# RF TEST REPORT

**Report No.: SHATBL2512025W04**

| | | |
|---|---|---|
| **Applicant** | : | Shenzhen DOOGEE Hengtong Technology CO.,LTD |
| **Product Name** | : | Smart Phone |
| **Brand Name** | : | DOOGEE |
| **Model Name** | : | S300 Plus |
| **Series Model** | : | S300,S300 Pro,S300 Plus Thermal,S300 Ultra,S300 Max, S300 Pro Max,V MAX 2 ,V MAX 2 Pro,V Max 2 Plus, V Max 2 Ultra,V Max 2 SE |
| **FCC ID** | : | 2AX4YS300PLUS |
| **Test Standard** | : | FCC Part 15 Subpart E §15.407 |
| **Date of Sample Arrival** | : | Nov.24, 2025 |
| **Date of Test** | : | Nov.24, 2025~Jan.08, 2026 |
| **Issue Date** | : | Jan.09, 2026 |

**Report Prepared by :** Emily

(Emily)

**Report Approved by :** Guozheng Li

(Guozheng Li)

**Authorized Signatory :** Terry Yang

(Terry Yang)

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# DECLARATION OF REPORT

1. The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the requirements of 47 CFR 15.407. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of ATBL, this document only be altered or revised by ATBL, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, ATBL is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

5. In this report, '☐' indicates that EUT does not support content after '☐', and '☑' indicates that it supports content after '☑'

# REVISION HISTORY

| Rev. | Issue Date | Report No. | Effect Page | Contents |
|---|---|---|---|---|
| 00 | Jan.09, 2026 | SHATBL2512025W04 | ALL | Initial Release |

# SUMMARY OF TEST RESULT

| Report Section | Standard Section | Test Item | Result | Remark |
|---|---|---|---|---|
| 3.1 | 47 CFR 15.407(a) | Emission Bandwidth(26dBm Bandwidth) | PASS | - |
| 3.2 | -- | Occupied Bandwidth | PASS | Reference only. |
| 3.3 | 47 CFR 15.407(e) | Emission Bandwidth(6dBm Bandwidth) | PASS | - |
| 3.4 | 47 CFR 15.407(a) | Maximum Conducted Output Power | PASS | - |
| 3.5 | 47 CFR 15.407(a) | Power Spectral Density | PASS | - |
| 3.6 | 47 CFR 15.407(g) | Frequency Stability | PASS | - |
| 3.7 | 47 CFR 15.407(b) &15.209(a) | Undesirable emission | PASS | - |
| 3.8 | 47 CFR 15.407(b)/15.209(a)/15.205(a) | Radiated Emissions | PASS | - |
| 3.9 | 47 CFR 15.407(h) | Dynamic Frequency Selection | N/A | - |
| 3.10 | 47 CFR 15.203 | Antenna Requirement | PASS | - |
| 3.11 | 47 CFR 15.207(a) | AC Power Conducted Emission | PASS | - |
| 3.12 | 47 CFR 15.207(h) | Transmit Power Control | N/A | - |

Remark: 'N/A' denotes test is not applicable in this Test Report.

# 1. General Description

## 1.1. Applicant

| | | |
|---|---|---|
| Name | : | Shenzhen DOOGEE Hengtong Technology CO.,LTD |
| Address | : | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No.22,Longhua New District Shenzhen China |

## 1.2. Manufacturer

| | | |
|---|---|---|
| Name | : | Shenzhen DOOGEE Hengtong Technology CO.,LTD |
| Address | : | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No.22,Longhua New District Shenzhen China |

## 1.3. Factory

| | | |
|---|---|---|
| Name | : | Shenzhen DOOGEE Hengtong Technology CO.,LTD |
| Address | : | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No.22,Longhua New District Shenzhen China |

## 1.4. General Information of EUT

| | |
|---|---|
| Equipment Name | Smart Phone |
| Model Name | S300 Plus |
| Series model | S300,S300 Pro,S300 Plus Thermal,S300 Ultra,S300 Max,<br>S300 Pro Max,V MAX 2 ,V MAX 2 Pro,V Max 2 Plus,V Max 2 Ultra,<br>V Max 2 SE |
| Model Difference | Only the model name, appearance color, and memory different. |
| Sample No. | 202512024007 |
| Power supply | DC 7.7V |
| Adapter | Input:AC100-240V~50/60Hz 2.2A Max<br>Output:5.0V⎓3.0A 15.0W;9.0V⎓3.0A 27.0W;12.0V⎓3.0A<br>36.0W;15.0V⎓3.0A 45.0W;20.0V⎓5.0A 100.0W<br>PPS:3.3-20.0V⎓6.0A<br>Power:120W Max |
| Battery | DC 7.7V 11000mAh |
| Hardware Version | M1805-MUB-V3-BOM1 |
| Software Version | DOOGEE-S300 Plus-EEA-Android15.0-20251213 |
| Antenna Type | FPC Antenna |
| Antenna Gain | 0.51dBi |
| Connecting I/O Port(s) | Refer to the remark below |

