

TEST REPORT

Applicant: Shanghai Xiangcheng Communication Technology Co., Ltd
Address: 6th Floor, Building 10, No.3000, Longdong Avenue, Pudong New District, Shanghai
Equipment Type: Intelligent Mobile Data Capture Terminal
Model Name: T16 (refer to section 2.3)
Brand Name: N/A
FCC ID: 2A2UU-MF-T1621
Test Standard: 47 CFR Part 15 Subpart B
ANSI C63.4-2014
Sample Arrival Date: Sep. 15, 2023
Test Date: Sep. 26, 2023 - Dec. 13, 2023
Date of Issue: Dec. 13, 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

Jim Liao

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Nov. 30, 2023</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Dec. 13, 2023</u>	<u>Chapter 4.2, add testing mode and update homepage testing time</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	Intelligent Mobile Data Capture Terminal
Model Name Under Test	T16
Series Model Name	T1621, Ranger2K
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the customer)
Hardware Version	V1.0
Software Version	V1.0
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Ancillary Equipment 1	Li-Polymer Battery 1	
	Brand Name	N/A
	Model No.	F50042MA
	Serial No.	N/A
	Capacity	5100 mAh/19.635Wh
	Rated Voltage	3.85 V
	Limit Charge Voltage	4.40 V
	Manufacturer	Guangdong Fenghua New energy Co., LTD.
Ancillary Equipment 2	Li-Polymer Battery 2	
	Brand Name	N/A
	Model No.	500918V
	Serial No.	N/A
	Capacity	60mAh/0.228 Wh
	Rated Voltage	3.80 V

	Limit Charge Voltage	4.35 V
	Manufacturer	DongGuan Hongde Battery Co., Ltd.
Ancillary Equipment 3	Power Supply Unit	
	Brand Name	N/A
	Model No.	LM-603U-050200U02UL
	Serial No.	N/A
	Rated Input	100–240VAC 50–60Hz 0.35A
	Rated Output	5VDC / 2000mA 10.0W
	Manufacturer	Chongqing Lianmao Electronic Co., LTD
Ancillary Equipment 4	USB Cable	
	Model No.	N/A
	Length (Approx.)	2.15 m

2.5 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/12/17/25/26/66 TDD LTE Band 38/41 Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40) 5G WIFI 802.11a, 802.11n(HT20/40) and 802.11ac(VHT20/40/80) U-NII-1/2A/2C/3, GPS, Galileo, BeiDou, GLONASS, NFC
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	--

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	☒
Data connector	N/A	N/A	N/A	N/A	N/A	☒
USB disk	Sandisk	N/A	N/A	N/A	N/A	☒
Type-C Headset	OPPO	N/A	N/A	N/A	1.12M	☒

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
Mode 2	<u>The Rear Camera Test Mode</u> EUT + Adapter + USB Cable + Battery
Mode 3	<u>The Front Camera Test Mode</u> EUT + Adapter + USB Cable + Battery
Mode 4	<u>The Standby Test Mode</u> EUT + Adapter + USB Cable + Battery
Mode 5	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Laptop
Mode 6	<u>The GSM 850 MHz RX Test Mode</u> GSM 850 MHz RX + EUT +Adapter + USB Cable + Battery
Mode 7	<u>The EGPRS 850 MHz RX Test Mode</u> EGPRS 850 MHz RX + EUT +Adapter + USB Cable + Battery
Mode 8	<u>The WCDMA Band 5 RX Test Mode</u> WCDMA Band 5 RX + EUT +Adapter + USB Cable + Battery
Mode 9	<u>The FDD LTE Band 5 RX Test Mode</u> LTE Band 5 RX + EUT +Adapter + USB Cable + Battery
Mode 10	<u>The FDD LTE Band 12 RX Test Mode</u> LTE Band 12 RX + EUT +Adapter + USB Cable + Battery
Mode 11	<u>The FDD LTE Band 17 RX Test Mode</u> LTE Band 17 RX + EUT +Adapter + USB Cable + Battery
Mode 12	<u>The FDD LTE Band 26 RX Test Mode</u> LTE Band 26 RX + EUT +Adapter + USB Cable + Battery
Mode 13	<u>The OTG Test Mode</u> EUT + Battery + Data connector + USB Disk

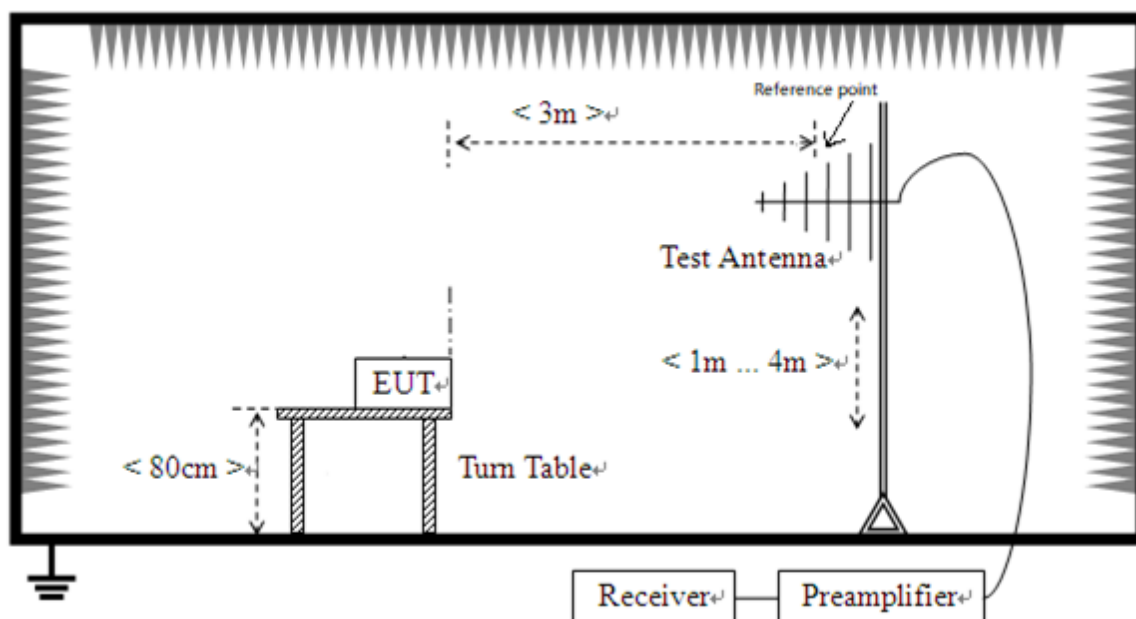
Mode 14	<u>The Type-C Headset Test Mode</u> EUT + Type-C Headset + Battery
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Test Case	Test Mode Configuration	Worst Mode
Radiated Emission	Mode 1~Mode 14	2, 5
Conducted Emission, AC Ports	Mode 1~Mode 12	2, 5

