# TEST REPORT

| | | |
|---|---|---|
| **Product** | : | reMarkable 2 |
| **Trade mark** | : | reMarkable |
| **Model/Type reference** | : | RM110, RM111, RM112, RM113 |
| **Serial Number** | : | 2c7ce3579f1 |
| **Report Number** | : | EED32N80457602 |
| **FCC ID** | : | 2AMK2-RM110B |
| **Date of Issue** | : | Aug. 24, 2021 |
| **Test Standards** | : | 47 CFR Part 15 Subpart E |
| **Test result** | : | PASS |

Prepared for:

**reMarkable AS**
**Biermanns gate 6, 0473 Oslo, Norway**

Prepared by:

**Centre Testing International Group Co., Ltd.**
**Hongwei Industrial Zone, Bao'an 70 District,**
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| | | | |
|---|---|---|---|
| Compiled by: | Tom Chen | Reviewed by: | Aaron Ma |
| Approved by: | David Wang | Date: | Aug. 24 2021 |

Check No.:1021080621

# 2 Content

# 3 Version

| Version No. | Date | Description |
|---|---|---|
| 00 | Aug. 24, 2021 | Original |
| | | |
| | | |

# 4 Test Summary

| Test Item | Test Requirement | Result |
|---|---|---|
| **Antenna Requirement** | 47 CFR Part 15 Subpart C Section 15.203 | PASS |
| **AC Power Line Conducted Emission** | 47 CFR Part 15 Subpart E Section 15.407 (b)(6) | PASS |
| **Duty Cycle** | 47 CFR Part 15 Subpart E Section 15.407 | PASS |
| **Maximum Conducted Output Power** | 47 CFR Part 15 Subpart E Section 15.407 (a) | PASS |
| **26dB emission bandwidth** | 47 CFR Part 15 Subpart E Section 15.407 (a) | PASS |
| **99% Occupied bandwidth** | \ | PASS |
| **6dB emission bandwidth** | 47 CFR Part 15 Subpart E Section 15.407 (e) | PASS |
| **Maximum Power Spectral Density** | 47 CFR Part 15 Subpart E Section 15.407 (a) | PASS |
| **Frequency stability** | 47 CFR Part 15 Subpart E Section 15.407 (g) | PASS |
| **Radiated Emissions** | 47 CFR Part 15 Subpart E Section 15.407 (b) | PASS |
| **Radiated Emissions which fall in the restricted bands** | 47 CFR Part 15 Subpart E Section 15.407 (b) | PASS |

Remark:
Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
Model No.: RM110, RM111, RM112, RM113
Only the model RM110 was tested, The added models and original model:The Electrical circuit design, Layout, components and internal wiring are identical. Only the model name and packaging contents are different.

# 5 General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | reMarkable AS |
| Address of Applicant: | Biermanns gate 6, 0473 Oslo, Norway |
| Manufacturer: | reMarkable AS |
| Address of Manufacturer: | Biermanns gate 6, 0473 Oslo, Norway |
| Factory: | Dongguan Kaifa Technology Co., Ltd. |
| Address of Factory: | No.2 Junma Road, Chigang Community, Humen Town, Dongguan City, Guangdong Province, 523921. P. R. China |

## 5.2 General Description of EUT

| | | |
|---|---|---|
| Product Name: | reMarkable 2 | |
| Model No.(EUT): | RM110, RM111, RM112, RM113 | |
| Test Model No: | RM110 | |
| Trade mark: | reMarkable | |
| Product Type: | ☐ Mobile ☒ Portable ☐ Fix Location | |
| Type of Modulation: | IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>IEEE 802.11n(HT20): OFDM (BPSK, QPSK, 16QAM, 64QAM) | |
| Operating Frequency | U-NII-1: 5180-5240MHz<br>U-NII-3: 5745-5825MHz | |
| Operating Temperature:` | -0℃ to +35℃ | |
| Antenna Type: | PCB Antenna | |
| Antenna Gain: | 6.35dBi | |
| Power Supply: | USB Port | DC 5V |
| | Battery: | Model: Fusion<br>DC 3.85V 3000mAh 11.55Wh |
| Test voltage: | Battery 3.85V | |
| Sample Received Date: | Jun. 11, 2021 | |
| Sample tested Date: | Jun. 11, 2021 to Aug. 12, 2021 | |

Operation Frequency each of channel

802.11a/802.11n Frequency/Channel Operations:

| U-NII-1 | | U-NII-3 | |
|---|---|---|---|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 36 | 5180 | 149 | 5745 |
| 40 | 5200 | 153 | 5765 |
| 44 | 5220 | 157 | 5785 |
| 48 | 5240 | 161 | 5805 |
| - | - | 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:

## 5.3 Test Configuration

| **EUT Test Software Settings:** | |
|---|---|
| Software: | PUTTY |
| EUT Power Grade: | Default |
| Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT. | |
| **Test Mode:** | |
| We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows: | |
| **Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.** | |

| Mode | Data rate |
|---|---|
| 802.11a | 6 Mbps |
| 802.11n(HT20) | MCS0 |

## 5.4 Test Environment

| **Operating Environment:** | | |
|---|---|---|
| **Radiated Spurious Emissions:** | | |
| Temperature: | 22~25.0 °C | |
| Humidity: | 50~56 % RH | |
| Atmospheric Pressure: | 1010mbar | |
| **Conducted Emissions:** | | |
| Temperature: | 22~26.0 °C | |
| Humidity: | 50~56 % RH | |
| Atmospheric Pressure: | 1010mbar | |
| **RF Conducted:** | | |
| Humidity: | 50~55 % RH | |
| Atmospheric Pressure: | 1010mbar | |
| Temperature: | NT (Normal Temperature) | 22~25.0 °C |
| | LT (Low Temperature) | 0 °C |
| | HT (High Temperature) | 35.0 °C |
| Working Voltage of the EUT: | NV (Normal Voltage) | 3.85V |
| | LV (Low Voltage) | 3.55V |
| | HV (High Voltage) | 4.4 V |

## 5.5 Description of Support Units

The EUT has been tested with associated equipment below.

1）support equipment

| Description | Manufacturer | Model No. | Certification | Supplied by |
|---|---|---|---|---|
| QUICK CHARGE | Shenzhen GOOD-SHE Technology Co., Ltd. | GS-551B | FCC | Client |

2) cable

| Cable No. | Description | Manufacturer | Cable Type/Length | Supplied by |
|---|---|---|---|---|
| 1 | USB Cable | Dongguan Kaifa Technology Co., Ltd. | Shielded (100cm) | Client |

## 5.6 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

## 5.7 Deviation from Standards

None.

## 5.8 Abnormalities from Standard Conditions

None.

## 5.9 Other Information Requested by the Customer

None.

## 5.10 Measurement Uncertainty (95% confidence levels, k=2)

| No. | Item | Measurement Uncertainty |
|---|---|---|
| 1 | Radio Frequency | $7.9 \times 10^{-8}$ |
| 2 | RF power, conducted | 0.46dB (30MHz-1GHz) |
| | | 0.55dB (1GHz-18GHz) |
| 3 | Radiated Spurious emission test | 3.3dB (9kHz-30MHz) |
| | | 4.5dB (30MHz-1GHz) |
| | | 4.8dB (1GHz-18GHz) |
| | | 3.4dB (18GHz-40GHz) |
| 4 | Conduction emission | 3.5dB (9kHz to 150kHz) |
| | | 3.1dB (150kHz to 30MHz) |
| 5 | Temperature test | 0.64°C |
| 6 | Humidity test | 3.8% |
| 7 | DC power voltages | 0.026% |

# 6 Equipment List

| Conducted disturbance Test | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial Number** | **Cal. date (mm-dd-yyyy)** | **Cal. Due date (mm-dd-yyyy)** |
| Receiver | R&S | ESCI | 100435 | 04-27-2021 | 04-26-2022 |
| Temperature/ Humidity Indicator | Defu | TH128 | / | --- | --- |
| LISN | R&S | ENV216 | 100098 | 03-04-2021 | 03-03-2022 |
| Barometer | changchun | DYM3 | 1188 | --- | --- |

| RF test system | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Mode No.** | **Serial Number** | **Cal. Date (mm-dd-yyyy)** | **Cal. Due date (mm-dd-yyyy)** |
| Spectrum Analyzer | Keysight | N9010A | MY54510339 | 12-28-2020 | 12-27-2021 |
| Signal Generator | Keysight | N5182B | MY53051549 | 12-28-2020 | 12-27-2021 |
| Signal Generator | Keysight | E8257D | MY53401106 | 12-28-2020 | 12-27-2021 |
| Temperature/ Humidity Indicator | biaozhi | HM10 | 1804186 | 06-29-2020<br>06-28-2021 | 06-28-2021<br>06-27-2022 |
| High-pass filter | Sinoscite | FL3CX03WG18<br>NM12-0398-002 | --- | --- | --- |
| High-pass filter | MICRO-TRONICS | SPA-F-63029-4 | --- | --- | --- |
| DC Power | Keysight | E3642A | MY56376072 | 12-28-2020 | 12-27-2021 |
| Power unit | R&S | OSP120 | 101374 | 12-28-2020 | 12-27-2021 |
| RF control unit | JS Tonscend | JS0806-2 | 158060006 | 12-28-2020 | 12-27-2021 |
| BT&WI-FI Automatic test software | JS Tonscend | JS1120-3 | --- | --- | --- |

| 3M Semi/full-anechoic Chamber | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial Number** | **Cal. date (mm-dd-yyyy)** | **Cal. Due date (mm-dd-yyyy)** |
| 3M Chamber & Accessory Equipment | TDK | SAC-3 | --- | 05-24-2019 | 05-23-2022 |
| TRILOG Broadband Antenna | Schwarzbeck | VULB9163 | 9163-618 | 05-16-2021 | 05-15-2022 |
| Loop Antenna | Schwarzbeck | FMZB 1519B | 1519B-076 | 04-15-2021 | 04-14-2024 |
| Receiver | R&S | ESCI7 | 100938-003 | 10-16-2020 | 10-15-2021 |
| Multi device Controller | maturo | NCD/070/10711112 | --- | --- | --- |
| Temperature/ Humidity Indicator | Shanghai qixiang | HM10 | 1804298 | 06-29-2020<br>06-23-2021 | 06-28-2021<br>06-22-2022 |
| Communication test set | Agilent | E5515C | GB47050534 | 03-01-2019 | 02-28-2022 |
| Cable line | Fulai(7M) | SF106 | 5219/6A | --- | --- |
| Cable line | Fulai(6M) | SF106 | 5220/6A | --- | --- |
| Cable line | Fulai(3M) | SF106 | 5216/6A | --- | --- |
| Cable line | Fulai(3M) | SF106 | 5217/6A | --- | --- |
| band rejection filter | Sinoscite | FL5CX01CA08<br>CL12-0393-001 | --- | --- | --- |

