

# TEST REPORT

**Applicant:** SG Wireless Limited  
**Address:** Unit 4, 5/F, Sun Fung Industrial Building, 8 Ma Kok Street, Tsuen Wan, New Territories, Hong Kong  
**Equipment Type:** F1 Smart Module  
**Model Name:** SGW3531  
**Brand Name:** SG Wireless  
**FCC ID:** 2AS9410  
**Test Standard:** 47 CFR Part 15 Subpart B  
ANSI C63.4-2014  
**Sample Arrival Date:** Feb. 29, 2023  
**Test Date:** Mar. 13, 2024 - Jun. 21, 2024  
**Date of Issue:** Aug. 13, 2024

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Xin Liao



**Checked by:** Liu Zhenxiang



**Approved by:** Tolan Tu  
(Testing Director)



| <b>Revision History</b> |                      |                      |
|-------------------------|----------------------|----------------------|
| Version                 | Issue Date           | Revisions            |
| <u>Rev. 01</u>          | <u>Aug. 13, 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                  | <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 | SG Wireless Limited   |
| Address   | Unit 4, 5/F, Sun Fung Industrial Building, 8 Ma Kok Street, Tsuen Wan, New Territories, Hong Kong |

### 2.2 Manufacturer Information

|              |   |
|--------------|---|
| Manufacturer | SG Wireless Limited   |
| Address      | Unit 4, 5/F, Sun Fung Industrial Building, 8 Ma Kok Street, Tsuen Wan, New Territories, Hong Kong |

### 2.3 General Description for Equipment under Test (EUT)

|   |                 |
|---|-----------------|
| EUT Name                                  | F1 Smart Module |
| Model Name Under Test                     | SGW3531         |
| Series Model Name                         | N/A             |
| Description of Model name differentiation | N/A             |
| Hardware Version                          | 1.2.3           |
| Software Version                          | B0.2.0b0        |
| Dimensions (Approx.)                      | N/A             |
| Weight (Approx.)                          | 4.6g            |

### 2.4 Ancillary Equipment

Note: Not applicable.

### 2.5 Technical Information

|                                       |   |
|---------------------------------------|---|
| Network and Wireless connectivity     | 4G Network FDD LTE-M1 Band<br>2/4/5/12/13/14/17/18/19/25/26/66/71/85<br>FDD NB-IoT Band<br>2/4/5/12/13/14/17/18/19/25/26/66/71/85<br>Bluetooth (BLE)<br>WIFI 802.11b, 802.11g, 802.11n(HT20/40)<br>LoRa |
| 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                                 |
|--------------|--------------|------------------|-------------------------|----------|-----------------|-------------------------------------|
| RF Cable     | N/A          | N/A              | N/A                     | 30cm     | N/A             | <input checked="" type="checkbox"/> |
| 2.4G Antenna | N/A          | JZC-RPF-N-ZBG196 | N/A                     | 196*13mm | N/A             | <input checked="" type="checkbox"/> |
| LTE Antenna  | N/A          | HX-AP4G-19513-D1 | N/A                     | 195*13mm | N/A             | <input checked="" type="checkbox"/> |
| LORA Antenna | N/A          | 2.521.053B       | N/A                     | 200mm    | N/A             | <input checked="" type="checkbox"/> |
| Adapter      | OPPO         | AK931JH          | N/A                     | N/A      | N/A             | <input checked="" type="checkbox"/> |
| USB Cable    | UGREEN       | L1               | N/A                     | N/A      | 1m              | <input checked="" type="checkbox"/> |
| PCB Board    | SG Wireless  | F1 STARTER KIT   | Wi-Fi:7C:51:89:02:03:4C | N/A      | CB-23036-01-V00 | <input checked="" type="checkbox"/> |

