CERTIFICATION TEST REPORT

Report Number. : 4789994989-FR1V1

Applicant	:	STATIC #506, 205 Gasan Digital 1-Ro(KCC Welltz vally Building), Geumcheon-gu, Seoul, 08501, South Korea
Model	:	STC-IP12P
FCC ID	:	2AY4GSTC-IP12P
EUT Description	:	MAGPLUS Power bank with WPT
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
SEP 07, 2021

Prepared by:
UL Korea, Ltd.
26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
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IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/07/21	Initial issue	Robby Lee

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UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15(04)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: STATIC

EUT DESCRIPTION: MAGPLUS Power bank with WPT

MODEL NUMBER: STC-IP12P

SERIAL NUMBER: Proto type

DATE TESTED: AUG 25, 2021 – SEP 01, 2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 47 CFR PART 15 Subpart C	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Anthony Kim
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Robby Lee
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro
☐ Chamber 1
☐ Chamber 2
☐ Chamber 3
☒ 10m Chamber

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

UL Korea, Ltd. is accredited by National Radio Research Agency, Designation Number KR0161, for all testing performed within the scope of this report.

ISED CABID	ISED Company Number	FCC Registration
KR0161	2324L	644529

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.31 dB
Radiated Disturbance, 9 kHz to 30 MHz	4.40 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.94 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Accuracy Method specified in Procedure 2, Clause 4.4.3 in IEC Guide 115:2007.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is MAGPLUS Power bank with WPT.

5.2. MAXIMUM E-FIELD STRENGTH

- Wireless charging mode

Fundamental Frequency (kHz)	Mode	E field (300m distance) FCC (dBuV/m)
110.01 - 146	Charging	-24.07

5.3. WORST-CASE CONFIGURATION AND MODE

Mode	Test Case	Description
Wireless charging mode	1	Charging from DUT to phone with TA charging
	2	Charging from DUT to phone

For radiated test, All the above cases were tested, and the results were reported for test case 2, which is the worst case.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that the Z orientation was the worst-case orientation; therefore all final radiated testing was performed with the EUT in the Z orientation while wireless charging.

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5.4. MODIFICATIONS

No modifications were made during testing.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT & PERIPHERALS

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCCID**
Phone	Apple Inc.	iPhone X	C39VX5YBJCLH	BCG-E3175A
AC Adapter	DongGuan Yahui Electronic Technology Co.,Ltd.	SPE-N4TU210	N/A	-

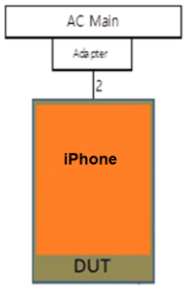
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Lightning	Shielded	1.1m	N/A

TEST SETUP

The EUT is installed in a typical configuration. Charging from EUT.

TEST SETUP DIAGRAM

Test Case 1 Charging from DUT to phone with TA charging	Test Case 2 Charging from DUT to phone
	

6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated test				
Description	Manufacture	Model	S/N	Next Cal. Due
EMI Receiver	R&S	ESW44	101848	2022.08.02
Signal Analyzor	Keysight	N9030B	MY60070693	2022.01.13
Open Switch and Control Platform	R&S	OSP220	101456	N/A
Pre-Amplifier	R&S	SCU08F2	100725	2022.08.02
Active Loop Antenna	R&S	HFH2-Z2E	100900	2023.08.06
AC Conducted test				
Test Receiver	R&S	ESR-3	102592	2022.08.02
LISN	R&S	ENV216	102478	2022.08.06

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.10: 2013

These test was performed at 3m distance.

The highest clock frequency generated or used in the EUT is 146 kHz therefore the frequency range was investigated from 9 kHz to 30 MHz(Higher frequency than 1.46MHz).