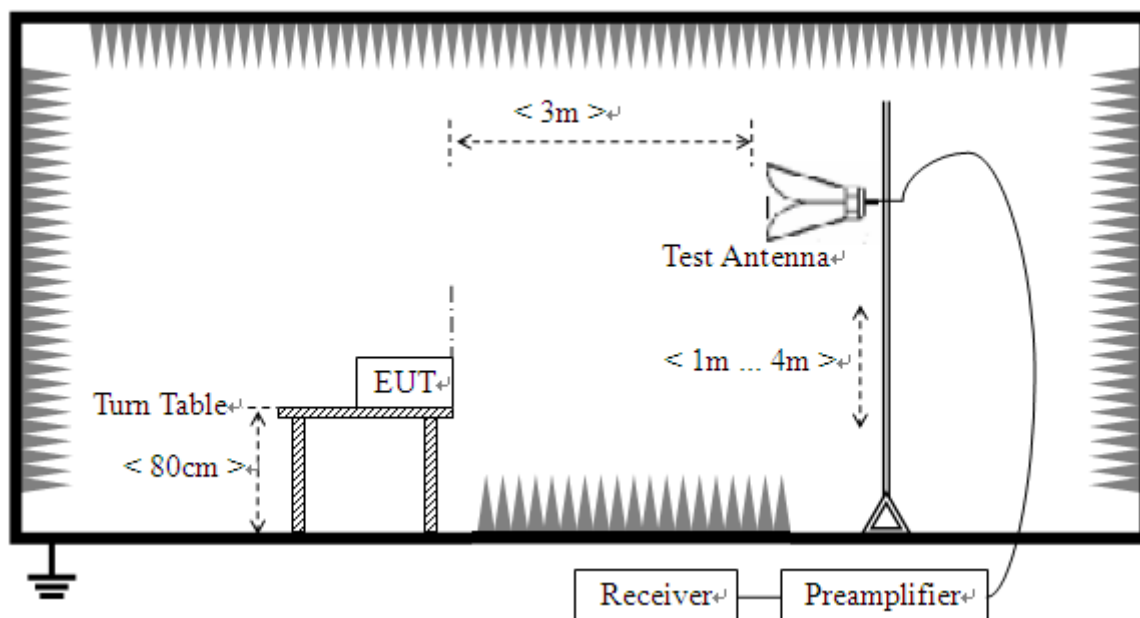
Note: Based on client request, all normal using modes of the normal function were tested, but only data of the worst mode was reported in this report.

4.3 Test Setups

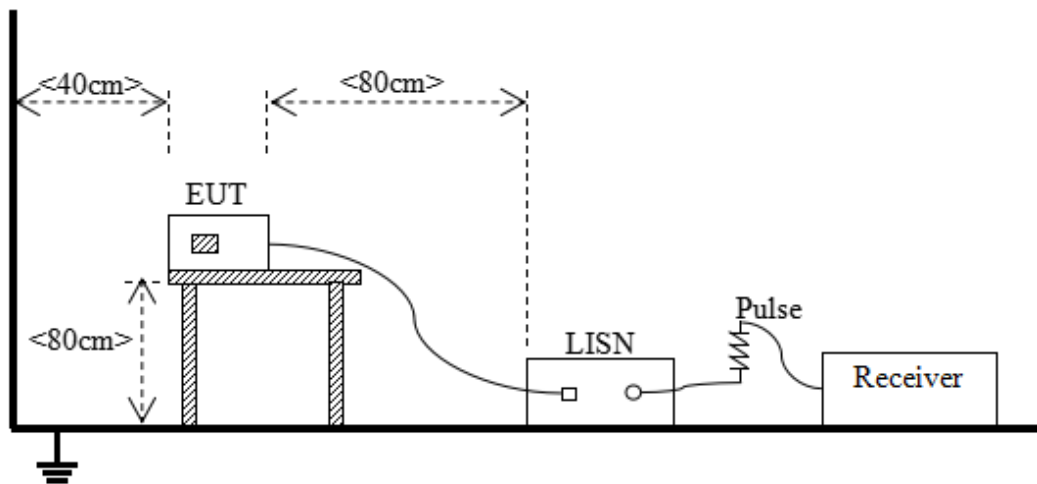
Test Setup 1



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 ($\mu\text{V/m}$)	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) 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:
 $L_{3m} = L_{10m} + 20 \times \log(d_{10m}/d_{3m})$
 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

Highest internal frequency (F_X)	Highest measurement frequency (F_M)
$F_X \geq 1 \text{ GHz}$	$5 * F_X$ 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 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 $f \geq 1 \text{ GHz}$, 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/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.

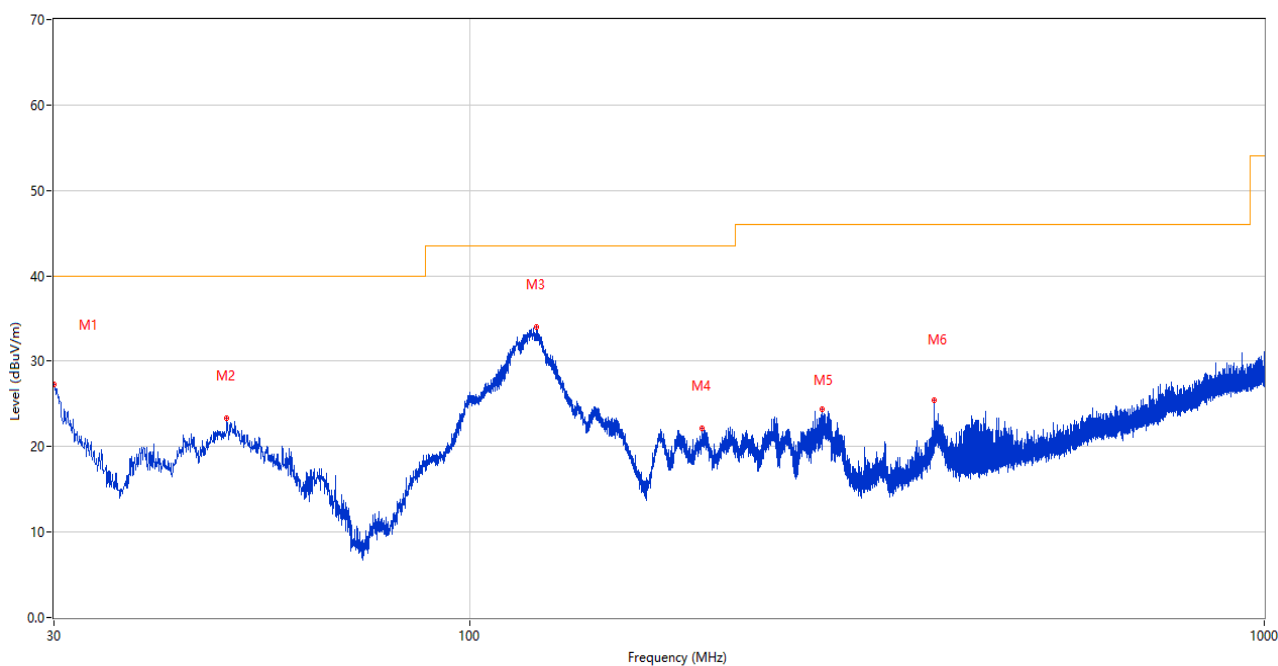
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

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.	S17	Temperature	23.4℃
Humidity	43%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2023.09.26

