



FCC PART 15B TEST REPORT

No. I23Z60697-EMC01

for

LG Electronics USA, Inc.

Tablet

Model name: 10A30Q

FCC ID: BEJTB-10A30Q

with

Hardware Version: Rev 1.0

Software Version: 10A30Q10y

Issued Date: 2023-07-07

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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I23Z60697-EMC01	Rev.0	1 st edition	2023-06-19
I23Z60697-EMC01	Rev.1	2 nd edition Modified the EUT description on Page 6 and radiated emission measurement result on Page 19	2023-07-07

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



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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: 2023-05-16

Testing End Date: 2023-07-06


1.4. Signature



Wang Xue
(Prepared this test report)



Zhang Ying
(Reviewed this test report)



Zhang Xia
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: LG Electronics USA, Inc.
Address: 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey
07632, United States
Contact: Hee Jae Cho
Email: heejae.cho@lge.com
Tel: /
Fax: /

2.2. Manufacturer Information

Company Name: LG Electronics Inc.
Address: 222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do, 17709 Republic
of KOREA
Contact: Ingyu Lee
Email: iingyu.lee@lge.com
Tel: 82-10-9973-2929
Fax: /

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

3.1. About EUT

Description	Tablet
Model Name	10A30Q
FCC ID:	BEJTB-10A30Q

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
EUT1	304WIKN000085	Rev 1.0	10A30Q10y

*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	Model	Manufacture
AE1	Battery	BL-M22	Shenzhen BYD Lithium Battery Company Limited
AE2	Charger	MCS-H06WA	Dongguan Aohai Technology Co., Ltd.
AE3	USB Cable	HX-WT-41	HUIZHOU WASHIN ELECTRONICS CO.,LTD

*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+FRONT Camera
Set.2	EUT1 + AE1 + AE2 + AE3	USB+REAR CAMERA
Set.3	EUT1 + EUT2 + AE1 + Cable	OTG

Note:

Equipment Under Test (EUT) is a model of Tablet with integrated antenna.

It has Camera, USB data, Bluetooth 5.1, Wi-Fi (802.11a/b/g/n/ac, 802.11n supports 20MHz bandwidth, 802.11ac supports 20MHz, 40MHz and 80MHz bandwidth).

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 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 M Ω
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 M Ω
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	103144	R&S	2023-10-25	1 Year
2	LISN	ENV216	101200	R&S	2023-06-29	1 year
3	Test Receiver	ESCI 7	100344	R&S	2024-02-21	1 Year
4	EMI Antenna	VULB 9163	01223	SCHWARZBECK	2023-07-25	1 year
5	EMI Antenna	3115	00167250	ETS-Lindgren	2023-06-20	1 year
6	Software	EMC32	/	R&S	/	/

※Note: The LISN with series number of 101200 and the EMI Antenna with series number of 00177250 did not exceed the CAL.DUE.DATE when used.

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): $U = 4.74 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charing 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)
17992.180	41.40	-29.06	46.66	23.80	54.00	12.60	V
17372.020	40.90	-29.97	43.36	27.51	54.00	13.10	H
17989.120	40.70	-29.06	46.66	23.10	54.00	13.30	V
17871.820	40.70	-29.39	45.95	24.14	54.00	13.30	V
17998.980	40.60	-29.06	46.66	23.00	54.00	13.40	V
17975.180	40.60	-29.06	46.66	23.00	54.00	13.40	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)
17873.860	51.70	-29.39	45.95	35.14	74.00	22.30	V
17904.460	51.10	-29.33	45.95	34.47	74.00	22.90	V
17503.260	51.10	-29.26	44.35	36.00	74.00	22.90	V
17907.180	51.10	-29.33	45.95	34.47	74.00	22.90	H
17324.420	50.80	-29.70	43.36	37.14	74.00	23.20	V
17693.320	50.80	-29.98	45.25	35.53	74.00	23.20	V

