



# TEST REPORT

No.I17N00290-EMC

for

**Doro AB**

**LTE phone**

**Model Name: DSB-0090**

**FCC ID: WS5DSB0090**

with

**Hardware Version: 1011**

**Software Version: FRANK01A-S10A\_DSB0090\_201\_USER\_170503**

**Issued Date: 2017-04-19**

**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:**

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

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

Tel:+86(0)10-62304633, Fax:+86(0)10-62304633Email:cttl@chinattl.com, website:[www.chinattl.com](http://www.chinattl.com)

## **REPORT HISTORY**

Report Number	Revision	Description	Issue Date
I17N00290-EMC	Rev.0	1st edition	2017-04-19

## **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 .....</b>	<b>6</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE .....</b>	<b>6</b>
<b>3.4. EUT SET-UPS .....</b>	<b>7</b>
<b>4. REFERENCE DOCUMENTS .....</b>	<b>8</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING .....</b>	<b>8</b>
<b>5. LABORATORY ENVIRONMENT .....</b>	<b>9</b>
<b>6. SUMMARY OF TEST RESULTS .....</b>	<b>10</b>
<b>7. TEST FACILITIES UTILIZED .....</b>	<b>11</b>
<b>ANNEX A: MEASUREMENT RESULTS.....</b>	<b>12</b>

## 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)33322001

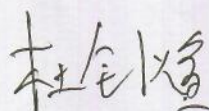
### 1.2. Testing Environment

Normal Temperature: 15-35℃  
Relative Humidity: 20-75%

### 1.3. Project data

Testing Start Date: 2017-03-16  
Testing End Date: 2017-03-30

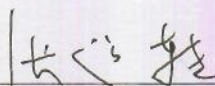
### 1.4. Signature



---

Du Zhaoxuan

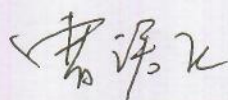
(Prepared this test report)



---

Zhang Yunzhuan

(Reviewed this test report)



---

Cao Junfei

Director of the laboratory  
(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Doro AB  
Address: Magistratsvägen 10 SE-226 43 Lund Sweden

### **2.2. Manufacturer Information**

Company Name: CK TELECOM LTD.  
Address: Technology Road.High-Tech Development Zone. Heyuan,  
Guangdong,P.R.China

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

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

Description	LTE phone
Model Name	DSB-0090
FCC ID	WS5DSB0090

The Equipment Under Test (EUT) are a model of LTE phone with integrated antenna.

The EUT supports GPRS service and EGPRS service.

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**

EUT ID*	SN or IMEI
EUT1	863560030055783

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

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

AE ID*	Description	SN
AE1	Battery	/
AE2	Travel charger	/
AE3	USB cable	/
AE4	Charging Cradle	
AE1		
Model	DBN-2920A	
Manufacturer	Coslight Technology International Group Co., Ltd.	
Capacity	2920mAh	
Nominal Voltage	3.8V	
AE2-1		
Model	A2-3762-501000	
Manufacturer	Dongguan Aohai Power Techonolgy Co.,LTD	
SN		
AE2-2		
Model	A806A-050100U-UK1	
Manufacturer	Dongguan Aohai Power Techonolgy Co.,LTD	
SN		
AE3		
Model	/	
Manufacturer	/	
AE4		
Model	/	
Manufacturer	/	

\*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	EUT1+ AE1+AE2-1+ AE3	Charging mode
Set.2	EUT1+ AE1+AE2-2+ AE3	Charging mode
Set.3	EUT3+ AE1+AE2-1+ AE3+AE4	Charging mode
Set.4	EUT1+ AE1+AE2-2+ AE3+AE4	Charging mode
Set.5	EUT1+ AE1+ 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	10-1-2016 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	2017.08.09	1 year
2.	Test Receiver	ESR7	101675	R&S	2017.07.21	1 year
3.	Spectrum Analyzer	FSP 40	100378	R&S	2017.12.15	1 year
4.	BiLog Antenna	VULB9163	9163 330	Schwarzbeck	2017.04.22	3 years
5.	LISN	ESH2-Z5	100196	R&S	2018.01.05	1 year
6.	Horn Antenna	3117	00066585	ETS-Lindgren	2019.03.05	3 years
7.	Universal Radio Communication Tester	CMU200	114544	R&S	2017.09.09	1 year
8.	PC	2OET-A00DC D	PF-OIYDAK	Lenovo	/	/
9.	Printer	P1008	VNF6C12491	HP	/	/
10.	Mouse	MO28UOL	44B39412	Lenovo	/	/
11.	Chamber	FACT5-2.0	4166	ETS-Lindgren	2018.05.13	3 years

## **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:**

**Charging mode:** The MS is synchronized to SS, and able to respond to paging messages and incoming call. An established call has been released. The MS is connected to a charger.

**USB mode:** The model of the PC is Lenovo 2OET-A00DCD, and the serial number of the PC is PF-OIYDAK. 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)

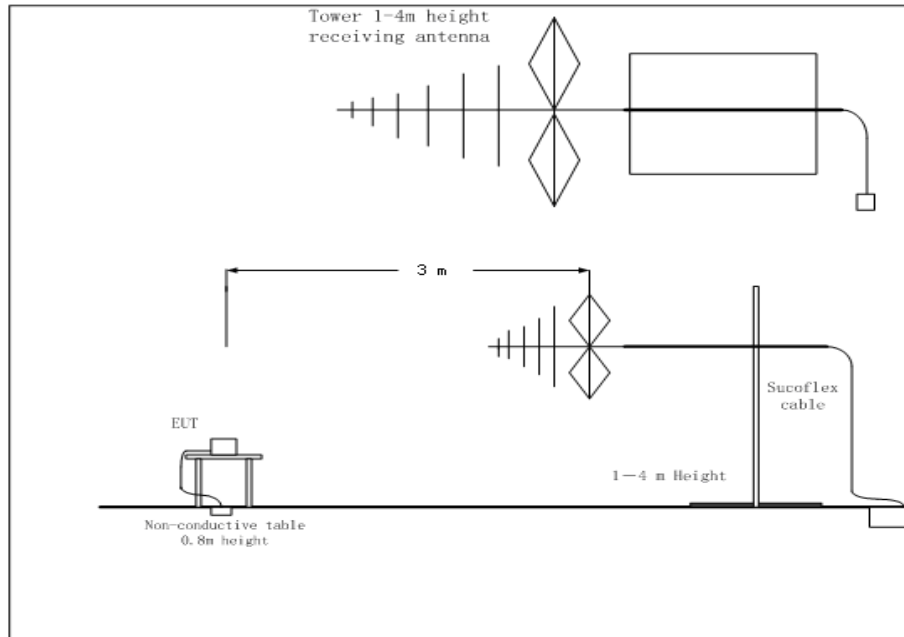
Frequency range (MHz)	Field strength limit (μV/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

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

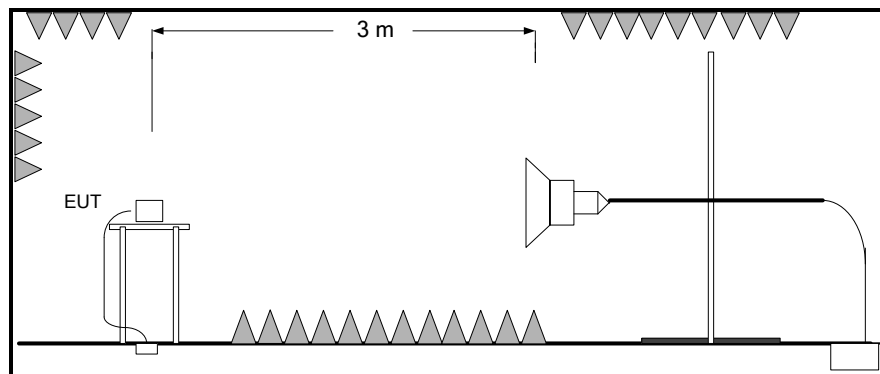
#### **A.1.4 Test Condition**

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

**A.1.5 Test set-up:  
30MHz-1GHz**



**1GHz-18GHz**



### A.1.6 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: 5.12dB (k=2);  
1GHz-18GHz: 4.48 dB (k=2)

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

Frequency(MHz)	Result(dBuV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB)
14245.500000	54.49	74.00	19.51	V	11.3
15044.500000	55.06	74.00	18.94	H	12.1
15694.000000	57.00	74.00	17.00	H	12.7
16265.000000	56.80	74.00	17.20	H	13.2
16724.500000	56.72	74.00	17.28	V	13.8
17339.500000	57.49	74.00	16.51	H	14.0

