

# RF Test Report

## For

**Applicant name:** FOXX Development Inc.  
**Address:** 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA  
**EUT name:** Smart Phone  
**Brand name:** FOXX, MIRO, FOXXD  
**Model number:** S13  
**Series model number:** N/A  
**FCC ID:** 2AQRM-S13

## Issued By

**Company name:** BTF Testing Lab (Shenzhen) Co., Ltd.  
**Address:** F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China

**Report number:** BTF250210R00904  
**Test standards:** FCC CFR Title 47 Part 15 Subpart E (§15.407)  
**Test conclusion:** Pass  
**Date of sample receipt:** 2025-04-18  
**Test date:** 2025-04-19 to 2025-05-15  
**Date of issue:** 2025-05-15  
**Test by:** Sean He

Sean He / Tester

**Prepared by:** Chris Liu

Chris Liu / Project engineer



Olic Huang/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  | 2025-05-15 | Original          |
|   |            |                   |
| <i>Note:</i><br><i>Once the revision has been made, then previous versions reports are invalid.</i> |            |                   |

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# 1 Introduction

## 1.1 Laboratory Location

|                |  |
|----------------|--|
| Test location: | BTF Testing Lab (Shenzhen) Co., Ltd.   |
| Address:       | F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China  |
| Description:   | All measurement facilities used to collect the measurement data are located at F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, 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 518915..
- **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.

## 2 Product Information

### 2.1 Application Information

|               |  |
|---------------|--|
| Company name: | FOXX Development Inc.  |
| Address:      | 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA |

### 2.2 Manufacturer Information

|               |  |
|---------------|--|
| Company name: | FOXX Development Inc.  |
| Address:      | 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA |

### 2.3 Factory Information

|               |  |
|---------------|--|
| Company name: | FOXX Development Inc.  |
| Address:      | 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA |

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

|   |  |
|---|--|
| EUT name                                  | Smart Phone  |
| Under test model name                     | S13  |
| Series model name                         | N/A  |
| Description of model name differentiation | N/A  |
| Hardware Version                          | N/A  |
| Software Version                          | N/A  |
| Rating:                                   | DC 3.89 V From Li-ion Rechargeable battery<br>Model No.:QZ-03301AC00<br>Input:100-240V~50/60Hz 1.2A<br>Output(PD):5.0V===3.0A 15.0W<br>or 9.0V===3.0A 27.0W<br>or 12.0V===2.5A 30.0W<br>or 15.0V===2.0A 30.0W<br>or 20.0V===1.5A 30.0W Max<br>(PPS)5.0V-11.0V===3.0A 33.0W Max |

## 2.5 Technical Information

|  |  |
|--|--|
| Operation frequency:                       | Band 1: 5150MHz ~ 5250MHz<br>Band 2: 5250MHz ~ 5350MHz<br>Band 3: 5470MHz ~ 5725MHz<br>Band 4: 5725MHz ~ 5850MHz   |
| Channel numbers:                           | Band 1/2: 4, Band 3: 11, Band 4: 5 (for 802.11a/n-HT20/ac-VHT20)<br>Band 1/2/4: 2, Band 3: 5 (for 802.11n-HT40/ac-VHT40)<br>Band 1/2/4: 1, Band 3: 2 (for 802.11ac-VHT80)  |
| Modulation technology:<br>(IEEE 802.11a/n) | OFDM-BPSK, QPSK, 16QAM, 64QAM  |
| Modulation technology:<br>(IEEE 802.11ac)  | OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM  |
| Data rate:                                 | 802.11a: 6Mbps, 9Mbps etc., and up to 54Mbps<br>802.11n-HT20: 6.5Mbps, 13Mbps etc., and up to 72.2Mbps<br>802.11n-HT40: 13.5Mbps, 27Mbps etc., and up to 150Mbps<br>802.11ac-VHT20: 6.5Mbps, 13Mbps etc., and up to 86.7Mbps<br>802.11ac-VHT40: 13.5Mbps, 27Mbps etc., and up to 200Mbps<br>802.11ac-VHT80: 29.3Mbps, 58.5Mbps etc., and up to 433.3Mbps |
| Maximum conducted power                    | 13.27 dBm (802.11n-HT40)   |
| Antenna type:                              | Internal Antenna   |
| Antenna gain:                              | -1.74 dBi (declare by Applicant)   |
| Antenna transmit mode:                     | SISO (1TX, 1RX)  |

### Channel List

#### Band 1

| 20MHz   |           | 40MHz   |           | 80MHz   |           | 160MHz  |           |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 36      | 5180      | 38      | 5190      | 42      | 5210      | 50      | 5250      |
| 40      | 5200      | 46      | 5230      |         |           |         |           |
| 48      | 5240      |         |           |         |           |         |           |

#### Band 2A

| 20MHz   |           | 40MHz   |           | 80MHz   |           | 160MHz  |           |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 52      | 5260      | 54      | 5270      | 58      | 5290      | 50      | 5250      |
| 60      | 5300      | 62      | 5310      |         |           |         |           |
| 64      | 5320      |         |           |         |           |         |           |

#### Band 2C

| 20MHz   |           | 40MHz   |           | 80MHz   |           | 160MHz  |           |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 100     | 5500      | 102     | 5510      | 106     | 5530      | 114     | 5570      |

|     |      |     |      |     |      |  |  |
|-----|------|-----|------|-----|------|--|--|
| 120 | 5600 | 118 | 5590 | 122 | 5610 |  |  |
| 140 | 5700 | 134 | 5670 |     |      |  |  |

**Band 3**

| 20MHz   |           | 40MHz   |           | 80MHz   |           |
|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 149     | 5745      | 151     | 5755      | 155     | 5775      |
| 157     | 5785      | 159     | 5795      |         |           |
| 165     | 5825      |         |           |         |           |

**Note:**

*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:*

### 3 Test Information

#### 3.1 Test Standards

| Identity  | Document Title   |
|---|--|
| FCC CFR Title 47 Part 15 Subpart E (§15.407)                  | Unlicensed National Information Infrastructure Devices   |
| ANSI C63.10-2020  | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices                         |
| KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 | Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E |

#### 3.2 Summary of Test

| Clauses  | Test Items  | Result |
|--|---|--------|
| § 15.203   | Antenna Requirement                                   | Pass   |
| § 15.207<br>§ 15.407(b)(9)   | AC Power Line Conducted Emission                      | Pass   |
| § 15.407(a)(1)(iv)-(B1),<br>(a)(2)-(B2/3), (a)(3)(i)-(B4)                                | Conducted Peak Output Power<br>Power Spectral Density | Pass   |
| § 15.407(a)(12)  | 26dB Emission Bandwidth<br>99% Occupied Bandwidth     | Pass   |
| § 15.407(e)  | 6dB Emission Bandwidth                                | Pass   |
| § 15.205<br>§ 15.209<br>§ 15.407(b)(1) -(B1), (2) -(B2), (3) -(B3), (4) -(B4), (9), (10) | Unwanted Emissions                                    | Pass   |
| § 15.407(g)  | Frequency Stability                                   | 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

| No. | Description | Manufacturer | Model | Serial Number | Certification |
|-----|-------------|--------------|-------|---------------|---------------|
| 1   | /           | /            | /     | /             | /             |

### 3.6 Test Equipment List

| Radiated test method            |                 |             |                      |            |            |
|---------------------------------|-----------------|-------------|----------------------|------------|------------|
| Test Equipment                  | Manufacturer    | Model       | Serial No.           | Cal. Date  | Cal. Due   |
| EMI Receiver                    | Rohde &Schwarz  | ESC17       | 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_EMG      | 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 Test mode

|  |  |
|--|--|
| Transmitting mode:   | Keep the EUT in continuously transmitting mode with modulation |
| <b>Remark:</b> Per-scan all kind of data rate, and report only reflects the test data of worst data rate mode. |  |

