TEST REPORT

Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Equipment Type:	Mobile Phone
Model Name:	23129RAA4G
Brand Name:	Redmi
FCC ID:	2AFZZAA4G
Test Standard:	47 CFR Part 15 Subpart B ANSI C63.4-2014
Sample Arrival Date:	Oct. 18, 2023
Test Date:	Oct. 30, 2023 - Oct. 31, 2023
Date of Issue:	Nov. 27, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Zhenxiang Liu **Checked by:** Xia Long **Approved by:** Liao Jianming (Technical Director)

Revision History

Version	Issue Date	Revisions
Rev. 01	Nov. 27, 2023	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	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

2.2 Manufacturer Information

Manufacturer	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

2.3 General Description for Equipment under Test (EUT)

EUT Name	Mobile Phone
Model Name Under Test	23129RAA4G
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	135100N7
Software Version	MIUI14
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A
EUT ID	S12, S19
IMEI Number	S12: IMEI1:869972060029220, IMEI2:869972060029238
	S19: IMEI1:869912060052541, IMEI2: 869912060052558

2.4 Ancillary Equipment

Please refer the document “BL-SZ23A0975-AW EUT external photo.pdf”.

2.5 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/900/1800/1900 3G Network WCDMA/HSDPA/HSUPA/DC-HSDPA Band 1/5/8 4G Network FDD LTE Band 1/3/5/7/8/20/28 TDD LTE Band 38/40/41 LTE CA Uplink (UL): CA_7C, CA_38C, CA_40C Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) 5G WIFI 802.11a, 802.11n(HT20/40) and 802.11ac(VHT20/40/80) U-NII-1/2A/2C/3, GPS, GLONASS, Galileo, BDS, SBAS, FM receiver
Classification of equipment	Class B
The highest internal frequency of EUT	5850 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	--

Note: Compared with the EUT of test report BL-SZ2391253-401, the changes of the EUT of this report as below:
1. The Model Name 23129RA5FL is updated to 23129RAA4G.
2. FCC ID number changed from FCC ID: 2AFZZA5FL to FCC ID: 2AFZZAA4G.
3. Added LTE band 20.
4. Removed WCDMA Band: 2/4/6/19.
5. Removed LTE Band: 2/4/12/13/17/18/19/26/66.

Other hardware circuit and software are the same as EUT referred in test report BL-SZ2391253-401.
Therefore, Only the rear camera mode was verified.
So other test data originate from the report BL-SZ2391253-401, which was issued by Shenzhen BALUN Technology Co., Ltd. on Nov. 09, 2023.

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	4.8 dB
Radiated emissions (30 MHz-1 GHz)-966#4	4.4 dB
Radiated emissions (1 GHz-18 GHz)-966#2	4.9 dB
Radiated emissions (1 GHz-18 GHz)-966#4	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	☒
TF card	Kingston	N/A	N/A	N/A	N/A	☒
USB disk	Sandisk	N/A	N/A	N/A	N/A	☒

4.2 Test Configurations

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

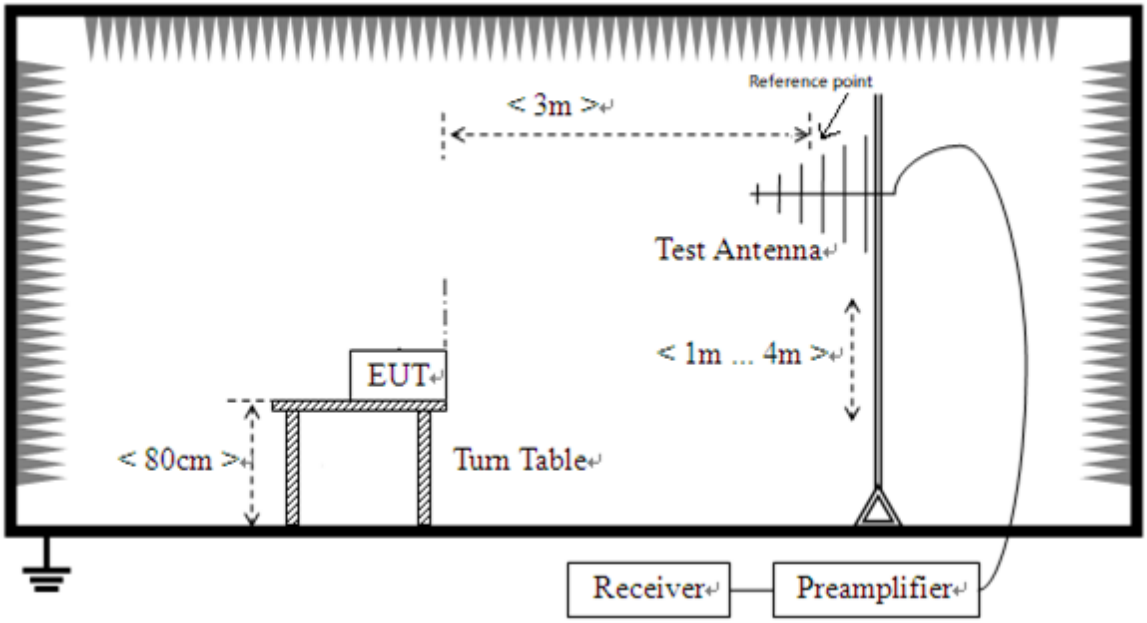
Test Mode Configuration	Description
Mode 1	The Video Play Test Mode EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 2	The Front Camera Test Mode EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 3	The Rear Camera Test Mode EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 4	The Standby Test Mode EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 5	The FM Test Mode EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 6	The GSM 850 MHz RX Test Mode GSM 850 MHz RX + EUT +Adapter + USB Cable + Battery + TF Card + Headset
Mode 7	The EGPRS 850 MHz RX Test Mode EGPRS 850 MHz RX + EUT +Adapter + USB Cable + Battery + TF Card + Headset
Mode 8	The WCDMA Band 5 RX Test Mode WCDMA Band 5 RX + EUT +Adapter + USB Cable + Battery + TF Card + Headset
Mode 9	The FDD LTE Band 5 RX Test Mode LTE Band 5 RX + EUT +Adapter + USB Cable + Battery + TF Card + Headset
Mode 10	The USB Test Mode EUT + USB Cable + Battery + Laptop + Headset + TF Card
Mode 11	The OTG Test Mode EUT + Battery + Data connector + USB Disk + Headset + TF Card

Test Case	Test Mode Configuration	Worst Mode
Radiated Emission	Mode 1~Mode 11	3, 10