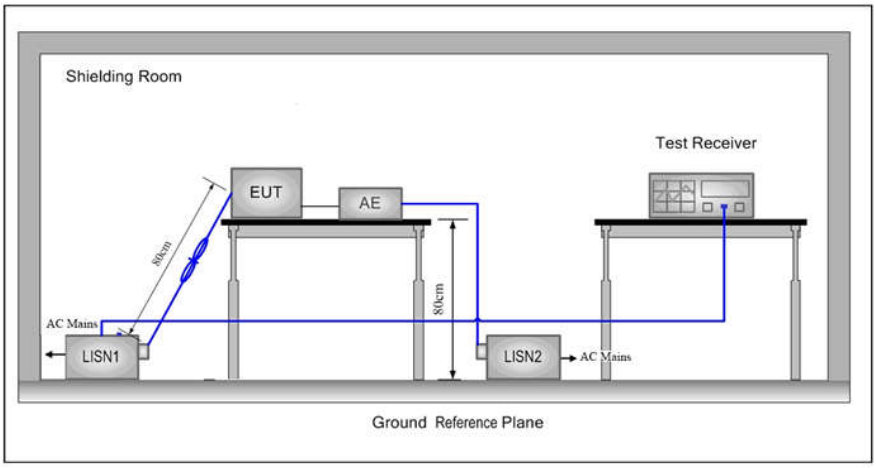
| 3M full-anechoic Chamber | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial Number** | **Cal. date (mm-dd-yyyy)** | **Cal. Due date (mm-dd-yyyy)** |
| RSE Automatic test software | JS Tonscend | JS36-RSE | 10166 | --- | --- |
| Receiver | Keysight | N9038A | MY57290136 | 03-04-2021 | 03-03-2022 |
| Spectrum Analyzer | Keysight | N9020B | MY57111112 | 03-04-2021 | 03-03-2022 |
| Spectrum Analyzer | Keysight | N9030B | MY57140871 | 03-04-2021 | 03-03-2022 |
| TRILOG Broadband Antenna | Schwarzbeck | VULB 9163 | 9163-1148 | 04-28-2021 | 04-27-2024 |
| Horn Antenna | Schwarzbeck | BBHA 9170 | 9170-832 | 04-15-2021 | 04-14-2024 |
| Communication Antenna | Schwarzbeck | CLSA 0110L | 1014 | --- | --- |
| Horn Antenna | ETS-LINDGREN | 3117 | 57407 | 07-10-2018<br>07-04-2021 | 07-09-2021<br>07-03-2024 |
| Preamplifier | EMCI | EMC184055SE | 980597 | 05-20-2021 | 05-19-2022 |
| Communication test set | R&S | CMW500 | 102898 | 12-31-2020 | 12-30-2021 |
| Preamplifier | EMCI | EMC001330 | 980563 | 04-15-2021 | 04-14-2022 |
| Preamplifier | JS Tonscend | 980380 | EMC051845 SE | 12-31-2020 | 12-30-2021 |
| Temperature/ Humidity Indicator | biaozhi | GM1360 | EE1186631 | 04-16-2021 | 04-15-2022 |
| Fully Anechoic Chamber | TDK | FAC-3 | --- | 01-09-2021 | 01-08-2024 |
| Cable line | Times | SFT205-NMSM-2.50M | 394812-0001 | --- | --- |
| Cable line | Times | SFT205-NMSM-2.50M | 394812-0002 | --- | --- |
| Cable line | Times | SFT205-NMSM-2.50M | 394812-0003 | --- | --- |
| Cable line | Times | SFT205-NMSM-2.50M | 393495-0001 | --- | --- |
| Cable line | Times | EMC104-NMNM-1000 | SN160710 | --- | --- |
| Cable line | Times | SFT205-NMSM-3.00M | 394813-0001 | --- | --- |
| Cable line | Times | SFT205-NMNM-1.50M | 381964-0001 | --- | --- |
| Cable line | Times | SFT205-NMSM-7.00M | 394815-0001 | --- | --- |
| Cable line | Times | HF160-KMKM-3.00M | 393493-0001 | --- | --- |

# 7 Radio Technical Requirements Specification

## 7.1 Antenna Requirement

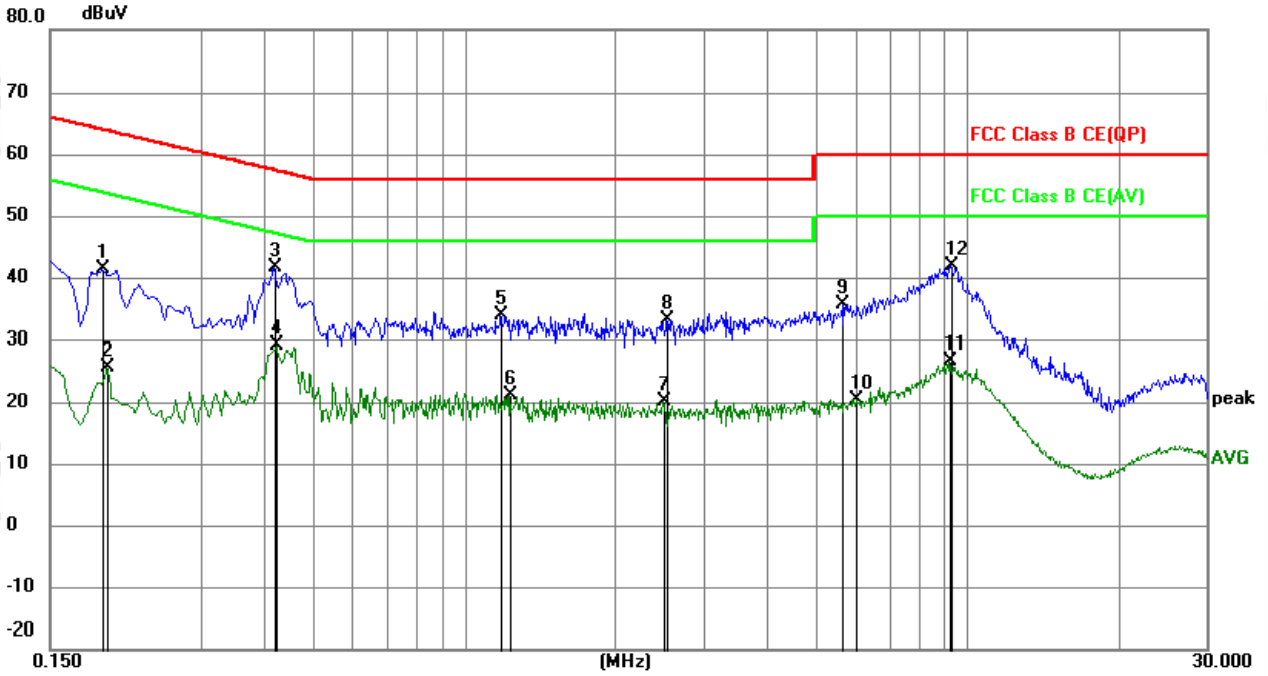
| | |
|---|---|
| **Standard requirement:** | 47 CFR Part 15C Section 15.203 |
| 15.203 requirement:<br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of 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. | |
| **EUT Antenna:** | Please see Internal photos |
| The antenna is PCB antenna. The best case gain of the antenna is 6.35dBi. | |

## 7.2 AC Power Line Conducted Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.207 |
| Test Method: | ANSI C63.10: 2013 |
| Test Frequency Range: | 150kHz to 30MHz |
| Receiver setup: | RBW=9 kHz, VBW=30 kHz, Sweep time=auto |
| Limit: | Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>5-30: 60 / 50<br>* Decreases with the logarithm of the frequency. |
| Test Setup: |  |
| Test Procedure: | 1) The mains terminal disturbance voltage test was conducted in a shielded room.<br>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.<br>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.<br>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.<br>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 Mode: | All modes were tested, only the worst case lowest channel of 6Mbps for 802.11a was recorded in the report. |
| Test Results: | Pass |

**Measurement Data**

Live line:

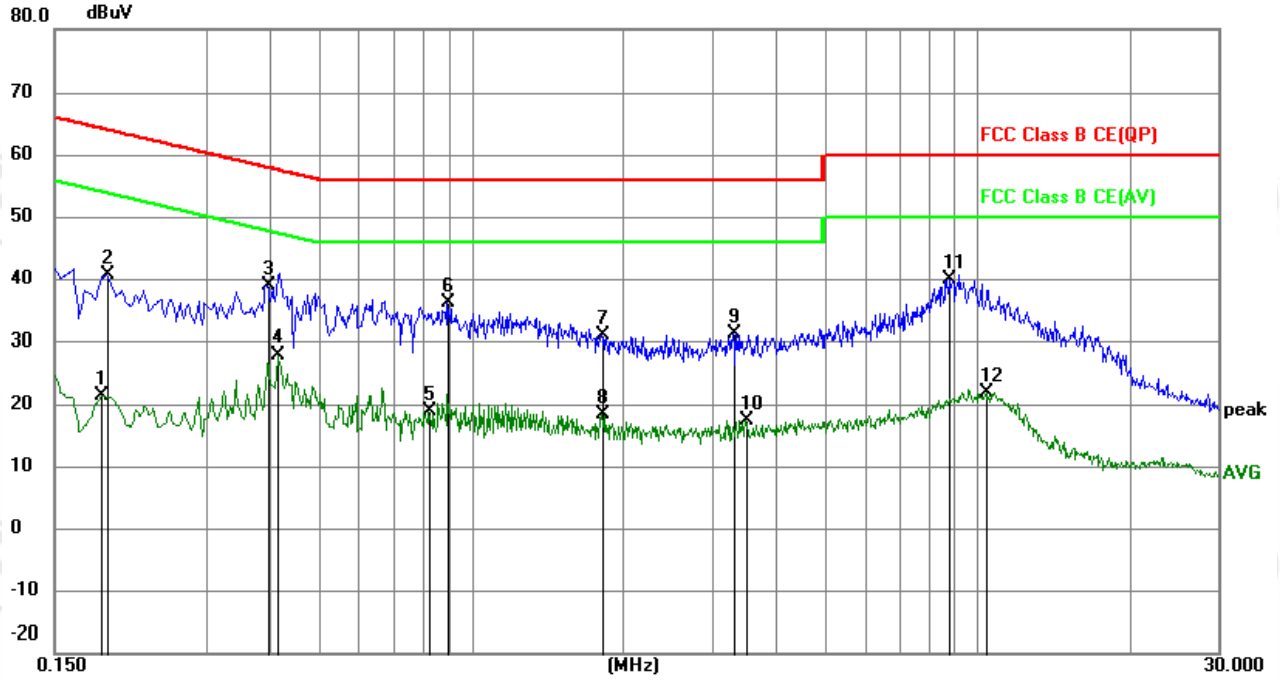



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1905 | 31.39 | 9.87 | 41.26 | 64.01 | -22.75 | peak | |
| 2 | | 0.1949 | 15.70 | 9.87 | 25.57 | 53.83 | -28.26 | AVG | |
| 3 | * | 0.4200 | 31.71 | 9.97 | 41.68 | 57.45 | -15.77 | peak | |
| 4 | | 0.4245 | 19.28 | 9.97 | 29.25 | 47.36 | -18.11 | AVG | |
| 5 | | 1.1805 | 24.13 | 9.82 | 33.95 | 56.00 | -22.05 | peak | |
| 6 | | 1.2345 | 11.38 | 9.82 | 21.20 | 46.00 | -24.80 | AVG | |
| 7 | | 2.4945 | 10.29 | 9.79 | 20.08 | 46.00 | -25.92 | AVG | |
| 8 | | 2.5350 | 23.45 | 9.79 | 33.24 | 56.00 | -22.76 | peak | |
| 9 | | 5.6400 | 25.92 | 9.78 | 35.70 | 60.00 | -24.30 | peak | |
| 10 | | 6.0090 | 10.69 | 9.78 | 20.47 | 50.00 | -29.53 | AVG | |
| 11 | | 9.2084 | 16.84 | 9.78 | 26.62 | 50.00 | -23.38 | AVG | |
| 12 | | 9.2805 | 32.18 | 9.78 | 41.96 | 60.00 | -18.04 | peak | |

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:

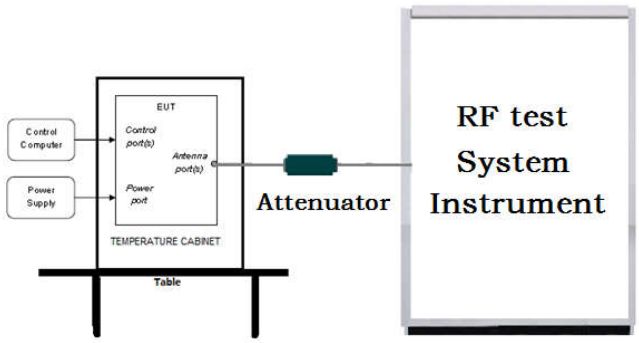



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1860 | 11.62 | 9.87 | 21.49 | 54.21 | -32.72 | AVG | |
| 2 | | 0.1905 | 30.82 | 9.87 | 40.69 | 64.01 | -23.32 | peak | |
| 3 | * | 0.3975 | 28.93 | 9.97 | 38.90 | 57.91 | -19.01 | peak | |
| 4 | | 0.4155 | 18.02 | 9.97 | 27.99 | 47.54 | -19.55 | AVG | |
| 5 | | 0.8250 | 9.03 | 9.85 | 18.88 | 46.00 | -27.12 | AVG | |
| 6 | | 0.8970 | 26.22 | 9.85 | 36.07 | 56.00 | -19.93 | peak | |
| 7 | | 1.8105 | 21.12 | 9.80 | 30.92 | 56.00 | -25.08 | peak | |
| 8 | | 1.8105 | 8.58 | 9.80 | 18.38 | 46.00 | -27.62 | AVG | |
| 9 | | 3.3090 | 21.34 | 9.79 | 31.13 | 56.00 | -24.87 | peak | |
| 10 | | 3.4935 | 7.50 | 9.78 | 17.28 | 46.00 | -28.72 | AVG | |
| 11 | | 8.7765 | 30.05 | 9.78 | 39.83 | 60.00 | -20.17 | peak | |
| 12 | | 10.4415 | 12.20 | 9.79 | 21.99 | 50.00 | -28.01 | AVG | |

