

# RF Test Report

## For

**Applicant name:** Flaircomm Microelectronics, Inc.  
**Address:** 7F, Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China  
**EUT name:** Telematics Control Unit  
**Brand name:** N/A  
**Model number:** FLC-WNP296  
**Series model number:** Refer to section 2  
**FCC ID:** 2BBDNWNP296

## Issued By

**Company name:** BTF Testing Lab (Shenzhen) Co., Ltd.  
**Address:** Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China

**Report number:** BTF260312R01101  
**Test standards:** 47 CFR Part 15.247  
**Test conclusion:** Pass

**Date of sample receipt:** 2026-03-13  
**Test date:** 2026-03-13 to 2026-03-25  
**Date of issue:** 2026-04-01

**Test by:** Sean.He  
Sean.He / Tester

**Prepared by:** Chris.Liu  
Chris.Liu / Project engineer

Approved by  Ryan.CJ / EMC Manager

*Note: All the test results in this report only related to the testing samples. Which can be duplicated completely for the legal use with approval of applicant; it shall not be reproduced except in full without the written approval of BTF Testing Lab (Shenzhen) Co., Ltd., All the objections should be raised within thirty days from the date of issue. To validate the report, you can contact us.*

| Revision History                                                                                                                                                                                                                                             |            |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|
| Version                                                                                                                                                                                                                                                      | Issue Date | Revisions Content |
| R_V0                                                                                                                                                                                                                                                         | 2026-04-01 | Original          |
|                                                                                                                                                                                                                                                              |            |                   |
| <p><b>Note:</b><br/><i>This report has been modified based on TCT250227E006.(FCC ID: 2BBDNWNP296. Published on March 13, 2025.) Only the motherboard has been added with a battery charging and discharging circuit, added relevant radiation tests.</i></p> |            |                   |

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# 1 Introduction

## 1.1 Laboratory Location

|                |                                                                                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Test location: | BTF Testing Lab (Shenzhen) Co., Ltd.                                                                                                                |
| Address:       | Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China |
| Phone number:  | +86-0755-23146130                                                                                                                                   |
| Fax number:    | +86-0755-23146130                                                                                                                                   |

## 1.2 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1409**  
BTF Testing Lab (Shenzhen) Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 695374.
- **CNAS - Registration No.: CNAS L17568**  
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L17568.
- **A2LA - Registration No.: 6660.01**  
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.

## 1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.
- (7) All entrusted information in this report is provided by the client and has been confirmed through consultation with the client; The testing items for this report have been discussed and confirmed with the client, and our company is only responsible for the content reflected in the report.

## 2 Product Information

### 2.1 Application Information

|               |                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------|
| Company name: | Flaircomm Microelectronics, Inc.                                                                                         |
| Address:      | 7F, Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China |

### 2.2 Manufacturer Information

|               |                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------|
| Company name: | Flaircomm Microelectronics, Inc.                                                                                         |
| Address:      | 7F, Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China |

### 2.3 Factory Information

|               |                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------|
| Company name: | Flaircomm Microelectronics, Inc.                                                                                         |
| Address:      | 7F, Guomai Building, Guomai Science and Technology Park, 116 JiangBin East Avenue, Mawei District, Fuzhou, Fujian, China |

### 2.4 General Description of Equipment under Test (EUT)

|                                            |                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------|
| EUT name:                                  | Telematics Control Unit                                                                 |
| Under test model name:                     | FLC-WNP296                                                                              |
| Series model name:                         | FLC-WNP296X, FLC-STU296X                                                                |
| Description of model name differentiation: | They have the same circuit diagram, appearance and structure. The difference for model. |
| Hardware version:                          | N/A                                                                                     |
| Software version:                          | N/A                                                                                     |
| Ratings:                                   | DC 9V-16V                                                                               |

## 2.5 Technical Information

|                                 |                                |
|---------------------------------|--------------------------------|
| Operation Frequency:            | 2402MHz to 2480MHz             |
| Channel numbers:                | 40                             |
| Channel separation:             | 2MHz                           |
| Modulation technology:          | GFSK                           |
| Maximum Conducted Output Power: | 5.42dBm                        |
| Antenna type:                   | Chip Antenna                   |
| Antenna gain:                   | 1.60dBi (declare by Applicant) |