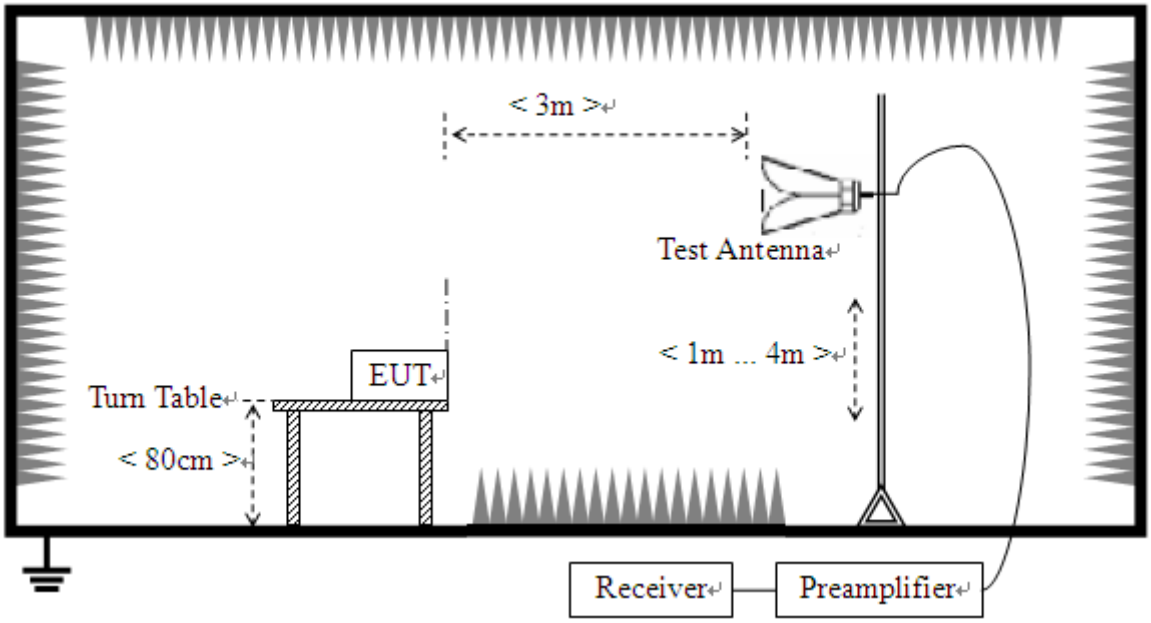
Test Case	Test Mode Configuration	Worst Mode
Conducted Emission, AC Ports	Mode 1~Mode 11	3, 10
Note: Based on client request, all normal using modes of the normal function were tested, but only data of the worst mode was reported in this report.		

4.3 Test Setups

Test Setup 1

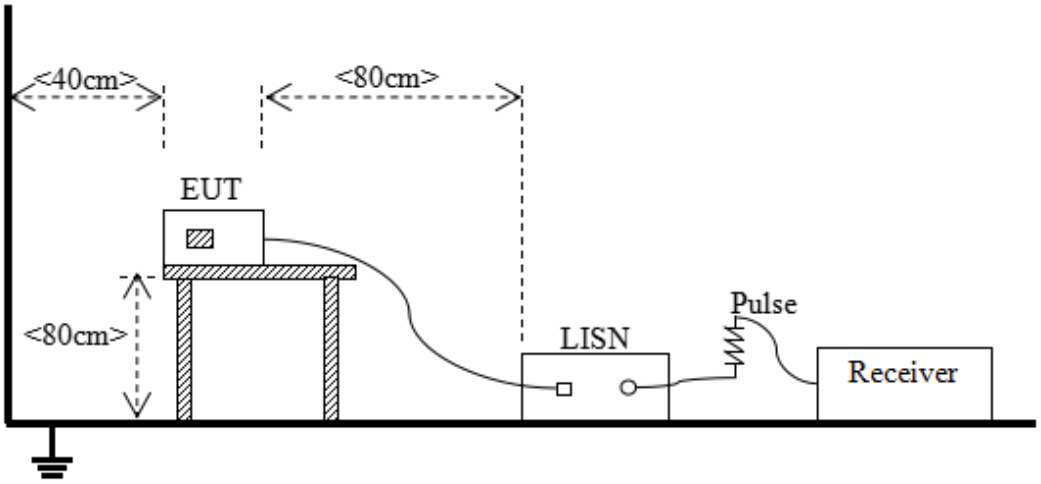


Radiated Emission (30 MHz-1 GHz)



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

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) The limits using ANSI C63.4.
4) For 30 MHz to 1000 MHz, the CISPR quasi-peak is employed.

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/m) + 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. Over limit = Results – Limit.

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. Over limit = Results – Limit.

ANNEX A TEST RESULTS

A.1 Radiated Emission

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

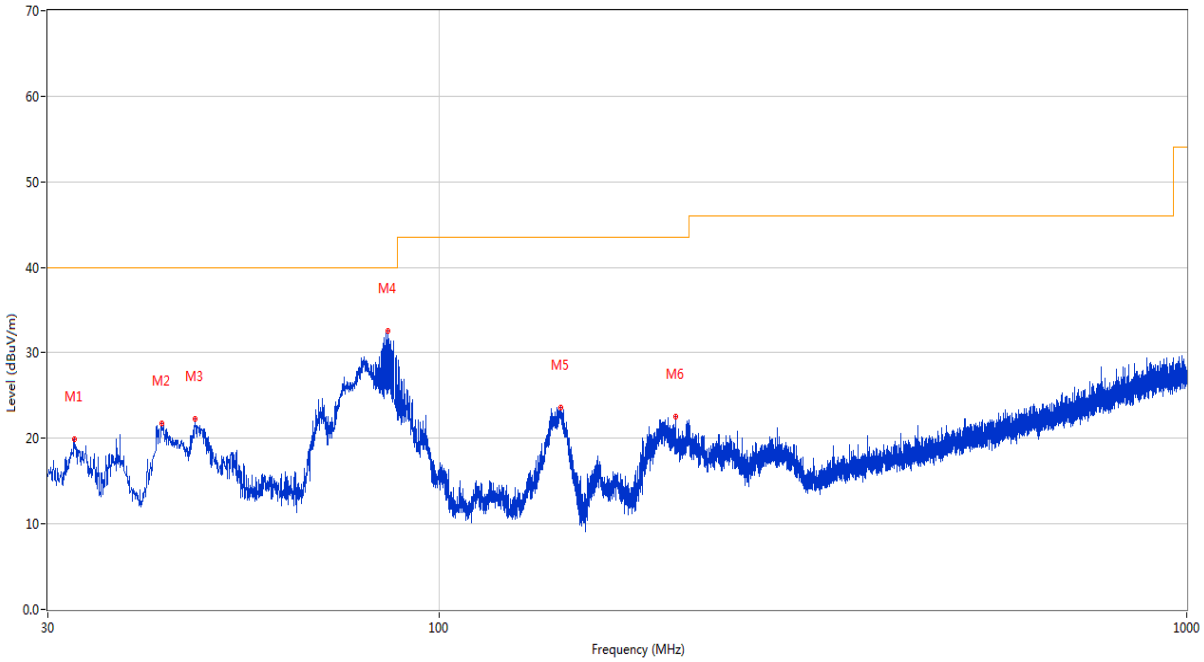
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: 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.	S12	Temperature	26.2℃
Humidity	57%RH	Pressure	101kPa
Test Engineer	Xiao Tangqi	Test Date	2023.10.30

