

TEST REPORT

Applicant: Dopple Works, Inc.
Address: 495 Embought Rd, Catskill, NY 12414 USA
Equipment Type: LOOP
Model Name: LOOP 01
Brand Name: Dopple
FCC ID: 2BN2V-LOOP01
47 CFR Part 15 Subpart B
Test Standard: ICES-003 (Issue 7, October 15, 2020)
ANSI C63.4-2014
Sample Arrival Date: Jan. 10, 2025
Test Date: Jan. 11, 2025 - Jan. 13, 2025
Date of Issue: Apr. 10, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

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Approved by: Tolan Tu
(Testing Director)

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Liu Zhenxiang

Tolan Tu

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Apr. 10, 2025</u>	<u>Initial Issue</u>

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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. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Dopple Works, Inc.
Address	495 Embought Rd, Catskill, NY 12414 USA

2.2 Manufacturer Information

Manufacturer	Dopple Works, Inc.
Address	495 Embought Rd, Catskill, NY 12414 USA

2.3 General Description for Equipment under Test (EUT)

EUT Name	LOOP
Model Name Under Test	LOOP 01
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	LOOP 01
Software Version	dev_FlatBuild_v.userdebug.20250210.1519
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No.	INR26500-3.2Ah-3.7V-1S1P
	Serial No.	N/A
	Capacity	3200 mAh
	Rated Voltage	3.7 V
	Limit Charge Voltage	4.20 V

2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE 1M) WiFi 2.4G: 802.11b/g/n(HT20/40) WiFi 5G: 802.11a/n(HT20/40)/ac(VHT20/40/80) NFC
Classification of equipment	Class B

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B	Unintentional Radiators
2	ICES-003 (Issue 7, October 15, 2020)	Information Technology Equipment (Including Digital Apparatus)
3	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	ISED Rule	Test Verdict	Remark
1	Radiated Emission	15.109	ICES-003, 3.2.2	Pass	--
2	Conducted Emission, AC Ports	15.107	ICES-003, 3.2.1	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#2	4.4 dB
Radiated emissions (1 GHz-18 GHz)-966#2	5.0 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Enclosure List

Description	Manufacturer	Model	Serial No.	Length	Description	Use
Laptop	Lenovo	N/A	N/A	N/A	N/A	☒
Data connector	HBR	type-c to USB 3.0	N/A	N/A	N/A	☒
USB disk	Sandisk	CZ73-32G	N/A	N/A	32G	☒
TYPE-C Earphone	OPPO	MH156	N/A	1.12m	N/A	☒
Adapter	Aohai	VC54GBCH	N/A	N/A	N/A	☒
USB Calbe	N/A	N/A	N/A	N/A	N/A	☒
Laptop	HONOR	KPRC-W10	N/A	N/A	N/A	☒

4.2 Test Configurations

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

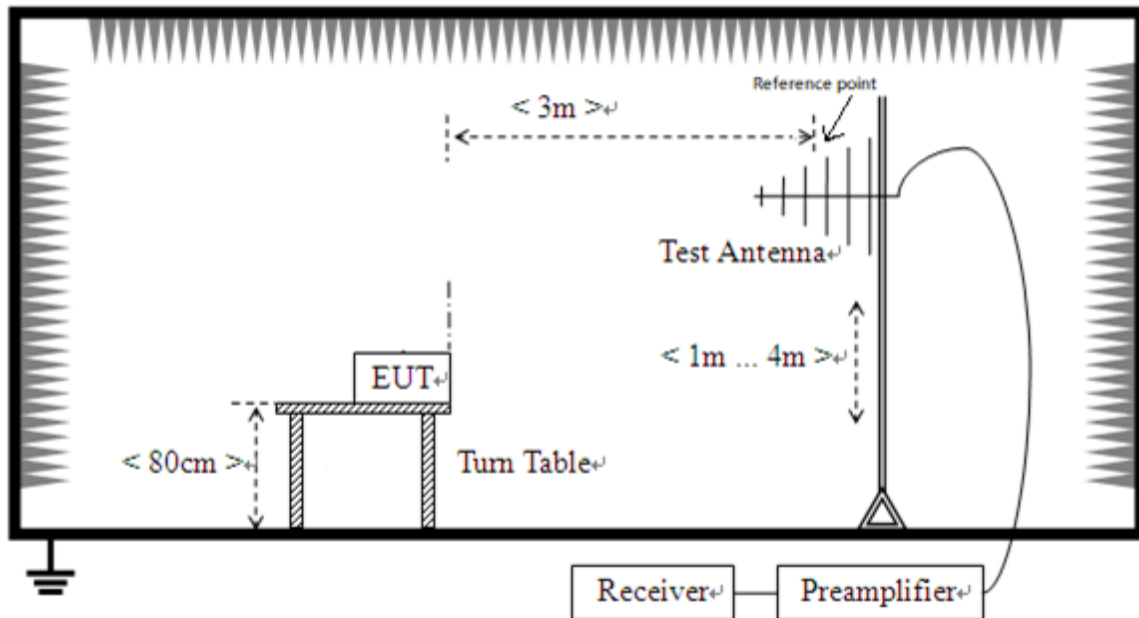
Test Mode Configuration	Description
Mode 1	<u>The Only Charing Test Mode</u> EUT + Adapter + USB Cable + Battery
Mode 2	<u>The Rear Camera Test Mode</u> EUT + Adapter + USB Cable + Battery
Mode 3	<u>The Video Play Test Mode</u> EUT + Adapter + USB Cable + Battery
Mode 4	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Laptop
Mode 5	<u>The OTG Test Mode</u> EUT + Battery + Data connector + USB disk
Mode 6	<u>The Type-C Headset Test Mode</u> EUT + Type-C Headset + Battery

Test Case	Test Mode Configuration	Worst Mode
Radiated Emission	Mode 1~Mode 6	1, 4
Conducted Emission, AC Ports	Mode 1~Mode 4	1, 4

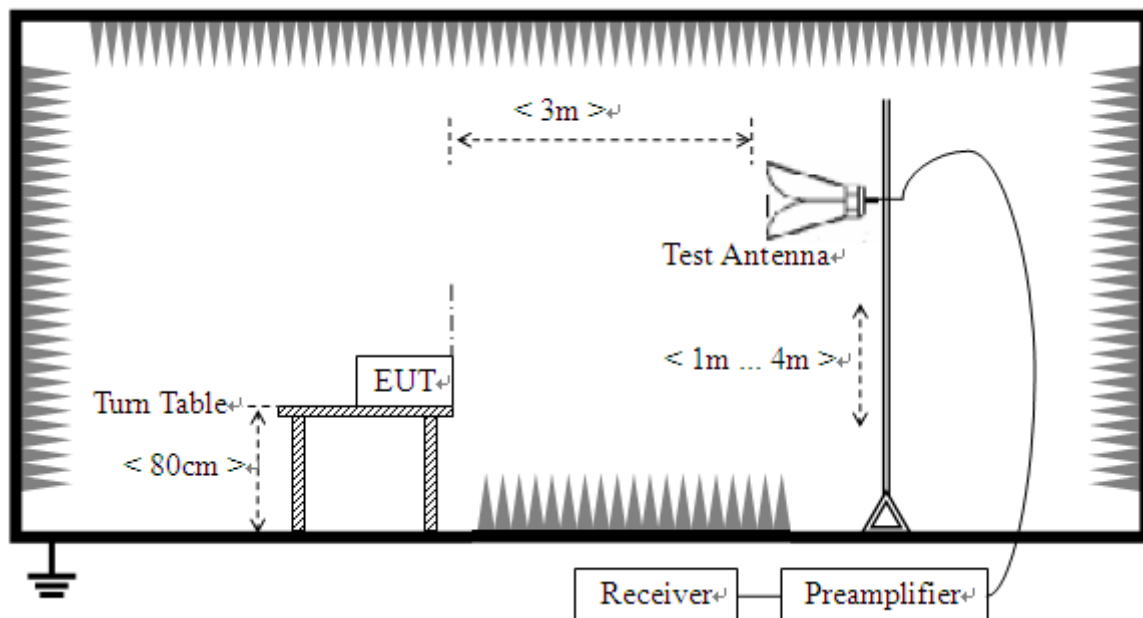
Note: All operation modes were tested, but only test data of the worst mode was presented in this report.

