

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: 2312DRAABG
Brand Name: Redmi
FCC ID: 2AFZZAABG
Test Standard: 47 CFR Part 15 Subpart B
ANSI C63.4-2014
Sample Arrival Date: Aug. 09, 2023
Test Date: Aug. 14, 2023 - Aug. 27, 2023
Date of Issue: Oct. 07, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Zhenxiang Liu

Checked by: Xia Long

Approved by: Liao Jianming
(Technical Director)

Zhenxiang Liu

Xia Long

Jm Liao

Revision History		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Oct. 07, 2023</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	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 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	2312DRAABG
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	P2
Software Version	MIUI 14
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A
EUT ID	S22
IMEI Number	IMEI1:862210060192889, IMEI2:862210060192897

2.4 Ancillary Equipment

Please refer the document “BL-SZ2380575-AW EUT external photo.pdf”.

2.5 Technical Information

<p>Network and Wireless connectivity</p>	<p>2G Network GSM/GPRS/EDGE 850/900/1800/1900 3G Network WCDMA/HSDPA/HSUPA/DC-HSDPA Band 1/2/4/5/8 4G Network FDD LTE Band 1/2/3/4/5/7/8/12/13/17/20/26/28/32/66 TDD LTE Band 38/40/41 LTE CA Uplink (UL): CA_3C, CA_7C, CA_38C, CA_40C, CA_1A-3A, CA_1A-7A, CA_1A-8A, CA_3A-7A, CA_2A-4A, CA_1A-20A, CA_3A-20A, CA_4A-7A, CA_7A-28A, CA_7A-20A LTE CA Downlink (DL): CA_20A-32A 5G Network SA: NR n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n66/n77/n78 NSA(EN-DC): DC_1A_n3A, DC_1A_n5A, DC_1A_n7A, DC_1A_n8A, DC_1A_n20A, DC_1A_n28A, DC_1A_n38A, DC_1A_n40A, DC_1A_n41A, DC_1A_n77A, DC_1A_n78A, DC_2A_n66A, DC_2A_n78A, DC_3A_n1A, DC_3A_n3A, DC_3A_n5A, DC_3A_n7A, DC_3A_n20A, DC_3A_n28A, DC_3A_n38A, DC_3A_n40A, DC_3A_n41A, DC_3A_n77A, DC_3A_n78A, DC_5A_n1A, DC_5A_n3A, DC_5A_n40A, DC_5A_n66A, DC_5A_n78A, DC_7A_n1A, DC_7A_n3A, DC_7A_n5A, DC_7A_n8A, DC_7A_n20A, DC_7A_n28A, DC_7A_n78A, DC_8A_n1A, DC_8A_n3A, DC_8A_n40A, DC_8A_n41A, DC_8A_n77A, DC_8A_n78A, DC_12A_n66A, DC_20A_n1A, DC_20A_n3A, DC_20A_n7A, DC_20A_n28A, DC_20A_n41A, DC_20A_n78A, DC_26A_n78A, DC_28A_n1A, DC_28A_n3A, DC_28A_n7A, DC_28A_n40A, DC_28A_n41A, DC_28A_n77A, DC_28A_n78A, DC_38A_n28A, DC_38A_n78A, DC_40A_n1A, DC_40A_n28A, DC_40A_n78A, DC_41A_n78A, DC_41A_n41A, DC_41A_n1A, DC_41A_n28A, DC_66A_n38A, DC_66A_n41A, DC_66A_n78A, DC_66A_n7A, DC_5A_n7A 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, NFC, FM receiver</p>
<p>Classification of equipment</p>	<p>Class B</p>
<p>The highest internal frequency of EUT</p>	<p>5850 MHz</p>

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)-3m	4.8 dB
Radiated emissions (1 GHz-18 GHz)-3m	4.9 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	<input checked="" type="checkbox"/>
TF Card	Kingston	N/A	N/A	N/A	N/A	<input checked="" type="checkbox"/>
USB disk	Sandisk	N/A	N/A	N/A	N/A	<input checked="" type="checkbox"/>

4.2 Test Configurations

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

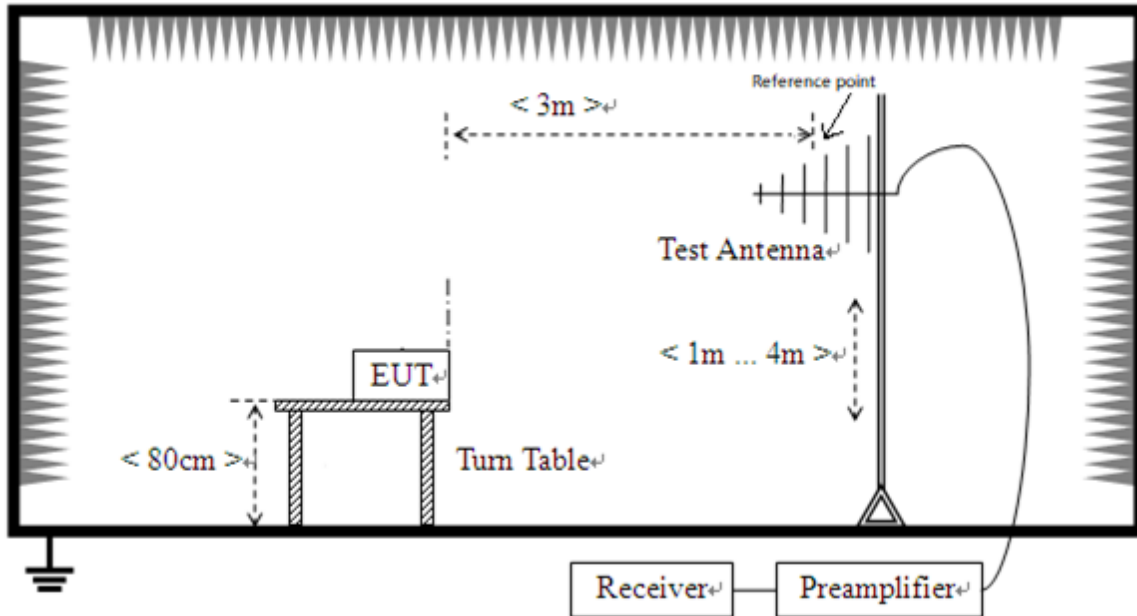
Test Mode Configuration	Description
Mode 1	<u>The Video Play Test Mode</u> EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 2	<u>The Camera Test Mode</u> EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 3	<u>The Standby Test Mode</u> EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 4	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Laptop + Headset + TF Card
Mode 5	<u>The FM Test Mode</u> EUT + Adapter + USB Cable + Battery + Headset + TF Card
Mode 6	<u>The OTG Test Mode</u> EUT + Battery + Data connector + USB Disk + Headset + TF Card

Test Case	Test Mode Configuration	Worst Mode
Radiated Emission	Mode 1~Mode 6	1, 4
Conducted Emission, AC Ports	Mode 1~Mode 5	1, 4

