TEST REPORT

Applicant:	Powerstick.com Inc.
Address:	39 Camelot Drive, Ottawa, Ontario CANADA, K2G 5W6
Equipment Type:	Power Snap
Model Name:	Power Snap
Brand Name:	powerstick.com
FCC ID:	2AITN-POWERSNAP
Test Standard:	47 CFR Part 15 Subpart B ANSI C63.4-2014
Sample Arrival Date:	Nov. 29, 2024
Test Date:	Nov. 29, 2024
Date of Issue:	Dec. 30, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiao Tangqi	**Checked by:** Xia Long	**Approved by:** Sunny Zou (Technical Director)
Tang qi. xiao	Xia Long	Sunny Zou

Revision History

Version	Issue Date	Revisions
Rev. 01	Dec. 30, 2024	Initial Issue

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Powerstick.com Inc.
Address	39 Camelot Drive, Ottawa, Ontario CANADA, K2G 5W6

2.2 Manufacturer Information

Manufacturer	Powerstick.com Inc.
Address	39 Camelot Drive, Ottawa, Ontario CANADA, K2G 5W6

2.3 General Description for Equipment under Test (EUT)

EUT Name	Power Snap
Model Name Under Test	Power Snap
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Note: Not applicable.

2.5 Technical Information

Network and Wireless connectivity	N/A
Classification of equipment	Class B
The highest internal frequency of EUT	Below 108 MHz

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B	Unintentional Radiators
2	ANSI C63.4-2014	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

3.2 Verdict

No.	Description	FCC Rule	Test Verdict	Remark
1	Radiated Emission	15.109	Pass	--
2	Conducted Emission, AC Ports	15.107	Pass	--

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions (9 kHz-30 MHz)	3.2 dB
Radiated emissions (30 MHz-1 GHz)-966#4	4.4 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Enclosure List

Description	Manufacturer	Model	Serial No.	Length	Description	Use
Adapter	OPPO	VC54GBCH	N/A	N/A	N/A	☒
Mobile Phone	Apple	iPhone 12 mini	N/A	N/A	N/A	☒
USB Cable	OPPO	N/A	N/A	1m	N/A	☒
Load	N/A	N/A	N/A	N/A	N/A	☒
Clamp	N/A	N/A	N/A	N/A	N/A	☒
Magnetic ring	Dongyang	DYR-2919-100A	N/A	N/A	N/A	☒

4.2 Test Configurations

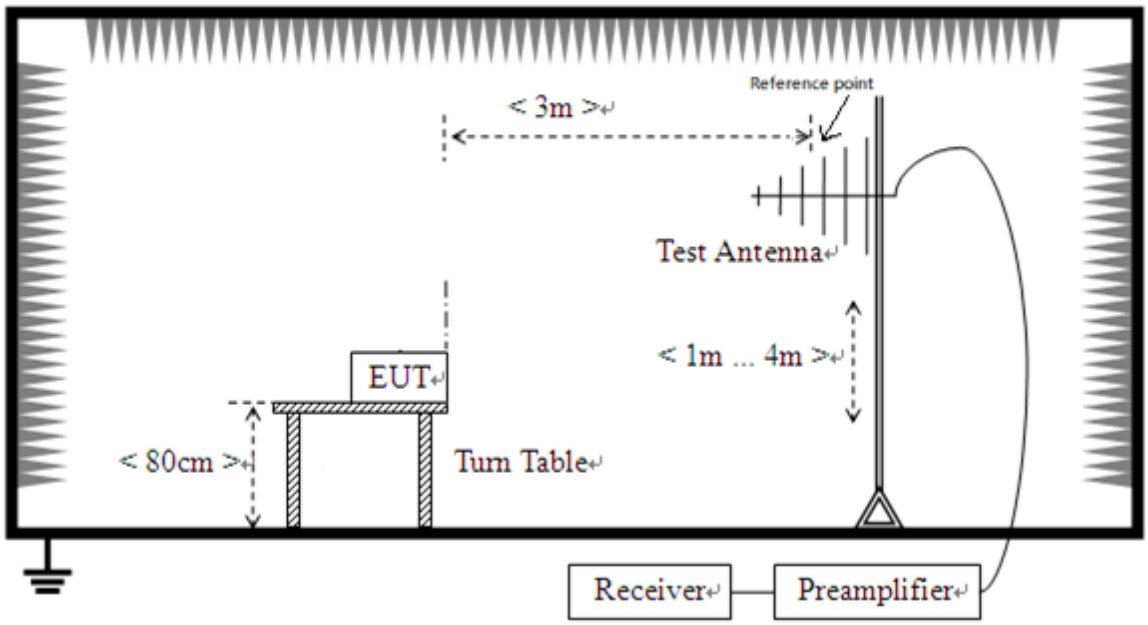
All test modes of EUT are listed in the table below.

