

## FCC PART 15.407

### TEST REPORT

For

### Winner Wave Limited

Unit 1615 Peninsula Tower, 538 Castle Peak Road, Lai Chi Kok, Kowloon, Hong Kong

**FCC ID: 2ADFSTYWPBC1**

|                                                                                                                                                                                                                                                                                                                             |                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| <b>Report Type:</b><br>Original Report                                                                                                                                                                                                                                                                                      | <b>Product Type:</b><br>Wireless Presentation System |
| <b>Report Number:</b> RSZ201207007-00                                                                                                                                                                                                                                                                                       |                                                      |
| <b>Report Date:</b> 2020-12-30                                                                                                                                                                                                                                                                                              |                                                      |
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                                |                                                                                                                                                                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product                        | Wireless Presentation System                                                                                                                                                                                                                                                                                             |
| Tested Model                   | TY-WPBC1                                                                                                                                                                                                                                                                                                                 |
| Frequency Range                | 5G Wi-Fi: 5150-5250MHz; 5725-5850MHz                                                                                                                                                                                                                                                                                     |
| Maximum Conducted Output Power | Wi-Fi:<br>5150-5250 MHz:<br>11.83dBm (802.11a), 11.76dBm(802.11n20), 11.31 dBm(802.11n40)<br>11.67dBm (802.11ac20), 11.51dBm(802.11 ac40), 7.99dBm(802.11 ac80)<br>5725-5850 MHz:<br>11.12dBm (802.11a), 12.64dBm(802.11n20), 10.67dBm(802.11n40)<br>12.78dBm (802.11ac20), 11.00dBm(802.11 ac40), 11.56dBm(802.11 ac80) |
| Modulation Technique           | OFDM                                                                                                                                                                                                                                                                                                                     |
| Antenna Specification*         | 1.52 dBi(It is provided by the applicant)                                                                                                                                                                                                                                                                                |
| Voltage Range                  | DC 5.0V from USB port                                                                                                                                                                                                                                                                                                    |
| Date of Test                   | 2020-12-15 to 2020-12-30                                                                                                                                                                                                                                                                                                 |
| Sample serial number           | RSZ201207007-RF-S1 (Assigned by BACL, Shenzhen)                                                                                                                                                                                                                                                                          |
| Received date                  | 2020-12-07                                                                                                                                                                                                                                                                                                               |
| Sample/EUT Status              | Good condition                                                                                                                                                                                                                                                                                                           |

### Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033 D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

**Measurement Uncertainty**

| Parameter                          |            | Uncertainty |
|------------------------------------|------------|-------------|
| Occupied Channel Bandwidth         |            | ±5%         |
| RF Output Power with Power meter   |            | ±0.73dB     |
| RF conducted test with spectrum    |            | ±1.6dB      |
| AC Power Lines Conducted Emissions |            | ±1.95dB     |
| Emissions,<br>Radiated             | Below 1GHz | ±4.75dB     |
|                                    | Above 1GHz | ±4.88dB     |
| Temperature                        |            | ±1 °C       |
| Humidity                           |            | ±6%         |
| Supply voltages                    |            | ±0.4%       |

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

**Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device support 802.11a/n20/n40/ac20/ac40/ac80 modes.

For 5150-5250MHz Band, 7 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 36      | 5180            | 44      | 5220            |
| 38      | 5190            | 46      | 5230            |
| 40      | 5200            | 48      | 5240            |
| 42      | 5210            | /       | /               |

For 802.11a, 802.11n20, 802.11ac20 channel 36, 40, 48 were tested; For 802.11n40, 802.11ac40 channel 38, 46 were tested; For 802.11ac80, channel 42 was tested.

For 5725-5850MHz Band, 8 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 149     | 5745            | 157     | 5785            |
| 151     | 5755            | 159     | 5795            |
| 153     | 5765            | 161     | 5805            |
| 155     | 5775            | 165     | 5825            |

For 802.11a, 802.11n20, 802.11ac20 channel 149, 157, 165 were tested; For 802.11n40, 802.11ac40 channel 151, 159 were tested; For 802.11ac80, channel 155 was tested.

## EUT Exercise Software

“Realtek 11ac 8821C USB WLAN MP Diagnostic Program” exercise software was used.

The software and power level was provided by the applicant.

Test frequencies and power level were configured as below:

| U-NII          | Mode        | Frequency (MHz) | Data Rate (Mbps) | Power Level* |
|----------------|-------------|-----------------|------------------|--------------|
| 5150 – 5250MHz | 802.11 a    | 5180            | 6                | 45           |
|                |             | 5200            | 6                | 45           |
|                |             | 5240            | 6                | 45           |
|                | 802.11 n20  | 5180            | MCS0             | 45           |
|                |             | 5200            | MCS0             | 45           |
|                |             | 5240            | MCS0             | 45           |
|                | 802.11 n40  | 5190            | MCS0             | 38           |
|                |             | 5230            | MCS0             | 38           |
|                | 802.11 ac20 | 5180            | MCS0             | 45           |
|                |             | 5200            | MCS0             | 45           |
|                |             | 5240            | MCS0             | 45           |
|                | 802.11 ac40 | 5190            | MCS0             | 38           |
|                |             | 5230            | MCS0             | 38           |
|                | 802.11 ac8  | 5210            | MCS0             | 33           |
| 5725 – 5850MHz | 802.11 a    | 5745            | 6                | 45           |
|                |             | 5785            | 6                | 45           |
|                |             | 5825            | 6                | 45           |
|                | 802.11 n20  | 5745            | MCS0             | 45           |
|                |             | 5785            | MCS0             | 45           |
|                |             | 5825            | MCS0             | 45           |
|                | 802.11 n40  | 5755            | MCS0             | 38           |
|                |             | 5795            | MCS0             | 38           |
|                | 802.11 ac20 | 5745            | MCS0             | 45           |
|                |             | 5785            | MCS0             | 45           |
|                |             | 5825            | MCS0             | 45           |
|                | 802.11 ac40 | 5755            | MCS0             | 38           |
|                |             | 5795            | MCS0             | 38           |
|                | 802.11 ac80 | 5775            | MCS0             | 33           |

Note: the above data rate was the worst case.

## Equipment Modifications

No modification was made to the EUT tested.

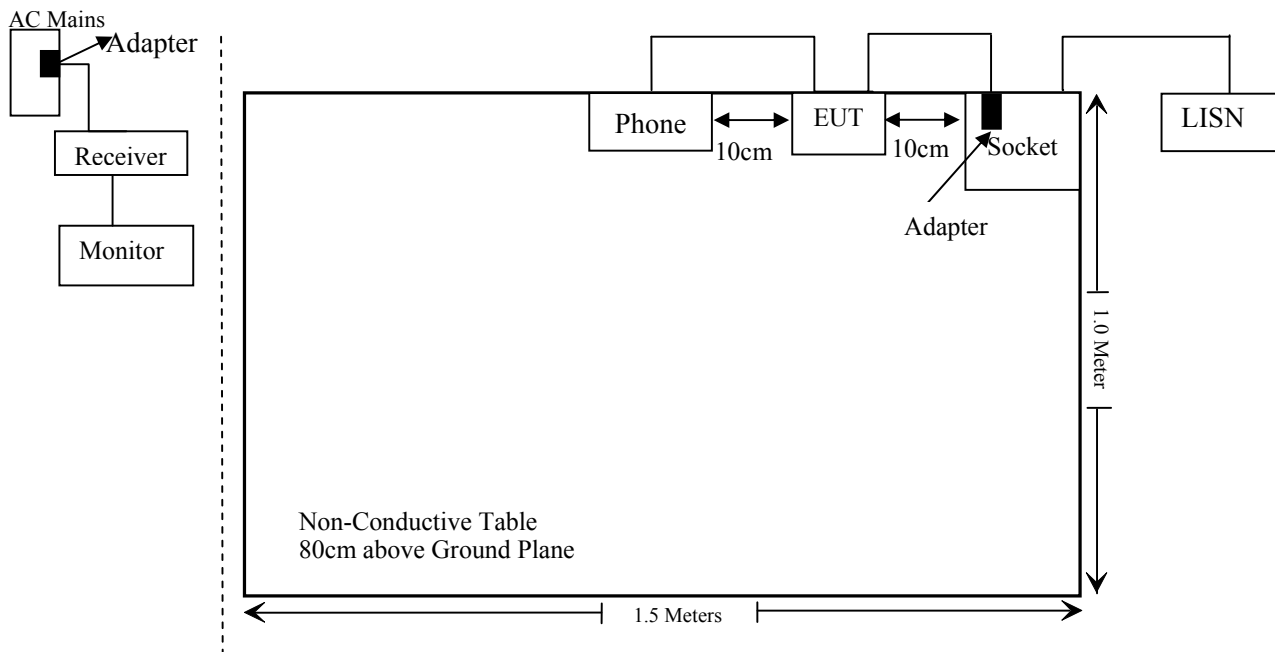
**Support Equipment List and Details**

| Manufacturer                           | Description                  | Model      | Serial Number   |
|----------------------------------------|------------------------------|------------|-----------------|
| Panasonic Corporation                  | Wireless Presentation System | TY-WPR1    | TY-WPR1         |
| BULL                                   | Socket                       | GN-212     | A37209315081183 |
| ShenZhen Boshenggao Technology Co.,Ltd | Adapter                      | BX-0502000 | BX-0502000      |
| Nubia                                  | Mobile Phone                 | NX549J     | f4efaa79        |
| SAMSUNG                                | Monitor                      | S24E390HL  | ZZFRH4ZN303357K |

**External I/O Cable**

| Cable Description                  | Length (m) | From Port | To           |
|------------------------------------|------------|-----------|--------------|
| Un-Shielding Detachable DC Cable   | 0.2        | Adapter   | EUT          |
| Un-Shielding Detachable USB Cable  | 1.5        | EUT       | Mobile Phone |
| Un-Shielding Detachable DC Cable   | 1.5        | Adapter   | Receiver     |
| Un-Shielding Detachable HDMI Cable | 1.5        | Receiver  | Monitor      |

# Block Diagram of Test Setup





**SUMMARY OF TEST RESULTS**

| FCC Rules                                    | Description of Test                      | Result      |
|----------------------------------------------|------------------------------------------|-------------|
| §1.1307 (b) (1) & §2.1091                    | Maximum Permissible Exposure (MPE)       | Compliance  |
| §15.203                                      | Antenna Requirement                      | Compliance  |
| §15.407(b)(6)& §15.207(a)                    | Conducted Emissions                      | Compliance  |
| §15.205& §15.209<br>&§15.407(b) (1), (4),(7) | Undesirable Emission& Restricted Bands   | Compliance  |
| §15.407(a) (1), (5),(e)                      | 26 dB Emission Bandwidth & 6dB Bandwidth | Compliance* |
| §15.407(a)(1),(3)                            | Conducted Transmitter Output Power       | Compliance* |
| §15.407 (a)(1),(3)                           | Power Spectral Density                   | Compliance* |

Compliance\*: The EUT (FCC ID: 2ADFSTYWPBC1) has the same Wi-Fi module with the certified device (FCC ID: 2ADFSTYWPB1), please refers to the report: RSZ200724002-00 which was issued by Bay Area Compliance Laboratories Corp. (Shenzhen) on 2020-09-18.

