



TEST REPORT

No. 2013TAR597

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS triband/GSM quadband mobile phone

Model Name: California 1SIM US

Marketing Name: ONE TOUCH 6012A

FCC ID: RAD390

with

Hardware Version: Proto2

Software Version: 3A09+ZA91

Issued Date: Aug. 22nd, 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:

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

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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1. Test Laboratory

1.1. Testing Location

Location D

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No.18A, Kangding Street, Beijing Economic-Technological
Development Area, Beijing, China
Postal Code: 100176

1.2. Testing Environment

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

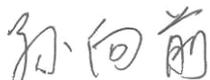
1.3. Project data

Testing Start Date: Jul. 17th, 2013
Testing End Date: Jul. 19th, 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: 12F/B, TCL Tower, Gaoxin Nanyi Road, Nanshan District, Shenzhen,
Guangdong, P.R. China. 518057
City: Guangdong
Postal Code: 518057
Country: China
Contact Person: Lv Meixian
Contact Email: meixian.lv@tcl.com
Telephone: 0086-755-33956929
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2.2. Manufacturer Information

Company Name: TCT Mobile Limited
Address /Post: 12F/B, TCL Tower, Gaoxin Nanyi Road, Nanshan District, Shenzhen,
Guangdong, P.R. China. 518057
City: Guangdong
Postal Code: 518057
Country: China
Telephone: 0086-755-33956929
Fax: 0086-755-36645072

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS triband/GSM quadband mobile phone
Model Name	California 1SIM US
Marketing Name	ONE TOUCH 6012A
FCC ID	RAD390
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
EUT1	013768000050200	Proto2	3A09+ZA91

*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
AE1	Battery	/
AE2	Battery	/
AE3	Travel charger	/
AE4	Travel charger	/
AE5	USB cable	/
AE6	USB cable	/
AE7	USB cable	/
AE8	USB cable	/

AE1

Model	CAC1700001C1
Manufacturer	BYD
Capacitance	1700 mAh
Nominal voltage	3.8V

AE2

Model	CAC1700003C2
Manufacturer	SCUD
Capacitance	1700 mAh
Nominal voltage	3.8V

AE3

Model	CBA3007AG0C1
Manufacturer	BYD
Length of cable	/

AE4

Model	CBA3007AG0C2
Manufacturer	Tenpao

Length of cable	/
AE5	
Model	CDA3122005C1
Manufacturer	Juwei
Length of cable	/
AE6	
Model	CDA3122005C2
Manufacturer	Shenhua
Length of cable	/
AE7	
Model	CDA3122002C1
Manufacturer	Juwei
Length of cable	/
AE8	
Model	CDA3122002C2
Manufacturer	Shenhua
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	EUT1+ AE1/AE2 + AE5	USB mode
Set.2	EUT1+ AE1/AE2 + AE3 + AE5	Charging mode1
Set.3	EUT1+ AE1/AE2 + AE4 + AE5	Charging mode 2

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	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	2003

5. LABORATORY ENVIRONMENT

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. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
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. = 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
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 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
	F	Fail
	NA	Not applicable
	NM	Not measured
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	Test Location
1	Radiated Emission	15.109(a)	P	D
2	Conducted Emission	15.107(a)	P	D

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESU26	100376	R&S	2013-11-07
2	EMI Antenna	VULB 9163	9163-514	Schwarzbeck	2014-11-10
3	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
4	LISN	ESH2-Z5	829991/012	R&S	2014-04-14
5	Test Receiver	ESCI	100344	R&S	2014-03-28
6	Universal Radio Communication Tester	CMU200	102228	R&S	2014-06-23
7	PC	OPTIPLEX 755	3908243625	DELL	N/A
8	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
9	Printer	LaserJet 1160	CNM2D33740	HP	N/A
10	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A
11	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A
12	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2014-03-16

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 a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 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 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.1.3 Measurement Limit

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

A.1.4 Test Condition

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz IF Bandwidth	5
1000-4000	1MHz/1MHz	15

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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Set.1 USB mode _Peak detector

