Service Manual

Internal Use Only

Service Manual

LG-C320

Model : LG-C320

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1. INTRODUCTION

1.1 Purpose

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

1.2 Regulatory Information

A. Security

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

B. Incidence of Harm

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

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the phones or compatibility with the net work, 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 phones must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

E. Notice of Radiated Emissions

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

F. Pictures

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

G. Interference and Attenuation

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

H. Electrostatic Sensitive Devices

ATTENTION

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

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

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

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

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

2. PERFORMANCE

2.1 Product Name

C320 : EGSM/GSM850/DCS/PCS

(GPRS Class 12 / EDGE Class 12)

2.2 Supporting Standard

Item	Feature	Comment
Supporting Standard	EGSM/GSM850/DCS1800/PCS1900 with seamless handover Phase 2+(include AMR) SIM Toolkit : Class 1, 2, 3, C-E	
Frequency Range	EGSM TX : 880 – 915 MHz EGSM RX : 925 – 960 MHz GSM850 TX : 824 – 849 MHz GSM850 RX : 869 – 894 MHz DCS1800 TX : 1710 – 1785 MHz DCS1800 RX : 1805 – 1880 MHz PCS1900 TX : 1850 – 1910 MHz PCS1900 RX : 1930 – 1990 MHz	
Application Standard	WAP 2.0, JAVA 2.0	

2.3 Main Parts : GSM Solution

Item	Part Name	Comment
Digital Baseband	ESC6270 : Qualcomm	
Analog Baseband	ESC6270 : Qualcomm	
RF Chip	ESC6270 : Qualcomm	

2.4 HW Features

Item		Feature	Comment
Form Factor		Slide type	
Battery		1) Capacity Standard : Li-Ion, 900 mAh	
		2) Packing Type : Soft Pack	
Size		Standard : 91 x 63 x 15.9 mm	
Weight		115.6g	With Battery
Volume		TBD	
PCB		Stag type, 10 Layers , 0.8t	
Stand by time		Up to 300 hrs	@ Paging Period 5
Charging time		Up to 3 hrs	@
Talk time		2G Up to 3.4hr	@ Tx=Max(2G)
RX sensitivity		EGSM : -105 dBm GSM850 : -105 dBm DCS 1800 : -105 dBm PCS 1900 : -105 dBm	
TX output power	GSM/ GPRS	EGSM : 33dBm GSM850 : 33 dBm DCS 1800 : 30 dBm PCS 1900 : 30 dBm	Class4 (EGSM) Class4 (GSM850) Class1 (PCS) Class1 (DCS)
	EDGE	GSM 900 : 27 dBm GSM 850 : 27 dBm DCS 1800 : 26 dBm PCS 1900 : 26 dBm	E2 (GSM900) E2 (GSM850) E2 (PCS) E2 (DCS)
GPRS compatibility		GPRS Class 12	
EDGE compatibility		EDGE Class 12	
SIM card type		Plug-In SIM 3V /1.8V	
Display		2.4"TFT QVGA landscape	
Built-in Camera		2M FF SOC Camera	
Status Indicator		Yes	
Keypad			
ANT		Main : Internal Fixed Type	
System connector		5 Pin	
Ear Phone Jack		3.5Phi, 4 Pole, Stereo	
PC synchronization		Yes	
Memory		NAND Flash : 2Gbit SDRAM : 1Gbit	
Speech coding		FR, EFR, HR,AMR	
Data & Fax		Built in Data & Fax support	
Vibrator		Built in Vibrator	
BlueTooth		V2.1 + EDR	
MIDI(for Buzzer Function)		SW Decoded 64Poly	

Music Player	MP3/AAC/AAC+/WMA	
Video Player	PEG4, H.263,H.264 30fps@QVGA WMV 15fps@QCIF	
Camcorder	MPEG4, 15fps@QVGA	
Voice Recording	Yes	
Speaker Phone mode Support	Yes	
Travel Adapter	Yes	
CDROM	No	
Stereo Headset	Yes	
Data Cable	Yes	
T-Flash (External Memory)	Yes	

2.5 SW Features

Item	Feature	Comment
RSSI	0 ~ 7 Levels	
Battery Charging	0 ~ 3 Levels	
Key Volume	0 ~ 7 Level	
Audio Volume	1 ~ 20 Level	
Time / Date Display	Yes	
Multi-Language	Yes	English / Chinese Trad. / Chinese Simp. / Thai / Korean / Malay / Indonesian / Vietnamese
Quick Access Mode	Dialing / Contact / Menu / Message / Camera	
PC Sync	Yes	PC suite 4
Speed Dial	Yes	Voice mail center -> 1 key
Profile	Yes	not same with feature phone setting
CLIP / CLIR	Yes	
Phone Book	Name + 5 Numbers + 1 Memo + 2 e-mail + 3 Group Select + Picture + Ringtone + Anniversary day	1000 + SIM
Last Dial Number	Yes	Total Call DB Max 100 LDN (SIM) N/A
Last Received Number	Yes	Total Call DB Max 100 LDN (SIM) N/A
Last Missed Number	Yes	Total Call DB Max 100 LDN (SIM) N/A
Search by Number / Name	Name and Number	
Group	Yes	30
Fixed Dial Number	Yes	
Service Dial Number	No	
Own Number	Yes	Read only (add/edit/delete are not supported)
Voice Memo	Yes	Support voice recorder
Call Reminder	Yes	
Network Selection	Automatic	
Mute	Yes	
Call Divert	Yes	
Call Barring	Yes	
Call Charge (AoC)	Yes	
Call Duration	Yes	
SMS (EMS)	Yes (1000+SIM)	EMS : Release4 (Except Text align)
SMS Over GPRS	Yes	
EMS Melody / Picture Send / Receive / Save	Yes (Receive only)	
MMS MPEG4 Send / Receive / Save	Yes	
Long Message	MAX 1000 Characters	SMS 7pages

Cell Broadcast	Yes	
Download	Over the WAP	
Game	Yes	
Calendar	Yes	
Memo	Yes	100
World Clock	Yes	
Unit Convert	Yes	
Stop Watch	Yes	
Wall Paper	Yes	
WAP Browser	Over WAP 2.0	Obigo
Download Melody / Wallpaper	Yes	Over WAP
SIM Lock	Yes	Operator Dependent
SIM Toolkit	Yes	R99
MMS	Yes	Obigo +LG MMS Client
EONS	No	
CPHS	Yes	V4.2
ENS	No	
Camera	Yes	2M FF
JAVA	Yes	CLDC V1.1 / MIDP V2.1 Download Over WAP
Voice Dial	No	
IrDa	No	
Bluetooth	Yes	BT 2.1+EDR HFP/HSP/A2DP&AVRCP /OPP/BPP/PBAP/SPP/
FM radio	Yes	
GPRS	Yes	Class 12
EDGE	Yes	Class 12
Hold / Retrieve	Yes	
Conference Call	Yes	Max. 6
DTMF	Yes	
Memo pad	Yes	
TTY	No	
AMR	Yes	
SyncML	No	
IM	Yes	JAVA midlet (neustar)
Email	Yes	

2.6 HW SPEC.

1) GSM transceiver specification

Item	Specification
Phase Error	Rms : 5° Peak : 20 °
Frequency Error	GSM : 0.1 ppm DCS/PCS : 0.1 ppm
EMC(Radiated Spurious Emission Disturbance)	GSM/DCS : < -28dBm
Transmitter Output power and Burst Timing	GSM : 5dBm – 33dBm ± 3dB DCS/PCS : 0dBm – 30dBm ± 3dB
Burst Timing	<3.69us
Spectrum due to modulation out to less than 1800kHz offset	200kHz : -36dBm 600kHz : -51dBm/-56dBm
Spectrum due to modulation out to larger than 1800kHz offset to the edge of the transmit band	GSM : 1800-3000kHz :< -63dBc(-46dBm) 3000kHz-6000kHz : <-65dBc(-46dBm) 6000kHz < : < -71dBc(-46dBm) DCS : 1800-3000kHz :< -65dBc(-51dBm) 6000kHz < : < -73dBc(-51dBm)
Spectrum due to switching transient	400kHz : -19dBm/-22dBm(5/0), -23dBm 600kHz : -21dBm/-24dBm(5/0), -26dBm
Reference Sensitivity – TCH/FS	Class II(RBER) : -105dBm(2.439%)
Usable receiver input level range	0.012(-15 - -40dBm)
Intermodulation rejection – Speech channels	± 800kHz, ± 1600kHz : -98dBm/-96dBm (2.439%)
AM Suppression – GSM : -31dBm - DCS : -29dBm	-98dBm/-96dBm (2.439%)
Timing Advance	± 0.5T

2.7 C320 Figures

3. TECHNICAL BRIEF

3.1 General Description

QSC6270 (3G disable)has all eight major functional blocks as like Figure 3.1

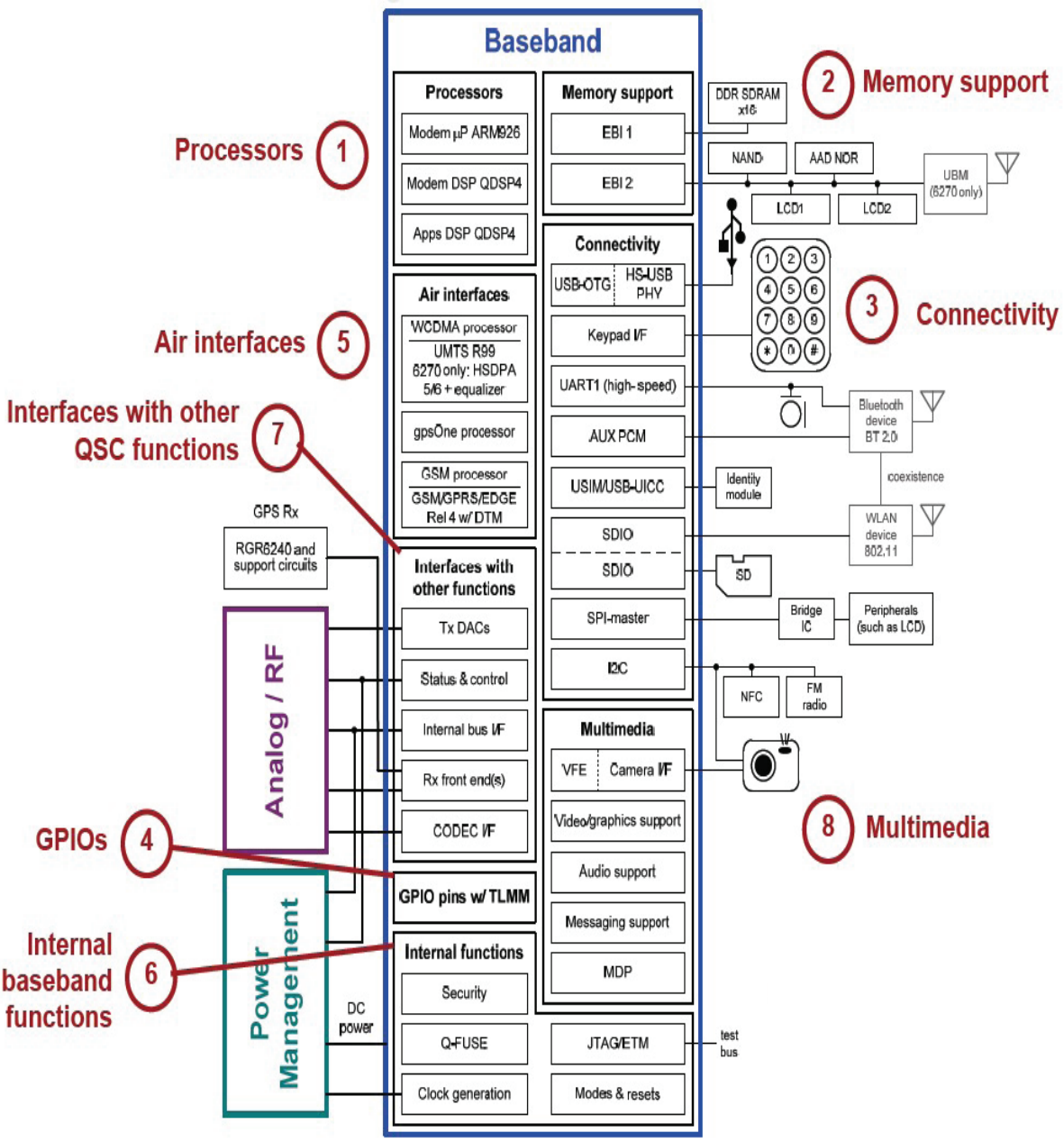


Figure 3.1 QSC6270(3G disable) Base band block

3.1.1 Processor

The QSC6270(3Gdisable) device integrates multiple processors on-chip: one ARM microprocessor and two DSP processors. Each processor is part of a functional subsystem:

- ☐ The micro subsystem includes the ARM926EJ-S microprocessor.
- ☐ The modem subsystem includes the QDSP4u8 digital signal processor (mDSP).
- ☐ The application subsystem includes the QDSP4u8 application digital signal processor(aDSP).

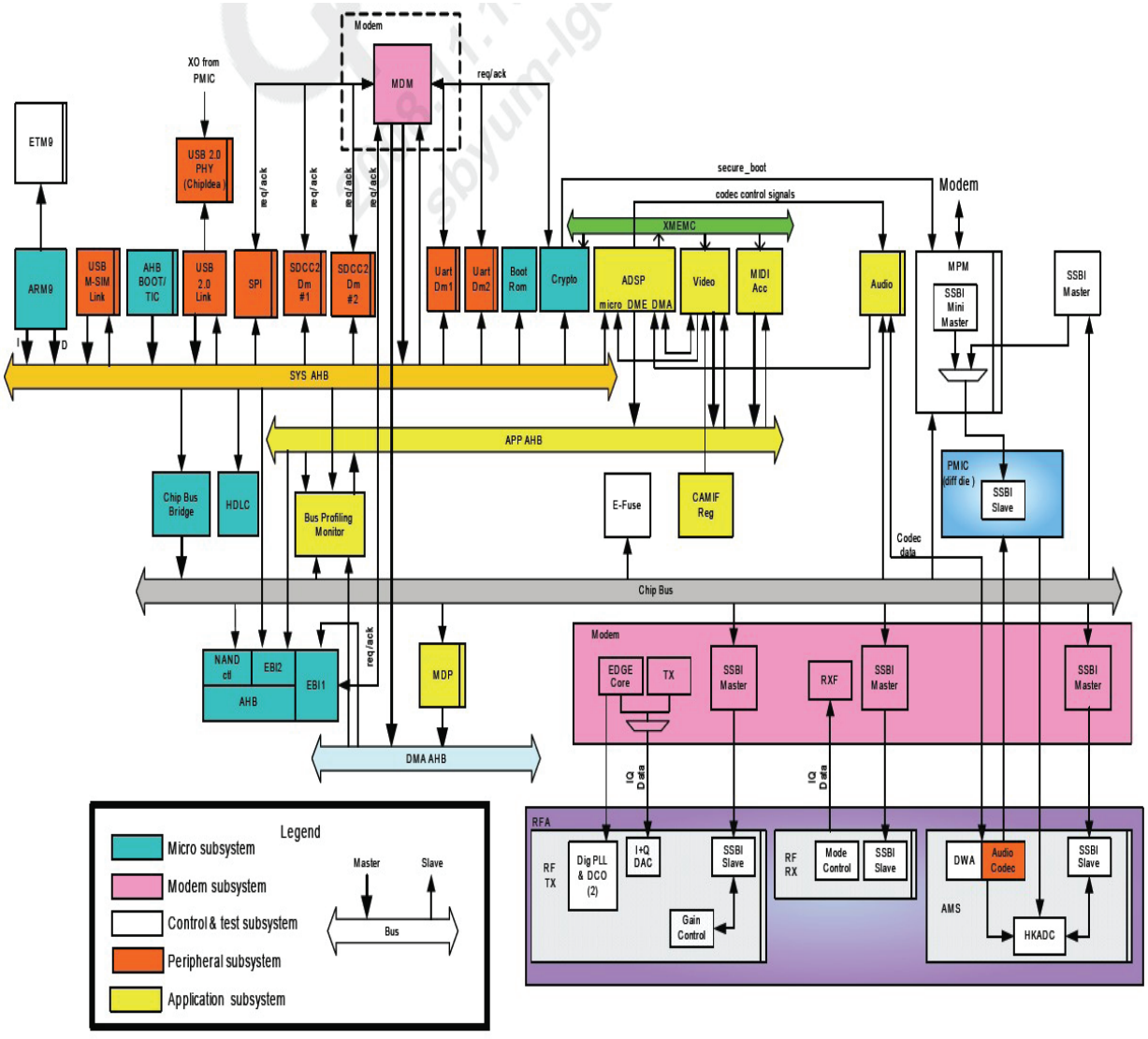


Figure 3.1.1 Processors and bus architecture

3.1.2 Memory support (and LCD interface)

The QSC62x0 device has two external bus interface (EBI) ports: EBI1 and EBI2.

EBI1 supports high-speed synchronous dynamic devices. Its memory controller supports the new mobile DDR SDRAM memories with its higher bandwidth and ability to run at high clock frequencies. This interface supports the high-bandwidth, high-density, and low-latency requirements of the QSC's advanced on-chip capabilities such as the ARM9 processor, highperformance graphics, and video applications.

EBI2 is the slower speed interface intended to support memory devices such as NAND flash and asynchronous SRAM, peripheral devices such as LCDs, and the UBM receiver for multicast or broadcast reception (QSC6270 only). In addition, EBI2 is required to support a synchronous-burst AAD NOR flash to enable a NOR/DDR SDRAM memory configuration because the simultaneous mode (NOR, SDRAM) is not supported on the EBI1 bus.

The ARM926EJ-S microprocessor is a cached processor and all its accesses to external memory use burst techniques of four or eight 32-bit words when the memory region is declared to be cacheable/bufferable. To take advantage of this QSC higher performance feature, data from memories must satisfy the requirements for these burst accesses.

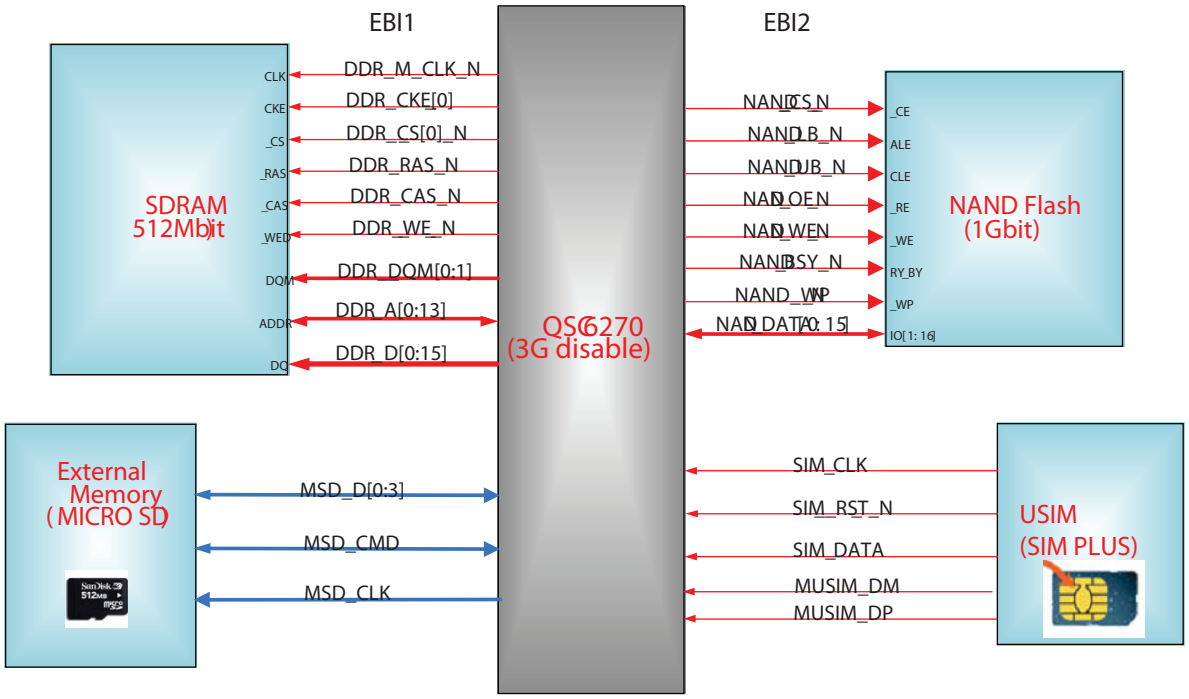


Figure 3.1.2.1 The memory control blocks of C320

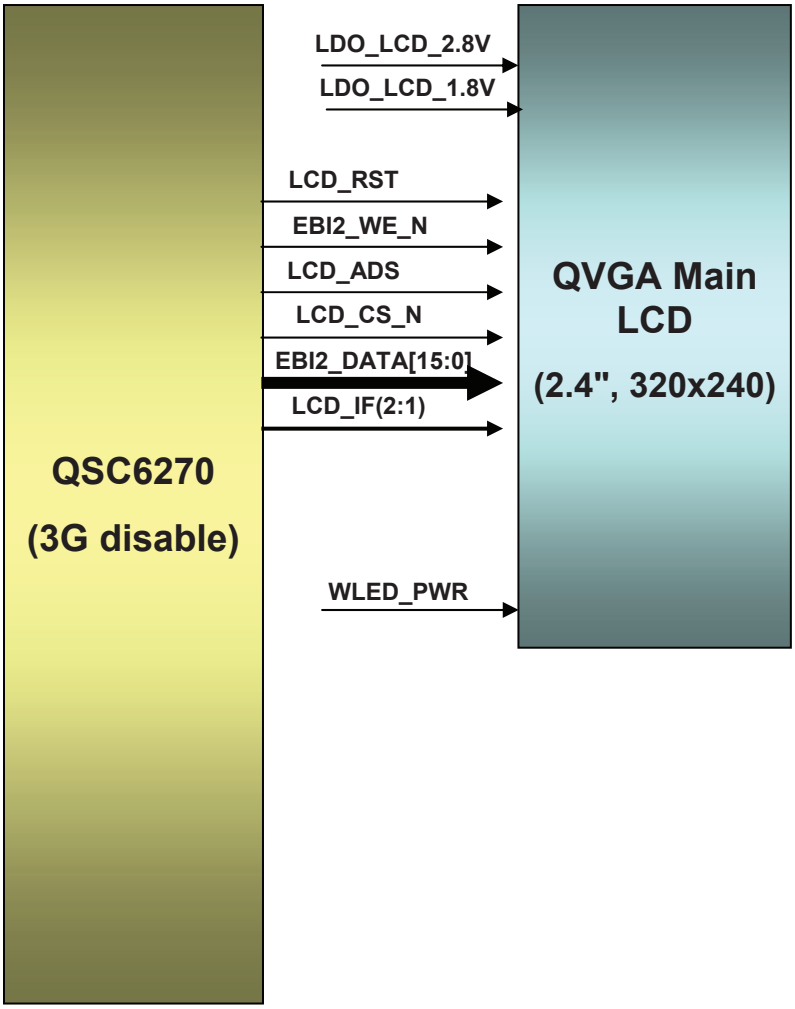


Figure 3.1.2.2 The LCD interfaces of C320

3.1.3 Connectivity

QSC6270 has connectivity features as below

– USB-OTG; USB LS, FS, and HS (2.0 compliant)
– I2C compatible for peripheral controls (1.8 V)
– UART: up to 4 Mbps
– Bluetooth 2.0 support via external SoC
– WLAN via external device (SDIO)
– NFC via external module (I2C)
– FM radio via external module (I2C)
– USIM, SIM, and USB-UICC support; 1.8 and 3 V
– Keypad interface
– SPI (master only) for peripheral support
– Two secure digital controllers — WLAN and secure digital (SD) cards

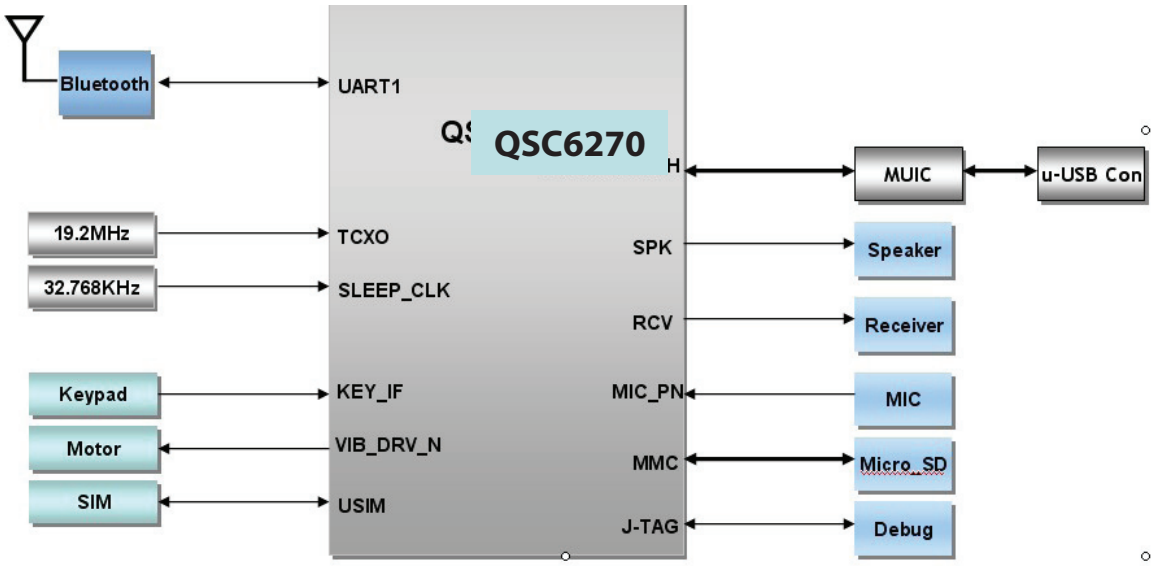


Figure 3.1.3 The connectivity of BL20

3.1.4 GPIOs

QSC6270 (3G disable has 78 configurable I/O pins

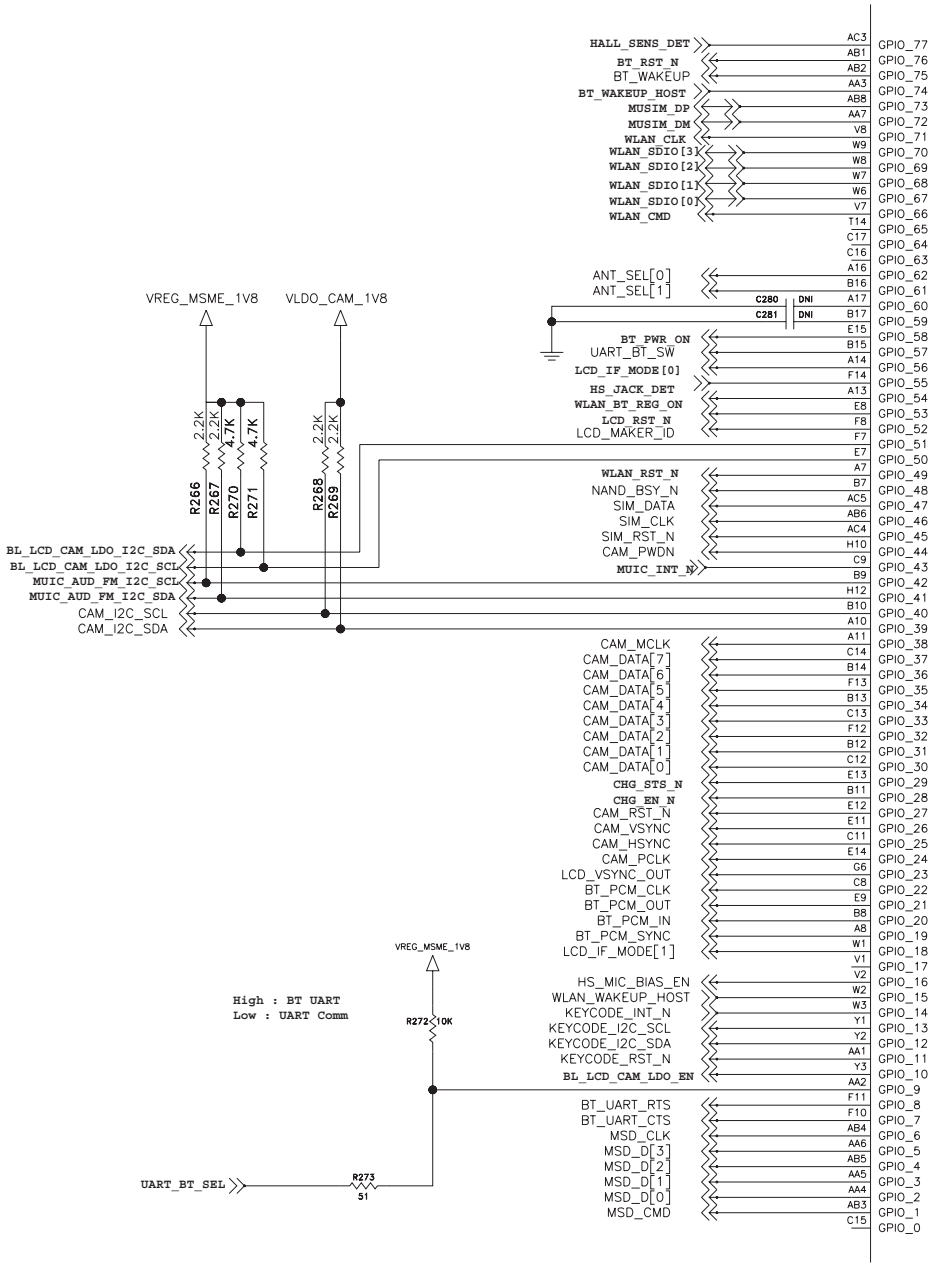


Figure 3.1.4 GPIOs of C320

3.1.5 Air interfaces

The supported air-interface standards and features include: (See the RF technical description)

☐ *GSM/GPRS/EDGE Specification Release 4* (3GPP R4)
☐ Enhanced GPS position location using gpsOne (with RGR6240 IC)
☐ Integrated gpsOne functionality, featuring enhancements by SnapTrack®, Inc., to enable a wide variety of location-based services and applications, including points of interest, personal navigation, and friend finder
☐ Simultaneous-GPS (processes GPS using dedicated circuitry while voice and/or data signals continue to be processed separately)
☐ 1024x searcher, direct facility termination (DFT) accelerator, off-chip RAM for measured data storage

3.1.6 Internal base band functions

Several baseband circuits within the QSC6270(3G disable)device provide functions that are necessary only to make the device operate properly — these functions are not generally used directly by other handset circuits and functions.

☐ PLLs and clock generation
☐ Modes and resets
☐ Security
☐ Qfuse
☐ JTAG/ETM

The clock block includes two PLLs, all phase-locked to the TCXO signal. These PLLs generate several different stable, low-jitter clock signals that are distributed throughout the QSC device and to external c omponents as needed.
All the required WCDMA, GSM, GPS(only QSC6270), ARM, QDSP, and most peripheral clocks are derived in some way from the TCXO (or XO) source for their operating modes, plus the 32.768 kHz oscillator for their sleep modes

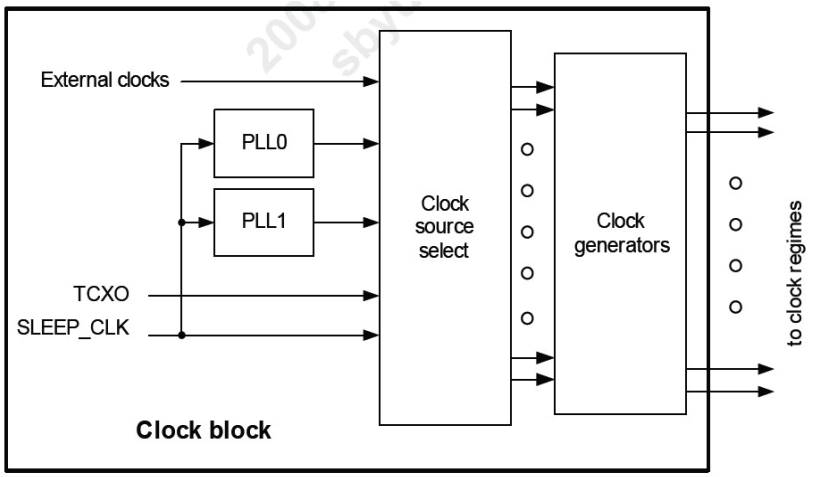


Figure 3.1.6 Clock block basic architecture of QSC6270(3G disable)

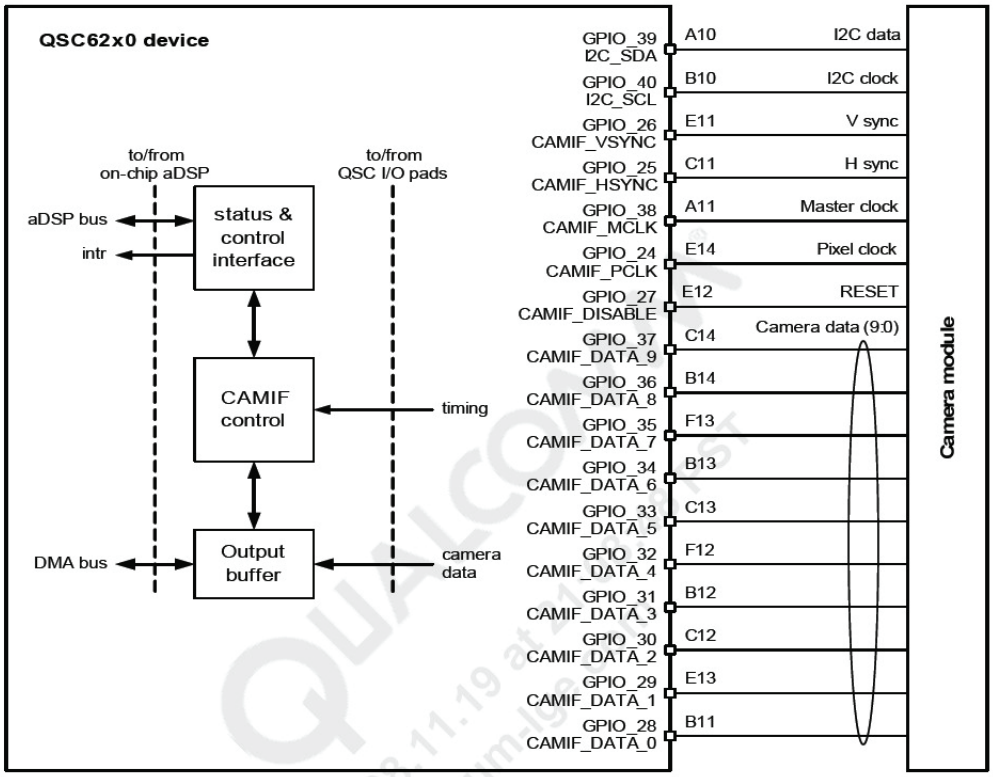
3.1.7 Multimedia

Multimedia topics are as below in QSC6270, including:
☐ Camera interface and video front-end
☐ Mobile display processor
☐ Additional multimedia support: video, audio, graphics, and messaging

3.1.7.1 Camera interface and video front-end

The camera interface (CAMIF) connects the QSC62x0 device directly to a camera sensor. Typical applications include Qcamera, Qcamcorder, and QvideophoneThe CAMIF delivers the raw 10-bit Bayer pattern data (preferred) to the video front-end (VFE) that performs the required image processing (RGB-triplet generation, color-space conversion, auto-white balance, auto exposure, gamma correction, etc.) and prepares the image for capture or transmission. The QSC device also supports a YUV 4:2:2 input from the sensor (8-bit, 2:1 MUX YUV or CCIR656 YUV).

The video capabilities of the two QSC devices varies slightly, with the QSC6270 providing higher performance than the QSC6270 device — greater resolution, higher capture and streaming rates, etc.



3.1.7.2 Mobile display processor

The MDP is a hardware accelerator primarily responsible for transferring an updated image from the QSC memory subsystem to the LCD module. The transferring of an updated image is an operation that is shared between software, video processing, and graphics processing, so a common block helps to reduce redundant circuitry. The MDP is designed with the assumption that the LCD panel has an embedded LCD controller and a frame buffer. The image transfer is then the copying of the image from the QSC memory system to the frame buffer within the LCD module.

While the MDP is transferring an image to the LCD module, it can perform a final set of operations to the image. The set of operations that the MDP can perform has been chosen to maximize the efficiency of the QSC memory subsystems, typically removing two or more copy operations of the image to and from memory.

The MDP reduces redundant circuitry and offloads the ARM and aDSP from memory-transfer operations and a certain set of graphics and video operations

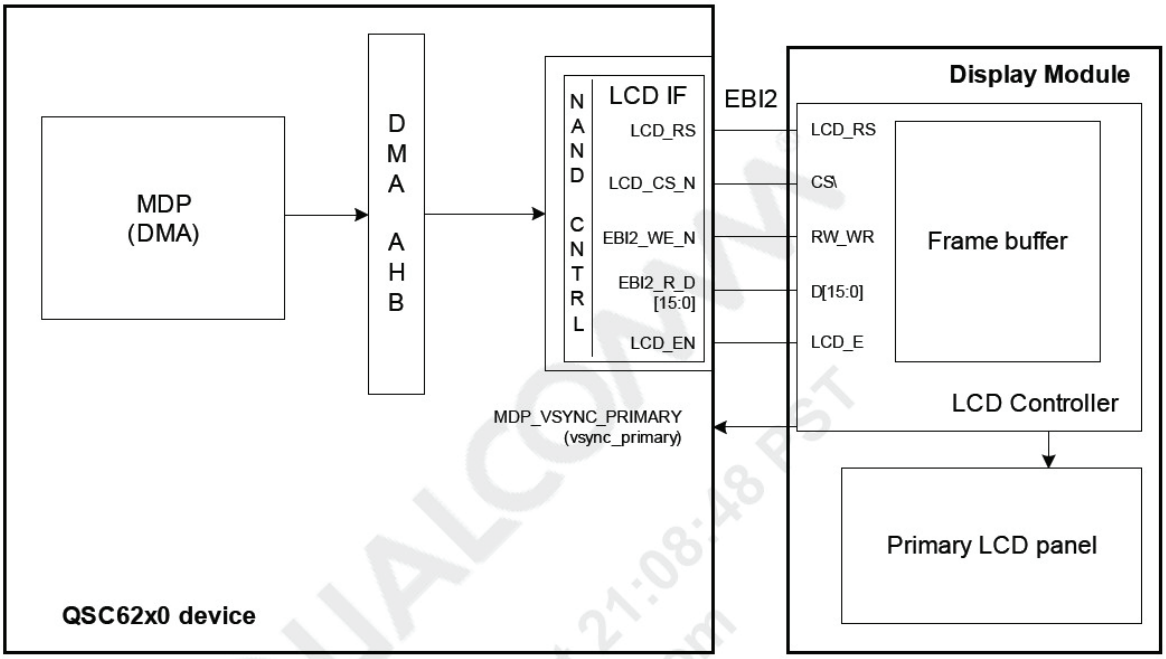


Figure 3.1.7.2.1 MDP-to-LCD interface functional block diagram

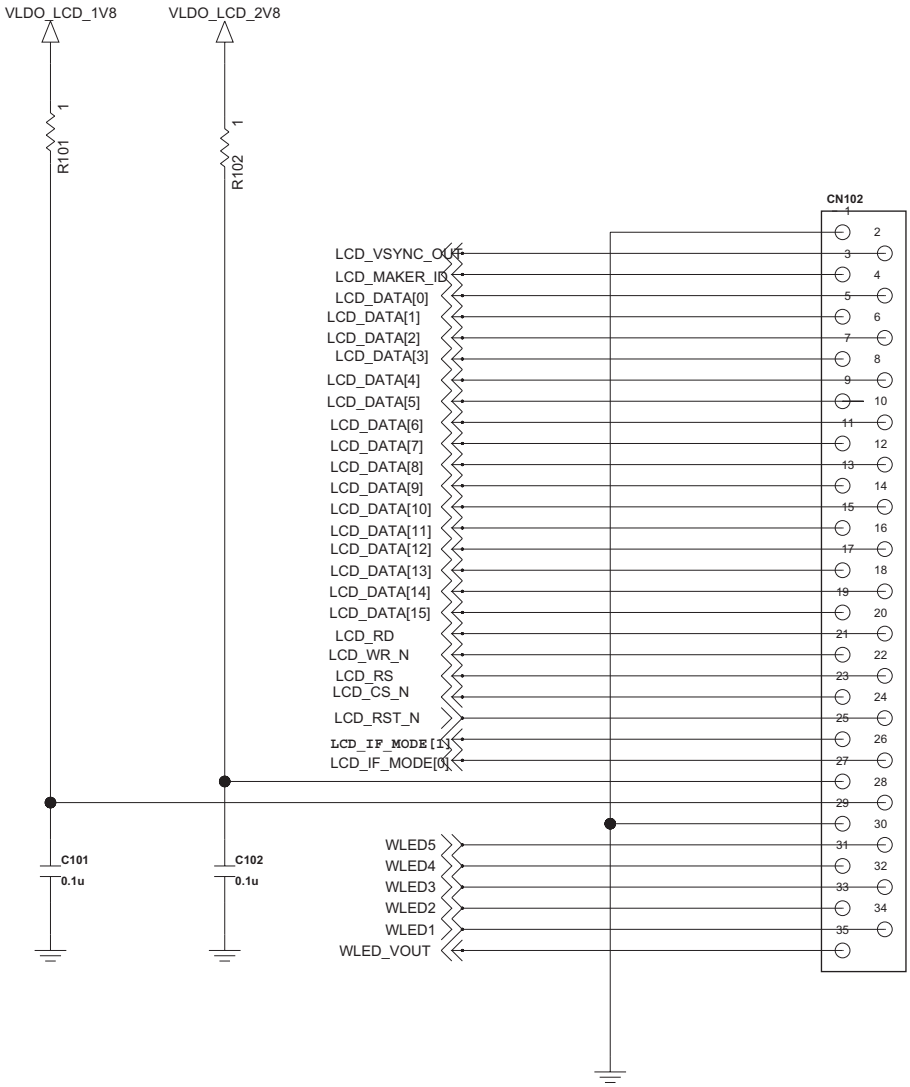


Figure 3.1.7.2.2 The LCD interface of C320

3.1.8 UART

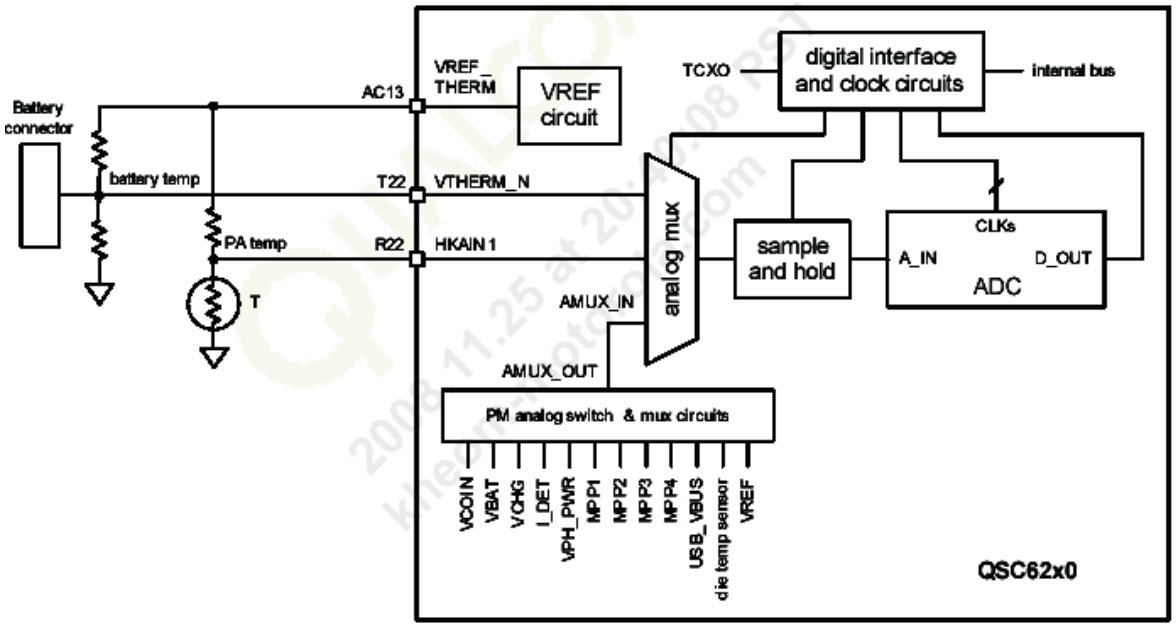
■ One universal asynchronous receiver transmitter (UART) port that supports low-speed, full-speed, and high-speed modes
■ Serial data port communications that conform to the RS-232 interface protocol
■ Used for data transport during Bluetooth operation (BTS402x™ SoC required)
■ Other possible uses:
– Test and debug
– External keypad
– Ringer
– Load/upgrade system software
■ Separate FIFOs for Rx and Tx
■ Supporting circuits include:
– Interrupt control
– Clock source
– Bit-rate generator (BRG)
– Microprocessor interface
■ Flow control is not available on UART2 (behind USIM)

3.1.9 USB

■ Each USB link has a host and a peripheral; the host is responsible for initiating and controlling bus traffic
■ The USB specification requires PCs to act as hosts, and other devices such as printers, keyboards, mice, etc., to act as peripherals
■ USB 2.0 implementation defines three modes
- Low-speed (LS): 1.5 Mbps
- Full-speed (FS): 12 Mbps
- High-speed (HS): 480 Mbps
■ The QSC62x0 is compliant with the USB 2.0 specification
- All three modes are supported when acting as a host
- FS and HS are supported when acting as a peripheral
■ The QSC62x0 has two USB controllers
- Primary USB controller
- Secondary USB controller
■ The primary USB controller is supplemented by an integrated physical layer (PHY)

3.1.10 HKADC

The HKADC includes an analog multiplexer that selects an input for the sample and hold circuit. One of three inputs can be selected:
HKAIN1, pin R22 – an external connection that is available as a general-purpose input, though it is often used to monitor the power amplifier(s) temperature.
An on-chip connection to the power management circuit's analog multiplexer output. This allows monitoring of:
-. Key power supply nodes such as VBAT, VCHG, etc.
-. Multipurpose pins (when configured as analog inputs)
-. A few on-chip parameters such as the die temperature or VREF



QSC6270HKADC Block diagram

3.2 Power management

3.2.1 Input power management

☐ Valid external supply attachment and removal detection
☐ Unregulated (closed-loop) external charger supply as input power source
☐ Integrated PFET charging pass transistor; eliminated sense resistor
☐ Support for lithium-ion and lithium-ion polymer main batteries; nickel-based batteries are not supported
☐ Trickle, constant current, constant voltage, and pulse charging of the main battery
☐ Autonomous charging option – driven by an on-chip state machine without software intervention
☐ Software-controlled charging option – backwards-compatible with previous QSC and PM products
☐ Coin-cell battery (including charging)
☐ Battery-voltage detectors with programmable thresholds
☐ VDD collapse protection
☐ Charger-current regulation and real-time monitoring for overcurrent protection
☐ Charger-transistor protection by thermal control
☐ Control drivers for the internal charging PFET and external battery PFET
☐ Voltage, current, and thermal control loops
☐ Automated recovery from sudden momentary power loss (requires external32.768 kHz crystal)

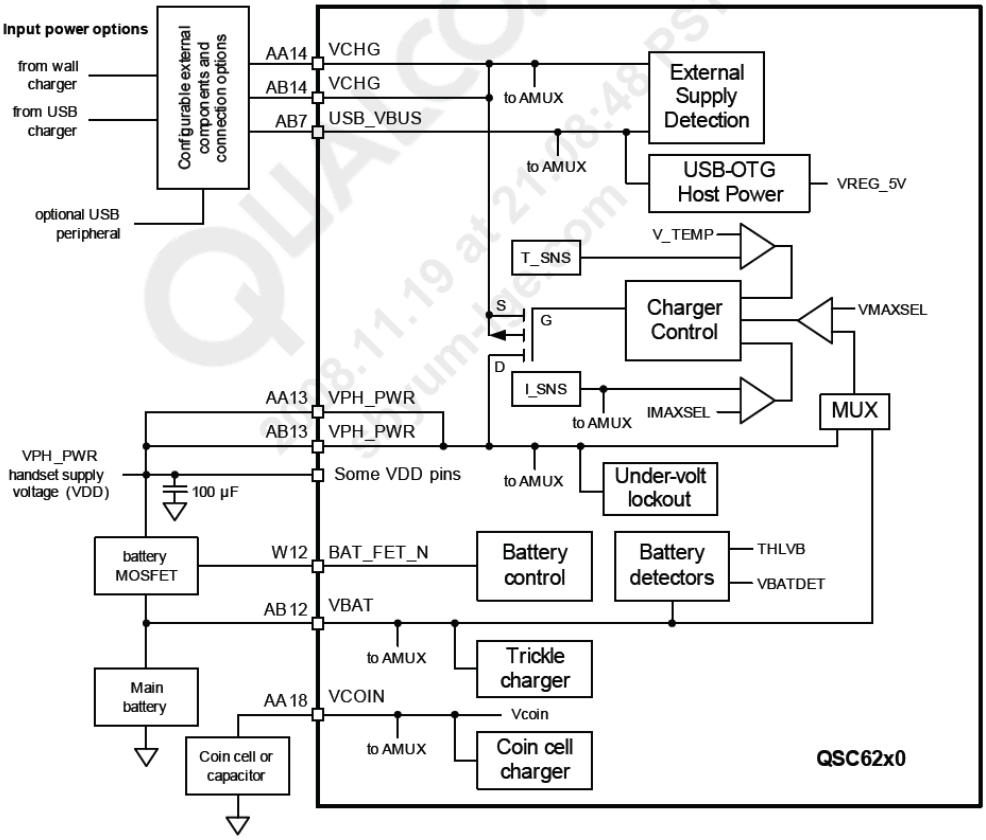


Figure 3.2.1 Input circuits schematic diagram

3.2.2 Output voltage regulation

The QSC62x0 device includes all the regulated voltages needed for most low-cost wireless handset applications (and many other applications). Independent regulated power sources are required for various electronic functions to avoid signal corruption between diverse circuits, support power-management sequencing, and meet different voltage-level requirements. Sixteen voltage regulators are provided — all programmable, all derived from a common bandgap reference circuit.

Three major types of voltage regulator circuits are on-chip:

☐ Three positive voltage switched-mode power supply (SMPS) circuits
- One boost converter (rated for 600 mA)
- Three buck converters (rated for 500 mA each)

☐ Thirteen positive voltage linear regulators
- Four rated for 300 mA
- Six rated for 150 mA
- Three rated for 50 mA

☐ One negative voltage charge pump rated for 200 mA, referred to as a negative charge pump(NCP)

Each regulator has two logic-OR input bits; a logic high at either input enables that regulator:
☐ A master bit that enables all regulators according to their default condition
☐ A dedicated bit that enables only that regulator

The master enable reduces the number of write cycles needed when switching between the phone's sleep and active modes.

Additional comments that apply to regulator functions:
☐ If a regulator's default condition is on, that regulator will power on automatically at QSC startup.
☐ The MSMP regulator must be on to allow internal communications between major functional blocks.
☐ Each regulator and SMPS can provide more than its rated output current, though some performance characteristics might be degraded.
☐ All regulated output voltages are programmable.
☐ All regulators can be set to a low-power mode except the VREG_USB_3P3 and VREG_NCP circuits

Type/name[1] [2]	Default conditions[4]	Voltage range	Intended use
SMPS - boost (600 mA)	Off, 5.000 V	3.000 to 6.100 V	USB-OTG, camera flash, high-power audio
SMPS - buck			
MSMC (500 mA)	On, 1.225 V	0.750 to 3.050 V	Processor core
RF1 (500 mA)	On, 2.300 V	0.750 to 3.050 V	First stage regulator for subregulation set 1
RF2 (500 mA)	On, 1.400 V	0.750 to 3.050 V	First stage regulator for subregulation set 2
Linear - 300 mA			
MSME	On, 1.800 V	1.500 to 3.050 V	EBI circuits and external memory, pads
MSMP[3]	On, 2.600 V	1.500 to 3.050 V	Pad voltage for digital I/Os
RFA	Off, 2.200 V	1.500 to 3.050 V	RF and analog circuits
GP2	Off, 2.900 V	1.500 to 3.050 V	External WLAN circuits
Linear - 150 mA			
RFRX2	Off, 1.300 V	0.750 to 1.525 V	RF receiver circuits
RFTX2	Off, 1.300 V	0.750 to 1.525 V	RF transmitter circuits
CDC2	Off, 1.300 V	0.750 to 1.525 V	Audio codec circuits
MPLL	On, 1.300 V	0.750 to 1.525 V	Digital PLL circuits
USIM	Off, 1.800 V	1.500 to 3.050 V	USIM circuits and interface
GP1	Off, 2.850 V	1.500 to 3.050 V	External Bluetooth circuits
Linear - 50 mA			
TCXO	On, 2.850 V	1.500 to 3.050 V	TCXO and XO circuits
USB_2P6	Off, 2.600 V	1.500 to 3.050 V	USB circuits and interface at 2.6 V
USB_3P3	Off, 3.300 V	3.000 to 6.100 V	USB circuits and interface at 3.3 V
SMPS - NCP (200 mA)	Off, -1.800 V	N/A	Headphone negative voltage supply

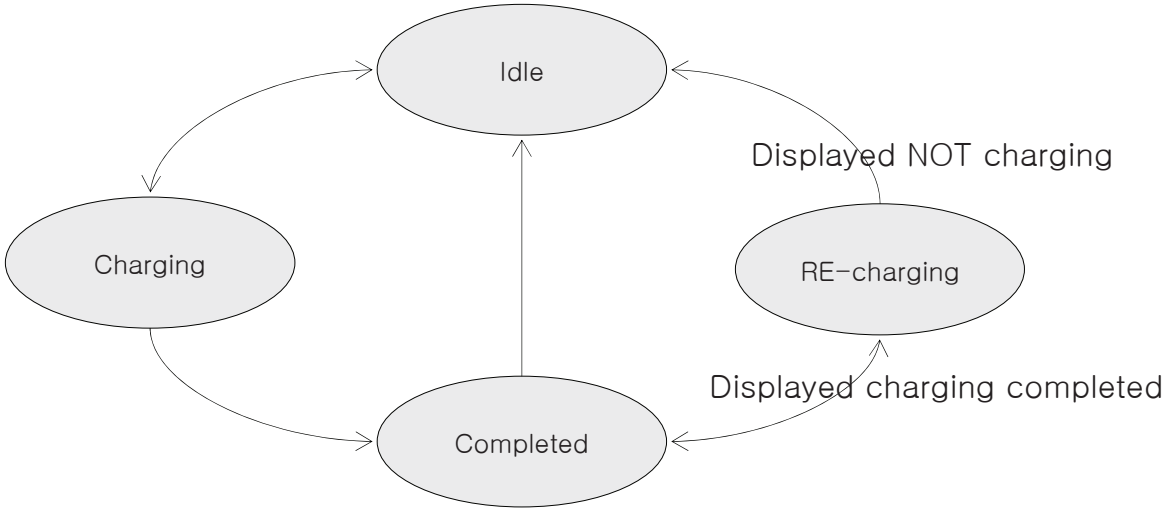
Table 3.2.2 Voltage regulator summary

1. All regulator names are based on their intended use, though some may be used to power alternate functions. For example, the USIM regulator is intended to power an external SIM card but may be used to power other circuits (or not used at all).
2. Each current listed in this table is its regulator's rated value – the current at which the regulator meets all its performance specifications. Higher currents are allowed, but higher input voltages may be required and some performance characteristics may become degraded. See the appropriate regulator sections for details.
3. VREG_MSMP powers key internal circuits and should be kept on at its default voltage setting.
4. All regulators have default output voltage settings, even if they default to an off condition.

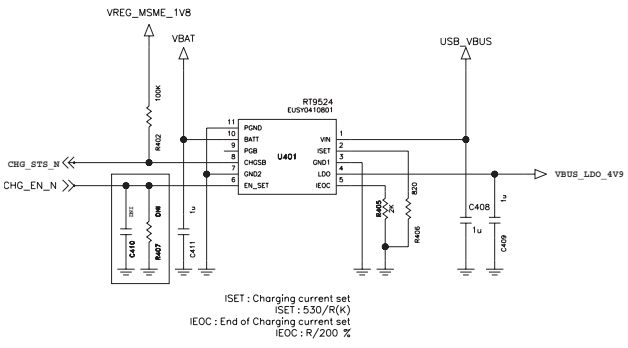
3.2.3 Charging control

C320 use single Charger.

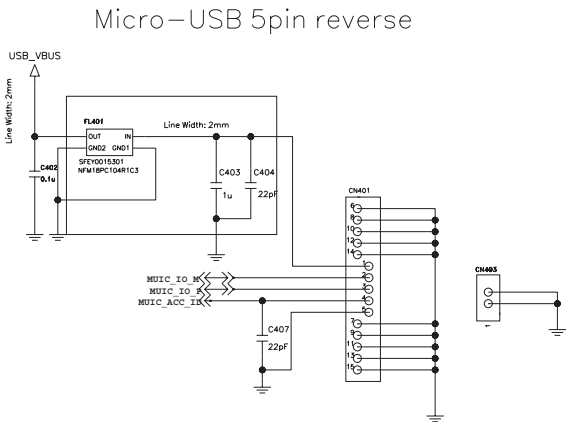
- Single charger has five mode like " OFF / TRICKLE / ISET / USB500 / FACTORY mode".
- Single Charger is working as ISET mode in case of CC(Constant Current), CV(Constant Voltage) mode, as USB 500mode in case of USB Charging.
- FACTORY mode is working only for Factory use.



Single_Charger_Richtek



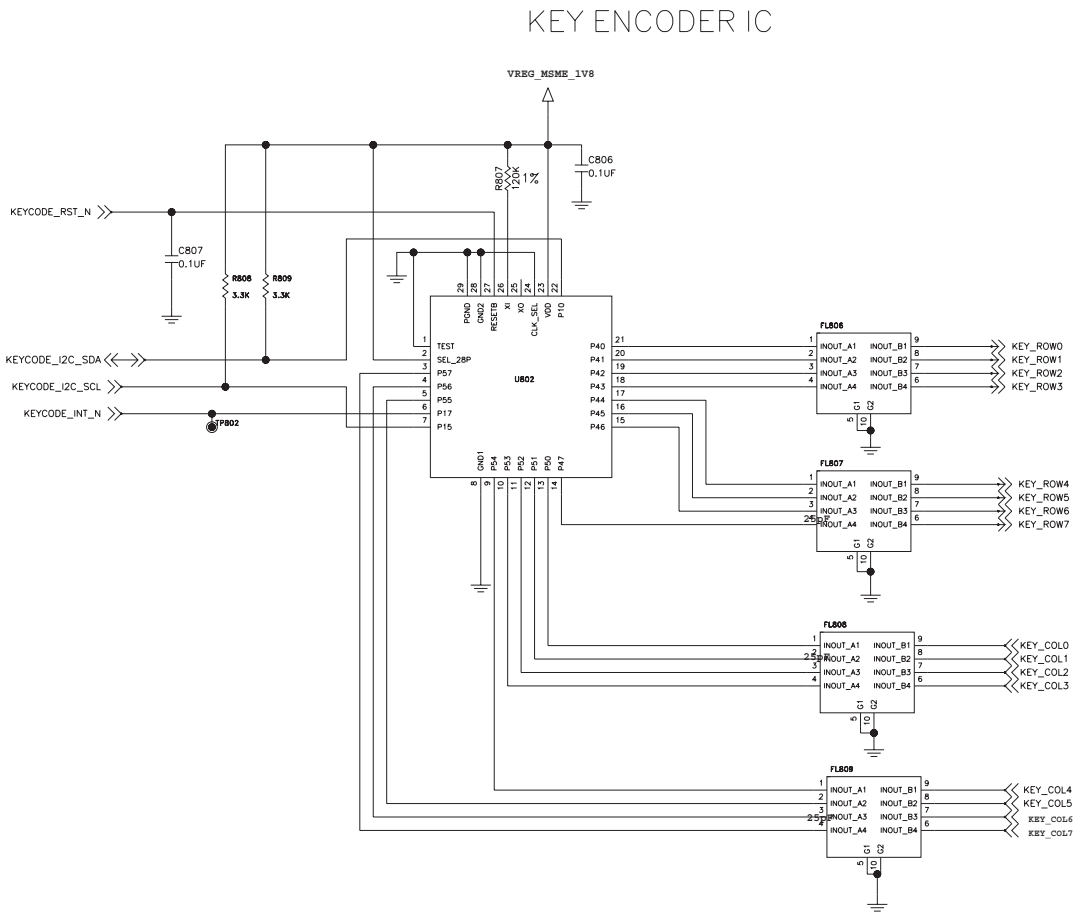
Micro-USB 5pin reverse



3.3 SUB SYSTEM

3.3.1 KEY PAD

C320 have a key-coder IC that supports eight sense lines, or columns, and eight keypad rows.
The device scans and encodes 64 matrix – addressed keys on keypads . Key press and release events are stored in a FIFO buffer with 16 event lengths for uploading to a host processor. The event data stored will indicate the sequence of events and which keys set pressed or released.



