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Aries

OT 510A



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1.3	2012-8-8	Add commercial label and remark of screen cling; update L2 SPL	Jennifer Zhang	Joyce He	Joyce He
1.2	2012-7-16	Update L2 SPL	Jennifer Zhang	Joyce He	Joyce He
1.1	2012-7-10	Update 2.3.2 (about PTS check)	Jennifer Zhang	Joyce He	Joyce He
1.0	2012-7-5	Update "Software download" part	Jennifer Zhang	Joyce he	Joyce He
0.1	2012-05-28	Preliminary draft	Jennifer Zhang	Joyce He	Joyce He
Rev.	Date	Modification description	Prepared By	Checked By	Approved By

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1 Level 2 repair process



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2 Warranty Check and Visual Inspection

2.1 Warranty confirmation of L1:

- 1) IMEI sticker check:
 - a) The IMEI number MUST be the same with the one on the IMEI sticker. If not, it's out of warranty policy
 - b) IMEI label should not be
 - Removed
 - Scratched
 - Unreadable
 - Un-approved or un-provided by Alcatel.



2) Commercial label samples

i. OT510A



- a. Brand: Alcatel
- b. Model: PCD model: OT510A (AT&T model: ATT510A BLK PAYG)
- c. H/W (Product hardware version): According to "Final Type approval" version
- d. COO (Country Of Origin): MADE IN CHINA
- e. FCC ID: RAD253
- f. S/N: Defined in 3 byte, it with refer to the "9th, 10th & 11th" byte (Detail see clauses "v" below)
- g. Stock Keeping Unit (SKU): 65390

ii. OT510APIB

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- a) Brand: Alcatel
- b) Model: PCD model: OT510APIB (AT&T model: 510A BLK PIB)
- c) H/W (Product hardware version): According to "According to "Final Type approval" version

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- d) COO (Country Of Origin): MADÉ IN CHINA
- e) FCC ID: RAD253
- f) S/N: Defined in 3 byte, it with refer to the "9th, 10th & 11th" byte (Detail see iv below)
- g) Stock Keeping Unit (SKU): 6002A

iii. FRU units unit label illustration, free replacement unit

	Alcatel
	Model: OT510APIBH
	H/W: 05
and the second	MADE IN CHINA
FCC ID: RAD253	

iv. S/N (Serial number) reference table



DAY	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st
ABBR	1	2	3	4	- 5	6	7	8	9	Α	В	С	D	E	F	G	Η	10	J	K	L	М	N	0	Ρ	Q	R	S	Т	U	۷
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	L.,														Abbr.		22.8100	Date	-
ABBR	E	F	G	Н		J	K	L	M	N	0	Ρ											EV	AMD			EFV		14th	Feb 2	012
YEAR	03	04	05	06	07	08	09	10	11	12	13	14	15	16								-	EV	AMP	LC		KGV		20th	Mar 2	012
ABBR	М	N	0	Ρ	Q	R	S	T	U	۷	W	Χ	Y	Ζ													QNU		26th	Oct 2	011

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3) Humidity sticker: Liquid detection on humidity sticker.



2.2 Visual mechanical check:

- 1) Corrosion
 - Corrosion on the USB connector, SIM connector, and other metal surfaces.
- 2) Hole (diameter > 1mm)
 - Holes on any surface, including the front casing, furnished frame, battery cover, touch Lens, keypad...
- 3) Bump
 - Bumps (diameter > 1mm) on any surface, including front casing, decorate frame, battery cover, touch Lens, keypad, etc.
- 4) Scratch
 - Scratches (length > 3mm) on any surface, including the front casing, decorate frame, battery cover, touch Lens, keypad, etc.
- 5) Distortion
 - Bend, twisted or crushed on the h/s, cover/casing or connectors, etc.
- 6) Broken
 - Touch broken, casing/cover broken, etc.
- 7) Dropped
 - Keypad tears off, touch lens, connectors dropped, etc.
- 8) Gap
 - External physical damage relating to abnormal use, like front case and frame opened
- 9) Others