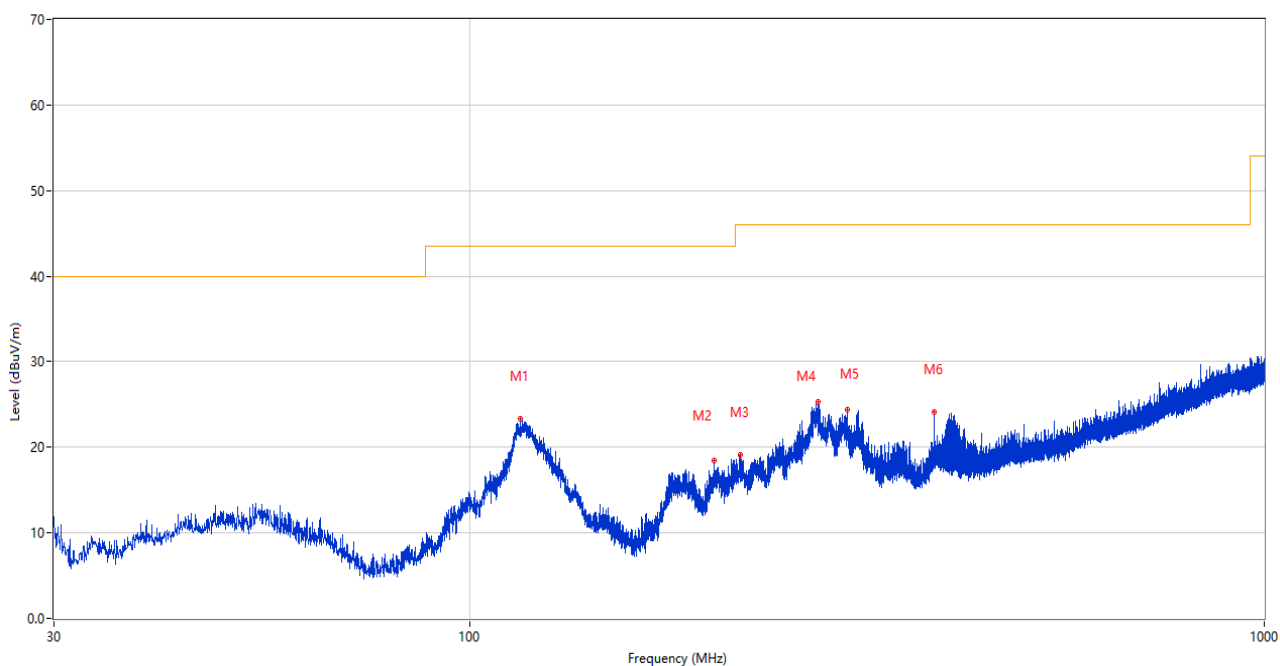
Test Mode 2

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	30.000	27.29	-28.82	40.0	12.71	Peak	192.00	100	Vertical	Pass
2	49.497	23.32	-25.52	40.0	16.68	Peak	248.00	100	Vertical	Pass
3	121.374	34.07	-28.70	43.5	9.43	Peak	192.00	100	Vertical	Pass
4	196.258	22.13	-26.80	43.5	21.37	Peak	106.00	100	Vertical	Pass
5	278.029	24.44	-24.23	46.0	21.56	Peak	0.00	100	Vertical	Pass
6	384.002	25.51	-21.41	46.0	20.49	Peak	210.00	200	Vertical	Pass

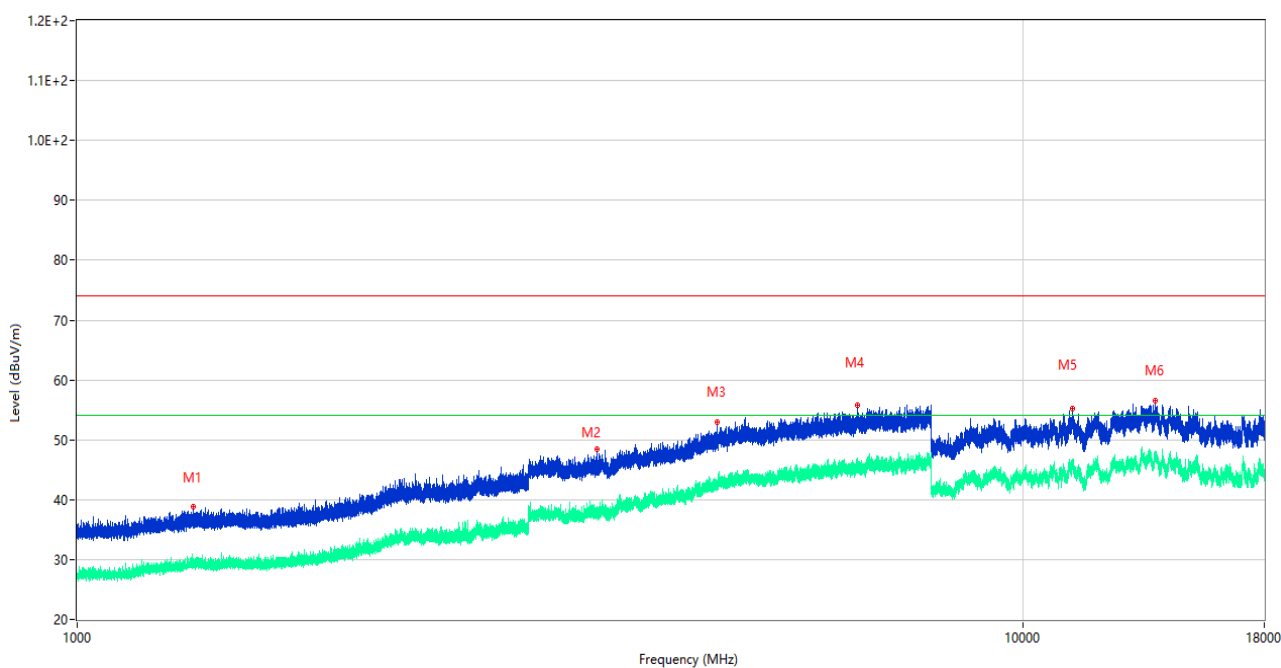
2) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	115.797	23.39	-27.59	43.5	20.11	Peak	108.00	200	Horizontal	Pass
2	203.339	18.49	-26.47	43.5	25.01	Peak	205.00	100	Horizontal	Pass
3	219.102	19.15	-26.25	46.0	26.85	Peak	208.00	200	Horizontal	Pass
4	274.634	25.30	-24.38	46.0	20.70	Peak	39.00	100	Horizontal	Pass
5	299.030	24.43	-23.73	46.0	21.57	Peak	198.00	100	Horizontal	Pass
6	384.002	24.17	-21.41	46.0	21.83	Peak	69.00	100	Horizontal	Pass

