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## MPE TEST REPORT

### FCC Per 47 CFR 2.1091(b)

Report Reference No.....: CTL1404240847-WM

FCC ID.....:

Compiled by

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Approved by

( position+printed name+signature)...: Manager Tracy Qi

*Tracy Qi*

Date of issue.....: Apr. 28, 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 Per 47 CFR 2.1091(b)

TRF Originator.....: Shenzhen CTL Testing Technology Co., Ltd.

Master TRF.....: Dated 2011-01

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Test item description .....: CARFONE

FCC ID.....: R5CCP200

Trade Mark.....: Voyager

Model/Type reference.....: CP200

I/O Type of EUT.....: MiniUSB Port/USB Port/ Earphone Port

I/O Q'TY.....: 1/1/1

#### 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:UMTS FDD: Rel-6  
Type of modulation .....: 2G: GMSK for GSM/GPRS  
3G: QPSK  
GPRS Type .....: Class B  
GPRS Class .....: Class 12

**GPS**

work frequency .....: 1575.42MHz  
Type of modulation .....: BPSK

**Bluetooth**

Work frequency .....: 2402~2480MHz  
Version.....: V4.0  
Type of modulation .....: FHSS  
Data Rate.....: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)

**Wi-Fi**

Work frequency .....: 802.11b/g/n(20MHz): 2412~2462MHz  
Type of modulation .....: 802.11b DSSS, 802.11g/n: OFDM  
Data Rate.....: 802.11b: 1/2/5.5/11 Mbps  
802.11g: 6/9/12/18/24/36/48/54 Mbps  
802.11n: up to 65 Mbps  
Antenna Gain .....: 2.0 dBi for GSM850 and WCDMA Band V  
5.0 dBi for PCS1900 and WCDMA Band II  
0 dBi for Bluetooth and Wi-Fi  
Antenna type .....: External  
IMEI .....: 862361020044056  
Result.....: **Positive**

# Test Report

<b>Test Report No. :</b>	<b>CTL1404240847-WM</b>	Apr. 28, 2014
		Date of issue

Equipment under Test : CARFONE

Model /Type : CP200

**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

<b>Test Result</b>	<b>Positive</b>
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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.

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## 1. SUMMARY

### 1.1. EUT configuration

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

- - supplied by the manufacturer
- o - supplied by the lab

### 1.2. 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)

### 1.3. Description of the test mode

CTL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: GSM850
Mode 2: PCS1900
Mode 3: GPRS850
Mode 4: GPRS1900
Mode 5: WCDMA Band II
Mode 6: WCDMA Band V
Mode 7: WIFI 802.11b
Mode 8: WIFI 802.11g
Mode 9: WIFI 802.11n(HT20)
Mode 10: Bluetooth
Mode 11: BLE

Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst result on this report.



## **2. TEST ENVIRONMENT**

### **2.1. 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.

### **2.2. Environmental conditions**

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

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

### **2.3. 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	3.22dB	(1)

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

### 3. Method of measurement

#### 3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

#### 3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

\*=Plane-wave equivalent power density

#### 3.3. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna is 2.0dBi for GSM850/WCDMA Band V, 5.0 dBi for PCS1900/WCDMA Band II, 0 dBi for WIFI, Bluetooth and BLE, the RF power density can be obtained.

## TEST RESULTS

### GSM 850/GPRS 850/ WCDMA Band V

Test Frequency (MHz)	Minimum Separation Distance (cm)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
824.2	20.00	32.19	1655.7700	1.5849	0.5495	0.5221	Pass
836.6	20.00	31.96	1570.3628	1.5849	0.5577	0.4951	Pass
848.6	20.00	31.62	1452.1116	1.5849	0.5659	0.4579	Pass

### PCS1900/GPRS 1900/WCDMA Band II

Test Frequency (MHz)	Minimum Separation Distance (cm)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
1850.2	20.00	27.76	597.0353	3.1623	1.0000	0.3756	Pass
1880.0	20.00	26.61	458.1419	3.1623	1.0000	0.2882	Pass
1909.8	20.00	25.69	370.6807	3.1623	1.0000	0.2332	Pass

### WIFI 802.11b/g/n

Test Frequency (MHz)	Minimum Separation Distance (cm)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2412	20.00	9.46	8.8308	0	1.0000	0.0018	Pass
2437	20.00	9.39	8.6896	0	1.0000	0.0017	Pass
2472	20.00	9.43	8.7700	0	1.0000	0.0017	Pass

### Bluetooth

Test Frequency (MHz)	Minimum Separation Distance (cm)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2402	20.00	0.415	1.1003	0	1.0000	0.0002	Pass
2441	20.00	0.850	1.2162	0	1.0000	0.0002	Pass
2480	20.00	0.601	1.1484	0	1.0000	0.0002	Pass

### BLE

Test Frequency (MHz)	Minimum Separation Distance (cm)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm <sup>2</sup> )	Power Density At 20 cm (mW/cm <sup>2</sup> )	Test Results
2402	20.00	-9.643	0.1086	0	1.0000	0.000022	Pass
2440	20.00	-10.61	0.0869	0	1.0000	0.000017	Pass
2480	20.00	-12.98	0.0504	0	1.0000	0.000010	Pass

## 4. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 (b) for the controlled RF Exposure.

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