**TEST EQUIPMENT LIST**

| Manufacturer                  | Description        | Model                   | Serial Number          | Calibration Date | Calibration Due Date |
|-------------------------------|--------------------|-------------------------|------------------------|------------------|----------------------|
| <b>AC Line Conducted test</b> |                    |                         |                        |                  |                      |
| Rohde & Schwarz               | EMI Test Receiver  | ESCI                    | 101120                 | 2020/08/04       | 2021/08/03           |
| Rohde & Schwarz               | LISN               | ENV216                  | 101613                 | 2020/08/04       | 2021/08/03           |
| Rohde & Schwarz               | Transient Limitor  | ESH3Z2                  | DE25985                | 2020/11/29       | 2021/11/28           |
| Unknown                       | CE Cable           | CE Cable                | UF A210B-1-0720-504504 | 2020/11/29       | 2021/11/28           |
| Rohde & Schwarz               | CE Test software   | EMC 32                  | V8.53.0                | NCR              | NCR                  |
| <b>Radiated Emission Test</b> |                    |                         |                        |                  |                      |
| R&S                           | EMI Test Receiver  | ESR3                    | 102455                 | 2020/08/04       | 2021/08/03           |
| Sonoma instrument             | Pre-amplifier      | 310 N                   | 186238                 | 2020/08/04       | 2021/08/03           |
| Sunol Sciences                | Broadband Antenna  | JB1                     | A040904-1              | 2017/12/22       | 2020/12/21           |
| Unknown                       | Cable 2            | RF Cable 2              | F-03-EM197             | 2020/11/29       | 2021/11/28           |
| Unknown                       | Cable              | Chamber Cable 1         | F-03-EM236             | 2020/11/29       | 2021/11/28           |
| Rohde & Schwarz               | Auto test software | EMC 32                  | V9.10                  | NCR              | NCR                  |
| Rohde & Schwarz               | Spectrum Analyzer  | FSV40-N                 | 102259                 | 2020/08/04       | 2021/08/03           |
| COM-POWER                     | Pre-amplifier      | PA-122                  | 181919                 | 2020/11/29       | 2021/11/28           |
| Quinstar                      | Amplifier          | QLW-18405536-J0         | 15964001002            | 2020/11/29       | 2021/11/28           |
| Sunol Sciences                | Horn Antenna       | DRH-118                 | A052604                | 2020/12/22       | 2023/12/21           |
| Insulted Wire Inc.            | RF Cable           | SPS-2503-3150           | 02222010               | 2020/11/29       | 2021/11/28           |
| Unknown                       | RF Cable           | W1101-EQ1 OUT           | F-19-EM005             | 2020/11/29       | 2021/11/28           |
| Unknown                       | Signal Cable       | RG-214                  | 2                      | 2020/11/29       | 2021/11/28           |
| SNSD                          | Band Reject filter | BSF5150-5850MN-0899-004 | 5G filter              | 2020/04/20       | 2021/04/20           |
| Ducommun Technologies         | Horn antenna       | ARH-4223-02             | 1007726-02 1304        | 2020/12/06       | 2023/12/05           |
| Ducommun Technologies         | Horn antenna       | ARH-2823-02             | 1007726-02 1302        | 2020/12/06       | 2023/12/05           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**§1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)****Applicable Standard**

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

**Limits for General Population/Uncontrolled Exposure**

| <b>Limits for General Population/Uncontrolled Exposure</b> |                                      |                                      |                                          |                                 |
|------------------------------------------------------------|--------------------------------------|--------------------------------------|------------------------------------------|---------------------------------|
| <b>Frequency Range (MHz)</b>                               | <b>Electric Field Strength (V/m)</b> | <b>Magnetic Field Strength (A/m)</b> | <b>Power Density (mW/cm<sup>2</sup>)</b> | <b>Averaging Time (Minutes)</b> |
| 0.3-1.34                                                   | 614                                  | 1.63                                 | *(100)                                   | 30                              |
| 1.34-30                                                    | 824/f                                | 2.19/f                               | *(180/f <sup>2</sup> )                   | 30                              |
| 30-300                                                     | 27.5                                 | 0.073                                | 0.2                                      | 30                              |
| 300-1500                                                   | /                                    | /                                    | f/1500                                   | 30                              |
| 1500-100,000                                               | /                                    | /                                    | 1.0                                      | 30                              |

f = frequency in MHz

\* = Plane-wave equivalent power density

**Result****Calculated Formulary:**

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

| <b>Frequency (MHz)</b> | <b>Antenna Gain</b> |                  | <b>Tune Up Conducted Output Power</b> |             | <b>Evaluation Distance (cm)</b> | <b>Power Density (mW/cm<sup>2</sup>)</b> | <b>MPE Limit (mW/cm<sup>2</sup>)</b> |
|------------------------|---------------------|------------------|---------------------------------------|-------------|---------------------------------|------------------------------------------|--------------------------------------|
|                        | <b>(dBi)</b>        | <b>(numeric)</b> | <b>(dBm)</b>                          | <b>(mW)</b> |                                 |                                          |                                      |
| 5150-5250              | 1.52                | 1.42             | 12                                    | 15.85       | 20                              | 0.0045                                   | 1.0                                  |
| 5725-5850              | 1.52                | 1.42             | 13                                    | 19.95       | 20                              | 0.0056                                   | 1.0                                  |

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Compliance**

## **FCC §15.203 – ANTENNA REQUIREMENT**

---

### **Applicable Standard**

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
  - b. Antenna must use a unique type of connector to attach to the EUT.
- Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **Antenna Connector Construction**

The EUT has one internal antenna arrangement, which was permanently attached and the antenna gain is 1.52 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

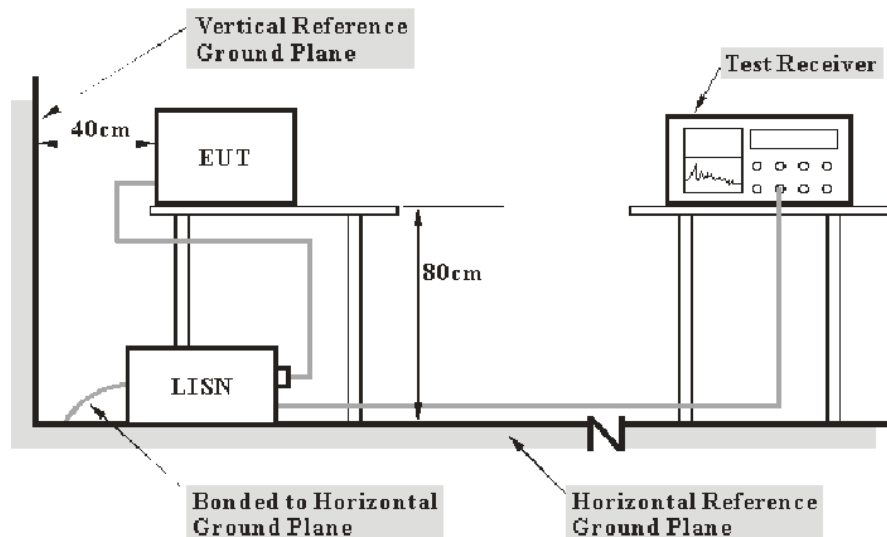
**Result:** Compliance.

## FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

### Applicable Standard

FCC §15.207, §15.407(b) (6)

### EUT Setup



Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | IF B/W |
|------------------|--------|
| 150 kHz – 30 MHz | 9 kHz  |

### Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

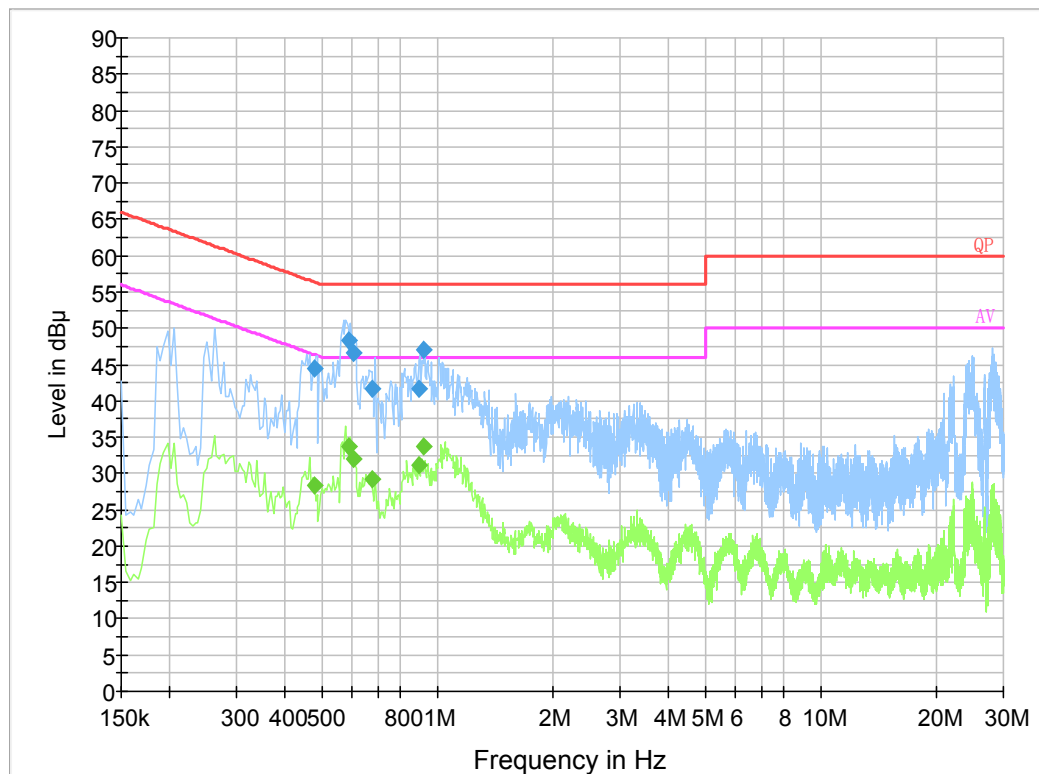
All data was recorded in the Quasi-peak and average detection mode.

