TEST REPORT
No. I14Z48812-EMC01

for

TCT Mobile Limited

HSDPA/HSUPA/HSPA+/UMTS quad band / GSM quad band/LTE 6

band Moblie phone

Model Name: 4045A

Marketing name: POP 2 (4)

Brand name: ALCATEL ONETOUCH

FCC ID: RAD536

with

Hardware Version: PIO

Software Version: 5L2E

Issued Date: 2015-01-22

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 CTTL.

Test Laboratory:

FCC 2.948 Listed: No.525429

CTTL,Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I14Z48812-EMC01	Rev.0	1st edition	2015-01-22

CONTENTS

1. Test Laboratory

1.1. Testing Location

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191

1.2. Testing Environment

Normal Temperature: 15-35 ℃

Relative Humidity: 20-75%

1.3. Project data

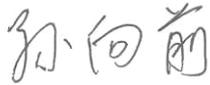Testing Start Date: 2014-12-27

Testing End Date: 2014-12-28

1.4. Signature

Zhang Hui

(Prepared this test report)

Sun Xiangqian

(Reviewed this test report)

Lu Bingsong

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
Contact Person:	Gong Zhizhou
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	HSDPA/HSUPA/HSPA+/UMTS quad band / GSM quad band/LTE 6 band Moblie phone
Model Name	4045A
Marketing Name	POP 2 (4)
FCC ID	RAD536
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 CTTL,Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT5	014261000101057	PIO	5L2E

*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
AE1	Battery	/	14TCT-BA-1336
AE2	Battery	/	14TCT-BA-2143
AE3	USB cable	/	14TCT-DC-0527
AE4	USB cable	/	14TCT-DC-0655
AE5	USB cable	/	14TCT-DC-0763
AE6	USB cable	/	14TCT-DC-0057
AE7	USB cable	/	/
AE8	Travel	/	14TCT-CH-1389
AE9	Travel	/	14TCT-CH-2420

AE1

Model	TLi020F1
Manufacturer	BYD
Capacitance	2000 mAh
Nominal voltage	3.8 V

AE2

Model	TLi020F2
Manufacturer	SCUD
Capacitance	2000 mAh
Nominal voltage	3.8 V

AE3
  Model   CDA3122002C1
  Manufacturer   Juwei
  Length of cable   98cm
AE4
  Model   CDA3122002C2
  Manufacturer   Shenghua
  Length of cable   99cm
AE5、AE6
  Model   CDA3122005C1
  Manufacturer   Juwei
  Length of cable   98cm
AE7
  Model   CDA3122005C2
  Manufacturer   Shenghua
  Length of cable   99cm

AE8
  Model   CBA3007AG0C1
  Manufacturer   BYD
  Length of cable   /
AE9
  Model   CBA3007AG0C4
  Manufacturer   Aohai
  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.1	EUT5+ AE1+ AE3 + AE8	Charger
Set.2	EUT5+ AE1+ AE3 + AE9	Charger
Set.3	EUT5+ AE1+ AE3	USB mode

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 $^\circ$C**,** Max. = 35 $^\circ$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 $^\circ$C, Max. = 35 $^\circ$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. <u>SUMMARY OF TEST RESULTS</u>

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

Items	Test Name	Clause in FCC rules	Clause in IC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	Section 5	B.1	P	A
2	Conducted Emission	15.107(a)	Section 5	B.2	P	A

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESCI	100344	R&S	2015-03-03	1 year
2	Test Receiver	ESCI 7	100948	R&S	2015-07-16	1 year
3	Universal Radio Communication Tester	CMU200	109914	R&S	2015-04-13	1 year
4	Test Receiver	FSV	101047	R&S	2015-07-03	1 year
5	LISN	ENV216	101200	R&S	2015-07-07	1 year
6	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 years
7	EMI Antenna	3115	6914	ETS-Lindgren	2016-12-15	3 years
8	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
9	Monitor	E178FPc	CN-OWR979-64180-7AJ-D2MS	DELL	N/A	N/A
10	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
11	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A	N/A
12	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	N/A

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission
Reference
FCC: CFR Part 15.109(a).

