**Shenzhen Huaxia Testing Technology Co., Ltd**

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Report Template Version: V04
Report Template Revision Date: 2018-07-06

# FCC Test Report

| | |
|---|---|
| **Report No. :** | CQASZ20191001099E-01 |
| **Applicant:** | SHENZHEN HUBSAN TECHNOLOGY CO., LTD. |
| **Address of Applicant:** | 13th Floor, Bldg 1C, Shenzhen Software Industry Base, Xuefu Road, Nanshan District, Shenzhen, China 518054 |
| **Equipment Under Test (EUT):** | |
| **Product:** | Hubsan HT016P Transmitter |
| **Model No.:** | HT016P |
| **Brand Name:** | Hubsan |
| **FCC ID:** | 2AN75-HT016PTX |
| **Standards:** | 47 CFR Part 15, Subpart E |
| | KDB 789033 D02 General UNII Test Procedures New Rules v02 |
| | KDB 558074 D01 Meas Guidance v05 |
| **Date of Receipt**: | 2019-11-01 |
| **Date of Test:** | 2019-11-01 to 2019-11-25 |
| **Date of Issue:** | 2019-11-25 |
| **Test Result :** | **PASS*** |

***In the configuration tested, the EUT complied with the standards specified above**

***Tested By:*** Tom chen.

***(Tom chen)***

***Reviewed By:*** Aaron Ma

***(Aaron Ma)***

***Approved By:***

***( Jack Ai)***

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD. 华夏准测 APPROVED

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# 1 Version

## Revision History Of Report

| Report No. | Version | Description | Issue Date |
|---|---|---|---|
| CQASZ20191001099E-01 | Rev.01 | Initial report | 2019-11-25 |

# 2 Test Summary

| Test Item | Test Requirement | Test method | Result |
|---|---|---|---|
| **Antenna Requirement** | FCC 47 CFR Part 15 Subpart C Section 15.203 FCC 47 CFR Part 15 Subpart C Section 15.407(a)(1)(2) | ANSI C63.10-2013 | PASS |
| **AC Power Line Conducted Emission** | FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(6) FCC 47 CFR Part 15 Subpart C Section 15.207 | ANSI C63.10-2013 | PASS |
| **26 dB emission bandwidth** | FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(2)(5) | KDB 789033 D02 v02r01 Section C.1 | N/A |
| **6 dB bandwidth** | FCC 47 CFR Part 15 Subpart E Section 15.407 (e) | KDB 789033 D02 v02r01 Section C.2 | PASS |
| **Maximum conducted output power** | FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3) | KDB 789033 D02 v02r01 Section E.3.a(Method PM) | PASS |
| **Peak Power Spectral Density** | FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3) | KDB 789033 D02 v02r01 Section F | PASS |
| **Frequency stability** | FCC 47 CFR Part 15 Subpart E Section 15.407 (g) | ANSI C63.10-2013 | PASS |
| **Radiated Emissions and Band Edge Measurement** | FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(1)(2)(3)(5)(6)(7)(8) FCC 47 CFR Part 15 Subpart C Section 15.209/205 | ANSI C63.10-2013 | PASS |
| **Dynamic Frequency Selection** | FCC 47 CFR Part 15 Subpart E Section 15.407 (h) | KDB 905462 D03 Client Without DFS New Rules v01r02 | N/A |
| **Operation in the absence of information to the transmit** | 47 CFR Part 15 Subpart E Section 15.407 (c) | 47 CFR Part 15 Subpart E | PASS |

Note: N/A: In this whole report not application.

# 3 Contents

Page

# 4 General Information

## 4.1 Client Information

| | |
|---|---|
| Applicant: | SHENZHEN HUBSAN TECHNOLOGY CO., LTD. |
| Address of Applicant: | 13th Floor, Bldg 1C, Shenzhen Software Industry Base, Xuefu Road, Nanshan District, Shenzhen, China 518054 |
| Manufacturer: | SHENZHEN HUBSAN TECHNOLOGY CO., LTD. |
| Address of Manufacturer: | 13th Floor, Bldg 1C, Shenzhen Software Industry Base, Xuefu Road, Nanshan District, Shenzhen, China 518054 |

## 4.2 General Description of EUT

| | |
|---|---|
| Product Name: | Hubsan HT016P Transmitter |
| Model No.: | HT016P |
| Trade Mark: | Hubsan |
| Hardware version: | EA04058099-01 |
| Software version: | V0.1.1 |
| Operation Frequency: | 5725 ~ 5850 MHz |
| Channel Numbers: | 5725 ~ 5850 MHz: 5 for 802.11a |
| Type of Modulation: | IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) |
| Channel Spacing: | IEEE 802.11a: 20 MHz |
| Sample Type: | ☐ Mobile ☒ Portable ☐ Fix Location |
| Test Software of EUT: | Atheros Radio test 2(manufacturer declare ) |
| Antenna Type: | Integral antenna |
| Antenna Gain: | ANT1: 3.0dBi<br>ANT2: 3.0dBi |
| Power Supply: | Battery: 3.6V 2600 mAh Li-Po |

| Operation Frequency Each of Channel | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel** | **Frequency** | **Channel** | **Frequency** | **Channel** | **Frequency** | **Channel** | **Frequency** |
| **For IEEE 802.11a/n-HT20 operation in the 5725 MHz to 5850 MHz band** | | | | | | | |
| 149 | 5745 MHz | 153 | 5765 MHz | 157 | 5785 MHz | 161 | 5805 MHz |
| 165 | 5825 MHz | -- | -- | -- | -- | -- | -- |

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:

| **Mode** | **Tx/Rx Frequency** | **Test RF Channel Lists** | | |
|---|---|---|---|---|
| | | **Lowest(L)** | **Middle(M)** | **Highest(H)** |
| IEEE 802.11a | 5725 MHz to 5850 MHz | Channel 149 | Channel 157 | Channel 165 |
| | | 5745 MHz | 5785 MHz | 5825 MHz |

Note:

Software (RF test) provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

## 4.3 Test Environment and Mode

| | | |
|---|---|---|
| **Operating Environment:** | | |
| **Radiated Emissions:** | | |
| Temperature: | 25.8 °C | |
| Humidity: | 45 % RH | |
| Atmospheric Pressure: | 1005 mbar | |
| **Conducted Emissions:** | | |
| Temperature: | 26.5 °C | |
| Humidity: | 42 % RH | |
| Atmospheric Pressure: | 1005 mbar | |
| **Radio conducted item test (RF Conducted test room):** | | |
| Humidity: | 42 % RH | |
| Atmospheric Pressure: | 1005 mbar | |
| Test Condition | Temperature (°C) | Voltage (V) |
| TN/VN | +15 to +35 | 3.6 |
| TL/VL | -20 | 3.4 |
| TH/VL | 50 | 3.4 |
| TL/VH | -20 | 4.2 |
| TH/VH | 50 | 4.2 |

Remark:

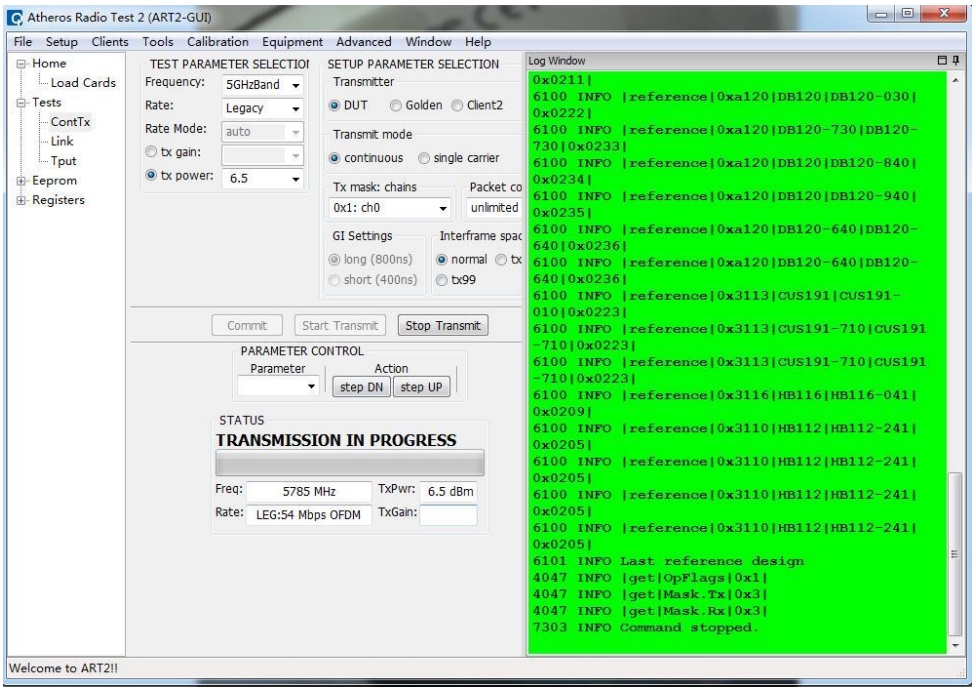
1)The EUT just work in such extreme temperature of -20 °C to 50 °C and the extreme voltage of 3.4 V to 4.2 V, so here the EUT is tested in the temperature of -20 °C to 50 °C and the voltage of 3.4 V to 4.2 V.

2VN: Normal Voltage; TN: Normal Temperature;

TL: Low Extreme Test Temperature; TH: High Extreme Test Temperature;

VL: Low Extreme Test Voltage; VH: High Extreme Test Voltage.

**Run Software:**




**Operated Mode for Worst Duty Cycle:**

| Test Signal Duty Cycle(x) | Duty Cycle(x) | Average correction factor(dB) |
|---|---|---|
| IEEE802.11a_ANT1_5745MHz | 78.03 | 1.08 |
| IEEE802.11a_ANT1_5785MHz | 78.03 | 1.08 |
| IEEE802.11a_ANT1_5825MHz | 78.61 | 1.05 |
| IEEE802.11a_ANT2_5745MHz | 78.61 | 1.05 |
| IEEE802.11a_ANT2_5785MHz | 78.03 | 1.08 |
| IEEE802.11a_ANT2_5825MHz | 78.03 | 1.08 |

**Remark:**

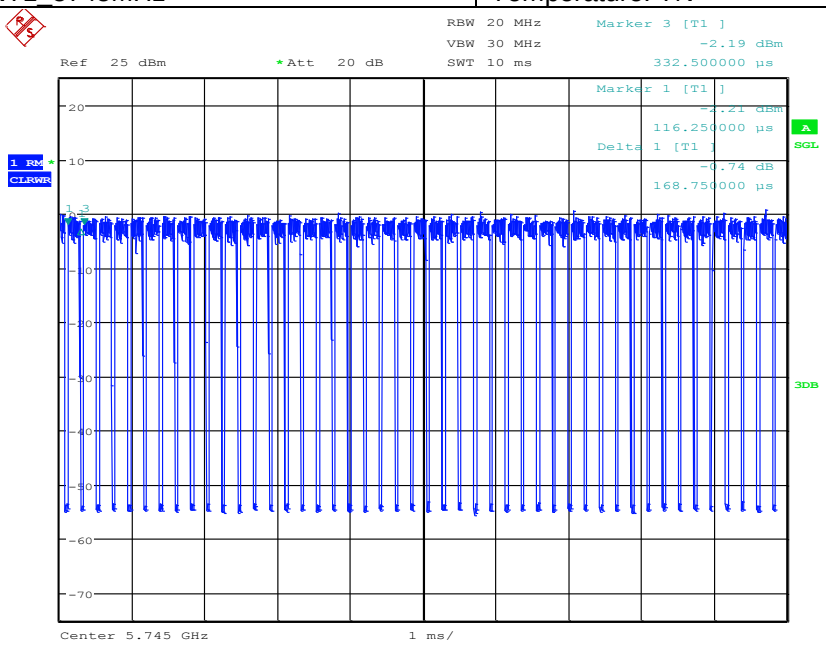
1) Duty cycle= On Time/ Period;

2) Duty Cycle factor = 10 * log(1/ Duty cycle);

