

# RF Test Report

## For

**Applicant name:** Fitness On Demand, LLC  
**Address:** 2411 Galpin Court, STE 110, Chanhassen, MN 55317, United States  
**EUT name:** FOD Recovery 43  
**Brand name:** N/A  
**Model number:** FOD43A  
**Series model number:** N/A  
**FCC ID:** 2BQS8-FOD43A

## Issued By

**Company name:** BTF Testing Lab (Shenzhen) Co., Ltd.  
**Address:** 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China  
**Report number:** BTF250707R01803  
**Test standards:** FCC CFR Title 47 Part 15 Subpart C ( § 15.247)  
**Test conclusion:** Pass  
**Date of sample receipt:** 2025-07-07  
**Test date:** 2025-07-07 to 2025-07-24  
**Date of issue:** 2025-09-03

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

**Approved by:**   
Ryan C. J. EMC manager



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| Revision History  |            |                   |
|---|------------|-------------------|
| Version   | Issue date | Revisions content |
| R_V0  | 2025-09-03 | Original          |
|   |            |                   |
| Note:<br>Once the revision has been made, then previous versions reports are invalid. |            |                   |

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# 1 Introduction

## 1.1 Laboratory Location

|                |   |
|----------------|---|
| Test location: | BTF Testing Lab (Shenzhen) Co., Ltd.  |
| Address:       | 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China  |
| Description:   | All measurement facilities used to collect the measurement data are located at 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, 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: | Fitness On Demand, LLC  |
| Address:      | 2411 Galpin Court, STE 110, Chanhassen, MN 55317, United States |

### 2.2 Manufacturer Information

|               |   |
|---------------|---|
| Company name: | Fitness On Demand   |
| Address:      | 2025 Coulter Blvd #210, Chanhassen, MN 55317, United States |

### 2.3 Factory Information

|               |   |
|---------------|---|
| Company name: | Fitness On Demand   |
| Address:      | 2025 Coulter Blvd #210, Chanhassen, MN 55317, United States |

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

|   |                           |
|---|---------------------------|
| EUT name                                  | FOD Recovery 43           |
| Under test model name                     | FOD43A                    |
| Series model name                         | N/A                       |
| Description of model name differentiation | N/A                       |
| Hardware Version                          | V1.0                      |
| Software Version                          | N/A                       |
| Rating:                                   | Input :100-240V~, 50/60Hz |

### 2.5 Technical Information

|  |  |
|--|--|
| Operation frequency:                             | 2412MHz ~ 2462MHz (for 802.11b/g/n/-HT20/ax-HEW20)<br>2422MHz ~ 2452MHz (for 802.11n/ax-HT40/ax-HEW40)                                     |
| Channel number:                                  | 11 (for 802.11b/g/n/ax-HT20)<br>7 (for 802.11n/ax-HT40)  |
| Modulation technology:<br>(IEEE 802.11b)         | DSSS-DBPSK, DQPSK, CCK   |
| Modulation technology:<br>(IEEE 802.11g/802.11n) | OFDM-BPSK, QPSK, 16QAM, 64QAM  |
| Modulation technology:<br>(IEEE 802.11ax)        | OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM   |
| Data rate:                                       | 802.11b: 1Mbps<br>802.11g: 6Mbps<br>802.11n-HT20: 6.5Mbps<br>802.11n-HT40: 13.5Mbps<br>802.11ax-HEW20: 8.6Mbps<br>802.11ax-HEW40: 17.2Mbps |
| Equipment type:                                  | Adaptive equipment   |

|                        |                                 |
|------------------------|---------------------------------|
| Max. Conducted Power:  | 14.75 dBm                       |
| Antenna type:          | External Antenna                |
| Antenna gain:          | 4.03 dBi (declare by Applicant) |
| Antenna transmit mode: | SISO (1TX, 1RX)                 |

## 2.6 Channel List

| 802.11b/g/n(HT20)/ax(HE20)                  |           |         |           |         |           |         |           |
|---|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                                     | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1   | 2412MHz   | 4       | 2427MHz   | 7       | 2442MHz   | 10      | 2457MHz   |
| 2   | 2417MHz   | 5       | 2432MHz   | 8       | 2447MHz   | 11      | 2462MHz   |
| 3   | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   | --      | --        |
| Remark: Channel 1, 6 & 11 have been tested. |           |         |           |         |           |         |           |

| 802.11n(HT40)/ax(HE40)                     |           |         |           |         |           |         |           |
|--|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                                    | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| --   | --        | 4       | 2427MHz   | 7       | 2442MHz   | 10      | 2457MHz   |
| --   | --        | 5       | 2432MHz   | 8       | 2447MHz   | 11      | 2462MHz   |
| 3  | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   | --      | --        |
| Remark: Channel 3, 6 & 9 have been tested. |           |         |           |         |           |         |           |

### 3 Test Information

#### 3.1 Test Standards

| Identity                                     | Document Title   |
|--|--|
| FCC CFR Title 47 Part 15 Subpart C (§15.247) | Intentional Radiators - 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 Summary of Test

| Clauses   | Test Items   | Result |
|---|--|--------|
| Part 15.203   | Antenna requirement                                  | PASS   |
| 47 CFR 15.207(a)  | Conducted Emission at AC power line                  | PASS   |
| 47 CFR 15.247(b)(3)   | Duty Cycle   | PASS   |
| 47 CFR 15.247(a)(2)   | Occupied Bandwidth                                   | PASS   |
| 47 CFR 15.247(b)(3)   | Maximum Conducted Output Power                       | PASS   |
| 47 CFR 15.247(e)  | Power Spectral Density                               | PASS   |
| 47 CFR 15.247(d)  | Emissions in non-restricted frequency bands          | PASS   |
| 47 CFR 15.247(d)  | Band edge emissions (Radiated)                       | PASS   |
| 47 CFR 15.247(d)  | Emissions in restricted frequency bands (below 1GHz) | PASS   |
| 47 CFR 15.247(d)  | Emissions in restricted frequency bands (above 1GHz) | PASS   |
| <b>Remark:</b><br>1. Pass: met the requirements.<br>2. N/A: not applicable. |  |        |

#### 3.3 Uncertainty of Test

| Measurement  | Value    |
|--|----------|
| Occupied Channel Bandwidth   | ±5 %     |
| RF output power, conducted   | ±1.5 dB  |
| Power Spectral Density, conducted  | ±3.0 dB  |
| Unwanted Emissions, conducted  | ±3.0 dB  |
| Supply voltages  | ±3 %     |
| Time   | ±5 %     |
| Conducted Emission for LISN (9kHz ~ 150kHz)  | ±2.97 dB |
| Conducted Emission for LISN (150kHz ~ 30MHz)   | ±2.45 dB |
| Radiated Emission (30MHz ~ 1000MHz)  | ±4.80 dB |
| Radiated Emission (1GHz ~ 18GHz)   | ±4.82 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.