Test Mode Configuration	Description
Mode 1	The Charging Test Mode EUT + Adapter + USB Cable
Mode 2	The USB Discharging Test Mode EUT + Load + USB Cable + Clamp
Mode 3	The Discharging Test Mode EUT + Load + Clamp

Test Case	Test Mode Configuration	Worst Mode
Radiated Emission	Mode 1~Mode 3	3
Conducted Emission, AC Ports	Mode 1	1
Note: All operation modes were tested, but only test data of the worst mode was presented in this report.		

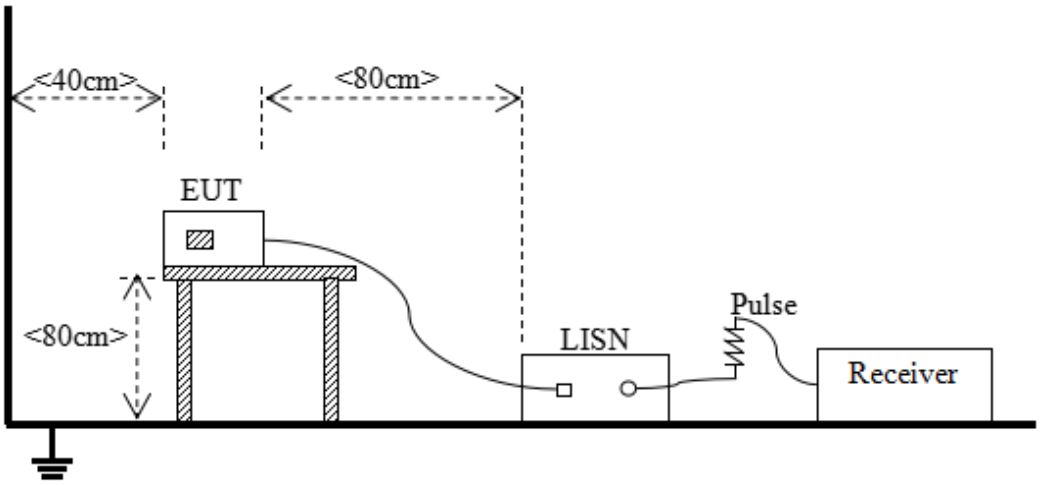
4.3 Test Setups

Test Setup 1



Radiated Emission (30 MHz-1 GHz)

Test Setup 2



Conducted Emissions, AC Ports

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

Frequency range (MHz)	Class B (at 3 m)		Class A (at 3 m)
	Field Strength (μV/m)	Field Strength (dBμV/m)	Field Strength (dBμV/m)
30 - 88	100	40	49.5
88 - 216	150	43.5	54
216 - 960	200	46	56.9
Above 960	500	54	60

NOTE:
1) Field Strength (dBμV/m) = 20*log [Field Strength (μV/m)].
2) In the emission tables above, the tighter limit applies at the band edges.
3) For 30 MHz to 1000 MHz, the CISPR quasi-peak is employed.

For above 1000 MHz, according to the requirements of FCC 15.35, unless otherwise specified, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

Frequency range (GHz)	Class B (at 3 m)			Class A (at 3 m)	
	Field Strength (μV/m)	Field Strength Average (dBμV/m)	Field Strength Peak (dBμV/m)	Field Strength Average (dBμV/m)	Field Strength Peak (dBμV/m)
1 - F_M	500	54	74	60	80

Note 1: The highest measurement frequency, F_M, in GHz, shall be determined as next Table.
Note 2: Average Class A limit at 3m L_{3m} is determined by the following conversion formula:
$L_{3m} = L_{10m} + 20*\log(d_{10m}/d_{3m})$
Where:
L_{3m} is Average Class A limit at 3m;
L_{10m} is Average Class A limit at 10m;
d_{10m} is Measurement distance in 10m;
d_{3m} is Measurement distance in 3m.
For this case: L_{3m} = 49.5 + 20*log(10/3)=60 (dBμV/m).

