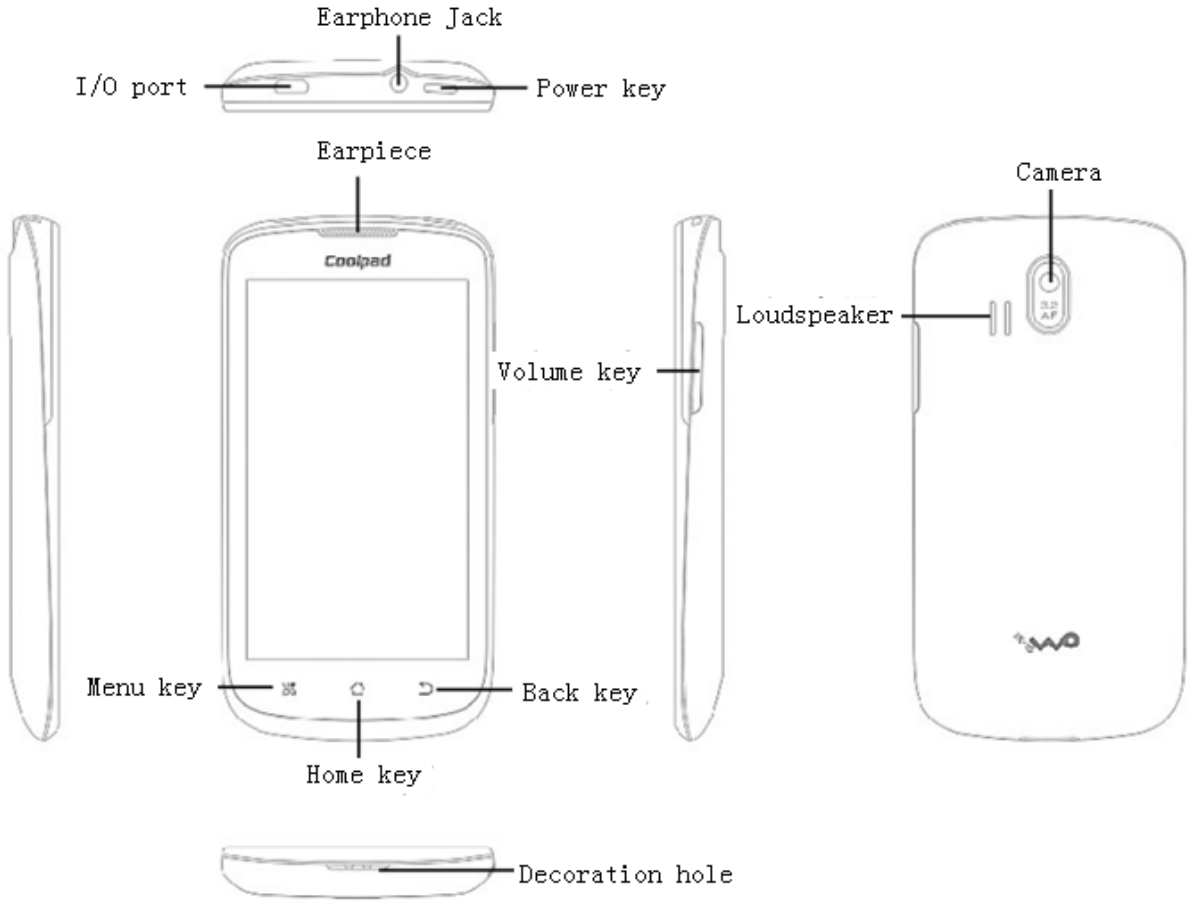
Contents

1. Summary

1.1. Product summary

1）WCDMA:850/2100MHz，GSM 900/1800/1900MHz；
2）WVGA HD capacitance screen with 4.0 inch;
3）Handwriting input under capacitance touchscreen;
4）Qualcomm 7227-A（1GHz）CPU;
5）Supporting syncing with PC, connecting to PC with USB port conveniently;
6）Supporting GPS navigation;
7）Supporting BT/WIFI

1.2. Appearance and corresponding functionalities



Keys	Functionalities
Menu key	**Tap to pop up the menu at the functionality interface**
Back key	**Tap to go back to the previous interface**
Volume key	**Adjust call, ringtone, music and video volumes**
Power key	**When the backlight is on, press the button shortly to turn off the backlight, while the device is asleep, press the button shortly to wake it up.**
Home key	**Tap to go back to the functionality interface from the application interface**

1.3. Abbreviations

For your convenience, this handbook adopts the following abbreviations:

AP	Application processor
BB	Basic band
TD	TD-SCDMA, full name is: Time Division Duplex-Synchronization Code Division Multiple Access.
HSDPA	Full name is: High Speed Downlink Packet Access
GSM	Global system of mobile communication
GPRS	General packet radio service
TW	Touch Window
dBm	Decibel (referenced to milliwatts)
BL	(Boot Loader) Hardware to initialize functionalities and build mapping for internal space (full name: Boot Loader)
DSP	Processing digital signals (full name: Digital Signal Processor)
RF	Radio frequency
ESD	Electrostatic discharge
FPC	Flexible printed circuit
LCD	Liquid crystal display
LDO	Low dropout regulator
LED	Light emitting diode
PCB	Printed circuit board
PCM	Pulse Code Modulation
PGA	Programmable gain amplifier
PLL	Phase locked loop
PMU	Power Management Unit
RAM	Random Access Memory
ROM	Read Only Memory
RTC	Real-Time Clock
SAW	Surface acoustic wave
SIM	Subscriber identity module
SLR	Send loudness rating
SOC	System On Chip
SRAM	Static random access memory
STMR	Side tone masking rating
TA	Travel adapter
TDD	Time division duplex
UART	Universal asynchronous receiver transmitter
VCO	Voltage controlled oscillator
VCTCXO	Voltage controlled temperature compensated crystal oscillator

2. Specifications and features

2.1. Technological specifications

Basic specifications		
Size	123×65.8×11.8mm	
Type	Bar	
Antenna	Built-in	
Phone card	Mini-inserted card	
Network mode	WCDMA:850/2100MHz，GSM 900/1800/1900MHz	
Operation system	Android2.3	
Processor	Qualcomm 7227-A (1GHz)	
Memory	ROM:512MB+RAM：512 MB	
SD card	Support T-FLSHA card with 32GB at most	
Camera	camera with 3.2 megapixels （AF）	
Port	MINI-USB	
Screen parameters		
Type	WVGA	
Size	4.0 inch	
Resolution	800*480	
Main supported functionalities (take actual device for real)		
Input method	Language	Simplified Chinese
	Input method	Handwriting
Contacts	Max Contact number	5000 pieces
Call log	Max number	2000 pieces
Picture (picture viewer)	Supported format	jpg、jpeg、bmp、png、wbmp、gif
Messages	Max storage	3000 pieces
Accessories		
Battery	Battery name	Lithium-ion chargeable battery
	Specific capacity	1400mAh
	Normal voltage	3.7V

2.2. Hardware features

1. Hardware configurations:

Name	Specifications
CPU	Qualcomm 7227-A
Power manager	Qualcomm PM8029
Audio	Qualcomm 7227-A
BT	BROADCOM BCM4330FKUBG
Memory	ROM 512MB+RAM 512MB
Primary camera	Auto-focused camera with 3.2 megapixels

Secondary camera	Null

2. Feature parameters

Series No.	Items	Specifications	
2	Battery capacity	Number of battery	Voltage
		0	3.500V~3.660V
		1	3.660V~3.730V
		2	3.730V~3.800V
		3	3.800~3.930V
		4	>3.930V
24	Low voltage alarm	Incoming calls: if the voltage floats over 100mV, the current may come from module, so it needs to lower the limit of low voltage threshold, namely, primary card 3400 millivolt, secondary card 3450 millivolt. Standby: when the phone is at standby, and if the voltage is lower than 3600 millivolt, it needs to shut the communication functionality down on secondary card, and if the voltage is lower than 3550 millivolt, it needs to shut the communication functionality down on primary card.	
25	The voltage of forcing to power off	3.40±0.03V	
26	Battery	The voltage of full battery：4.2V Capacity：1080mAh	
27	Travel charger	AC input：100~240V，50/60Hz DC input：5V，1000mA	

3. Current parameters

Item names	Test data
Power on	≤300mA
Calls	CDMA ≤300mA
Standby	Base current（Not connected to BT）≤2mA
Current of powering off	≤0.1mA
Charging loop	-400~-580mA

3. Upgrade guides

3.1. Upgrade of main program

➢ Preparations for upgrade:

Series No.	Name	Specifications	Quantity	Notes
1	Computer	No requirement	1	
2	Data cable	Standardized data cable (slotted 5PIN data cable)	1	
3	Phone		1	
4	Battery		1	adequate battery
5	Software	Version software, upgrade tools, phone driver and others.		

➢ Instructions：

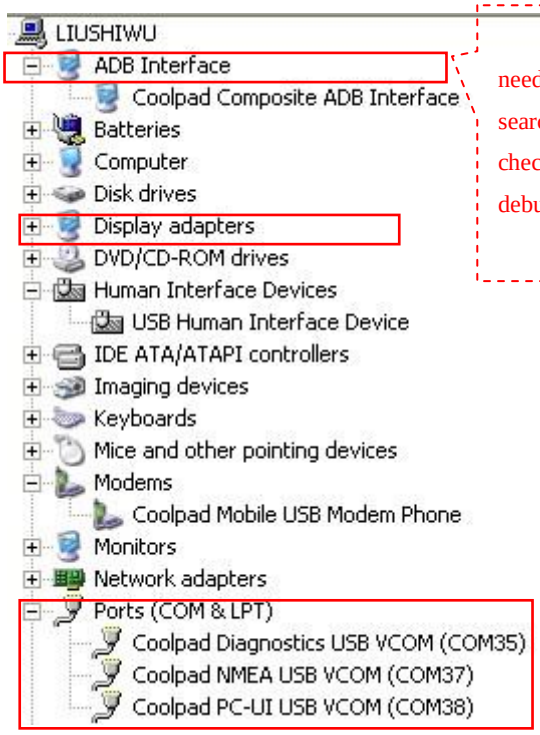
1) Upgrade will lose the data stored in phone, so please note to save and backup the user data first before performing upgrade for the occurrence of data losing.
2) The upgrade platform is installation-free version and supports multiport download, if it is needed, it is advised to apply active USB-HUB to improve its stability.

➢ Brief steps to upgrade：

1) It needs to install port driver of the device for the first time to connect to computer.
2) To run the upgrade platform with installation-free version “Assemble customer service Downloader.exe”.
3) When the phone is powered off, press its Volume + key and plug USB cable to computer at the same time, and release when the screen displays “Communicating…Boot status and version No.”. Click Start to download upgrade when the upgrade platform has detected Online device.

➢ Driver installation：

1) When the driver is installed, the phone is needed to be powered on.
2) Enable USB debug mode: Setting menu ⇨ Select Application ⇨ Select Development ⇨ Click and confirm Allow USB debug.
1) Connect phone to computer (Click **No need to open USB memory device** at USB large memory dialogue). When the computer finds uninstalled new hardware, click Select from list or designated location to install (Advanced), and select directory file of driver path (generally, it locates in PC Driver directory) in Search includes this location, and then finish the installation based on the instructions on computer. It needs to perform five-time installation for hardware update wizard, as the following figure shows (installed device driver in device manager):
2)



Download the driver that APP needs. If it prompts Apps failed to search device at tool status bar, please check if adb driver is normal and USB debug is enabled.

Detailed steps of upgrade

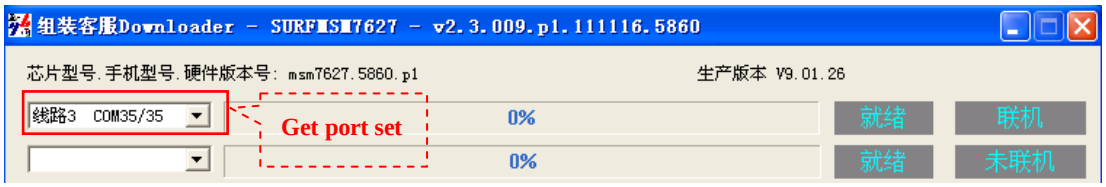
➢

1) To run installation-free platform tool 

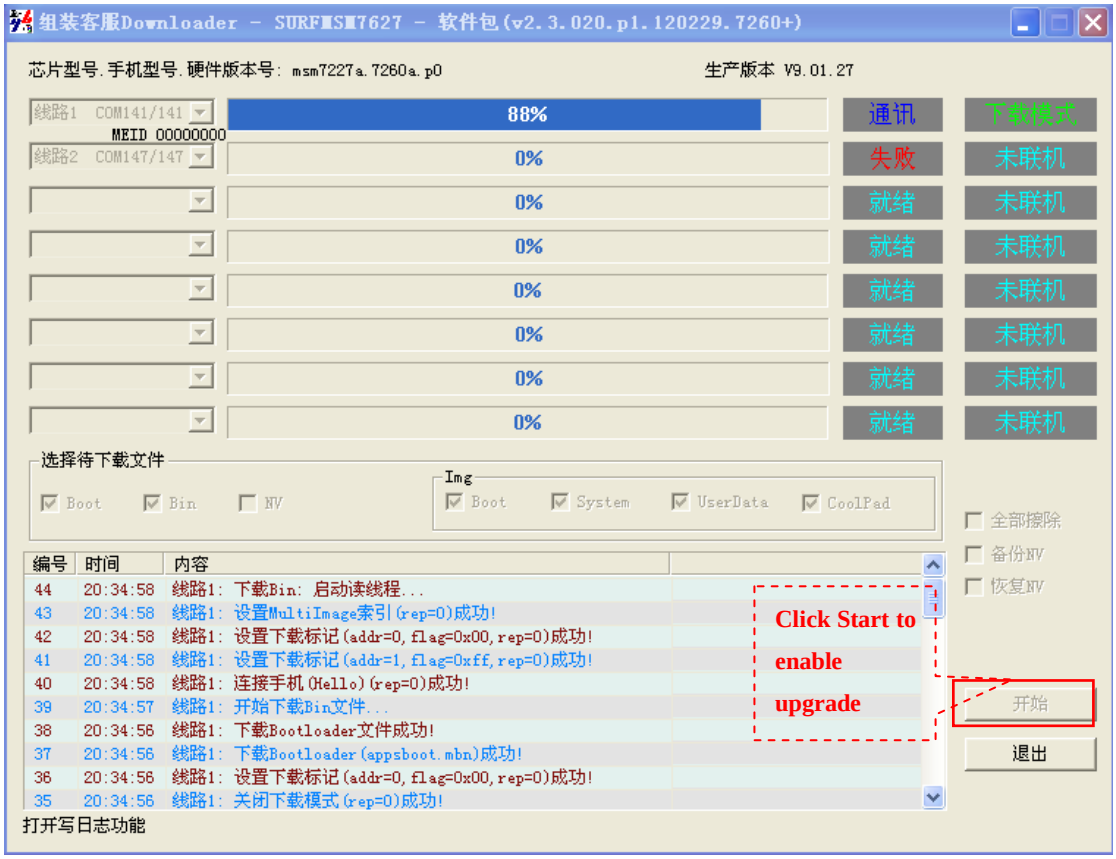
;

2) When the phone is powered off, press its Volume + key and plug USB cable to computer at the same time, and release when the screen displays “Communicating…Boot status and version No.”. It indicates is working under upgrade module and communication can be downloaded, when the upgrade platform has detected Online device.

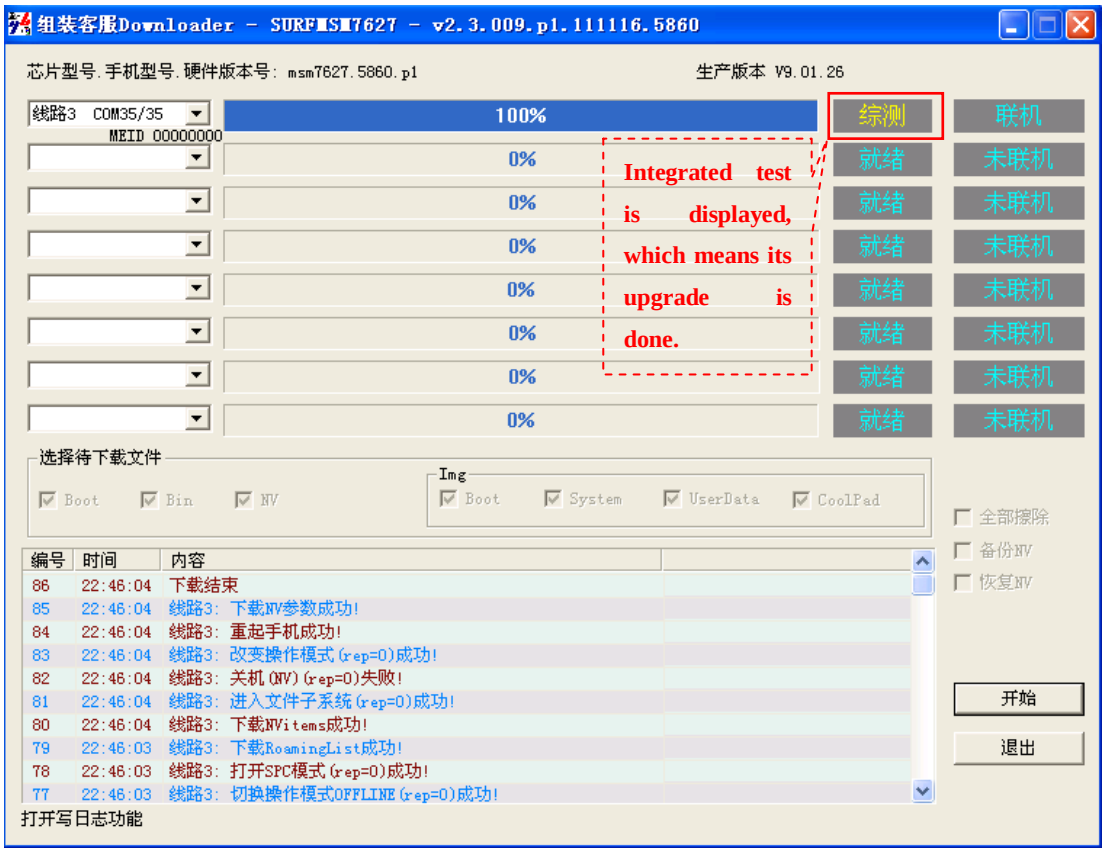
Note: if the device cannot be Online with the platform in the course of upgrading, the solution is to turn off the platform and turn it on again and get COM port set well.



