TEST REPORT

No. I16Z41107-EMC01

for

TCL Communication Ltd.

GSM Quad band/UMTS Tri-band mobile phone

Model Name: A572BG

FCC ID: 2ACCJB039

with

Hardware Version: PIO

Software Version: vA3D

Issued Date: 2016-6-12

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 CTTL.

Test Laboratory:

FCC 2.948 Listed: No. 525429

CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

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

Tel: +86(0)10-62304633-2512, Fax: +86(0)10-62304633-2504

Email: cttl_terminals@catr.cn, website: www.chinattl.com

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I16Z41107-EMC01	Rev.0	1st edition	2016-06-12

CONTENTS

1. Test Laboratory

1.1. Testing Location

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191

1.2. Testing Environment

Normal Temperature: 15-35℃

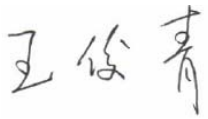
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2015-05-28

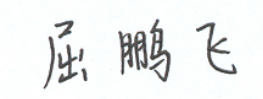
Testing End Date: 2016-05-30

1.4. Signature



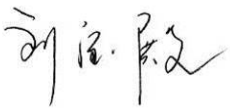
Wang Junqing

(Prepared this test report)



Qu Pengfei

(Reviewed this test report)



Liu Baodian

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
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@tcl.com
Telephone:	0086-21-31363544
Fax:	0086-21-61460602

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
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:	0086-21-31363544
Fax:	0086-21-61460602

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

3.1. About EUT

Description	GSM Quad band/UMTS Tri-band mobile phone
Model Name	A572BG
FCC ID	2ACCJB039
Extreme vol. Limits	3.6VDC 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	014672000000349	PIO	vA3D

*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	/	15TCT-BA-0775
AE2	Battery	/	15TCT-BA-0799
AE3	Battery	/	15TCT-BA-0800
AE4	Battery	/	15TCT-BA-0789
AE5	Battery	/	15TCT-BA-0787
AE6	Travel charger	/	15TCT-CH-1352
AE7	Travel charger	/	15TCT-CH-1344
AE8	USB cable	/	15TCT-DC-0047
AE9	USB cable	/	15TCT-DC-0038
AE10	Travel charger	/	16TCT-CH-0526
AE11	USB cable	/	/
AE12	Travel charger	/	/

AE1, AE2, AE3, AE4, AE5

Model	TLi017C1(CAB1780002C1)
Manufacturer	BYD
Capacitance	1780mAh
Nominal voltage	3.8V

AE6, AE7

Model	CBA0066AG0C2
Manufacturer	Tenpao
Length of cable	120cm

AE8, AE9

Model	/
Manufacturer	/
Length of cable	100cm

AE10

Model	CBA0058AG1C2
Manufacturer	Tenpao
Length of cable	/

AE11

Model	/
Manufacturer	/
Length of cable	100cm

AE12

Model	CBA0066AG0C1
Manufacturer	BYD
Length of cable	/

*AE ID: is used to identify the test sample in the lab internally.

Note: The USB cables are shielded.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1 +AE1 +AE6	Charger
Set.2	EUT1 +AE1 +AE8	USB
Set.3	EUT1 +AE1 +AE10 +AE11	Charger
Set.4	EUT1 +AE1 +AE11	USB
Set.5	EUT1 +AE1 +AE12	Charger

Note: GSM Quad band/UMTS Tri-band mobile phone A572BG manufactured by TCL Communication Ltd is a variant model based on 4060A for conformance test. According to the declaration of changes, the following items are tested on Set.5.

GSM 1900MHz	Set.5	Radiated Continuous Emission

Other results are inherited from the initial model. The report number of initial model is I16Z40966-EMC01

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	2015
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	2014

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	1	The test is performed in test location 1 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	1
2	Conducted Emission	15.107(a)	P	1

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESCI	100344	R&S	2017-03-01	1 year
2	Test Receiver	ESCI 7	100948	R&S	2016-07-07	1 year
3	Universal Radio Communication Tester	CMU200	116455	R&S	2017-05-04	1 year
4	Test Receiver	FSV	101047	R&S	2016-07-02	1 year
5	LISN	ESH2-Z5	829991/012	R&S	2017-04-11	1 year
6	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-16	3 years
7	EMI Antenna	3115	9906-5827	ETS-Lindgren	2016-11-19	3 years
8	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
9	Monitor	E178FPc	CN-OWR979-64180 -7AJ-D2MS	DELL	N/A	N/A
10	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
11	Keyboard	L100	CN0RH659658907 ATOI40	DELL	N/A	N/A
12	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	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 - 2014, 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.
Note：I/O information：Printer – USB, Mouse – PS/2, Keyboard – USB.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit (μV/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:

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.

