



# TEST REPORT

No. 2013TAR885

for

**TCT Mobile Limited**

**GSM dual band mobile phone**

**Model Name: Tiger X US 1SIM Lite**

**Marketing Name: ALCATEL 1009A**

**FCC ID : RAD460**

with

**Hardware Version: PIO**

**Software Version: v730**

**Issued Date: Jan. 14<sup>th</sup>, 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:**

***DAkks accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-12123-01-01***

***FCC 2.948 Listed: No.733176***

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

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

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## **1. Test Laboratory**

### **1.1. Testing Location**

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No 52, Huayuan beilu, Haidian District, Beijing, P. R. China  
Postal Code: 100191  
Telephone: 0086-10-62304633-2561  
Fax: 0086-10-62304633-2504

### **1.2. Testing Environment**

Normal Temperature: 15-35°C  
Relative Humidity: 20-75%

### **1.3. Project data**

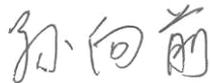
Testing Start Date: Mar. 5<sup>th</sup>, 2013  
Testing End Date: Jan. 28<sup>th</sup>, 2014

### **1.4. Signature**



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**Qu Pengfei**  
**(Prepared this test report)**



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**Sun Xiangqian**  
**(Reviewed this test report)**



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**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, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
Pudong Area Shanghai, P.R. China. 201203  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: 0086-21-61460890  
Fax: 0086-21-61460602

### **2.2. Manufacturer Information**

Company Name: TCT Mobile Limited  
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
Pudong Area Shanghai, P.R. China. 201203  
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	GSM dual band mobile phone
Model Name	Tiger X US 1SIM Lite
FCC ID	RAD460
Extreme vol. Limits	3.5VDC to 4.2VDC (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**

<b>EUT ID*</b>	<b>SN or IMEI</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	013515000050288	PIO	v730

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

#### **3.3. Internal Identification of AE used during the test**

<b>AE ID*</b>	<b>Description</b>	<b>SN</b>
AE1	Battery	B022392142A
AE2	Battery	BAK2012052402060
AE3	Battery	B237060979A
AE4	Battery	/
AE5	Travel charger	/
AE6	Travel charger	/
AE7	USB cable	/

##### AE1

Model	CAB0400000C1
Manufacturer	BYD
Capacitance	400mAh
Nominal voltage	3.7V

##### AE2

Model	CAB24Q0000C1
Manufacturer	BAK
Capacitance	500mAh
Nominal voltage	3.7V

##### AE3

Model	CAB2170000C1
Manufacturer	BYD
Capacitance	500mAh
Nominal voltage	3.7V

AE4

Model	CAB25L0002C2
Manufacturer	BAK
Capacitance	400mAh
Nominal voltage	3.7V

AE5

Model	CBA30Y0AG0C1
Manufacturer	BYD
Length of cable	127cm

AE6

Model	CBA25L0AG0C3
Manufacturer	Yingju
Length of cable	129cm

AE7

Model	CDA3000003C1
Manufacturer	Juwei
Length of cable	101cm

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

**EUT set-ups**

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1+ AE1/AE2/AE3/AE4 +AE5	Charging Mode
Set.2	EUT1+ AE1/AE2/AE3/AE4 +AE6	Charging Mode
Set.3	EUT1+ AE1/AE2/AE3/AE4 +AE7	USB Mode

Note.1: Micro card was installed in the device during the test.

Note.2: The GSM dual band mobile phone ALCATEL 1009A manufactured by TCT Mobile Limited is a variant model based on ALCATEL 1010A for conformance test. According to the declaration of changes, the following items are tested on Set.1, Set.2 and Set.3.

EUT set-up No.	Mode or Feature	Test Item
Set.1	GSM 900MHz	Radiated Continuous Emission for above 1GHz
Set.2	GSM 900MHz	Radiated Continuous Emission for above 1GHz
Set.3	GSM 900MHz	Radiated Continuous Emission for above 1GHz

Other results are cited from the initial model. The report number for initial model is 2013TAR168.