3) When the platform has detected being Online with device, click Start to enable download upgrade.



4) When Integrated test is displayed in the tool status bar, it indicates the upgrade of PAP4000 is done, please plug off its data cable for the next device.



5) Copy GPS map package/pre-installed resource package/install pack:

7260+ GPS map package is external; please copy it to memory card to use. Copy COOLMAP package (decompressed) to memory card directory.

5.1. 7260+ pre-installed resource package, presetapp-7260+.zip, (do not need to be decompressed), copy it to COOLPAD directory located in memory card.

Note: the pre-installed resource package, presetapp-7260+.zip, included in the new released software version may be different from that of the form one, please re-copy the pre-installed resource package to its corresponding directory in the memory card after the upgrade is done.

➢ Precautions

1) If the device cannot be Online with the platform in the course of upgrading, the solution is to turn off the platform and turn it on again (but the premise are the following two points, a. the driver of USB port is installed well; b. the phone is switched to upgrade mode successfully);

2) The default configuration of upgrade platform is not to perform Delete all, and using QPST to backup NV parameters before performing upgrade is advised.

4. Guides of disassembling and assembling

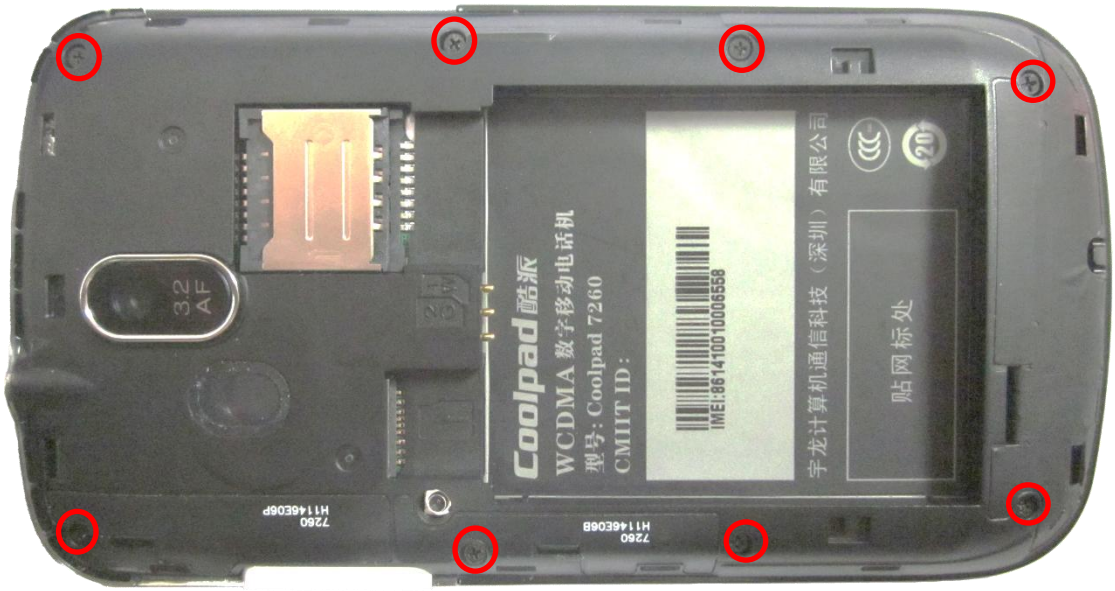
4.1. Tools of disassembling and assembling

Device, instruments, jigs and tools			
NO	Name of product	Specification	Quantity
1	tweezers		1
2	screwdriver	Cross shape	1
3	anti-electrostatic wrist strap/anti-electrostatic glove		1
4	Disassemble plate		1
5	Knife		1

4.2. Steps of disassembling and assembling

4.2.1. Disassembling screws of the back shell

There are eight screws (cross shape) in 7260+ back shell, shown as the following figure:



4.2.2. Separate the back shell

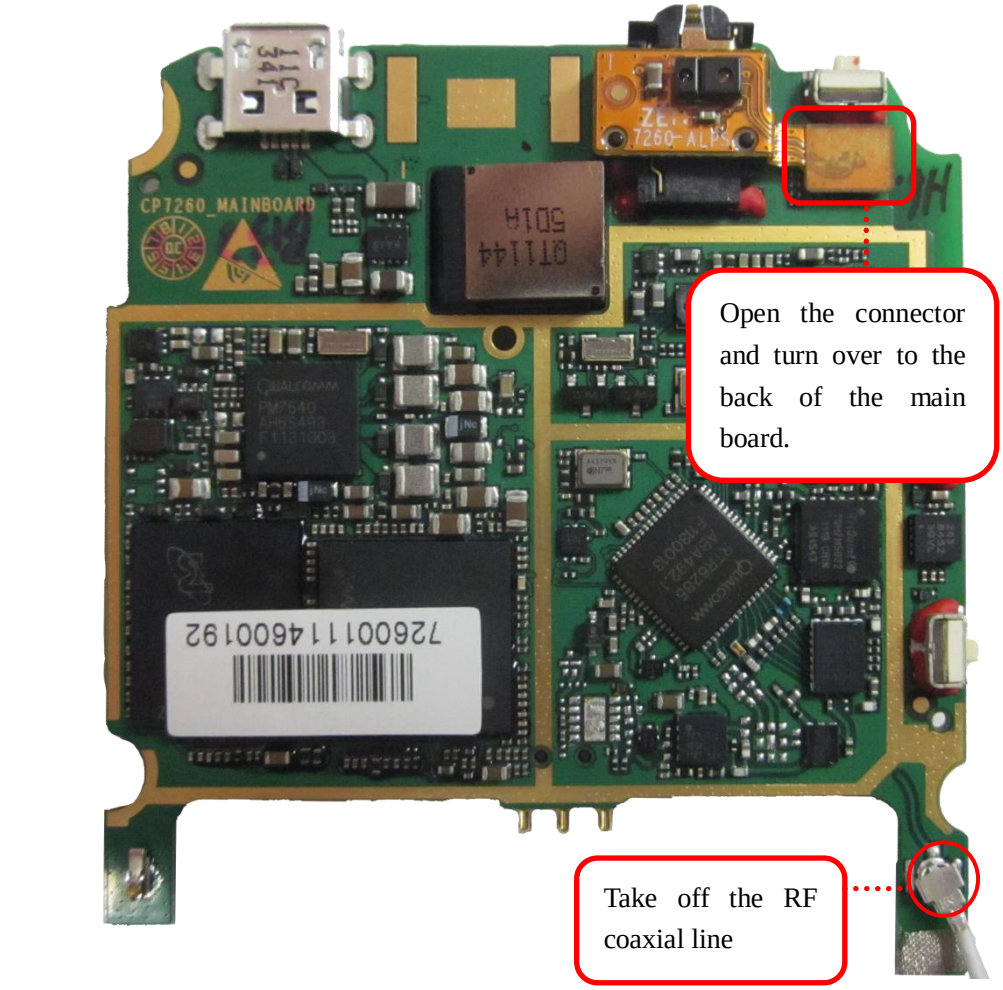
Use Disassemble plate to separate alongside with the seam.

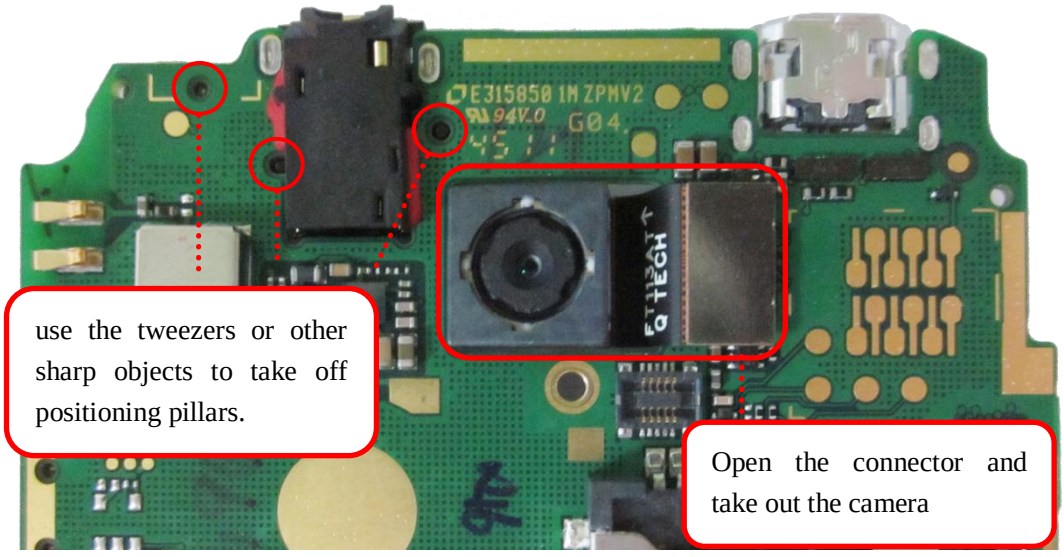
4.2.3. Separate the front shell

a. Disassembling tow screws and taking off the RF connection line;

b. Open TW/LCD/small board connector;

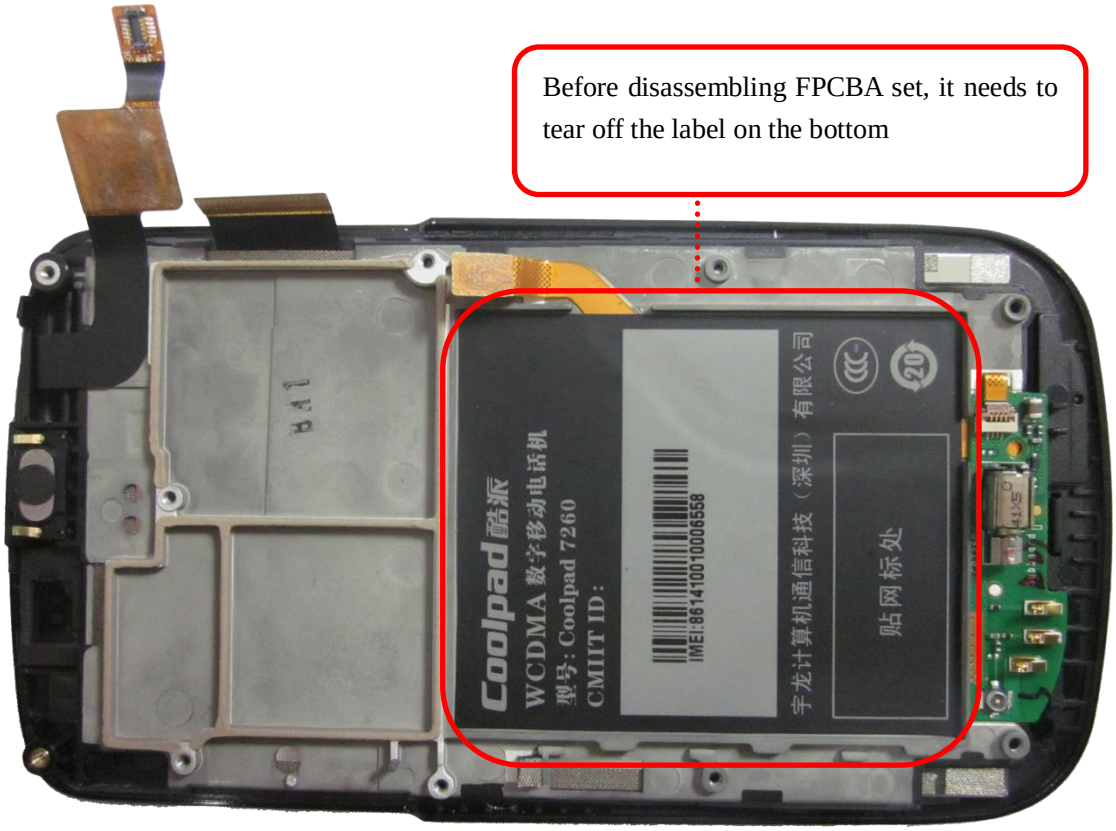
4. 2. 4. Disassembling main board set

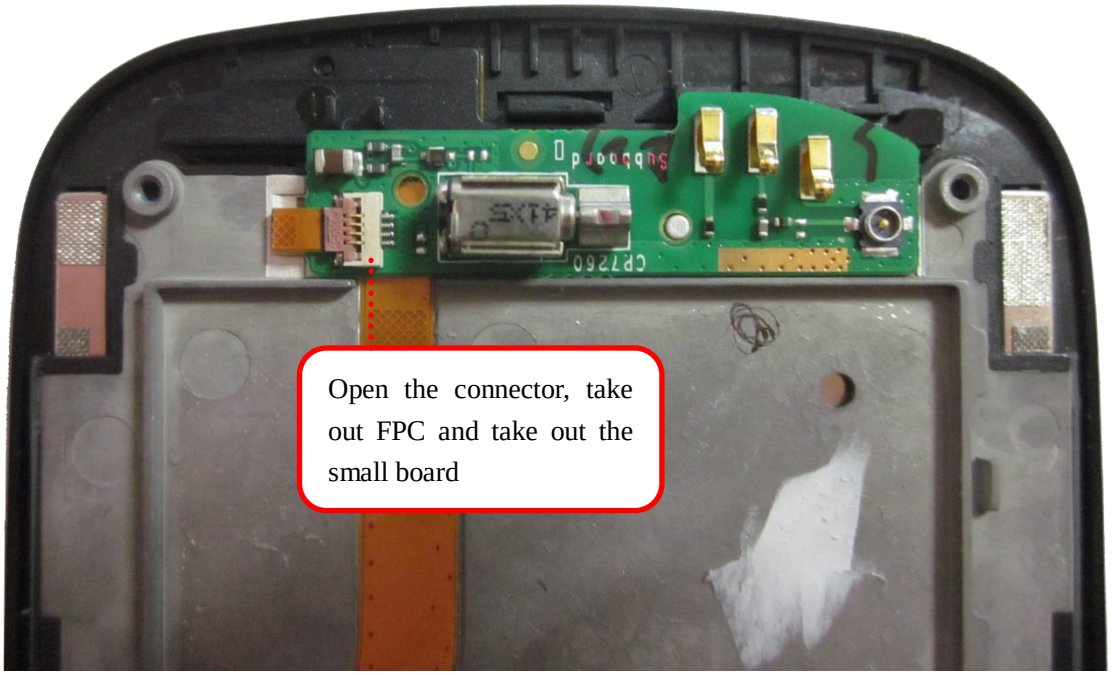


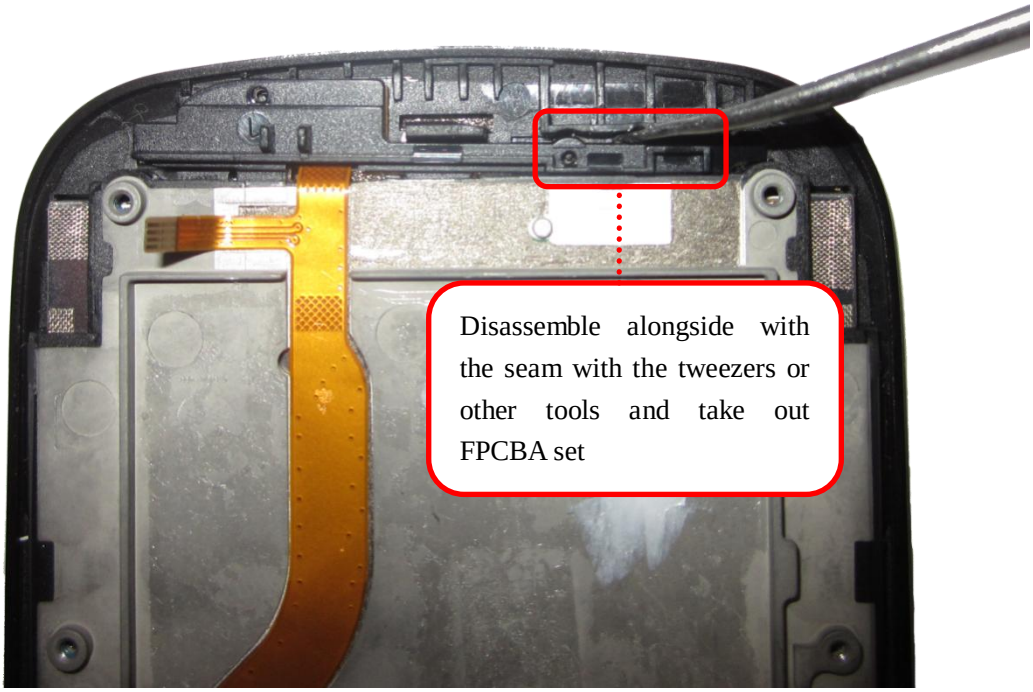


4.2.5. Disassembling the set of the side shell

Disassemble FPCBA set


Before disassembling FPCBA set, it needs to tear off the label on the bottom
Coolpad 酷派
WCDMA 数字移动电话机
型号: Coolpad 7260
CMIIT ID:
IMEI:861410010006558
宇龙计算机通信科技（深圳）有限公司
贴网标处


