TMC

TEST REPORT

No. 2013TAR763

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone

Model Name: Tigris 3G

Marketing Name: ALCATEL TRIBE 3075A

FCC ID: RAD417

with

Hardware Version: PIO

Software Version: A60

Issued Date: Dec. 20th, 2013

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.6629B-1

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

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

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CONTENTS

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℃
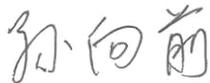
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: Oct. 15th, 2013

Testing End Date: Oct. 15th, 2013

1.4. Signature

Qu Pengfei

(Prepared this test report)

Sun Xiangqian

(Reviewed this test report)
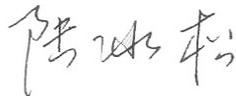
Lu Bingsong

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
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	HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone
Model Name	Tigris 3G
Marketing Name	ALCATEL TRIBE 3075A
FCC ID	RAD417
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

EUT ID*	SN or IMEI	HW Version	SW Version
EUT2	013830000004536	PIO	A60

*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	/	TCT-B-0110
AE2	Battery	/	TCT-B-1274
AE3	Battery	/	TCT-B-1618
AE4	Battery	/	TCT-B-0862
AE5	Battery	/	TCT-B-0612
AE6	Battery		TCT-B-0639
AE7	Travel charger	/	TCT-CHR-1385
AE9	Travel charger	/	TCT-CHR-1266
AE10	USB cable	/	TCT-DC-0491
AE11	USB cable	/	TCT-DC-0492
AE12	USB cable	/	TCT-DC-0088

AE1, AE2, AE3, AE4

Model	CAB3120000C1
Manufacturer	BYD
Capacitance	850 mAh
Nominal voltage	3.7V

AE5, AE6

Model	CAB3120000C3
Manufacturer	BAK
Capacitance	850 mAh
Nominal voltage	3.7V

AE7

Model	CBA3007AG0C1
Manufacturer	BYD
Length of cable	/

AE9
   Model   CBA3007AG0C2
   Manufacturer   Tenpao
   Length of cable   /

AE10, AE11
   Model   CDA3122002C1
   Manufacturer   Juwei
   Length of cable   99.5cm

AE12
   Model   CDA3122002C2
   Manufacturer   Shenghua
   Length of cable   99.5cm

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

3.4. <u>EUT set-ups</u>

EUT set-up No.	Combination of EUT and AE	Remarks
Set.5	EUT2 + AE2/AE5 + AE7 + AE10/AE12	Charger
Set.7	EUT2 + AE2/AE5 + AE9 + AE10/AE12	Charger
Set.8	EUT2 + AE2/AE5 + AE10/AE12	USB

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	10-1-12 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

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)	**<** $\pm$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. 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
1	Test Receiver	ESCI	100344	R&S	2014-03-28
2	Test Receiver	ESCI 7	100948	R&S	2014-07-18
3	Universal Radio Communication Tester	CMU200	109914	R&S	2014-04-18
4	Universal Radio Communication Tester	CMU200	116455	R&S	2014-05-19
5	LISN	ESH2-Z5	829991/012	R&S	2014-04-14
6	EMI Antenna	VULB 9163	9163-483	Schwarzbeck	2014-02-16
7	EMI Antenna	3115	9906-5827	ETS-Lindgren	2014-12-15
8	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A
9	Monitor	E178FPc	CN-OWR979-64180-7AJ-D2MS	DELL	N/A
10	Printer	P1606dn	VNC3L52122	HP	N/A
11	Keyboard	L100	CN0RH659658907ATOI40	DELL	N/A
12	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 (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.5:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5881.875	36.5	-34.1	35.1	35.500	HORIZONTAL
5828.125	35.9	-33.8	35.1	34.600	HORIZONTAL
5818.750	35.7	-33.8	35.1	34.400	VERTICAL
5850.625	35.4	-33.8	35.1	34.100	HORIZONTAL
5830.625	35.2	-33.8	35.1	33.900	VERTICAL
5956.250	35.1	-33.5	35.1	33.500	HORIZONTAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5828.125	43.0	-33.8	35.1	41.700	HORIZONTAL
5881.875	42.6	-34.1	35.1	41.600	HORIZONTAL
5827.500	42.3	-33.8	35.1	41.000	VERTICAL
5888.125	42.2	-34.1	35.1	41.200	HORIZONTAL
5741.250	42.1	-33.8	35.1	40.800	HORIZONTAL
5883.750	42.0	-34.1	35.1	41.000	HORIZONTAL