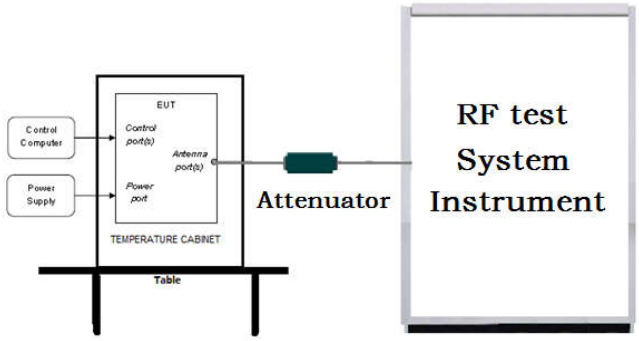
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

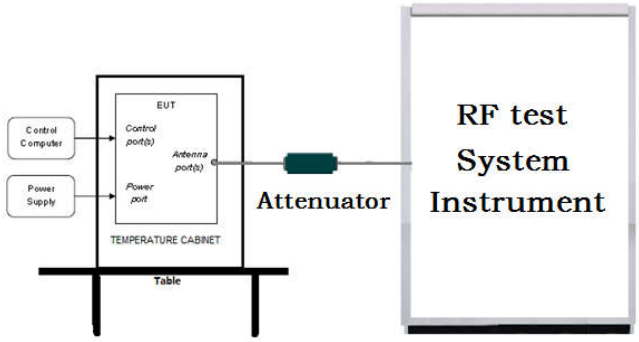
## 7.3 Maximum Conducted Output Power

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15C Section 15.407 (a)</td></tr>
<tr><td>Test Method:</td><td>KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E</td></tr>
<tr><td>Test Setup:</td><td> 
</td></tr>
<tr><td>Test Procedure:</td><td>1. The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 3, a<br>2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.<br>3. Set to the maximum power setting and enable the EUT transmit continuously.<br>4. Measure the conducted output power and record the results in the test report.</td></tr>
<tr><td>Limit:</td><td><table>
<tr><td>Frequency band (MHz)</td><td>Limit</td></tr>
<tr><td rowspan="2">5150-5250</td><td>≤1W(30dBm) for master device</td></tr>
<tr><td>≤250mW(24dBm) for client device</td></tr>
<tr><td>5250-5350</td><td>≤250mW(24dBm) for client device or 11dBm+10logB*</td></tr>
<tr><td>5470-5725</td><td>≤250mW(24dBm) for client device or 11dBm+10logB*</td></tr>
<tr><td>5725-5850</td><td>≤1W(30dBm)</td></tr>
<tr><td>Remark:</td><td>* Where B is the 26dB emission bandwidth in MHz<br>The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.</td></tr>
</table></td></tr>
<tr><td>Test Mode:</td><td>Transmitting mode with modulation</td></tr>
<tr><td>Test Results:</td><td>Refer to Appendix A</td></tr>
</table>

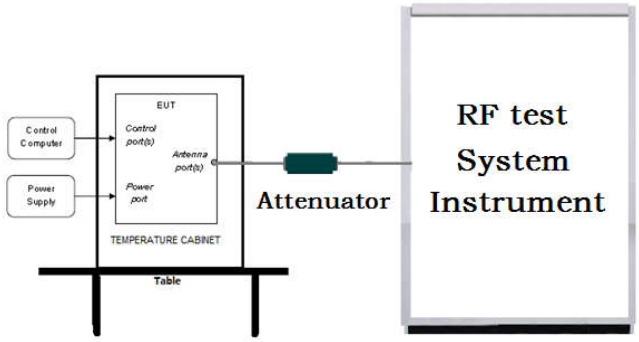
## 7.4 6dB Emisson Bandwidth

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.407 (e) |
| Test Method: | KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C |
| Test Setup: |  <br>Remark: Offset=Cable loss+ attenuation factor. |
| Test Procedure: | 1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C<br>2. Set to the maximum power setting and enable the EUT transmit continuously.<br>3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.<br>4. Measure and record the results in the test report. |
| Limit: | ≥ 500 kHz |
| Test Mode: | Transmitting mode with modulation |
| Test Results: | Refer to Appendix A |

## 7.5 26dB Emission Bandwidth and 99% Occupied Bandwidth

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.407 (a) |
| Test Method: | KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section D |
| Test Setup: |  <br>Remark: Offset=Cable loss+ attenuation factor. |
| Test Procedure: | 1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section D<br>2. Set to the maximum power setting and enable the EUT transmit continuously.<br>3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement.<br>4. Measure and record the results in the test report. |
| Limit: | No restriction limits |
| Test Mode: | Transmitting mode with modulation |
| Test Results: | Refer to Appendix A |

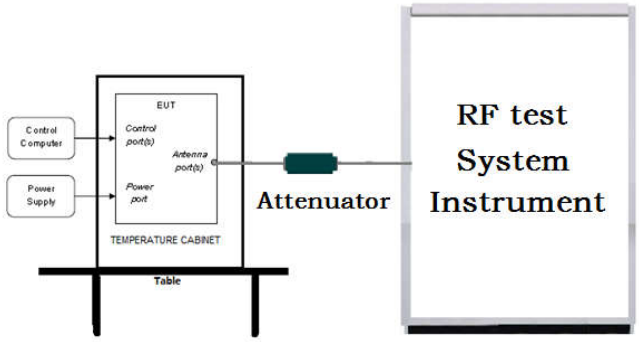
## 7.6 Maximum Power Spectral Density

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.407 (a) |
| Test Method: | KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section F |
| Test Setup: |  <br>Remark: Offset=Cable loss+ attenuation factor. |
| Test Procedure: | 1. Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth. 1. Set RBW = 510 kHz/1 MHz, VBW ≥ 3*RBW, Sweep time = Auto, Detector = RMS.<br>2. Allow the sweeps to continue until the trace stabilizes.<br>3. Use the peak marker function to determine the maximum amplitude level. |
| Limit: | |

| Frequency band (MHz) | Limit |
|---|---|
| 5150-5250 | ≤17dBm in 1MHz for master device |
| | ≤11dBm in 1MHz for client device |
| 5250-5350 | ≤11dBm in 1MHz for client device |
| 5470-5725 | ≤11dBm in 1MHz for client device |
| 5725-5850 | ≤30dBm in 500kHz |
| Remark: | The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. |

| | |
|---|---|
| Test Mode: | Transmitting mode with modulation |
| Test Results: | Refer to Appendix A |

## 7.7 Frequency Stability

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.407 (g) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <br>Remark: Offset=Cable loss+ attenuation factor. |
| Test Procedure: | 1.The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.<br>2. Turn the EUT on and couple its output to a spectrum analyzer.<br>3. 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.<br>4. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.<br>5. 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. |
| Limit: | 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. |
| Test Mode: | Transmitting mode with modulation |
| Test Results: | Refer to Appendix A |

## 7.8 Radiated Emission

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.209 and 15.407 (b) |
| Test Method: | ANSI C63.10 2013 |
| 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 | 10kHz | 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 |

*(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 −27 dBm/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 −27 dBm/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 −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
(i) 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.
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.

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

| | |
|---|---|
| | where:<br>• E is the field strength in V/m;<br>• d is the measurement distance in meters;<br>• EIRP is the equivalent isotropically radiated power in watts.<br>(ii) Working in dB units, the above equation is equivalent to:<br>EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77<br>(iii) Or, if d is 3 meters:<br>EIRP[dBm] = E[dBμV/m] - 95.2 |
| Test Setup: | |