### 4.2 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:

| Operation frequency: 5150 MHz – 5250 MHz |                 |                |                 |                 |                 |
|--|-----------------|----------------|-----------------|-----------------|-----------------|
| 802.11b/g/n-HT20/ac-VHT20                |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 36                                       | 5180            | 40             | 5200            | 48              | 5240            |
| 802.11n-HT40/ac-VHT40                    |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 38                                       | 5190            | /              | /               | 46              | 5230            |
| 802.11ac-VHT80                           |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| /  | /               | 42             | 5210            | /               | /               |

| Operation frequency: 5250 MHz – 5350 MHz |                 |                |                 |                 |                 |
|--|-----------------|----------------|-----------------|-----------------|-----------------|
| 802.11b/g/n-HT20/ac-VHT20                |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 52                                       | 5260            | 56             | 5280            | 64              | 5320            |
| 802.11n-HT40/ac-VHT40                    |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 54                                       | 5270            | /              | /               | 62              | 5310            |
| 802.11ac-VHT80                           |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| /  | /               | 58             | 5290            | /               | /               |

| Operation frequency: 5470 MHz – 5725 MHz |                 |                |                 |                 |                 |
|--|-----------------|----------------|-----------------|-----------------|-----------------|
| 802.11b/g/n-HT20/ac-VHT20                |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 100                                      | 5500            | 112            | 5560            | 140             | 5700            |
| 802.11n-HT40/ac-VHT40                    |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 102                                      | 5510            | 118            | 5590            | 134             | 5670            |
| 802.11ac-VHT80                           |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 106                                      | 5530            | /              | /               | 122             | 5610            |

| Operation frequency: 5725 MHz – 5850 MHz |                 |                |                 |                 |                 |
|--|-----------------|----------------|-----------------|-----------------|-----------------|
| 802.11b/g/n-HT20/ac-VHT20                |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 149                                      | 5745            | 157            | 5785            | 165             | 5825            |
| 802.11n-HT40/ac-VHT40                    |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| 151                                      | 5755            | /              | /               | 159             | 5795            |
| 802.11ac-VHT80                           |                 |                |                 |                 |                 |
| Lowest channel                           |                 | Middle channel |                 | Highest channel |                 |
| Channel No.                              | Frequency (MHz) | Channel No.    | Frequency (MHz) | Channel No.     | Frequency (MHz) |
| /  | /               | 155            | 5775            | /               | /               |

## 4.3 Test procedure

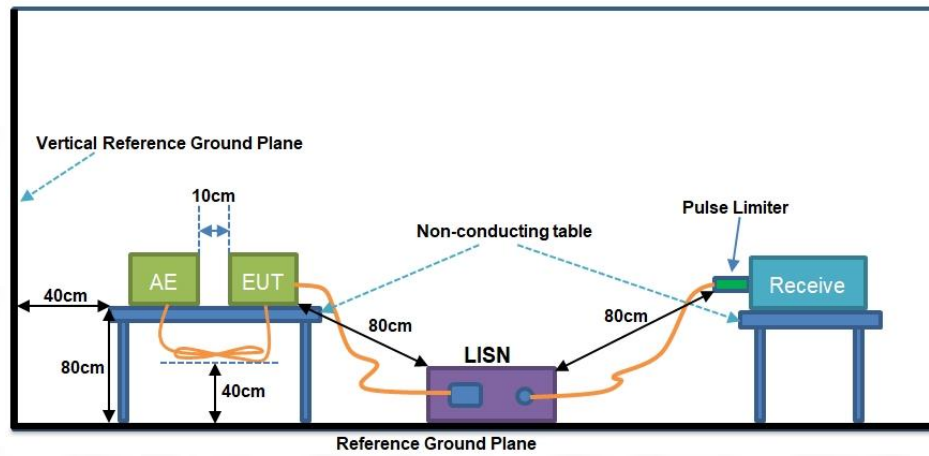
| AC Power Line Conducted Emission  |  |
|---|--|
| <p>The EUT is connected to the power mains through a LISN which provides 50 <math>\Omega</math>/50 <math>\mu</math>H of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference 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.</p>  |  |
| Radiated test method  |  |
| <p><b>For below 1GHz:</b></p> <ol style="list-style-type: none"><li>1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.</li><li>2. EUT works in each mode of operation that needs to be tested. 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.</li><li>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.</li></ol> <p><b>For above 1GHz:</b></p> <ol style="list-style-type: none"><li>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.</li><li>2. EUT works in each mode of operation that needs to be tested. 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.</li><li>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.</li></ol> |  |
| Conducted test method   |  |
| <ol style="list-style-type: none"><li>1. The WiFi antenna port of EUT was connected to the test port of the test system through an RF cable.</li><li>2. The EUT is keeping in continuous transmission mode and tested in all modulation modes.</li><li>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.</li></ol>   |  |

## 4.4 Test software

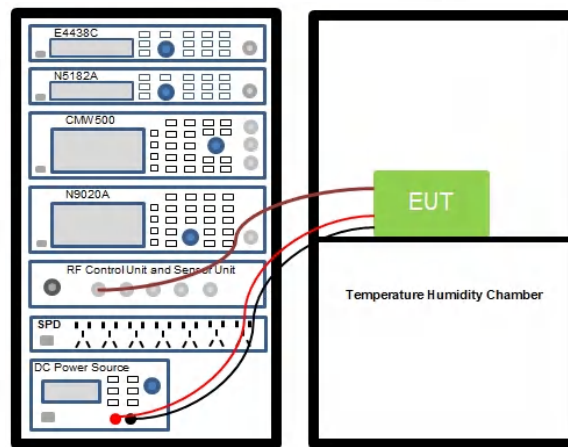
|                |                  |          |     |
|----------------|------------------|----------|-----|
| Test software: | Engineering mode | Version: | 1.0 |
| Power Class:   | 23               |          |     |

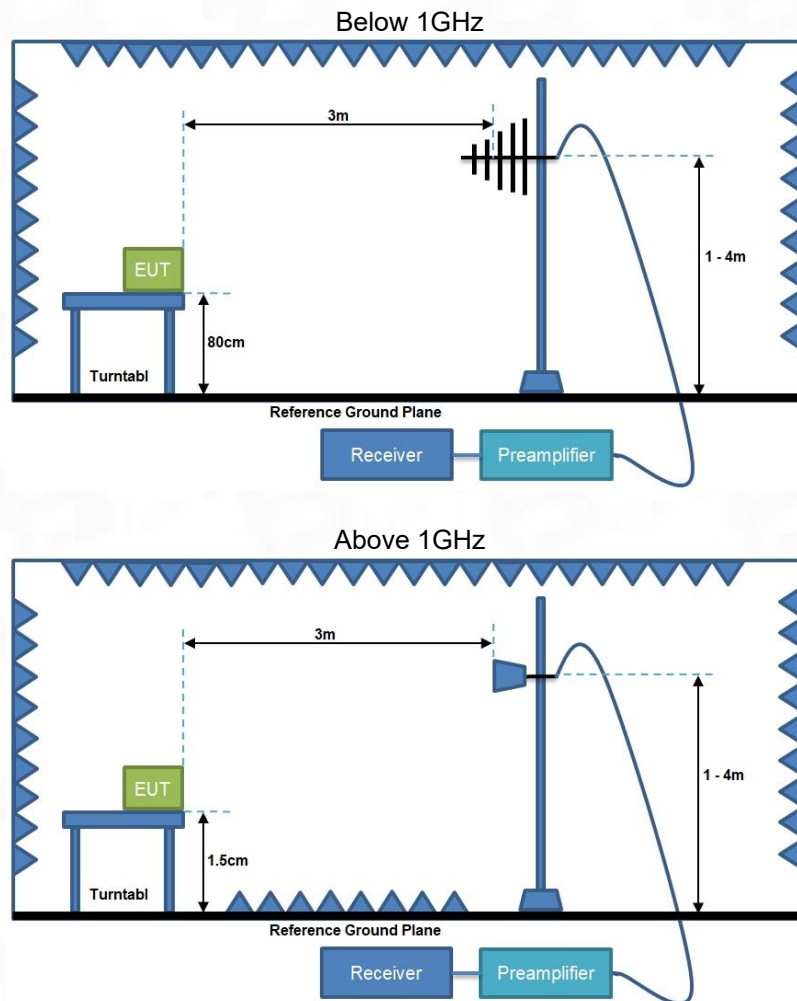
## 4.5 Test Setup Block

### 1) Conducted emission measurement:



### 2) Conducted test method:



**3) Radiated test method:**



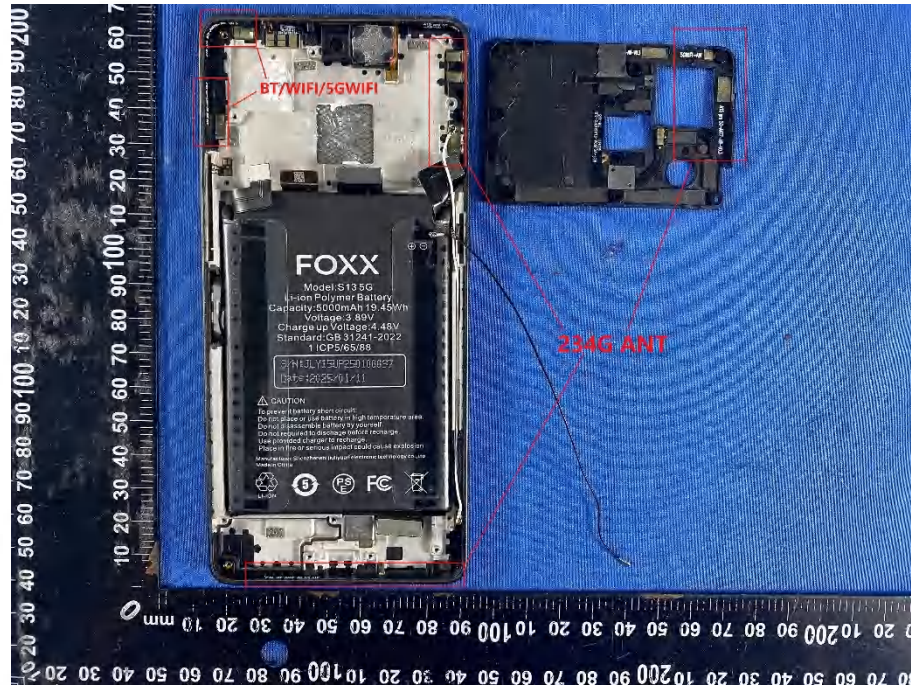
## 5 Technical requirements specification

### 5.1 Antenna Requirement

Test 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 shall be considered sufficient to comply with the provisions of this section.

