

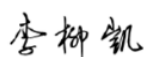


## Industrial Internet Innovation Center (Shanghai) Co.,Ltd.

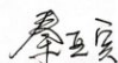
## EMC TEST REPORT

|             |                                                            |
|-------------|------------------------------------------------------------|
| PRODUCT     | tedee DOOR SENSOR                                          |
| BRAND       | Tedee                                                      |
| MODEL       | TDSV1.0, TDSV1.0 A, TDSV1.0 B                              |
| APPLICANT   | Tedee Sp. z o.o.                                           |
| FCC ID      | 2BCK5TDSV10                                                |
| ISSUE DATE  | February 28, 2025                                          |
| STANDARD(S) | FCC Part 15, Subpart B, ANSI C63.4-2014, ICES-003 Issue 7. |

Prepared by: Li Liukai



Reviewed by: Qin Yabin



Approved by: Zhang Min

**CAUTION:**

This report shall not be reproduced except in full without the written permission of the test laboratory and shall not be quoted out of context.

## CONTENTS

|                                                 |                                                          |           |
|-------------------------------------------------|----------------------------------------------------------|-----------|
| <b>1</b>                                        | <b>SUMMARY OF TEST REPORT .....</b>                      | <b>3</b>  |
| 1.1                                             | TEST STANDARD (S) .....                                  | 3         |
| 1.2                                             | SUMMARY OF TEST RESULTS .....                            | 3         |
| <b>2</b>                                        | <b>GENERAL INFORMATION OF THE LABORATORY .....</b>       | <b>4</b>  |
| 2.1                                             | TESTING LABORATORY .....                                 | 4         |
| 2.2                                             | LABORATORY ENVIRONMENTAL REQUIREMENTS .....              | 4         |
| 2.3                                             | PROJECT INFORMATION .....                                | 4         |
| <b>3</b>                                        | <b>GENERAL INFORMATION OF THE CUSTOMER .....</b>         | <b>5</b>  |
| 3.1                                             | APPLICANT .....                                          | 5         |
| 3.2                                             | MANUFACTURER .....                                       | 5         |
| <b>4</b>                                        | <b>GENERAL INFORMATION OF THE PRODUCT .....</b>          | <b>6</b>  |
| 4.1                                             | PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) ..... | 6         |
| 4.2                                             | DESCRIPTION FOR AUXILIARY EQUIPMENT (AE) .....           | 6         |
| <b>5</b>                                        | <b>TEST CONFIGURATION INFORMATION .....</b>              | <b>7</b>  |
| 5.1                                             | LABORATORY ENVIRONMENTAL CONDITIONS .....                | 7         |
| 5.2                                             | DECISION OF FINAL TEST MODE .....                        | 8         |
| 5.3                                             | EUT SYSTEM OPERATION .....                               | 8         |
| 5.4                                             | EUT CONNECTION DIAGRAM OF TEST SYSTEM .....              | 8         |
| 5.5                                             | TEST EQUIPMENT UTILIZED .....                            | 8         |
| 5.6                                             | MEASUREMENT UNCERTAINTY .....                            | 9         |
| <b>6</b>                                        | <b>TEST RESULTS .....</b>                                | <b>10</b> |
| 6.1                                             | RADIATED EMISSION .....                                  | 10        |
| <b>ANNEX A: MEASUREMENT DATA .....</b>          |                                                          | <b>12</b> |
| <b>ANNEX B: REVISED HISTORY .....</b>           |                                                          | <b>15</b> |
| <b>ANNEX C: ACCREDITATION CERTIFICATE .....</b> |                                                          | <b>16</b> |

## 1 Summary of Test Report

### 1.1 Test Standard (s)

| No.                                                                                                 | Test Standard(s)       | Title                                                                                                                               |
|-----------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                                                   | FCC Part 15, Subpart B | Radio frequency devices                                                                                                             |
| 2                                                                                                   | ANSI C63.4             | Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz |
| 3                                                                                                   | ICES-003               | Information Technology Equipment (Including Digital Apparatus)-Limits and Methods of Measurement                                    |
| NOTE: According to customer requirements, test and report using the latest version of the standard. |                        |                                                                                                                                     |