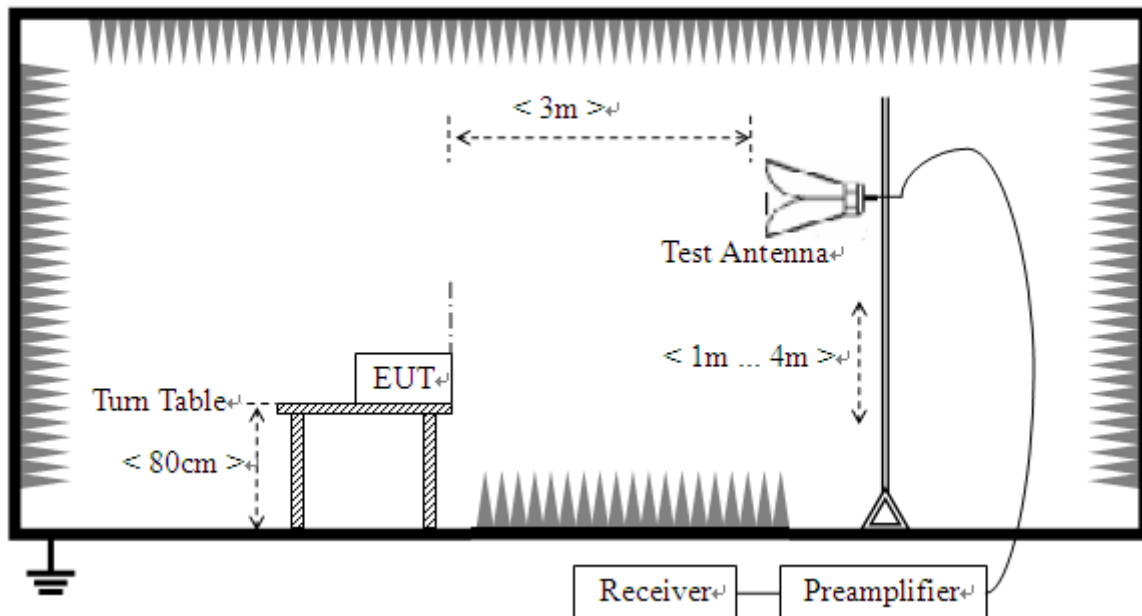
Note: Based on client request, all normal using modes of the normal function were tested, but only data of the worst mode(if test case has) was reported in this report.

4.3 Test Setups

Test Setup 1

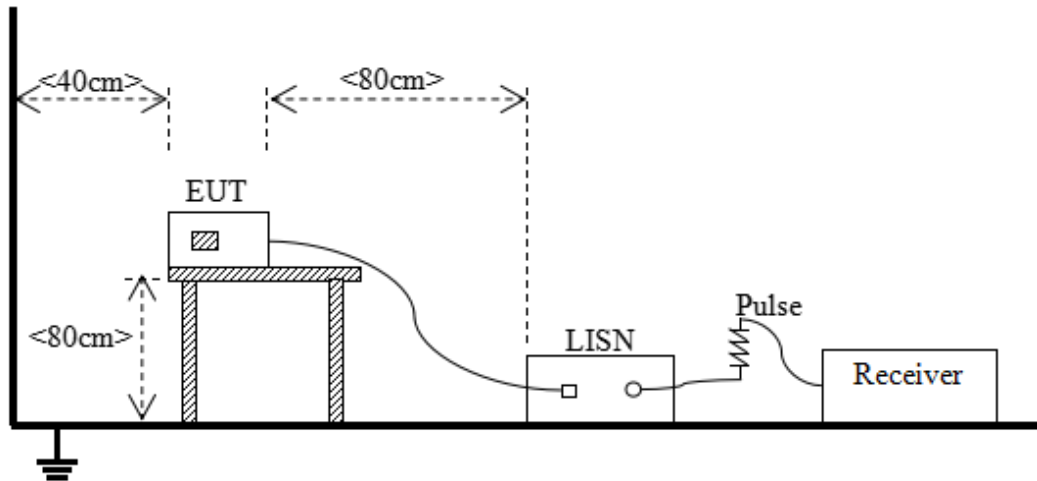


Radiated Emission (30 MHz-1 GHz)



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 ($\mu\text{V/m}$)	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*log [Field Strength ($\mu\text{V/m}$)].
- 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.

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)
$F_X \leq 108$ MHz	1 GHz
108 MHz $\leq F_X \leq 500$ MHz	2 GHz
500 MHz $\leq F_X \leq 1$ GHz	5 GHz

Highest internal frequency (F_X)	Highest measurement frequency (F_M)
$F_X \geq 1$ 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 to test setup 2) 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 $f \geq 1$ 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/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. 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 3) 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.

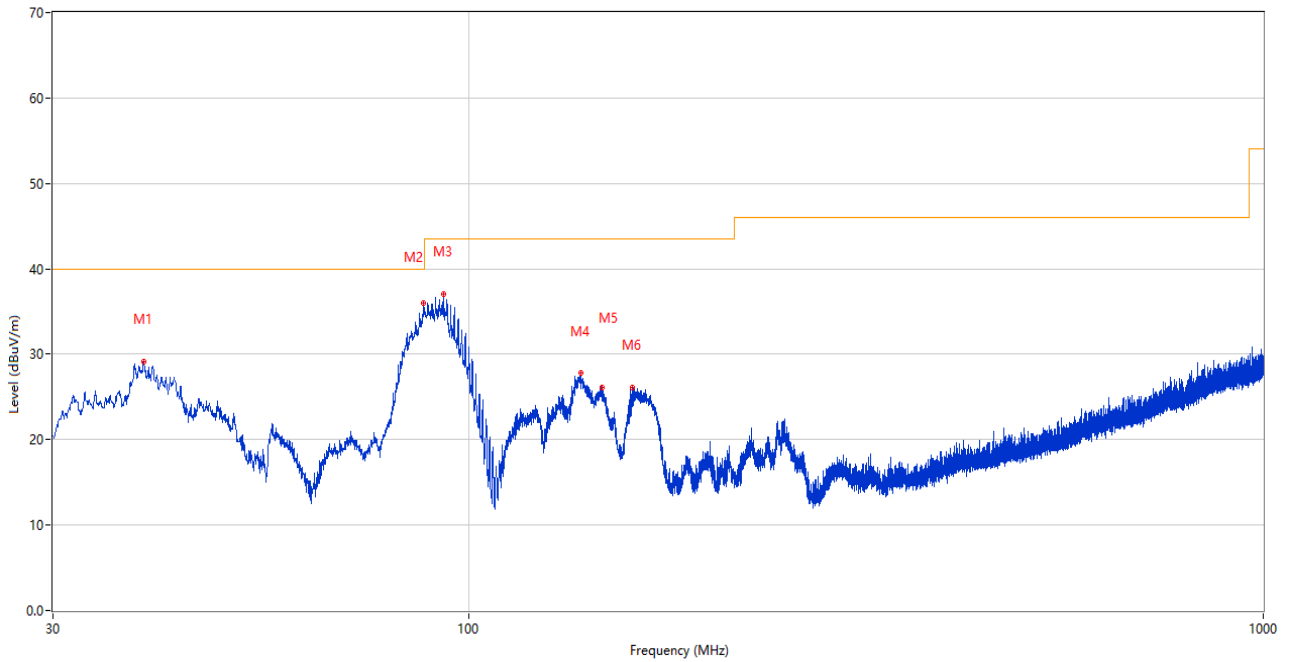
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

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.	S22	Temperature	22.1°C
Humidity	51%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2023.8.16

