

## FCC Part 15.407

## TEST REPORT

For

**Hangzhou Arenti Technology Co., Ltd.**

Room 1010, 10th Floor, Building 1, No.768 Jianghong Road, Changhe Street, Binjiang  
District, Hangzhou

**FCC ID: 2A2MQ-BULLET9T**

**Report Type:**  
Original Report

**Product Type:**  
IP CAMERA

**Report Producer :** Coco Lin

**Report Number :** RXZ211229005RF02

**Report Date :** 2022-04-15

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## Revision History

| Revision | No.          | Report Number    | Issue Date | Description     | Author/<br>Revised by |
|----------|--------------|------------------|------------|-----------------|-----------------------|
| 0.0      | RXZ211229005 | RXZ211229005RF02 | 2022-04-15 | Original Report | Coco Lin              |

## **TABLE OF CONTENTS**

|          |                                                                               |           |
|----------|-------------------------------------------------------------------------------|-----------|
| <b>1</b> | <b>General Information</b>                                                    | <b>5</b>  |
| 1.1      | Product Description for Equipment under Test (EUT)                            | 5         |
| 1.2      | Objective                                                                     | 6         |
| 1.3      | Related Submittal(s)/Grant(s)                                                 | 6         |
| 1.4      | Test Methodology                                                              | 6         |
| 1.5      | Statement                                                                     | 6         |
| 1.6      | Measurement Uncertainty                                                       | 7         |
| 1.7      | Environmental Conditions                                                      | 7         |
| 1.8      | Test Facility                                                                 | 7         |
| <b>2</b> | <b>System Test Configuration</b>                                              | <b>8</b>  |
| 2.1      | Description of Test Configuration                                             | 8         |
| 2.2      | Equipment Modifications                                                       | 8         |
| 2.3      | EUT Exercise Software                                                         | 9         |
| 2.4      | Test Mode                                                                     | 9         |
| 2.5      | Support Equipment List and Details                                            | 9         |
| 2.6      | External Cable List and Details                                               | 9         |
| 2.7      | Block Diagram of Test Setup                                                   | 10        |
| 2.8      | Duty Cycle                                                                    | 12        |
| <b>3</b> | <b>Summary of Test Results</b>                                                | <b>14</b> |
| <b>4</b> | <b>Test Equipment List and Details</b>                                        | <b>15</b> |
| <b>5</b> | <b>FCC §15.407(f), §1.1310, § 2.1091 - Maximum Permissible Exposure (MPE)</b> | <b>17</b> |
| 5.1      | Applicable Standard                                                           | 17        |
| 5.2      | RF Exposure Evaluation Result                                                 | 17        |
| <b>6</b> | <b>FCC §15.203 – Antenna Requirements</b>                                     | <b>18</b> |
| 6.1      | Applicable Standard                                                           | 18        |
| 6.2      | Antenna List and Details                                                      | 18        |
| <b>7</b> | <b>FCC §15.407(b)(9) &amp; §15.207(a) – AC Line Conducted Emissions</b>       | <b>19</b> |
| 7.1      | Applicable Standard                                                           | 19        |
| 7.2      | EUT Setup                                                                     | 19        |
| 7.3      | EMI Test Receiver Setup                                                       | 20        |
| 7.4      | Test Procedure                                                                | 20        |
| 7.5      | Corrected Factor & Margin Calculation                                         | 20        |
| 7.6      | Test Results                                                                  | 21        |
| <b>7</b> | <b>FCC §15.209, §15.205 , §15.407(b) – Spurious Emissions</b>                 | <b>29</b> |
| 8.1      | Applicable Standard                                                           | 29        |
| 8.2      | EUT Setup                                                                     | 30        |
| 8.3      | EMI Test Receiver & Spectrum Analyzer Setup                                   | 31        |
| 8.4      | Test Procedure                                                                | 31        |
| 8.5      | Corrected Factor & Margin Calculation                                         | 31        |
| 8.6      | Test Results                                                                  | 32        |
| <b>9</b> | <b>FCC §15.407(a)(e) – Emission Bandwidth And Occupied Bandwidth</b>          | <b>47</b> |
| 9.1      | Applicable Standard                                                           | 47        |

|      |                                              |    |
|------|----------------------------------------------|----|
| 9.2  | Test Procedure .....                         | 47 |
| 9.3  | Test Results.....                            | 48 |
| 10   | FCC §15.407(a) – Maximum Output Power.....   | 65 |
| 10.1 | Applicable Standard .....                    | 65 |
| 10.2 | Test Procedure .....                         | 65 |
| 10.3 | Test Results.....                            | 66 |
| 11   | FCC §15.407(a) – Power Spectral Density..... | 67 |
| 11.1 | Applicable Standard .....                    | 67 |
| 11.2 | Test Procedure .....                         | 67 |
| 11.3 | Test Results.....                            | 68 |

# 1 General Information

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

|                                    |                                                                                                                                                                                                                                                                                                              |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant                          | Hangzhou Arenti Technology Co., Ltd.                                                                                                                                                                                                                                                                         |
|                                    | Room 1010, 10th Floor, Building 1, No.768 Jianghong Road, Changhe Street, Binjiang District, Hangzhou                                                                                                                                                                                                        |
| Manufacturer                       | Hangzhou Arenti Technology Co., Ltd.                                                                                                                                                                                                                                                                         |
|                                    | Room 1010, 10th Floor, Building 1, No.768 Jianghong Road, Changhe Street, Binjiang District, Hangzhou                                                                                                                                                                                                        |
| Brand(Trade) Name                  | N/A                                                                                                                                                                                                                                                                                                          |
| Product (Equipment)                | IP CAMERA                                                                                                                                                                                                                                                                                                    |
| Main Model Name                    | OUTDOOR1                                                                                                                                                                                                                                                                                                     |
| Series Model Name                  | Bullet 9S; Bullet 9T; Bullet 9Q                                                                                                                                                                                                                                                                              |
| Model Discrepancy                  | The major electrical and mechanical constructions of series models are identical to the basic model, except different Market segmentation. The model, OUTDOOR1 is the testing sample, and the final test data are shown on this test report.                                                                 |
| Frequency Range                    | 5150 MHz ~ 5250 MHz, 5725 MHz ~ 5850 MHz                                                                                                                                                                                                                                                                     |
| Maximum Output Power               | 5150-5250 MHz:<br>IEEE 802.11a Mode: 12.71 dBm<br>IEEE 802.11n HT20 Mode: 12.62 dBm<br>IEEE 802.11n HT40 Mode: 13.46 dBm<br>5725-5850 MHz:<br>IEEE 802.11a Mode: 14.32 dBm<br>IEEE 802.11n HT20 Mode: 13.90 dBm<br>IEEE 802.11n HT40 Mode: 13.60 dBm                                                         |
| Modulation Technique               | IEEE 802.11a Mode: OFDM<br>IEEE 802.11n HT20 Mode: OFDM<br>IEEE 802.11n HT40 Mode: OFDM                                                                                                                                                                                                                      |
| Power Operation<br>(Voltage Range) | <input type="checkbox"/> AC 120V/60Hz<br><input type="checkbox"/> Adapter<br><input type="checkbox"/> By AC Power Cord<br><input type="checkbox"/> PoE                                                                                                                                                       |
|                                    | <input checked="" type="checkbox"/> DC 12V<br><input type="checkbox"/> Battery<br><input checked="" type="checkbox"/> DC Power Supply<br>Adapter I/P: 100-240Vac, 50/60Hz, 0.3A Max;<br>O/P: 12Vdc, 1.0A<br><input type="checkbox"/> External from USB Cable<br><input type="checkbox"/> External DC Adapter |
|                                    | <input type="checkbox"/> Host System                                                                                                                                                                                                                                                                         |
| Received Date                      | Jan. 06, 2022                                                                                                                                                                                                                                                                                                |
| Date of Test                       | Jan. 27, 2022 ~ Apr. 13, 2022                                                                                                                                                                                                                                                                                |

\*All measurement and test data in this report was gathered from production sample serial number: RXZ211229005-01(Assigned by BACL, New Taipei Laboratory).

## 1.2 Objective

This report is prepared on behalf of *Hangzhou Arenti Technology Co., Ltd.* in accordance with Part 2, Subpart J, Part 15, Subparts A, C and E of the Federal Communication Commission's rules.

## 1.3 Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS submission with FCC ID: 2A2MQ-BULLET9T

## 1.4 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 KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

## 1.5 Statement

Decision Rule: No, (The test results do not include MU judgment)

It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory).

Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

**1.6 Measurement Uncertainty**

| Parameter                         |               | Uncertainty  |
|-----------------------------------|---------------|--------------|
| AC Mains                          |               | +/- 2.36 dB  |
| RF output power, conducted        |               | +/- 0.93 dB  |
| Power Spectral Density, conducted |               | +/- 0.93 dBm |
| Occupied Bandwidth                |               | +/- 0.35 MHz |
| Unwanted Emissions, conducted     |               | +/- 1.69 dBm |
| Emissions, radiated               | 30 MHz~1GHz   | +/- 5.22 dB  |
|                                   | 1 GHz~18 GHz  | +/- 6.12 dB  |
|                                   | 18 GHz~40 GHz | +/- 4.99 dB  |
| Temperature                       |               | +/- 1.27 °C  |
| Humidity                          |               | +/- 3 %      |

**1.7 Environmental Conditions**

| Test Site                                 | Test Date           | Temperature (°C) | Relative Humidity (%) | ATM Pressure (hPa) | Test Engineer          |
|-------------------------------------------|---------------------|------------------|-----------------------|--------------------|------------------------|
| AC Line Conducted Emissions               | 2022/02/16          | 19.2             | 70                    | 1010               | Boris Kao              |
| Radiation Spurious Emissions              | 2022/1/27~2022/4/13 | 21.9~23.4        | 66~69                 | 1010               | Howard Ho<br>Aaron Pan |
| Emission Bandwidth And Occupied Bandwidth | 2022/04/12          | 26               | 53                    | 1010               | Boris Kao              |
| Maximum Output Power                      | 2022/04/12          | 26               | 53                    | 1010               | Boris Kao              |
| Power Spectral Density                    | 2022/04/12          | 26               | 53                    | 1010               | Boris Kao              |

**1.8 Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) to collect test data is located on

☒ 70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3732) and the FCC designation No.TW3732 under the Mutual Recognition Agreement (MRA) in FCC Test.

## 2 System Test Configuration

### 2.1 Description of Test Configuration

The system was configured for testing in an engineering mode, which is provided by manufacturer.  
The system support 802.11a/n ht20/n ht40.

#### For 5150 ~ 5250MHz

4 channels are provided for 802.11a, 802.11n HT20:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 36      | 5180            | 44      | 5220            |
| 40      | 5200            | 48      | 5240            |

2 channels are provided for 802.11n (HT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 38      | 5190            | 46      | 5230            |

802.11a/n20 mode Channel 36, 40, 48 were tested.

802.11n40 mode Channel 38, 46 were tested.

#### For 5725 ~ 5850MHz:

5 channels are provided for 802.11a, 802.11n HT20:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 149     | 5745            | 161     | 5805            |
| 153     | 5765            | 165     | 5825            |
| 157     | 5785            | /       | /               |

2 channels are provided for 802.11n (HT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 151     | 5755            | 159     | 5795            |

802.11a/n20 mode Channel 149, 157, 165 were tested.

802.11n40 mode Channel 151, 159 were tested.

### 2.2 Equipment Modifications

No modification was made to the EUT.

### 2.3 EUT Exercise Software

The EUT was programmed to be in continuously transmitting mode.

The software was used “Release\_v34”.

| UNII Band | Mode         | Channel | Frequency (MHz) | Power setting |
|-----------|--------------|---------|-----------------|---------------|
| UNII-1    | 802.11a      | 36      | 5180            | 0             |
|           |              | 40      | 5200            | 0             |
|           |              | 48      | 5240            | 0             |
| UNII-3    |              | 149     | 5745            | 0             |
|           |              | 157     | 5785            | 0             |
|           |              | 165     | 5825            | 0             |
| UNII-1    | 802.11n HT20 | 36      | 5180            | 0             |
|           |              | 40      | 5200            | 0             |
|           |              | 48      | 5240            | 0             |
| UNII-3    |              | 149     | 5745            | 0             |
|           |              | 157     | 5785            | 0             |
|           |              | 165     | 5825            | 0             |
| UNII-1    | 802.11n HT40 | 38      | 5190            | 0             |
|           |              | 46      | 5230            | 0             |
| UNII-3    |              | 151     | 5755            | 0             |
|           |              | 159     | 5795            | 0             |

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations.

802.11a: 6Mbps

802.11n20: MCS0

802.11n40: MCS0

### 2.4 Test Mode

Full System (Model: OUTDOOR1) tested all measure item.

### 2.5 Support Equipment List and Details

| Description | Manufacturer | Model Number | S/N     |
|-------------|--------------|--------------|---------|
| SD Card     | SanDisk      | 16G          | N/A     |
| NB          | DELL         | E6410        | 8N7PXN1 |

### 2.6 External Cable List and Details

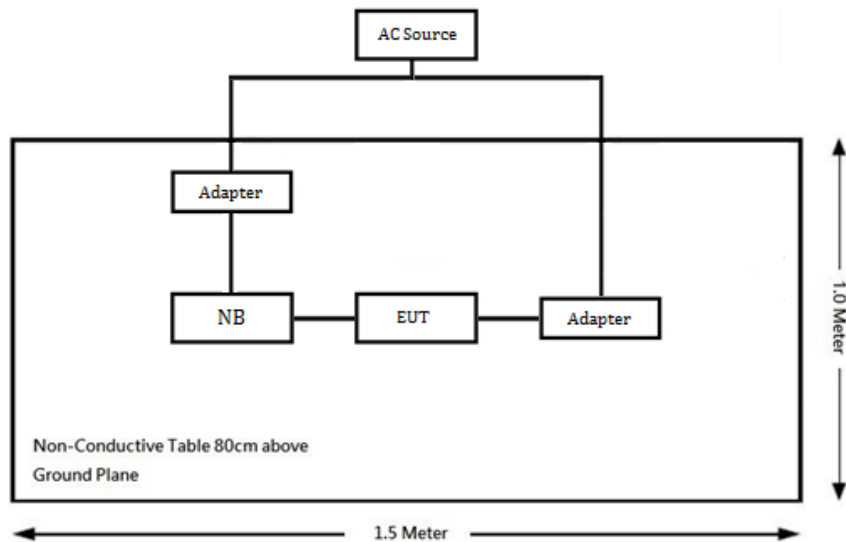
N/A

## 2.7 Block Diagram of Test Setup

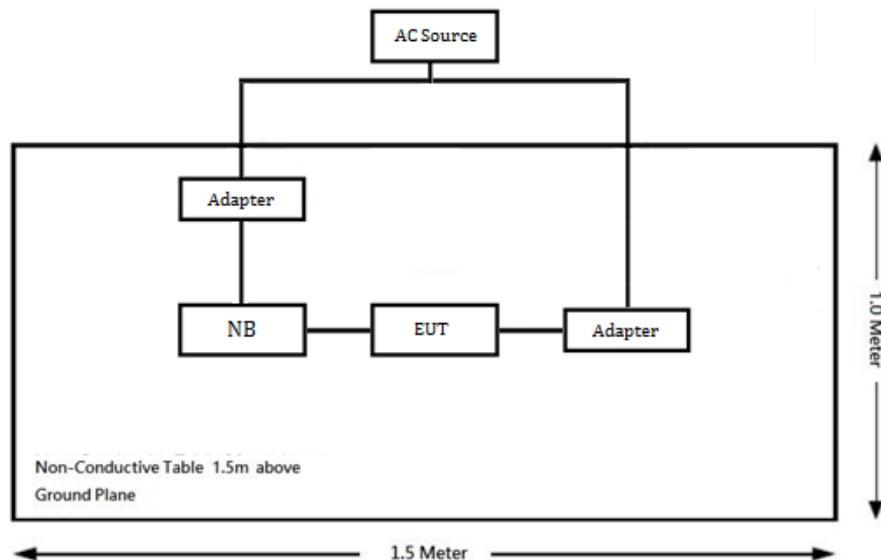
See test photographs attached in setup photos for the actual connections between EUT and support equipment.

### Radiation:

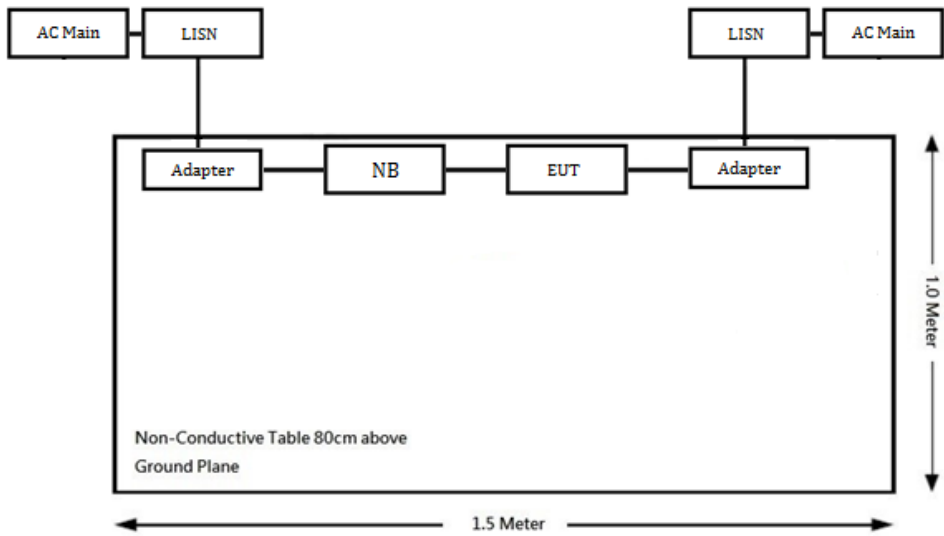
Below 1GHz:



Above 1GHz:



Conduction:



## 2.8 Duty Cycle

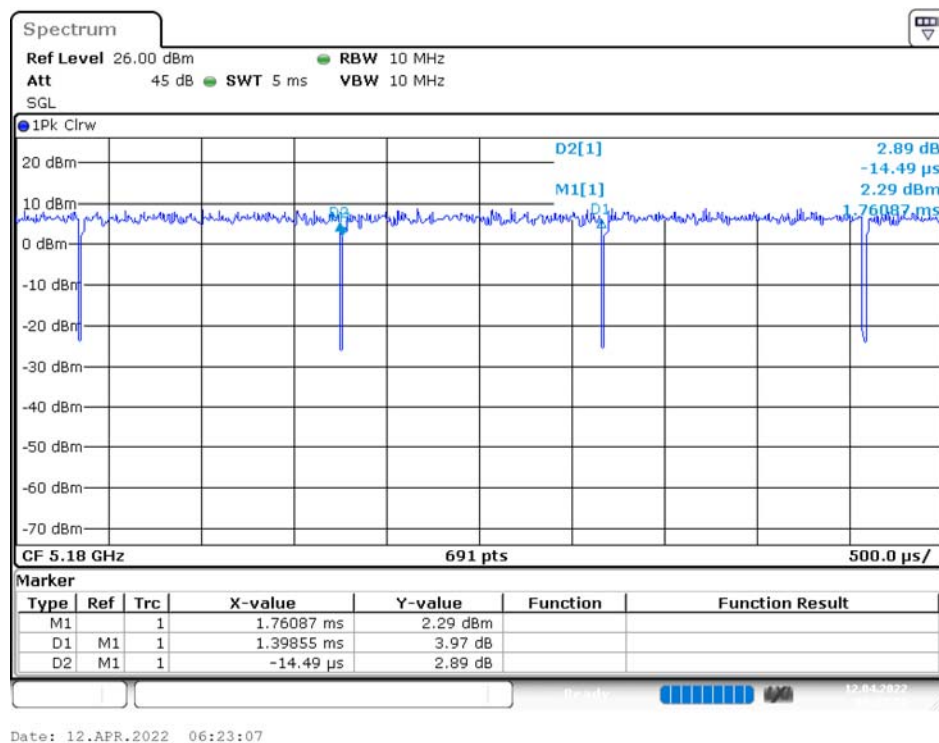
The duty cycle as below:

| Radio Mode | T <sub>on</sub> (ms) | T <sub>on</sub> +T <sub>off</sub> (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) |
|------------|----------------------|----------------------------------------|----------------|-----------------------------------|
| 802.11a    | 1.399                | 1.413                                  | 99             | 0.04                              |
| 802.11n20  | 5.08                 | 5.10                                   | 100            | 0.00                              |
| 802.11n40  | 2.47                 | 2.49                                   | 99             | 0.04                              |

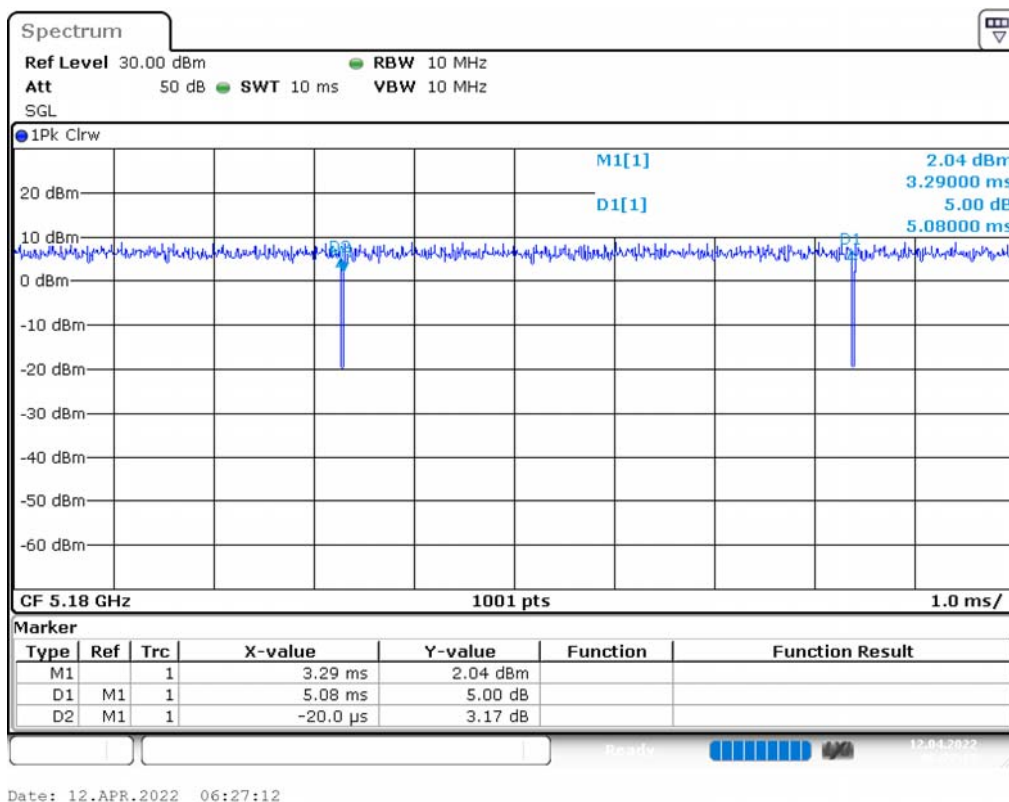
Note: Duty Cycle Correction Factor =  $10 \cdot \log(1/\text{duty cycle})$

Please refer to the following plots.

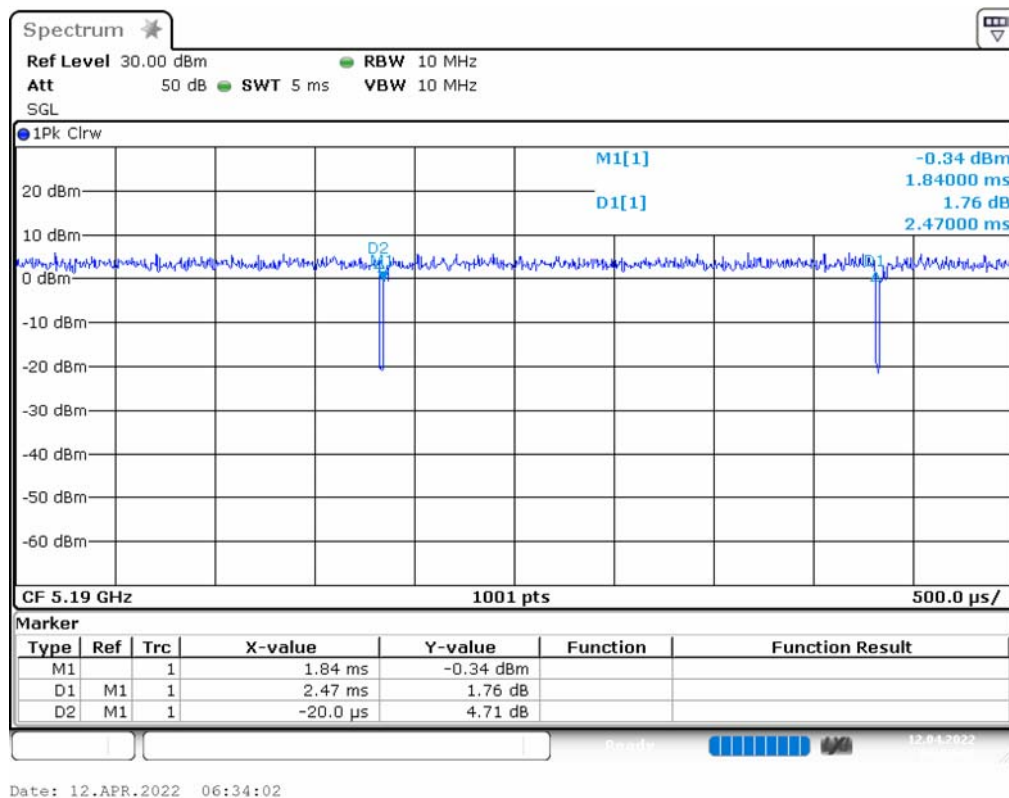
### 802.11a Mode



## 802.11n HT20 Mode



## 802.11n HT40 Mode



### 3 Summary of Test Results

| FCC Rules                         | Description of Test                | Results    |
|-----------------------------------|------------------------------------|------------|
| §15.407(f), §1.1310, §2.1091      | Maximum Permissible Exposure (MPE) | Compliance |
| §15.203                           | Antenna Requirement                | Compliance |
| §15.407(b)(9) & §15.207(a)        | AC Line Conducted Emissions        | Compliance |
| §15.205 & §15.209 &<br>§15.407(b) | Unwanted Emission                  | Compliance |
| §15.407(a)(e)                     | Emission Bandwidth                 | Compliance |
| §15.407(a)(1)(3)                  | Conducted Transmitter Output Power | Compliance |
| §15.407(a)(1)(3)                  | Power Spectral Density             | Compliance |

## 4 Test Equipment List and Details

| Description                        | Manufacturer                   | Model                  | Serial Number        | Calibration Date | Calibration Due Date |
|------------------------------------|--------------------------------|------------------------|----------------------|------------------|----------------------|
| AC Line Conduction Room (CON-A)    |                                |                        |                      |                  |                      |
| LISN                               | Rohde & Schwarz                | ENV216                 | 101612               | 2022/1/14        | 2023/1/13            |
| LISN                               | Rohde & Schwarz                | ENV216                 | 101248               | 2021/6/8         | 2022/6/7             |
| EMI Test Receiver                  | Rohde & Schwarz                | ESW8                   | 100947               | 2021/7/23        | 2022/7/22            |
| Pulse Limiter                      | Rohde & Schwarz                | ESH3Z2                 | TXZEM104             | 2021/7/29        | 2022/7/28            |
| RF Cable                           | EMEC                           | EM-CB5D                | 1                    | 2021/6/11        | 2022/6/10            |
| Software                           | AUDIX                          | E3                     | V9.150826k           | N.C.R            | N.C.R                |
| Radiated Room (966-A)              |                                |                        |                      |                  |                      |
| Bilog Antenna with 6 dB Attenuator | SUNOL SCIENCES & MINI-CIRCUITS | JB3 &EM-ATT6000-6-NN   | A090816-2&ATT-09-003 | 2022/1/20        | 2023/1/19            |
| Horn Antenna                       | EMCO                           | SAS-571                | 1020                 | 2021/4/23        | 2022/4/22            |
| Horn Antenna                       | ETS-Lindgren                   | 3116                   | 62638                | 2021/8/11        | 2022/8/10            |
| Preamplifier                       | Sonoma                         | 310N                   | 130602               | 2021/6/8         | 2022/6/7             |
| Preamplifier                       | A.H. system Inc.               | PAM-0118P              | 466                  | 2021/11/4        | 2022/11/3            |
| Microwave Preamplifier             | EM Electronics Corporation     | EM18G40G               | 60656                | 2021/12/27       | 2022/12/26           |
| EMI Test Receiver                  | Rohde & Schwarz                | ESR7                   | 101419               | 2021/11/9        | 2022/11/8            |
| Spectrum Analyzer                  | Rohde & Schwarz                | FSV40                  | 101435               | 2022/1/13        | 2023/1/12            |
| Micro flex Cable                   | UTIFLEX                        | UFB197C-1-2362-70U-70U | 225757-001           | 2022/1/24        | 2023/1/23            |
| Coaxial Cable                      | COMMATE                        | PEWC                   | 8Dr                  | 2021/12/24       | 2022/12/23           |
| Coaxial Cable                      | UTIFLEX                        | UFB311A-Q-1440-300300  | 220490-006           | 2022/1/24        | 2023/1/23            |
| Coaxial Cable                      | JUNFLON                        | J12J102248-00-B-5      | AUG-07-15-044        | 2021/12/24       | 2022/12/23           |
| Cable                              | EMC                            | EMC105-SM-SM-10000     | 201003               | 2022/1/24        | 2023/1/23            |

|                   |                 |                              |            |           |           |
|-------------------|-----------------|------------------------------|------------|-----------|-----------|
| Coaxial Cable     | ROSNOL          | K1K50-UP0264-<br>K1K50-450CM | 160309-1   | 2022/1/24 | 2023/1/23 |
| Coaxial Cable     | ROSNOL          | K1K50-UP0264-<br>K1K50-50CM  | 15120-1    | 2022/1/18 | 2023/1/17 |
| Software          | Farad           | EZ_EMC                       | BACL-03A1  | N.C.R     | N.C.R     |
| Conducted Room    |                 |                              |            |           |           |
| Spectrum Analyzer | Rohde & Schwarz | FSV40                        | 101204     | 2021/6/10 | 2022/6/9  |
| Cable             | UTIFLEX         | UFA210A                      | 9435       | 2021/10/5 | 2022/10/4 |
| Power Sensor      | KEYSIGHT        | U2021XA                      | MY54080018 | 2022/1/24 | 2023/1/23 |
| Attenuator        | MCL             | BW-S20W5+                    | 1430       | 2021/6/23 | 2022/6/22 |

**\*Statement of Traceability:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Institute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements

## 5 FCC §15.407(f), §1.1310, § 2.1091 - Maximum Permissible Exposure (MPE)

### 5.1 Applicable Standard

According to subpart 1.1310, 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 |                               |                               |                                     |                          |
|-----------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| Frequency Range (MHz)                               | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Averaging Time (minutes) |
| 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

### Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$  = 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);

### 5.2 RF Exposure Evaluation Result

#### MPE evaluation:

| Mode       | Frequency Range (MHz) | Antenna Gain |           | Target Power |         | Evaluation Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) |
|------------|-----------------------|--------------|-----------|--------------|---------|--------------------------|-------------------------------------|---------------------------------|
|            |                       | (dBi)        | (numeric) | (dBm)        | (mW)    |                          |                                     |                                 |
| 2.4G WIFI  | 2412-2462             | 2.99         | 1.991     | 24.5         | 281.838 | 20                       | 0.112                               | 1                               |
| 5G WIFI B1 | 5150-5250             | 2.78         | 1.897     | 13.5         | 22.387  | 20                       | 0.008                               | 1                               |
| 5G WIFI B4 | 5725-5850             | 2.87         | 1.936     | 14.5         | 28.184  | 20                       | 0.011                               | 1                               |

Note: Wi-Fi 2.4G and Wi-Fi 5G can't transmit simultaneously.