**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 25 °C     |
| <b>Relative Humidity:</b> | 65 %      |
| <b>ATM Pressure:</b>      | 101.0 kPa |

*The testing was performed by Haiguo Li on 2020-12-15.*

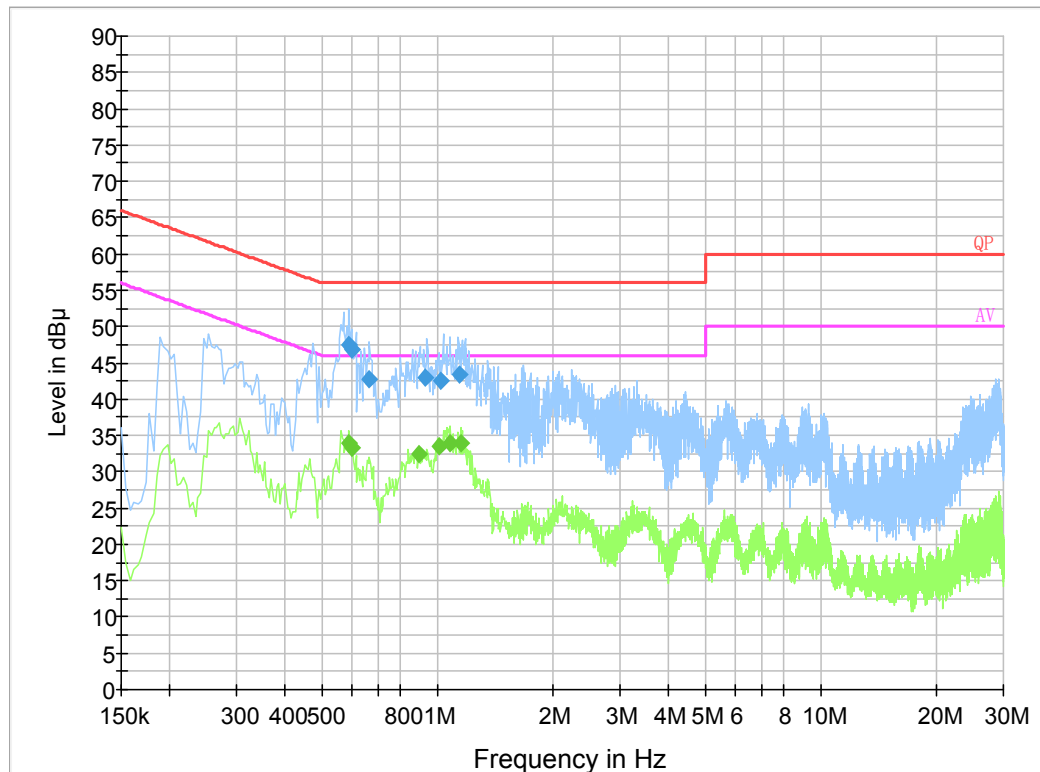
*EUT operation mode: Transmitting*

**AC 120V/60 Hz, Line:****Final Result 1**

| Frequency (MHz) | QuasiPeak (dB μ V) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB μ V) |
|-----------------|--------------------|-----------------|------|------------|-------------|----------------|
| 0.478710        | 44.5               | 9.000           | L1   | 19.8       | 11.9        | 56.4           |
| 0.586670        | 48.3               | 9.000           | L1   | 19.8       | 7.7         | 56.0           |
| 0.604850        | 46.7               | 9.000           | L1   | 19.8       | 9.3         | 56.0           |
| 0.679650        | 41.7               | 9.000           | L1   | 19.8       | 14.3        | 56.0           |
| 0.892470        | 41.8               | 9.000           | L1   | 19.8       | 14.2        | 56.0           |
| 0.920050        | 47.1               | 9.000           | L1   | 19.8       | 8.9         | 56.0           |

**Final Result 2**

| Frequency (MHz) | Average (dB μ V) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB μ V) |
|-----------------|------------------|-----------------|------|------------|-------------|----------------|
| 0.478710        | 28.4             | 9.000           | L1   | 19.8       | 18.0        | 46.4           |
| 0.586670        | 33.8             | 9.000           | L1   | 19.8       | 12.2        | 46.0           |
| 0.604850        | 32.0             | 9.000           | L1   | 19.8       | 14.0        | 46.0           |
| 0.679650        | 29.3             | 9.000           | L1   | 19.8       | 16.7        | 46.0           |
| 0.892470        | 31.2             | 9.000           | L1   | 19.8       | 14.8        | 46.0           |
| 0.920050        | 33.7             | 9.000           | L1   | 19.8       | 12.3        | 46.0           |

**AC 120V/60 Hz, Neutral:****Final Result 1**

| Frequency (MHz) | QuasiPeak (dB μ V) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB μ V) |
|-----------------|--------------------|-----------------|------|------------|-------------|----------------|
| 0.589030        | 47.6               | 9.000           | N    | 19.8       | 8.4         | 56.0           |
| 0.597150        | 46.9               | 9.000           | N    | 19.8       | 9.1         | 56.0           |
| 0.664010        | 42.7               | 9.000           | N    | 19.8       | 13.3        | 56.0           |
| 0.931870        | 43.0               | 9.000           | N    | 19.8       | 13.0        | 56.0           |
| 1.026430        | 42.5               | 9.000           | N    | 19.8       | 13.5        | 56.0           |
| 1.144930        | 43.3               | 9.000           | N    | 19.8       | 12.7        | 56.0           |

**Final Result 2**

| Frequency (MHz) | Average (dB μ V) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB μ V) |
|-----------------|------------------|-----------------|------|------------|-------------|----------------|
| 0.590000        | 33.9             | 9.000           | N    | 19.8       | 12.1        | 46.0           |
| 0.602000        | 33.2             | 9.000           | N    | 19.8       | 12.8        | 46.0           |
| 0.894000        | 32.5             | 9.000           | N    | 19.7       | 13.5        | 46.0           |
| 1.010000        | 33.5             | 9.000           | N    | 19.8       | 12.5        | 46.0           |
| 1.086000        | 33.9             | 9.000           | N    | 19.8       | 12.1        | 46.0           |
| 1.150000        | 33.8             | 9.000           | N    | 19.8       | 12.2        | 46.0           |



## §15.205 & §15.209 & §15.407(B) (1), (2), (3), (4),(6),(7) – UNDESIRABLE EMISSION

### Applicable Standard

FCC §15.407 (b) (1), (2), (3), (4), (6), (7); §15.209; §15.205;

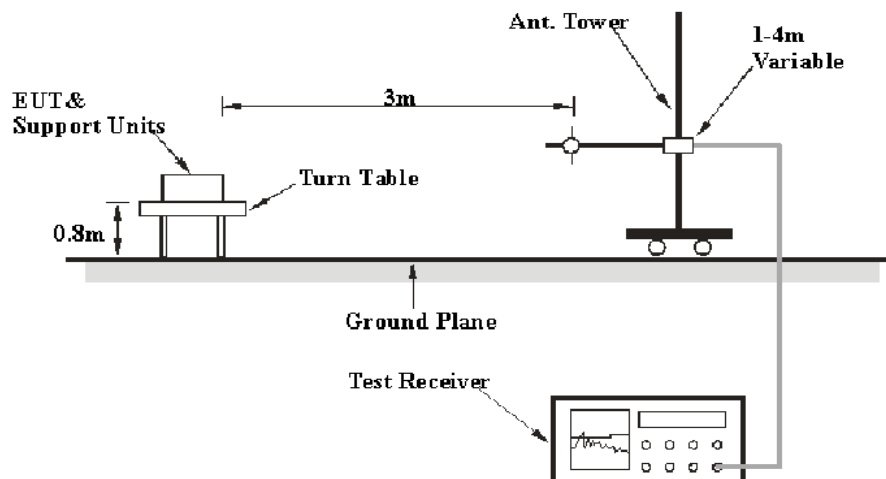
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

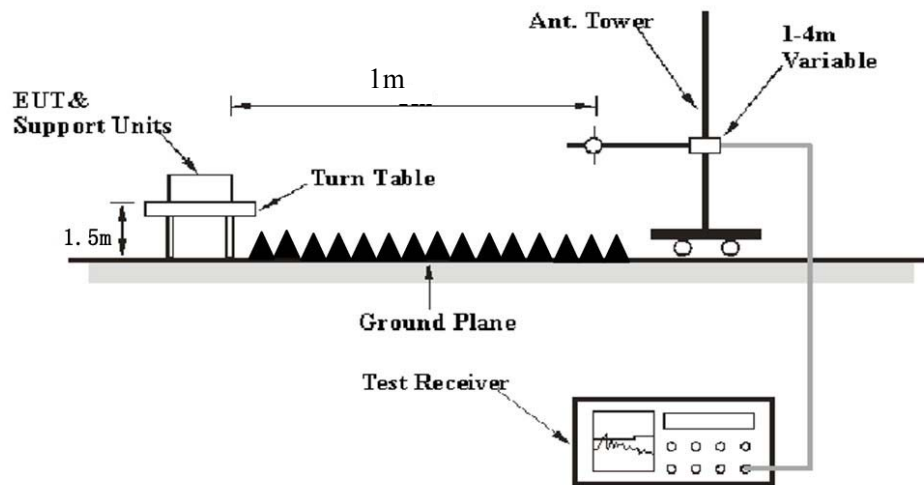
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (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.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