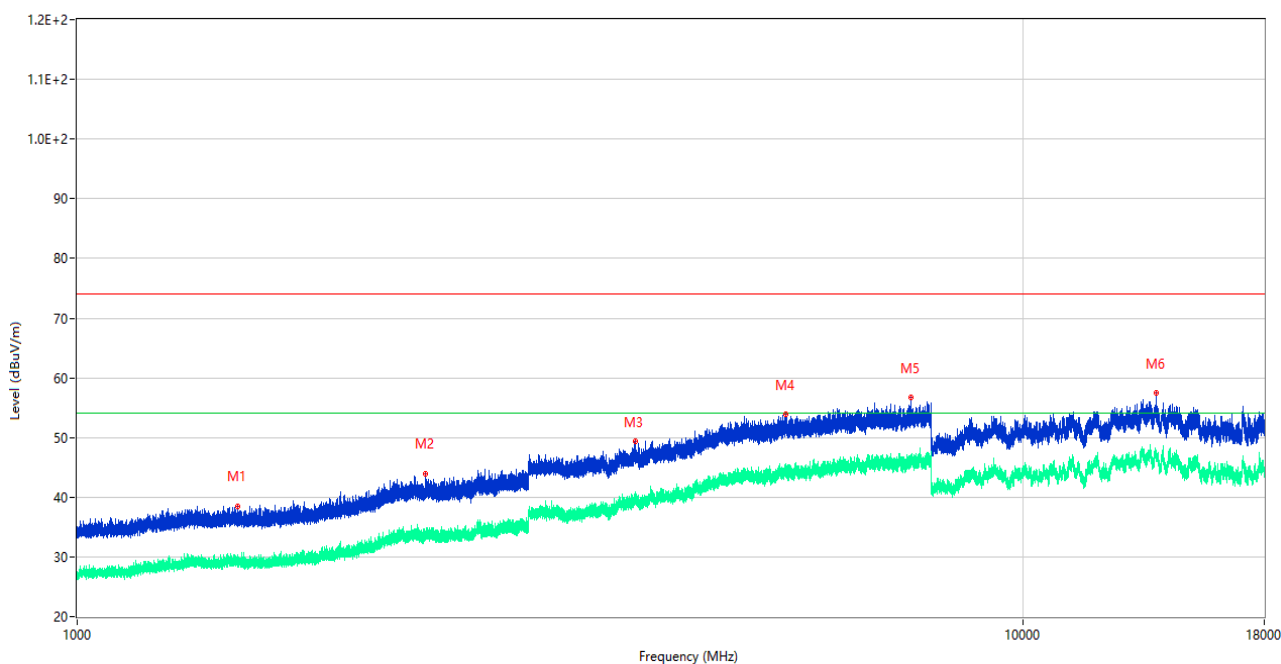
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2023.09.05	2024.09.04	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2022.12.07	2023.12.06	☒
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	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 – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.200	38.75	-16.65	74.0	35.25	Peak	12.00	100	Vertical	Pass
1**	1327.200	30.17	-16.65	54.0	23.83	AV	12.00	100	Vertical	Pass
2	3545.750	48.40	-4.93	74.0	25.60	Peak	27.00	100	Vertical	Pass
2**	3545.750	37.06	-4.93	54.0	16.94	AV	27.00	100	Vertical	Pass
3	4745.250	52.88	-0.66	74.0	21.12	Peak	102.00	100	Vertical	Pass
3**	4745.250	43.05	-0.66	54.0	10.95	AV	102.00	100	Vertical	Pass
4	6693.000	55.77	1.61	74.0	18.23	Peak	178.00	100	Vertical	Pass
4**	6693.000	46.77	1.61	54.0	7.23	AV	178.00	100	Vertical	Pass
5	11290.500	55.28	2.28	74.0	18.72	Peak	148.00	100	Vertical	Pass
5**	11290.500	45.44	2.28	54.0	8.56	AV	148.00	100	Vertical	Pass
6	13796.000	56.56	5.63	74.0	17.44	Peak	161.00	100	Vertical	Pass
6**	13796.000	47.60	5.63	54.0	6.40	AV	161.00	100	Vertical	Pass

4) Test Antenna Horizontal, 1 GHz – 18 GHz



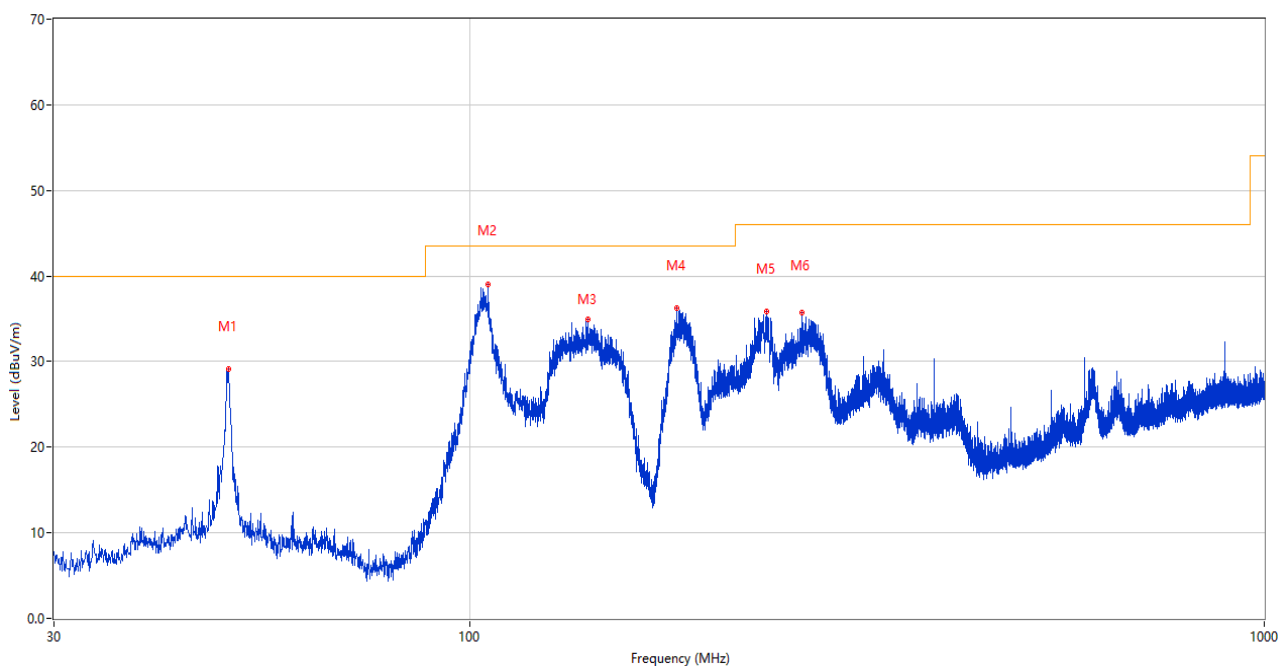
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1479.000	38.47	-16.73	74.0	35.53	Peak	255.00	100	Horizontal	Pass
1**	1479.000	29.02	-16.73	54.0	24.98	AV	255.00	100	Horizontal	Pass
2	2334.500	43.99	-11.72	74.0	30.01	Peak	282.00	100	Horizontal	Pass
2**	2334.500	33.45	-11.72	54.0	20.55	AV	282.00	100	Horizontal	Pass
3	3897.250	49.33	-2.21	74.0	24.67	Peak	100.00	100	Horizontal	Pass
3**	3897.250	39.63	-2.21	54.0	14.37	AV	100.00	100	Horizontal	Pass
4	5611.250	53.85	0.75	74.0	20.15	Peak	175.00	100	Horizontal	Pass
4**	5611.250	44.14	0.75	54.0	9.86	AV	175.00	100	Horizontal	Pass
5	7617.250	56.66	2.17	74.0	17.34	Peak	286.00	100	Horizontal	Pass
5**	7617.250	45.42	2.17	54.0	8.58	AV	286.00	100	Horizontal	Pass
6	13821.500	57.41	5.54	74.0	16.59	Peak	309.00	100	Horizontal	Pass
6**	13821.500	47.46	5.54	54.0	6.54	AV	309.00	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	2022.12.07	2023.12.06	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2022.12.07	2023.12.06	☒
Test Antenna- Horn	SCHWARZB ECK	BBHA 9120D	01917	2022.06.09	2025.06.08	☒
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.	S10	Temperature	23.4℃
Humidity	43%RH	Pressure	101kPa
Test Engineer	He Shichang	Test Date	2023.09.26