Measurement results for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17953.250	51.2	-17.7	45.6	23.300	H
17919.250	51.1	-17.7	45.6	23.200	H
17932.000	51.0	-17.7	45.6	23.100	V
17998.300	50.9	-17.7	45.6	23.000	H
17957.500	50.7	-17.7	45.6	22.800	H
17797.700	50.6	-18.5	45.6	23.500	H

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17957.500	61.0	-17.7	45.6	33.100	V
17902.250	60.7	-18.5	45.6	33.600	H
17983.000	60.7	-17.7	45.6	32.800	V
17943.900	60.6	-17.7	45.6	32.700	H
17937.100	60.6	-17.7	45.6	32.700	H
17951.550	60.6	-17.7	45.6	32.700	H

Measurement results for Set.2:

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17944.750	51.0	-17.7	45.6	23.100	H
17991.500	50.9	-17.7	45.6	23.000	H
17940.500	50.8	-17.7	45.6	22.900	V
17992.350	50.6	-17.7	45.6	22.700	H
17926.050	50.6	-17.7	45.6	22.700	H
17916.700	50.5	-17.7	45.6	22.600	H

USB Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17825.750	61.0	-18.5	45.6	33.900	H
17941.350	60.7	-17.7	45.6	32.800	H
17962.600	60.5	-17.7	45.6	32.600	V
17996.600	60.5	-17.7	45.6	32.600	H
17776.450	60.5	-18.5	45.6	33.400	H
17754.350	60.4	-18.5	45.6	33.300	V

Measurement results for Set.3:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17958.350	51.7	-17.7	45.6	23.800	H
17989.800	51.7	-17.7	45.6	23.800	H
17997.450	51.5	-17.7	45.6	23.600	V
17990.650	51.3	-17.7	45.6	23.400	H
17992.350	51.3	-17.7	45.6	23.400	H
17948.150	51.3	-17.7	45.6	23.400	H

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17976.200	62.8	-17.7	45.6	34.900	H
17977.900	62.1	-17.7	45.6	34.200	H
17755.200	62.1	-18.5	45.6	35.000	V
17948.150	62.0	-17.7	45.6	34.100	H
17877.600	61.8	-18.5	45.6	34.700	H
17942.200	61.7	-17.7	45.6	33.800	H

Measurement results for Set.4:

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17932.850	51.6	-17.7	45.6	23.700	H
17949.850	51.5	-17.7	45.6	23.600	H
17961.750	51.5	-17.7	45.6	23.600	V
17936.250	51.4	-17.7	45.6	23.500	H
17988.100	51.3	-17.7	45.6	23.400	H
17956.650	51.3	-17.7	45.6	23.400	H

USB Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17975.350	62.4	-17.7	45.6	34.500	H
17976.200	62.1	-17.7	45.6	34.200	H
17875.900	61.6	-18.5	45.6	34.500	V
17973.650	61.5	-17.7	45.6	33.600	H
17849.550	61.4	-18.5	45.6	34.300	H
17986.400	61.3	-17.7	45.6	33.400	H

Measurement results for Set.5:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17706.000	46.6	-13.0	41.2	18.405	V
17679.750	46.6	-13.0	41.2	18.405	V
17728.500	46.5	-13.0	41.2	18.305	H
17703.750	46.5	-13.0	41.2	18.305	V
17664.000	46.5	-13.0	41.2	18.305	V
17704.500	46.5	-13.0	41.2	18.305	V

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
17969.250	59.3	-13.5	41.0	31.762	V
17991.750	59.3	-13.6	41.0	31.942	V
17629.500	59.1	-14.9	41.2	32.818	H
17685.750	59.0	-13.0	41.2	30.805	H
17617.500	59.0	-14.9	41.2	32.718	V
17707.500	58.8	-13.0	41.2	30.605	V

Charging Mode, Set.1

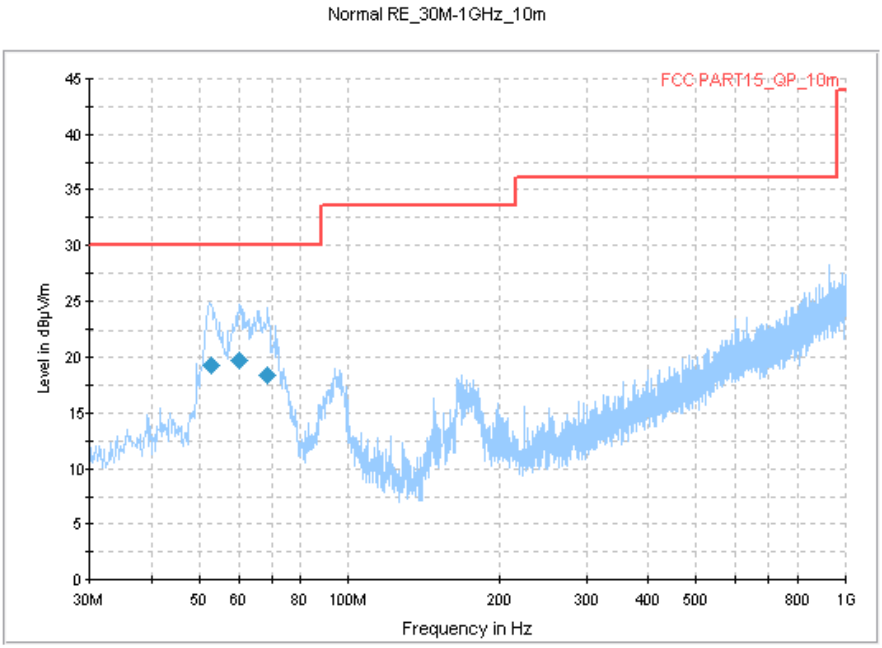


Fig.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBuV/m)
52.755500	19.3	125.0	V	-4.0	-11.8	10.7	30.0
60.407000	19.7	100.0	V	14.0	-12.3	10.3	30.0
68.811500	18.5	100.0	V	-29.0	-14.9	11.5	30.0