Measurement result for Set.7:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5825.000	36.2	-33.8	35.1	34.900	HORIZONTAL
5882.500	36.2	-34.1	35.1	35.200	HORIZONTAL
5758.125	36.0	-33.8	35.1	34.700	VERTICAL
5871.250	35.8	-33.8	35.1	34.500	HORIZONTAL
5843.750	35.7	-33.8	35.1	34.400	VERTICAL
5855.000	35.3	-33.8	35.1	34.000	HORIZONTAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
5847.500	43.1	-33.8	35.1	41.800	HORIZONTAL
5848.125	43.0	-33.8	35.1	41.700	HORIZONTAL
5818.125	42.2	-33.8	35.1	40.900	VERTICAL
5391.875	41.9	-34.3	34.6	41.600	HORIZONTAL
5865.625	41.8	-33.8	35.1	40.500	HORIZONTAL
5882.500	41.7	-34.1	35.1	40.700	HORIZONTAL

**Measurement result for Set.8:**

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
5971.875	36.8	-33.5	35.1	35.200	HORIZONTAL
3185.625	36.4	-38.3	30.9	43.800	VERTICAL
5998.750	36.3	-33.6	35.1	34.800	VERTICAL
5996.875	35.9	-33.6	35.1	34.400	VERTICAL
5983.750	35.8	-33.5	35.1	34.200	HORIZONTAL
5955.000	35.7	-33.5	35.1	34.100	HORIZONTAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
1499.375	47.9	-40.3	24.1	64.100	VERTICAL
1498.750	47.6	-40.3	24.1	63.800	HORIZONTAL
1874.375	47.4	-35.6	25.3	57.700	HORIZONTAL
1851.875	47.4	-36.5	25.3	58.600	HORIZONTAL
1841.875	47.1	-36.5	25.3	58.300	VERTICAL
1861.875	47.0	-35.9	25.3	57.600	HORIZONTAL

Note: The measurement results of Set.5, Set.7 and Set.8 showed here are worst cases of the combinations of different batteries and USB cables.
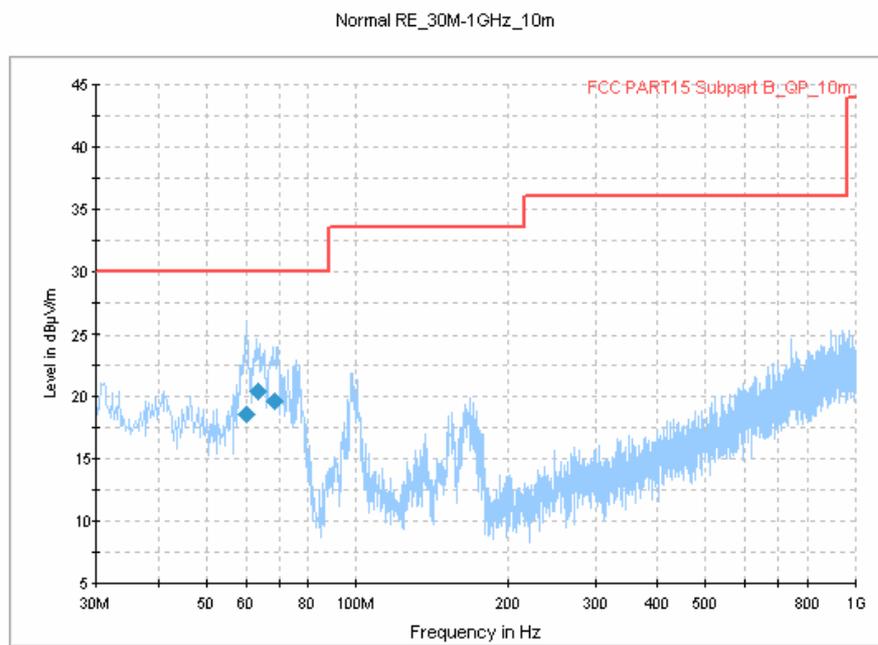
Charging Mode, Set.5