3.3.2 External memory interface

The QSC62x0 device has two external bus interface (EBI) ports: EBI1 and EBI2.
EBI1 supports high-speed synchronous dynamic devices. Its memory controller supports the new mobile DDR SDRAM memories with its higher bandwidth and ability to run at high clock frequencies. This interface supports the high-bandwidth, high-density, and low-latency requirements of the QSC's advanced on-chip capabilities such as the ARM9 processor, highperformance graphics, and video applications.
EBI2 is the slower speed interface intended to support memory devices such as NAND flash and asynchronous SRAM, peripheral devices such as LCDs, and the UBM receiver for multicast or broadcast reception (QSC6270 only). In addition, EBI2 is required to support a synchronous-burst AAD NOR flash to enable a NOR/DDR SDRAM memory configuration because the simultaneous mode (NOR, SDRAM) is not supported on the EBI1 bus.

EBI1 Features
EBI1 is a high-performance external memory interface for the QSC62x0 digital block that supports DDR SDRAM devices Specifically, the following memory devices are supported on EBI1:
■ SDRAM
-16-bit low-power DDR SDRAM
-Minimum size per chip-select: 16 MB (128 Mbit)
-Maximum size per chip-select: 128 MB (1 Gbit, 1 k columns only)
Characteristics of the EBI1 clock are listed below:
-Maximum clock rate is 92 MHz, defined by the AMSS software.
-The EBI1 memory controller clock is synchronous to the bus clock (HCLK).

EBI2 Features
EBI2 is used to interface with slower memory and peripheral devices (NAND flash, burst NOR, LCDs, etc.).
The following EBI2 devices are supported:
■ NAND flash
-8/16 bit, single-level cell (SLC)/multi-level cell (MLC) 512/2048-byte page devices
-DMA support
-Boot-up capability from the above devices
■ Burst NOR flash
-16-bit multiplexed AAD burst NOR devices
■ 8/16/18-bit (write only) LCD devices (both Motorola and Intel style)
Characteristics of the EBI2 clock are listed below:
■ The maximum clock rate is 46 MHz, defined by the AMSS software.
■ The EBI2 memory controller operates at HCLK/2.
■ Broadcasting and multicasting (QSC6270 only, with MBP1600 IC) are based on:
-Wideband MediaFLO™, DBV-H, and ISDB-T

Asynchronous/burst controller (EBI1 and EBI2)
The external memory controller (xmem_ctlr) forms the asynchronous/burst controller for both EBI1 and EBI2 in the QSC62x0 device. The controller is generic in terms of its software programmable options and can be customized when used for EBI1 and EBI2. This block has been enhanced in the QSC62x0 device to support 32-bit burst memories and byte masking during write operations.
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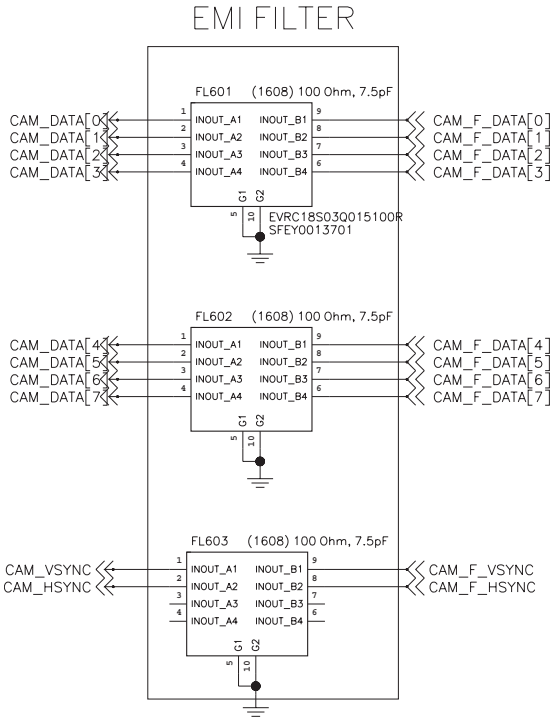
3.3.3 Camera Interface (2M CAMERA)

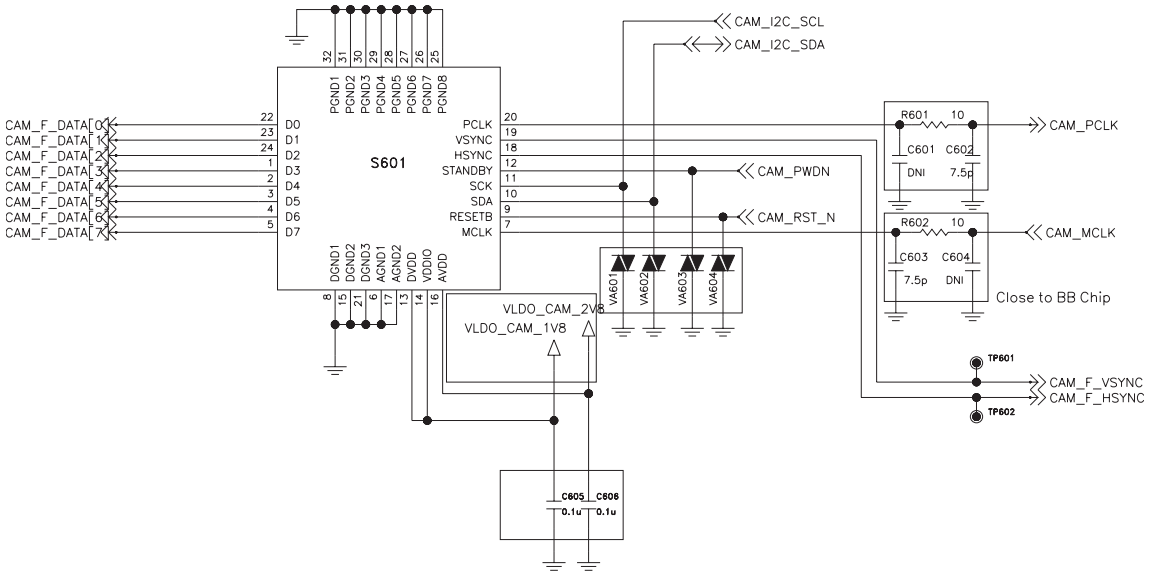
3.3.3.1 2M CAMERA

C320 Installed a 2M Pixel Camera. Below picture shows the camera board to board connector and camera I/F signal.

Camera Module Connector Pin Description

No	Symbol	Description	No	Symbol	Description
1	D3	8Bit Data[3]	13	DVDD	Core Power
2	D4	8Bit Data[4]	14	IOVDD	I/O Power
3	D5	8Bit Data[5]	15	DGND	Digital Ground
4	D6	8Bit Data[6]	16	AVDD	Analog Power
5	D7	8Bit Data[7]	17	AGND	Analog Ground
6	AGND	Analog Ground	18	HSYNC	Horizontal Sync
7	MCLK	Master Input CLK	19	VSYNC	Vertical Sync
8	DGND	Digital Ground	20	PCLK	Pixel CLK
9	RESETB	Reset (Negative)	21	DGND	Digital Ground
10	SDA	I²C Data	22	D0	8Bit Data[0]
11	SCL	I²C CLK	23	D1	8Bit Data[1]
12	STANDBY	Standby	24	D2	8Bit Data[2]





3.3.4 LCD Module (LQ024Q3UX01 : SHARP)

The DM24-DSM04 model is a Color TFT LCD supplied by LG Innotek.
This main Module has a 2.4 inch diagonally measured active display area with 320(RGB) X 240 resolution.
Each pixel is divided into Red, Green and Blue sub-pixels and dots which are arranged in vertical stripes.
Main LCD color is determined with 262k colors signal for each pixel.
The DM24-DSM04 has been designed to apply the interface method that enables low power, high speed, and high contrast. The DM24-DSM04 is intended to support applications where thin thickness and low power are critical factors and graphic displays are important

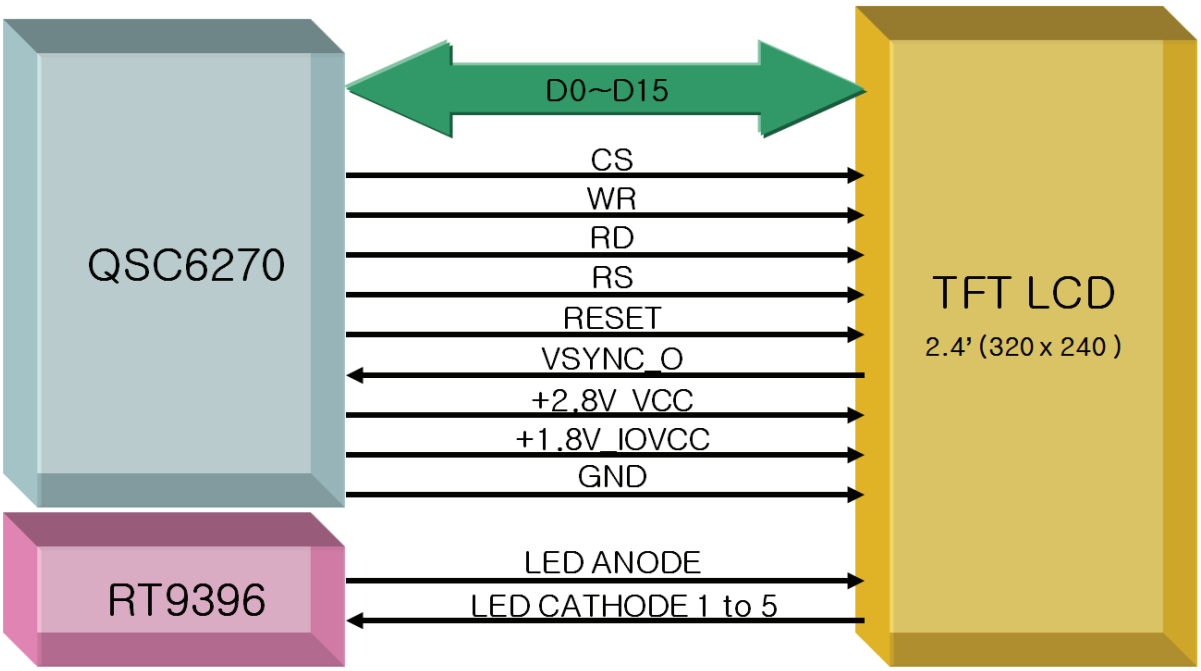
GENERAL DESCRIPTION

Item	Main Display	Remark
Display Mode	Normally Black, AH3-IPS	
Viewing Direction	-	
Driving Method	A-Si TFT Active Matrix	
Input Signals	16/9Bit, CPU I/F Parallel	
Outside Dimensions	53.9mm(H) x 46.85mm(V) x 1.75mm(D)(Typ.)	
Active Area	48.96mm(V) x 36.72mm(H)	
Number of Pixels	320×RGB×240 Pixels	Note 1)
Pixel Pitch	0.153mm(H) X 0.153mm(V)	Note 1)
Pixel Arrangement	RGB Vertical stripes	Note 1)
Drive IC	S6D05A0	
Weight	11g	

PIN DESCRIPTION

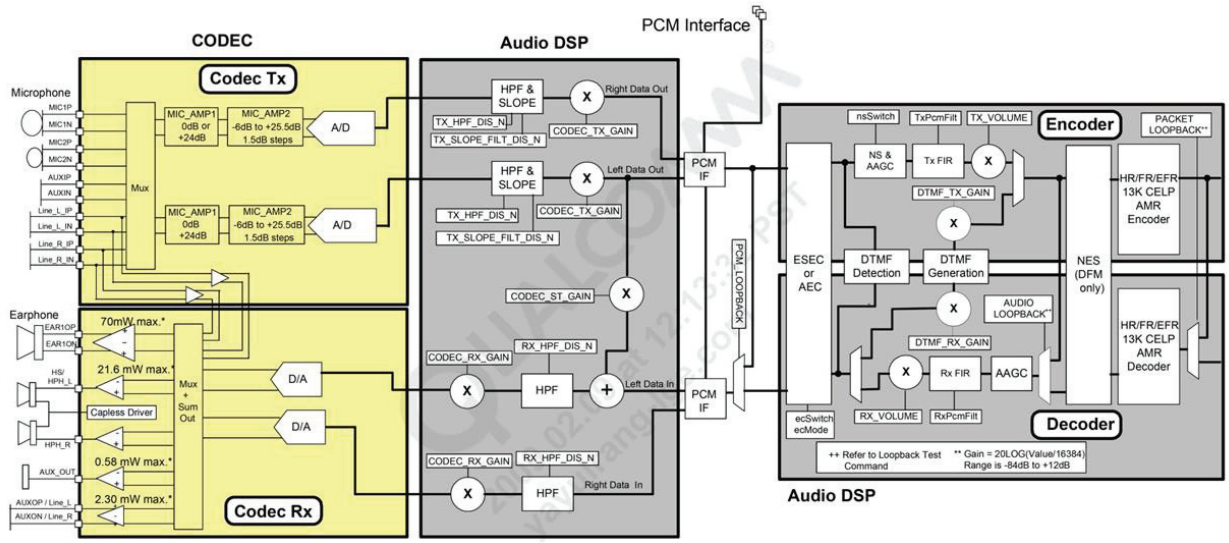
Input Signal and Power : Pin Description (Input Pin : 35)

No.	SIGNAL
1	LED_A
2	LED_C1
3	LED_C2
4	LED_C3
5	LED_C4
6	LED_C5
7	GND
8	IOVCC_1.8V
9	VCC_2.8V
10	IFMODE0
11	IFMODE1
12	/RESET
13	/CS
14	RS
15	/WR
16	/RD
17	DB15
18	DB14
19	DB13
20	DB12
21	DB11
22	DB10
23	DB9
24	DB8
25	DB7
26	DB6
27	DB5
28	DB4
29	DB3
30	DB2
31	DB1
32	DB0
33	MAKER_ID(Low)
34	VSYNCOUT
35	GND



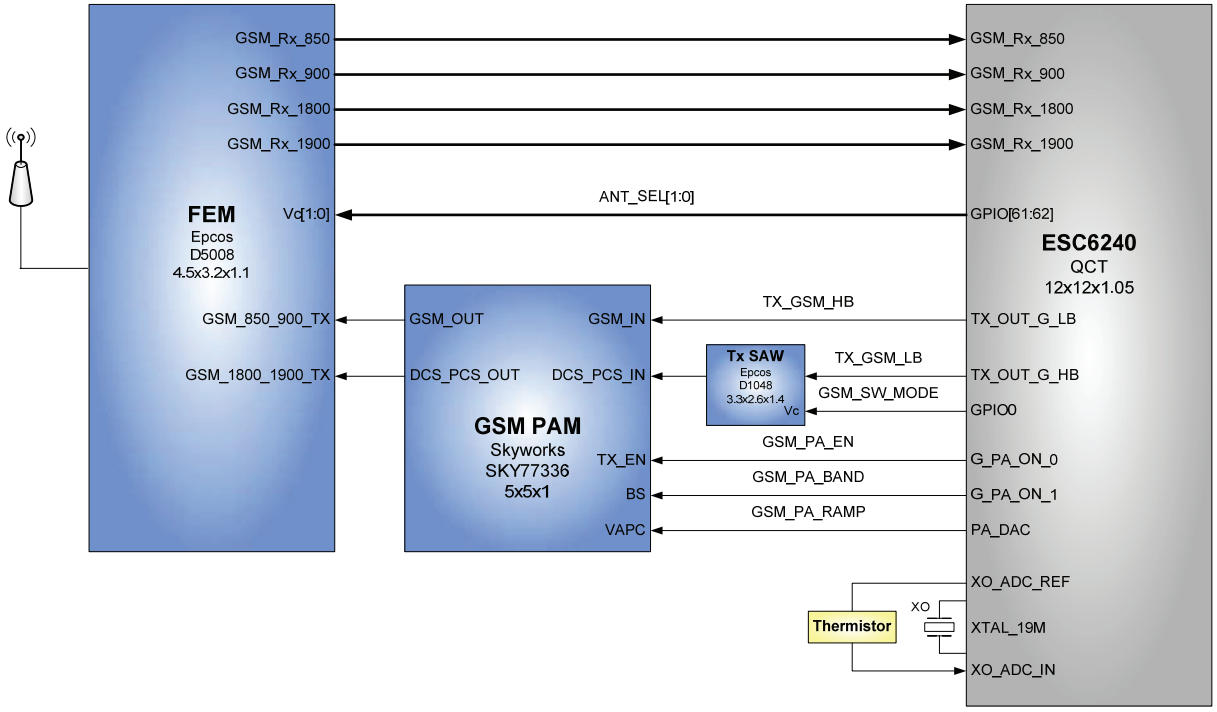
3.3.5 Audio Signal Processing & Interface

Audio signal processing is divided uplink path and downlink path. The uplink path amplifies the audio signal from MIC and converts this analog signal to digital signal and then transmits it to DBB Chip (QSC6270). This transmitted signal is reformed to fit in GSM & WCDMA frame format and delivered to RF Chipset. The downlink path amplifies the signal from DBB chip (QSC6270) and outputs it to receiver (or speaker).
The receive path can be directed to either one of two earphone amplifiers or the auxiliary output. The outputs earphone1 (EAR1OP, EAR1ON) and auxiliary out (LINE_OP, LINE_ON) are differential outputs. Earphone2 (HPH_L, HPH_R) is a single-ended output stage designed to drive a headset speaker. The microphone interface consists of two differential microphone inputs, one differential auxiliary input and a two-stage audio amplifier.



3.4 GENERAL DESCRIPTION (RF Part)

The RF platform of C320 supports four communication bands (GSM850 / GSM900 / GSM1800 / GSM1900).
The all the RF blocks can be divided into two main parts, which are a GSM, and an antenna switch Mode.
The simplified block diagram is shown in Figure 3.4



[Figure 3.4] Block diagram of RF part

3.5 GSM MODE

The EDGE/GPRS/GSM transceiver use a digital interface that is shared between receive and transmit data. The receive interface is based on I and Q data and the transmitter interface is based on envelop and frequency data.
The quad band EDGE/GSM/GPRS transceiver has the following general features:
Power class
GMSK low bands: Class 4 (33 dBm)
GMSK high bands: Class 1 (30 dBm)
8PSK low bands: Class E2 (27 dBm)
8PSK high bands: Class E2 (26 dBm)
Multi slot class 12 (4+4=5)
Dual Transfer Mode (DTM) class 9 (3+2=5)
Zero-IF receiver
-Polar modulation transmitter

3.5.1 GSM RECEIVER

The RF receiver designs are leveraged from previous-generation RTR devices, including the latest innovations. All ESC receiver paths are discussed in this section.

The ZIF receive signal paths support multiband, multimode applications:
Quad-band GSM:
Low-band
GSM 850 (869 to 894 MHz) and GSM 900 (925 to 960 MHz)
High-band
DCS1800 (1805 to 1880 MHz) and PCS1900 (1930 to 1990 MHz)

The on-chip receive signal paths are functionally identical for each mode (GSM or EDGE) and each band type (low or high). The external circuitry includes the antenna switch module and a filter function.

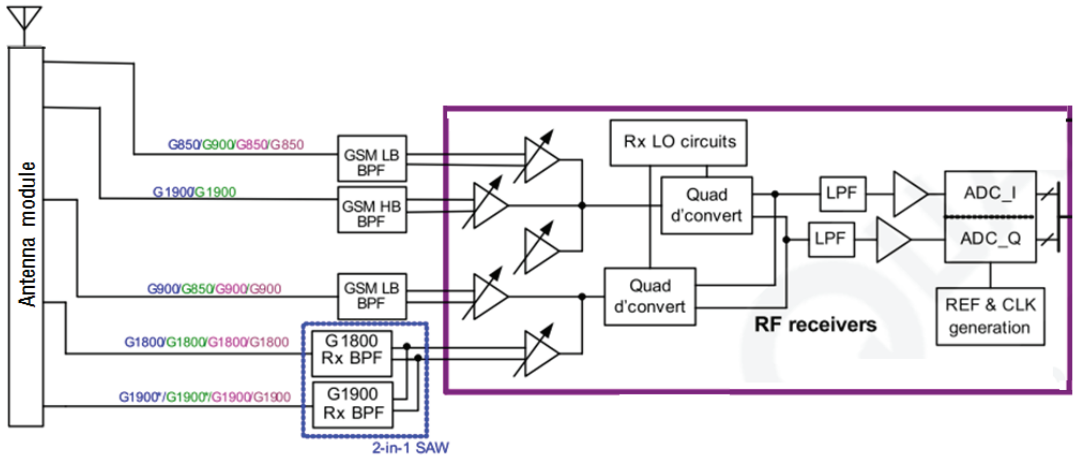
All RF Rx inputs use a differential configuration to maximize common-mode rejection, Tx isolation, out-of-band suppression, and second-order intermodulation performance. The first of two quadrature downconverters accepts inputs from two LNAs (only one is active at a time). An example application could support the following bands using these two LNAs:
GSM 1900
GSM 850

The second downconverter accepts inputs from another two LNAs (again, just one is active at time) and is dedicated to GSM 900 and GSM 1800 operation.

The two downconverter outputs drive analog baseband filters and buffer circuits that are programmed to support the active operating mode's waveforms (GSM or EDGE). The analog baseband signals are then digitized by analog-to-digital converters (ADCs) whose outputs are routed to the digital baseband circuits for further processing.

Numerous secondary Rx functions are also integrated: Rx frequency synthesizers (each having their own PLL and VCO circuits), LO generation and distribution circuits, reference and clock circuits for the ADCs, and various interface, control, and status circuits. Power reduction features (such as selective circuit powerdown, gain control, and bias control) extend handset standby time.

Like the Tx LO, all Rx LO circuits are completely integrated. All received LO signals are generated by the on-chip Rx VCOs under control of their PLLs.



[Figure 3.5.1] QSC GSM receiver signal paths functional diagram

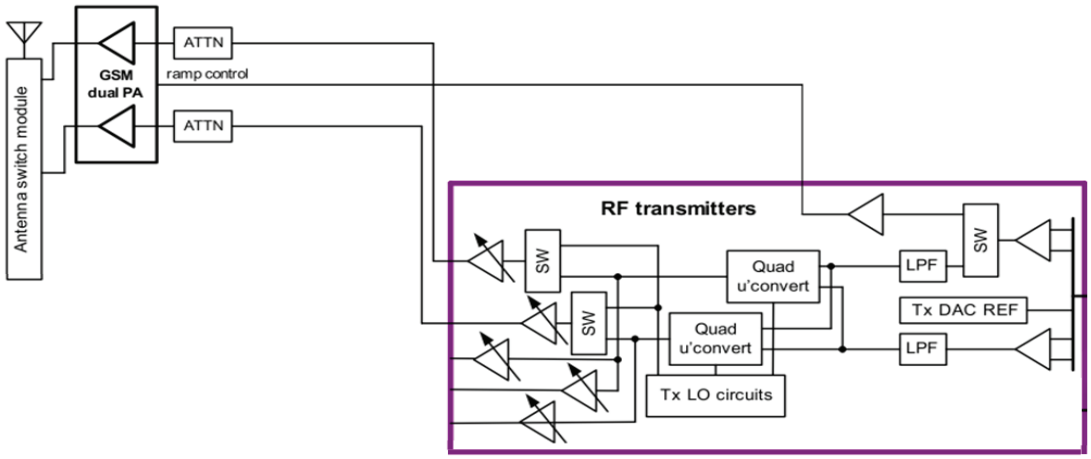
3.5.2 GSM TRANSMITTER

The RF transmitters are leveraged from previous-generation RTR™ devices, including the latest innovations. The ESC transmitter paths and Tx power-detector input are discussed in this section. It provides the zero-IF (ZIF) transmit signal paths for multiband, multimode applications:
Quad-band GSM:
Low-band
GSM 850 (869 to 894 MHz) and GSM 900 (925 to 960 MHz)
High-band
DCS1800 (1805 to 1880 MHz) and PCS1900 (1930 to 1990 MHz)

The transmit signal paths include a shared set of baseband amplifiers, a dedicated quadrature upconversion for each band-type (low and high), gain control RF amplification, and multiple output driver amplifiers for each band-type. Two GSM output drivers support one low-band and one high-band type (but each GSM band-type is dual-band). The GSM transmitters in polar PA configuration are also supported by a PA envelope control path, plus the ability to route LO signals to the transmit chains for test and calibration purposes. In linear PA configuration, phase and envelope paths are combined inside the ESC and amplified using a multistage linear PA.

Numerous secondary Tx functions are also integrated: a reference for the transmit DACs, the Tx phase-locked loop (PLL), the Tx OSC circuit, the Tx LO generation and distribution circuits, an RMS Tx power detector, and various interface, control, and status circuits.

The RF transmitter interfaces internally with the baseband circuits for its analog baseband input and status and control signaling. Power reduction features controlled by baseband circuits (such as selective circuit powerdown, gain control, and transmit puncturing) extend handset talk time. The driver amplifier outputs are routed externally to the final stages of the transmit chains, culminating with the antenna switch whose output drives the antenna.
Sophisticated Tx LO circuits implement the frequency plan and are completely integrated on-chip. All Tx LO signals are generated by the on-chip Tx OSC under the control of its PLL.

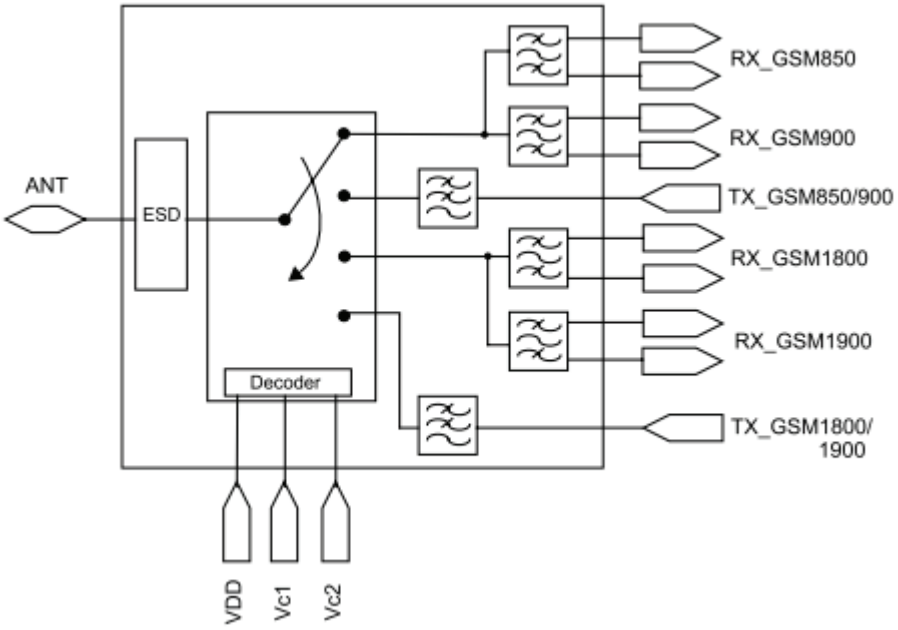


[Figure 3.5.2] QSC GSM transmitter signal paths functional diagram

3.6 OFF-CHIP RF COMPONENTS

3.6.1 D5008 (FL101: FEM)

Low-loss SAW frontend module for mobile telephone system
Covering GSM850, GSM900, GSM1800 and GSM1900 bands
Integration of Tx low pass filters, switch, de-coder and diplexing network between GSM Filters
Integration of GSM850, GSM900, GSM1800 and GSM1900 Rx SAWs
Balanced outputs of all Rx ports
Integration of ESD protection at Ant port to 8kV acc. IEC-61000-4-2 (contact discharge)



[Figure 3.6.1] Block diagram of FEM

Switch Mode	Vc1	Vc2
GSM850/900 Tx	0	1
GSM1800/1900 Tx	1	1
GSM850/900 Rx	0	0
GSM1800/1900 Rx	1	0

[Table 3.6.1] Control table of FEM

3.6.2 GSM850/EGSM/DCS/PCS Dual band Transmit Power Amplifier (U101: SKY77336)

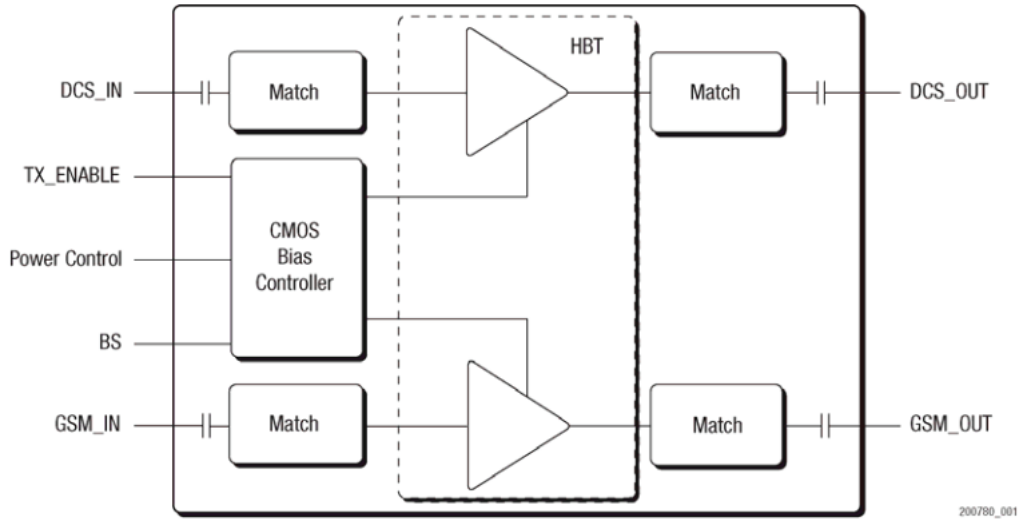
The dual band PA is operating to transmit for low band (GSM-850, GSM-900) and high band (GSM-1800, GSM1900). Operating mode is selected and controlled by the ESC6270 (GSM_PA_BAND).

Applications

- Quad-band cellular handsets
- GMSK Modulation
  - Class 4 GSM850/900
  - Class 1 DCS1800/ PCS1900
  - Class 12 GPRS multi-slot operation
- EDGE modulation
  - Class E2 GSM850/900
  - Class E2 DCS1800/ PCS1900

Features

- High efficiency:
  - GSM850, 52%
  - GSM900, 52%
  - DCS, 50%
  - PCS, 50%
- Small outline
  - 5 x 5 mm
- Low profile
  - 0.9 mm
- Low VRAMP current
  - 10 µA



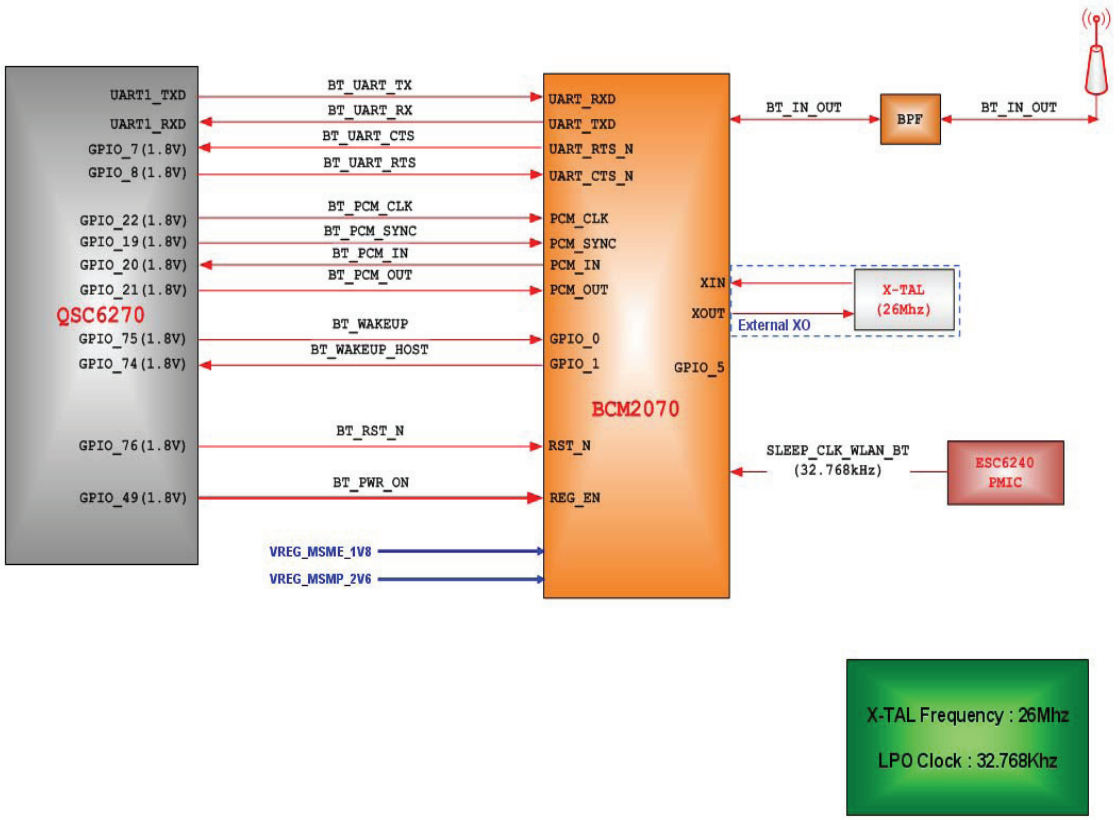
[Figure 3.6.2] Block diagram of GSM PAM

3.7 OFF-CHIP COMPONENTS

3.7.1 Bluetooth (BCM2070)

Bluetooth block of LG-C320 consists of a BCM2070 chip-set, an external crystal oscillator(26MHz), and a Bluetooth chip antenna (2.4GHz). QSC6270_3G disable, which is main HW solution of LG-C320 Model, doesn't include BT baseband core. Instead, Bluetooth chipset, BCM2070, contains stand-alone baseband processor (V2.1+EDR) as well as BT RF block. An external crystal oscillator (26MHz) is used to provide reference frequency to BCM2070.

Figure 3.7 shows the Bluetooth system architecture in the LG-C320.



[Figure 3.7] Bluetooth system architecture

Pin name/function	Pin #	Pad group	Pad type[1]	Drive current[2]	Functional description
BT_PWR_ON (GPIO_76)	AB1	P1 (1.8 V)	DO	1-8 (1)	Poweron signal for the Bluetooth device
BT_WAKES_MSM (GPIO_74)	AA3	P1 (1.8 V)	DI	–	BT signal to wake up the MSM (QSC)
MSM_WAKES_BT (GPIO_75)	AB2	P1 (1.8 V)	DO	1-8 (1)	Signal to wake up the Bluetooth device
XO_EN_GP1	W11	–	DO	–	Clock request from Bluetooth device
XO_OUT_GP1	W10	–	DO	–	Master clock to Bluetooth device
SLEEP_CLK	V12	–	DO	–	Sleep clock to Bluetooth device
UART1_RXD	E10	P5 (1.8 V)	DI (HV)	–	HS UART receive data from BT device
UART1_TXD	C10	P5 (1.8 V)	DO	1-8 (1)	HS UART transmit data to BT device
UART1_RFR_N (GPIO_8)	F11	P5 (1.8 V)	DO	1-8 (1)	HS UART ready for receive to BT device
UART1_CTS_N (GPIO_7)	F10	P5 (1.8 V)	DI	–	HS UART clear to send from BT device
AUX_PCM_DOUT (GPIO_21)	E9	P5 (1.8 V)	B	1-8 (1)	Bluetooth PCM I/F data out (if QSC master)
AUX_PCM_DIN (GPIO_20)	B8	P5 (1.8 V)	B	1-8 (1)	Bluetooth PCM I/F data in (if QSC master)
AUX_PCM_CLK (GPIO_22)	C8	P5 (1.8 V)	B	1-8 (1)	Clock for Bluetooth PCM interface
AUX_PCM_SYNC (GPIO_19)	A8	P5 (1.8 V)	B	1-8 (1)	Bluetooth PCM interface sync

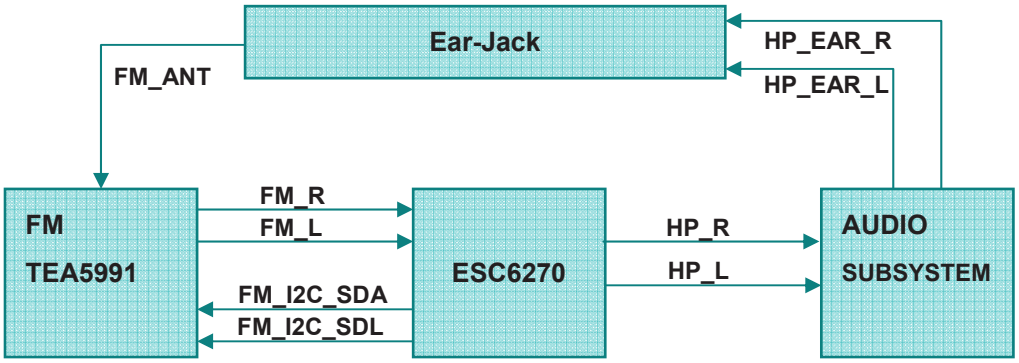
1. The parameters listed under the Pad type column are defined in the *QSC6240/QSC6270 Qualcomm Single Chip*

[Table 3.7] Bluetooth Connection(GPIO) with QSC6270

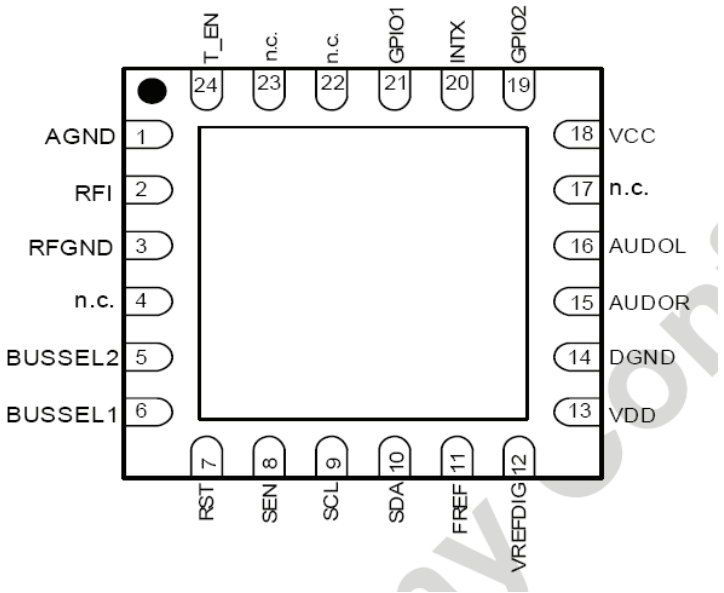
3.7.2 FM Receiver (TEA5991)

The TEA5991 is a single chip FM stereo radio with RDS and RBDS decoder. The radio can be connected to a headphone antenna and can tune from 70-108 MHz to cover the European, US, Chinese and Japanese FM band. The radio delivers stereo audio output to an external amplifier. The radio can be controlled with a high level command based interface through a I2C or SPI-bus.

[Figure3.7.2] shows the FM Radio system architecture in the LGC320.



[Figure3.7.2] FM Radio system architecture



[Figure3.7.2.1] Pin Descriptions

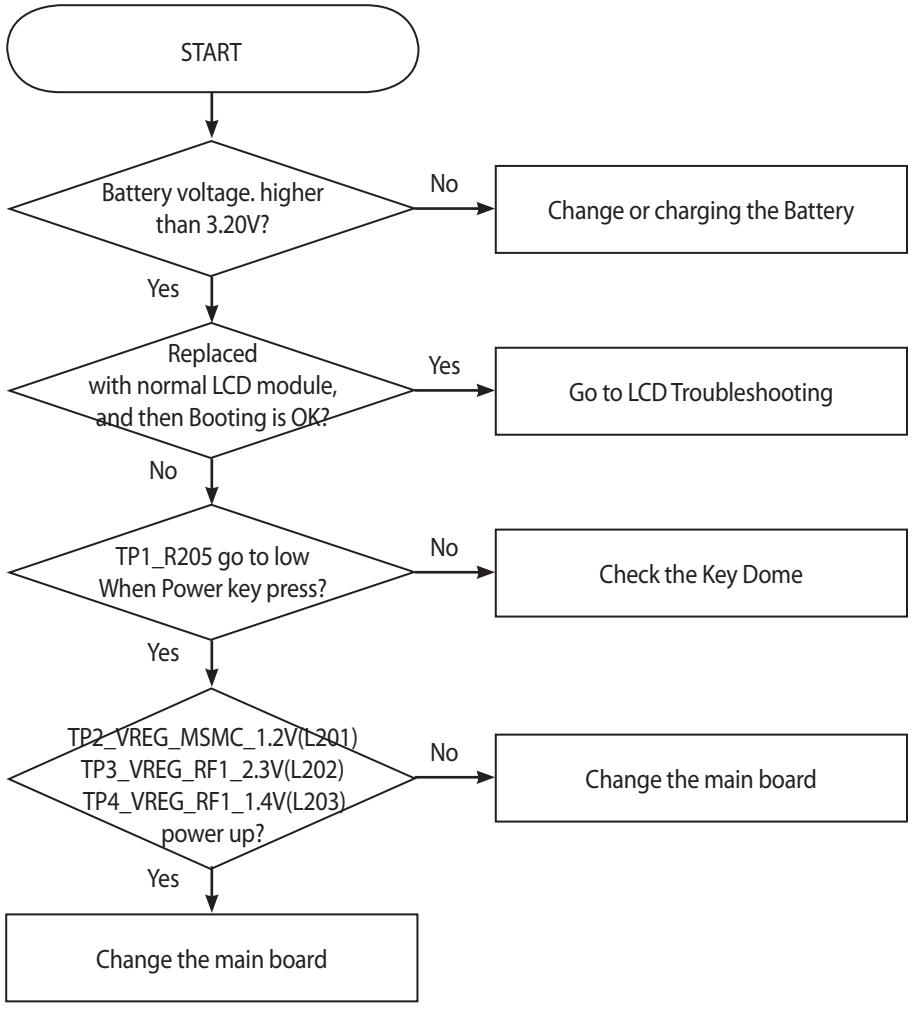
SYMBOL	HVQFN	WLCSP	DESCRIPTION
AGND	1	F1	Analog ground
RFI	2	E1	RF input
RFGND	3	D1	RF ground
NC	4	-	not connected
BUSSEL2	5	A1	Bus Selection pin 2
BUSSEL1	6	C1	Bus Selection pin 1
RST	7	A2	Reset, used for operating mode change
SEN	8	B1	Chip Select for SPI bus
SCL	9	A3	Serial Bus Clock
SDA	10	A4	Serial Bus Data
FREF	11	A5	Reference frequency (32.768 kHz)
VREFDIG	12	A6	Reference voltage for digital I/Os
VDD	13	B6	Digital supply voltage
DGND	14	C6	Digital ground
AUDOR	15	D6	Audio output signal right
AUDOL	16	E6	Audio output signal left
NC	17	-	Not connected
VCC	18	F6	Analog supply voltage
GPIO2	19	F5	General Purpose I/O 2; Dataout for 4-wire SPI-bus

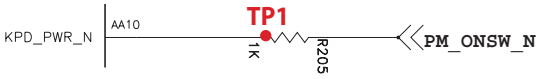
[Table 3.7.2] pin description

4. TROUBLE SHOOTING

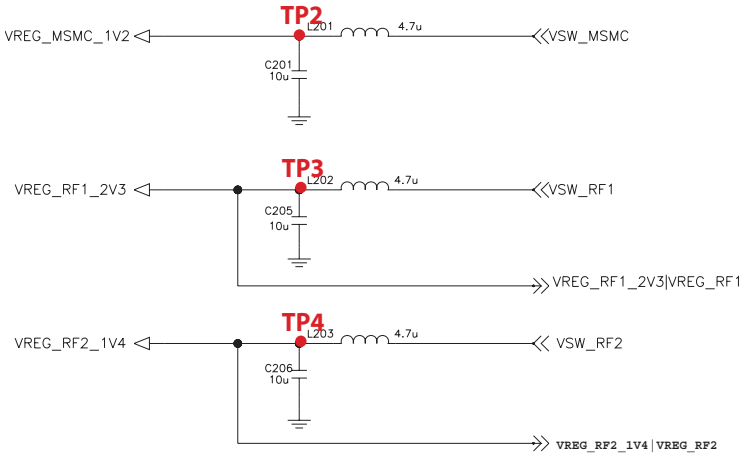
4.1 Power ON Troubleshooting

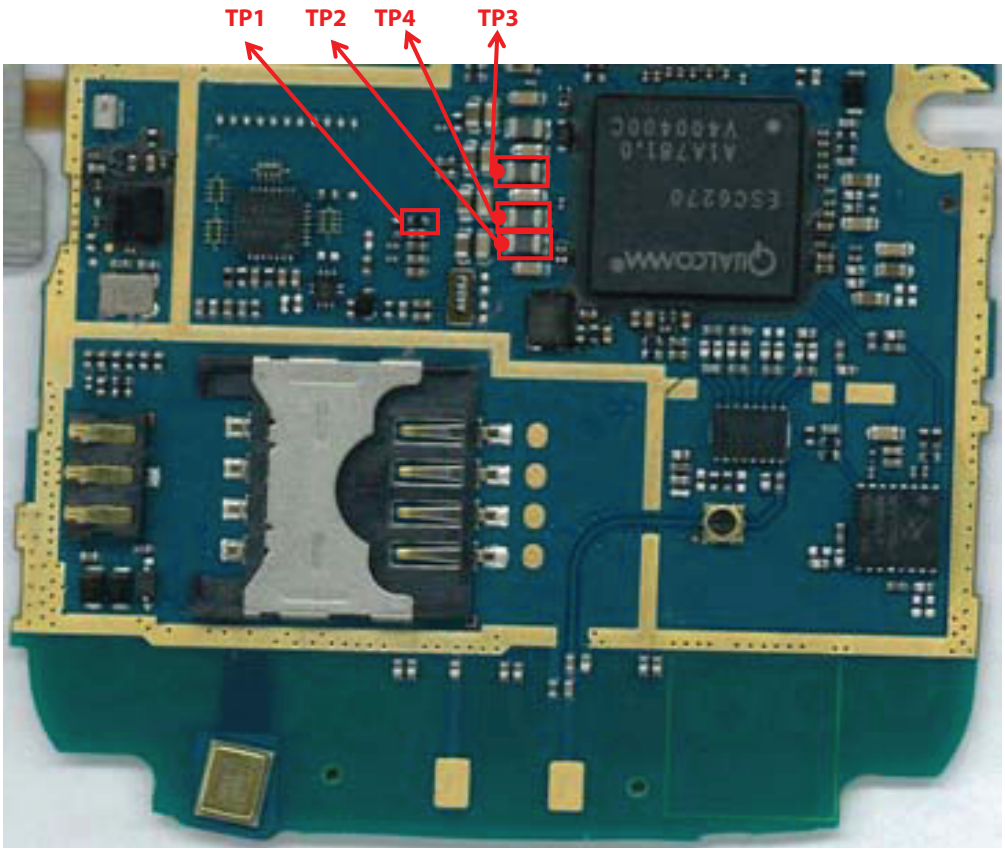
Power On sequence is :
PWR key press PM_ON_SW_N ➔ QSC6270 KPDPWR_N pin(AA2) go to low(Main BOARD R205) ➔ QSC6270 Power Up ➔ VREG_MSMC_1.2V(C261), VREG_MSME_1.8V(C209), VREG_MSMP_2.6V(C414), VREG_RFRX2_1.3V(C232), VREG_TCXO_2.85V(C275) power up and system reset assert to QSC6270 ➔ Phone booting and PS_HOLD assert to QSC6270





SMPS Circuit





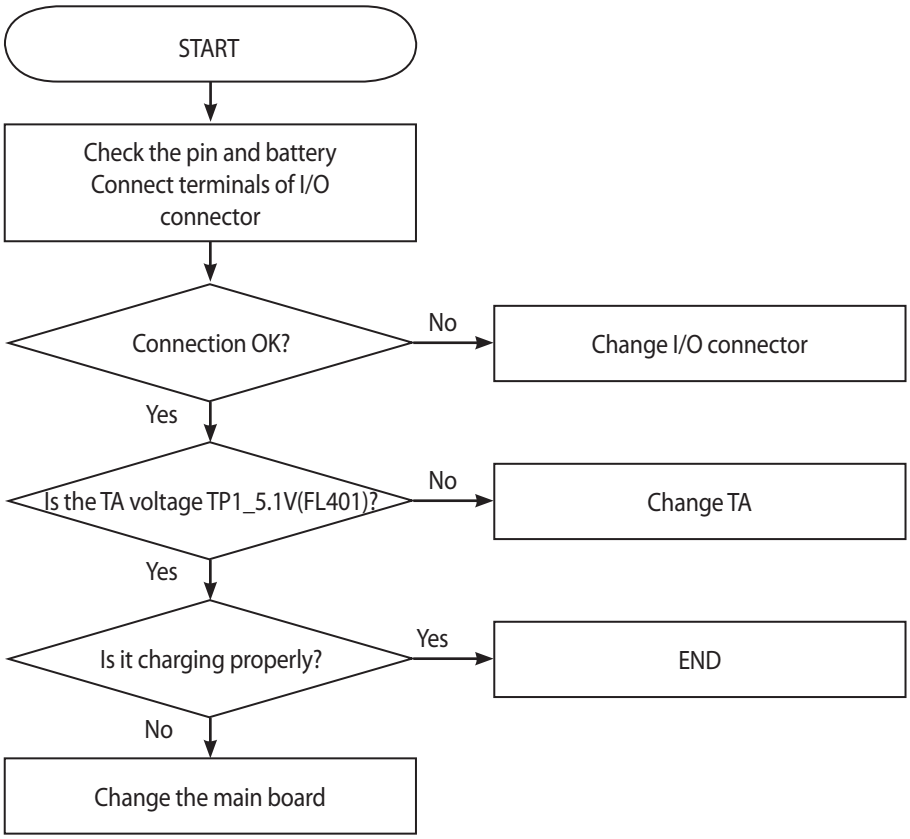
4.2 Charger Troubleshooting

☞ Charging Procedure
- Connect TA or USB Cable
- Control the charging current by QSC6270(disable 3G)
- Charging current flows into the battery

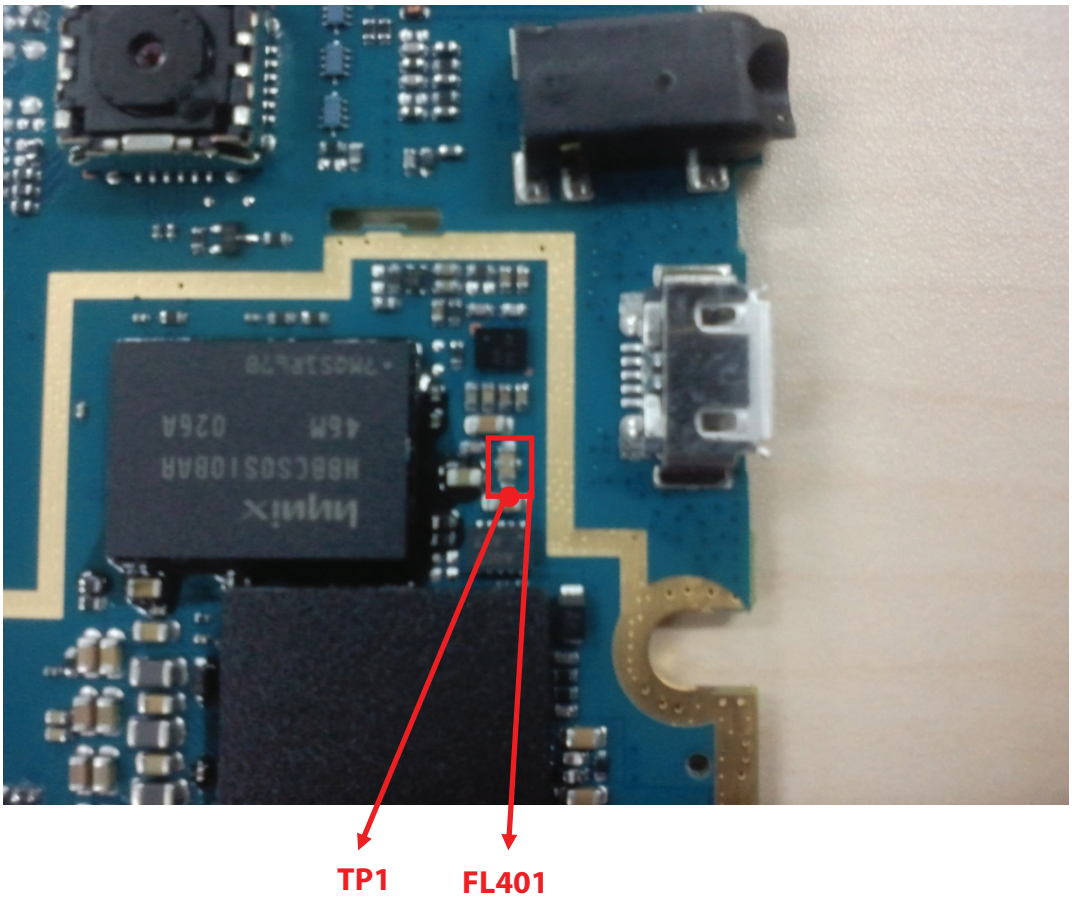
☞ Troubleshooting Setup
- Connect TA and battery to the phone

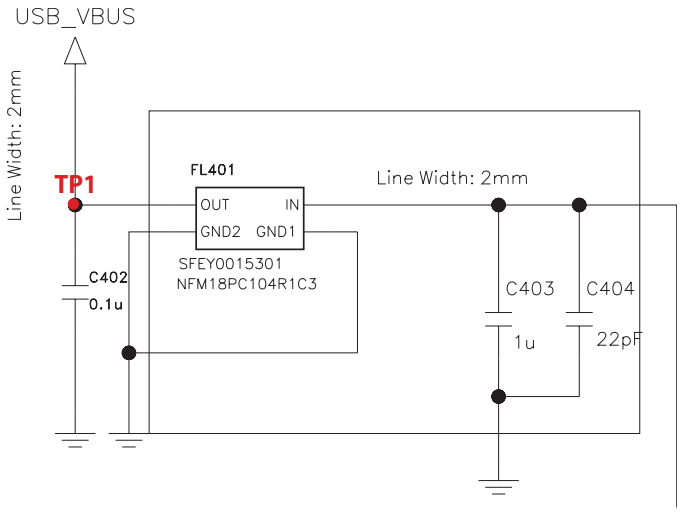
☞ Check Point
- Connection of TA or USB Cable
- Charging current path
- Battery

☞ Troubleshooting Procedure
- Check the charger (TA or USB Cable) connector
- Check the charging current Path
- Check the battery



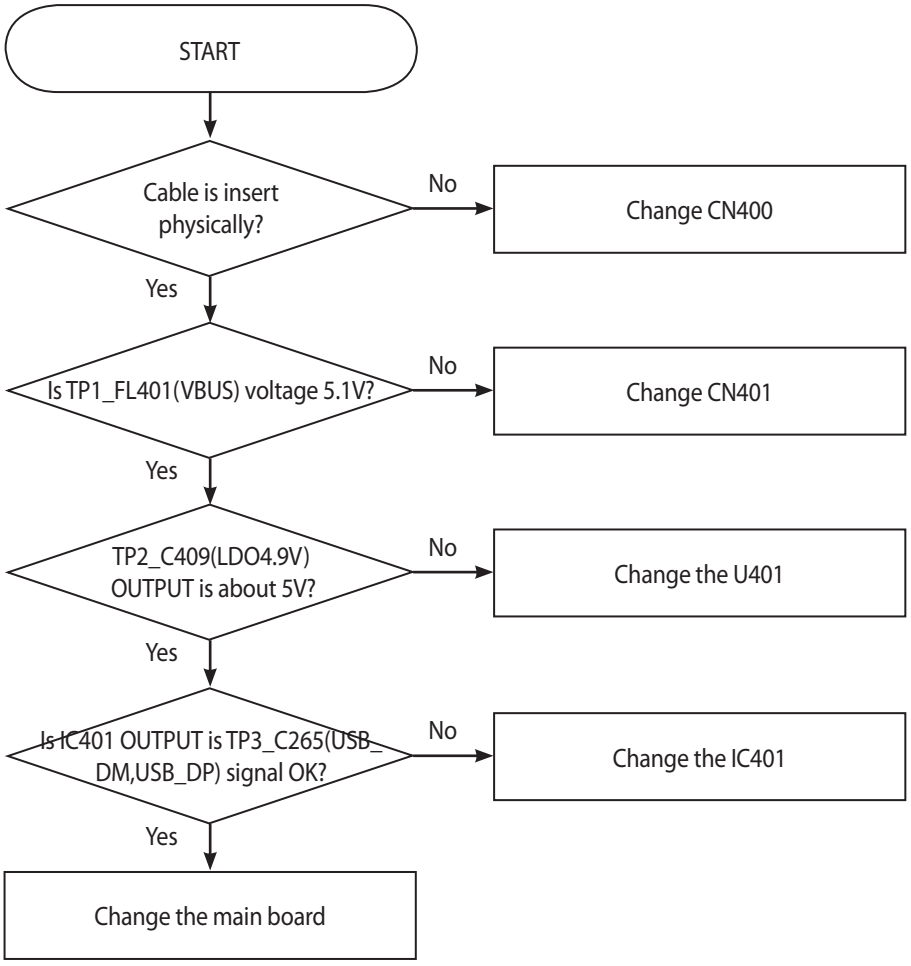
[Charger Troubleshooting Flow]



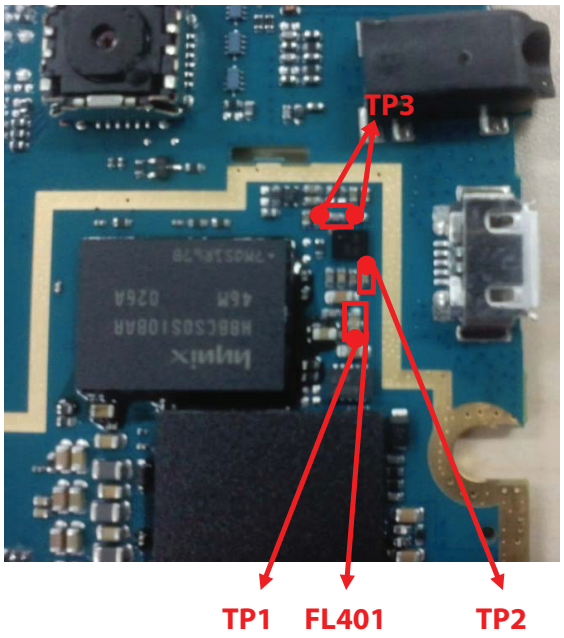


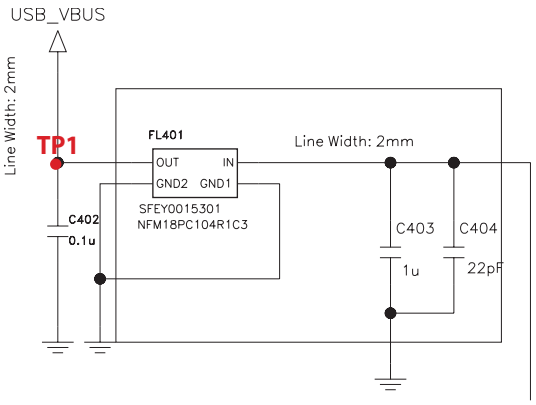
4.3 USB Troubleshooting

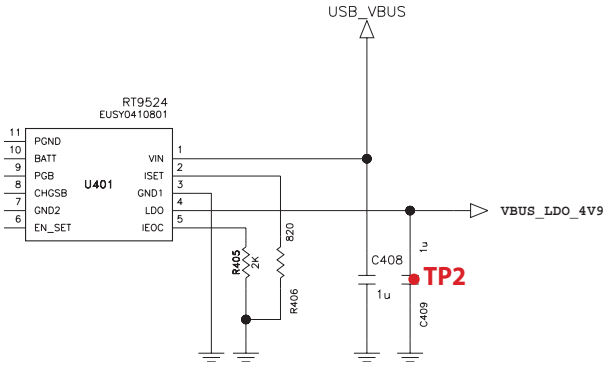
USB Initial sequence is : Isert USB Cable ➔ USB_VBUS +5V Check ➔ IC400 triggered USB IF work