Open the connector, take out FPC and take out the small board

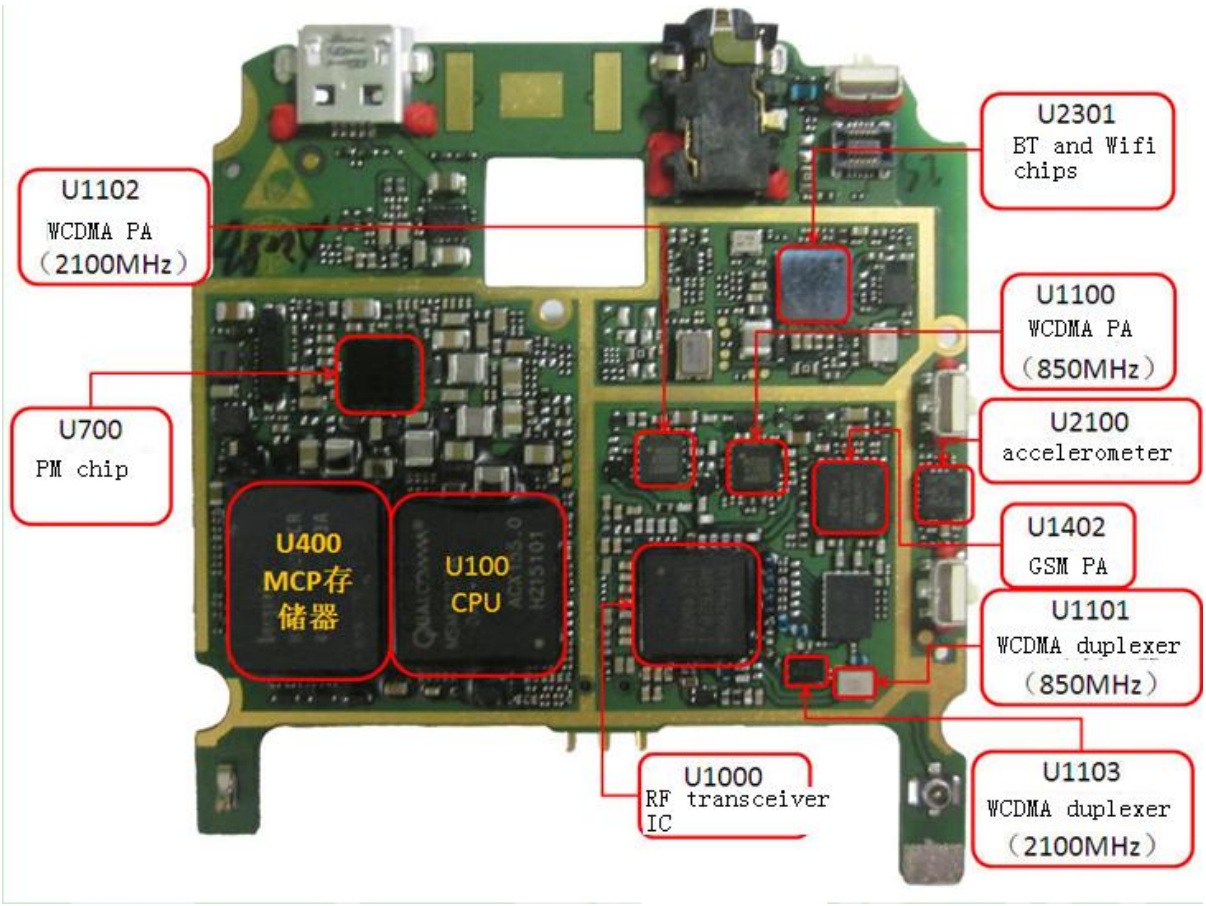


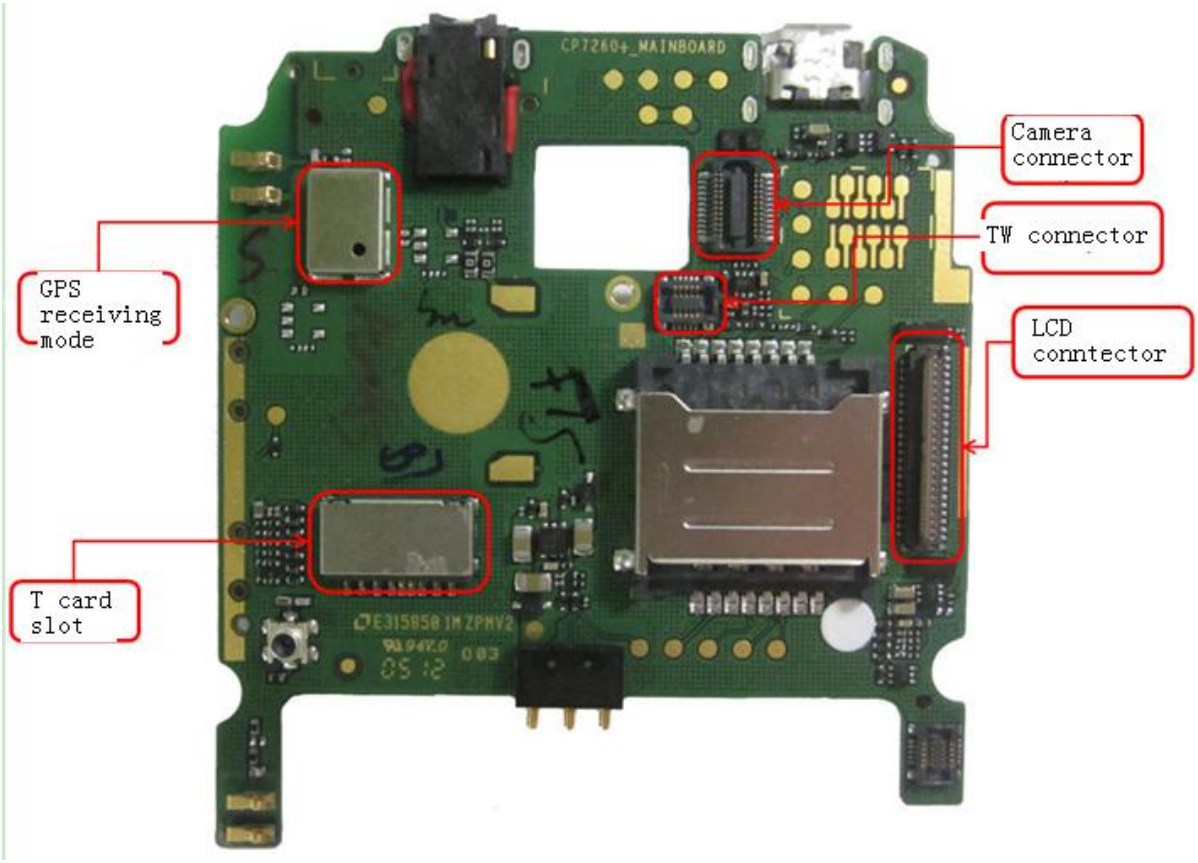
Note: the front shell of 7260+ adopts the new adhesive art, so they cannot be disassembled respectively, and the solution is to exchange them as an entirety.

5. Maintenance technologies

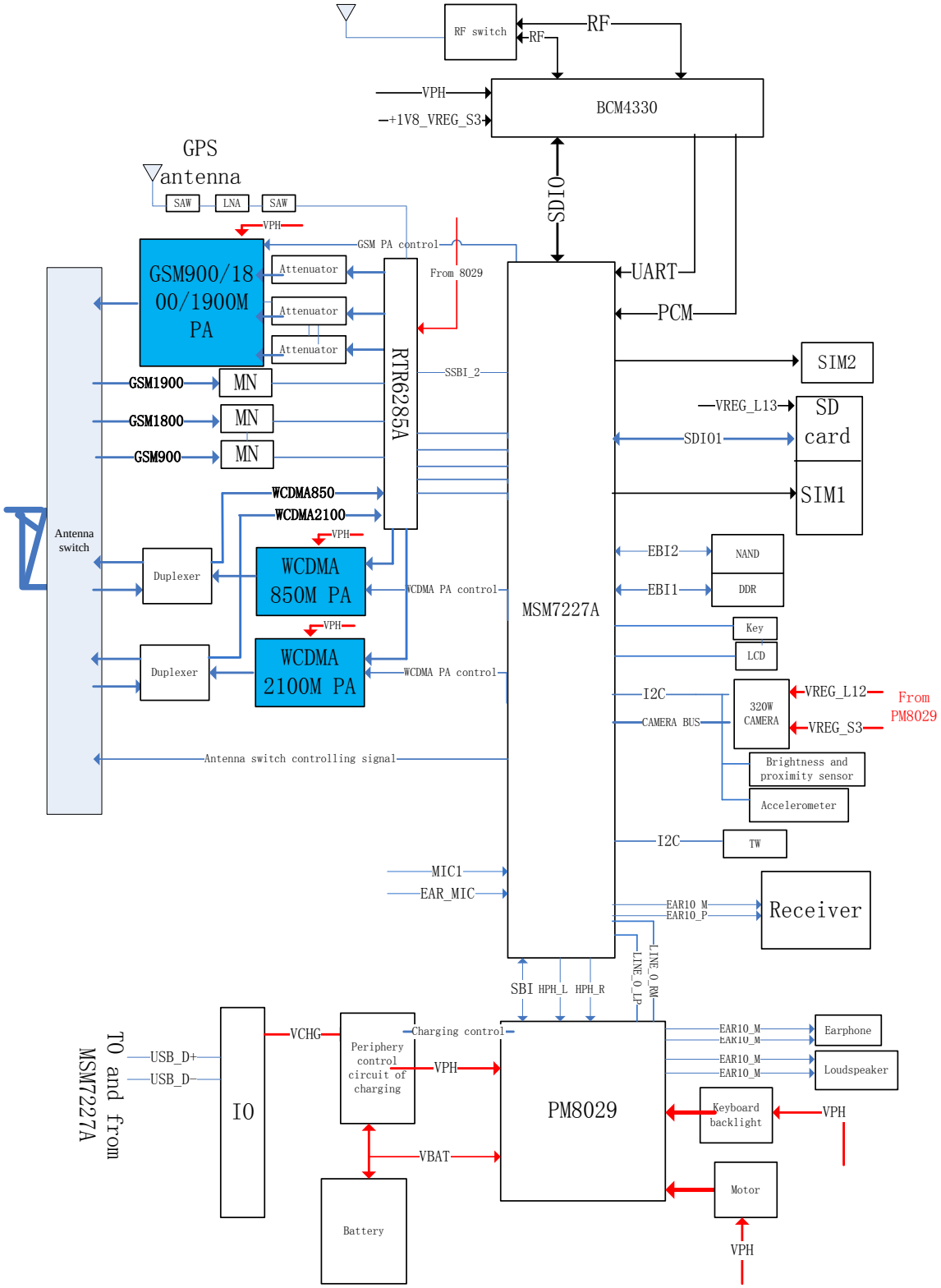
5.1. Solutions to frequent failures

5.1.1. The name and location of main board




Camera connector
TW connector
LCD conntector
GPS receiving mode
T card slot

5.1.2. Hardware system framework



5.1.3. Basic principles and analyses and maintenance of frequent failures

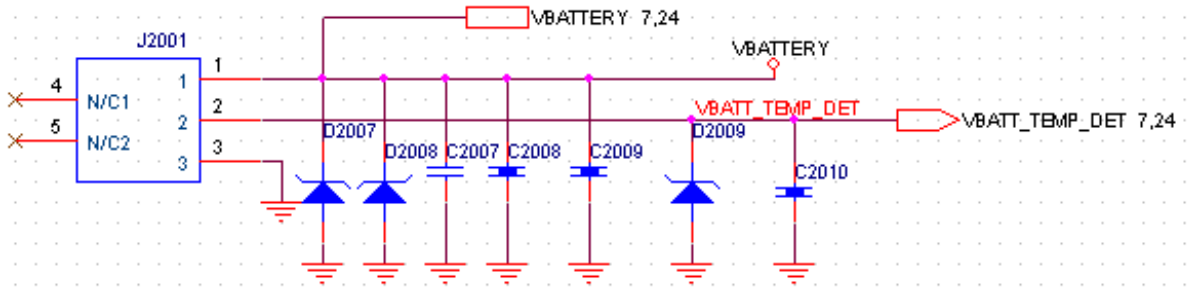
（A）Functional failures

A. The failure of powering on

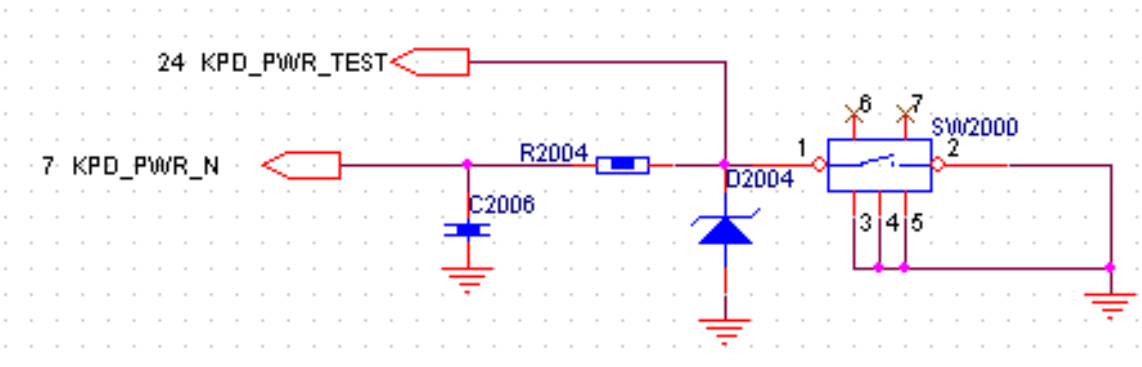
There are lots of reasons to cause the device cannot power on or suffers from powering-on failures such as insufficient battery, battery connector being disconnected or welded poorly, broken component on system main board and malfunctioned structure.

When the battery is low or the battery is broken, its voltage should be measured first. If it voltage is lower than 3.6V, the battery needs to be charged by a charger; if the battery cannot be charged, then it needs to be exchanged for a new one.

When J2001, the battery connector, is broken or bad welded, it is another reason to cause the device cannot be powered on. If this failure still exists after installing a new battery, J2001 is needed to be verified if it is broken or bad welded, if it is or has worse case, it needs to be re-welded.

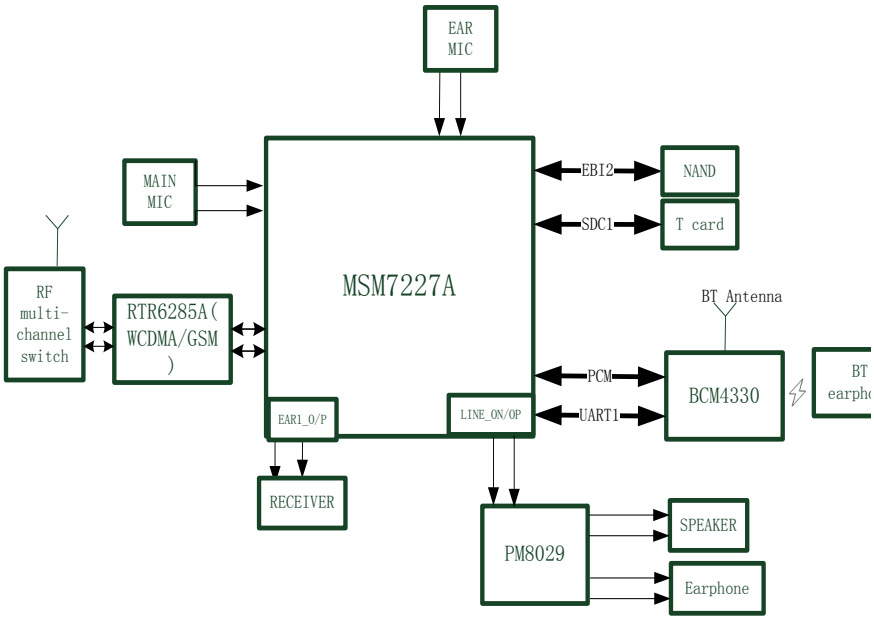


If the reason is none of the above cases, the polarity voltages (namely, pin 3 and pin 1) of J2001, the connector, should be measured by using a multi-meter directly, verifying if they are shot circuited, if it is shot circuited, it means there is broken component and then it needs to locate the broken component and replace it; if it is not short circuited, it needs to verify if there is current response on pressing the Power key, if there is current response, and the current is lower than 40mA, it needs low format upgrade again; if the current is over 90mA, it needs to perform exchanging tests for the LCD module, if the device can be powered on, it represents the LCD module is broken and it must be exchanged; if it is not current response, then it needs to check the powering-on circuit, the powering-on key is SW2000, therefore it needs to verify if SW2000, the keyboard connector, is broken or welded poorly.