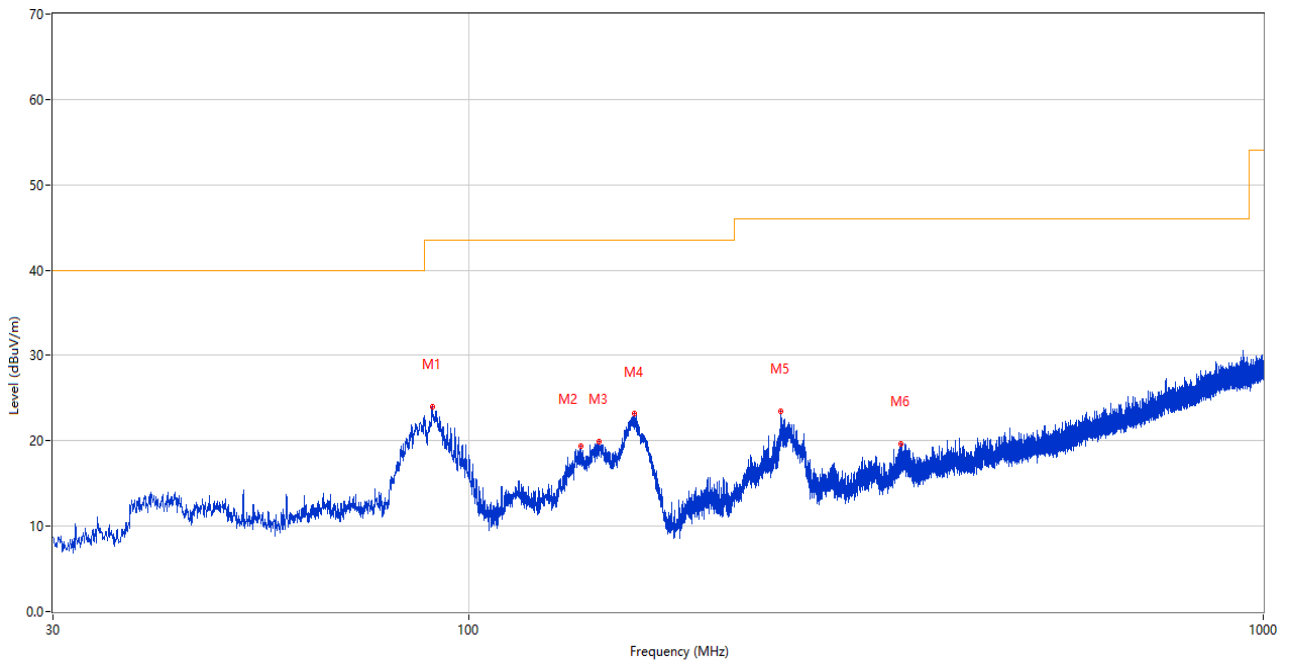
The Video Play Test Mode

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	39.021	29.17	-26.99	40.0	10.83	Peak	239.00	100	Vertical	Pass
2	87.812	35.94	-29.18	40.0	4.06	Peak	295.00	100	Vertical	Pass
3	92.905	37.10	-27.90	43.5	6.40	Peak	230.00	100	Vertical	Pass
4	138.592	27.75	-30.19	43.5	15.75	Peak	7.00	100	Vertical	Pass
5	147.128	26.12	-30.23	43.5	17.38	Peak	356.00	100	Vertical	Pass
6	160.805	26.06	-29.54	43.5	17.44	Peak	192.00	100	Vertical	Pass

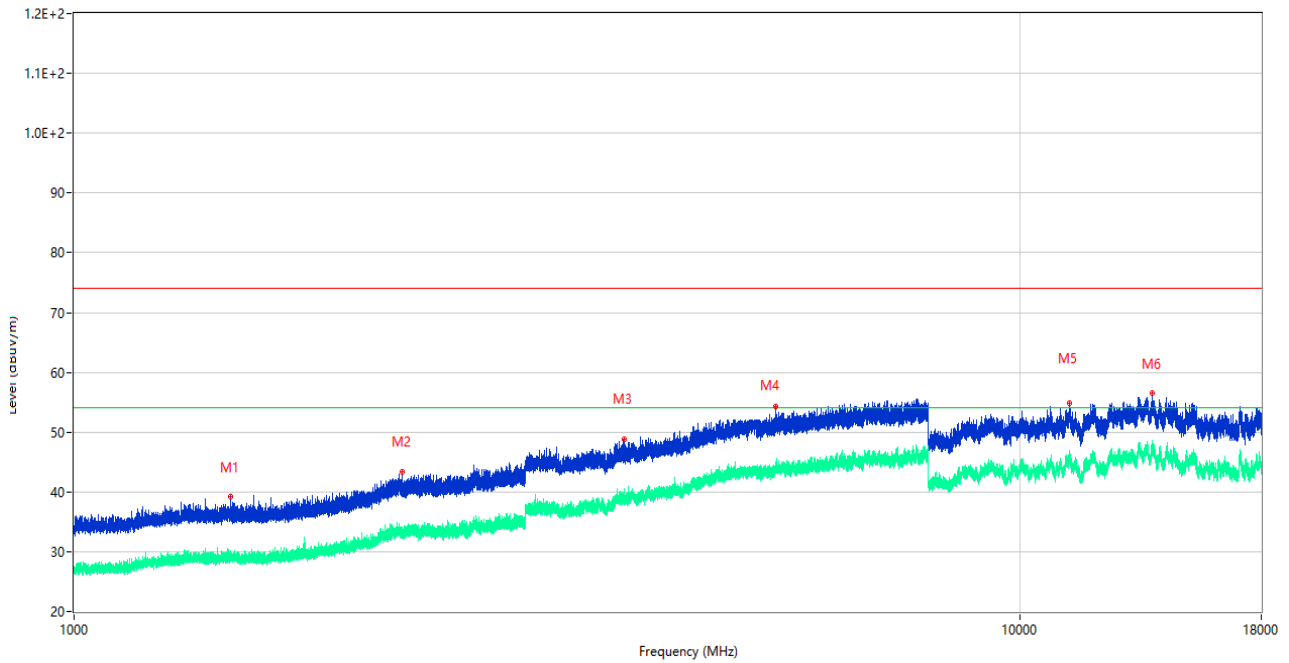
2) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	90.091	24.02	-28.48	43.5	19.48	Peak	265.00	200	Horizontal	Pass
2	138.349	19.40	-30.19	43.5	24.10	Peak	31.00	200	Horizontal	Pass
3	146.060	19.86	-30.22	43.5	23.64	Peak	101.00	200	Horizontal	Pass
4	161.872	23.14	-29.51	43.5	20.36	Peak	262.00	200	Horizontal	Pass
5	247.280	23.42	-24.92	46.0	22.58	Peak	232.00	100	Horizontal	Pass
6	349.664	19.60	-21.93	46.0	26.40	Peak	57.00	100	Horizontal	Pass

