



TEST REPORT

No. 2013TAR865

for

TCT Mobile Limited

Bluetooth phone

Model Name: Ashley

Marketing Name: ONE TOUCH BP60

FCC ID: RAD907

with

Hardware Version: PIO

Software Version: V29

Issued Date: Dec. 31st, 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.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%

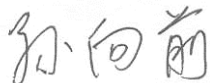
1.3. Project data

Testing Start Date: Dec. 11th, 2013
Testing End Date: Dec. 11th, 2013

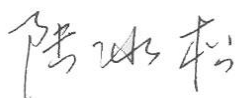
1.4. Signature



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	Bluetooth phone
Model Name	Ashley
Marketing Name	ONE TOUCH BP60
FCC ID	RAD907
Extreme vol. Limits	3.45VDC 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
EUT3	/	PIO	V29

*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	Battery	/	Inbuilt
AE3	Battery	/	Inbuilt
AE6	USB cable	/	TCT-DC-0468
AE7	USB cable	/	TCT-DC-0470
AE8	Battery	/	Inbuilt
AE9	Travel charger	/	TCT-CHR-1669
AE10	Travel charger	/	TCT-CHR-1670

AE1, AE2, AE3, AE8

Model	CAC0290001C1
Manufacturer	BYD
Capacitance	290 mAh
Nominal voltage	3.7V

AE6, AE7

Model	CDA0000024C1
Manufacturer	Shenghua
Length of cable	79 cm

AE9, AE10

Model	CBA0015AG1C1
Manufacturer	BYD
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.3	EUT3+ AE9 + AE6	Charger
Set.4	EUT3+ AE6	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 °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

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	FSV	101047	R&S	2014-06-30
2	Test Receiver	ESCI 7	100948	R&S	2014-07-18
3	Test Receiver	ESCI	100344	R&S	2014-03-28
4	Bluetooth Tester	CBT	100153	R&S	2014-09-15
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	6914	ETS-Lindgren	2014-12-15
8	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A
9	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
10	Printer	P1606dn	VNC3L52122	HP	N/A
11	Keyboard	L100	CN0RH659658 907ATOI40	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 ($\mu\text{V/m}$)		
	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_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

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

Measurement results for Set.3:

Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
2945.000	26.7	-38.5	28.9	36.300	VERTICAL
1909.000	26.6	-35.0	25.3	36.300	VERTICAL
1905.750	26.6	-35.0	25.3	36.300	HORIZONTAL
1902.750	26.4	-35.0	25.3	36.100	VERTICAL
2977.750	26.3	-38.6	28.9	36.000	VERTICAL
1918.750	26.2	-34.6	25.3	35.500	HORIZONTAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
1953.750	35.7	-35.2	25.3	45.600	HORIZONTAL
1899.000	35.7	-35.0	25.3	45.400	VERTICAL
2613.250	35.6	-38.8	28.9	45.500	HORIZONTAL
1918.250	35.4	-34.6	25.3	44.700	VERTICAL
1997.000	35.3	-35.7	25.3	45.700	VERTICAL
2953.250	35.3	-38.5	28.9	44.900	VERTICAL

Measurement results for Set.4:
USB Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dB μ V)	Polarity
1925.000	37.3	-34.6	25.3	46.600	VERTICAL
3000.000	37.0	-38.6	30.9	44.700	VERTICAL
1925.250	36.2	-34.6	25.3	45.500	HORIZONTAL
1924.750	34.9	-34.6	25.3	44.200	HORIZONTAL
1893.000	34.8	-35.0	25.3	44.500	VERTICAL
1860.250	34.5	-35.9	25.3	45.100	VERTICAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dB μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dB μ V)	Polarity
1498.500	48.0	-40.3	24.1	64.200	VERTICAL
1499.500	47.8	-40.3	24.1	64.000	HORIZONTAL
1499.250	47.5	-40.3	24.1	63.700	VERTICAL
1495.250	47.5	-40.3	24.1	63.700	HORIZONTAL
1496.750	47.2	-40.3	24.1	63.400	HORIZONTAL
1497.500	47.2	-40.3	24.1	63.400	VERTICAL