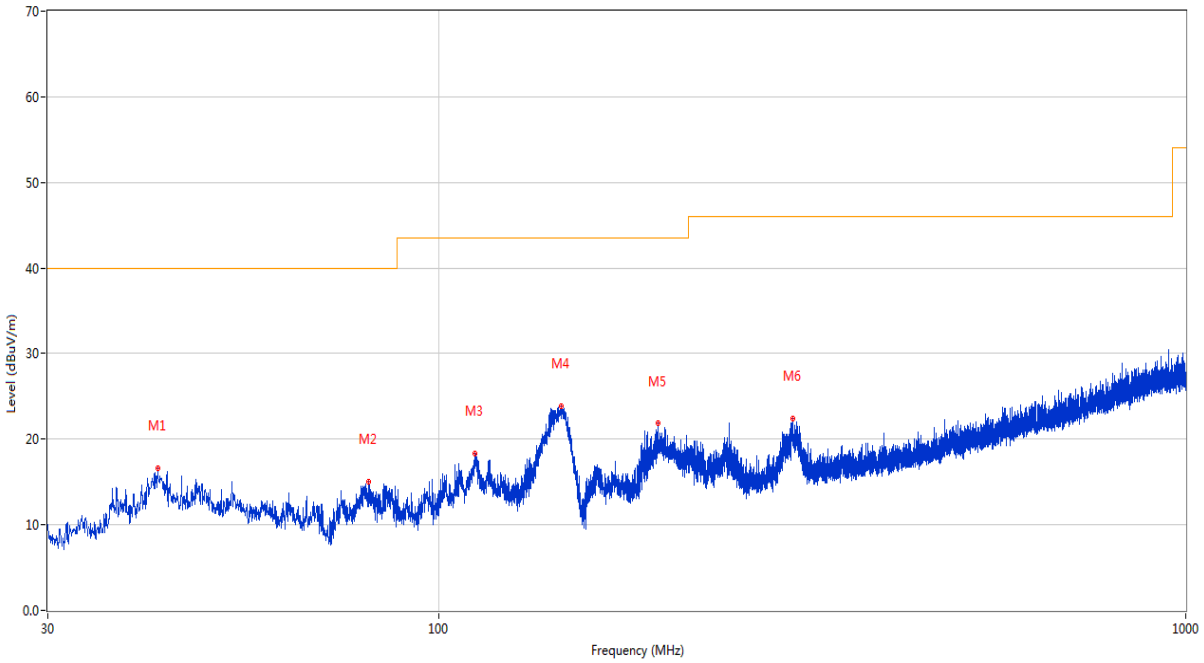
Test Mode 3

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	32.522	19.91	-26.55	40.0	20.09	Peak	295.30	100	Vertical	Pass
2	42.610	21.72	-23.41	40.0	18.28	Peak	106.40	100	Vertical	Pass
3	47.218	22.27	-22.83	40.0	17.73	Peak	90.60	100	Vertical	Pass
4	85.387	32.53	-27.40	40.0	7.47	Peak	165.90	100	Vertical	Pass
5	145.672	23.61	-27.59	43.5	19.89	Peak	48.80	100	Vertical	Pass
6	207.122	22.61	-23.94	43.5	20.89	Peak	202.40	100	Vertical	Pass

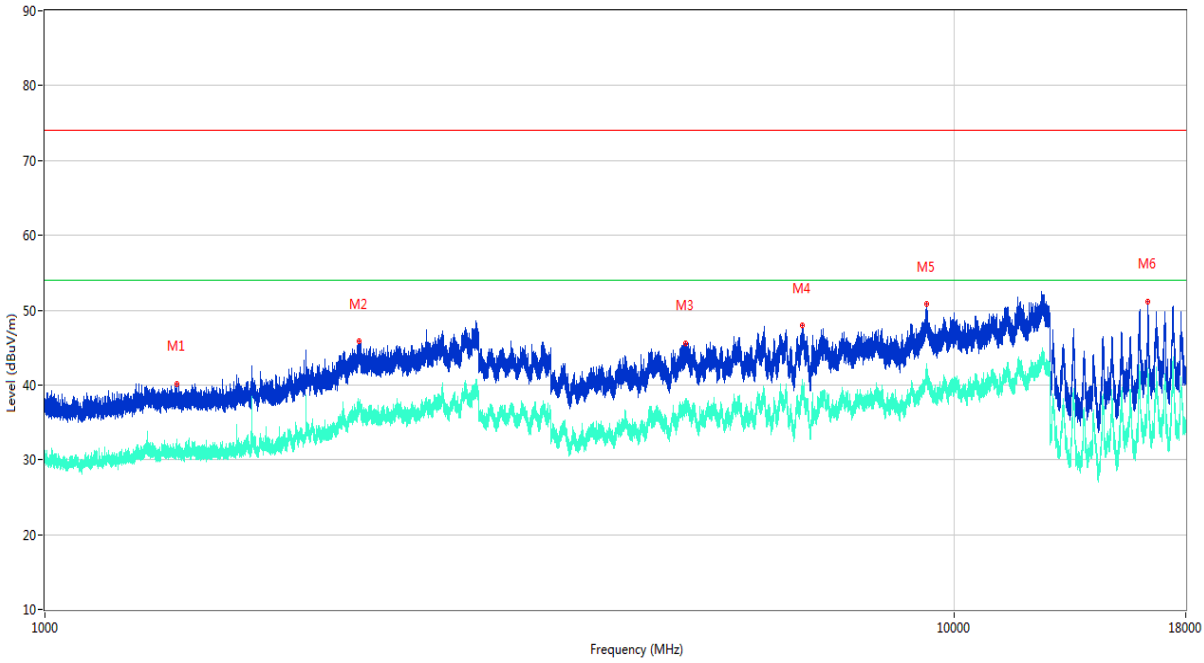
2) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	42.077	16.64	-23.45	40.0	23.36	Peak	158.00	200	Horizontal	Pass
2	80.731	15.08	-28.48	40.0	24.92	Peak	122.20	200	Horizontal	Pass
3	111.723	18.38	-24.47	43.5	25.12	Peak	1.50	200	Horizontal	Pass
4	145.915	23.83	-27.60	43.5	19.67	Peak	0.80	200	Horizontal	Pass
5	196.549	21.83	-24.27	43.5	21.67	Peak	298.20	200	Horizontal	Pass
6	297.623	22.46	-21.40	46.0	23.54	Peak	155.70	100	Horizontal	Pass

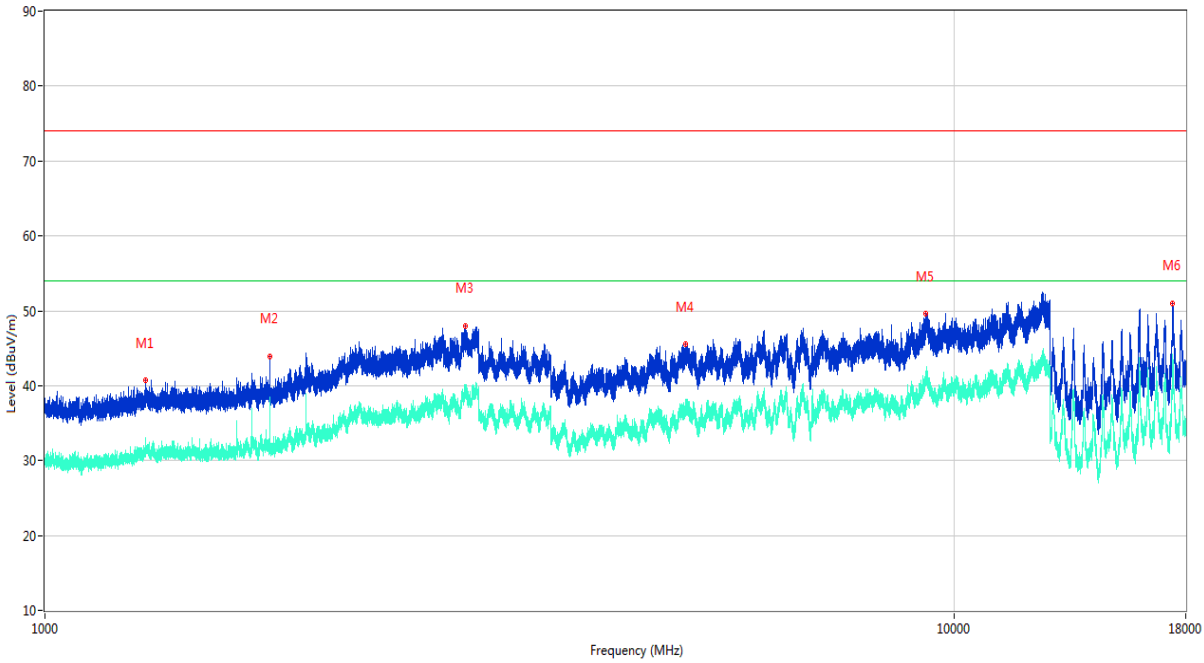
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY53220118	2023.09.05	2024.09.04	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119082	2022.12.07	2023.12.06	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2021.08.20	2024.08.19	☒
Anechoic Chamber	ChangNing	9m*6m*6m	101	2023.03.04	2026.03.03	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