Remark:

The above information of EUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.5. Equipment Specification

| Equipment Specification | | |
|---|---|---|
| Frequency Range | 5180 ~ 5250MHz;5745 ~ 5825MHz; | |
| Maximum Output Power To Antenna | ☑802.11a: | 11.06dBm |
| | ☑802.11n(HT)20: | 10.90dBm |
| | ☑802.11n(HT)40: | 10.34dBm |
| | ☑802.11ac(VHT)20: | 11.09dBm |
| | ☑802.11ac(VHT)40: | 11.26dBm |
| | ☑802.11ac(VHT)80: | 11.06dBm |
| | ☑802.11ax(HE)20: | 11.25dBm |
| | ☑802.11ax(HE)40: | 10.61dBm |
| | ☑802.11ax(HE)80: | 10.29dBm |
| Type of Modulation | ☑802.11a/n: OFDM (BPSK/QPSK/16QAM/64QAM) | |
| | ☑802.11ac/ax: OFDMA (BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM) | |
| TX Power Control (TPC) | ☐Supported | |
| | ☑No Supported | |
| Type of Device | ☐Master | |
| | ☑Client Without Radar Detection | |
| | ☐Client With Radar Detection | |

## 1.6. Modification of EUT

No modifications are made to the EUT during all test items.

## 1.7. Laboratory Information

| | | |
|---|---|---|
| **Company Name** | : | Shanghai ATBL Technology Co., Ltd. |
| **Address** | : | Building 8,No.160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai |
| **Telephone** | : | +86(0)21-51298625 |
| **FCC-Registration Number** | : | 485917 |
| **Designation Number** | : | CN1306 |
| **A2LA Number** | : | 6184.01 |
| **CNAS Number** | : | CNAS L14531 |
| **ISED Designation Number** | : | 27371 |
| **CAB identifier** | : | CN0116 |

## 1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

47 CFR Part 15 Subpart E §15.407

FCC KDB789033 D02 General UNII Test Procedures New Rules v02r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

ANSI C63.10-2020

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

# 2. Test Configuration of EUT

## 2.1. Carrier Frequency Channel

| Frequency Band | Bandwidth | Channel | Frequency MHz | Channel | Frequency MHz |
|---|---|---|---|---|---|
| U-NII-1 | 20 MHz | 36 | 5180 | 40 | 5200 |
| | | 44 | 5220 | 48 | 5240 |
| | 40 MHz | 38 | 5190 | 46 | 5230 |
| | 80 MHz | 42 | 5210 | -- | -- |
| U-NII-3 | 20 MHz | 149 | 5745 | 153 | 5765 |
| | | 157 | 5785 | 161 | 5805 |
| | | 165 | 5825 | -- | -- |
| | 40 MHz | 151 | 5755 | 159 | 5795 |
| | 80 MHz | 155 | 5775 | -- | -- |

## 2.2. Test Modes

Final test modes are considering the modulation and worse data rates as below table.

| Summary Table of Test Channel | | | |
|---|---|---|---|
| Test Item | Mode | Frequency Band | Channel |
| For Conducted and Radiated Test | ☑802.11a:<br>☑802.11n(HT)20:<br>☑802.11ac(VHT)20:<br>☑802.11ax(HE)20: | U-NII-1 | 36 44 48 |
| | | U-NII-3 | 149 157 165 |
| | ☑802.11n(HT)40:<br>☑802.11ac(VHT)40:<br>☑802.11ax(HE)40: | U-NII-1 | 38 46 |
| | | U-NII-3 | 151 159 |
| | ☑802.11ac(VHT)80:<br>☑802.11ax(HE)80: | U-NII-1 | 42 |
| | | U-NII-3 | 155 |
| For AC Power-line Conducted Emission | 802.11ac40:Channel 46_5230MHz | | |

Remark:

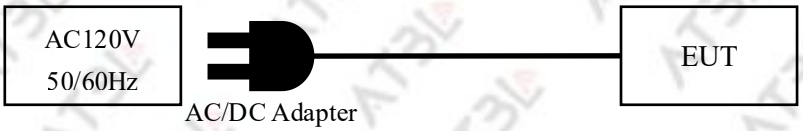
1.All the test modes of Radiated Spurious Emission (RSE) were tested at the worst data rate; only the worse data shown in report.

