TEST REPORT

No. 2013TAR467

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS triband / GSM quadband mobile phone

Model Name: DiabloX A

Marketing Name: ONE TOUCH 6040A

FCC ID: RAD370

with

Hardware Version: PIO

Software Version: vB1D-2-US

Issued Date: Jul. 4th, 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 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℃
Relative Humidity:	20-75%

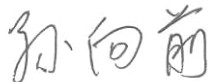### 1.3. Project data

Testing Start Date:	Jun. 20th, 2013
Testing End Date:	Jun. 28th, 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 triband / GSM quadband mobile phone
Model Name	DiabloX A
Marketing Name	ONE TOUCH 6040A
FCC ID	RAD370
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.7VDC)

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	013682000001107	PIO	vB1D-2-US

*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	USB cable	/
AE5	USB cable	/

AE1
Model	CAC2000009C1
Manufacturer	BYD
Capacitance	2000 mAh
Nominal voltage	3.7V

AE2
Model	CAC2000005C2
Manufacturer	SCUD
Capacitance	2000 mAh
Nominal voltage	3.7V

AE3
Model	CBA3000AG0C1
Manufacturer	BYD
Length of cable	98 cm (length of USB cable)

AE4
Model	CDA0000025C1
Manufacturer	Shenghua
Length of cable	98 cm

AE5
  Model   CDA0000025C2
  Manufacturer   Juwei
  Length of cable   98 cm
*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 + AE3 + AE4	Charging mode
Set.2	EUT1+ AE1/AE2 + AE4	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	10-1-12 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

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

Fully-anechoic chamber FAC-3 (8.6 meters×6.1 meters×3.85 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 3000 MHz

Semi-anechoic chamber SAC-2 (10 meters×6.7 meters×6.15 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
Normalised site attenuation (NSA)	< ±4 dB, 3 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

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	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	Test Receiver	ESU26	100235	R&S	2014-01-05
3	EMI Antenna	VULB 9163	9163-514	Schwarzbeck	2014-11-10
4	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
5	LISN	ESH3-Z5	825562/028	R&S	2014-06-12
6	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2014-03-16
7	Universal Radio Communication Tester	CMU200	100680	R&S	2013-09-05
8	PC	OPTIPLEX 755	3908243625	DELL	N/A
9	Monitor	E178FPc	CN-OWR979-64180-7AJ-D2MS	DELL	N/A
10	Printer	LaserJet 1160	CNM2D33740	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 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

Note: For frequency above 1GHz, there is a peak limit which is 20dB higher than the average detector value specified in the table.

A.1.4 Test Condition

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 960	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.

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2999.800	42.9	-29.0	33.2	38.679	HORIZONTAL
3000.000	42.9	-28.4	32.8	38.472	HORIZONTAL
2999.400	42.6	-29.0	33.2	38.379	HORIZONTAL
2999.600	42.6	-29.0	33.2	38.379	HORIZONTAL
2971.000	42.5	-28.6	33.1	38.015	HORIZONTAL
2999.200	42.5	-29.0	33.2	38.279	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2970.600	55.7	-28.6	33.1	51.215	VERTICAL
3000.000	55.4	-28.4	32.8	50.972	HORIZONTAL
2992.400	55.2	-29.0	33.2	50.979	HORIZONTAL
2966.600	54.6	-28.6	33.1	50.115	HORIZONTAL
2999.800	54.6	-29.0	33.2	50.379	HORIZONTAL
2999.400	54.5	-29.0	33.2	50.279	HORIZONTAL

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
3000.000	43.1	-28.4	32.8	38.672	HORIZONTAL
2999.800	43.1	-29.0	33.2	38.879	VERTICAL
2999.400	42.9	-29.0	33.2	38.679	HORIZONTAL
2999.600	42.8	-29.0	33.2	38.579	VERTICAL
2999.200	42.5	-29.0	33.2	38.279	HORIZONTAL
2997.600	42.5	-29.0	33.2	38.279	HORIZONTAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
3000.000	55.6	-28.4	32.8	51.172	HORIZONTAL
2960.200	55.1	-28.6	33.1	50.615	HORIZONTAL
2999.000	55.0	-29.0	33.2	50.779	VERTICAL
2972.000	54.7	-28.6	33.1	50.215	HORIZONTAL
2926.400	54.6	-28.1	32.5	50.211	HORIZONTAL
2982.000	54.6	-29.0	33.2	50.379	HORIZONTAL