A.1.1 Method of measurement
The field strength of radiated emissions from the unintentional radiator (USB mode of MS and 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 USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit (µV/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:

Result = P_{Mea} + A_{Rpl} = P_{Mea} + G_A + G_{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 dB, k=2.

Measurement results for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5261.250	30.4	-34.5	34.6	30.300	HORIZONTAL
5259.375	30.3	-34.5	34.6	30.200	VERTICAL
5265.625	30.3	-34.5	34.6	30.200	VERTICAL
5264.063	30.3	-34.5	34.6	30.200	HORIZONTAL
5265.313	30.3	-34.5	34.6	30.200	VERTICAL
5258.750	30.3	-34.5	34.6	30.200	HORIZONTAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5811.563	43.6	-33.8	35.1	42.300	HORIZONTAL
5262.500	43.0	-34.5	34.6	42.900	VERTICAL
5256.563	42.2	-34.5	34.6	42.100	VERTICAL
5761.250	42.1	-33.8	35.1	40.800	VERTICAL
5821.563	42.0	-33.8	35.1	40.700	HORIZONTAL
5694.375	41.9	-34.2	35.1	41.000	VERTICAL

Measurement results for Set.2:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5266.875	30.4	-34.5	34.6	30.300	HORIZONTAL
5258.125	30.3	-34.5	34.6	30.200	VERTICAL
5265.625	30.3	-34.5	34.6	30.200	VERTICAL
5266.563	30.3	-34.5	34.6	30.200	HORIZONTAL
5267.813	30.2	-34.5	34.6	30.100	VERTICAL
5265.000	30.2	-34.5	34.6	30.100	HORIZONTAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5331.875	42.8	-34.8	34.6	43.000	HORIZONTAL
5263.438	42.2	-34.5	34.6	42.100	VERTICAL
5250.938	42.0	-34.5	34.6	41.900	VERTICAL
5263.750	42.0	-34.5	34.6	41.900	HORIZONTAL
5014.688	41.9	-34.6	34.6	41.900	VERTICAL
5257.188	41.8	-34.5	34.6	41.700	HORIZONTAL

Measurement result for Set.3:

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
1498.750	34.4	-40.3	24.1	50.600	VERTICAL
1498.438	34.2	-40.3	24.1	50.400	HORIZONTAL
1499.063	33.8	-40.3	24.1	50.000	VERTICAL
1498.125	33.7	-40.3	24.1	49.900	VERTICAL
1497.813	33.4	-40.3	24.1	49.600	HORIZONTAL
1497.500	33.4	-40.3	24.1	49.600	VERTICAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
1464.688	51.3	-40.0	24.1	67.200	VERTICAL
1464.375	51.2	-40.0	24.1	67.100	HORIZONTAL
1464.063	51.1	-40.0	24.1	67.000	VERTICAL
1465.313	50.6	-40.0	24.1	66.500	VERTICAL
1449.688	50.5	-40.2	24.1	66.600	HORIZONTAL
1453.438	50.5	-40.2	24.1	66.600	VERTICAL

