



TEST REPORT

No. I14Z46912-EMC03

for

TCT Mobile Limited

Wi-Fi dual-band tablet

Model Name: D819

FCC ID: RAD494

with

Hardware Version: PIO

Software Version: vJ58

Issued Date: Aug. 26th, 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:

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 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 °C
Relative Humidity: 20-75%

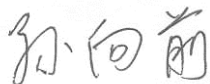
1.3. Project data

Testing Start Date: Jul. 04th, 2014
Testing End Date: Aug. 19th, 2014

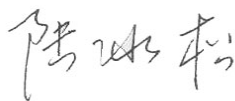
1.4. Signature



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. 201203
City:	Shanghai
Postal Code:	201203
Country:	China
Contact Person:	Gong Zhizhou
Contact Email	zhizhou.gong@tcl.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. 201203
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	Wi-Fi dual-band tablet
Model Name	D819
FCC ID	RAD494

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	vJ58

*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	Note	AE ID*
AE1	Travel Charger	/	/	1446912CH014
AE2	Travel Charger	/	/	1446912CH015
AE3	USB Cable	/	/	1446912DC001
AE4	USB Cable	/	/	1446912DC002

AE1, AE2

Type	CBA0045AG0C1
Manufacturer	BYD
Length of cable	97 cm (length of USB cable)

AE3, AE4

Type	CDA0000043C2
Manufacturer	Shenhua
Length of cable	97 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	EUT3+ AE1 + AE3	Charging mode
Set.2	EUT3+ AE3	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	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

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	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m/10m 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

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	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	A
2	Conducted Emission	15.107(a)	B.2	P	A

7. Test Equipments Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL. DUE DATE	CAL. INTERVAL
1.	LISN	ESH2-Z5	829991/012	R&S	2015-04-14	1 Year
2.	Universal Radio Communication Tester	CMU200	109914	R&S	2015-04-13	1 Year
3.	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	/
4.	Monitor	E178FPc	CN-OWR979- 64180-7AJ-D2 MS	DELL	N/A	/
5.	Printer	P1606dn	VNC3L52122	HP	N/A	/
6.	Keyboard	L100	CN0RH65965 8907ATOI40	DELL	N/A	/
7.	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	/
8.	Test Receiver	ESCI 7	100948	R&S	2015-07-16	1 Year
9.	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 Years
10.	EMI Antenna	3115	6914	ETS-Lindgren	2014-12-15	3 Years
11.	Test Receiver	FSV40	101047	R&S	2015-07-03	1 Year

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission

Reference

FCC: CFR Part 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 (above 1GHz) and 10 meters (below 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 meters (above 1GHz) and 10 meters (below 1GHz) 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 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

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 result for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9989.875	36.3	-24.2	38.0	22.500	V
9988.750	36.2	-24.2	38.0	22.400	V
9996.344	36.1	-24.2	38.0	22.300	V
9961.750	36.1	-24.2	38.0	22.300	V
9994.656	36.1	-24.2	38.0	22.300	V
9991.563	36.1	-24.2	38.0	22.300	V

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9980.875	48.5	-24.2	38.0	34.700	V
9856.844	48.3	-24.8	38.0	35.100	H
9991.563	47.9	-24.2	38.0	34.100	V
9804.250	47.9	-24.8	38.0	34.700	V
9935.875	47.9	-24.9	38.0	34.800	V
9943.469	47.8	-24.9	38.0	34.700	H

Measurement result for Set.2:

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dBμV)	Polarity
9993.813	36.3	-24.2	38.0	22.500	V
9994.656	36.2	-24.2	38.0	22.400	V
9998.875	36.1	-24.2	38.0	22.300	V
9991.281	36.1	-24.2	38.0	22.300	V
9993.531	36.0	-24.2	38.0	22.200	H
9994.938	36.0	-24.2	38.0	22.200	V