3) Test Antenna Vertical, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1395.700	40.20	-15.01	74.0	33.80	Peak	0.00	100	Vertical	Pass
1**	1395.700	30.51	-15.01	54.0	23.49	AV	0.00	100	Vertical	Pass
2	2215.200	45.87	-8.83	74.0	28.13	Peak	304.20	100	Vertical	Pass
2**	2215.200	37.00	-8.83	54.0	17.00	AV	304.20	100	Vertical	Pass
3	5072.000	45.63	-3.37	74.0	28.37	Peak	36.10	100	Vertical	Pass
3**	5072.000	36.50	-3.37	54.0	17.50	AV	36.10	100	Vertical	Pass
4	6807.600	47.95	-2.33	74.0	26.05	Peak	180.40	100	Vertical	Pass
4**	6807.600	38.97	-2.33	54.0	15.03	AV	180.40	100	Vertical	Pass
5	9339.963	50.80	20.39	74.0	23.20	Peak	330.40	100	Vertical	Pass
5**	9339.963	40.73	20.39	54.0	13.27	AV	330.40	100	Vertical	Pass
6	16358.850	51.19	24.86	74.0	22.81	Peak	47.20	100	Vertical	Pass
6**	16358.850	41.41	24.86	54.0	12.59	AV	47.20	100	Vertical	Pass

4) Test Antenna Horizontal, 1 GHz – 18 GHz



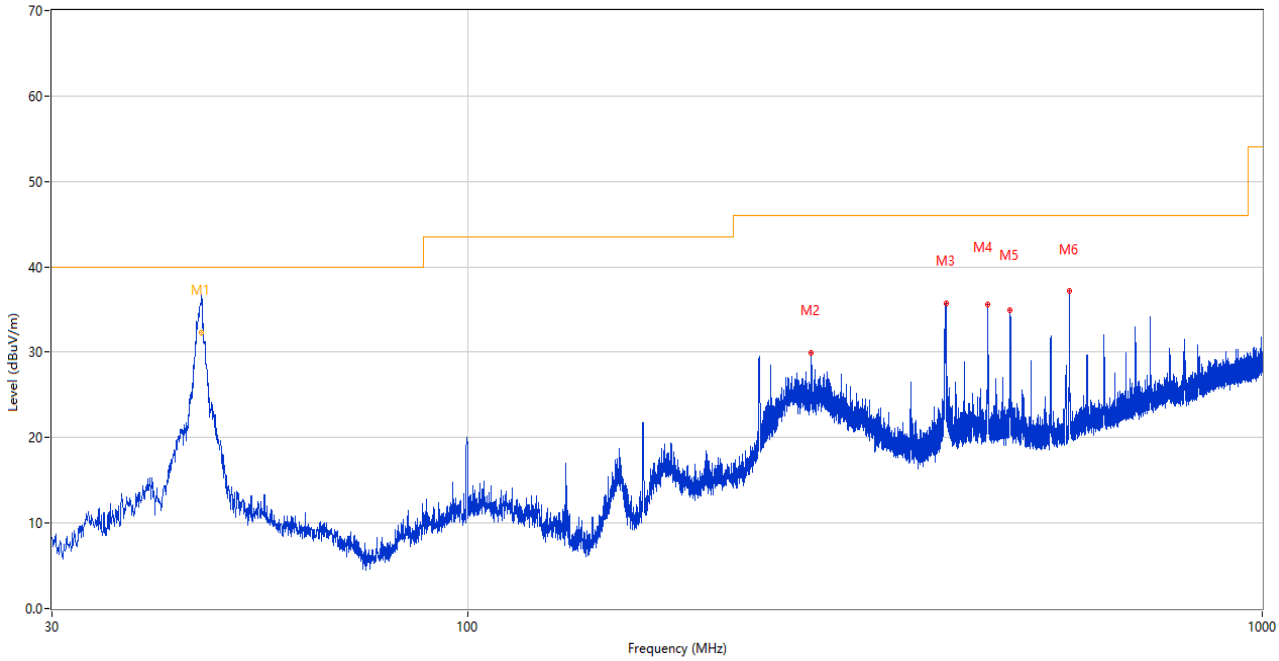
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1291.200	40.75	-14.97	74.0	33.25	Peak	285.80	100	Horizontal	Pass
1**	1291.200	31.81	-14.97	54.0	22.19	AV	285.80	100	Horizontal	Pass
2	1767.100	43.96	-14.42	74.0	30.04	Peak	321.80	100	Horizontal	Pass
2**	1767.100	31.33	-14.42	54.0	22.67	AV	321.80	100	Horizontal	Pass
3	2898.900	48.02	-5.85	74.0	25.98	Peak	216.90	100	Horizontal	Pass
3**	2898.900	39.16	-5.85	54.0	14.84	AV	216.90	100	Horizontal	Pass
4	5070.200	45.57	-3.08	74.0	28.43	Peak	111.10	100	Horizontal	Pass
4**	5070.200	37.39	-3.08	54.0	16.61	AV	111.10	100	Horizontal	Pass
5	9316.963	49.66	20.27	74.0	24.34	Peak	0.00	100	Horizontal	Pass
5**	9316.963	40.94	20.27	54.0	13.06	AV	0.00	100	Horizontal	Pass
6	17413.050	51.04	25.39	74.0	22.96	Peak	248.70	100	Horizontal	Pass
6**	17413.050	43.24	25.39	54.0	10.76	AV	248.70	100	Horizontal	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Above 1 GHz						
EMI Receiver	Keysight	N9038A	MY53220118	2023.09.05	2024.09.04	☒
Spectrum Analyzer	ROHDE & SCHWARZ	FSV40	101544	2022.12.28	2023.12.27	☒
Amplifier (1-12GHz)	COM-MV	DLNAB-1000-12000-002	18080279	2022.12.07	2023.12.06	☒
Amplifier（0.8-21GHz）	Mini-Circuits	ZVA-213-S+	619201336	2022.12.07	2023.12.06	☒
Amplifier (18-40GHz)	COM-MV	KA_LNA18-40G-01	18050001	2022.12.07	2023.12.06	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	1148	2022.04.12	2025.04.11	☒
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2021.07.02	2024.07.01	☒
Anechoic Chamber	ChangNing	9m*6m*6m	101	2023.03.04	2026.03.03	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