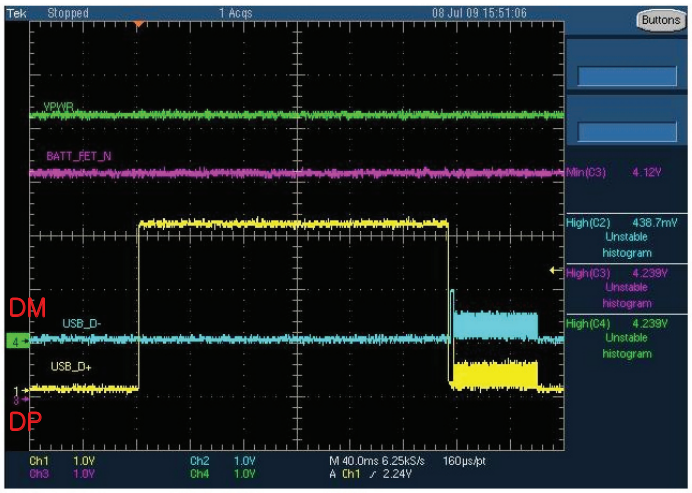


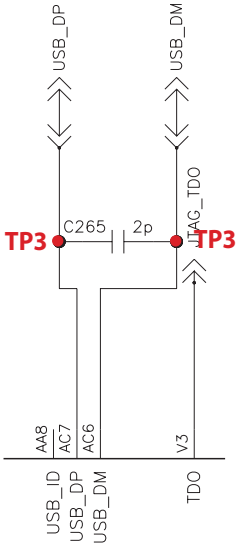
[USB Troubleshooting Flow]





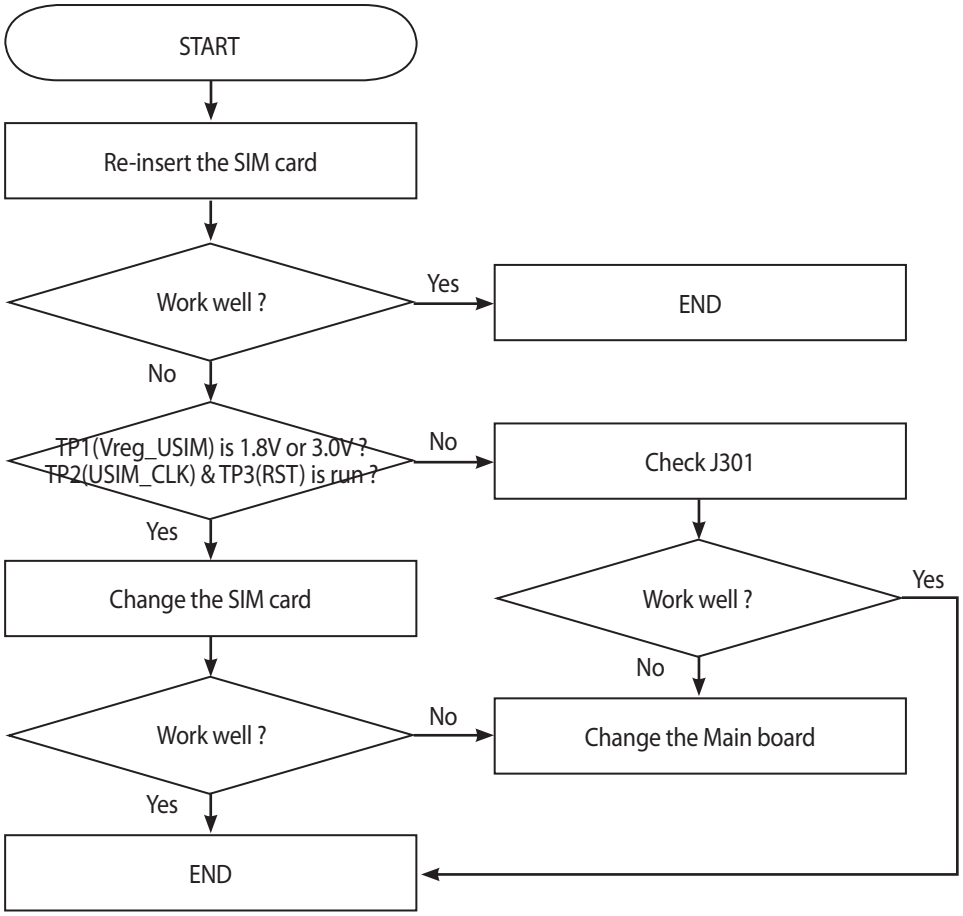


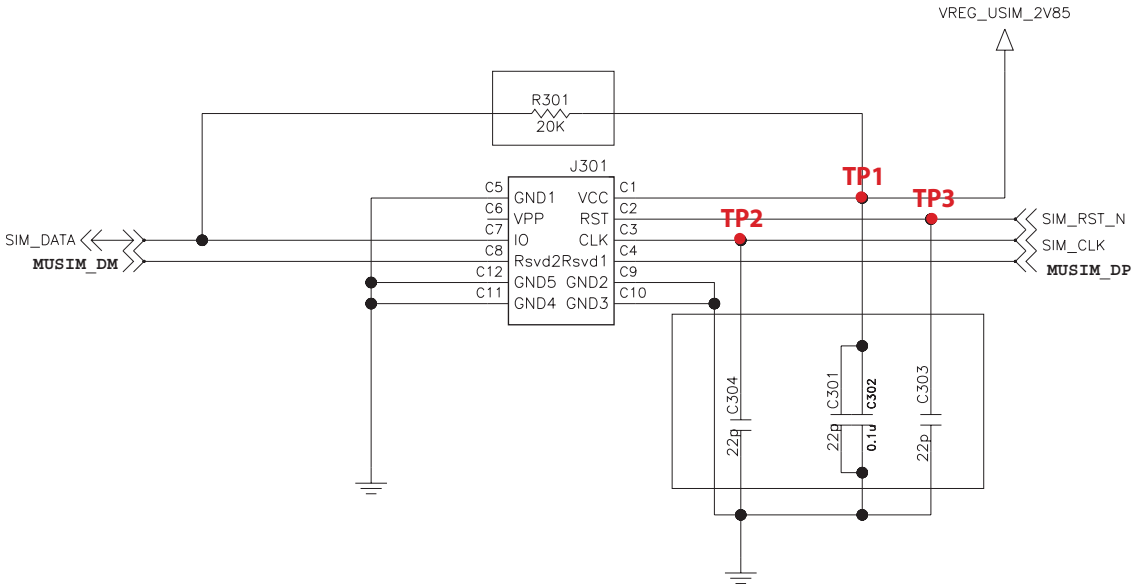


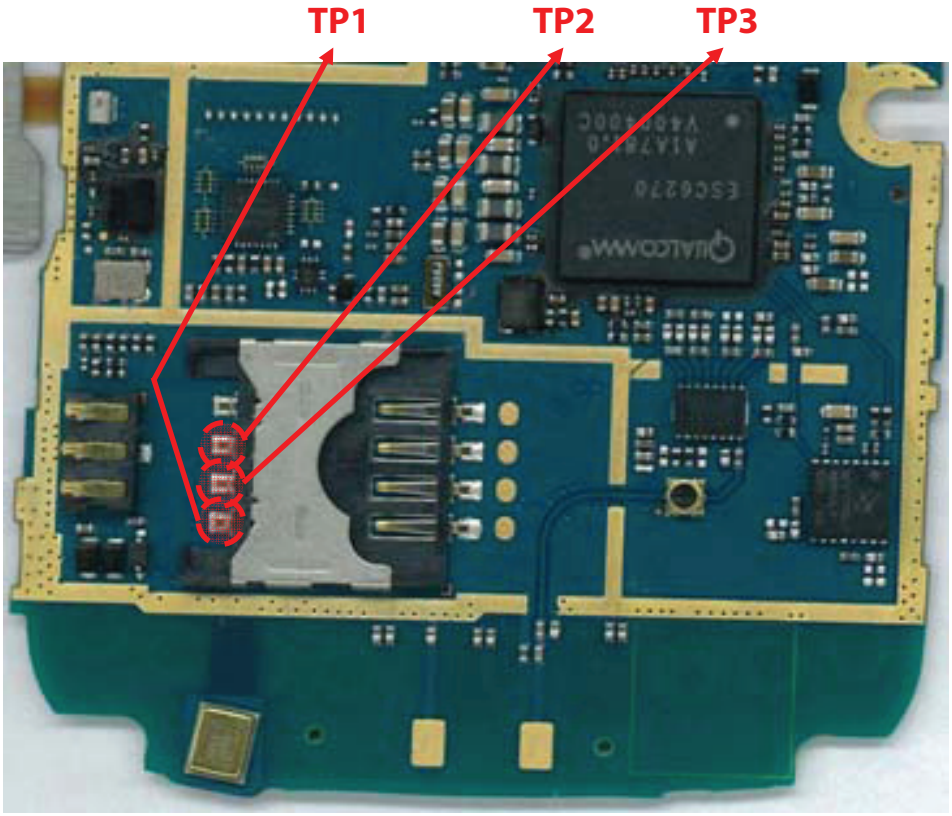


4.4 USIM Detect Troubleshooting

USIM Initial sequence is :
VREG_USIM_2.85V go to 1.8V or 3.0V → USIM_CLK,USIM_RST,USIM_DATA triggered → USIM IF work

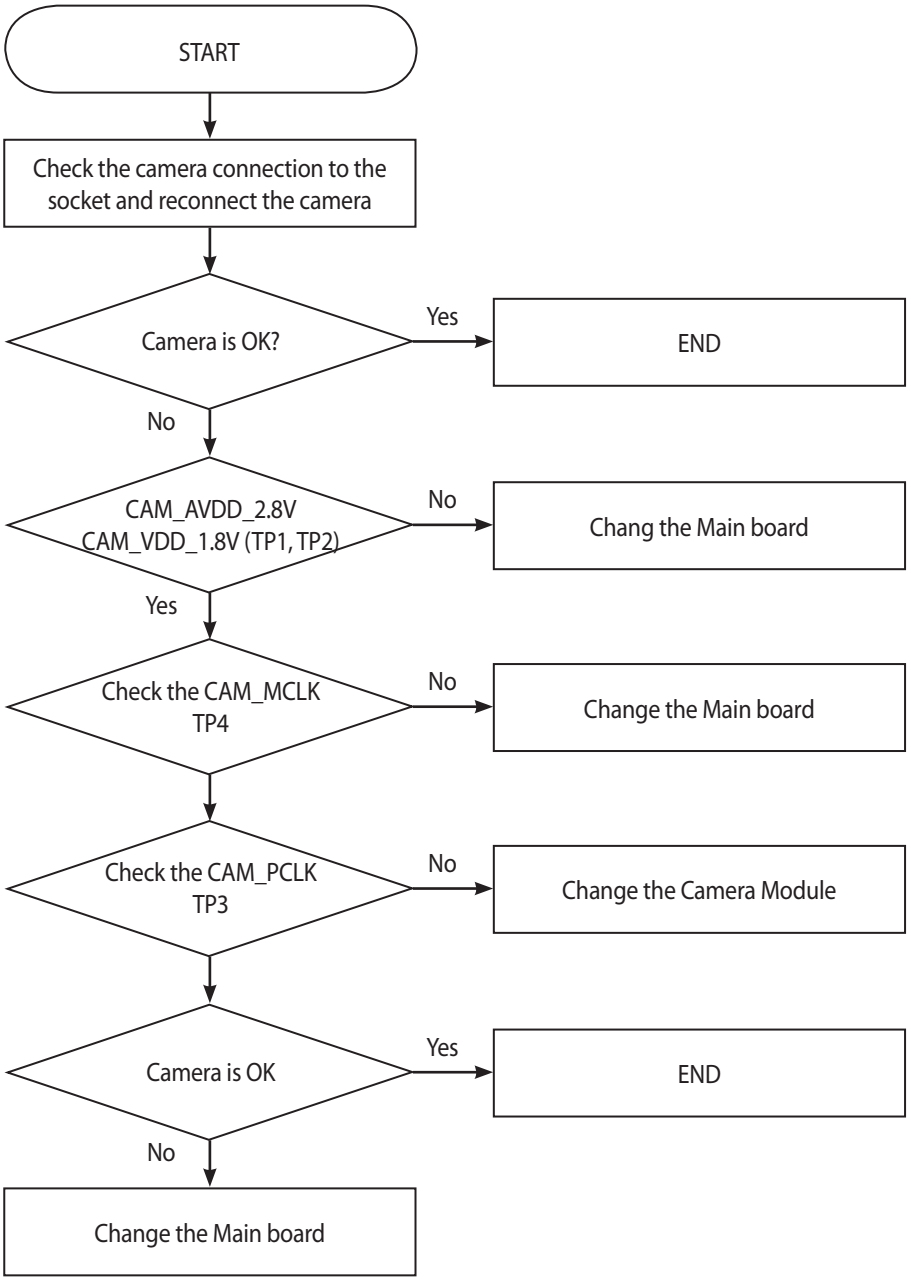


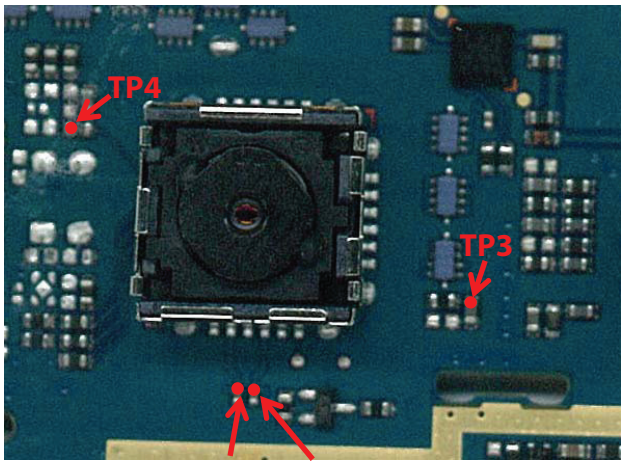


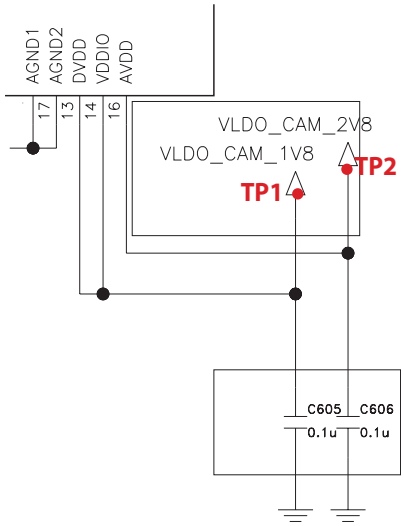


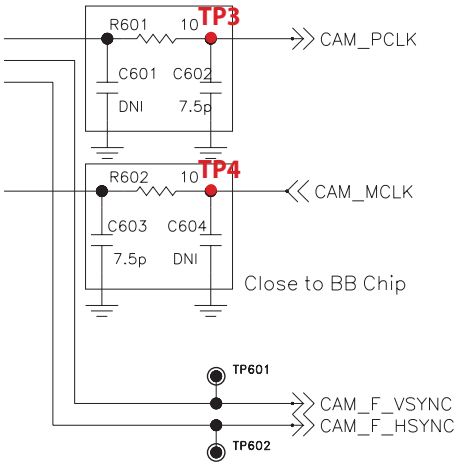
4.5 Camera Troubleshooting

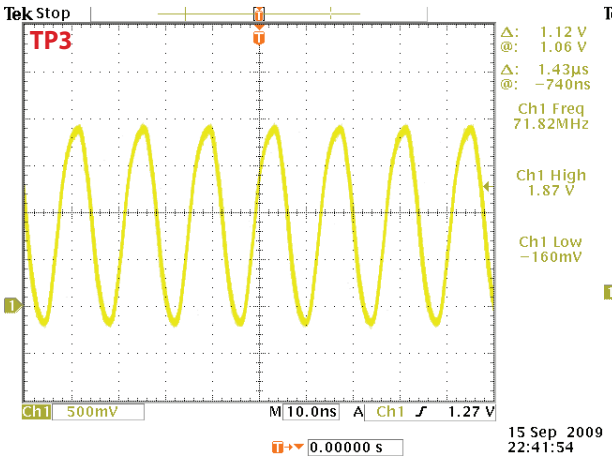
Camera control signals are generated by QSC6270.



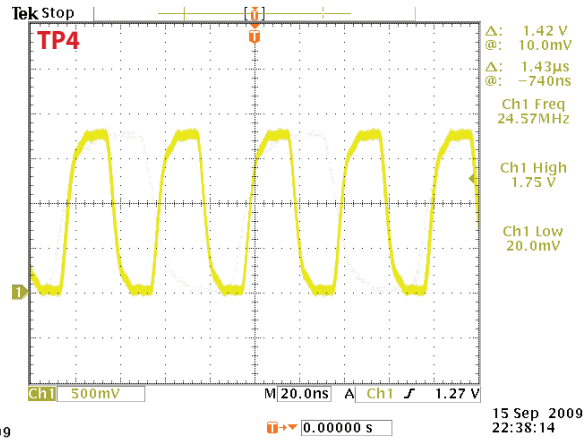








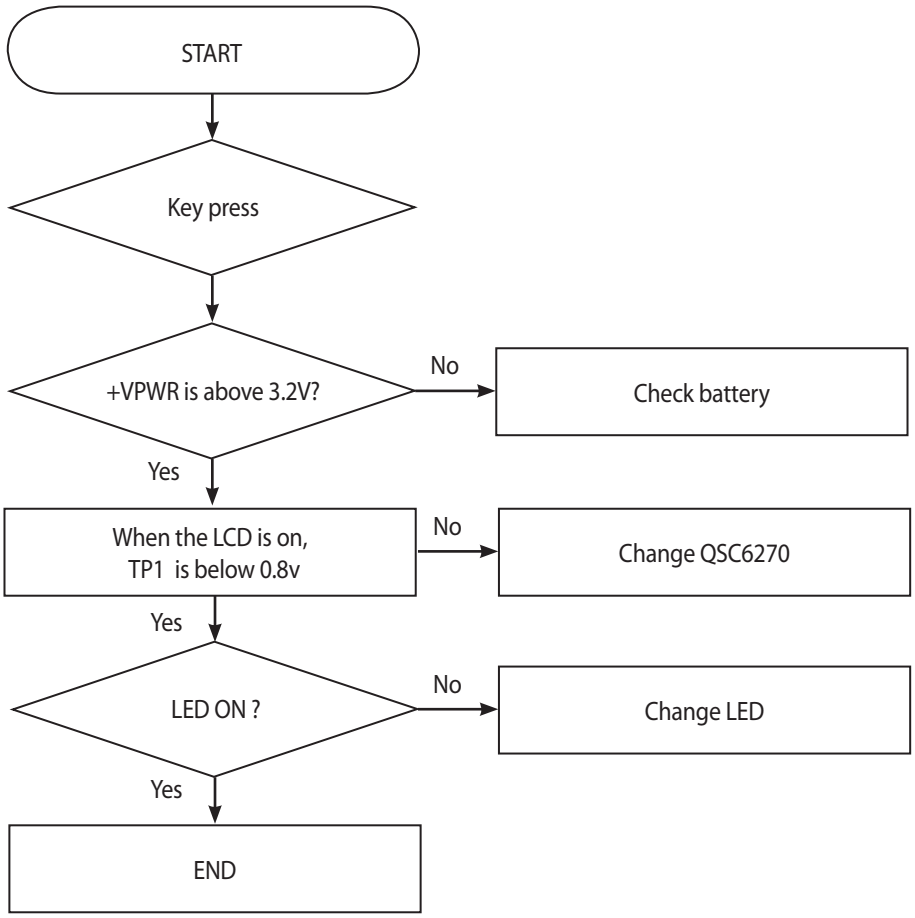
CAM_70MHz PCLK



CAM_24MHz MCLK

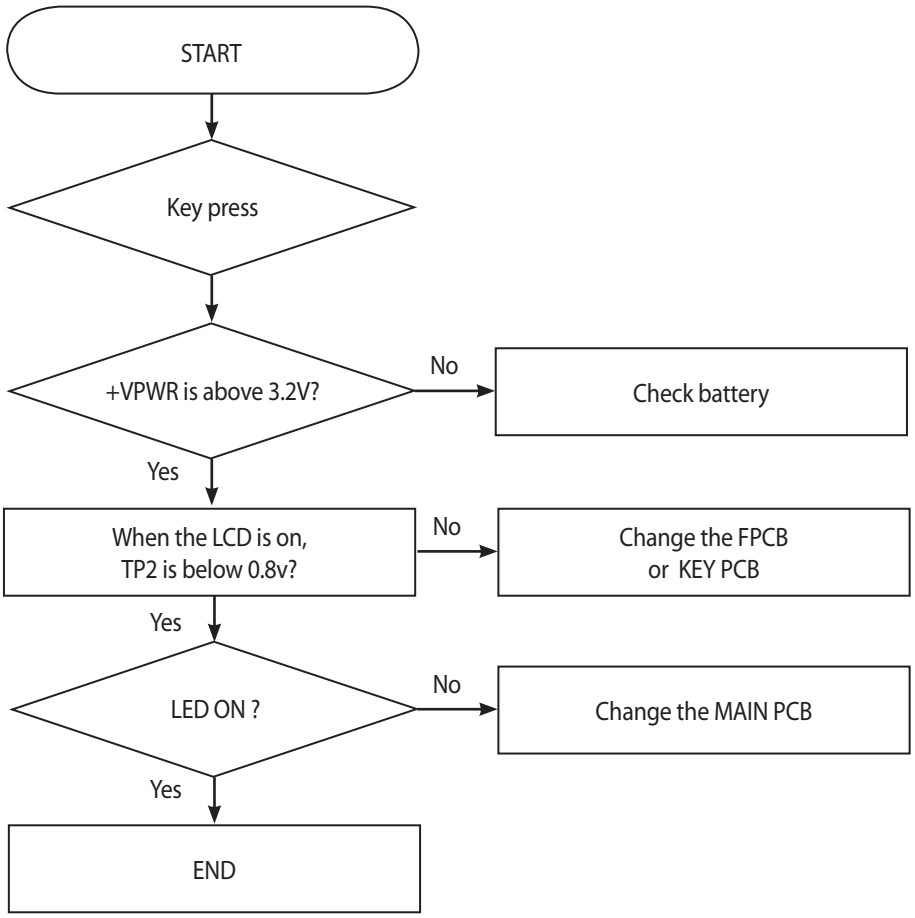
4.6 Main side view LED Troubleshooting

MAIN Key Pad LED is on as below :
Key pressing → LED_CON go down low (below 0.8v) → MAIN Key Backlight LED On

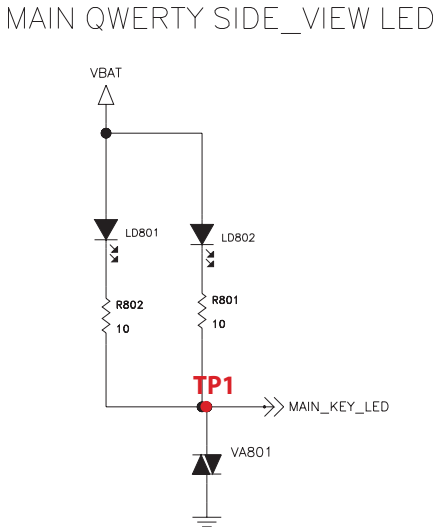


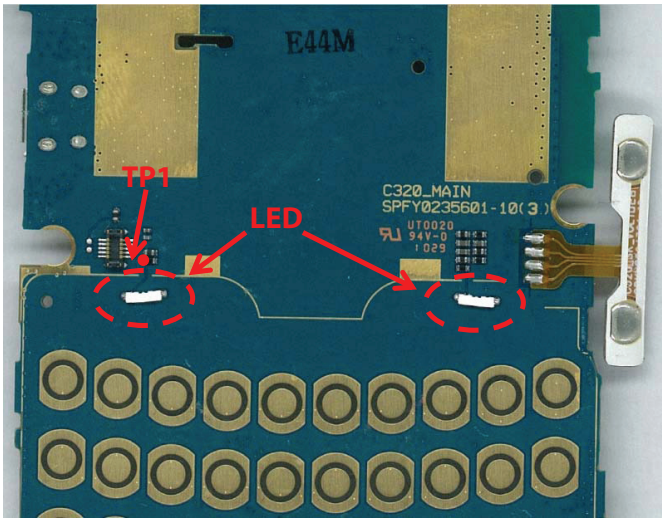
4.7 Slide Key side view LED Troubleshooting

Sub Key Pad Slide is on as below :
Key pressing → LED_CON go down low (below 0.8v) → Sub Key Backlight LED On

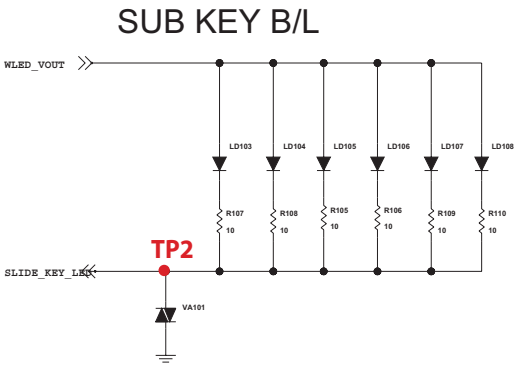


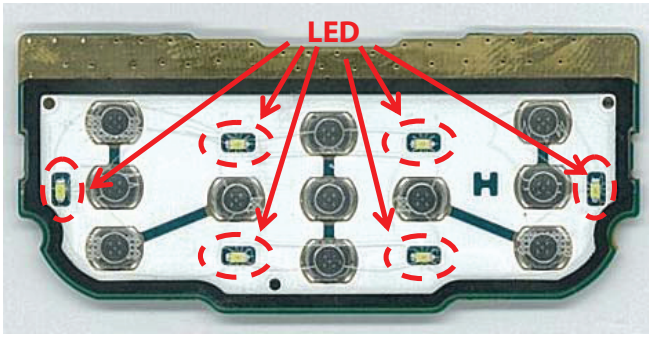
MAIN

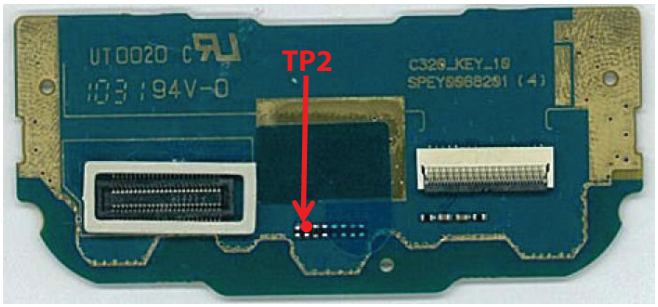




SLIDE

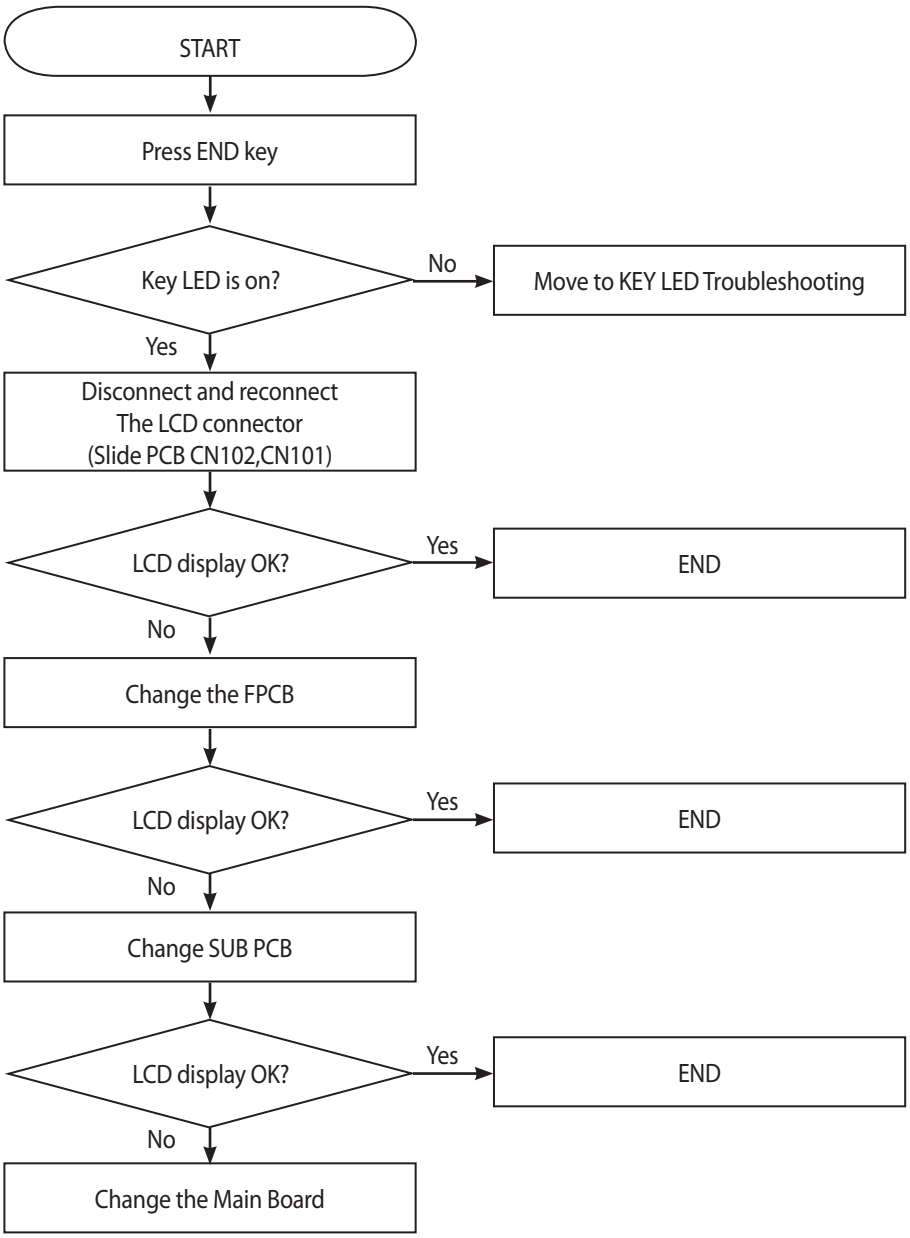


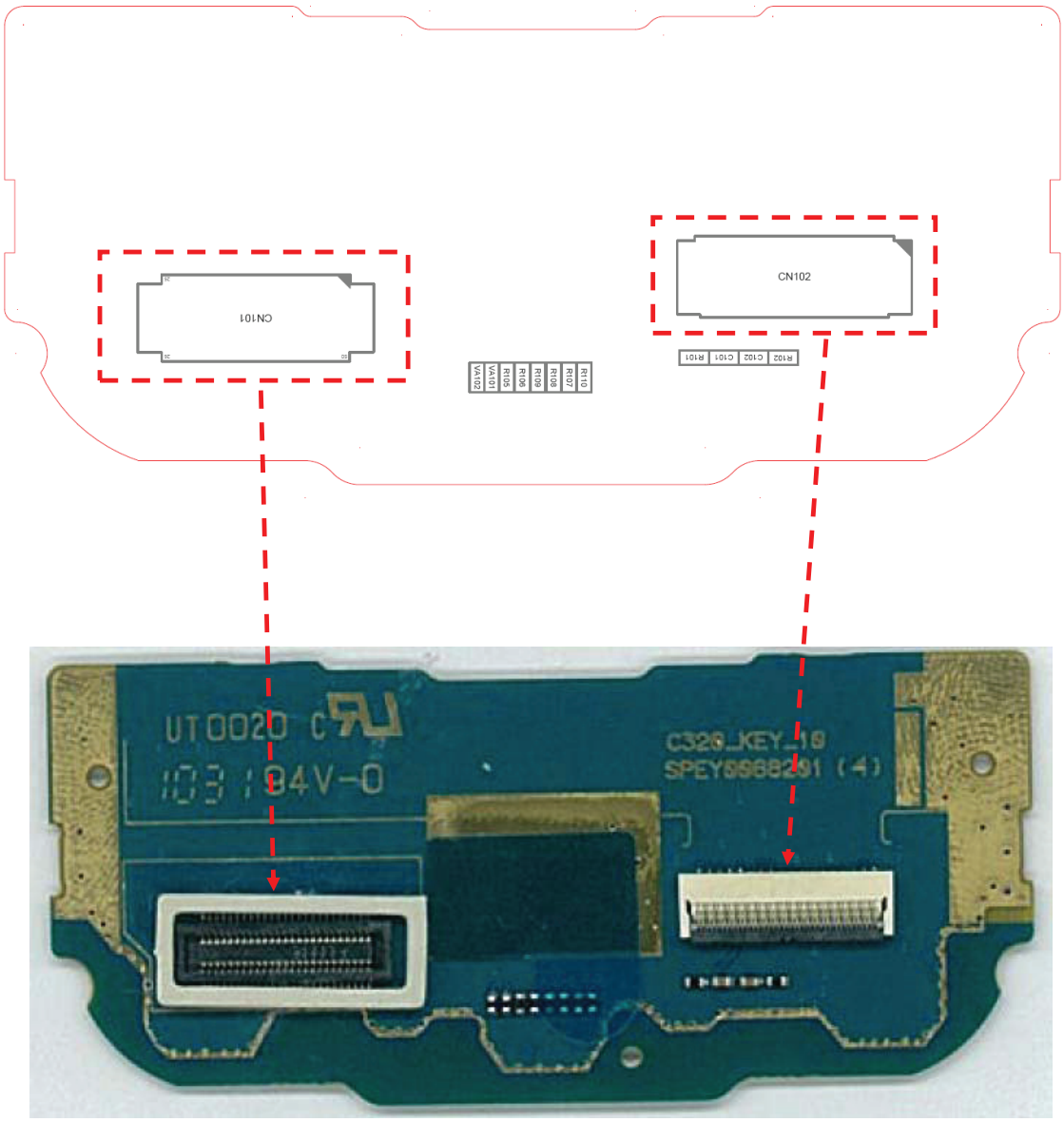




4.8 LCD Troubleshooting

LCD control signals are generated by QSC6270.
The signal path is : QSC6270 → CN102 → LCD Module

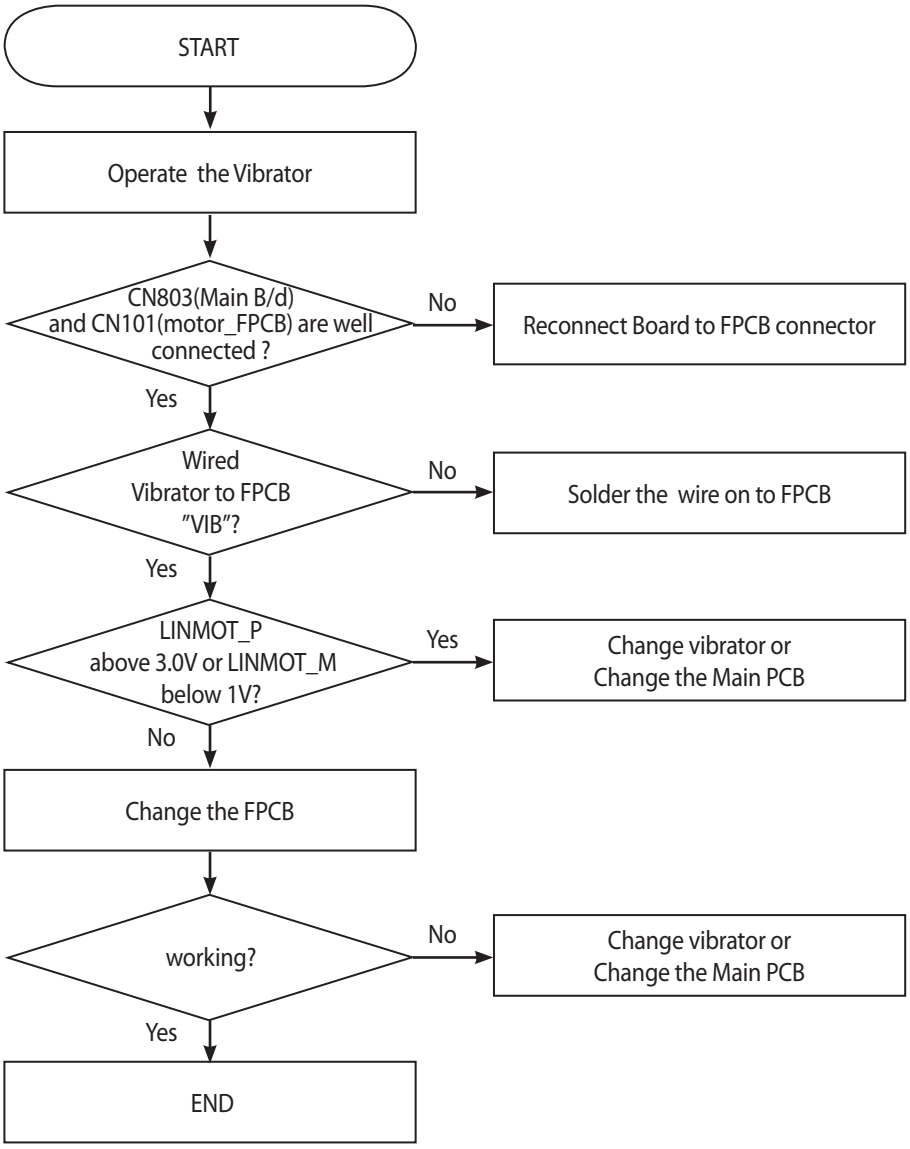


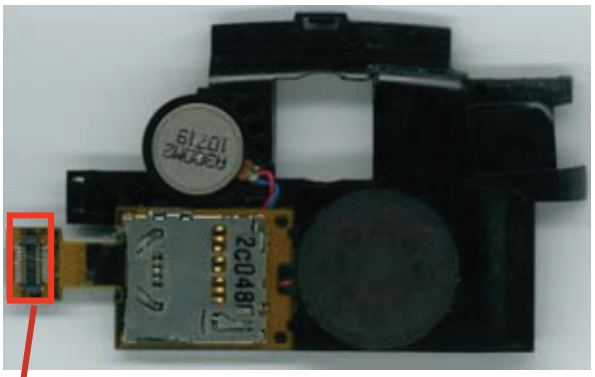


[Slide Side view placement]

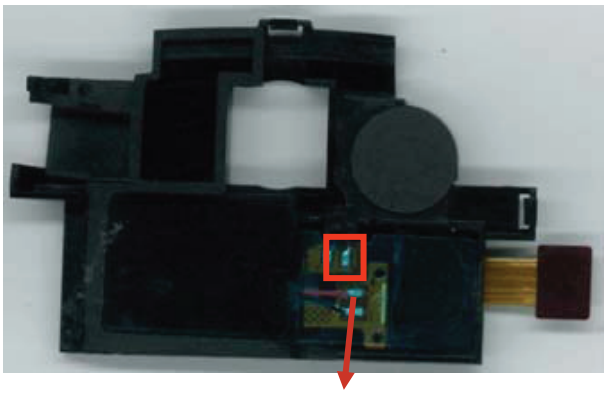
4.9 Vibrator Troubleshooting

Vibrator is operate when DC motor driver is enabled.

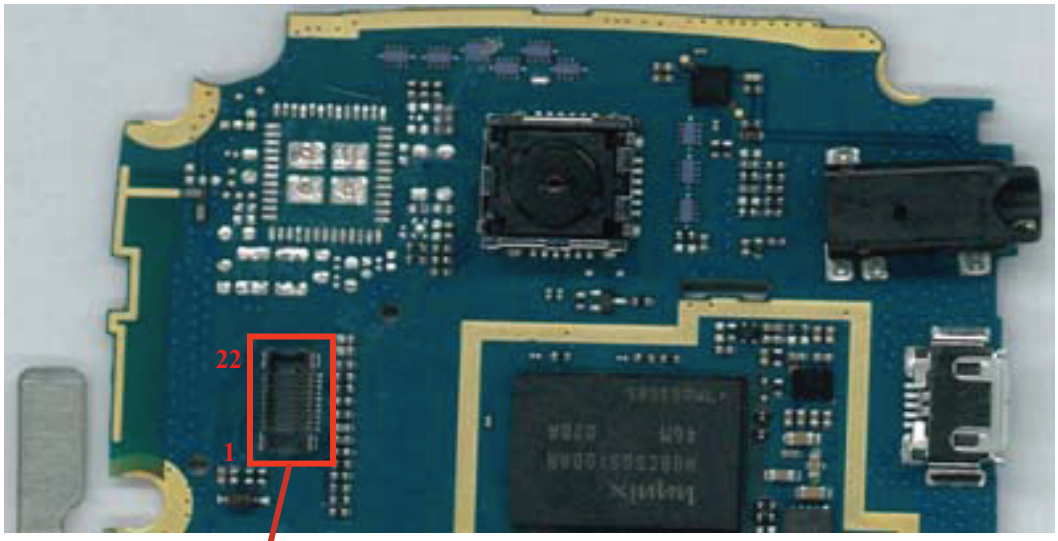




F_SUB_FPCB to Main PCB Connector(CN101)



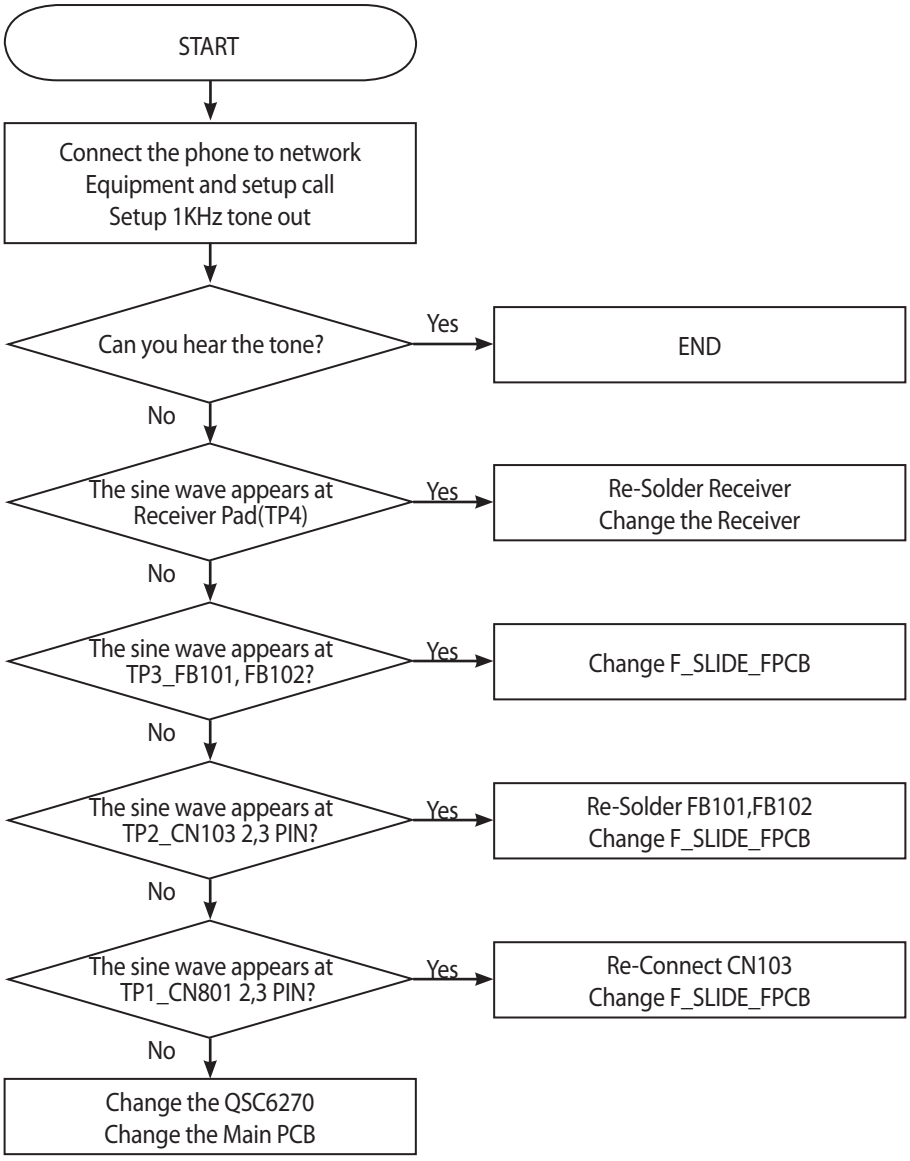
Motor Pad(CN101)

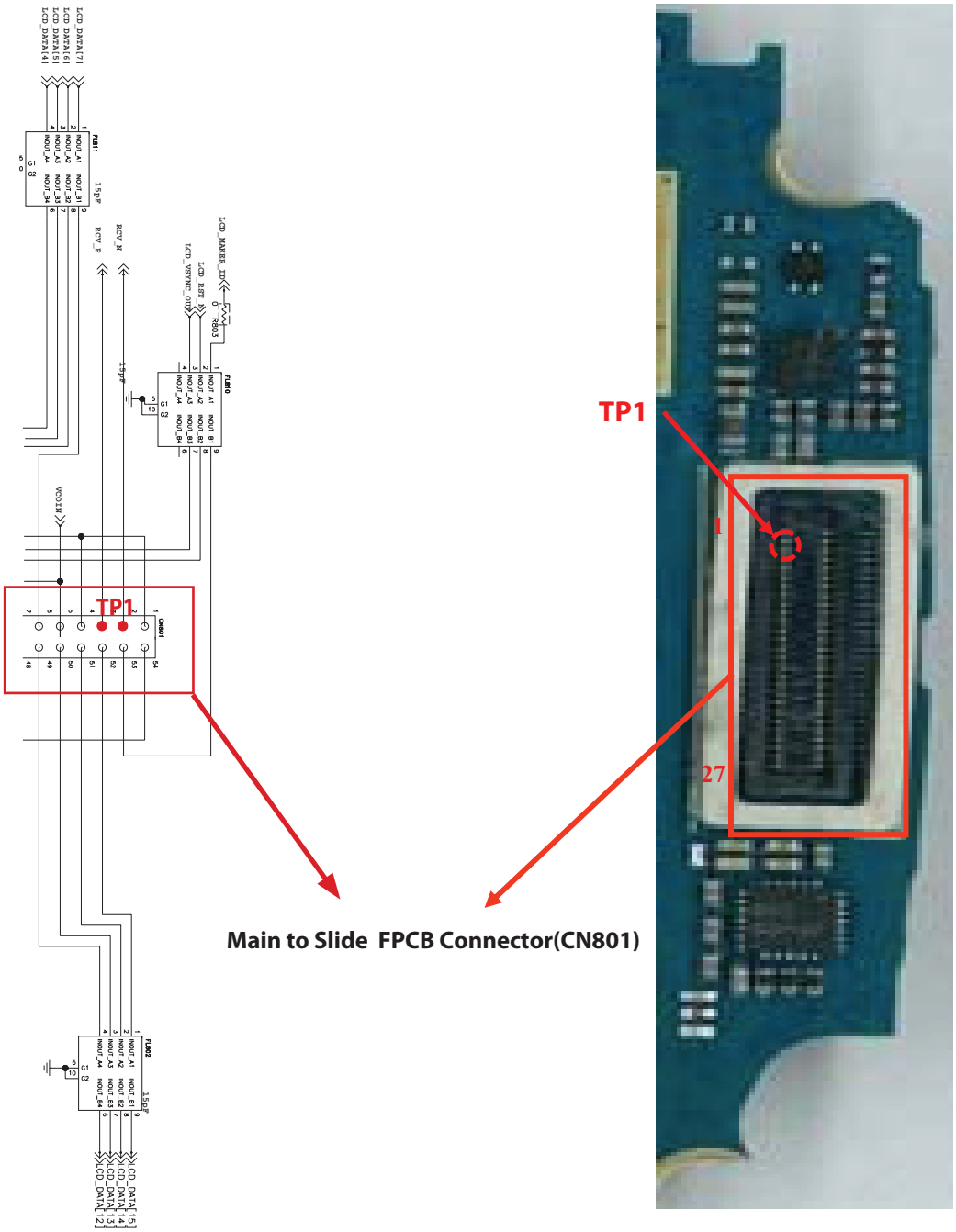


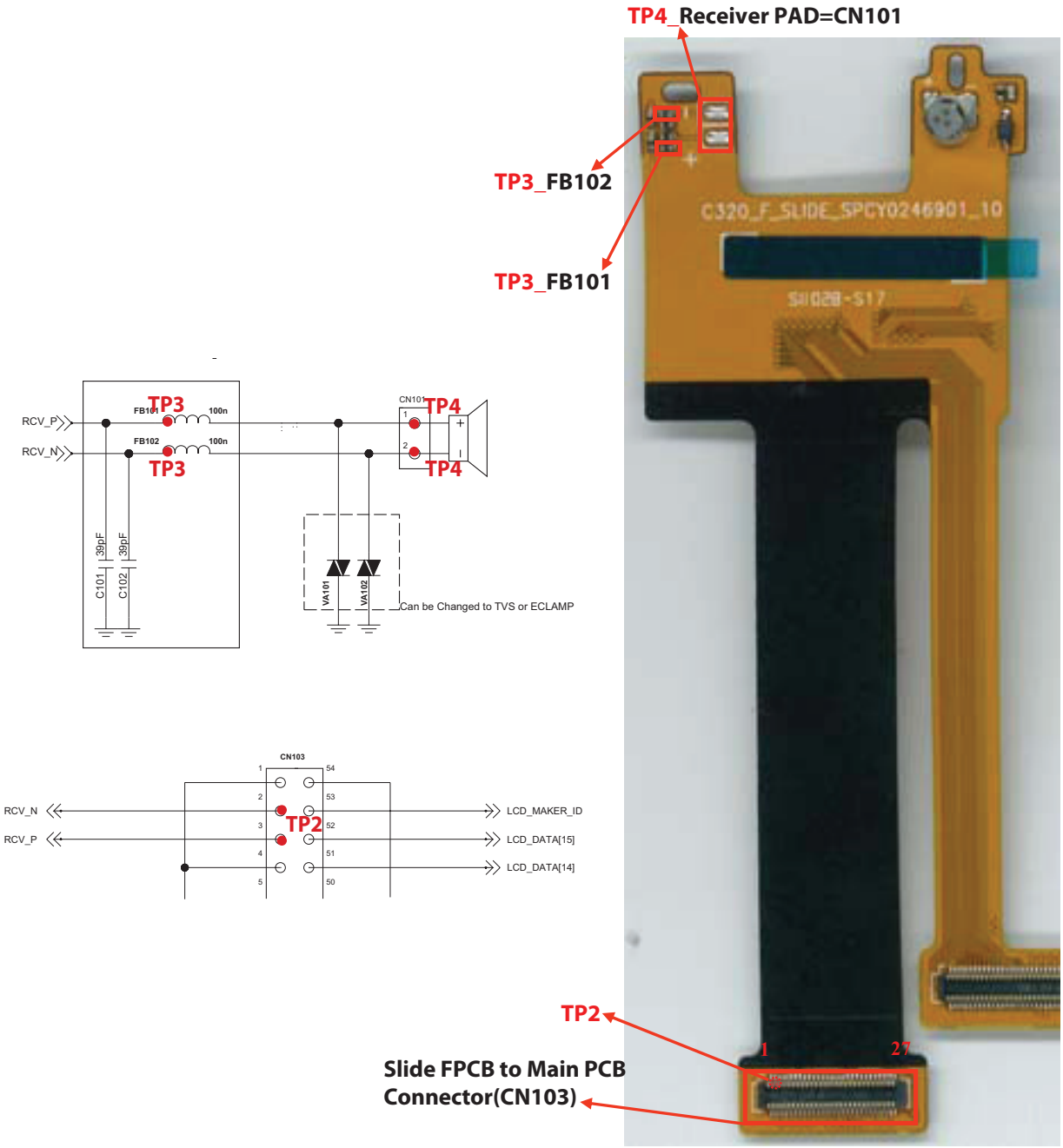
Main to F_SUB_FPCB Connector(CN803)

4.10 Receiver Path

QSC6270(3G disable) EAROP(EARON) → TP1_CN801(Main to Slide FPCB Connector) 2,3 PIN
→ TP2_CN103(=Slide FPCB to Main PCB Connector) 2, 3 PIN → TP3_FB101, FB102(of F_SLIDE_ FPCB)
TP4_CN101(= Receiver Pad of F_SLIDE_ FPCB)

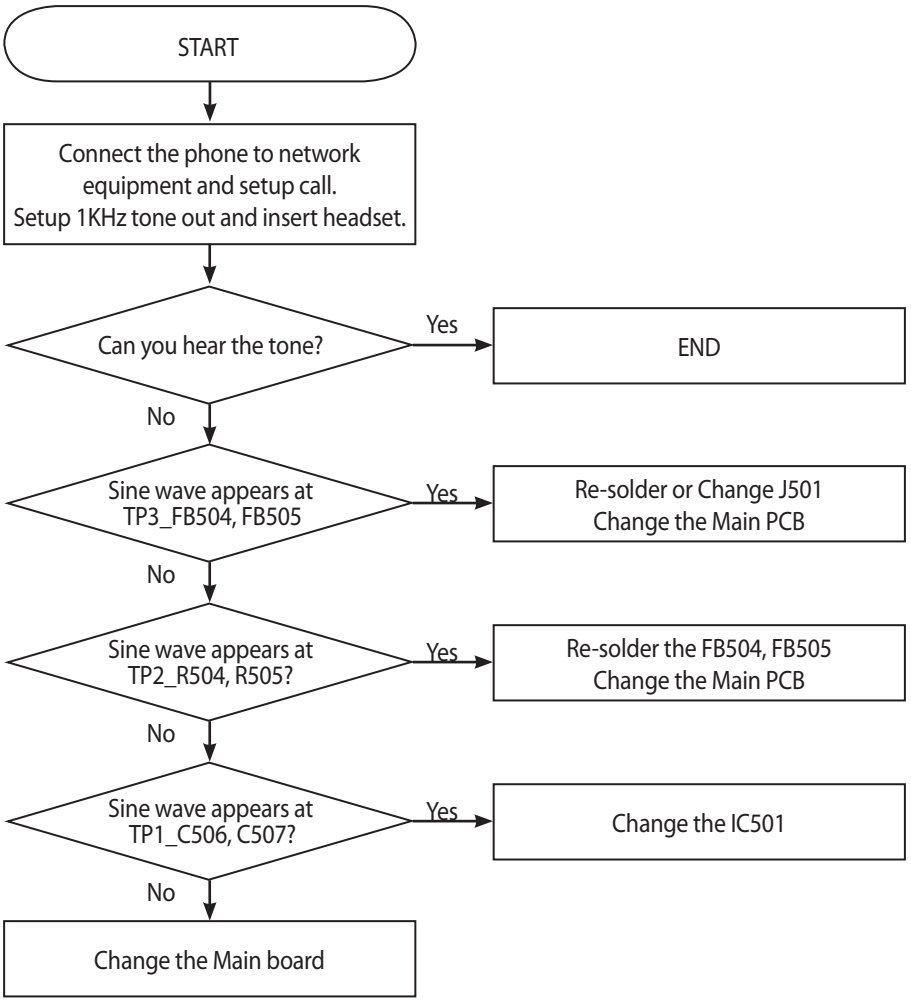


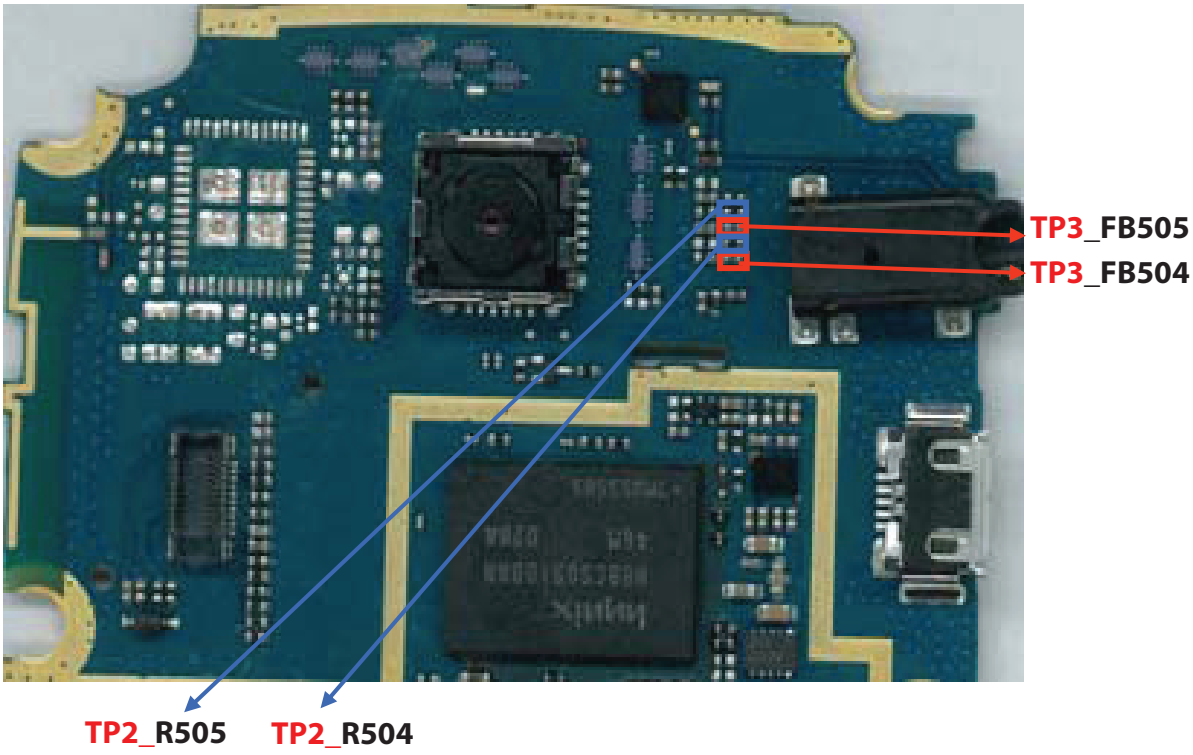


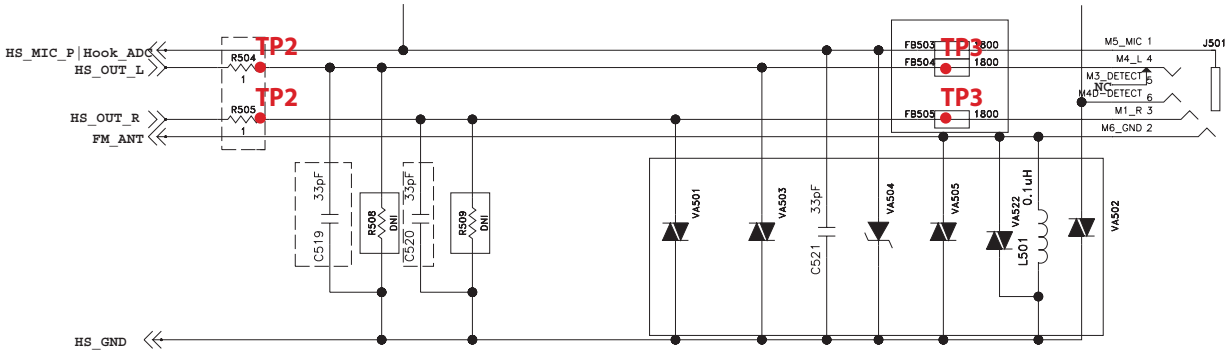


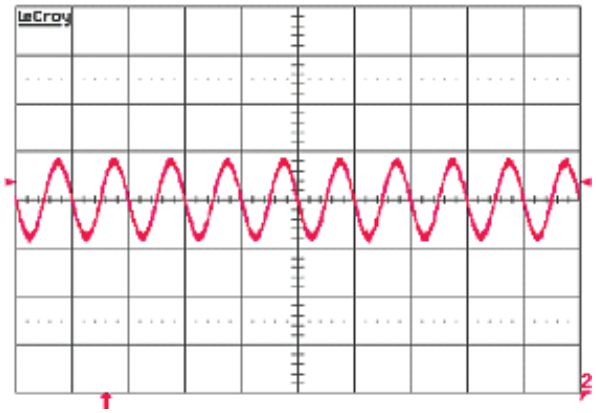
4.11 Headset path

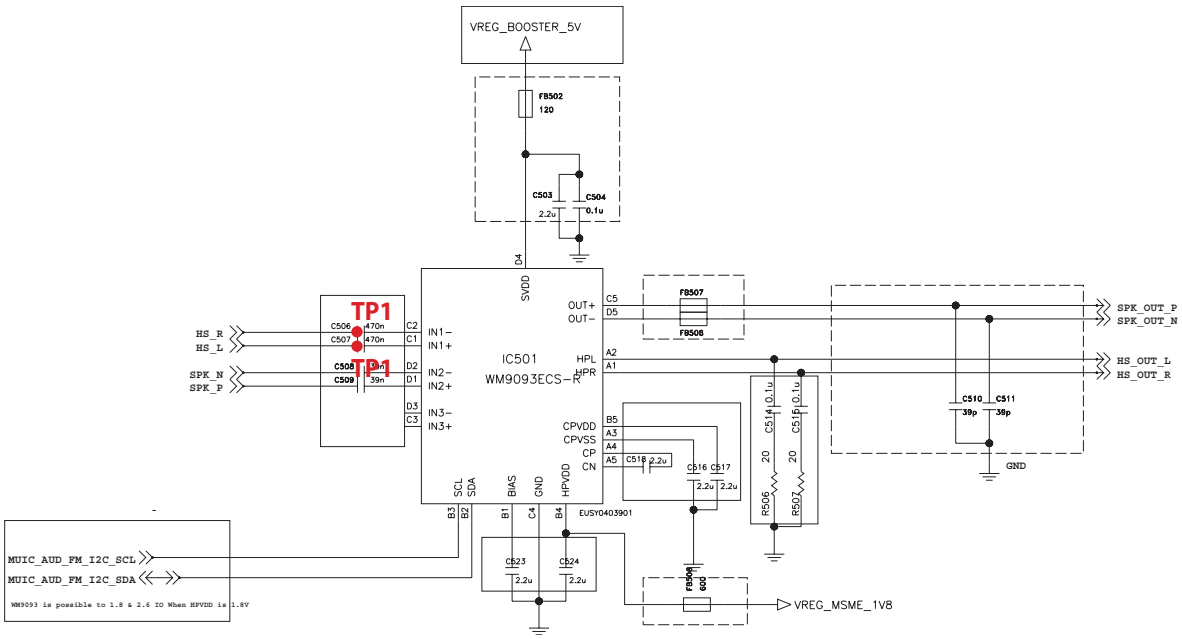
QSC6270(3G disable) HPH_OUT_L_P/N → TP1_C506,C507 → IC501(Audio Sub System) →
TP2_R504,R505 → TP3_FB504, FB505 → J501(=3.5pi Ear-jack)