**Test plot as follows:**

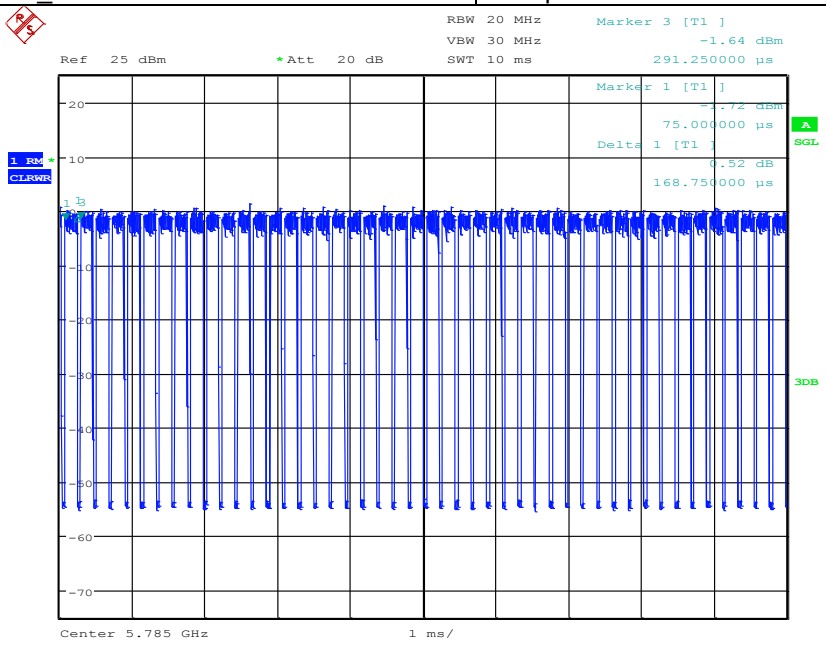
Test Case: Duty Cycle

| Mode: 11a_ANT1_5745MHz | Temperature: TN |
|---|---|



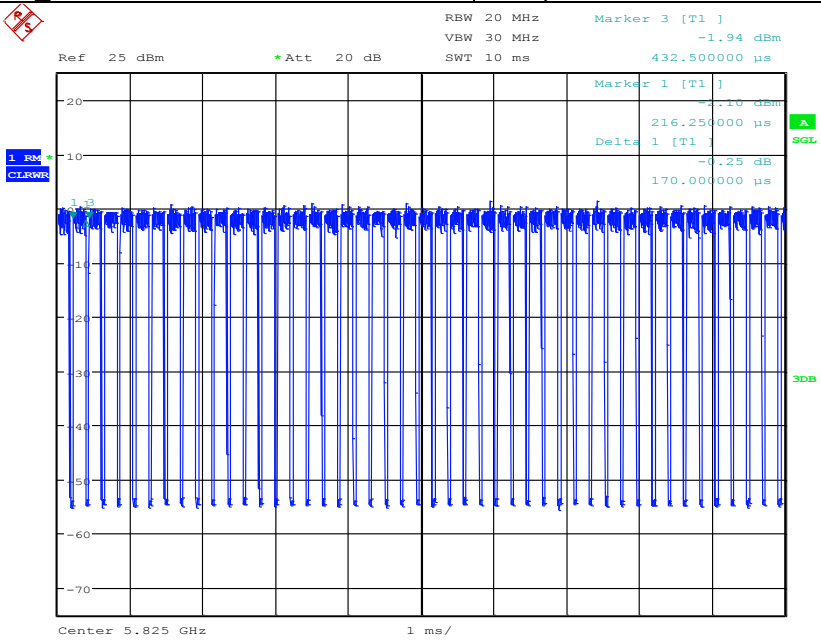

Date: 22.NOV.2019 17:14:27

| Mode: 11a_ANT1_5785MHz | Temperature: TN |
|---|---|




Date: 22.NOV.2019 17:19:17

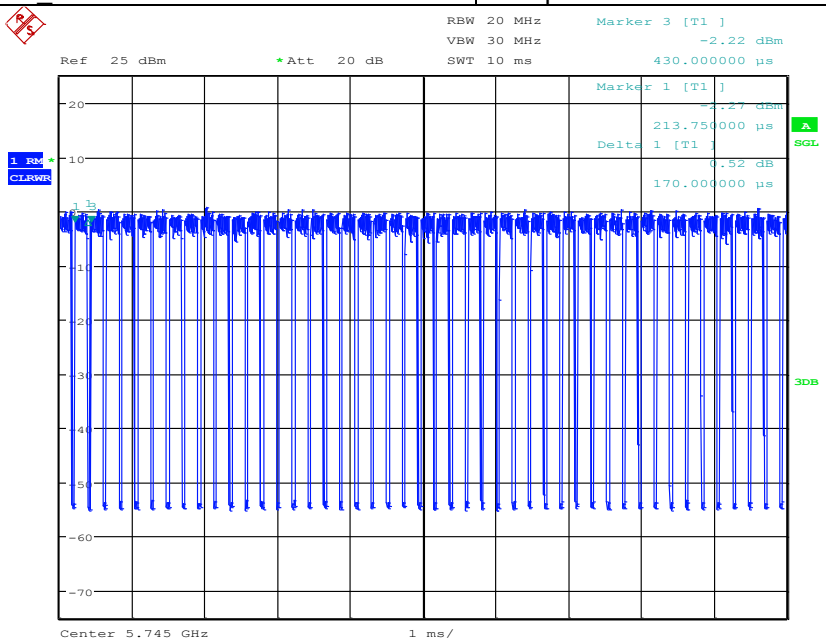
| Mode: 11a_ANT1_5825MHz | Temperature: TN |
|---|---|




Date: 22.NOV.2019 17:23:32

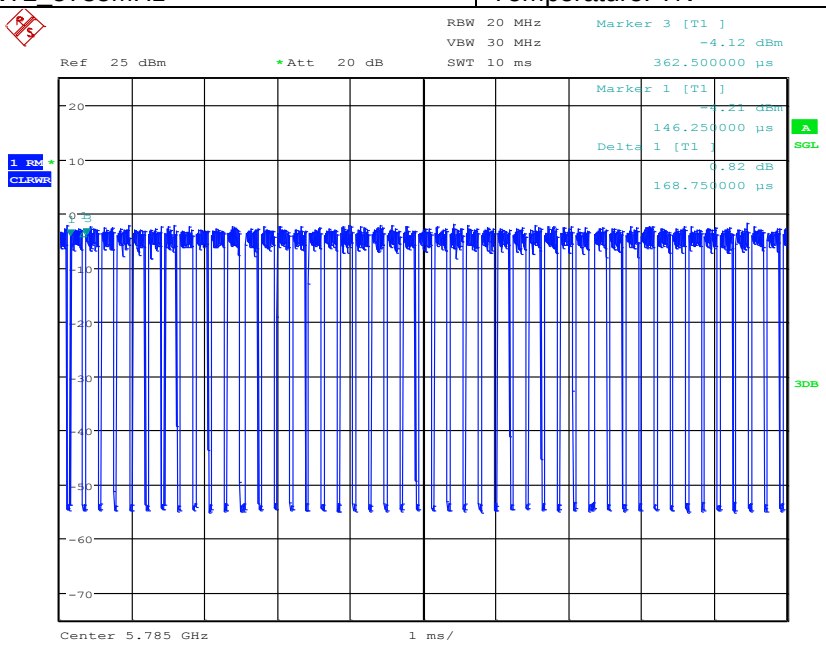
Test Case: Duty Cycle

| Mode: 11a_ANT2_5745MHz | Temperature: TN |
|---|---|



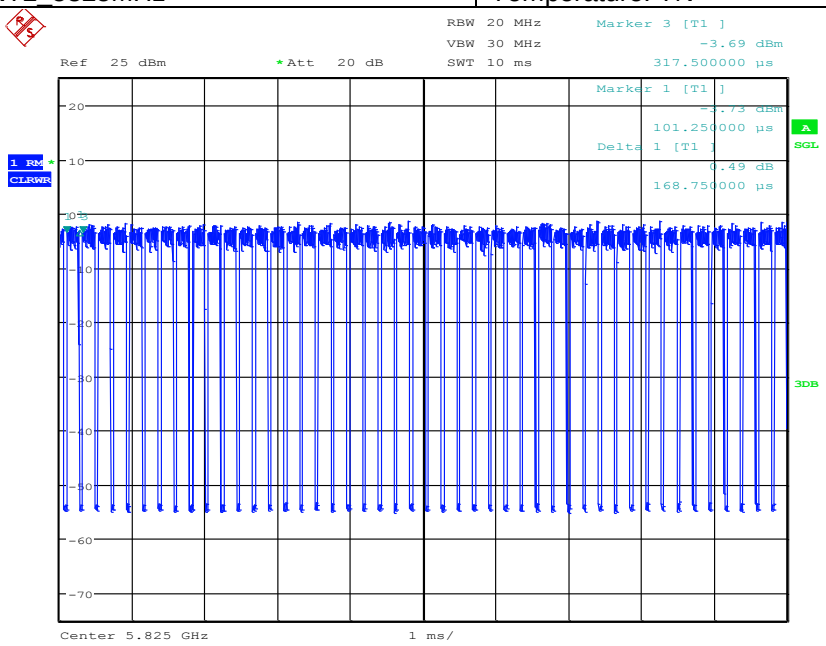

Date: 22.NOV.2019 17:41:51

| Mode: 11a_ANT2_5785MHz | Temperature: TN |
|---|---|




Date: 22.NOV.2019 17:46:51

| Mode: 11a_ANT2_5825MHz | Temperature: TN |
|---|---|




Date: 22.NOV.2019 17:52:36

## 4.4 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

| Description | Manufacturer | Model No. | Remark | FCC certification |
|---|---|---|---|---|
| PC | Lenovo | ThinkPad E450c | FCC ID and DOC | CQA |

2) Cable

| Cable No. | Description | Manufacturer | Cable Type/Length | Supplied by |
|---|---|---|---|---|
| / | / | / | / | / |

## 4.5 Test Location

**Shenzhen Huaxia Testing Technology Co., Ltd.,**

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua New District, Shenzhen, Guangdong, China

## 4.6 Test Facility

**• A2LA (Certificate No. 4742.01)**
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

**• FCC Registration No.: 522263**
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

## 4.7 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

| Test | Range | Uncertainty | Notes |
|---|---|---|---|
| Radiated Emission | Below 1GHz | 5.12dB | (1) |
| Radiated Emission | Above 1GHz | 4.60dB | (1) |
| Conducted Disturbance | 0.15~30MHz | 3.74dB | (1) |

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 4.8 Deviation from Standards

None.

## 4.9 Abnormalities from Standard Conditions

None.

## 4.10 Other Information Requested by the Customer

None.

## 4.11 Equipment List

| Test Equipment | Manufacturer | Model No. | Instrument No. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESR7 | CQA-005 | 2019/10/25 | 2020/10/24 |
| Spectrum analyzer | R&S | FSU26 | CQA-038 | 2019/10/25 | 2020/10/24 |
| Preamplifier | MITEQ | AMF-6D-02001800-29-20P | CQA-036 | 2019/10/25 | 2020/10/24 |
| Loop antenna | Schwarzbeck | FMZB1516 | CQA-060 | 2019/10/21 | 2020/10/20 |
| Bilog Antenna | R&S | HL562 | CQA-011 | 2019/9/26 | 2020/9/25 |
| Horn Antenna | R&S | HF906 | CQA-012 | 2019/9/26 | 2020/9/25 |
| Horn Antenna | Schwarzbeck | BBHA 9170 | CQA-088 | 2019/9/25 | 2020/9/24 |
| Coaxial Cable (Above 1GHz) | CQA | N/A | C007 | 2019/9/26 | 2020/9/25 |
| Coaxial Cable (Below 1GHz) | CQA | N/A | C013 | 2019/9/26 | 2020/9/25 |
| Antenna Connector | CQA | RFC-01 | CQA-080 | 2019/9/26 | 2020/9/25 |
| Power Sensor | KEYSIGHT | U2021XA | CQA-30 | 2019/9/26 | 2020/9/25 |
| N1918A Power Analysis Manager Power Panel | Agilent | N1918A | CQA-074 | 2019/9/26 | 2020/9/25 |
| Power divider | MIDWEST | PWD-2533-02-SMA-79 | CQA-067 | 2019/9/26 | 2020/9/25 |
| EMI Test Receiver | R&S | ESR7 | CQA-005 | 2019/10/25 | 2020/10/24 |
| LISN | R&S | ENV216 | CQA-003 | 2019/10/23 | 2020/10/22 |
| Coaxial cable | CQA | N/A | CQA-C009 | 2019/9/26 | 2020/9/25 |
| high-low temperature chamber | Auchno | OJN-9606 | CQA-S003 | 2019/9/25 | 2020/9/24 |
| DC power | KEYSIGHT | E3631A | CQA-028 | 2019/9/26 | 2020/9/25 |

Note:

The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

# 5 Test results and Measurement Data

## 5.1 Antenna Requirement

| | |
|---|---|
| **Standard requirement:** | 47 CFR Part 15C Section 15.203 /407 |
| 15.203 requirement:<br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.<br>15.407(a)(1) (2) requirement:<br>The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi. | |
| **EUT Antenna:** |  |
| The antenna is internal antenna with ipex connector. The best case gain of the antenna is 3.0dBi.<br>Note: These tow antennas does not transmit simultaneously. | |

## 5.2 Conducted Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15 Subpart C Section 15.207 |
| Test Method: | ANSI C63.10: 2013 |
| Test Frequency Range: | 150kHz to 30MHz |
| Limit: | |

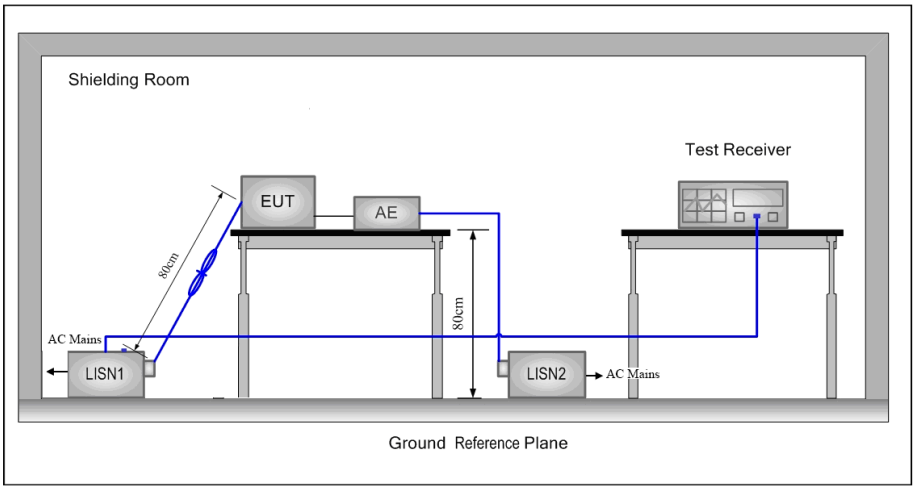
| Frequency range (MHz) | Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

**Test Procedure:**

1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.

**Test Setup:**




| | |
|---|---|
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates at lowest, middle and |

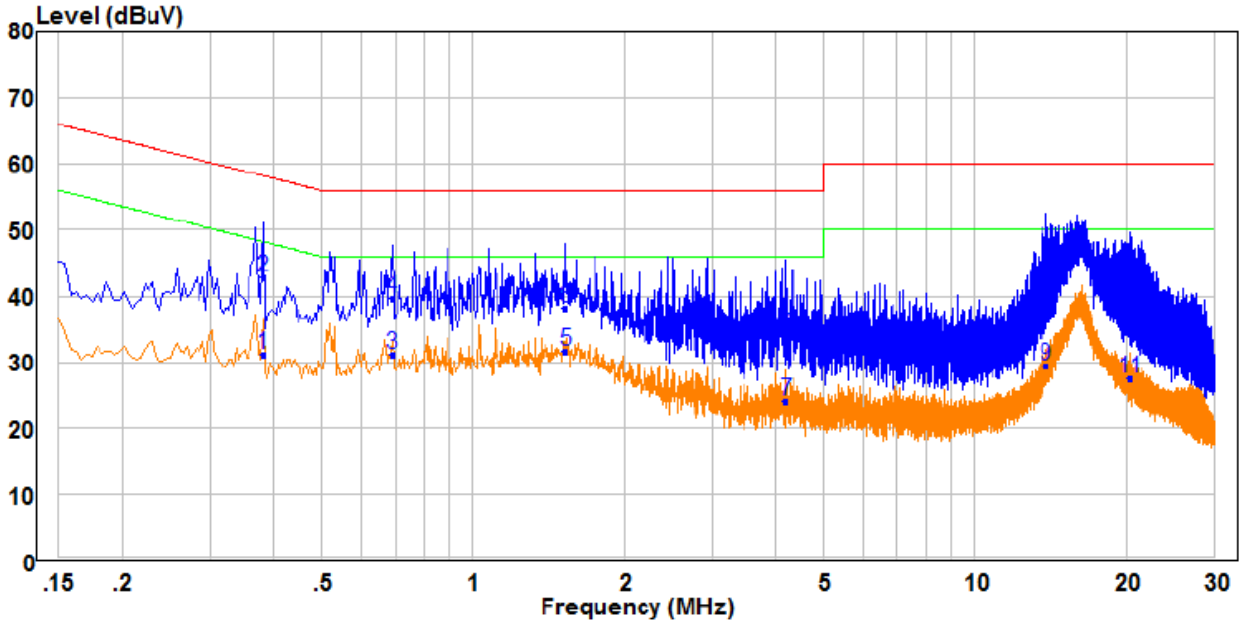
| | |
|---|---|
| | highest channel. |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate of 802.11a_ANT1 at 149 channel is the worst case.<br>Only the worst case is recorded in the report. |
| Test Voltage: | AC120V/60Hz |
| Test Results: | Pass |

**Measurement Data**

An initial pre-scan was performed on the live and neutral lines with peak detector.