2. The worst test data below 1GHz is 802.11ac40:Channel 46_5230MHz.

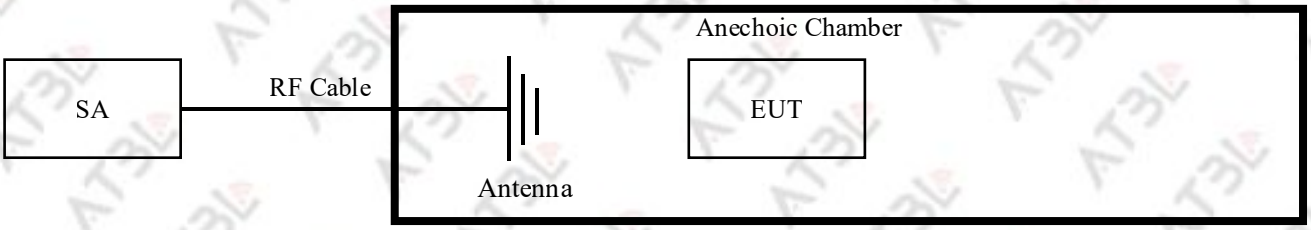
3. The worst test data above 1GHz is the 802.11ac20/ac40/ac80 low-channel and high-channel.

## 2.3. Block Diagram of Test System

### 2.3.1. For AC Power-Line Conducted Emission

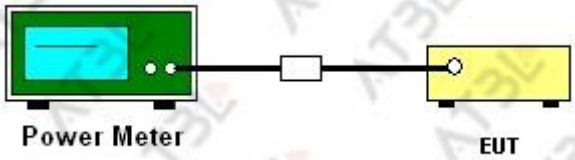



### 2.3.2. For Radiated Spurious Emission

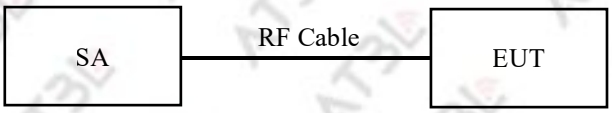



### 2.3.3. For Conducted Test

Power:




Other:




## 2.4. Description of Support Units

| NO. | Unit | Brand | Model | Description |
|---|---|---|---|---|
| 1 | RF Cable | N/A | N/A | N/A |
| 2 | N/A | N/A | N/A | N/A |

## 2.5. Test Software and Power Level

During the test, the channel and power control software provided by the customer is used to control the operation channel and output power level.

## 2.6. EUT Operating Conditions

For AC power-line conducted emission, the EUT was connected under the large package sizes transmission.

For radiated spurious emission and conducted test, the engineering test program was provided and make the EUT to continuous transmit.

## 2.7. Equipment List

### 2.7.1. For AC Power-Line Conducted Emission

| Kind of Equipment | Manu facturer | Type No. | Serial No. | equipment number | Calibrated until | Calibrated due until | Cal. Interval |
|---|---|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESPI | 100679 | SHATBL-E012 | 2025.03.17 | 2026.03.16 | 1 year |
| LISN | R&S | ENV216 | 101300 | SHATBL-E013 | 2025.03.17 | 2026.03.16 | 1 year |
| LISN | R&S | ENV216 | 100333 | SHATBL-E041 | 2025.03.17 | 2026.03.16 | 1 year |
| CE Cable | Chuangce xing | 2M | EMI0014 | SHATBL-E014 | N/A | N/A | N/A |
| Temperature & Humidity | Deli | Deli | EMI0015 | SHATBL-E015 | 2025.08.01 | 2026.07.31 | 1 year |
| Testing Software | FALA | EZ-EMC(Ver.EMC-CON 3A1.1) | EMI0044 | SHATBL-E044 | N/A | N/A | N/A |

