



Service Manual

Service Manual

BL20



Model : BL20



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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.

1. INTRODUCTION

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.

2. PERFORMANCE

2.1 Product Name

BL20 : WCDMA900/2100+EGSM/DCS/PCS
(HSDPA 3.6Mbps / GPRS Class 10 / EDGE Class 10)

2.2 Supporting Standard

Item	Feature	Comment
Supporting Standard	WCDMA(FDD1,8)/EGSM/DCS1800/PCS1900 with seamless handover Phase 2+(include AMR) SIM Toolkit : Class 1, 2, 3, C-E	
Frequency Range	WCDMA(FDD1) TX : 1920 – 1980 MHz WCDMA(FDD1) RX : 2110 – 2170 MHz WCDMA(FDD8) TX : 880 – 915 MHz WCDMA(FDD8) RX : 925 – 960 MHz EGSM TX : 880 – 915 MHz EGSM RX : 925 – 960 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	QSC6270 : Qualcomm	
Analog Baseband	QSC6270 : Qualcomm	
RF Chip	QSC6270 : Qualcomm	

2. PERFORMANCE

2.4 HW Features

Item		Feature	Comment
Form Factor		Slider type	
Battery		1) Capacity Standard : Li-Ion, 900mAh	
		2) Packing Type : Soft Pack	
Size		Standard : 106.9 X 50.8 X 12.3mm	
Weight		115g	With Battery
Volume		TBD	
PCB		LX-BUMP 2 10 Layers	
Stand by time		2G Up to 300 hrs 3G Up to 300 hrs	@ Paging Period 5 (2G) @ DRX 7 (3G)
Charging time		4 hrs	@ Power Off / 900mAh
Talk time		2G Up to 180mins 3G Up to 110 mins	@ Power Level 5 (2G) @ Tx = 12dBm (3G)
RX sensitivity		WCDMA(FDD1) : -106.7 dBm WCDMA(FDD8) : -103.7 dBm EGSM : -105 dBm DCS 1800 : -105 dBm PCS 1900 : -105 dBm	
TX output power	WCDMA/ GSM/ GPRS	WCDMA : 24dBm/3.84MHz,+1/-3dBm EGSM : 33dBm DCS 1800 : 30 dBm PCS 1900 : 30 dBm	Class3(WCDMA) Class4 (EGSM) Class1 (PCS) Class1 (DCS)
	EDGE	GSM 900 : 27 dBm DCS 1800 : 26 dBm PCS 1900 : 26 dBm	E2 (GSM900) E2 (PCS) E2 (DCS)
GPRS compatibility		GPRS Class 10	
EDGE compatibility		EDGE Class 10	
SIM card type		Plug-In SIM 3V /1.8V	
Display		2.4" TFT QVGA	
Built-in Camera		5M CMOS Camera	
Status Indicator		Yes	
Keypad		Function Key : 4 Navigation Key : 5	Navigation Key: Cancel Key, Menu Key, Send Key, END/PWR Key
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	

2. PERFORMANCE

Vibrator	Built in Vibrator	
Blue Tooth	V2.1,A2DP	
MIDI(for Buzzer Function)	SW Decoded 64Poly	
Music Player	MP3/AAC/AAC+/WMA	
Video Player	MPEG4, H.263 40fps@QVGA	
Camcorder	MPEG4, 15fps@QVGA	
Voice Recording	Yes	
Speaker Phone mode Support	Yes	
Travel Adapter	Yes	
CDROM	Yes	
Stereo Headset	Yes	
Data Cable	Yes	
T-Flash (External Memory)	Yes	

2. PERFORMANCE

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, German, Dutch, Czech, Hungarian, Croatian, Polish, Slovak, Turkish, French, Italian, Spanish, Swedish, Danish, Romanian, Greek, Portuguese, Bulgarian, TradChinese, SimpChinese, Russian, Slovenian, Korean, Icelandic)
Quick Access Mode	Dialing / Call Log / Contact / Menu / Message / Camera / Favorite	
PC Sync	Schedule / Phonebook / MEMO / SMS / Download (Photo, file)	
Speed Dial	Yes (1~9)	Voice mail center -> 1 key
Profile	Yes	
CLIP / CLIR	Yes	
Phone Book	Name + 5 Numbers + 1 Memo + 2 e-mail + 3 Group Select + Picture + Ringtone + Anniversary day	Total 1000 Member
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	30	
Fixed Dial Number	Yes	
Service Dial Number	Yes	
Own Number	Yes	
Voice Memo	Yes	
Call Reminder	Yes	
Network Selection	Automatic	
Mute	Yes	
Call Divert	Yes	
Call Barring	Yes	
Call Charge (AoC)	Yes	
Call Duration	Yes	
SMS (EMS)	1000	EMS : Release4 (Except Text align)

2. PERFORMANCE

SMS Over GPRS	Yes	
EMS Melody / Picture Send / Receive / Save	Yes Receive only	
MMS MPEG4 Send / Receive / Save	Yes Yes	
Long Message	MAX 1000 Characters	SMS 7pages
Cell Broadcast	Yes	
Download	Over the WAP	
Game	Yes	
Calendar	Yes	
Memo	100	
World Clock	Yes	
Unit Convert	Currency/Surface/Length/Volume/W eight/Temperature/Velocity	
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	5M AF / Digital Zoom : x2
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/DUN/FTP
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	Yes	
IM	Yes(Only Orange)	ORANGE MSN
Email	Yes	

2. PERFORMANCE

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. PERFORMANCE

2) WCDMA transmitter specification

Item	Specification
Transmit Frequency	Band1 : 1920 MHz ~ 1980 MHz Band8 : 880MHz~915MHz
Maximum Output Power	+24 dBm / 3.84 MHz, +1 / -3 dB
Frequency Error	within ± 0.1 PPM
Open Loop Power Control	Normal Conditions : within ± 9 dB, Extreme Conditions : within ± 12 dB
Minimum Transmit Power	< -50 dBm / 3.84 MHz
Occupied Bandwidth	< 5 MHz at 3.84 Mcps (99% of power)
Adjacent Channel Leakage Power Ratio (ACLR)	> 33 dB @ ± 5 MHz, > 43 dB @ ± 10 MHz
Spurious Emissions $ f-f_c > 12.5$ MHz	< -36 dBm / 1 kHz RW @ $9 \text{ kHz} \leq f < 150 \text{ kHz}$ < -36 dBm / 10 kHz RW @ $150 \text{ kHz} \leq f < 30 \text{ MHz}$ < -36 dBm / 100 kHz RW @ $30 \text{ MHz} \leq f < 1 \text{ GHz}$ < -30 dBm / 1 MHz RW @ $1 \text{ GHz} \leq f < 12.75 \text{ GHz}$ < -60 dBm / 3.84 MHz RW @ $869 \text{ MHz} \leq f \leq 894 \text{ MHz}$ < -60 dBm / 3.84 MHz RW @ $1930 \text{ MHz} \leq f \leq 1900 \text{ MHz}$ < -60 dBm / 3.84 MHz RW @ $2110 \text{ MHz} \leq f \leq 2155 \text{ MHz}$ < -67 dBm / 100 kHz RW @ $925 \text{ MHz} \leq f \leq 935 \text{ MHz}$ < -79 dBm / 100 kHz RW @ $935 \text{ MHz} < f \leq 960 \text{ GHz}$ < -71 dBm / 100 kHz RW @ $1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$ < -41 dBm / 300 kHz RW @ $1884.5 \text{ MHz} < f < 1919.6 \text{ MHz}$
Transmit Intermodulation	< -31 dBc @ 5 MHz & < -41 dBc @ 10 MHz when Interference CW Signal Level = -40 dBc
Error Vector Magnitude	< 17.5 %, when Pout $\geq$ -20 dBm
Peak Code Domain Error	< -15 dB at Pout $\geq$ -20 dBm

2. PERFORMANCE

3) WCDMA receiver specification

Item	Specification
Receive Frequency	Band1 : 2110 ~ 2170 MHz Band8 : 925~960MHz
Reference Sensitivity Level	Band1 : BER < 0.001 when $\hat{I}_{or}$ = -106.7 dBm / 3.84 MHz Band8 : BER < 0.001 when $\hat{I}_{or}$ = -103.7 dBm / 3.84 MHz
Maximum Input Level	BER < 0.001 when $\hat{I}_{or}$ = -25 dBm / 3.84 MHz
Adjacent Channel Selectivity (ACS)	ACS > 33 dB where BER < 0.001 when $\hat{I}_{or}$ = -92.7 dBm / 3.84 MHz & I_{oac} = -52 dBm / 3.84 MHz @ ± 5 MHz
Blocking Characteristic	BER < 0.001 when $\hat{I}_{or}$ = -103.7 dBm / 3.84 MHz & $I_{blocking}$ = -56 dBm / 3.84 MHz @ $F_{uw}(\text{offset}) = \pm 10$ MHz or $I_{blocking}$ = -44 dBm / 3.84 MHz @ $F_{uw}(\text{offset}) = \pm 15$ MHz
Spurious Response	BER < 0.001 when $\hat{I}_{or}$ = -103.7 dBm / 3.84 MHz & $I_{blocking}$ = -44 dBm
Intermodulation	BER < 0.001 when $\hat{I}_{or}$ = -103.7 dBm / 3.84 MHz & I_{ouw1} = -46 dBm @ $F_{uw1}(\text{offset}) = \pm 10$ MHz & I_{ouw2} = -46 dBm / 3.84 MHz @ $F_{uw2}(\text{offset}) = \pm 20$ MHz
Spurious Emissions	< -57 dBm / 100 kHz BW @ 9 kHz $\leq f$ < 1 GHz < -47 dBm / 1 MHz BW @ 1 GHz $\leq f \leq 12.75$ GHz
Inner Loop Power Control In Uplink	Adjust output(TPC command) cmd 1dB 2dB 3dB +1 +0.5/1.5 +1/3 +1.5/4 0 -0.5/+0.5 -0.5/+0.5 -0.5/+0.5 -1 -0.5/-1.5 -1/-3 -1.5/-4 group(10equal command group) +1 +8/+12 +16/+24

2. PERFORMANCE

4) HSDPA transmitter specification

Item	Specification				
Transmit Frequency	Band1 : 1920 MHz ~ 1980 MHz Band8 : 880MHz~915 MHz				
Maximum Output Power	Sub-Test 1=1/15, 2=12/15 21~25dBm / 3.84 MHz 3=13/15 4=15/8 20~25dBm / 3.84 MHz 5=15/7 6=15/0 19~25dBm / 3.84 MHz				
HS-DPCCH	Sub-test in table C.10.1.4	Power step	Power step slot boundary	Power step size, P [dB]	Transmitter power step tolerance [dB]
	5	1	Start of Ack/Nack	6	+/- 2.3
		2	Start of CQI	1	+/- 0.6
		3	Middle of CQI	0	+/- 0.6
Spectrum Emission Mask	Sub-Test : 1=1/15, 2=12/15, 3=13/15, 4=15/8, 5=15/7, 6=15/0				
	Frequency offset from carrier Δf		Minimum requirement		Measurement Bandwidth
	2.5 ~ 3.5 MHz		-35-15 $\times(\Delta f$ -2.5)dBc		30 kHz
	3.5 ~ 7.5 MHz		-35-1 $\times(\Delta f$ -3.5)dBc		1 MHz
	7.5 ~ 8.5 MHz		-35-10 $\times(\Delta f$ -7.5)dBc		1 MHz
	8.5 ~ 12.5 MHz		-49dBc		1 MHz
Adjacent Channel Leakage Power Ratio (ACLR)	Sub-Test : 1=1/15, 2=12/15, 3=13/15, 4=15/8, 5=15/7, 6=15/0 > 33 dB @ ± 5 MHz > 43 dB @ ± 10 MHz				
Error Vector Magnitude	< 17.5 %, when Pout $\geq$ -20 dBm				

5) HSDPA receiver specification

Item	Specification
Receive Frequency	Band1 : 2110 ~ 2170 MHz Band8 : 925 ~ 960Hz
Maximum Input Level (BLER or R), 16QAM Only	Sub-Test : 1=1/15, 2=12/15, 3=13/15, 4=15/8, 5=15/7, 6=15/0 BLER < 10% or R $\geq$ 700kbps

3. TECHNICAL BRIEF

The RF platform of BL20 supports two different communication modes (WCDMA/GSM modes) including five communication bands (W2100/W850/GSM900/GSM1800/GSM190). The all the RF blocks can be divided into three main parts, which are a WCDMA part, a GSM, and an antenna switch Mode.

[illegible]

LGE Internal Use Only

3.2 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

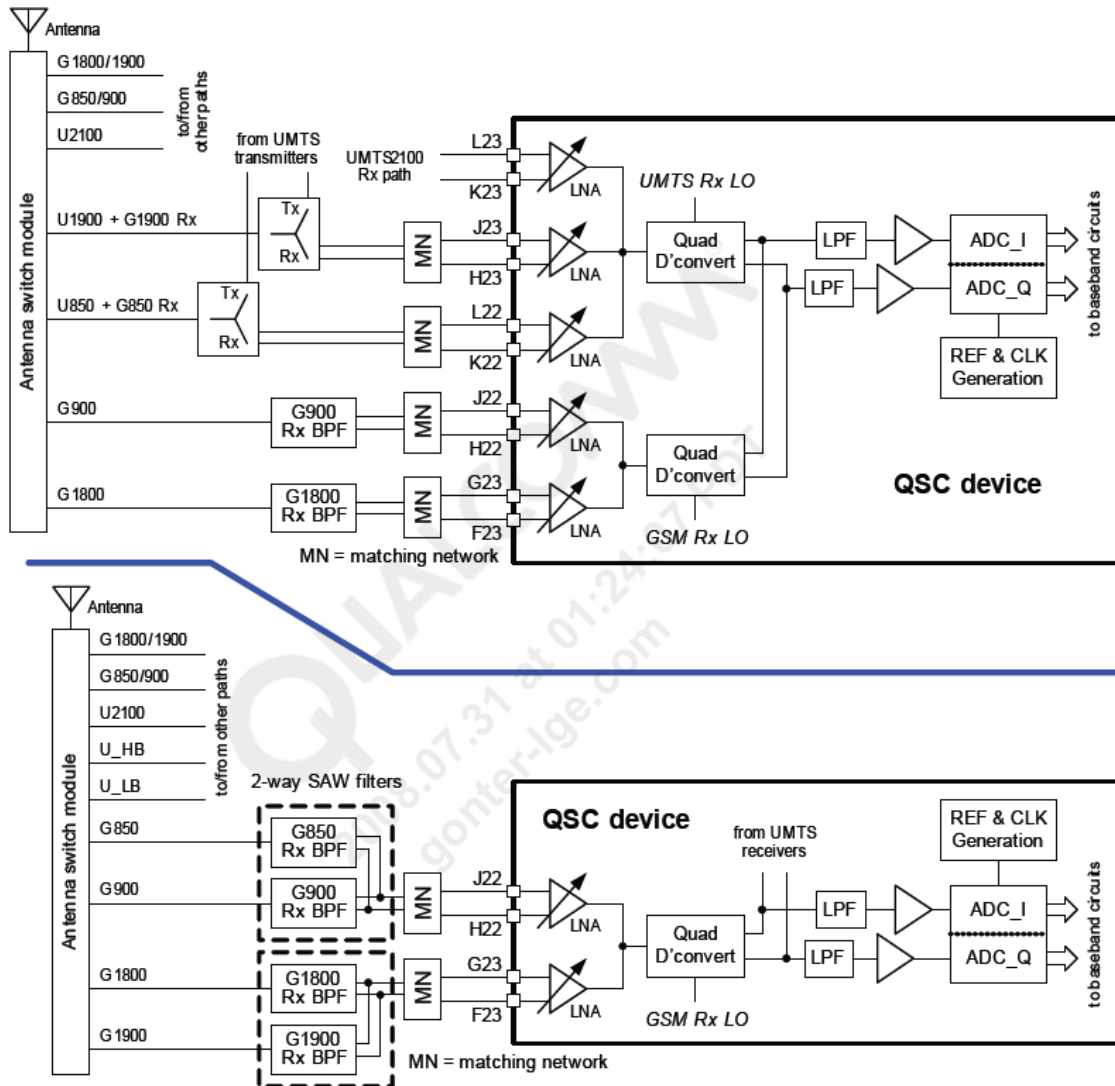
-Polar modulation transmitter

3.2.1 GSM RECEIVER

There are two recommended GSM receiver path configurations; both are shown in Figure 1.3.2.1. The configuration shown on top allows the GSM 850 and GSM 1900 bands to share the UMTS 850 and UMTS 1900 paths for US applications and uses four LNA inputs to support quad-band GSM operation.

The lower example uses two LNAs for quad-band GSM operation (one low band and one high band), with two-way SAW filters between the antenna switch and the QSC inputs for each band type.

3. Technical Brief



[Figure 1-2] QSC GSM receiver signal paths functional diagram

3.2.2 GSM TRANSMITTER

The QSC62x0 device supports quad-band GSM transmissions with two separate dual-band driver amplifier outputs; in fact, most Tx active circuits are contained within the device.

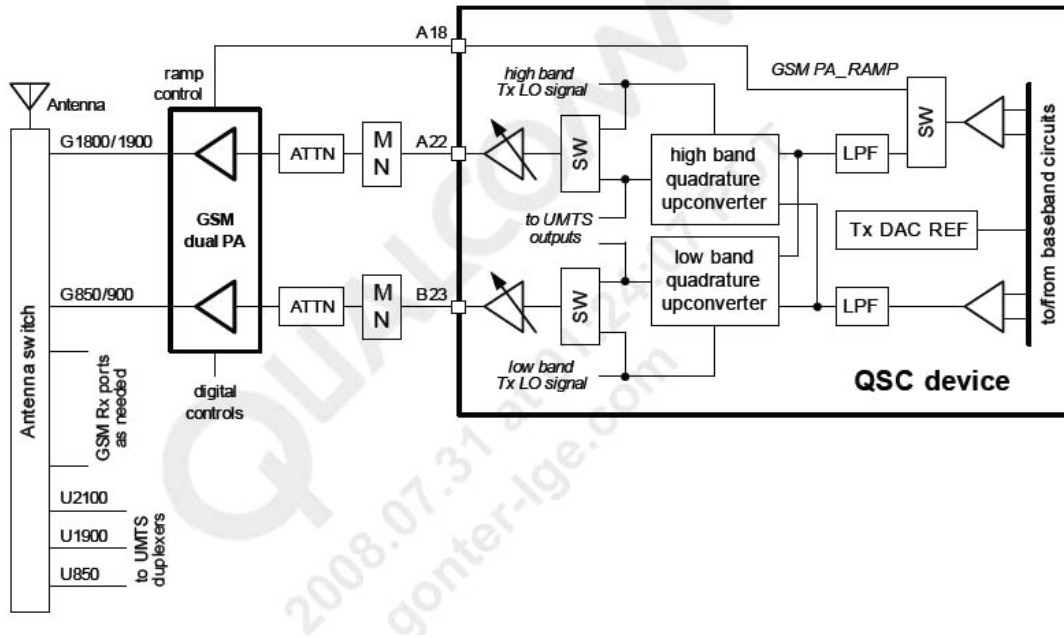
Both GSM transmit paths (Figure 1.3.1.1) begin with a single, shared analog baseband signal from the device's baseband circuits - the same interface and baseband circuits used by the UMTS transmitters. The GSM transmitters use the same quadrature upconverters as well - one for low band signals and one for high band —with just one active at a time. The transmitter LO signals are generated by circuits described.

in next section and delivered to the upconverter circuits at the correct frequency, with the proper phase relationship, and with an adequate drive level.

The SPDT switches at each driver amplifier input allow selection of the output signal: either the actual GSM signal from the upconverter or a test signal generated by the Tx LO synthesizer. The Tx output chain is functionally identical for both the low band and the high band: the power amplifier is driven by the QSC device through a matching network and a resistive attenuator; the PA output is routed to the antenna switch module whose output is connected to the antenna. In addition to the through signal path, the QSC device also provides the PA ramp control signal that ensures smooth transitions while the transmitter is turned on and off for GSM's burst transmissions.

The ramp signal is generated by one of the baseband circuit's Tx DACs. A switch after the baseband amplifier selects whether the DAC output signal is routed to GSM PA module for ramping the PA up or down, or to the transmitter signal path for transmission.

3. Technical Brief



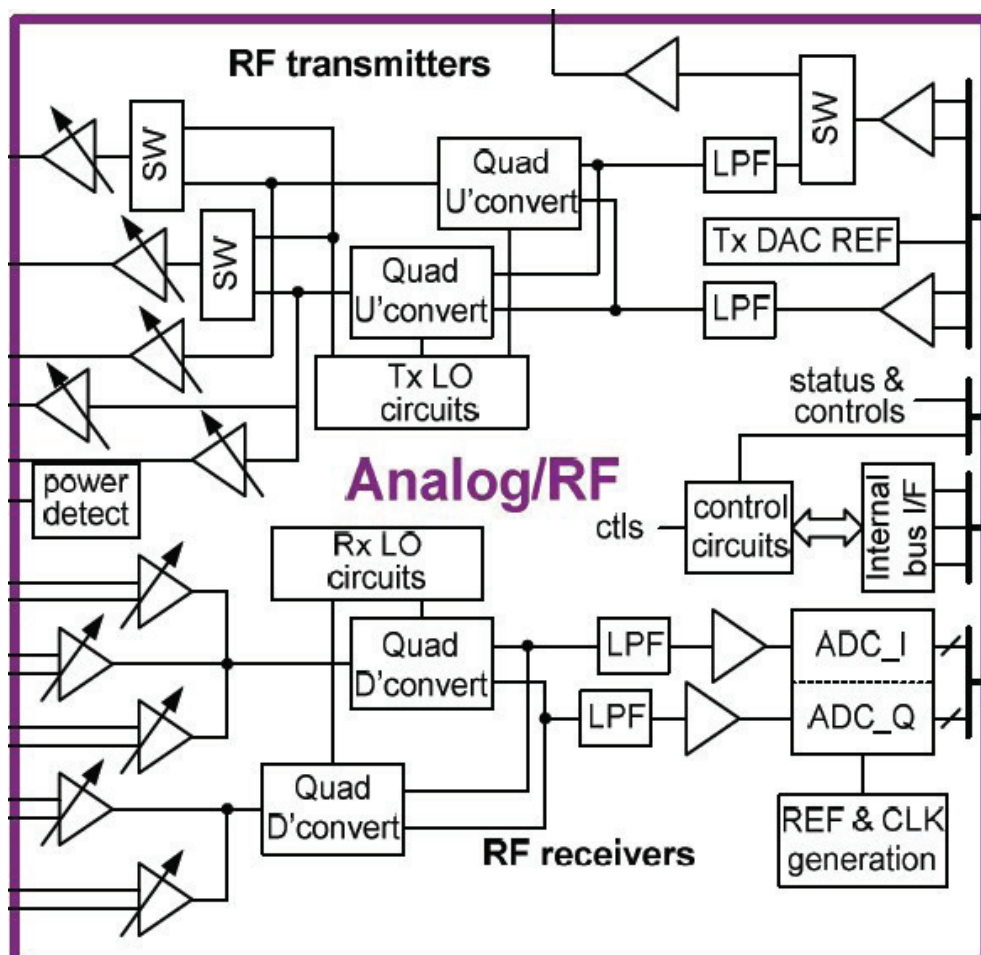
[Figure 1.2.2] QSC GSM transmitter signal paths functional diagram

3.3 UMTS MODE

The W-CDMA transceiver uses differential analog in-phase and quadrature-phase interfaces, That is an IQ-interface, both in the receiver and transmitter information path..

The transceiver has the following general features:

- . Power class : Power class 3 (+24dBm) in Band II and V
- . Zero-IF Receiver.NoIF filter needed
- . Direct IQ modulation transmitter

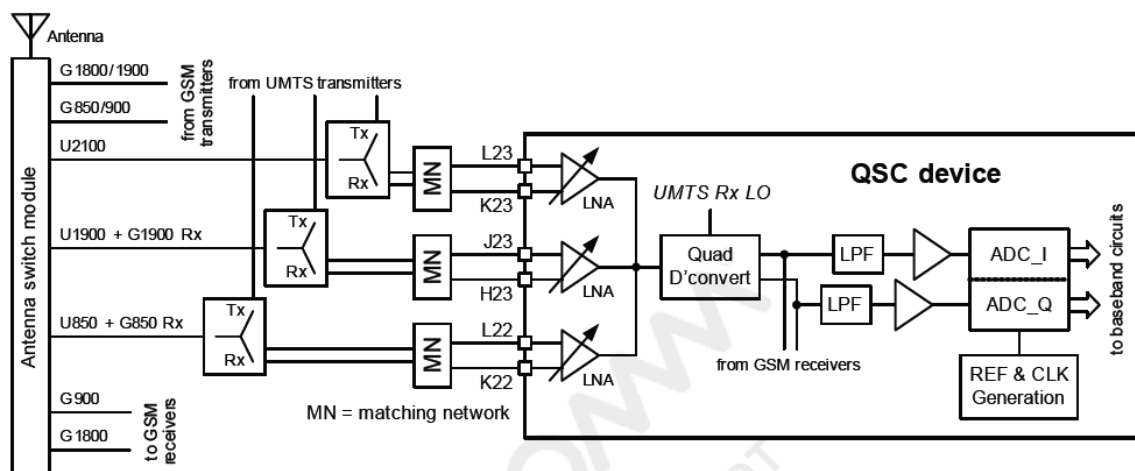


[Figure 1.3.1] WCDMA RF structure

3. Technical Brief

3.3.1 UMTS RECEIVER

The antenna collects the base station forward-link signal and radiates the phone's reverse-link signal. In the example of a multiband, multimode phone (Figure 1.2.2.1), a switch routes the antenna signals to one of the three UMTS Rx/Tx paths, each beginning with its own band-specific duplexer that separates that band's receive and transmit paths



[Figure 1.3.2] WCDMA Receiver schematic

Each UMTS duplexer provides a differential output signal that is compatible with its QSC LNA input. The duplexer-to-LNA interface requires a differential matching network (MN) that optimizes the power transfer into the LNA. Although there are three UMTS LNAs, only one is active at a time. The active gain-stepped LNA output drives a shared quadrature

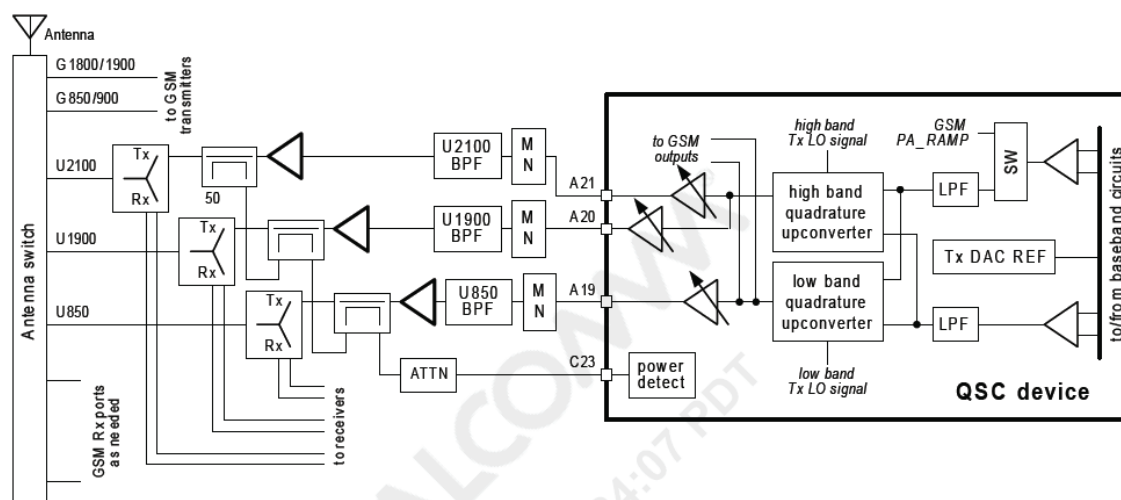
Downconverter directly—an off-chip inter-stage filter is not required. The elimination of this filter is achieved by a combination of factors:

- New on-chip QSC processing
- Higher performance achieved by the differential duplexer-to-LNA interface
- Greater duplexer suppression of Tx leakage

The downconverter's RF circuitry includes another gain-stepped amplifier that supplements the LNA gain steps to further extend the receiver dynamic range. The downconverter translates the active LNA's RF signal directly to baseband, producing two analog outputs: in-phase (I) and quadrature (Q). The UMTS baseband signals are routed to lowpass filters whose passband and stopband characteristics are optimized for the active WCDMA waveform. Both filter outputs are buffered to drive their analog-to-digital converters for digitization. The digital baseband outputs are routed to QSC baseband circuits for further processing.

3.3.2 UMTS TRANSMITTER

The QSC62x0 device supports tri-band UMTS transmissions with three separate driver amplifier outputs; in fact, most Tx active circuits are contained within the device. All three UMTS transmit paths (Figure 1.2.1.1) begin with a single, shared analog baseband signal from the device's baseband circuits. The baseband signal is composed of two differential lines, one in-phase component and one quadrature-phase component. Each component is lowpassfiltered and amplified to levels sufficient for driving the quadrature upconverters. There are two upconverters—one for low-band signals and one for high band—but only one upconverter is active at a time.



[Figure 1.3.3] WCDMA Transceiver Architecture

Each UMTS duplexer provides a differential output signal that is compatible with its QSC LNA input. The duplexer-to-LNA interface requires a differential matching network (MN) that optimizes the power transfer into the LNA. Although there are three UMTS LNAs, only one is active at a time. The active gain-stepped LNA output drives a shared quadrature downconverter directly - an off-chip inter-stage filter is not required. The elimination of this filter is achieved by a combination of factors:

- New on-chip QSC processing
- Higher performance achieved by the differential duplexer-to-LNA interface
- Greater duplexer suppression of Tx leakage. The downconverter's SRF circuitry includes another gain-stepped amplifier that supplements the LNA gain steps to further extend the receiver dynamic range.

The downconverter translates the active LNA's SRF signal directly to baseband, producing two analog outputs: in-phase (I) and quadrature (Q).

3. Technical Brief

The UMTS baseband signals are routed to lowpass filters whose passband and stopband characteristics are optimized for the active WCDMA waveform. Both filter outputs are buffered to drive their analog-to-digital converters for digitization. The digital baseband outputs are routed to QSC baseband circuits for further processing.

- Shared UMTS/GSM configuration (four GSM LNAs)

In this configuration, the GSM 850 receive path shares the UMTS 850 receiver front-end path (including LNA). Beginning at the antenna switch output, the GSM signal is routed through the UMTS 850 duplexer to the shared LNA input at pins L22 and K2. Likewise, the GSM 1900 receive path shares the UMTS 1900 front-end, including pins J23 and H23. The GSM 900 and GSM 1800 bands have dedicated receive paths from the antenna switch outputs to the QSC LNA inputs. Each band has its own band-select filter that drives its LNA input. All four GSM bands include input filtering: the 850 and 1900 bands share the UMTS duplexer filtering, while the 900 and 1800 bands have dedicated bandpass filters. The filter functions suppress out-of-band received signals and the handset's GSM transmitter leakage. Transmit power suppression must be adequate to avoid overdriving the GSM Rx chain. Like the UMTS paths, the GSM paths use a differential configuration into their LNAs, and thus require differential matching networks. The internal GSM receivers are functionally identical to the UMTS receivers: although there are multiple GSM LNAs, only one is active at a time. The active gain-stepped LNA output drives a shared quadrature downconverter directly—an off-chip inter-stage filter is not required. The elimination of this filter is achieved by a combination of factors:

- New on-chip QSC processing

- Higher performance achieved by the differential duplexer-to-LNA interface

- Greater duplexer suppression of Tx leakage

The downconverter's RF circuitry includes another gain-stepped amplifier that supplements the LNA gain step to further extend the receiver dynamic range. The downconverter translates the active LNA's RF signal directly to baseband, producing two analog outputs: in-phase (I) and quadrature (Q). The GSM baseband signals drive lowpass filters whose passband and stopband characteristics are optimized for the active GSM waveform. Both filter outputs are buffered to drive their analog-to-digital converters for digitization. The digital baseband outputs are routed to QSC baseband circuits for further processing. The Rx LO signal is delivered to the downconverter circuits from the LO generation and distribution circuits as described in next section.

- Dedicated GSM configuration (two GSM LNAs)

In this configuration, the GSM 850 and GSM 1900 bands do not pass through the UMTS duplexers. Instead, the two GSM LNA inputs are shared: the GSM 850 and GSM 900 bands share the low-band GSM LNA, and the GSM 180 and GSM 190 bands share the high-band LNA. Four switch module outputs are required, each driving its own GSM Rx path. A two-way SAW filter takes the two low-band (or high-band) single-ended inputs from the antenna switch and provides one filtered, differential output that drives the appropriate QSC LNA input.

Beyond the LNA inputs, this GSM receiver configuration is identical to the paths described earlier for the shared UMTS/GSM configuration.

3.3.3. Rx LO circuits

The QSC62x0 device integrates all of the frequency synthesizer functions that generate the UMTS and GSM receive LO signals (UHF local oscillator, PLL circuits, and loop filter), plus the distribution circuits that deliver the quadrature LO signals to the two downconverters.

The buffered 19.2 MHz TCXO or XO signal provides the synthesizer input (REF), the frequency reference to which the PLL is phase and frequency locked. The reference is divided to create a fixed frequency input to the phase detector, FR. The other phase detector input (FV) varies as the loop acquires a lock and is generated by dividing the local oscillator output frequency using the feedback path's counter. The closed-loop will force FV to equal FR when locked.

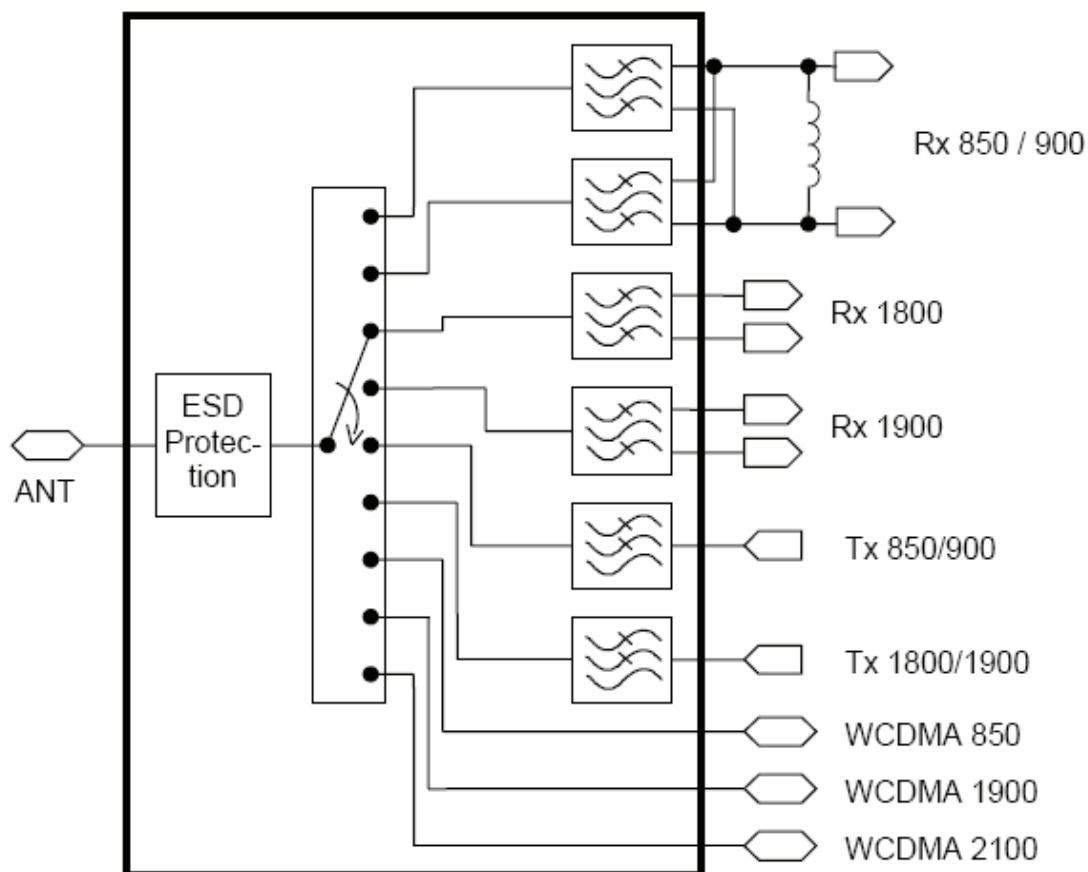
If the loop is not locked, the error between FV and FR will create an error signal. This error signal is filtered by the loop filter and applied to the local oscillator, tuning the output frequency so that the error is decreased. Ultimately the loop forces the error to approach zero and the PLL is phase and frequency locked.

3. Technical Brief

3.4 OFF-CHIP RF COMPONENTS

3.4.1 LMSP43QL-873 (FL100: FEM)

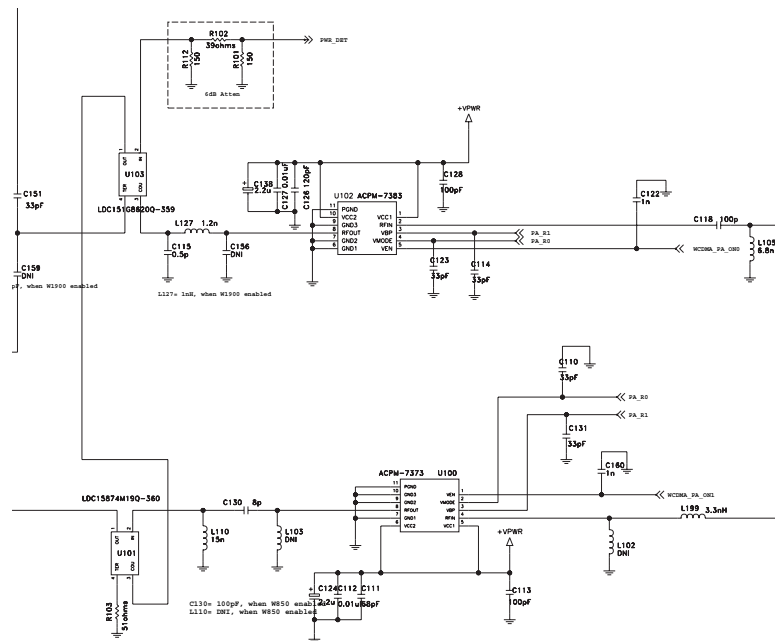
- Low-loss SAW frontend module for mobile telephone systems
- Covering GSM850, GSM900, GSM1800, GSM1900, WCDMA 2100 bands
- Integration of TX low pass filters, switches and decoder
- Integration of GSM 850, EGSM, PCN and PCS RX SAWs
- Balanced outputs of all RX ports, diplexed for GSM 850/ EGSMa
- Integration of ESD protection at Ant port to 8kV acc. IEC-61000-4-2 (contact discharge)



[Figure 1.4.1] Block diagram of FEM

3.4.2 W-CDMA Power Amplifier (U102/104: ACPM7383/7311) and Coupler(U101/103: LDC151G8620Q-359/LDC15874M19Q-360)

The UMTS PA output power is monitored by external power detector circuits(Coupler : and HDET function in QSC6270). This detector voltage can be used for transmitter calibration and monitor to meet RF system specification.



[Figure 1.4.2] W-CDMA PAM, HDET, and Duplexer circuits.

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 QSC6270.(GSM_PA_BAND)

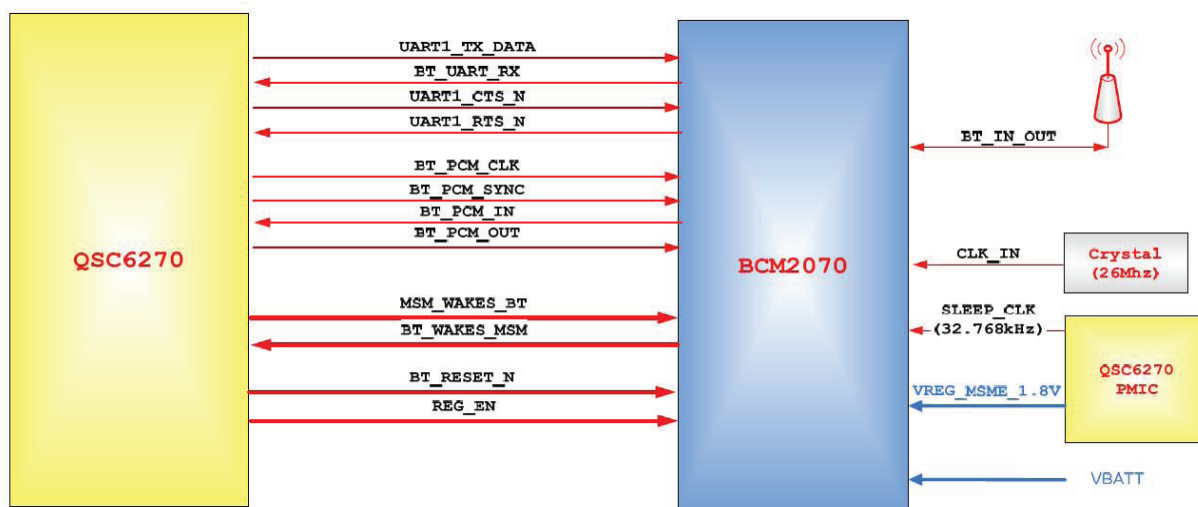


3.5 OFF-CHIP COMPONENTS

3.5.1 Bluetooth (BCM2070)

Bluetooth block of BL20 consists of a BCM2070 chip-set, an external crystal oscillator(26MHz), and a Bluetooth chip antenna (2.4GHz). QSC6270, which is main HW solution of BL20 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 1 shows the Bluetooth system architecture in the BL20.



[Figure 1.5] Bluetooth system architecture

3. Technical Brief

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

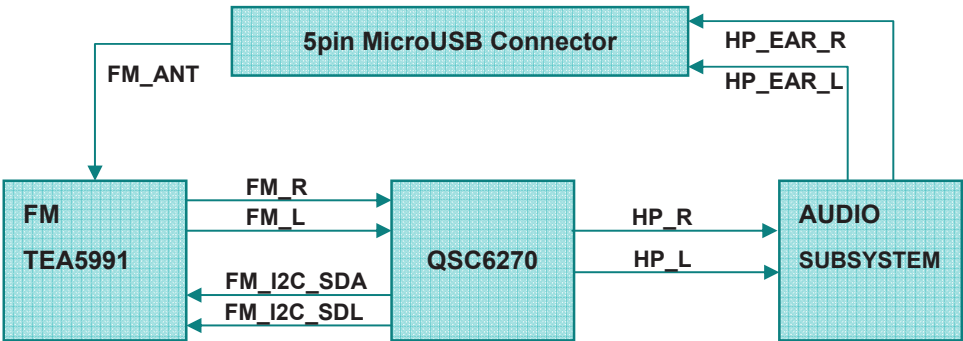
1. The parameters listed under the Pad type column are defined in the QSC6240/QSC6270 Qualcomm Single Chip

Table 1. Bluetooth Connection(GPIO) with QSC6270

3.5.2 FM Receiver (TEA5991)

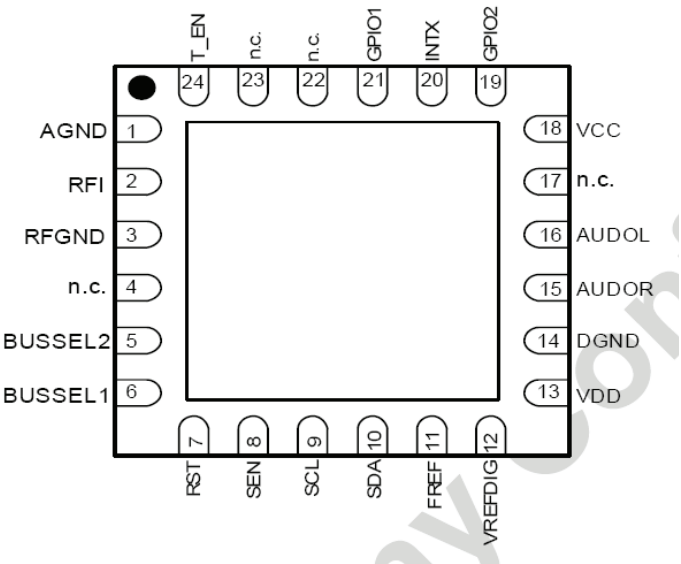
The TEA5991 is a single chip FM stereo radio with RDS and RBDS decoder. The radio can be connected to a headphone antenna and can tune from 70-108 MHz to cover the European, US, Chinese and Japanese FM band. The radio delivers stereo audio output to an external amplifier. The radio can be controlled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

[Figure3.xx.x.x] shows the FM Radio system architecture in the BL20.



[Figure3.xx.x.x]

Pin Descriptions



[Figure3.xx.x.x]

3. Technical Brief

[Table 3.15-1] PIN assign

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

3. Base Band Technical Description

3.6 General Description

QSC6270 has all eight major functional blocks as like Figure 2.1

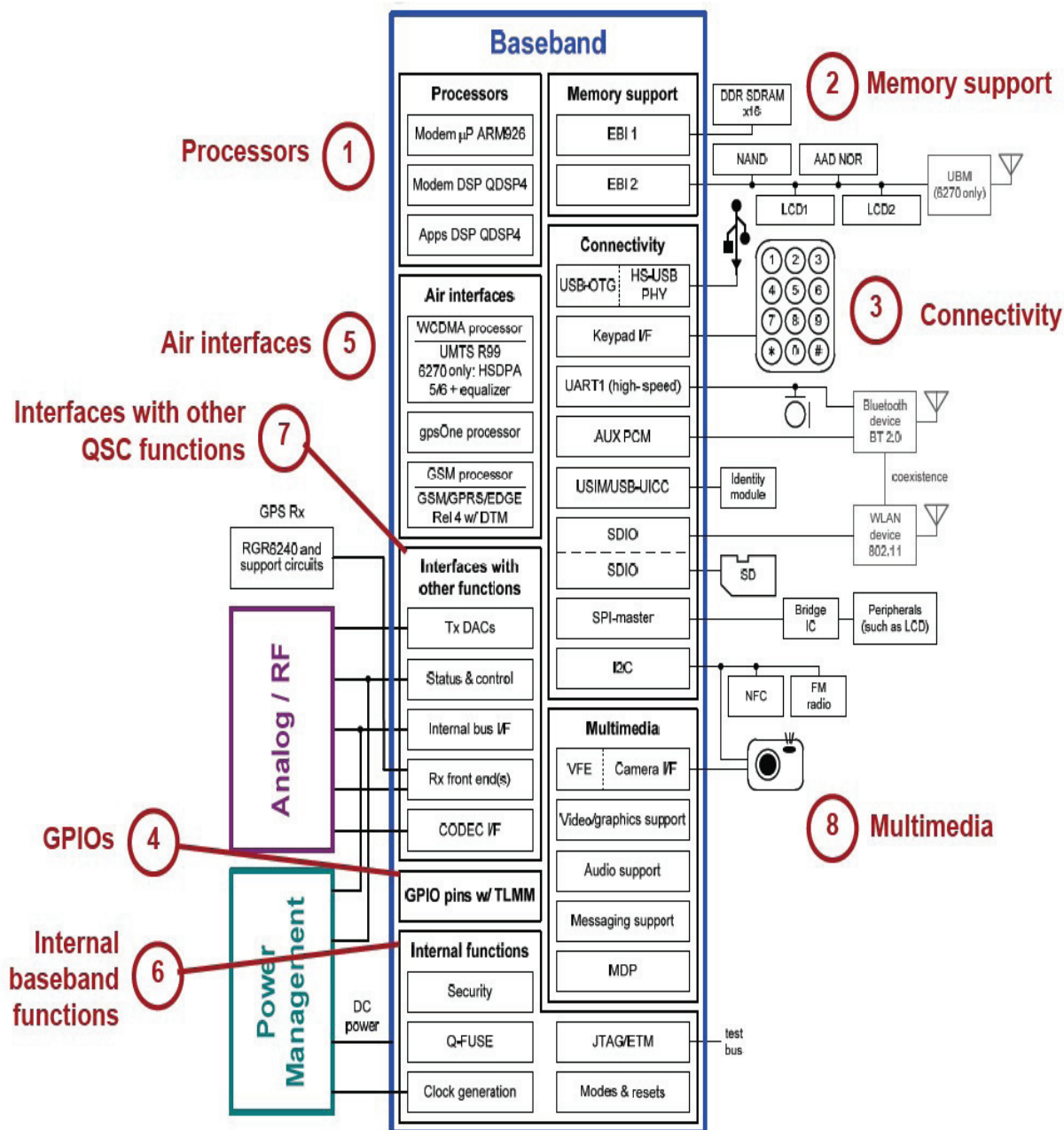


Figure 2.1 QSC6270 Base band block

3. Technical Brief

3.6.1 Processor

The QSC6270 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).

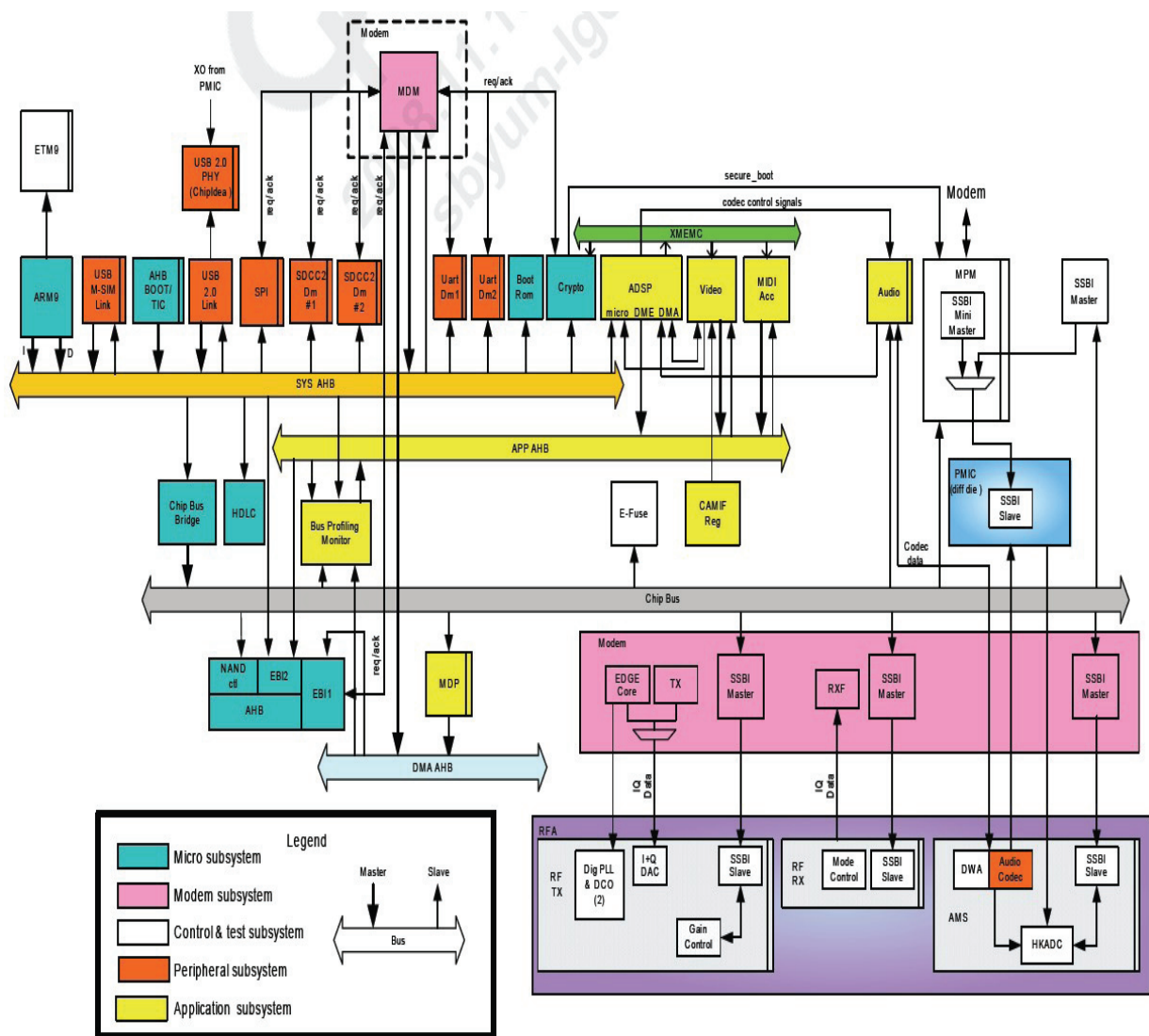


Figure 2.1.1 Processors and bus architecture

3.6.2 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.

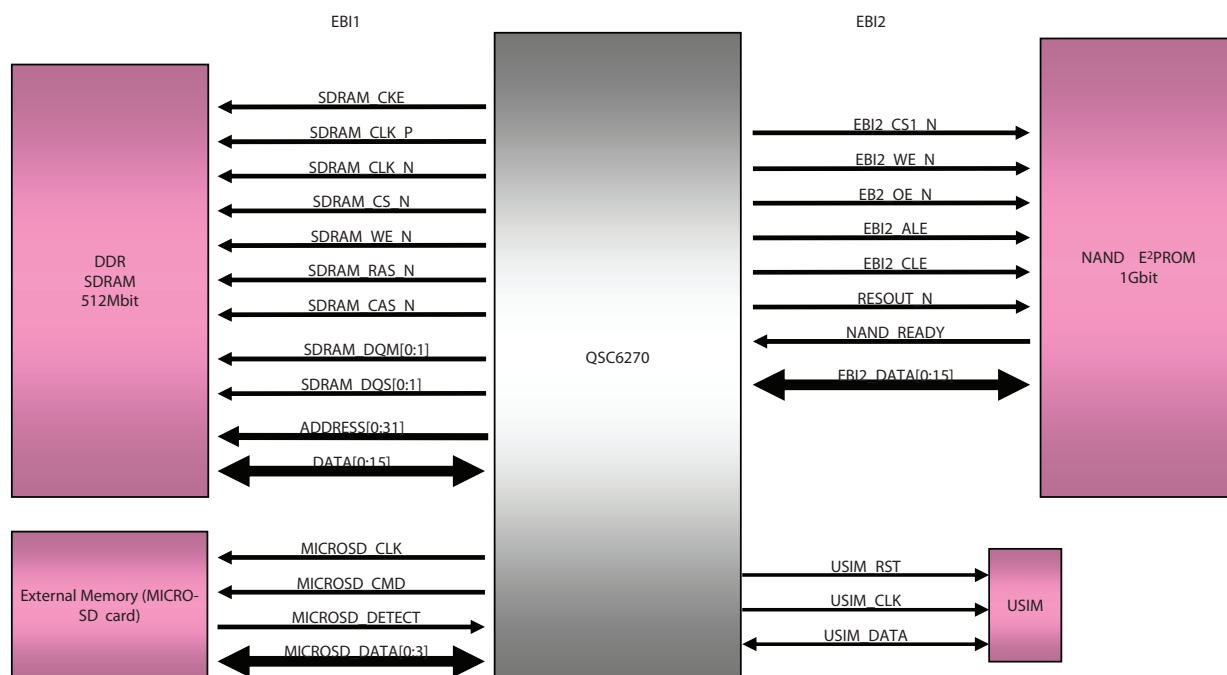


Figure 2.1.2.1 The memory control blocks of BL20

3. Technical Brief

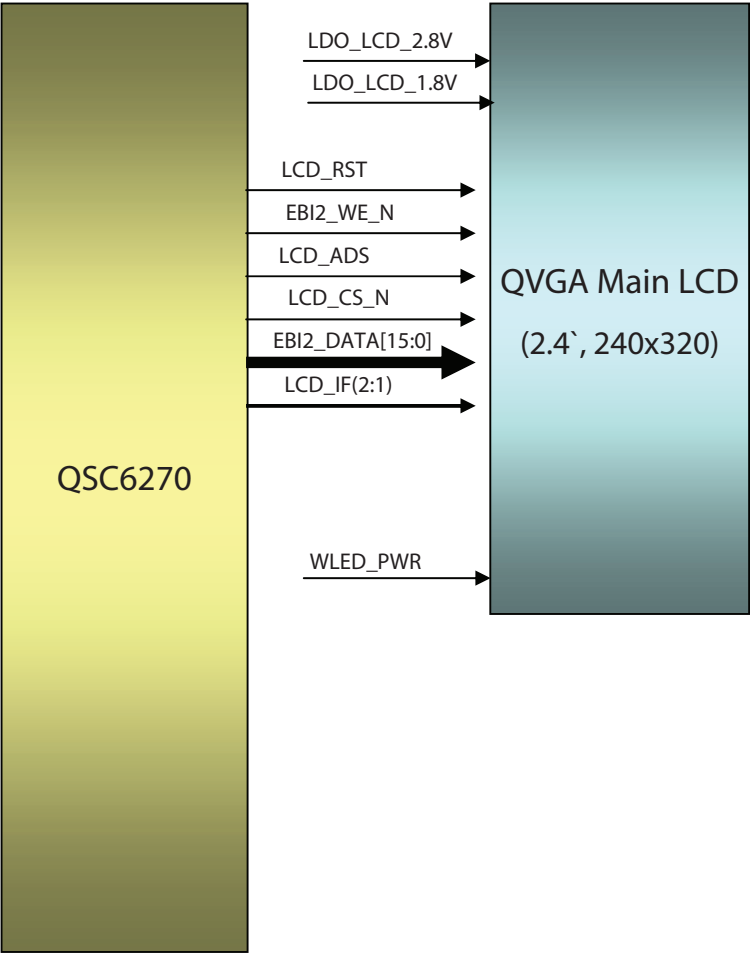


Figure 2.1.2.2 The LCD interfaces of BL20

3.6.3 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

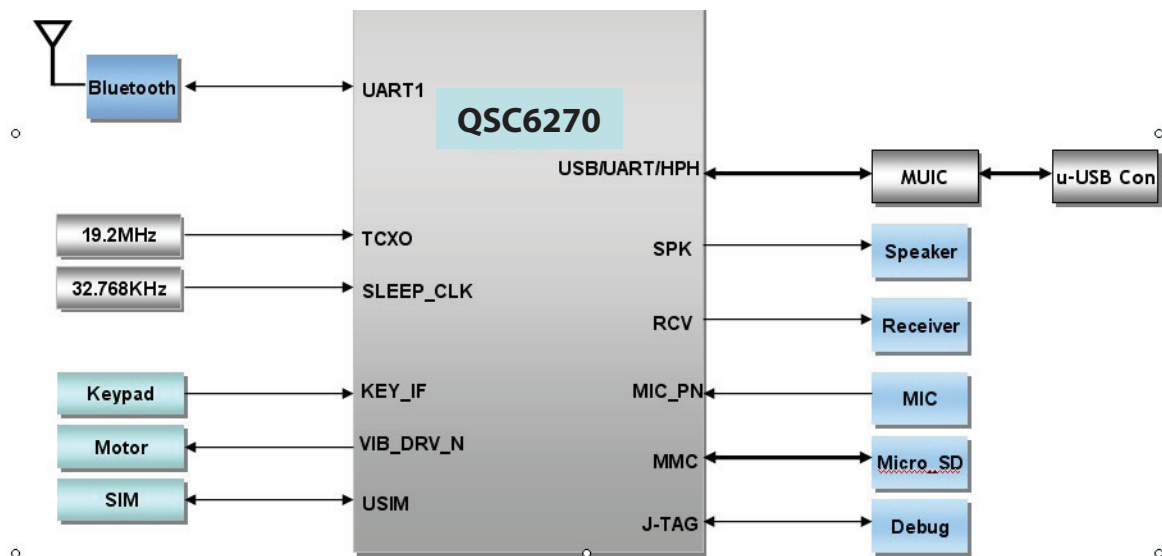


Figure 2.1.3 The connectivity of BL20

3. Technical Brief

3.64 GPIOs

QSC6270 has 78 configurable I/O pins

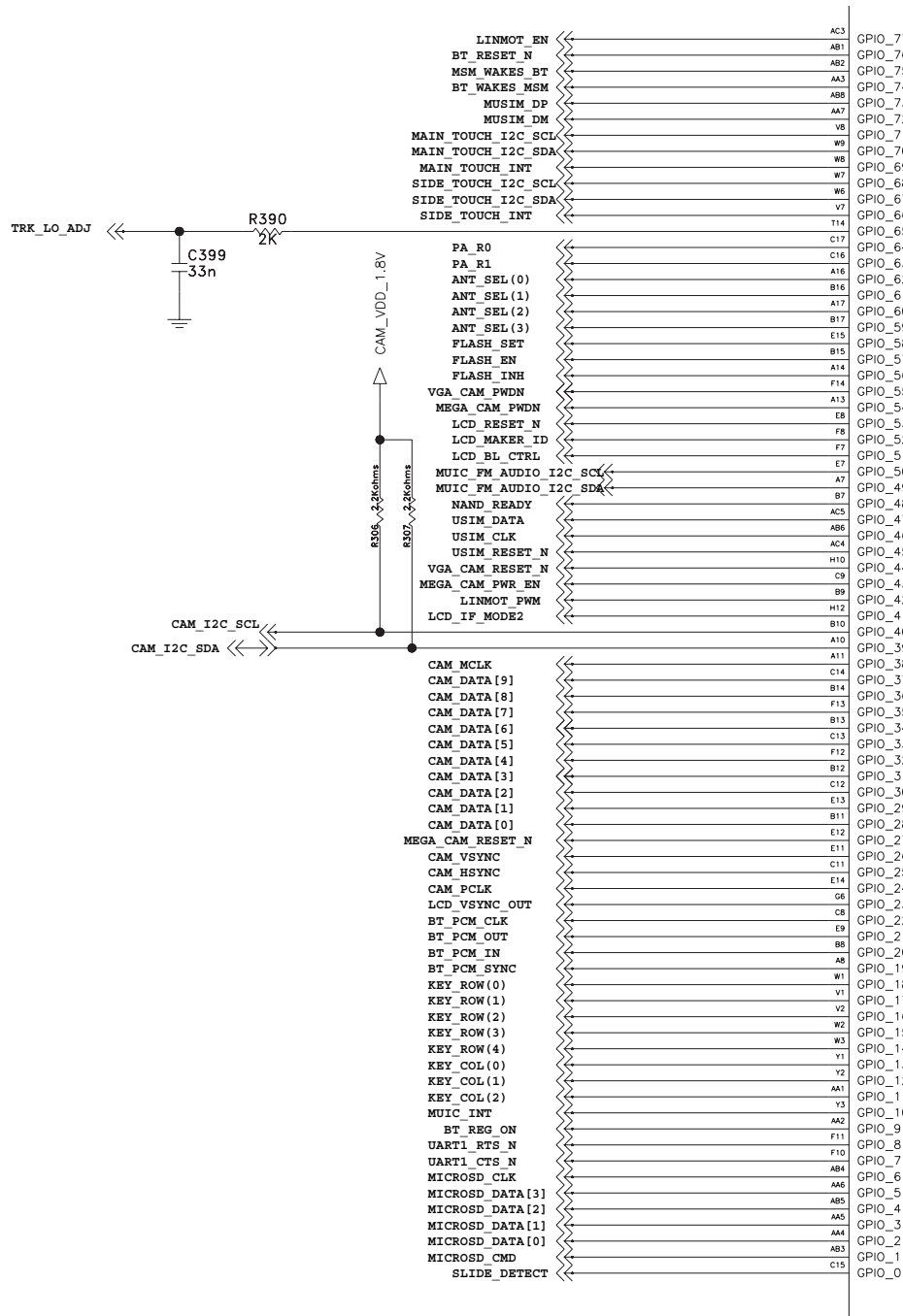


Figure 2.1.4 GPIOs of BL20

3.6.5 Air interfaces

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

- ☐ UMTS/WCDMA/GSM/GPRS/EDGE Specification Release '99 (3GPP R99)
- ☐ GSM/GPRS/EDGE Specification Release 4 (3GPP R4)
- ☐ UMTS/WCDMA Specification Release 5 (3GPP R5, QSC6270 only)
- ☐ HSDPA and equalizer; 3.6 Mbps
- ☐ Enhanced GPS position location using gpsOne (with RGR6240 IC, only QSC6270)
- ☐ 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

3.6.6 Internal base band functions

Several baseband circuits within the QSC6270 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 components 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

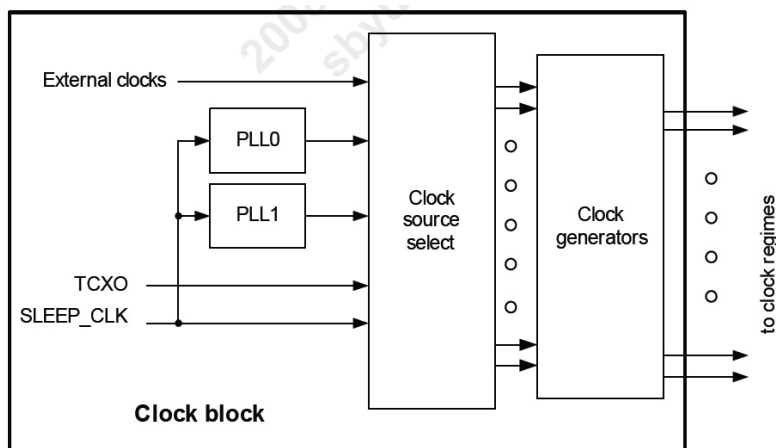


Figure 2.1.6 Clock block basic architecture of QSC6270

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3.6.7 Multimedia

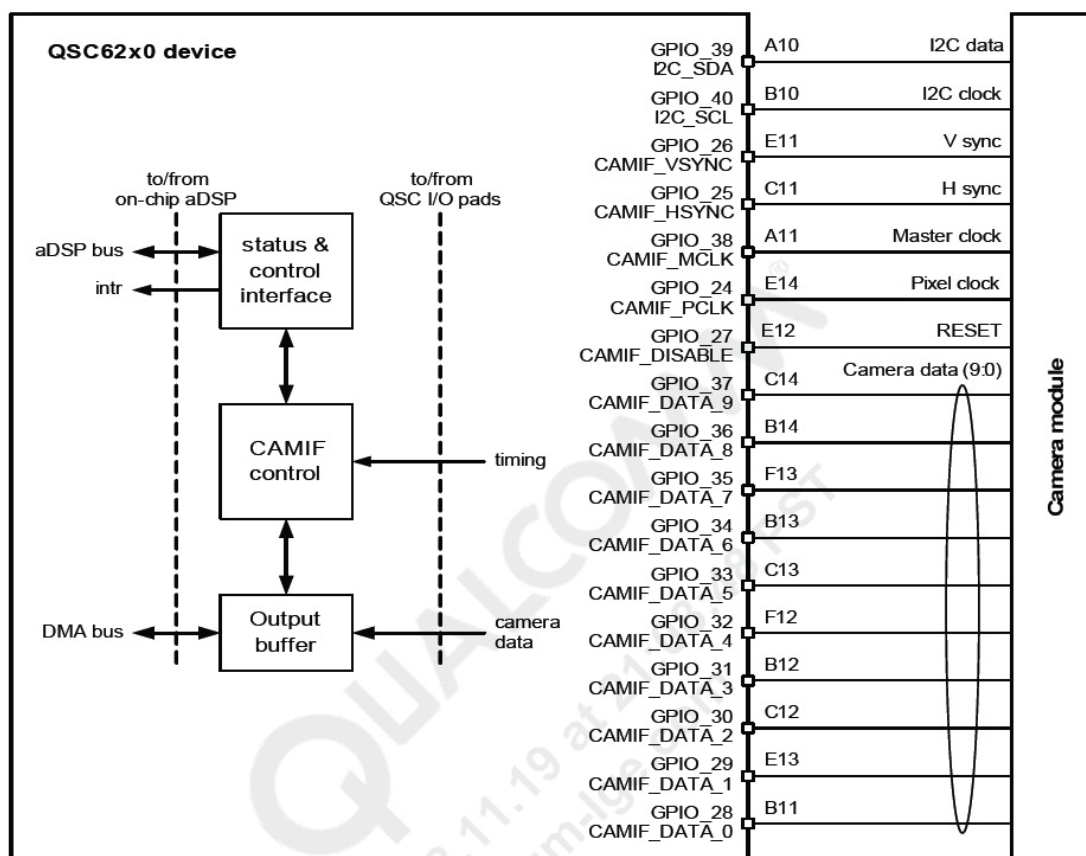
Multimedia topics are as below in QSC6270, including:

- ☐ Camera interface and video front-end
- ☐ Mobile display processor
- ☐ Additional multimedia support: video, audio, graphics, and messaging

3.6.7.1 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 Qvideophone. The 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.