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

None

### 3.5 Test Auxiliary Equipment

The EUT has been tested as an independent unit.

### 3.6 Test Equipment List

| Radiated test method            |                 |             |                      |            |            |
|---------------------------------|-----------------|-------------|----------------------|------------|------------|
| Test Equipment                  | Manufacturer    | Model       | Serial No.           | Cal. Date  | Cal. Due   |
| EMI Receiver                    | Rohde & Schwarz | ESCI7       | 101032               | 2024/10/25 | 2025/10/24 |
| Signal Analyzer                 | Rohde & Schwarz | FSQ40       | 100010               | 2024/10/25 | 2025/10/24 |
| Log periodic antenna            | Schwarzbeck     | VULB 9168   | 01328                | 2024/10/28 | 2025/10/27 |
| Preamplifier<br>(30MHz ~ 1GHz)  | Schwarzbeck     | BBV9744     | 00246                | 2024/09/24 | 2025/09/23 |
| Horn Antenna<br>(1GHz ~18GHz)   | Schwarzbeck     | BBHA9120D   | 2597                 | 2024/10/30 | 2025/10/29 |
| Horn Antenna<br>(15GHz ~ 40GHz) | SCHWARZBECK     | BBHA9170    | 1157                 | 2024/10/24 | 2025/10/23 |
| Preamplifier<br>(1GHz ~ 40GHz)  | TST Pass        | LNA10180G45 | 246                  | 2024/09/24 | 2025/09/23 |
| Test Software                   | Frad            | EZ EMC      | Version: FA-03A2 RE+ |            |            |

| Conducted Emission Test |                 |             |                         |            |            |
|-------------------------|-----------------|-------------|-------------------------|------------|------------|
| Description             | Manufacturer    | Model       | Serial No.              | Cal. Date  | Cal. Due   |
| EMI Receiver            | Rohde & Schwarz | ESCI3       | 101422                  | 2024/10/25 | 2025/10/24 |
| V-LISN                  | Schwarzbeck     | NSLK 8127   | 01073                   | 2024/10/25 | 2025/10/24 |
| Coaxial Switcher        | Schwarzbeck     | CX210       | CX210                   | 2024/10/25 | 2025/10/24 |
| Pulse Limiter           | Schwarzbeck     | VTSD 9561-F | 00953                   | 2024/10/25 | 2025/10/24 |
| Test Software           | Frad            | EZ EMC      | Version: EMC-CON 3A1.1+ |            |            |

| Conducted test method               |               |         |             |            |            |
|-------------------------------------|---------------|---------|-------------|------------|------------|
| Description                         | Manufacturer  | Model   | Serial No.  | Cal. Date  | Cal. Due   |
| Spectrum Analyzer                   | Keysight      | N9020A  | MY50410020  | 2024/10/25 | 2025/10/24 |
| ESG Vector Signal Generator         | Agilent       | E4438C  | MY45094854  | 2024/10/25 | 2025/10/24 |
| MXG Vector Signal Generator         | Agilent       | N5182A  | MY46240163  | 2024/10/25 | 2025/10/24 |
| Wideband Radio Communication Tester | Rohde&Schwarz | CMW500  | 161997      | 2024/10/25 | 2025/10/24 |
| Temperature Humidity Chamber        | ZZCKONG       | ZZ-K02A | 20210928007 | 2024/10/25 | 2025/10/24 |



|                 |          |           |              |            |            |
|-----------------|----------|-----------|--------------|------------|------------|
| DC Power Supply | Tongmen  | etm-6050c | 20211026123  | 2024/10/25 | 2025/10/24 |
| RF Control Unit | Techy    | TR1029-1  | /            | 2024/10/25 | 2025/10/24 |
| RF Sensor Unit  | Techy    | TR1029-2  | /            | 2024/10/25 | 2025/10/24 |
| Test Software   | TST Pass | /         | Version: 2.0 |            |            |

## 4 Test Configuration

### 4.1 Environment Condition

| Selected Values During Tests                      |                   |                   |
|---|-------------------|-------------------|
| Temperature                                       | Relative Humidity | Ambient Pressure  |
| Normal: +15°C to +35°C<br>Extreme: -30°C to +50°C | 20% to 75%        | 86 kPa to 106 kPa |

### 4.2 Test mode

|  |  |           |
|--|--|-----------|
| (TM1)Transmitting mode:  | Keep the EUT in continuously transmitting mode with modulation |           |
| We have verified the construction and function in typical operation. All the test items were carried out with the EUT in above test modes. |  |           |
| Clauses  | Test Items   | Test mode |
| 47 CFR 15.207(a)   | Conducted Emission at AC power line                            | TM1       |
| 47 CFR 15.247(b)(3)  | Duty Cycle   | TM1       |
| 47 CFR 15.247(a)(2)  | Occupied Bandwidth   | TM1       |
| 47 CFR 15.247(b)(3)  | Maximum Conducted Output Power                                 | TM1       |
| 47 CFR 15.247(e)   | Power Spectral Density   | TM1       |
| 47 CFR 15.247(d)   | Emissions in non-restricted frequency bands                    | TM1       |
| 47 CFR 15.247(d)   | Band edge emissions (Radiated)                                 | TM1       |
| 47 CFR 15.247(d)   | Emissions in restricted frequency bands (below 1GHz)           | TM1       |
| 47 CFR 15.247(d)   | Emissions in restricted frequency bands (above 1GHz)           | TM1       |