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- Damage caused by disassembly ,wrong part assembly, loss of components
- Use in abnormal environment like high temperature causing plastic melts

2.3 Codes

2.3.1 If input the following codes on handset, you can

Code	Description
*#06#	Display IMEI number
11223344	Unlock the phone (Super Code)
###232#	Access call duration directly (cannot erase by end user)
*#837#	Check current software version
*#2886#	Enter Auto Test mode (refer to 2.4.7)
Enter User Format	Long press # key + Power key

2.3.2 *#837# -- Check current SW version and PTS number

Aries project IMEI label is different with normal ones, in order to record PTS version in BIG system, before SW update, please use this code to record "PTS in" version, and after SW updated, please also use this code to record updated "PTS out" version.

PTS version is Binary "K" file 3rd to 5th number.

Below is example: enter *#837#, and K file is KZ36E0E0, the PTS version is 36E

2.3.3 User Data Format reset introduction: How to use:

- 1. Press # Key + Power key in power off mode to enter recovery mode
- 2. You will be asked "All data will be lost, continue?" After you select "\scrime", the sequence will be entered with reminder "Formatting flash, please wait." The phone will auto switch on when reset finishes. Please do not manipulate the phone or remove the battery during this process. Or you can press to exit this reset interface and power on the phone.

When to use: If you cannot start your handset or when you start your handset, there will be something wrong with it, like cannot charge or cannot charge normally.

What does it do when you use End user format function: it will format end user area, and your handset will come back to factory model, everything you save or set in the handset (except SIM card) will be lost.

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2.4 Pretest

- 1) Check that the SIM card is set correctly.
- 2) Insert the battery.
- 3) Power on the cell phone.
- 4) If the cell phone cannot power on, visually check the condition of the battery connector. Replace it if necessary.
- 5) If the cell phone asks to input NCK code, this means it is SIM locked and can only be worked with dedicated SIM card. Use the correct SIM card.
- 6) Enter the phone code if necessary.
- 7) After the phone power on, test step by step with the auto test code:

Press *#2886# in dial screen and you will see the interface displaying the version. Then press "Auto" to begin the testing.

If one of the tests failed, you can press "Fail" and then choose "NEXT" to go on the next test or "END" to end the whole test.

- Traceability Test
 - i. You will see PT, BT, MMI, FT test record on the screen.
 - ii. Press "Pass" to continue
- LCD
 - i. You will see the LCD color changes if it functions well
 - ii. Press "Pass" to continue
- Battery Temp
 - i. Battery's temperature will be displayed on the screen, you can also see the "Temp range"
 - ii. Press "Pass" to continue
- KEYPAD
 - i. Press the key displayed on the screen. The color of the key displayed on the screen will changes to red you press it functions well.
 - ii. Press "Pass" to continue
- LCD Backlight
 - i. The LCD backlight will be flashing

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- ii. Press "Pass" to continue
- KEY Backlight
 - i. The keypad backlight will be flashing
 - ii. Press "Pass" to continue
- VIBRATOR Test
 - i. You can feel the phone's vibrating if it functions well.
 - ii. Press "Pass" to continue
- Mic & Receiver
 - i. You will see "Loop Audio OK" on the screen if it functions well
 - ii. Press "Pass" to continue
- AUDIO TEST
 - i. You can hear a piece of sound if it functions well.
 - ii. Press "Pass" to continue
- SIM TEST
 - i. Insert the SIM card and the phone will detect it if it functions well
 - ii. Press "Pass" to continue
- Charge Test
 - i. Insert the charger and the phone will detect it if it functions well and you will see "CHARGER OK" on the screen
 - ii. Press "Pass" to continue
 - iii. Remove the charger according to the instruction and the phone will detect "CHARGER OUT" if it functions well
- USB test
 - i. Insert the USB cable and the phone will detect it if it functions well
 - ii. Press "Pass" to continue and remove the USB according to the instruction on the screen. The phone will detect "USB cable OUT" if it functions well
 - iii. Press "Pass" to continue
- HEADSET IN
 - i. Insert the headset and the phone will detect it if it functions well
 - ii. Press "Pass" to continue

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5

6Disassembly and assembly OT 510A

5.1 ESD Safety



Please wear static loop or static glove

5.2 Disassembly tool

You may use the following tools during the disassembly and reassembly procedure:



Plastic Flake



Tweezers



Hot wind gun



Screwdriver



Soldering iron

5.3 Disassembly process

Step1: Take off the 6 screws from the furnished frame by screw driver.