**Result:** MPE evaluation meets the requirements of the **20cm** standard.

## 6 FCC §15.203 – Antenna Requirements

### 6.1 Applicable Standard

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.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna does not exceed 6dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### 6.2 Antenna List and Details

| Manufacturer                            | Model         | Antenna Type | Antenna Gain                                     |
|-----------------------------------------|---------------|--------------|--------------------------------------------------|
| Hangzhou Arenti<br>Technology Co., Ltd. | YJC-6N120-B33 | PFC Antenna  | 5150~5250MHz: 2.78 dBi<br>5725~5850MHz: 2.87 dBi |

Fulfill the requirement of this section. Please refer to the EUT photos

### Result: Compliance

## 7 FCC §15.407(b)(9) & § 15.207(a) – AC Line Conducted Emissions

### 7.1 Applicable Standard

As per FCC §15.407(b) (9)

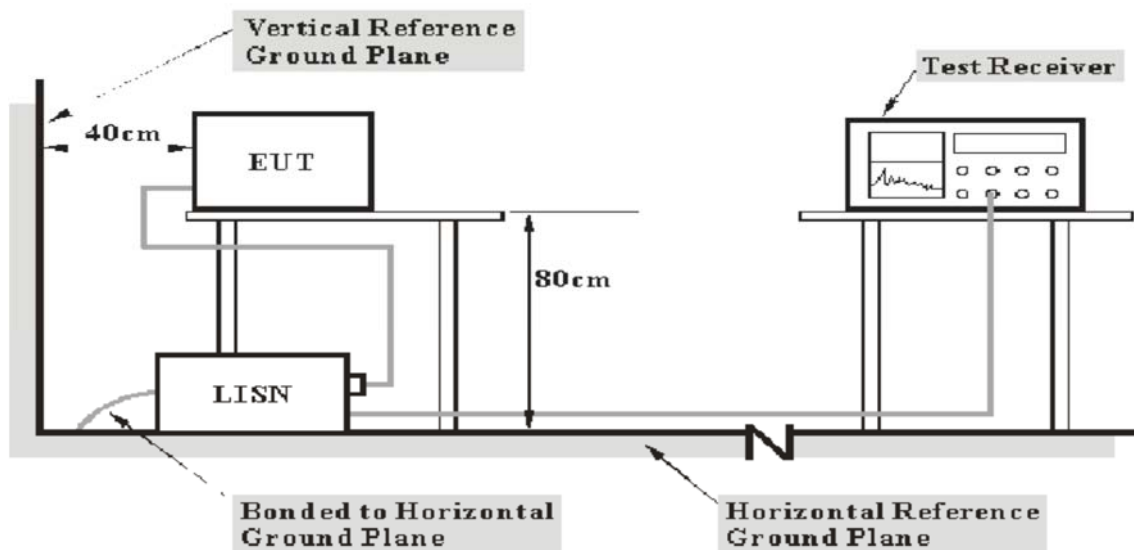
Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207

The lower limit applies at the boundary between the frequencies ranges.

| Frequency of Emission<br>(MHz) | Conducted Limit (dBuV)     |                            |
|--------------------------------|----------------------------|----------------------------|
|                                | Quasi-Peak                 | Average                    |
| 0.15-0.5                       | 66 to 56 <sup>Note 1</sup> | 56 to 46 <sup>Note 1</sup> |
| 0.5-5                          | 56                         | 46                         |
| 5-30                           | 60                         | 50                         |

Note 1: Decreases with the logarithm of the frequency.

### 7.2 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 C63.10-2020 measurement procedure. The specification used was with the FCC Part 15.207 limits.

### 7.3 EMI Test Receiver Setup

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

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

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

### 7.4 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of 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.

### 7.5 Corrected Factor & Margin Calculation

The factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “Over Limit” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of -7 dB means the emission is 7 dB below the limit. The equation for Over Limit calculation is as follows:

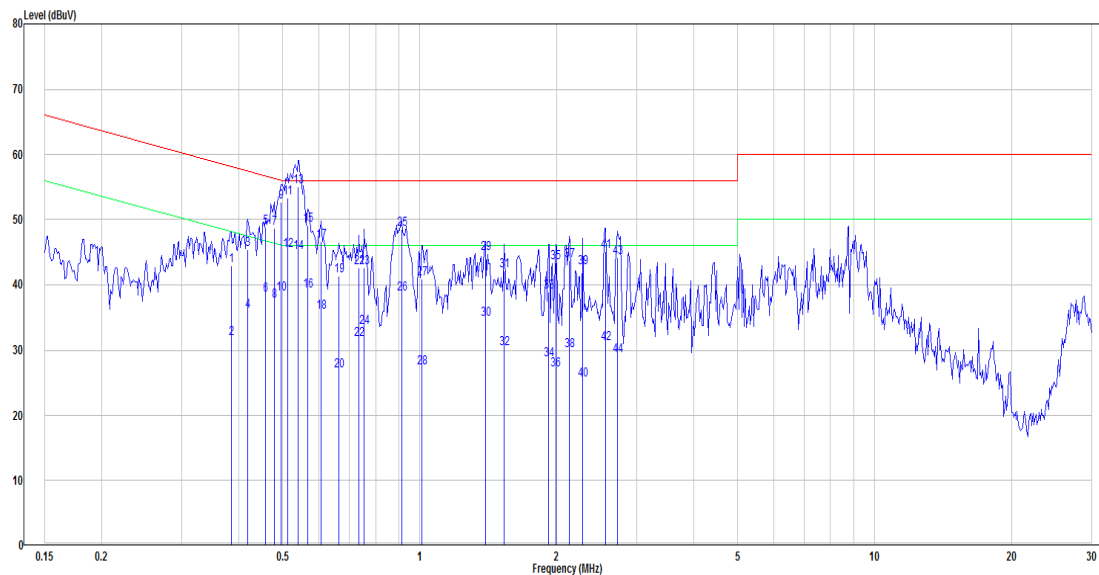
$$\text{Over Limit} = \text{Level} - \text{Limit Line}$$

## 7.6 Test Results

Test Mode: Transmitting

802.11a mode, 5240MHz of 5150~5250MHz (worst case)

Main: AC120 V, 60 Hz, Line



| No. | Frequency<br>(MHz) | Reading<br>(dBμV) | Correct<br>Factor(dB) | Result<br>(dBμV) | Limit<br>(dBμV) | Over limit<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|--------------------|---------|
| 1   | 0.385              | 23.41             | 19.51                 | 42.92            | 58.17           | -15.25             | QP      |
| 2   | 0.385              | 12.26             | 19.51                 | 31.77            | 48.17           | -16.40             | Average |
| 3   | 0.419              | 25.99             | 19.51                 | 45.50            | 57.46           | -11.96             | QP      |
| 4   | 0.419              | 16.40             | 19.51                 | 35.91            | 47.46           | -11.55             | Average |
| 5   | 0.459              | 29.35             | 19.52                 | 48.87            | 56.71           | -7.84              | QP      |
| 6   | 0.459              | 18.89             | 19.52                 | 38.41            | 46.71           | -8.30              | Average |
| 7   | 0.479              | 29.14             | 19.52                 | 48.66            | 56.36           | -7.70              | QP      |
| 8   | 0.479              | 17.97             | 19.52                 | 37.49            | 46.36           | -8.87              | Average |
| 9   | 0.497              | 33.24             | 19.52                 | 52.76            | 56.05           | -3.29              | QP      |
| 10  | 0.497              | 19.15             | 19.52                 | 38.67            | 46.05           | -7.38              | Average |
| 11  | 0.513              | 33.85             | 19.52                 | 53.37            | 56.00           | -2.63              | QP      |
| 12  | 0.513              | 25.69             | 19.52                 | 45.21            | 46.00           | -0.79              | Average |
| 13  | 0.541              | 35.55             | 19.52                 | 55.07            | 56.00           | -0.93              | QP      |
| 14  | 0.541              | 25.37             | 19.52                 | 44.89            | 46.00           | -1.11              | Average |
| 15  | 0.567              | 29.61             | 19.52                 | 49.13            | 56.00           | -6.87              | QP      |
| 16  | 0.567              | 19.59             | 19.52                 | 39.11            | 46.00           | -6.89              | Average |
| 17  | 0.608              | 27.17             | 19.53                 | 46.70            | 56.00           | -9.30              | QP      |
| 18  | 0.608              | 16.36             | 19.53                 | 35.89            | 46.00           | -10.11             | Average |

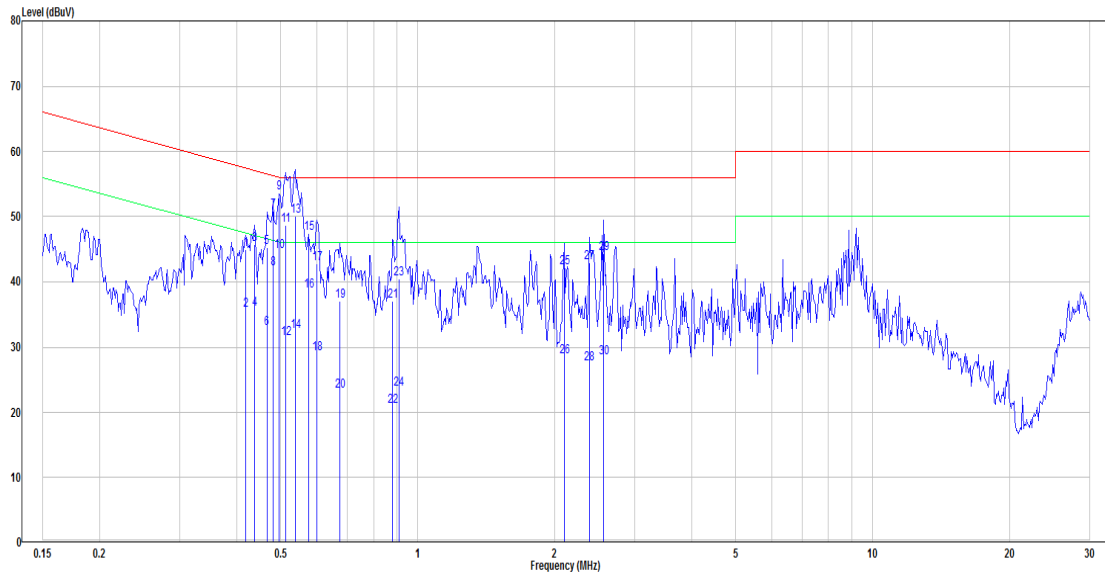
|    |       |       |       |       |       |        |         |
|----|-------|-------|-------|-------|-------|--------|---------|
| 19 | 0.665 | 21.94 | 19.53 | 41.47 | 56.00 | -14.53 | QP      |
| 20 | 0.665 | 7.24  | 19.53 | 26.77 | 46.00 | -19.23 | Average |
| 21 | 0.735 | 23.04 | 19.53 | 42.57 | 56.00 | -13.43 | QP      |
| 22 | 0.735 | 12.03 | 19.53 | 31.56 | 46.00 | -14.44 | Average |
| 23 | 0.755 | 23.05 | 19.53 | 42.58 | 56.00 | -13.42 | QP      |
| 24 | 0.755 | 13.93 | 19.53 | 33.46 | 46.00 | -12.54 | Average |
| 25 | 0.914 | 29.03 | 19.54 | 48.57 | 56.00 | -7.43  | QP      |
| 26 | 0.914 | 19.06 | 19.54 | 38.60 | 46.00 | -7.40  | Average |
| 27 | 1.010 | 21.38 | 19.54 | 40.92 | 56.00 | -15.08 | QP      |
| 28 | 1.010 | 7.79  | 19.54 | 27.33 | 46.00 | -18.67 | Average |
| 29 | 1.396 | 25.29 | 19.56 | 44.85 | 56.00 | -11.15 | QP      |
| 30 | 1.396 | 15.14 | 19.56 | 34.70 | 46.00 | -11.30 | Average |
| 31 | 1.535 | 22.66 | 19.56 | 42.22 | 56.00 | -13.78 | QP      |
| 32 | 1.535 | 10.60 | 19.56 | 30.16 | 46.00 | -15.84 | Average |
| 33 | 1.918 | 19.30 | 19.58 | 38.88 | 56.00 | -17.12 | QP      |
| 34 | 1.918 | 8.89  | 19.58 | 28.47 | 46.00 | -17.53 | Average |
| 35 | 1.991 | 23.76 | 19.58 | 43.34 | 56.00 | -12.66 | QP      |
| 36 | 1.991 | 7.44  | 19.58 | 27.02 | 46.00 | -18.98 | Average |
| 37 | 2.133 | 24.07 | 19.58 | 43.65 | 56.00 | -12.35 | QP      |
| 38 | 2.133 | 10.29 | 19.58 | 29.87 | 46.00 | -16.13 | Average |
| 39 | 2.285 | 23.05 | 19.59 | 42.64 | 56.00 | -13.36 | QP      |
| 40 | 2.285 | 5.91  | 19.59 | 25.50 | 46.00 | -20.50 | Average |
| 41 | 2.567 | 25.57 | 19.59 | 45.16 | 56.00 | -10.84 | QP      |
| 42 | 2.567 | 11.48 | 19.59 | 31.07 | 46.00 | -14.93 | Average |
| 43 | 2.721 | 24.57 | 19.60 | 44.17 | 56.00 | -11.83 | QP      |
| 44 | 2.721 | 9.57  | 19.60 | 29.17 | 46.00 | -16.83 | Average |

Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

**Main: AC120 V, 60 Hz, Neutral**

| No. | Frequency | Reading | Correct    | Result | Limit  | Over limit | Remark  |
|-----|-----------|---------|------------|--------|--------|------------|---------|
|     | (MHz)     | (dBμV)  | Factor(dB) | (dBμV) | (dBμV) | (dB)       |         |
| 1   | 0.419     | 25.43   | 19.51      | 44.94  | 57.46  | -12.52     | QP      |
| 2   | 0.419     | 16.08   | 19.51      | 35.59  | 47.46  | -11.87     | Average |
| 3   | 0.437     | 26.17   | 19.52      | 45.69  | 57.11  | -11.42     | QP      |
| 4   | 0.437     | 16.25   | 19.52      | 35.77  | 47.11  | -11.34     | Average |
| 5   | 0.466     | 25.73   | 19.52      | 45.25  | 56.58  | -11.33     | QP      |
| 6   | 0.466     | 13.28   | 19.52      | 32.80  | 46.58  | -13.78     | Average |
| 7   | 0.481     | 31.29   | 19.52      | 50.81  | 56.32  | -5.51      | QP      |
| 8   | 0.481     | 22.43   | 19.52      | 41.95  | 46.32  | -4.37      | Average |
| 9   | 0.497     | 34.15   | 19.52      | 53.67  | 56.05  | -2.38      | QP      |
| 10  | 0.497     | 25.13   | 19.52      | 44.65  | 46.05  | -1.40      | Average |
| 11  | 0.513     | 29.17   | 19.52      | 48.69  | 56.00  | -7.31      | QP      |
| 12  | 0.513     | 11.74   | 19.52      | 31.26  | 46.00  | -14.74     | Average |
| 13  | 0.538     | 30.58   | 19.52      | 50.10  | 56.00  | -5.90      | QP      |
| 14  | 0.538     | 12.94   | 19.52      | 32.46  | 46.00  | -13.54     | Average |
| 15  | 0.576     | 27.89   | 19.52      | 47.41  | 56.00  | -8.59      | QP      |
| 16  | 0.576     | 19.03   | 19.52      | 38.55  | 46.00  | -7.45      | Average |
| 17  | 0.601     | 23.31   | 19.52      | 42.83  | 56.00  | -13.17     | QP      |
| 18  | 0.601     | 9.42    | 19.52      | 28.94  | 46.00  | -17.06     | Average |
| 19  | 0.675     | 17.53   | 19.52      | 37.05  | 56.00  | -18.95     | QP      |
| 20  | 0.675     | 3.79    | 19.52      | 23.31  | 46.00  | -22.69     | Average |
| 21  | 0.880     | 17.53   | 19.53      | 37.06  | 56.00  | -18.94     | QP      |
| 22  | 0.880     | 1.48    | 19.53      | 21.01  | 46.00  | -24.99     | Average |

|    |       |       |       |       |       |        |         |
|----|-------|-------|-------|-------|-------|--------|---------|
| 23 | 0.909 | 21.00 | 19.53 | 40.53 | 56.00 | -15.47 | QP      |
| 24 | 0.909 | 4.04  | 19.53 | 23.57 | 46.00 | -22.43 | Average |
| 25 | 2.099 | 22.67 | 19.57 | 42.24 | 56.00 | -13.76 | QP      |
| 26 | 2.099 | 8.95  | 19.57 | 28.52 | 46.00 | -17.48 | Average |
| 27 | 2.384 | 23.32 | 19.58 | 42.90 | 56.00 | -13.10 | QP      |
| 28 | 2.384 | 7.94  | 19.58 | 27.52 | 46.00 | -18.48 | Average |
| 29 | 2.567 | 24.71 | 19.59 | 44.30 | 56.00 | -11.70 | QP      |
| 30 | 2.567 | 8.77  | 19.59 | 28.36 | 46.00 | -17.64 | Average |

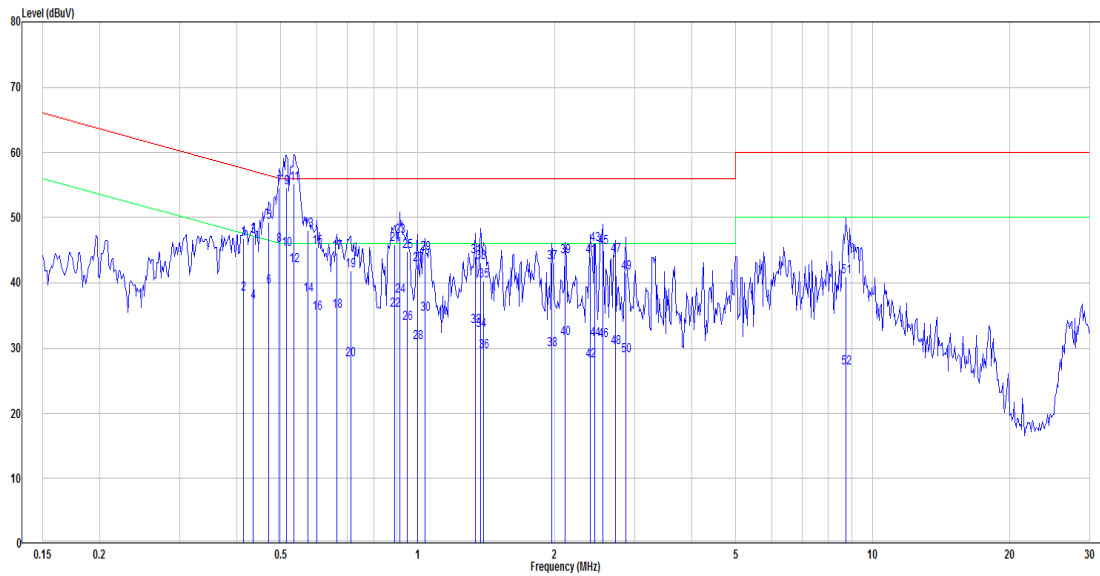
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

802.11a mode, 5745MHz of 5725~5850MHz (worst case)

**Main: AC120 V, 60 Hz, Line**

| No. | Frequency<br>(MHz) | Reading<br>(dBμV) | Correct<br>Factor(dB) | Result<br>(dBμV) | Limit<br>(dBμV) | Over limit<br>(dB) | Remark  |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|--------------------|---------|
| 1   | 0.415              | 27.28             | 19.51                 | 46.79            | 57.55           | -10.76             | QP      |
| 2   | 0.415              | 18.86             | 19.51                 | 38.37            | 47.55           | -9.18              | Average |
| 3   | 0.435              | 27.69             | 19.52                 | 47.21            | 57.15           | -9.94              | QP      |
| 4   | 0.435              | 17.47             | 19.52                 | 36.99            | 47.15           | -10.16             | Average |
| 5   | 0.471              | 29.82             | 19.52                 | 49.34            | 56.49           | -7.15              | QP      |
| 6   | 0.471              | 19.84             | 19.52                 | 39.36            | 46.49           | -7.13              | Average |
| 7   | 0.497              | 35.02             | 19.52                 | 54.54            | 56.05           | -1.51              | QP      |
| 8   | 0.497              | 26.21             | 19.52                 | 45.73            | 46.05           | -0.32              | Average |
| 9   | 0.516              | 34.99             | 19.52                 | 54.51            | 56.00           | -1.49              | QP      |
| 10  | 0.516              | 25.56             | 19.52                 | 45.08            | 46.00           | -0.92              | Average |
| 11  | 0.535              | 35.62             | 19.52                 | 55.14            | 56.00           | -0.86              | QP      |
| 12  | 0.535              | 23.12             | 19.52                 | 42.64            | 46.00           | -3.36              | Average |
| 13  | 0.573              | 28.53             | 19.52                 | 48.05            | 56.00           | -7.95              | QP      |
| 14  | 0.573              | 18.68             | 19.52                 | 38.20            | 46.00           | -7.80              | Average |
| 15  | 0.601              | 25.93             | 19.53                 | 45.46            | 56.00           | -10.54             | QP      |
| 16  | 0.601              | 15.80             | 19.53                 | 35.33            | 46.00           | -10.67             | Average |
| 17  | 0.665              | 25.14             | 19.53                 | 44.67            | 56.00           | -11.33             | QP      |
| 18  | 0.665              | 16.11             | 19.53                 | 35.64            | 46.00           | -10.36             | Average |
| 19  | 0.712              | 22.27             | 19.53                 | 41.80            | 56.00           | -14.20             | QP      |
| 20  | 0.712              | 8.64              | 19.53                 | 28.17            | 46.00           | -17.83             | Average |

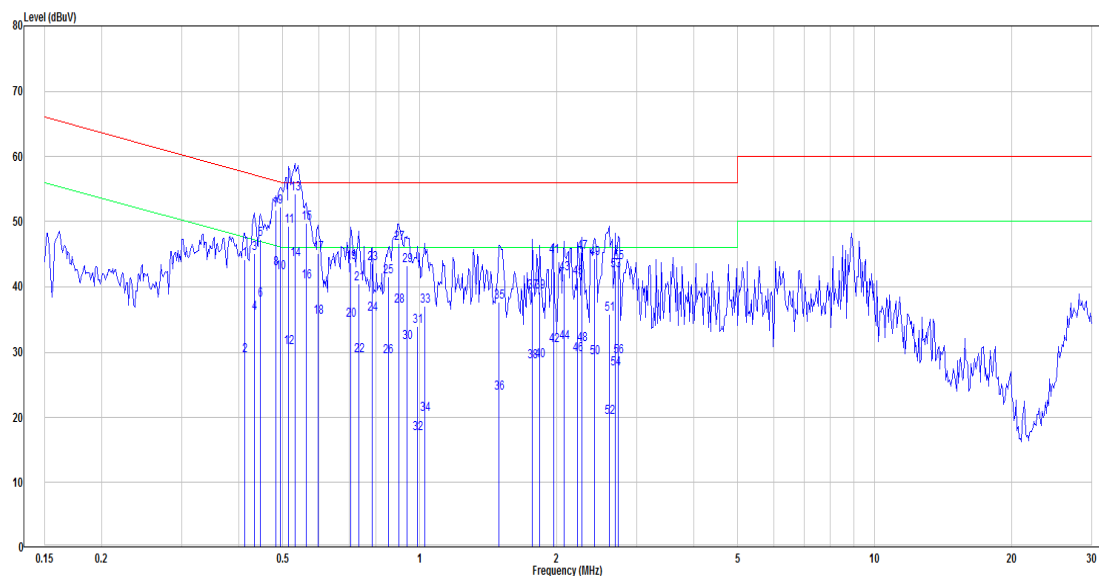
|    |       |       |       |       |       |        |         |
|----|-------|-------|-------|-------|-------|--------|---------|
| 21 | 0.890 | 26.39 | 19.54 | 45.93 | 56.00 | -10.07 | QP      |
| 22 | 0.890 | 16.33 | 19.54 | 35.87 | 46.00 | -10.13 | Average |
| 23 | 0.914 | 27.58 | 19.54 | 47.12 | 56.00 | -8.88  | QP      |
| 24 | 0.914 | 18.51 | 19.54 | 38.05 | 46.00 | -7.95  | Average |
| 25 | 0.948 | 25.34 | 19.54 | 44.88 | 56.00 | -11.12 | QP      |
| 26 | 0.948 | 14.30 | 19.54 | 33.84 | 46.00 | -12.16 | Average |
| 27 | 1.000 | 23.23 | 19.54 | 42.77 | 56.00 | -13.23 | QP      |
| 28 | 1.000 | 11.28 | 19.54 | 30.82 | 46.00 | -15.18 | Average |
| 29 | 1.037 | 24.88 | 19.54 | 44.42 | 56.00 | -11.58 | QP      |
| 30 | 1.037 | 15.58 | 19.54 | 35.12 | 46.00 | -10.88 | Average |
| 31 | 1.338 | 24.42 | 19.55 | 43.97 | 56.00 | -12.03 | QP      |
| 32 | 1.338 | 13.73 | 19.55 | 33.28 | 46.00 | -12.72 | Average |
| 33 | 1.374 | 23.56 | 19.55 | 43.11 | 56.00 | -12.89 | QP      |
| 34 | 1.374 | 13.22 | 19.55 | 32.77 | 46.00 | -13.23 | Average |
| 35 | 1.396 | 20.73 | 19.56 | 40.29 | 56.00 | -15.71 | QP      |
| 36 | 1.396 | 9.98  | 19.56 | 29.54 | 46.00 | -16.46 | Average |
| 37 | 1.970 | 23.53 | 19.58 | 43.11 | 56.00 | -12.89 | QP      |
| 38 | 1.970 | 10.22 | 19.58 | 29.80 | 46.00 | -16.20 | Average |
| 39 | 2.110 | 24.49 | 19.58 | 44.07 | 56.00 | -11.93 | QP      |
| 40 | 2.110 | 11.86 | 19.58 | 31.44 | 46.00 | -14.56 | Average |
| 41 | 2.396 | 24.45 | 19.59 | 44.04 | 56.00 | -11.96 | QP      |
| 42 | 2.396 | 8.52  | 19.59 | 28.11 | 46.00 | -17.89 | Average |
| 43 | 2.448 | 26.33 | 19.59 | 45.92 | 56.00 | -10.08 | QP      |
| 44 | 2.448 | 11.72 | 19.59 | 31.31 | 46.00 | -14.69 | Average |
| 45 | 2.554 | 25.84 | 19.59 | 45.43 | 56.00 | -10.57 | QP      |
| 46 | 2.554 | 11.50 | 19.59 | 31.09 | 46.00 | -14.91 | Average |
| 47 | 2.721 | 24.60 | 19.60 | 44.20 | 56.00 | -11.80 | QP      |
| 48 | 2.721 | 10.52 | 19.60 | 30.12 | 46.00 | -15.88 | Average |
| 49 | 2.869 | 21.98 | 19.60 | 41.58 | 56.00 | -14.42 | QP      |
| 50 | 2.869 | 9.31  | 19.60 | 28.91 | 46.00 | -17.09 | Average |
| 51 | 8.729 | 21.21 | 19.73 | 40.94 | 60.00 | -19.06 | QP      |
| 52 | 8.729 | 7.19  | 19.73 | 26.92 | 50.00 | -23.08 | Average |

Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

**Main: AC120 V, 60 Hz, Neutral**

| No. | Frequency | Reading | Correct    | Result | Limit  | Over limit | Remark  |
|-----|-----------|---------|------------|--------|--------|------------|---------|
|     | (MHz)     | (dBμV)  | Factor(dB) | (dBμV) | (dBμV) | (dB)       |         |
| 1   | 0.413     | 24.60   | 19.51      | 44.11  | 57.59  | -13.48     | QP      |
| 2   | 0.413     | 9.96    | 19.51      | 29.47  | 47.59  | -18.12     | Average |
| 3   | 0.433     | 25.61   | 19.52      | 45.13  | 57.20  | -12.07     | QP      |
| 4   | 0.433     | 16.48   | 19.52      | 36.00  | 47.20  | -11.20     | Average |
| 5   | 0.447     | 27.75   | 19.52      | 47.27  | 56.93  | -9.66      | QP      |
| 6   | 0.447     | 18.51   | 19.52      | 38.03  | 46.93  | -8.90      | Average |
| 7   | 0.484     | 32.32   | 19.52      | 51.84  | 56.27  | -4.43      | QP      |
| 8   | 0.484     | 23.27   | 19.52      | 42.79  | 46.27  | -3.48      | Average |
| 9   | 0.494     | 32.69   | 19.52      | 52.21  | 56.10  | -3.89      | QP      |
| 10  | 0.494     | 22.64   | 19.52      | 42.16  | 46.10  | -3.94      | Average |
| 11  | 0.516     | 29.84   | 19.52      | 49.36  | 56.00  | -6.64      | QP      |
| 12  | 0.516     | 11.23   | 19.52      | 30.75  | 46.00  | -15.25     | Average |
| 13  | 0.532     | 34.82   | 19.52      | 54.34  | 56.00  | -1.66      | QP      |
| 14  | 0.532     | 24.73   | 19.52      | 44.25  | 46.00  | -1.75      | Average |
| 15  | 0.564     | 30.24   | 19.52      | 49.76  | 56.00  | -6.24      | QP      |
| 16  | 0.564     | 21.32   | 19.52      | 40.84  | 46.00  | -5.16      | Average |
| 17  | 0.598     | 25.54   | 19.52      | 45.06  | 56.00  | -10.94     | QP      |
| 18  | 0.598     | 15.81   | 19.52      | 35.33  | 46.00  | -10.67     | Average |
| 19  | 0.705     | 24.25   | 19.52      | 43.77  | 56.00  | -12.23     | QP      |
| 20  | 0.705     | 15.33   | 19.52      | 34.85  | 46.00  | -11.15     | Average |
| 21  | 0.735     | 20.89   | 19.52      | 40.41  | 56.00  | -15.59     | QP      |
| 22  | 0.735     | 9.92    | 19.52      | 29.44  | 46.00  | -16.56     | Average |

|    |       |       |       |       |       |        |         |
|----|-------|-------|-------|-------|-------|--------|---------|
| 23 | 0.788 | 23.99 | 19.53 | 43.52 | 56.00 | -12.48 | QP      |
| 24 | 0.788 | 16.32 | 19.53 | 35.85 | 46.00 | -10.15 | Average |
| 25 | 0.853 | 22.05 | 19.53 | 41.58 | 56.00 | -14.42 | QP      |
| 26 | 0.853 | 9.85  | 19.53 | 29.38 | 46.00 | -16.62 | Average |
| 27 | 0.899 | 27.13 | 19.53 | 46.66 | 56.00 | -9.34  | QP      |
| 28 | 0.899 | 17.45 | 19.53 | 36.98 | 46.00 | -9.02  | Average |
| 29 | 0.938 | 23.77 | 19.53 | 43.30 | 56.00 | -12.70 | QP      |
| 30 | 0.938 | 12.00 | 19.53 | 31.53 | 46.00 | -14.47 | Average |
| 31 | 0.989 | 14.38 | 19.53 | 33.91 | 56.00 | -22.09 | QP      |
| 32 | 0.989 | -1.94 | 19.53 | 17.59 | 46.00 | -28.41 | Average |
| 33 | 1.027 | 17.47 | 19.53 | 37.00 | 56.00 | -19.00 | QP      |
| 34 | 1.027 | 0.90  | 19.53 | 20.43 | 46.00 | -25.57 | Average |
| 35 | 1.495 | 18.19 | 19.55 | 37.74 | 56.00 | -18.26 | QP      |
| 36 | 1.495 | 4.14  | 19.55 | 23.69 | 46.00 | -22.31 | Average |
| 37 | 1.772 | 19.73 | 19.56 | 39.29 | 56.00 | -16.71 | QP      |
| 38 | 1.772 | 8.93  | 19.56 | 28.49 | 46.00 | -17.51 | Average |
| 39 | 1.839 | 19.63 | 19.56 | 39.19 | 56.00 | -16.81 | QP      |
| 40 | 1.839 | 9.11  | 19.56 | 28.67 | 46.00 | -17.33 | Average |
| 41 | 1.970 | 25.15 | 19.57 | 44.72 | 56.00 | -11.28 | QP      |
| 42 | 1.970 | 11.45 | 19.57 | 31.02 | 46.00 | -14.98 | Average |
| 43 | 2.077 | 22.47 | 19.57 | 42.04 | 56.00 | -13.96 | QP      |
| 44 | 2.077 | 11.96 | 19.57 | 31.53 | 46.00 | -14.47 | Average |
| 45 | 2.225 | 21.85 | 19.58 | 41.43 | 56.00 | -14.57 | QP      |
| 46 | 2.225 | 9.98  | 19.58 | 29.56 | 46.00 | -16.44 | Average |
| 47 | 2.273 | 25.75 | 19.58 | 45.33 | 56.00 | -10.67 | QP      |
| 48 | 2.273 | 11.64 | 19.58 | 31.22 | 46.00 | -14.78 | Average |
| 49 | 2.422 | 24.72 | 19.58 | 44.30 | 56.00 | -11.70 | QP      |
| 50 | 2.422 | 9.57  | 19.58 | 29.15 | 46.00 | -16.85 | Average |
| 51 | 2.608 | 16.26 | 19.59 | 35.85 | 56.00 | -20.15 | QP      |
| 52 | 2.608 | 0.39  | 19.59 | 19.98 | 46.00 | -26.02 | Average |
| 53 | 2.692 | 22.93 | 19.59 | 42.52 | 56.00 | -13.48 | QP      |
| 54 | 2.692 | 7.85  | 19.59 | 27.44 | 46.00 | -18.56 | Average |
| 55 | 2.736 | 24.14 | 19.59 | 43.73 | 56.00 | -12.27 | QP      |
| 56 | 2.736 | 9.73  | 19.59 | 29.32 | 46.00 | -16.68 | Average |

Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.  
(New Taipei Laboratory)

## 7 FCC §15.209, §15.205 , §15.407(b) – Spurious Emissions

### 8.1 Applicable Standard

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                 | MHz                   | MHz             | GHz           |
|---------------------|-----------------------|-----------------|---------------|
| 0.090 – 0.110       | 16.42 – 16.423        | 608 – 614       | 4.5 – 5.15    |
| 0.495 – 0.505       | 16.69475 – 16.69525   | 960 – 1240      | 5.35 – 5.46   |
| 2.1735 – 2.1905     | 16.80425 – 16.80475   | 1300 – 1427     | 7.25 – 7.75   |
| 4.125 – 4.128       | 25.5 – 25.67          | 1435 – 1626.5   | 8.025 – 8.5   |
| 4.17725 – 4.17775   | 37.5 – 38.25          | 1645.5 – 1646.5 | 9.0 – 9.2     |
| 4.20725 – 4.20775   | 73 – 74.6             | 1660 – 1710     | 9.3 – 9.5     |
| 6.215 – 6.218       | 74.8 – 75.2           | 1718.8 – 1722.2 | 10.6 – 12.7   |
| 6.26775 – 6.26825   | 108 – 121.94          | 2200 – 2300     | 13.25 – 13.4  |
| 6.31175 – 6.31225   | 123 – 138             | 2310 – 2390     | 14.47 – 14.5  |
| 8.291 – 8.294       | 149.9 – 150.05        | 2483.5 – 2500   | 15.35 – 16.2  |
| 8.362 – 8.366       | 156.52475 – 156.52525 | 2690 – 2900     | 17.7 – 21.4   |
| 8.37625 – 8.38675   | 156.7 – 156.9         | 3260 – 3267     | 22.01 – 23.12 |
| 8.41425 – 8.41475   | 162.0125 – 167.17     | 3.332 – 3.339   | 23.6 – 24.0   |
| 12.29 – 12.293      | 167.72 – 173.2        | 3.3458 – 3.358  | 31.2 – 31.8   |
| 12.51975 – 12.52025 | 240 – 285             | 3.600 – 4.400   | 36.43 – 36.5  |
| 12.57675 – 12.57725 | 322 – 335.4           |                 | Above 38.6    |
| 13.36 – 13.41       | 399.9 – 410           |                 |               |

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (micro volts/meter) | Measurement Distance (meters) |
|-----------------|------------------------------------|-------------------------------|
| 0.009 - 0.490   | 2400/F(kHz)                        | 300                           |
| 0.490 - 1.705   | 24000/F(kHz)                       | 30                            |
| 1.705 - 30.0    | 30                                 | 30                            |
| 30 - 88         | 100**                              | 3                             |
| 88 - 216        | 150**                              | 3                             |
| 216 - 960       | 200**                              | 3                             |
| Above 960       | 500                                | 3                             |

Note 1: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As per FCC Part 15.407 (b)

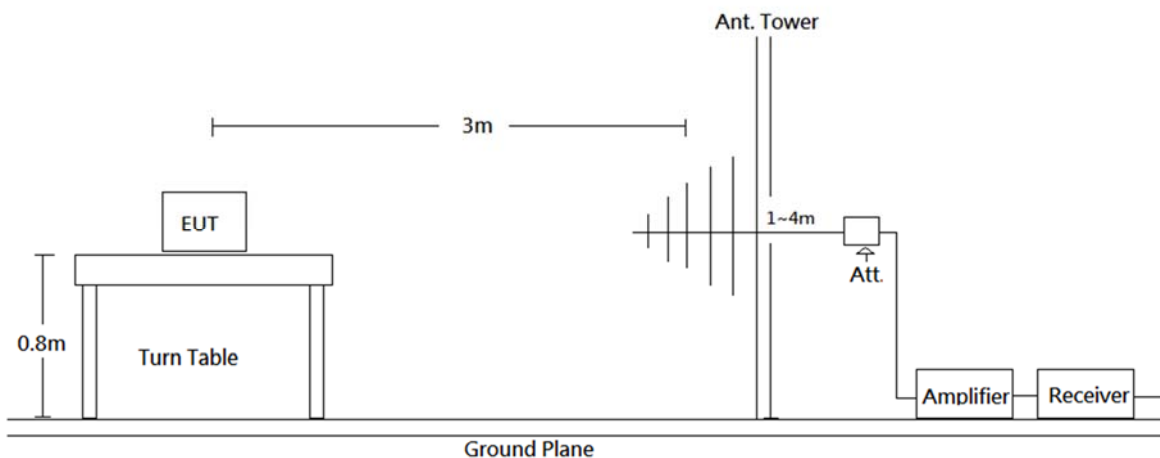
- For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band 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..

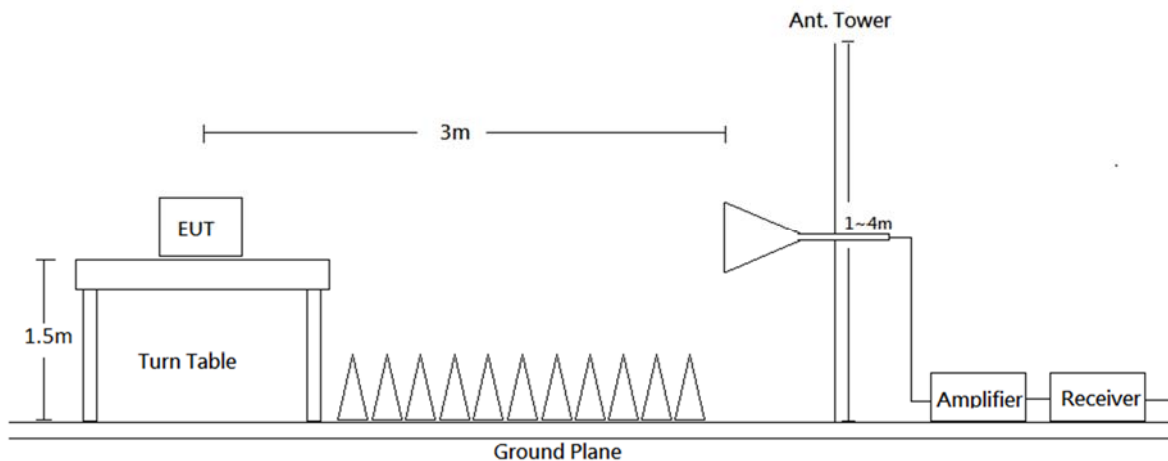
- The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

## 8.2 EUT Setup

Below 1 GHz:



Above 1 GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC Part 15.209 and FCC 15.407 Limits.

### 8.3 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 was set with the following configurations measurement method 6.3 in ANSI C63.10.

| Frequency Range | RBW     | VBW   | Duty cycle | Measurement method |
|-----------------|---------|-------|------------|--------------------|
| 30-1000 MHz     | 120 kHz | /     | /          | QP                 |
| Above 1 GHz     | 1 MHz   | 3 MHz | /          | PK                 |
|                 | 1 MHz   | 10 Hz | >98%       | Ave                |
|                 | 1 MHz   | 1/T   | <98%       | Ave                |

Note: T is minimum transmission duration

### 8.4 Test Procedure

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

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

According to C63.10, emission shall be computed as:  $E [dB\mu V/m] = EIRP[dBm] + 95.2$ , for  $d = 3$  meters.

All emissions under the average limit and under the noise floor have not recorded in the report

### 8.5 Corrected Factor & Margin Calculation

The Correct Factor 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:

$$\text{Correct Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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

$$\text{Margin} = \text{Result} - \text{Limit}$$

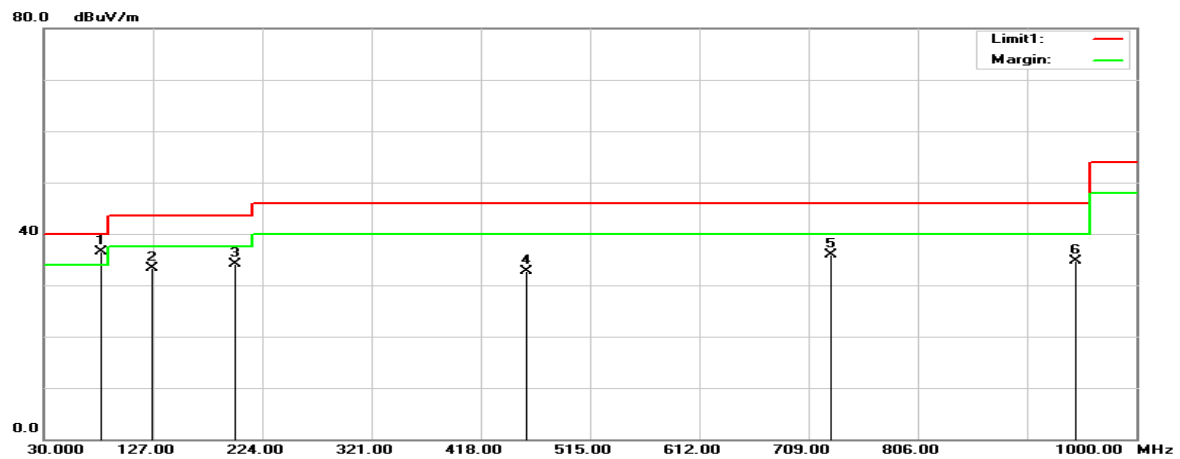
## 8.6 Test Results

Test Mode: Transmitting

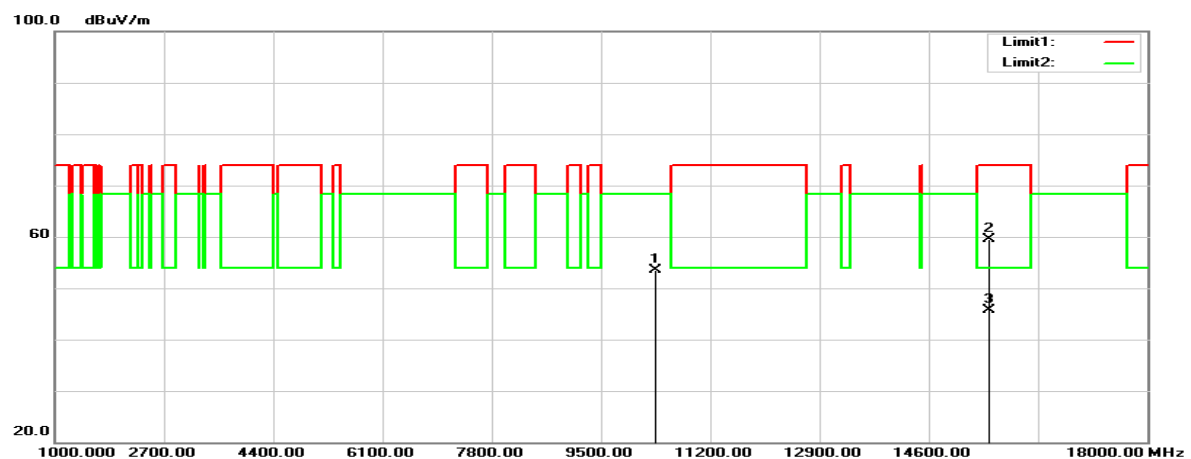
(Pre-scan with three orthogonal axis, and worse case as Y axis.)

**Horizontal** (worst case is 802.11a mode 5240MHz)

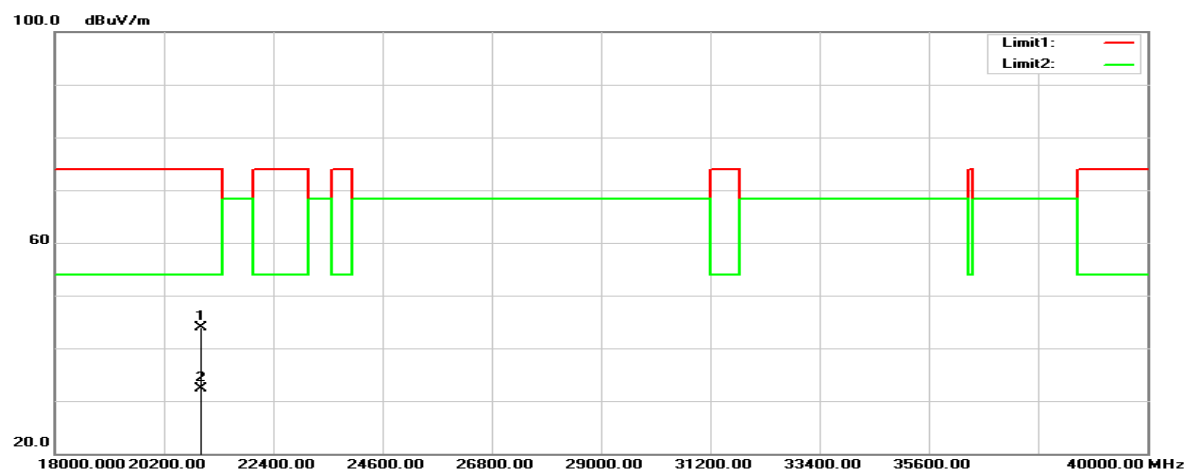
30MHz-1GHz:



1GHz-18GHz:

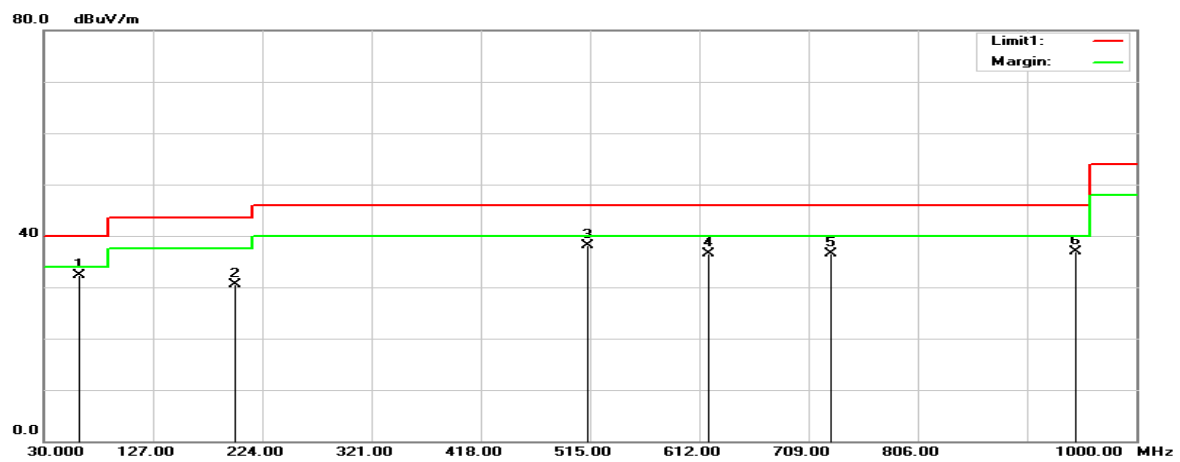


18GHz-40GHz:

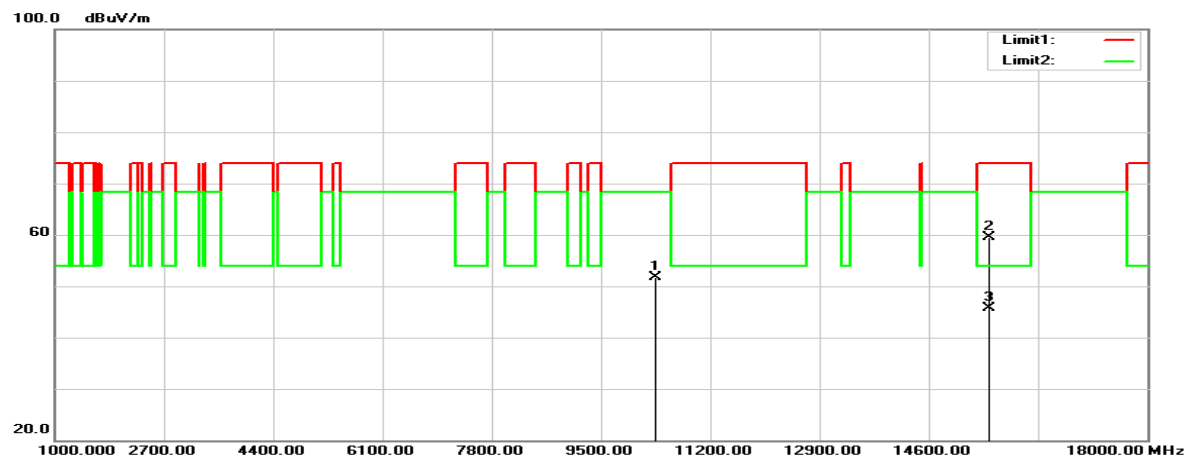


**Vertical** (worst case is 802.11a mode 5240MHz)

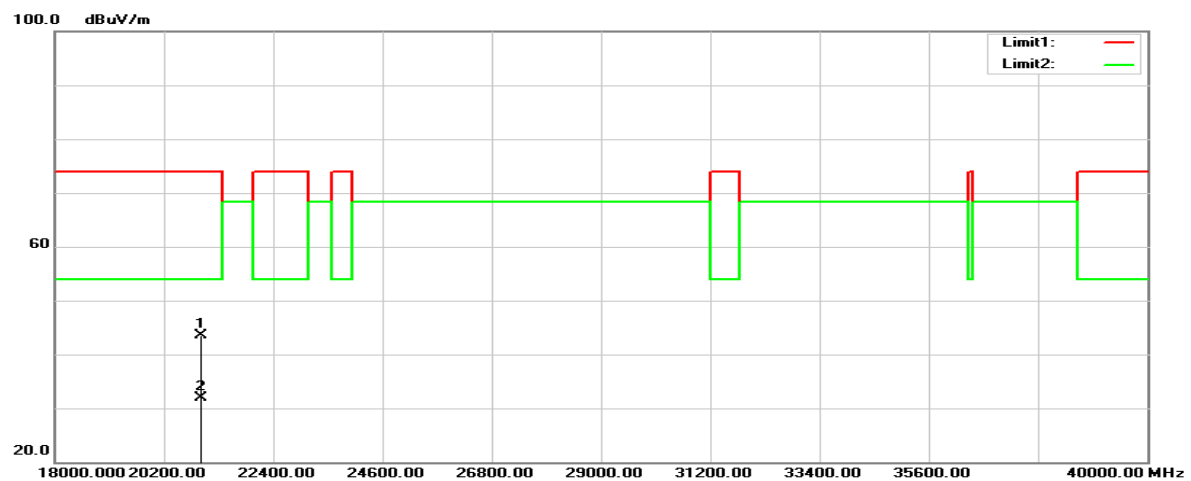
30MHz-1GHz:



1GHz-18GHz:



18GHz-40GHz:



**Below 1GHz****Horizontal**

| Frequency | Reading      | Correct      | Result         | Limit          | Margin | Height | Degree | Remark |
|-----------|--------------|--------------|----------------|----------------|--------|--------|--------|--------|
| (MHz)     | (dB $\mu$ V) | Factor(dB/m) | (dB $\mu$ V/m) | (dB $\mu$ V/m) | (dB)   | (cm)   | ( ° )  |        |
| 81.4100   | 53.07        | -16.62       | 36.45          | 40.00          | -3.55  | 100    | 87     | QP     |
| 126.0300  | 43.61        | -10.34       | 33.27          | 43.50          | -10.23 | 100    | 117    | peak   |
| 199.7500  | 45.06        | -10.99       | 34.07          | 43.50          | -9.43  | 100    | 315    | peak   |
| 458.7400  | 39.19        | -6.46        | 32.73          | 46.00          | -13.27 | 100    | 72     | peak   |
| 729.3700  | 38.28        | -2.35        | 35.93          | 46.00          | -10.07 | 100    | 75     | peak   |
| 945.6800  | 32.62        | 2.13         | 34.75          | 46.00          | -11.25 | 100    | 38     | peak   |

