



TEST REPORT

No. I22Z62030-EMC01

for

BLU Products,Inc.

Smart phone

Model Name: B135DL

FCC ID: YHLBLUB135DL

with

Hardware Version: V1.0

Software Version: BLU_B135DL_V12.0.01.05.01.04

Issued Date: 2022-12-26

Note:

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Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z62030-EMC01	Rev.0	1 st edition	2022-12-26

Note: the latest revision of the test report supersedes all previous version.



CONTENTS

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

1. Test Laboratory

1.1. Testing Location

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°C

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2022-12-17

Testing End Date: 2022-12-23

1.4. Signature



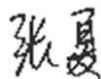
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2. Client Information

2.1. Applicant Information

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2.2. Manufacturer Information

Company Name: BLU Products, Inc.
Address /Post: 8600 NW 36th Street, Suite #200 Doral, FL 33166
Contact: Zeng wei
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Telephone: 305.715.7171
Fax: 305.436.8819

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

3.1. About EUT

Description	Smart phone
Model Name	B135DL
FCC ID:	YHLBLUB135DL

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, CAICT.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
UT65a	356074290014401	V1.0	BLU_B135DL_V12.0.01.05.01.04

*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
AE1	Battery
AE2	Battery
AE3	Charger
AE4	Charger
AE5	USB Cable
AE6	USB Cable

AE1

Model	TN-BP4000N3
Manufacturer	Guangdong Fenghua New Energy Co.,Ltd.
Capacity	4000mAh
Nominal Voltage	3.85V

AE2

Model	TN-BP4000N3
Manufacturer	Ganfeng
Capacity	4000mAh
Nominal Voltage	3.85V

AE3

Model	TN-050200U3
Manufacturer	Dong Guan City GangQi Electronic Co.,Ltd.
Length of cable	/

AE4

Model	TN-050200U3
Manufacturer	Guangdong Beicom Electronics Co.,Ltd.
Length of cable	/

AE5

Model	336275
Manufacturer	SUNTOPS ELECTRONICS CO.,LTD
Length of cable	/

AE6

Model T365-011B-1
Manufacturer Shenzhen Yihuaxing Electronics Co. Ltd.
Length of cable /

*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 + AE3	Charger1+REAR Camera+GSM 850 idle
Set.2	EUT1 + AE1 + AE2 + AE3	Charger2+MP4+WCDMA 850 idle
Set.3	EUT1 + AE1 + AE3 + AE4	USB+front camera + LTE idle

Note:

Equipment Under Test (EUT) is a model of GSM/UMTS/LTE mobile phone with integrated antenna. It supports

GSM Band GSM 850/1900
UMTS Band FDD Band II(W1900) /FDD Band IV(W1700)/FDD Band V(W850)
LTE Band FDD 2/4/5/12/13/25/26/66/71, TDD 41.

It has Wi-Fi (802.11a/b/g/n/ac, 802.11n supports 20MHz and 40MHz bandwidth,802.11ac supports 20MHz, 40MHz and 80MHz bandwidth) functions.

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM 850, WCDMA850, LTE Band 5/12/13/26/71. All licensed band receivers that tune in the range of 30MHz-960MHz are investigated. Only the worst-case emissions are reported.

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	2019
ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-1 (10 meters×6.7meters×6.1meters) 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, 3m 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 6000 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

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	CTTL(huayuan North Road)
2	Conducted Emission	15.107(a)	B.2	P	CTTL(huayuan North Road)

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESW44	103015	R&S	2023-01-23	1 year
2	Universal Radio Communication Tester	CMW500	163975	R&S	2023-01-10	1 year
3	EMI Antenna	VULB 9163	302	SCHWARZBECK	2022-12-28	1 year
4	EMI Antenna	3115	00146404	ETS-Lindgren	2023-02-23	1 year
5	LISN	ENV216	101200	R&S	2023-06-29	1 year
6	Test Receiver	ESCI 7	100344	R&S	2023-03-21	1 Year
7	Software	EMC32	/	R&S	/	/

