



# TEST REPORT

No.I16N00351-EMC

for

**Huawei Technologies Co., Ltd.**

**Smart Phone**

**Model Name: HUAWEI CUN-L03,CUN-L03**

**Marketing Name: HUAWEI Y5II**

**FCC ID: QISCUN-L03**

with

**Hardware Version: Ver.A**

**Software Version: CUN-L03C464B009**

**Issued Date: 2016-04-12**

**Test Laboratory:**

**FCC 2.948 Listed: No.342690**

**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:**

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## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I16N00351-EMC	Rev.0	1st edition	2016-04-12



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## 1. Test Laboratory

### 1.1. Testing Location

Address: TCL International E city No. 1001 Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong, China

Postal Code: 518048

Telephone: +86(755)33322000

Fax: +86(755)33322000

### 1.2. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

### 1.3. Project data

Testing Start Date: 2016-04-05

Testing End Date: 2016-04-07

### 1.4. Signature

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Liang Yong

(Prepared this test report)

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Du Zhaoxuan

(Reviewed this test report)

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Cao Junfei

Director of the laboratory

(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

### **2.2. Manufacturer Information**

Company Name: Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

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

#### **3.1. About EUT**

Description	Smart Phone
Model Name	HUAWEI CUN-L03,CUN-L03
Marketing Name	HUAWEI Y5II
FCC ID	QISCUN-L03
TX Band	GSM850/1800, WCDMA BAND 2/4/5,FDD Band 2/4/5/7
RX Band	GSM850/1800, WCDMA BAND 2/4/5,FDD Band 2/4/5/7

The Equipment Under Test (EUT) are a model of Smart Phone with integrated antenna.

The EUT supports GPRS service and EGPRS service. It has MP3, camera, USB memory, FM radio, GPS receiver, Bluetooth and WLAN functions.

Remark: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed information.

#### **3.2. Internal Identification of EUT**

<b>EUT ID*</b>	<b>SN or IMEI</b>
EUT	869889020211781
	869889020211823

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

#### **3.3. Internal Identification of AE**

<b>AE ID*</b>	<b>Description</b>	<b>SN</b>
AE1	Battery	/
AE2	Travel charger	/
AE3	USB cable	/
AE1-1		
Model	HB4342A1RBC	
Manufacturer	SCUD (FUJIAN) Electronics Co., Ltd.	
Capacitance	2200mAh	
Nominal voltage	3.8V	
AE1-2		
Model	HB4342A1RBC	
Manufacturer	Sunwoda Electronic Co., LTD.	
Capacitance	2200mAh	
Nominal voltage	3.8V	
AE2-1		
Model	HW-050100U01	
Manufacturer	HUIZHOU BYD ELECTRONIC CO., LTD.	
Length of cable	/	
SN	B66660F3G00021	



AE2-2

Model HW-050100E01  
Manufacturer HUIZHOU BYD ELECTRONIC CO., LTD.  
Length of cable /  
SN B66799F5F00383

AE2-3

Model HW-050100U01  
Manufacturer SHENZHEN HUNTKEY ELECTRIC CO., LTD  
Length of cable /  
SN H666LGF4M07273

AE2-4

Model HW-050100E01  
Manufacturer SHENZHEN HUNTKEY ELECTRIC CO., LTD  
Length of cable /  
SN H667LJF7L06674

AE2-5

Model HW-050100E01  
Manufacturer Dongguan Phitek Electronics Co., Ltd  
Length of cable /  
SN P66707F9F18319

AE2-6

Model HW-050100U01  
Manufacturer Dongguan Phitek Electronics Co., Ltd  
Length of cable /  
SN P66605F7A00061

AE2-7

Model HW-050100B01  
Manufacturer HUIZHOU BYD ELECTRONIC CO., LTD.  
Length of cable /  
SN /

AE2-8

Model HW-050100A01  
Manufacturer HUIZHOU BYD ELECTRONIC CO., LTD.  
Length of cable /  
SN /

AE2-9

Model HW-050100B01  
Manufacturer SHENZHEN HUNTKEY ELECTRIC CO., LTD  
Length of cable /  
SN /

AE2-10

Model HW-050100A01  
Manufacturer SHENZHEN HUNTKEY ELECTRIC CO., LTD  
Length of cable /



SN	/
AE2-11	
Model	HW-050100B01
Manufacturer	Dongguan Phitek Electronics Co., Ltd
Length of cable	/
SN	/
AE2-12	
Model	HW-050100A01
Manufacturer	Dongguan Phitek Electronics Co., Ltd
Length of cable	/
SN	/
AE3-1	
Model	130-26654
Manufacturer	CHANGSHU HONGLIN TECHNOLOGY CO.,LTD.
Length of cable	95cm
AE3-2	
Model	CUBB01M-HC208-DH
Manufacturer	FOXCONN INTERCONNECT TECHNOLOGY LIMITED.
Length of cable	96cm

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



### 3.4. EUT set-ups

<b>EUT set-up No.</b>	<b>Combination of EUT and AE</b>	<b>Remarks</b>
Set.1	EUT1+ AE1-1 + AE2-1 + AE3-1	Charging mode
Set.2	EUT1+ AE1-2 + AE2-2 + AE3-2	Charging mode
Set.3	EUT1+ AE1-1 + AE2-3 + AE3-1	Charging mode
Set.4	EUT1+ AE1-2 + AE2-4 + AE3-2	Charging mode
Set.5	EUT1+ AE1-1 + AE2-5 + AE3-1	Charging mode
Set.6	EUT1+ AE1-2 + AE2-6 + AE3-2	Charging mode
Set.7	EUT1+ AE1-1 + AE3-1	USB mode
Set.8	EUT1+ AE1-2 + AE3-2	USB mode

#### 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	10-1-2015 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** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-18000MHz,>90dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3 m distance, from 30 to 1000 MHz

**Shield room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. =35 %, Max. = 60 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-10000MHz,>90dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω

**Fully-anechoic chamber** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-18000MHz,>90dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz



## 6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Radiated Emission	15.109(a)	A.1	P
2	Conducted Emission	15.107(a)	A.2	P



## 7. Test Facilities Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CALDUE DATE	CAL PERIOD
1.	Test Receiver	ESCI	100701	R&S	2016.08.10	1 year
2.	Test Receiver	ESCI	100702	R&S	2016.05.30	1 year
3.	Spectrum Analyzer	FSP 40	100378	R&S	2016.12.18	1 year
4.	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2017.01.20	3 years
5.	LISN	ESH2-Z5	100196	R&S	2017.01.12	1 year
6.	Horn Antenna	3117	00066585	ETS-Lindgren	2019.03.05	3 years
7.	Universal Radio Communication Tester	E5515C	GB44051324	Agilent	2016.05.19	1 year
8.	PC	M4099t	SA08850737	Lenovo	/	/
9.	Monitor	L1710d	0M04340B10 01010	Lenovo	/	/
10.	Printer	P1008	VNF6C12491	HP	/	/
11.	Keyboard	KB-0225	0723779	Lenovo	/	/
12.	Mouse	MO28UOL	44B39412	Lenovo	/	/

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 Radiated Emission (§15.109(a))**

#### **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 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 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 Lenovo Thinkcentre M4099t, and the serial number of the PC is SA08850737. 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 ( $\mu\text{V}/\text{m}$ )		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

\*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

#### **A.1.4 Test Condition**

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz (IF bandwidth)	5
Above 1000	1MHz/3MHz	15

### 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.

Note: the result contains vertical part and Horizontal part

**RE Measurement uncertainty:** 30M-1GHz: 5.08dB (k=2);  
1GHz-18GHz: 4.56 dB (k=2)

#### Set.1 Charging mode / Peak detector

Frequency(MHz)	Result(dBuV/m)	Polarity	$A_{Rpl}$ (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14219.500000	57.5	V	13.4	16.5	74.0
15152.500000	59.6	H	14.3	14.4	74.0
15746.500000	59.8	H	14.4	14.2	74.0
16210.000000	60.7	V	14.9	13.3	74.0
16776.500000	61.1	H	15.6	12.9	74.0
17375.000000	60.7	H	16.0	13.3	74.0

#### Set.1 Charging mode / Average detector

Frequency(MHz)	Result(dBuV/m)	Polarity	$A_{Rpl}$ (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14136.500000	45.8	V	13.3	8.2	54.0
15168.500000	47.0	H	14.3	7.0	54.0
15695.000000	48.1	V	14.4	5.9	54.0
16208.000000	48.6	V	14.9	5.4	54.0
16791.000000	49.2	V	15.7	4.8	54.0
17414.000000	49.1	V	16.2	4.9	54.0

**Set.2 Charging mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14516.500000	57.3	H	13.6	16.7	74.0
14592.500000	58.4	V	13.8	15.6	74.0
15689.500000	59.1	H	14.4	14.9	74.0
16281.500000	58.9	H	15.1	15.1	74.0
16749.000000	60.0	V	15.5	14.0	74.0
17471.000000	59.7	V	16.1	14.3	74.0

**Set.2 Charging mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14537.000000	45.6	V	13.7	8.4	54.0
15145.500000	46.6	V	14.3	7.4	54.0
15741.000000	47.3	V	14.4	6.7	54.0
16229.500000	47.3	H	14.9	6.7	54.0
16839.500000	48.1	V	15.9	5.9	54.0
17416.000000	47.6	H	16.2	6.4	54.0