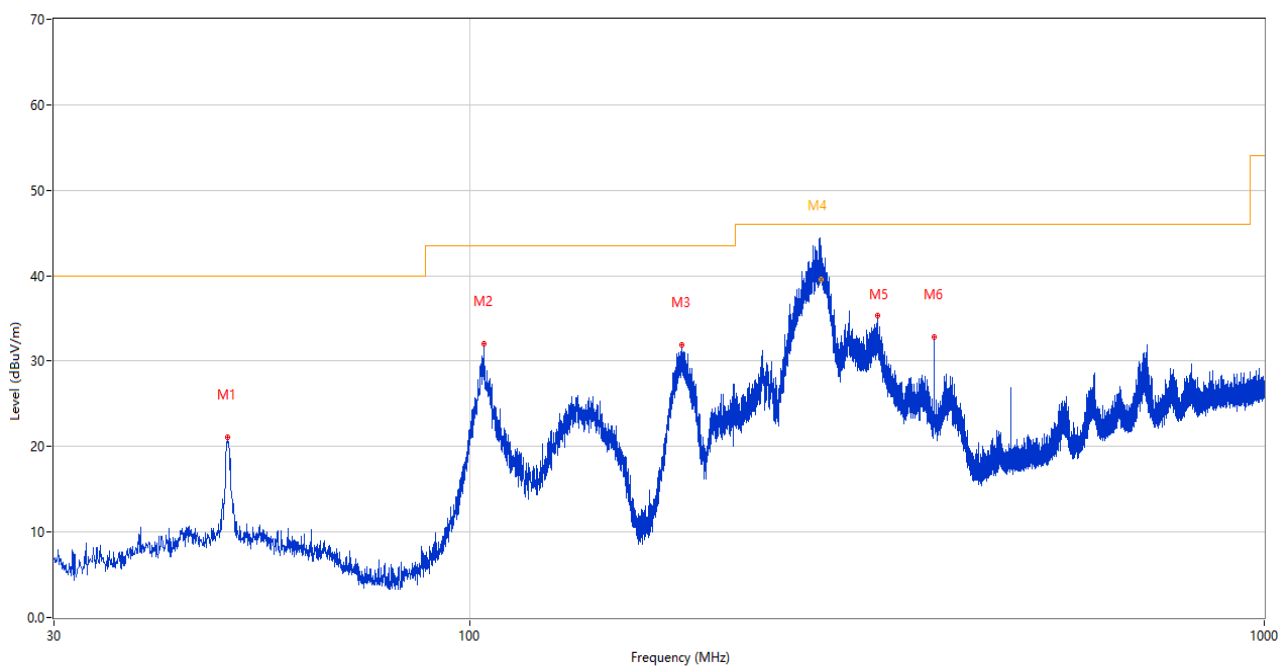
Test Mode 5

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	49.788	29.15	-25.56	40.0	10.85	Peak	259.00	100	Vertical	Pass
2	105.612	39.07	-26.48	43.5	4.43	Peak	281.00	100	Vertical	Pass
3	140.774	34.89	-30.29	43.5	8.61	Peak	14.00	100	Vertical	Pass
4	182.096	36.25	-28.29	43.5	7.25	Peak	147.00	100	Vertical	Pass
5	236.658	35.90	-25.27	46.0	10.10	Peak	184.00	100	Vertical	Pass
6	262.073	35.66	-24.65	46.0	10.34	Peak	0.00	100	Vertical	Pass

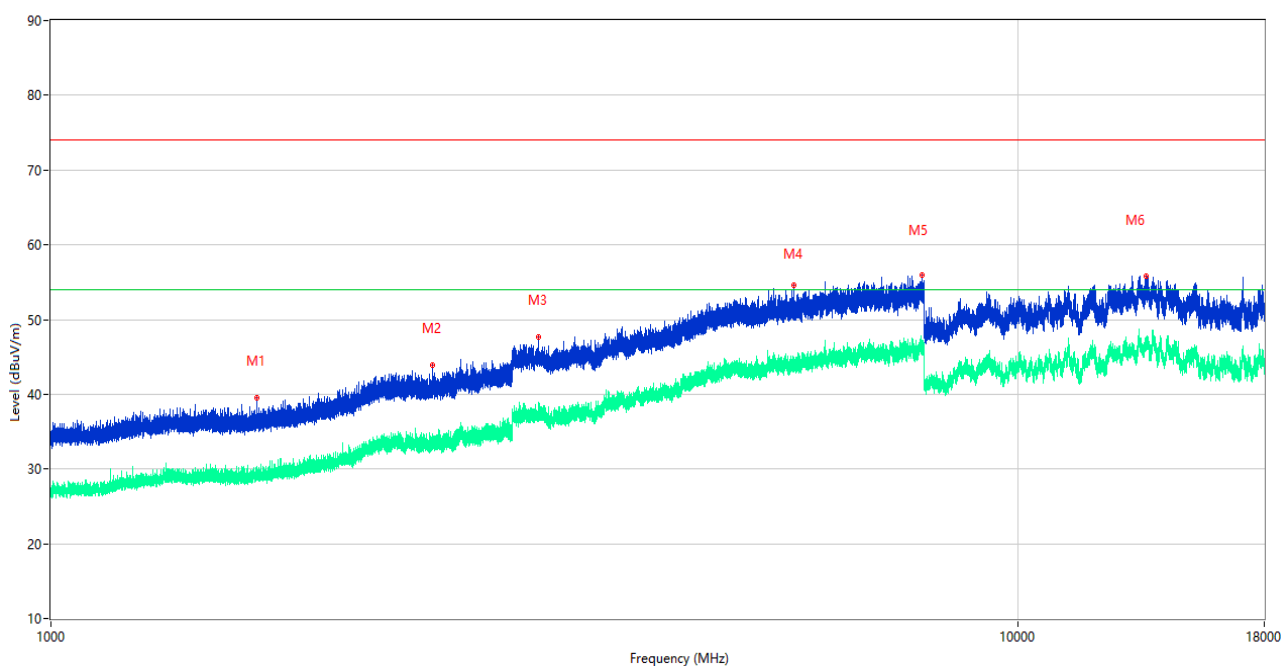
6) Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.642	21.04	-25.54	40.0	18.96	Peak	181.00	200	Horizontal	Pass
2	104.254	32.05	-26.50	43.5	11.45	Peak	145.00	200	Horizontal	Pass
3	184.812	31.96	-28.14	43.5	11.54	Peak	129.00	100	Horizontal	Pass
4	276.763	44.88	-24.37	46.0	1.12	Peak	360.00	118	Horizontal	N/A
4*	276.763	39.58	-24.37	46.0	6.42	QP	360.00	118	Horizontal	Pass
5	325.947	35.27	-22.99	46.0	10.73	Peak	84.00	100	Horizontal	Pass
6	384.002	32.84	-21.41	46.0	13.16	Peak	28.00	100	Horizontal	Pass