Charging Mode
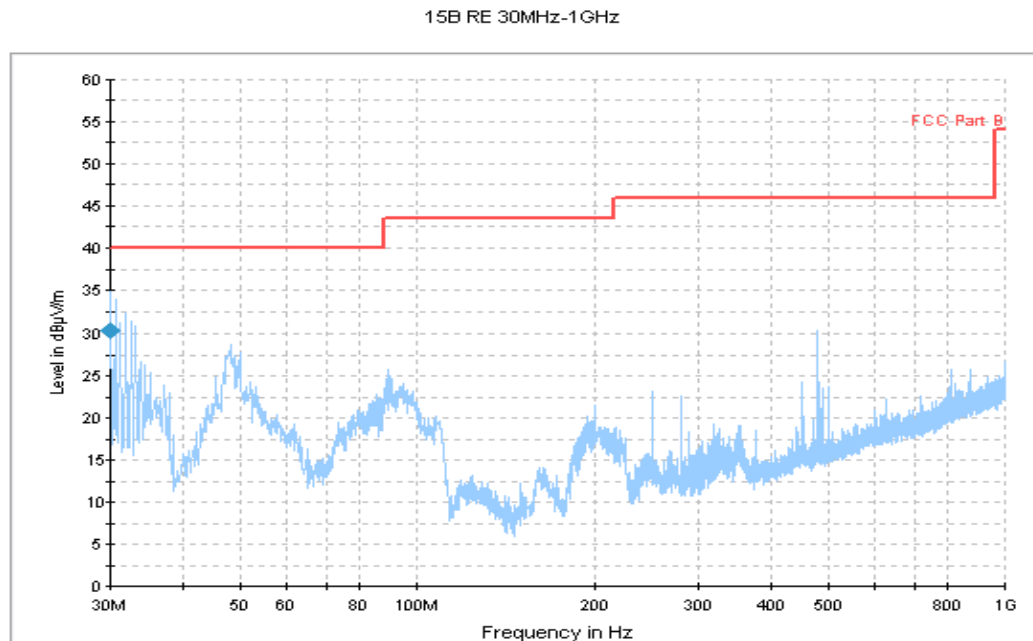
15B RE 30MHz-1GHz

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
30.000000	30.3	100.0	V	33.0	-27.4	9.7