Sample No.	S19	Temperature	24.7℃
Humidity	49%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2023.10.27

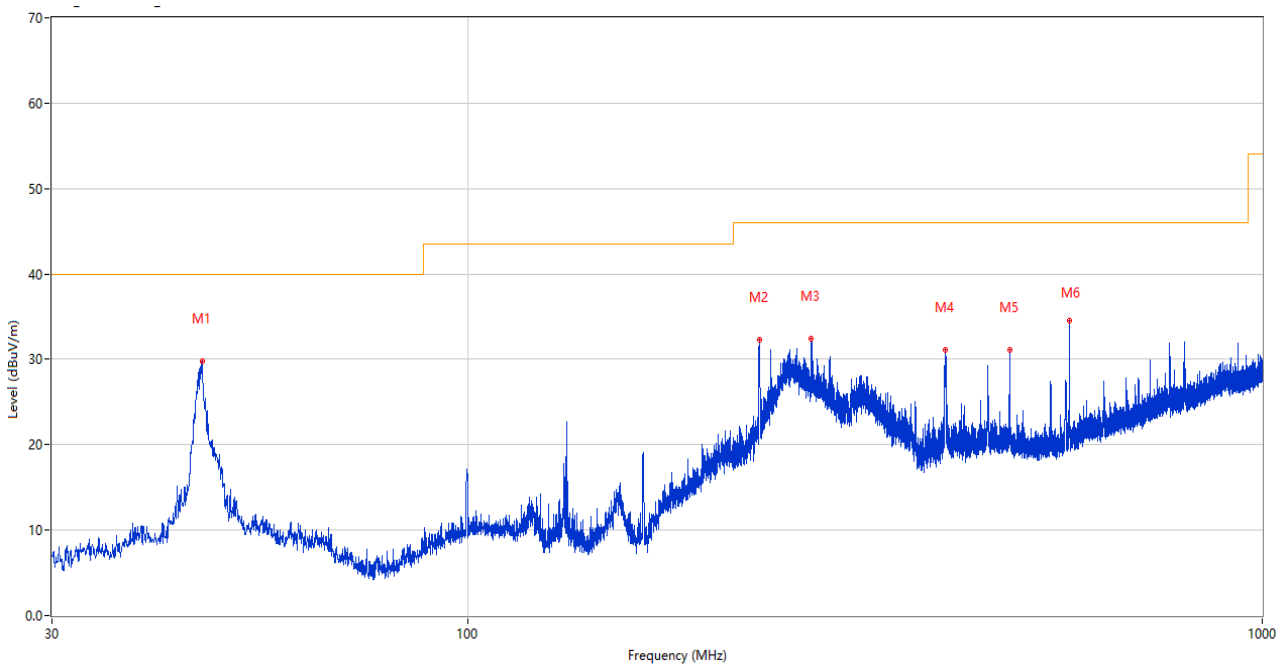
Test Mode 10

5) 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	46.274	36.96	-25.56	40.0	3.04	Peak	263.00	121	Vertical	N/A
1*	46.274*	32.26	-25.56	40.0	7.74	QP	263.00	121	Vertical	Pass
2	270.657	29.98	-24.39	46.0	16.02	Peak	327.00	200	Vertical	Pass
3	399.958	35.71	-20.95	46.0	10.29	Peak	173.00	200	Vertical	Pass
4	451.465	35.60	-19.86	46.0	10.40	Peak	165.00	100	Vertical	Pass
5	481.583	34.97	-19.03	46.0	11.03	Peak	154.00	100	Vertical	Pass
6	572.084	37.11	-16.98	46.0	8.89	Peak	150.00	100	Vertical	Pass

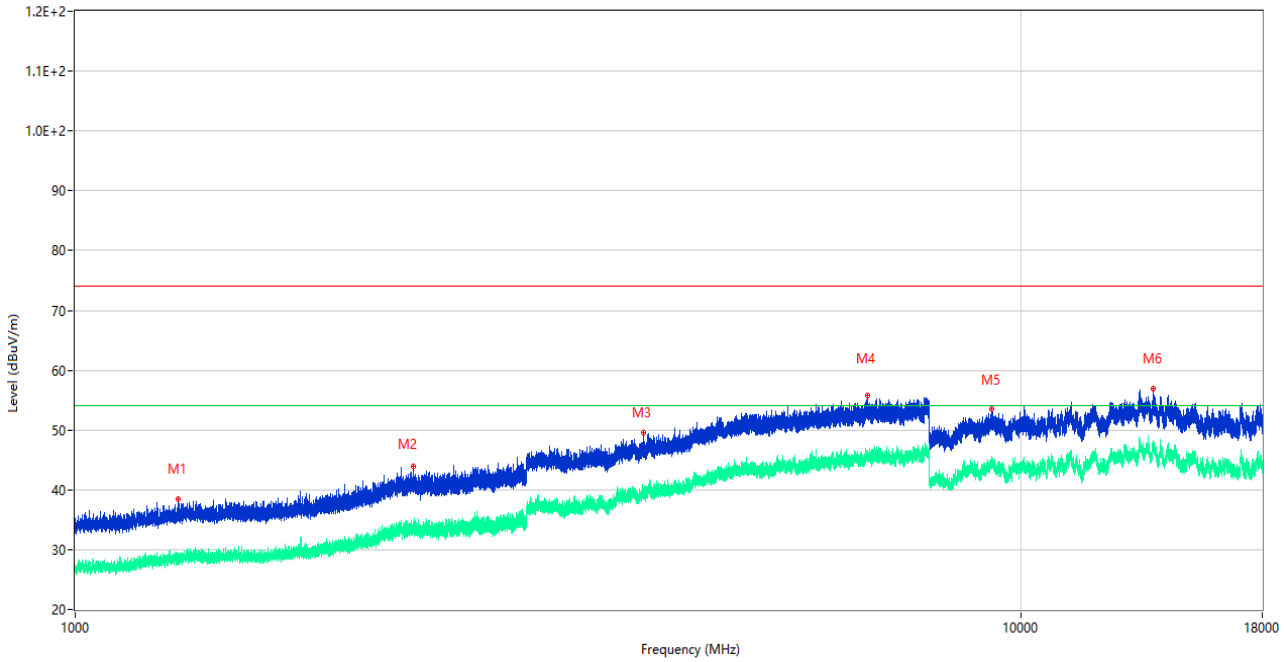
6) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	46.344	29.75	-25.56	40.0	10.25	Peak	184.00	200	Horizontal	Pass
2	233.264	32.31	-25.44	46.0	13.69	Peak	230.00	100	Horizontal	Pass
3	270.948	32.44	-24.40	46.0	13.56	Peak	244.00	100	Horizontal	Pass
4	399.425	31.14	-20.96	46.0	14.86	Peak	244.00	100	Horizontal	Pass
5	481.632	31.15	-19.04	46.0	14.85	Peak	243.00	200	Horizontal	Pass
6	571.794	34.54	-16.99	46.0	11.46	Peak	202.00	200	Horizontal	Pass