### 2.7.2. For Radiated Spurious Emission

| Kind of Equipment | Manu facturer | Type No. | Serial No. | equipment number | Calibrated until | Calibrated due until | Cal. Interval |
|---|---|---|---|---|---|---|---|
| Signal analyzer | Agilent | N9020A | MY50200811 | SHATBL-E017 | 2025.03.17 | 2026.03.16 | 1 year |
| Amplifier | JPT | JPA0118-55-303A | 1910001800055000 | SHATBL-E006 | 2025.03.24 | 2026.03.23 | 1 year |
| Amplifier | JPT | JPA-10M1G32 | 21010100035001 | SHATBL-E005 | 2025.03.17 | 2026.03.16 | 1 year |
| Antenna/Turn table Controller | Brilliant | N/A | N/A | SHATBL-E007 | N/A | N/A | N/A |
| Loop Antenna(9kHz-30 MHz) | Daze | ZN30900C | 20077 | SHATBL-E042 | 2025.05.13 | 2026.05.12 | 1 year |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 01174 | SHATBL-E008 | 2025.05.20 | 2026.05.19 | 1 year |
| Broad-band Horn Antenna | SCHWARZBECK | BBHA 9120D | 02334 | SHATBL-E009 | 2025.05.20 | 2026.05.19 | 1 year |
| Horn Antenna | COM-POWER | AH-1840 | 10100008 | SHATBL-E043 | 2025.07.27 | 2026.07.26 | 1 year |
| Thermometer | DeLi | N/A | N/A | SHATBL-E015 | 2025.08.01 | 2026.07.31 | 1 year |
| Test Software | FALA | EMC-RI(Ver.4A2) | N/A | N/A | N/A | N/A | N/A |
| Wideband radio communication tester | R&S | CMW500 | 101331 | SHATBL-W044 | 2025.07.28 | 2026.07.27 | 1 year |
| Spectrum analyzer | R&S | FSV40-N | 101761 | SHATBL-W036 | 2025.07.28 | 2026.07.27 | 1 year |

### 2.7.3. For Conducted Test

| Kind of Equipment | Manu facturer | Type No. | Serial No. | equipment number | Calibrated until | Calibrated due until | Cal. Interval |
|---|---|---|---|---|---|---|---|
| Power sensor | DARE | RPR3006W | 16I00054SN016 | SHATBL-W008 | 2025.07.28 | 2026.07.27 | 1 year |
| Adjustable Attenuator | Agilent | 8494B | MY42144015 | SHATBL-W009 | 2025.07.28 | 2026.07.27 | 1 year |
| Adjustable Attenuator | Agilent | 8496B | MY42143776 | SHATBL-W010 | 2025.07.28 | 2026.07.27 | 1 year |
| Environmental Test Chamber | KSON | THS-B6C-150 | 9159K | SHATBL-W019 | 2025.03.17 | 2026.03.16 | 1 year |
| Signal analyzer | Keysight | N9020A | MY50510136 | SHATBL-W003 | 2025.07.18 | 2026.07.17 | 1 year |
| Vector signal generator | Agilent | N5182A | MY48180764 | SHATBL-W043 | 2025.07.18 | 2026.07.17 | 1 year |
| Analog signal generator | Keysight | N5182B | MY57300196 | SHATBL-W005 | 2025.07.18 | 2026.07.17 | 1 year |
| Wideband radio communication tester | R&S | CMW500 | 101331 | SHATBL-W007 | 2025.07.28 | 2026.07.27 | 1 year |
| Switch Box | Cesheng | smu 1003 | WCS20221215 | SHATBL-W046 | 2025.03.19 | 2026.03.18 | 1 year |
| Thermometer | DeLi | N/A | N/A | SHATBL-W011 | 2025.08.01 | 2026.07.31 | 1 year |
| Test Software | Cesheng | WCS-WCN | N/A | SHATBL-W021 | N/A | N/A | N/A |

Remark:

Calibration duration for above equipments is 1 year.

## 2.8. Measurement Uncertainty

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

| No. | Item | | Uncertainty |
|---|---|---|---|
| 1 | Conducted Output Power | | 1.27dB |
| 2 | Power spectral density | | 1.28dB |
| 3 | Conducted Frequency Stability | | 10.14Hz |
| 4 | Conducted spurious emissions | | 1.73dB |
| 5 | RF Cable Loss | | 1.22dB |
| 6 | Radiated Spurious Emission 9KHz-30MHz | | 2.35dB |
| 7 | Radiated Spurious Emission 30MHz-1GHz | | 2.59dB |
| 8 | Radiated Spurious Emission 1GHz-18GHz | | 2.62dB |
| 9 | Radiated Spurious Emission 18GHz - 40GHz | | 2.80dB |
| 10 | Occupied bandwidth | | 23.20Hz |
| 11 | Conducted Emissions | 9kHz ~ 150kHz | 3.4dB |
| | | 150kHz ~ 30MHz | 3.73dB |

## 2.9 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| | | |
|---|---|---|
| Temperature | Normal Temperature: | 20°C |
| Voltage | Normal Voltage: | 7.7V |
| Other | Relative Humidity: | 51% |
| | Air Pressure: | 102kPa |

# 3. Test Result

## 3.1. Emission Bandwidth

### 3.1.1. Limit

N/A

### 3.1.2. Test Procedure

**Emission Bandwidth:**

1).Set RBW = approximately 1% of the emission bandwidth.