15B RE - 1GHz-3GHz
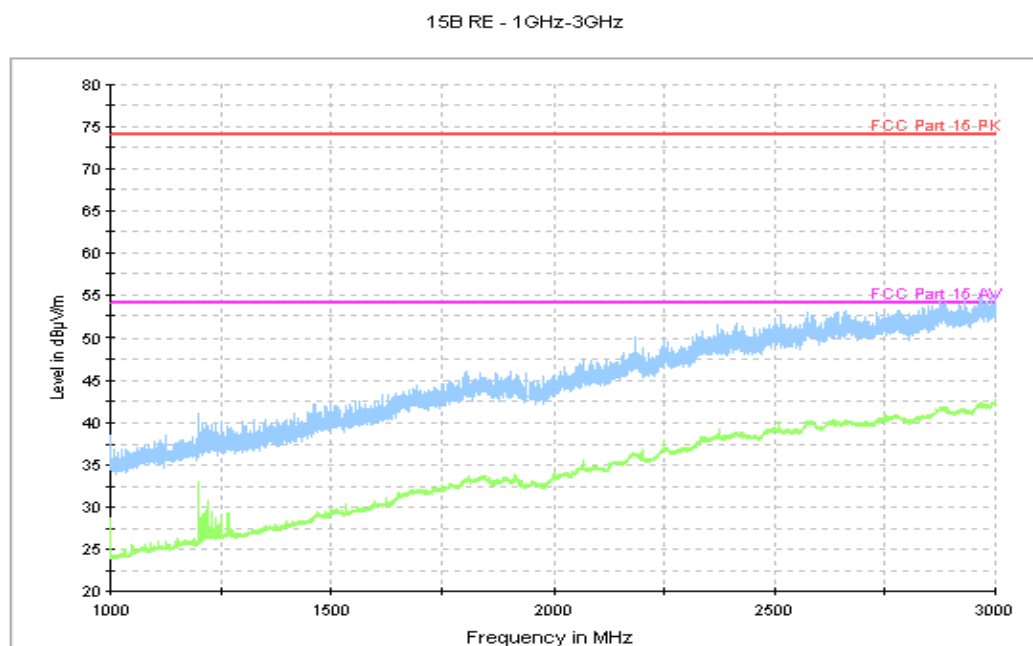
Figure A.2 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-10GHz
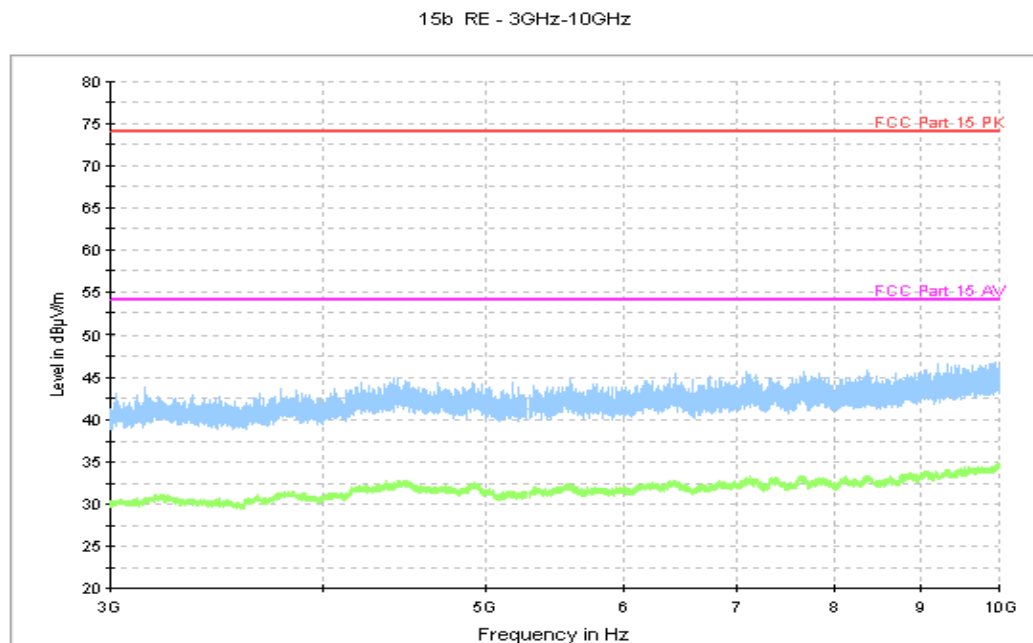
Figure A.3 Radiated Emission from 3GHz to 10GHz

