

TEST REPORT

Applicant: Shanghai Xiangcheng Communication Technology Co., Ltd
Address: 6th Floor, Building 10, No.3000, Longdong Avenue, Pudong New District, Shanghai
Equipment Type: 17 Smart PINPAD
Model Name: P17
Brand Name: KOBILE, KOZEN
FCC ID: 2A2UU-P17
Test Standard: 47 CFR Part 15 Subpart B
ANSI C63.4-2014
Sample Arrival Date: Dec. 04, 2023
Test Date: Mar. 05, 2024 - Jul. 02, 2024
Date of Issue: Jul. 17, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

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

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Jul. 17, 2024</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.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shanghai Xiangcheng Communication Technology Co., Ltd
Address	6th Floor, Building 10, No.3000, Longdong Avenue, Pudong New District, Shanghai

2.2 Manufacturer Information

Manufacturer	Shanghai Xiangcheng Communication Technology Co., Ltd
Address	6th Floor, Building 10, No.3000, Longdong Avenue, Pudong New District, Shanghai

2.3 General Description for Equipment under Test (EUT)

EUT Name	17 Smart PINPAD
Model Name Under Test	P17
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	P1781_MAIN_PCB_V1.0E
Software Version	P1782_Kozen_
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

Note 1: Tested all mode on model P17(FPC) and only the worst configuration of Radiated Emission was tested on the other models.

Note 2:

The product keypad designed with two different Hardware. Please find bellow detail:

1. Relative to the front shell, the buttons of keypad support two different assembly methods (outer or inner), and the size of the buttons are different.
2. Keypad designed supporting mesh FPC or not.
3. One design includes two additional dome anti-tamper points between the mainboard and the front case, the other does not. And the keypad PCB Layout with minor different.
4. The DOME location varies slightly.
5. Button backlighting designed with front-facing illumination or side illumination.

Remarks:

Except for the above, there are no other difference between two types of products, including software, RF wireless performance metrics, the motherboard schematic layout construction, battery and all.

2.4 Ancillary Equipment

Ancillary Equipment 1	Li-Polymer Battery 1	
	Brand Name	N/A
	Model No.	P17
	Serial No.	N/A
	Capacitance	Rated: 800mAh/2.96Wh
	Rated Voltage	3.7 V
	Limited Voltage	4.2 V
	Manufacturer	Guangdong Fenghua New Energy Co., Ltd.
Ancillary Equipment 2	HUB	
	Model No.	N/A
	Length (Approx.)	1.5 m
Ancillary Equipment 3	USB Cable	
	Model No.	N/A
	Length (Approx.)	1.5 m

2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40) NFC
Classification of equipment	Class B
The highest internal frequency of EUT	2480 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#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
WIFI Router	TP-LINK	TL-WDR7500	N/A	N/A	N/A	☒
Earphone	OPPO	MH135	N/A	1.12m	N/A	☒
RJ45	UGREEN	NW101	N/A	1.5m	N/A	☒
Laptop	Lenovo	N/A	N/A	N/A	N/A	☒
Adapter	OPPO	AK931JH	N/A	N/A	N/A	☒
DB9	DUOPURUI	DPRDZX	N/A	1.5m	N/A	☒
DB9 to USB	Z-TEK	ZE533A	N/A	0.15m	N/A	☒

4.2 Test Configurations

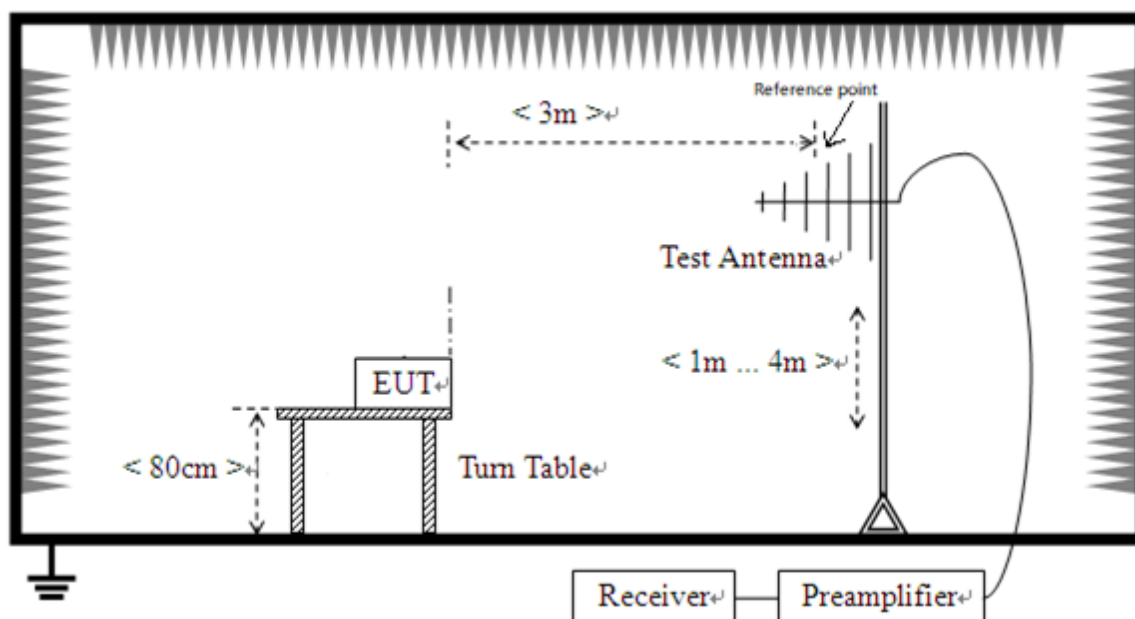
All test modes of EUT are listed in the table below.

Test Mode Configuration	Description
Mode 1	<u>The Standby Test Mode</u> EUT + Adapter + USB Cable + Earphone
Mode 2	<u>The Standby Test Mode (With HUB)</u> EUT + Adapter + USB Cable + HUB + Earphone + DB9 + RJ45 + DB9 to USB + Laptop + WIFI Router
Mode 3	<u>The Front Camera Test Mode (With HUB)</u> EUT + Adapter + USB Cable + HUB + Earphone + DB9 + RJ45 + DB9 to USB + Laptop + WIFI Router
Mode 4	<u>The Video Display Test Mode (With HUB)</u> EUT + Adapter + USB Cable + HUB + Earphone + DB9 + RJ45 + DB9 to USB + Laptop + WIFI Router
Mode 5	<u>The USB Test Mode</u> EUT + USB Cable + Earphone + Laptop