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

Frequency(MHz)	Result(dBuV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB)
14538.000000	43.05	54.00	10.95	V	11.9
15144.500000	43.65	54.00	10.35	H	12.1
15703.000000	44.81	54.00	9.19	V	12.7
16230.500000	44.58	54.00	9.42	V	13.1
16793.500000	45.07	54.00	8.93	H	13.9
17383.000000	44.89	54.00	9.11	H	14.0

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14553.500000	54.74	74.00	19.26	H	11.9
14670.000000	55.02	74.00	18.98	H	11.9
15782.000000	56.21	74.00	17.79	V	12.8
16276.000000	56.02	74.00	17.98	H	13.2
16848.000000	56.54	74.00	17.46	H	13.9
17527.500000	56.36	74.00	17.64	H	14.0

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14523.500000	43.18	54.00	10.82	H	11.8
15143.500000	43.43	54.00	10.57	V	12.1
15761.500000	44.67	54.00	9.33	H	12.8
16225.000000	44.33	54.00	9.67	H	13.1
16751.000000	45.37	54.00	8.63	H	13.9
17318.500000	44.34	54.00	9.66	H	13.9

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14550.500000	54.54	74.00	19.46	H	11.9
14621.500000	55.34	74.00	18.66	H	11.9
15743.500000	56.48	74.00	17.52	V	12.8
16276.500000	56.19	74.00	17.81	V	13.2
16795.000000	56.55	74.00	17.45	V	13.9
17344.500000	56.57	74.00	17.43	V	14.0

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14510.500000	43.32	54.00	10.68	H	11.8
15142.500000	43.76	54.00	10.24	V	12.1
15739.000000	44.98	54.00	9.02	H	12.8
16235.500000	44.77	54.00	9.23	H	13.1
16787.500000	45.64	54.00	8.36	H	13.9
17285.000000	45.13	54.00	8.87	H	13.9

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14523.000000	54.14	74.00	19.86	H	11.8
15063.500000	54.71	74.00	19.29	V	12.1
15740.000000	56.30	74.00	17.70	H	12.8
16294.500000	56.15	74.00	17.85	V	13.3
16744.000000	56.78	74.00	17.22	H	13.9
17282.000000	55.68	74.00	18.32	V	13.9

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14526.000000	42.97	54.00	11.03	H	11.8
15099.500000	43.36	54.00	10.64	V	12.1
15749.000000	44.77	54.00	9.23	H	12.8
16310.000000	44.55	54.00	9.45	H	13.3
16796.000000	44.92	54.00	9.08	H	13.9
17362.500000	44.29	54.00	9.71	V	14.0



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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14548.000000	54.72	74.00	19.28	V	11.9
14654.000000	55.07	74.00	18.93	H	11.9
15664.000000	56.92	74.00	17.08	V	12.6
16227.500000	56.61	74.00	17.39	H	13.1
16825.500000	56.78	74.00	17.22	V	13.9
17393.500000	56.56	74.00	17.44	H	14.0

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

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB)
14550.000000	43.55	54.00	10.45	V	11.9
15125.500000	43.93	54.00	10.07	H	12.1
15784.500000	45.03	54.00	8.97	H	12.8
16173.000000	44.98	54.00	9.02	H	13.1
16845.000000	45.58	54.00	8.42	H	13.9
17352.500000	44.96	54.00	9.04	H	14.0