3.6.7.2 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

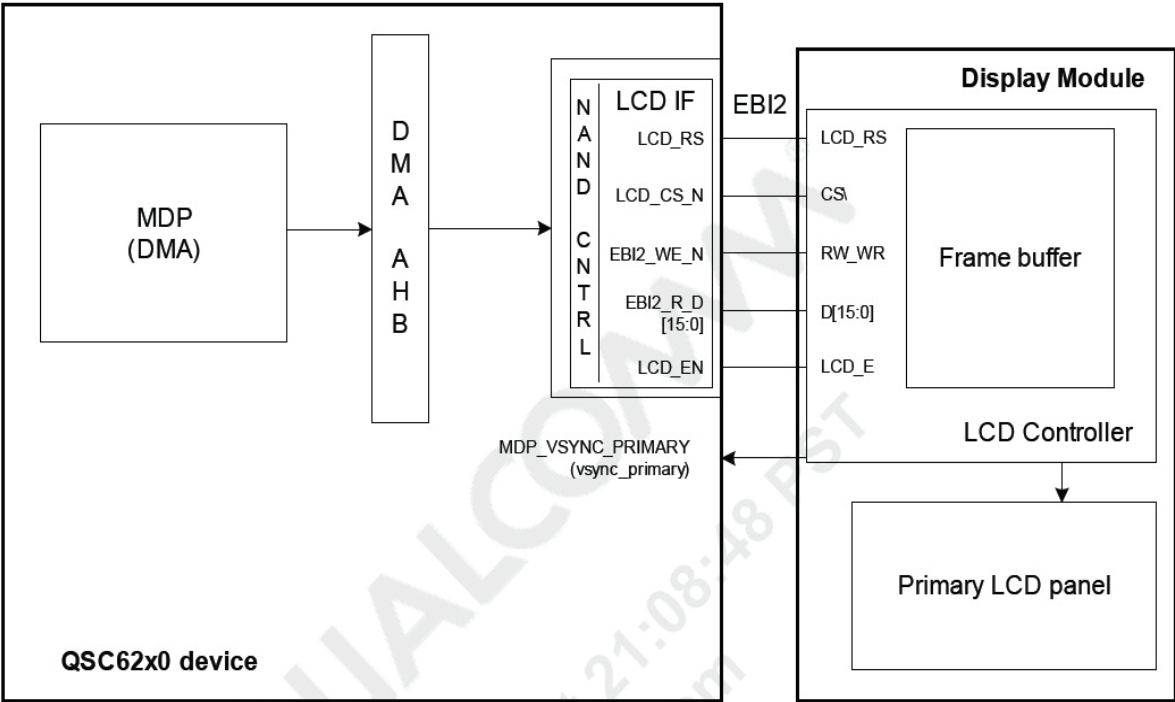


Figure 2.1.7.2.1 MDP-to-LCD interface functional block diagram

3. Technical Brief

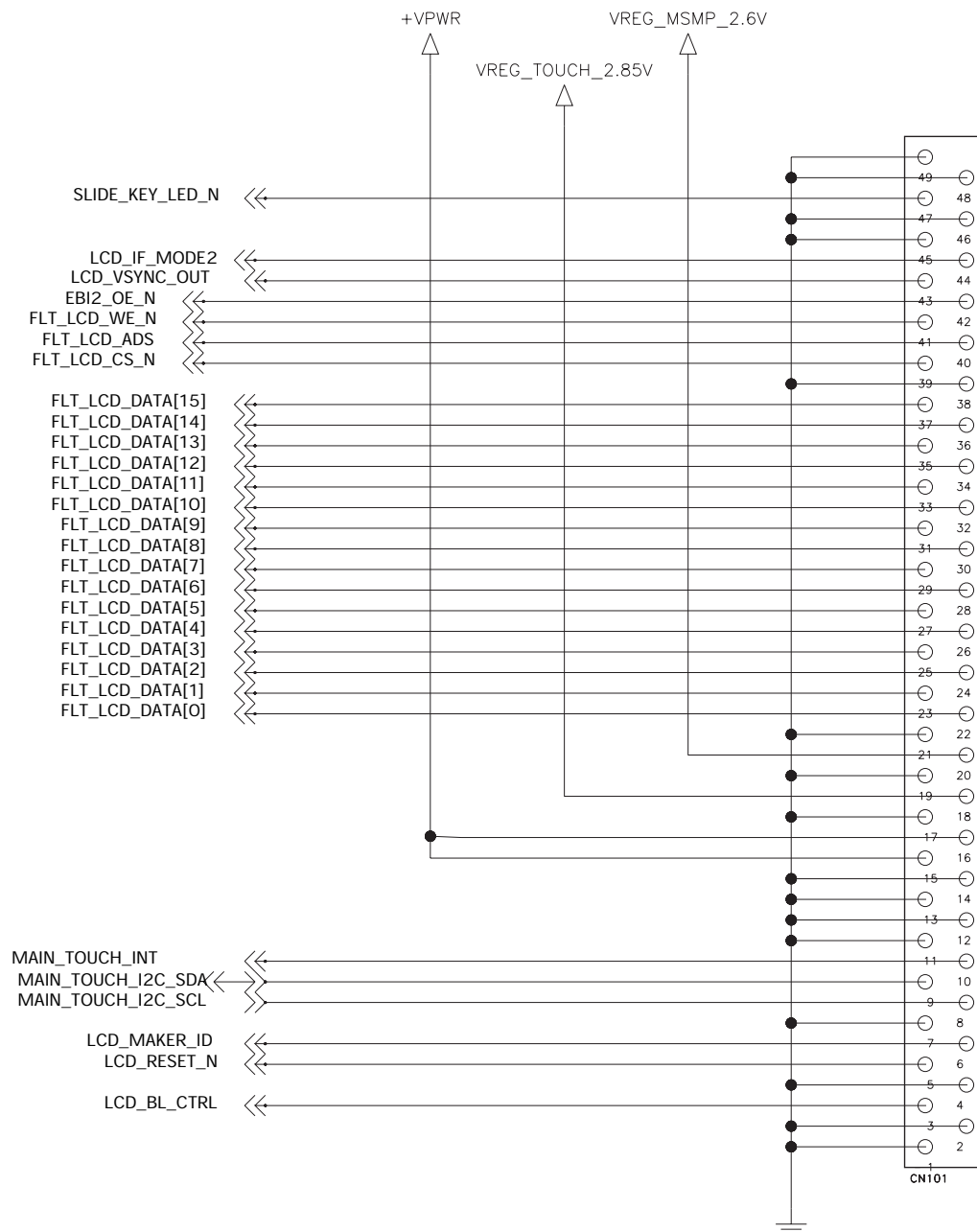


Figure 2.1.7.2.2 The LCD interface of BL20

3.6.8 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)

3.6.9 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)

3.6.10 HKADC

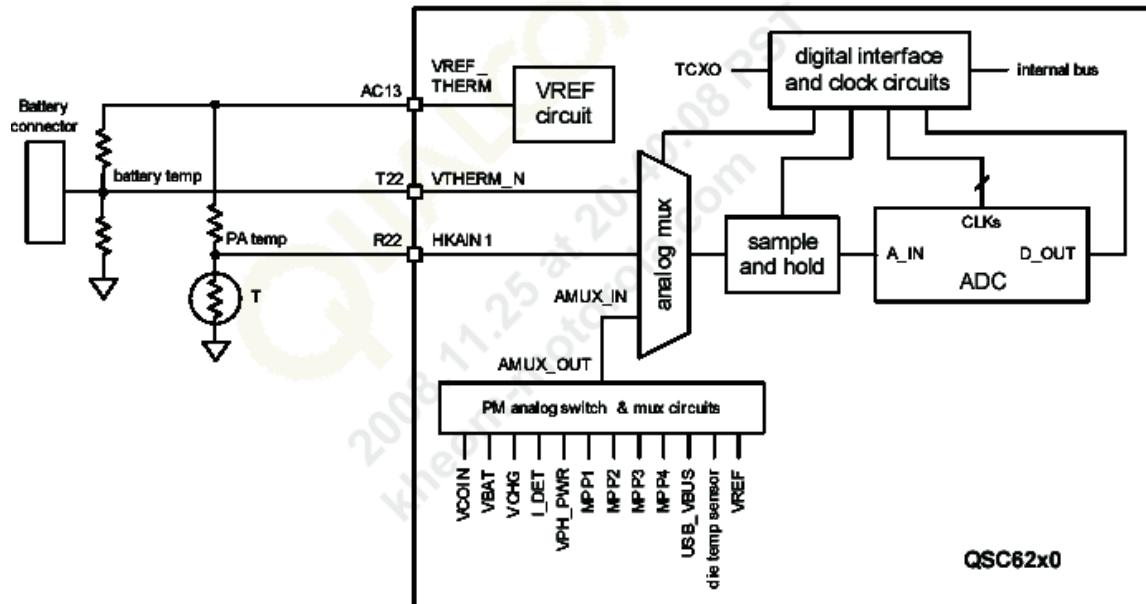
The HKADC includes an analog multiplexer that selects an input for the sample and hold circuit. One of three inputs can be selected:

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

3. Technical Brief



QSC6270HKADC Block diagram

3.7 Power management

3.7.1 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 external 32.768 kHz crystal)

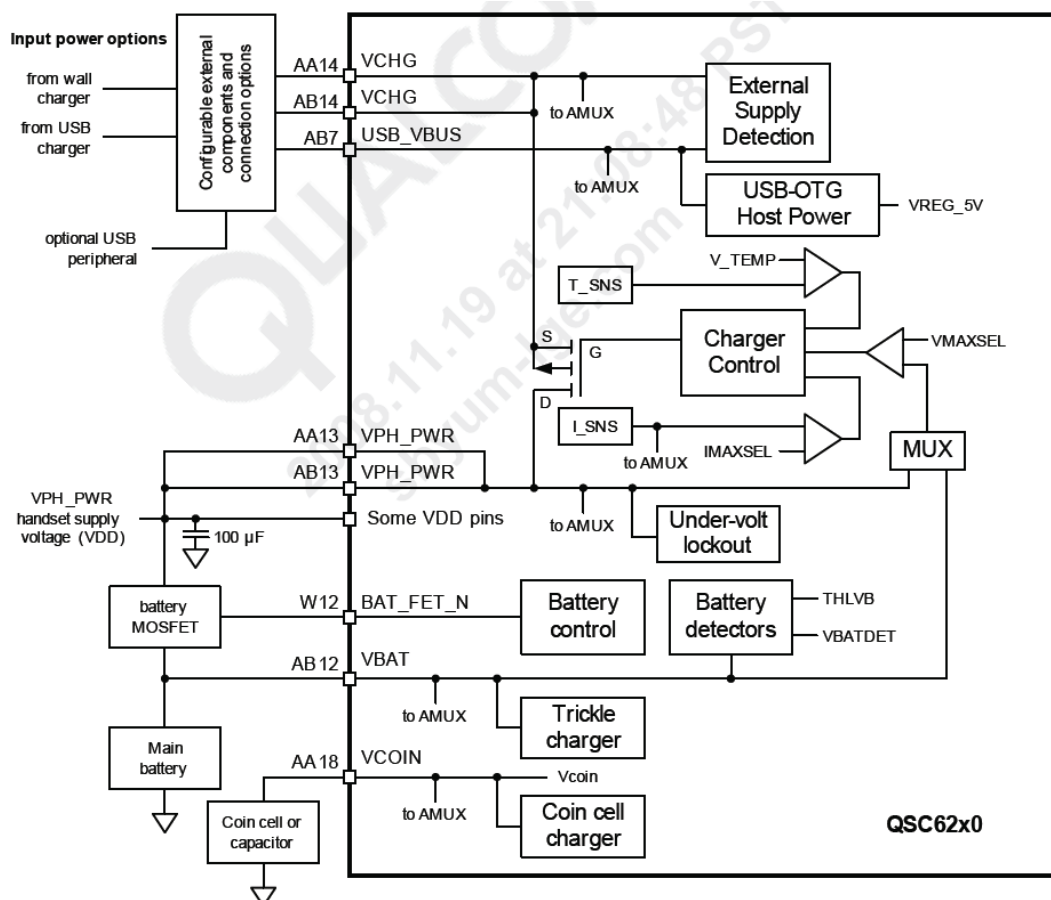


Figure 2.2.1 Input circuits schematic diagram

3. Technical Brief

3.7.2 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 2.2.2 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.

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3.7.3 Charging control

A control driver for the charging pass transistor is included within the QSC device; the driver output is applied internally to an on-chip P-channel MOSFET. The QSC62x0 device uses closed-loop control of the charging pass transistor to regulate the VDD voltage during normal operation, the detected current (IDET) during fast (constant current) charging if needed, or the battery voltage (VBAT) during the final stages of charging. The resistance of the charging pass transistor can also be increased for overcurrent protection.

See Section 13.9 for more details about VDD and VBAT regulation, and Section 13.10 for current regulation, monitoring, and overcurrent protection.

Controlling the charging pass transistor also allows for overheating protection: the QSC device monitors the charging pass transistor temperature and reduces its through current if the temperature exceeds an acceptable limit.

Handset designers should consider the following points to help reduce charging pass transistor power dissipation and heating:

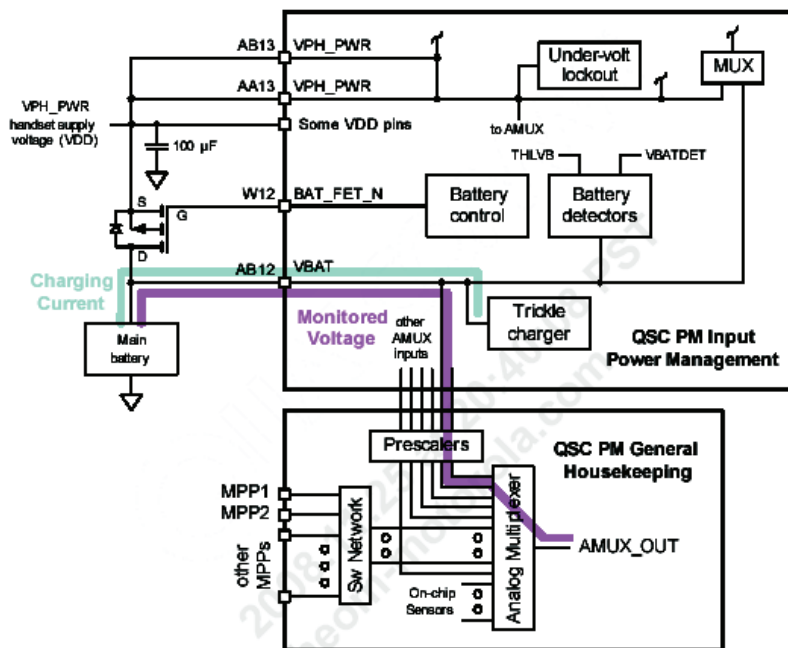
- Minimize the voltage across the charging pass transistor by using an external supply voltage that is only slightly above the top-off voltage of the Li-ion battery.
- Design the charger voltage compliance so its output voltage collapses during fast charging, thereby reducing the voltage across the charging pass transistor.

If thermal limiting occurs and the VDD voltage collapses momentarily below VBAT, the QSC620x device will close the battery MOSFET to prevent a phone shutdown

Trickle Charging

Trickle charging of the main battery, powered from VDD, is provided by the QSC62x0 device. This mode is used to raise a severely depleted battery's voltage to a level sufficient to begin fast charging.

Software sets the desired trickle charging current. Valid settings are from 10 to 160 mA, in 10 mA increments.



Constant Current Charging

The QSC62x0 device supports constant current charging of the main battery by closing the battery MOSFET (connecting the battery to VDD), and closed-loop controlling the charging pass transistor. If current limiting is not implemented by the external supply, the closed-loop charging pass transistor control regulates the total current (handset electronics (plus charging current) to match the programmed value (IMAXSEL). Software monitors the charging process as described earlier and continues the constant current mode until the battery reaches its target voltage.

Charging of Li-ion batteries require further charging using constant voltage or pulse techniques for top-off and maintenance.

Constant Voltage Charging

Once constant current charging of a Li-ion battery is finished, the charging continues using either constant voltage or pulse techniques. Discussion of constant voltage charging is presented here; pulse charging is covered in the next subsection.

The end of constant voltage charging is typically detected in one of two ways:

1. Monitor the charging current using the HKADC and terminate charging when it decreases to a predetermined threshold (such as 10% of the full charging current).
2. Allow constant voltage operation for a predetermined duration beyond crossing the VBATDET threshold (on the order of one-half to two hours).

In either case, do not allow charging to continue indefinitely — charging too long will damage the battery.

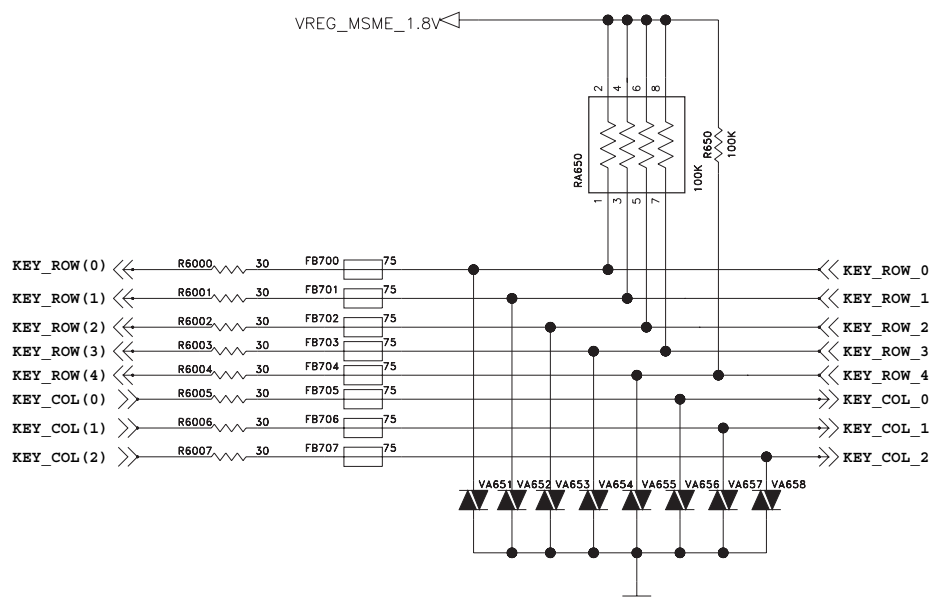
Consult battery manufacturers for specific recommendations.

If option 1 is implemented, the charging current is measured during the constant-current charging mode, then is monitored regularly during constant voltage charging until the terminating condition is realized. The HKADC takes two readings for each charging current measurement:

1. With the battery MOSFET closed (handset plus charging current)
2. With the battery MOSFET opened (handset current only)

The difference between these two current measurements is the charging current. Regardless of the technique used to detect the end of charge, software must take the appropriate action to terminate the charging operation.

3.8.1 KEY PAD



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:

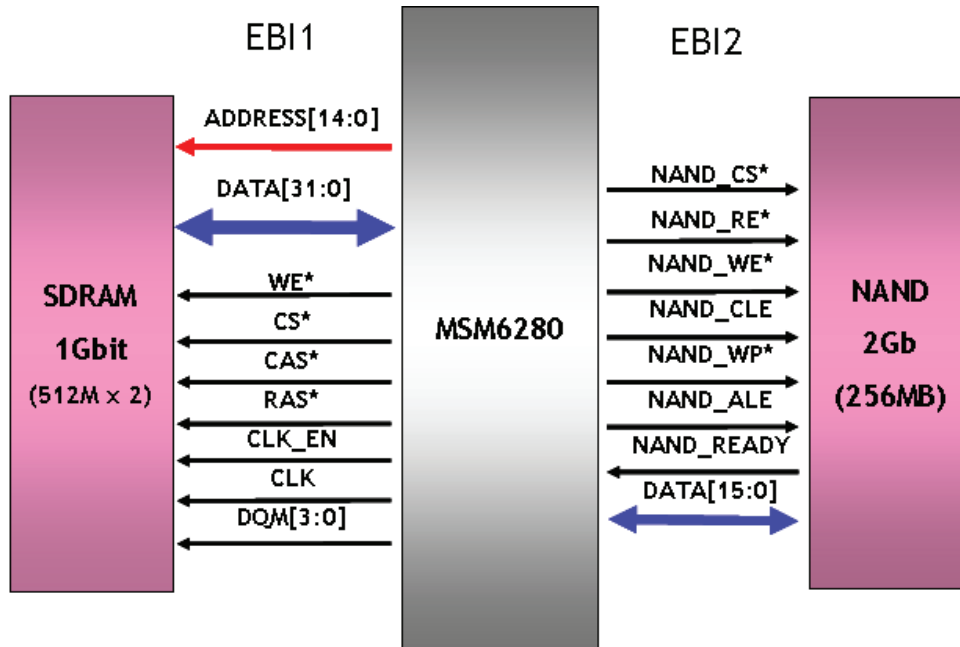
- The maximum clock rate is 46 MHz, defined by the AMSS software.
- The EBI2 memory controller operates at HCLK/2.
- Broadcasting and multicasting (QSC6270 only, with MBP1600 IC) are based on:
- Wideband MediaFLO™, DBV-H, and ISDB-T

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.

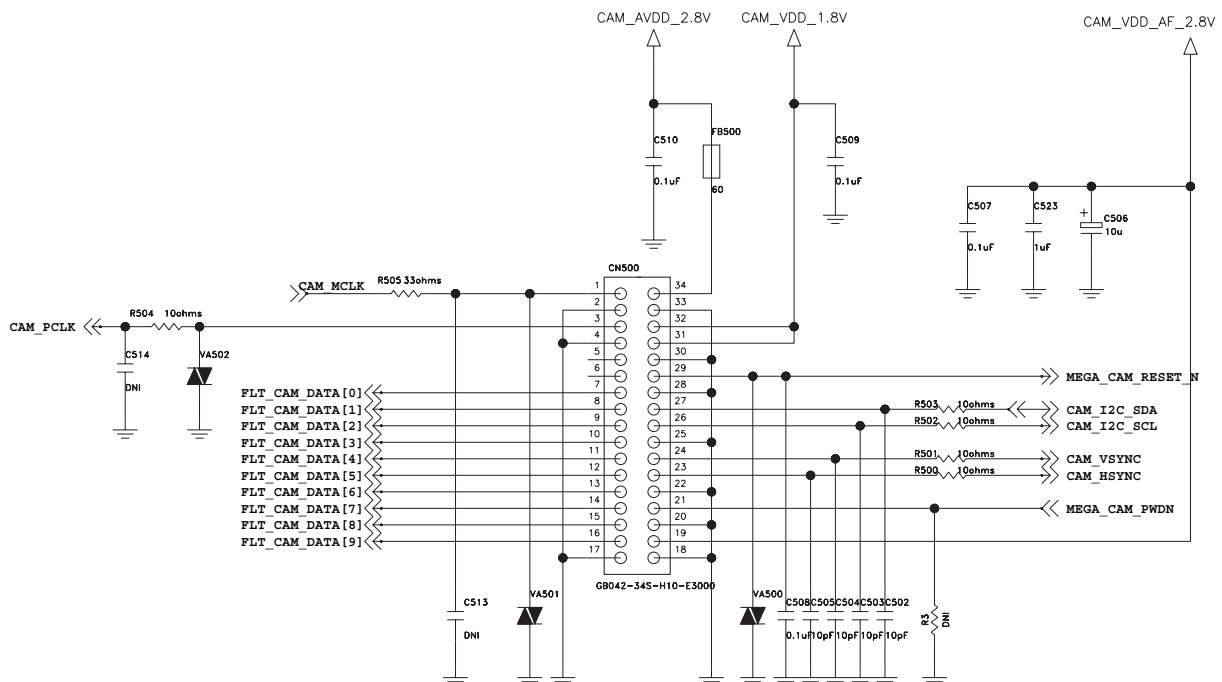
Interface Spec			
Device	Part Name	Maker	Memory cell array
Flash	TYA000B001BLKF	Toshiba	2G
SDRAM	TYA000B001BLKF	Toshiba	1G

3. Technical Brief



3.8.3 Camera Interface (5M CAMERA)

BL20 Installed a 5M Pixel Camera. Below picture shows the camera board to board connector and camera I/F signal.



The 5MEGA Camera module is connected to Main PCB with 34pin Board to Board connector. Its interface is dedicated camera interface port in QSC6270 chip. The camera port supply 24.0MHz master clock to camera module, vertical sync signal, horizontal sync signal, reset signal and 10bits data from camera module. The camera module is controlled by I2C port from QSC6270 chip.

Camera Module Connector Pin Description

No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	MCLK	Master clock input	18	GND	Ground
2	GND	Ground	19	LVDD	VCM&DriverIC Power(2.8V)
3	PCLK	Pixel clock output	20	GND	Ground
4	GND	Ground	21	STANDBY	Power Sleep (Active"H")
5	NC	Non Connection	22	GND	Ground
6	NC	Non Connection	23	HSYNC	Horizontal sync output
7	D0	Parallel pixel data0	24	VSNC	Vertical sync output
8	D1	Parallel pixel data1	25	GND	Ground
9	D2	Parallel pixel data2	26	SCL	Serial interface clock
10	D3	Parallel pixel data3	27	SDA	Serial interface data
11	D4	Parallel pixel data4	28	GND	Ground
12	D5	Parallel pixel data5	29	RESET	Reset input (Active"L")
13	D6	Parallel pixel data6	30	GND	Ground
14	D7	Parallel pixel data7	31	IOVDD	I/O power(1.8V or 2.8V)
15	D8	Parallel pixel data8	32	DVDD	Digital power(1.8V)
16	D9	Parallel pixel data9	33	GND	Ground
17	GND	Ground	34	AVDD	Analog power(2.8V)

3.8.4 LCD Module (LQ024Q3UX01 : SHARP)

This data sheet is to introduce the specification of LQ024Q3UX01 active matrix 262,144color LCD module. Main color LCD module is controlled by Driver IC (Renesas R61520).

If any problem occurs concerning the items not stated in this specification, it must be solved sincerely by both parties after deliberation.

As to basic specification of driver IC refer to the IC specification and handbook.

Features

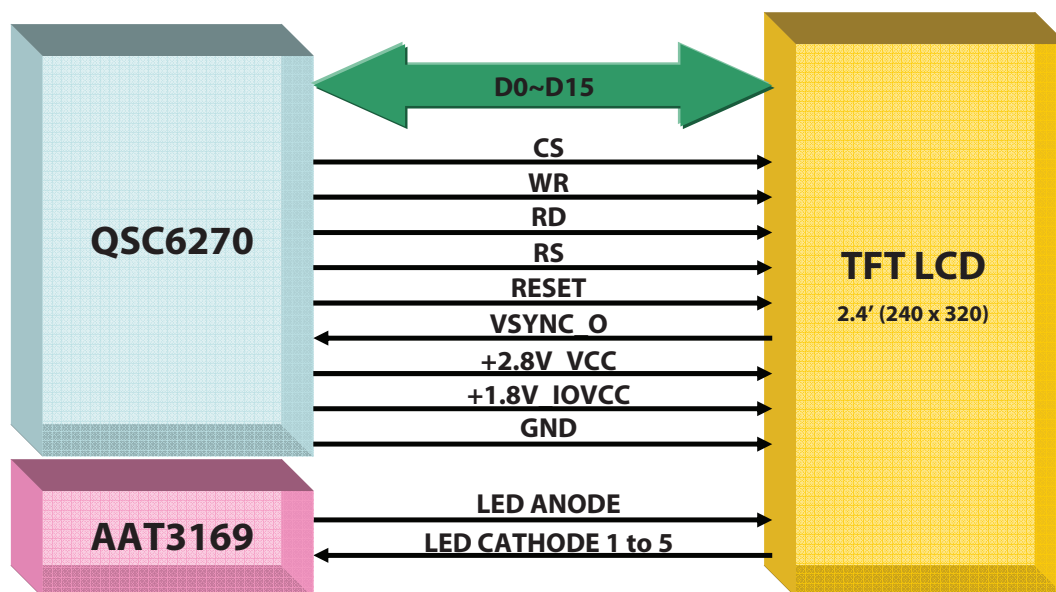
Display mode(Main LCD) : Normally Black, Transmissive VA mode 262K colors

LCD Driver IC: Renesas R61520

Driving Method : a-Si TFT Active Matrix

8/16 Bit, CPU I/F Parallel

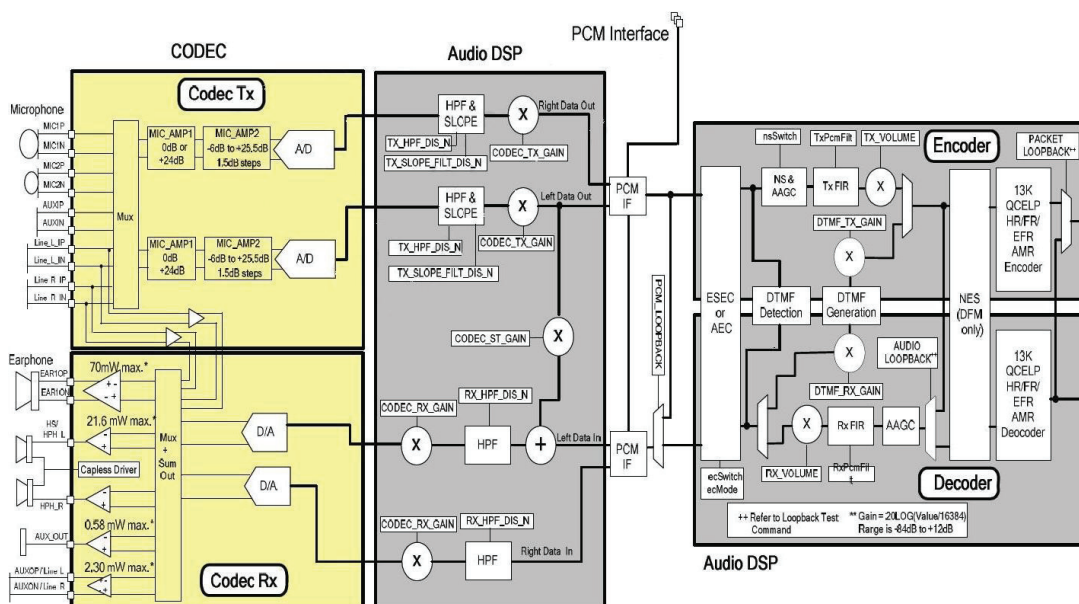
3. Technical Brief



3.8.5 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 (MSM6280). 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 (MSM6280) 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.



3.8.6 Touch Screen Interface

3.8.6.1 MAIN Touch Interface

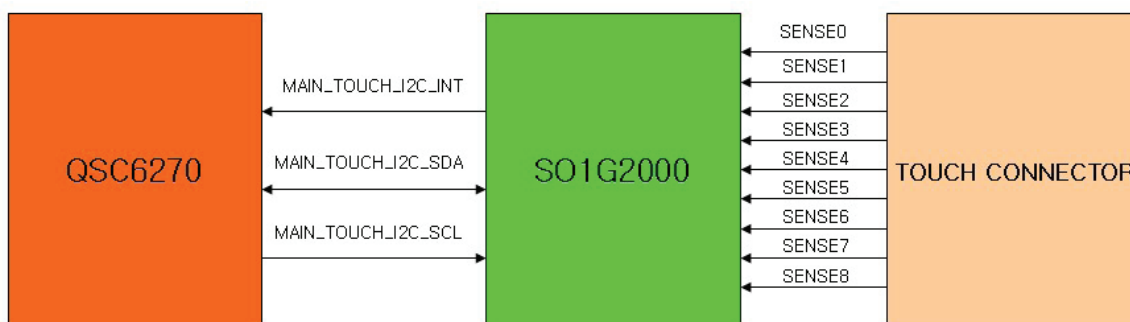
The SO1G2000 device has up to 16 capacitive buttons, up to 2 capacitive scroll strips. The SO1G2000 device is controlled by I2C port from QSC6270.

Touch interface scheme is shown and, there control signals are followed

MAIN_TOUCH_I2C_SCL : I2C CLOCK

MAIN_TOUCH_I2C_SDA : I2C DATA

MAIN_TOUCH_INT : I2C INT



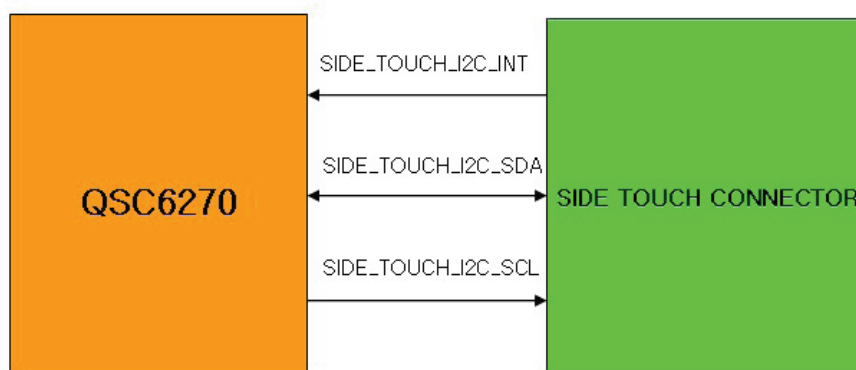
3.8.6.2 Side Interface

Side touch interface scheme is shown and there control signals are followed

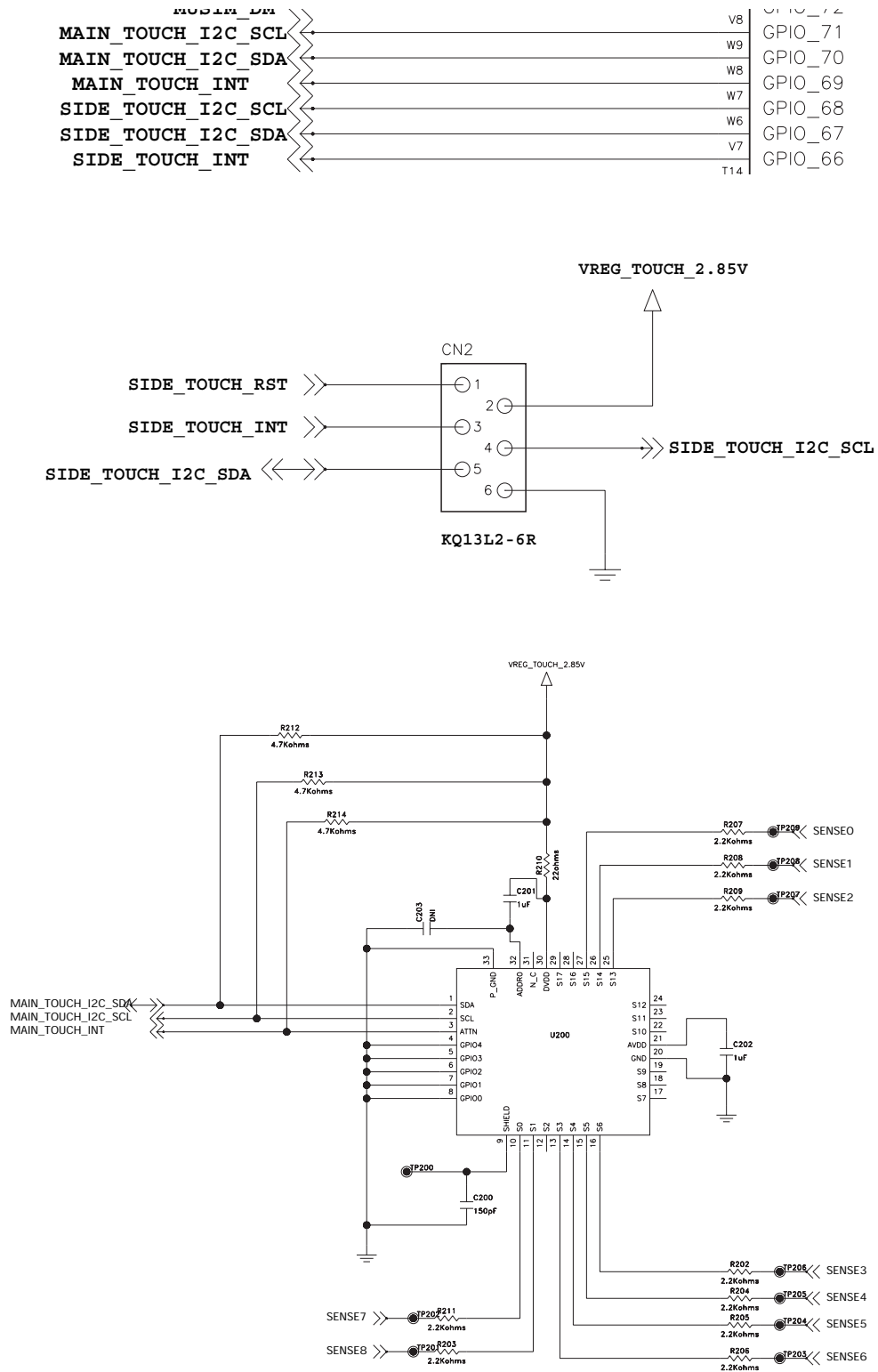
SIDE_TOUCH_I2C_SCL : I2C CLOCK

SIDE_TOUCH_I2C_SDA : I2C DATA

SIDE_TOUCH_I2C_INT : I2C INT



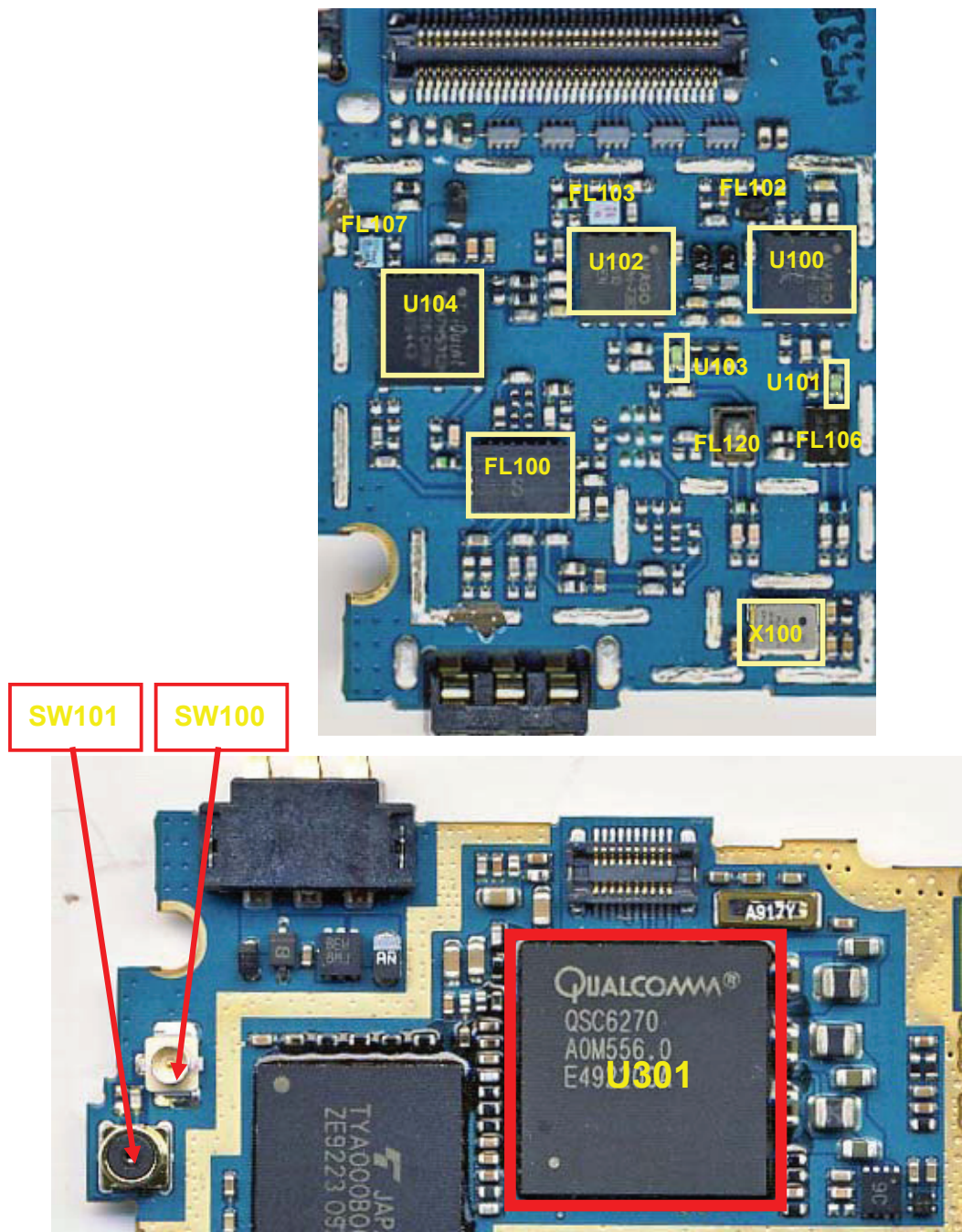
3. Technical Brief



4. TROUBLE SHOOTING

4.1 RF Component

4.1.1 MAIN board TOP



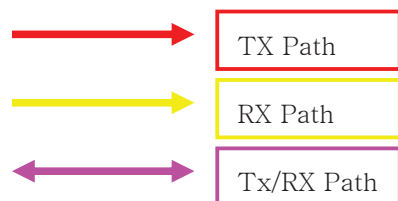
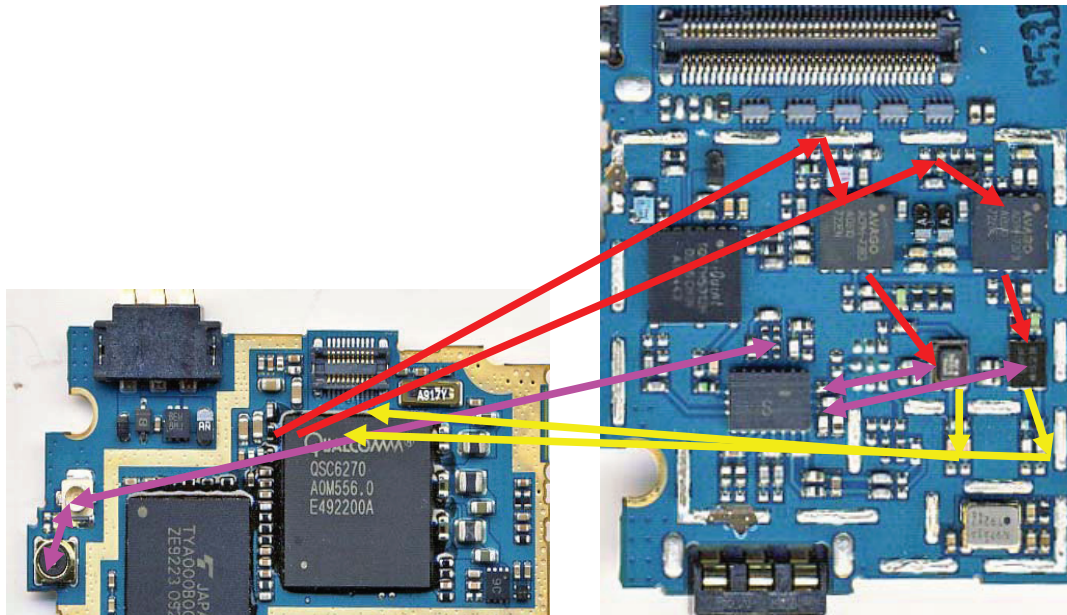
4. TROUBLE SHOOTING

RF component (WCDMA / GSM)

Reference	Description	Reference	Description
U301	QSC6270	FL106	WCDMA (VIII) Duplexer
FL100	FEM	U100	WCDMA VIII PAM
U102	WCDMA I PAM	X100	VCTCXO(19.2MHz)
FL103	WCDMA (I) TX SAW Filter	U104	GSM/EDGE PAM
FL102	WCDMA (VIII) TX SAW Filter	SW100	RF Antenna Connector
U103	WCDMA (I) Coupler	SW101	RF Connector
U101	WCDMA (VIII) Coupler	FL120	WCDMA (I) Duplexer

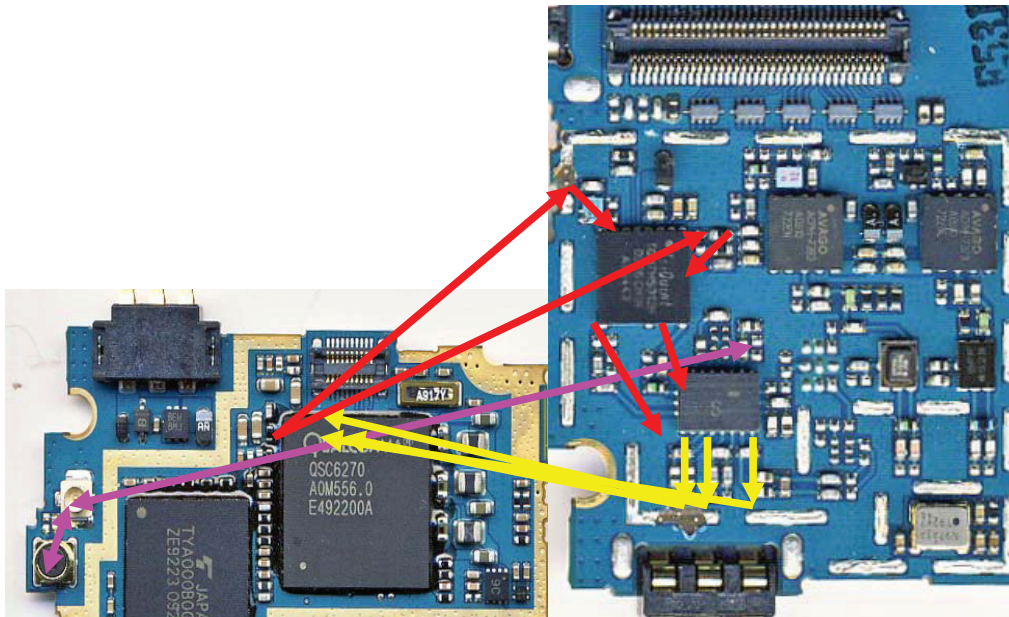
4.2 RF Path

4.2.1 WCDMA path

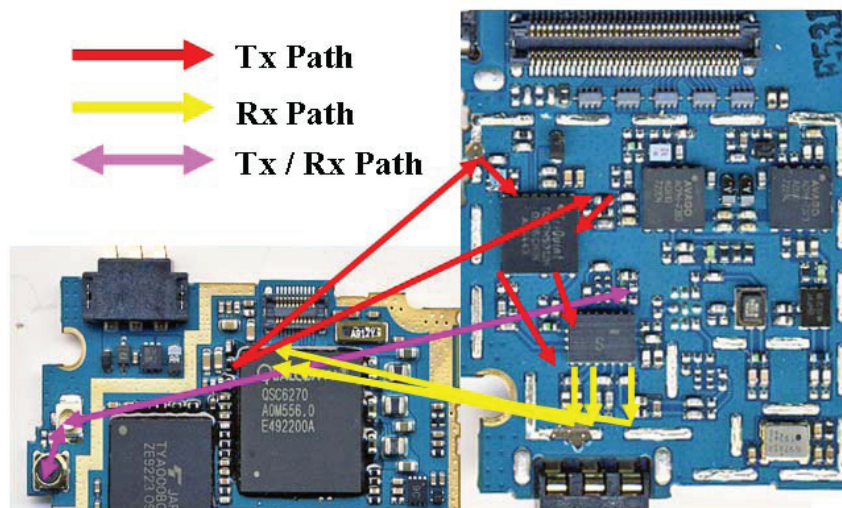
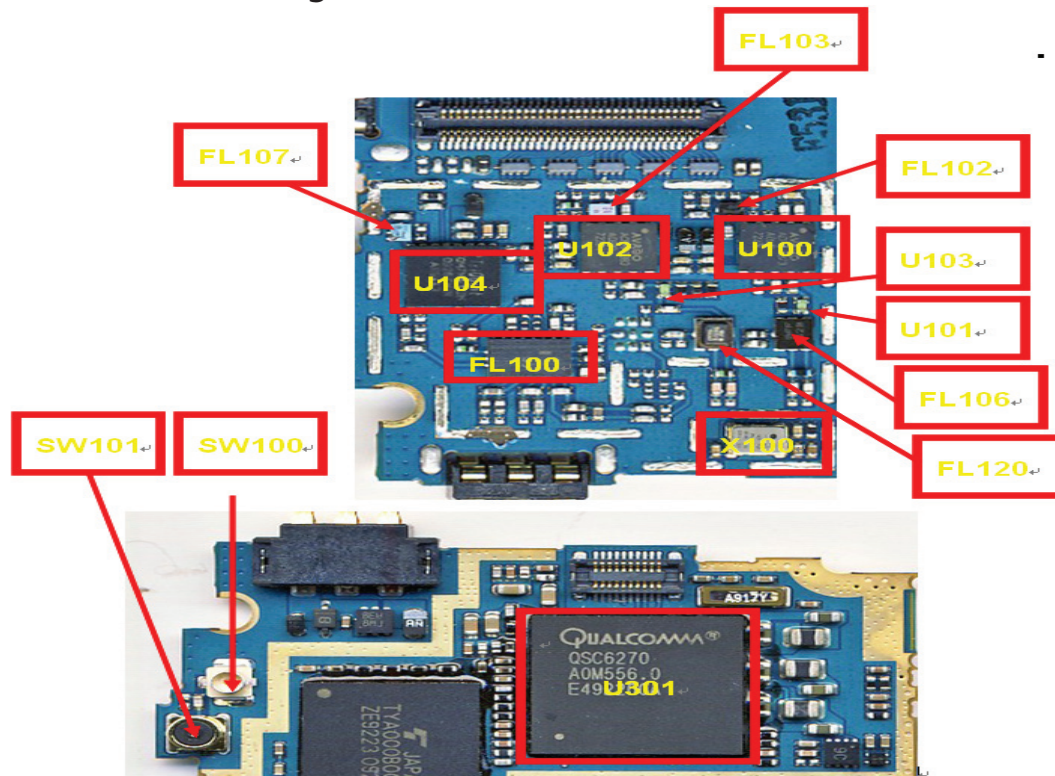


4. TROUBLE SHOOTING

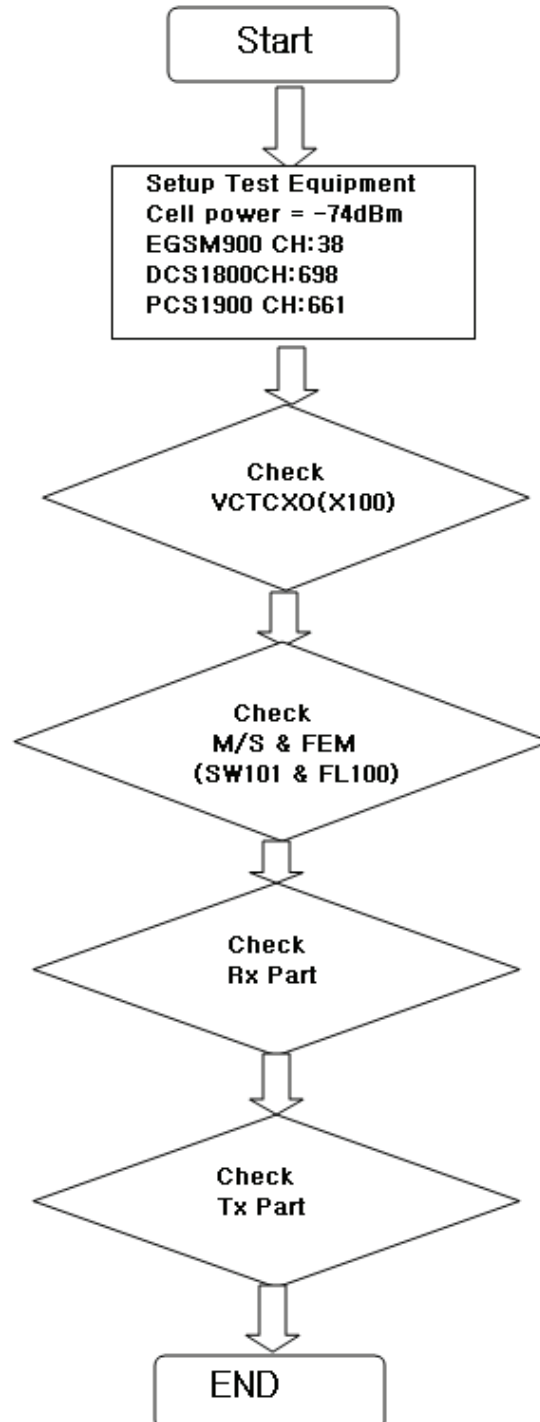
4.2.2 GSM path



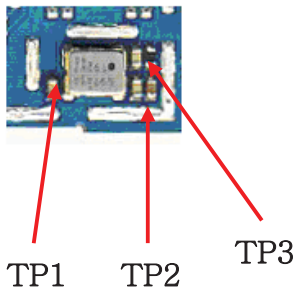
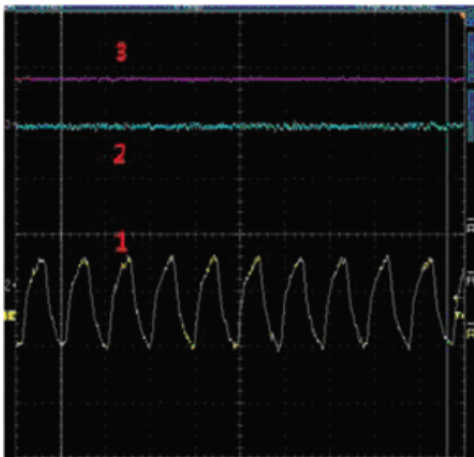
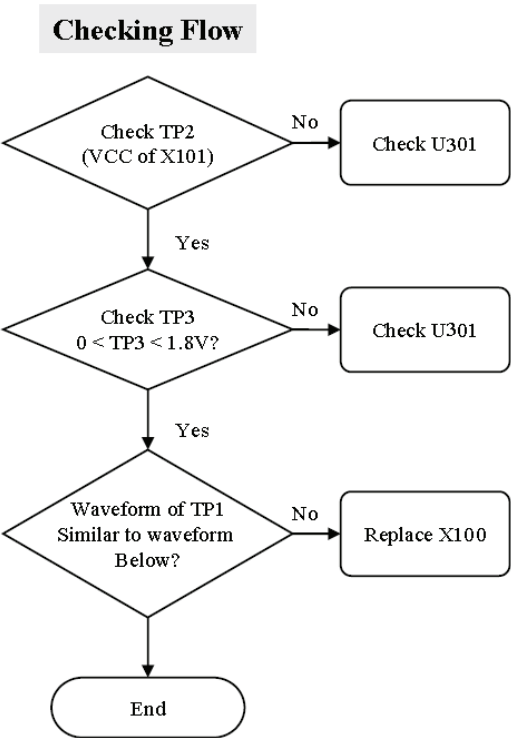
4.3 Trouble Shooting of GSM Part (GSM900/1800/1900)



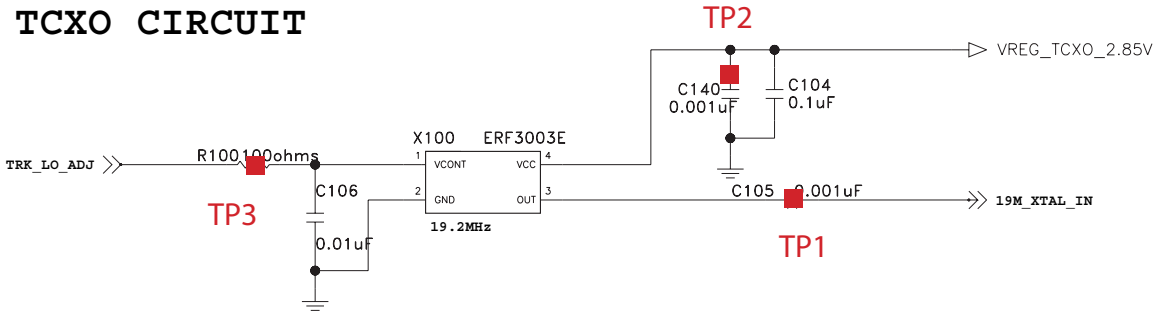
4. TROUBLE SHOOTING



4.3.1 Checking VCTCXO Circ

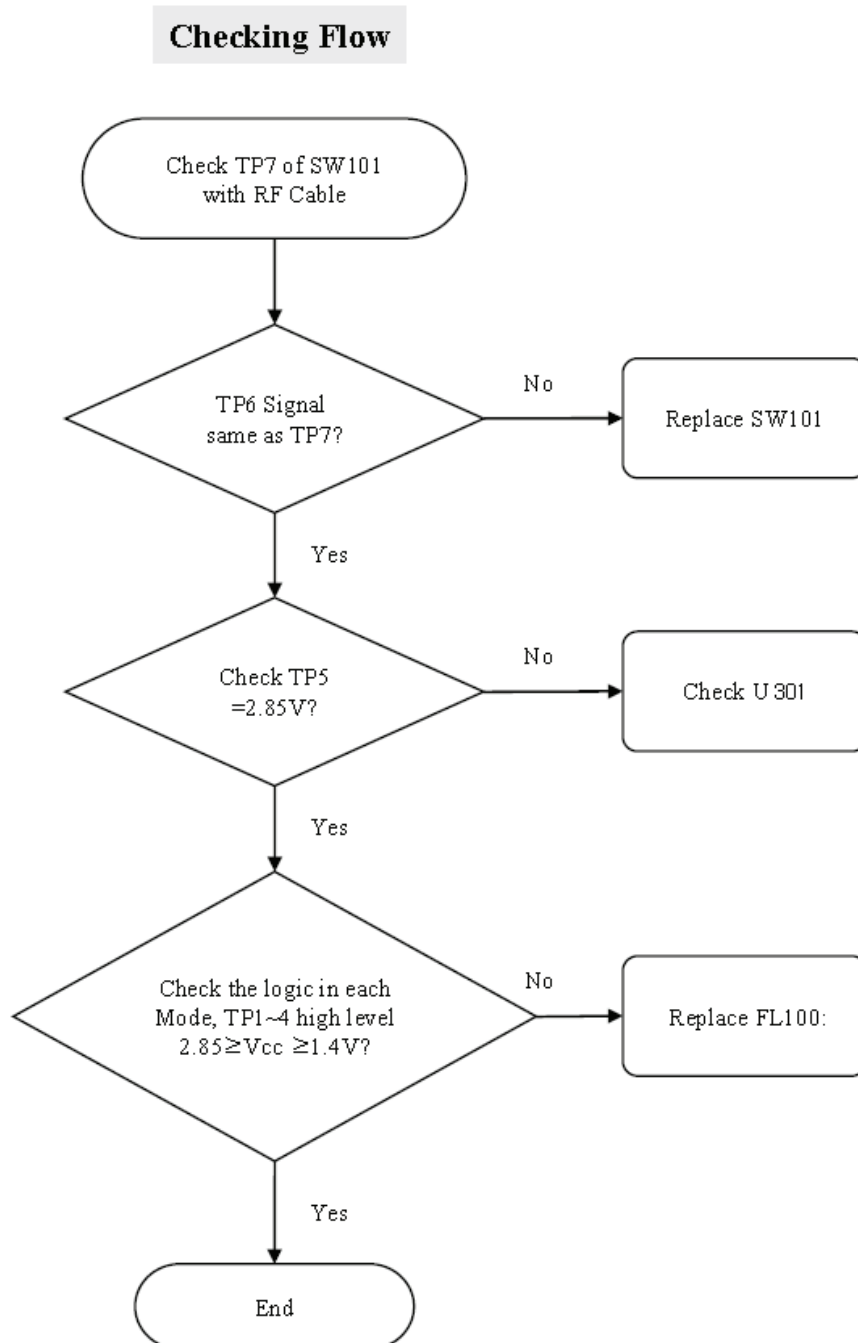


TCXO CIRCUIT

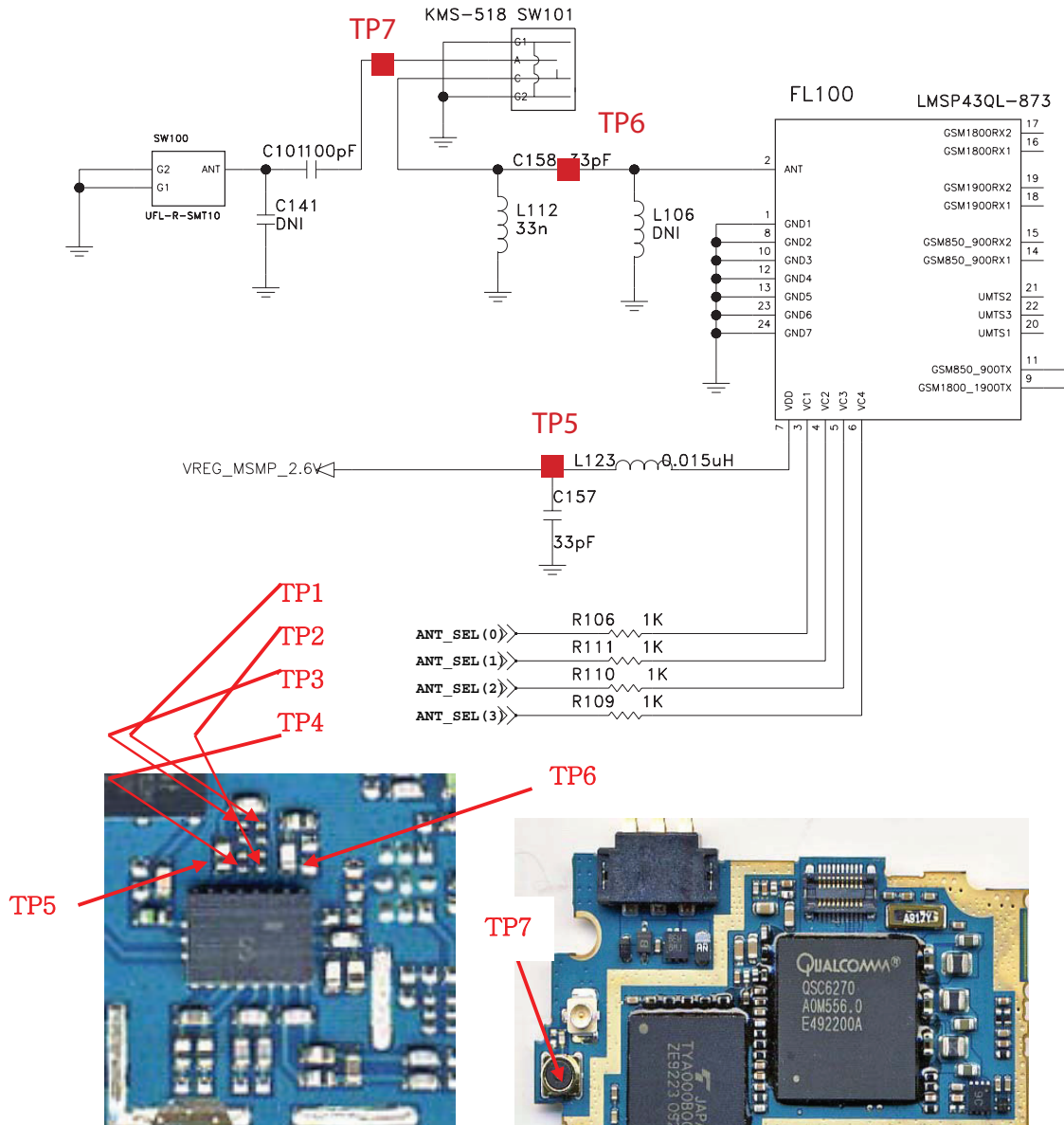


4. TROUBLE SHOOTING

4.3.2 Checking Front-End Module Block



4. TROUBLE SHOOTING



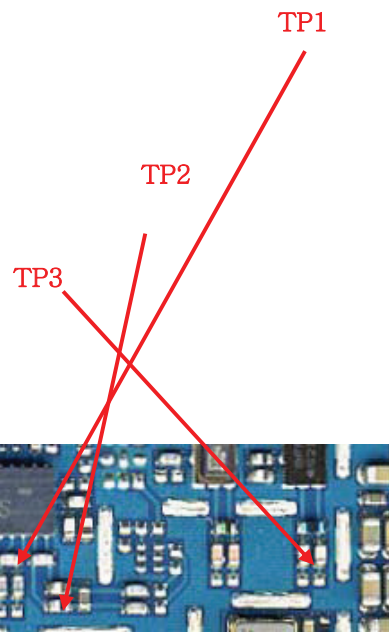
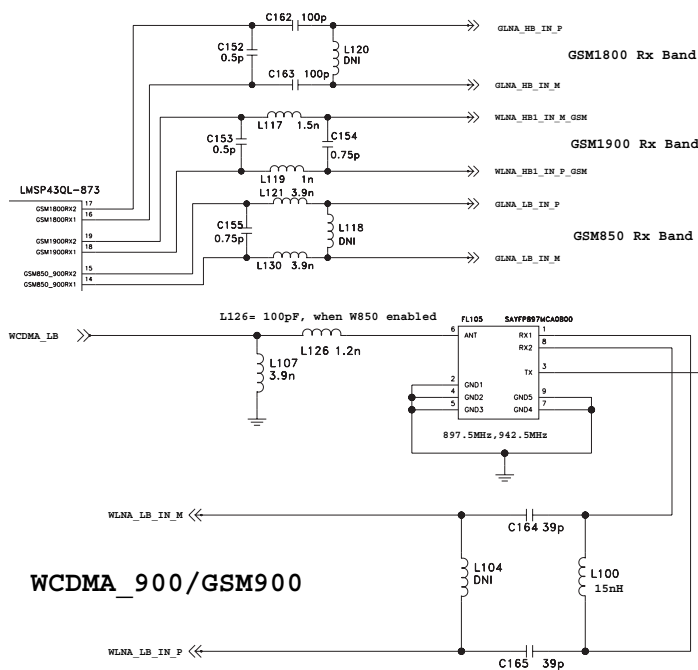
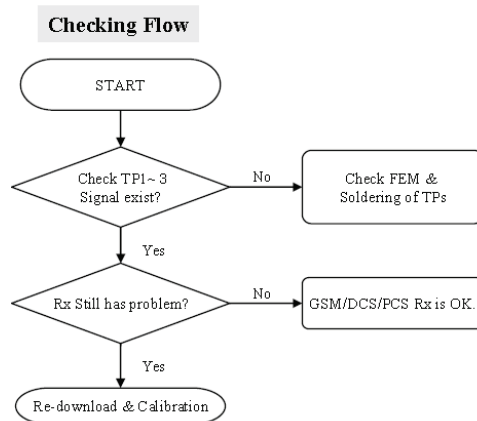
FEM ControlLogic __W CDMA BAND 1&8