### 4.3 Test Channel of EUT

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| 802.11b/g/n-HT20/ax-HEW20 |                 |                |                 |                 |                 |
|---------------------------|-----------------|----------------|-----------------|-----------------|-----------------|
| Lowest channel            |                 | Middle channel |                 | Highest channel |                 |
| Channel No.               | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 1                         | 2412            | 6              | 2437            | 11              | 2462            |
| 802.11n-HT40/ax-HEW40     |                 |                |                 |                 |                 |
| Lowest channel            |                 | Middle channel |                 | Highest channel |                 |
| Channel No.               | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 3                         | 2422            | 6              | 2437            | 9               | 2452            |

### 4.4 Test software

| Test software: | Version: | Power Class: |
|----------------|----------|--------------|
| adb            | v1.24    | 15           |

## 4.5 Test procedure

### AC Power Line Conducted Emission

The EUT is connected to the power mains through a LISN which provides 50  $\Omega$ /50  $\mu$ H of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

1. Level= Read Level+ Cable Loss+ LISN Factor
2. Margin=Level-Limit=Reading+factor-Limit

### Radiated test method

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, recorded the test results.
4. The substitution antenna shall be used to replace the equipment under test.
5. The reference point of the substitution antenna shall coincide with the volume centre of the UUT when its antenna is internal.
6. Set the required test frequency for the signal generator, adjust the emission level, until the spectrum analyzer reading on the receiving link is consistent with the recorded value in step 3, and the recorded signal generator emission level.
7. Final results = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB). This report only reflects the final results.

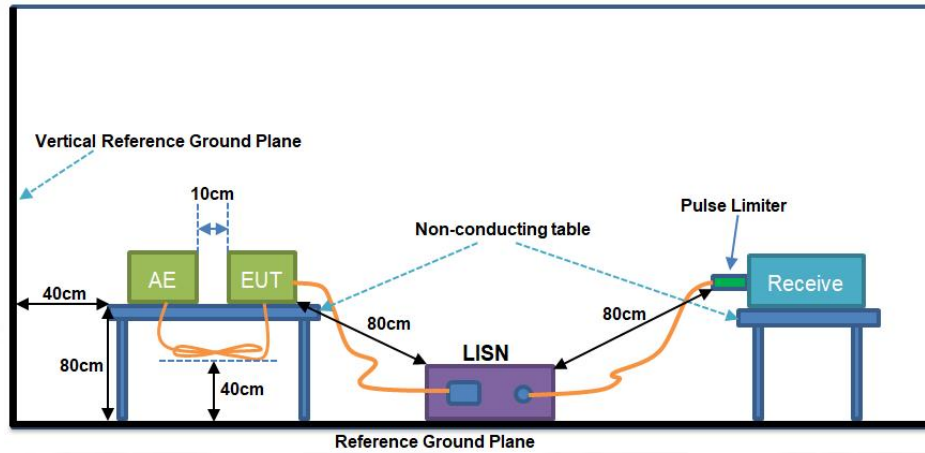
1. Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor
2. Margin=Level-Limit=Reading+factor-Limit

### Conducted test method

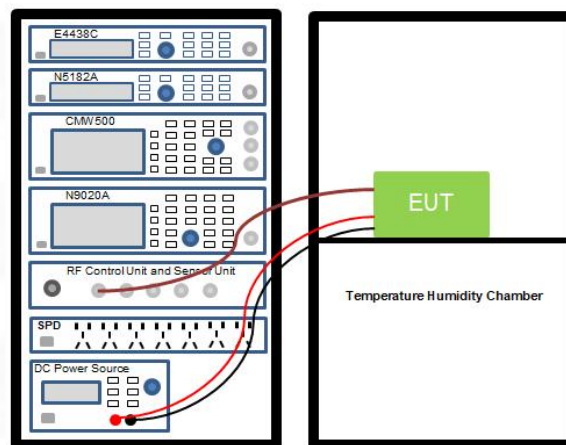
1. The WiFi antenna port of EUT was connected to the test port of the test system through an RF cable.
2. The EUT is keeping in continuous transmission mode and tested in all modulation modes.
3. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.

## 4.6 Test Setup Block

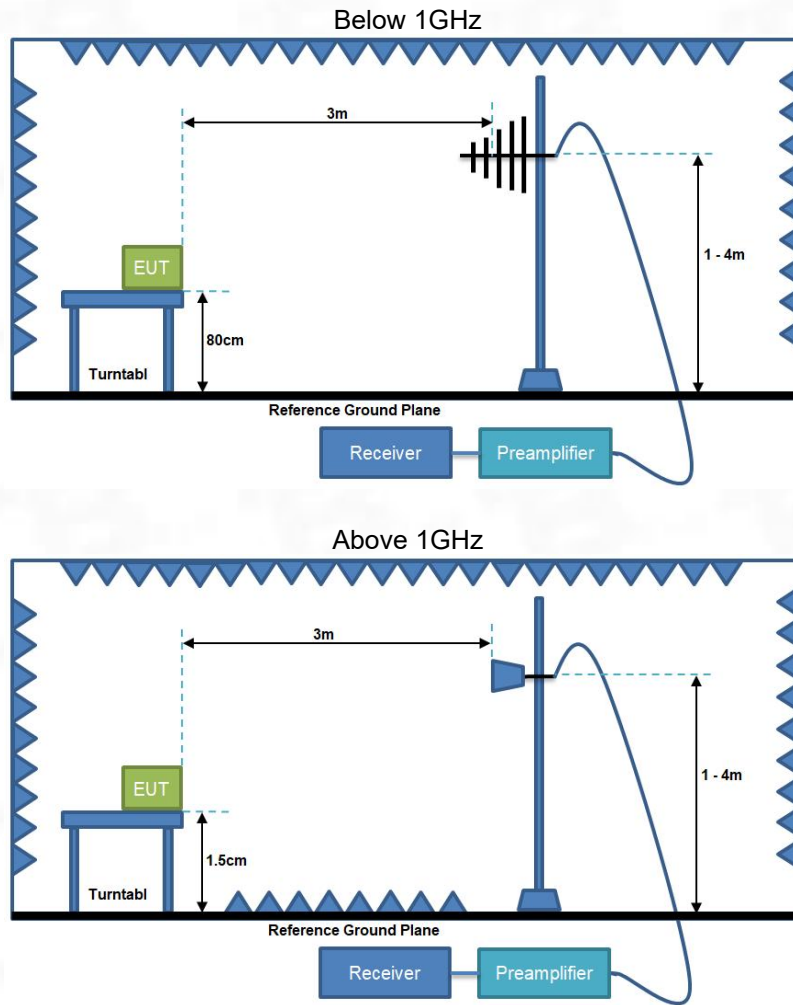
### 1) Conducted emission measurement:



### 2) Conducted test method:



### 3) Radiated test method:



## 5 Technical requirements specification

### 5.1 Antenna Requirement

#### §15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### §15.247(b) (4) requirement:

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

|                       |  |
|-----------------------|--|
| <b>E.U.T Antenna:</b> | The Bluetooth antenna is an External antenna which permanently attached, and the best case gain of the antenna is 4.03 dBi. See product internal photos for details. |
|-----------------------|--|

### 5.2 AC Power Line Conducted Emission

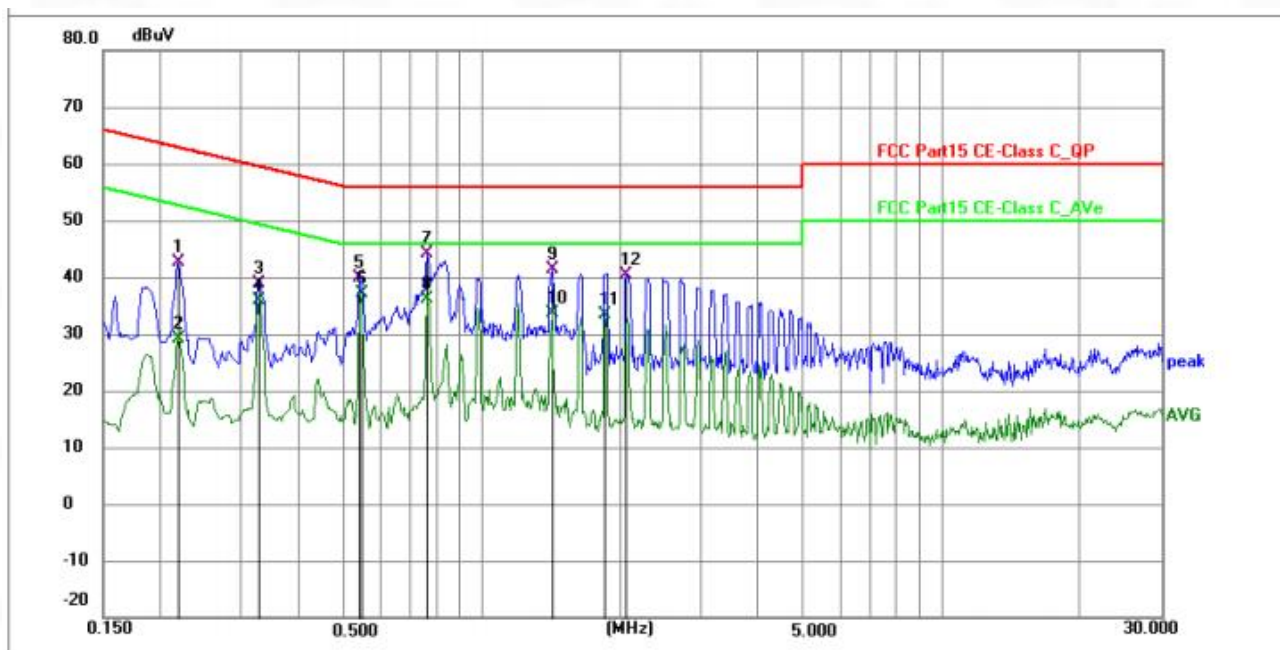
|   |   |                        |           |
|---|---|------------------------|-----------|
| Test Requirement:                               | Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, 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 μH/50 ohms line impedance stabilization network (LISN). |                        |           |
| Test Method:                                    | Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices  |                        |           |
| Test Limit:                                     | Frequency of emission (MHz)   | Conducted limit (dBμV) |           |
|   |   | 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. |   |                        |           |
| Test Setup:                                     | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos  |                        |           |
| Operating Environment:                          |   |                        |           |
| Temperature:                                    | 24.3℃   |                        |           |
| Humidity:                                       | 51%RH   |                        |           |
| Atmospheric Pressure:                           | 1010 hpa  |                        |           |
| Test voltage:                                   | AC 120V 60Hz  |                        |           |