Measurement results for Set.2:
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)
17998.300	41.00	-29.06	46.66	23.40	54.00	13.00	V
17382.220	41.00	-29.83	43.36	27.47	54.00	13.00	V
17919.080	41.00	-29.33	46.66	23.67	54.00	13.00	H
17954.780	40.80	-28.94	46.66	23.08	54.00	13.20	V
17788.180	40.80	-29.89	45.95	24.73	54.00	13.20	V
17947.300	40.80	-28.94	46.66	23.08	54.00	13.20	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)
17381.880	51.60	-29.83	43.36	38.07	74.00	22.40	H
17440.020	51.50	-29.87	44.35	37.02	74.00	22.50	V
17368.620	51.10	-29.97	43.36	37.71	74.00	22.90	V
17435.600	51.10	-29.71	44.35	36.46	74.00	22.90	V
17800.760	50.80	-29.63	45.95	34.48	74.00	23.20	H
17383.580	50.80	-29.83	43.36	37.27	74.00	23.20	H

Measurement results for Set.3:
OTG 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)
17775.940	41.60	-29.63	45.95	25.27	54.00	12.40	H
17917.040	40.90	-29.33	46.66	23.57	54.00	13.10	V
17322.380	40.90	-29.70	43.36	27.24	54.00	13.10	H
17336.660	40.80	-29.70	43.36	27.14	54.00	13.20	H
17991.160	40.70	-29.06	46.66	23.10	54.00	13.30	V
17797.700	40.60	-29.89	45.95	24.53	54.00	13.40	H

OTG 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)
17971.440	51.40	-29.06	46.66	33.80	74.00	22.60	V
17465.860	51.30	-30.06	44.35	37.00	74.00	22.70	V
17462.460	51.30	-30.06	44.35	37.00	74.00	22.70	H
17672.920	51.00	-29.90	45.25	35.65	74.00	23.00	H
17460.420	50.90	-30.06	44.35	36.60	74.00	23.10	V
17882.020	50.90	-29.53	45.95	34.48	74.00	23.10	V

Measurement results for Set.1:

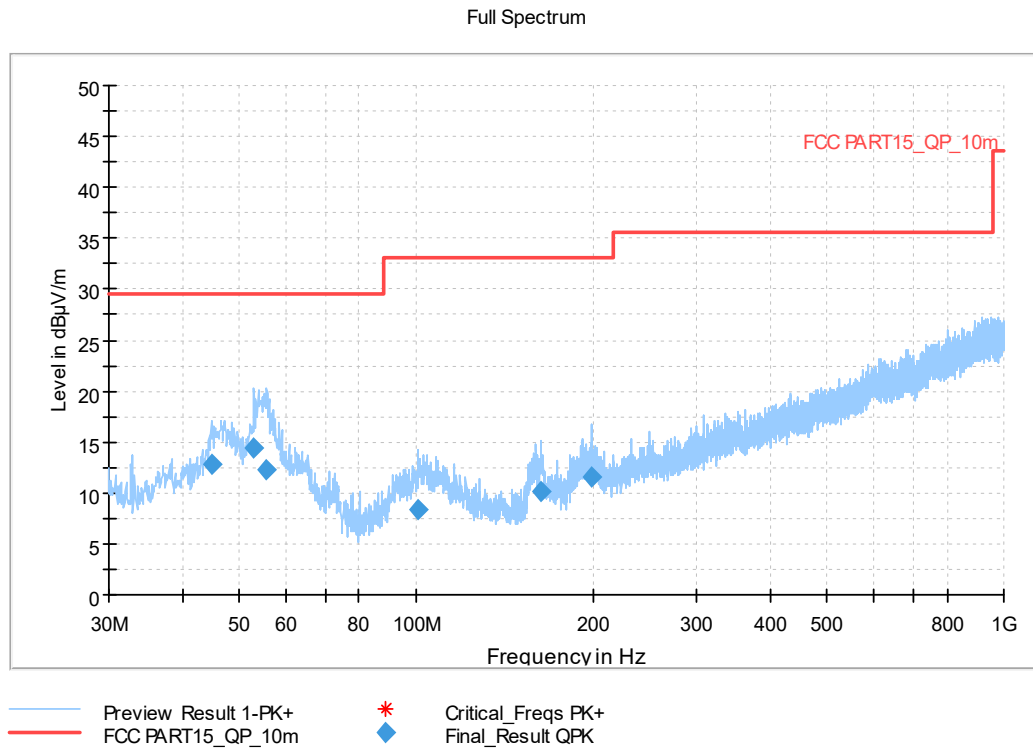


Fig A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
44.841000	12.83	29.54	16.71	120.000	100.0	V	177.0
52.989000	14.45	29.54	15.09	120.000	322.0	V	-5.0
55.705000	12.26	29.54	17.28	120.000	183.0	V	253.0
100.519000	8.35	33.06	24.71	120.000	223.0	V	278.0
163.472000	10.14	33.06	22.92	120.000	108.0	V	85.0
198.974000	11.49	33.06	21.57	120.000	125.0	V	59.0