**Vertical**

| Frequency | Reading      | Correct      | Result         | Limit          | Margin | Height | Degree | Remark |
|-----------|--------------|--------------|----------------|----------------|--------|--------|--------|--------|
| (MHz)     | (dB $\mu$ V) | Factor(dB/m) | (dB $\mu$ V/m) | (dB $\mu$ V/m) | (dB)   | (cm)   | ( ° )  |        |
| 62.0100   | 49.43        | -17.19       | 32.24          | 40.00          | -7.76  | 100    | 95     | peak   |
| 199.7500  | 41.56        | -10.99       | 30.57          | 43.50          | -12.93 | 100    | 2      | peak   |
| 513.0600  | 43.85        | -5.71        | 38.14          | 46.00          | -7.86  | 100    | 272    | peak   |
| 620.7300  | 41.43        | -4.87        | 36.56          | 46.00          | -9.44  | 100    | 54     | peak   |
| 729.3700  | 38.89        | -2.35        | 36.54          | 46.00          | -9.46  | 100    | 189    | peak   |
| 945.6800  | 34.86        | 2.13         | 36.99          | 46.00          | -9.01  | 100    | 176    | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**For UNII-1 Band I:****Above 1GHz****Horizontal**

| Frequency<br>(MHz)     | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| a Mode, Low channel    |                   |                         |                    |                   |                |                |                 |        |
| 5144.200               | 59.93             | -1.01                   | 58.92              | 74.00             | -15.08         | 132            | 65              | peak   |
| 5144.200               | 47.06             | -1.01                   | 46.05              | 54.00             | -7.95          | 132            | 65              | AVG    |
| 10360.000              | 45.93             | 7.66                    | 53.59              | 68.20             | -14.61         | 148            | 62              | peak   |
| 15540.000              | 45.36             | 14.05                   | 59.41              | 74.00             | -14.59         | 152            | 299             | peak   |
| 15540.000              | 31.67             | 14.05                   | 45.72              | 54.00             | -8.28          | 152            | 299             | AVG    |
| a Mode, Middle channel |                   |                         |                    |                   |                |                |                 |        |
| 10400.000              | 44.36             | 7.97                    | 52.33              | 68.20             | -15.87         | 153            | 128             | peak   |
| 15600.000              | 44.24             | 13.74                   | 57.98              | 74.00             | -16.02         | 144            | 344             | peak   |
| 15600.000              | 31.81             | 13.74                   | 45.55              | 54.00             | -8.45          | 144            | 344             | AVG    |
| a Mode, High channel   |                   |                         |                    |                   |                |                |                 |        |
| 5106.990               | 55.31             | -0.85                   | 54.46              | 74.00             | -19.54         | 135            | 66              | peak   |
| 5106.990               | 42.52             | -0.85                   | 41.67              | 54.00             | -12.33         | 135            | 66              | AVG    |
| 5356.680               | 55.17             | -1.54                   | 53.63              | 74.00             | -20.37         | 135            | 66              | peak   |
| 5356.680               | 42.19             | -1.54                   | 40.65              | 54.00             | -13.35         | 135            | 66              | AVG    |
| 10480.000              | 47.15             | 8.51                    | 55.66              | 68.20             | -12.54         | 187            | 91              | peak   |
| 15720.000              | 44.79             | 13.49                   | 58.28              | 74.00             | -15.72         | 148            | 1               | peak   |
| 15720.000              | 30.84             | 13.49                   | 44.33              | 54.00             | -9.67          | 148            | 1               | AVG    |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Vertical**

| Frequency<br>(MHz)     | Reading<br>(dB $\mu$ V) | Correct<br>Factor(dB/m) | Result<br>(dB $\mu$ V/m) | Limit<br>(dB $\mu$ V/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|------------------------|-------------------------|-------------------------|--------------------------|-------------------------|----------------|----------------|-----------------|--------|
| a Mode, Low channel    |                         |                         |                          |                         |                |                |                 |        |
| 5142.700               | 57.50                   | -1.01                   | 56.49                    | 74.00                   | -17.51         | 102            | 6               | peak   |
| 5142.700               | 44.06                   | -1.01                   | 43.05                    | 54.00                   | -10.95         | 102            | 6               | AVG    |
| 10360.000              | 44.02                   | 7.66                    | 51.68                    | 68.20                   | -16.52         | 153            | 9               | peak   |
| 15540.000              | 45.48                   | 14.05                   | 59.53                    | 74.00                   | -14.47         | 144            | 289             | peak   |
| 15540.000              | 31.74                   | 14.05                   | 45.79                    | 54.00                   | -8.21          | 144            | 289             | AVG    |
| a Mode, Middle channel |                         |                         |                          |                         |                |                |                 |        |
| 10400.000              | 43.04                   | 7.97                    | 51.01                    | 68.20                   | -17.19         | 155            | 1               | peak   |
| 15600.000              | 43.92                   | 13.74                   | 57.66                    | 74.00                   | -16.34         | 142            | 304             | peak   |
| 15600.000              | 31.69                   | 13.74                   | 45.43                    | 54.00                   | -8.57          | 142            | 304             | AVG    |
| a Mode, High channel   |                         |                         |                          |                         |                |                |                 |        |
| 5145.120               | 55.20                   | -1.02                   | 54.18                    | 74.00                   | -19.82         | 118            | 101             | peak   |
| 5145.120               | 42.36                   | -1.02                   | 41.34                    | 54.00                   | -12.66         | 118            | 101             | AVG    |
| 5350.940               | 55.03                   | -1.56                   | 53.47                    | 74.00                   | -20.53         | 118            | 101             | peak   |
| 5350.940               | 42.07                   | -1.56                   | 40.51                    | 54.00                   | -13.49         | 118            | 101             | AVG    |
| 10480.000              | 42.04                   | 8.51                    | 50.55                    | 68.20                   | -17.65         | 152            | 15              | peak   |
| 15720.000              | 45.22                   | 13.49                   | 58.71                    | 74.00                   | -15.29         | 145            | 121             | peak   |
| 15720.000              | 30.88                   | 13.49                   | 44.37                    | 54.00                   | -9.63          | 145            | 121             | AVG    |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Horizontal**

| Frequency<br>(MHz)       | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|--------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| n20 Mode, Low channel    |                   |                         |                    |                   |                |                |                 |        |
| 5147.950                 | 60.39             | -1.03                   | 59.36              | 74.00             | -14.64         | 133            | 62              | peak   |
| 5147.950                 | 46.23             | -1.03                   | 45.20              | 54.00             | -8.80          | 133            | 62              | AVG    |
| 10360.000                | 42.54             | 7.66                    | 50.20              | 68.20             | -18.00         | 145            | 99              | peak   |
| 15540.000                | 43.30             | 14.05                   | 57.35              | 74.00             | -16.65         | 148            | 245             | peak   |
| 15540.000                | 31.72             | 14.05                   | 45.77              | 54.00             | -8.23          | 148            | 245             | AVG    |
| n20 Mode, Middle channel |                   |                         |                    |                   |                |                |                 |        |
| 10400.000                | 42.54             | 7.97                    | 50.51              | 68.20             | -17.69         | 153            | 90              | peak   |
| 15600.000                | 43.44             | 13.74                   | 57.18              | 74.00             | -16.82         | 156            | 11              | peak   |
| 15600.000                | 33.71             | 13.74                   | 47.45              | 54.00             | -6.55          | 156            | 11              | AVG    |
| n20 Mode, High channel   |                   |                         |                    |                   |                |                |                 |        |
| 5102.070                 | 55.45             | -0.83                   | 54.62              | 74.00             | -19.38         | 135            | 65              | peak   |
| 5102.070                 | 41.66             | -0.83                   | 40.83              | 54.00             | -13.17         | 135            | 65              | AVG    |
| 5382.100                 | 55.06             | -1.44                   | 53.62              | 74.00             | -20.38         | 135            | 65              | peak   |
| 5382.100                 | 41.60             | -1.44                   | 40.16              | 54.00             | -13.84         | 135            | 65              | AVG    |
| 10480.000                | 43.55             | 8.51                    | 52.06              | 68.20             | -16.14         | 155            | 92              | peak   |
| 15720.000                | 44.79             | 13.49                   | 58.28              | 74.00             | -15.72         | 151            | 213             | peak   |
| 15720.000                | 33.46             | 13.49                   | 46.95              | 54.00             | -7.05          | 151            | 213             | AVG    |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Vertical**

| Frequency<br>(MHz)       | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|--------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| n20 Mode, Low channel    |                   |                         |                    |                   |                |                |                 |        |
| 5149.450                 | 57.36             | -1.03                   | 56.33              | 74.00             | -17.67         | 104            | 4               | peak   |
| 5149.450                 | 43.35             | -1.03                   | 42.32              | 54.00             | -11.68         | 104            | 4               | AVG    |
| 10360.000                | 42.66             | 7.66                    | 50.32              | 68.20             | -17.88         | 155            | 16              | peak   |
| 15540.000                | 43.99             | 14.05                   | 58.04              | 74.00             | -15.96         | 152            | 95              | peak   |
| 15540.000                | 31.84             | 14.05                   | 45.89              | 54.00             | -8.11          | 152            | 95              | AVG    |
| n20 Mode, Middle channel |                   |                         |                    |                   |                |                |                 |        |
| 10400.000                | 41.74             | 7.97                    | 49.71              | 68.20             | -18.49         | 153            | 359             | peak   |
| 15600.000                | 44.62             | 13.74                   | 58.36              | 74.00             | -15.64         | 147            | 188             | peak   |
| 15600.000                | 33.93             | 13.74                   | 47.67              | 54.00             | -6.33          | 147            | 188             | AVG    |
| n20 Mode, High channel   |                   |                         |                    |                   |                |                |                 |        |
| 5144.710                 | 55.76             | -1.01                   | 54.75              | 74.00             | -19.25         | 109            | 105             | peak   |
| 5144.710                 | 41.59             | -1.01                   | 40.58              | 54.00             | -13.42         | 109            | 105             | AVG    |
| 5372.670                 | 54.78             | -1.48                   | 53.30              | 74.00             | -20.70         | 109            | 105             | peak   |
| 5372.670                 | 41.40             | -1.48                   | 39.92              | 54.00             | -14.08         | 109            | 105             | AVG    |
| 10480.000                | 43.20             | 8.51                    | 51.71              | 68.20             | -16.49         | 158            | 133             | peak   |
| 15720.000                | 44.12             | 13.49                   | 57.61              | 74.00             | -16.39         | 153            | 349             | peak   |
| 15720.000                | 33.18             | 13.49                   | 46.67              | 54.00             | -7.33          | 153            | 349             | AVG    |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Horizontal**

| Frequency<br>(MHz)     | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| n40 Mode, Low channel  |                   |                         |                    |                   |                |                |                 |        |
| 5146.480               | 71.57             | -1.74                   | 69.83              | 74.00             | -4.17          | 102            | 293             | peak   |
| 5146.480               | 54.19             | -1.74                   | 52.45              | 54.00             | -1.55          | 102            | 293             | AVG    |
| 10380.000              | 43.47             | 6.88                    | 50.35              | 68.20             | -17.85         | 150            | 289             | peak   |
| 15570.000              | 44.43             | 11.05                   | 55.48              | 74.00             | -18.52         | 151            | 332             | peak   |
| 15570.000              | 33.79             | 11.05                   | 44.84              | 54.00             | -9.16          | 151            | 332             | AVG    |
| n40 Mode, High channel |                   |                         |                    |                   |                |                |                 |        |
| 5146.350               | 57.50             | -1.74                   | 55.76              | 74.00             | -18.24         | 223            | 130             | peak   |
| 5146.350               | 43.42             | -1.74                   | 41.68              | 54.00             | -12.32         | 223            | 130             | AVG    |
| 5416.540               | 56.13             | -2.47                   | 53.66              | 74.00             | -20.34         | 223            | 130             | peak   |
| 5416.540               | 42.25             | -2.47                   | 39.78              | 54.00             | -14.22         | 223            | 130             | AVG    |
| 10460.000              | 43.67             | 7.05                    | 50.72              | 68.20             | -17.48         | 150            | 311             | peak   |
| 15690.000              | 43.50             | 11.13                   | 54.63              | 74.00             | -19.37         | 148            | 302             | peak   |
| 15690.000              | 32.15             | 11.13                   | 43.28              | 54.00             | -10.72         | 148            | 302             | AVG    |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Vertical**

| Frequency<br>(MHz)     | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| n40 Mode, Low channel  |                   |                         |                    |                   |                |                |                 |        |
| 5146.640               | 61.59             | -1.74                   | 59.85              | 74.00             | -14.15         | 167            | 225             | peak   |
| 5146.640               | 45.67             | -1.74                   | 43.93              | 54.00             | -10.07         | 167            | 225             | AVG    |
| 10380.000              | 39.19             | 6.88                    | 46.07              | 68.20             | -22.13         | 143            | 244             | peak   |
| 15570.000              | 42.26             | 11.05                   | 53.31              | 74.00             | -20.69         | 147            | 302             | peak   |
| 15570.000              | 30.76             | 11.05                   | 41.81              | 54.00             | -12.19         | 147            | 302             | AVG    |
| n40 Mode, High channel |                   |                         |                    |                   |                |                |                 |        |
| 5121.750               | 56.05             | -1.75                   | 54.30              | 74.00             | -19.70         | 175            | 225             | peak   |
| 5121.750               | 42.39             | -1.75                   | 40.64              | 54.00             | -13.36         | 175            | 225             | AVG    |
| 5364.060               | 55.96             | -2.38                   | 53.58              | 74.00             | -20.42         | 175            | 225             | peak   |
| 5364.060               | 42.30             | -2.38                   | 39.92              | 54.00             | -14.08         | 175            | 225             | AVG    |
| 10460.000              | 43.54             | 7.05                    | 50.59              | 68.20             | -17.61         | 145            | 314             | peak   |
| 15690.000              | 44.28             | 11.13                   | 55.41              | 74.00             | -18.59         | 152            | 299             | peak   |
| 15690.000              | 32.86             | 11.13                   | 43.99              | 54.00             | -10.01         | 152            | 299             | AVG    |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**For UNII-3 Band IV:****Above 1GHz****Horizontal**

| Frequency              | Reading | Correct      | Result   | Limit    | Margin | Height | Degree | Remark |
|------------------------|---------|--------------|----------|----------|--------|--------|--------|--------|
| (MHz)                  | (dBμV)  | Factor(dB/m) | (dBμV/m) | (dBμV/m) | (dB)   | (cm)   | ( ° )  |        |
| a Mode, Low channel    |         |              |          |          |        |        |        |        |
| 5634.120               | 54.27   | -1.75        | 52.52    | 68.20    | -15.68 | 150    | 59     | peak   |
| 5698.560               | 57.49   | -1.65        | 55.84    | 104.13   | -48.29 | 150    | 59     | peak   |
| 5716.920               | 61.72   | -1.66        | 60.06    | 109.94   | -49.88 | 150    | 59     | peak   |
| 5724.120               | 67.83   | -1.68        | 66.15    | 120.19   | -54.04 | 150    | 59     | peak   |
| 5853.000               | 54.11   | -1.13        | 52.98    | 115.36   | -62.38 | 150    | 59     | peak   |
| 5857.320               | 55.60   | -1.09        | 54.51    | 110.15   | -55.64 | 150    | 59     | peak   |
| 5888.280               | 55.04   | -0.79        | 54.25    | 95.37    | -41.12 | 150    | 59     | peak   |
| 5945.160               | 54.77   | -0.69        | 54.08    | 68.20    | -14.12 | 150    | 59     | peak   |
| 11490.000              | 42.34   | 9.04         | 51.38    | 74.00    | -22.62 | 155    | 235    | peak   |
| 11490.000              | 30.31   | 9.04         | 39.35    | 54.00    | -14.65 | 155    | 235    | AVG    |
| 17235.000              | 42.42   | 16.75        | 59.17    | 68.20    | -9.03  | 154    | 192    | peak   |
| a Mode, Middle channel |         |              |          |          |        |        |        |        |
| 5649.600               | 54.84   | -1.73        | 53.11    | 68.20    | -15.09 | 146    | 58     | peak   |
| 5697.840               | 55.88   | -1.65        | 54.23    | 103.60   | -49.37 | 146    | 58     | peak   |
| 5710.440               | 55.96   | -1.65        | 54.31    | 108.12   | -53.81 | 146    | 58     | peak   |
| 5721.240               | 53.93   | -1.67        | 52.26    | 113.63   | -61.37 | 146    | 58     | peak   |
| 5853.720               | 54.90   | -1.12        | 53.78    | 113.72   | -59.94 | 146    | 58     | peak   |
| 5870.280               | 56.60   | -0.96        | 55.64    | 106.52   | -50.88 | 146    | 58     | peak   |
| 5902.680               | 54.86   | -0.63        | 54.23    | 84.72    | -30.49 | 146    | 58     | peak   |
| 5946.960               | 54.32   | -0.69        | 53.63    | 68.20    | -14.57 | 146    | 58     | peak   |
| 11570.000              | 42.73   | 9.62         | 52.35    | 74.00    | -21.65 | 144    | 315    | peak   |
| 11570.000              | 30.48   | 9.62         | 40.10    | 54.00    | -13.90 | 144    | 315    | AVG    |
| 17355.000              | 42.24   | 16.82        | 59.06    | 68.20    | -9.14  | 151    | 144    | peak   |
| a Mode, High channel   |         |              |          |          |        |        |        |        |
| 5623.680               | 53.84   | -1.77        | 52.07    | 68.20    | -16.13 | 124    | 88     | peak   |
| 5696.760               | 55.02   | -1.65        | 53.37    | 102.80   | -49.43 | 124    | 88     | peak   |
| 5701.440               | 54.92   | -1.65        | 53.27    | 105.60   | -52.33 | 124    | 88     | peak   |
| 5721.240               | 54.44   | -1.67        | 52.77    | 113.63   | -60.86 | 124    | 88     | peak   |
| 5850.840               | 62.12   | -1.14        | 60.98    | 120.28   | -59.30 | 124    | 88     | peak   |
| 5857.320               | 61.32   | -1.09        | 60.23    | 110.15   | -49.92 | 124    | 88     | peak   |
| 5887.200               | 56.43   | -0.80        | 55.63    | 96.17    | -40.54 | 124    | 88     | peak   |
| 5938.680               | 54.69   | -0.67        | 54.02    | 68.20    | -14.18 | 124    | 88     | peak   |
| 11650.000              | 42.11   | 9.62         | 51.73    | 74.00    | -22.27 | 152    | 116    | peak   |
| 11650.000              | 31.37   | 9.62         | 40.99    | 54.00    | -13.01 | 152    | 116    | AVG    |
| 17475.000              | 42.48   | 16.32        | 58.80    | 68.20    | -9.40  | 154    | 354    | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Vertical**

| Frequency              | Reading | Correct      | Result   | Limit    | Margin | Height | Degree | Remark |
|------------------------|---------|--------------|----------|----------|--------|--------|--------|--------|
| (MHz)                  | (dBμV)  | Factor(dB/m) | (dBμV/m) | (dBμV/m) | (dB)   | (cm)   | ( ° )  |        |
| a Mode, Low channel    |         |              |          |          |        |        |        |        |
| 5622.240               | 54.30   | -1.77        | 52.53    | 68.20    | -15.67 | 118    | 16     | peak   |
| 5699.640               | 55.87   | -1.65        | 54.22    | 104.93   | -50.71 | 118    | 16     | peak   |
| 5719.080               | 61.11   | -1.67        | 59.44    | 110.54   | -51.10 | 118    | 16     | peak   |
| 5724.480               | 66.75   | -1.68        | 65.07    | 121.01   | -55.94 | 118    | 16     | peak   |
| 5854.440               | 54.99   | -1.11        | 53.88    | 112.08   | -58.20 | 118    | 16     | peak   |
| 5862.720               | 55.78   | -1.03        | 54.75    | 108.64   | -53.89 | 118    | 16     | peak   |
| 5892.960               | 55.16   | -0.73        | 54.43    | 91.91    | -37.48 | 118    | 16     | peak   |
| 5925.720               | 54.24   | -0.65        | 53.59    | 68.20    | -14.61 | 118    | 16     | peak   |
| 11490.000              | 41.95   | 9.04         | 50.99    | 74.00    | -23.01 | 154    | 336    | peak   |
| 11490.000              | 29.70   | 9.04         | 38.74    | 54.00    | -15.26 | 154    | 336    | AVG    |
| 17235.000              | 42.85   | 16.75        | 59.60    | 68.20    | -8.60  | 158    | 16     | peak   |
| a Mode, Middle channel |         |              |          |          |        |        |        |        |
| 5622.600               | 54.23   | -1.77        | 52.46    | 68.20    | -15.74 | 135    | 20     | peak   |
| 5698.560               | 55.48   | -1.65        | 53.83    | 104.13   | -50.30 | 135    | 20     | peak   |
| 5704.320               | 54.98   | -1.66        | 53.32    | 106.41   | -53.09 | 135    | 20     | peak   |
| 5724.840               | 54.47   | -1.68        | 52.79    | 121.84   | -69.05 | 135    | 20     | peak   |
| 5851.200               | 54.25   | -1.14        | 53.11    | 119.46   | -66.35 | 135    | 20     | peak   |
| 5861.640               | 55.33   | -1.05        | 54.28    | 108.94   | -54.66 | 135    | 20     | peak   |
| 5909.160               | 55.42   | -0.60        | 54.82    | 79.92    | -25.10 | 135    | 20     | peak   |
| 5949.840               | 54.33   | -0.70        | 53.63    | 68.20    | -14.57 | 135    | 20     | peak   |
| 11570.000              | 42.75   | 9.62         | 52.37    | 74.00    | -21.63 | 152    | 254    | peak   |
| 11570.000              | 30.36   | 9.62         | 39.98    | 54.00    | -14.02 | 152    | 254    | AVG    |
| 17355.000              | 42.40   | 16.82        | 59.22    | 68.20    | -8.98  | 151    | 252    | peak   |
| a Mode, High channel   |         |              |          |          |        |        |        |        |
| 5612.880               | 53.82   | -1.78        | 52.04    | 68.20    | -16.16 | 150    | 30     | peak   |
| 5691.720               | 54.56   | -1.66        | 52.90    | 99.07    | -46.17 | 150    | 30     | peak   |
| 5718.360               | 54.18   | -1.67        | 52.51    | 110.34   | -57.83 | 150    | 30     | peak   |
| 5722.680               | 53.76   | -1.68        | 52.08    | 116.91   | -64.83 | 150    | 30     | peak   |
| 5850.840               | 61.35   | -1.14        | 60.21    | 120.28   | -60.07 | 150    | 30     | peak   |
| 5857.320               | 58.87   | -1.09        | 57.78    | 110.15   | -52.37 | 150    | 30     | peak   |
| 5907.720               | 55.75   | -0.60        | 55.15    | 80.99    | -25.84 | 150    | 30     | peak   |
| 5936.520               | 55.72   | -0.66        | 55.06    | 68.20    | -13.14 | 150    | 30     | peak   |
| 11650.000              | 42.08   | 9.62         | 51.70    | 74.00    | -22.30 | 153    | 344    | peak   |
| 11650.000              | 30.32   | 9.62         | 39.94    | 54.00    | -14.06 | 153    | 344    | AVG    |
| 17475.000              | 42.71   | 16.32        | 59.03    | 68.20    | -9.17  | 147    | 107    | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Horizontal**

| Frequency                | Reading | Correct      | Result   | Limit    | Margin | Height | Degree | Remark |
|--------------------------|---------|--------------|----------|----------|--------|--------|--------|--------|
| (MHz)                    | (dBμV)  | Factor(dB/m) | (dBμV/m) | (dBμV/m) | (dB)   | (cm)   | ( ° )  |        |
| n20 Mode, Low channel    |         |              |          |          |        |        |        |        |
| 5610.000                 | 54.50   | -1.79        | 52.71    | 68.20    | -15.49 | 149    | 57     | peak   |
| 5697.840                 | 57.04   | -1.65        | 55.39    | 103.60   | -48.21 | 149    | 57     | peak   |
| 5717.280                 | 64.11   | -1.66        | 62.45    | 110.04   | -47.59 | 149    | 57     | peak   |
| 5724.480                 | 71.38   | -1.68        | 69.70    | 121.01   | -51.31 | 149    | 57     | peak   |
| 5852.280                 | 54.68   | -1.14        | 53.54    | 117.00   | -63.46 | 149    | 57     | peak   |
| 5873.520                 | 55.20   | -0.93        | 54.27    | 105.61   | -51.34 | 149    | 57     | peak   |
| 5887.200                 | 55.52   | -0.80        | 54.72    | 96.17    | -41.45 | 149    | 57     | peak   |
| 5933.280                 | 54.49   | -0.65        | 53.84    | 68.20    | -14.36 | 149    | 57     | peak   |
| 11490.000                | 41.67   | 9.04         | 50.71    | 74.00    | -23.29 | 155    | 62     | peak   |
| 11490.000                | 29.74   | 9.04         | 38.78    | 54.00    | -15.22 | 155    | 62     | AVG    |
| 17235.000                | 42.83   | 16.75        | 59.58    | 68.20    | -8.62  | 142    | 165    | peak   |
| n20 Mode, Middle channel |         |              |          |          |        |        |        |        |
| 5645.640                 | 53.84   | -1.73        | 52.11    | 68.20    | -16.09 | 120    | 56     | peak   |
| 5698.920                 | 55.63   | -1.65        | 53.98    | 104.40   | -50.42 | 120    | 56     | peak   |
| 5702.520                 | 55.06   | -1.66        | 53.40    | 105.91   | -52.51 | 120    | 56     | peak   |
| 5722.320                 | 53.97   | -1.67        | 52.30    | 116.09   | -63.79 | 120    | 56     | peak   |
| 5850.480                 | 54.89   | -1.15        | 53.74    | 121.11   | -67.37 | 120    | 56     | peak   |
| 5862.000                 | 56.14   | -1.05        | 55.09    | 108.84   | -53.75 | 120    | 56     | peak   |
| 5918.520                 | 55.43   | -0.62        | 54.81    | 73.00    | -18.19 | 120    | 56     | peak   |
| 5925.360                 | 54.86   | -0.64        | 54.22    | 68.20    | -13.98 | 120    | 56     | peak   |
| 11570.000                | 42.05   | 9.62         | 51.67    | 74.00    | -22.33 | 152    | 41     | peak   |
| 11570.000                | 30.43   | 9.62         | 40.05    | 54.00    | -13.95 | 152    | 41     | AVG    |
| 17355.000                | 42.76   | 16.82        | 59.58    | 68.20    | -8.62  | 146    | 359    | peak   |
| n20 Mode, High channel   |         |              |          |          |        |        |        |        |
| 5622.240                 | 54.18   | -1.77        | 52.41    | 68.20    | -15.79 | 150    | 90     | peak   |
| 5685.960                 | 55.78   | -1.67        | 54.11    | 94.81    | -40.70 | 150    | 90     | peak   |
| 5707.560                 | 54.76   | -1.67        | 53.09    | 107.32   | -54.23 | 150    | 90     | peak   |
| 5723.760                 | 53.90   | -1.68        | 52.22    | 119.37   | -67.15 | 150    | 90     | peak   |
| 5850.120                 | 66.89   | -1.15        | 65.74    | 121.93   | -56.19 | 150    | 90     | peak   |
| 5855.520                 | 63.28   | -1.11        | 62.17    | 110.65   | -48.48 | 150    | 90     | peak   |
| 5901.960                 | 55.62   | -0.64        | 54.98    | 85.25    | -30.27 | 150    | 90     | peak   |
| 5926.080                 | 54.82   | -0.65        | 54.17    | 68.20    | -14.03 | 150    | 90     | peak   |
| 11650.000                | 42.80   | 9.62         | 52.42    | 74.00    | -21.58 | 151    | 299    | peak   |
| 11650.000                | 30.74   | 9.62         | 40.36    | 54.00    | -13.64 | 151    | 299    | AVG    |
| 17475.000                | 42.59   | 16.32        | 58.91    | 68.20    | -9.29  | 153    | 242    | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Vertical**