Note: The measurement results of Set.1, Set.2, Set.3 showed here are worst cases of the combinations of different batteries and USB cables.
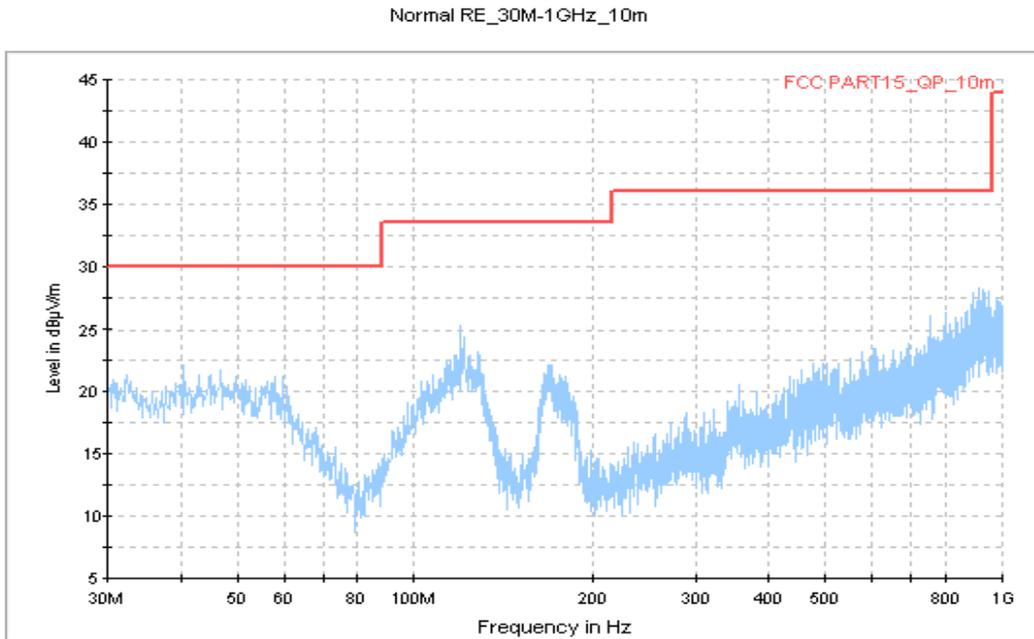
Charging Mode, Set.1

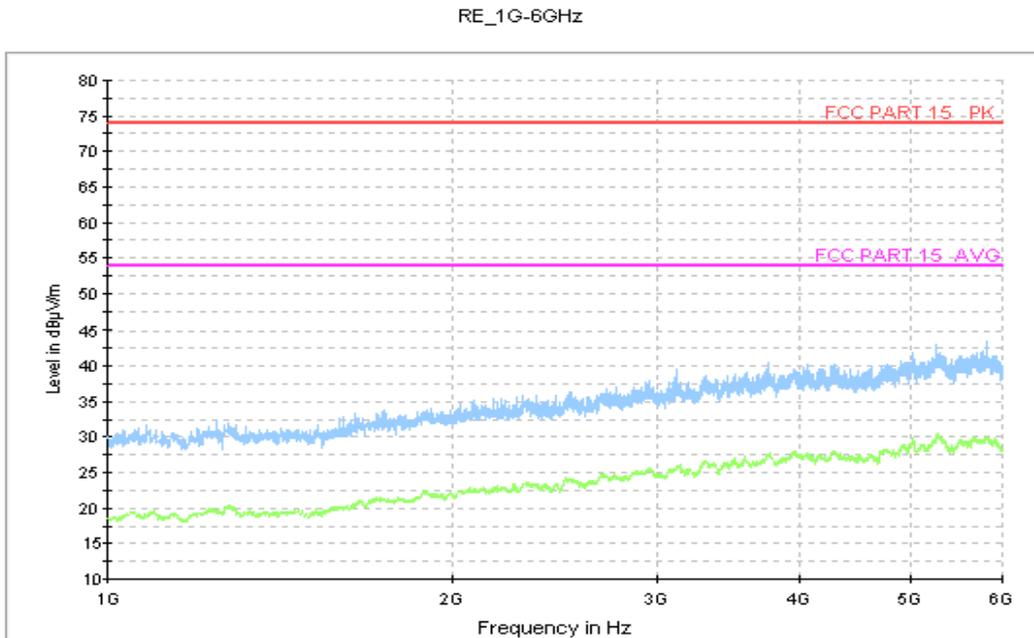**Figure A.1 Radiated Emission from 30MHz to 1GHz**