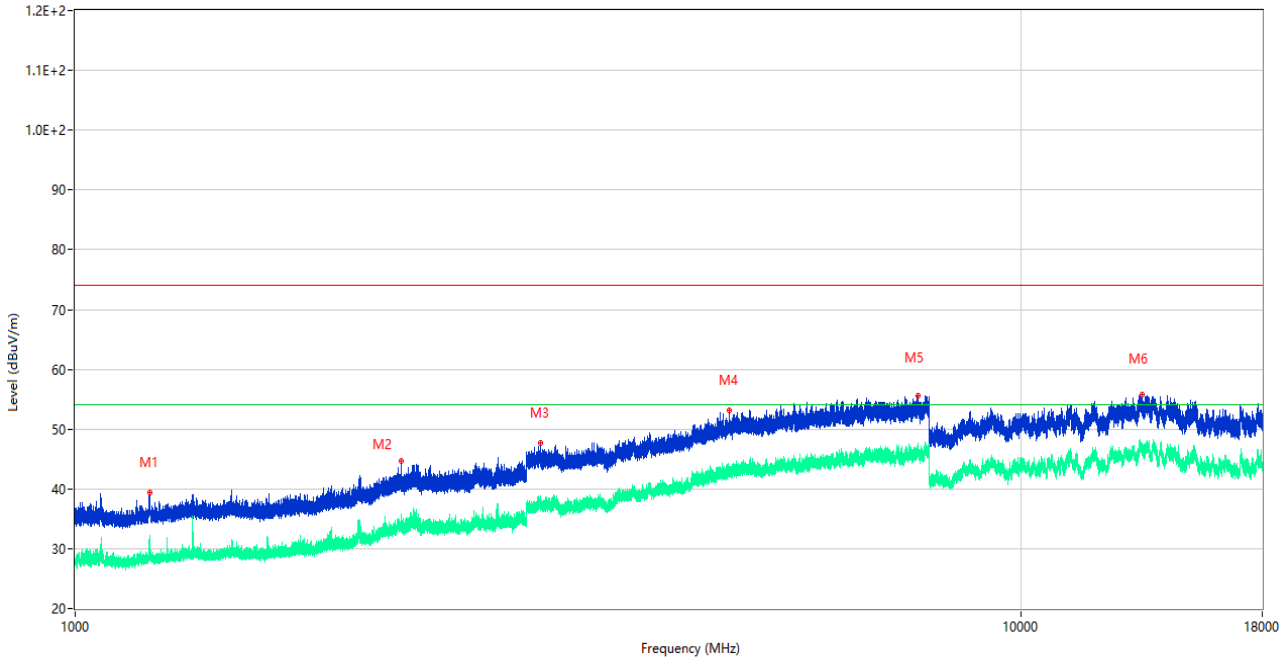
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2023.09.05	2024.09.04	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2022.12.07	2023.12.06	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	☒
Anechoic Chamber	ChangNing	9m*6m*6m	142	2021.08.19	2024.08.18	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

7) Test Antenna Vertical, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1284.700	38.49	-16.84	74.0	35.51	Peak	268.00	100	Vertical	Pass
1**	1284.700	28.63	-16.84	54.0	25.37	AV	268.00	100	Vertical	Pass
2	2278.900	43.82	-11.66	74.0	30.18	Peak	24.00	100	Vertical	Pass
2**	2278.900	33.97	-11.66	54.0	20.03	AV	24.00	100	Vertical	Pass
3	3987.000	49.51	-3.15	74.0	24.49	Peak	11.00	100	Vertical	Pass
3**	3987.000	38.77	-3.15	54.0	15.23	AV	11.00	100	Vertical	Pass
4	6889.000	55.81	1.58	74.0	18.19	Peak	177.00	100	Vertical	Pass
4**	6889.000	45.86	1.58	54.0	8.14	AV	177.00	100	Vertical	Pass
5	9313.500	53.45	2.19	74.0	20.55	Peak	282.00	100	Vertical	Pass
5**	9313.500	44.26	2.19	54.0	9.74	AV	282.00	100	Vertical	Pass
6	13800.500	56.95	5.81	74.0	17.05	Peak	173.00	100	Vertical	Pass
6**	13800.500	47.22	5.81	54.0	6.78	AV	173.00	100	Vertical	Pass

8) Test Antenna Horizontal, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1199.700	39.46	-17.30	74.0	34.54	Peak	268.00	100	Horizontal	Pass
1**	1199.700	30.90	-17.30	54.0	23.10	AV	268.00	100	Horizontal	Pass
2	2209.800	44.60	-12.13	74.0	29.40	Peak	147.00	100	Horizontal	Pass
2**	2209.800	33.68	-12.13	54.0	20.32	AV	147.00	100	Horizontal	Pass
3	3102.500	47.74	-6.24	74.0	26.26	Peak	136.00	100	Horizontal	Pass
3**	3102.500	38.08	-6.24	54.0	15.92	AV	136.00	100	Horizontal	Pass
4	4917.000	53.22	0.86	74.0	20.78	Peak	238.00	100	Horizontal	Pass
4**	4917.000	42.73	0.86	54.0	11.27	AV	238.00	100	Horizontal	Pass
5	7780.500	55.64	3.20	74.0	18.36	Peak	293.00	100	Horizontal	Pass
5**	7780.500	46.42	3.20	54.0	7.58	AV	293.00	100	Horizontal	Pass
6	13419.500	55.71	4.66	74.0	18.29	Peak	199.00	100	Horizontal	Pass
6**	13419.500	46.46	4.66	54.0	7.54	AV	199.00	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	2023.09.05	2024.09.04	☒
Spectrum Analyzer	ROHDE & SCHWARZ	FSV40	101544	2022.12.28	2023.12.27	☒
Amplifier (1-12GHz)	COM-MV	DLNAB-1000-12000-002	1740103	2022.12.07	2023.12.06	☒
Amplifier（0.8-21GHz）	Mini-Circuits	ZVA-213-S+	225321316	2022.12.07	2023.12.06	☒
Amplifier (18-40GHz)	COM-MV	KA_LNA18-40G-01	18050001	2022.12.07	2023.12.06	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	01917	2022.06.09	2025.06.08	☒
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2021.07.02	2024.07.01	☒
Anechoic Chamber	ChangNing	9m*6m*6m	142	2021.08.19	2024.08.18	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