| Frequency                | Reading | Correct      | Result   | Limit    | Margin | Height | Degree | Remark |
|--------------------------|---------|--------------|----------|----------|--------|--------|--------|--------|
| (MHz)                    | (dBμV)  | Factor(dB/m) | (dBμV/m) | (dBμV/m) | (dB)   | (cm)   | ( ° )  |        |
| n20 Mode, Low channel    |         |              |          |          |        |        |        |        |
| 5639.880                 | 54.79   | -1.74        | 53.05    | 68.20    | -15.15 | 118    | 15     | peak   |
| 5698.560                 | 56.28   | -1.65        | 54.63    | 104.13   | -49.50 | 118    | 15     | peak   |
| 5717.640                 | 64.08   | -1.67        | 62.41    | 110.14   | -47.73 | 118    | 15     | peak   |
| 5724.840                 | 70.12   | -1.68        | 68.44    | 121.84   | -53.40 | 118    | 15     | peak   |
| 5850.840                 | 54.82   | -1.14        | 53.68    | 120.28   | -66.60 | 118    | 15     | peak   |
| 5859.120                 | 55.56   | -1.07        | 54.49    | 109.65   | -55.16 | 118    | 15     | peak   |
| 5908.800                 | 55.65   | -0.60        | 55.05    | 80.19    | -25.14 | 118    | 15     | peak   |
| 5925.360                 | 55.80   | -0.64        | 55.16    | 68.20    | -13.04 | 118    | 15     | peak   |
| 11490.000                | 41.73   | 9.04         | 50.77    | 74.00    | -23.23 | 148    | 26     | peak   |
| 11490.000                | 29.67   | 9.04         | 38.71    | 54.00    | -15.29 | 148    | 26     | AVG    |
| 17235.000                | 42.55   | 16.75        | 59.30    | 68.20    | -8.90  | 151    | 176    | peak   |
| n20 Mode, Middle channel |         |              |          |          |        |        |        |        |
| 5637.720                 | 54.22   | -1.74        | 52.48    | 68.20    | -15.72 | 135    | 21     | peak   |
| 5699.640                 | 54.92   | -1.65        | 53.27    | 104.93   | -51.66 | 135    | 21     | peak   |
| 5712.240                 | 55.15   | -1.65        | 53.50    | 108.63   | -55.13 | 135    | 21     | peak   |
| 5721.600                 | 55.54   | -1.67        | 53.87    | 114.45   | -60.58 | 135    | 21     | peak   |
| 5854.440                 | 54.81   | -1.11        | 53.70    | 112.08   | -58.38 | 135    | 21     | peak   |
| 5867.760                 | 56.89   | -0.99        | 55.90    | 107.23   | -51.33 | 135    | 21     | peak   |
| 5877.480                 | 55.05   | -0.89        | 54.16    | 103.36   | -49.20 | 135    | 21     | peak   |
| 5939.400                 | 55.52   | -0.67        | 54.85    | 68.20    | -13.35 | 135    | 21     | peak   |
| 11570.000                | 42.13   | 9.62         | 51.75    | 74.00    | -22.25 | 154    | 165    | peak   |
| 11570.000                | 30.18   | 9.62         | 39.80    | 54.00    | -14.20 | 154    | 165    | AVG    |
| 17355.000                | 43.75   | 16.82        | 60.57    | 68.20    | -7.63  | 149    | 358    | peak   |
| n20 Mode, High channel   |         |              |          |          |        |        |        |        |
| 5617.560                 | 53.63   | -1.77        | 51.86    | 68.20    | -16.34 | 134    | 30     | peak   |
| 5670.120                 | 54.98   | -1.69        | 53.29    | 83.09    | -29.80 | 134    | 30     | peak   |
| 5719.800                 | 55.02   | -1.67        | 53.35    | 110.74   | -57.39 | 134    | 30     | peak   |
| 5723.400                 | 53.69   | -1.68        | 52.01    | 118.55   | -66.54 | 134    | 30     | peak   |
| 5852.280                 | 64.57   | -1.14        | 63.43    | 117.00   | -53.57 | 134    | 30     | peak   |
| 5855.520                 | 61.52   | -1.11        | 60.41    | 110.65   | -50.24 | 134    | 30     | peak   |
| 5904.120                 | 55.47   | -0.61        | 54.86    | 83.65    | -28.79 | 134    | 30     | peak   |
| 5926.800                 | 55.16   | -0.64        | 54.52    | 68.20    | -13.68 | 134    | 30     | peak   |
| 11650.000                | 42.50   | 9.62         | 52.12    | 74.00    | -21.88 | 153    | 40     | peak   |
| 11650.000                | 30.40   | 9.62         | 40.02    | 54.00    | -13.98 | 153    | 40     | AVG    |
| 17475.000                | 42.96   | 16.32        | 59.28    | 68.20    | -8.92  | 155    | 154    | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Horizontal**

| Frequency<br>(MHz)     | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| n40 Mode, Low channel  |                   |                         |                    |                   |                |                |                 |        |
| 5630.520               | 55.27             | -2.28                   | 52.99              | 68.20             | -15.21         | 146            | 252             | peak   |
| 5699.640               | 65.46             | -2.22                   | 63.24              | 104.93            | -41.69         | 146            | 252             | peak   |
| 5719.440               | 77.64             | -2.24                   | 75.40              | 110.64            | -35.24         | 146            | 252             | peak   |
| 5722.320               | 79.20             | -2.24                   | 76.96              | 116.09            | -39.13         | 146            | 252             | peak   |
| 5853.720               | 55.78             | -1.93                   | 53.85              | 113.72            | -59.87         | 146            | 252             | peak   |
| 5862.360               | 55.67             | -1.88                   | 53.79              | 108.74            | -54.95         | 146            | 252             | peak   |
| 5910.240               | 56.61             | -1.51                   | 55.10              | 79.12             | -24.02         | 146            | 252             | peak   |
| 5941.920               | 55.31             | -1.39                   | 53.92              | 68.20             | -14.28         | 146            | 252             | peak   |
| 11510.000              | 42.24             | 8.17                    | 50.41              | 74.00             | -23.59         | 153            | 228             | peak   |
| 11510.000              | 30.86             | 8.17                    | 39.03              | 54.00             | -14.97         | 153            | 228             | AVG    |
| 17265.000              | 43.80             | 13.96                   | 57.76              | 68.20             | -10.44         | 149            | 314             | peak   |
| n40 Mode, High channel |                   |                         |                    |                   |                |                |                 |        |
| 5641.680               | 55.28             | -2.27                   | 53.01              | 68.20             | -15.19         | 125            | 236             | peak   |
| 5692.800               | 54.74             | -2.23                   | 52.51              | 99.87             | -47.36         | 125            | 236             | peak   |
| 5718.000               | 56.27             | -2.24                   | 54.03              | 110.24            | -56.21         | 125            | 236             | peak   |
| 5722.320               | 57.04             | -2.24                   | 54.80              | 116.09            | -61.29         | 125            | 236             | peak   |
| 5850.120               | 61.34             | -1.95                   | 59.39              | 121.93            | -62.54         | 125            | 236             | peak   |
| 5856.240               | 57.04             | -1.91                   | 55.13              | 110.45            | -55.32         | 125            | 236             | peak   |
| 5888.640               | 56.64             | -1.70                   | 54.94              | 95.11             | -40.17         | 125            | 236             | peak   |
| 5930.400               | 55.51             | -1.44                   | 54.07              | 68.20             | -14.13         | 125            | 236             | peak   |
| 11590.000              | 43.26             | 8.21                    | 51.47              | 74.00             | -22.53         | 147            | 227             | peak   |
| 11590.000              | 31.58             | 8.21                    | 39.79              | 54.00             | -14.21         | 147            | 227             | AVG    |
| 17385.000              | 43.74             | 14.13                   | 57.87              | 68.20             | -10.33         | 146            | 281             | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

**Vertical**

| Frequency<br>(MHz)     | Reading<br>(dBμV) | Correct<br>Factor(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>( ° ) | Remark |
|------------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| n40 Mode, Low channel  |                   |                         |                    |                   |                |                |                 |        |
| 5635.560               | 55.05             | -2.27                   | 52.78              | 68.20             | -15.42         | 177            | 145             | peak   |
| 5699.280               | 59.73             | -2.22                   | 57.51              | 104.67            | -47.16         | 177            | 145             | peak   |
| 5719.080               | 72.19             | -2.24                   | 69.95              | 110.54            | -40.59         | 177            | 145             | peak   |
| 5723.040               | 74.44             | -2.25                   | 72.19              | 117.73            | -45.54         | 177            | 145             | peak   |
| 5850.480               | 55.75             | -1.95                   | 53.80              | 121.11            | -67.31         | 177            | 145             | peak   |
| 5873.880               | 55.60             | -1.81                   | 53.79              | 105.51            | -51.72         | 177            | 145             | peak   |
| 5909.160               | 56.35             | -1.51                   | 54.84              | 79.92             | -25.08         | 177            | 145             | peak   |
| 5933.640               | 55.25             | -1.42                   | 53.83              | 68.20             | -14.37         | 177            | 145             | peak   |
| 11510.000              | 42.58             | 8.17                    | 50.75              | 74.00             | -23.25         | 143            | 294             | peak   |
| 11510.000              | 30.62             | 8.17                    | 38.79              | 54.00             | -15.21         | 143            | 294             | AVG    |
| 17265.000              | 43.07             | 13.96                   | 57.03              | 68.20             | -11.17         | 154            | 311             | peak   |
| n40 Mode, High channel |                   |                         |                    |                   |                |                |                 |        |
| 5639.880               | 55.56             | -2.27                   | 53.29              | 68.20             | -14.91         | 206            | 145             | peak   |
| 5698.920               | 54.98             | -2.22                   | 52.76              | 104.40            | -51.64         | 206            | 145             | peak   |
| 5717.640               | 56.31             | -2.24                   | 54.07              | 110.14            | -56.07         | 206            | 145             | peak   |
| 5720.520               | 54.90             | -2.24                   | 52.66              | 111.99            | -59.33         | 206            | 145             | peak   |
| 5851.920               | 55.72             | -1.94                   | 53.78              | 117.82            | -64.04         | 206            | 145             | peak   |
| 5869.560               | 56.24             | -1.83                   | 54.41              | 106.72            | -52.31         | 206            | 145             | peak   |
| 5891.520               | 56.13             | -1.68                   | 54.45              | 92.98             | -38.53         | 206            | 145             | peak   |
| 5949.840               | 55.79             | -1.37                   | 54.42              | 68.20             | -13.78         | 206            | 145             | peak   |
| 11590.000              | 43.08             | 8.21                    | 51.29              | 74.00             | -22.71         | 142            | 246             | peak   |
| 11590.000              | 31.43             | 8.21                    | 39.64              | 54.00             | -14.36         | 142            | 246             | AVG    |
| 17385.000              | 43.98             | 14.13                   | 58.11              | 68.20             | -10.09         | 148            | 198             | peak   |

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

## 9 FCC §15.407(a)(e) – Emission Bandwidth And Occupied Bandwidth

### 9.1 Applicable Standard

As per FCC §15.407(a): The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

As per FCC §15.407(e): for equipment operating in the band 5725 – 5850 MHz, the minimum 6 dB bandwidth of U-NII devices shall be 500 kHz.

### 9.2 Test Procedure

#### Emission Bandwidth (EBW)

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

#### Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 9.3 Test Results

Test mode: Transmitting

| UNII Band | Mode         | Channel | Frequency (MHz) | 26dB Emission Bandwidth (MHz) | 99% Emission Bandwidth (MHz) |
|-----------|--------------|---------|-----------------|-------------------------------|------------------------------|
| UNII-1    | 802.11a      | 36      | 5180            | 20.60                         | 16.94                        |
|           |              | 40      | 5200            | 20.52                         | 16.94                        |
|           |              | 48      | 5240            | 20.56                         | 16.94                        |
|           | 802.11n HT20 | 36      | 5180            | 20.88                         | 17.78                        |
|           |              | 40      | 5200            | 20.84                         | 17.78                        |
|           |              | 48      | 5240            | 20.84                         | 17.82                        |
|           | 802.11n HT40 | 38      | 5190            | 40.80                         | 36.52                        |
|           |              | 46      | 5230            | 40.48                         | 36.60                        |

| UNII Band | Mode         | Channel | Frequency (MHz) | 6dB Emission Bandwidth (MHz) | 99% Emission Bandwidth (MHz) | Limit (kHz) | Result |
|-----------|--------------|---------|-----------------|------------------------------|------------------------------|-------------|--------|
| UNII-3    | 802.11a      | 149     | 5745            | 16.36                        | 16.94                        | ≥500        | PASS   |
|           |              | 157     | 5785            | 16.40                        | 16.98                        | ≥500        | PASS   |
|           |              | 165     | 5825            | 16.36                        | 16.98                        | ≥500        | PASS   |
|           | 802.11n HT20 | 149     | 5745            | 17.60                        | 17.90                        | ≥500        | PASS   |
|           |              | 157     | 5785            | 17.60                        | 17.86                        | ≥500        | PASS   |
|           |              | 165     | 5825            | 17.60                        | 17.78                        | ≥500        | PASS   |
|           | 802.11n HT40 | 151     | 5755            | 36.32                        | 36.52                        | ≥500        | PASS   |
|           |              | 159     | 5795            | 36.32                        | 36.52                        | ≥500        | PASS   |

Note: the 99% Occupied Bandwidth have not fall into the band 5250-5350MHz or 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.

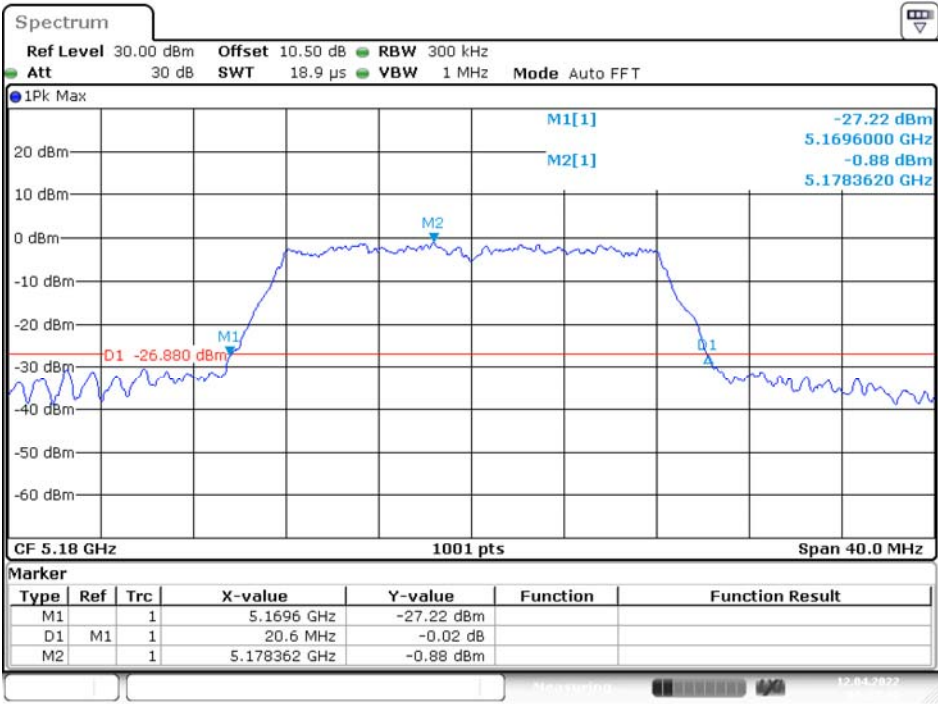
Please refer to the following plots

Transmitting Mode:

UNII-1 Band I / BW 26dBc

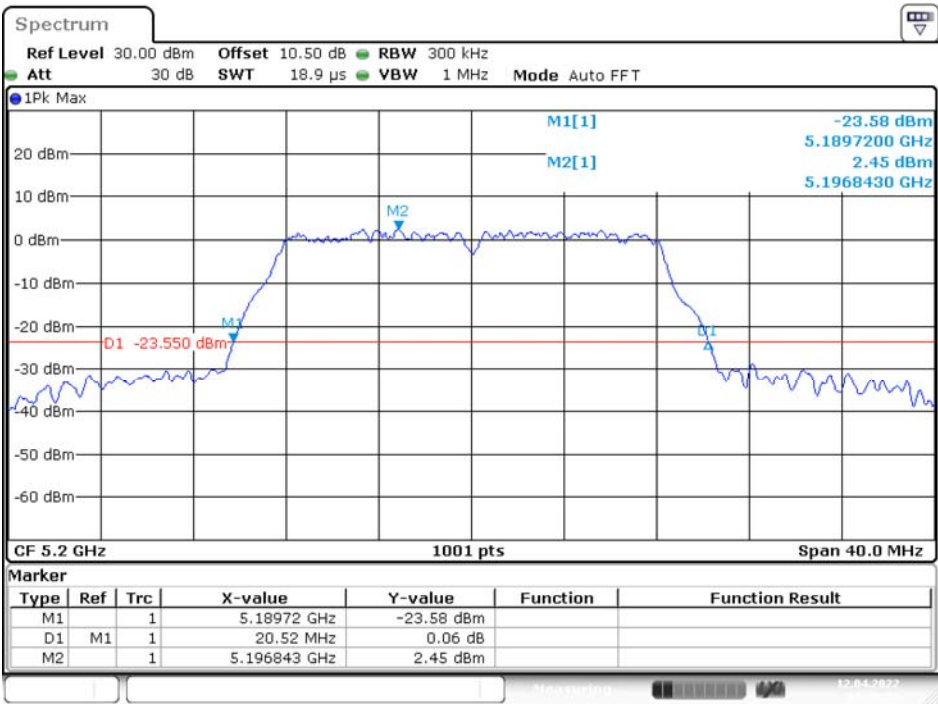
IEEE 802.11a Mode / 5150 ~ 5250MHz

5180MHz



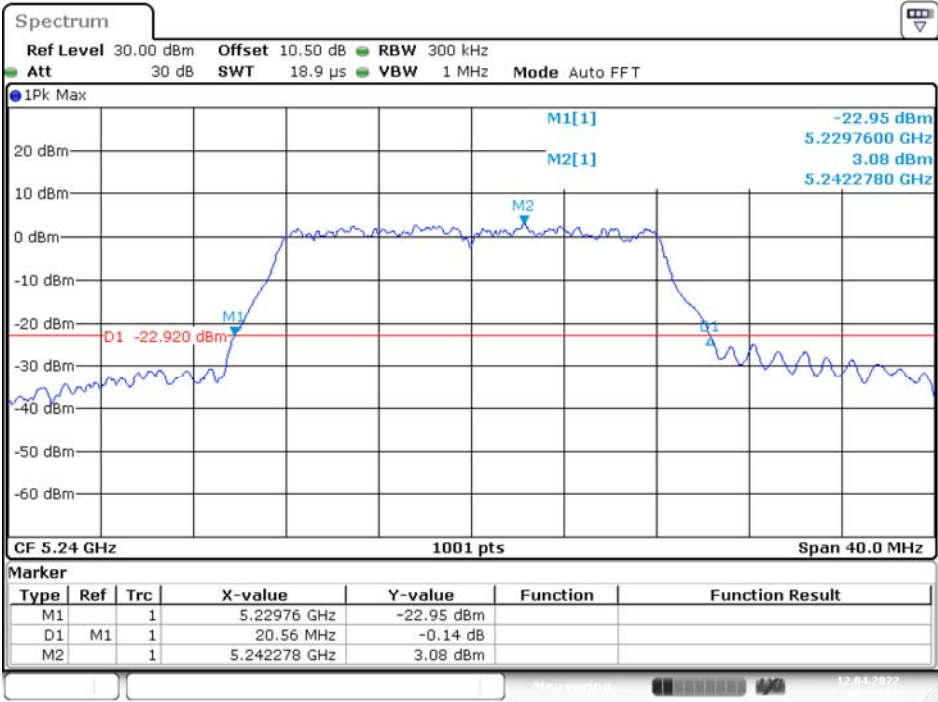
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5200MHz



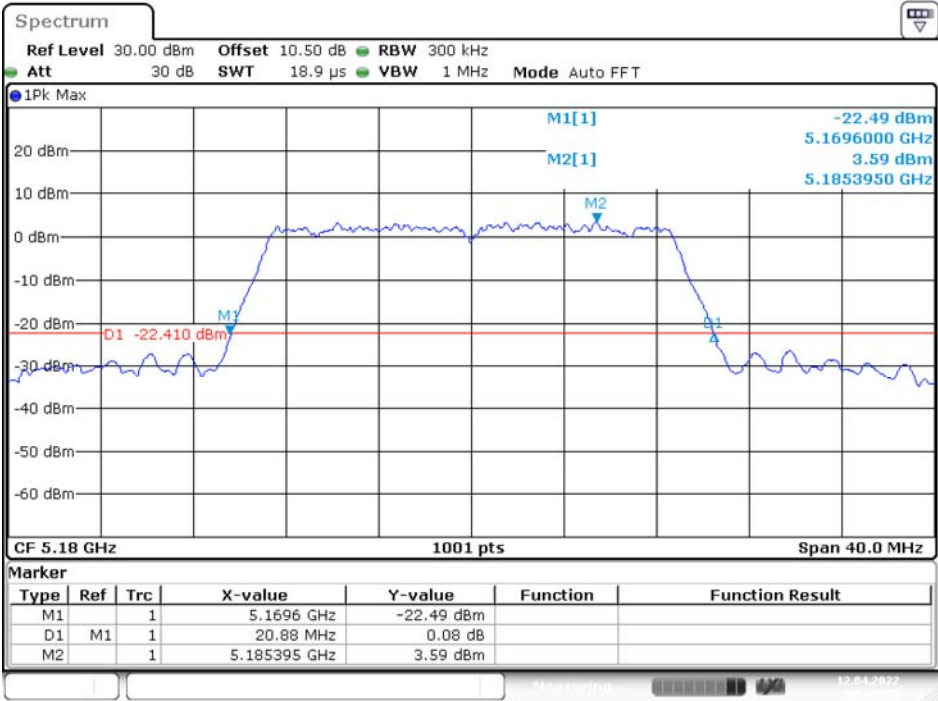
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5240MHz