Charging Mode, Set.3

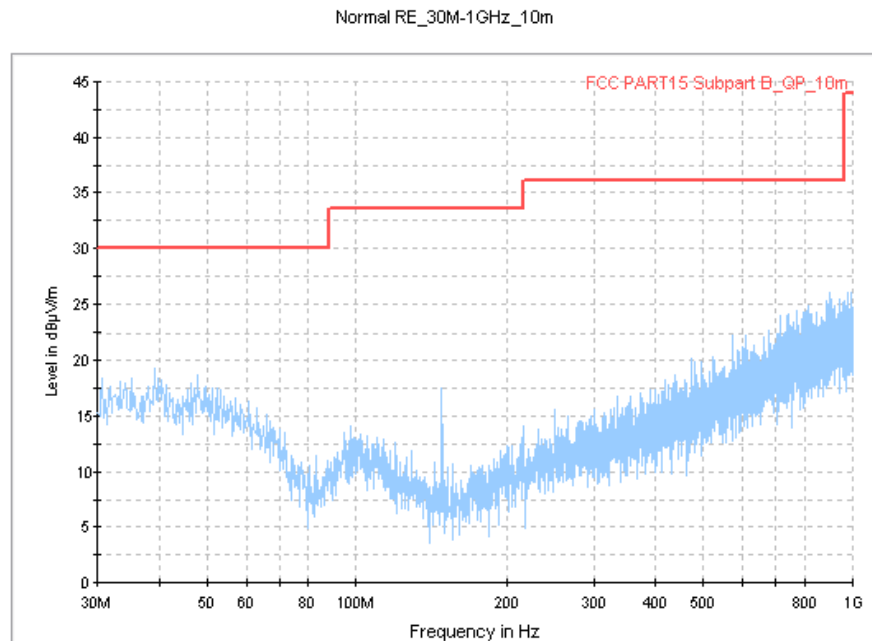


Figure A.1 Radiated Emission from 30MHz to 1GHz

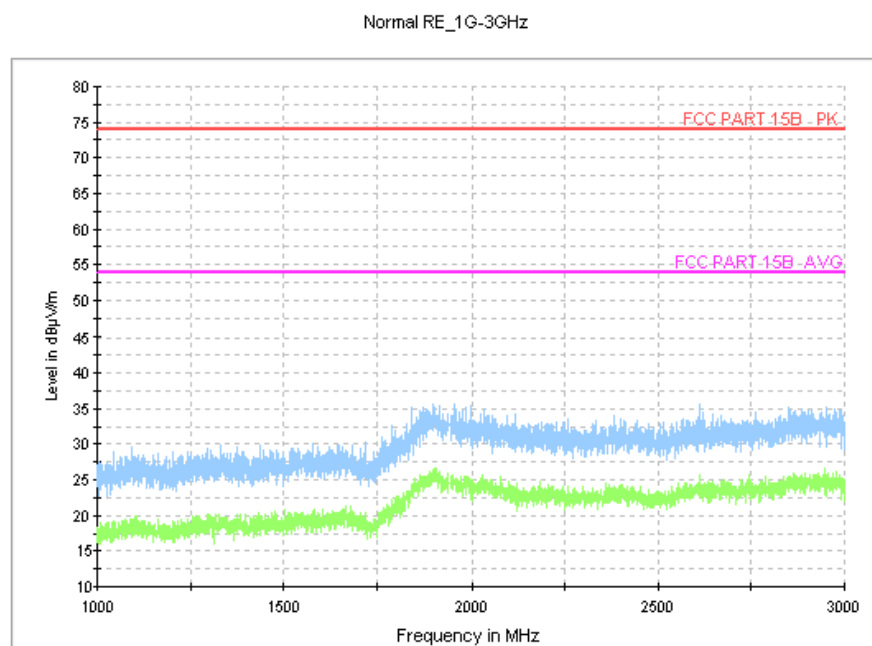


Figure A.2 Radiated Emission from 1GHz to 3GHz

USB Mode, Set.4

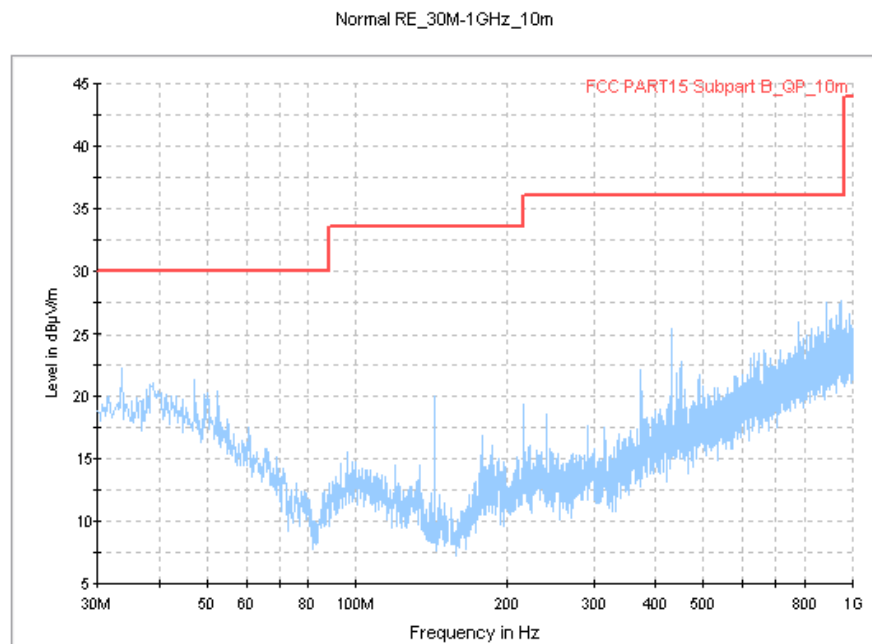


