Shenzhen CTL Testing Technology Co., Ltd.
Tel: +86-755-89486194 Fax: +86-755-26636041

FCC PART 15 SUBPART B TEST REPORT

FCC Part 15B

Report Reference No.....:	**CTL1404240848-WD**
Compiled by (position+printed name+signature)..:	File administrators Jacky Chen
Name of the organization performing the tests (position+printed name+signature)..:	Test Engineer Tracy Qi
Approved by (position+printed name+signature)..:	Manager Tracy Qi
Date of issue.....:	Apr. 29, 2014
Test Firm.....:	**Shenzhen CTL Testing Technology Co., Ltd.**
Address.....:	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Applicant's name.....:	**Huizhou TCL Mobile Communication Co., Ltd.**
Address.....:	No. 23 Zone, ZhongKai High-Technology Development Zone, Huizhou, 518057 China
Test specification:	
Standard .....:	FCC Part 15B: Unintentional Radiators
TRF Originator.....:	Shenzhen CTL Testing Technology Co., Ltd.
Master TRF.....:	Dated 2011-01

Test item description ..... :	**CARFONE**
FCC ID……..:	**R5CCP100**
Trade Mark .....:	Truckfone
Model/Type reference.....:	CP100
I/O Type of EUT.....:	MiniUSB Port/ Earphone Port
I/O Q'TY.....:	1/1
GSM/WCDMA	
Transmit .....:	2G:GSM 850: 824~849MHz, PCS 1900: 1850~1910MHz 3G:WCDMA Band II: 1850-1910MHz, WCDMA Band V: 824~849MHz
Receive .....:	2G:GSM 850: 869~894MHz, PCS 1900: 1930~1990MHz 3G:WCDMA Band II: 1930~1990MHz, WCDMA Band V: 869~894MHz

Release Version	.....	2G:R99
		3G:Rel-6
Type of modulation	.....	2G: GMSK for GSM/GPRS/EDGE
		3G: QPSK
GPRS Type	.....	Class B
GPRS Class	.....	Class 12
GPS		
work frequency	.....	1575.42MHz
Type of modulation	.....	BPSK
Antenna Gain	.....	2 dBi for GSM850 and WCDMA Band V
		5 dBi for PCS1900 and WCDMA Band II
Antenna type	.....	External
IMEI	.....	357782049812060
Result	.....	**Positive**

TEST REPORT

Test Report No. :	CTL1404240848-WD	Apr. 29, 2014 Date of issue

Equipment under Test	:	CARFONE
Model /Type	:	CP100
Applicant	:	**Huizhou TCL Mobile Communication Co., Ltd.**
Address	:	No. 23 Zone, ZhongKai High-Technology Development Zone, Huizhou, 518057 China
Manufacturer		**Huizhou TCL Mobile Communication Co., Ltd.**
Address		No. 23 Zone, ZhongKai High-Technology Development Zone, Huizhou, 518057 China

Test Result according to the standards on page 5:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC Part 15B: Unintentional Radiators

ANCI C63.4: 2009

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample : Apr. 15, 2014

Testing commenced on : Apr. 15, 2014

Testing concluded on : Apr. 29, 2014

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : o 120V / 60 Hz o 115V / 60Hz
● 12 V DC o 24 V DC
o Other (specified in blank below)

2.3. Short description of the Equipment under Test (EUT)

The device is a **CARFONE**.

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.4. EUT operation mode

Test Mode(TM)	Description	Remark
TM1	Downloading	Connect to PC

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).
The following data show only with the worst case setup.
The worst case of Y axis was reported.
Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.8	Unshielded	Without Core
Earphone Cable	1.0	Unshielded	Without Core

- ● - supplied by the manufacturer
- ● - supplied by the lab

● Notebook PC	Manufacturer :	DELL
	Model No. :	PP18L
● Earphone	Manufacturer :	SONY
	Model No. :	MDR-E9LP

2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: R5CCP100 filing to comply with of the FCC Part 15B Rules.

2.7. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

The sites are constructed in conformance with the requirements of ANSI C6230, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318, December 19, 2013.