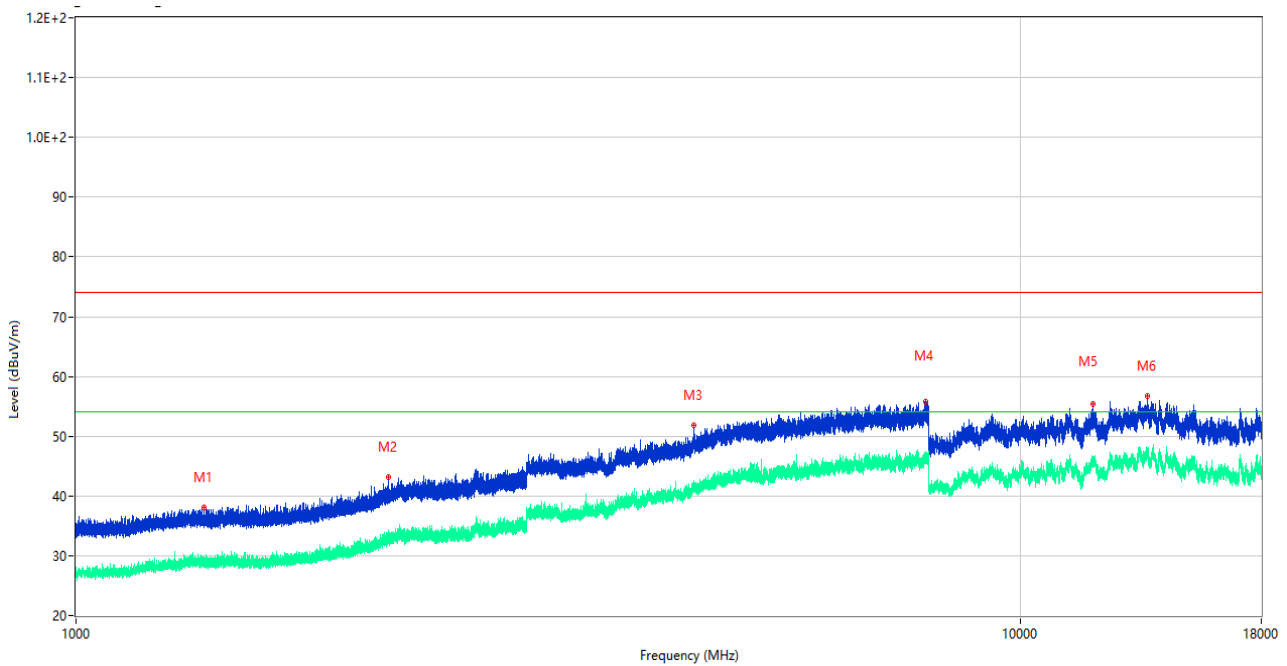
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2022.09.09	2023.09.08	<input checked="" type="checkbox"/>
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	<input checked="" type="checkbox"/>
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	<input checked="" type="checkbox"/>
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		<input checked="" type="checkbox"/>

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	1463.600	39.19	-16.47	74.0	34.81	Peak	31.00	100	Vertical	Pass
1**	1463.600	29.61	-16.47	54.0	24.39	AV	31.00	100	Vertical	Pass
2	2221.000	43.42	-12.05	74.0	30.58	Peak	36.00	100	Vertical	Pass
2**	2221.000	33.30	-12.05	54.0	20.70	AV	36.00	100	Vertical	Pass
3	3819.750	48.82	-3.40	74.0	25.18	Peak	158.00	100	Vertical	Pass
3**	3819.750	39.23	-3.40	54.0	14.77	AV	158.00	100	Vertical	Pass
4	5522.750	54.36	0.64	74.0	19.64	Peak	262.00	100	Vertical	Pass
4**	5522.750	43.96	0.64	54.0	10.04	AV	262.00	100	Vertical	Pass
5	11287.500	54.79	2.25	74.0	19.21	Peak	0.00	100	Vertical	Pass
5**	11287.500	45.20	2.25	54.0	8.80	AV	0.00	100	Vertical	Pass
6	13811.500	56.51	5.66	74.0	17.49	Peak	169.00	100	Vertical	Pass
6**	13811.500	47.79	5.66	54.0	6.21	AV	169.00	100	Vertical	Pass

4) Test Antenna Horizontal, 1 GHz – 18 GHz

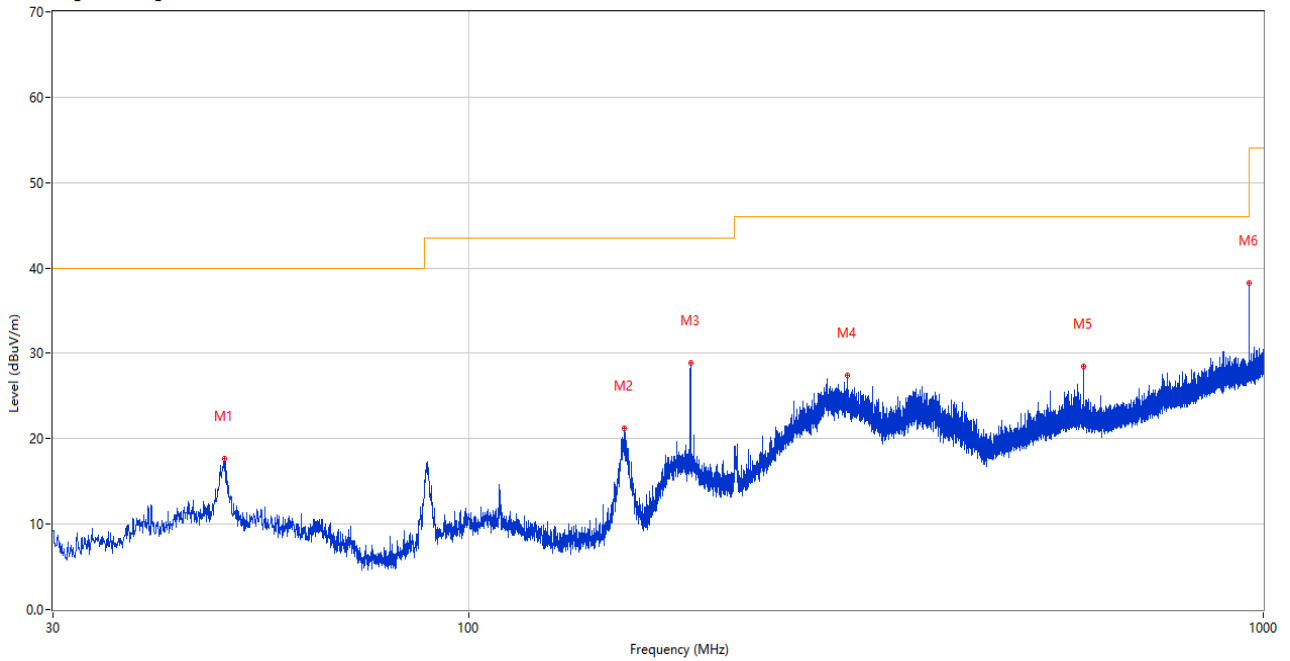


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1367.600	38.09	-16.81	74.0	35.91	Peak	20.00	100	Horizontal	Pass
1**	1367.600	28.05	-16.81	54.0	25.95	AV	20.00	100	Horizontal	Pass
2	2141.400	43.13	-13.30	74.0	30.87	Peak	25.00	100	Horizontal	Pass
2**	2141.400	33.71	-13.30	54.0	20.29	AV	25.00	100	Horizontal	Pass
3	4515.250	51.74	-0.57	74.0	22.26	Peak	267.00	100	Horizontal	Pass
3**	4515.250	41.82	-0.57	54.0	12.18	AV	267.00	100	Horizontal	Pass
4	7945.250	55.75	3.24	74.0	18.25	Peak	229.00	100	Horizontal	Pass
4**	7945.250	46.27	3.24	54.0	7.73	AV	229.00	100	Horizontal	Pass
5	11939.000	55.36	2.57	74.0	18.64	Peak	108.00	100	Horizontal	Pass
5**	11939.000	45.59	2.57	54.0	8.41	AV	108.00	100	Horizontal	Pass
6	13628.000	56.77	4.95	74.0	17.23	Peak	236.00	100	Horizontal	Pass
6**	13628.000	46.54	4.95	54.0	7.46	AV	236.00	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	2022.09.09	2023.09.08	<input checked="" type="checkbox"/>
Spectrum Analyzer	ROHDE & SCHWARZ	FSV40	101544	2022.12.28	2023.12.27	<input checked="" type="checkbox"/>
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Amplifier (18-40GHz)	COM-MV	KA_LNA18-40G-01	18050001	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Test Antenna-Horn	SCHWARZB ECK	BBHA 9120D	01917	2022.06.09	2025.06.08	<input checked="" type="checkbox"/>
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2021.07.02	2024.07.01	<input checked="" type="checkbox"/>
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	<input checked="" type="checkbox"/>
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		<input checked="" type="checkbox"/>