CTRL	ANT_SEL_0	ANT_SEL_1	ANT_SEL_2	ANT_SEL_3
GSM 850/EGSM TX	1	0	0	0
PCN/PCS TX	1	1	0	0
W B 1900	0	0	1	1
W B 900*	0	0	0	1
W B 2100	0	1	0	1
GSM 850 Rx	0	1	1	0
EGSM Rx*	0	0	0	1
PCN Rx	0	0	0	0
PCS Rx	0	1	0	0

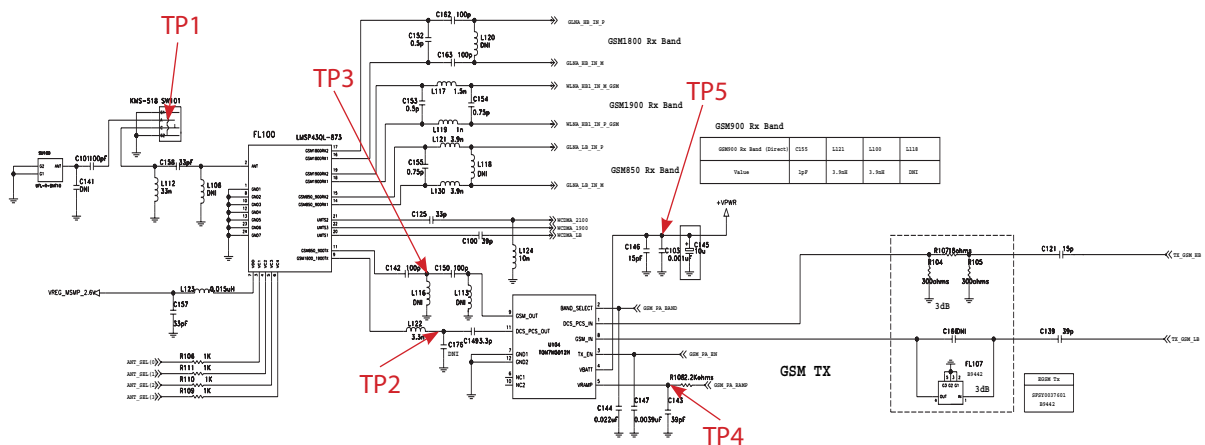
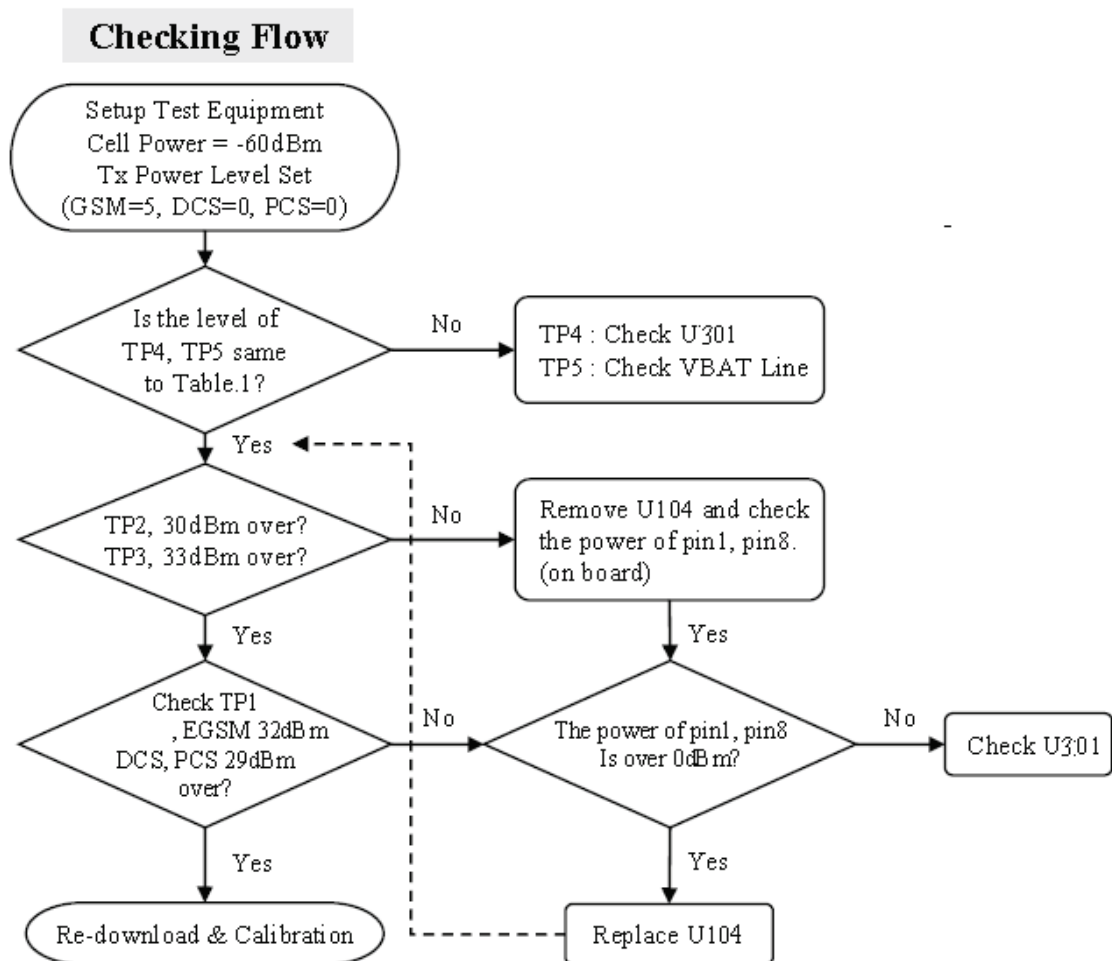
*(WCDMA BC8 shared FEM output_pin with GSM900)

4. TROUBLE SHOOTING

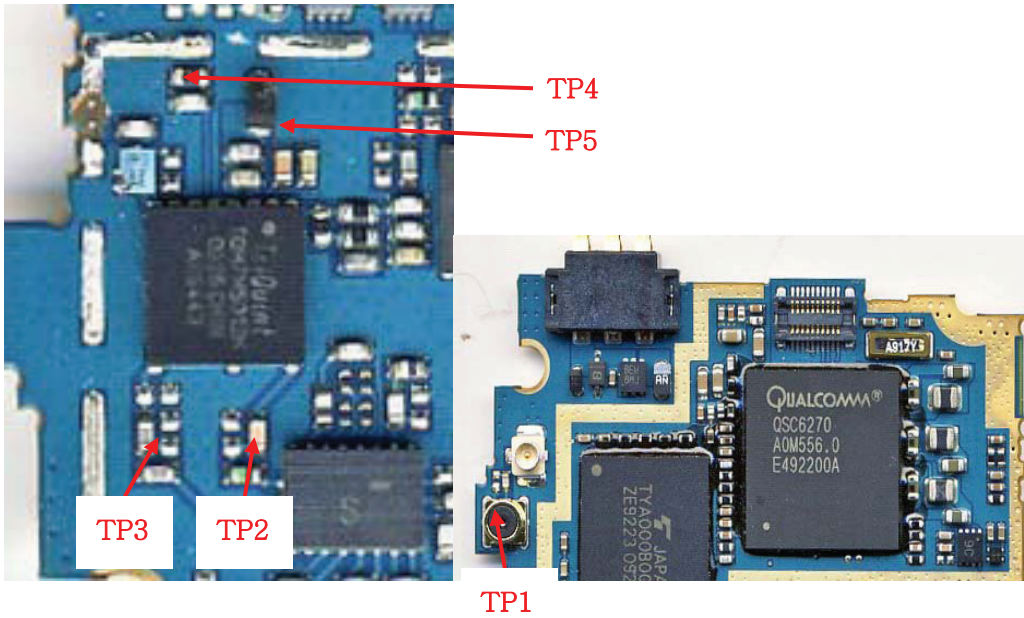
4.3.3 Checking GSM Rx part



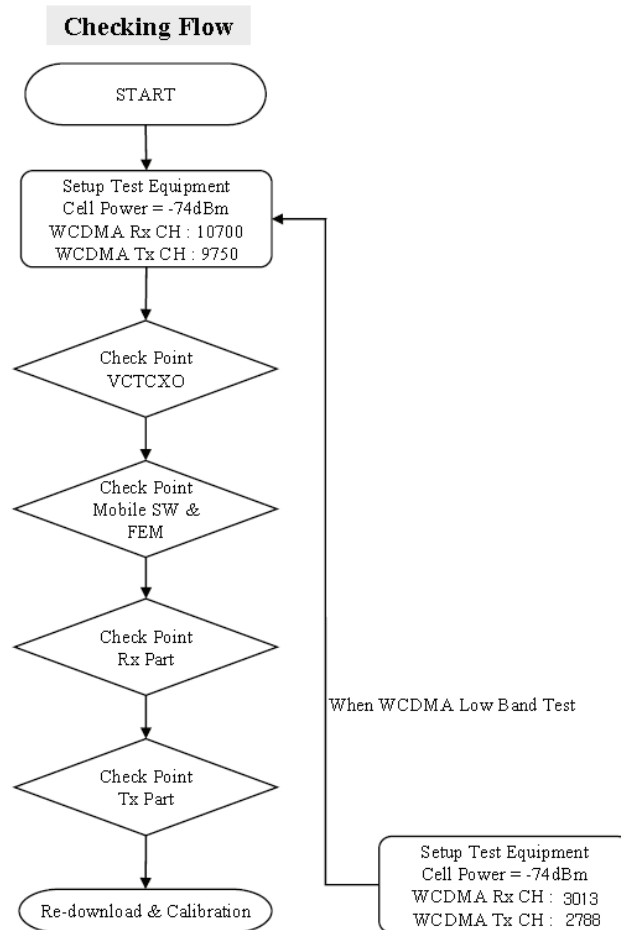
4.3.4 Checking GSM Txpart



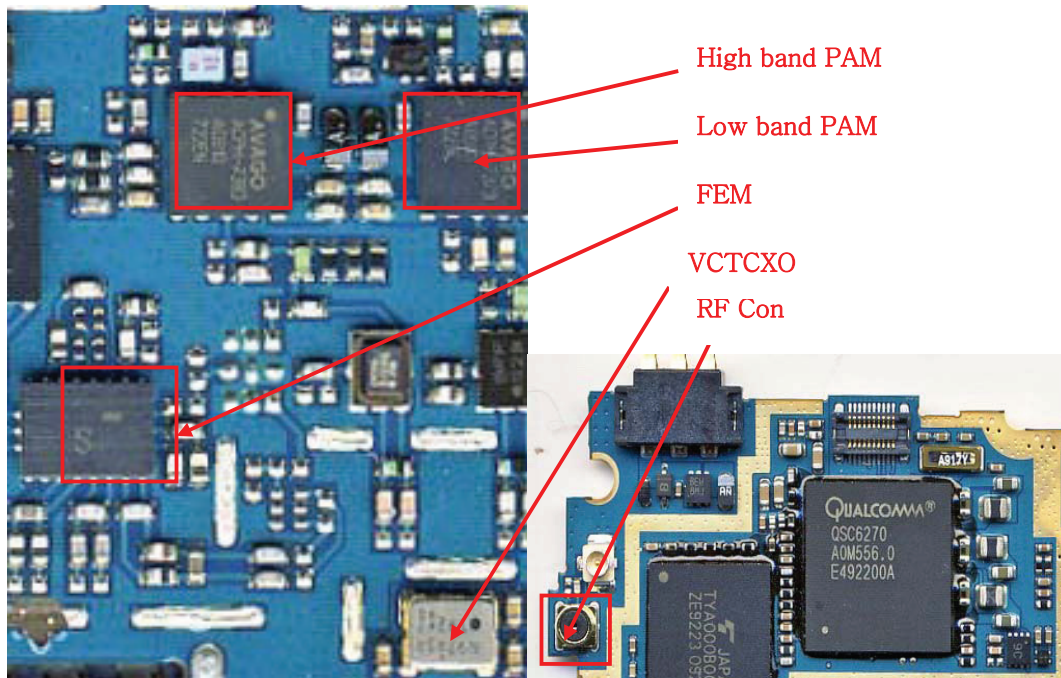
4. TROUBLE SHOOTING



4.4 Trouble Shooting of WCDMA part



4. TROUBLE SHOOTING



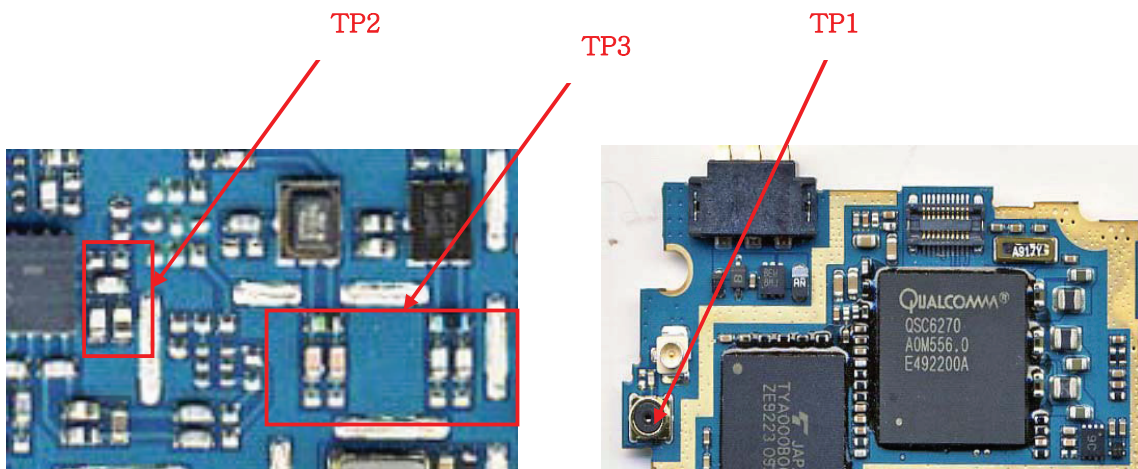
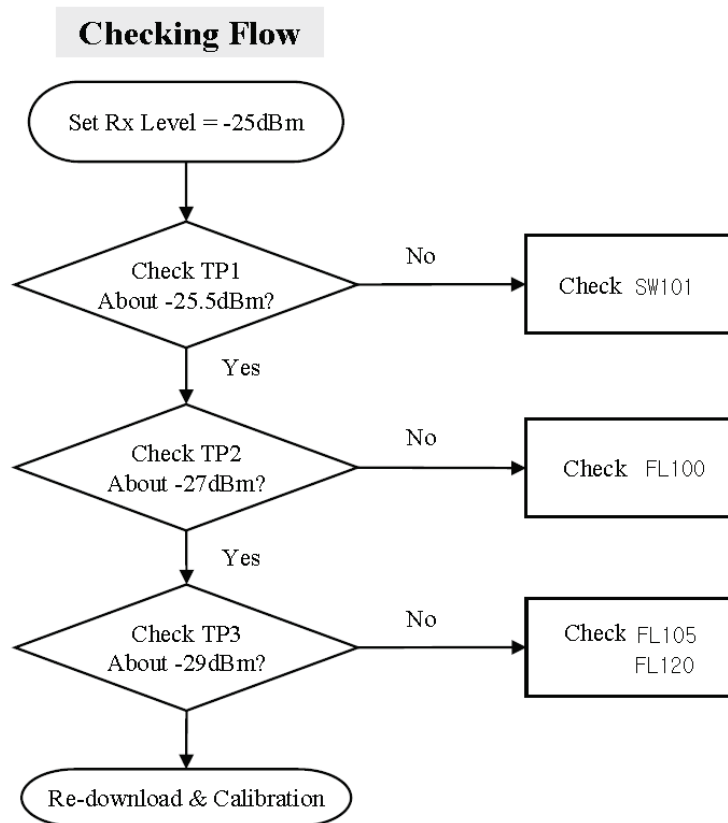
4.4.1 Checking VCTCXO

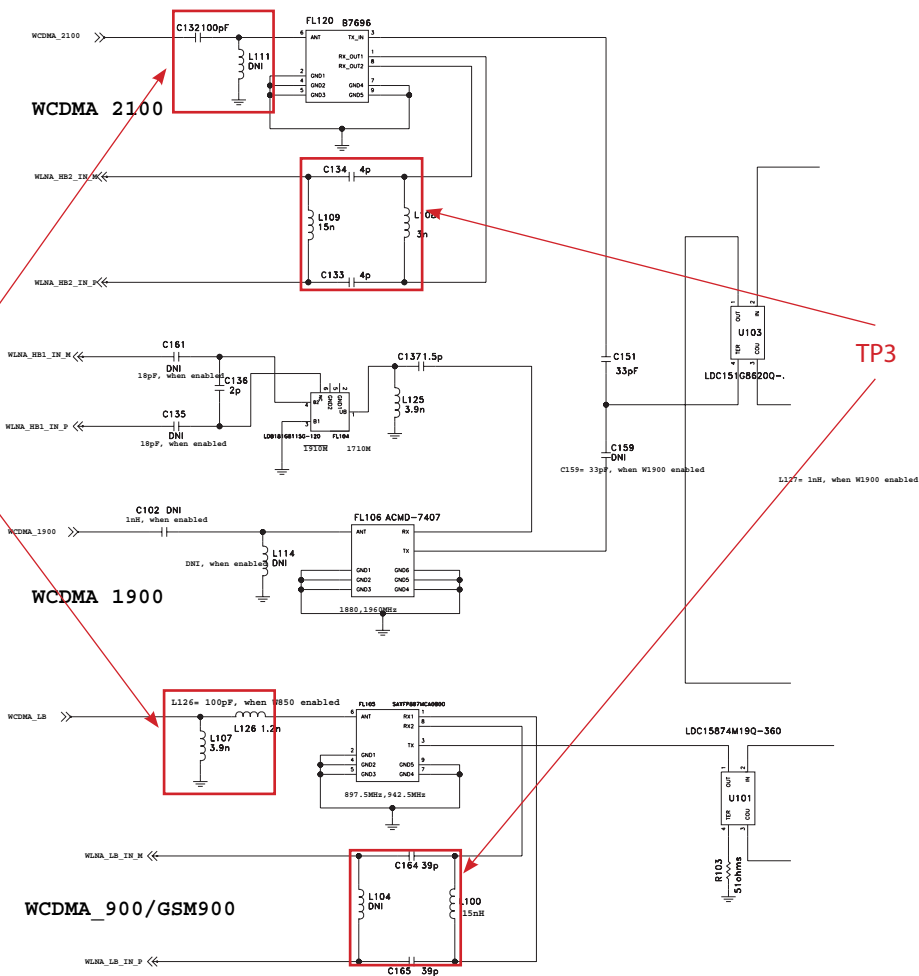
Refer to GSM Part (4.3.1)

4.4.2 Checking Mobile SW & FEM

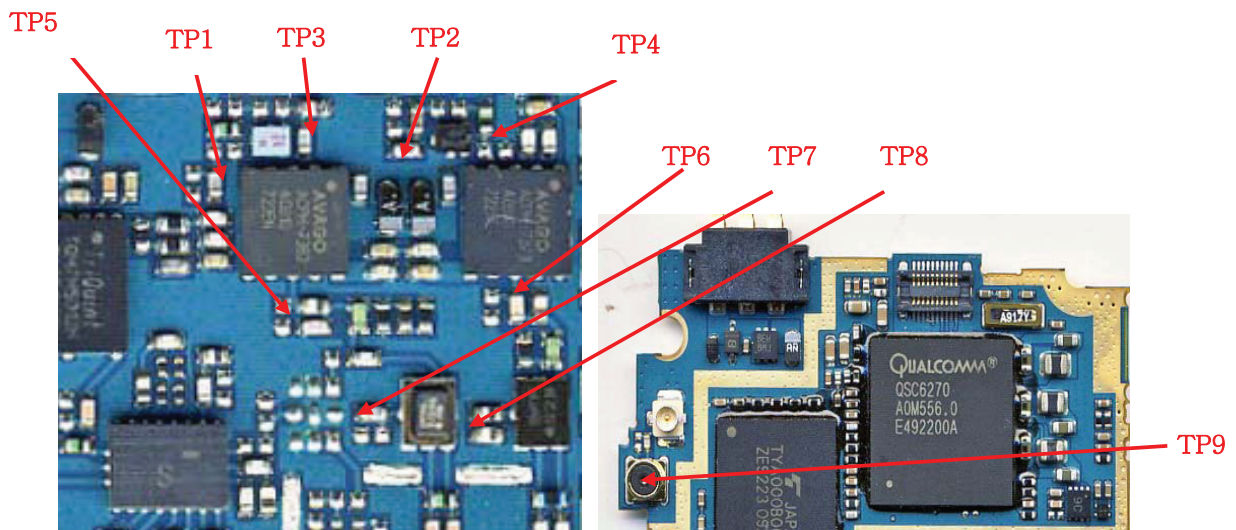
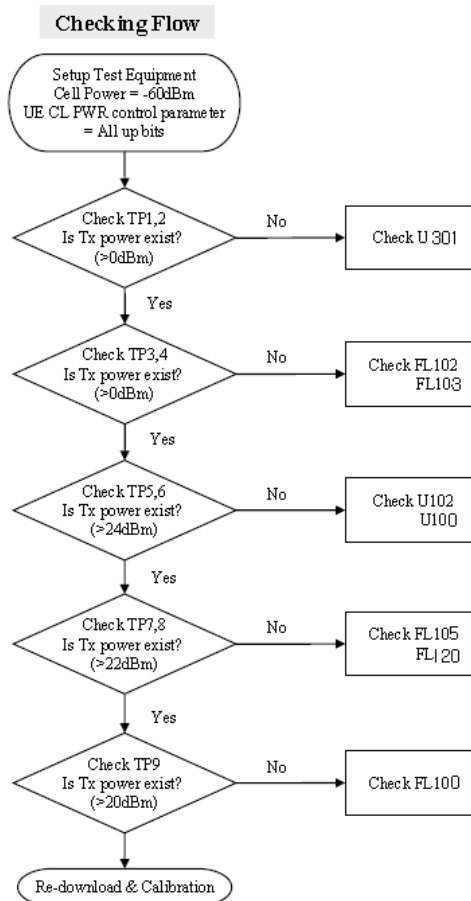
Refer to GSM Part (4.3.2)

4.4.3 Checking WCDMA Rx

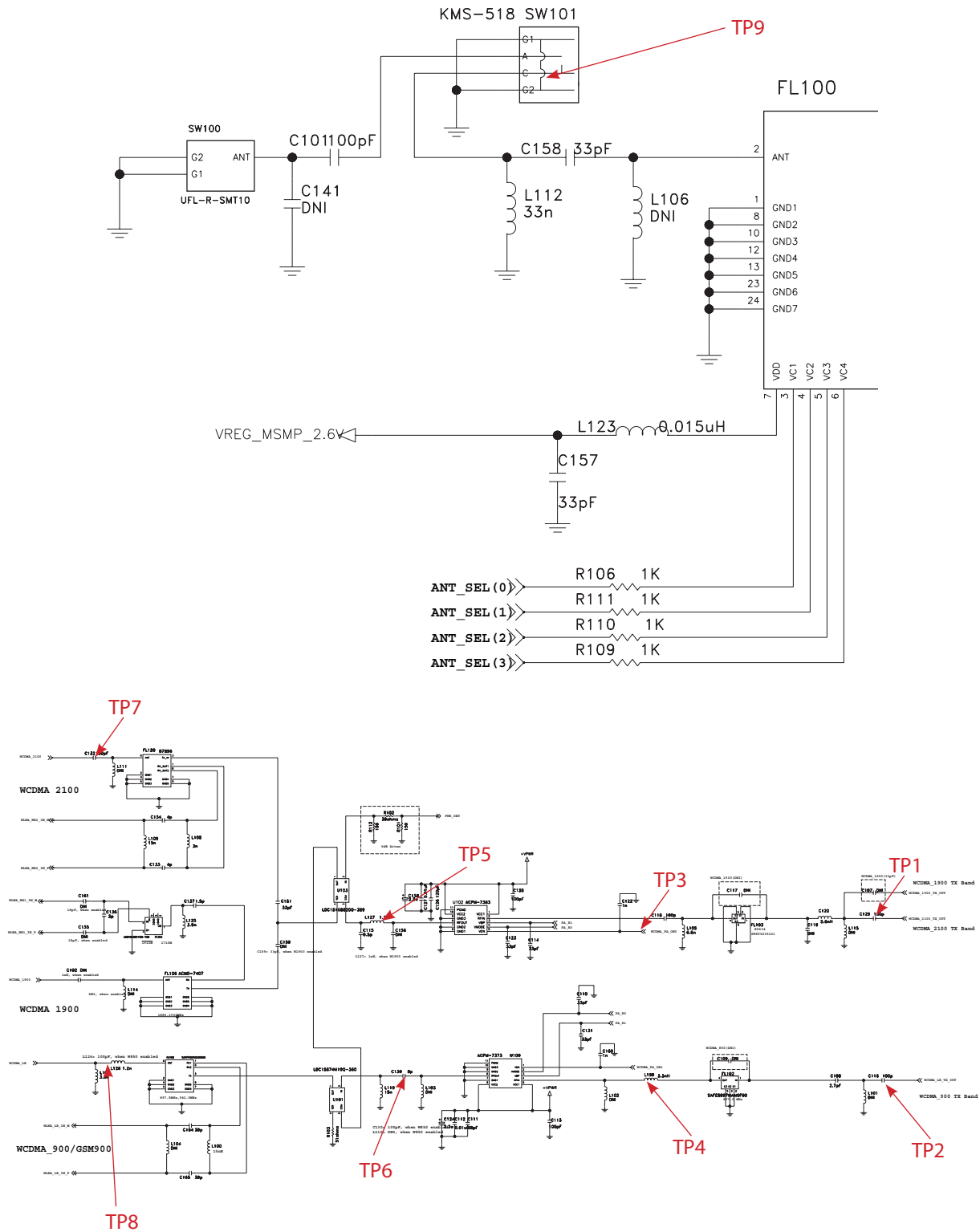




4.4.4 Checking WCDMA Tx part

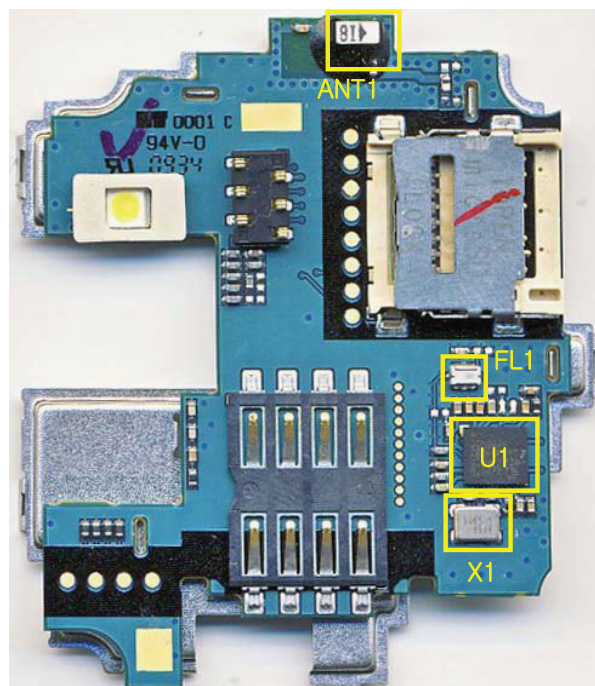


4. TROUBLE SHOOTING



4.5 Checking Bluetooth Block

4.5.1 BLUETOOTH RF components



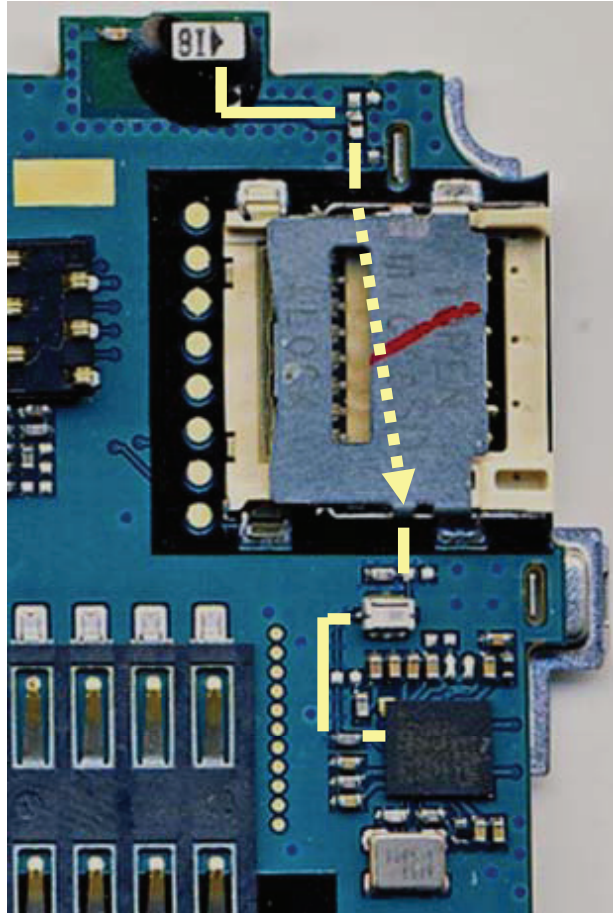
RF component (BT)

- Sub board bottom -

Reference	Description
ANT1	BT chip ANT (3 x1.5 X 1)
U1	BT module_BCM2070
FL1	Band pass filter
X1	26Mhz crystal

4. TROUBLE SHOOTING

4.5.2 BLUETOOTH SIGNAL PATH

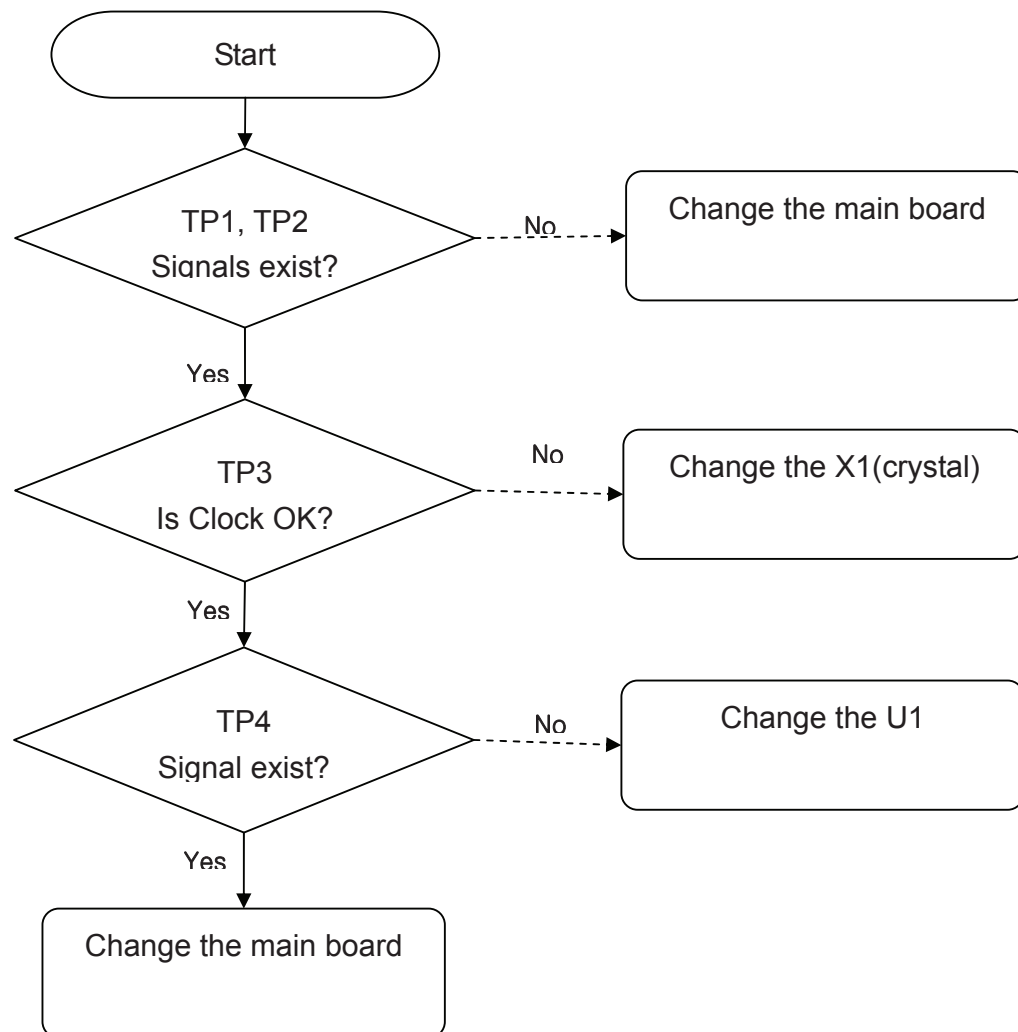


Bluetooth Signal PATH (sub board bottom)

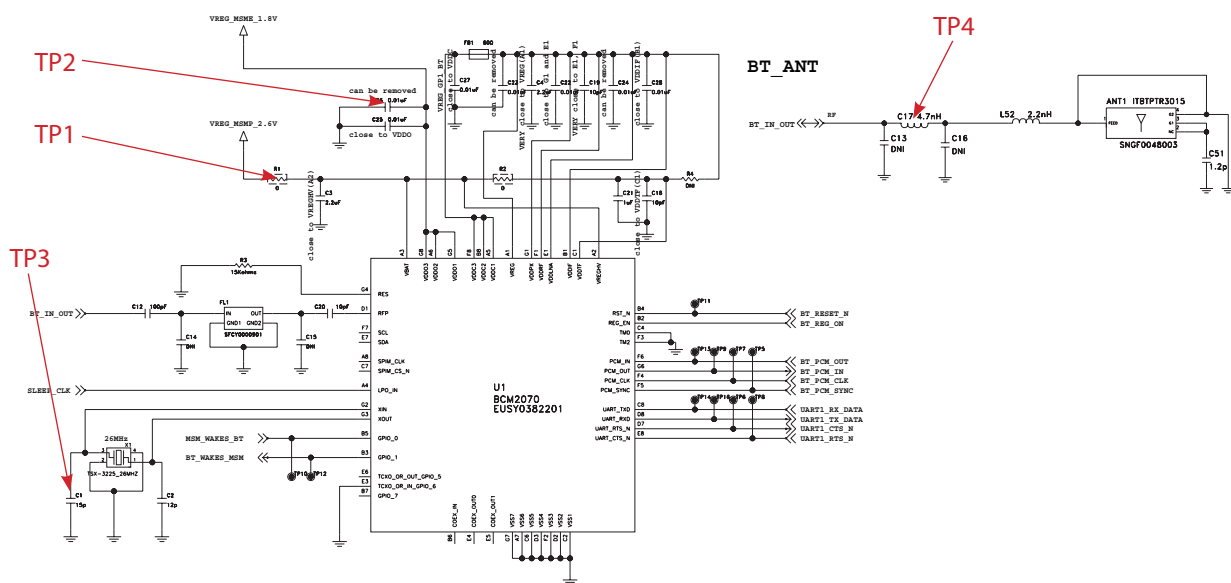
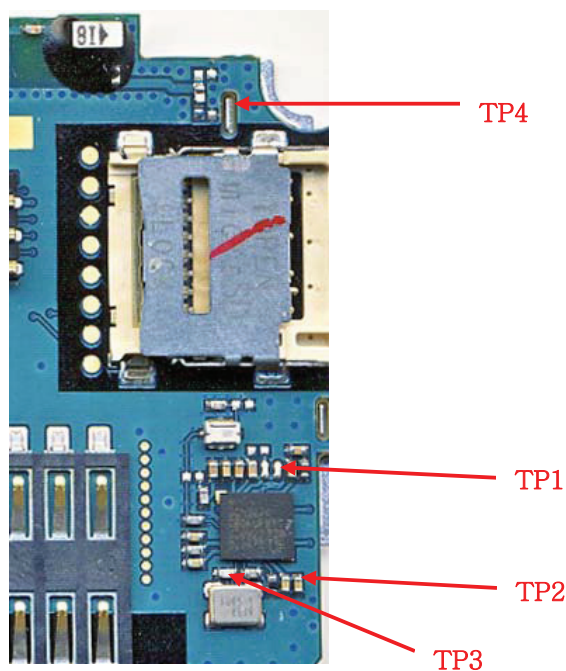
Bluetooth T/Rx PATH

4.5.3 BLUETOOTH Trouble shooting

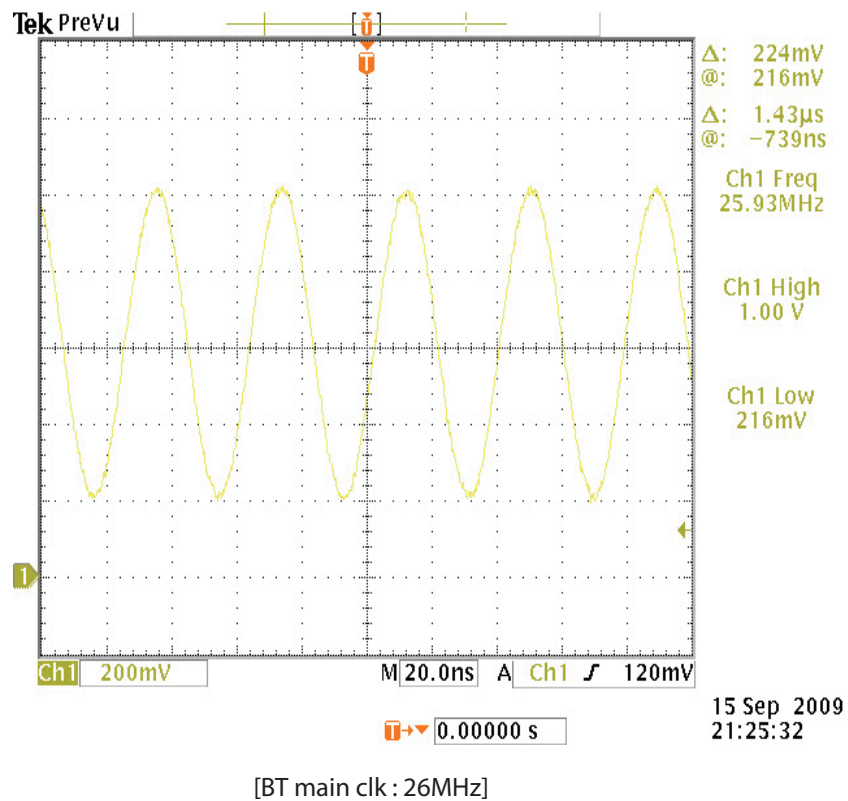
Checking Flow



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



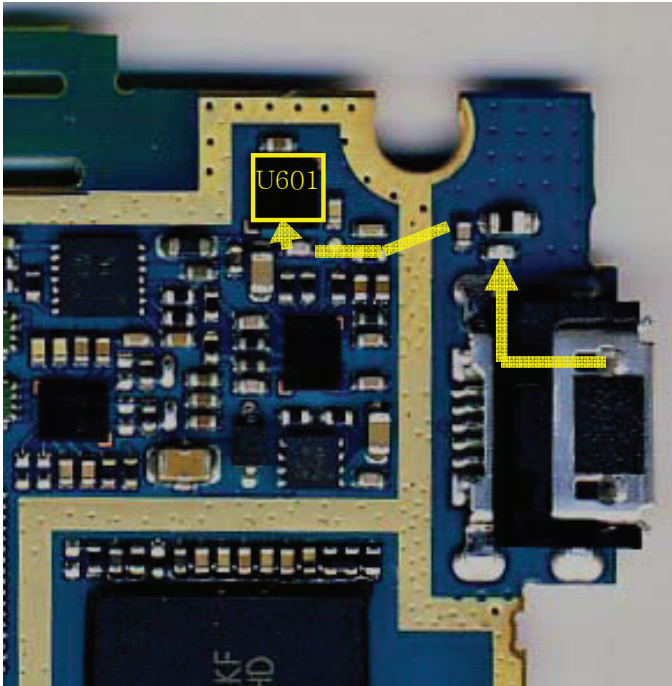
4. TROUBLE SHOOTING



4. TROUBLE SHOOTING

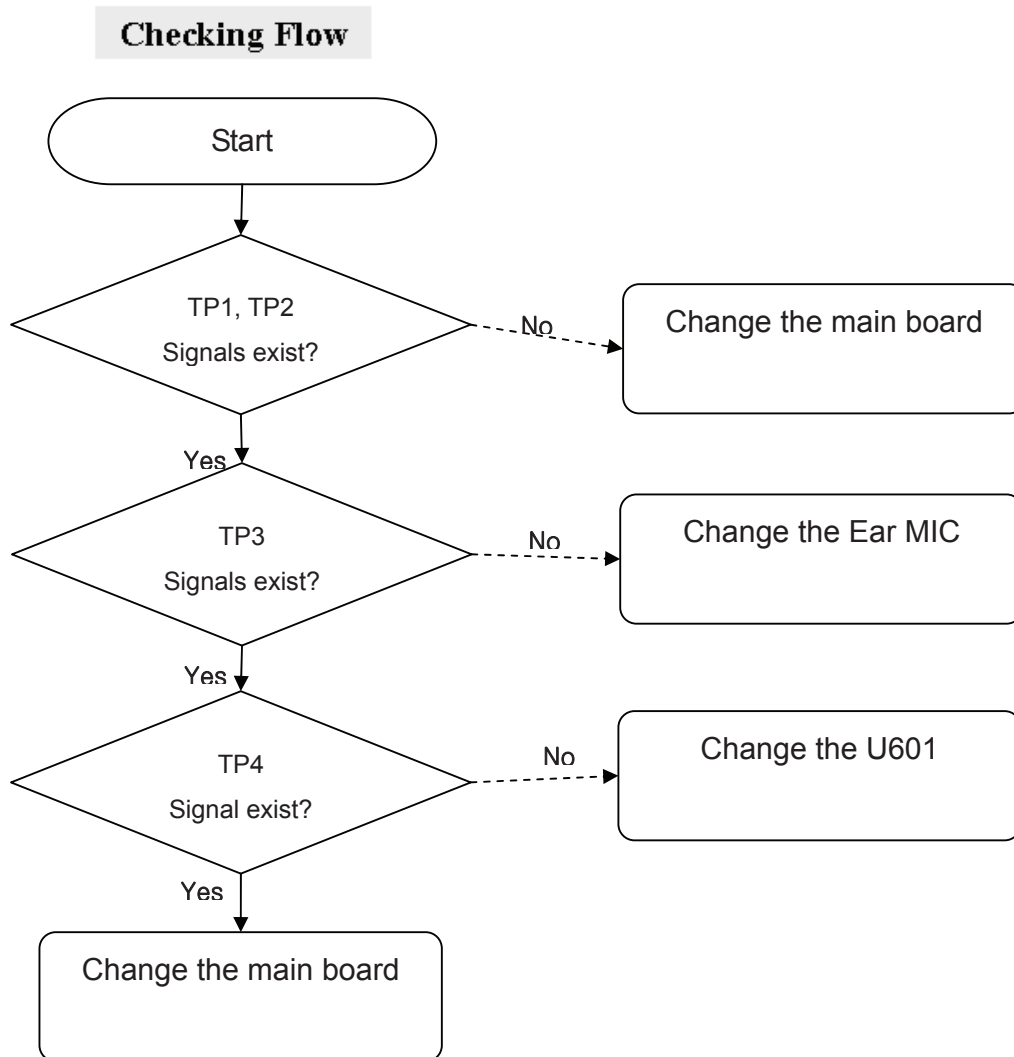
4.6 Checking FM Radio Block

4.6.1 BLUETOOTH RF components & FM Signal Path

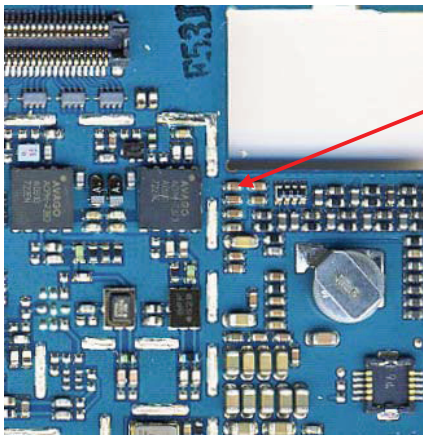
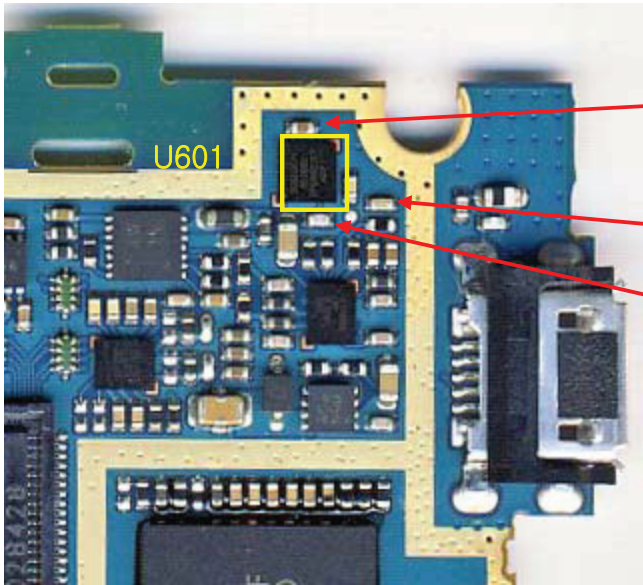


Reference	Description
U601	TEA5991(FM module)

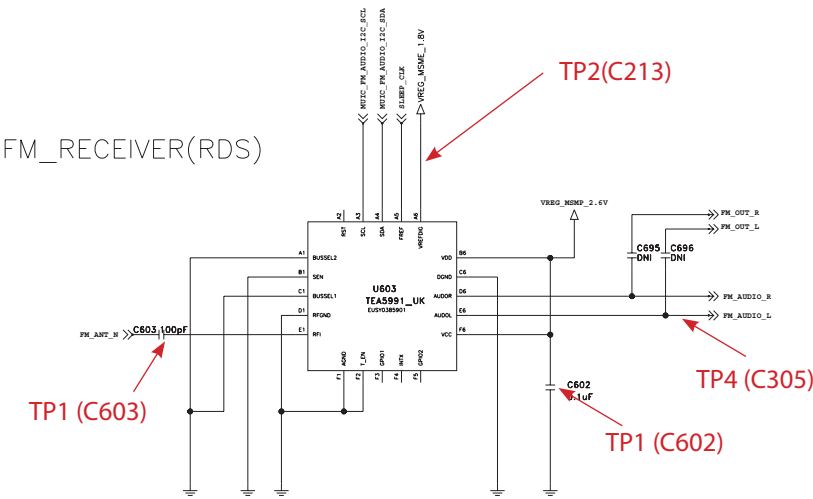
4.6.2 FM Trouble shooting



4. TROUBLE SHOOTING



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



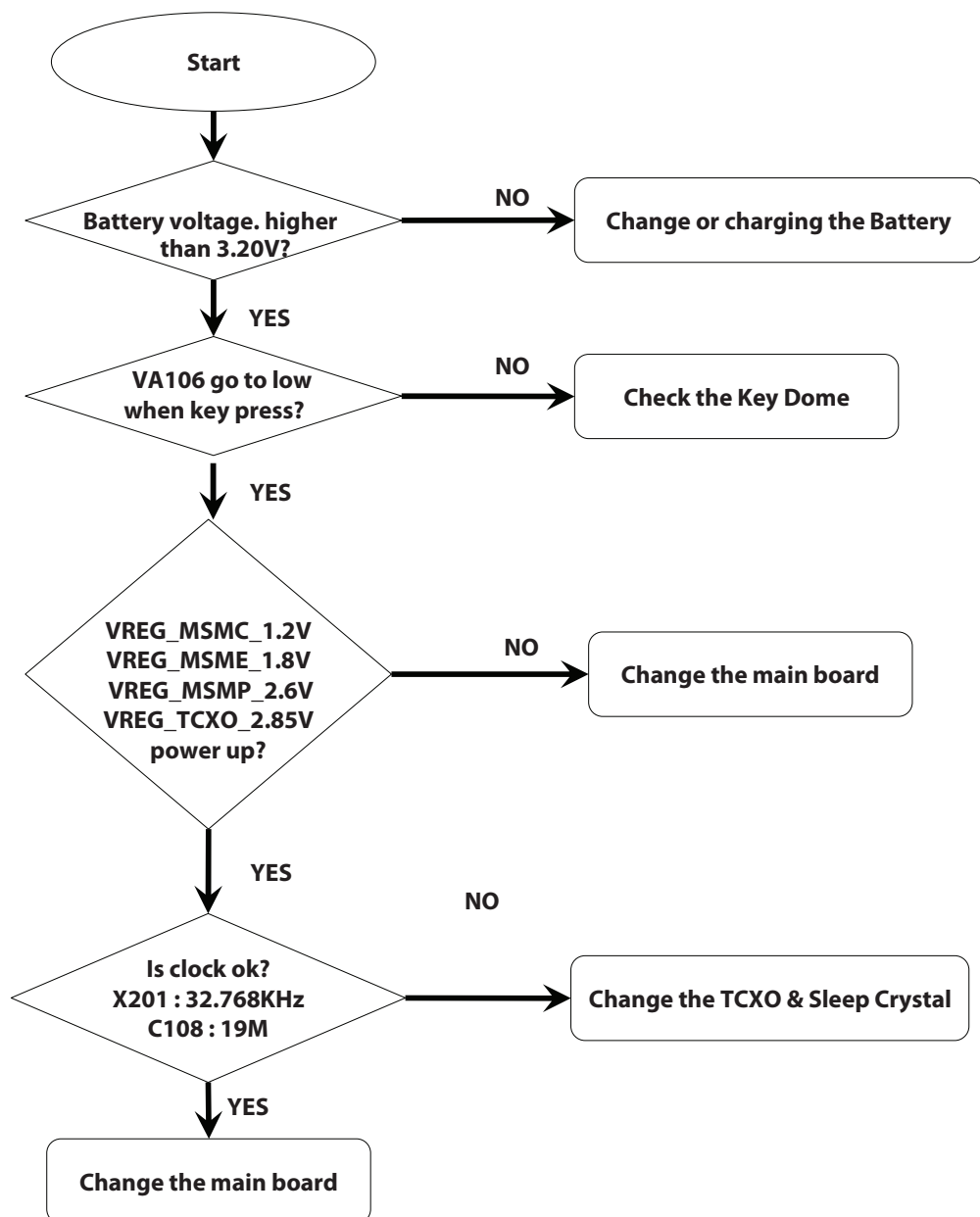
4.7 Power ON Troubleshooting

Power On sequence is :

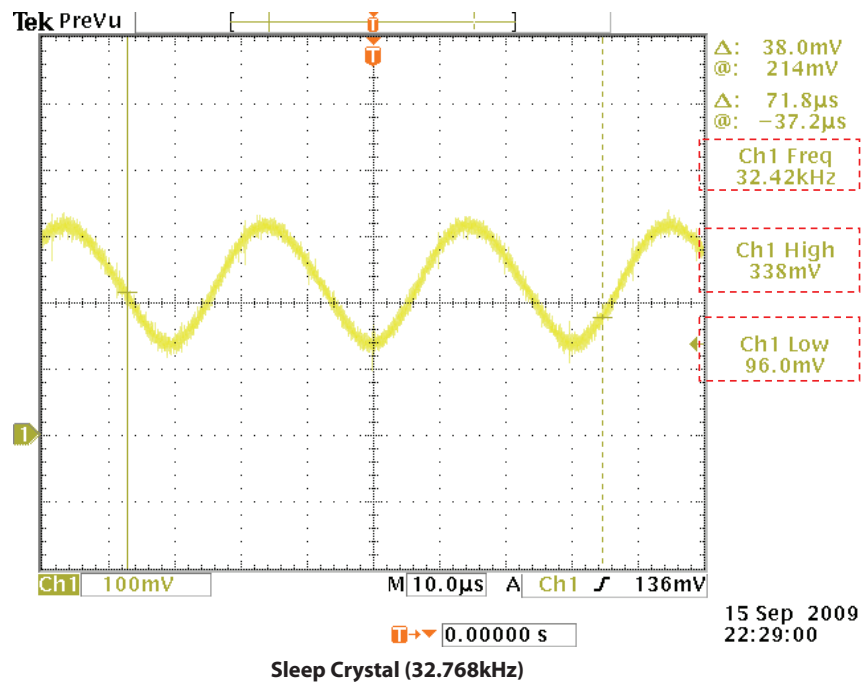
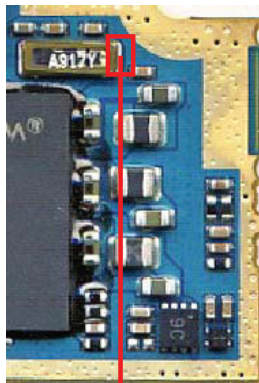
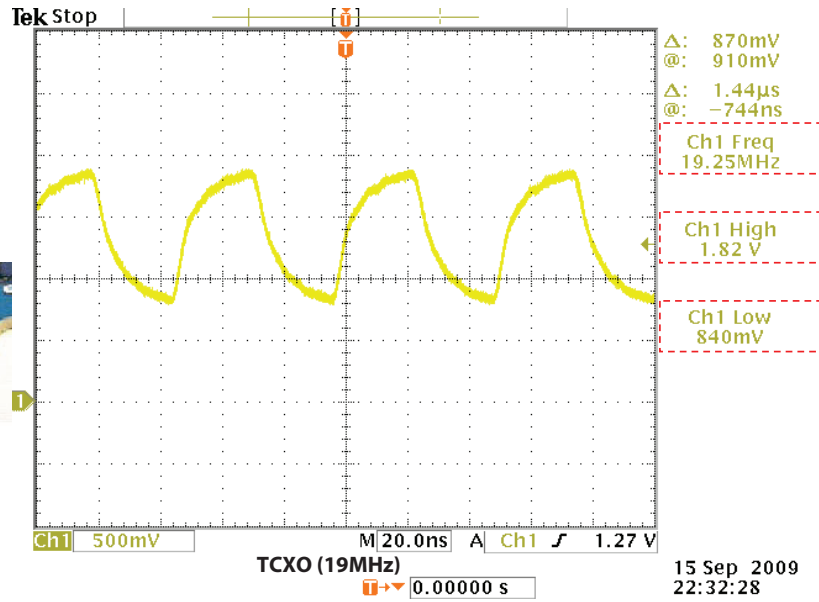
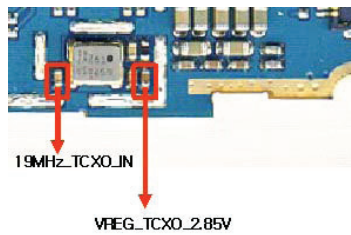
PWR key press PM_ON_SW_N → QSC6270 KPDPWR_N pin(AA2) go to low(KEY BOARD VA1) → QSC6270

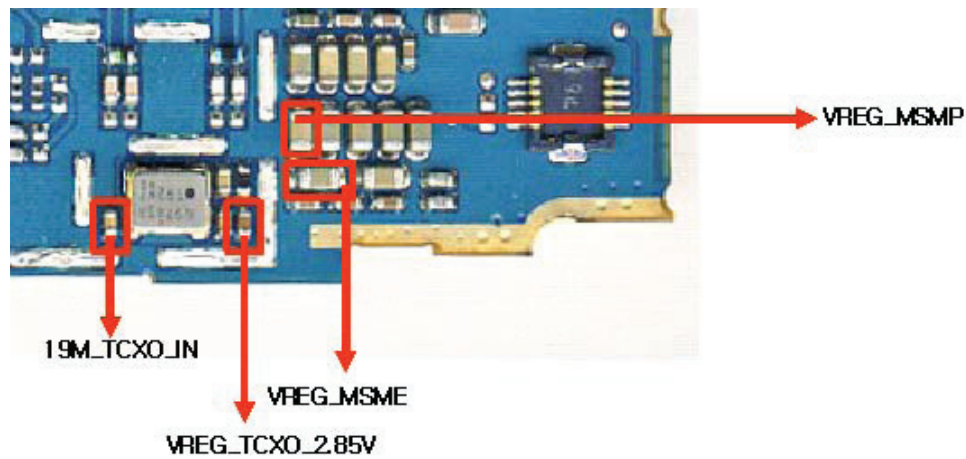
Power Up → VREG_MSMC_1.2V(C261), VREG_MSME_1.8V(C209), VREG_MSMP_2.6V(C414),

VREG_RFRX2_1.3V(C232), VREG_TCXO_2.85V(C239) power up and system reset assert to QSC6270 → Phone booting and PS_HOLD assert to QSC6270

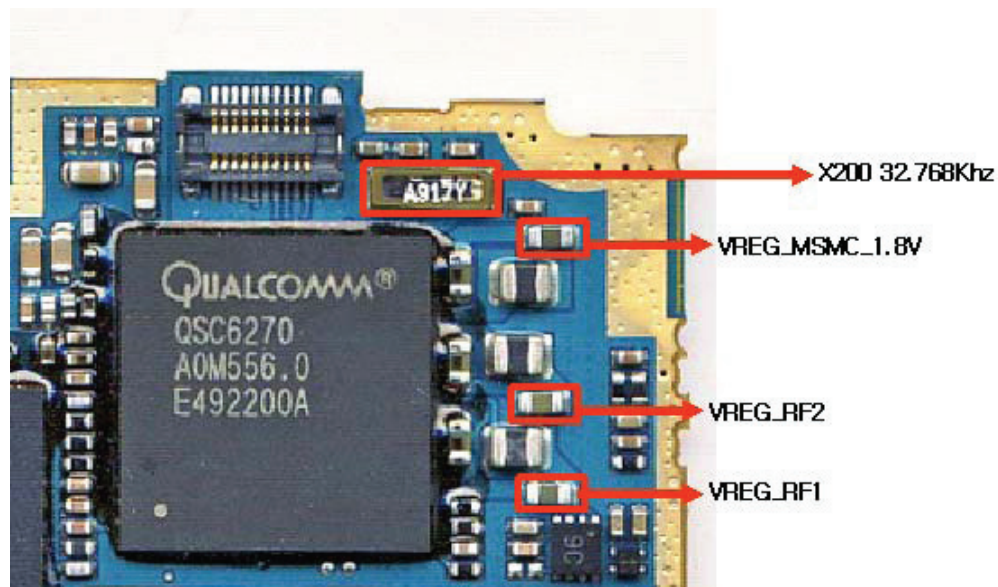


4. TROUBLE SHOOTING





MAIN TOP VIEW



MAIN BOTTOM VIEW

4. TROUBLE SHOOTING

4.8 Charger Troubleshooting

☞ Charging Procedure

- Connect TA or USB Cable
- Control the charging current by QSC6270
- Charging current flows into the battery

☞ Check Point

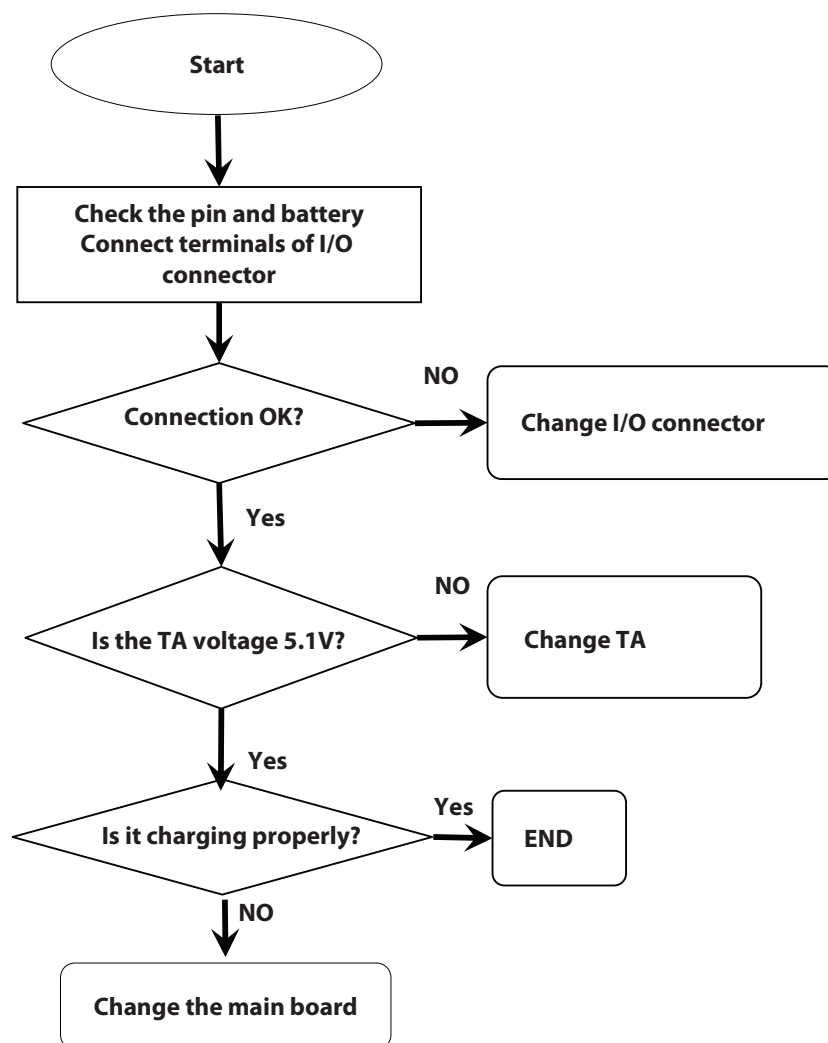
- Connection of TA or USB Cable
- Charging current path
- Battery

☞ Troubleshooting Setup

- Connect TA and battery to the phone

☞ Troubleshooting Procedure

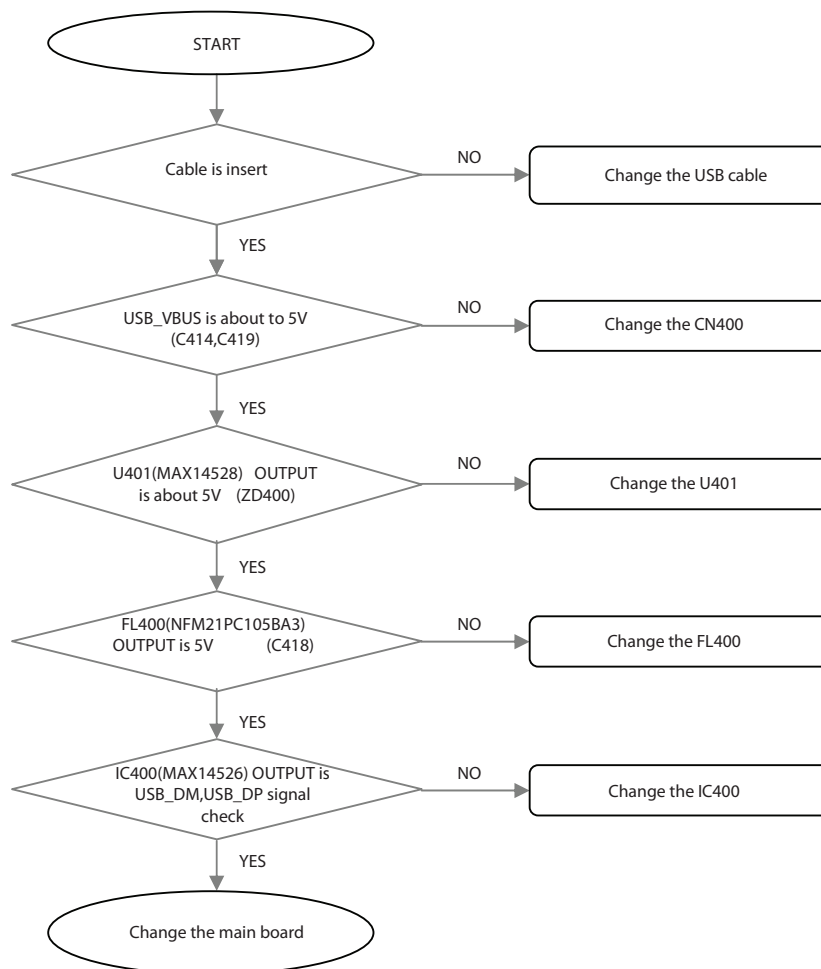
- Check the charger (TA or USB Cable) connector
- Check the charging current Path
- Check the battery



