



TEST REPORT

No. I14Z45895-EMC01

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone

Model Name: 6043A

FCC ID: RAD493

with

Hardware Version: PIO

Software Version: vAK2

Issued Date: Jun. 09th, 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:

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

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

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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

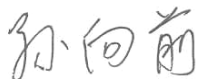
Testing Start Date: May 05th, 2014
Testing End Date: Jun. 09th, 2014

1.4. Signature



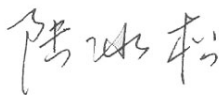
Qu Pengfei

(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	6043A
FCC ID	RAD493
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 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	014086000002991	PIO	vAK2

*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	/	Inbuilt
AE2	Travel charger	/	TCT-CHR-0820
AE3	Travel charger	/	/
AE4	USB cable	/	1445895DC002
AE5	USB cable	/	/
AE6	USB cable	/	/
AE7	USB cable	/	/

AE1

Model	CAC2500017C2
Manufacturer	SCUD
Capacitance	2500 mAh
Nominal voltage	3.8 V

AE2

Model	CBA0003AG0C1
Manufacturer	ACE
Length of cable	99 cm (length of USB cable)

AE3

Model	CBA0003BG0C1
Manufacturer	ACE
Length of cable	99 cm (length of USB cable)

AE4

Model	CDA0000026C1
Manufacturer	Shenghua
Length of cable	99 cm

AE5

Model	CDA0000026C2
Manufacturer	Juwei
Length of cable	99 cm

AE6

Model	CDA0000025C1
Manufacturer	Shenghua
Length of cable	99 cm

AE7

Model	CDA0000025C2
Manufacturer	Juwei
Length of cable	99 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 + AE4	Charger
Set.2	EUT1+ AE1+ AE4	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	10-1-13 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
ICES-003	Information Technology Equipment (ITE) – Limits and methods of measurement	Issue 5

5. LABORATORY ENVIRONMENT

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

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
	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.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL. DUE DATE	CAL. INTERVAL
1.	Test Receiver	ESCI 7	100948	R&S	2014-07-18	1 Year
2.	Test Receiver	ESCI	100344	R&S	2015-03-03	1 Year
3.	Spectrum Analyzer	FSV	101047	R&S	2014-06-30	1 Year
4.	Universal Radio Communication Tester	CMU200	109914	R&S	2015-04-13	1 Year
5.	LISN	ESH2-Z5	829991/012	R&S	2015-04-14	1 Year
6.	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 Years
7.	EMI Antenna	3115	6914	ETS-Lindgren	2014-12-16	3 Years
8.	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
9.	Monitor	E178FPc	CN-OWR979- 64180-7AJ-D2 MS	DELL	N/A	N/A
10.	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
11.	Keyboard	L100	CN0RH65965 8907ATOI40	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).

IC: ICES-003 Section 5.

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

Limit from CFR Part 15.109(a)

Frequency range (MHz)	Field strength limit ($\mu\text{V/m}$)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

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_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.3 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9979.750	47.1	-24.2	38.0	33.3	Vertical
9452.688	46.9	-25.6	38.4	34.1	Vertical
9213.344	46.9	-26.0	38.4	34.5	Horizontal
9993.813	46.7	-24.2	38.0	32.9	Vertical
9118.281	46.7	-26.1	38.4	34.4	Vertical
9985.938	46.7	-24.2	38.0	32.9	Vertical

Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9990.156	35.4	-24.2	38.0	21.6	Vertical
9994.938	35.3	-24.2	38.0	21.5	Vertical
9991.844	35.3	-24.2	38.0	21.5	Horizontal
9995.500	35.3	-24.2	38.0	21.5	Vertical
9988.188	35.2	-24.2	38.0	21.4	Vertical
9998.031	35.2	-24.2	38.0	21.4	Vertical

Measurement result for Set.2:
USB Mode/ Peak detector

Frequency(MHz)	Result(dB μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V)	Polarity
1995.625	52.4	-35.7	25.3	62.8	Vertical
9113.500	48.1	-26.1	38.4	35.8	Vertical
9969.625	47.8	-24.2	38.0	34.0	Vertical
1196.031	47.8	-41.2	24.1	64.9	Vertical
9074.969	47.6	-26.7	38.4	35.9	Horizontal
9999.719	47.5	-24.2	38.0	33.7	Vertical

USB Mode/ Average detector

Frequency(MHz)	Result(dB μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V)	Polarity
9987.625	35.5	-24.2	38.0	21.7	Vertical
9987.344	35.4	-24.2	38.0	21.6	Vertical
9993.250	35.4	-24.2	38.0	21.6	Vertical
9993.813	35.4	-24.2	38.0	21.6	Horizontal
9991.281	35.4	-24.2	38.0	21.6	Vertical
9992.969	35.4	-24.2	38.0	21.6	Vertical