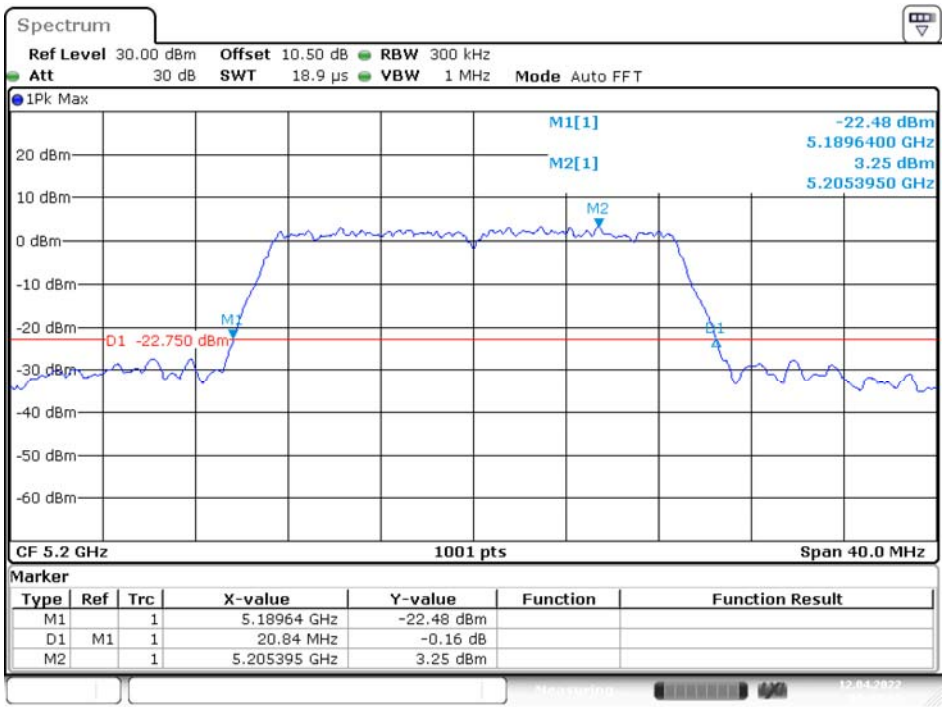


IEEE 802.11n HT20 Mode / 5150 ~ 5250MHz

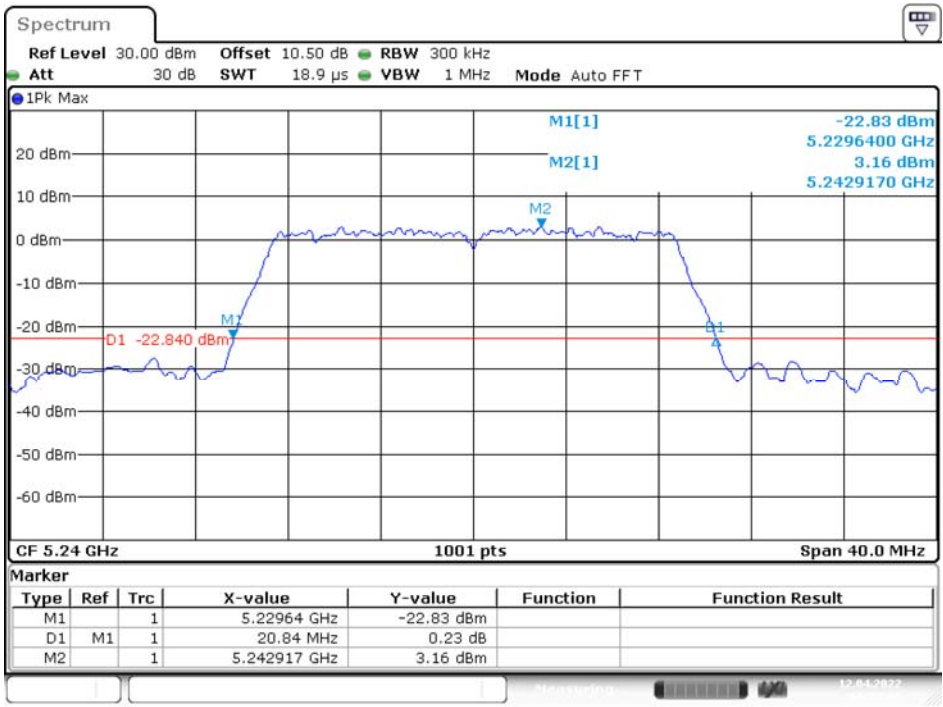
5180MHz



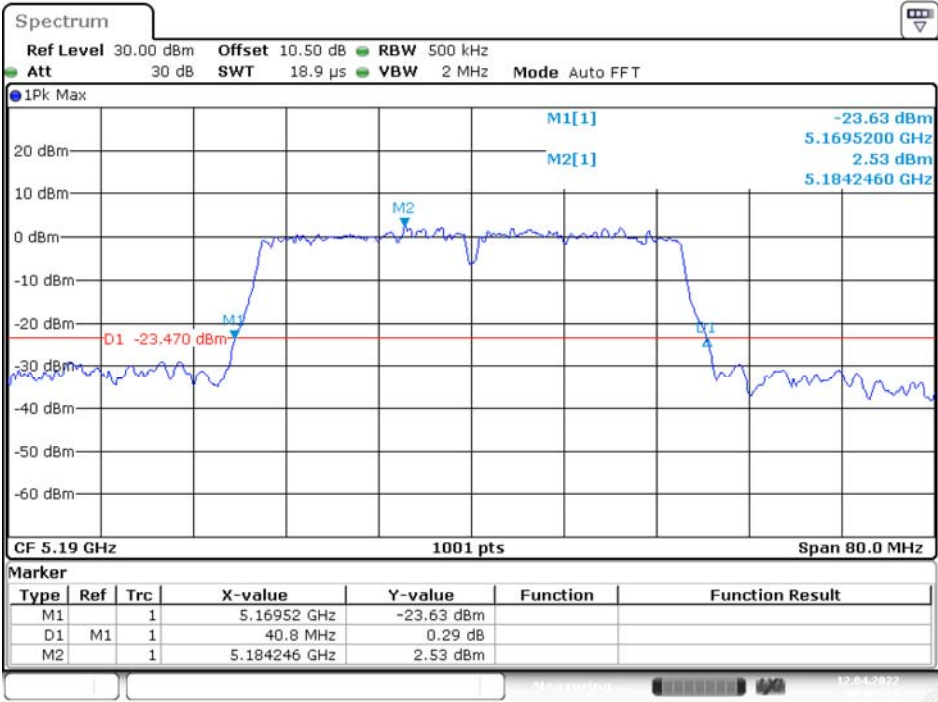
5200MHz



5240MHz

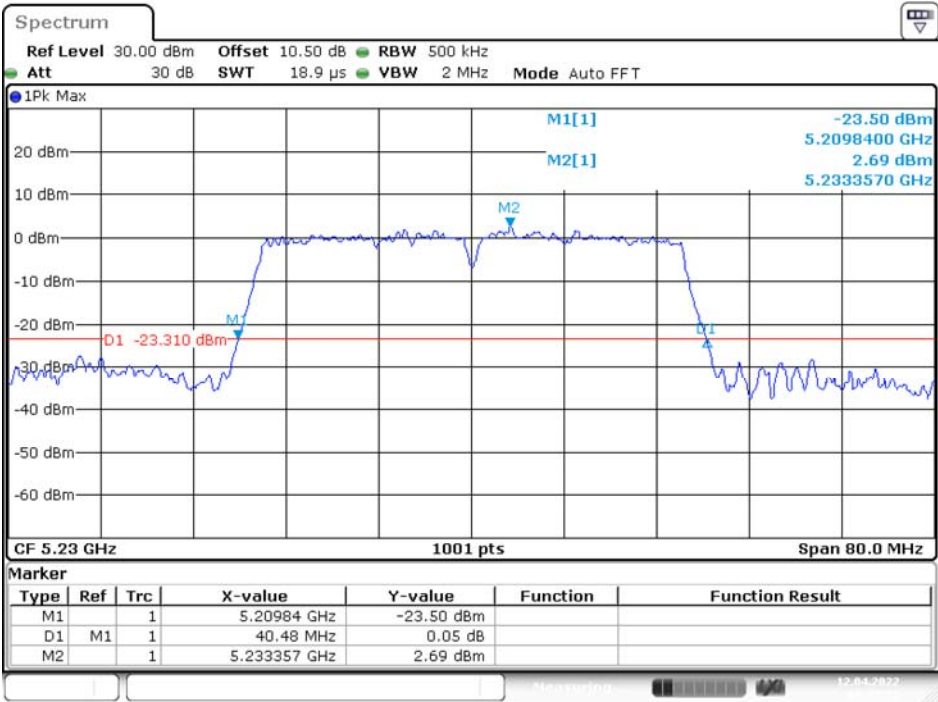


IEEE 802.11n HT40 Mode / 5150 ~ 5250MHz  
5190MHz



Date: 12.APR.2022 06:08:10

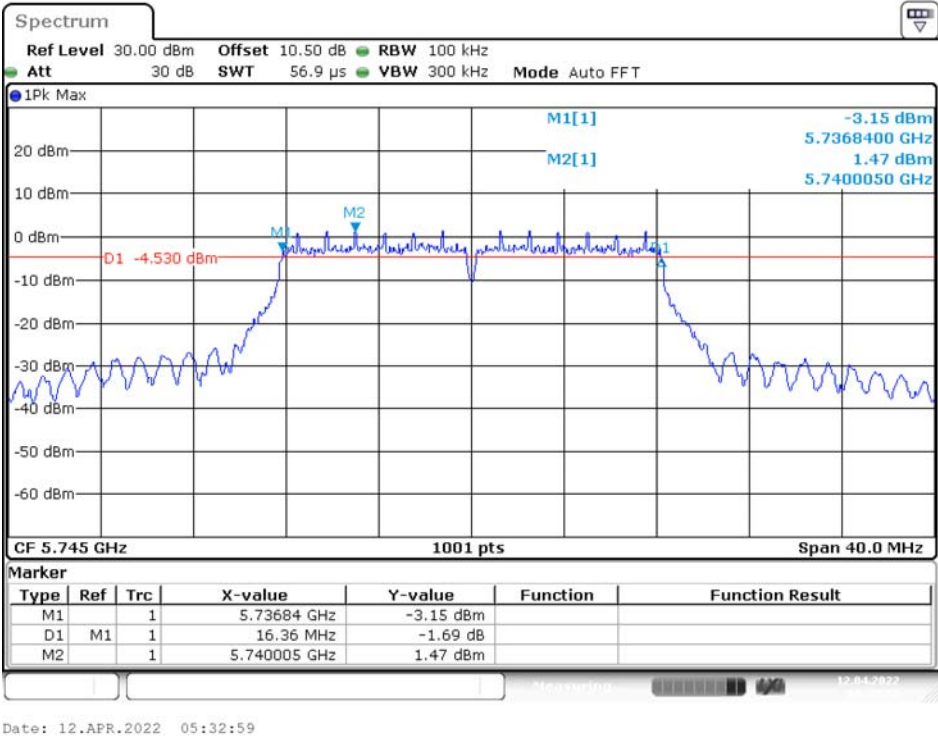
5230MHz



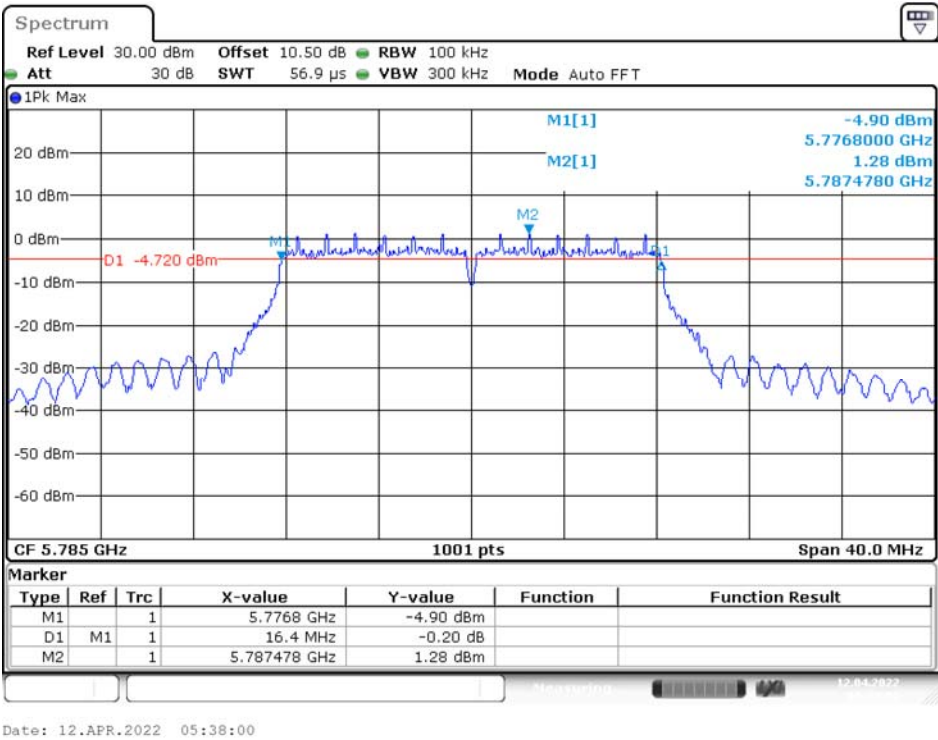
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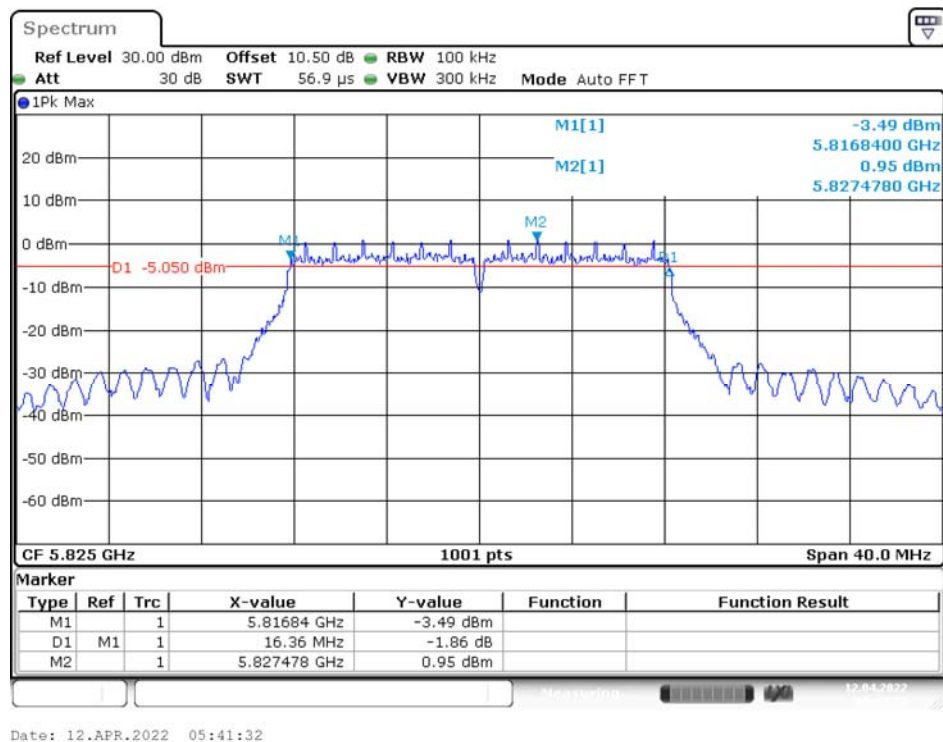
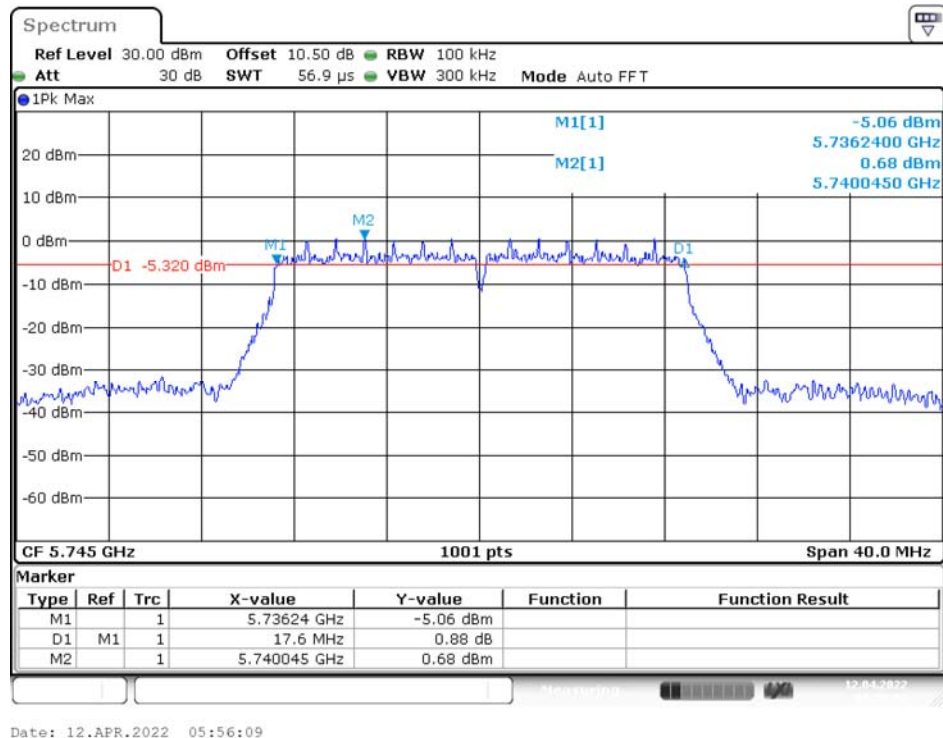
UNII-3 Band IV / BW 6dBc  
IEEE 802.11a Mode / 5725 ~ 5850MHz

5745MHz

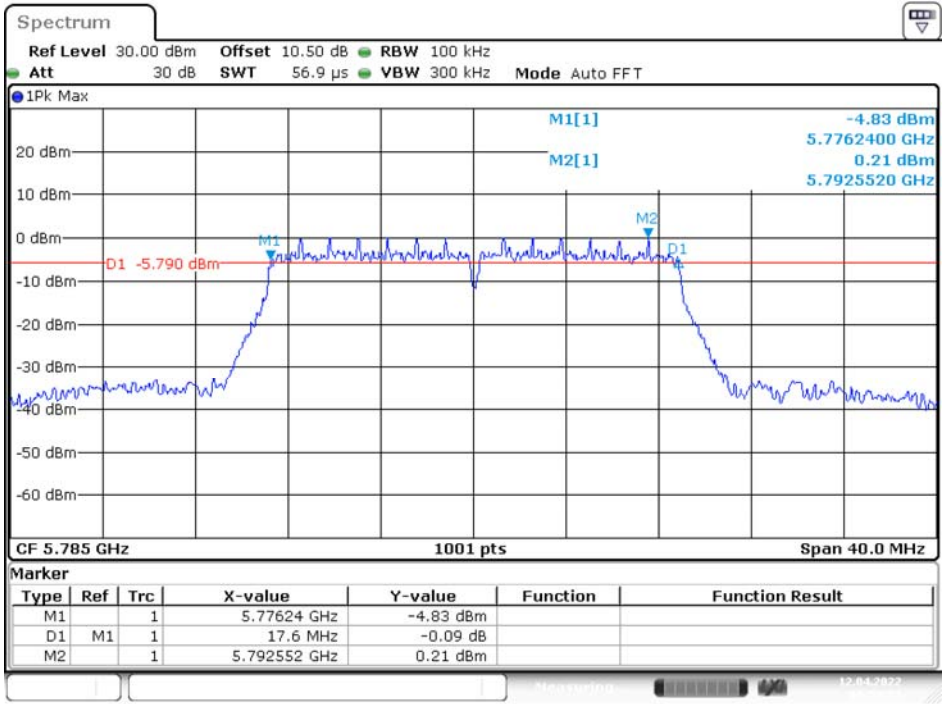


5785MHz



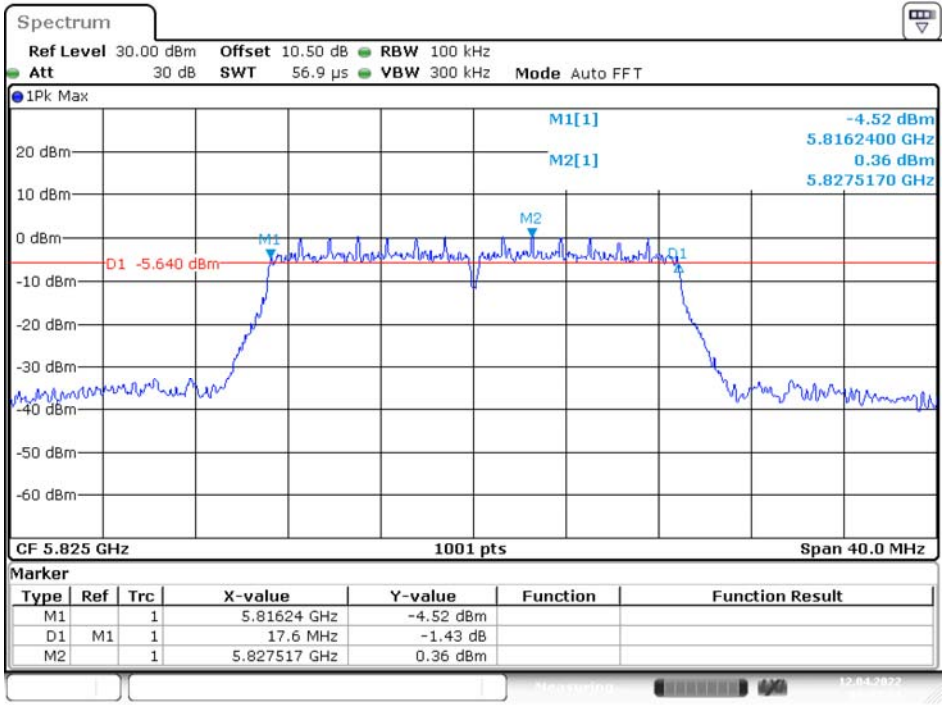
**5825MHz****IEEE 802.11n HT20 Mode / 5725 ~ 5850MHz****5745MHz**

5785MHz

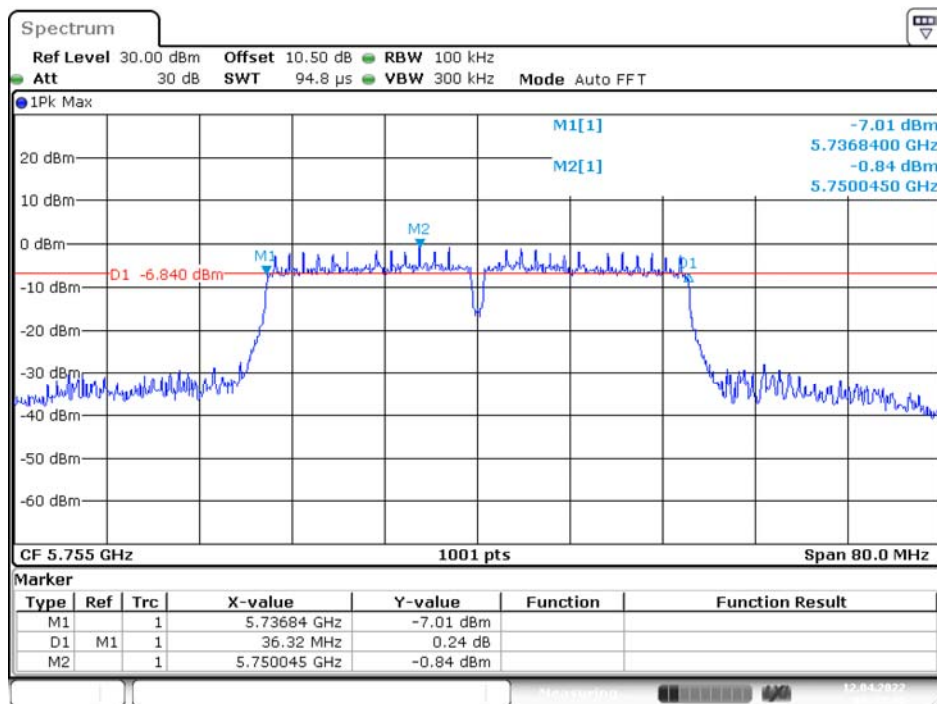
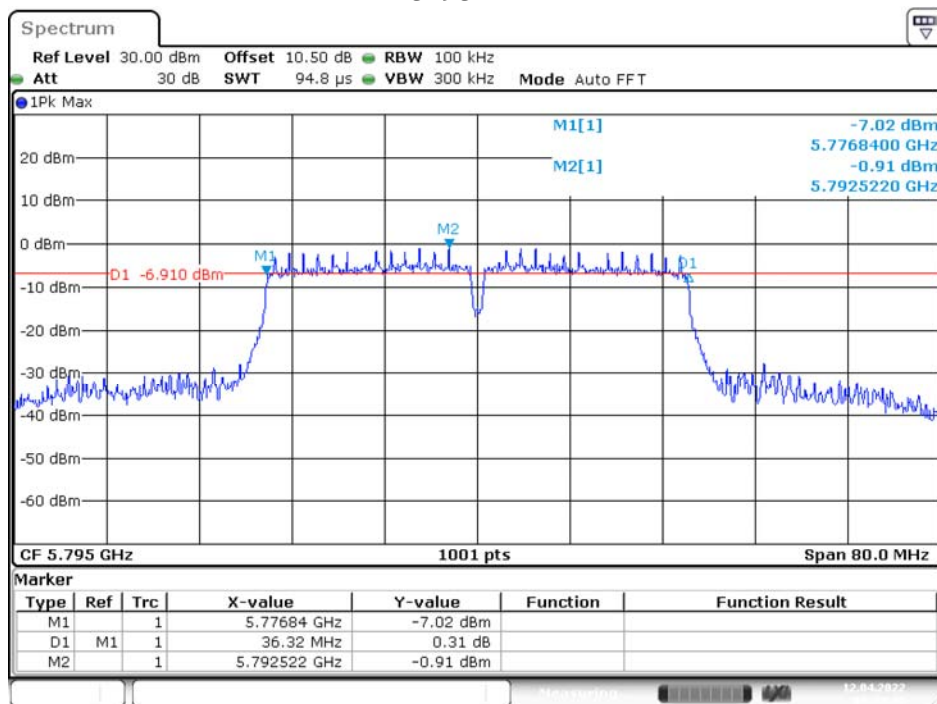


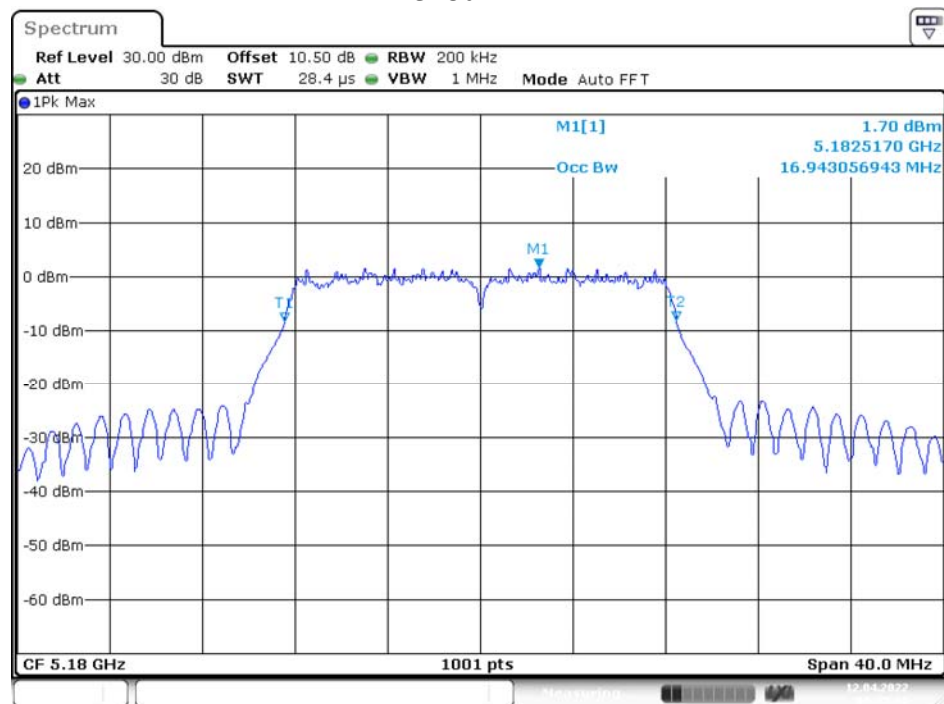
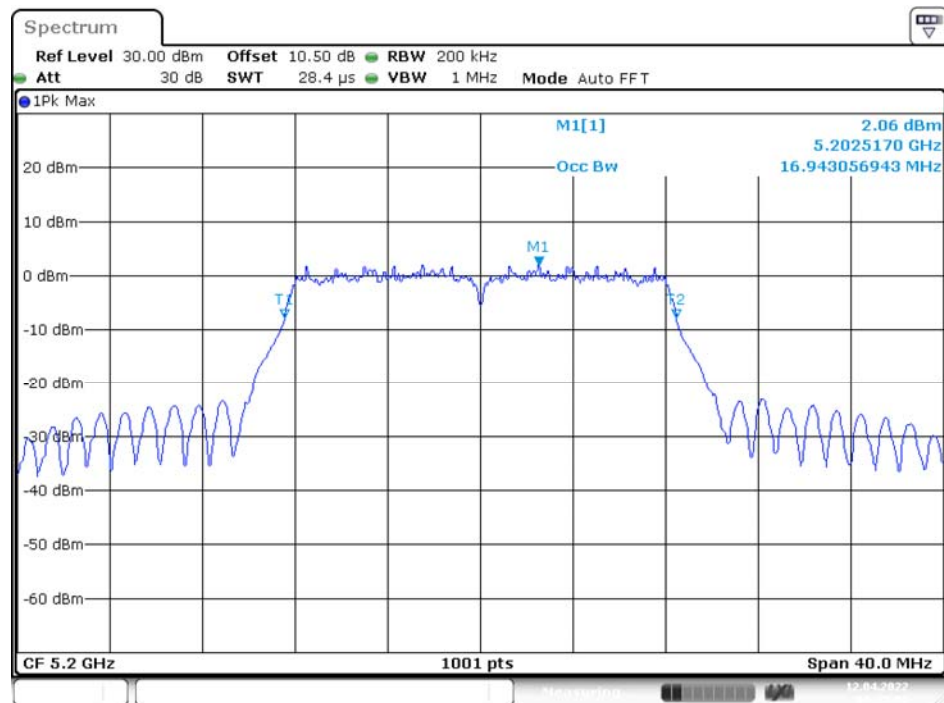
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5825MHz

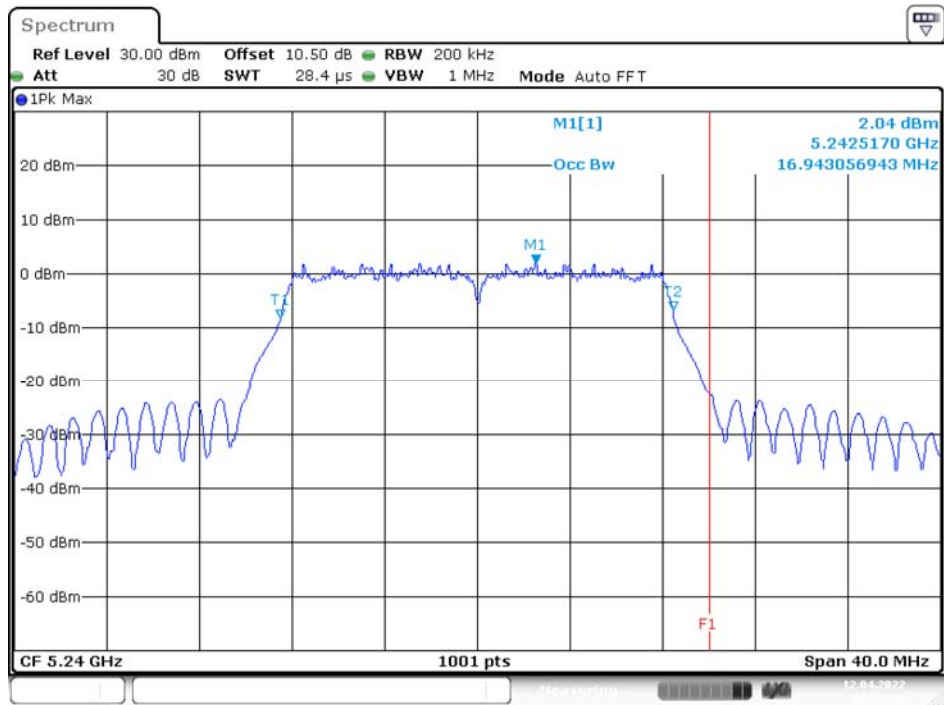


Date: 12.APR.2022 06:02:33

**IEEE 802.11n HT40 Mode / 5725 ~ 5850MHz**  
**5755MHz****5795MHz**

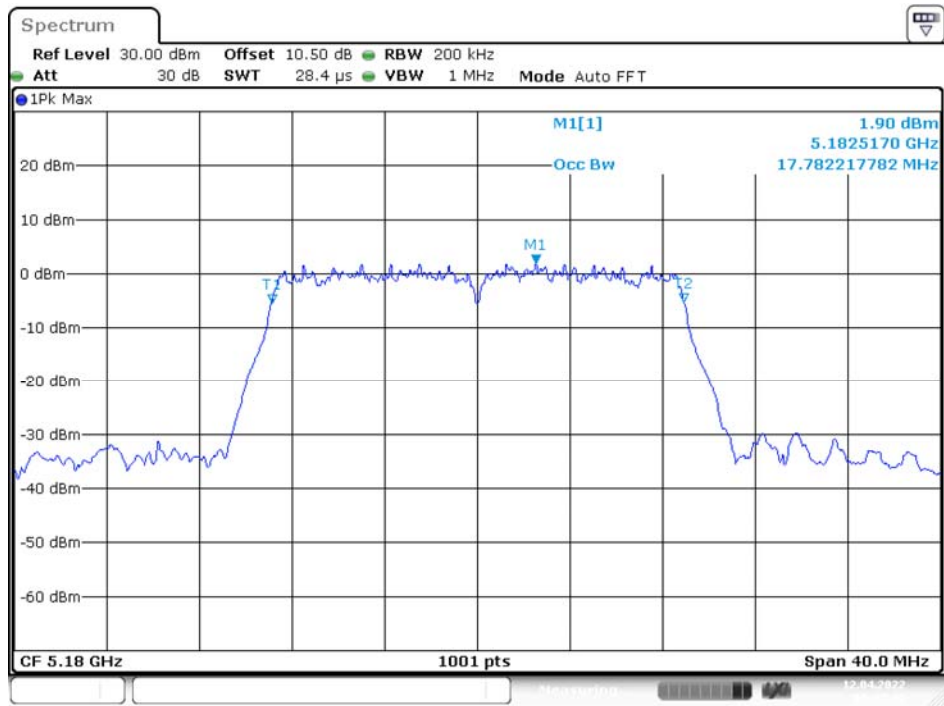
**UNII-1 Band I / OBW 99%****IEEE 802.11a Mode / 5150 ~ 5250MHz****5180MHz****5200MHz**