4.3 Test Setups

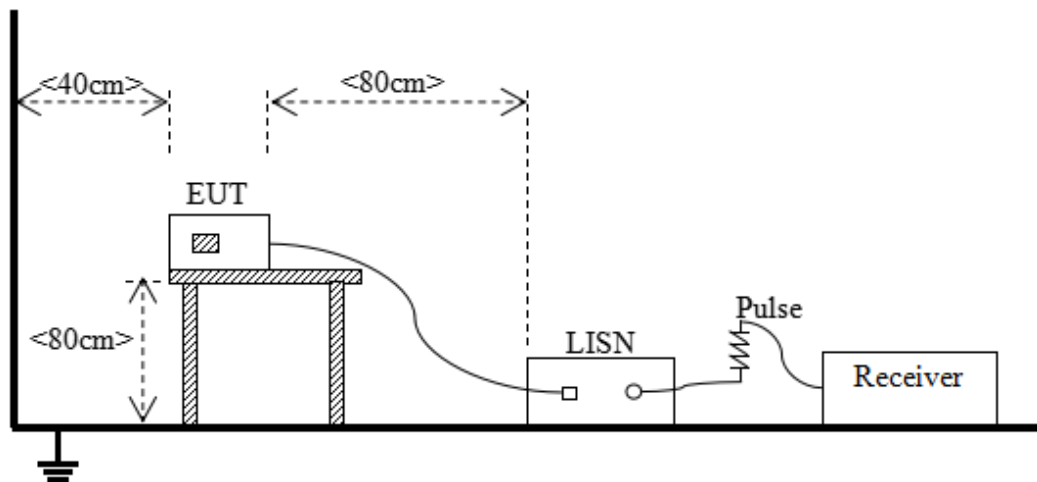
Test Setup 1



Radiated Emission (30 MHz-1 GHz)



Radiated Emission (above 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

FCC:

Frequency range (MHz)	Class B (at 3 m)		Class A (at 3 m)
	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)
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 (dB $\mu\text{V/m}$) = $20 \cdot \log [\text{Field Strength } (\mu\text{V/m})]$.
- 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 ($\mu\text{V/m}$)	Field Strength Average (dB $\mu\text{V/m}$)	Field Strength Peak (dB $\mu\text{V/m}$)	Field Strength Average (dB $\mu\text{V/m}$)	Field Strength Peak (dB $\mu\text{V/m}$)
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:

$$L_{3m} = L_{10m} + 20 \cdot \log(d_{10m}/d_{3m})$$

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: $L_{3m} = 49.5 + 20 \cdot \log(10/3) = 60$ (dB $\mu\text{V/m}$).

Highest internal frequency (F_X)	Highest measurement frequency (F_M)
$F_X \leq 108 \text{ MHz}$	1 GHz
$108 \text{ MHz} \leq F_X \leq 500 \text{ MHz}$	2 GHz
$500 \text{ MHz} \leq F_X \leq 1 \text{ GHz}$	5 GHz
$F_X \geq 1 \text{ GHz}$	$5 \cdot F_X$

Highest internal frequency (F_X)	Highest measurement frequency (F_M)
	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.	

IC:

Frequency range (MHz)	Class A (3 m)	Class B (3 m)
	Quasi-peak (dB μ V/m)	Quasi-peak (dB μ V/m)
30 - 88	50.0	40.0
88 - 216	54.0	43.5
216 - 230	56.9	46.0
230 - 960	57.0	47.0
960 - 1000	60.0	54.0
Note: The more stringent limit applies at transition frequencies.		

Frequency range (GHz)	Class A (3 m)		Class B (3 m)	
	Average (dB μ V/m)	Peak (dB μ V/m)	Average (dB μ V/m)	Peak (dB μ V/m)
1 - F_M	60	80	54	74

Note:

1. The highest measurement frequency, F_M , in GHz, shall be determined as next Table.
2. The measurement bandwidth shall be 1 MHz or greater.
3. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far field of the ITE or digital apparatus under test.
4. The test site shall have been validated at the distance used for radiated emission measurements on the ITE or digital apparatus under test.

Highest internal frequency (F_X)	Highest measurement frequency (F_M)
$F_X \leq 108$ MHz	1GHz
108 MHz $\leq F_X \leq 500$ MHz	2GHz
500 MHz $\leq F_X \leq 1$ GHz	5GHz
$F_X \geq 1$ GHz	5 * F_X up to a maximum of 40 GHz

Note: F_X is the highest fundamental frequency generated and/or used in the ITE or digital apparatus under test.

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

The test employing the methods of measurement described in the publication referenced in ICES-003 Section 3(b) (ANSI C63.4) and ANSI C63.4;

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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak for $f < 1$ GHz, peak & RMS Average for $f \geq 1$ GHz

Trace = max hold

5.1.1.4 Test Result and Test Equipment List

Please refer to ANNEX A.1.

NOTE:

1. Results (dB μ V/m) = Reading (dB μ V) + 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 (dB μ V)	Average (dB μ V)
0.15 - 0.50	79	66
0.50 - 30	73	60

Frequency range (MHz)	Class B	
	Quasi-peak (dB μ V)	Average (dB μ V)
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.
- 3) The limit using ANSI C63.4.

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 test employing the methods of measurement described in the publication referenced in Section 3(b) (ANSI C63.4);

The EUT is connected to the power mains through a LISN which provides 50 Ω /50 μ H 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 $\geq$ 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

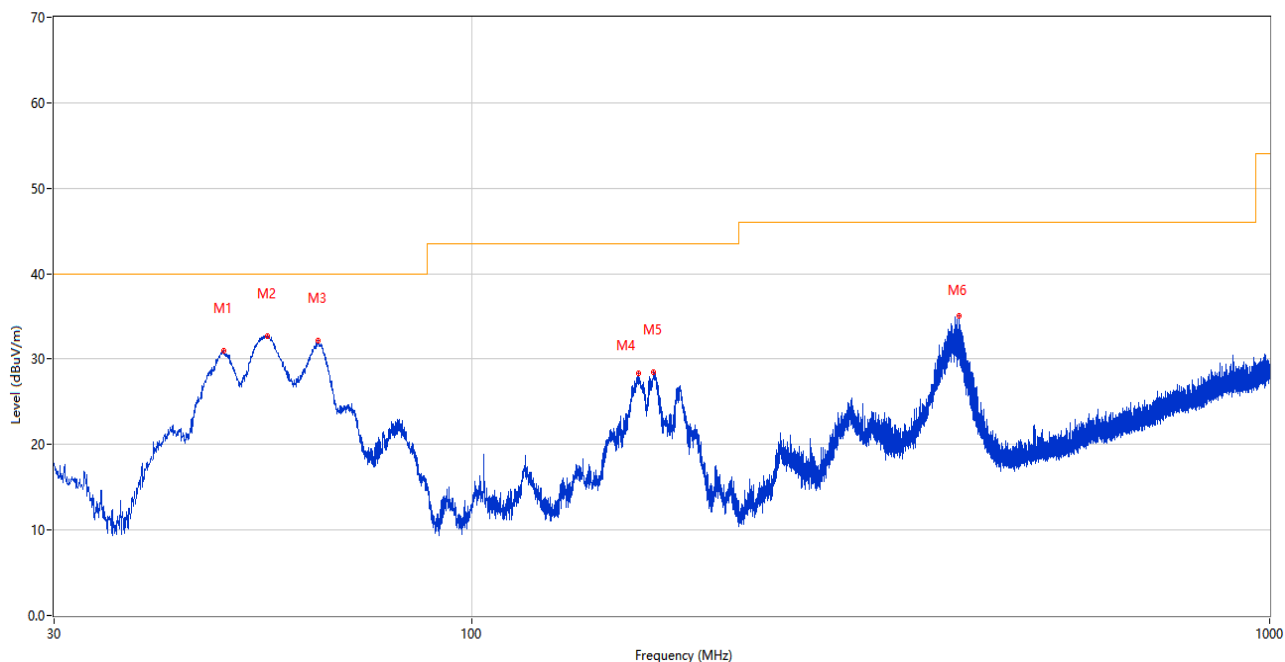
Note 1: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 2: The Radiated Emission is required to be investigated to the upper frequency of 5th harmonic of the highest internal frequency of EUT or 40 GHz, whichever is lower. The test results above 18GHz are only noise and are not recorded in the report.

Sample No.	S20	Temperature	22.1℃
Humidity	46%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2025.01.13

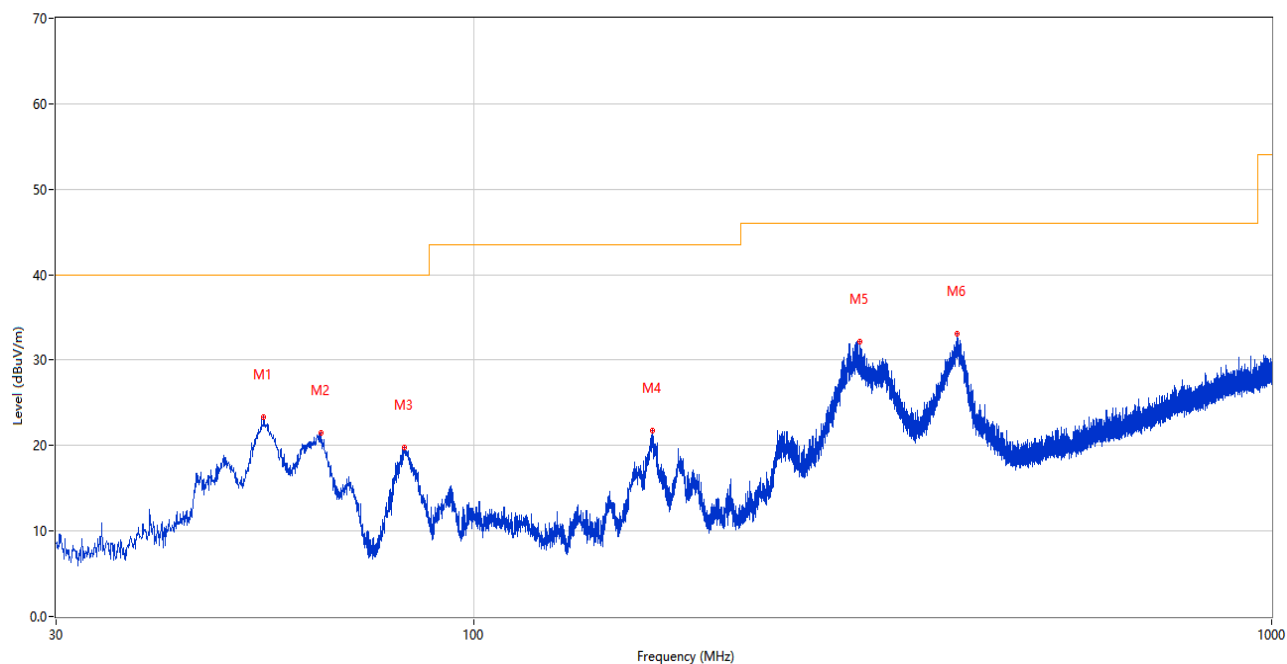
Test Mode 1

1) Test Antenna Vertical, 30 MHz – 1 GHz (FCC)