### EUT Setup

**Below 1 GHz:**



**Above 1 GHz:**

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

**EMI Test Receiver & Spectrum Analyzer Setup**

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

| Frequency Range   | RBW     | Video B/W               | IF B/W  | Measurement |
|-------------------|---------|-------------------------|---------|-------------|
| 30 MHz – 1000 MHz | 100 kHz | 300 kHz                 | 120 kHz | QP          |
| Above 1 GHz       | 1 MHz   | 3 MHz                   | /       | PK          |
|                   | 1MHz    | 10 Hz <sup>Note 1</sup> | /       | Average     |
|                   | 1MHz    | > 1/T <sup>Note 2</sup> | /       | Average     |

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

**Test Procedure****Radiated Spurious Emission**

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Data

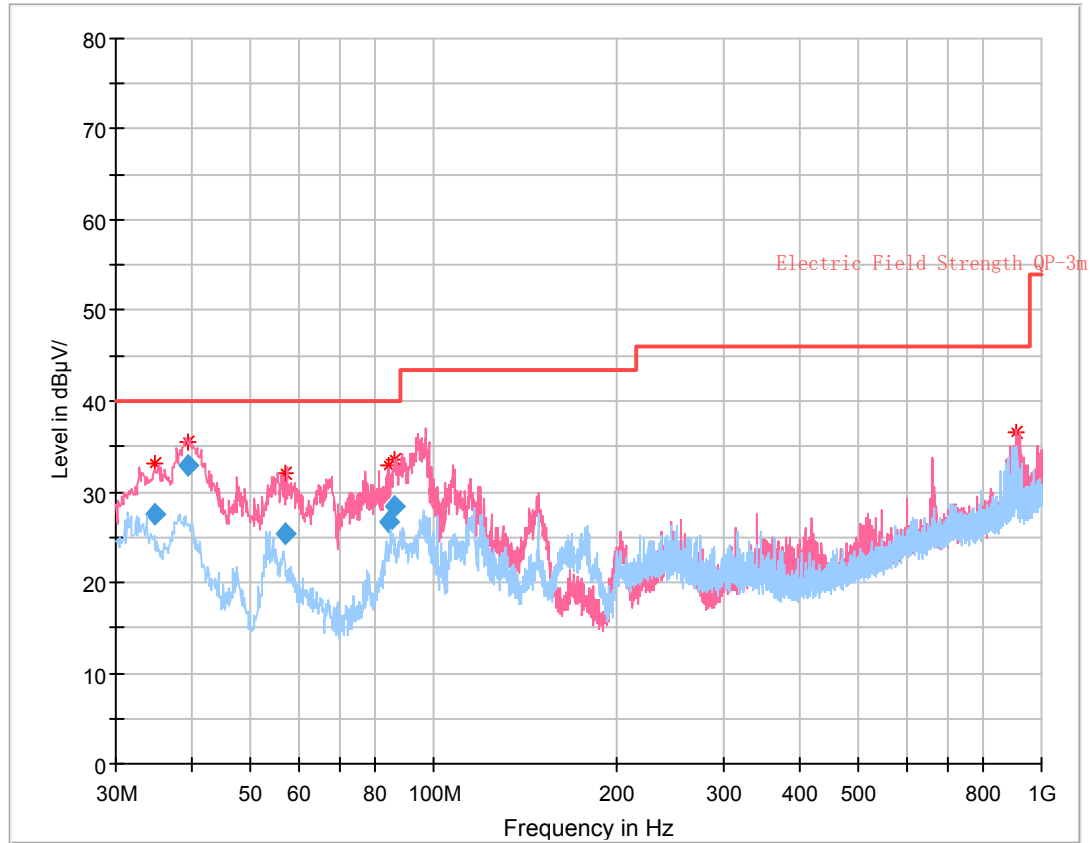
### Environmental Conditions

|                           |                 |
|---------------------------|-----------------|
| <b>Temperature:</b>       | 26.1~27 °C      |
| <b>Relative Humidity:</b> | 42~51 %         |
| <b>ATM Pressure:</b>      | 101.0~101.1 kPa |

*The testing was performed by Holland Yang on 2020-12-15 for below 1GHz and by Leven Gan on 12-30 for above 1GHz.*

*EUT operation mode: Transmitting*

**30 MHz – 1 GHz:** (the worst case is 5.8G Wi-Fi 802.11ac20 Mode, High Channel)



## Final Result

| Frequency (MHz) | QuasiPeak (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|------------|
| 34.842000       | 27.55                    | 40.00                | 12.45       | 110.0       | V   | 235.0         | -7.3       |
| 39.421500       | 32.91                    | 40.00                | 7.09        | 101.0       | V   | 129.0         | -10.2      |
| 57.054375       | 25.32                    | 40.00                | 14.68       | 107.0       | V   | 223.0         | -16.9      |
| 84.202250       | 26.56                    | 40.00                | 13.44       | 130.0       | V   | 71.0          | -16.4      |
| 86.114375       | 28.41                    | 40.00                | 11.59       | 101.0       | V   | 314.0         | -16.2      |
| 909.699625      | 30.82                    | 46.00                | 15.18       | 111.0       | V   | 322.0         | 1.5        |

**1 ~ 40 GHz:**

**Note:** The test distance is 1m, so the correct factor from 3m to 1m is  $20\log(3/1)=9.5\text{dB}$  which was added into the final limit.

**5150-5250 MHz:**

| Frequency<br>(MHz) | Receiver          |            | Turntable | Rx Antenna    |                  | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|------------|-----------|---------------|------------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. | Degree    | Height<br>(m) | Polar<br>(H / V) |                               |                                    |                   |                |
| 802.11a            |                   |            |           |               |                  |                               |                                    |                   |                |
| 5180 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5038.53            | 31.55             | PK         | 292       | 1.9           | H                | 38.14                         | 69.69                              | 83.5              | 13.81          |
| 5038.53            | 17.86             | Ave.       | 292       | 1.9           | H                | 38.14                         | 56.00                              | 63.5              | 7.50           |
| 5379.53            | 31.32             | PK         | 331       | 2.4           | H                | 39.09                         | 70.41                              | 83.5              | 13.09          |
| 5379.53            | 17.59             | Ave.       | 331       | 2.4           | H                | 39.09                         | 56.68                              | 63.5              | 6.82           |
| 10360.00           | 43.15             | PK         | 71        | 1.2           | H                | 17.48                         | 60.63                              | 77.7              | 17.07          |
| 5200 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 10400.00           | 42.96             | PK         | 215       | 1.6           | H                | 17.58                         | 60.54                              | 77.7              | 17.16          |
| 5240 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5148.24            | 32.01             | PK         | 206       | 2.0           | H                | 38.36                         | 70.37                              | 83.5              | 13.13          |
| 5148.24            | 17.54             | Ave.       | 206       | 2.0           | H                | 38.36                         | 55.90                              | 63.5              | 7.60           |
| 5351.48            | 31.87             | PK         | 66        | 1.2           | H                | 39.09                         | 70.96                              | 83.5              | 12.54          |
| 5351.48            | 17.41             | Ave.       | 66        | 1.2           | H                | 39.09                         | 56.50                              | 63.5              | 7.00           |
| 10480.00           | 42.91             | PK         | 110       | 1.4           | H                | 16.98                         | 59.89                              | 77.7              | 17.81          |
| 802.11n20          |                   |            |           |               |                  |                               |                                    |                   |                |
| 5180 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 4621.82            | 31.23             | PK         | 136       | 1.5           | H                | 37.60                         | 68.83                              | 83.5              | 14.67          |
| 4621.82            | 17.89             | Ave.       | 136       | 1.5           | H                | 37.60                         | 55.49                              | 63.5              | 8.01           |
| 5413.12            | 32.13             | PK         | 344       | 2.2           | H                | 39.19                         | 71.32                              | 83.5              | 12.18          |
| 5413.12            | 17.77             | Ave.       | 344       | 2.2           | H                | 39.19                         | 56.96                              | 63.5              | 6.54           |
| 10360.00           | 42.62             | PK         | 58        | 1.1           | H                | 17.48                         | 60.10                              | 77.7              | 17.60          |
| 5200 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 10400.00           | 42.56             | PK         | 253       | 1.5           | H                | 17.58                         | 60.14                              | 77.7              | 17.56          |
| 5240 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 4625.17            | 31.39             | PK         | 159       | 1.7           | H                | 37.60                         | 68.99                              | 83.5              | 14.51          |
| 4625.17            | 17.95             | Ave.       | 159       | 1.7           | H                | 37.60                         | 55.55                              | 63.5              | 7.95           |
| 5415.46            | 32.35             | PK         | 83        | 1.2           | H                | 39.19                         | 71.54                              | 83.5              | 11.96          |
| 5415.46            | 17.87             | Ave.       | 83        | 1.2           | H                | 39.19                         | 57.06                              | 63.5              | 6.44           |
| 10480.00           | 42.49             | PK         | 343       | 1.1           | H                | 16.98                         | 59.47                              | 77.7              | 18.23          |