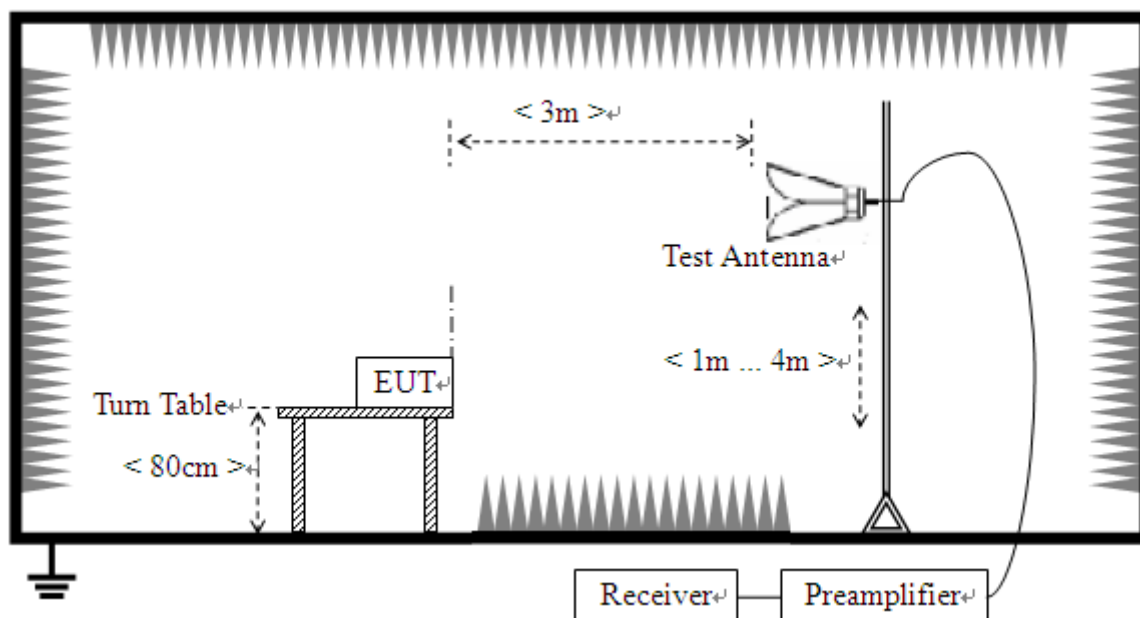
Test Case	Test Mode Configuration	Worst Mode
Radiated Emission	Mode 1~Mode 5	3, 5
Conducted Emission, AC Ports	Mode 1~Mode 5	4, 5
Note: All operation modes were tested, but only test data of the worst mode was presented in this report.		

4.3 Test Setups

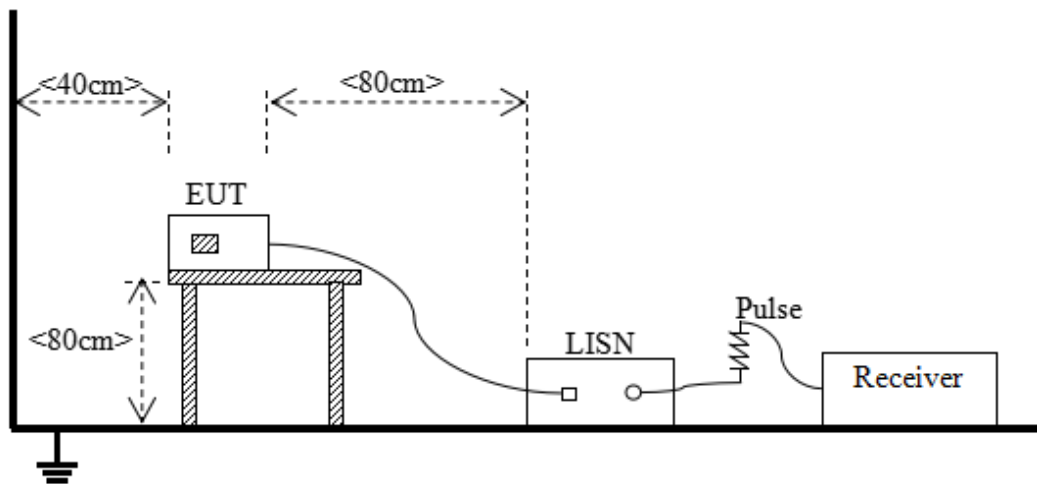
Test Setup 1



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

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 $\mu\text{V/m}$) = $20 \times \log [\text{Field Strength } (\mu\text{V/m})]$.
- 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:
 $L_{3m} = L_{10m} + 20 \times \log(d_{10m}/d_{3m})$
 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: $L_{3m} = 49.5 + 20 \times \log(10/3) = 60$ (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
$F_X \geq 1 \text{ GHz}$	$5 * F_X$ 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 $f \geq 1 \text{ GHz}$, 100 kHz for $f < 1 \text{ GHz}$

VBW $\geq$ RBW

Sweep = auto

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

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.

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 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 (dB μ V) = Reading (dB μ V) + 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

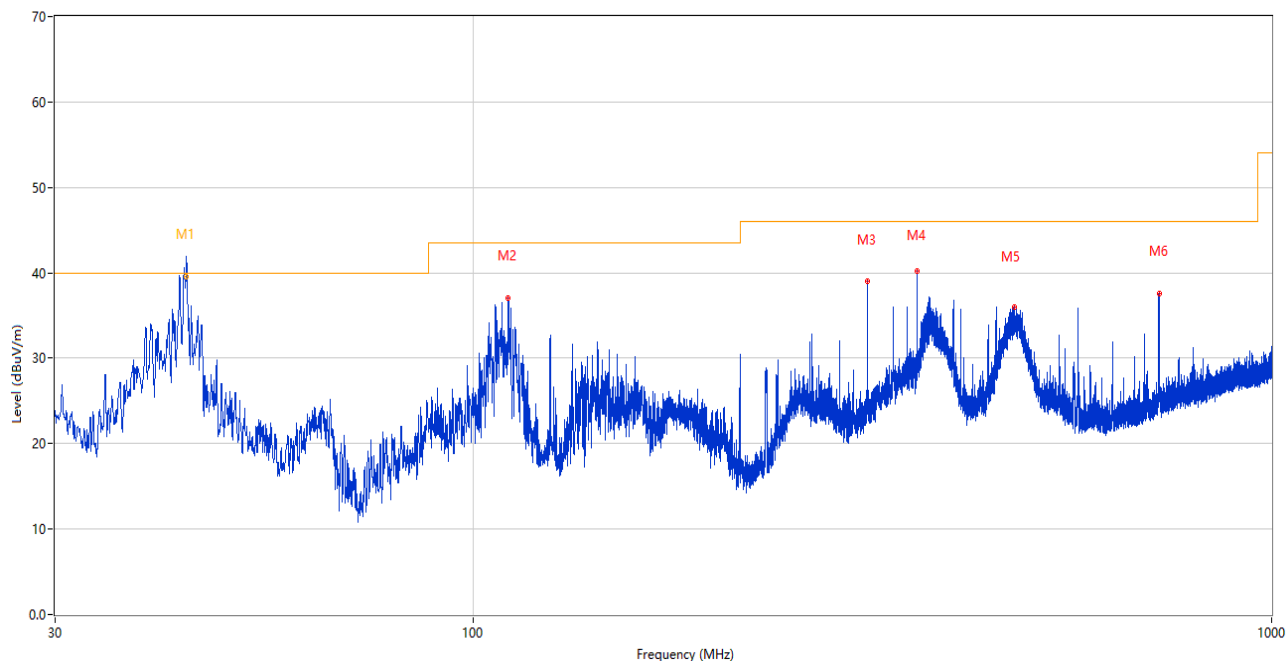
Note 1: The symbol of "--" in the table which means not application.

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.