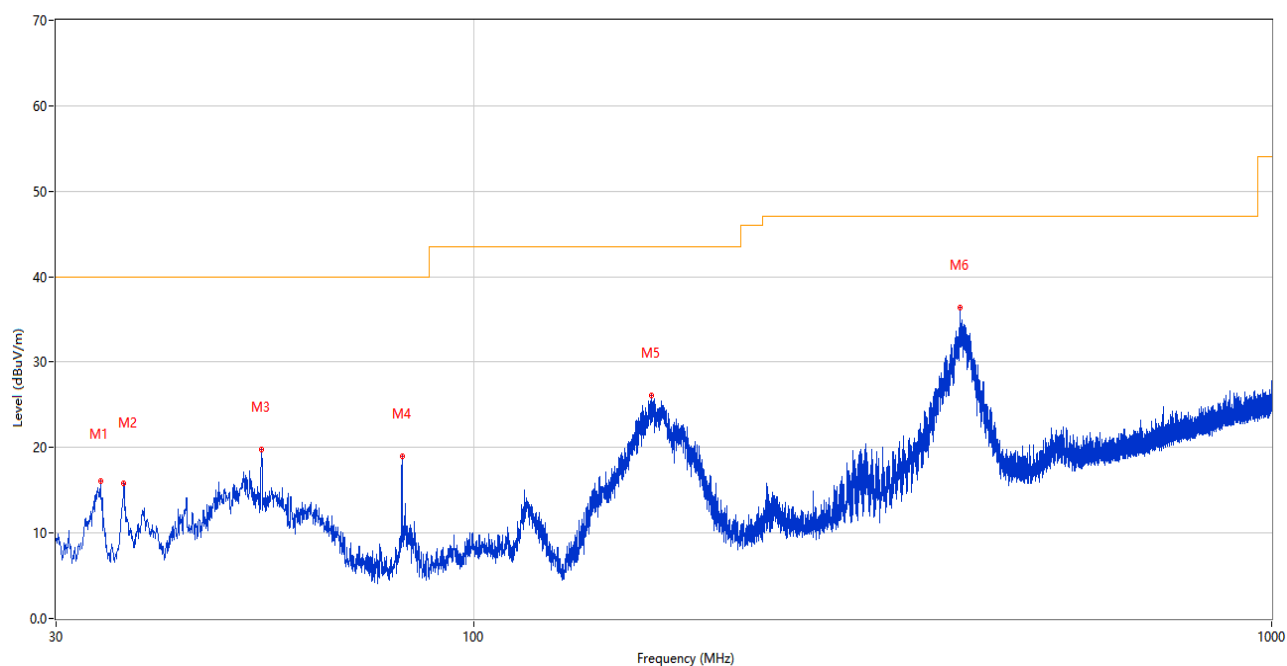
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.012	31.01	-25.39	40.0	8.99	Peak	143.00	100	Vertical	Pass
2	55.511	32.76	-25.95	40.0	7.24	Peak	150.00	100	Vertical	Pass
3	64.241	32.13	-27.30	40.0	7.87	Peak	137.00	100	Vertical	Pass
4	161.726	28.28	-29.52	43.5	15.22	Peak	328.00	100	Vertical	Pass
5	169.244	28.52	-29.27	43.5	14.98	Peak	268.00	100	Vertical	Pass
6	407.912	35.13	-20.70	46.0	10.87	Peak	31.00	100	Vertical	Pass

2) Test Antenna Horizontal, 30 MHz – 1 GHz (FCC)



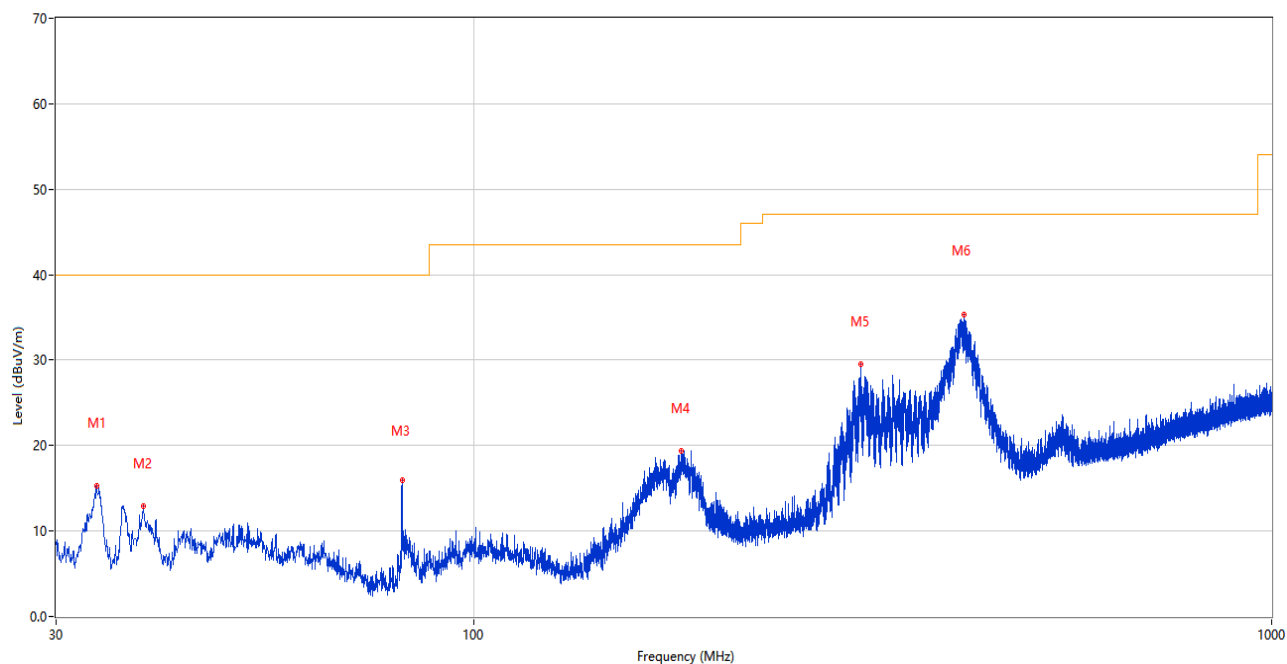
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	54.638	23.35	-25.65	40.0	16.65	Peak	61.00	100	Horizontal	Pass
2	64.386	21.46	-27.34	40.0	18.54	Peak	9.00	100	Horizontal	Pass
3	81.992	19.72	-30.72	40.0	20.28	Peak	303.00	200	Horizontal	Pass
4	167.788	21.71	-29.20	43.5	21.79	Peak	254.00	200	Horizontal	Pass
5	305.189	32.19	-23.60	46.0	13.81	Peak	54.00	100	Horizontal	Pass
6	403.790	33.08	-20.72	46.0	12.92	Peak	214.00	100	Horizontal	Pass

3) Test Antenna Vertical, 30 MHz – 1 GHz (IC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	34.123	16.11	-28.58	40.0	23.89	Peak	82.00	100	Vertical	Pass
2	36.450	15.85	-27.19	40.0	24.15	Peak	335.00	100	Vertical	Pass
3	54.250	19.79	-25.92	40.0	20.21	Peak	135.00	100	Vertical	Pass
4	81.410	18.97	-30.79	40.0	21.03	Peak	113.00	100	Vertical	Pass
5	167.110	26.14	-29.07	43.5	17.36	Peak	258.00	100	Vertical	Pass
6	407.475	36.41	-20.69	47.0	10.59	Peak	194.00	200	Vertical	Pass