### 4.2 Test Configurations

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

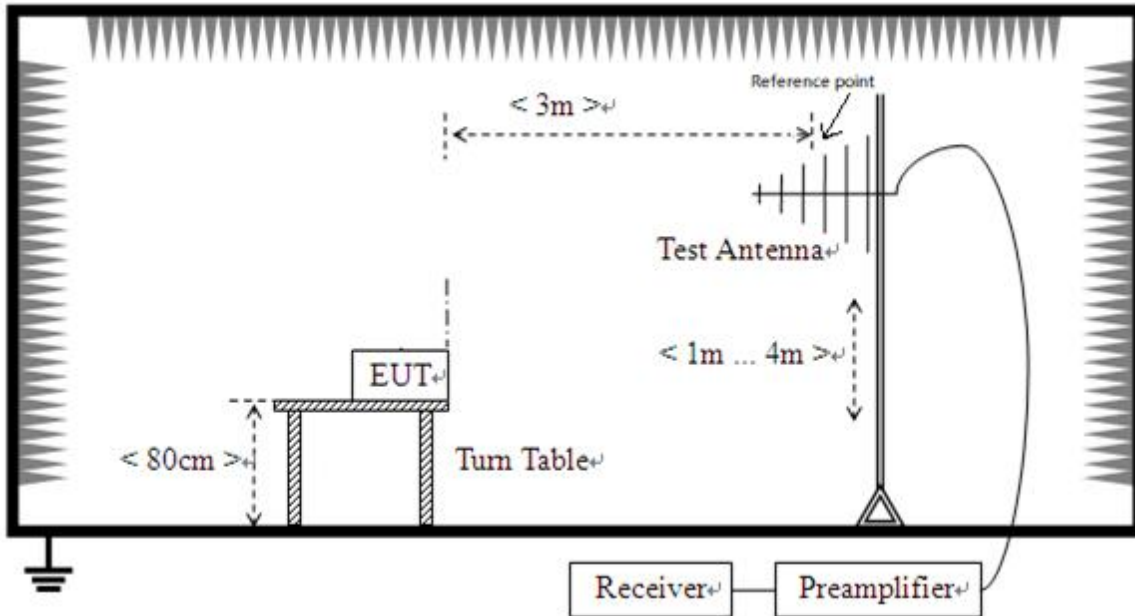
| Test Mode Configuration | Description   |
|-------------------------|---|
| Mode 1                  | <u>The Standby Test Mode</u><br>EUT + Adapter + USB Cable + PCB Board + RF Cable + 2.4G Antenna + LTE Antenna + LORA Antenna          |
| Mode 2                  | <u>The Normal Operating Test Mode</u><br>EUT + Adapter + USB Cable + PCB Board + RF Cable + 2.4G Antenna + LTE Antenna + LORA Antenna |

| Test Case                    | Test Mode Configuration | Worst Mode |
|------------------------------|-------------------------|------------|
| Radiated Emission            | Mode 1~Mode 2           | 1          |
| Conducted Emission, AC Ports | Mode 1~Mode 2           | 1          |

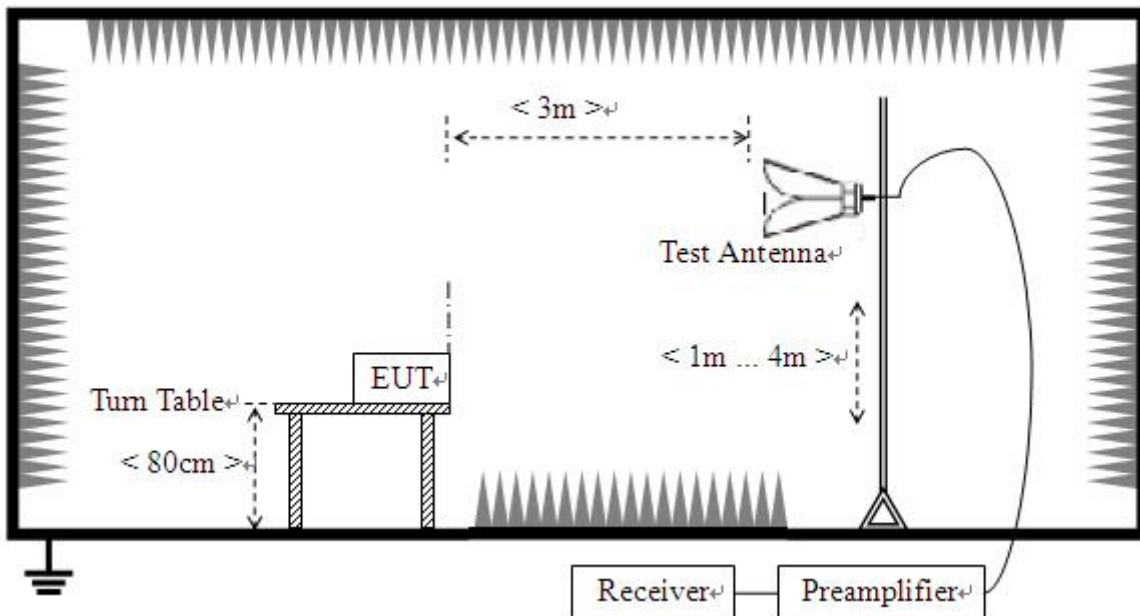
Note: All operation modes were tested, but only test data of the worst mode was presented in this report.