## **4. Reference Documents**

### **4.1. Reference Documents for testing**

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

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	10-1-12 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

**Conducted chamber/ Control room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 80 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω

**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

**Semi-anechoic chamber SAC-2** (10 meters×6.7meters×6.1meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.5 dB, 3 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

**Fully-anechoic chamber FAC-3** (9 meters×6.5 meters×4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 1 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

## 6. SUMMARY OF TEST RESULTS

<b>Abbreviations used in this clause:</b>	
P	Pass
NA	Not applicable
F	Fail

<b>Clause</b>	<b>List</b>	<b>Clause in FCC rules</b>	<b>Verdict</b>
1	Radiated Emission	15.109(a)	P
2	Conducted Emission	15.107(a)	P

## 7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	LISN	ESH2-Z5	829991/012	R&S	2014-04-14
2	Test Receiver	ESCI	100344	R&S	2014-03-28
3	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
4	Test Receiver	ESU26	100376	R&S	2014-11-05
5	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
6	Universal Radio Communication Tester	CMU200	102228	R&S	2014-06-23
7	Universal Radio Communication Tester	CMU200	108646	R&S	2014-11-02
8	Universal Radio Communication Tester	CMU200	109914	R&S	2014-04-21
9	EMI Antenna	3115	6914	ETS-Lindgren	2014-12-15
10	Test Receiver	FSV	101047	R&S	2014-06-30
11	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A
12	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
13	Printer	P1606dn	VNC3L52122	HP	N/A
14	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A
15	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A

## **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 (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 ( $\mu\text{V}/\text{m}$ )		
	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

$G_{\text{PL}}$ : Path Loss

$P_{\text{Mea}}$ : Measurement result on receiver.

#### Measurement results for Set.1:

##### Charging Mode/Average detector

Frequency(MHz)	Result(dBuV/m)	GPL (dB)	GA (dB/m)	PMea(dBuV)	Polarity
3899.594	27.2	-36.8	32.1	31.900	HORIZONTAL
3905.781	27.2	-36.8	32.1	31.900	VERTICAL
3907.938	27.2	-36.8	32.1	31.900	VERTICAL
3907.469	27.2	-36.8	32.1	31.900	VERTICAL
3910.188	27.2	-36.4	32.1	31.500	HORIZONTAL
3895.188	27.1	-36.8	32.1	31.800	HORIZONTAL

##### Charging Mode/Peak detector

Frequency(MHz)	Result(dB $\mu$ V/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dB $\mu$ V)	Polarity
3927.063	39.5	-36.4	32.1	43.800	VERTICAL
3891.813	38.7	-36.8	32.1	43.400	VERTICAL
3873.813	38.7	-36.8	32.1	43.400	VERTICAL
3938.688	38.6	-36.4	32.1	42.900	HORIZONTAL
3905.313	38.6	-36.8	32.1	43.300	HORIZONTAL
3906.906	38.6	-36.8	32.1	43.300	VERTICAL

#### Measurement results for Set.2:

##### Charging Mode/Average detector

Frequency(MHz)	Result(dBuV/m)	GPL (dB)	GA (dB/m)	PMea(dBuV)	Polarity
3895.938	27.2	-36.8	32.1	31.900	VERTICAL
3895.750	27.2	-36.8	32.1	31.900	HORIZONTAL
3904.281	27.2	-36.8	32.1	31.900	HORIZONTAL
3899.594	27.2	-36.8	32.1	31.900	HORIZONTAL
3906.156	27.2	-36.8	32.1	31.900	VERTICAL
3904.844	27.2	-36.8	32.1	31.900	HORIZONTAL

**Charging Mode/Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
3909.250	39.1	-36.4	32.1	43.400	HORIZONTAL
3664.281	39.0	-37.4	32.1	44.300	VERTICAL
3898.000	38.9	-36.8	32.1	43.600	VERTICAL
3889.469	38.8	-36.8	32.1	43.500	HORIZONTAL
3882.344	38.7	-36.8	32.1	43.400	VERTICAL
3910.375	38.7	-36.4	32.1	43.000	HORIZONTAL