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

Charging mode: Set 1

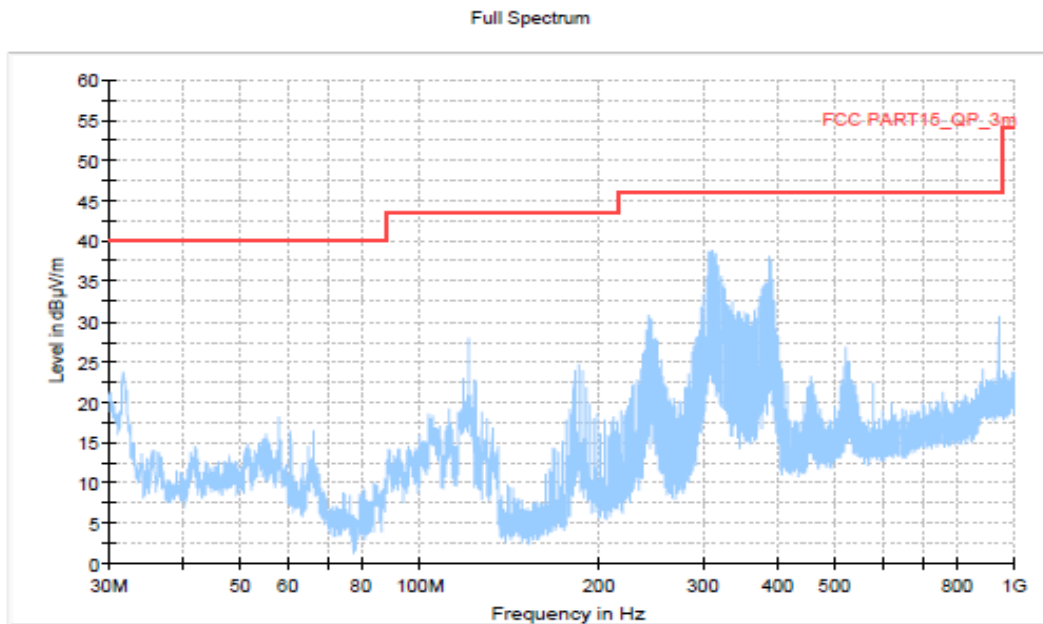


Figure A.1 Radiated Emission from 30MHz to 1GHz

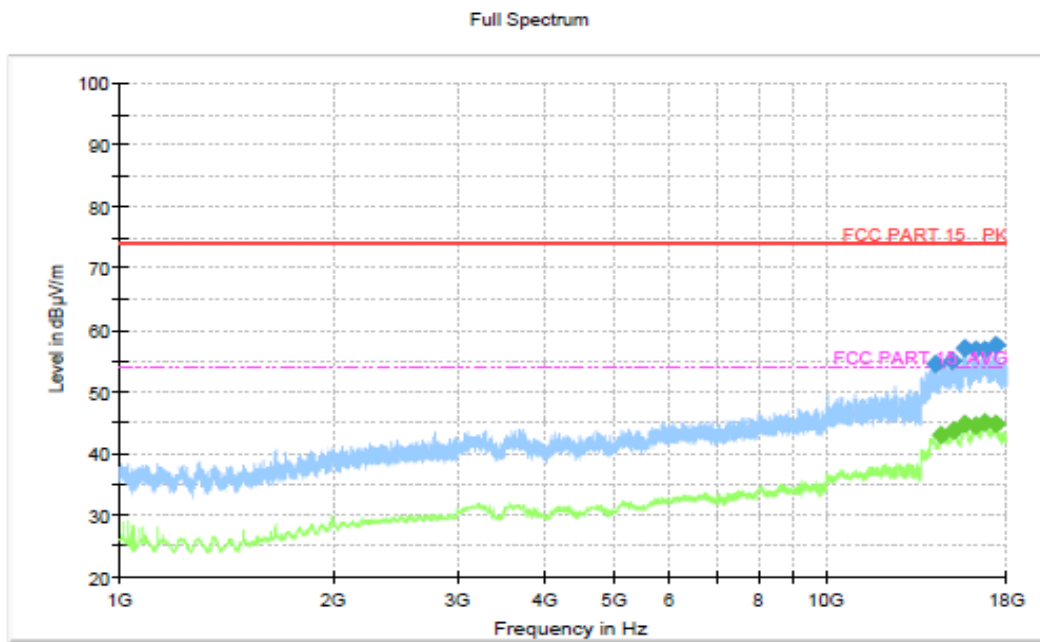


Figure A.2 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 2

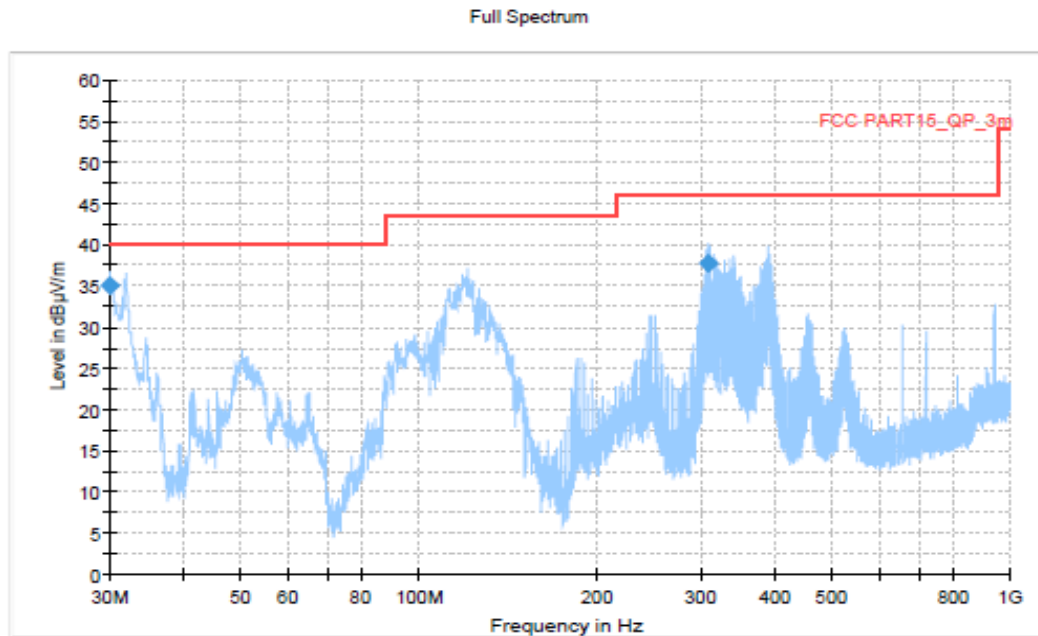


Figure A.3 Radiated Emission from 30MHz to 1GHz

Final\_Result

Frequency(MHz)	QuasiPeak(dBμV/m)	Limit(dBμV/m)	Margin(dB)	Pol	Corr.(dB)
30.049000	35.02	40.00	4.98	V	-36.8
308.859000	37.78	46.02	8.24	V	-31.3