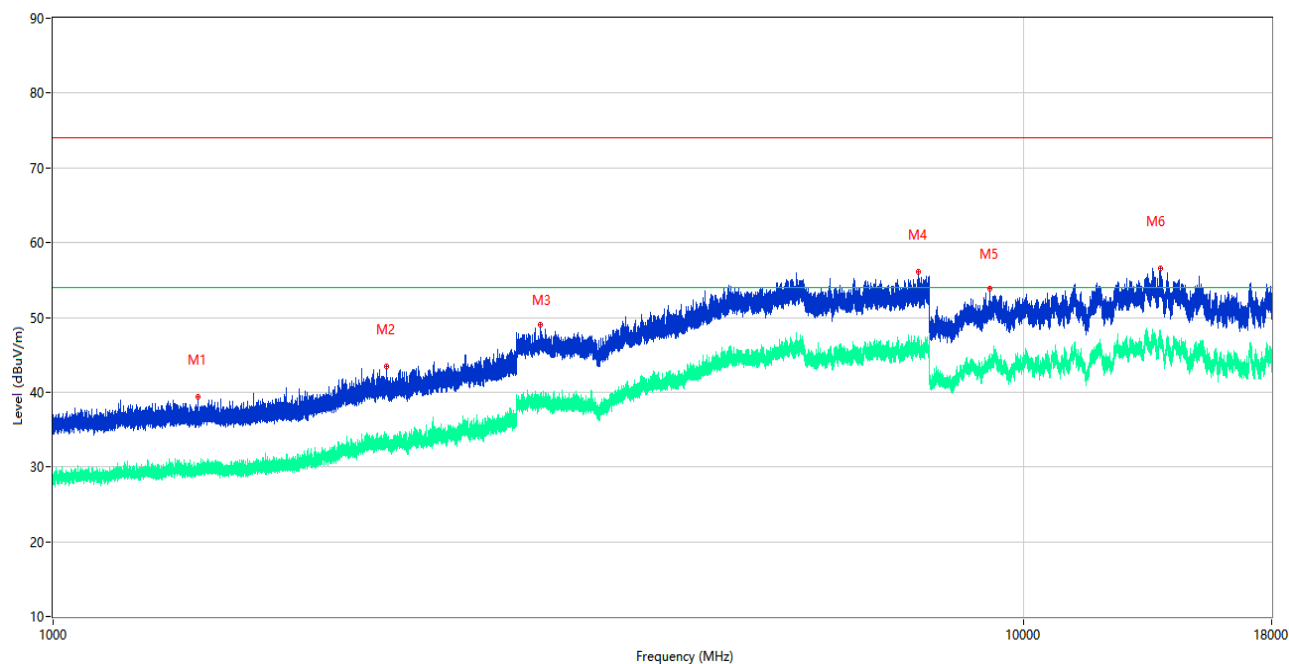
4) Test Antenna Horizontal, 30 MHz – 1 GHz (IC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	33.734	15.29	-29.70	40.0	24.71	Peak	51.00	200	Horizontal	Pass
2	38.584	12.93	-25.78	40.0	27.07	Peak	287.00	200	Horizontal	Pass
3	81.410	15.93	-30.79	40.0	24.07	Peak	105.00	200	Horizontal	Pass
4	181.950	19.41	-28.04	43.5	24.09	Peak	224.00	200	Horizontal	Pass
5	305.626	29.48	-23.44	47.0	17.52	Peak	59.00	100	Horizontal	Pass
6	411.307	35.38	-20.67	47.0	11.62	Peak	45.00	100	Horizontal	Pass

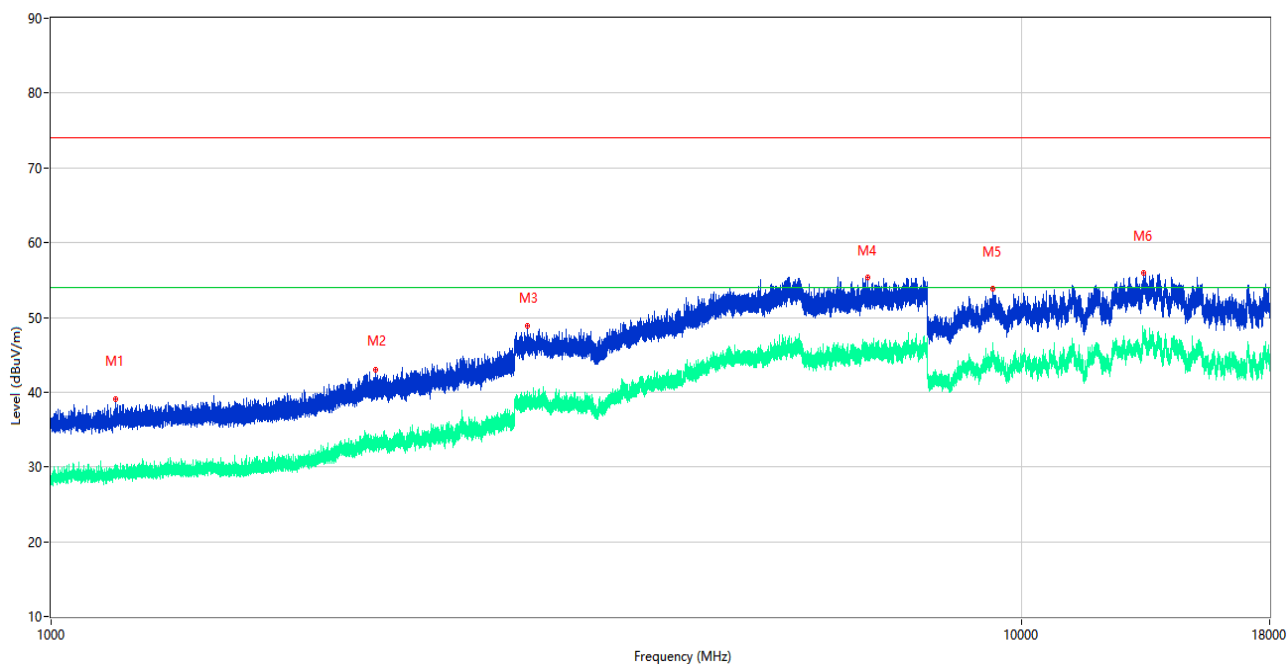
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2024.08.01	2025.07.31	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2024.11.28	2025.11.27	☒
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	☒
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2024.07.21	2027.07.20	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

5) Test Antenna Vertical, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1410.200	39.33	-16.02	74.0	34.67	Peak	110.00	100	Vertical	Pass
1**	1410.200	29.47	-16.02	54.0	24.53	AV	110.00	100	Vertical	Pass
2	2203.800	43.41	-12.42	74.0	30.59	Peak	1.00	100	Vertical	Pass
2**	2203.800	33.45	-12.42	54.0	20.55	AV	1.00	100	Vertical	Pass
3	3177.250	48.96	-3.62	74.0	25.04	Peak	24.00	100	Vertical	Pass
3**	3177.250	38.81	-3.62	54.0	15.19	AV	24.00	100	Vertical	Pass
4	7787.500	56.03	3.17	74.0	17.97	Peak	15.00	100	Vertical	Pass
4**	7787.500	46.30	3.17	54.0	7.70	AV	15.00	100	Vertical	Pass
5	9225.000	53.77	1.21	74.0	20.23	Peak	1.00	100	Vertical	Pass
5**	9225.000	44.18	1.21	54.0	9.82	AV	1.00	100	Vertical	Pass
6	13816.001	56.59	5.61	74.0	17.41	Peak	0.00	100	Vertical	Pass
6**	13816.001	47.99	5.61	54.0	6.01	AV	0.00	100	Vertical	Pass