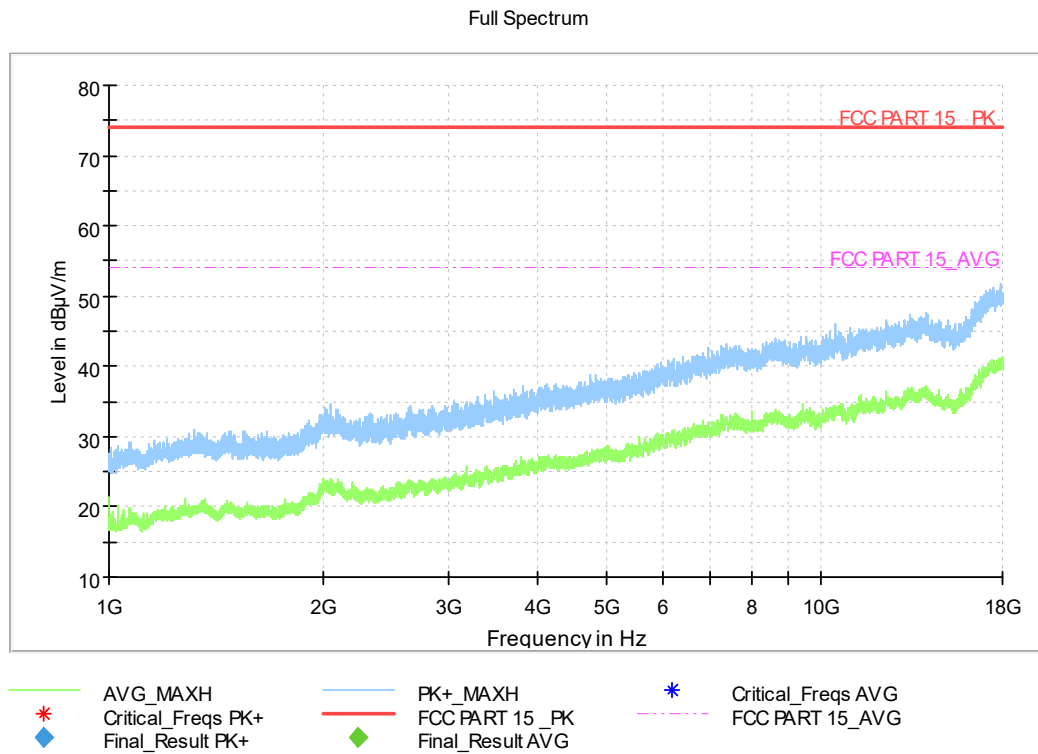


Fig A.2 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.2:

Full Spectrum

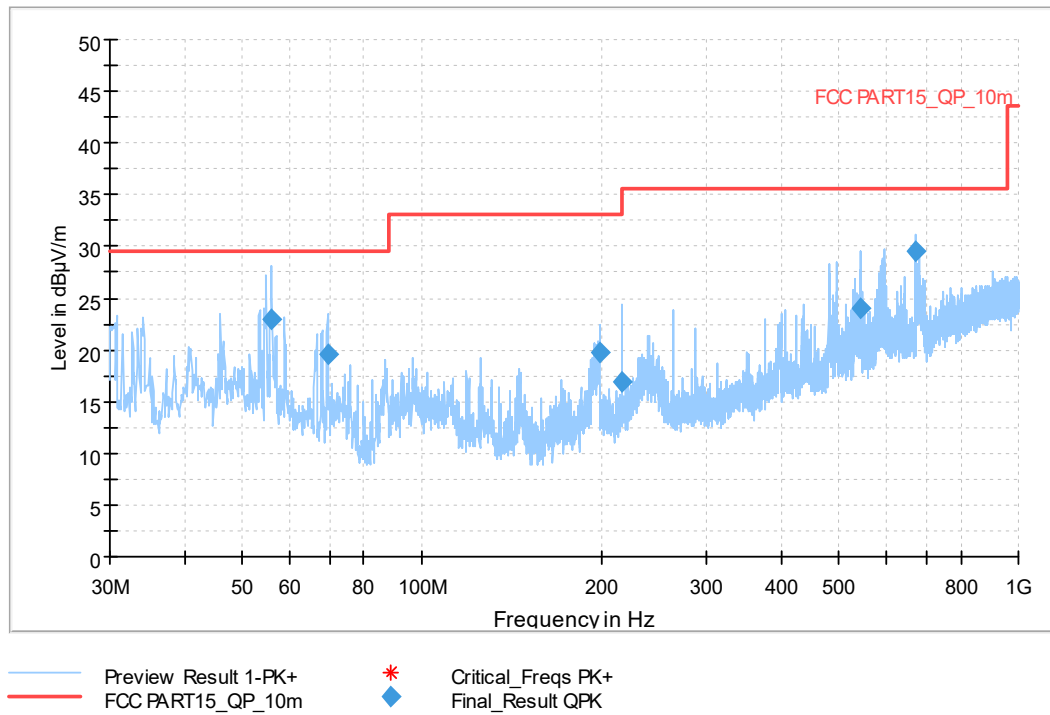


Fig A.3 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
55.899000	22.93	29.54	6.61	120.000	283.0	V	137.0
69.479000	19.51	29.54	10.03	120.000	275.0	V	239.0
198.295000	19.80	33.06	13.27	120.000	322.0	H	163.0
215.949000	16.92	33.06	16.14	120.000	100.0	V	188.0
543.712000	23.99	35.56	11.57	120.000	183.0	V	-17.0
673.886000	29.53	35.56	6.03	120.000	125.0	V	-18.0