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea} (dBuV)	Polarity
2988.800	55.2	-29.0	33.2	50.979	VERTICAL
2997.200	55.1	-29.0	33.2	50.879	HORIZONTAL
2992.200	54.8	-29.0	33.2	50.579	VERTICAL
2946.200	54.7	-28.1	32.5	50.311	HORIZONTAL
2997.000	54.7	-29.0	33.2	50.479	VERTICAL
2996.200	54.6	-29.0	33.2	50.379	VERTICAL

Set.1 USB mode _Average detector

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea} (dBuV)	Polarity
2988.800	42.2	-29.0	33.2	37.979	VERTICAL
2997.200	42.7	-29.0	33.2	38.479	HORIZONTAL
2992.200	42.6	-29.0	33.2	38.379	VERTICAL
2946.200	41.7	-28.1	32.5	37.311	HORIZONTAL
2997.000	42.7	-29.0	33.2	38.479	VERTICAL
2996.200	42.9	-29.0	33.2	38.679	VERTICAL

Set.2 Charging mode _Peak detector

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
2948.600	55.1	-28.6	32.5	51.215	VERTICAL
2952.000	55.0	-28.6	32.5	51.115	HORIZONTAL
2990.000	54.9	-29.0	33.2	50.679	VERTICAL
2968.400	54.8	-28.6	33.1	50.315	VERTICAL
2990.200	54.8	-29.0	33.2	50.579	HORIZONTAL
2991.000	54.5	-29.0	33.2	50.279	HORIZONTAL

Set.2 Charging mode _ Average detector

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
2948.600	41.7	-28.6	32.5	37.815	VERTICAL
2952.000	41.8	-28.6	32.5	37.915	HORIZONTAL
2990.000	42.3	-29.0	33.2	38.079	VERTICAL
2968.400	42.0	-28.6	33.1	37.515	VERTICAL
2990.200	42.4	-29.0	33.2	38.179	HORIZONTAL
2991.000	42.4	-29.0	33.2	38.179	HORIZONTAL

Set.3 Charging mode _Peak detector

Frequency(MHz)	Result(dBuV/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dBuV)	Polarity
2978.200	55.1	-29.0	33.1	50.979	VERTICAL
2988.000	54.9	-29.0	33.2	50.679	HORIZONTAL
2973.400	54.9	-28.6	33.1	50.415	HORIZONTAL
2967.600	54.4	-28.6	33.1	49.915	HORIZONTAL
2985.600	54.3	-29.0	33.2	50.079	HORIZONTAL
2987.200	54.3	-29.0	33.2	50.079	HORIZONTAL

Set.3 Charging mode _ Average detector

Frequency(MHz)	Result(dBuV/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dBuV)	Polarity
2978.200	42.1	-29.0	33.1	37.979	VERTICAL
2988.000	42.2	-29.0	33.2	37.979	HORIZONTAL
2973.400	42.1	-28.6	33.1	37.615	HORIZONTAL
2967.600	42.0	-28.6	33.1	37.515	HORIZONTAL
2985.600	42.1	-29.0	33.2	37.879	HORIZONTAL
2987.200	42.2	-29.0	33.2	37.979	HORIZONTAL