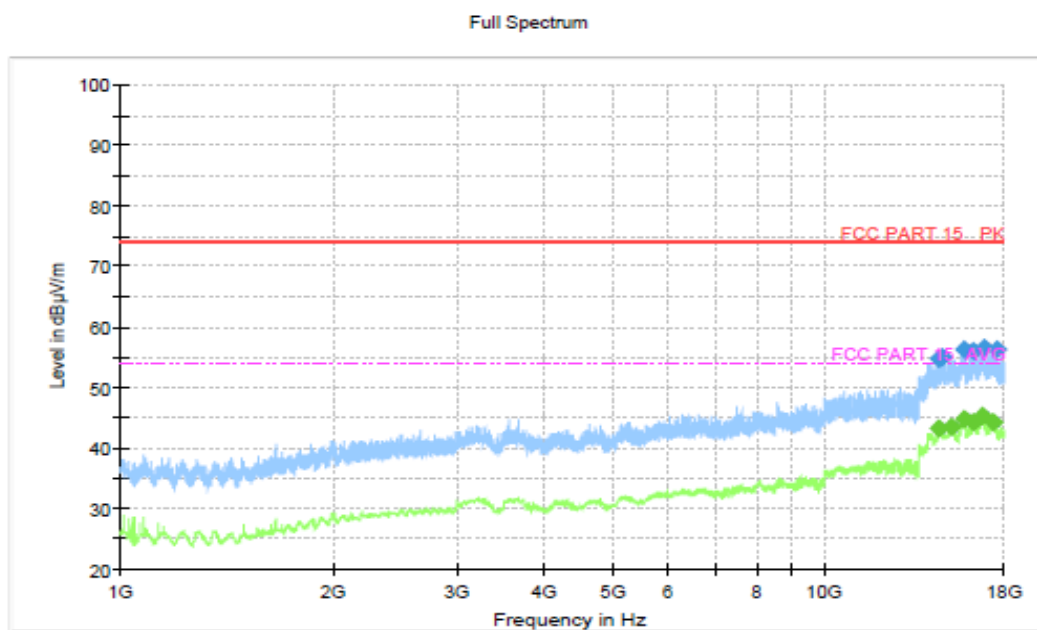


Figure A.4 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 3

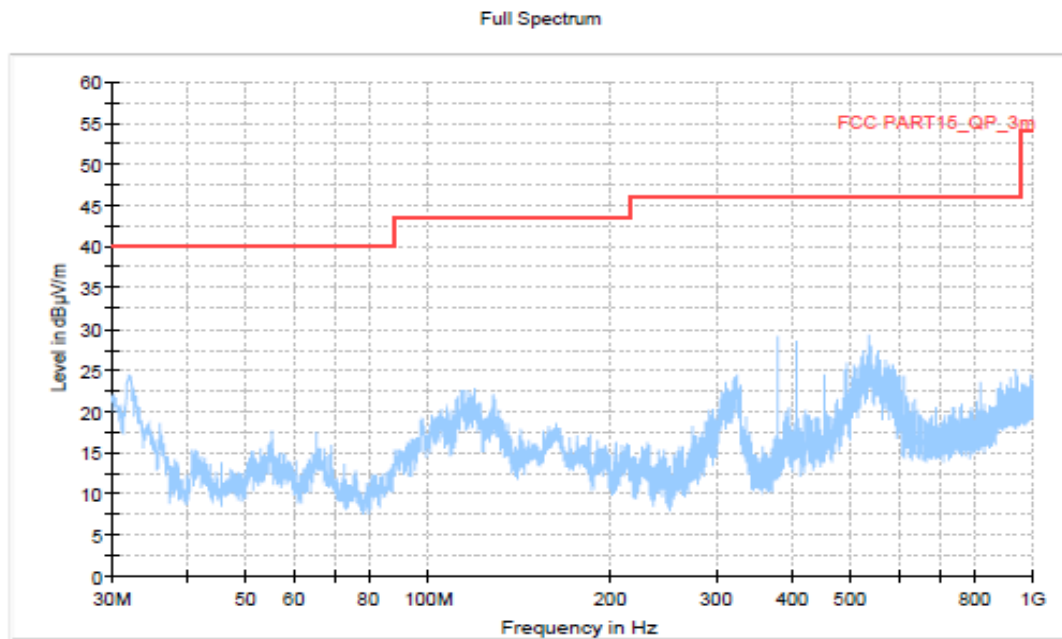


Figure A.5 Radiated Emission from 30MHz to 1GHz

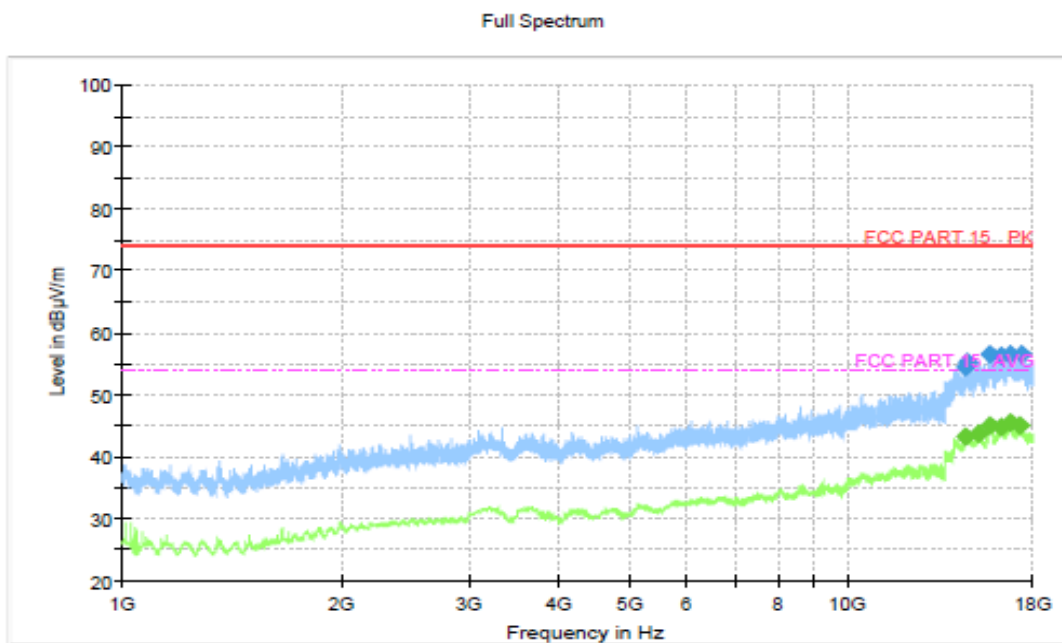


Figure A.6 Radiated Emission from 1GHz to 18GHz

Charging mode: Set 4

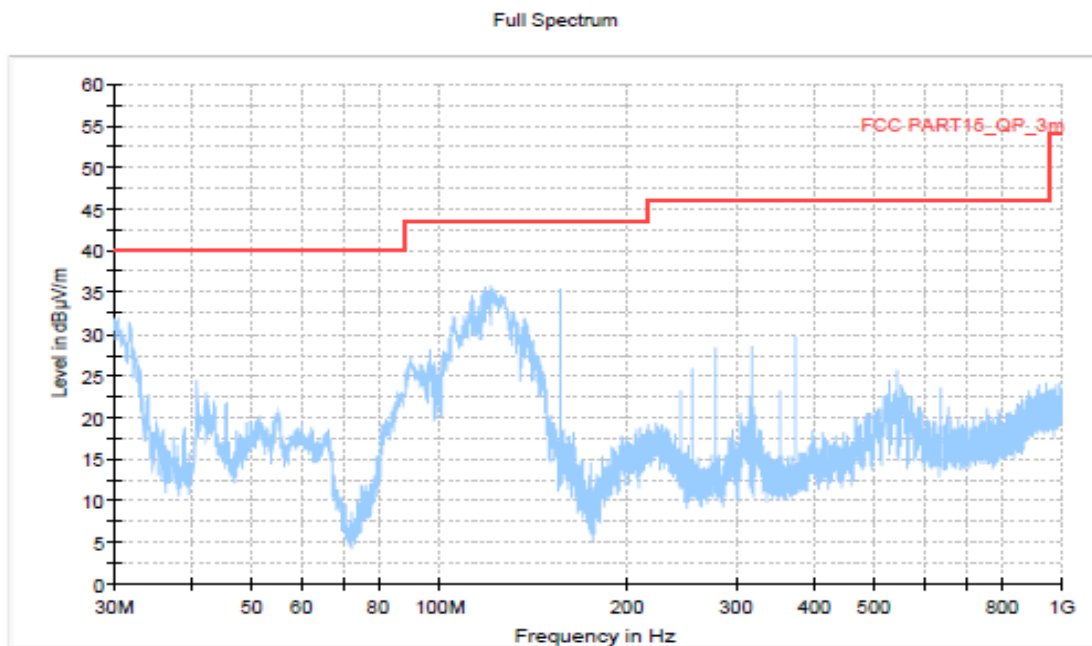


Figure A.7 Radiated Emission from 30MHz to 1GHz

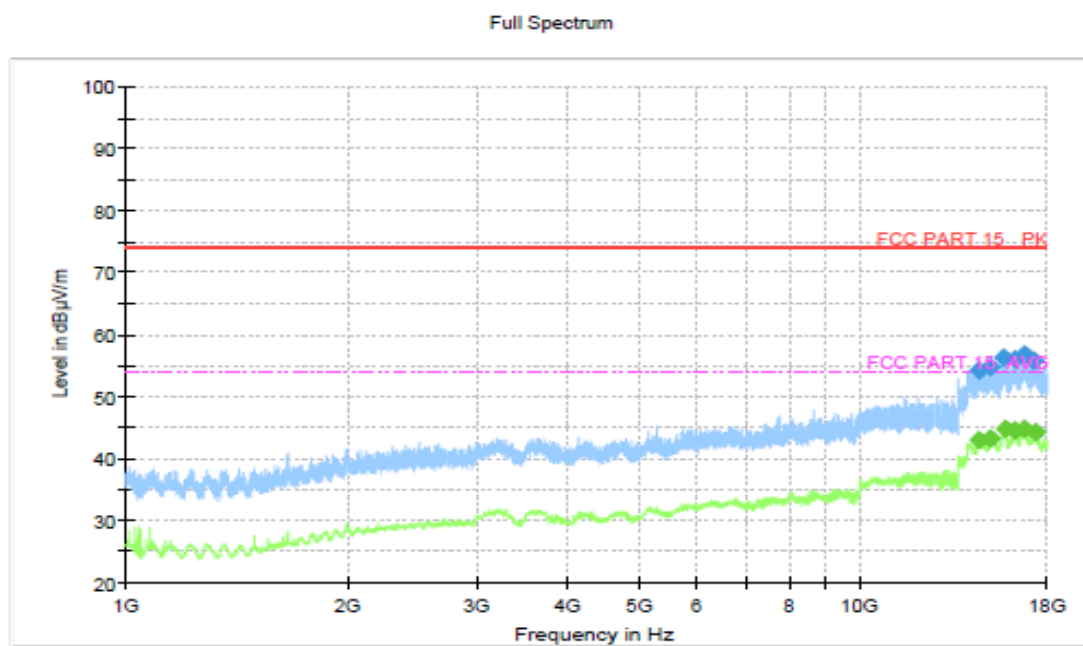


Figure A.8 Radiated Emission from 1GHz to 18GHz

USB mode: Set 5

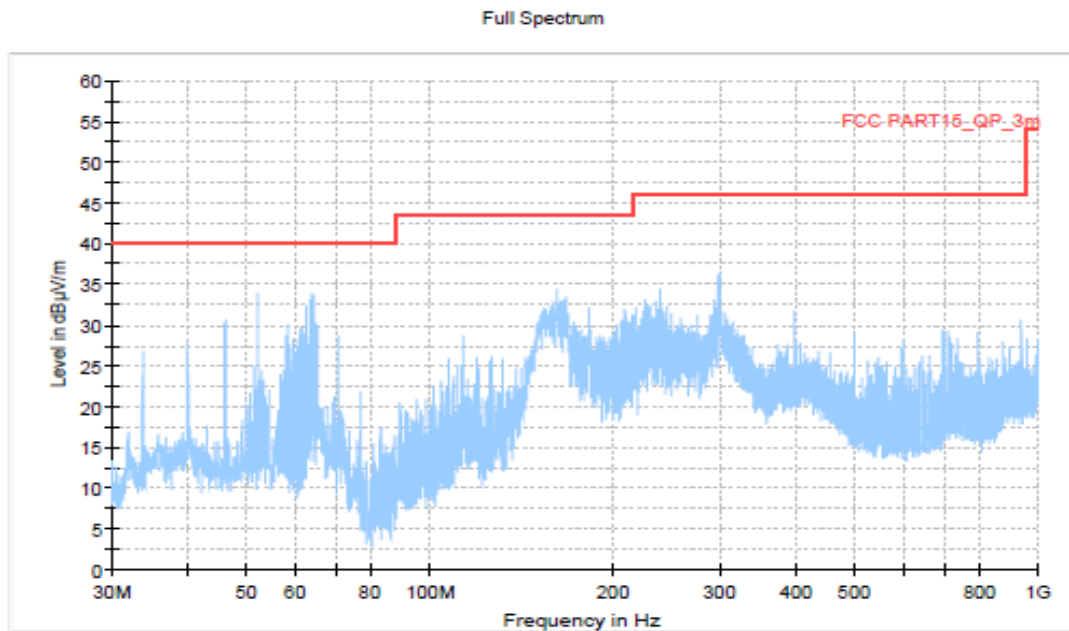


Figure A.9 Radiated Emission from 30MHz to 1GHz

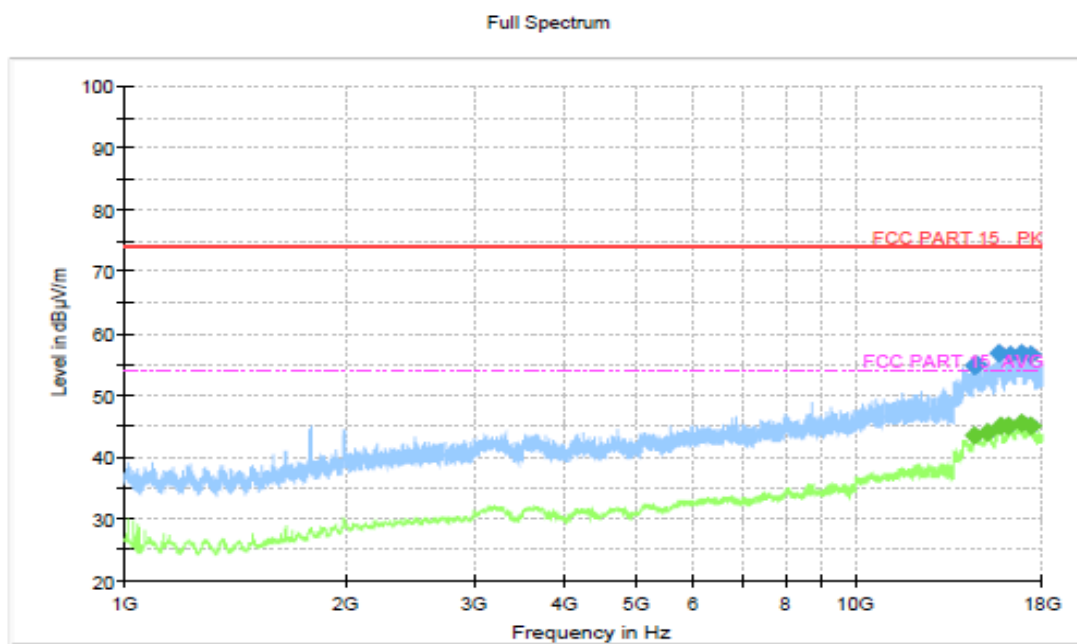


Figure A.10 Radiated Emission from 1GHz to 18GHz

**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:**

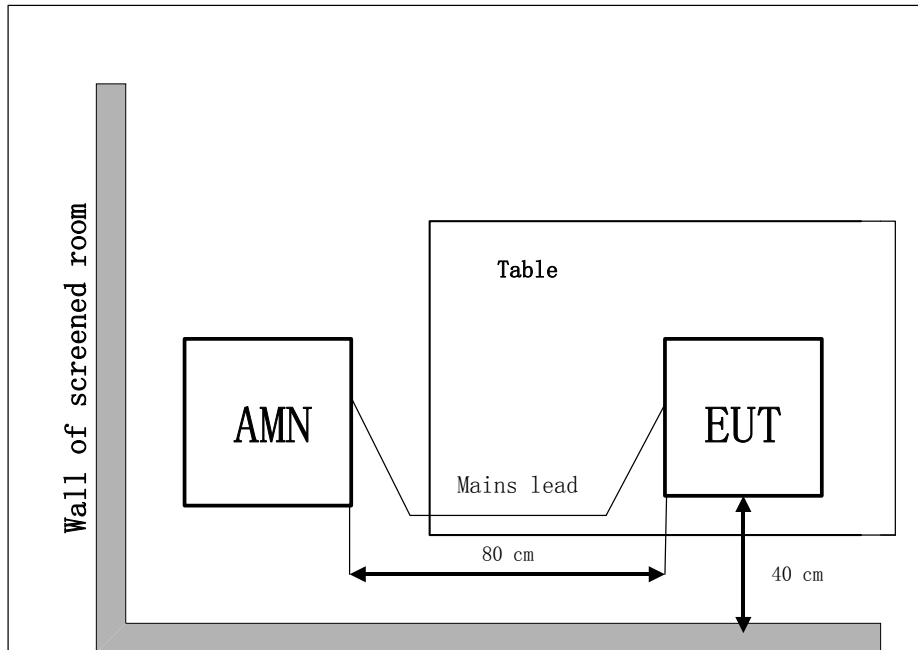
**Charging mode:** The MS is synchronized to SS, and able to respond to paging messages and incoming call. An established call has been released. The MS is connected to a charger.