Normal RE_30M-1GHz_10m
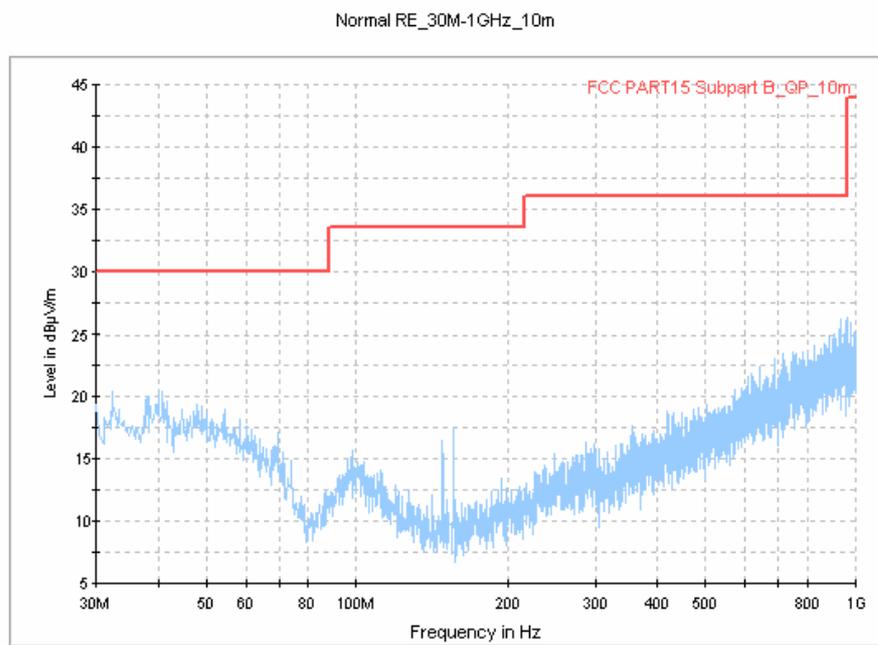
Figure A.1 Radiated Emission from 30MHz to 1GHz
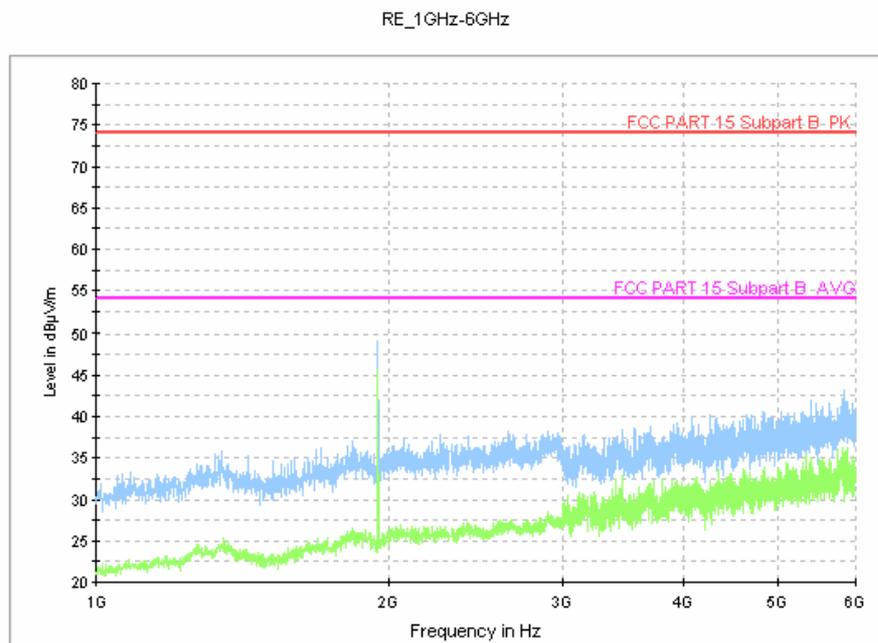
RE_1GHz-6GHz
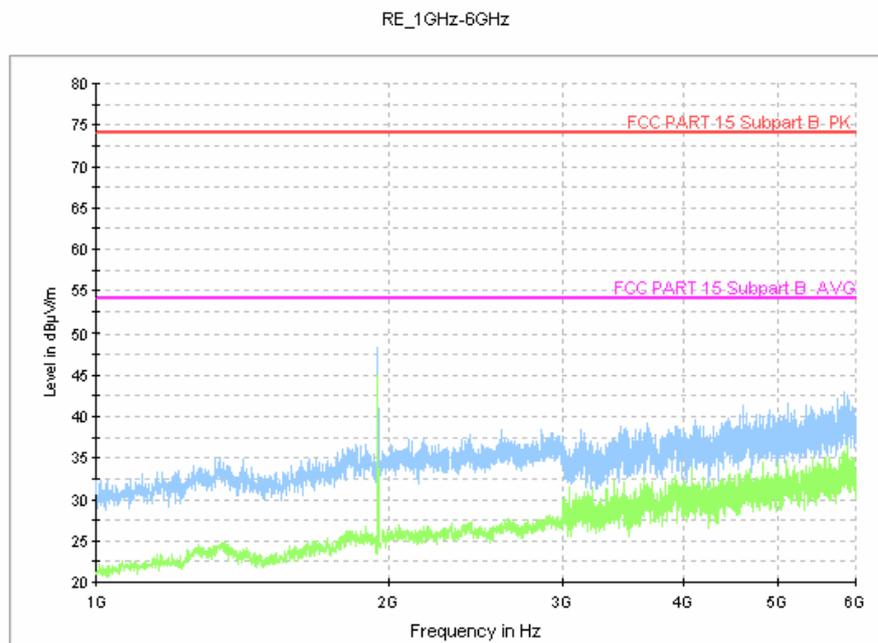
Figure A.2 Radiated Emission from 1GHz to 6GHz