Sample No.	S02	Temperature	21.7℃
Humidity	43%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2024.03.26

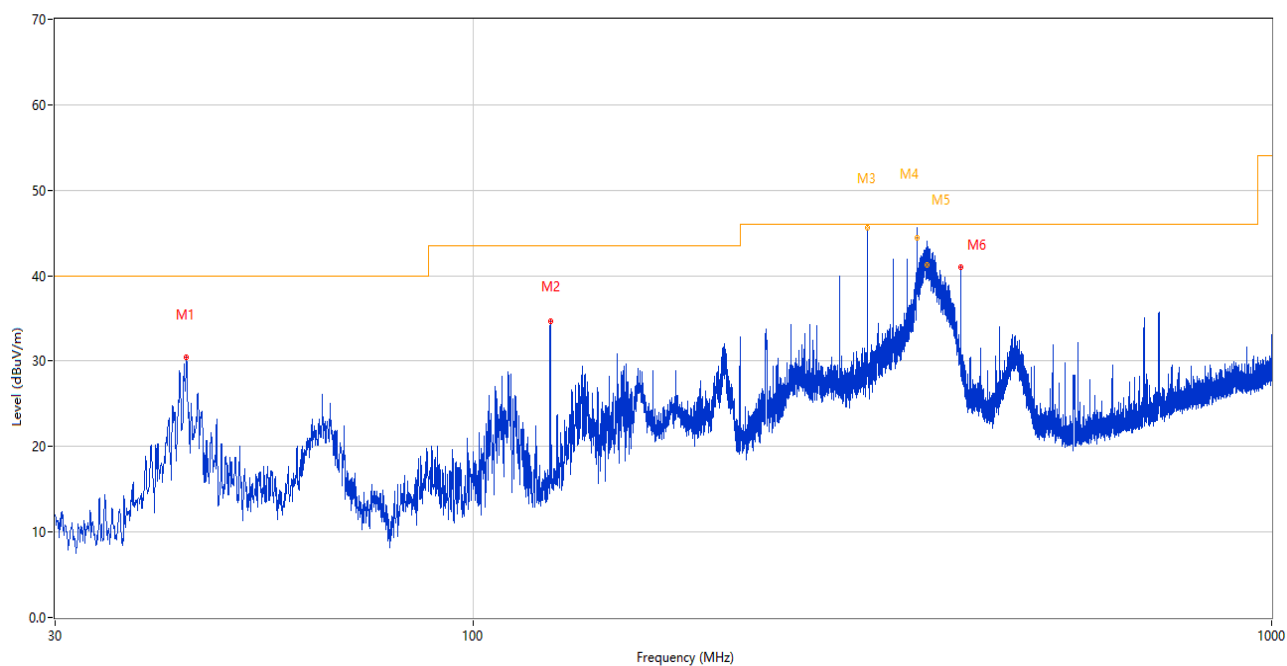
Test Mode 3

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	43.769	41.46	-25.74	40.0	-1.46	Peak	253.00	106	Vertical	N/A
1*	43.769	39.50	-25.74	40.0	0.50	QP	253.00	106	Vertical	Pass
2	110.801	37.09	-26.99	43.5	6.41	Peak	252.00	100	Vertical	Pass
3	312.027	38.96	-23.34	46.0	7.04	Peak	267.00	200	Vertical	Pass
4	359.994	40.16	-21.90	46.0	5.84	Peak	193.00	100	Vertical	Pass
5	476.054	36.03	-19.20	46.0	9.97	Peak	182.00	100	Vertical	Pass
6	722.628	37.52	-13.50	46.0	8.48	Peak	132.00	200	Vertical	Pass

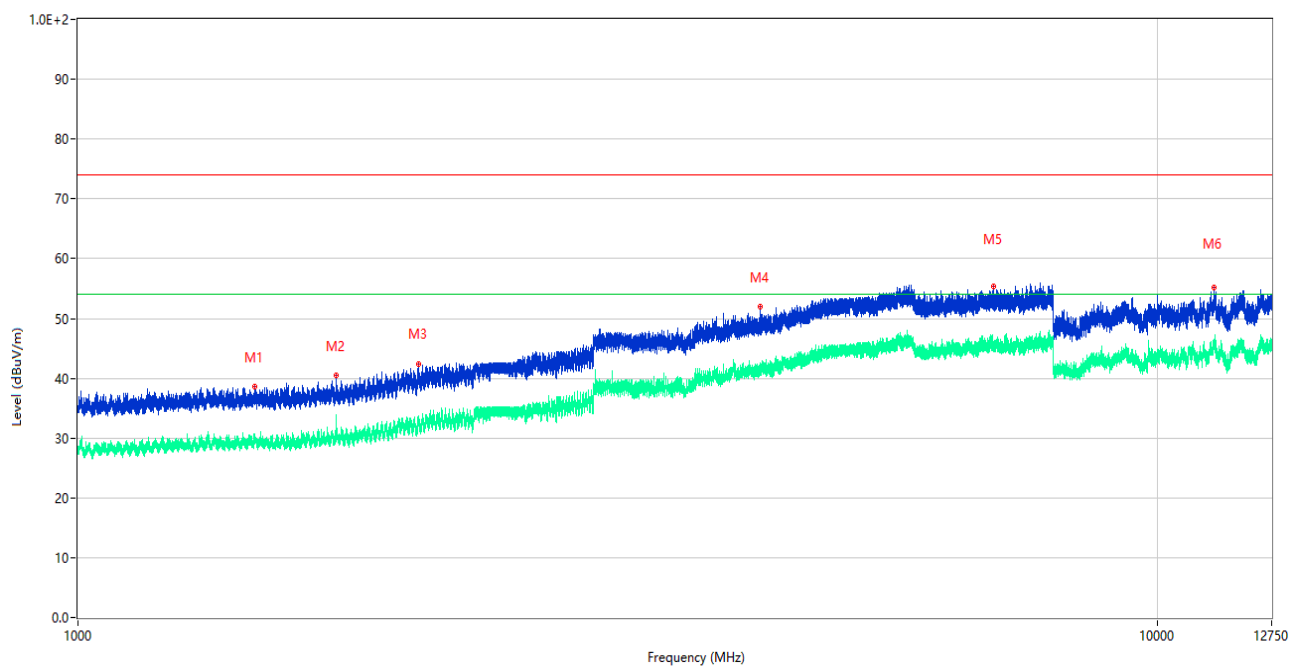
2) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	43.822	30.41	-25.74	40.0	9.59	Peak	175.00	100	Horizontal	Pass
2	125.011	34.62	-29.47	43.5	8.88	Peak	10.00	200	Horizontal	Pass
3	311.997	46.76	-23.34	46.0	-0.76	Peak	98.00	101	Horizontal	N/A
3*	311.997	45.55	-23.34	46.0	0.45	QP	98.00	101	Horizontal	Pass
4	359.997	46.60	-21.90	46.0	-0.60	Peak	299.00	100	Horizontal	N/A
4*	359.997	44.47	-21.90	46.0	1.53	QP	299.00	100	Horizontal	Pass
5	370.178	45.54	-21.88	46.0	0.46	Peak	152.00	116	Horizontal	N/A
5*	370.178	41.20	-21.88	46.0	4.80	QP	152.00	116	Horizontal	Pass
6	408.009	41.02	-20.70	46.0	4.98	Peak	157.00	100	Horizontal	Pass