2).Set the video bandwidth (VBW) > RBW.

3).Detector = Peak.

4).Trace mode = Max hold.

5).Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is in the range of 1% to 5%.

**99% Occupied Bandwidth:**

1).Set center frequency to the nominal EUT channel center frequency.

2).Set span = 1.5 times to 5.0 times the OBW.

3).Set RBW = 1% to 5% of the OBW

4).Set VBW ≥ 3 RBW

5).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.

6).Use the 99% power bandwidth function of the instrument (if available). If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. 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% occupied bandwidth is the difference between these two frequencies.

### 3.1.3. Test Setup


### 3.1.4. Test Result of Emission Bandwidth And 99% Occupied Bandwidth

Please refer to the Appendix D1.

## 3.2. Minimum Emission Bandwidth for the band 5.725−5.85 GHz

### 3.2.1. Limit

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725-5.85 GHz

### 3.2.2. Test Procedure

1).Set resolution bandwidth (RBW) = 100 kHz

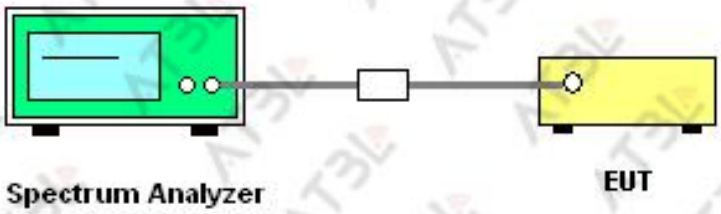
2).Set the video bandwidth 3 x RBW.

3).Detector = Peak.

4).Trace mode = Max hold.

5).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.

### 3.2.3. Test Setup




### 3.2.4. Test Result of Minimum Emission Bandwidth

Please refer to the Appendix D2.

## 3.3. Maximum Conducted Average Output Power

### 3.3.1. Limit

**For the band 5.15-5.25 GHz:**

1). 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 6dBi.

2). 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 6dBi.

3). 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.

4). 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 250mW provided the maximum antenna gain does not exceed 6dBi.

5).If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

**For the 5.25-5.35 GHz and 5.47-5.725 GHz bands**:

1).the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250mW or 11dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

2).If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

**For the band 5.725-5.85 GHz**:

1).the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

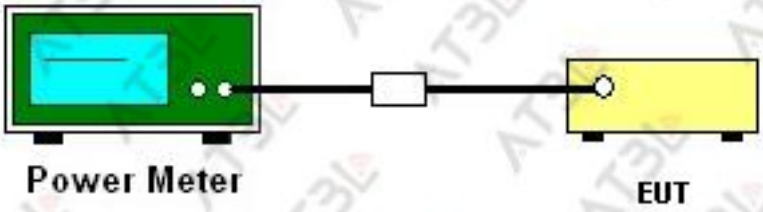
2).If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 3.3.2. Test Procedure

KDB 789033D02v02r01- Section E)3)b) Method PM-G.

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### 3.3.3. Test Setup




### 3.3.4. Test Result of Maximum Conducted Average Output Power

Please refer to the Appendix D3.

## 3.4. Power Spectral Density

### 3.4.1. Limit

**For the band 5.15-5.25 GHz:**

1).For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1 MHz band.

2). For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1 MHz band.

3).For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23dBi.

4).For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 MHz band.

5).If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**For the 5.25-5.35 GHz and 5.47-5.725 GHz bands:**

1).The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

2).If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**For the 5.725-5.850 GHz bands:**

1).the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

2).If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and 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.

### 3.4.2. Test Procedure

1).Measure the duty cycle, x, of the transmitter output signal as described in II.B.

2). Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

3). Set RBW = 1 MHz.

4). Set VBW ≥ 3 MHz.

5). Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

6). Sweep time = auto.

7). Detector = averaging, if available. Otherwise, use sample detector mode.

8). Do not use sweep triggering. Allow the sweep to “free run.”

9). Trace mode = averaging.

**For U-NII-3 band:**

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.