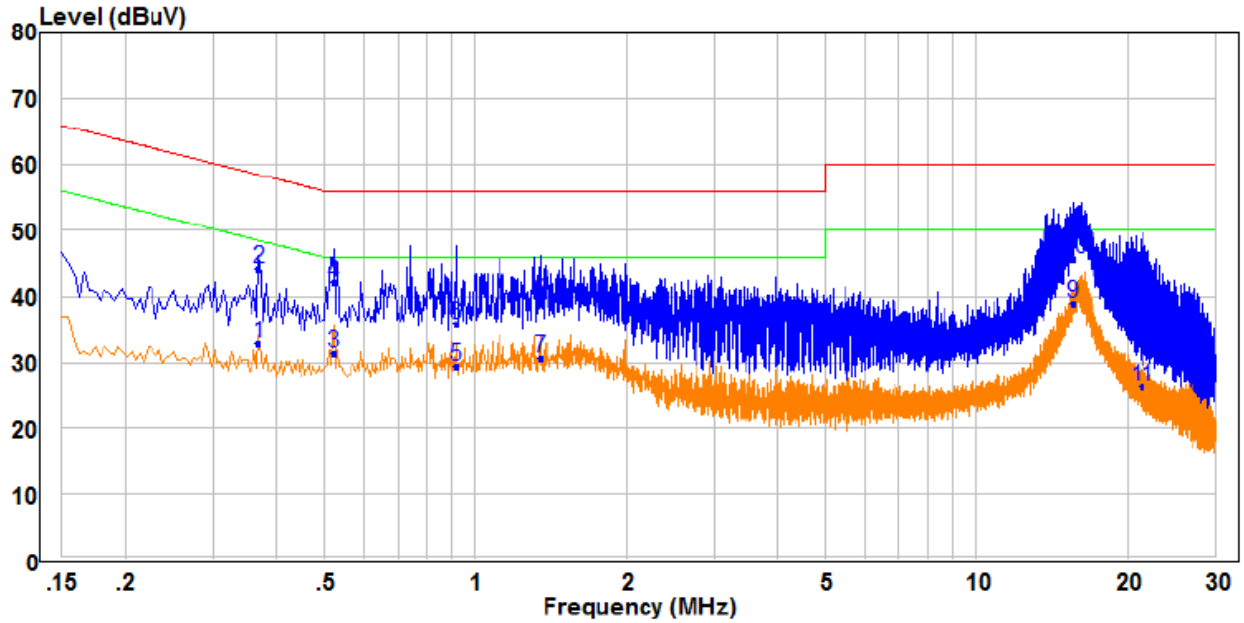
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:




| | | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | | |
| 1 | | 0.382 | 21.75 | 9.50 | 31.25 | 48.24 | -16.99 | Average | Line |
| 2 | QP | 0.382 | 33.43 | 9.50 | 42.93 | 58.24 | -15.31 | QP | Line |
| 3 | | 0.690 | 21.20 | 9.85 | 31.05 | 46.00 | -14.95 | Average | Line |
| 4 | | 0.690 | 29.80 | 9.85 | 39.65 | 56.00 | -16.35 | QP | Line |
| 5 | PP | 1.530 | 22.02 | 9.53 | 31.55 | 46.00 | -14.45 | Average | Line |
| 6 | | 1.530 | 28.64 | 9.53 | 38.17 | 56.00 | -17.83 | QP | Line |
| 7 | | 4.202 | 14.42 | 9.69 | 24.11 | 46.00 | -21.89 | Average | Line |
| 8 | | 4.202 | 24.29 | 9.69 | 33.98 | 56.00 | -22.02 | QP | Line |
| 9 | | 13.889 | 19.59 | 9.88 | 29.47 | 50.00 | -20.53 | Average | Line |
| 10 | | 13.889 | 30.72 | 9.88 | 40.60 | 60.00 | -19.40 | QP | Line |
| 11 | | 20.301 | 17.33 | 10.09 | 27.42 | 50.00 | -22.58 | Average | Line |
| 12 | | 20.301 | 28.52 | 10.09 | 38.61 | 60.00 | -21.39 | QP | Line |

Neutral Line:



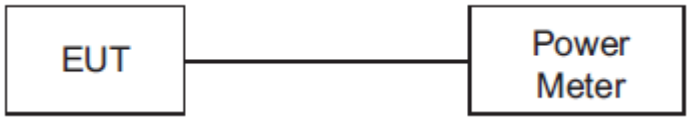

| | | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | | |
| 1 | | 0.370 | 23.31 | 9.53 | 32.84 | 48.50 | -15.66 | Average | Neutral |
| 2 | | 0.370 | 34.68 | 9.53 | 44.21 | 58.50 | -14.29 | QP | Neutral |
| 3 | | 0.522 | 21.85 | 9.62 | 31.47 | 46.00 | -14.53 | Average | Neutral |
| 4 | QP | 0.522 | 32.34 | 9.62 | 41.96 | 56.00 | -14.04 | QP | Neutral |
| 5 | | 0.918 | 19.65 | 9.75 | 29.40 | 46.00 | -16.60 | Average | Neutral |
| 6 | | 0.918 | 26.04 | 9.75 | 35.79 | 56.00 | -20.21 | QP | Neutral |
| 7 | | 1.346 | 20.92 | 9.72 | 30.64 | 46.00 | -15.36 | Average | Neutral |
| 8 | | 1.346 | 29.52 | 9.72 | 39.24 | 56.00 | -16.76 | QP | Neutral |
| 9 | PP | 15.577 | 29.03 | 9.93 | 38.96 | 50.00 | -11.04 | Average | Neutral |
| 10 | | 15.577 | 35.84 | 9.93 | 45.77 | 60.00 | -14.23 | QP | Neutral |
| 11 | | 21.437 | 16.15 | 10.06 | 26.21 | 50.00 | -23.79 | Average | Neutral |
| 12 | | 21.437 | 28.31 | 10.06 | 38.37 | 60.00 | -21.63 | QP | Neutral |

*Notes:*

*1. The following Quasi-Peak and Average measurements were performed on the EUT:*

*2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.*

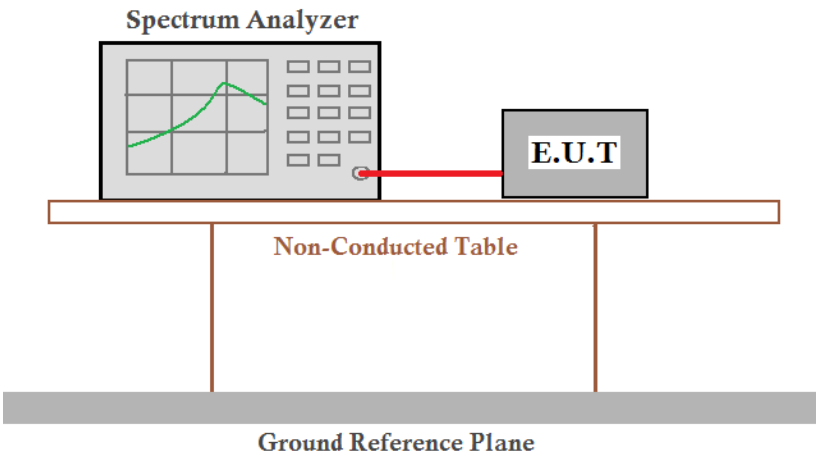
## 5.3 Conducted Average Output Power

| | | |
|---|---|---|
| Test Requirement: | 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3) | |
| Test Method: | KDB 789033 D02 v02r01 Section E | |
| Test Setup: |  | |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates | |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a.<br>Only the worst case is recorded in the report. | |
| Limit: | U-NII-1 | 24dBm |
| | U-NII-2A | 24dBm |
| | U-NII-2C | 24dBm |
| | U-NII-3 | 30dBm |
| Test Results: | Pass | |

**Measurement Data**

| Test Mode | Test Channel | Ant | Level [dBm] | 10log(1/x) Factor [dB] | Power [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| 11A | 5745 | Ant1 | 6.26 | 1.08 | 7.34 | 30.00 | PASS |
| 11A | 5785 | Ant1 | 6.08 | 1.08 | 7.16 | 30.00 | PASS |
| 11A | 5825 | Ant1 | 6.18 | 1.05 | 7.23 | 30.00 | PASS |
| 11A | 5745 | Ant2 | 6.21 | 1.05 | 7.26 | 30.00 | PASS |
| 11A | 5785 | Ant2 | 6.03 | 1.08 | 7.11 | 30.00 | PASS |
| 11A | 5825 | Ant2 | 5.98 | 1.08 | 7.06 | 30.00 | PASS |

## 5.4 6dB Bandwidth

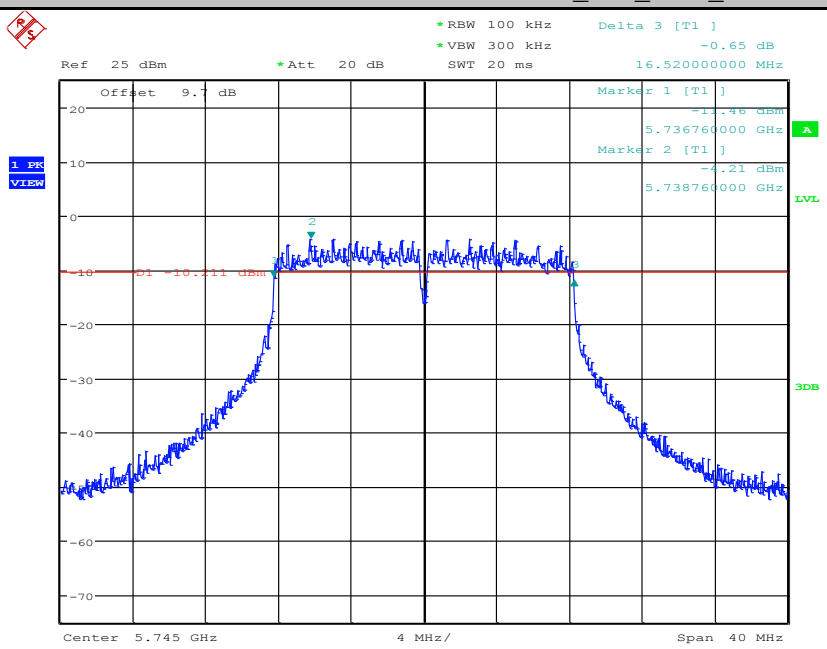
| | |
|---|---|
| Test Requirement: | FCC 47 CFR Part 15 Subpart C Section 15.407 (e) |
| Test Method: | KDB 789033 D02 v02r01 Section C.2 |
| Test Setup: |  |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a. |
| Limit: | ≥ 500 kHz |
| Test Results: | Pass |

**Measurement Data**

| Test Mode | Test Channel | Ant | EBW[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|
| 11A | 5745 | Ant1 | 16.520 | 0.5 | PASS |
| 11A | 5785 | Ant1 | 16.520 | 0.5 | PASS |
| 11A | 5825 | Ant1 | 16.480 | 0.5 | PASS |
| 11A | 5745 | Ant2 | 16.480 | 0.5 | PASS |
| 11A | 5785 | Ant2 | 16.440 | 0.5 | PASS |
| 11A | 5825 | Ant2 | 16.520 | 0.5 | PASS |