**Measurement result for Set.3:**

**USB Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dB $\mu$ V)	Polarity
1975.000	30.2	-36.1	25.3	41.000	HORIZONTAL
1974.906	30.1	-36.1	25.3	40.900	VERTICAL
1975.094	30.0	-36.1	25.3	40.800	VERTICAL
1857.438	29.8	-35.9	25.3	40.400	VERTICAL
1858.656	29.8	-35.9	25.3	40.400	VERTICAL
1858.563	29.7	-35.9	25.3	40.300	VERTICAL

**USB Mode/ Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dB $\mu$ V)	Polarity
1993.750	54.2	-35.7	25.3	64.600	VERTICAL
1990.563	51.8	-35.7	25.3	62.200	VERTICAL
1996.938	49.8	-35.7	25.3	60.200	HORIZONTAL
1499.406	49.3	-40.3	24.1	65.500	HORIZONTAL
1498.750	49.2	-40.3	24.1	65.400	VERTICAL
1498.375	49.1	-40.3	24.1	65.300	VERTICAL

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

Charging Mode, Set.1

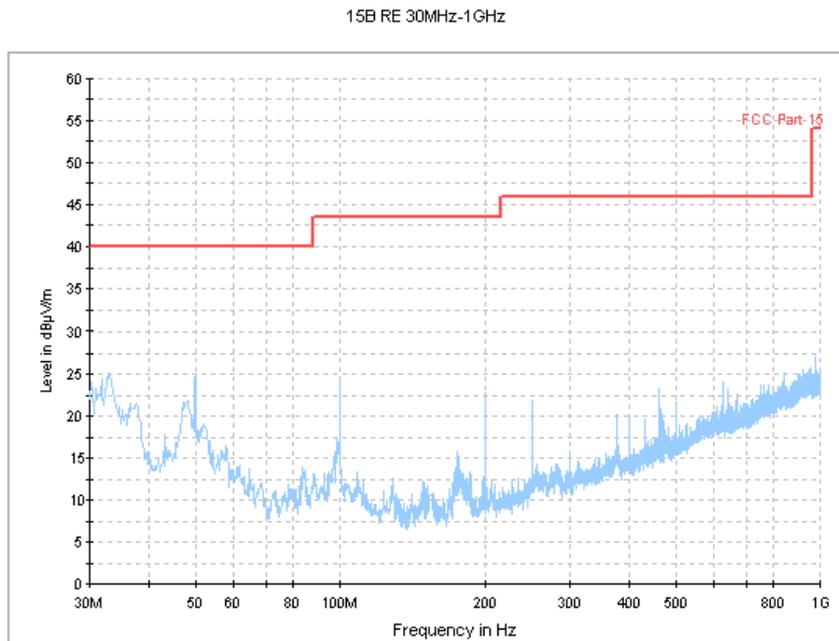


Figure A.1 Radiated Emission from 30MHz to 1GHz

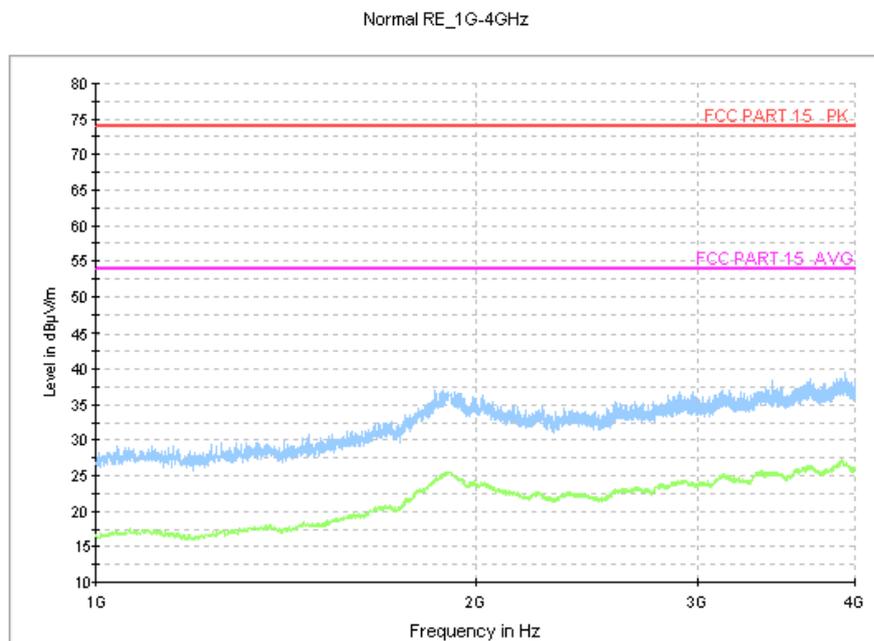
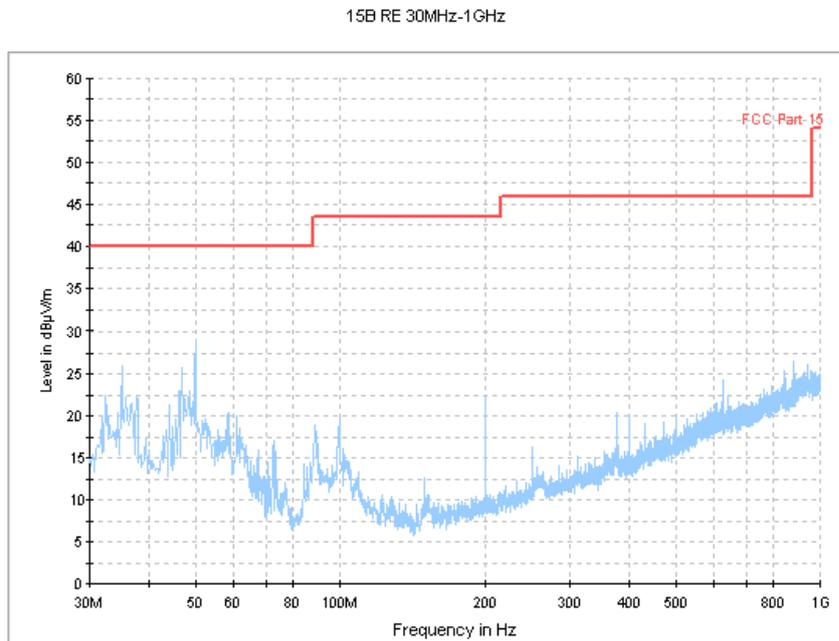
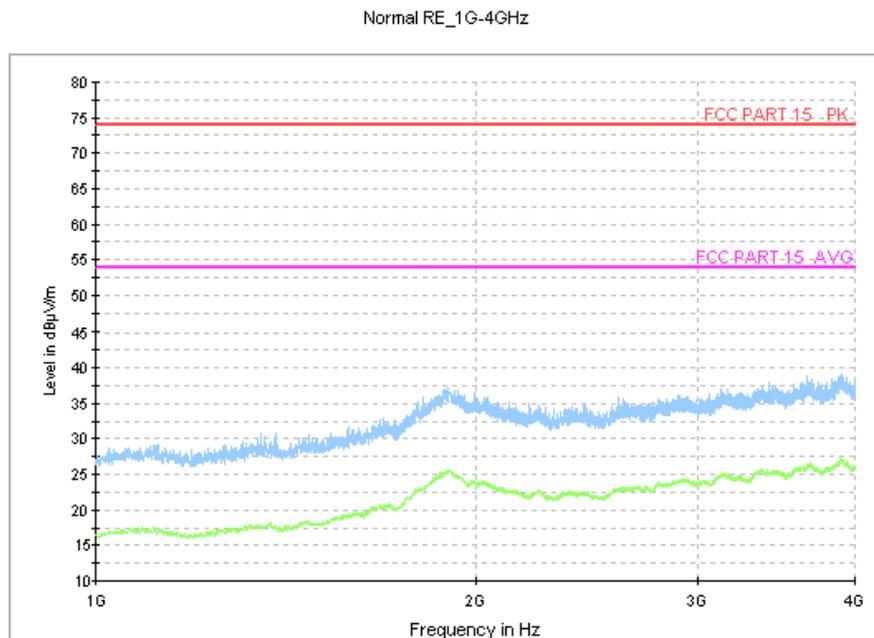