#### 5.2.1 Test Data:

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



Test phase: L phase

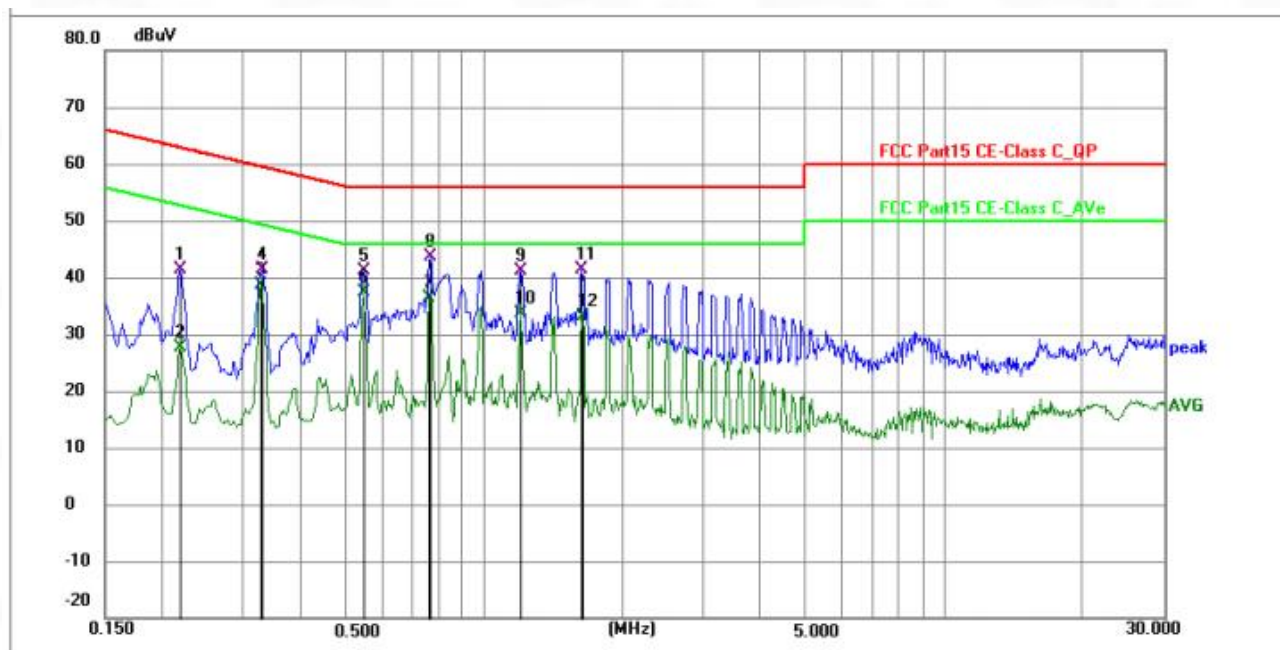


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.2174          | 32.06          | 10.57       | 42.63        | 62.92        | -20.29      | QP       | P   |        |
| 2   | 0.2174          | 18.60          | 10.57       | 29.17        | 52.92        | -23.75      | AVG      | P   |        |
| 3   | 0.3255          | 28.31          | 10.65       | 38.96        | 59.57        | -20.61      | QP       | P   |        |
| 4   | 0.3255          | 25.15          | 10.65       | 35.80        | 49.57        | -13.77      | AVG      | P   |        |
| 5   | 0.5413          | 29.20          | 10.80       | 40.00        | 56.00        | -16.00      | QP       | P   |        |
| 6 * | 0.5460          | 26.27          | 10.80       | 37.07        | 46.00        | -8.93       | AVG      | P   |        |
| 7   | 0.7620          | 33.12          | 10.89       | 44.01        | 56.00        | -11.99      | QP       | P   |        |
| 8   | 0.7620          | 25.22          | 10.89       | 36.11        | 46.00        | -9.89       | AVG      | P   |        |
| 9   | 1.4233          | 30.40          | 10.90       | 41.30        | 56.00        | -14.70      | QP       | P   |        |
| 10  | 1.4233          | 22.77          | 10.90       | 33.67        | 46.00        | -12.33      | AVG      | P   |        |
| 11  | 1.8510          | 22.32          | 10.96       | 33.28        | 46.00        | -12.72      | AVG      | P   |        |
| 12  | 2.0625          | 29.42          | 10.98       | 40.40        | 56.00        | -15.60      | QP       | P   |        |

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



Test phase: N phase



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.2174          | 30.83          | 10.57       | 41.40        | 62.92        | -21.52      | QP       | P   |        |
| 2   | 0.2174          | 17.10          | 10.57       | 27.67        | 52.92        | -25.25      | AVG      | P   |        |
| 3   | 0.3255          | 28.01          | 10.65       | 38.66        | 49.57        | -10.91      | AVG      | P   |        |
| 4   | 0.3300          | 30.60          | 10.66       | 41.26        | 59.45        | -18.19      | QP       | P   |        |
| 5   | 0.5460          | 30.33          | 10.80       | 41.13        | 56.00        | -14.87      | QP       | P   |        |
| 6 * | 0.5460          | 26.69          | 10.80       | 37.49        | 46.00        | -8.51       | AVG      | P   |        |
| 7   | 0.7620          | 25.48          | 10.89       | 36.37        | 46.00        | -9.63       | AVG      | P   |        |
| 8   | 0.7661          | 32.66          | 10.89       | 43.55        | 56.00        | -12.45      | QP       | P   |        |
| 9   | 1.2030          | 30.34          | 10.88       | 41.22        | 56.00        | -14.78      | QP       | P   |        |
| 10  | 1.2030          | 22.72          | 10.88       | 33.60        | 46.00        | -12.40      | AVG      | P   |        |
| 11  | 1.6305          | 30.53          | 10.93       | 41.46        | 56.00        | -14.54      | QP       | P   |        |
| 12  | 1.6391          | 22.11          | 10.93       | 33.04        | 46.00        | -12.96      | AVG      | P   |        |

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

### 5.3 Emissions in Restricted Frequency Bands

|                        |   |                                   |                               |
|------------------------|---|-----------------------------------|-------------------------------|
| Test Requirement:      | 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:           | Radiated emissions tests  |                                   |                               |
| 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                             |
|                        | ** 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. |                                   |                               |
| Procedure:             | ANSI C63.10-2020 section 6.10.5.2   |                                   |                               |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos  |                                   |                               |
| Operating Environment: |   |                                   |                               |
| Temperature:           | 24.6℃   |                                   |                               |
| Humidity:              | 55%RH   |                                   |                               |
| Atmospheric Pressure:  | 1010 hpa  |                                   |                               |
| Test voltage:          | AC 120V 60Hz  |                                   |                               |