USB Mode

15B RE 30MHz-1GHz
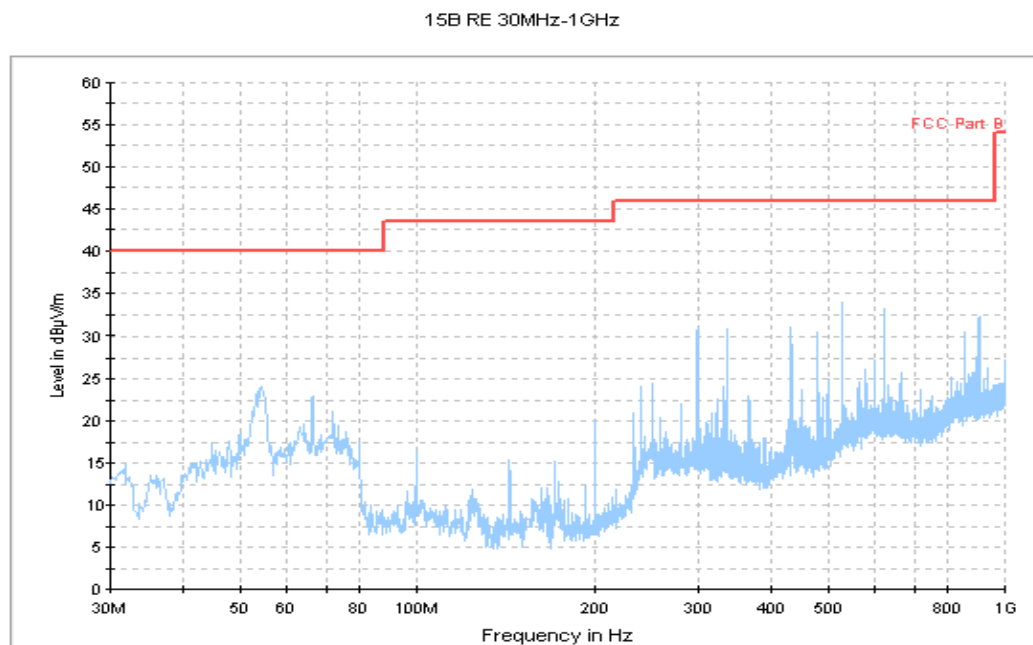
Figure A.4 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz
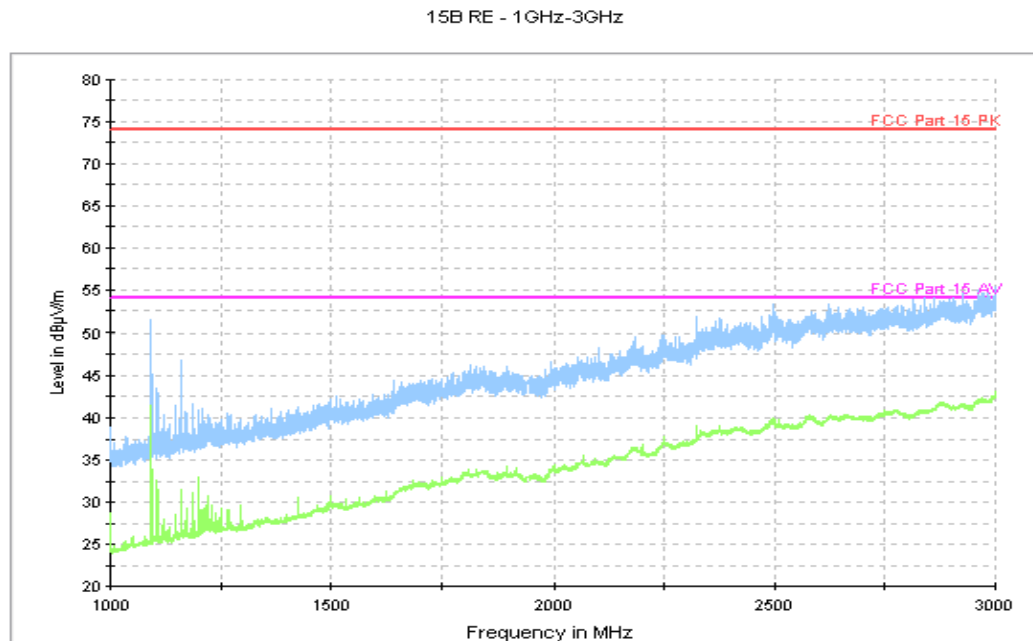
Figure A.5 Radiated Emission from 1GHz to 3GHz
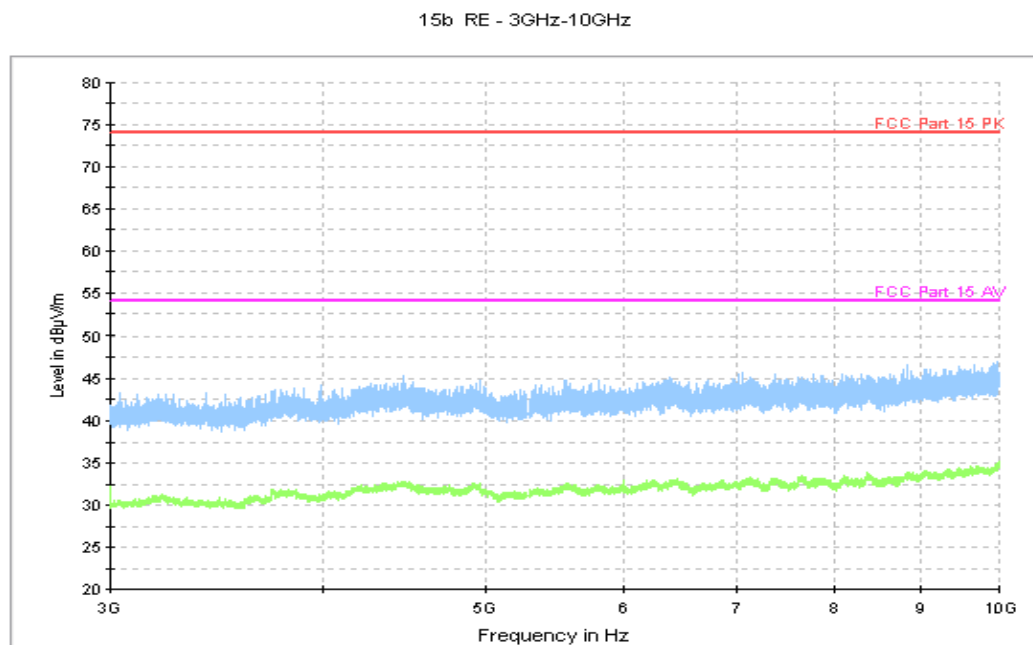
15b RE - 3GHz-10GHz