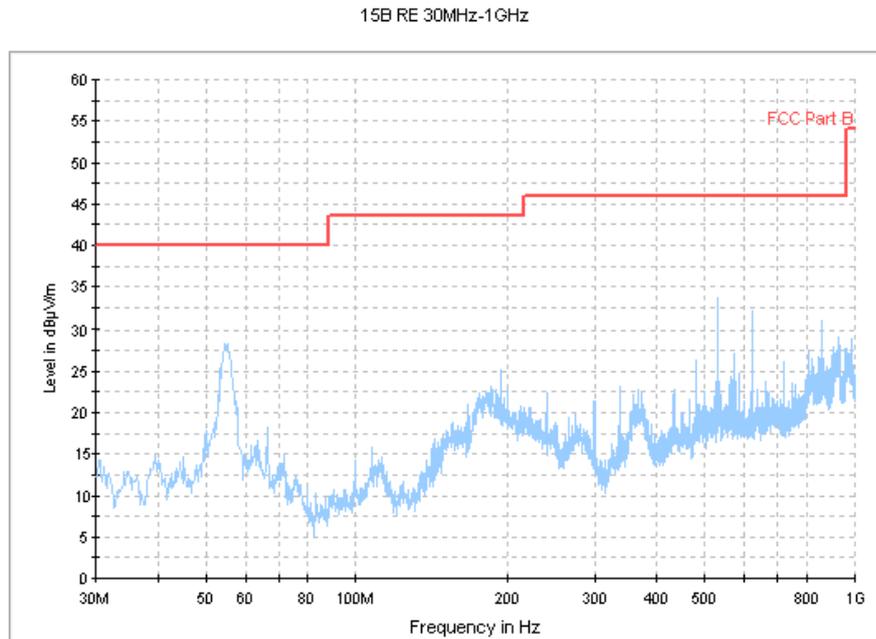


Figure A.1 Radiated Emission from 30MHz to 1GHz (Set.1, USB mode)

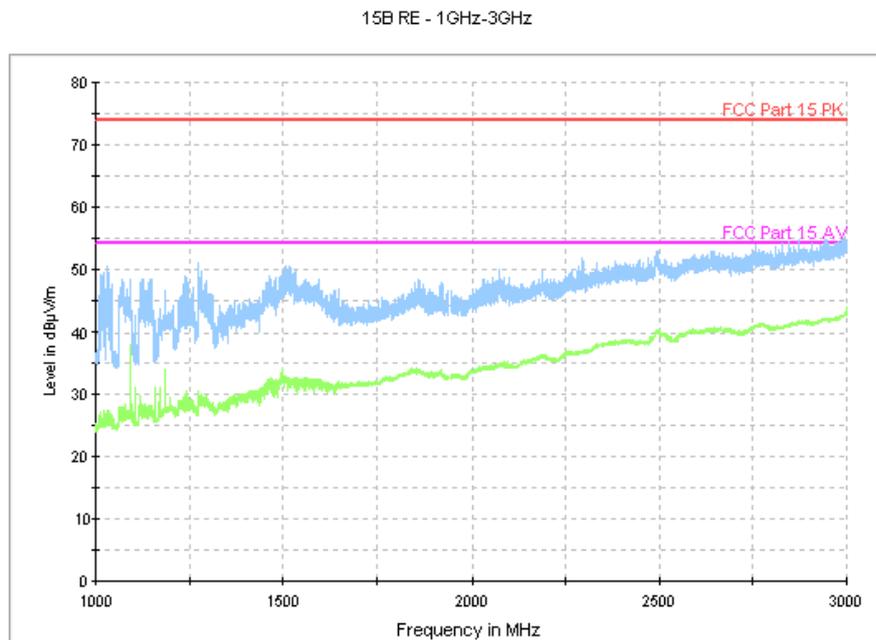


Figure A.2 Radiated Emission from 1GHz to 3GHz (Set.1, USB mode)