Figure A.3 Radiated Emission from 30MHz to 1GHz

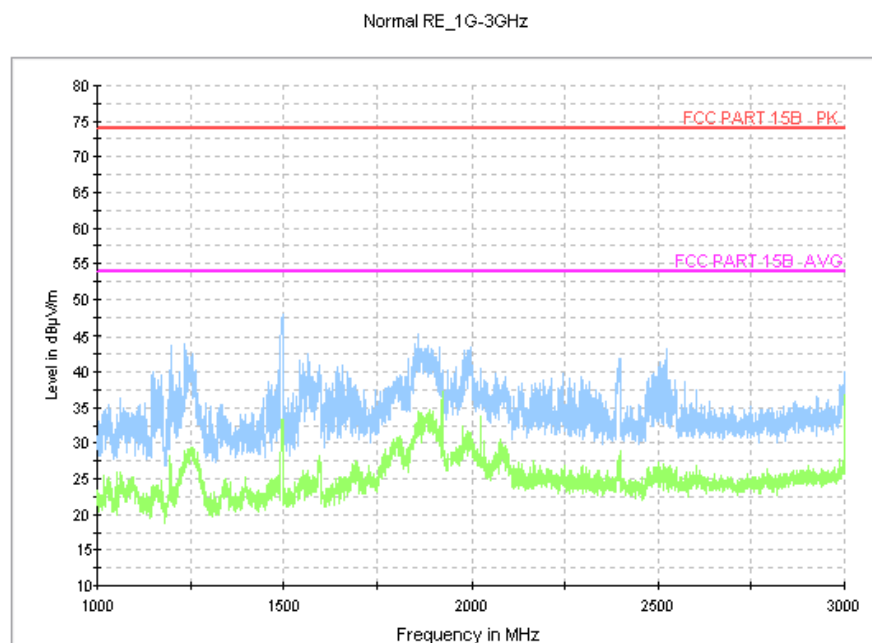


Figure A.4 Radiated Emission from 1GHz to 3GHz

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 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.3