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dBμV)	Polarity
1195.188	54.6	-41.2	24.1	71.700	V
1988.313	51.8	-35.7	25.3	62.200	V
1499.781	50.7	-40.3	24.1	66.900	V
1499.500	50.4	-40.3	24.1	66.600	V
1498.656	50.3	-40.3	24.1	66.500	H
1499.219	50.2	-40.3	24.1	66.400	V

Charging Mode, Set.1

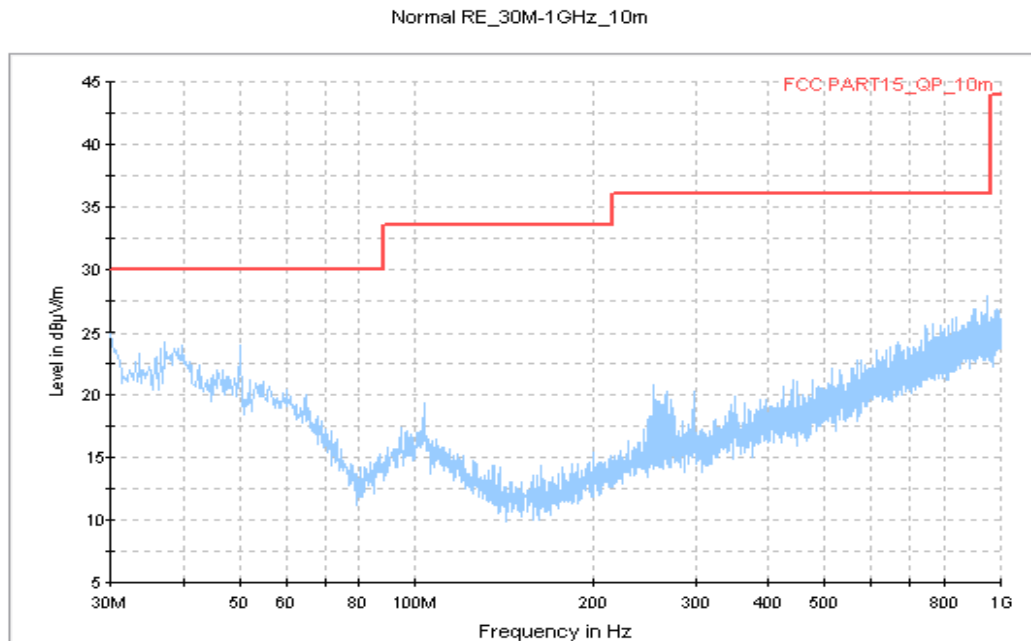


Figure A.1 Radiated Emission from 30MHz to 1GHz