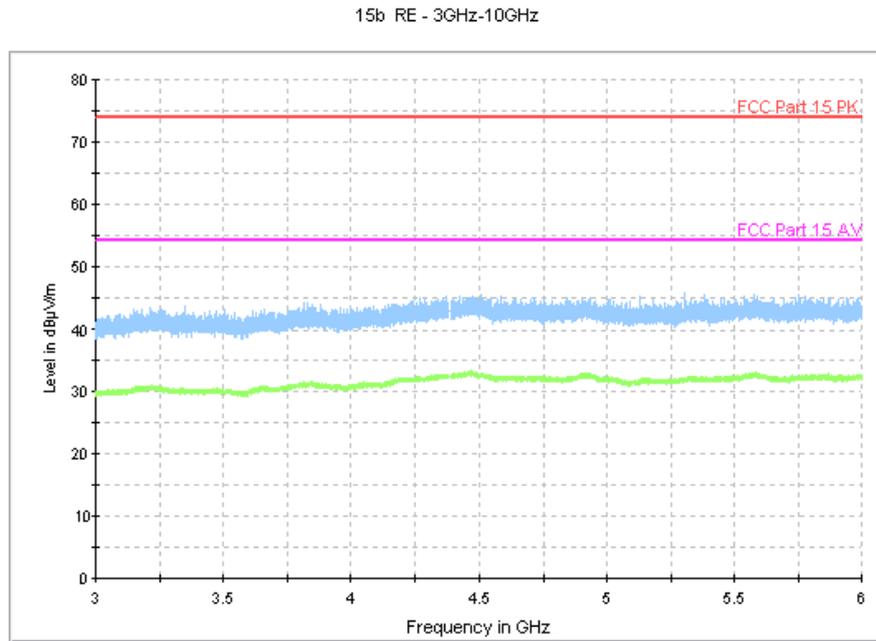


Figure A.3 Radiated Emission from 3GHz to 4GHz (Set.1, USB mode)

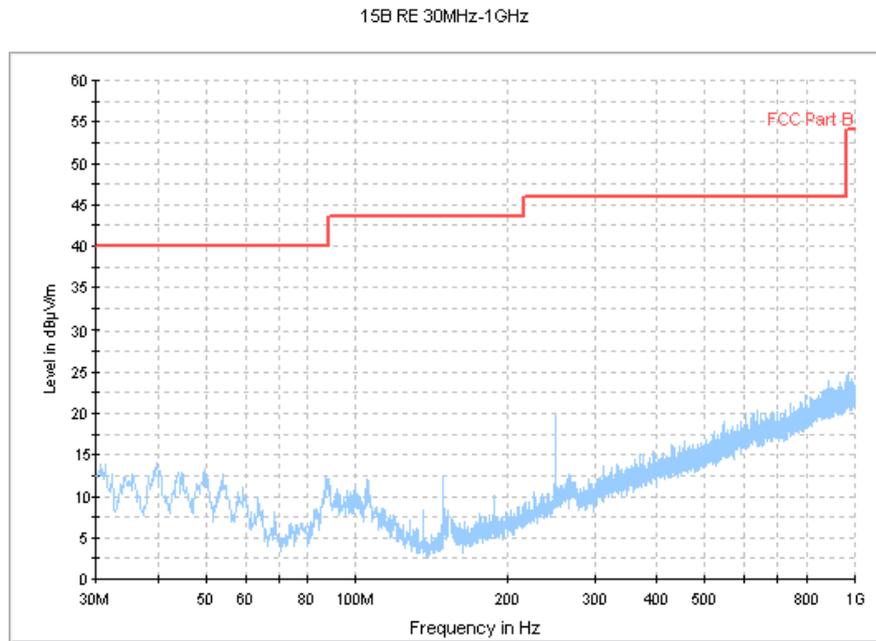


Figure A.4 Radiated Emission from 30MHz to 1GHz (Set.2, Charging mode)