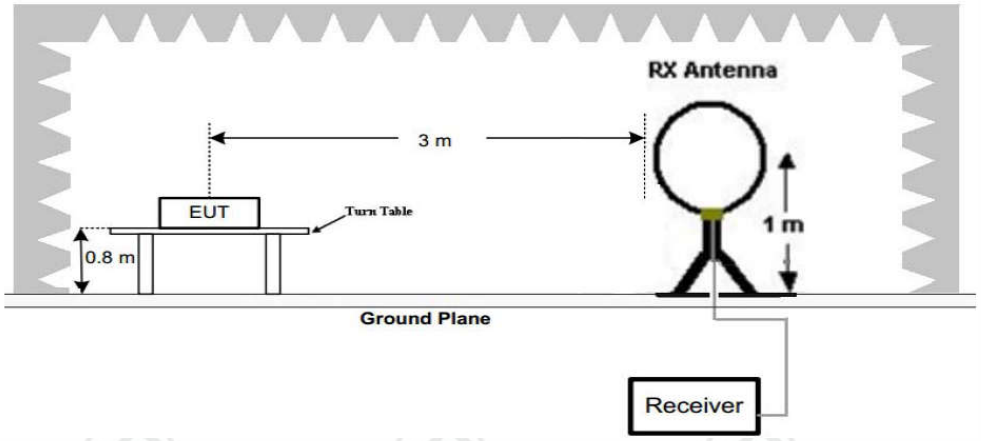



Figure 1. Below 30MHz

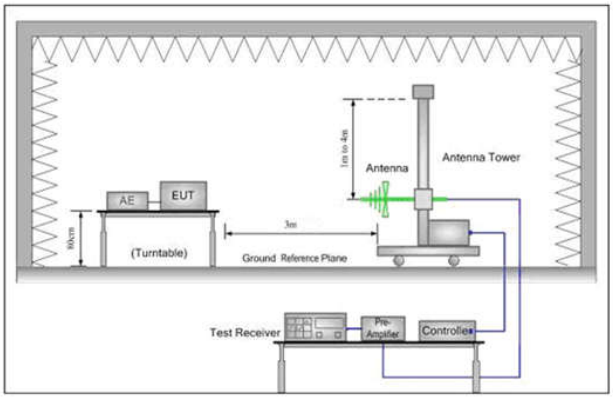



Figure 2. 30MHz to 1GHz

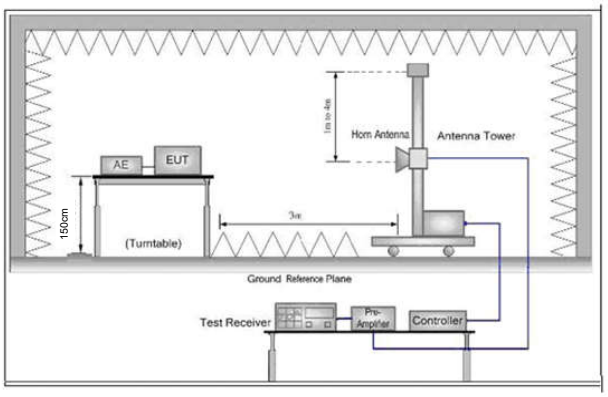


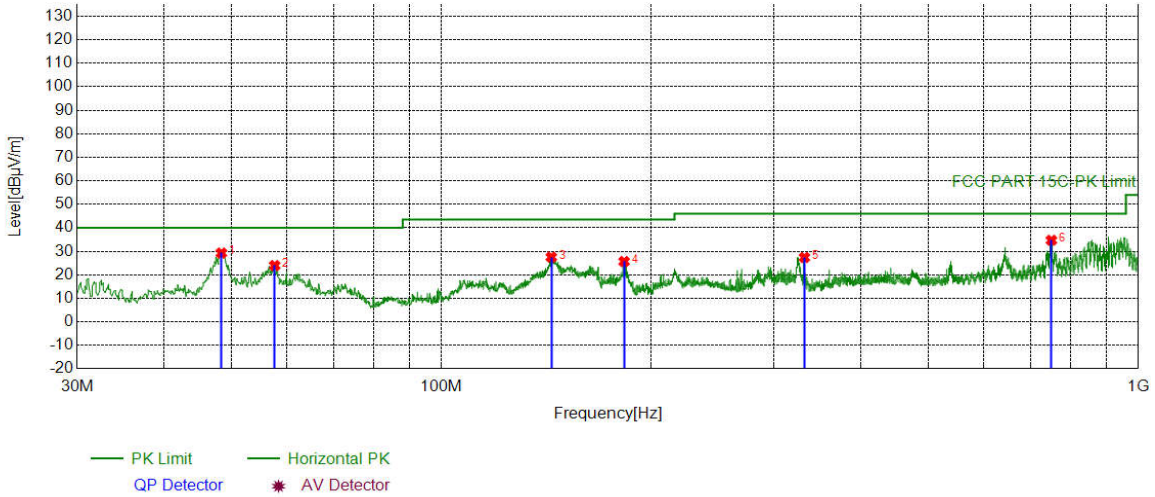

Figure 3. Above 1 GHz

| | |
|---|---|
| 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 |

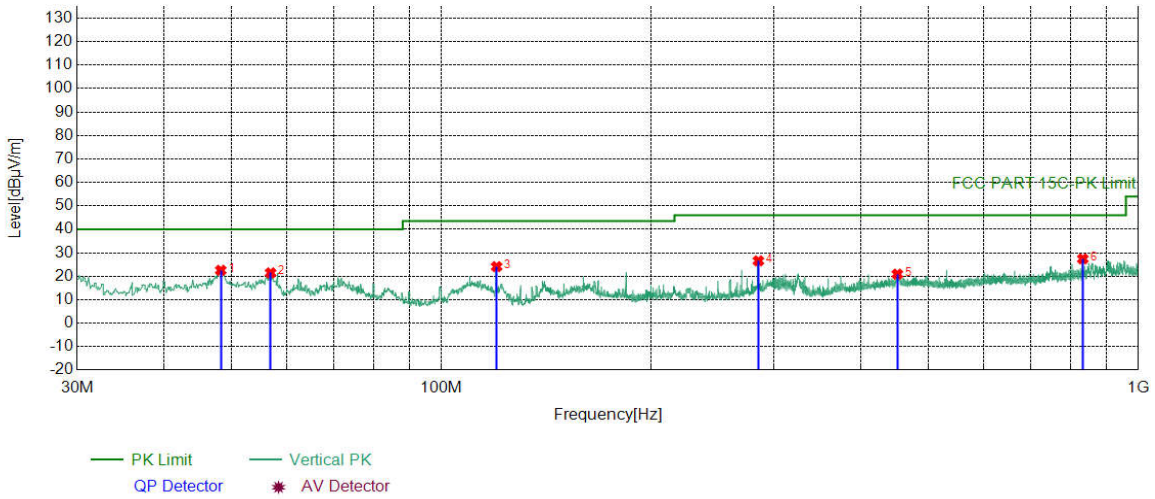
| | |
|---|---|
| | distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of 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 and 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. |
| Test Mode: | Transmitting mode with modulation |
| Test Results: | Pass |

# Radiated Spurious Emissions test Data:
## Radiated Emission below 1GHz

Remark: During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes, only the worst case lower channel of 6Mbps for 802.11a was recorded in the report.




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 48.3348 | -17.17 | 46.44 | 29.27 | 40.00 | 10.73 | PASS | Horizontal | PK |
| 2 | 57.6478 | -18.18 | 42.13 | 23.95 | 40.00 | 16.05 | PASS | Horizontal | PK |
| 3 | 143.7924 | -21.88 | 49.41 | 27.53 | 43.50 | 15.97 | PASS | Horizontal | PK |
| 4 | 182.8873 | -19.51 | 45.19 | 25.68 | 43.50 | 17.82 | PASS | Horizontal | PK |
| 5 | 331.8942 | -14.66 | 42.03 | 27.37 | 46.00 | 18.63 | PASS | Horizontal | PK |
| 6 | 750.5881 | -6.99 | 41.70 | 34.71 | 46.00 | 11.29 | PASS | Horizontal | PK |




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 48.2378 | -17.17 | 39.71 | 22.54 | 40.00 | 17.46 | PASS | Vertical | PK |
| 2 | 56.8717 | -18.08 | 39.52 | 21.44 | 40.00 | 18.56 | PASS | Vertical | PK |
| 3 | 120.0250 | -20.08 | 44.18 | 24.10 | 43.50 | 19.40 | PASS | Vertical | PK |
| 4 | 285.0385 | -15.83 | 42.41 | 26.58 | 46.00 | 19.42 | PASS | Vertical | PK |
| 5 | 451.1191 | -11.71 | 32.61 | 20.90 | 46.00 | 25.10 | PASS | Vertical | PK |
| 6 | 832.6583 | -6.02 | 33.43 | 27.41 | 46.00 | 18.59 | PASS | Vertical | PK |

## Transmitter Emission above 1GHz

Remark: Through Pre-scan, for 20MHz Occupied Bandwidth, 802.11 a mode was the worst case; for 40MHz Occupied Bandwidth, 802.11 n(HT40) mode was the worst case; for 80MHz Occupied Bandwidth, 802.11 ac(VHT80) mode was the worst case; only the worst case was in the report.

| Mode: | | 802.11 a Transmitting | | | | Channel: | | 5180 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1278.3278 | 1.08 | 41.37 | 42.45 | 68.20 | 25.75 | PASS | H | PK |
| 2 | 2999.4499 | 6.54 | 40.00 | 46.54 | 68.20 | 21.66 | PASS | H | PK |
| 3 | 4099.0099 | 9.59 | 38.58 | 48.17 | 68.20 | 20.03 | PASS | H | PK |
| 4 | 7834.6417 | -11.31 | 53.42 | 42.11 | 68.20 | 26.09 | PASS | H | PK |
| 5 | 10570.0535 | -6.46 | 52.34 | 45.88 | 68.20 | 22.32 | PASS | H | PK |
| 6 | 14364.0932 | 0.25 | 50.68 | 50.93 | 68.20 | 17.27 | PASS | H | PK |
| 7 | 1663.3663 | 2.81 | 41.43 | 44.24 | 68.20 | 23.96 | PASS | V | PK |
| 8 | 2251.3751 | 3.99 | 41.13 | 45.12 | 68.20 | 23.08 | PASS | V | PK |
| 9 | 3084.1584 | 6.78 | 41.46 | 48.24 | 68.20 | 19.96 | PASS | V | PK |
| 10 | 7440.7470 | -11.40 | 57.05 | 45.65 | 68.20 | 22.55 | PASS | V | PK |
| 11 | 9662.0831 | -7.48 | 55.03 | 47.55 | 68.20 | 20.65 | PASS | V | PK |
| 12 | 13672.3336 | -1.71 | 50.93 | 49.22 | 68.20 | 18.98 | PASS | V | PK |

| Mode: | | 802.11 a Transmitting | | | | Channel: | | 5200 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 2038.5039 | 4.79 | 41.30 | 46.09 | 68.20 | 22.11 | PASS | H | PK |
| 2 | 2654.0154 | 5.36 | 42.70 | 48.06 | 68.20 | 20.14 | PASS | H | PK |
| 3 | 3811.8812 | 8.59 | 39.54 | 48.13 | 68.20 | 20.07 | PASS | H | PK |
| 4 | 7653.5077 | -10.88 | 54.51 | 43.63 | 68.20 | 24.57 | PASS | H | PK |
| 5 | 9669.5585 | -7.50 | 53.99 | 46.49 | 68.20 | 21.71 | PASS | H | PK |
| 6 | 13675.2088 | -1.71 | 51.81 | 50.10 | 68.20 | 18.10 | PASS | H | PK |
| 7 | 1661.1661 | 2.80 | 41.96 | 44.76 | 68.20 | 23.44 | PASS | V | PK |
| 8 | 2513.7514 | 5.17 | 40.15 | 45.32 | 68.20 | 22.88 | PASS | V | PK |
| 9 | 3378.9879 | 7.53 | 39.16 | 46.69 | 68.20 | 21.51 | PASS | V | PK |
| 10 | 7603.4802 | -10.55 | 55.61 | 45.06 | 68.20 | 23.14 | PASS | V | PK |
| 11 | 10395.8198 | -6.27 | 53.43 | 47.16 | 68.20 | 21.04 | PASS | V | PK |
| 12 | 14318.6659 | -0.24 | 51.67 | 51.43 | 68.20 | 16.77 | PASS | V | PK |

| Mode: | | | 802.11 a Transmitting | | | Channel: | | 5240 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1651.8152 | 2.75 | 41.98 | 44.73 | 68.20 | 23.47 | PASS | H | PK |
| 2 | 2330.0330 | 4.15 | 41.42 | 45.57 | 68.20 | 22.63 | PASS | H | PK |
| 3 | 3527.5028 | 7.45 | 39.08 | 46.53 | 68.20 | 21.67 | PASS | H | PK |
| 4 | 7564.3782 | -10.80 | 54.52 | 43.72 | 68.20 | 24.48 | PASS | H | PK |
| 5 | 10239.4120 | -6.72 | 53.89 | 47.17 | 68.20 | 21.03 | PASS | H | PK |
| 6 | 14299.6900 | -0.44 | 51.61 | 51.17 | 68.20 | 17.03 | PASS | H | PK |
| 7 | 1710.1210 | 3.06 | 41.69 | 44.75 | 68.20 | 23.45 | PASS | V | PK |
| 8 | 2440.0440 | 4.69 | 41.18 | 45.87 | 68.20 | 22.33 | PASS | V | PK |
| 9 | 3389.4389 | 7.55 | 39.03 | 46.58 | 68.20 | 21.62 | PASS | V | PK |
| 10 | 7639.7070 | -10.79 | 54.72 | 43.93 | 68.20 | 24.27 | PASS | V | PK |
| 11 | 11208.9104 | -5.80 | 53.24 | 47.44 | 68.20 | 20.76 | PASS | V | PK |
| 12 | 14373.8687 | 0.36 | 50.46 | 50.82 | 68.20 | 17.38 | PASS | V | PK |

| Mode: | | | 802.11 n(HT20) Transmitting | | | Channel: | | 5180 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1661.1661 | 2.80 | 41.61 | 44.41 | 68.20 | 23.79 | PASS | H | PK |
| 2 | 2533.5534 | 5.17 | 40.89 | 46.06 | 68.20 | 22.14 | PASS | H | PK |
| 3 | 3486.2486 | 7.61 | 39.15 | 46.76 | 68.20 | 21.44 | PASS | H | PK |
| 4 | 7412.5706 | -11.46 | 55.38 | 43.92 | 68.20 | 24.28 | PASS | H | PK |
| 5 | 9663.8082 | -7.48 | 54.04 | 46.56 | 68.20 | 21.64 | PASS | H | PK |
| 6 | 14321.5411 | -0.21 | 51.23 | 51.02 | 68.20 | 17.18 | PASS | H | PK |
| 7 | 1660.0660 | 2.79 | 41.97 | 44.76 | 68.20 | 23.44 | PASS | V | PK |
| 8 | 2426.2926 | 4.58 | 40.06 | 44.64 | 68.20 | 23.56 | PASS | V | PK |
| 9 | 3352.5853 | 7.48 | 39.52 | 47.00 | 68.20 | 21.20 | PASS | V | PK |
| 10 | 7621.8811 | -10.67 | 54.25 | 43.58 | 68.20 | 24.62 | PASS | V | PK |
| 11 | 9630.4565 | -7.40 | 53.40 | 46.00 | 68.20 | 22.20 | PASS | V | PK |
| 12 | 14401.4701 | 0.62 | 50.78 | 51.40 | 68.20 | 16.80 | PASS | V | PK |

| Mode: | | | 802.11 n(HT20) Transmitting | | | Channel: | | 5200 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1774.4774 | 3.30 | 41.28 | 44.58 | 68.20 | 23.62 | PASS | H | PK |
| 2 | 2704.6205 | 5.57 | 40.11 | 45.68 | 68.20 | 22.52 | PASS | H | PK |
| 3 | 3953.7954 | 9.19 | 39.51 | 48.70 | 68.20 | 19.50 | PASS | H | PK |
| 4 | 7600.0300 | -10.53 | 54.03 | 43.50 | 68.20 | 24.70 | PASS | H | PK |
| 5 | 10255.5128 | -6.60 | 53.36 | 46.76 | 68.20 | 21.44 | PASS | H | PK |
| 6 | 14399.7450 | 0.64 | 51.24 | 51.88 | 68.20 | 16.32 | PASS | H | PK |
| 7 | 1693.0693 | 2.98 | 41.28 | 44.26 | 68.20 | 23.94 | PASS | V | PK |
| 8 | 2344.8845 | 4.19 | 40.67 | 44.86 | 68.20 | 23.34 | PASS | V | PK |
| 9 | 3442.2442 | 7.59 | 39.14 | 46.73 | 68.20 | 21.47 | PASS | V | PK |
| 10 | 8728.8114 | -9.82 | 53.55 | 43.73 | 68.20 | 24.47 | PASS | V | PK |
| 11 | 12426.8213 | -4.08 | 53.33 | 49.25 | 68.20 | 18.95 | PASS | V | PK |
| 12 | 15893.0947 | 0.02 | 51.50 | 51.52 | 68.20 | 16.68 | PASS | V | PK |