6) Test Antenna Horizontal, 1 GHz – 6 GHz

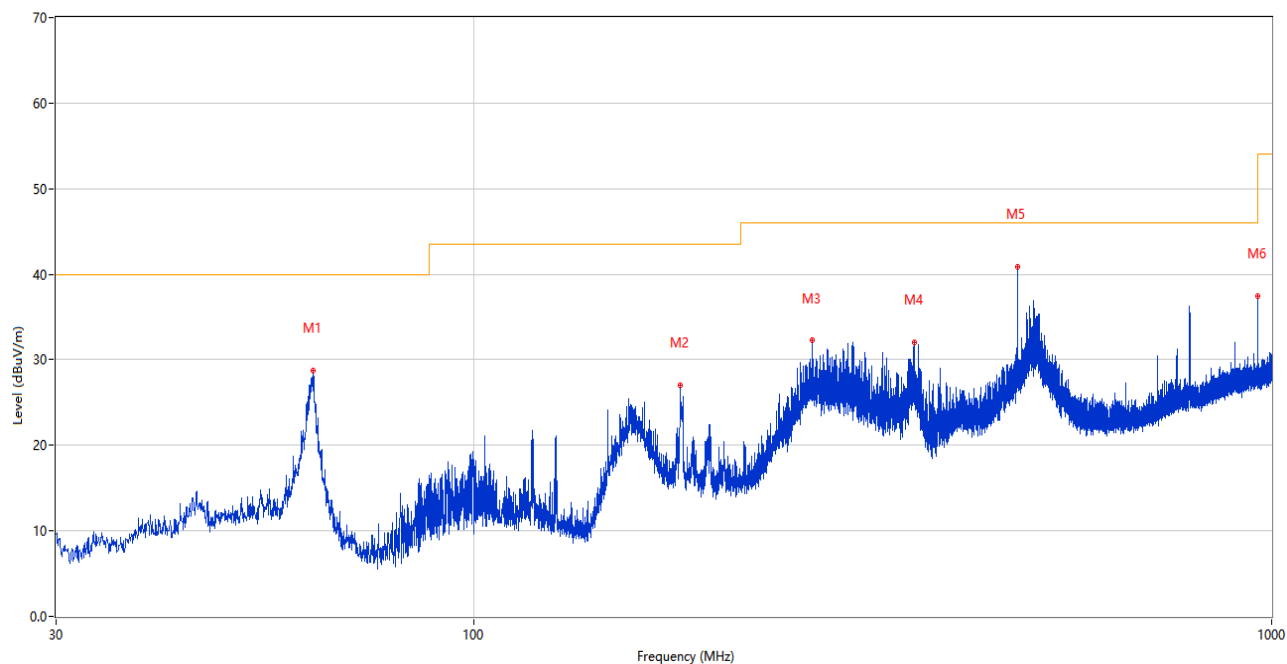


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1164.300	39.13	-16.01	74.0	34.87	Peak	258.00	100	Horizontal	Pass
1**	1164.300	29.15	-16.01	54.0	24.85	AV	258.00	100	Horizontal	Pass
2	2159.000	42.97	-12.05	74.0	31.03	Peak	276.00	100	Horizontal	Pass
2**	2159.000	33.24	-12.05	54.0	20.76	AV	276.00	100	Horizontal	Pass
3	3093.500	48.81	-4.58	74.0	25.19	Peak	165.00	100	Horizontal	Pass
3**	3093.500	40.14	-4.58	54.0	13.86	AV	165.00	100	Horizontal	Pass
4	6934.250	55.37	1.36	74.0	18.63	Peak	22.00	100	Horizontal	Pass
4**	6934.250	45.91	1.36	54.0	8.09	AV	22.00	100	Horizontal	Pass
5	9324.000	53.80	2.17	74.0	20.20	Peak	314.00	100	Horizontal	Pass
5**	9324.000	44.72	2.17	54.0	9.28	AV	314.00	100	Horizontal	Pass
6	13355.500	55.95	5.20	74.0	18.05	Peak	63.00	100	Horizontal	Pass
6**	13355.500	46.55	5.20	54.0	7.45	AV	63.00	100	Horizontal	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Above 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2024.08.01	2025.07.31	☒
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2024.11.28	2025.11.27	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2024.11.28	2025.11.27	☒
Test Antenna- Horn	SCHWARZB ECK	BBHA 9120D	01917	2022.06.09	2025.06.08	☒
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2024.07.21	2027.07.20	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

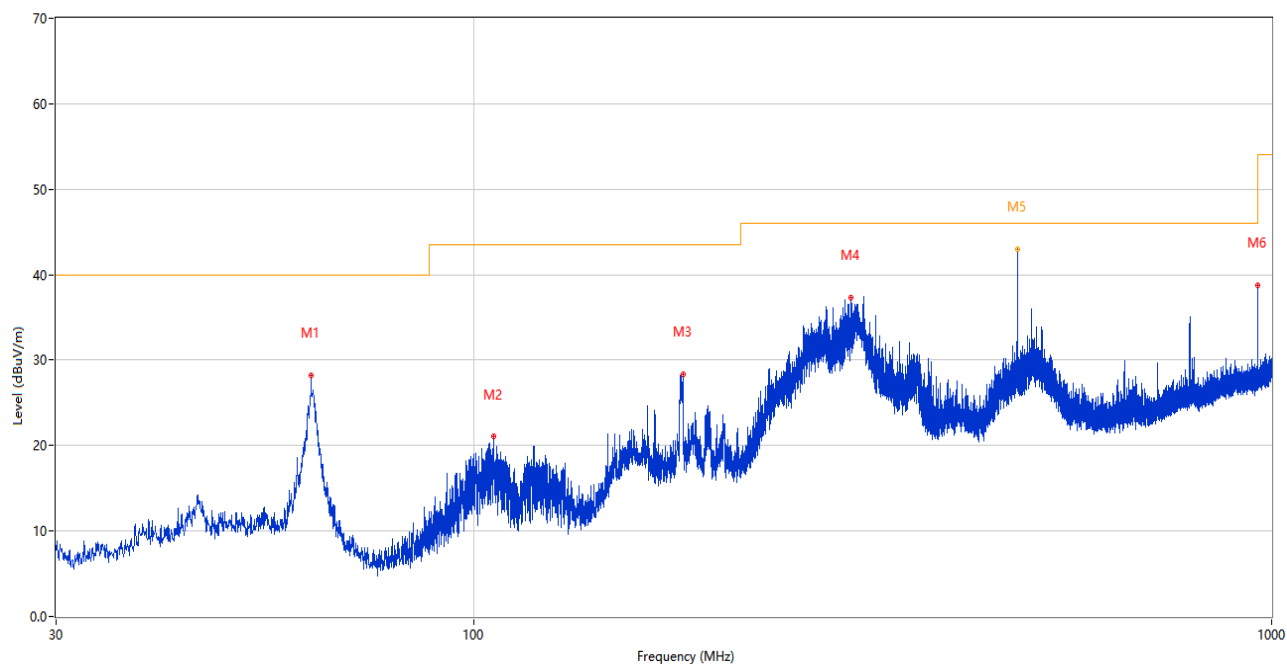
Test Mode 4

7) Test Antenna Vertical, 30 MHz – 1 GHz (FCC)



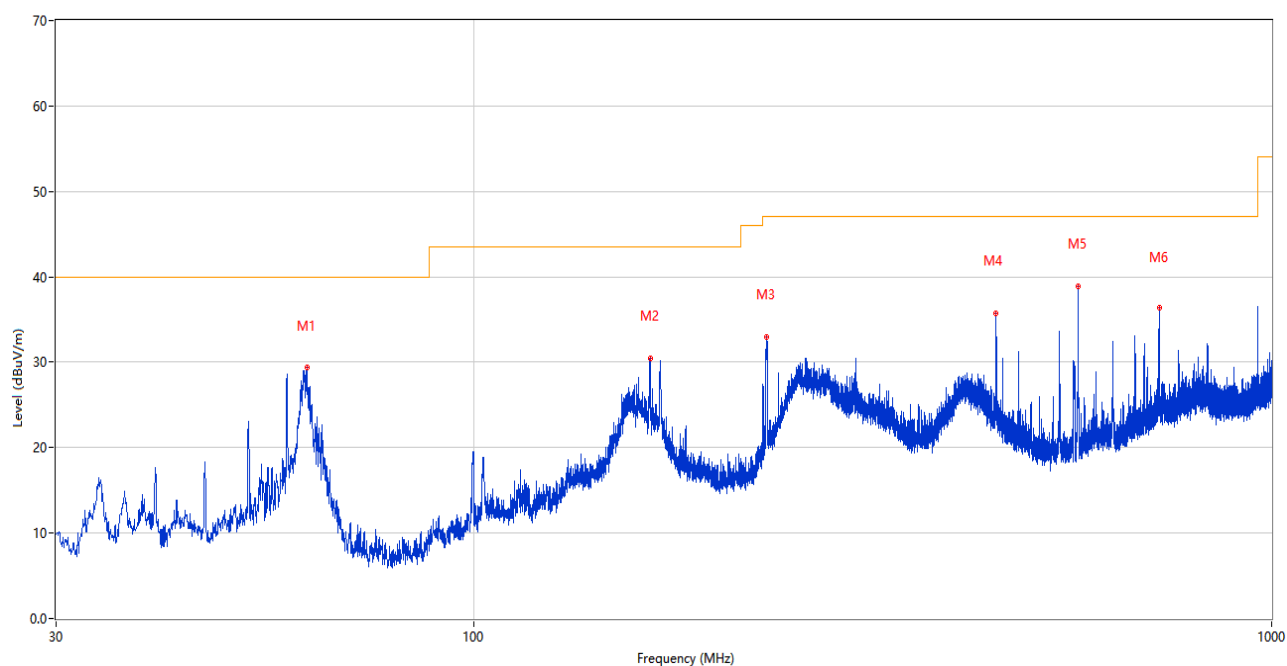
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	63.029	28.73	-27.21	40.0	11.27	Peak	280.00	100	Vertical	Pass
2	181.805	26.99	-28.34	43.5	16.51	Peak	28.00	100	Vertical	Pass
3	265.419	32.24	-24.52	46.0	13.76	Peak	187.00	200	Vertical	Pass
4	356.696	32.03	-21.90	46.0	13.97	Peak	199.00	100	Vertical	Pass
5	480.031	40.92	-19.19	46.0	5.08	Peak	341.00	100	Vertical	Pass
6	959.987	37.49	-9.29	46.0	8.51	Peak	211.00	100	Vertical	Pass

8) Test Antenna Horizontal, 30 MHz – 1 GHz (FCC)