Full Spectrum

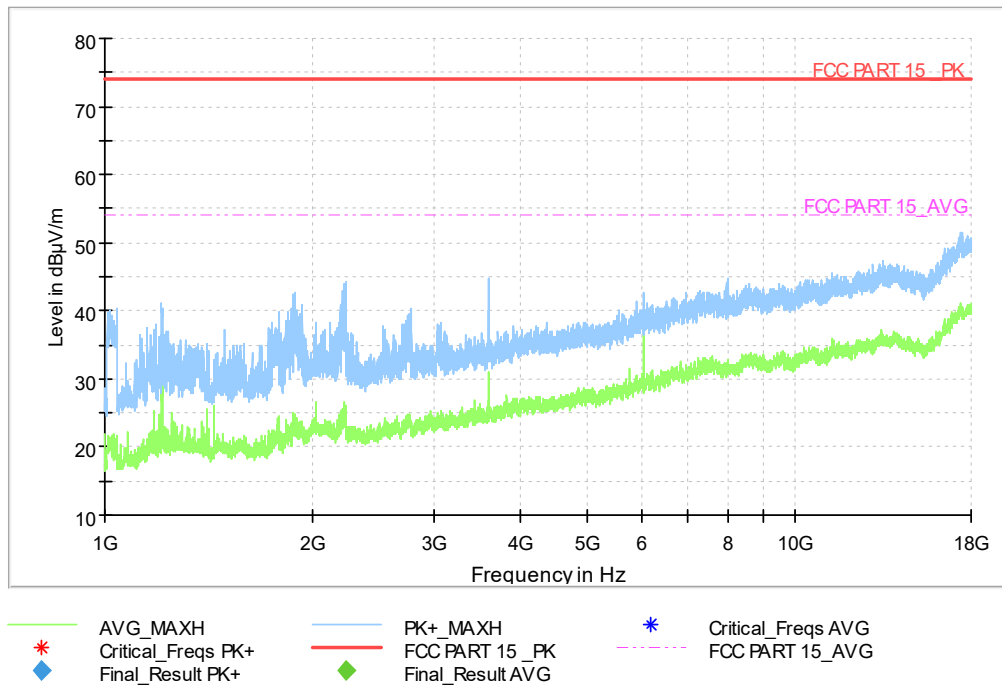
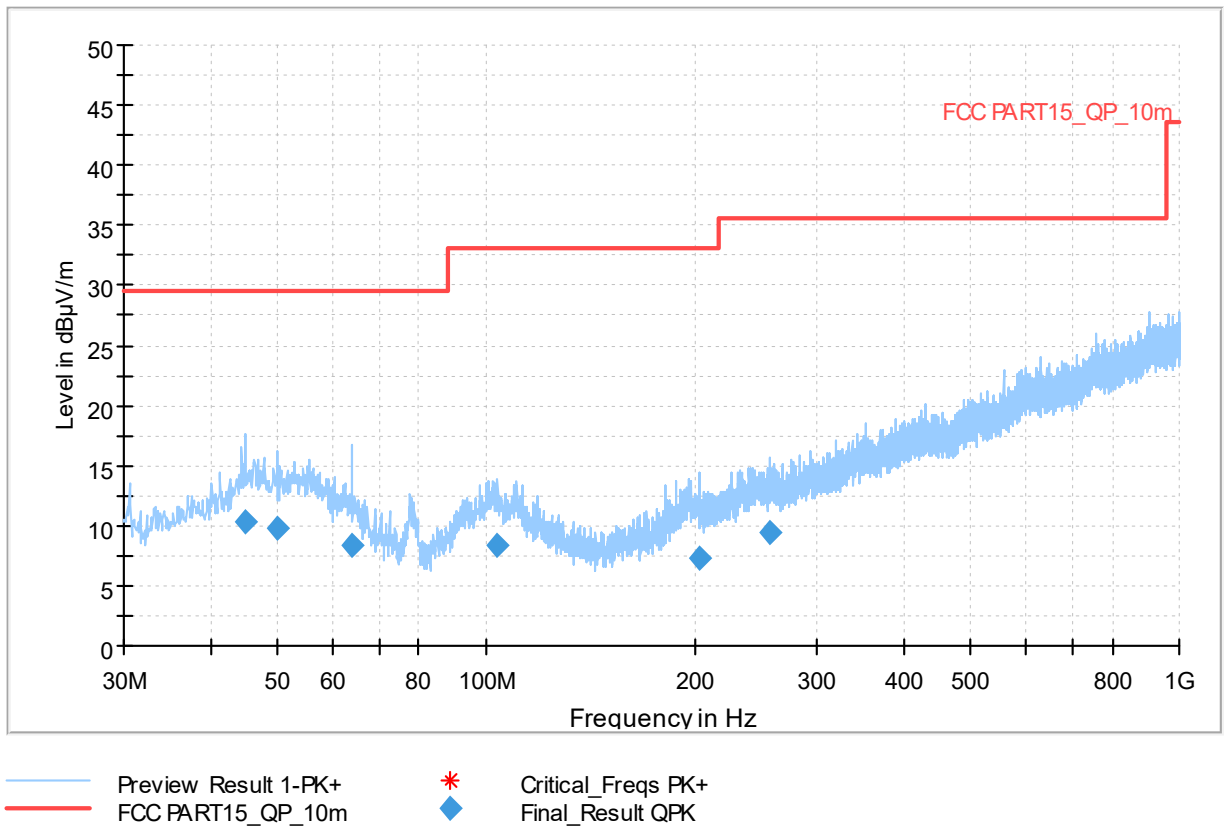


Fig A.4 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.3:

Full Spectrum


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)
44.938000	10.37	29.54	19.17	120.000	325.0	V	-31.0
49.982000	9.76	29.54	19.78	120.000	400.0	V	225.0
64.144000	8.31	29.54	21.23	120.000	125.0	V	91.0
103.914000	8.42	33.06	24.64	120.000	375.0	H	-30.0
203.048000	7.38	33.06	25.68	120.000	100.0	H	265.0
256.689000	9.46	35.56	26.10	120.000	325.0	H	21.0