Charging Mode, Set.1

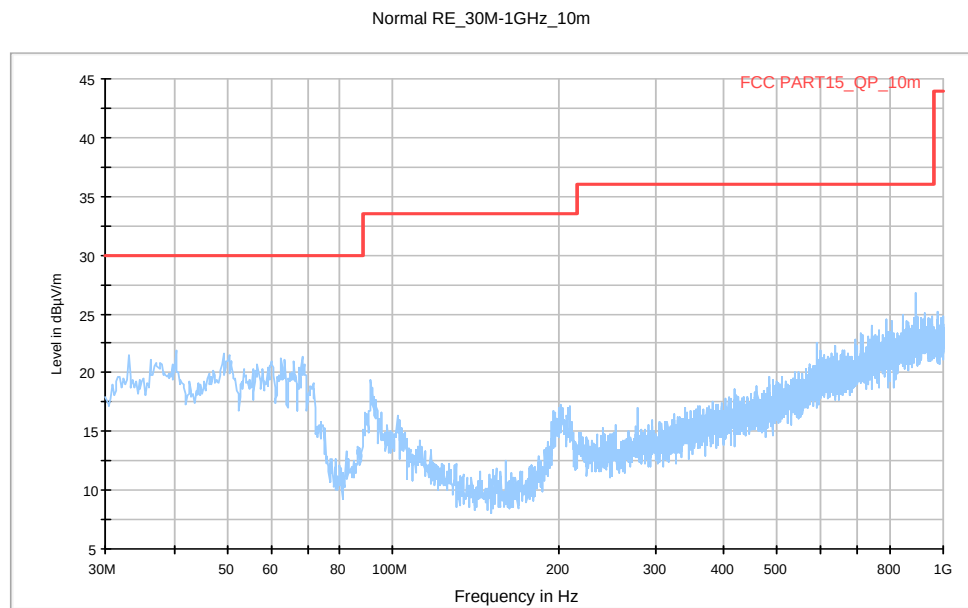


Figure A.1 Radiated Emission from 30MHz to 1GHz

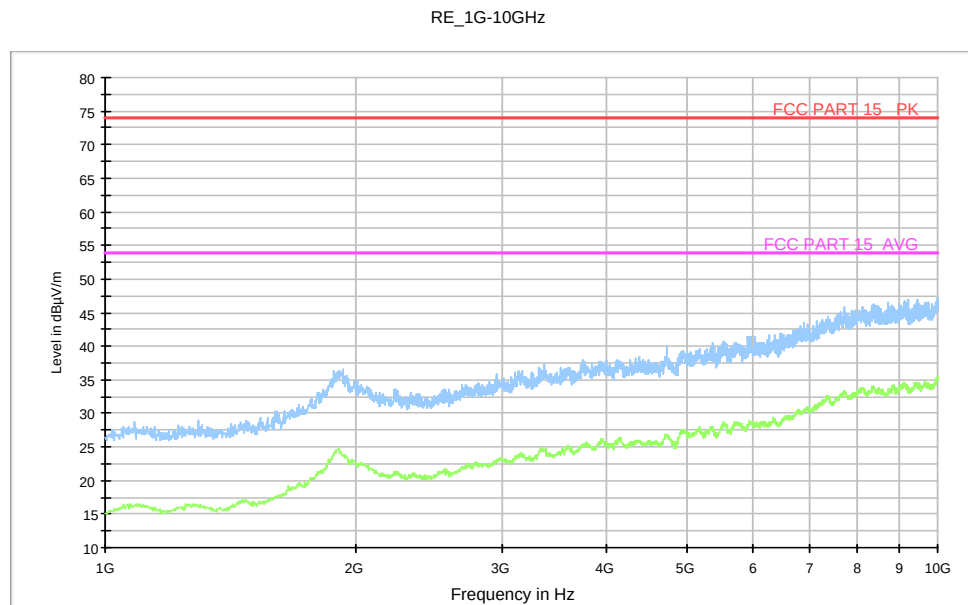


Figure A.2 Radiated Emission from 1GHz to 10GHz

USB Mode, Set.2

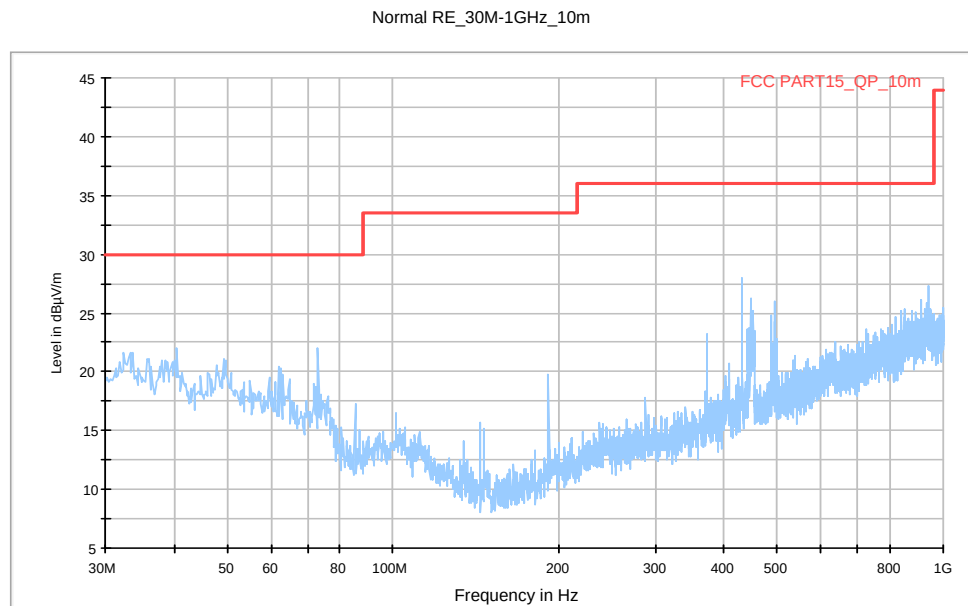