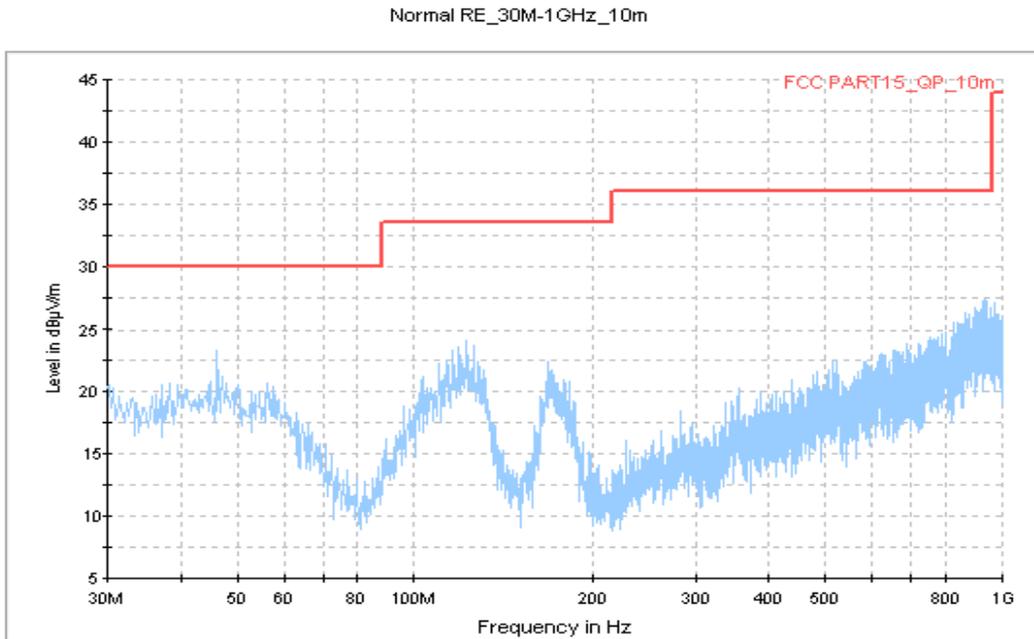**Figure A.2 Radiated Emission from 1GHz to 6GHz**

Charging Mode, Set.2

Normal RE_30M-1GHz_10m

Figure A.3 Radiated Emission from 30MHz to 1GHz

RE_1G-6GHz
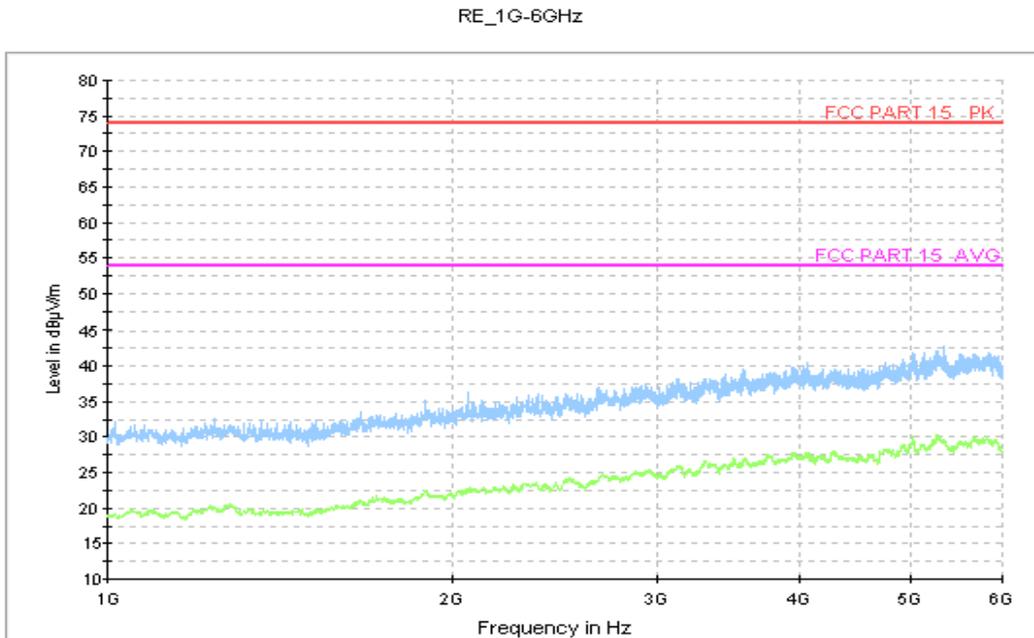
Figure A.4 Radiated Emission from 1GHz to 6GHz