Highest internal frequency (F_X)	Highest measurement frequency (F_M)
$F_X \leq 108$ MHz	1 GHz
108 MHz $\leq F_X \leq$ 500 MHz	2 GHz
500 MHz $\leq F_X \leq$ 1 GHz	5 GHz
$F_X \geq$ 1 GHz	5 *F_X or 40 GHz, whichever is lower.
Note: F_X is Highest frequency generated or used in the device or on which the device operates or tunes.	

5.1.1.2 Test Setup

Refer to 4.3 section (test setup 1) for radiated emission test, the photo of test setup please refer to ANNEX B.

5.1.1.3 Test Procedure

All Radiated Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

The measurement frequency range is from 30 MHz to the 5th harmonic of the maximum frequency of the EUT internal source. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz

VBW ≥ RBW

Sweep = auto

Detector function = peak for f <1 GHz, peak & RMS Average for f ≥ 1 GHz

Trace = max hold

5.1.1.4 Test Result and Test Equipment List

Please refer to ANNEX A.1.

NOTE:

1. Results (dBμV/m) = Reading (dBμV) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB)

3. Margin = Limit - Results

5.1.2 Conducted Emission, AC Ports

5.1.2.1 Test Limit

Frequency range (MHz)	Class A	
	Quasi-peak (dBμV)	Average (dBμV)
0.15 - 0.50	79	66
0.50 - 30	73	60

Frequency range (MHz)	Class B	
	Quasi-peak (dBμV)	Average (dBμV)
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

1) The lower limit shall apply at the band edges.
2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

5.1.2.2 Test Setup

Refer to 4.3 section test (test setup 2) for conducted emission, the photo of test setup please refer to ANNEX B.

5.1.2.3 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50 Ω/50 μH of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

Use the following spectrum analyzer settings:

RBW = 9 kHz

VBW ≥ RBW

Sweep = 10ms

Detector function =peak & Average

Trace = max hold

5.1.2.4 Test Result and Test Equipment List

Please refer to ANNEX A.2.

NOTE:

1. Results (dBμV) = Reading (dBμV) + Factor (dB)

The reading level is calculated by software which is not shown in the sheet

2. Factor = Insertion loss + Cable loss

3. Margin = Limit - Results

ANNEX A TEST RESULTS

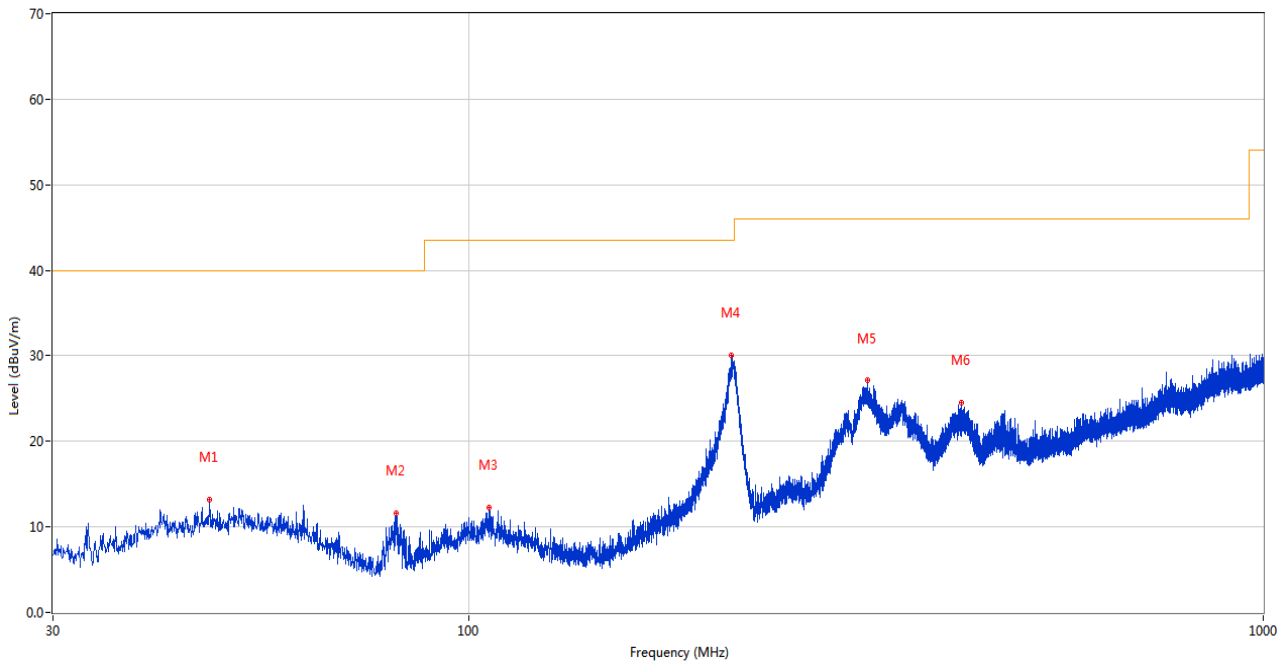
A.1 Radiated Emission

Note 1: The symbol of "--" in the table which means not application.