### 4.3 Test Setups

#### Test Setup 1



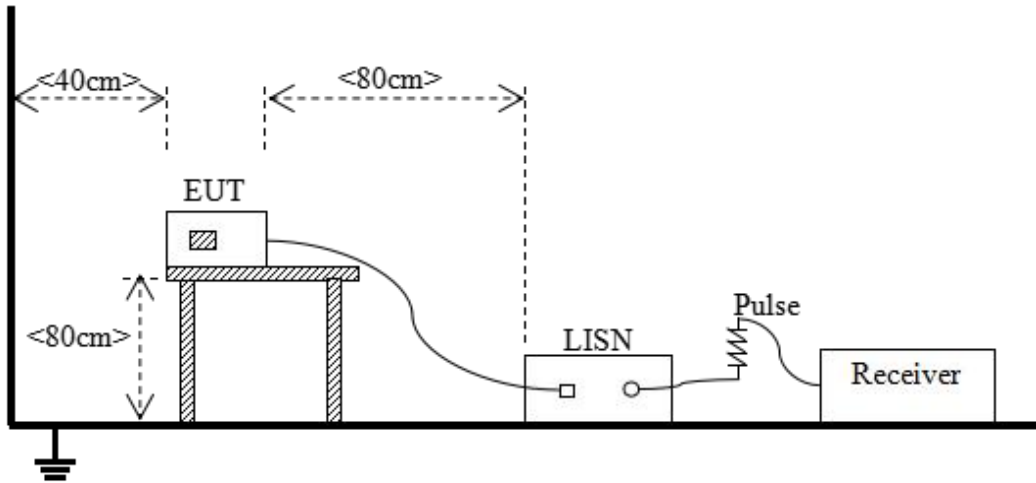
Radiated Emission (30 MHz-1 GHz)



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<br>(MHz) | Class B (at 3 m)                      |   | Class A (at 3 m)                        |
|--------------------------|---------------------------------------|---|---|
|                          | Field Strength<br>( $\mu\text{V/m}$ ) | Field Strength<br>(dB $\mu\text{V/m}$ ) | Field Strength<br>(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) 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<br>(GHz) | Class B (at 3 m)                      |  |   | Class A (at 3 m)                                   |   |
|--------------------------|---------------------------------------|--|---|--|---|
|                          | Field Strength<br>( $\mu\text{V/m}$ ) | Field Strength<br>Average<br>(dB $\mu\text{V/m}$ ) | Field Strength<br>Peak<br>(dB $\mu\text{V/m}$ ) | Field Strength<br>Average<br>(dB $\mu\text{V/m}$ ) | Field Strength<br>Peak<br>(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                                       |
| $F_x \geq 1$ GHz   | $5 * F_x$<br>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  $0^\circ$  to  $360^\circ$ , 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 $\mu$ V/m) = Reading (dB $\mu$ 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<br>(dB $\mu$ V) | Average<br>(dB $\mu$ V) |
| 0.15 - 0.50           | 79                         | 66                      |
| 0.50 - 30             | 73                         | 60                      |

| Frequency range (MHz) | Class B                    |                         |
|-----------------------|----------------------------|-------------------------|
|                       | Quasi-peak<br>(dB $\mu$ V) | Average<br>(dB $\mu$ 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  $\Omega$ /50  $\mu$ 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 $\mu$ V) = Reading (dB $\mu$ 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

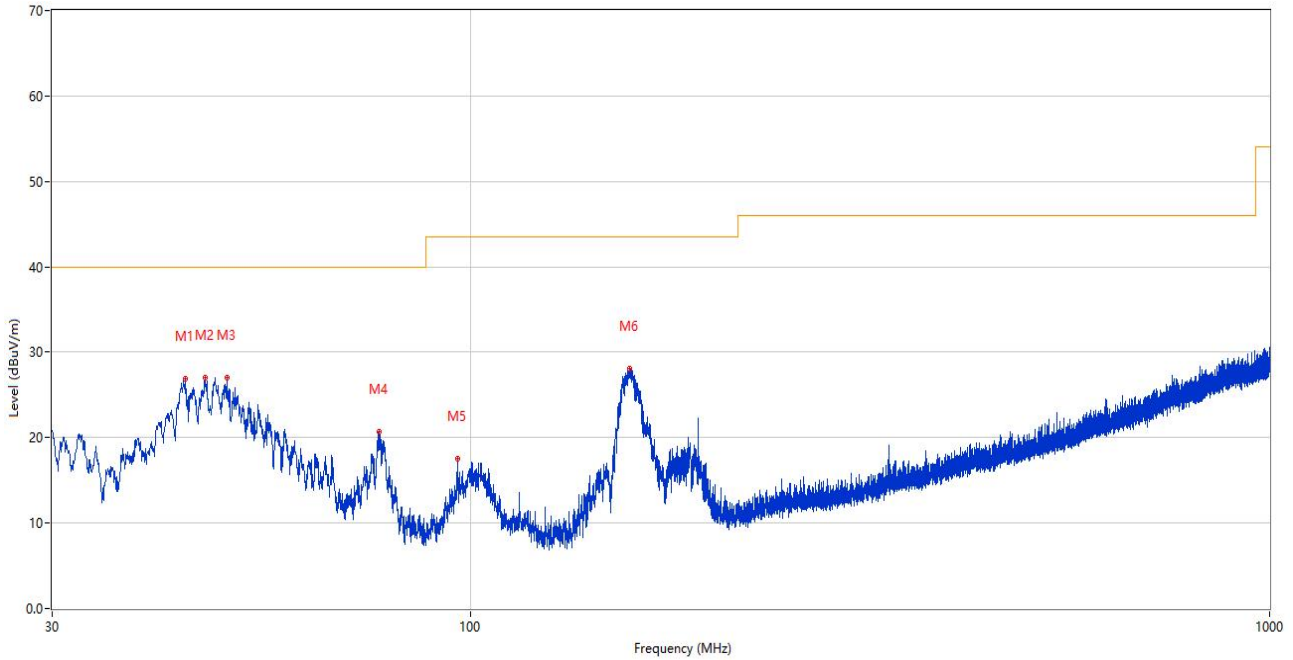
Note 1: The symbol of "--" in the table which means not application.