#### 5.1.1 Conclusion:



## 5.2 AC Power Line Conducted Emission

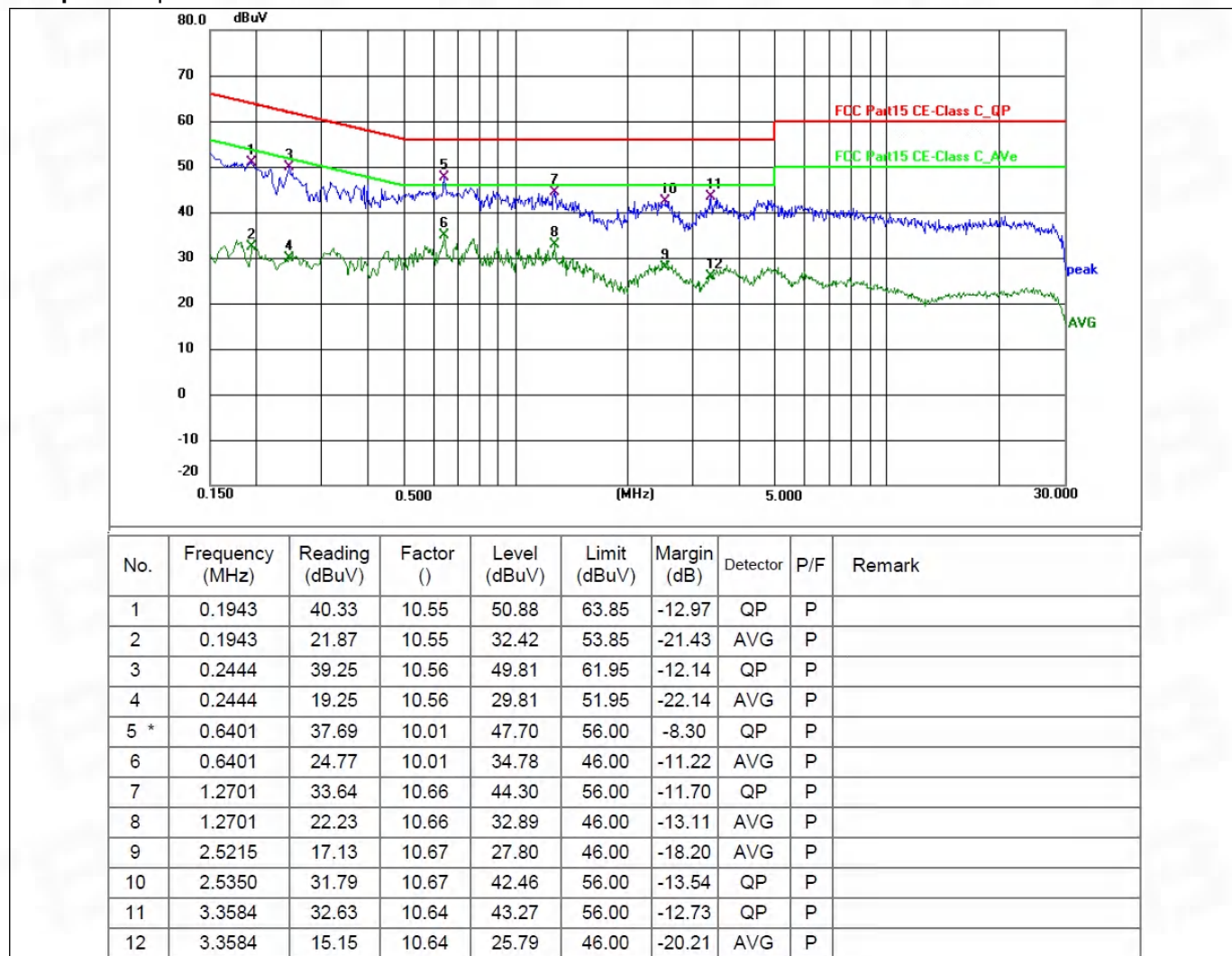
|   |  |                        |           |
|---|--|------------------------|-----------|
| Test Requirement:                               | 47 CFR Part 15.207(a)  |                        |           |
| Test Method:                                    | Refer to ANSI C63.10-2013 section 6.2, standard 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. |  |                        |           |

### 5.2.1 E.U.T. Operation:

|                        |              |
|------------------------|--------------|
| Operating Environment: |              |
| Temperature:           | 25.5 °C      |
| Humidity:              | 50.6 %       |
| Atmospheric Pressure:  | 1010 mbar    |
| Test Voltage           | AC 120V 60Hz |

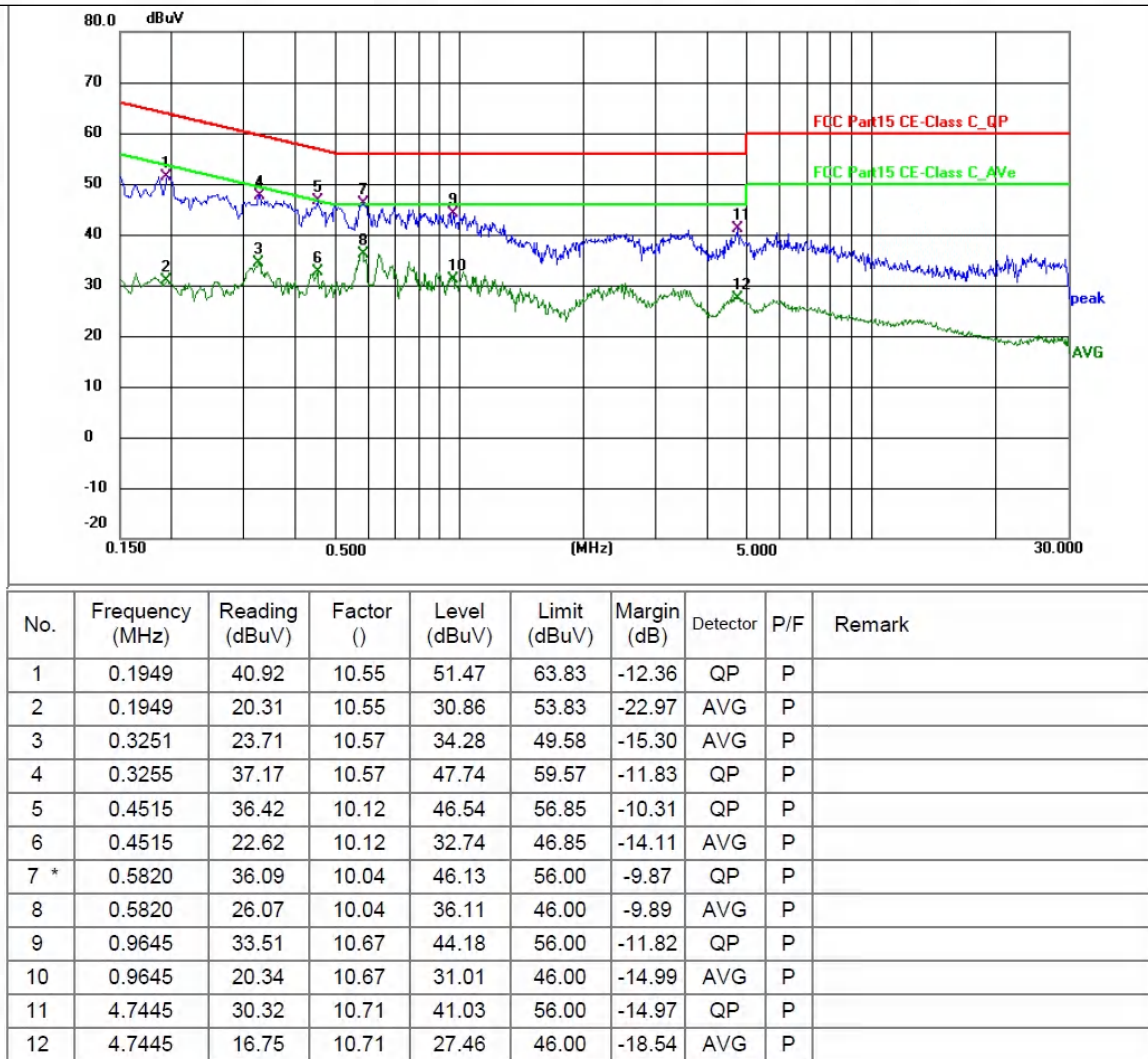
## 5.2.2 Test Data:

Test phase: L phase



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

## Test phase: N phase



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

### 5.3 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 C63.10-2013 section 12.2 (b)   |
| Test Limit:       | No limits, only for report use.   |
| Procedure:        | <ul style="list-style-type: none"><li>i) Set the center frequency of the instrument to the center frequency of the transmission.</li><li>ii) Set RBW <math>\geq</math> EBW if possible; otherwise, set RBW to the largest available value.</li><li>iii) Set VBW <math>\geq</math> RBW.</li><li>iv) Set detector = peak.</li><li>v) The zero-span measurement method shall not be used unless both RBW and VBW are <math>&gt; 50/T</math>, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.</li></ul> |

#### 5.3.1 E.U.T. Operation:

|                        |           |
|------------------------|-----------|
| Operating Environment: |           |
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |

#### 5.3.2 Test Data:

Please Refer to Appendix-5GWIFI



## 5.4 Maximum conducted output power

|                   |  |
|-------------------|--|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(i)<br>47 CFR Part 15.407(a)(1)(ii)<br>47 CFR Part 15.407(a)(1)(iii)<br>47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(2)<br>47 CFR Part 15.407(a)(3)(i)  |
| Test Method:      | ANSI C63.10-2013, section 12.3   |
| Test Limit:       | <p>For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).</p> <p>For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.<br/> Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power.<br/> For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi.<br/> Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p> <p>For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> |

|            |   |
|------------|---|
|            | <p>For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.</p> <p>If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p>   |
| Procedure: | <p>Method SA-1</p> <p>a) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.</p> <p>b) Set RBW = 1 MHz.</p> <p>c) Set VBW <math>\geq</math> 3 MHz.</p> <p>d) Number of points in sweep <math>\geq</math> <math>[2 \times \text{span} / \text{RBW}]</math>. (This gives bin-to-bin spacing <math>\leq</math> RBW / 2, so that narrowband signals are not lost between frequency bins.)</p> <p>e) Sweep time = auto.</p> <p>f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.</p> <p>g) If transmit duty cycle <math>&lt;</math> 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle <math>\geq</math> 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."</p> <p>h) Trace average at least 100 traces in power averaging (rms) mode.</p> <p>i) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.</p> |

#### 5.4.1 E.U.T. Operation:

|                        |           |
|------------------------|-----------|
| Operating Environment: |           |
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |

#### 5.4.2 Test Data:

Please Refer to Appendix-5GWIFI

## 5.5 Power spectral density

|                   |  |
|-------------------|--|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(i)<br>47 CFR Part 15.407(a)(1)(ii)<br>47 CFR Part 15.407(a)(1)(iii)<br>47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(2)<br>47 CFR Part 15.407(a)(3)(i)  |
| Test Method:      | ANSI C63.10-2013, section 12.5   |
| Test Limit:       | <p>For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p> <p>For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.</p> |



|            |  |
|------------|--|
|            | Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.  |
| Procedure: | <p>a) Create an average power spectrum for the EUT operating mode being tested by following the instructions in 12.3.2 for measuring maximum conducted output power using a spectrum analyzer or EMI receiver; that is, select the appropriate test method (SA-1, SA-2, SA-3, or their respective alternatives) and apply it up to, but not including, the step labeled, "Compute power...." (This procedure is required even if the maximum conducted output power measurement was performed using the power meter method PM.)</p> <p>b) Use the peak search function on the instrument to find the peak of the spectrum.</p> <p>c) Make the following adjustments to the peak value of the spectrum, if applicable:</p> <ol style="list-style-type: none"> <li>1) If method SA-2 or SA-2A was used, then add <math>[10 \log (1 / D)]</math>, where D is the duty cycle, to the peak of the spectrum.</li> <li>2) If method SA-3A was used and the linear mode was used in step h) of 12.3.2.7, add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.</li> </ol> <p>d) The result is the PPSD.</p> <p>e) The procedure in item a) through item c) requires the use of 1 MHz resolution bandwidth to satisfy the 1 MHz measurement bandwidth specified by some regulatory authorities. This requirement also permits use of resolution bandwidths less than 1 MHz "provided that the measured power is integrated to show the total power over the measurement bandwidth" (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 1 MHz bandwidth, the following adjustments to the procedures apply:</p> <ol style="list-style-type: none"> <li>1) Set <math>RBW \geq 1 / T</math>, where T is defined in 12.2 a).</li> <li>2) Set <math>VBW \geq [3 \times RBW]</math>.</li> <li>3) Care shall be taken such that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.</li> </ol> |

### 5.5.1 E.U.T. Operation:

|                        |           |
|------------------------|-----------|
| Operating Environment: |           |
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |

### 5.5.2 Test Data:

Please Refer to Appendix-5GWIFI

## 5.6 Emission bandwidth and occupied bandwidth

|                   |  |
|-------------------|--|
| Test Requirement: | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br>U-NII 3, U-NII 4: 47 CFR Part 15.407(e)  |
| Test Method:      | ANSI C63.10-2013, section 6.9.3 & 12.4<br>KDB 789033 D02, Clause C.2   |
| Test Limit:       | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br>U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.   |
| Procedure:        | <p>Emission bandwidth:</p> <ol style="list-style-type: none"> <li>Set RBW = approximately 1% of the emission bandwidth.</li> <li>Set the VBW &gt; RBW.</li> <li>Detector = peak.</li> <li>Trace mode = max hold.</li> <li>Measure the maximum width of the emission that is 26 dB down from the peak of the emission.</li> </ol> <p>Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.</p> <p>Occupied bandwidth:</p> <ol style="list-style-type: none"> <li>The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.</li> <li>The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.</li> <li>Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than <math>[10 \log (OBW/RBW)]</math> below the reference level. Specific guidance is given in 4.1.5.2.</li> <li>Step a) through step c) might require iteration to adjust within the specified range.</li> <li>Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.</li> <li>Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.</li> <li>If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99%</li> </ol> |

power bandwidth is the difference between these two frequencies.

h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

6 dB emission bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- 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.

### 5.6.1 E.U.T. Operation:

| Operating Environment: |           |
|------------------------|-----------|
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |

### 5.6.2 Test Data:

Please Refer to Appendix-5GWIFI

## 5.7 Band edge emissions (Radiated)

|                   |   |   |               |                  |  |
|-------------------|---|---|---------------|------------------|--|
| Test Requirement: | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(2)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10)   |   |               |                  |  |
| Test Method:      | ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6  |   |               |                  |  |
| Test Limit:       | For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.  |   |               |                  |  |
|                   | For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.  |   |               |                  |  |
|                   | For transmitters operating solely in the 5.725-5.850 GHz band:<br>All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.             |   |               |                  |  |
|                   | MHz   | MHz   | MHz           | GHz              |  |
|                   | 0.090-0.110   | 16.42-16.423  | 399.9-410     | 4.5-5.15         |  |
|                   | <sup>1</sup> 0.495-0.505  | 16.69475-16.69525   | 608-614       | 5.35-5.46        |  |
|                   | 2.1735-2.1905   | 16.80425-16.80475   | 960-1240      | 7.25-7.75        |  |
|                   | 4.125-4.128   | 25.5-25.67  | 1300-1427     | 8.025-8.5        |  |
|                   | 4.17725-4.17775   | 37.5-38.25  | 1435-1626.5   | 9.0-9.2          |  |
|                   | 4.20725-4.20775   | 73-74.6   | 1645.5-1646.5 | 9.3-9.5          |  |
|                   | 6.215-6.218   | 74.8-75.2   | 1660-1710     | 10.6-12.7        |  |
|                   | 6.26775-6.26825   | 108-121.94  | 1718.8-1722.2 | 13.25-13.4       |  |
|                   | 6.31175-6.31225   | 123-138   | 2200-2300     | 14.47-14.5       |  |
|                   | 8.291-8.294   | 149.9-150.05  | 2310-2390     | 15.35-16.2       |  |
|                   | 8.362-8.366   | 156.52475-156.52525   | 2483.5-2500   | 17.7-21.4        |  |
|                   | 8.37625-8.38675   | 156.7-156.9   | 2690-2900     | 22.01-23.12      |  |
|                   | 8.41425-8.41475   | 162.0125-167.17   | 3260-3267     | 23.6-24.0        |  |
|                   | 12.29-12.293  | 167.72-173.2  | 3332-3339     | 31.2-31.8        |  |
|                   | 12.51975-12.52025   | 240-285   | 3345.8-3358   | 36.43-36.5       |  |
|                   | 12.57675-12.57725   | 322-335.4   | 3600-4400     | ( <sup>2</sup> ) |  |
|                   | 13.36-13.41   |   |               |                  |  |
|                   |   | <sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. |               |                  |  |
|                   |   | <sup>2</sup> Above 38.6   |               |                  |  |
|                   | The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. |   |               |                  |  |
|                   | Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:   |   |               |                  |  |

|            | 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: | <p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> |                                   |                               |