### Channel List:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2402            | 10      | 2422            | 20      | 2442            | 30      | 2462            |
| 1       | 2404            | 11      | 2424            | 21      | 2444            | 31      | 2464            |
| 2       | 2406            | 12      | 2426            | 22      | 2446            | 32      | 2466            |
| 3       | 2408            | 13      | 2428            | 23      | 2448            | 33      | 2468            |
| 4       | 2410            | 14      | 2430            | 24      | 2450            | 34      | 2470            |
| 5       | 2412            | 15      | 2432            | 25      | 2452            | 35      | 2472            |
| 6       | 2414            | 16      | 2434            | 26      | 2454            | 36      | 2474            |
| 7       | 2416            | 17      | 2436            | 27      | 2456            | 37      | 2476            |
| 8       | 2418            | 18      | 2438            | 28      | 2458            | 38      | 2478            |
| 9       | 2420            | 19      | 2440            | 29      | 2460            | 39      | 2480            |

### 3 Summary of Test Results

#### 3.1 Test Standards

The tests were performed according to following standards:

**47 CFR Part 15.247:** Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

**ANSI C63.10-2020:** American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

**KDB 558074 D01 15.247 Meas Guidance v05r02:** Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of The FCC Rules.

#### 3.2 Uncertainty of Test

| Measurement                                                                                                                                                                                                                                                           | Value    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Conducted Emission for LISN (150kHz ~ 30MHz)                                                                                                                                                                                                                          | ±2.45 dB |
| Radiated Emission(1GHz~18GHz)                                                                                                                                                                                                                                         | ±4.80 dB |
| Radiated Emission(30MHZ~1000MHZ)                                                                                                                                                                                                                                      | ±4.94 dB |
| 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. |          |

#### 3.3 Summary of Test Result

| Item                                                                         | Standard           | Requirement                      | Result |
|------------------------------------------------------------------------------|--------------------|----------------------------------|--------|
| Conducted Emission at power line                                             | 47 CFR Part 15.247 | 47 CFR 15.207(a)                 | N/A    |
| Band edge emissions (Radiated)                                               | 47 CFR Part 15.247 | 47 CFR 15.247(d), 15.209, 15.205 | Pass   |
| Emissions in frequency bands (below 1GHz)                                    | 47 CFR Part 15.247 | 47 CFR 15.247(d), 15.209, 15.205 | Pass   |
| Emissions in frequency bands (above 1GHz)                                    | 47 CFR Part 15.247 | 47 CFR 15.247(d), 15.209, 15.205 | Pass   |
| <b>Remark:</b><br>1. Pass: Meet the requirements.<br>2. N/A: not applicable. |                    |                                  |        |

#### 3.4 Additions to, deviations, or exclusions from the method

None

## 4 Test Configuration

### 4.1 Test Equipment List

| Conducted Emission at power line |                 |             |                               |            |            |
|----------------------------------|-----------------|-------------|-------------------------------|------------|------------|
| Test Equipment                   | Manufacturer    | Model       | Serial No.                    | Cal. Date  | Cal. Due   |
| Test Software                    | Frad            | EZ_EMC      | Version:<br>EMC-CON<br>3A1.1+ | /          | /          |
| EMI Receiver                     | Rohde & Schwarz | ESCI3       | 101422                        | 2025-10-17 | 2026-10-16 |
| V-LISN                           | Schwarzbeck     | NSLK 8127   | 01073                         | 2025-08-23 | 2026-08-22 |
| Coaxial Switcher                 | Schwarzbeck     | CX210       | CX210                         | /          | /          |
| Pulse Limiter                    | Schwarzbeck     | VTSD 9561-F | 00953                         | /          | /          |
| LISN-Cable                       | REBES Talent    | LISN9K30M   | 21101580                      | 2025-08-23 | 2026-08-22 |