**Set.3 Charging mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14070.000000	57.4	V	13.0	16.6	74.0
15139.000000	58.9	V	14.3	15.1	74.0
15701.000000	60.1	V	14.4	13.9	74.0
16230.500000	59.4	H	14.9	14.6	74.0
16798.000000	60.0	V	15.7	14.0	74.0
17400.000000	60.2	V	16.2	13.8	74.0

**Set.3 Charging mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14550.000000	45.9	H	13.8	8.1	54.0
15157.000000	46.9	V	14.3	7.1	54.0
15755.500000	47.7	V	14.4	6.3	54.0
16177.500000	47.7	H	15.0	6.3	54.0
16837.500000	48.4	H	15.9	5.6	54.0
17415.500000	48.1	V	16.2	5.9	54.0

**Set.4 Charging mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14070.000000	57.3	V	13.0	16.7	74.0
15169.500000	58.6	H	14.3	15.4	74.0
15731.000000	59.1	V	14.4	14.9	74.0
16288.000000	58.6	H	15.2	15.4	74.0
16579.500000	59.3	V	15.9	14.7	74.0
17304.500000	58.9	H	15.7	15.1	74.0

**Set.4 Charging mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14547.500000	45.6	V	13.7	8.4	54.0
15150.500000	46.5	H	14.3	7.5	54.0
15692.000000	47.2	H	14.4	6.8	54.0
16258.500000	47.1	H	15.0	6.9	54.0
16816.500000	47.8	V	15.8	6.2	54.0
17416.000000	47.4	V	16.2	6.6	54.0

**Set.5 Charging mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14502.000000	57.4	V	13.6	16.6	74.0
15137.500000	58.8	V	14.3	15.2	74.0
15671.000000	59.6	H	14.4	14.4	74.0
16318.500000	59.3	H	15.3	14.7	74.0
16798.000000	60.2	V	15.7	13.8	74.0
17400.000000	60.4	V	16.2	13.6	74.0

**Set.5 Charging mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14531.500000	45.8	V	13.7	8.2	54.0
15133.000000	46.8	V	14.3	7.2	54.0
15746.500000	47.4	V	14.4	6.6	54.0
16196.500000	47.5	H	15.0	6.5	54.0
16801.000000	48.1	V	15.7	5.9	54.0
17420.500000	47.7	H	16.2	6.3	54.0

**Set.6 Charging mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14512.500000	57.5	V	13.6	16.5	74.0
14618.000000	58.4	H	13.9	15.6	74.0
15777.000000	59.2	H	14.5	14.8	74.0
16170.000000	59.2	V	15.0	14.8	74.0
16805.000000	59.4	H	15.8	14.6	74.0
17272.500000	59.3	H	15.5	14.7	74.0

**Set.6 Charging mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14533.500000	45.6	H	13.7	8.4	54.0
15156.000000	46.4	H	14.3	7.6	54.0
15658.500000	47.1	H	14.4	6.9	54.0
16314.500000	47.2	V	15.3	6.8	54.0
16847.000000	47.6	H	16.0	6.4	54.0
17393.000000	47.3	H	16.1	6.7	54.0

**Set.7 USB mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14167.000000	57.1	H	13.3	16.9	74.0
15160.500000	58.4	V	14.3	15.6	74.0
15690.000000	58.8	V	14.4	15.2	74.0
16375.500000	58.8	H	15.6	15.2	74.0
16556.500000	58.7	H	15.9	15.3	74.0
17443.500000	58.2	H	16.1	15.8	74.0

**Set.7USB mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dBμV/m)
14549.000000	45.4	V	13.7	8.6	54.0
15151.000000	46.1	V	14.3	7.9	54.0
15779.000000	47.0	V	14.5	7.0	54.0
16199.000000	46.8	H	15.0	7.2	54.0
16839.500000	47.3	H	15.9	6.7	54.0
17413.500000	46.9	H	16.2	7.1	54.0

**Set.8 USB mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14521.500000	57.5	V	13.7	16.5	74.0
15043.500000	58.5	H	13.9	15.5	74.0
15700.000000	58.7	H	14.4	15.3	74.0
16235.000000	58.3	V	14.9	15.7	74.0
16843.000000	59.7	V	16.0	14.3	74.0
17364.500000	59.1	H	16.0	14.9	74.0

**Set.8 USB mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14526.500000	45.6	H	13.7	8.4	54.0
15143.000000	46.5	V	14.3	7.5	54.0
15776.500000	47.0	V	14.5	7.0	54.0
16309.500000	47.0	H	15.3	7.0	54.0
16846.500000	47.6	V	16.0	6.4	54.0
17413.000000	47.2	H	16.2	6.8	54.0

Note: The measurement result of Set.1,Set.2,Set.3,Set.4, Set.5,Set.6, Set.7and Set.8 showed here are worst cases of combinations of different batteries and USB cables.