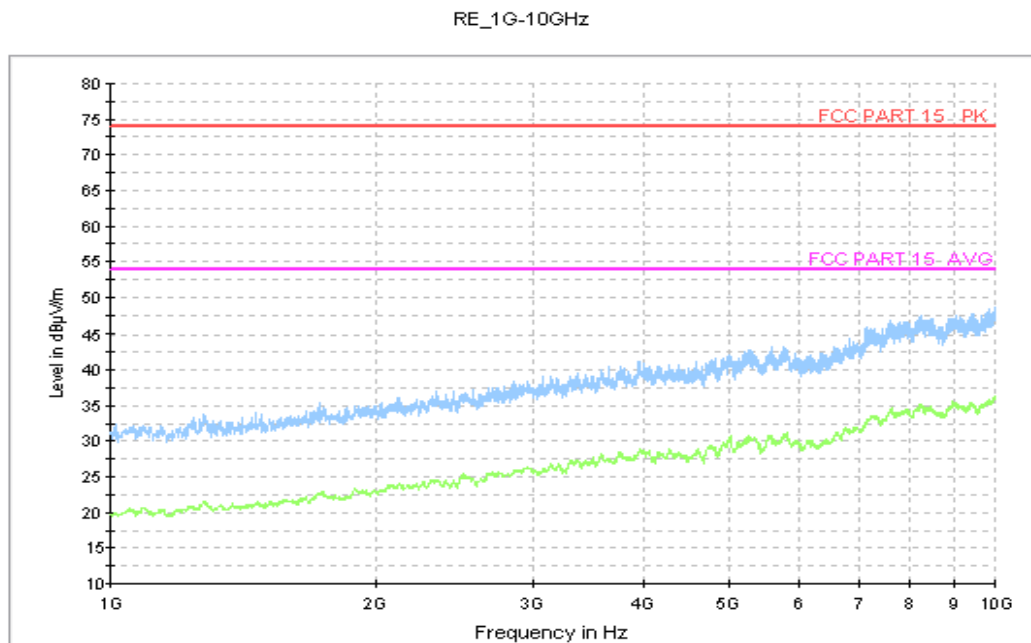


Figure A.2 Radiated Emission from 1GHz to 10GHz

USB Mode, Set.2

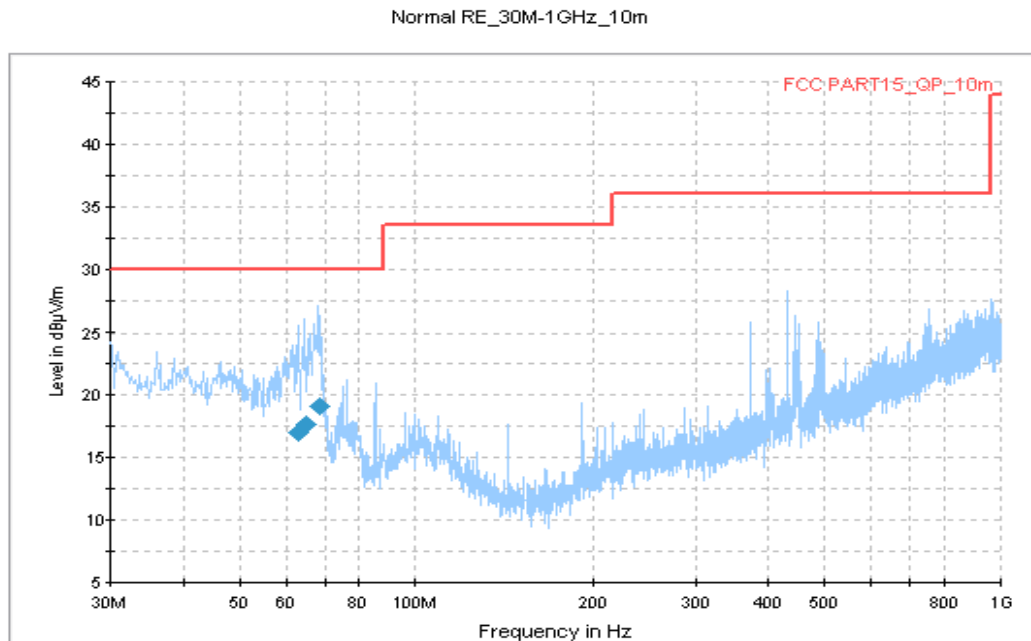


Figure A.3 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
62.858750	17.1	100.0	V	300.0	-18.4	12.9	30.0
64.857500	17.7	100.0	V	85.0	-19.0	12.3	30.0
68.432500	19.1	275.0	V	67.0	-20.0	10.9	30.0

