# EMC TEST REPORT

Report No.: STS2412269E01

Issued for

Xi an King Truck Electron Share Co., Ltd.

Building 11, Technology Enterprise Accelerator Park, High-tech Zone, Xi an City, Shaanxi Province, China

| | |
|---|---|
| Product Name: | Tire pressure monitoring sensor |
| Brand Name: | N/A |
| Model Name: | EZ9A061730081 |
| Series Model(s): | N/A |
| FCC ID: | 2BM76EZ9A061730081 |
| Test Standards: | FCC 47 CFR Part 15: Subpart B |

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

# TEST REPORT

**Applicant's Name** .....: Xi an King Truck Electron Share Co., Ltd.

Address .....: Building 11, Technology Enterprise Accelerator Park, High-tech Zone, Xi an City, Shaanxi Province, China

**Manufacturer's Name**.....: Xi an King Truck Electron Share Co., Ltd.

Address .....: Building 11, Technology Enterprise Accelerator Park, High-tech Zone, Xi an City, Shaanxi Province, China

**Product description**

Product Name.....: Tire pressure monitoring sensor

Brand Name.....: N/A

Test Model Name .....: EZ9A061730081

Series Model(s).....: N/A

**Standards** .....: FCC 47 CFR Part 15: Subpart B

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**Date of Test** .....:

Date of Receipt of Test Item .....: 30 Dec. 2024

Date (s) of performance of tests .....: 30 Dec. 2024 ~ 08 Jan. 2025

Date of Issue .....: 08 Jan. 2025

Test Result.....: **Pass**

Testing Engineer : Star · Deng

( Star Deng)

Technical Manager : Tony Liu

( Tony Liu)

Authorized Signatory : Bovey Yang

( Bovey Yang)

SHENZHEN STS TEST SERVICES CO., LTD. TESTING APPROVAL

# TABLE OF CONTENTS

**1. TEST SUMMARY** **5**
1.1 TEST FACTORY 5
1.2 MEASUREMENT UNCERTAINTY 5
**2. GENERAL INFORMATION** **6**
2.1 GENERAL DESCRIPTION OF EUT 6
2.2 DESCRIPTION OF TEST MODES 7
2.3 DESCRIPTION OF TEST SETUP 8
2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL 8
2.5 MEASUREMENT INSTRUMENTS LIST 9
**3. EMC EMISSION TEST** **10**
3.1 CONDUCTED EMISSION MEASUREMENT 10
3.2 RADIATED EMISSION MEASUREMENT 12
**APPENDIX 1-PHOTO TEST OF EUT** **19**

## Revision History

| Rev. | Issue Date | Report No. | Effect Page | Contents |
|---|---|---|---|---|
| 00 | 08 Jan. 2025 | STS2412269E01 | ALL | Initial Issue |
| | | | | |

# 1. TEST SUMMARY

Test procedures according to the technical standards:

| EMC Emission | | | |
|---|---|---|---|
| Standard | Test Item | Result | Remark |
| FCC 47 CFR Part 15: Subpart B | Conducted Emission | N/A | EUT is battery-powered and cannot be directly or indirectly connected to the artificially coupled network |
| | Radiated Emissions | PASS | Meet Class B limit |

**Note:**

(1) "N/A" denotes test is not applicable in this Test Report

## 1.1 TEST FACTORY

| | |
|---|---|
| Company Name: | Shenzhen STS Test Services Co. Ltd. |
| Address: | 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China |
| Telephone: | +86-755 3688 6288 |
| Fax: | +86-755 3688 6277 |
| Registration No.: | FCC test Firm Registration Number: 625569 |
| | IC test Firm Registration Number: 12108A |
| | A2LA Certificate No.: 4338.01 |

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U** , where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2** , providing a level of confidence of approximately **95** %.

| No. | Item | Uncertainty |
|---|---|---|
| 1 | Conducted Emission (9KHz-150KHz) | ±2.19dB |
| 2 | Conducted Emission (150KHz-30MHz) | ±2.53dB |
| 3 | All emissions,radiated(<1G) 30MHz-1000MHz | ±4.18dB |
| 4 | All emissions,radiated(>1G) 1GHz-6GHz | ±4.90dB |
| 5 | All emissions,radiated(>1G) 6GHz-18GHz | ±5.24dB |

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

| | | |
|---|---|---|
| Product Name | Tire pressure monitoring sensor | |
| Brand Name | N/A | |
| Model Name | EZ9A061730081 | |
| Series Name | N/A | |
| Model Difference | N/A | |
| Product Description | The EUT is a Tire pressure monitoring sensor<br><br>ITE equipment having a primary function of either (or a combination of) entry, storage, display, retrieval, transmission, processing, switching, or control of data and/or telecommunication messages and which may be equipped with one or more ports typically for information transfer. | |
| Frequency Bands | SRD | 433.92MHz |
| Modulation Mode | SRD | FSK |
| Rating | N/A | |
| Adapter | N/A | |
| Battery | Rated Voltage:3VDC<br>Capacity: 525mAh | |
| Hardware version number | V1.4 | |
| Software version number | V2.1 | |