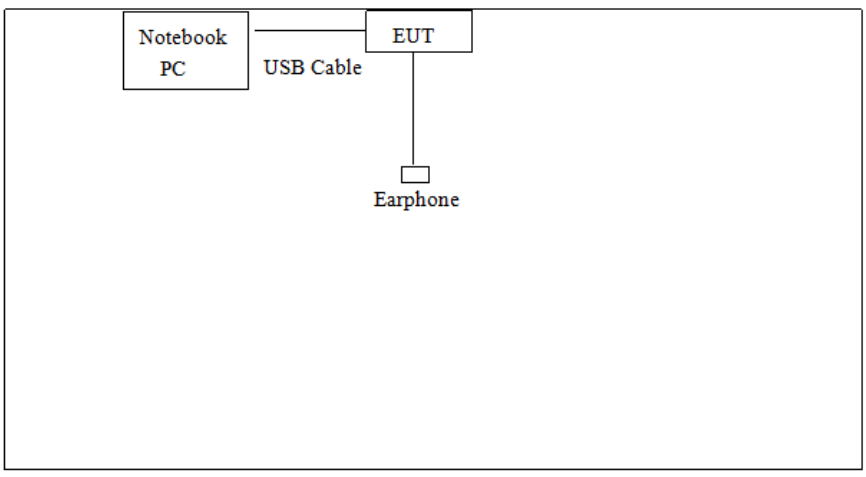
3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2013/07/12	2014/07/11
EMI Test Receiver	R&S	ESCI	103710	2013/07/10	2014/07/09
Spectrum Analyzer	Agilent	E4407B	MY45108355	2013/07/06	2014/07/05
Controller	EM Electronics	Controller EM 1000	N/A	2013/07/06	2014/07/05
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2013/07/12	2014/07/11
Horn Antenna	SCHWARZBECK	BBHA9170	1562	2013/07/12	2014/07/11
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	2013/07/12	2014/07/11
LISN	R&S	ENV216	101316	2013/07/10	2014/07/09
LISN	SCHWARZBECK	NSLK8127	8127687	2013/07/10	2014/07/09
Microwave Preamplifier	HP	8349B	3155A00882	2013/07/10	2014/07/09
Amplifier	HP	8447D	3113A07663	2013/07/10	2014/07/09
Transient Limiter	Com-Power	LIT-153	532226	2013/07/10	2014/07/09
Radio Communication Tester	R&S	CMU200	3655A03522	2013/07/06	2014/07/05
Temperature/Humidity Meter	zhicheng	ZC1-2	22522	2013/07/10	2014/07/09
SIGNAL GENERATOR	HP	8647A	3200A00852	2013/07/10	2014/07/09
Wideband Peak Power Meter	Anritsu	ML2495A	220.23.35	2013/07/06	2014/07/05
Climate Chamber	ESPEC	EL-10KA	A20120523	2013/07/06	2014/07/05
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	/	2013/07/06	2014/07/05
High-Pass Filter	K&L	41H10-1375/U12750-O/O	/	2013/07/06	2014/07/05

3.7. Summary of Test Result

No deviations from the test standards

Test Item	Test Requirement	Standard Paragraph	Result
Radiated Emission	FCC PART 15	Section 15.109	PASS
Conducted Emission	FCC PART 15	Section 15.107	PASS