| Frequency<br>(MHz) | Receiver          |            | Turntable | Rx Antenna    |                  | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|------------|-----------|---------------|------------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. | Degree    | Height<br>(m) | Polar<br>(H / V) |                               |                                    |                   |                |
| 802.11n40          |                   |            |           |               |                  |                               |                                    |                   |                |
| 5190 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5146.57            | 32.04             | PK         | 35        | 2.0           | H                | 38.36                         | 70.40                              | 83.5              | 13.10          |
| 5146.57            | 17.96             | Ave.       | 35        | 2.0           | H                | 38.36                         | 56.32                              | 63.5              | 7.18           |
| 5351.22            | 31.76             | PK         | 97        | 1.3           | H                | 39.09                         | 70.85                              | 83.5              | 12.65          |
| 5351.22            | 17.92             | Ave.       | 97        | 1.3           | H                | 39.09                         | 57.01                              | 63.5              | 6.49           |
| 10380.00           | 42.17             | PK         | 317       | 1.8           | H                | 17.42                         | 59.59                              | 77.7              | 18.11          |
| 5230 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5147.56            | 32.04             | PK         | 64        | 2.5           | H                | 38.36                         | 70.40                              | 83.5              | 13.10          |
| 5147.56            | 17.97             | Ave.       | 64        | 2.5           | H                | 38.36                         | 56.33                              | 63.5              | 7.17           |
| 5353.26            | 31.76             | PK         | 237       | 2.2           | H                | 39.09                         | 70.85                              | 83.5              | 12.65          |
| 5353.26            | 17.82             | Ave.       | 237       | 2.2           | H                | 39.09                         | 56.91                              | 63.5              | 6.59           |
| 10460.00           | 42.35             | PK         | 293       | 1.1           | H                | 17.15                         | 59.50                              | 77.7              | 18.20          |
| 802.11ac20         |                   |            |           |               |                  |                               |                                    |                   |                |
| 5180 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5025.73            | 31.68             | PK         | 130       | 1.0           | H                | 38.14                         | 69.82                              | 83.5              | 13.68          |
| 5025.73            | 17.86             | Ave.       | 130       | 1.0           | H                | 38.14                         | 56.00                              | 63.5              | 7.50           |
| 5361.26            | 31.17             | PK         | 125       | 1.3           | H                | 39.09                         | 70.26                              | 83.5              | 13.24          |
| 5361.26            | 17.79             | Ave.       | 125       | 1.3           | H                | 39.09                         | 56.88                              | 63.5              | 6.62           |
| 10360.00           | 42.71             | PK         | 66        | 1.2           | H                | 17.48                         | 60.19                              | 77.7              | 17.51          |
| 5200 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 10400.00           | 42.65             | PK         | 37        | 2.4           | H                | 17.58                         | 60.23                              | 77.7              | 17.47          |
| 5240 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5023.48            | 31.75             | PK         | 100       | 1.7           | H                | 38.14                         | 69.89                              | 83.5              | 13.61          |
| 5023.48            | 18.02             | Ave.       | 100       | 1.7           | H                | 38.14                         | 56.16                              | 63.5              | 7.34           |
| 5368.65            | 31.86             | PK         | 334       | 2.0           | H                | 39.09                         | 70.95                              | 83.5              | 12.55          |
| 5368.65            | 17.95             | Ave.       | 334       | 2.0           | H                | 39.09                         | 57.04                              | 63.5              | 6.46           |
| 10480.00           | 42.52             | PK         | 189       | 2.4           | H                | 16.98                         | 59.50                              | 77.7              | 18.20          |
| 802.11ac40         |                   |            |           |               |                  |                               |                                    |                   |                |
| 5190 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5060.11            | 31.75             | PK         | 252       | 2.1           | H                | 38.16                         | 69.91                              | 83.5              | 13.59          |
| 5060.11            | 18.75             | Ave.       | 252       | 2.1           | H                | 38.16                         | 56.91                              | 63.5              | 6.59           |
| 5411.37            | 32.3              | PK         | 61        | 1.5           | H                | 39.19                         | 71.49                              | 83.5              | 12.01          |
| 5411.37            | 18.78             | Ave.       | 61        | 1.5           | H                | 39.19                         | 57.97                              | 63.5              | 5.53           |
| 10380.00           | 42.65             | PK         | 188       | 2.4           | H                | 17.48                         | 60.13                              | 77.7              | 17.57          |
| 5230 MHz           |                   |            |           |               |                  |                               |                                    |                   |                |
| 5063.46            | 31.75             | PK         | 277       | 2.2           | H                | 38.16                         | 69.91                              | 83.5              | 13.59          |
| 5063.46            | 18.75             | Ave.       | 277       | 2.2           | H                | 38.16                         | 56.91                              | 63.5              | 6.59           |
| 5415.81            | 32.30             | PK         | 352       | 2.1           | H                | 39.19                         | 71.49                              | 83.5              | 12.01          |
| 5415.81            | 18.78             | Ave.       | 352       | 2.1           | H                | 39.19                         | 57.97                              | 63.5              | 5.53           |
| 10460.00           | 42.72             | PK         | 283       | 1.5           | H                | 16.88                         | 59.60                              | 77.7              | 18.10          |

| Frequency<br>(MHz) | Receiver          |            | Turntable | Rx Antenna    |                  | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|------------|-----------|---------------|------------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. | Degree    | Height<br>(m) | Polar<br>(H / V) |                               |                                    |                   |                |
| 802.11ac80         |                   |            |           |               |                  |                               |                                    |                   |                |
| 5147.85            | 31.51             | PK         | 85        | 1.2           | H                | 38.36                         | 69.87                              | 83.5              | 13.63          |
| 5147.85            | 18.12             | Ave.       | 85        | 1.2           | H                | 38.36                         | 56.48                              | 63.5              | 7.02           |
| 5350.29            | 32.42             | PK         | 319       | 2.4           | H                | 39.09                         | 71.51                              | 83.5              | 11.99          |
| 5350.29            | 18.15             | Ave.       | 319       | 2.4           | H                | 39.09                         | 57.24                              | 63.5              | 6.26           |
| 10420.00           | 42.82             | PK         | 202       | 2.1           | H                | 17.58                         | 60.40                              | 77.7              | 17.30          |

**5725-5850 MHz:**

| Frequency<br>(MHz) | Receiver          |            | Turntable<br>Degree | Rx Antenna    |                | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|------------|---------------------|---------------|----------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. |                     | Height<br>(m) | Polar<br>(H/V) |                               |                                    |                   |                |
| 802.11a            |                   |            |                     |               |                |                               |                                    |                   |                |
| 5745 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5639.92            | 32.37             | PK         | 51                  | 2.3           | H              | 39.46                         | 71.83                              | 77.7              | 5.87           |
| 5698.95            | 33.34             | PK         | 305                 | 1.2           | H              | 39.49                         | 72.83                              | 113.92            | 41.09          |
| 5719.98            | 39.66             | PK         | 236                 | 2.2           | H              | 39.49                         | 79.15                              | 120.29            | 41.14          |
| 5724.99            | 45.70             | PK         | 165                 | 2.2           | H              | 39.49                         | 85.19                              | 131.68            | 46.49          |
| 11490.00           | 46.43             | PK         | 90                  | 1.1           | H              | 17.47                         | 63.90                              | 83.5              | 19.60          |
| 11490.00           | 30.5              | Ave.       | 90                  | 1.1           | V              | 17.47                         | 47.97                              | 63.5              | 15.53          |
| 5785 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 11570.00           | 45.71             | PK         | 347                 | 1.0           | H              | 17.51                         | 63.22                              | 83.5              | 20.28          |
| 11570.00           | 30.23             | Ave.       | 347                 | 1.0           | H              | 17.51                         | 47.74                              | 63.5              | 15.76          |
| 5825 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5850.24            | 38.27             | PK         | 264                 | 1.7           | H              | 39.87                         | 78.14                              | 131.15            | 53.01          |
| 5855.13            | 35.54             | PK         | 36                  | 1.1           | H              | 39.87                         | 75.41                              | 120.26            | 44.85          |
| 5889.06            | 34.67             | PK         | 246                 | 1.1           | H              | 39.87                         | 74.54                              | 104.3             | 29.76          |
| 5928.42            | 33.99             | PK         | 144                 | 1.7           | H              | 39.97                         | 73.96                              | 77.7              | 3.74           |
| 11650.00           | 44.87             | PK         | 142                 | 1.7           | H              | 16.18                         | 61.05                              | 83.5              | 22.45          |
| 11650.00           | 30.13             | Ave.       | 142                 | 1.7           | H              | 16.18                         | 46.31                              | 63.5              | 17.19          |
| 802.11n20          |                   |            |                     |               |                |                               |                                    |                   |                |
| 5745 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5634.48            | 32.38             | PK         | 225                 | 1.4           | H              | 39.46                         | 71.84                              | 77.7              | 5.86           |
| 5683.61            | 33.15             | PK         | 328                 | 2.3           | H              | 39.49                         | 72.64                              | 102.57            | 29.93          |
| 5719.98            | 40.29             | PK         | 25                  | 1.1           | H              | 39.49                         | 79.78                              | 120.29            | 40.51          |
| 5722.82            | 50.11             | PK         | 265                 | 1.5           | H              | 39.49                         | 89.60                              | 126.73            | 37.13          |
| 11490.00           | 45.29             | PK         | 96                  | 2.1           | H              | 17.47                         | 62.76                              | 83.5              | 20.74          |
| 11490.00           | 28.85             | Ave.       | 96                  | 2.1           | H              | 17.47                         | 46.32                              | 63.5              | 17.18          |
| 5785 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 11570.00           | 45.13             | PK         | 181                 | 1.9           | H              | 17.51                         | 62.64                              | 83.5              | 20.86          |
| 11570.00           | 28.72             | AV         | 181                 | 1.9           | H              | 17.51                         | 46.23                              | 63.5              | 17.27          |
| 5825 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5850.12            | 38.21             | PK         | 134                 | 1.9           | H              | 42.76                         | 80.97                              | 131.43            | 50.46          |
| 5855.01            | 34.50             | PK         | 154                 | 1.5           | H              | 42.76                         | 77.26                              | 120.3             | 43.04          |
| 5875.13            | 32.86             | PK         | 197                 | 2.0           | H              | 42.76                         | 75.62                              | 114.6             | 38.98          |
| 5940.82            | 32.41             | PK         | 115                 | 1.3           | H              | 42.86                         | 75.27                              | 77.7              | 2.43           |
| 11650.00           | 45.08             | PK         | 261                 | 1.6           | H              | 16.18                         | 61.26                              | 83.5              | 22.24          |
| 11650.00           | 28.65             | Ave.       | 261                 | 1.6           | H              | 16.18                         | 44.83                              | 63.5              | 18.67          |



