



TEST REPORT

No. I14Z47121-EMC02

for

TCT Mobile Limited

Bluetooth phone

Model Name:BP61

FCC ID: RAD511

with

Hardware Version: proto

Software Version: vA15

Issued Date: Jul. 2nd, 2014

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

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CONTENTS

1. TEST LABORATORY	3
1.1. TESTING LOCATION	3
1.2. TESTING ENVIRONMENT	3
1.3. PROJECT DATA	3
1.4. SIGNATURE.....	3
2. CLIENT INFORMATION	4
2.1. APPLICANT INFORMATION.....	4
2.2. MANUFACTURER INFORMATION.....	4
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	5
3.1. ABOUT EUT.....	5
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	5
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....	5
3.4. EUT SET-UPS	5
4. REFERENCE DOCUMENTS.....	6
4.1. REFERENCE DOCUMENTS FOR TESTING.....	6
5. LABORATORY ENVIRONMENT.....	7
6. SUMMARY OF TEST RESULTS.....	8
7. TEST EQUIPMENTS UTILIZED.....	9
ANNEX A: MEASUREMENT RESULTS	10

1. Test Laboratory

1.1. Testing Location

Location A

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan Bei Road, Haidian District, Beijing, P.R. China
Postal Code: 100191

1.2. Testing Environment

Normal Temperature: 15-35℃
Relative Humidity: 20-75%

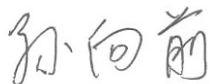
1.3. Project data

Testing Start Date: Jun. 19th, 2014
Testing End Date: Jun. 22nd, 2014

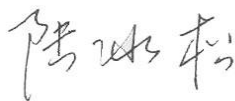
1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: TCT Mobile Limited
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China.
City: Shanghai
Postal Code: 201203
Country: China
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Contact Email: zhizhou.gong@jrdcom.com
Telephone: 0086-21-61460890
Fax: 0086-21-61460602

2.2. Manufacturer Information

Company Name: TCT Mobile Limited
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China.
City: Shanghai
Postal Code: 201203
Country: China
Telephone: 0086-21-61460890
Fax: 0086-21-61460602

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Bluetooth phone
Model Name	BP61
Marketing Name	/
FCC ID	RAD511
Extreme vol. Limits	3.5VDC to 4.35VDC (nominal: 3.8VDC)

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT5	/	proto	vA15

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN	Remarks
AE5	Battery	/	/
AE6	Travel Adapter	/	TCT-CHR-1973
AE7	Travel Adapter	/	TCT-CHR-1976
AE8	Travel Adapter	/	TCT-CHR-1975

AE5

Model	TLp004B1
Manufacturer	BYD
Capacitance	400 mAh
Nominal voltage	3.7V

AE6,AE7, AE8

Model	CBA3002AG0C1
Manufacturer	BYD
Length of cable	122.5cm (length of cable)

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.4	EUT5+ AE5+AE6	Charger

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	10-1-13 Edition
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low - Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-1 (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 10 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 6GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz—1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail
Location Column	A/B/C/D	The test is performed in test location A, B, C or D which are described in section 1.1 of this report

Clause	List	Clause in FCC rules	Verdict	Location
1	Radiated Emission	15.109(a)	P	A
2	Conducted Emission	15.107(a)	P	A

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATI ON INTERVAL
1	Test Receiver	ESCI	100344	R&S	2015-03-03	1 year
2	Test Receiver	ESCI 7	100948	R&S	2014-07-18	1 year
3	Test Receiver	FSV*	101047	R&S	2014-06-30	1 year
4	LISN	ESH2-Z5	829991/012	R&S	2015-04-14	1 year
5	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 years
6	EMI Antenna	3115	6914	ETS-Lindgren	2014-12-15	3 years

*NOTE: Test equipment is not extended during the test.

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (charging mode of MS) at distances of 10 meters (for 30MHz-1GHz) and 3 meters (for above 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 - 2009, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3/10 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

The MS is operating in the charging mode. During the test MS is connected to a charger in the case of charging mode.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit ($\mu\text{V/m}$)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

Note: the above limit is for 3 meters test distance. 10 meters' limit is got by converting.