Charging Mode, Set.7

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

Figure A.4 Radiated Emission from 1GHz to 6GHz
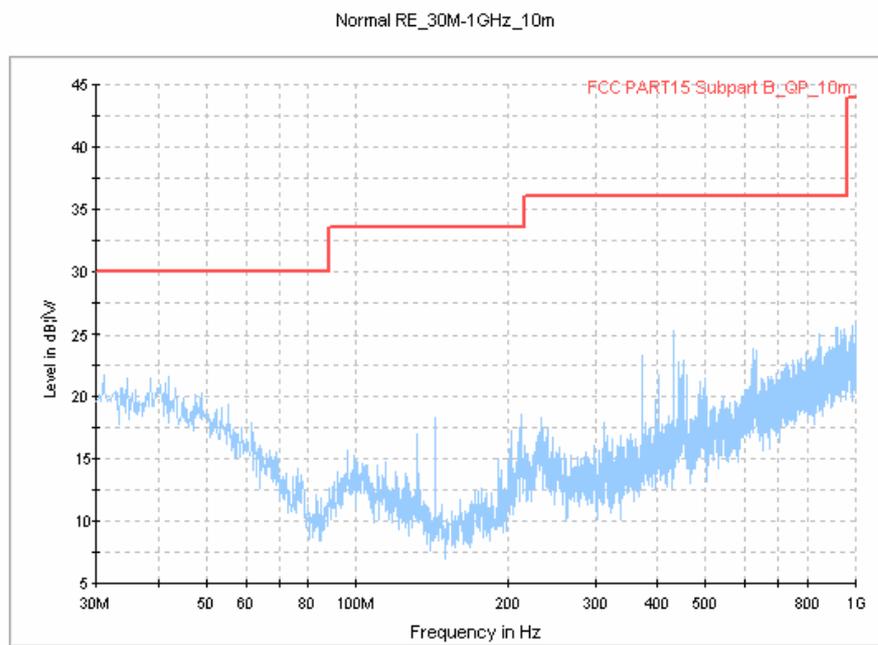
USB Mode, Set.8

