



# TEST REPORT

## No. I16Z40420-EMC01

for

**TCL Communication Ltd.**

**HSUPA/HSDPA/UMTS quad band /GSM quad band mobile phone**

**Model Name: 5010E**

**FCC ID: 2ACCJH048**

with

**Hardware Version: PIO**

**Software Version: v5E53**

**Issued Date: 2016-03-14**

**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: [ctl\\_terminals@catr.cn](mailto:ctl_terminals@catr.cn), website: [www.chinattl.com](http://www.chinattl.com)



## **REPORT HISTORY**

Report Number	Revision	Description	Issue Date
I16Z40420-EMC01	Rev.0	1 <sup>st</sup> edition	2016-03-14

## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>4</b>
<b>1.1. TESTING LOCATION .....</b>	<b>4</b>
<b>1.2. TESTING ENVIRONMENT .....</b>	<b>4</b>
<b>1.3. PROJECT DATA .....</b>	<b>4</b>
<b>1.4. SIGNATURE .....</b>	<b>4</b>
<b>2. CLIENT INFORMATION .....</b>	<b>5</b>
<b>2.1. APPLICANT INFORMATION.....</b>	<b>5</b>
<b>2.2. MANUFACTURER INFORMATION.....</b>	<b>5</b>
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>6</b>
<b>3.1. ABOUT EUT.....</b>	<b>6</b>
<b>3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....</b>	<b>6</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....</b>	<b>6</b>
<b>3.4. EUT SET-UPS .....</b>	<b>8</b>
<b>4. REFERENCE DOCUMENTS.....</b>	<b>9</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING.....</b>	<b>9</b>
<b>5. LABORATORY ENVIRONMENT.....</b>	<b>10</b>
<b>6. SUMMARY OF TEST RESULTS.....</b>	<b>11</b>
<b>7. TEST EQUIPMENTS UTILIZED.....</b>	<b>12</b>
<b>ANNEX A: MEASUREMENT RESULTS .....</b>	<b>13</b>

## 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℃

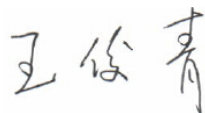
Relative Humidity: 20-75%

### 1.3. Project data

Testing Start Date: 2016-02-29

Testing End Date: 2016-03-11

### 1.4. Signature



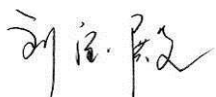
---

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. 201203  
City: Shanghai  
Postal Code: 201203  
Country: P. R. 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. 201203  
City: Shanghai  
Postal Code: 201203  
Country: P. R. China  
Telephone: 0086-21-31363544  
Fax: 0086-21-61460602

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

#### 3.1. About EUT

Description	HSUPA/HSDPA/UMTS quad band /GSM quad band mobile phone
Model Name	5010E
FCC ID	2ACCJH048
Extreme vol. Limits	3.5VDC 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 CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

#### 3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	/	PIO	V5E53

\*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	/	14TCT-BA-2101
AE2	Battery	/	/
AE3	Travel charger	/	16TCT-CH-0079
AE4	Travel charger	/	16TCT-CH-0279
AE5	Travel charger	/	15TCT-CH-1043
AE6	Travel charger	/	15TCT-CH-0377
AE7	Travel charger	/	15TCT-CH-1151
AE8	USB Cable	/	16TCT-DC-0166
AE9	USB Cable	/	/

##### AE1

Model	CAB2000041C7 (711700096011)
Manufacturer	Veken
Capacitance	2000mAh
Nominal voltage	3.8V

##### AE2

Model	CAB2000010C1
Manufacturer	BYD
Capacitance	2000mAh
Nominal voltage	3.8V



## AE3

Model	CBA3068AG0C4 (711813100141)
Manufacturer	AOHAI
Length of cable	/

## AE4

Model	CBA3068AG0C3 (711813100161)
Manufacturer	YINGJU
Length of cable	/

## AE5

Model	CBA0057AG0C3 (711813200121)
Manufacturer	Yingju
Length of cable	/

## AE6

Model	CBA0067AG0C4 (711813100151)
Manufacturer	AOHAI
Length of cable	/

## AE7

Model	CBA0067AG0C3 (711813100181)
Manufacturer	Yingju
Length of cable	/

## AE8

Model	CDA0000082CD (711310001121)
Manufacturer	LQ
Length of cable	98cm

## AE9

Model	CDA0000070CD (711310000801)
Manufacturer	Fukangyuan
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

<b>EUT set-up No.</b>	<b>Combination of EUT and AE</b>	<b>Remarks</b>
Set.1	EUT1+ AE1 + AE3 + AE8/AE9	Charger
Set.2	EUT1+ AE1 + AE4 + AE8/AE9	Charger
Set.3	EUT1+ AE1 + AE5 + AE8/AE9	Charger
Set.4	EUT1+ AE1 + AE6 + AE8/AE9	Charger
Set.5	EUT1+ AE1 + AE7 + AE8/AE9	Charger
Set.6	EUT1+ AE1 + AE8/AE9	USB mode

Note: HSUPA/HSDPA/UMTS quad band /GSM quad band mobile phone 5010E manufactured by TCL Communication Ltd is a variant model based on 5010G for conformance test. According to the declaration of changes, no test needs to be performed, all results are cited from the initial model. The report number for initial model is I16Z40419-EMC01.



## **4. Reference Documents**

### **4.1. Reference Documents for testing**

The following documents listed in this section are referred for testing.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
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	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	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.	Description	TYPE	SERIES NUMBER	MANUFACTUR E	CAL DUE DATE	CALIBRATI ON INTERVAL
1	Test Receiver	ESU26	100235	R&S	2017-03-02	1 year
2	Universal Radio Communication Tester	CMU200	109914	R&S	2016-03-26	1 year
3	Universal Radio Communication Tester	CMW500	143008	R&S	2016-12-09	1 year
4	LISN	ENV216	101200	R&S	2016-07-07	1 year
5	EMI Antenna	VULB 9163	9163-514	Schwarzbeck	2017-11-24	3 years
6	EMI Antenna	3115	6914	ETS-Lindgren	2016-12-15	3 years
7	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
8	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
9	Keyboard	L100	CN0RH6596589 07ATOI40	DELL	N/A	N/A
10	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	N/A

## **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 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 ( $\mu\text{V/m}$ )		
	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

$G_{\text{PL}}$ : Path Loss

$P_{\text{Mea}}$ : Measurement result on receiver.