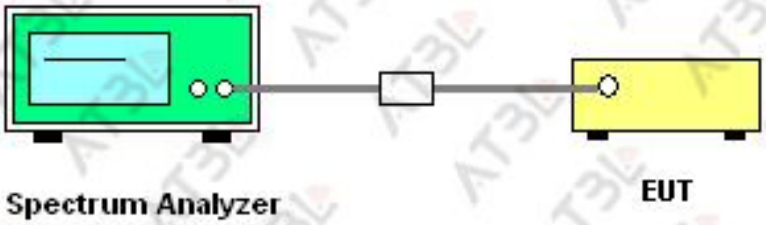
2) Set RBW = 500 kHz, Set VBW ⩾ 3 RBW, Detector = averaging

3) Sweep time = auto, trigger set to “free run”.

4) Trace mode = averaging.

5) Record the max value

### 3.4.3. Test Setup




### 3.4.4. Test Result of Power Spectral Density

Please refer to the Appendix D4.

## 3.5. Frequency Stability

### 3.5.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

### 3.5.2. Test Procedure

**Frequency Stability under Temperature Variations:**

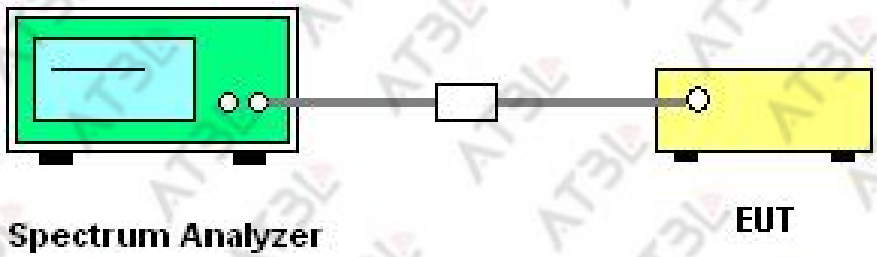
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

**Frequency Stability under Voltage Variations:**

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

### 3.5.3. Test Setup



### 3.5.4. Test Result of Frequency Stability

| FREQUEMCY STABILITY VERSUS TEMP. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OPERATING FREQUENCY: 5180MHz | | | | | | | | | |
| TEMP. (℃) | POWER SUPPLY (Vac) | 0 Minute | | 2 Minute | | 5 Minute | | 10 Minute | |
| | | Measured Frequency (MHz) | Frequency Drift | Measured Frequency (MHz) | Frequency Drift | Measured Frequency (MHz) | Frequency Drift | Measured Frequency (MHz) | Frequency Drift |
| 50 | 7.7V | 5179.9789 | -0.00041 | 5179.9818 | -0.00035 | 5179.9786 | -0.00041 | 5179.9815 | -0.00036 |
| 40 | 7.7V | 5179.9856 | -0.00028 | 5179.9886 | -0.00022 | 5179.9873 | -0.00025 | 5179.9901 | -0.00019 |
| 30 | 7.7V | 5180.0048 | 0.00009 | 5180.0028 | 0.00005 | 5180.0044 | 0.00008 | 5180.0047 | 0.00009 |
| 20 | 7.7V | 5179.9898 | -0.00020 | 5179.9947 | -0.00010 | 5179.9925 | -0.00014 | 5179.9915 | -0.00016 |
| 10 | 7.7V | 5179.9898 | -0.00020 | 5179.9899 | -0.00019 | 5179.9873 | -0.00025 | 5179.9916 | -0.00016 |
| 0 | 7.7V | 5180.0095 | 0.00018 | 5180.0129 | 0.00025 | 5180.0114 | 0.00022 | 5180.0111 | 0.00021 |
| -10 | 7.7V | 5179.9775 | -0.00043 | 5179.9766 | -0.00045 | 5179.9762 | -0.00046 | 5179.9791 | -0.00040 |
| -20 | 7.7V | 5180.0206 | 0.00040 | 5180.0216 | 0.00042 | 5180.0221 | 0.00043 | 5180.0189 | 0.00036 |
| -30 | 7.7V | 5180.0186 | 0.00036 | 5180.0207 | 0.00040 | 5180.0222 | 0.00043 | 5180.0202 | 0.00039 |

| FREQUEMCY STABILITY VERSUS TEMP. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OPERATING FREQUENCY: 5180MHz | | | | | | | | | |
| TEMP. (℃) | POWER SUPPLY (Vac) | 0 Minute | | 2 Minute | | 5 Minute | | 10 Minute | |
| | | Measured Frequency (MHz) | Frequency Drift | Measured Frequency (MHz) | Frequency Drift | Measured Frequency (MHz) | Frequency Drift | Measured Frequency (MHz) | Frequency Drift |
| 20 | 8.47V | 5179.9895 | -0.00020 | 5179.9941 | -0.00011 | 5179.9923 | -0.00015 | 5179.9909 | -0.00018 |
| | 7.7V | 5179.9898 | -0.00020 | 5179.9947 | -0.00010 | 5179.9925 | -0.00014 | 5179.9915 | -0.00016 |
| | 6.93V | 5179.9905 | -0.00018 | 5179.9944 | -0.00011 | 5179.9921 | -0.00015 | 5179.9915 | -0.00016 |

Criterion: Pass

## 3.6. Radiated Spurious Emission and Restricted Band

### 3.6.1. Limit

*47 CFR 15.407(b)*:The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

1).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 −27dBm/MHz.