[Charger Troubleshooting Flow]

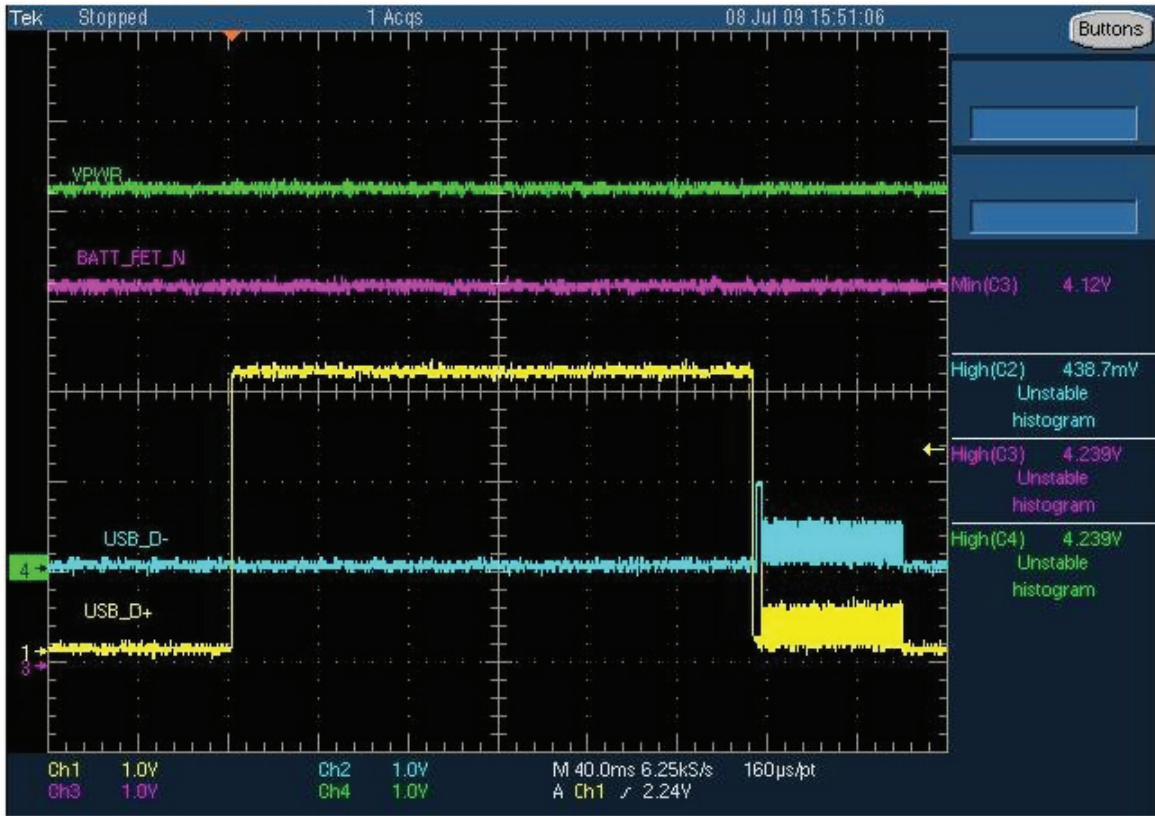
4.9 USB Troubleshooting

USB Initial sequence is : Insert USB Cable → USB_VBUS +5V Check → U410, FL400, IC400 triggered
USB IF work



[USB Troubleshooting Flow]

4. TROUBLE SHOOTING

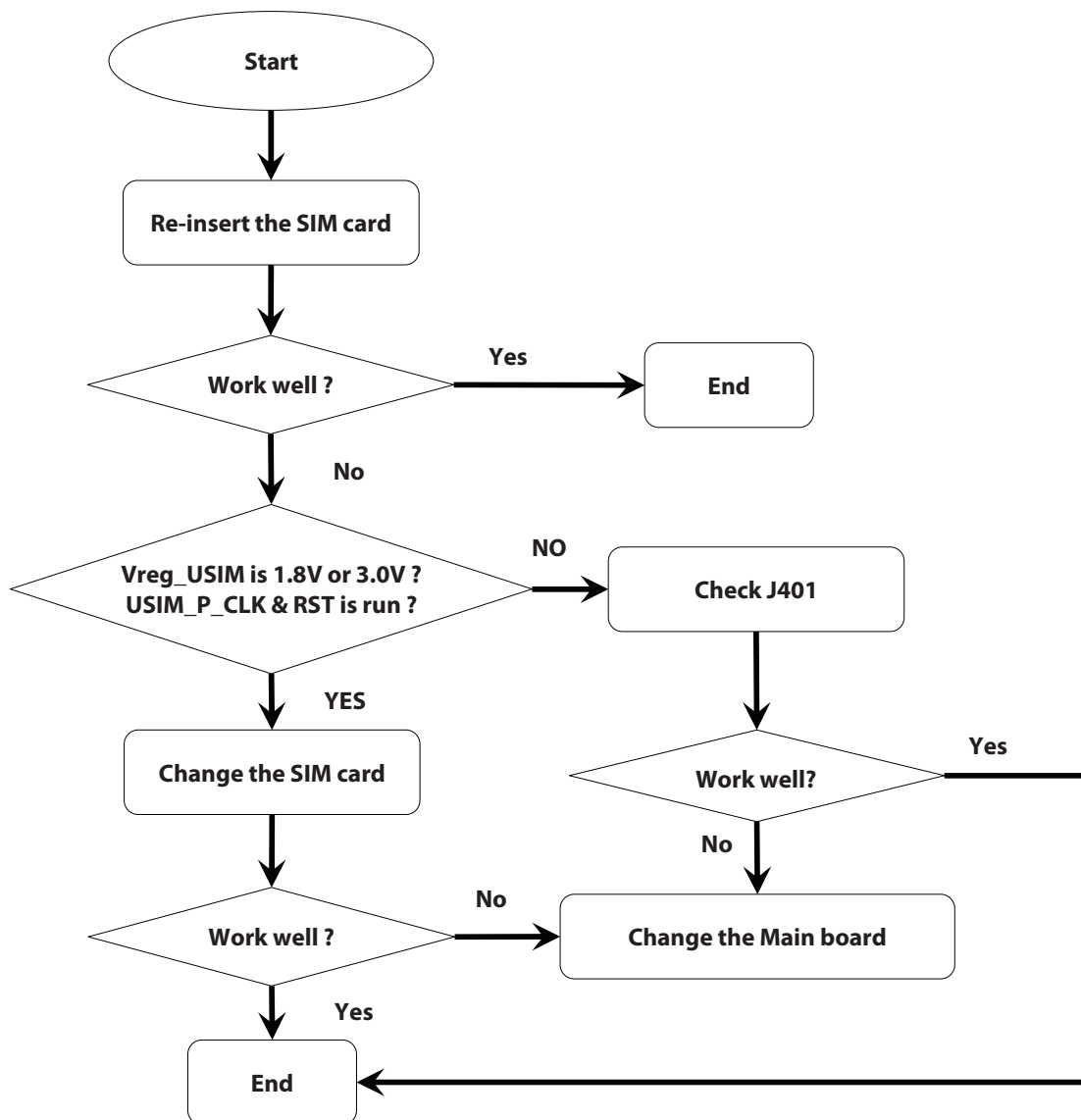


<Figure 3.7 Signal in USB connection>

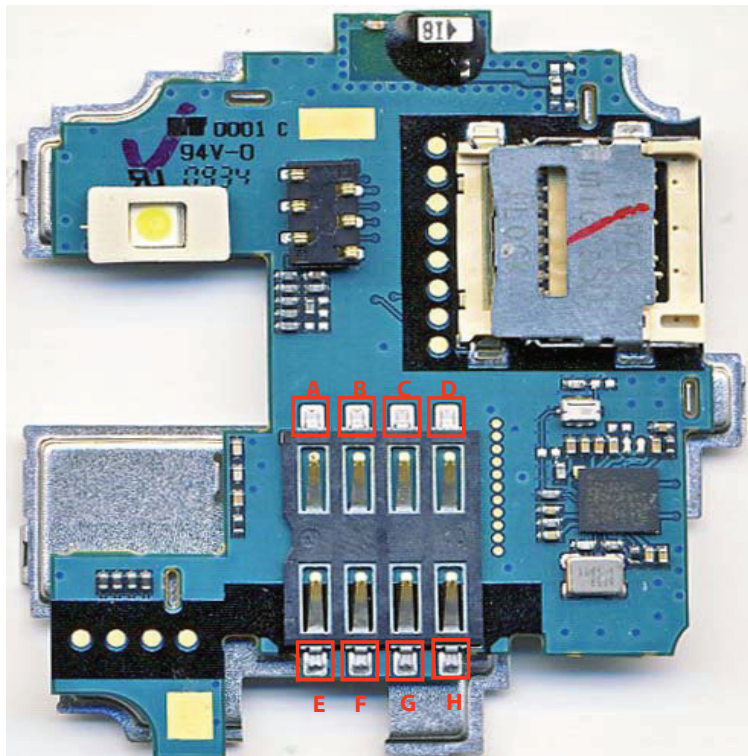
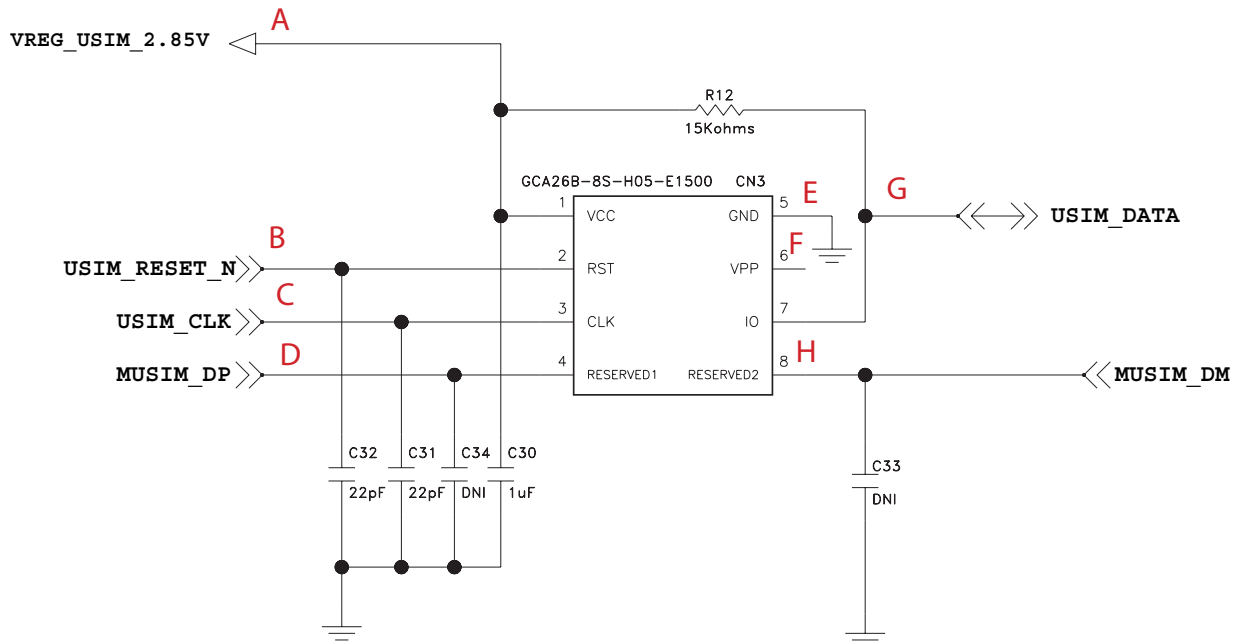
4.10 USIM Detect Troubleshooting

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



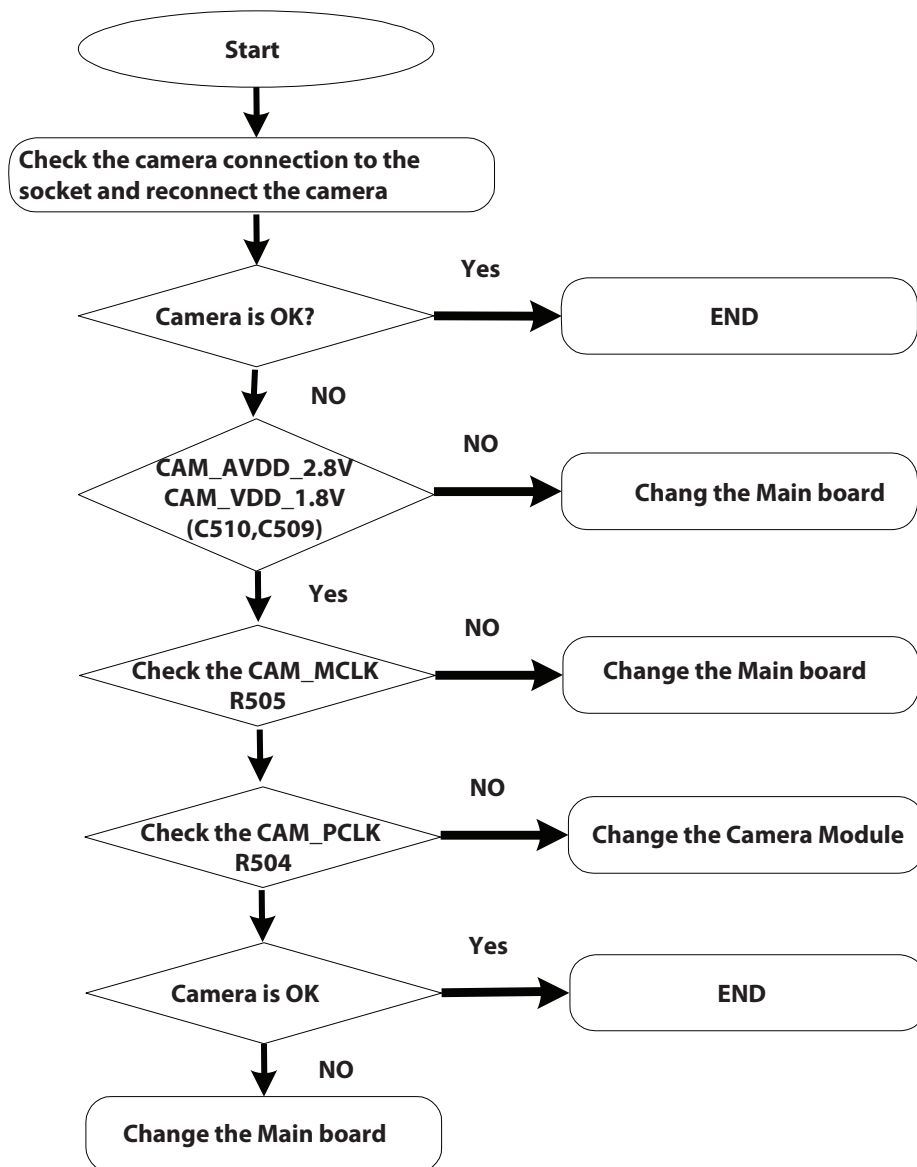
4. TROUBLE SHOOTING



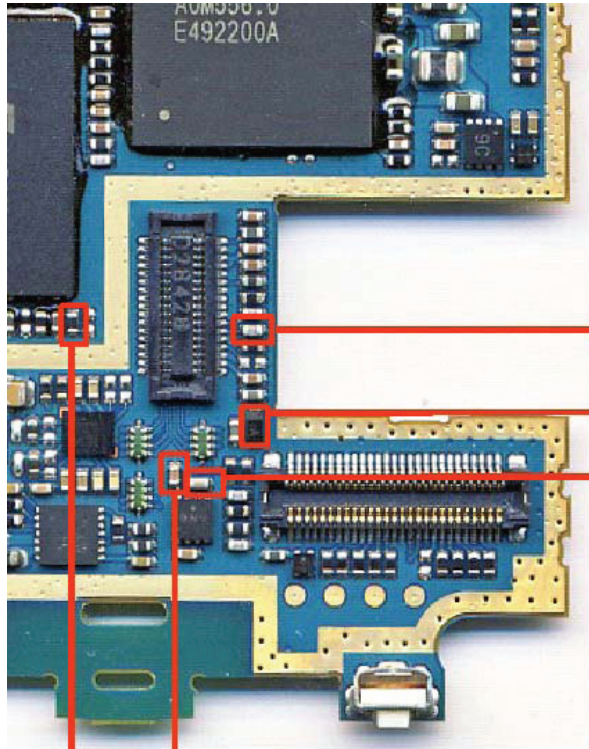
A:VREG_USIM_2.85V
B:USIM_RESET_N
C:USIM_CLK
D:MUSIM_DP
E:GND
F:NC
G:USIM_DATA
H:MUSIM_DM

4.11 Camera Troubleshooting

Camera control signals are generated by QSC6270.



4. TROUBLE SHOOTING

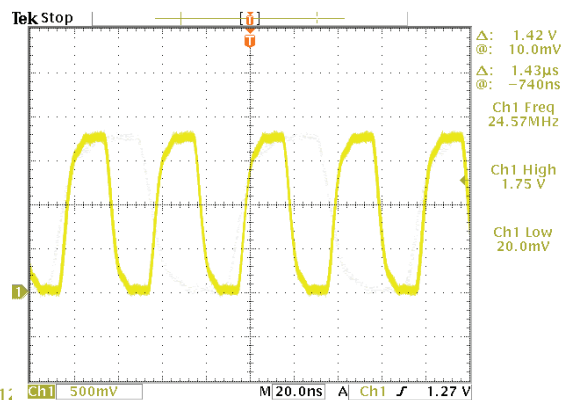


CAM_MCLK 24 MHz

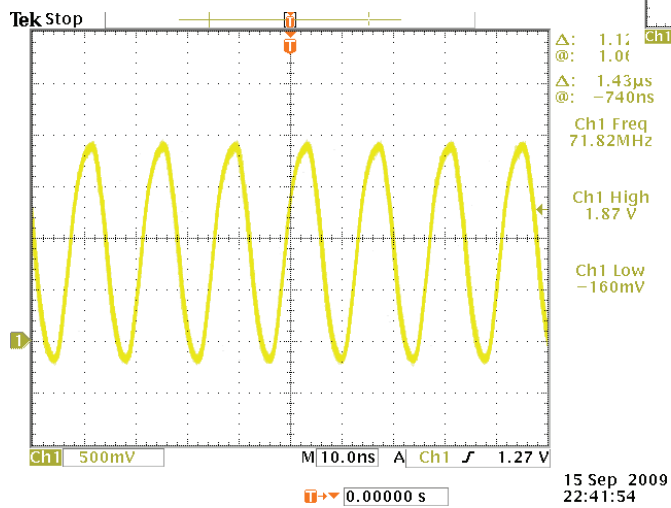
CAM_VDD_AF 2.8V

CAM_VDD 1.8V

CAM_AVDD 2.8V
CAM_PCLK 70MHz



CAM_24MHz MCLK

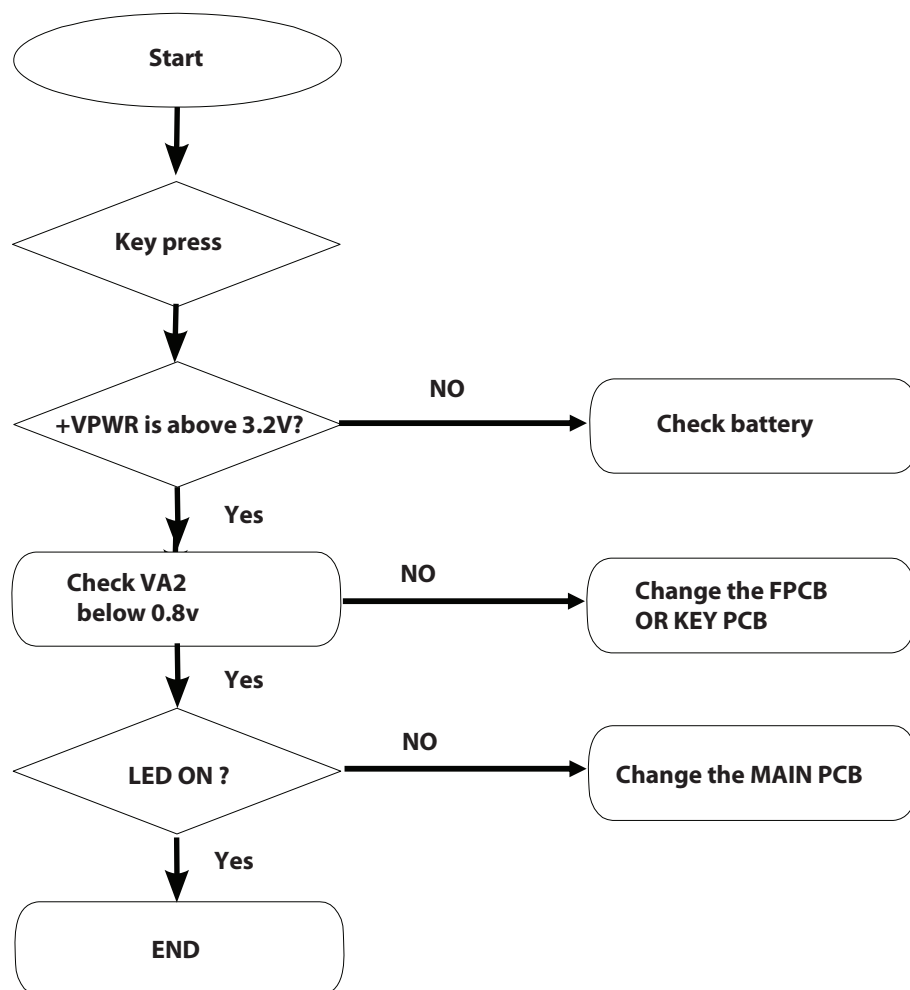


CAM_70MHz PCLK

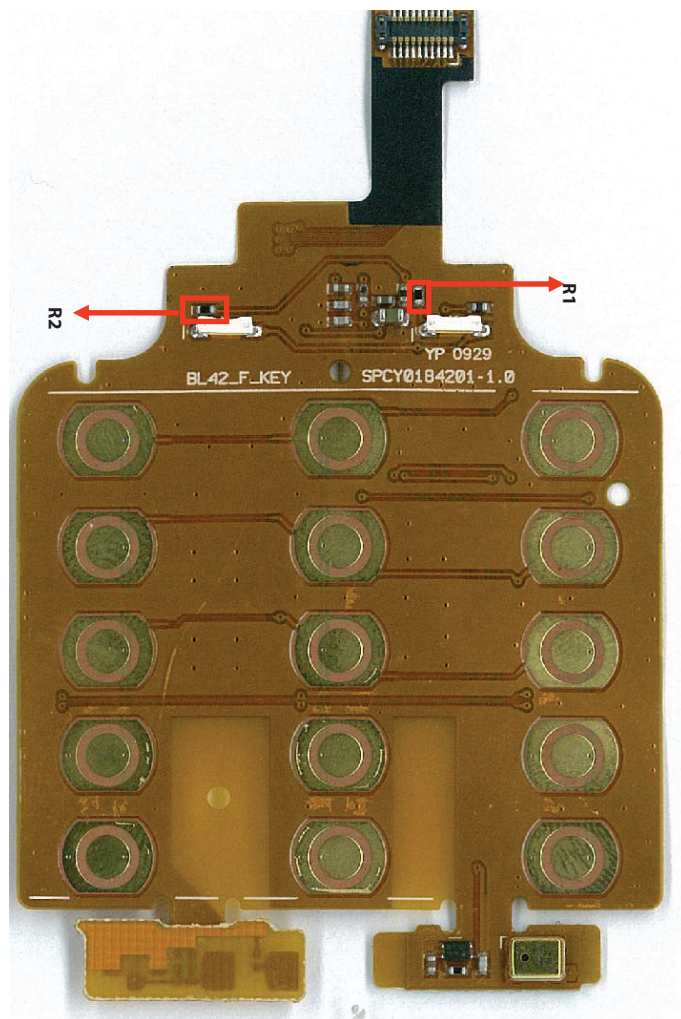
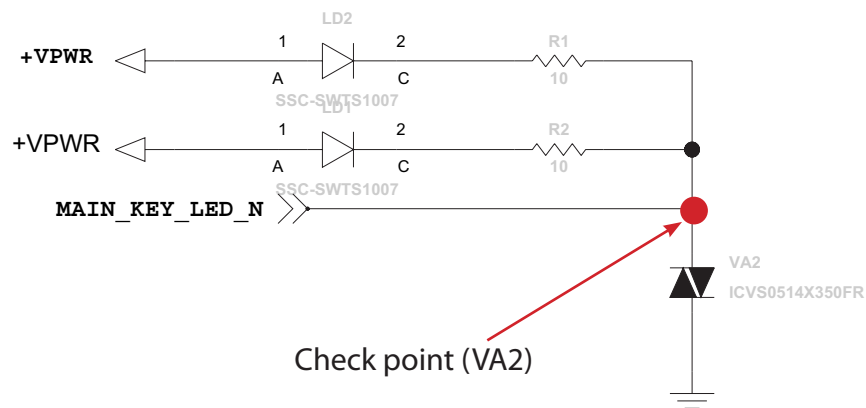
4.12 Main side view LED Troubleshooting

MAIN Key Pad LED is on as below :

Key pressing → LED_CON go down low (below 0.8v) → MAIN Key Backlight LED On



4. TROUBLE SHOOTING

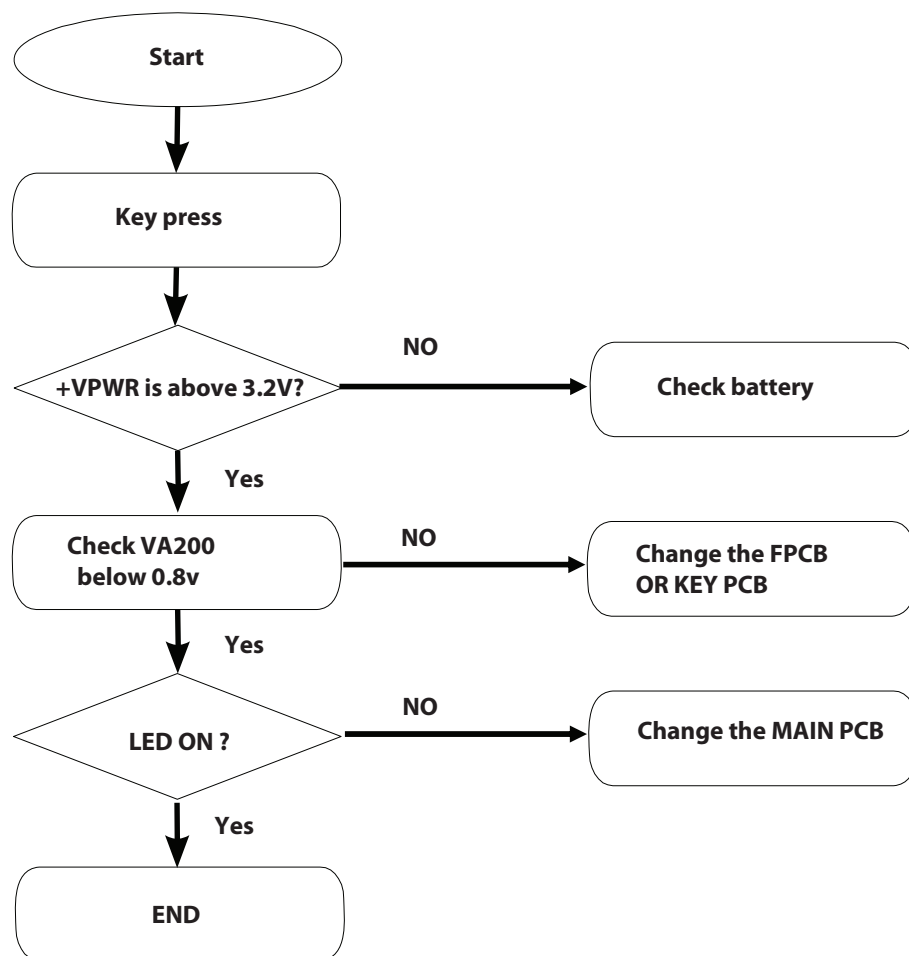


[Main KEY PCB TOP]

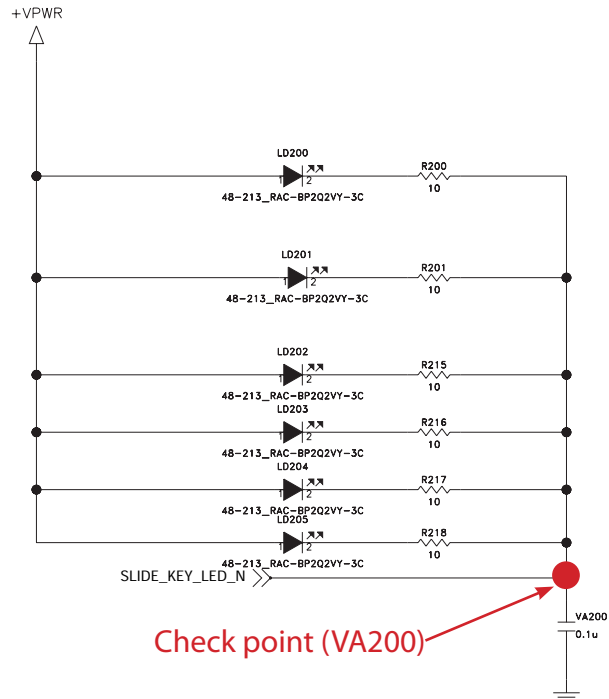
4.13 Slide Key side view LED Troubleshooting

Sub Key Pad Slide is on as below :

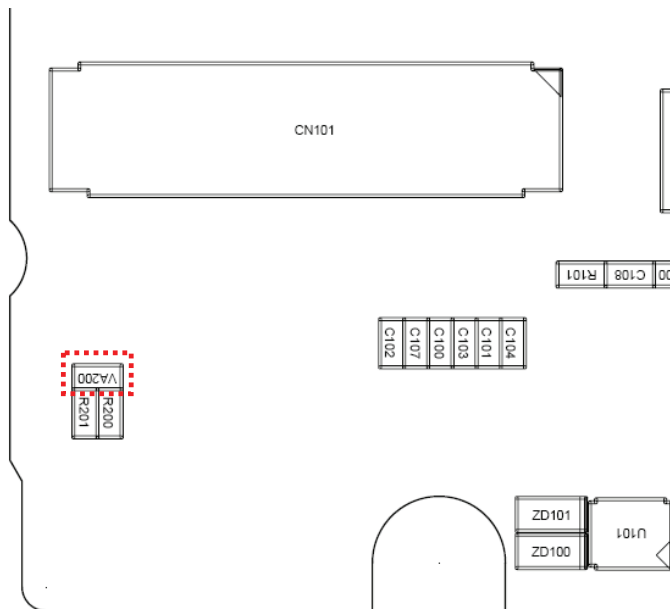
Key pressing → LED_CON go down low (below 0.8v) → Sub Key Backlight LED On



4. TROUBLE SHOOTING



[Slide Side view schematic]

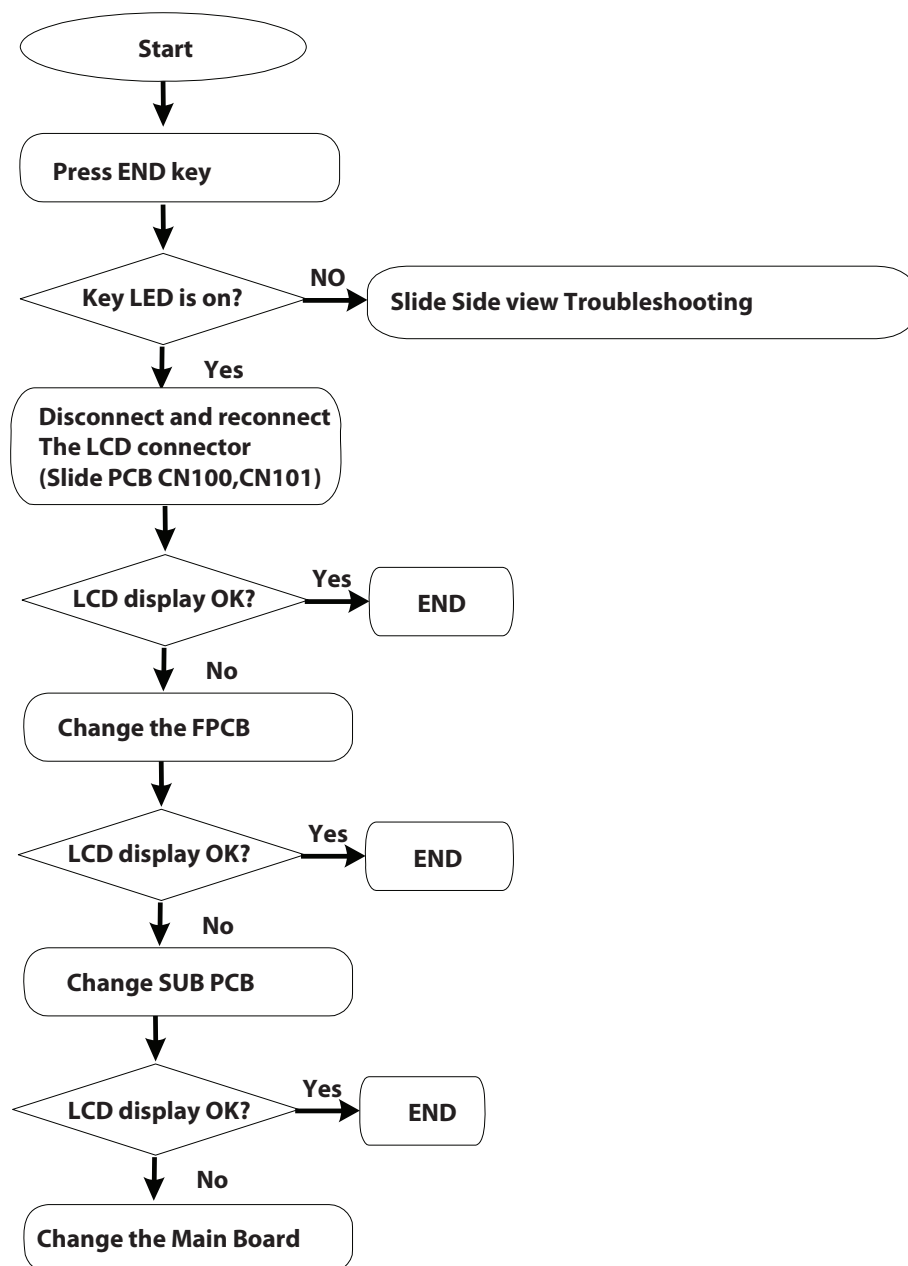


[Slide Side view placement]

4.14 LCD Troubleshooting

LCD control signals are generated by QSC6270.

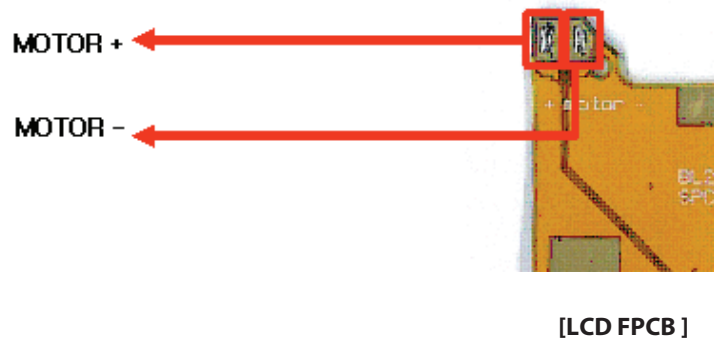
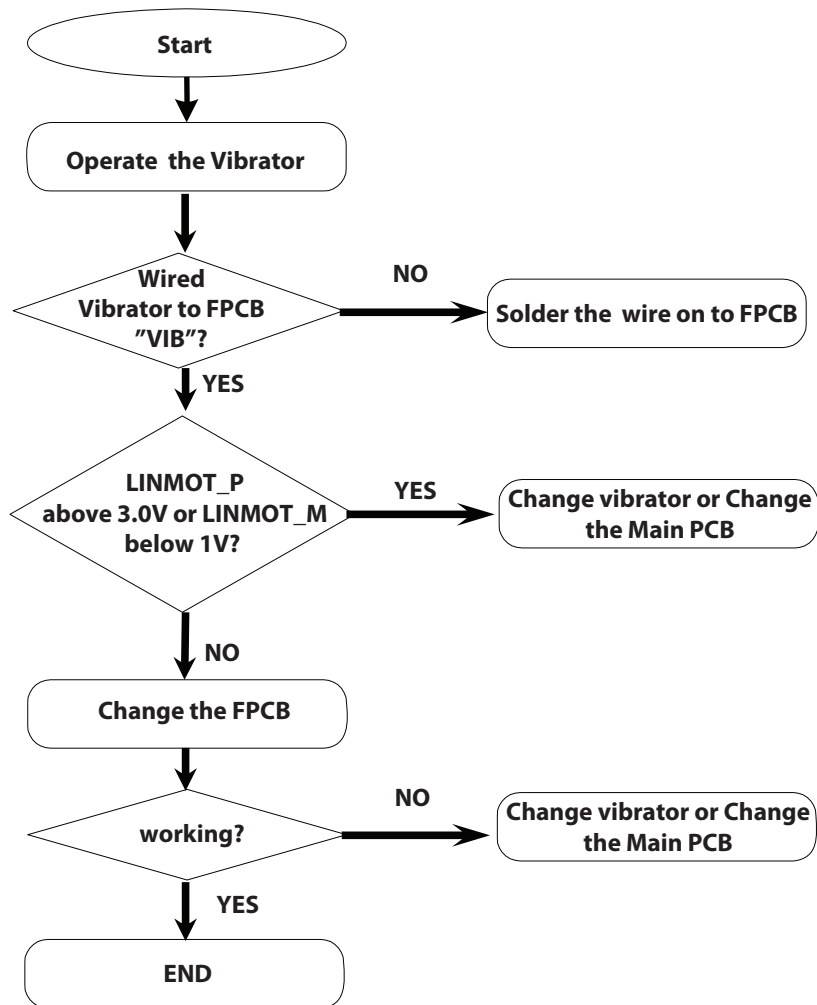
The signal path is : QSC6270 → CN102 → LCD Module





4.15 Vibrator Troubleshooting

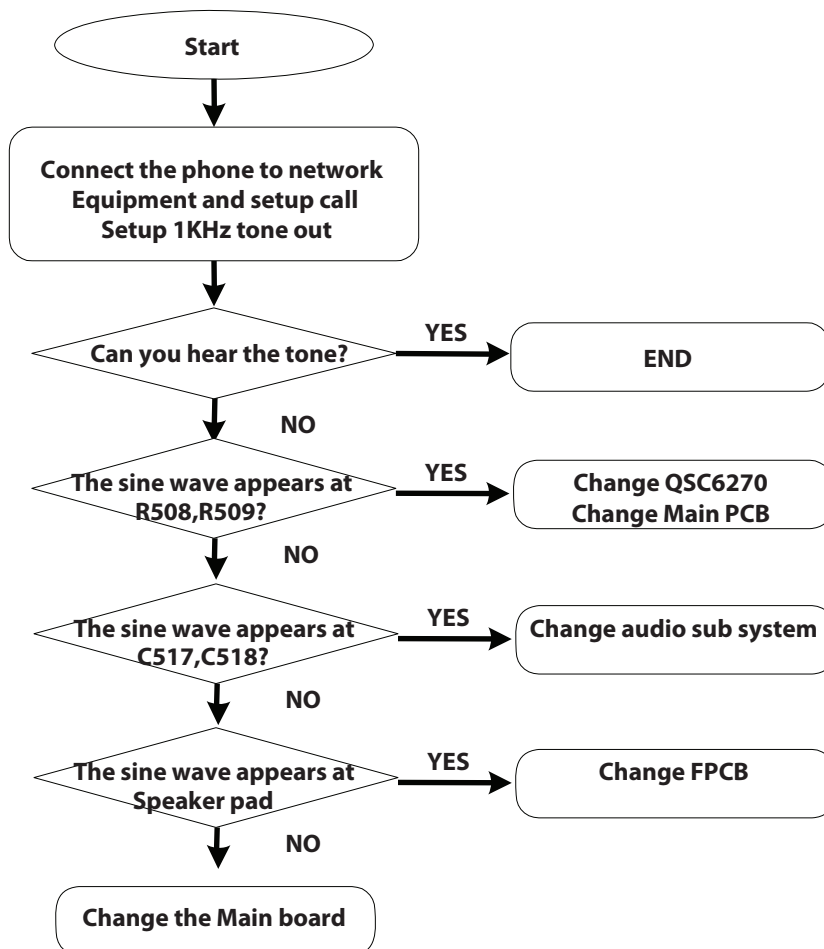
Vibrator is operate when DC motor driver is enabled.



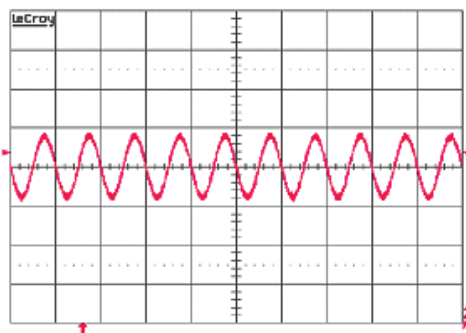
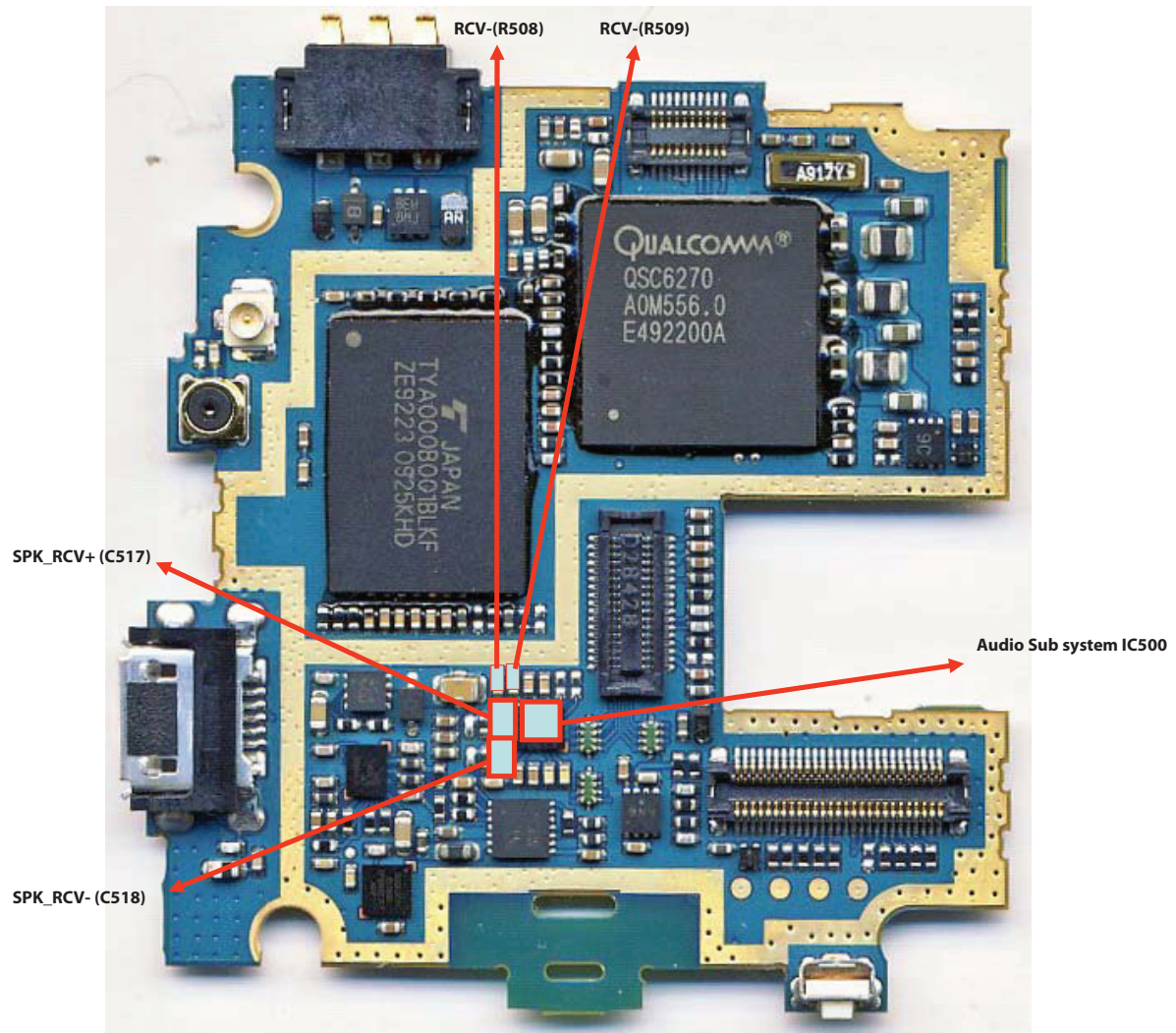
4. TROUBLE SHOOTING

4.16 Receiver Path

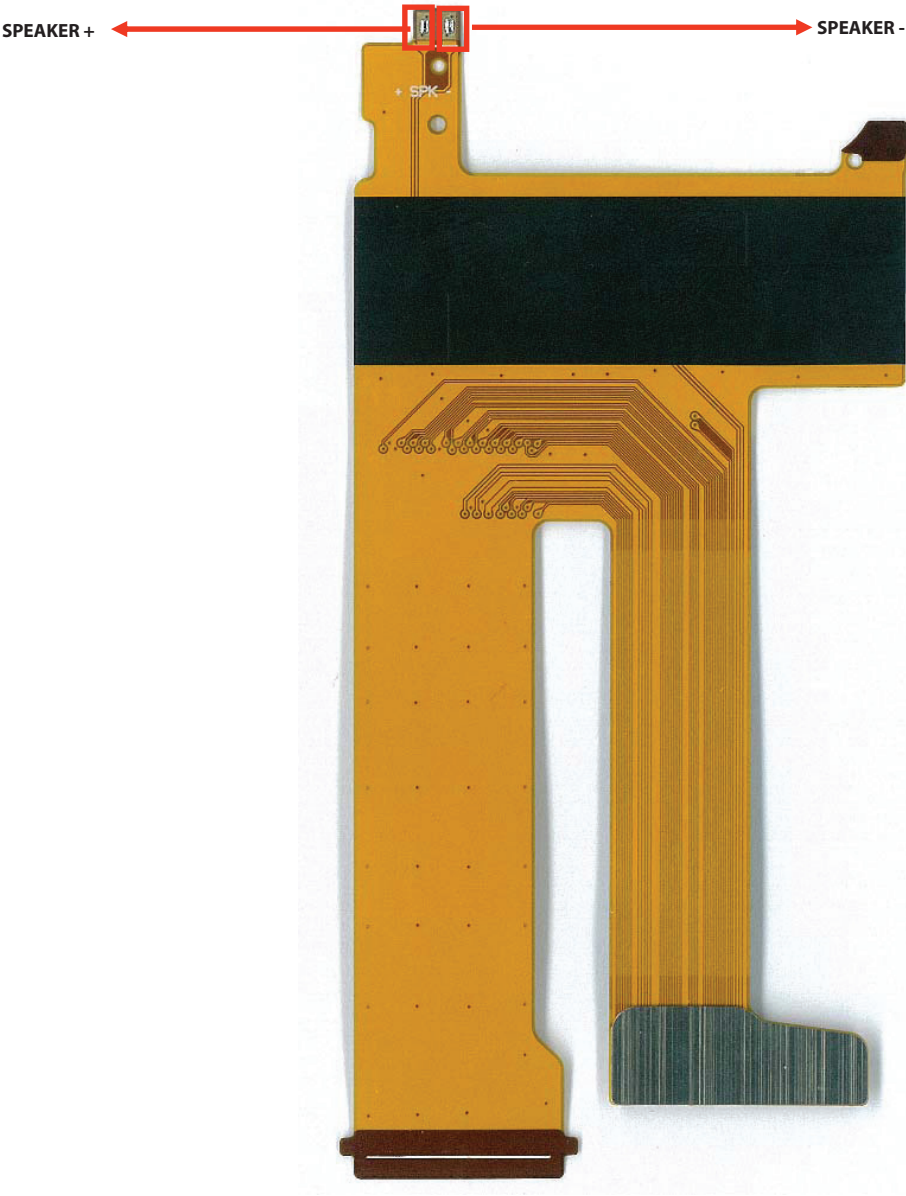
QSC6270 RCV R508,R509 → C517,C518 → Audio sub system → FPCB Speaker Pad



4. TROUBLE SHOOTING

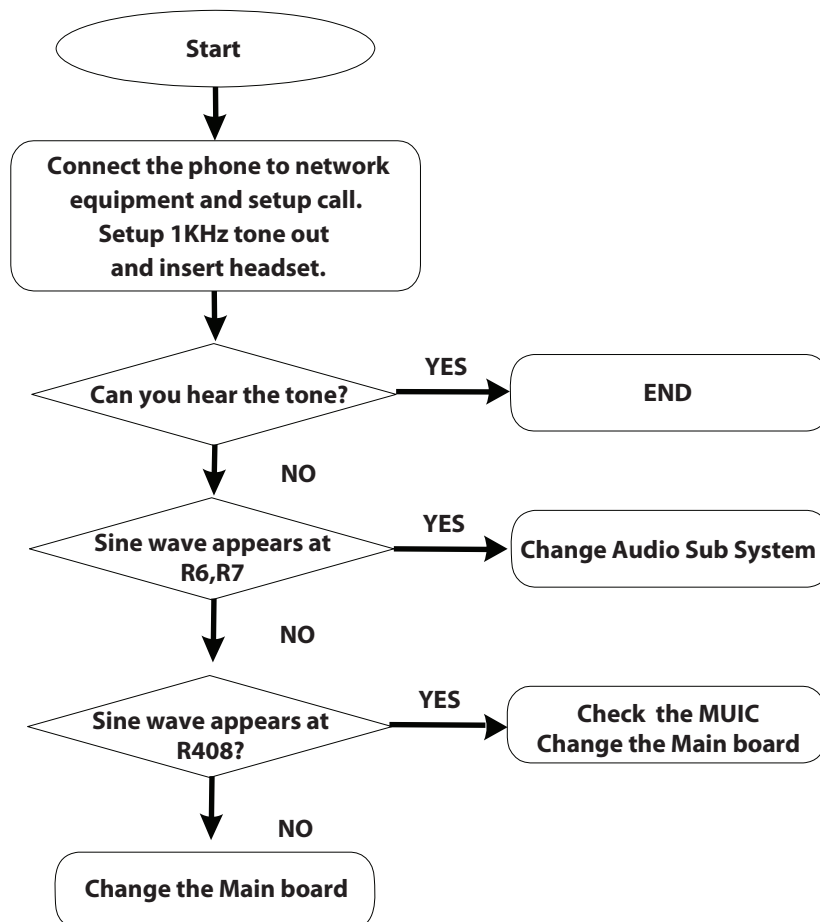


4. TROUBLE SHOOTING

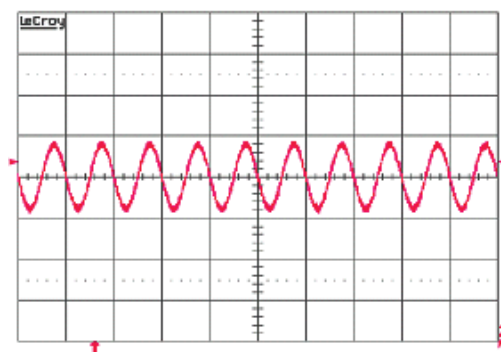
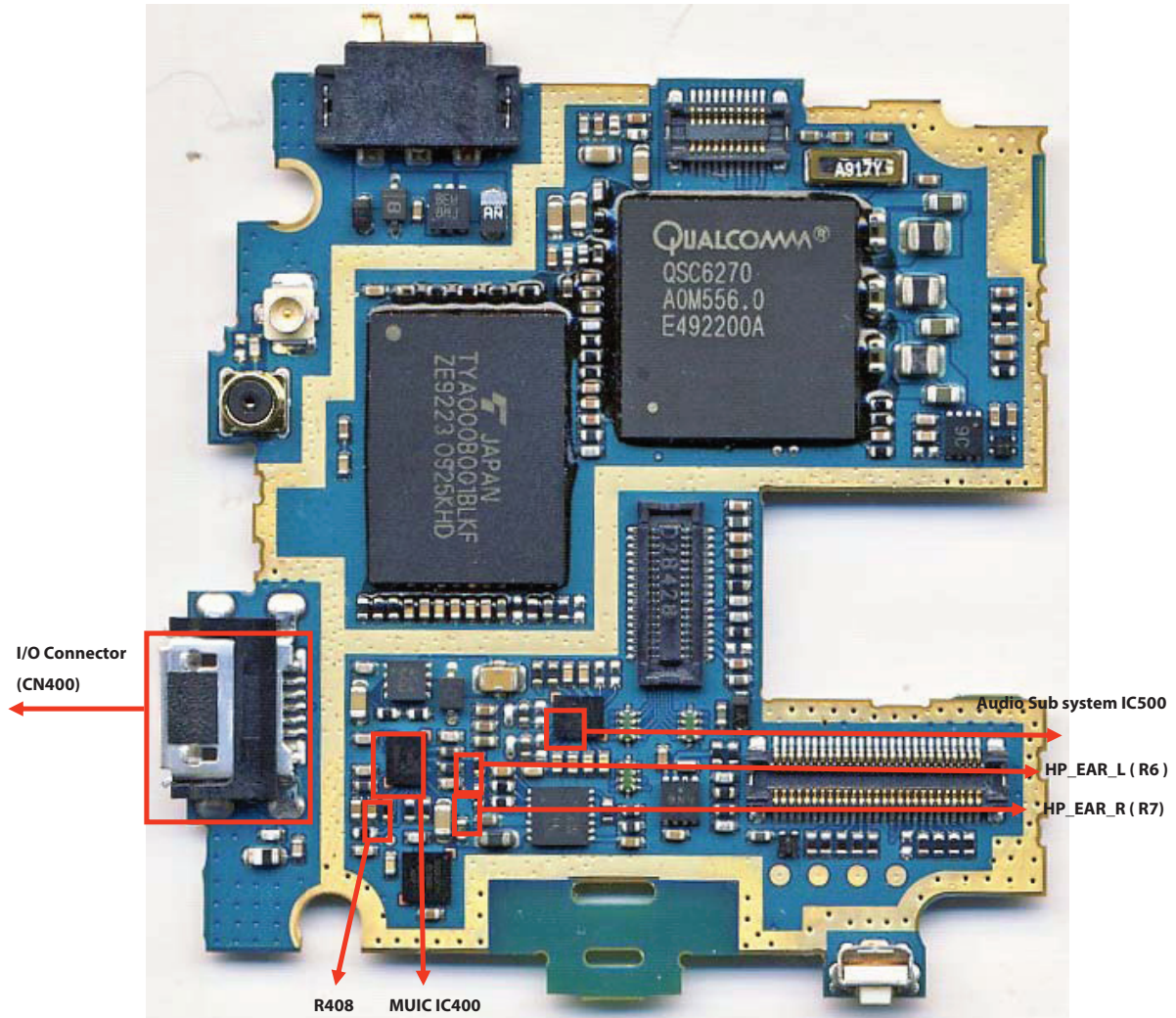


4.17 Headset path

R6,R7 → IC500(Audio Sub System) → R408 → IC400(MUIC) → CN400 (u USB Connector)

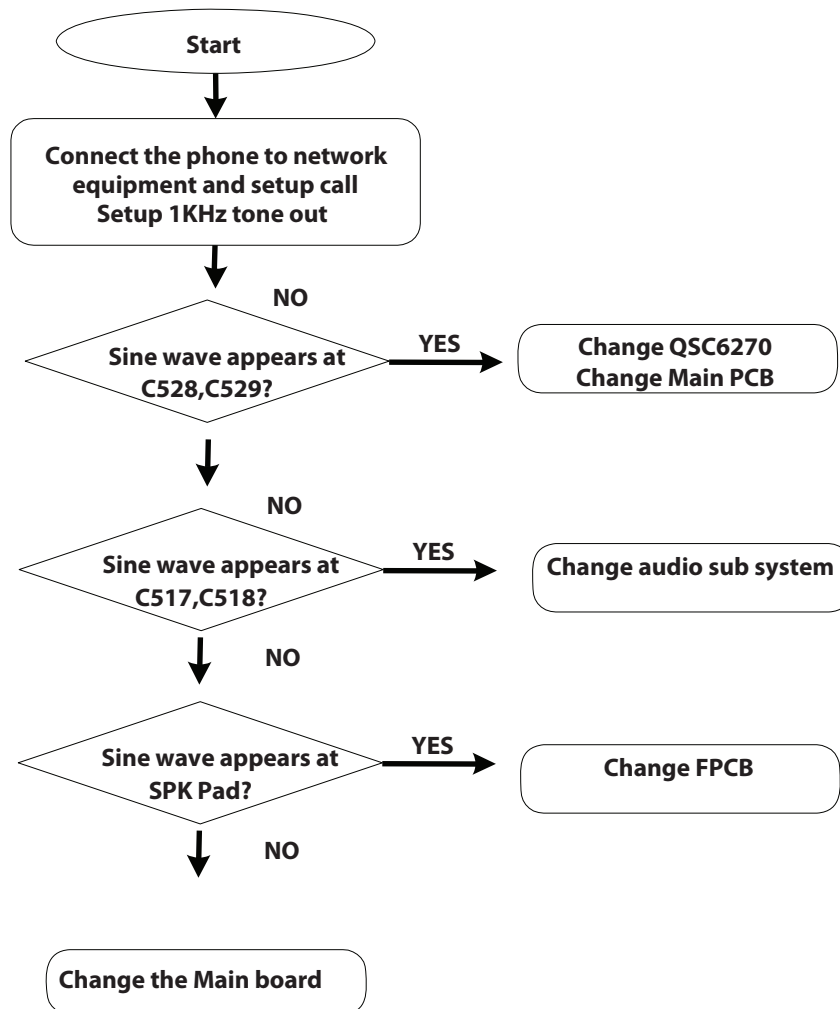


4. TROUBLE SHOOTING

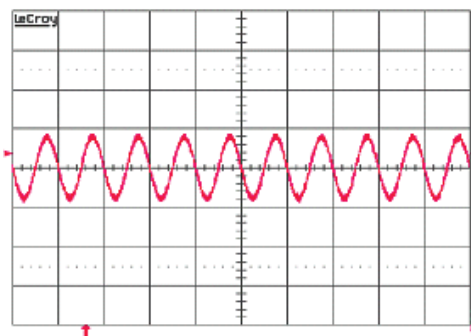
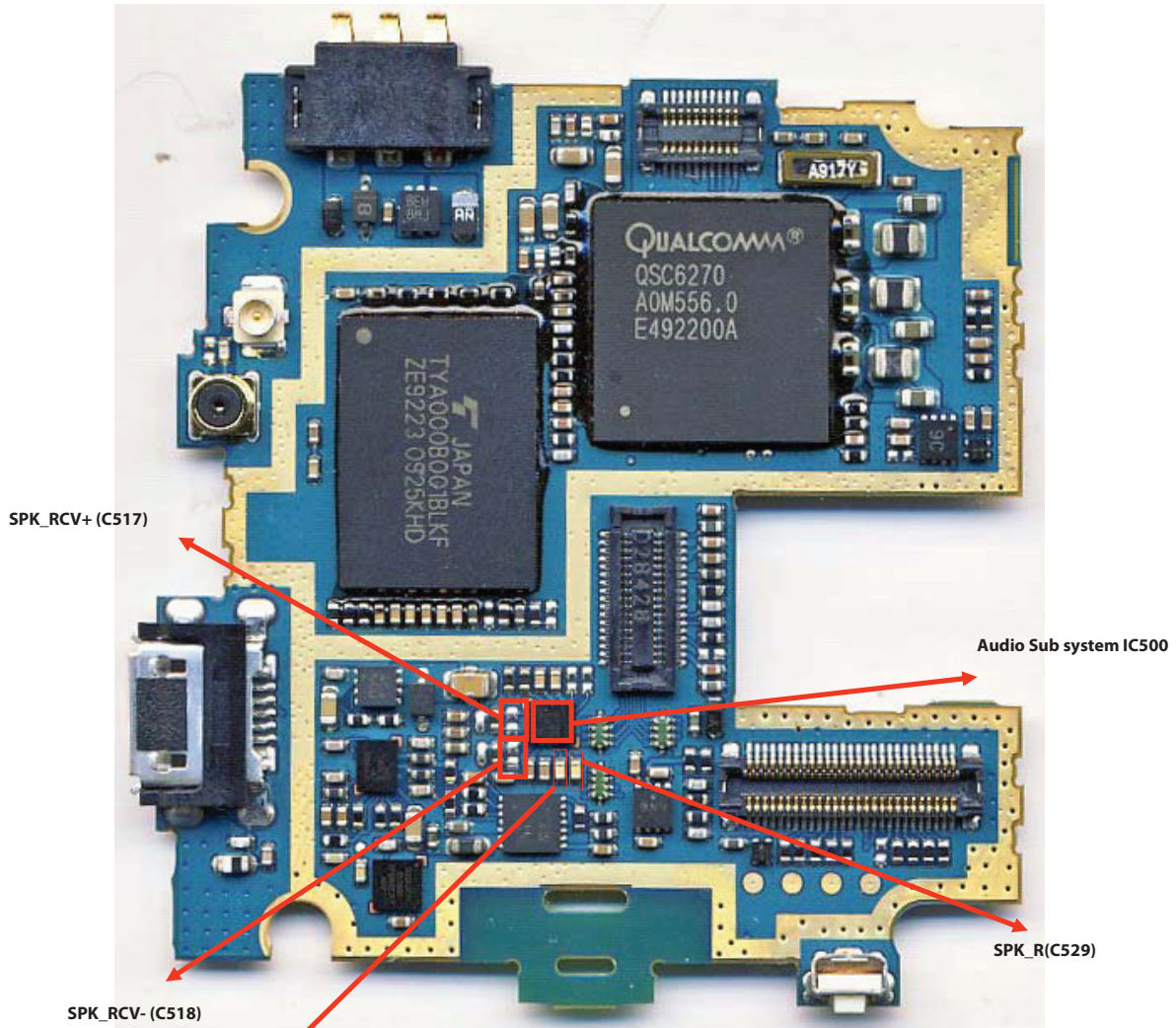


4.18 Speaker phone path

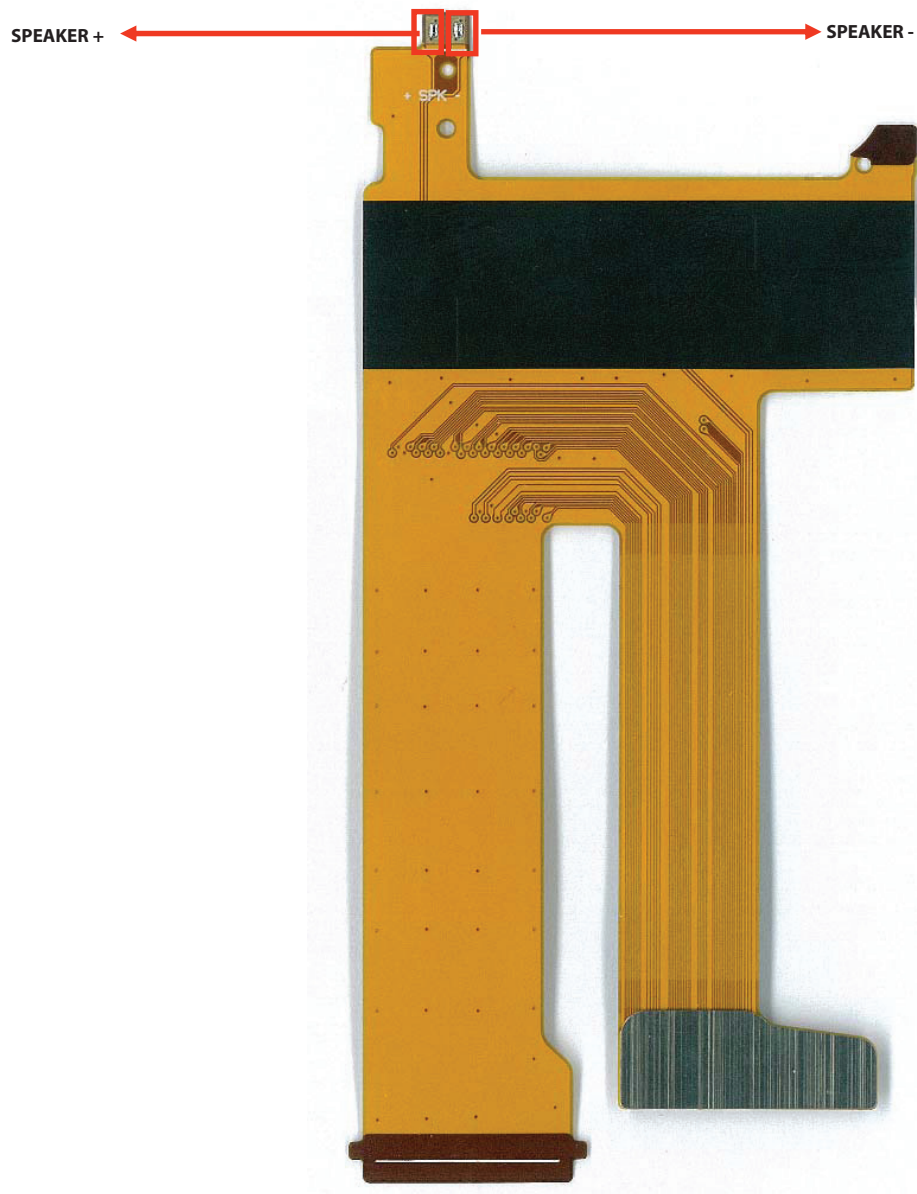
QSC6270 SPK C528,C529 → C517,C518(DNI) → Audio Sub System(IC500) → CN501 → Speaker pad(FPCB)