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

#### Measurement results for Set.1:

##### Charging Mode/Average detector

Frequency(MHz)	Result(dB $\mu\text{V}/\text{m}$ )	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dB $\mu\text{V}$ )	Polarity
17962.600	50.7	-17.7	45.6	22.800	VERTICAL
17997.450	50.7	-17.7	45.6	22.800	VERTICAL
17977.050	50.5	-17.7	45.6	22.600	HORIZONTAL
17955.800	50.3	-17.7	45.6	22.400	HORIZONTAL
17870.800	50.2	-18.5	45.6	23.100	VERTICAL
17983.850	50.2	-17.7	45.6	22.300	HORIZONTAL

##### Charging Mode/Peak detector

Frequency(MHz)	Result(dB $\mu\text{V}/\text{m}$ )	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dB $\mu\text{V}$ )	Polarity
17896.300	60.4	-18.5	45.6	33.300	HORIZONTAL
17908.200	60.1	-18.5	45.6	33.000	HORIZONTAL
17926.050	60.0	-17.7	45.6	32.100	VERTICAL
17986.400	59.8	-17.7	45.6	31.900	HORIZONTAL
17863.150	59.8	-18.5	45.6	32.700	HORIZONTAL
17847.000	59.8	-18.5	45.6	32.700	HORIZONTAL

**Measurement results for Set.2:**
**Charging Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17992.350	50.7	-17.7	45.6	22.800	HORIZONTAL
17982.150	50.6	-17.7	45.6	22.700	VERTICAL
17980.450	50.5	-17.7	45.6	22.600	VERTICAL
17801.950	50.4	-18.5	45.6	23.300	HORIZONTAL
17981.300	50.3	-17.7	45.6	22.400	VERTICAL
17776.450	50.2	-18.5	45.6	23.100	HORIZONTAL

**Charging Mode/Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17858.050	60.6	-18.5	45.6	33.500	VERTICAL
17981.300	60.6	-17.7	45.6	32.700	HORIZONTAL
17944.750	60.0	-17.7	45.6	32.100	HORIZONTAL
17897.150	59.9	-18.5	45.6	32.800	VERTICAL
17937.100	59.7	-17.7	45.6	31.800	VERTICAL
17994.900	59.6	-17.7	45.6	31.700	HORIZONTAL

**Measurement results for Set.3:**
**Charging Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17840.200	51.0	-18.5	45.6	23.900	VERTICAL
17932.850	50.9	-17.7	45.6	23.000	HORIZONTAL
17943.900	50.6	-17.7	45.6	22.700	VERTICAL
17943.050	50.5	-17.7	45.6	22.600	HORIZONTAL
17990.650	50.4	-17.7	45.6	22.500	VERTICAL
17858.900	50.4	-18.5	45.6	23.300	VERTICAL

**Charging Mode/Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17737.350	60.8	-18.5	45.6	33.700	HORIZONTAL
17835.950	60.2	-18.5	45.6	33.100	HORIZONTAL
17836.800	60.1	-18.5	45.6	33.000	VERTICAL
17785.800	60.1	-18.5	45.6	33.000	HORIZONTAL
17977.050	60.0	-17.7	45.6	32.100	HORIZONTAL
17952.400	59.8	-17.7	45.6	31.900	VERTICAL

**Measurement results for Set.4:**
**Charging Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17900.550	50.4	-18.5	45.6	23.300	VERTICAL
17912.450	50.4	-18.5	45.6	23.300	HORIZONTAL
17981.300	50.3	-17.7	45.6	22.400	VERTICAL
17938.800	50.3	-17.7	45.6	22.400	HORIZONTAL
17709.300	50.2	-18.9	45.6	23.500	HORIZONTAL
17973.650	50.2	-17.7	45.6	22.300	VERTICAL

**Charging Mode/Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17840.200	60.0	-18.5	45.6	32.900	HORIZONTAL
17710.150	59.9	-18.9	45.6	33.200	HORIZONTAL
17914.150	59.9	-18.5	45.6	32.800	VERTICAL
17640.450	59.9	-18.9	45.6	33.200	HORIZONTAL
17991.500	59.7	-17.7	45.6	31.800	HORIZONTAL
17917.550	59.7	-17.7	45.6	31.800	VERTICAL

**Measurement results for Set.5:**
**Charging Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17966.850	50.5	-17.7	45.6	22.600	VERTICAL
17934.550	50.3	-17.7	45.6	22.400	VERTICAL
17990.650	50.3	-17.7	45.6	22.400	HORIZONTAL
17864.850	50.2	-18.5	45.6	23.100	VERTICAL
17869.100	50.2	-18.5	45.6	23.100	HORIZONTAL
17969.400	50.2	-17.7	45.6	22.300	VERTICAL

**Charging Mode/Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)	Polarity
17841.900	60.9	-18.5	45.6	33.800	VERTICAL
17960.900	60.9	-17.7	45.6	33.000	HORIZONTAL
17984.700	60.3	-17.7	45.6	32.400	HORIZONTAL
17854.650	60.0	-18.5	45.6	32.900	HORIZONTAL
17833.400	59.9	-18.5	45.6	32.800	HORIZONTAL
17822.350	59.8	-18.5	45.6	32.700	VERTICAL



**Measurement results for Set.6:****USB Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dB $\mu$ V)	Polarity
17898.850	51.1	-18.5	45.6	24.000	HORIZONTAL
17971.950	50.7	-17.7	45.6	22.800	HORIZONTAL
17924.350	50.6	-17.7	45.6	22.700	HORIZONTAL
17978.750	50.5	-17.7	45.6	22.600	HORIZONTAL
17870.800	50.5	-18.5	45.6	23.400	VERTICAL
17985.550	50.5	-17.7	45.6	22.600	VERTICAL

**USB Mode/ Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dB $\mu$ V)	Polarity
17948.150	62.0	-17.7	45.6	34.100	HORIZONTAL
17807.900	61.3	-18.5	45.6	34.200	HORIZONTAL
17975.350	60.9	-17.7	45.6	33.000	VERTICAL
17950.700	60.8	-17.7	45.6	32.900	VERTICAL
17869.950	60.8	-18.5	45.6	33.700	VERTICAL
17779.850	60.6	-18.5	45.6	33.500	HORIZONTAL

Note: The measurement results of Set.1, Set.2, Set.3, Set.4, Set.5, and Set.6 showed here are worst cases of the combinations of different batteries and USB cables.