3.8. Test Software

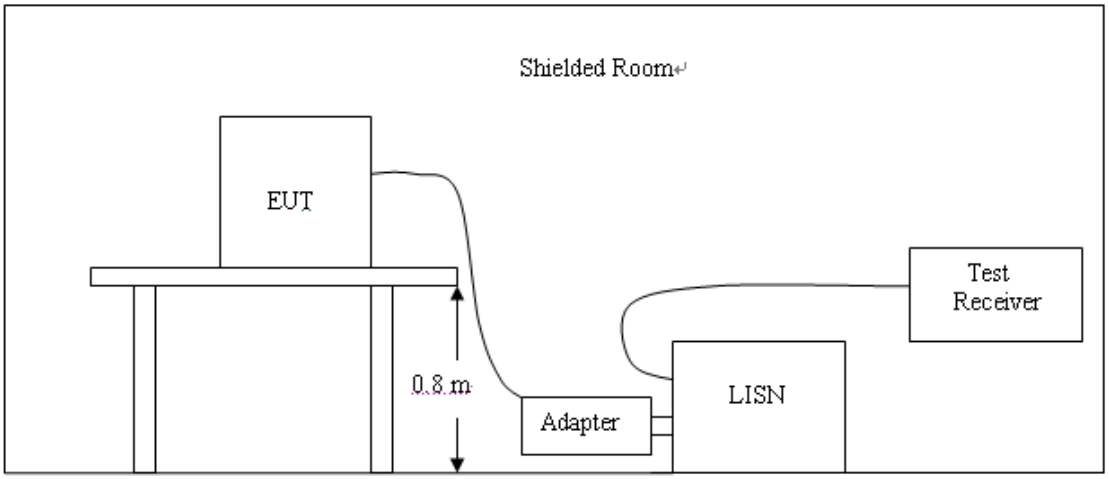
The following programs installed in the EUT were programmed during the test.

1. Execute the program, “Winthrax”, installed in PC for files transfer with EUT via USB cable.
2. Turn on camera to capture images.

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

Frequency (MHz)	Maximum RF Line Voltage (dBμv)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

The RBW/VBW for 150KHz to 30MHz: 9KHz

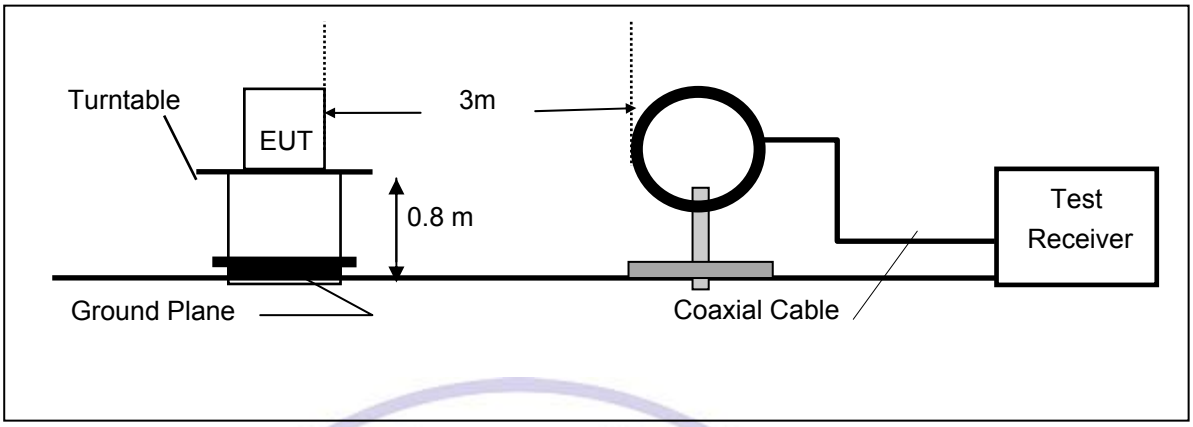
TEST RESULTS

Not applicable to this device.