LIMIT

FCC §15.209 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.
§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

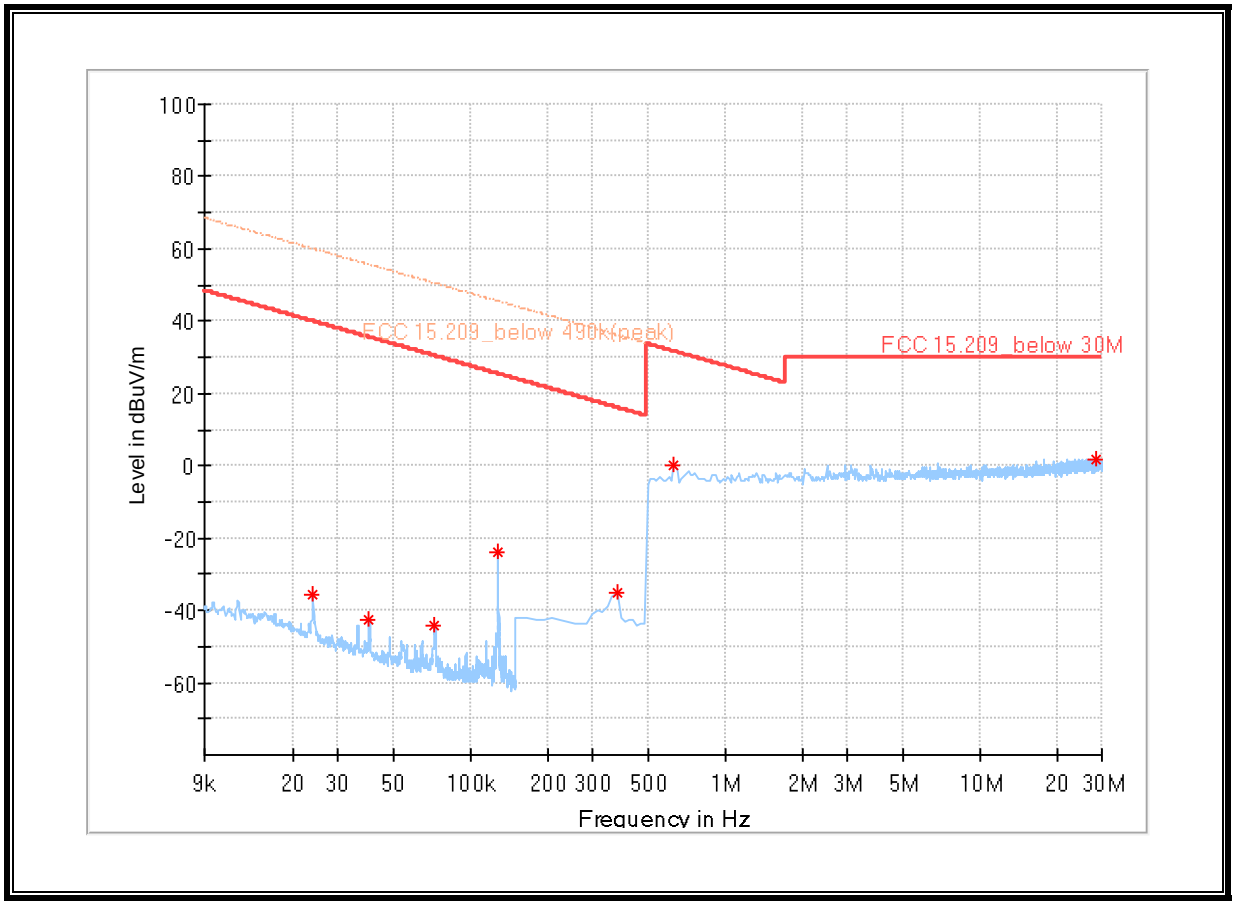
Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

NOTE: Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 300 m open field test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788 D01.

RESULTS

FCC §15.209(a)

RADIATED EMISSIONS 9 KHz to 30 MHz – Face On (Test Case 2)



TEST DATA

[Face On]

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)
0.023883	-35.58	40.03	75.60	0.200	H	173.0	-59.4
0.039942	-42.68	35.56	78.24	0.200	H	136.0	-59.3
0.072058	-44.21	30.44	74.65	0.200	H	292.0	-59.2
**0.127988	-24.07	25.45	49.52	0.200	H	280.0	-59.2
0.373875	-35.33	16.15	51.48	9.000	H	97.0	-59.2
0.627600	0.03	31.66	31.63	9.000	H	132.0	-19.3
28.447800	1.74	30.00	28.26	9.000	H	186.0	-17.3

Pk detector
**Fundamental

MaxPeak (dBuV/m) = Reading value (dBuV) + Corr. (dB/m)