Sample No.	S01	Temperature	24.8℃
Humidity	56%RH	Pressure	101kPa
Test Engineer	Li Jianping	Test Date	2024.11.29

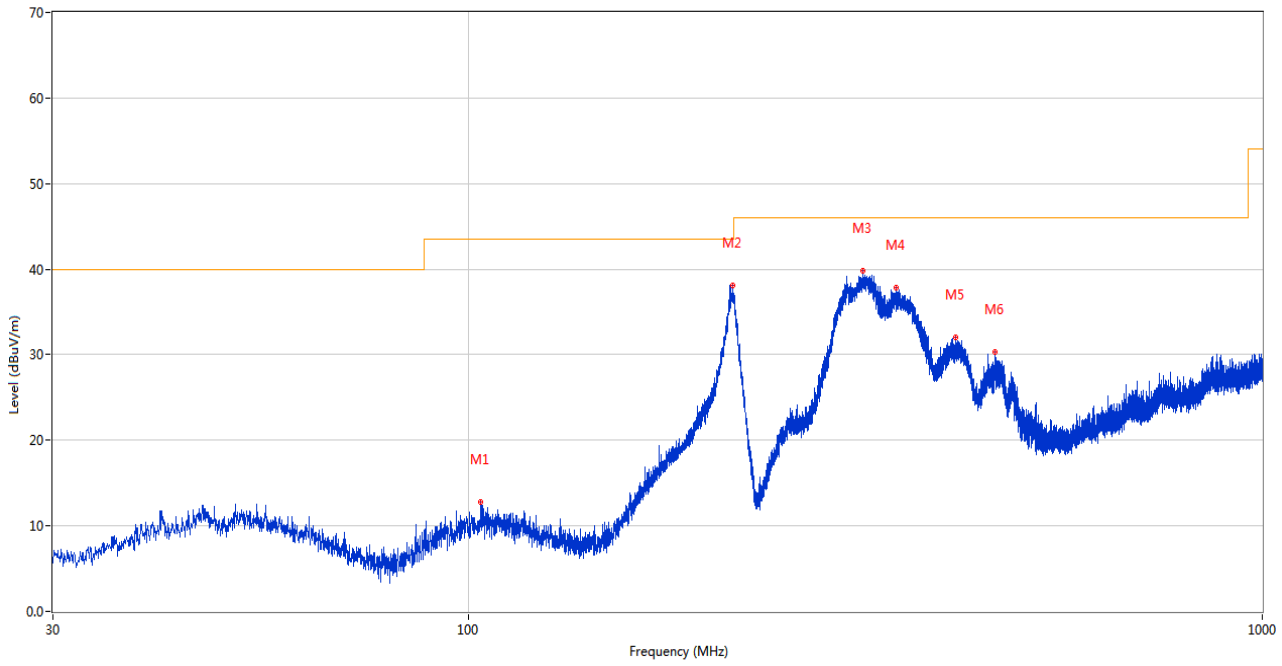
Test Mode 3

1) Test Antenna Vertical, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	47.266	13.22	-24.86	40.0	26.78	Peak	263.80	200	Vertical	Pass
2	81.168	11.59	-31.48	40.0	28.41	Peak	137.50	200	Vertical	Pass
3	106.242	12.22	-26.63	43.5	31.28	Peak	173.90	100	Vertical	Pass
4	214.203	30.10	-26.15	43.5	13.40	Peak	89.80	200	Vertical	Pass
5	317.896	27.10	-22.90	46.0	18.90	Peak	105.60	100	Vertical	Pass
6	417.127	24.53	-20.15	46.0	21.47	Peak	89.80	200	Vertical	Pass

2) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	103.623	12.80	-26.67	43.5	30.70	Peak	33.40	200	Horizontal	Pass
2	215.270	38.10	-26.08	43.5	5.40	Peak	188.10	100	Horizontal	Pass
3	314.113	39.82	-22.99	46.0	6.18	Peak	166.00	100	Horizontal	Pass
4	346.026	37.87	-21.29	46.0	8.13	Peak	181.70	100	Horizontal	Pass
5	410.822	31.98	-20.30	46.0	14.02	Peak	203.70	100	Horizontal	Pass
6	461.310	30.35	-19.13	46.0	15.65	Peak	170.80	200	Horizontal	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY53220118	2024.08.01	2025.07.31	☒
Amplifier (30MHz-1GHz)	COM-MV	ZT30-1000M	B2017119082	2023.12.05	2024.12.04	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2024.07.06	2027.07.05	☒
Anechoic Chamber（#4）	ChangNing	9m*6m*6m	101	2023.03.04	2026.03.03	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

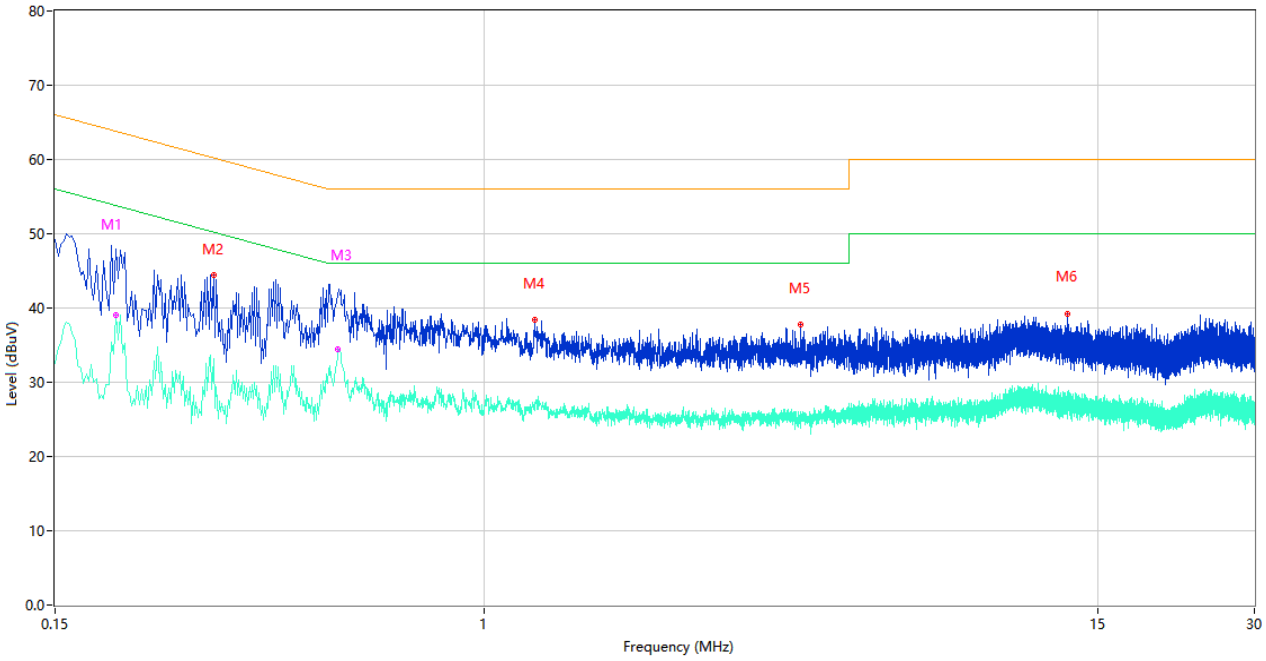
A.2 Conducted Emission, AC Ports

Note: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Sample No.	S01	Temperature	25.1℃
Humidity	53%RH	Pressure	101kPa
Test Engineer	Yang Yang	Test Date	2024.11.29