4. TROUBLE SHOOTING



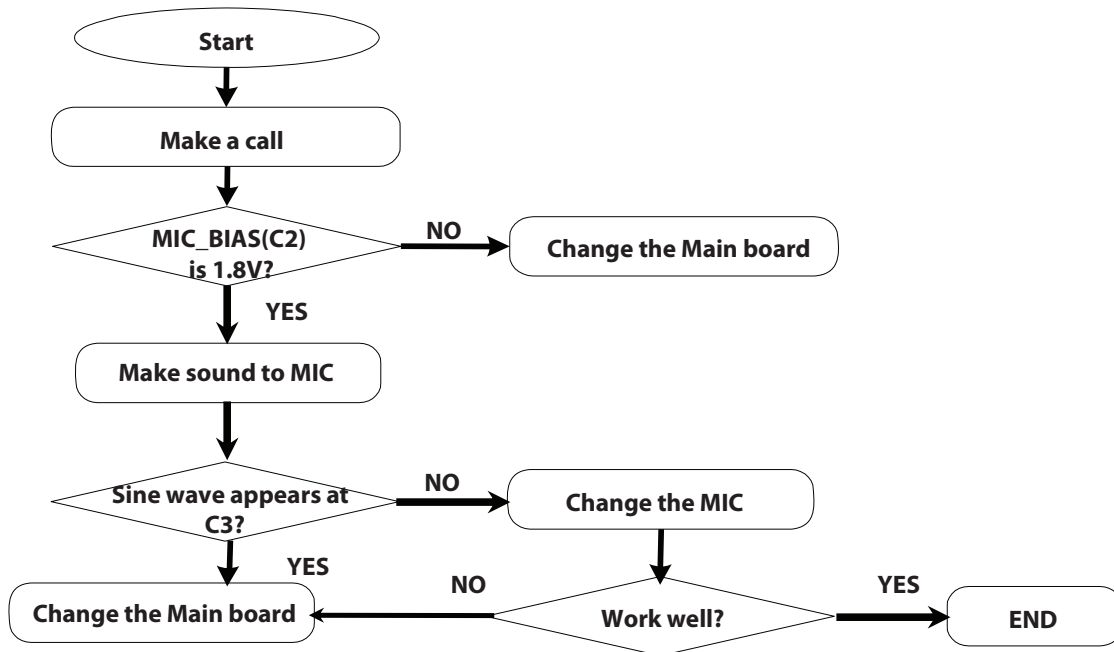
4. TROUBLE SHOOTING

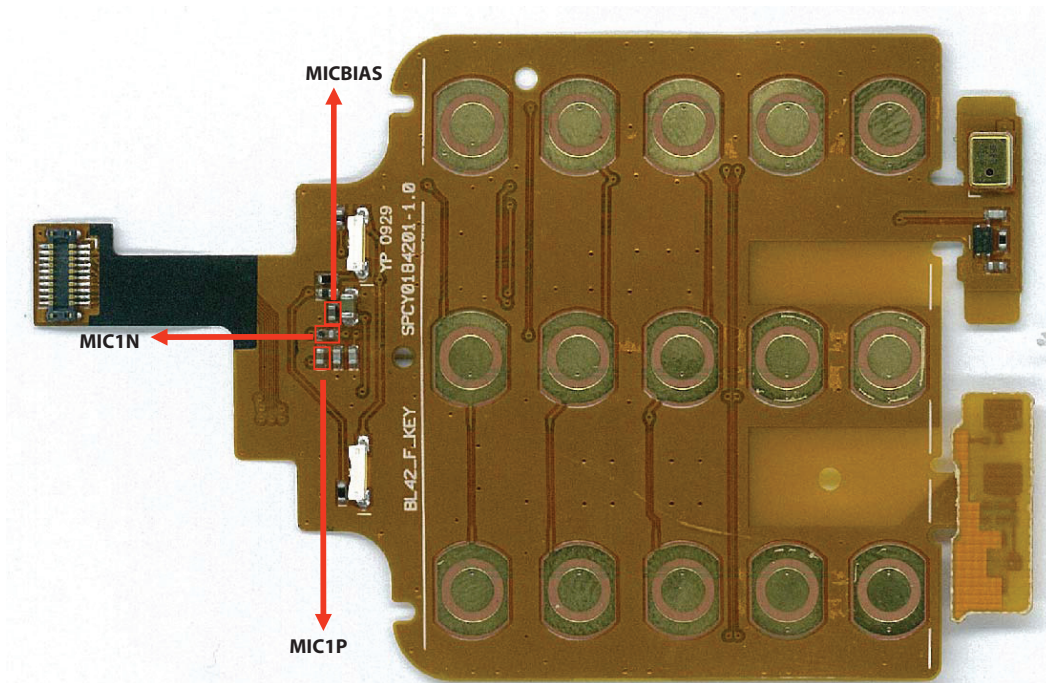


4. TROUBLE SHOOTING

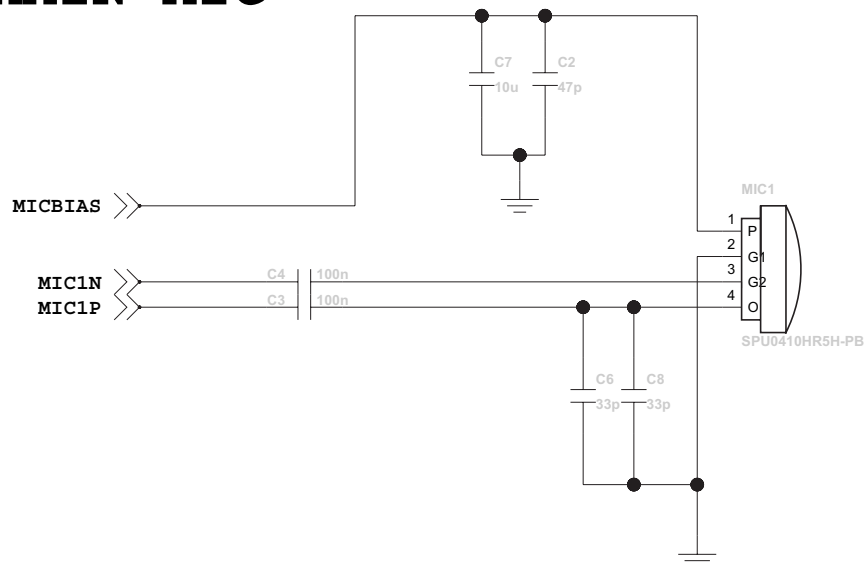
4.19 Main microphone

MIC1 → MIC_BIAS(C2) → MIC1P(C3) → QSC6270





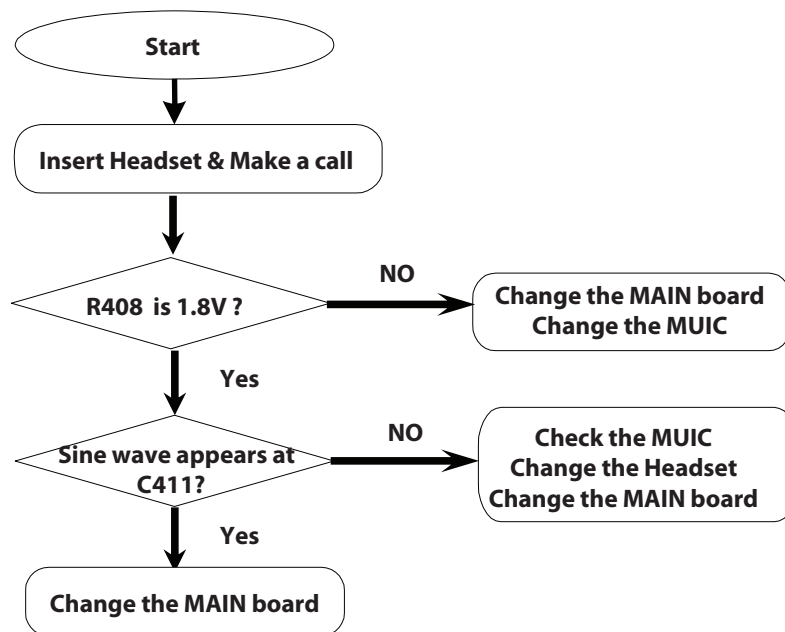
MAIN MIC



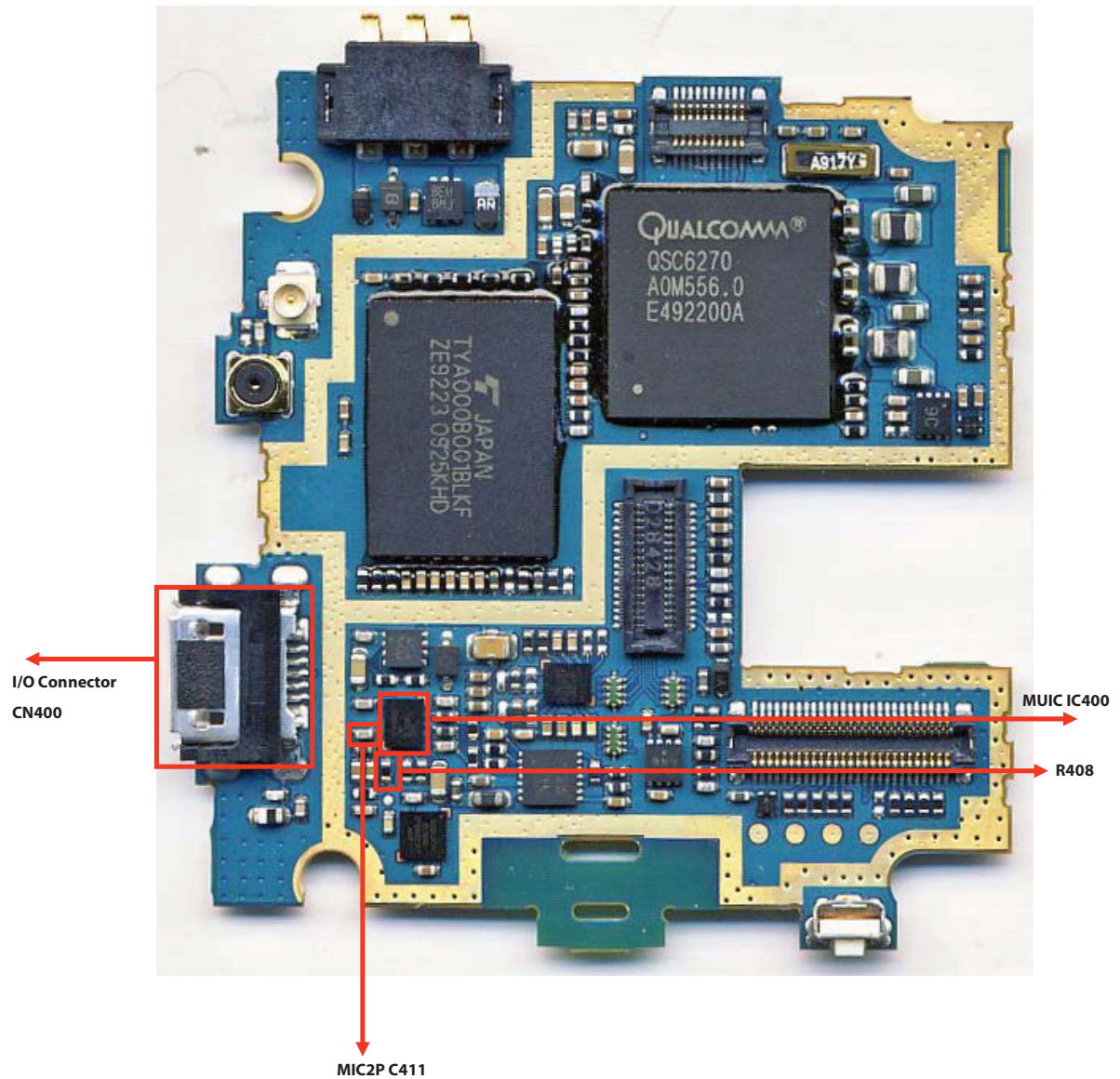
4. TROUBLE SHOOTING

4.20 Headset microphone

Headset → CN400 (u USB connector) → IC400(MUIC) → MIC2P(C411) → QSC6270



4. TROUBLE SHOOTING



5. Download

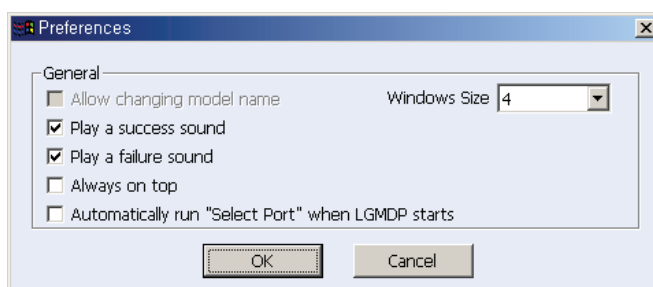
5. Download

5.1 Introduction

LGMDP is a LGE application that allow users to download images from PC to handset. LGMDP is a download tool with capabilities to upload image files to the handset. LGMDP is designed to be simple to use and easy enough for the beginner to upload executable images to the handset. LGMDP supports Windows 2000/XP where the LG (Ver 4.6 or later) USB modem driver is installed. Additionally, LGMDP allows multi downloading up to 9 handsets at the same time.

5.2 Downloading Procedure

- Connect the phone to your desktop PC using the USB cable and run the LGMDP application. Before getting started, set up LGMDP preferences from the Preferences of the file menu the way you want. Click on the File menu and select Preferences.



► Play a success sound

It will be played a .wav file when the download has been completed. To enable this simply check the box.

► Always on Top

Check if LGMDP always appears at the top of the window so that user can monitor it all the time.

► Automatically run Select Port When LGMDP starts

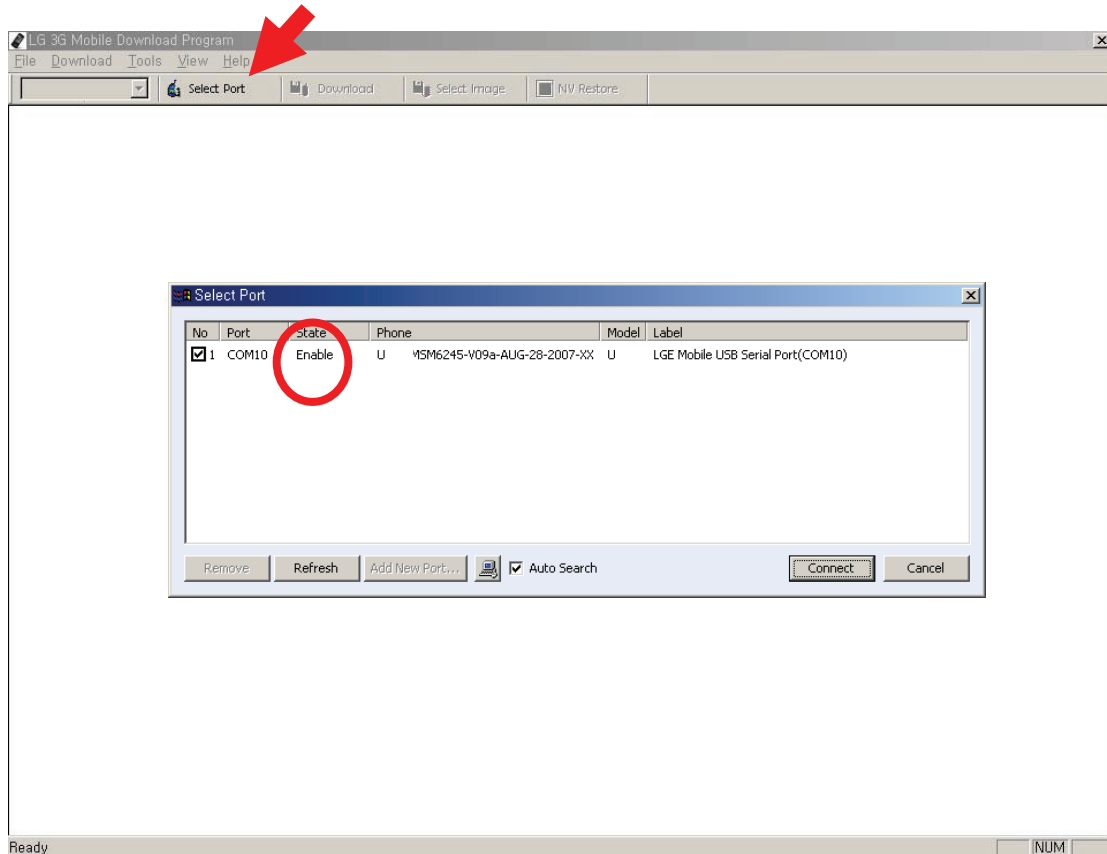
When LGMDP starts, it will automatically select Select Port button to download new image file.

5. Download

5.2.1 Connection to PC

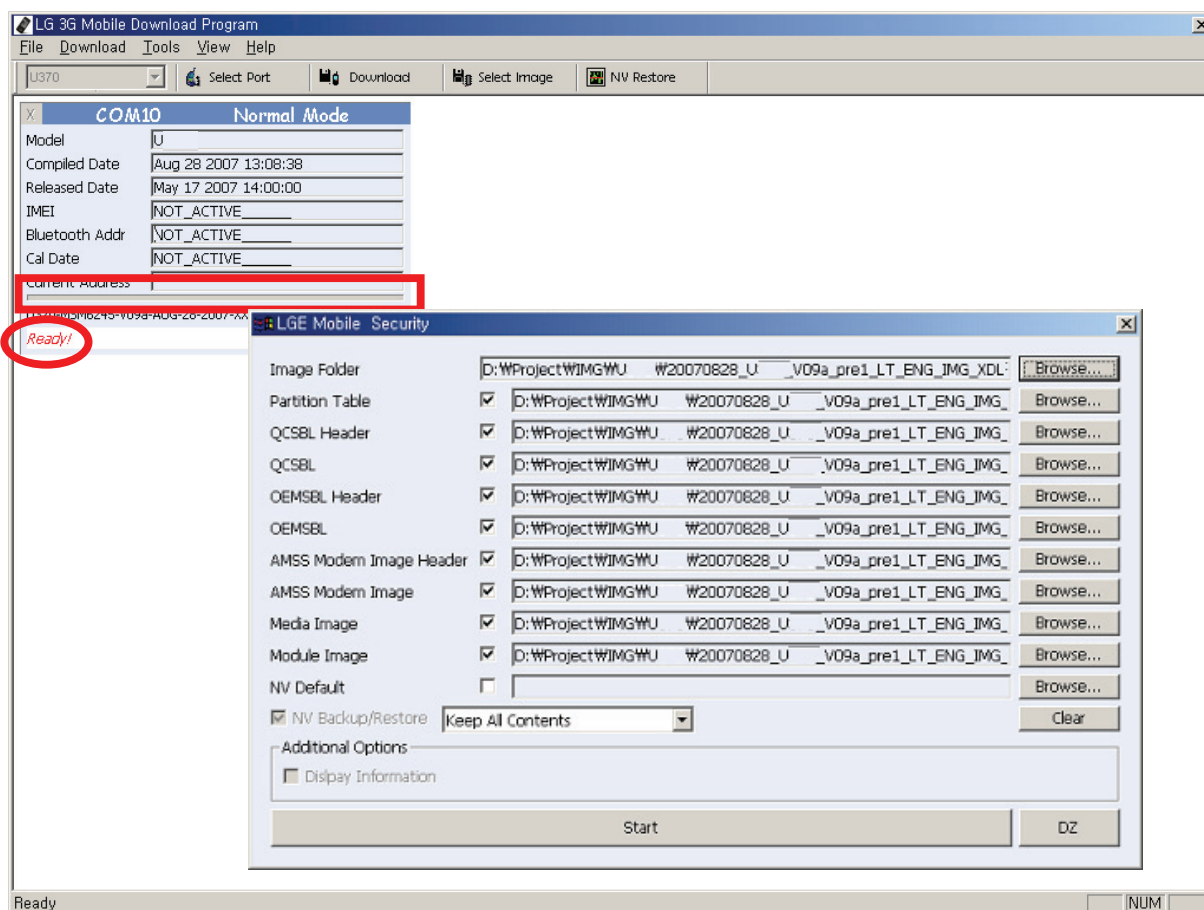
- Click on the Select Port and then Select Port window will be pop up. Check if state shows Enable for the port to be connected for downloading images. Then click on the Connect button.

(The port number(COM7) shall be different from that of the port number in the snapshot.)



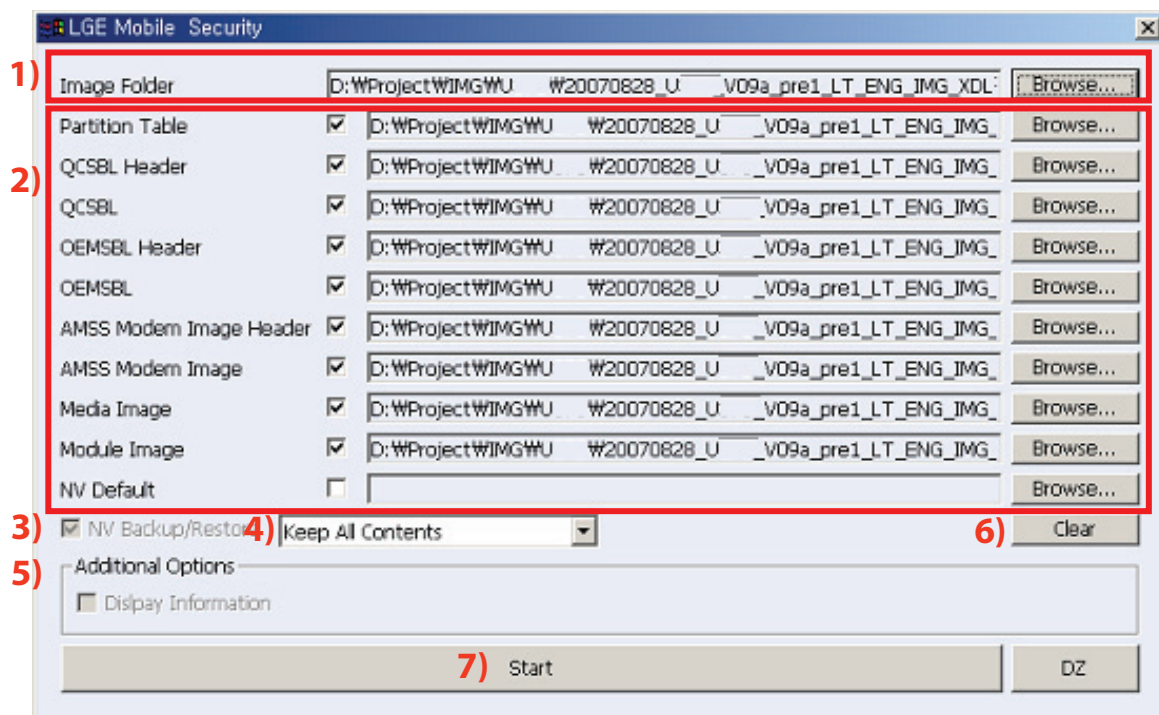
5. Download

- The status Ready is displayed when the application is ready for downloading. While the images are transmitted from PC to the handset, a progressive bar (Red box) indicating the degree of transmission of data is displayed.



5. Download

- 1) Image Folder indicates root path where all image files are placed. To change location of the default image path, select Browse... button. The edit box shows the file path where images are located. Please note that all images should be located in a selected folder.
- 2) Click on the Browse... button to select image files to be downloaded on the handset.



WARNING! For a Media Image, please make sure that country code is match with connected phone. If country code does not match, select [Browse...](#) button next to the Media Image, and then select the media image with matched country code.

3) NV Backup/Restore: NV Backup/Restore always have to be done, and it is default selected option. Backup the NV data and restore the backed up NV data automatically.

4) Reset database & Contents:

User related data including the setting data on the EFS is reset in the handset. The user contents in the handset will be erased. If you want to reset all the user data back to the way they were before you started downloading new images, check the option.

Erase_EFS:

The calibration data, user contents, media, and module are erased. Only calibration data is kept when NV backup/restore is checked. The user contents and file system physically are wiped out.

Keep All Contents

Maintain user data including WAP, AD, DRM, E-mail, Play lists, and images when downloading a new S/W images. User data stated above are maintained if this option is selected.

5) Additional Options:

Display Information is defaultly not selected and user cannot choose.

Override partition table is also also defaultly not selected and user cannot choose.

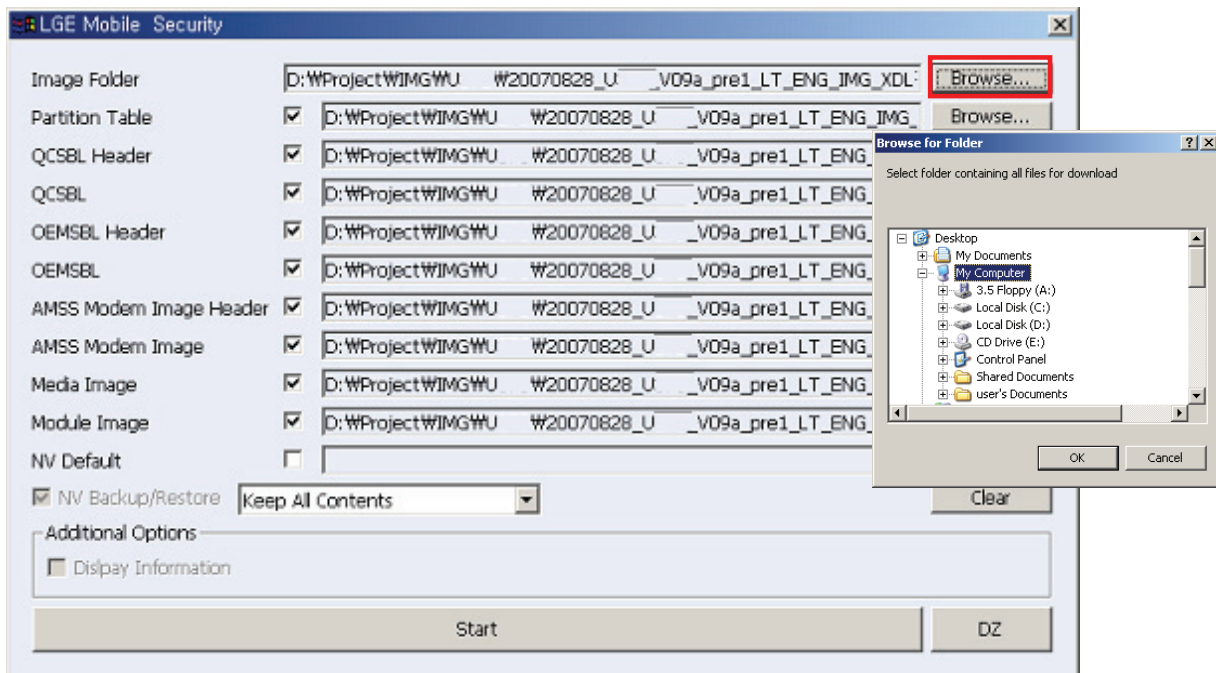
6) Clear: Clearing all directory paths of images in the dialog.

7) Start: Starting downloading the selected individual image.

5. Download

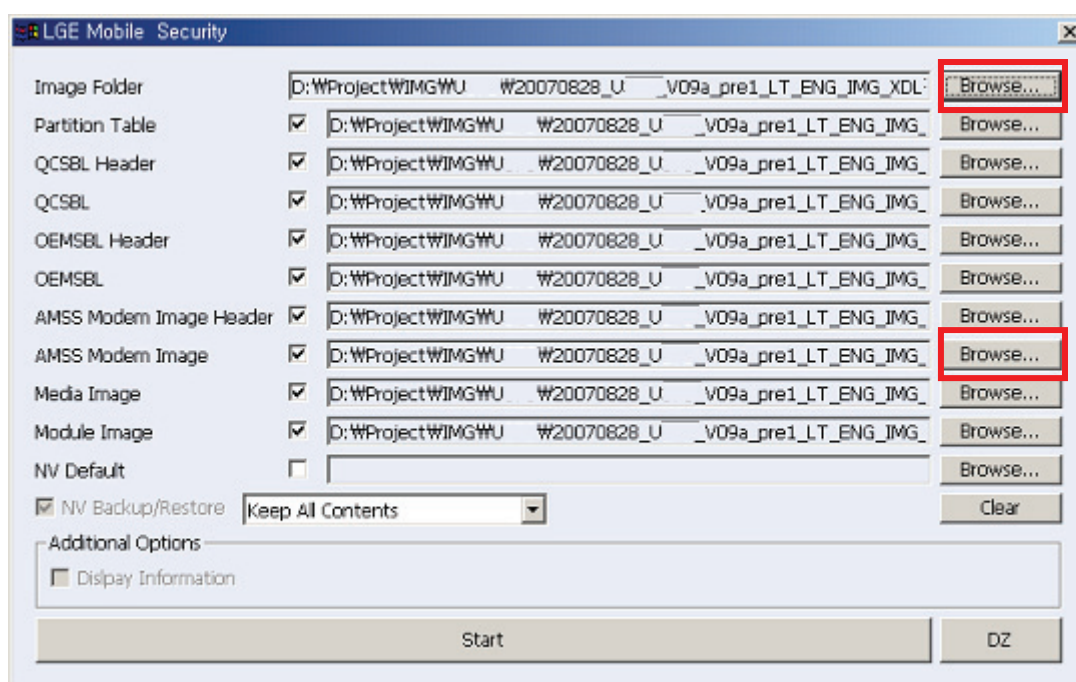
5.2.2 Choosing image files

- Select the image folder, where all the image files are located, by clicking on the Browse....
(The folder name shall be different from that of the folder name in the snapshot. The folder name indicates the path where the image files are located.)



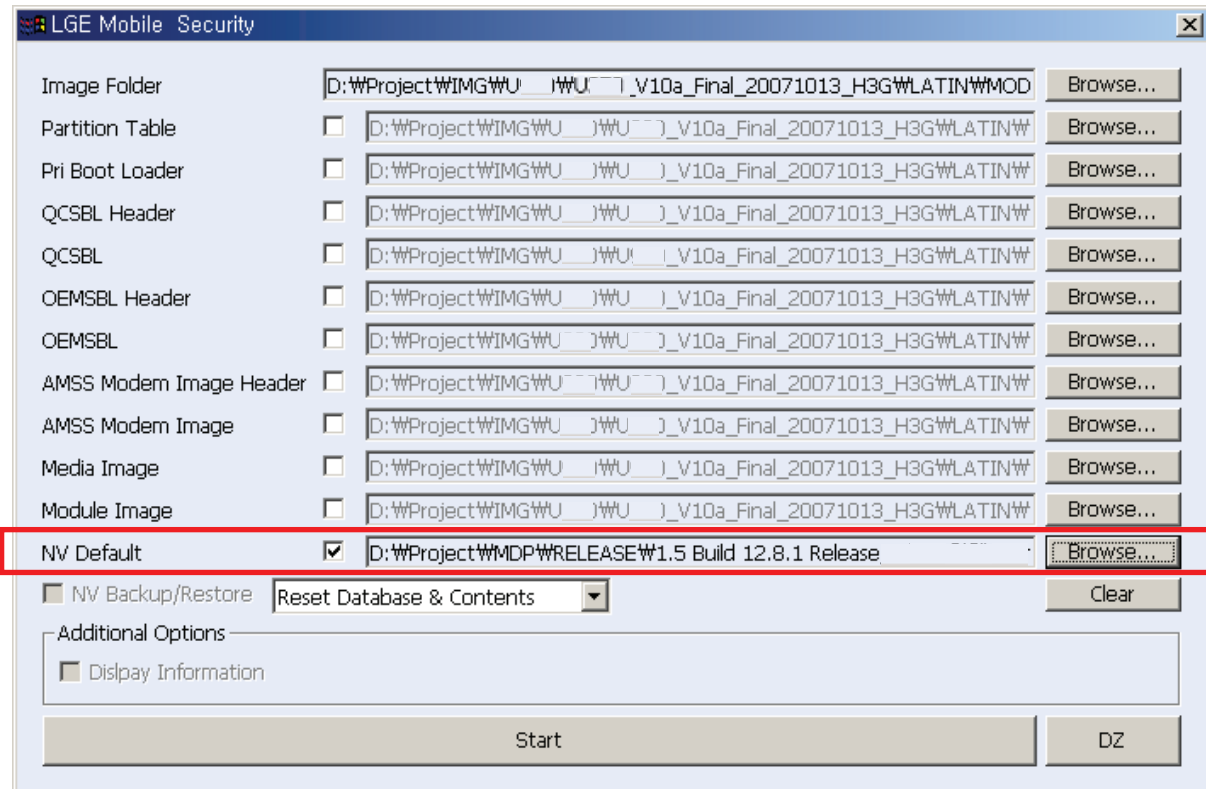
Select the path on the Image Folder by clicking on the Browse..., then the LGMDP will automatically load images accordingly. Also you can select images by manually. For instance, select the path of AMSS Modem Image file by clicking on the Browse... button. The selected AMSS image will be downloaded to the handset from the path directory in the PC. Make sure that you have chosen correct file. In case of wrong AMSS Modem file is selected, the phone may not work.

(The file name shall be different from that of the file name in the snapshot.)

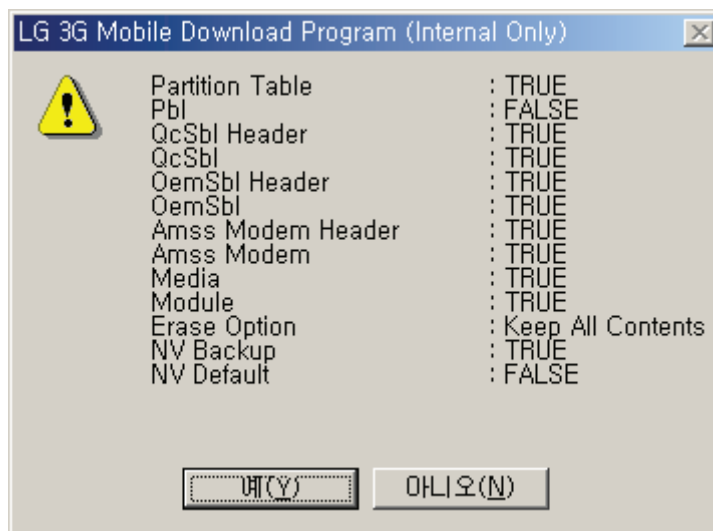


5. Download

- If NV restore is failed, then the NV Data(*.nv2) is erased permanently. In this case, choose the desired NV file to be downloaded on the handset. To enable this simply check the box or select the NV file from the LGMDP installation directory by clicking on the Browse... button.



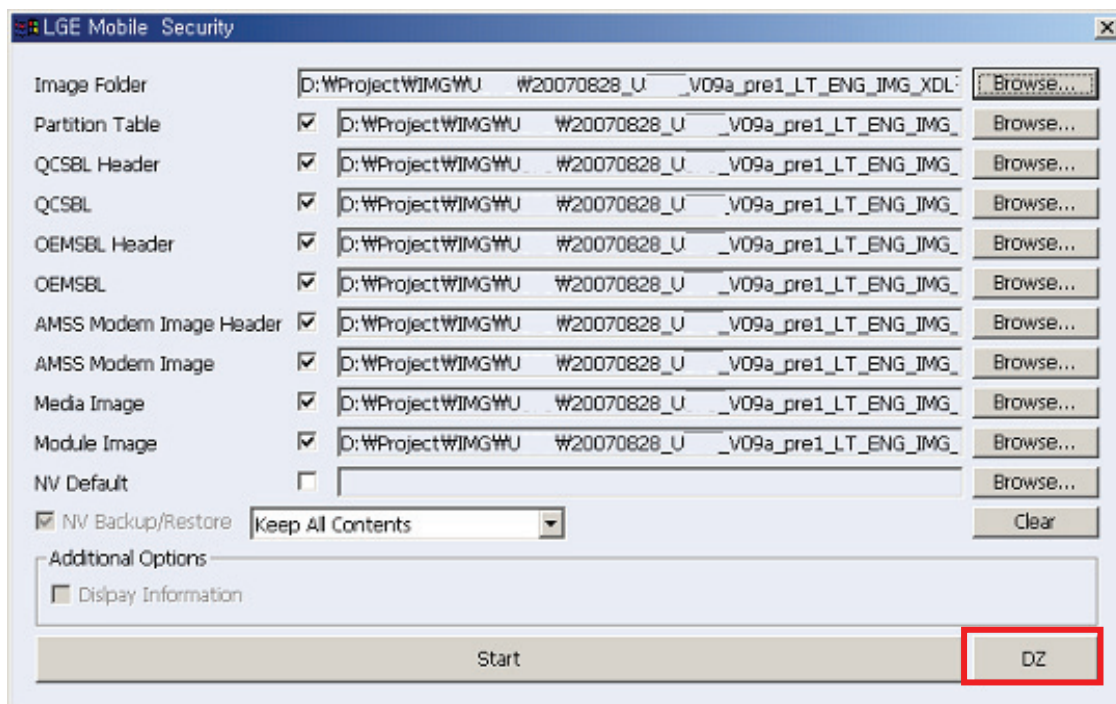
Click on the START button to start downloading. A summary of the selected images and option information window will be displayed. Click on the No button if this is not the setting you are downloading for. Otherwise click on the Yes button to continue downloading selected image file with options.



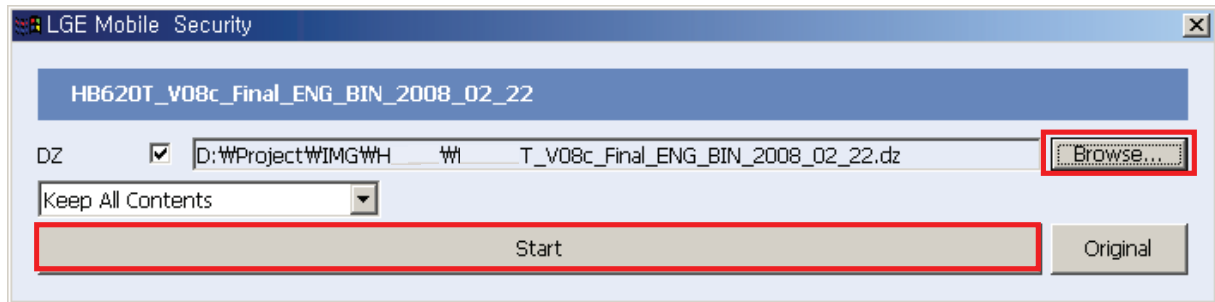
5. Download

- DZ is one image S/W binary consisting of variety S/W images such as partition.mbn, pbl.mbn,,, module.bin. The new download function has been provided to allow the testing of the integrity of the DZ image by checking a hash code of every included file.

(DZ does not allowing extracting or creating zip archive with other public opened archive tool such as WinZip or Alzip.) To download DZ image, simply click on the DZ button.

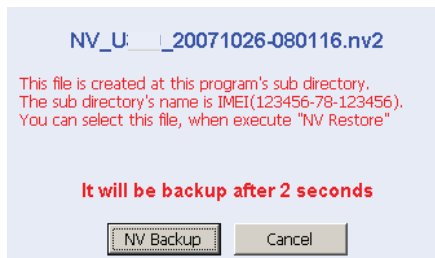


- Select dz image path where dz image file is located by clicking on the Browse... button. Click on the Start Button to start downloading DZ image. If you want to go back to original download mode, click on the Original button.

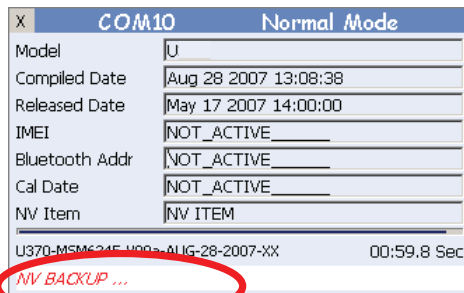


5. Download

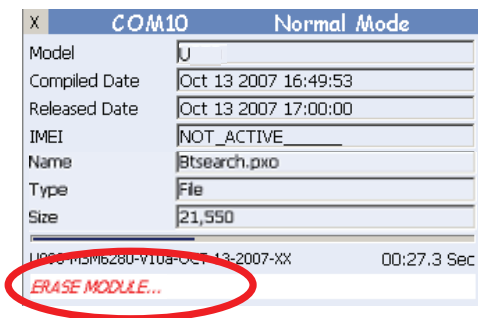
5.2.3 Downloading



- This message box informs that a new file for NV backup will be created in the displayed file name in the LGMDP installation directory.

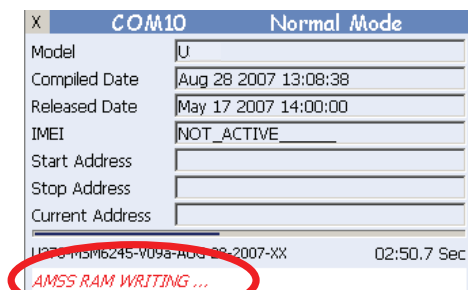


- Backing up NV data and backed up NV data will be stored in the LGMDP installation directory.

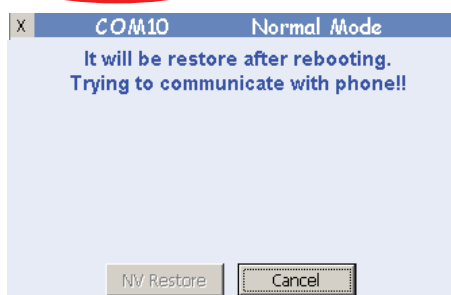


- Erasing the existing directories and files before the Module image is downloaded.

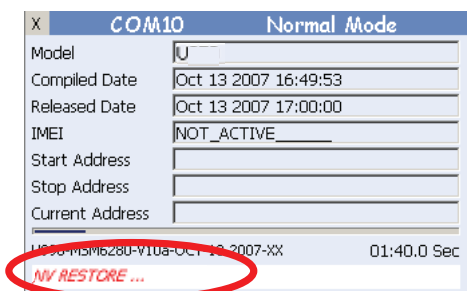
5. Download



- Downloading the AMSS modem image

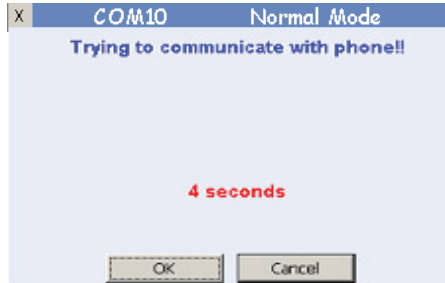


- Rebooting the handset and re-establishing the connection.

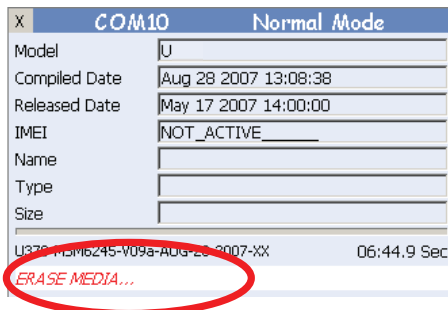


- Restoring NV data which backed up in the Backing up process.
User can also restore NV data using NV Default image selection.

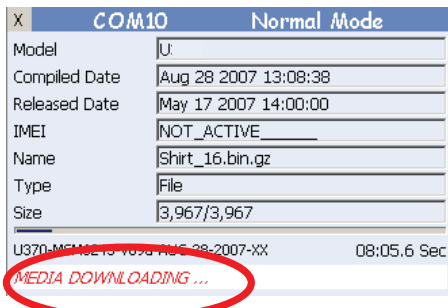
5. Download



- Rebooting the handset and re-establishing the connection



- Erasing the existing directories and files before downloading the selected Media image



- Downloading Media image in progress

5. Download

COM10 Normal Mode	
Model	U
Compiled Date	Aug 28 2007 13:08:38
Released Date	May 17 2007 14:00:00
IMEI	NOT_ACTIVE
Name	FileManager.pxo
Type	File
Size	299,008/509,358
U370-Mem0245-V09a-RC-S-28-2007-XX 12:46.5 Sec	
MODULE DOWNLOADING ...	

- Downloading Module image in progress

Trying to communicate with phone!!

Checking..(14 sec)

OK Cancel

- Rebooting handset

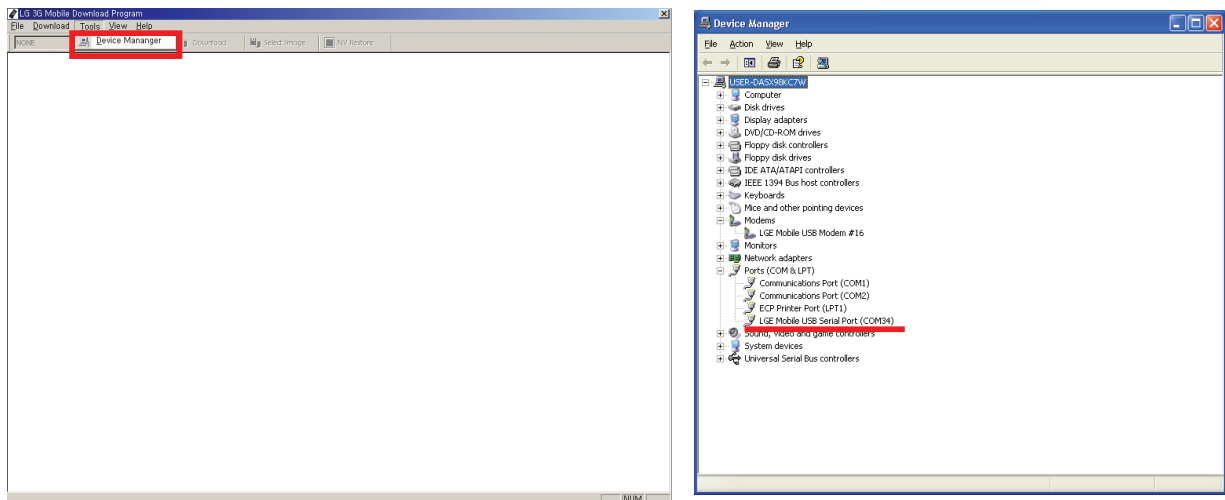
COM10 Download End	
Model	U
Compiled Date	Oct 13 2007 16:49:53
Released Date	Oct 13 2007 17:00:00
IMEI	NOT_ACTIVE
Bluetooth Addr	NOT_ACTIVE
Cal Date	NOT_ACTIVE
Current Address	
U900-Mem0200-V10a-RC-T-13-2007-XX 16:13.3 Sec	
Download Completed!	

- Downloading process has completed successfully

5. Download

5.2.4 Tools

- Device Manager allows to monitor current hardware that is installed on your PC. Device Manager is designed to monitor USB connectivity and check where the COM has been installed . Select Device Manager from the Tools of the file menu.



5.3 Troubleshooting Download Errors

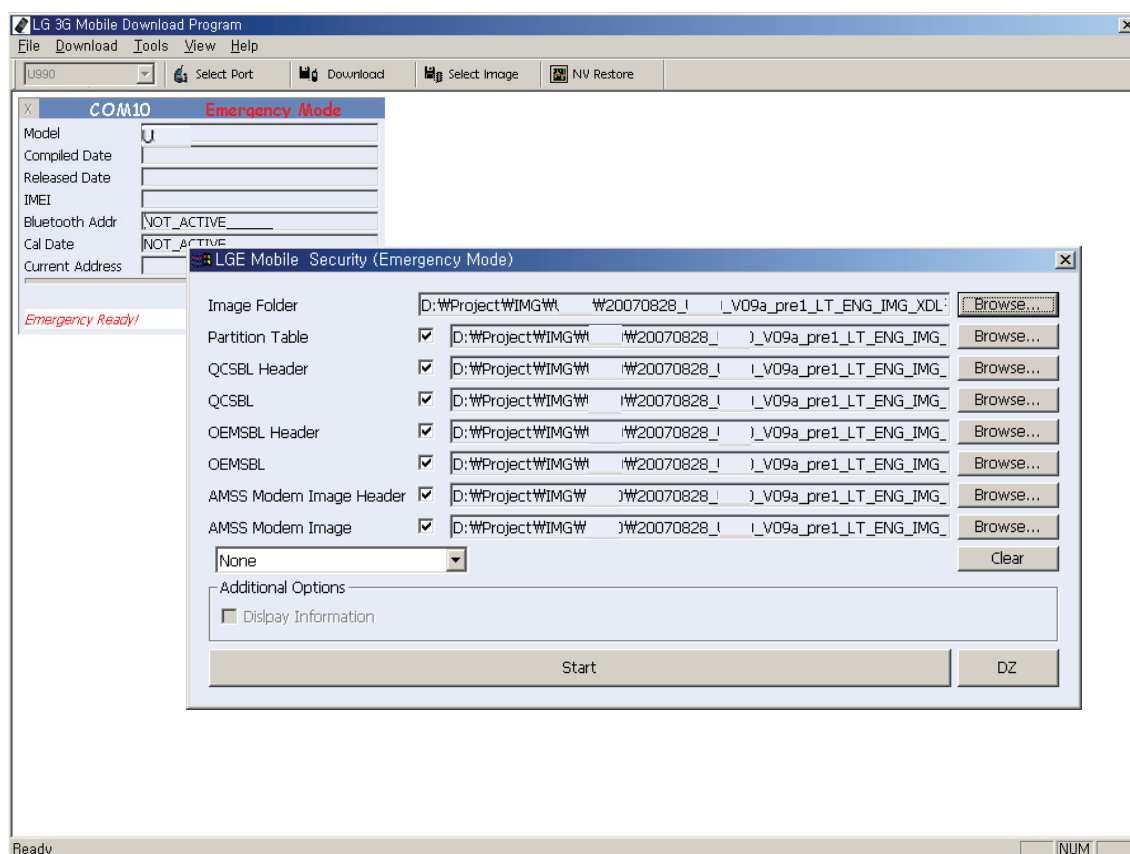
- 1) When the phone does not work after downloading has been completed.
- 2) Media Erasing Error
- 3) NV Restore Error

5.3.1 When the phone does not work

- Reboot the phone in the emergency mode (Simultaneously press 2, 5, and PWR red keys) and then try to download all the images up to AMSS. In the emergency mode, you can not download media or module image.

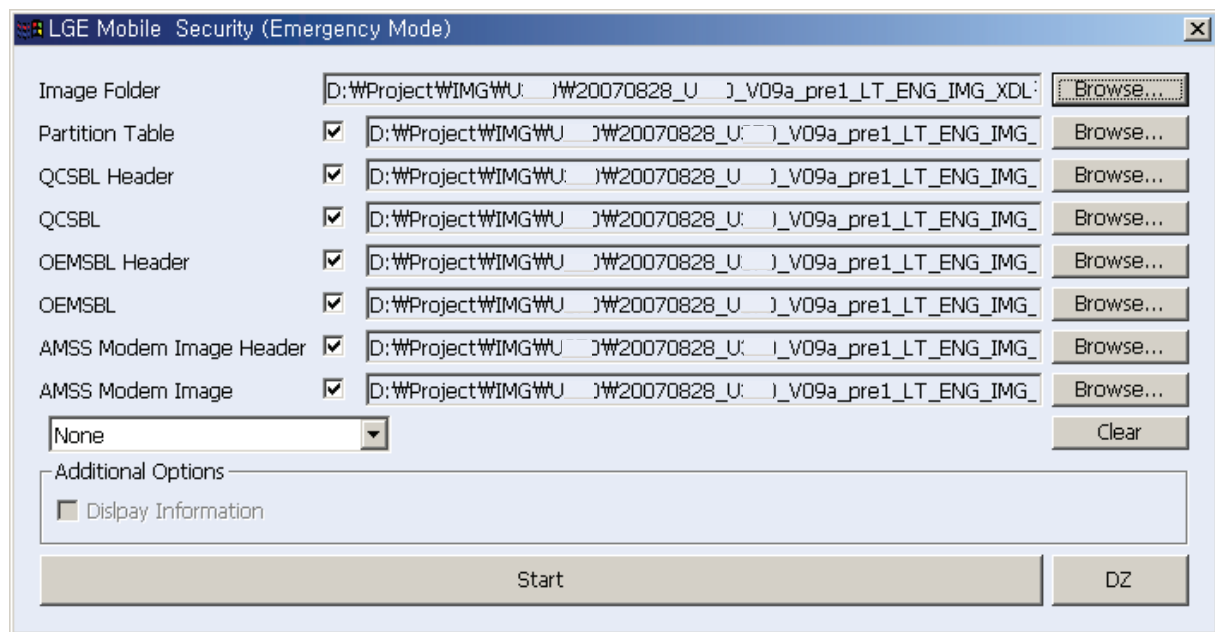
The phone supports a special mode called emergency mode. In this mode, minimum units for downloading is running so that users can download the images again in case of emergency situation. (AMSS modem, Media, and Module images can not be running in this mode.)

- The below dialog shows parameters of Select Port when phone is booted in Emergency mode. Click on the Connect button to continue.



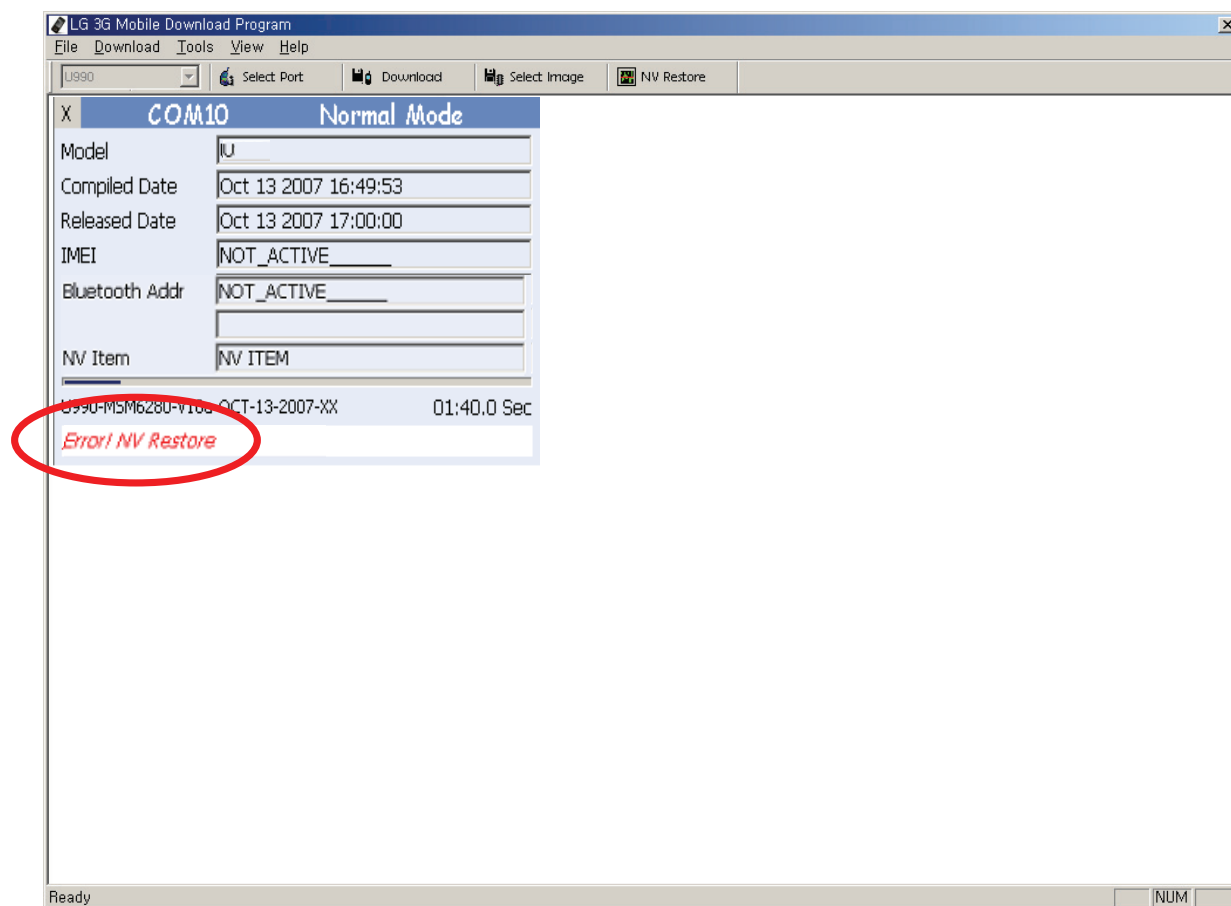
5. Download

- Choose Image file after clicking on the Browse... button. Make sure that you have chosen the right image file. After choosing valid images, then click on the Start button to start downloading selected images. The selected image will be downloaded to the handset from the path directory in the PC. After downloading images successfully, it will boot to normal mode.



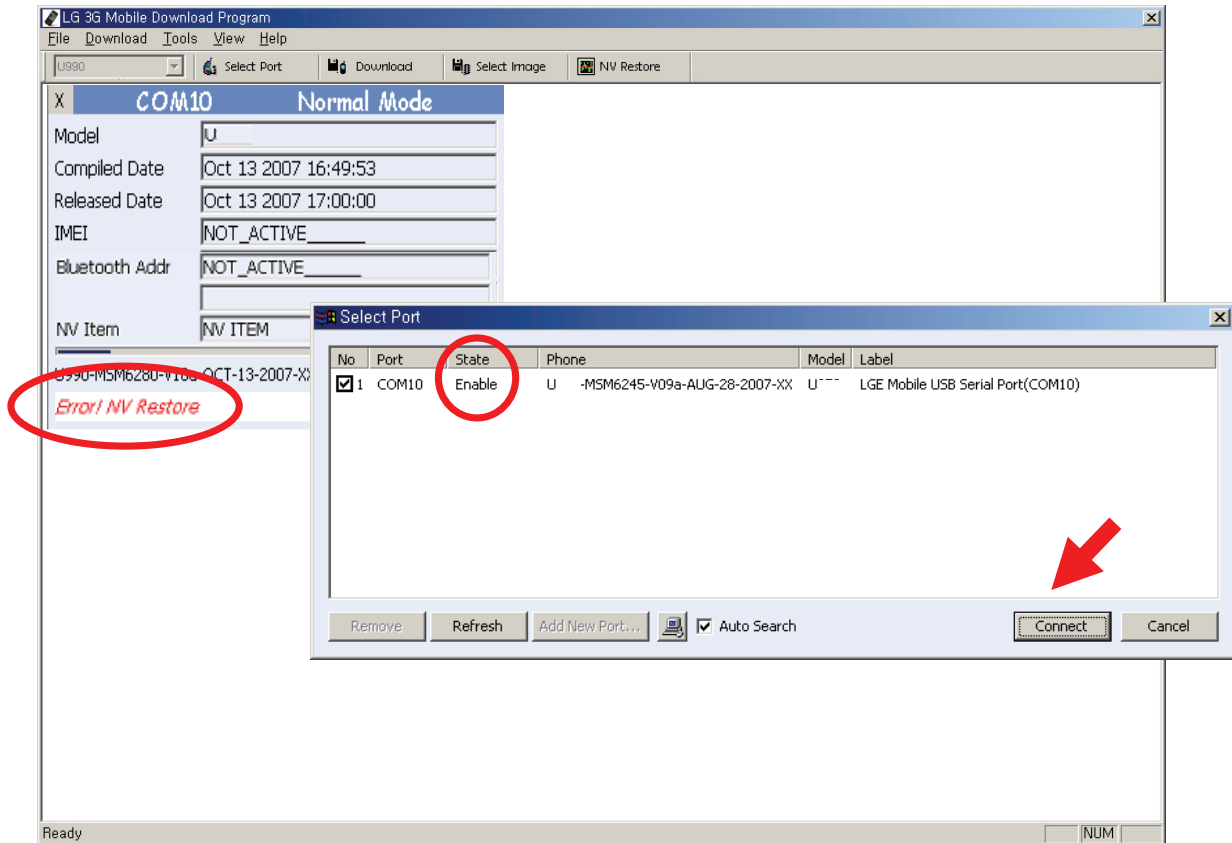
5.3.2 NV Restore Error

- Snapshot showing the NV Restore error. Next slide shows the remedial procedure to adopt.



5. Download

- Connect the handset and Press the Connect button in the Select Port window.(Enable state in the window indicates that the Phone has been detected and is ready to download.)



- Click on Browse... . Select the LGMDP installation directory and a list of NV Backup files(*.nv2) will be shown. These nv files were saved every time NV Backup option was selected, and the name of the nv file is determined based on the time when NV Backup was done. Choose the desired NV file to be downloaded on the handset, and click on Start.

The screenshot shows the 'LGE Mobile Security' window. It contains a list of components on the left, each with a checkbox and a text field for the file path, followed by a 'Browse...' button. The 'NV Default' option is checked and its text field is highlighted with a red box. Below this list, there are options for 'NV Backup/Restore' (with a 'Reset Database & Contents' dropdown and a 'Clear' button) and 'Additional Options' (with a 'Display Information' checkbox). At the bottom are 'Start' and 'DZ' buttons.

Image Folder	☒	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\MOD	Browse...
Partition Table	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
Pri Boot Loader	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
QCSBL Header	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
QCSBL	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
OEMSBL Header	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
OEMSBL	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
AMSS Modem Image Header	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
AMSS Modem Image	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
Media Image	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
Module Image	☐	D:\Project\WIMG\WU_)\WU_)_V10a_Final_20071013_H3G\W\LATIN\W\	Browse...
NV Default	☒	D:\Project\WMDP\WRELEASE\W1.5 Build 12.8.1 Release	Browse...

☐ NV Backup/Restore Reset Database & Contents Clear

Additional Options
☐ Display Information

Start DZ

5. Download

5.4 Caution

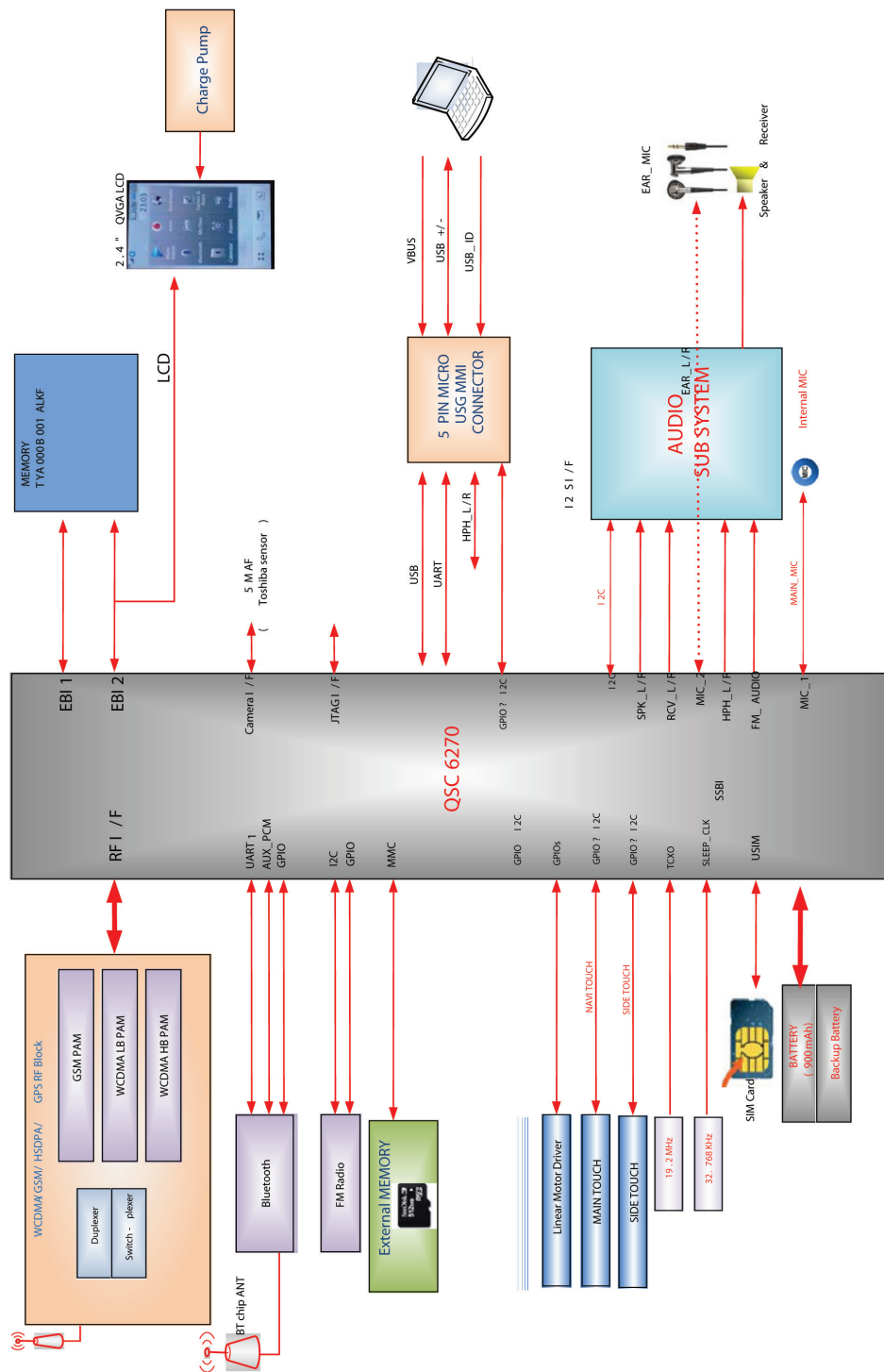
- 1) Multi-downloading using the USB hub is not recommendable.
- 2) If you see the message 'cal mode' after 'completing download', you must do NV restore and image (media and module) download.
- 3) The NV data saved at LGMDP folder as following format.