## 2.2 DESCRIPTION OF TEST MODES

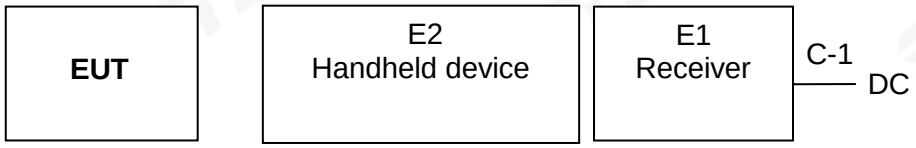
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|---|---|
| Mode 1 | Working |

| For Radiated Test | |
|---|---|
| Final Test Mode | Description |
| Mode 1 | Working |

## 2.3 DESCRIPTION OF TEST SETUP

Mode 1




## 2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Note |
|---|---|---|---|---|
| E-1 | Receiver | N/A | N/A | N/A |
| E-2 | Handheld device | N/A | N/A | N/A |

| Item | Equipment | Ferrite Core | Length | Note |
|---|---|---|---|---|
| C-1 | AC Cable | N/A | 110cm | N/A |

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

## 2.5 MEASUREMENT INSTRUMENTS LIST

### 2.5.1 CONDUCTED TEST SITE

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last Calibration | Calibrated Until |
|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESCI | 101427 | 2024.9.23 | 2025.9.22 |
| LISN | R&S | AiT-F01220 | 8130179 | 2024.9.23 | 2025.9.22 |
| Absorbing Clamp | R&S | MDS-21 | 100668 | 2024.4.15 | 2025.4.14 |
| CE Cable | N/A | C01 | N/A | 2024.9.23 | 2025.9.22 |
| Temperature & Humidity | Anymetre | JR900 | 240686 | 2024.10.15 | 2025.10.14 |
| Testing Software | EZ-EMC(Ver.STSLAB-03A1 CE) | | | | |

### 2.5.2 RADIATED TEST SITE

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last Calibration | Calibrated Until |
|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESCI | 101427 | 2024.9.23 | 2025.9.22 |
| Bi-log Antenna | TESEQ | CBL6111D | 45873 | 2024.9.28 | 2025.9.27 |
| Horn Antenna | SCHWARZBECK | BBHA 9120D | 9120D-1343 | 2024.9.28 | 2025.9.27 |
| Pre-amplifier(1G-26.5G) | Agilent | HP8449B | 3008A02383 | 2024.2.23 | 2025.2.22 |
| Pre-amplifier(0.1M-3GHz) | EM | EM330 | 060665 | 2024.2.23 | 2025.2.22 |
| Spectrum Analyzer | Agilent | N9020A | MY49100060 | 2024.9.23 | 2025.9.22 |
| RE Cable (9K-1G) | N/A | R01 | N/A | 2024.9.23 | 2025.9.22 |
| RE Cable (1G-26G) | N/A | R02 | N/A | 2024.9.23 | 2025.9.22 |
| Temperature & Humidity | Mieo | HH660 | N/A | 2024.9.26 | 2025.9.25 |
| SAC | ChengYu | 9*6*6 | N/A | 2023.9.05 | 2026.9.06 |
| Testing Software | EZ-EMC(Ver.STSLAB-03A1 RE) | | | | |

# 3. EMC EMISSION TEST

## 3.1 CONDUCTED EMISSION MEASUREMENT

### 3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

| FREQUENCY (MHz) | ☐Class A (dBμV) | | ☒Class B (dBμV) | |
|---|---|---|---|---|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 ~ 0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * |
| 0.5 ~ 5 | 73.00 | 60.00 | 56.00 | 46.00 |
| 5 ~ 30 | 73.00 | 60.00 | 60.00 | 50.00 |

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---|---|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

### 3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

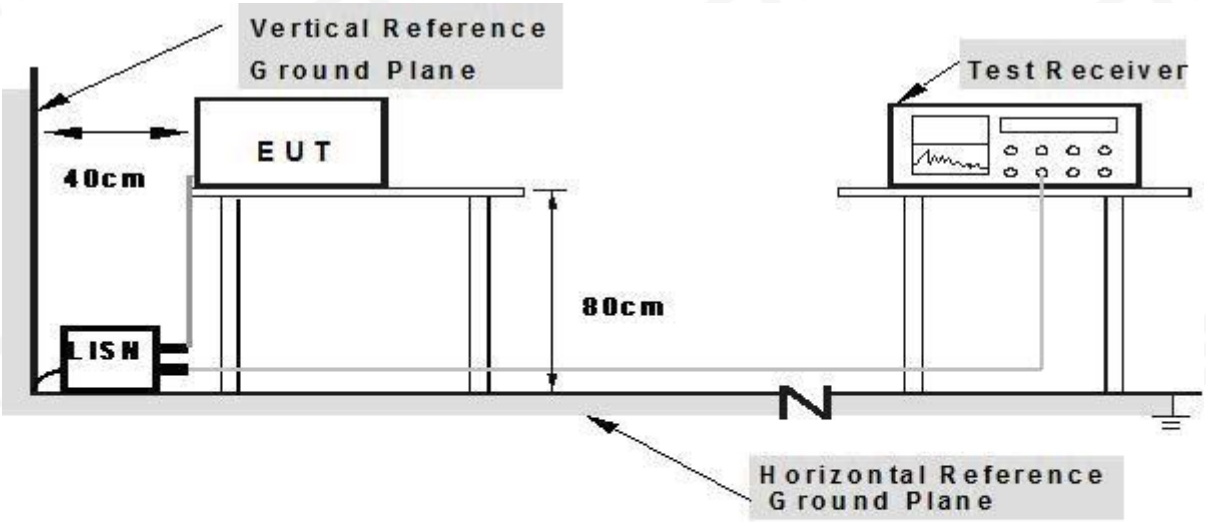
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 DEVIATION FROM TEST STANDARD