USB Mode, Set.3

Normal RE_30M-1GHz_10m
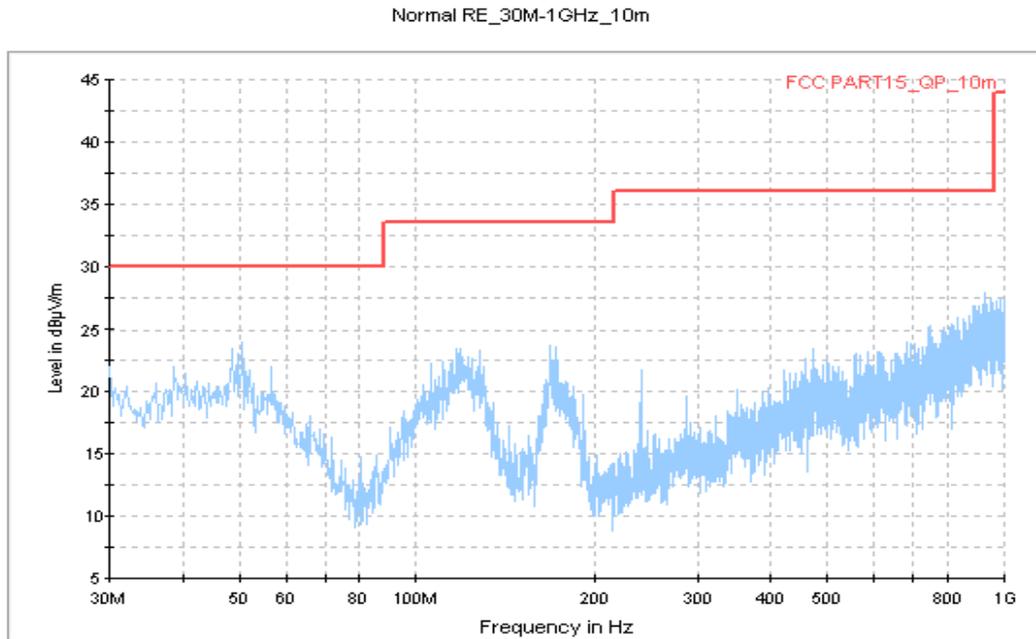
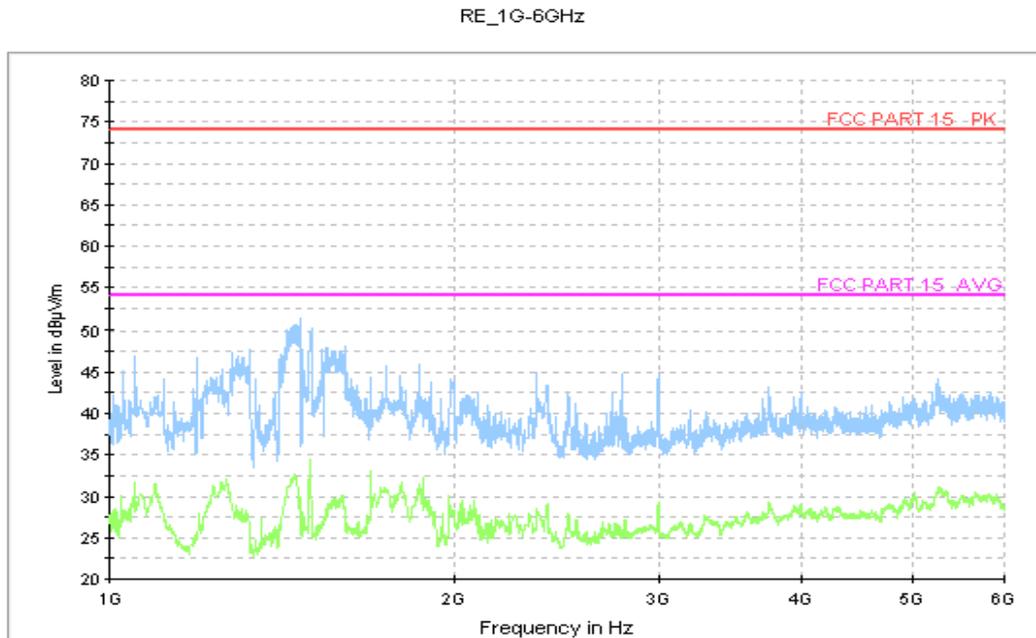**Figure A.5 Radiated Emission from 30MHz to 1GHz**