Normal RE_30M-1GHz_10m

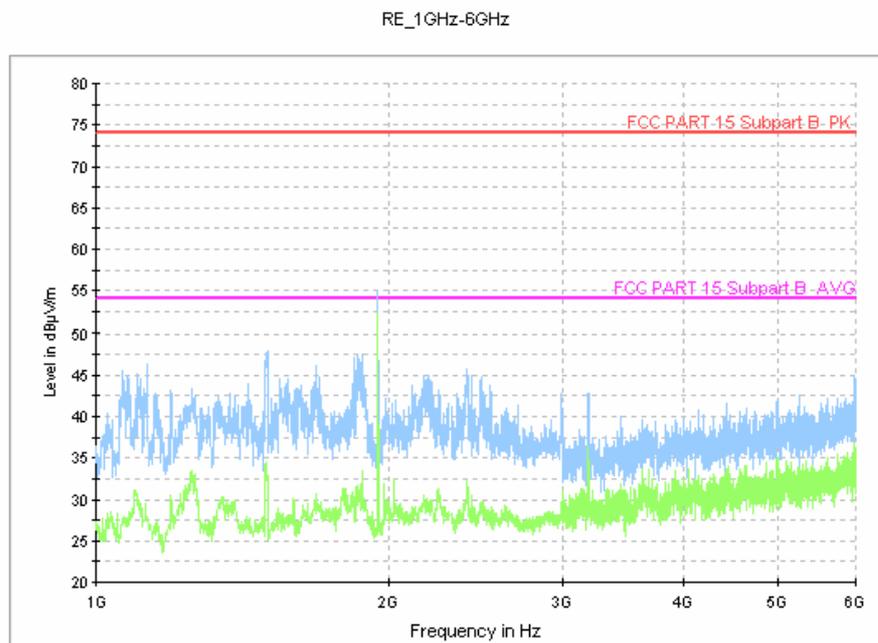**Figure A.5 Radiated Emission from 30MHz to 1GHz**

RE_1GHz-6GHz

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

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 7.2.

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.5
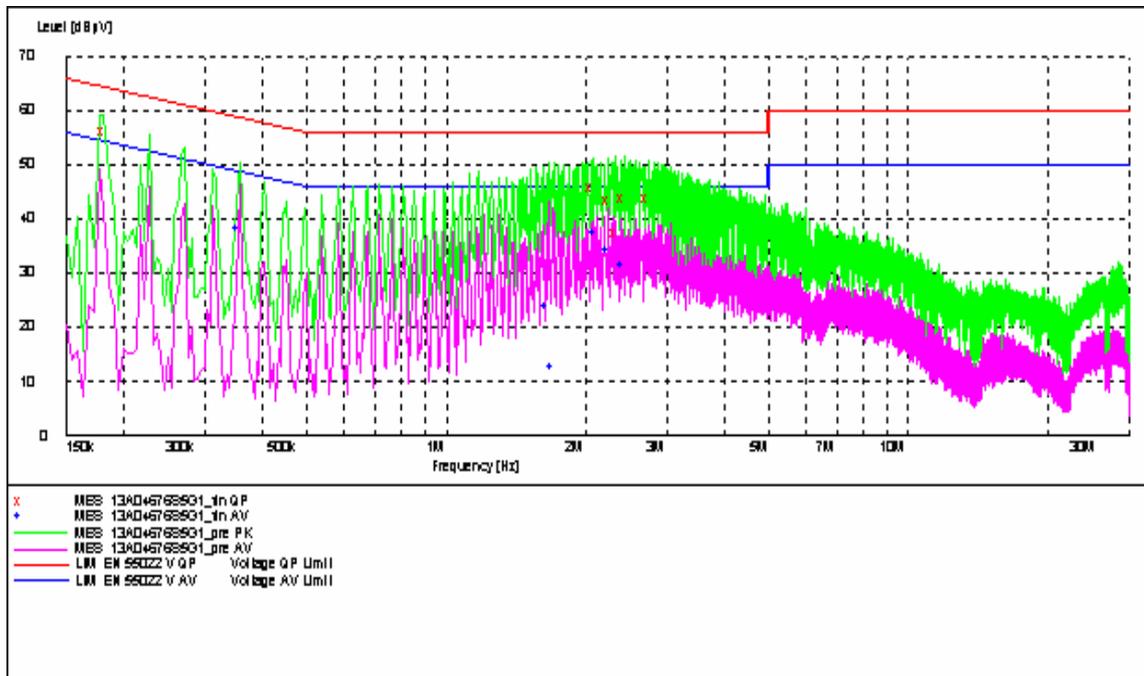
Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181500	55.90	GND	L1	9.8	8.5	64
2.072000	45.50	GND	N	9.7	10.5	56
2.247500	43.40	GND	N	9.7	12.6	56
2.333000	37.40	GND	N	9.7	18.6	56
2.423000	43.70	GND	N	9.7	12.3	56
2.742500	43.80	GND	N	9.7	12.2	56