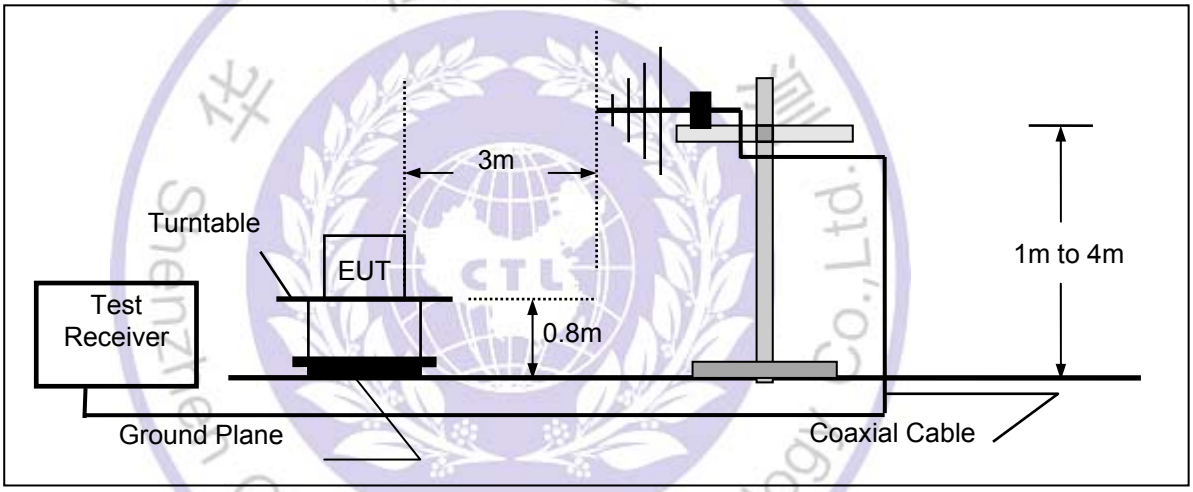
4.2. Radiated Emissions Test

TEST CONFIGURATION

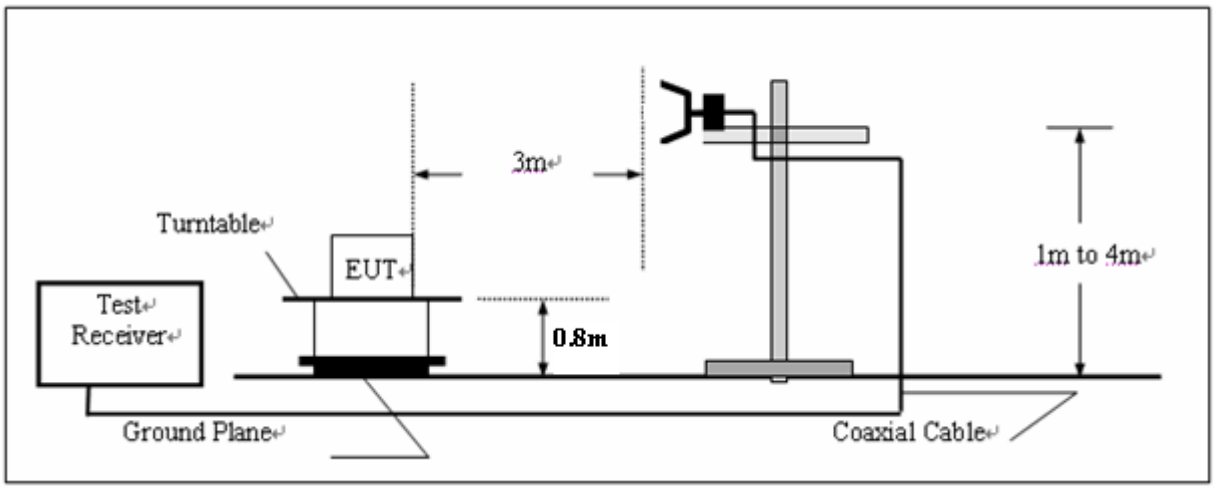
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