B. Failures of receiving voice and ringtones

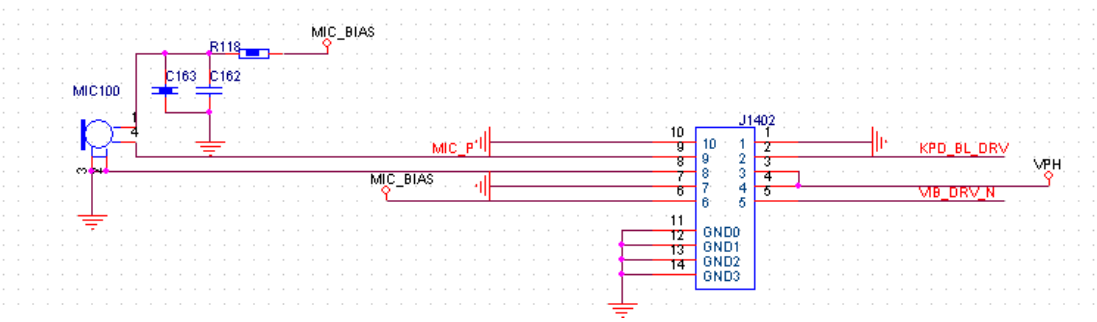
The audio system framework of 7260+ is as follows:



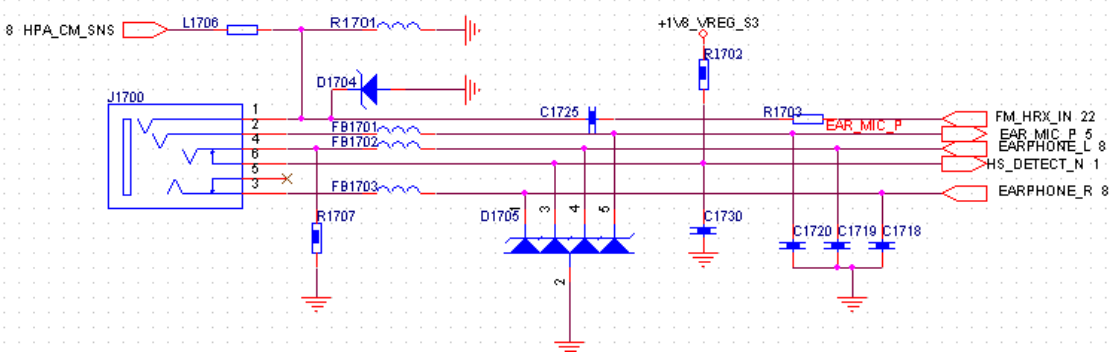
The audio system of 7260+ takes MSM7227A as its center with other functionalities such as PM8029 (built-in loudspeaker, earphone PA and echo canceling), power management chip, BCM4330, BT chip which realizes WG communication hand-hold, hand-free, BT and earphone calls. Additionally, 7260+ supports the handhold mode to constrain the noise of calls in order to constrain the surrounding noise and improve user's call quality under the noise surroundings.

As for problems of audio, the problems of MIC, RECEIVER and SPEAKER can be confirmed by the relevant test programs in the Net monitor. If it verifies there are failures, it needs to verify if there are poor welded or connected components. For instance, it needs to verify if MIC is welded badly, RECEIVER or SPEAKER is assembled correctly. If all the components are verified to be fine, then it needs to exchange them all to perform exchanging tests to verify if they are not malfunctioned. If the exchanging tests are proved to be OK, then the corresponding broken component needs to be exchanged, however, if the problems still exist after perform exchanging tests, it needs to verify if the relevant circuits are normal.

As for the failure that MIC fails to deliver sounds, it needs to verify if its working circuit is normal. For instance, if the level of MIC_BIAS, MIC bias power supply, is at 1.8V, the normal voltage, and if MIC outputs signal when speaks to it.

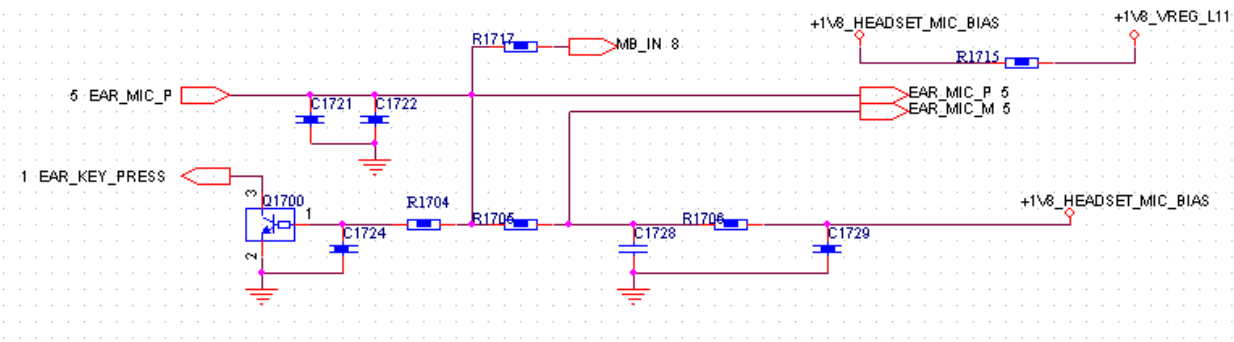


As for the problems of delivering and receiving sounds of earphone, it needs to verify if the earphone is well functioned, and the solution is to exchange the earphone for a new one to make confirmation. If the failure still lasts after having a new earphone, then it needs to verify if the connection of J1301, the earphone connector, is reliable, poor weld or broken.

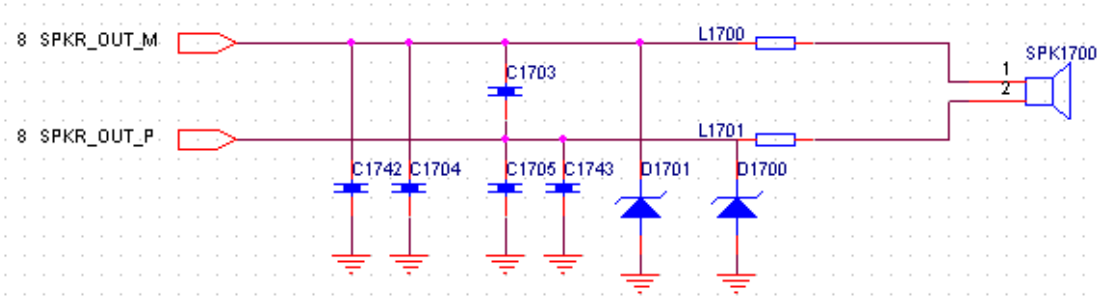


If the weld of earphone connector is normal, then it needs to confirm if the inserting detective circuit of earphone is normal. After the earphone is inserted, the voltage of HS_DETECT_N, the signal network, changes from high to low, then it detects the earphone is inserted.

When the earphone key is pressed, if the voltage of PIN3 of Q1700 changes from low to high, it means the phone has detected the earphone key is pressed.



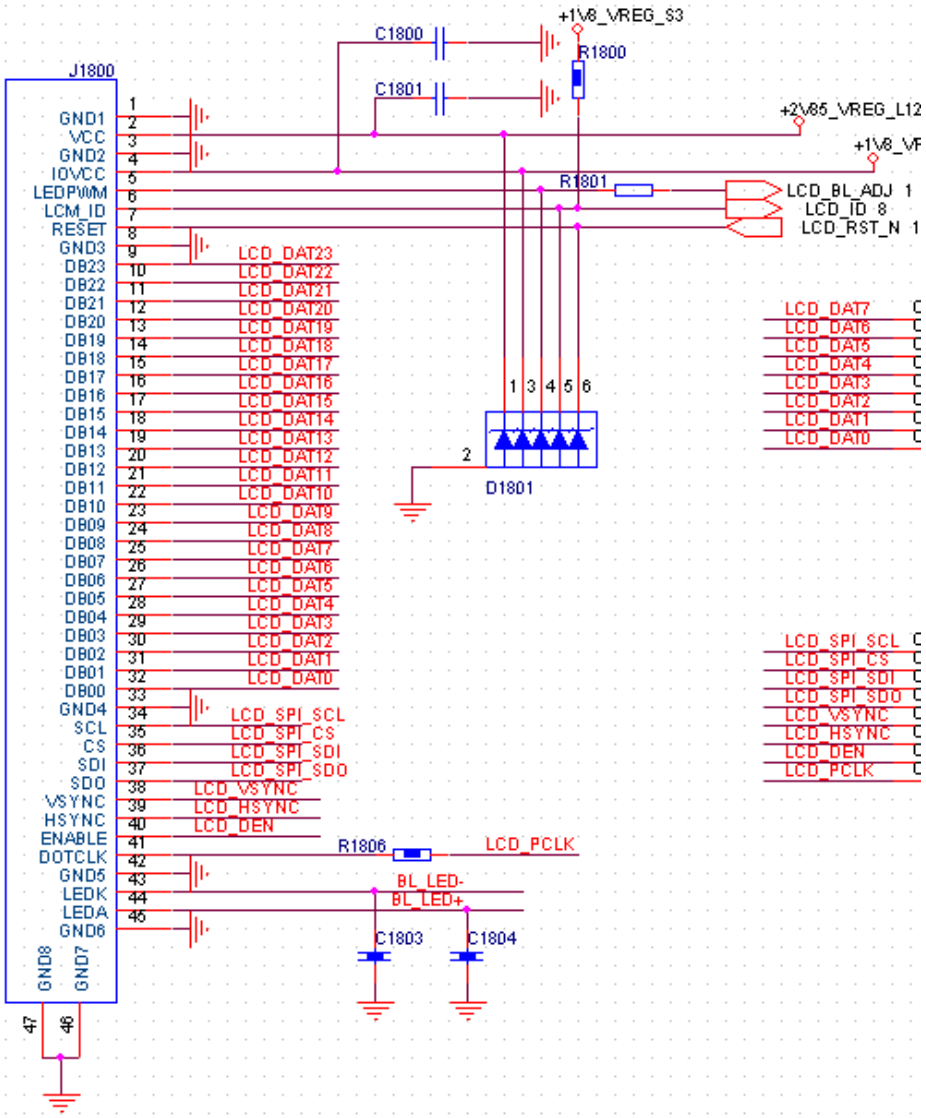
As for the problem that the loudspeaker is soundless, it needs to exchange for a new one to perform test. If the failure still exists after the new loudspeaker is exchanged, it needs to verify if the circuit of SPEAKER is normal.



If there is any problem on the channel of earpiece receiver, the first step to figure it out is to exchange it for a new earpiece and perform exchanging test, if the failure is tackled, it means the failure lies in the earpiece, and the solution is to exchange it.

C. The failures of displaying

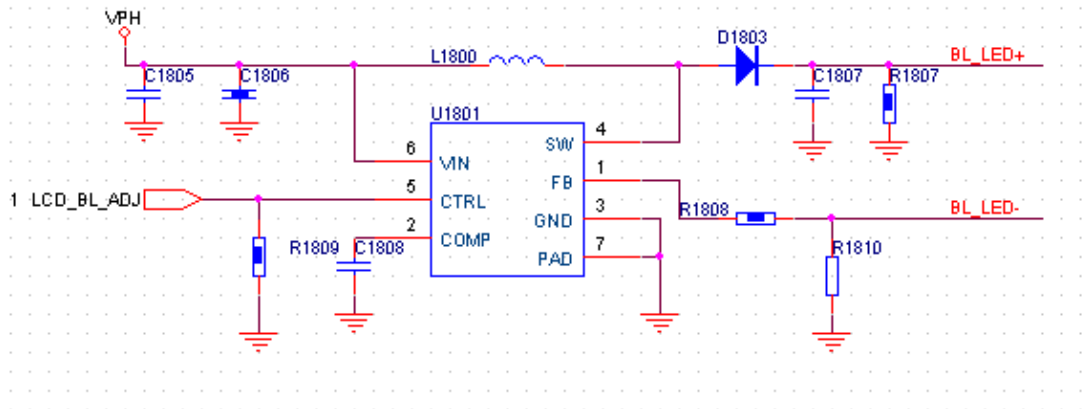
7260+ LCD adopts RGB port and LCD connects to the main board via J1800, the connector.



LCD connector

The failures of displaying include white screen, backlight fails to work, blurred screen and abnormal colors. If the failure is white screen, blurred screen or abnormal colors, it needs to verify if J1800, the LCD connector, has solid connection to main board or is reliable; if it is well connected and reliable, then a new LCD needs to be used to replace the old one to do verification; if the verification result is OK, the solution is to exchange LCD.

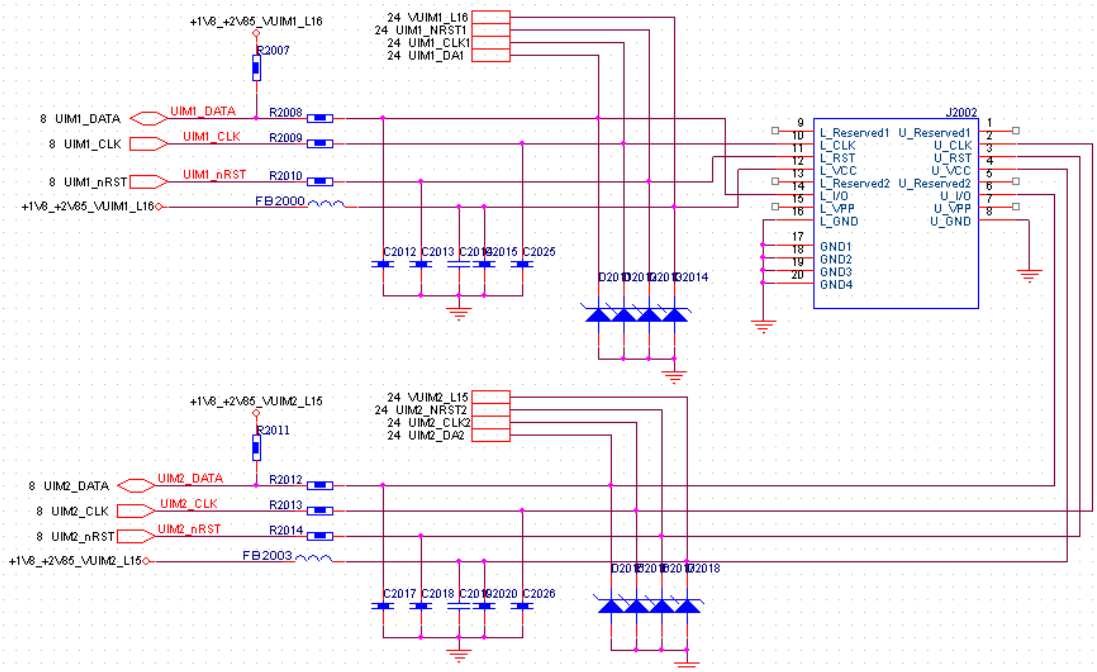
If the LCD backlight fails, it needs to verify if U1801, the circuit of LCD backlight, is normal.



D. The failures of identifying SIM/UIM card and T card

The failure of identifying SIM/UIM card

7260+ SIM/UIM card is inserted to J2002, the UIM connector, directly, the bottom slot of the slot set is WCDMA card by default and the other one is GSM card:

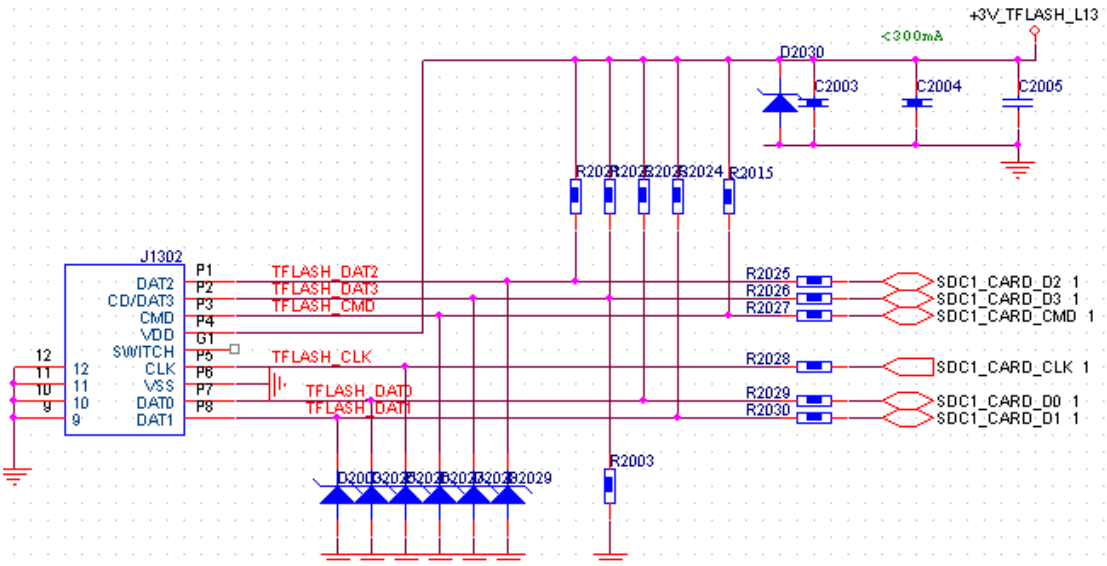


When UIM/SIM card cannot be identified, the first step to check this failure is to verify if UIM/SIM card is malfunctioned. If it is well functioned, it needs to verify if J2002, the UIM connector, is well connected to main board or welded poorly.

When SIM card cannot be identified, it needs to verify if the connector of SIM card and J2002, the connector of main board, are connected to main board well. If J2002 is connected to the main board well, it needs to check if PM8029 works normally.

The failure of identifying T card:

TFlash card circuit consists of LDO L13, the power supply of route, ESD pipe, ESD/EMI protective component, and J1302, the card connector.