Corr. (dB/m) = Antenna Factor (dB/m) + Cable loss (dB)

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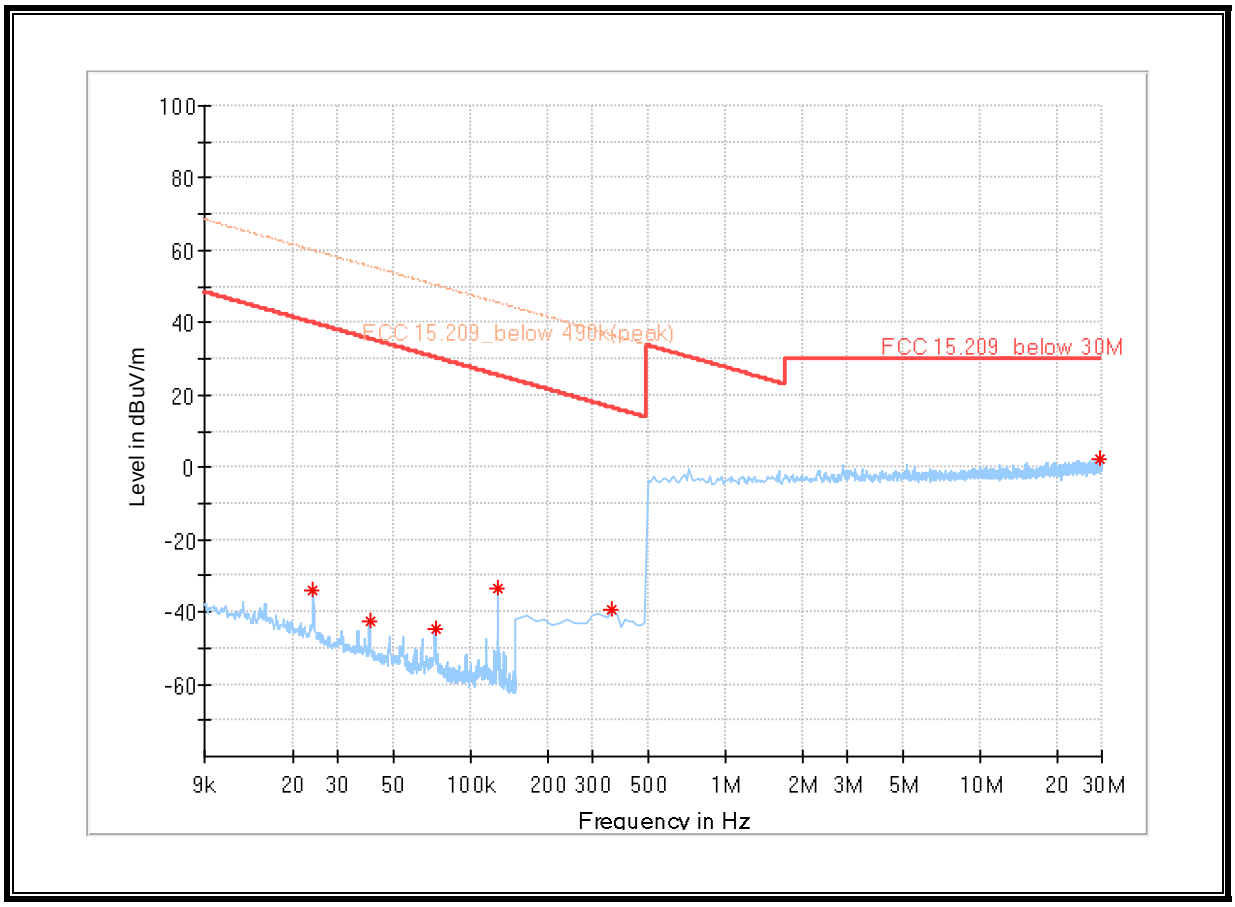
RADIATED EMISSIONS 9 KHz to 30 MHz – Face Off (Test Case 2)



TEST DATA

[Face Off]