**USB mode:** The model of the PC is Lenovo 2OET-A00DCD, and the serial number of the PC is PF-OIYDAK. 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 set-up:



#### A.2.5 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60
240	60

RBW	Sweep Time(s)
9kHz	1

**CE Measurement uncertainty:** 3.06 dB (k=2)



## A.2.6 Measurement Results

Charging mode:Set.1

Voltage:120V

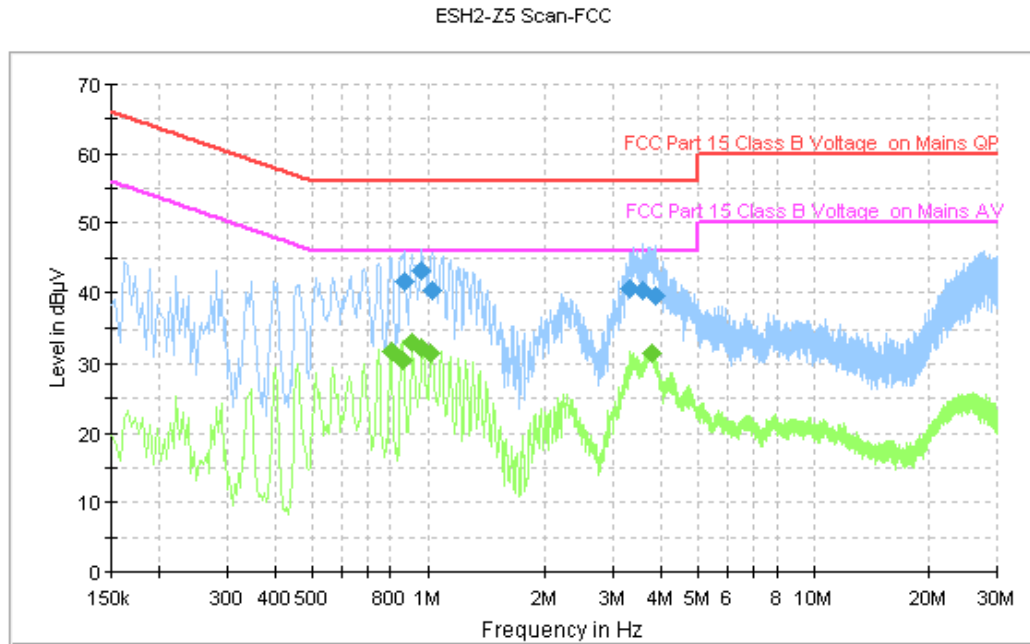


Figure A.11 Conducted Emission

### Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.866000	41.5	GND	N	9.6	14.5	56.0
0.966000	43.0	GND	N	9.6	13.0	56.0
1.030000	40.3	GND	N	9.5	15.7	56.0
3.338000	40.4	GND	N	9.6	15.6	56.0
3.574000	40.4	GND	N	9.6	15.6	56.0
3.886000	39.6	GND	N	9.6	16.4	56.0

### Final Measurement Detector 2

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.802000	31.8	GND	N	9.6	14.2	46.0
0.858000	30.4	GND	N	9.5	15.6	46.0
0.910000	33.0	GND	N	9.6	13.0	46.0
0.966000	32.4	GND	N	9.6	13.6	46.0
1.022000	31.5	GND	N	9.5	14.5	46.0
3.802000	31.5	GND	N	9.6	14.5	46.0