LIMIT

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

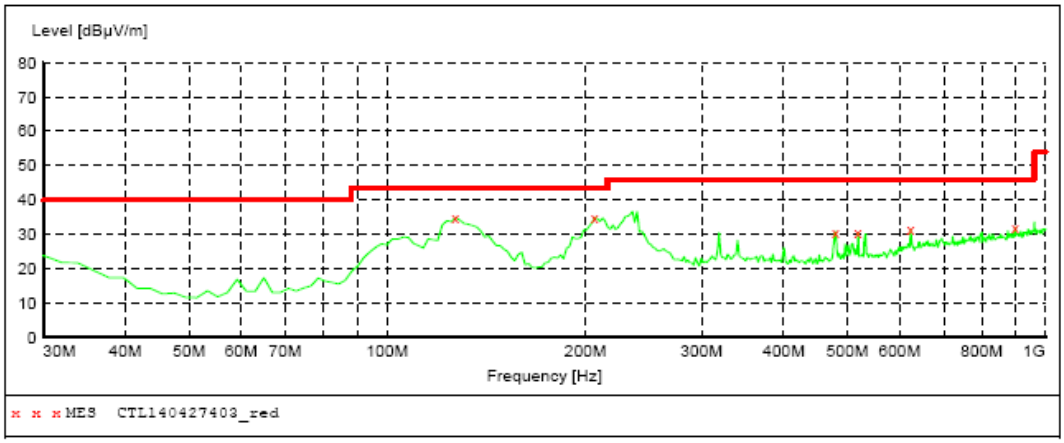
TEST PROCEDURE

1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measurements have been completed.
6. Based on the Frequency Generator in the device include 32KHz, 19.2MHz, and the speed of CPU is 1G, so the test frequency range from 9KHz to 2GHz per FCC PART 15.33(a) and 1.33(b)(1).

TEST RESULTS

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



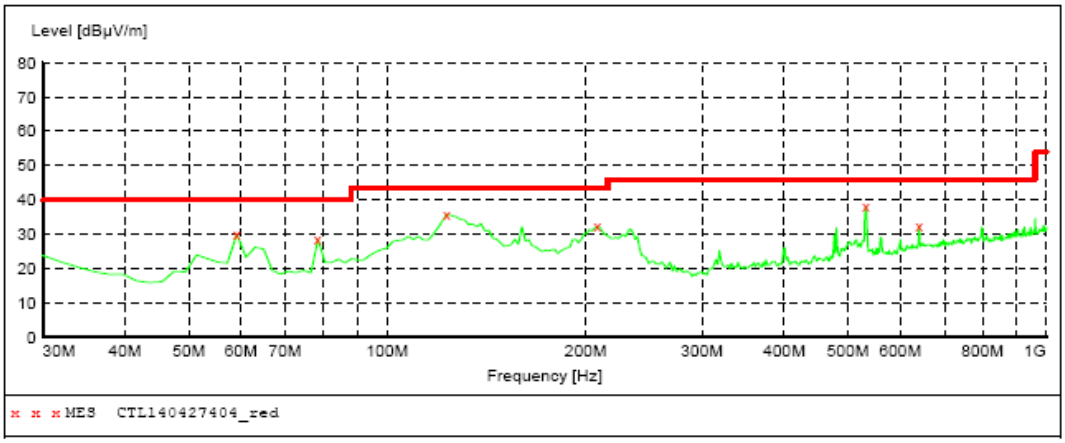
MEASUREMENT RESULT: "CTL140427403_red"

4/27/2014 3:19PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
127.000000	34.80	15.0	43.5	8.7	---	0.0	0.00	HORIZONTAL
206.540000	34.90	14.3	43.5	8.6	---	0.0	0.00	HORIZONTAL
480.080000	30.70	20.1	46.0	15.3	---	0.0	0.00	HORIZONTAL
518.880000	30.50	20.5	46.0	15.5	---	0.0	0.00	HORIZONTAL
623.640000	31.50	22.3	46.0	14.5	---	0.0	0.00	HORIZONTAL
899.120000	32.00	26.1	46.0	14.0	---	0.0	0.00	HORIZONTAL

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



MEASUREMENT RESULT: "CTL140427404_red"

4/27/2014 3:21PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
59.100000	30.00	8.3	40.0	10.0	---	0.0	0.00	VERTICAL
78.500000	28.60	8.6	40.0	11.4	---	0.0	0.00	VERTICAL
123.120000	35.90	15.1	43.5	7.6	---	0.0	0.00	VERTICAL
208.480000	32.30	14.3	43.5	11.2	---	0.0	0.00	VERTICAL
532.460000	38.20	20.6	46.0	7.8	---	0.0	0.00	VERTICAL
641.100000	32.60	22.7	46.0	13.4	---	0.0	0.00	VERTICAL

Remark：

(1) Measuring frequencies from 9 KHz to the 2GHz, Loop Antenna used below 30MHz. See Section 3.6 table item 20. Radiated emission test from 9KHz to 30MHz, above 1GHz were verified, and no any emission was found except system noise floor.