Charging mode: Set 1

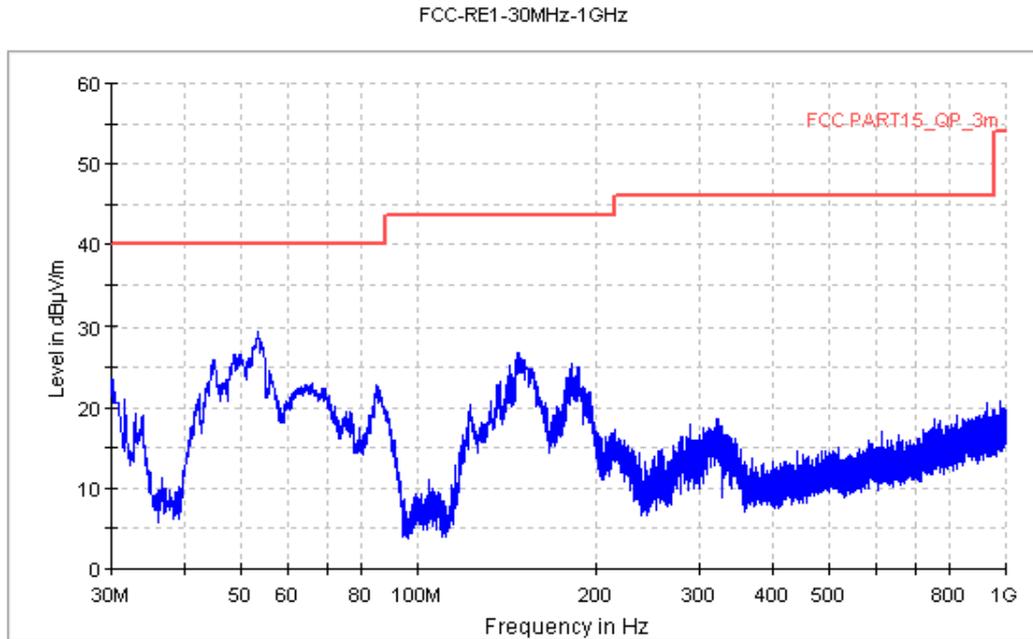


Figure A.1 Radiated Emission from 30MHz to 1GHz

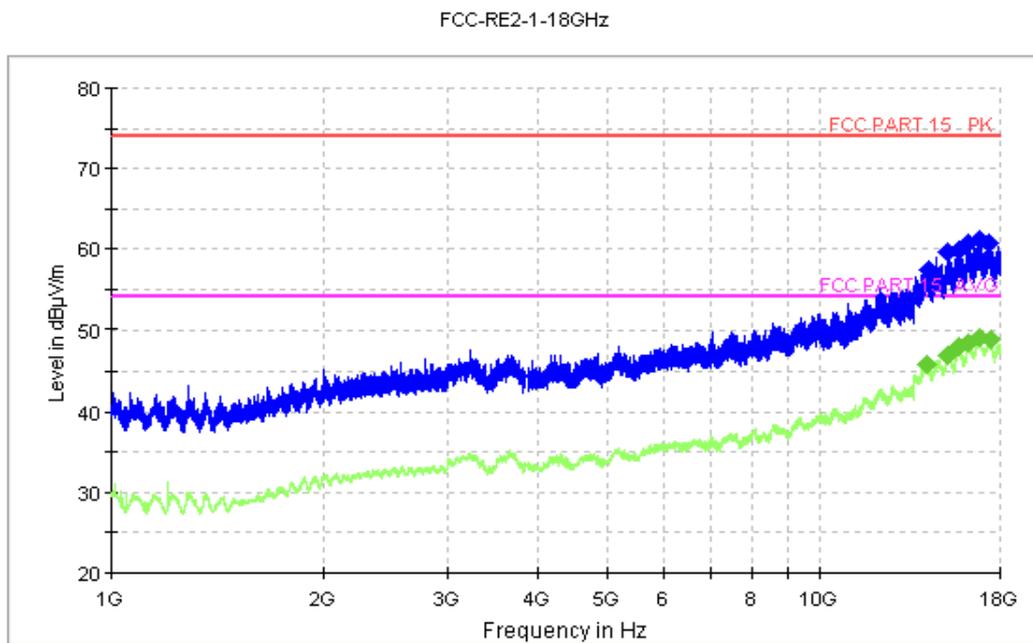


Figure A.2 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 2

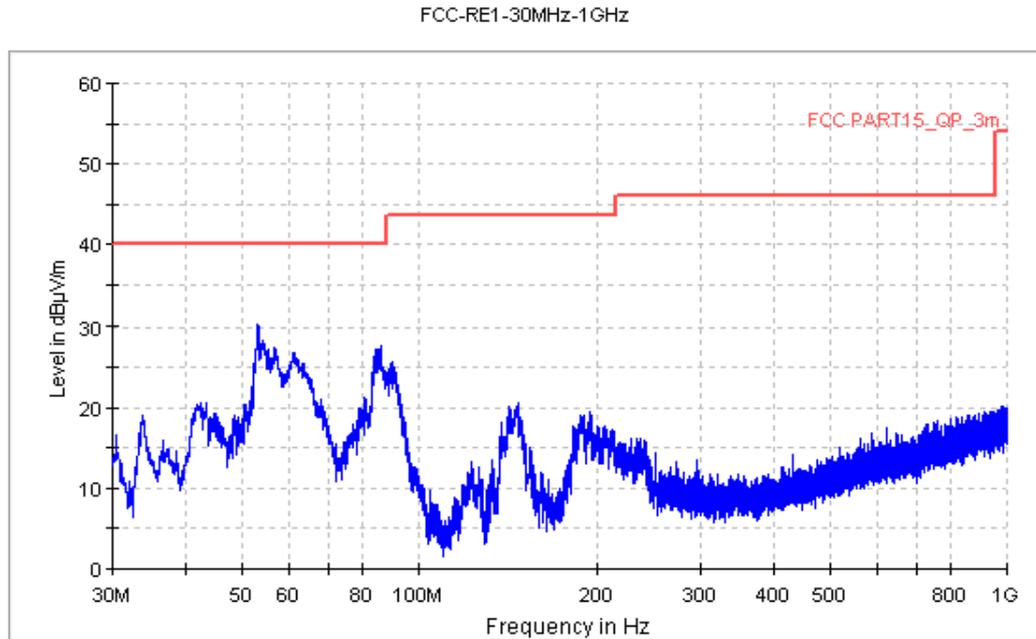


Figure A.3 Radiated Emission from 30MHz to 1GHz

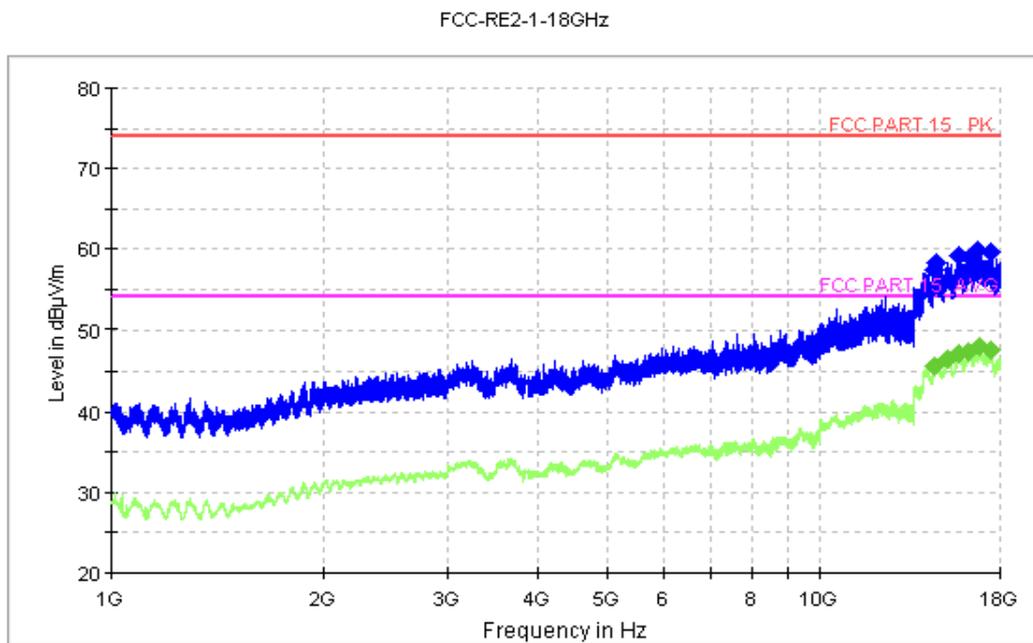


Figure A.4 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 3

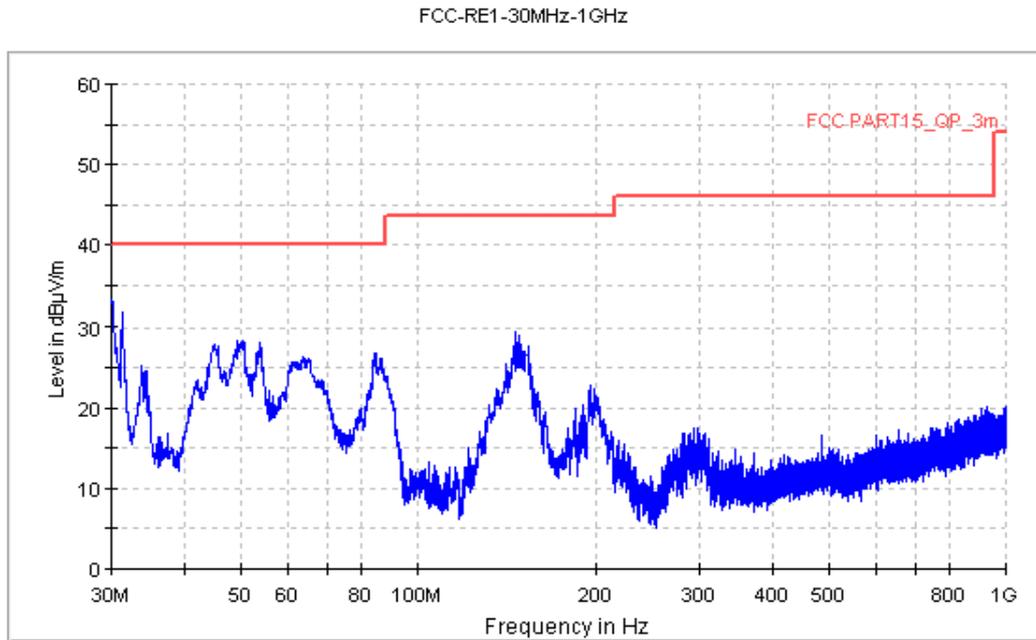


Figure A.5 Radiated Emission from 30MHz to 1GHz

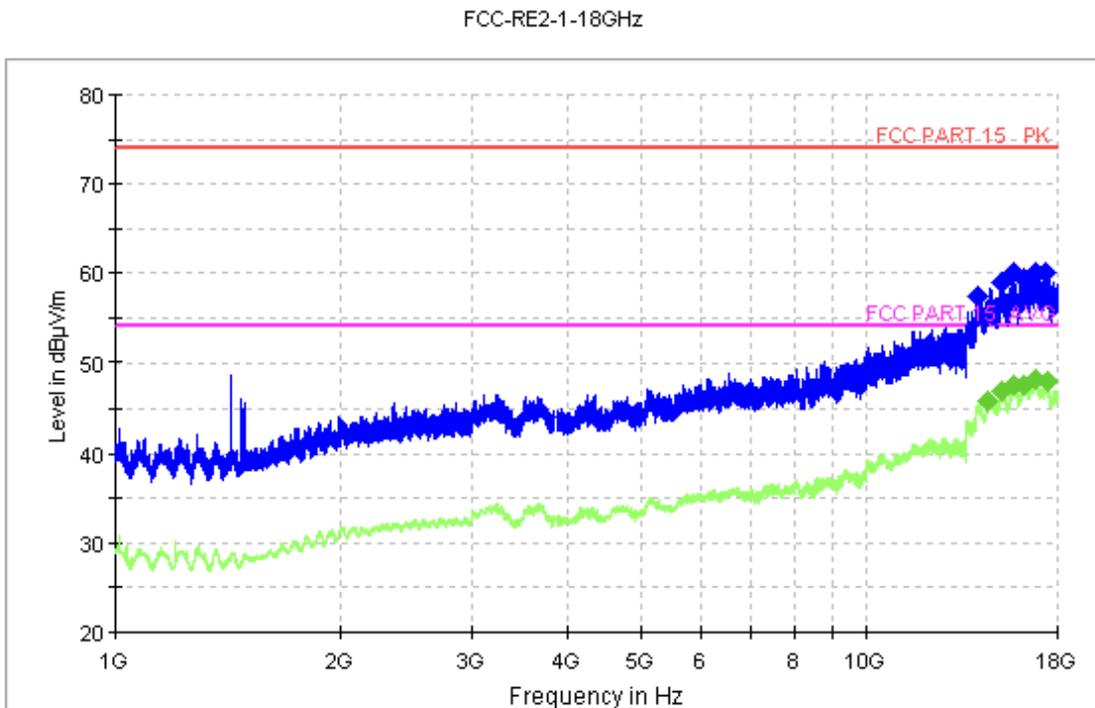