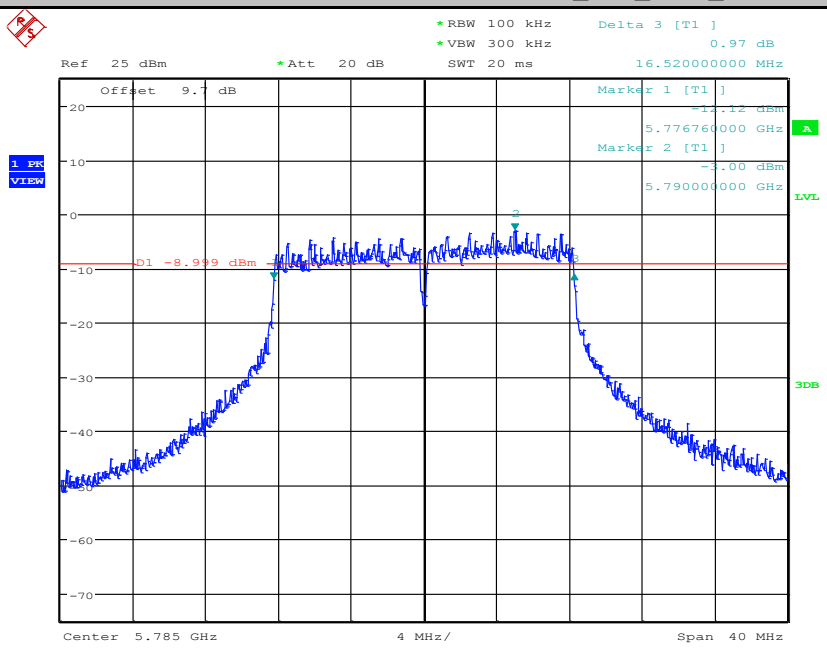
**Test plot as follows:**

Emission Bandwidth Measurement_11A_5745_Ant1



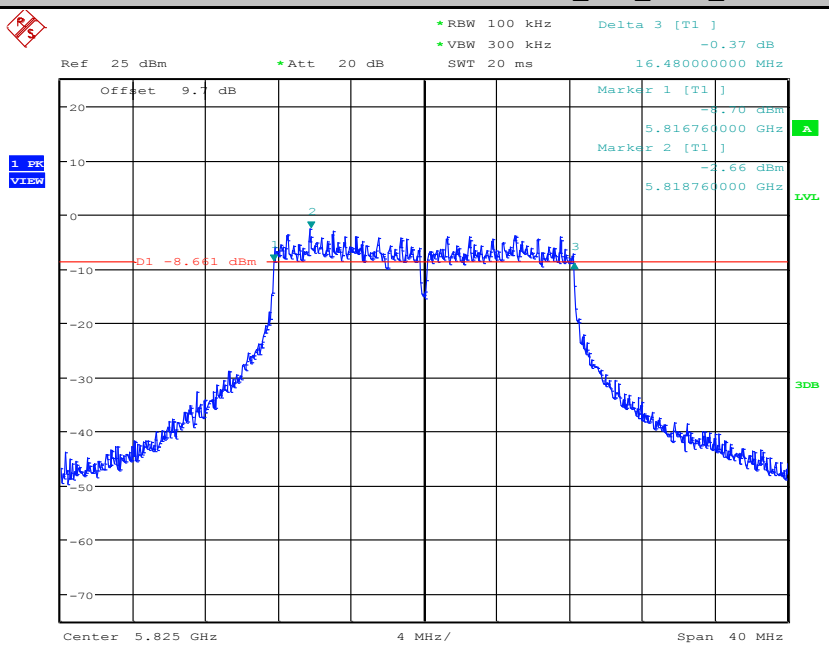

Date: 22.NOV.2019 17:14:50

Emission Bandwidth Measurement_11A_5785_Ant1



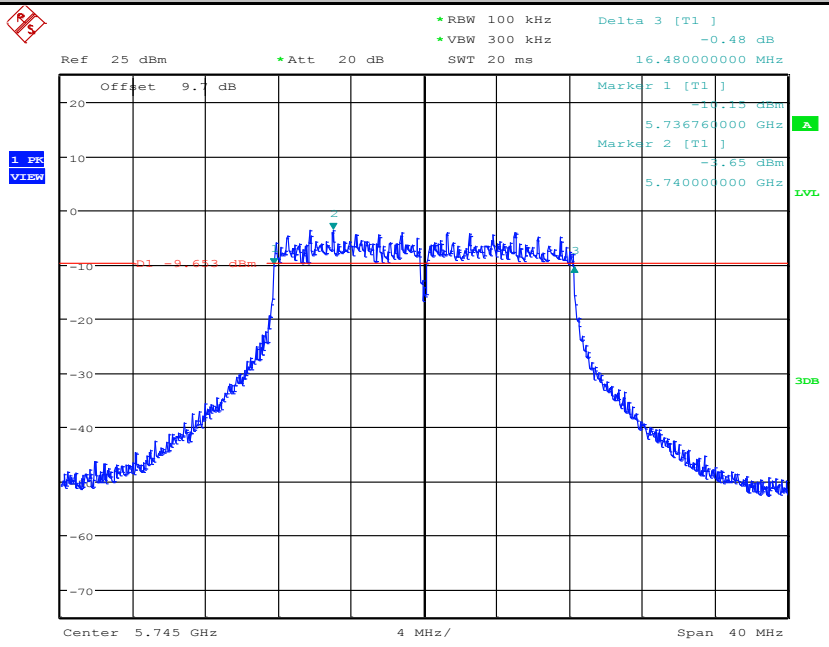

Date: 22.NOV.2019 17:19:40

## Emission Bandwidth Measurement_11A_5825_Ant1



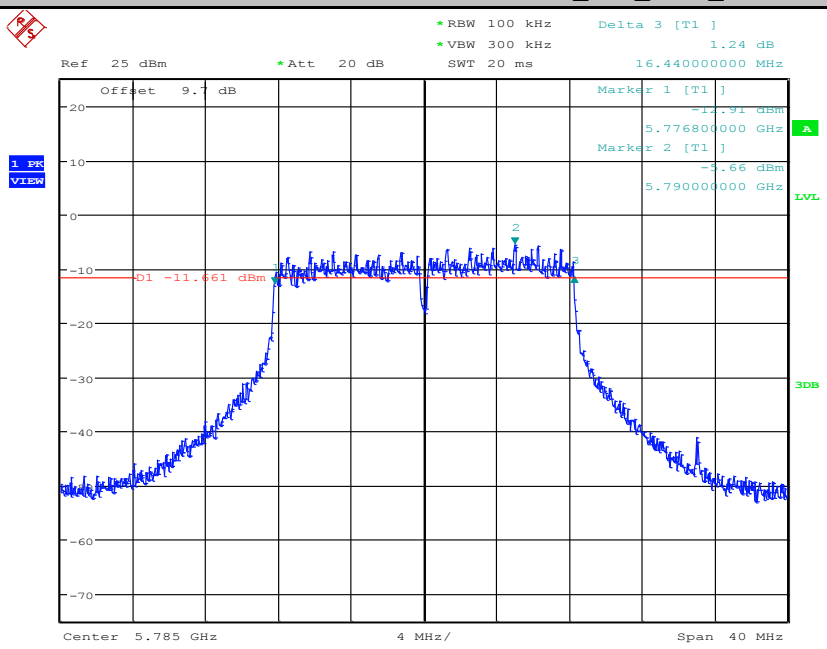

Date: 22.NOV.2019 17:23:54

## Emission Bandwidth Measurement_11A_5745_Ant2



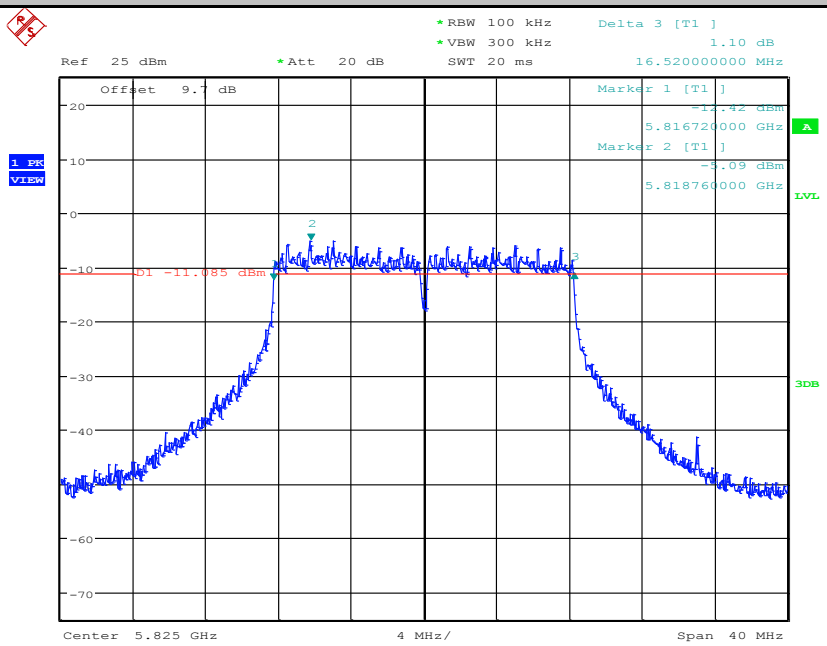

Date: 22.NOV.2019 17:42:13

## Emission Bandwidth Measurement_11A_5785_Ant2



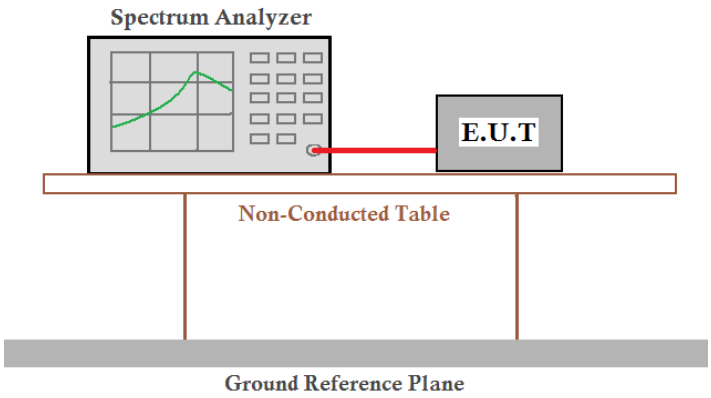

Date: 22.NOV.2019 17:47:14

## Emission Bandwidth Measurement_11A_5825_Ant2




Date: 22.NOV.2019 17:52:59

## 5.5 Power Spectral Density

| | | |
|---|---|---|
| Test Requirement: | FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3) | |
| Test Method: | KDB 789033 D02 v02r01 Section F | |
| Test Setup: |  <br>*Remark:*<br>*Offset the High-Frequency cable loss in the spectrum analyzer.* | |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates | |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a.<br>Only the worst case is recorded in the report. | |
| Limit: | U-NII-1 | 11dBm/MHz |
| | U-NII-2A | 11dBm/MHz |
| | U-NII-2C | 11dBm/MHz |
| | U-NII-3 | 30dBm/500KHz |
| Test Results: | Pass | |

**Measurement Data**

**For U-NII-3 Band:**

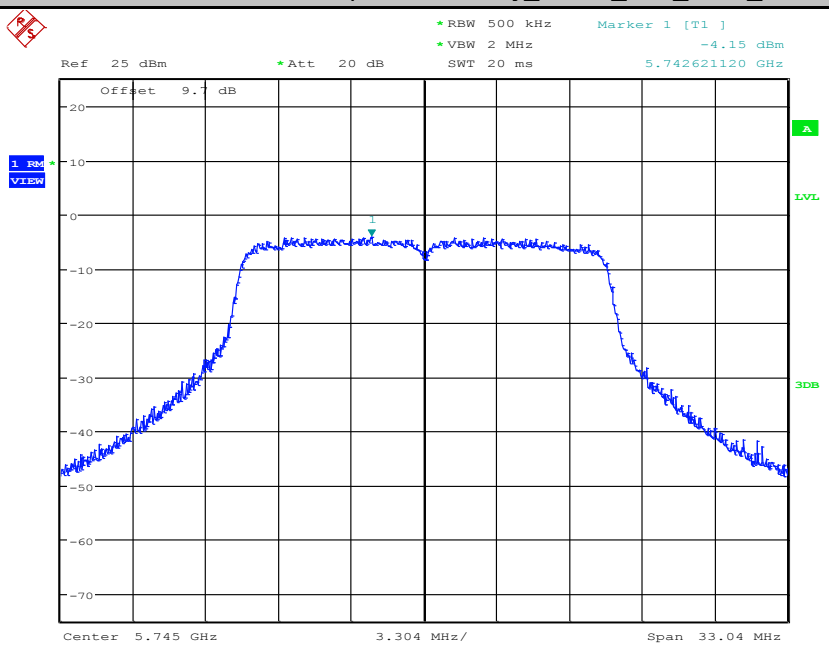
| Test Mode | Test Channel | Ant | Level [dBm/500kHz] | 10log(1/x) Factor[dB] | PSD [dBm/500kHz] | Limit [dBm/500kHz] | Verdict |
|---|---|---|---|---|---|---|---|
| 11A | 5745 | Ant1 | -4.15 | 1.08 | -3.07 | 30.00 | PASS |
| 11A | 5785 | Ant1 | -4.49 | 1.08 | -3.41 | 30.00 | PASS |
| 11A | 5825 | Ant1 | -5.17 | 1.05 | -4.12 | 30.00 | PASS |
| 11A | 5745 | Ant2 | -4.86 | 1.05 | -3.81 | 30.00 | PASS |
| 11A | 5785 | Ant2 | -5.94 | 1.08 | -4.86 | 30.00 | PASS |
| 11A | 5825 | Ant2 | -4.94 | 1.08 | -3.86 | 30.00 | PASS |