| Band edge emissions (Radiated)<br>Emissions in frequency bands (below 1GHz)<br>Emissions in frequency bands (above 1GHz) |                 |               |                         |            |            |
|--------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|-------------------------|------------|------------|
| Test Equipment                                                                                                           | Manufacturer    | Model         | Serial No.              | Cal. Date  | Cal. Due   |
| Test Software                                                                                                            | Frad            | EZ_EMC        | Version:<br>FA-03A2 RE+ | /          | /          |
| EMI Receiver                                                                                                             | Rohde & Schwarz | ESCI7         | 101032                  | 2025-10-17 | 2026-10-16 |
| Signal Analyzer                                                                                                          | Rohde & Schwarz | FSQ40         | 100010                  | 2025-10-17 | 2026-10-16 |
| Log periodic antenna                                                                                                     | Schwarzbeck     | VULB 9168     | 01328                   | 2025-10-18 | 2026-10-17 |
| Preamplifier (30MHz ~ 1GHz)                                                                                              | Schwarzbeck     | BBV9744       | 00246                   | 2025-05-26 | 2026-05-25 |
| BELOW-Cable                                                                                                              | REBES Talent    | 9K1G          | 21101576                | 2025-08-23 | 2026-08-22 |
| Horn Antenna                                                                                                             | Schwarzbeck     | BBHA9120D     | 2597                    | 2025-10-18 | 2026-10-17 |
| Preamplifier (1GHz ~ 18GHz)                                                                                              | Schwarzbeck     | BBV9718D      | 00008                   | 2025-10-18 | 2026-10-17 |
| Preamplifier                                                                                                             | TSTPASS         | LNA10180G45   | TS2215007               | 2025-05-26 | 2026-05-25 |
| ABOVE-Cable                                                                                                              | REBES Talent    | 1~18G         | 21101558                | 2025-08-23 | 2026-08-22 |
| Horn Antenna                                                                                                             | SCHWARZBECK     | BBHA9170      | 1157                    | 2025-10-18 | 2026-10-17 |
| Low Noise Pre-amplifier                                                                                                  | Sket            | LNPA_1840G-50 | SK2022032902            | 2025-10-17 | 2026-10-16 |
| ABOVE-Cable2                                                                                                             | REBES Talent    | 18~40G        | 21101686                | 2025-08-23 | 2026-08-22 |
| ABOVE-Cable1                                                                                                             | REBES Talent    | 18~40G        | 21101687                | 2025-08-23 | 2026-08-22 |

### 4.2 Test Auxiliary Equipment

The EUT has been tested as an independent unit.

### 4.3 Test Modes

| No. | Test Modes |
|-----|------------|
| TM1 | TX mode    |

### 4.4 Test Channel of EUT

Operation Band: 2400-2483.5 MHz

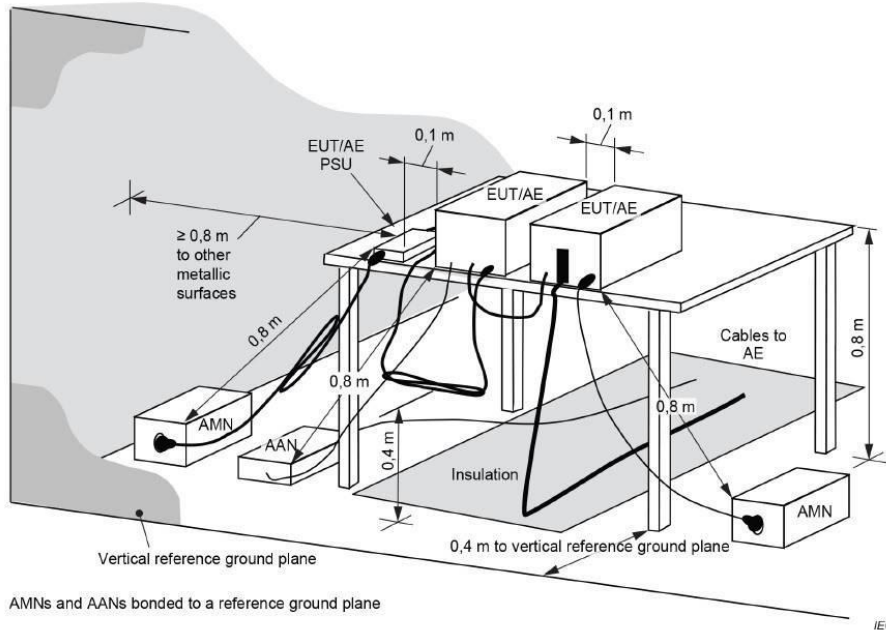
| Bandwidth (MHz) | Lowest Channel (LCH) (MHz) | Middle Channel (MCH) (MHz) | Highest Channel (HCH) (MHz) |
|-----------------|----------------------------|----------------------------|-----------------------------|
| 1               | 2402                       | 2440                       | 2480                        |
| 2               | 2402                       | 2440                       | 2480                        |

### 4.5 Test software

| Test software: | Version: | Power Class: |
|----------------|----------|--------------|
| HCITester      | 3.0.0.35 | 5            |