### 5.7.1 E.U.T. Operation:

|                        |         |
|------------------------|---------|
| Operating Environment: |         |
| Temperature:           | 25.5 °C |
| Humidity:              | 50.6 %  |

|                       |           |
|-----------------------|-----------|
| Atmospheric Pressure: | 1010 mbar |
| Test Voltage          | DC 3.89V  |



## 5.7.2 Test Data:

**Remark:** During the test, pre-scan 802.11a/n/ac modulation mode, found 802.11a modulation was worse case mode. The report only reflects the test data of worst mode.

| Band 1&2A: 5180 MHz - 5320 MHz, Test Mode: 802.11a   |                 |                |             |                |                |              |          |        |
|--|-----------------|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical  |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5083.980        | 41.64          | 5.28        | 46.92          | 74.00          | -27.08       | Peak     | Pass   |
| 2  | 5083.980        | 32.57          | 5.28        | 37.85          | 54.00          | -16.15       | AV       | Pass   |
| 3  | 5150.000        | 44.58          | 5.33        | 49.91          | 74.00          | -24.09       | Peak     | Pass   |
| 4  | 5150.000        | 34.53          | 5.33        | 39.86          | 54.00          | -14.14       | AV       | Pass   |
| Test Channel: Lowest channel, Test Polarization: Horizontal  |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5058.980        | 42.39          | 5.35        | 47.74          | 74.00          | -26.26       | Peak     | Pass   |
| 2  | 5058.980        | 31.13          | 5.35        | 36.48          | 54.00          | -17.52       | AV       | Pass   |
| 3  | 5150.000        | 45.06          | 5.33        | 50.39          | 74.00          | -23.61       | Peak     | Pass   |
| 4  | 5150.000        | 34.12          | 5.33        | 39.45          | 54.00          | -14.55       | AV       | Pass   |
| Test Channel: Highest channel, Test Polarization: Vertical   |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5350.000        | 42.70          | 5.45        | 48.15          | 74.00          | -25.85       | Peak     | Pass   |
| 2  | 5350.000        | 33.65          | 5.45        | 39.10          | 54.00          | -14.90       | AV       | Pass   |
| 3  | 5460.000        | 45.32          | 5.52        | 50.84          | 74.00          | -23.16       | Peak     | Pass   |
| 4  | 5460.000        | 33.29          | 5.52        | 38.81          | 54.00          | -15.19       | AV       | Pass   |
| Test Channel: Highest channel, Test Polarization: Horizontal   |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5350.000        | 41.81          | 5.45        | 47.26          | 74.00          | -26.74       | Peak     | Pass   |
| 2  | 5350.000        | 32.33          | 5.45        | 37.78          | 54.00          | -16.22       | AV       | Pass   |
| 3  | 5460.000        | 46.44          | 5.52        | 51.96          | 74.00          | -22.04       | Peak     | Pass   |
| 4  | 5460.000        | 35.81          | 5.52        | 41.33          | 54.00          | -12.67       | AV       | Pass   |
| <b>Remark:</b> Test frequency up to 40GHz and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br>Note:Margin=Level-Limit=Reading+factor-Limit |                 |                |             |                |                |              |          |        |

| Band 2C: 5500 MHz -5720 MHz, Test Mode: 802.11a  |                 |                |             |                |                |              |          |        |
|--|-----------------|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical  |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5350.000        | 41.48          | 5.49        | 46.97          | 74.00          | -27.03       | Peak     | Pass   |
| 2  | 5350.000        | 32.26          | 5.49        | 37.75          | 54.00          | -16.25       | AV       | Pass   |
| 3  | 5460.000        | 45.65          | 5.56        | 51.21          | 74.00          | -22.79       | Peak     | Pass   |
| 4  | 5460.000        | 34.69          | 5.56        | 40.25          | 54.00          | -13.75       | AV       | Pass   |
| Test Channel: Lowest channel, Test Polarization: Horizontal  |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5350.000        | 42.33          | 5.49        | 47.82          | 74.00          | -26.18       | Peak     | Pass   |
| 2  | 5350.000        | 33.74          | 5.49        | 39.23          | 54.00          | -14.77       | AV       | Pass   |
| 3  | 5460.000        | 46.44          | 5.56        | 52.00          | 74.00          | -22.00       | Peak     | Pass   |
| 4  | 5460.000        | 34.81          | 5.56        | 40.37          | 54.00          | -13.63       | AV       | Pass   |
| Test Channel: Highest channel, Test Polarization: Vertical   |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5725.000        | 43.07          | 5.53        | 48.60          | 68.20          | -19.60       | Peak     | Pass   |
| 2  | 5725.000        | 32.73          | 5.53        | 38.26          | 48.20          | -9.94        | AV       | Pass   |
| 3  | 5730.000        | 39.90          | 5.59        | 45.49          | 68.20          | -22.71       | Peak     | Pass   |
| 4  | 5730.000        | 31.04          | 5.59        | 36.63          | 48.20          | -11.57       | AV       | Pass   |
| Test Channel: Highest channel, Test Polarization: Horizontal   |                 |                |             |                |                |              |          |        |
| No.  | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1  | 5725.000        | 43.19          | 5.53        | 48.72          | 68.20          | -19.48       | Peak     | Pass   |
| 2  | 5725.000        | 32.74          | 5.53        | 38.27          | 48.20          | -9.93        | AV       | Pass   |
| 3  | 5730.000        | 39.85          | 5.59        | 45.44          | 68.20          | -22.76       | Peak     | Pass   |
| 4  | 5730.000        | 30.52          | 5.59        | 36.11          | 48.20          | -12.09       | AV       | Pass   |
| <b>Remark:</b> Test frequency up to 40GHz and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br>Note:Margin=Level-Limit=Reading+factor-Limit |                 |                |             |                |                |              |          |        |



| Band 3: 5745 MHz - 5825 MHz, Test Mode: 802.11a   |                 |                |             |                |                |              |          |        |
|---|-----------------|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical   |                 |                |             |                |                |              |          |        |
| No.   | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1   | 5650.000        | 39.24          | 5.63        | 44.87          | 68.20          | -23.33       | Peak     | Pass   |
| 2   | 5700.000        | 42.27          | 5.70        | 47.97          | 105.20         | -57.23       | Peak     | Pass   |
| 3   | 5720.000        | 43.80          | 5.66        | 49.46          | 110.80         | -61.34       | Peak     | Pass   |
| 3   | 5725.000        | 45.80          | 5.66        | 51.46          | 122.20         | -70.74       | Peak     | Pass   |
| Test Channel: Lowest channel, Test Polarization: Horizontal   |                 |                |             |                |                |              |          |        |
| No.   | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1   | 5650.000        | 40.02          | 5.63        | 45.65          | 68.20          | -22.55       | Peak     | Pass   |
| 2   | 5700.000        | 42.72          | 5.70        | 48.42          | 105.20         | -56.78       | Peak     | Pass   |
| 3   | 5720.000        | 43.32          | 5.66        | 48.98          | 110.80         | -61.82       | Peak     | Pass   |
| 3   | 5725.000        | 45.32          | 5.66        | 50.98          | 122.20         | -71.22       | Peak     | Pass   |
| Test Channel: Highest channel, Test Polarization: Vertical  |                 |                |             |                |                |              |          |        |
| No.   | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1   | 5850.000        | 47.53          | 5.73        | 53.26          | 122.20         | -68.94       | Peak     | Pass   |
| 2   | 5855.000        | 45.53          | 5.72        | 51.25          | 110.80         | -59.55       | Peak     | Pass   |
| 3   | 5875.000        | 44.77          | 5.70        | 50.47          | 105.20         | -54.73       | Peak     | Pass   |
| 4   | 5925.000        | 41.22          | 5.66        | 46.88          | 68.20          | -21.32       | Peak     | Pass   |
| Test Channel: Highest channel, Test Polarization: Horizontal  |                 |                |             |                |                |              |          |        |
| No.   | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 1   | 5850.000        | 47.81          | 5.73        | 53.54          | 122.20         | -68.66       | Peak     | Pass   |
| 2   | 5855.000        | 45.81          | 5.72        | 51.53          | 110.80         | -59.27       | Peak     | Pass   |
| 3   | 5875.000        | 45.66          | 5.70        | 51.36          | 105.20         | -53.84       | Peak     | Pass   |
| 4   | 5925.000        | 41.26          | 5.66        | 46.92          | 68.20          | -21.28       | Peak     | Pass   |
| <b>Remark:</b> Test frequency up to 40GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br><b>Note:</b> Margin=Level-Limit=Reading+factor-Limit |                 |                |             |                |                |              |          |        |