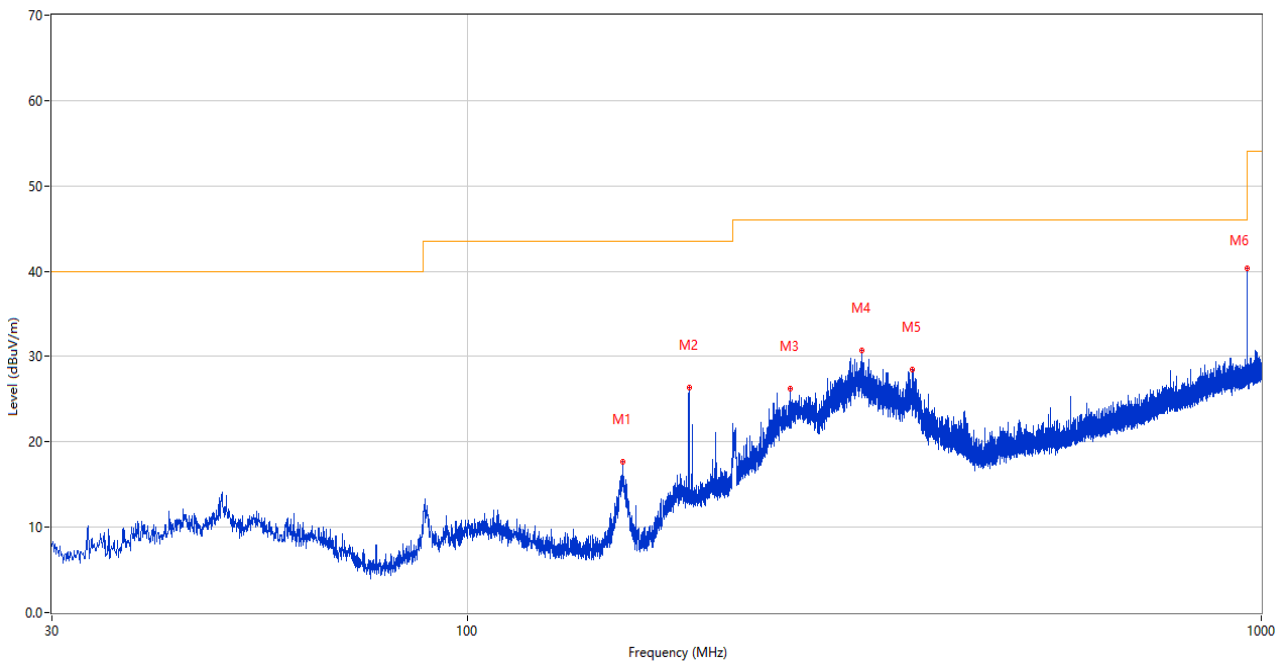
The USB Test Mode

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	49.303	17.65	-25.48	40.0	22.35	Peak	89.00	100	Vertical	Pass
2	157.216	21.17	-29.73	43.5	22.33	Peak	1.00	100	Vertical	Pass
3	190.292	28.93	-27.38	43.5	14.57	Peak	289.00	100	Vertical	Pass
4	299.612	27.46	-23.68	46.0	18.54	Peak	15.00	200	Vertical	Pass
5	593.958	28.53	-16.07	46.0	17.47	Peak	160.00	200	Vertical	Pass
6	959.987	38.26	-9.29	46.0	7.74	Peak	178.00	200	Vertical	Pass

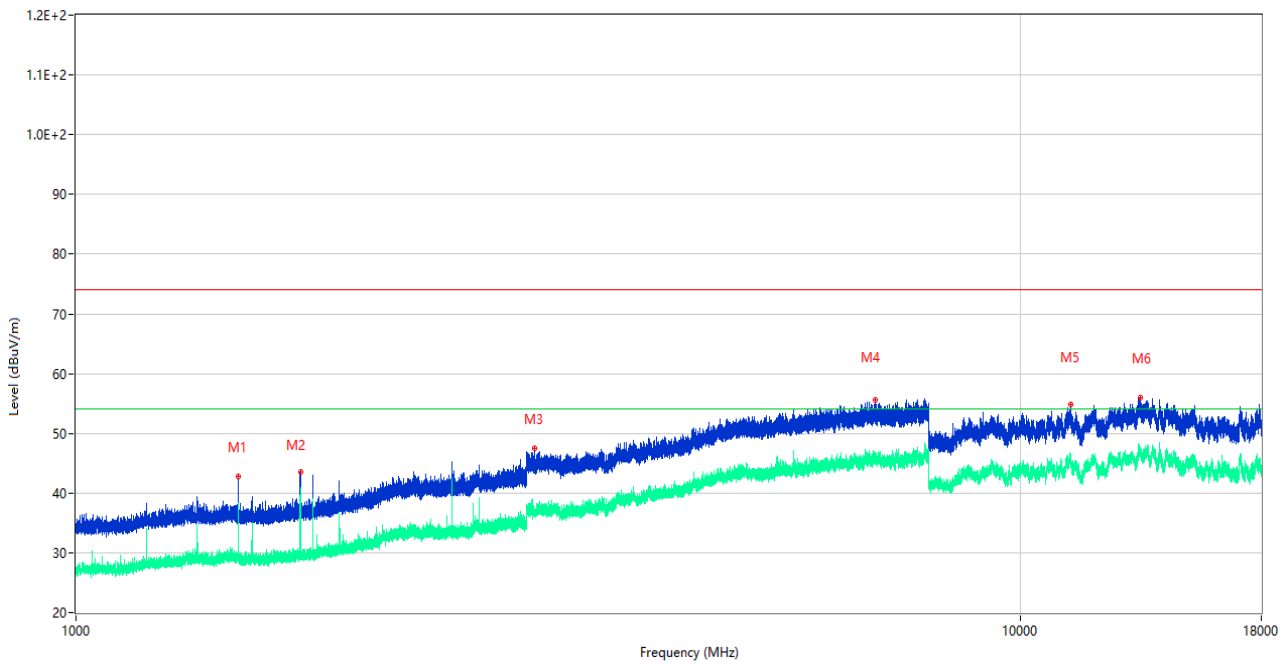
6) Test Antenna Vertical, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	156.876	17.63	-29.73	43.5	25.87	Peak	43.00	200	Horizontal	Pass
2	190.244	26.35	-27.39	43.5	17.15	Peak	235.00	200	Horizontal	Pass
3	255.380	26.21	-24.67	46.0	19.79	Peak	244.00	100	Horizontal	Pass
4	313.967	30.71	-23.30	46.0	15.29	Peak	267.00	100	Horizontal	Pass
5	363.680	28.47	-21.89	46.0	17.53	Peak	254.00	100	Horizontal	Pass
6	960.036	40.31	-9.29	54.0	13.69	Peak	28.00	100	Horizontal	Pass