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)
0.024040	-34.14	39.97	74.11	0.200	H	339.0	-59.4
0.040020	-42.70	35.55	78.24	0.200	H	329.0	-59.3
0.072528	-44.48	30.39	74.87	0.200	H	154.0	-59.3
**0.128067	-33.52	25.45	58.97	0.200	H	0.0	-59.2
0.358950	-39.42	16.50	55.92	9.000	H	111.0	-59.2
29.432850	2.12	30.00	27.88	9.000	H	165.0	-17.1

Pk detector

**Fundamental

MaxPeak (dBuV/m) = Reading value (dBuV) + Corr. (dB/m)

Corr. (dB/m) = Antenna Factor (dB/m) + Cable loss (dB)

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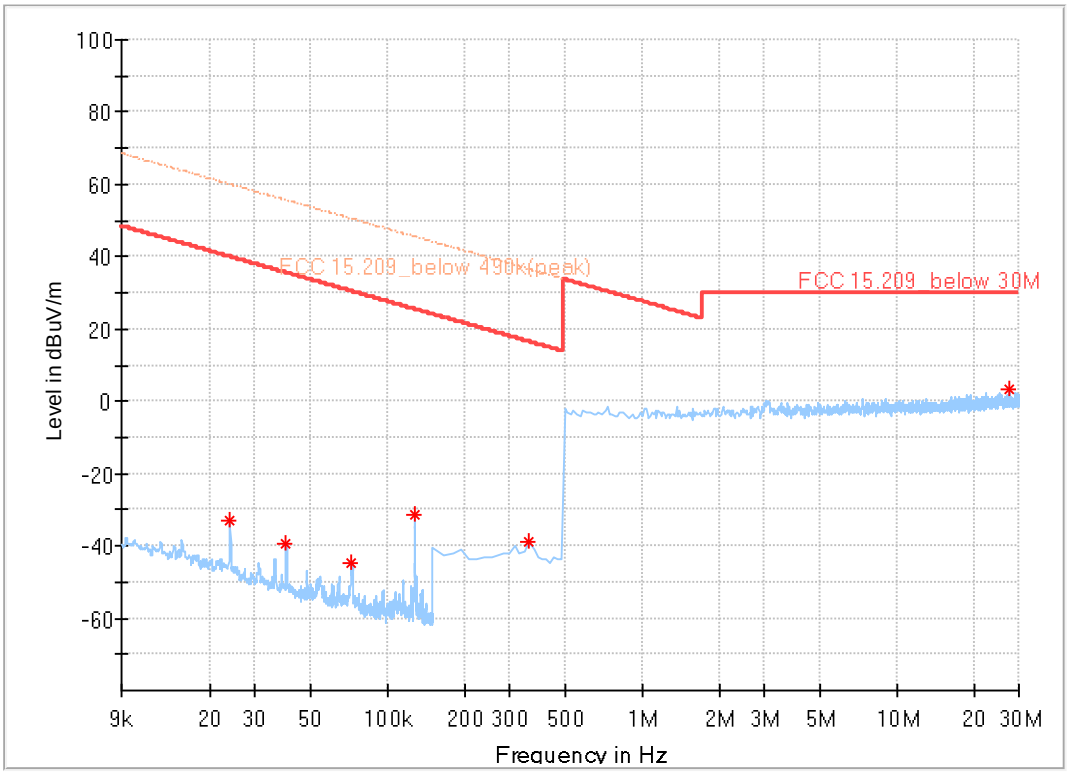
RADIATED EMISSIONS 9 KHz to 30 MHz – Parallel (Test Case 2)



TEST DATA

[Parallel]

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)
0.023962	-33.17	40.00	73.17	0.200	H	275.0	-59.4
0.039942	-39.17	35.56	74.73	0.200	H	142.0	-59.3
0.071980	-44.67	30.45	75.12	0.200	H	18.0	-59.2
**0.128067	-31.48	25.45	56.93	0.200	H	283.0	-59.2
0.358950	-39.08	16.50	55.58	9.000	H	122.0	-59.2
27.283650	3.06	30.00	26.94	9.000	H	42.0	-17.3

Pk detector

**Fundamental

MaxPeak (dBuV/m) = Reading value (dBuV) + Corr. (dB/m)

Corr. (dB/m) = Antenna Factor (dB/m) + Cable loss (dB)

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7.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.10: 2013

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

Line conducted data is recorded for both NEUTRAL and HOT lines.