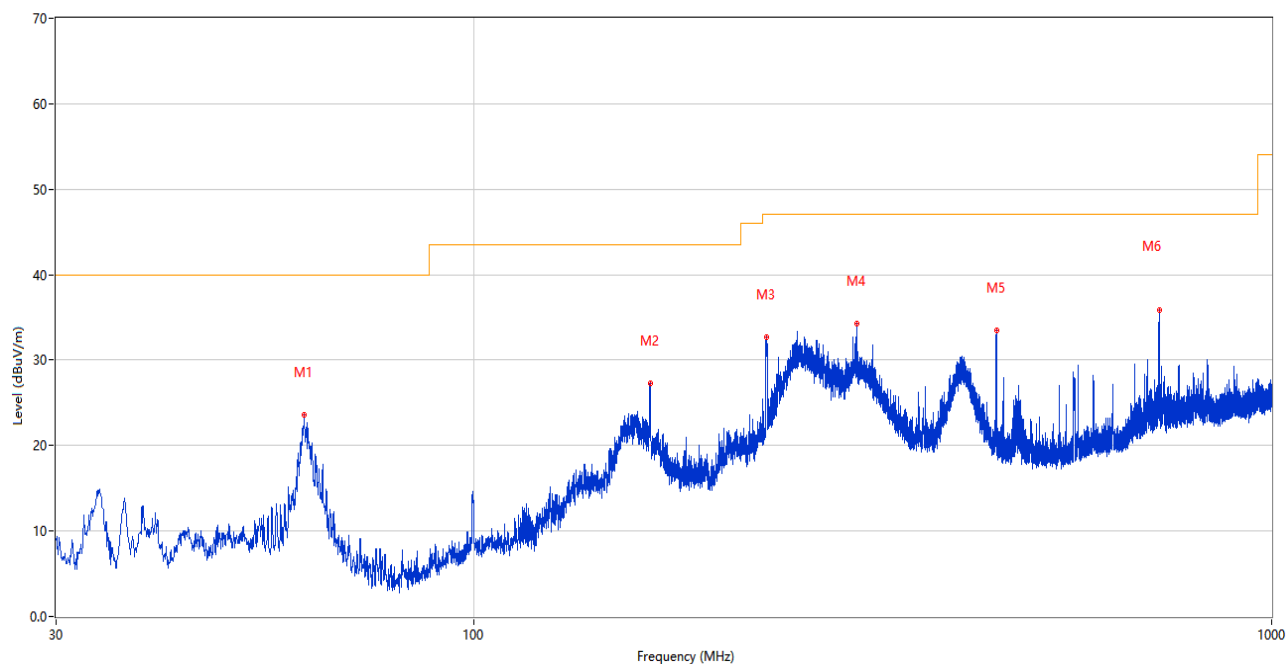
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	62.641	28.15	-27.16	40.0	11.85	Peak	152.00	200	Horizontal	Pass
2	105.999	21.03	-26.54	43.5	22.47	Peak	253.00	200	Horizontal	Pass
3	183.114	28.40	-28.21	43.5	15.10	Peak	247.00	100	Horizontal	Pass
4	296.992	37.32	-23.83	46.0	8.68	Peak	241.00	100	Horizontal	Pass
5	479.999	43.95	-19.19	46.0	2.05	Peak	274.00	101	Horizontal	N/A
5*	479.999	42.93	-19.19	46.0	3.07	QP	274.00	101	Horizontal	Pass
6	960.036	38.74	-9.29	54.0	15.26	Peak	70.00	100	Horizontal	Pass

9) Test Antenna Vertical, 30 MHz – 1 GHz (IC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	61.816	29.34	-27.21	40.0	10.66	Peak	238.00	100	Vertical	Pass
2	166.576	30.43	-29.04	43.5	13.07	Peak	198.00	100	Vertical	Pass
3	233.264	32.95	-25.41	47.0	14.05	Peak	314.00	200	Vertical	Pass
4	451.707	35.79	-19.84	47.0	11.21	Peak	182.00	100	Vertical	Pass
5	572.472	38.84	-16.94	47.0	8.16	Peak	135.00	100	Vertical	Pass
6	722.677	36.36	-13.52	47.0	10.64	Peak	132.00	100	Vertical	Pass

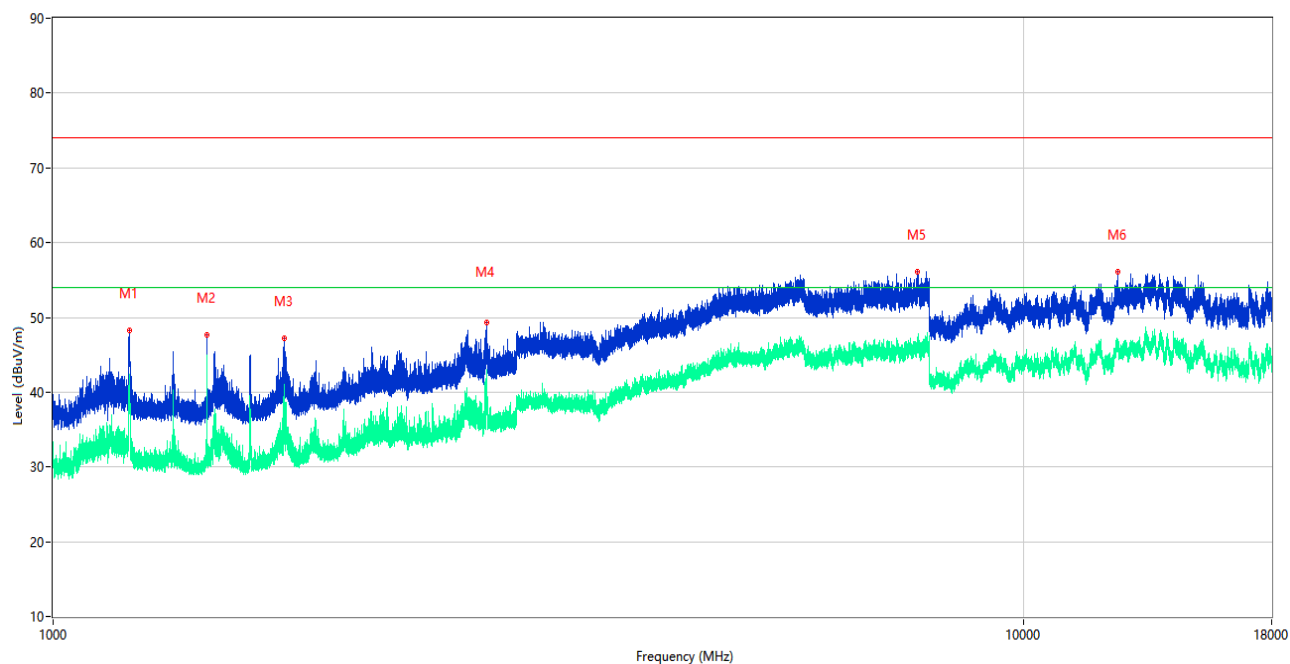
10) Test Antenna Horizontal, 30 MHz – 1 GHz (IC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	61.331	23.59	-27.10	40.0	16.41	Peak	177.00	100	Horizontal	Pass
2	166.624	27.35	-29.04	43.5	16.15	Peak	106.00	100	Horizontal	Pass
3	232.972	32.64	-25.47	47.0	14.36	Peak	227.00	100	Horizontal	Pass
4	302.328	34.25	-23.42	47.0	12.75	Peak	249.00	100	Horizontal	Pass
5	451.950	33.50	-19.83	47.0	13.50	Peak	277.00	200	Horizontal	Pass
6	722.823	35.82	-13.52	47.0	11.18	Peak	235.00	100	Horizontal	Pass

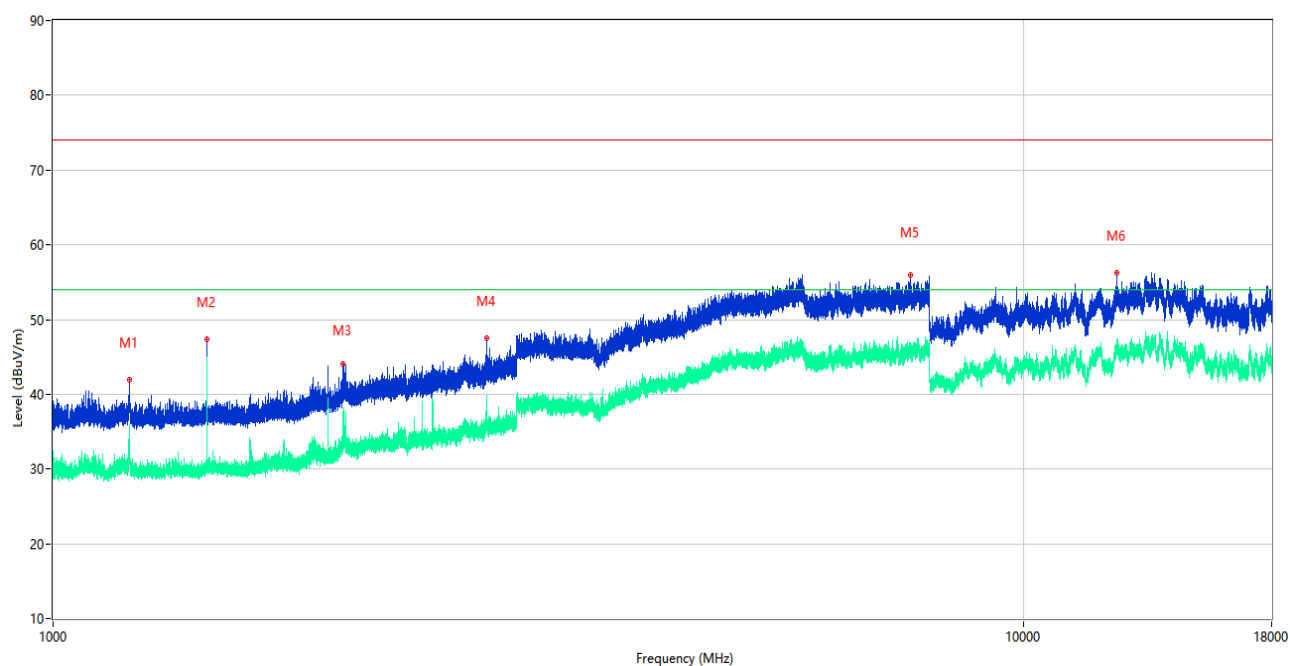
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2024.08.01	2025.07.31	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2024.11.28	2025.11.27	☒
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	☒
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2024.07.21	2027.07.20	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