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Step 2: Separate the furnished frame from furnished front casing



Step 3: Separate ANTENNA_ASM and Audio Jack from Furnished Frame by tweezers

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Step 4: Separate the side key from front casing with tweezers



Step 5: Separate the Main PCBA from Furnished front casing



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Side A



Side B

Step 6: Separate receiver and Keypad from Furnished front casing by tweezers



Step 7 : Separate the LCD Module from PCBA by Plastic Flake and soldering iron.



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Then separate the LCD module by soldering iron



Step 8: Separate the side key FPC and Speaker from PCBA by soldering iron.

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Step 9: Remove the following components from main PCBA with hot wind gun.



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1-RF switch 2-USB connector 3-Vibrator 4-SIM card connector 5-Battery connector

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6- Keypad film



Disassembly Notice:

1.Put all the spare parts on right position (don't let all spare parts mixed and put on the clean place to avoid vitiated or stained for each spare part) after disassembly. When taking apart of LCD, take care not to dirty or damage it.

5.4 Reassembly Process

Please make reference to the disassembly process for assembly reverse an order of the disassembly steps.

Attention: Insert main FPC and assembly main PCBA with furnished keypad casing, lock the main FPC connector to PCBA connector, and then place the side key, Assembly the furnished frame. Note the orientations of the main FPC.

REMARK: If refurbish is needed, please check which model name it is in the commercial label and then

place the right screen cling according to below instructions.

- If the model name is OT510A, the main menu screen cling should be placed on the devices.
- If the model name is OT510APIB/OT510APIBH, the "TXTNG & DRIVNG" screen cling should be placed on the devices
- i. Main menu screen cling for model OT510A. Part number: CPG3240001C0

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ii. "TXTNG & DRIVNG" screen cling for model OT510APIB/OT510APIBH. Part number: CPG3240002C0



5.5 Disassembly process evaluation

We list the OT 510A parts disassembly time, technique levels and disassembly methods as below, for technique levels, Class 1 signifies easy to disassembly, Class 2 signifies normal to disassembly and Class 3 signifies hard to disassembly.

Spare Part	Time	ΤοοΙ	Difficulty Class	Remark
Furnished Battery Cover	3s	Plastic Flake	Class 1	
Furnished Frame	20	screwdriver	Class 1	
Volume key 5S		Tweezers	Class 1	
PCBA	20s	Plastic Flake	Class 1	
Keypad	5S	Tweezers	Class 1	
Furnished Front Casing	20s	Plastic Flake	Class 1	
LCD Moudle	60s	Soldering iron Tweezers	Class 3	
SIDEKEY_FPC_ASM	60s	Soldering iron Tweezers	Class3	
ANTENNA_ASM	3s	Tweezers	Class 1	
Audio Jack	3s	Tweezers	Class 1	
Speaker	20s	Soldering iron	Class 2	
receiver	3s	Tweezers	Class 1	
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5.6 Disassembly complete

>The explode



> L2 Spare Part list: This table just lists OT 510A L2 spare parts. For other bands please refer to: <u>https://css.tclmobile.cn/</u>