Figure A.6 Radiated Emission from 3GHz 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 - 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 (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
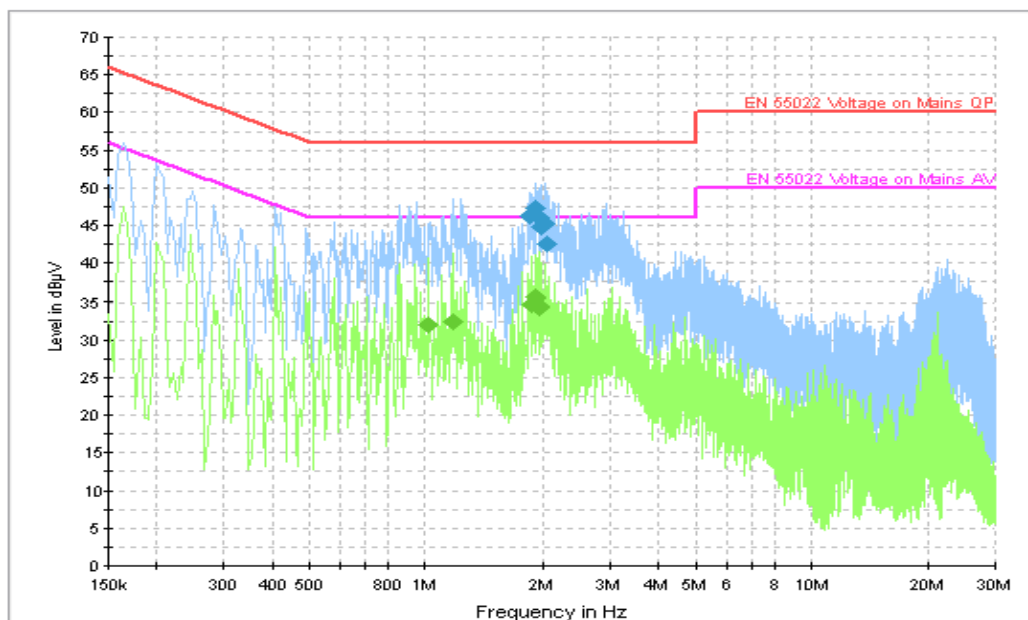
Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.855501	46.3	GND	N	9.9	9.7	56.0
1.905001	47.3	GND	N	9.9	8.7	56.0
1.950001	46.1	GND	N	9.9	9.9	56.0
1.986001	44.8	GND	N	9.9	11.2	56.0
2.031001	45.2	GND	N	9.9	10.8	56.0
2.049001	42.6	GND	N	9.9	13.4	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.018501	32.0	GND	N	9.9	14.0	46.0
1.180501	32.4	GND	N	9.9	13.6	46.0
1.873501	34.7	GND	N	9.9	11.3	46.0
1.905001	35.5	GND	N	9.9	10.5	46.0
1.945501	34.5	GND	N	9.9	11.5	46.0
1.954501	34.3	GND	N	9.9	11.7	46.0