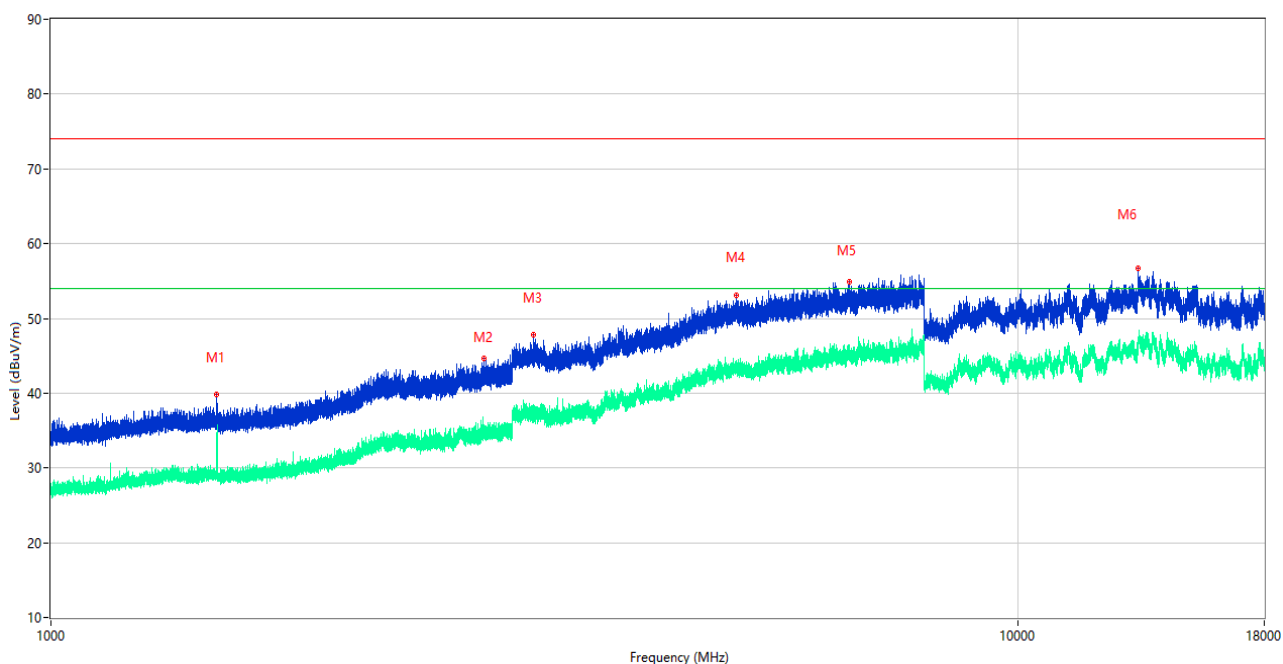
Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
Frequency Below 1 GHz						
EMI Receiver	Keysight	N9038A	MY55330120	2023.09.05	2024.09.04	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2022.12.07	2023.12.06	☒
Test Antenna- Bi-Log	SCHWARZB ECK	VULB 9168	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 – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1632.100	39.51	-16.63	74.0	34.49	Peak	190.00	100	Vertical	Pass
1**	1632.100	28.78	-16.63	54.0	25.22	AV	190.00	100	Vertical	Pass
2	2482.300	43.92	-10.54	74.0	30.08	Peak	74.00	100	Vertical	Pass
2**	2482.300	32.99	-10.54	54.0	21.01	AV	74.00	100	Vertical	Pass
3	3192.750	47.68	-5.57	74.0	26.32	Peak	326.00	100	Vertical	Pass
3**	3192.750	36.84	-5.57	54.0	17.16	AV	326.00	100	Vertical	Pass
4	5874.000	54.52	1.59	74.0	19.48	Peak	197.00	100	Vertical	Pass
4**	5874.000	43.73	1.59	54.0	10.27	AV	197.00	100	Vertical	Pass
5	7965.250	55.99	2.31	74.0	18.01	Peak	41.00	100	Vertical	Pass
5**	7965.250	46.43	2.31	54.0	7.57	AV	41.00	100	Vertical	Pass
6	13579.000	55.86	4.72	74.0	18.14	Peak	334.00	100	Vertical	Pass
6**	13579.000	46.91	4.72	54.0	7.09	AV	334.00	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	1485.200	39.81	-16.62	74.0	34.19	Peak	317.00	100	Horizontal	Pass
1**	1485.200	33.69	-16.62	54.0	20.31	AV	317.00	100	Horizontal	Pass
2	2808.500	44.58	-8.90	74.0	29.42	Peak	55.00	100	Horizontal	Pass
2**	2808.500	34.85	-8.90	54.0	19.15	AV	55.00	100	Horizontal	Pass
3	3154.000	47.76	-6.46	74.0	26.24	Peak	293.00	100	Horizontal	Pass
3**	3154.000	36.60	-6.46	54.0	17.40	AV	293.00	100	Horizontal	Pass
4	5117.250	53.03	0.23	74.0	20.97	Peak	136.00	100	Horizontal	Pass
4**	5117.250	44.31	0.23	54.0	9.69	AV	136.00	100	Horizontal	Pass
5	6699.250	54.90	1.53	74.0	19.10	Peak	238.00	100	Horizontal	Pass
5**	6699.250	45.80	1.53	54.0	8.20	AV	238.00	100	Horizontal	Pass
6	13333.500	56.69	4.65	74.0	17.31	Peak	175.00	100	Horizontal	Pass
6**	13333.500	46.42	4.65	54.0	7.58	AV	175.00	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	2022.12.07	2023.12.06	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2022.12.07	2023.12.06	☒
Test Antenna- Horn	SCHWARZB ECK	BBHA 9120D	01917	2022.06.09	2025.06.08	☒
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	/		☒