5240MHz

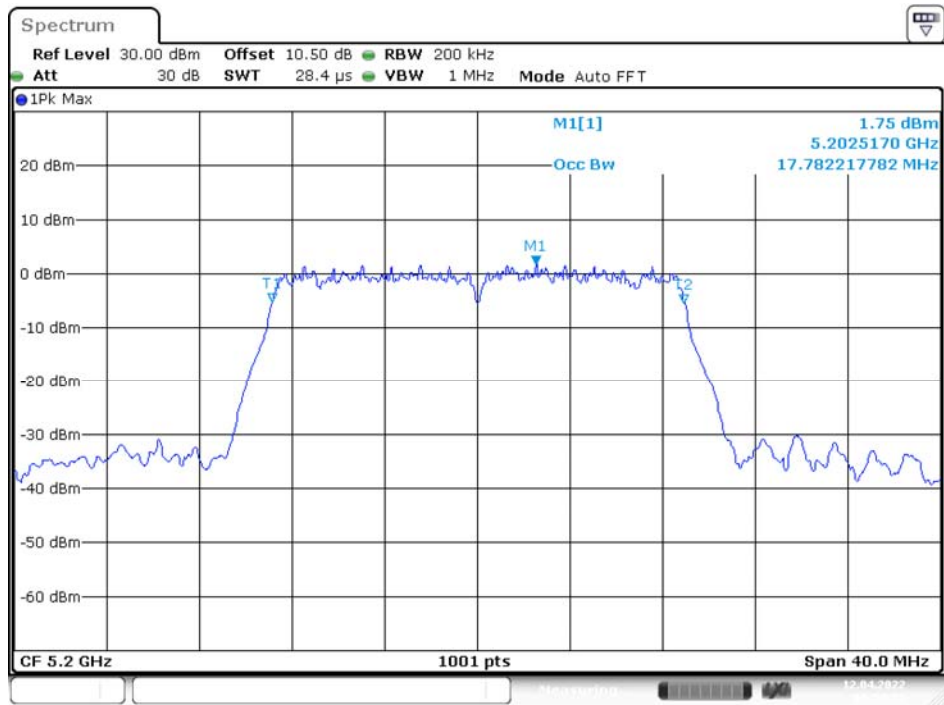


IEEE 802.11n HT20 Mode / 5150 ~ 5250MHz

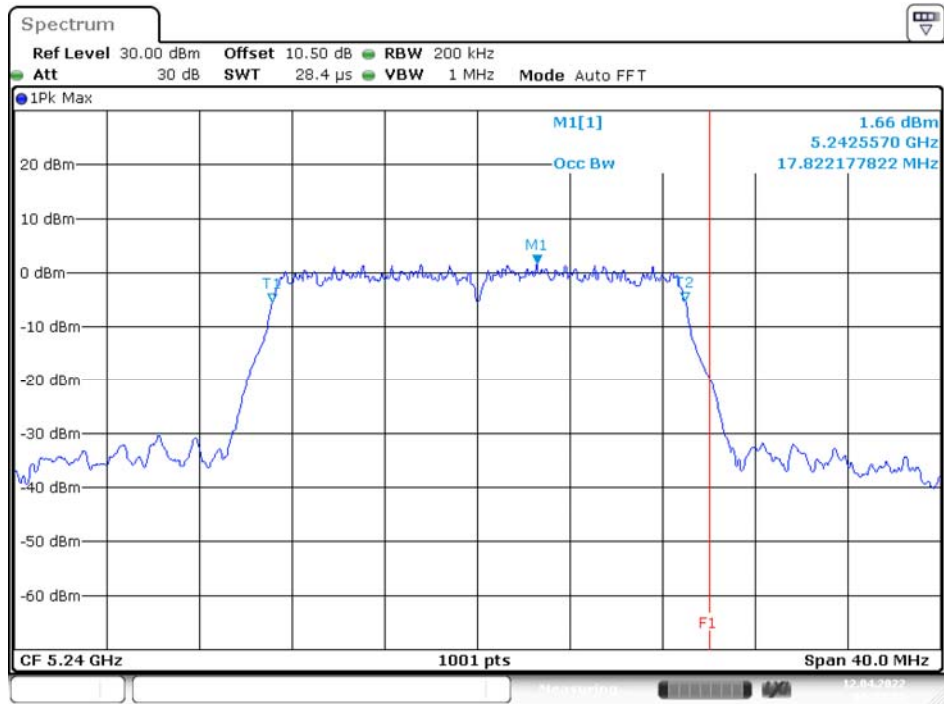
5180MHz



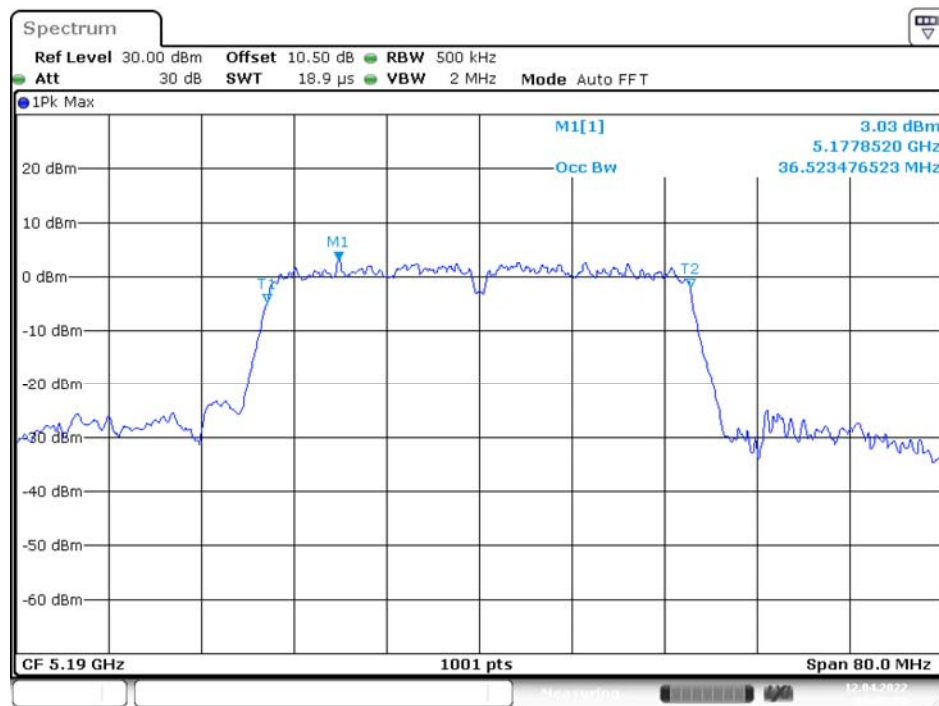
5200MHz



5240MHz

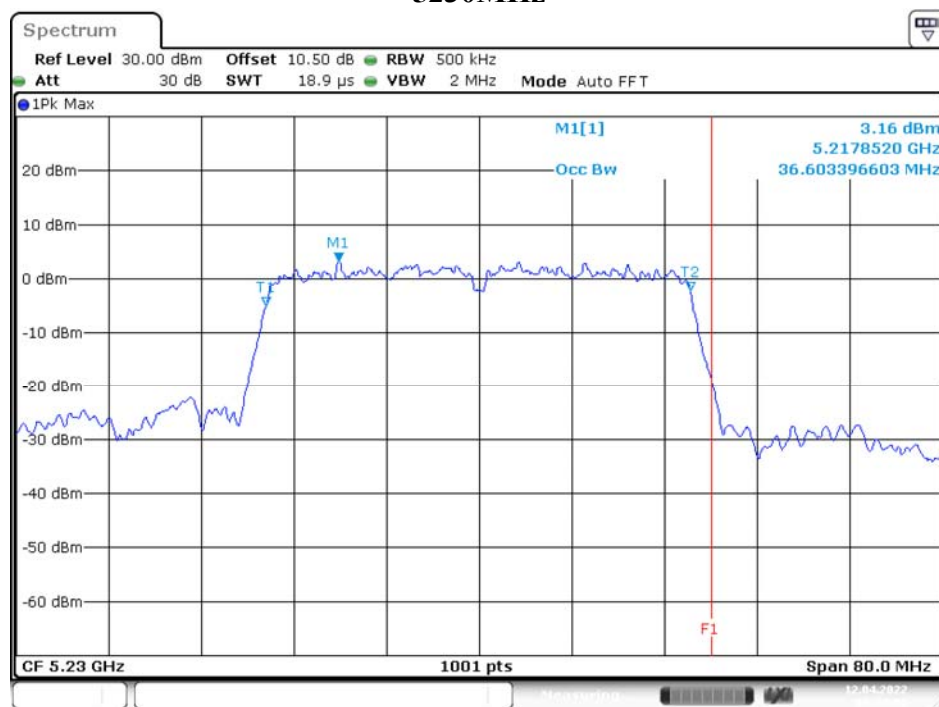


# IEEE 802.11n HT40 Mode / 5150 ~ 5250MHz 5190MHz

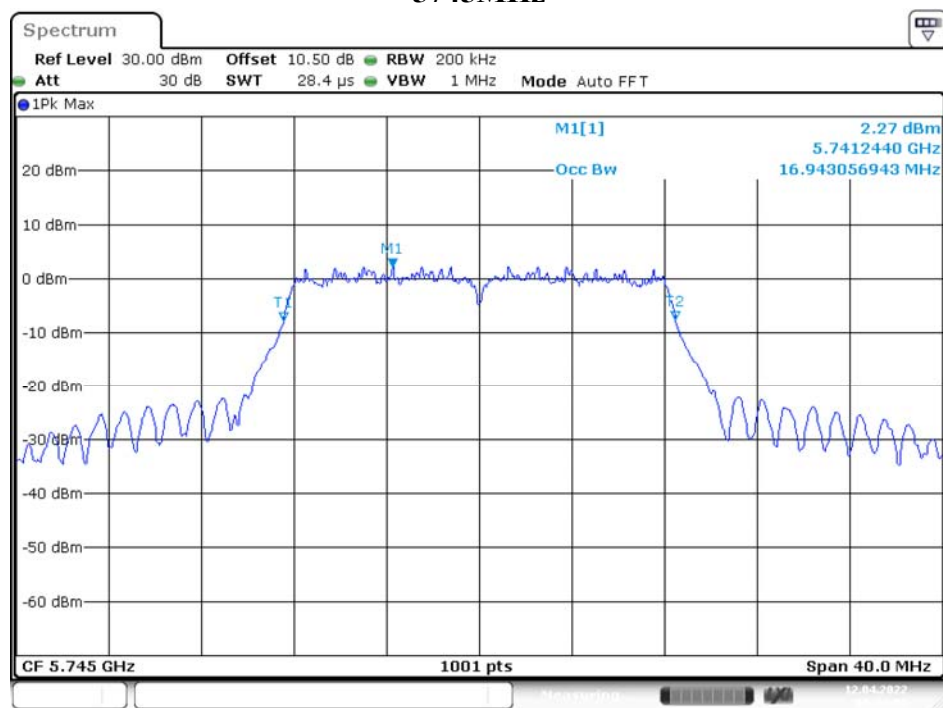


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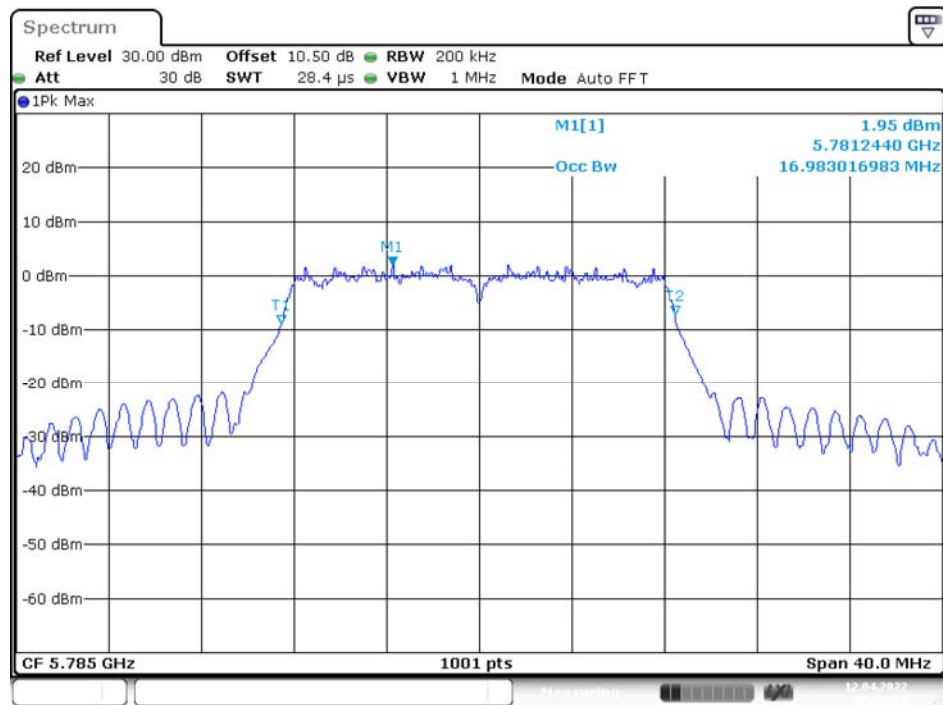
## 5230MHz



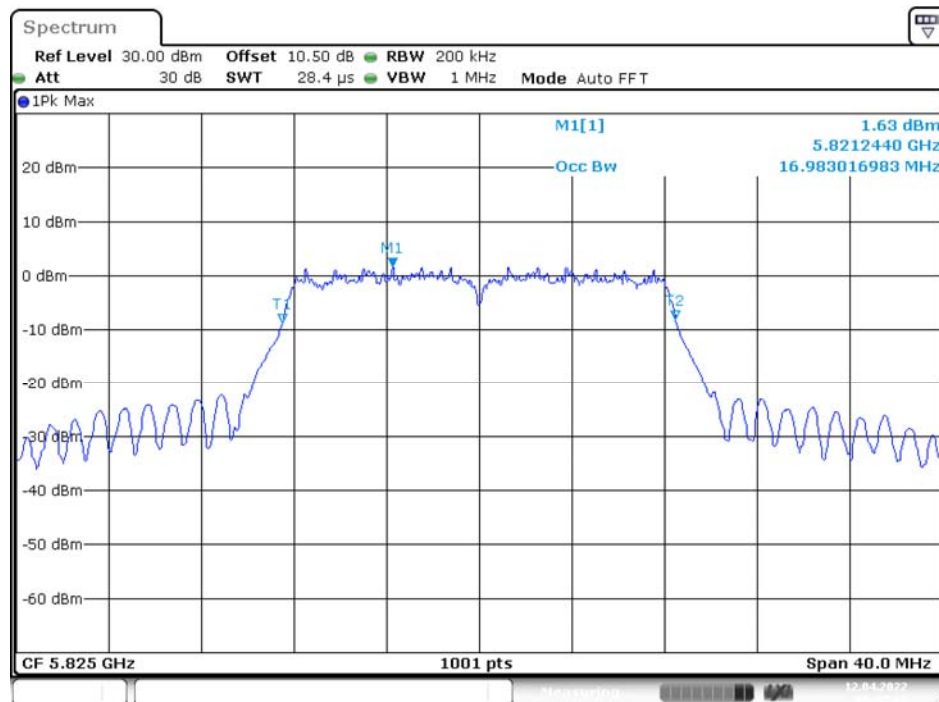
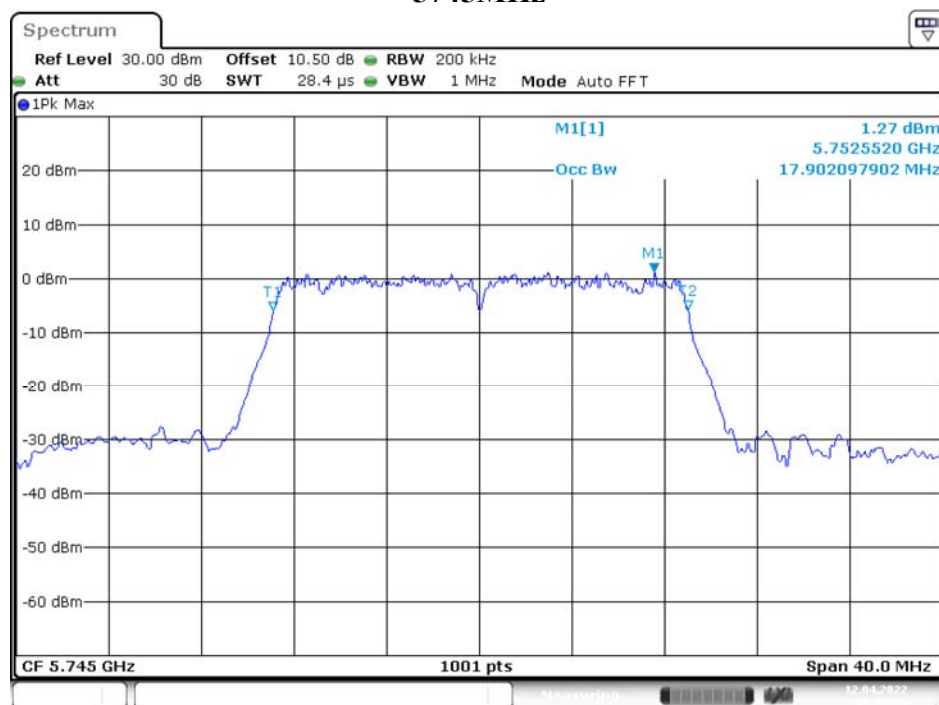
Date: 12.APR.2022 06:09:59

**UNII-3 Band IV / OBW 99%****IEEE 802.11a Mode / 5725 ~ 5850MHz****5745MHz**

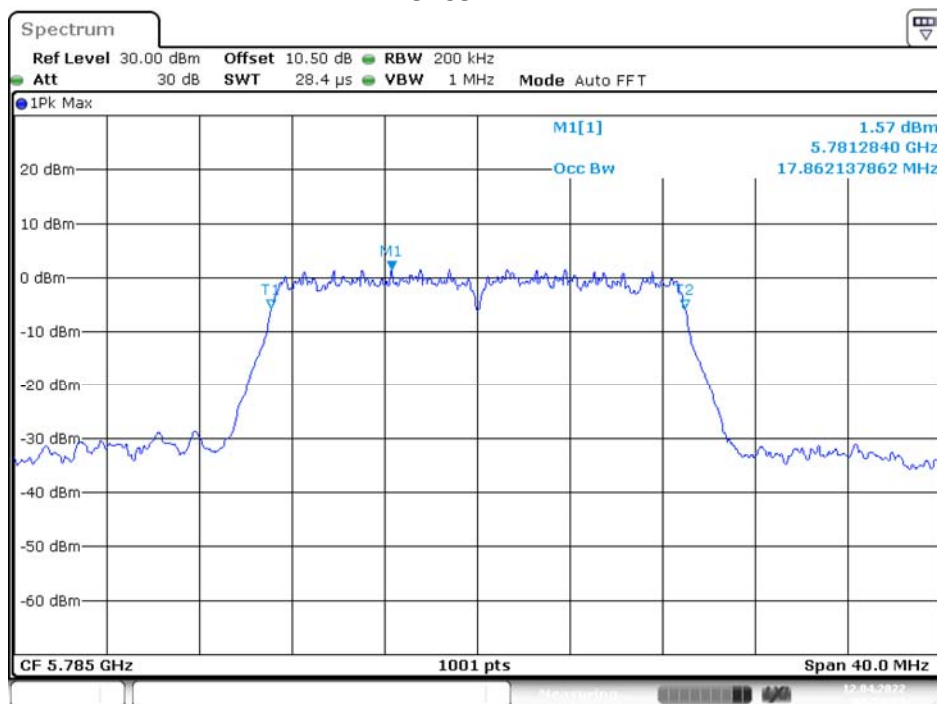
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**5785MHz**

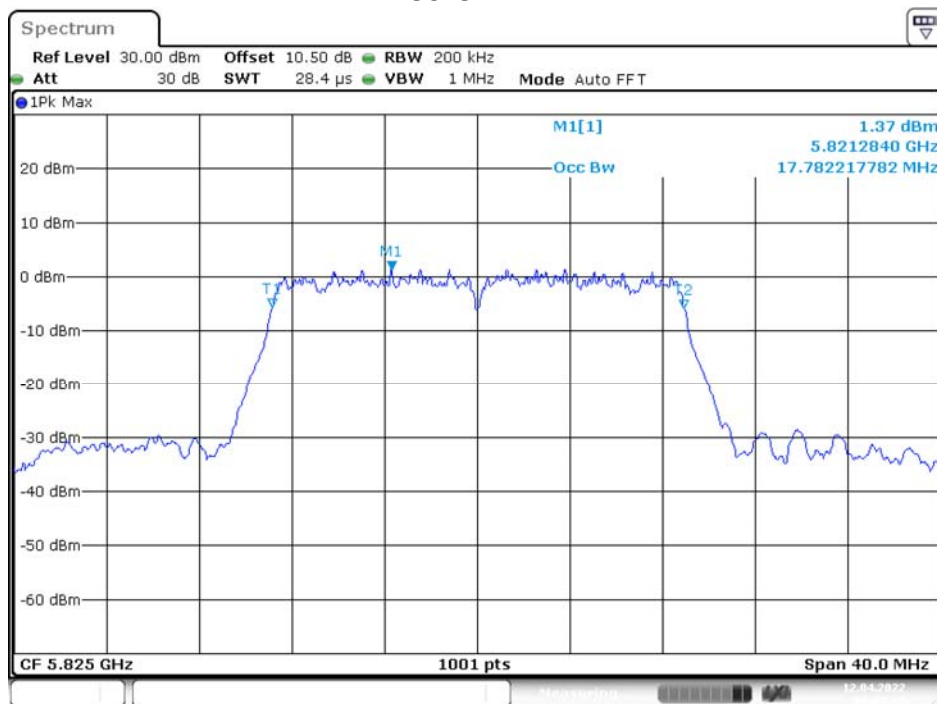
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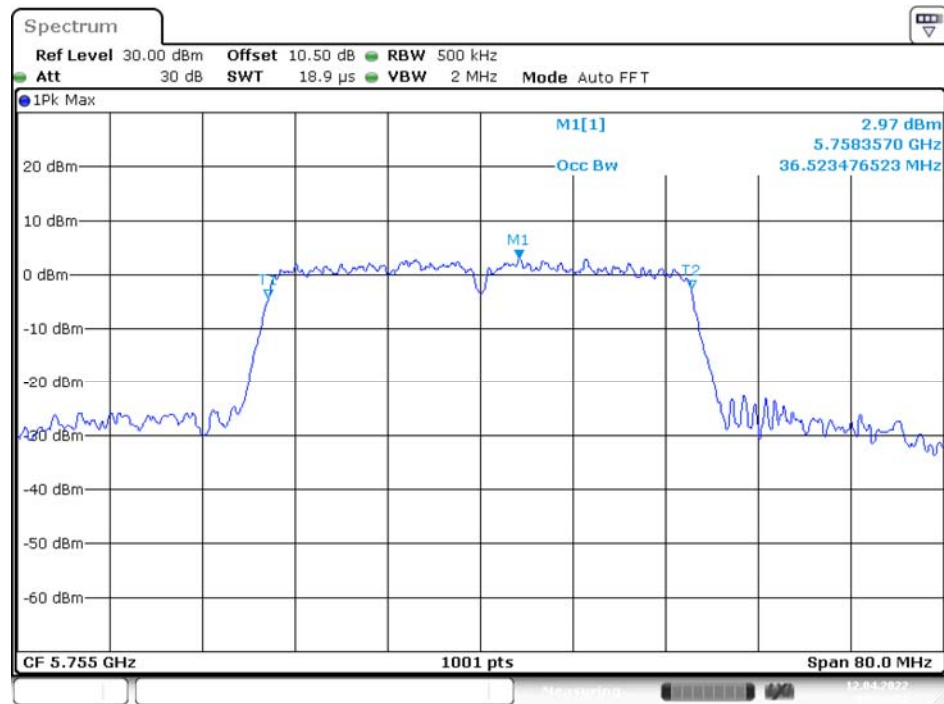
**5825MHz****IEEE 802.11n HT20 Mode / 5725 ~ 5850MHz****5745MHz**

### 5785MHz

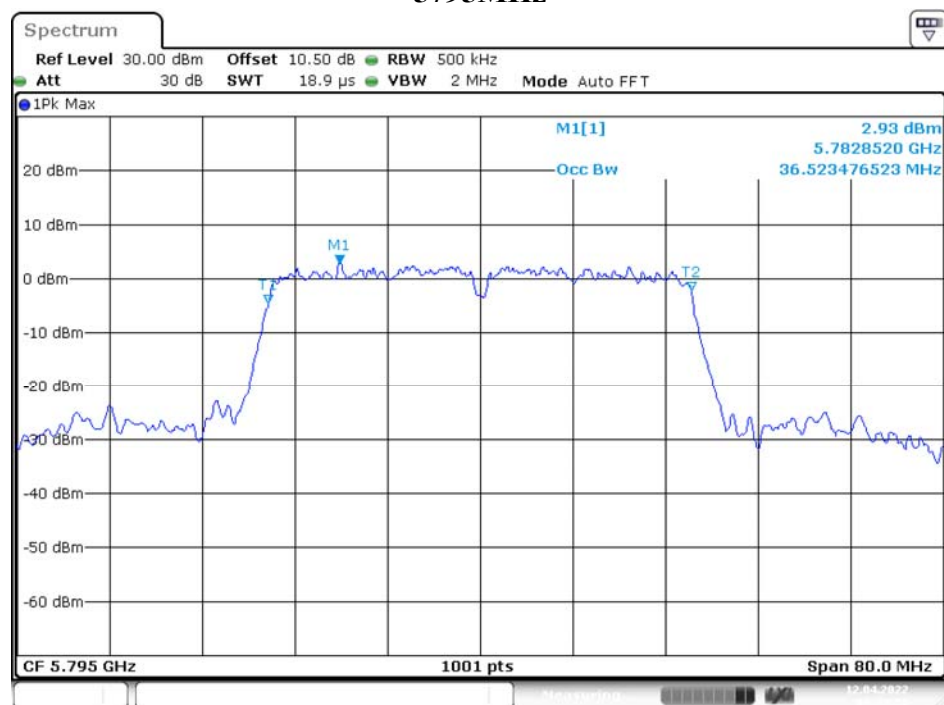


### 5825MHz



**IEEE 802.11n HT40 Mode / 5725 ~ 5850MHz**  
**5755MHz**

Date: 12.APR.2022 06:14:56

**5795MHz**

Date: 12.APR.2022 06:19:58

## **10 FCC §15.407(a) – Maximum Output Power**

### **10.1 Applicable Standard**

According to FCC §15.407(a):

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### **10.2 Test Procedure**

The use Power Meter

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Power sensor.

### 10.3 Test Results

#### Maximum Conducted Average Output Power

Test Mode: Transmitting

| UNII<br>Band | Mode         | Channel | Frequency<br>(MHz) | Maximum<br>Conducted Average<br>Output Power<br>(dBm) | Duty<br>Factor<br>(dB) | Total Maximum<br>Conducted Average<br>Output Power With<br>Duty Factor (dBm) | Limit<br>(dBm) |
|--------------|--------------|---------|--------------------|-------------------------------------------------------|------------------------|------------------------------------------------------------------------------|----------------|
| UNII-1       | 802.11a      | 36      | 5180               | 12.09                                                 | 0.04                   | 12.13                                                                        | 24             |
|              |              | 40      | 5200               | 12.25                                                 | 0.04                   | 12.29                                                                        | 24             |
|              |              | 48      | 5240               | 12.67                                                 | 0.04                   | 12.71                                                                        | 24             |
| UNII-3       |              | 149     | 5745               | 14.28                                                 | 0.04                   | 14.32                                                                        | 30             |
|              |              | 157     | 5785               | 13.86                                                 | 0.04                   | 13.90                                                                        | 30             |
|              |              | 165     | 5825               | 13.51                                                 | 0.04                   | 13.55                                                                        | 30             |
| UNII-1       | 802.11n HT20 | 36      | 5180               | 12.17                                                 | 0.00                   | 12.17                                                                        | 24             |
|              |              | 40      | 5200               | 12.32                                                 | 0.00                   | 12.32                                                                        | 24             |
|              |              | 48      | 5240               | 12.62                                                 | 0.00                   | 12.62                                                                        | 24             |
| UNII-3       |              | 149     | 5745               | 13.90                                                 | 0.00                   | 13.90                                                                        | 30             |
|              |              | 157     | 5785               | 13.72                                                 | 0.00                   | 13.72                                                                        | 30             |
|              |              | 165     | 5825               | 13.43                                                 | 0.00                   | 13.43                                                                        | 30             |
| UNII-1       | 802.11n HT40 | 38      | 5190               | 13.42                                                 | 0.04                   | 13.46                                                                        | 24             |
|              |              | 46      | 5230               | 13.28                                                 | 0.04                   | 13.32                                                                        | 24             |
| UNII-3       |              | 151     | 5755               | 13.56                                                 | 0.04                   | 13.60                                                                        | 30             |
|              |              | 159     | 5795               | 13.21                                                 | 0.04                   | 13.25                                                                        | 30             |

Note: The maximum antenna gain is 2.87 dBi.