Figure A.6 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 4

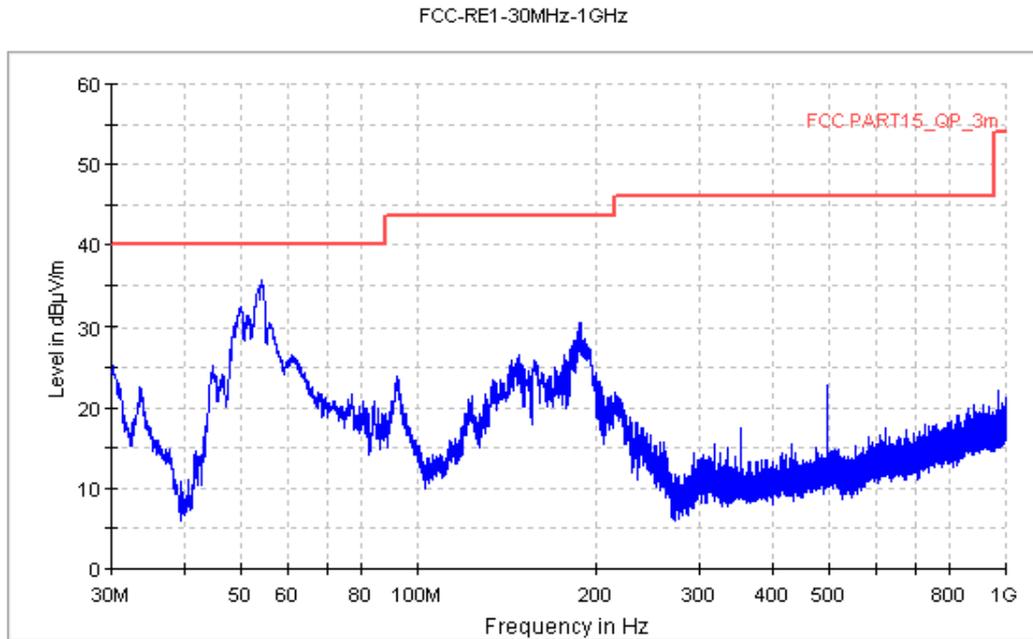


Figure A.7 Radiated Emission from 30MHz to 1GHz

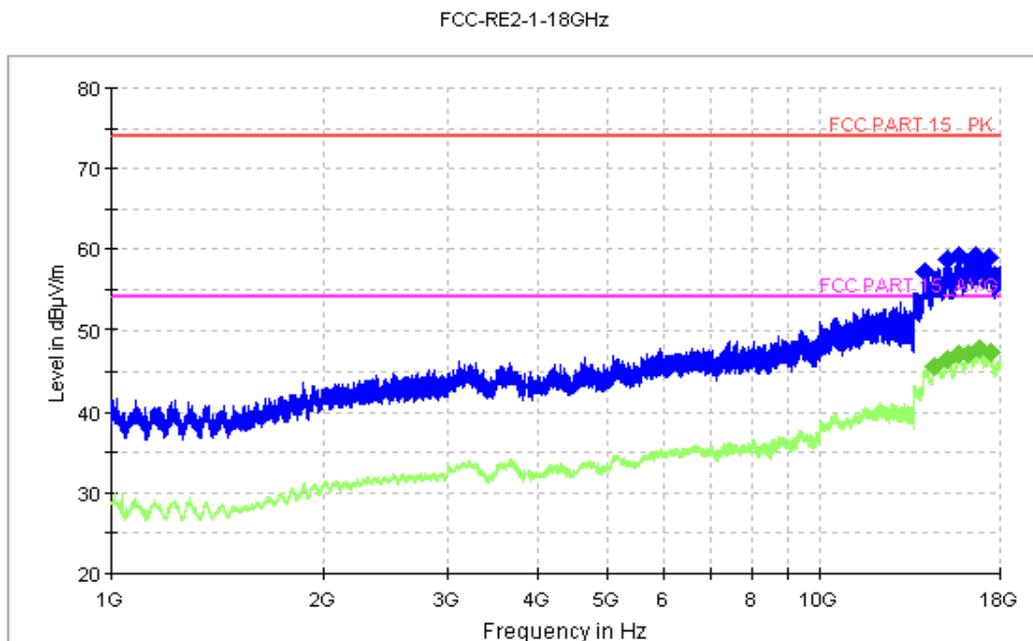


Figure A.8 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 5

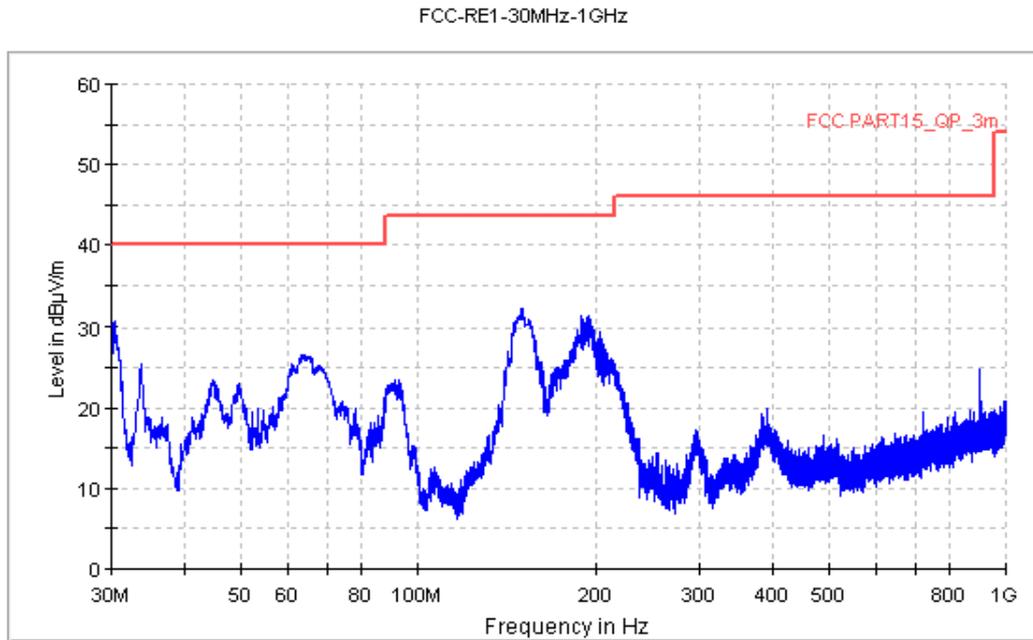


Figure A.9 Radiated Emission from 30MHz to 1GHz

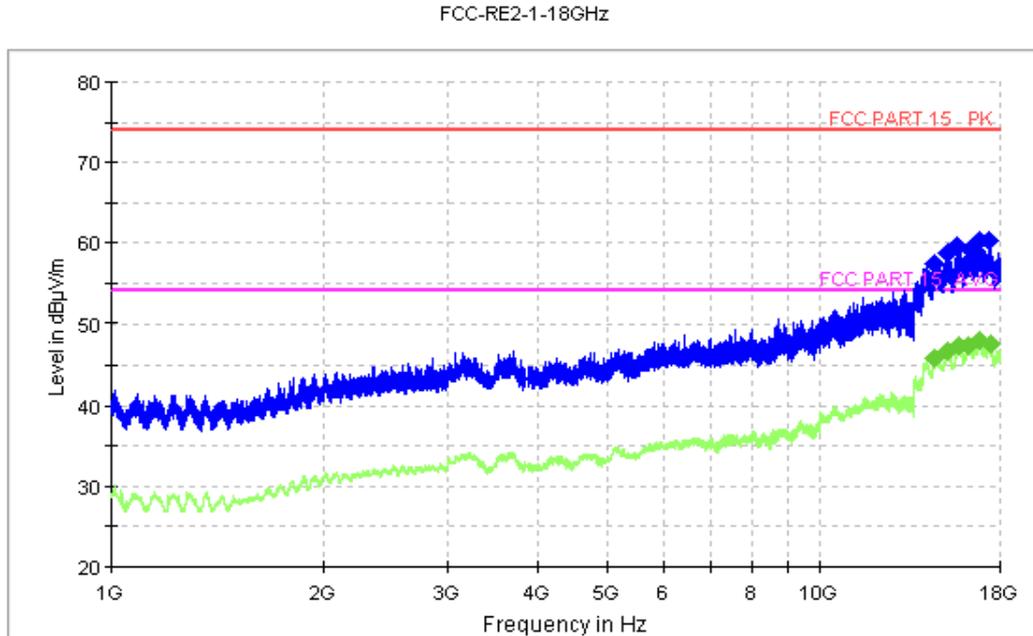


Figure A.10 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 6

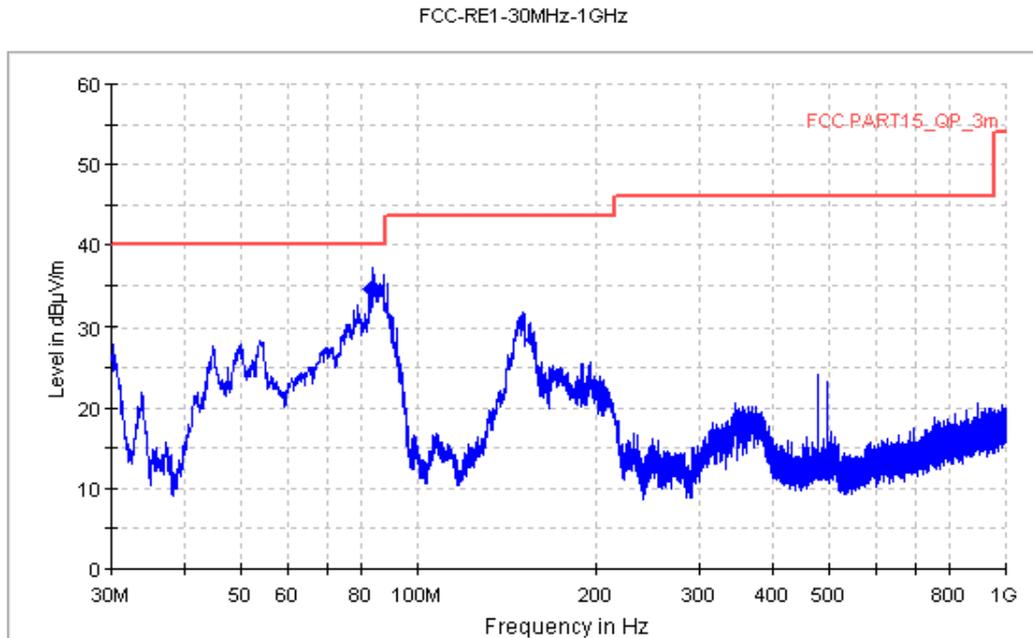


Figure A.11 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
83.900000	34.5	120.000	V	112.0	-37.2	5.5

