122	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R123	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R124	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R125	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R126	RES,CHIP,MAKER	ERHZ0000512	82 ohm,1/16W ,J ,1005 ,R/TP		
6	R127	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R129	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R132	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F ,1005 ,R/TP		
6	R133	RES,CHIP,MAKER	ERHZ0000478	3.3 ohm,1/16W ,J ,1005 ,R/TP		
6	R137	RES,CHIP,MAKER	ERHZ0000316	750 Kohm,1/16W ,F ,1005 ,R/TP		
6	R140	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R147	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000319	8200 ohm,1/16W ,F ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000319	8200 ohm,1/16W ,F ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R227	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R231	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R233	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R234	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R309	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R316	RES,CHIP,MAKER	ERHZ0000268	33 Kohm,1/16W ,F ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000231	180 Kohm,1/16W ,F ,1005 ,R/TP		
6	R318	RES,CHIP	ERHY0000137	27K ohm,1/16W,F,1005,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R323	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R324	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP		
6	R331	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R352	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R354	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R368	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R369	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R377	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R378	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R400	RES,CHIP	ERHY0000128	15K ohm,1/16W,F,1005,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R408	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R409	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP	ERHY0000289	270K ohm,1/16W,J,1005,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000310	680 ohm,1/16W ,F ,1005 ,R/TP		
6	R412	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	SW400	CONN,RF SWITCH	ENWY0004401	,SMD , dB,H=2.2		
6	U100	IC	EUSY0284601	BGA ,125 PIN,R/TP ,Triton-Lite ABB		
6	U101	IC	EUSY0285301	BGA ,241 PIN,R/TP ,Locosto GSM/GPRS DBB		
6	U200	IC	EUSY0335701	QFN ,8 PIN,R/TP ,1.2W, Mono, Differencial Audio AMP		
6	U202	IC	EUSY0348901	64NOR MUX 1.8V 90nm+32pSRAM ,56 PIN,R/TP ,7.7*6.2*1.2 ,; ,IC,MCP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	U300	IC	EUSY0292601	DFN ,8 PIN,R/TP ,Li-ion charger IC, 8 Ld 2 x 3 DFN, Pb-free		
6	U400	PAM	SMPY0014001	35.5 dBm,56 %, A, dBc, dB,6x6x1.15 ,SMD ,Tri Band		
6	U401	IC	EUSY0279801	SC70 ,6 PIN,R/TP ,Dual Buffer, Pb Free		
6	U402	IC	EUSY0340301	uMLP ,10 PIN,R/TP ,typ Rdson 0.4ohm, 1.4X1.8 ,; ,IC,Analog Switch		
6	VA201	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA202	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA300	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA301	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA302	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	VA308	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		
6	X100	X-TAL	EXXY0004601	.032768 MHz,20 PPM,7 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		
6	X101	X-TAL	EXXY0024102	26 MHz,10 PPM,12.5 pF,34 ohm,SMD ,3.5*2.5*0.6 ,Optimized for TI LOCOSTO ,; , ,10PPM , , , ,SMD ,R/TP		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0099301			
6	C216	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C217	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C310	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	LD200	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD201	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD202	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD203	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD204	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD205	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD206	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD207	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	LD208	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	LD209	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,		
6	Q200	TR,BJT,NPN	EQBN0007101	EMT3 ,0.15 W,R/TP ,LOW FREQUENCY		
6	R217	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R221	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R222	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R223	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R224	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R225	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R226	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R230	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R232	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	SPFY00	PCB,MAIN	SPFY0161801	FR-4 ,0.8 mm,BUILD-UP 6 , ,; , , , , , , , , ,		
6	U301	IC	EUSY0313401	QFN ,4 PIN,R/TP ,1.8X1.2X0.5 size wide input voltage Hall Switch		
6	VA200	VARISTOR	SEVY0007901	5.6 V,20% ,SMD ,PB-FREE(480pF)		

11.3 Accessory

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

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0089501	3.7 V,750 mAh,1 CELL,PRISMATIC ,WLT(KG278) BATT, USA Label, Pb-Free ,; ,3.7 ,750mAh ,0.2C ,PRISMATIC ,43x34x46 , ,ALLTEL SILVER ,Innerpack ,America Label		
3	SSAD00	ADAPTOR,AC-DC	SSAD0024401	100-240V ,5060 Hz,5.1 V,.7 A,UL/CSA ,AC-DC ADAPTOR ,; ,85Vac ~ 264Vac ,5.1V +0.15, -0.2V ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0024402	100-240V ,5060 Hz,5.1 V,0.7 A,UL/CSA ,AD-DC ADAPTOR ,; ,85Vac~264Vac ,5.1 +0.15, -0.2V ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0024403	100-240V ,5060 Hz,5.1 V,.7 A,UL/CSA ,AC-DC ADAPTOR ,; ,85Vac~264Vac ,5.1V (+0.15V, -0.2V) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0024404	100-240V ,5060 Hz,5.1 V,.7 A,UL/CSA ,AC-DC ADAPTOR ,; ,85Vac~264Vac ,5.1 (+0.15V, -0.2V) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		

Note