## 5 Radio Spectrum Matter Test Results (RF)

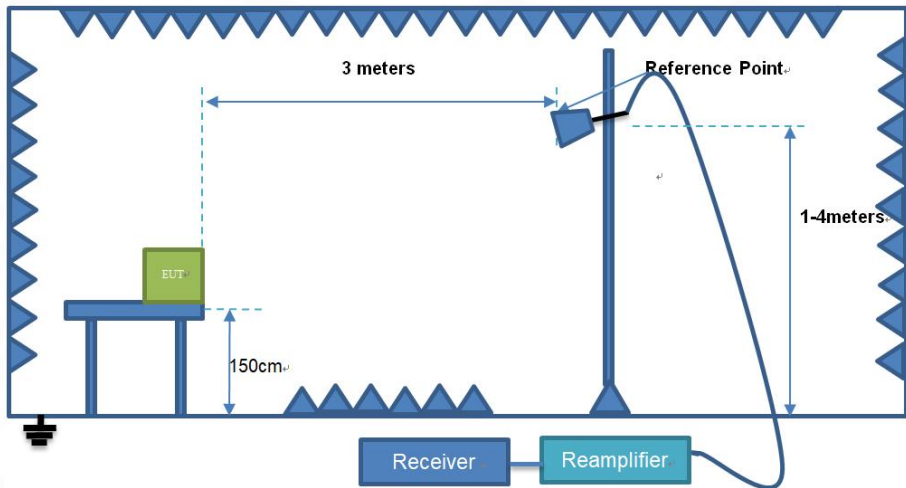
### 5.1 Conducted Emission at power line

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |           |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------|
| Test Requirement:                               | Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 ohms line impedance stabilization network (LISN). |                              |           |
| Test Method:                                    | ANSI C63.10-2020 section 6.2                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              |           |
| Test Limit:                                     | Frequency of emission (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Conducted limit (dB $\mu$ V) |           |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Quasi-peak                   | Average   |
|                                                 | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 66 to 56*                    | 56 to 46* |
|                                                 | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 56                           | 46        |
|                                                 | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 60                           | 50        |
| *Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |           |
| Procedure:                                      | Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices                                                                                                                                                                                                                                                                                                                                              |                              |           |
| Test Setup:                                     |                                                                                                                                                                                                                                                                                                                                                                                              |                              |           |
| Operating Environment:                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |           |
| Temperature:                                    | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |           |
| Humidity:                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |           |
| Atmospheric Pressure:                           | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |           |
| Test voltage:                                   | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |           |

### 5.1.1 Test Data

DC power supply is not applicable.

## 5.2 Band edge emissions (Radiated)

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                               |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------|
| Test Requirement:      | Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                   |                               |
| Test Method:           | ANSI C63.10-2020 section 6.10<br>KDB 558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                   |                               |
| Test Limit:            | Frequency (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Field strength (microvolts/meter) | Measurement distance (meters) |
|                        | 0.009-0.490                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2400/F(kHz)                       | 300                           |
|                        | 0.490-1.705                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24000/F(kHz)                      | 30                            |
|                        | 1.705-30.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30                                | 30                            |
|                        | 30-88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 100 **                            | 3                             |
|                        | 88-216                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 150 **                            | 3                             |
|                        | 216-960                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200 **                            | 3                             |
|                        | Above 960                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 500                               | 3                             |
|                        | <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> |                                   |                               |
| Procedure:             | ANSI C63.10-2020 section 6.10.5.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                   |                               |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                               |
| Operating Environment: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                               |
| Temperature:           | 25 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                               |
| Humidity:              | 47.8 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                   |                               |
| Atmospheric Pressure:  | 1010 mbar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                               |
| Test voltage:          | DC 9V-16V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                               |