ltem	Description	Part number	Qty	Remark		
105	105 Swap PCBA F-B3244ALUS1 1 客服周转主板,,Aries,US,,,商业代		客服周转主板,,,Aries,US,,,商业代码:510A-2AALUS1,,			
106	Furnished front casing	BCA3240A21C0	1	主面组件,Furnished front casing,Aries,主面,silve painting,+DECO Black+LCD LENS,with ALCATEL logo,at&t logo		
107	KEYPAD	BFA3240AA101	1	KEYPAD,Aries,Black painting,NAVI KEY DECO:Light chrome,,Latin version,SINCO		
108	Speaker	AWA1712L05C1	1	无卤. Spec ok, sample test result waiting for confirm with Lianglei.		
109	Microphone	AWC4015P19C1	1	D4.0×H1.5mm,40+/-2dB,DIP,Bromine&Chlorine free,PVC free,OB4015 402G-P02RAC-00-X,VENTRONICS	M-	
110 SIDEKEY_FPC_ASM		SBF31U00011D	1	Sidekey FPC,U3G,,,,(采购件),AKM,,		
111	1.8 LCD	AUA177T221C1	1	Aries,262K colors,1.77",128×160,TFT,Driver IC:ILI9163C,,TD- T180T2G2380B,TCL Display		
112	BB shielding cover	BKB3240010C1	1	BB shielding cover, Aries, ,,, Dianlian, ,		
113	Audio Jack	ARG0060023C1	1	Audio Jack, over PCB 13x8.3xH4.25, spring type, Aries		
114	14 Audio Jack_Rubber BNG3240001C0		1	Audio jack rubber,Rubber,Aries		
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115	receiver	AWB1506S10C1	1	无卤 Receiver,15x6xWH2.45, srping type, narrow frequency range,
116	SIDE_KEY	BFC3240A00C0	1	SIDE KEY,Aries,PC+ABS,Black raw
117	Furnished Frame	BCC3240A00C0	1	Furnished frame,Aries,主底 Black raw,+USB 塞+GPS 天线+湿敏标签
118	ANTENNA_ASM	BBC3240000C1	1	ANTENNA ASM, Aries, , ethertronics
119	screw	BMA1440251C0	6	Screw,PB1.4×0.45p x L4.5mm,HD=Φ2.5×T0.6mm, 银色
122	Vibrator	AVA1144M00C1	1	Vibrator motor, 11×4.4×H3.4, 2.7 V, 175.50 mW, SMT, N/A, GS-2701J, AWA
123	SIM card connector	ARD0060079C1	1	SIMcardconnector,,6pin,2.54pitch,H=3.1mm,,,CAF99-06310- 1535,Linkconn,,
124	Battery connector	ARE0040020C1	1	Batteryconnector,,4pin,3.1pitch,H=5.4mm,,,KBC24S3H541R,KEIRAKU,,
125	RF swicth	ARF0060003C1	2	RFswitch,,6pin,,2.5×2.5×T1.5mm,,ECT818000163,ECT,
126	USB conncentor	ARH0050018C1	1	USBconnector,,5pin,0.65pitch,H=2.4mm,,,UAF95-05244-1512,Linkconn,,
127	Keypad film	BJA3240000C1	1	Keypadfilm,Aries,,,,,优键,,
100	Screen cling	CPG3240001C0	<mark>1</mark>	LCD sticker,Aries for Paygo(for Model OT510A),N/A,48.84*57.08mm,N/A,Without Glue,N/A,LITOP
128		CPG3240002C0	<mark>1</mark>	LCD sticker, Aries for PIB/FRU(for Model OT510APIB/ OT510APIBH), 48.84*57.08mm
129	LED white	AKAWH00034C1	1	发光二极管,LED,Mono- color,White,78.0mW,2.8V,0603,1.6x0.8x0.4mm,5.0mA,N/A,HT- 193BP5,HARVATEK

6 Level 2 repair

This chapter describes the LEVEL 2 repair that can be done without any diagnostic equipment.