### Charging Mode, Set.1

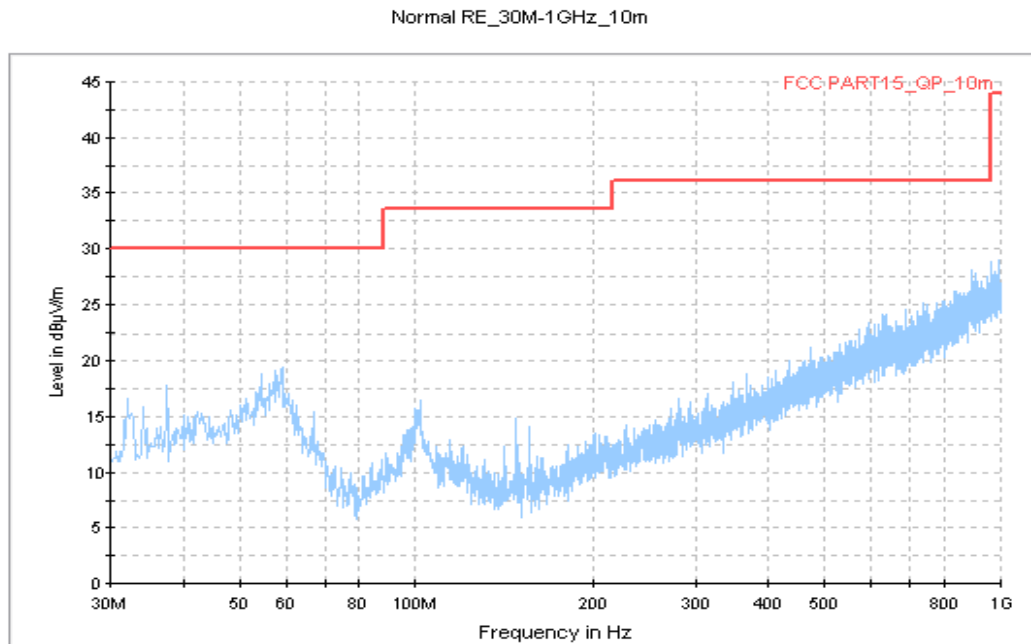


Figure A.1 Radiated Emission from 30MHz to 1GHz

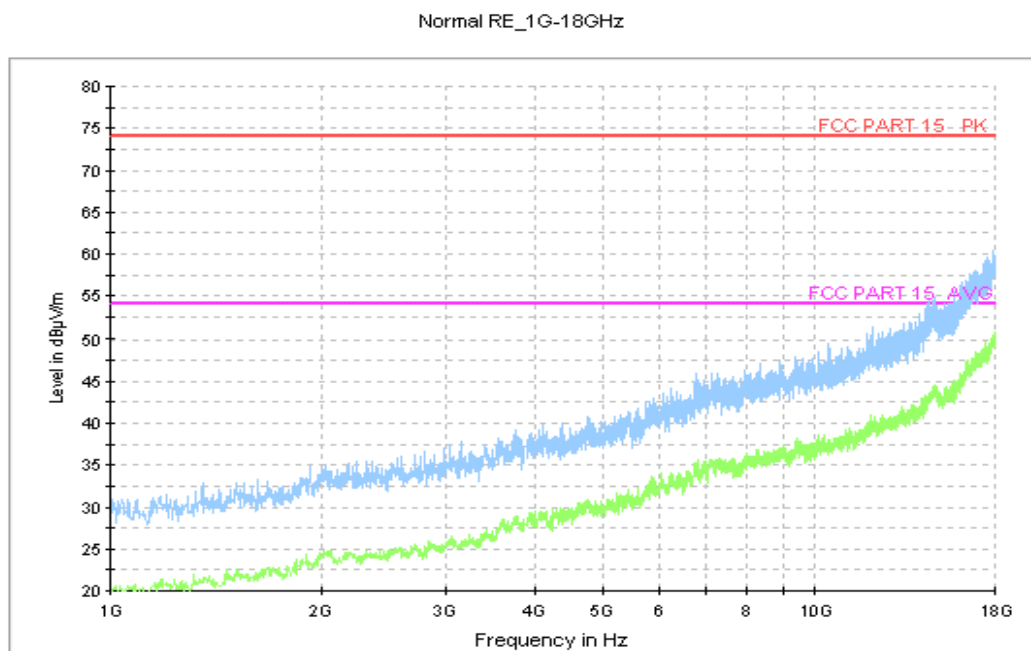


Figure A.2 Radiated Emission from 1GHz to 18GHz

## Charging Mode, Set.2

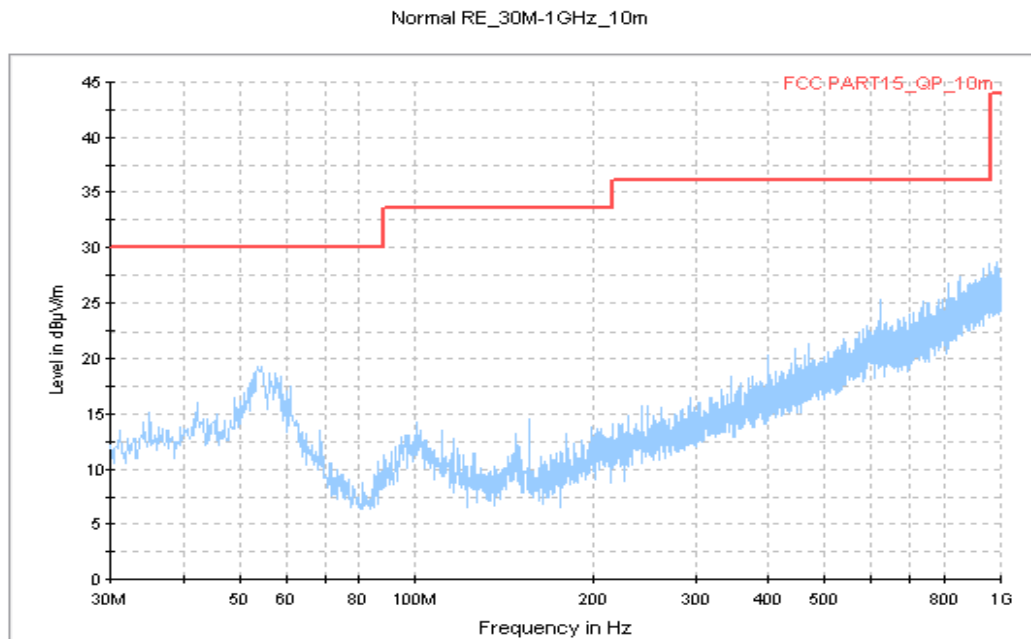


Figure A.3 Radiated Emission from 30MHz to 1GHz

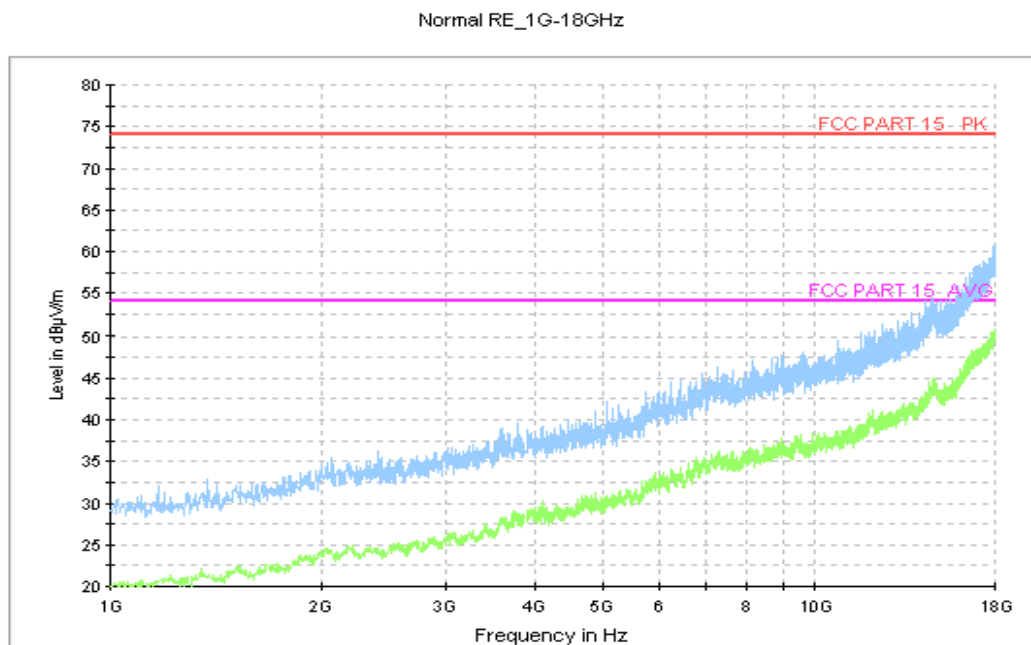


Figure A.4 Radiated Emission from 1GHz to 18GHz