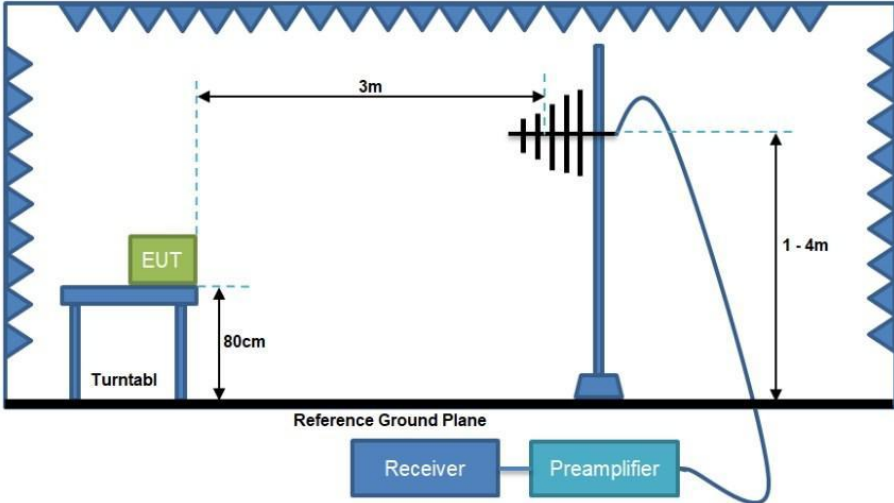
### 5.2.1 Test Data

**Remark:** The report only reflects the test data of worst mode.

| Test Channel: GFSK, Lowest channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
|--------------------------------------------------------------------|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2310.00                                                            | 51.11          | 3.85        | 54.96          | 74.00          | -19.04       | Peak     | Pass   |
| 2310.00                                                            | 41.47          | 3.85        | 45.32          | 54.00          | -8.68        | AVG      | Pass   |
| 2390.00                                                            | 52.00          | 3.91        | 55.91          | 74.00          | -18.09       | Peak     | Pass   |
| 2390.00                                                            | 41.26          | 3.91        | 45.18          | 54.00          | -8.82        | AVG      | Pass   |
| Test Channel: GFSK, Lowest channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2310.00                                                            | 51.35          | 3.85        | 55.21          | 74.00          | -18.79       | Peak     | Pass   |
| 2310.00                                                            | 40.43          | 3.85        | 44.28          | 54.00          | -9.72        | AVG      | Pass   |
| 2390.00                                                            | 52.84          | 3.91        | 56.75          | 74.00          | -17.25       | Peak     | Pass   |
| 2390.00                                                            | 42.74          | 3.91        | 46.65          | 54.00          | -7.35        | AVG      | Pass   |
| Test Channel: GFSK, Highest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2483.50                                                            | 50.91          | 3.99        | 54.90          | 74.00          | -19.10       | Peak     | Pass   |
| 2483.50                                                            | 41.19          | 3.99        | 45.17          | 54.00          | -8.83        | AVG      | Pass   |
| 2500.00                                                            | 51.66          | 4.00        | 55.66          | 74.00          | -18.34       | Peak     | Pass   |
| 2500.00                                                            | 41.86          | 4.00        | 45.86          | 54.00          | -8.14        | AVG      | Pass   |
| Test Channel: GFSK, Highest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2483.50                                                            | 52.38          | 3.99        | 56.37          | 74.00          | -17.63       | Peak     | Pass   |
| 2483.50                                                            | 41.94          | 3.99        | 45.93          | 54.00          | -8.07        | AVG      | Pass   |
| 2500.00                                                            | 51.30          | 4.00        | 55.30          | 74.00          | -18.70       | Peak     | Pass   |
| 2500.00                                                            | 40.35          | 4.00        | 44.35          | 54.00          | -9.65        | AVG      | Pass   |

Note:  $\text{Margin} = \text{Level} - \text{Limit} = \text{Reading} + \text{factor} - \text{Limit}$