### 1.2 Summary of Test Results

| No. | Item(s)               | FCC Standard(s) | IC Standard(s) | Verdicts for Single Item | Detailed Results |
|-----|-----------------------|-----------------|----------------|--------------------------|------------------|
| 1   | Radiated Emission     | 15.109(a)       | 3.2.2          | Pass                     | See section 6.1  |
| 2   | AC Conducted Emission | 15.107(a)       | 3.2.1          | N/A                      | See Note2 below  |

**Note1:**

The TDSV1.0, TDSV1.0 A, TDSV1.0 B, manufactured by Tedee Sp. z o.o. is a new product for testing. Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 1.3.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 4 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 1 of this test report.

**Note2:**

Because the EUT is battery powered, adapter-related tests cannot be performed. Therefore, Verdicts for Single Item is N/A.

## 2 General Information of The Laboratory

### 2.1 Testing Laboratory

|                      |                                                            |
|----------------------|------------------------------------------------------------|
| Lab Name             | Industrial Internet Innovation Center (Shanghai) Co.,Ltd.  |
| Address              | Building 4, No. 766, Jingang Road, Pudong, Shanghai, China |
| Telephone            | 021-68866880                                               |
| FCC Registration No. | 708870                                                     |
| FCC Designation No.  | CN1364                                                     |
| IC designation No.   | 10766A                                                     |
| CAB identifier       | CN0067                                                     |

### 2.2 Laboratory Environmental Requirements

|                      |                 |
|----------------------|-----------------|
| Temperature          | 15℃~35℃         |
| Relative Humidity    | 25%RH~75%RH     |
| Atmospheric Pressure | 86kPa~106kPa    |
| Supply Voltage       | 3V from Battery |

### 2.3 Project Information

|                 |                                        |
|-----------------|----------------------------------------|
| Project Manager | Wei Hanyu                              |
| Test Date       | February 12, 2025 to February 17, 2025 |

### 3 General Information of The Customer

#### 3.1 Applicant

|           |                                  |
|-----------|----------------------------------|
| Company   | Tedee Sp. z o.o.                 |
| Address   | Karola Bohdanowicza 21/57 Street |
| Telephone | +48 519 176 611                  |

#### 3.2 Manufacturer

|           |                                  |
|-----------|----------------------------------|
| Company   | Tedee Sp. z o.o.                 |
| Address   | Karola Bohdanowicza 21/57 Street |
| Telephone | +48 519 176 611                  |

## 4 General Information of The Product

### 4.1 Product Description for Equipment under Test (EUT)

|                                                                                                                                                                                                                                                                                                               |                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Product                                                                                                                                                                                                                                                                                                       | tedee DOOR SENSOR             |
| Model                                                                                                                                                                                                                                                                                                         | TDSV1.0, TDSV1.0 A, TDSV1.0 B |
| Date of Receipt                                                                                                                                                                                                                                                                                               | February 12, 2025             |
| EUT ID*                                                                                                                                                                                                                                                                                                       | S06aa                         |
| SN/IMEI                                                                                                                                                                                                                                                                                                       | N/A                           |
| Supported Radio Technology and Bands                                                                                                                                                                                                                                                                          | BT 5 BLE 1M/2M                |
| Hardware Version                                                                                                                                                                                                                                                                                              | P3                            |
| Software Version                                                                                                                                                                                                                                                                                              | ET100_0.2_017                 |
| Power Rating                                                                                                                                                                                                                                                                                                  | DC 3V from battery            |
| <p>NOTE1: EUT ID is the internal identification code of the laboratory.</p> <p>NOTE2: Photographs of EUT are shown in ANNEX A of this test report.</p> <p>NOTE3: Samples in the test report are provided by the customer. The test results are only applicable to the samples received by the laboratory.</p> |                               |

### 4.2 Description for Auxiliary Equipment (AE)

| AE ID*                                                              | Description | Model       | SN/Remark |
|---------------------------------------------------------------------|-------------|-------------|-----------|
| AE1                                                                 | Battery     | N/A         | N/A       |
| AE2                                                                 | Mobile      | ZTX         | N/A       |
| AE3                                                                 | Software    | nRF Connect | N/A       |
| AE4                                                                 | Magnet      | N/A         | N/A       |
| NOTE: *AE ID is the internal identification code of the laboratory. |             |             |           |