No deviation

### 3.1.4 TEST SETUP




Note: 1.Support units were connected to second LISH.
2.Both of LISHs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

### 3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

### 3.1.6 TEST RESULTS

| | | | |
|---|---|---|---|
| Temperature: | --℃ | Relative Humidity: | --% |
| Phase: | L/N | Test Mode: | N/A |
| Test Voltage: | N/A | Test Date: | N/A |

Note: Not applicable

## 3.2 RADIATED EMISSION MEASUREMENT

### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Below 1 GHz
Measurement Method and Applied Limits:
ANSI C63.4:2014

| Frequency (MHz) | ☐Class A | | ☒Class B |
|---|---|---|---|
| | Field strength (dBuV/m) ( at 10m) | Field strength (dBuV/m) (at 3m) | Field strength (dBuV/m) (at 3m) |
| 30 ~ 88 | 39 | 49.5 | 40 |
| 88 ~ 216 | 43.5 | 54 | 43.5 |
| 216 ~ 960 | 46.4 | 56.9 | 46 |
| Above 960 | 49.5 | 60 | 54 |

Above 1 GHz
Measurement Method and Applied Limits:
ANSI C63.4:2014

| Frequency (MHz) | ☐Class A | | | | ☐Class B | |
|---|---|---|---|---|---|---|
| | (dBuV/m) (at 3m) | | (dBuV/m) (at 10m) | | (dBuV/m) (at 3m) | |
| | Peak | Average | Peak | Average | Peak | Average |
| Above 1000 | 80 | 60 | 69.5 | 49.5 | 74 | 54 |

Frequency Range of Radiated Disturbance Measurement

| Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz) | Range (MHz) |
|---|---|
| Below 1.705 | 30 |
| 1.705 ~ 108 | 1000 |
| 108 ~ 500 | 2000 |
| 500 ~ 1000 | 5000 |
| Above 1000 | 5th harmonic of the highest frequency or 40 GHz, whichever is lower |

Note:

(1) . The limit for radiated test was performed in the following: FCC PART 15B.

(2) The tighter limit applies at the band edges

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

### 3.2.2 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meter.
c. The height of antenna is varied from 1 meter to 4 meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meter and the rotatable table was turned from 0 degrees to 360 degree to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

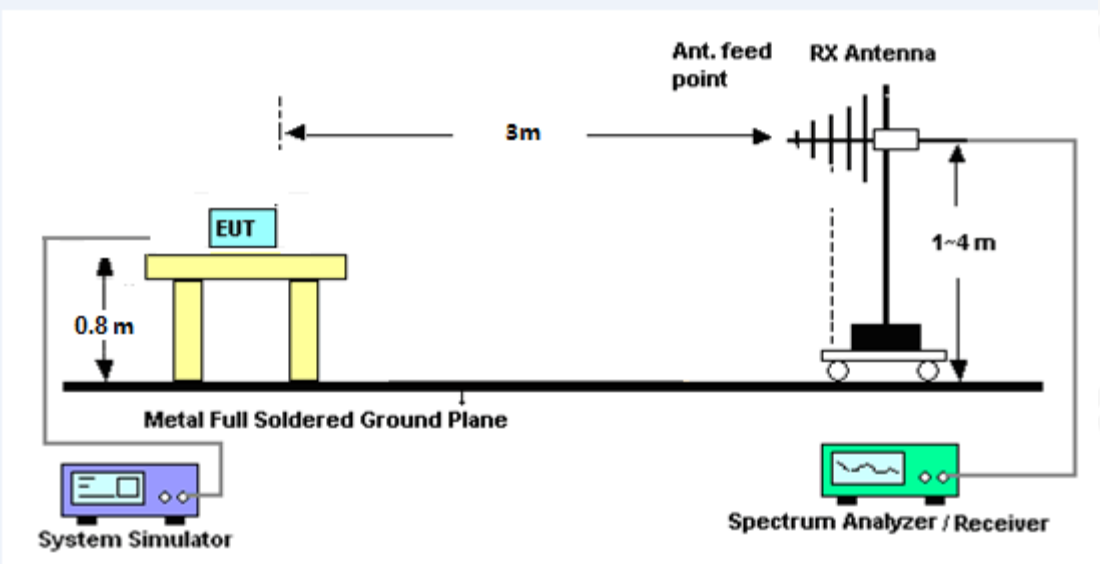
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