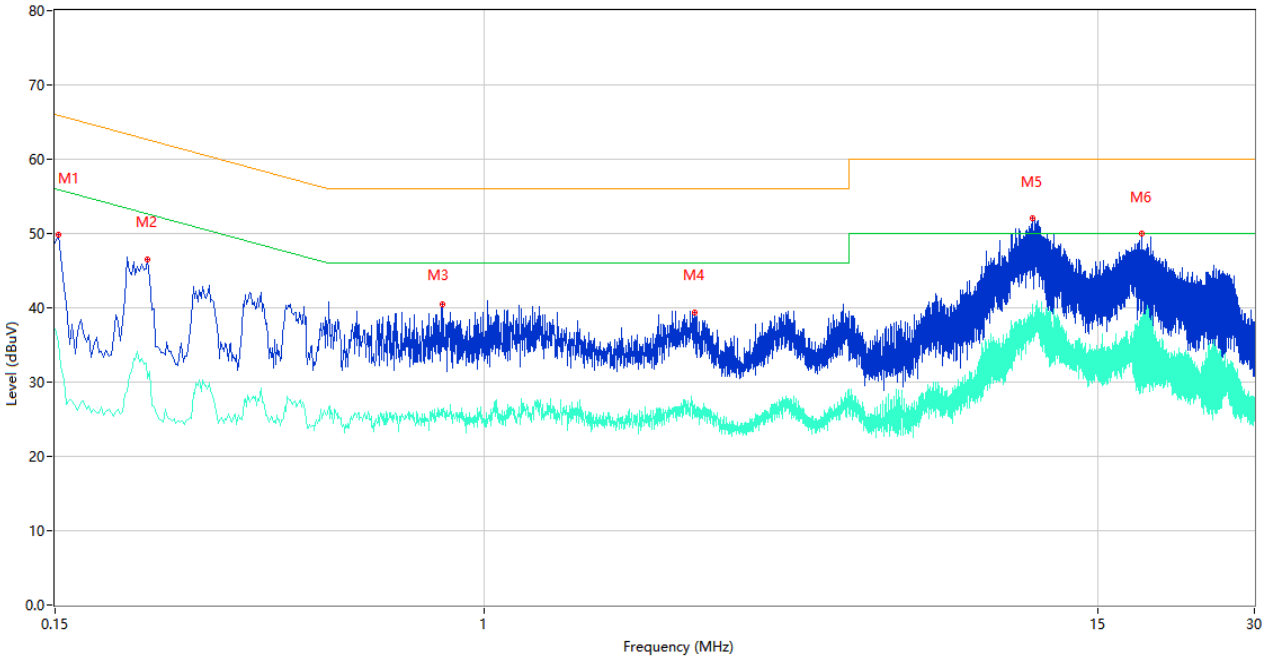
A.2 Conducted Emission, AC Ports

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.	S12	Temperature	23.6℃
Humidity	58%RH	Pressure	101kPa
Test Engineer	Yang Yang	Test Date	2023.10.31

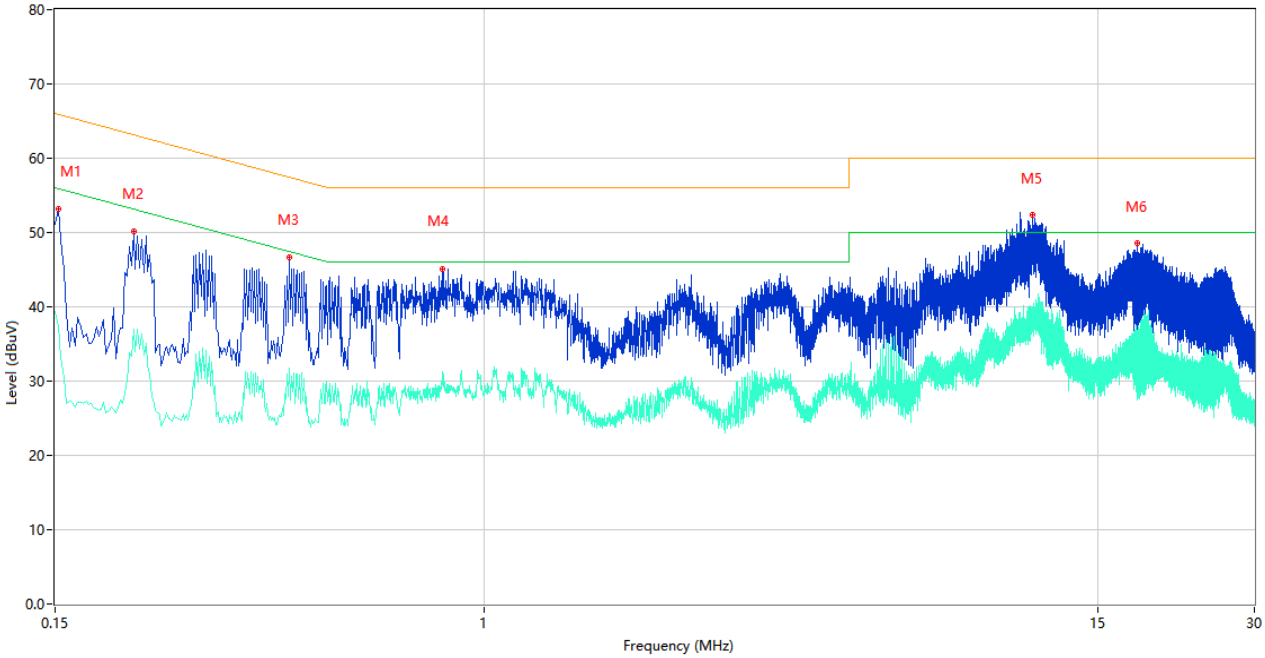
Test Mode 3

1) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	49.80	9.78	65.89	16.09	Peak	L	Pass
1**	0.152	35.37	9.78	55.89	20.52	AV	L	Pass
2	0.226	46.55	9.77	62.60	16.05	Peak	L	Pass
2**	0.226	30.46	9.77	52.60	22.14	AV	L	Pass
3	0.830	40.42	10.58	56.00	15.58	Peak	L	Pass
3**	0.830	26.40	10.58	46.00	19.60	AV	L	Pass
4	2.526	39.39	10.13	56.00	16.61	Peak	L	Pass
4**	2.526	26.72	10.13	46.00	19.28	AV	L	Pass
5	11.236	52.00	10.71	60.00	8.00	Peak	L	Pass
5**	11.236	40.44	10.71	50.00	9.56	AV	L	Pass
6	18.236	50.00	11.13	60.00	10.00	Peak	L	Pass
6**	18.236	38.55	11.13	50.00	11.45	AV	L	Pass