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.    | S12         | Temperature | 22.1°C     |
| Humidity      | 41%RH       | Pressure    | 101kPa     |
| Test Engineer | He Shichang | Test Date   | 2024.06.14 |

**Test Mode 1**

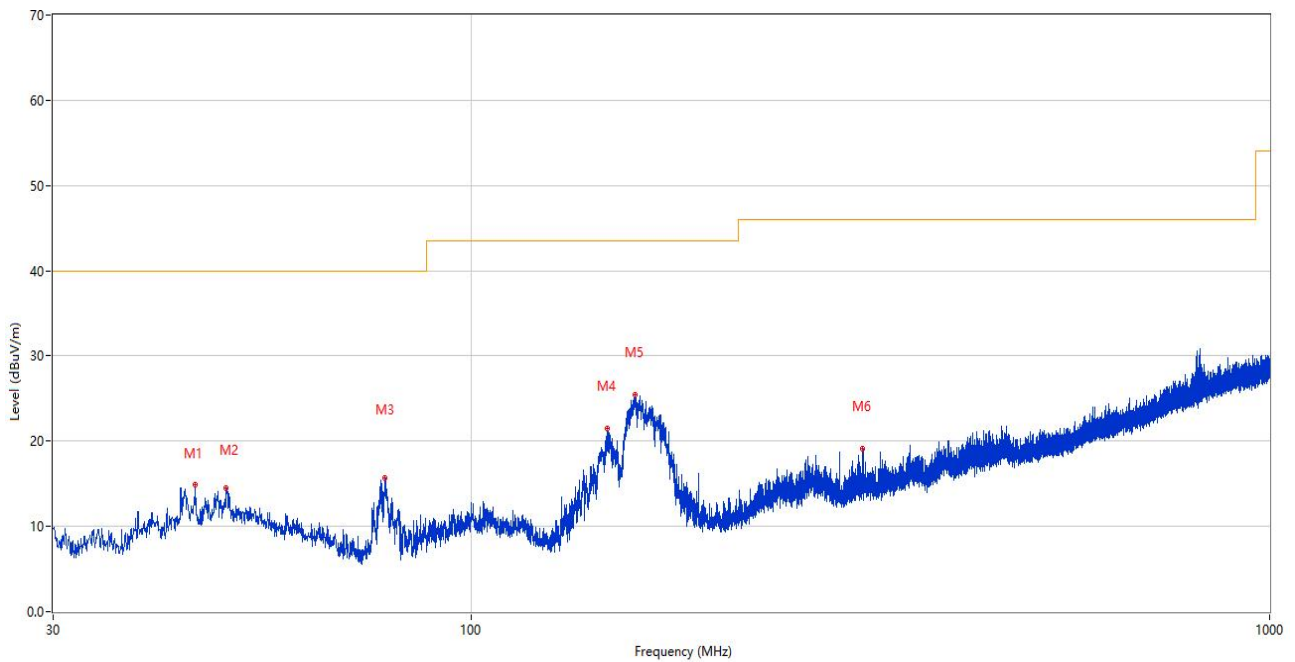
**1) Test Antenna Vertical, 30 MHz – 1 GHz**



| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna  | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1   | 44.017          | 26.89            | -25.74      | 40.0           | 13.11       | Peak     | 157.00         | 100         | Vertical | Pass    |
| 2   | 46.636          | 27.05            | -25.56      | 40.0           | 12.95       | Peak     | 191.00         | 100         | Vertical | Pass    |
| 3   | 49.594          | 27.06            | -25.54      | 40.0           | 12.94       | Peak     | 287.00         | 100         | Vertical | Pass    |
| 4   | 76.996          | 20.64            | -31.13      | 40.0           | 19.36       | Peak     | 100.00         | 100         | Vertical | Pass    |
| 5   | 96.396          | 17.52            | -27.30      | 43.5           | 25.98       | Peak     | 300.00         | 100         | Vertical | Pass    |
| 6   | 158.234         | 28.11            | -29.71      | 43.5           | 15.39       | Peak     | 314.00         | 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   | 45.181          | 14.96            | -25.52      | 40.0           | 25.04       | Peak     | 138.00         | 200         | Horizontal | Pass    |
| 2   | 49.400          | 14.52            | -25.51      | 40.0           | 25.48       | Peak     | 305.00         | 100         | Horizontal | Pass    |
| 3   | 78.112          | 15.64            | -31.11      | 40.0           | 24.36       | Peak     | 120.00         | 200         | Horizontal | Pass    |
| 4   | 148.389         | 21.54            | -30.12      | 43.5           | 21.96       | Peak     | 124.00         | 200         | Horizontal | Pass    |
| 5   | 160.756         | 25.45            | -29.54      | 43.5           | 18.05       | Peak     | 69.00          | 200         | Horizontal | Pass    |
| 6   | 309.360         | 19.12            | -23.39      | 46.0           | 26.88       | Peak     | 233.00         | 100         | Horizontal | Pass    |