**Remark:**

PSD = Meas PSD + Duty Cycle Factor

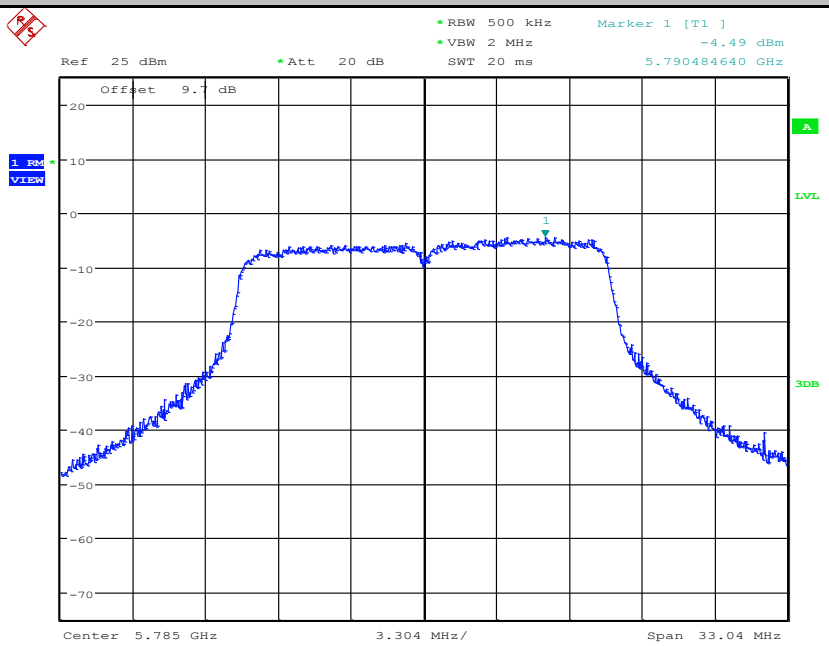
**Test plot as follows:**

Maximum Power Spectral Density_TNVN_11A_5745_Ant1



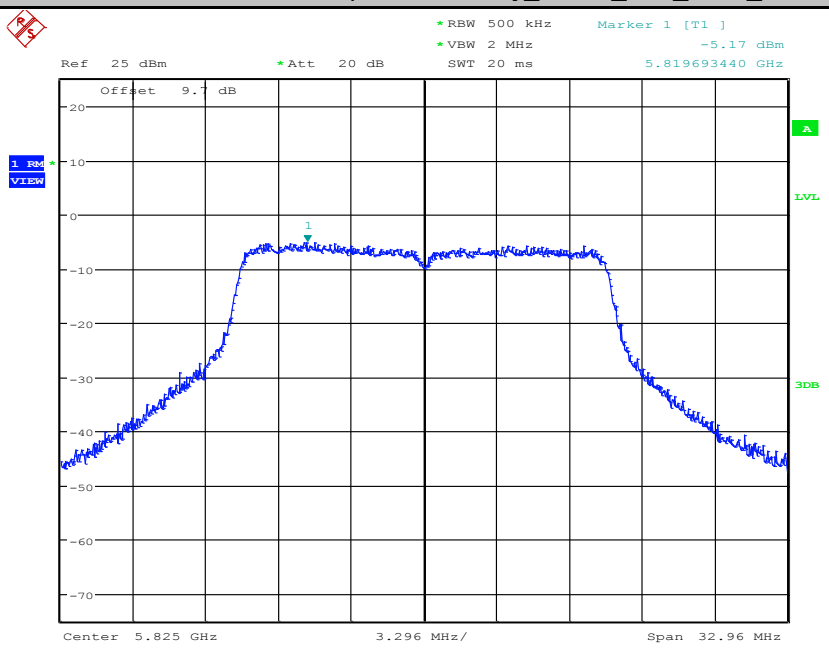

Date: 22.NOV.2019 17:16:11

Maximum Power Spectral Density_TNVN_11A_5785_Ant1



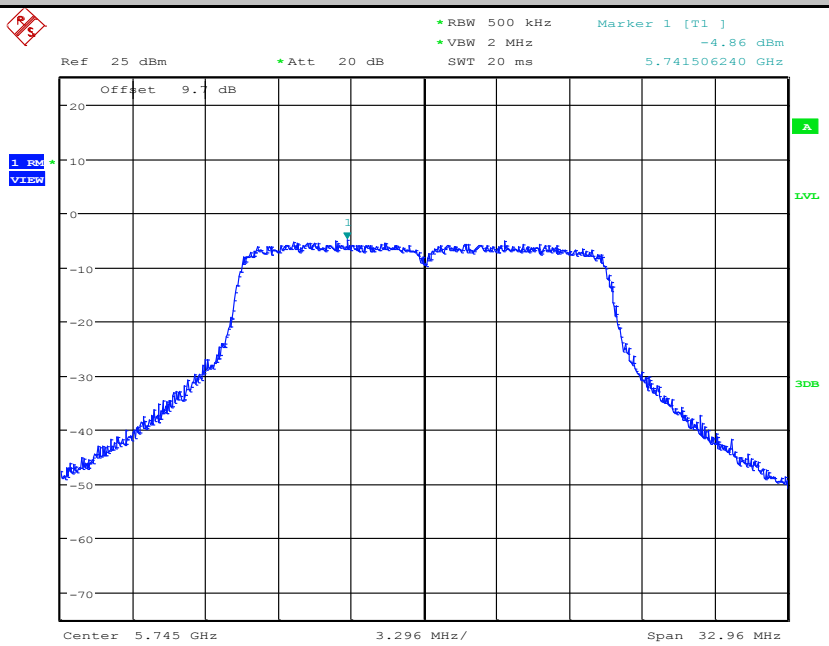

Date: 22.NOV.2019 17:21:16

## Maximum Power Spectral Density_TNVN_11A_5825_Ant1



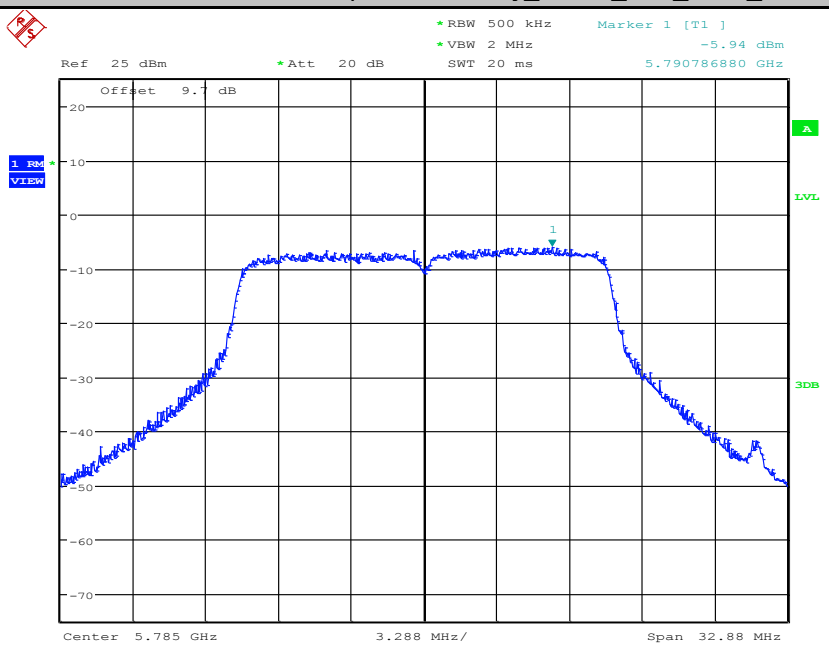

Date: 22.NOV.2019 17:25:19

## Maximum Power Spectral Density_TNVN_11A_5745_Ant2



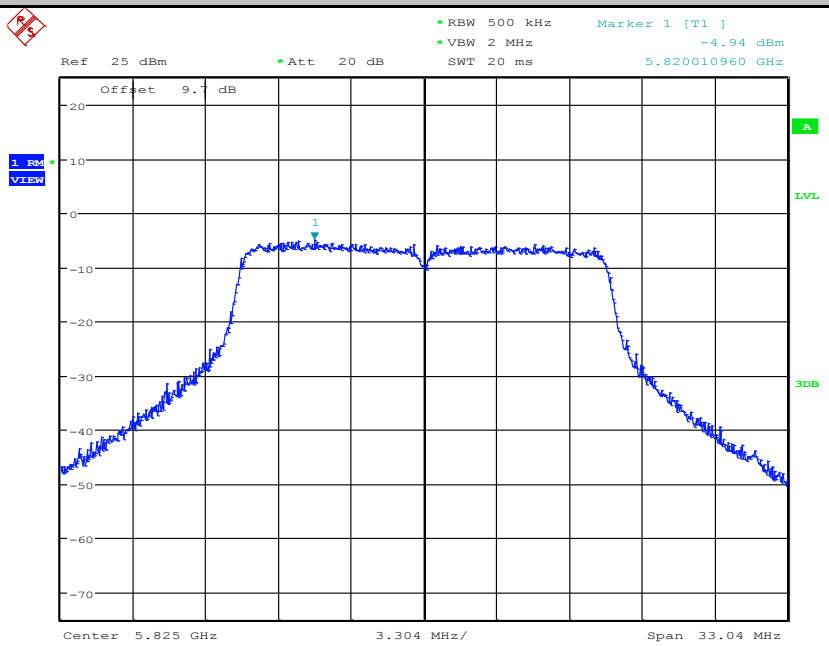

Date: 22.NOV.2019 17:44:09

## Maximum Power Spectral Density_TNVN_11A_5785_Ant2



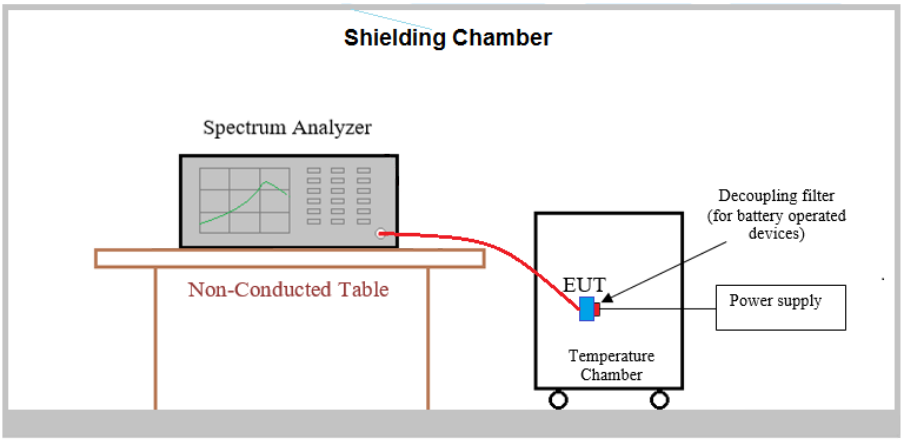

Date: 22.NOV.2019 17:48:38

## Maximum Power Spectral Density_TNVN_11A_5825_Ant2




Date: 22.NOV.2019 17:54:22

## 5.6 Frequency Stability

| | |
|---|---|
| Test Requirement: | FCC 47 CFR Part 15 Subpart E Section 15.407 (g) |
| Test Method: | ANSI C63.10-2013 |
| Test Setup: |  <br>*Remark:*<br>*Offset the High-Frequency cable loss in the spectrum analyzer.* |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| . Final Test Mode: | Through Pre-scan, find the 6Mbps of rate of 802.11a_ANT1 at lowest channel is the worst case.<br>Only the worst case is recorded in the report. |
| Limit: | The frequency of the carrier signal shall be maintained within band of operation. |
| Test Results: | Pass |

**Measurement Data**

| Frequency Stability Versus Temp. | | | |
|---|---|---|---|
| Operating Frequency: 5745 MHz | | | |
| Temp (℃) | Volta ge | Measured Frequency (MHz) | Frequency Drift (ppm) |
| 50 | VN | 5745.03 | 5.22193 |
| 40 | | 5745.00 | 0.00000 |
| 30 | | 5745.02 | 2.61097 |
| 20 | | 5745.00 | 0.00000 |
| 10 | | 5745.03 | 5.22193 |
| 0 | | 5745.00 | 0.00000 |
| -10 | | 5745.00 | 0.00000 |
| -20 | | 5744.99 | -2.61097 |

| Frequency Stability Versus Temp. | | | |
|---|---|---|---|
| Operating Frequency: 5825 MHz | | | |
| Temp. | Volta ge | Measured Frequency (MHz) | Frequency Drift (ppm) |
| TN | VL | 5744.99 | -2.61097 |
| | VN | 5745.02 | 2.61097 |
| | VH | 5745.02 | 2.61097 |

## 5.7 Radiated Spurious Emissions

| | |
|---|---|
| Test Requirement: | FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(1)(2)(3)(5)(6)(7)(8)<br>FCC 47 CFR Part 15 Subpart C Section 15.209/205 |
| Test Method: | KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6 |
| Test Site: | Measurement Distance: 3m (Semi-Anechoic Chamber) |

Receiver Setup:

| Frequency | Detector | RBW | VBW | Remark |
|---|---|---|---|---|
| 0.009MHz-0.090MHz | Peak | 10kHz | 30kHz | Peak |
| 0.009MHz-0.090MHz | Average | 10kHz | 30kHz | Average |
| 0.090MHz-0.110MHz | Quasi-peak | 10kHz | 30kHz | Quasi-peak |
| 0.110MHz-0.490MHz | Peak | 10kHz | 30kHz | Peak |
| 0.110MHz-0.490MHz | Average | 10kHz | 30kHz | Average |
| 0.490MHz -30MHz | Quasi-peak | 10kHz | 30kHz | Quasi-peak |
| 30MHz-1GHz | Quasi-peak | 100 kHz | 300kHz | Quasi-peak |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | Peak | 1MHz | 10Hz | Average |

Limit:

| Frequency | Field strength (microvolt/meter) | Limit (dBuV/m) | Remark | Measurement distance (m) |
|---|---|---|---|---|
| 0.009MHz-0.490MHz | 2400/F(kHz) | - | - | 300 |
| 0.490MHz-1.705MHz | 24000/F(kHz) | - | - | 30 |
| 1.705MHz-30MHz | 30 | - | - | 30 |
| 30MHz-88MHz | 100 | 40.0 | Quasi-peak | 3 |
| 88MHz-216MHz | 150 | 43.5 | Quasi-peak | 3 |
| 216MHz-960MHz | 200 | 46.0 | Quasi-peak | 3 |
| 960MHz-1GHz | 500 | 54.0 | Quasi-peak | 3 |
| Above 1GHz | 500 | 54.0 | Average | 3 |