## 5 Test Configuration Information

### 5.1 Laboratory Environmental Conditions

#### 5.1.1 Permanent Facilities

|                                                                      |                                             |
|----------------------------------------------------------------------|---------------------------------------------|
| Semi-anechoic chamber SAC3-1 (9 m*8m*6.2m) & SAC3-2 (9.8m*6.7m*6.7m) |                                             |
| Shielding effectiveness                                              | 0.014MHz ~1MHz, >60dB; 1MHz~1000MHz, >90dB. |
| Electrical insulation                                                | > 2MΩ                                       |
| Ground system resistance                                             | < 4Ω                                        |
| Normalised site attenuation (NSA)                                    | < ± 4 dB, 3m distance, from 30 to 1000 MHz  |
| Site voltage standing-wave ratio (SVSWR)                             | Between 0 and 6 dB, from 1GHz to 18GHz      |
| Uniformity of field strength                                         | Between 0 and 6 dB, from 80 to 6000 MHz     |

|                          |                                            |
|--------------------------|--------------------------------------------|
| Shielded room            |                                            |
| Shielding effectiveness  | 0.014MHz~1MHz, >60dB; 1MHz~1000MHz, >90dB. |
| Electrical insulation    | > 2 MΩ                                     |
| Ground system resistance | < 4Ω                                       |

## 5.2 Decision of final test mode

The EUT was tested in conjunction with the accessories in Section 4.2. We tested all of the following test modes and selected the worst mode from the test results and recorded them in the report.

The test configuration modes are as the following:

| Test Item         | Test setup and operating modes                       |
|-------------------|------------------------------------------------------|
| Radiated emission | 30MHz-18GHz frequency range:<br>Mode 1: BLE mode+ AE |

## 5.3 EUT System Operation

1. Connect the EUT with AE.
2. Setup the EUT according to the standard, connect the EUT and Phone with nRF connect APK.
3. Start testing and monitoring the function.

## 5.4 EUT Connection Diagram of Test System



<Figure 5.4-1> Mode 1

## 5.5 Test Equipment Utilized

| No. | Name                        | Model           | S/N      | SW Version | HW Version | Manufacturer | Cal. Date  | Cal. Interval |
|-----|-----------------------------|-----------------|----------|------------|------------|--------------|------------|---------------|
| 1   | Test Receiver               | ESR7            | 102399   | 1.4        | 00         | R&S          | 2024-06-07 | 1 year        |
| 2   | Test Receiver               | FSW43           | 101943   | 1.12       | 00         | R&S          | 2024-08-21 | 1 year        |
| 3   | Trilog Antenna              | VULB9162        | 00426    | N/A        | N/A        | Schwarzbeck  | 2024-08-02 | 1 year        |
| 4   | Double Ridged Guide Antenna | ETS-3117        | 00135885 | N/A        | N/A        | ETS          | 2025-01-11 | 1 year        |
| 5   | EMI Test Software           | EMC32 V10.60.20 | N/A      | N/A        | N/A        | R&S          | N/A        | N/A           |
| 6   | Preamplifier                | SCU08F1         | 8320024  | N/A        | N/A        | R&S          | 2024-10-09 | 1 year        |
| 7   | Preamplifier                | SCU18           | 10155    | N/A        | N/A        | R&S          | 2024-10-09 | 1 year        |

| No.                                                                                                                                                                                                 | Name | Model | S/N | SW Version | HW Version | Manuf acturer | Cal. Date | Cal. Interval |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|-----|------------|------------|---------------|-----------|---------------|
| Test Cable: According to the quality management system of our laboratory, the measurement cables used for testing are calibrated every two years. The next calibration is scheduled for 2025-06-20. |      |       |     |            |            |               |           |               |

## 5.6 Measurement Uncertainty

| Item (s)                                                                                                                                         | Uncertainty |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Radiated Emission 30MHz-1000MHz                                                                                                                  | 4.92 dB     |
| Radiated Emission 1000MHz-18000MHz                                                                                                               | 5.66 dB     |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$ . |             |