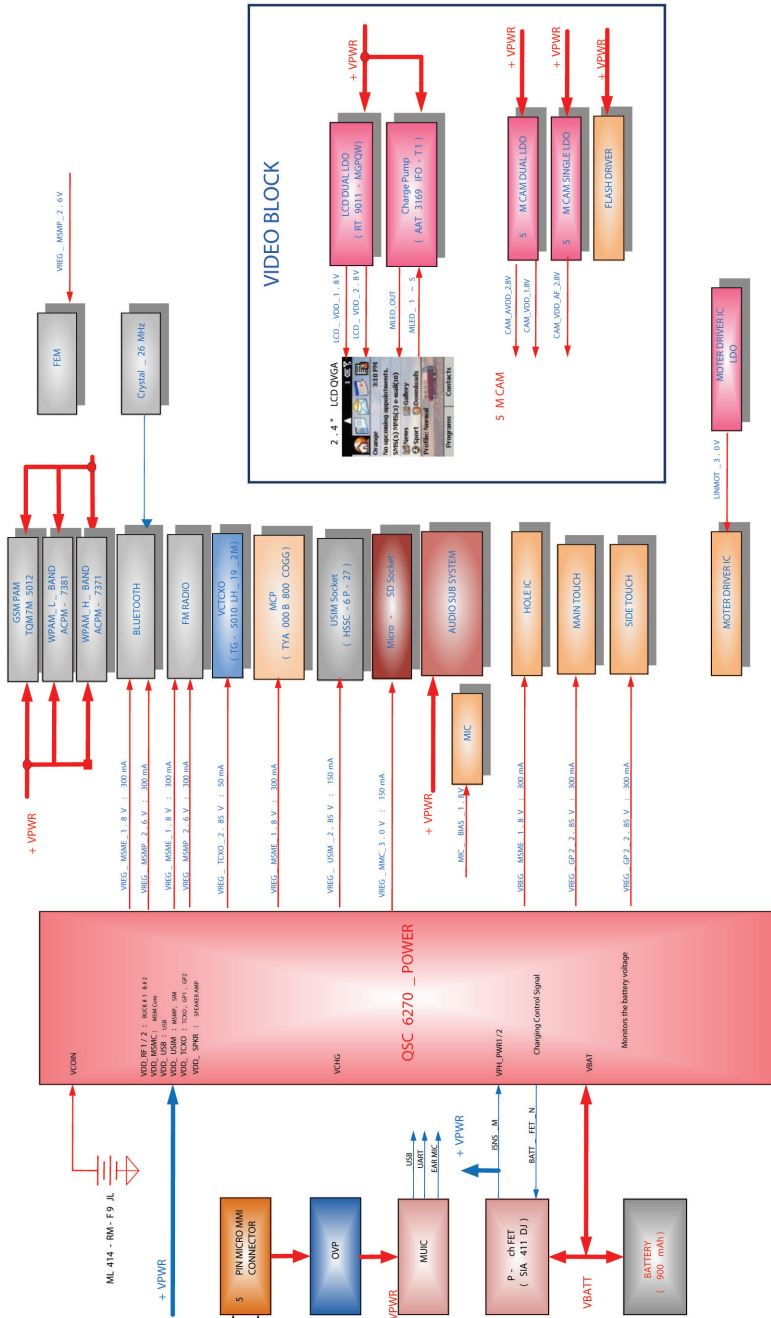


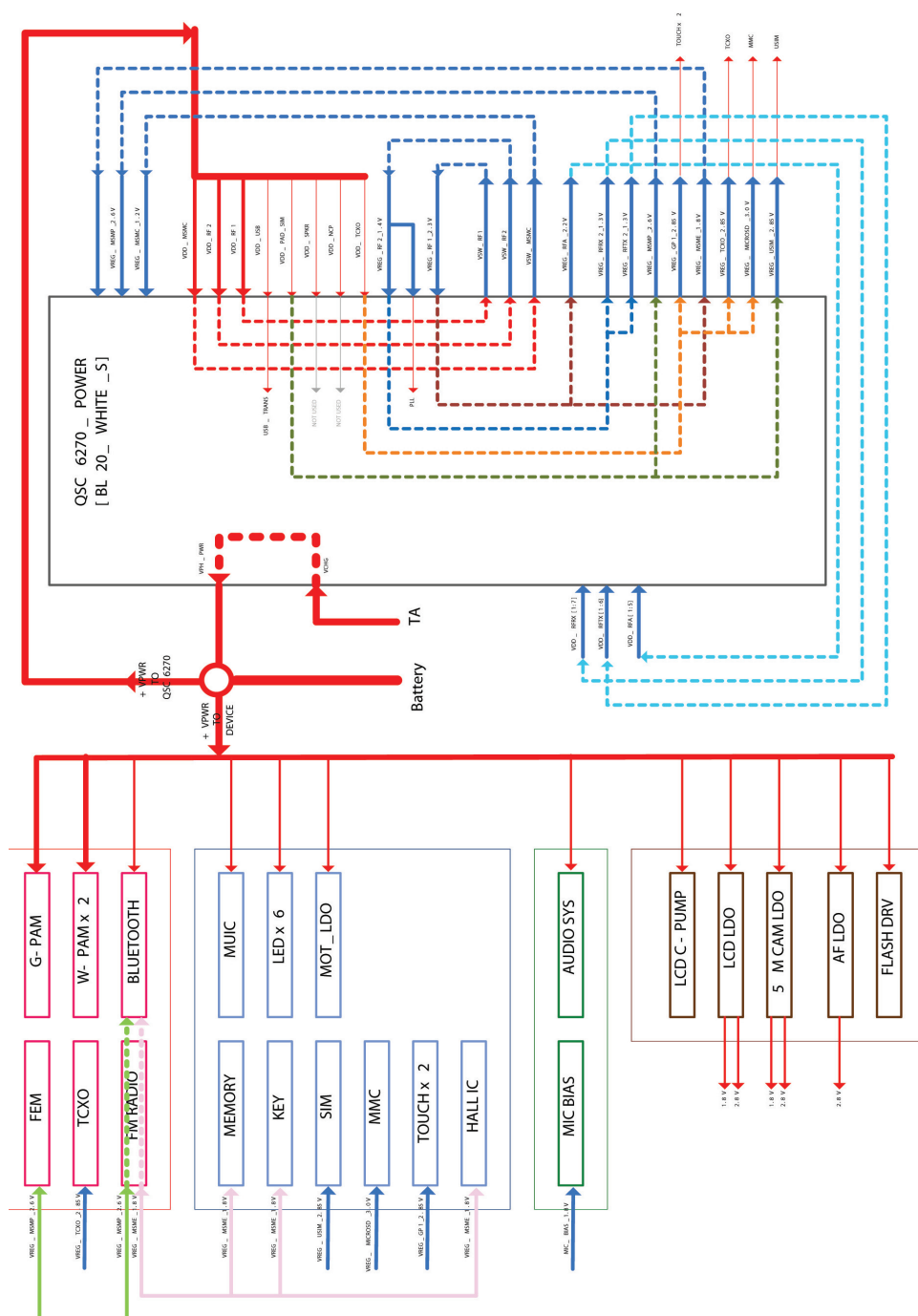
- 4) Recommended that the Module and Media Image have to be downloaded at the same time.
- 5) Erase EFS option will erase everything (media, module, nv items, and user data) in the EFS area.

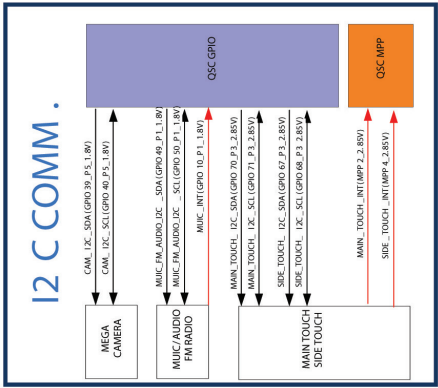
6. Block Diagram

1. System HW Block Diagram : BL20 Total Block Diagram

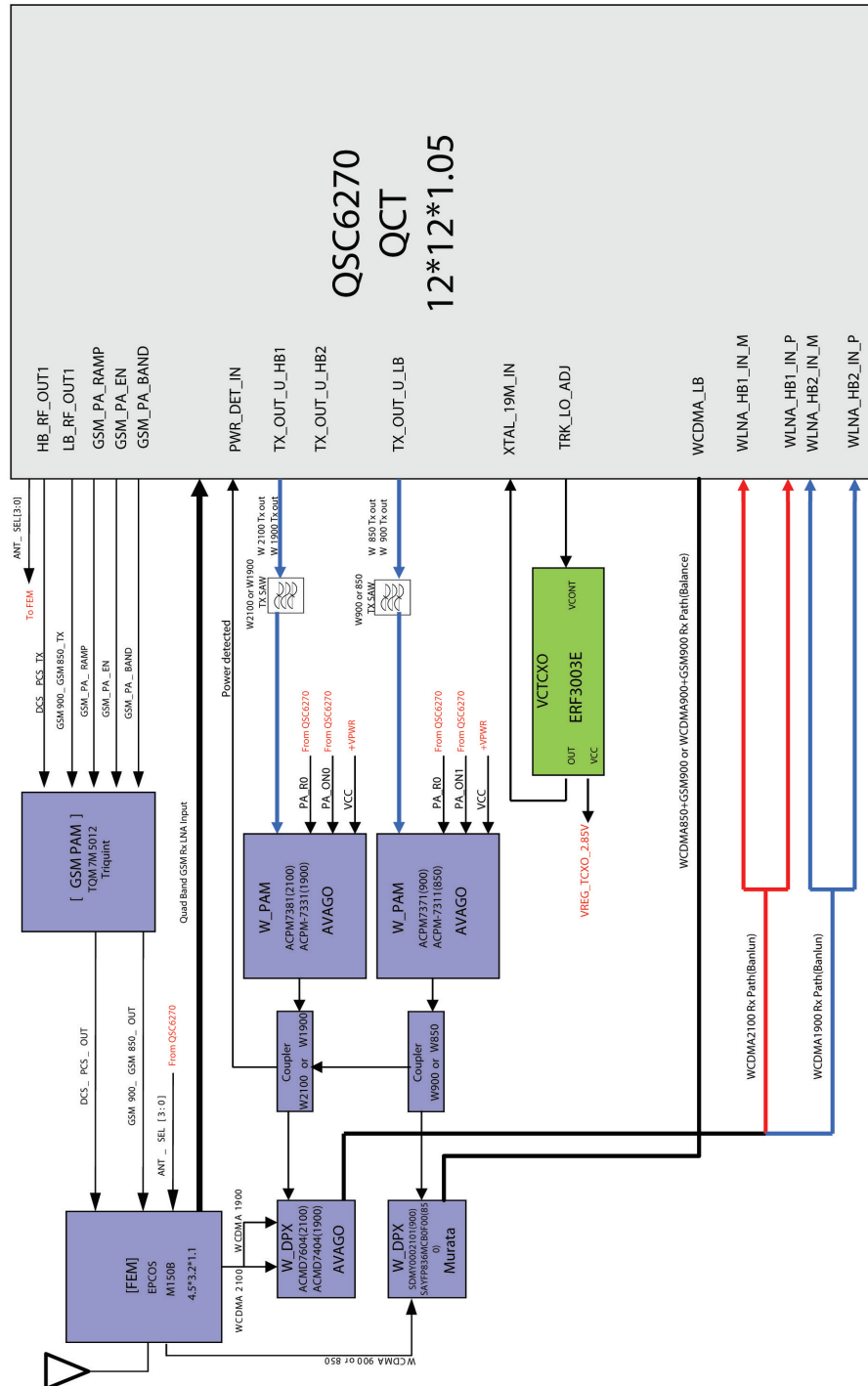






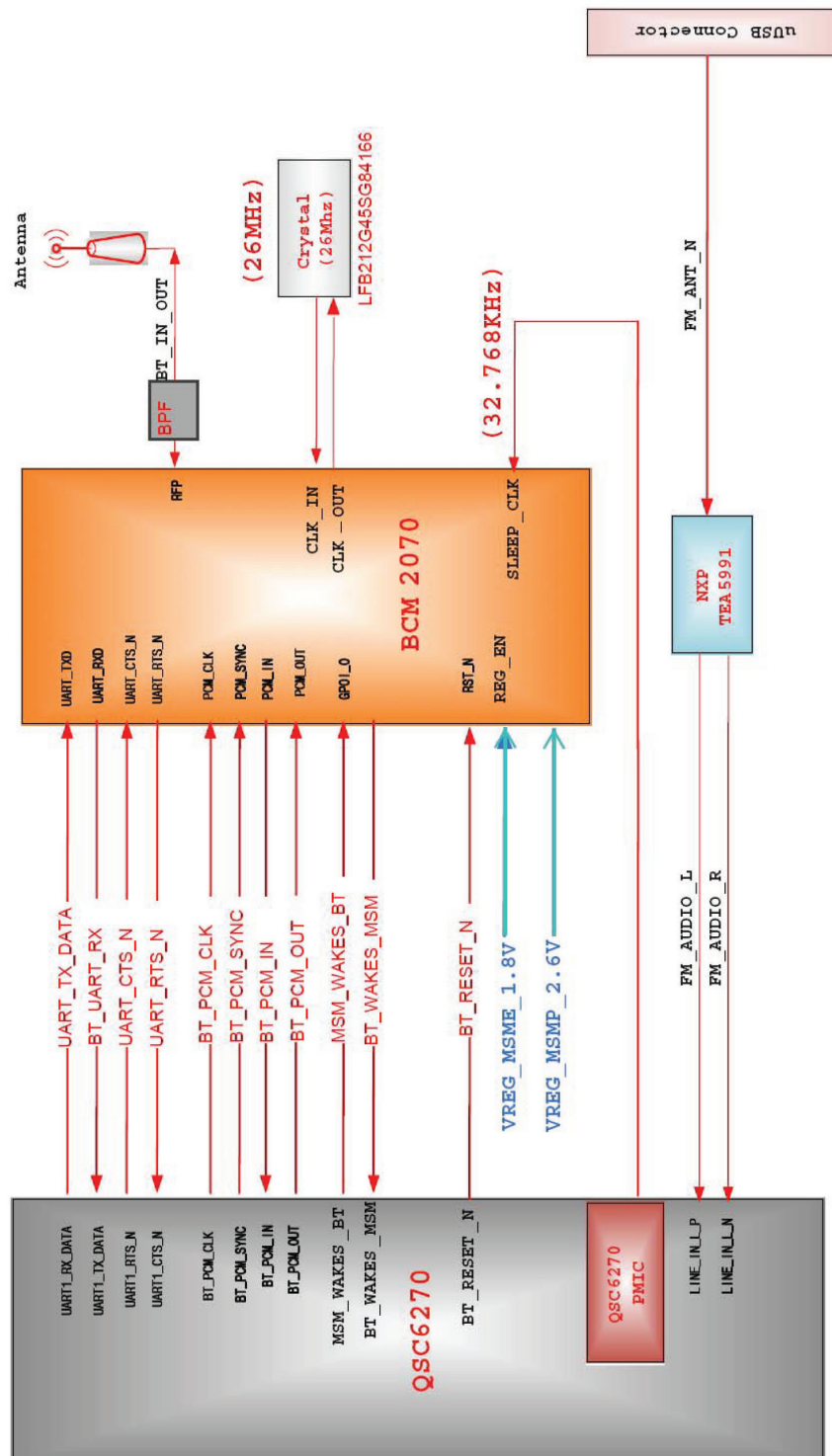


4. System HW Block Diagram : RF Block

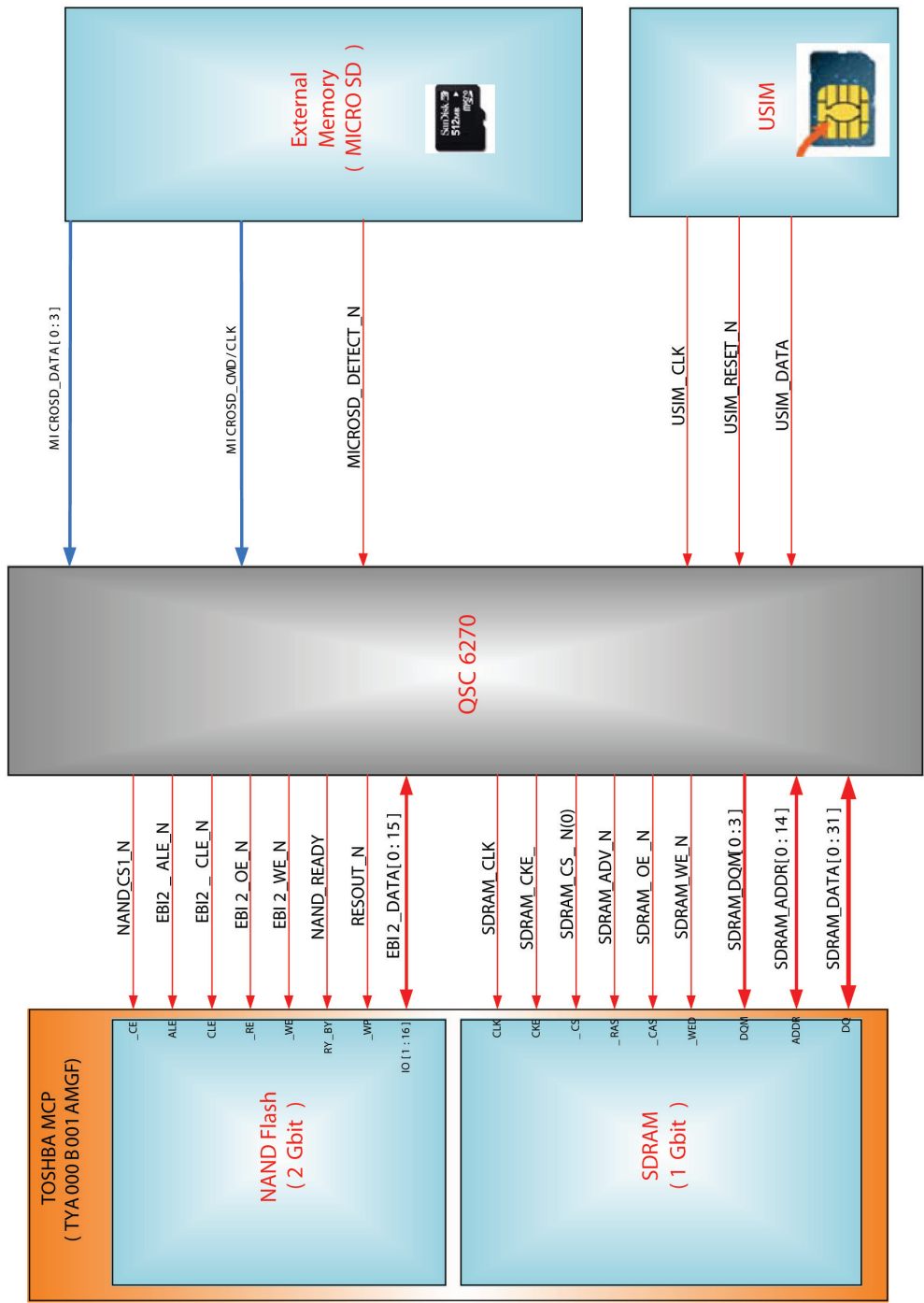


6. Block Diagram

5. System HW Block Diagram : Connectivity (BT & FM Radio)

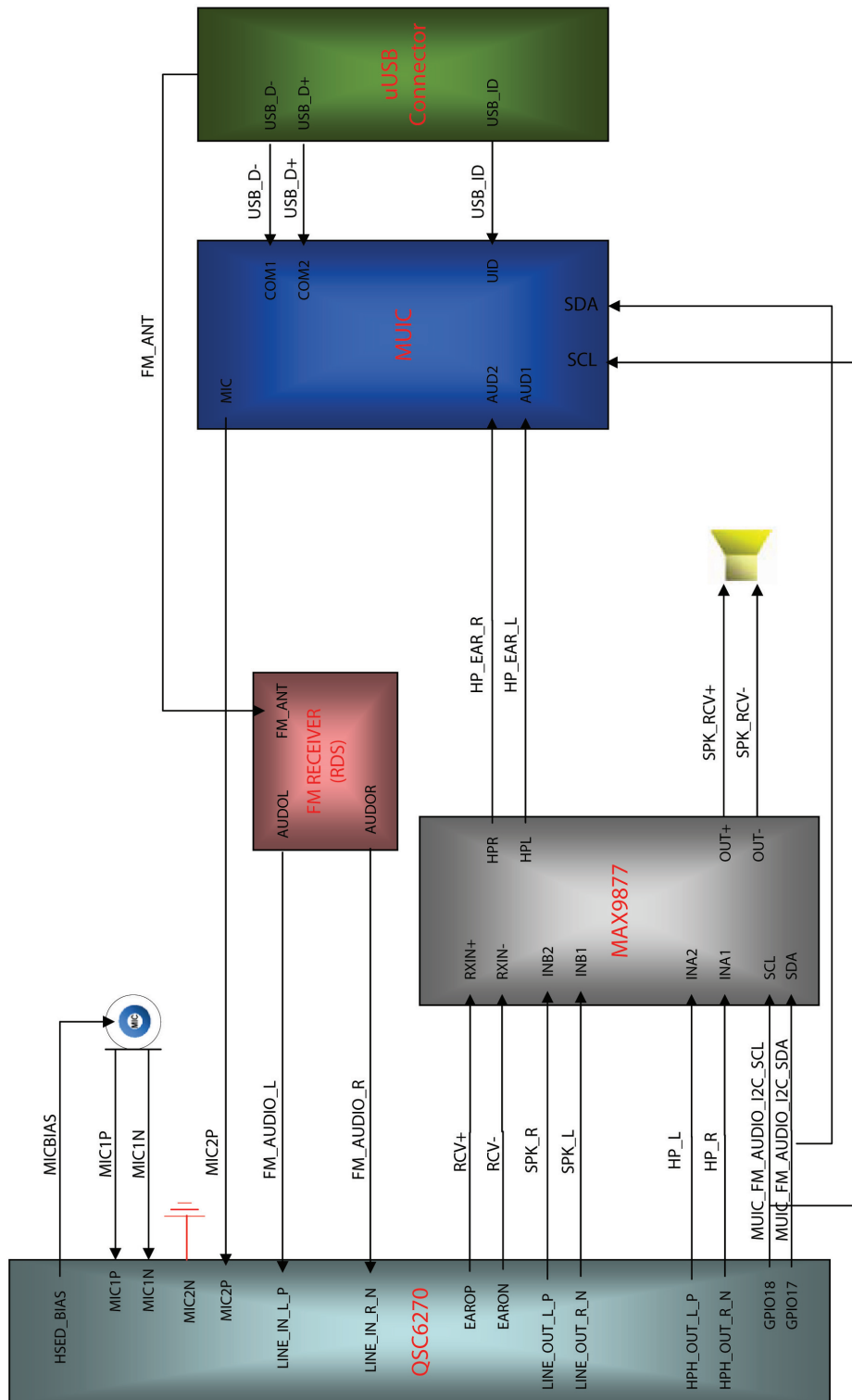


6. System HW Block Diagram : MEMORY

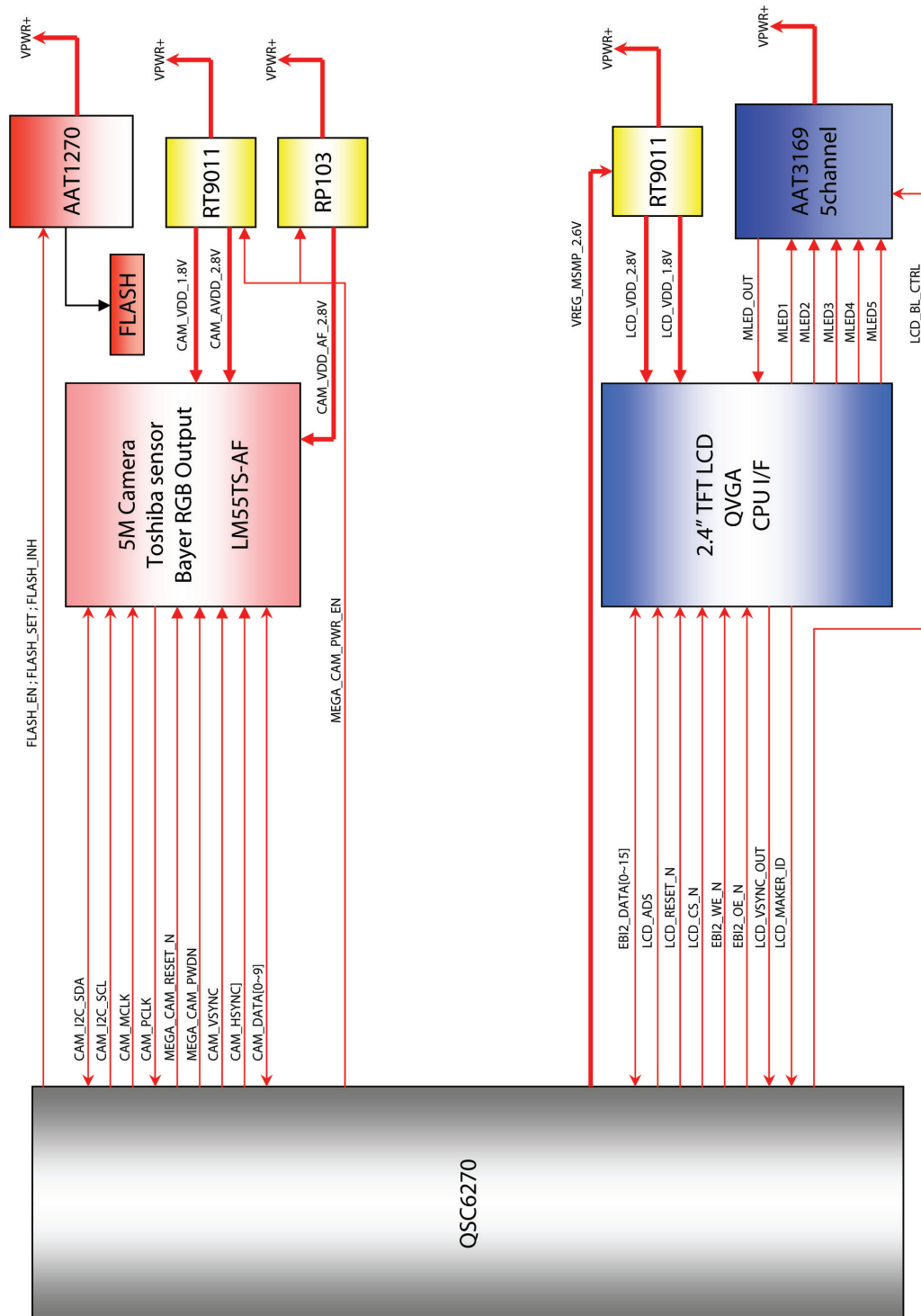


6. Block Diagram

7. System HW Block Diagram : AUDIO

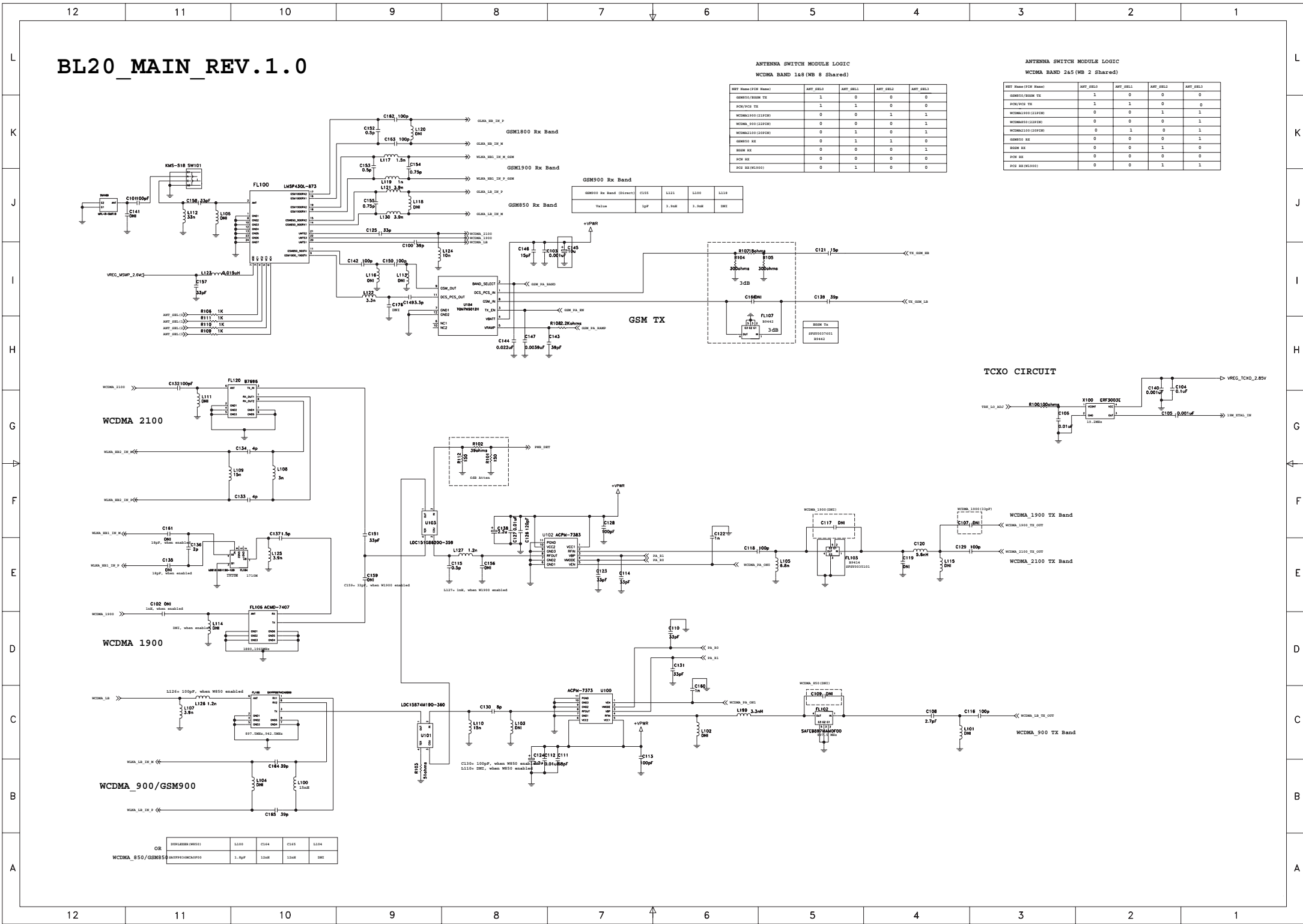


8. System HW Block Diagram : VISUAL(LCD & CAMERA)

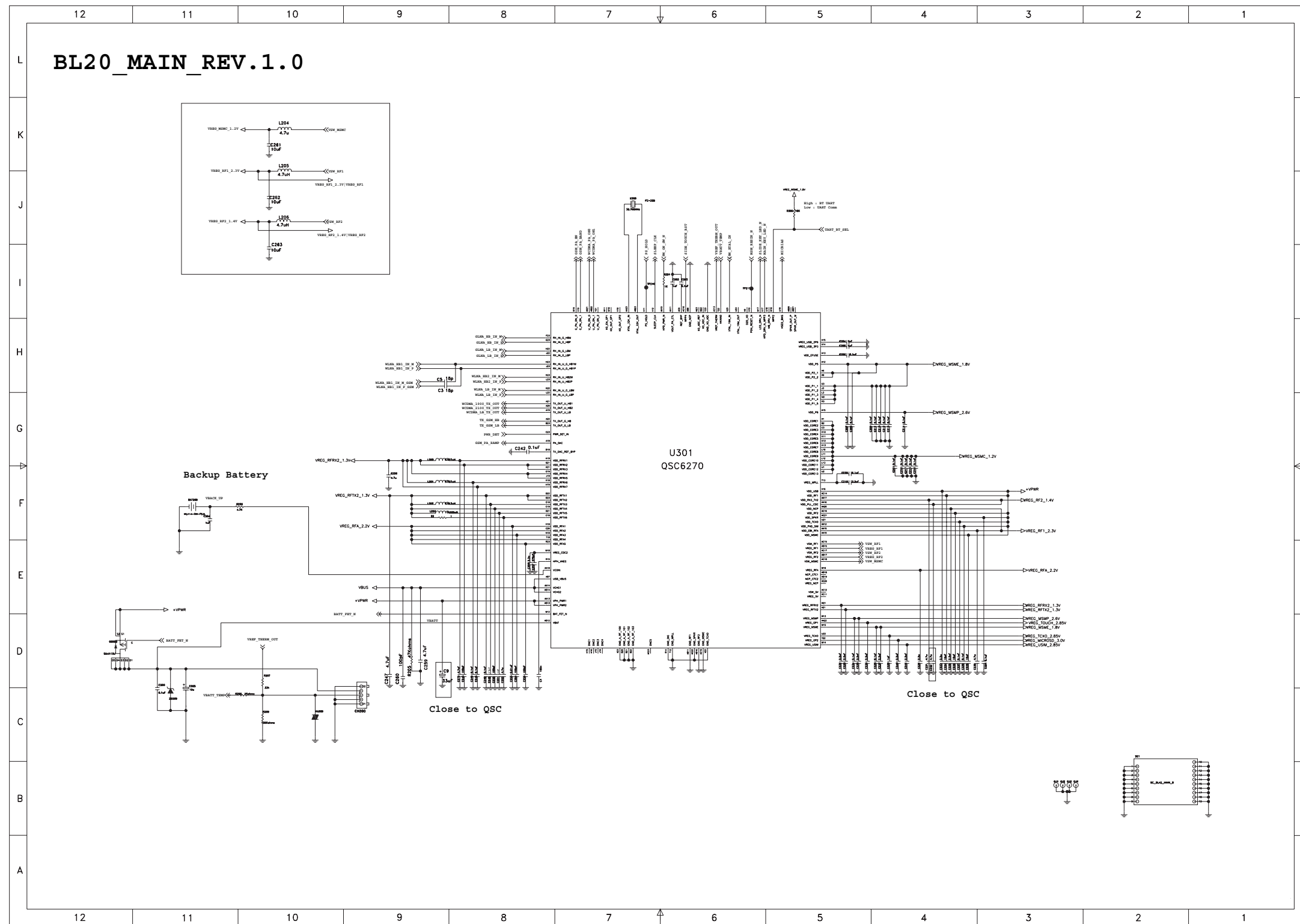




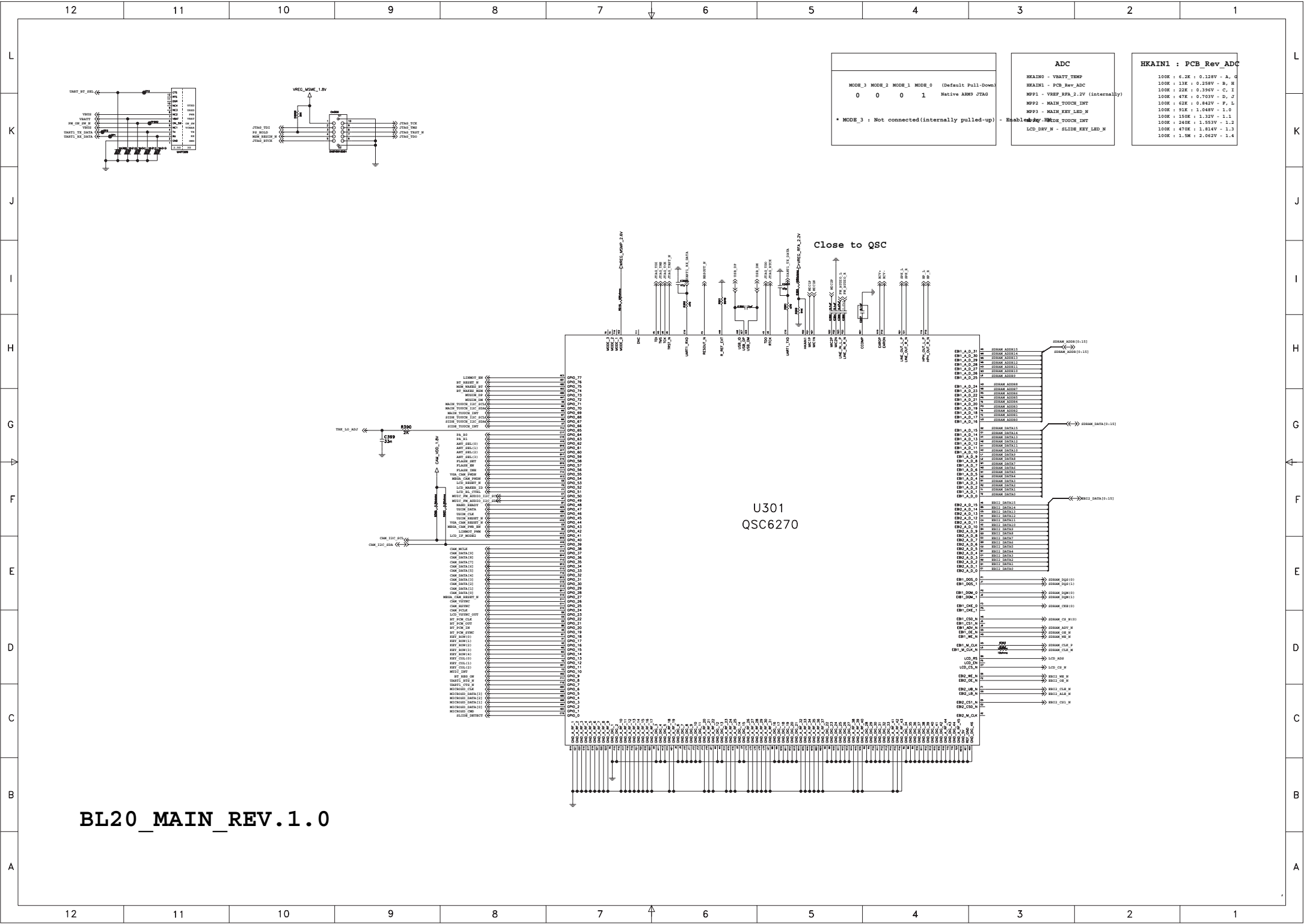
7. CIRCUIT DIAGRAM



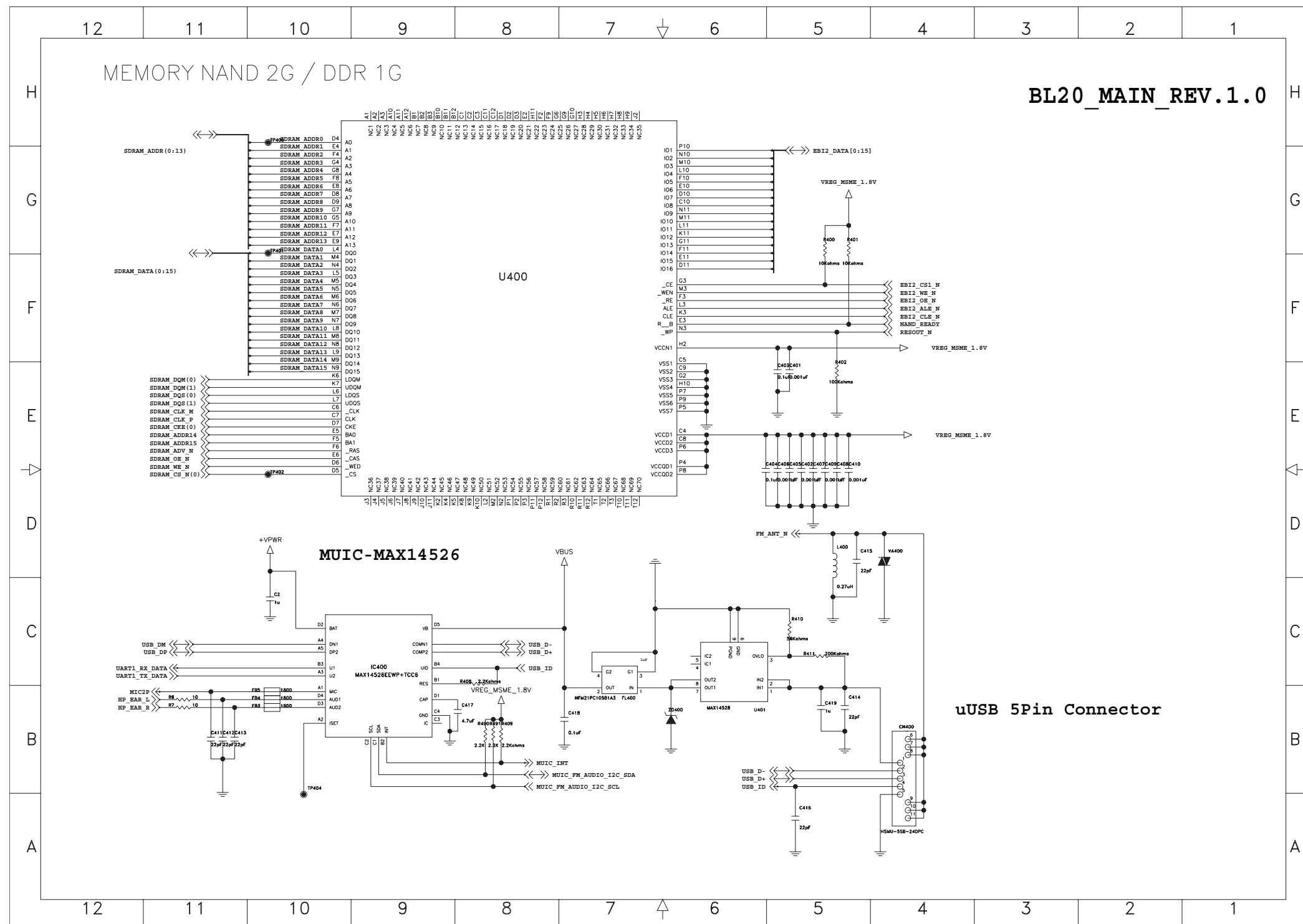
7. CIRCUIT DIAGRAM



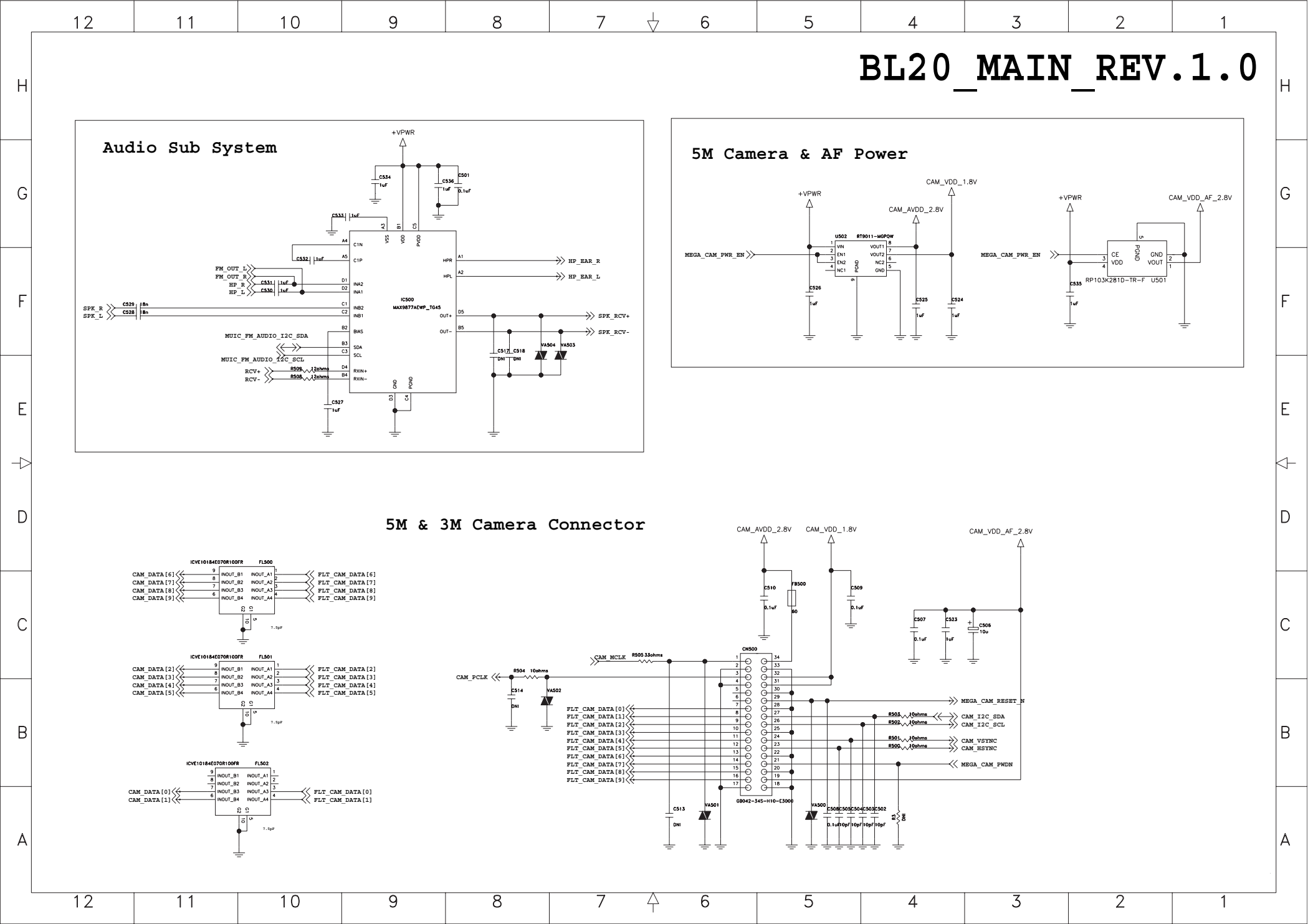
7. CIRCUIT DIAGRAM



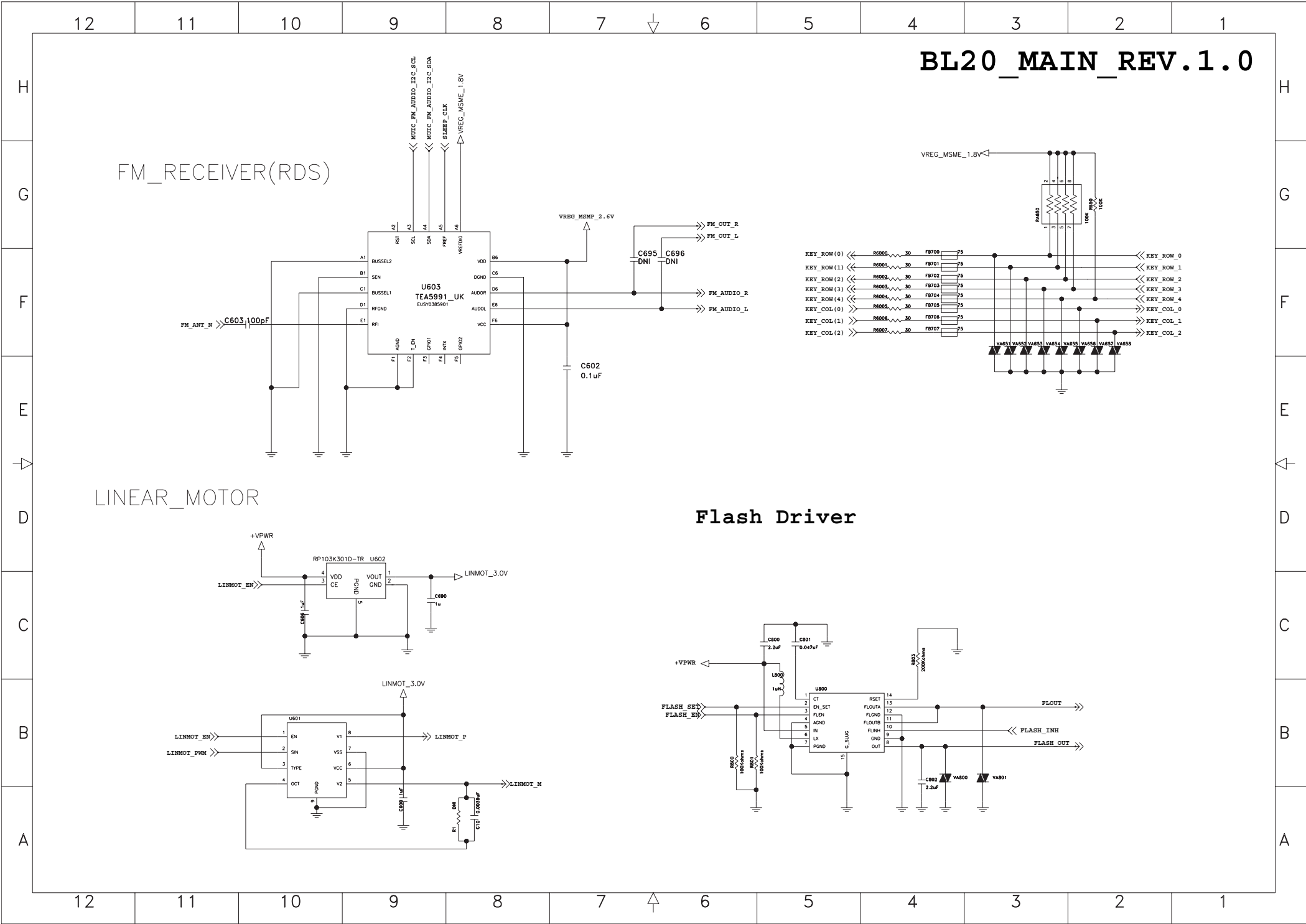
7. CIRCUIT DIAGRAM



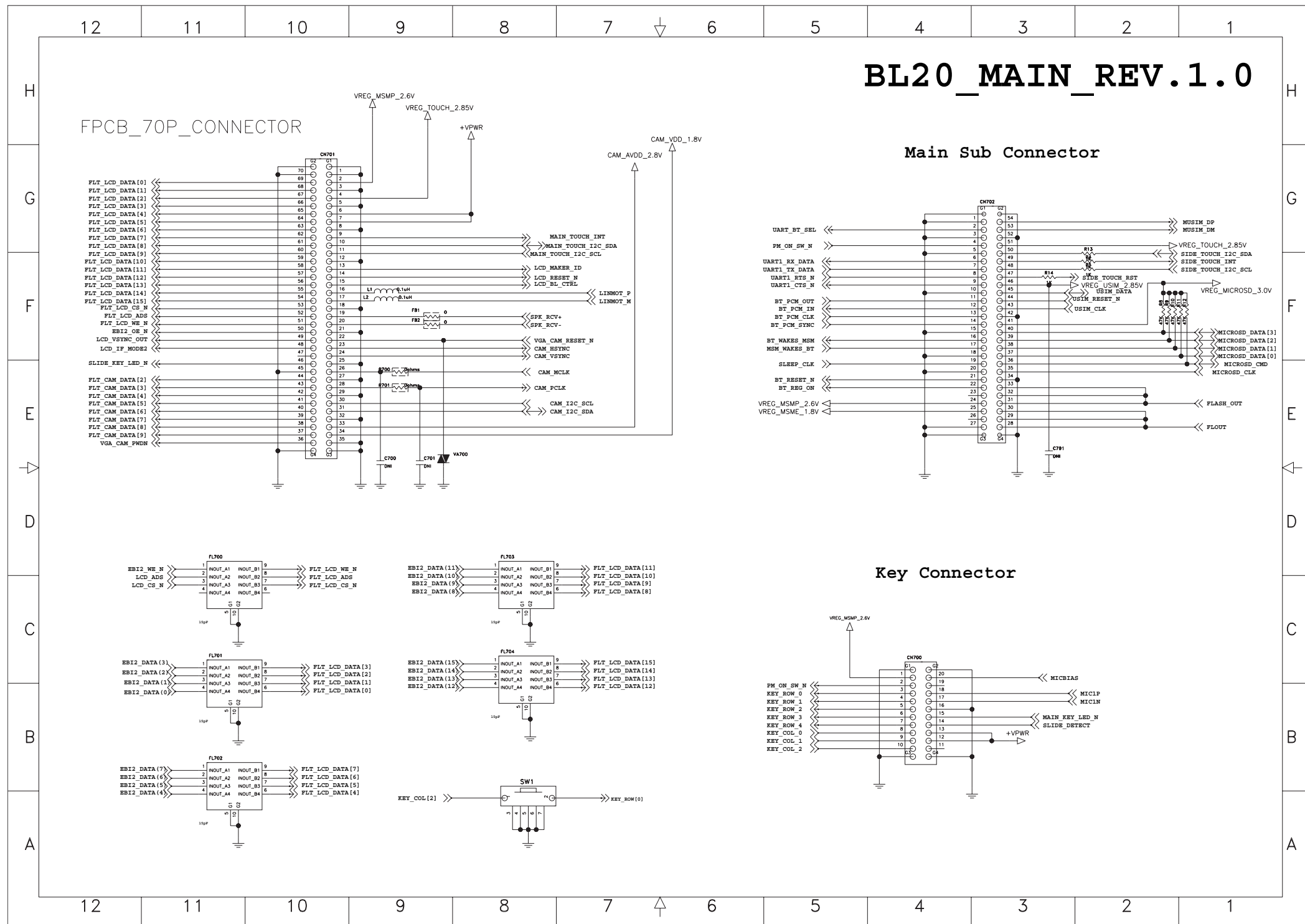
7. CIRCUIT DIAGRAM



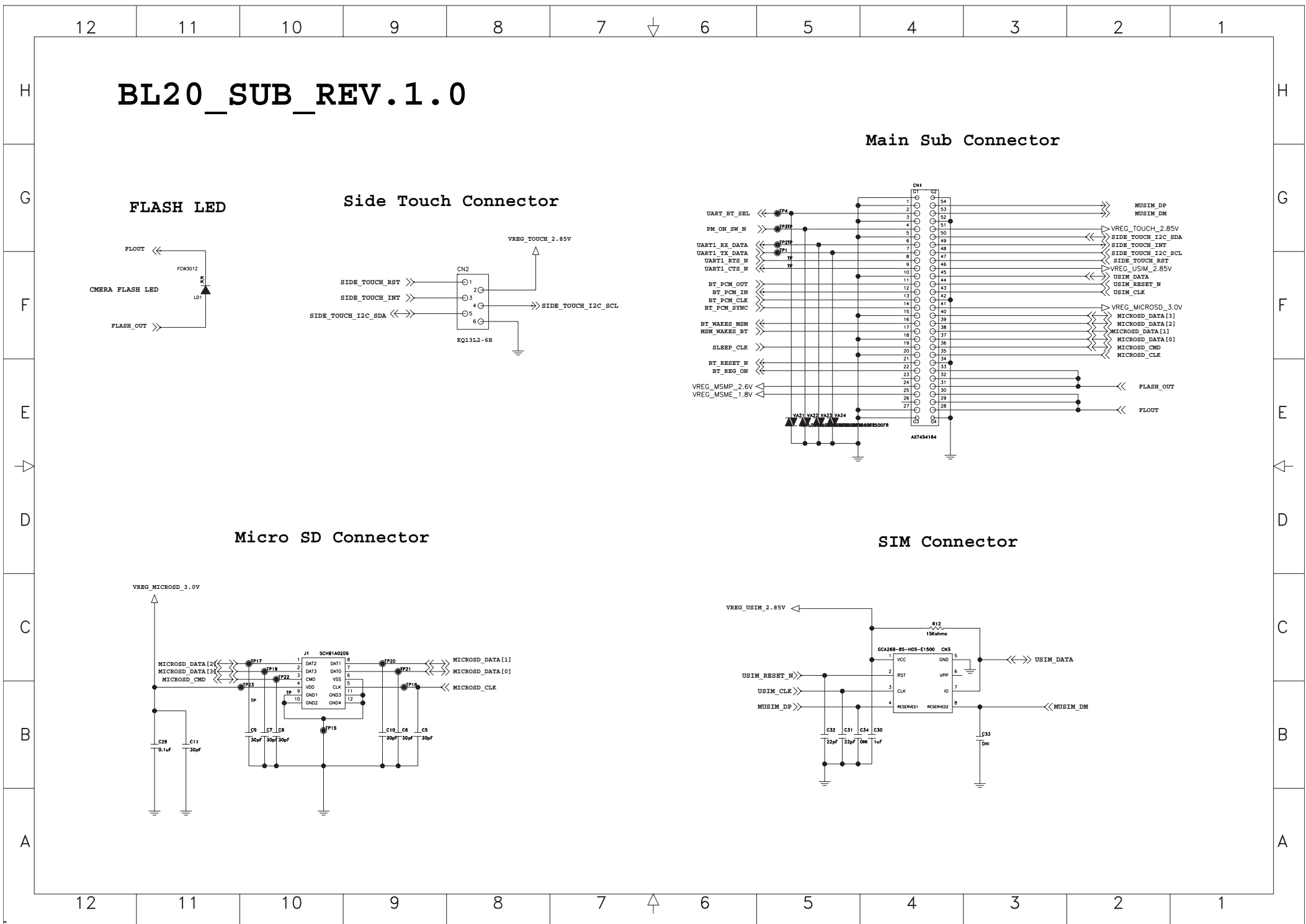
7. CIRCUIT DIAGRAM



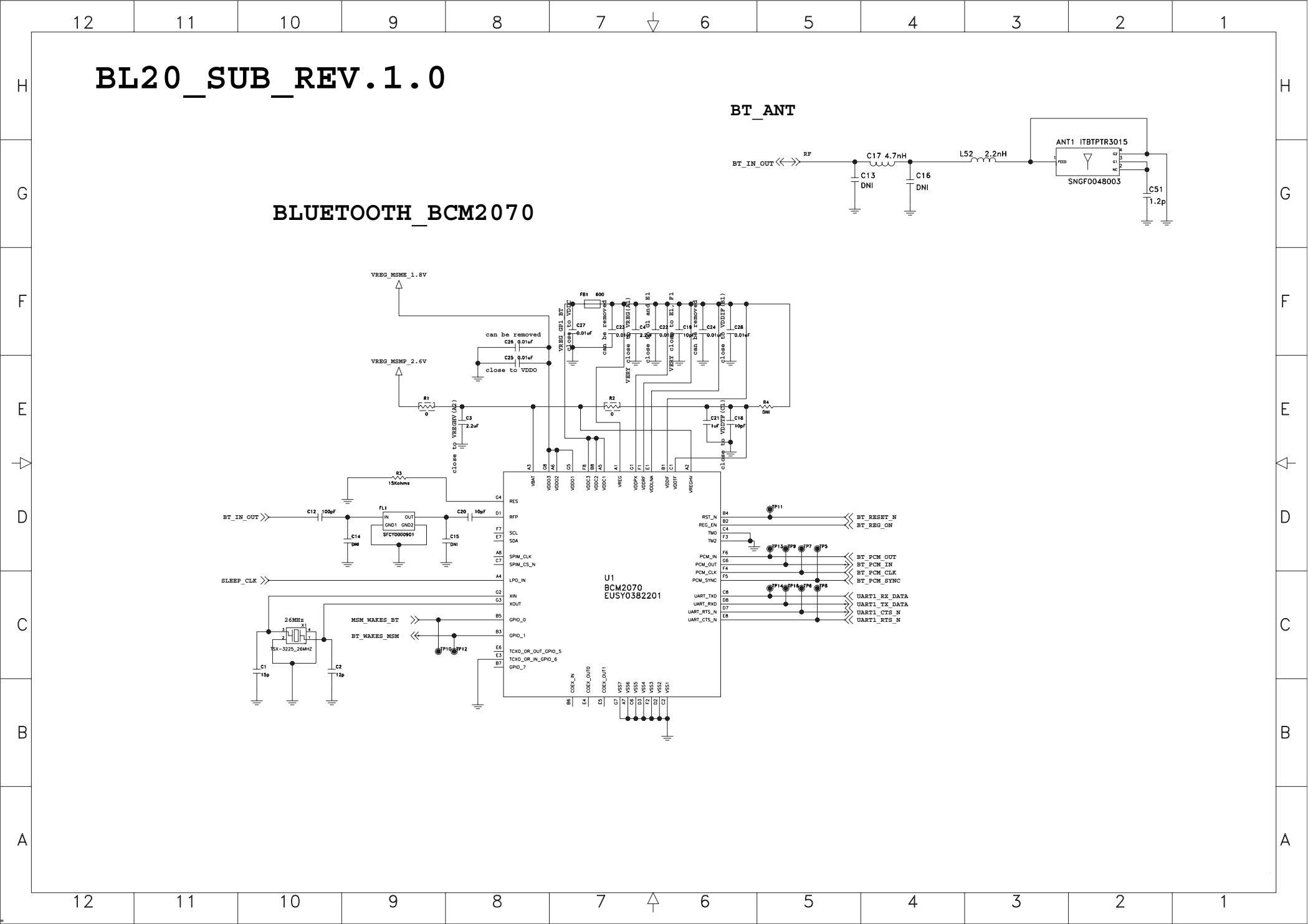
7. CIRCUIT DIAGRAM



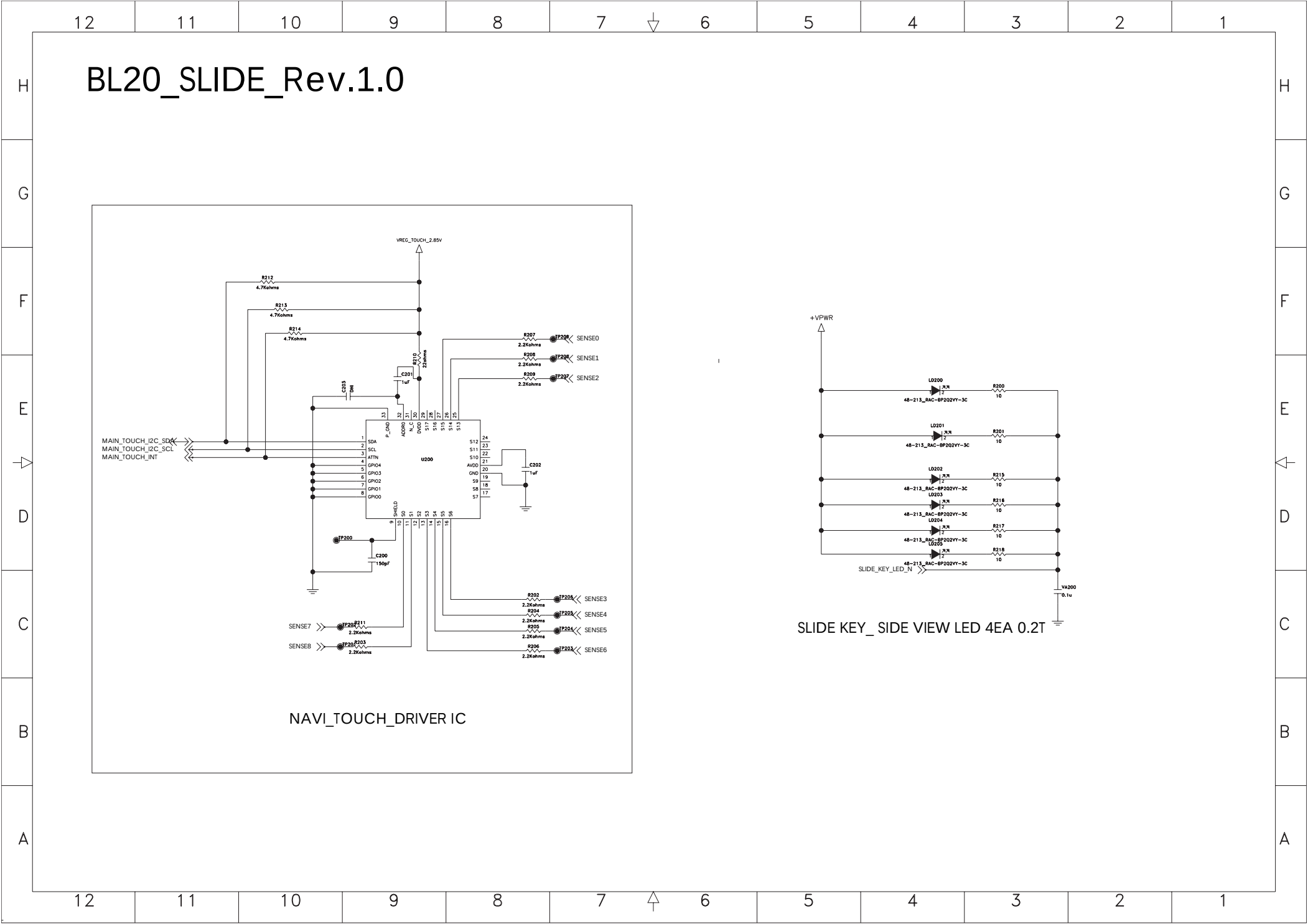
7. CIRCUIT DIAGRAM



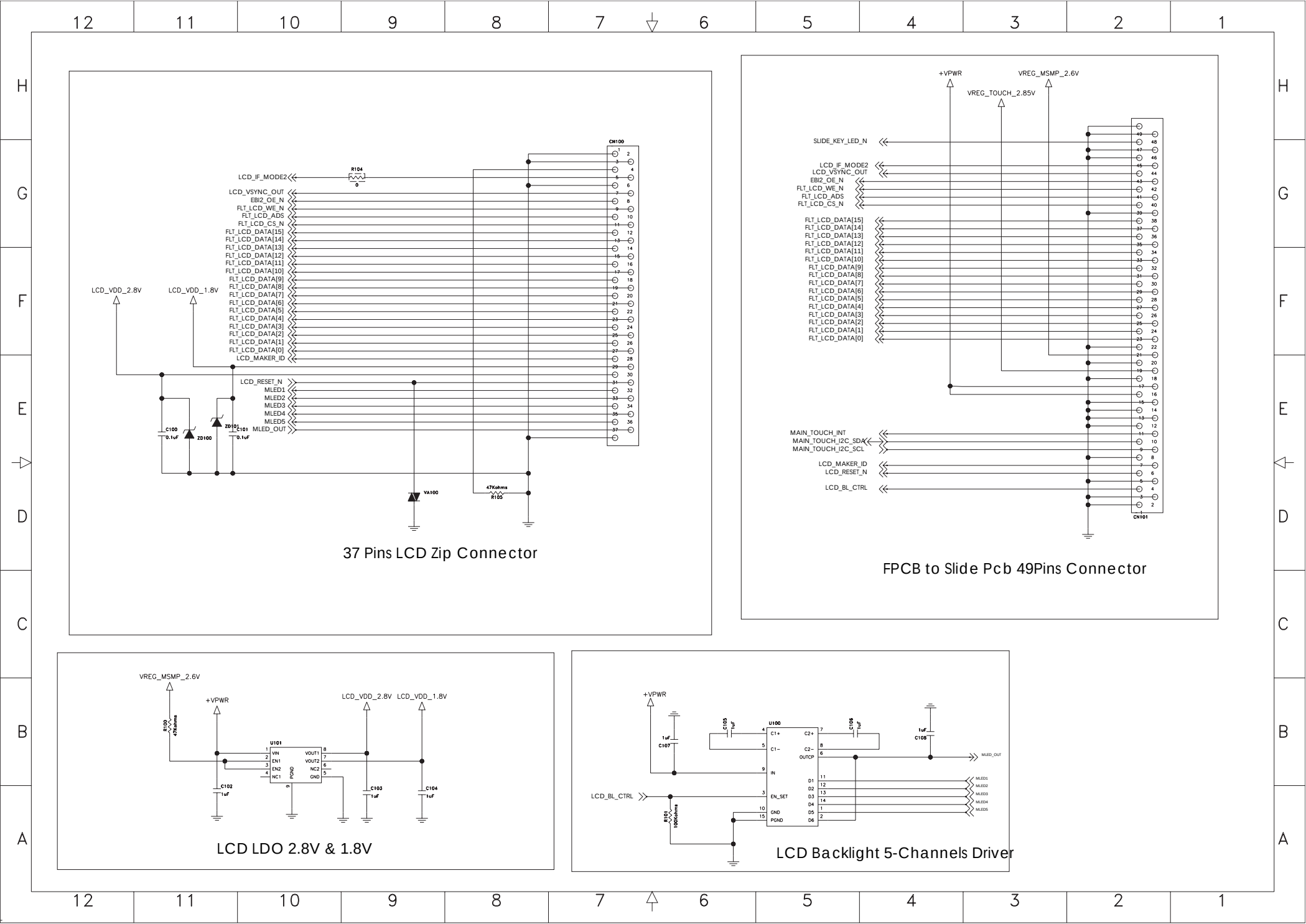
7. CIRCUIT DIAGRAM



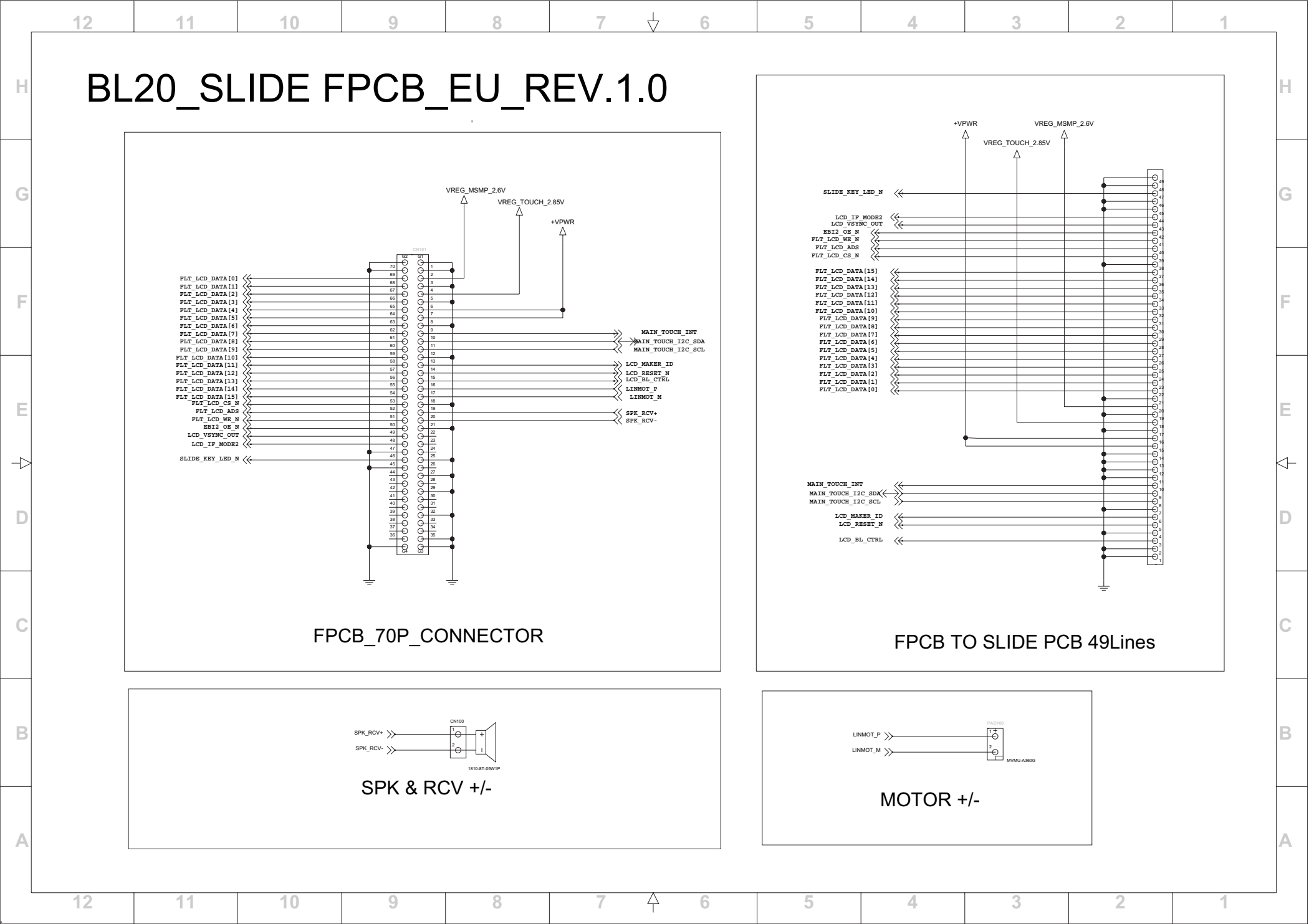
7. CIRCUIT DIAGRAM



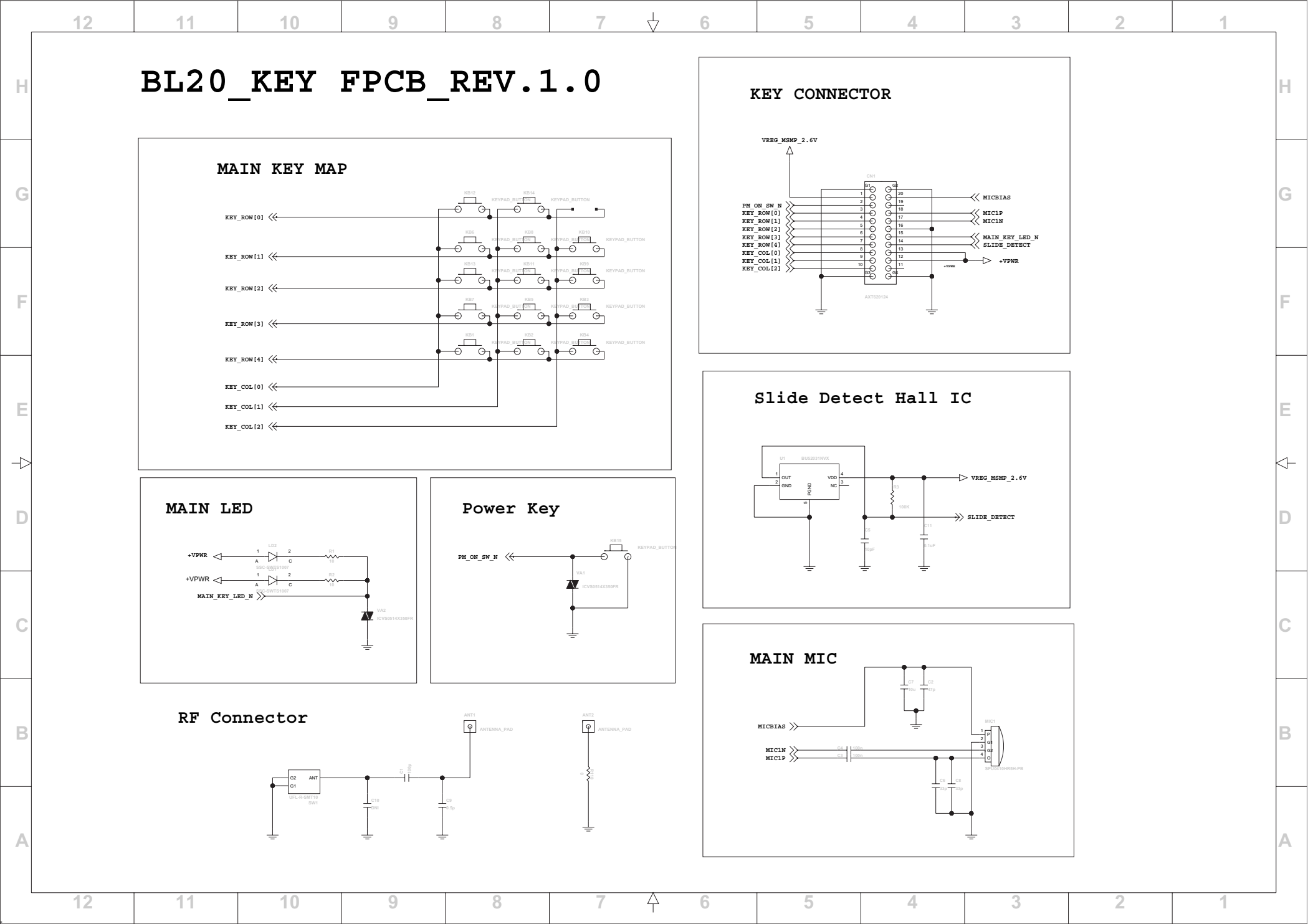
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM