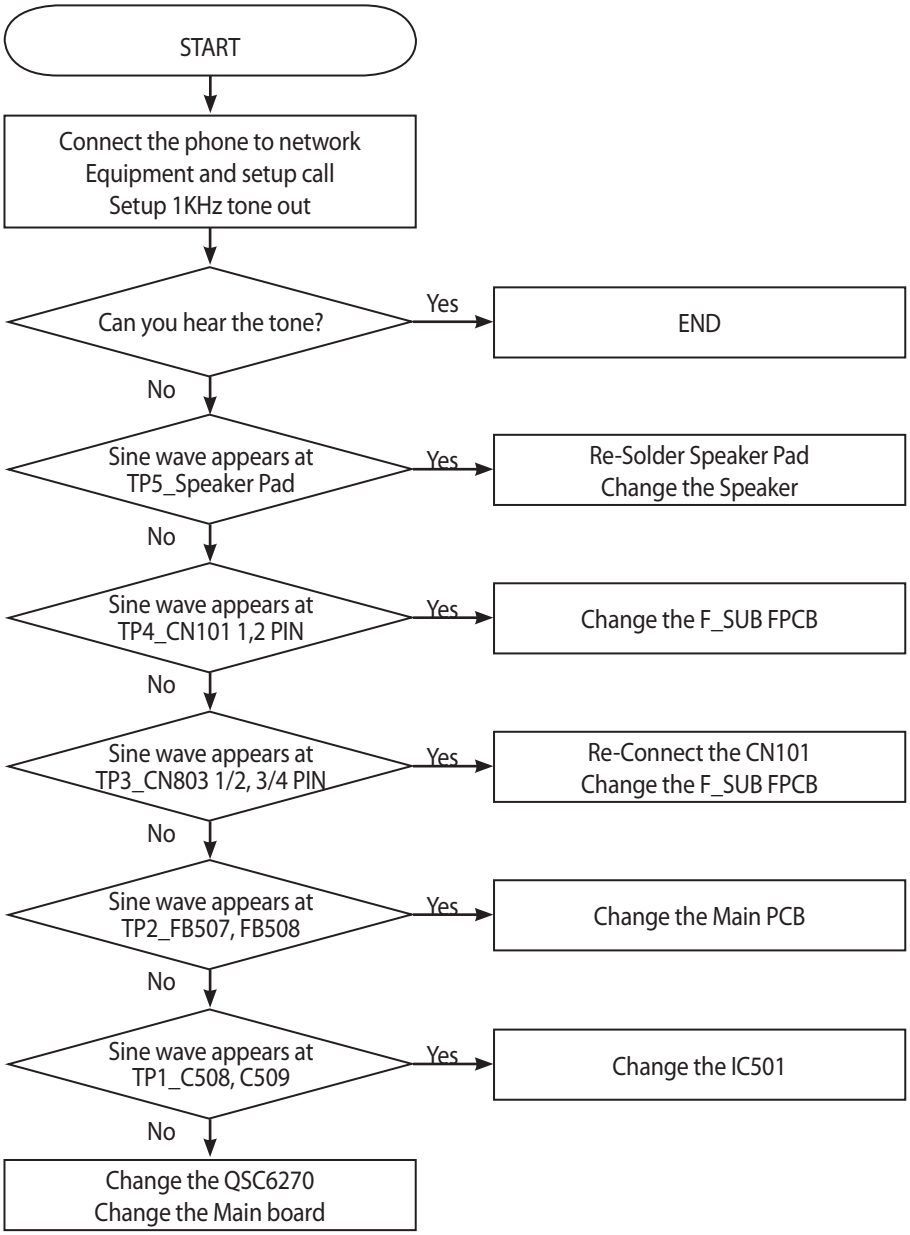


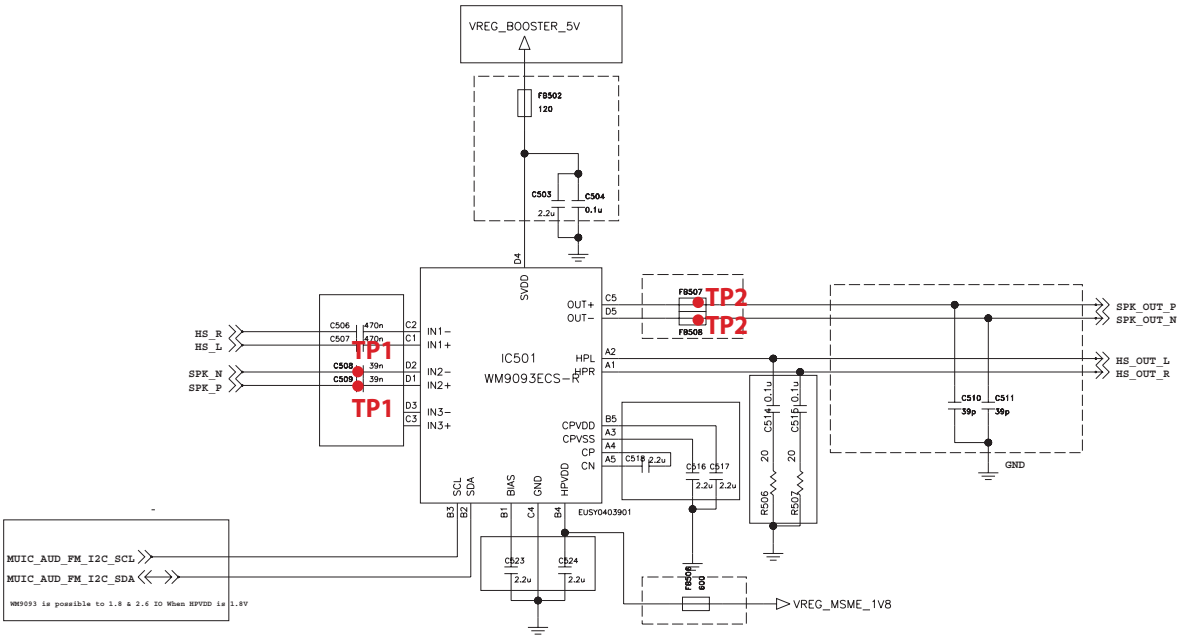


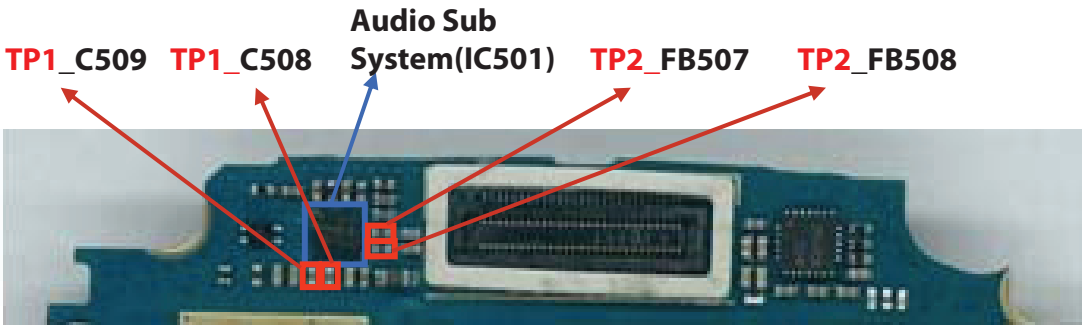


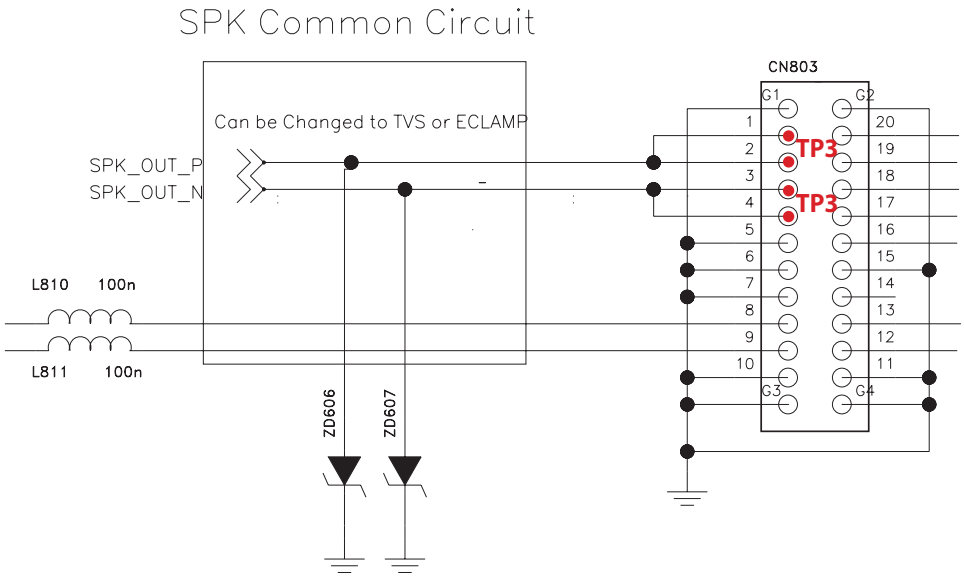
4.12 Speaker/Speaker Phone path

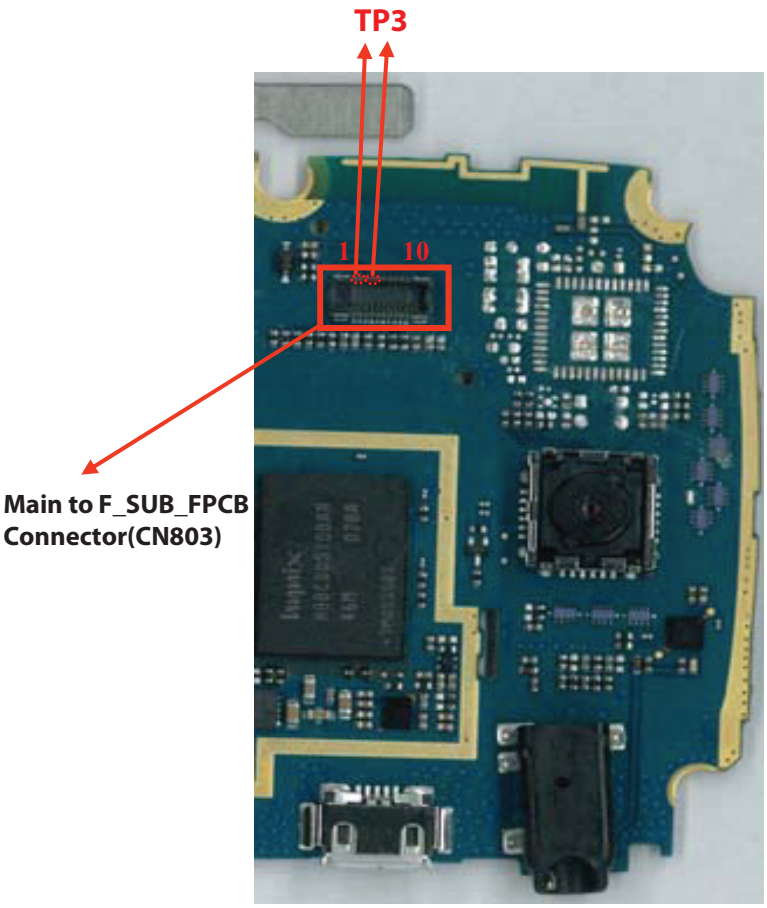
QSC6270 LINE_OUT_L_P/LINE_OUT_R_N →TP1_C508, C509→ Audio Sub System(IC501) → TP2_FB507, FB508 → TP3_CN803 1/2, 3/4 PIN(=Main to F_SUB_FPCB Connector) → TP4_CN101 1,2 PIN(=F_SUB_FPCB to Main PCB Connector) → TP5_CN102(= Speaker Pad of F_SUB_FPCB)

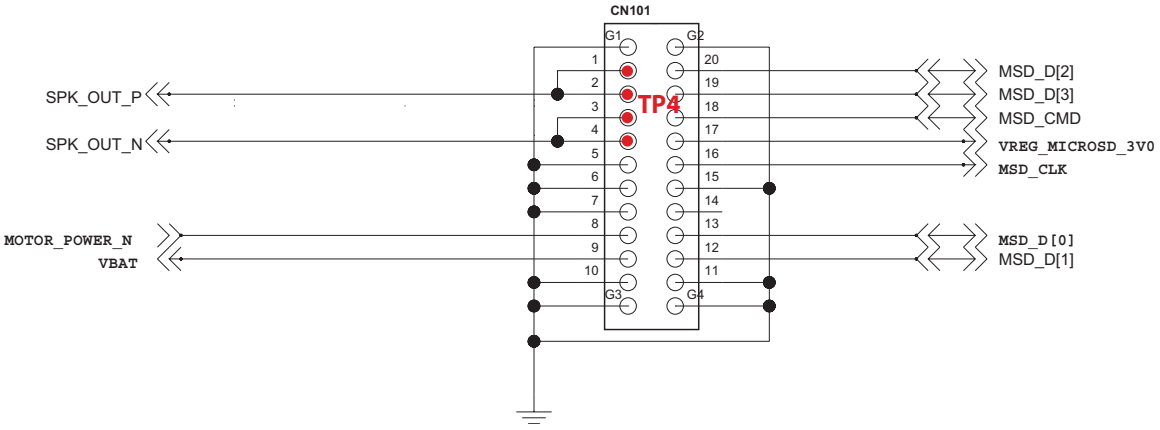


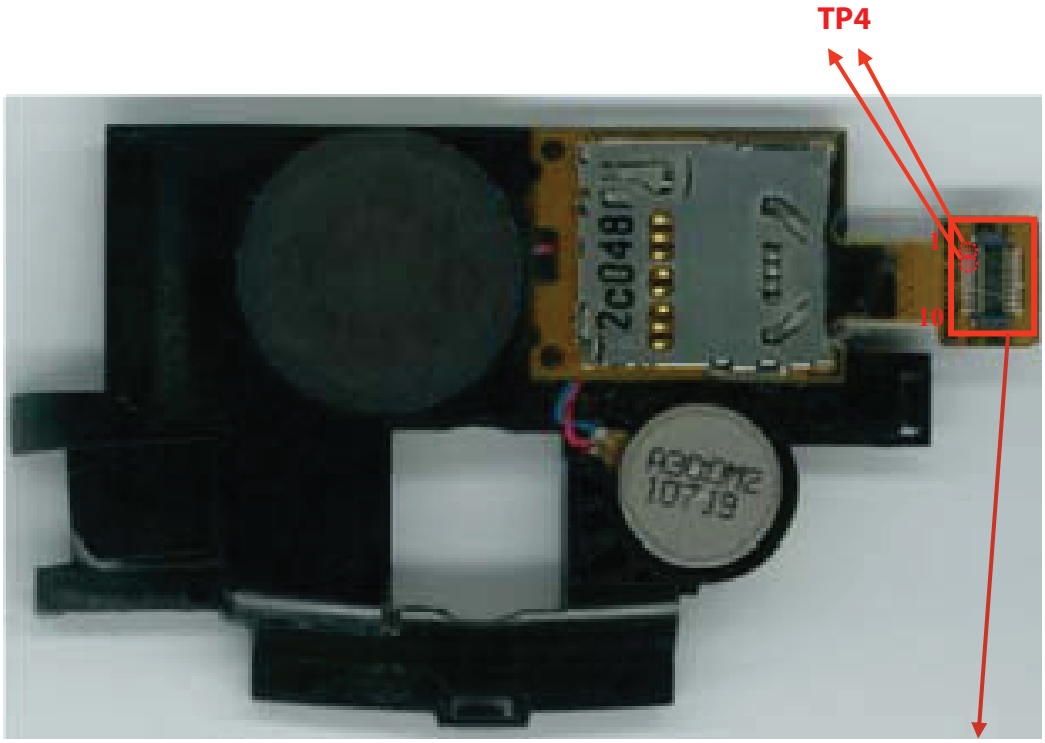




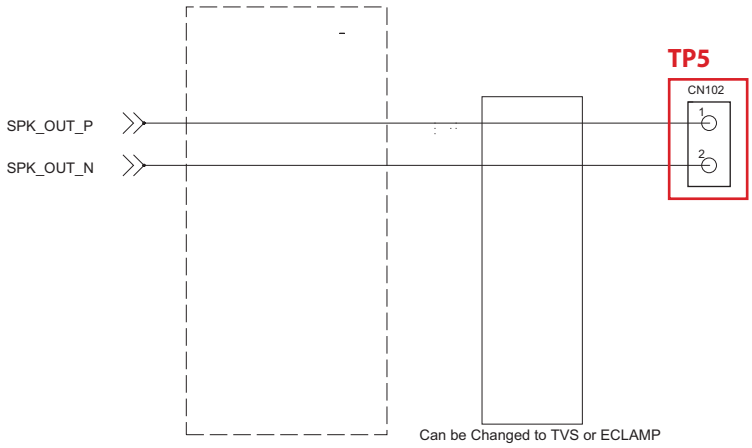


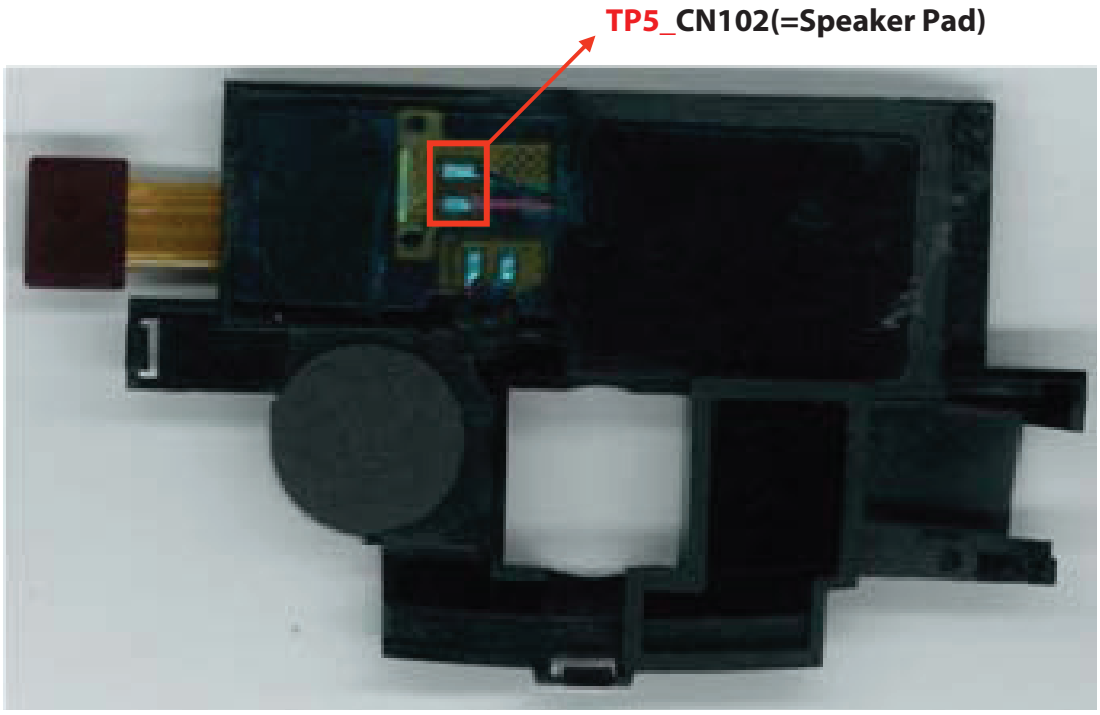






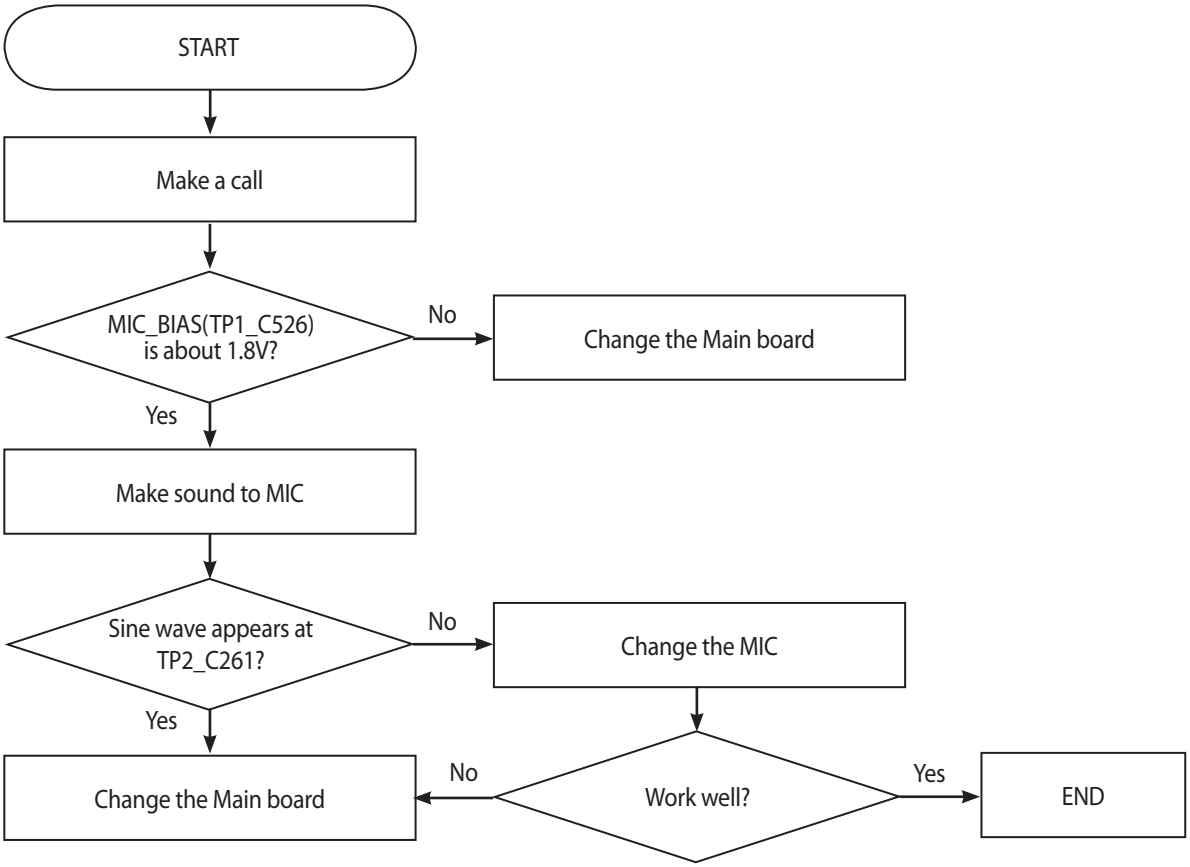
F_SUB_FPCB to Main PCB Connector(CN101)

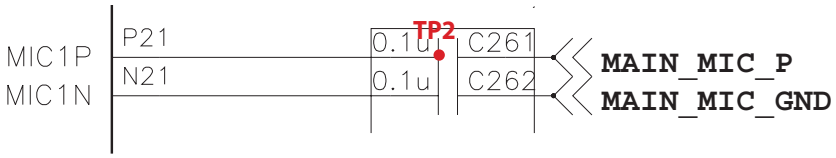


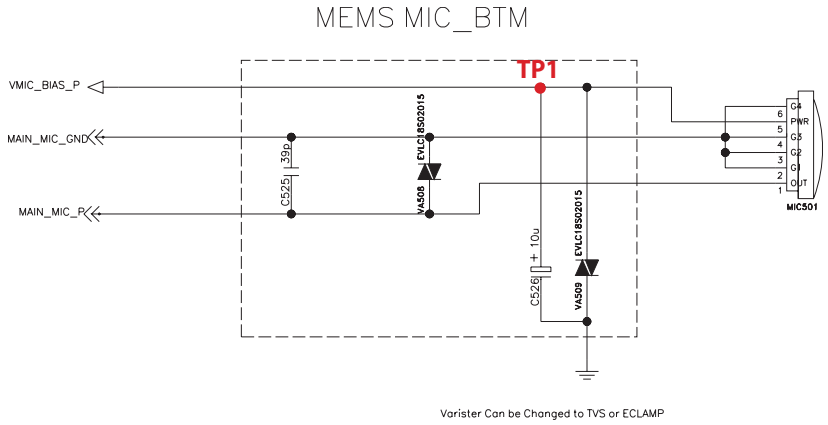


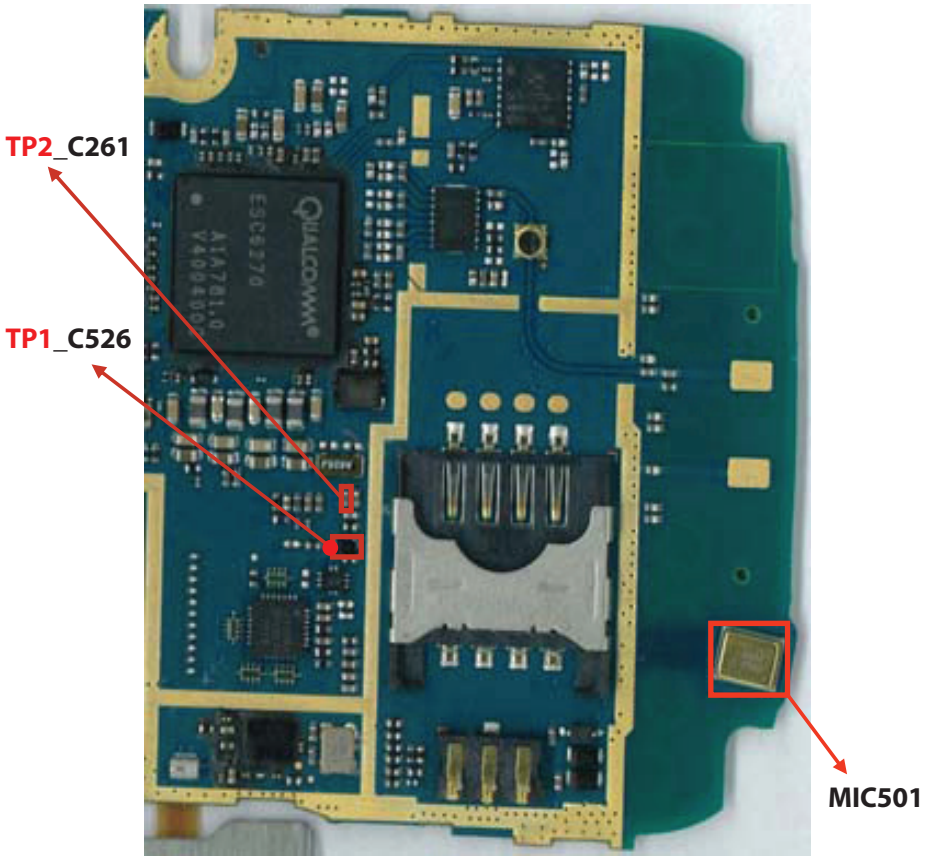
4.13 Main microphone

MIC501 → VMIC_BIAS_P(TP1_C526) → MAIN_MIC_P(TP2_C261) → MIC1P PAD of QSC6270(3G disable)



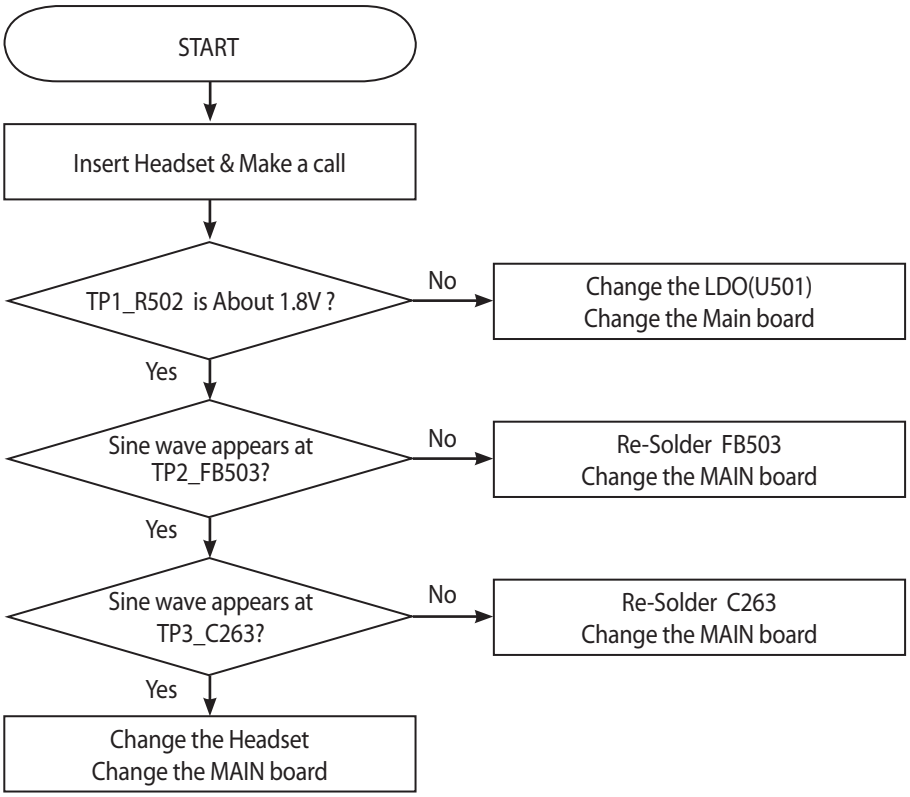


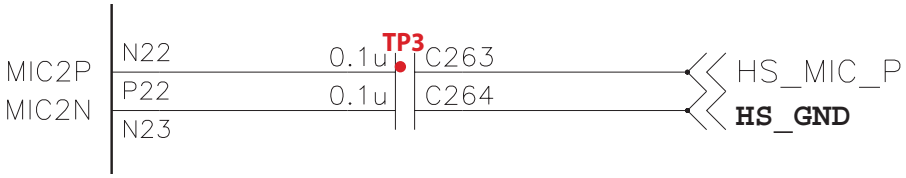


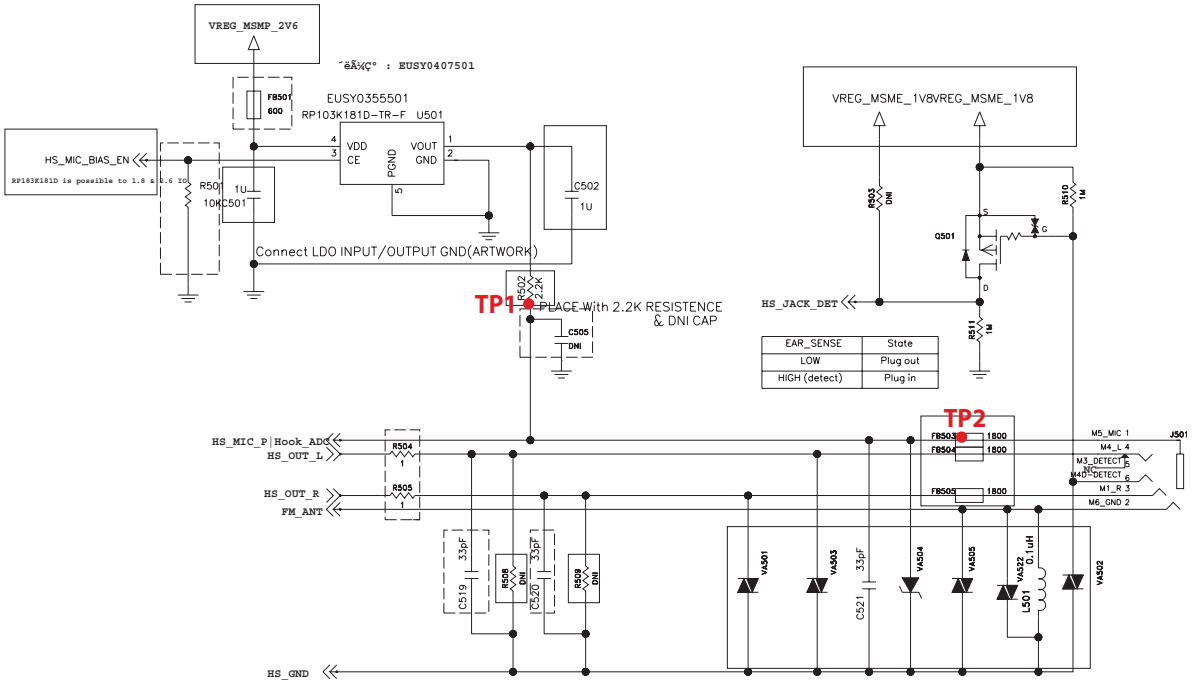


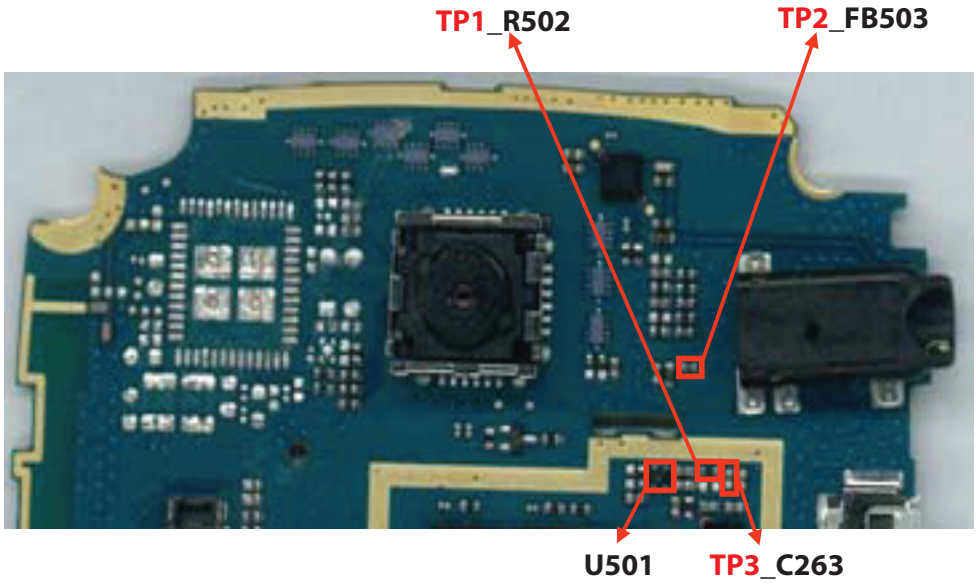
4.14 Headset microphone

3.5 pie Headset →HS_MIC_BIAS(TP1_R502) → HS_MIC_P(TP2_FB503) → HS_MIC_P(TP3_C263)
→ MIC2P PAD of QSC6270(3G disable)



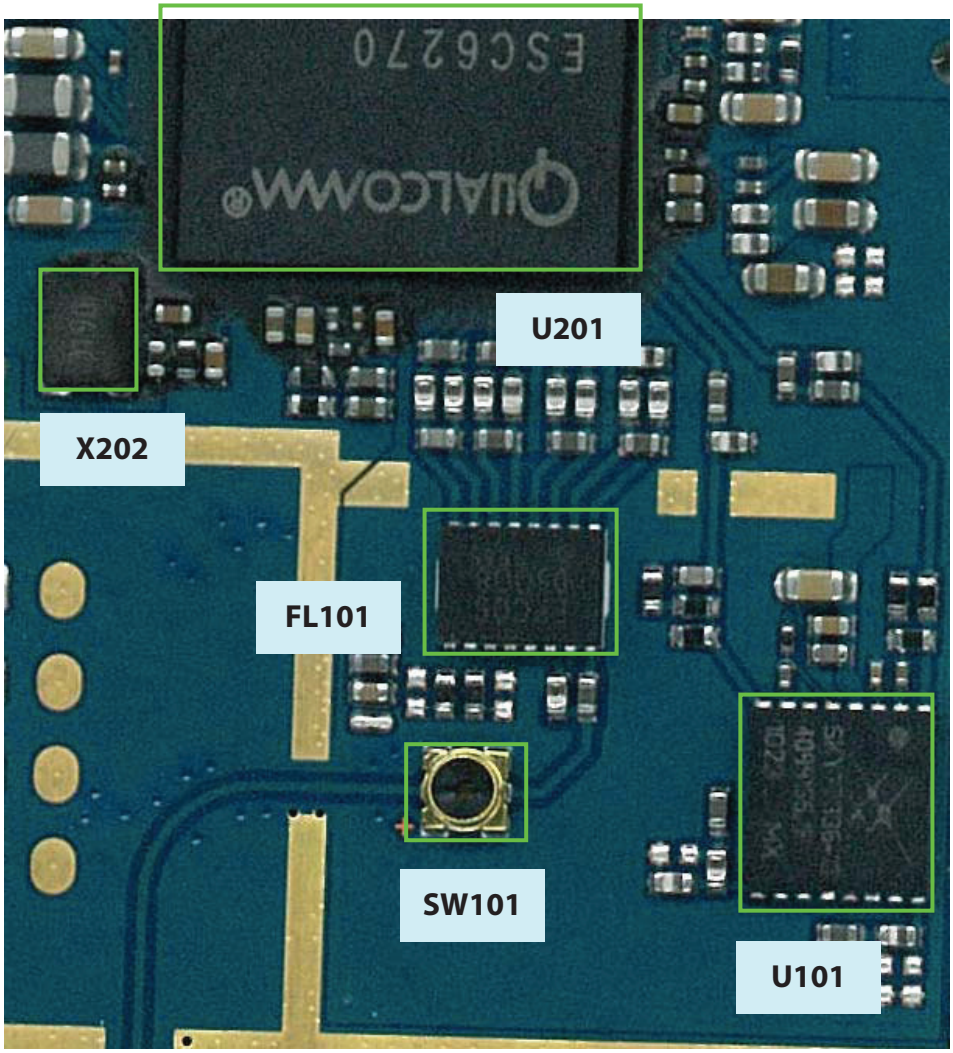






4.15 RF Component

MAIN board Bottom

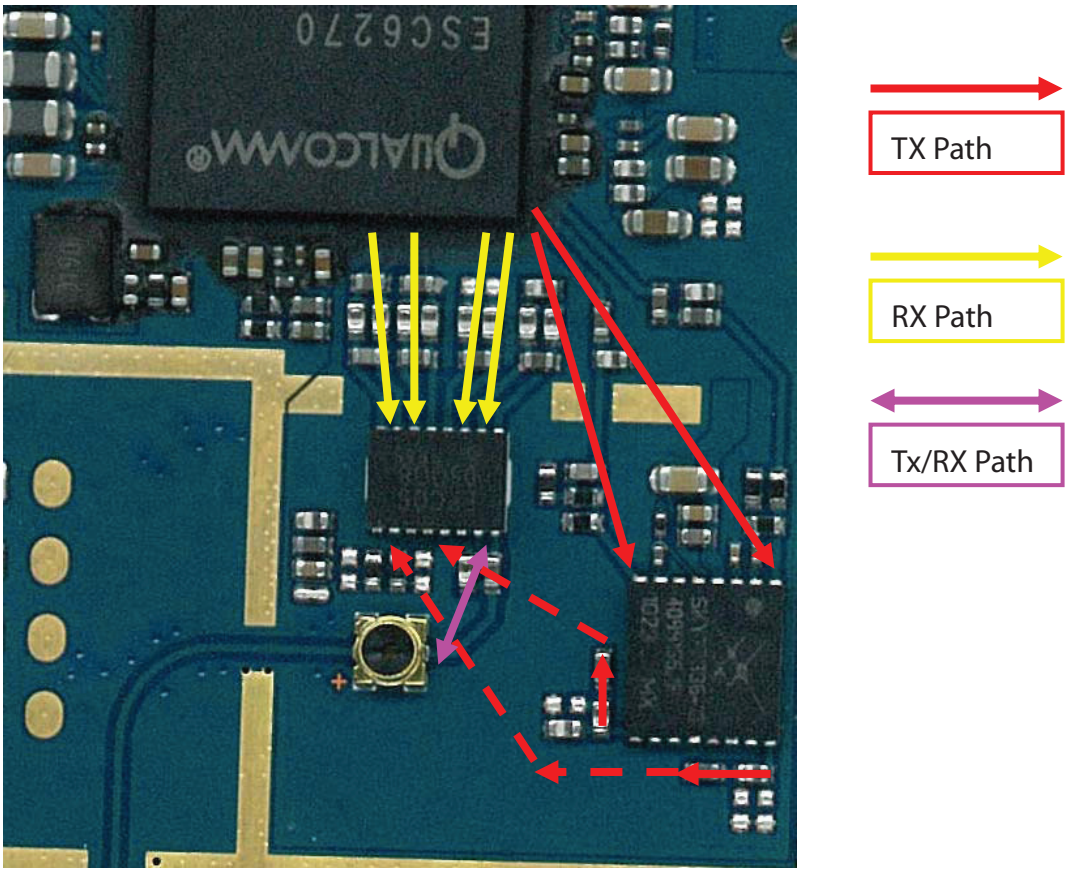


Reference	Description	Reference	Description
U201	QSC6270 3G disable	FL101	FEM
X202	XO	SW101	RF connector
U101	GSM(EDGE) TX PAM		

RF component (GSM)

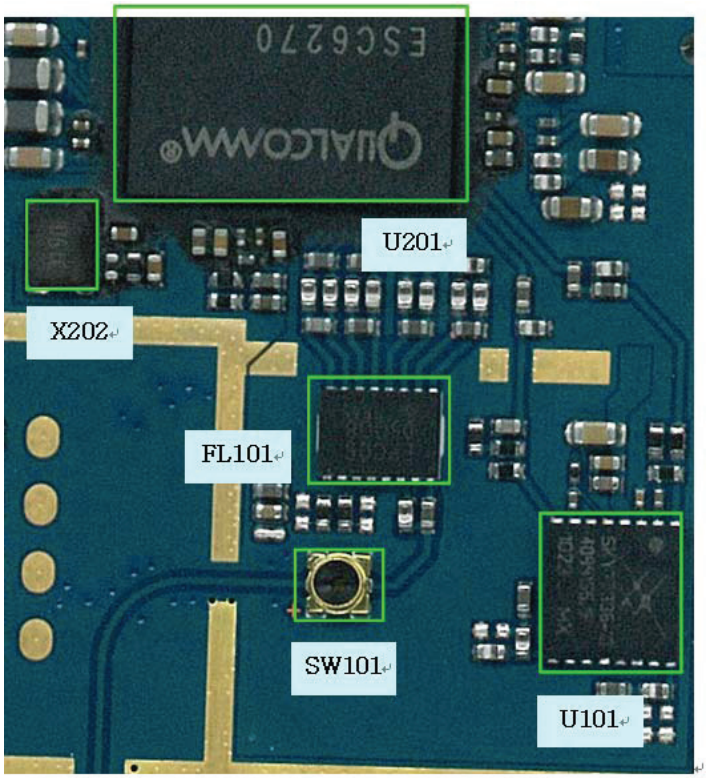
4.16 RF Path

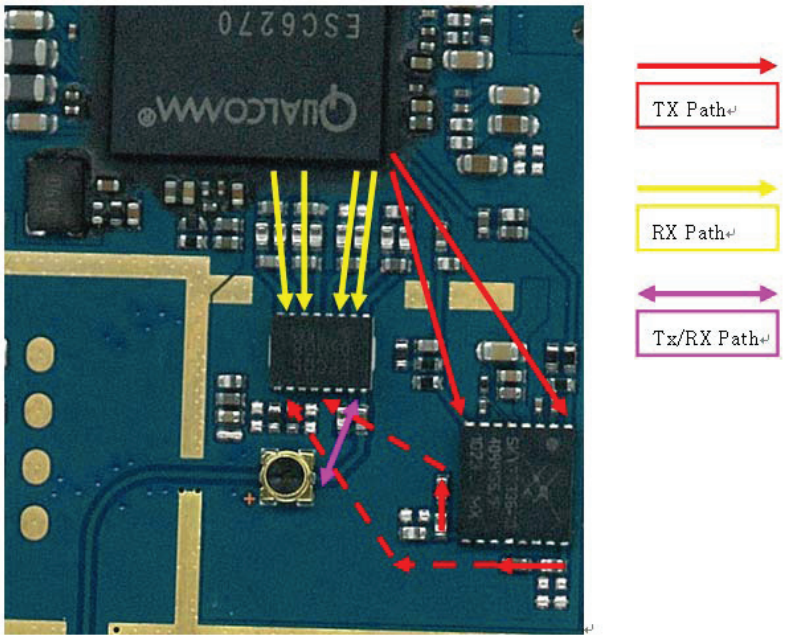
4.16.1 GSM path

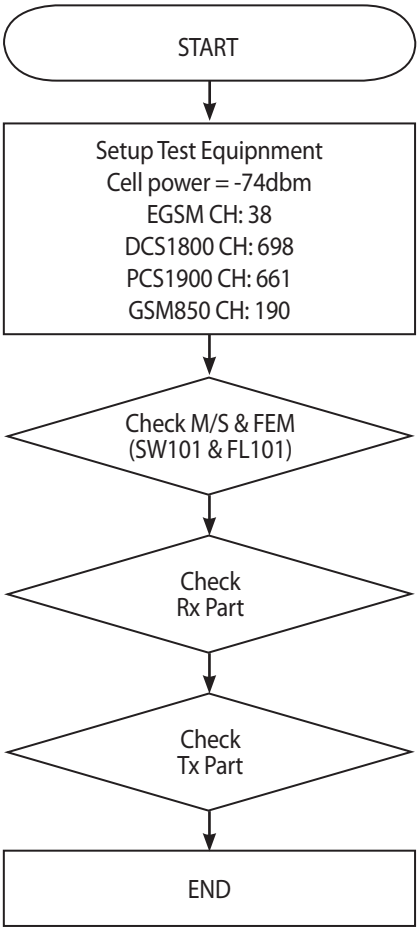


4.17 Trouble Shooting of GSM Part

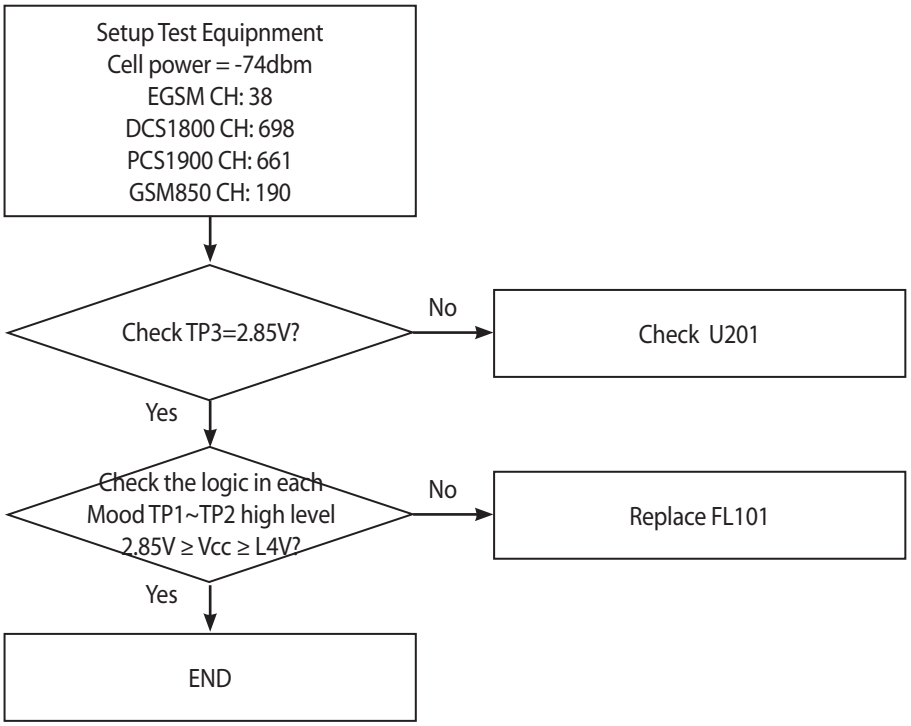
(GSM850/GSM900/1800/1900)



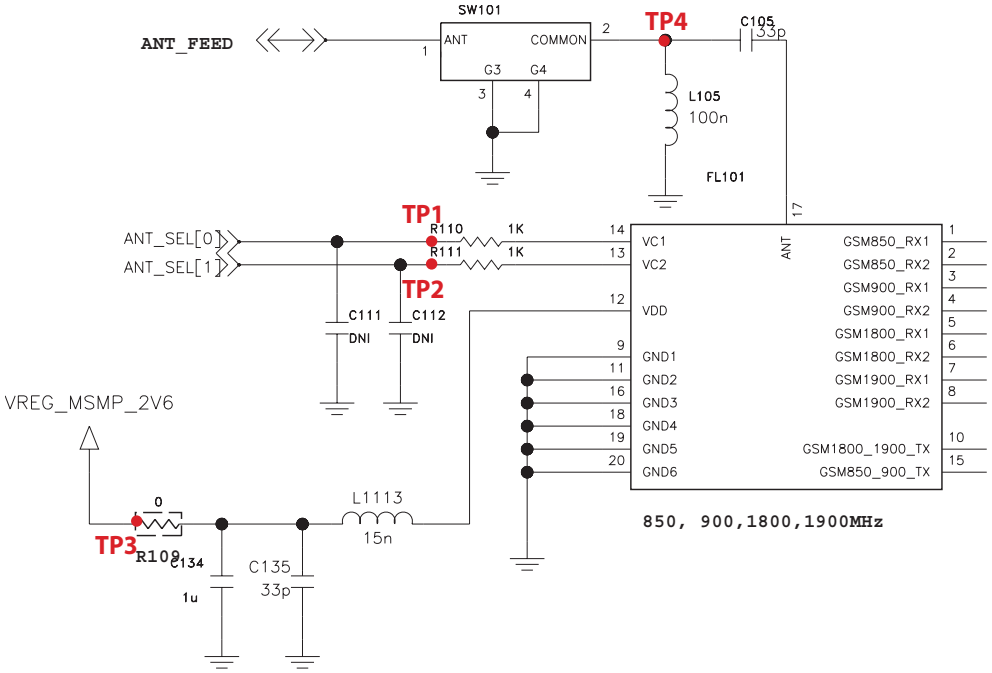


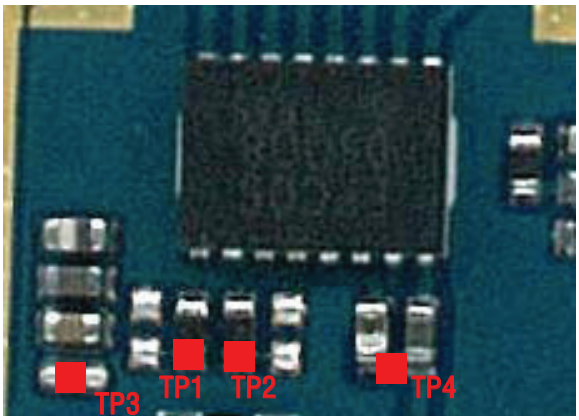


4.17.1 Checking Front-End Module Block

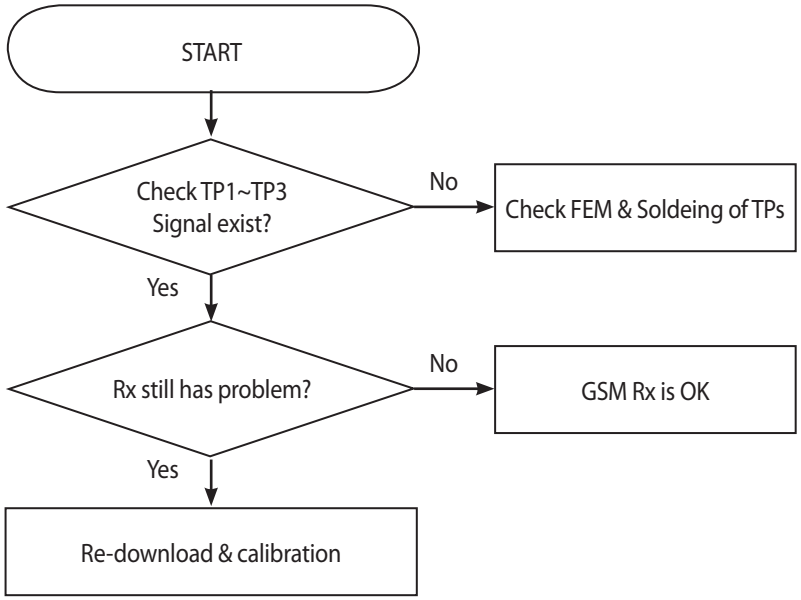


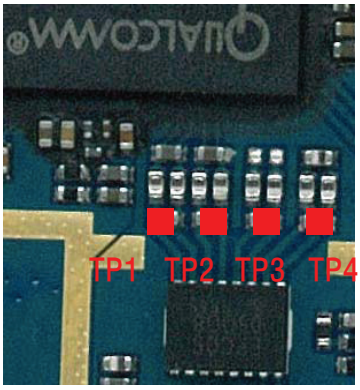
Switch Mode	Vc1	Vc2
GSM850/900 Tx	0	1
GSM1800/1900 Tx	1	1
GSM850/900 Rx	0	0
GSM1800/1900 Rx	1	0