### 3.2.3 DEVIATION FROM TEST STANDARD

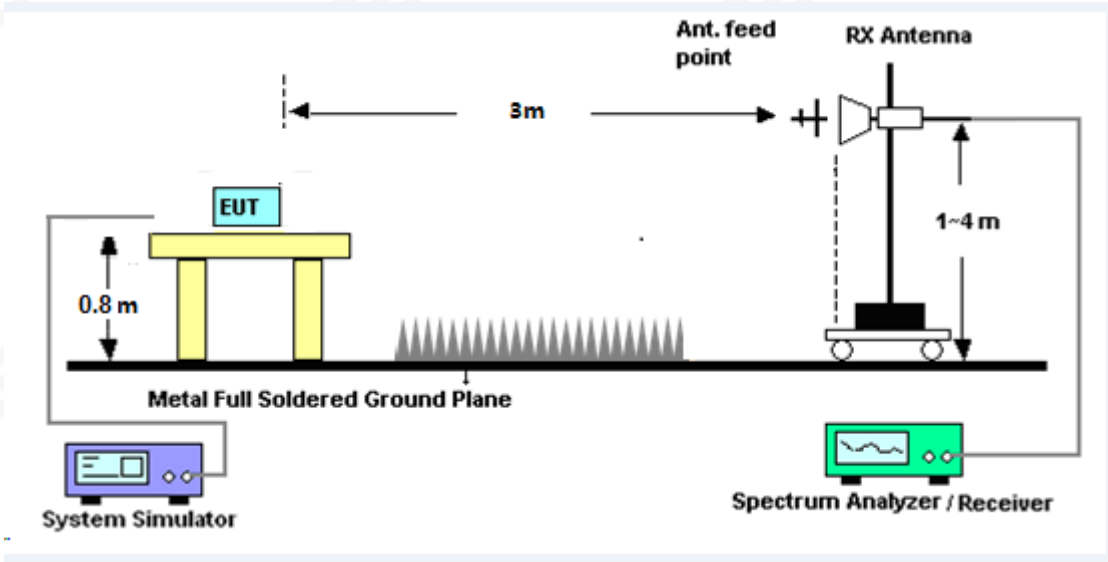
No deviation

### 3.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz




(B) Radiated Emission Test Set-Up Frequency Above 1GHz




### 3.2.5 EUT OPERATING CONDITIONS

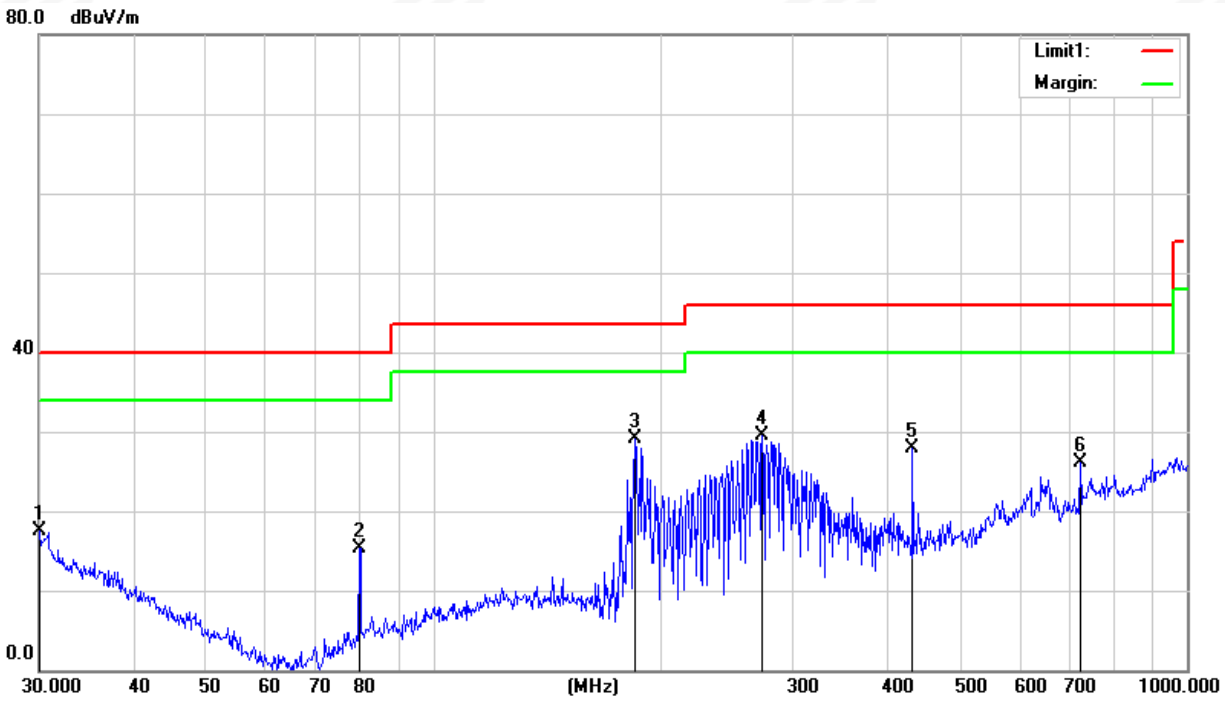
The EUT tested system was configured as the statements of **2.4** described unless otherwise a special operating condition is specified in the following during the testing.