| Mode: | | | 802.11 n(HT20) Transmitting | | | Channel: | | 5240 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1995.5996 | 4.60 | 44.44 | 49.04 | 68.20 | 19.16 | PASS | H | PK |
| 2 | 2664.4664 | 5.40 | 42.12 | 47.52 | 68.20 | 20.68 | PASS | H | PK |
| 3 | 3962.0462 | 9.24 | 38.35 | 47.59 | 68.20 | 20.61 | PASS | H | PK |
| 4 | 7517.8009 | -11.15 | 54.90 | 43.75 | 68.20 | 24.45 | PASS | H | PK |
| 5 | 10812.1406 | -6.21 | 53.10 | 46.89 | 68.20 | 21.31 | PASS | H | PK |
| 6 | 14391.6946 | 0.55 | 49.88 | 50.43 | 68.20 | 17.77 | PASS | H | PK |
| 7 | 1633.1133 | 2.64 | 41.04 | 43.68 | 68.20 | 24.52 | PASS | V | PK |
| 8 | 2673.8174 | 5.44 | 41.41 | 46.85 | 68.20 | 21.35 | PASS | V | PK |
| 9 | 3954.8955 | 9.20 | 38.91 | 48.11 | 68.20 | 20.09 | PASS | V | PK |
| 10 | 9083.6042 | -8.62 | 53.15 | 44.53 | 68.20 | 23.67 | PASS | V | PK |
| 11 | 11981.7491 | -4.94 | 52.83 | 47.89 | 68.20 | 20.31 | PASS | V | PK |
| 12 | 15904.0202 | 0.12 | 52.34 | 52.46 | 68.20 | 15.74 | PASS | V | PK |

| Mode: | | 802.11 a Transmitting | | | | Channel: | | 5745 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1312.4312 | 1.66 | 42.13 | 43.79 | 68.20 | 24.41 | PASS | H | PK |
| 2 | 1992.2992 | 5.05 | 42.19 | 47.24 | 68.20 | 20.96 | PASS | H | PK |
| 3 | 3200.2200 | 7.82 | 40.38 | 48.20 | 68.20 | 20.00 | PASS | H | PK |
| 4 | 7561.9041 | -10.82 | 54.42 | 43.60 | 68.20 | 24.60 | PASS | H | PK |
| 5 | 11783.4522 | -6.13 | 54.73 | 48.60 | 68.20 | 19.60 | PASS | H | PK |
| 6 | 14312.0875 | -0.31 | 51.28 | 50.97 | 68.20 | 17.23 | PASS | H | PK |
| 7 | 1466.4466 | 1.89 | 41.63 | 43.52 | 68.20 | 24.68 | PASS | V | PK |
| 8 | 2419.1419 | 4.97 | 40.48 | 45.45 | 68.20 | 22.75 | PASS | V | PK |
| 9 | 3762.9263 | 8.96 | 38.92 | 47.88 | 68.20 | 20.32 | PASS | V | PK |
| 10 | 7995.0997 | -11.48 | 56.03 | 44.55 | 68.20 | 23.65 | PASS | V | PK |
| 11 | 10286.0524 | -6.36 | 52.99 | 46.63 | 68.20 | 21.57 | PASS | V | PK |
| 12 | 13675.7117 | -1.71 | 52.92 | 51.21 | 68.20 | 16.99 | PASS | V | PK |

| Mode: | | 802.11 a Transmitting | | | | Channel: | | 5785 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1446.0946 | 1.87 | 40.87 | 42.74 | 68.20 | 25.46 | PASS | H | PK |
| 2 | 2539.6040 | 5.54 | 40.79 | 46.33 | 68.20 | 21.87 | PASS | H | PK |
| 3 | 3954.8955 | 10.07 | 38.64 | 48.71 | 68.20 | 19.49 | PASS | H | PK |
| 4 | 7529.7020 | -11.06 | 55.21 | 44.15 | 68.20 | 24.05 | PASS | H | PK |
| 5 | 9788.4526 | -7.22 | 54.00 | 46.78 | 68.20 | 21.42 | PASS | H | PK |
| 6 | 14394.1263 | 0.58 | 50.40 | 50.98 | 68.20 | 17.22 | PASS | H | PK |
| 7 | 1435.0935 | 1.86 | 41.40 | 43.26 | 68.20 | 24.94 | PASS | V | PK |
| 8 | 2333.8834 | 4.69 | 40.80 | 45.49 | 68.20 | 22.71 | PASS | V | PK |
| 9 | 3599.5600 | 7.67 | 39.85 | 47.52 | 68.20 | 20.68 | PASS | V | PK |
| 10 | 7655.4437 | -10.90 | 54.85 | 43.95 | 68.20 | 24.25 | PASS | V | PK |
| 11 | 10416.3944 | -6.31 | 53.22 | 46.91 | 68.20 | 21.29 | PASS | V | PK |
| 12 | 14410.9941 | 0.48 | 49.86 | 50.34 | 68.20 | 17.86 | PASS | V | PK |

| Mode: | | | 802.11 a Transmitting | | | Channel: | | 5825 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1601.7602 | 2.72 | 41.89 | 44.61 | 68.20 | 23.59 | PASS | H | PK |
| 2 | 2326.1826 | 4.68 | 40.60 | 45.28 | 68.20 | 22.92 | PASS | H | PK |
| 3 | 3205.1705 | 7.85 | 39.84 | 47.69 | 68.20 | 20.51 | PASS | H | PK |
| 4 | 9078.4719 | -8.60 | 53.39 | 44.79 | 68.20 | 23.41 | PASS | H | PK |
| 5 | 11860.1240 | -5.74 | 54.28 | 48.54 | 68.20 | 19.66 | PASS | H | PK |
| 6 | 14313.6209 | -0.29 | 51.71 | 51.42 | 68.20 | 16.78 | PASS | H | PK |
| 7 | 1542.3542 | 2.25 | 41.06 | 43.31 | 68.20 | 24.89 | PASS | V | PK |
| 8 | 2434.5435 | 5.06 | 40.80 | 45.86 | 68.20 | 22.34 | PASS | V | PK |
| 9 | 3290.9791 | 8.27 | 39.82 | 48.09 | 68.20 | 20.11 | PASS | V | PK |
| 10 | 7982.0655 | -11.45 | 55.58 | 44.13 | 68.20 | 24.07 | PASS | V | PK |
| 11 | 11348.7232 | -6.40 | 54.16 | 47.76 | 68.20 | 20.44 | PASS | V | PK |
| 12 | 14302.8869 | -0.41 | 51.20 | 50.79 | 68.20 | 17.41 | PASS | V | PK |

| Mode: | | | 802.11 n(HT20) Transmitting | | | Channel: | | 5745 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1995.0495 | 5.06 | 42.49 | 47.55 | 68.20 | 20.65 | PASS | H | PK |
| 2 | 2664.4664 | 5.97 | 42.91 | 48.88 | 68.20 | 19.32 | PASS | H | PK |
| 3 | 4268.4268 | 11.50 | 37.43 | 48.93 | 68.20 | 19.27 | PASS | H | PK |
| 4 | 9165.1110 | -8.05 | 54.12 | 46.07 | 68.20 | 22.13 | PASS | H | PK |
| 5 | 11779.6186 | -6.11 | 54.21 | 48.10 | 68.20 | 20.10 | PASS | H | PK |
| 6 | 13673.4116 | -1.71 | 52.85 | 51.14 | 68.20 | 17.06 | PASS | H | PK |
| 7 | 1277.7778 | 1.52 | 42.82 | 44.34 | 68.20 | 23.86 | PASS | V | PK |
| 8 | 2038.5039 | 5.29 | 41.85 | 47.14 | 68.20 | 21.06 | PASS | V | PK |
| 9 | 3343.2343 | 8.25 | 39.87 | 48.12 | 68.20 | 20.08 | PASS | V | PK |
| 10 | 8514.9343 | -10.58 | 55.93 | 45.35 | 68.20 | 22.85 | PASS | V | PK |
| 11 | 12476.5651 | -4.21 | 53.41 | 49.20 | 68.20 | 19.00 | PASS | V | PK |
| 12 | 15891.5261 | 0.00 | 51.63 | 51.63 | 68.20 | 16.57 | PASS | V | PK |

| Mode: | | | 802.11 n(HT20) Transmitting | | | Channel: | | 5785 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 2124.3124 | 5.32 | 44.57 | 49.89 | 68.20 | 18.31 | PASS | H | PK |
| 2 | 3053.3553 | 7.41 | 40.71 | 48.12 | 68.20 | 20.08 | PASS | H | PK |
| 3 | 4878.9879 | 13.35 | 37.06 | 50.41 | 68.20 | 17.79 | PASS | H | PK |
| 4 | 8364.6576 | -10.79 | 54.26 | 43.47 | 68.20 | 24.73 | PASS | H | PK |
| 5 | 11236.7825 | -6.03 | 53.78 | 47.75 | 68.20 | 20.45 | PASS | H | PK |
| 6 | 14407.1605 | 0.54 | 51.13 | 51.67 | 68.20 | 16.53 | PASS | H | PK |
| 7 | 1597.9098 | 2.68 | 44.37 | 47.05 | 68.20 | 21.15 | PASS | V | PK |
| 8 | 2131.4631 | 5.23 | 41.79 | 47.02 | 68.20 | 21.18 | PASS | V | PK |
| 9 | 3402.0902 | 8.15 | 39.65 | 47.80 | 68.20 | 20.40 | PASS | V | PK |
| 10 | 7640.8761 | -10.80 | 55.34 | 44.54 | 68.20 | 23.66 | PASS | V | PK |
| 11 | 11265.9177 | -6.28 | 53.49 | 47.21 | 68.20 | 20.99 | PASS | V | PK |
| 12 | 14328.1885 | -0.14 | 50.75 | 50.61 | 68.20 | 17.59 | PASS | V | PK |

| Mode: | | | 802.11 n(HT20) Transmitting | | | Channel: | | 5825 MHz | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBμV] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 1281.6282 | 1.54 | 41.77 | 43.31 | 68.20 | 24.89 | PASS | H | PK |
| 2 | 1918.5919 | 4.79 | 41.14 | 45.93 | 68.20 | 22.27 | PASS | H | PK |
| 3 | 3739.8240 | 8.71 | 38.83 | 47.54 | 68.20 | 20.66 | PASS | H | PK |
| 4 | 8359.2906 | -10.81 | 53.70 | 42.89 | 68.20 | 25.31 | PASS | H | PK |
| 5 | 11755.8504 | -6.01 | 53.77 | 47.76 | 68.20 | 20.44 | PASS | H | PK |
| 6 | 14419.4280 | 0.36 | 51.63 | 51.99 | 68.20 | 16.21 | PASS | H | PK |
| 7 | 1772.2772 | 3.71 | 40.69 | 44.40 | 68.20 | 23.80 | PASS | V | PK |
| 8 | 2541.8042 | 5.55 | 40.61 | 46.16 | 68.20 | 22.04 | PASS | V | PK |
| 9 | 3986.7987 | 10.29 | 40.66 | 50.95 | 68.20 | 17.25 | PASS | V | PK |
| 10 | 8527.9685 | -10.57 | 55.59 | 45.02 | 68.20 | 23.18 | PASS | V | PK |
| 11 | 11219.1479 | -5.88 | 53.37 | 47.49 | 68.20 | 20.71 | PASS | V | PK |
| 12 | 14405.6270 | 0.56 | 49.60 | 50.16 | 68.20 | 18.04 | PASS | V | PK |

Note:

1) 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 - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

2) 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.