Final Result 2

Frequency (MHz)	CAverage (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.357000	38.00	GND	N	9.8	10.8	49
1.662000	23.90	GND	N	9.7	22.1	46
1.707000	12.70	GND	N	9.7	33.3	46
2.117000	37.40	GND	L1	9.7	8.6	46
2.247500	34.00	GND	L1	9.7	12.0	46
2.423000	31.40	GND	L1	9.7	14.6	46

Note: The measurement results showed here are worst cases of the combinations of different batteries and USB cables.
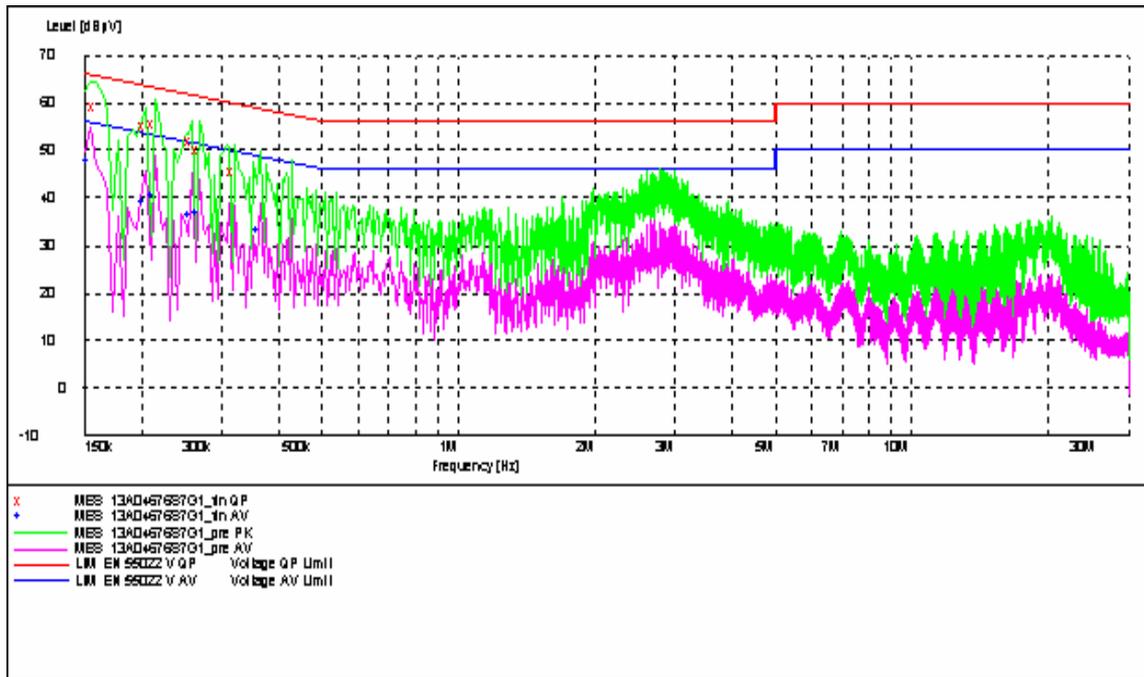
Charging Mode, Set.7

Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	58.90	GND	L1	9.8	6.6	66
0.204000	55.00	GND	L1	9.8	8.5	63
0.213000	55.60	GND	L1	9.8	7.5	63
0.258000	51.60	GND	L1	9.8	9.9	62
0.267000	49.80	GND	L1	9.8	11.4	61
0.321000	45.20	GND	L1	9.8	14.5	60

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	47.60	GND	L1	9.8	8.1	56
0.204000	39.10	GND	L1	9.8	14.4	53
0.213000	40.40	GND	L1	9.8	12.7	53
0.258000	36.40	GND	N	9.8	15.1	52
0.267000	36.60	GND	L1	9.8	14.6	51
0.366000	32.90	GND	L1	9.8	15.7	49

Note: The measurement results showed here are worst cases of the combinations of different batteries and USB cables.
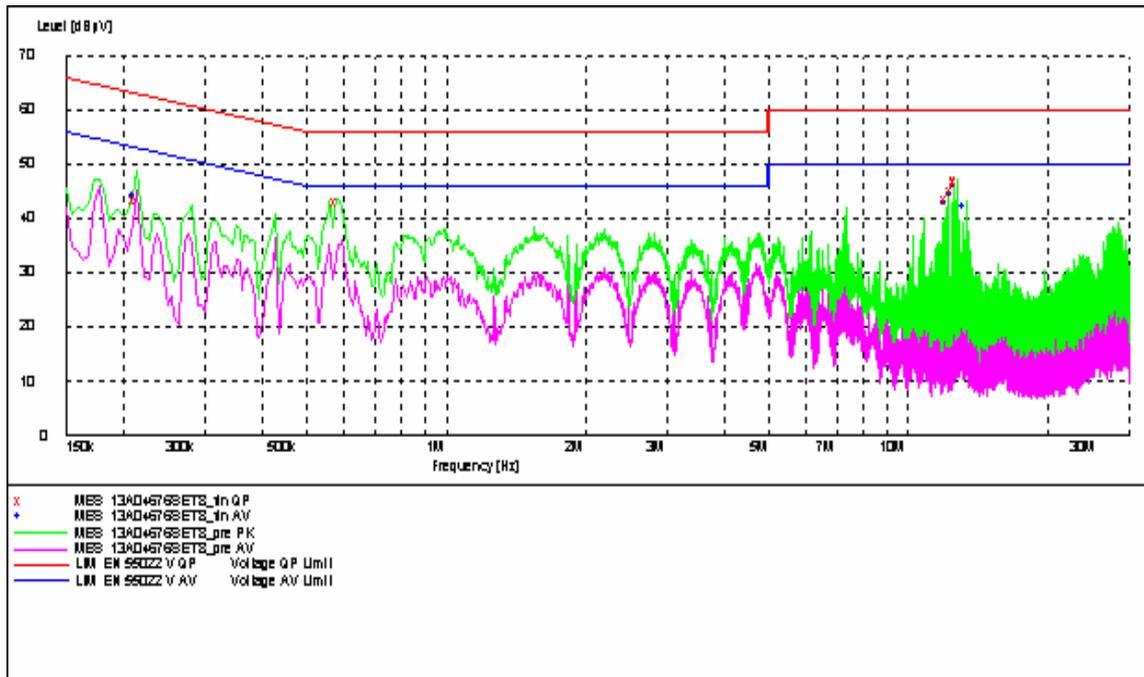
USB Mode, Set.8

Figure A.9 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213000	43.30	GND	L1	9.8	19.8	63
0.582000	42.90	GND	L1	9.8	13.1	56
12.197000	43.50	GND	N	9.6	16.5	60
12.503000	44.90	GND	N	9.6	15.1	60
12.746000	46.30	GND	N	9.6	13.7	60
12.809000	46.80	GND	N	9.6	13.2	60

Final Result 2

Frequency (MHz)	CAverage (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213000	43.90	GND	N	9.8	9.1	53
12.197000	43.00	GND	N	9.6	7.0	50
12.503000	44.30	GND	N	9.6	5.7	50
12.746000	45.90	GND	N	9.6	4.1	50
12.809000	46.10	GND	N	9.6	3.9	50
13.358000	42.20	GND	N	9.5	7.8	50

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

END OF REPORT