### 3.2.6 TEST RESULTS

| | | | |
|---|---|---|---|
| Temperature: | 26.1℃ | Relative Humidity: | 53% |
| Phase: | Horizontal | Test Mode: | Mode 1 |
| Test Voltage: | DC 3V from battery | Test Date: | 2025.01.07 |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Results (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 30.0000 | 28.44 | -11.03 | 17.41 | 40.00 | -22.59 | QP |
| 2 | 79.8002 | 38.38 | -23.03 | 15.35 | 40.00 | -24.65 | QP |
| 3 | 185.1380 | 50.24 | -21.20 | 29.04 | 43.50 | -14.46 | QP |
| 4 | 273.2341 | 45.55 | -16.07 | 29.48 | 46.00 | -16.52 | QP |
| 5 | 432.5457 | 40.74 | -12.77 | 27.97 | 46.00 | -18.03 | QP |
| 6 | 721.7260 | 32.65 | -6.52 | 26.13 | 46.00 | -19.87 | QP |

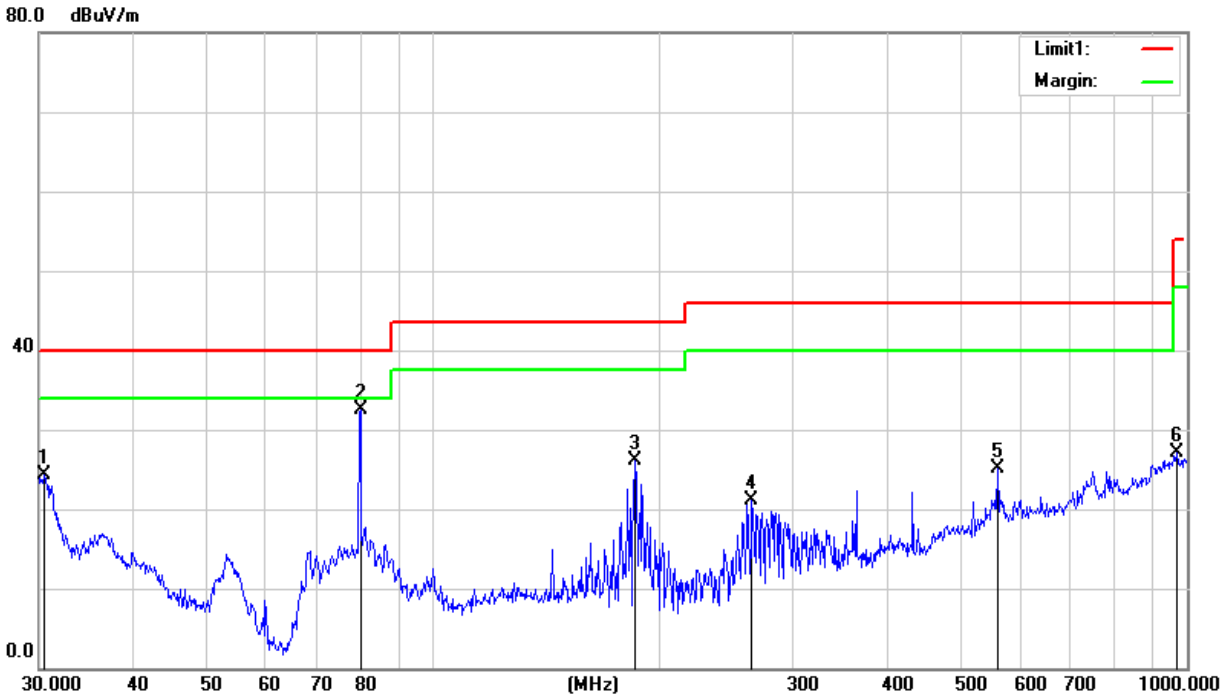
Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )–Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.



| | | | |
|---|---|---|---|
| Temperature: | 26.1℃ | Relative Humidity: | 53% |
| Phase: | Vertical | Test Mode: | Mode 1 |
| Test Voltage: | DC 3V from battery | Test Date: | 2025.01.07 |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Results (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 30.4237 | 35.49 | -11.26 | 24.23 | 40.00 | -15.77 | QP |
| 2 | 80.0806 | 55.42 | -22.96 | 32.46 | 40.00 | -7.54 | QP |
| 3 | 185.1380 | 47.31 | -21.20 | 26.11 | 43.50 | -17.39 | QP |
| 4 | 264.7456 | 36.41 | -15.40 | 21.01 | 46.00 | -24.99 | QP |
| 5 | 560.6928 | 32.83 | -7.79 | 25.04 | 46.00 | -20.96 | QP |
| 6 | 968.9338 | 29.07 | -1.98 | 27.09 | 54.00 | -26.91 | QP |

Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )–Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.