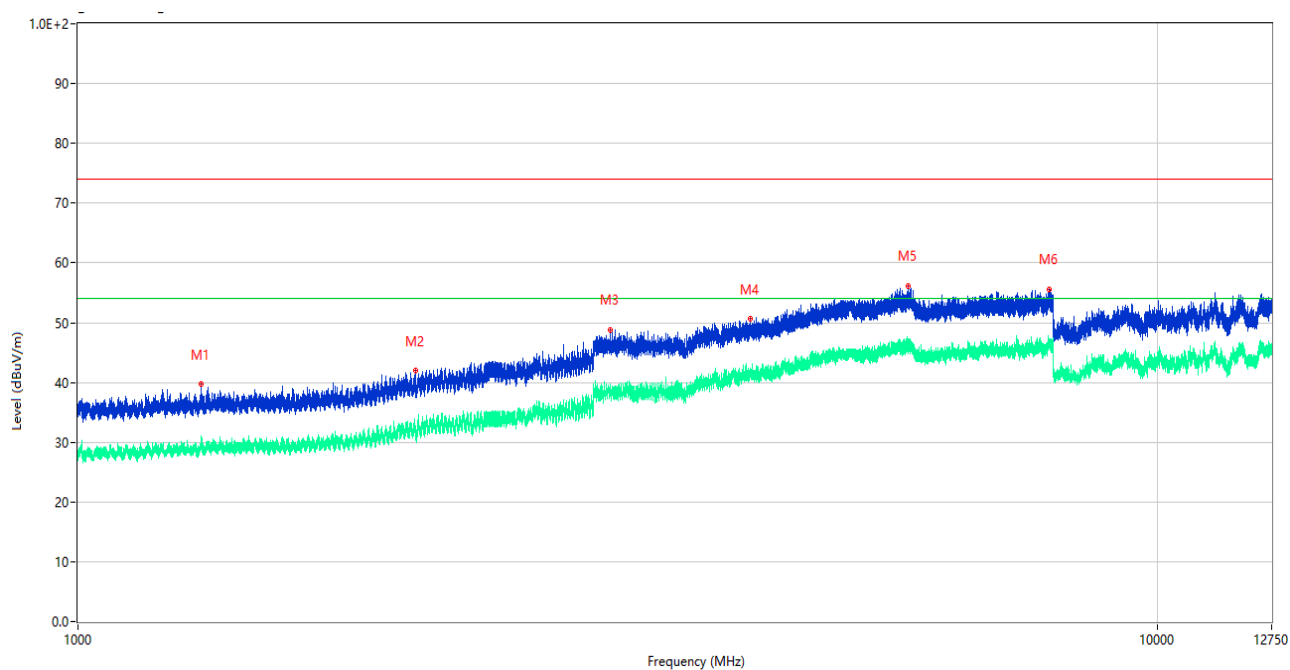
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2023.09.05	2024.09.04	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2023.12.05	2024.12.04	☒
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	☒
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

3) Test Antenna Vertical, 1 GHz – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1457.900	38.58	-15.83	74.0	35.42	Peak	260.00	100	Vertical	Pass
1**	1457.900	29.66	-15.83	54.0	24.34	AV	260.00	100	Vertical	Pass
2	1733.000	40.46	-15.85	74.0	33.54	Peak	212.00	100	Vertical	Pass
2**	1733.000	29.49	-15.85	54.0	24.51	AV	212.00	100	Vertical	Pass
3	2067.000	42.38	-12.90	74.0	31.62	Peak	83.00	100	Vertical	Pass
3**	2067.000	33.72	-12.90	54.0	20.28	AV	83.00	100	Vertical	Pass
4	4283.500	51.95	-0.90	74.0	22.05	Peak	119.00	100	Vertical	Pass
4**	4283.500	41.49	-0.90	54.0	12.51	AV	119.00	100	Vertical	Pass
5	7054.000	55.37	1.31	74.0	18.63	Peak	218.00	100	Vertical	Pass
5**	7054.000	44.51	1.31	54.0	9.49	AV	218.00	100	Vertical	Pass
6	11276.500	55.12	2.11	74.0	18.88	Peak	144.00	100	Vertical	Pass
6**	11276.500	46.33	2.11	54.0	7.67	AV	144.00	100	Vertical	Pass

4) Test Antenna Horizontal, 1 GHz – 12.75 GHz



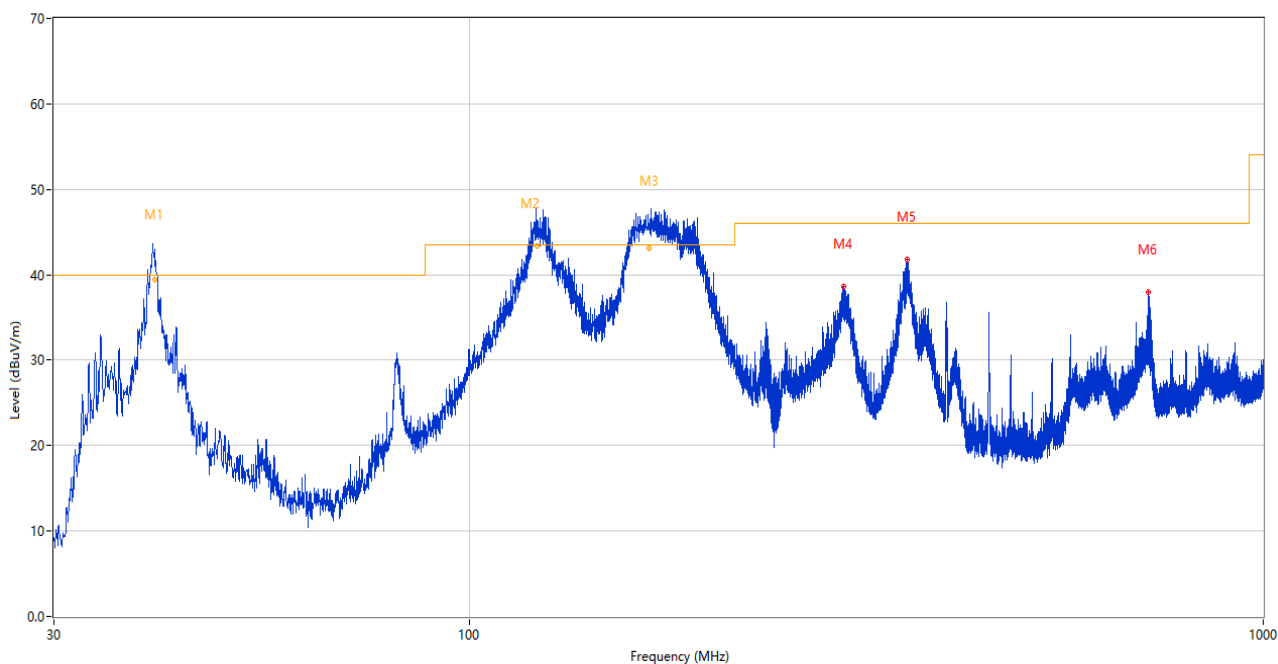
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1301.500	39.70	-15.94	74.0	34.30	Peak	196.00	100	Horizontal	Pass
1**	1301.500	28.75	-15.94	54.0	25.25	AV	196.00	100	Horizontal	Pass
2	2054.500	41.93	-13.16	74.0	32.07	Peak	309.00	100	Horizontal	Pass
2**	2054.500	32.12	-13.16	54.0	21.88	AV	309.00	100	Horizontal	Pass
3	3112.750	48.79	-5.03	74.0	25.21	Peak	142.00	100	Horizontal	Pass
3**	3112.750	38.78	-5.03	54.0	15.22	AV	142.00	100	Horizontal	Pass
4	4191.250	50.63	-0.85	74.0	23.37	Peak	69.00	100	Horizontal	Pass
4**	4191.250	41.27	-0.85	54.0	12.73	AV	69.00	100	Horizontal	Pass
5	5873.250	56.14	3.90	74.0	17.86	Peak	351.00	100	Horizontal	Pass
5**	5873.250	45.59	3.90	54.0	8.41	AV	351.00	100	Horizontal	Pass
6	7929.750	55.56	3.10	74.0	18.44	Peak	314.00	100	Horizontal	Pass
6**	7929.750	47.09	3.10	54.0	6.91	AV	314.00	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	☒
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2023.12.05	2024.12.04	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2023.12.05	2024.12.04	☒
Amplifier (18-40GHz)	COM-MV	KA LNA18- 40G-01	18050001	2023.12.05	2024.12.04	☒
Test Antenna- Horn	SCHWARZB ECK	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 (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