LIMIT

FCC §15.207 (a)

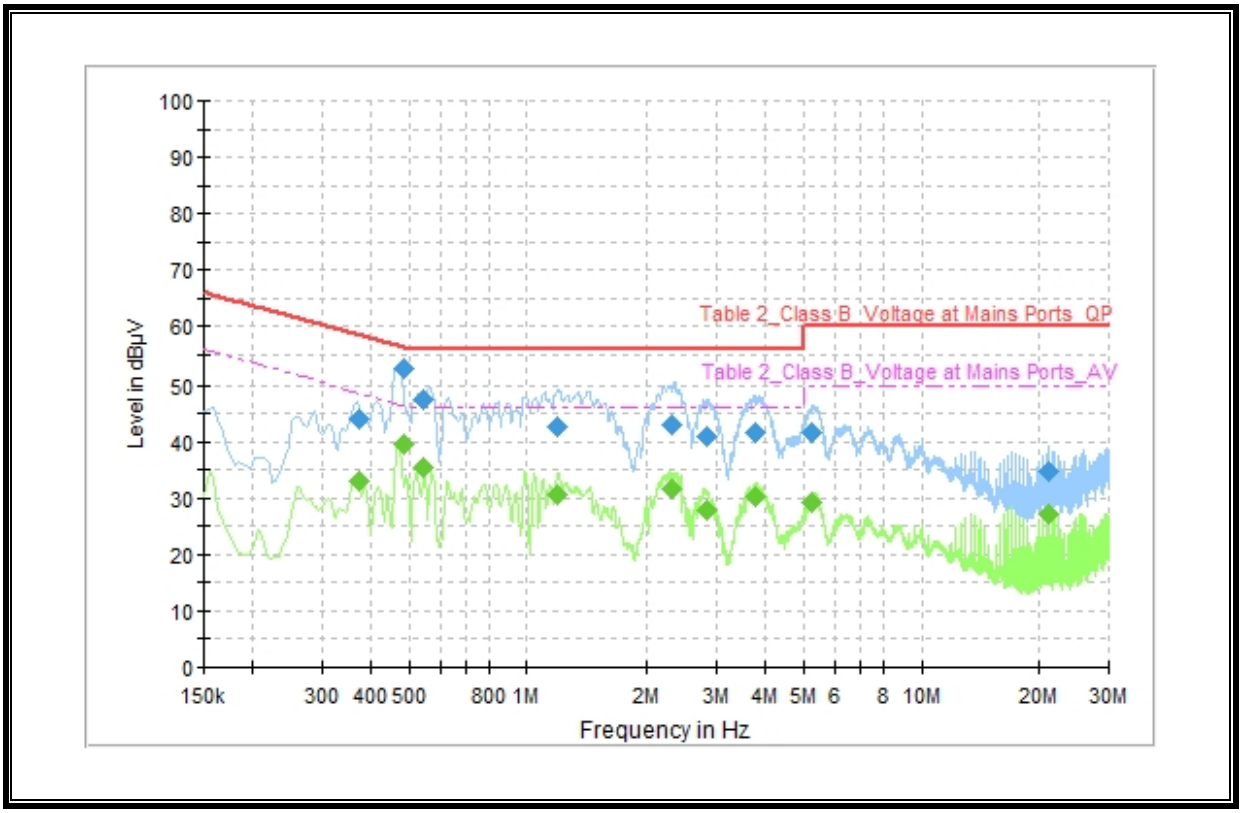
Frequency range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
*Decreases with the logarithm of the frequency.		

RESULTS

FCC §15.207 (a)

WORST EMISSIONS(Test Case 2)