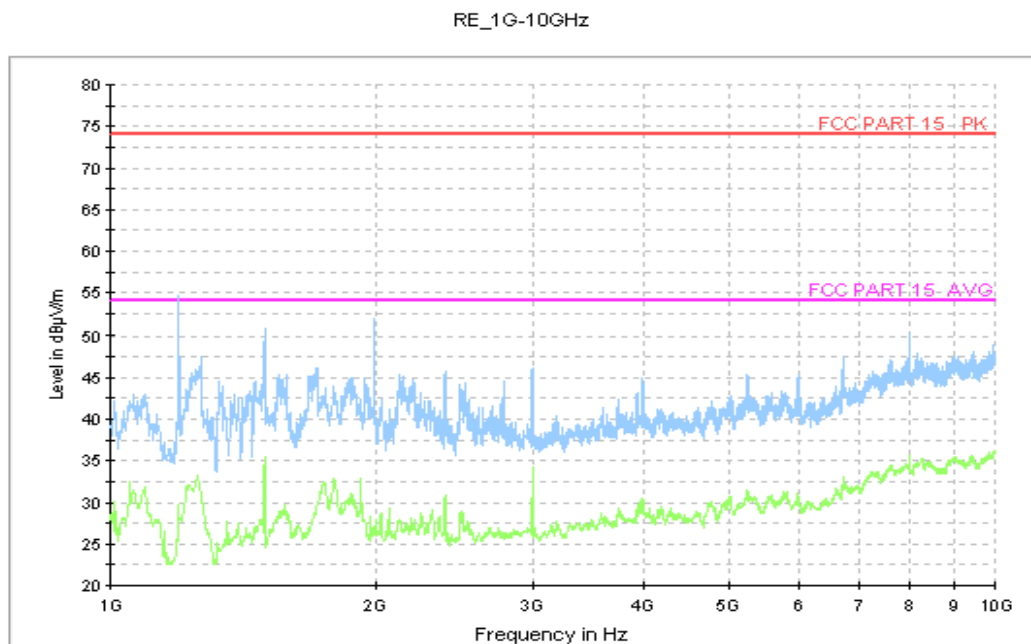


Figure A.4 Radiated Emission from 1GHz to 10GHz

A.2 Conducted Emission

Reference

FCC: CFR Part 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 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