Figure A.3 Radiated Emission from 30MHz to 1GHz

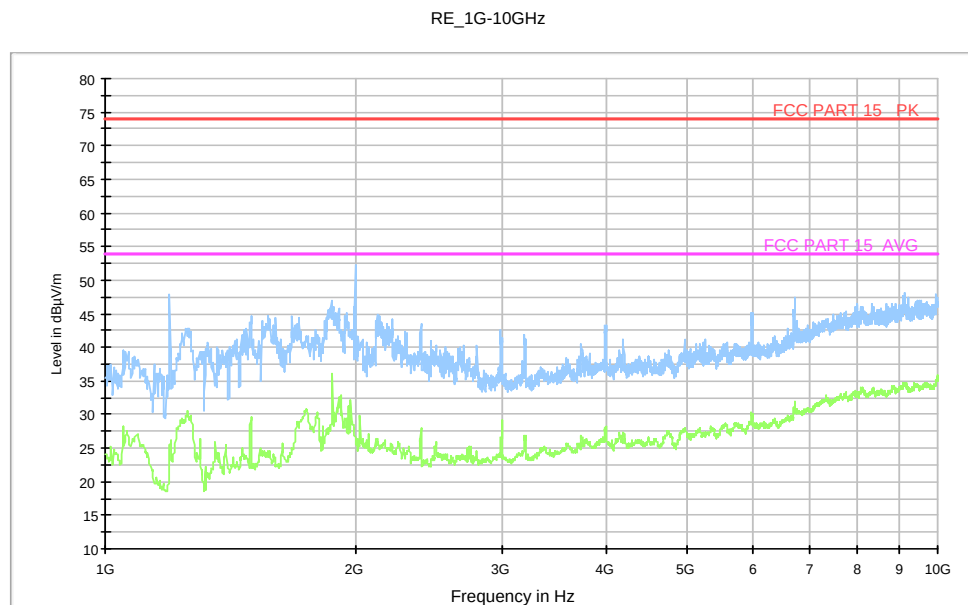


Figure A.4 Radiated Emission from 1GHz to 10GHz

A.2 Conducted Emission

Reference

FCC: CFR Part 15.107(a).

IC: ICES-003 Section 5.

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: $U = 2.9 \text{ dB}$, $k=2$.