Line-L1 0.15 - 30MHz

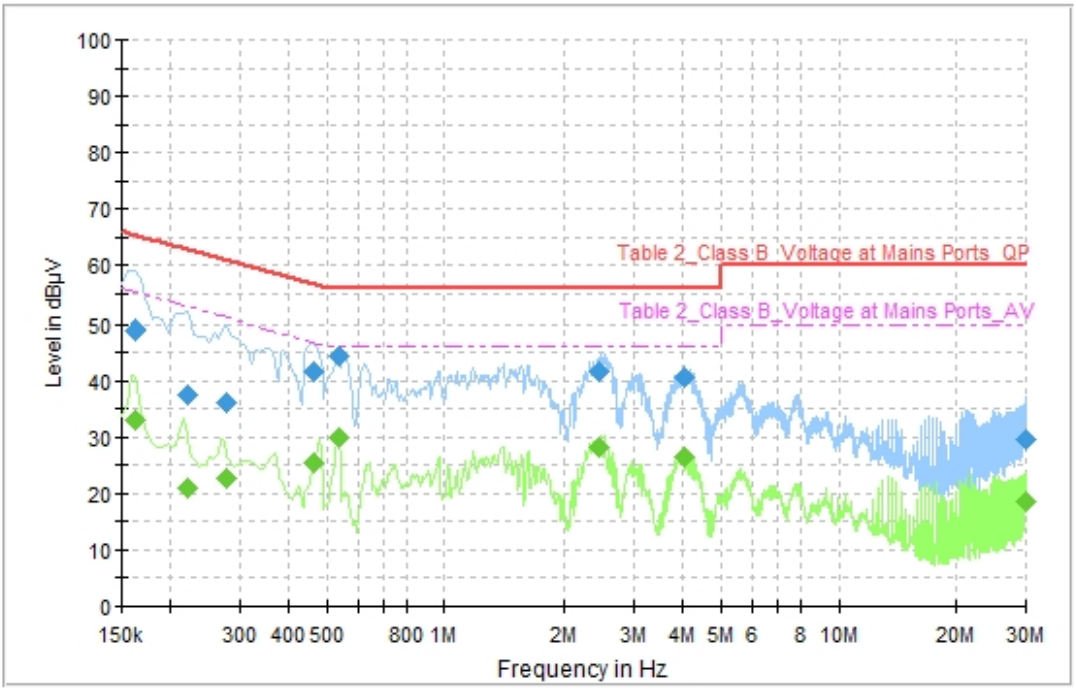


LINE 1 RESULTS

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.374596	43.99	58.40	14.41	L1	ON	9.8
0.484338	52.58	56.26	3.69	L1	ON	9.9
0.544132	47.54	56.00	8.46	L1	ON	9.9
1.193419	42.53	56.00	13.47	L1	ON	9.7
2.309287	42.80	56.00	13.20	L1	ON	9.7
2.843559	40.95	56.00	15.05	L1	ON	9.7
3.787735	41.52	56.00	14.48	L1	ON	9.8
5.259948	41.57	60.00	18.43	L1	ON	9.8
21.087566	34.67	60.00	25.33	L1	ON	10.0

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.374596	32.90	48.40	15.50	L1	ON	9.8
0.484338	39.42	46.26	6.84	L1	ON	9.9
0.544132	35.25	46.00	10.75	L1	ON	9.9
1.193419	30.49	46.00	15.51	L1	ON	9.7
2.309287	31.72	46.00	14.28	L1	ON	9.7
2.843559	27.86	46.00	18.14	L1	ON	9.7
3.787735	30.22	46.00	15.78	L1	ON	9.8
5.259948	29.23	50.00	20.77	L1	ON	9.8
21.087566	27.03	50.00	22.97	L1	ON	10.0

Line-L2 .15 - 30MHz



LINE 2 RESULTS

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162000	48.95	65.36	16.41	N	ON	9.9
0.221735	37.50	62.75	25.26	N	ON	9.7
0.278412	36.16	60.86	24.71	N	ON	9.6
0.462779	41.57	56.64	15.07	N	ON	9.9
0.535743	44.43	56.00	11.57	N	ON	9.9
2.457654	41.71	56.00	14.29	N	ON	9.7
4.016779	40.52	56.00	15.48	N	ON	9.8
29.882978	29.71	60.00	30.29	N	ON	10.1

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162000	33.08	55.36	22.28	N	ON	9.9
0.221735	20.83	52.75	31.92	N	ON	9.7
0.278412	22.83	50.86	28.03	N	ON	9.6
0.462779	25.52	46.64	21.12	N	ON	9.9
0.535743	29.91	46.00	16.09	N	ON	9.9
2.457654	28.11	46.00	17.89	N	ON	9.7
4.016779	26.31	46.00	19.69	N	ON	9.8
29.882978	18.42	50.00	31.58	N	ON	10.1

END OF TEST REPORT

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