11) Test Antenna Vertical, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1199.800	48.30	-16.21	74.0	25.70	Peak	226.00	100	Vertical	Pass
1**	1199.800	41.20	-16.21	54.0	12.80	AV	226.00	100	Vertical	Pass
2	1440.000	47.68	-15.95	74.0	26.32	Peak	196.00	100	Vertical	Pass
2**	1440.000	44.80	-15.95	54.0	9.20	AV	196.00	100	Vertical	Pass
3	1732.400	47.25	-15.88	74.0	26.75	Peak	217.00	100	Vertical	Pass
3**	1732.400	40.37	-15.88	54.0	13.63	AV	217.00	100	Vertical	Pass
4	2796.200	49.29	-8.32	74.0	24.71	Peak	161.00	100	Vertical	Pass
4**	2796.200	38.50	-8.32	54.0	15.50	AV	161.00	100	Vertical	Pass
5	7769.750	56.05	2.72	74.0	17.95	Peak	95.00	100	Vertical	Pass
5**	7769.750	46.21	2.72	54.0	7.79	AV	95.00	100	Vertical	Pass
6	12505.000	56.12	3.10	74.0	17.88	Peak	207.00	100	Vertical	Pass
6**	12505.000	45.66	3.10	54.0	8.34	AV	207.00	100	Vertical	Pass

12) Test Antenna Horizontal, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1199.200	41.94	-16.23	74.0	32.06	Peak	185.00	100	Horizontal	Pass
1**	1199.200	32.69	-16.23	54.0	21.31	AV	185.00	100	Horizontal	Pass
2	1440.200	47.41	-15.97	74.0	26.59	Peak	181.00	100	Horizontal	Pass
2**	1440.200	44.64	-15.97	54.0	9.36	AV	181.00	100	Horizontal	Pass
3	1990.100	44.07	-13.51	74.0	29.93	Peak	142.00	100	Horizontal	Pass
3**	1990.100	36.40	-13.51	54.0	17.60	AV	142.00	100	Horizontal	Pass
4	2798.000	47.50	-8.21	74.0	26.50	Peak	129.00	100	Horizontal	Pass
4**	2798.000	36.26	-8.21	54.0	17.74	AV	129.00	100	Horizontal	Pass
5	7638.500	55.98	2.46	74.0	18.02	Peak	186.00	100	Horizontal	Pass
5**	7638.500	45.95	2.46	54.0	8.05	AV	186.00	100	Horizontal	Pass
6	12455.000	56.20	2.74	74.0	17.80	Peak	38.00	100	Horizontal	Pass
6**	12455.000	45.59	2.74	54.0	8.41	AV	38.00	100	Horizontal	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Above 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2024.08.01	2025.07.31	☒
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2024.11.28	2025.11.27	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2024.11.28	2025.11.27	☒
Test Antenna- Horn	SCHWARZB ECK	BBHA 9120D	01917	2022.06.09	2025.06.08	☒
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2024.07.21	2027.07.20	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

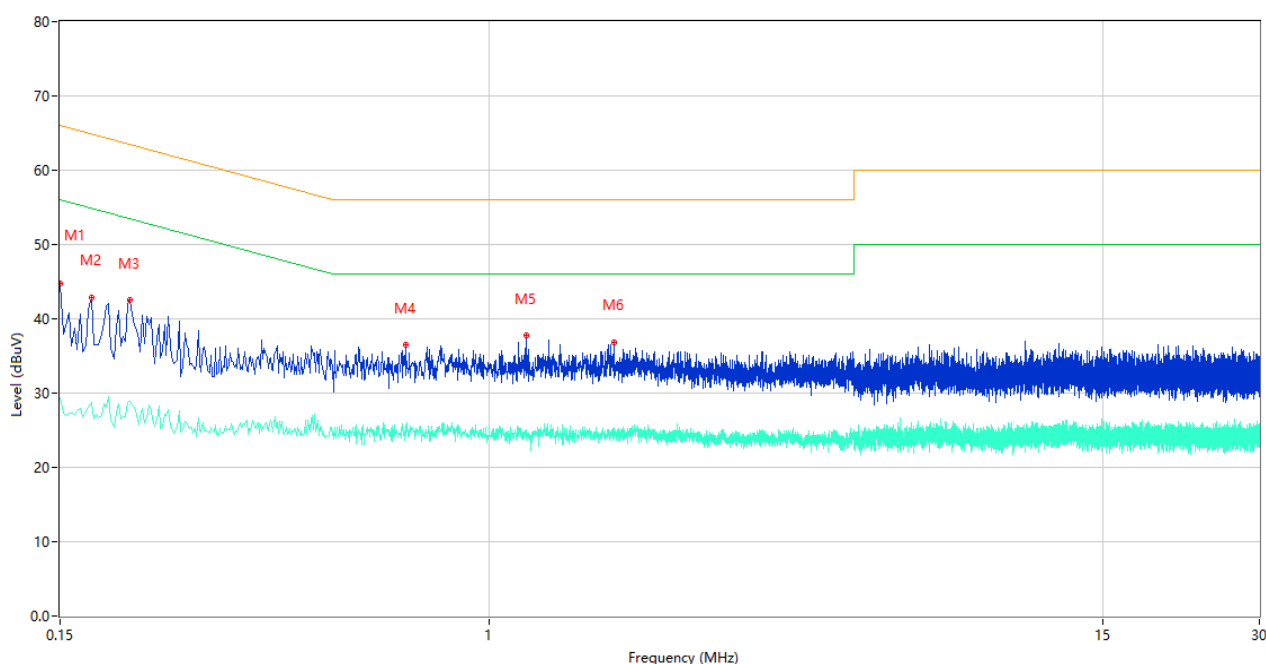
A.2 Conducted Emission, AC Ports

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.	S20	Temperature	21.8℃
Humidity	42%RH	Pressure	101kPa
Test Engineer	Yangyang	Test Date	2025.01.13

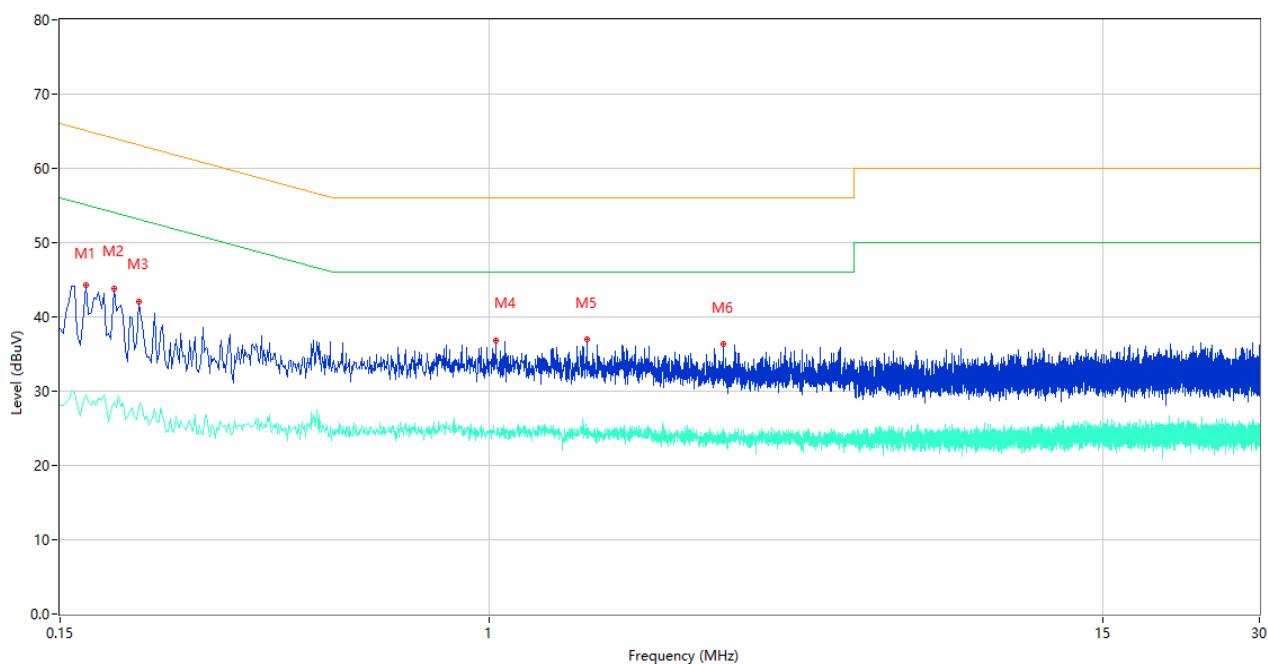
Test Mode 1

1) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	44.76	9.78	66.00	21.24	Peak	L	Pass
1**	0.150	29.37	9.78	56.00	26.63	AV	L	Pass
2	0.172	42.93	9.78	64.86	21.93	Peak	L	Pass
2**	0.172	28.78	9.78	54.86	26.08	AV	L	Pass
3	0.204	42.51	9.77	63.45	20.94	Peak	L	Pass
3**	0.204	28.95	9.77	53.45	24.50	AV	L	Pass
4	0.690	36.45	10.57	56.00	19.55	Peak	L	Pass
4**	0.690	25.72	10.57	46.00	20.28	AV	L	Pass
5	1.174	37.77	10.15	56.00	18.23	Peak	L	Pass
5**	1.174	25.00	10.15	46.00	21.00	AV	L	Pass
6	1.732	36.83	10.16	56.00	19.17	Peak	L	Pass
6**	1.732	25.25	10.16	46.00	20.75	AV	L	Pass