### Charging Mode, Set.3

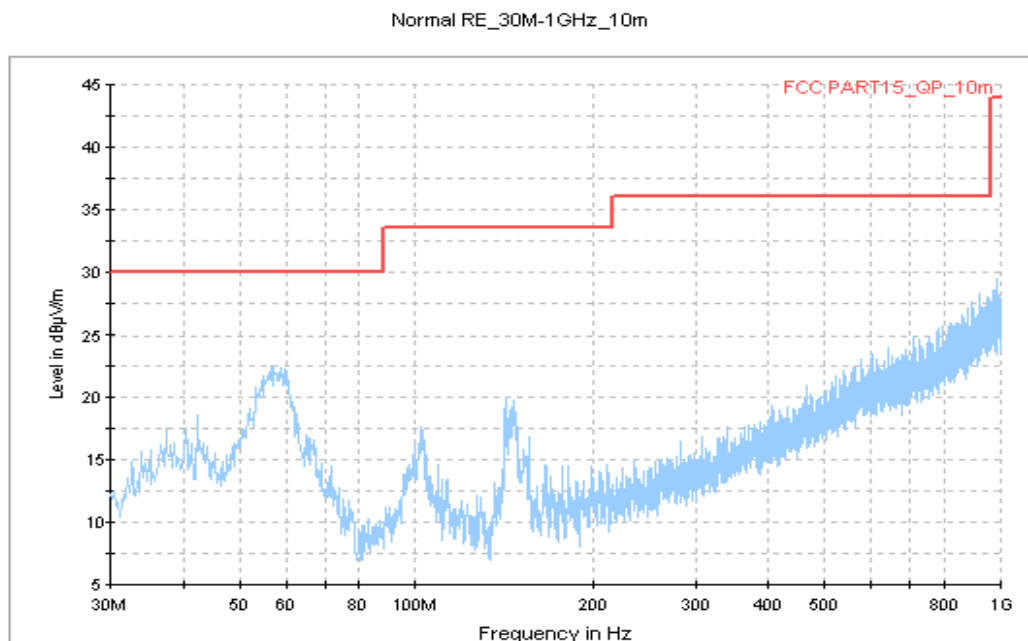


Figure A.5 Radiated Emission from 30MHz to 1GHz

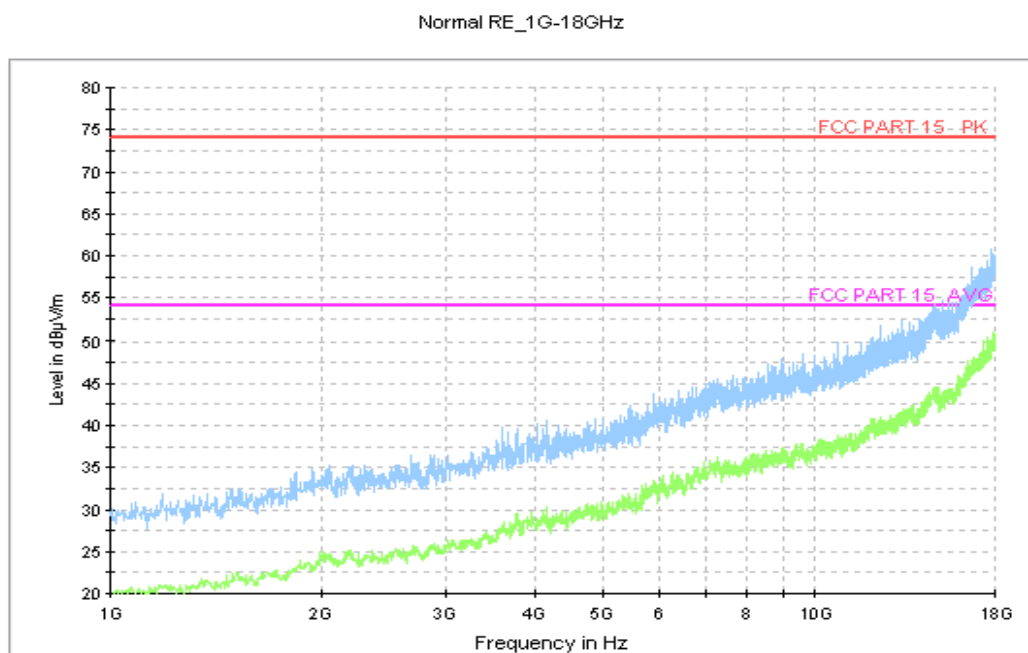


Figure A.6 Radiated Emission from 1GHz to 18GHz

#### Charging Mode, Set.4

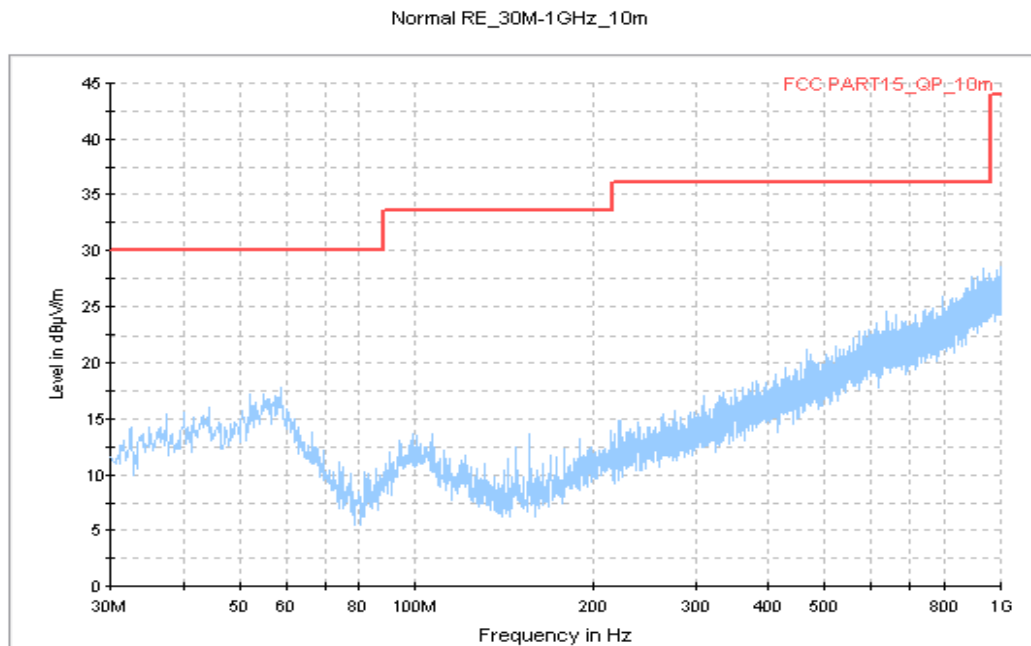


Figure A.7 Radiated Emission from 30MHz to 1GHz

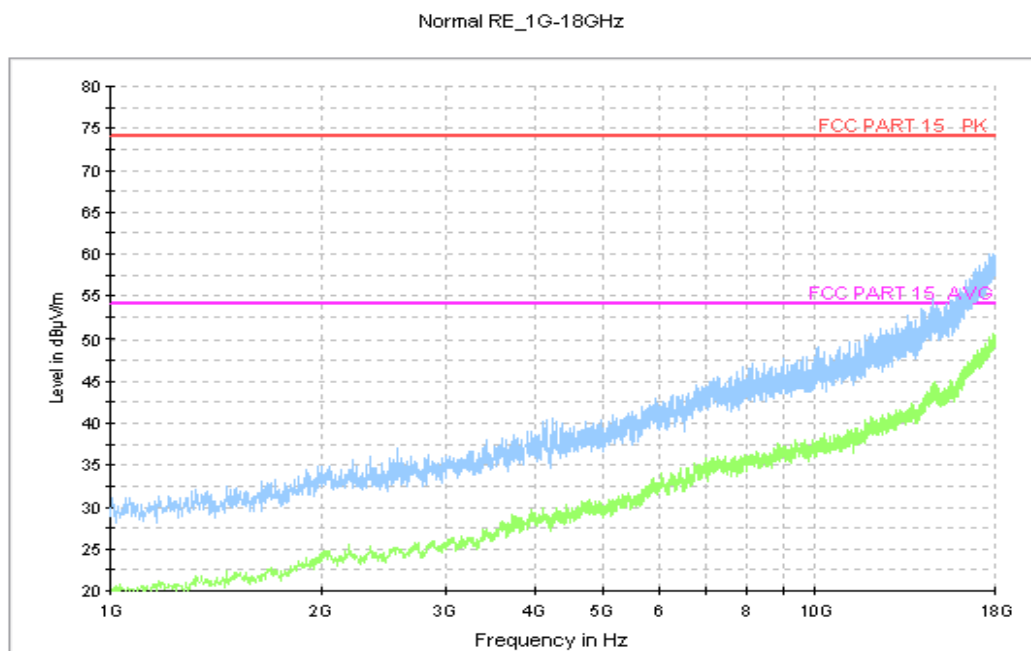


Figure A.8 Radiated Emission from 1GHz to 18GHz