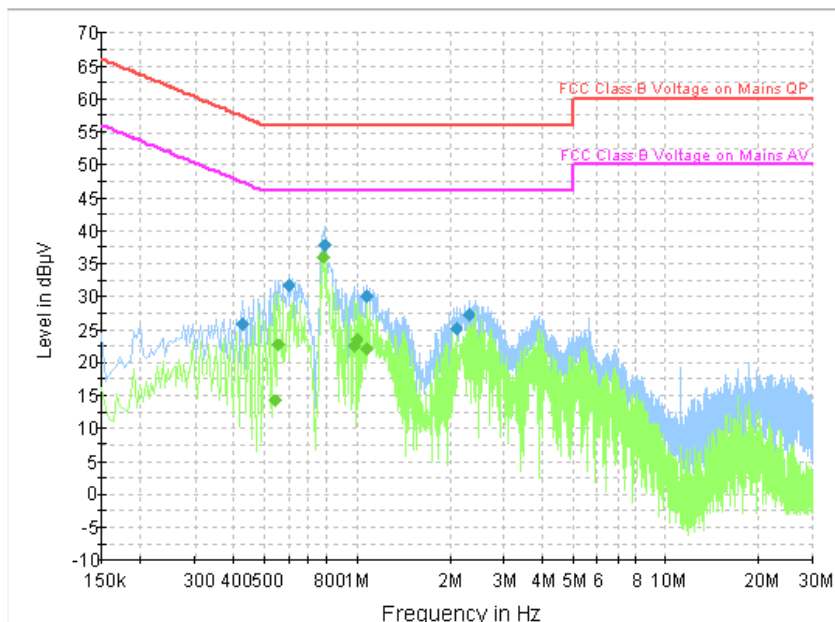


Figure A.5 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.429000	25.9	GND	N	9.8	31.4	57.3
0.600000	31.6	GND	L1	9.8	24.4	56.0
0.784500	37.8	GND	L1	9.8	18.2	56.0
1.081500	30.1	GND	N	9.7	25.9	56.0
2.107500	25.2	GND	L1	9.7	30.8	56.0
2.305500	27.1	GND	L1	9.7	28.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.541500	14.1	GND	L1	9.8	31.9	46.0
0.559500	22.6	GND	N	9.8	23.4	46.0
0.780000	36.0	GND	N	9.8	10.0	46.0
0.987000	22.5	GND	L1	9.7	23.5	46.0
1.005000	23.3	GND	N	9.7	22.7	46.0
1.081500	22.1	GND	N	9.7	23.9	46.0

USB Mode, Set.4

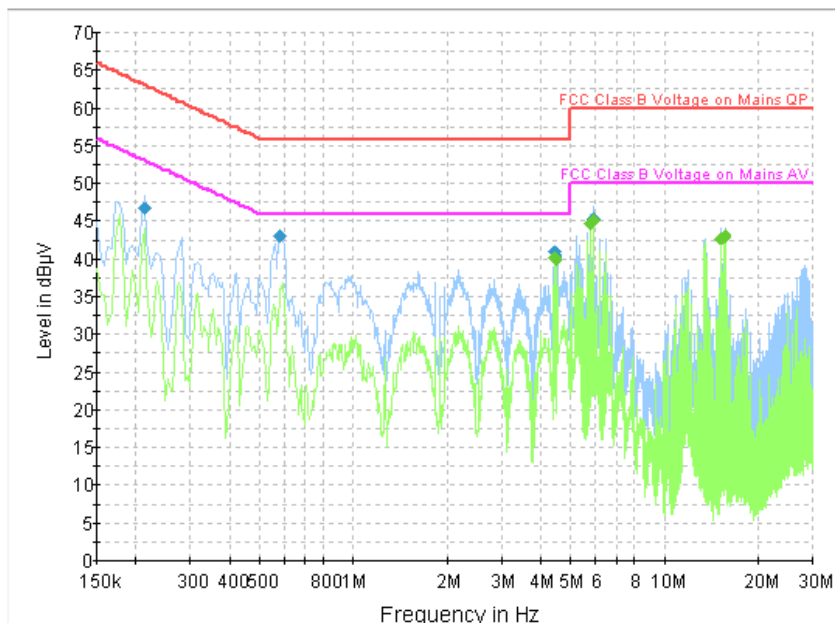


Figure A.6 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.213000	46.7	GND	N	9.8	16.4	63.1
0.582000	43.2	GND	L1	9.8	12.8	56.0
4.411500	40.9	GND	N	9.7	15.1	56.0
4.474500	40.5	GND	L1	9.7	15.5	56.0
5.784000	44.8	GND	L1	9.7	15.2	60.0
5.910000	45.5	GND	N	9.7	14.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
4.411500	40.3	GND	L1	9.7	5.7	46.0
4.474500	39.9	GND	N	9.7	6.1	46.0
5.784000	44.7	GND	N	9.7	5.3	50.0
5.910000	45.2	GND	N	9.7	4.8	50.0
15.252000	42.8	GND	L1	9.5	7.2	50.0
15.616500	43.0	GND	L1	9.5	7.0	50.0

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