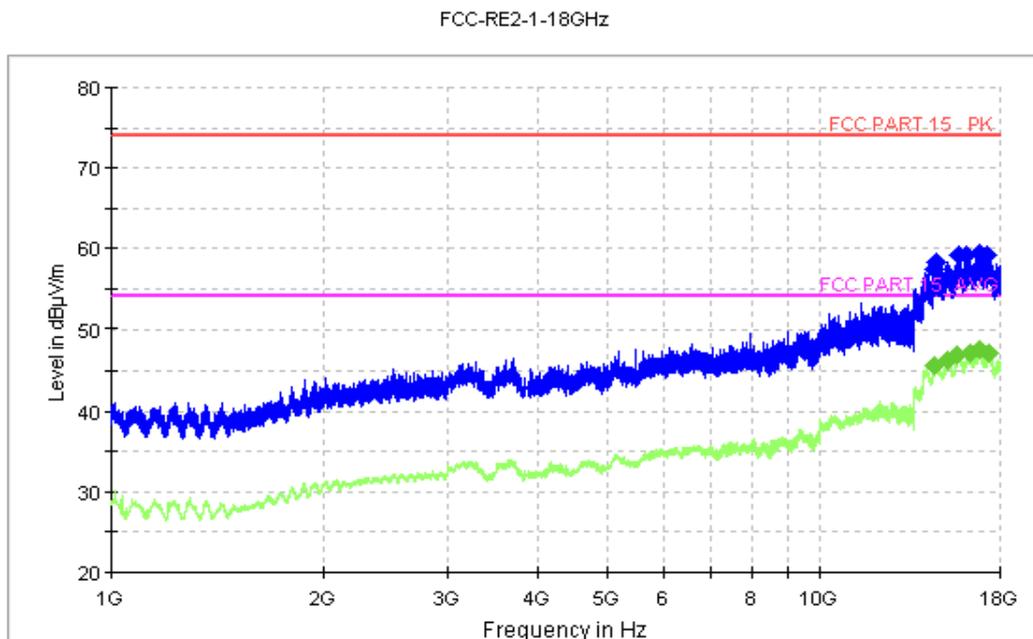


Figure A.12 Radiated Emission from 1GHz to 18GHz

USB mode: Set 7

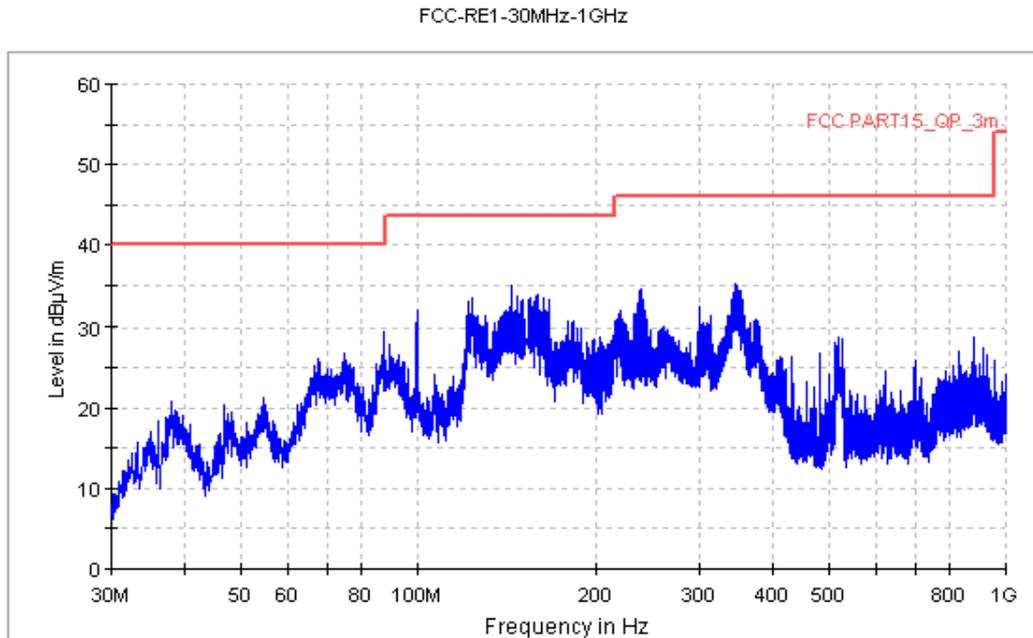


Figure A.13 Radiated Emission from 30MHz to 1GHz

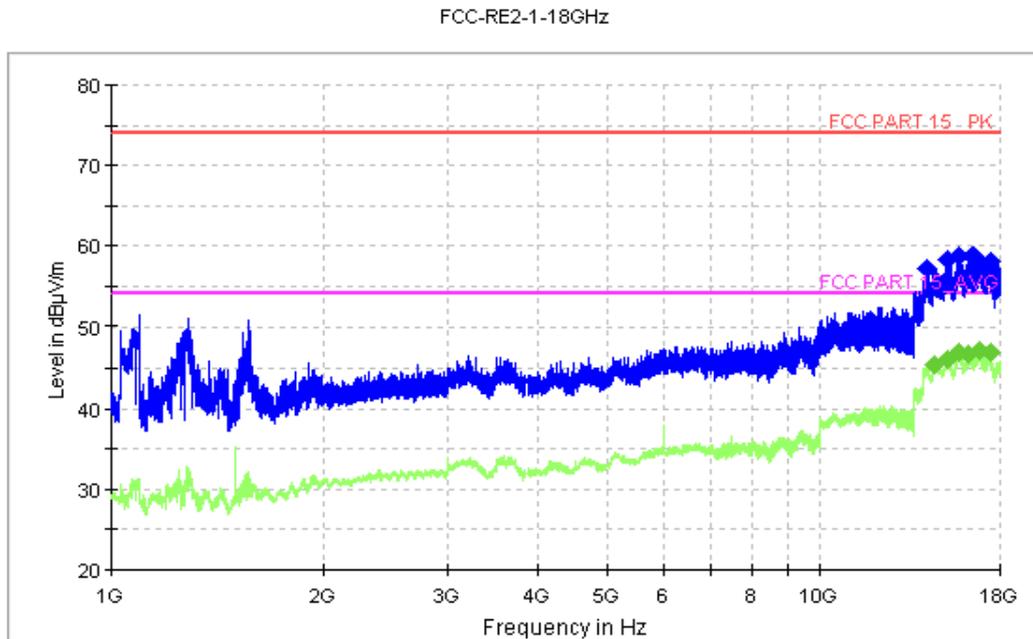


Figure A.14 Radiated Emission from 1GHz to 18GHz

USB mode: Set 8

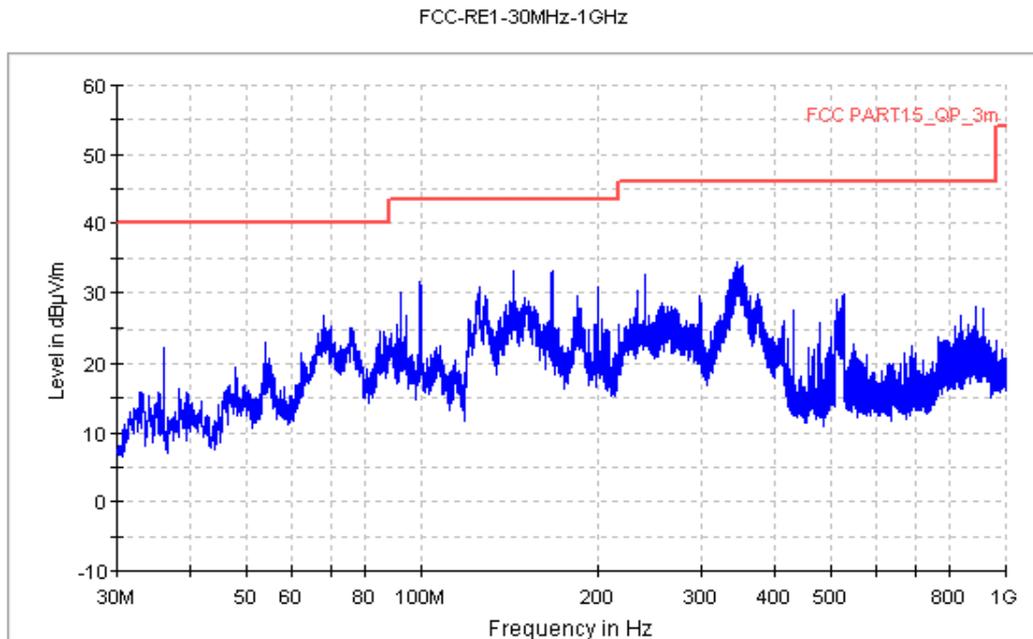


Figure A.15 Radiated Emission from 30MHz to 1GHz

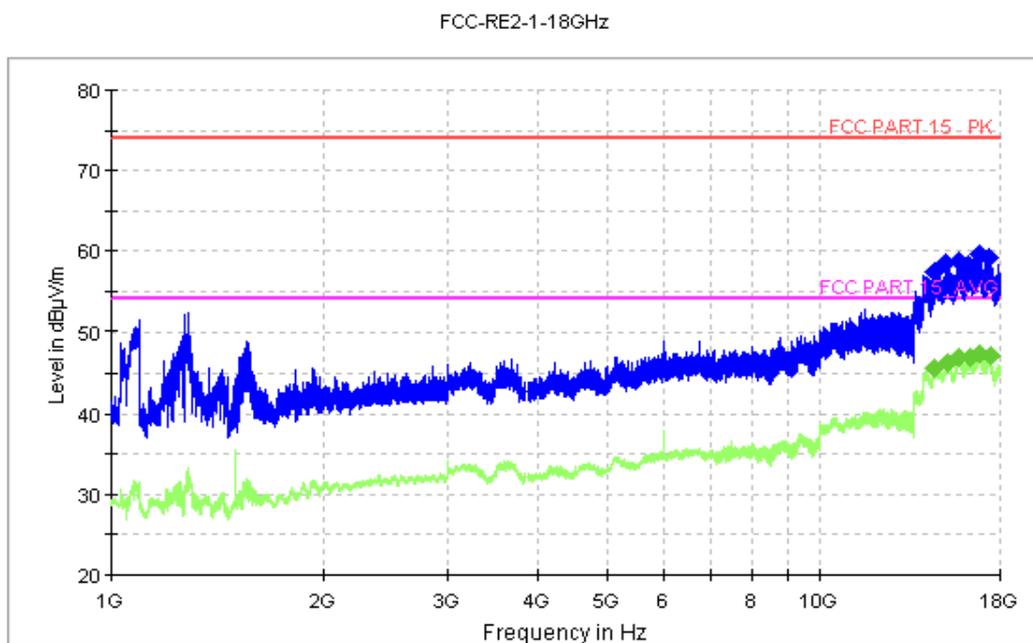


Figure A.16 Radiated Emission from 1GHz to 18GHz

## A.2 Conducted Emission (§15.107(a))

### 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 Lenovo Thinkcentre M4099t, and the serial number of the PC is SA08850737. 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 (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

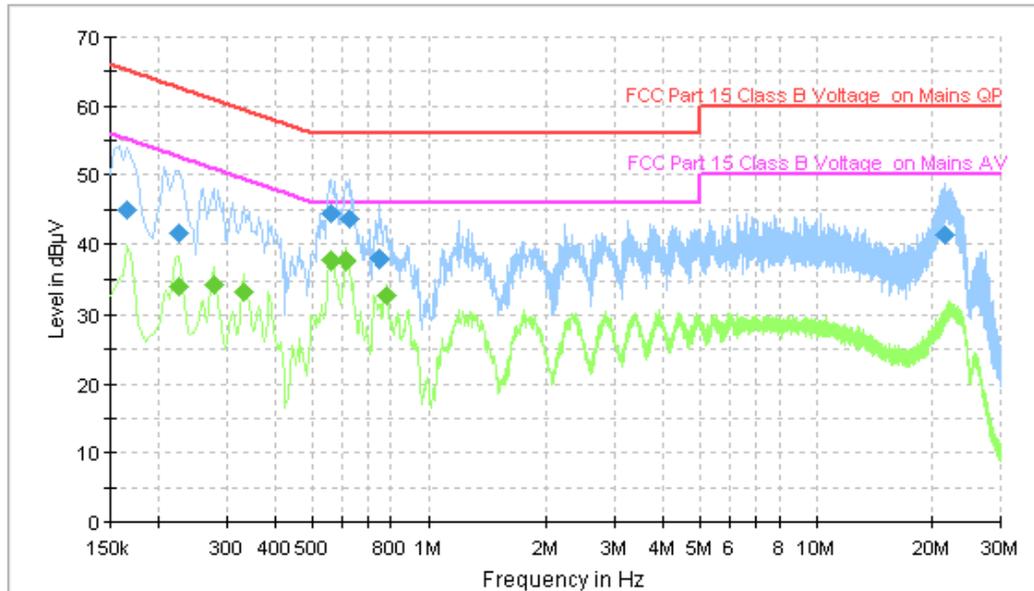
Voltage (V)	Frequency (Hz)
120	60

RBW	Sweep Time(s)
9kHz	1

**CE Measurement uncertainty:** 2.7 dB (k=2)

**A.2.5 Measurement Results**  
**Charging mode:Set.1**

ESH2-Z5 Scan-FCC