TFlash slot

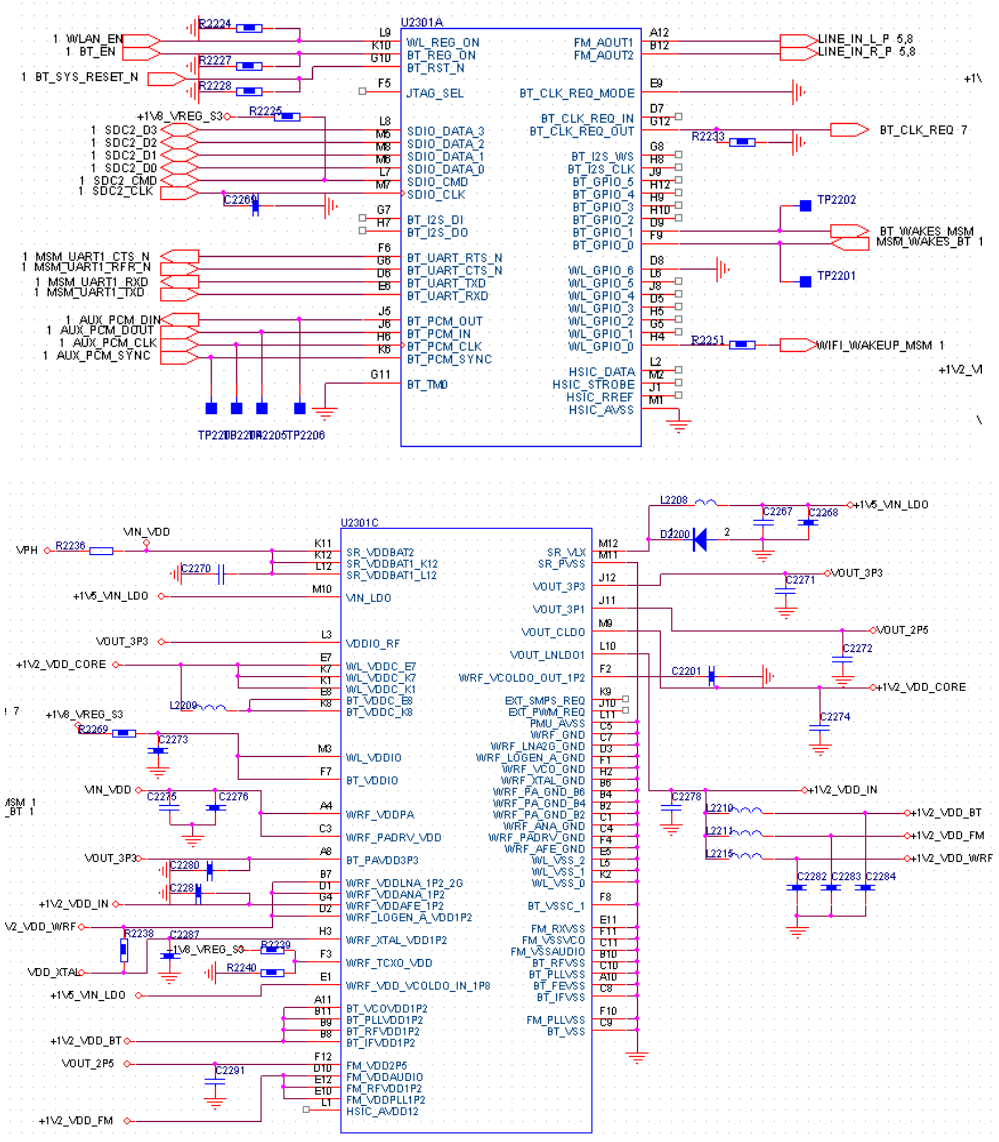
As for failures that fail to identify cards, it can exchange for a new TFlash card to verify if the former one is broken; if the TFlash card functions well, it needs to verify if J1302, the connector of TFlash card, is

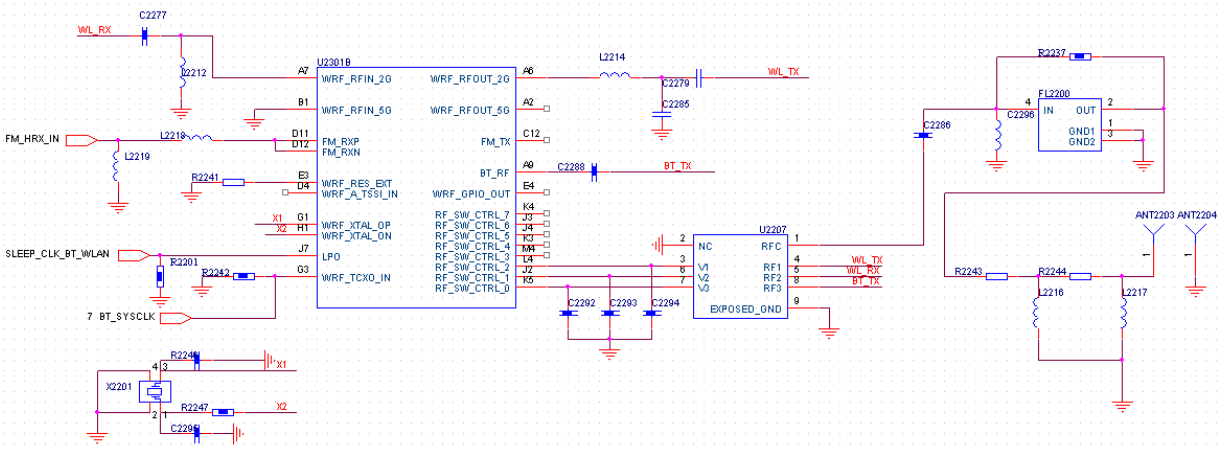
broken or welded poorly, if it is, the solution is to exchange it for a new one. However, if the connection between J1302 and the main board is normal, then it needs to analyze the circuit of TFlash card and verify if there is shot circuit between all pins of J1302 and the main board, if there is, it needs to exchange J1302.

E. The failures of Bluetooth

If Bluetooth fails to be turned on, it needs to verify if U2301, the Bluetooth IC, is posted well and welded well.

If the transmission distance of Bluetooth is less than 5 meters, it needs to verify if ANT2203, the Bluetooth antenna, is posted well or welded well; if the antenna is welded poorly, it needs to be re-welded; while if the antenna is welded well, it needs to verify if ANT2203, the WIFI chip, is welded well.





F. The failures of shooting photos and recording videos

Cannot enter shoot mode： Generally, the causes are software, camera or assemble is malfunctioned, and/or J1900, U1902 or U1900 is malfunctioned.

Black screen on entering shoot mode： It needs to obviate malfunctioned camera first, and the causes may lie in that U1902n U1900 and J1900 are welded poorly, additionally, the malfunctioned software may also cause this case.

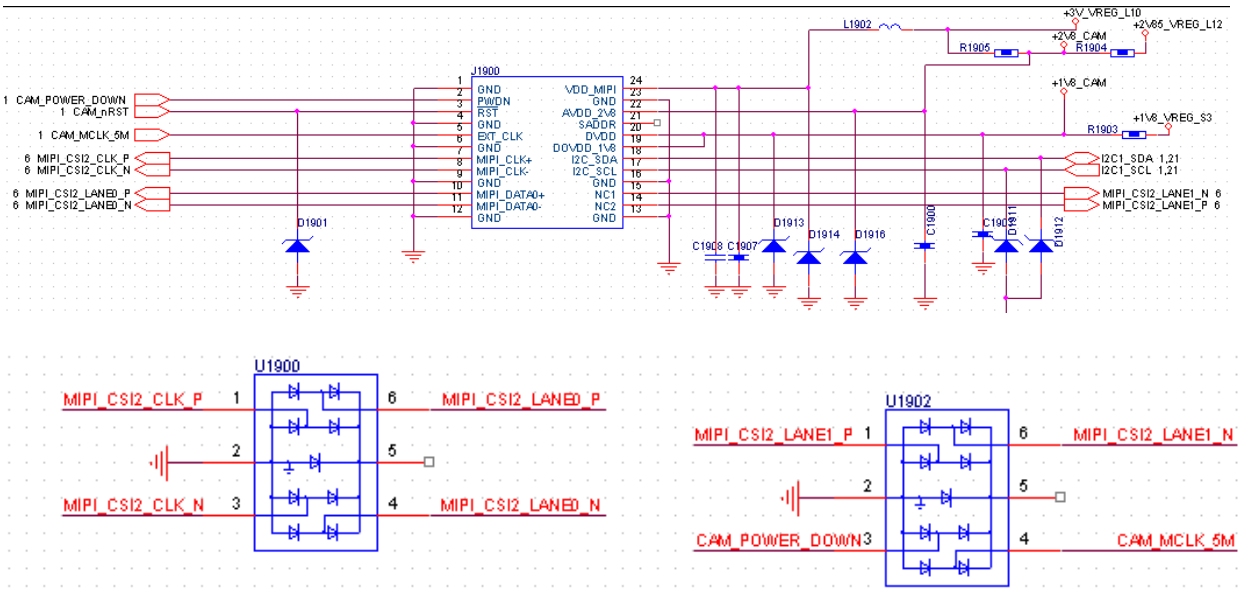
Blurred screen on shooting： Generally, the cause lies in camera or assembles; the causes for this case is similar to those of Black screen on entering shoot mode.

Cannot shoot：The system cannot enter Shoot mode via the Shoot key, which means the Shoot key is malfunctioned. And it needs to obviate the cause coming from malfunctioned camera, additionally, if the software is malfunctioned, it will also raise this failure.

Black screen/ black spots/ colorful spots etc on shooting：It needs to obviate malfunctioned camera and LCD first.

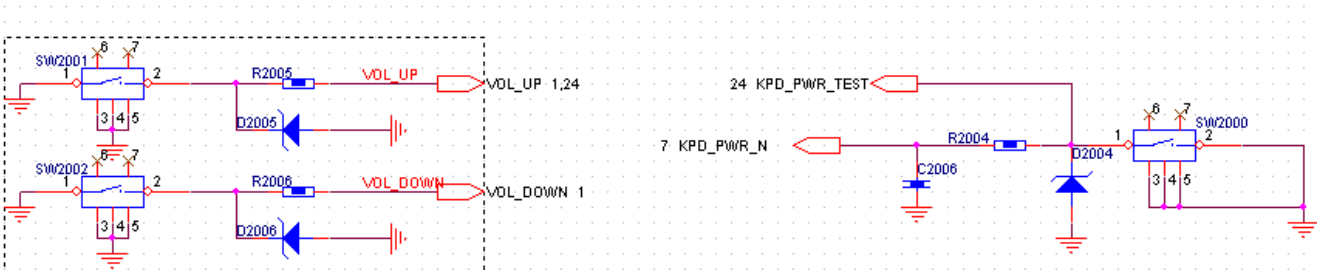
Malfunctioned software： The failures raised by it are slow response, death on shooting, unavailable Shoot key, failure of storing and failure of entering Shoot mode.

The circuit of 3.0 megapixel camera:



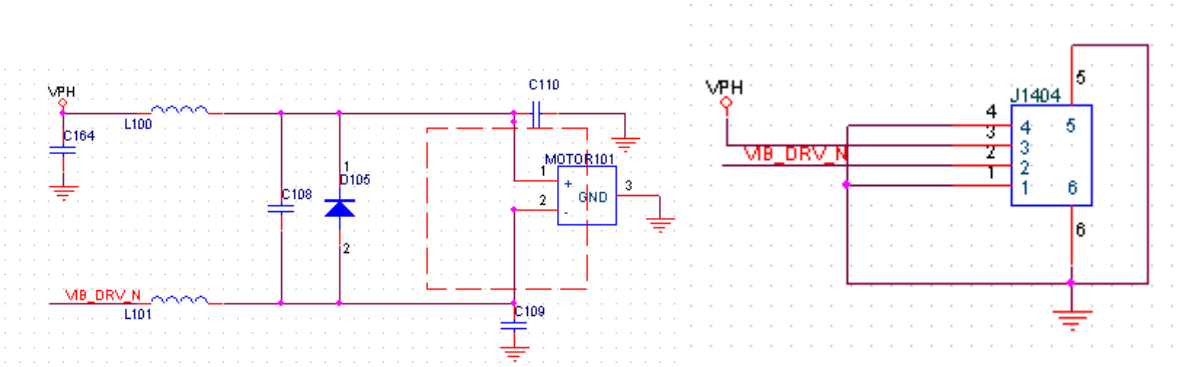
G. The failures of keys

If keys fail, please open the back shell to check if they are OK, and if they are broken, they need to be exchanged.



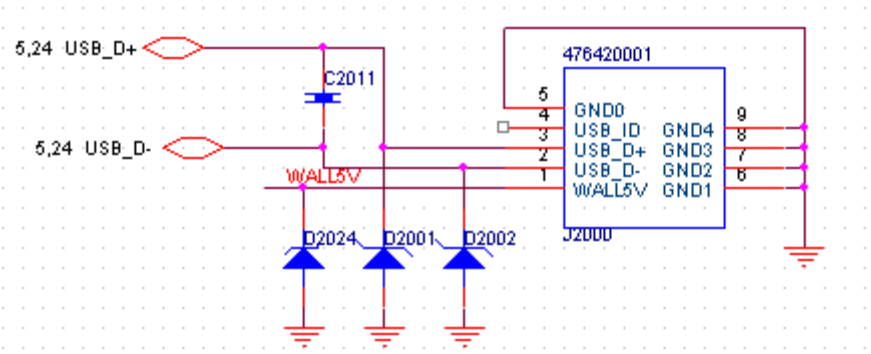
H. The failures of motor

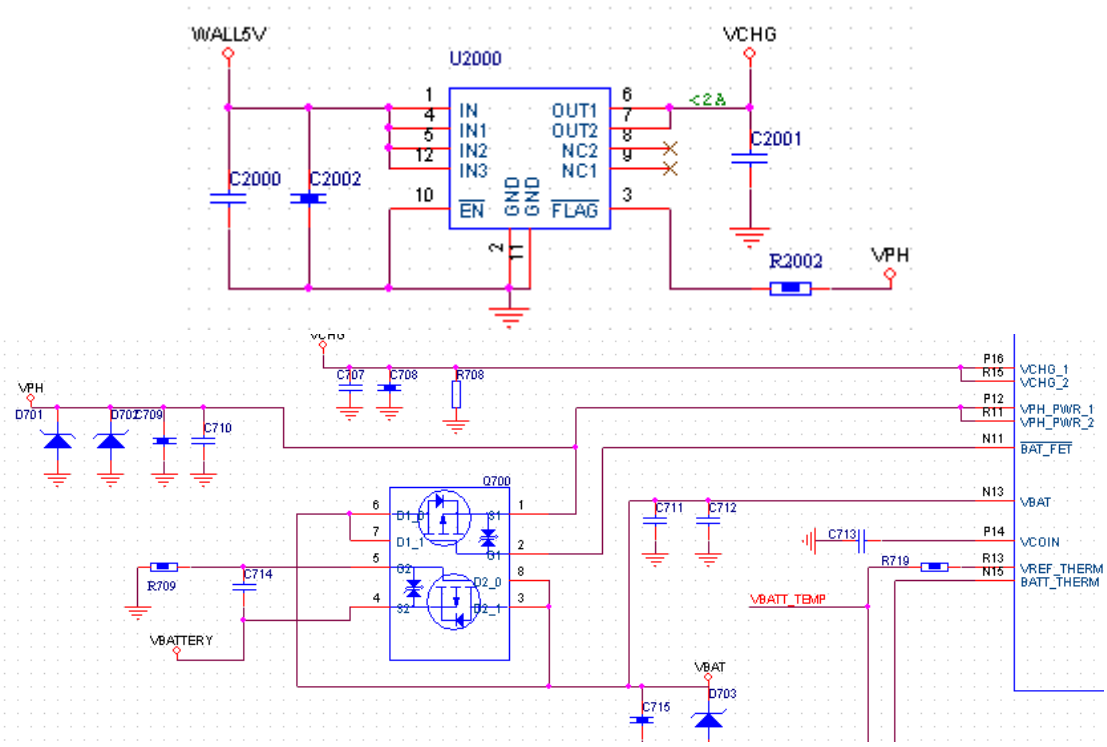
The failure of vibrator: first, it needs to verify if MOTOR, the vibrator, is welded well, if it is not, it needs to be re-welded; while if it is, it needs to measure the voltages against the ground of vibrator, and if the circuit is short-circuited to ground, it needs to verify if PM8029, the driver of vibrator, is broken. If all these cases are normal, it needs to power the digital power supply up to 2.8V and connect it to the two controlling points of the vibrator to verify if it vibrates, if it does not vibrate, it represents the vibrator is broken, and the solution is to exchange it for a new one; while if it vibrates, it means the signal of power supply of vibrator is not transmitted and it needs to perform check based on the circuit with the reverse direction. And it can also exchange FPC for a new one to verify if it is FPC problems.



I. The failures of charging

The detective circuits of charger and USB: to verify if J2000, the tail plug, is welded well and if U2000 is wielded well.





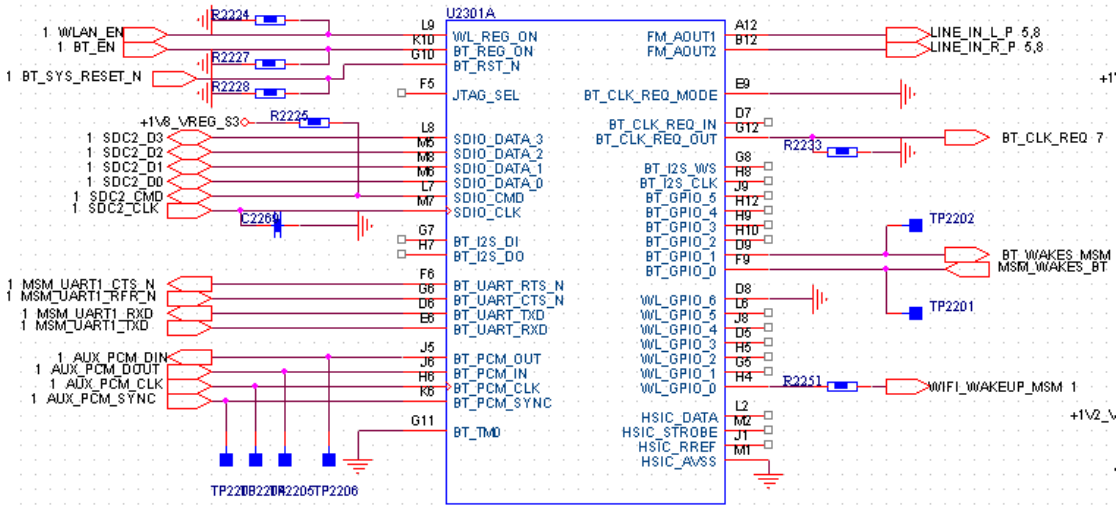
The battery cannot be charged full: generally, the battery is broken, and some cases are the problems coming from the detective circuit.