### 5.3 Emissions in frequency bands (below 1GHz)

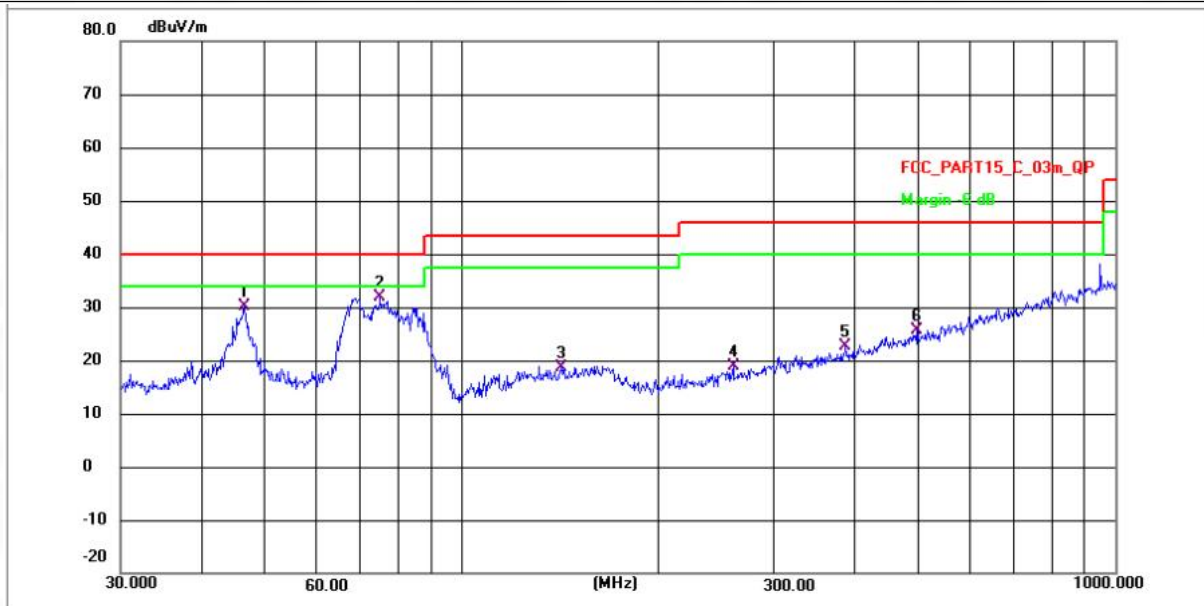
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                               |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------|
| Test Requirement:      | Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                   |                               |
| Test Method:           | ANSI C63.10-2020 section 6.6.4<br>KDB 558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |                               |
| Test Limit:            | Frequency (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Field strength (microvolts/meter) | Measurement distance (meters) |
|                        | 0.009-0.490                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2400/F(kHz)                       | 300                           |
|                        | 0.490-1.705                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24000/F(kHz)                      | 30                            |
|                        | 1.705-30.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30                                | 30                            |
|                        | 30-88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 100 **                            | 3                             |
|                        | 88-216                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 150 **                            | 3                             |
|                        | 216-960                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200 **                            | 3                             |
|                        | Above 960                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 500                               | 3                             |
|                        | <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> |                                   |                               |
| Procedure:             | ANSI C63.10-2020 section 6.6.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                   |                               |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                               |
| Operating Environment: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                               |
| Temperature:           | 23 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                               |
| Humidity:              | 53.4 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                   |                               |
| Atmospheric Pressure:  | 1010 mbar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                               |

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|               |           |
|---------------|-----------|
| Test voltage: | DC 9V-16V |
|---------------|-----------|