Charging mode:Set.2

Voltage:120V

ESH2-Z5 Scan-FCC

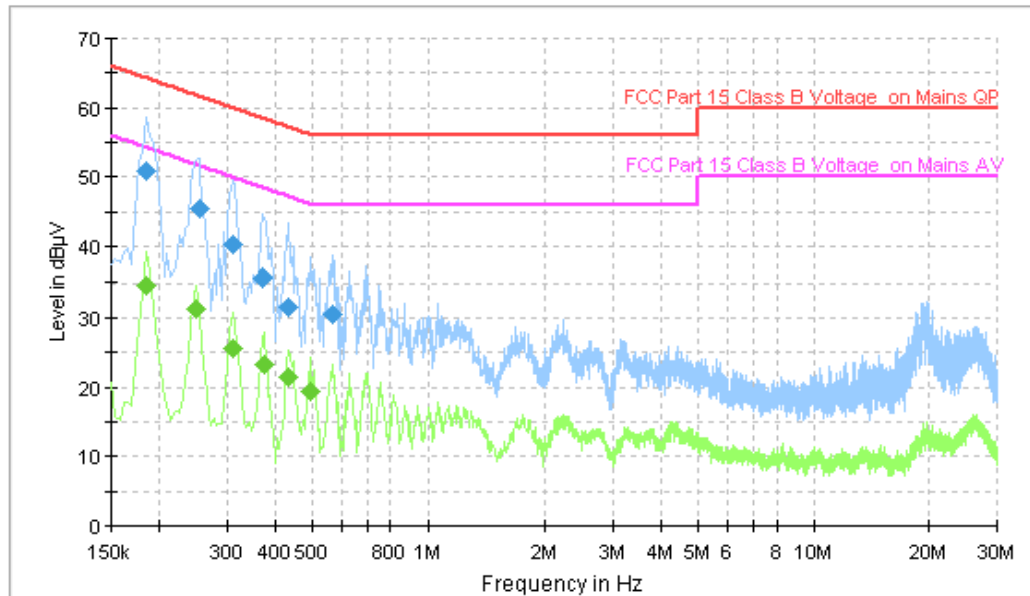


Figure A.12 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.186000	51.0	GND	N	9.6	13.2	64.2
0.254000	45.5	GND	N	9.6	16.2	61.6
0.310000	40.3	GND	N	9.6	19.6	60.0
0.370000	35.6	GND	N	9.6	22.9	58.5
0.434000	31.6	GND	N	9.7	25.6	57.2
0.566000	30.4	GND	N	9.7	25.6	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.186000	34.5	GND	N	9.6	19.7	54.2
0.250000	31.2	GND	N	9.6	20.5	51.8
0.310000	25.6	GND	N	9.6	24.4	50.0
0.374000	23.2	GND	N	9.6	25.2	48.4
0.434000	21.5	GND	N	9.7	25.7	47.2
0.498000	19.3	GND	N	9.7	26.8	46.0

Charging mode:Set.3

Voltage:120V

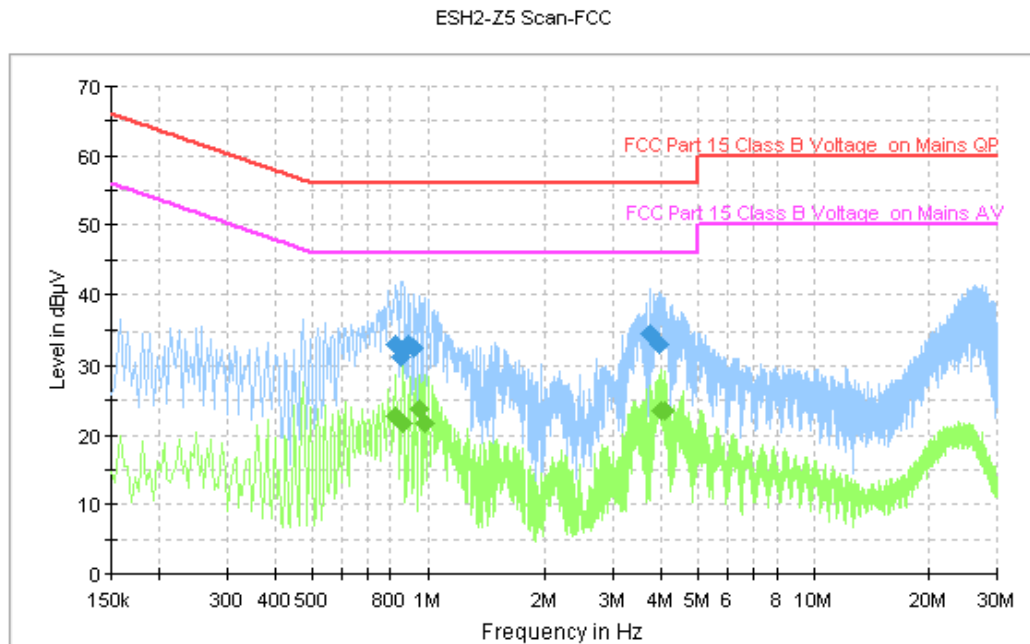


Figure A.13 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.826000	33.2	GND	N	9.5	22.8	56.0
0.854000	31.2	GND	N	9.5	24.8	56.0
0.886000	33.0	GND	N	9.6	23.0	56.0
0.922000	32.6	GND	N	9.6	23.4	56.0
3.754000	34.7	GND	N	9.6	21.3	56.0
3.978000	33.2	GND	N	9.6	22.8	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.822000	22.6	GND	N	9.5	23.4	46.0
0.862000	21.7	GND	N	9.6	24.3	46.0
0.954000	23.8	GND	N	9.6	22.2	46.0
0.978000	21.7	GND	N	9.6	24.3	46.0
4.010000	23.4	GND	N	9.6	22.6	46.0
4.078000	23.5	GND	N	9.6	22.5	46.0

Charging mode:Set.4

Voltage:120V

ESH2-Z5 Scan-FCC

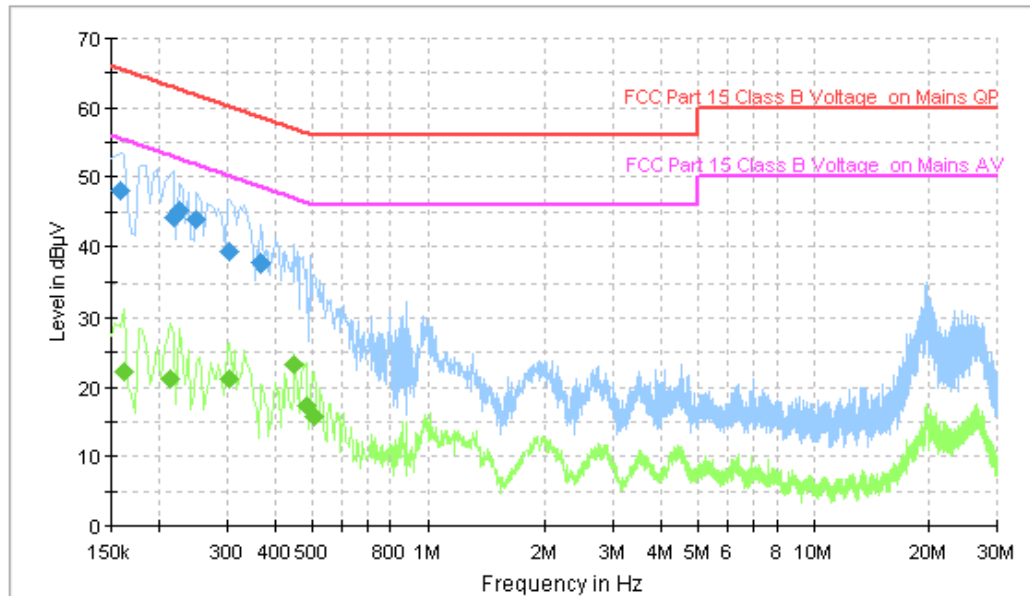


Figure A.14 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB μV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.158000	48.1	GND	N	9.6	17.4	65.6
0.218000	44.3	GND	N	9.6	18.6	62.9
0.226000	45.2	GND	N	9.6	17.4	62.6
0.250000	44.0	GND	N	9.6	17.8	61.8
0.306000	39.2	GND	N	9.6	20.9	60.1
0.366000	37.6	GND	N	9.6	21.0	58.6

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB μV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.162000	22.2	GND	N	9.6	33.2	55.4
0.214000	21.2	GND	N	9.6	31.8	53.0
0.306000	21.2	GND	N	9.6	28.8	50.1
0.450000	23.2	GND	N	9.7	23.6	46.9
0.482000	17.2	GND	N	9.7	29.1	46.3
0.506000	15.8	GND	N	9.7	30.2	46.0