### Charging Mode, Set.5

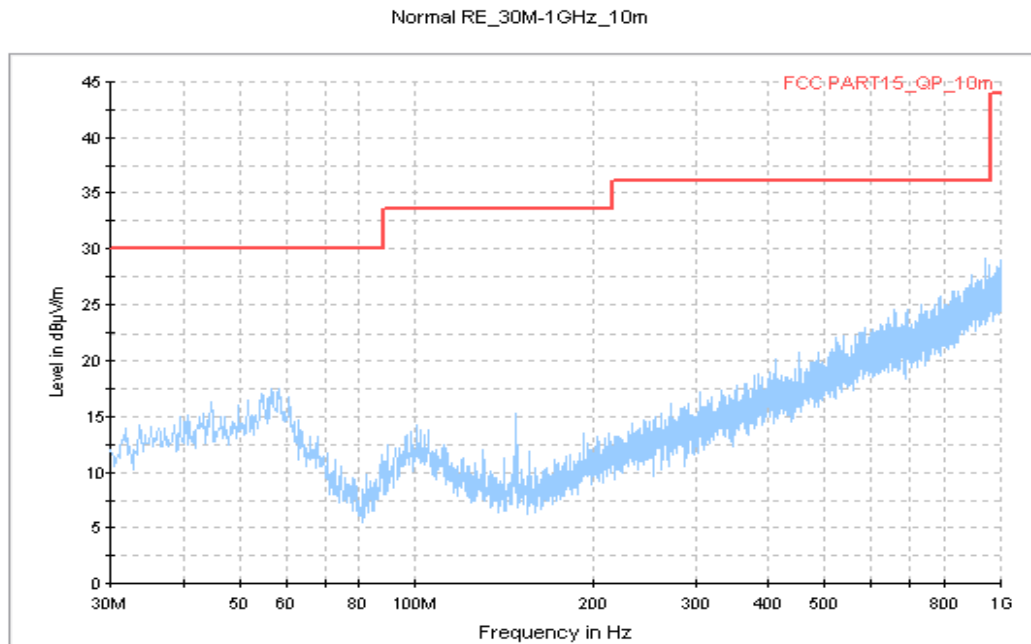


Figure A.9 Radiated Emission from 30MHz to 1GHz

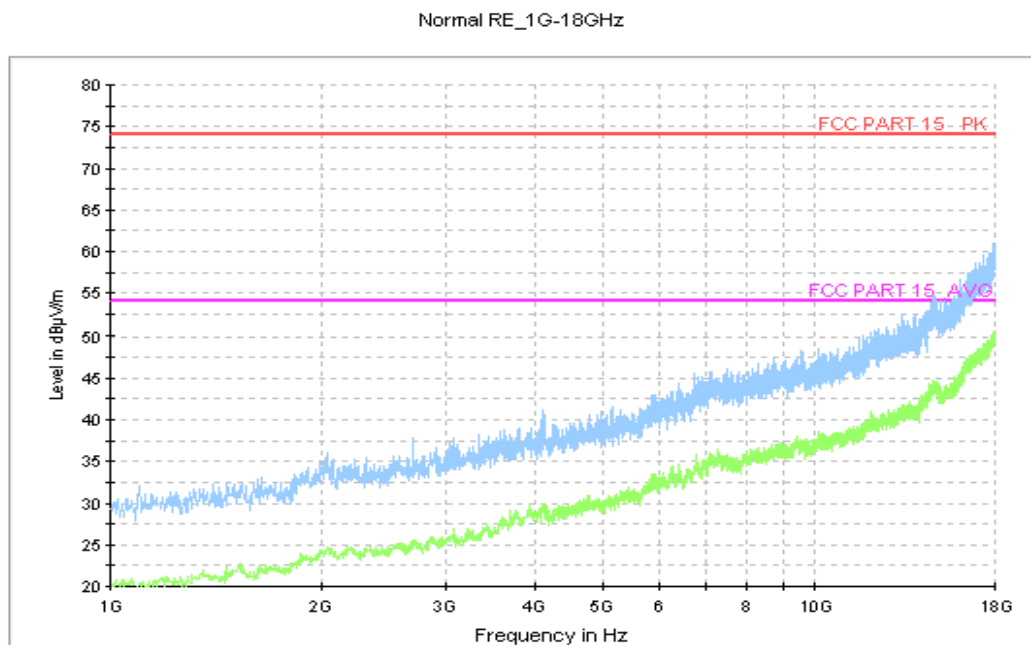


Figure A.10 Radiated Emission from 1GHz to 18GHz

# USB Mode, Set.6

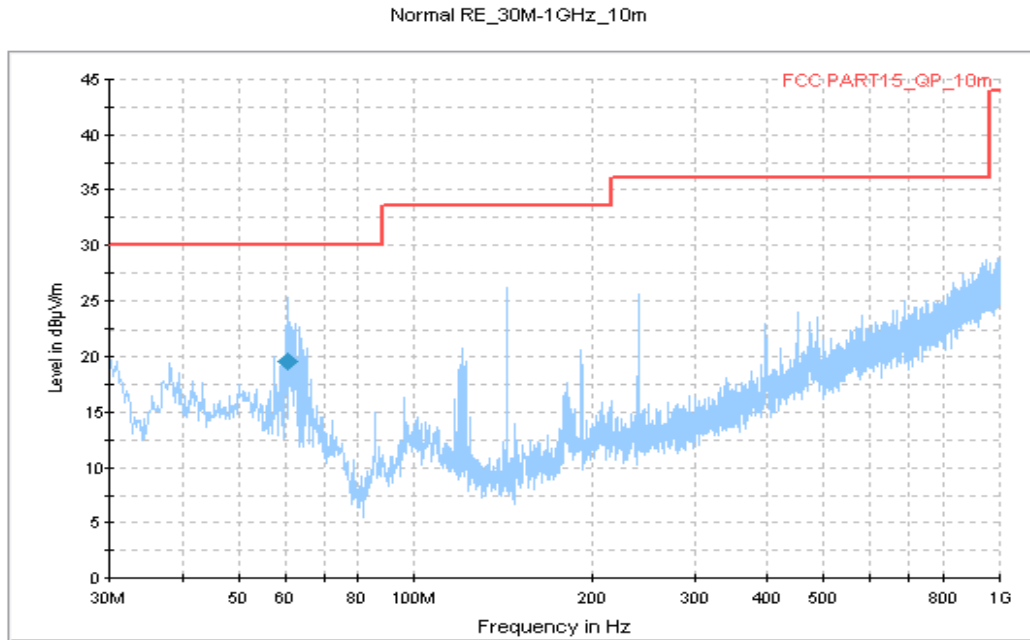


Figure A.11 Radiated Emission from 30MHz to 1GHz

## Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
60.518000	19.6	177.0	V	210.0	-12.3	10.4	30.0