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 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 3/10 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 EUT was tested while operating in licensed band Rx mode. All licensed band receivers that tune in the range of 30MHz-960MHz, as listed in section 3.4, are investigated. Only the worst case emissions are reported.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

The model of the PC is M4000E-17, and the serial number of the PC is M706GWXD. 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 ($\mu\text{V}/\text{m}$)		
	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/3MHz	15	Peak, Average

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + G_A + G_{\text{PL}}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 5.54 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charging Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17997.960	42.90	-29.06	46.66	25.30	54.00	11.10	H
17999.320	42.30	-29.06	46.66	24.70	54.00	11.70	V
17985.380	42.30	-29.06	46.66	24.70	54.00	11.70	H
17978.240	42.30	-29.06	46.66	24.70	54.00	11.70	V
17989.120	42.20	-29.06	46.66	24.60	54.00	11.80	V
17993.540	42.10	-29.06	46.66	24.50	54.00	11.90	H

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17896.980	52.60	-29.53	45.95	36.18	74.00	21.40	H
17993.200	52.60	-29.06	46.66	35.00	74.00	21.40	H
17911.260	52.50	-29.33	45.95	35.87	74.00	21.50	H
17970.080	52.40	-29.06	46.66	34.80	74.00	21.60	H
17901.400	52.40	-29.33	45.95	35.77	74.00	21.60	H
17964.300	52.40	-29.06	46.66	34.80	74.00	21.60	H

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

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17987.080	42.10	-29.06	46.66	24.50	54.00	11.90	H
17909.560	42.10	-29.33	45.95	25.47	54.00	11.90	H
17982.660	41.90	-29.06	46.66	24.30	54.00	12.10	V
17997.960	41.70	-29.06	46.66	24.10	54.00	12.30	V
17996.940	41.60	-29.06	46.66	24.00	54.00	12.40	H
17969.060	41.50	-29.06	46.66	23.90	54.00	12.50	V

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17529.100	53.10	-29.32	44.35	38.07	74.00	20.90	H
17541.340	53.00	-29.49	44.35	38.13	74.00	21.00	V
17958.180	52.80	-28.94	46.66	35.08	74.00	21.20	V
17994.220	52.70	-29.06	46.66	35.10	74.00	21.30	V
17651.160	52.40	-29.60	45.25	36.75	74.00	21.60	H
17569.560	52.20	-29.79	45.25	36.75	74.00	21.80	H

Measurement results for Set.3:
USB Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17998.640	41.90	-29.06	46.66	24.30	54.00	12.10	H
6052.740	41.80	-37.82	34.40	45.22	54.00	12.20	H
17971.780	41.70	-29.06	46.66	24.10	54.00	12.30	H
17912.620	41.70	-29.33	45.95	25.07	54.00	12.30	V
17544.060	41.70	-29.49	44.35	26.83	54.00	12.30	H
17987.760	41.60	-29.06	46.66	24.00	54.00	12.40	H

USB Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17977.220	53.20	-29.06	46.66	35.60	74.00	20.80	H
17905.820	53.10	-29.33	45.95	36.47	74.00	20.90	V
17789.880	52.70	-29.89	45.95	36.63	74.00	21.30	V
17542.700	52.60	-29.49	44.35	37.73	74.00	21.40	H
17808.920	52.60	-29.63	45.95	36.28	74.00	21.40	H
17799.400	52.50	-29.89	45.95	36.43	74.00	21.50	V

Measurement results for Set.1:

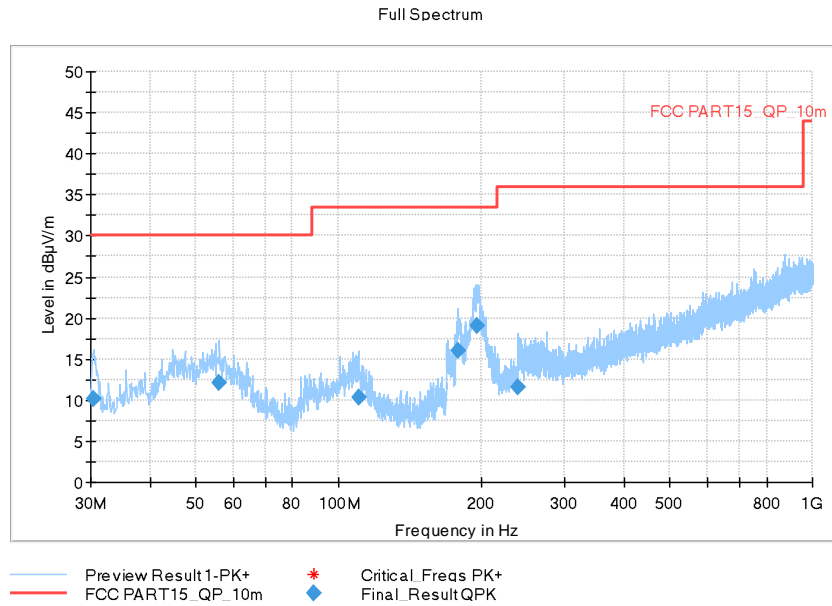


Fig A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.485000	10.14	30.00	19.86	120.000	223.0	V	135.0	-15.1
56.093000	12.10	30.00	17.90	120.000	125.0	V	306.0	-11.2
110.122000	10.30	33.52	23.22	120.000	125.0	V	292.0	-12.7
178.313000	15.99	33.52	17.53	120.000	125.0	V	252.0	-14.1
196.646000	19.11	33.52	14.41	120.000	100.0	V	85.0	-11.6
239.035000	11.61	36.02	24.41	120.000	125.0	V	135.0	-10.3

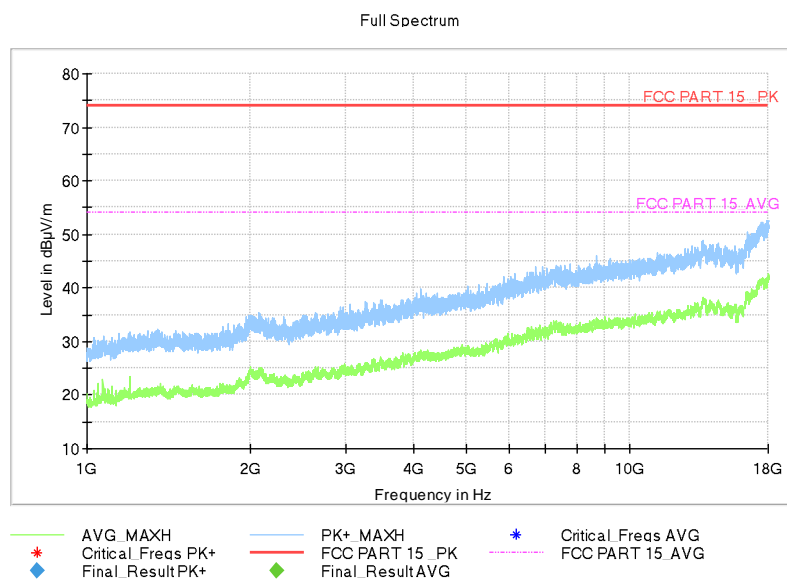


Fig A.2 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.2:

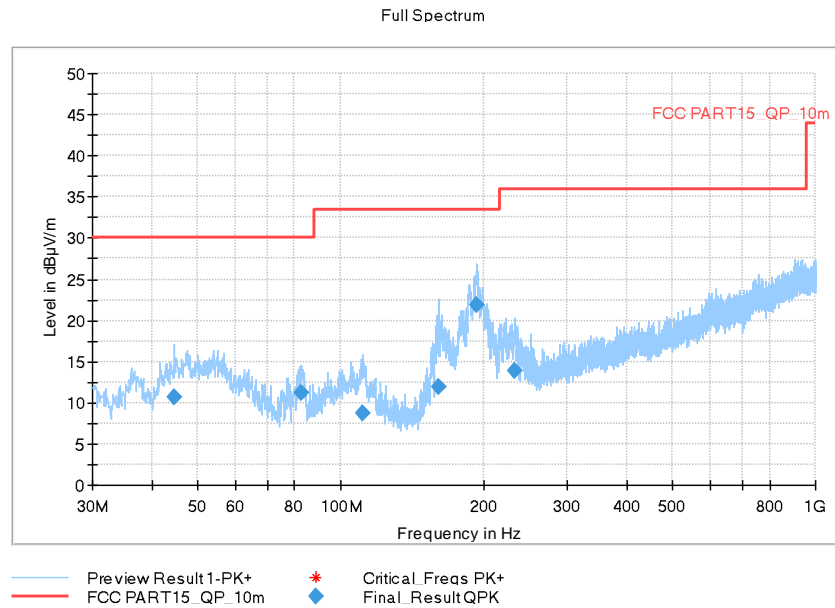


Fig A.3 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.550000	10.66	30.00	19.34	120.000	100.0	V	279.0	-11.3
82.865000	11.20	30.00	18.80	120.000	203.0	V	291.0	-17.0
111.286000	8.77	33.52	24.75	120.000	225.0	V	163.0	-12.9
161.047000	11.99	33.52	21.53	120.000	175.0	V	-17.0	-14.9
193.639000	21.80	33.52	11.72	120.000	100.0	V	72.0	-12.1
232.633000	13.84	36.02	22.18	120.000	125.0	V	176.0	-10.7

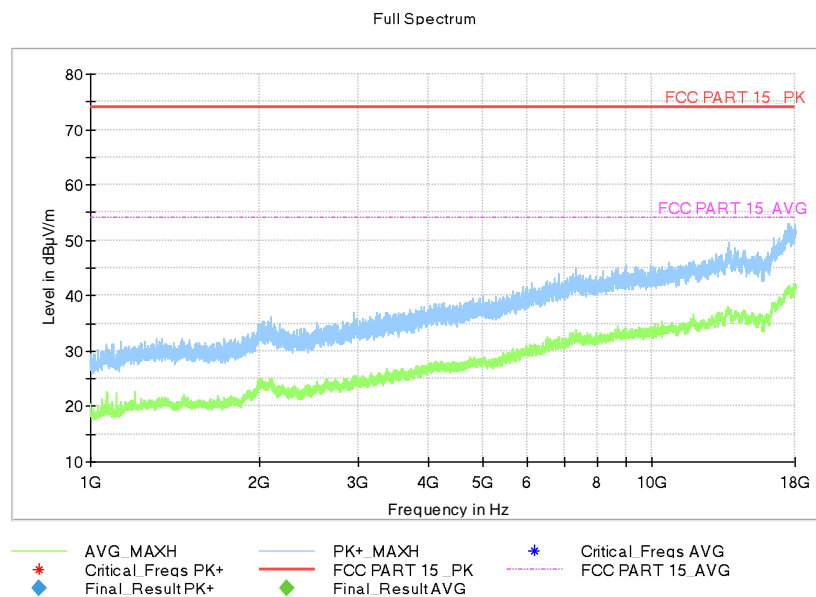


Fig A.4 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.3:

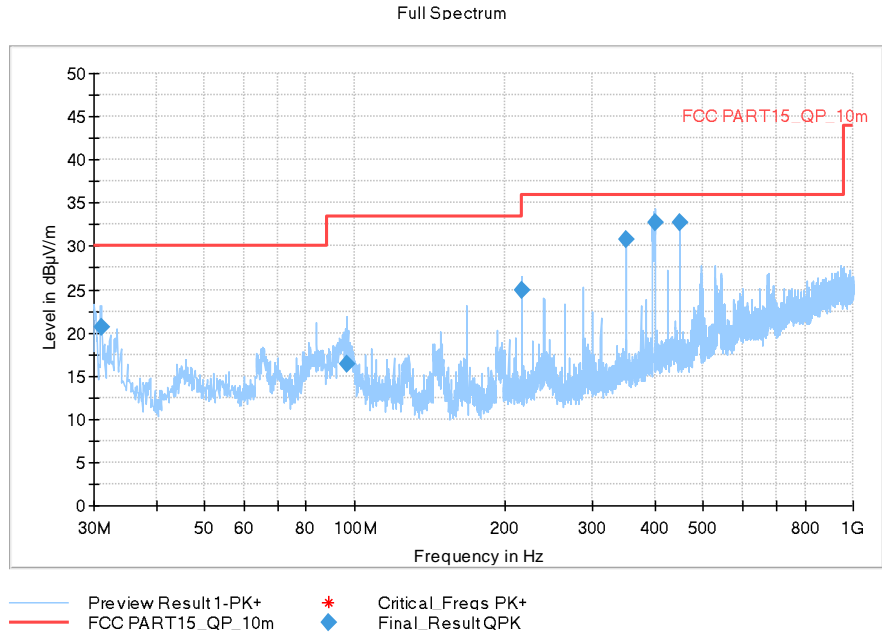


Fig A.5 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.067000	20.68	30.00	9.32	120.000	175.0	V	203.0	-15.3
96.445000	16.38	33.52	17.14	120.000	203.0	V	45.0	-13.0
215.949000	24.97	33.52	8.56	120.000	325.0	H	189.0	-11.9
350.003000	30.81	36.02	5.21	120.000	183.0	H	45.0	-6.7
399.667000	32.79	36.02	3.23	120.000	125.0	V	47.0	-5.7
450.010000	32.79	36.02	3.23	120.000	100.0	V	85.0	-4.9

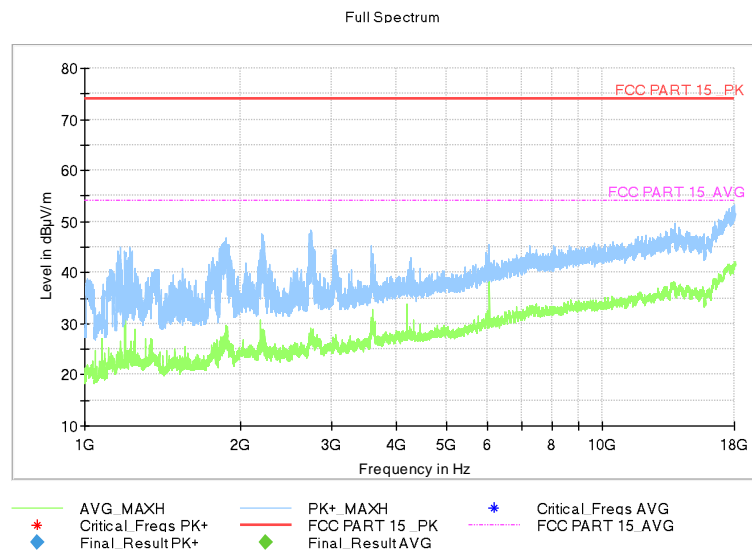


Fig A.6 Radiated Emission from 1GHz to 3GHz

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 M4000E-17, and the serial number of the PC is M706GWXD. 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 μ 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: $U= 3.08$ dB, $k=2$.

Charging Mode, Set.1 :