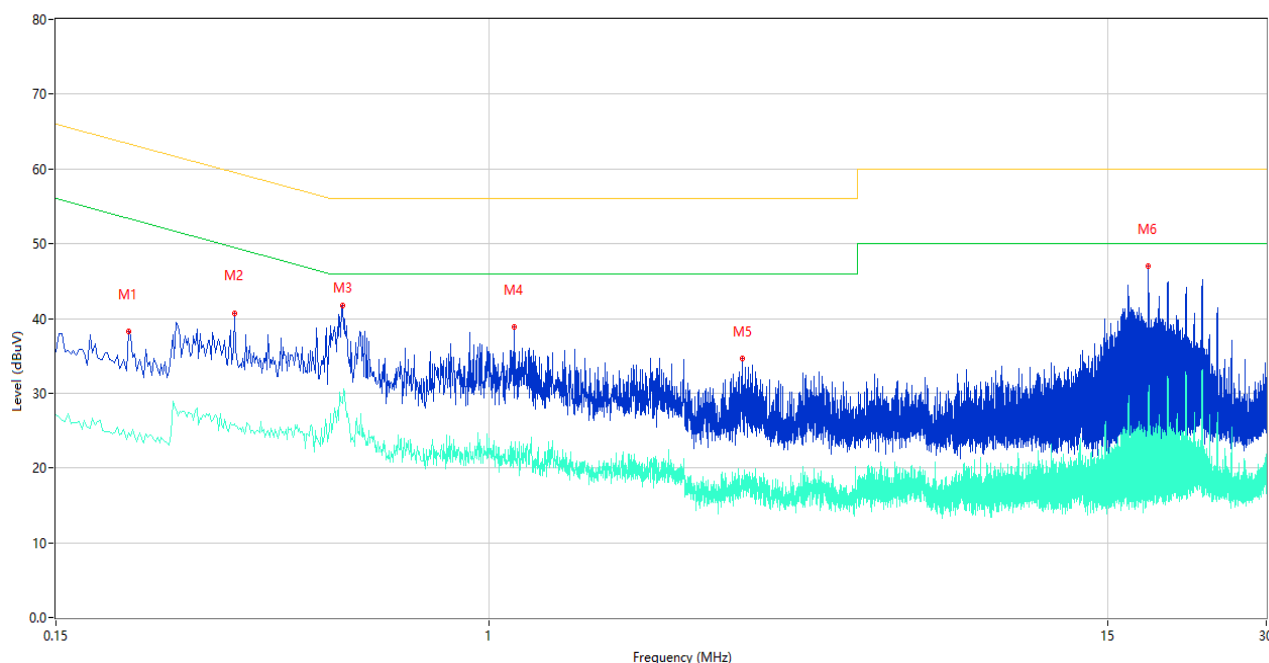
A.2 Conducted Emission, AC Ports

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.	S10	Temperature	24.3℃
Humidity	62%RH	Pressure	101kPa
Test Engineer	Yang yang	Test Date	2023.09.27

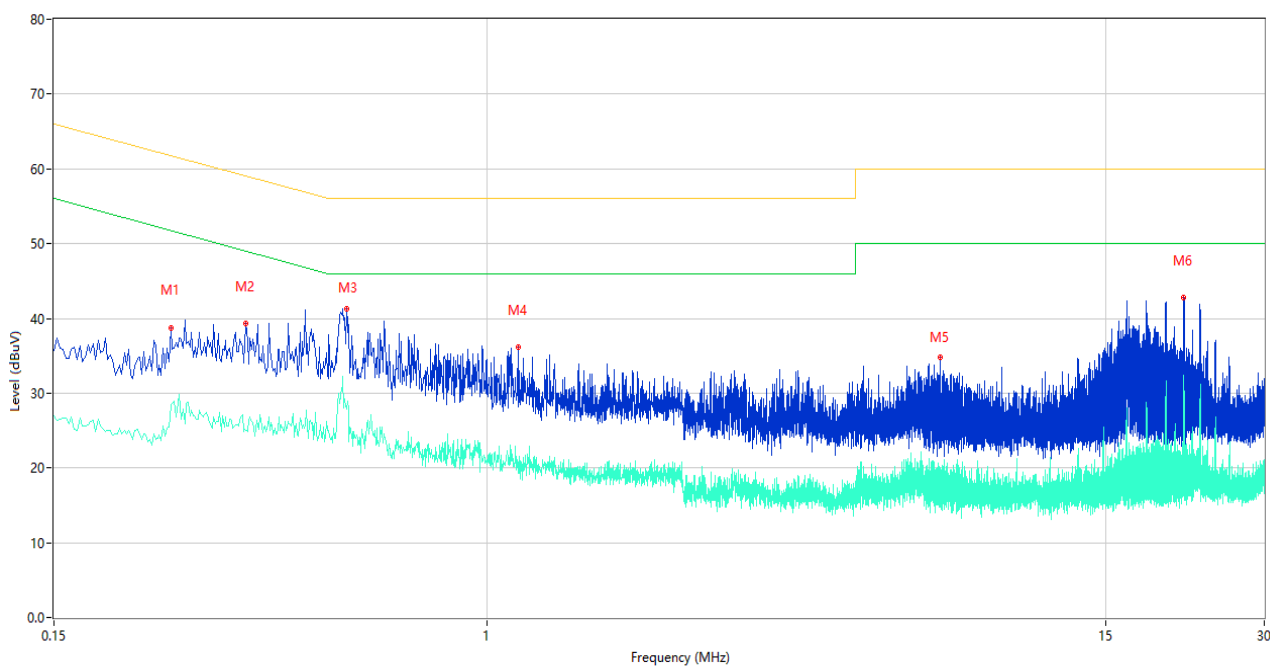
Test Mode 2

1) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.206	38.24	9.78	63.37	25.13	Peak	L	Pass
1**	0.206	24.75	9.78	53.37	28.62	AV	L	Pass
2	0.328	40.73	9.75	59.50	18.77	Peak	L	Pass
2**	0.328	25.98	9.75	49.50	23.52	AV	L	Pass
3	0.526	41.66	10.13	56.00	14.34	Peak	L	Pass
3**	0.526	28.58	10.13	46.00	17.42	AV	L	Pass
4	1.114	38.91	10.16	56.00	17.09	Peak	L	Pass
4**	1.114	21.81	10.16	46.00	24.19	AV	L	Pass
5	3.032	34.64	10.33	56.00	21.36	Peak	L	Pass
5**	3.032	17.47	10.33	46.00	28.53	AV	L	Pass
6	17.918	46.97	10.97	60.00	13.03	Peak	L	Pass
6**	17.918	28.67	10.97	50.00	21.33	AV	L	Pass