## 6 Test Results

### 6.1 Radiated Emission

#### 6.1.1 Method of Measurement

- a. For 30MHz -1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.
- b. For 1000MHz -18000MHz, the EUT was placed on the top of a 0.8m table above the ground at a 3m fully anechoic chamber. The maximal emission value was acquired by adjusting the antenna height, The table was rotated 360 degrees to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement

#### 6.1.2 EUT Connection Diagram of Test System

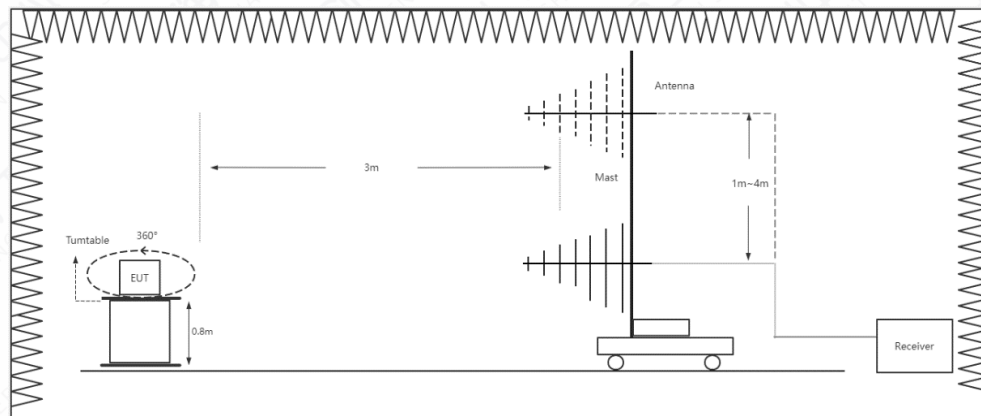


Figure 6.1.2-1 RE 30MHz-1GHz Connection Diagram

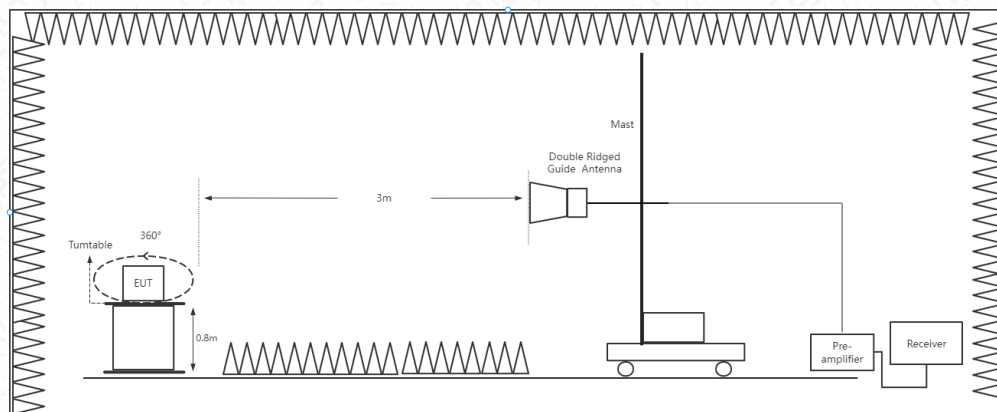


Figure 6.1.2-2 RE Above 1GHz Connection Diagram

### 6.1.3 Test Condition

| Frequency Range (MHz) | RBW/VBW       | Sweep Time (s) |
|-----------------------|---------------|----------------|
| 30-1000               | 120kHz/300kHz | AUTO           |
| 1000-18000            | 1MHz/3MHz     | AUTO           |

### 6.1.4 Limit/Criterion

| Frequency Range (MHz) | Quasi-Peak (dBμV/m) | Peak (dBμV/m) | Average (dBμV/m) |
|-----------------------|---------------------|---------------|------------------|
| 30-88                 | 40                  | N/A           | N/A              |
| 88-216                | 43.5                | N/A           | N/A              |
| 216-960               | 46                  | N/A           | N/A              |
| Above 960             | 54                  | N/A           | N/A              |
| Above 1000            | N/A                 | 74            | 54               |