A.1.4 Test Condition

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/1MHz	15	Peak, Average

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + G_A + G_{\text{PL}}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.3 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9986.781	35.2	-24.2	38.0	21.400	VERTICAL
9980.313	35.2	-24.2	38.0	21.400	VERTICAL
9991.000	35.0	-24.2	38.0	21.200	VERTICAL
9982.844	35.0	-24.2	38.0	21.200	HORIZONTAL
9992.125	35.0	-24.2	38.0	21.200	VERTICAL
9983.969	34.8	-24.2	38.0	21.000	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
8441.031	47.3	-27.3	37.7	36.900	VERTICAL
9982.563	47.2	-24.2	38.0	33.400	VERTICAL
9911.406	47.1	-24.9	38.0	34.000	VERTICAL
9858.813	46.9	-24.8	38.0	33.700	VERTICAL
8270.594	46.7	-27.5	37.7	36.500	VERTICAL
8250.344	46.7	-27.5	37.7	36.500	VERTICAL

Note: The measurement results of Set.1 showed here are worst cases of the combinations of different batteries and USB cables.

Charging Mode, Set.1

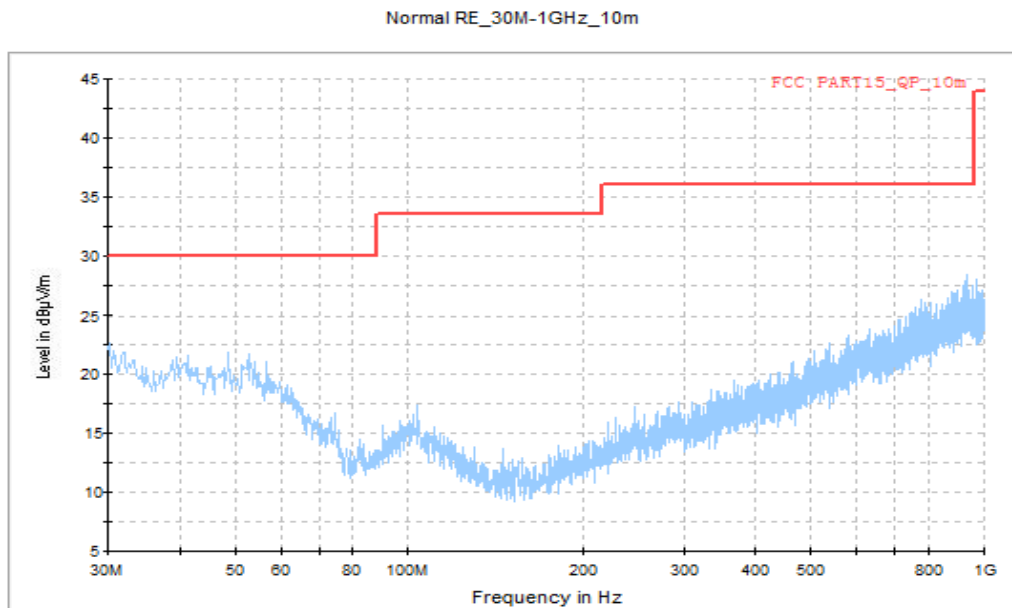


Figure A.1 Radiated Emission from 30MHz to 1GHz

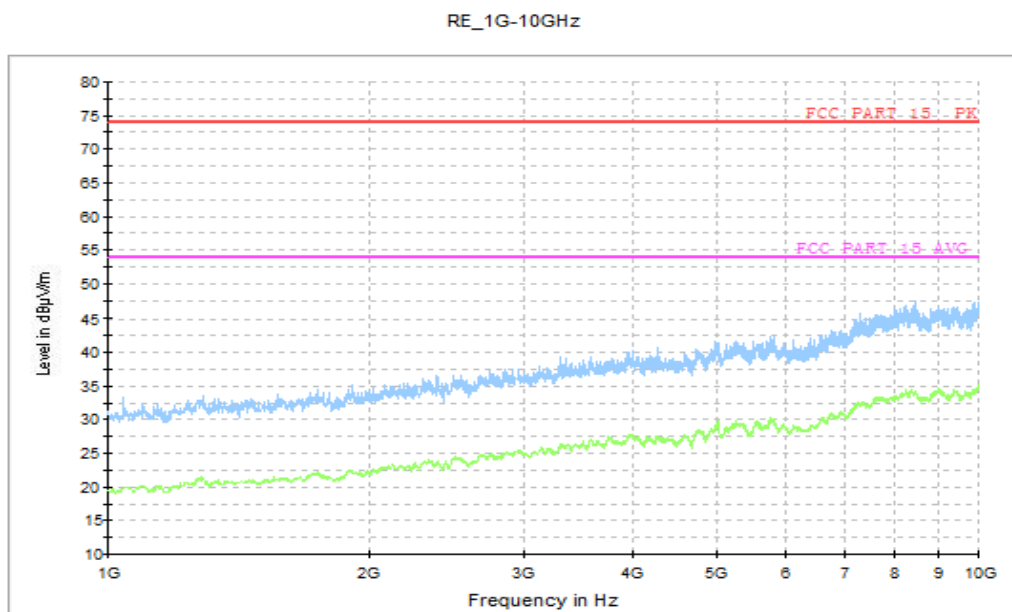


Figure A.2 Radiated Emission from 1GHz to 10GHz