USB mode:Set.5

Voltage:120V

ESH2-Z5 Scan-FCC

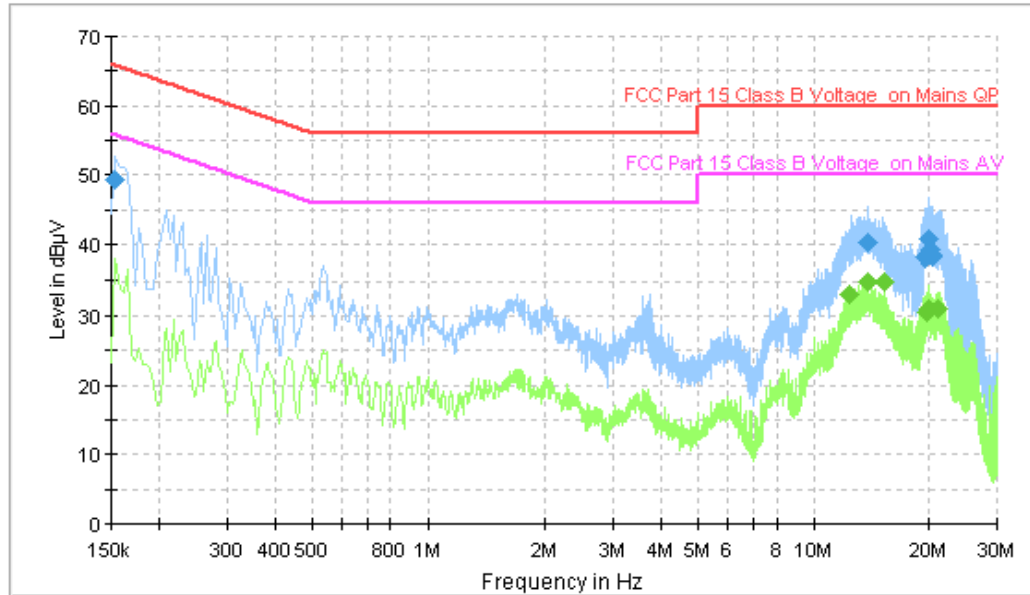


Figure A.15 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.154000	49.3	GND	N	9.6	16.5	65.8
13.878000	40.2	GND	N	9.9	19.8	60.0
19.422000	38.2	GND	N	10.0	21.8	60.0
19.882000	40.7	GND	N	10.0	19.3	60.0
20.166000	39.2	GND	N	10.0	20.8	60.0
20.398000	38.6	GND	N	10.0	21.4	60.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
12.362000	33.1	GND	N	9.9	16.9	50.0
13.878000	34.8	GND	N	9.9	15.2	50.0
15.358000	34.8	GND	N	9.9	15.2	50.0
19.606000	30.5	GND	N	10.0	19.5	50.0
19.882000	30.9	GND	N	10.0	19.1	50.0
21.166000	31.0	GND	N	10.0	19.0	50.0

Charging mode:Set.1  
Voltage:240V

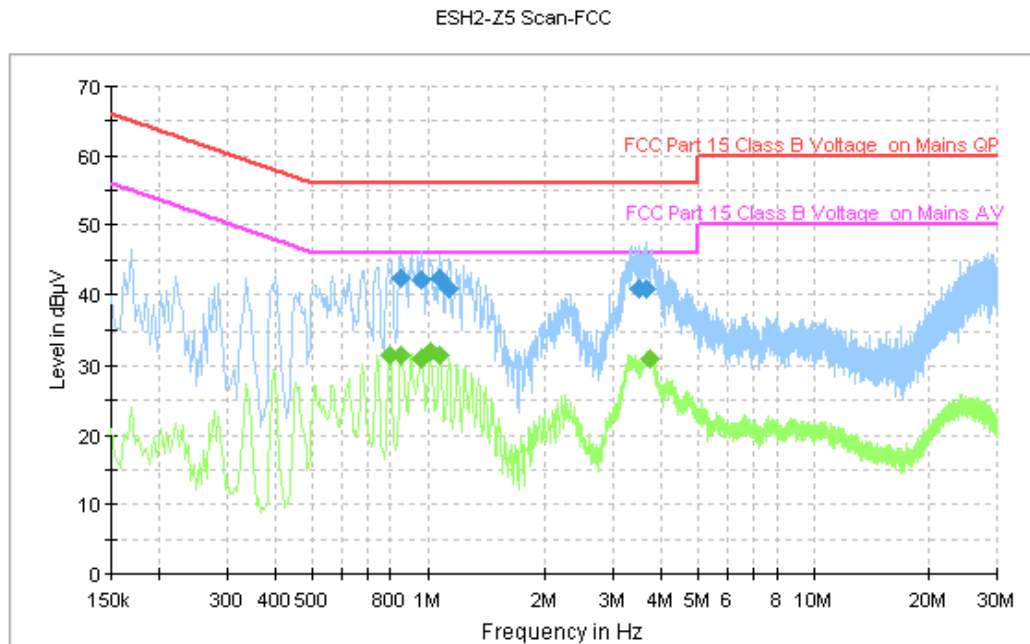


Figure A.16 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.850000	42.3	GND	N	9.5	13.7	56.0
0.962000	42.0	GND	N	9.6	14.0	56.0
1.074000	42.3	GND	N	9.6	13.7	56.0
1.138000	40.8	GND	N	9.6	15.2	56.0
3.518000	40.7	GND	N	9.6	15.3	56.0
3.662000	40.9	GND	N	9.6	15.1	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.794000	31.6	GND	N	9.6	14.4	46.0
0.850000	31.6	GND	N	9.5	14.4	46.0
0.962000	31.1	GND	N	9.6	14.9	46.0
1.014000	31.9	GND	N	9.5	14.1	46.0
1.074000	31.5	GND	N	9.6	14.5	46.0
3.730000	30.9	GND	N	9.6	15.1	46.0

Charging mode:Set.2

Voltage:240V

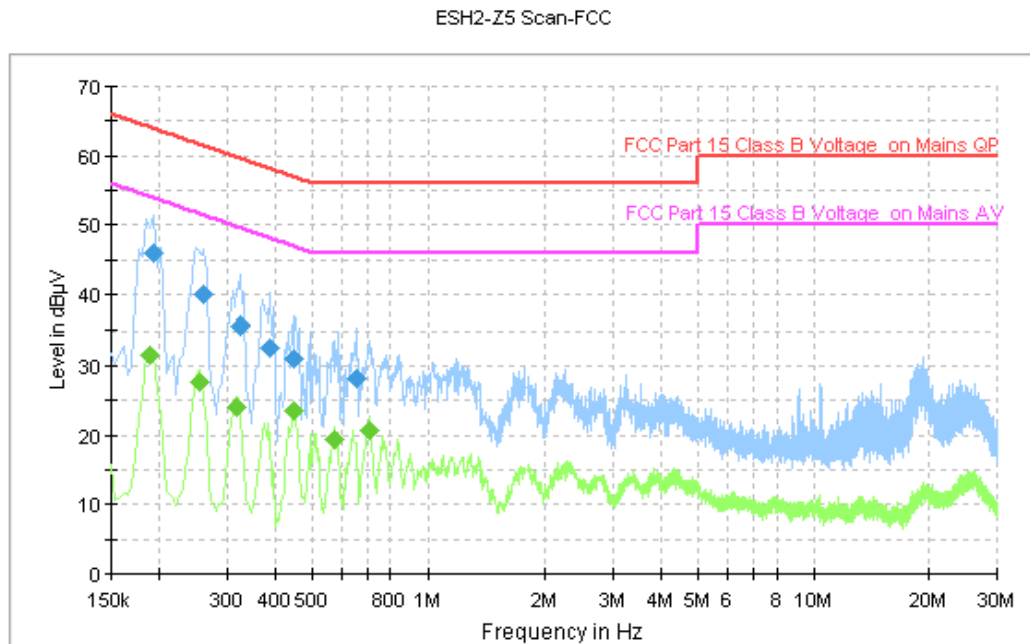


Figure A.17 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.194000	45.9	GND	N	9.6	17.9	63.9
0.262000	39.9	GND	N	9.6	21.4	61.4
0.326000	35.6	GND	N	9.6	24.0	59.6
0.390000	32.5	GND	N	9.6	25.6	58.1
0.450000	30.9	GND	N	9.7	26.0	56.9
0.650000	28.1	GND	N	9.6	27.9	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.190000	31.4	GND	N	9.6	22.6	54.0
0.254000	27.6	GND	N	9.6	24.0	51.6
0.318000	24.1	GND	N	9.6	25.7	49.8
0.450000	23.5	GND	N	9.7	23.4	46.9
0.574000	19.4	GND	N	9.7	26.6	46.0
0.706000	20.8	GND	N	9.5	25.2	46.0