### 6.1.5 Test environmental conditions

|                      |           |
|----------------------|-----------|
| Temperature          | 18.8℃     |
| Relative Humidity    | 37.4%RH   |
| Atmospheric Pressure | 101.9 kPa |

### 6.1.6 Test Results

| Mode                                                                       | Frequency (MHz) | Test Results            | Verdicts |
|----------------------------------------------------------------------------|-----------------|-------------------------|----------|
| Mode 1: BLE mode+ AE                                                       | 30-1000         | See Annex A.1-1         | Pass     |
| Mode 1: BLE mode+ AE                                                       | 1000-18000      | See Annex A.1-2 & A.1-3 | Pass     |
| NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A |                 |                         |          |

## Annex A: Measurement Data

### A.1 Radiated Emission

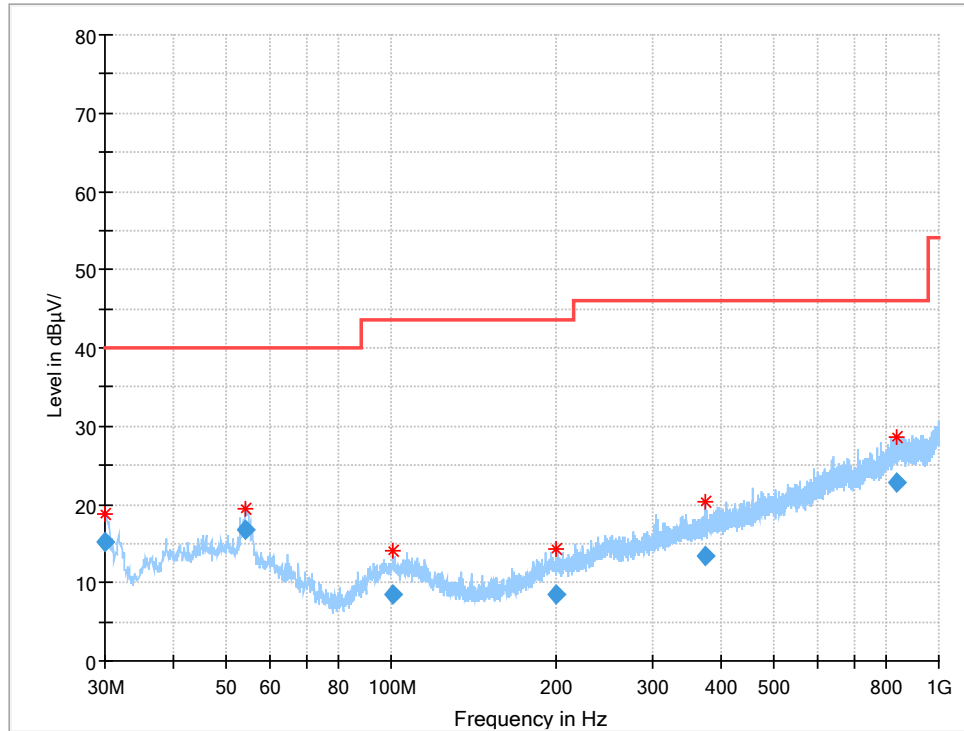


Figure A.1-1 Mode 1 (30M-1GHz)

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 30.095042       | 15.09              | 40.00          | 24.91       | 100.0       | V   | 281.0         | -16.1        |
| 54.253560       | 16.72              | 40.00          | 23.28       | 100.0       | V   | 60.0          | -11.9        |
| 100.420800      | 8.46               | 43.50          | 35.04       | 200.0       | H   | 322.0         | -13.2        |
| 199.424800      | 8.50               | 43.50          | 35.00       | 200.0       | H   | 0.0           | -12.6        |
| 375.184840      | 13.33              | 46.00          | 32.67       | 200.0       | V   | 0.0           | -7.8         |
| 838.869360      | 22.76              | 46.00          | 23.24       | 100.0       | V   | 5.0           | 2.1          |

Note:

1.Horizontal and vertical polarity is all have been tested, the result of them is synthesized in the above data diagram.