A.2 Conducted Emission (§15.107(a))

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 - 2009, section 7.3.

A.2.2 EUT Operating Mode

The MS is operating in charging mode. During the test MS is connected to a charger in the case of charging mode.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

RBW/IF bandwidth	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

Measurement uncertainty: $U= 2.9 \text{ dB}$, $k=2$.

Charging Mode, Set.1

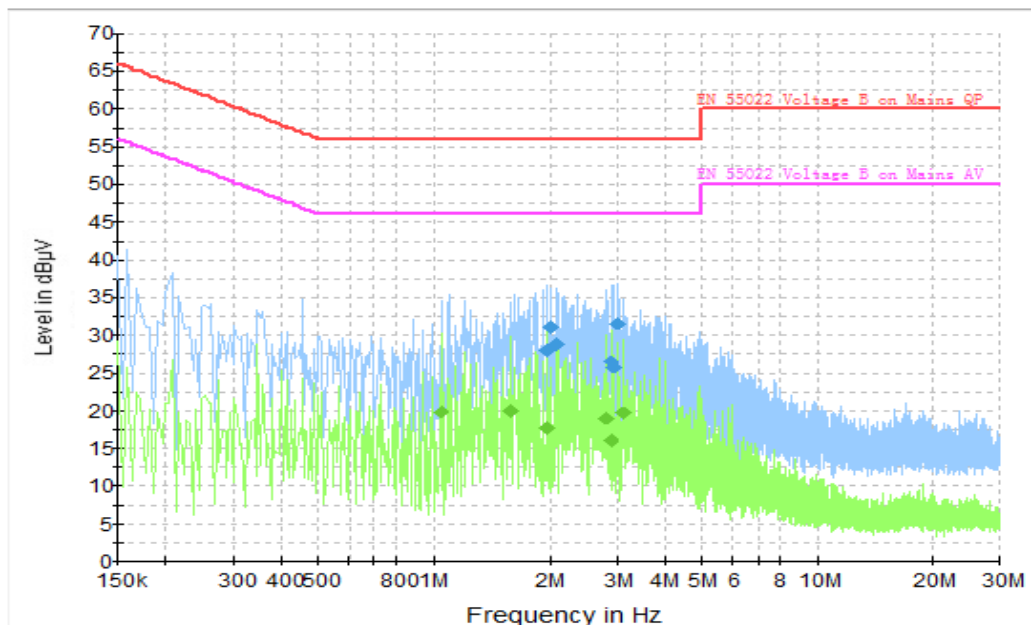


Figure A.3 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.977000	27.9	2000.0	9.000	On	L1	9.9
2.026500	31.0	2000.0	9.000	On	L1	9.9
2.080500	28.7	2000.0	9.000	On	L1	9.9
2.913000	26.4	2000.0	9.000	On	L1	9.8
2.962500	25.8	2000.0	9.000	On	N	9.8
3.012000	31.5	2000.0	9.000	On	L1	9.8

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.041000	19.8	2000.0	9.000	On	L1	9.9
1.576500	19.9	2000.0	9.000	On	L1	9.9
1.977000	17.6	2000.0	9.000	On	L1	9.9
2.809500	19.0	2000.0	9.000	On	L1	9.8
2.913000	16.0	2000.0	9.000	On	L1	9.8
3.115500	19.7	2000.0	9.000	On	L1	9.8

Note: The measurement results showed here are worst cases of the combinations of different batteries and USB cables.

END OF REPORT