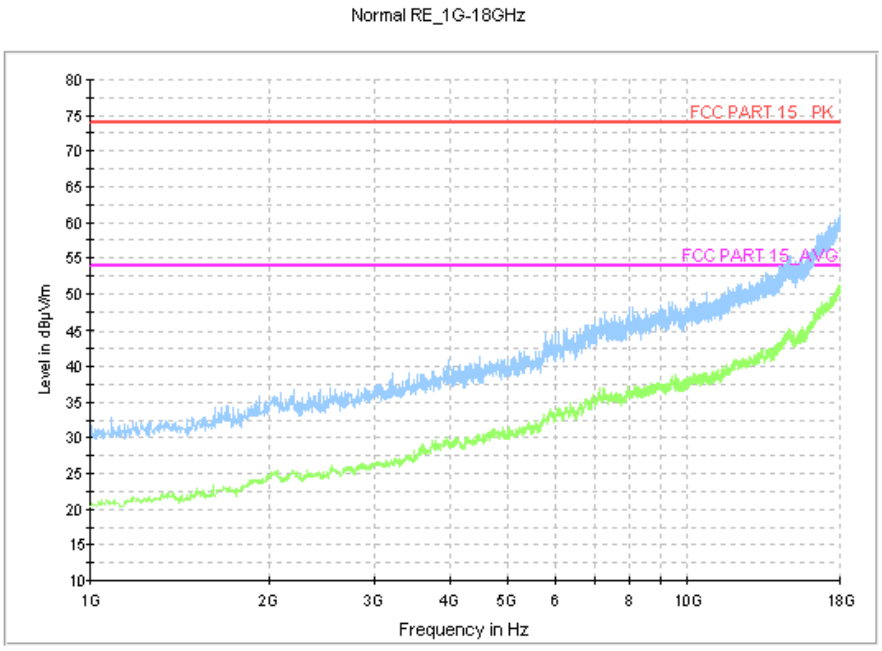


Fig.2 Radiated Emission from 1GHz to 18GHz

USB Mode, Set.2

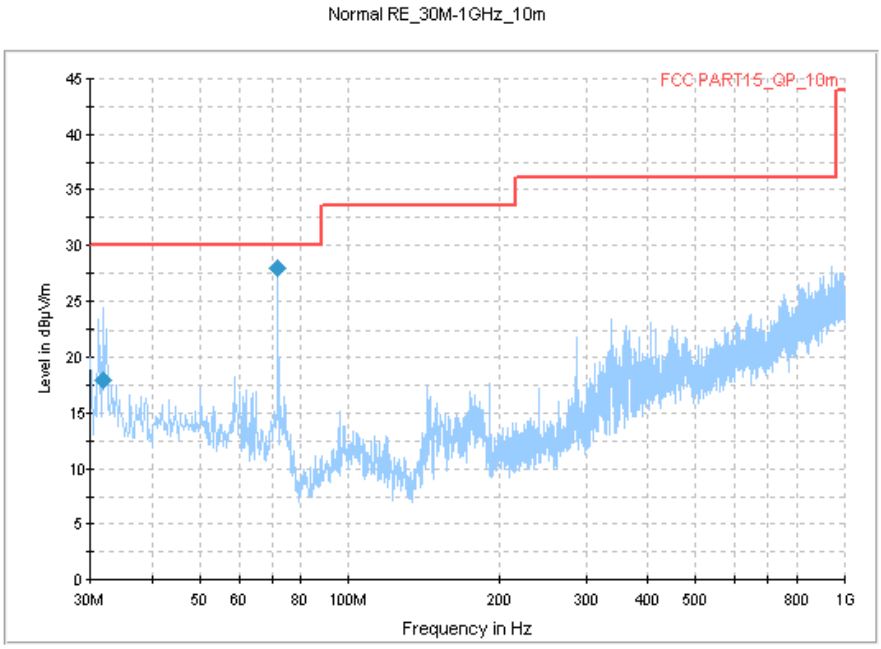


Fig.3 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBuV/m)
31.831500	18.0	309.0	V	210.0	-13.8	12.0	30.0
72.001000	28.0	225.0	V	210.0	-15.8	2.0	30.0