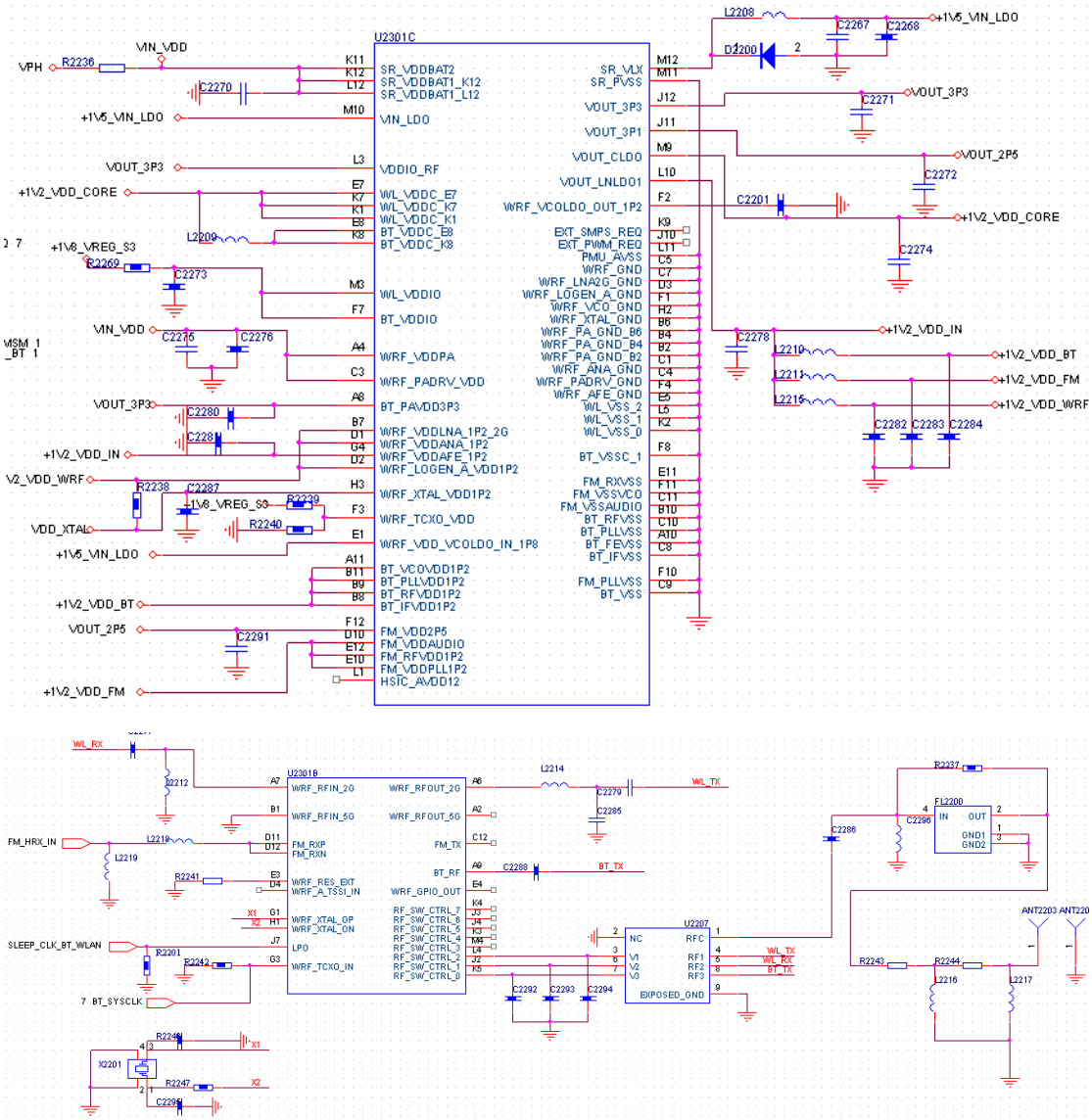
Failure of charging: first, it needs to verify if J2000, the tail plug, is welded well and then verify if U2000is welded well. Malfunctioned or poor welded Q700 can cause the failure of charging. What is more, the malfunctioned detective circuit of battery temperature may cause the device cannot detect the failure that the battery cannot be charged.

The current of charging loop is small: it needs to check the detective circuit first, and the malfunctioned software may cause this failure.

J. The failures of WIFI

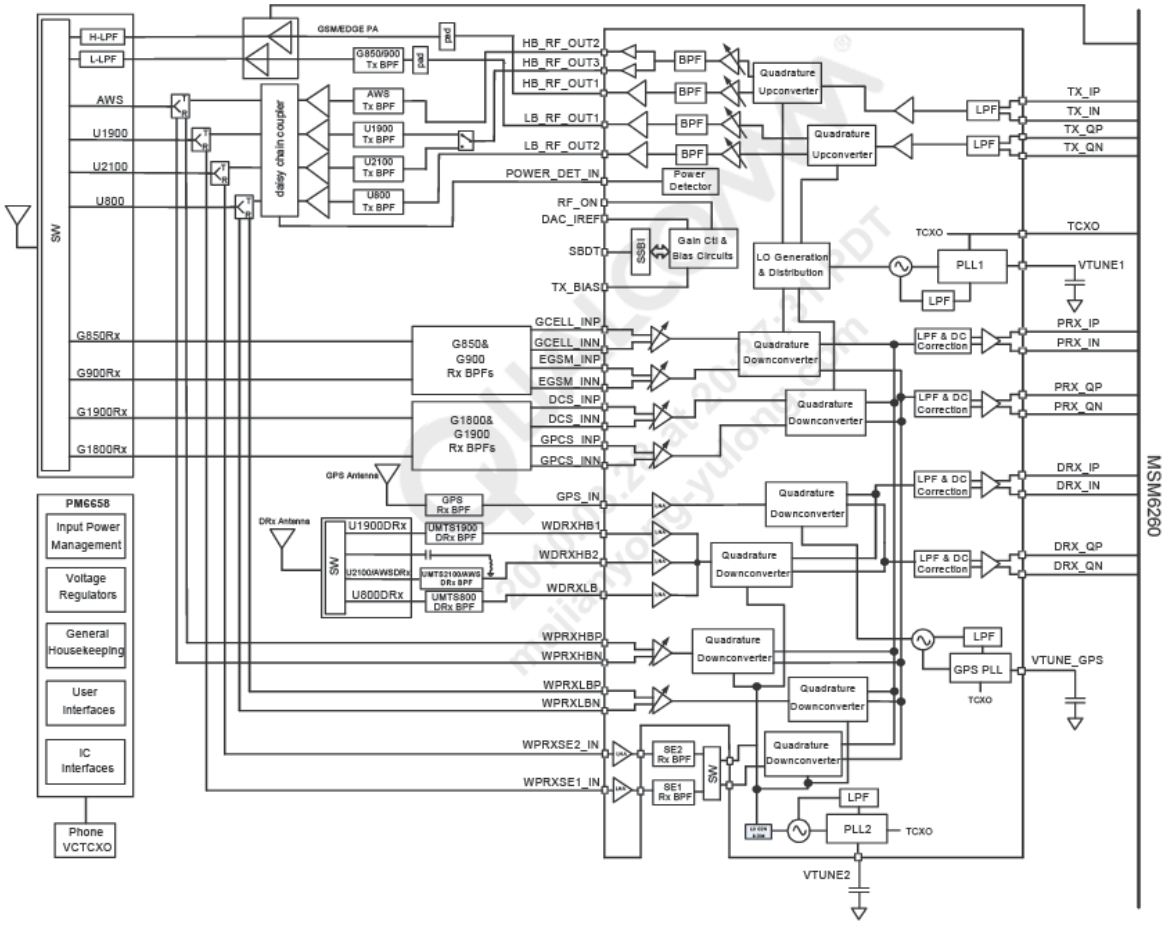
First, it needs to verify U2301, WIFI chip, is welded well, if it is welded poorly, it needs to be re-welded; while if it is welded well, it needs to verify if the power supply and the clock of WIFI circuit are normal.




U2301C
VIN_VDD
VPH
R2236
C2270
+1V5_VIN_LDO
VOUT_3P3
+1V2_VDD_CORE
+1V8_VREG_S3
L2209
R2269
C2273
VIN_VDD
C2275
C2276
VOUT_3P3
C2280
C2281
+1V2_VDD_IN
V2_VDD_WRF
R2238
C2287
R2239
R2240
VDD_XTAL
+1V5_VIN_LDO
+1V2_VDD_BT
VOUT_2P5
C2291
+1V2_VDD_FM
SR_VDDBAT2
SR_VDDBAT1_K12
SR_VDDBAT1_L12
VIN_LDO
VDDIO_RF
WL_VDDC_E7
WL_VDDC_K7
WL_VDDC_K1
BT_VDDC_E8
BT_VDDC_K8
WL_VDDIO
BT_VDDIO
WRF_VDDPA
WRF_PADRV_VDD
BT_PAVDD3P3
WRF_VDDLNA_1P2_2G
WRF_VDDANA_1P2
WRF_VDDAFE_1P2
WRF_LOGEN_A_VDD1P2
WRF_XTAL_VDD1P2
WRF_TCXO_VDD
WRF_VDD_VCOLDO_IN_1P8
BT_VCOVDD1P2
BT_PLLVDD1P2
BT_RFVDD1P2
BT_IFVDD1P2
FM_VDD2P5
FM_VDDAUDIO
FM_RFVDD1P2
FM_VDDPLL1P2
HSIC_AVDD12
SR_VLX
SR_PVSS
VOUT_3P3
VOUT_3P1
VOUT_CLDO
VOUT_LNLDO1
WRF_VCOLDO_OUT_1P2
EXT_SMPS_REQ
EXT_PWM_REQ
PMU_AVSS
WRF_GND
WRF_LNA2G_GND
WRF_LOGEN_A_GND
WRF_VCO_GND
WRF_XTAL_GND
WRF_PA_GND_B6
WRF_PA_GND_B4
WRF_PA_GND_B2
WRF_ANA_GND
WRF_PADRV_GND
WRF_AFE_GND
WL_VSS_2
WL_VSS_1
WL_VSS_0
BT_VSSC_1
FM_RXVSS
FM_VSSVCO
FM_VSSAUDIO
BT_RFVSS
BT_PLLVSS
BT_FEVSS
BT_IFVSS
FM_PLLVSS
BT_VSS
L2208
C2267
C2268
+1V5_VIN_LDO
D2200
C2271
VOUT_3P3
VOUT_2P5
C2272
C2201
+1V2_VDD_CORE
C2274
C2278
+1V2_VDD_IN
L2210
L2211
L2215
+1V2_VDD_BT
+1V2_VDD_FM
+1V2_VDD_WRF
C2282
C2283
C2284
WL_RX
U2301B
L2212
FM_HRX_IN
L2219
R2241
SLEEP_CLK_BT_WLAN
R2201
R2242
7 BT_SYSCLK
R2246
X2201
R2247
C2295
WRF_RFIN_2G
WRF_RFIN_5G
FM_RXP
FM_RXN
WRF_RES_EXT
WRF_A_TSSI_IN
WRF_XTAL_OP
WRF_XTAL_ON
LPO
WRF_TCXO_IN
WRF_RFOUT_2G
WRF_RFOUT_5G
FM_TX
BT_RF
WRF_GPIO_OUT
RF_SW_CTRL_7
RF_SW_CTRL_6
RF_SW_CTRL_5
RF_SW_CTRL_4
RF_SW_CTRL_3
RF_SW_CTRL_2
RF_SW_CTRL_1
RF_SW_CTRL_0
L2214
C2279
C2285
WL_TX
C2288
BT_TX
C2292
C2293
C2294
U2207
NC
RFC
RF1
RF2
RF3
V1
V2
V3
EXPOSED_GND
WL_TX
WL_RX
BT_TX
R2237
FL2200
IN
OUT
GND1
GND2
C2286
C2296
R2243
R2244
L2216
L2217
ANT2203
ANT220

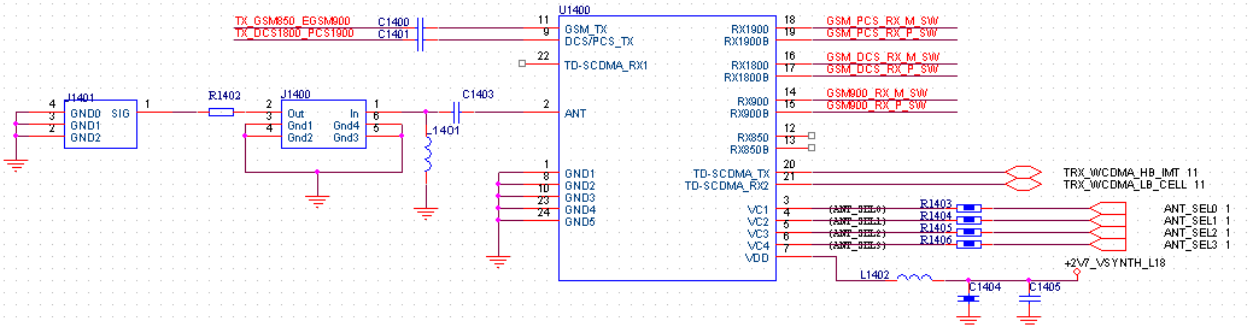
（B）. RF section

A. RF section of WCDMA



Electronic switch（U1400）

This phone is dual mode single standby, the RF transmitting and receiving channels change via the electronic switch （U1400）which likes one single-blade and multi-turn switch. 20th PIN and 21st PIN are WCDMA signal channels. The principle figure of electronic switch module is as follows:



If R1403~R1406 is pasted or welded poorly, it may cause the logic controlling signal of switch mixing, but the switch changes based on the usual logic, which causes the signals of WCDMA and GSM cannot be transmitted and received normally.

If C1404, C1405 and L1402 are pasted or welded poorly, it may cause the chip of electronic switch cannot supply power normally and the electronic switch cannot work, and then the RF signal cannot pass successfully.

Please check if the electronic switch is placed with correctness, if it is pasted on the wrong direction, the electronic switch cannot work. If it is forced to do the integrated test, its chip may be hot and has no

power frequency or even burned.

RF test port（J1400）

This item only includes one RF test port. RF test port is exclusively saved for the sake of the convenience of R&D and production to calibrate and test the machine. If the test port is not inserted with the radio frequency line, pin 1 and pin 2 are connected directly, namely, the circuit is using the antenna; while if it is inserted with the radio frequency line, the pin 1 is connected directly to the signal line of radio frequency line, and pin 1 and pin 2 will be disconnected, namely, the antenna is disconnected.

Generally, the reasons of test port failure include being welded poorly, being blocked by foreign objects or having spoiled materials.

The results coming from such reasons may lead to lower the power of conduction test, lower the sensitivity and fail to pass the calibration integrated test.

Duplexer（U1101、U1103）

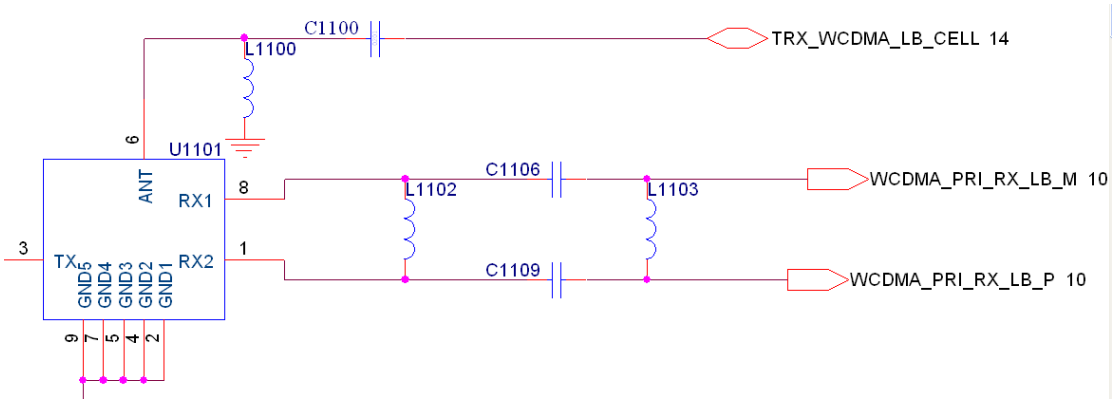
Because the WCDMA receivers share the same antenna, thus if no certain separation measurement is performed, it will cause serious interference on receiving and transmitting to impact the effect of signal receiving. The purposes of the duplexers are to avoid the big signal entering the front end of the Receiver to cause saturation or even burnout of the receiving channel, and to avoid the signal coming from the transmitter affecting the receiving sensitivity at the same time, namely, to separate the receiving and transmitting signals effectively.

Generally, the problems coming from receiving and transmitting duplexer lead to fail to pass calibration integrated test and have no transmitting or receiving signals. The solution is to verify if the duplexer is poor welded or not in the correct position.

As for the RF part of W850, the 6th PIN is the antenna port, namely, the public port, and the 3rd PIN is the port of inputting signal for duplexer, and the 1st PIN and the 8th PIN are the PINs to output signals, as the following figure.

When WCDMA transmits signals, they are amplified at PA, enter the coupler and reach the antenna through antenna port.