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

| Test Setup: | |
|---|---|

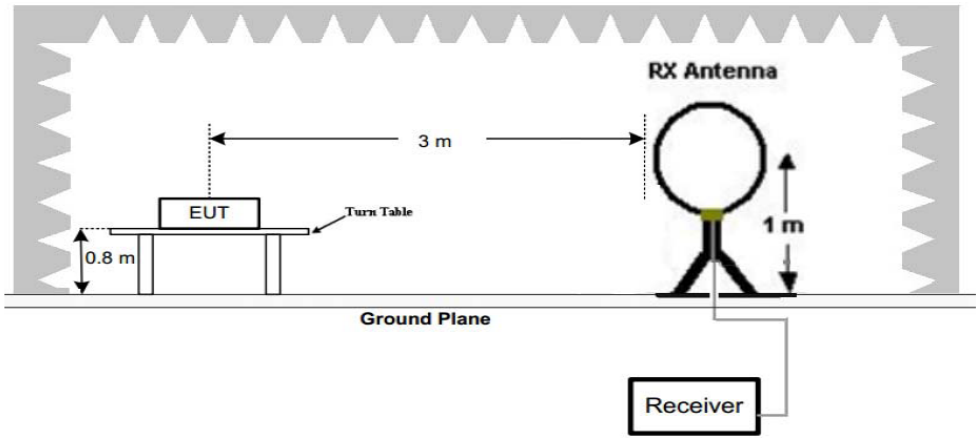



Figure 1. Below 30MHz

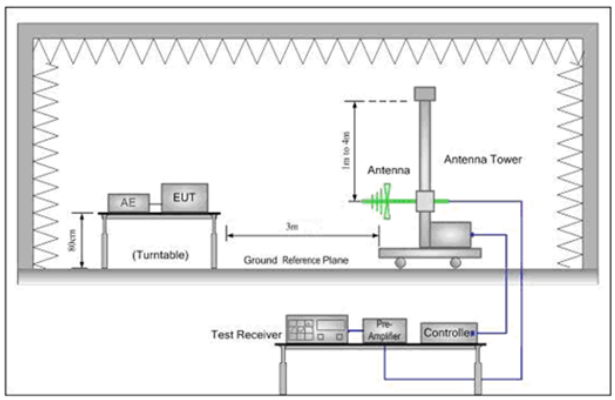



Figure 2. 30MHz to 1GHz

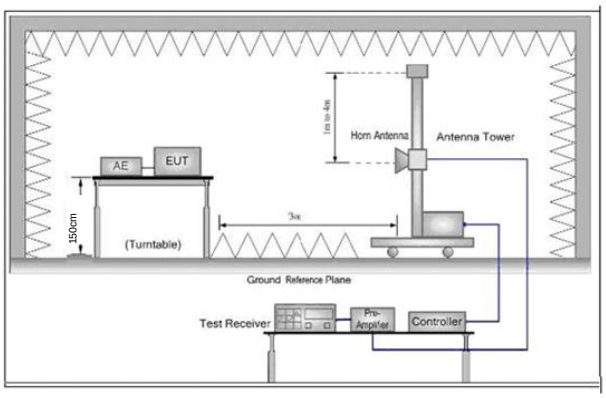


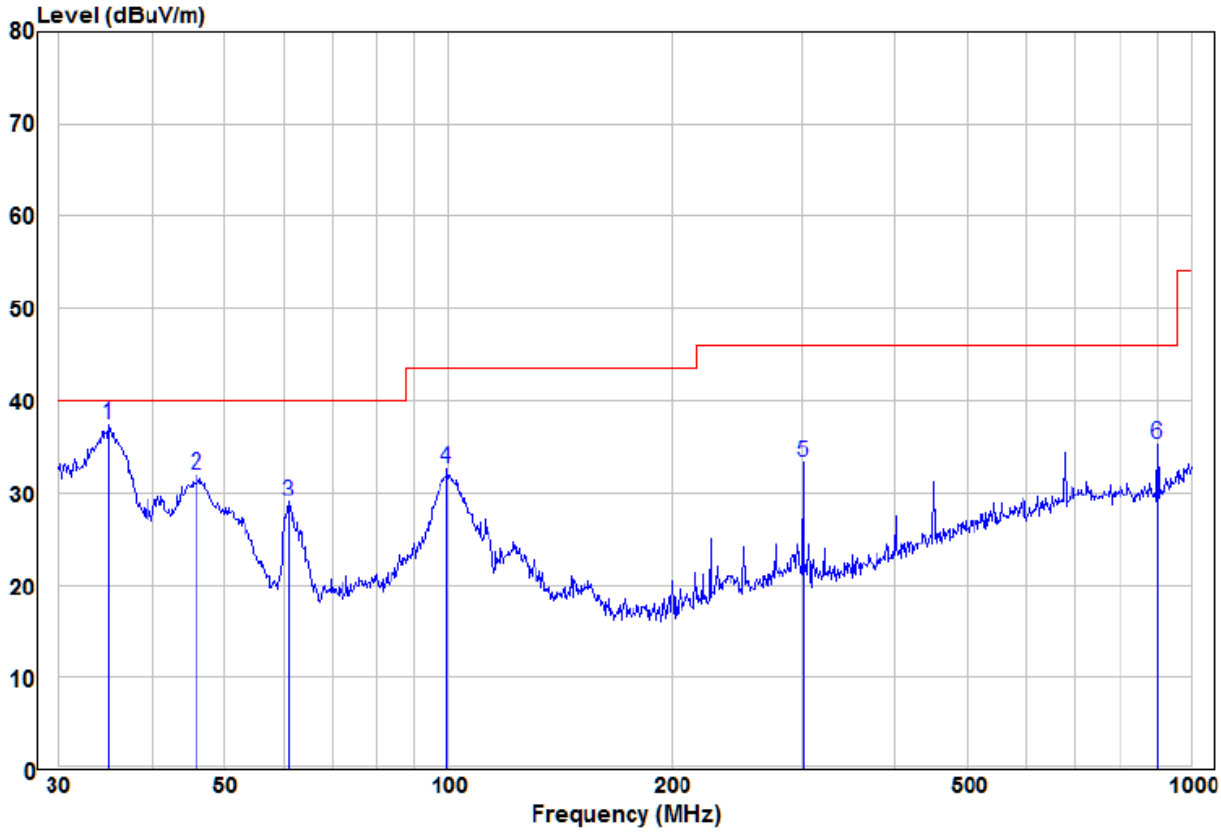

Figure 3. Above 1 GHz

| Test Procedure: | a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>Note: For the radiated emission test above 1GHz:<br>Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.<br>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.<br>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.<br>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.<br>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>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, quasi-peak or average method as specified and then reported in a data sheet.<br>g. Test the EUT in the lowest channel ,the middle channel ,the Highest channel<br>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.<br>i. Repeat above procedures until all frequencies measured was complete. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates.<br>Transmitting mode, Charge + Transmitting mode. |
| Final Test Mode: | Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case.<br>Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a.<br>For below 1GHz, through Pre-scan, find the 6Mbps of rate of 802.11a at 149 channel is the worst case.<br>Only the worst case is recorded in the report. |
| Test Results: | Pass |

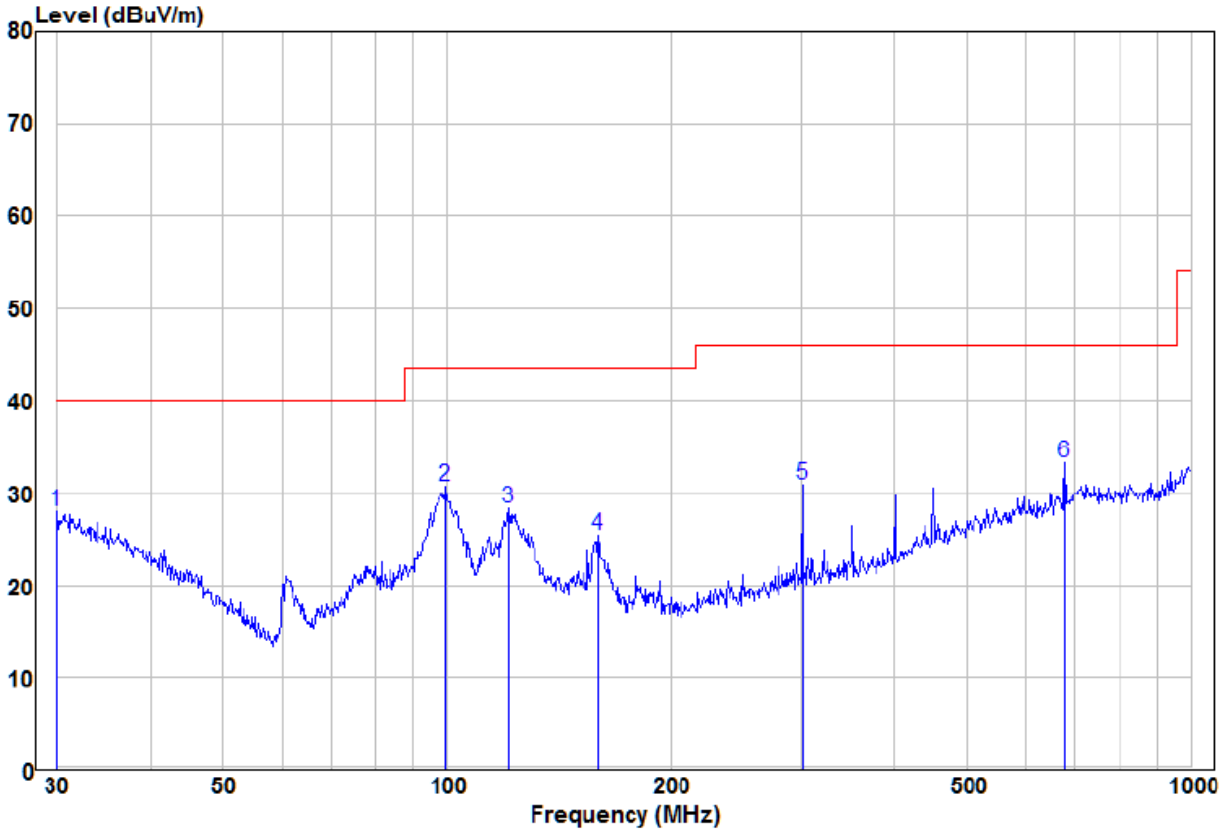
### 5.7.1 Radiated emission below 1GHz

| 30MHz~1GHz | | |
|---|---|---|
| Test mode: | Transmitting | Vertical |




| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | |
| 1 pp | 35.00 | 20.72 | 16.60 | 37.32 | 40.00 | -2.68 | Peak | VERTICAL |
| 2 | 46.02 | 20.52 | 11.36 | 31.88 | 40.00 | -8.12 | Peak | VERTICAL |
| 3 | 60.92 | 23.68 | 5.30 | 28.98 | 40.00 | -11.02 | Peak | VERTICAL |
| 4 | 99.88 | 21.93 | 10.64 | 32.57 | 43.50 | -10.93 | Peak | VERTICAL |
| 5 | 300.37 | 21.46 | 11.74 | 33.20 | 46.00 | -12.80 | Peak | VERTICAL |
| 6 | 900.15 | 15.05 | 20.34 | 35.39 | 46.00 | -10.61 | Peak | VERTICAL |

| Test mode: | Transmitting | Horizontal |
|---|---|---|




| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | |
| 1 pp | 30.00 | 9.49 | 18.41 | 27.90 | 40.00 | -12.10 | Peak | HORIZONTAL |
| 2 | 99.88 | 20.07 | 10.64 | 30.71 | 43.50 | -12.79 | Peak | HORIZONTAL |
| 3 | 121.12 | 17.60 | 10.66 | 28.26 | 43.50 | -15.24 | Peak | HORIZONTAL |
| 4 | 159.78 | 17.66 | 7.81 | 25.47 | 43.50 | -18.03 | Peak | HORIZONTAL |
| 5 | 300.37 | 19.06 | 11.74 | 30.80 | 46.00 | -15.20 | Peak | HORIZONTAL |
| 6 | 675.21 | 13.59 | 19.64 | 33.23 | 46.00 | -12.77 | Peak | HORIZONTAL |

### 5.7.2 Transmitter emission above 1GHz

| Test mode: | | 802.11a_ANT1(6Mbps) | | Test channel: | | 149 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. H/V |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | |
| 11490.000 | 47.43 | 2.42 | 49.85 | 74 | -24.15 | peak | H |
| 11490.000 | 38.93 | 2.42 | 41.35 | 54 | -12.65 | AVG | H |
| 17235.000 | 44.94 | 3.92 | 48.86 | 74 | -25.14 | peak | H |
| 17235.000 | 37.07 | 3.92 | 40.99 | 54 | -13.01 | AVG | H |
| 11490.000 | 46.95 | 2.42 | 49.37 | 74 | -24.63 | peak | V |
| 11490.000 | 39.13 | 2.42 | 41.55 | 54 | -12.45 | AVG | V |
| 17235.000 | 45.24 | 3.92 | 49.16 | 74 | -24.84 | peak | V |
| 17235.000 | 37.33 | 3.92 | 41.25 | 54 | -12.75 | AVG | V |

| Test mode: | | 802.11a_ANT1(6Mbps) | | Test channel: | | 157 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. H/V |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | |
| 11570.000 | 47.69 | 2.47 | 50.16 | 74 | -23.84 | peak | H |
| 11570.000 | 39.58 | 2.47 | 42.05 | 54 | -11.95 | AVG | H |
| 17355.000 | 46.39 | 3.96 | 50.35 | 74 | -23.65 | peak | H |
| 17355.000 | 38.52 | 3.96 | 42.48 | 54 | -11.52 | AVG | H |
| 11570.000 | 49.06 | 2.47 | 51.53 | 74 | -22.47 | peak | V |
| 11570.000 | 40.51 | 2.47 | 42.98 | 54 | -11.02 | AVG | V |
| 17355.000 | 46.53 | 3.96 | 50.49 | 74 | -23.51 | peak | V |
| 17355.000 | 38.41 | 3.96 | 42.37 | 54 | -11.63 | AVG | V |

| Test mode: | | 802.11a_ANT1(6Mbps) | | Test channel: | | 165 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | H/V |
| 11650.000 | 48.8 | 2.55 | 51.35 | 74 | -22.65 | peak | H |
| 11650.000 | 40.5 | 2.55 | 43.05 | 54 | -10.95 | AVG | H |
| 17475.000 | 47.25 | 4.01 | 51.26 | 74 | -22.74 | peak | H |
| 17475.000 | 39.74 | 4.01 | 43.75 | 54 | -10.25 | AVG | H |
| 11650.000 | 48.97 | 2.55 | 51.52 | 74 | -22.48 | peak | V |
| 11650.000 | 40.93 | 2.55 | 43.48 | 54 | -10.52 | AVG | V |
| 17475.000 | 47.36 | 4.01 | 51.37 | 74 | -22.63 | peak | V |
| 17475.000 | 39.14 | 4.01 | 43.15 | 54 | -10.85 | AVG | V |

Remark:

1) The 6Mbps of rate of 802.11a_ANT1 is the worst case.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

   Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

3) Scan from 9kHz to 40GHz,The disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

## 5.8 Restricted bands around fundamental frequency

<table>
<tr><td>Test Requirement:</td><td>FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(4)(6)<br>FCC 47 CFR Part 15 Subpart C Section 15.209/205</td></tr>
<tr><td>Test Method:</td><td>KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6</td></tr>
<tr><td>Test Site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td rowspan="2">789033 D02 General U-NII Test Procedures New Rules v02r01</td><td colspan="2">Field Strength at 3 m</td></tr>
<tr><td>PK: 74 (dBμV/m)</td><td>AV: 54 (dBμV/m)</td></tr>
<tr><td>Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3 m</td></tr>
<tr><td>FCC 47 CFR Part 15 Subpart E Section 6.2.1.2</td><td>PK: -27 (dBm/MHz)</td><td>PK: 74 (dBμV/m)</td></tr>
<tr><td>FCC 47 CFR Part 15 Subpart E Section 6.2.2.2</td><td>PK: -27 (dBm/MHz)</td><td>PK: 74 (dBμV/m)</td></tr>
<tr><td>FCC 47 CFR Part 15 Subpart E Section 6.2.3.2</td><td>PK: -27 (dBm/MHz)</td><td>PK: 68.2 (dBμV/m)</td></tr>
<tr><td rowspan="4">FCC 47 CFR Part 15 Subpart E Section 6.2.4.2</td><td>27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;</td><td rowspan="4">PK: 68.2 (dBμV/m)</td></tr>
<tr><td>15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;</td></tr>
<tr><td>10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges;</td></tr>
<tr><td>-27 dBm/MHz at</td></tr>
</table>
</td></tr>
</table>

| | | | |
|---|---|---|---|
| | | frequencies more than 75 MHz above or below the band edges. | |

Note:

(i) EIRP = ((E*d)^2) / 30

where:

• E is the field strength in V/m;

• d is the measurement distance in meters;

• EIRP is the equivalent isotropically radiated power in watts.