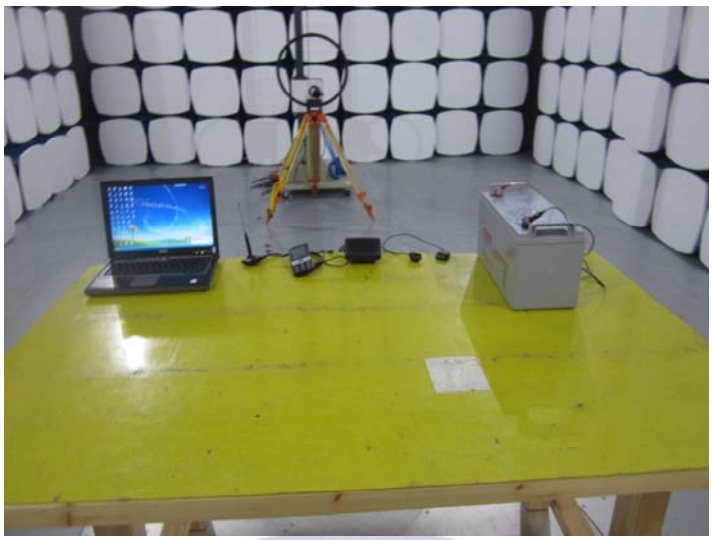
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.

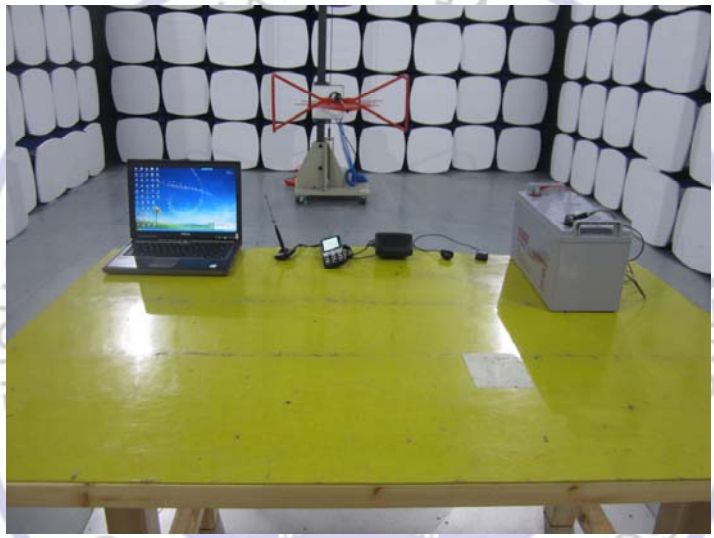
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.

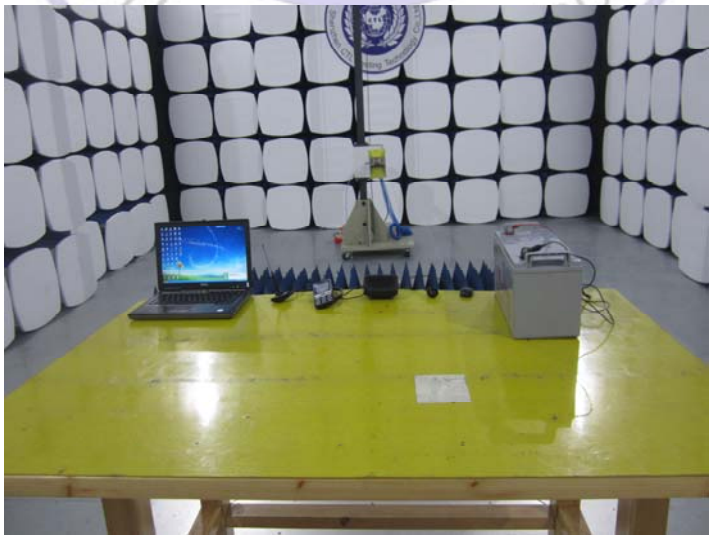
(4) Datas of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The test results from 9KHz to 30MHz, above 1GHz are not reported because the emissions levels that are 20dB below the official limit.

(5) The IF bandwidth of EMI Test Receiver between30MHz to 1GHz was 100KHz. Below 30MHz was 10KHz. Above 1GHz was 1MHz.