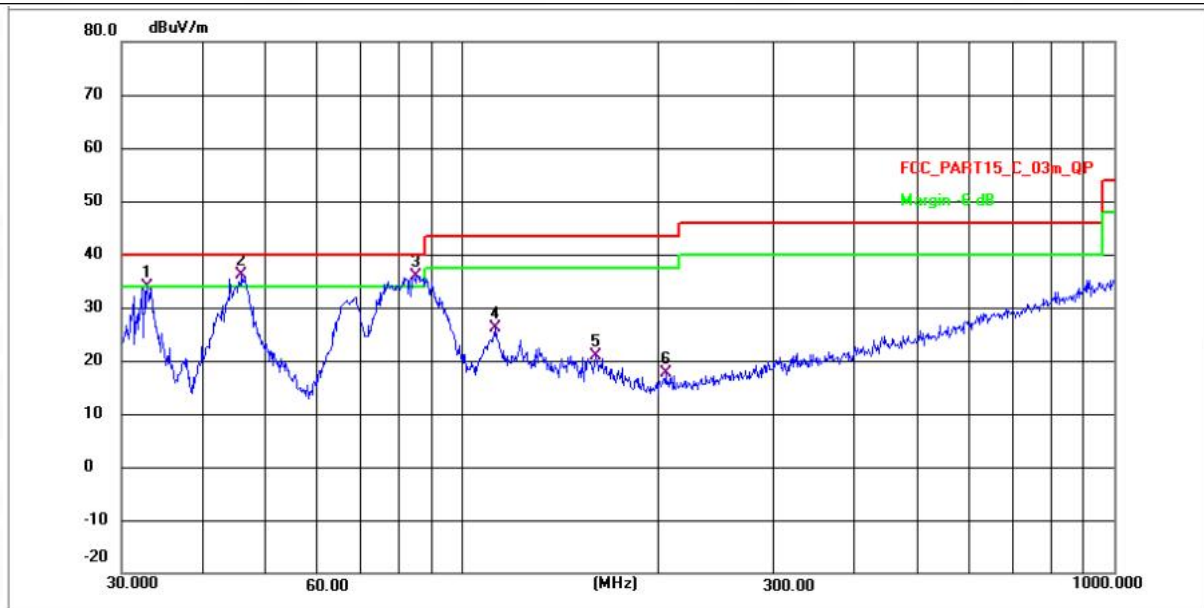
### 5.3.1 Test Data

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L



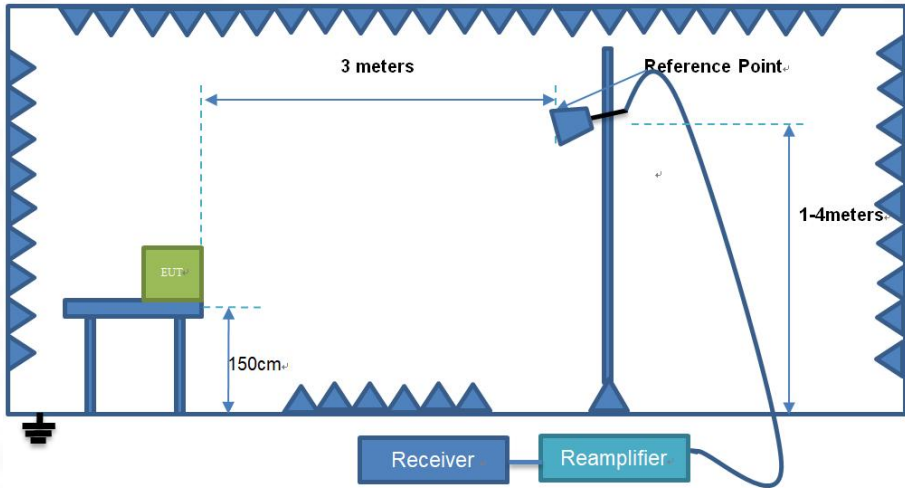
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|
| 1   | 46.3402         | 39.97          | -9.74         | 30.23          | 40.00          | -9.77       | QP       | P   |
| 2 * | 74.9191         | 41.31          | -9.34         | 31.97          | 40.00          | -8.03       | QP       | P   |
| 3   | 141.8262        | 46.07          | -27.41        | 18.66          | 43.50          | -24.84      | QP       | P   |
| 4   | 260.1444        | 44.94          | -26.17        | 18.77          | 46.00          | -27.23      | QP       | P   |
| 5   | 386.6338        | 47.73          | -25.02        | 22.71          | 46.00          | -23.29      | QP       | P   |
| 6   | 497.6764        | 49.82          | -24.11        | 25.71          | 46.00          | -20.29      | QP       | P   |

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|
| 1   | 32.8635         | 44.27          | -10.30        | 33.97          | 40.00          | -6.03       | QP       | P   |
| 2 * | 45.8551         | 45.86          | -9.75         | 36.11          | 40.00          | -3.89       | QP       | P   |
| 3 ! | 84.9993         | 64.03          | -28.12        | 35.91          | 40.00          | -4.09       | QP       | P   |
| 4   | 112.5241        | 53.78          | -27.76        | 26.02          | 43.50          | -17.48      | QP       | P   |
| 5   | 160.3454        | 48.09          | -27.20        | 20.89          | 43.50          | -22.61      | QP       | P   |
| 6   | 204.9550        | 44.30          | -26.71        | 17.59          | 43.50          | -25.91      | QP       | P   |

## 5.4 Emissions in frequency bands (above 1GHz)

| Test Requirement:      | Refer to 47 CFR 15.247(d), in addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------|-------------------------------|-------------|-------------|-----|-------------|--------------|----|------------|----|----|-------|--------|---|--------|--------|---|---------|--------|---|-----------|-----|---|--|--|
| Test Method:           | ANSI C63.10-2020 section 6.6.4<br>KDB 558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Test Limit:            | <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> | Frequency (MHz)               | Field strength (microvolts/meter) | Measurement distance (meters) | 0.009-0.490 | 2400/F(kHz) | 300 | 0.490-1.705 | 24000/F(kHz) | 30 | 1.705-30.0 | 30 | 30 | 30-88 | 100 ** | 3 | 88-216 | 150 ** | 3 | 216-960 | 200 ** | 3 | Above 960 | 500 | 3 |  |  |
| Frequency (MHz)        | Field strength (microvolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Measurement distance (meters) |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| 0.009-0.490            | 2400/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 300                           |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| 0.490-1.705            | 24000/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 30                            |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| 1.705-30.0             | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 30                            |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| 30-88                  | 100 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3                             |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| 88-216                 | 150 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3                             |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| 216-960                | 200 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3                             |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Above 960              | 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3                             |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Procedure:             | ANSI C63.10-2020 section 6.6.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Operating Environment: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Temperature:           | 25.5 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Humidity:              | 49.2 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |
| Atmospheric Pressure:  | 1010 mbar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |  |  |

|               |           |
|---------------|-----------|
| Test voltage: | DC 9V-16V |
|---------------|-----------|