Charging mode:Set.3

Voltage:240V

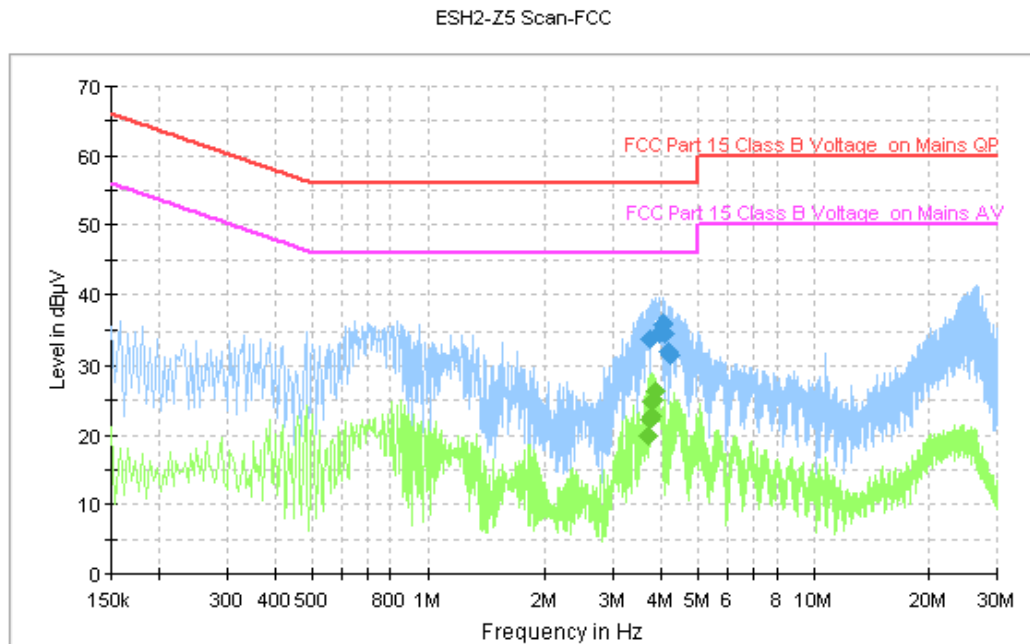


Figure A.18 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
3.754000	33.7	GND	N	9.6	22.3	56.0
3.958000	34.7	GND	N	9.6	21.3	56.0
4.050000	35.8	GND	N	9.6	20.2	56.0
4.110000	34.7	GND	N	9.6	21.3	56.0
4.170000	32.1	GND	N	9.6	23.9	56.0
4.222000	31.5	GND	N	9.6	24.5	56.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
3.714000	20.0	GND	N	9.6	26.0	46.0
3.734000	22.2	GND	N	9.6	23.8	46.0
3.778000	22.7	GND	N	9.6	23.3	46.0
3.798000	24.8	GND	N	9.6	21.2	46.0
3.818000	25.0	GND	N	9.6	21.0	46.0
3.862000	26.5	GND	N	9.6	19.6	46.0



Charging mode:Set.4  
Voltage:240V

ESH2-Z5 Scan-FCC

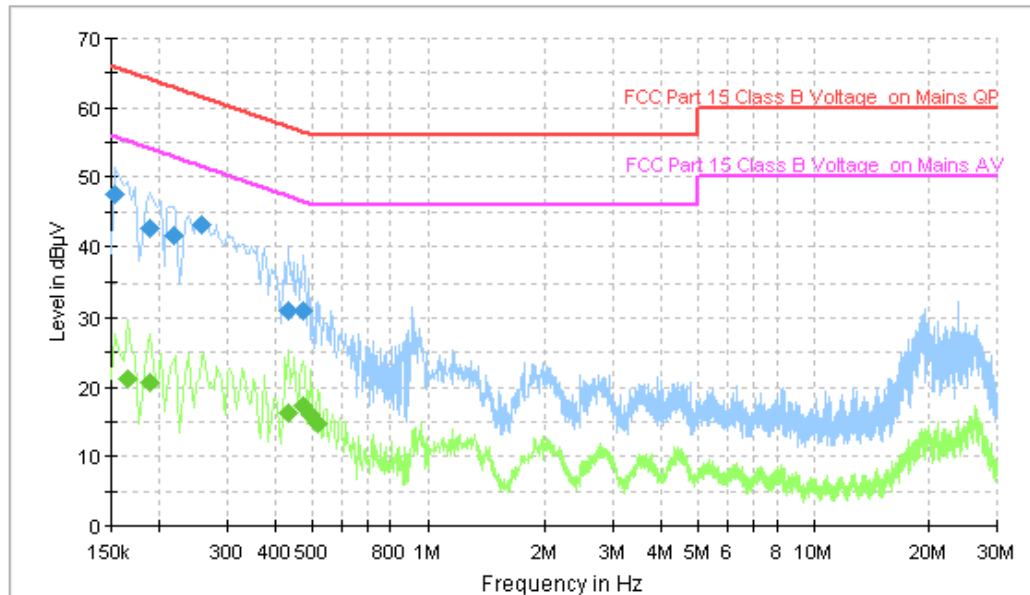


Figure A.19 Conducted Emission

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.154000	47.4	GND	N	9.6	18.3	65.8
0.190000	42.7	GND	N	9.6	21.4	64.0
0.218000	41.6	GND	N	9.6	21.3	62.9
0.258000	43.2	GND	N	9.6	18.3	61.5
0.434000	31.1	GND	N	9.7	26.1	57.2
0.474000	31.0	GND	N	9.7	25.4	56.4

Final Measurement Detector 2

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.166000	21.3	GND	N	9.6	33.9	55.2
0.190000	20.6	GND	N	9.6	33.4	54.0
0.434000	16.2	GND	N	9.7	31.0	47.2
0.474000	17.4	GND	N	9.7	29.0	46.4
0.498000	16.0	GND	N	9.7	30.0	46.0
0.518000	14.8	GND	N	9.7	31.2	46.0

USB mode:Set.5

Voltage:240V

ESH2-Z5 Scan-FCC

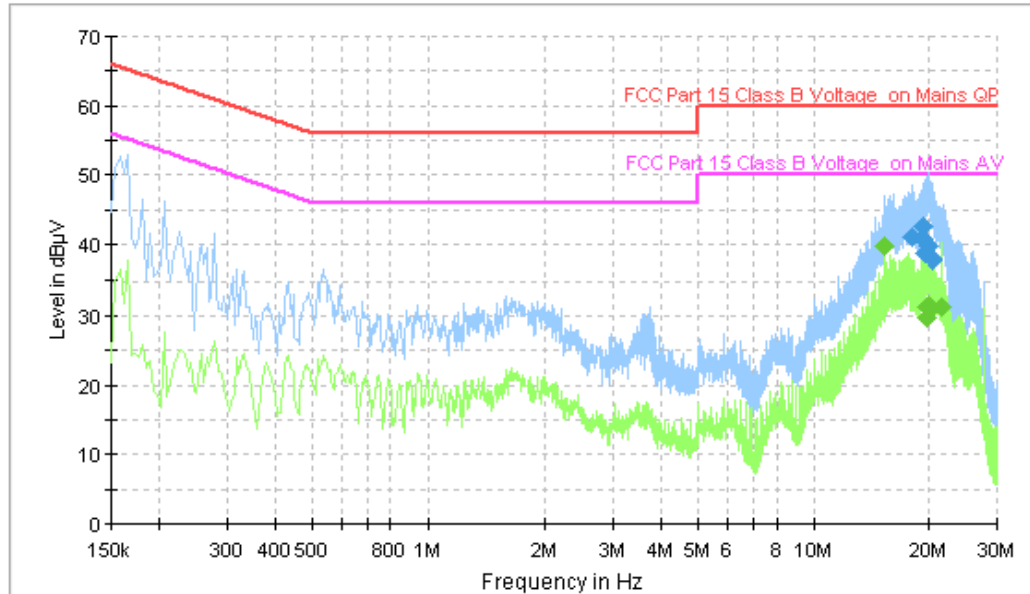


Figure A.20 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
18.014000	41.0	GND	N	9.9	19.0	60.0
19.218000	40.8	GND	N	10.0	19.2	60.0
19.330000	42.7	GND	N	10.0	17.3	60.0
19.514000	38.7	GND	N	10.0	21.3	60.0
19.858000	39.8	GND	N	10.0	20.2	60.0
20.458000	38.1	GND	N	10.0	21.9	60.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
15.358000	39.9	GND	N	9.9	10.1	50.0
19.722000	29.6	GND	N	10.0	20.4	50.0
19.790000	31.3	GND	N	10.0	18.7	50.0
19.874000	31.5	GND	N	10.0	18.5	50.0
20.066000	31.0	GND	N	10.0	19.0	50.0
21.502000	31.3	GND	N	10.0	18.7	50.0

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