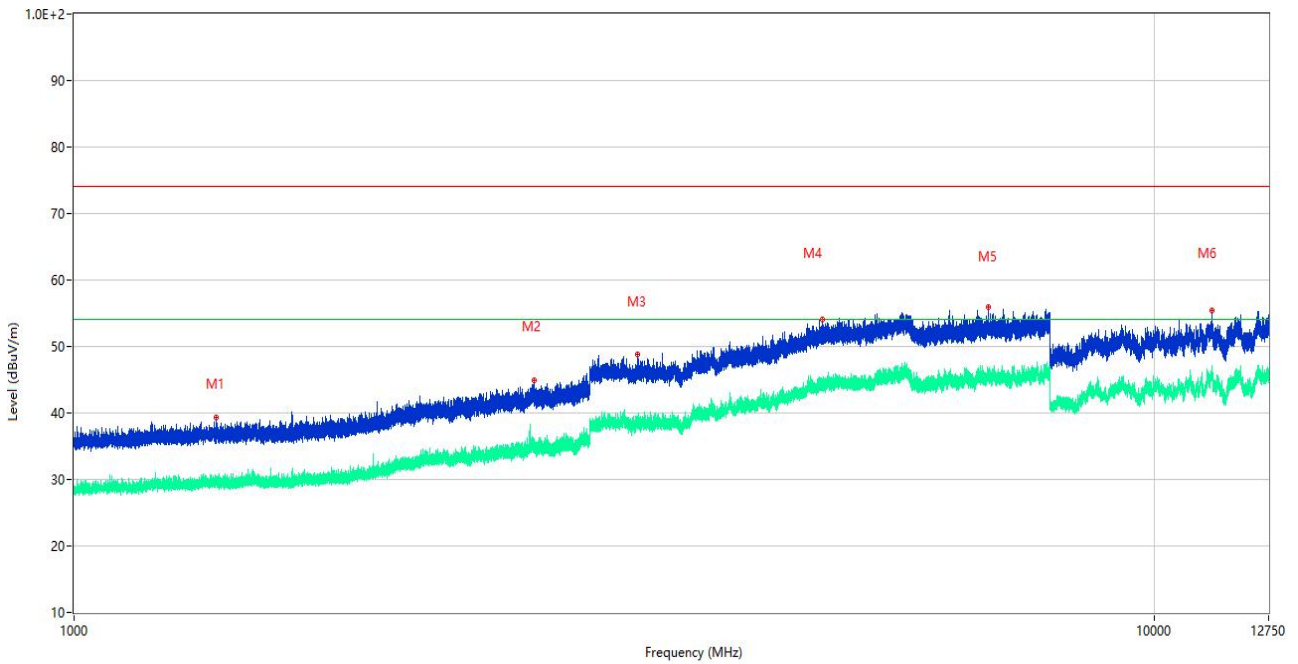
| Equipment Information    |                 |            |             |            |            |     |
|--------------------------|-----------------|------------|-------------|------------|------------|-----|
| Equipment Name           | Supplier        | Model      | Serial No.  | Cal. Date  | Cal. Due   | Use |
| Frequency Below 1 GHz    |                 |            |             |            |            |     |
| EMI Receiver             | Keysight        | N9038A     | MY55330120  | 2023.09.05 | 2024.09.04 | ☒   |
| Amplifier<br>(30-1GHz)   | COM-MV          | ZT30-1000M | B2017119081 | 2023.12.05 | 2024.12.04 | ☒   |
| Test Antenna-<br>Bi-Log  | SCHWARZB<br>ECK | VULB 9168  | 9168-00867  | 2022.04.12 | 2025.04.11 | ☒   |
| Anechoic<br>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   | 1250.100        | 38.74            | -16.09      | 74.0           | 35.26       | Peak     | 133.00         | 100         | Vertical | Pass    |
| 1** | 1250.100        | 29.08            | -16.09      | 54.0           | 24.92       | AV       | 133.00         | 100         | Vertical | Pass    |
| 2   | 1850.700        | 40.67            | -15.03      | 74.0           | 33.33       | Peak     | 310.00         | 100         | Vertical | Pass    |
| 2** | 1850.700        | 31.01            | -15.03      | 54.0           | 22.99       | AV       | 310.00         | 100         | Vertical | Pass    |
| 3   | 4045.000        | 50.83            | -1.00       | 74.0           | 23.17       | Peak     | 163.00         | 100         | Vertical | Pass    |
| 3** | 4045.000        | 41.03            | -1.00       | 54.0           | 12.97       | AV       | 163.00         | 100         | Vertical | Pass    |
| 4   | 4915.750        | 53.67            | 2.40        | 74.0           | 20.33       | Peak     | 200.00         | 100         | Vertical | Pass    |
| 4** | 4915.750        | 44.13            | 2.40        | 54.0           | 9.87        | AV       | 200.00         | 100         | Vertical | Pass    |
| 5   | 6831.000        | 55.02            | 1.49        | 74.0           | 18.98       | Peak     | 181.00         | 100         | Vertical | Pass    |
| 5** | 6831.000        | 44.02            | 1.49        | 54.0           | 9.98        | AV       | 181.00         | 100         | Vertical | Pass    |
| 6   | 11916.000       | 54.99            | 2.40        | 74.0           | 19.01       | Peak     | 44.00          | 100         | Vertical | Pass    |
| 6** | 11916.000       | 45.44            | 2.40        | 54.0           | 8.56        | AV       | 44.00          | 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   | 1354.500        | 39.37            | -16.03      | 74.0           | 34.63       | Peak     | 38.00          | 100         | Horizontal | Pass    |
| 1** | 1354.500        | 29.31            | -16.03      | 54.0           | 24.69       | AV       | 38.00          | 100         | Horizontal | Pass    |
| 2   | 2666.200        | 44.88            | -8.78       | 74.0           | 29.12       | Peak     | 123.00         | 100         | Horizontal | Pass    |
| 2** | 2666.200        | 34.79            | -8.78       | 54.0           | 19.21       | AV       | 123.00         | 100         | Horizontal | Pass    |
| 3   | 3321.000        | 48.80            | -4.48       | 74.0           | 25.20       | Peak     | 39.00          | 100         | Horizontal | Pass    |
| 3** | 3321.000        | 37.63            | -4.48       | 54.0           | 16.37       | AV       | 39.00          | 100         | Horizontal | Pass    |
| 4   | 4924.500        | 54.09            | 2.42        | 74.0           | 19.91       | Peak     | 120.00         | 100         | Horizontal | Pass    |
| 4** | 4924.500        | 43.89            | 2.42        | 54.0           | 10.11       | AV       | 120.00         | 100         | Horizontal | Pass    |
| 5   | 7018.000        | 56.01            | 1.65        | 74.0           | 17.99       | Peak     | 138.00         | 100         | Horizontal | Pass    |
| 5** | 7018.000        | 45.13            | 1.65        | 54.0           | 8.87        | AV       | 138.00         | 100         | Horizontal | Pass    |
| 6   | 11308.500       | 55.51            | 2.16        | 74.0           | 18.49       | Peak     | 222.00         | 100         | Horizontal | Pass    |
| 6** | 11308.500       | 46.24            | 2.16        | 54.0           | 7.76        | AV       | 222.00         | 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 | <input checked="" type="checkbox"/> |
| Amplifier (1-12GHz)   | Advanced Microwave | WLA652A         | 1740103    | 2023.12.05 | 2024.12.04 | <input checked="" type="checkbox"/> |
| Amplifier (0.8-21GHz) | Mini-Circuits      | ZVA-213-S+      | 225321316  | 2023.12.05 | 2024.12.04 | <input checked="" type="checkbox"/> |
| Amplifier (18-40GHz)  | COM-MV             | KA LNA18-40G-01 | 18050001   | 2023.12.05 | 2024.12.04 | <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"/> |