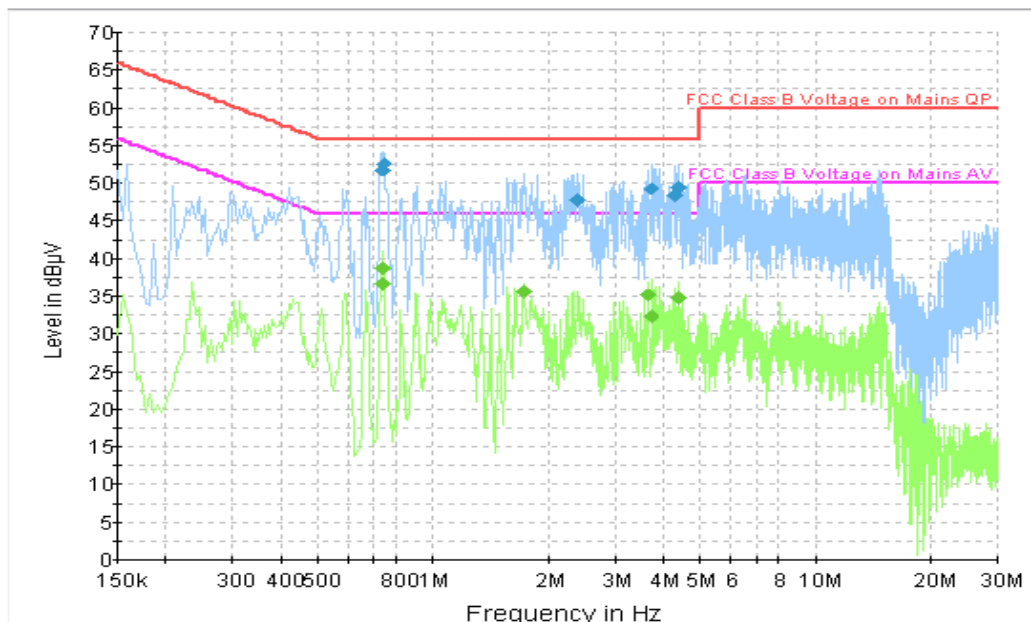


Figure A.5 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.735000	51.8	GND	L1	9.8	4.2	56.0
0.744000	52.7	GND	L1	9.8	3.3	56.0
2.391000	47.8	GND	L1	9.7	8.2	56.0
3.718500	49.3	GND	L1	9.7	6.7	56.0
4.321500	48.4	GND	L1	9.7	7.6	56.0
4.402500	49.5	GND	L1	9.7	6.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.735000	36.6	GND	L1	9.8	9.4	46.0
0.739500	38.7	GND	L1	9.8	7.3	46.0
1.729500	35.7	GND	L1	9.7	10.3	46.0
3.655500	35.1	GND	L1	9.7	10.9	46.0
3.727500	32.4	GND	L1	9.7	13.6	46.0
4.402500	34.8	GND	L1	9.7	11.2	46.0

USB Mode, Set.2

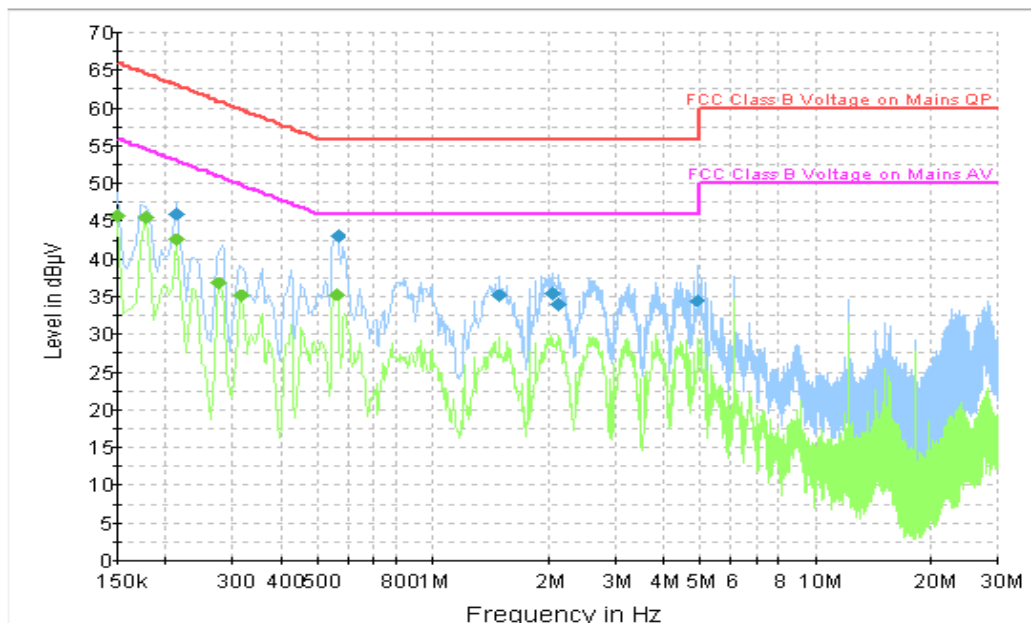


Figure A.6 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213000	46.0	GND	N	9.8	17.0	63.1
0.564000	43.0	GND	L1	9.8	13.0	56.0
1.491000	35.1	GND	L1	9.7	20.9	56.0
2.062500	35.5	GND	N	9.7	20.5	56.0
2.130000	34.0	GND	N	9.7	22.0	56.0
4.920000	34.5	GND	N	9.8	21.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	45.7	GND	N	9.8	10.3	56.0
0.177000	45.5	GND	N	9.8	9.1	54.6
0.213000	42.7	GND	N	9.8	10.4	53.1
0.276000	36.8	GND	N	9.8	14.1	50.9
0.316500	35.2	GND	N	9.8	14.6	49.8
0.559500	35.3	GND	L1	9.8	10.7	46.0

END OF REPORT