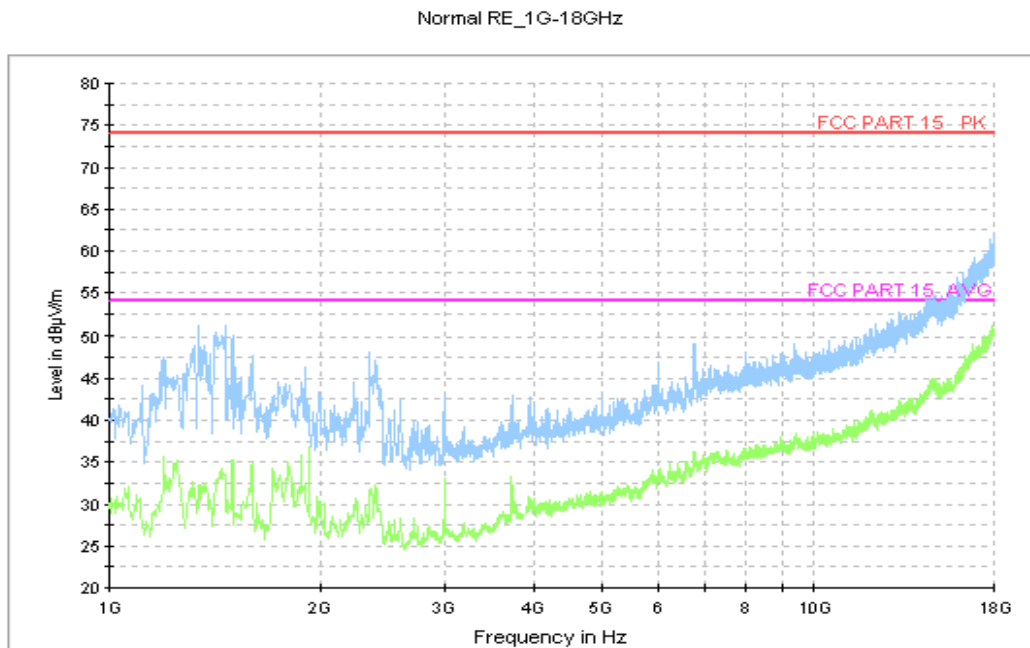


Figure A.12 Radiated Emission from 1GHz to 18GHz

## 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 – 2014, 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.

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

### A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	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

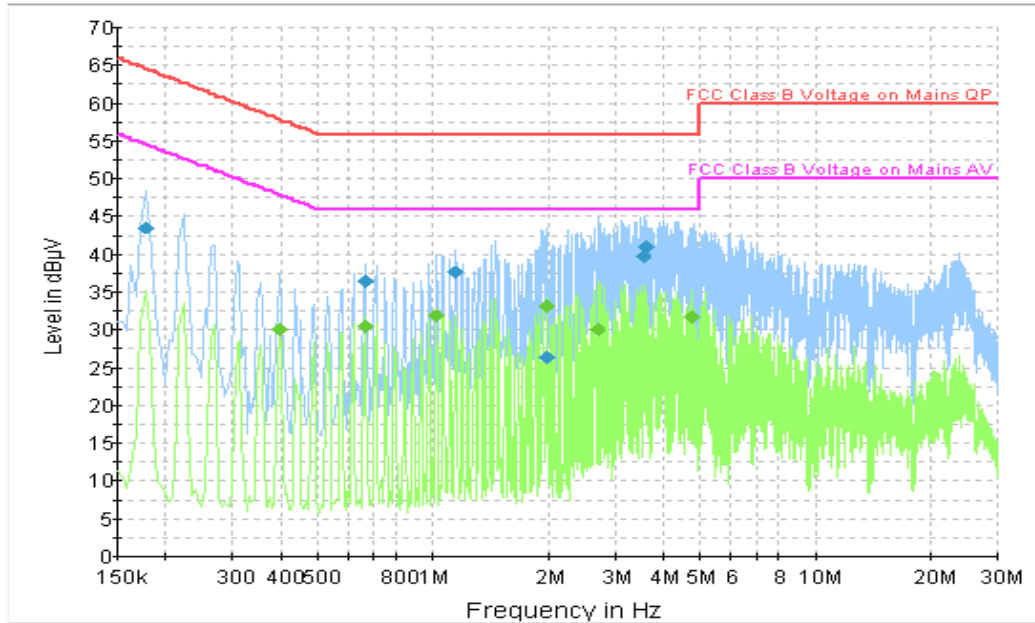


Figure A.13 Conducted Emission

#### Final Result 1

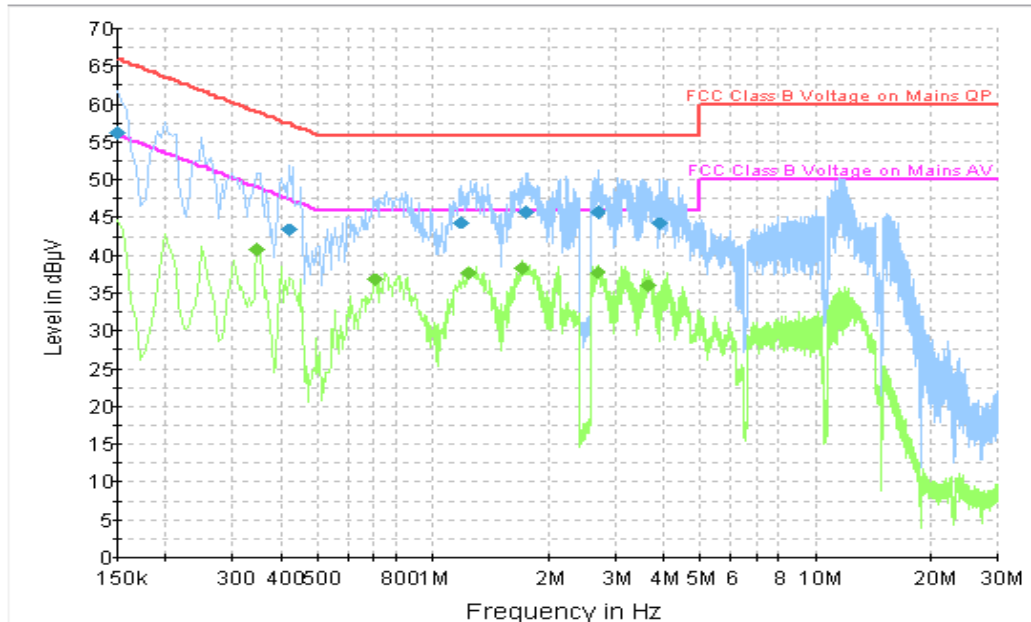
Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.177000	43.6	2000.0	9.000	On	L1	19.8	21.1	64.6
0.663000	36.4	2000.0	9.000	On	L1	19.8	19.6	56.0
1.149000	37.6	2000.0	9.000	On	L1	19.7	18.4	56.0
1.981500	26.5	2000.0	9.000	On	L1	19.7	29.5	56.0
3.556500	39.7	2000.0	9.000	On	N	19.5	16.3	56.0
3.610500	41.1	2000.0	9.000	On	N	19.5	14.9	56.0

#### Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.397500	30.1	2000.0	9.000	On	L1	19.9	17.8	47.9
0.663000	30.6	2000.0	9.000	On	L1	19.8	15.4	46.0
1.018500	31.8	2000.0	9.000	On	L1	19.7	14.2	46.0
1.995000	33.2	2000.0	9.000	On	L1	19.7	12.8	46.0
2.697000	30.0	2000.0	9.000	On	L1	19.3	16.0	46.0
4.771500	31.7	2000.0	9.000	On	L1	19.6	14.3	46.0

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

### Charging Mode, Set.2



**Figure A.14 Conducted Emission**

#### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	56.3	2000.0	9.000	On	L1	20.2	9.7	66.0
0.420000	43.4	2000.0	9.000	On	N	19.9	14.1	57.4
1.185000	44.4	2000.0	9.000	On	L1	19.7	11.6	56.0
1.756500	45.8	2000.0	9.000	On	L1	19.7	10.2	56.0
2.697000	45.8	2000.0	9.000	On	L1	19.3	10.2	56.0
3.925500	44.2	2000.0	9.000	On	L1	19.5	11.8	56.0

#### Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.348000	40.9	2000.0	9.000	On	L1	19.9	8.2	49.0
0.703500	36.9	2000.0	9.000	On	L1	19.8	9.1	46.0
1.243500	37.7	2000.0	9.000	On	L1	19.7	8.3	46.0
1.702500	38.3	2000.0	9.000	On	L1	19.7	7.7	46.0
2.706000	37.9	2000.0	9.000	On	L1	19.2	8.1	46.0
3.660000	36.0	2000.0	9.000	On	L1	19.5	10.0	46.0

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

### Charging Mode, Set.3

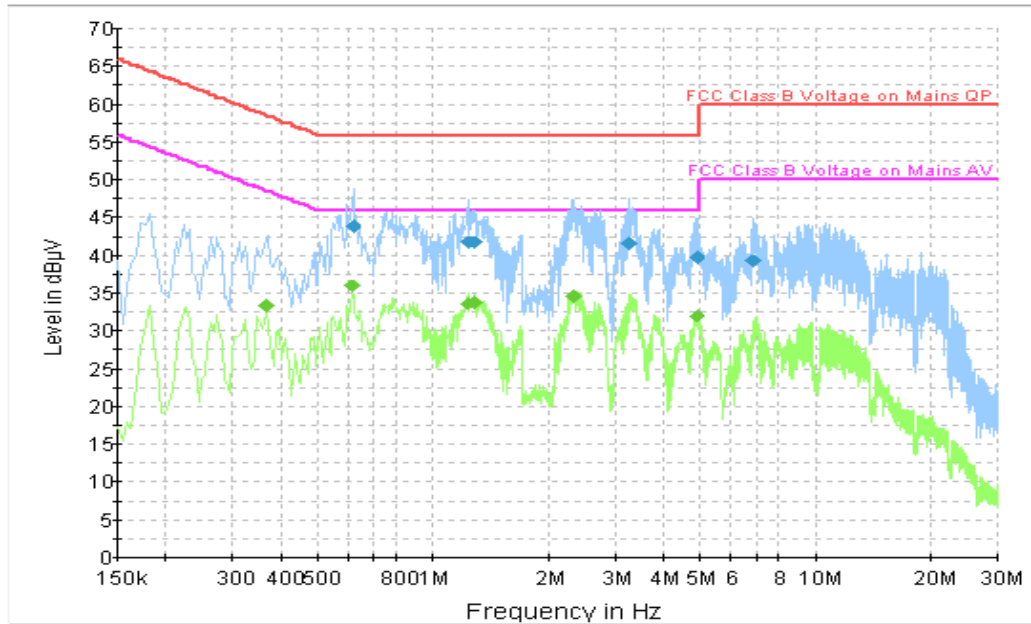


Figure A.15 Conducted Emission

### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.618000	43.9	2000.0	9.000	On	L1	19.8	12.1	56.0
1.243500	41.8	2000.0	9.000	On	L1	19.7	14.2	56.0
1.284000	41.7	2000.0	9.000	On	L1	19.7	14.3	56.0
3.277500	41.6	2000.0	9.000	On	L1	19.4	14.4	56.0
4.884000	39.8	2000.0	9.000	On	L1	19.6	16.2	56.0
6.873000	39.3	2000.0	9.000	On	L1	19.6	20.7	60.0

### Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.366000	33.3	2000.0	9.000	On	L1	19.8	15.2	48.6
0.613500	36.0	2000.0	9.000	On	L1	19.8	10.0	46.0
1.234500	33.7	2000.0	9.000	On	L1	19.7	12.3	46.0
1.275000	33.9	2000.0	9.000	On	L1	19.7	12.1	46.0
2.328000	34.6	2000.0	9.000	On	L1	19.3	11.4	46.0
4.911000	32.0	2000.0	9.000	On	L1	19.6	14.0	46.0