| Frequency<br>(MHz) | Receiver          |            | Turntable<br>Degree | Rx Antenna    |                | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|------------|---------------------|---------------|----------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. |                     | Height<br>(m) | Polar<br>(H/V) |                               |                                    |                   |                |
| 802.11n40          |                   |            |                     |               |                |                               |                                    |                   |                |
| 5755 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5641.25            | 33.22             | PK         | 246                 | 2.3           | H              | 39.46                         | 72.68                              | 77.7              | 5.02           |
| 5687.59            | 34.17             | PK         | 75                  | 1.3           | H              | 39.49                         | 73.66                              | 105.52            | 31.86          |
| 5719.23            | 34.77             | PK         | 244                 | 1.4           | H              | 39.49                         | 74.26                              | 120.08            | 45.82          |
| 5724.95            | 37.48             | PK         | 325                 | 2.2           | H              | 39.49                         | 76.97                              | 131.59            | 54.62          |
| 11510.00           | 44.13             | PK         | 21                  | 2.2           | H              | 17.47                         | 61.60                              | 83.5              | 21.90          |
| 11510.00           | 30.12             | Ave.       | 21                  | 2.2           | H              | 17.47                         | 47.59                              | 63.5              | 15.91          |
| 5795 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5850.06            | 37.91             | PK         | 115                 | 1.7           | H              | 39.87                         | 77.78                              | 131.56            | 53.78          |
| 5855.02            | 34.85             | PK         | 270                 | 2.4           | H              | 39.87                         | 74.72                              | 120.29            | 45.57          |
| 5875.02            | 33.95             | PK         | 356                 | 1.6           | H              | 39.87                         | 73.82                              | 114.69            | 40.87          |
| 5937.51            | 34.12             | PK         | 2                   | 2.2           | H              | 39.97                         | 74.09                              | 77.7              | 3.61           |
| 11590.00           | 43.96             | PK         | 275                 | 1.5           | H              | 17.51                         | 61.47                              | 83.5              | 22.03          |
| 11590.00           | 30.07             | Ave.       | 275                 | 1.5           | H              | 17.51                         | 47.58                              | 63.5              | 15.92          |
| 802.11ac20         |                   |            |                     |               |                |                               |                                    |                   |                |
| 5745 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5646.27            | 33.01             | PK         | 81                  | 1.6           | H              | 39.46                         | 72.47                              | 77.7              | 5.23           |
| 5682.16            | 33.46             | PK         | 92                  | 2.5           | H              | 39.49                         | 72.95                              | 101.5             | 28.55          |
| 5719.52            | 35.67             | PK         | 248                 | 2.3           | H              | 39.49                         | 75.16                              | 120.17            | 45.01          |
| 5723.18            | 38.52             | PK         | 32                  | 1.5           | H              | 39.49                         | 78.01                              | 127.55            | 49.54          |
| 11490.00           | 44.14             | PK         | 190                 | 1.8           | H              | 17.47                         | 61.61                              | 83.5              | 21.89          |
| 11490.00           | 30.16             | Ave.       | 190                 | 1.8           | H              | 17.47                         | 47.63                              | 63.5              | 15.87          |
| 5785 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 11570.00           | 43.72             | PK         | 177                 | 1.3           | H              | 17.51                         | 61.23                              | 83.5              | 22.27          |
| 11570.00           | 30.04             | Ave.       | 177                 | 1.3           | H              | 17.51                         | 47.55                              | 63.5              | 15.95          |
| 5825 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5850.25            | 38.67             | PK         | 238                 | 2.4           | H              | 39.87                         | 78.54                              | 131.13            | 52.59          |
| 5855.42            | 35.82             | PK         | 210                 | 1.4           | H              | 39.87                         | 75.69                              | 120.18            | 44.49          |
| 5875.85            | 33.12             | PK         | 190                 | 2.0           | H              | 39.87                         | 72.99                              | 114.07            | 41.08          |
| 5986.18            | 33.06             | PK         | 30                  | 2.0           | H              | 39.84                         | 72.90                              | 77.7              | 4.80           |
| 11650.00           | 43.68             | PK         | 96                  | 1.7           | H              | 16.18                         | 59.86                              | 83.5              | 23.64          |
| 11650.00           | 29.14             | Ave.       | 96                  | 1.7           | H              | 16.18                         | 45.32                              | 63.5              | 18.18          |

| Frequency<br>(MHz) | Receiver          |            | Turntable<br>Degree | Rx Antenna    |                | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|------------|---------------------|---------------|----------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. |                     | Height<br>(m) | Polar<br>(H/V) |                               |                                    |                   |                |
| 802.11ac40         |                   |            |                     |               |                |                               |                                    |                   |                |
| 5755 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5603.45            | 33.32             | PK         | 337                 | 2.5           | H              | 39.46                         | 72.78                              | 77.7              | 4.92           |
| 5683.16            | 33.25             | PK         | 254                 | 1.6           | H              | 39.49                         | 72.74                              | 102.24            | 29.50          |
| 5716.05            | 33.46             | PK         | 41                  | 2.3           | H              | 39.49                         | 72.95                              | 119.19            | 46.24          |
| 5721.15            | 32.58             | PK         | 183                 | 2.2           | H              | 39.49                         | 72.07                              | 122.92            | 50.85          |
| 11510.00           | 44.12             | PK         | 210                 | 2.3           | H              | 17.47                         | 61.59                              | 83.5              | 21.91          |
| 11510.00           | 30.14             | Ave.       | 210                 | 2.3           | H              | 17.47                         | 47.61                              | 63.5              | 15.89          |
| 5795 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5852.17            | 38.86             | PK         | 168                 | 1.7           | H              | 39.87                         | 78.73                              | 126.75            | 48.02          |
| 5859.62            | 35.72             | PK         | 31                  | 1.8           | H              | 39.87                         | 75.59                              | 119.01            | 43.42          |
| 5875.24            | 33.25             | PK         | 94                  | 2.1           | H              | 39.87                         | 73.12                              | 114.52            | 41.40          |
| 5988.54            | 33.12             | PK         | 359                 | 1.1           | H              | 39.84                         | 72.96                              | 77.7              | 4.74           |
| 11590.00           | 43.61             | PK         | 140                 | 2.0           | H              | 17.51                         | 61.12                              | 83.5              | 22.38          |
| 11590.00           | 29.85             | Ave.       | 140                 | 2.0           | H              | 17.51                         | 47.36                              | 63.5              | 16.14          |
| 802.11ac80         |                   |            |                     |               |                |                               |                                    |                   |                |
| 5775 MHz           |                   |            |                     |               |                |                               |                                    |                   |                |
| 5626.25            | 32.51             | PK         | 354                 | 2.2           | H              | 39.46                         | 71.97                              | 77.7              | 5.73           |
| 5669.32            | 32.61             | PK         | 283                 | 2.1           | H              | 39.49                         | 72.10                              | 106.39            | 34.29          |
| 5719.35            | 32.19             | PK         | 215                 | 2.0           | H              | 39.49                         | 71.68                              | 120.14            | 48.46          |
| 5723.72            | 33.34             | PK         | 139                 | 2.3           | H              | 39.49                         | 72.83                              | 128.78            | 55.95          |
| 5851.65            | 33.71             | PK         | 251                 | 2.2           | H              | 39.87                         | 73.58                              | 127.94            | 54.36          |
| 5866.99            | 34.37             | PK         | 69                  | 2.0           | H              | 39.87                         | 74.34                              | 116.94            | 42.60          |
| 5876.71            | 33.46             | PK         | 8                   | 1.6           | H              | 39.87                         | 73.33                              | 113.43            | 40.10          |
| 5929.14            | 33.43             | PK         | 12                  | 2.2           | H              | 39.97                         | 73.40                              | 77.7              | 4.30           |
| 11550.00           | 44.06             | PK         | 179                 | 2.0           | H              | 17.51                         | 61.57                              | 83.5              | 21.93          |
| 11550.00           | 29.79             | Ave.       | 179                 | 2.0           | H              | 17.51                         | 47.30                              | 63.5              | 16.20          |

**Note:**

Corrected Amplitude = Corrected Factor + Reading

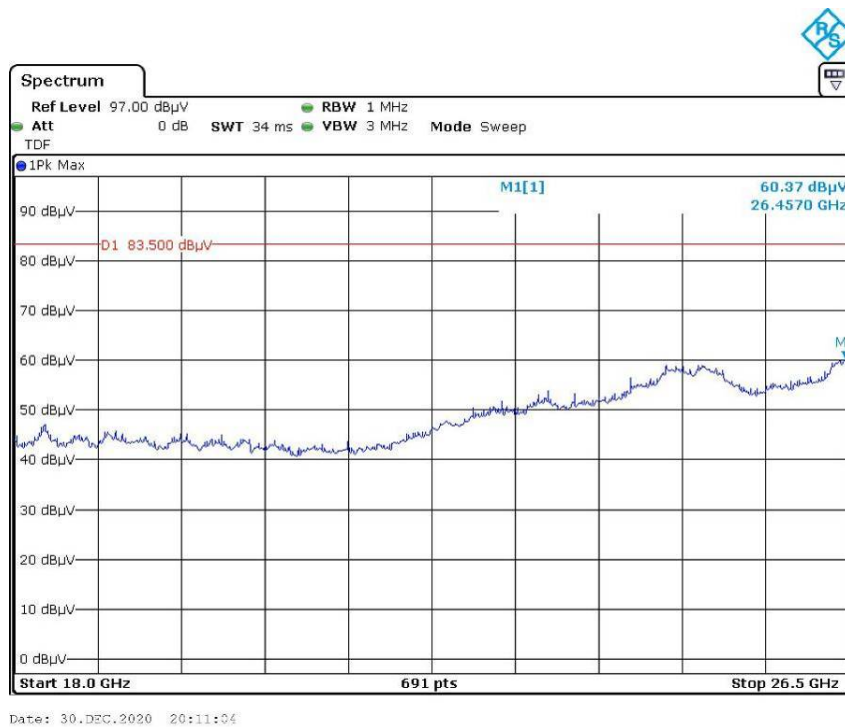
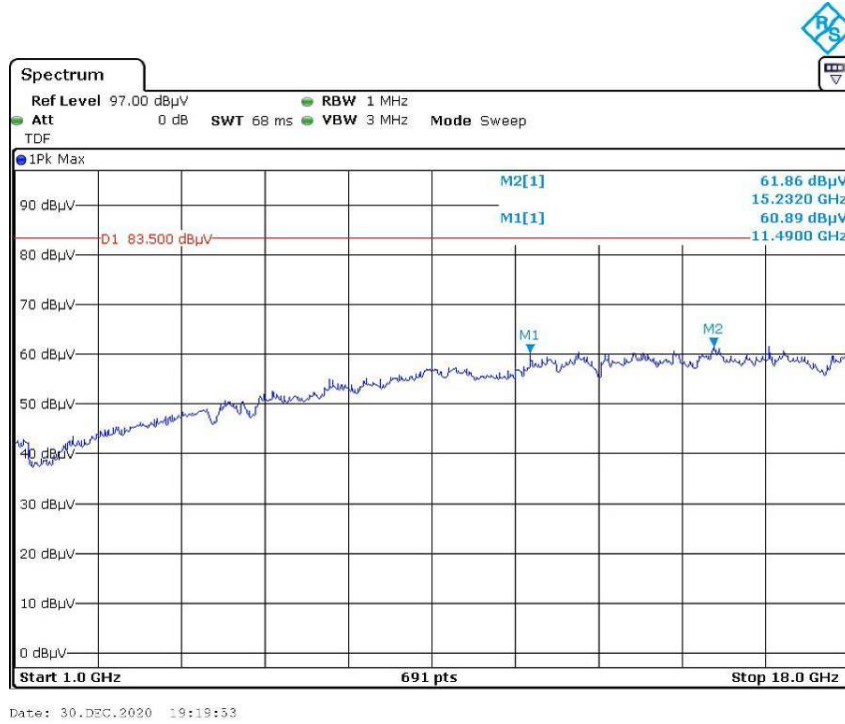
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor