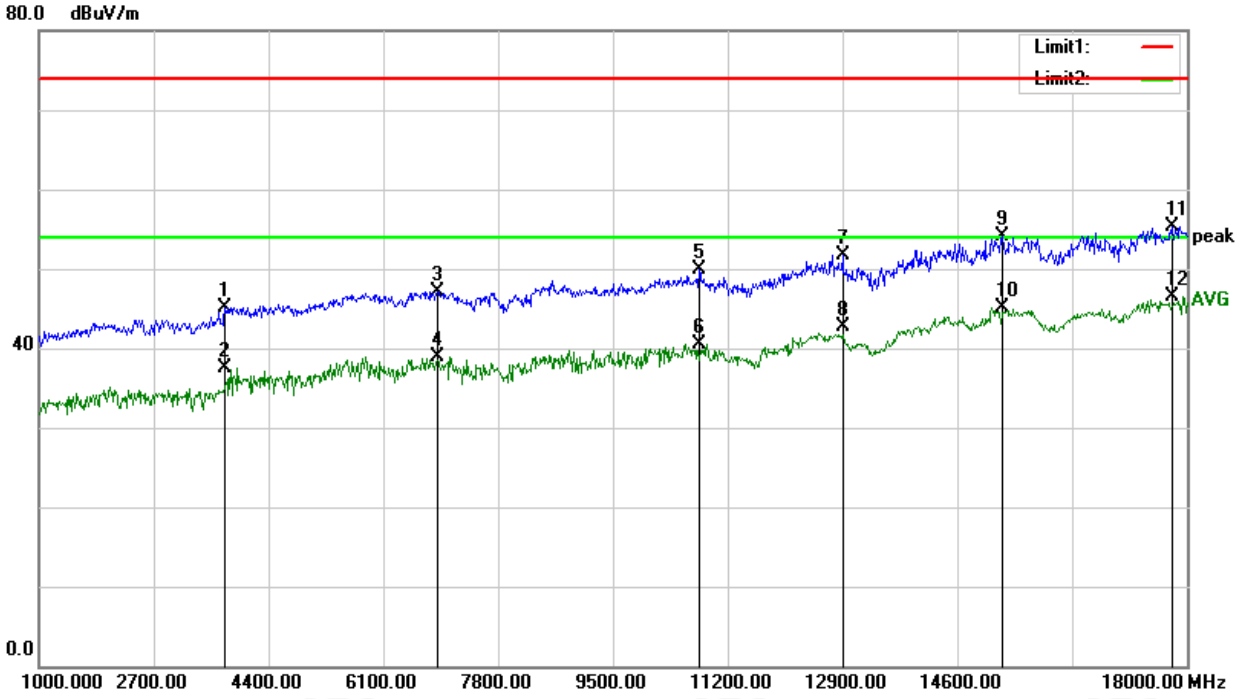


### 3.2.7 TEST RESULT(1000-18000 MHz)

| | | | |
|---|---|---|---|
| Temperature: | 25.3℃ | Relative Humidity: | 43% |
| Phase: | Horizontal | Test Mode: | Mode 1 |
| Test Voltage: | DC 3V form battery | Test Date: | 2024.01.07 |

| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 3762.500 | 41.45 | 3.74 | 45.19 | 74.00 | -28.81 | peak |
| 2 | 3762.500 | 33.78 | 3.74 | 37.52 | 54.00 | -16.48 | AVG |
| 3 | 6907.500 | 36.51 | 10.57 | 47.08 | 74.00 | -26.92 | peak |
| 4 | 6907.500 | 28.32 | 10.57 | 38.89 | 54.00 | -15.11 | AVG |
| 5 | 10775.000 | 35.83 | 14.03 | 49.86 | 74.00 | -24.14 | peak |
| 6 | 10775.000 | 26.44 | 14.03 | 40.47 | 54.00 | -13.53 | AVG |
| 7 | 12900.000 | 36.40 | 15.37 | 51.77 | 74.00 | -22.23 | peak |
| 8 | 12900.000 | 27.34 | 15.37 | 42.71 | 54.00 | -11.29 | AVG |
| 9 | 15271.500 | 36.41 | 17.60 | 54.01 | 74.00 | -19.99 | peak |
| 10 | 15271.500 | 27.46 | 17.60 | 45.06 | 54.00 | -8.94 | AVG |
| 11 | 17787.500 | 31.14 | 24.24 | 55.38 | 74.00 | -18.62 | peak |
| 12 | 17787.500 | 22.18 | 24.24 | 46.42 | 54.00 | -7.58 | AVG |