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

#### Charging Mode, Set.4

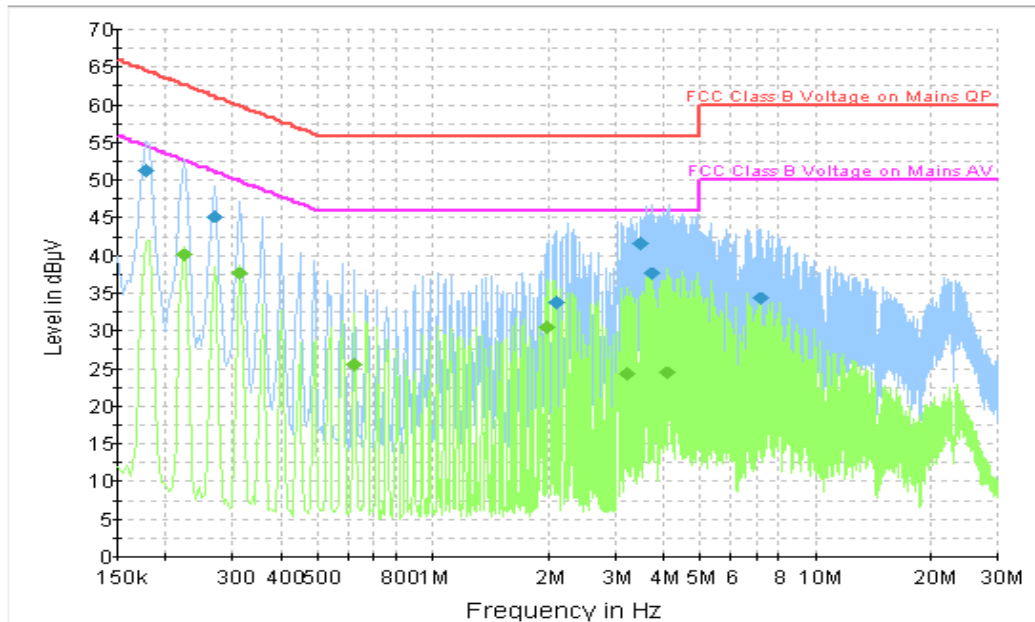


Figure A.16 Conducted Emission

#### Final Result 1

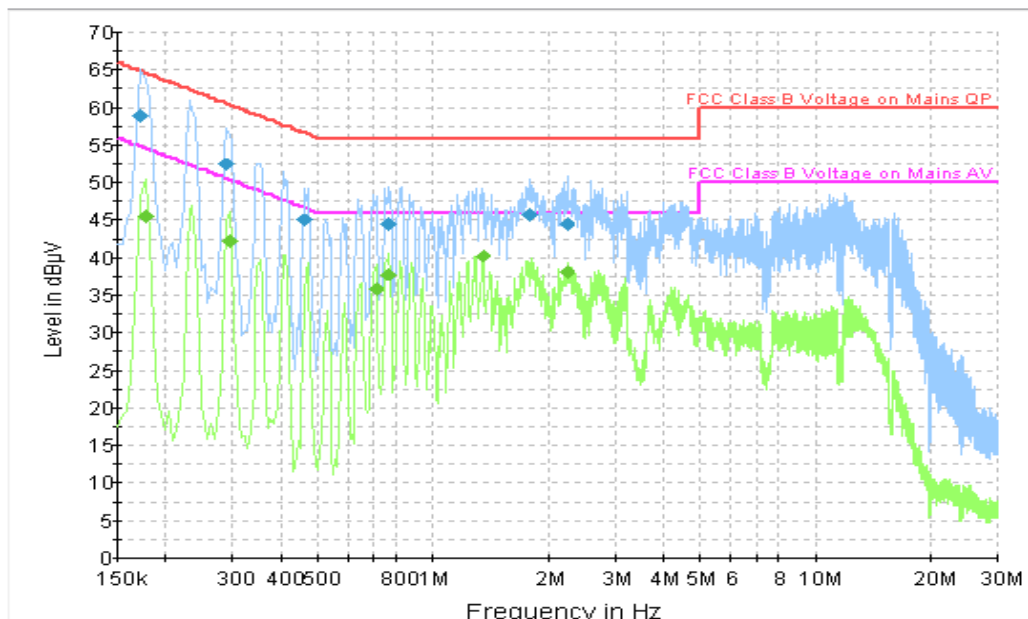
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	51.4	2000.0	9.000	On	L1	19.8	13.2	64.6
0.267000	45.3	2000.0	9.000	On	L1	19.8	15.9	61.2
2.094000	33.8	2000.0	9.000	On	N	19.7	22.2	56.0
3.471000	41.6	2000.0	9.000	On	N	19.4	14.4	56.0
3.745500	37.7	2000.0	9.000	On	N	19.5	18.3	56.0
7.179000	34.3	2000.0	9.000	On	L1	19.6	25.7	60.0

#### Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.222000	40.1	2000.0	9.000	On	L1	19.8	12.6	52.7
0.312000	37.6	2000.0	9.000	On	L1	19.8	12.4	49.9
0.627000	25.6	2000.0	9.000	On	L1	19.8	20.4	46.0
1.995000	30.6	2000.0	9.000	On	L1	19.7	15.4	46.0
3.214500	24.3	2000.0	9.000	On	L1	19.3	21.7	46.0
4.105500	24.4	2000.0	9.000	On	L1	19.6	21.6	46.0

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

### Charging Mode, Set.5



**Figure A.17 Conducted Emission**

### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.172500	58.9	2000.0	9.000	On	L1	19.8	6.0	64.8
0.289500	52.5	2000.0	9.000	On	L1	19.8	8.0	60.5
0.460500	45.0	2000.0	9.000	On	N	19.9	11.6	56.7
0.766500	44.6	2000.0	9.000	On	L1	19.8	11.4	56.0
1.792500	45.7	2000.0	9.000	On	L1	19.7	10.3	56.0
2.238000	44.5	2000.0	9.000	On	L1	19.3	11.5	56.0

### Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	45.6	2000.0	9.000	On	L1	19.8	9.1	54.6
0.294000	42.2	2000.0	9.000	On	L1	19.8	8.2	50.4
0.708000	35.8	2000.0	9.000	On	L1	19.8	10.2	46.0
0.766500	37.8	2000.0	9.000	On	L1	19.8	8.2	46.0
1.347000	40.3	2000.0	9.000	On	L1	19.7	5.7	46.0
2.238000	38.2	2000.0	9.000	On	L1	19.3	7.8	46.0

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

## USB Mode, Set.6

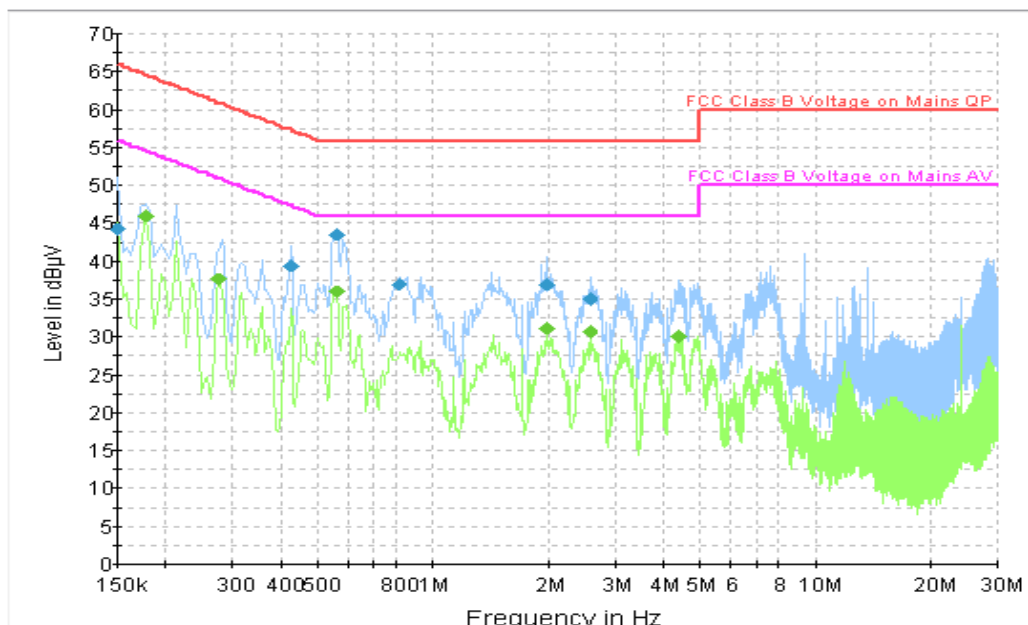


Figure A.18 Conducted Emission

### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	44.3	2000.0	9.000	On	L1	20.2	21.7	66.0
0.424500	39.4	2000.0	9.000	On	L1	19.9	17.9	57.4
0.559500	43.6	2000.0	9.000	On	L1	19.9	12.4	56.0
0.816000	37.0	2000.0	9.000	On	N	19.8	19.0	56.0
1.986000	36.9	2000.0	9.000	On	N	19.7	19.1	56.0
2.580000	35.0	2000.0	9.000	On	N	19.1	21.0	56.0

### Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time(ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	46.1	2000.0	9.000	On	N	19.8	8.5	54.6
0.276000	37.7	2000.0	9.000	On	N	19.8	13.3	50.9
0.559500	36.0	2000.0	9.000	On	L1	19.9	10.0	46.0
1.986000	31.2	2000.0	9.000	On	N	19.7	14.8	46.0
2.580000	30.6	2000.0	9.000	On	L1	19.1	15.4	46.0
4.402500	30.1	2000.0	9.000	On	L1	19.6	15.9	46.0

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

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