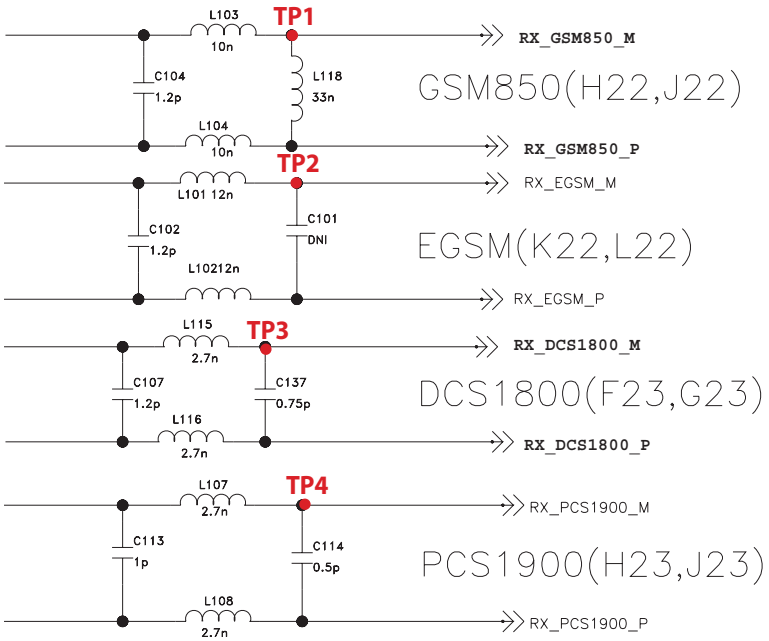




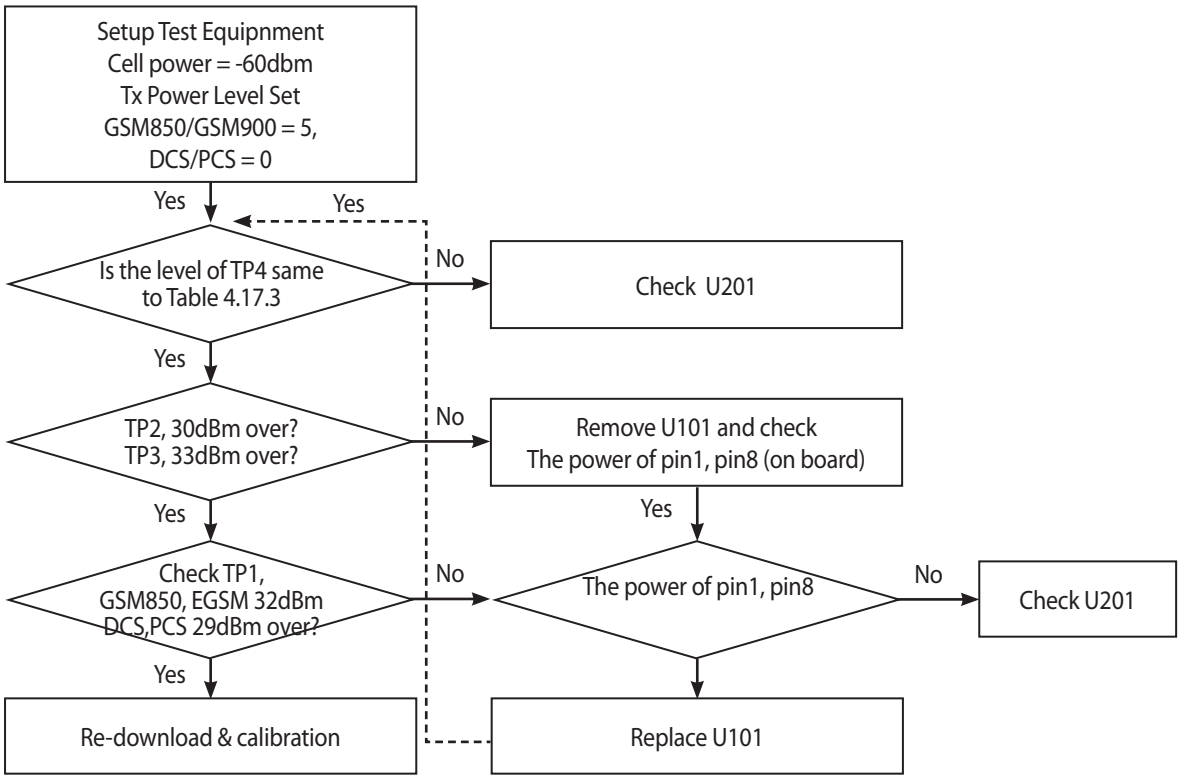
4.17.2 Checking GSM Rx part





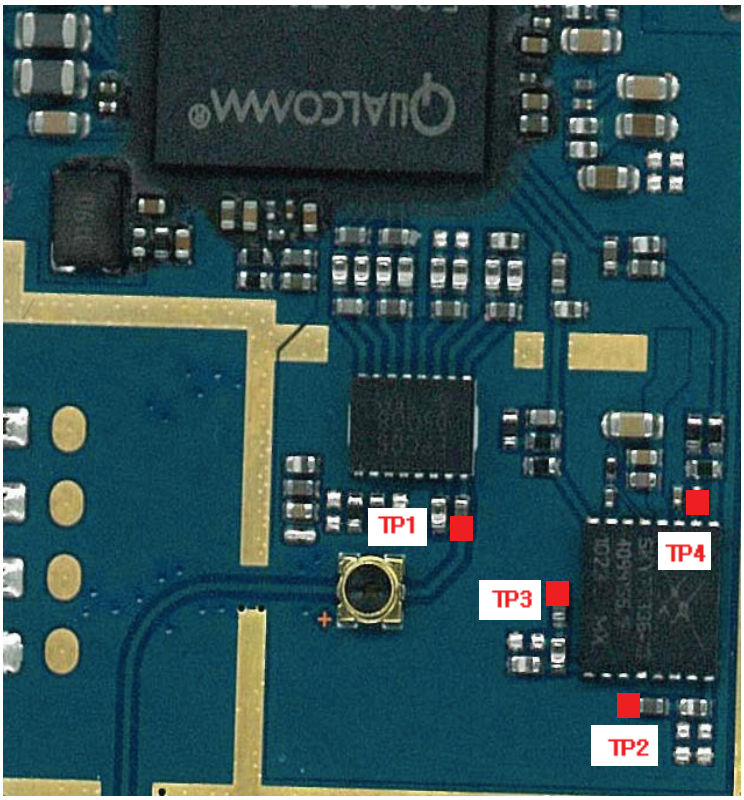


4.17.3 Checking GSM Tx part



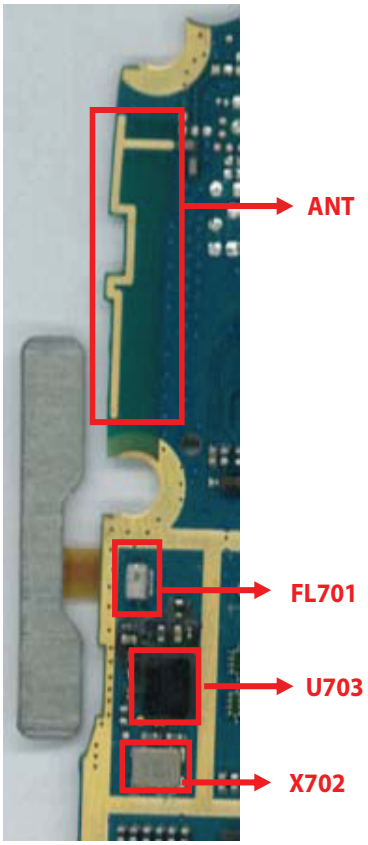
GSM_PA_BAND	MODE
LOW	GSM
HIGH	DCS/PCS

Table 4.17.3 GPAM Logic Control



4.18 Checking Bluetooth Block

4.18.1 BLUETOOTH RF components

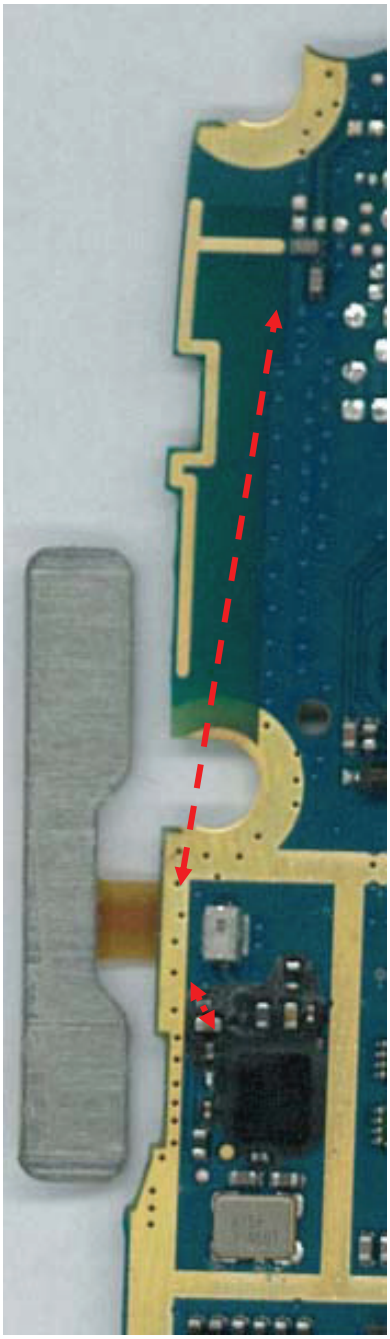


RF component (BT)

- Main board bottom -

Reference	Description
ANT	BT Pattern ANT
U703	BT module_BCM2070
FL701	Band pass filter
X702	26Mhz crystal

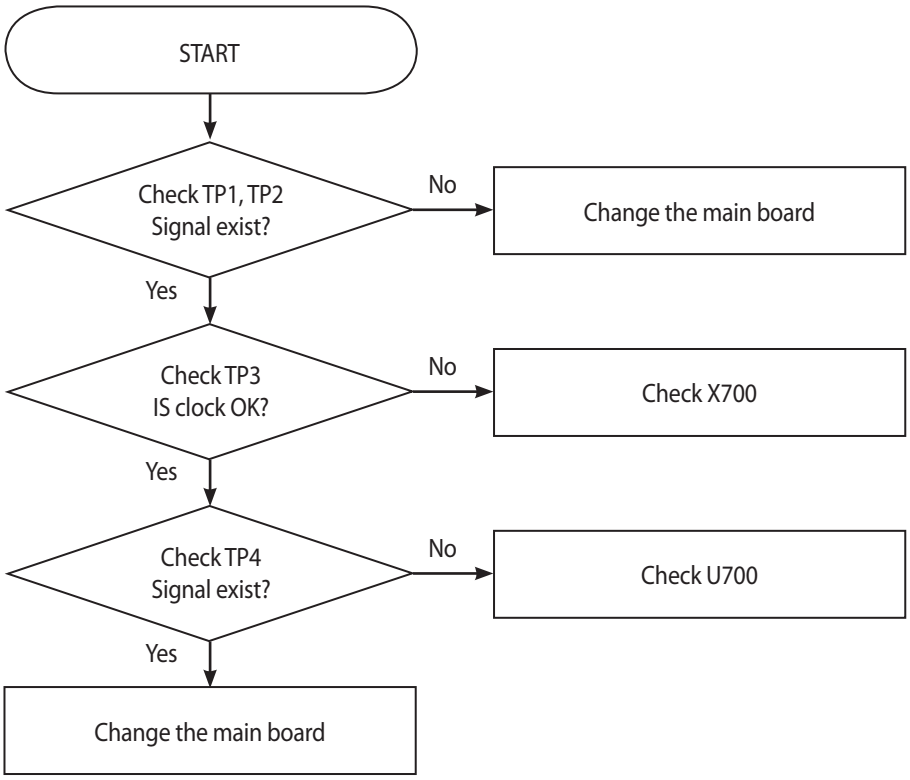
4.18.2 BLUETOOTH SIGNAL PATH



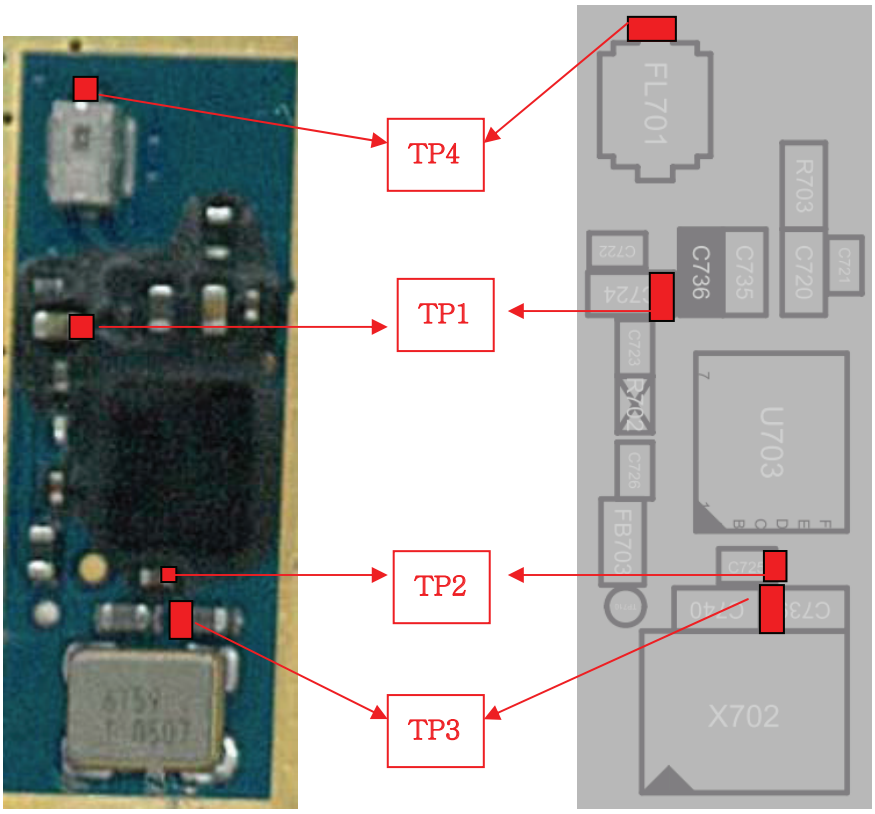
Bluetooth Signal PATH (Main board bottom)

Bluetooth T/Rx PATH

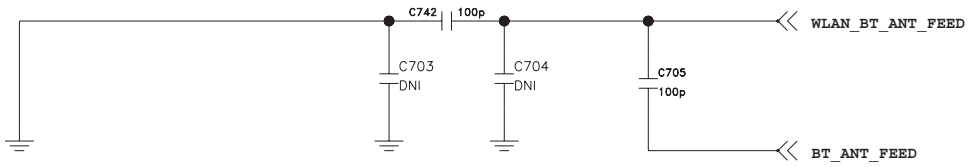
4.18.3 BLUETOOTH Trouble shooting

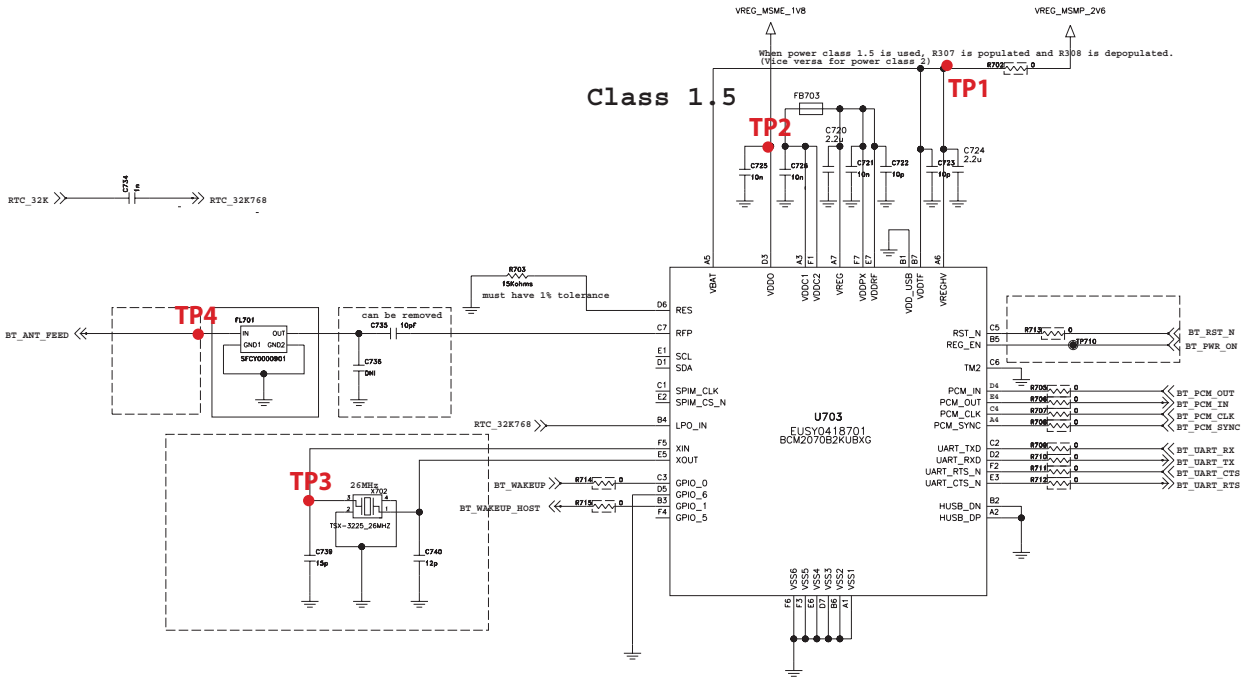


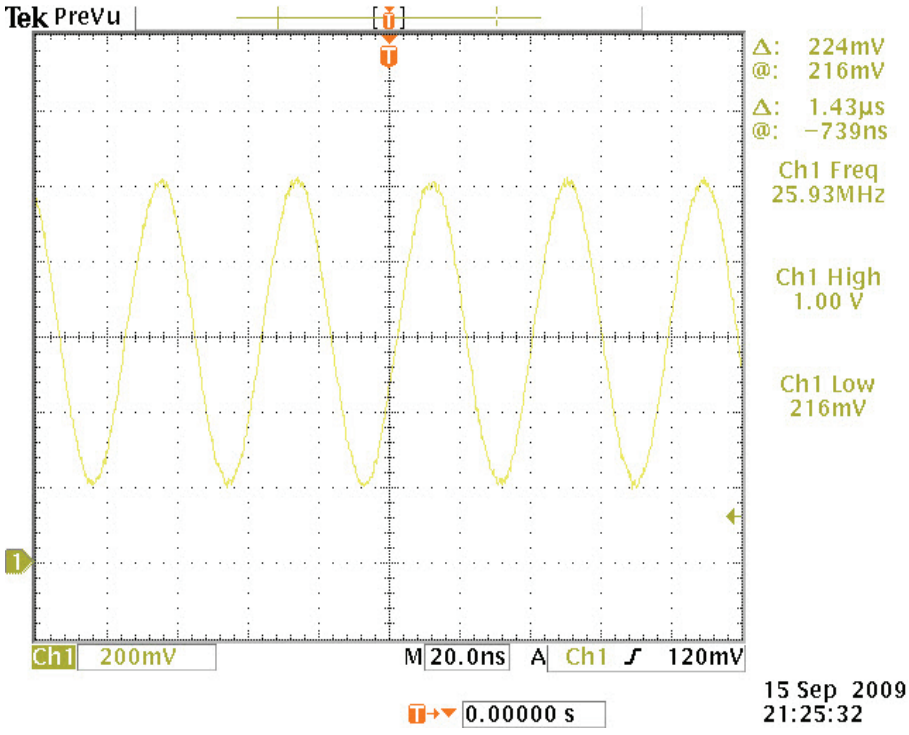
TP#	TP description
TP1	VREG_MSMP_2.6V
TP2	VREG_MSME_1.8V
TP3	BT_CLK(26Mhz)
TP4	BT_ANT_OUT



Connectivity_ANT_PAD



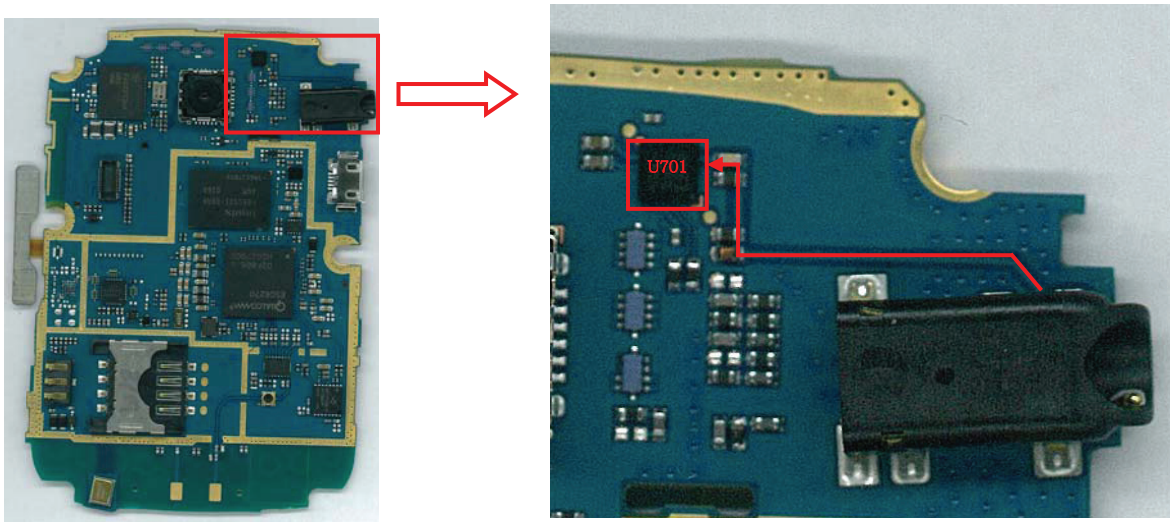




[BT main clk : 26MHz]

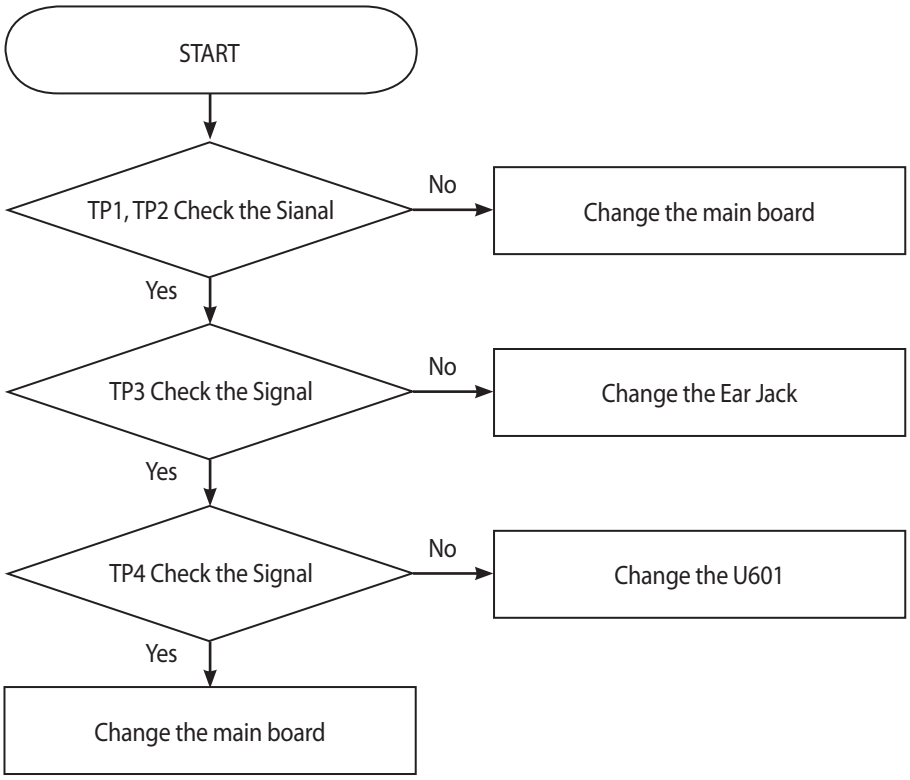
4.19 Checking FM Radio Block

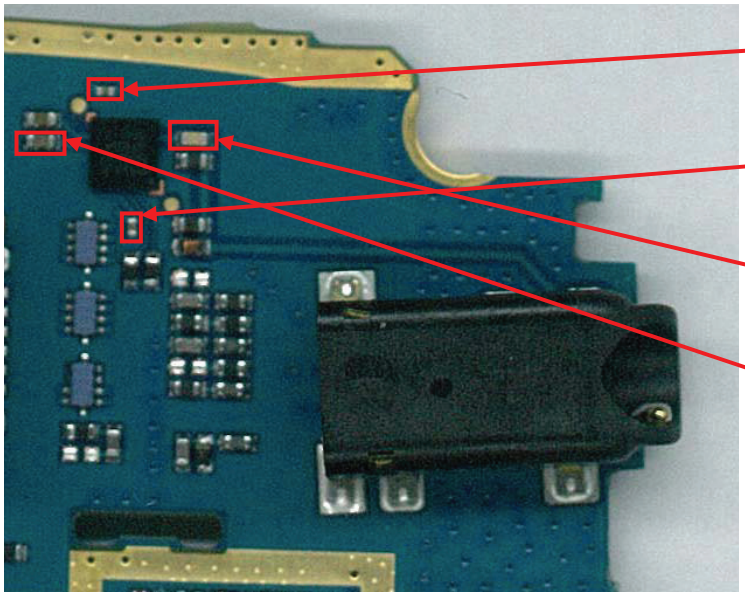
4.19.1 FM Signal Path



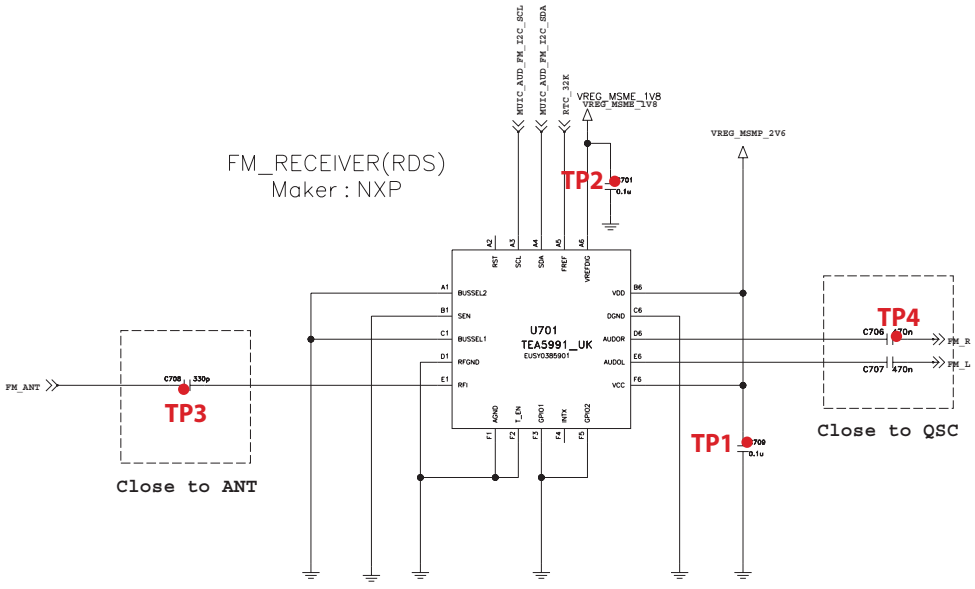
Reference	Description
U701	TEA5991(FM module)

4.19.2 FM Trouble shooting





TP#	TP description
TP1	VREG_MSMP_2.6V
TP2	VREG_MSME_1.8V
TP3	FM_ANT_IN
TP4	FM_OUT_AUDIO signal



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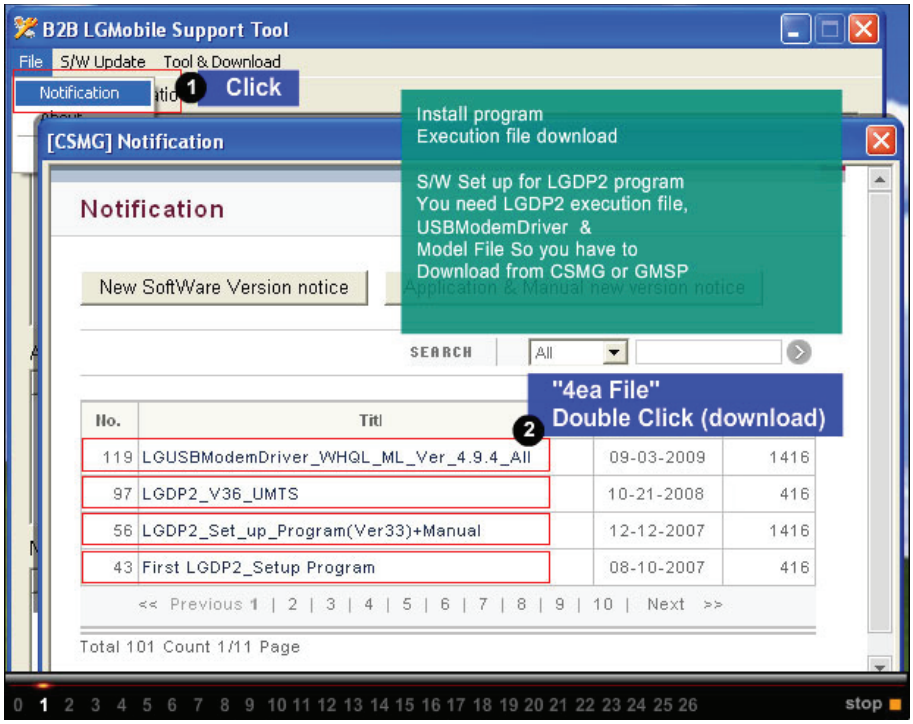

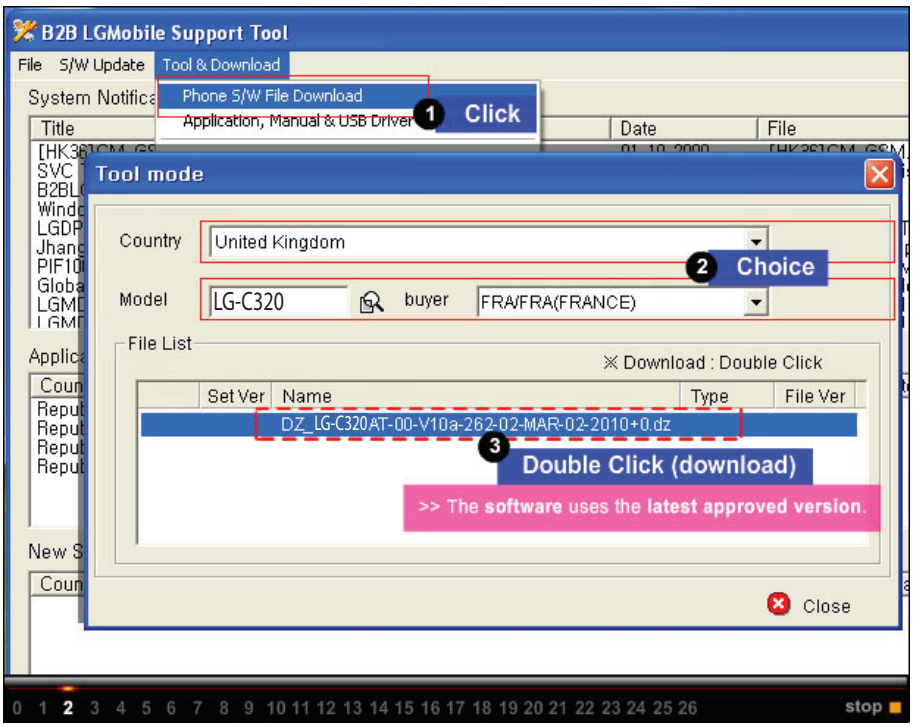

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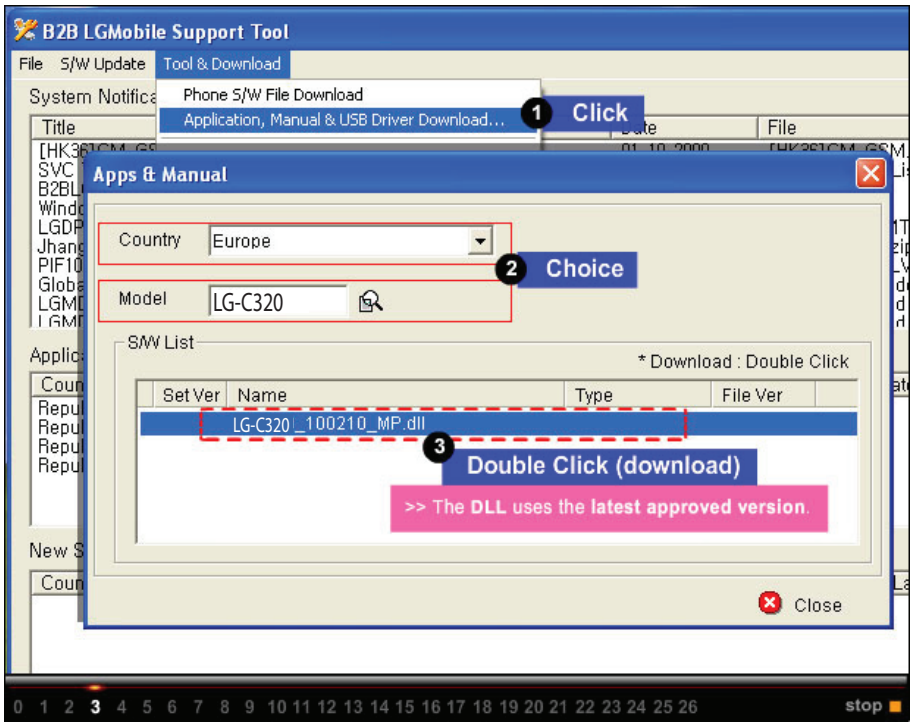

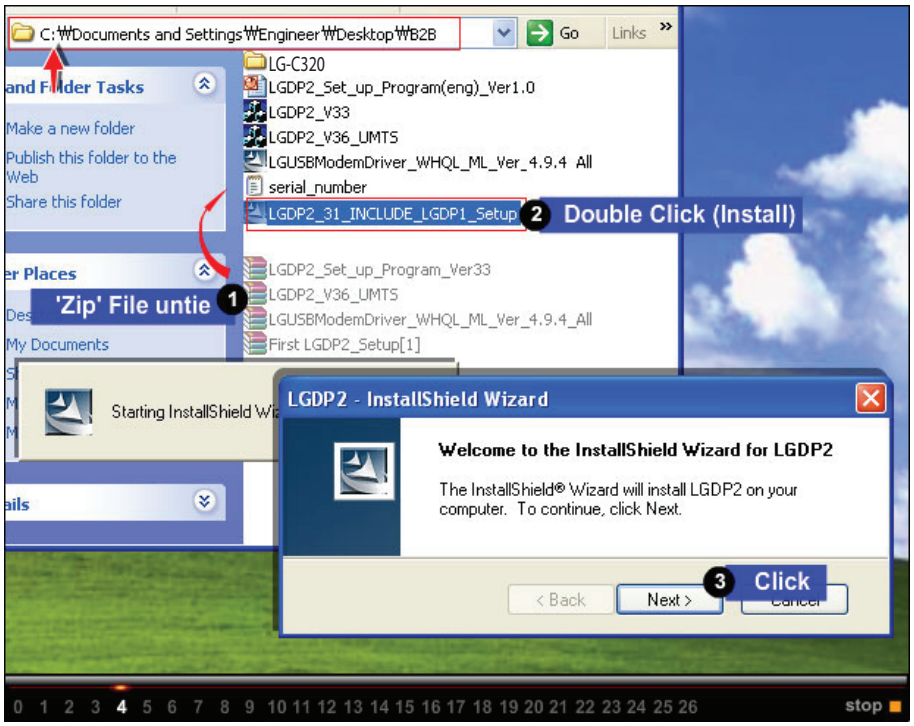

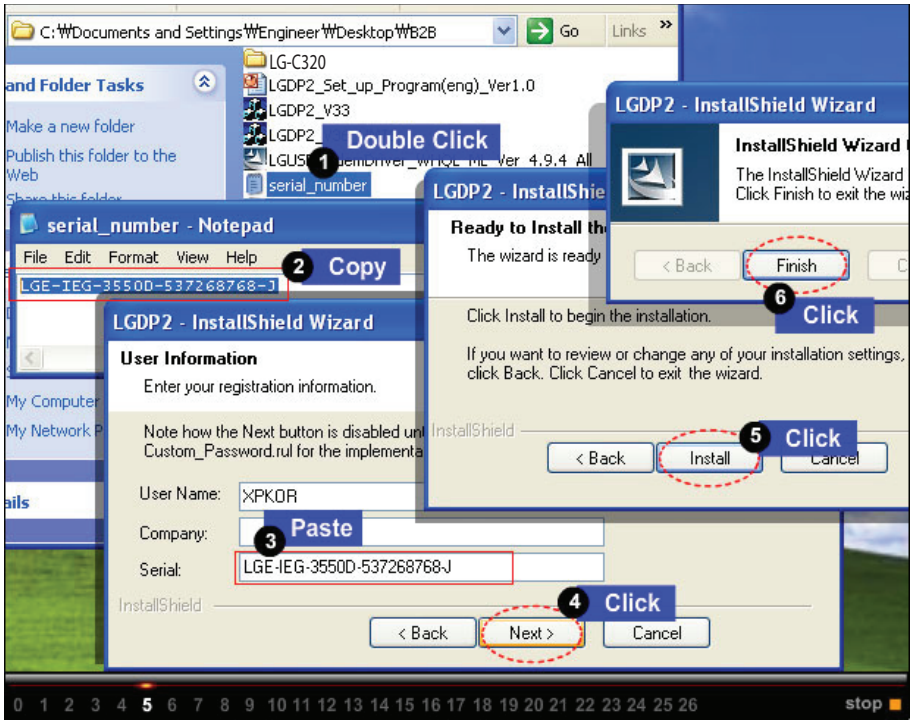

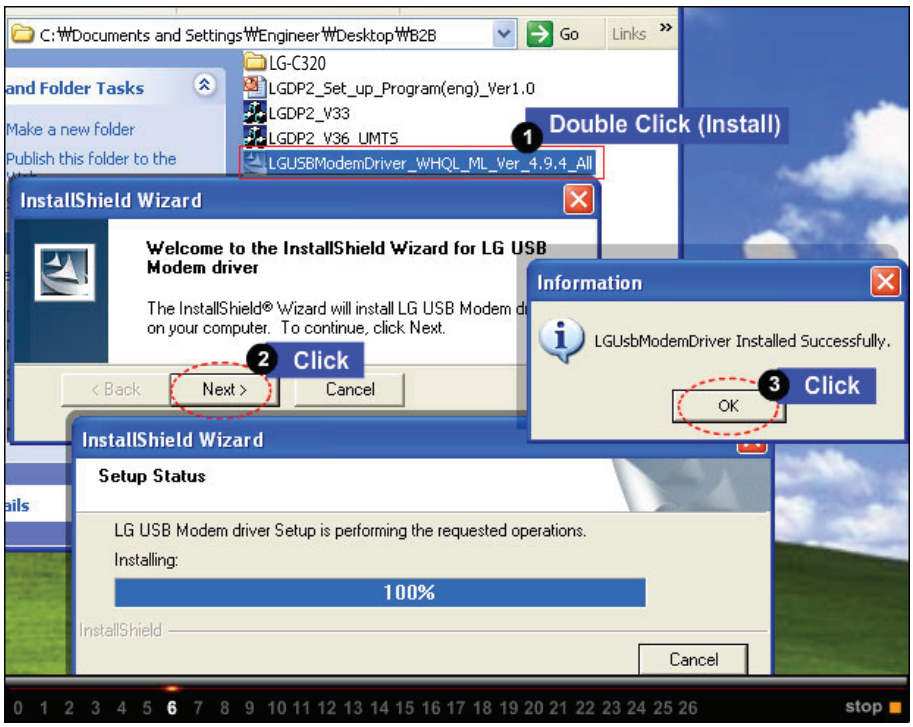

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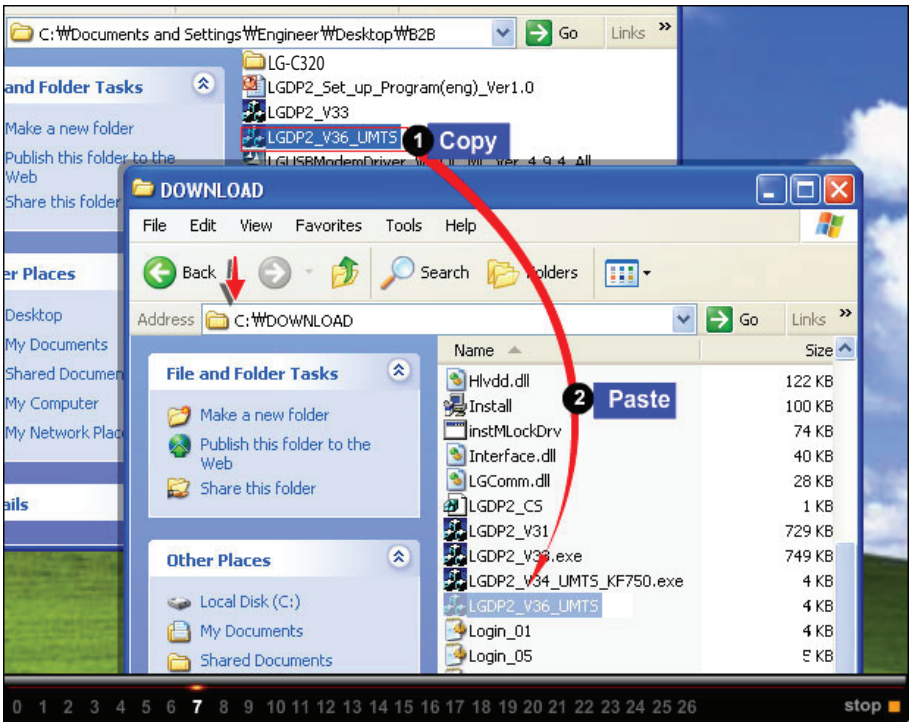

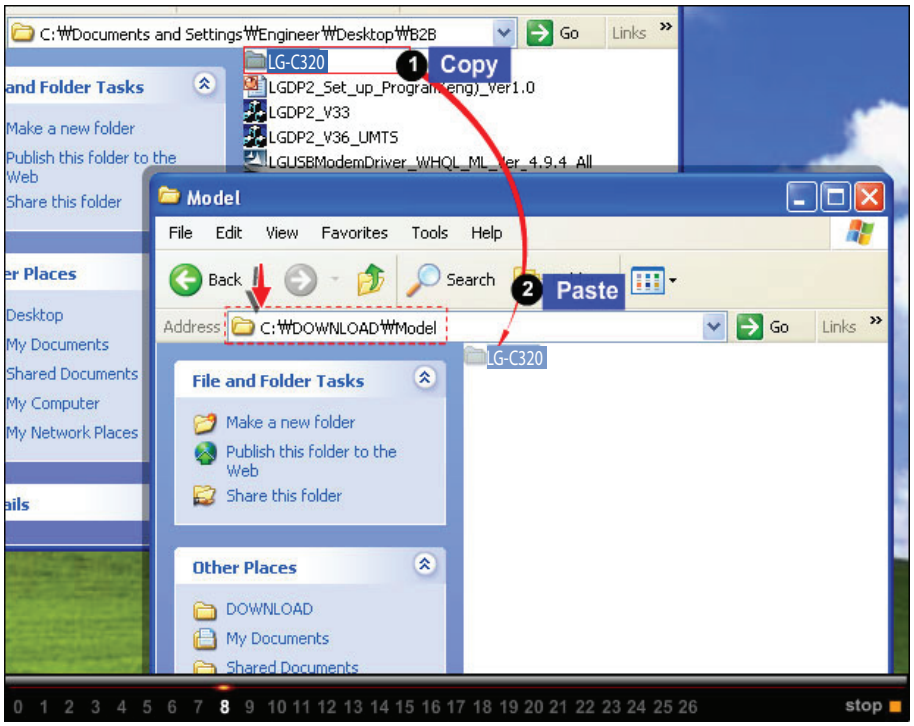

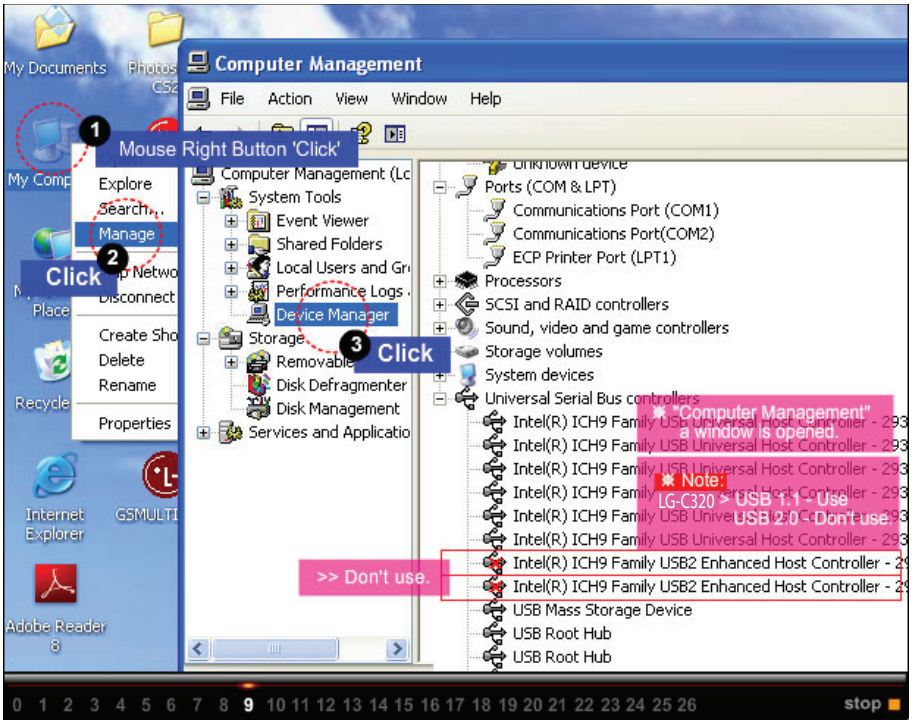

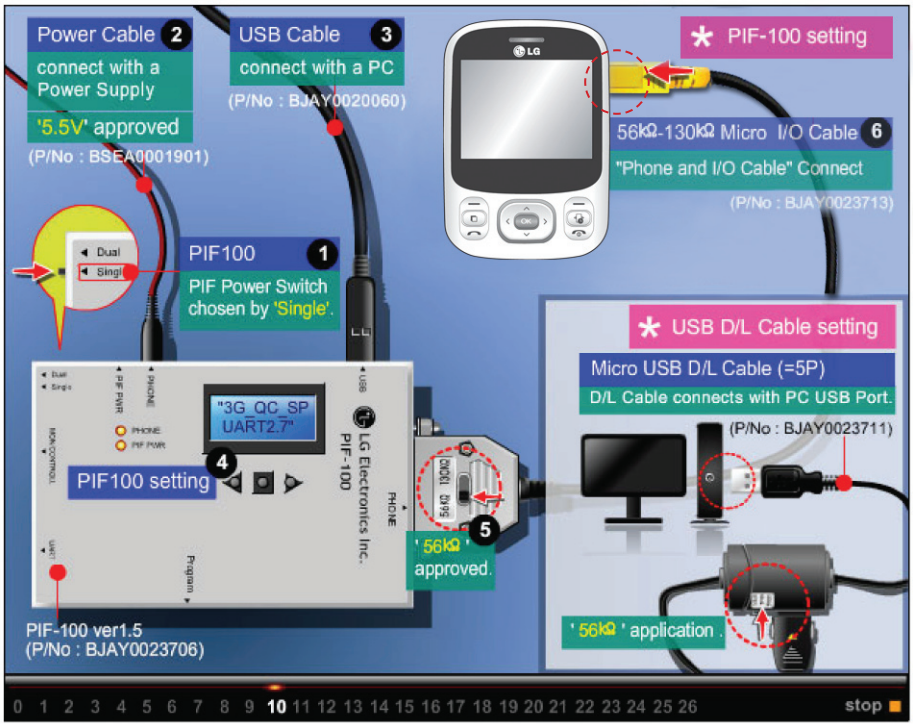

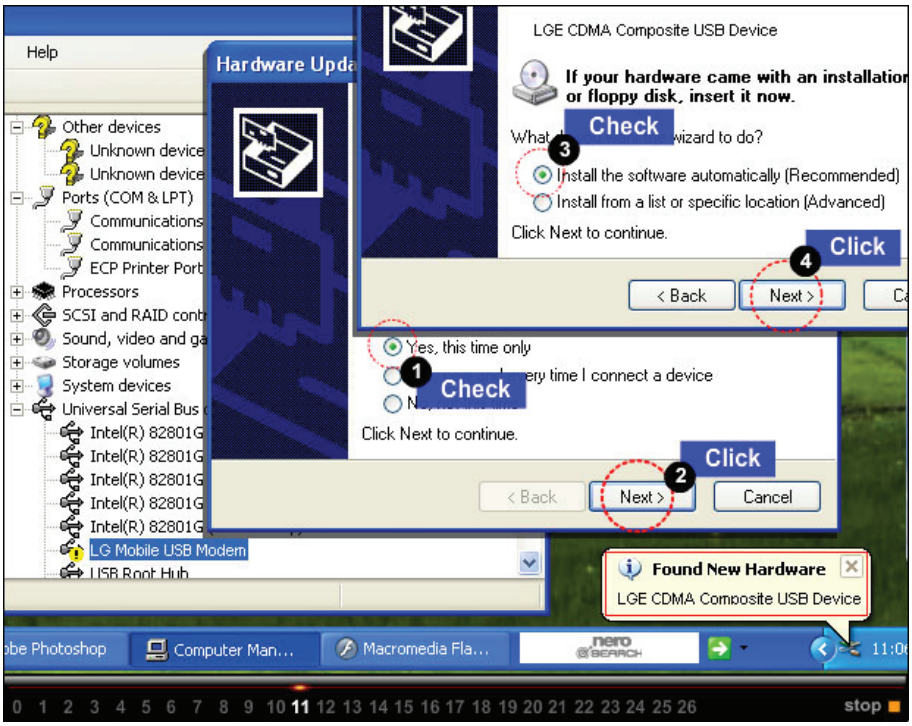

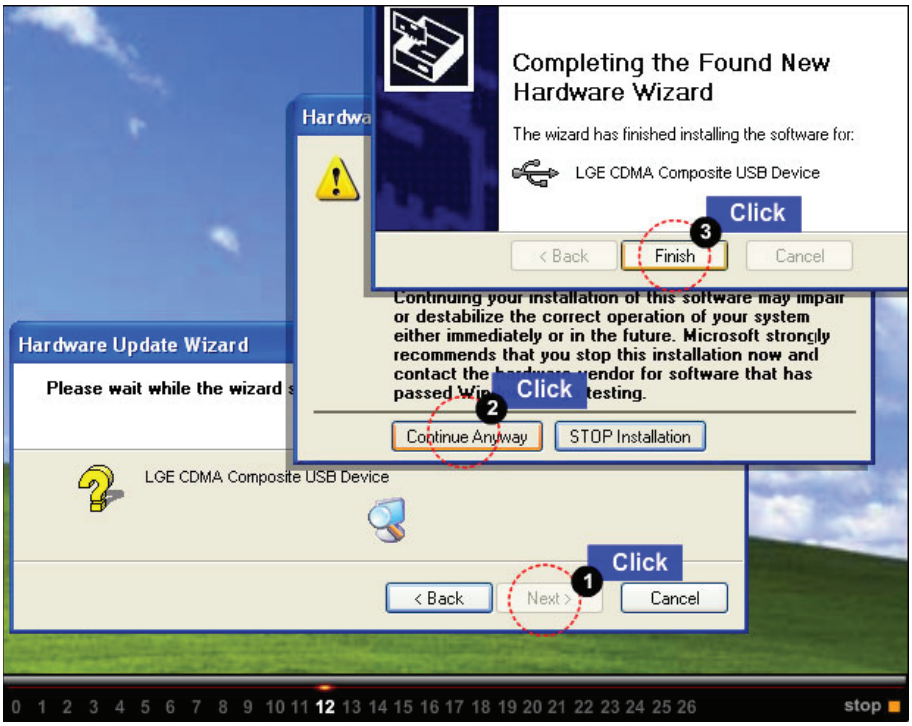

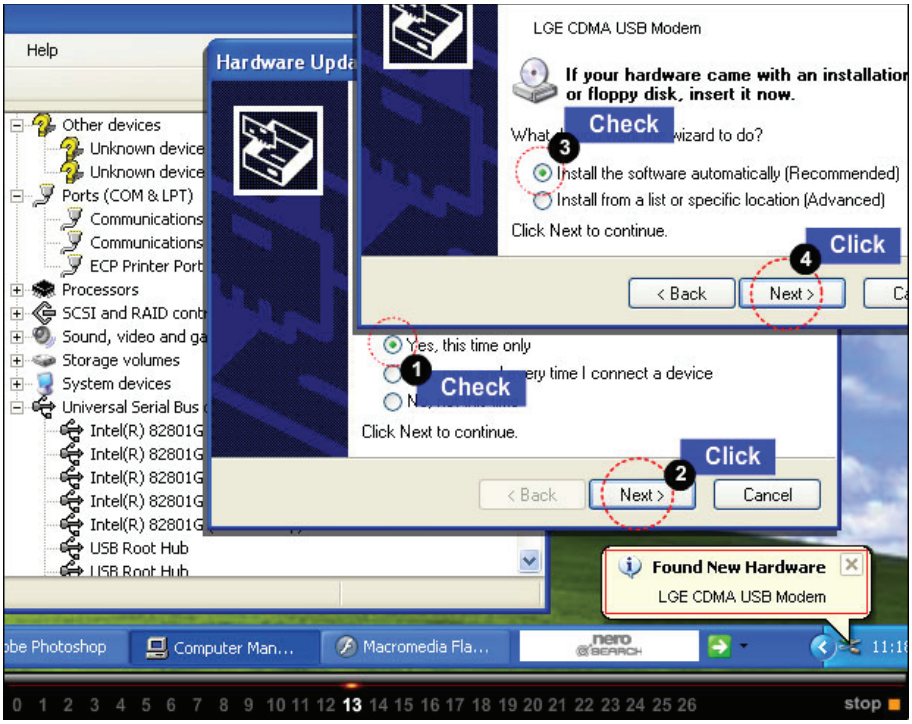

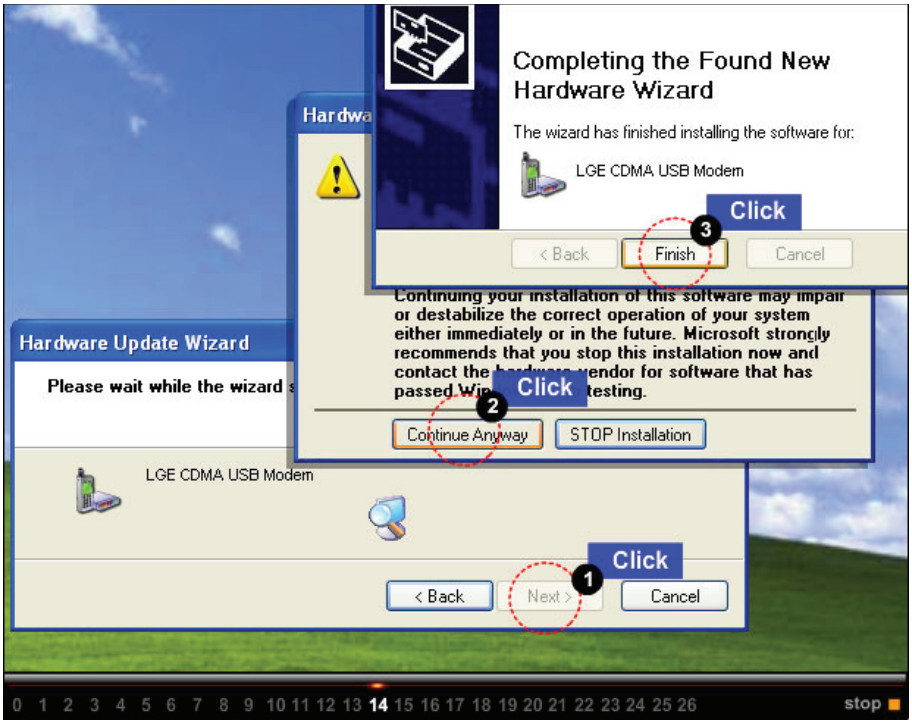

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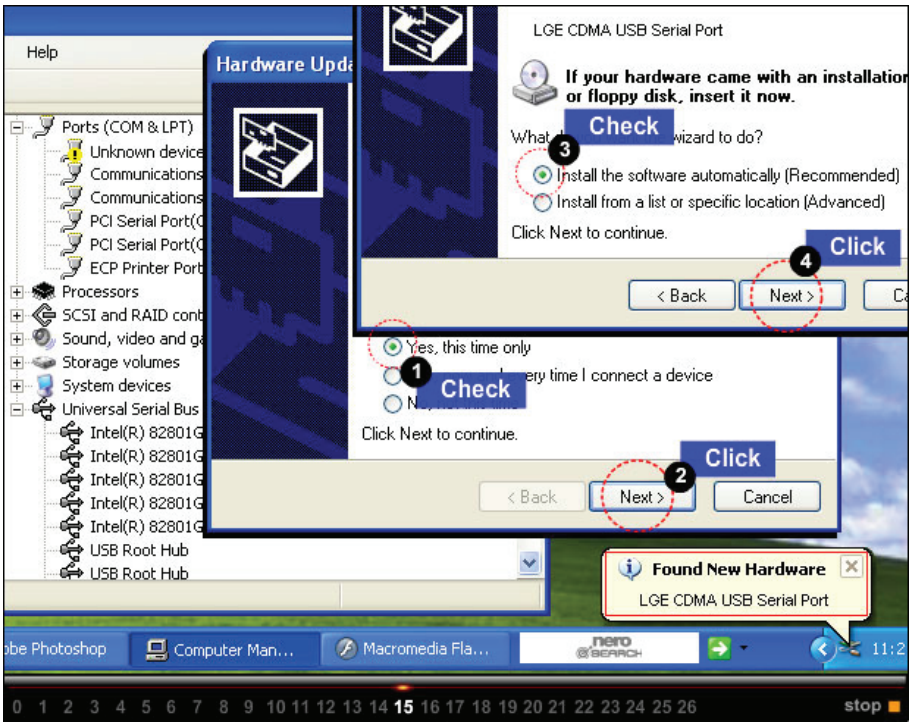

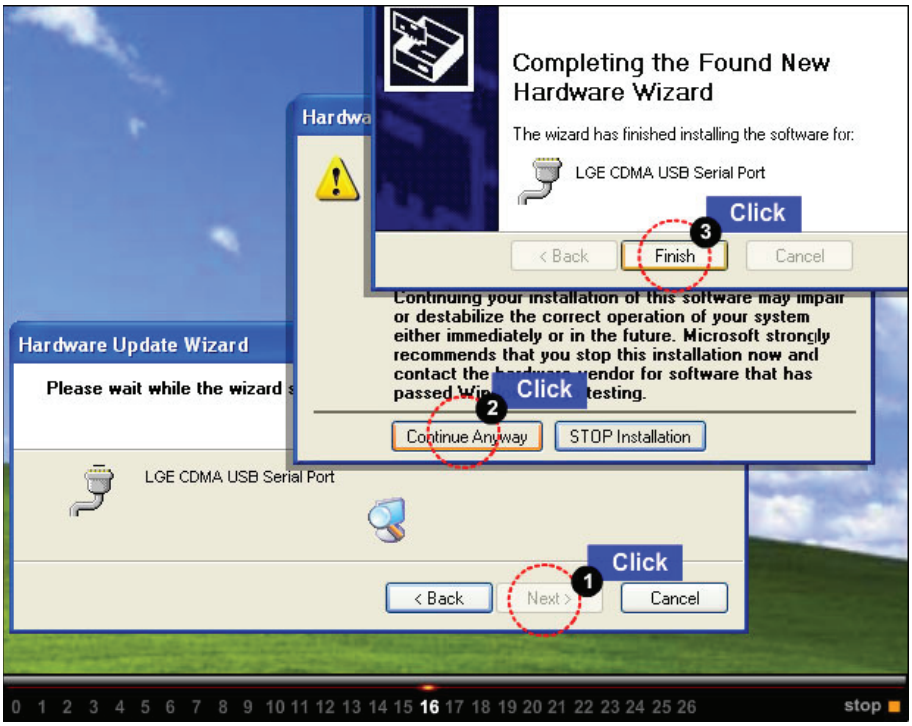

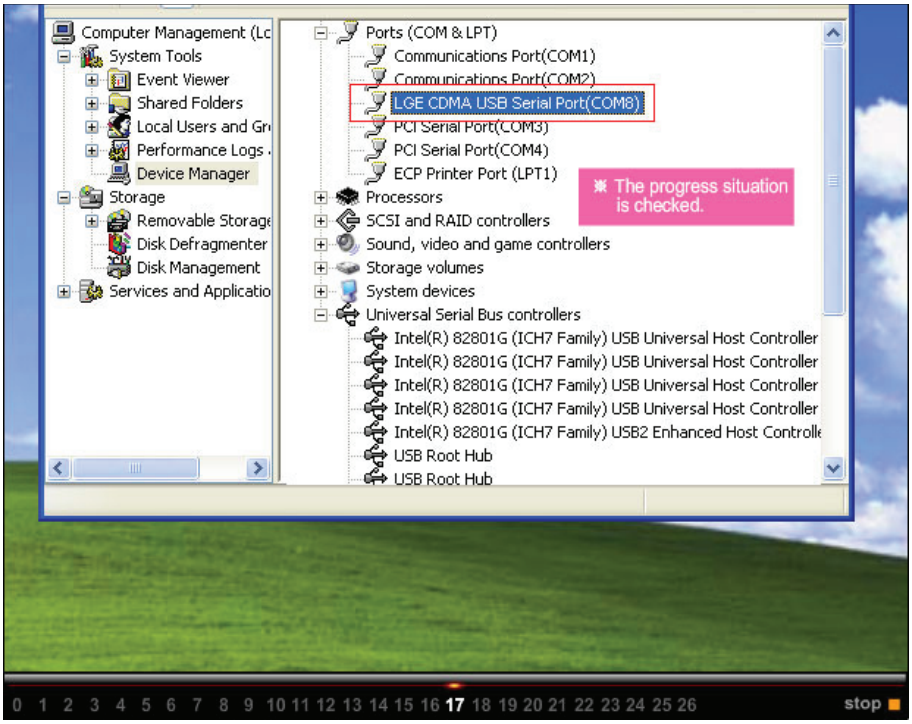

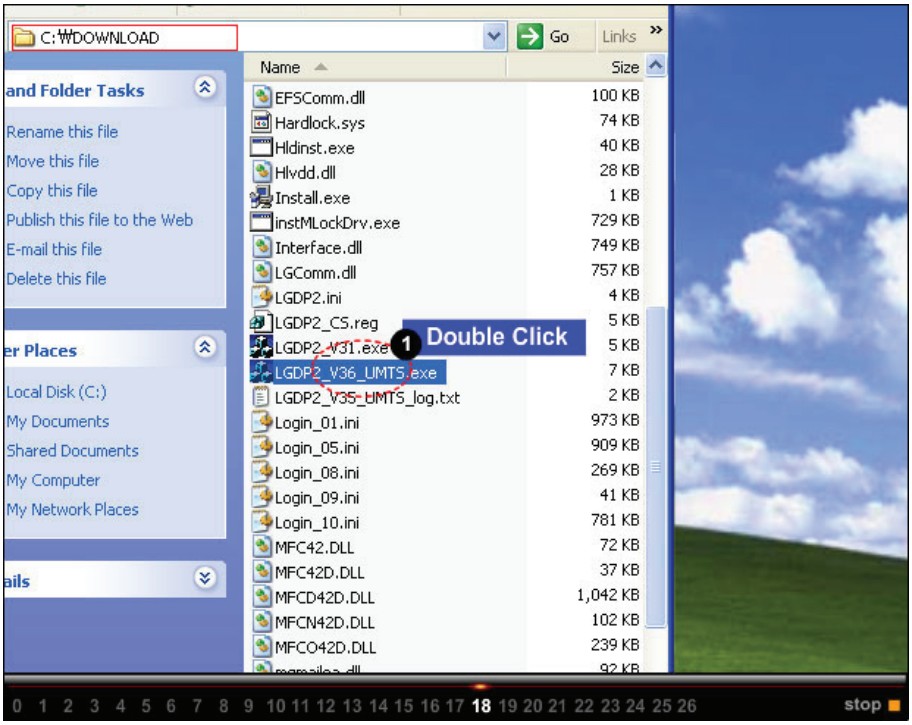

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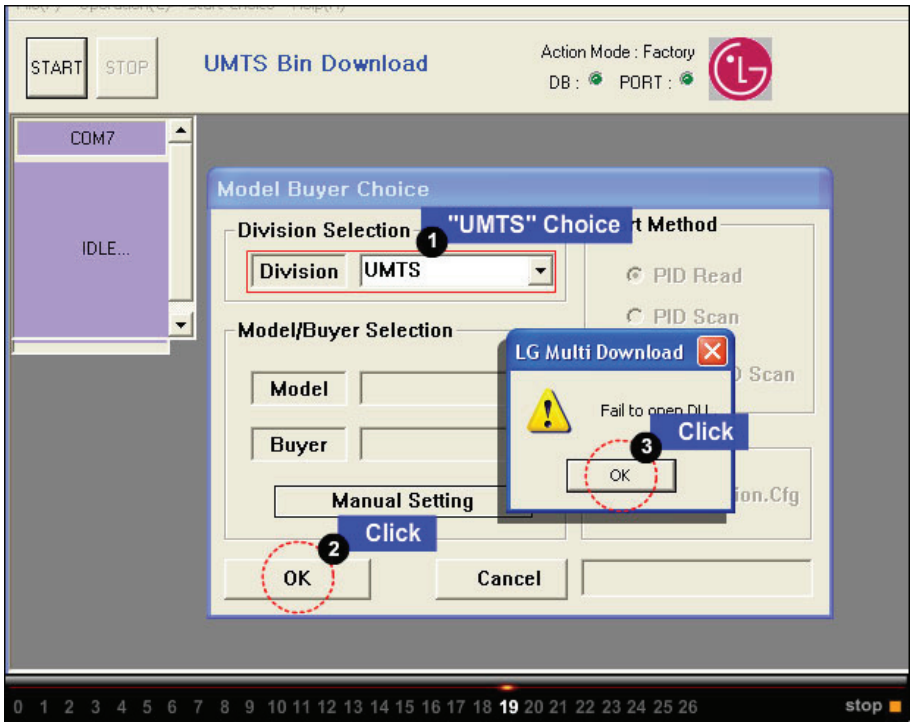