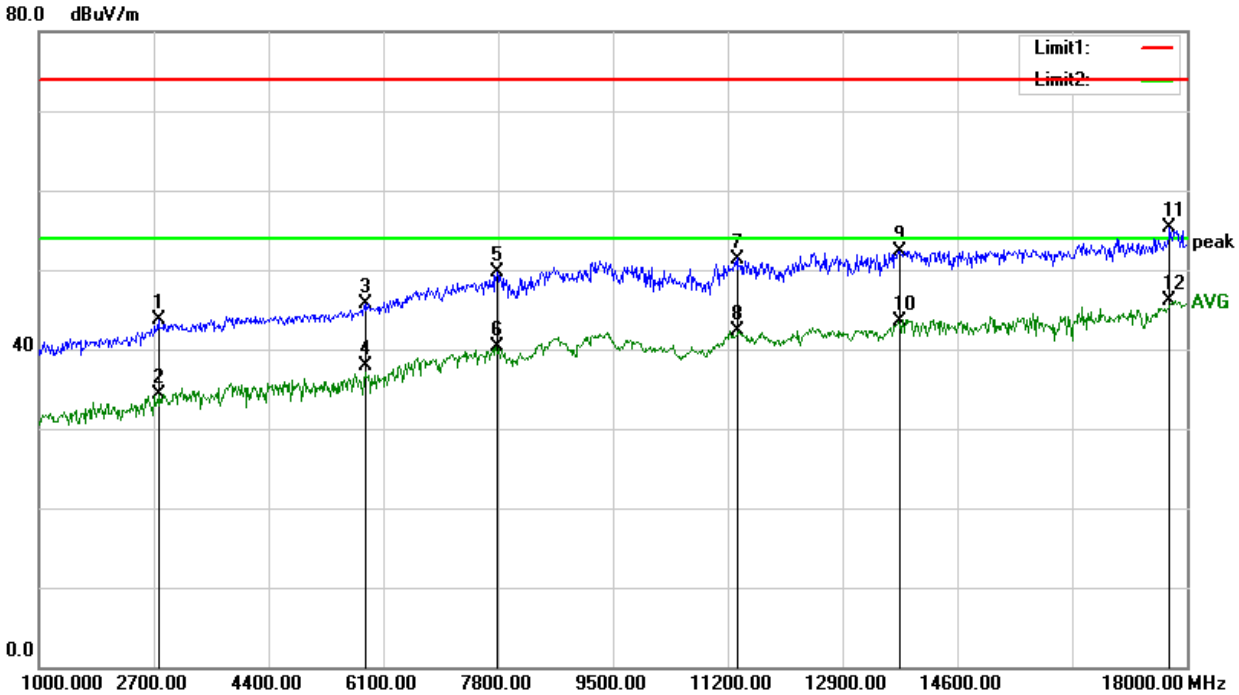
Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )–Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.



| | | | |
|---|---|---|---|
| Temperature: | 25.3℃ | Relative Humidity: | 43% |
| Phase: | Vertical | Test Mode: | Mode 1 |
| Test Voltage: | DC 3V form battery | Test Date: | 2024.01.07 |

| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2768.000 | 42.65 | 1.05 | 43.70 | 74.00 | -30.30 | peak |
| 2 | 2768.000 | 33.30 | 1.05 | 34.35 | 54.00 | -19.65 | AVG |
| 3 | 5853.500 | 38.27 | 7.50 | 45.77 | 74.00 | -28.23 | peak |
| 4 | 5853.500 | 30.42 | 7.50 | 37.92 | 54.00 | -16.08 | AVG |
| 5 | 7783.000 | 38.64 | 11.11 | 49.75 | 74.00 | -24.25 | peak |
| 6 | 7783.000 | 29.22 | 11.11 | 40.33 | 54.00 | -13.67 | AVG |
| 7 | 11336.000 | 37.00 | 14.40 | 51.40 | 74.00 | -22.60 | peak |
| 8 | 11336.000 | 27.96 | 14.40 | 42.36 | 54.00 | -11.64 | AVG |
| 9 | 13758.500 | 35.93 | 16.47 | 52.40 | 74.00 | -21.60 | peak |
| 10 | 13758.500 | 27.08 | 16.47 | 43.55 | 54.00 | -10.45 | AVG |
| 11 | 17753.500 | 31.72 | 23.68 | 55.40 | 74.00 | -18.60 | peak |
| 12 | 17753.500 | 22.48 | 23.68 | 46.16 | 54.00 | -7.84 | AVG |