2).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 −27dBm/MHz.

3).For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27dBm/MHz.

4).For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10dBm/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 15.6dBm/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 27dBm/MHz at the band edge.

*47 CFR 15.209(a)*: 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 |

### 3.6.2. Test Procedure

1).The testing follows ANSI C63.10-2020 clause 11.11 & 11.12.

2).The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.

3).The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.

4).The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5).Corrected Reading: Antenna Factor + Cable Loss + Read Level - Pre-amp Factor = Level.

6).For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.

7).For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

**Use the following spectrum analyzer settings:**

Span shall wide enough to fully capture the emission being measured;

When frequency < 1 GHz:

• Set RBW=100 kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;

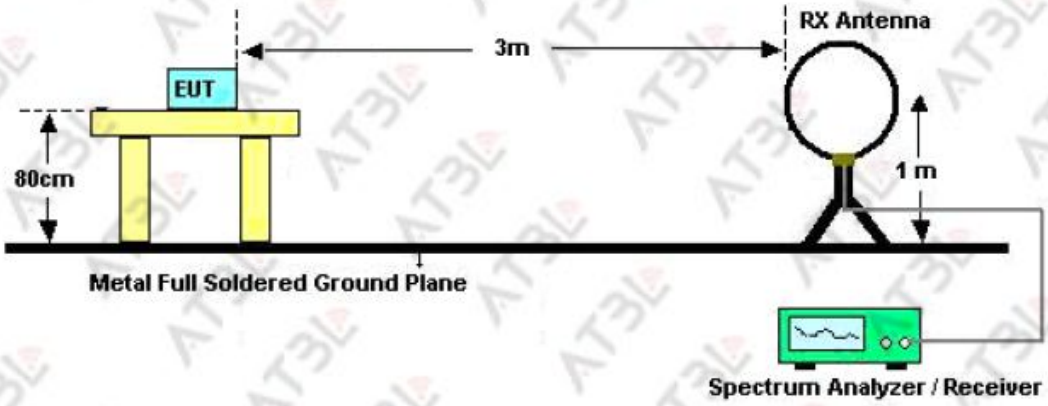
When frequency ≥ 1 GHz:

• Set RBW = 1 MHz; VBW = 3 MHz for peak measurement;

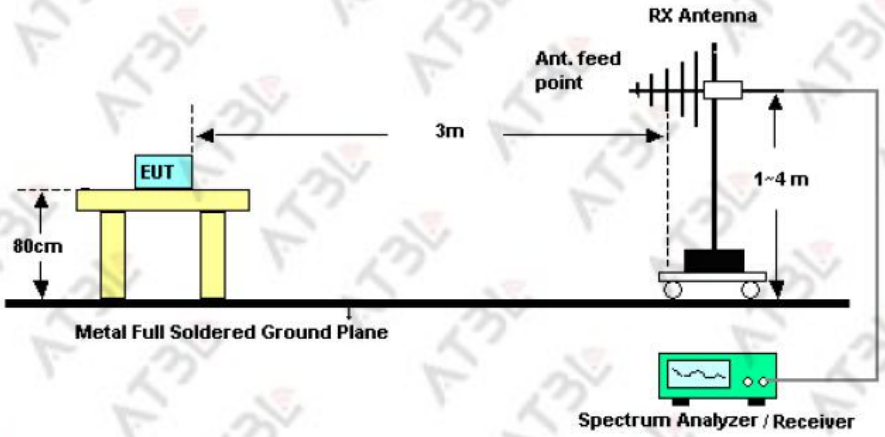
• Set RBW = 1 MHz; VBW = 10 Hz, when duty cycle is no less than 98 percent or VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