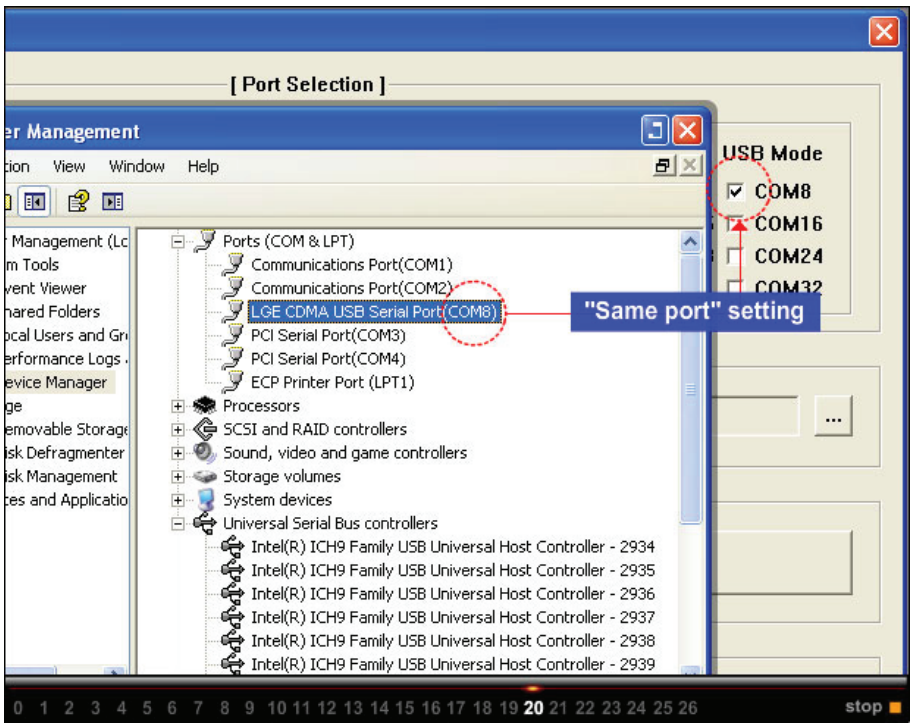

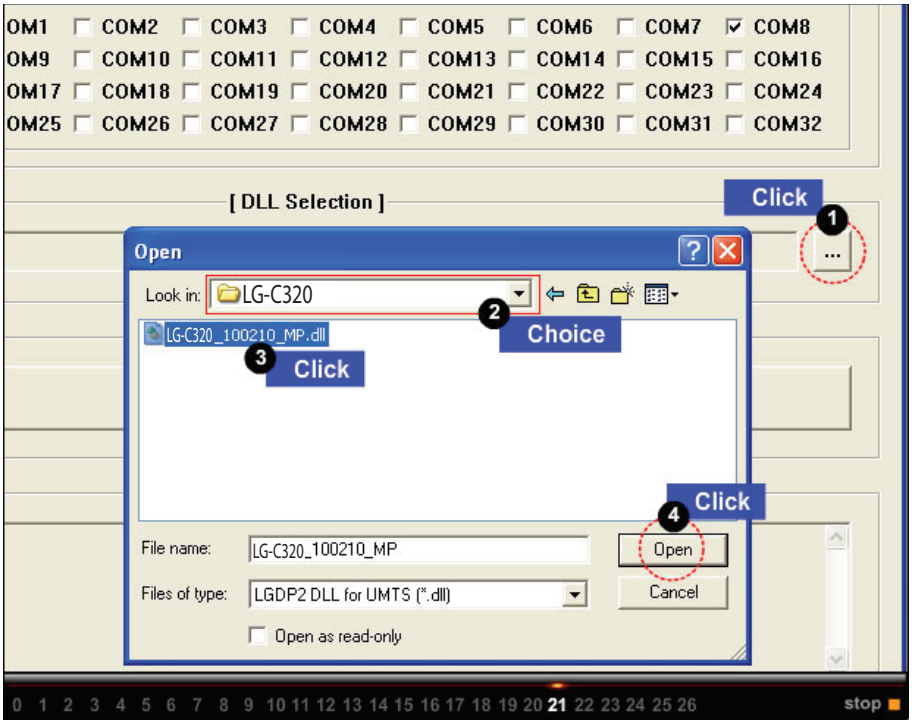

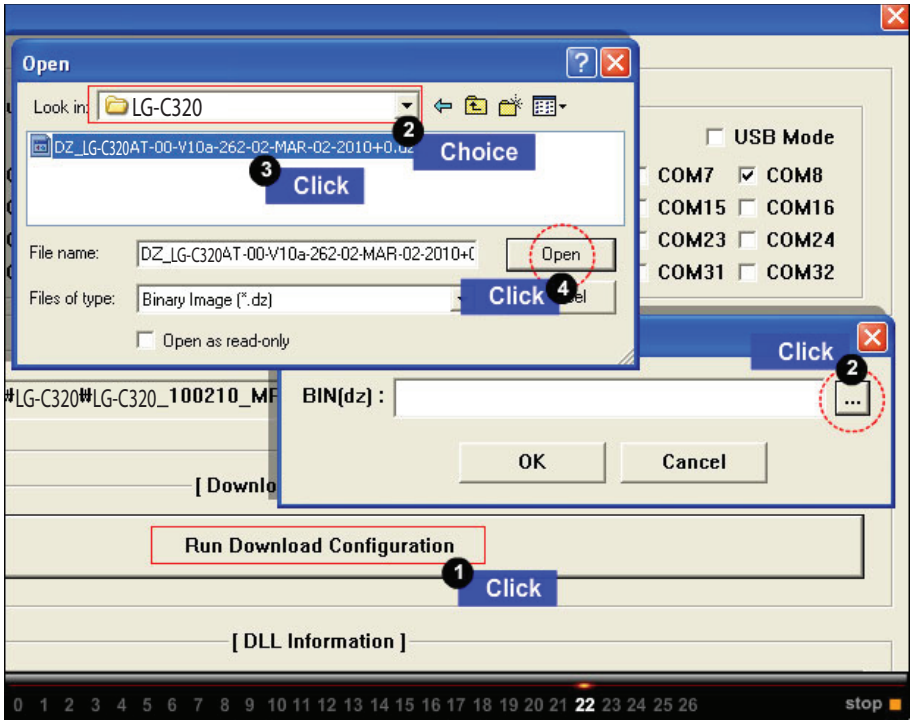

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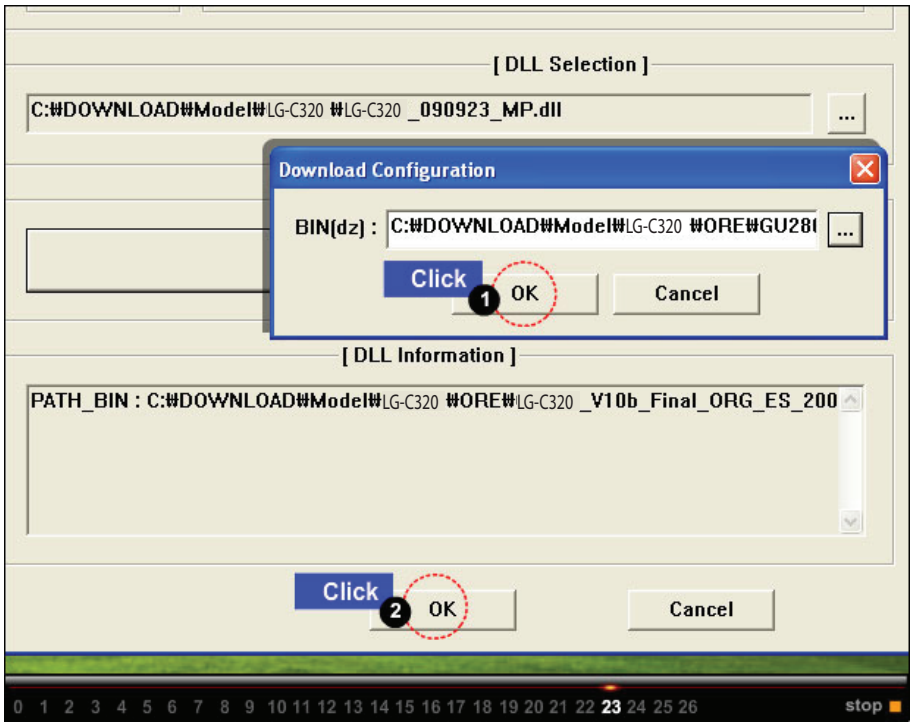
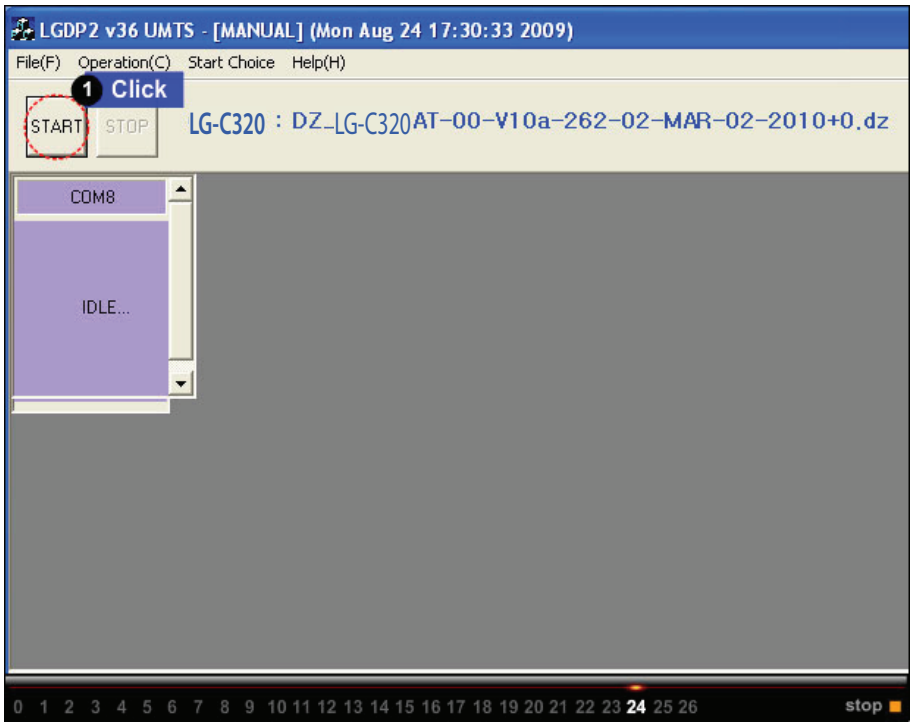
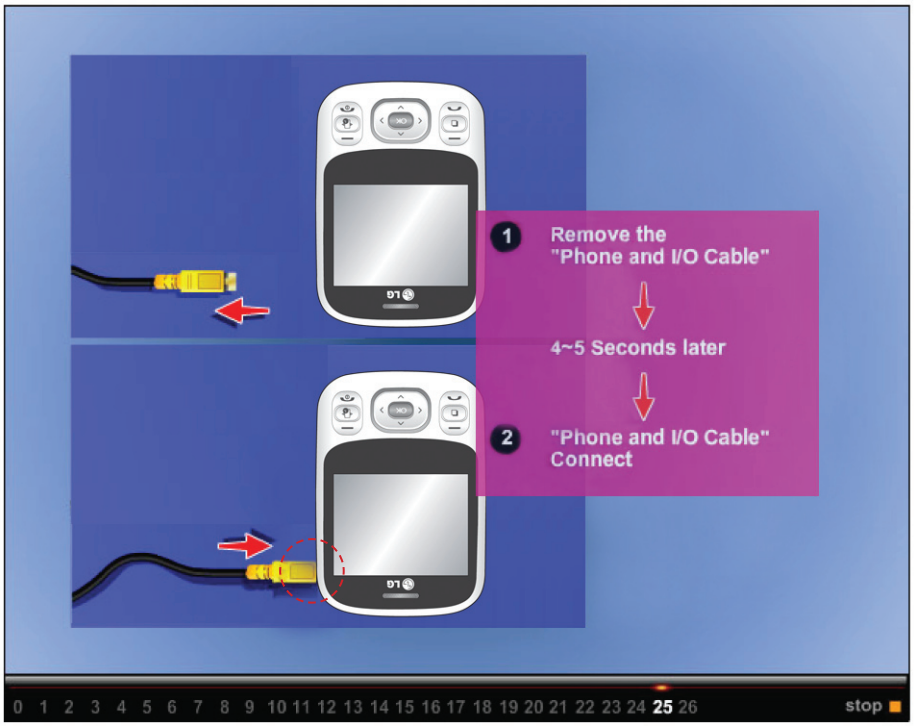
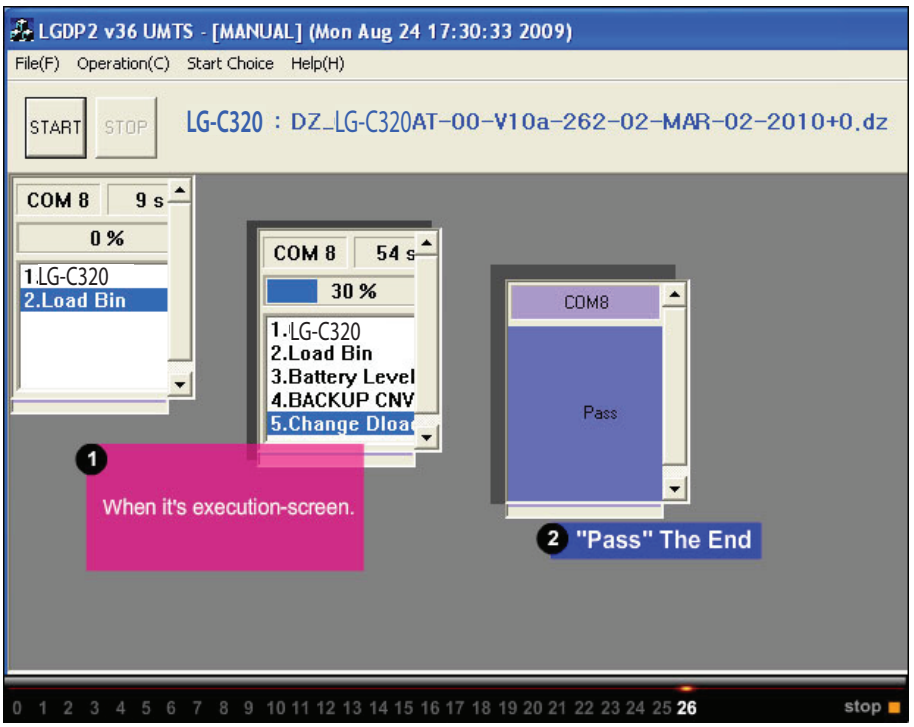
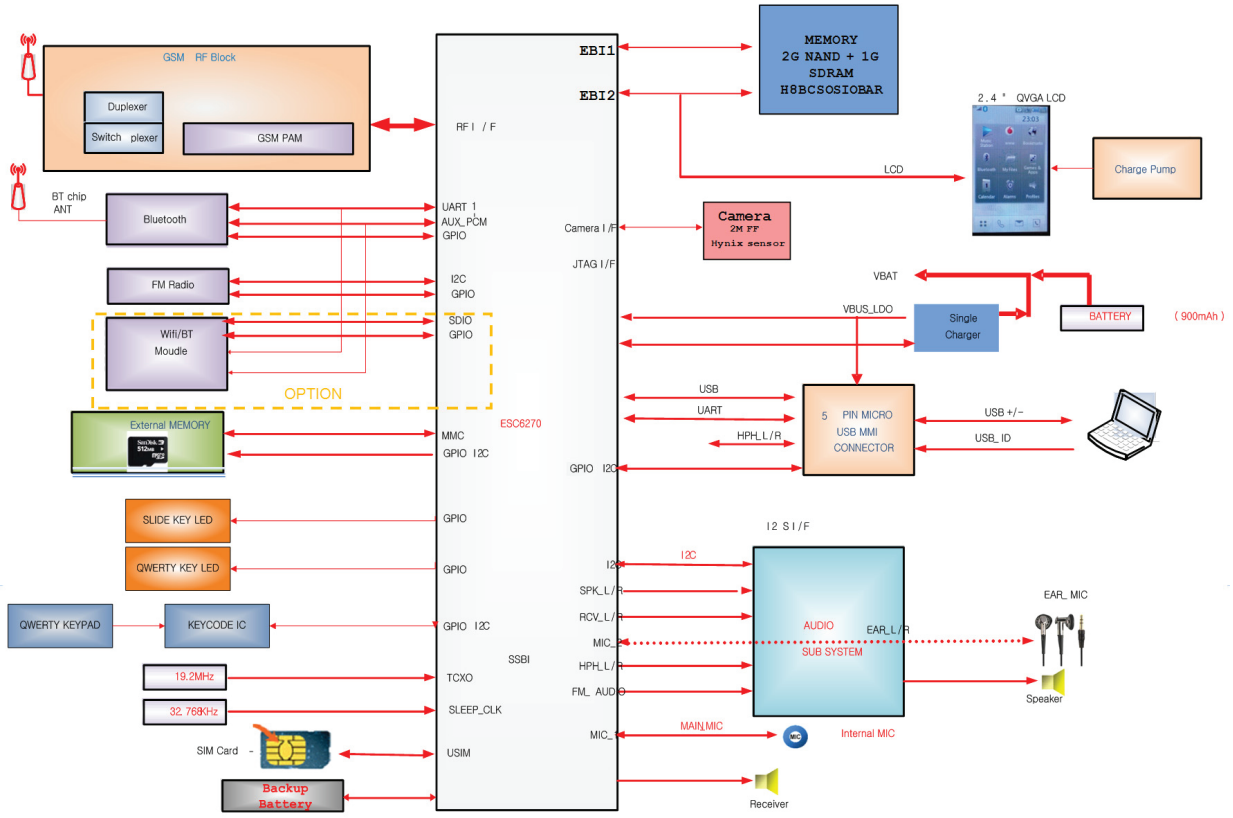


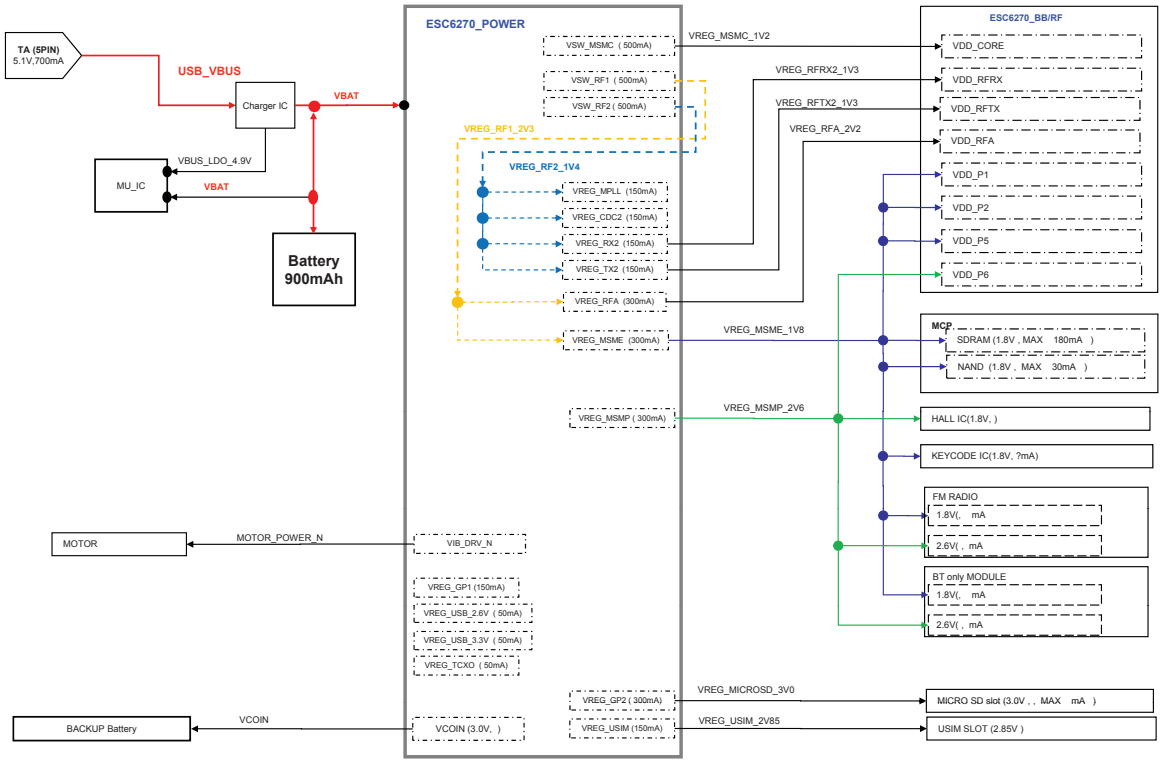




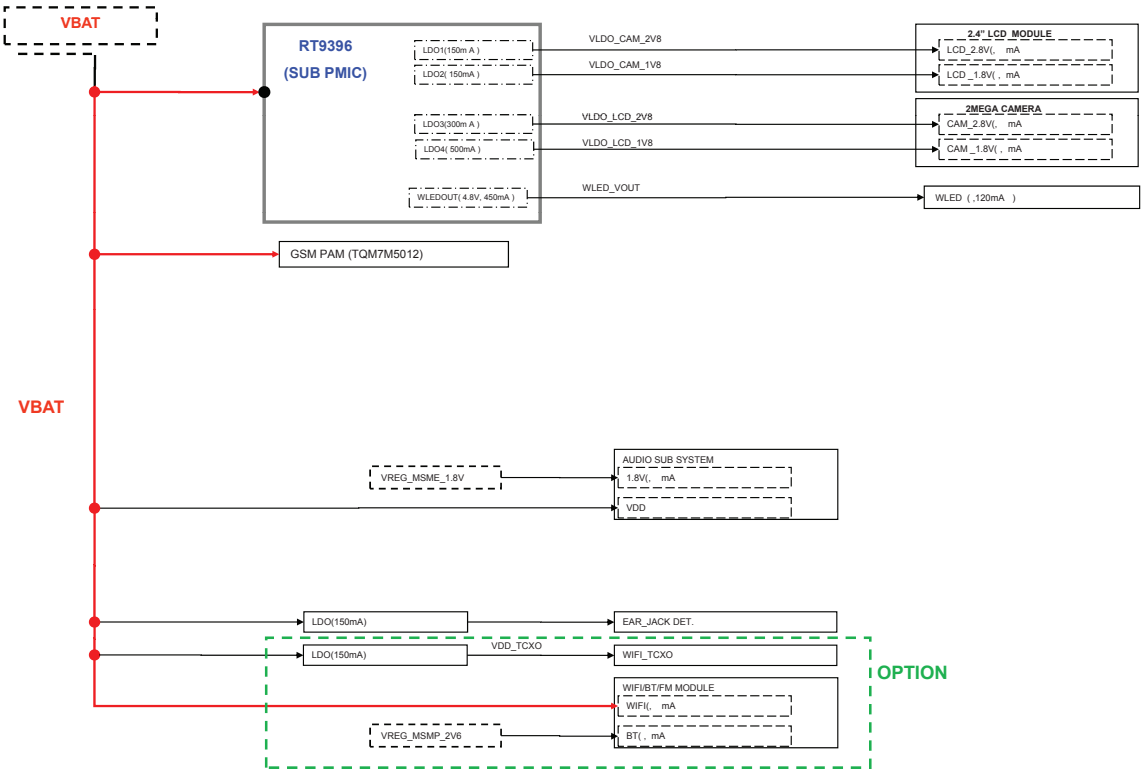


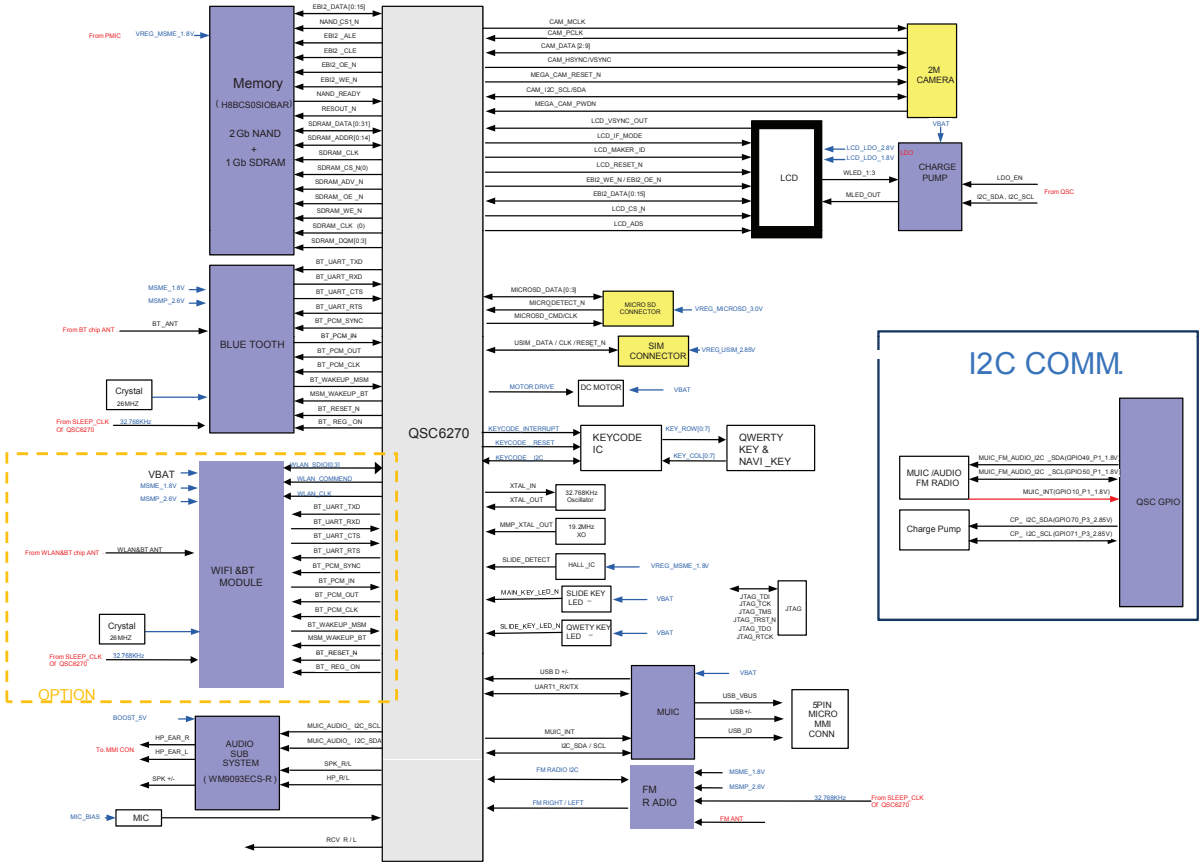
6. BLOCK DIAGRAM



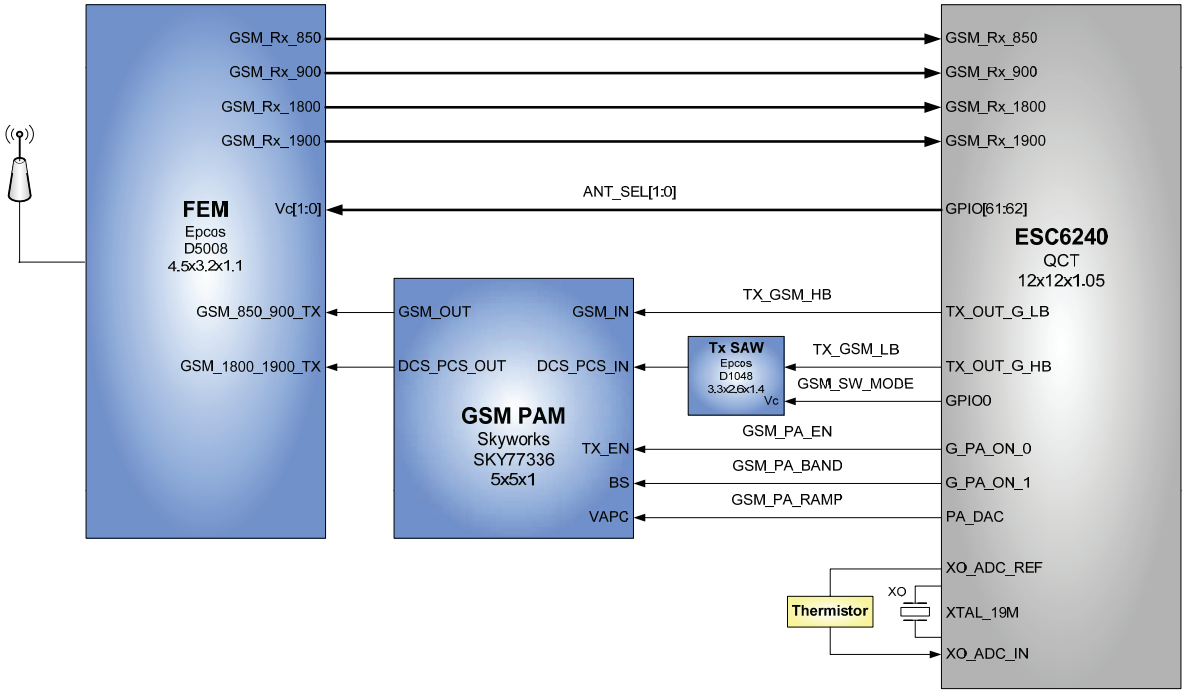


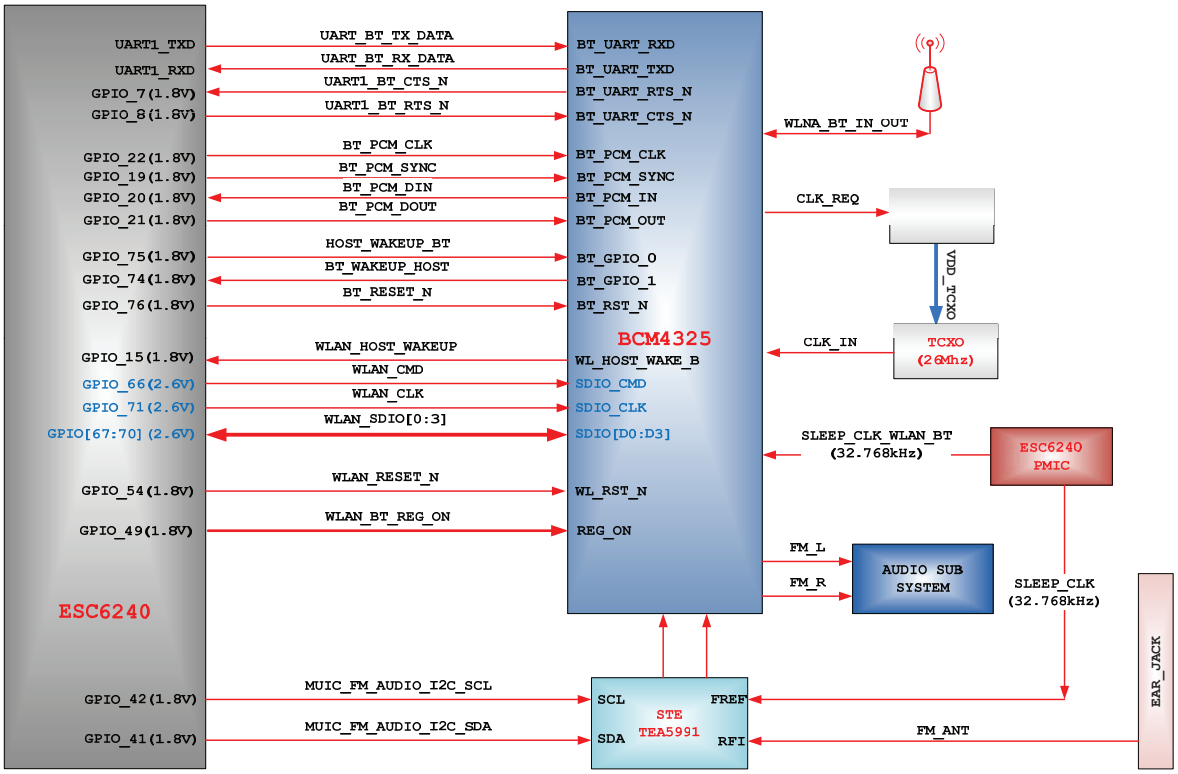
6. BLOCK DIAGRAM



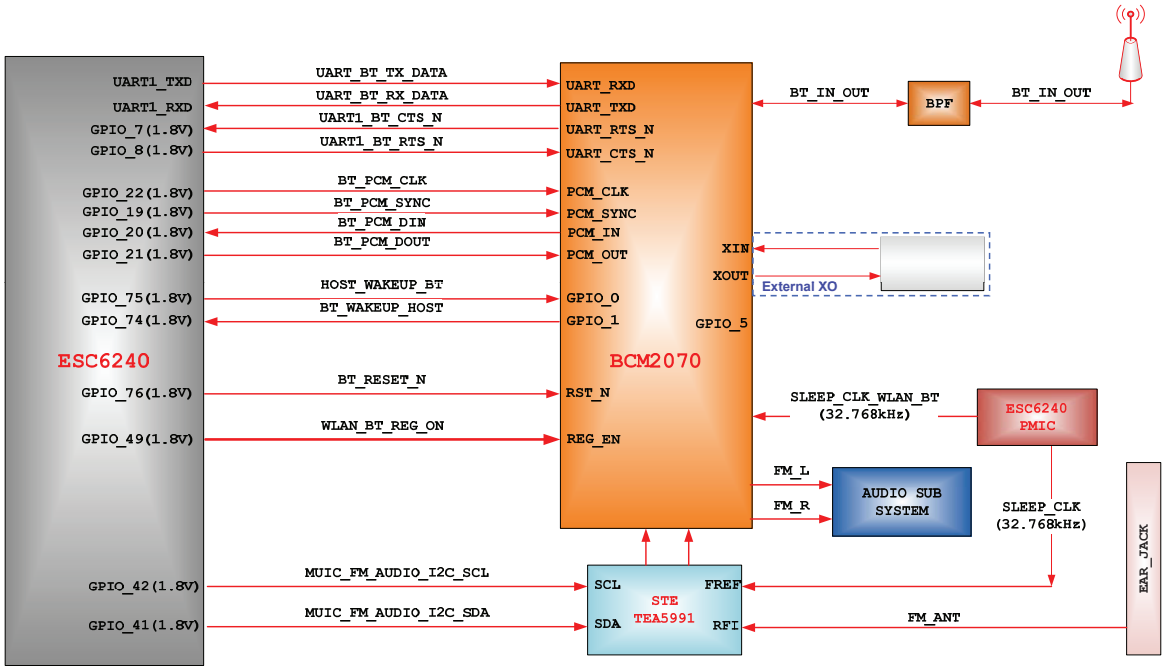


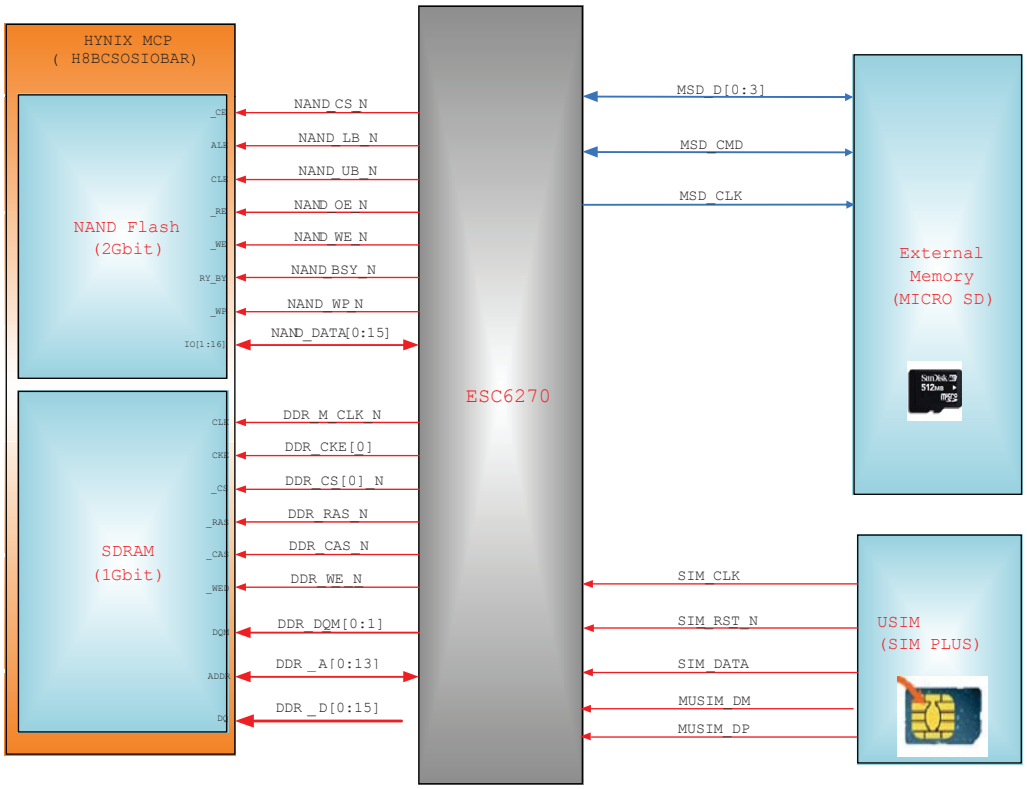
6. BLOCK DIAGRAM



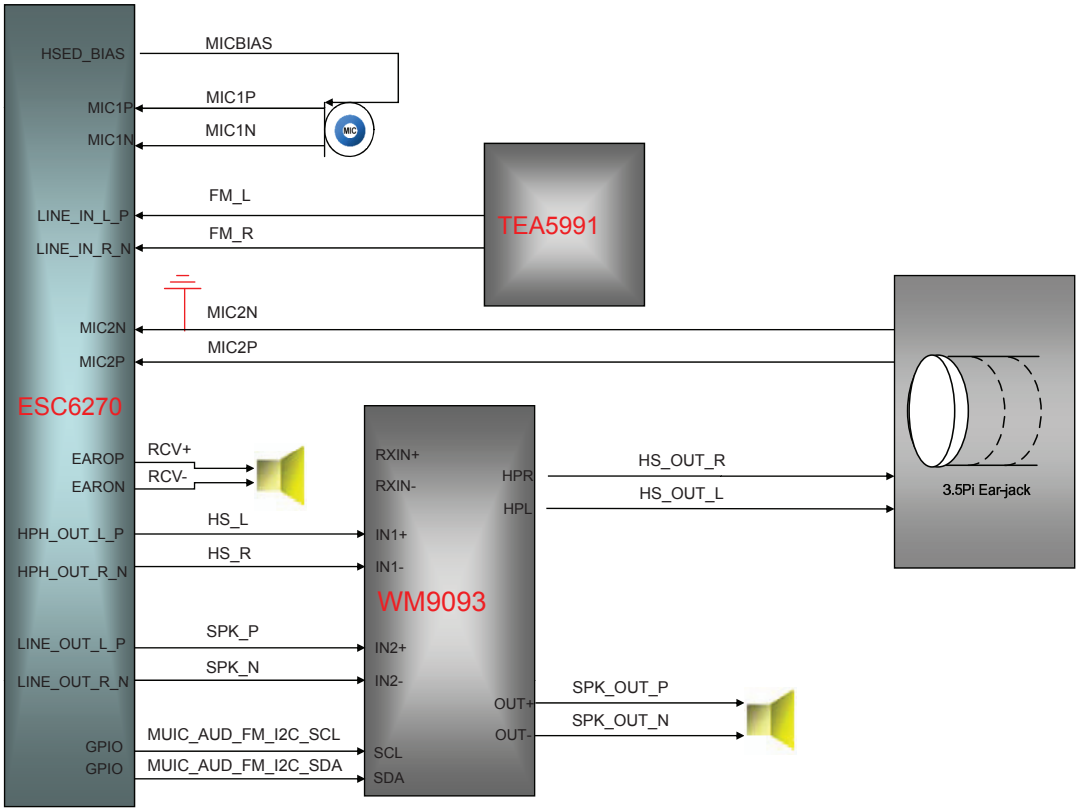


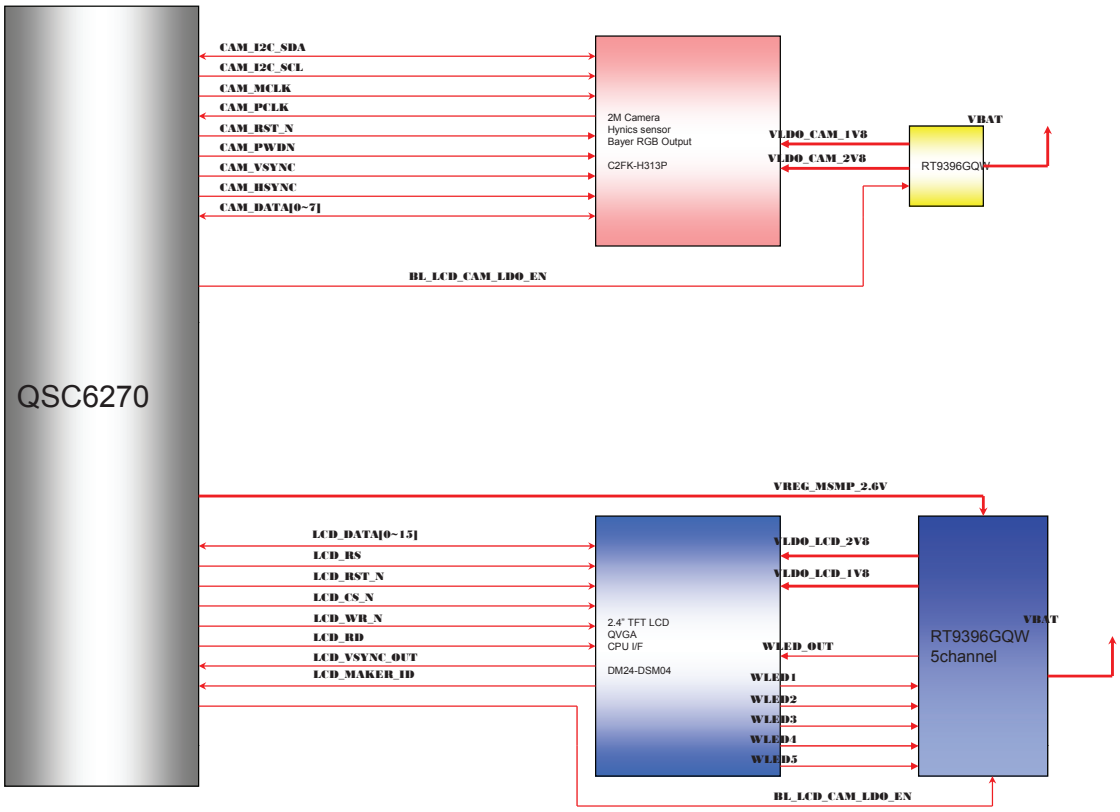
6. BLOCK DIAGRAM



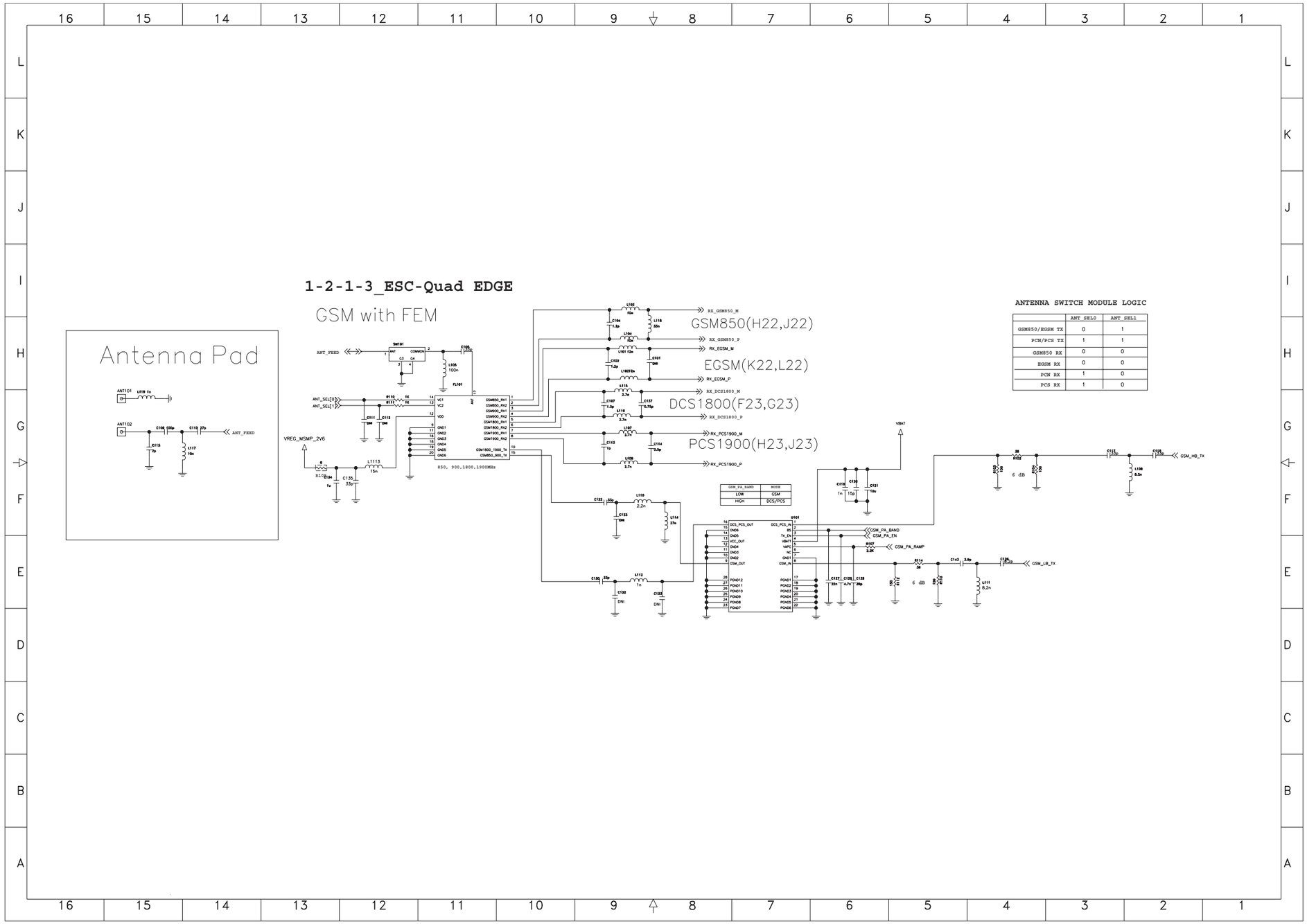


6. BLOCK DIAGRAM

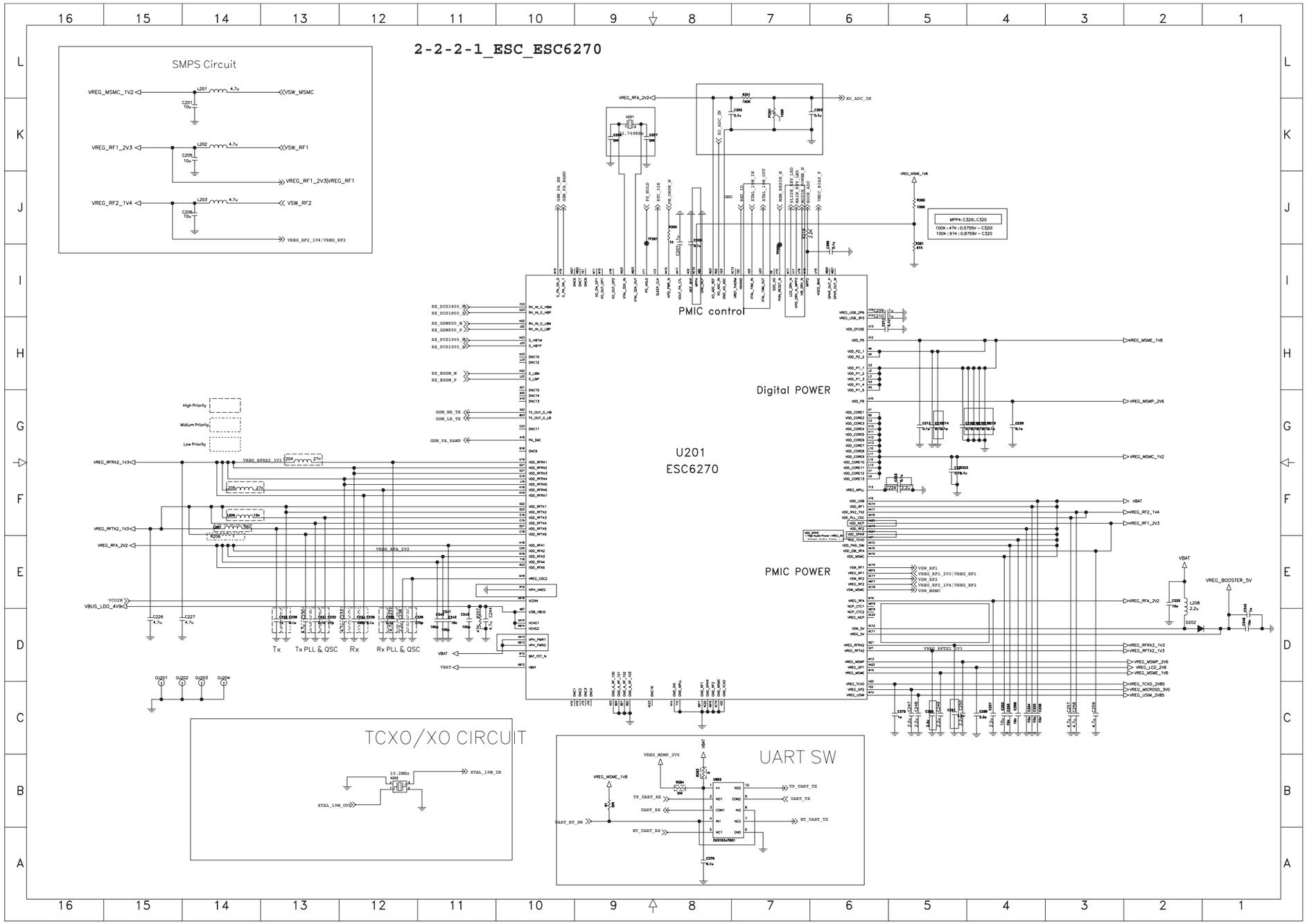




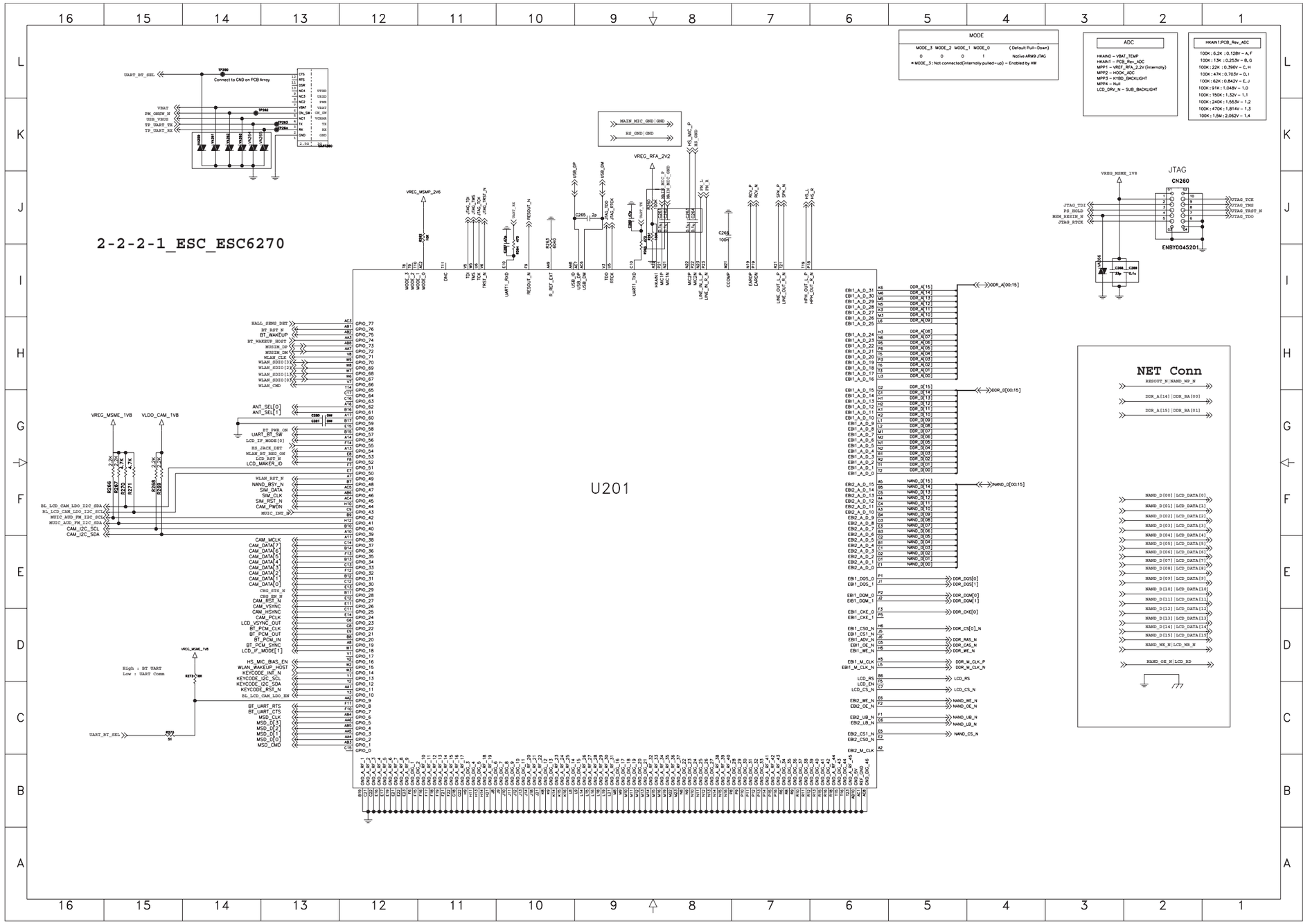
7. CIRCUIT DIAGRAM



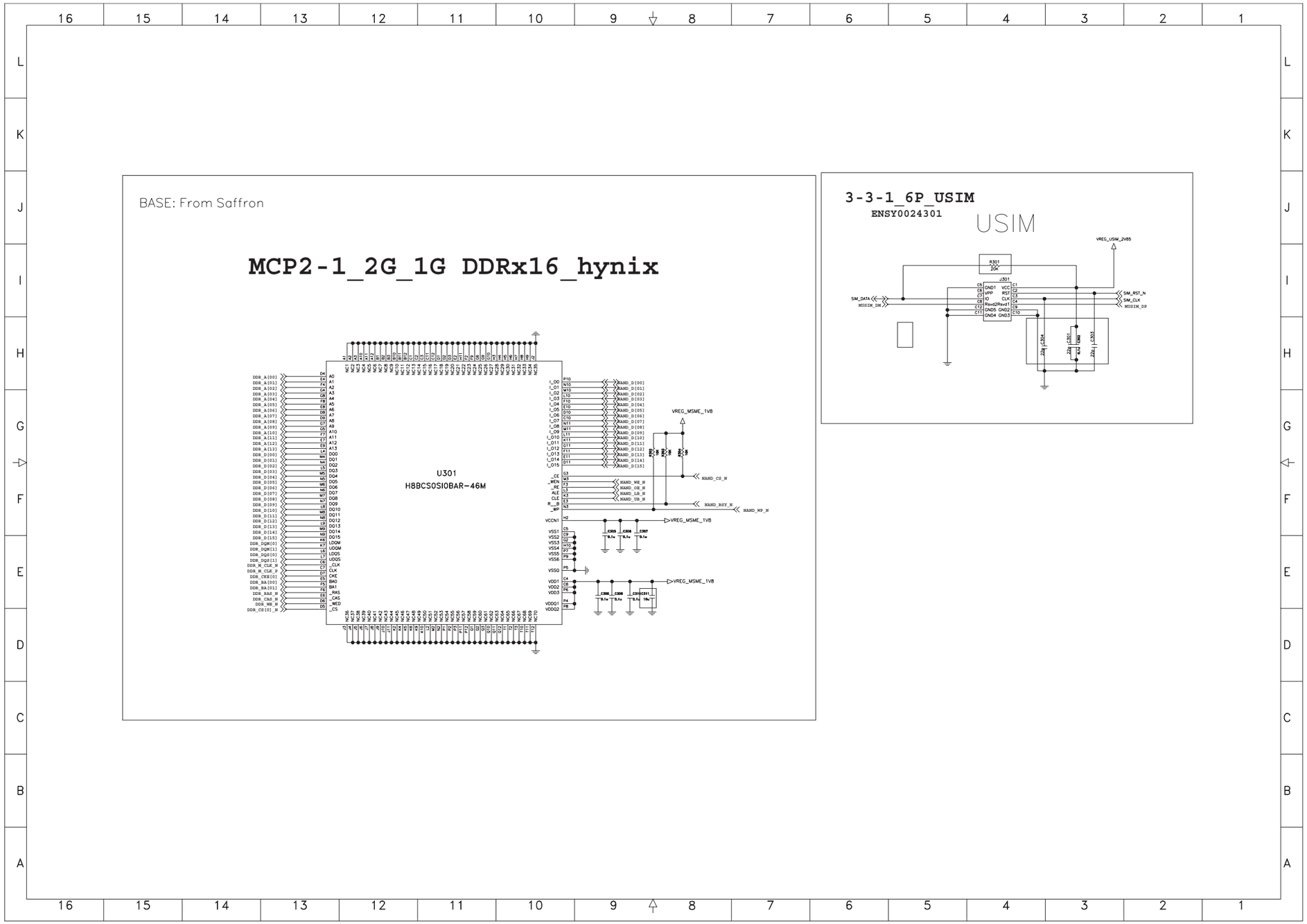
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM

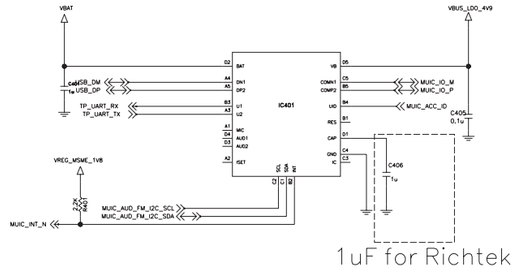


7. CIRCUIT DIAGRAM



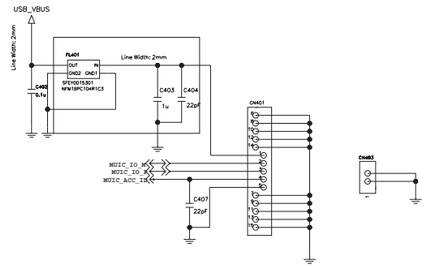
7. CIRCUIT DIAGRAM

4-2-1-4 MUIC1_Richtek_Without Audio

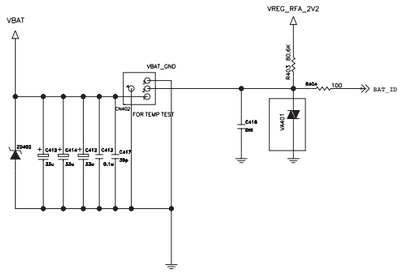


4-2-3-2

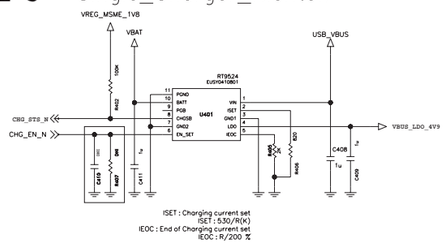
Micro-USB 5pin reverse



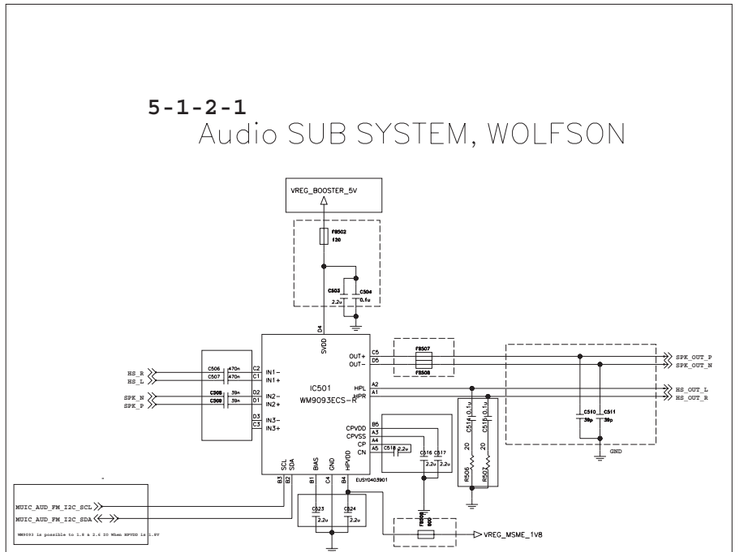
4-5-2-1 BATT_CONNECTOR

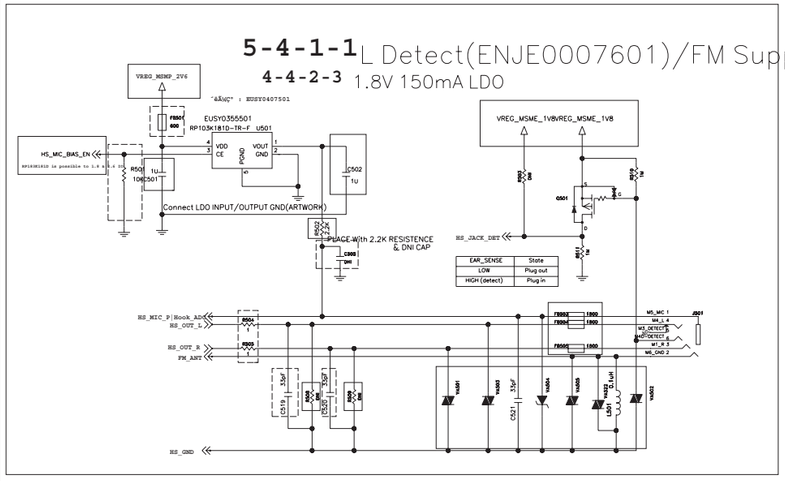


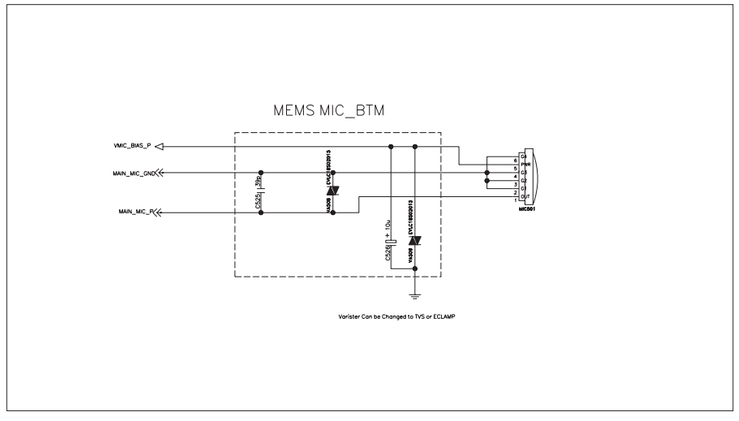
4-3-1-3 Single_Charger_Richtek



7. CIRCUIT DIAGRAM







7. CIRCUIT DIAGRAM

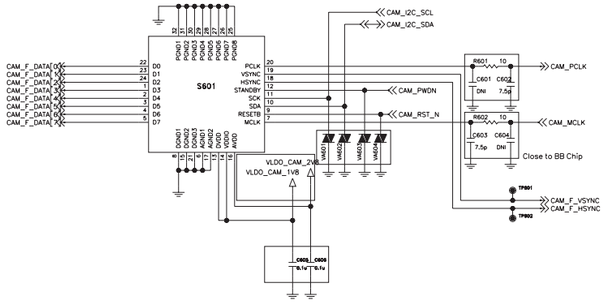
CCSD NO. 6-3-1-6

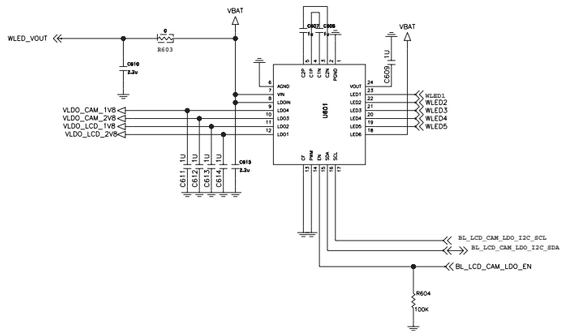
6CH+4LDO,PWM

6LED, PWM, 4LDO – EUSY0344403

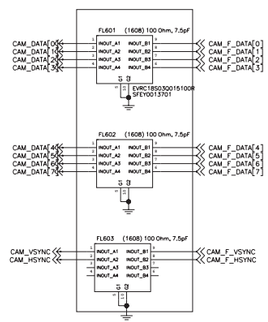
6-2-2-1

2M FF SOCKET CONNECTOR_Fixed Focus

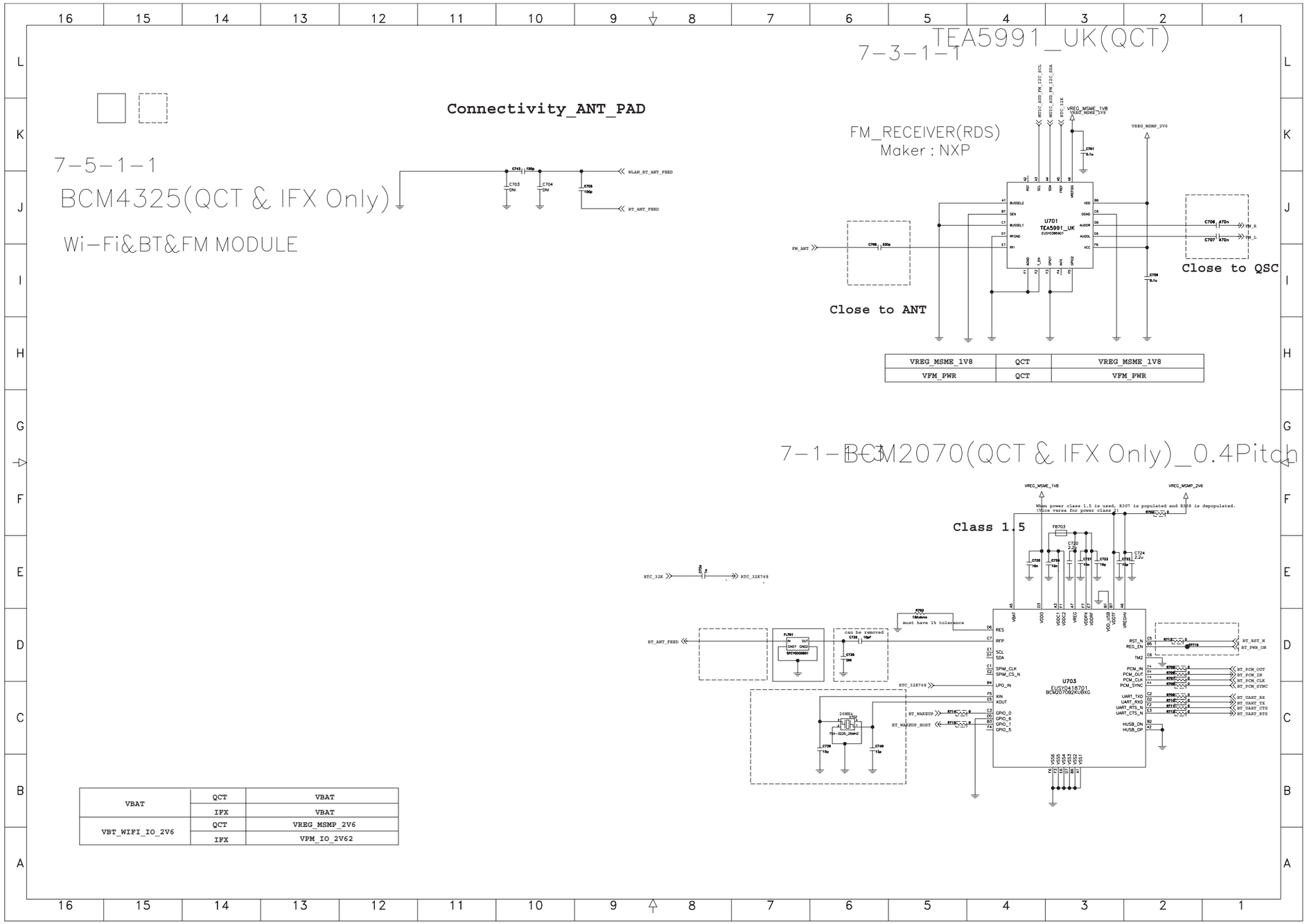




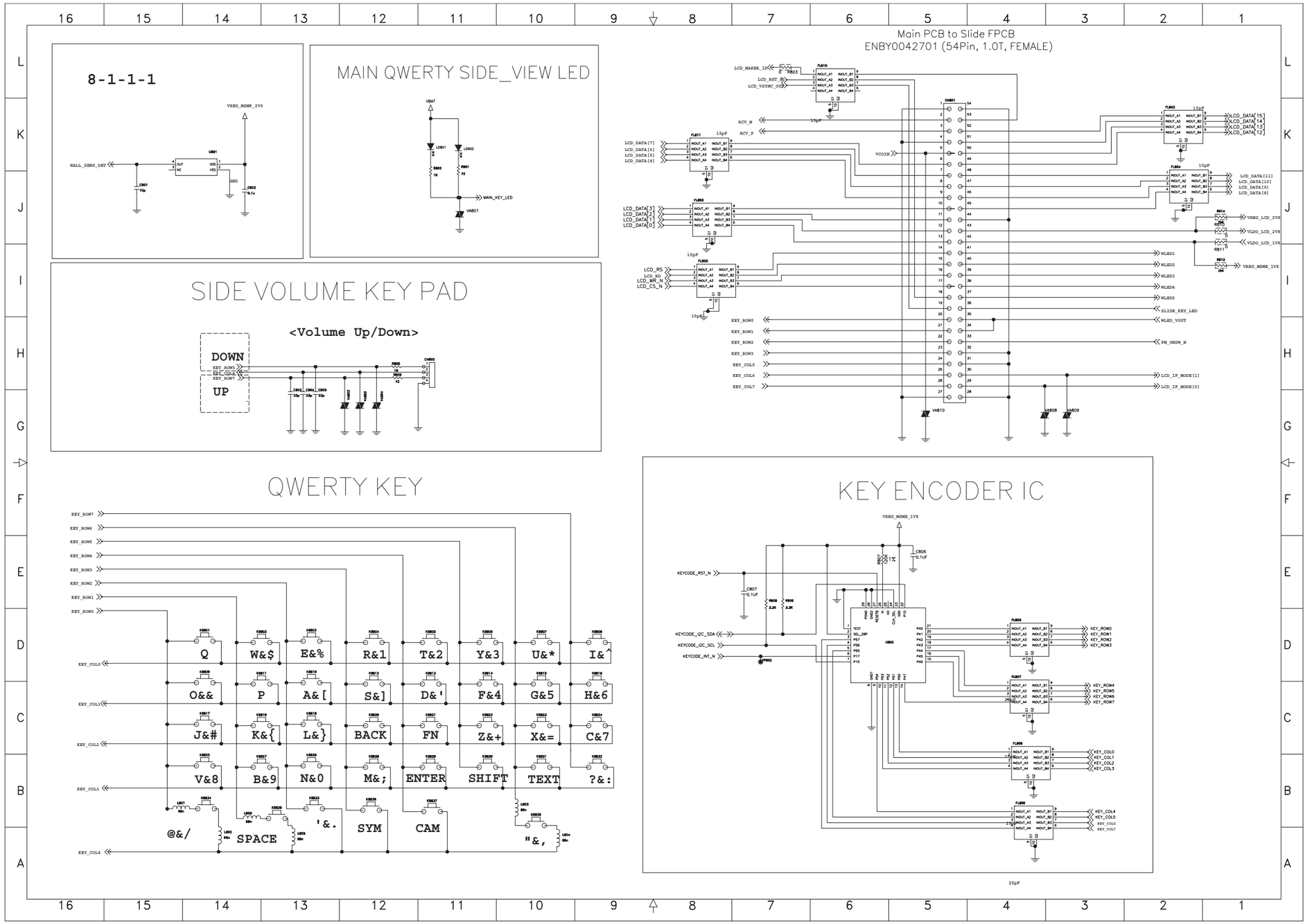
EMI FILTER



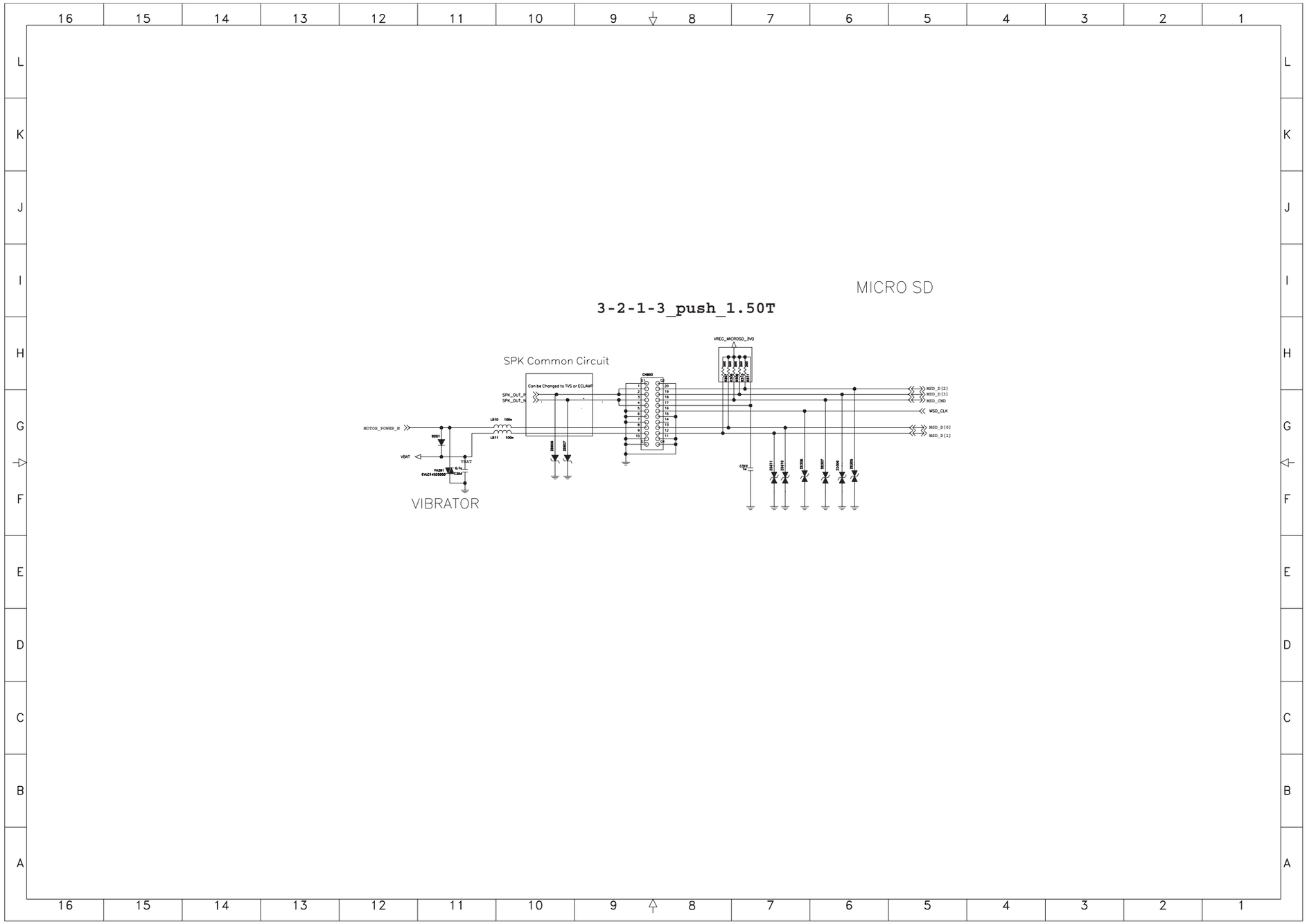
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



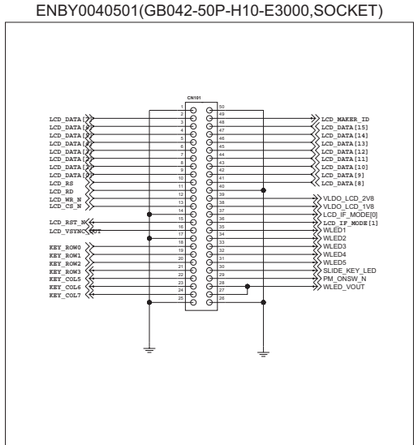
7. CIRCUIT DIAGRAM



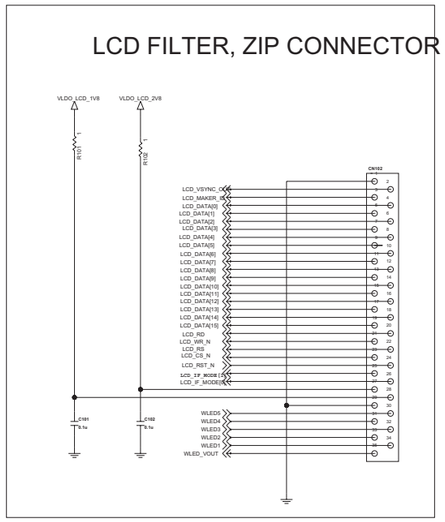
7. CIRCUIT DIAGRAM

KEY PCB

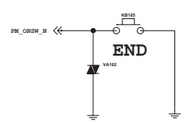
Slide KEY PCB to Slide FPCB
ENBY0040501(GB042-50P-H10-E3000,SOCKET)



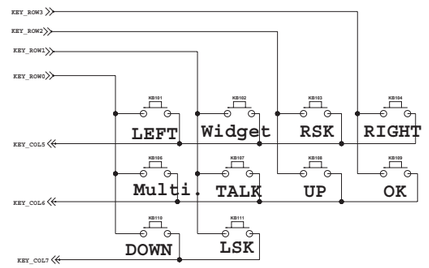
LCD FILTER, ZIP CONNECTOR



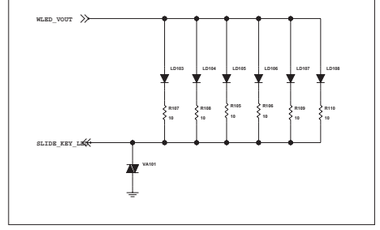
POWER KEY



SUB PCB KEY



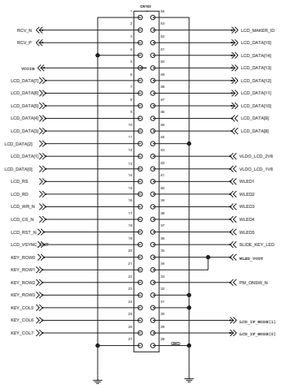
SUB KEY B/L



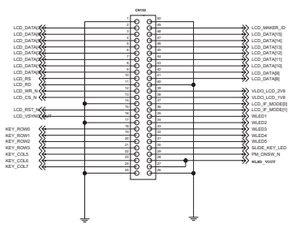
7. CIRCUIT DIAGRAM

SLIDE FPCB

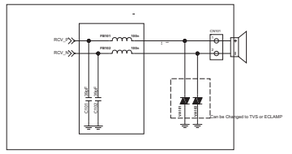
Slide FPCB to Main PCB
(54Pin)



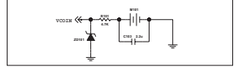
Slide FPCB to KEY PCB(Slide)
ENBY0040401 (50Pin)



MAIN RECEIVER



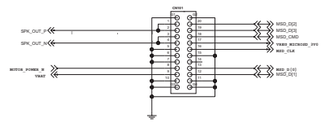
BACKUP BAT.(SUPER CAP.)



7. CIRCUIT DIAGRAM

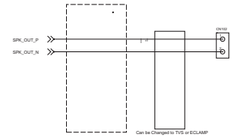
MODULE FPCB

From Module FPCB to Main PCB Connector



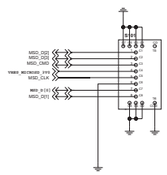
SPK Common Circuit

BUSEON 16pi 3.0t 0.8W
ELCO8000_0610 Update



MICRO SD

PUSH PUSH 1.32t
NORMAL TYPE

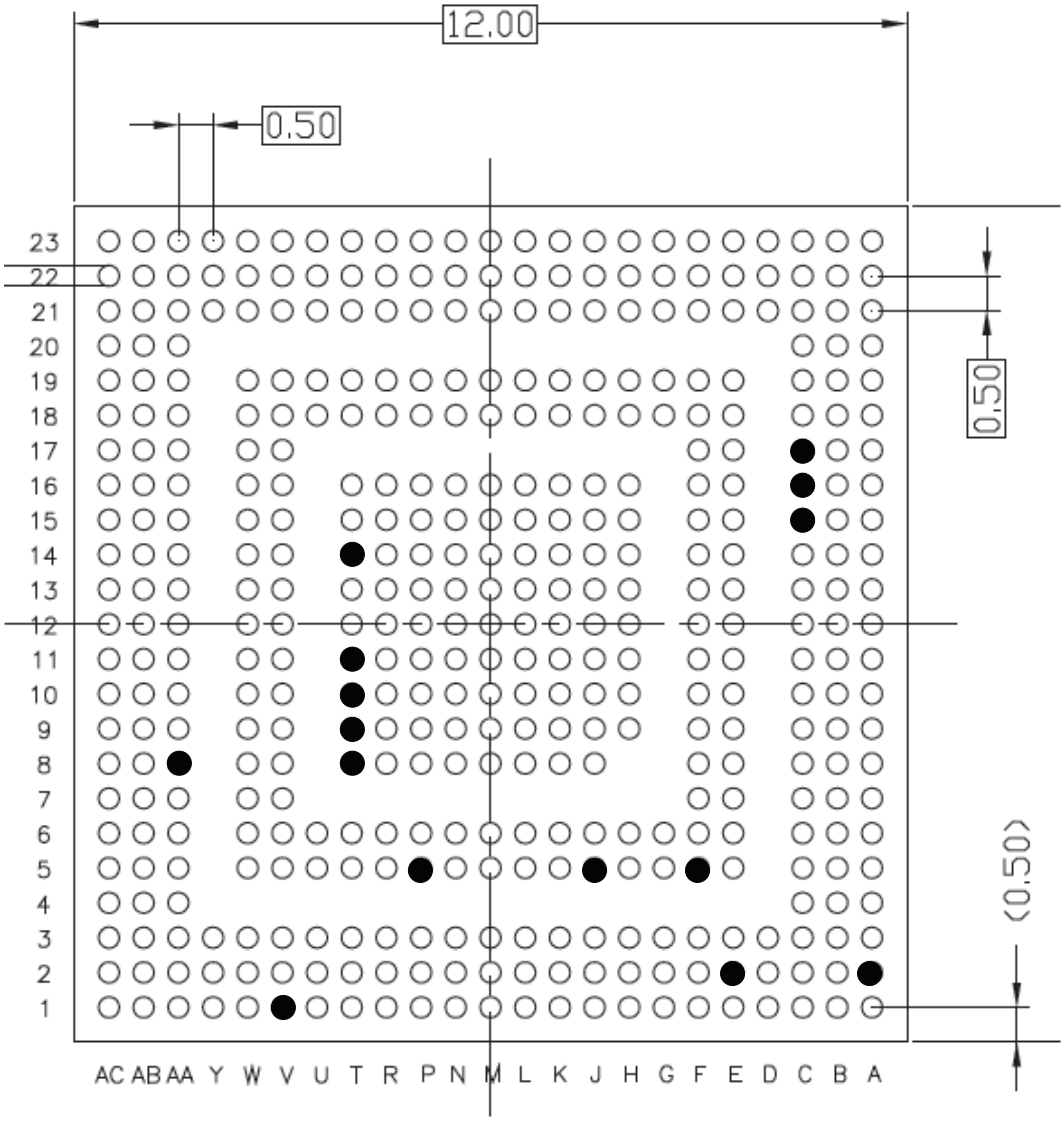


VIBRATOR

LG Innoteck/ Sodering 17mm

8. BGA PIN MAP

QSC6270 3G disable - U200 (bottom view)

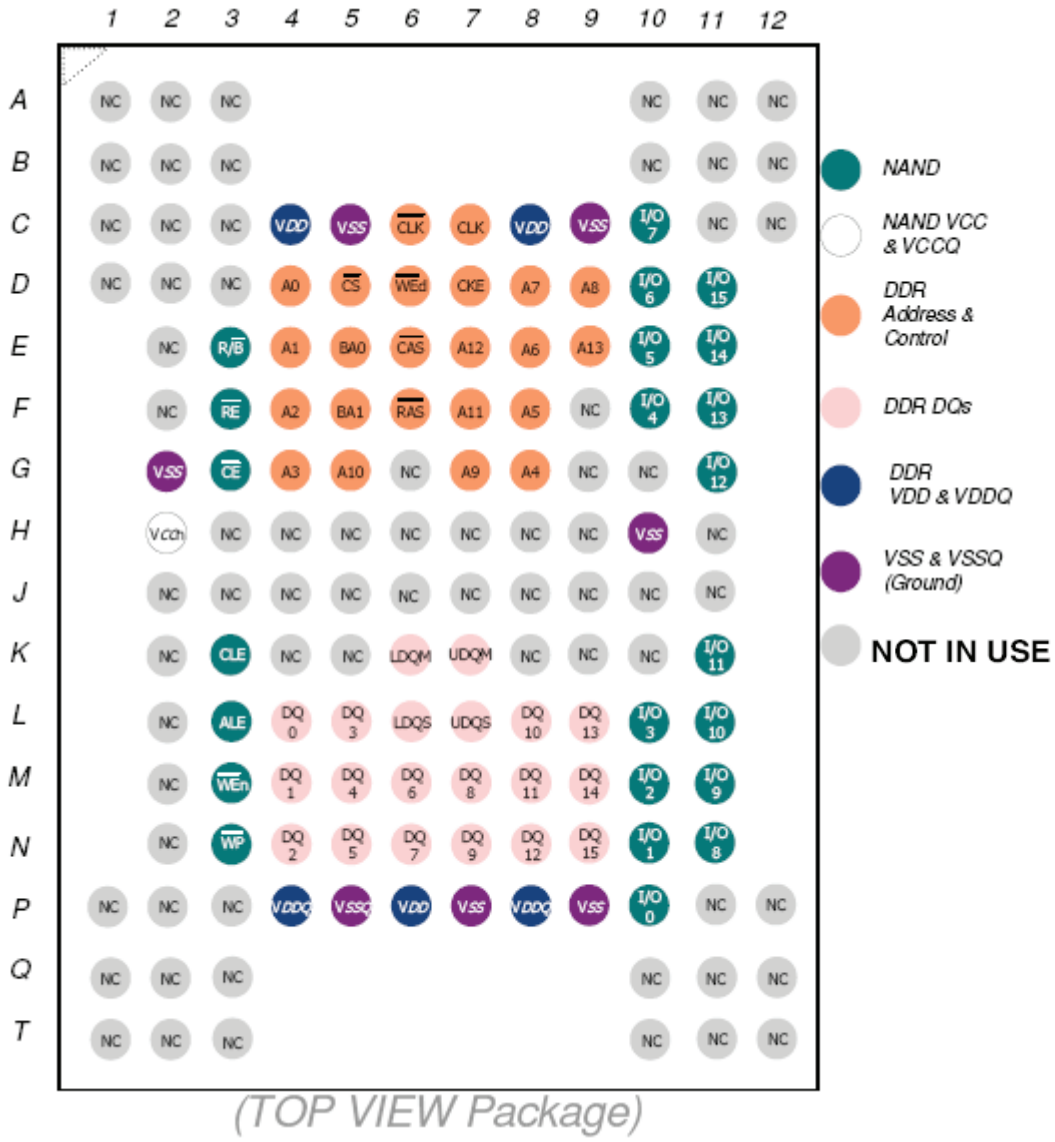


USE

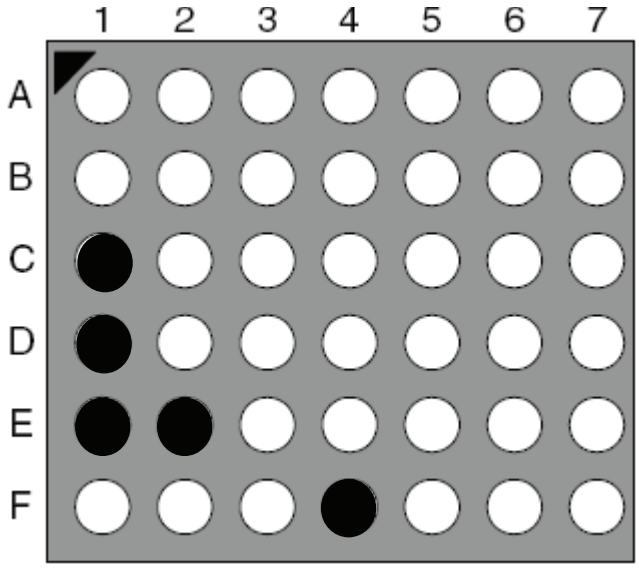
NOT IN USE

8. BGA PIN MAP

H8BCS0SI0BAR-46M (MCP,NAND) – U300 (EUSY0347506)



BCM2070B2KUBXG (bluetooth) – U700 (EUSY0418701)

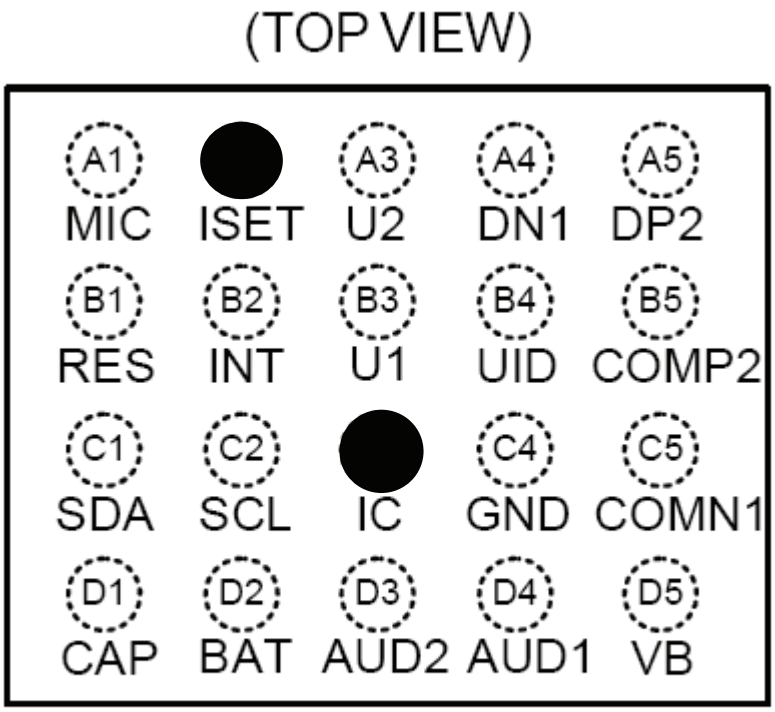


42-Bump 2.97 x 2.46 x 0.5 mm Array (Top View)

○ USE
● NOT IN USE

8. BGA PIN MAP

RT8963WSC (Multiplexer Mini/Micro USB Interface)– IC400 (EUSY0424801)



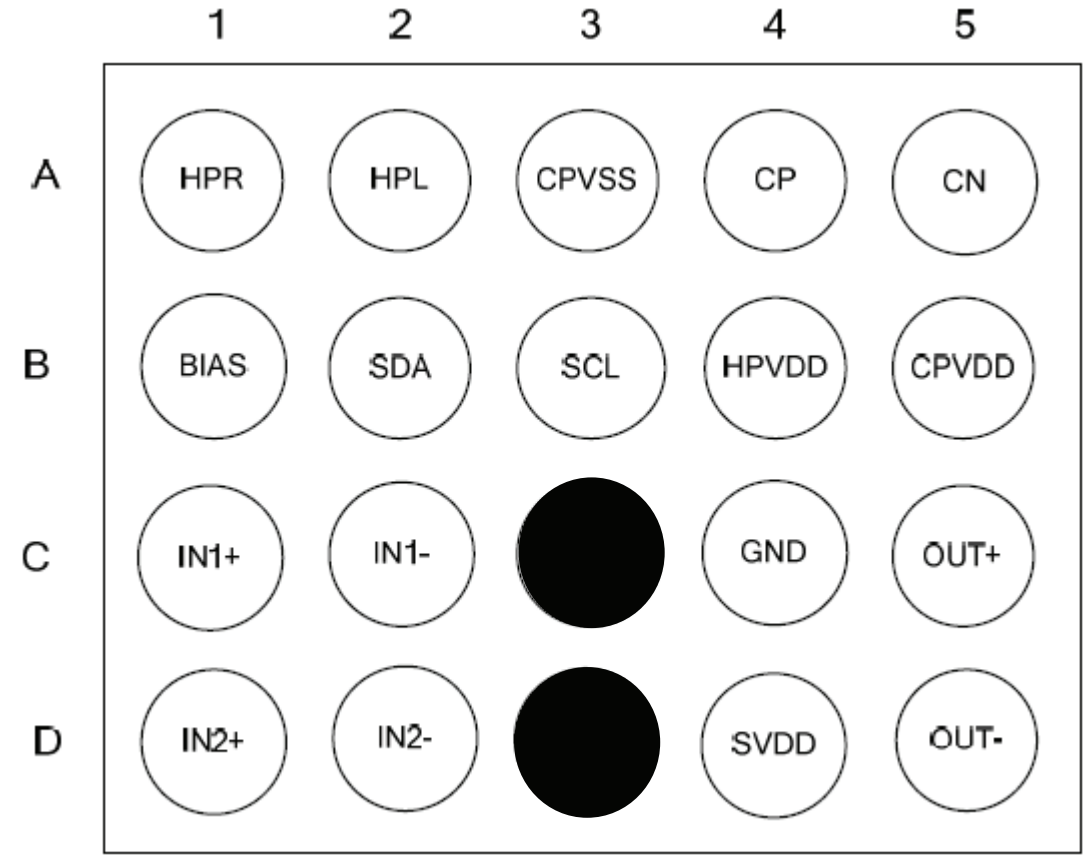
WL-CSP-20B 2.45x1.95

○ USE

● NOT IN USE

WM9093 (Ultra Low Power Audio Subsystem)– IC500 (EUSY0403901)

20-bump CSP package; Top View

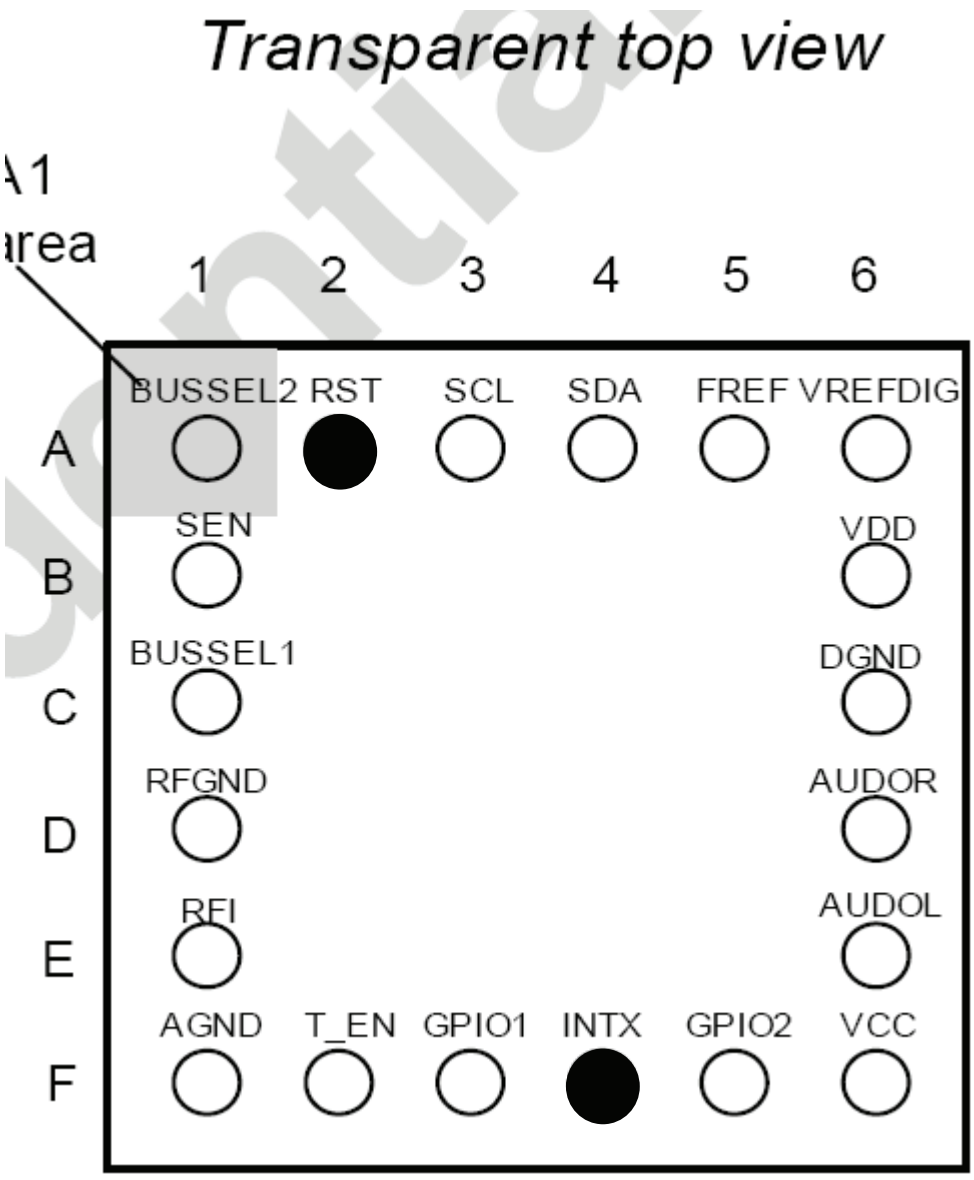


○ USE

● NOT IN USE

8. BGA PIN MAP

TEA5991(FM Tuner)– U701 (EUSY0385901)



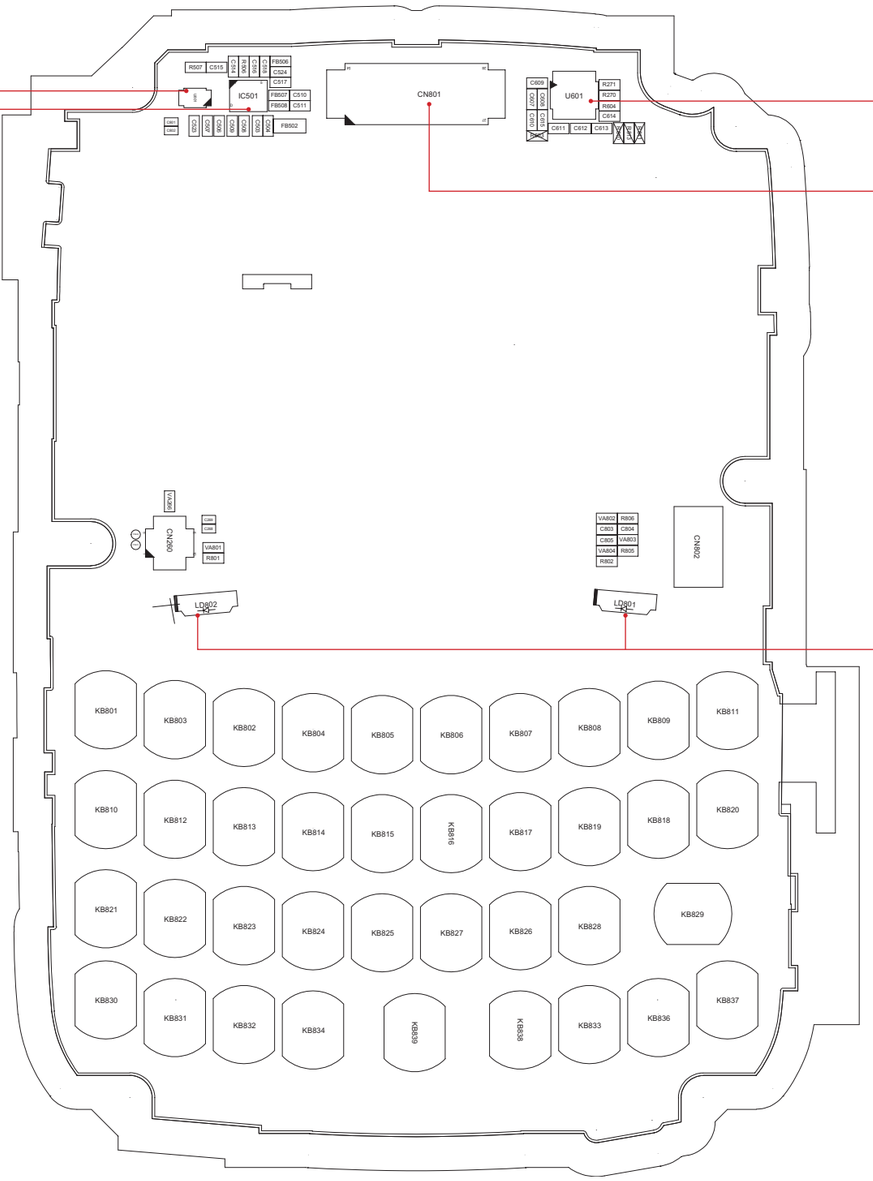
○ USE

● NOT IN USE

9. PCB LAYOUT

U801 Hall IC
- Can not use Slide Detection

IC501 Audio Sub System
- Can not use Sound,Headset



U601 Charge Pump+Dual LDO
- Can not use LCD Display,
  LCD Backlight, Slide Detection

CN801 FPCB Conn
- Can not use LCD, Receiver,Sub Key,
  Sub key LEDs, Vibrator, Power On

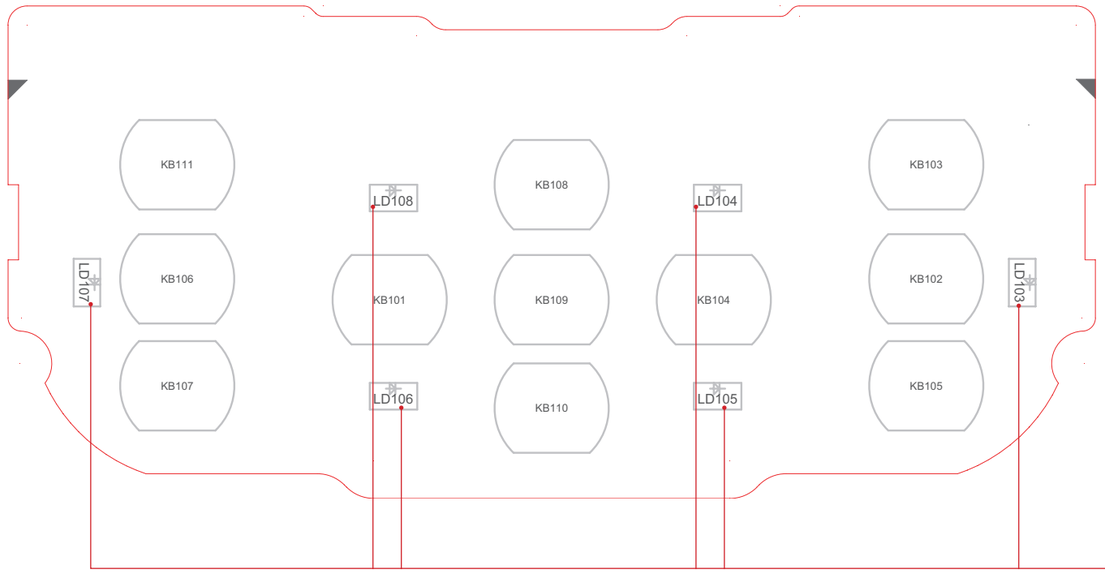
LD801/802 Main Key LED
- Can not use LED

C320_MAIN_SPFY0235601_1.1_TOP

9. PCB LAYOUT

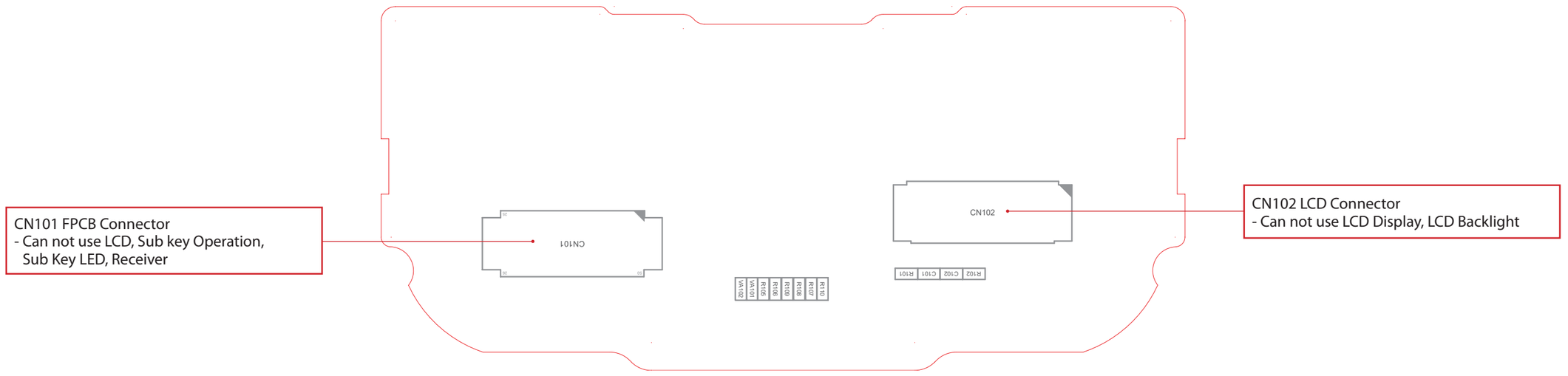
C320_MAIN_SPFY0235601_1.1_BOT

9. PCB LAYOUT



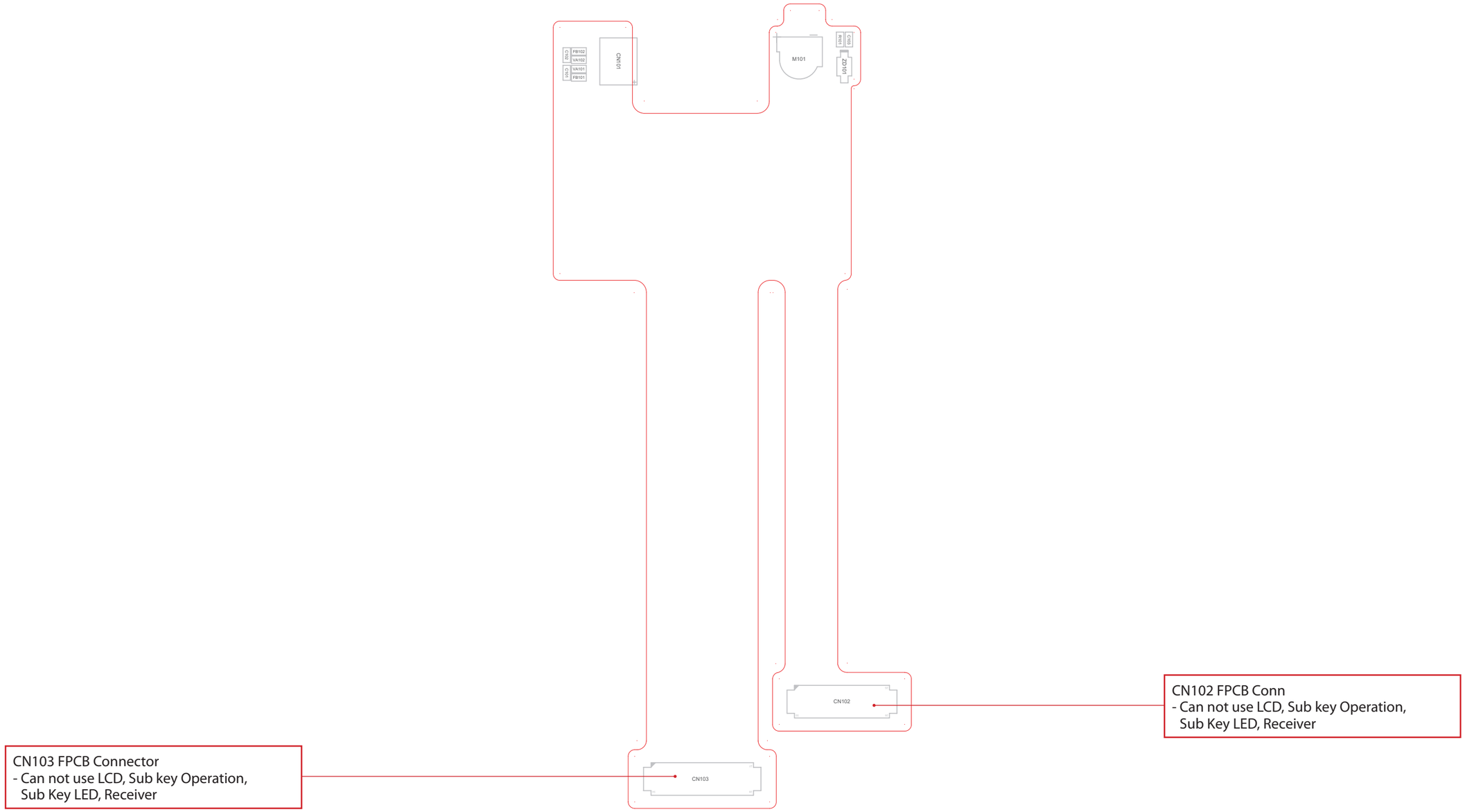
C320_KEY_SPEY0068201_10_TOP

9. PCB LAYOUT



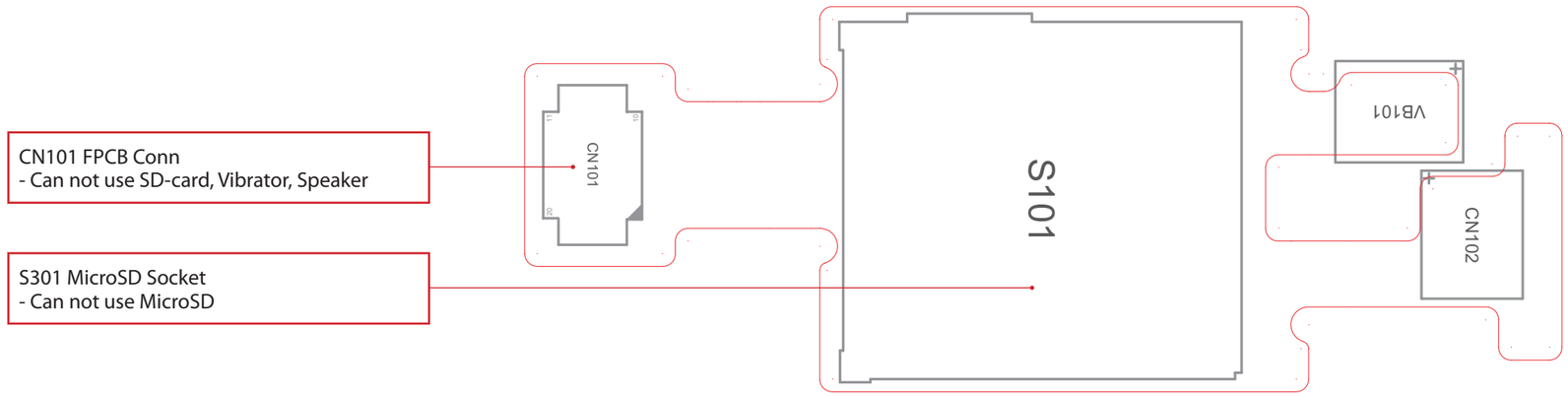
C320_KEY_SPEY0068201_10_BOT

9. PCB LAYOUT



C320_F_SLIDE_SPCY0246901_10_TOP

9. PCB LAYOUT



C320_F_SUB_SPCY0247101_10_BOT

10. RF CALIBRATION

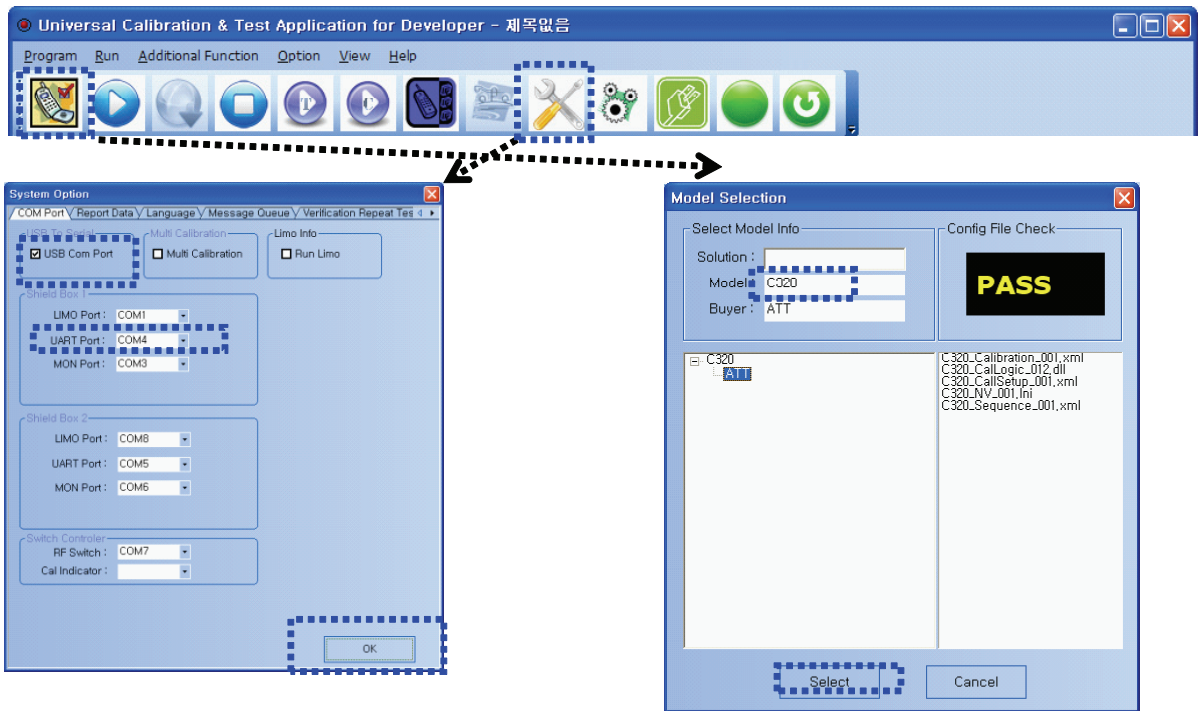
10.1 Usage of Tachyon for RF Calibration and Test

10.1.1 Preparation work for setting RF cable loss

Procedure

1. Click "Hecaton.exe" in below directory to set RF cable loss on test equipment.
   "C:\LGE\Tachyon\Utilities"
2. After selecting "Select File" button, select right RF cable loss file corresponding to RF cable that you use.

10.1.2 Basic Setting of Tachyon for RF Calibration & Test



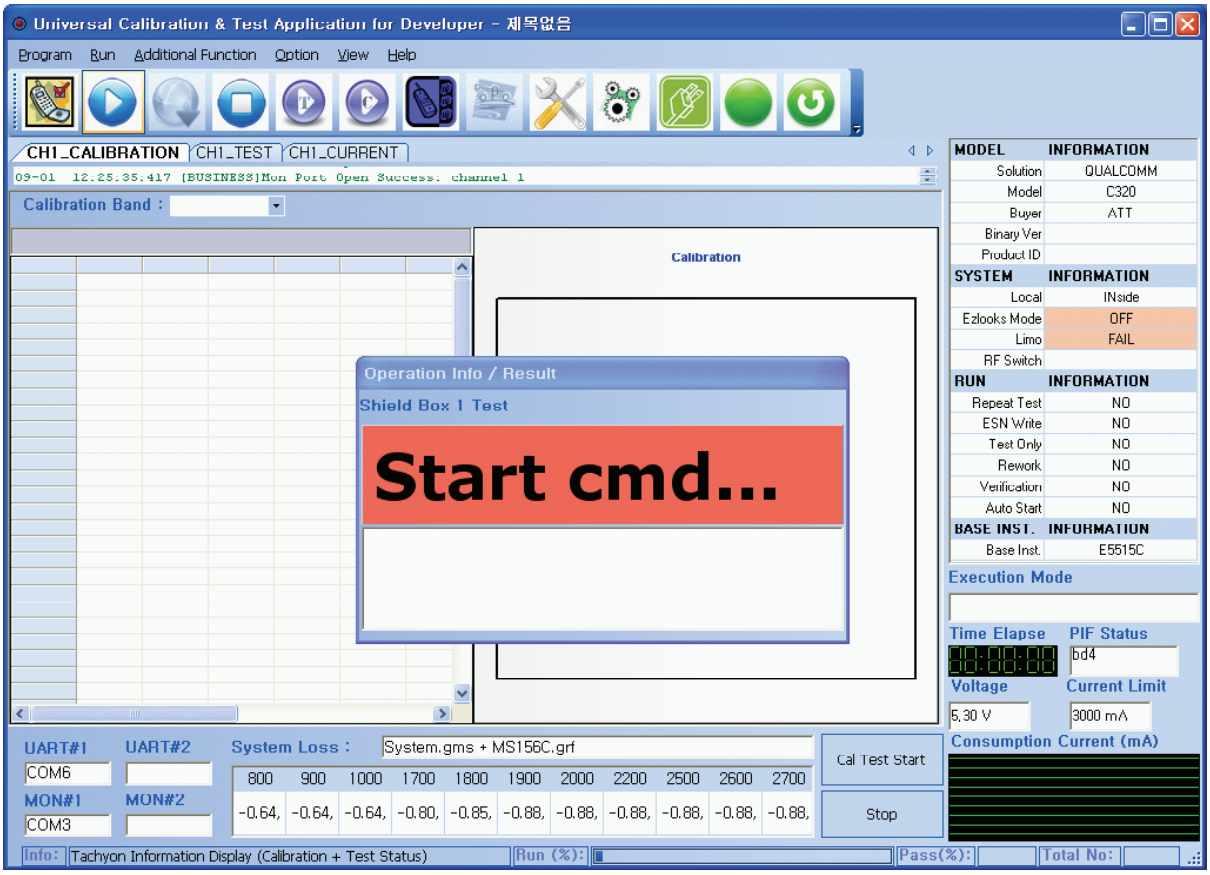
[System Option Setting]

[User Model Selection]

Procedure

1. Click "Tachyon_xxx.exe" in below directory to execute Tachyon program. "C:\LGE\Tachyon\"
2. Click "System Option Setting" icon in the menu to set COM port.
   Select "UART Port" that can communicate with phone in the Shield Box 1 message.
   Click the "OK" button.
3. Click "User Model Selection" icon in the menu to set model configuration.
   Do double-click model/buyer name that you want to calibrate and test.
   Click the "Select" button.