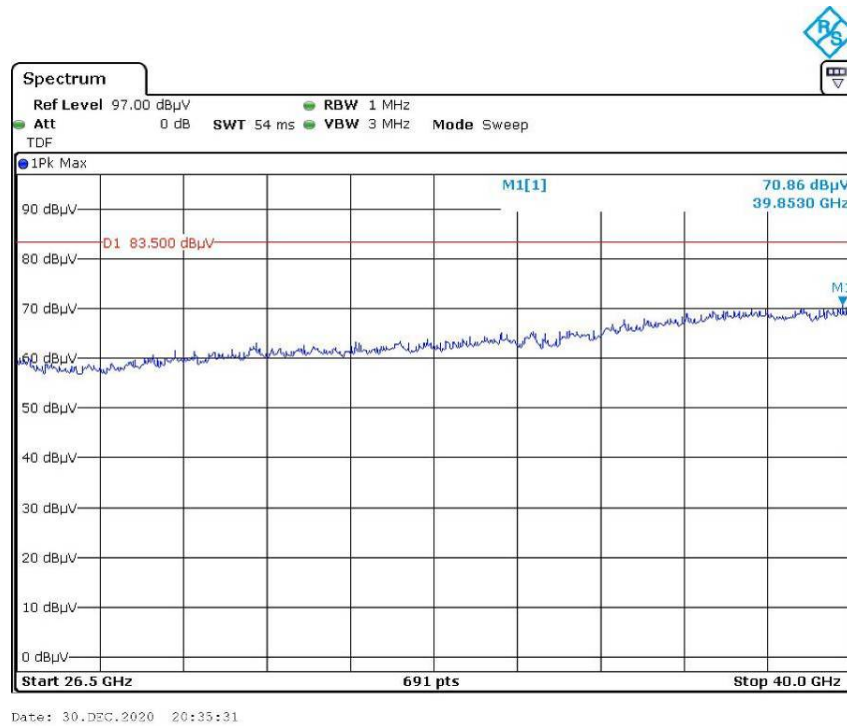
Margin = Limit- Corr. Amplitude

All other spurious emissions are 20 dB below the limit or are on the system noise floor level.

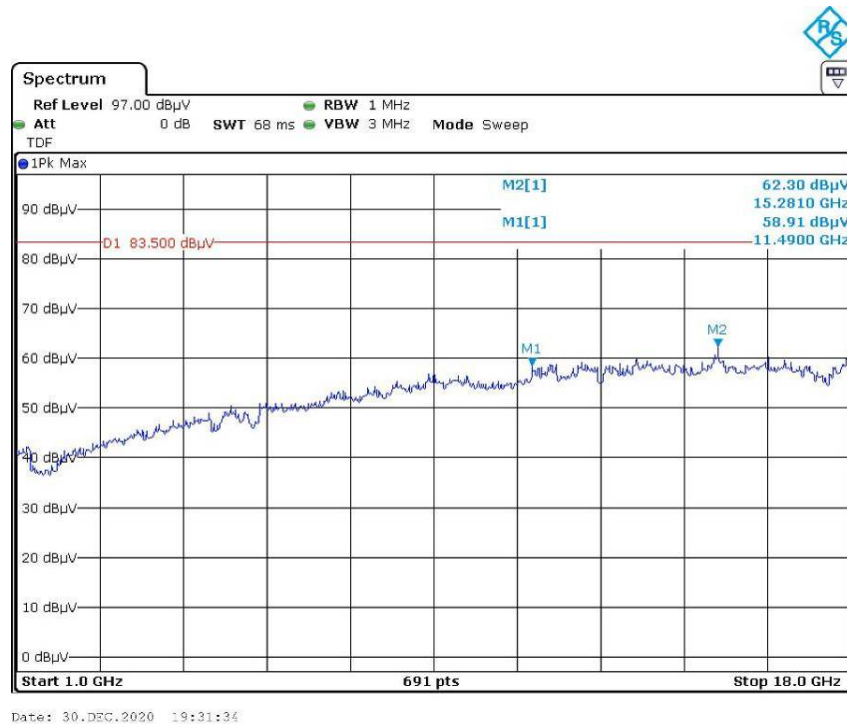
Peak

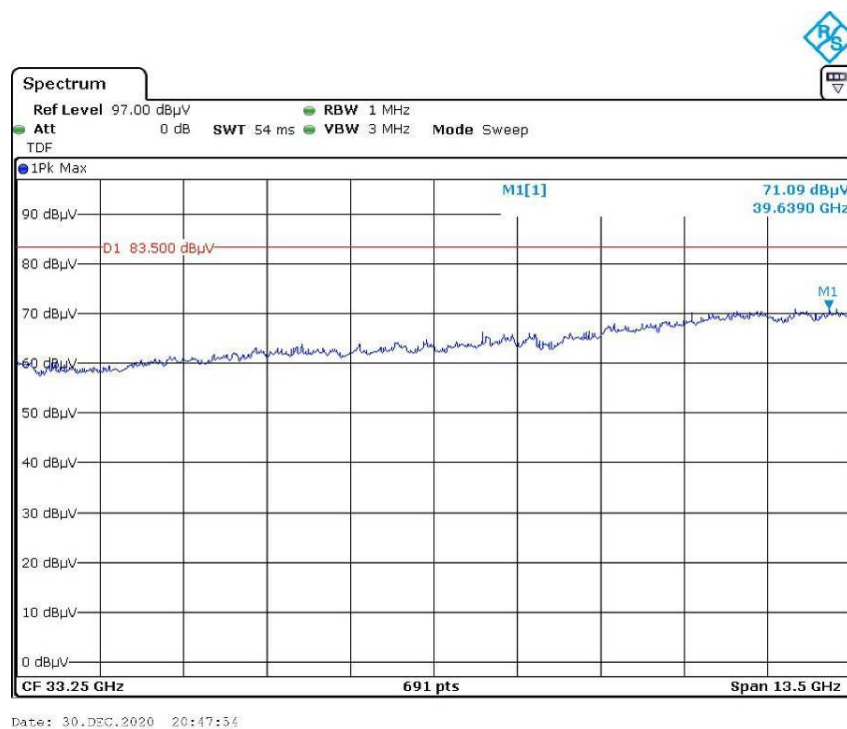
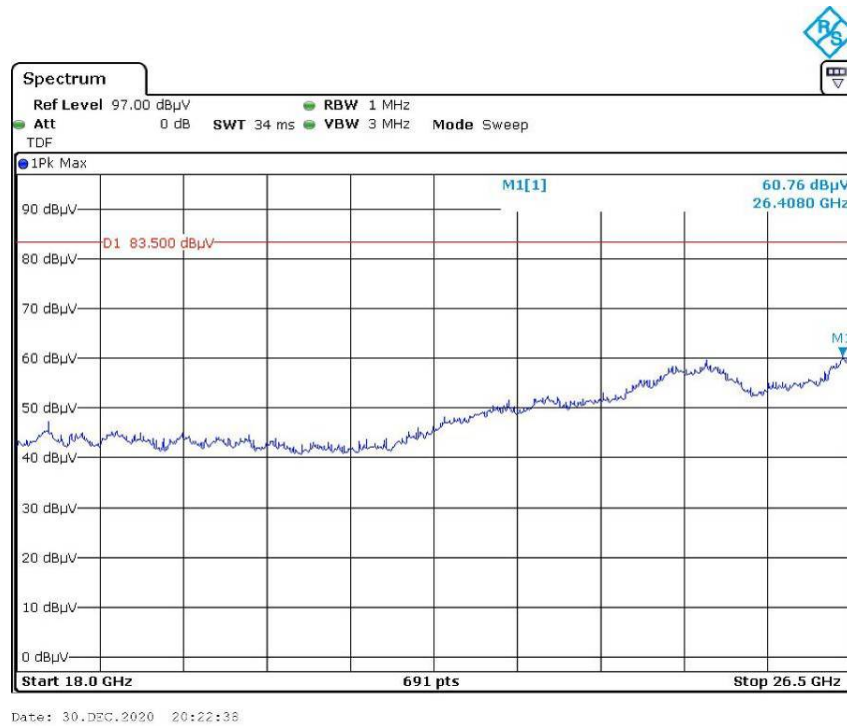
Pre-scan with 802.11a 5745MHz  
Horizontal