Sample No.	S02	Temperature	21.7℃
Humidity	43%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2024.03.05

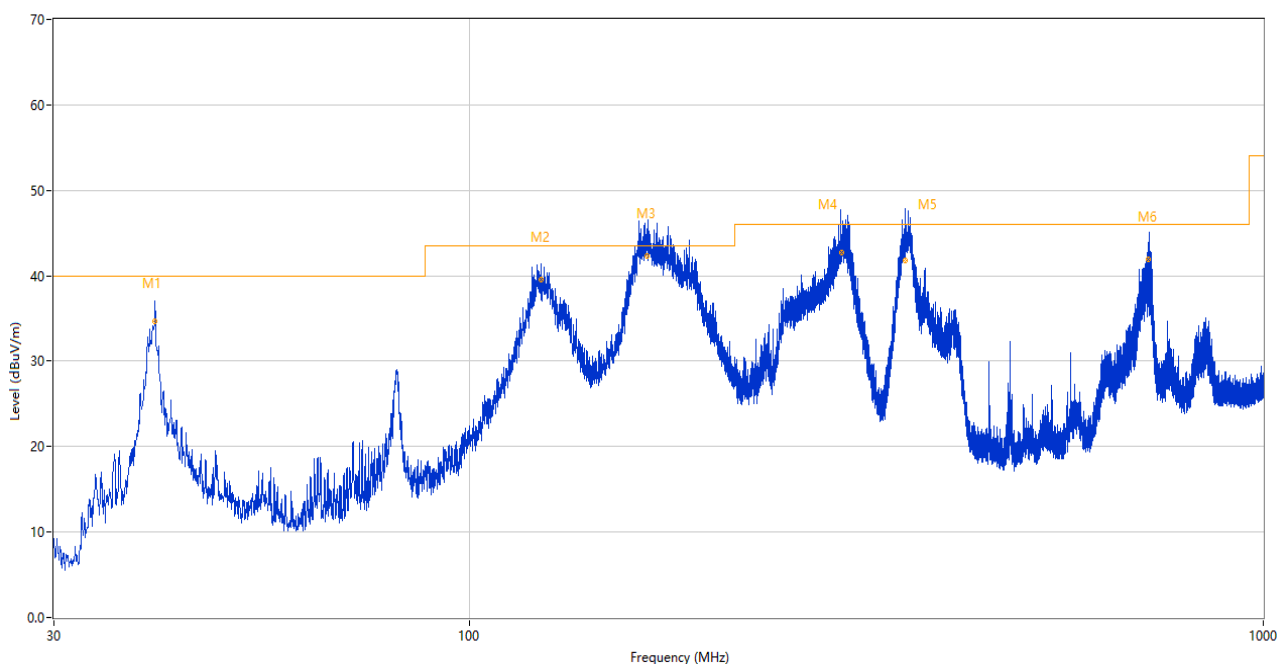
Test Mode 5

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	40.215	45.27	-26.72	40.0	-5.27	Peak	265.00	101	Vertical	N/A
1*	40.215	39.55	-26.72	40.0	0.45	QP	265.00	101	Vertical	Pass
2	121.712	49.48	-28.75	43.5	-5.98	Peak	88.00	107	Vertical	N/A
2*	121.712	43.32	-28.75	43.5	0.18	QP	88.00	107	Vertical	Pass
3	168.670	49.09	-29.25	43.5	-5.59	Peak	122.00	101	Vertical	N/A
3*	168.670	43.17	-29.25	43.5	0.33	QP	122.00	101	Vertical	Pass
4	296.216	38.64	-23.83	46.0	7.36	Peak	160.00	100	Vertical	Pass
5	356.405	41.76	-21.87	46.0	4.24	Peak	118.00	100	Vertical	Pass
6	717.487	38.03	-13.63	46.0	7.97	Peak	238.00	200	Vertical	Pass

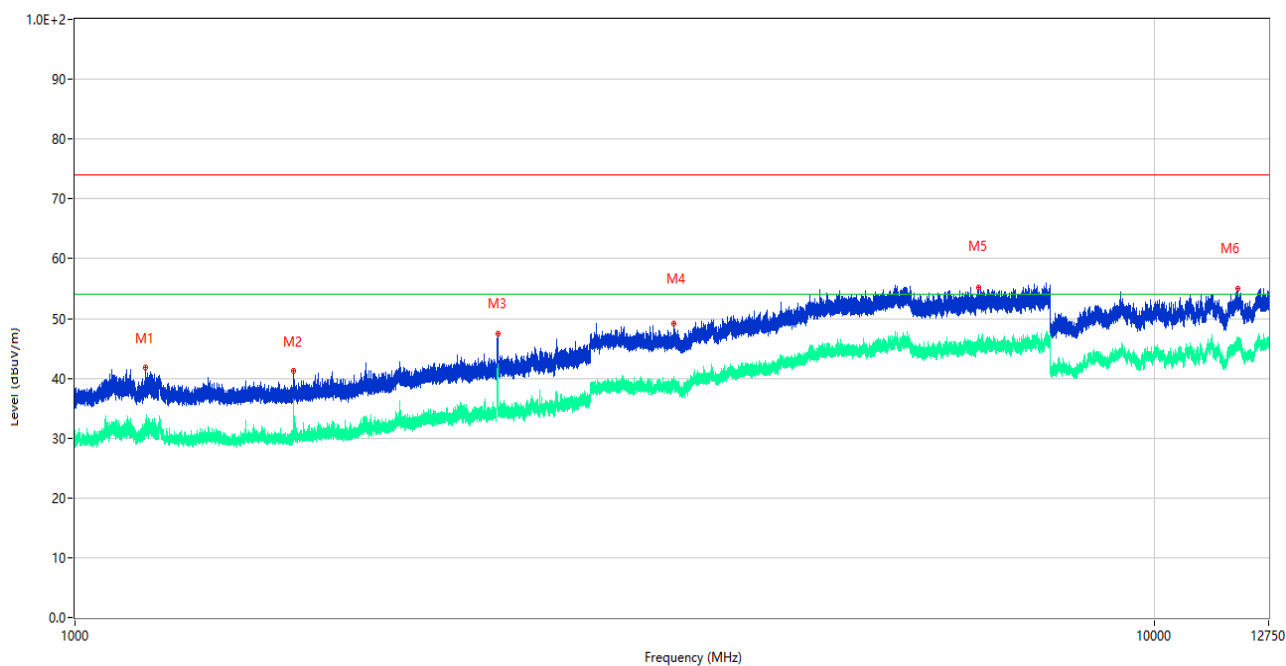
6) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	40.215	39.95	-26.62	40.0	0.05	Peak	175.00	173	Horizontal	N/A
1*	40.215	34.65	-26.62	40.0	5.35	QP	175.00	173	Horizontal	Pass
2	123.193	43.63	-28.98	43.5	-0.13	Peak	159.00	177	Horizontal	N/A
2*	123.193	39.58	-28.98	43.5	3.92	QP	159.00	177	Horizontal	Pass
3	167.417	49.08	-29.20	43.5	-5.58	Peak	110.00	188	Horizontal	N/A
3*	167.417	42.32	-29.20	43.5	1.18	QP	110.00	188	Horizontal	Pass
4	294.895	49.51	-23.82	46.0	-3.51	Peak	20.00	106	Horizontal	N/A
4*	294.895	42.66	-23.82	46.0	3.34	QP	20.00	106	Horizontal	Pass
5	354.083	48.32	-21.91	46.0	-2.32	Peak	73.00	102	Horizontal	N/A
5*	354.083	41.84	-21.91	46.0	4.16	QP	73.00	102	Horizontal	Pass
6	717.441	46.60	-13.59	46.0	-0.60	Peak	196.00	101	Horizontal	N/A
6*	717.441	41.89	-13.59	46.0	4.11	QP	196.00	101	Horizontal	Pass