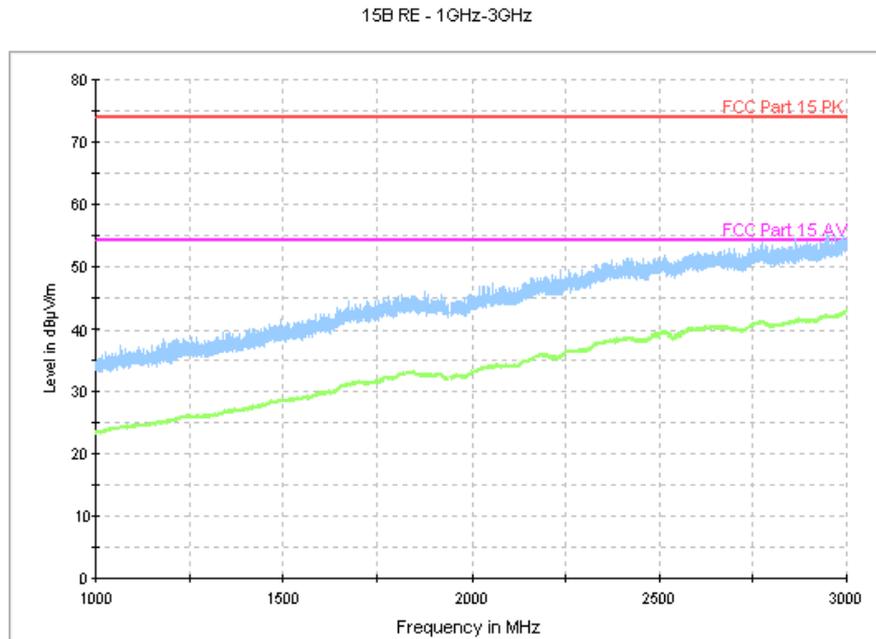


Figure A.5 Radiated Emission from 1GHz to 3GHz (Set.2, Charging mode)

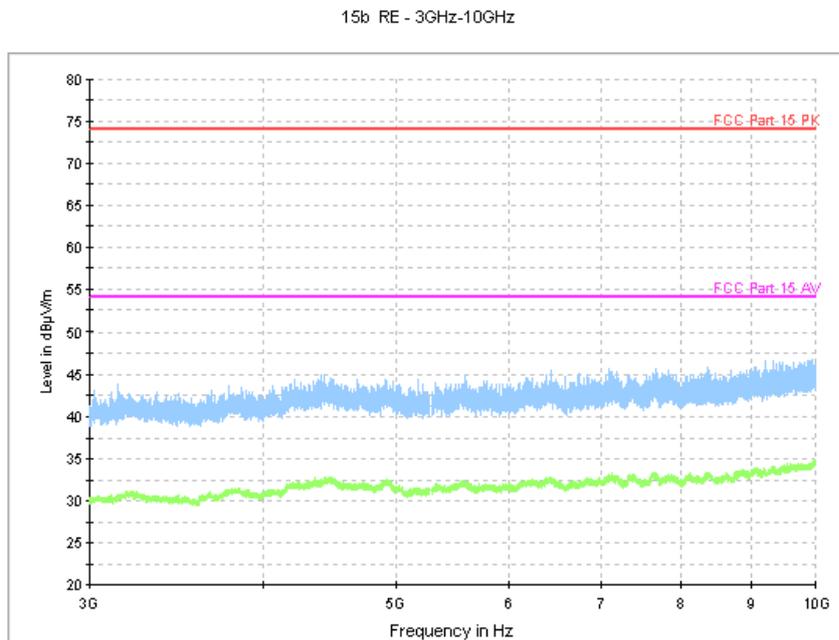


Figure A.6 Radiated Emission from 3GHz to 4GHz (Set.2, Charging mode)

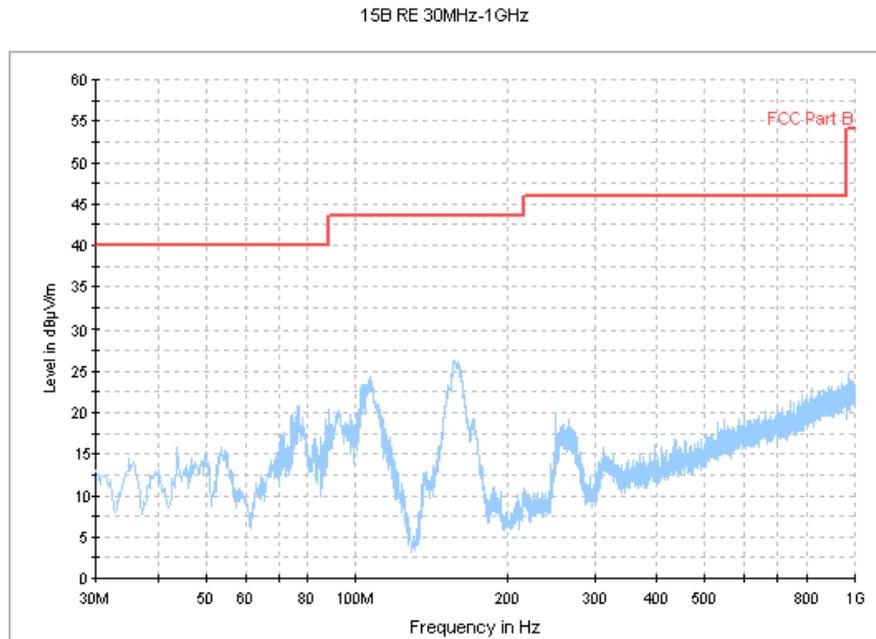


Figure A.7 Radiated Emission from 30MHz to 1GHz (Set.3, Charging mode)