5. Test Setup Photos of the EUT



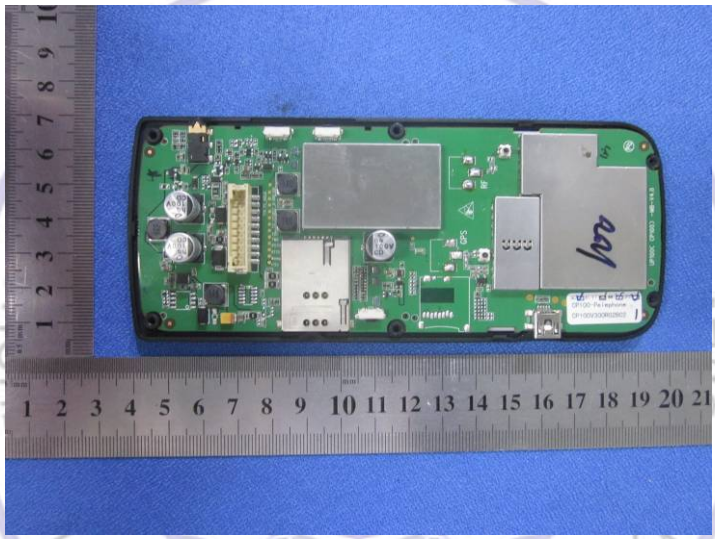


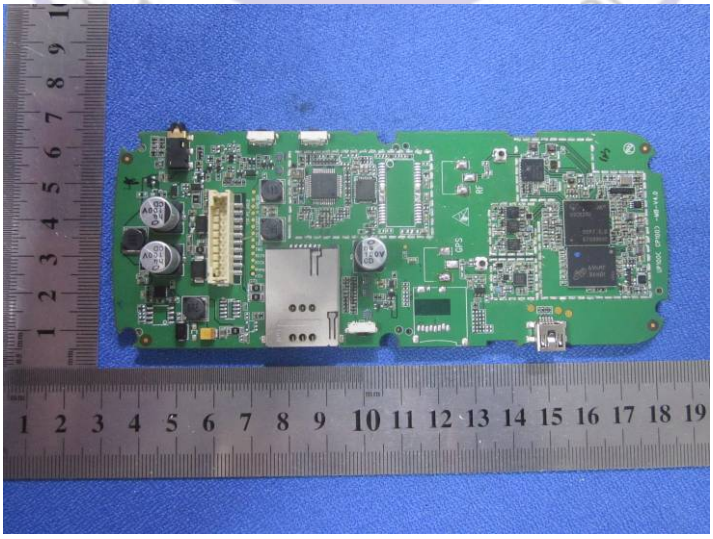


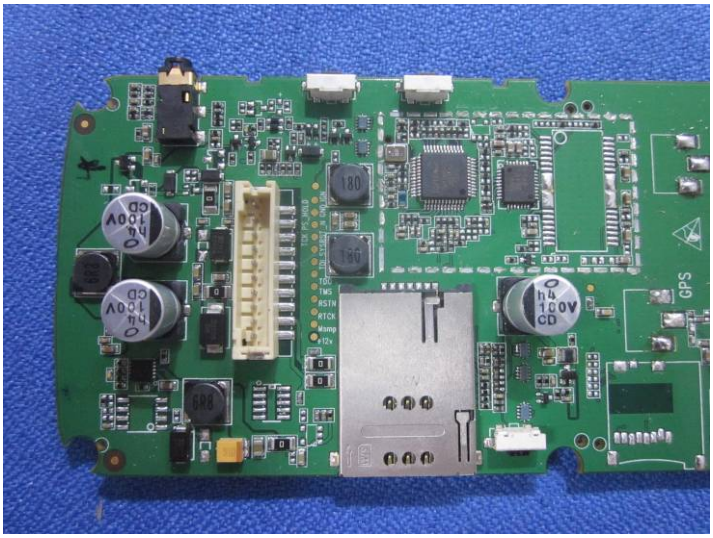
6. External and Internal Photos of the EUT