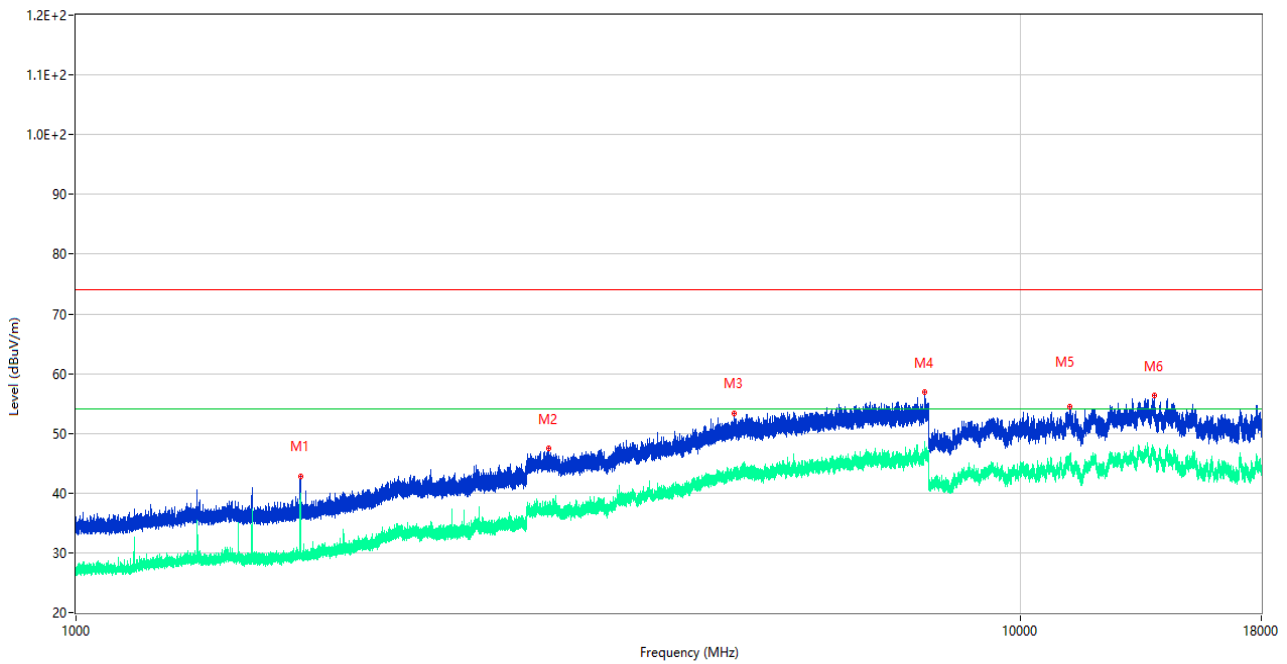
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2022.09.09	2023.09.08	<input checked="" type="checkbox"/>
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	9168-00867	2022.04.12	2025.04.11	<input checked="" type="checkbox"/>
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	<input checked="" type="checkbox"/>
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		<input checked="" type="checkbox"/>

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	1484.600	42.71	-16.61	74.0	31.29	Peak	160.00	100	Vertical	Pass
1**	1484.600	33.85	-16.61	54.0	20.15	AV	160.00	100	Vertical	Pass
2	1728.300	43.59	-16.48	74.0	30.41	Peak	316.00	100	Vertical	Pass
2**	1728.300	40.08	-16.48	54.0	13.92	AV	316.00	100	Vertical	Pass
3	3057.500	47.42	-6.27	74.0	26.58	Peak	79.00	100	Vertical	Pass
3**	3057.500	36.92	-6.27	54.0	17.08	AV	79.00	100	Vertical	Pass
4	7014.250	55.61	1.83	74.0	18.39	Peak	255.00	100	Vertical	Pass
4**	7014.250	45.19	1.83	54.0	8.81	AV	255.00	100	Vertical	Pass
5	11313.000	54.76	2.03	74.0	19.24	Peak	243.00	100	Vertical	Pass
5**	11313.000	46.09	2.03	54.0	7.91	AV	243.00	100	Vertical	Pass
6	13417.500	55.99	4.69	74.0	18.01	Peak	135.00	100	Vertical	Pass
6**	13417.500	46.70	4.69	54.0	7.30	AV	135.00	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	1727.900	42.81	-16.49	74.0	31.19	Peak	12.00	100	Horizontal	Pass
1**	1727.900	39.08	-16.49	54.0	14.92	AV	12.00	100	Horizontal	Pass
2	3170.000	47.41	-5.85	74.0	26.59	Peak	142.00	100	Horizontal	Pass
2**	3170.000	36.54	-5.85	54.0	17.46	AV	142.00	100	Horizontal	Pass
3	4971.500	53.25	1.00	74.0	20.75	Peak	353.00	100	Horizontal	Pass
3**	4971.500	43.22	1.00	54.0	10.78	AV	353.00	100	Horizontal	Pass
4	7925.500	56.87	3.04	74.0	17.13	Peak	114.00	100	Horizontal	Pass
4**	7925.500	46.74	3.04	54.0	7.26	AV	114.00	100	Horizontal	Pass
5	11278.000	54.52	2.13	74.0	19.48	Peak	360.00	100	Horizontal	Pass
5**	11278.000	45.93	2.13	54.0	8.07	AV	360.00	100	Horizontal	Pass
6	13856.000	56.27	5.12	74.0	17.73	Peak	348.00	100	Horizontal	Pass
6**	13856.000	46.78	5.12	54.0	7.22	AV	348.00	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	2022.09.09	2023.09.08	<input checked="" type="checkbox"/>
Spectrum Analyzer	ROHDE & SCHWARZ	FSV40	101544	2022.12.28	2023.12.27	<input checked="" type="checkbox"/>
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Amplifier (18-40GHz)	COM-MV	KA_LNA18-40G-01	18050001	2022.12.07	2023.12.06	<input checked="" type="checkbox"/>
Test Antenna-Horn	SCHWARZB ECK	BBHA 9120D	01917	2022.06.09	2025.06.08	<input checked="" type="checkbox"/>
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2021.07.02	2024.07.01	<input checked="" type="checkbox"/>
Anechoic Chamber (#2)	YiHeng	9m*6m*6m	142	2021.08.19	2024.08.18	<input checked="" type="checkbox"/>
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		<input checked="" type="checkbox"/>