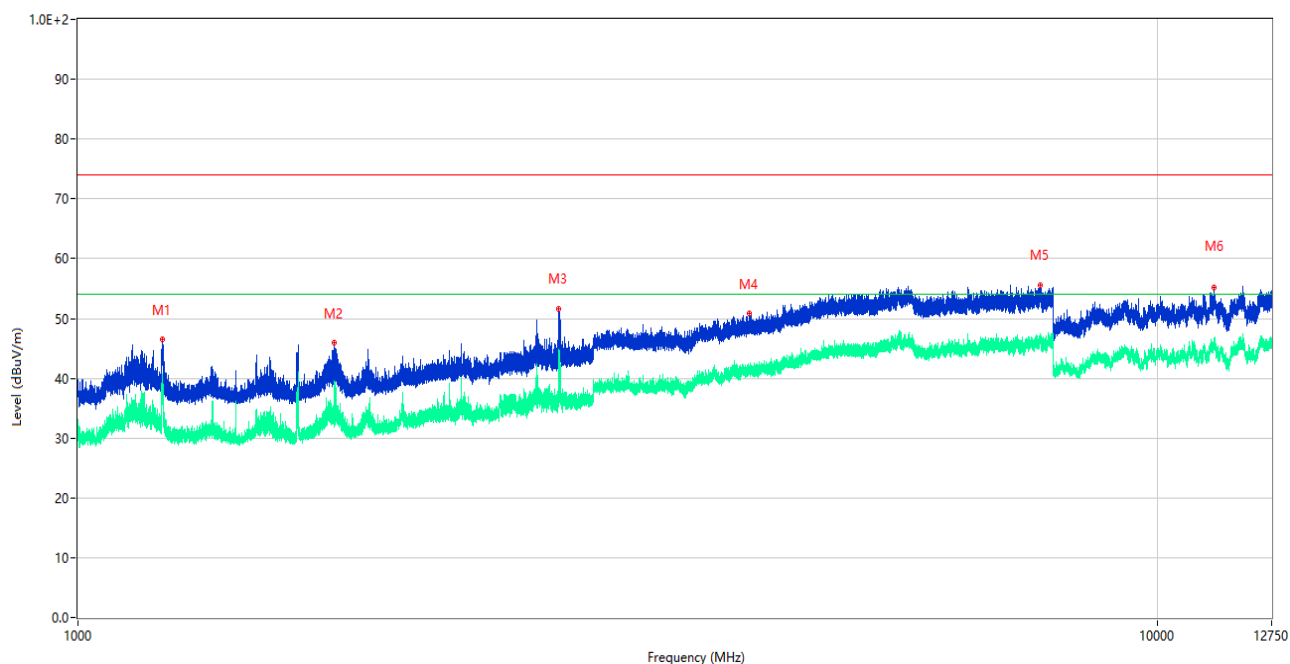
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2023.09.05	2024.09.04	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2023.12.05	2024.12.04	☒
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	☒
Anechoic Chamber (#2)	YiHeng	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 – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1161.200	41.80	-16.06	74.0	32.20	Peak	312.00	100	Vertical	Pass
1**	1161.200	31.71	-16.06	54.0	22.29	AV	312.00	100	Vertical	Pass
2	1594.700	41.17	-16.24	74.0	32.83	Peak	171.00	100	Vertical	Pass
2**	1594.700	30.82	-16.24	54.0	23.18	AV	171.00	100	Vertical	Pass
3	2463.400	47.52	-10.98	74.0	26.48	Peak	0.00	100	Vertical	Pass
3**	2463.400	41.56	-10.98	54.0	12.44	AV	0.00	100	Vertical	Pass
4	3585.250	49.20	-4.25	74.0	24.80	Peak	297.00	100	Vertical	Pass
4**	3585.250	39.23	-4.25	54.0	14.77	AV	297.00	100	Vertical	Pass
5	6865.000	55.25	1.90	74.0	18.75	Peak	1.00	100	Vertical	Pass
5**	6865.000	44.79	1.90	54.0	9.21	AV	1.00	100	Vertical	Pass
6	11941.500	55.05	2.58	74.0	18.95	Peak	287.00	100	Vertical	Pass
6**	11941.500	45.82	2.58	54.0	8.18	AV	287.00	100	Vertical	Pass

8) Test Antenna Horizontal, 1 GHz – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1197.100	46.61	-16.29	74.0	27.39	Peak	233.00	100	Horizontal	Pass
1**	1197.100	36.47	-16.29	54.0	17.53	AV	233.00	100	Horizontal	Pass
2	1726.600	45.89	-15.87	74.0	28.11	Peak	156.00	100	Horizontal	Pass
2**	1726.600	33.09	-15.87	54.0	20.91	AV	156.00	100	Horizontal	Pass
3	2790.000	51.65	-8.51	74.0	22.35	Peak	166.00	100	Horizontal	Pass
3**	2790.000	44.88	-8.51	54.0	9.12	AV	166.00	100	Horizontal	Pass
4	4187.250	50.87	-1.06	74.0	23.13	Peak	178.00	100	Horizontal	Pass
4**	4187.250	40.98	-1.06	54.0	13.02	AV	178.00	100	Horizontal	Pass
5	7786.250	55.52	3.12	74.0	18.48	Peak	264.00	100	Horizontal	Pass
5**	7786.250	46.25	3.12	54.0	7.75	AV	264.00	100	Horizontal	Pass
6	11271.999	55.14	2.05	74.0	18.86	Peak	31.00	100	Horizontal	Pass
6**	11271.999	45.71	2.05	54.0	8.29	AV	31.00	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	☒
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2023.12.05	2024.12.04	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2023.12.05	2024.12.04	☒
Amplifier (18-40GHz)	COM-MV	KA LNA18- 40G-01	18050001	2023.12.05	2024.12.04	☒
Test Antenna- Horn	SCHWARZB ECK	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 (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