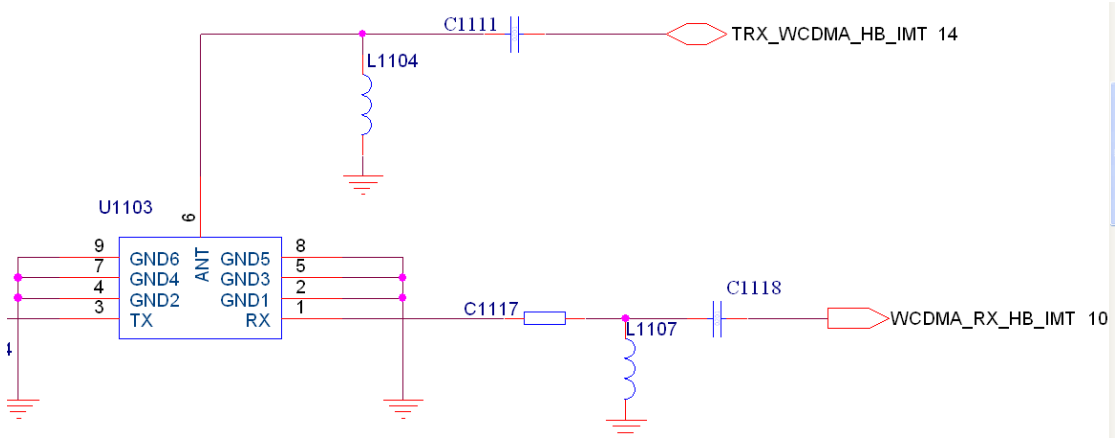
When WCDMA receive signals, the antenna receives some weak wireless signal coming from the space first, transmits them to the antenna port of the duplexer, and then the signals are sent to LNA to be processed by the receiving port.



As for the RF part of W2100, the 6th PIN is the antenna port, namely, the public port, and the 3rd PIN is the port of inputting signal for duplexer, and the 1st PIN is the PIN to output signals, as the following figure.

When WCDMA transmits signals, they are amplified at PA, enter the coupler and reach the antenna through antenna port.

When WCDMA receive signals, the antenna receives some weak wireless signal coming from the space first, transmits them to the antenna port of the duplexer, and then the signals are sent to LNA to be processed by the receiving port.



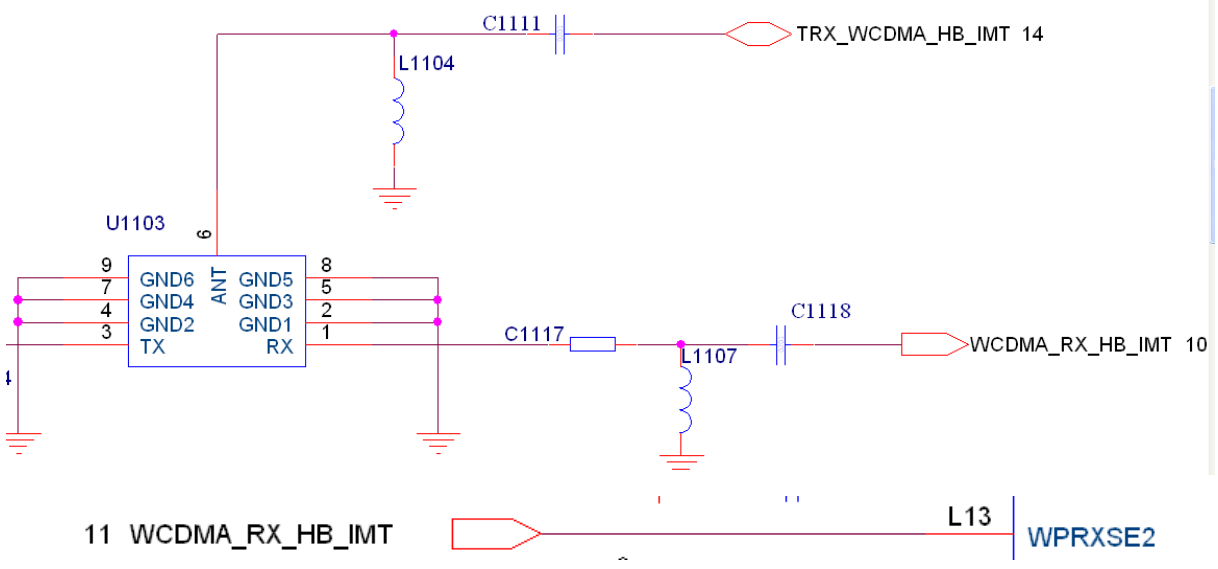
Low Noise Amplifier（LNA）

Low Noise Amplifier (LNA) is the main unit circuit of the front end of Receiver and the first level amplified circuit of the Receiver. Its major function in the circuit is to amplify the weak RF signal which is received by the antenna to meet the need of the mixer for the extent of input signal.

As for the RF section of W2100, the weak RF which is output from the receiving end of duplexer receives signals and performs matches, and then reaches to LNA to amplify signals. Finally, RTR6285A, the chip, integrates LNA internally.

C1117，C1118 and L1107 receive matched circuits. If they are welded poorly, they may make the receiving sensitivity value lower than the normal one.

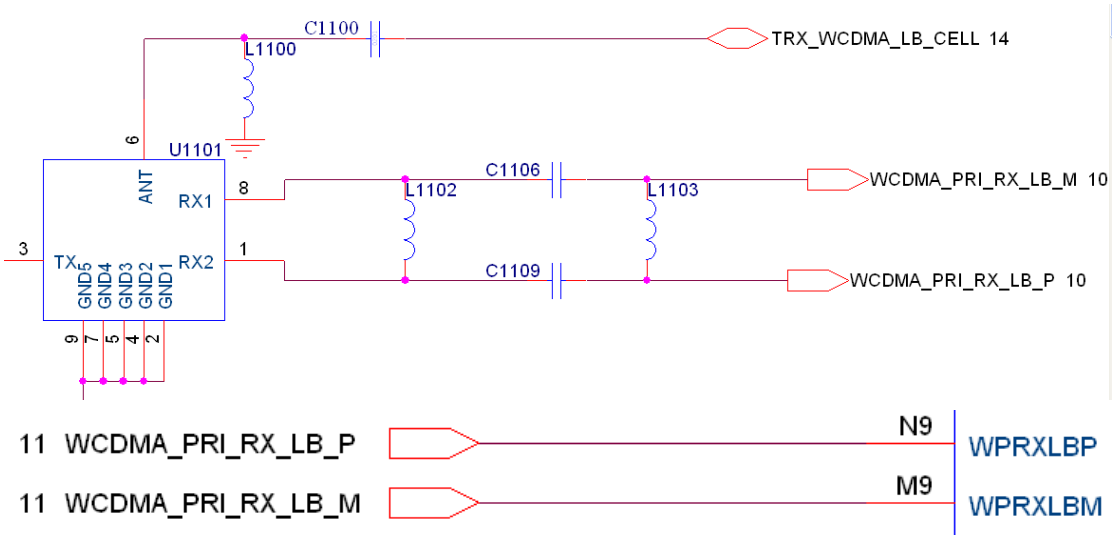
If the LNA works abnormally, it will cause the Receiver to have receiving errors such as weak signal, bad receiving sensitivity, and coming calls failed and the integrated test for receiving part failed. Then it needs to verify if LNA is welded poorly or located in the wrong place.



As for the RF section of W850, he weak RF which is output from the receiving end of duplexer receives signals and performs matches, and then reaches to LNA to amplify signals. Finally, RTR6285A, the chip, integrates LNA internally. C1106，C1109， L1102 and L1103 receive matched circuits. If they are welded poorly, they may make the receiving sensitivity value lower than the normal one.

If the LNA works abnormally, it will cause the Receiver to have receiving errors such as weak signal, bad receiving sensitivity, and coming calls failed and the integrated test for receiving part failed. Then it

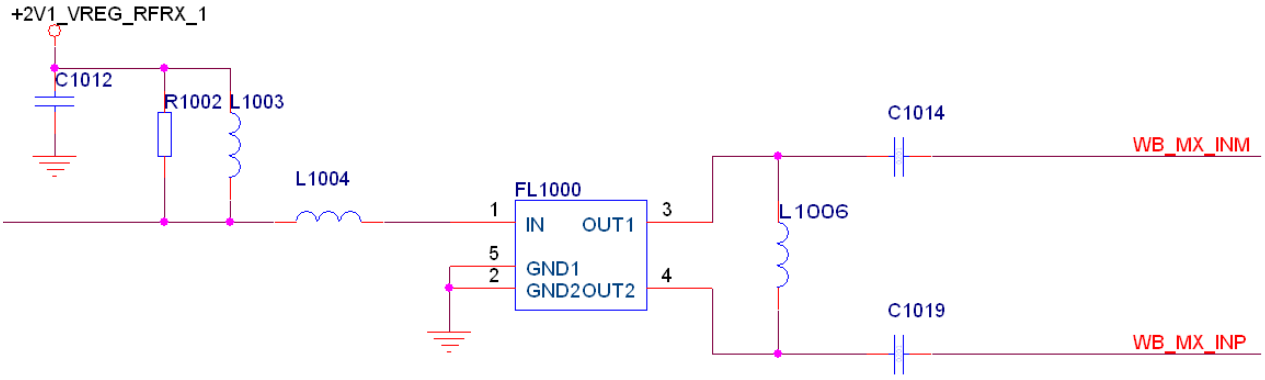
needs to verify if LNA is welded poorly or located in the wrong place.



Receiving filter (FL1000)

Being amplified by LNA, the signal received by W2100 needs to be sent to FL1000, the filter, to filter further. After the transformation between the balance and unbalance, it becomes differential signal and then is sent to RTR6285A to perform demodulation.

C1014, L1006 and C1019 output from FL1000 are all impedance components; they should not be welded poorly or have spoiled materials.



The function of receiving filter is to only allow those useful signals which are in the scope of receiving frequency band, but to stop other useless signal.

The Receiving filter of 2100M can let those signals which are from 2110M to 2170M to pass through at least cost and other signals will be stopped by it.

The most common reasons to the failure of the Receiving filter are easy to have welded poorly and to make the welded point be at the wrong position.

They may lead to:

a. Fail to pass the receiving calibration for corresponding frequency
b. Fail to pass the integrated receiving test for corresponding frequency and lower the sensitivity
c. No signal and cannot receive calls

WCDMA Power Amplifier (PA) (U1102、U1100)

The transmitter PA is used to the last stage of the transmitter, and its main usage is to amplify the power of the signal transmitted by RF to acquire the needed power value and to transmit it to the antenna for transmitting. And then the antenna turns the high frequency signal into the high frequency

electromagnetic wave and to radiate it out.

The general failures caused by the problems of PA and its periphery circuit are:

a. The calibration for the receiving part is normal, but that of transmission part fails

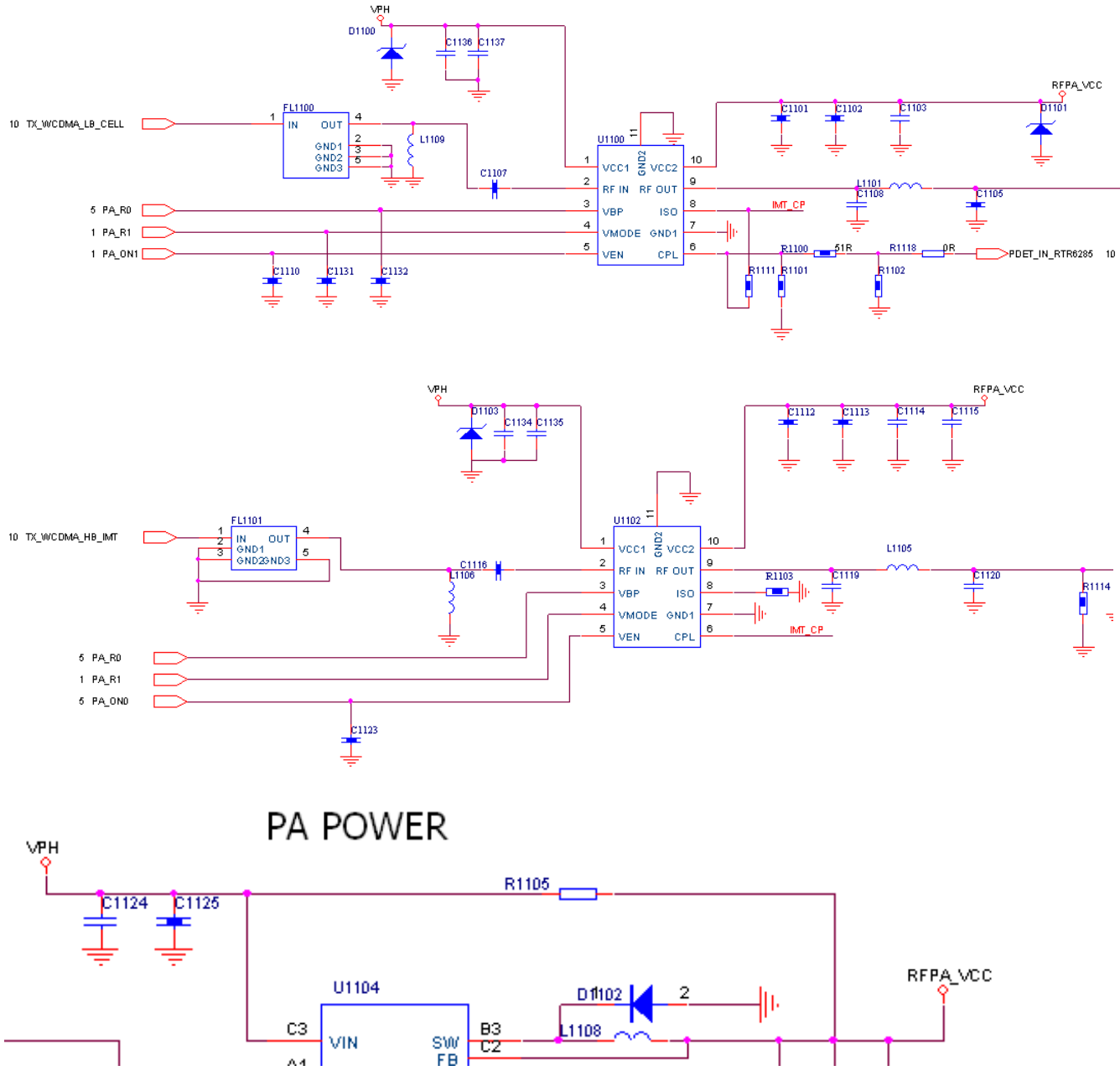
b. The transmission power is abnormal on testing and the output power is lower or the power keeps vibrating on a large scope on testing;

c. Display signal is weak, but it cannot connect to the all-purpose tester or cannot make a call;

d. If PA is broken, it would also cause the calling current obviously higher than the normal value or some part of PA is special hot on working; or even cause PA to be penetrated; its surface will be black and bulk.

e. Turn the multi-meter to resistance and then measure the resistance of VPH to ground to verify if it is penetrated and short circuited; if it is short circuited, the device cannot be powered on.

When the above symptoms appear, we suggest checking the corresponding frequency bands of PA and its periphery resistance, capacitance and inductance, verifying if they have poor welded. And then move to check PA to verify if it is broken.



VPH connects VCC1 power supply net of PA, RFPA_VC supplies power to VCC2 pins of PA. D1102 is the protection diode of ESD, using to protect PA from static electricity. Additionally, VPH network connects to RFPA_VCC via the resistance with 0 ohm. D1101 is zener diode, using to protect PA from sudden high voltages.

WCDMA sending filter (FL1100, FL1101)

The purpose of sending filter is to only allow the useful signal within the transmission frequency band to pass through and constrain other useless signals.

FL1100 is the sending filter with 850M frequency bands, it can let those sending signals which are from 824M to 849M to pass through at least cost, but any other signal will be stopped by it.

FL1100 is the sending filter with 2100M frequency bands, it can let those sending signals which are from 1920M to 1980MHz to pass through at least cost, but any other signal will be stopped by it.

The common problems for sending filter are also easy to have poor welded and to make the welded point be at the wrong position. The possible failures:

a. Fail to pass the transmitting calibration for corresponding frequency

b. Fail to pass the integrated transmitting test for corresponding frequency band and lower the power;

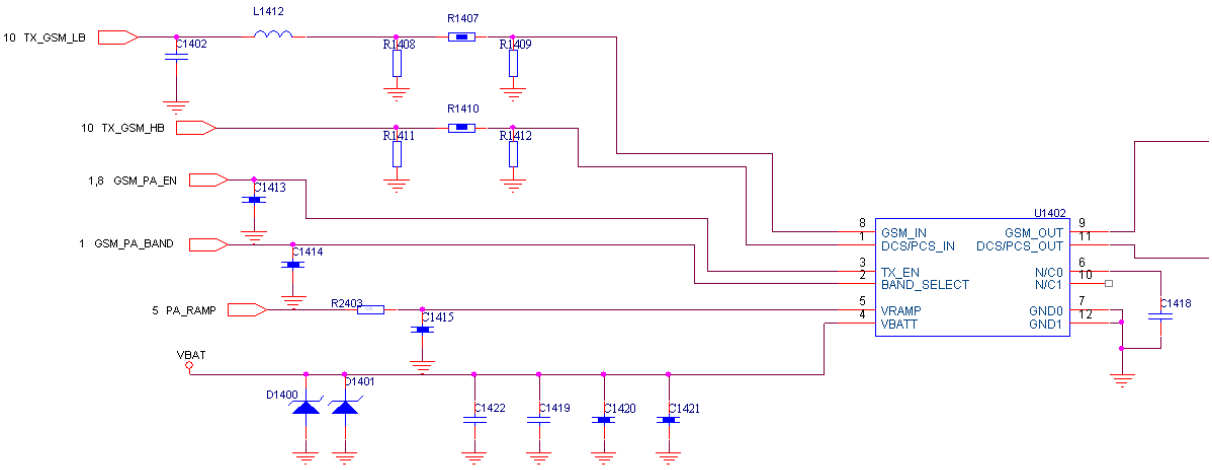
c. The phone cannot connect to the network or it is very difficult to make calls.