### 3.6.3. Test Setup

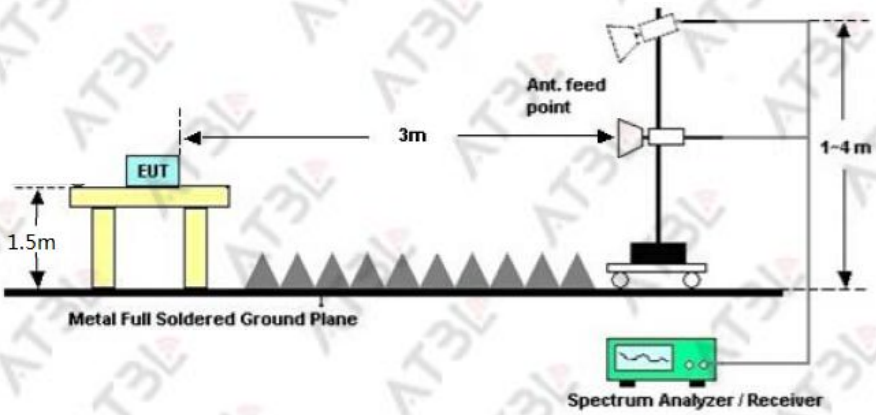
3.6.3.1. For radiated emissions below 30MHz




3.6.3.2. For radiated emissions from 30MHz to 1GHz




3.6.3.3. For radiated emissions above 1GHz



### 3.6.4. Test Result of Radiated Spurious Emission

3.6.4.1. For 9 kHz ~ 30 MHz

Please refer to the Appendix E.

3.6.4.2. For 30 MHz ~ 1 GHz

Please refer to the Appendix E.

3.6.4.3. For 1 GHz ~ 18GHz

Please refer to the Appendix E.

3.6.4.4. For above 18GHz

Please refer to the Appendix E.

### 3.6.5. Test Result of Restricted Band

Please refer to the Appendix E.

## 3.7. AC Power-Line Conducted Emission

### 3.8.1.Limit

*47 CFR 15.207(a)*: For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table:

| 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.

### 3.8.2.Test Procedure

1).The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.

2).Connect EUT to the power mains through a line impedance stabilization network (LISN).

3).All the support units are connecting to the other LISN.

4).The LISN provides 50 ohm coupling impedance for the measuring instrument.

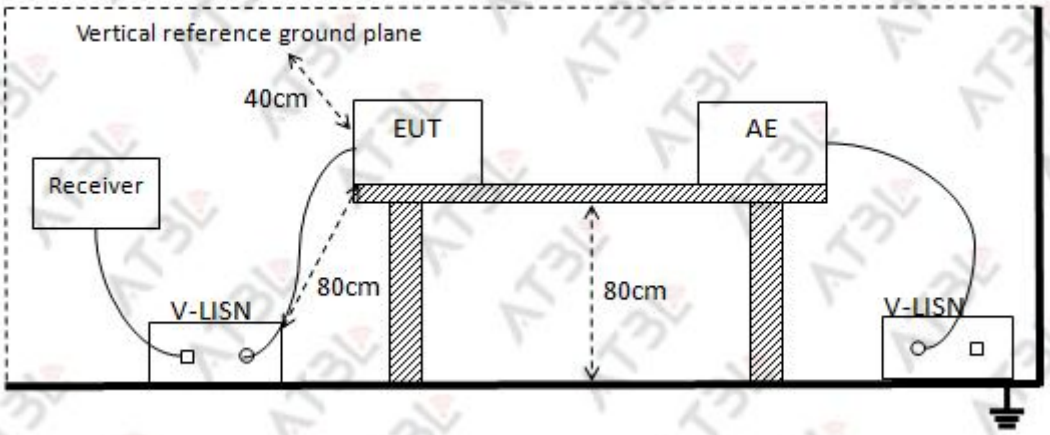
5).The FCC states that a 50 ohm, 50 microhenry LISN should be used.

6).Both sides of AC line were checked for maximum conducted interference.

7).The frequency range from 150 kHz to 30 MHz was searched.

8).Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.8.3.Test Setup




### 3.8.4.Test Result of AC Power-Line Conducted Emission

Please refer to the Appendix E.

## 3.8. Antenna Requirement

### 3.10.1.Standard Requirement

According to *47 CFR 15.203*, 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.

### 3.10.2.EUT Antenna

The antenna used for the EUT is FPC Antenna, which meets the antenna requirements.

# 4. Test Setup Photographs

Please refer to the Appendix J_Test Setup Template

# 5. External And Internal Photos of The EUT

External Photos Please refer to the Appendix K_ External Photos of the EUT.
Internal Photos Please refer to the Appendix K_ Internal Photos of the EUT.

※※※※※END OF THE REPORT※※※※※