10.1.3 Log of RF Calibration and Test



Contents

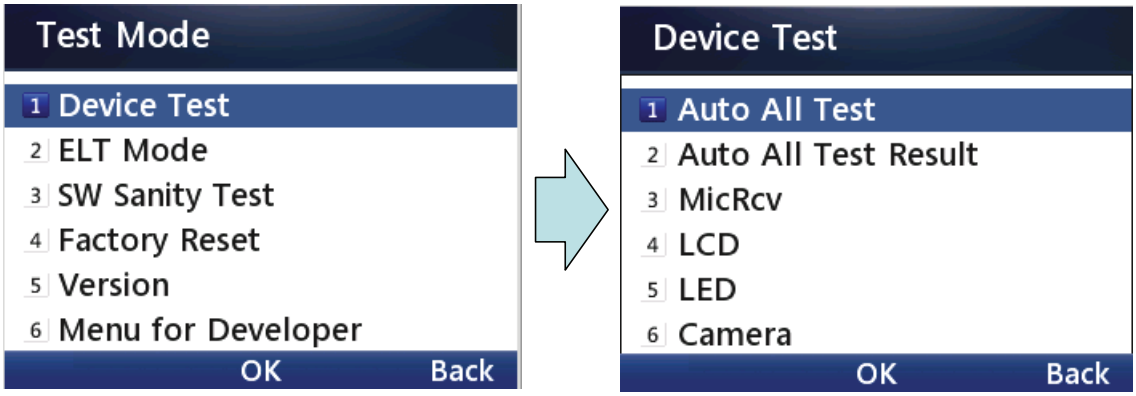
✓ On Running, log window is created in upper area.
It displays logs of phone commands and measurements for RF calibration and test.

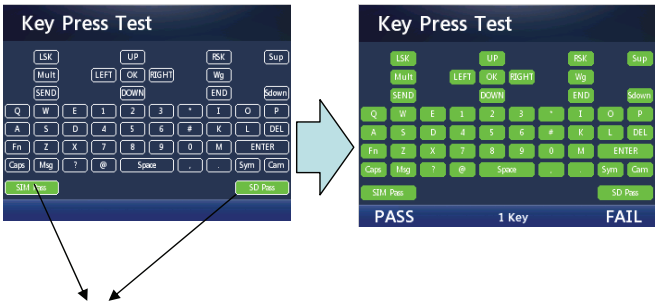
✓ The result files are saved in below directory
- "C:\LGE\Tachyon\Report\CalData\" : the file of RF calibration result
- "C:\LGE\Tachyon\Report\TestData\" : the file of RF test result

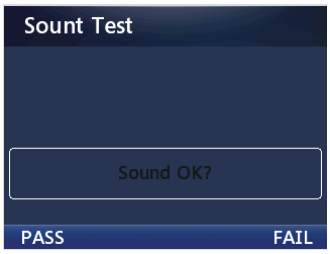
11. TEST ALONE

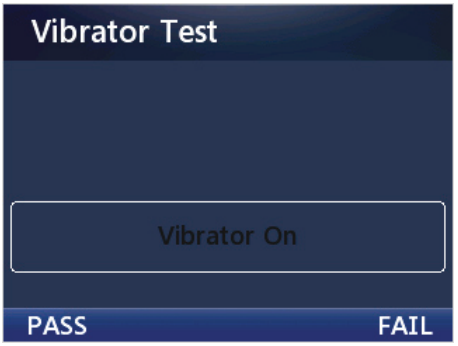
11.1 Phone Test Mode

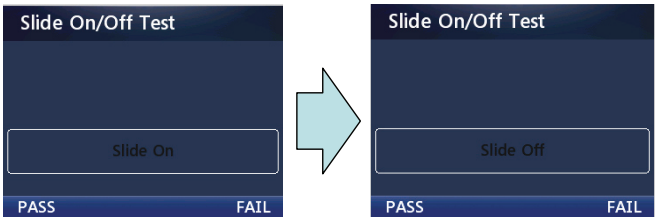
1. Enter the Engineer Menu
2. Tap 1. Device Test
3. Tap 1. Auto ALL Test

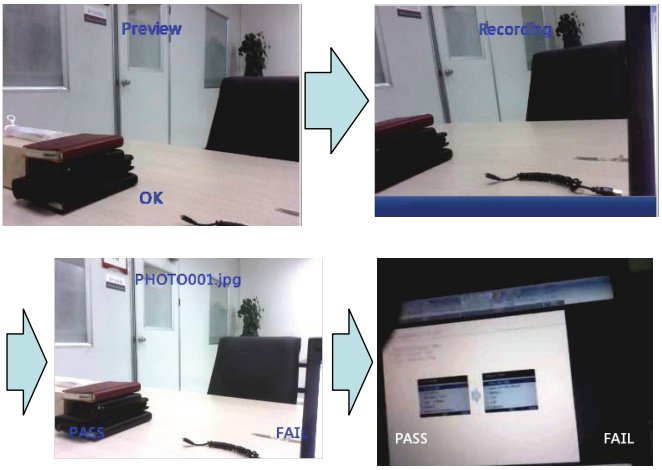


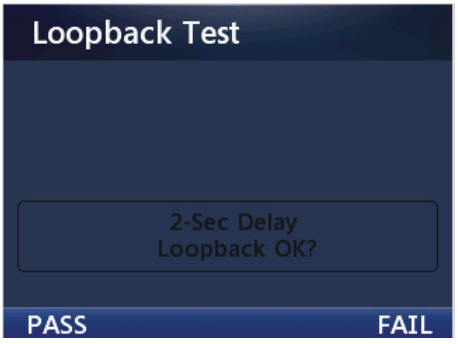
Item	Order	Description
(1) Key Press, External Memory, and SIM card Test Start	1.Key, External Memory, and SIM card Test 2. IF OK, tab “LSK” Button. It means “PASS”	☐ Key Test  External memory and SD card is inserted then Sing of “SIM Pass” and “SD Pass” is green. Press all keys for test - UP key - Down key - Right key - Left key …….. ……. ….

Item	Order	Description
(2) Sound	1. Sound On 2. IF OK, tab “LSK” Button. It means “PASS”	 Ringtone (MP3) is played regularly Press “LSK” button (Left top Key) Move to next step

Item	Order	Description
(3) Vibrator Test	1.Vibrator On 2. IF OK, tab “LSK” Button. It means “PASS”	 Press “LSK” button (Left top Key) Move to next step

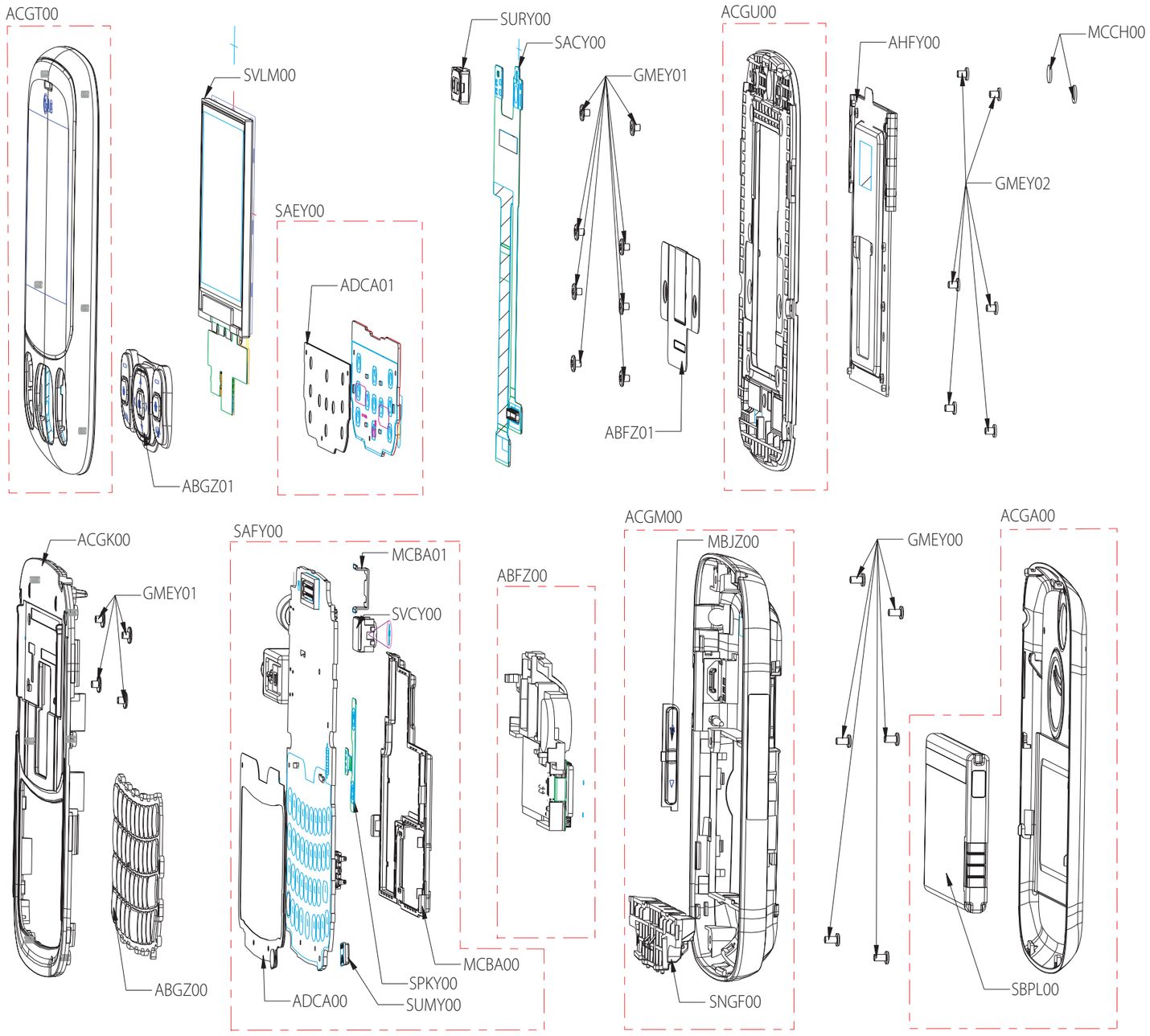
Item	Order	Description
(4) Slide On/Off Test	1.Move Slide Up and Down 2. IF OK, tab “LSK” Button. It means “PASS”	 Slide UP status Slide Down status Press “LSK” button (Left top Key) Move to next step`

Item	Order	Description
(5) Camera Test	1. Camera Off 2. Camera Auto On (Preview) 3. Photo Shot by press “OK” key 4. Photo Save 5. Record video 6. Video Save 7. Call Photo If OK , Press “LSK” key (Left top Key) 8. Call Video 9. Preview 10. IF OK, tab “LSK” Button. It means “PASS”	

Item	Order	Description
(6) Loopback Test	1.Loopback On 2. Speak something 3. After 2 Sec, listen the voice 4. IF OK, tab “LSK” Button. It means “PASS” 5. The TEST END	 Press “LSK” button (Left top Key) TEST END

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



Location	Description
ACGA00	Cover Assembly,Battery
SBPL00	Mobile Phone Battery Li-Ion
ABFZ00	Bracket Assembly
ACGM00	Cover Assembly,Rear
SNGF00	Antenna,Helical
MBJZ00	Button
GMEY00	Screw,Machine
ABGZ00	Button Assembly
ABGZ01	Button Assembly
ACGT00	Cover Assembly,Upper
AHFY00	HINGE ASSY
SURY00	Receiver
ABFZ01	BRACKET ASSY
ACGK00	Cover Assembly,Front
ACGU00	Cover Assembly,Lower
GMEY01	Screw,Machine
GMEY02	Screw,Machine
MCCH00	Cap,Screw
SACY00	PCB Assembly,Flexible
SAEY00	PCB Assembly,Keypad
ADCA01	Dome Assembly,Metal
SVLM00	LCD,Module-TFT
SAFY00	PCB Assembly,Main
SVCY00	Camera Module
SPKY00	PCB,Sidekey
MCBA00	Can,Shield
ADCA00	Dome Assembly,Metal
MCBA01	Can,Shield
SUMY00	Microphone,Condenser

12.2 Replacement Parts <Mechanic component>

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

Level	LocationNo.	Description	PartNumber	Spec	Remark
1	AAD000000	Addition Assembly	- AAAY0524401	LG-C320 BOOWA ZZ:Without Color -	
2	ACGA00	Cover Assembly,Battery	- ACGA0048201	LG-C320i IDNWA WA:White -	
3	MCJA00	Cover,Battery	MCJA0120401	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
3	MPBN00	Damper,Speaker	MPBN0093201	COMPLEX LG-C320i IDNWA WA:White COMPLEX, (empty), , , , ,	
2	MFL053800	Manual,Operation	MFL67003501	COMPLEX LGC320.ABOOWA ZZ:Without Color LGC320 manual for BOO	
1	AGF000000	Package Assembly	- AGF75960001	LGC320.ABOOWA ZZ:Without Color LGC320 BOO(TR3/STD UB/1160*1160 Pallet/600ea)	
2	MAY084000	Box,Unit	MAY64811601	COMPLEX LGC320.ABOOWA ZZ:Without Color LGC320 BOO(TR3 STD UB)	
2	MAF086500	BAG,VINYL(PE)	MBAD0005204	LG-LX260 SPRAG AG,ZZ,COMPLEX, (empty), , , , ,	
2	AGJ000000	PALLET ASSY	- APLY0002405	KP110 OPTBK BK,ZZ,TR3 Australia(600ea) Pallet Assy	
3	MBEC00	BOX,CARTON	MBEC0002002	KG270 CIS BK,ZZ,BOX, TW	
3	MCCL00	Cap,Box	MCCL0000402	COMPLEX KG270 CIS ZZ:Without Color BOX,TW, PBO PBOTW	
3	MPCY00	Pallet	MPCY0015703	COMPLEX TU500 TELBK SV:Silver COMPLEX,(empty),1160,1160,126,	
3	MSCA00	SLEEVE,BOX	MSCA0000701	MG230d CLA TS,ZZ,BOX, TW	
2	MAY047100	Box,Master	MBEE0059803	COMPLEX KP100 GBRLA ZZ:Without Color -	
2	MEZ003500	Label,Barcode	MLAC0004541	COMPLEX HB620 KPNBK ZZ:Without Color -	
2	MEZ047200	LABEL,MASTER BOX	MLAJ0004402	CG300 CGR DG,ZZ,LABEL,MASTER BOX(for CGR TDR 2VER. mbox_label)	
2	MEZ000000	LABEL	MLAZ0050901	KU990 GBRBK BK,ZZ,PRINTING, (empty), , , , ,	
1	APEY00	PHONE	- APEY0988401	LG-C320 BOOWA WA,ZZ,	
2	MEZ002100	Label,Approval	MLAA0062311	COMPLEX KB770 DEUBK ZZ:Without Color -	
2	ACGY00	COVER ASSY,EMS	- ACGY0088801	LG-C320 BOOWA WA,ZZ,	
3	ABFZ00	Bracket Assembly	- ABFZ0028101	LG-C320 BOOWA ZZ:Without Color -	
4	MEV000000	Insulator	MIDZ0281601	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
4	MCQ049800	Damper,Motor	MPBJ0079001	COMPLEX LG-C320i IDNWA WA:White COMPLEX, (empty), , , , ,	
4	MJN000000	Tape	MTAZ0358201	COMPLEX LG-C320i IDNWA WA:White COMPLEX, (empty), , , , ,	
4	MCQ015700	Damper,Connector	MPBU0114101	COMPLEX LG-C320i IDNWA WA:White COMPLEX, (empty), , , , ,	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	LocationNo.	Description	PartNumber	Spec	Remark
3	ACGM00	Cover Assembly,Rear	- ACGM0168401	LG-C320i IDNWA ZZ:Without Color -	
4	MJN061100	Tape,Protect	MJN67687301	COMPLEX LGC320I.AIDNWA GN:Green -	
4	MBJZ00	Button	MBJZ0041901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MCCE00	Cap,Receptacle	MCCE0061601	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MCJN00	Cover,Rear	MCJN0127401	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MDAY00	Decor	MDAY0086001	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MLAB	LABEL,A/S	MLAB0001102	C2000 CGRSV SV,WA,C2000 USASV DIA 4.0	
4	MPBJ00	Damper,Motor	MPBJ0078101	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MPBN00	Damper,Speaker	MPBN0091501	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MPBT00	Damper,Camera	MPBT0098901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MPBZ00	Damper	MPBZ0337301	COMPLEX LG-C320i IDNWA WA:White COMPLEX, (empty), , , , ,	
4	MTAK00	Tape,Camera	MTAK0041901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MWAE00	Window,Camera	MWAE0065101	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
3	GEMY00	Screw,Machine	GMEY0010601	GMEY0010601 BH + 1.4mM 2.5mM MSWR FZB N - KUMGANG SCREW CO., LTD	
3	ACGQ00	Cover Assembly,Slide	- ACGQ0056601	LG-C320 BOOWA WA:White -	
4	ABGZ00	Button Assembly	ABGZ0006901	LG-C320i IDNWA ZZ:Without Color MAIN	
4	ABGZ01	Button Assembly	ABGZ0007001	LG-C320i IDNWA ZZ:Without Color SUB	
4	ACGT00	Cover Assembly,Upper	- ACGT0009101	LG-C320i IDNWA ZZ:Without Color LG-C320i IDNWA	
5	AJX00	Window Assembly,LCD	- AJX73205001	LGC320.ABOOWA ZZ:Without Color -	
6	MKC043300	Window,LCD	MWAC0151901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MCJX00	Cover,Upper	- MCJX0011301	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
6	MICE00	INSERT,NUT	MICE0016901	MECH_COMMON ZY,ZZ,PRESS, STS, , , , ,	
5	MFBZ00	Filter	MFBZ0025001	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MPBG00	Damper,LCD	MPBG0113001	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MTAD00	Tape,Window	MTAD0133501	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MTAZ	TAPE	MTAZ0113701	LG-KV5900 BK,ZZ,20X7	
4	MJN061101	Tape,Protect	MTAB0440401	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
4	MJN061100	Tape,Protect	MTAB0423001	COMPLEX LG-C320i IDNWA ZZ:Without Color -	
4	MJN061102	Tape,Protect	MTAB0422301	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	AHFY00	HINGE ASSY	AHFY0002101	LG-MN240 MTP LS,ZZ,Slide	

Level	LocationNo.	Description	PartNumber	Spec	Remark
4	ABFZ01	BRACKET ASSY	- ABFZ0023401	LG-MN240 MTP LS,ZZ,	
5	MBFZ00	BRACKET	MBFZ0043001	LG-MN240 MTP LS,ZZ,COMPLEX, (empty), , , , ,	
5	MTAB00	TAPE,PROTECTION	MTAB0381101	LG-MN240 MTP LS,ZZ,COMPLEX, (empty), , , , ,	
4	ACGK00	Cover Assembly,Front	- ACGK0169801	LG-C320i IDNWA ZZ:Without Color LG-C320i IDNWA	
5	MCJK00	Cover,Front	- MCJK0135101	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
6	MICE00	INSERT,NUT	MICE0016903	MECH_COMMON ZY,ZZ,PRESS, STS, , , , ,	
5	MPBZ01	Damper	MPBZ0320601	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MPBZ00	Damper	MPBZ0320801	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MPBZ02	Damper	MPBZ0366401	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	ACGU00	Cover Assembly,Lower	- ACGU0007201	LG-C320i IDNWA ZZ:Without Color LG-C320i IDNWA	
5	MCJY00	Cover,Lower	MCJY0008701	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MMAA00	MAGNET,SWITCH	MMAA0011201	LG-LU1600 LGTWW WW,ZZ,COMPLEX, (empty), , , , ,	
5	MPBZ01	PAD	MPBZ0260601	LG-MN240 MTP LS,ZZ,COMPLEX, (empty), , , , ,	
5	MPBZ	PAD	MPBZ0260901	LG-MN240 MTP LS,ZZ,COMPLEX, (empty), , , , ,	
5	MPBZ02	Damper	MPBZ0320401	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	GMEY01	Screw,Machine	GMEY0017801	GMEY0017801 BH + 1.4mM 1.4mM MSWR FZB N - KUMGANG SCREW CO., LTD	
4	GMEY02	Screw,Machine	GMEY0019201	GMEY0019201 FH + 1.4mM 1.8mM SWCH FZW N N KUMGANG SCREW CO., LTD	
4	MCCH00	Cap,Screw	MCCH0165101	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MEV000002	Insulator	MEV63651701	COMPLEX LGC320.ABOOWA BL:Blue insulator, FPCB	
4	MDS000000	Gasket	MGAZ0112501	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
4	MEV000001	INSULATOR	MIDZ0259401	LG-MN240 MTP LS,ZZ,COMPLEX, (empty), , , , ,	
4	MCQ000000	Damper	MPBZ0357401	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
6	MJN000000	Tape	MTAZ0368001	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
6	MCQ015700	Damper,Connector	MPBU0113901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
6	ADCA01	Dome Assembly,Metal	ADCA0118401	LG-C320i IDNWA ZZ:Without Color LG-C320i IDNWA	
5	MCQ000000	Damper	MPBZ0349901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
5	ACKA00	Can Assembly,Shield	- ACKA0035801	LG-C320i IDNWA ZZ:Without Color -	
6	MCBA00	Can,Shield	MCBA0086901	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	
5	MEV000000	Insulator	MIDZ0284101	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX,(empty),	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	LocationNo.	Description	PartNumber	Spec	Remark
5	ADCA00	Dome Assembly,Metal	- ADCA0118501	LG-C320i IDNWA ZZ:Without Color MAIN	
6	MPBZ00	PAD	MPBZ0337101	LG-C320i IDNWA WA,ZZ,COMPLEX, (empty), , , , ,	
5	MPBU00	Damper,Connector	MPBU0113801	COMPLEX LG-C320i IDNWA ZZ:Without Color COMPLEX, (empty), , , , ,	
5	MEZ000000	LABEL	MLAZ0038301	LG-VX6000 SV,ZZ,PID Label 4 Array	
6	MCBA01	Can,Shield	MCBA0059201	COMPLEX GD350 CLP ZZ:Without Color -	

12.2 Replacement Parts <Main component>

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

Level	LocationNo.	Description	PartNumber	Spec	Remark
4	EBR070500	PCB Assembly,Flexible	- EBR72655001	LGC320.ABOOWA FLEXIBLE 1.0	
5	EBR070400	PCB Assembly, Flexible,SMT	- EBR72681501	LGC320.ABOOWA FLEXIBLE 1.0	
6	EAX010700	PCB,Flexible	SPCY0247101	SPCY0247101 LG-C320i IDNWA,FLEXIBLE,E,POLYI,0.15 mm,DOUBLE SI FLEX CO., LTD	
6	EBR070200	PCB Assembly, Flexible,SMT Bottom	- EBR72655201	LGC320.ABOOWA FLEXIBLE 1.0	
7	CN101	Connector,BtoB	ENBY0052901	55909-0274 20P 0.40MM STRAIGHT MALE SMD R/TP 1.5M - HANKOOK MOLEX	
7	S101	Socket,Card	ENSY0023601	SCHA4B0402 Micro-SD 8P ANGLE SMD R/TP - ALPS ELECTRIC KOREA CO.,LTD.	
6	EBR070300	PCB Assembly, Flexible,SMT Top	EBR72681601	LGC320.ABOOWA FLEXIBLE 1.0	
4	EAU010000	Motor,DC	SJMY0007104	3V 80mA 0A 12KRPM 0RPM 0SEC 0GF.CM 0OHM	
4	EAB010100	Speaker Module	SUSY0027617	SI-C320-P LG-C320i IDNWA BUJEON ELECTRONICS CO., LTD	
4	SNGF00	Antenna,Helical	SNGF0064202	ACD-00094 3.0,-2 dBd,GSM Quad carrier type,QUAD,-2.0,50,3.0 MOBITECH CORPORATION	
6	RAB040100	Film,Inmold	BFAA0127401	BFAA0127401 ; ,BLACK , , , BLACK , , , NISSHA PRINTING CO., LTD	
4	SURY00	Receiver	SURY0010114	BWBR1207L-04B-P 30mW 32OHM 105DB 0HZTO0HZ WIRE - BUJEON ELECTRONICS CO., LTD	
4	SACY00	PCB Assembly,Flexible	- SACY0127201	LG-C320 BOOWA FLEXIBLE 1.0	
5	SACE00	PCB Assembly, Flexible,SMT	- SACE0114501	LG-C320 BOOWA FLEXIBLE 1.0	
6	EAX010700	PCB,Flexible	SPCY0246901	SPCY0246901 LG-C320i IDNWA,FLEXIBLE,D,POLYI,.12 mm,DOUBLE SI FLEX CO., LTD	
6	SACC00	PCB Assembly, Flexible,SMT Bottom	SACC0085002	LG-C320 BOOWA FLEXIBLE 1.0	
6	SACD00	PCB Assembly, Flexible,SMT Top	- SACD0098702	LG-C320 BOOWA FLEXIBLE 1.0	
7	C101,C102	Varistor	SEVY0005201	EVLC5S02050 5.5V 0% 50F 1.0*0.5*0.6 - SMD R/TP AMOTECH CO., LTD.	
7	FB101, FB102	Inductor,Multilayer,Chip	ELCH0004727	1005GC2TR10J00 100NH 5% 0V 100mA 2.3OHM 600MHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
7	CN102	Connector,BtoB	ENBY0040401	GB042-50P-H10-E3000 50P 0.4MM STRAIGHT PLUG SMD R/TP 1M - LS Mtron Ltd.	
7	VA101, VA102	Varistor	SEVY0003901	EVL5M02200 5.5V 0% 480F 1.0*0.5*0.6 NONE SMD R/TP AMOTECH CO., LTD.	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	LocationNo.	Description	PartNumber	Spec	Remark
7	CN103	Connector,BtoB	ENBY0042601	GB042-54P-H10 54P 0.40MM STRAIGHT MALE SMD R/TP 1M - LS Mtron Ltd.	
7	C103	Capacitor,Ceramic,Chip	ECCH0000198	CL05A225MQ5NSNC 2.2uF 20% 6.3V X5R -55TO+85C 1005 R/TP . SAMSUNG ELECTRO-MECHANICS CO., LTD.	
7	M101	Capacitor Assembly	SMZY0023501	PAS311HR-VG1 3.8 Backup Capacitor 0.03F,Module Assembly, KOREA TAIYO YUDEN.CO., LTD.	
7	ZD101	Diode,TVS	EDTY0008601	PSD05-LF 5V 6 13.5V 42A 500W SOD323 R/TP 2P 1 PROTEK DEVICES INC.	
7	R101	Resistor,Chip	ERHY0000254	MCR01MZP5J472 4.7KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
4	SAEY00	PCB Assembly,Keypad	- SAEY0074701	LG-C320 BOOWA KEYPAD 1.0	
5	EBR070900	PCB Assembly, Keypad,Insert	- EBR72665301	LGC320.ABOOWA KEYPAD 1.0	
5	SAEE	PCB Assembly, Keypad,SMT	- SAEE0039402	LG-C320 BOOWA KEYPAD 1.1	
6	SAEC	PCB Assembly, Keypad,SMT Bottom	- SAEC0038302	LG-C320 BOOWA KEYPAD 1.0	
7	R101,R102	Resistor,Chip	ERHZ0000434	MCR01MZP5J1R0 1OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
7	C101,C102	Capacitor,Ceramic,Chip	ECCH0002001	C1005JB0J104KT000F 0.1uF 10% 6.3V Y5P -30TO+85C 1005 R/TP - TDK CORPORATION	
7	CN101	Connector,BtoB	ENBY0040501	GB042-50S-H10-E3000 50P 0.4MM STRAIGHT SOCKET SMD R/TP 1M - LS Mtron Ltd.	
7	CN102	Connector,FFC/FPC/PIC	ENQY0014901	GF032-35S-E2000 35P 0.30MM FPC STRAIGHT BOTH SMD R/TP LOCKING - LS Mtron Ltd.	
7	R105,R106,R107,R108,R109,R110	Resistor,Chip	ERHZ0000402	MCR01MZP5J100 10OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
7	VA101, VA102	Varistor	SEVY0003901	EVL5M02200 5.5V 0% 480F 1.0*0.5*0.6 NONE SMD R/TP AMOTECH CO., LTD.	
6	SAED	PCB Assembly, Keypad,SMT Top	- SAED0037602	LG-C320 BOOWA KEYPAD 1.0	
7	LD103, LD104, LD105, LD106, LD107, LD108	LED,Chip	EDLH0014803	SSC-WH107 WHITE 2.7~3.1 20mA 100~230mcd x, y 64mW 1608 R/TP 2P - SEOUL SEMICONDUCTOR CO.,LTD	
6	SPEY00	PCB,Keypad	SPEY0068201	SPEY0068201 LG-C320i IDNWA,KEYPAD,D,FR-4,.8 mm,BUILD-UP 4 UNITECH PRINTED CIRCUIT BOARD CORP.	
4	SVLM00	LCD,Module-TFT	SVLM0038101	DM24-DSM04 Main,2.4,320*240,54.3*46.8*1.7t,262K,TFT,TM,S6D05A0,Landscape Type,16bit IF,For Bar Type Phone, LG Display Co. Ltd.	
3	SAFY00	PCB Assembly,Main	- SAFY0399101	LG-C320 MAIN 1.0	

Level	LocationNo.	Description	PartNumber	Spec	Remark
4	SAFB00	PCB Assembly, Main,Insert	- SAFB0126901	LG-C320 BOOWA MAIN 1.1	
5	RAA050100	RESIN,PC	BRAH0001301	UF-1060,; , , , ,[empty]	
5	SVCY00	Camera Module	SVCY0026901	C2FK-H313A C2FK-H313A 2M FF, Hynix(1/5"), 7x7x4.1t, Socket LG Innotek.com	
5	SPKY00	PCB,Sidekey	SPKY0094301	SPKY0094301 LG-C320i IDNWA,SIDEKEY,C,POLYI,0.18 mm,DOUBLE SI FLEX CO., LTD	
4	SAFF00	PCB Assembly, Main,SMT	- SAFF0298001	LG-C320 MAIN 1.0	
5	SAFC00	PCB Assembly, Main,SMT Bottom	- SAFC0162201	LG-C320 BOOWA MAIN 1.2	
6	S601	Card Socket	ENSY0022201	CAM-H88 24,ETC,mm,7*7,1.3M (1/5") Socket Type MITSUMI ELECTRIC CO.,LTD.	
6	L207	Inductor,Multilayer,Chip	ELCH0004729	1005GC2T56NJ00 56NH 5% 0V 200mA 1.6OHM 900MHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	C103	Capacitor,Ceramic,Chip	ECCH0000198	CL05A225MQ5NSNC 2.2uF 20% 6.3V X5R -55TO+85C 1005 R/TP . SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C735	Capacitor,Ceramic,Chip	ECCH0000110	MCH155A100D 10pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C120,C739	Capacitor,Ceramic,Chip	ECCH0000112	MCH155C150J 15pF 5% 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C301,C303,C304,C404,C407	Capacitor,Ceramic,Chip	ECCH0000115	MCH155A220JK 22pF 5% 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C110	Capacitor,Ceramic,Chip	ECCH0000117	CL05C270JB5NNNC 27pF 5% 50V NP0 -55TO+125C 1005 R/TP 0.5 SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C143	Capacitor,Ceramic,Chip	ECCH0000195	GRM1555C1H3R9C 3.9pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C417,C525	Capacitor,Ceramic,Chip	ECCH0000120	MCH155A390J 39pF 5% 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C708	Capacitor,Ceramic,Chip	ECCH0000137	C1005X7R1H331KT000F 0.33nF 10% 50V X7R -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	VA101, VA102	Varistor	SEVY0003901	EVL5M02200 5.5V 0% 480F 1.0*0.5*0.6 NONE SMD R/TP AMOTECH CO., LTD.	

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	C208,C211,C212,C213,C214,C215,C216,C217,C218,C219,C220,C221,C222,C223,C229,C231,C235,C236,C305,C306,C307,C308,C309,C310,C605,C606,C701,C709	Capacitor,Ceramic,Chip	ECCH0009101	C0603X5R0J104KT00NN 0.1uF 10% 6.3V X5R -55TO+85C 0603 R/TP - TDK CORPORATION	
6	C101,C102	Capacitor,Ceramic,Chip	ECCH0002001	C1005JB0J104KT000F 0.1uF 10% 6.3V Y5P -30TO+85C 1005 R/TP - TDK CORPORATION	
6	C105,C117,C118,C122,C130,C135,C519,C520,C521	Capacitor,Ceramic,Chip	ECZH0000830	C1005C0G1H330JT000F 33pF 5% 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C230,C233	Capacitor,Ceramic,Chip	ECCH0006201	C1608X5R0J475KT000N 4.7uF 10% 6.3V X5R -55TO+85C 1608 R/TP - TDK CORPORATION	
6	C121,C225,C246,C252,C254,C255	Capacitor,Ceramic,Chip	ECCH0007803	CL10A106MP8NNNC 10uF 20% 10V X5R -55TO+85C 1608 R/TP 0.8MM SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C226,C227,C237,C244,C257,C258,C259	Capacitor,Ceramic,Chip	ECCH0007802	CV105X5R475M10AT 4.7uF 20% 10V X5R -55TO+85C 1608 R/TP - KYOCERA CORP.	
6	C234,C240,C241,C243	Capacitor,Ceramic,Chip	ECCH0009103	C0603C0G1H101JT00NN 100pF 5% 50V X7R -55TO+125C 0603 R/TP - TDK CORPORATION	
6	C242,C253,C256,C298,C721,C725,C726	Capacitor,Ceramic,Chip	ECCH0009106	C0603X7R1C103KT 10nF 10% 10V X7R -55TO+125C 0603 R/TP - TDK CORPORATION	
6	C127	Capacitor,Ceramic,Chip	ECCH0009110	C0603X7R0J223KT 22nF 10% 6.3V X7R -55TO+125C 0603 R/TP - TDK CORPORATION	
6	C129	Capacitor,Ceramic,Chip	ECCH0009226	GRM0335C1E390J 39pF 5% 25V X7R -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C128	Capacitor,Ceramic,Chip	ECCH0009228	GRM033R61A472K 4700pF 10% 25V X5R -55TO+85C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C722,C723	Capacitor,Ceramic,Chip	ECCH0009514	MCH032A(AN)100DK 10pF 0.5PF 25V X7R -55TO+125C 0603 R/TP - ROHM.	
6	C602,C603	Capacitor,Ceramic,Chip	ECCH0010501	GRM1555C1H7R5D 7.5pF C0G TYPE(No X7R) MURATA MANUFACTURING CO.,LTD.	
6	C412,C414,C415	Capacitor,TA,Conformal	ECTH0002002	F981A336MSA 33F 20% 10V 3.3A -55TO+85C 6OHM 2.2X1.1X1.1MM - SMD R/TP NICHICON CORPORATION, EAST JAPAN SALES OFFICE	

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	C526	Capacitor,TA,Conformal	ECTH0004807	TCM1A106M8R 10F 20% 10V 500mA -55TO+85C 15OHM - - SMD R/TP ROHM.	
6	C113	Capacitor,Ceramic,Chip	ECZH0000802	C1005C0G1H010CT 1pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C232,C260,C267	Capacitor,Ceramic,Chip	ECCH0000122	MCH155A470JK 47pF 5% 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C740	Capacitor,Ceramic,Chip	ECZH0000816	C1005C0G1H120JT000F 12pF 5% 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C102,C104,C107	Capacitor,Ceramic,Chip	ECCH0000701	C1005C0G1H1R2CT000F 1.2pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - TDK CORPORATION	
6	VA504, ZD606, ZD607	Diode,TVS	EDTY0009101	ESD9X5.0ST5G 5V 6.2 12.3V 8.7A 107W SOD528 R/TP 2P 1 ON SEMICONDUCTOR	
6	C126	Capacitor,Ceramic,Chip	ECZH0000846	C1005C0G1H8R2CT000F 8.2pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C114	Capacitor,Ceramic,Chip	ECZH0001002	C1005CH1H0R5BT000F 0.5pF 0.1PF 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C706,C707	Capacitor,Ceramic,Chip	ECZH0001210	C1005Y5V1A474ZT000F 470nF -20TO+80% 10V Y5V -30TO+85C 1005 R/TP - TDK KOREA COOPERATION	
6	C134,C312,C401,C409,C411	Capacitor,Ceramic,Chip	ECZH0001215	C1005X5R1A105KT000F 1uF 10% 10V X5R -55TO+85C 1005 R/TP - TDK KOREA COOPERATION	
6	C204,C261,C262,C263,C264,C266,C276,C299,C302,C405,C413	Capacitor,Ceramic,Chip	ECZH0003103	GRM36X7R104K10PT 100nF 10% 10V X7R -55TO+125C 1005 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	ZD305, ZD306, ZD307, ZD308, ZD310, ZD311	Diode,TVS	EDTY0010101	ESD9B5.0ST5G ESD9B5.0ST5G,SOD-923,5 V,300 mW,R/TP,15pF SCG HONG KONG SAR LTD.	
6	C403,C408	Capacitor,Ceramic,Chip	ECZH0003503	GRM188R61E105K 1uF 10% 25V X5R -55TO+85C 1608 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C402	Capacitor,Ceramic,Chip	ECZH0003504	GRM188R71E104K 100nF 10% 25V X7R -55TO+125C 1608 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	FB501, FB703	Filter,Bead	SFBH0000903	HB-1M1005-601JT 600 ohm 1.0*0.5*0.5 SMD R/TP 2P CERATECH CORPORATION	
6	C806,C807	Capacitor,Ceramic,Chip	ECZH0004402	MCH153C104ZK 0.1uF 10% 16V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C101,C102	Varistor	SEVY0005201	EVLC5S02050 5.5V 0% 50F 1.0*0.5*0.6 - SMD R/TP AMOTECH CO., LTD.	

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	VA508, VA509, VA601, VA602, VA603, VA604	Varistor	SEVY0003801	EVLC18S02015 18V 0% 15F 1.0*0.5*0.6 NONE SMD R/TP AMOTECH CO., LTD.	
6	C228,C245,C734	Capacitor,Ceramic,Chip	ECZH0025920	GRM033R71C102K 1nF 10% 16V X7R -55TO+125C 1608 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C109,C705,C742	Capacitor,Ceramic,Chip	ECZH0000813	C1005C0G1H101JT 100pF 5% 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	D202	Diode,Switching	EDSY0011901	SDB310Q 340mV 30V 200mA 1A 0SEC 150mW EMD2 R/TP 2P 1 AUK CORP	
6	D201	Diode,Switching	EDSY0017702	SDB0530 360mV 30V 500mA 3A 0SEC 200mW SOD323 R/TP 2P 1 AUK CORP	
6	ZD101	Diode,TVS	EDTY0008601	PSD05-LF 5V 6 13.5V 42A 500W SOD323 R/TP 2P 1 PROTEK DEVICES INC.	
6	C207,C209,C210,C275,C406,C501,C502	Capacitor,Ceramic,Chip	ECCH0004904	GRM155R60J105K 1uF 10% 6.3V X5R -55TO+85C 1005 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	L501	Inductor,Multilayer,Chip	ELCH0001444	0402AF-101XJEW 0402AF-101XJLW,100 nH,J,1005,R/TP,chip coil COILCRAFT SINGAPORE PTE LTD.	
6	L101,L102	Inductor,Multilayer,Chip	ELCH0004701	1005GC2T12NJ00 12H 5% 0V 250mA 0.48OHM 2.1GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	L109,L111	Inductor,Multilayer,Chip	ELCH0004705	1005GC2T8N2J00 8.2NH 5% 0V 250mA 0.37OHM 2.8GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	L107,L108, L115,L116	Inductor,Multilayer,Chip	ELCH0004708	1005GC2T2N7S00 2.7NH 5% 0V 200mA 1.3OHM 1GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	L110	Inductor,Multilayer,Chip	ELCH0004721	1005GC2T2N2S00 2.2NH 5% 0V 300mA 0.13OHM 7GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	L114,L204, L205	Inductor,Multilayer,Chip	ELCH0004715	1005GC2T27NJ00 27NH 5% 0V 200mA 0.9OHM 1.4GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	FB101, FB102	Inductor,Multilayer,Chip	ELCH0004727	1005GC2TR10J00 100NH 5% 0V 100mA 2.3OHM 600MHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	L118	Inductor,Multilayer,Chip	ELCH0004730	1005GC2T33NJ00 33NH 5% 0V 200mA 1OHM 1.3GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	L801,L802, L803,L804, L805,L806	Inductor,Multilayer,Chip	ELCH0005019	HK100568NJ 68NH 5% 0V 8A 1.2GOHM 700mHZ 180m NON SHIELD 1 1.0X0.5X0.5MM R/TP TAIYO YUDEN CO.,LTD	
6	L208	Inductor,Wire Wound, chip	ELCP0008013	MIPSZ2012D2R2 MIPSZ2012D2R2,2.2 uH,N,2.0X1.2X1.0,R/TP FDK CORPORATION.	
6	L201,L202, L203	Inductor,Wire Wound, chip	ELCP0008014	MIPSZ2012D4R7 MIPSZ2012D4R7,4.7 uH,N,2.0X1.2X1.0,R/TP FDK CORPORATION.	
6	CN803	Connector,BtoB	ENBY0053001	51338-0274 20P 0.40MM STRAIGHT FEMALE SMD R/TP 1.5M - HANKOOK MOLEX	

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	J501	Jack,Phone	ENJE0007601	KJA-PH-0-0176 1P 4P ANGLE R/TP 4mM BLACK 6P - KSD CO., LTD	
6	C201,C205,C206,C311	Capacitor,Ceramic,Chip	ECCH0005604	GRM188R60J106M 10000000 pF,6.3V,M,X5R,TC,1608,R/TP,0.8 mm MURATA MANUFACTURING CO.,LTD.	
6	CN401	connector,I/O	ENRY0008801	GU073-5P-SD-E1500 GU073-5P-SD-E1500,5,mm,ANGLE LS Mtron Ltd.	
6	J301	Card Socket	ENSY0025901	GCA26A-8S-H16-M-E1000 SIM 8P ANGLE SMD R/TP - LS Mtron Ltd.	
6	SW101	Connector,RF	ENWY0008701	MS-156C NONE STRAIGHT SOCKET SMD T/REEL AU 50OHM 400mDB HIROSE KOREA CO.,LTD	
6	CN402	Connector,Terminal Block	ENZY0028601	04-9248-003-017-829+ 3P 2.50MM STRAIGHT SMD R/TP - KYOCERA ELCO KOREA SALES CO.,LTD.	
6	Q501	FET	EQFP0007601	KTJ6131E P-CHANNEL MOSFET -30V +-20 -0.05A 20OHM 100mW ESM R/TP 3P KEC CORPORAITION	
6	C251,C720,C724	Capacitor,Ceramic,Chip	ECCH0007804	CL05A225MP5NSNC 2.2uF 20% 10V X5R -55TO+85C 1005 R/TP 0.5MM SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R703	Resistor,Chip	ERHY0000128	MCR01MZP5F1502 15KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R406	Resistor,Chip	ERHY0000185	MCR01MZP5F8200 820OHM 1% 1/16W 1005 R/TP - ROHM.	
6	R110,R111	Resistor,Chip	ERHY0000241	MCR01MZP5J102 1KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R307,R308,R309,R310,R311	Resistor,Chip	ERHY0000275	MCR01MZP5J563 56KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R205	Resistor,Chip	ERHY0003201	MCR01MZP5F1001 1KOHM 1% 1/16W 1005 R/TP - ROHM.	
6	R262	Resistor,Chip	ERHY0009505	MCR006YZPJ103 10KOHM 5% 1/20W 0603 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C115,C265	Capacitor,Ceramic,Chip	ECZH0000803	C1005C0G1H020CT000F 2pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	R207	Resistor,Chip	ERHZ0000486	MCR01MZP5J473 47KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R107	Resistor,Chip	ERHY0009586	MCR006YZPF2201 2.2KOHM 1% 1/20W 0603 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R263	Resistor,Chip	ERHY0024201	MCR01MZP5F6041 6040 ohm,1/16W,F,1005,R/TP ROHM.	
6	R404	Resistor,Chip	ERHZ0000201	MCR01MZP5F1000 100OHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R201,R260	Resistor,Chip	ERHZ0000204	MCR01MZP5F1003 100KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R510,R511	Resistor,Chip	ERHZ0000205	MCR01MZP5F1004 1MOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	L103,L104,L117	Inductor,Multilayer,Chip	ELCH0004706	1005GC2T10NJ00 10NH 5% 0V 250mA 0.42OHM 2.5GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	R601,R602	Resistor,Chip	ERHZ0000206	MCR01MZP5F10R0 10OHM 0.1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R807	Resistor,Chip	ERHZ0000213	MCR01MZP5F1203 120KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R103,R104,R112,R113	Resistor,Chip	ERHZ0000219	MCR01MZP5F1500 150OHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R405	Resistor,Chip	ERHZ0000236	MCR01MZP5F2001 2KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R403	Resistor,Chip	ERHZ0000318	MCR01MZP5F8062 80.6KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R272,R302,R303,R304,R501	Resistor,Chip	ERHZ0000405	MCR01MZP5J103 10KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R282,R402	Resistor,Chip	ERHZ0000406	MCR01MZP5J104 100KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R101,R102	Resistor,Chip	ERHZ0000434	MCR01MZP5J1R0 1OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R301	Resistor,Chip	ERHZ0000438	MCR01MZP5J203 20KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R219,R266,R267,R268,R269,R401,R502	Resistor,Chip	ERHZ0000443	MCR01MZP5J222 2.2KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R808,R809	Resistor,Chip	ERHZ0000465	MCR01MZP5J332 3.3KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R102,R114	Resistor,Chip	ERHZ0000473	MCR01MZP5J390 39OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C119	Capacitor,Ceramic,Chip	ECCH0000143	MCH155CN102KK 1nF 10% 50V X7R -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R264,R265	Resistor,Chip	ERHZ0000484	MCR01MZP5J471 470OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R273	Resistor,Chip	ERHZ0000490	MCR01MZP5J510 51OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	U802	IC,Bus Controller	EUSY0300008	PP2106M3 1.8/2.6V 1mA - MLF R/TP 28P - G5 CORPORATION	
6	U803	IC,Analog Switch	EUSY0347001	DG2735DN-T1-E4 MiniQFN-10L ,10 PIN,R/TP ,1.8X1.4X0.55,0.6 Dual SPDT Analog Switch ,; ,IC,Analog Switch VISHAY INTERTECHNOLOGY ASIA PTE LTD	
6	U301	IC,MCP,NAND	EUSY0347506	H8BCS0SI0BAR-46M NAND/2G SDRAM/1G 1.7VTO1.9V 14.0x10.0x1.2 TR 149P - - - HYNIX SEMICONDUCTOR INC.	
6	U501	IC,LDO Voltage Regulator	EUSY0355501	RP103K181D-TR-F 1.7V TO 5.25V 1.85V 400mW DFN R/TP 4P - RICOH COMPANY, LTD.	
6	U701	Module,Assembly	EUSY0385901	TEA5991UK TEA5991_UK,WL-CSP(BSC),20,R/TP,FM Tuner (RDS),2.6*2.6*0.64 ST-Ericsson Asia Pacific Pte Ltd	

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	U401	IC,Voltage Reference	EUSY0410801	RT9524 DFN,10,R/TP,DFN Cal Test Mode Single Charger IC for Micro USB,IC,ChargerIC,Charger RICHTEK TECHNOLOGY CORP.	
6	U703	IC,Bluetooth	EUSY0418701	BCM2070B2KUBXG 2.3VTO5.5V 158.4mW WLBGA R/TP 42P - BROADCOM ASIA DISTRIBUTION PTE LTD	
6	L112,L119	Inductor,Multilayer,Chip	ELCH0004703	1005GC2T1N0S00 1005GC2T1N0S00,1 nH,S ,1005 ,R/TP , PILKOR ELECTRONICS LTD.	
6	U201	IC,Digital Baseband Processor,GSM	EUSY0423201	ESC6270 0VTO0V 0W BGA R/TP 424P - QUALCOMM INCORPORATED.	
6	IC401	IC,Analog Multiplexer	EUSY0424801	RT8963WS WLCSP,20,R/TP,MUIC-Basic,USB HS,UART,Audio,IC,Analog MultiplexerIC,Analog Multiplexer RICHTEK TECHNOLOGY CORP.	
6	X702	Crystal	EXXY0024401	TSX-3225 26MHZ 26MHZ 10PPM 10pF NA SMD R/TP SEIKO EPSON CORP	
6	X202	Crystal	EXXY0025101	DSX321G - 10PPM - - - SMD P/TP DAISHINKU CORPORATION.	
6	R261	Resistor,Chip	ERHZ0000222	MCR01MZP5F1503 150KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R281	Resistor,Chip	ERHY0000279	91K ohm,1/16W,J,1005,R/TP	
6	X201	Crystal	EXXY0026901	Q13FC1350000300 32.768KHZ 20PPM 0F NONE SMD R/TP EPSON TOYOCOM CORP	
6	C239	Capacitor,Ceramic,Chip	ECZH0001116	C1005X7R1H271KT000F 270pF 10% 50V X7R -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	R284,R814	Wire Pad,Open	SAFO0000501	AX3100 ATL SV_SHIPBACK,MAIN,A,0OHM_1005_DNI	
6	R702,R705,R706,R707,R708,R709,R710,R711,R712,R713,R714,R715	PCB ASSY,MAIN,PAD SHORT	SAFP0000401	LG-LU3000 LGTBK,MAIN,A,	
6	R109,R283,R803	Wire Pad,Short	SAFP0000501	LG-VS760 VRZ	
6	L1113,L206	Inductor,Multilayer,Chip	ELCH0004710	1005GC2T15NJ00 15NH 5% 0V 250mA 0.53OHM 2GHZ 8 NON SHIELD 1 1.0X0.5X0.5MM R/TP PILKOR ELECTRONICS LTD.	
6	PT201	Thermistor	SETY0007301	NCP15WF104F03RC NTC,100000 ohm,SMD,4250K+/-1%,100K,1%,0.1mA,4250K+/-1%,SMD,R/TP MURATA MANUFACTURING CO.,LTD.	
6	VA201	Varistor	SEVY0001001	EVLC14S02050 14V 0% 50F 1.0*0.5*0.6 NONE SMD R/TP AMOTECH CO., LTD.	
6	C137	Capacitor,Ceramic,Chip	ECCH0000196	MCH155A0R75C 0.75pF 0.25PF 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	VA401	Varistor	SEVY0003601	ICVL0505101V150FR 5.6V 0% 60F 1.0*0.5*0.55 NONE SMD R/TP INNOCHIPS TECHNOLOGY	
6	VA264, VA265	Varistor	SEVY0005403	ICVS0518270FR 18V 0% 27F 1.0X0.5X0.55 NONE SMD R/TP INNOCHIPS TECHNOLOGY	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	FL101	Filter,Separator,FEM	SFAY0011101	D5008 - - - D5008,850.900 ,1800.1900 ,3.8 dB,4.1 dB, dB, dB,4532 ,4.5X3.2 Size Quad Band FEM EPCOS PTE LTD.	
6	FB503, FB504, FB505	Filter,Bead	SFBH0008102	BLM15HD182SN1 1800 1.0x0.5x0.5MM SMD R/TP 2P MURATA MANUFACTURING CO.,LTD.	
6	FL701	Filter,Ceramic	SFCY0000901	LFB212G45SG8A166 BPF 2.45KHZ 100Hz SMD R/TP 4P MURATA MANUFACTURING CO.,LTD.	
6	FL806, FL807, FL808, FL809	Filter,EMI/Power	SFEY0012401	ICVE10054E250R101FR ESD/EMI 0HZ 25pF 0H SMD R/TP INNOCHIPS TECHNOLOGY	
6	FL802, FL803, FL804, FL805, FL810, FL811	Filter,EMI/Power	SFEY0013201	EVRC14S03Q030100R ESD/EMI 0HZ 15pF 0H SMD R/TP AMOTECH CO., LTD.	
6	FL601, FL602, FL603	Filter,EMI/Power	SFEY0013701	EVRC18S03Q015100R ESD/EMI 330HZ 15F 0H SMD R/TP AMOTECH CO., LTD.	
6	FL401	Filter,EMI/Power	SFEY0015301	NFM18PC104R1C3 ESD/EMI 0HZ 0.1uF 0H SMD R/TP MURATA MANUFACTURING CO.,LTD.	
6	U101	IC,Power Amplifier	SMPY0019101	SKY77336 SKY77336,dBm,%,A,dBc,dB,5x5,SMD,Polar Edge for QCT SKYWORKS SOLUTIONS INC.	
6	SUMY00	Microphone,Condenser	SUMY0010610	SPM0410LR5H-QB SPM0410LR5H-QB,UNIT,42 dB,4.72*3.76*1.25,mems TDMA Improve KNOWLES ACOUSTICS	
5	SAFD00	PCB Assembly, Main,SMT Top	- SAFD0159501	LG-C320 BOOWA MAIN 1.0	
6	EAX010000	PCB,Main	SPFY0235601	SPFY0235601 FR-4 Staggered via STAGGERED-10 0.8 LG-C320i IDNWA,MAIN,D,FR-4,0.8 mm,STAGGERED-10,MAIN UNITECH PRINTED CIRCUIT BOARD CORP.	
6	C417,C525	Capacitor,Ceramic,Chip	ECCH0000120	MCH155A390J 39pF 5% 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C103	Capacitor,Ceramic,Chip	ECCH0000198	CL05A225MQ5NSNC 2.2uF 20% 6.3V X5R -55TO+85C 1005 R/TP . SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C207,C209,C210,C275,C406,C501,C502	Capacitor,Ceramic,Chip	ECCH0004904	GRM155R60J105K 1uF 10% 6.3V X5R -55TO+85C 1005 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C251,C720,C724	Capacitor,Ceramic,Chip	ECCH0007804	CL05A225MP5NSNC 2.2uF 20% 10V X5R -55TO+85C 1005 R/TP 0.5MM SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	C208,C211,C212,C213,C214,C215,C216,C217,C218,C219,C220,C221,C222,C223,C229,C231,C235,C236,C305,C306,C307,C308,C309,C310,C605,C606,C701,C709	Capacitor,Ceramic,Chip	ECCH0009101	C0603X5R0J104KT00NN 0.1uF 10% 6.3V X5R -55TO+85C 0603 R/TP - TDK CORPORATION	
6	C722,C723	Capacitor,Ceramic,Chip	ECCH0009514	MCH032A(AN)100DK 10pF 0.5PF 25V X7R -55TO+125C 0603 R/TP - ROHM.	
6	C105,C117,C118,C122,C130,C135,C519,C520,C521	Capacitor,Ceramic,Chip	ECZH0000830	C1005C0G1H330JT000F 33pF 5% 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C134,C312,C401,C409,C411	Capacitor,Ceramic,Chip	ECZH0001215	C1005X5R1A105KT000F 1uF 10% 10V X5R -55TO+85C 1005 R/TP - TDK KOREA COOPERATION	
6	C506,C507	Capacitor,Ceramic,Chip	ECZH0001217	GRM155R60J474K 470nF 10% 6.3V X5R -25TO+70C 1005 BK-DUP - MURATA MANUFACTURING CO.,LTD.	
6	C204,C261,C262,C263,C264,C266,C276,C299,C302,C405,C413	Capacitor,Ceramic,Chip	ECZH0003103	GRM36X7R104K10PT 100nF 10% 10V X7R -55TO+125C 1005 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C508,C509	Capacitor,Ceramic,Chip	ECZH0003126	GRM155R71A393K - - - - -55TO+125C - - - MURATA MANUFACTURING CO.,LTD.	
6	C268	Capacitor,Ceramic,Chip	ECZH0025916	GRM0335C1E330J 33pF 5% 25V NP0 -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	LD801, LD802	LED,Chip	EDLH0013701	WHITE 2.9~3.2 20mA X(0.264~0.311) Y(0.248~0.315) 110mW 3.8*1.0*0.4t 3810 R/TP 2P -	
6	CN801	Connector,BtoB	ENBY0042701	GB042-54S-H10 54P 0.4MM STRAIGHT SOCKET SMD R/TP 1M - LS Mtron Ltd.	
6	CN260	Connector,BtoB	ENBY0045201	AXT610124 10P 0.4MM STRAIGHT HEADER SMD R/TP 1M - BJ PANASONIC ELECTRONIC PARTS CO.,LTD	
6	R101	Resistor,Chip	ERHY0000254	MCR01MZP5J472 4.7KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R105,R106,R107,R108,R109,R110	Resistor,Chip	ERHZ0000402	MCR01MZP5J100 10OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	R282,R402	Resistor,Chip	ERHZ0000406	MCR01MZP5J104 100KOHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	LocationNo.	Description	PartNumber	Spec	Remark
6	R506,R507	Resistor,Chip	ERHZ0000435	MCR01MZP5J200 20OHM 5% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	U601	IC,Charge Pump	EUSY0344403	RT9396GQW QFN,24,R/TP,4CH+2LDO,IC,Sub PMICIC,Sub PMIC RICHTEK TECHNOLOGY CORP.	
6	IC501	IC,Audio Sub System	EUSY0403901	WM9093ECS/R 1.71~5.5V 0W WLCSP R/TP 20P - WOLFSON MICROELECTRONICS PLC	
6	U801	Sensor,Accelerator	EUSY0408901	S-5711ACDL 2.5 to 3.3 Y R/TP 4P - SEIKO INSTRUMENTS INC	
6	R284,R814	Wire Pad,Open	SAFO0000501	AX3100 ATL SV_SHIPBACK,MAIN,A,0OHM_1005_DNI	
6	R109,R283, R803	Wire Pad,Short	SAFP0000501	LG-VS760 VRZ	
6	VA101, VA102	Varistor	SEVY0003901	EVL5M02200 5.5V 0% 480F 1.0*0.5*0.6 NONE SMD R/TP AMOTECH CO., LTD.	
6	VA264, VA265	Varistor	SEVY0005403	ICVS0518270FR 18V 0% 27F 1.0X0.5X0.55 NONE SMD R/TP INNOCHIPS TECHNOLOGY	
6	FB501, FB703	Filter,Bead	SFBH0000903	HB-1M1005-601JT 600 ohm 1.0*0.5*0.5 SMD R/TP 2P CERATECH CORPORATION	
6	FB502	Filter,Bead	SFBH0001501	HH-1M1608-121JT 120 ohm 1.6*0.8*0.8 SMD R/TP 2P CERATECH CORPORATION	
6	FB507, FB508	Filter,Bead	SFBH0009801	HH-1M1005-601JT 600Ohm 1.0 * 0.5 * 0.5 SMD P/TP 2P CERATECH CORPORATION	

12.3 Accessory

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

Level	LocationNo.	Description	PartNumber	Spec	Remark
2	SBPL00	Mobile Phone Battery Li-Ion	SBPL0098901	LGIP-430N-WW-LGC LGIP-430N-WW-LGC,3.7 V,900 mAh,1 CELL,PRISMATIC ,463450,innerpack, WW LG CHEMICAL	
2	EAB010200	Earphone,Stereo	SGEY0003744	EMB-LGE004MSKB 3mW 16OHM 115DB 85HZTO126HZ 1M BLACK 3.5 L TYPE STEREO 4POLE PLUG - CRESYN CO.,LTD	
2	EAY060000	Adapters	SSAD0033602	STA-U34AR STA-U34AR,100-240V,5060 Hz,5.1 V,0.7 A,C-Tick,AC-DC ADAPTOR SUNLIN ELECTRONICS CO.,LTD	