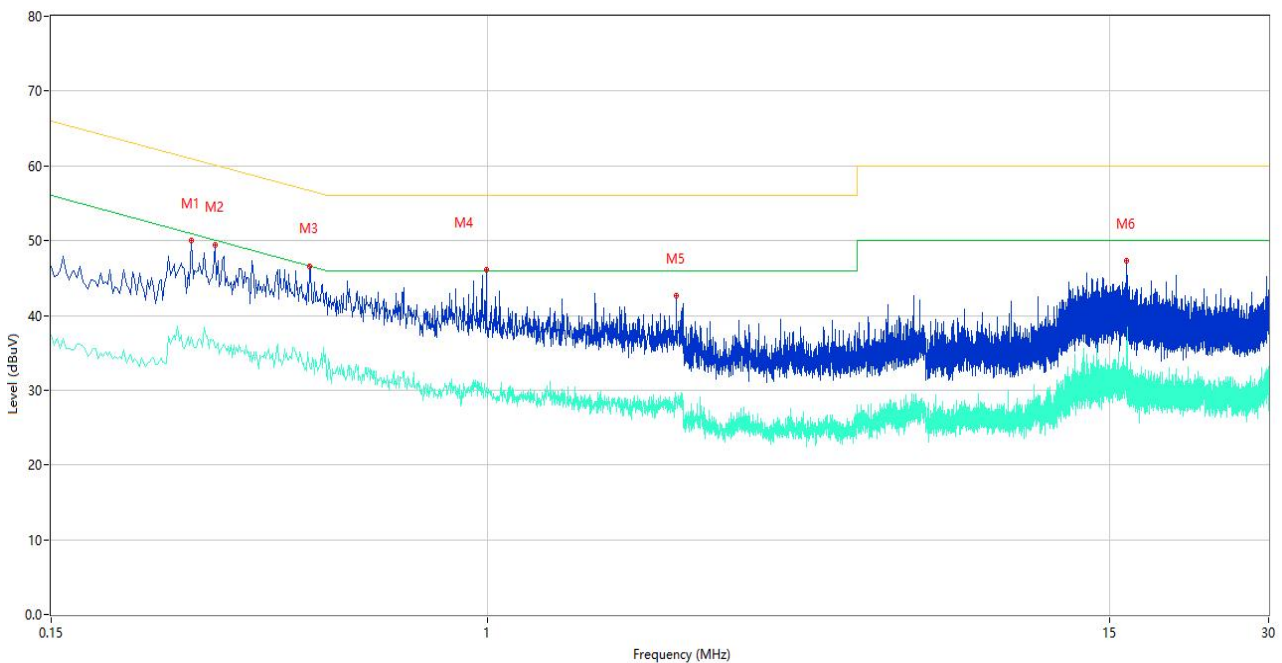
## A.2 Conducted Emission, AC Ports

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.    | S12       | Temperature | 22.1 °C    |
| Humidity      | 41%RH     | Pressure    | 101kPa     |
| Test Engineer | Yang Yang | Test Date   | 2024.04.08 |