Figure A.2 Radiated Emission from 1GHz to 4GHz

**Charging Mode, Set.2**



**Figure A.4 Radiated Emission from 30MHz to 1GHz**



**Figure A.5 Radiated Emission from 1GHz to 4GHz**

USB Mode, Set.3

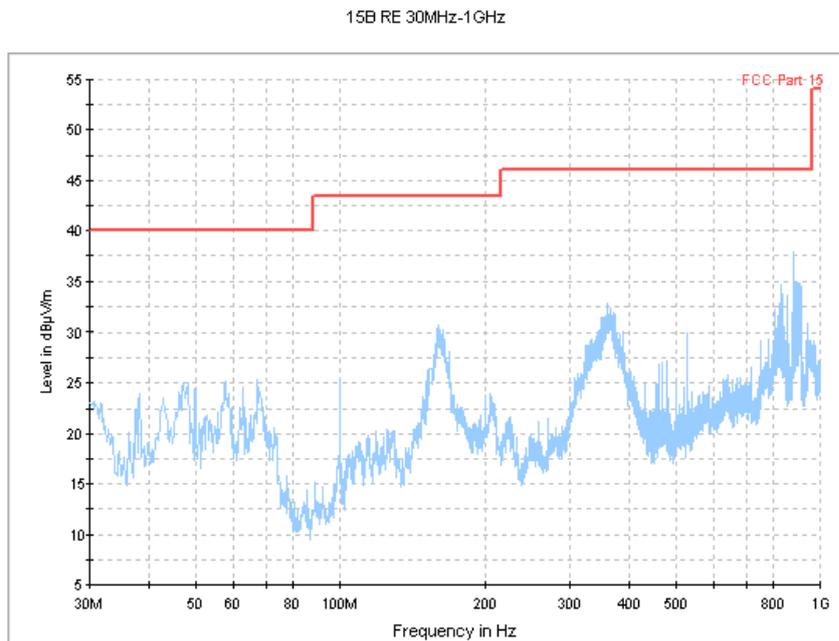


Figure A.7 Radiated Emission from 30MHz to 1GHz

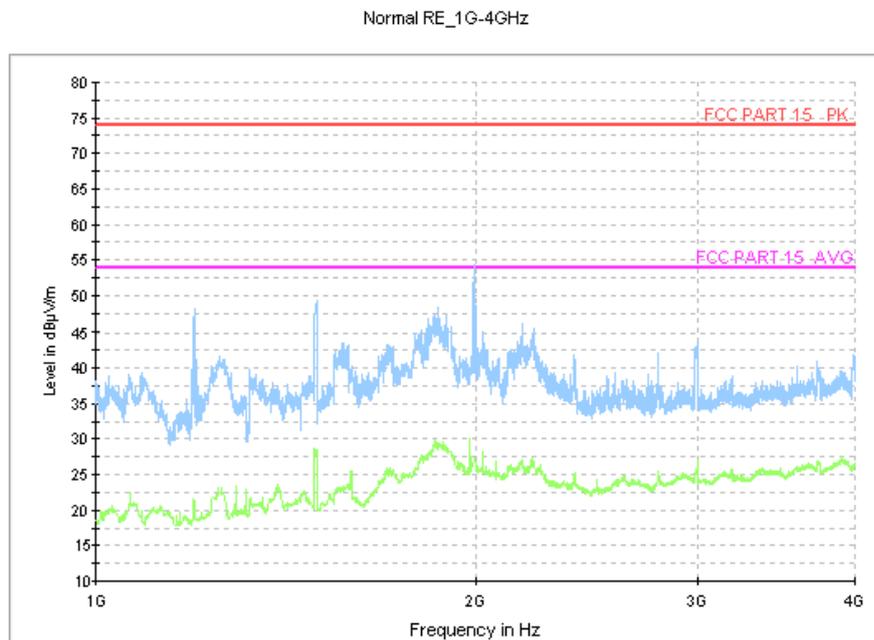


Figure A.8 Radiated Emission from 1GHz to 4GHz

## 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 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 755, and the serial number of the PC is 3908243625. 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 (dB $\mu$ 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		