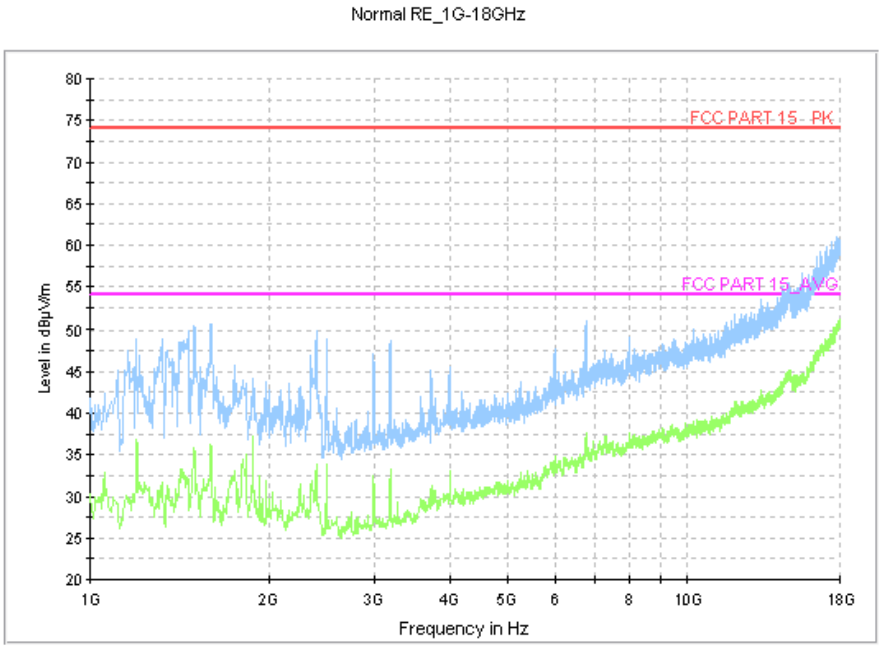


Fig.4 Radiated Emission from 1GHz to 18GHz

Charging Mode, Set.3

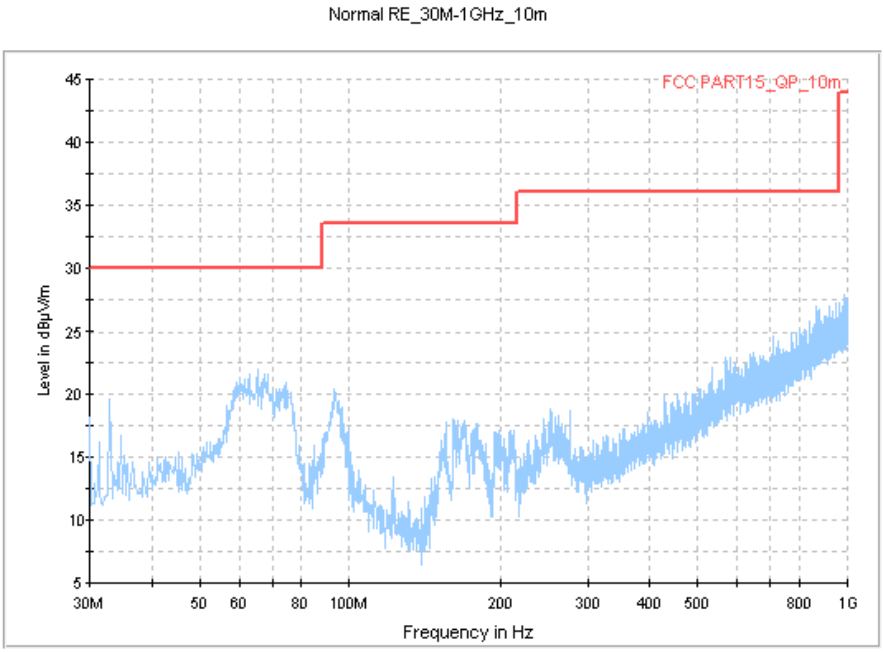


Fig.5 Radiated Emission from 30MHz to 1GHz

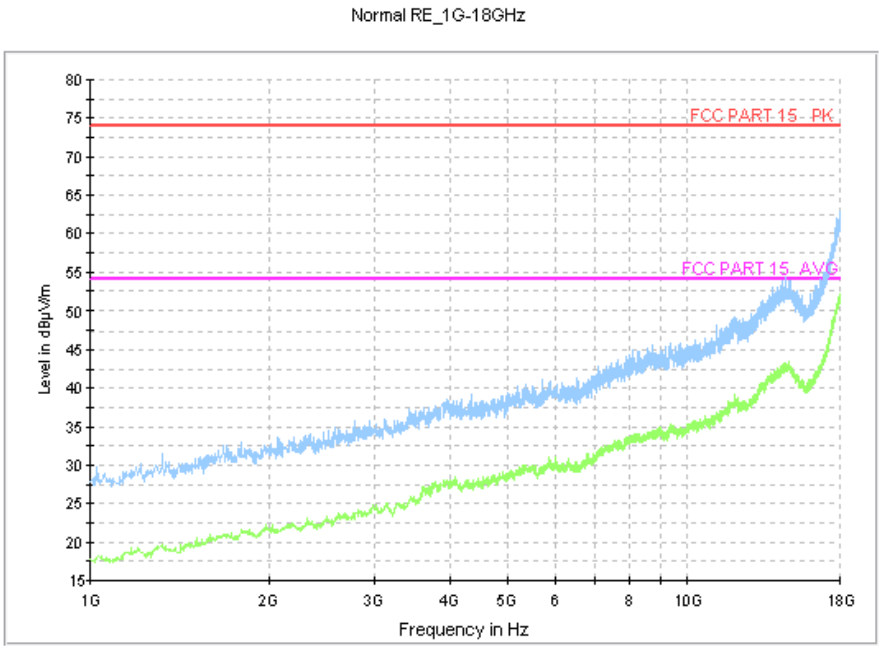


Fig.6 Radiated Emission from 1GHz to 18GHz

USB Mode, Set.4

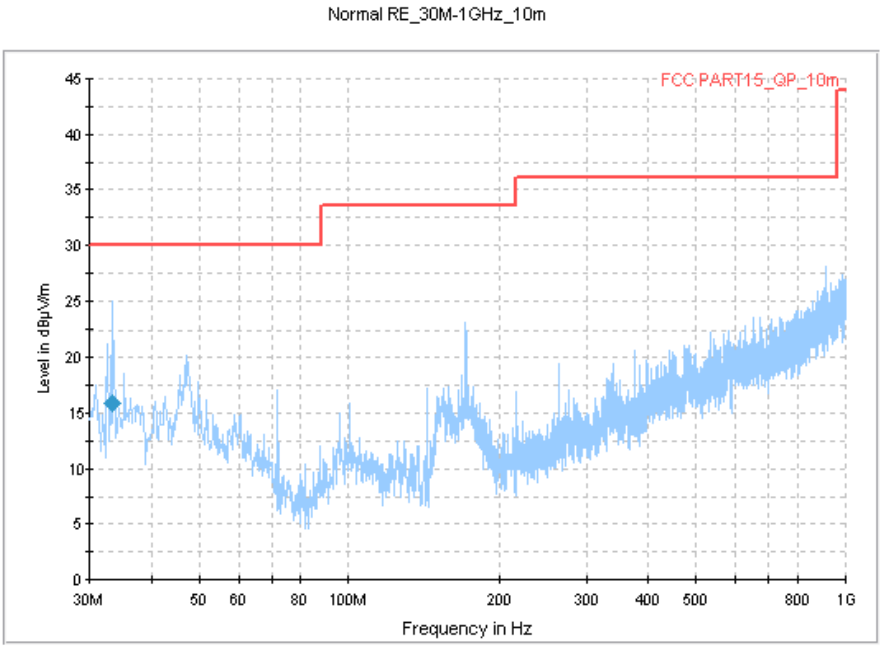


Fig.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBuV/m)
33.298000	15.9	198.0	V	183.0	-13.5	14.1	30.0