	Problem description	Action And Solution
Charging	Bad	1.Check voltage of the battery: if 0V,
	or	charge some minutes and check the
	No Charge	charge indicator;
		2.Check the battery contact, change the
		battery connector if broken;
		3.Check the charge plug on B cover,
		change it if necessary;
Switch on with	Can 't Switch on	1.Check voltage of the battery;
battery power		2.Check the battery contact, change the
		battery connector if broken;
		3.Check the power on key;
		4.Check BTB connector socket pin
Main display	Missing line or column; no	Check Connection flex (FPC
	display; bad or no LCD	cable),change it if necessary;
	backlight	Replace display module if necessary;
Vibrator	The vibrator does not work	Check the contact on the PCBA (dirty or
		oxidized), replace the vibrator if
		necessary;

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Network Problem	No emission or No reception	Check the antenna contactor on the B
		cover;
		Check the contact on the PCBA (dirty or
		oxidized);
Audio	Bad or no emission (TX	Check microphone, replace it if
	audio from mobile);	necessary;
		Check the contact on the PCBA (dirty or
	Bad or no reception (RX	oxidized)
	audio on mobile);	Check loud speaker, replace it if
	Hands-free problem;	necessary;
	Key beep and melody	Check the contact on the PCBA (dirty or
	problem	oxidized)

In case the LEVEL 2 repair can't solve the problem, or the PCBA is damaged, exchange the PCBA.

7 PCBA exchange

If Level 2 repair does not solve the failure, it is mandatory to change the PCBA and follow the process as below.

- 1) Collect the PCBA (without accessories, LCD and camera), with microphone and vibrator.
- 2) Get a new PCBA from the swap stock. Reuse those accessories to assemble the mobile.
- 3) Fill in the record sticker with IMEI number, fault code, short code, Hardware Technical Level and software version.
- Send the NG PCBA with record sticker back to L3 repair center with the recommended packaging 4) method,

Note: packaging method please refer item "APPENDIX 1. Packaging requirement".

8 Other component exchange

The other components exchange such as

- 1) LCD module
- 2) Vibrator
- 3) Receiver
- 4) Speaker
- 5) Microphone
- 6) Other related mechanical components

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Please follow the detail steps 5.3 (Disassembly and assembly process).

But need to be very careful to handle the components with related special tool or jig (especially replacing new components)

It is better to handle it with plastic tools (plastic tweezers and wedge etc.).

Besides operator must wear anti-static gloves, fingertips or wear static loop during the whole process of components exchange.

9 Final test

9.1 Function Test

During the function test, the following items must be checked and validated.

- 1) Cosmetic aspect of the handset,
- 2) The Software Technical sticker state on the Board
- 3) Switch on the handset
- 4) Default welcome message
- 5) Press *#2886# on the idle screen to start the auto test

9.2 Measurement



Measurements	Channel	Power	Tol.min	Tol.max	Condition
		level			
		GSM			
Connection Mobile	63*	9	None	None	Radiated meas
Call base from mobile	5*	9	None	None	Radiated meas

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cume	nt			
5*	9	22 dBm	28 dBm	Radiated meas
5*	5	31 dBm	35 dBm	Radiated meas
5*	5	0°	20°	Radiated meas
5*	5	0°	5°	Radiated meas
5*	5	-90 Hz	+90 Hz	Radiated meas
5*	5	45	55	Radiated meas
120*	5	31 dBm	35 dBm	Radiated meas
120*	5	0°	20°	Radiated meas
120*	5	0°	5°	Radiated meas
120*	5	-90 Hz	+90 Hz	Radiated meas
120*	5	45	55	Radiated meas
	DCS			
515*	0	28 dBm	32 dBm	Radiated meas
515*	0	0°	20°	Radiated meas
515*	0	0°	5°	Radiated meas
515*	0	-180 Hz	+180 Hz	Radiated meas
515*	0	45	55	Radiated meas
880*	0	28 dBm	32 dBm	Radiated meas
880*	0	0°	20°	Radiated meas
880*	0	0°	5°	Radiated meas
880*	0	-180 Hz	+180 Hz	Radiated meas
1	-	1	1	
	5* 5* 5* 5* 5* 5* 5* 5* 5* 5* 120* 120* 120* 120* 515* 515* 515* 515* 515* 880* 880* 880* 880*	Sument 5^* 9 5^* 5 5^* 5 5^* 5 5^* 5 120^* 5 120^* 5 120^* 5 120^* 5 120^* 5 515^* 0 515^* 0 515^* 0 515^* 0 515^* 0 880^* 0 880^* 0 880^* 0 880^* 0	Sument: 5^* 922 dBm 5^* 531 dBm 5^* 5 0° 5^* 5 0° 5^* 5 -90 Hz 5^* 545 120^* 5 31 dBm 120^* 5 0° 120^* 5 0° 120^* 5 -90 Hz 120^* 5 0° 120^* 5 0° 515^* 0 28 dBm 515^* 0 0° 515^* 0 180 Hz 515^* 0 28 dBm 880^* 0 0° 880^* 0 0° 880^* 0 0° 880^* 0 0°	Sument 5^* 922 dBm28 dBm 5^* 531 dBm35 dBm 5^* 5 0° 20° 5^* 5 0° 5° 5^* 5 0° 5° 5^* 5 45 55 120^* 5 $31 dBm$ $35 dBm$ 120^* 5 $31 dBm$ $35 dBm$ 120^* 5 0° 20° 120^* 5 0° 20° 120^* 5 0° 5° 120^* 5 $-90 Hz$ $+90 Hz$ 120^* 5 0° 5° 120^* 5 $28 dBm$ $32 dBm$ 515^* 0 0° 20° 515^* 0 0° 5° 515^* 0 $28 dBm$ $32 dBm$ 515^* 0 $28 dBm$ $32 dBm$ 880^* 0 0° 20° 880^* 0 0° 5°