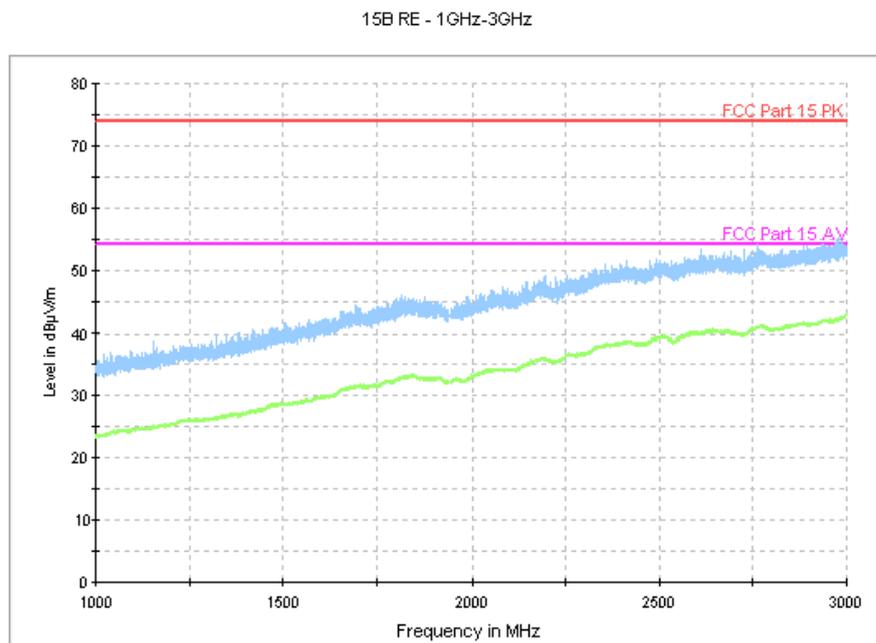


Figure A.8 Radiated Emission from 1GHz to 3GHz (Set.3, Charging mode)

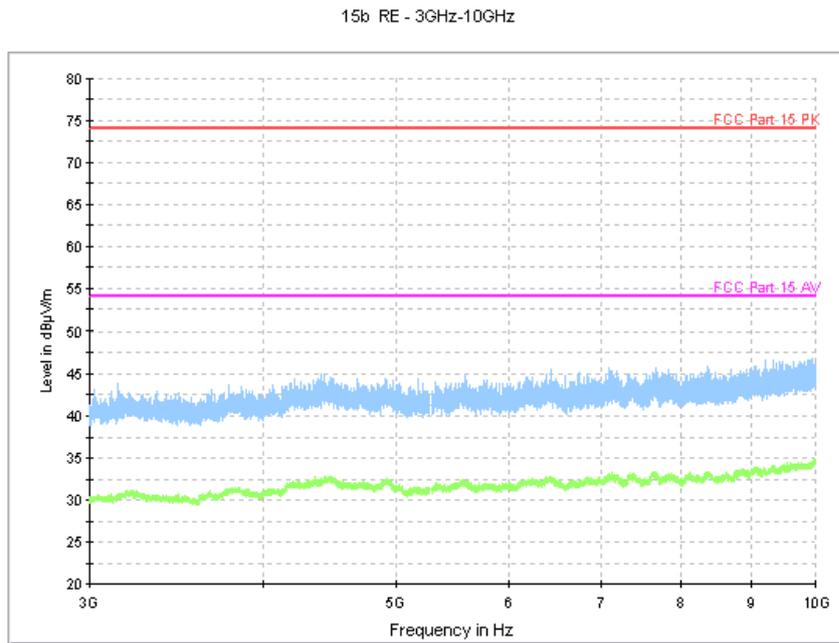


Figure A.9 Radiated Emission from 3GHz to 4GHz (Set.3, Charging mode)