## 5.8 Undesirable emission limits (below 1GHz)

|                   |  |                                   |                               |
|-------------------|--|-----------------------------------|-------------------------------|
| Test Requirement: | 47 CFR Part 15.407(b)(9)   |                                   |                               |
| Test Method:      | ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6   |                                   |                               |
| Test Limit:       | Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.   |                                   |                               |
|                   | Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:  |                                   |                               |
|                   | 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                             |
| Procedure:        | 216-960  | 200 **                            | 3                             |
|                   | Above 960  | 500                               | 3                             |
|                   | Below 1GHz:  |                                   |                               |
|                   | a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.   |                                   |                               |
|                   | b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.   |                                   |                               |
|                   | c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.  |                                   |                               |
|                   | d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.              |                                   |                               |
|                   | e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.  |                                   |                               |
| Procedure:        | f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.  |                                   |                               |
|                   | g. Test the EUT in the lowest channel, the middle channel, the Highest channel.  |                                   |                               |
|                   | h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.  |                                   |                               |
|                   | i. Repeat above procedures until all frequencies measured was complete.  |                                   |                               |
|                   | Remark:  |                                   |                               |
|                   | 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor  |                                   |                               |
|                   | 2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. |                                   |                               |
|                   | 3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.   |                                   |                               |
| Procedure:        | Above 1GHz:  |                                   |                               |
|                   | a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.  |                                   |                               |
|                   | b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.   |                                   |                               |

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

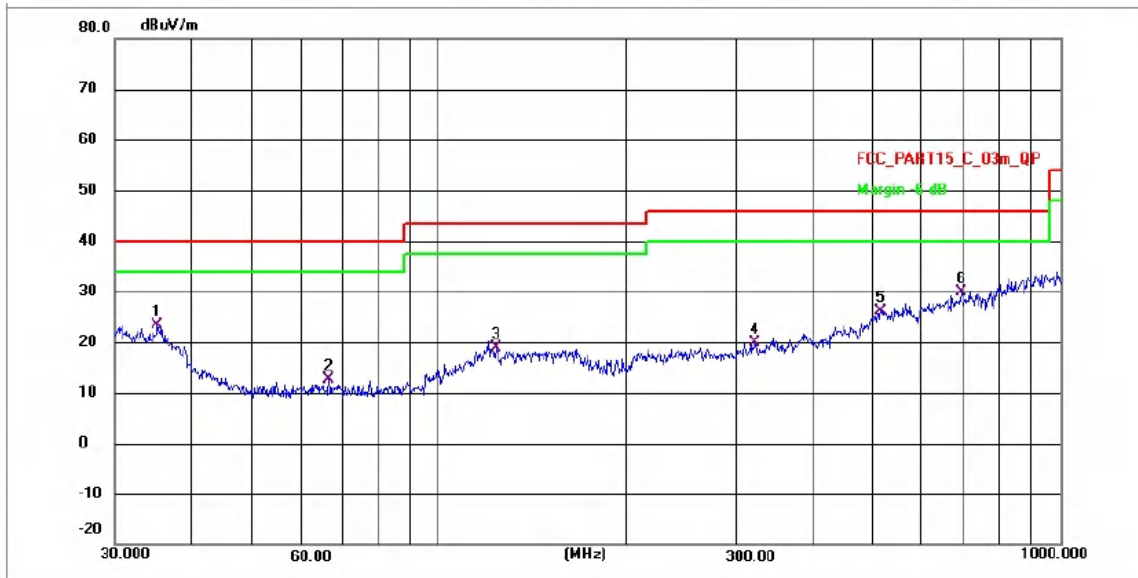
### 5.8.1 E.U.T. Operation:

| Operating Environment: |           |
|------------------------|-----------|
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |
| Test Voltage           | DC 3.89V  |

## 5.8.2 Test Data:

Note: All the mode have been tested, and only the worst mode are in the report

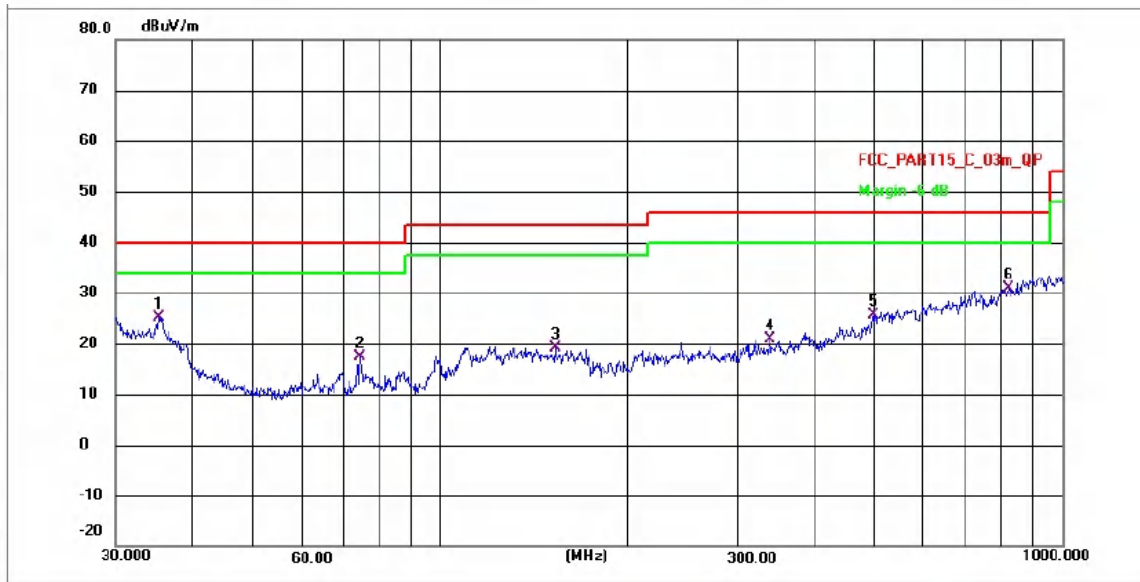
TM1 / Polarization: Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|
| 1   | 35.1894         | 27.61          | -4.31         | 23.30          | 40.00          | -16.70      | QP       | P   |
| 2   | 66.3825         | 16.82          | -4.28         | 12.54          | 40.00          | -27.46      | QP       | P   |
| 3   | 123.2655        | 41.23          | -22.25        | 18.98          | 43.50          | -24.52      | QP       | P   |
| 4   | 322.7540        | 40.34          | -20.44        | 19.90          | 46.00          | -26.10      | QP       | P   |
| 5   | 514.5344        | 45.03          | -18.89        | 26.14          | 46.00          | -19.86      | QP       | P   |
| 6 * | 694.4174        | 47.55          | -17.65        | 29.90          | 46.00          | -16.10      | QP       | P   |

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

TM1 / Polarization: Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|
| 1 * | 35.3130         | 29.49          | -4.30         | 25.19          | 40.00          | -14.81      | QP       | P   |
| 2   | 74.2652         | 21.75          | -4.28         | 17.47          | 40.00          | -22.53      | QP       | P   |
| 3   | 152.9320        | 33.54          | -14.46        | 19.08          | 43.50          | -24.42      | QP       | P   |
| 4   | 338.4001        | 33.64          | -12.83        | 20.81          | 46.00          | -25.19      | QP       | P   |
| 5   | 497.6765        | 37.68          | -12.14        | 25.54          | 46.00          | -20.46      | QP       | P   |
| 6   | 820.2710        | 48.36          | -17.53        | 30.83          | 46.00          | -15.17      | QP       | P   |