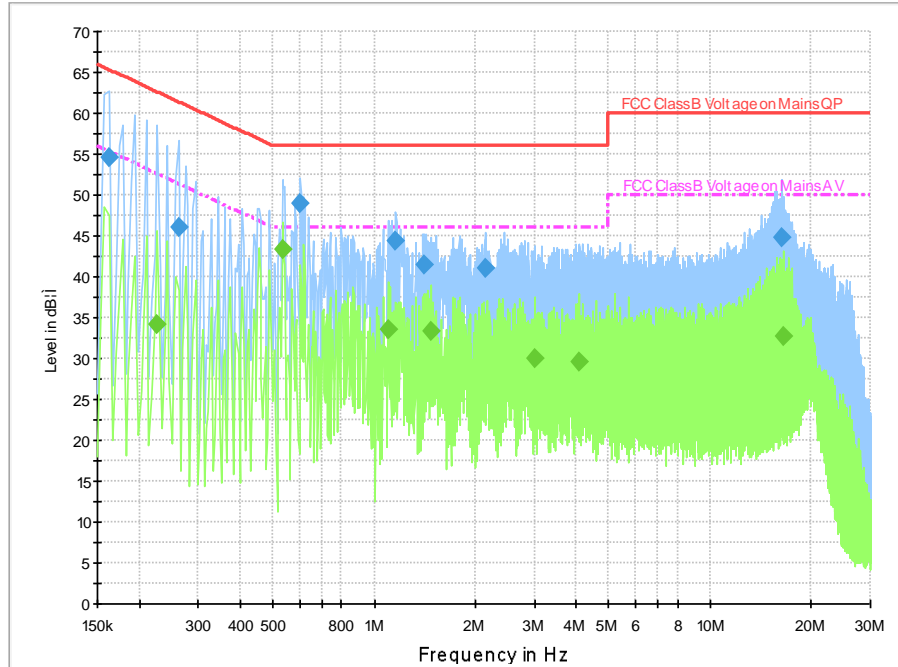


Fig A.7 Conducted Emission from 150kHz to 30MHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.162000	54.7	9.000	On	N	19.7	10.7	65.4	
0.262000	46.0	9.000	On	N	19.7	15.4	61.4	
0.602000	48.9	9.000	On	L1	19.7	7.1	56.0	
1.162000	44.5	9.000	On	L1	19.7	11.5	56.0	
1.402000	41.5	9.000	On	L1	19.6	14.5	56.0	
2.134000	41.1	9.000	On	L1	19.6	15.0	56.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.226000	34.1	9.000	On	L1	19.7	18.5	52.6	
0.534000	43.4	9.000	On	L1	19.7	2.6	46.0	
1.098000	33.6	9.000	On	L1	19.6	12.4	46.0	
1.482000	33.3	9.000	On	L1	19.7	12.7	46.0	
3.022000	30.0	9.000	On	L1	19.6	16.0	46.0	
4.094000	29.7	9.000	On	L1	19.6	16.3	46.0	

Charging Mode, Set.2 :