USB Mode
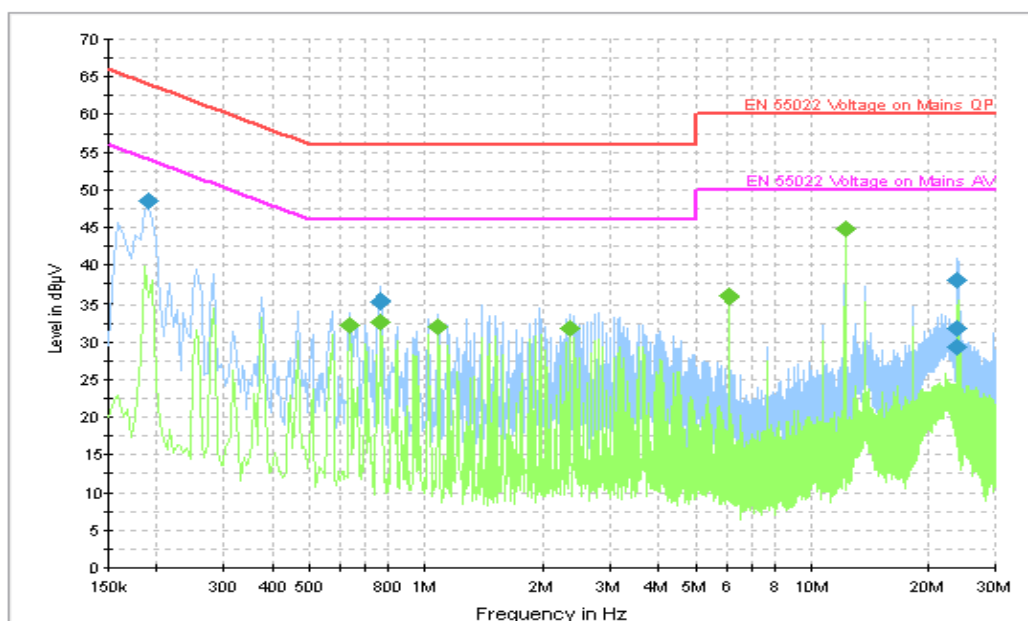
Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190501	48.5	GND	L1	9.9	15.5	64.0
0.766501	35.4	GND	L1	9.9	20.6	56.0
12.201001	44.9	GND	N	9.7	15.1	60.0
23.865001	29.3	GND	N	9.5	30.7	60.0
23.923501	31.8	GND	N	9.5	28.2	60.0
23.986501	38.1	GND	N	9.5	21.9	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.636001	32.3	GND	L1	9.9	13.7	46.0
0.766501	32.6	GND	L1	9.9	13.4	46.0
1.081501	32.0	GND	L1	9.9	14.0	46.0
2.355001	31.9	GND	N	9.9	14.1	46.0
6.099001	35.9	GND	N	9.8	14.1	50.0
12.201001	44.9	GND	N	9.7	5.1	50.0

END OF REPORT