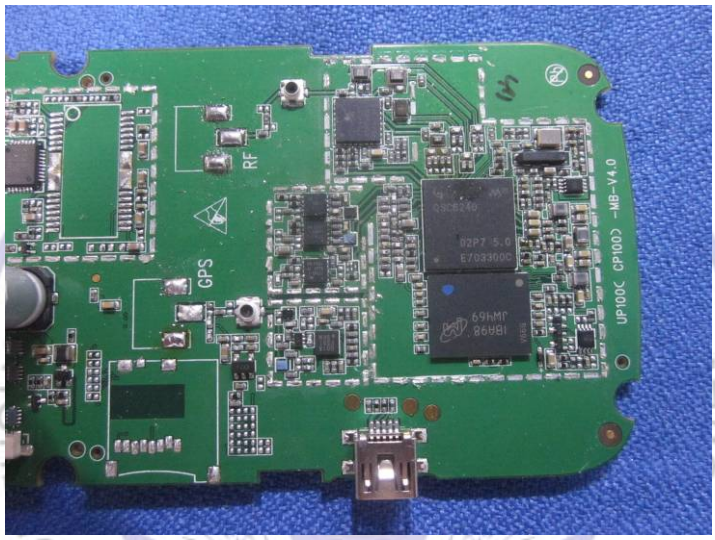
External Photos of EUT

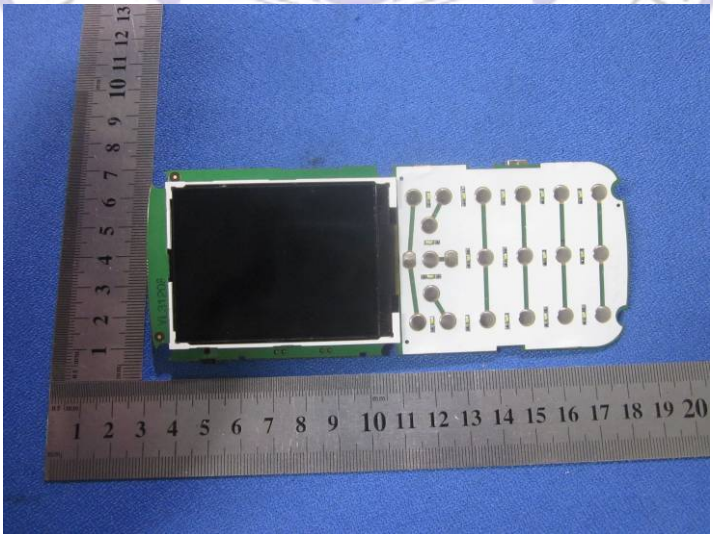
Internal Photos of EUT

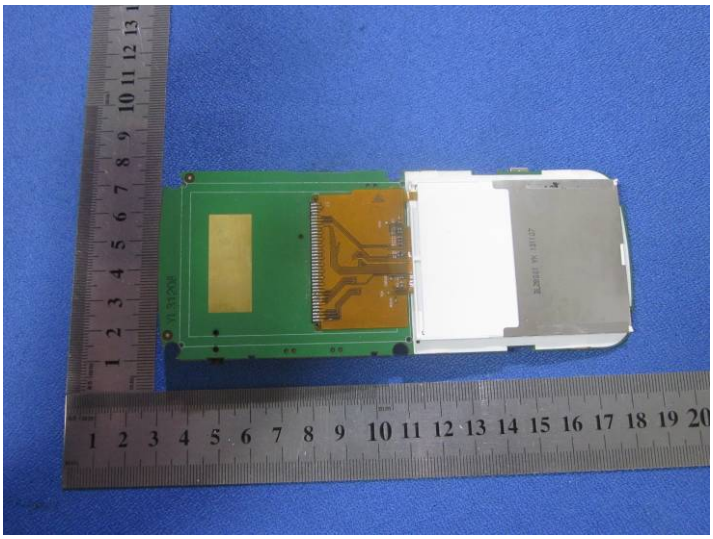





GPS


RF
GPS
UP100C CP100C -MB-V4.0


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



.....End of Report.....