## **11 FCC § 15.407(a) – Power Spectral Density**

### **11.1 Applicable Standard**

According to FCC §15.407(a):

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### **11.2 Test Procedure**

The measurements are base on FCC KDB 789033 D02 General UNII Test Proceidyres New Rules v02r01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section F: Maximum power spectral density (PPSD)

**11.3 Test Results**

Test Mode: Transmitting

| UNII Band | Mode         | Channel | Frequency (MHz) | Power Spectral Density (dBm/MHz)    | Duty Factor (dB) | Power Spectral Density with duty factor (dBm/MHz)    | Limit (dBm/MHz)    |
|-----------|--------------|---------|-----------------|-------------------------------------|------------------|------------------------------------------------------|--------------------|
| UNII-1    | 802.11a      | 36      | 5180            | 8.61                                | 0.04             | 8.65                                                 | 11                 |
|           |              | 40      | 5200            | 10.22                               | 0.04             | 10.26                                                | 11                 |
|           |              | 48      | 5240            | 10.49                               | 0.04             | 10.53                                                | 11                 |
|           | 802.11n HT20 | 36      | 5180            | 8.62                                | 0                | 8.62                                                 | 11                 |
|           |              | 40      | 5200            | 8.43                                | 0                | 8.43                                                 | 11                 |
|           |              | 48      | 5240            | 8.36                                | 0                | 8.36                                                 | 11                 |
|           | 802.11n HT40 | 38      | 5190            | 5.85                                | 0.04             | 5.89                                                 | 11                 |
|           |              | 46      | 5230            | 6.33                                | 0.04             | 6.37                                                 | 11                 |
| UNII Band | Mode         | Channel | Frequency (MHz) | Power Spectral Density (dBm/500kHz) | Duty Factor (dB) | Power Spectral Density with duty factor (dBm/500kHz) | Limit (dBm/500kHz) |
| UNII-3    | 802.11a      | 149     | 5745            | 5.94                                | 0.04             | 5.98                                                 | 30                 |
|           |              | 157     | 5785            | 5.82                                | 0.04             | 5.86                                                 | 30                 |
|           |              | 165     | 5825            | 5.56                                | 0.04             | 5.60                                                 | 30                 |
|           | 802.11n HT20 | 149     | 5745            | 5.51                                | 0                | 5.51                                                 | 30                 |
|           |              | 157     | 5785            | 4.67                                | 0                | 4.67                                                 | 30                 |
|           |              | 165     | 5825            | 5.01                                | 0                | 5.01                                                 | 30                 |
|           | 802.11n HT40 | 151     | 5755            | 3.18                                | 0.04             | 3.22                                                 | 30                 |
|           |              | 159     | 5795            | 2.99                                | 0.04             | 3.03                                                 | 30                 |

Note: The maximum antenna gain is 2.87 dBi.

Please refer to the following plots

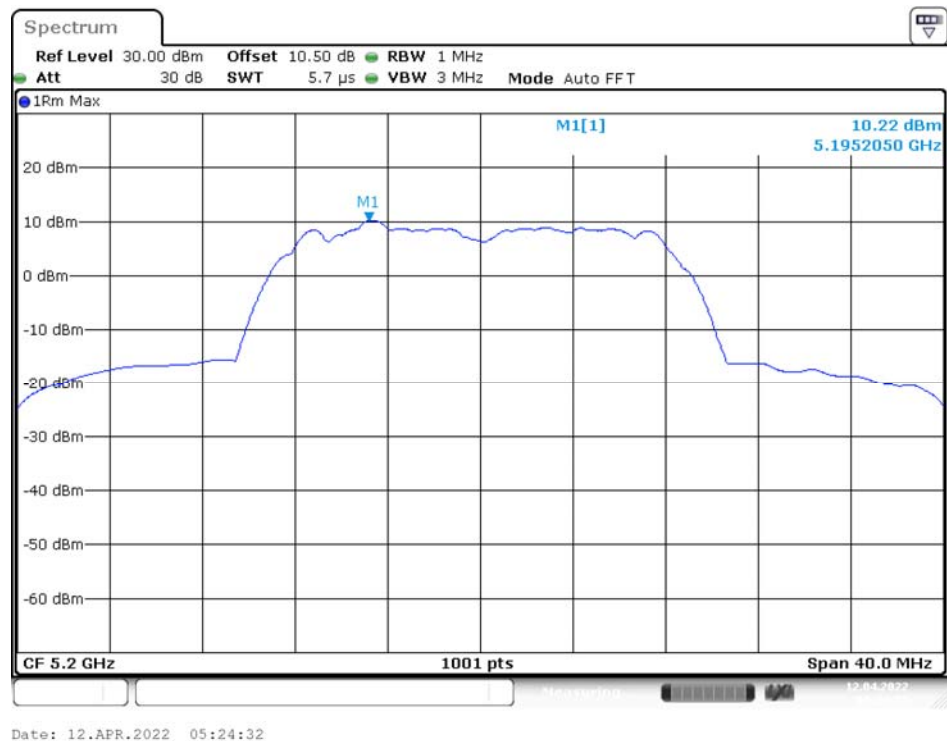
## UNII-1 Band I PSD

IEEE 802.11a Mode / 5150 ~ 5250MHz

5180MHz



5200MHz



5240MHz



IEEE 802.11n HT20 Mode / 5150 ~ 5250MHz

5180MHz



5200MHz

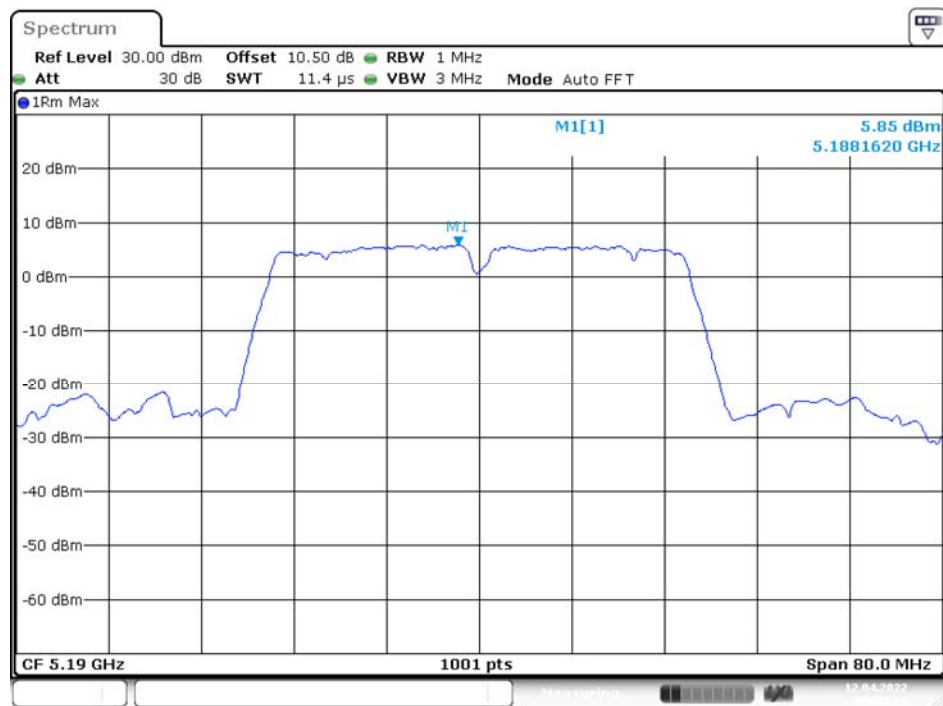
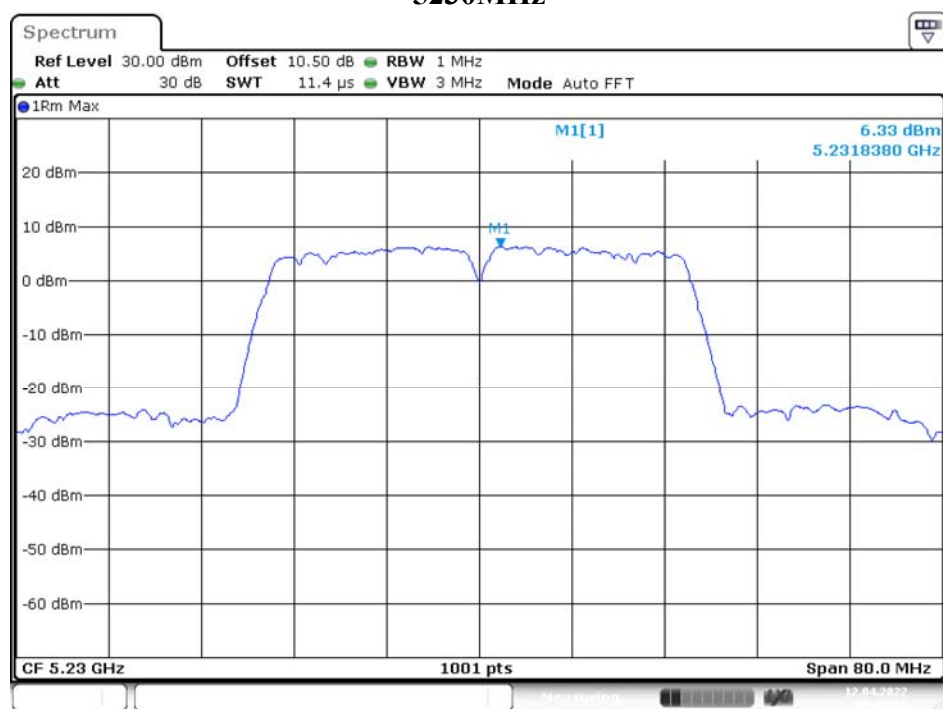


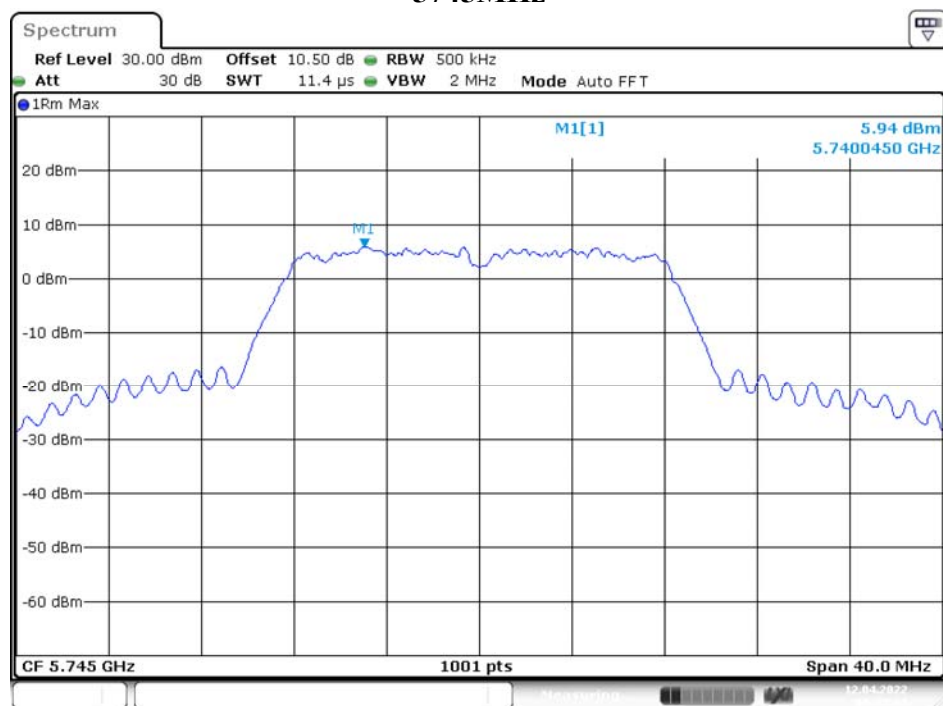
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5240MHz

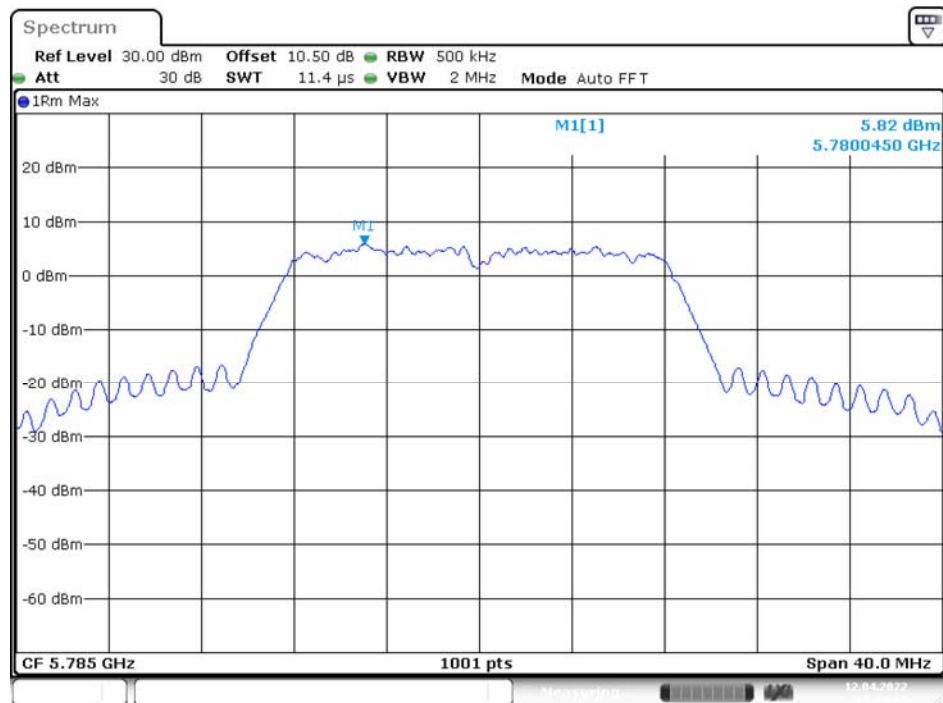


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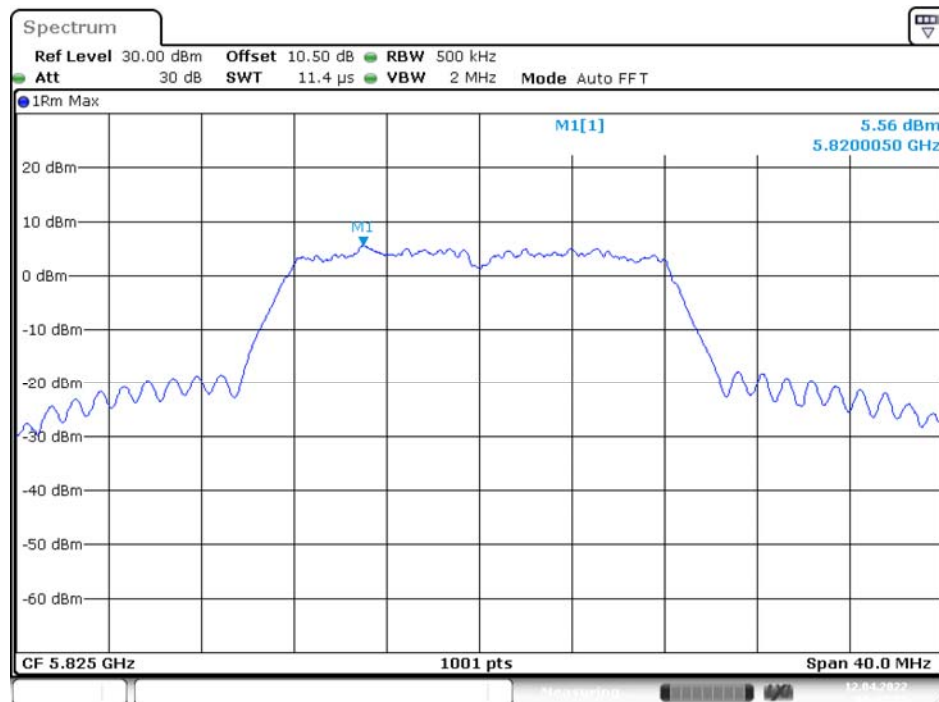
**IEEE 802.11n HT40 Mode / 5150 ~ 5250MHz**  
**5190MHz****5230MHz**

**UNII-3 Band IV PSD****IEEE 802.11a mode / 5725 ~ 5850MHz****5745MHz**

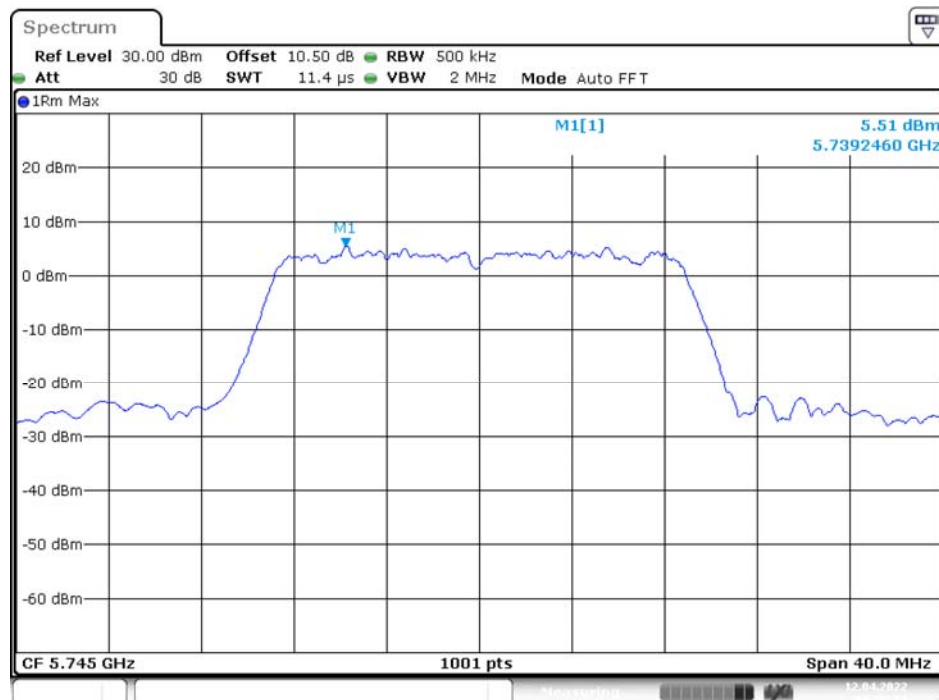
Date: 12.APR.2022 05:33:41

**5785MHz**

Date: 12.APR.2022 05:38:42

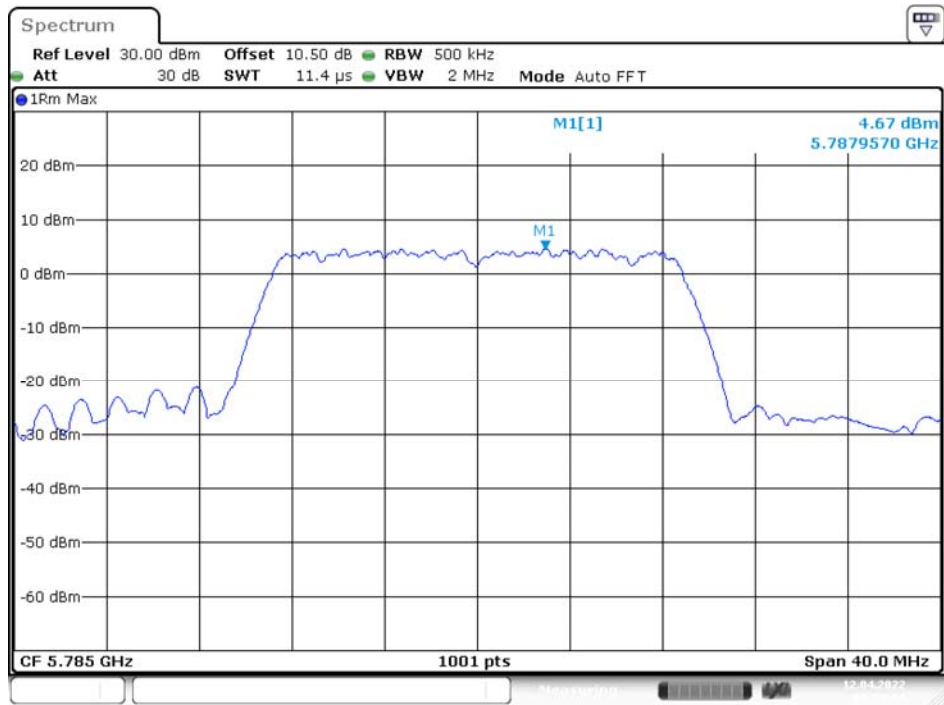
**5825MHz**

Date: 12.APR.2022 05:42:15

**IEEE 802.11n HT20 Mode / 5725 ~ 5850MHz****5745MHz**

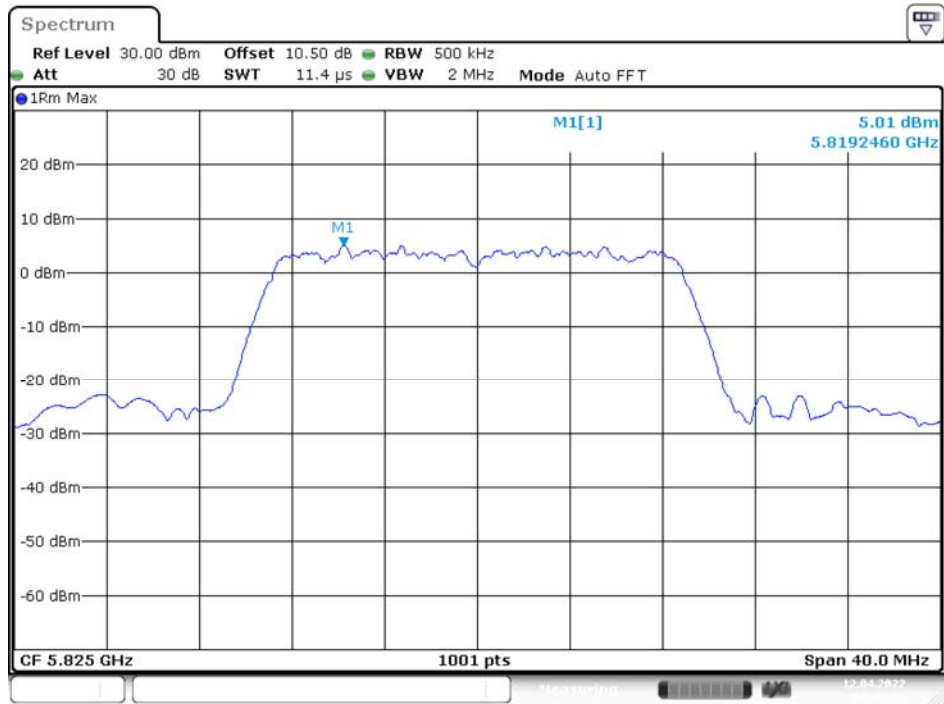
Date: 12.APR.2022 05:56:51

5785MHz

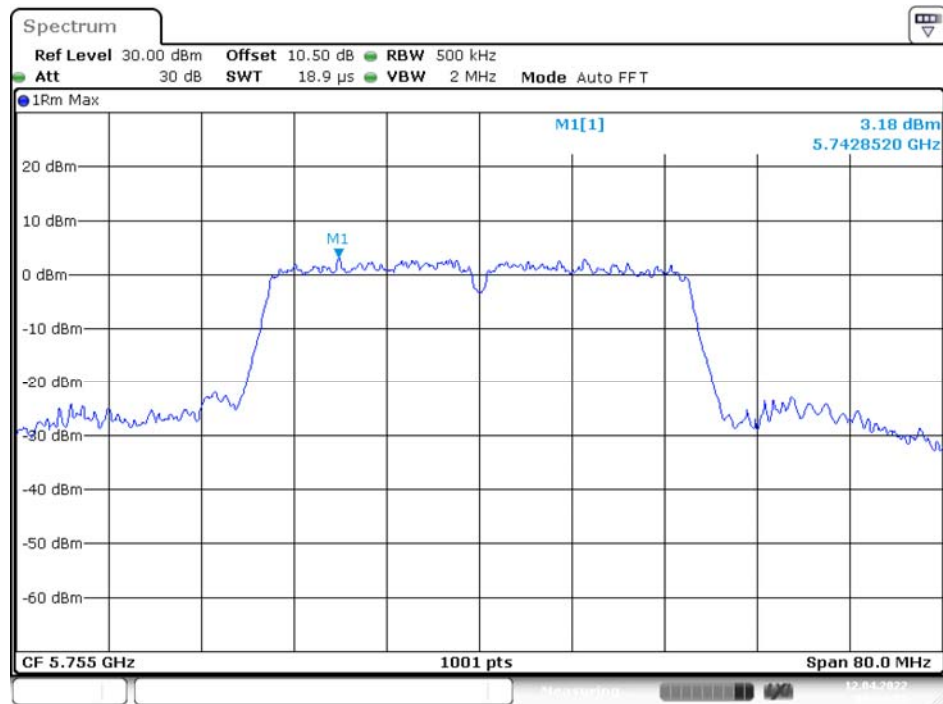
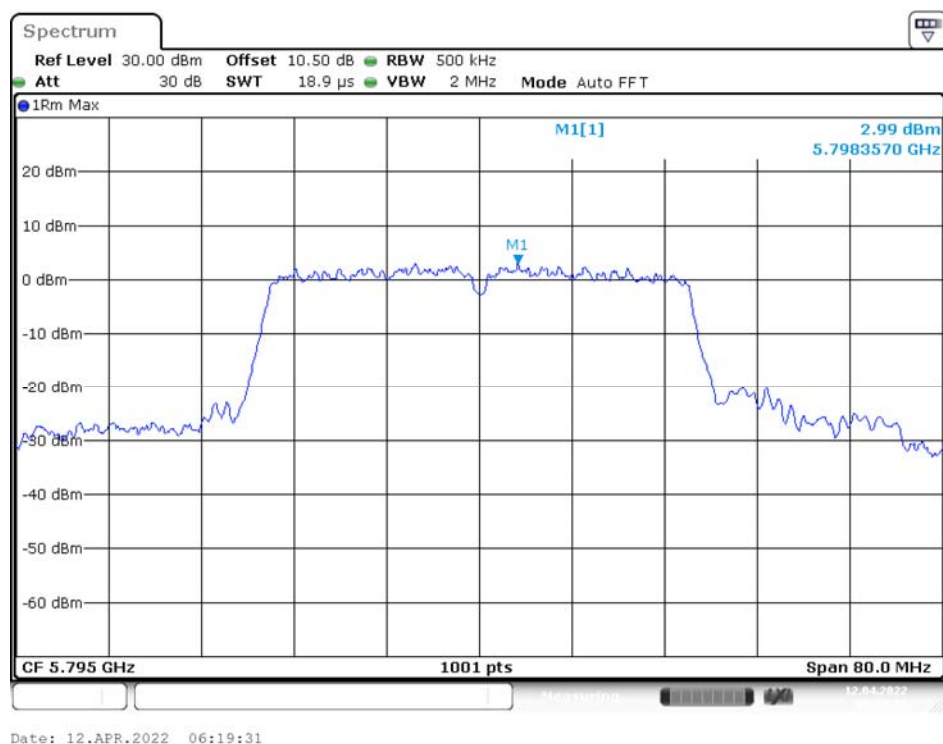


Date: 12.APR.2022 05:59:04

5825MHz



Date: 12.APR.2022 06:03:16

**IEEE 802.11n HT40 Mode / 5725 ~ 5850MHz**  
**5755MHz****5795MHz****\*\*\*\*\* END OF REPORT \*\*\*\*\***