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

## 5.9 Undesirable emission limits (above 1GHz)

|                   |  |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|-------------------|--|-------------------------------|-----------------------------------|-------------------------------|-------------|-------------|--------------|-------------|--------------|--------------------------|-------------------|---------|-----------|---------------|-------------------|----------|-----------|-------------|------------|-----------|-----------|-----------------|------------|-------------|---------|-----------------|---------|---------------|---------|-------------|-----------|-----------|-----------|-----------------|------------|---------------|------------|-----------------|---------|-----------|------------|-------------|--------------|-----------|------------|-------------|---------------------|-------------|-----------|-----------------|-------------|-----------|-------------|-----------------|-----------------|-----------|-----------|--------------|--------------|-----------|-----------|-------------------|---------|-------------|------------|-------------------|-----------|-----------|------------------|-------------|--|--|--|
| Test Requirement: | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(2)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10)  |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| Test Method:      | ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6   |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| Test Limit:       | For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.<br>For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.   |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | For transmitters operating solely in the 5.725-5.850 GHz band:<br>All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.  |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | <table><tr><td>MHz</td><td>MHz</td><td>MHz</td><td>GHz</td></tr><tr><td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr><tr><td><sup>1</sup>0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr><tr><td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr><tr><td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr><tr><td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr><tr><td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr><tr><td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr><tr><td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr><tr><td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr><tr><td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr><tr><td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr><tr><td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr><tr><td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr><tr><td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr><tr><td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr><tr><td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(<sup>2</sup>)</td></tr><tr><td>13.36-13.41</td><td></td><td></td><td></td></tr></table> | MHz                           | MHz                               | MHz                           | GHz         | 0.090-0.110 | 16.42-16.423 | 399.9-410   | 4.5-5.15     | <sup>1</sup> 0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 | 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 | 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 | 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 | 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 | 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 | 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 | 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 | 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 | 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 | 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 | 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 | 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 | 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 | 12.57675-12.57725 | 322-335.4 | 3600-4400 | ( <sup>2</sup> ) | 13.36-13.41 |  |  |  |
|                   | MHz  | MHz                           | MHz                               | GHz                           |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 0.090-0.110  | 16.42-16.423                  | 399.9-410                         | 4.5-5.15                      |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | <sup>1</sup> 0.495-0.505   | 16.69475-16.69525             | 608-614                           | 5.35-5.46                     |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 2.1735-2.1905  | 16.80425-16.80475             | 960-1240                          | 7.25-7.75                     |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 4.125-4.128  | 25.5-25.67                    | 1300-1427                         | 8.025-8.5                     |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 4.17725-4.17775  | 37.5-38.25                    | 1435-1626.5                       | 9.0-9.2                       |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 4.20725-4.20775  | 73-74.6                       | 1645.5-1646.5                     | 9.3-9.5                       |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 6.215-6.218  | 74.8-75.2                     | 1660-1710                         | 10.6-12.7                     |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 6.26775-6.26825  | 108-121.94                    | 1718.8-1722.2                     | 13.25-13.4                    |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 6.31175-6.31225  | 123-138                       | 2200-2300                         | 14.47-14.5                    |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 8.291-8.294  | 149.9-150.05                  | 2310-2390                         | 15.35-16.2                    |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 8.362-8.366  | 156.52475-156.52525           | 2483.5-2500                       | 17.7-21.4                     |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 8.37625-8.38675  | 156.7-156.9                   | 2690-2900                         | 22.01-23.12                   |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | 8.41425-8.41475  | 162.0125-167.17               | 3260-3267                         | 23.6-24.0                     |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.29-12.293      | 167.72-173.2   | 3332-3339                     | 31.2-31.8                         |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.51975-12.52025 | 240-285  | 3345.8-3358                   | 36.43-36.5                        |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.57675-12.57725 | 322-335.4  | 3600-4400                     | ( <sup>2</sup> )                  |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 13.36-13.41       |  |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | <sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.<br><sup>2</sup> Above 38.6   |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.  |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:  |                               |                                   |                               |             |             |              |             |              |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|                   | <table><tr><td>Frequency (MHz)</td><td>Field strength (microvolts/meter)</td><td>Measurement distance (meters)</td></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></table>   | 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        |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 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: | <p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> |        |   |

### 5.9.1 E.U.T. Operation:

|                        |           |
|------------------------|-----------|
| Operating Environment: |           |
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |
| Test Voltage           | DC 3.89V  |

## 5.9.2 Test Data:

Not: All of the mode had be tested, only the worse mode of 802.11a are show in the report:

| Band 1: 5150 MHz - 5250 MHz, Test Mode: 802.11a              |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10360.000  | 94.77          | -45.12      | 49.65          | 68.20          | -18.55       | Peak     | Pass   |
| 10360.000  | 83.48          | -45.18      | 38.30          | 48.20          | -9.90        | AVG      | Pass   |
| 15540.000  | 91.38          | -42.88      | 48.50          | 74.00          | -25.50       | Peak     | Pass   |
| 15540.000  | 82.74          | -42.94      | 39.80          | 54.00          | -14.20       | 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 |
| 10360.000  | 95.26          | -45.18      | 50.08          | 68.20          | -18.12       | Peak     | Pass   |
| 10360.000  | 83.97          | -45.18      | 38.79          | 48.20          | -9.41        | AVG      | Pass   |
| 15540.000  | 91.87          | -42.94      | 48.93          | 74.00          | -25.07       | Peak     | Pass   |
| 15540.000  | 83.23          | -42.94      | 40.29          | 54.00          | -13.71       | 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 |
| 10400.000  | 95.15          | -45.18      | 49.97          | 74.00          | -24.03       | Peak     | Pass   |
| 10400.000  | 83.86          | -45.18      | 38.68          | 54.00          | -15.32       | AVG      | Pass   |
| 15600.000  | 91.76          | -42.94      | 48.82          | 74.00          | -25.18       | Peak     | Pass   |
| 15600.000  | 83.12          | -42.94      | 40.18          | 54.00          | -13.82       | 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 |
| 10400.000  | 95.60          | -45.18      | 50.42          | 74.00          | -23.58       | Peak     | Pass   |
| 10400.000  | 84.31          | -45.18      | 39.13          | 54.00          | -14.87       | AVG      | Pass   |
| 15600.000  | 92.21          | -42.94      | 49.27          | 74.00          | -24.73       | Peak     | Pass   |
| 15600.000  | 83.57          | -42.94      | 40.63          | 54.00          | -13.37       | 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 |
| 10460.000  | 96.13          | -45.07      | 51.06          | 68.20          | -17.14       | Peak     | Pass   |
| 10460.000  | 84.84          | -45.18      | 39.66          | 48.20          | -8.54        | AVG      | Pass   |
| 15690.000  | 92.74          | -42.83      | 49.91          | 74.00          | -24.09       | Peak     | Pass   |
| 15690.000  | 84.10          | -42.94      | 41.16          | 54.00          | -12.84       | AVG      |        |
| Test Channel: Highest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |



|          |           |       |        |       |       |      |      |
|----------|-----------|-------|--------|-------|-------|------|------|
| 10480.00 | 10460.000 | 96.52 | -45.07 | 51.45 | 68.20 | Peak | Pass |
| 10480.00 | 10460.000 | 85.23 | -45.18 | 40.05 | 48.20 | AVG  | Pass |
| 15720.00 | 15690.000 | 93.13 | -42.83 | 50.30 | 74.00 | Peak | Pass |
| 15720.00 | 15690.000 | 84.49 | -42.94 | 41.55 | 54.00 | AVG  |      |

**Remark:** Test frequency up to 40GHz and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.

Margin=Level-Limit=Reading+factor-Limit

| Band 2: 5250 MHz - 5350 MHz, Test Mode: 802.11a              |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10520.000  | 93.75          | -45.02      | 48.73          | 74.00          | -25.27       | Peak     | Pass   |
| 10520.000  | 93.75          | -45.08      | 48.67          | 54.00          | -5.33        | AVG      | Pass   |
| 15780.000  | 90.06          | -42.68      | 47.38          | 74.00          | -26.62       | Peak     | Pass   |
| 15780.000  | 81.42          | -42.74      | 38.68          | 54.00          | -15.32       | AVG      |        |
| Test Channel: Lowest channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10520.000  | 94.23          | -45.08      | 49.15          | 74.00          | -24.85       | Peak     | Pass   |
| 10520.000  | 94.23          | -45.08      | 49.15          | 54.00          | -4.85        | AVG      | Pass   |
| 15780.000  | 90.54          | -42.74      | 47.80          | 74.00          | -26.20       | Peak     | Pass   |
| 15780.000  | 81.90          | -42.74      | 39.16          | 54.00          | -14.84       | AVG      |        |
| Test Channel: Middle channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10560.000  | 93.42          | -45.08      | 48.34          | 74.00          | -25.66       | Peak     | Pass   |
| 10560.000  | 93.42          | -45.08      | 48.34          | 54.00          | -5.66        | AVG      | Pass   |
| 15840.000  | 89.73          | -42.74      | 46.99          | 74.00          | -27.01       | Peak     |        |
| 15840.000  | 81.09          | -42.74      | 38.35          | 54.00          | -15.65       | AVG      |        |
| Test Channel: Middle channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10560.000  | 93.87          | -45.08      | 48.79          | 74.00          | -25.21       | Peak     | Pass   |
| 10560.000  | 93.87          | -45.08      | 48.79          | 54.00          | -5.21        | AVG      | Pass   |
| 15840.000  | 90.18          | -42.74      | 47.44          | 74.00          | -26.56       | Peak     |        |
| 15840.000  | 81.54          | -42.74      | 38.80          | 54.00          | -15.20       | AVG      |        |
| Test Channel: Highest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10640.000  | 94.91          | -44.97      | 49.94          | 74.00          | -24.06       | Peak     | Pass   |
| 10640.000  | 94.91          | -45.08      | 49.83          | 74.00          | -24.17       | AVG      | Pass   |
| 15960.000  | 91.22          | -42.63      | 48.59          | 74.00          | -25.41       | Peak     | Pass   |
| 15960.000  | 82.58          | -42.74      | 39.84          | 74.00          | -34.16       | AVG      |        |
| Test Channel: Highest channel, Test Polarization: Horizontal |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 10640.000  | 95.30          | -44.97      | 50.33          | 74.00          | -23.67       | Peak     | Pass   |
| 10640.000  | 95.30          | -45.08      | 50.22          | 74.00          | -23.78       | AVG      | Pass   |