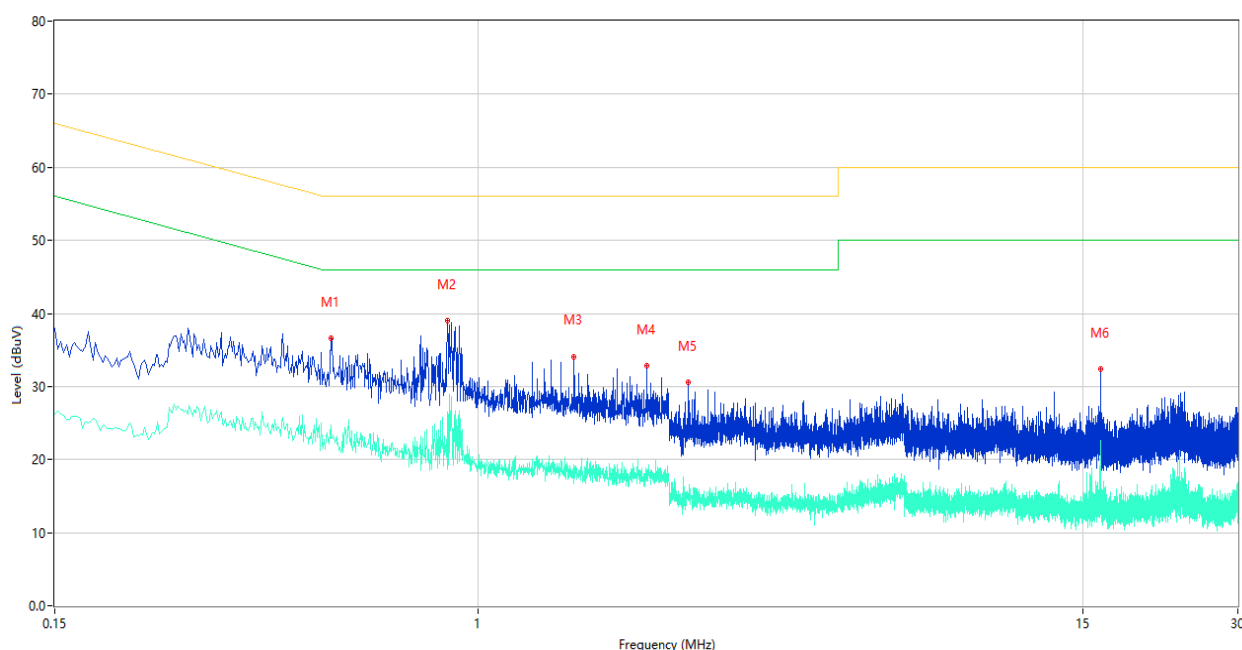
A.2 Conducted Emission, AC Ports

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.	S02	Temperature	21.7℃
Humidity	43%RH	Pressure	101kPa
Test Engineer	Yang Yang	Test Date	2024.03.07

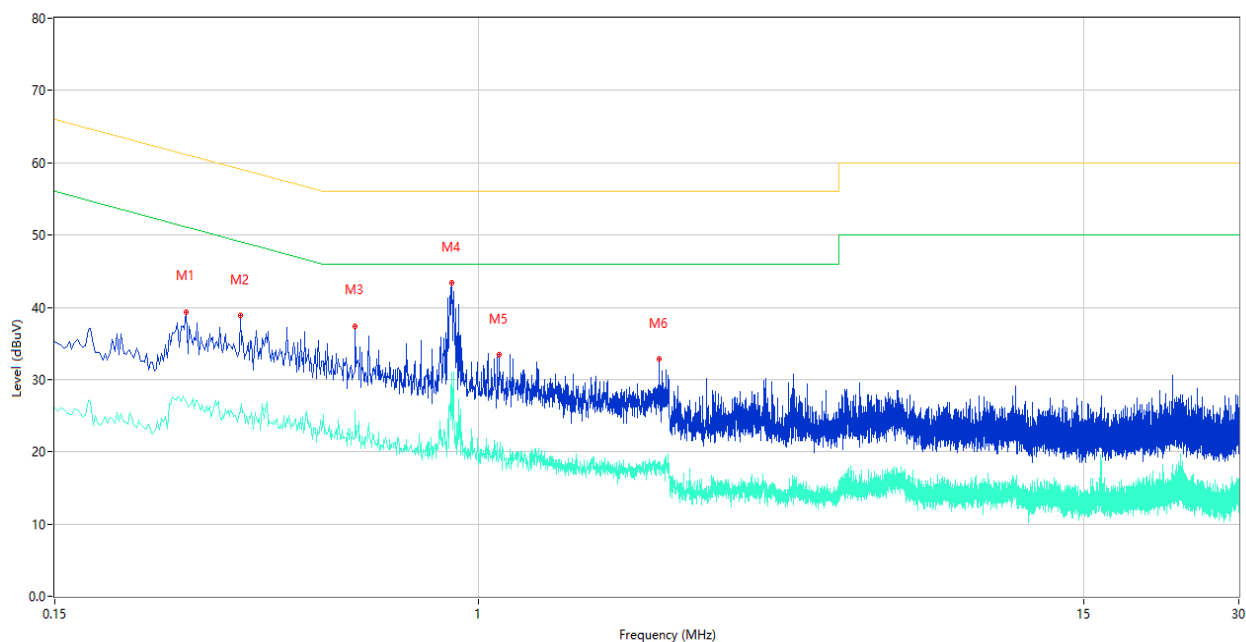
Test Mode 4

1) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.516	36.55	9.72	56.00	19.45	Peak	L	Pass
1**	0.516	24.64	9.72	46.00	21.36	AV	L	Pass
2	0.870	39.06	9.69	56.00	16.94	Peak	L	Pass
2**	0.870	18.72	9.69	46.00	27.28	AV	L	Pass
3	1.536	34.11	9.69	56.00	21.89	Peak	L	Pass
3**	1.536	19.33	9.69	46.00	26.67	AV	L	Pass
4	2.128	32.84	9.79	56.00	23.16	Peak	L	Pass
4**	2.128	18.46	9.79	46.00	27.54	AV	L	Pass
5	2.564	30.55	9.63	56.00	25.45	Peak	L	Pass
5**	2.564	15.43	9.63	46.00	30.57	AV	L	Pass
6	16.226	32.37	7.28	60.00	27.63	Peak	L	Pass
6**	16.226	22.55	7.28	50.00	27.45	AV	L	Pass