RE_1G-6GHz

Figure A.6 Radiated Emission from 1GHz to 6GHz

A.2 Conducted Emission
Reference
FCC: CFR Part 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 the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dBµV)	
	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 dB, k=2.
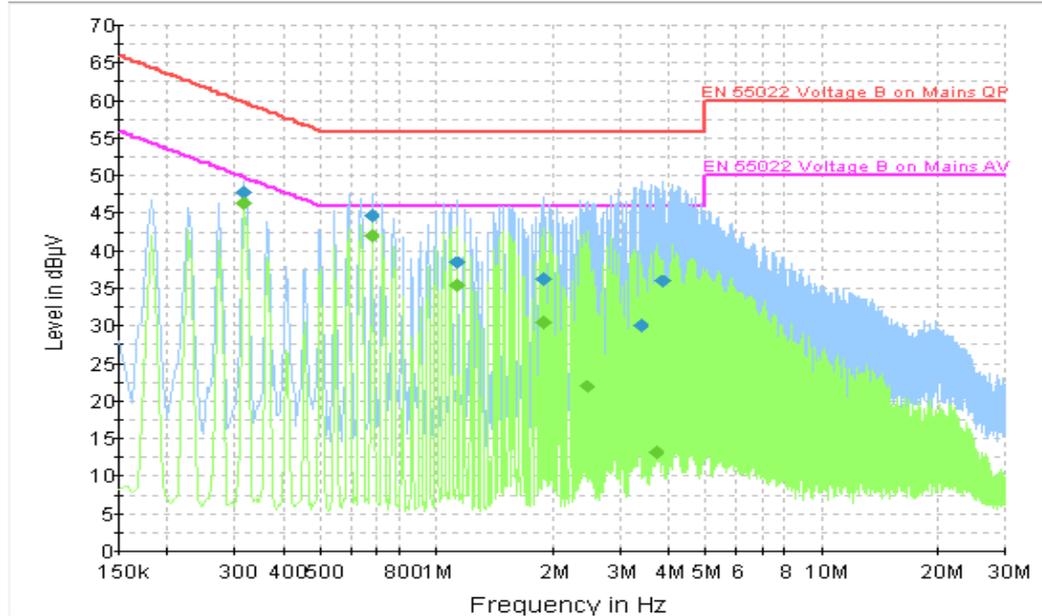
Charging Mode, Set.1

Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.316500	47.9	2000.0	9.000	On	N	19.9	11.9	59.8
0.681000	44.7	2000.0	9.000	On	L1	19.9	11.3	56.0
1.135500	38.5	2000.0	9.000	On	L1	19.7	17.5	56.0
1.905000	36.4	2000.0	9.000	On	L1	19.7	19.6	56.0
3.399000	30.0	2000.0	9.000	On	N	19.7	26.0	56.0
3.849000	36.1	2000.0	9.000	On	N	19.7	19.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.316500	46.5	2000.0	9.000	On	L1	19.8	3.3	49.8
0.681000	42.1	2000.0	9.000	On	L1	19.9	3.9	46.0
1.135500	35.4	2000.0	9.000	On	L1	19.7	10.6	46.0
1.905000	30.6	2000.0	9.000	On	L1	19.7	15.4	46.0
2.449500	21.9	2000.0	9.000	On	L1	19.7	24.1	46.0
3.718500	13.2	2000.0	9.000	On	L1	19.7	32.8	46.0

Note: The measurement results showed here are worst cases of the combinations of different batteries and USB cables.
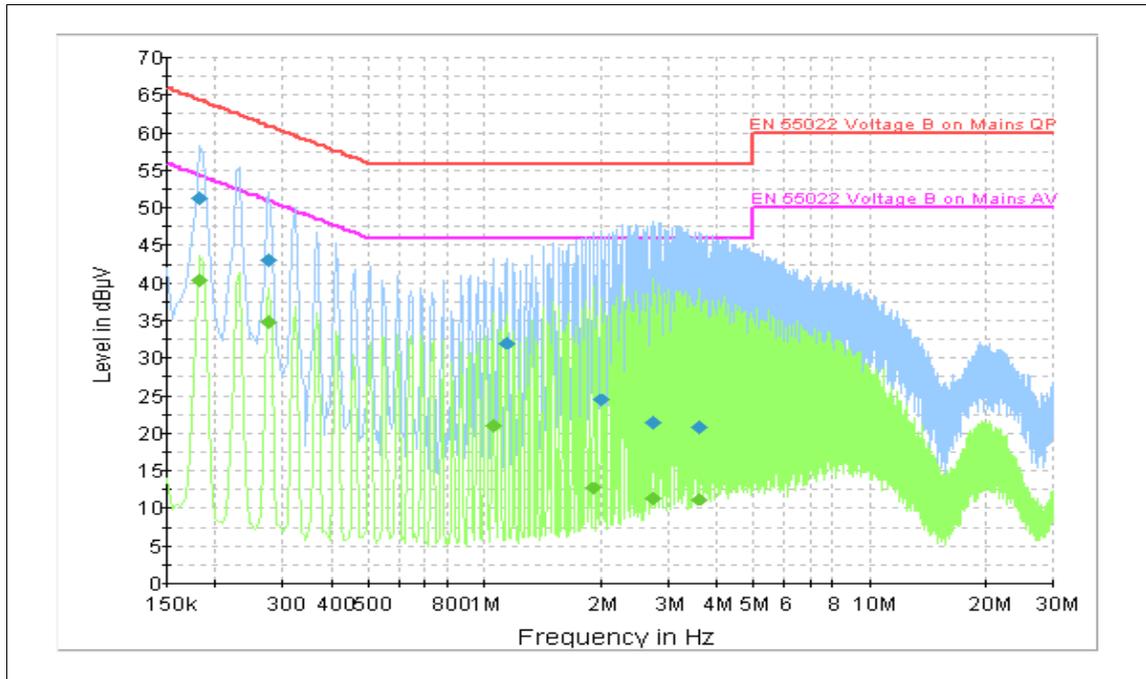
Charging Mode, Set.2

Figure A.8 Conducted Emission

Final Result 1

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.181500	51.3	2000.0	9.000	On	N	19.9	13.1	64.4
0.276000	43.1	2000.0	9.000	On	N	19.9	17.8	60.9
1.144500	32.0	2000.0	9.000	On	L1	19.7	24.0	56.0
2.013000	24.5	2000.0	9.000	On	L1	19.7	31.5	56.0
2.746500	21.5	2000.0	9.000	On	L1	19.7	34.5	56.0
3.615000	20.9	2000.0	9.000	On	L1	19.7	35.1	56.0