Charging Mode, Set.1

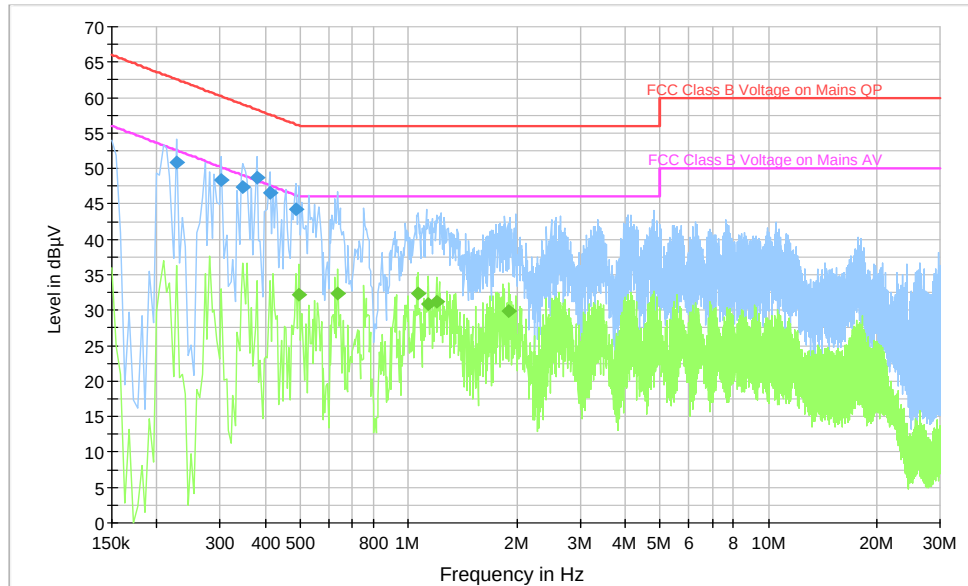


Figure A.5 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.226500	50.8	GND	L1	9.8	11.7	62.6
0.303000	48.4	GND	L1	9.8	11.8	60.2
0.348000	47.4	GND	L1	9.8	11.6	59.0
0.379500	48.7	GND	L1	9.8	9.6	58.3
0.411000	46.5	GND	L1	9.8	11.1	57.6
0.487500	44.2	GND	L1	9.8	12.0	56.2

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.496500	32.2	GND	L1	9.8	13.9	46.1
0.636000	32.4	GND	L1	9.8	13.6	46.0
1.063500	32.3	GND	L1	9.7	13.7	46.0
1.140000	30.9	GND	L1	9.7	15.1	46.0
1.194000	31.2	GND	L1	9.7	14.8	46.0
1.905000	29.8	GND	L1	9.7	16.2	46.0

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

USB Mode, Set.2

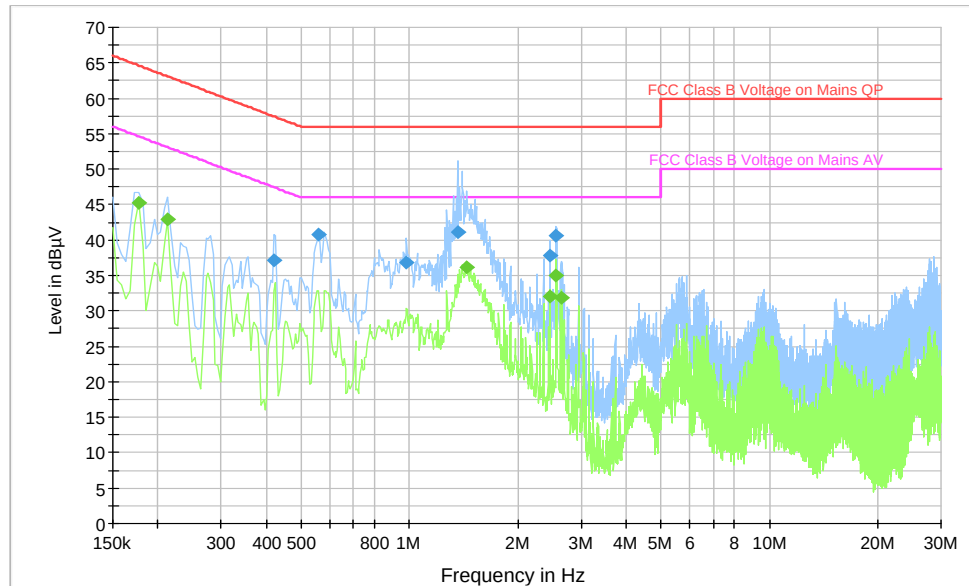


Figure A.6 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.420000	37.2	GND	L1	9.8	20.3	57.4
0.559500	40.8	GND	L1	9.8	15.2	56.0
0.982500	36.8	GND	N	9.7	19.2	56.0
1.360500	41.0	GND	N	9.7	15.0	56.0
2.458500	37.9	GND	N	9.7	18.1	56.0
2.557500	40.6	GND	L1	9.7	15.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.177000	45.2	GND	N	9.8	9.4	54.6
0.213000	42.9	GND	N	9.8	10.2	53.1
1.446000	36.1	GND	L1	9.7	9.9	46.0
2.458500	32.1	GND	N	9.7	13.9	46.0
2.557500	35.0	GND	L1	9.7	11.0	46.0
2.634000	31.8	GND	N	9.7	14.2	46.0

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

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