2) AC Ports - N Phase



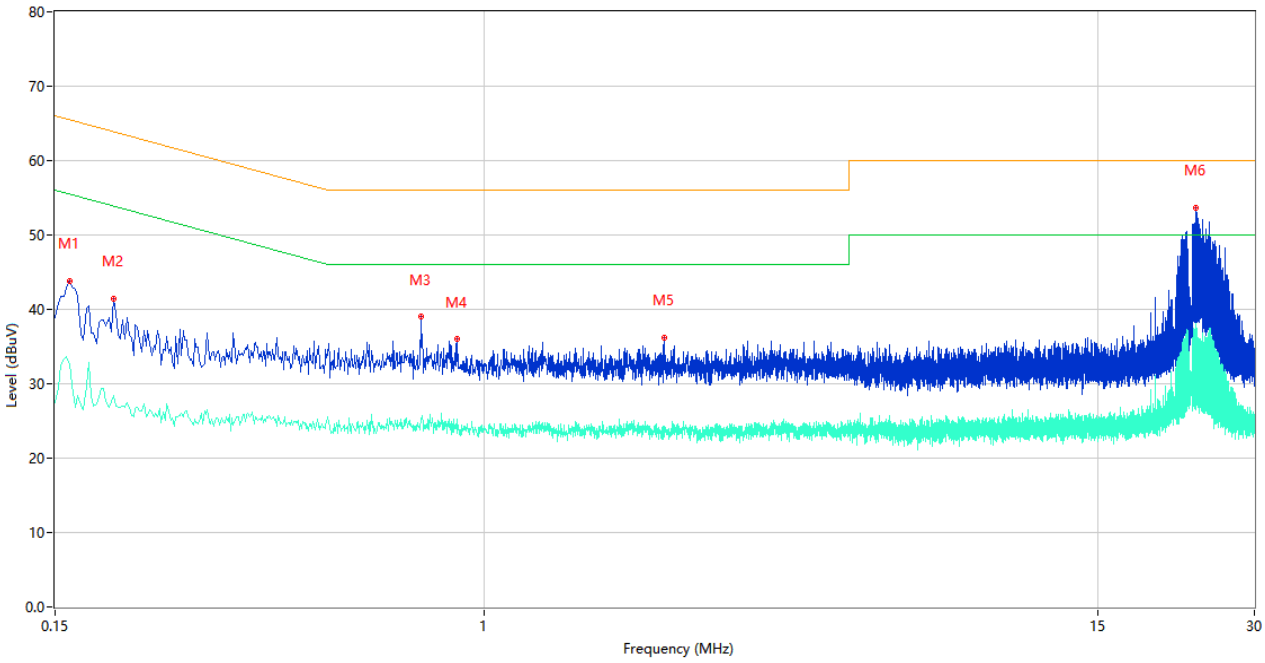
No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	53.10	9.78	65.89	12.79	Peak	N	Pass
1**	0.152	37.46	9.78	55.89	18.43	AV	N	Pass
2	0.212	50.22	9.77	63.13	12.91	Peak	N	Pass
2**	0.212	37.05	9.77	53.13	16.08	AV	N	Pass
3	0.422	46.60	10.32	57.41	10.81	Peak	N	Pass
3**	0.422	31.80	10.32	47.41	15.61	AV	N	Pass
4	0.830	45.04	10.58	56.00	10.96	Peak	N	Pass
4**	0.830	31.28	10.58	46.00	14.72	AV	N	Pass
5	11.236	52.34	10.71	60.00	7.66	Peak	N	Pass
5**	11.236	39.61	10.71	50.00	10.39	AV	N	Pass
6	17.888	48.53	10.75	60.00	11.47	Peak	N	Pass
6**	17.888	36.86	10.75	50.00	13.14	AV	N	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2023.09.05	2024.09.04	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2023.05.16	2024.05.15	☒
ISN	TESEQ	ISN T800	34449	2022.11.11	2023.11.10	☐
ISN	TESEQ	ISN T8-Cat6	53561	2023.04.23	2024.04.22	☐
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	/		☒

Sample No.	S19	Temperature	22.3℃
Humidity	62%RH	Pressure	101kPa
Test Engineer	Yang Yang	Test Date	2023.10.23

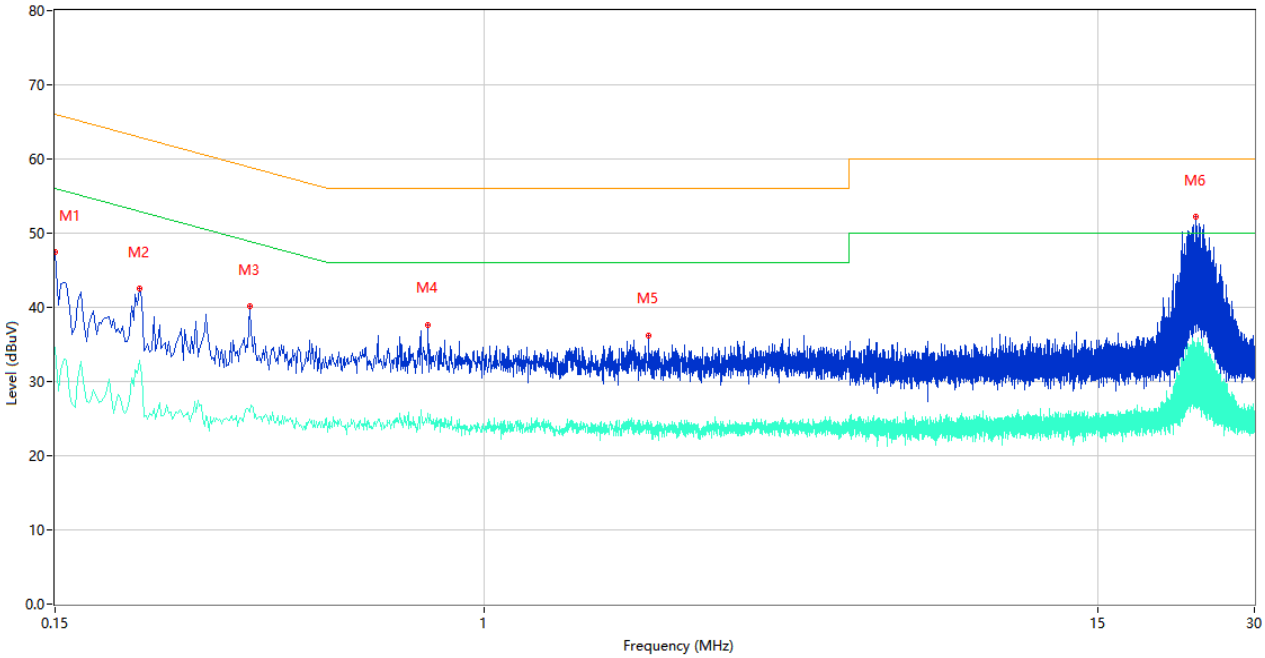
Test Mode 10

3) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.160	43.80	9.78	65.46	21.66	Peak	L	Pass
1**	0.160	32.63	9.78	55.46	22.83	AV	L	Pass
2	0.194	41.48	9.77	63.86	22.38	Peak	L	Pass
2**	0.194	28.34	9.77	53.86	25.52	AV	L	Pass
3	0.754	39.00	10.21	56.00	17.00	Peak	L	Pass
3**	0.754	25.20	10.21	46.00	20.80	AV	L	Pass
4	0.884	36.00	10.31	56.00	20.00	Peak	L	Pass
4**	0.884	25.26	10.31	46.00	20.74	AV	L	Pass
5	2.216	36.24	10.04	56.00	19.76	Peak	L	Pass
5**	2.216	24.19	10.04	46.00	21.81	AV	L	Pass
6	23.174	53.67	10.82	60.00	6.33	Peak	L	Pass
6**	23.174	36.39	10.82	50.00	13.61	AV	L	Pass

4) AC Ports - N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	47.43	9.78	66.00	18.57	Peak	N	Pass
1**	0.150	34.62	9.78	56.00	21.38	AV	N	Pass
2	0.218	42.52	9.77	62.89	20.37	Peak	N	Pass
2**	0.218	32.87	9.77	52.89	20.02	AV	N	Pass
3	0.354	40.12	10.74	58.87	18.75	Peak	N	Pass
3**	0.354	25.83	10.74	48.87	23.04	AV	N	Pass
4	0.780	37.65	10.39	56.00	18.35	Peak	N	Pass
4**	0.780	25.71	10.39	46.00	20.29	AV	N	Pass
5	2.068	36.22	10.26	56.00	19.78	Peak	N	Pass
5**	2.068	24.21	10.26	46.00	21.79	AV	N	Pass
6	23.158	52.20	10.75	60.00	7.80	Peak	N	Pass
6**	23.158	33.73	10.75	50.00	16.27	AV	N	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2023.09.05	2024.09.04	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2023.05.16	2024.05.15	☒
ISN	TESEQ	ISN T800	34449	2022.11.11	2023.11.10	☐
ISN	TESEQ	ISN T8-Cat6	53561	2023.04.23	2024.04.22	☐
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-SZ23A0975-AE.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ23A0975-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ23A0975-AI.PDF”.

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--END OF REPORT--