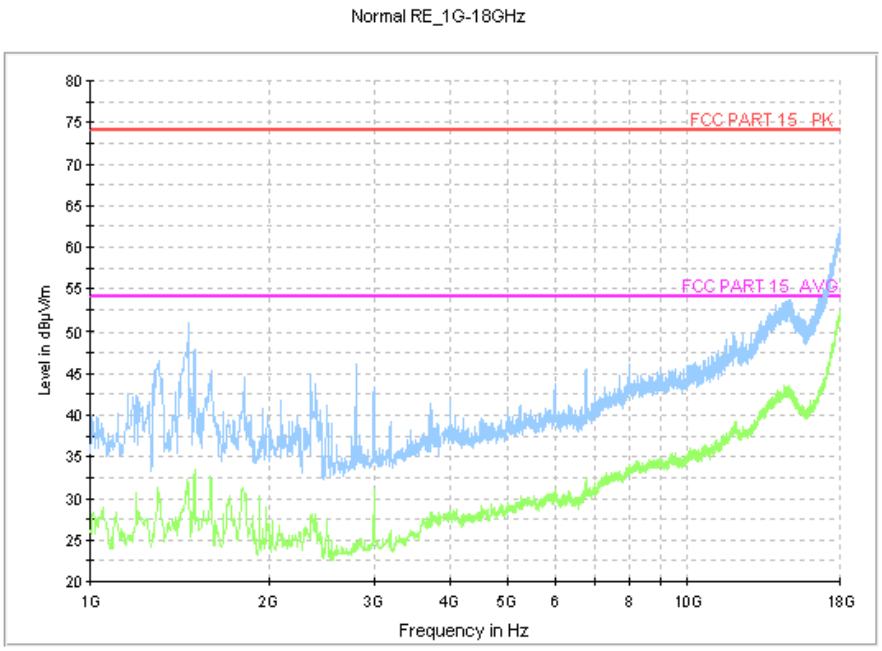


Fig.8 Radiated Emission from 1GHz to 18GHz

Charging Mode, Set.5

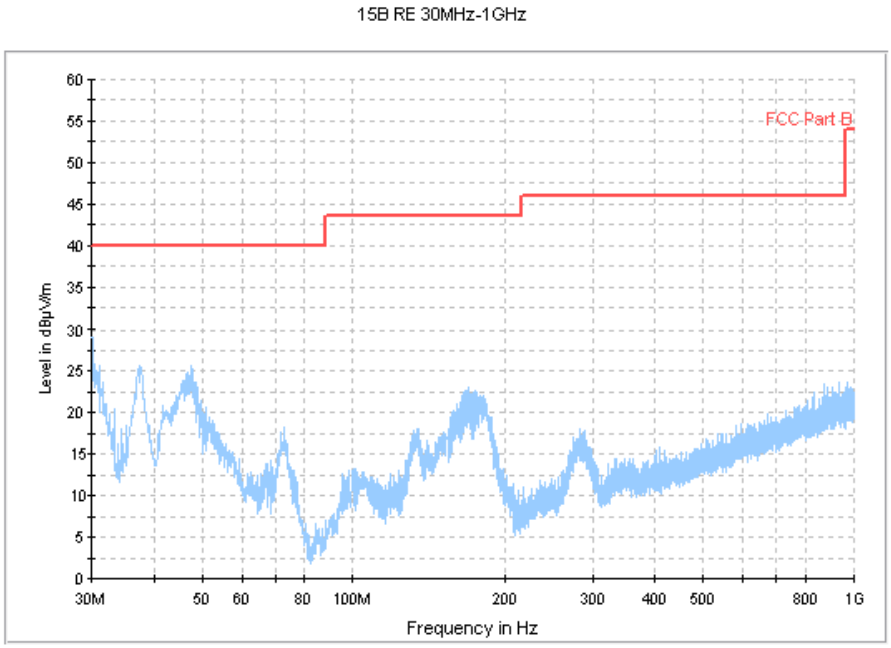


Fig.9 Radiated Emission from 30MHz to 1GHz

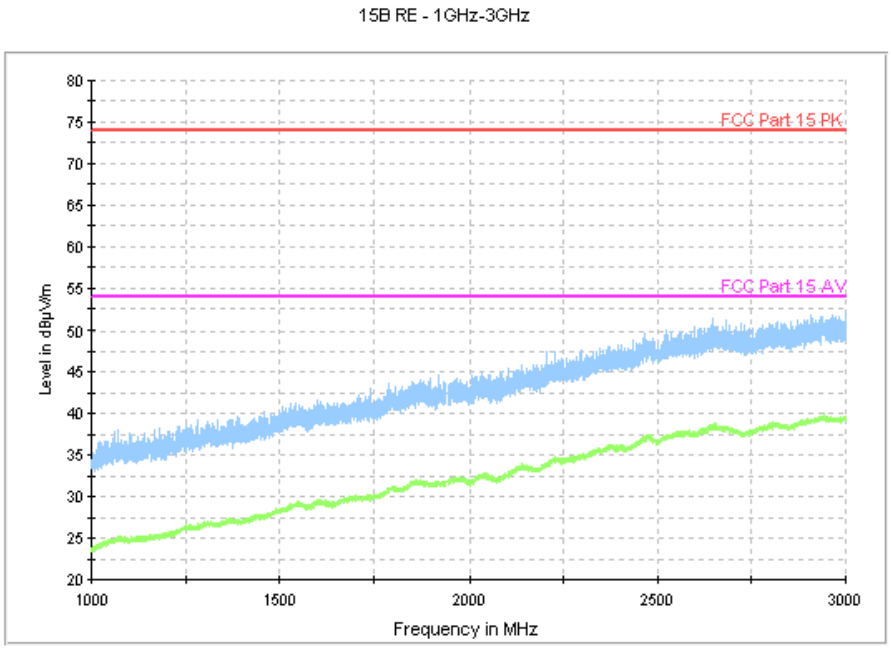


Fig.10 Radiated Emission from 1GHz to 3GHz

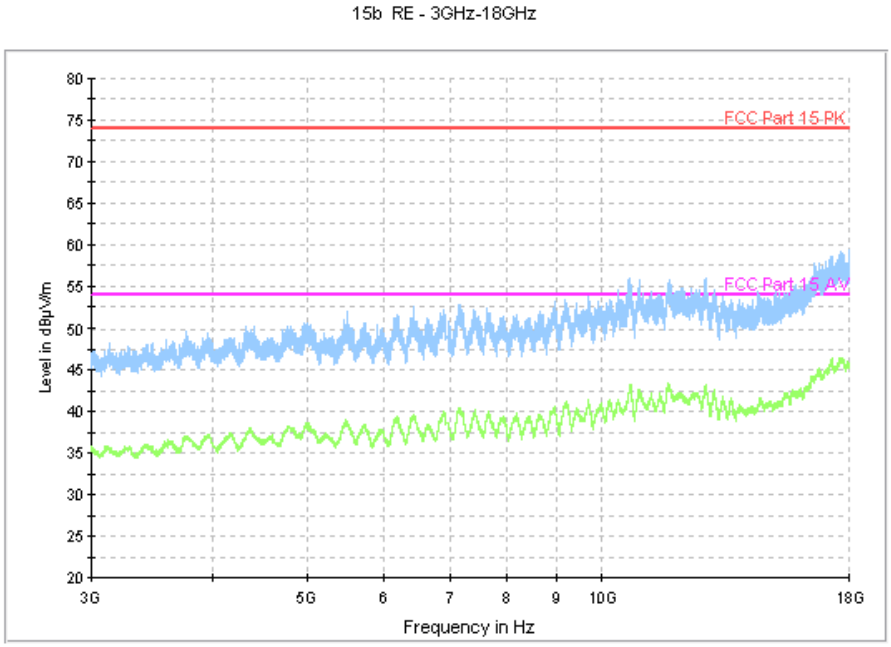


Fig.11 Radiated Emission from 3GHz to 18GHz

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 - 2014, 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 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.

Note：I/O information：Printer – USB, Mouse – PS/2, Keyboard – USB.