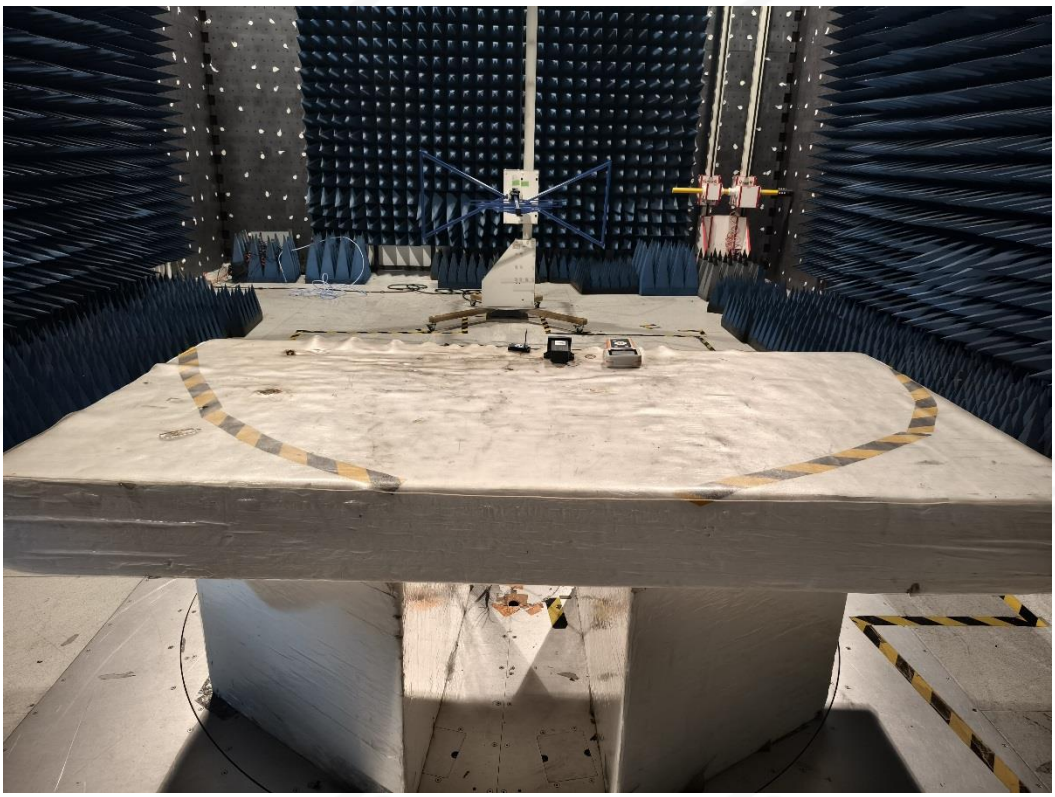
Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )–Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.



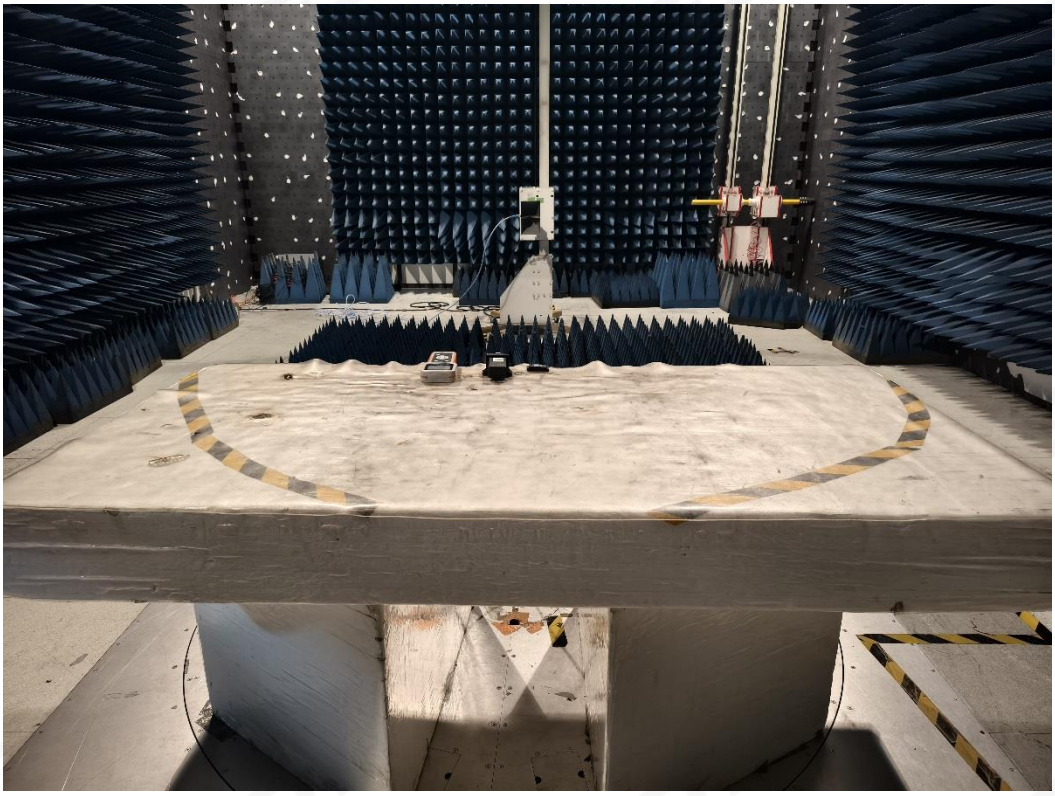

Notes:
1. Measuring frequencies from 1 GHz to 18GHz
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak and average detector mode of the emission shown in Actual FS column.
3. The frequency emission of 18-25GHz is at least 20dB lower than the limit, and the frequency emission mainly comes from environmental noise.

# APPENDIX 1-PHOTO TEST OF EUT

RE (Below 1GHz)



RE (Above 1GHz)



※※※※※END OF THE REPORT※※※※※