B、GSM The working principle of RF circuit for GSM

PA（U1402）:

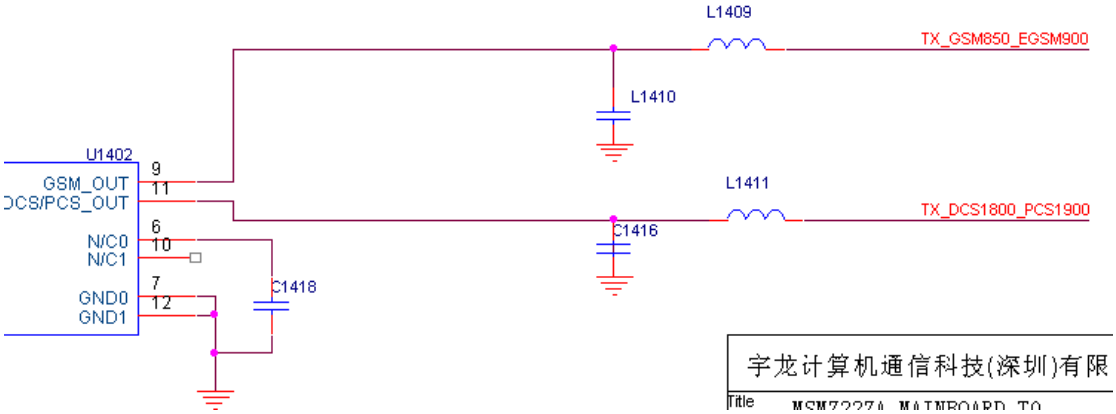
The power amplifier of GSM is similar to that of WCDMA, VBAT supplies power for it, which consists of some filter capacitances such as zener diode, ESD diode and others.

Low and high frequency RF signals are output from RTR6285A respectively, transmitted to the 8th PIN (GSM RF input) and the 1st PIN (DCS/PCS RF input) of PA （TQM7M5022）to be amplified after they go through the decoupling capacitor （C1009 and C1010）and the matching networks. The matching network used in this phase is the PI decreasing network, consisting of one resistance, which can protect PA effectively.

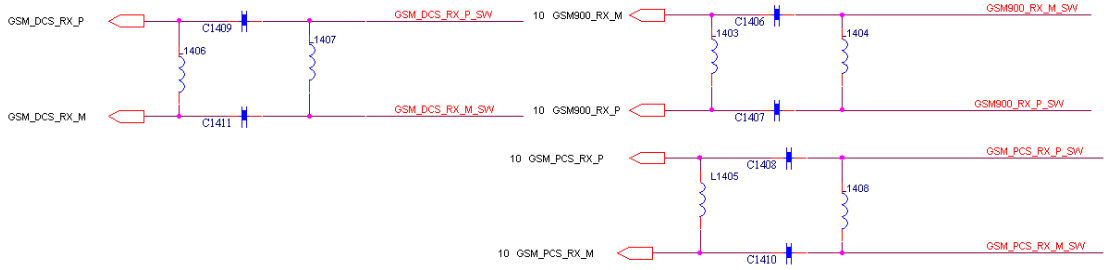


QUAD-BAND GSM TX

The match of PA match is showed as the following figure:



The signal received in GSM is differentiated output in the electronic switch, differentiated matched and then transmitted to RTR6285A for internal follow-up processions.



If one of capacitors is pasted or spoiled in differentiated matching circuit, it may cause failing to pass calibration test and lowering receiving sensitivity.

6. Quality inspection

6.1. Inspection tools

Supply meter, anti-static wrist strap, glove, red label and inspection record sheet etc.

6.2. Inspection objects

All the post-fixed main devices of Coolpad phone

6.3. Inspection items

Items		Operations
Inspections on appearance	Shell	Verify if the shell is installed well, its appearance is dirty. The device appearances are different based on different devices, and the appearance cannot be broken in the course of fixing (If the appearance is scratches and other faults in the front desk, it needs to explain to the client and specify on the note).
	Main board	Inspection on the appearance of main board. Verify if the fixed main board is dirty (after welding, it needs to clean up the welding point).

Inspections on functions	The course of powering on	Take the device and install battery, wait for the system boots fully and verify if there is booting ringtone, if the ringtone is smooth, if the signal and time displays are normal, if the screen has stripes and if there are other abnormal atmosphere.
	Memory card	Verify if it is smooth to plug out and insert memory card, if it can read the card and if it can read its contents such as playing MP3 and displaying photos.
	Software versions	Based on the latest *Version Contrast List*, verify if the version you are using is upgraded to the latest one, if it is not, it needs to inform the user of upgrading his/her phone. The system and functionalities will be more stable after upgrading, but all data must be backuped before performing upgrading.
	Touch-screen calibration	As for the device with handwriting method, tap Screen calibration and then tap + to perform calibration, when it is done, tap to exit.
	Key test	Verify if all keys function well, if the flexibilities of all keys are normal and if their responses are normal on being pressed.
	Handwriting functions	Tap Message - Compose new message, click display screen with the handwriting stylus and perform writings in handwriting area to verify if the writing is normal.
	Name card identification	If the device supports the functionality of identifying name card, tap Business assistant and move the video stick to Micro distance mode, and then tap Name card identification and hole horizontally to verify if it can perform identification (note: light should be enough).
	Test on taking photos	Verify if the camera has both Far and Near modes, if the size can be set and if the display of taking photos is normal.
	Test on taking videos	Take a video for 10 seconds and stop, then play the took video to verify if there is blurred screen, blue screen, flashing screen and etc.
	Record	Verify if digital gallery is normal and recording is normal. Choose one game to verify if the game runs normally.
	Ringtones and vibrating	Turn on Vibrate in Profile, turn its volume to the top, tap the default ringtone loudspeaker to verify if it has noise, hoarse, TDD noise and other faults, tap the default ringtone loudspeaker for message to verify if it has noise and if the vibrating is normal.
	Time display	Inspection on time, tap the time icon to verify if it changes.
	Delete records	When the test is done, all the photos used to serve the test will be deleted and it turns back to Home page.

	GPS inspection	As for the device which supports GPS, it needs to test if GPS can search Satellite and position precisely. Note, the test must be performed in the outdoor spacious place. Input *#9527# in Dialpad to enter Monitor test.
	Read phone card	Identify phone card. Insert phone card and boot the phone to verify if its booting process is normal and if identifying card and searching Network service are normal.
Call inspection	Phone calls	Place a call via the phone, listen to SPK voice and verify if the voice is distorted, listen to MIC delivering voice and verify if the voice is distorted.
	Earpiece calls	Answer or end a call via earpiece, listen to SPK voice and verify if the voice is distorted, listen to MIC delivering voice and verify if the voice is distorted, and verify if the connection of earpiece jack is good.
	Bluetooth calls	Verify if Bluetooth connection is normal, if it cannot have connection after it is tried to be connected for two straight times and re-booted once, it can confirm the cause is Bluetooth is malfunctioned. When the connection is established, it needs to verify if the call has noise, TDD noise and other noise, and transfer Bluetooth call to phone call to verify if the calling voice is clear, noise-free and TDD noise-free.
Current test	Current parameters	Test all current parameters such as powering-on current, powering-off current, standby current and C/G calling current to verify if they all meet the specified demands. Standby current is the current under the phone is asleep (boot and search network, and sleep the screen for five minutes and re-test).
Signal observation and inspection	Signal strength	Based on the authorized center environment, record the signal strength of CDMA and GSM, compare the signal strength among tested devices. If the client brings the device to the authorized center for fixing, the authorized center cannot find out obvious difference with this method, and if the client believe firmly that fault is the weakened signal of the device, then he/she can send the device back to factory for fixing.

Note:

1. As for the accident problems raised by the client, such problems include there is weakened signal sometimes, sometimes it cannot answer calls and sometimes it hangs up by itself, it needs to learn about the problem clearly, including its surroundings and using methods, and then it needs to test for 5 to 8 times.
2. As for the problem of poor welding, after it is fixed, it needs to be tested for several times to make sure it has been fixed totally in order to lower the second back repair rate. For instance, sometimes the internal memory card cannot be read because of poor welded slot, sometimes the device cannot power on because of poor welded CPU, as for such matters which are not visible, it needs to tap with hand for some times on testing the device to verify if such a matter will re-occur. (As for the former, if the playing music which is stored in SD card stops on tapping with hand, it means the problem still exists; as for the latter, if the connection of the battery is solid and when it is tapped for several times, the phone auto powers

off or re-boots, it means the problem still exists.)

7. Technological support

The supporting path for daily technological service:

7.1. FTP Server (ftp://119.147.25.41/)

Series No.	Items	Saved path
1	Software with specific version	/ Technology Department/01 Software with specific version
2	Upgrade tools	/ Technology Department/02 Upgrade tools
3	Technology announcement	/ Technology Department/05 Technology announcement（Technology announcement of earlier stage）
4	Materials on fixing training	/ Technology Department/08 Materials on fixing training
5	Record sheet of FQA	/ Technology Department/04 Record sheet of FQA

8. FAQ

Questions	Answers
The method to enter Recovery for 7260+	Step 1： Enter Recovery mode: 1. Press Volume up, Volume down and Power key to boot, it displays Recovery mode. 2. Wait for several seconds, the phone displays Please press Home key to view details (the yellow exclamation and the green Android robot can be seen). 3. Press Home key and four items are displayed. Step 2： Restore factory settings:

	1. To select Wipe cache partition via Volume key and to perform erasing by pressing Power key, when these are done, it returns to the original status. 2. To select Wipe data/factory reset via Volume key and to enter the next interface by pressing Power key. 3. To select Yes – delete all user data via Volume key to confirm performing restoring the action of erasing data. The explanations for the for items are as follows: Reboot system now-------- Reboot the phone Apply sdcard:updata.zip-------- Upgrade T card (update.zip file is not provided now, so this functionality is not available.) Wipe data/factory reset--------- Erase data, which is equivalent to restore factory settings Wipe cache partition---------- Erase cache area
Fail to boot up	1. The memory is broken or welded poorly, upgrading 34 and updating new software to solve this failure. 2. PMU, PA and CPU are malfunctioned, if this failure cannot be solved by upgrading, then it can verify that the components are broken, and the solution is to exchange the broken components or the board. 3. Failed to perform OTA or download computer software, if the reason belongs to failing to download software, please download it for several times.
Auto power off/re-boot	1. pogo pin battery connector is bad connected internally, operating based on the previous instructions and pressing pogo pin for 20 times. 2. Some battery has non-standardized sizes. Measure the battery size using vernier calliper and if it is obviously small, then the battery needs to be exchanged. 3. The local Network compatibility causes to re-boot in some areas and the solution is to upgrade the latest version.
No sound on earpiece/ no sound can be delivered	1. The phone displays Earpiece mode and it needs to verify if the phone cannot deliver sound under this mode, if it cannot, then it needs to exchange the earpiece jack. 2. If the reason does not lie in the above case, it needs to verify the earpiece is well-functioned (measuring the impedance value), if it is malfunctioned, it needs to be exchanged.
UIM card cannot be identified/ PIN needles located in slot are broken	First, it needs to verify if the six pin needles of the slot are normal, if they are broken, they can be fixed normally and the user needs to be warmed to use it carefully, and the card should be placed horizontally and inserted. If the slot is not broken, it needs to be re-verified if the failure still exists by upgrading the latest software.
Slow response/fake death /death on operating	Because the hardware configuration is limited, so when the system runs several programs or big games, then internal

	memory （RAM）is relatively small and leads to slow response: Do not run several programs at the same time, long press Home key to end task. When the system runs big programs, it may cause the screen is blocked. This phone already has high cost performance, but its internal memory is a little small. 2. Some clients can upgrade to the brief version made by net friends to have some software experience.
The delivered sound is low (mainly for hand-free situation)	The reason is the limitation of first-production of structural cavity design. If the hand-free volume is turned up, the noise may be produced, so the volume of hand-free situation is relatively small. 1. The volume of hand-free situation of 32 version has been turned up properly, but it may be still a little small. 2. Our company will release a new version that turns up the volume of hand-free situation, which may have some noise. As for the client who is great desire for it, he/she can upgrade to that version. 3. Some have small volume under the non- hand-free situation, which cause may be there is foreign object in MIC hole or MIC is broken.
The edge of the touch-screen raises	Bad production and normal fix, if it happens within the exchangeable period, the user can exchange it for a new one, while if it happens out of the period, it needs to be exchanged the shell set for solution.
Displays highlight spots or black spots	To verify if the number of highlight spot (no more than 2 highlight spots) and the distance (longer than 15mm) comply with the company standards, if they are outside the standard, they can get the fix; while if they are within the standard, they cannot get any fix.
The incoming ringtone is distorted/small	The loudspeaker is broken.
Dark screen/the backlight fails	1. If the screen is dark on calling, it is related to the proximity sensor and it needs to verify if the cause lies in the configuration of anti-light foam, or if the proximity sensor is broken. As for the matter if the proximity sensor is malfunctioned can be verified in *#9527*#--App and test. 2. Dark screen on booting, this cause may lie in the malfunctioned backlight cell or broken circuit, which solution is to exchange backlight or the main board.
How to download software from computer without SD card?	It is suggested to download 豌豆夹 or 91 手机助手 to your computer, and to download software to your phone via 豌豆夹 or 91 手机助手 by connecting USB cable between your phone and computer. There are lots of available software offered by 豌豆夹 or 91 手机助手.
Unstable WIFI Network service	If the user suffers from unstable WIFI, but the Network can be

	connected normal, the signal is positive, and the Network cannot be accessed (sometimes it can be), which cause may be that the router is set as b/n/g mixing mode and the solution is to reset the router as single g mode.
	If the user suffers from WIFI disconnecting by itself, which needs to verify if the cause lies in wrong settings in that the setting of WIFI for 7260+ is to auto sleep when the screen is asleep. The solution is to perform settings as Settings – Wireless and Network – WLAN settings – Press the left key on keyboard – Advanced – WKAN sleep strategies.
when 7260+ is connected to the computer for development, its screen does not auto turn dark.	To verify if Settings – App – Development – Stay awake is selected, if it is, the screen cannot turn dark.
What cautions should be noticed using Bluetooth to receive files?	The receiving notification locates in the status bar, it needs to be dragged down and to be choose to receive manually (it needs to warm the user to insert SD card for receiving).
Where is the file received via Bluetooth located without SD card? And how to view it?	when it finishes receiving, it displays the hint Uudisk/Bluetooth/name, but the user cannot find it in File manager. The cause is that the file received via Bluetooth cannot be viewed without SD card, such a file can only be viewed by developers with the help of some delicate tools, and such a file cannot be stored and disappears every time the phone reboots. (This matter has been submitted to the company)
Does 7260+ support GPSONE?	It does not support GPSONE in that its hardware chip does not support GPSONE communication.
Is the vibration response of sliding to unlock canceled?	It cannot be canceled.
Why the key lights are turned off sometimes?	After the backlight brightness is adjusted, it needs to re-wake the phone to turn on key lights.
The phone cannot create a new Hotmail account and it warns it cannot connect to the server.	There is compatibility problem between Android e-mail protocol and hotmail, it has been verified in the Android development website, so hotmail is not supported. However, the user can download the third party software to do some trial, most of them are available.
The third party app (Mobile TV and QQ etc) installed in 7260+ has no sound or has low-level sound.	Open one built-in video file first and turn up its volume and then enter media apps such as Tudou.com, QQ and Mobile TV.
Update driver path manually for Surfing broadband in 7260+/E239/D539	G:\MODEMCLIENT\2058_MODEM_DRIVER\ANDROID\XP (G disk is a mobile disk with a small bee icon, but different computer may have different name for it, some is H disk, some is I disk and the user can check My computer and choose its corresponding disk.)
When the user opens Coolmart and tap its download source to	This occurs under the case that the user performed downloads in Coolmart before, some apps those are disconnected before they

download, but there is no hints for the user (the phone has been connected to the Network, and the user can enjoy surfing the Network), then what is the solution?	are downloaded are stored in the system space of Coolmart, which causes the system cannot update more online sources. If the problem lies in 7260+, the solution is to enter Settings-Applications-Manage applications; select all the applications and drag down to find Coolmart, then tap to enter Coolmart, and then the user can tap Clear cache and Clear data. Generally, this problem can always be solved. If such a case happens in 7260+, D539, E239 or W711, the operations are the same, but there is one thing different, namely, when the user opens Manage applications, it only displays the applications downloaded and installed by the user. Tap Menu to pop up Filter, tap Filter to select All, and the it displays all the applications on your phone, then drag down to find Coolmart to perform the previous options.
The store path of navigation applications	The source downloaded from CPTone website is a compressed resource. When it is decompressed, it is 7260+ GPS folder. Copy COOLMAP located in the folder to SD directory, or the phone cannot identify it.
How to adjust word size for COOLBOOK?	The word size can be adjusted via the Volume keys, Up key to zoom in and Down key to zoom out.
When there is an incoming call, how to stop vibrating and ringtone for 7260+?	This can be done by taping the Ring icon on the screen or turning to the Volume keys (Up key or Down key).
How to set incoming ringtone for 7260+?	Two methods, first, Settings-Profiles-Standard mode - Incoming call ringtones-Music-Select one song-OK-Menu-Set as Current mode; second, File manager-SD directory-Find the folder included Music files-move the cursor to your target song-tap Act located in the right-bottom corner-Set as incoming call ringtone.
How to set the usage fixed in 2G Network?	Settings-Wireless and Network-CDMA Network- CDMA Network preference settings-Select Only CDMA-OK
How to set time and timing power on or off?	Settings-Date and time – if it needs to take the time of CDMA Network as the default time, tap hook for Auto to turn blue, while if the user wants to auto set the time, he/she needs to tap hook for Auto to turn gray-turn the hook for Use 24-hour format blue. In the last item of Date and time settings, the user can see Timing power on or off.

9. Appendix

Appendix 1：Location map of PAP4000 main board（TOP and BOTTOM）

Appendix 2： Exploded views of PAP4000 structure