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.1

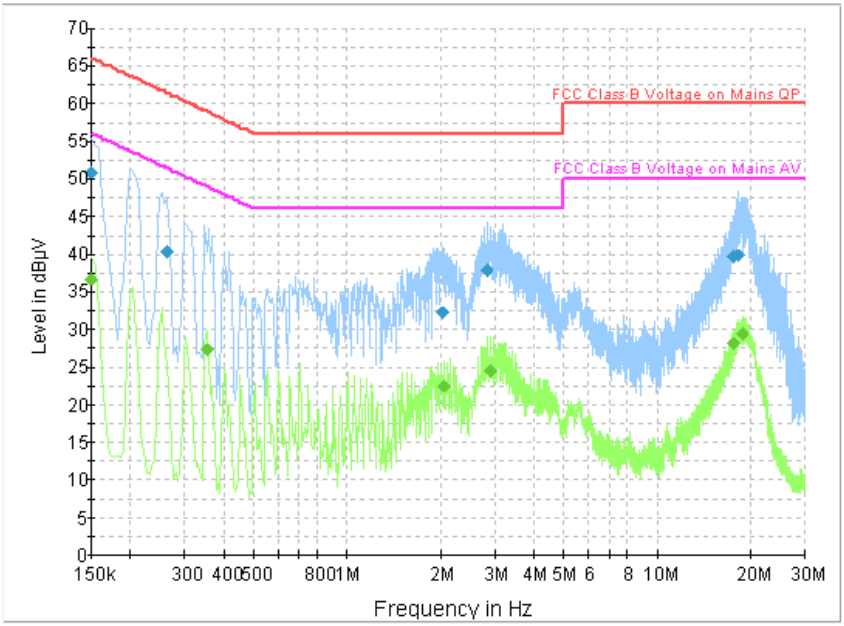


Fig.12 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	50.8	GND	L1	20.2	15.2	66.0
0.262500	40.3	GND	L1	19.8	21.1	61.4
2.026500	32.1	GND	L1	19.7	23.9	56.0
2.809500	37.8	GND	L1	18.8	18.2	56.0
17.551500	39.7	GND	L1	20.0	20.3	60.0
18.226500	39.8	GND	N	20.0	20.2	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.6	GND	L1	20.2	19.4	56.0
0.352500	27.2	GND	L1	19.8	21.7	48.9
2.058000	22.5	GND	L1	19.7	23.5	46.0
2.908500	24.4	GND	L1	19.0	21.6	46.0
17.560500	28.1	GND	L1	20.0	21.9	50.0
18.712500	29.3	GND	L1	19.9	20.7	50.0

USB Mode, Set.2

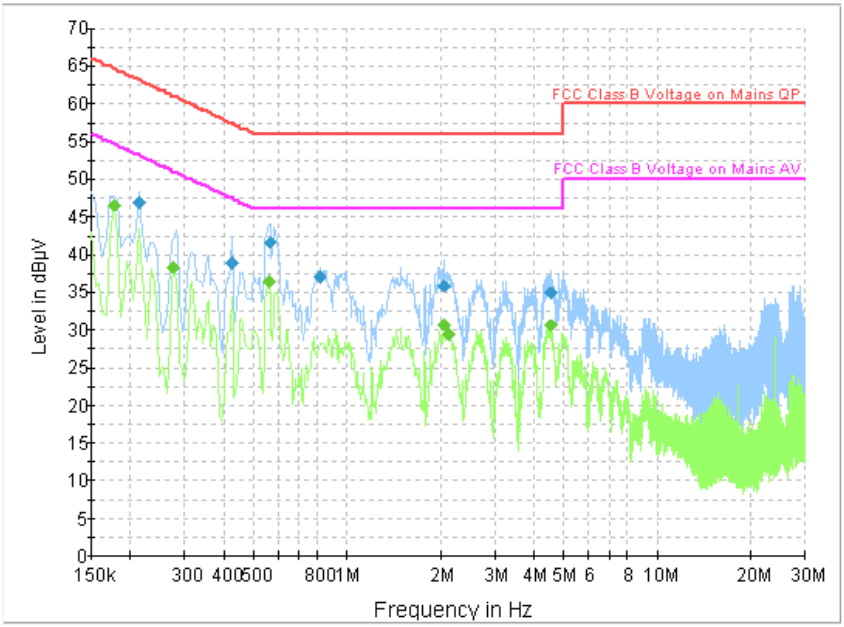


Fig.13 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.213000	46.8	GND	N	19.8	16.2	63.1
0.424500	38.8	GND	L1	19.9	18.6	57.4
0.564000	41.7	GND	L1	19.9	14.3	56.0
0.811500	37.0	GND	N	19.8	19.0	56.0
2.058000	35.8	GND	N	19.7	20.2	56.0
4.542000	34.8	GND	N	19.6	21.2	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	46.5	GND	N	19.8	8.1	54.6
0.276000	38.3	GND	N	19.8	12.7	50.9
0.559500	36.4	GND	L1	19.9	9.6	46.0
2.058000	30.7	GND	N	19.7	15.3	46.0
2.125500	29.4	GND	L1	19.5	16.6	46.0
4.542000	30.5	GND	N	19.6	15.5	46.0