## 7.9 Radiated Emission which fall in the restricted bands

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.209 and 15.407 (b) |
| Test Method: | ANSI C63.10 2013 |
| 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 | 10kHz | 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 |

*(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 −27 dBm/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 −27 dBm/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 −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
(i) 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.
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.<br><br>Note:<br>(i) EIRP = ((E*d)^2) / 30<br>where:<br>• E is the field strength in V/m;<br>• d is the measurement distance in meters;<br>• EIRP is the equivalent isotropically radiated power in watts.<br>(ii) Working in dB units, the above equation is equivalent to:<br>EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77<br>(iii) Or, if d is 3 meters:<br>EIRP[dBm] = E[dBμV/m] - 95.2 |
| Test Setup: | |

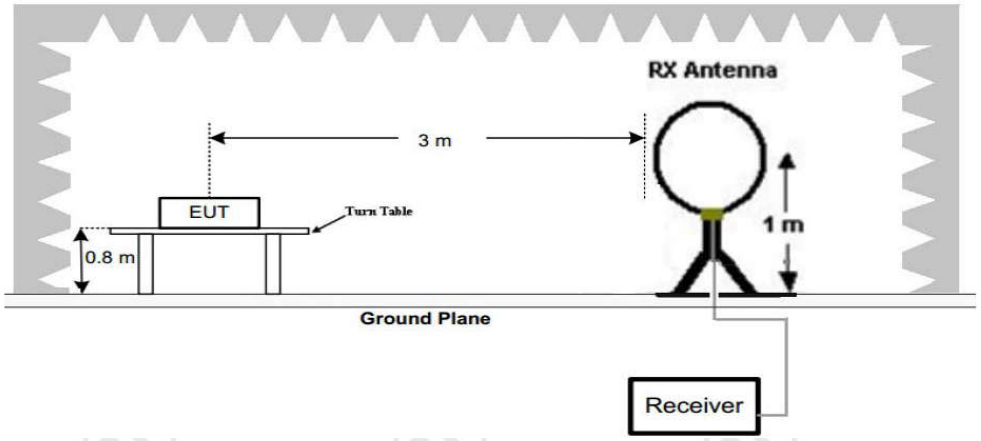



Figure 1. Below 30MHz

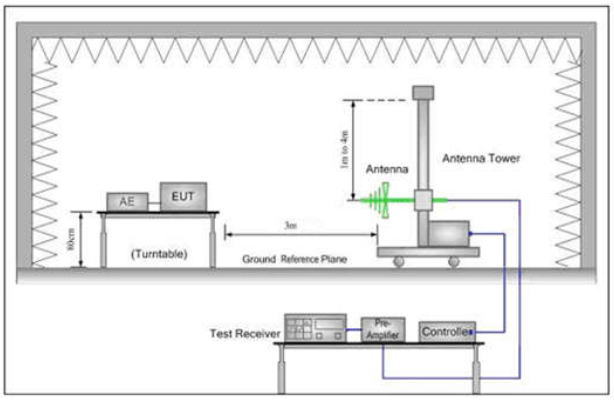



Figure 2. 30MHz to 1GHz

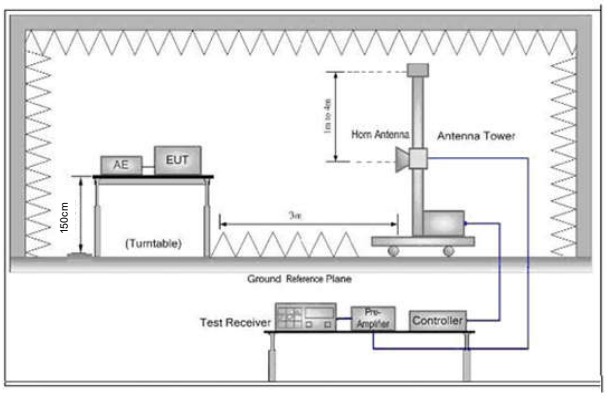



Figure 3. Above 1 GHz

| | |
|---|---|
| Test Procedure: | j. 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: |

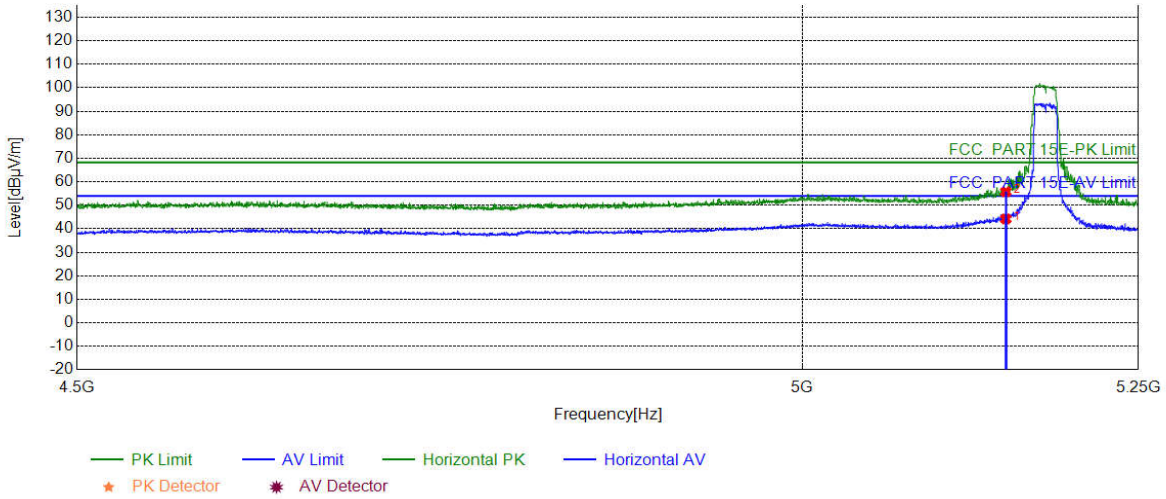
| | |
|---|---|
| | Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented 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>k. 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>l. 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>m. 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>n. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>o. 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>p. Test the EUT in the lowest channel, the Highest channel<br>q. 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>r. Repeat above procedures until all frequencies measured was complete. |
| Test Mode: | Transmitting mode with modulation |
| Test Results: | Pass |

Remark: During the test, the Radiates Emission from 1GHz to 40GHz was performed in all modes, only the worst case was in the report.

**Test Data:**

| Mode: | 802.11 a Transmitting | Channel: | 5180MHz |
|---|---|---|---|
| Remark: | | | |

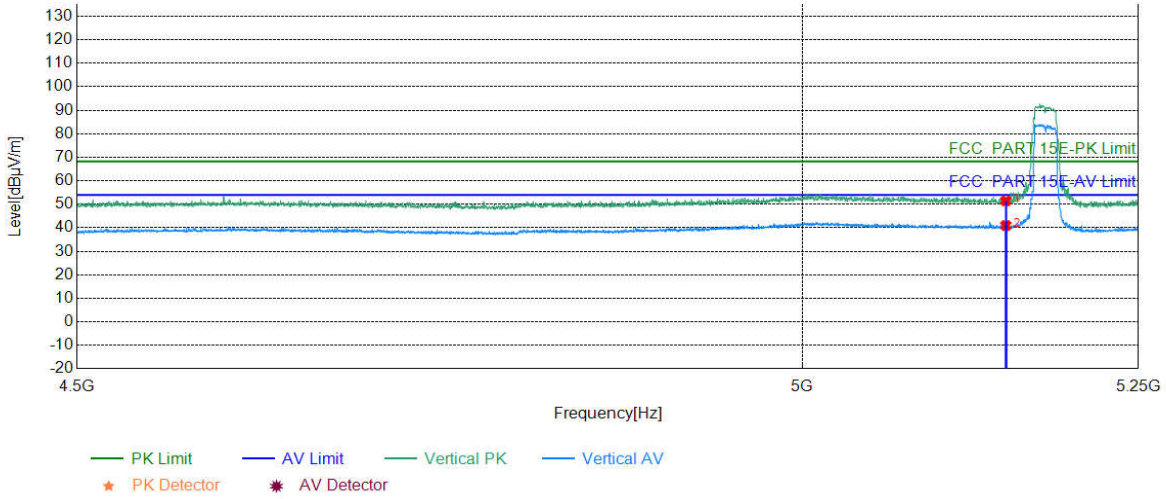
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5150.0000 | 12.36 | 31.84 | 44.20 | 54.00 | 9.80 | PASS | Horizontal | AV |
| 2 | 5150.0000 | 12.36 | 43.43 | 55.79 | 68.20 | 12.41 | PASS | Horizontal | PK |

| Mode: | 802.11 a Transmitting | Channel: | 5180MHz |
|---|---|---|---|
| Remark: | | | |

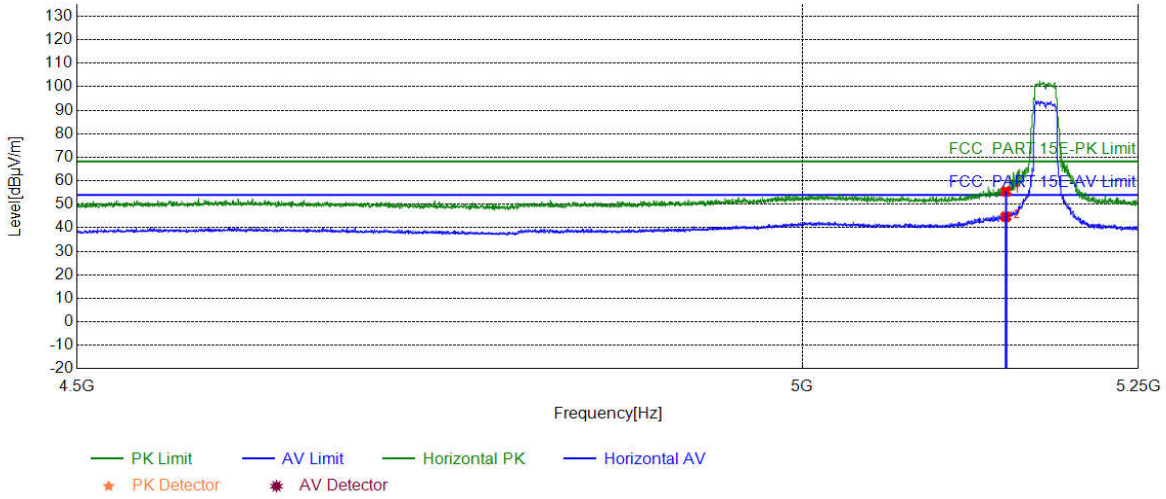
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5150.0000 | 12.36 | 39.09 | 51.45 | 68.20 | 16.75 | PASS | Vertical | PK |
| 2 | 5150.0000 | 12.36 | 28.61 | 40.97 | 54.00 | 13.03 | PASS | Vertical | AV |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5180MHz |
|---|---|---|---|
| Remark: | | | |

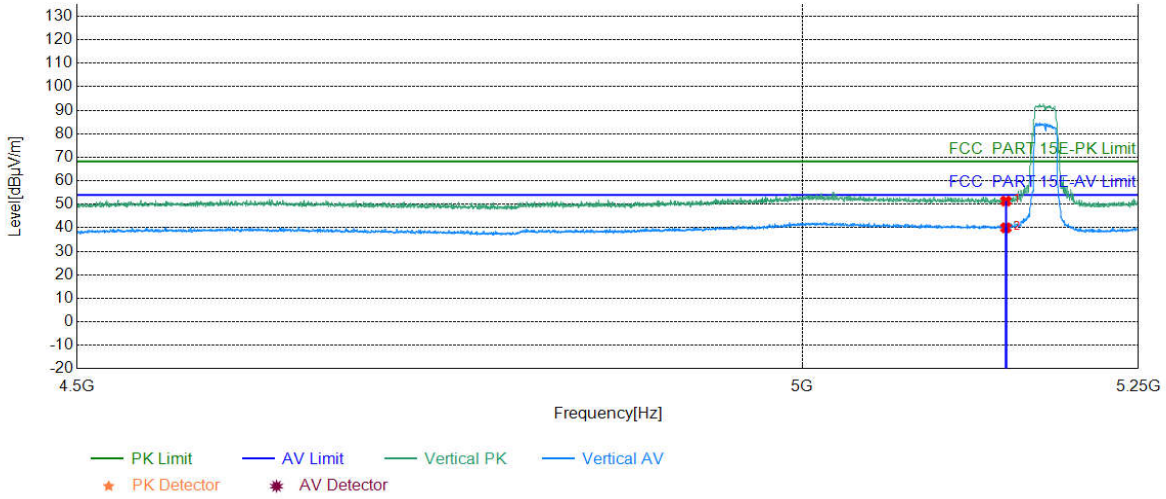
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5150.0000 | 12.36 | 43.15 | 55.51 | 68.20 | 12.69 | PASS | Horizontal | PK |
| 2 | 5150.0000 | 12.36 | 32.33 | 44.69 | 54.00 | 9.31 | PASS | Horizontal | AV |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5180MHz |
|---|---|---|---|
| Remark: | | | |