**Figure A.17 Conducted Emission**

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	44.9	GND	L1	10.0	20.2	65.2
0.226000	41.7	GND	L1	10.0	20.9	62.6
0.562000	44.5	GND	L1	10.1	11.5	56.0
0.622000	43.6	GND	L1	10.0	12.4	56.0
0.742000	38.0	GND	L1	10.0	18.0	56.0
21.622000	41.4	GND	N	10.7	18.6	60.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.226000	34.1	GND	L1	10.0	18.5	52.6
0.278000	34.4	GND	L1	10.0	16.5	50.9
0.334000	33.4	GND	L1	10.0	15.9	49.4
0.558000	37.8	GND	L1	10.1	8.2	46.0
0.614000	37.7	GND	L1	10.0	8.3	46.0
0.778000	32.7	GND	L1	10.1	13.3	46.0

Charging mode:Set.2

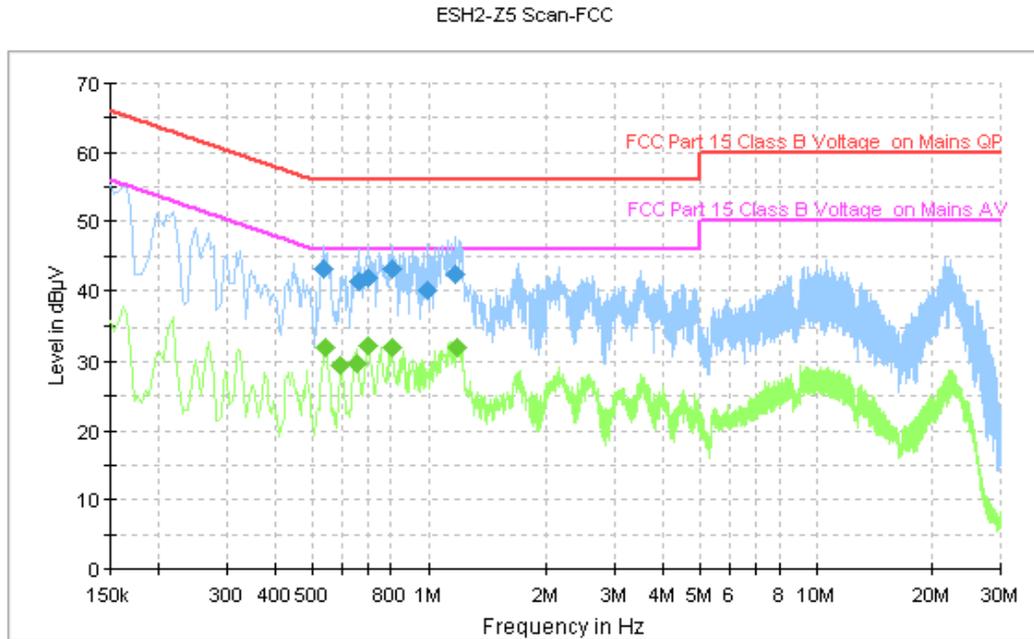


Figure A.18 Conducted Emission

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.534000	43.0	GND	L1	10.1	13.0	56.0
0.658000	41.3	GND	L1	10.0	14.7	56.0
0.698000	41.9	GND	L1	10.0	14.1	56.0
0.802000	43.2	GND	L1	10.1	12.8	56.0
0.994000	40.0	GND	L1	10.1	16.0	56.0
1.174000	42.3	GND	L1	10.1	13.7	56.0