#### 5.3.1 Test Data:

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

| Test Channel: Lowest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
|---|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)   | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2310.000  | 48.83          | 3.85        | 52.69          | 74.00          | -21.31       | Peak     | Pass   |
| 2310.000  | 38.50          | 3.85        | 42.35          | 54.00          | -11.65       | AVG      | Pass   |
| 2390.000  | 51.13          | 3.91        | 55.05          | 74.00          | -18.95       | Peak     | Pass   |
| 2390.000  | 40.65          | 3.91        | 44.56          | 54.00          | -9.44        | AVG      | Pass   |
| Test Channel: Lowest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)   | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2310.000  | 50.15          | 3.85        | 54.00          | 74.00          | -20.00       | Peak     | Pass   |
| 2310.000  | 39.66          | 3.85        | 43.51          | 54.00          | -10.49       | AVG      | Pass   |
| 2390.000  | 49.28          | 3.91        | 53.20          | 74.00          | -20.80       | Peak     | Pass   |
| 2390.000  | 39.01          | 3.91        | 42.92          | 54.00          | -11.08       | AVG      | Pass   |

| Test Channel: Highest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2483.500   | 49.58          | 3.99        | 53.57          | 74.00          | -20.43       | Peak     | Pass   |
| 2483.500   | 38.81          | 3.99        | 42.79          | 54.00          | -11.21       | AVG      | Pass   |
| 2500.000   | 51.13          | 4.00        | 55.13          | 74.00          | -18.87       | Peak     | Pass   |
| 2500.000   | 40.67          | 4.00        | 44.67          | 54.00          | -9.33        | AVG      | Pass   |
| Test Channel: Highest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 2483.500   | 50.30          | 3.99        | 54.29          | 74.00          | -19.71       | Peak     | Pass   |
| 2483.500   | 40.50          | 3.99        | 44.49          | 54.00          | -9.51        | AVG      | Pass   |
| 2500.000   | 47.85          | 4.00        | 51.85          | 74.00          | -22.15       | Peak     | Pass   |
| 2500.000   | 37.45          | 4.00        | 41.45          | 54.00          | -12.55       | AVG      | Pass   |

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

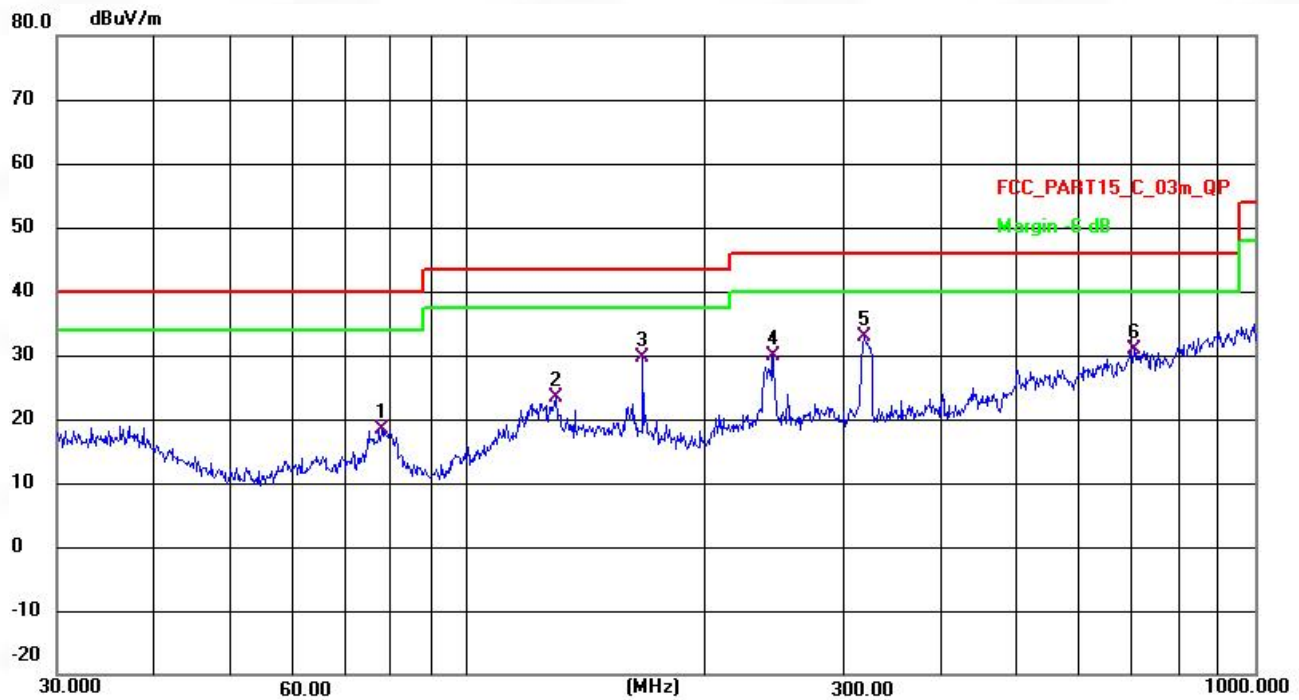
## 5.4 Emissions in Non-restricted Frequency Bands(below 1GHz)

|                        |   |                                   |                               |
|------------------------|---|-----------------------------------|-------------------------------|
| Test Requirement:      | 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:           | Radiated emissions tests  |                                   |                               |
| 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                             |
|                        | ** 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. |                                   |                               |
| Procedure:             | ANSI C63.10-2020 section 6.6.4  |                                   |                               |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos  |                                   |                               |
| Operating Environment: |   |                                   |                               |
| Temperature:           | 24.6℃   |                                   |                               |
| Humidity:              | 55%RH   |                                   |                               |
| Atmospheric Pressure:  | 1010 hpa  |                                   |                               |
| Test voltage:          | AC 120V 60Hz  |                                   |                               |

### 5.4.1 Test Data:

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

Test antenna polarization: Horizontal(30 MHz to 1 GHz)