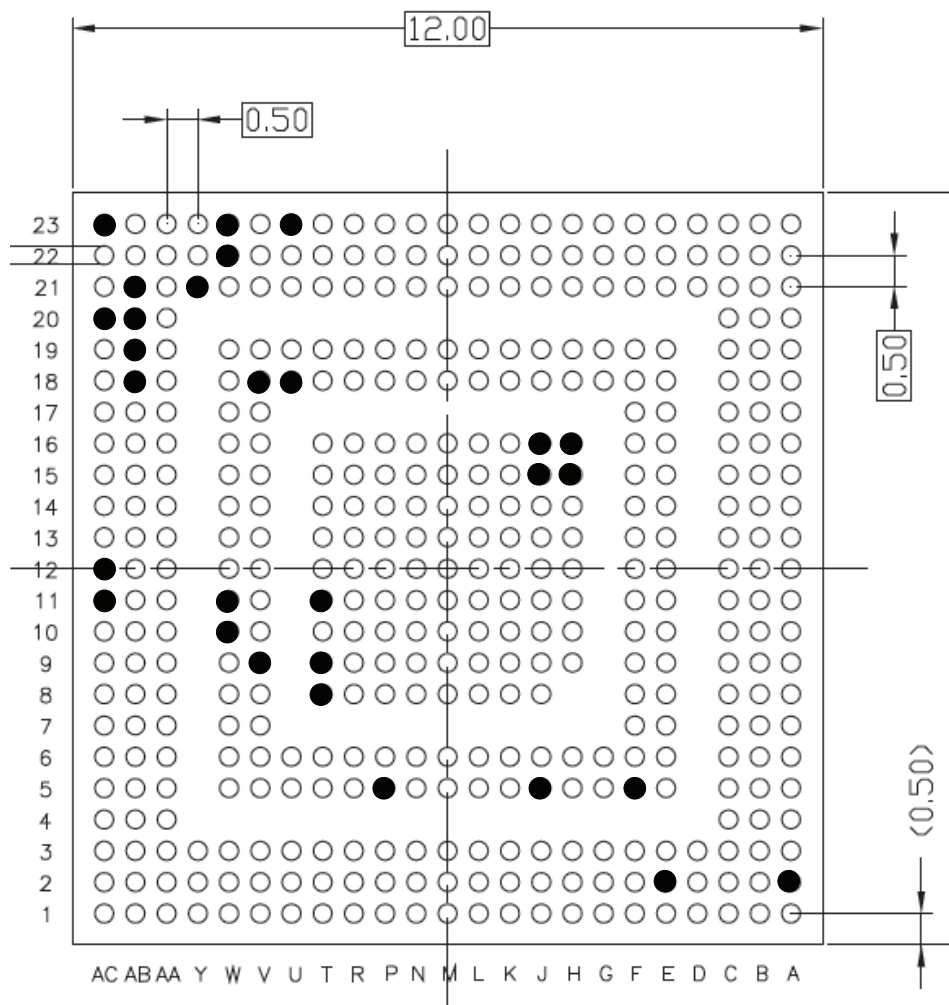


7. CIRCUIT DIAGRAM



8. BGA Pin Map

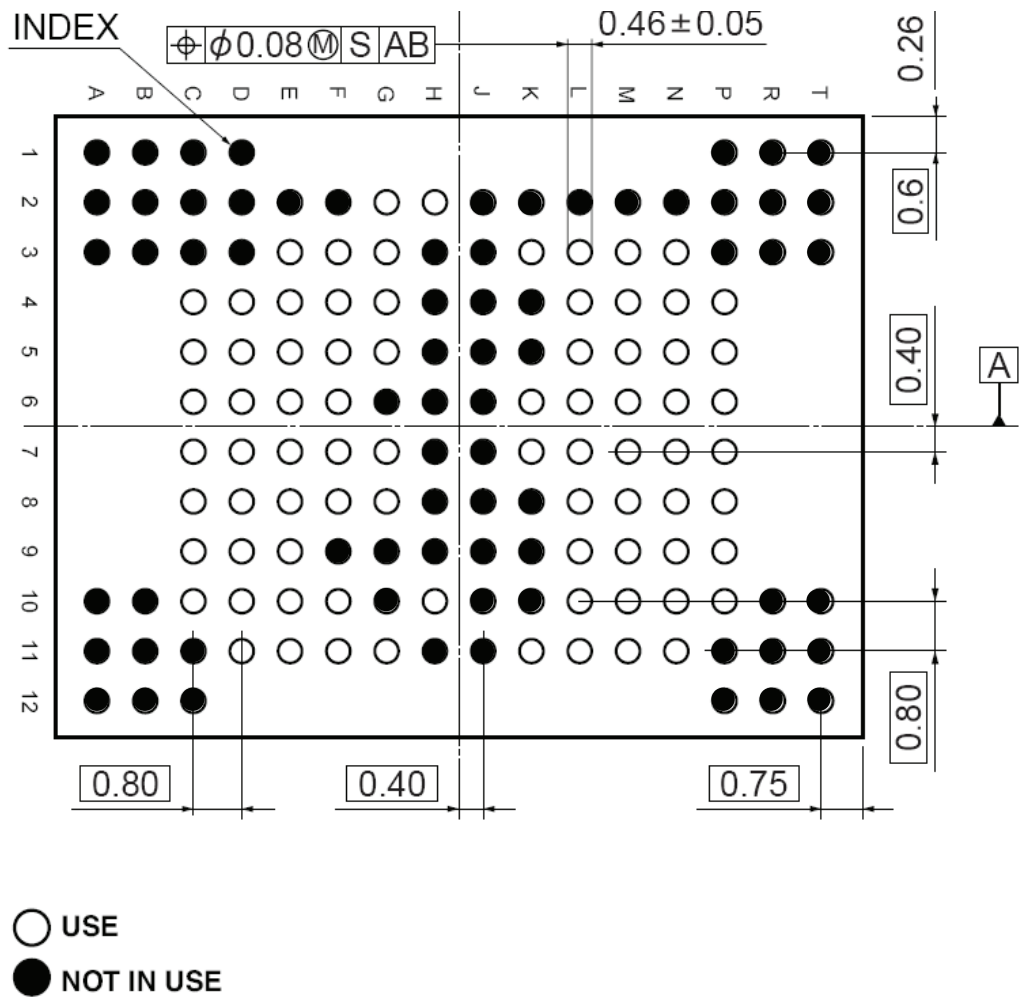
QSC6270 -U301 (bottom view)



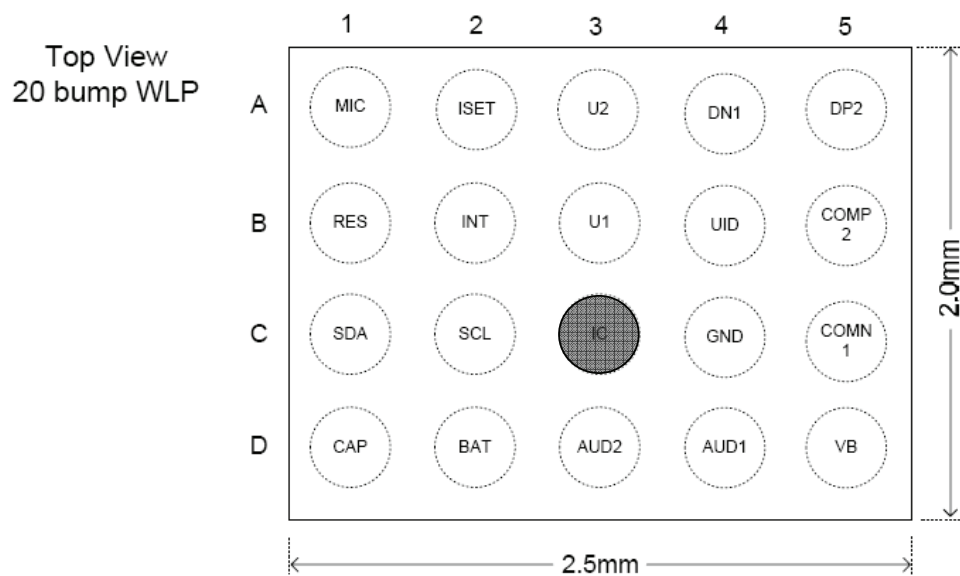
○ USE
● NOT IN USE

8. BGA Pin Map

TYA000B001BLKF -U400



MAX14526 (MUIC) – IC400(MAX14526EWP+TCC6)



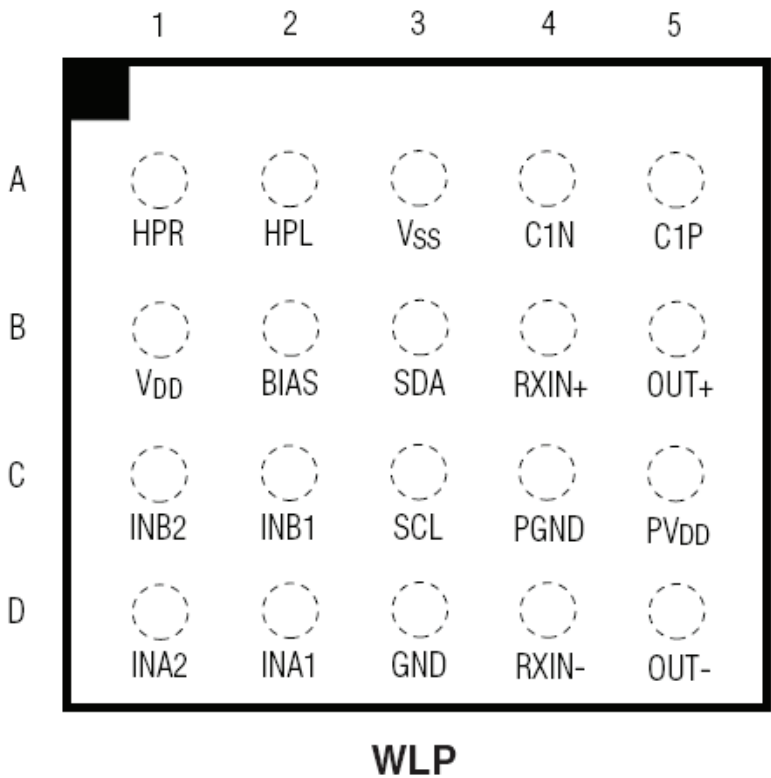
○ USE
● NOT IN USE

8. BGA Pin Map

MAX9877(AUDIO SUB SYSTEM)

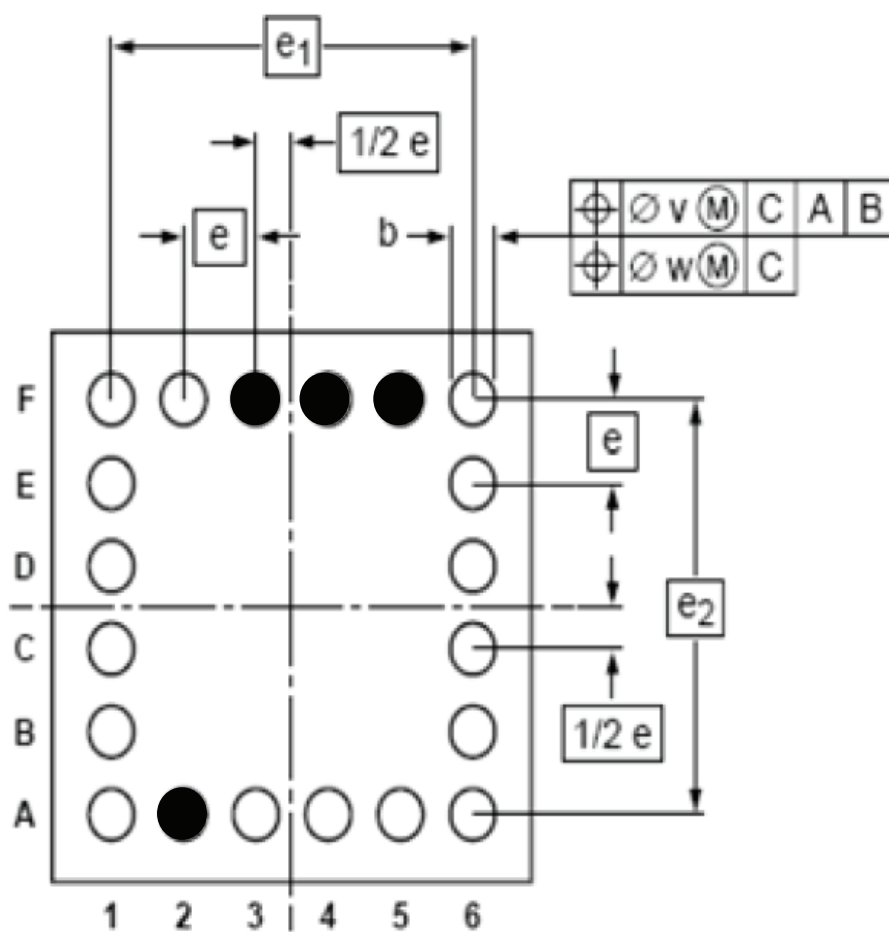
- IC500(MAX9877AEWP_TG45)

TOP VIEW
(BUMP SIDE DOWN)



○ USE
● NOT IN USE

TEA5991 (FM_RECEIVER (RDS)) – U603

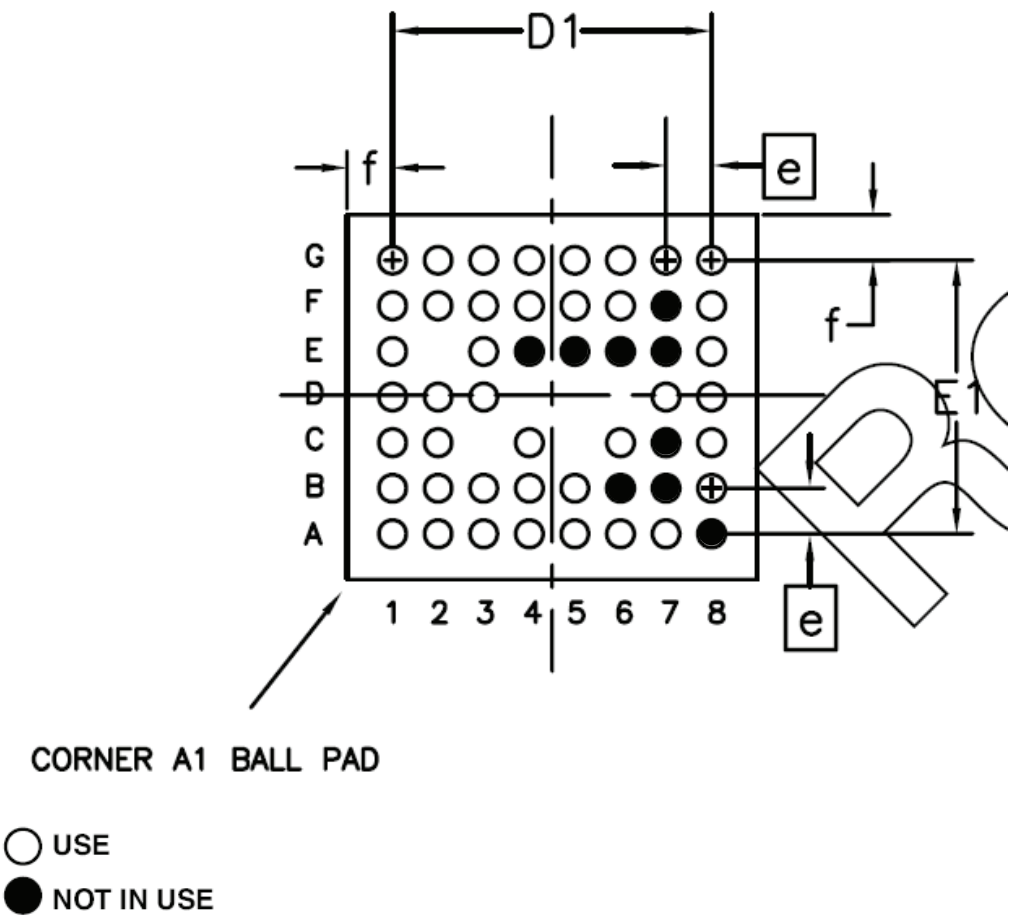


☐ USE

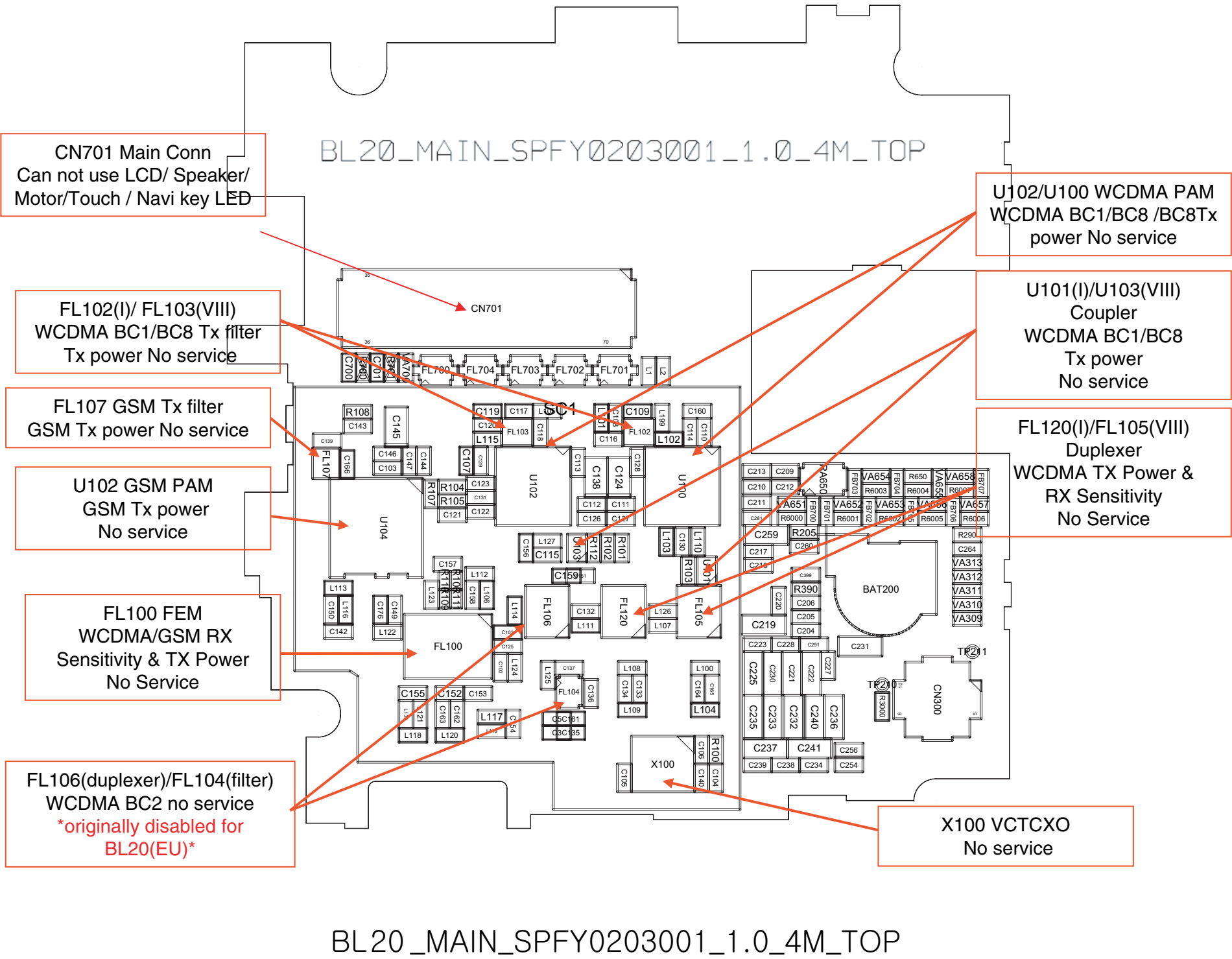
● NOT IN USE

8. BGA Pin Map

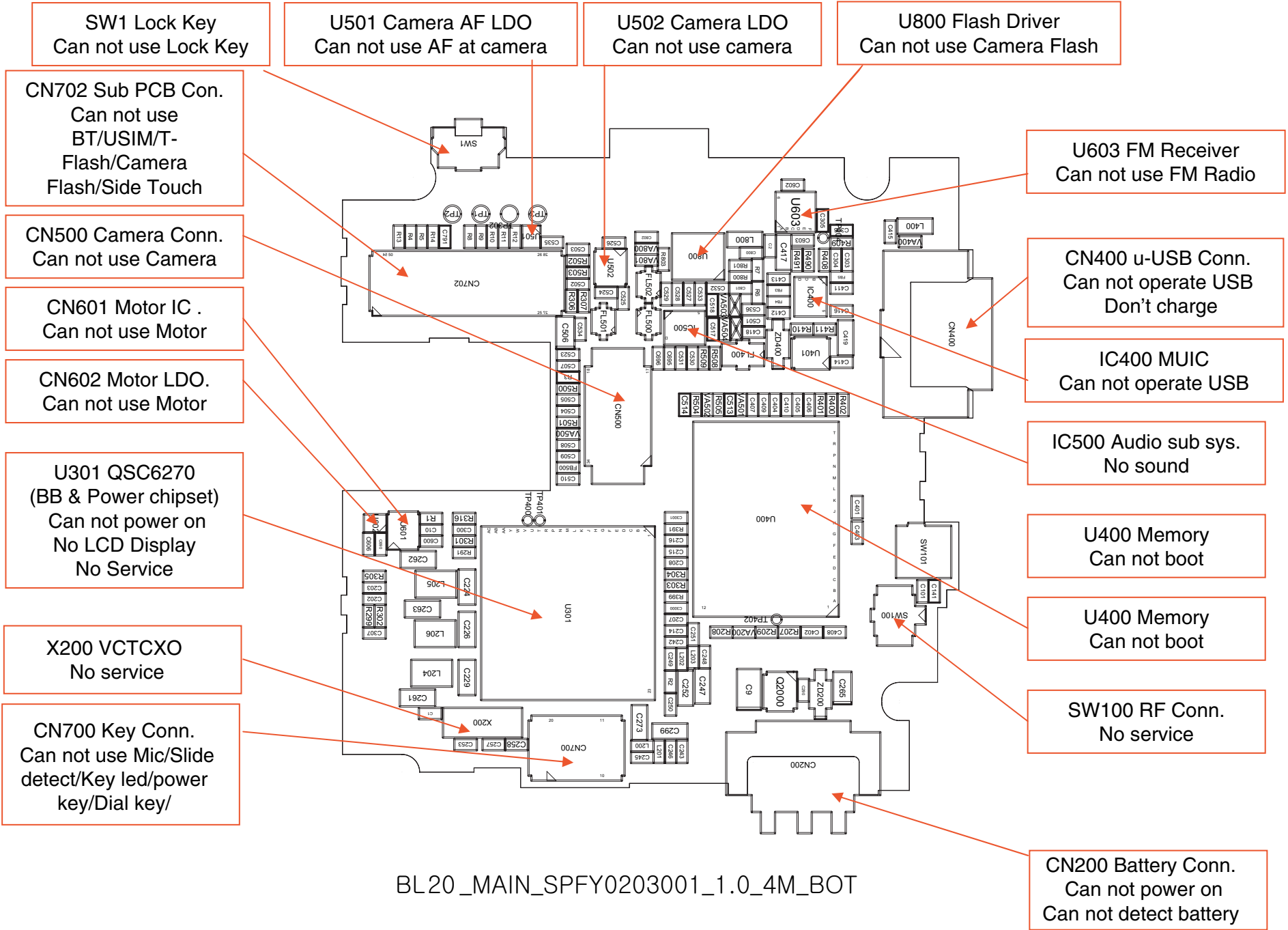
BCM2070 (BLUETOOTH_BCM2070) -U1



9. PCB LAYOUT

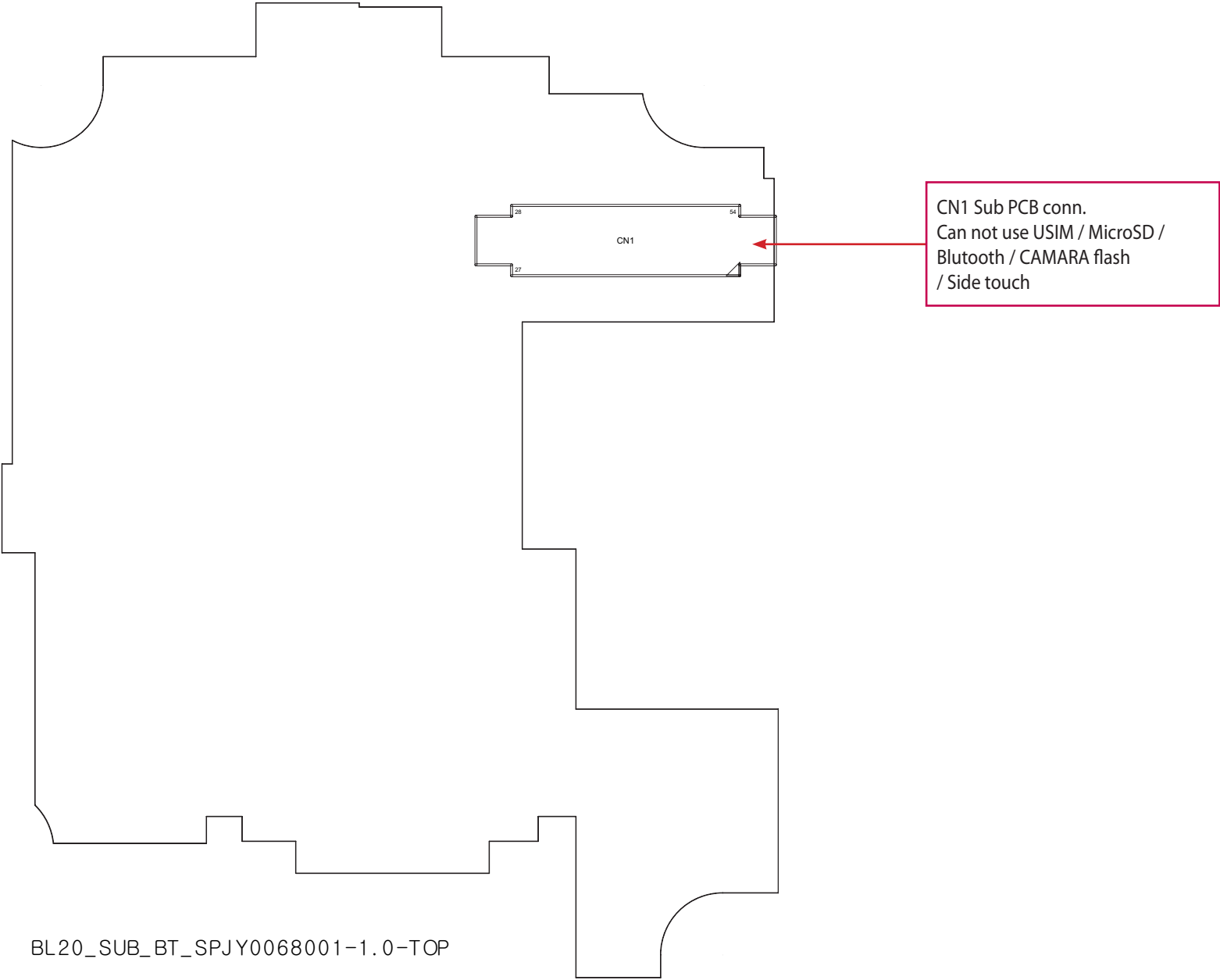


9. PCB LAYOUT

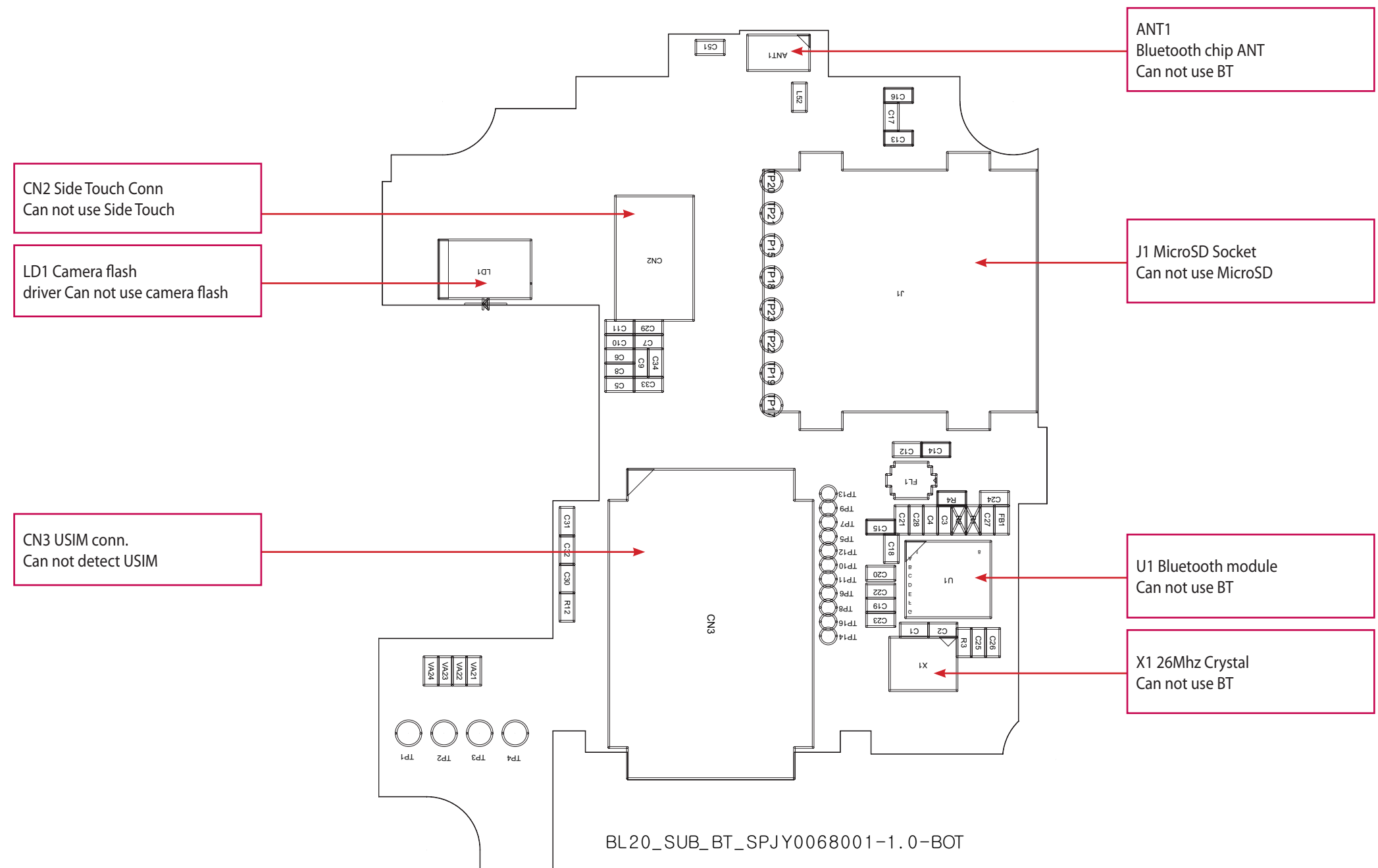


BL20_MAIN_SPFY0203001_1.0_4M_BOT

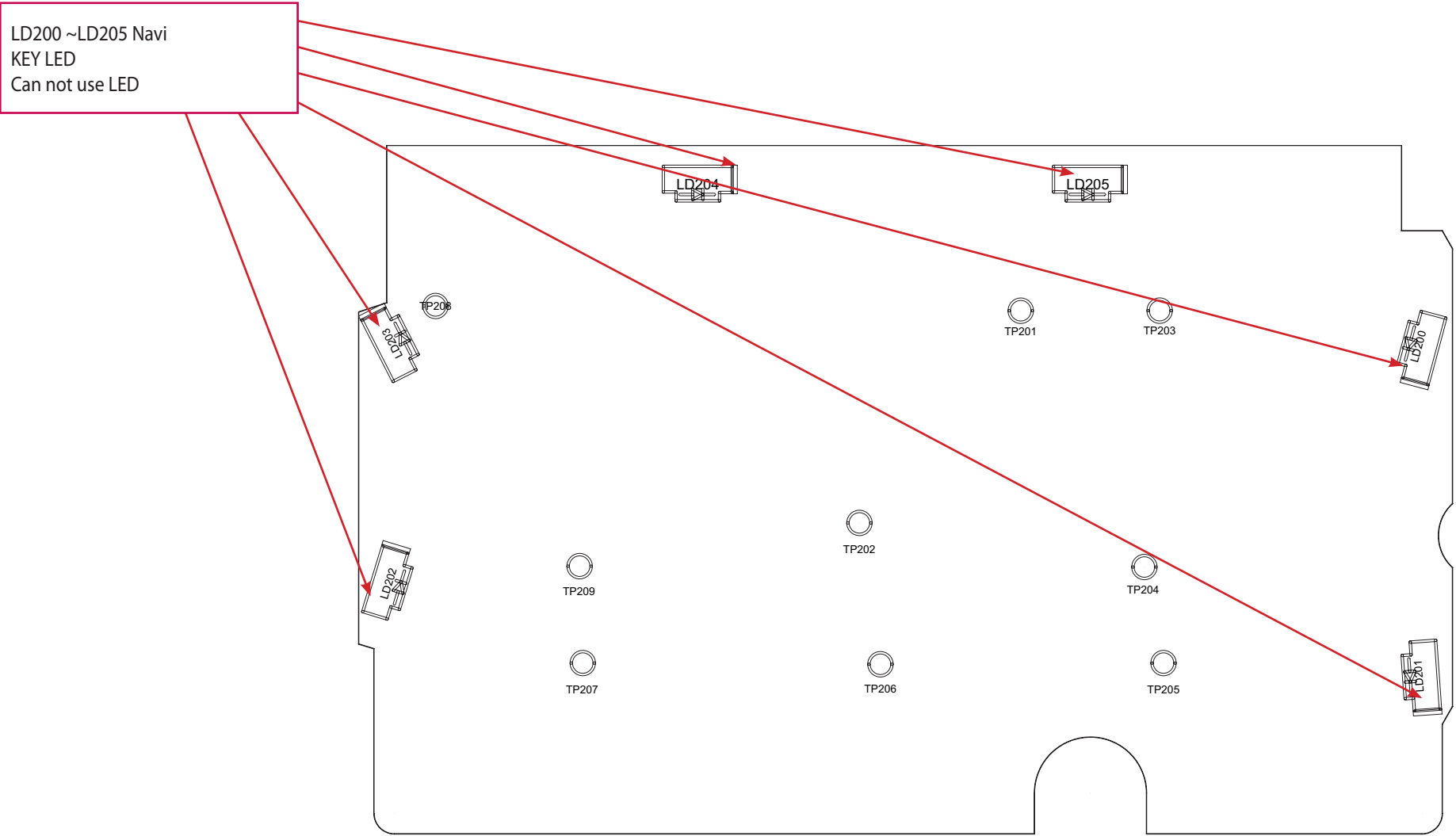
9. PCB LAYOUT



9. PCB LAYOUT

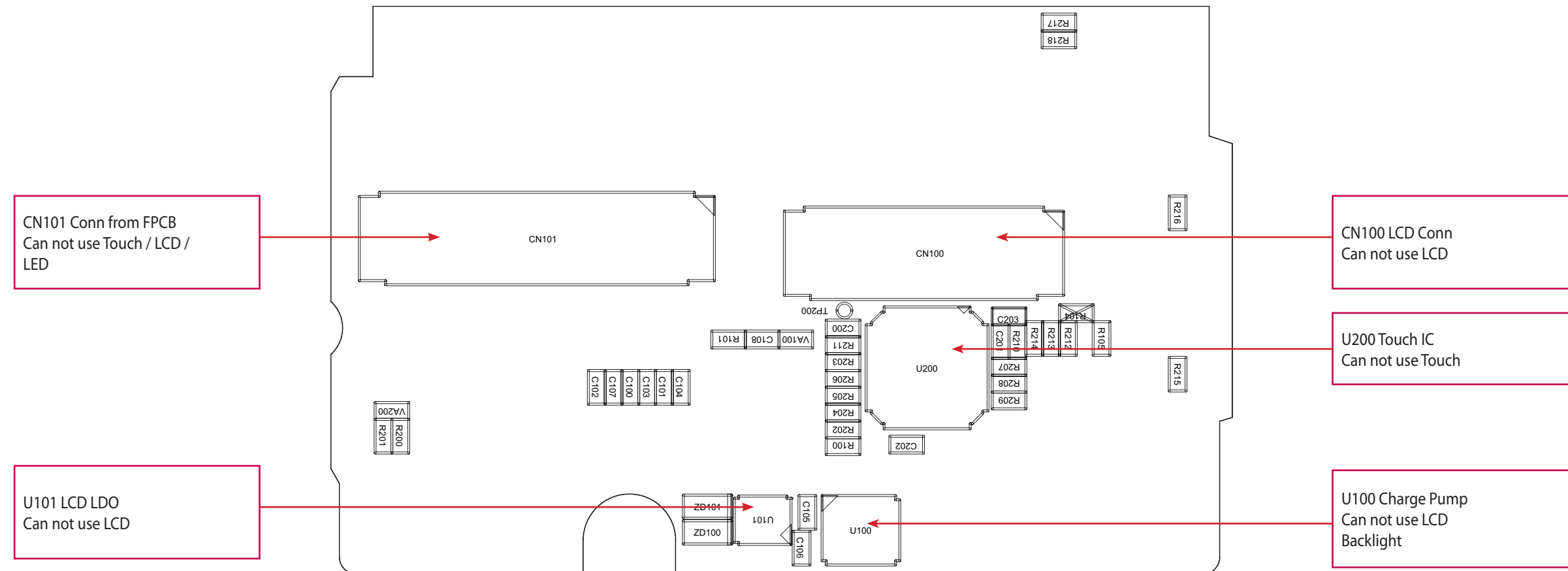


9. PCB LAYOUT



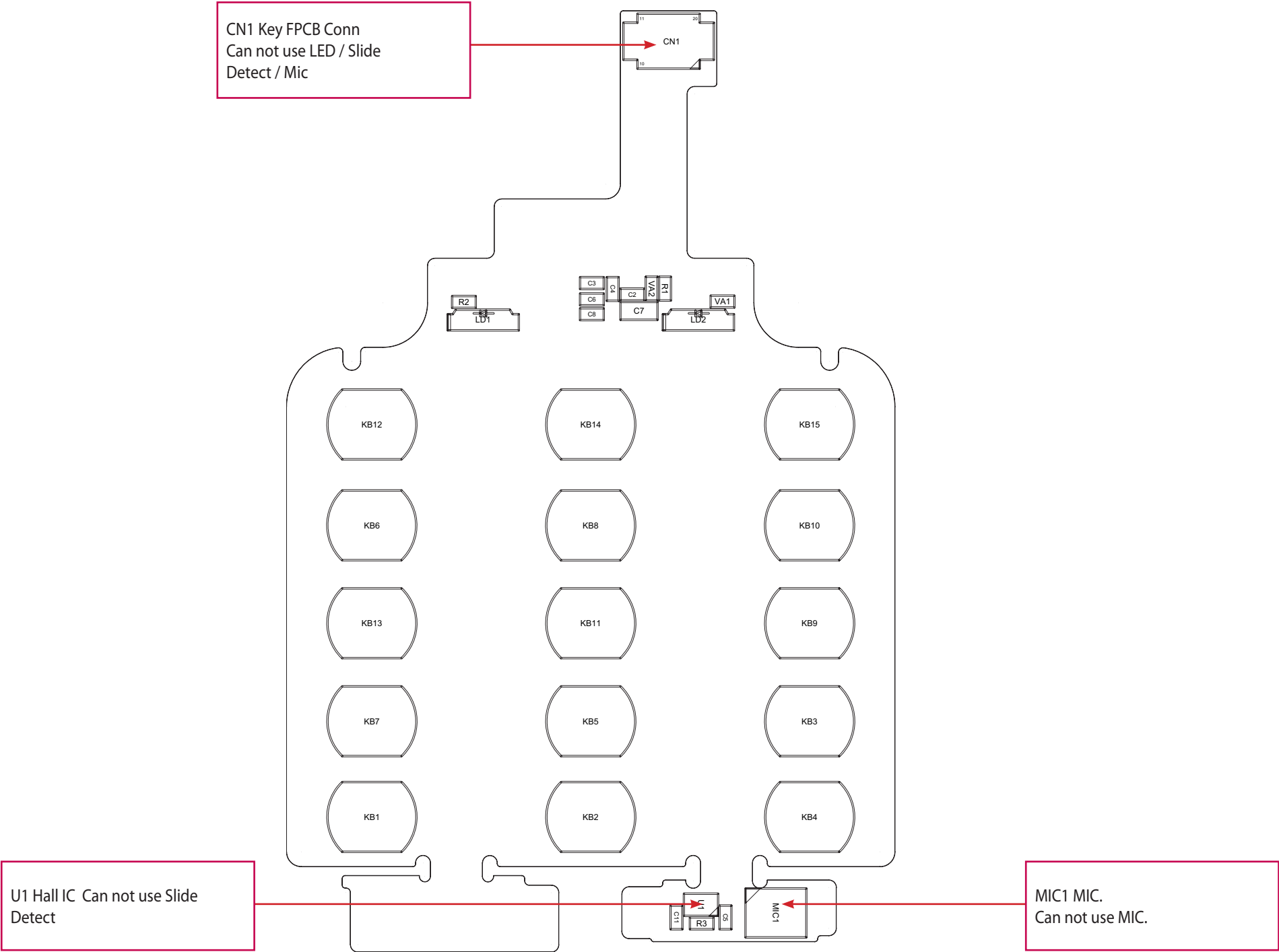
BL20_SLI DE_SPEY0062301_1.1_TOP

9. PCB LAYOUT



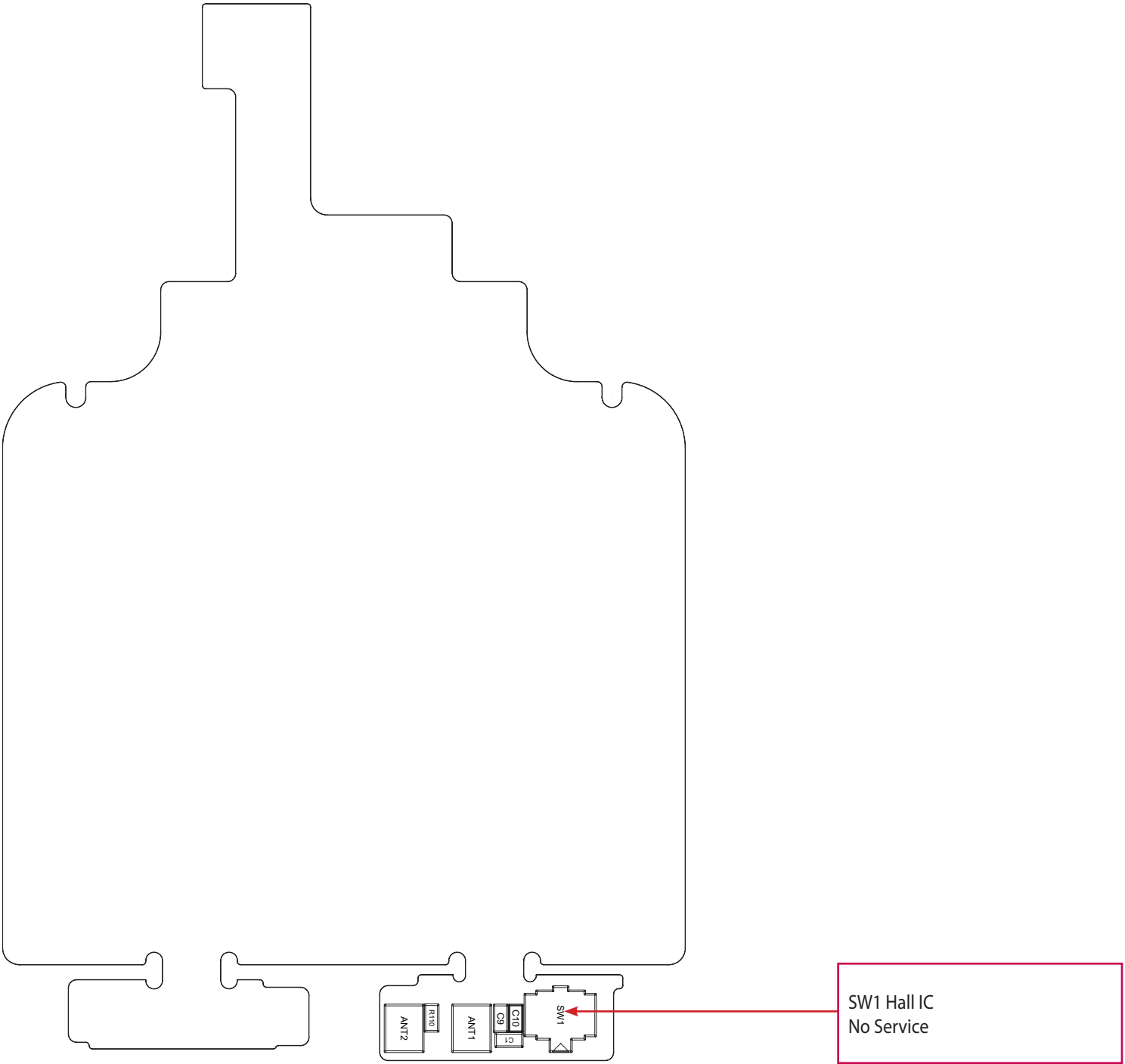
BL20_SLI DE_SPEY0062301_1.1_BOT

9. PCB LAYOUT



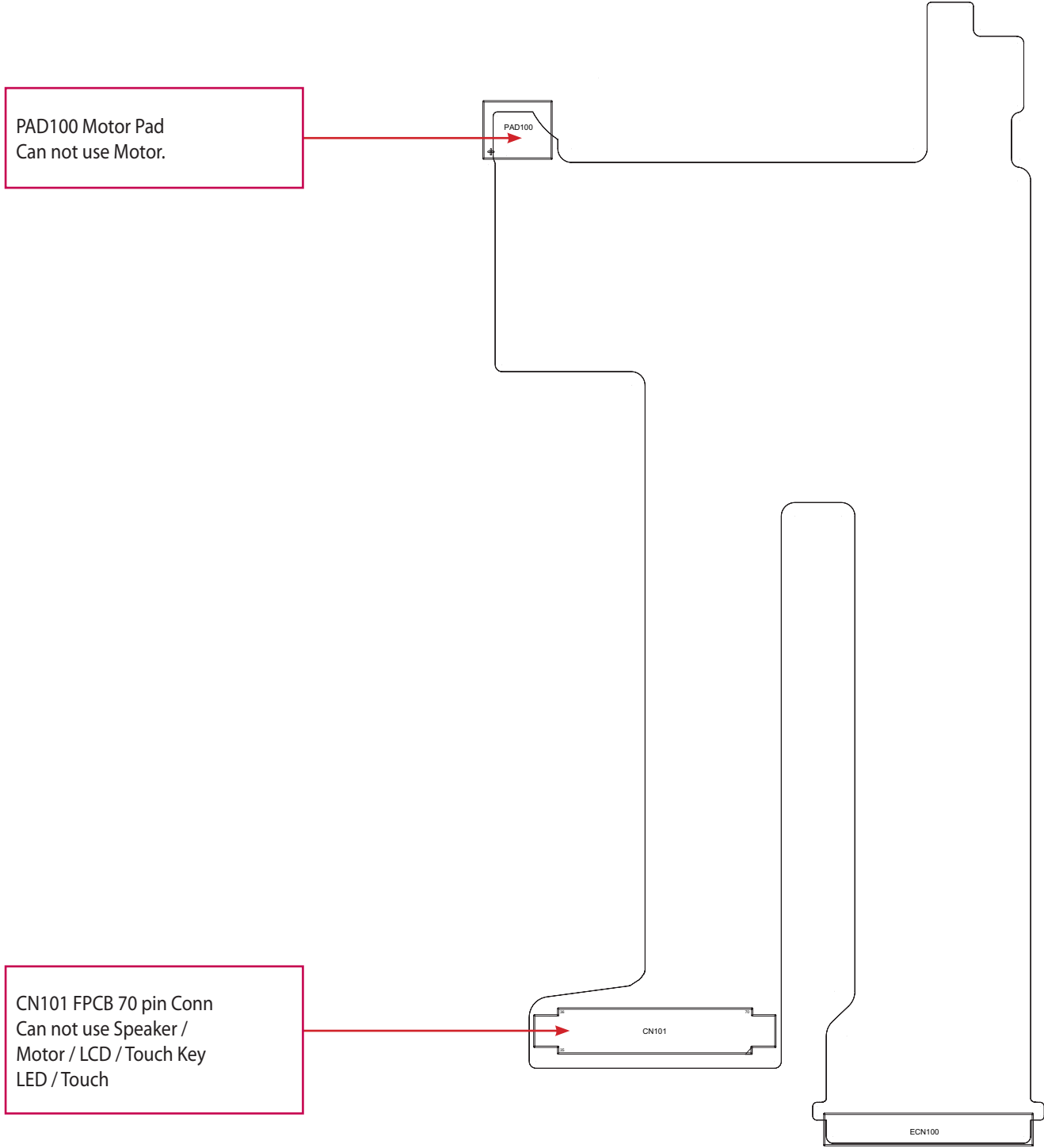
BL20_F_KEY_SPCY0184201-1.0-TOP

9. PCB LAYOUT



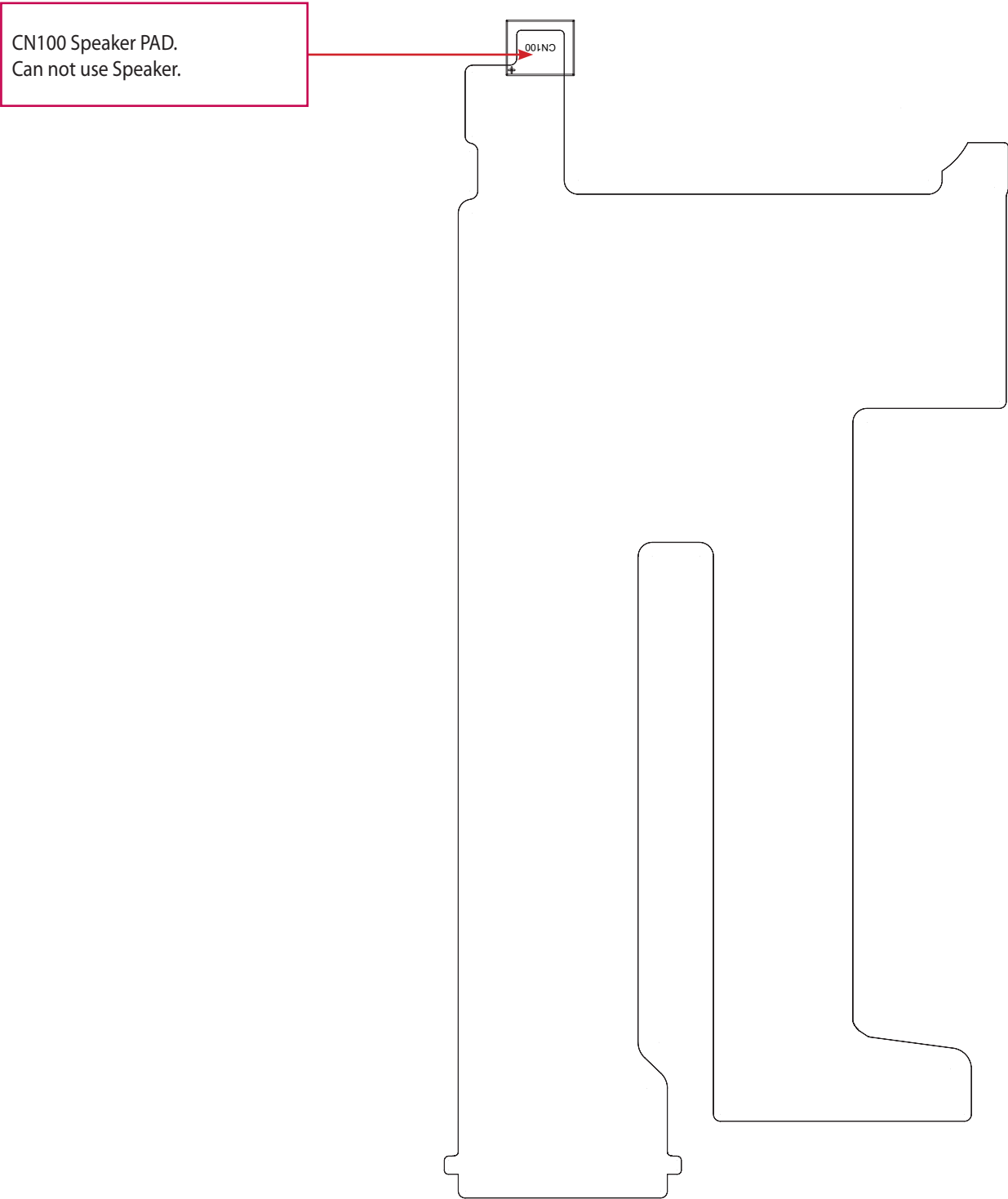
BL20_F_KEY_SPCY0184201-1.0-BOT

9. PCB LAYOUT



BL20_F_LCD_SPCY0183801-1.0-TOP

9. PCB LAYOUT

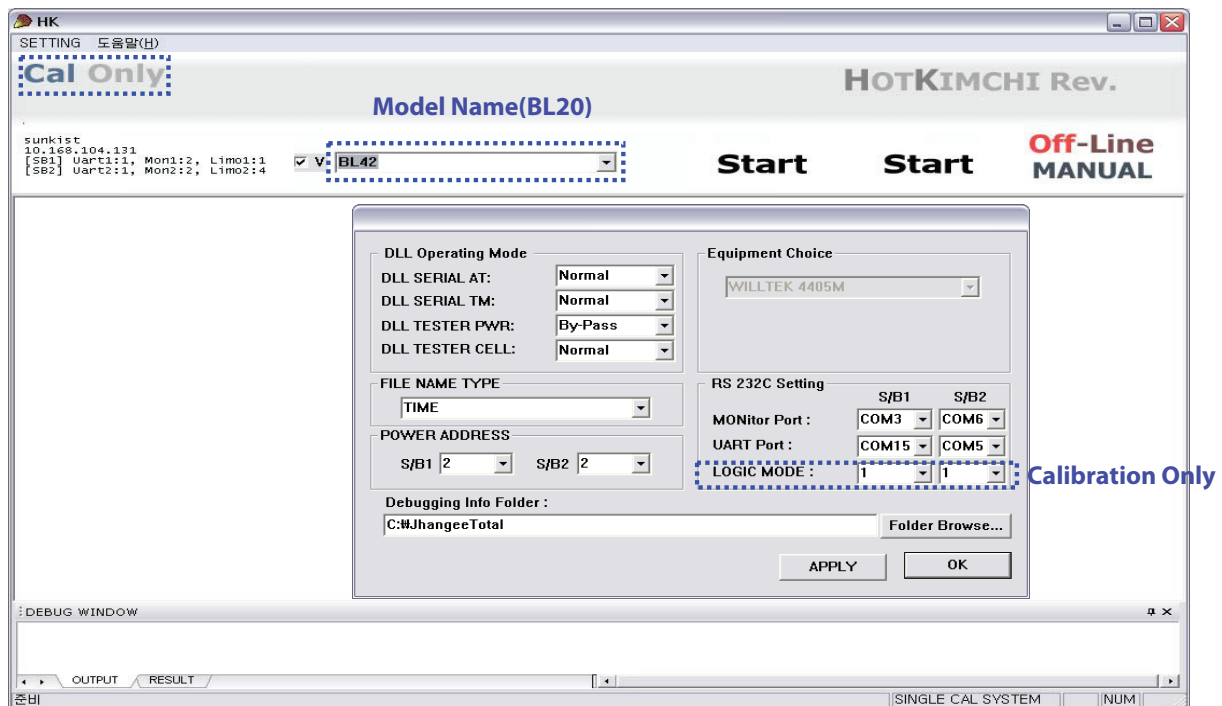


BL20_F_LCD_SPCY0183801-1.0-BOT

10. Calibration

10.1 Usage of Hot-Kimchi

1.1.1 Calibration



● Procedure

1. Click **SETTING** in menu, and logic operation in sub-menu.
Choose "1" in **LOGIC MODE** (means calibration alone)
2. Select the model name which you want in list box
3. Click **Start** button to calibrate a phone

10. Calibration

0.1.2 Basic Setting

DLL Operating Mode

DLL SERIAL AT: Normal

DLL SERIAL TM: Normal

DLL TESTER PWR: Normal

DLL TESTER CELL: Normal

Equipment Choice

WILLTEK 4405M

FILE NAME TYPE

POWER ADDRESS

S/B1 2 S/B2 9

RS 232C Setting

	S/B1	S/B2
MONitor Port :	COM3	COM6
UART Port :	COM2	COM5
LOGIC MODE :	1	1

Debugging Info Folder :

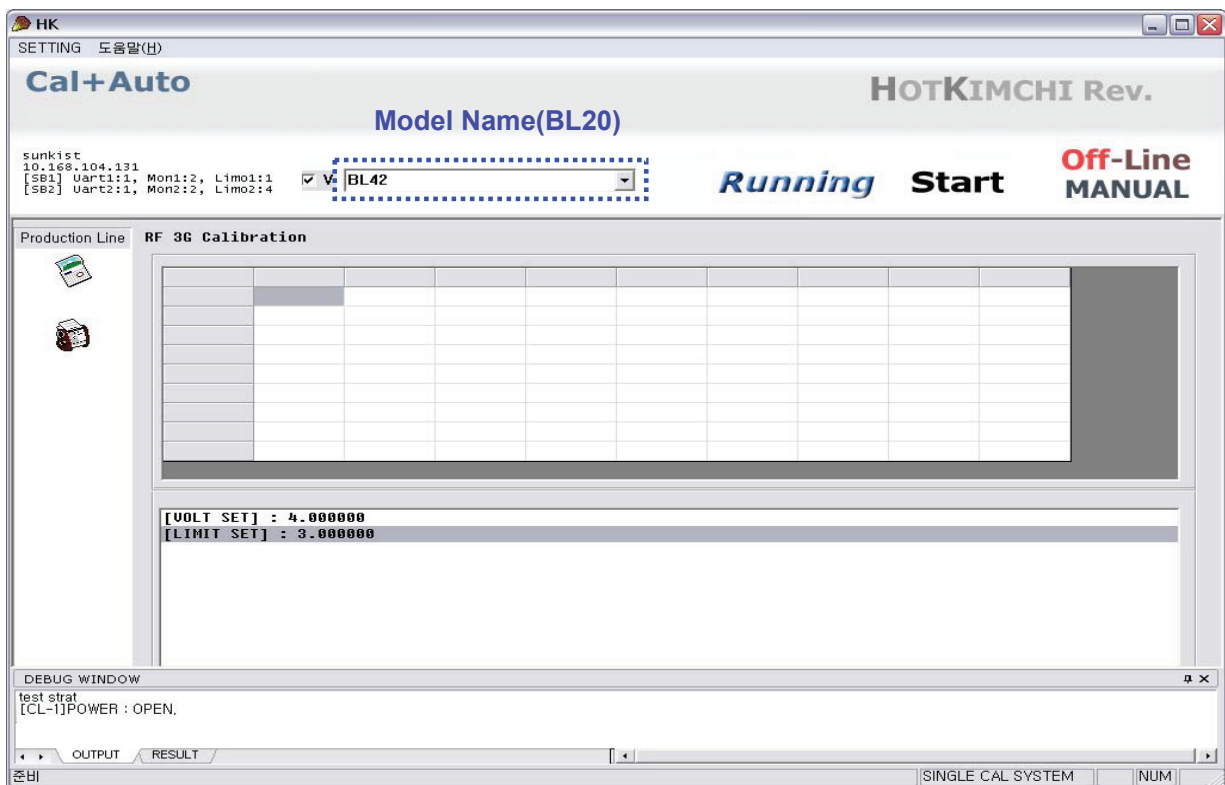
D:\Jhangee Folder Browse...