Final Result 2

Frequency	CAverage	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.181500	40.4	2000.0	9.000	On	L1	19.9	14.0	54.4
0.276000	34.9	2000.0	9.000	On	L1	19.9	16.1	50.9
1.054500	20.9	2000.0	9.000	On	L1	19.8	25.1	46.0
1.923000	12.7	2000.0	9.000	On	L1	19.7	33.3	46.0
2.746500	11.3	2000.0	9.000	On	L1	19.7	34.7	46.0
3.615000	11.2	2000.0	9.000	On	L1	19.7	34.8	46.0

Note: The measurement results showed here are worst cases of the combinations of different batteries and USB cables.
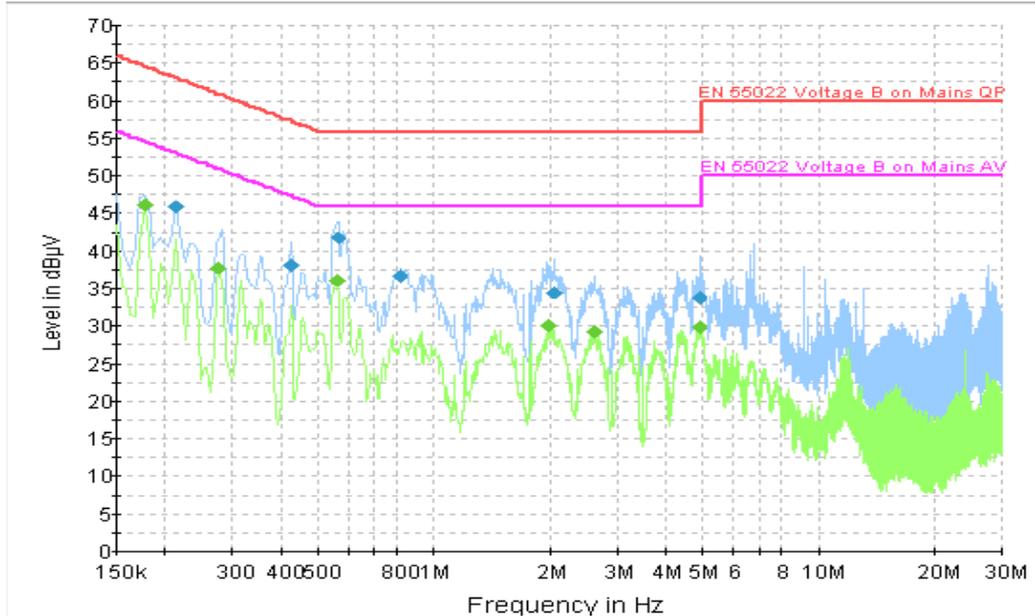
USB Mode, Set.3

Figure A.9 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.213000	45.8	2000.0	9.000	On	N	19.9	17.3	63.1
0.424500	38.1	2000.0	9.000	On	L1	20.0	19.3	57.4
0.564000	41.8	2000.0	9.000	On	L1	20.0	14.2	56.0
0.816000	36.7	2000.0	9.000	On	N	19.9	19.3	56.0
2.058000	34.6	2000.0	9.000	On	L1	19.7	21.4	56.0
4.920000	33.8	2000.0	9.000	On	N	19.7	22.2	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	46.2	2000.0	9.000	On	N	19.9	8.4	54.6
0.276000	37.7	2000.0	9.000	On	N	19.9	13.2	50.9
0.559500	36.1	2000.0	9.000	On	L1	20.0	9.9	46.0
1.986000	30.0	2000.0	9.000	On	L1	19.7	16.0	46.0
2.620500	29.2	2000.0	9.000	On	L1	19.7	16.8	46.0
4.920000	29.9	2000.0	9.000	On	N	19.7	16.1	46.0

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

END OF REPORT