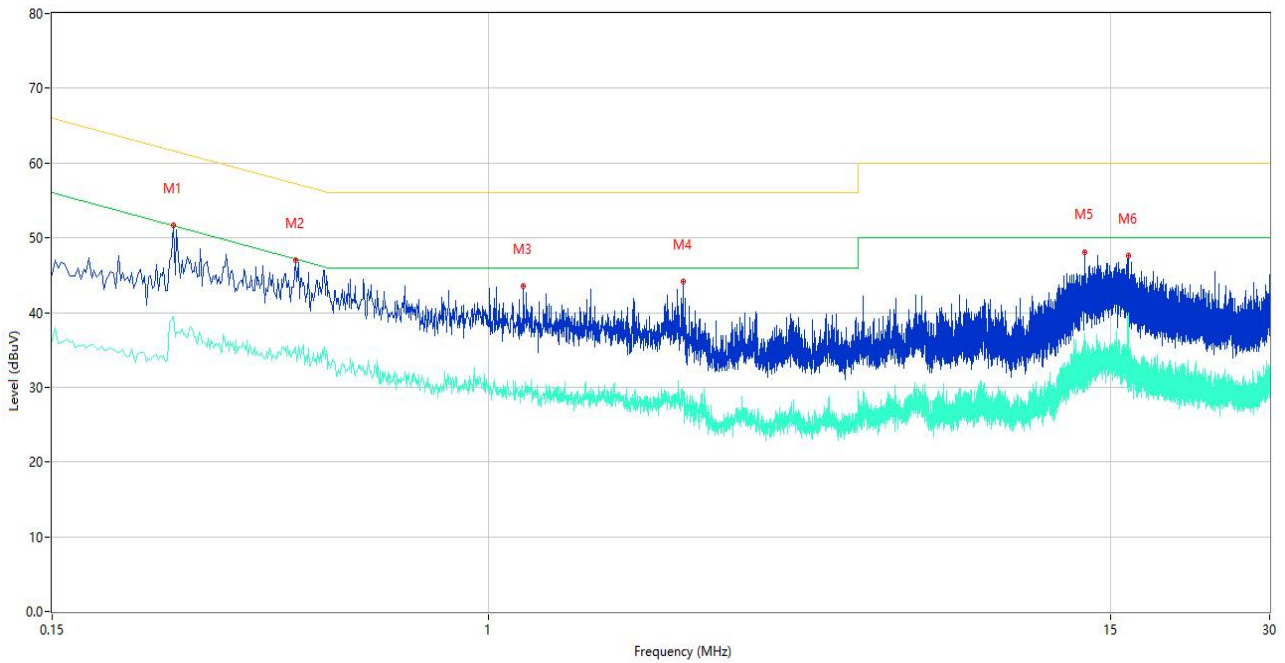
### Test Mode 1

#### 1) AC Ports - L Phase



| No. | Frequency (MHz) | Results (dBuV) | Factor (dB) | Limit (dBuV) | Margin (dB) | Detector | Line | Verdict |
|-----|-----------------|----------------|-------------|--------------|-------------|----------|------|---------|
| 1   | 0.276           | 50.07          | 19.46       | 60.94        | 10.87       | Peak     | L    | Pass    |
| 1** | 0.276           | 37.04          | 19.46       | 50.94        | 13.90       | AV       | L    | Pass    |
| 2   | 0.306           | 49.39          | 19.45       | 60.08        | 10.69       | Peak     | L    | Pass    |
| 2** | 0.306           | 35.72          | 19.45       | 50.08        | 14.36       | AV       | L    | Pass    |
| 3   | 0.462           | 46.60          | 19.92       | 56.66        | 10.06       | Peak     | L    | Pass    |
| 3** | 0.462           | 33.38          | 19.92       | 46.66        | 13.28       | AV       | L    | Pass    |
| 4   | 0.996           | 46.08          | 19.78       | 56.00        | 9.92        | Peak     | L    | Pass    |
| 4** | 0.996           | 30.08          | 19.78       | 46.00        | 15.92       | AV       | L    | Pass    |
| 5   | 2.280           | 42.68          | 19.97       | 56.00        | 13.32       | Peak     | L    | Pass    |
| 5** | 2.280           | 28.65          | 19.97       | 46.00        | 17.35       | AV       | L    | Pass    |
| 6   | 16.166          | 47.32          | 21.27       | 60.00        | 12.68       | Peak     | L    | Pass    |
| 6** | 16.166          | 36.54          | 21.27       | 50.00        | 13.46       | AV       | L    | Pass    |

2) AC Ports - N Phase



| No. | Frequency (MHz) | Results (dBuV) | Factor (dB) | Limit (dBuV) | Margin (dB) | Detector | Line | Verdict |
|-----|-----------------|----------------|-------------|--------------|-------------|----------|------|---------|
| 1   | 0.254           | 51.68          | 19.45       | 61.63        | 9.95        | Peak     | N    | Pass    |
| 1** | 0.254           | 39.49          | 19.45       | 51.63        | 12.14       | AV       | N    | Pass    |
| 2   | 0.432           | 46.98          | 20.01       | 57.21        | 10.23       | Peak     | N    | Pass    |
| 2** | 0.432           | 35.38          | 20.01       | 47.21        | 11.83       | AV       | N    | Pass    |
| 3   | 1.166           | 43.54          | 19.86       | 56.00        | 12.46       | Peak     | N    | Pass    |
| 3** | 1.166           | 28.94          | 19.86       | 46.00        | 17.06       | AV       | N    | Pass    |
| 4   | 2.334           | 44.14          | 19.94       | 56.00        | 11.86       | Peak     | N    | Pass    |
| 4** | 2.334           | 29.31          | 19.94       | 46.00        | 16.69       | AV       | N    | Pass    |
| 5   | 13.416          | 48.11          | 20.83       | 60.00        | 11.89       | Peak     | N    | Pass    |
| 5** | 13.416          | 36.18          | 20.83       | 50.00        | 13.82       | AV       | N    | Pass    |
| 6   | 16.228          | 47.54          | 21.08       | 60.00        | 12.46       | Peak     | N    | Pass    |
| 6** | 16.228          | 39.96          | 21.08       | 50.00        | 10.04       | 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 | <input checked="" type="checkbox"/> |
| LISN                  | SCHWARZB<br>ECK                  | NSLK 8127          | 8127-687   | 2024.05.09 | 2025.05.08 | <input checked="" type="checkbox"/> |
| Shielded Room         | YiHeng<br>Electronic<br>Co., Ltd | 3.5m*3.1m*2.<br>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 TEST SETUP PHOTOS**

Please refer the document “BL-SZ2430170-AE.PDF”.

## **ANNEX C EUT EXTERNAL PHOTOS**

Please refer the document “BL-SZ2430170-AW.PDF”.

## **ANNEX D EUT INTERNAL PHOTOS**

Please refer the document “BL-SZ2430170-AI.PDF”.

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--END OF REPORT--