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60dBm)					
Keyboard test (1)	-	-	-	-	-
Audio test GSM	70*	9	None	None	Radiated meas
Hang up	70*	9	None	None	Radiated meas
Call mobile from BS	700*	9	None	None	Radiated meas
Power level measurements	700*	0	27 dBm	33 dBm	Radiated meas
Audio test DCS	700*	0	None	None	Radiated meas
Hang up	70*	9	None	None	Radiated meas
		PCS	L		
Connection Mobile	661*	5	None	None	Radiated meas
Call base from mobile	513*	5	None	None	Radiated meas
Power level measurements	513*	5	15 dBm	25 dBm	Radiated meas
Power level measurements	513*	0	25 dBm	35 dBm	Radiated meas
Peak Phase error measurement	513*	0	0°	20°	Radiated meas
RMS Phase error measurements	513*	0	0°	6°	Radiated meas
Frequency error measurements	513*	0	-180 Hz	+180 Hz	Radiated meas
RX Level (BS power level : - 65dBm)	513*	0	35	55	Radiated meas
Keyboard test (1)	-	-	-	-	-
Power level measurements	880*	0	25 dBm	35 dBm	Radiated meas
Peak Phase error measurements	880*	0	0°	20°	Radiated meas
RMS Phase error measurements	880*	0	0°	6°	Radiated meas
Frequency error measurements	880*	0	-180 Hz	+180 Hz	Radiated meas
RX Level (BS power level : - 60dBm)	880*	0	35	55	Radiated meas
Audio test 1900	683*	5	None	None	Radiated meas
Hang up	683*	5	None	None	Radiated meas
Call mobile from BS	683*	5	None	None	Radiated meas
Power level measurements	683*	5	15 dBm	25 dBm	Radiated meas
Hang up	683*	5	None	None	Radiated meas

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Note: These values are given for reference. Compatible low, middle and high channels have to be found.

Mobile Limited

APPENDIX 1 Packaging Requirements

- 1. Appearance Requirements of PCBA
- a. The failure code label, commercial label, custom label and network code should be stuck onto PCBA
 - b. The repair PCBA and custom label should be matched (see appendix one for the detailed information)



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2 PCBA Packing Requirements

i. After packing with anti-vibration bag, the commercial label on PCBA should be easy recognized;



3. Packing Requirements

- ii. Please pay attention to the following points when different models put into one box:
- iii. Stick up the same models with tapes
- iv. Mark the model, quantity and specification of custom label on tape
- v. The packing box for PCBA should have marking sticker and well sealed by the tape
- vi. with TCL logo
- vii. Finally put all the packing boxes into packing cases strong enough and post to HK.

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