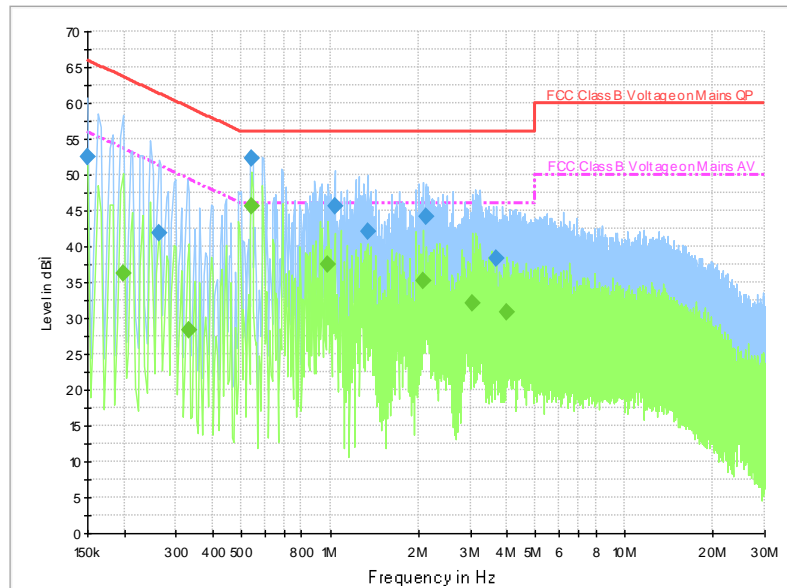


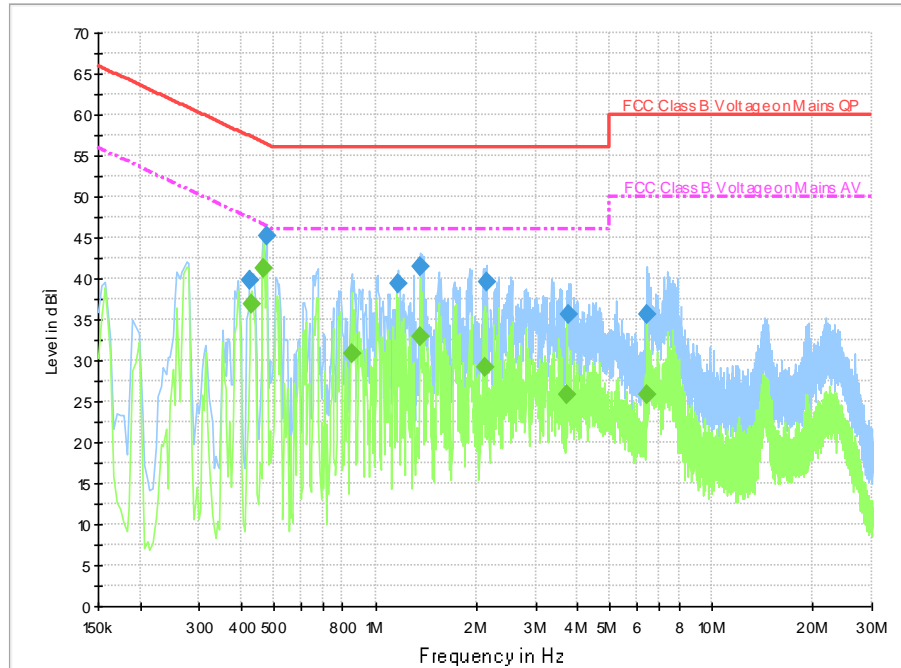
Fig A.8 Conducted Emission from 150kHz to 30MHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.150000	52.5	9.000	On	L1	20.0	13.5	66.0	
0.262000	41.9	9.000	On	N	19.7	19.5	61.4	
0.542000	52.3	9.000	On	L1	19.7	3.7	56.0	
1.038000	45.6	9.000	On	N	19.6	10.4	56.0	
1.338000	42.1	9.000	On	N	19.6	13.9	56.0	
2.122000	44.1	9.000	On	L1	19.6	11.9	56.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.198000	36.2	9.000	On	L1	19.7	17.5	53.7	
0.330000	28.3	9.000	On	L1	19.7	21.1	49.5	
0.542000	45.7	9.000	On	L1	19.7	0.3	46.0	
0.986000	37.5	9.000	On	L1	19.7	8.5	46.0	
2.066000	35.3	9.000	On	L1	19.6	10.7	46.0	
3.042000	32.0	9.000	On	L1	19.6	14.0	46.0	

USB Mode, Set.3 :

Fig A.9 Conducted Emission from 150kHz to 30MHz
Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.422000	39.8	9.000	On	L1	19.7	17.6	57.4	
0.474000	45.2	9.000	On	L1	19.7	11.3	56.4	
1.170000	39.4	9.000	On	N	19.6	16.6	56.0	
1.358000	41.6	9.000	On	L1	19.6	14.4	56.0	
2.134000	39.6	9.000	On	N	19.6	16.4	56.0	
3.750000	35.6	9.000	On	N	19.6	20.4	56.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.430000	36.9	9.000	On	N	19.7	10.4	47.3	
0.466000	41.2	9.000	On	N	19.7	5.4	46.6	
0.850000	30.8	9.000	On	N	19.6	15.2	46.0	
1.358000	32.8	9.000	On	L1	19.6	13.2	46.0	
2.122000	29.2	9.000	On	N	19.6	16.8	46.0	
3.710000	25.9	9.000	On	N	19.6	20.1	46.0	

END OF REPORT