(ii) Working in dB units, the above equation is equivalent to:

EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77

(iii) Or, if d is 3 meters:

EIRP[dBm] = E[dBμV/m] - 95.2

Test Setup:

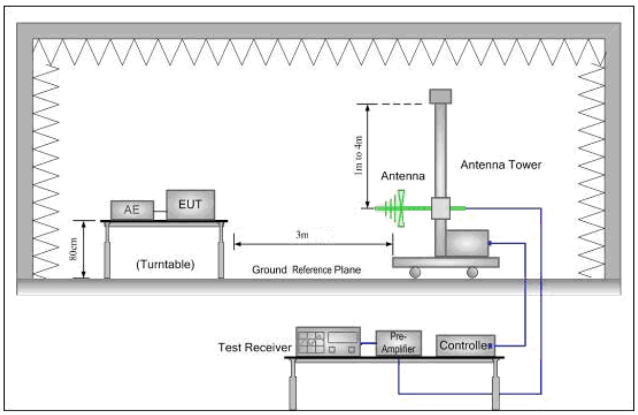



Figure 1. 30MHz to 1GHz

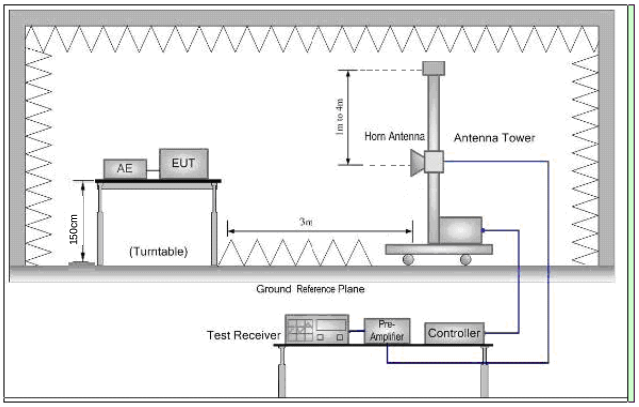



Figure 2. Above 1 GHz

Test Procedure:

a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
Note: For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

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

| | |
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| | then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel<br>g. Test the EUT in the lowest channel , the Highest channel<br>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.<br>i. Repeat above procedures until all frequencies measured was complete. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates.<br>Transmitting mode, Charge + Transmitting mode. |
| Final Test Mode: | Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case.<br>Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a.<br>Only the worst case is recorded in the report. |
| Test Results: | Pass |

**Test data:**

| Worse case mode: | | 802.11a_ANT1(6Mbps) | | Test channel: | | 149 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | H/V |
| 5650.00 | 56.38 | -3.46 | 52.92 | 68.2 | -15.28 | peak | H |
| 5745.25 | 97.96 | -3.44 | 94.52 | 122.2 | -27.68 | peak | H |
| 5650.00 | 58.43 | -3.46 | 54.97 | 68.2 | -13.23 | peak | V |
| 5745.81 | 93.45 | -3.44 | 90.01 | 122.2 | -32.19 | peak | V |

| Worse case mode: | | 802.11a_ANT1 (6Mbps) | | Test channel: | | 165 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | H/V |
| 5815.83 | 97.25 | -3.42 | 93.83 | 122.2 | -28.37 | peak | H |
| 5925.00 | 60.02 | -3.41 | 56.61 | 68.2 | -11.59 | peak | H |
| 5816.45 | 92.18 | -3.42 | 88.76 | 122.2 | -33.44 | peak | V |
| 5925.00 | 47.65 | -3.41 | 44.24 | 68.2 | -23.96 | peak | V |

| Worse case mode: | | 802.11a_ANT2(6Mbps) | | Test channel: | | 149 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | H/V |
| 5650.00 | 60.08 | -3.46 | 56.62 | 68.2 | -11.58 | peak | H |
| 5743.33 | 96.39 | -3.44 | 92.95 | 122.2 | -29.25 | peak | H |
| 5650.00 | 59.78 | -3.46 | 56.32 | 68.2 | -11.88 | peak | V |
| 5746.14 | 91.88 | -3.44 | 88.44 | 122.2 | -33.76 | peak | V |

| Worse case mode: | | 802.11a_ANT2 (6Mbps) | | Test channel: | | 165 | |
|---|---|---|---|---|---|---|---|
| Frequency | Meter Reading | Factor | Emission Level | Limits | Over | Detector Type | Ant. Pol. |
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | H/V |
| 5814.74 | 99.52 | -3.42 | 96.1 | 122.2 | -26.1 | peak | H |
| 5925.00 | 60.41 | -3.41 | 57 | 68.2 | -11.2 | peak | H |
| 5817.95 | 90.53 | -3.42 | 87.11 | 122.2 | -35.09 | peak | V |
| 5925.00 | 47.04 | -3.41 | 43.63 | 68.2 | -24.57 | peak | V |

*Note:*
*The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*
*Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor*

## 5.9 Operation in the absence of information to the transmit

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| **15.407(c) requirement:**<br>The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signal ling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met. |
| **Operation in the absence of information to the transmit** |
| While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission. (manufacturer declare ) |

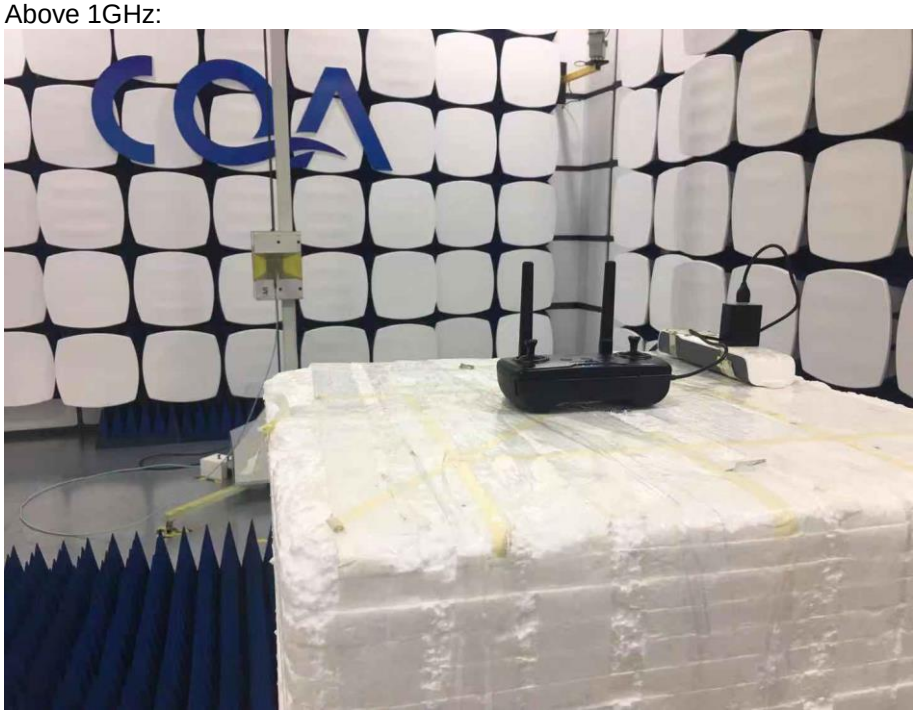
# 6 Photographs - EUT Test Setup

## 6.1 Radiated Spurious Emission

9KHz~30MHz:

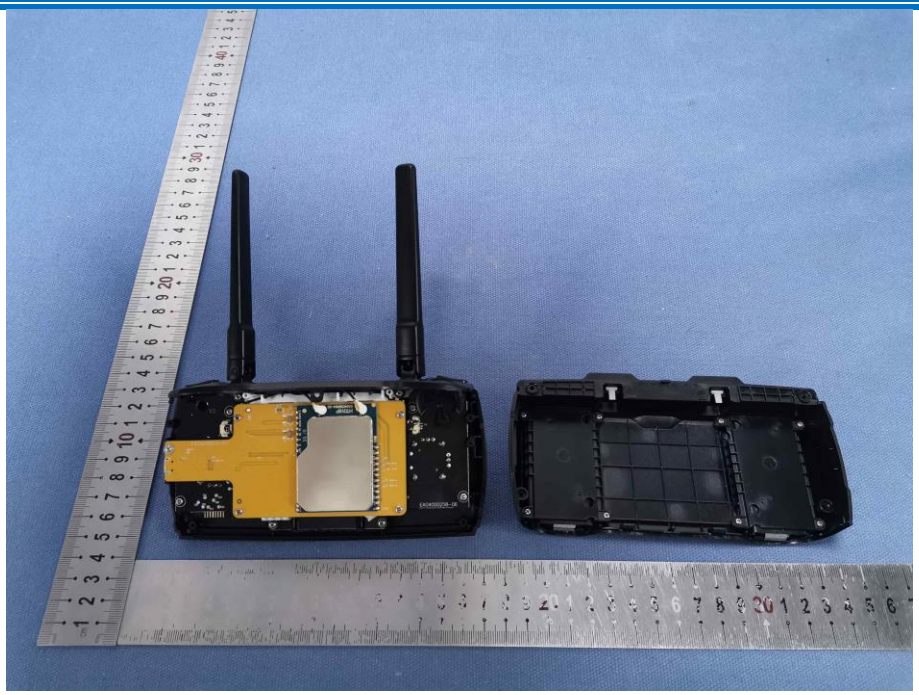
30MHz~1GHz:

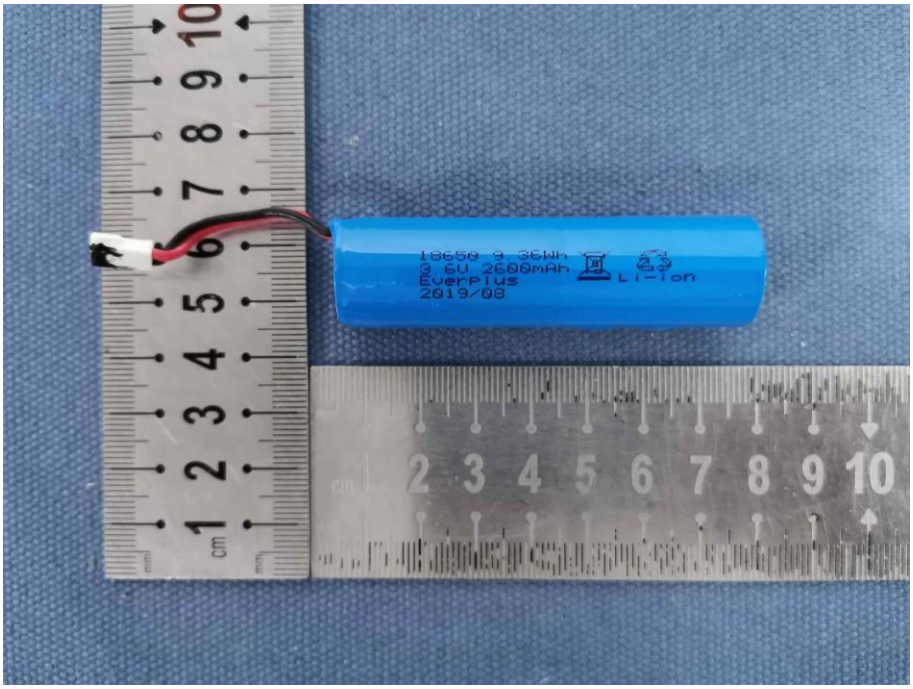
Above 1GHz:

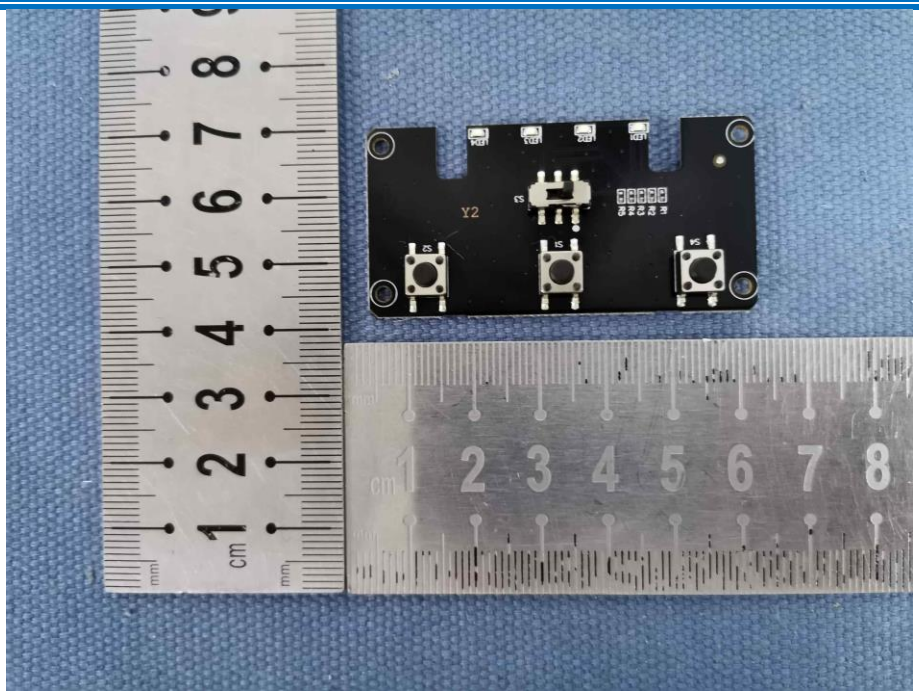


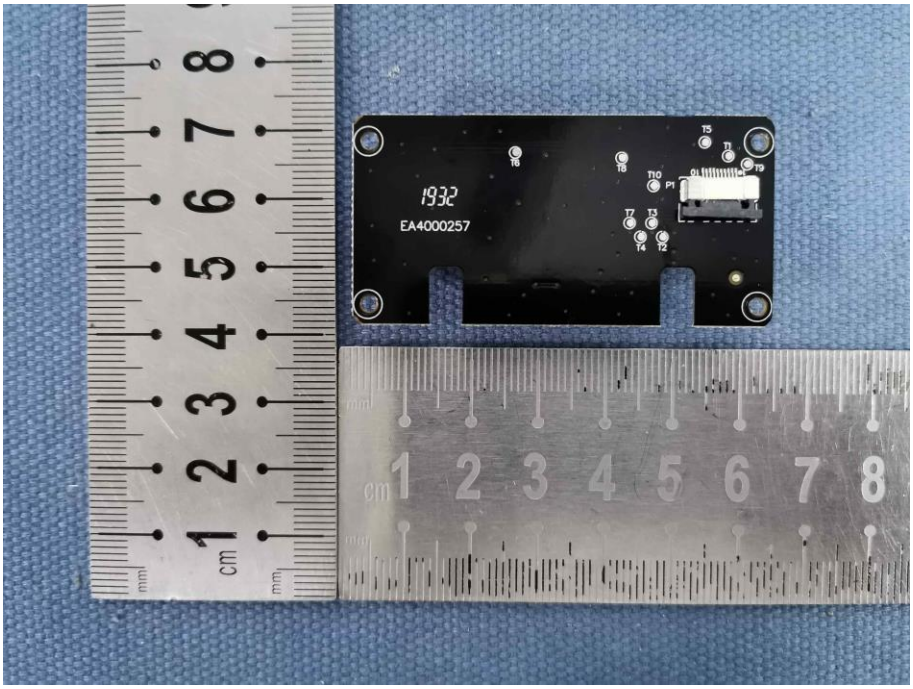
## 6.2 Conducted Emission

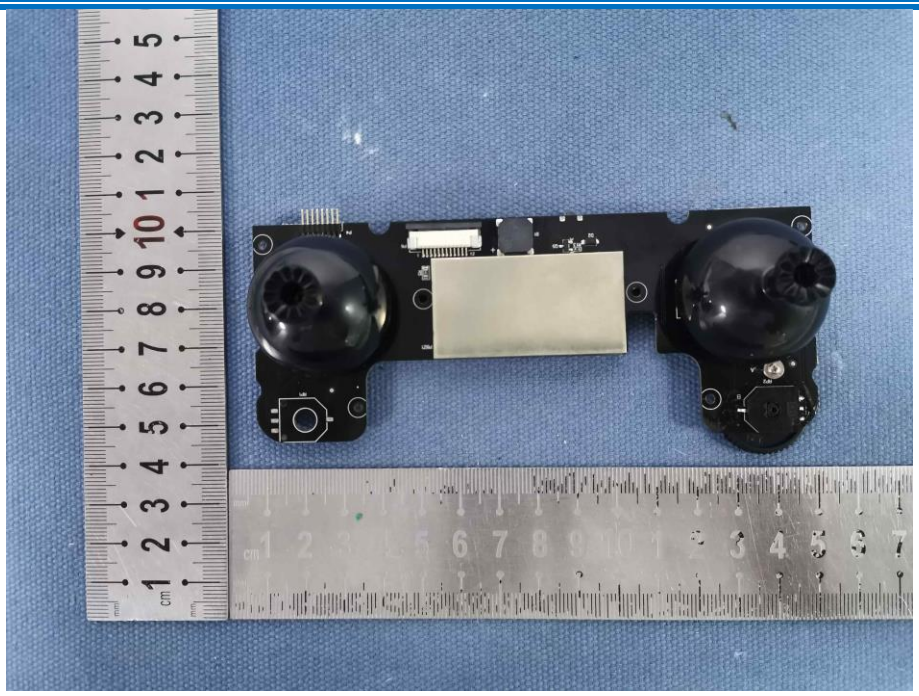
# 7 Photographs - EUT Constructional Details

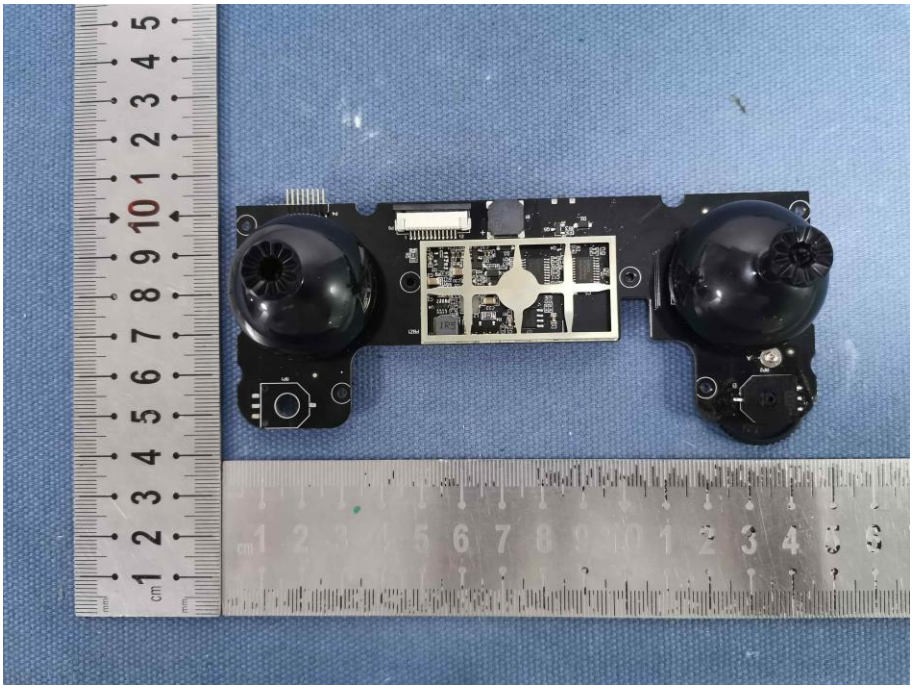


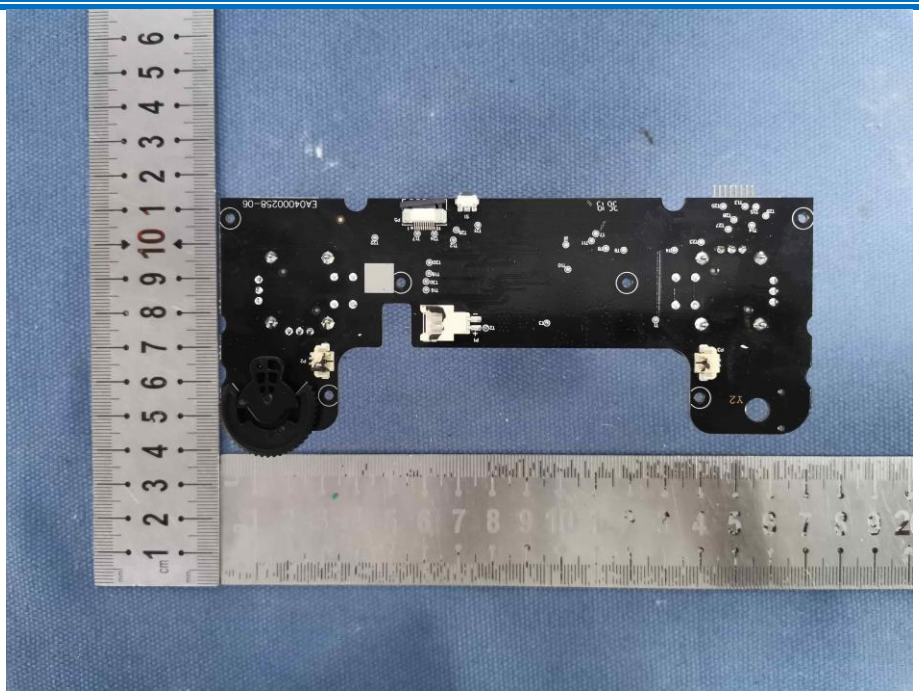

Li-ion
2019/08

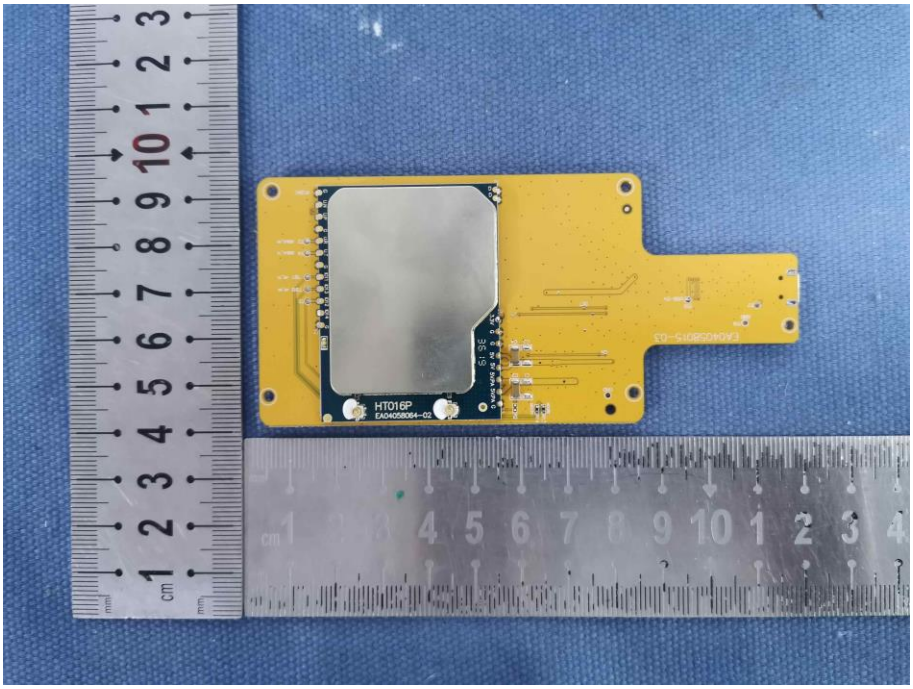

Y2


1932
EA4000257





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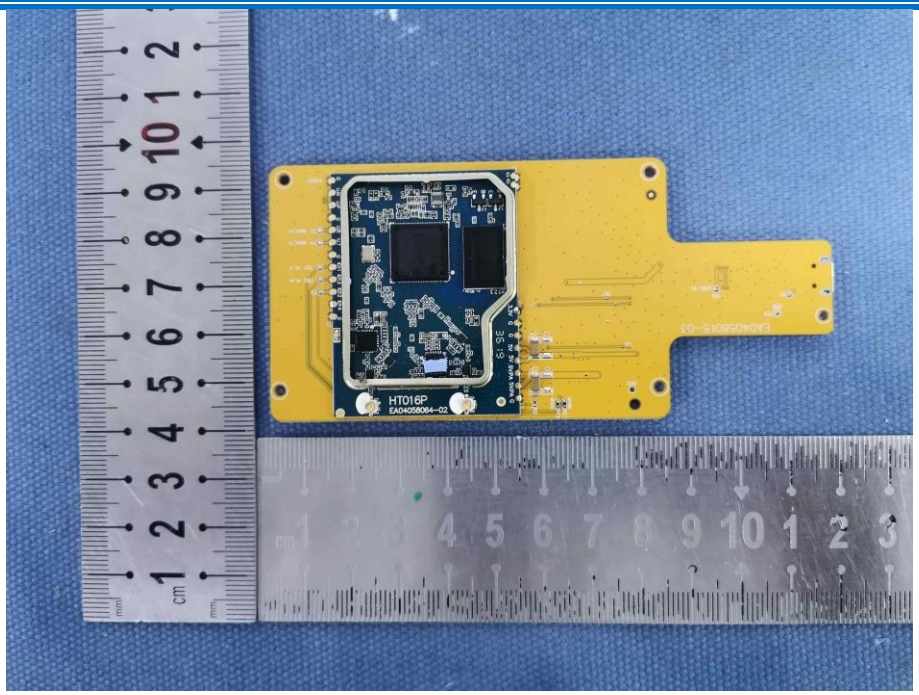
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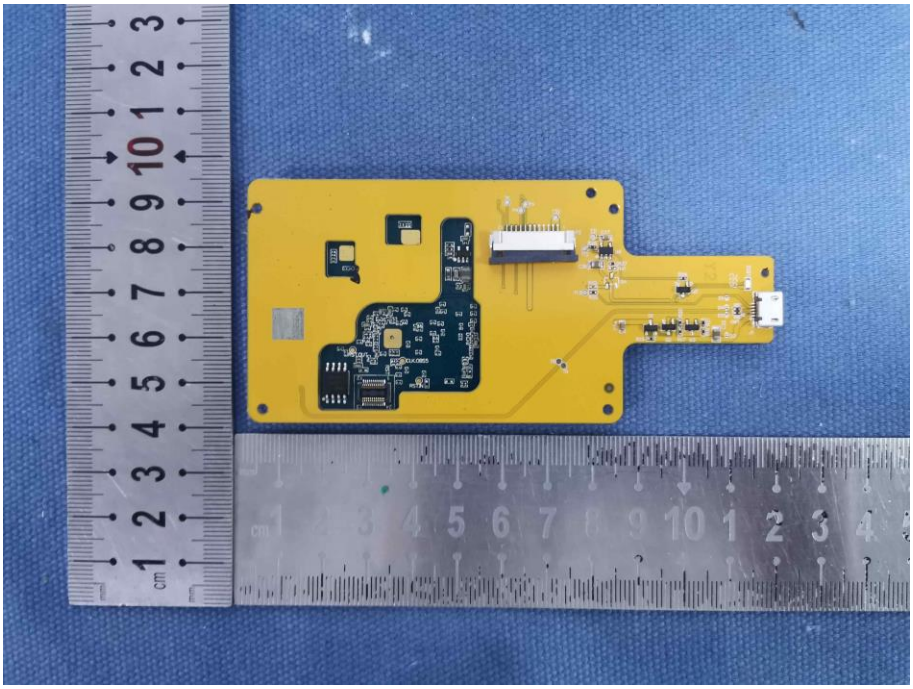

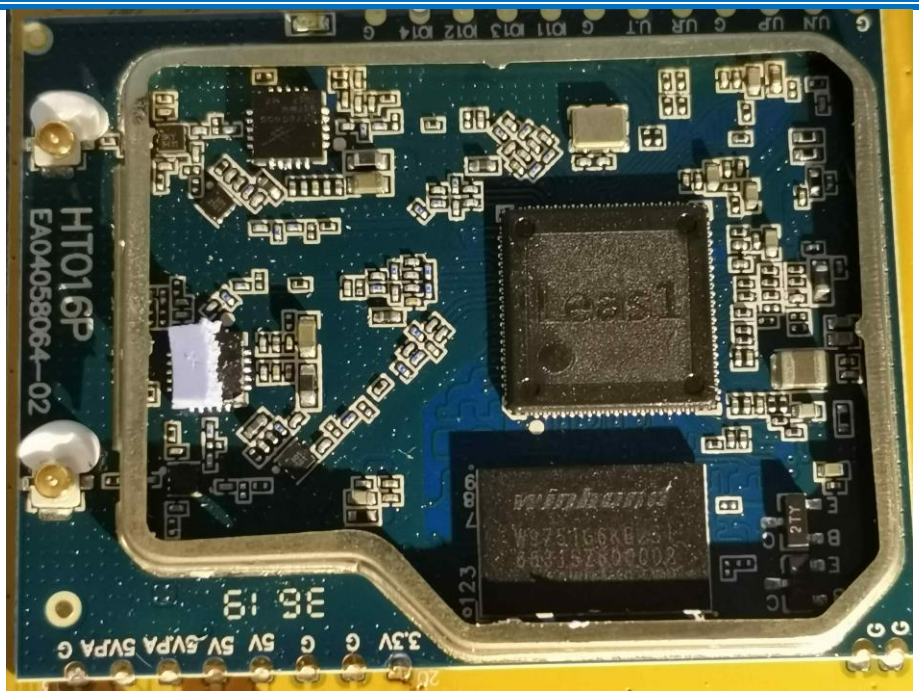


The End