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 - 2003, 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 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 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

IF Bandwidth	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

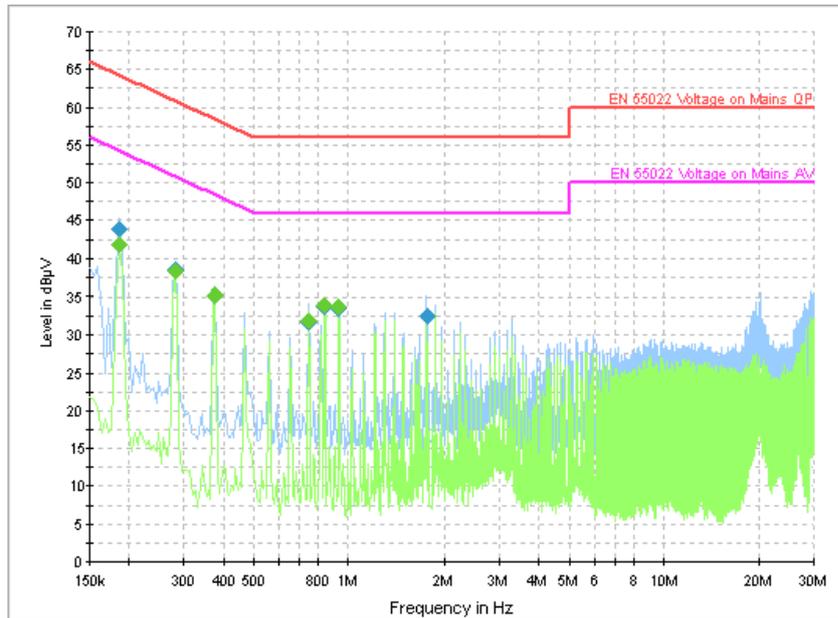


Figure A.10 Conducted Emission (Set.1, USB mode)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186001	43.8	GND	L1	9.9	20.4	64.2
0.280501	38.4	GND	N	9.9	22.4	60.8
0.748501	31.7	GND	N	9.9	24.3	56.0
0.838501	33.7	GND	N	9.9	22.3	56.0
0.933001	33.5	GND	N	9.9	22.5	56.0
1.774501	32.5	GND	L1	9.9	23.5	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186001	41.8	GND	L1	9.9	12.4	54.2
0.280501	38.4	GND	N	9.9	12.4	50.8
0.375001	35.1	GND	N	9.9	13.3	48.4
0.748501	31.8	GND	N	9.9	14.2	46.0
0.838501	34.0	GND	N	9.9	12.0	46.0
0.933001	33.9	GND	N	9.9	12.1	46.0