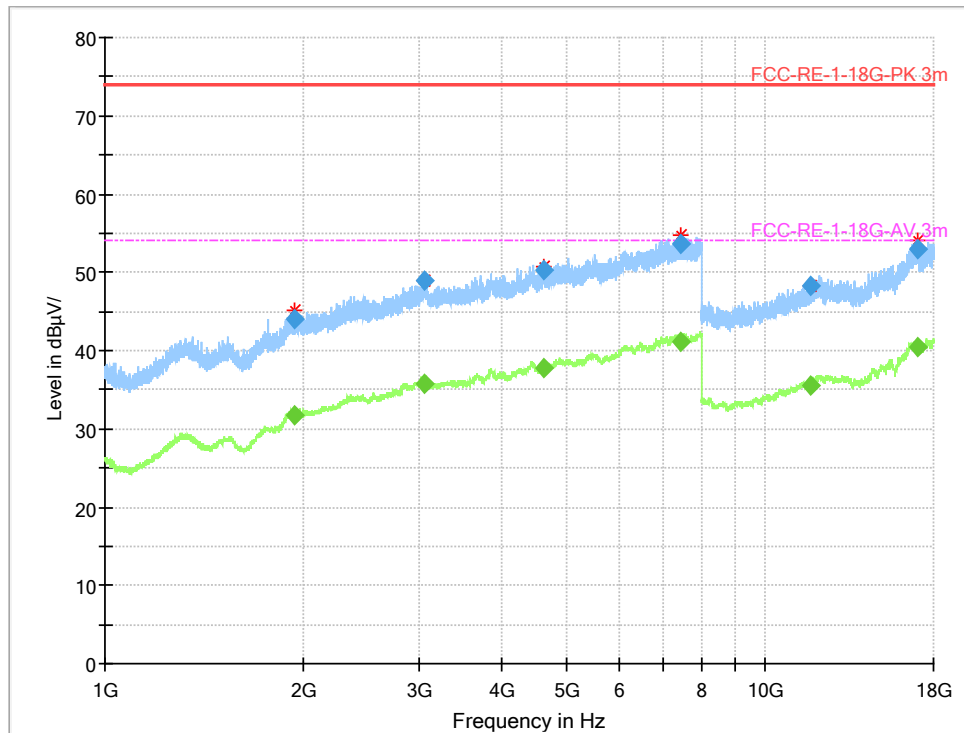


Figure A.1-2 Mode 1 (1GHz-18GHz)-H

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 1938.506250     | 44.09            | ---              | 74.00          | 29.91       | 215.0       | H   | 222.0         | 6.7          |
| 1938.506250     | ---              | 31.80            | 54.00          | 22.20       | 215.0       | H   | 222.0         | 6.7          |
| 3039.683750     | 48.85            | ---              | 74.00          | 25.15       | 115.0       | H   | 269.0         | 12.2         |
| 3039.683750     | ---              | 35.82            | 54.00          | 18.18       | 115.0       | H   | 269.0         | 12.2         |
| 4619.593750     | 50.25            | ---              | 74.00          | 23.75       | 115.0       | H   | 3.0           | 14.7         |
| 4619.593750     | ---              | 37.74            | 54.00          | 16.26       | 115.0       | H   | 3.0           | 14.7         |
| 7440.091250     | ---              | 41.12            | 54.00          | 12.88       | 215.0       | H   | 334.0         | 20.5         |
| 7440.091250     | 53.74            | ---              | 74.00          | 20.26       | 215.0       | H   | 334.0         | 20.5         |
| 11721.901250    | 48.31            | ---              | 74.00          | 25.69       | 215.0       | H   | 0.0           | 13.3         |
| 11721.901250    | ---              | 35.49            | 54.00          | 18.51       | 215.0       | H   | 0.0           | 13.3         |
| 16984.163750    | ---              | 40.38            | 54.00          | 13.62       | 115.0       | H   | 264.0         | 22.0         |
| 16984.163750    | 52.90            | ---              | 74.00          | 21.10       | 115.0       | H   | 264.0         | 22.0         |