APPLY OK

● Contents

- ✓ Click **SETTING** in menu, and logic operation in sub-menu.
- ✓ You can select how to control AT comm, Testset, and Power supply in **DLL Operating Mode**.
- ✓ You can set UART Port and logic mode. (mode 1 : Calibration alone)
- ✓ You can set Result File's name type. If you choose "TIME", the saved files' name is saved in a run - time.
- ✓ You can run the multi mode (S/B1,S/B2 : You can use S/B1 for only one port.)
- ✓ You can set the path of **HOTKIMCHI** program.

10.1.3 Log of Calibration and Test



- Contents

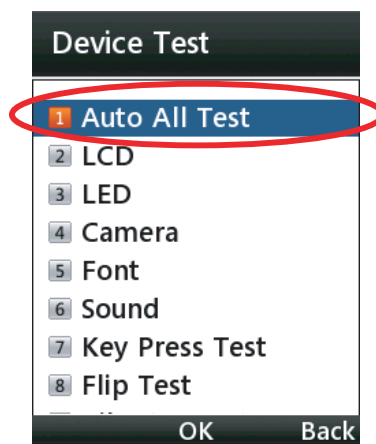
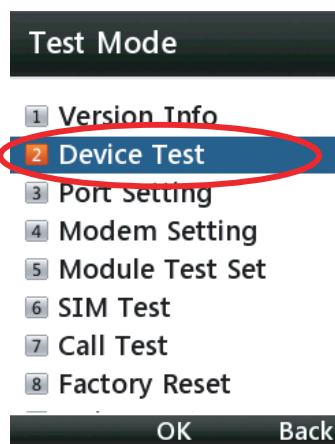
- ✓ On Running, Log window is created in center area. It displays logs of command, and measurements of Calibration or Autotest.
- ✓ The result files are saved in the directory “~janghee\debug\Cal”, “~janghee\debug\Auto”, or “~janghee\debug\CalAuto”.

11. Test Mode

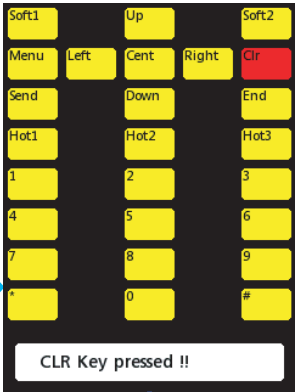
11. Test Mode

Phone Test Mode _ BL20

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



■ Phone Test Mode Scenario_ UMTS(1)

Item	Order	Description
(1) Key Press Test	① Key Test	◎ Key Test 
	② IF OK, tab "Cent" button	 Press all keys for test - UP key - Down key - Right key - Left key . . Display the Key info

11. Test Mode

■ Phone Test Mode Scenario_ UMTS(2)

Item	Order	Description
(2) Sound	① Sound On ② IF OK, tab "Cent" button	Sount Test Ring.. OKBACK Ringtone (MP3) is played regularly → Press OK button (Cent key) Move to next step

■ Phone Test Mode Scenario_ UMTS(3)

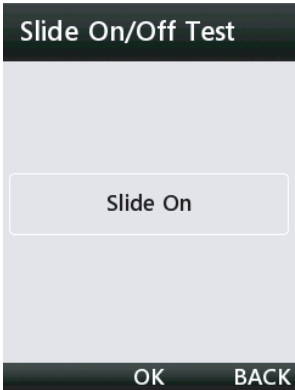
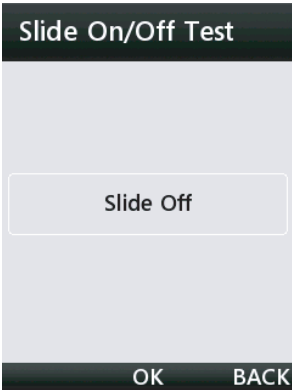
Item	Order	Description
(3) Vibrator Test	① Vibrator On ② IF OK, tab "Cent" button	Vibrator Test Vibrator On OKBACK → Press OK button (Cent) Move to next step

11. Test Mode

■ Phone Test Mode Scenario_ UMTS(4)

Item	Order	Description
(4) Flash Test	① Flash On ② IF OK, tab "Cent" button	Flash Test Flash On OKBACK → Press OK button (Cent) Move to next step

Item	Order	Description
(5) External Memory Test	External Memory Test Start ② IF OK, tab "Cent" button	External memory tes No External Memory OK BACK → If not inserted External memory card. External memory tes OK OK BACK → External memory inserted and test was ok then display "OK" Sign.

Item	Order	Description
(6) Slide On/Off Test	Slide On/Off Test Start ② IF OK, tab "Cent" button. Or Slide On→Off	  If Slide on status. Slide Close Status

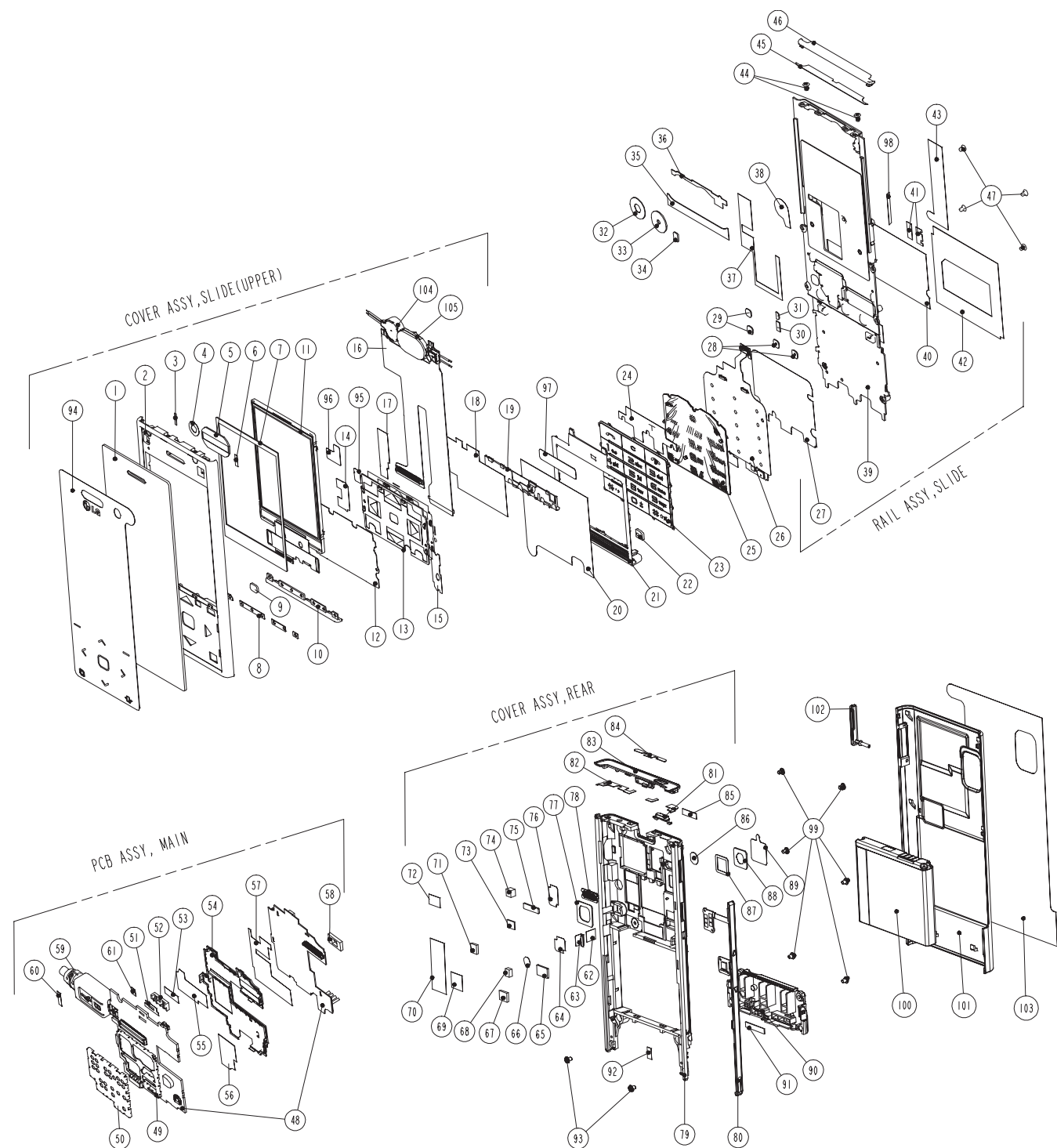
■ Phone Test Mode Scenario_ UMTS(7)

Item	Order	Description
(7) Camera Test	① Camera Off ② Camera Auto On (Preview) If OK next ③ Photo Shot ④ Photo Save ⑤ Video on (Preview) If OK next ⑥ Record video(3초) ⑦ Video Save ⑧ Call Photo If OK next ⑨ Call Video If OK End	In Camera Preview Mode Press "Cent Key" to start Camera Auto Test. 



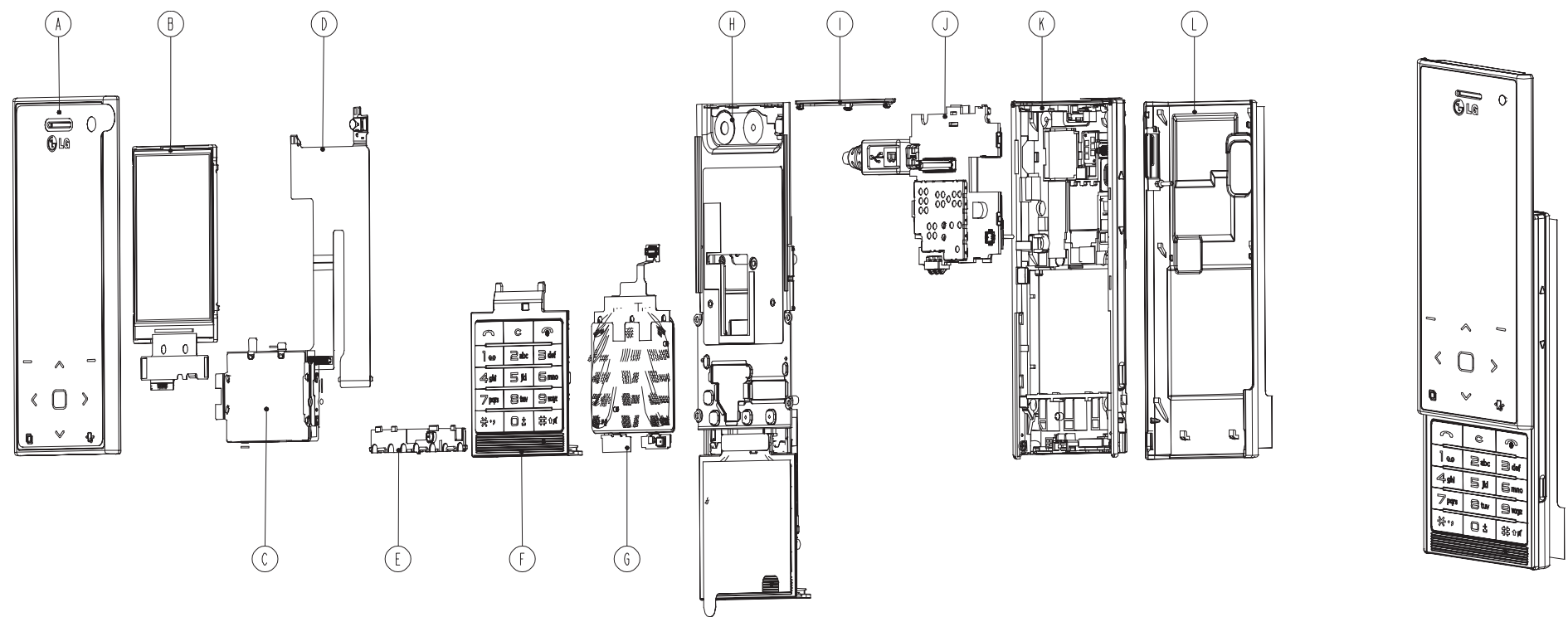
12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



105	SPEAKER	SISY0028012		
104	VIBRATOR MOTOR	S.WJ0008504		
103	TAPE PROTECTION (BATTERY)	MTAB0338501		
102	CAP. RECEPTACLE	MCCE0051201		
101	COVER BATTERY	WJAB008501		
100	BATTERY PACK (1-10N)	SBP10097801		
99	SCREW MACHINE BIND	GWE10009201	6	
98	TAPE (YELLOW FRONT)	MTAZ0225201		
97	TAPE (ANTI LIGHTING MID 2)	MTAZ0225201		
96	TAPE (ANTI LIGHTING MID 2)	MTAZ0225201		
95	TAPE (ANTI LIGHTING MID)	MTAZ0263001		
94	TAPE PROTECTION (UPPER)	MTAB0338501		
93	SCREW MACHINE BIND	GWE10009201	2	
92	TAPE ANTI LIGHT REFPAD	MTAZ0265801		
91	PAD (ANTENNA MIC)	MPR02061501		
90	ANTENNA	SNP0041902		
89	TAPE PROTECTION (WINDOW CAMERA)	MTAB0365401		
88	WINDOW CAMERA	MTAB0048201		
87	TAPE CAMERA (WINDOW)	MTAB0033201		
86	CAP. (MS)	MCCE0053301		
85	TAPE (CAP REAR DECO UP)	MTAZ0263501		
84	INSULATOR (LOCK BUTTON)	MID02019801		
83	DECO REAR	MDAK0019501		
82	BUITON (LOCK)	MTAB0019201		
81	BUITON ASSY, SIDE	ABGC0012601		
80	COVER REAR	MCJ00104101		
79	KEYS (CASH)	MTB001013101		
78	PAD CAMERA	MTB00107501		
77	TAPE (SIDE TOUCH BT0B)	MTAZ0255601		
76	PAD CONNECTOR (MAIN SUR BT0B)	MPR00076001		
75	PAD (LOCK KEY)	MPR02065801		
74	PAD CONNECTOR (CAMERA)	MPR00076001		
73	INSULATOR (BT)	MID020241501		
72	GASKET (COAXIAL CABLE)	MSA70076601		
71	INSULATOR (REAR SUBPCB)	MID02039201		
70	INSULATOR (SIDE COM)	MID020241401		
69	GASKET (REAR SIDE)	MSA70077001		
68	GASKET (REAR BOT)	MSA70077101		
67	LABEL AS	MPR0001102		
66	PAD CONNECTOR (KEY FPCB)	MPR00076001		
65	TAPE (SIDE TOUCH COMPONENT)	MTAZ0255501		
64	PLATE (REAR)	MPF70040801		
63	TAPE (PLATE REAR)	MSA700255401		
62	BREK (BRACKET TO BR)	MSA700255401		
61	TAPE (BRACKET IO)	MTAZ0255801		
60	BRACKET (IO)	MPF70039401		
59	PAD (ELASH)	MPR02037601		
58	GASKET (MAIN PCB)	MSA700407401		
57	INSULATOR (CAN SIDE)	MID02037801		
56	INSULATOR (CAN SO)	MID02037701		
55	CAN SHIELD (BOTTOM)	MCRA0051201		
54	TAPE (BRACKET BT)	MTAZ0255701		
53	BRACKET (BT)	MPF70035601		
52	TAPE (BRACKET BT FRONT)	MTAZ0266201		
51	CAN SHIELD (TOP)	MCRA0053401		
50	CAN SHIELD (FRAME)	MCRA0053401		
49	PCB ASSY, MAIN	SAF10219798		
48	SCREW SLIDER NORMAL	GWE10019203	4	
47	DECO SLIDE (UPPER) (TOP)	MTAB0005801		
46	TAPE (DECO SLIDE) (TOP)	MTAB0191801		
45	SCREW SLIDER TOP	GWE10012901	2	
44	TAPE PROTECTION (FPCB)	MTAB0338301		
43	TAPE (FRONT BATTERY)	MTAZ0255301		
42	SHEET (CAMERA BOT)	MSA700405501		
41	TAPE (LOWER BOT)	MTAZ0255201		
40	RAIL ASSY, SLIDE	ABD00011801		
39	INSULATOR (LINK LOWER)	MID02032701		
38	PAD (LCO)	MTAZ0245401		
37	PAD (PLATE LOWER)	MPR02046601		
36	SHEET (LOWER SPI)	MSA70056401		
35	PAD (TOP CAN FPCB)	MPR02034201		
34	PAD (SPEAKER)	MPR0074101		
33	PAD MOTOR	MPR0066001		
32	PAD (LOWER B)	MPR02034901		
31	PAD (LOWER T)	MPR02034801		
30	GASKET (LOWER)	MTAB0076501	2	
29	PAD (LOWER I)	MPR02034601		
28	TAPE (KEY FPCB)	MTAZ0255001		
27	PCB ASSY, KEYPAD (SLIDER)	SAF10010101		
26	HOME ASSY, METAL	MTAB0099701		
25	TAPE (KEY LED)	MTAZ0263101		
24	KEYPAD MAIN	MTAB0016301		
23	FILTER (MIC)	MTB00104701		
22	LCD FRONT	MTAB0050401		
21	TAPE PROTECTION (KEYPAD)	MTAB0338201		
20	DECO ASSY (LOWER)	ABD00014801		
19	INSULATOR (SUBPCB)	MID02021701		
18	GASKET (TAPE SLIDER)	MTAB0076701		
17	FPC ASSY, SLIDE	SAC10098701		
16	TAPE ANTI LIGHTING H	MTAZ0262801		
15	TAPE ANTI LIGHTING L	MTAZ0262901		
14	PCB ASSY, SUB	SAF10041801		
13	PLATE, LIGHT GUIDE	MPF10003601		
12	LCD MODULE	SVL00034601		
11	DECO SLIDE (UPPER) DOWN	MTAB0070701		
10	GASKET (KEYPAD)	MTAB0074101		
9	TAPE (DECO SLIDER DOWN)	MTAB0192001		
8	PAD (LCO)	MPR00094301		
7	TAPE (UPPER 1)	MTAZ0234601		
6	FILTER, SPEAKER	MTB00104701		
5	TAPE MOTOR	MTAB0028601		
4	TAPE (UPPER 2)	MTAZ0254701		
3	COVER, SLIDE (UPPER)	MTAB0028601		
2	WINDOW, LCD	MTAB0128601		
No	Part Name	Part Number	Q'ty	Remark

ASS'Y EXPLODED VIEW



L	COVER ASSY, BATTERY	ACGA00291##	I	
K	COVER ASSY, REAR	ACGM01356##	I	
J	PCB ASSY,MAIN	SAFY02197##	I	
I	DECO ASSY (TOP)	ADBY00165##	I	
H	RAIL ASSY,SLIDE	ARDY00118##	I	
G	PCB ASSY,FLEXIBLE (KEY)	SACY00988##	I	
F	DECO,FRONT/KEYPAD,MAIN	MDAG00504## /MKAG00163##	I	
E	DECO ASSY(LOWER)	ADBY00148##	I	
D	FPC ASSY,SLIDE	SACY00988##	I	
C	PCB ASSY,SUB	SAJY00418##	I	
B	LCD, MODULE	SVLM00346##	I	
A	COVER ASSY,SLIDE(UPPER)	ACGS00291##	I	
No	Part Name	Part Number	Q'ty	Remark

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.2 Replacement Parts <Mechanic component>

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

Level	Location No.	Description	Part Number	Spec	Color	Remark
2	AAAY00	ADDITION	AAAY0393102		WITHOUT COLOR	
3	ACGA00	COVER ASSY,BATTERY	ACGA0029105		BLACK	L
4	MCCE00	CAP,RECEPTACLE	MCCE0051201	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	102
4	MCJA00	COVER,BATTERY	MCJA0089305	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	101
4	MTAB00	TAPE,PROTECTION	MTAB0358501	COMPLEX, (empty), , , , ,	WITHOUT COLOR	103
3	AMBA00	MANUAL ASSY,OPERATION	AMBA0165511	BL20 manual assy for ORF	WITHOUT COLOR	
4	MCDE00	CARD,SERVICE GUIDE	MCDE0006503	PRINTING, (empty), , , , ,	WITHOUT COLOR	
4	MCHZ00	COMPACT DISK	MCHZ0083901	COMPLEX, (empty), , , , ,	SILVER SNOW	
4	MMBB00	MANUAL,OPERATION	MMBB0356111	PRINTING, (empty), , , , ,	WITHOUT COLOR	
2	APAY00	PACKAGE	APAY0135502	BL20 ORF(TR1-1H/ORG UB/Void/12403_AL)	WITHOUT COLOR	
3	APLY00	PALLET ASSY	APLY0003203	TDR TR1-1 ORG STD Palletizing	Without Color	
4	MPBZ00	PAD	MPBZ0219601	COMPLEX, (empty), , 503, 860, 145,	Without Color	
4	MPCY00	PALLET	MPCY0012403	COMPLEX, (empty), , , , ,	DARK BLUE	
3	MBAD00	BAG,VINYL(PE)	MBAD0005204	COMPLEX, (empty), , , , ,	Without Color	
3	MLAC00	LABEL,BARCODE	MLAC0004541	PRINTING, (empty), , , , ,	Without Color	
3	MLAZ00	LABEL	MLAZ0050901	PRINTING, (empty), , , , ,	WITHOUT COLOR	
3	MLAZ01	LABEL	MLAZ0037104	PRINTING, (empty), , , , ,	METAL SILVER	
2	APEY	PHONE	APEY0788606		BLACK	
3	ACGM00	COVER ASSY,REAR	ACGM0135605	France	BLACK	K
4	ABGC00	BUTTON ASSY,SIDE	ABGC0012601		BLACK	80
5	MDAC00	DECO,SIDE	MDAC0026601	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	
4	GMZZ	SCREW MACHINE	GMZZ0024202	1.4 mm,2.7 mm,MSWR3(BK) ,B ,+ , - ,HEAD D=2.7mm , ; ,[empty] ,[empty] , , ,A-5052 ,BLACK ,[empty] ,B	BLACK	93
4	MBJZ00	BUTTON	MBJZ0013201	COMPLEX, (empty), , , , ,	RED	81

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MCCZ00	CAP	MCCZ0033501	COMPLEX, (empty), , , ,	BLACK	86
4	MCJN00	COVER,REAR	MCJN0104101	MOLD, PC LUPOY SC-2302, , , ,	BLACK	79
4	MDAK00	DECO,REAR	MDAK0019501	MOLD, PC LUPOY SC-1004A, , , ,	RED	83
4	MGAZ	GASKET	MGAZ0076601	COMPLEX, (empty), , , ,	WITHOUT COLOR	71
4	MGAZ01	GASKET	MGAZ0077001	COMPLEX, (empty), , , ,	WITHOUT COLOR	68
4	MGAZ02	GASKET	MGAZ0077101	COMPLEX, (empty), , , ,	WITHOUT COLOR	67
4	MIDZ	INSULATOR	MIDZ0218901	COMPLEX, (empty), , , ,	GREEN BLUE	84
4	MIDZ00	INSULATOR	MIDZ0239201	COMPLEX, (empty), , , ,	WITHOUT COLOR	70
4	MIDZ01	INSULATOR	MIDZ0241401	COMPLEX, (empty), , , ,	WITHOUT COLOR	69
4	MIDZ02	INSULATOR	MIDZ0241501	COMPLEX, (empty), , , ,	WITHOUT COLOR	72
4	MLAB	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	WHITE	66
4	MLAR	LABEL,WARNING	MLAR0005301	COMPLEX, (empty), , , ,	YELLOW	
4	MLCE00	LENS,FLASH	MLCE0013701	MOLD, PMMA HI835M, , , ,	WITHOUT COLOR	78
4	MPBT00	PAD,CAMERA	MPBT0077901	COMPLEX, (empty), , , ,	BLACK	77
4	MPBU0	PAD,CONNECTOR	MPBU0076001	COMPLEX, (empty), , , ,	WITHOUT COLOR	75
4	MPBU01	PAD,CONNECTOR	MPBU0075901	COMPLEX, (empty), , , ,	BLACK	65
4	MPBU04	PAD,CONNECTOR	MPBU0075601	COMPLEX, (empty), , , ,	BLACK	73
4	MPBZ00	PAD	MPBZ0261501	COMPLEX, (empty), , , ,	WITHOUT COLOR	91
4	MPBZ01	PAD	MPBZ0265801	COMPLEX, (empty), , , ,	WITHOUT COLOR	74
4	MPFZ00	PLATE	MPFZ0040801	PRESS, STS, , , ,	WITHOUT COLOR	63
4	MTAA01	TAPE,DECO	MTAA0192101	COMPLEX, (empty), , , ,	WITHOUT COLOR	82
4	MTAB00	TAPE,PROTECTION	MTAB0365401	COMPLEX, (empty), , , ,	WITHOUT COLOR	89
4	MTAK0	TAPE,CAMERA	MTAK0033201	COMPLEX, (empty), , , ,	WITHOUT COLOR	87
4	MTAZ0	TAPE	MTAZ0255401	COMPLEX, (empty), , , ,	WITHOUT COLOR	62
4	MTAZ00	TAPE	MTAZ0265901	COMPLEX, (empty), , , ,	BLACK	92

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MTAZ01	TAPE	MTAZ0255501	COMPLEX, (empty), , , ,	WITHOUT COLOR	64
4	MTAZ02	TAPE	MTAZ0255601	COMPLEX, (empty), , , ,	WITHOUT COLOR	76
4	MTAZ04	TAPE	MTAZ0263501	COMPLEX, (empty), , , ,	WITHOUT COLOR	85
4	MWAE00	WINDOW,CAMERA	MWAE0048201	CUTTING, Tempered Glass, , , ,	WITHOUT COLOR	88
3	ACGQ	COVER ASSY,SLIDE	ACGQ0042201		BLACK	
4	ACGS00	COVER ASSY,SLIDE(UPPER)	ACGS0029101		BLACK	A
5	MCJW00	COVER,SLIDE(UPPER)	MCJW0026001	MOLD, PC LUPOY SC-2302, , , ,	BLACK	2
5	MDAP00	DECO,SLIDE(UPPER)	MDAP0007001	MOLD, PC LUPOY SC-1004A, , , ,	RED	
5	MFBC00	FILTER,SPEAKER	MFBC0051701	COMPLEX, (empty), , , ,	BLACK	5
5	MGAZ00	GASKET	MGAZ0074301	COMPLEX, (empty), , , ,	WITHOUT COLOR	9
5	MPBG00	PAD,LCD	MPBG0094301	COMPLEX, (empty), , , ,	BLACK	7
5	MTAA00	TAPE,DECO	MTAA0192001	COMPLEX, (empty), , , ,	WITHOUT COLOR	8
5	MTAF00	TAPE,MOTOR	MTAF0028601	COMPLEX, (empty), , , ,	WITHOUT COLOR	4
5	MTAZ0	TAPE	MTAZ0254601	COMPLEX, (empty), , , ,	WITHOUT COLOR	6
5	MTAZ01	TAPE	MTAZ0254701	COMPLEX, (empty), , , ,	WITHOUT COLOR	3
5	MWAC00	WINDOW,LCD	MWAC0120601	CUTTING, PMMA MR 200, , , ,	BLACK	1
4	ADBY00	DECO ASSY	ADBY0014801	SLIDER LOWER	BLACK	E, 19
5	MDAP00	DECO,SLIDE(UPPER)	MDAP0007101	MOLD, POM LUCAL N109-LD, , , ,	BLACK	10
5	MMAA	MAGNET,SWITCH	MMAA0009601	COMPLEX, (empty), 1, , ,	Without Color	
4	ADBY01	DECO ASSY	ADBY0016501		RED	I
5	MDAP00	DECO,SLIDE(UPPER)	MDAP0006901	MOLD, PC LUPOY SC-1004A, , , ,	RED	46
5	MTAA00	TAPE,DECO	MTAA0191801	COMPLEX, (empty), , , ,	WITHOUT COLOR	45
4	ADBY02	DECO ASSY	ADBY0016601		RED	
5	MDAG00	DECO,FRONT	MDAG0050401	MOLD, PC LUPOY SC-1004A, , , ,	RED	F, 21
5	MFBZ00	FILTER	MFBZ0004701	COMPLEX, (empty), , , ,	BLACK	22
5	MTAZ00	TAPE	MTAZ0275201	COMPLEX, (empty), , , ,	WITHOUT COLOR	97

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	ARDY00	RAIL ASSY,SLIDE	ARDY0011801		BLACK	H, 39
5	ACGK00	COVER ASSY,FRONT	ACGK0136501		BLACK	
6	MSAZ00	SHEET	MSAZ0056501	COMPLEX, (empty), , , ,	BLACK	41
6	MTAZ00	TAPE	MTAZ0255001	COMPLEX, (empty), , , ,	WITHOUT COLOR	27
6	MTAZ01	TAPE	MTAZ0275101	COMPLEX, (empty), , , ,	WITHOUT COLOR	98
5	ACGR00	COVER ASSY,SLIDE(LOWER)	ACGR0019701		BLACK	
6	MGAZ00	GASKET	MGAZ0076501	COMPLEX, (empty), , , ,	WITHOUT COLOR	29
6	MPBJ00	PAD,MOTOR	MPBJ0066001	COMPLEX, (empty), , , ,	BLACK	32
6	MPBN00	PAD,SPEAKER	MPBN0074101	COMPLEX, (empty), , , ,	BLACK	33
6	MPBZ00	PAD	MPBZ0234201	COMPLEX, (empty), , , ,	BLACK	34
6	MPBZ01	PAD	MPBZ0234601	COMPLEX, (empty), , , ,	BLACK	28
6	MPBZ03	PAD	MPBZ0234801	COMPLEX, (empty), , , ,	BLACK	30
6	MPBZ04	PAD	MPBZ0234901	COMPLEX, (empty), , , ,	BLACK	31
6	MPBZ05	PAD	MPBZ0246601	COMPLEX, (empty), , , ,	BLACK	
6	MSAZ00	SHEET	MSAZ0056401	COMPLEX, (empty), , , ,	WITHOUT COLOR	35
6	MTAZ00	TAPE	MTAZ0254901	COMPLEX, (empty), , , ,	WITHOUT COLOR	37
6	MTAZ01	TAPE	MTAZ0255201	COMPLEX, (empty), , , ,	WITHOUT COLOR	40
5	APGZ00	PLATE ASSY	APGZ0003601		BLACK	
6	MIDZ00	INSULATOR	MIDZ0232701	COMPLEX, (empty), , , ,	WITHOUT COLOR	38
4	GMEY00	SCREW MACHINE,BIND	GMEY0012901	1.4 mm,2.5 mm,MSWR3 ,B ,+ ,	Silver	44
4	GMEY01	SCREW MACHINE,BIND	GMEY0019203	1.4 mm,1.8 mm,SWCH18A ,N ,+ , , , ,[empty] ,+ , , ,CR-7 ,BLACK ,[empty] ,[empty]	Black	47
4	MGAZ00	GASKET	MGAZ0076701	COMPLEX, (empty), , , ,	SILVER	17
4	MIDZ00	INSULATOR	MIDZ0211701	COMPLEX, (empty), , , ,	BLUE	18
4	MIDZ01	INSULATOR	MIDZ0232601	COMPLEX, (empty), , , ,	WITHOUT COLOR	
4	MKAG00	KEYPAD,MAIN	MKAG0016301	COMPLEX, (empty), , , ,	RED	F, 23
4	MTAB00	TAPE,PROTECTION	MTAB0358201	COMPLEX, (empty), , , ,	WITHOUT COLOR	20
4	MTAB01	TAPE,PROTECTION	MTAB0358301	COMPLEX, (empty), , , ,	WITHOUT COLOR	43

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MTAB02	TAPE,PROTECTION	MTAB0358401	COMPLEX, (empty), , , ,	WITHOUT COLOR	94
4	MTAB03	TAPE,PROTECTION	MTAB0366401	COMPLEX, (empty), , , ,	WITHOUT COLOR	
4	MTAZ01	TAPE	MTAZ0255301	COMPLEX, (empty), , , ,	BLACK	42
4	MTAZ02	TAPE	MTAZ0263101	COMPLEX, (empty), , , ,	BLACK	24
4	MTAZ03	TAPE	MTAZ0280601	COMPLEX, (empty), , , ,	WITHOUT COLOR	
4	MTAZ04	TAPE	MTAZ0280701	COMPLEX, (empty), , , ,	WITHOUT COLOR	
6	ADCA00	DOME ASSY,METAL	ADCA0099701		WHITE	25
6	MPFL00	PLATE,LIGHT GUIDE	MPFL0003601	COMPLEX, (empty), , , ,	WITHOUT COLOR	12
6	MTAZ	TAPE	MTAZ0275301	COMPLEX, (empty), , , ,	BLACK	96
6	MTAZ00	TAPE	MTAZ0262801	COMPLEX, (empty), , , ,	BLACK	15
6	MTAZ01	TAPE	MTAZ0262901	COMPLEX, (empty), , , ,	BLACK	14
6	MTAZ02	TAPE	MTAZ0263001	COMPLEX, (empty), , , ,	BLACK	95
3	GMEY00	SCREW MACHINE,BIND	GMEY0009201	1.4 mm,3.5 mm,MSWR3(BK) ,B ,+ ,HEAD D=2.7mm	Black	
3	MLAA00	LABEL,APPROVAL	MLAA0062303	COMPLEX, (empty), , , ,	WITHOUT COLOR	99
5	ABFZ00	BRACKET ASSY	ABFZ0019301		BLACK	
6	MBFZ00	BRACKET	MBFZ0035601	MOLD, PC LUPOY SC-1004A, , , ,	BLACK	52
6	MTAZ00	TAPE	MTAZ0255701	COMPLEX, (empty), , , ,	WITHOUT COLOR	53
5	ABFZ01	BRACKET ASSY	ABFZ0019401		BLACK	
6	MBFZ00	BRACKET	MBFZ0039401	MOLD, PC LUPOY SC-1004A, , , ,	BLACK	59
6	MTAZ00	TAPE	MTAZ0255801	COMPLEX, (empty), , , ,	WITHOUT COLOR	60
5	ACKA00	CAN ASSY,SHIELD	ACKA0015501		BLACK	
6	MCBA00	CAN,SHIELD	MCBA0051201	PRESS, STS, , , ,	BLACK	54
6	MIDZ01	INSULATOR	MIDZ0237701	COMPLEX, (empty), , , ,	WITHOUT COLOR	55
6	MIDZ02	INSULATOR	MIDZ0237801	COMPLEX, (empty), , , ,	WITHOUT COLOR	56
5	MCBA00	CAN,SHIELD	MCBA0053401	PRESS, STS, , , ,	WITHOUT COLOR	50
5	MSAZ00	SHEET	MSAZ0056601	COMPLEX, (empty), , , ,	BLACK	61
5	MTAZ00	TAPE	MTAZ0266201	COMPLEX, (empty), , , ,	WITHOUT COLOR	51

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	MGAZ00	GASKET	MGAZ0074601	COMPLEX, (empty), , , , ,	WITHOUT COLOR	57
7	MPBZ00	PAD	MPBZ0237601	COMPLEX, (empty), , , , ,	WHITE	36, 58
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	WITHOUT COLOR	
6	SC1	CAN,SHIELD	MCBA0053501	PRESS, STS, , , , ,	WITHOUT COLOR	49

<Main component>

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

Level	Location No.	Description	Part Number	Spec	Color	Remarks
1		IMT-2000(SLIDE)	TISL0012607		BLACK	
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0047902	3.0 ,-2 dBd , ,GSM900/DCS/PCS/BAND1/BAND8, INTERNAL ; ,MULTI ,-2.0 ,50 ,3.0		90
4	SACY00	PCB ASSY,FLEXIBLE	SACY0098702			16
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0089402			
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0077902			
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0031401	70 PIN,0.4 mm,ETC , ,H=1.5, Header		
6	SPCY	PCB,FLEXIBLE	SPCY0183801	POLYL , mm,DOUBLE , ; , , , , , , , , ,		
4	SACY01	PCB ASSY,FLEXIBLE	SACY0098802			D, G
5	SACB00	PCB ASSY,FLEXIBLE,INSERT	SACB0057602			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0089502			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0065502			
7	C1	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C9	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	R110	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	SW1	CONN,RF SWITCH	ENWY0003901	,SMD , dB,		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0078002			
7	C11	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C2	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C3	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C4	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C5	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	C6	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C7	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , [empty] [empty] , [empty] [empty] [empty] [empty] [empty] ,0.8 mm		
7	C8	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	CN1	CONNECTOR,BOARD TO BOARD	ENBY0043601	20 PIN,0.4 mm,STRAIGHT , , ; , ,0.40MM ,STRAIGHT ,MALE ,SMD [empty] , ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	LD1	DIODE,LED,CHIP	EDLH0013401	WHITE ,ETC ,R/TP ,SIDEVIEW LED ; , [empty] , , , , , [empty] , [empty] , 2P		
7	LD2	DIODE,LED,CHIP	EDLH0013401	WHITE ,ETC ,R/TP ,SIDEVIEW LED ; , [empty] , , , , , [empty] , [empty] , 2P		
7	MIC1	MICROPHONE	SUMY0010609	UNIT , -42 dB, 3.76*2.95*1.1 , mems smd mic ; , , , OMNI [empty] , , [empty]		
7	R1	RES,CHIP,MAKER	ERHZ0000402	10 ohm, 1/16W , J , 1005 , R/TP		
7	R2	RES,CHIP,MAKER	ERHZ0000402	10 ohm, 1/16W , J , 1005 , R/TP		
7	R3	RES,CHIP,MAKER	ERHZ0000204	100 Kohm, 1/16W , F , 1005 , R/TP		
7	U1	IC	EUSY0362601	SSON004 , 4 , R/TP , Hall IC ; , IC, CMOS		
7	VA1	VARISTOR	SEVY0004201	14 V , , SMD , 120pF , 1005		
7	VA2	VARISTOR	SEVY0004201	14 V , , SMD , 120pF , 1005		
6	SPCY	PCB,FLEXIBLE	SPCY0184201	POLYI , 0.12mm, DOUBLE , , , , , , , , , ,		
4	SAEY00	PCB ASSY,KEYPAD	SAEY0070101			26
5	SAEB00	PCB ASSY,KEYPAD,INSERT	SAEB0031101			
5	SAEE00	PCB ASSY,KEYPAD,SMT	SAEE0036001			
6	SAEC00	PCB ASSY,KEYPAD,SMT BOTTOM	SAEC0034801			
7	C100	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF, 10V , K , X5R , HD , 1005 , R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF, 10V , K , X5R , HD , 1005 , R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C103	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C104	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C105	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C106	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C107	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C108	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C200	CAP,CERAMIC,CHIP	ECCH0000187	150 pF, 50V , J , NP0 , TC , 1005 , R/TP		
7	C201	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	C202	CAP,CERAMIC,CHIP	ECCH0004904	1 uF, 6.3V , K , X5R , TC , 1005 , R/TP		
7	CN100	CONNECTOR,FFC/FPC	ENQY0014301	37 PIN, 0.3 mm, STRAIGHT , , , , , 0.30MM , FFC/FPC , STRAIGHT , BOTH , SMD [empty] , [empty] ,		
7	CN101	CONNECTOR,FFC/FPC	ENQY0014601	49 PIN, 0.3 mm, ANGLE , , , , , 0.30MM , FFC/FPC , ANGLE , BOTH , SMD [empty] , LOCKING ,		
7	R100	RES,CHIP,MAKER	ERHZ0000486	47 Kohm, 1/16W , J , 1005 , R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R101	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R105	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F ,1005 ,R/TP		
7	R200	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	R201	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	R202	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R203	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R204	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R205	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R206	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R207	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R208	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R209	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R210	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
7	R211	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
7	R212	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP		
7	R213	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP		
7	R214	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP		
7	R215	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	R216	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	R217	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	R218	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	U100	IC	EUSY0336502	, PIN,R/TP , , ,IC,Charge Pump		
7	U101	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
7	U200	IC	EUSY0316201	Capacitive sensing IC 32QFN ,32 PIN,R/TP ,Cap touch controller IC		
7	VA100	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
7	VA200	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	ZD100	DIODE,TVS	EDTY0008610	SOD-523 ,5 V,250 W,R/TP ,PB-FREE		
7	ZD101	DIODE,TVS	EDTY0008610	SOD-523 ,5 V,250 W,R/TP ,PB-FREE		
6	SAED00	PCB ASSY,KEYPAD,SMT TOP	SAED0034401			
7	LD200	DIODE,LED,CHIP	EDLH0015108	RED ,ETC ,R/TP ,1.8x1.0x0.35T(sideview) , , [empty] ,1.7~2.2V ,25mA ,57~112mcd ,631nm ,60mW , [empty] , [empty] ,2P		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	LD201	DIODE,LED,CHIP	EDLH0015108	RED ,ETC ,R/TP ,1.8x1.0x0.35T(sideview) ; , [empty] ,1.7~2.2V ,25mA ,57~112mcd ,631nm ,60mW , [empty] , [empty] ,2P		
7	LD202	DIODE,LED,CHIP	EDLH0015108	RED ,ETC ,R/TP ,1.8x1.0x0.35T(sideview) ; , [empty] ,1.7~2.2V ,25mA ,57~112mcd ,631nm ,60mW , [empty] , [empty] ,2P		
7	LD203	DIODE,LED,CHIP	EDLH0015108	RED ,ETC ,R/TP ,1.8x1.0x0.35T(sideview) ; , [empty] ,1.7~2.2V ,25mA ,57~112mcd ,631nm ,60mW , [empty] , [empty] ,2P		
7	LD204	DIODE,LED,CHIP	EDLH0015108	RED ,ETC ,R/TP ,1.8x1.0x0.35T(sideview) ; , [empty] ,1.7~2.2V ,25mA ,57~112mcd ,631nm ,60mW , [empty] , [empty] ,2P		
7	LD205	DIODE,LED,CHIP	EDLH0015108	RED ,ETC ,R/TP ,1.8x1.0x0.35T(sideview) ; , [empty] ,1.7~2.2V ,25mA ,57~112mcd ,631nm ,60mW , [empty] , [empty] ,2P		
6	SPEY	PCB,KEYPAD	SPEY0062301	FR-4 , 0.5mm,BUILD-UP 6 , ; , , , , , , , , , ,		
4	SJMY00	VIBRATOR,MOTOR	SJMY0008504	2.0 V,0.1 A,10*3.6 ,12mm linear motor ; , ,3V , , , , , , ,		104
4	SUSY00	SPEAKER	SUSY0028012	ASSY ,8 ohm,92 dB,1810 mm,10mm ; , , , , , , , WIRE		105
4	SVLM00	LCD MODULE	SVLM0034601	Main ,2.4" ,240*320 ,40.62*58.84*1.5T ,262K ,TFT ,TM ,R61520 , ,		B,11
4	SWCC00	CABLE,COAXIAL	SWCC0008801	74.5 mm,U,FL_ U,FL, H=2.0, ?=0.8, white LINE, ; , [empty] , [empty] , [empty] , , [empty] , , [empty]		
3	SAFY00	PCB ASSY,MAIN	SAFY0219798			J, 48
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0103102			
5	BRAH00	RESIN,PC	BRAH0001301	; , , , , [empty]	Black	
5	SAJY00	PCB ASSY,SUB	SAJY0041905			C, 13
6	SAJB00	PCB ASSY,SUB,INSERT	SAJB0020902			
6	SAJE	PCB ASSY,SUB,SMT	SAJE0033804			
7	SAJC	PCB ASSY,SUB,SMT BOTTOM	SAJC0032502			
8	ANT1	ANTENNA,GSM,FIXED	SNGF0048003	3.0 ,-2.0 dBd ,BLUETOOTH, SMD, 3.0*1.5*1.1 ; ,SINGLE ,-2.0 ,50 ,3.0		
8	C1	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
8	C10	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	C11	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	C12	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C17	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
8	C18	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
8	C19	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
8	C2	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
8	C20	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
8	C21	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C22	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C23	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C24	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C25	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C26	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C27	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C28	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C29	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
8	C3	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C30	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
8	C31	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
8	C32	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
8	C4	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C5	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	C51	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
8	C6	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	C7	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	C8	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	C9	CAP,CERAMIC,CHIP	ECCH0000118	30 pF,50V,J,NP0,TC,1005,R/TP		
8	CN2	CONNECTOR,ETC	ENZY0025801	6 ,1.0 mm,ETC , ,6.6x4x1.35(t), Stroke:-0.65, Touch window Contact CNT		
8	CN3	CONN,SOCKET	ENSY0024101	8 ,ETC , , mm,Block type, 13.5x11.12x0.5t		
8	FB1	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
8	FL1	FILTER,CERAMIC	SFCY0000901	2450 MHz,2.00*1.25*0.95 ,SMD ,Bluetooth Band Pass Filter		
8	J1	CONN,SOCKET	ENSY0021401	8 PIN,ETC , , mm,		
8	L52	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,		
8	LD1	DIODE,LED,MODULE	EDLM0009401	WHITE ,1 LED,3.5X2.8X0.6T ,R/TP ,		
8	R12	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
8	R3	RES,CHIP	ERHY0000128	15K ohm,1/16W,F,1005,R/TP		
8	U1	IC	EUSY0382201	FPBGA ,50 ,R/TP ,4.5x4.0x0.6, BT2.1 ,; ,IC,Bluetooth		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
8	VA21	VARIStOR	SEVY0004301	18 V ,SMD ,10pF, 1005		
8	VA22	VARIStOR	SEVY0004301	18 V ,SMD ,10pF, 1005		
8	VA23	VARIStOR	SEVY0004301	18 V ,SMD ,10pF, 1005		
8	VA24	VARIStOR	SEVY0004301	18 V ,SMD ,10pF, 1005		
8	X1	X-TAL	EXXY0024401	26 MHz,10 PPM,10 pF,,5 ohm,SMD ,32*25*0.6 ,. . . ,10PPM ,10 ,. . ,SMD ,P/TP		
7	SAJD	PCB ASSY,SUB,SMT TOP	SAJD0035102			
8	CN1	CONNECTOR,BOARD TO BOARD	ENBY0039001	54 PIN,0.4 mm,ETC , ,H=1.5, P4S Header		
7	SPJY	PCB,SUB	SPJY0068001	FR-4 ,0.4 mm,BUILD-UP 4 ,.,.,.,.,.,.,.,.		
5	SVCY00	CAMERA	SVCY0023101	CMOS ,MEGA ,5M AF Toshiba(1/3.2"), 9.5x9.5x6.6t,Parallel,90degree,FPCB		
4	SAFF	PCB ASSY,MAIN,SMT	SAFF0140897			
5	SAFC	PCB ASSY,MAIN,SMT BOTTOM	SAFC0096906			
6	C1	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C10	CAP,CHIP,MAKER	ECZH0001120	3.9 nF,50V ,K ,X7R ,HD ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C101	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C2	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C203	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C207	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C208	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C214	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C215	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C216	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C226	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C229	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C242	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C243	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C245	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C246	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C248	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C249	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C250	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C251	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C252	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C253	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C257	CAP,CHIP,MAKER	ECZH0001116	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C258	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C261	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , [empty] , [empty] , [empty] , [empty] , [empty] , 0.8 mm		
6	C262	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , [empty] , [empty] , [empty] , [empty] , [empty] , 0.8 mm		
6	C263	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , [empty] , [empty] , [empty] , [empty] , [empty] , 0.8 mm		
6	C265	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP , ; , , [empty] , [empty] , , -55TO+125C , , [empty] , [empty] , [empty] , [empty]		
6	C273	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C290	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C299	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C300	CAP,CHIP,MAKER	ECZH0000803	2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C3000	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C3001	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C305	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C403	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C404	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C406	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C407	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C418	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C419	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C501	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C506	CAP,TANTAL,CHIP	ECTH0001902	10 uF,10V ,M ,L_ ESR ,1608 ,R/TP		
6	C507	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C523	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C524	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C525	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C526	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C527	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C528	CAP,CHIP,MAKER	ECZH0001102	18000 pF,16V ,K ,X7R ,HD ,1005 ,R/TP		
6	C529	CAP,CHIP,MAKER	ECZH0001102	18000 pF,16V ,K ,X7R ,HD ,1005 ,R/TP		
6	C530	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C531	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C532	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C533	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C534	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C535	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C536	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C602	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C603	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C606	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C690	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C800	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C801	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C802	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C9	CAP,TANTAL,CHIP	ECTH0005704	33 uF,10V ,M ,L ,ESR ,2012 ,R/TP ,; , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	CN200	CONNECTOR,ETC	ENZY0027201	3 ,2.5 mm,ETC , - , -		
6	CN400	CONNECTOR,I/O	ENRY0009601	5 ,0.4 mm,ANGLE , ,Mold with SUS ,; , ,0.40MM ,ANGLE ,RECEPTACLE ,DIP , [empty] ,		
6	CN500	CONNECTOR,BOARD TO BOARD	ENBY0040301	34 PIN,0.4 mm,ETC , ,H=1.0, Socket		
6	CN700	CONNECTOR,BOARD TO BOARD	ENBY0043701	20 PIN,0.4 mm,STRAIGHT , , , , ,0.40MM ,STRAIGHT ,FEMALE ,SMD , [empty] , ,		
6	CN702	CONNECTOR,BOARD TO BOARD	ENBY0039101	54 PIN,0.4 mm,ETC , ,H=1.5, P4S Socket		
6	FB3	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB4	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB5	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB500	FILTER,BEAD,CHIP	SFBH0000909	60 ohm,1005 ,		
6	FL400	FILTER,EMI/POWER	SFEY0006501	SMD ,3 TERMINAL EMI FILTER		
6	FL500	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)		
6	FL501	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)		
6	FL502	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)		
6	IC400	IC	EUSY0371201	WLP ,20 ,R/TP ,MUIC for 5Pin Micro USB ,; ,IC,Analog Switch		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	IC500	IC	EUSY0360201	CSP ,20 ,R/TP ,Class D(mono) + Capless HP + A/S ,; ,IC,Audio Sub System		
6	L200	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	L201	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,		
6	L202	INDUCTOR,CHIP	ELCH0001401	15 nH,J ,1005 ,R/TP ,Pb Free		
6	L203	INDUCTOR,CHIP	ELCH0005018	39 nH,J ,1005 ,R/TP ,		
6	L204	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP ,; , ,0.3NH , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L205	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP ,; , ,0.3NH , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L206	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP ,; , ,0.3NH , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L400	INDUCTOR,CHIP	ELCH0001556	270 nH,J ,1608 ,R/TP ,		
6	L800	INDUCTOR,CHIP	ELCH0003811	1000 nH,K ,1608 ,R/TP ,COIL TYPE		
6	Q2000	TR,FET,P-CHANNEL	EQFP0009401	SC75-6 ,19 W,-20 V,-12 A,R/TP ,P-Channel FET ,; ,P-CHANNEL ,MOSFET , -20 ,8 , -12 ,0.041 ,19 ,SC75 ,R/TP ,6P		
6	R10	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R11	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R12	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R13	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R14	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R2	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000268	33 Kohm,1/16W ,F ,1005 ,R/TP		
6	R208	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP		
6	R291	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R299	RES,CHIP,MAKER	ERHZ0000323	91 Kohm,1/16W ,F ,1005 ,R/TP		
6	R301	RES,CHIP	ERHY0024201	6040 ohm,1/16W ,F ,1005 ,R/TP ,; ,6040 ,1% ,1/16W ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000428	18 ohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000428	18 ohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R307	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R391	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R399	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
6	R4	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R408	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R409	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP	ERHY0000147	56K ohm,1/16W,F,1005,R/TP		
6	R411	RES,CHIP	ERHY0000161	200K ohm,1/16W,F,1005,R/TP		
6	R490	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R491	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R5	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R500	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R501	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R502	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R503	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R505	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R508	RES,CHIP,MAKER	ERHZ0000410	12 ohm,1/16W ,J ,1005 ,R/TP		
6	R509	RES,CHIP,MAKER	ERHZ0000410	12 ohm,1/16W ,J ,1005 ,R/TP		
6	R6	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R7	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R8	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R800	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R801	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R803	RES,CHIP,MAKER	ERHZ0000439	200 Kohm,1/16W ,J ,1005 ,R/TP		
6	R9	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	SW1	SWITCH,TACT	ESCY0004401	12 V,0.02 A,HORIZONTAL ,1 G,		
6	SW100	CONN,RF SWITCH	ENWY0003901	,SMD , dB,		
6	SW101	CONN,RF SWITCH	ENWY0005301	,SMD , dB,H=1.85 ,; ,3.00MM ,STRAIGHT ,RF ADAPTER ,SMD ,R/TP ,AU , ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	U301	IC	EUSY0369201	CSP ,424 ,R/TP ,HSDPA3.6,CAM3M,AAC+,MP4,H.264 ,; ,IC,Digital Baseband Processor		
6	U400	IC	EUSY0362803	FBGA ,149 ,ETC ,FULLY 1.8V 2G(LB/128Mx16) NAND+1G(DDR/16Mx4x16) SDRAM ,; ,IC,MCP		
6	U401	IC	EUSY0374601	TDFN ,8 ,R/TP ,Programmable OVP ,; ,IC,Charger		
6	U501	IC	EUSY0355701	PLP1010-4 ,4 PIN,R/TP ,150mA 2.8V Single LDO ,; ,IC,Voltage Regulator		
6	U502	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U601	IC	EUSY0200803	MFL ,8 ,R/TP ,Haptic Driver IC,2X2 ,; ,IC,Motor Driver		
6	U602	IC	EUSY0373901	PLP1010 ,4 ,R/TP ,150mA, 3.0V Single LDO ,; ,IC,LDO Voltage Regulator		
6	U603	IC	EUSY0385901	WL-CSP(BSC) ,20 ,R/TP ,FM Tuner (RDS), 2.6*2.6*0.64 ,; ,IC Assembly		
6	U800	IC	EUSY0264502	DFN ,14 PIN,R/TP ,700mA Boost converter ,; ,IC,DC,DC Converter		
6	VA200	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA400	VARISTOR	SEVY0007301	5 V,<0.5pF ,SMD ,		
6	VA500	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA501	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA502	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA503	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA504	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA800	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA801	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	X200	X-TAL	EXXY0016601	32.768 KHz,20 PPM,9 pF,65 Kohm,SMD ,4.9*1.8*0.9 ,		
6	ZD200	DIODE,TVS	EDTY0008601	SOD-323 ,6 V,400 W,R/TP ,PB-FREE		
6	ZD400	DIODE,TVS	EDTY0008602	SOD-323 ,13.3 V,400 W,R/TP ,PB-FREE		
5	SAFD	PCB ASSY,MAIN,SMT TOP	SAFD0096107			
6	BAT200	BATTERY,CELL,LITHIUM	SBCL0002001	3 V,1 mAh,COIN ,3V, SMT type Backup Batt, Coin(4.8mm, 1.4t) , Pb-Free ,; ,3 ,1mAh ,COIN		
6	C100	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C104	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C108	CAP,CERAMIC,CHIP	ECCH0000184	2.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C113	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C120	INDUCTOR,CHIP	ELCH0003836	5.6 nH,S ,1005 ,R/TP ,MLCI		
6	C121	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C123	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C124	CAP,TANTAL,CHIP	ECTH0002701	2.2 uF,10V ,M ,STD ,1608 ,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C129	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	C131	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C132	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0000195	3.9 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000195	3.9 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C138	CAP,TANTAL,CHIP	ECTH0002701	2.2 uF,10V ,M ,STD ,1608 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C142	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C144	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C145	CAP,TANTAL,CHIP	ECTH0001902	10 uF,10V ,M ,L ,ESR ,1608 ,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C147	CAP,CHIP,MAKER	ECZH0001120	3.9 nF,50V ,K ,X7R ,HD ,1005 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C149	CAP,CERAMIC,CHIP	ECCH0000180	3.3 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C150	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C151	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C152	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C153	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000196	0.75 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C155	CAP,CERAMIC,CHIP	ECCH0000196	0.75 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C157	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C158	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C160	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C162	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C163	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C164	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C165	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C209	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C210	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C211	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C212	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C213	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C217	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C218	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C220	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C227	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C228	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C230	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C231	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C233	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C234	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C236	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C237	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C238	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C240	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C254	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C256	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C259	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C260	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C264	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C281	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C291	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C3	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C399	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP		
6	C5	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	CN300	CONNECTOR,BOARD TO BOARD	ENBY0018501	10 PIN,.4 mm,STRAIGHT , ,H=0.9,HEADER		
6	CN701	CONNECTOR,BOARD TO BOARD	ENBY0031501	70 PIN,0.4 mm,ETC , ,H=1.5, Socket		
6	FB700	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FB701	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FB702	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FB703	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FB704	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	FB705	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FB706	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FB707	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
6	FL100	FILTER,SEPERATOR	SFAY0013101	GSM Quad ,UMTS Triple ,3.6 dB,1.25 dB,27 dB,25 dB,4532 ,QSC6240_6270 FEM		
6	FL102	FILTER,SAW	SFSY0037501	897.5 MHz,1.4*1.1*0.6 ,SMD ,880.48M~914.52M, IL 4.0, 5pin, U-U, 50-50, W-BAND VIII Tx ,; ,897.5 ,1.4*1.1*0.6 ,SMD ,R/TP		
6	FL103	FILTER,SAW	SFSY0035101	1950 MHz,1.4*1.1*0.45 ,SMD ,1920M~1980M, IL 3.2, 5pin, U-U, 50-50, WCDMA BAND I Tx ,; ,1950 ,1.4*1.1*0.45 ,SMD ,R/TP		
6	FL105	DUPLEXER,IMT	SDMY0002101	897.5 MHz,942.5 MHz,2.8 dB,3.5 dB,50 dB,43 dB,2.5*2.0*0.55 ,SMD ,SAW, Band8 Rx balanced type ,; ,942.5 ,925.48 to 959.52 ,897.5 ,880.48 to 914.52 ,3.5 ,2.8 ,2.5x2.0x0.55 ,DUAL ,SMD ,R/TP		
6	FL107	FILTER,SAW	SFSY0037601	897.5 MHz,1.4*1.1*0.4 ,SMD ,880M~915M, IL 3.6, 5pin, U-U, 50-50, W-BAND VIII Tx ,; ,897.5 ,1.4*1.1*0.4 ,SMD ,R/TP		
6	FL120	DUPLEXER,IMT	SDMY0002601	1950 MHz,2140 MHz,1.9 dB,2.6 dB,55 dB,46 dB,2.5*2.0*0.89 ,SMD ,Band1, Rx balance type, SAW ,; ,2140 ,2112.4 to 2167.6 ,1950 ,1922.4 to 1977.6 ,2.6 ,1.9 ,2.5x2.0x0.89 ,DUAL ,SMD ,R/TP		
6	FL700	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL701	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL702	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL703	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL704	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	L1	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L100	INDUCTOR,CHIP	ELCH0012510	15 nH,G ,1005 ,R/TP ,chip coil		
6	L105	INDUCTOR,CHIP	ELCH0001049	6.8 nH,J ,1005 ,R/TP ,PBFREE		
6	L107	INDUCTOR,CHIP	ELCH0001057	3.9 nH,S ,1005 ,R/TP ,PBFREE		
6	L108	INDUCTOR,CHIP	ELCH0003820	3 nH,S ,1005 ,R/TP ,PBFREE		
6	L110	INDUCTOR,CHIP	ELCH0001031	15 nH,J ,1005 ,R/TP ,PBFREE		
6	L112	INDUCTOR,CHIP	ELCH0001417	33 nH,J ,1005 ,R/TP ,PBFREE		
6	L117	INDUCTOR,CHIP	ELCH0004726	1.5 nH,J ,1005 ,R/TP ,		
6	L119	INDUCTOR,CHIP	ELCH0001403	1 nH,S ,1005 ,R/TP ,PBFREE		
6	L121	INDUCTOR,CHIP	ELCH0001420	3.9 nH,S ,1005 ,R/TP ,PBFREE		
6	L122	INDUCTOR,CHIP	ELCH0003826	3.3 nH,S ,1005 ,R/TP ,chip		
6	L123	INDUCTOR,CHIP	ELCH0001401	15 nH,J ,1005 ,R/TP ,Pb Free		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	L124	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,		
6	L126	INDUCTOR,CHIP	ELCH0001411	1.2 nH,S ,1005 ,R/TP ,PBFREE		
6	L127	INDUCTOR,CHIP	ELCH0004720	1.2 nH,S ,1005 ,R/TP ,		
6	L130	INDUCTOR,CHIP	ELCH0001420	3.9 nH,S ,1005 ,R/TP ,PBFREE		
6	L199	INDUCTOR,CHIP	ELCH0003826	3.3 nH,S ,1005 ,R/TP ,chip		
6	L2	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	R100	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R101	RES,CHIP,MAKER	ERHZ0000219	150 ohm,1/16W ,F ,1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000473	39 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP	ERHY0000105	51 ohm,1/16W,F,1005,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		
6	R106	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000428	18 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
6	R109	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R110	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R111	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000219	150 ohm,1/16W ,F ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R290	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R390	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP		
6	R6000	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6001	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6002	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6003	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6004	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6005	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6006	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R6007	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R650	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	RA650	RES,ARRAY,R	ERNR0000404	100 Kohm,100 Kohm,8 PIN,J ,1/16W ,SMD ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	SPFY02	PCB,MAIN	SPFY0203001	FR-4 ,0.8 mm,LX-BUMP 10 , , , , , , , , , , ,		
6	U100	PAM	SMPY0021201	27.5 dBm, %,3 mA,-37 dBc,28 dB,4x4 ,SMD ,3G Band 8 Single PAM H/F , , , , , , , , ,LGA ,R/TP ,		
6	U101	COUPLER,RF DIRECTIONAL	SCDY0004401	19.4 dB,0.25 dB,32 dB,1.0*0.5*0.4 ,SMD ,Pb-free_DCN+JCDMA , , , [empty] ,874.5MHz ,101MHz ,SMD ,R/TP		
6	U102	PAM	SMPY0019901	dBm, %, A, dBc, dB,4x4 ,SMD ,3G Band 1 Single Band , , , , , , , , ,LGA ,R/TP ,		
6	U103	COUPLER,RF DIRECTIONAL	SCDY0004301	20.5 dB,0.22 dB,34 dB,1.0*0.5*0.4 ,SMD ,Pb_free_KPCS+USPCS+WCDMA , , , [empty] ,1865MHz ,230MHz ,SMD ,R/TP		
6	U104	PAM	SMPY0020901	35 dBm,50 %, A, dBc, dB,5x5x1.1 ,SMD ,TQM7M5012 Halogen Free version , , , , , , , , ,LGA ,R/TP ,12		
6	VA309	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA310	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA311	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA312	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA313	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA651	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA652	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA653	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA654	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA655	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA656	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA657	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA658	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	VA700	VARISTOR	SEVY0004301	18 V , ,SMD ,10pF, 1005		
6	X100	VCTCXO	EXSK0004802	19.2 Mhz,1.5 PPM,10 pF,SMD ,3.2*2.5*1.2 , , , ,19.2 Mhz ,1.5PPM ,2.8V ,3.2 ,2.5 ,1.2 , ,SMD ,P/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.3 Accessory

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

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0097801	3.7 V,900 mAh,1 CELL,PRISMATIC ,553443, Standard pack, Woldwide Label ; , , , ,PRISMATIC , , ,BLACK , ,	BLACK	100
대치		BATTERY PACK,LI-ION	SBPL0098301	3.7 V,900 mAh,1 CELL,PRISMATIC ,553443,INNERPACK,WW ; ,3.7 ,900 ,180 ,PRISMATIC ,5.5X34X43 ,6.1X44X36.5 ,BLACK ,INNERPACK ,	BLACK	
3	SGDY00	DATA CABLE	SGDY0014302	; [empty] , [empty] , 1.2M , ,BLACK , 1.2m, 4, Shield case MicroUSB, ID resistor open ,N		
3	SGEY00	HEADSET	SGBS0004609	HBM-210 BGFSBKK ,French,CD Manual,WEEE Card		
3	SSAD00	ADAPTOR,AC-DC	SSAD0031001	100-240V ,5060 Hz,5.1 V,0.7 A,CE ,STA-U12ED, Europe, Cableless ; , , 5.1 ,0.7 , , ,WALL 2P ,USB ,		
대치		ADAPTOR,AC-DC	SSAD0031002	100-240V ,5060 Hz,5.1 V,0.7 A,CE ,STA-U12ER, Europe, Cableless ; , , 5.1 ,0.7 , , ,WALL 2P ,USB ,		

Note