|   |       |        |       |       |        |      |      |
|---|-------|--------|-------|-------|--------|------|------|
| 15960.000   | 91.61 | -42.63 | 48.98 | 74.00 | -25.02 | Peak | Pass |
| 15960.000   | 82.97 | -42.74 | 40.23 | 74.00 | -33.77 | AVG  |      |
| <b>Remark:</b> Test frequency up to 40GHz and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br>Margin=Level-Limit=Reading+factor-Limit |       |        |       |       |        |      |      |

| Band 3: 5470 MHz - 5725 MHz, Test Mode: 802.11a              |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical    |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 11000.000  | 91.66          | -44.77      | 46.89          | 74.00          | -27.11       | Peak     | Pass   |
| 11000.000  | 80.59          | -44.77      | 35.82          | 54.00          | -18.18       | AVG      | Pass   |
| 16500.000  | 87.33          | -41.49      | 45.84          | 68.20          | -22.36       | Peak     | Pass   |
| 16500.000  | 78.29          | -41.49      | 36.80          | 48.20          | -11.40       | 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 |
| 11000.000  | 85.94          | -44.77      | 41.17          | 74.00          | -32.83       | Peak     | Pass   |
| 11000.000  | 74.87          | -44.77      | 30.10          | 54.00          | -23.90       | AVG      | Pass   |
| 16500.000  | 81.61          | -41.49      | 40.12          | 68.20          | -28.08       | Peak     | Pass   |
| 16500.000  | 72.57          | -41.49      | 31.08          | 48.20          | -17.12       | 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 |
| 11160.000  | 90.79          | -44.71      | 46.08          | 74.00          | -27.92       | Peak     | Pass   |
| 11160.000  | 79.72          | -44.77      | 34.95          | 54.00          | -19.05       | AVG      | Pass   |
| 16740.000  | 86.46          | -41.43      | 45.03          | 68.20          | -23.17       | Peak     | Pass   |
| 16740.000  | 71.32          | -41.49      | 29.83          | 48.20          | -18.37       | 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 |
| 11160.000  | 91.68          | -44.71      | 46.97          | 74.00          | -27.03       | Peak     | Pass   |
| 11160.000  | 80.61          | -44.77      | 35.84          | 54.00          | -18.16       | AVG      | Pass   |
| 16740.000  | 87.35          | -41.43      | 45.92          | 68.20          | -22.28       | Peak     | Pass   |
| 16740.000  | 78.31          | -41.49      | 36.82          | 48.20          | -11.38       | 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 |
| 11400.000  | 86.24          | -44.66      | 41.58          | 74.00          | -32.42       | Peak     | Pass   |
| 11400.000  | 77.71          | -44.77      | 32.94          | 54.00          | -21.06       | AVG      | Pass   |
| 17100.000  | 81.91          | -41.38      | 40.53          | 68.20          | -27.67       | Peak     | Pass   |
| 17100.000  | 75.41          | -41.49      | 33.92          | 48.20          | -14.28       | 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 |
| 11400.000  | 86.59          | -44.66      | 41.93          | 74.00          | -32.07       | Peak     | Pass   |
| 11400.000  | 77.09          | -44.77      | 32.32          | 54.00          | -21.68       | AVG      | Pass   |

|  |       |        |       |       |        |      |      |
|--|-------|--------|-------|-------|--------|------|------|
| 17100.000  | 82.26 | -41.38 | 40.88 | 68.20 | -27.32 | Peak | Pass |
| 17100.000  | 74.79 | -41.49 | 33.30 | 48.20 | -14.90 | AVG  | Pass |
| <b>Remark:</b> Test frequency up to 40GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br>Margin=Level-Limit=Reading+factor-Limit |       |        |       |       |        |      |      |

| Band 4: 5725 MHz - 5825 MHz, Test Mode: 802.11a  |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Test Channel: Lowest channel, Test Polarization: Vertical  |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 11490.000  | 94.15          | -44.70      | 49.45          | 74.00          | -24.55       | Peak     | Pass   |
| 11490.000  | 83.45          | -44.70      | 38.75          | 54.00          | -15.25       | AV       | Pass   |
| 17235.000  | 87.82          | -40.61      | 47.21          | 68.20          | -20.99       | Peak     | Pass   |
| 17235.000  | 77.19          | -40.61      | 36.58          | 48.20          | -11.62       | AV       | Pass   |
| Test Channel: Lowest channel, Test Polarization: Horizontal  |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 11570.000  | 94.54          | -44.64      | 49.90          | 74.00          | -24.10       | Peak     | Pass   |
| 11570.000  | 83.84          | -44.70      | 39.14          | 54.00          | -14.86       | Peak     | Pass   |
| 17355.000  | 88.21          | -40.55      | 47.66          | 68.20          | -20.54       | Peak     | Pass   |
| 17355.000  | 77.58          | -40.61      | 36.97          | 48.20          | -11.23       | Peak     | Pass   |
| Test Channel: Middle channel, Test Polarization: Vertical  |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 11570.000  | 94.54          | -44.64      | 49.90          | 74.00          | -24.10       | Peak     | Pass   |
| 11570.000  | 83.84          | -44.70      | 39.14          | 54.00          | -14.86       | AVG      | Pass   |
| 17355.000  | 88.21          | -40.55      | 47.66          | 68.20          | -20.54       | Peak     | Pass   |
| 17355.000  | 77.58          | -40.61      | 36.97          | 48.20          | -11.23       | 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 |
| 11570.000  | 95.00          | -44.64      | 50.36          | 74.00          | -23.64       | Peak     | Pass   |
| 11570.000  | 84.30          | -44.70      | 39.60          | 54.00          | -14.40       | AVG      | Pass   |
| 17355.000  | 88.67          | -40.55      | 48.12          | 68.20          | -20.08       | Peak     | Pass   |
| 17355.000  | 78.04          | -40.61      | 37.43          | 48.20          | -10.77       | AVG      | Pass   |
| <b>Remark:</b> Test frequency up to 40GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br>Margin=Level-Limit=Reading+factor-Limit |                |             |                |                |              |          |        |

| Test Channel: Highest channel, Test Polarization: Vertical   |                |             |                |                |              |          |        |
|--|----------------|-------------|----------------|----------------|--------------|----------|--------|
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 11650.000  | 93.69          | -44.59      | 49.10          | 74.00          | -24.90       | Peak     | Pass   |
| 11650.000  | 82.99          | -44.70      | 38.29          | 54.00          | -15.71       | AV       | Pass   |
| 17475.000  | 87.36          | -40.50      | 46.86          | 68.20          | -21.34       | Peak     | Pass   |
| 17475.000  | 76.73          | -40.61      | 36.12          | 48.20          | -12.08       | AV       | Pass   |
| Test Channel: Highest channel, Test Polarization: Horizontal   |                |             |                |                |              |          |        |
| Frequency (MHz)  | Reading (dBμV) | Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Marging (dB) | Detector | Result |
| 11650.000  | 94.04          | -44.59      | 49.45          | 74.00          | -24.55       | Peak     | Pass   |
| 11650.000  | 83.34          | -44.70      | 38.64          | 54.00          | -15.36       | AV       | Pass   |
| 17475.000  | 87.71          | -40.50      | 47.21          | 68.20          | -20.99       | Peak     | Pass   |
| 17475.000  | 77.08          | -40.61      | 36.47          | 48.20          | -11.73       | AV       | Pass   |
| <b>Remark:</b> Test frequency up to 40GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.<br>Margin=Level-Limit=Reading+factor-Limit |                |             |                |                |              |          |        |



## 5.10 Frequency Stability Measurement

|                          |  |
|--------------------------|--|
| <b>Test Requirement:</b> | FCC Part15 Section 15.407(g) & Part 2 J Section 2.1055   |
| <b>Test Method:</b>      | ANSI C63.10: 2013  |
| <b>Limit:</b>            | The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 45 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.  |
| <b>Test Procedure:</b>   | The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record. |

### 5.10.1 E.U.T. Operation:

|                        |           |
|------------------------|-----------|
| Operating Environment: |           |
| Temperature:           | 25.5 °C   |
| Humidity:              | 50.6 %    |
| Atmospheric Pressure:  | 1010 mbar |

### 5.10.2 Test Data:

Please Refer to Appendix-5GWIFI

## 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--**