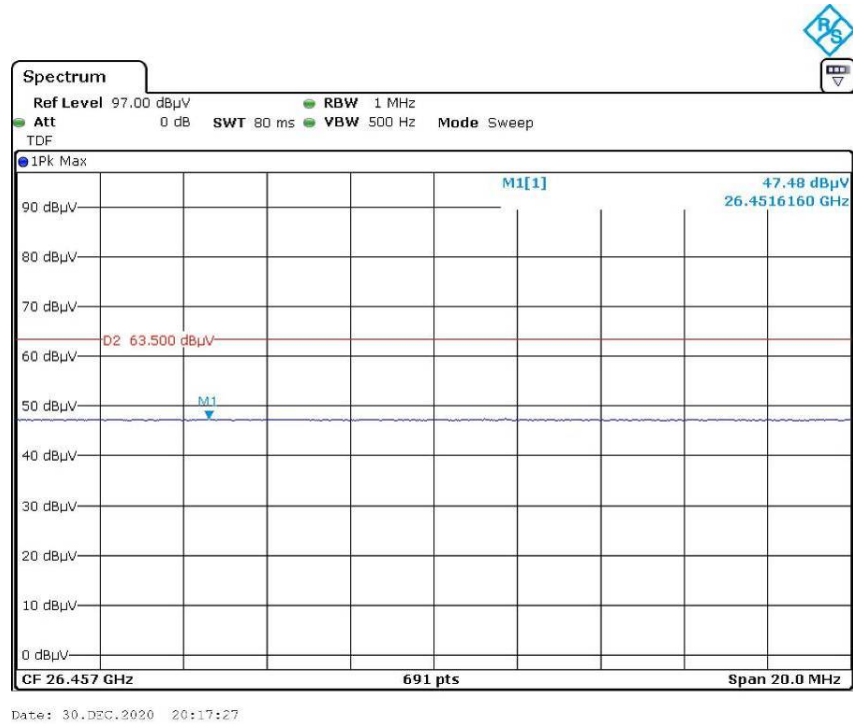
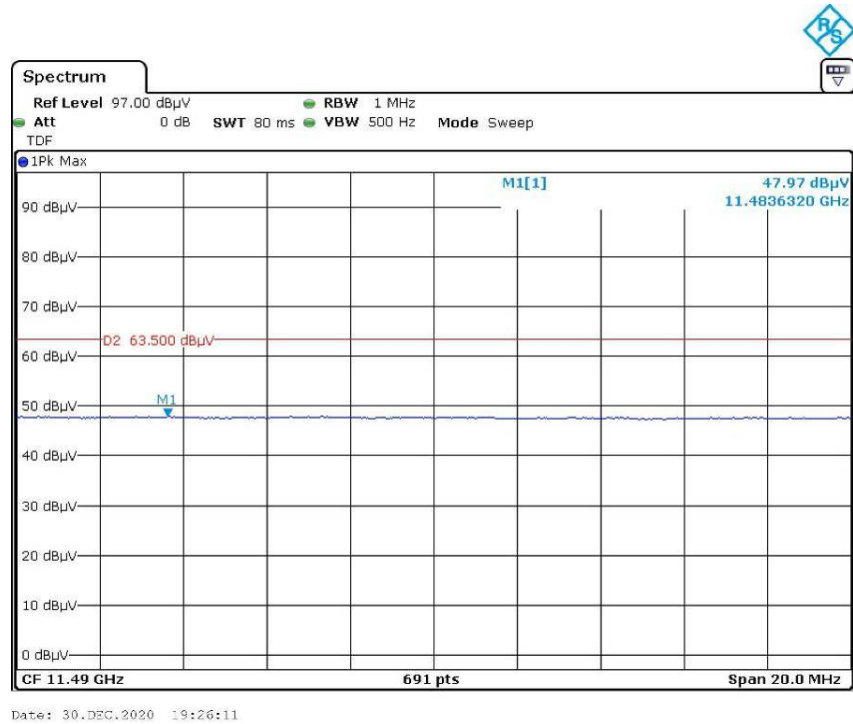


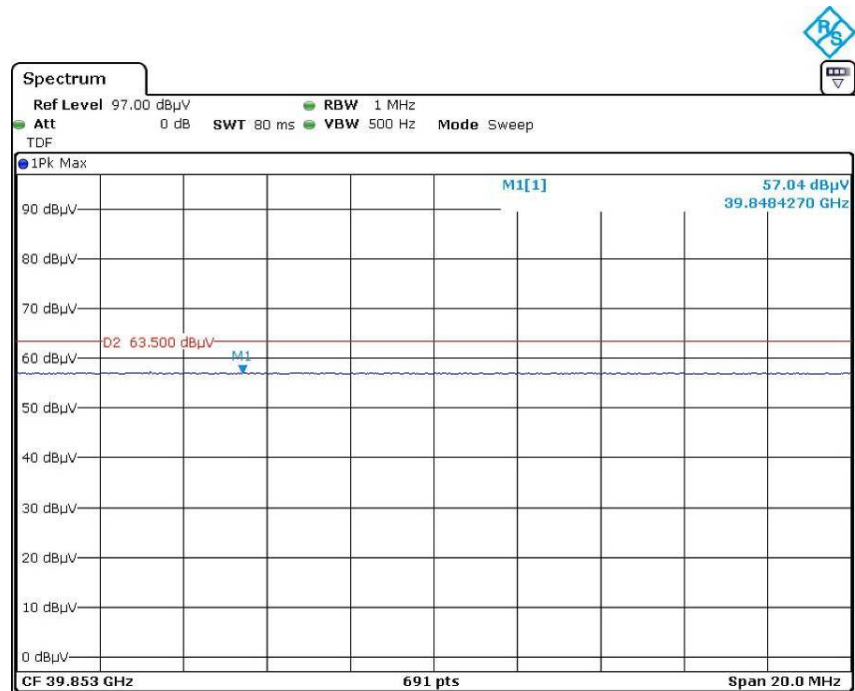
## Vertical





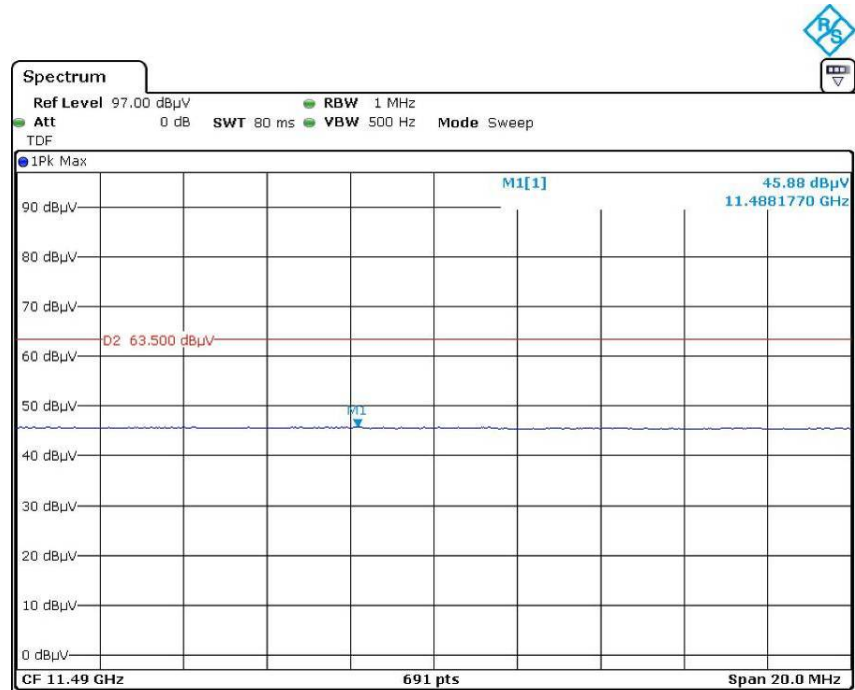
### Average Horizontal



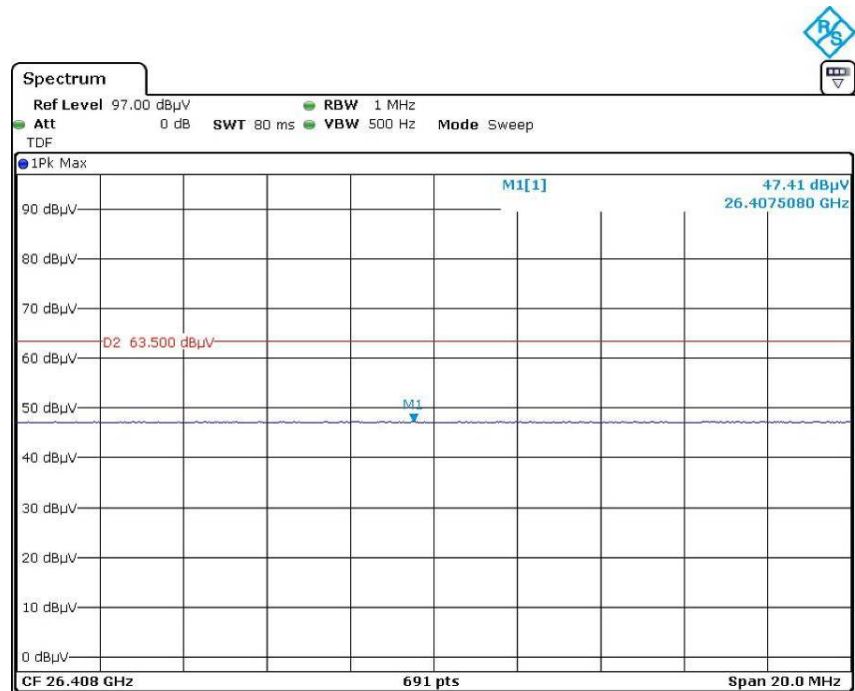


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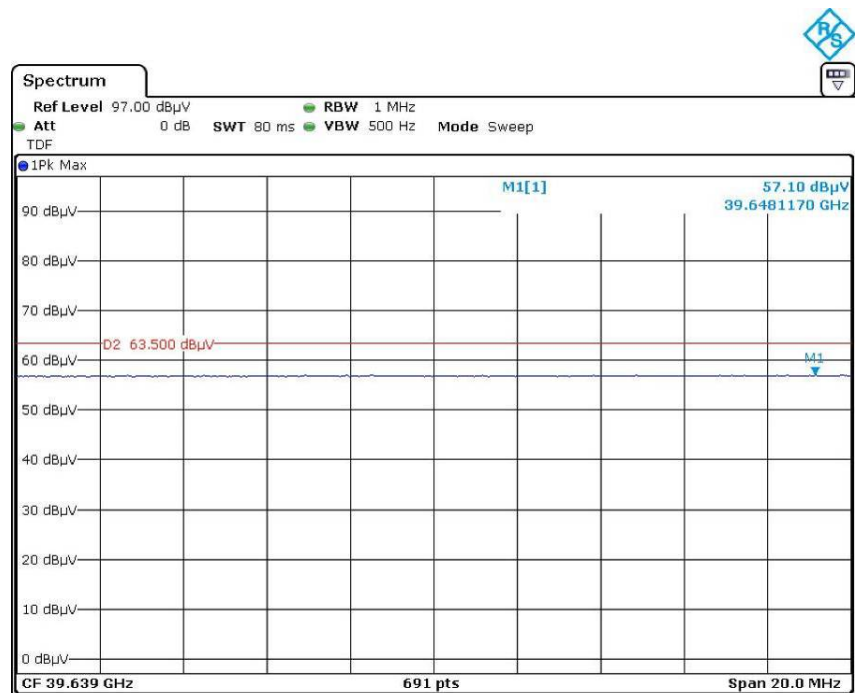
## Vertical



Date: 30.DEC.2020 19:37:04



Date: 30.DEC.2020 20:28:20



Date: 30.DEC.2020 20:52:27

\*\*\*\*\* END OF REPORT \*\*\*\*\*