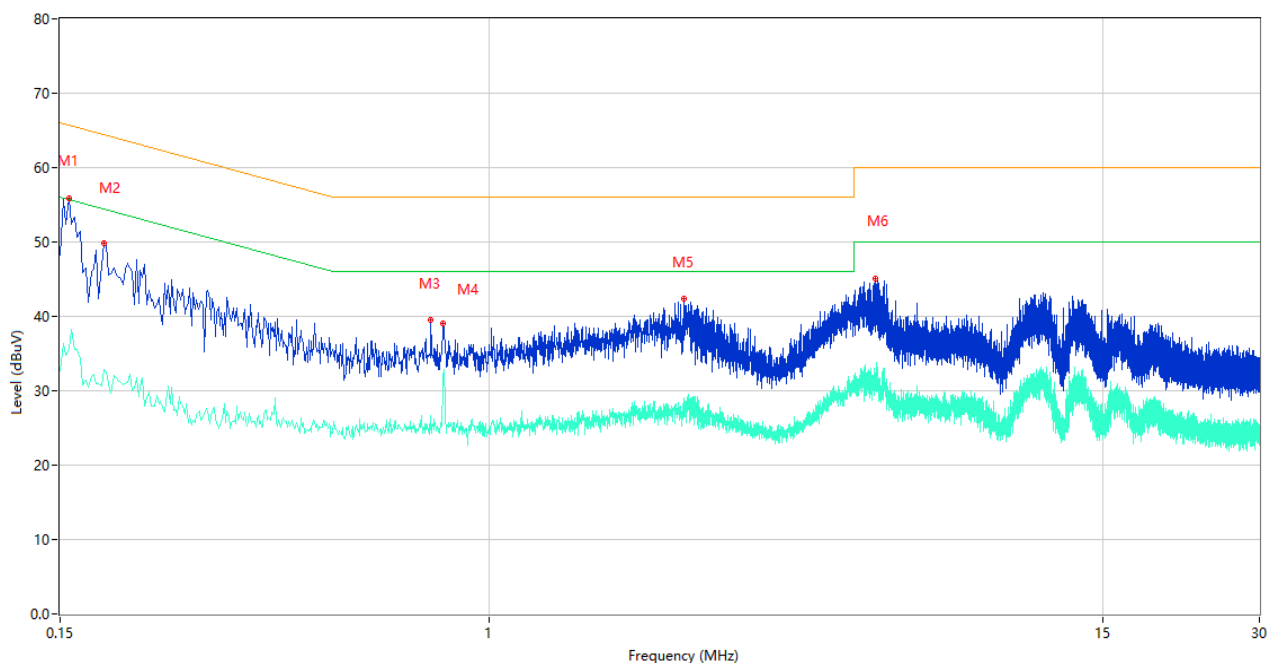
2) AC Ports - N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.168	44.29	9.78	65.06	20.77	Peak	N	Pass
1**	0.168	29.57	9.78	55.06	25.49	AV	N	Pass
2	0.190	43.83	9.78	64.04	20.21	Peak	N	Pass
2**	0.190	28.65	9.78	54.04	25.39	AV	N	Pass
3	0.212	42.14	9.77	63.13	20.99	Peak	N	Pass
3**	0.212	27.80	9.77	53.13	25.33	AV	N	Pass
4	1.028	36.86	10.09	56.00	19.14	Peak	N	Pass
4**	1.028	24.29	10.09	46.00	21.71	AV	N	Pass
5	1.538	36.95	10.18	56.00	19.05	Peak	N	Pass
5**	1.538	24.76	10.18	46.00	21.24	AV	N	Pass
6	2.810	36.28	10.21	56.00	19.72	Peak	N	Pass
6**	2.810	24.98	10.21	46.00	21.02	AV	N	Pass

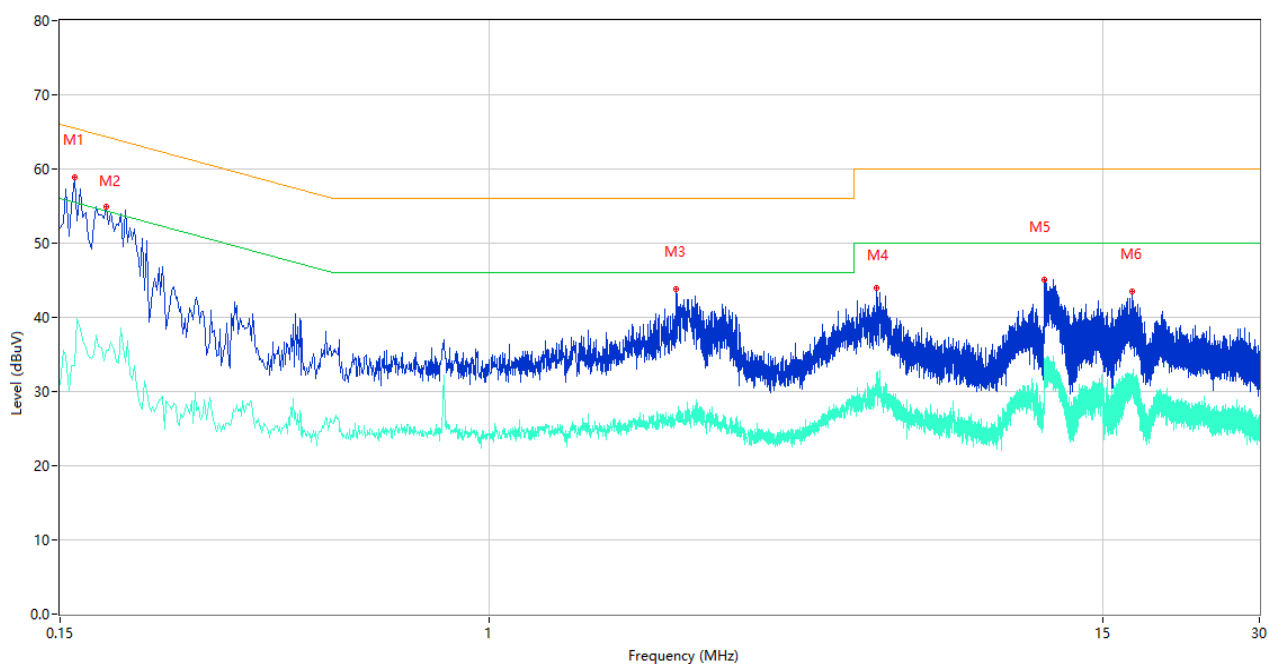
Test Mode 4

3) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.156	55.88	9.78	65.67	9.79	Peak	L	Pass
1**	0.156	35.48	9.78	55.67	20.19	AV	L	Pass
2	0.182	49.81	9.78	64.39	14.58	Peak	L	Pass
2**	0.182	32.94	9.78	54.39	21.45	AV	L	Pass
3	0.772	39.46	10.33	56.00	16.54	Peak	L	Pass
3**	0.772	26.66	10.33	46.00	19.34	AV	L	Pass
4	0.816	39.04	10.56	56.00	16.96	Peak	L	Pass
4**	0.816	32.03	10.56	46.00	13.97	AV	L	Pass
5	2.358	42.38	10.06	56.00	13.62	Peak	L	Pass
5**	2.358	28.23	10.06	46.00	17.77	AV	L	Pass
6	5.512	45.13	10.41	60.00	14.87	Peak	L	Pass
6**	5.512	32.38	10.41	50.00	17.62	AV	L	Pass

4) AC Ports - N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.160	58.94	9.78	65.46	6.52	Peak	N	Pass
1**	0.160	33.45	9.78	55.46	22.01	AV	N	Pass
2	0.184	54.95	9.78	64.30	9.35	Peak	N	Pass
2**	0.184	35.53	9.78	54.30	18.77	AV	N	Pass
3	2.282	43.84	10.26	56.00	12.16	Peak	N	Pass
3**	2.282	26.41	10.26	46.00	19.59	AV	N	Pass
4	5.536	44.00	10.50	60.00	16.00	Peak	N	Pass
4**	5.536	30.72	10.50	50.00	19.28	AV	N	Pass
5	11.604	45.13	10.42	60.00	14.87	Peak	N	Pass
5**	11.604	32.05	10.42	50.00	17.95	AV	N	Pass
6	17.070	43.52	10.74	60.00	16.48	Peak	N	Pass
6**	17.070	32.21	10.74	50.00	17.79	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	SCHWARZB ECK	NSLK 8127	8127-687	2024.05.09	2025.05.08	☒
ISN	TESEQ	ISN T800	34449	2024.11.06	2025.11.05	☐
ISN	TESEQ	ISN T8-Cat6	53561	2024.04.24	2025.04.23	☐
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-SZ24A0252-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ24A0252-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ24A0252-AI.PDF”.

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--END OF REPORT--