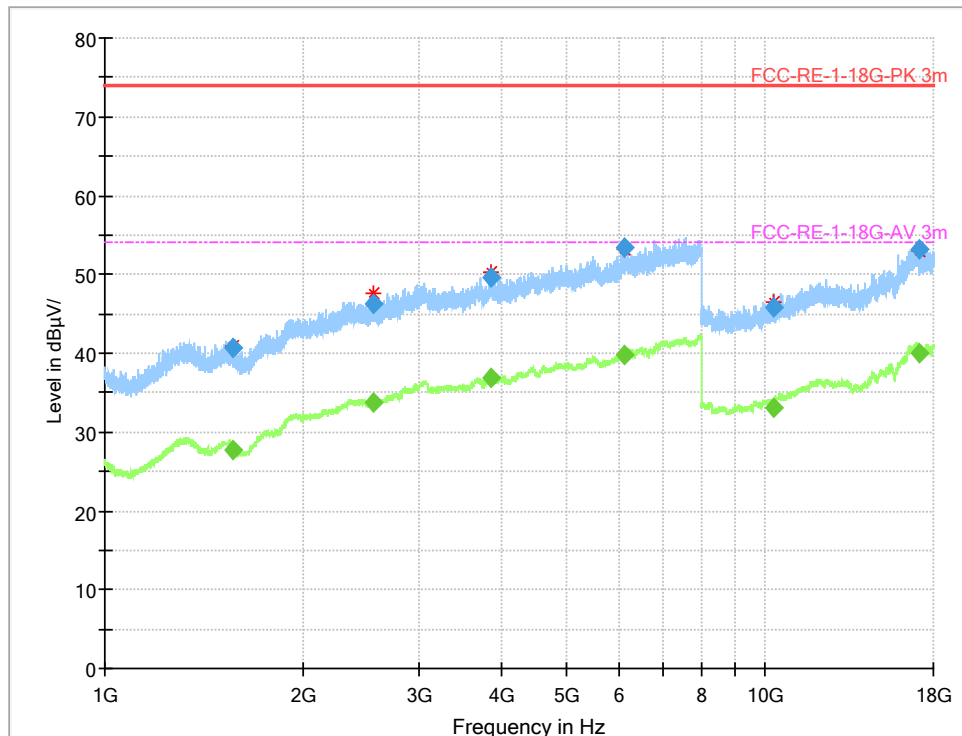


Figure A.1-3 Mode 1 (1GHz-18GHz)-V

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 1565.500000     | 40.66            | ---              | 74.00          | 33.34       | 215.0       | V   | 56.0          | 2.6          |
| 1565.500000     | ---              | 27.81            | 54.00          | 26.19       | 215.0       | V   | 56.0          | 2.6          |
| 2545.773750     | ---              | 33.64            | 54.00          | 20.36       | 215.0       | V   | 142.0         | 9.1          |
| 2545.773750     | 46.31            | ---              | 74.00          | 27.69       | 215.0       | V   | 142.0         | 9.1          |
| 3857.155000     | 49.61            | ---              | 74.00          | 24.39       | 210.0       | V   | 242.0         | 13.3         |
| 3857.155000     | ---              | 36.76            | 54.00          | 17.24       | 210.0       | V   | 242.0         | 13.3         |
| 6110.033750     | ---              | 39.77            | 54.00          | 14.23       | 215.0       | V   | 331.0         | 18.3         |
| 6110.033750     | 53.30            | ---              | 74.00          | 20.70       | 215.0       | V   | 331.0         | 18.3         |
| 10280.253750    | 45.88            | ---              | 74.00          | 28.12       | 100.0       | V   | 1.0           | 10.2         |
| 10280.253750    | ---              | 33.01            | 54.00          | 20.99       | 100.0       | V   | 1.0           | 10.2         |
| 17103.723750    | 53.20            | ---              | 74.00          | 20.80       | 215.0       | V   | 242.0         | 21.6         |
| 17103.723750    | ---              | 40.03            | 54.00          | 13.97       | 215.0       | V   | 242.0         | 21.6         |

**Annex B: Revised History**

| Version | Revised Content |
|---------|-----------------|
| V0      | Initial         |

**Annex C: Accreditation Certificate****Accredited Laboratory**

A2LA has accredited

**INDUSTRIAL INTERNET INNOVATION CENTER  
(SHANGHAI) CO., LTD.**

Shanghai, People's Republic of China

for technical competence in the field of

**Electrical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 20<sup>th</sup> day of September 2023.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3682.01  
Valid to April 30, 2025  
Revised February 24, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.