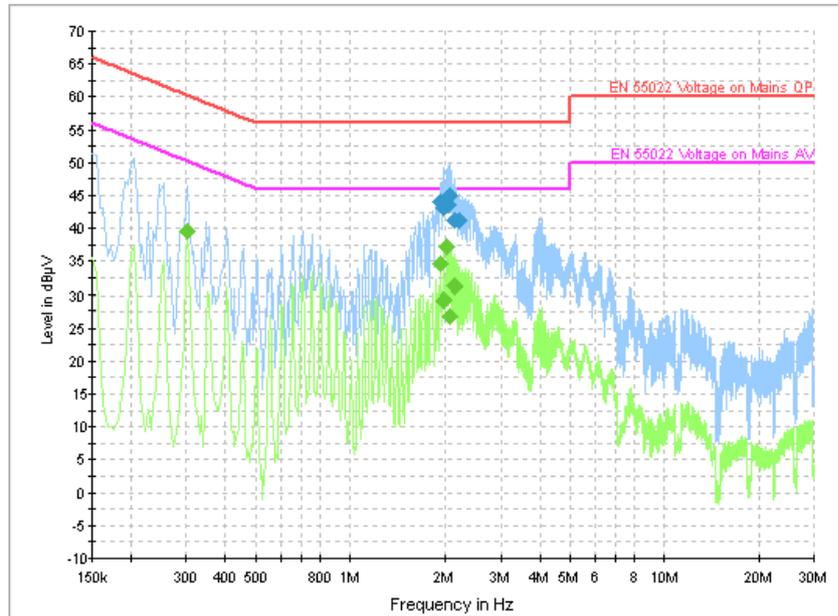
### A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

RBW	Sweep Time(s)
9kHz	1

**A.2.5 Measurement Results**  
**Charging Mode, Set.1**



**Figure A.10 Conducted Emission**

**Final Result 1**

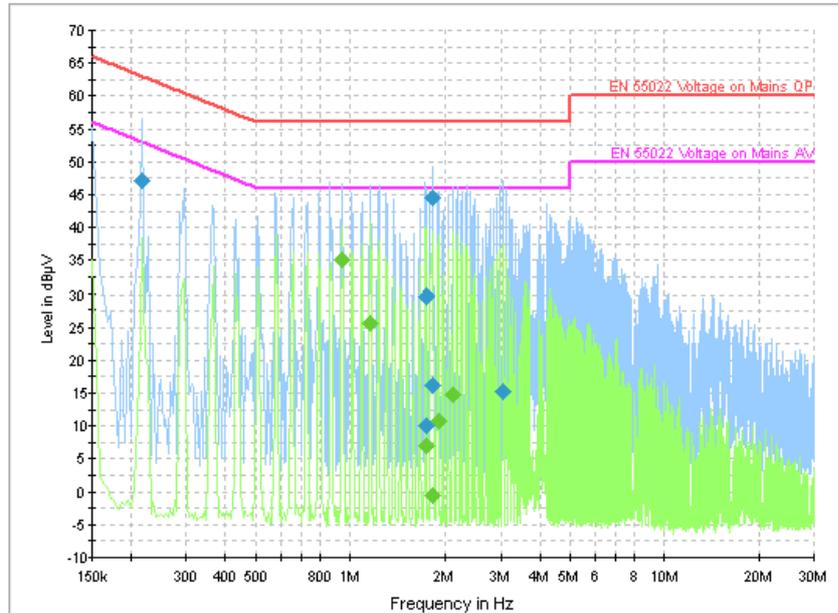
Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.918500	44.0	GND	L1	10.0	12.0	56.0
1.977000	43.2	GND	L1	10.0	12.8	56.0
2.026500	43.6	GND	L1	10.0	12.4	56.0
2.058000	44.9	GND	L1	10.0	11.1	56.0
2.125500	41.2	GND	L1	10.0	14.8	56.0
2.220000	41.3	GND	L1	10.0	14.7	56.0