2) AC Ports - N Phase

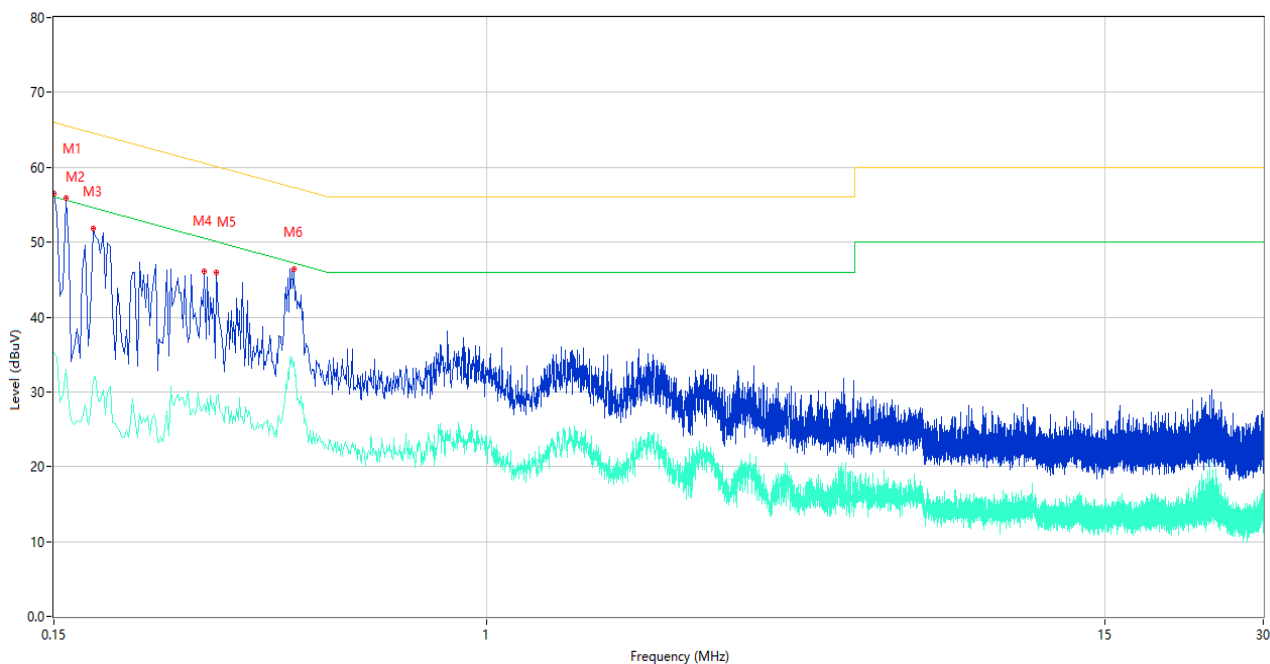


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.270	39.38	9.43	61.12	21.74	Peak	N	Pass
1**	0.270	26.93	9.43	51.12	24.19	AV	N	Pass
2	0.344	38.89	9.34	59.11	20.22	Peak	N	Pass
2**	0.344	25.42	9.34	49.11	23.69	AV	N	Pass
3	0.576	37.43	9.92	56.00	18.57	Peak	N	Pass
3**	0.576	25.83	9.92	46.00	20.17	AV	N	Pass
4	0.886	43.32	9.49	56.00	12.68	Peak	N	Pass
4**	0.886	31.02	9.49	46.00	14.98	AV	N	Pass
5	1.094	33.44	9.76	56.00	22.56	Peak	N	Pass
5**	1.094	19.53	9.76	46.00	26.47	AV	N	Pass
6	2.240	32.83	9.65	56.00	23.17	Peak	N	Pass
6**	2.240	18.30	9.65	46.00	27.70	AV	N	Pass

Sample No.	S02	Temperature	21.7℃
Humidity	43%RH	Pressure	101kPa
Test Engineer	Yang Yang	Test Date	2024.03.07

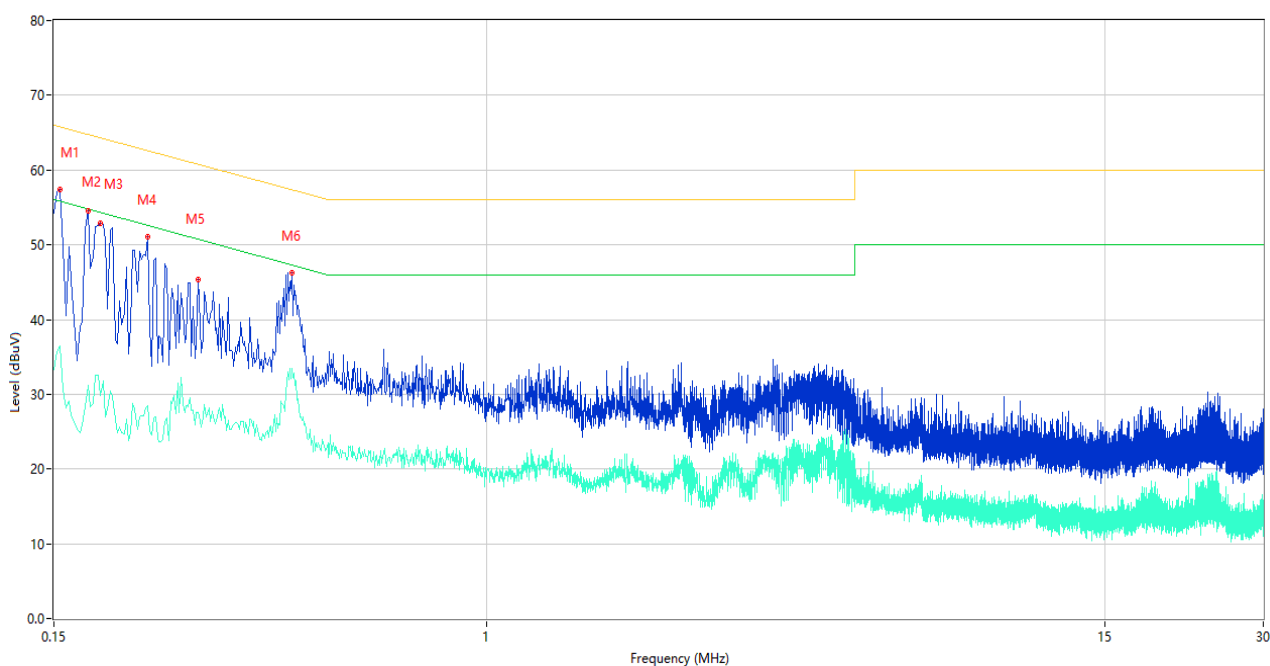
Test Mode 5

3) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	56.54	9.47	66.00	9.46	Peak	L	Pass
1**	0.150	35.26	9.47	56.00	20.74	AV	L	Pass
2	0.158	55.83	9.46	65.57	9.74	Peak	L	Pass
2**	0.158	32.92	9.46	55.57	22.65	AV	L	Pass
3	0.178	51.79	9.44	64.58	12.79	Peak	L	Pass
3**	0.178	31.63	9.44	54.58	22.95	AV	L	Pass
4	0.290	46.04	9.43	60.52	14.48	Peak	L	Pass
4**	0.290	28.28	9.43	50.52	22.24	AV	L	Pass
5	0.306	45.92	9.42	60.08	14.16	Peak	L	Pass
5**	0.306	29.39	9.42	50.08	20.69	AV	L	Pass
6	0.430	46.38	9.96	57.25	10.87	Peak	L	Pass
6**	0.430	34.04	9.96	47.25	13.21	AV	L	Pass

4) AC Ports - N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	57.35	9.47	65.78	8.43	Peak	N	Pass
1**	0.154	36.50	9.47	55.78	19.28	AV	N	Pass
2	0.174	54.50	9.44	64.77	10.27	Peak	N	Pass
2**	0.174	31.24	9.44	54.77	23.53	AV	N	Pass
3	0.184	52.84	9.43	64.30	11.46	Peak	N	Pass
3**	0.184	29.77	9.43	54.30	24.53	AV	N	Pass
4	0.226	51.03	9.43	62.60	11.57	Peak	N	Pass
4**	0.226	28.53	9.43	52.60	24.07	AV	N	Pass
5	0.282	45.30	9.43	60.76	15.46	Peak	N	Pass
5**	0.282	27.50	9.43	50.76	23.26	AV	N	Pass
6	0.426	46.22	9.97	57.33	11.11	Peak	N	Pass
6**	0.426	33.46	9.97	47.33	13.87	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	SCHWARZB ECK	NSLK 8127	8127-687	2023.05.16	2024.05.15	☒
ISN	TESEQ	ISN T800	34449	2023.11.10	2024.11.09	☐
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-SZ23C0168-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ23C0168-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ23C0168-AI.PDF”.

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--END OF REPORT--