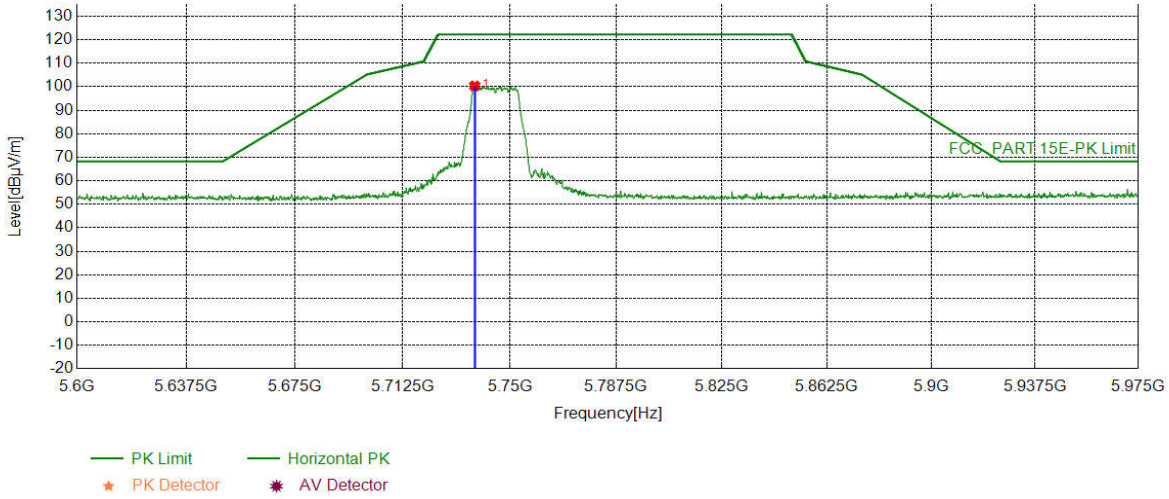
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5150.0000 | 12.36 | 39.01 | 51.37 | 68.20 | 16.83 | PASS | Vertical | PK |
| 2 | 5150.0000 | 12.36 | 27.63 | 39.99 | 54.00 | 14.01 | PASS | Vertical | AV |

| Mode: | 802.11 a Transmitting | Channel: | 5745MHz |
|---|---|---|---|
| Remark: | | | |

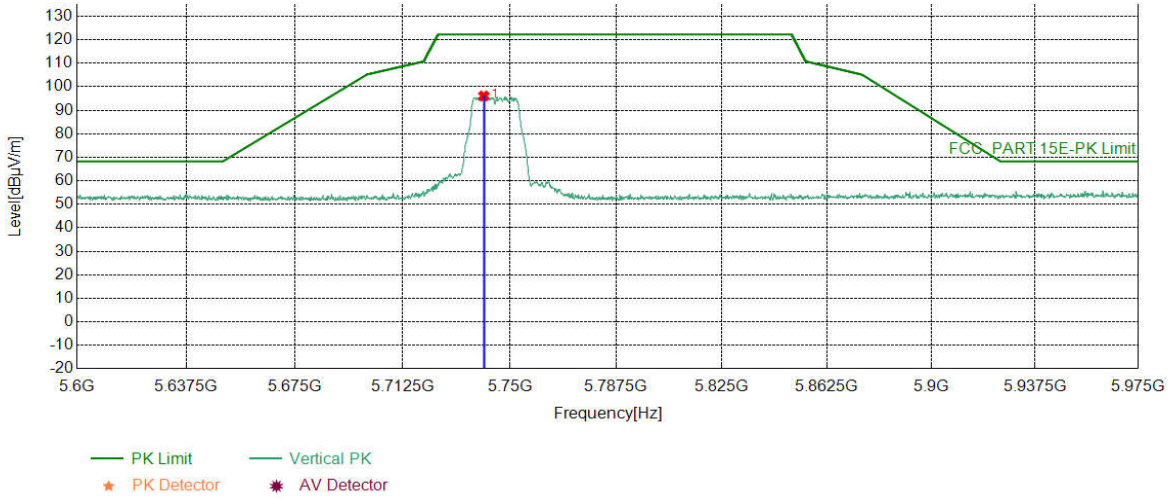
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5737.6938 | 13.83 | 86.52 | 100.35 | 122.20 | 21.85 | PASS | Horizontal | PK |

| Mode: | 802.11 a Transmitting | Channel: | 5745MHz |
|---|---|---|---|
| Remark: | | | |

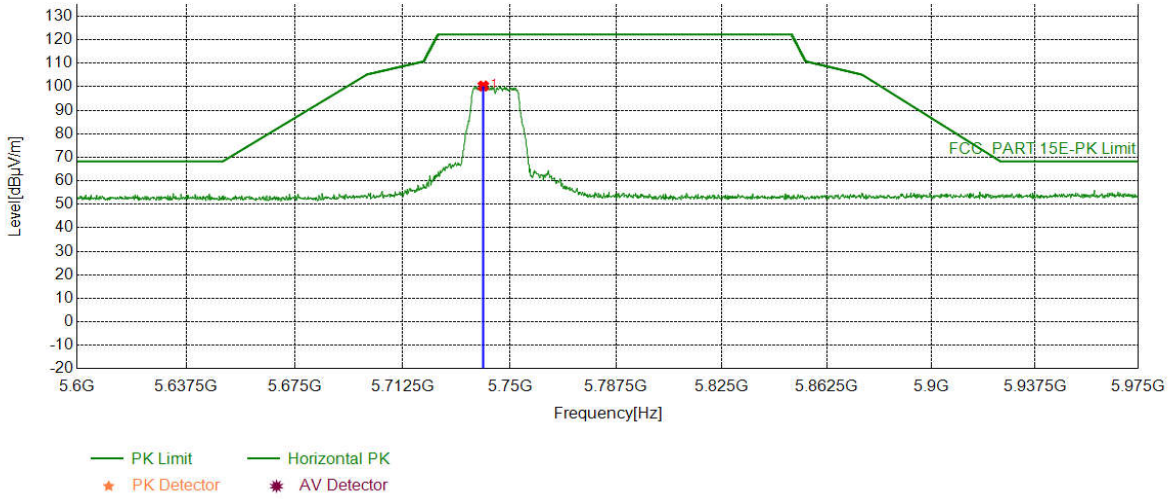
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5740.8829 | 13.84 | 82.24 | 96.08 | 122.20 | 26.12 | PASS | Vertical | PK |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5745MHz |
|---|---|---|---|
| Remark: | | | |

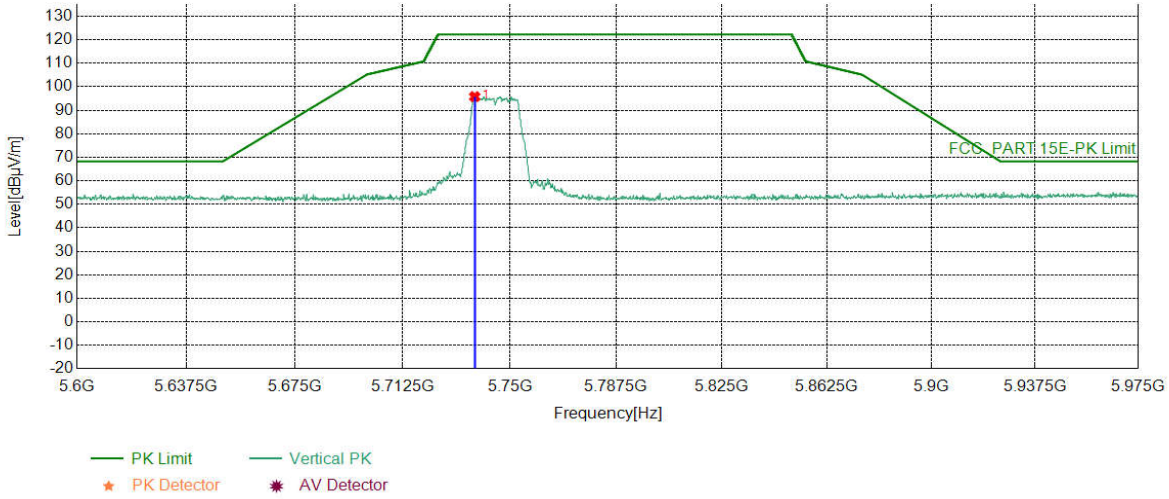
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5740.6953 | 13.84 | 86.47 | 100.31 | 122.20 | 21.89 | PASS | Horizontal | PK |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5745MHz |
|---|---|---|---|
| Remark: | | | |

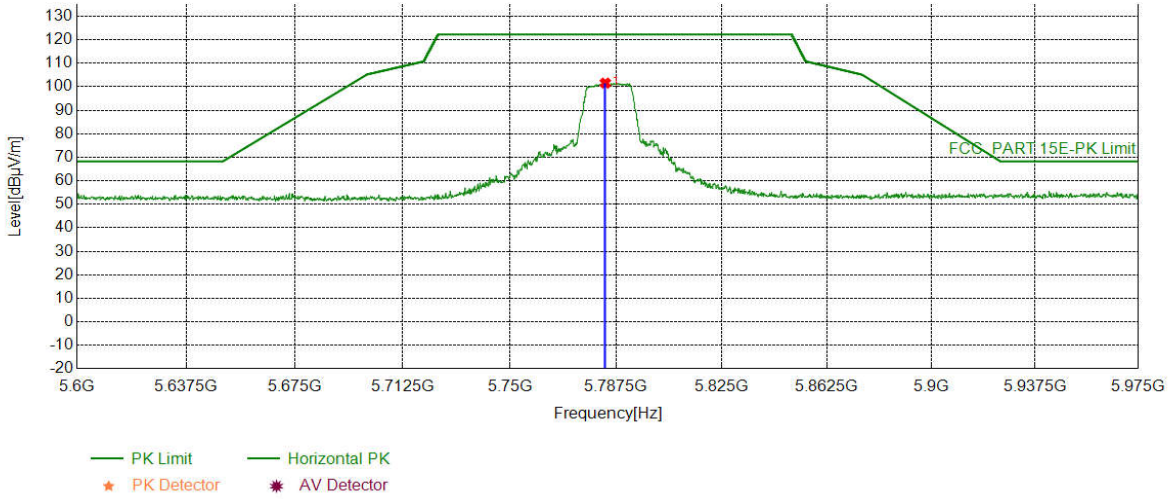
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5737.6938 | 13.83 | 81.97 | 95.80 | 122.20 | 26.40 | PASS | Vertical | PK |

| Mode: | 802.11 a Transmitting | Channel: | 5785MHz |
|---|---|---|---|
| Remark: | | | |

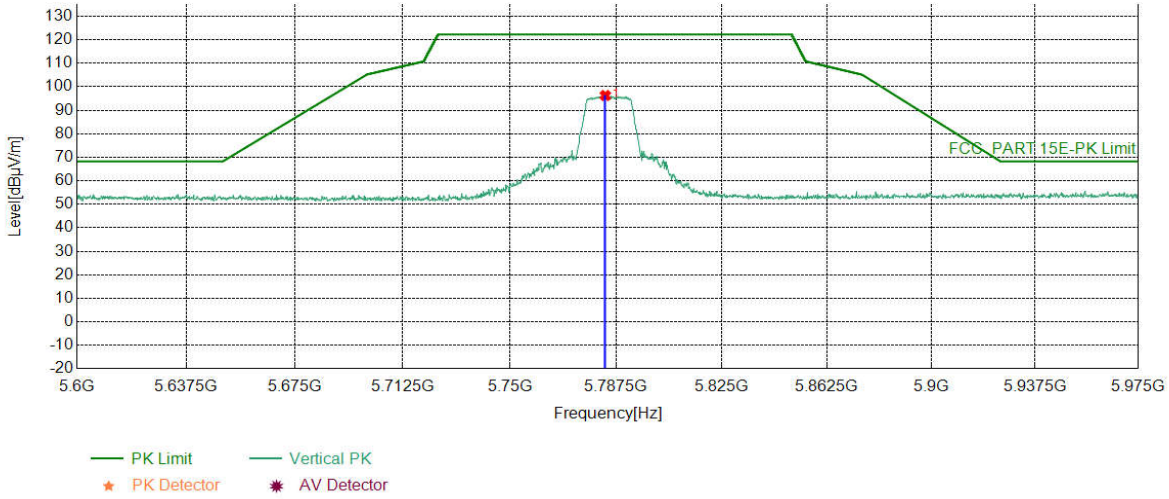
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5783.6543 | 13.91 | 87.67 | 101.58 | 122.20 | 20.62 | PASS | Horizontal | PK |

| Mode: | 802.11 a Transmitting | Channel: | 5785MHz |
|---|---|---|---|
| Remark: | | | |