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.542000	32.0	GND	L1	10.1	14.0	46.0
0.590000	29.5	GND	L1	10.1	16.5	46.0
0.650000	29.8	GND	L1	10.0	16.2	46.0
0.698000	32.3	GND	L1	10.0	13.7	46.0
0.806000	32.0	GND	L1	10.1	14.0	46.0
1.186000	32.1	GND	L1	10.0	13.9	46.0

Charging mode:Set.3

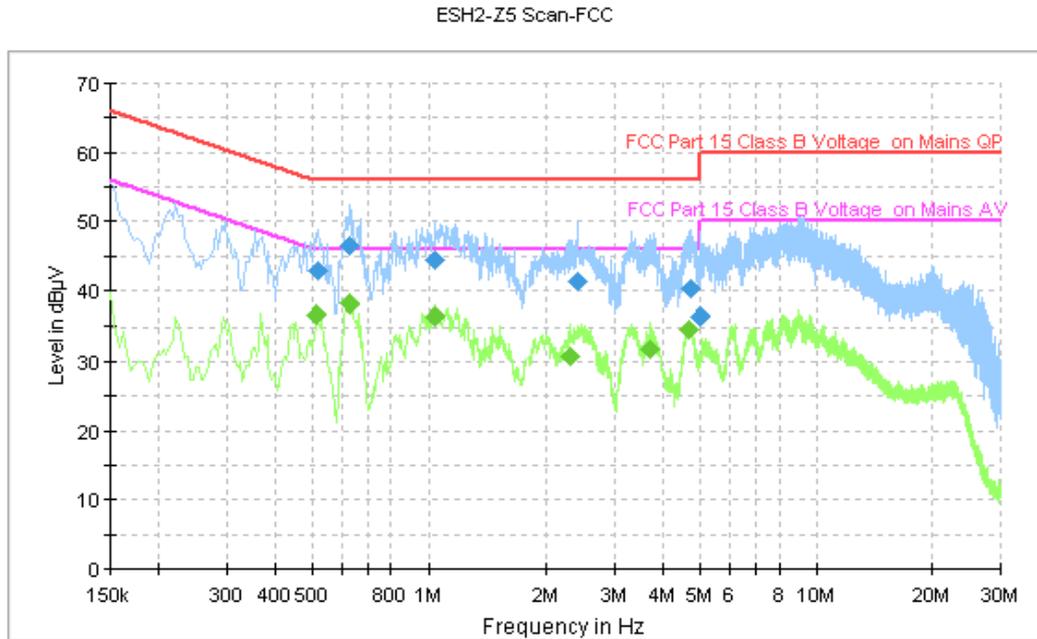


Figure A.19 Conducted Emission

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.518000	42.9	GND	N	10.1	13.1	56.0
0.622000	46.6	GND	N	10.0	9.4	56.0
1.038000	44.4	GND	L1	10.0	11.6	56.0
2.418000	41.4	GND	N	10.2	14.6	56.0
4.734000	40.3	GND	L1	10.2	15.7	56.0
4.990000	36.5	GND	N	10.2	19.5	56.0

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.514000	36.6	GND	N	10.1	9.4	46.0
0.622000	38.3	GND	N	10.0	7.7	46.0
1.038000	36.4	GND	L1	10.0	9.6	46.0
2.298000	30.8	GND	L1	10.1	15.2	46.0
3.726000	31.7	GND	L1	10.2	14.3	46.0
4.666000	34.5	GND	L1	10.2	11.5	46.0

Charging mode:Set.4

ESH2-Z5 Scan-FCC

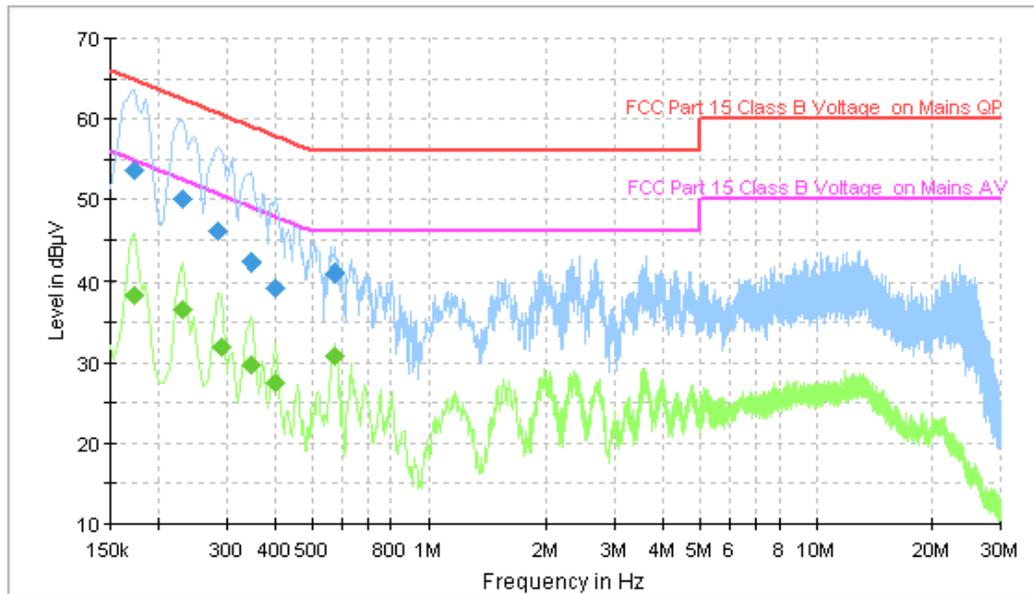


Figure A.20 Conducted Emission

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	53.7	GND	L1	10.0	11.1	64.8
0.230000	50.1	GND	L1	10.0	12.3	62.4
0.286000	46.1	GND	L1	10.0	14.6	60.6
0.346000	42.2	GND	L1	10.0	16.8	59.1
0.402000	39.3	GND	L1	10.0	18.5	57.8
0.574000	41.1	GND	L1	10.1	14.9	56.0

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	38.4	GND	L1	10.0	16.4	54.8
0.230000	36.5	GND	L1	10.0	15.9	52.4
0.290000	31.9	GND	L1	10.0	18.6	50.5
0.346000	29.7	GND	L1	10.0	19.4	49.1
0.402000	27.4	GND	L1	10.0	20.4	47.8
0.574000	30.8	GND	L1	10.1	15.2	46.0

Charging mode:Set.5

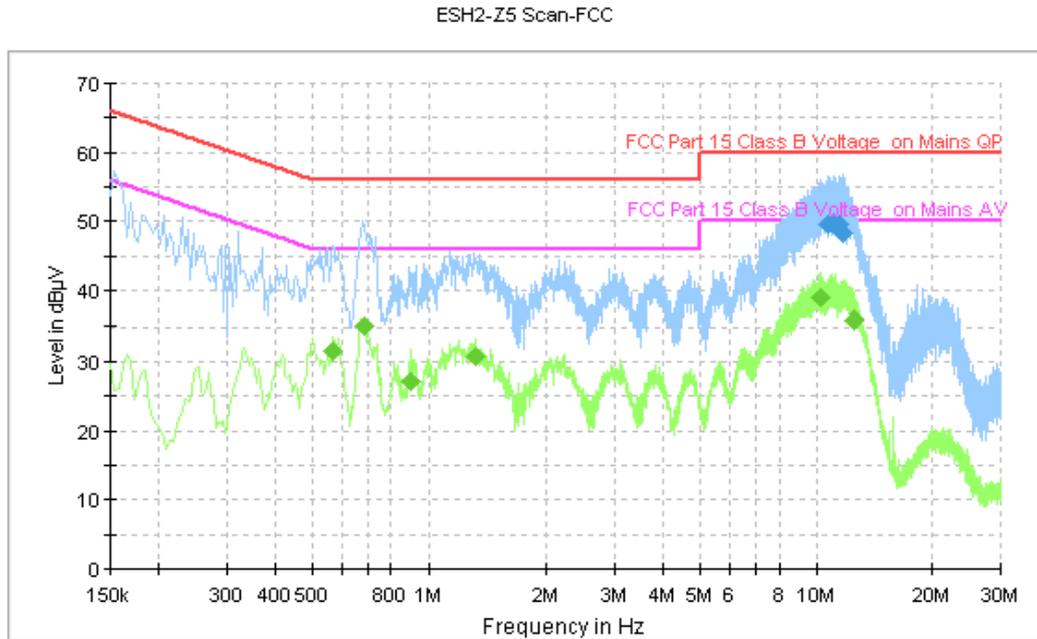


Figure A.21 Conducted Emission

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
10.690000	49.6	GND	L1	10.4	10.4	60.0
11.066000	49.9	GND	L1	10.3	10.1	60.0
11.266000	49.7	GND	L1	10.3	10.3	60.0
11.398000	49.5	GND	L1	10.3	10.5	60.0
11.494000	48.8	GND	L1	10.3	11.2	60.0
11.702000	48.2	GND	L1	10.3	11.8	60.0