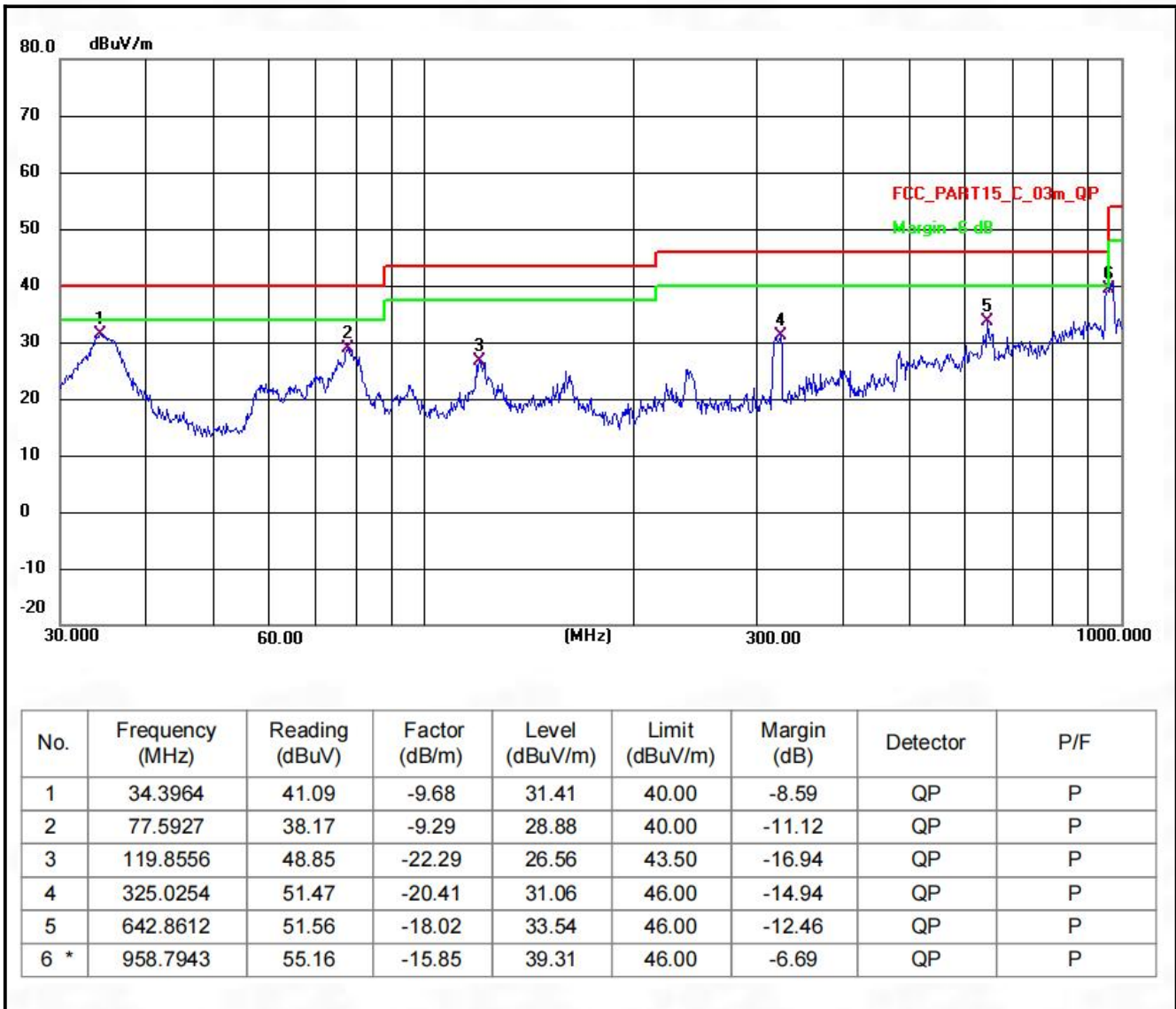


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|
| 1   | 77.8653         | 27.61          | -9.28         | 18.33          | 40.00          | -21.67      | QP       | P   |
| 2   | 129.4677        | 45.48          | -22.19        | 23.29          | 43.50          | -20.21      | QP       | P   |
| 3   | 166.9438        | 51.60          | -21.85        | 29.75          | 43.50          | -13.75      | QP       | P   |
| 4   | 244.2321        | 50.89          | -21.10        | 29.79          | 46.00          | -16.21      | QP       | P   |
| 5 * | 319.9370        | 53.30          | -20.46        | 32.84          | 46.00          | -13.16      | QP       | P   |
| 6   | 702.9924        | 48.55          | -17.62        | 30.93          | 46.00          | -15.07      | QP       | P   |

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



Test antenna polarization: Vertical (30 MHz to 1 GHz)



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

## 5.5 Emissions in Non-restricted Frequency Bands(above 1GHz)

|   |  |                                   |                               |
|---|--|-----------------------------------|-------------------------------|
| Test Requirement:   | 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:  | Radiated emissions tests   |                                   |                               |
| 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                             |
| ** 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. |  |                                   |                               |
| Procedure:  | ANSI C63.10-2020 section 6.6.4   |                                   |                               |
| Test Setup:   | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos   |                                   |                               |
| Operating Environment:  |  |                                   |                               |
| Temperature:  | 24.6℃  |                                   |                               |
| Humidity:   | 55%RH  |                                   |                               |
| Atmospheric Pressure:   | 1010 hpa   |                                   |                               |
| Test voltage:   | AC 120V 60Hz   |                                   |                               |

### 5.5.1 Test Data:

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

| Test Channel: Lowest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
|---|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)   | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4824.000  | 76.98          | -48.87      | 28.11          | 74.00          | -45.89       | Peak     | Pass   |
| 4824.000  | 67.02          | -48.87      | 18.14          | 54.00          | -35.86       | AVG      | Pass   |
| 7236.000  | 76.75          | -46.99      | 29.76          | 74.00          | -44.24       | Peak     | Pass   |
| 7236.000  | 66.37          | -46.99      | 19.39          | 54.00          | -34.61       | AVG      | Pass   |
| Test Channel: Lowest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)   | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4824.000  | 61.69          | -48.87      | 12.82          | 74.00          | -61.18       | Peak     | Pass   |
| 4824.000  | 51.81          | -48.87      | 2.93           | 54.00          | -51.07       | AVG      | Pass   |
| 7236.000  | 75.35          | -46.99      | 28.36          | 74.00          | -45.64       | Peak     | Pass   |
| 7236.000  | 65.34          | -46.99      | 18.35          | 54.00          | -35.65       | AVG      | Pass   |