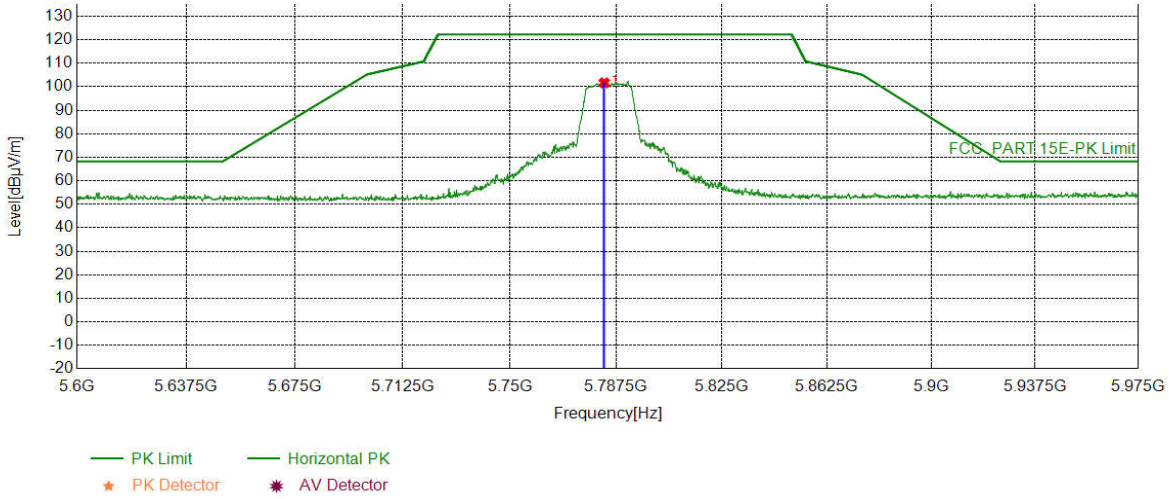
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5783.6543 | 13.91 | 82.37 | 96.28 | 122.20 | 25.92 | PASS | Vertical | PK |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5785MHz |
|---|---|---|---|
| Remark: | | | |

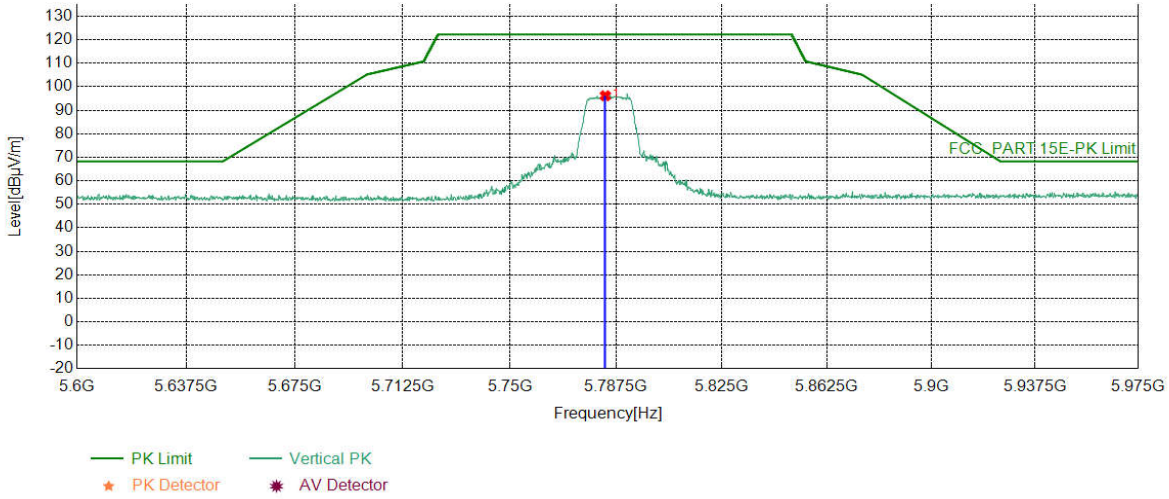
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5783.2791 | 13.91 | 87.77 | 101.68 | 122.20 | 20.52 | PASS | Horizontal | PK |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5785MHz |
|---|---|---|---|
| Remark: | | | |

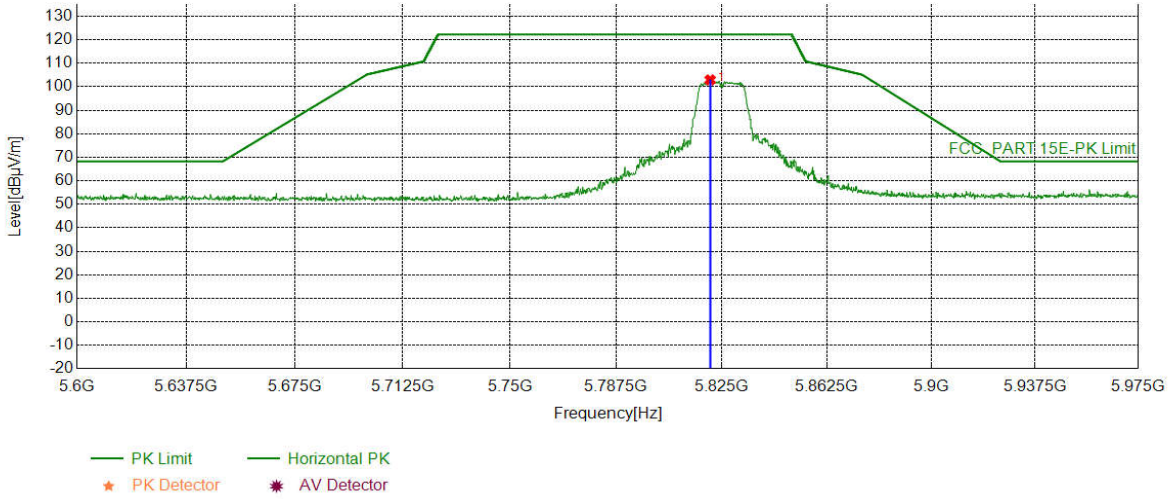
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5783.6543 | 13.91 | 82.26 | 96.17 | 122.20 | 26.03 | PASS | Vertical | PK |

| Mode: | 802.11 a Transmitting | Channel: | 5825MHz |
|---|---|---|---|
| Remark: | | | |

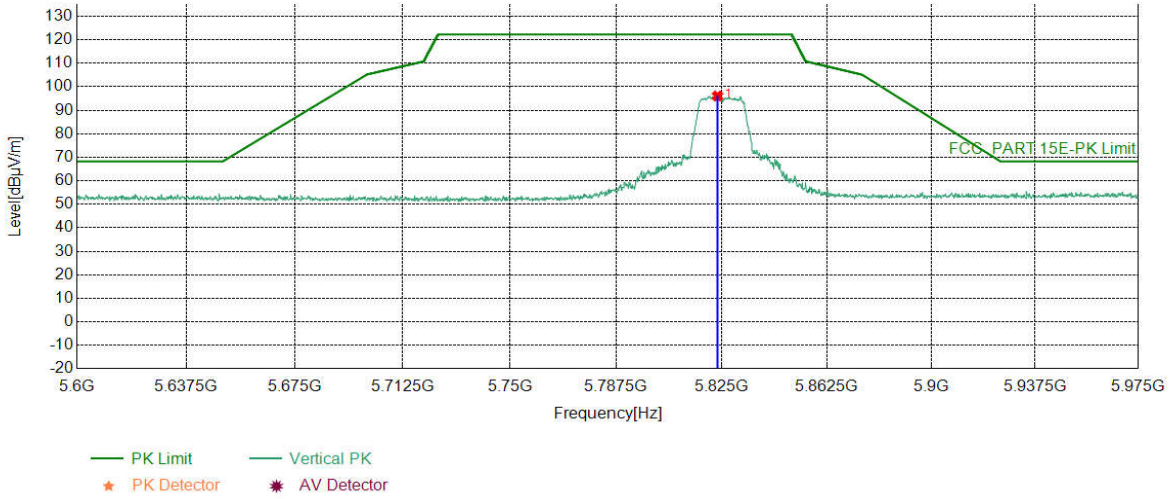
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5820.7979 | 14.02 | 88.92 | 102.94 | 122.20 | 19.26 | PASS | Horizontal | PK |

| Mode: | 802.11 a Transmitting | Channel: | 5825MHz |
|---|---|---|---|
| Remark: | | | |

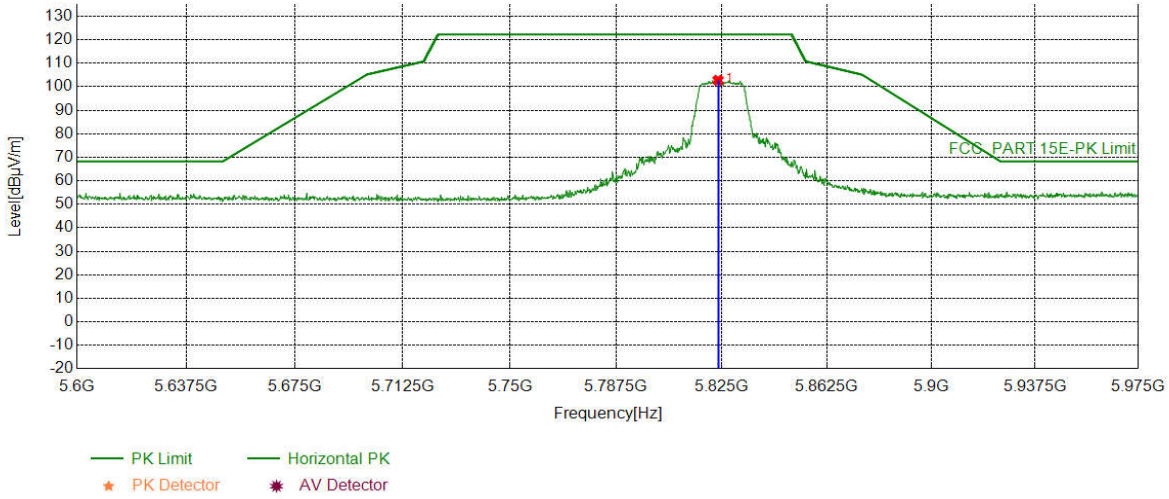
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5823.4242 | 14.03 | 82.03 | 96.06 | 122.20 | 26.14 | PASS | Vertical | PK |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5825MHz |
|---|---|---|---|
| Remark: | | | |

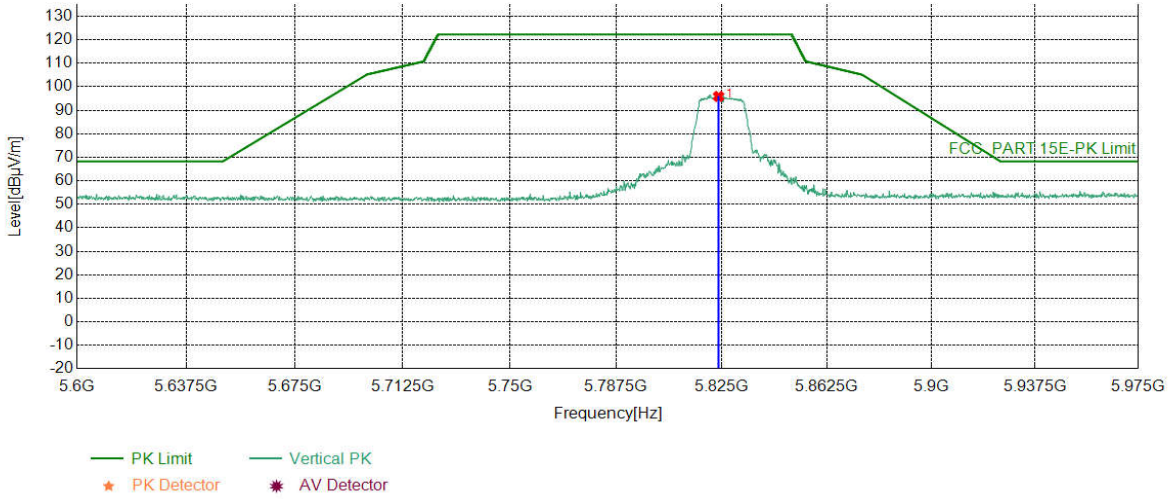
**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5823.6118 | 14.03 | 88.73 | 102.76 | 122.20 | 19.44 | PASS | Horizontal | PK |

| Mode: | 802.11 n(HT20) Transmitting | Channel: | 5825MHz |
|---|---|---|---|
| Remark: | | | |

**Test Graph**




| Suspected List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NO | Freq. [MHz] | Factor [dB] | Reading [dBµV] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Result | Polarity | Remark |
| 1 | 5823.7994 | 14.03 | 81.86 | 95.89 | 122.20 | 26.31 | PASS | Vertical | PK |

Note:

1) 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 - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

2) Scan from 1GHz to 25GHz, the disturbance above 13GHz 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.

# 8 Appendix A

Refer to Appendix: 5G WIFI of EED32N80457602.