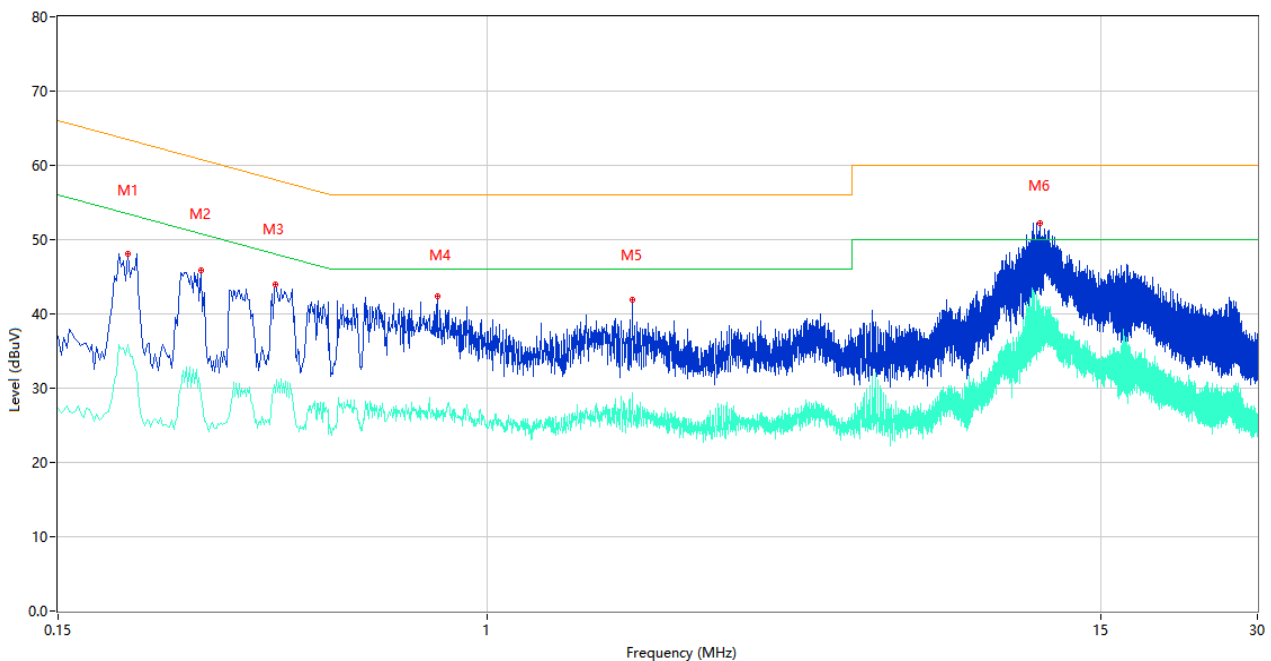
A.2 Conducted Emission, AC Ports

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.	S22	Temperature	22.8°C
Humidity	55%RH	Pressure	101kPa
Test Engineer	Yang Yang	Test Date	2023.8.17

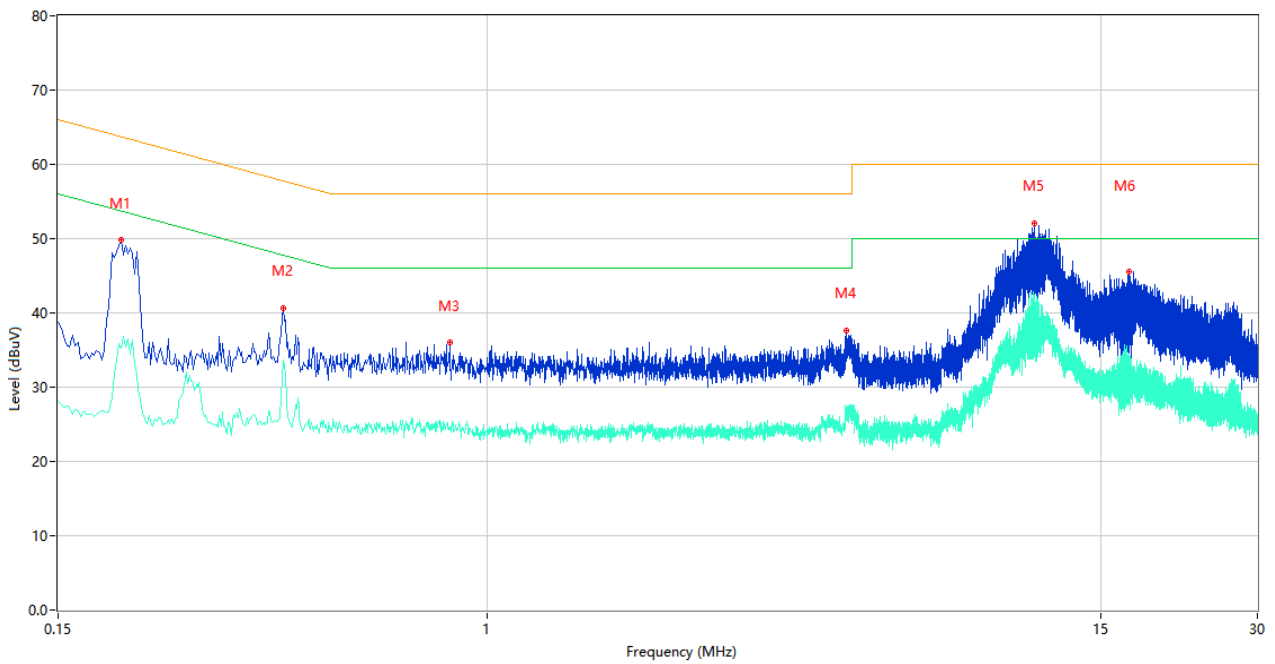
The Video Play Test Mode

1) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.204	48.08	9.77	63.45	15.37	Peak	L	Pass
1**	0.204	35.87	9.77	53.45	17.58	AV	L	Pass
2	0.282	45.93	9.76	60.76	14.83	Peak	L	Pass
2**	0.282	28.74	9.76	50.76	22.02	AV	L	Pass
3	0.392	43.99	10.59	58.02	14.03	Peak	L	Pass
3**	0.392	29.40	10.59	48.02	18.62	AV	L	Pass
4	0.802	42.40	10.53	56.00	13.60	Peak	L	Pass
4**	0.802	26.92	10.53	46.00	19.08	AV	L	Pass
5	1.896	41.92	10.73	56.00	14.08	Peak	L	Pass
5**	1.896	29.32	10.73	46.00	16.68	AV	L	Pass
6	11.484	52.26	10.43	60.00	7.74	Peak	L	Pass