Full Spectrum

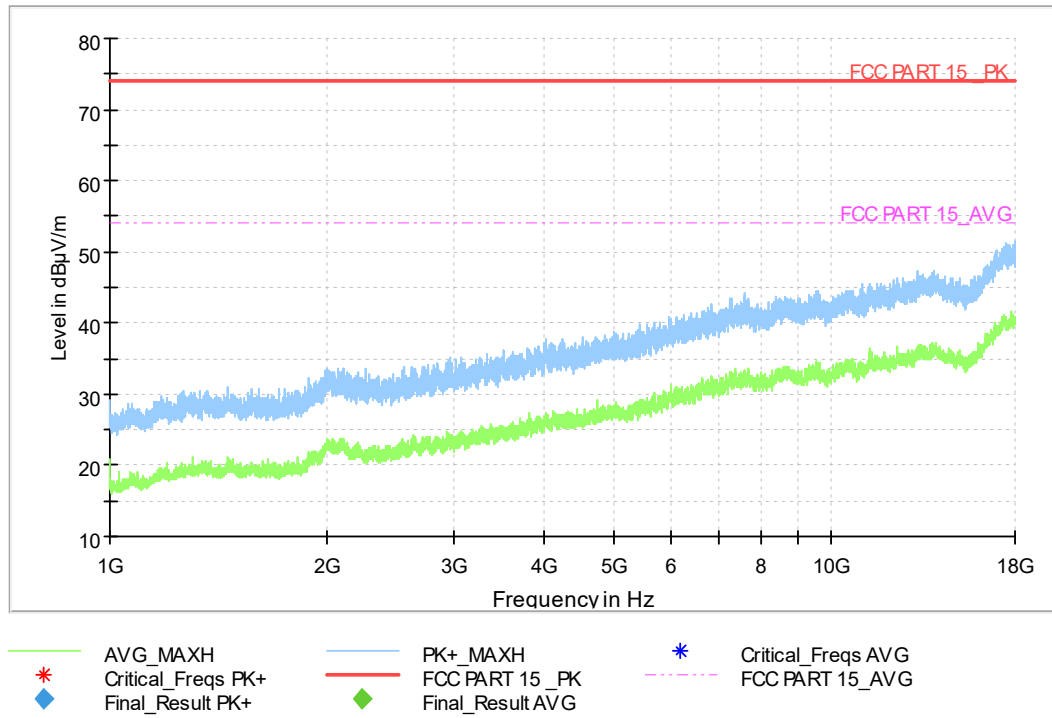


Fig A.6 Radiated Emission from 1GHz to 18GHz

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 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:

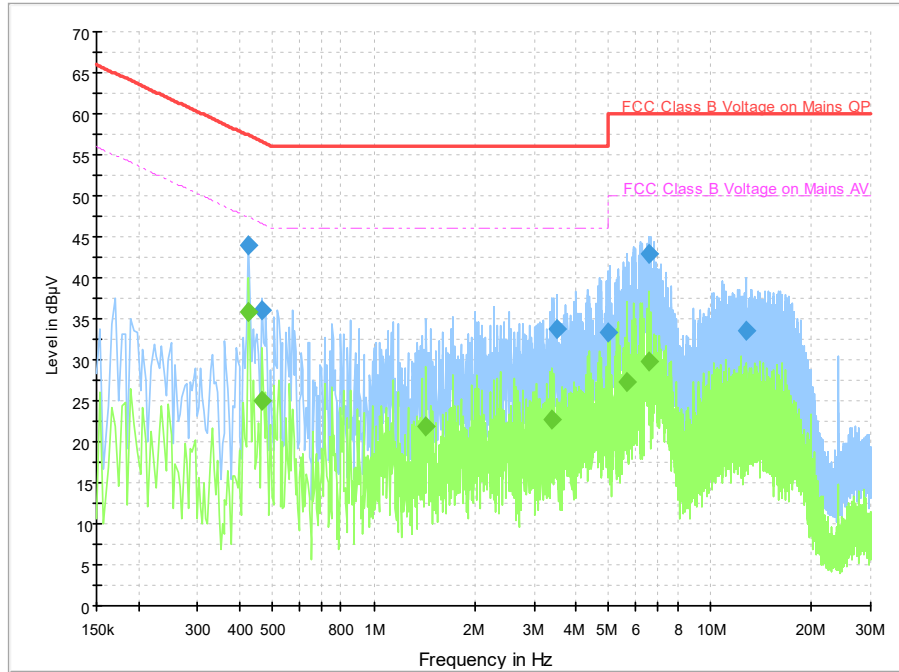


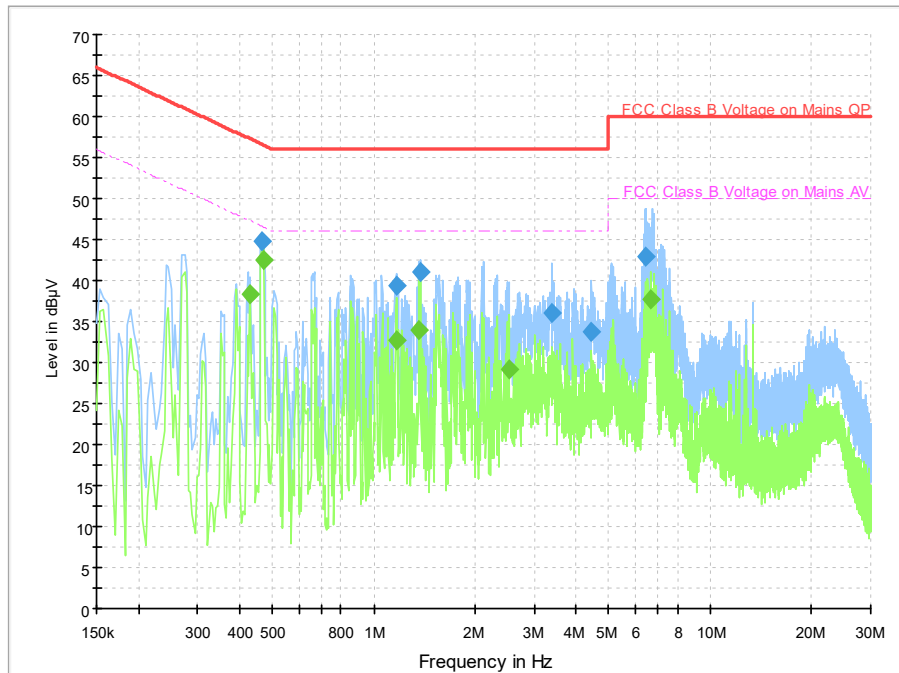
Fig A.7 Conducted Emission from 150kHz to 30MHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.426000	43.9	2000.0	9.000	On	L1	19.7	13.4	57.3	
0.466000	36.1	2000.0	9.000	On	L1	19.7	20.5	56.6	
3.490000	33.8	2000.0	9.000	On	L1	19.6	22.2	56.0	
4.946000	33.3	2000.0	9.000	On	L1	19.6	22.7	56.0	
6.574000	42.8	2000.0	9.000	On	L1	19.6	17.2	60.0	
12.866000	33.6	2000.0	9.000	On	L1	19.7	26.4	60.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.426000	35.8	2000.0	9.000	On	L1	19.7	11.5	47.3	
0.466000	25.0	2000.0	9.000	On	L1	19.7	21.6	46.6	
1.434000	21.9	2000.0	9.000	On	L1	19.7	24.1	46.0	
3.394000	22.8	2000.0	9.000	On	L1	19.6	23.2	46.0	
5.674000	27.3	2000.0	9.000	On	L1	19.6	22.7	50.0	
6.562000	29.9	2000.0	9.000	On	L1	19.6	20.1	50.0	

USB Mode, Set.2:

Fig A.8 Conducted Emission from 150kHz to 30MHz
Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.466000	44.8	2000.0	9.000	On	L1	19.7	11.8	56.6	
1.174000	39.4	2000.0	9.000	On	L1	19.7	16.6	56.0	
1.378000	41.0	2000.0	9.000	On	N	19.6	15.0	56.0	
3.370000	36.0	2000.0	9.000	On	N	19.6	20.0	56.0	
4.450000	33.7	2000.0	9.000	On	L1	19.6	22.3	56.0	
6.426000	43.0	2000.0	9.000	On	L1	19.6	17.0	60.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.430000	38.3	2000.0	9.000	On	L1	19.7	9.0	47.3	
0.470000	42.6	2000.0	9.000	On	N	19.7	3.9	46.5	
1.166000	32.8	2000.0	9.000	On	L1	19.7	13.2	46.0	
1.358000	33.9	2000.0	9.000	On	L1	19.6	12.1	46.0	
2.518000	29.3	2000.0	9.000	On	L1	19.6	16.7	46.0	
6.686000	37.7	2000.0	9.000	On	N	19.6	12.3	50.0	

END OF REPORT