2) AC Ports - N Phase



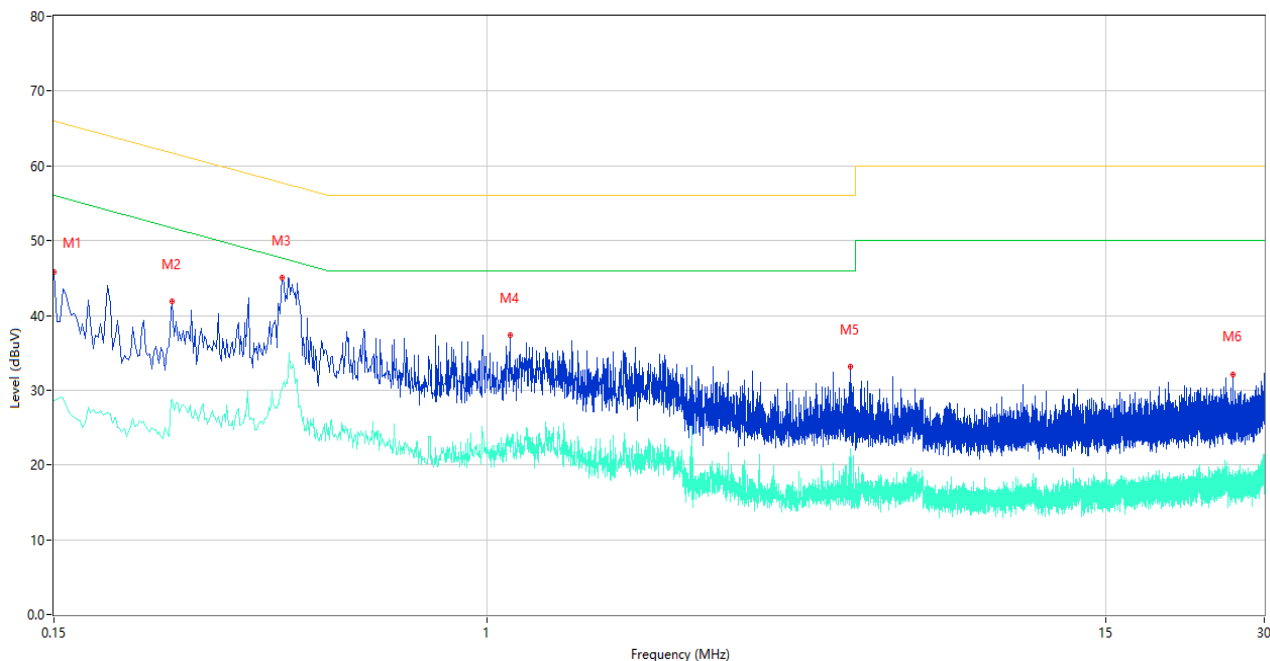
No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.250	38.78	9.79	61.76	22.98	Peak	N	Pass
1**	0.250	28.28	9.79	51.76	23.48	AV	N	Pass
2	0.348	39.32	9.71	59.01	19.69	Peak	N	Pass
2**	0.348	25.05	9.71	49.01	23.96	AV	N	Pass
3	0.540	41.29	10.17	56.00	14.71	Peak	N	Pass
3**	0.540	27.85	10.17	46.00	18.15	AV	N	Pass
4	1.144	36.09	10.03	56.00	19.91	Peak	N	Pass
4**	1.144	20.72	10.03	46.00	25.28	AV	N	Pass
5	7.266	34.76	10.07	60.00	25.24	Peak	N	Pass
5**	7.266	18.67	10.07	50.00	31.33	AV	N	Pass
6	21.034	42.78	10.84	60.00	17.22	Peak	N	Pass
6**	21.034	32.38	10.84	50.00	17.62	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.	S10	Temperature	24.3℃
Humidity	52%RH	Pressure	101kPa
Test Engineer	Yang yang	Test Date	2023.09.27

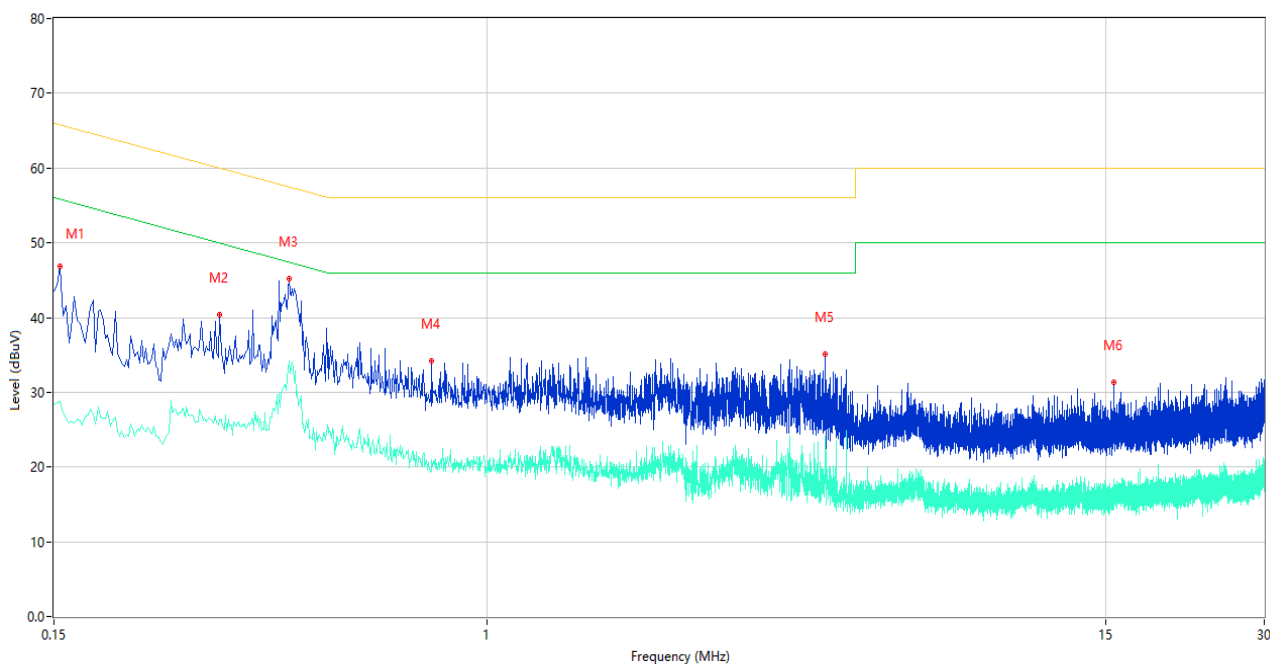
Test Mode 5

3) AC Ports - L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	45.86	9.84	66.00	20.14	Peak	L	Pass
1**	0.150	28.64	9.84	56.00	27.36	AV	L	Pass
2	0.252	41.85	9.79	61.69	19.84	Peak	L	Pass
2**	0.252	28.81	9.79	51.69	22.88	AV	L	Pass
3	0.408	45.02	10.37	57.69	12.67	Peak	L	Pass
3**	0.408	30.21	10.37	47.69	17.48	AV	L	Pass
4	1.104	37.41	10.20	56.00	18.59	Peak	L	Pass
4**	1.104	23.37	10.20	46.00	22.63	AV	L	Pass
5	4.892	33.18	10.44	56.00	22.82	Peak	L	Pass
5**	4.892	20.27	10.44	46.00	25.73	AV	L	Pass
6	26.108	32.15	10.83	60.00	27.85	Peak	L	Pass
6**	26.108	18.11	10.83	50.00	31.89	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	46.81	9.84	65.78	18.97	Peak	N	Pass
1**	0.154	28.85	9.84	55.78	26.93	AV	N	Pass
2	0.310	40.41	9.78	59.97	19.56	Peak	N	Pass
2**	0.310	26.41	9.78	49.97	23.56	AV	N	Pass
3	0.420	45.17	10.35	57.45	12.28	Peak	N	Pass
3**	0.420	34.22	10.35	47.45	13.23	AV	N	Pass
4	0.784	34.16	9.58	56.00	21.84	Peak	N	Pass
4**	0.784	20.95	9.58	46.00	25.05	AV	N	Pass
5	4.390	35.03	10.28	56.00	20.97	Peak	N	Pass
5**	4.390	24.12	10.28	46.00	21.88	AV	N	Pass
6	15.558	31.28	10.43	60.00	28.72	Peak	N	Pass
6**	15.558	14.33	10.43	50.00	35.67	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

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2390677-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2390677-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2390677-AI.PDF”.

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--END OF REPORT--