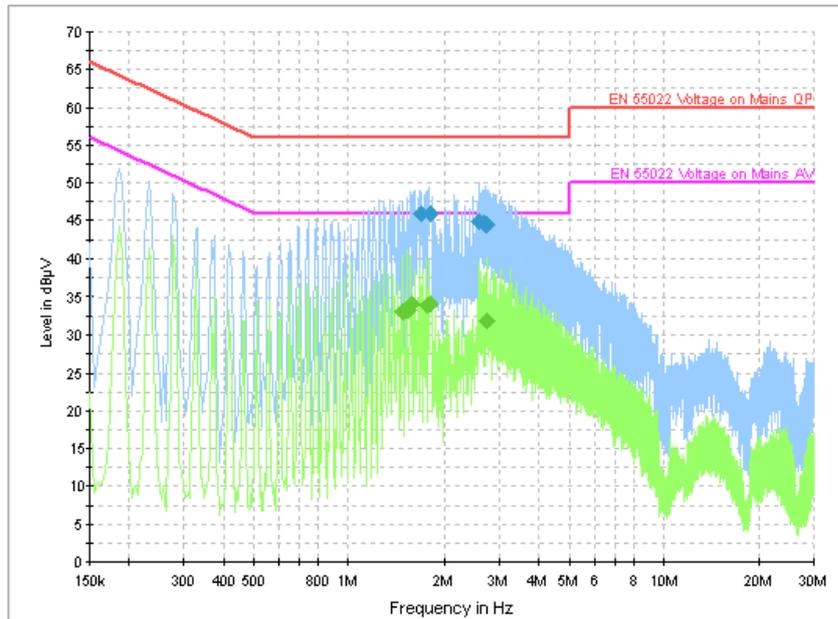


Figure A.11 Conducted Emission (Set.2, Charging mode)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.680001	45.9	GND	N	9.9	10.1	56.0
1.797001	45.9	GND	N	9.9	10.1	56.0
2.566501	44.9	GND	N	9.9	11.1	56.0
2.674501	44.7	GND	N	9.9	11.3	56.0
2.688001	44.6	GND	N	9.9	11.4	56.0
2.737501	44.5	GND	N	9.9	11.5	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.482001	33.1	GND	N	9.9	12.9	46.0
1.531501	33.4	GND	N	9.9	12.6	46.0
1.581001	34.2	GND	N	9.9	11.8	46.0
1.761001	34.0	GND	N	9.9	12.0	46.0
1.810501	34.2	GND	N	9.9	11.8	46.0
2.737501	31.9	GND	N	9.9	14.1	46.0

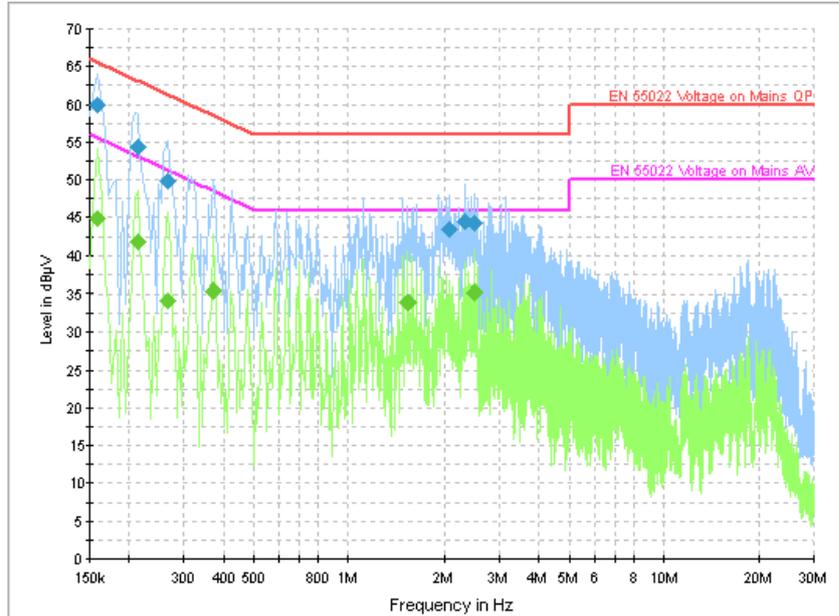


Figure A.12 Conducted Emission (Set.3, Charging mode)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159001	59.9	GND	L1	9.9	5.7	65.5
0.213001	54.3	GND	N	9.9	8.8	63.1
0.267001	49.8	GND	L1	9.9	11.4	61.2
2.071501	43.4	GND	N	9.9	12.6	56.0
2.337001	44.5	GND	N	9.9	11.5	56.0
2.494501	44.3	GND	N	9.9	11.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159001	45.0	GND	L1	9.9	10.5	55.5
0.213001	41.8	GND	N	9.9	11.3	53.1
0.267001	34.2	GND	L1	9.9	17.1	51.2
0.370501	35.4	GND	N	9.9	13.0	48.5
1.545001	34.0	GND	N	9.9	12.0	46.0
2.494501	35.2	GND	N	9.9	10.8	46.0

END OF REPORT