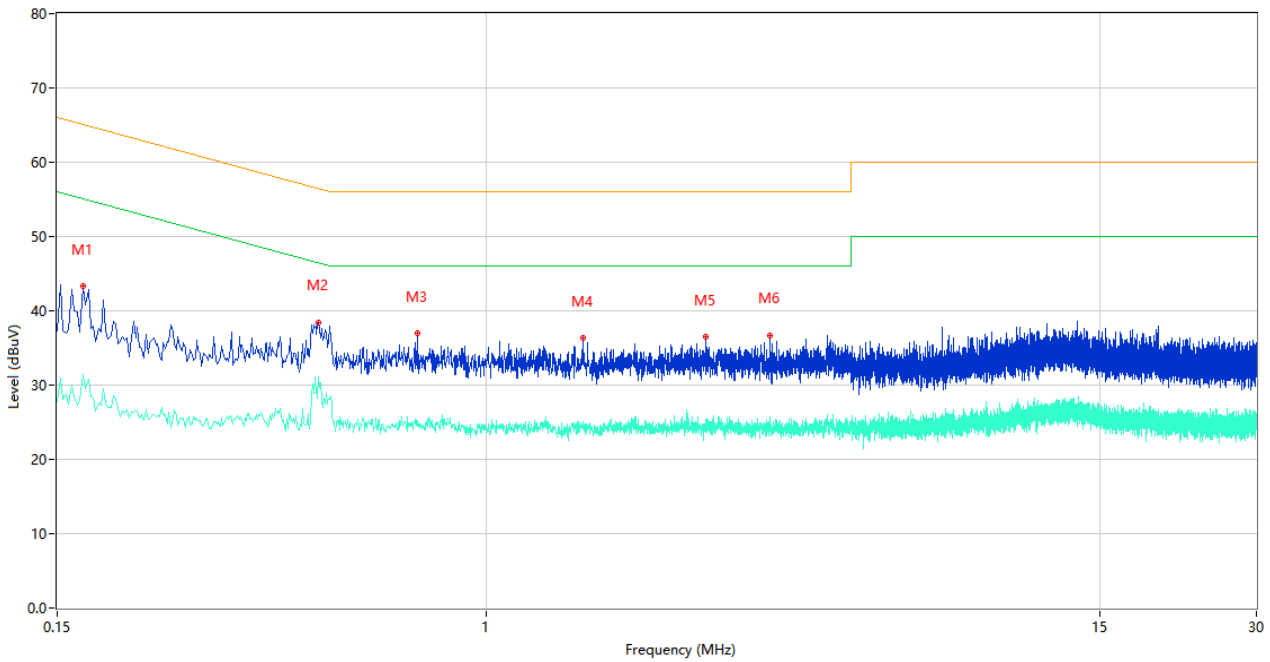
2) AC Ports - N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.198	49.77	9.77	63.69	13.92	Peak	N	Pass
1**	0.198	35.20	9.77	53.69	18.49	AV	N	Pass
2	0.406	40.71	10.49	57.73	17.02	Peak	N	Pass
2**	0.406	33.61	10.49	47.73	14.12	AV	N	Pass
3	0.846	35.97	10.61	56.00	20.03	Peak	N	Pass
3**	0.846	24.63	10.61	46.00	21.37	AV	N	Pass
4	4.870	37.68	10.21	56.00	18.32	Peak	N	Pass
4**	4.870	27.27	10.21	46.00	18.73	AV	N	Pass
5	11.210	52.12	10.72	60.00	7.88	Peak	N	Pass
5**	11.210	38.32	10.72	50.00	11.68	AV	N	Pass
6	16.986	45.53	10.64	60.00	14.47	Peak	N	Pass

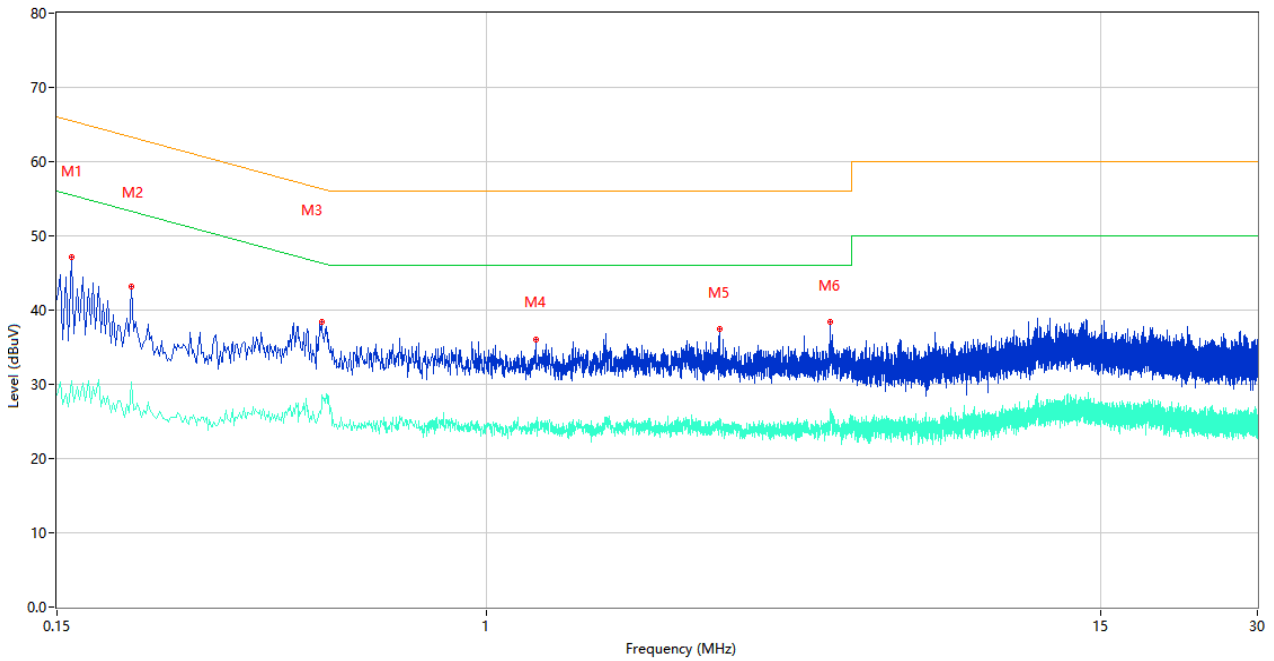
The USB Test Mode

3) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.168	43.26	9.78	65.06	21.80	Peak	L	Pass
1**	0.168	31.44	9.78	55.06	23.62	AV	L	Pass
2	0.476	38.47	10.01	56.41	17.94	Peak	L	Pass
2**	0.476	31.13	10.01	46.41	15.28	AV	L	Pass
3	0.738	36.94	10.29	56.00	19.06	Peak	L	Pass
3**	0.738	25.27	10.29	46.00	20.73	AV	L	Pass
4	1.528	36.29	10.20	56.00	19.71	Peak	L	Pass
4**	1.528	24.15	10.20	46.00	21.85	AV	L	Pass
5	2.640	36.44	10.14	56.00	19.56	Peak	L	Pass
5**	2.640	24.74	10.14	46.00	21.26	AV	L	Pass
6	3.500	36.70	10.08	56.00	19.30	Peak	L	Pass
6**	3.500	24.68	10.08	46.00	21.32	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	47.12	9.78	65.46	18.34	Peak	N	Pass
1**	0.160	30.41	9.78	55.46	25.05	AV	N	Pass
2	0.208	43.21	9.77	63.28	20.07	Peak	N	Pass
2**	0.208	30.28	9.77	53.28	23.00	AV	N	Pass
3	0.482	38.35	10.00	56.30	17.95	Peak	N	Pass
3**	0.482	27.13	10.00	46.30	19.17	AV	N	Pass
4	1.242	36.05	10.37	56.00	19.95	Peak	N	Pass
4**	1.242	25.00	10.37	46.00	21.00	AV	N	Pass
5	2.800	37.42	10.34	56.00	18.58	Peak	N	Pass
5**	2.800	24.90	10.34	46.00	21.10	AV	N	Pass
6	4.548	38.47	10.41	56.00	17.53	Peak	N	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2022.09.09	2023.09.08	<input checked="" type="checkbox"/>
LISN	SCHWARZB ECK	NSLK 8127	8127-687	2023.05.16	2024.05.15	<input checked="" type="checkbox"/>
ISN	TESEQ	ISN T800	34449	2022.11.11	2023.11.10	<input type="checkbox"/>
ISN	TESEQ	ISN T8-Cat6	53561	2023.04.23	2024.04.22	<input type="checkbox"/>
Shielded Room	YiHeng Electronic Co., Ltd	3.5m*3.1m*2. 8m	112	2022.02.19	2025.02.18	<input checked="" type="checkbox"/>
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		<input checked="" type="checkbox"/>

ANNEX B

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2380575-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2380575-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2380575-AI.PDF”.

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--END OF REPORT--