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.566000	31.6	GND	L1	10.1	14.4	46.0
0.686000	35.0	GND	L1	10.0	11.0	46.0
0.902000	27.2	GND	L1	10.1	18.8	46.0
1.326000	30.8	GND	L1	10.1	15.2	46.0
10.286000	39.1	GND	L1	10.3	10.9	50.0
12.458000	35.9	GND	L1	10.4	14.1	50.0

Charging mode:Set.6

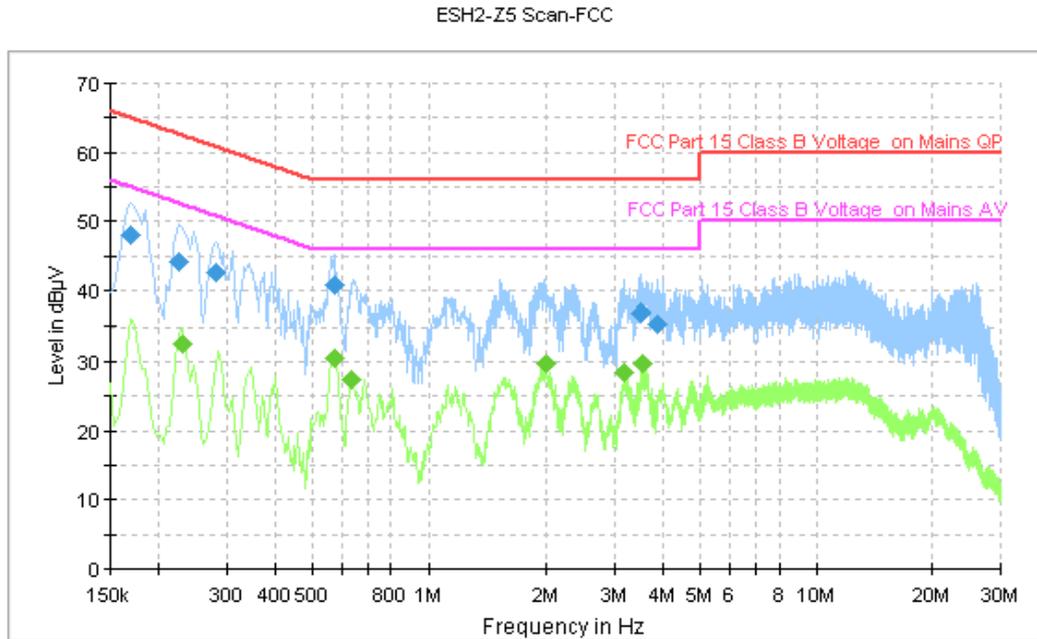


Figure A.22 Conducted Emission

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.170000	48.0	GND	L1	10.0	16.9	65.0
0.226000	44.1	GND	L1	10.0	18.5	62.6
0.282000	42.6	GND	N	10.1	18.1	60.8
0.574000	40.9	GND	L1	10.1	15.1	56.0
3.510000	36.9	GND	L1	10.2	19.1	56.0
3.894000	35.3	GND	L1	10.2	20.7	56.0

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.230000	32.6	GND	L1	10.0	19.9	52.4
0.574000	30.6	GND	L1	10.1	15.4	46.0
0.630000	27.3	GND	L1	10.0	18.7	46.0
1.994000	29.7	GND	L1	10.1	16.3	46.0
3.166000	28.4	GND	L1	10.2	17.6	46.0
3.562000	29.7	GND	L1	10.2	16.3	46.0

USB mode:Set.7

ESH2-Z5 Scan-FCC

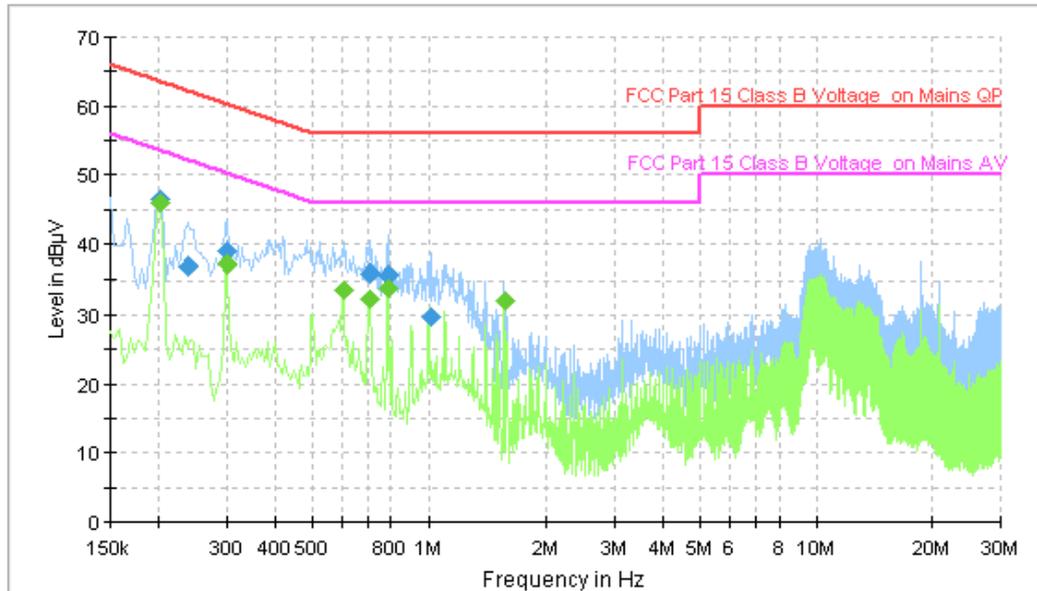


Figure A.23 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.202000	46.5	GND	L1	10.0	17.1	63.5
0.238000	37.0	GND	L1	10.0	25.1	62.2
0.302000	39.1	GND	L1	10.0	21.1	60.2
0.702000	35.9	GND	L1	10.0	20.1	56.0
0.786000	35.6	GND	N	10.1	20.4	56.0
1.018000	29.7	GND	N	10.0	26.3	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.202000	46.1	GND	L1	10.0	7.5	53.5
0.302000	37.3	GND	L1	10.0	12.9	50.2
0.602000	33.5	GND	L1	10.0	12.5	46.0
0.702000	32.4	GND	L1	10.0	13.6	46.0
0.786000	33.9	GND	N	10.1	12.1	46.0
1.570000	31.9	GND	N	10.1	14.1	46.0

USB mode:Set.8

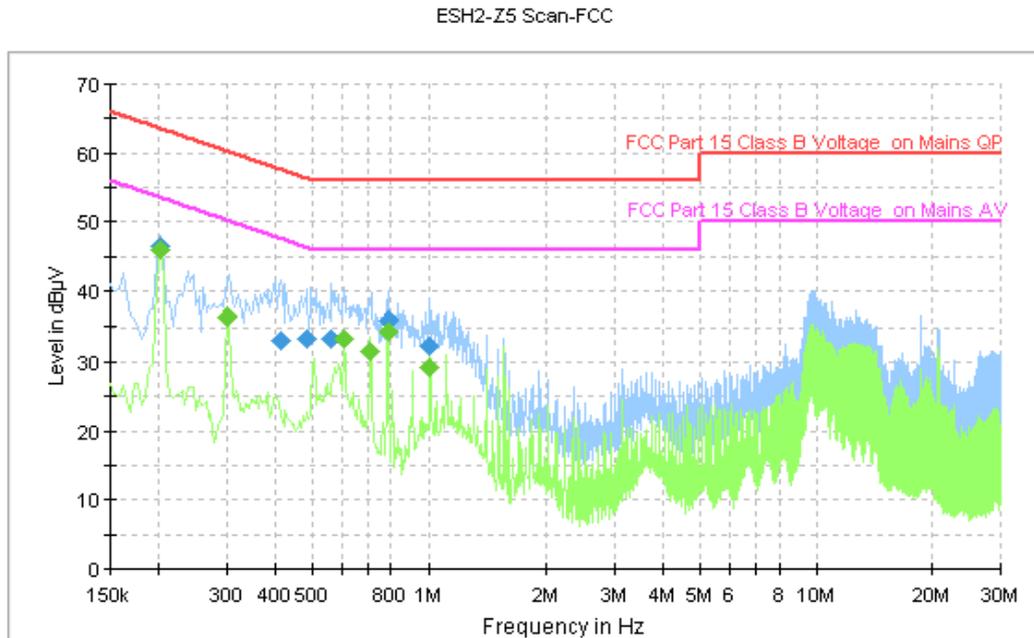


Figure A.24 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.202000	46.4	GND	L1	10.0	17.1	63.5
0.414000	33.1	GND	L1	10.0	24.5	57.6
0.486000	33.4	GND	L1	10.0	22.9	56.2
0.562000	33.2	GND	N	10.1	22.8	56.0
0.786000	35.9	GND	N	10.1	20.1	56.0
1.010000	32.3	GND	N	10.1	23.7	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.202000	46.0	GND	L1	10.0	7.6	53.5
0.302000	36.3	GND	L1	10.0	13.9	50.2
0.606000	33.4	GND	L1	10.0	12.6	46.0
0.706000	31.5	GND	L1	10.0	14.5	46.0
0.786000	34.3	GND	N	10.1	11.7	46.0
1.010000	29.3	GND	N	10.1	16.7	46.0

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