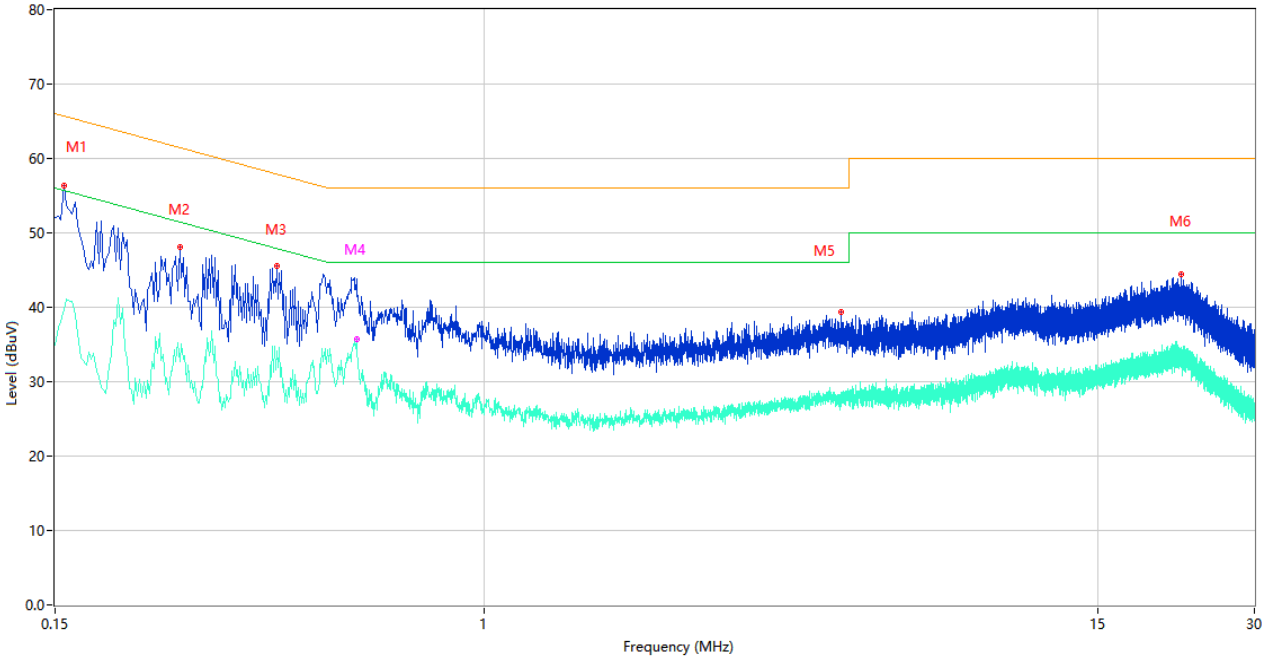
Test Mode 1

1) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.196	47.93	9.77	63.78	15.85	Peak	L	Pass
1**	0.196	39.10	9.77	53.78	14.68	AV	L	Pass
2	0.302	44.43	9.80	60.19	15.76	Peak	L	Pass
2**	0.302	33.24	9.80	50.19	16.95	AV	L	Pass
3	0.524	41.70	10.00	56.00	14.30	Peak	L	Pass
3**	0.524	34.47	10.00	46.00	11.53	AV	L	Pass
4	1.248	38.37	10.44	56.00	17.63	Peak	L	Pass
4**	1.248	27.19	10.44	46.00	18.81	AV	L	Pass
5	4.038	37.75	10.28	56.00	18.25	Peak	L	Pass
5**	4.038	25.45	10.28	46.00	20.55	AV	L	Pass
6	13.158	39.24	10.68	60.00	20.76	Peak	L	Pass
6**	13.158	27.75	10.68	50.00	22.25	AV	L	Pass

2) AC Ports - N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.156	56.32	9.78	65.67	9.35	Peak	N	Pass
1**	0.156	39.66	9.78	55.67	16.01	AV	N	Pass
2	0.260	48.10	9.76	61.43	13.33	Peak	N	Pass
2**	0.260	32.67	9.76	51.43	18.76	AV	N	Pass
3	0.400	45.49	10.55	57.85	12.36	Peak	N	Pass
3**	0.400	34.19	10.55	47.85	13.66	AV	N	Pass
4	0.568	43.75	10.08	56.00	12.25	Peak	N	Pass
4**	0.568	35.68	10.08	46.00	10.32	AV	N	Pass
5	4.832	39.43	10.14	56.00	16.57	Peak	N	Pass
5**	4.832	27.83	10.14	46.00	18.17	AV	N	Pass
6	21.690	44.44	10.94	60.00	15.56	Peak	N	Pass
6**	21.690	33.81	10.94	50.00	16.19	AV	N	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2024.08.01	2025.07.31	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2024.05.09	2025.05.08	☒
Shielded Room	YiHeng Electronic Co., Ltd	3.5m*3.1m*2.8m	112	2022.02.19	2025.02.18	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ24B1408-AE.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ24B1408-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ24B1408-AI.PDF”.

Statement

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--END OF REPORT--