Charging Mode, Set.3

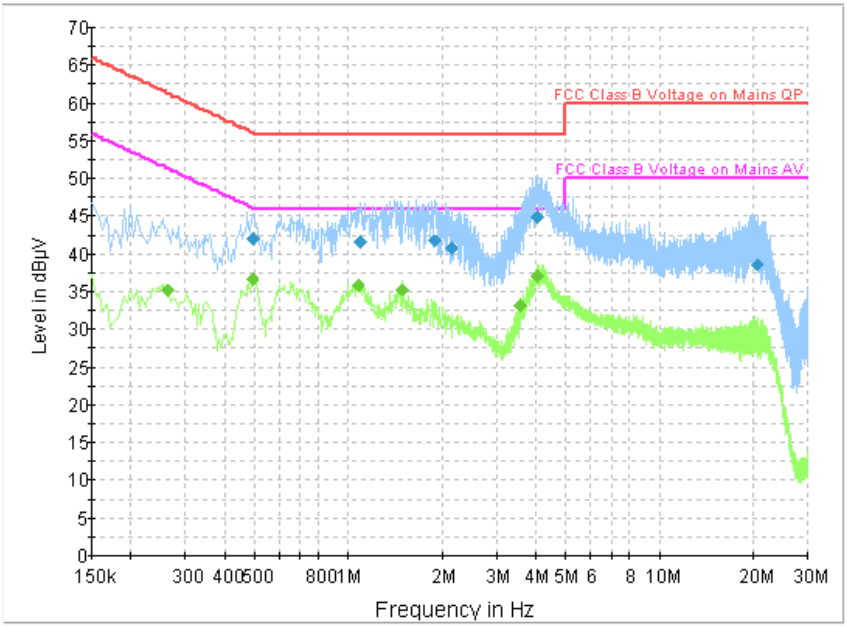


Fig.14 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.496500	42.1	GND	N	19.9	13.9	56.1
1.090500	41.7	GND	N	19.7	14.3	56.0
1.900500	41.8	GND	L1	19.7	14.2	56.0
2.139000	40.8	GND	L1	19.5	15.2	56.0
4.047000	44.9	GND	L1	19.5	11.1	56.0
20.638500	38.6	GND	L1	19.9	21.4	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.262500	35.1	GND	N	19.8	16.3	51.4
0.492000	36.6	GND	N	19.9	9.6	46.1
1.077000	35.8	GND	N	19.7	10.2	46.0
1.500000	35.3	GND	N	19.7	10.7	46.0
3.574500	33.1	GND	L1	19.5	12.9	46.0
4.047000	37.2	GND	L1	19.5	8.8	46.0

USB Mode, Set.4

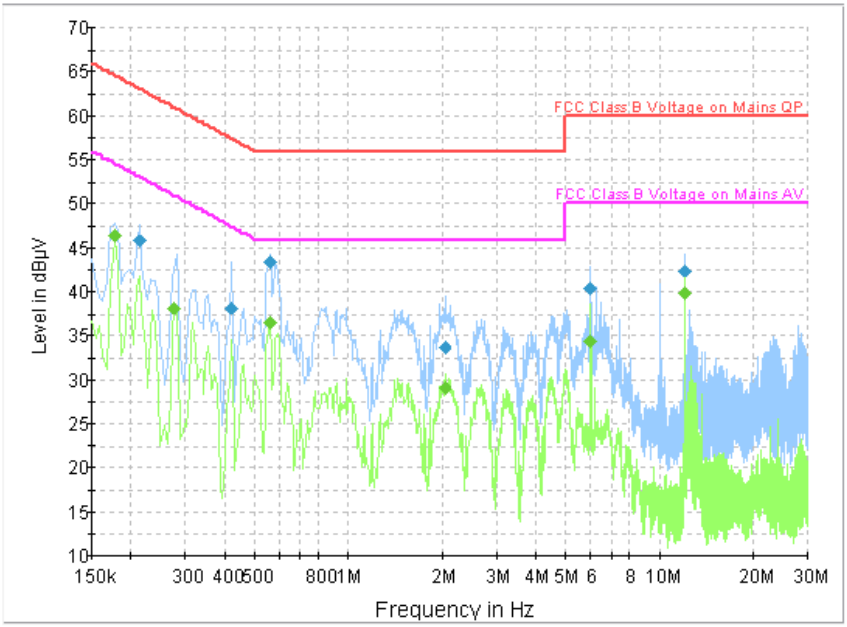


Fig.15 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.213000	45.8	GND	N	19.8	17.3	63.1
0.420000	38.1	GND	L1	19.9	19.3	57.4
0.559500	43.4	GND	L1	19.9	12.6	56.0
2.035500	33.7	GND	L1	19.7	22.3	56.0
6.018000	40.4	GND	N	19.6	19.6	60.0
12.039000	42.4	GND	N	19.7	17.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	46.4	GND	N	19.8	8.2	54.6
0.276000	38.2	GND	N	19.8	12.7	50.9
0.559500	36.4	GND	L1	19.9	9.6	46.0
2.035500	29.1	GND	L1	19.7	16.9	46.0
6.022500	34.4	GND	L1	19.6	15.6	50.0
12.039000	39.9	GND	N	19.7	10.1	50.0

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