**Final Result 2**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.303000	39.7	GND	N	10.0	10.5	50.2
1.918500	34.7	GND	L1	10.0	11.3	46.0
1.968000	29.2	GND	L1	10.0	16.8	46.0
2.017500	37.2	GND	L1	10.0	8.8	46.0
2.071500	26.9	GND	L1	10.0	19.1	46.0
2.125500	31.2	GND	L1	10.0	14.8	46.0

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

**Charging Mode, Set.2**



**Figure A.11 Conducted Emission**

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.217500	47.1	GND	L1	10.0	15.8	62.9
1.734000	10.0	GND	L1	10.0	46.0	56.0
1.743000	29.7	GND	N	10.0	26.3	56.0
1.815000	16.2	GND	N	10.0	39.8	56.0
1.824000	44.5	GND	N	10.0	11.5	56.0
3.057000	15.4	GND	N	10.0	40.6	56.0

**Final Result 2**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.946500	35.1	GND	N	10.0	10.9	46.0
1.162500	25.5	GND	N	10.0	20.5	46.0
1.743000	7.1	GND	N	10.0	38.9	46.0
1.815000	-0.6	GND	N	10.0	46.6	46.0
1.891500	10.8	GND	N	10.0	35.2	46.0
2.112000	14.7	GND	N	10.0	31.3	46.0

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

USB mode, Set.3

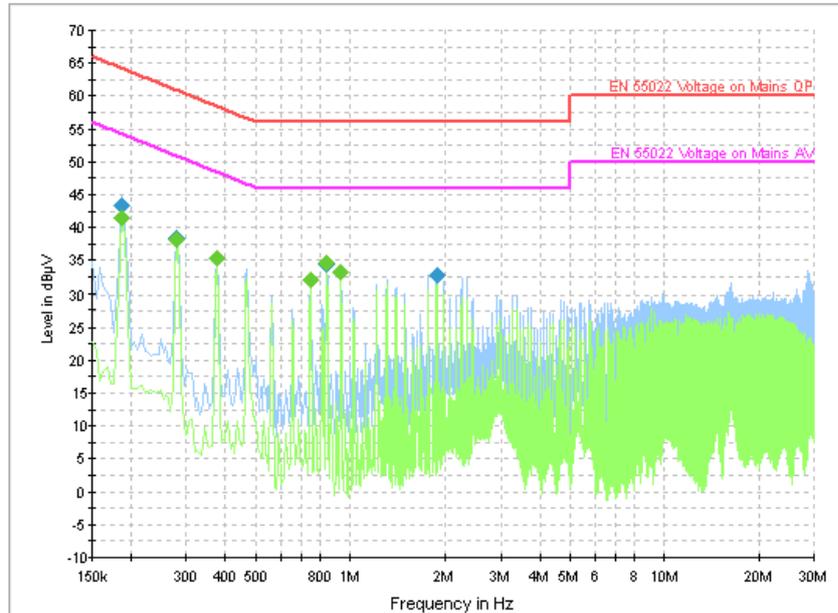


Figure A.12 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	43.4	GND	N	10.0	20.8	64.2
0.280500	38.3	GND	L1	10.0	22.5	60.8
0.375000	35.4	GND	L1	10.0	23.0	58.4
0.843000	34.5	GND	L1	10.0	21.5	56.0
0.937500	33.2	GND	L1	10.0	22.8	56.0
1.873500	32.8	GND	N	10.0	23.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	41.5	GND	N	10.0	12.7	54.2
0.280500	38.1	GND	L1	10.0	12.7	50.8
0.375000	35.4	GND	L1	10.0	13.0	48.4
0.748500	32.0	GND	L1	10.0	14.0	46.0
0.843000	34.5	GND	L1	10.0	11.5	46.0
0.937500	33.1	GND	L1	10.0	12.9	46.0

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

\*\*\*END OF REPORT\*\*\*