| Test Channel: Middle channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4874.000   | 77.24          | -48.84      | 28.40          | 74.00          | -45.60       | Peak     | Pass   |
| 4874.000   | 66.36          | -48.84      | 17.52          | 54.00          | -36.48       | AVG      | Pass   |
| 7311.000   | 75.46          | -46.90      | 28.56          | 74.00          | -45.44       | Peak     | Pass   |
| 7311.000   | 65.68          | -46.90      | 18.78          | 54.00          | -35.22       | AVG      | Pass   |
| Test Channel: Middle channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4874.000   | 60.58          | -48.84      | 11.74          | 74.00          | -62.26       | Peak     | Pass   |
| 4874.000   | 49.77          | -48.84      | 0.93           | 54.00          | -53.07       | AVG      | Pass   |
| 7311.000   | 75.22          | -46.90      | 28.32          | 74.00          | -45.68       | Peak     | Pass   |
| 7311.000   | 65.17          | -46.90      | 18.27          | 54.00          | -35.73       | AVG      | Pass   |
| Test Channel: Highest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4924.000   | 76.87          | -48.81      | 28.07          | 74.00          | -45.93       | Peak     | Pass   |
| 4924.000   | 66.96          | -48.81      | 18.15          | 54.00          | -35.85       | AVG      | Pass   |
| 7386.000   | 74.90          | -46.81      | 28.09          | 74.00          | -45.91       | Peak     | Pass   |
| 7386.000   | 64.49          | -46.81      | 17.69          | 54.00          | -36.31       | AVG      | Pass   |
| Test Channel: Highest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 4924.000   | 60.80          | -48.81      | 11.99          | 74.00          | -62.01       | Peak     | Pass   |
| 4924.000   | 50.56          | -48.81      | 1.75           | 54.00          | -52.25       | AVG      | Pass   |
| 7386.000   | 76.46          | -46.81      | 29.65          | 74.00          | -44.35       | Peak     | Pass   |
| 7386.000   | 66.40          | -46.81      | 19.59          | 54.00          | -34.41       | AVG      | Pass   |

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

## 5.6 Duty Cycle

|                        |   |
|------------------------|---|
| Test Requirement:      | All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.  |
| Test Method:           | ANSI C63.10-2020  |
| Test Limit:            | No limits, only for report use.   |
| Procedure:             | <p>The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:</p> <ol style="list-style-type: none"><li>1) Set the center frequency of the instrument to the center frequency of the transmission.</li><li>2) Set RBW <math>\geq</math> OBW if possible; otherwise, set RBW to the largest available value.</li><li>3) Set VBW <math>\geq</math> RBW. Set detector = peak or average.</li><li>4) The zero-span measurement method shall not be used unless both RBW and VBW are <math>&gt; 50/T</math> and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if <math>T \leq 16.7\mu s</math>.)</li></ol> |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos  |
| Operating Environment: |   |
| Temperature:           | 25.4°C  |
| Humidity:              | 50%RH   |
| Atmospheric Pressure:  | 1010 hpa  |
| Test voltage:          | AC 120V 60Hz  |

### 5.6.1 Test Data:

Please Refer to Appendix-BLE for Details

## 5.7 Occupied Bandwidth

|                        |   |
|------------------------|---|
| Test Requirement:      | Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.  |
| Test Method:           | DTS bandwidth   |
| Test Limit:            | Section (a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.  |
| Procedure:             | a) Set RBW = 100 kHz.<br>b) Set the VBW $\geq [3 \times \text{RBW}]$ .<br>c) Detector = peak.<br>d) Trace mode = max hold.<br>e) Sweep = auto couple.<br>f) Allow the trace to stabilize.<br>g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos  |
| Operating Environment: |   |
| Temperature:           | 25.4°C  |
| Humidity:              | 50%RH   |
| Atmospheric Pressure:  | 1010 hpa  |
| Test voltage:          | AC 120V 60Hz  |

### 5.7.1 Test Data:

Please Refer to Appendix-2.4G WIFI for Details

## 5.8 Maximum Conducted Output Power

|                        |  |
|------------------------|--|
| Test Requirement:      | For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode. |
| Test Method:           | ANSI C63.10-2020   |
| Test Limit:            | For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode. |
| Procedure:             | ANSI C63.10-2020, section 11.9.2 Maximum conducted (average) output power  |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos   |
| Operating Environment: |  |
| Temperature:           | 25.4℃  |
| Humidity:              | 50%RH  |
| Atmospheric Pressure:  | 1010 hpa   |
| Test voltage:          | AC 120V 60Hz   |

### 5.8.1 Test Data:

Please Refer to Appendix-2.4G WIFI for Details

## 5.9 Power Spectral Density

|                        |  |
|------------------------|--|
| Test Requirement:      | For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density. |
| Test Method:           | Maximum power spectral density level in the fundamental emission   |
| Test Limit:            | For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density. |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos   |
| Operating Environment: |  |
| Temperature:           | 25.4℃  |
| Humidity:              | 50%RH  |
| Atmospheric Pressure:  | 1010 hpa   |
| Test voltage:          | AC 120V 60Hz   |

### 5.9.1 Test Data:

Please Refer to Appendix-2.4G WIFI for Details

## 5.10 Emissions in non-restricted frequency bands

|                        |  |
|------------------------|--|
| Test Requirement:      | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. |
| Test Method:           | Emissions in nonrestricted frequency bands   |
| Test Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. |
| Procedure:             | ANSI C63.10-2020<br>Section 11.11.1, Section 11.11.2, Section 11.11.3  |
| Test Setup:            | See section 4.6 for test setup description. The photo of test setup please refer to Appendix I Test Setup Photos   |
| Operating Environment: |  |
| Temperature:           | 25.4℃  |
| Humidity:              | 50%RH  |
| Atmospheric Pressure:  | 1010 hpa   |
| Test voltage:          | AC 120V 60Hz   |

### 5.10.1 Test Data:

Please Refer to Appendix-2.4G WIFI for Details

## 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--**