### 5.4.1 Test Data

**Remark:** The report only reflects the test data of worst mode.

| Test Channel: GFSK, Lowest channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
|--------------------------------------------------------------------|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4804.00                                                            | 77.84          | -48.89      | 28.96          | 74.00          | -45.04       | Peak     | Pass   |
| 4804.00                                                            | 66.87          | -48.89      | 17.98          | 54.00          | -36.02       | AVG      | Pass   |
| 7206.00                                                            | 85.17          | -47.02      | 38.15          | 74.00          | -35.85       | Peak     | Pass   |
| 7206.00                                                            | 75.66          | -47.02      | 28.64          | 54.00          | -25.36       | AVG      | Pass   |
| Test Channel: GFSK, Lowest channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4804.00                                                            | 78.86          | -48.89      | 29.97          | 74.00          | -44.03       | Peak     | Pass   |
| 4804.00                                                            | 68.42          | -48.89      | 19.53          | 54.00          | -34.47       | AVG      | Pass   |
| 7206.00                                                            | 85.60          | -47.02      | 38.58          | 74.00          | -35.42       | Peak     | Pass   |
| 7206.00                                                            | 75.62          | -47.02      | 28.59          | 54.00          | -25.41       | AVG      | Pass   |
| Test Channel: GFSK, Middle channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4880.00                                                            | 78.18          | -48.84      | 29.34          | 74.00          | -44.66       | Peak     | Pass   |
| 4880.00                                                            | 67.95          | -48.84      | 19.11          | 54.00          | -34.89       | AVG      | Pass   |
| 7320.00                                                            | 85.47          | -46.89      | 38.58          | 74.00          | -35.42       | Peak     | Pass   |
| 7320.00                                                            | 74.74          | -46.89      | 27.86          | 54.00          | -26.14       | AVG      | Pass   |
| Test Channel: GFSK, Middle channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4880.00                                                            | 78.43          | -48.84      | 29.59          | 74.00          | -44.41       | Peak     | Pass   |
| 4880.00                                                            | 67.43          | -48.84      | 18.59          | 54.00          | -35.41       | AVG      | Pass   |
| 7320.00                                                            | 85.61          | -46.89      | 38.72          | 74.00          | -35.28       | Peak     | Pass   |
| 7320.00                                                            | 74.81          | -46.89      | 27.93          | 54.00          | -26.07       | AVG      | Pass   |
| Test Channel: GFSK, Highest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4960.00                                                            | 78.85          | -48.79      | 30.07          | 74.00          | -43.93       | Peak     | Pass   |
| 4960.00                                                            | 68.29          | -48.79      | 19.50          | 54.00          | -34.50       | AVG      | Pass   |
| 7440.00                                                            | 85.11          | -46.74      | 38.37          | 74.00          | -35.63       | Peak     | Pass   |
| 7440.00                                                            | 75.47          | -46.74      | 28.73          | 54.00          | -25.27       | AVG      | Pass   |
| Test Channel: GFSK, Highest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)                                                    | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4960.00                                                            | 79.05          | -48.79      | 30.26          | 74.00          | -43.74       | Peak     | Pass   |
| 4960.00                                                            | 69.40          | -48.79      | 20.62          | 54.00          | -33.38       | AVG      | Pass   |

|         |       |        |       |       |        |      |      |
|---------|-------|--------|-------|-------|--------|------|------|
| 7440.00 | 86.16 | -46.74 | 39.42 | 74.00 | -34.58 | Peak | Pass |
| 7440.00 | 76.48 | -46.74 | 29.73 | 54.00 | -24.27 | AVG  | Pass |

Note:Margin=Level-Limit=Reading+factor-Limit

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## 6 Test Setup Photos

Please refer to the Appendix I Test Setup Photos

## 7 EUT Constructional Details (EUT Photos)

Please refer to the Appendix II External Photos & Appendix III External Photos



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**-- END OF REPORT --**